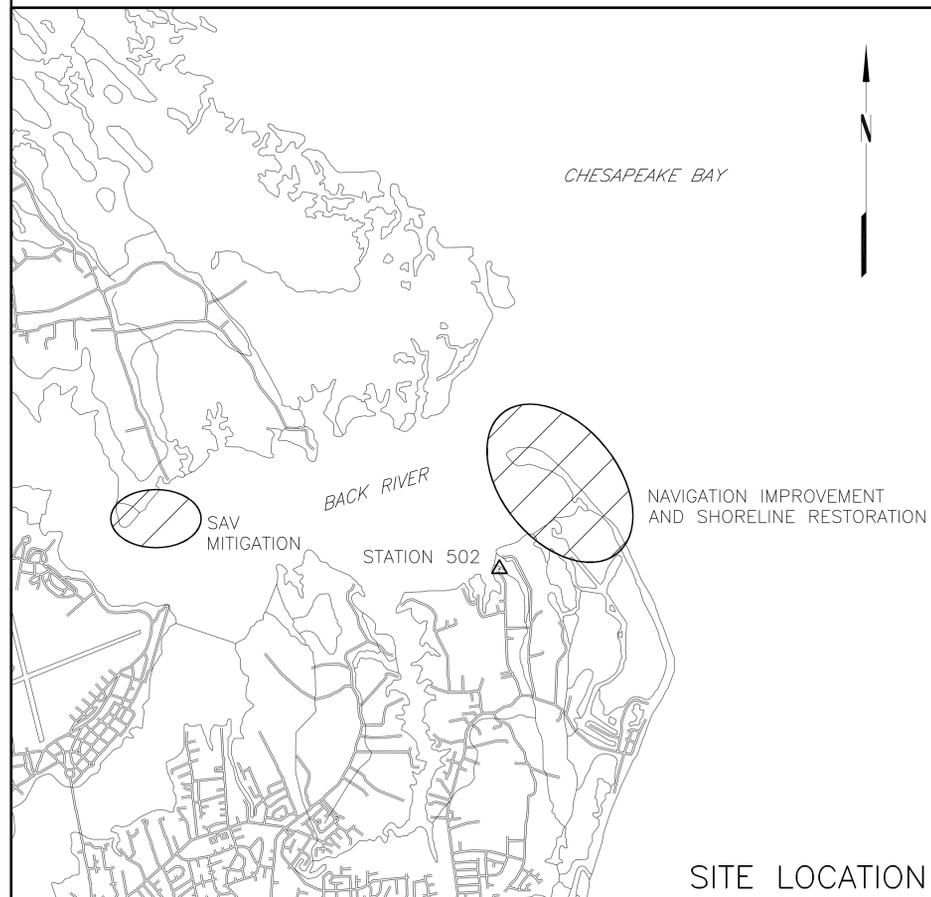
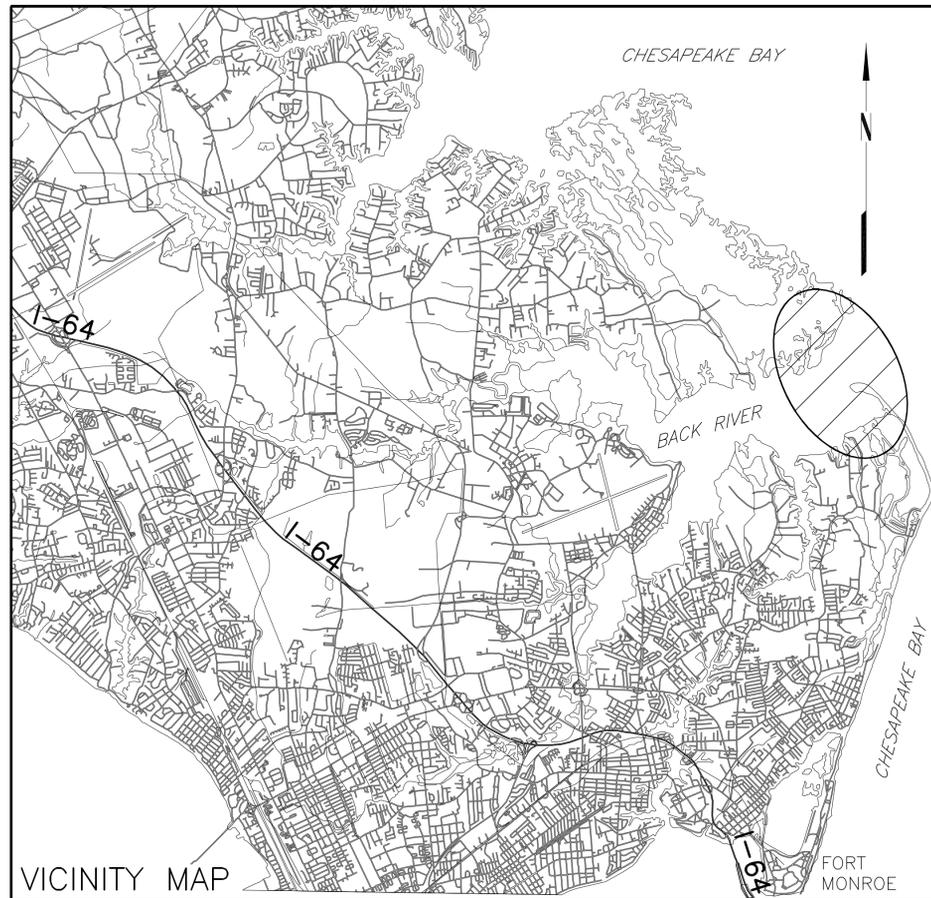


BACK RIVER NAVIGATION IMPROVEMENTS AND SHORELINE RESTORATION

APRIL 30, 2008



SHEET INDEX

01	COVER SHEET
02	PROJECT OVERVIEW
03	PLANS FOR CHANNEL DREDGING
04	PLACEMENT AREA (BASE BID)
05	PLACEMENT AREA CROSS SECTIONS (BASE BID)
06	PLACEMENT AREA (ALTERNATE 1)
07	PLACEMENT AREA CROSS SECTIONS (ALTERNATE 1)
08	BORROW AREA
09	TYPICAL SECTIONS & DETAILS
10	TYPICAL SECTIONS & DETAILS

THIS AREA IS BEING
RESERVED FOR GENERAL
NOTES FROM THE CITY AND
POSSIBLY EROSION
CONTROL NOTES.

NOTES:

- ELEVATIONS ARE IN FEET REFERRED TO MEAN LOW WATER (MLW) TIDAL EPOCH 83-01 AND WERE TAKEN ON MAY 30, JUNE 7-8, JUNE 11-12, JUNE 19, JUNE 29, AND JULY 2-3, 2007.
- COORDINATES ARE IN U.S. SURVEY FEET REFERRED TO THE VIRGINIA STATE GRID (SOUTH ZONE) BASED ON NAD83.
- BENCHMARK IS "STATION 502" AND IS LOCATED IN THE SOUTHEAST CORNER OF THE BOAT RAMP ON DANDY POINT ROAD. ELEV.=1.81' ABOVE NAVD88

LEGEND

EXISTING	PROPOSED
SAV (PERCENT COVERAGE SAV)	SILT FENCE
CHANNELS TO REMAIN	PROPOSED CHANNEL
CHANNELS TO BE ABANDONED	BORROW AREA FOR SHORELINE RESTORATION
OYSTER LEASES	PLACEMENT AREA
EXISTING BEACONS	DREDGING AREA
DELINEATED WETLANDS	PROPOSED BEACONS
BORING	SIGNS
SIGNS	

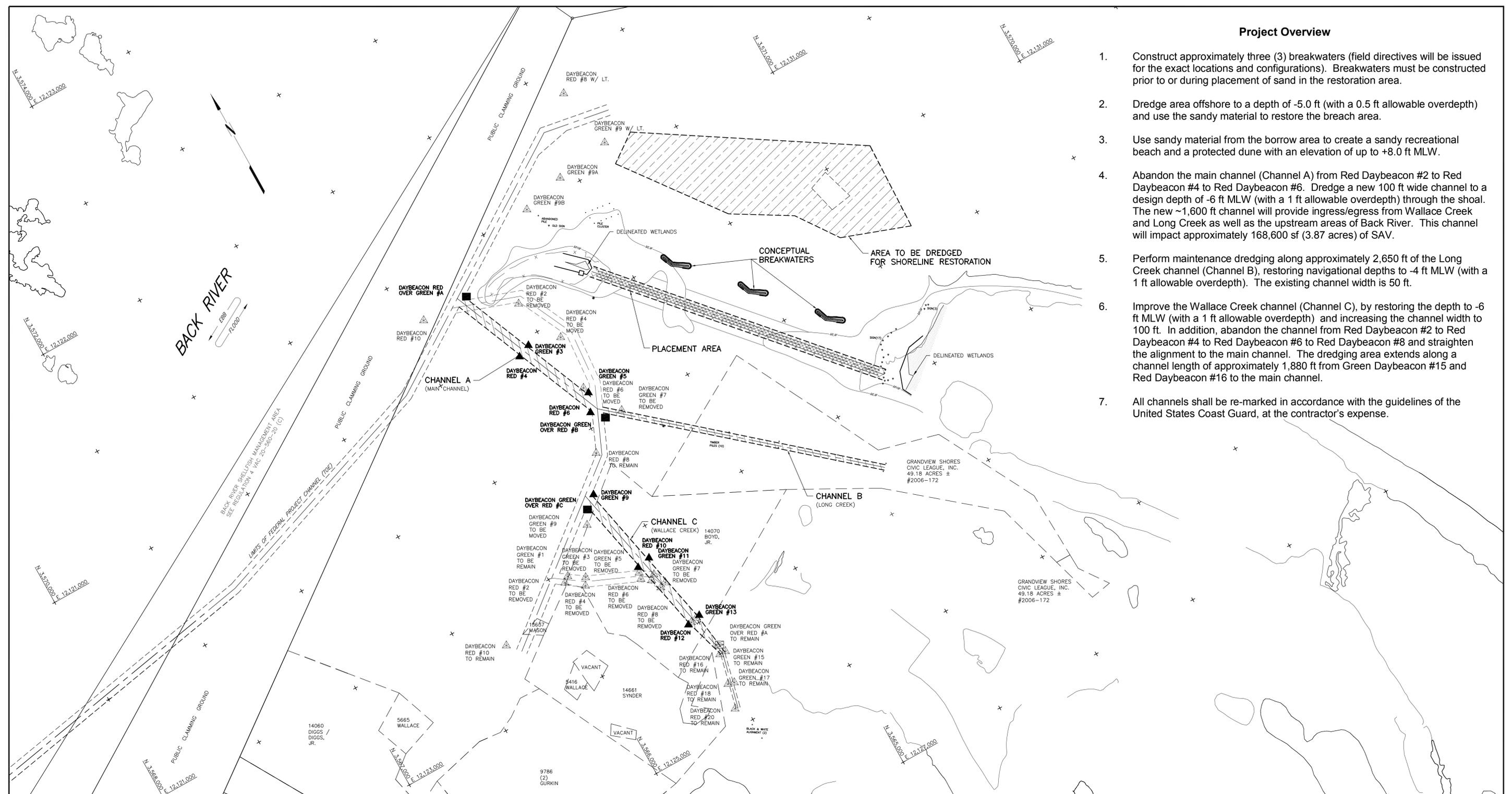
PRELIMINARY

THESE PLANS HAVE BEEN PREPARED TO ALLOW PLANNING, PERMITTING, DESIGN, AND BID LETTING TO OCCUR WHILE DETAILED COMPUTER MODELING IS BEING PERFORMED TO SUPPORT THE REQUIRED BREAKWATER DESIGN. TIME IS OF THE ESSENCE, AND THESE PLANS ARE BEING LET WITH "FIELD DIRECTIVES" FOR THE BREAKWATER DESIGNS. FIELD DIRECTIVES ARE NOT CHANGE ORDERS, BUT A PLANNED PART OF THE CONSTRUCTION PROCESS.

URS
URS CORPORATION
11832 ROCK LANDING DRIVE, SUITE 306
NEWPORT NEWS, VIRGINIA, 23606

Waterway
Surveys & Engineering, Ltd.
321 Cleveland Place, Virginia Beach, Va. 23462
Tel: (757) 490-1691 Fax: (757) 490-1348

		City of Hampton Department of Public Works	
SURVEYED W.S.&E.		HAMPTON, VIRGINIA	
DESIGNED R.S.F.		COVER SHEET	
DRAWN K.T.D.			
REVIEWED J.B.W.			
SCALE	DATE	SHEET NO.	
N.T.S.	APRIL 30, 2008	1 OF 10	
	REVISION	DRAWING NO.	
		4027-00-58-01	



Project Overview

1. Construct approximately three (3) breakwaters (field directives will be issued for the exact locations and configurations). Breakwaters must be constructed prior to or during placement of sand in the restoration area.
2. Dredge area offshore to a depth of -5.0 ft (with a 0.5 ft allowable overdepth) and use the sandy material to restore the breach area.
3. Use sandy material from the borrow area to create a sandy recreational beach and a protected dune with an elevation of up to +8.0 ft MLW.
4. Abandon the main channel (Channel A) from Red Daybeacon #2 to Red Daybeacon #4 to Red Daybeacon #6. Dredge a new 100 ft wide channel to a design depth of -6 ft MLW (with a 1 ft allowable overdepth) through the shoal. The new ~1,600 ft channel will provide ingress/egress from Wallace Creek and Long Creek as well as the upstream areas of Back River. This channel will impact approximately 168,600 sf (3.87 acres) of SAV.
5. Perform maintenance dredging along approximately 2,650 ft of the Long Creek channel (Channel B), restoring navigational depths to -4 ft MLW (with a 1 ft allowable overdepth). The existing channel width is 50 ft.
6. Improve the Wallace Creek channel (Channel C), by restoring the depth to -6 ft MLW (with a 1 ft allowable overdepth) and increasing the channel width to 100 ft. In addition, abandon the channel from Red Daybeacon #2 to Red Daybeacon #4 to Red Daybeacon #6 to Red Daybeacon #8 and straighten the alignment to the main channel. The dredging area extends along a channel length of approximately 1,880 ft from Green Daybeacon #15 and Red Daybeacon #16 to the main channel.
7. All channels shall be re-marked in accordance with the guidelines of the United States Coast Guard, at the contractor's expense.

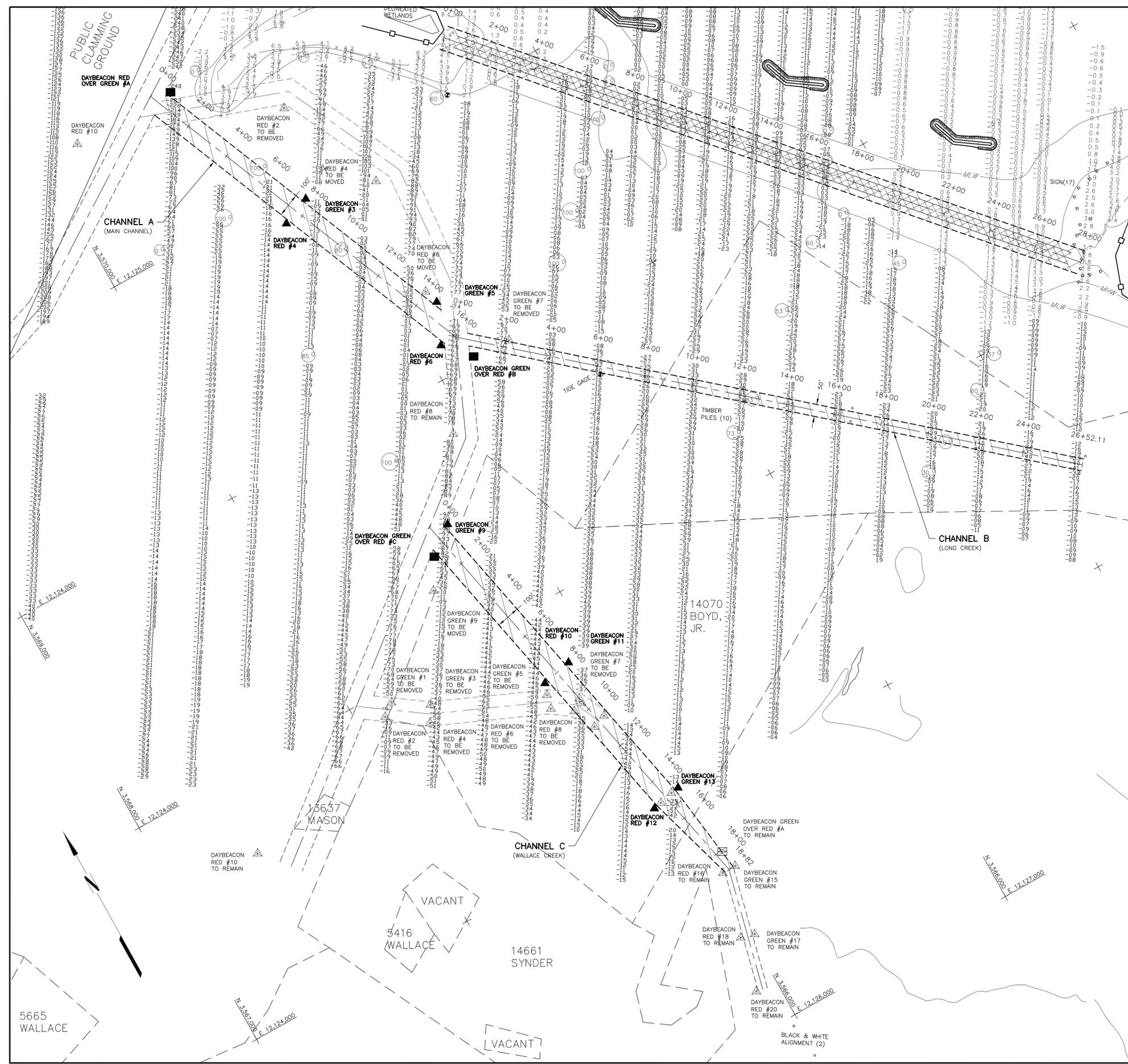
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City of Hampton Department of Public Works		HAMPTON, VIRGINIA		
		BACK RIVER NAVIGATION IMPROVEMENTS AND SHORELINE RESTORATION		
PROJECT OVERVIEW		SCALE	DATE	SHEET NO.
		1" = 400'	APRIL 30, 2008	2 OF 10
SURVEYED W.S.&E.		DESIGNED R.S.F.		
DRAWN K.T.D.		REVIEWED J.B.W.		
REVISION		DRAWING NO. 4027-00-58-02		



PROPOSED CHANNEL MARKERS		
DAYBEACON	NORTHING	EASTING
MAIN CHANNEL		
RED/GREEN #A	3,570,598.64	12,125,595.58
GREEN #3	3,569,930.47	12,125,870.57
RED #4	3,569,880.27	12,125,750.65
GREEN #5	3,569,293.54	12,126,137.19
RED #6	3,569,128.37	12,126,068.40
RED #8	3,568,784.46	12,125,932.02
GREEN #9	3,568,470.36	12,125,729.10
RED #10	3,567,667.82	12,124,377.98
LONG CREEK		
GREEN/RED #B	3,569,022.57	12,126,161.21
WALLACE CREEK		
GREEN/RED #C	3,568,380.29	12,125,615.74
RED #8	3,567,539.89	12,125,811.31
RED #10	3,567,700.30	12,125,761.52
GREEN #11	3,567,727.59	12,125,888.62
RED #12	3,567,027.21	12,125,906.07
GREEN #13	3,567,094.55	12,126,033.17
LONG CREEK		
GREEN/RED #A	3,566,734.77	12,126,064.89
GREEN #15	3,566,656.44	12,126,082.62
RED #16	3,566,656.37	12,126,024.07
GREEN #17	3,566,371.65	12,126,015.89
RED #18	3,566,387.24	12,125,958.72
RED #20	3,566,161.96	12,125,906.52

NOTE:
 SIGNS ARE TO BE ADJUSTED/RELOCATED BY CONTRACTOR TO CONVEY THE ORIGINAL INTENT OF THE SIGN. THE COST FOR SUCH RELOCATION/ADJUSTMENT IS INCIDENTAL TO THE PROJECT, AND SHALL BE BOURNE BY THE CONTRACTOR.

CHANNEL COORDINATES		
STATION	NORTHING	EASTING
MAIN CHANNEL		
0+00	3,570,613.51	12,125,514.50
16+10.17	3,569,128.23	12,126,136.26
LONG CREEK		
0+00	3,569,128.23	12,126,136.26
26+52.11	3,567400.01	12,128,147.96
WALLACE CREEK		
0+00	3,568,496.45	12,125,657.28
18+82.19	3,566,656.41	12,126,053.35

NOTE:
 THE END OF CHANNEL A (MAIN CHANNEL) AND THE BEGINNING OF CHANNEL B (LONG CREEK) ARE THE SAME POINT.

- DREDGING VOLUME ESTIMATES -			
LOCATION	CUBIC YARDS	PLACE MEASUREMENT	TOTALS
PROJECT DEPTH	TO -6 FT.	1 FT. O.D. (ALLOWABLE)	
CHANNEL A (MAIN)			
NEW WORK	25,500	6,500	32,000
MAINTENANCE	0	0	0
TOTAL	25,500	6,500	32,000
PROJECT DEPTH	TO -4 FT.	1 FT. O.D. (ALLOWABLE)	
CHANNEL B (LONG CRK)			
NEW WORK	0	0	0
MAINTENANCE	2,400	4,800	7,200
TOTAL	2,400	4,800	7,200
PROJECT DEPTH	TO -6 FT.	1 FT. O.D. (ALLOWABLE)	
CHANNEL C (WALLACE CRK)			
NEW WORK	9,100	4,300	13,400
MAINTENANCE	2,400	2,100	4,500
TOTAL	11,500	6,400	17,900
TOTAL DREDGING	PROJECT	1 FT. O.D. (ALLOWABLE)	TOTALS
CHANNELS A, B & C	39,400	17,700	57,100
NEW & MAINTENANCE			

NOTE:
 FIELD DIRECTIVES WILL BE ISSUED FOR BREAKWATER CONSTRUCTION. BREAKWATERS SHOWN ON THESE PLANS ARE APPROXIMATE WITH RESPECT TO CONFIGURATION AND LOCATION.

PRELIMINARY

THESE PLANS HAVE BEEN PREPARED TO ALLOW PLANNING, PERMITTING, DESIGN, AND BID LETTING TO OCCUR WHILE DETAILED COMPUTER MODELING IS BEING PERFORMED TO SUPPORT THE REQUIRED BREAKWATER DESIGN. TIME IS OF THE ESSENCE, AND THESE PLANS ARE BEING LET WITH "FIELD DIRECTIVES" FOR THE BREAKWATER DESIGN. FIELD DIRECTIVES ARE NOT CHANGE ORDERS, BUT A PLANNED PART OF THE CONSTRUCTION PROCESS.

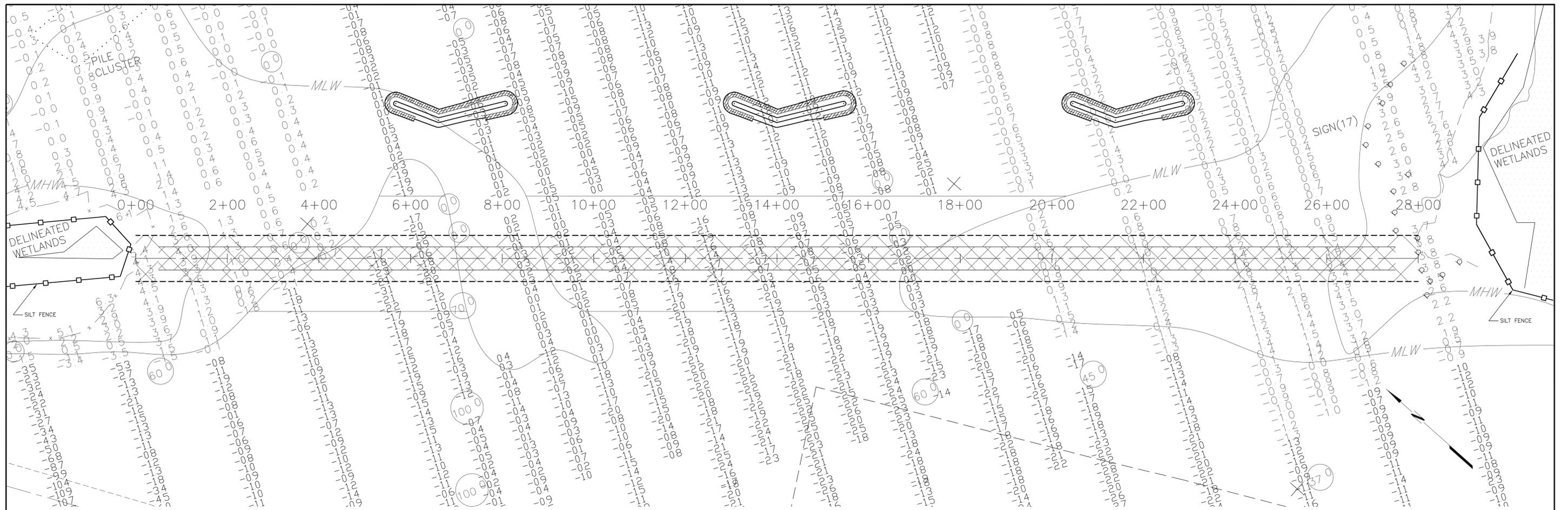


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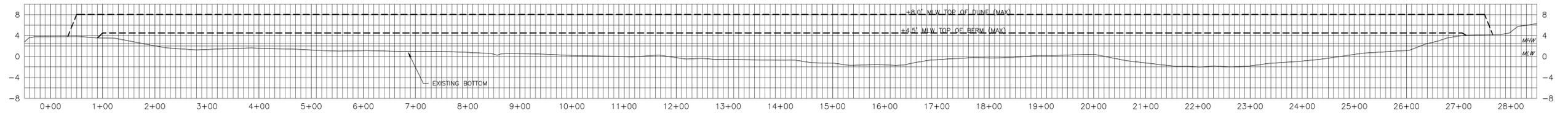


City of Hampton Department of Public Works HAMPTON, VIRGINIA			
SURVEYED W.S.&E.	DESIGNED R.S.F.	DRAWN K.T.D.	REVIEWED J.B.W.
BACK RIVER NAVIGATION IMPROVEMENTS AND SHORELINE RESTORATION		PLANS FOR CHANNEL DREDGING	
SCALE 1"=200'	DATE APRIL 30, 2008	DRAWING NO. 4027-00-58-03	SHEET NO. 3 OF 10



SCALE: 1"=100'

PLACEMENT AREA PROFILE



SCALE: HOR. 1"=100'
VER. 1"=10'

NOTE:

FIELD DIRECTIVES WILL BE ISSUED FOR BREAKWATER CONSTRUCTION. BREAKWATERS SHOWN ON THESE PLANS ARE APPROXIMATE WITH RESPECT TO CONFIGURATION AND LOCATION.

SIGNS SHALL BE PLACED AT 200' INTERVALS FROM STATION 0+00 TO STATION 28+00 AT THE TOE OF THE DUNE ON BOTH THE BAY AND RIVER SIDES, STATING "PROTECT THE DUNES, STAY ON THE BEACH".

DUNES SHALL BE PLANTED WITH AMERICAN BEACH GRASS, SEE SHEET 10 FOR DETAILS.

PRELIMINARY

THESE PLANS HAVE BEEN PREPARED TO ALLOW PLANNING, PERMITTING, DESIGN, AND BID LETTING TO OCCUR WHILE DETAILED COMPUTER MODELING IS BEING PERFORMED TO SUPPORT THE REQUIRED BREAKWATER DESIGN. TIME IS OF THE ESSENCE, AND THESE PLANS ARE BEING LET WITH "FIELD DIRECTIVES" FOR THE BREAKWATER DESIGNS. "FIELD DIRECTIVES" ARE NOT CHANGE ORDERS, BUT A PLANNED PART OF THE CONSTRUCTION PROCESS.

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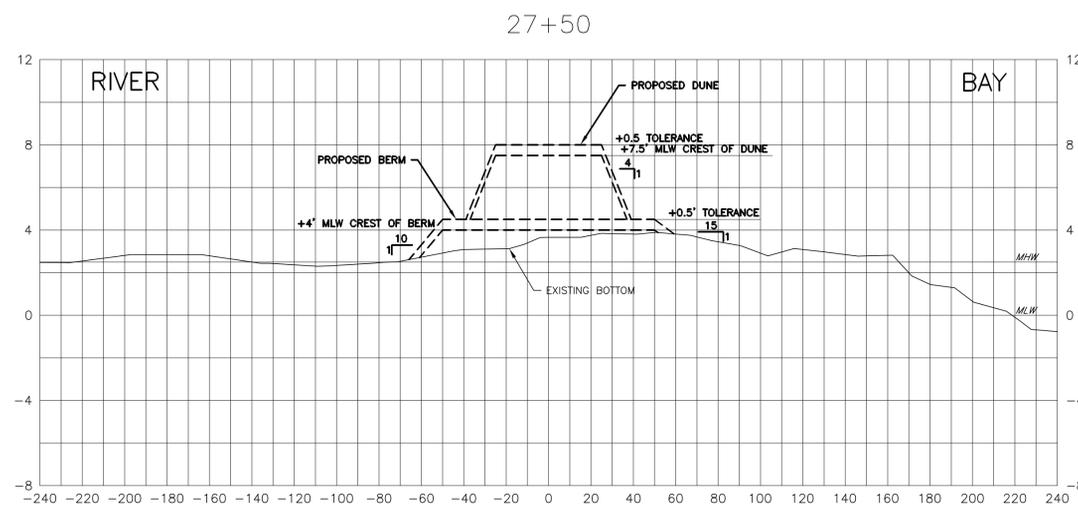
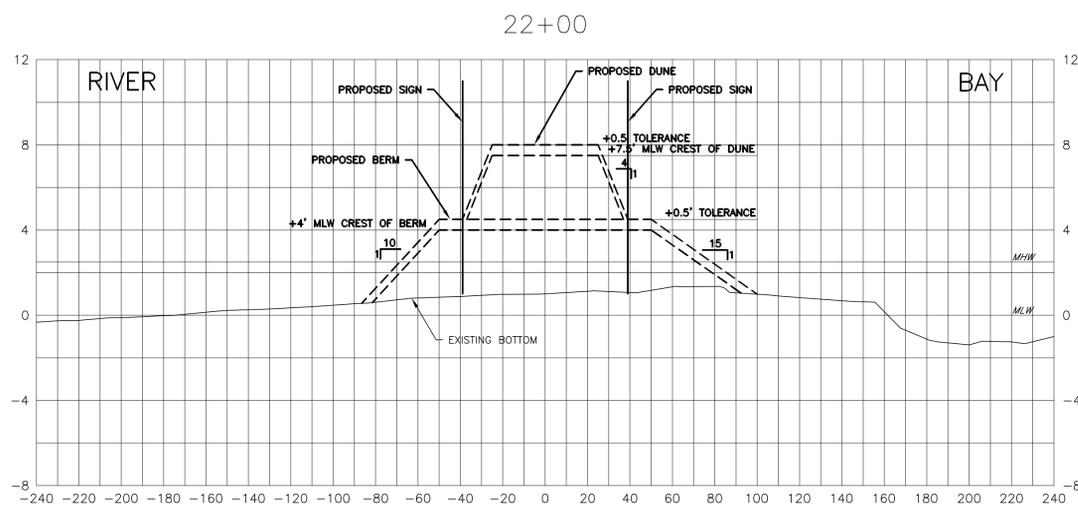
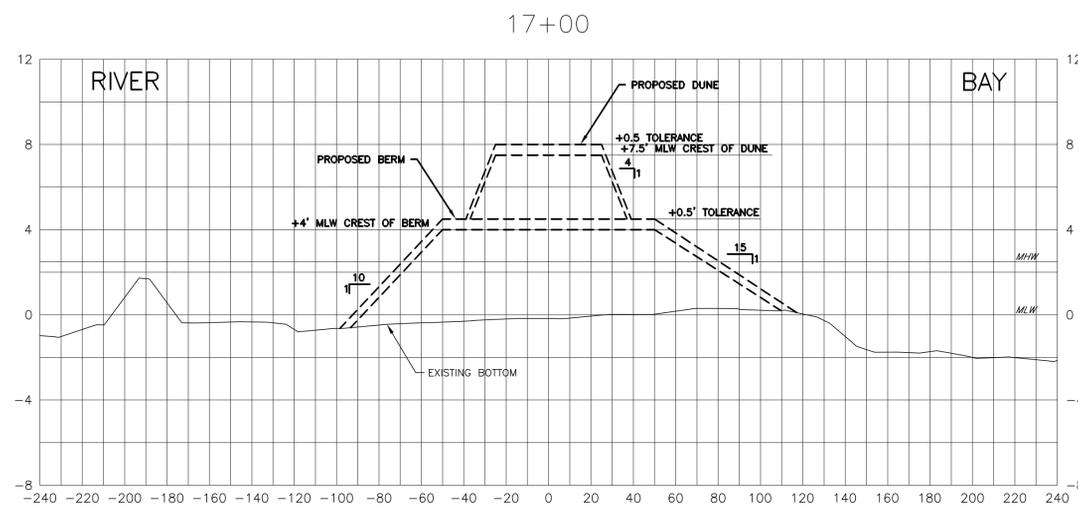
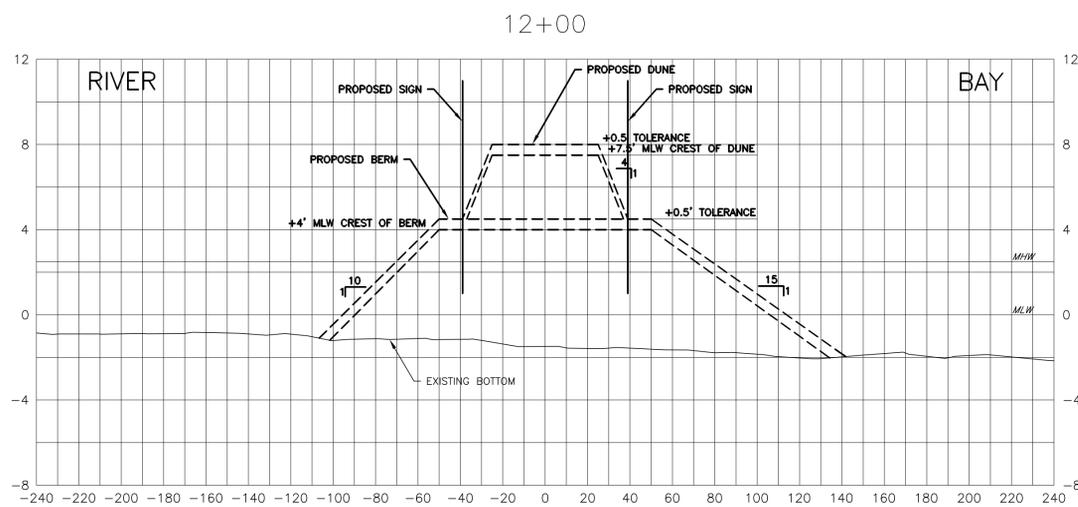
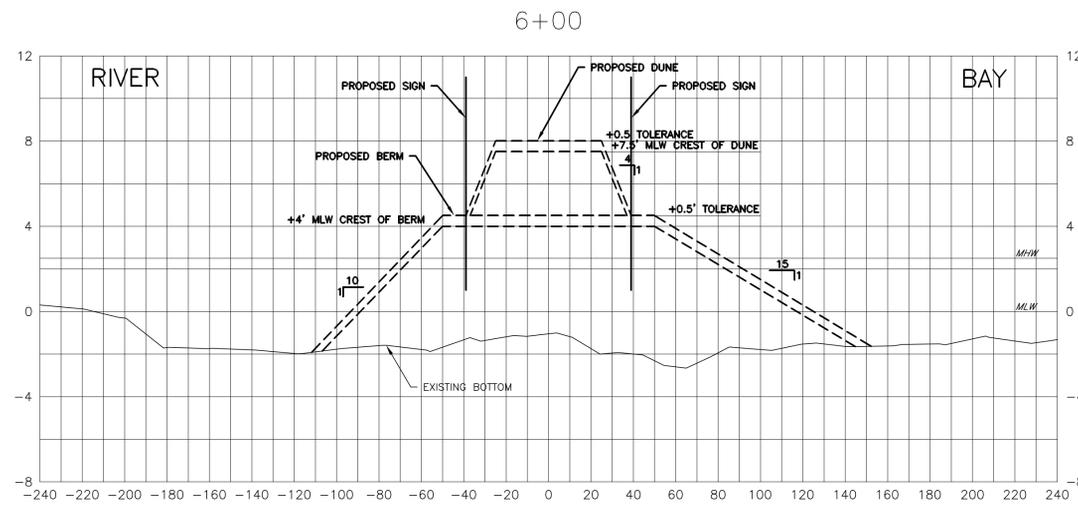
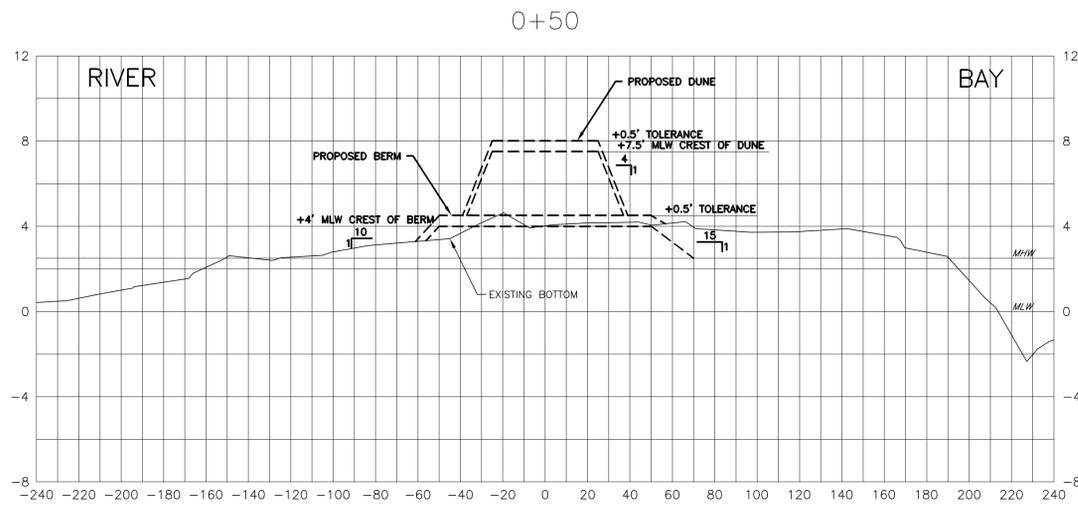
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		City of Hampton Department of Public Works	
		HAMPTON, VIRGINIA	
SURVEYED W.S.&E.	BACK RIVER NAVIGATION IMPROVEMENTS AND SHORELINE RESTORATION		
DESIGNED R.S.F.	PLACEMENT AREA (BASE BID)		
DRAWN K.T.D.	SCALE	DATE APRIL 30, 2008	SHEET NO. 4 OF 10
REVIEWED J.B.W.	AS SHOWN	REVISION	DRAWING NO. 4027-00-58-04



NOTE:
DUNES SHALL BE PLANTED WITH AMERICAN BEACH GRASS, SEE SHEET 10 FOR DETAILS.

PRELIMINARY

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City of Hampton
Department of Public Works

SURVEYED W.S.&E.		HAMPTON, VIRGINIA	
DESIGNED R.S.F.		BACK RIVER NAVIGATION IMPROVEMENTS AND SHORELINE RESTORATION	
DRAWN K.T.D.		PLACEMENT AREA CROSS SECTIONS (BASE BID)	
REVIEWED J.B.W.			
SCALE	DATE	SHEET NO.	
HOR: 1"=40' VER: 1"=4'	APRIL 30, 2008		5 OF 10
	REVISION	DRAWING NO.	
		4027-00-58-05	

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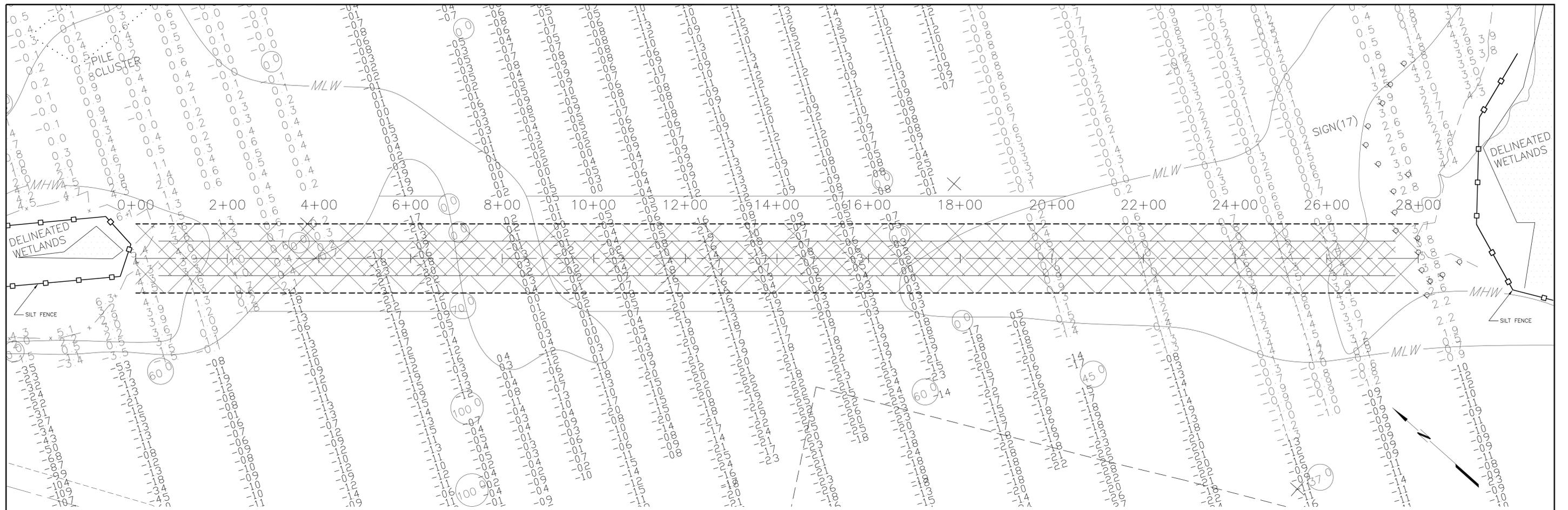
URS CORPORATION
11832 ROCK LANDING DRIVE, SUITE 306
NEWPORT NEWS, VIRGINIA, 23606

Waterway

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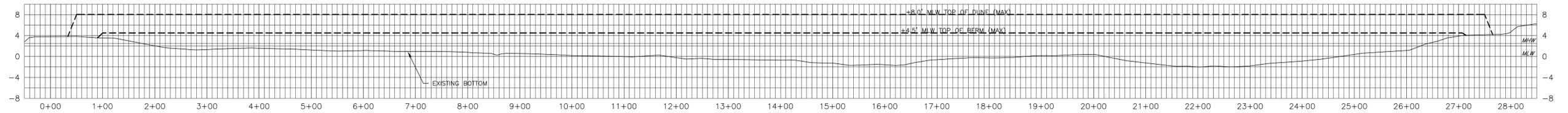
321 Cleveland Place, Virginia Beach, Va. 23462
Tel: (757) 490-1691 Fax: (757) 490-1348





SCALE: 1"=100'

PLACEMENT AREA PROFILE



SCALE: HOR. 1"=100'
VER. 1"=10'

NOTE:

ALTERNATE 1 IS DESIGNED TO THE SAME CRITICAL VERTICAL ELEVATIONS AS THE BASE BID, BUT CALLS FOR A THICKER TEMPLATE. SEE CROSS SECTIONS FOR DIFFERENCES.

SIGNS SHALL BE PLACED AT 200' INTERVALS FROM STATION 0+00 TO STATION 28+00 AT THE TOE OF THE DUNE ON BOTH THE BAY AND RIVER SIDES, STATING "PROTECT THE DUNES, STAY ON THE BEACH".

DUNES SHALL BE PLANTED WITH AMERICAN BEACH GRASS, SEE SHEET 10 FOR DETAILS.

PRELIMINARY

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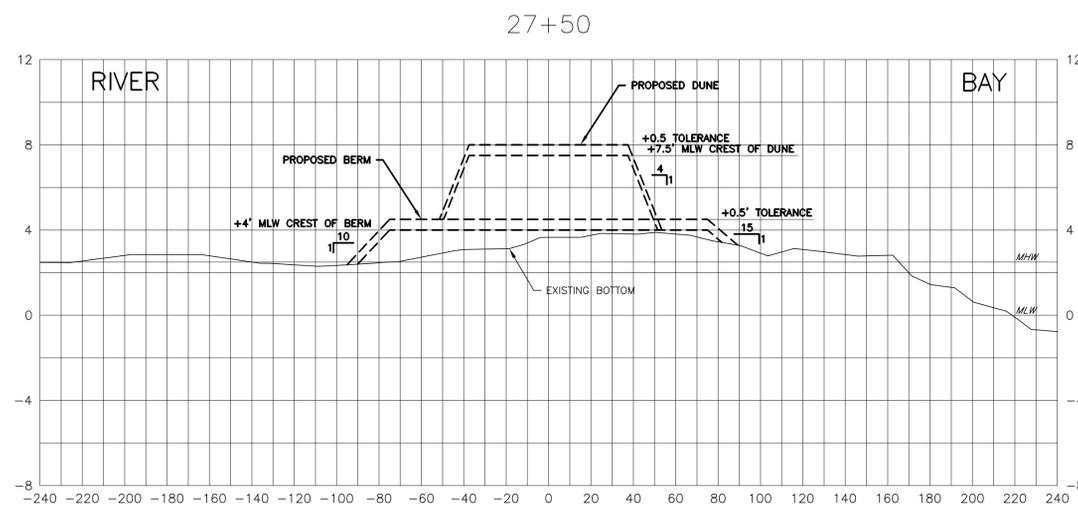
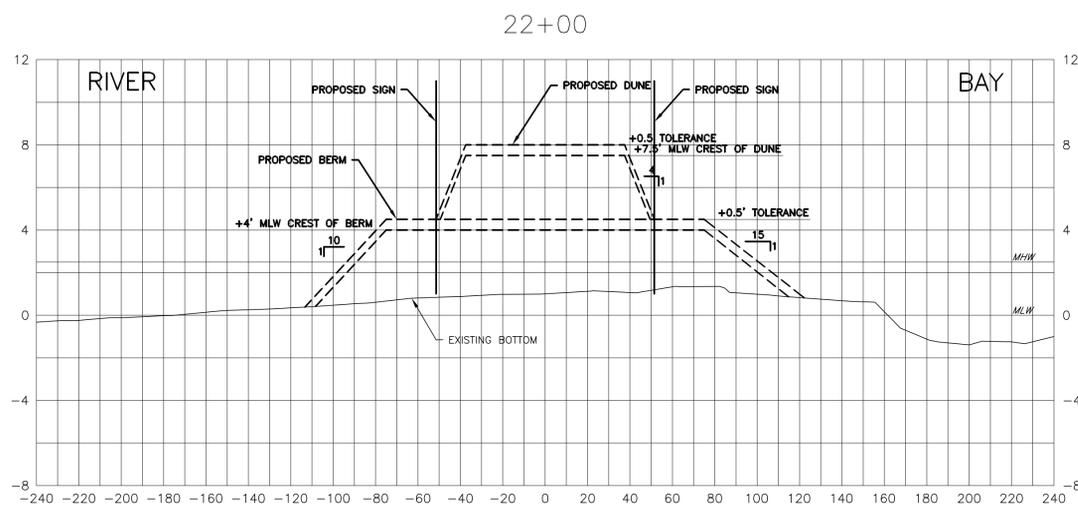
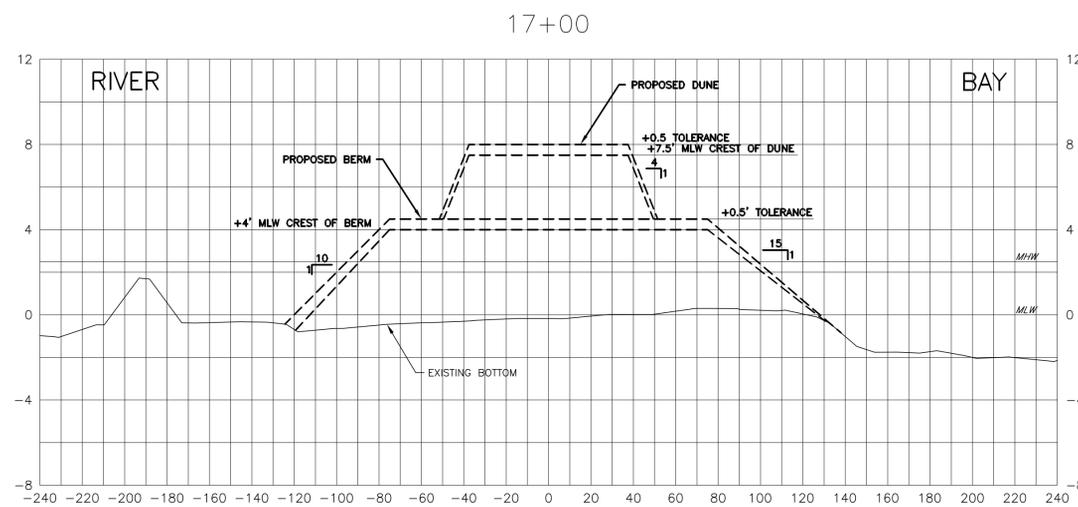
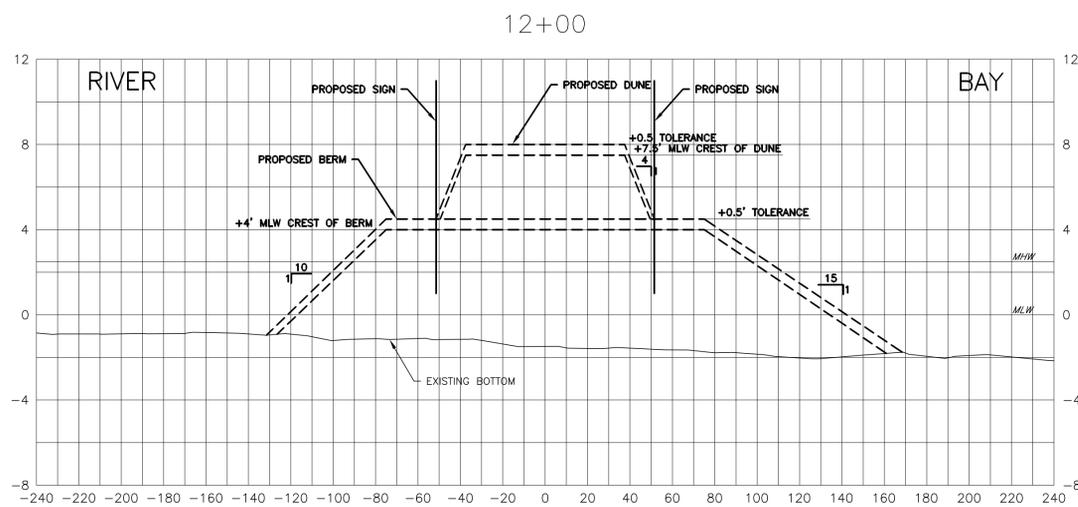
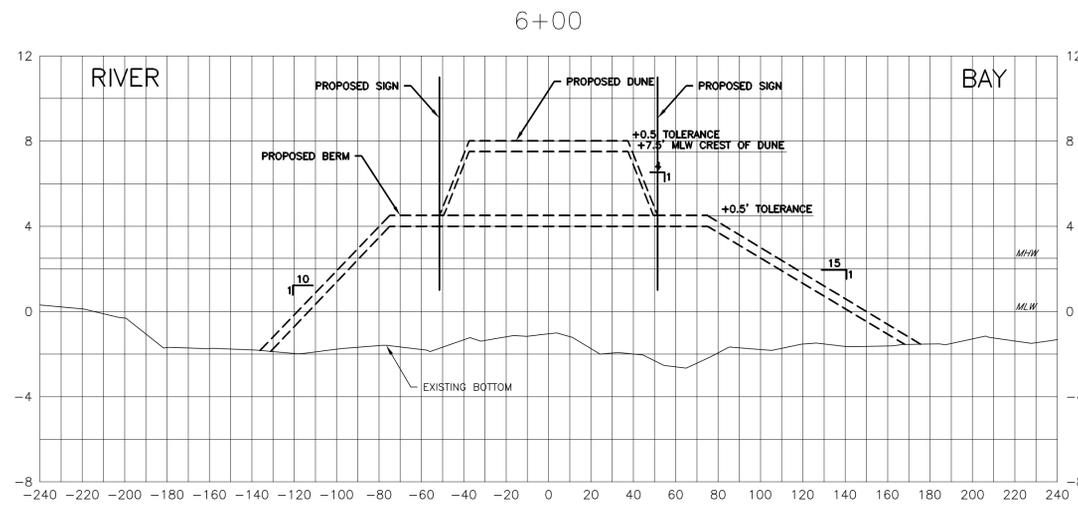
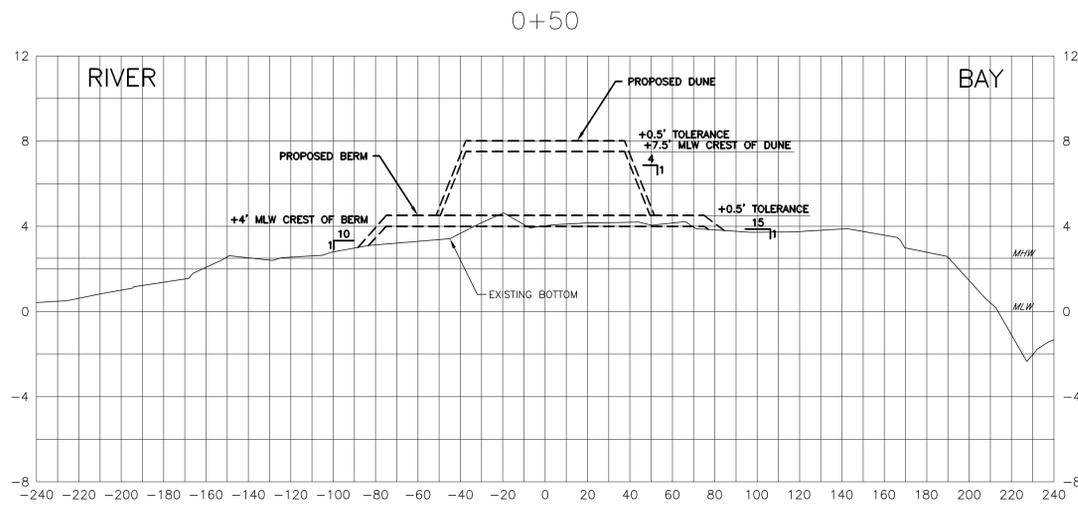
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		City of Hampton Department of Public Works	
		HAMPTON, VIRGINIA	
SURVEYED W.S.&E.	BACK RIVER NAVIGATION IMPROVEMENTS AND SHORELINE RESTORATION		
DESIGNED R.S.F.	PLACEMENT AREA (ALTERNATE 1)		
DRAWN K.T.D.			
REVIEWED J.B.W.			
SCALE AS SHOWN	DATE APRIL 30, 2008	DRAWING NO. 4027-00-58-06	SHEET NO. 6 OF 10



NOTE:

DUNES SHALL BE PLANTED WITH AMERICAN BEACH GRASS, SEE SHEET 10 FOR DETAILS.

PRELIMINARY

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City of Hampton
Department of Public Works

SURVEYED W.S.&E.		HAMPTON, VIRGINIA	
DESIGNED R.S.F.		BACK RIVER NAVIGATION IMPROVEMENTS AND SHORELINE RESTORATION	
DRAWN K.T.D.		PLACEMENT AREA CROSS SECTIONS (ALTERNATE 1)	
REVIEWED J.B.W.			
SCALE	DATE	SHEET NO.	
HOR: 1"=40' VER: 1"=4'	APRIL 30, 2008		7 OF 10
	REVISION	DRAWING NO.	
		4027-00-58-07	

URS

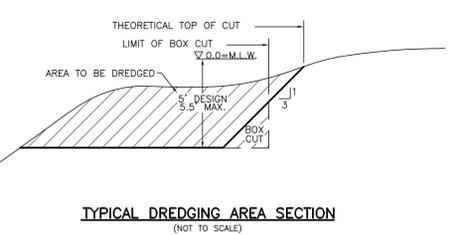
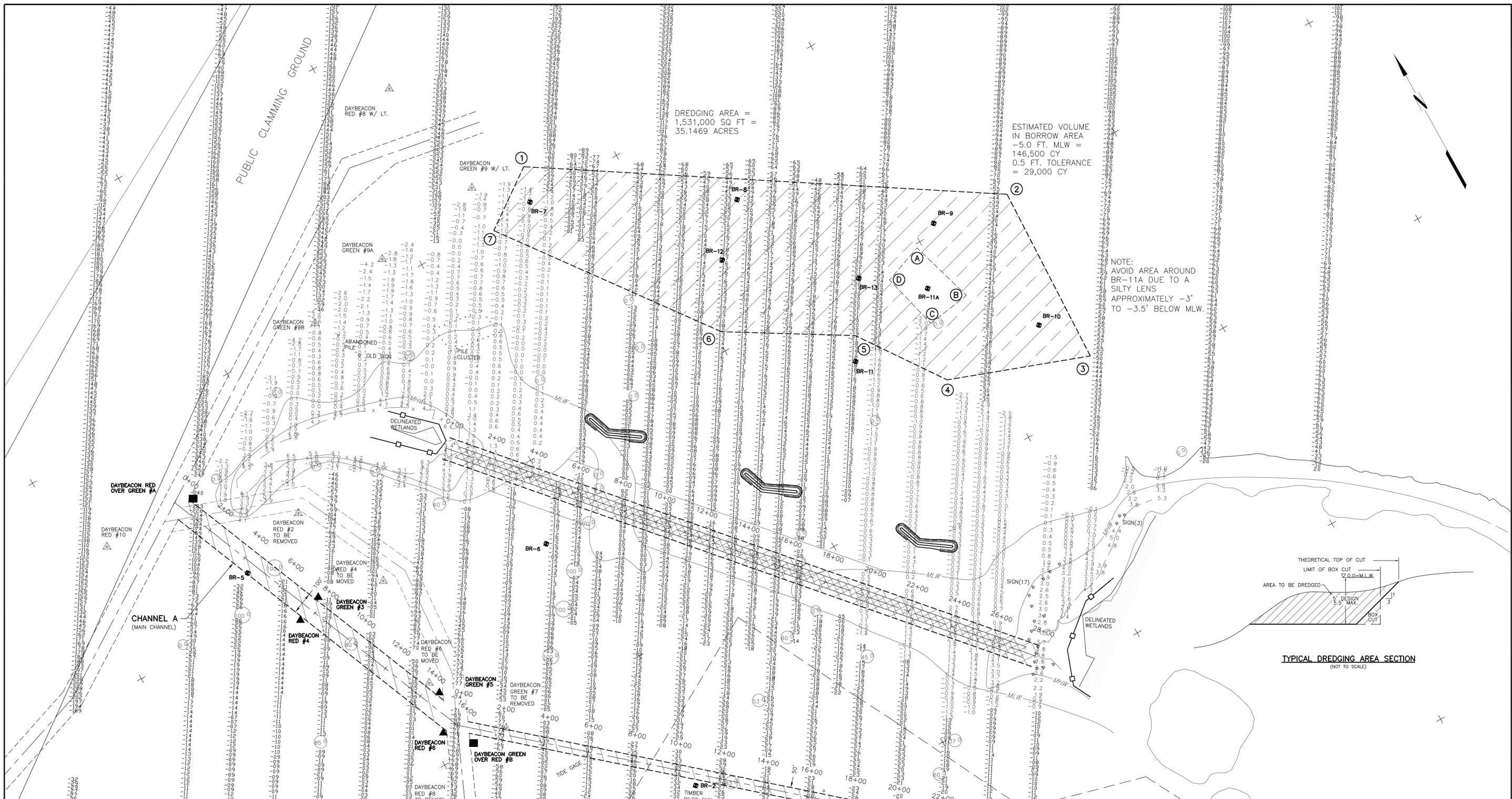
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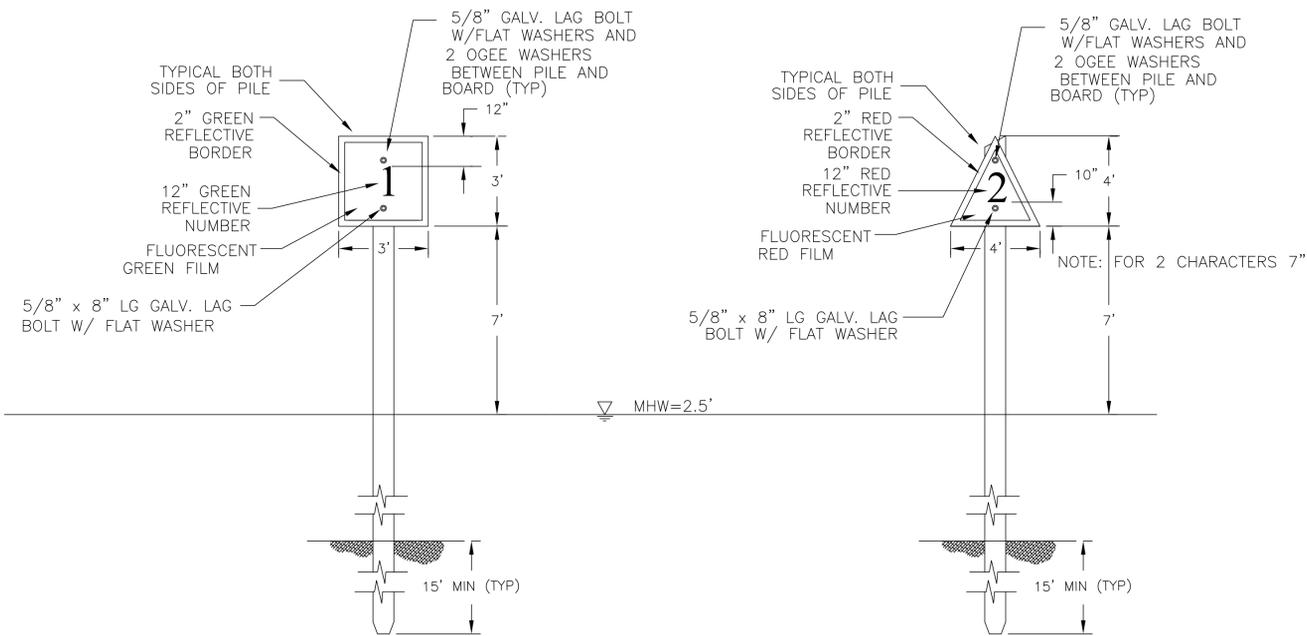
PRELIMINARY

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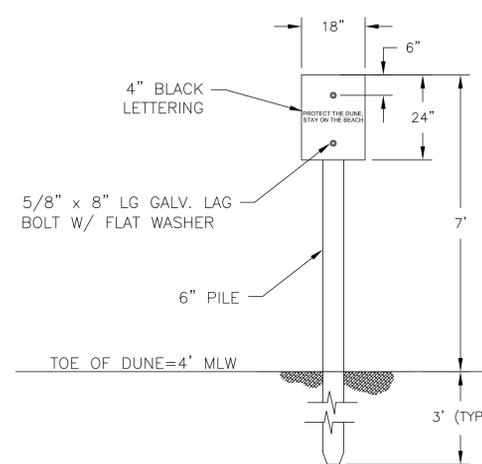
<p>City of Hampton Department of Public Works</p>		<p>HAMPTON, VIRGINIA</p>	
<p>SURVEYED W.S.&E.</p>		<p>BACK RIVER NAVIGATION IMPROVEMENTS AND SHORELINE RESTORATION</p>	
<p>DESIGNED R.S.F.</p>		<p>BORROW AREA</p>	
<p>DRAWN K.T.D.</p>		<p>REVIEWED J.B.W.</p>	
<p>SCALE 1"=200'</p>	<p>DATE APRIL 30, 2008</p>	<p>REVISION</p>	<p>SHEET NO. 8 OF 10</p>
		<p>DRAWING NO. 4027-00-58-08</p>	

PILES TO BE MIN. 9" DIAMETER, MEASURED
3' FROM BUTT, PER ASTM D 25-99

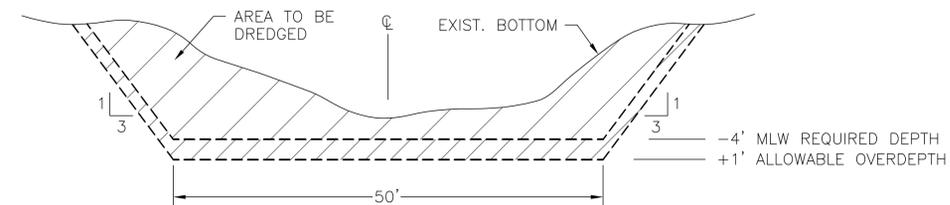


TYPICAL GREEN DAYMARKER

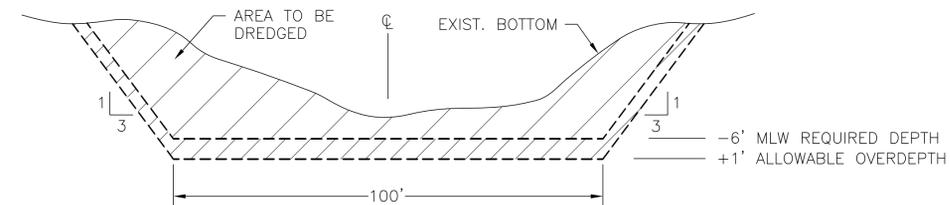
TYPICAL RED DAYMARKER



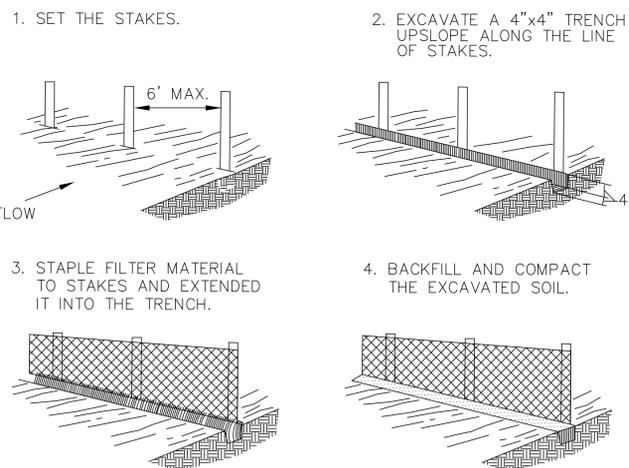
TYPICAL DUNE SIGN



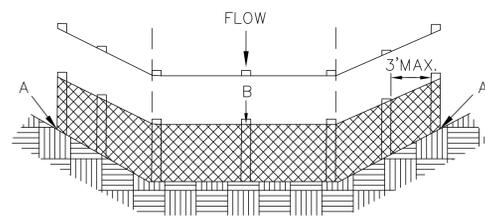
DREDGING SECTION
LONG CREEK



DREDGING SECTION
MAIN CHANNEL & WALLACE CREEK

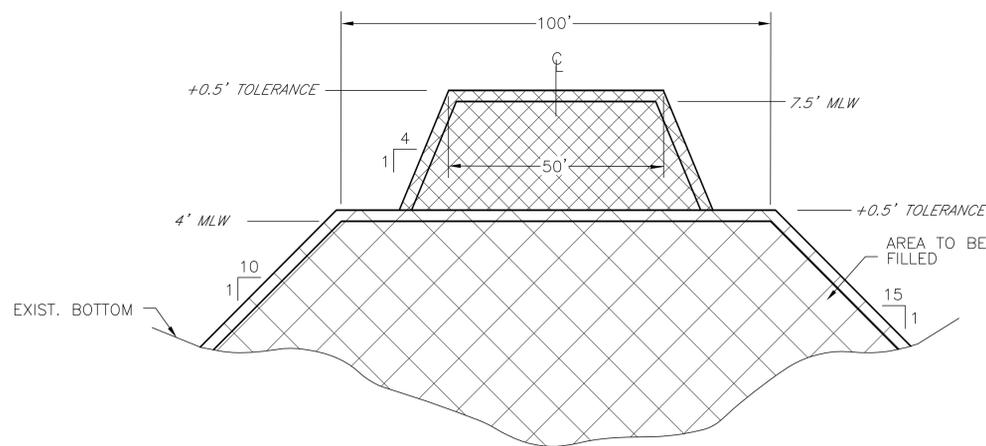


SHEET FLOW INSTALLATION
(PERSPECTIVE VIEW)

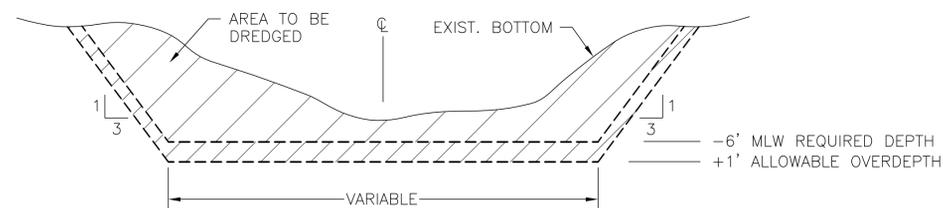


DRAINAGEWAY INSTALLATION
(FRONT ELEVATION)

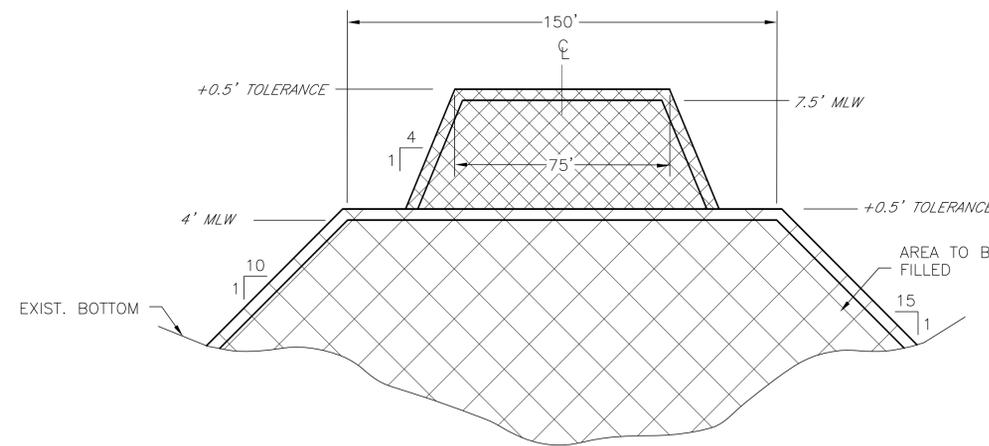
SILT FENCE DETAIL
WITHOUT WIRE SUPPORT



TYPICAL CONSTRUCTION PROFILE
(BASE BID)



DREDGING SECTION
WALLACE CREEK



TYPICAL CONSTRUCTION PROFILE
(ALTERNATE 1)

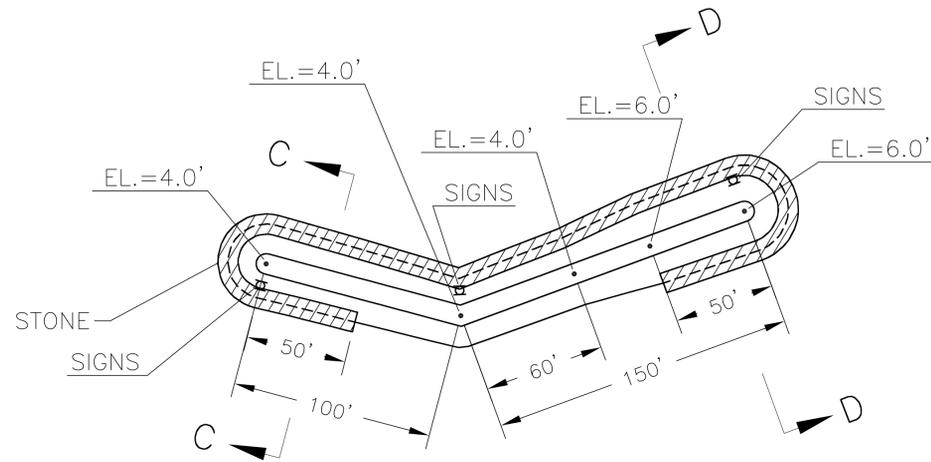
PRELIMINARY

THESE PLANS HAVE BEEN PREPARED TO ALLOW PLANNING, PERMITTING, DESIGN, AND BID LETTING TO OCCUR WHILE DETAILED COMPUTER MODELING IS BEING PERFORMED TO SUPPORT THE REQUIRED BREAKWATER DESIGN. TIME IS OF THE ESSENCE, AND THESE PLANS ARE BEING LET WITH "FIELD DIRECTIVES" FOR THE BREAKWATER DESIGNS. FIELD DIRECTIVES ARE NOT CHANGE ORDERS, BUT A PLANNED PART OF THE CONSTRUCTION PROCESS.

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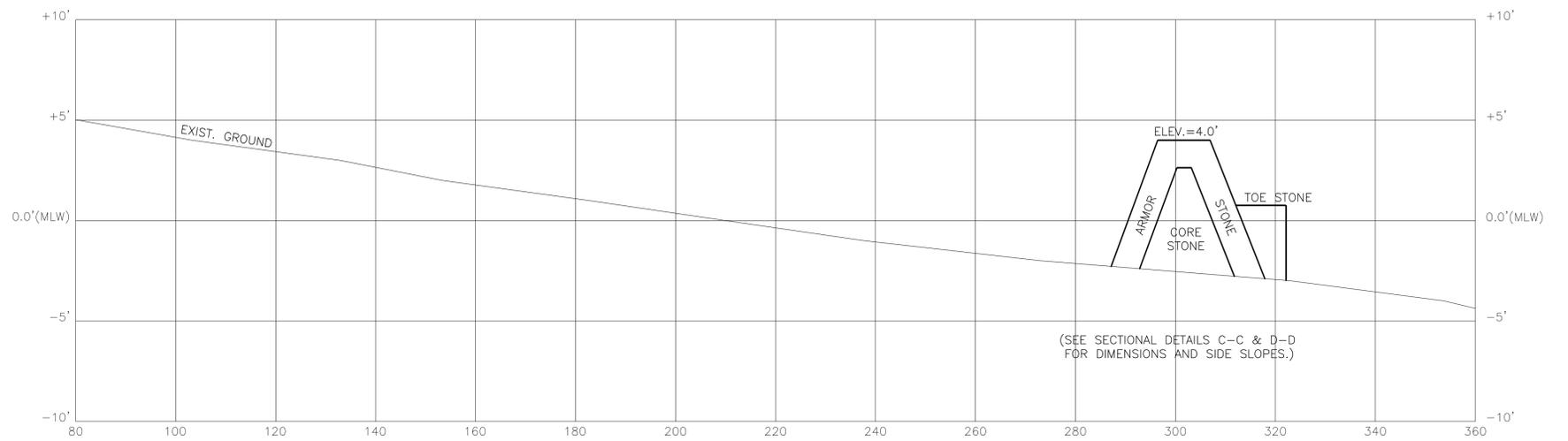
Waterway
Surveys & Engineering, Ltd.
321 Cleveland Place, Virginia Beach, Va. 23462
Tel: (757) 490-1691 Fax: (757) 490-1348

		City of Hampton Department of Public Works HAMPTON, VIRGINIA	
SURVEYED W.S.&E.	BACK RIVER NAVIGATION IMPROVEMENTS AND SHORELINE RESTORATION		
DESIGNED R.S.F.	TYPICAL SECTIONS & DETAILS		
DRAWN K.T.D.	SCALE DATE APRIL 30, 2008 SHEET NO. 9 OF 10		
REVIEWED J.B.W.	REVISION	DRAWING NO. 4027-00-58-09	SHEET NO. 9 OF 10

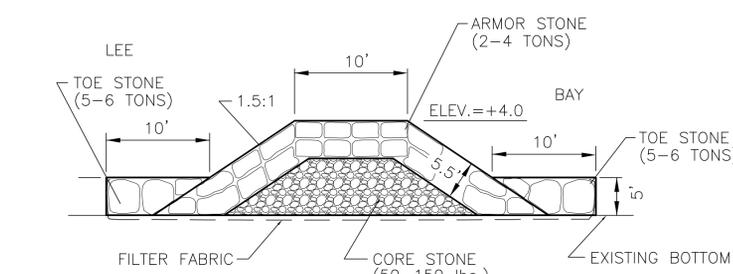


NOTE:
FIELD DIRECTIVES WILL BE ISSUED FOR BREAKWATER CONSTRUCTION. BREAKWATERS SHOWN ON THESE PLANS ARE APPROXIMATE WITH RESPECT TO CONFIGURATION AND LOCATION.

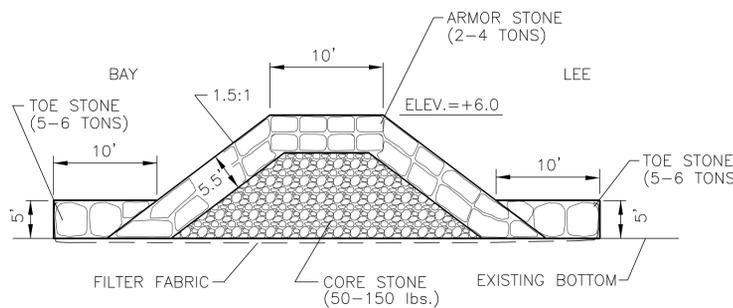
CONCEPTUAL BREAKWATER DESIGN



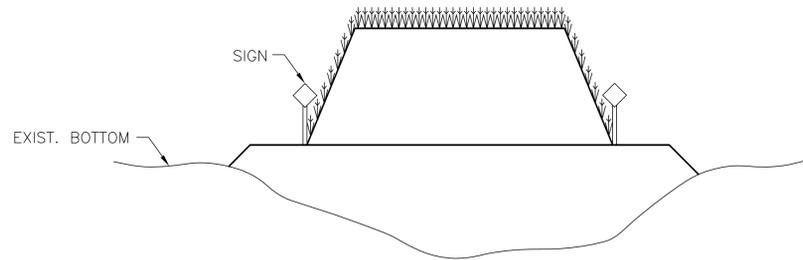
CONCEPTUAL BREAKWATER CROSS SECTION



**SECTION C-C
SHOWING 4FT. HEIGHT
(N.T.S.)**

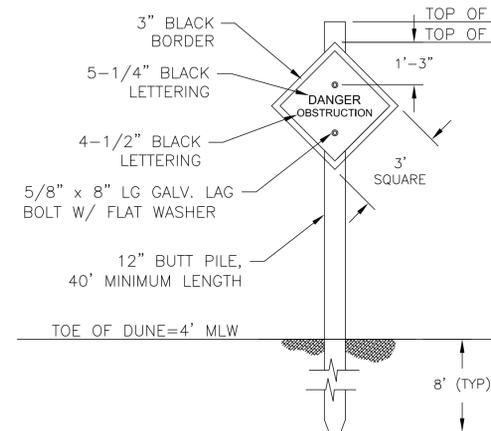


**SECTION D-D
SHOWING 6FT. HEIGHT
(N.T.S.)**

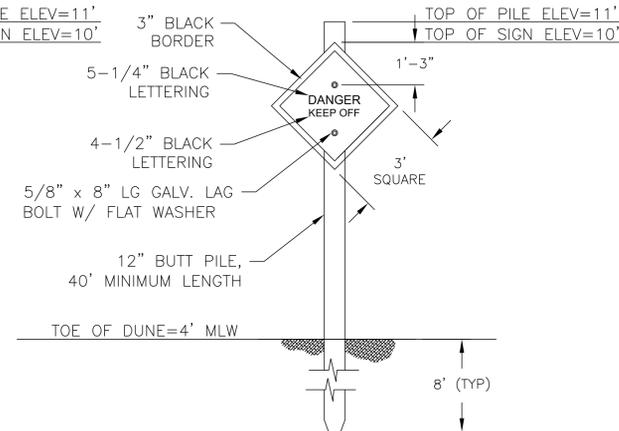


TYPICAL PLANTING LOCATION

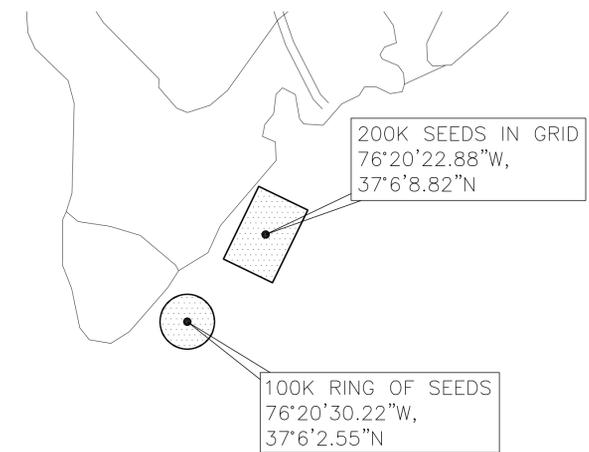
FACING BAYWARD



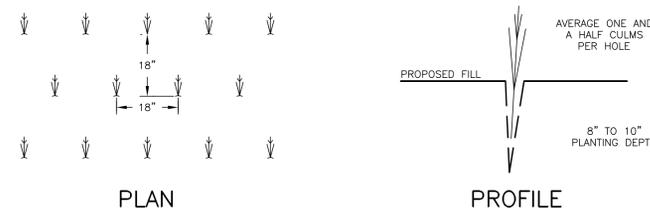
FACING LANDWARD



TYPICAL BREAKWATER SIGNS



SAV MITIGATION AREA



NOTES:
CULMS SHOULD BE SPACED 18" APART
ROWS SHOULD BE 18" APART
ROWS SHOULD BE STAGGERED TO PROVIDE MAXIMUM EROSION CONTROL

AMERICAN BEACH GRASS HABITAT RESTORATION

PRELIMINARY

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