30% DESIGN SUBMITTAL

WHITE CREEK MAINTENANCE DREDGING PROJECT

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DRAWING INDEX		
SHEET NUMBER	SHEET TITLE	SHEET DESCRIPTION
1	T-01	COVER SHEET
2	G-01	GENERAL NOTES AND LEGEND
3	G-02	SITE LAYOUT PLAN
4	G-03	STAGING AREA PLAN
5	EC-01	EXISTING CONDITIONS - DREDGING LIMITS
6	EC-02	EXISTING CONDITIONS - THIN LAYER PLACEMENT AREA
7	C-01	CHANNEL DREDGING PLAN - SHEET 1 OF 7
8	C-02	CHANNEL DREDGING PLAN - SHEET 2 OF 7
9	C-03	CHANNEL DREDGING PLAN - SHEET 3 OF 7
10	C-04	CHANNEL DREDGING PLAN - SHEET 4 OF 7
11	C-05	CHANNEL DREDGING PLAN - SHEET 5 OF 7
12	C-06	CHANNEL DREDGING PLAN - SHEET 6 OF 7
13	C-07	CHANNEL DREDGING PLAN - SHEET 7 OF 7
14	C-08	ASSAWOMAN CANAL DREDGING PLAN 1 OF 1
15	C-101	MAIN CHANNEL TYPICAL DREDGING CROSS SECTIONS 0+00 TO 23+00
16	C-102	MAIN CHANNEL TYPICAL DREDGING CROSS SECTIONS 24+00 TO 47+00
17	C-103	MAIN CHANNEL TYPICAL DREDGING CROSS SECTIONS 48+00 TO 71+00
18	C-104	MAIN CHANNEL TYPICAL DREDGING CROSS SECTIONS 72+00 TO 95+00
19	C-105	MAIN CHANNEL TYPICAL DREDGING CROSS SECTIONS 96+00 TO 119+00
20	C-106	MAIN CHANNEL TYPICAL DREDGING CROSS SECTIONS 120+00 TO 124+00
21	C-107	WESTERN PRONG TYPICAL DREDGING CROSS SECTIONS 200+00 TO 226+00
22	C-108	WESTERN PRONG TYPICAL DREDGING CROSS SECTIONS 227+00 TO 241+00
23	C-109	EASTERN PRONG TYPICAL DREDGING CROSS SECTIONS 300+00 TO 326+00
24	C-110	ASSAWOMAN CANAL TYPICAL CROSS SECTIONS 400+00 TO 423+00
25	E-101	THIN LAYER PLACEMENT AREA PLAN
26	E-102	THIN LAYER PLACEMENT AREA CROSS SECTIONS (1 OF 2)
27	E-103	THIN LAYER PLACEMENT CROSS SECTIONS (2 OF 2)
28	E-104	THIN LAYER PLACEMENT AREA CONTAINMENT TYPICAL DETAILS
29	E-105	TEMPORARY EROSION AND SEDIMENTATION CONTROL DETAILS
30	E-106	TEMPORARY EROSION AND SEDIMENTATION CONTROL DETAILS

NOTES:

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

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

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

DRAFT-NOT FOR CONSTRUCTION

ANCHOR QEA WOODS HOLE GROUP JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: S. BAGNULL
DRAWN BY: C. YARD
CHECKED BY: T. MERRITTS
APPROVED BY: R. MOHAN
SCALE: AS NOTED
DATE: MARCH 2022

WHITE CREEK MAINTENANCE DREDGING PROJECT
SUSSEX COUNTY, DELAWARE

COVER SHEET

T-01

SHEET # 1 OF 30

GENERAL NOTES:

1. THIS PROJECT INCLUDES HYDRAULIC DREDGING OF SEDIMENTS FROM WHITE CREEK AND ASSAWOMAN CANAL, SUSSEX COUNTY DELAWARE, AND ASSOCIATED THIN LAYER PLACEMENT (TLP) AREAS LOCATED IN IDENTIFIED AREAS OF ASSAWOMAN WILDLIFE MANAGEMENT AREA (WMA) - MUDDY NECK TRACT, SUSSEX COUNTY, DELAWARE. IDENTIFIED AREAS OF UPLAND ACCESS FOR CONSTRUCTION EQUIPMENT ACCESS ARE ALSO PROPOSED.
2. WORK SHALL BE CONDUCTED AS DEPICTED IN THESE DRAWINGS. IF THE DRAWINGS CONTRADICT SPECIFICATIONS, SPECIFICATIONS SHALL GOVERN.
3. LOCATIONS DISPLAYED FOR EXISTING CONDITIONS SUCH AS SHORELINES, STRUCTURES, UNDERGROUND UTILITIES AND UTILITIES ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY LOCATION OF SITE STRUCTURES, LOCATION OF SHORELINE AND OTHER SITE FEATURES PRIOR TO CONSTRUCTION.
4. THE OWNER'S REPRESENTATIVE SHALL BE NOTIFIED IN WRITING OF ANY CONDITIONS THAT VARY FROM THOSE SHOWN ON THE DRAWINGS. THE CONTRACTOR'S WORK SHALL NOT VARY FROM THE DRAWINGS WITHOUT THE WRITTEN APPROVAL OF OWNER'S REPRESENTATIVE.
5. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
6. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. THE CONTRACTOR IS RESPONSIBLE FOR THE SAFETY OF SITE PERSONNEL AND SHALL ABIDE BY THE REQUIREMENTS OF THE TECHNICAL SPECIFICATIONS AND THE CONTRACTOR'S HEALTH AND SAFETY PLAN (HASP), AS APPROPRIATE, AS WELL AS APPLICABLE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS.
7. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL UTILITY MARKOUTS AND FORWARDING CONFIRMATION OF COMPLETION TO THE OWNER'S REPRESENTATIVE. THIS NOTIFICATION TO INDICATE THE APPROXIMATE LOCATIONS OF SUBMERGED UTILITIES AND AS SHOWN ON PLANS (TO THE EXTENT THEY ARE KNOWN). A MISS UTILITY DELMARVA WILL BE COMPLETED AND SUBMITTED FOR VERIFICATION OF ALL UTILITIES THAT MAY BE IMPACTED BY PROPOSED PROJECT ACTIVITIES. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ANY AND ALL NECESSARY PERMITS FROM THE AFFECTED UTILITY COMPANIES AND FOR SCHEDULING OF INSPECTIONS BY UTILITY COMPANY PERSONNEL, IF REQUIRED, DURING CONSTRUCTION.
8. THE CONTRACTOR SHALL ADEQUATELY PROTECT ALL EXISTING STRUCTURES AND UTILITIES. ANY DAMAGE TO EXISTING STRUCTURES, SHORELINES, OR UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. DAMAGE TO SAID STRUCTURES SHALL BE REPAIRED PROMPTLY AND TO THE APPROVAL OF THE OWNER OR ENTITIES OF THEM.
9. AN UNDERWATER UTILITY LINE IS PRESENT AT THE SITE AND IS SHOWN AT THE APPROXIMATE LOCATION IT CROSSES WHITE CREEK PER DELMARVA POWER. CONTRACTOR SHALL FIELD VERIFY AND LOCATE THIS POWER LINE PRESENT ALONG THE WORK AREAS PRIOR TO CONDUCTING WORK.
10. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIRED PERMITS AND OTHER APPLICABLE REGULATORY REQUIREMENTS OF THE STATE OF DELAWARE AND DNREC.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES DURING THE CONSTRUCTION PERIOD, AS REQUIRED BY THE PERMITS, LOCAL ORDINANCES, PLANS, AND SPECIFICATIONS.
12. THE CONTRACTOR IS ADVISED THAT ALL LOCAL PUBLIC NUISANCE LAWS AND NOISE ORDINANCES SHALL BE OBSERVED DURING THE COURSE OF CONSTRUCTION. ADHERE TO CONTRACTUAL WORK HOURS IN CONTRACT DOCUMENTS.
13. THE CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN APPROPRIATE SIGNAGE FOR TRAFFIC CONTROL AND PEDESTRIAN SAFETY DURING CONSTRUCTION. MAINTAIN OPEN ACCESS FOR ALL PUBLIC ROADWAYS DURING PERFORMANCE OF THE WORK.
14. THE CONTRACTOR SHALL MAINTAIN A NEAT AND ORDERLY WORK SITE, INCLUDING DREDGE, BARGES, AND OTHER SUPPORTING EQUIPMENT AND AREAS. ALL WASTE MATERIALS, RUBBISH, OR OTHER SUBSTANCES IDENTIFIED AS WASTE SHALL BE PROPERLY DISPOSED OF AS IDENTIFIED IN THE CONTRACTOR'S SCOPE OF WORK AND CONTRACT. PROMPTLY NOTIFY APPROPRIATE AUTHORITIES AND OWNER'S REPRESENTATIVE, AND REMOVE ANY CHEMICAL OR PETROLEUM/FUEL SPILLS, STAINS, AND OTHER FOREIGN DEPOSITS IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.
15. PARCEL LINE INFORMATION FROM SUSSEX COUNTY COUNCIL GIS DEPARTMENT.

SEQUENCE OF CONSTRUCTION:

SPECIFIC ACTIVITIES CONDUCTED BY THE CONTRACTOR TO COMPLETE THE WORK INCLUDE, BUT ARE NOT LIMITED TO:

1. CONDUCT FIELD INVESTIGATIONS OR EVALUATIONS TO CONFIRM SITE CONDITIONS AS DEEMED NECESSARY.
2. PREPARE AND SUBMIT FINAL WORK PLANS AND ALL OTHER PRE-CONSTRUCTION SUBMITTALS.
3. ATTEND A PRE-CONSTRUCTION MEETING WITH THE OWNER'S REPRESENTATIVE. MEETING SHALL BE ATTENDED BY THE CONTRACTOR, SUB-CONTRACTOR(S), AND THE OWNER.
4. MOBILIZE CREWS, FACILITIES, EQUIPMENT, AND MATERIALS REQUIRED TO THE SPECIFIED STAGING AREA(S) AND/OR CONTRACTOR IDENTIFIED BOAT LAUNCH/ACCESS TO COMPLETE THE WORK.
5. INSTALL AND MAINTAIN THE REQUIRED ENVIRONMENTAL AND EROSION AND SEDIMENTATION CONTROLS.
6. ESTABLISH LIMITS OF WORK FOR TLP AT THE SPECIFIED LOCATION(S) IDENTIFIED IN THIS DESIGN PACKAGE. IDENTIFY AND ESTABLISH PROPER STAGING OF EQUIPMENT AND MATERIALS REQUIRED PER THE CONTRACT.
7. DREDGE MAIN CHANNEL, EASTERN AND WESTERN PRONGS OF WHITE CREEK AND ASSAWOMAN CANAL TO THE LIMITS SPECIFIED ON DRAWINGS. THIS WORK INCLUDES, BUT IS NOT LIMITED TO:
   A: DREDGE SEDIMENTS IN THE SEQUENCE IDENTIFIED IN THE TECHNICAL SPECIFICATIONS.
   B: TRANSPORT SEDIMENTS VIA PIPELINE TO THE SPECIFIED TLP AND MARSH RESTORATION AREAS AND PLACE, AS SPECIFIED IN THE CONTRACT DOCUMENTS.
8. PLACE AIDS TO NAVIGATION BUOYS WITHIN WHITE CREEK AS SHOWN ON THESE DRAWINGS.
9. RESTORE THE UPLAND LOCATION(S), WHERE APPLICABLE, TO PRE-CONSTRUCTION CONDITIONS IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.

SURVEY NOTES:

1. HORIZONTAL DATUM: DELAWARE STATE PLANE, NORTH AMERICAN DATUM OF 1983 (NAD83), U.S. SURVEY FEET
2. VERTICAL DATUM: MEAN LOWER LOW WATER. 0 FT MLLW = -1.50 FT NAVD88

PARCEL INFORMATION SOURCE FROM:

SUSSEX COUNTY COUNCIL GIS DEPARTMENT
#2 THE CIRCLE
GEORGETOWN, DE 19947

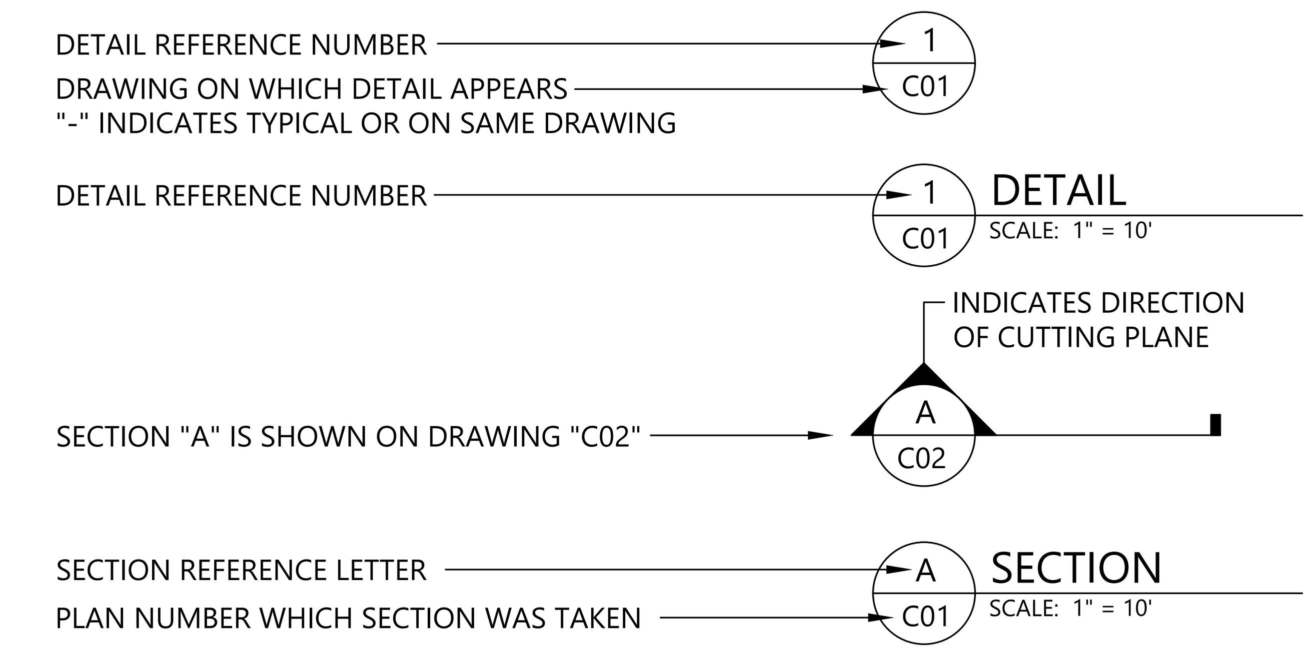
WETLAND INFORMATION SOURCE FROM:

DELAWARE FIRSTMAP DATA

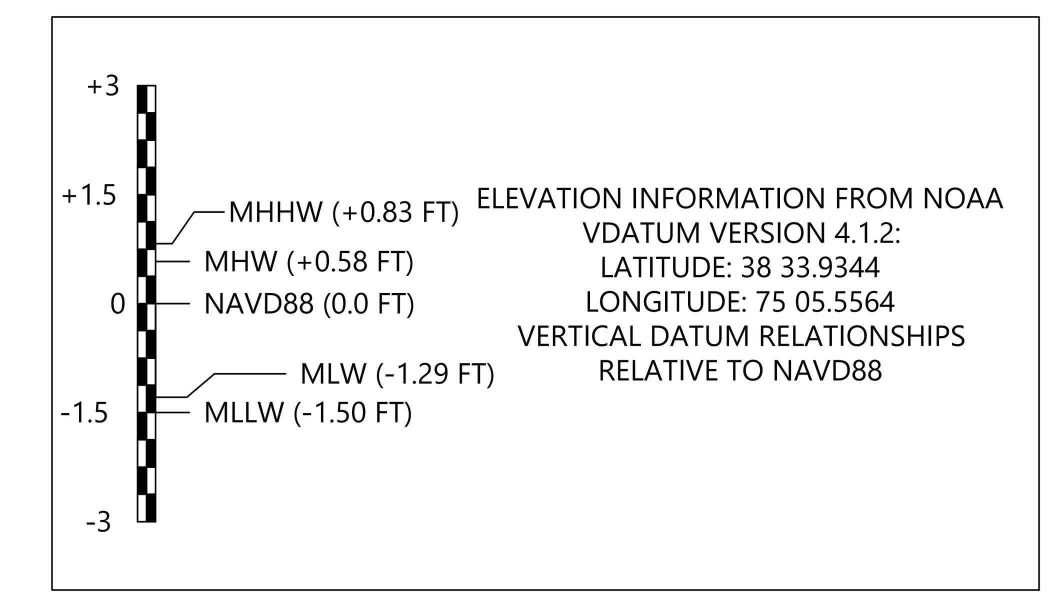
UTILITY INFORMATION SOURCE FROM:

DELMARVA POWER - AN EXELON COMPANY

DETAIL AND SECTION REFERENCING



TIDAL DATUM:



EXISTING LEGEND:

-2	EXISTING BATHYMETRIC DATA
	PARCEL
	UTILITY LINE
WC-1	SEDIMENT SAMPLE

PROPOSED LEGEND:

-3	PROPOSED CONTOURS
	PROJECT DREDGE AREA
	LIMIT OF REQUIRED DREDGING (ELEVATION -4.0 FT MLLW)
	APPROXIMATE TOP OF DREDGING SLOPE
CP-02	CONTROL POINT
	THIN LAYER PLACEMENT AREA
	OPTIONAL FLOATING BOOSTER PUMP AREA

ABBREVIATIONS:

CDF	CONFINED DISPOSAL FACILITY
DNREC	DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL
TLP	THIN LAYER PLACEMENT
WMA	WILDLIFE MANAGEMENT AREA

NOTES:

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

DRAFT-NOT FOR CONSTRUCTION

K:\Projects\2191-AQ_Woods Hole Group Joint Venture\DE DNREC White Creek Dredging\Construction Plans\2191-PL-001-COVER SHEET AND GENERAL NOTES.dwg G-01
Mar 07, 2022 4:15pm bhurry

ANCHOR QEA WOODS HOLE GROUP JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY:	S. BAGNULL
DRAWN BY:	C. YARD
CHECKED BY:	T. MERRITTS
APPROVED BY:	R. MOHAN
SCALE:	AS NOTED
DATE:	MARCH 2022

WHITE CREEK MAINTENANCE DREDGING PROJECT
SUSSEX COUNTY, DELAWARE

GENERAL NOTES AND LEGEND

G-01

LEGEND:

- THIN LAYER PLACEMENT AREA
- PROJECT DREDGE AREA
- OPTIONAL FLOATING BOOSTER PUMP AREA

NORTH

0 1000 2000

SCALE IN FEET

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DRAFT-NOT FOR CONSTRUCTION

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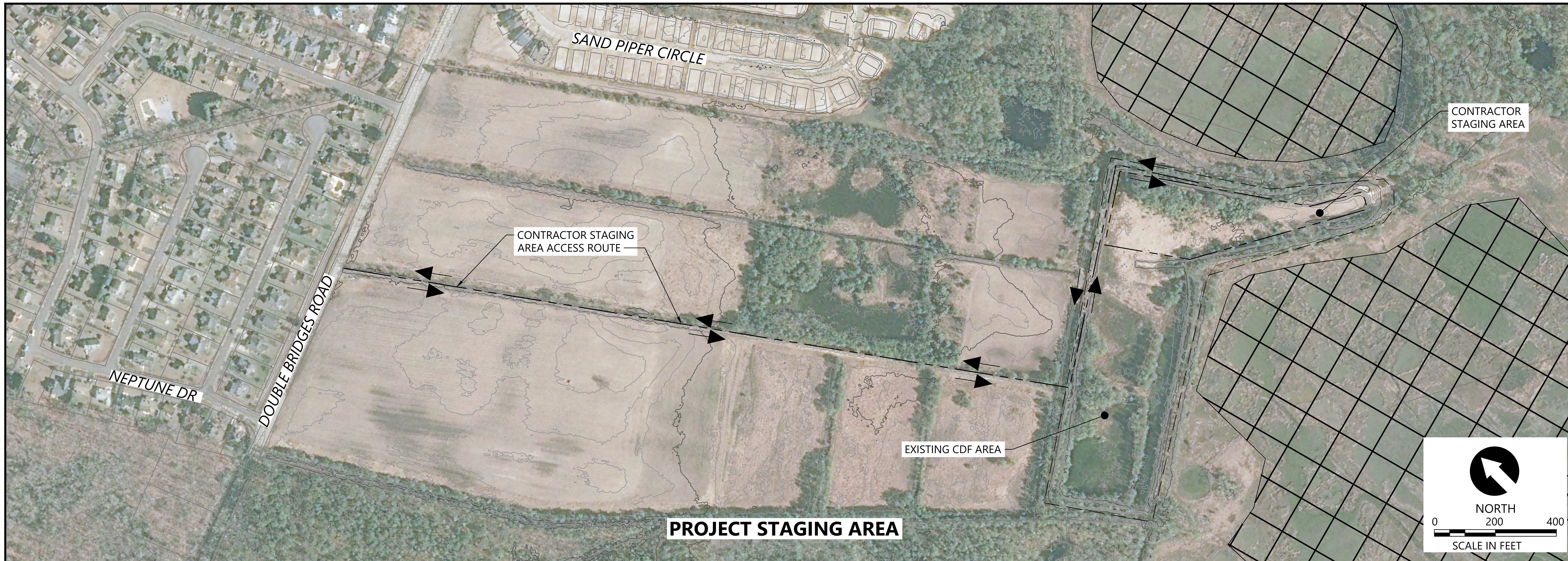
WHITE CREEK MAINTENANCE DREDGING PROJECT
SUSSEX COUNTY, DELAWARE

SITE LAYOUT PLAN

G-02



LEGEND:

- THIN LAYER PLACEMENT AREA
- PROJECT DREDGE AREA
- OPTIONAL UPLAND BOOSTER PUMP STAGING AREA
- CONTRACTOR ACCESS ROUTE

NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL PROJECT STAGING AND BOOSTER PUMP STAGING AREA GRADES, ELEVATIONS, AND SITE FEATURES IN THE FIELD. ANY DISCREPANCY AND/OR CONFLICT SHALL BE IMMEDIATELY REPORTED TO THE OWNER AND OWNER'S REPRESENTATIVE FOR RESOLUTION, PRIOR TO CONTINUING WORK.
2. PROTECT ALL EXISTING PHYSICAL FEATURES FROM DAMAGE. RESTORE ALL EXISTING SURFACES TO ORIGINAL CONDITION, UNLESS SHOWN OR DIRECTED OTHERWISE.
3. ALL WORK WITHIN STATE, COUNTY, OR LOCAL PUBLIC RIGHT-OF-WAY WILL REQUIRE PERMITS. THE CONTRACTOR IS RESPONSIBLE FOR ANY AND ALL PERMITS AND FEES.
4. THE CONTRACTOR SHALL CONDUCT WORK IN A MANNER THAT WILL ENSURE, AS FAR AS PRACTICABLE, THE LEAST OBSTRUCTION TO TRAFFIC AND SHALL PROVIDE FOR THE CONVENIENCE AND SAFETY OF THE GENERAL PUBLIC AND RESIDENTS ALONG AND ADJACENT TO WORK AREAS IN AN ADEQUATE AND SATISFACTORY MANNER.
5. INSTALL AND MAINTAIN NOISE MITIGATION CONTROLS AT ALL BOOSTER PUMP LOCATIONS IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.
6. INSTALL ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS (TESC) IN ACCORDANCE WITH DNREC SEDIMENT AND STORMWATER REGULATIONS AND SPECIFICATIONS FROM THE DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK (2019). SEE SHEETS E-105 AND E-106 FOR APPLICABLE TESC DETAILS.

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Mar 07, 2022 4:17pm bhurry

ANCHOR QEA WOODS HOLE GROUP JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

REVISIONS

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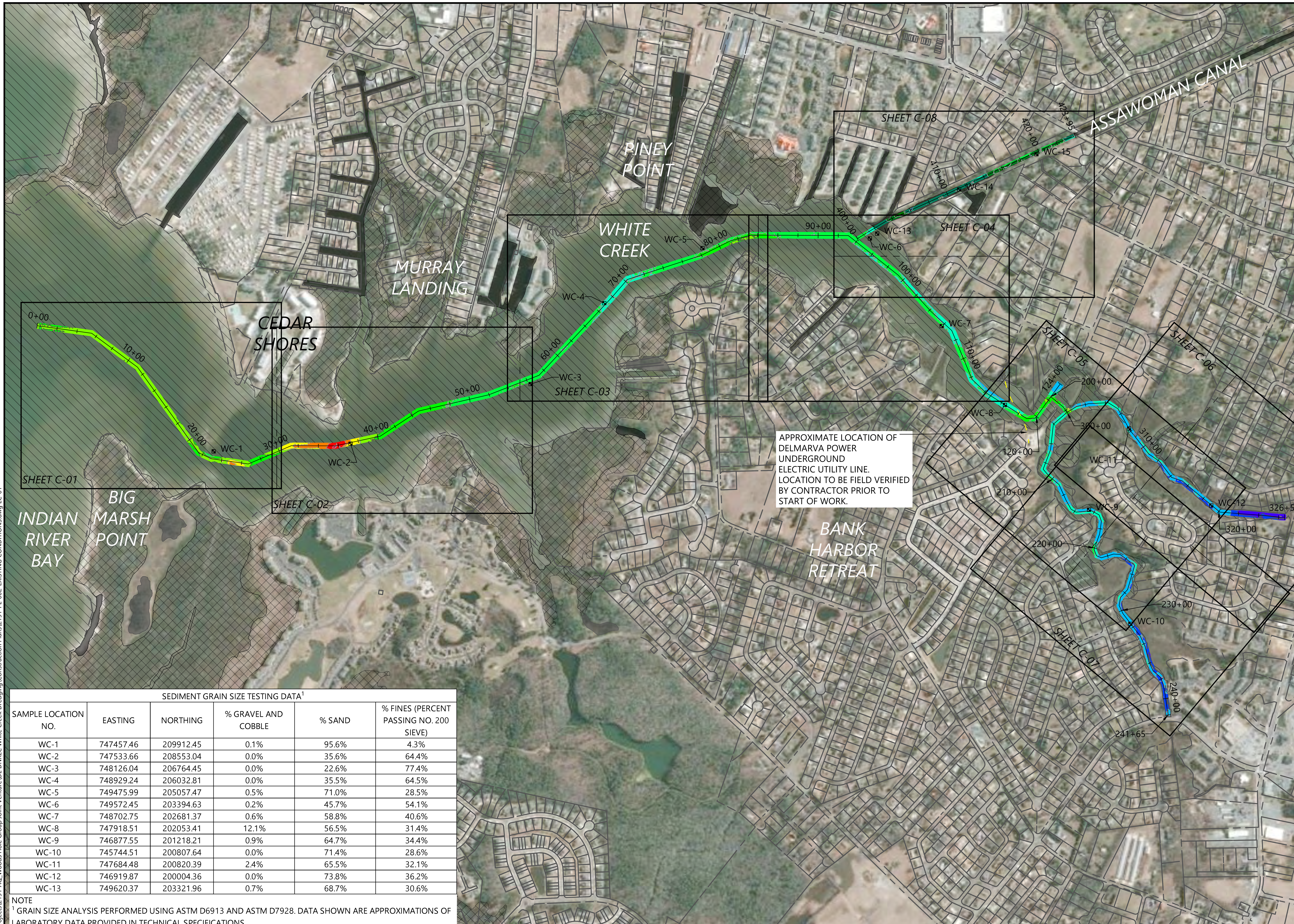
DATE: MARCH 2022

WHITE CREEK MAINTENANCE DREDGING PROJECT SUSSEX COUNTY, DELAWARE

STAGING AREA PLAN

G-03



SEDIMENT GRAIN SIZE TESTING DATA[1]					
SAMPLE LOCATION NO.	EASTING	NORTHING	% GRAVEL AND COBBLE	% SAND	% FINES (PERCENT PASSING NO. 200 SIEVE)
WC-1	747457.46	209912.45	0.1%	95.6%	4.3%
WC-2	747533.66	208553.04	0.0%	35.6%	64.4%
WC-3	748126.04	206764.45	0.0%	22.6%	77.4%
WC-4	748929.24	206032.81	0.0%	35.5%	64.5%
WC-5	749475.99	205057.47	0.5%	71.0%	28.5%
WC-6	749572.45	203394.63	0.2%	45.7%	54.1%
WC-7	748702.75	202681.37	0.6%	58.8%	40.6%
WC-8	747918.51	202053.41	12.1%	56.5%	31.4%
WC-9	746877.55	201218.21	0.9%	64.7%	34.4%
WC-10	745744.51	200807.64	0.0%	71.4%	28.6%
WC-11	747684.48	200820.39	2.4%	65.5%	32.1%
WC-12	746919.87	200004.36	0.0%	73.8%	36.2%
WC-13	749620.37	203321.96	0.7%	68.7%	30.6%

NOTE
[1] GRAIN SIZE ANALYSIS PERFORMED USING ASTM D6913 AND ASTM D7928. DATA SHOWN ARE APPROXIMATIONS OF LABORATORY DATA PROVIDED IN TECHNICAL SPECIFICATIONS.

LEGEND:

- PARCEL
- ESTUARINE VEGETATED
- ESTUARINE NON-VEGETATED
- PALUSTRINE TIDAL AREAS
- WC-1 SEDIMENT SAMPLE
- UTILITY LINE
- -2 EXISTING BATHYMETRIC DATA

EXISITING WATER DEPTH (MLLW)	
MLLW (FT)	COLOR
-10.0 to -9.0	
-9.0 to -8.0	
-8.0 to -7.0	
-7.0 to -6.0	
-6.0 to -5.0	
-5.0 to -4.0	
-4.0 to -3.0	
-3.0 to -2.0	
-2.0 to -1.0	
-1.0 to 0.0	
0.0 to 1.0	
1.0 to 2.0	

NORTH

0 500 1000

SCALE IN FEET

UTILITY NOTE:

1. ELECTRIC UTILITY LOCATION FROM DELMARVA POWER & LIGHT COMPANY DRAWING (SOVEREIGN CONSULTING INC. 9/25/2019).

NOTES:

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Mar 07, 2022 4:20pm bhurry

ANCHOR QEA WOODS HOLE GROUP JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

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WHITE CREEK MAINTENANCE DREDGING PROJECT SUSSEX COUNTY, DELAWARE

EXISTING CONDITIONS - DREDGING LIMITS

EC-01

SHEET # 5 OF 30

LEGEND:

- PARCEL
- -2 EXISTING CONTOUR
- THIN LAYER PLACEMENT

NORTH

0 250 500

SCALE IN FEET

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Mar 07, 2022 4:20pm bhurry

ANCHOR QEA WOODS HOLE GROUP JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

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WHITE CREEK MAINTENANCE DREDGING PROJECT SUSSEX COUNTY, DELAWARE

EXISTING CONDITIONS - THIN LAYER PLACEMENT AREA

EC-02

DREDGE AREA CENTERLINE CONTROL POINTS

CONTROL POINT NO.	NORTHING	EASTING
CP-01	211665.25	748705.65
CP-02	211124.13	748630.60
CP-03	210668.62	748293.46
CP-04	210060.09	747443.30
CP-05	209934.69	747383.93
CP-06	209569.17	747332.45

LEGEND:

- PARCEL
- WC-1 SEDIMENT SAMPLE
- -2 EXISTING BATHYMETRY
- APPROXIMATE TOP OF DREDGING SLOPE
- CP-03 CONTROL POINT

EXISTING WATER DEPTH (MLLW)

MLLW (FT)	COLOR
-10.0 to -9.0	
-9.0 to -8.0	
-8.0 to -7.0	
-7.0 to -6.0	
-6.0 to -5.0	
-5.0 to -4.0	
-4.0 to -3.0	
-3.0 to -2.0	
-2.0 to -1.0	
-1.0 to 0.0	
0.0 to 1.0	
1.0 to 2.0	

NORTH

0 100 200
SCALE IN FEET

NOTES:

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K:\Projects\2191-AQ_Woods Hole Group Joint Venture\DE DNREC White Creek Dredging\Construction Plans\2191-PL-003-PROPOSED DESIGN 1.dwg C-01

Mar 07, 2022 4:21pm bhurry

ANCHOR QEA WOODS HOLE GROUP JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

REVISIONS

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WHITE CREEK MAINTENANCE DREDGING PROJECT SUSSEX COUNTY, DELAWARE

CHANNEL DREDGING PLAN - SHEET 1 OF 7

C-01

NOTE:
NO DREDGING WITHIN 5-FOOT HORIZONTAL OFFSET OF EXISTING STRUCTURES.

DREDGE AREA CENTERLINE CONTROL POINTS

CONTROL POINT NO.	NORTHING	EASTING
CP-07	209141.20	747513.51
CP-08	208705.33	747511.94
CP-09	208257.62	747607.88
CP-10	207877.89	747857.67
CP-11	207179.44	748019.32

LEGEND:

- PARCEL
- WC-1 SEDIMENT SAMPLE
- -2 EXISTING BATHYMETRY
- APPROXIMATE TOP OF DREDGING SLOPE
- CP-03 CONTROL POINT

EXISTING WATER DEPTH (MLLW)

MLLW (FT)	COLOR
-10.0 to -9.0	
-9.0 to -8.0	
-8.0 to -7.0	
-7.0 to -6.0	
-6.0 to -5.0	
-5.0 to -4.0	
-4.0 to -3.0	
-3.0 to -2.0	
-2.0 to -1.0	
-1.0 to 0.0	
0.0 to 1.0	
1.0 to 2.0	

NORTH

0 100 200
SCALE IN FEET

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ANCHOR QEA WOODS HOLE GROUP JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION

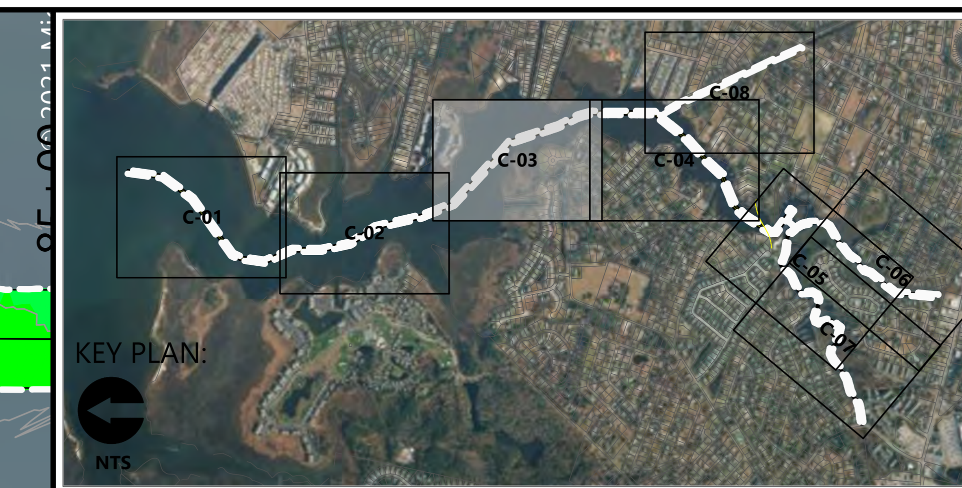
DESIGNED BY: S. BAGNULL
DRAWN BY: C. YARD
CHECKED BY: T. MERRITTS
APPROVED BY: R. MOHAN
SCALE: AS NOTED
DATE: MARCH 2022

WHITE CREEK MAINTENANCE DREDGING PROJECT
SUSSEX COUNTY, DELAWARE

CHANNEL DREDGING PLAN - SHEET 2 OF 7

C-02

NOTE:
NO DREDGING WITHIN 5-FOOT HORIZONTAL OFFSET OF EXISTING STRUCTURES.



LEGEND:

	PARCEL
WC-1	SEDIMENT SAMPLE
-2	EXISTING BATHYMETRY
	APPROXIMATE TOP OF DREDGING SLOPE
CP-03 ●	CONTROL POINT

EXISITING WATER DEPTH (MLLW)

MLLW (FT)	COLOR
-10.0 to -9.0	
-9.0 to -8.0	
-8.0 to -7.0	
-7.0 to -6.0	
-6.0 to -5.0	
-5.0 to -4.0	
-4.0 to -3.0	
-3.0 to -2.0	
-2.0 to -1.0	
-1.0 to 0.0	
0.0 to 1.0	
1.0 to 2.0	

NORTH

0 100 200
SCALE IN FEET

DREDGE AREA CENTERLINE CONTROL POINTS

CONTROL POINT NO.	NORTHING	EASTING
CP-12	206680.35	748213.10
CP-13	205952.43	748992.62
CP-14	205803.01	749164.27
CP-15	205072.36	749402.69
CP-16	204774.09	749550.56
CP-17	204578.79	749605.18

NOTES:

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

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

ONE INCH

AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

DRAFT-NOT FOR CONSTRUCTION

ANCHOR QEA WOODS HOLE GROUP JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

REVISIONS

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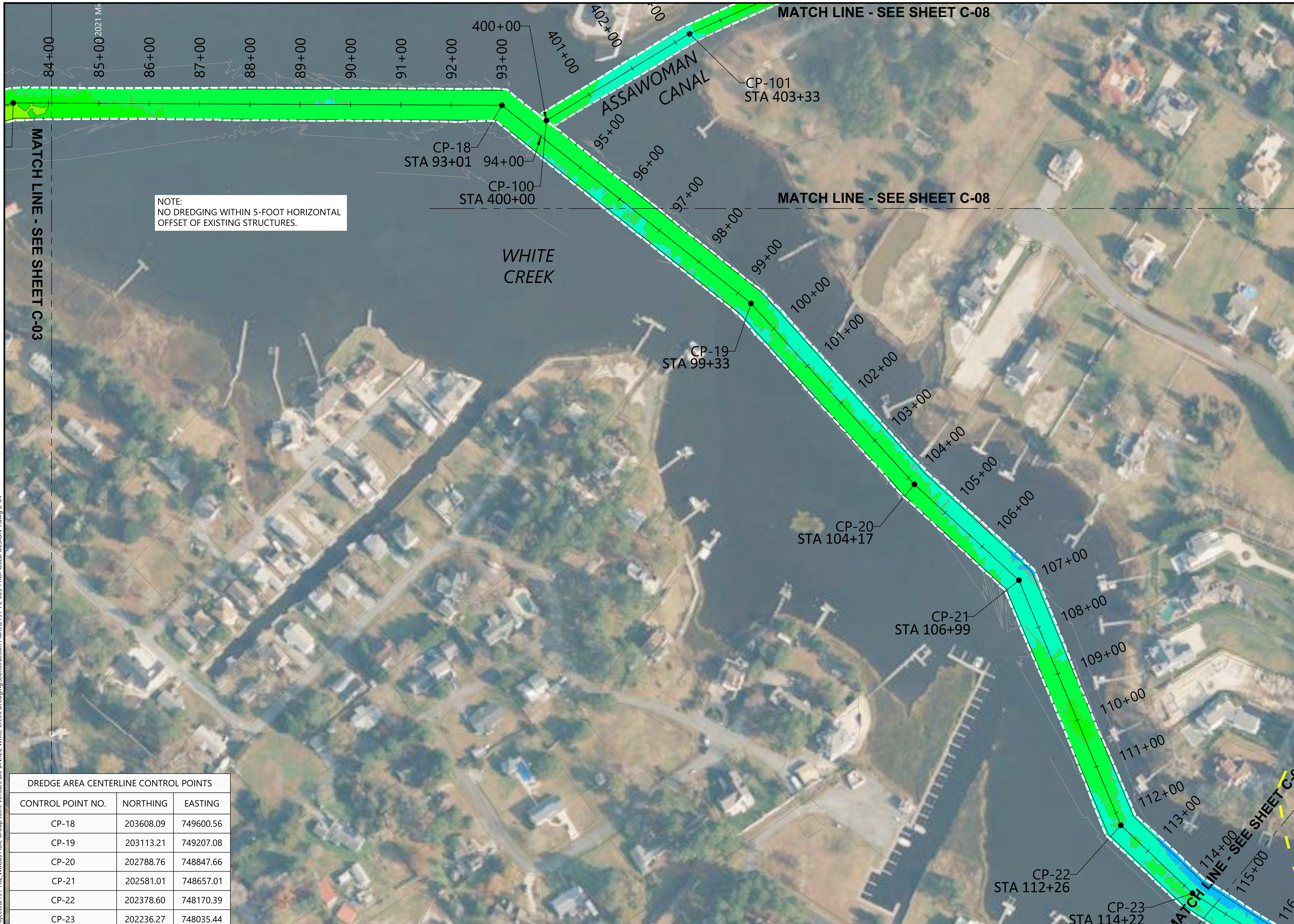
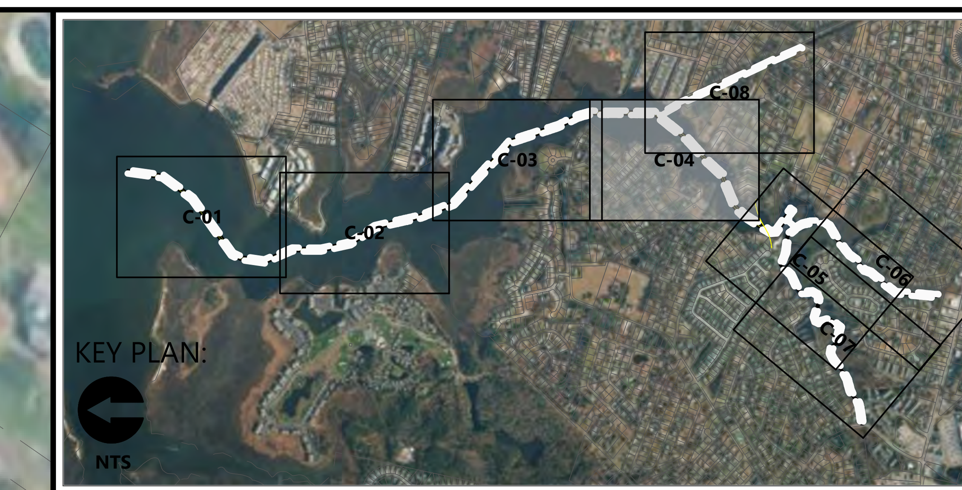
WHITE CREEK MAINTENANCE DREDGING PROJECT
SUSSEX COUNTY, DELAWARE

CHANNEL DREDGING PLAN - SHEET 3 OF 7

C-03



DREDGE AREA CENTERLINE CONTROL POINTS		
CONTROL POINT NO.	NORTHING	EASTING
CP-18	203608.09	749600.56
CP-19	203113.21	749207.08
CP-20	202788.76	748847.66
CP-21	202581.01	748657.01
CP-22	202378.60	748170.39
CP-23	202236.27	748035.44



LEGEND:

- PARCEL
- WC-1 SEDIMENT SAMPLE
- -2 EXISTING BATHYMETRY
- APPROXIMATE TOP OF DREDGING SLOPE
- CP-03 CONTROL POINT

EXISITING WATER DEPTH (MLLW)	
MLLW (FT)	COLOR
-10.0 to -9.0	
-9.0 to -8.0	
-8.0 to -7.0	
-7.0 to -6.0	
-6.0 to -5.0	
-5.0 to -4.0	
-4.0 to -3.0	
-3.0 to -2.0	
-2.0 to -1.0	
-1.0 to 0.0	
0.0 to 1.0	
1.0 to 2.0	

NORTH

0 100 200

SCALE IN FEET

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

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

NOTES:

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

DRAFT-NOT FOR CONSTRUCTION

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Mar 07, 2022 4:22pm bhurry

ANCHOR QEA WOODS HOLE GROUP JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

REVISIONS				
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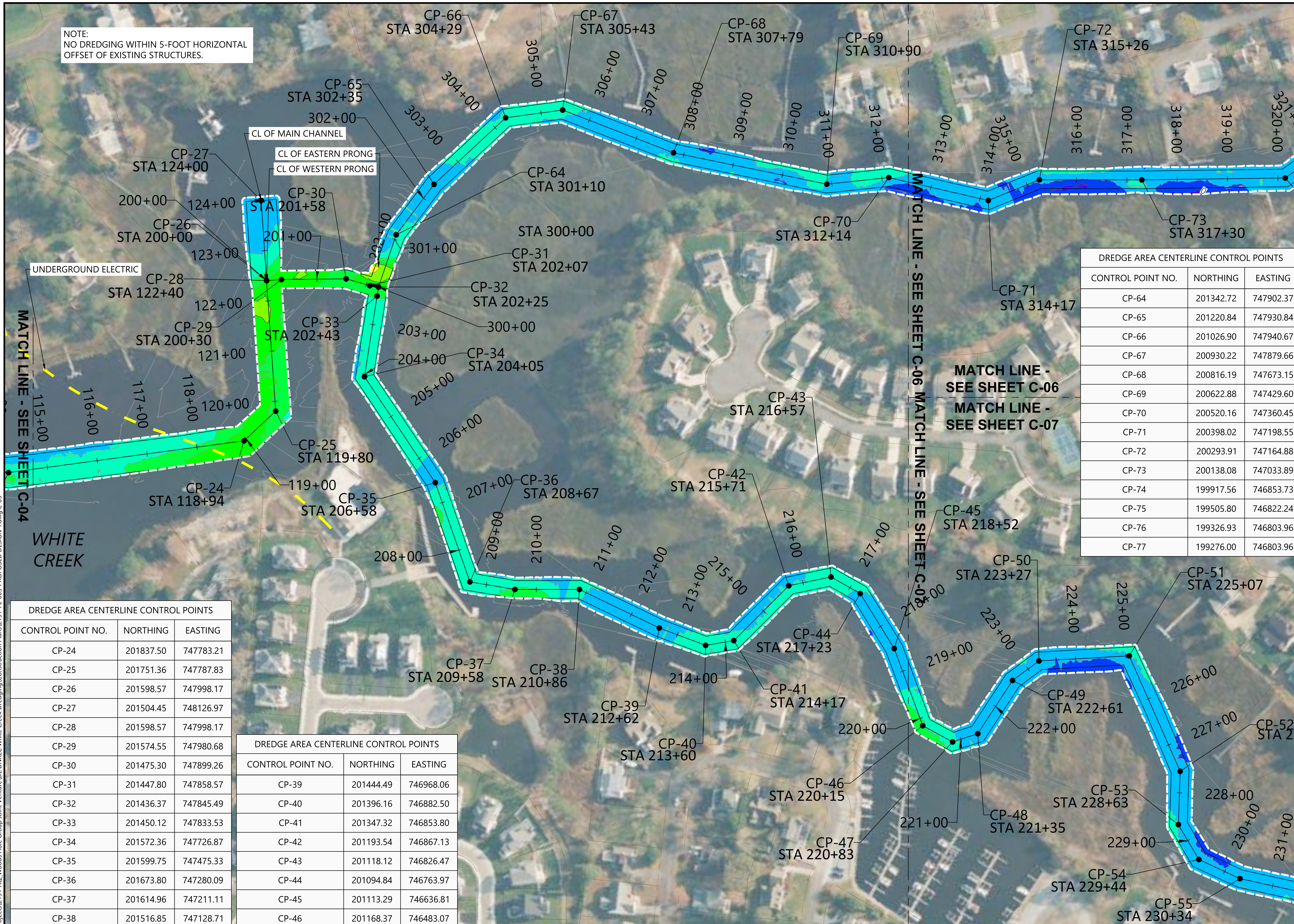
DESIGNED BY: S. BAGNULL
DRAWN BY: C. YARD
CHECKED BY: T. MERRITTS
APPROVED BY: R. MOHAN
SCALE: AS NOTED
DATE: MARCH 2022

WHITE CREEK MAINTENANCE DREDGING PROJECT
SUSSEX COUNTY, DELAWARE

CHANNEL DREDGING PLAN - SHEET 4 OF 7

C-04



DREDGE AREA CENTERLINE CONTROL POINTS		
CONTROL POINT NO.	NORTHING	EASTING
CP-64	201342.72	747902.37
CP-65	201220.84	747930.84
CP-66	201026.90	747940.67
CP-67	200930.22	747879.66
CP-68	200816.19	747673.15
CP-69	200622.88	747429.60
CP-70	200520.16	747360.45
CP-71	200398.02	747198.55
CP-72	200293.91	747164.88
CP-73	200138.08	747033.89
CP-74	199917.56	746853.73
CP-75	199505.80	746822.24
CP-76	199326.93	746803.96
CP-77	199276.00	746803.96

DREDGE AREA CENTERLINE CONTROL POINTS		
CONTROL POINT NO.	NORTHING	EASTING
CP-24	201837.50	747783.21
CP-25	201751.36	747787.83
CP-26	201598.57	747998.17
CP-27	201504.45	748126.97
CP-28	201598.57	747998.17
CP-29	201574.55	747980.68
CP-30	201475.30	747899.26
CP-31	201447.80	747858.57
CP-32	201436.37	747845.49
CP-33	201450.12	747833.53
CP-34	201572.36	747726.87
CP-35	201599.75	747475.33
CP-36	201673.80	747280.09
CP-37	201614.96	747211.11
CP-38	201516.85	747128.71

DREDGE AREA CENTERLINE CONTROL POINTS		
CONTROL POINT NO.	NORTHING	EASTING
CP-39	201444.49	746968.06
CP-40	201396.16	746882.50
CP-41	201347.32	746853.80
CP-42	201193.54	746867.13
CP-43	201118.12	746826.47
CP-44	201094.84	746763.97
CP-45	201113.29	746636.81
CP-46	201168.37	746483.07

LEGEND:

- PARCEL
- WC-1 SEDIMENT SAMPLE
- UTILITY LINE
- -2 EXISTING BATHYMETRY
- APPROXIMATE TOP OF DREDGING SLOPE
- CP-03 CONTROL POINT

EXISITING WATER DEPTH (MLLW)	
MLLW (FT)	COLOR
-10.0 to -9.0	
-9.0 to -8.0	
-8.0 to -7.0	
-7.0 to -6.0	
-6.0 to -5.0	
-5.0 to -4.0	
-4.0 to -3.0	
-3.0 to -2.0	
-2.0 to -1.0	
-1.0 to 0.0	
0.0 to 1.0	
1.0 to 2.0	

NORTH

0 100 200

SCALE IN FEET

NOTES:

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

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

ONE INCH

AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

DRAFT-NOT FOR CONSTRUCTION

ANCHOR QEA | WOODS HOLE GROUP
JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: S. BAGNULL
DRAWN BY: C. YARD
CHECKED BY: T. MERRITTS
APPROVED BY: R. MOHAN
SCALE: AS NOTED
DATE: MARCH 2022

WHITE CREEK MAINTENANCE DREDGING PROJECT
SUSSEX COUNTY, DELAWARE

CHANNEL DREDGING PLAN - SHEET 5 OF 7

C-05

DREDGE AREA CENTERLINE CONTROL POINTS		
CONTROL POINT NO.	NORTHING	EASTING
CP-70	200520.16	747360.45
CP-71	200398.02	747198.55
CP-72	200293.91	747164.88
CP-73	200138.08	747033.89
CP-74	199917.56	746853.73
CP-75	199505.80	746822.24
CP-76	199326.93	746803.96
CP-77	199276.00	746803.96

LEGEND:

- PARCEL
- WC-1 SEDIMENT SAMPLE
- -2 EXISTING BATHYMETRY
- APPROXIMATE TOP OF DREDGING SLOPE
- CP-03 CONTROL POINT

EXISITING WATER DEPTH (MLLW)	
MLLW (FT)	COLOR
-10.0 to -9.0	
-9.0 to -8.0	
-8.0 to -7.0	
-7.0 to -6.0	
-6.0 to -5.0	
-5.0 to -4.0	
-4.0 to -3.0	
-3.0 to -2.0	
-2.0 to -1.0	
-1.0 to 0.0	
0.0 to 1.0	
1.0 to 2.0	

NORTH

0 100 200
SCALE IN FEET

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

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

NOTES:

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

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Mar 07, 2022 4:22pm bhurry

ANCHOR QEA WOODS HOLE GROUP JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

REVISIONS

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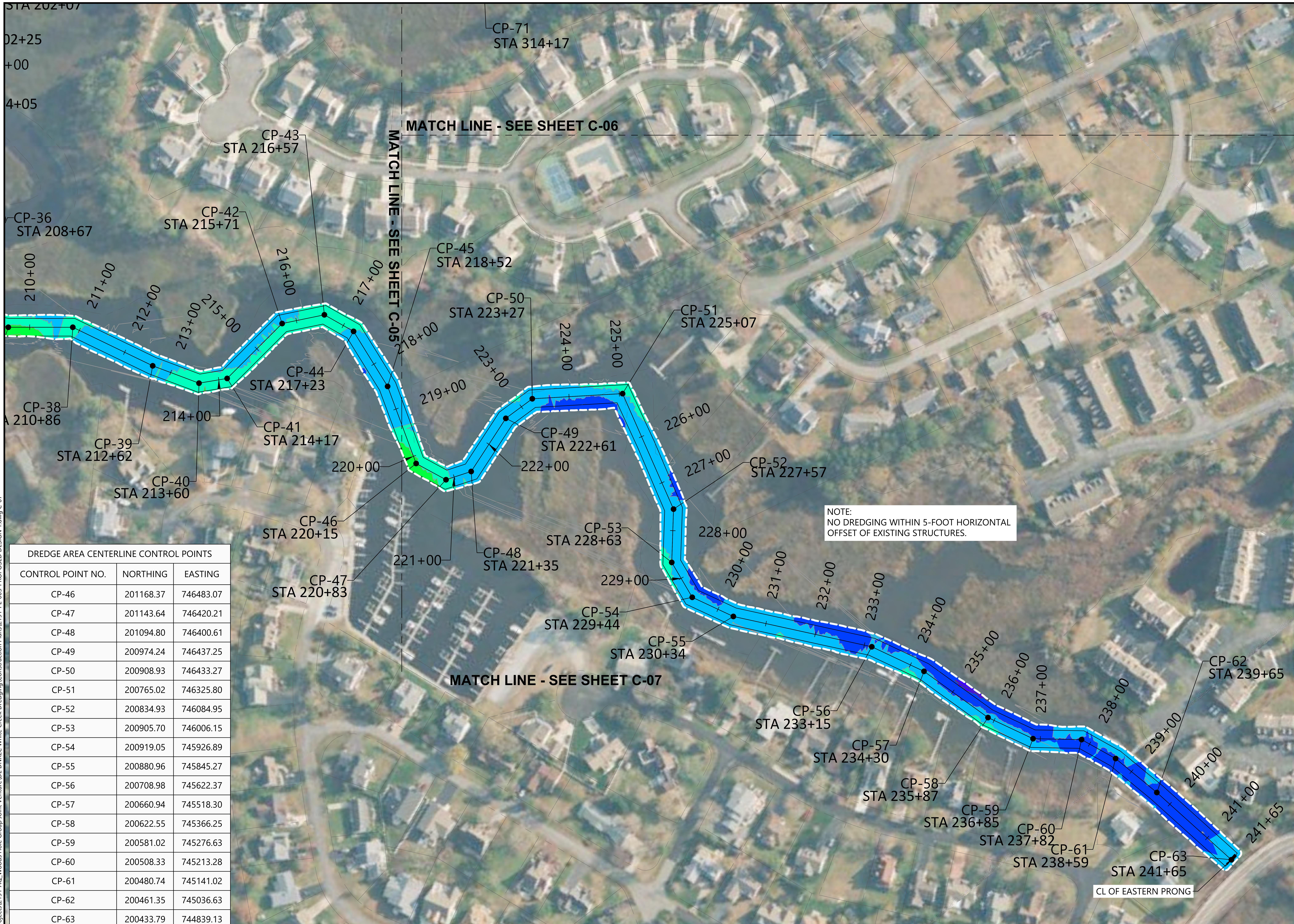
DRAWN BY: C. YARD
CHECKED BY: T. MERRITTS
APPROVED BY: R. MOHAN
SCALE: AS NOTED
DATE: MARCH 2022

WHITE CREEK MAINTENANCE DREDGING PROJECT
SUSSEX COUNTY, DELAWARE

CHANNEL DREDGING PLAN - SHEET 6 OF 7

C-06



DREDGE AREA CENTERLINE CONTROL POINTS		
CONTROL POINT NO.	NORTHING	EASTING
CP-46	201168.37	746483.07
CP-47	201143.64	746420.21
CP-48	201094.80	746400.61
CP-49	200974.24	746437.25
CP-50	200908.93	746433.27
CP-51	200765.02	746325.80
CP-52	200834.93	746084.95
CP-53	200905.70	746006.15
CP-54	200919.05	745926.89
CP-55	200880.96	745845.27
CP-56	200708.98	745622.37
CP-57	200660.94	745518.30
CP-58	200622.55	745366.25
CP-59	200581.02	745276.63
CP-60	200508.33	745213.28
CP-61	200480.74	745141.02
CP-62	200461.35	745036.63
CP-63	200433.79	744839.13

LEGEND:

- PARCEL
- WC-1 SEDIMENT SAMPLE
- -2 EXISTING BATHYMETRY
- APPROXIMATE TOP OF DREDGING SLOPE
- CP-03 CONTROL POINT

EXISITING WATER DEPTH (MLLW)	
MLLW (FT)	COLOR
-10.0 to -9.0	
-9.0 to -8.0	
-8.0 to -7.0	
-7.0 to -6.0	
-6.0 to -5.0	
-5.0 to -4.0	
-4.0 to -3.0	
-3.0 to -2.0	
-2.0 to -1.0	
-1.0 to 0.0	
0.0 to 1.0	
1.0 to 2.0	

NORTH

0 100 200
SCALE IN FEET

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

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

NOTES:

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

DRAFT-NOT FOR CONSTRUCTION

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Mar 07, 2022 4:22pm bhurry

ANCHOR QEA WOODS HOLE GROUP JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

REVISIONS				
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DESIGNED BY: S. BAGNULL
DRAWN BY: C. YARD
CHECKED BY: T. MERRITTS
APPROVED BY: R. MOHAN
SCALE: AS NOTED
DATE: MARCH 2022

WHITE CREEK MAINTENANCE DREDGING PROJECT
SUSSEX COUNTY, DELAWARE

CHANNEL DREDGING PLAN - SHEET 7 OF 7

C-07

DREDGE AREA CENTERLINE CONTROL POINTS		
CONTROL POINT NO.	NORTHING	EASTING
CP-100	203519.59	749570.28
CP-101	203235.45	749742.60
CP-102	202604.32	750025.15
CP-103	202451.09	750097.31
CP-104	201817.29	750396.06
CP-105	201358.37	750596.97

NOTE:
NO DREDGING WITHIN 5-FOOT HORIZONTAL OFFSET OF EXISTING STRUCTURES.

SURVEY NOTE:

1. PORTIONS OF EXISTING BATHYMETRIC SURFACE WITHIN ASSAWOMAN CANAL ON THIS SHEET HAVE BEEN APPROXIMATED BASED ON FIELD OBSERVATIONS OF SURVEY TEAM DUE TO SHALLOW WATER DEPTHS LIMITING SURVEY VESSEL ACCESS TO THESE AREAS.

LEGEND:

- PARCEL
- WC-1 SEDIMENT SAMPLE
- -2 EXISTING BATHYMETRY
- APPROXIMATE TOP OF DREDGING SLOPE
- CP-03 CONTROL POINT

EXISTING WATER DEPTH (MLLW)	
MLLW (FT)	COLOR
-10.0 to -9.0	
-9.0 to -8.0	
-8.0 to -7.0	
-7.0 to -6.0	
-6.0 to -5.0	
-5.0 to -4.0	
-4.0 to -3.0	
-3.0 to -2.0	
-2.0 to -1.0	
-1.0 to 0.0	
0.0 to 1.0	
1.0 to 2.0	

NORTH

0 100 200

SCALE IN FEET

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

ONE INCH

AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

NOTES:

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2. VERTICAL DATUM: MEAN LOWER LOW WATER

DRAFT-NOT FOR CONSTRUCTION

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Mar 07, 2022 4:22pm bhurry

ANCHOR QEA WOODS HOLE GROUP JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

REVISIONS				
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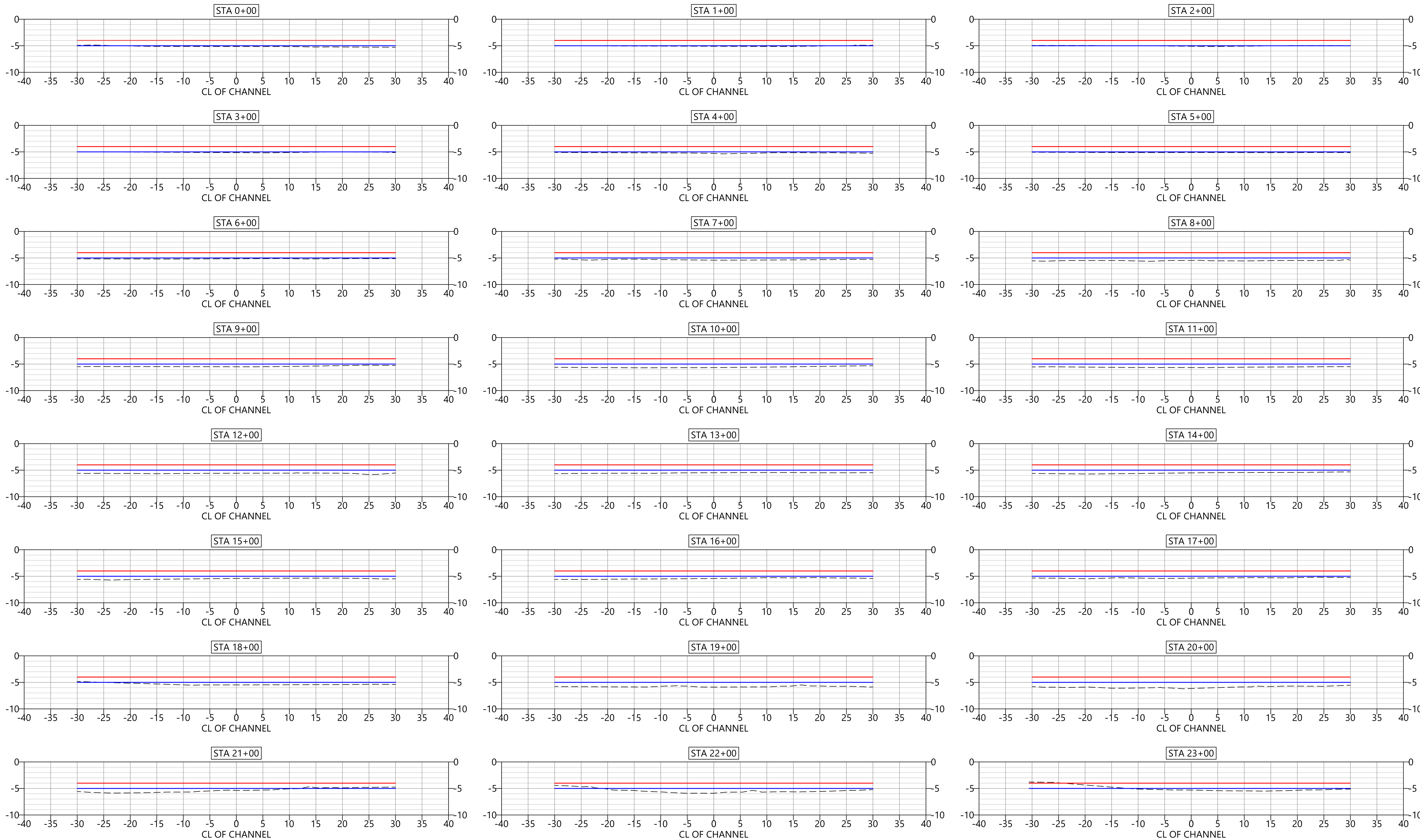
WHITE CREEK MAINTENANCE DREDGING PROJECT SUSSEX COUNTY, DELAWARE

ASSAWOMAN CANAL DREDGING PLAN 1 OF 1

C-08



LEGEND:
- - - - EXISTING BATHYMETRY
—— -4 FT MLLW DREDGE ELEVATION
—— -5 FT MLLW OVERDREDGE (1 FT ALLOWANCE)

DRAFT-NOT FOR CONSTRUCTION

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

ONE INCH

AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

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Mar 07, 2022 4:24pm bhurry

ANCHOR QEA · WOODS HOLE GROUP · JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

REVISIONS

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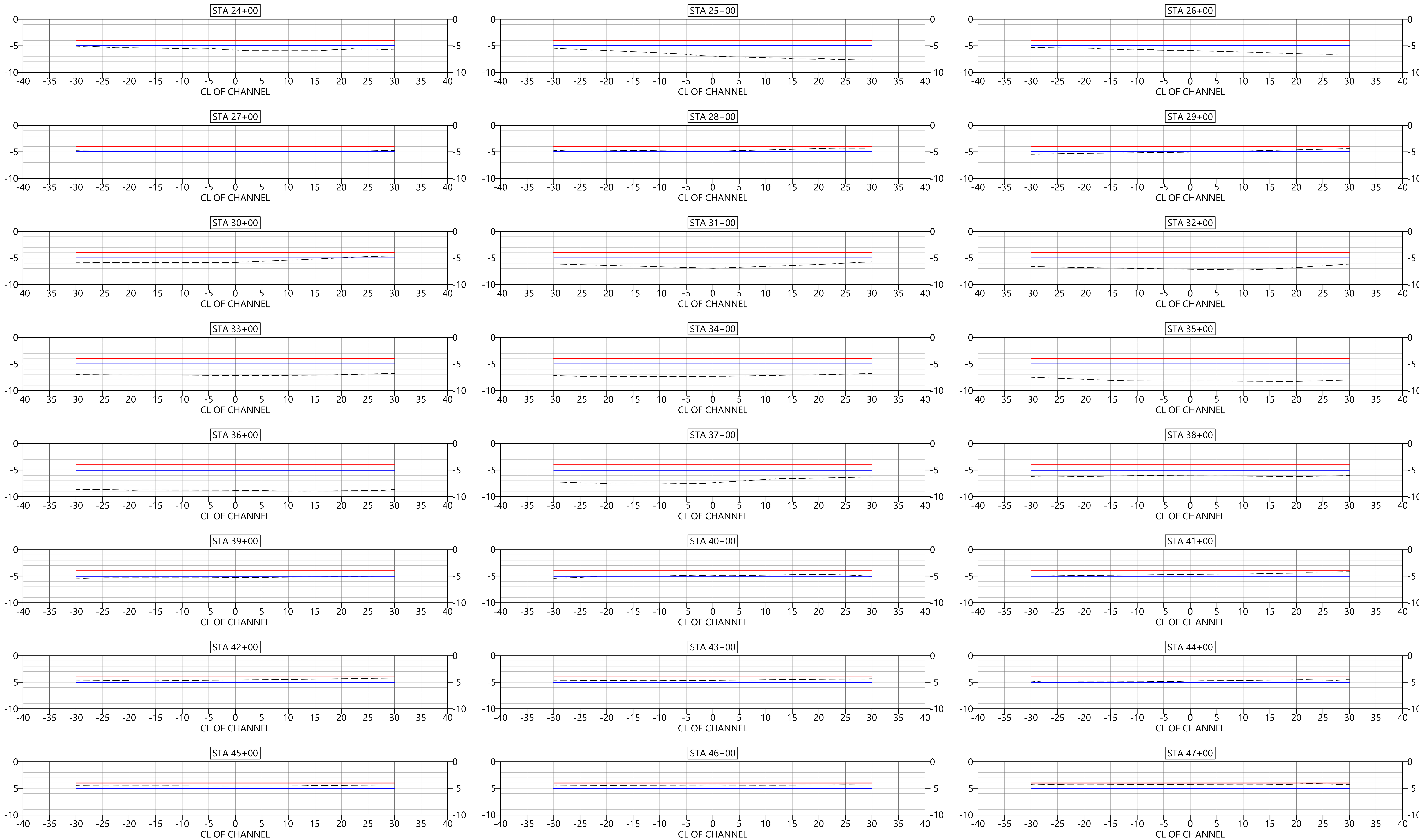
DATE: MARCH 2022

WHITE CREEK MAINTENANCE DREDGING PROJECT
SUSSEX COUNTY, DELAWARE

MAIN CHANNEL TYPICAL DREDGING CROSS SECTIONS 0+00 TO 23+00

C-101



LEGEND:
- EXISTING BATHYMETRY
- -4 FT MLLW DREDGE ELEVATION
- -5 FT MLLW OVERDREDGE (1 FT ALLOWANCE)

DRAFT-NOT FOR CONSTRUCTION

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

ONE INCH

AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA · WOODS HOLE GROUP · JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

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DATE: MARCH 2022

WHITE CREEK MAINTENANCE DREDGING PROJECT
SUSSEX COUNTY, DELAWARE

MAIN CHANNEL TYPICAL DREDGING CROSS SECTIONS 24+00 TO 47+00

C-102

SHEET # 16 OF 30

K:\Projects\2191-AQ_Woods Hole Group Joint Venture\DE DNREC White Creek Dredging\Construction Plans\2191-PL-003-PROPOSED DESIGN SECTIONS.dwg C-102

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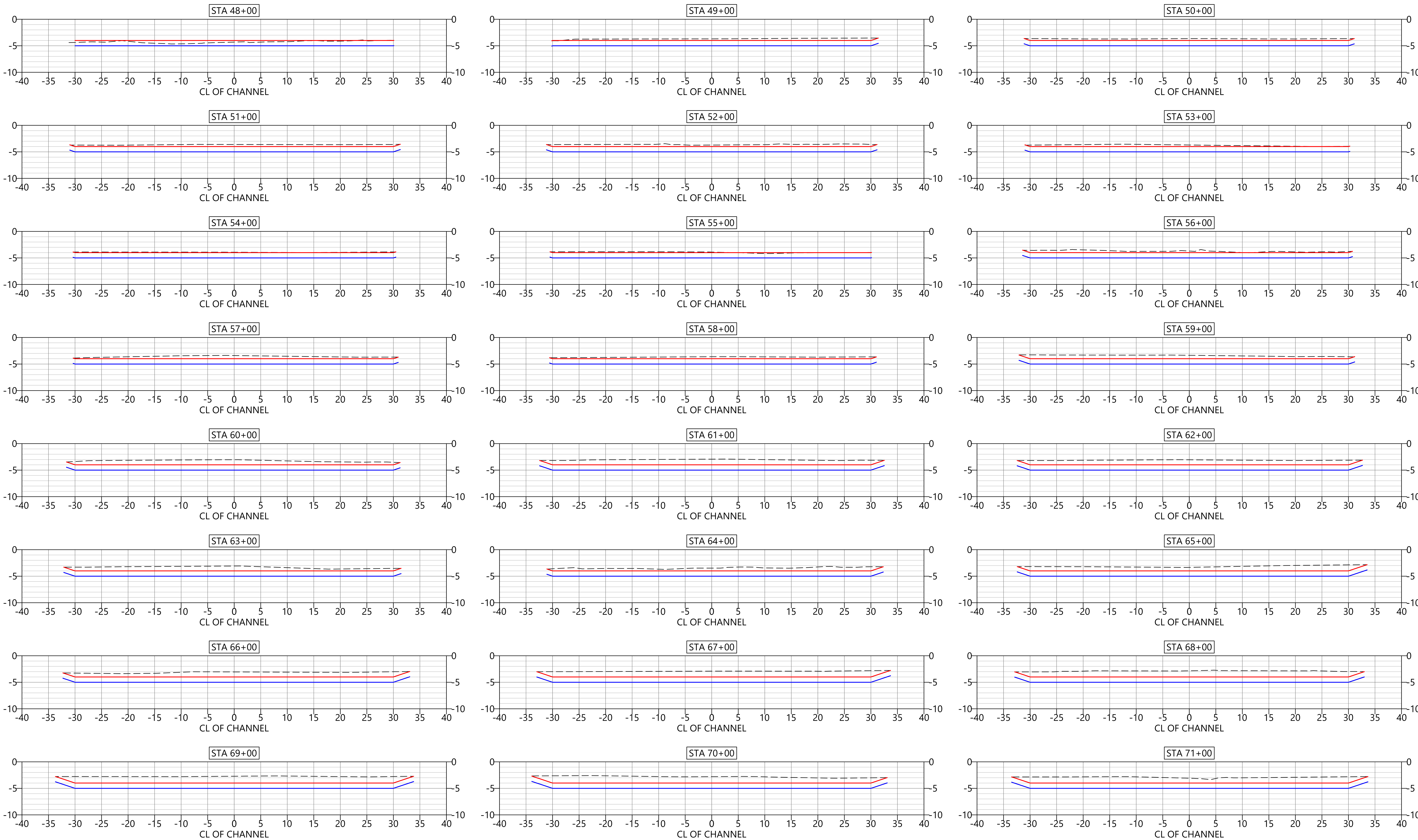

LEGEND:
- – – – EXISTING BATHYMETRY
- -4 FT MLLW DREDGE ELEVATION
- -5 FT MLLW OVERDREDGE (1 FT ALLOWANCE)

DRAFT-NOT FOR CONSTRUCTION

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

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

K:\Projects\2191-AQ_Woods Hole Group Joint Venture\DE DNREC White Creek Dredging\Construction Plans\2191-PL-003-PROPOSED DESIGN SECTIONS.dwg C-103

Mar 07, 2022 4:24pm bhurry

ANCHOR QEA WOODS HOLE GROUP JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

REVISIONS

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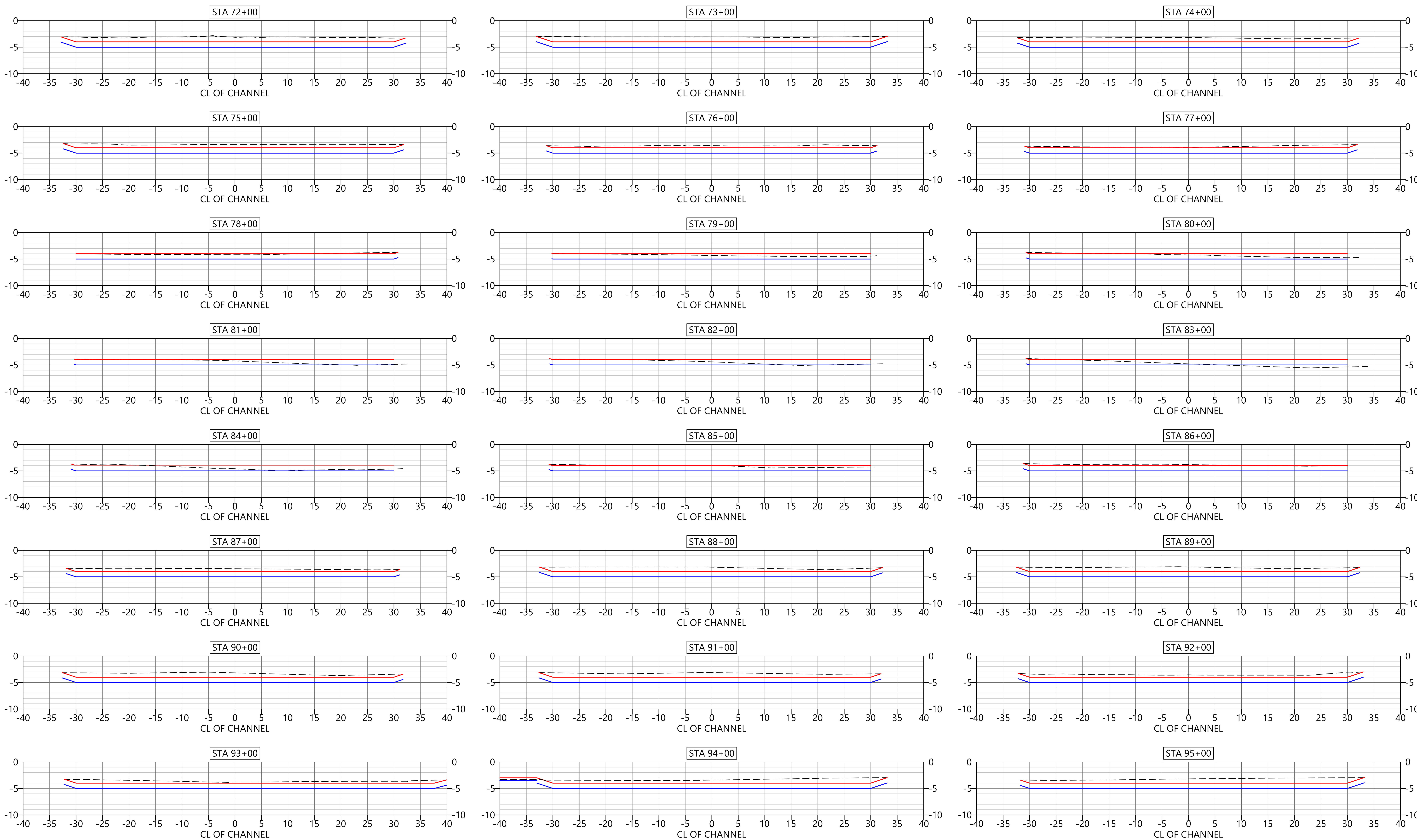
DATE: MARCH 2022

WHITE CREEK MAINTENANCE DREDGING PROJECT SUSSEX COUNTY, DELAWARE

MAIN CHANNEL TYPICAL DREDGING CROSS SECTIONS 48+00 TO 71+00

C-103

SHEET # 17 OF 30



LEGEND:
- EXISTING BATHYMETRY
- -4 FT MLLW DREDGE ELEVATION
- -5 FT MLLW OVERDREDGE (1 FT ALLOWANCE)

DRAFT-NOT FOR CONSTRUCTION

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

ONE INCH

AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA | WOODS HOLE GROUP — JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

REVISIONS

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APPROVED BY: R. MOHAN
SCALE: AS NOTED
DATE: MARCH 2022

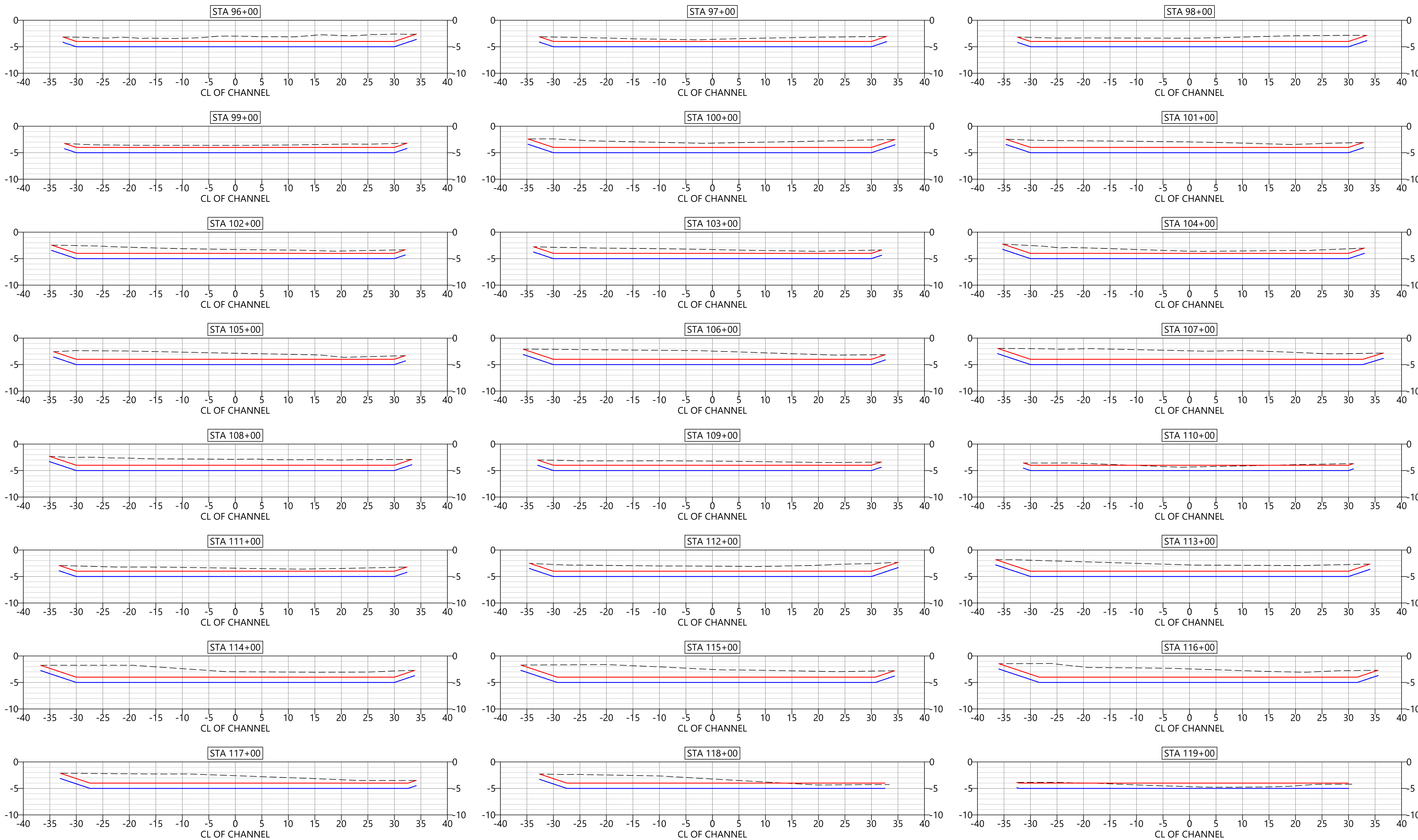
WHITE CREEK MAINTENANCE DREDGING PROJECT
SUSSEX COUNTY, DELAWARE

MAIN CHANNEL TYPICAL DREDGING CROSS SECTIONS 72+00 TO 95+00

C-104

SHEET # 18 OF 30

K:\Projects\2191-AQ_Woods Hole Group Joint Venture\DE DNREC White Creek Dredging\Construction Plans\2191-PL-003-PROPOSED DESIGN SECTIONS.dwg C-104
Mar 07, 2022 4:24pm bhurry



LEGEND:
- EXISTING BATHYMETRY
- -4 FT MLLW DREDGE ELEVATION
- -5 FT MLLW OVERDREDGE (1 FT ALLOWANCE)

DRAFT-NOT FOR CONSTRUCTION

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

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

ANCHOR QEA WOODS HOLE GROUP JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

REVISIONS

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APPROVED BY: R. MOHAN
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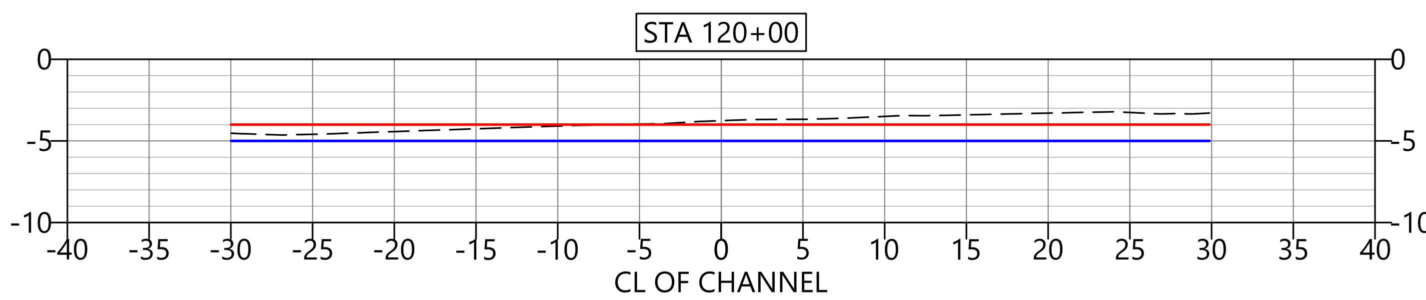
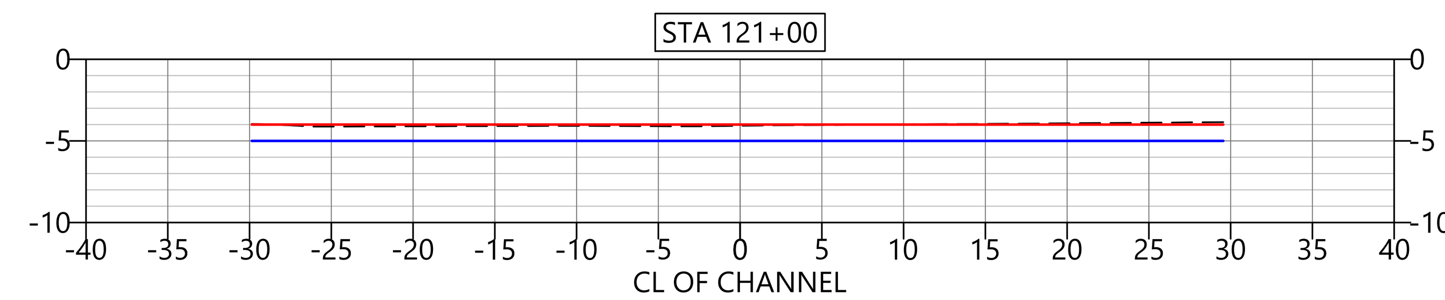
DATE: MARCH 2022

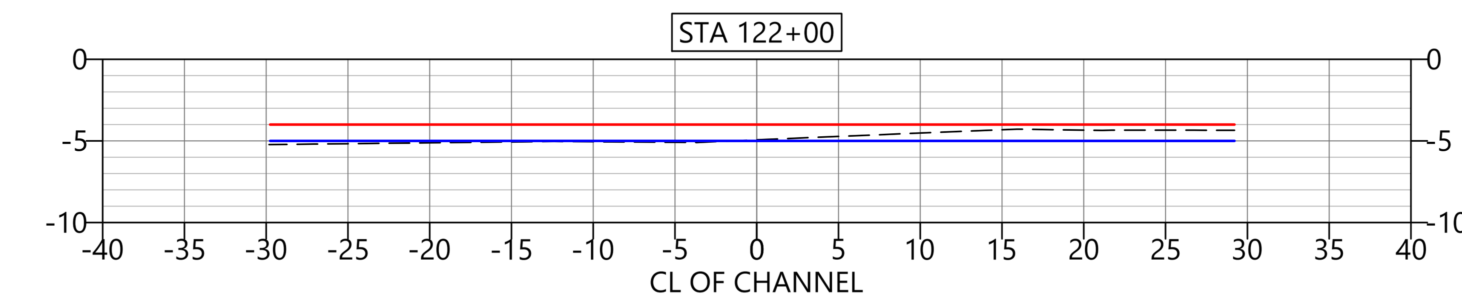
WHITE CREEK MAINTENANCE DREDGING PROJECT
SUSSEX COUNTY, DELAWARE

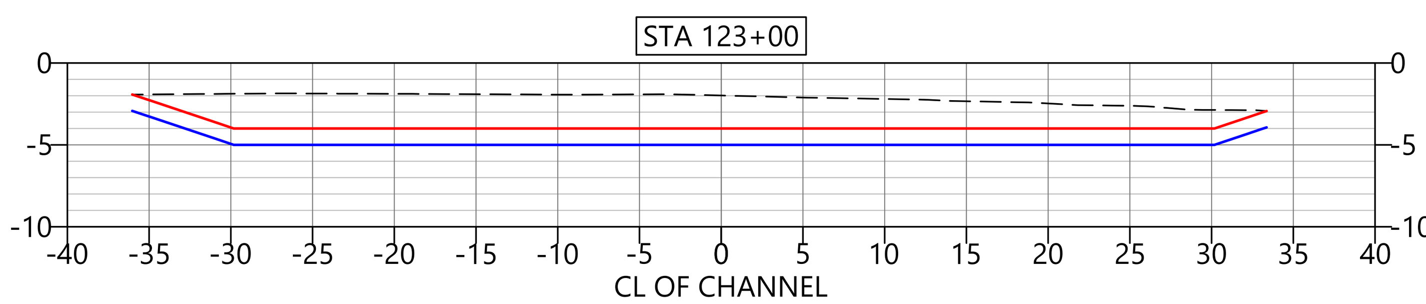
MAIN CHANNEL TYPICAL DREDGING CROSS SECTIONS 96+00 TO 119+00

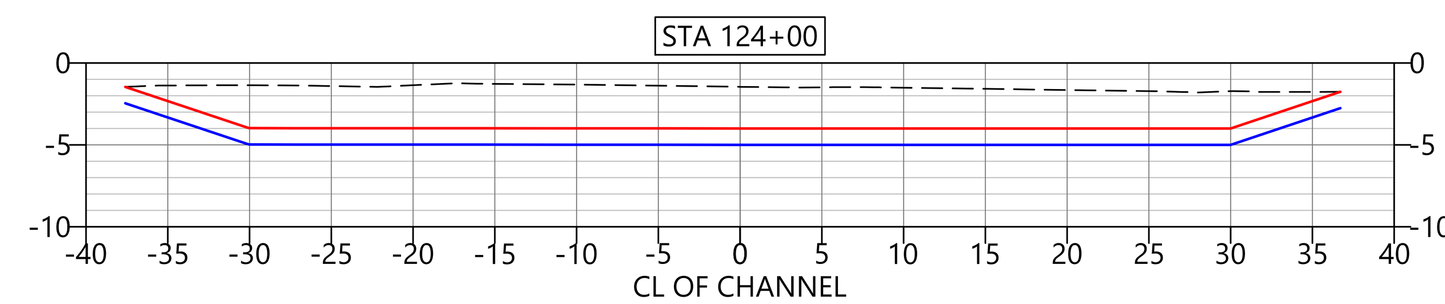
C-105











LEGEND:
- - - - EXISTING BATHYMETRY
-4 FT MLLW DREDGE ELEVATION
-5 FT MLLW OVERDREDGE (1 FT ALLOWANCE)

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

ONE INCH

AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

DRAFT-NOT FOR CONSTRUCTION

ANCHOR QEA | WOODS HOLE GROUP
JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

REVISIONS

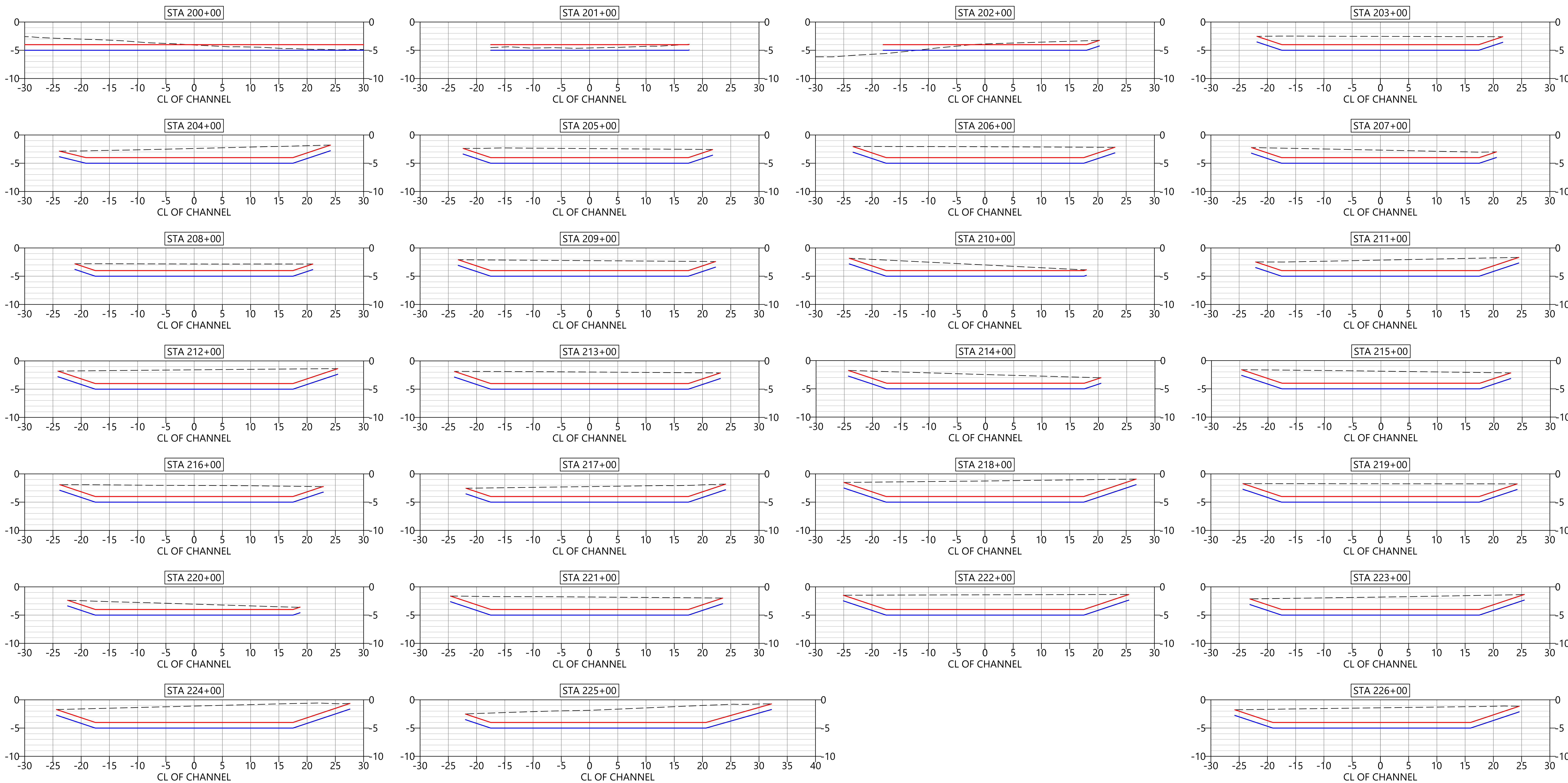
REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: S. BAGNULL
DRAWN BY: C. YARD
CHECKED BY: T. MERRITTS
APPROVED BY: R. MOHAN
SCALE: AS NOTED
DATE: MARCH 2022

WHITE CREEK MAINTENANCE DREDGING PROJECT SUSSEX COUNTY, DELAWARE

MAIN CHANNEL TYPICAL DREDGING CROSS SECTIONS 120+00 TO 124+00

C-106



LEGEND:
- EXISTING BATHYMETRY
- -4 FT MLLW DREDGE ELEVATION
- -5 FT MLLW OVERDREDGE (1 FT ALLOWANCE)

DRAFT-NOT FOR CONSTRUCTION

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

ONE INCH

AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

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Mar 07, 2022 4:25pm bhurry

ANCHOR QEA WOODS HOLE GROUP JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

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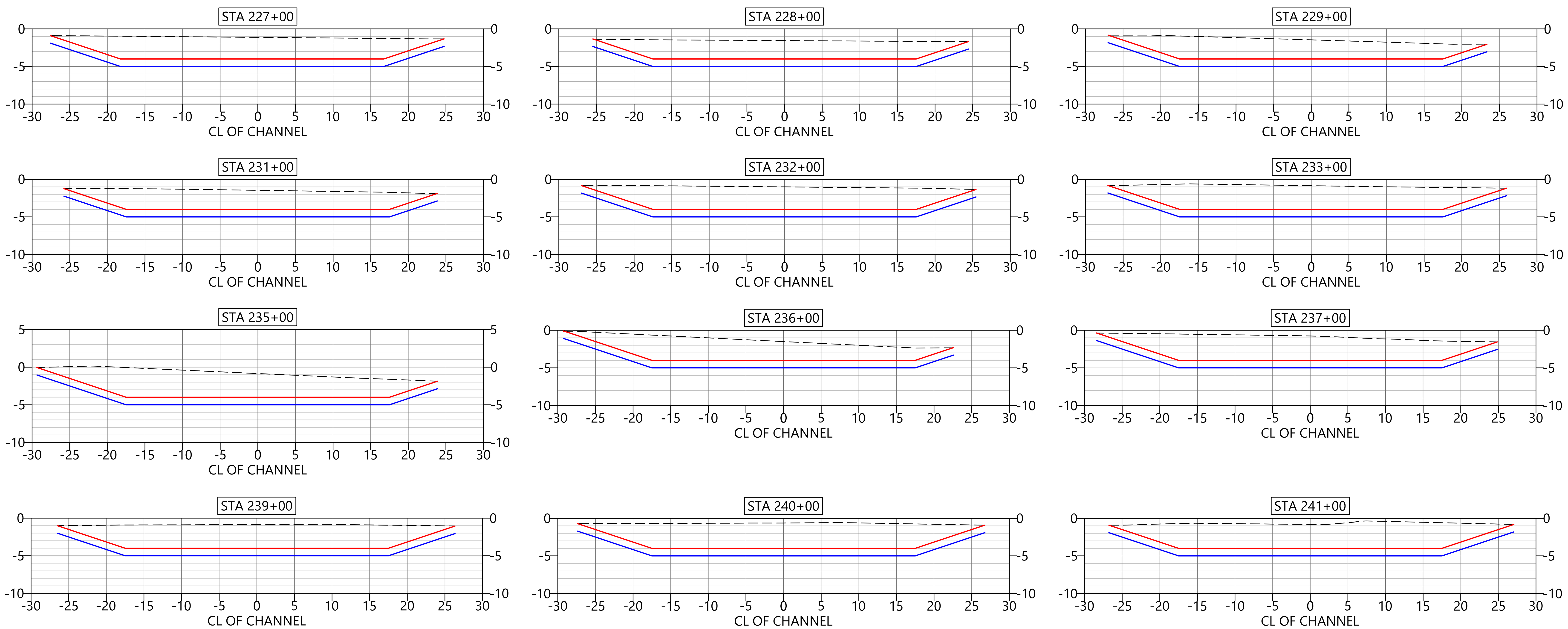
DATE: MARCH 2022

WHITE CREEK MAINTENANCE DREDGING PROJECT
SUSSEX COUNTY, DELAWARE

WESTERN PRONG TYPICAL DREDGING CROSS SECTIONS 200+00 TO 226+00

C-107

SHEET # 21 OF 30



LEGEND:
- EXISTING BATHYMETRY
- -4 FT MLLW DREDGE ELEVATION
- -5 FT MLLW OVERDREDGE (1 FT ALLOWANCE)

DRAFT-NOT FOR CONSTRUCTION

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

ONE INCH

AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

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Mar 07, 2022 4:25pm bhurry

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DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

REVISIONS

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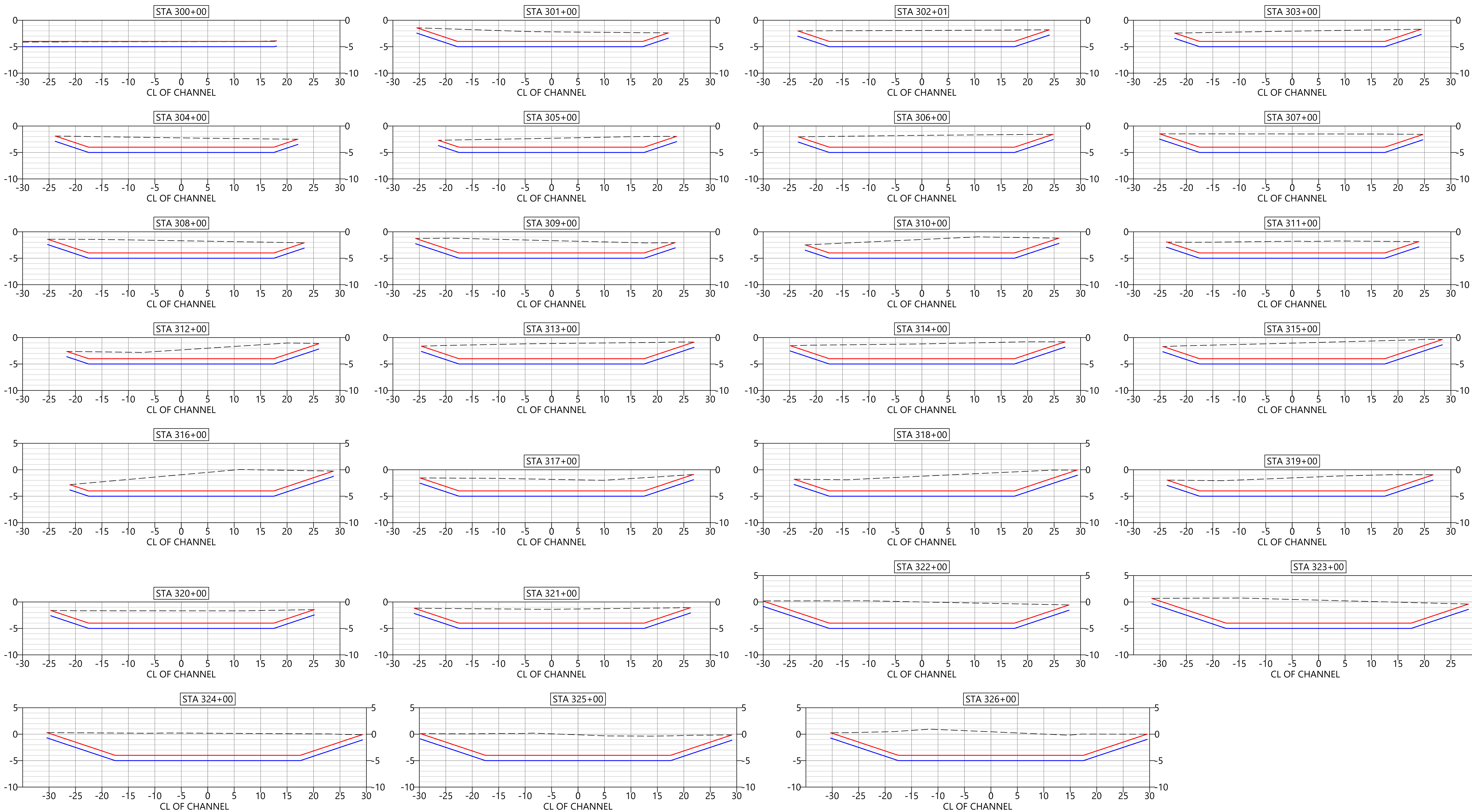
APPROVED BY: R. MOHAN
SCALE: AS NOTED
DATE: MARCH 2022

WHITE CREEK MAINTENANCE DREDGING PROJECT
SUSSEX COUNTY, DELAWARE

WESTERN PRONG TYPICAL DREDGING CROSS SECTIONS 227+00 TO 241+00

C-108

SHEET # 22 OF 30



LEGEND:
- EXISTING BATHYMETRY
- -4 FT MLLW DREDGE ELEVATION
- -5 FT MLLW OVERDREDGE (1 FT ALLOWANCE)

DRAFT-NOT FOR CONSTRUCTION

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

ONE INCH

AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA | WOODS HOLE GROUP
JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

REVISIONS

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SCALE: AS NOTED
DATE: MARCH 2022

WHITE CREEK MAINTENANCE DREDGING PROJECT
SUSSEX COUNTY, DELAWARE

EASTERN PRONG TYPICAL DREDGING CROSS SECTIONS 300+00 TO 326+00

C-109

SHEET # 23 OF 30

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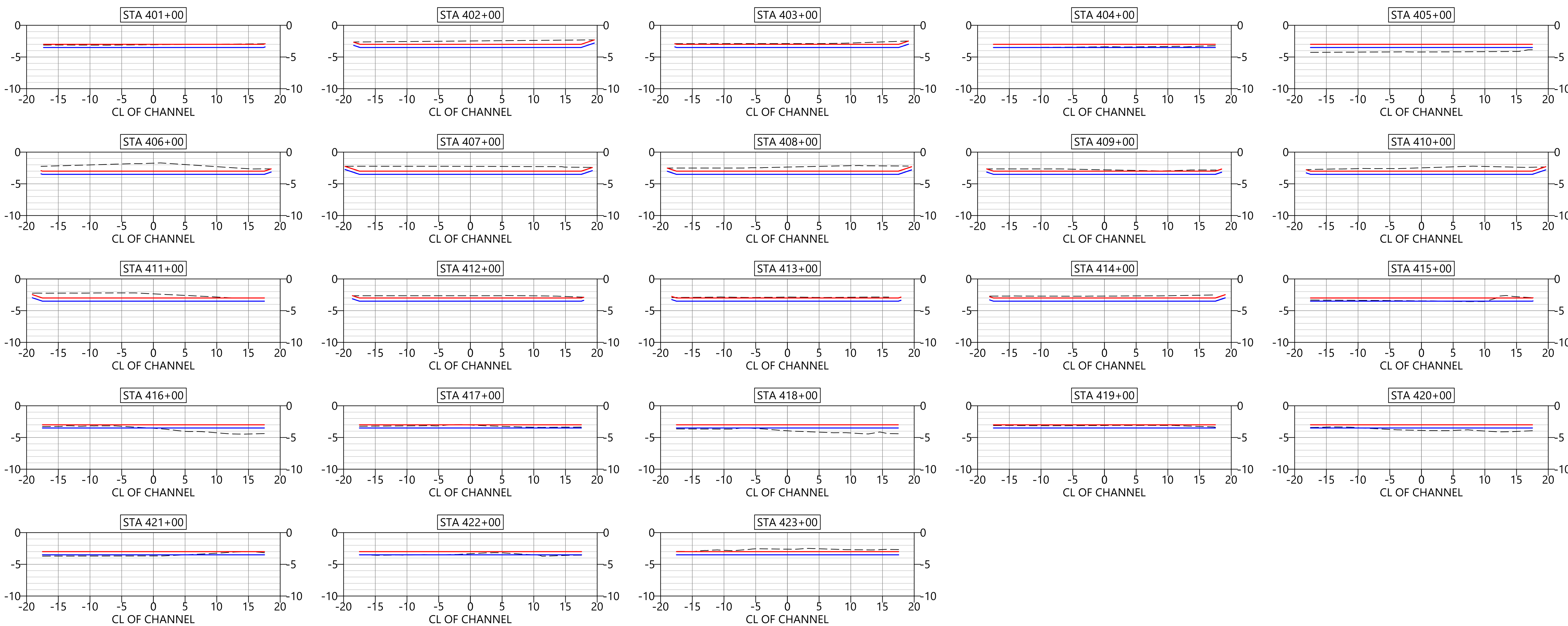

LEGEND:
- - - - EXISTING BATHYMETRY
—— -3 FT MLLW DREDGE ELEVATION
—— -3.5 FT MLLW DREDGE ELEVATION (0.5 FT ALLOWABLE OVERDREDGE)

DRAFT-NOT FOR CONSTRUCTION

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

ONE INCH

AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

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Mar 07, 2022 4:26pm bhurry

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JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

REVISIONS

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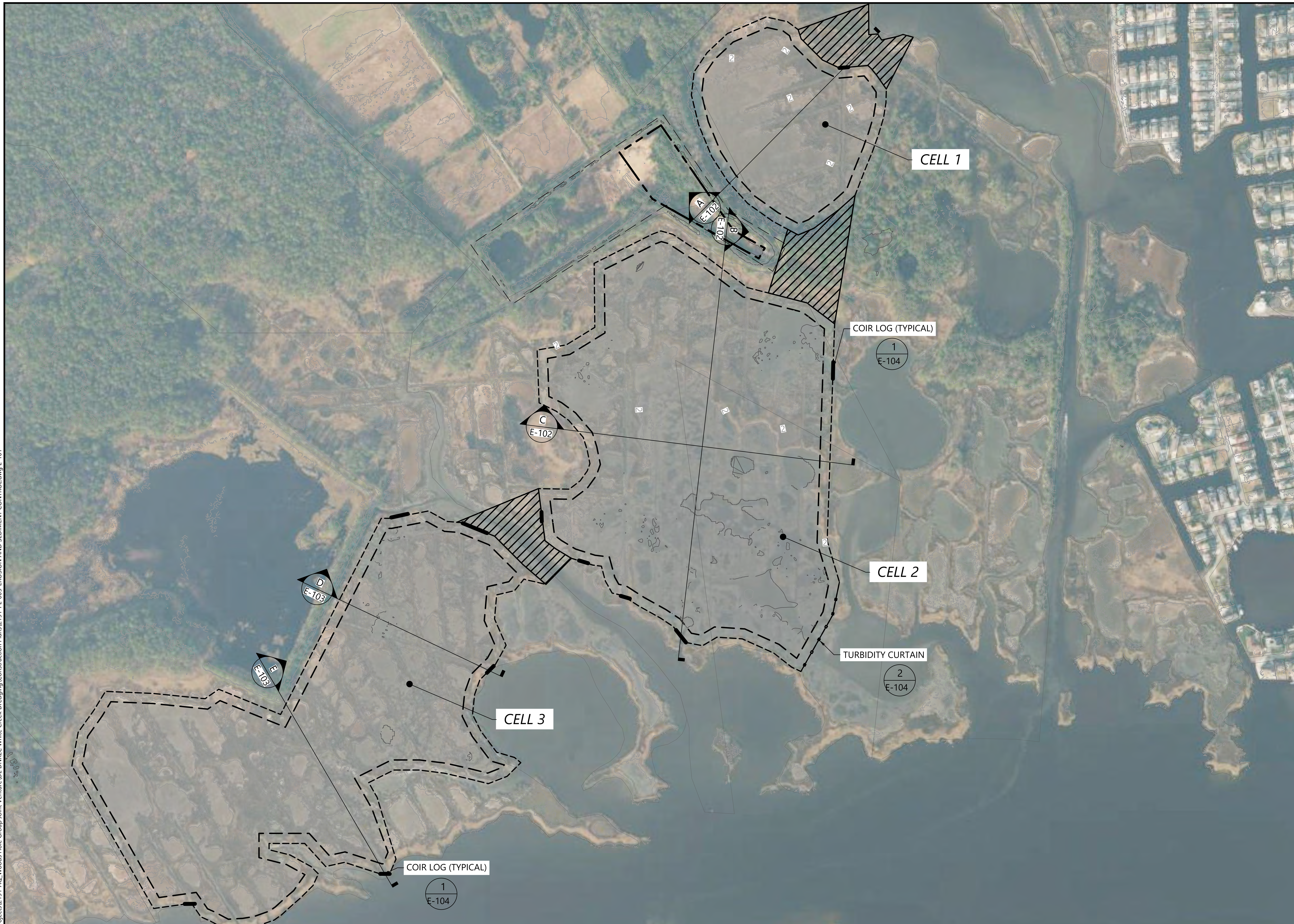
APPROVED BY: R. MOHAN
SCALE: AS NOTED
DATE: MARCH 2022

WHITE CREEK MAINTENANCE DREDGING PROJECT
SUSSEX COUNTY, DELAWARE

ASSAWOMAN CANAL TYPICAL CROSS SECTIONS 400+00 TO 423+00

C-110

SHEET # 24 OF 30



LEGEND:

- PARCEL
- -2 EXISTING CONTOUR
- TRANSITION ZONE
- THIN LAYER PLACEMENT CELL BOUNDARY - PLACEMENT TO ELEV. +1.0 FT NAVD88
- DREDGE PIPELINE MARSH AND WATERWAY CROSSING ZONE
- COIR LOG PLACEMENT
- APPROXIMATE LIMITS OF PROJECT STAGING AREA
- TURBIDITY CURTAIN PLACEMENT

NOTES:

1. NO MATERIAL WILL BE PLACED IN TLP CELL AREAS ABOVE MEAN HIGHER HIGH WATER.
2. ENVIRONMENTAL CONTROLS (TO MAINTAIN CELL BOUNDARIES AND PROTECT EXISTING TIDAL CHANNELS) SHALL BE CONSTRUCTED USING NATURAL MATERIALS INCLUDING BIODEGRADABLE COIR LOGS SECURED IN POSITION WITH WOODEN STAKES.
3. SET GRADE STAKES AT DESIGNATED SPACING ALONG CELL PERIMETER AND INTERIOR. STAKES SHALL VISIBLY INDICATE TARGETED PLACEMENT ELEVATION, AND 3-INCH INTERVALS FROM TARGETED PLACEMENT ELEVATION.
4. DREDGED MATERIAL SHALL BE PLACED HYDRAULICALLY USING MULTIPLE-POINT, LOW PRESSURE DISCHARGE. SLURRY LINES SHALL BE SPLIT VIA A SERIES OF WYE CONNECTIONS TO PROVIDE MULTIPLE AVAILABLE DISCHARGE POINTS. DISCHARGE POINTS SHALL BE OUTFIT WITH ENERGY REDUCING ATTACHMENTS TO PROMOTE EVEN SPREAD OF PLACED MATERIAL AND PREVENT SCOUR OF THE UNDERLYING MARSH AT THE POINT OF DISCHARGE.
5. FULL SLURRY LINE ALIGNMENT SHALL BE INSTALLED TO FACILITATE PLACEMENT AT LOCATION WITH CELLS FURTHEST FROM DREDGE AREA. PIPELINE LENGTH SHALL BE SHORTENED, AND WYE CONNECTIONS REMOVED OR RELOCATED, AS NECESSARY DURING OPERATIONS TO FACILITATE SEQUENCING OF PLACEMENT FROM FURTHEST TO NEAREST PLACEMENT LOCATION WITHIN CELLS IN RELATION TO DREDGE AREA.
6. DREDGED MATERIAL IS ANTICIPATED TO EXPERIENCE BULKING RATES AS MUCH AS 1.2 TO 2.0 TIMES THE MEASURED IN-SITU VOLUME AS PART OF THE MATERIAL HANDLING AND PLACEMENT PROCESS. SHORT-TERM CONSOLIDATION OF PLACED MATERIAL IS ANTICIPATED TO OCCUR WITHIN 24 HOURS OF PLACEMENT WITH CONTINUED LONGER-TERM CONSOLIDATION OCCURRING UP TO 5 WEEKS FOLLOWING INITIAL PLACEMENT.
7. TLP ELEVATIONS WILL BE CONTINUOUSLY MONITORED THROUGHOUT PLACEMENT USING TOPOGRAPHIC SURVEYING AND VISUAL MONITORING OF ESTABLISHED GRADE STAKES TO VERIFY PLACEMENT WITHIN STATED TOLERANCES AND LIMITS.
8. DREDGED MATERIAL PLACEMENT WILL BE MONITORED THROUGHOUT OPERATIONS FOR COMPLIANCE WITH ENVIRONMENTAL AND ENGINEERING REQUIREMENTS.
9. SLURRY PIPELINE CORRIDOR BETWEEN PLACEMENT CELLS MUST BE LOCATED IN THE AREAS INDICATED ON THIS PLAN.

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

NORTH

0 250 500

SCALE IN FEET

ONE INCH

AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

DRAFT-NOT FOR CONSTRUCTION

ANCHOR QEA WOODS HOLE GROUP JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

REVISIONS

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SCALE:	AS NOTED
DATE:	MARCH 2022

WHITE CREEK MAINTENANCE DREDGING PROJECT SUSSEX COUNTY, DELAWARE

THIN LAYER PLACEMENT AREA PLAN

E-101

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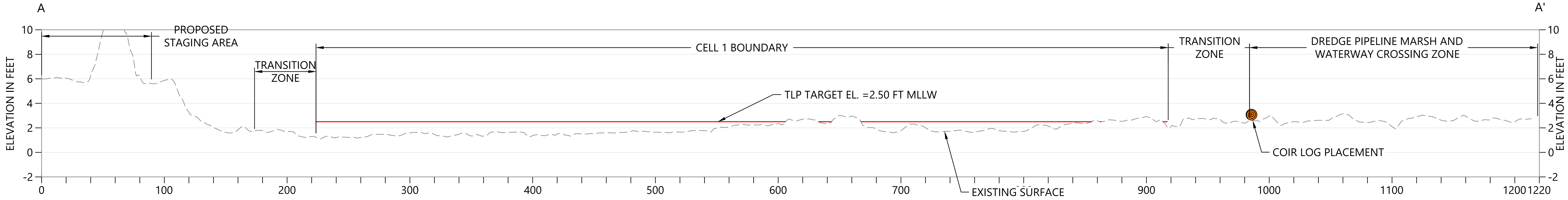
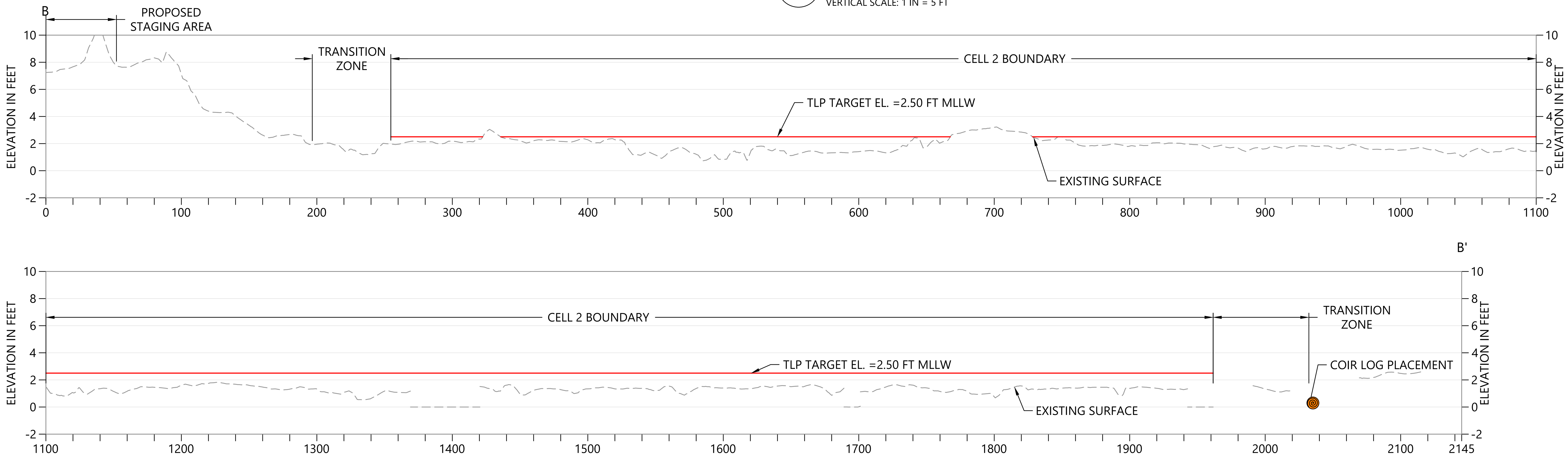
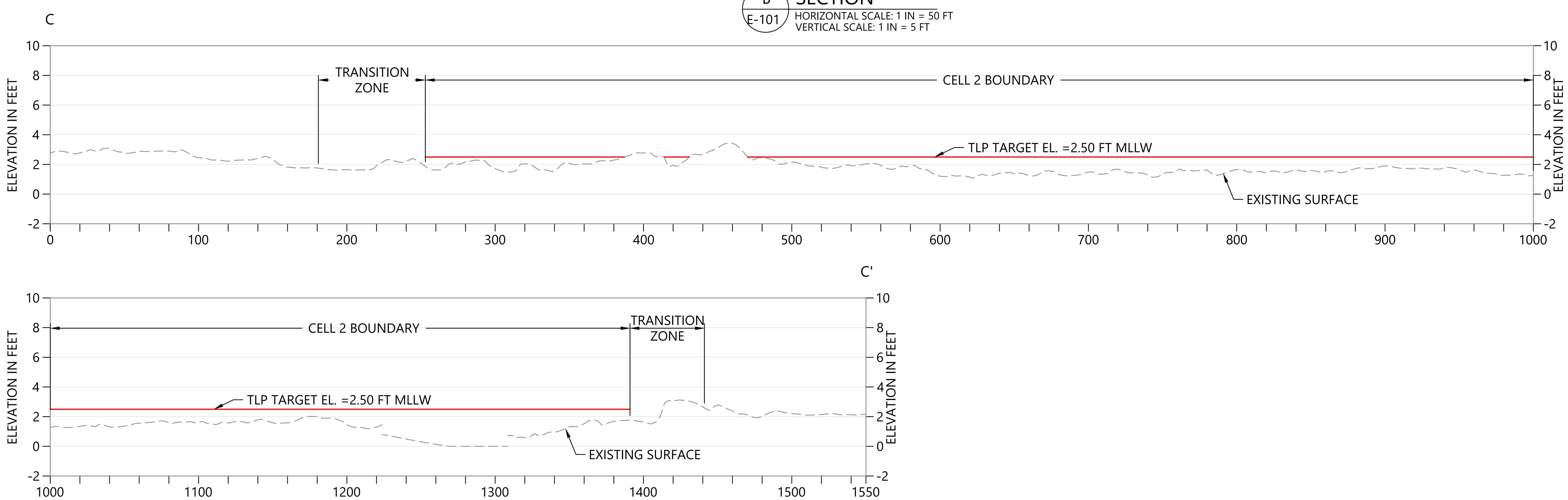


A SECTION E-101
HORIZONTAL SCALE: 1 IN = 50 FT
VERTICAL SCALE: 1 IN = 5 FT



B SECTION E-101
HORIZONTAL SCALE: 1 IN = 50 FT
VERTICAL SCALE: 1 IN = 5 FT



C SECTION E-101
HORIZONTAL SCALE: 1 IN = 50 FT
VERTICAL SCALE: 1 IN = 5 FT

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Mar 07, 2022 4:29pm bhurry

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

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

DRAFT-NOT FOR CONSTRUCTION

ANCHOR QEA WOODS HOLE GROUP JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

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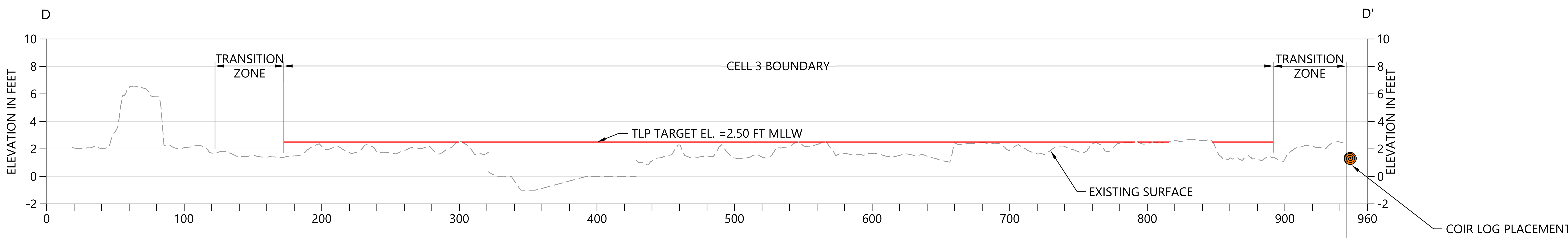
WHITE CREEK MAINTENANCE DREDGING PROJECT SUSSEX COUNTY, DELAWARE

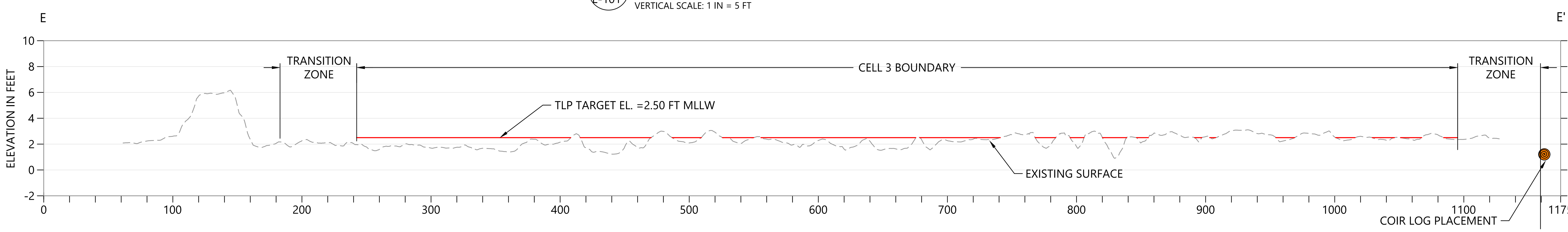
THIN LAYER PLACEMENT AREA CROSS SECTIONS (1 OF 2)

E-102

SHEET # 26 OF 30



D / E-101 SECTION
HORIZONTAL SCALE: 1 IN = 50 FT
VERTICAL SCALE: 1 IN = 5 FT



E / E-101 SECTION
HORIZONTAL SCALE: 1 IN = 50 FT
VERTICAL SCALE: 1 IN = 5 FT

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

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

K:\Projects\2191-AQ_Woods Hole Group Joint Venture\DE DNREC White Creek Dredging\Construction Plans\2191-PL-005-EROSION AND SEDIMENT CONTROL.dwg E-103

Mar 07, 2022 4:29pm bhurry

DRAFT-NOT FOR CONSTRUCTION

ANCHOR QEA | WOODS HOLE GROUP — JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

REVISIONS

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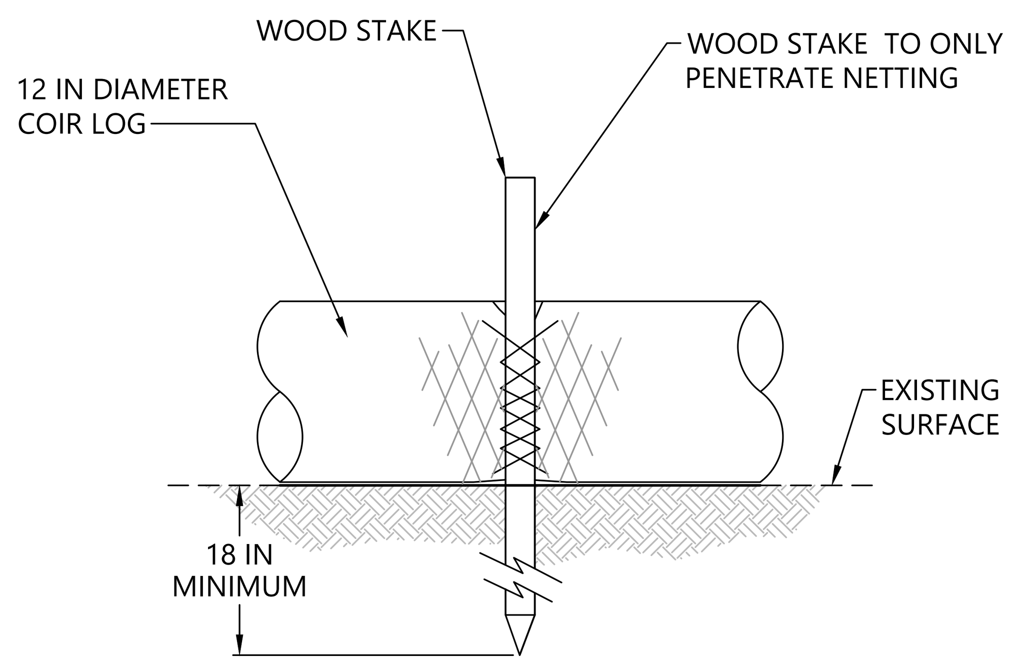
WHITE CREEK MAINTENANCE DREDGING PROJECT
SUSSEX COUNTY, DELAWARE

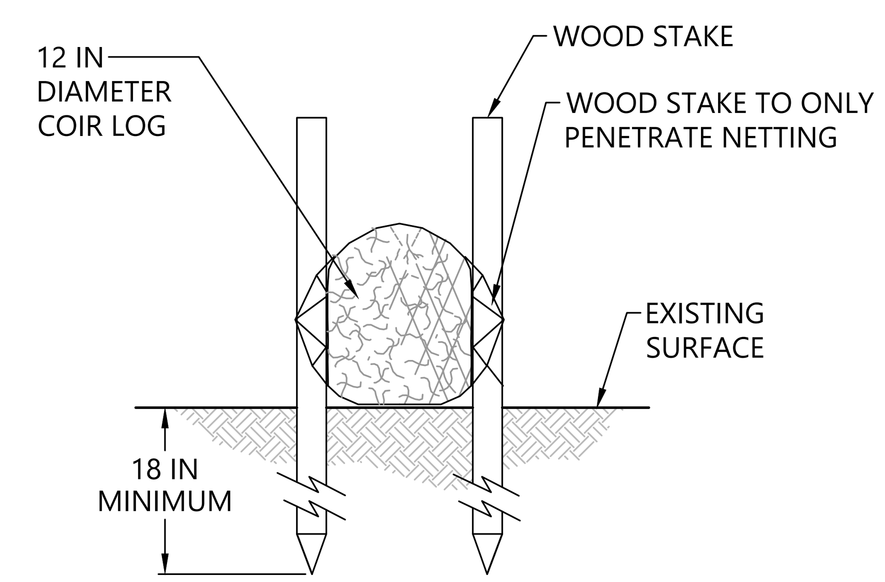
THIN LAYER PLACEMENT CROSS SECTIONS (2 OF 2)

E-103

SHEET # 27 OF 30



JOINT DETAIL
NOT TO SCALE

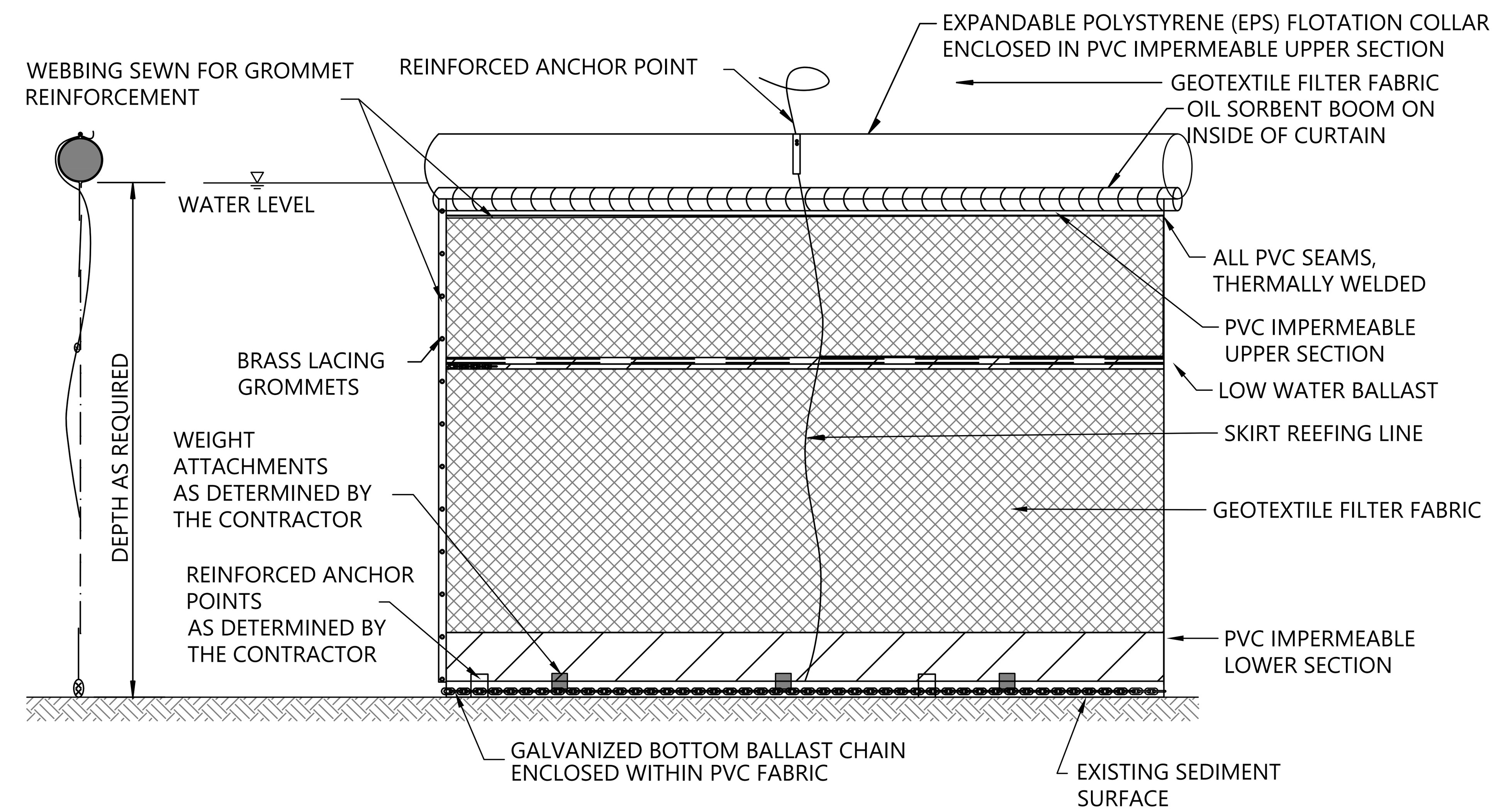


STAKING DETAIL
NOT TO SCALE

NOTES:

1. COIR LOG MUST BE PLACED AS SHOWN ON THESE ENGINEERING DRAWINGS, AND IN A ROW WITH A MINIMUM 1-FOOT OVERLAP AT THE ENDS.
2. COIR LOG MUST BE SECURELY ANCHORED IN PLACE BY TWO STAKES DRIVEN THROUGH THE COIR LOG NETTING AS SHOWN IN THE COIR LOG DETAIL. STAKES MUST BE DRIVEN FLUSH WITH THE COIR LOG.
3. COIR LOG MUST BE REMOVED AS DIRECTED BY THE ENGINEER.
4. COIR LOG PLACED ON SOIL MUST BE ANCHORED IN PLACE WITH STAKES DRIVEN THROUGH THE LOG EVERY 4 FEET AT A MINIMUM.

1 / E-101 COIR LOG DETAIL
SCALE: NOT TO SCALE



NOTES:

1. PERMEABLE TURBIDITY CURTAINS ARE TO BE USED TO CONTROL TURBIDITY IN SHALLOW WATER AREAS IN ACCORDANCE WITH THE PROJECT TECHNICAL SPECIFICATIONS AND PROJECT PERMIT CONDITIONS.
2. CONTRACTOR MUST MAINTAIN THE BOTTOM OF THE TURBIDITY CURTAIN ALONG THE SEDIMENT SURFACE.

2 / E-101 PERMEABLE TURBIDITY CURTAIN DETAIL
SCALE: NOT TO SCALE

Mar 07, 2022 4:29pm bhurry K:\Projects\2191-AQ_Woods Hole Group Joint Venture\DE DNREC White Creek Dredging\Construction Plans\2191-PL-005-EROSION AND SEDIMENT CONTROL.dwg E-104

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

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

DRAFT-NOT FOR CONSTRUCTION

ANCHOR QEA WOODS HOLE GROUP JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

REVISIONS

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DATE: MARCH 2022

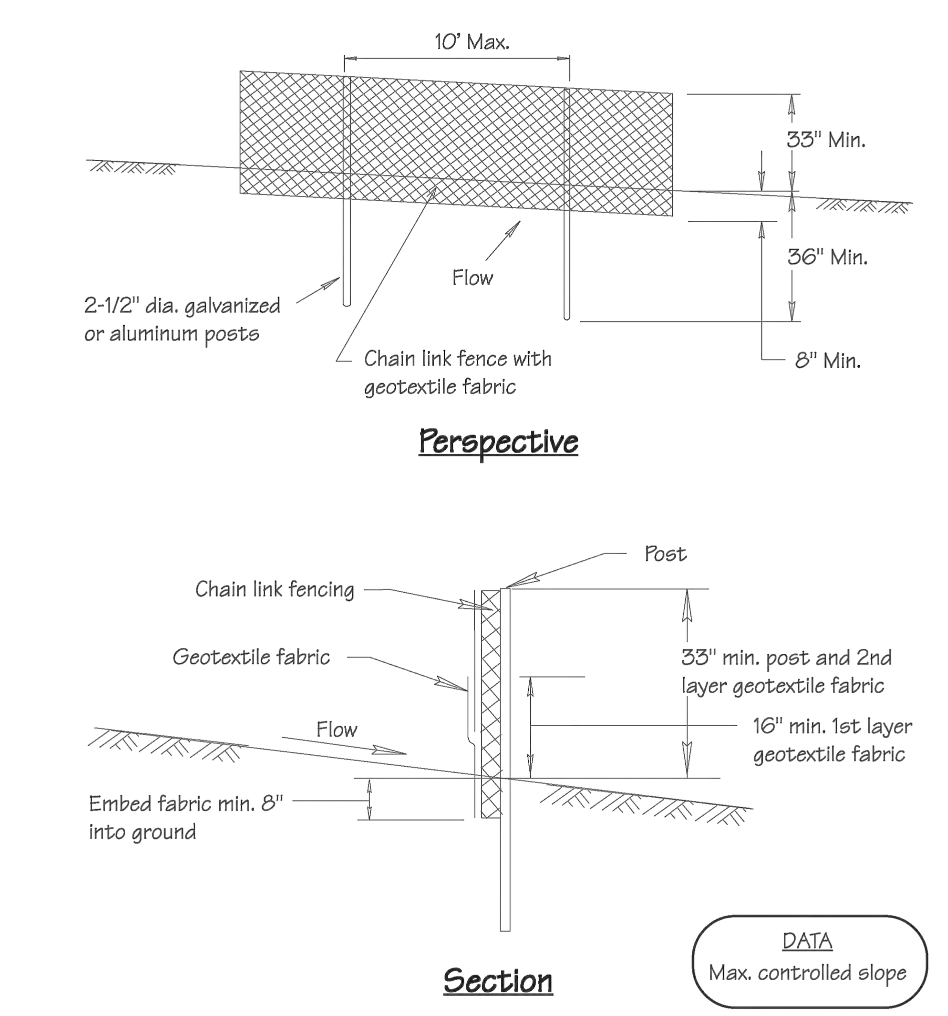
WHITE CREEK MAINTENANCE DREDGING PROJECT
SUSSEX COUNTY, DELAWARE

THIN LAYER PLACEMENT AREA CONTAINMENT TYPICAL DETAILS

E-104

SHEET # 28 OF 30

Standard Detail & Specifications
Super Silt Fence



Source:	Symbol:	Detail No.
Adapted from MD Stds. & Specs. for ESC		DE-ESC-3.1.2.3 Sheet 1 of 2 Effective FEB 2019

Standard Detail & Specifications
Super Silt Fence

Construction Notes:

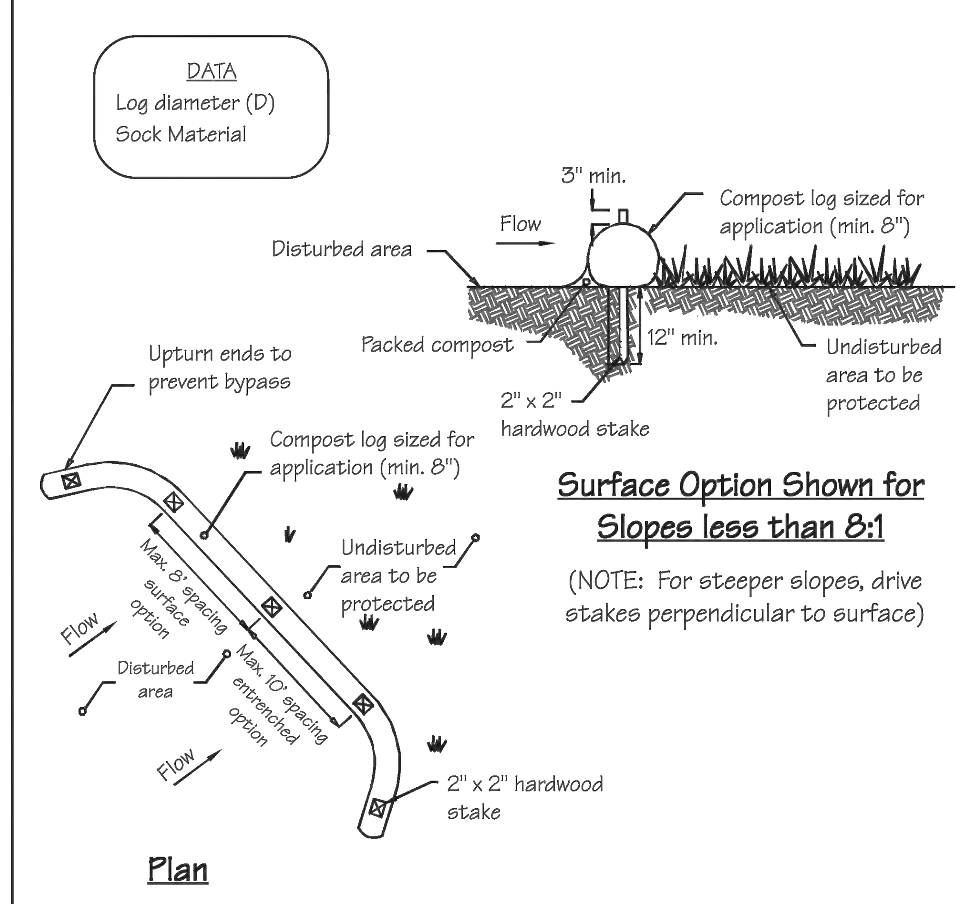
1. The poles do not need to be set in concrete.
2. Chain link fence shall be fastened securely to the fence posts with wire ties or staples.
3. Geotextile fabric shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Geotextile fabric shall be embedded a minimum of 8" into the ground.
5. When two sections of geotextile fabric adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence.

Materials:

1. Fencing: Fencing shall be 42 inches in height and constructed in accordance with the latest Delaware Department of Transportation (Del-DOT) Specifications for Chain Link Fencing (Section 727). The Del-DOT specification for a 6 foot fence shall be used, substituting 42 inch fabric and 6 foot length posts.
2. Geosynthetic Fabric: Type GD-I

Source:	Symbol:	Detail No.
Adapted from MD Stds. & Specs. for ESC		DE-ESC-3.1.2.3 Sheet 2 of 2 Effective FEB 2019

Standard Detail & Specifications
Compost Filter Log



NOTE: Manufacturer's recommendations supersede any installation details shown for this practice

Source:	Symbol:	Detail No.
Adapted from MD Stds & Specs for ESC & Filtrexx™ International		DE-ESC-3.1.7 Sheet 1 of 2 Effective FEB 2019

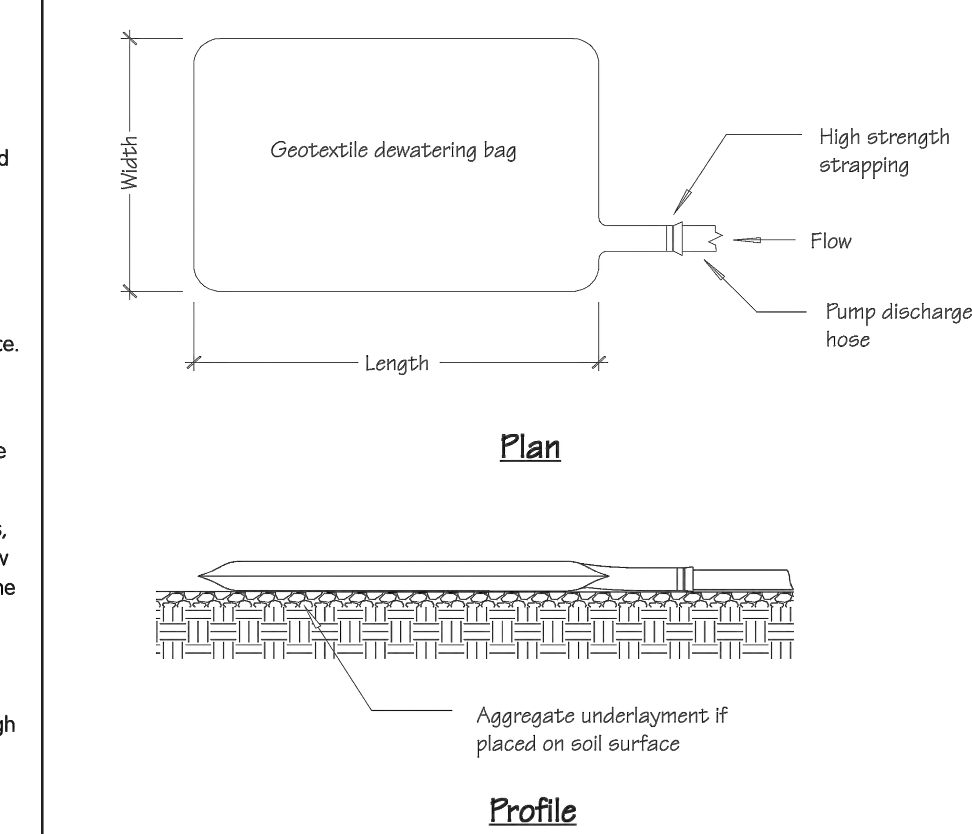
Standard Detail & Specifications
Compost Filter Log

Construction Notes:

1. Prior to installation, clear bedding area of obstructions including rocks or debris larger than 1 inch and fill in any sharp depression areas.
2. If socks are prepared on-site, fill the sock fabric using a pneumatic blower so that the logs are rigid and do not deform. Terminate at the desired length.
3. For trenched applications, excavate 2 to 4 inches below grade along the width and length of the compost filter log.
4. Install the compost filter logs perpendicular to the flow direction and parallel to the slope with the beginning and end of the installation pointing up the slope a minimum of 1 foot elevation difference. On sites where this is not possible, upturn at a minimum length of 10' at a 30 degree angle to prevent runoff bypass.
5. For untrenched applications, blow or hand pack soil, mulch, or compost on the upslope side of the log, filling the bottom void area.
6. Stake the filled log every 10 feet maximum through the center of the sock for trenched applications, or every 8 feet for untrenched. The stake shall be a 2" by 2" hardwood. It should extend 12" below grade and protrude at least 3" above the top of the sock. If located on a slope greater than 8:1, the stake shall be angled downslope at a 45 degree angle to prevent the force of the water from dislodging to log.
7. When the length of the compost filter log needed exceeds the available compost filter sock length, the next sock shall be overlapped a minimum of 12" before being filled, and a stake placed through both socks at the overlap.
8. Remove accumulated sediment when it has reached half of the effective height of the log.
9. Inspect weekly and after rain event. If sock is degrading or the sock is failing, vegetate to secure the compost, replace the log, or reinforce with an additional log. If the log has been crushed due to construction equipment, it can be "fluffed" back to its effective height. If the effective height can no longer be restored, the log shall be replaced or reinforced with an additional compost filter log.

Source:	Symbol:	Detail No.
Adapted from MD Stds & Specs for ESC & Filtrexx™ International		DE-ESC-3.1.7 Sheet 2 of 2 Effective FEB 2019

Standard Detail & Specifications
Geotextile Dewatering Bag



NOTE: Pre-manufactured products installed in accordance with manufacturer's recommendations may be used as an equivalent substitute with Departmental approval.

Source:	Symbol:	Detail No.
Adapted from ACF Products, Inc.		DE-ESC-3.2.1.2 Sheet 1 of 2 Effective FEB 2019

Standard Detail & Specifications
Geotextile Dewatering Bag

Construction Notes:

1. The dewatering bag should be placed so the incoming water flows into and through the bag, and then flow off the site without creating more erosion. The neck should be tied off tightly to stop the water from flowing out of the bag without going through the walls. The dewatering bag should be placed on a gravel bed to allow water to flow in all directions.
2. The dewatering bag is considered full and should be disposed when it is impractical for the bag to filter the sediment out at a reasonable flow rate. At this point, it should be replaced with a new bag.
3. Disposal may be accomplished as directed by the construction reviewer. If the site allows, the bag may be buried on site and seeded, visible fabric removed and seeded or removed from site to a proper disposal area.

Materials:

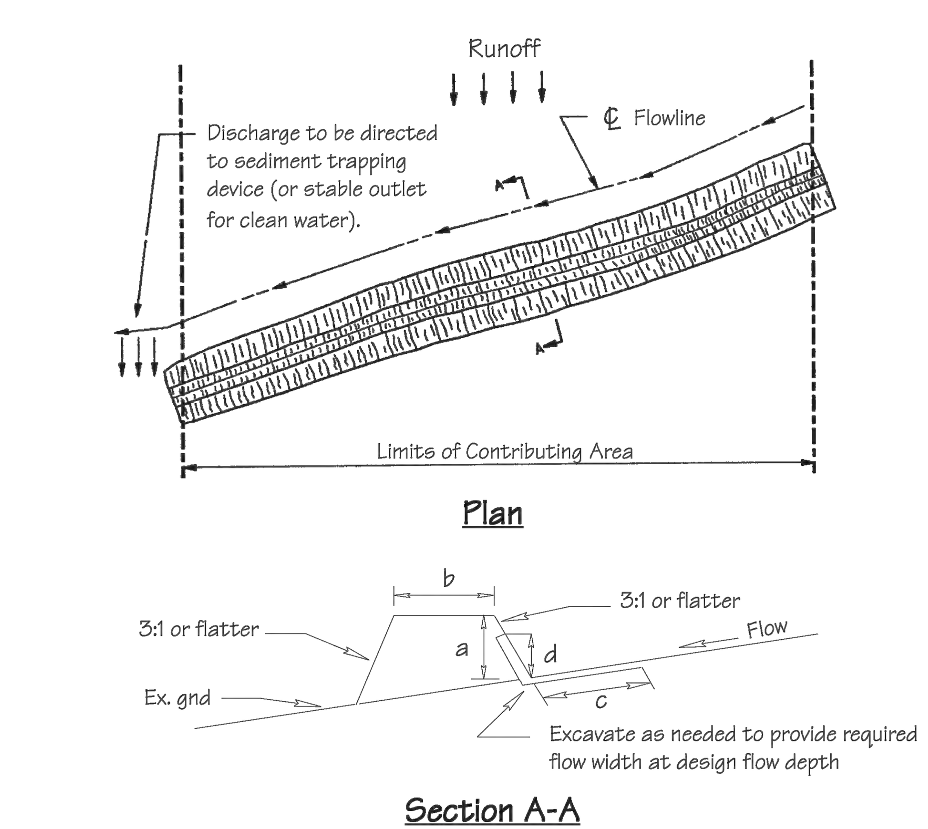
1. The geotextile fabric shall be a Type GD-IV.
2. The dewatering bag shall be sewn with a double needle machine using high strength thread. All structural seams will be sewn with high strength, double stitched "J" type. Seam strength test will have the following minimum average roll values:

Type	TEST METHOD	TEST RESULT
Heavy duty	ASTM D-4884	100 lb / in

3. The dewatering bag shall have an opening large enough to accommodate a four (4) inch discharge hose with attached strap to tie off the hose to prevent the pumped water from escaping from the bag without being filtered.

Source:	Symbol:	Detail No.
Adapted from ACF Products, Inc.		DE-ESC-3.2.1.2 Sheet 2 of 2 Effective FEB 2019

Standard Detail & Specifications
Temporary Earth Berm



	Type A (5 ac. or less)	Type B (5-10 ac.)
a - BERM HEIGHT	18"	36"
b - BERM TOP WIDTH	24"	36"
c - FLOW WIDTH	4'	6'
d - FLOW DEPTH	8"	15"

Source:	Symbol:	Detail No.
Adapted from MD Stds. & Specs. for ESC		DE-ESC-3.3.2 Sheet 1 of 2 Effective FEB 2019

Standard Detail & Specifications
Temporary Earth Berm

FLOW CHANNEL STABILIZATION CHART

Stabilization Method	Channel Grade	Type A	Type B
1	0.5-3.0%	Seed with stab. blanket	Seed with stab. blanket
2	3.1-5.0%	Seed with stab. blanket	Seed with stab. blanket; sod; DE #2 stone
3	5.1-8.0%	Seed with stab. blanket; sod; DE #2 stone	Lined R-4 riprap
4	8.1-20%	Lined R-4 riprap	Engineering design

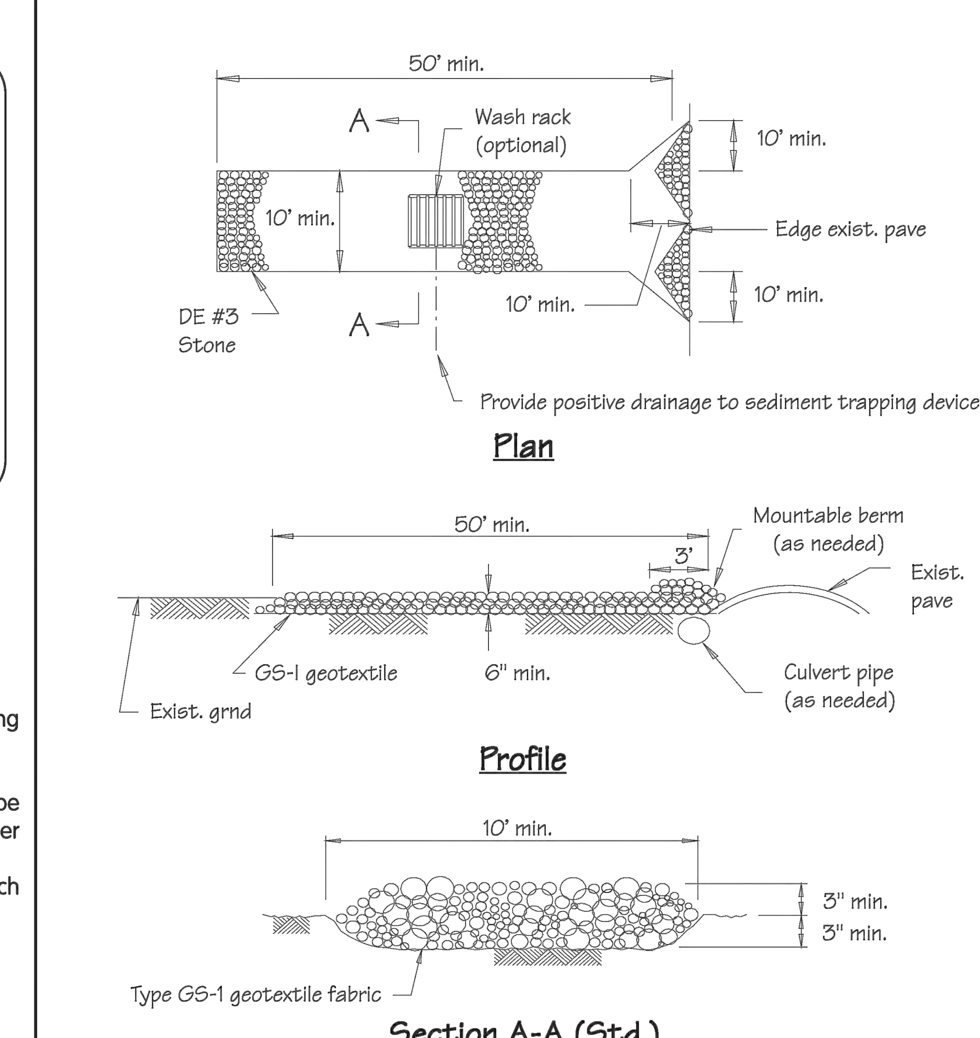
a. Stone to be DE #2 stone in a layer at least 3 inches in thickness and underlain with GS-I geotextile.
b. Riprap to be R-4 in a layer at least 8 inches thickness and underlain with GS-I geotextile.

Construction Notes:

1. All berms shall be compacted by earth-moving equipment.
2. All berms shall have positive drainage to an outlet.
3. Top width may be wider and side slopes may be flatter if desired to facilitate crossing construction traffic.
4. Field location should be adjusted as needed to utilize a stabilized safe outlet.
5. Earth berms shall have an outlet that functions with a minimum of erosion. Runoff shall be conveyed to a sediment trapping device such as a sediment trap or sediment basin where either the berm channel or the drainage area above the berm are not adequately stabilized.
6. Stabilization shall be: (a) In accordance with standard specifications for seed and straw mulch or straw mulch if not in seeding season, (b) Flow channel as per the chart above.
7. Inspection and required maintenance shall be provided after each rain event.

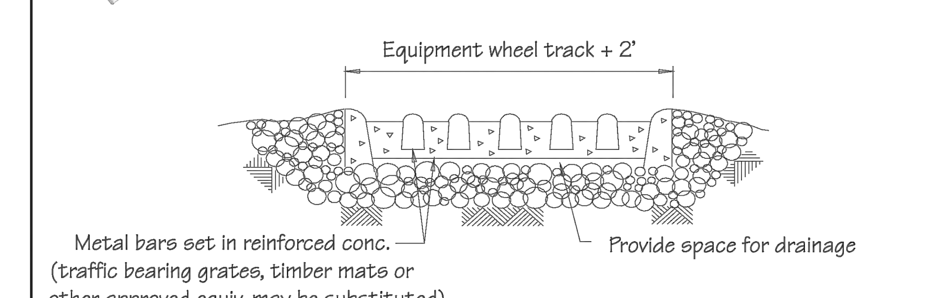
Source:	Symbol:	Detail No.
Adapted from MD Stds. & Specs. for ESC		DE-ESC-3.3.2 Sheet 2 of 2 Effective FEB 2019

Standard Detail & Specifications
Stabilized Construct. Entrance



Source:	Symbol:	Detail No.
Adapted from VA ESC Handbook		DE-ESC-3.4.7 Sheet 1 of 2 Effective FEB 2019

Standard Detail & Specifications
Stabilized Construct. Entrance



Section A-A (Opt.)

Construction Notes:

1. Stone size - Use DE #3 stone.
2. Length - As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum length would apply).
3. Thickness - Not less than size (6) inches.
4. Width - Ten (10) foot minimum, but not less than the full width at points where ingress or egress occurs.
5. Geotextile - Type GS-I; placed over the entire area prior to placing of stone.
6. Surface Water - All surface water flowing or diverted toward construction entrances shall be piped across the entrance. If piping is impractical, a mountable berm with 5:1 slopes will be permitted.
7. Maintenance - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately.
8. Washing - Vehicle wheels shall be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.
9. Inspection - Periodic inspection and needed maintenance shall be provided after each rain.

Source:	Symbol:	Detail No.
Adapted from VA ESC Handbook		DE-ESC-3.4.7 Sheet 2 of 2 Effective FEB 2019

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

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

DRAFT-NOT FOR CONSTRUCTION

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ANCHOR QEA WOODS HOLE GROUP JOINT VENTURE

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: S. BAGNULL
DRAWN BY: C. YARD
CHECKED BY: T. MERRITTS
APPROVED BY: R. MOHAN
SCALE: AS NOTED
DATE: MARCH 2022

WHITE CREEK MAINTENANCE DREDGING PROJECT
SUSSEX COUNTY, DELAWARE

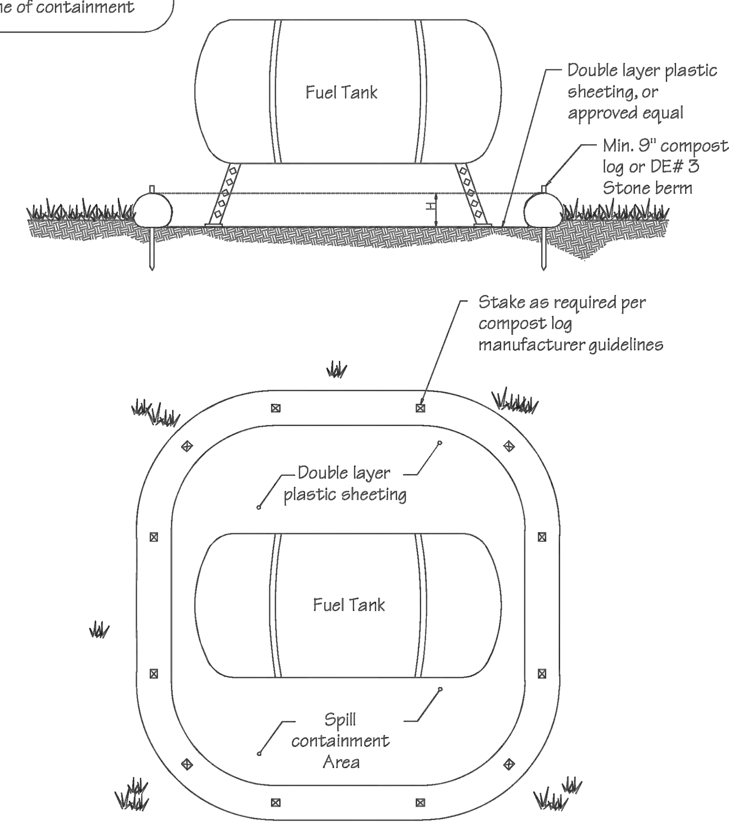
TEMPORARY EROSION AND SEDIMENTATION CONTROL DETAILS

E-105

SHEET # 29 OF 30

Standard Detail & Specifications
Construction Site Waste Mgt & Spill Control

DATA TO BE PROVIDED
Volume of Potential Pollution
Height of containment
Area of containment
Volume of containment



Source: Delaware ESC Handbook | Symbol: | Detail No. **DE-ESC-3.6.1** Sheet 1 of 5 Effective FEB 2019

Standard Detail & Specifications
Construction Site Waste Mgt & Spill Control

Pollution Prevention – Spill Prevention

1. Fueling should only take place in signed designated areas, away from downstream drainage facilities and watercourses.
2. Fueling must be with nozzles equipped with automatic shut-off to control drips. Do not top off.
3. Protect the areas where equipment or vehicles are being repaired, maintained, fueled or parked from storm water run-on and runoff.
4. Use barriers such as berms to prevent storm water run-on and runoff, and to contain spills.
5. Place a "Fueling Area" sign next to each fueling area.
6. Store hazardous materials such as fuel, solvents, oil and chemicals in secondary containment.
7. Inspect vehicles and equipment for leaks on each day of use. Repair fluid and oil leaks immediately.
8. Absorbent spill clean-up materials and spill kits must be available in fueling areas and on fuel trucks.
9. If fueling is to take place at night, make sure the fueling area is sufficiently illuminated.
10. Properly dispose of used oil, fluids, lubricants and spill clean-up materials.

CLEAN UP SPILLS

1. If it is safe to do so, immediately contain and clean up any chemical and/or hazardous material spills.
2. Properly dispose of used oil, fluids, lubricants and spill clean-up materials.
3. Do not bury spills or wash them down with water.

LEAKS AND DRIPS

1. Use drip pans or absorbent pads at all times. Place under and around leaky equipment.
2. Do not allow oil, grease, fuel or chemicals to drip onto the ground.
3. Have spill kits and clean up material on-site.
4. Repair leaky equipment promptly or remove problem vehicles and equipment from the site. Clean up contaminated soil immediately.
5. Store contaminated waste in sealed containers constructed of suitable material. Label these containers properly.
6. Clean up all spills and leaks. Promptly dispose of waste and spent clean up materials.

Source: Delaware ESC Handbook | Symbol: | Detail No. **DE-ESC-3.6.1** Sheet 2 of 5 Effective FEB 2019

Standard Detail & Specifications
Construction Site Waste Mgt & Spill Control

Notes:

The Construction Site Pollution Prevention Plan should include the following elements:

1. **Material Inventory**

   Document the storage and use of the following materials:

   a. Concrete
   b. Detergents
   c. Paints (enamel and latex)
   d. Cleaning solvents
   e. Pesticides
   f. Wood scraps
   g. Fertilizers
   h. Petroleum based products

2. **Good housekeeping practices**

   a. Store only enough product required to do the job.
   b. All materials shall be stored in a neat, orderly manner in their original labeled containers and covered.
   c. Substances shall not be mixed.
   d. When possible, all of a product shall be used up prior to disposal of the container.
   e. Manufacturers' instructions for disposal shall be strictly adhered to.
   f. The site foreman shall designate someone to inspect all BMPs daily.

3. **Waste management practices**

   a. All waste materials shall be collected and stored in securely lidded dumpsters in a location that does not drain to a waterbody.
   b. Waste materials shall be salvaged and/or recycled whenever possible.
   c. The dumpsters shall be emptied a minimum of twice per week, or more if necessary. The licensed trash hauler is responsible for cleaning out dumpsters.

Source: Adapted from USEPA Pub. 840-B-92-002 | Symbol: | Detail No. **DE-ESC-3.6.1** Sheet 3 of 5 Effective FEB 2019

Standard Detail & Specifications
Construction Site Waste Mgt & Spill Control

Notes (cont.)

   d. Trash shall be disposed of in accordance with all applicable Delaware laws.
   e. Trash cans shall be placed at all lunch spots and littering is strictly prohibited. Recycle bins shall be placed near the construction trailer.
   f. If fertilizer bags can not be stored in a weather-proof location, they shall be kept on a pallet and covered with plastic sheeting which is overlapped and anchored.

4. **Equipment maintenance practices**

   a. If possible, equipment should be taken to off-site commercial facilities for washing and maintenance.
   b. If performed on-site, vehicles shall be washed with high-pressure water spray without detergents in an area contained by an impervious berm.
   c. Drip pans shall be used for all equipment maintenance.
   d. Equipment shall be inspected for leaks on a daily basis.
   e. Washout from concrete trucks shall be disposed of in a temporary pit for hardening and proper disposal.
   f. Fuel nozzles shall be equipped with automatic shut-off valves.
   g. All used products such as oil, antifreeze, solvents and tires shall be disposed of in accordance with manufacturers' recommendations and local, state and federal laws and regulations.

5. **Spill prevention practices**

   a. Potential spill areas shall be identified and contained in covered areas with no connection to the storm drain system.
   b. Warning signs shall be posted in hazardous material storage areas.
   c. Preventive maintenance shall be performed on all tanks, valves, pumps, pipes and other equipment as necessary.
   d. Low or non-toxic substances shall be prioritized for use.

Source: Adapted from USEPA Pub. 840-B-92-002 | Symbol: | Detail No. **DE-ESC-3.6.1** Sheet 4 of 5 Effective FEB 2019

Standard Detail & Specifications
Construction Site Waste Mgt & Spill Control

Notes (cont.)

   e. Contact information for reporting spills through the DNREC 24-Hour Toll Free Number shall be prominently posted.

6. **Education**

   a. Best management practices for construction site pollution control shall be a part of regular progress meetings.
   b. Information regarding waste management, equipment maintenance and spill prevention shall be prominently posted in the construction trailer.

CONTACT INFORMATION

DNREC 24-Hour Toll Free Number	**800-662-8802**
DNREC Solid & Hazardous Waste Management Section	**302-739-9403**

Source: Adapted from USEPA Pub. 840-B-92-002 | Symbol: | Detail No. **DE-ESC-3.6.1** Sheet 5 of 5 Effective FEB 2019

Standard Detail & Specifications
Vegetative Stabilization

TEMPORARY SEEDING BY RATES, DEPTHS AND DATES

Mix #	Species[6]	Seeding Rate		Optimum Seeding Dates [1] O = Optimum Planting Period; A = Acceptable Planting Period							Planting Depth[3]
				Coastal Plain			Piedmont			All	
	Certified Seed	lb/Ac[5]	lb/1000 sq.ft.	2/1-4/30	[2] 5/1-8/14	8/15-10/31	3/1-4/30	[2] 5/1-7/31	8/1-10/31	10/31-2/1	
1	Barley	125	4	O	A	O	O	A	O		1-2 inches 2-3" sandy soils
2	Oats	125	4	O	A	A	O	A	A		1-2 inches 2-3" sandy soils
3	Rye	125	4	O	A	O	O	A	O	A	1-2 inches 2-3" sandy soils
4	Perennial Ryegrass	125	4	O	A	O	O	A	O		0.5 inches 1-2" sandy soils
5	Annual Ryegrass	125	4	O	A	O	O	A	O	A	0.5 inches 1-2" sandy soils
6	Winter Wheat	125	4	O	A	O	O	A	O	A	1-2 inches 2-3" sandy soils
7	Foxtail Millet	30 PLS	0.7		O			O			0.5 inches 1-2" sandy soils
8	Pearl Millet	20 PLS	0.5		O			O			0.5 inches 1-2" sandy soils

1. Winter seeding requires 3 tons per acre of straw mulch for proper stabilization.
2. May be planted throughout summer if soil moisture is adequate or seeded area can be irrigated.
3. Applicable on slopes 3:1 or less.
4. Fifty pounds per acre of Annual Lespedeza may be added to 1/2 the seeding rate of any of the above species.
5. Use varieties currently recommended for Delaware. Contact a County Extension Office for information.
6. Warm season grasses such as Millet or Weeping Lovegrass may be used between 5/1 and 9/1 if desired. Seed at 3-5 lbs. per acre. Good on low fertility and acid areas. Seed after frost through summer at a depth of 0.5".

NOTE: Alternative seed mixes may be used with prior approval from the Department or Delegated Agency.

Source: Delaware ESC Handbook | Symbol: | Detail No. **DE-ESC-3.4.3** Sheet 1 of 4 Effective FEB 2019

Standard Detail & Specifications
Vegetative Stabilization

PERMANENT SEEDING AND SEEDING DATES

Seeding Mixtures		Seeding Rate[1]		Optimum Seeding Dates [2] O = Optimum Planting Period A = Acceptable Planting Period							Remarks
Mix No.	Certified Seed[3]			Coastal Plain			Piedmont			All[4]	
	Well Drained Soils	lb/Ac	lb/1000 sq.ft.	2/1-4/30	5/1-8/14	8/15-10/31	3/1-4/30	5/1-7/31	8/1-10/31	10/31-2/1	
1	Tall Fescue Weeping Lovegrass	140 10	3.2 0.23	A	O	A	A	O	A	Add 100 lbs./ac Winter Rye	Good erosion control mix Tolerant of low fertility soils Lovegrass very difficult to mow; Germinates only in hot weather
2	Deertongue Sheep Fescue Common Lespedeza[5] Inoculated	30 30 15	0.69 0.69 0.35	A	O	A	A	O	A	Add 100 lbs./ac Winter Rye	Good erosion control mix Tolerant of low fertility soils Good wildlife cover and food
3	Tall Fescue (Turf-type) **or** Strong Creeping Red Fescue **or** Perennial Ryegrass **plus** Flatpea[5]	50 50 50 15	1.15 1.15 1.15 0.34	O	A	O	O	A	O	Add 100 lbs./ac. Winter Rye	Good erosion control mix Tall Fescue for droughty conditions. Creeping Red Fescue for heavy shade. Flatpea to suppress woody vegetation.
4	Strong Creeping Red Fescue Kentucky Bluegrass Perennial Ryegrass **or** Redtop **plus** White Clover[5]	100 70 15 5 3	2.3 1.61 0.35 0.11 0.07	O	A	O	O	A	O	Add 100 lbs./ac. Winter Rye	Suitable waterway mix. Canada Bluegrass more drought tolerant. Use Redtop for increased drought tolerance.
5	Switchgrass[6,7] **or** Coastal Panicgrass Big Bluestem Little Bluestem Indian Grass	10 10 5 5 5	0.23 0.23 0.11 0.11 0.1		O			O			Native warm-season mixture. Tolerant of low fertility soils. Drought tolerant. Poor shade tolerance. N fertilizer discouraged - weeds
6	Tall Fescue (turf-type) (Blend of 3 cultivars)	150	3.5	O	A	O	O	A	O		Managed filter strip for nutrient uptake.
7	Tall Fescue Ky. Bluegrass (Blend) Perennial Ryegrass	150 20 20	3.5 0.46 0.46	O	A	O	O	A	O		Three cultivars of Kentucky Bluegrass. Traffic tolerant.
8	Big Bluestem[7] Indian Grass[7] Little Bluestem[7] Creeping Red Fescue **plus one of:** Partridge Pea Bush Clover Wild Indigo Showy Tick-Trefoil	10 10 8 30 5 3 3 2	0.23 0.23 0.18 0.69 0.11 0.07 0.07 0.05	O	A		O	A			All species are native. Indian Grass and Bluestem have fluffy seeds. Plant with a specialized native seed drill. Creeping Red Fescue will provide erosion protection while the warm season grasses get established.

NOTE: Alternative seed mixes may be used with prior approval from the Department or Delegated Agency.

Source: Delaware ESC Handbook | Symbol: | Detail No. **DE-ESC-3.4.3** Sheet 2 of 4 Effective FEB 2019

Standard Detail & Specifications
Vegetative Stabilization

PERMANENT SEEDING AND SEEDING DATES (cont.)

Seeding Mixtures		Seeding Rate[1]		Optimum Seeding Dates [2] O = Optimum Planting Period A = Acceptable Planting Period							Remarks
Mix No.	Certified Seed[3]			Coastal Plain			Piedmont			All[4]	
	Poorly Drained Soils	lb/Ac	lb/1000 sq.ft.	2/1-4/30	5/1-8/14	8/15-10/31	3/1-4/30	5/1-7/31	8/1-10/31	10/31-2/1	
9	Redtop Creeping Bentgrass Sheep Fescue Rough Bluegrass	75 35 30 45	1.72 0.8 0.69 1	O	A	O	O	A	O	Add 100 lbs./ac. Winter Rye	Quick stabilization of disturbed sites and waterways
10	Reed Canarygrass[6]	10	0.23	A		O	A		O		Good erosion control, wildlife cover and wetland revegetation.
	Residential Lawns										
11	Tall Fescue Perennial Ryegrass Kentucky Bluegrass Blend	100 25 30	2.3 0.57 0.69	O	A	O	O	A	O		High value, high maintenance, light traffic, irrigation necessary. Well drained soils, full sun.
12	Tall Fescue Perennial Ryegrass Sheep Fescue	100 25 25	2.3 0.57 0.57	O	A	O	O	A	O		Moderate value, low maintenance, traffic tolerant
13	Creeping Red Fescue Chewings Fescue Rough Bluegrass Kentucky Bluegrass	50 50 20 20	1.15 1.15 0.4 0.4	O	A	O	O	A	O		Shade tolerant, moderate traffic tolerance, moderate maintenance.
14	Creeping Red Fescue Rough Bluegrass **or** Chewings Fescue	50 90	1.15 2.1	O	A	O	O	A	O		Shade tolerant, moisture tolerant.
15	K-31 Tall Fescue	150	3.5	O	A	O	O	A	O		Monoculture, but performs well alone in lawns. Discouraged.

1. When hydroseeding is the chosen method of application, the total rate of seed should be increased by 25%.
2. Winter seeding requires 3 tons per acre of straw mulch. Planting dates listed above are average for Delaware. These dates may require adjustment to reflect local conditions.
3. All seed shall meet the minimum purity and minimum germination percentages recommended by the Delaware Department of Agriculture. The maximum % of weed seeds shall be in accordance with Section 1, Chapter 24, Title 3 of the Delaware Code.
4. Cool season species may be planted throughout summer if soil moisture is adequate or seeded area can be irrigated.
5. All leguminous seed must be inoculated.
6. Warm season grass mix and Reed Canary Grass cannot be mowed more than 4 times per year.
7. Warm season grasses require a soil temperature of at least 50 degrees in order to germinate, and will remain dormant until then.

NOTE: Alternative seed mixes may be used with prior approval from the Department or Delegated Agency.

Source: Delaware ESC Handbook | Symbol: | Detail No. **DE-ESC-3.4.3** Sheet 3 of 4 Effective FEB 2019

Standard Detail & Specifications
Vegetative Stabilization

Construction Notes:

1. Site Preparation

   a. Prior to seeding, install needed erosion and sediment control practices such as diversions, grade stabilization structures, berms, dikes, grassed waterways, and sediment basins.
   b. Final grading and shaping is not necessary for temporary seedings.

2. Seedbed Preparation

   It is important to prepare a good seedbed to insure the success of establishing vegetation. The seedbed should be well prepared, loose, uniform, and free of large clods, rocks, and other objectionable material. The soil surface should not be compacted or crusted.

3. Soil Amendments

   a. Lime - Apply liming materials based on the recommendations of a **soil test** in accordance with the approved nutrient management plan. If a nutrient management plan is not required, apply dolomitic limestone at the rate of 1 to 2 tons per acre. Apply limestone uniformly and incorporate into the top 4 to 6 inches of soil.
   b. Fertilizer - Apply fertilizer based on the recommendations of a **soil test** in accordance with the approved nutrient management plan. If a nutrient management plan is not required, apply a formulation of 10-10-10 at the rate of 600 pounds per acre. Apply fertilizer uniformly and incorporate into the top 4 to 6 inches of soils.

4. Seeding

   a. For **temporary stabilization**, select a mixture from **Sheet 1** . For a **permanent stabilization**, select a mixture from **Sheet 2** or **Sheet 3** depending on the conditions. Alternative seed mixes may be used with prior approval from the Department or Delegated Agency.
   b. Apply seed uniformly with a broadcast seeder, drill, cultipacker seeder or hydroseeder. All seed will be applied at the recommended rate and planting depth.
   c. Seed that has been broadcast should be covered by raking or dragging and then lightly tamped into place using a roller or cultipacker. If hydroseeding is used and the seed and fertilizer is mixed, they will be mixed on site and the seeding shall be done immediately and without interruption.

5. Mulching

   All mulching shall be done in accordance with detail **DE-ESC-3.4.5**.

Source: Delaware ESC Handbook | Symbol: | Detail No. **DE-ESC-3.4.3** Sheet 4 of 4 Effective FEB 2019

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DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: S. BAGNULL
DRAWN BY: C. YARD
CHECKED BY: T. MERRITTS
APPROVED BY: R. MOHAN
SCALE: AS NOTED
DATE: MARCH 2022

WHITE CREEK MAINTENANCE DREDGING PROJECT SUSSEX COUNTY, DELAWARE

TEMPORARY EROSION AND SEDIMENTATION CONTROL DETAILS

E-106

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Mar 07, 2022 4:31pm bhurry