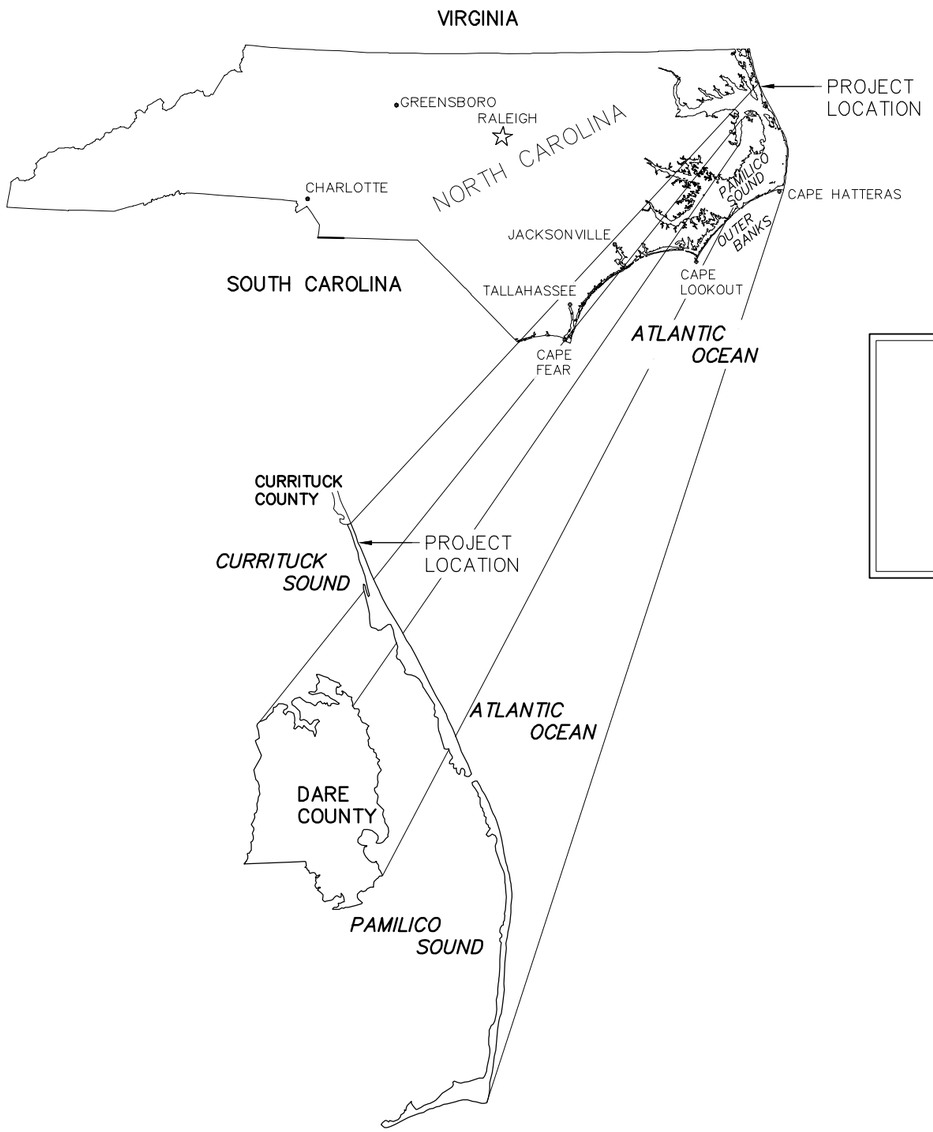
NORTH DARE COUNTY BEACHES
TOWN OF DUCK
BEACH NOURISHMENT PROJECT
DARE COUNTY, NORTH CAROLINA



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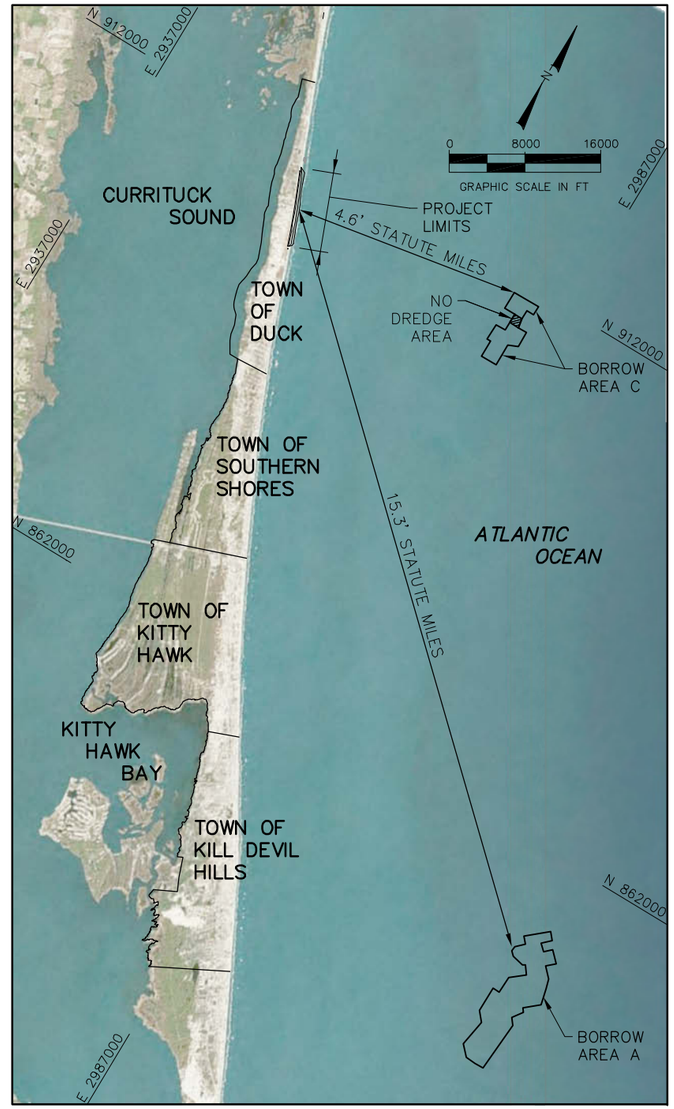

LOCATION MAP

COASTAL PLANNING & ENGINEERING, INC.
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www.CPI.com

REVISIONS

No.	Date	Description

Reference Files:
Designed by: JD
Drawn by: JN
Date: 7/08/15
Checked by: AMB
Reviewed by: KW
Submitted by: KW
Plot Scale: AS NOTED
Comm. No.: 150440

TOWN OF DUCK
BEACH NOURISHMENT PROJECT
DARE COUNTY, NORTH CAROLINA

COVER SHEET

DRAWING NO.
CS

SHEET 1 OF 12

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TOWN OF DUCK PAY PROFILES

STATION	EASTING	NORTHING	AZ	DISTANCE TO NEXT
87+63 (BEGIN TAPER)	2954717.26	910163.01	70.0	105
88+68	2954759.00	910066.70	70.0	32
89+00	2954771.59	910037.25	70.0	100
90+00	2954810.89	909945.29	70.0	100
91+00	2954850.19	909853.34	70.0	100
92+00	2954889.48	909761.39	70.0	63
92+63 (D-10.5)	2954914.24	909703.45	70.0	137
94+00	2954968.08	909577.48	70.0	100
95+00	2955007.38	909485.52	70.0	100
96+00	2955046.68	909393.57	70.0	100
97+00	2955085.98	909301.62	70.0	100
98+00	2955125.28	909209.66	70.0	83
98+83 (D-11)	2955158.00	909133.10	70.0	117
100+00	2955203.31	909025.51	70.0	100
101+00	2955242.13	908933.35	70.0	100
102+00	2955280.94	908841.19	70.0	100
103+00	2955319.76	908749.03	70.0	100
104+00	2955358.57	908656.88	70.0	100
105+00	2955397.39	908564.72	70.0	100
106+00	2955436.21	908472.56	70.0	65
106+65 (D-12)	2955461.50	908412.50	70.0	135
108+00	2955516.00	908289.17	70.0	100
109+00	2955556.42	908197.71	70.0	100
110+00	2955596.84	908106.24	70.0	100
111+00	2955637.27	908014.77	70.0	100
112+00	2955677.69	907923.31	70.0	100
113+00	2955718.11	907831.84	70.0	100
114+00	2955758.53	907740.37	70.0	100
115+00	2955798.95	907648.91	70.0	100
116+00	2955839.37	907557.44	70.0	86
116+86 (D-13)	2955874.30	907478.40	70.0	114
118+00	2955918.25	907373.66	70.0	100
119+00	2955956.94	907281.45	70.0	100
120+00	2955995.64	907189.24	70.0	100
121+00	2956034.33	907097.03	70.0	100
122+00	2956073.02	907004.82	70.0	100
123+00	2956111.72	906912.61	70.0	100
124+00	2956150.41	906820.40	70.0	100
125+00	2956189.10	906728.19	70.0	100
126+00	2956227.80	906635.97	70.0	63
126+63 (D-14)	2956252.00	906578.30	70.0	137
128+00	2956305.02	906451.49	70.0	100
129+00	2956343.60	906359.22	70.0	100
130+00	2956382.17	906266.96	70.0	100
131+00	2956420.74	906174.70	70.0	100
132+00	2956459.32	906082.44	70.0	100
133+00	2956497.89	905990.18	70.0	100
134+00	2956536.47	905897.92	70.0	100
135+00	2956575.04	905805.66	70.0	139
136+39 (D-15)	2956628.50	905677.80	70.0	61
137+00	2956650.56	905620.49	70.0	100
138+00	2956686.48	905527.16	70.0	100
139+00	2956722.40	905433.83	70.0	100
140+00	2956758.32	905340.51	70.0	100
141+00	2956794.25	905247.18	70.0	100
142+00	2956830.17	905153.86	70.0	100
143+00	2956866.09	905060.53	70.0	100
144+00	2956902.01	904967.21	70.0	100
145+00	2956937.93	904873.88	70.0	114
146+14 (D-16)	2956978.80	904767.70	70.0	86
147+00	2957010.32	904687.44	70.0	100
148+00	2957046.88	904594.37	70.0	100

STATION	EASTING	NORTHING	AZ	DISTANCE TO NEXT
149+00	2957083.44	904501.29	70.0	100
150+00	2957120.00	904408.21	70.0	100
151+00	2957156.56	904315.13	70.0	100
152+00	2957193.12	904222.06	70.0	100
153+00	2957229.68	904128.98	70.0	100
154+00	2957266.24	904035.90	70.0	100
155+00	2957302.80	903942.82	70.0	85
155+85 (D-17)	2957333.80	903863.90	70.0	115
157+00	2957376.02	903756.71	70.0	100
158+00	2957412.67	903663.67	70.0	100
159+00	2957449.32	903570.63	70.0	100
160+00	2957485.97	903477.58	70.0	100
161+00	2957522.62	903384.54	70.0	100
162+00	2957559.27	903291.50	70.0	100
163+00	2957595.92	903198.46	70.0	100
164+00	2957632.57	903105.42	70.0	100
165+00	2957669.22	903012.37	70.0	135
166+35 (D-18)	2957718.80	902886.50	70.0	65
167+00	2957742.03	902826.10	70.0	100
168+00	2957777.94	902732.77	70.0	100
169+00	2957813.84	902639.44	70.0	100
170+00	2957849.75	902546.11	70.0	100
171+00	2957885.65	902452.77	70.0	75
171+75 (END TAPER)	2957912.72	902382.42	70.0	55
172+30 (D-19)	2957932.50	902331.00	70.0	–

VERTICAL CONTROL DATA

ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). THE APPROXIMATE RELATION BETWEEN NAVD88 AND OTHER DATUMS AT NOAA TIDAL BENCHMARK 8651370 (DUCK, FRF PIER) FOR THE PROJECT ARE AS FOLLOWS:

MEAN HIGHER HIGH WATER	1.50 FEET
MEAN HIGH WATER	1.18 FEET
NAVD88	0.00 FEET
MEAN SEA LEVEL	−0.42 FEET
NGVD29	−0.96 FEET
MEAN LOW WATER	−2.05 FEET
MEAN LOWER LOW WATER	−2.19 FEET

BENCHMARK CONTROL POINTS

ID	EASTING	NORTHING	ELEV.	DESC.
FW0713	2,952,084.11	915,308.87	1.99	DISK
FW0686	2,957,662.02	900,621.51	18.46	DISK
FW0679	2,966,184.93	880,716.27	12.15	NGS STEEL ROD

NOTES:

1. COORDINATES ARE IN FEET BASED ON THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD83).
2. ELEVATIONS ARE IN FEET REFERENCED TO NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
3. SURVEYS FOR PAYMENT (BEFORE AND AFTER DREDGE) SHALL COMMENCE AT THE COORDINATES SHOWN AND CONTINUE A MINIMUM DISTANCE OF 250 FT. SEAWARD OF THE CONSTRUCTION TOE OF FILL ALONG THE AZIMUTH PROVIDED.
4. EACH STATION DESIGNATED AS A PAYMENT PROFILE SHALL BE SURVEYED BY THE CONTRACTOR BEFORE AND AFTER BEACH PLACEMENT FOR THE PURPOSE OF CALCULATING PAYMENT QUANTITIES. NO SUBSTITUTES IN PAY PROFILE STATIONS OR AZIMUTHS SHALL BE CONSIDERED.
5. UNLESS OTHERWISE NOTED, BASELINE DISTANCE REPRESENTS THE STRAIGHT LINE DISTANCE BETWEEN PROFILE STATIONS.

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REVISIONS

No.	Date	Description

Designed by: JD
Drawn by: TNN
Date: 7/08/15
Plot Scale: AS NOTED
Checked by: AMB
Reviewed by: KW
Submitted by: KW
Comm. No.: 150440
Reference Files:

TOWN OF DUCK
BEACH NOURISHMENT PROJECT
DARE COUNTY, NORTH CAROLINA
CONTROL DATA

DRAWING NO.
CD-1

SHEET 2 OF 12

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LEGEND:

2015 MHW (1.18')

2015 MLW (-2.05)

NOTES:

1. DATE OF AERIAL PHOTOGRAPHY: MARCH 09, 2013 GOOGLE MAP.
2. COORDINATES ARE IN FEET BASED ON THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD83).
3. ELEVATIONS ARE IN FEET REFERENCED TO NORTH AMERICAN VERTICAL DATUM, 1988 (NAVD88).
4. SURVEY DATA COLLECTED AT 1000 FOOT INTERVALS BY CPE-NC MAY, 2015.
5. TO AVOID IMPACTS TO SHIPWRECK FRAGMENTS, THE SUBMERGED PIPELINE SHALL NOT COME ON-SHORE IN THE VICINITY OF THE SHIPWRECK FRAGMENTS.

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REVISIONS

No.	Date	Description

Reference Files:

Designed by: JD
Drawn by: HN
Date: 7/08/15
Plot Scale: AS NOTED
Checked by: AMB
Reviewed by: KW
Submitted by: KW
Comm. No.: 150440

TOWN OF DUCK
BEACH NOURISHMENT PROJECT
DARE COUNTY, NORTH CAROLINA

OVERALL PLAN VIEW

DRAWING NO.

OV

SHEET 3 OF 12

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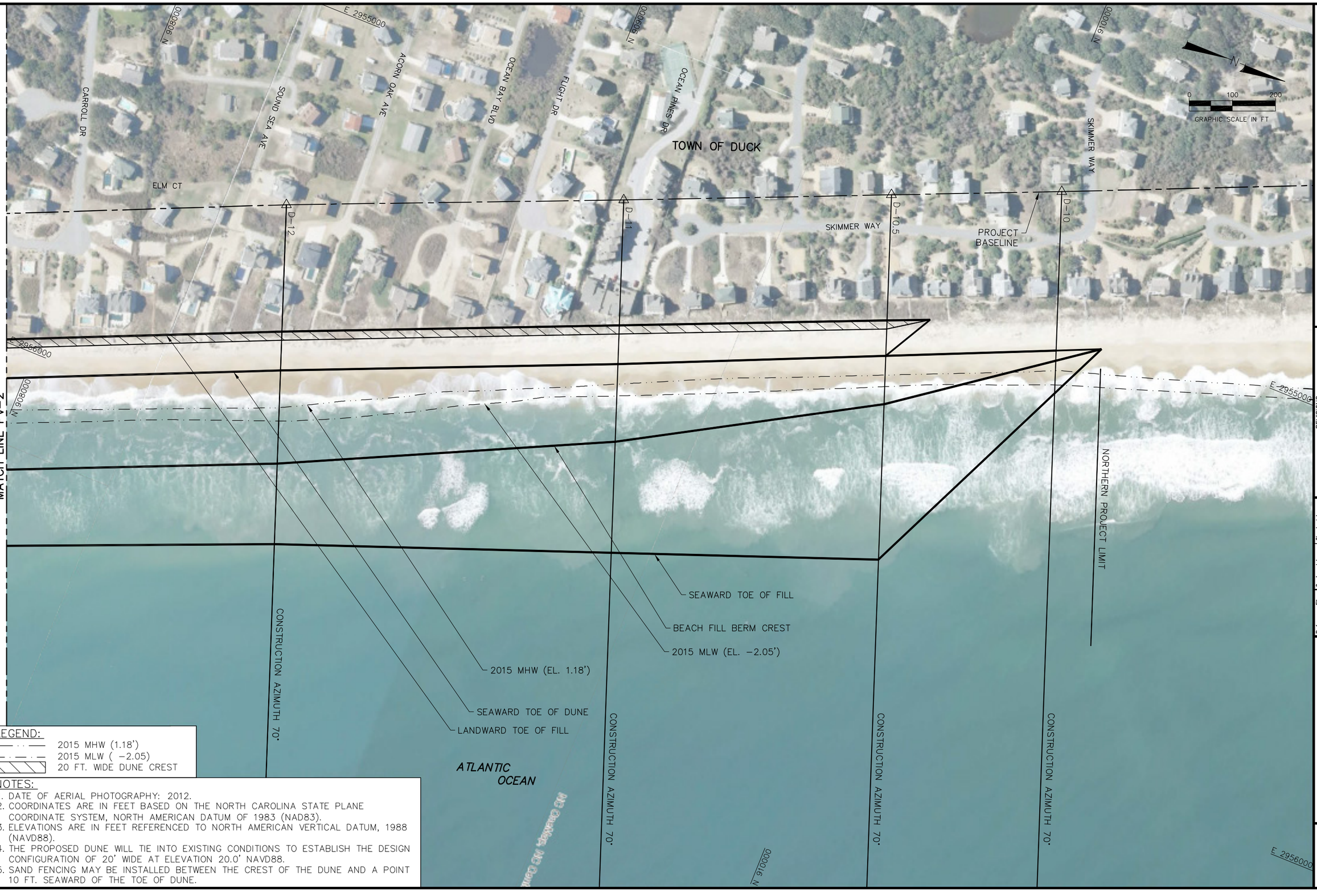

LEGEND:

- 2015 MHW (1.18')
- 2015 MLW (-2.05)
- 20 FT. WIDE DUNE CREST

NOTES:

1. DATE OF AERIAL PHOTOGRAPHY: 2012.
2. COORDINATES ARE IN FEET BASED ON THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD83).
3. ELEVATIONS ARE IN FEET REFERENCED TO NORTH AMERICAN VERTICAL DATUM, 1988 (NAVD88).
4. THE PROPOSED DUNE WILL TIE INTO EXISTING CONDITIONS TO ESTABLISH THE DESIGN CONFIGURATION OF 20' WIDE AT ELEVATION 20.0' NAVD88.
5. SAND FENCING MAY BE INSTALLED BETWEEN THE CREST OF THE DUNE AND A POINT 10 FT. SEAWARD OF THE TOE OF DUNE.

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REVISIONS

No.	Date	Description

Reference Files:

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Drawn by: HN	Reviewed by: KW
Date: 7/08/15	Submitted by: KW
Plot Scale: AS NOTED	Comm. No.: 150440

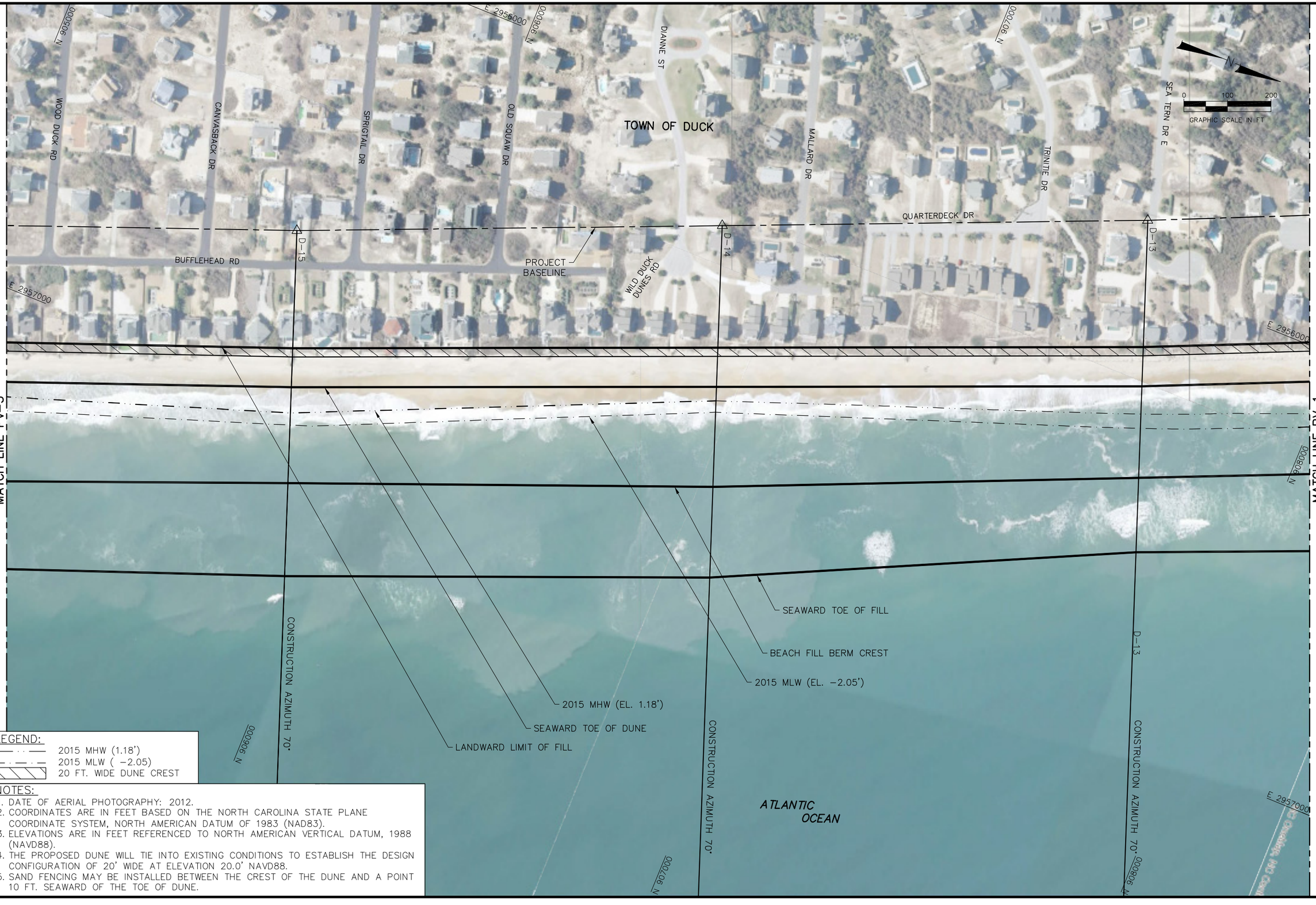
TOWN OF DUCK
BEACH NOURISHMENT PROJECT
DARE COUNTY, NORTH CAROLINA

BEACH FILL PLAN VIEW

DRAWING NO.

PV-1

SHEET 4 OF 12



LEGEND:

- 2015 MHW (1.18')
- 2015 MLW (-2.05)
- 20 FT. WIDE DUNE CREST

NOTES:

1. DATE OF AERIAL PHOTOGRAPHY: 2012.
2. COORDINATES ARE IN FEET BASED ON THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD83).
3. ELEVATIONS ARE IN FEET REFERENCED TO NORTH AMERICAN VERTICAL DATUM, 1988 (NAVD88).
4. THE PROPOSED DUNE WILL TIE INTO EXISTING CONDITIONS TO ESTABLISH THE DESIGN CONFIGURATION OF 20' WIDE AT ELEVATION 20.0' NAVD88.
5. SAND FENCING MAY BE INSTALLED BETWEEN THE CREST OF THE DUNE AND A POINT 10 FT. SEAWARD OF THE TOE OF DUNE.

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REVISIONS

No.	Date	Description

Reference Files:

Designed by: JD	Checked by: AMB
Drawn by: HN	Reviewed by: KW
Date: 7/08/15	Submitted by: KW
Plot Scale: AS NOTED	Comm. No.: 150440

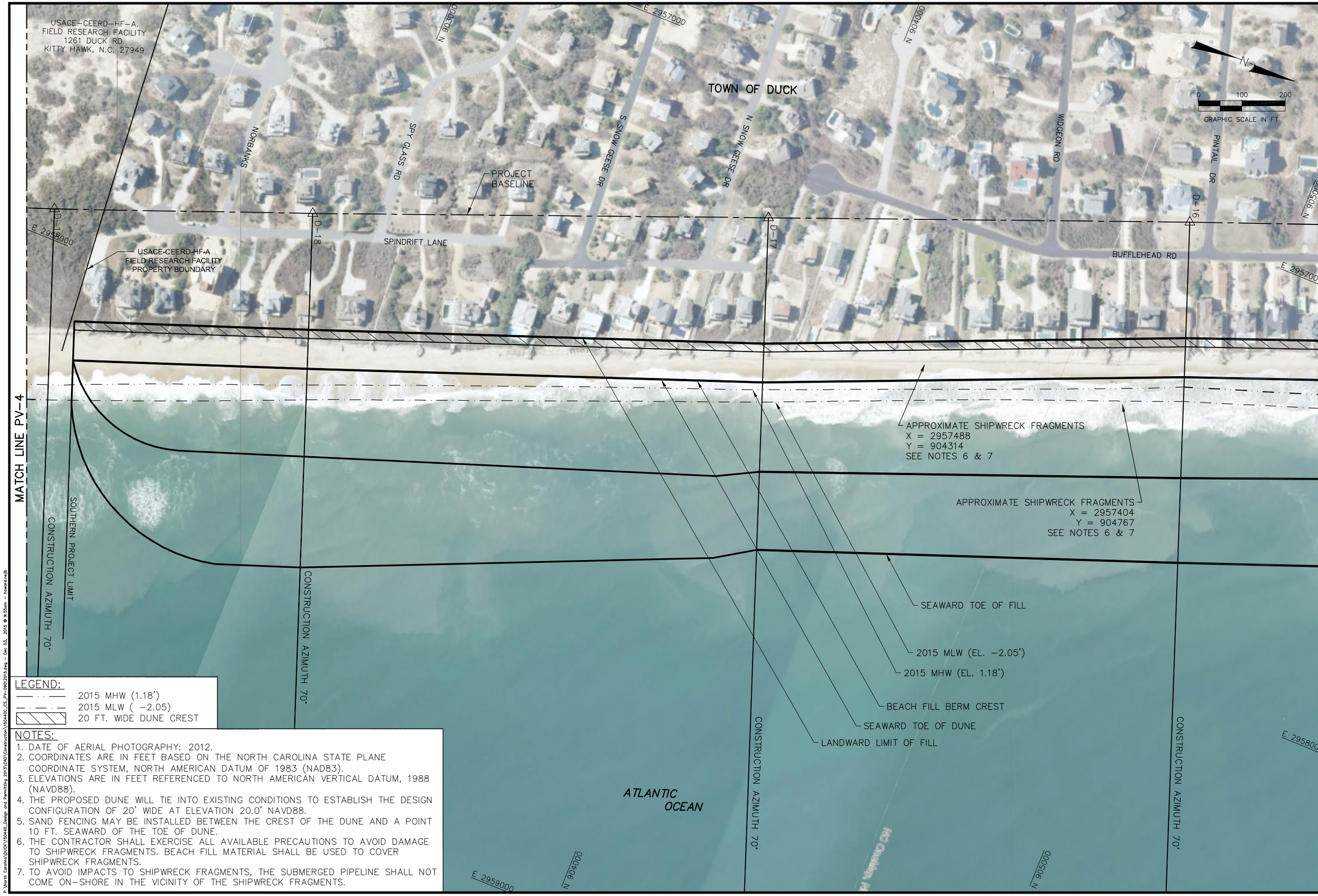
TOWN OF DUCK
BEACH NOURISHMENT PROJECT
DARE COUNTY, NORTH CAROLINA

BEACH FILL PLAN VIEW

DRAWING NO.

PV-2

SHEET 5 OF 12



LEGEND:

- 2015 MHW (1.18')
- 2015 MLW (-2.05)
- 20 FT. WIDE DUNE CREST

NOTES:

1. DATE OF AERIAL PHOTOGRAPHY: 2012.
2. COORDINATES ARE IN FEET BASED ON THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD83).
3. ELEVATIONS ARE IN FEET REFERENCED TO NORTH AMERICAN VERTICAL DATUM, 1988 (NAVD88).
4. THE PROPOSED DUNE WILL TIE INTO EXISTING CONDITIONS TO ESTABLISH THE DESIGN CONFIGURATION OF 20' WIDE AT ELEVATION 20.0' NAVD88.
5. SAND FENCING MAY BE INSTALLED BETWEEN THE CREST OF THE DUNE AND A POINT 10 FT. SEAWARD OF THE TOE OF DUNE.
6. THE CONTRACTOR SHALL EXERCISE ALL AVAILABLE PRECAUTIONS TO AVOID DAMAGE TO SHIPWRECK FRAGMENTS. BEACH FILL MATERIAL SHALL BE USED TO COVER SHIPWRECK FRAGMENTS.
7. TO AVOID IMPACTS TO SHIPWRECK FRAGMENTS, THE SUBMERGED PIPELINE SHALL NOT COME ON-SHORE IN THE VICINITY OF THE SHIPWRECK FRAGMENTS.

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REVISIONS

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Reference Files:

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TOWN OF DUCK
BEACH NOURISHMENT PROJECT
DARE COUNTY, NORTH CAROLINA

BEACH FILL PLAN VIEW

DRAWING NO.

PV-3

SHEET 6 OF 12

LEGEND:

2015 MHW (1.18')

2015 MLW (-2.05)

NOTES:

1. DATE OF AERIAL PHOTOGRAPHY: 2012.
2. COORDINATES ARE IN FEET BASED ON THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD83).
3. ELEVATIONS ARE IN FEET REFERENCED TO NORTH AMERICAN VERTICAL DATUM, 1988 (NAVD88).
4. CONSTRUCT APPROXIMATE 20' BOARD ROAD, OR EQUIVALENT, ON THE EXISTING BEACH, ABOVE THE MHW LINE, AT THE LOCATION WHERE THE CROSS SHORE ARRAY DATA CABLES ARE BURIED. LOCATION OF CABLES WILL BE FIELD VERIFIED BY THE USACE FRF PRIOR TO COMMENCEMENT OF CONSTRUCTION.
5. CONSTRUCT APPROXIMATE 1100' BOARD ROAD, OR EQUIVALENT, FROM THE STAGING AREA TO THE DUNE CUT ALONG THE ENTIRE CONSTRUCTION ACCESS ROAD TO PREVENT DAMAGE TO BURIED CABLES

MATCH LINE PV-3

COASTAL PLANNING & ENGINEERING, INC.
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REVISIONS

No.	Date	Description

Reference Files:

Designed by: JD	Checked by: AMB
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Date: 7/08/15	Submitted by: KW
Plot Scale: AS NOTED	Comm. No.: 150440

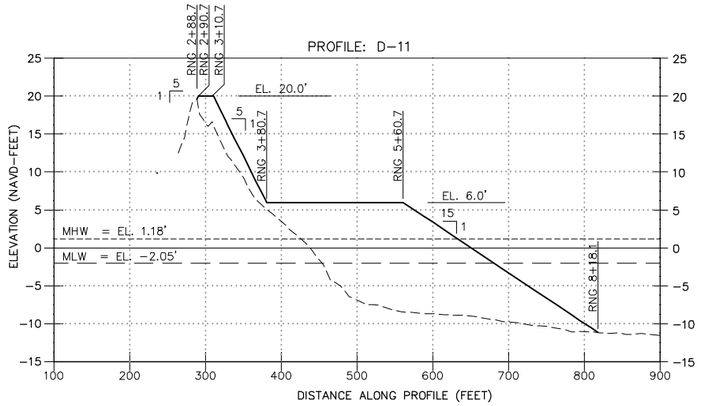
TOWN OF DUCK
BEACH NOURISHMENT PROJECT
DARE COUNTY, NORTH CAROLINA

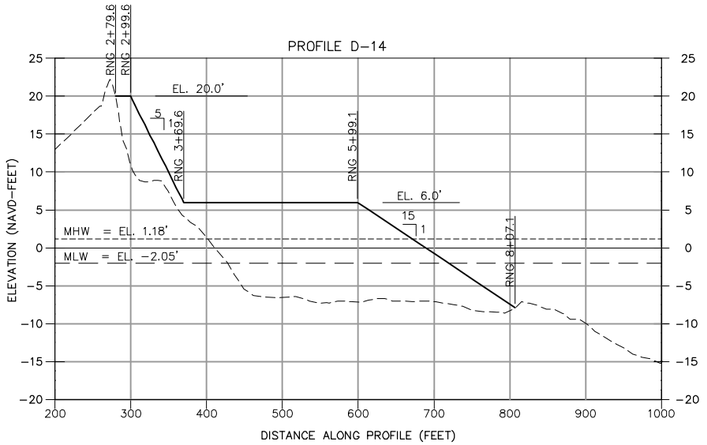
BEACH FILL PLAN VIEW

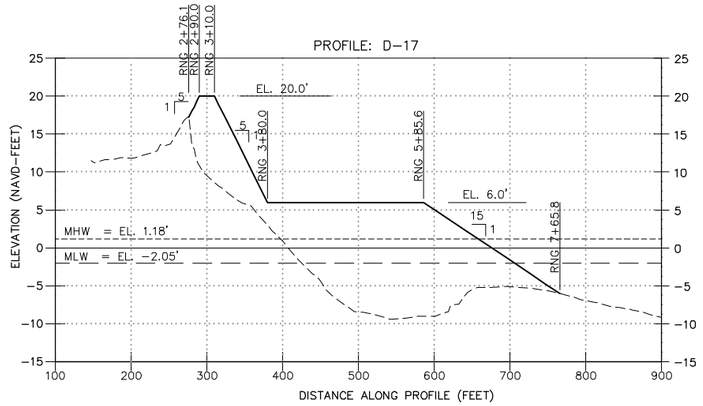
DRAWING NO.

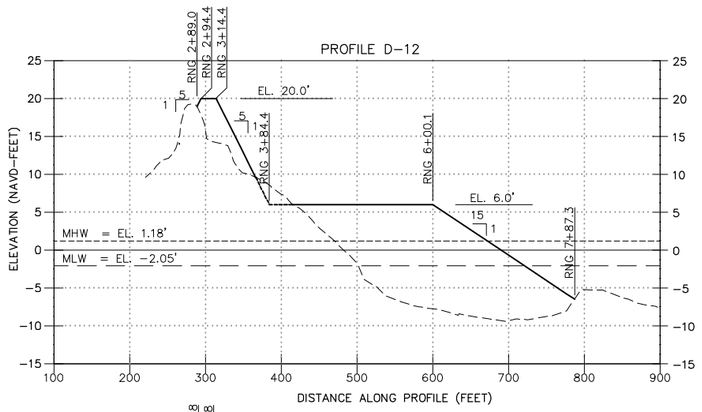
PV-4

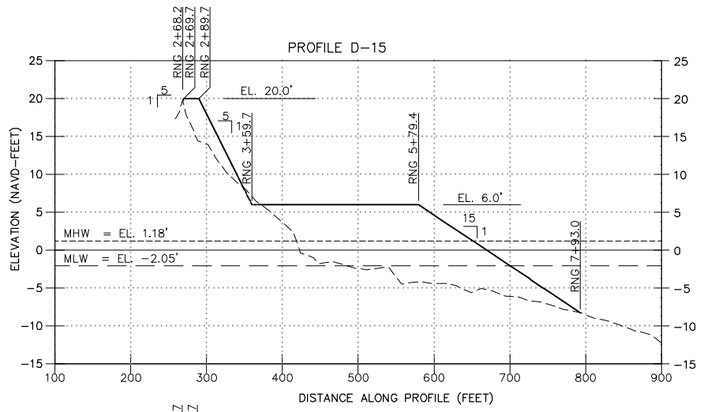
SHEET 7 OF 12

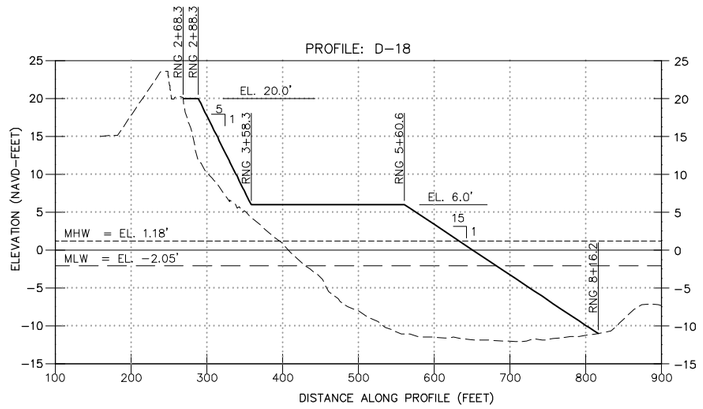


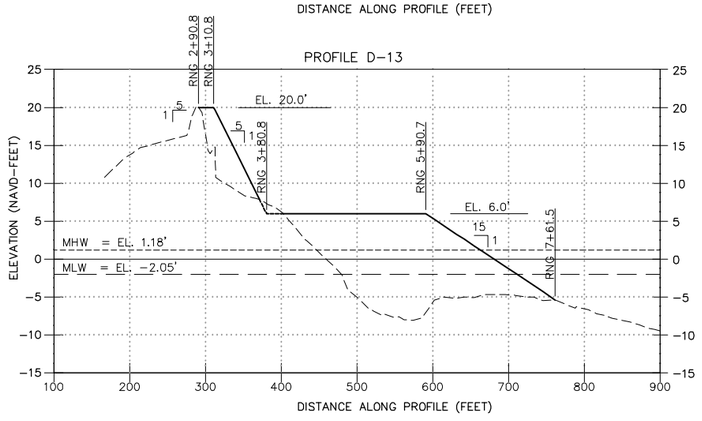


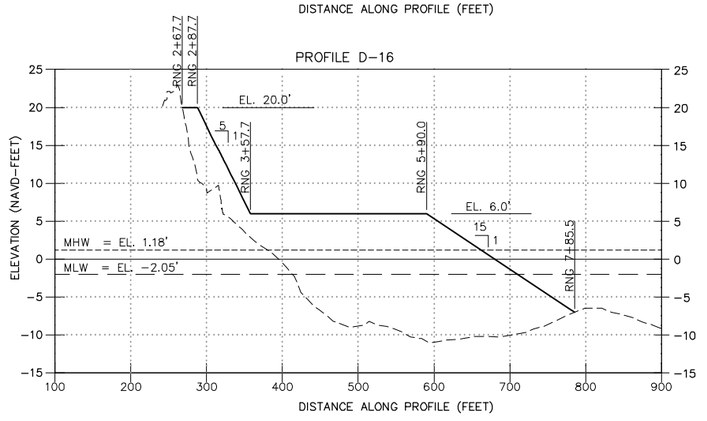


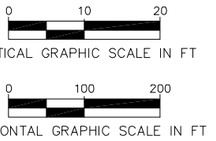












LEGEND:

- EXISTING GRADE MAY 2015
- DESIGN TEMPLATE
- MEAN HIGH WATER LINE (MHW)
- MEAN LOW WATER LINE (MLW)

NOTES:

1. ELEVATIONS SHOWN ARE IN FEET REFERENCED TO NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
2. SURVEY PERFORMED MAY 2015, BY CPE-NC.
3. THE CONSTRUCTION TEMPLATES AND VOLUMES MAY BE REVISED BY THE ENGINEER BASED ON THE PRE-CONSTRUCTION SURVEY TO REFLECT CHANGES IN FIELD CONDITIONS.

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No.	Date	Description
1	1/14/16	B-16 - EXISTING GRADE

REVISIONS

Reference Files:

Designed by: JD
Drawn by: TEN
Checked by: MJB
Reviewed by: KW
Submitted by: KW
Date: 7/08/15
Comm. No.: 150440
Plot Scale: AS NOTED

TOWN OF DUCK
BEACH NOURISHMENT PROJECT
DARE COUNTY, NORTH CAROLINA

BEACH FILL PROFILES

DRAWING NO.
XS-1

SHEET 8 OF 12

\\10.186.9.203\projects\North Carolina\DUCK\150440_Design and Permitting 2013\CAD\Construction\150440C_XS-09012015.dwg - Jan 14, 2016 @ 1:23pm - garyk.tyrpak

LEGEND:

- (-66.0') MAXIMUM AFTER DREDGE ELEVATION (FT. NAVD88)
- ~64~ BATHYMETRIC CONTOUR
- TAR CULTURAL RESOURCE AVOIDANCE AREA (NO DREDGE ZONE/NO ANCHOR)
- ◇ CPE-NC 2014 VIBRACORES
- ⌖ CPE-NC 2014 MAGNETIC ANOMALIES
- ○ CPE-NC 2014 SIDESCAN SONAR ANOMALIES
- (37) BORROW AREA COORDINATE ID (SEE SHEET 12)

NOTES:

1. COORDINATES ARE IN FEET BASED ON NORTH CAROLINA STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1988 (NAD88).
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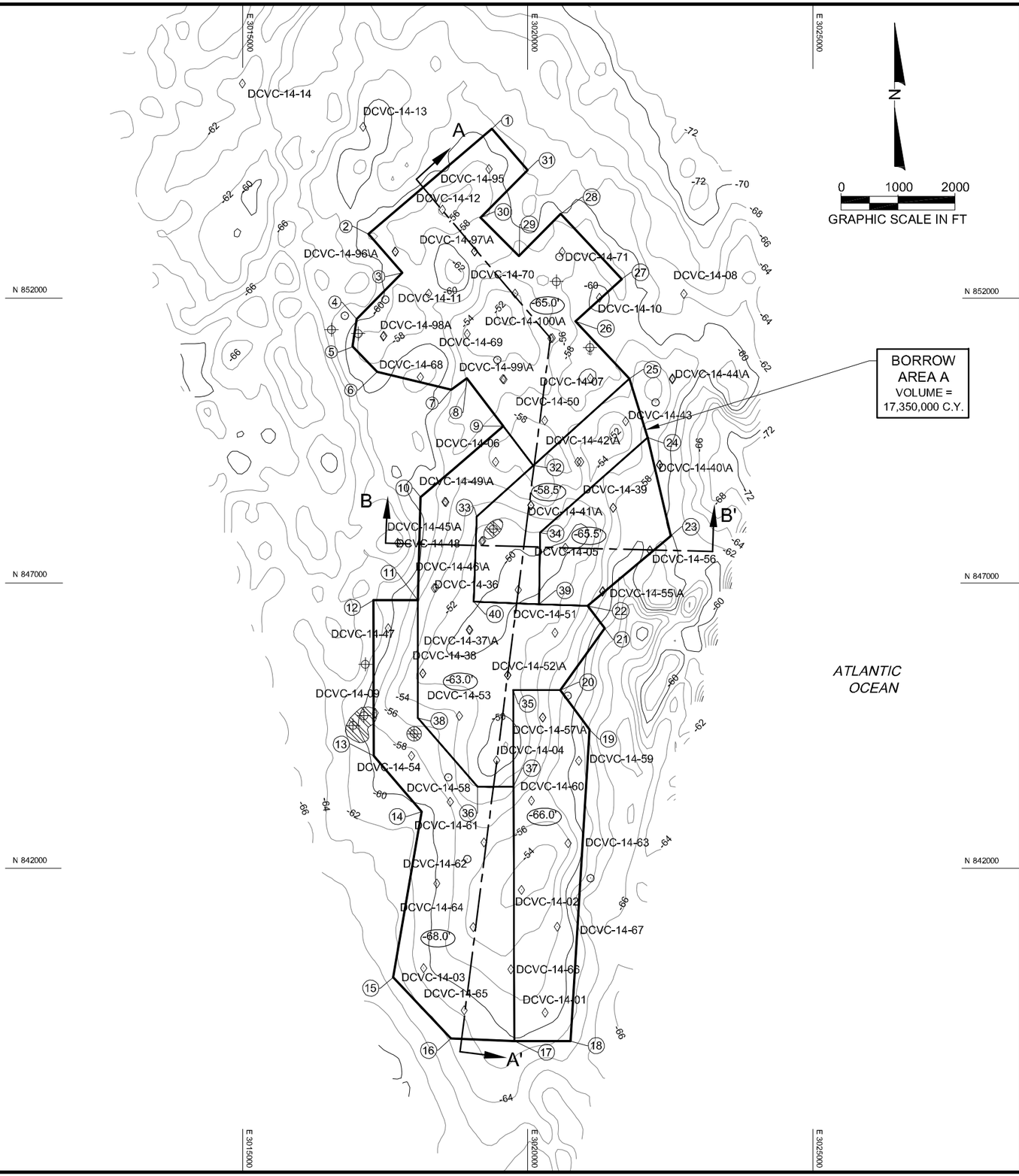
BORROW AREA COORDINATE TABLE		
POINT ID	EASTING	NORTHING
(1)	3019370.9	854970.6
(2)	3017204.5	853123.7
(3)	3017798.4	852448.2
(4)	3016995.7	851633.8
(5)	3016928.0	851150.8
(6)	3017357.5	850708.4
(7)	3018654.8	850392.9
(8)	3018932.5	850596.0
(9)	3019568.9	849757.4
(10)	3018120.0	848511.3
(11)	3018069.8	846700.6
(12)	3017289.0	846700.2
(13)	3017302.1	843966.8
(14)	3018139.0	842988.7
(15)	3017637.6	840084.1
(16)	3018653.3	839011.8
(17)	3019763.8	838967.9
(18)	3020753.7	838966.2
(19)	3021081.7	844430.1
(20)	3020569.7	845124.3
(21)	3021352.1	846205.8
(22)	3021047.1	846601.5
(23)	3022507.8	847829.8
(24)	3022106.3	849556.7
(25)	3021784.4	850590.2
(26)	3020836.5	851593.4
(27)	3021646.9	852335.9
(28)	3020574.6	853476.8
(29)	3019847.3	852740.9
(30)	3019168.0	853414.4
(31)	3019995.4	854247.1
(32)	3020095.7	849063.5
(33)	3019106.0	848168.8
(34)	3020217.4	847888.2
(35)	3019742.8	845124.3
(36)	3019117.8	843436.6
(37)	3019748.5	843429.8
(38)	3018069.8	844635.9
(39)	3020197.4	846629.9
(40)	3019050.6	846678.1



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REVISIONS

No.	Description	Date

Reference Files:

Designed by: KW
Drawn by: TIN
Date: 7/08/15
Checked by: AMB
Reviewed by: KW
Submitted by: KW
Plot Scale: AS NOTED
Comm. No: 1304-40

TOWN OF DUCK
BEACH NOURISHMENT PROJECT
DARE COUNTY, NORTH CAROLINA

BORROW AREA A PLAN VIEW

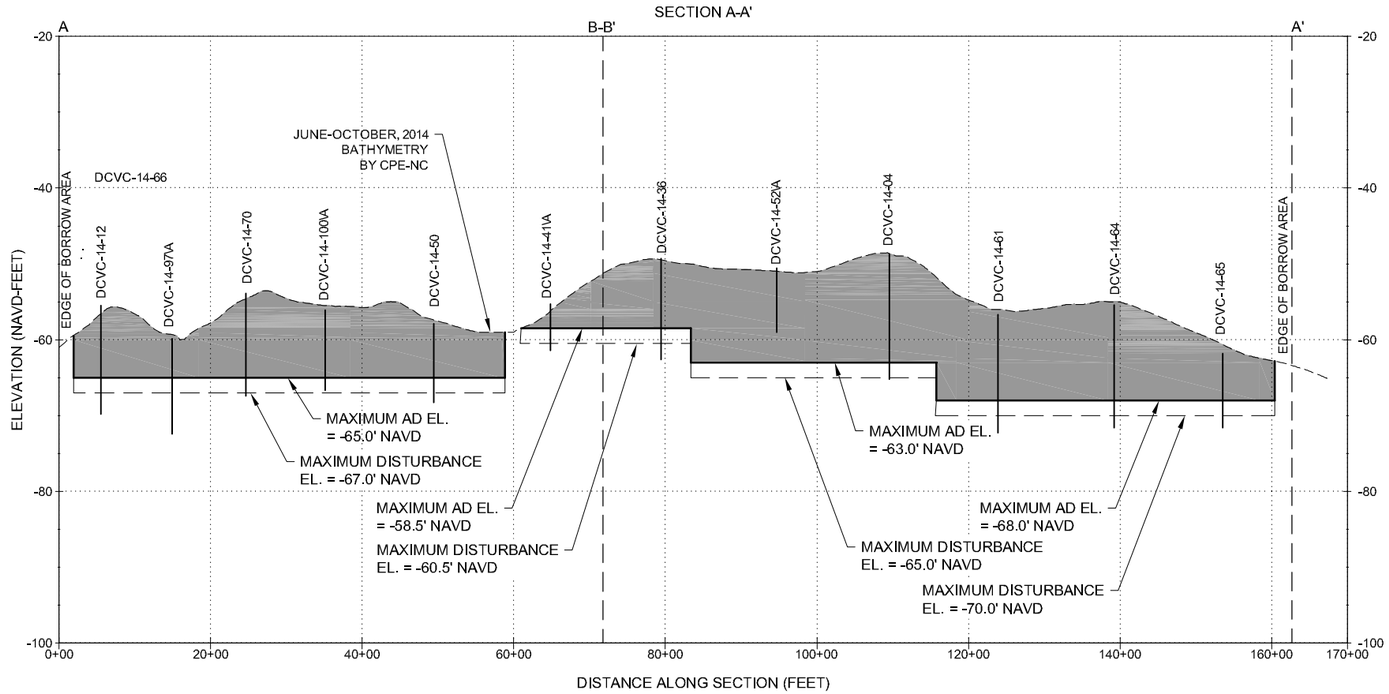
DRAWING NO.

BA-A

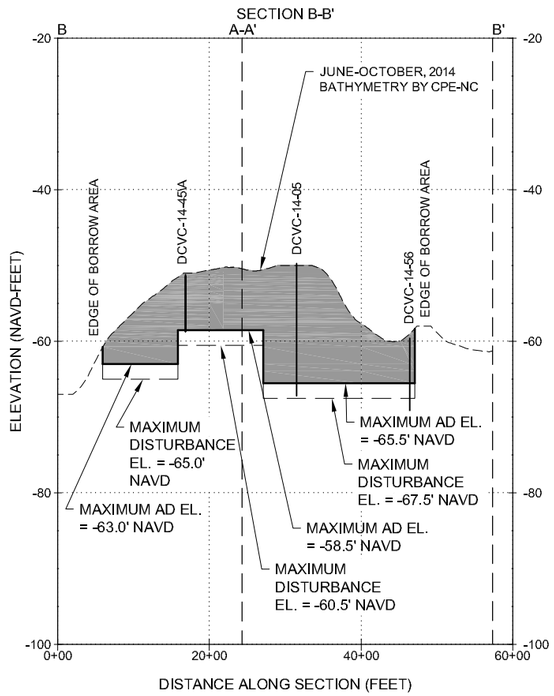
SHEET 9 OF 12

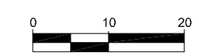
P:\North Carolina\DARE COUNTY\PROJECTS\2015 Borrow Area Permit\Cad\130440C BA-A PVdwg-Dec 02, 2015 @ 1:08pm--hwaschalk

SECTION A-A'

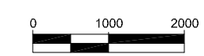


SECTION B-B'





VERTICAL GRAPHIC SCALE IN FT



HORIZONTAL GRAPHIC SCALE IN FT

NOTES:

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REVISIONS

No.	Date	Description

Reference Files:

Designed by: KM	Checked by: AMB
Drawn by: HN	Reviewed by: KW
Date: 7/08/15	Submitted by: KW
Plot Scale: AS NOTED	Comm. No.: 150440

TOWN OF DUCK
BEACH NOURISHMENT PROJECT
DARE COUNTY, NORTH CAROLINA

BORROW AREA A CROSS-SECTIONS

DRAWING NO.

XS-1

SHEET 10 OF 12

LEGEND:

- (-66.0) MAXIMUM AFTER DREDGE ELEVATION (FT. NAVD88)
- -64 BATHYMETRIC CONTOUR
- TAR CULTURAL RESOURCE AVOIDANCE AREA (NO DREDGE ZONE/NO ANCHOR)
- NO DREDGE ZONE
- CPE-NC 2014 VIBRACORES
- CPE-NC 2014 MAGNETIC ANOMALIES
- CPE-NC 2014 SIDESCAN SONAR ANOMALIES
- (37) BORROW AREA COORDINATE ID (SEE SHEET 16)

BORROW AREA COORDINATE TABLE		
POINT ID	EASTING	NORTHING
1	2981154.0	910671.3
2	2981154.0	908707.9
3	2982388.3	908708.4
4	2982388.3	907702.7
5	2982388.3	906756.8
6	2981296.1	906756.8
7	2981247.1	904958.1
8	2981664.6	904956.1
9	2981664.6	903135.4
10	2983469.1	903135.4
11	2983469.1	905545.8
12	2984454.3	906008.4
13	2984454.3	907703.2
14	2983451.5	907702.7
15	2983264.8	908708.7
16	2983272.4	909684.5
17	2984111.1	909684.5
18	2984111.1	910678.2
19	2982779.4	910680.3
20	2982204.0	910678.2
21	2982204.0	909684.5
22	2982778.6	909684.5
23	2982388.3	905552.5

1. COORDINATES ARE IN FEET BASED ON NORTH CAROLINA STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD83).
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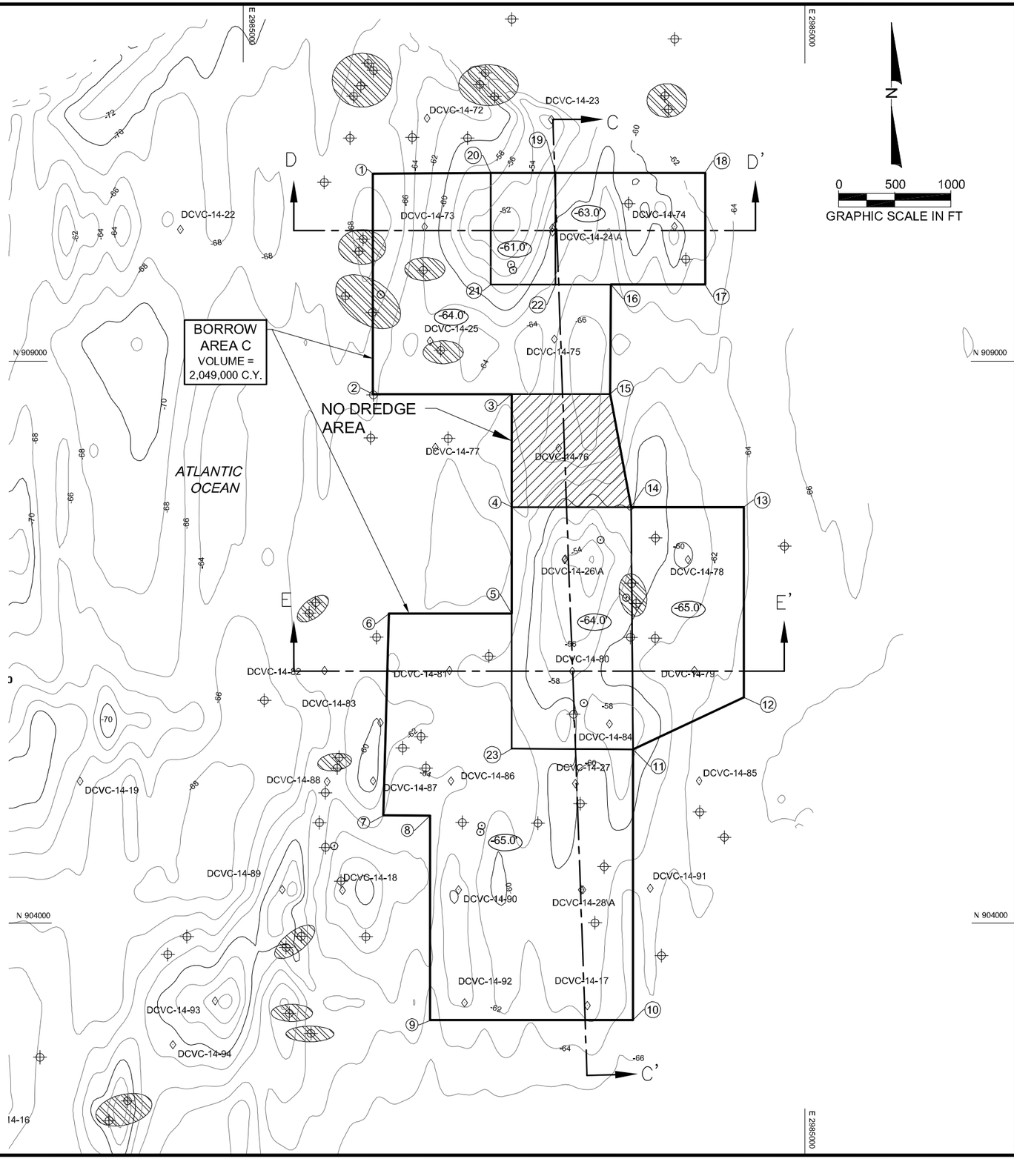

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REVISIONS

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Reference Files:

Designed by: KM | Drawn by: TN | Date: 7/08/15 | Checked by: AMB | Reviewed by: KM | Submitted by: KM | Comm. No.: 1504.40 | Plot Scale: AS NOTED

TOWN OF DUCK
BEACH NOURISHMENT PROJECT
DARE COUNTY, NORTH CAROLINA

BORROW AREA C PLAN VIEW

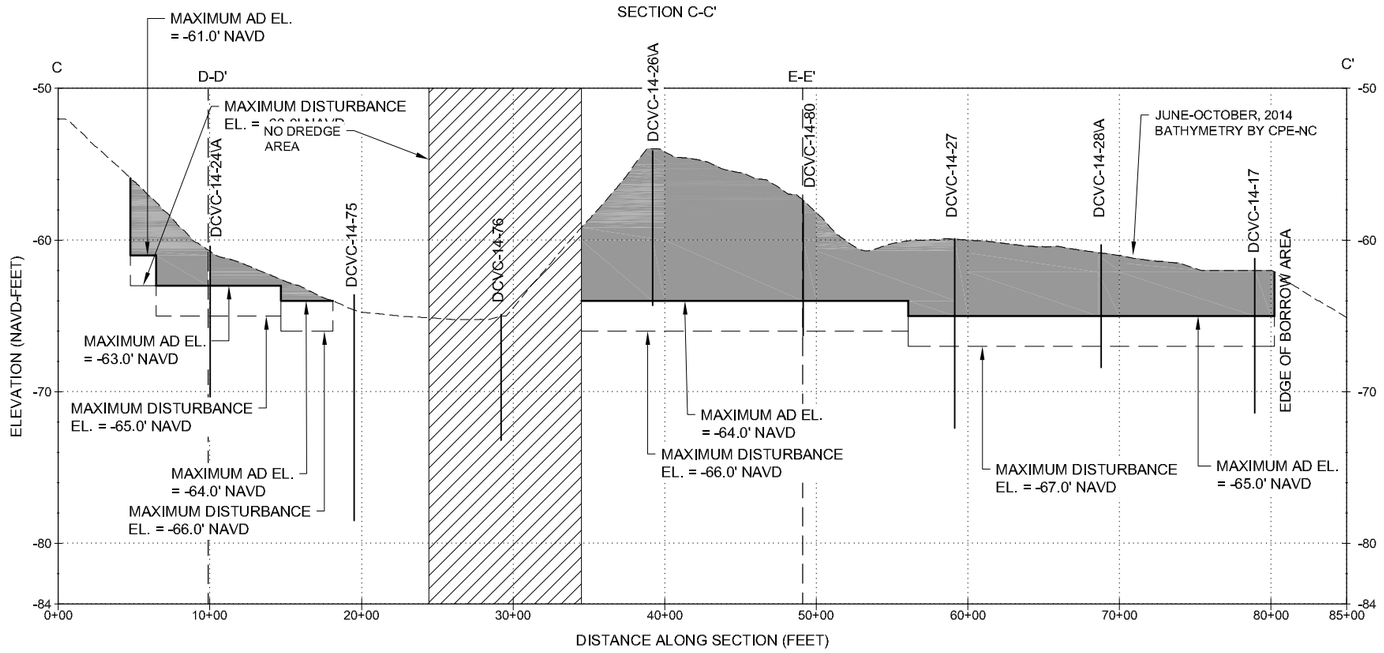
DRAWING NO.

BA–C

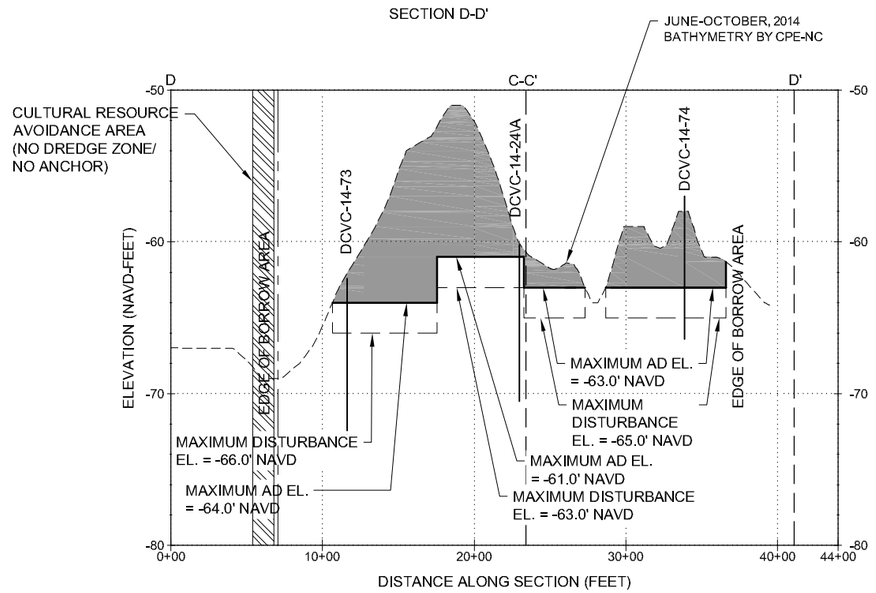
SHEET 11 OF 12

P:\North Carolina\DARE COUNTY PROJECTS\2015 Borrow Area Permit\Cad\150440C_BAC_PVAmy-Dec02_2015@100sc_NewsAndB

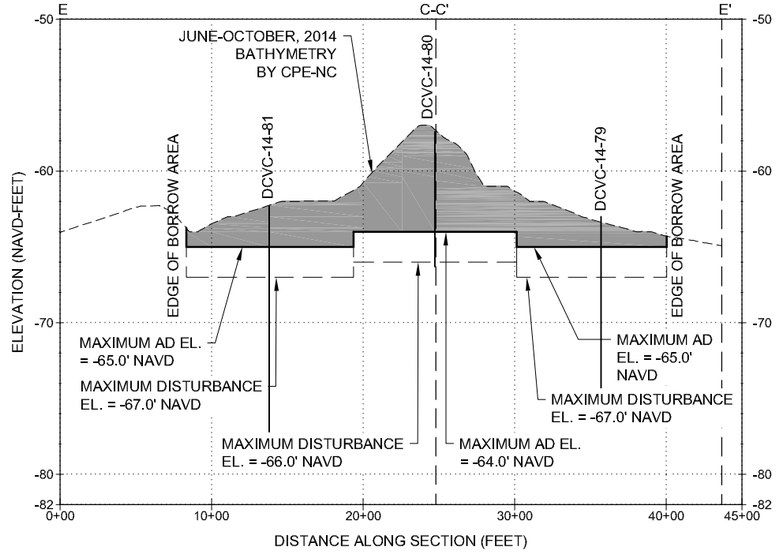
SECTION C-C'



SECTION D-D'



SECTION E-E'



0 5 10
VERTICAL GRAPHIC SCALE IN FT

0 500 1000
HORIZONTAL GRAPHIC SCALE IN FT

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TOWN OF DUCK
BEACH NOURISHMENT PROJECT
DARE COUNTY, NORTH CAROLINA

BORROW AREA C CROSS-SECTIONS

DRAWING NO.
XS-1

SHEET 12 OF 12

P:\North Carolina\DARE COUNTY PROJECTS\2015 Borrow Area Permit\Cad\150440C BAC_XS.dwg-Dec 03, 2015 @ 10:39am-howardwb