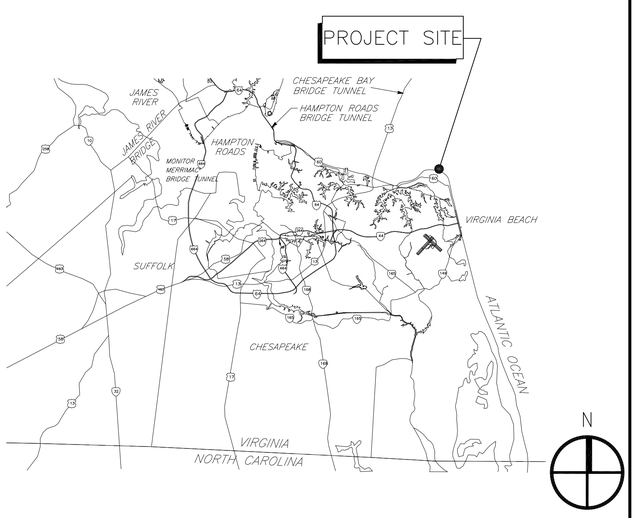
# RM09-0528 EMERGENCY SHORELINE EROSION CONTROL FORT STORY

## FORT STORY ◦ VIRGINIA BEACH, VIRGINIA

## NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC

### HAMPTON ROADS IPT

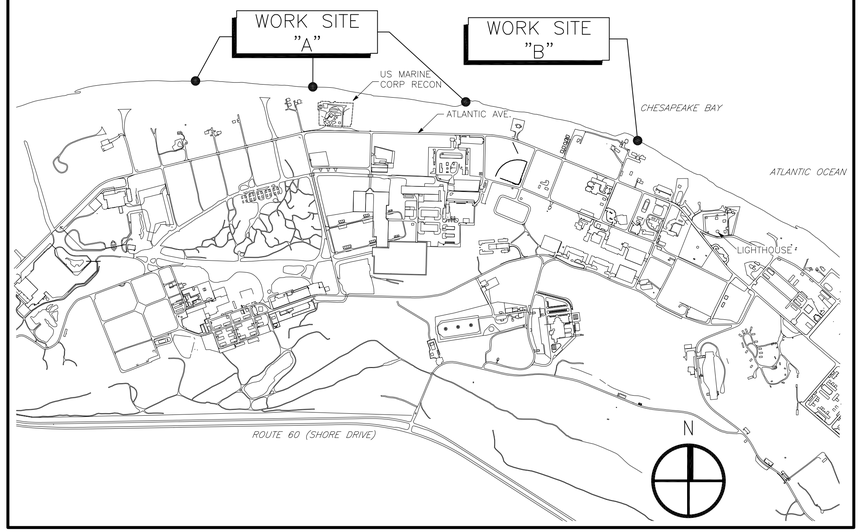
## VICINITY MAP




## LIST OF SHEETS

| SHEET NO. | NAVFAC DWG. NO. | SHEET TITLE |
|---|---|---|
| | | GENERAL |
| 1 | G-001 | COVER SHEET |
| | | CIVIL |
| 2 | C-001 | PROJECT CONTROL, LEGEND AND NOTES |
| 3 | C-101 | WORK SITE "A" SITE PLAN |
| 4 | C-102 | WORK SITE "A" SITE PLAN |
| 5 | C-103 | WORK SITE "A" SITE PLAN |
| 6 | C-104 | WORK SITE "A" SITE PLAN |
| 7 | C-105 | WORK SITE "A" SITE PLAN |
| 8 | C-106 | WORK SITE "B" SITE PLAN |
| 9 | C-201 | CROSS SECTIONS: STA 440+57 TO STA 465+08 |
| 10 | C-202 | CROSS SECTIONS: STA 417+18 TO STA 439+42 |
| 11 | C-203 | CROSS SECTIONS: STA 389+06 TO STA 414+31 |
| 12 | C-501 | BEACH AND DUNE CONSTRUCTION DETAILS |
| 13 | C-502 | PIPE INSTALLATION DETAILS |

## LOCATION MAP




| DATE | DESCRIPTION | STM | APPR |
|---|---|---|---|

AE LOGO

APPROVED
James S. Georgo, P.E.
Digitally signed by GEORGO.JAMES.S.1392763089 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USN, cn=GEORGO.JAMES.S.1392763089 Date: 2013.09.20 16:46:26 -04'00'
JAMES S. GEORGO, PE
FOR COMMANDER NAVFAC
DATE 9-20-2013

APPROVED
CDR LENN CARON
ACTMTY – SATISFACTORY TO
DATE

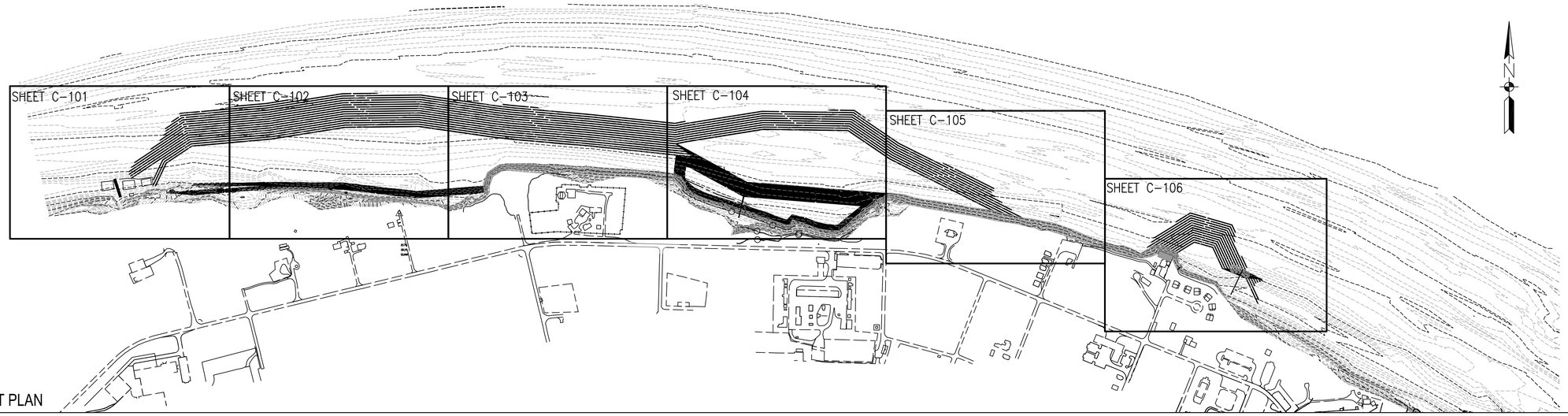
PROJECT MGR
SEAL
DES DSW DRW DSW CHK JSG
FIRE PROTECTION N/A
BRANCH MANAGER J. S. GEORGO, PE
CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAPITAL IMPROVEMENTS CORE ~ HYDROGRAPHIC BRANCH
NAVAL STATION ~ NORFOLK, VIRGINIA
JEB LITTLE CREEK
VIRGINIA BEACH, VA
RM09-0528 EMERGENCY SHORELINE EROSION CONTROL FORT STORY
COVER SHEET

CODE ID. NO. 80091 SIZE D
SCALE: AS NOTED
MAXIMO NO.
JOB ORDER NO.
WORK ORDER NO. 1067811
CONSTR. CONTR. NO. N/A
NAVFAC DRAWING NO. 12625114
SHEET 1 OF 13
G-001

DRAWFORM REVISION: 2 FEB 2011

FILE NAME: D:\Documents and Settings\dsnw.wray\My Documents\HYDRO\FSTY_Fort Story\Fort Story Shoreline Stabilization\Dwgs\RM09-0528 Emergency Shoreline Erosion2012.dwg LAYOUT NAME: G-001 PLOTTED: Friday, September 20, 2013 - 1:26pm USER: dsnw.wray




KEY SHEET PLAN

SCALE: 1" = 400'

## GENERAL SURVEY NOTES

1. TOPOGRAPHIC SURVEY PREPARED BY NAVFAC MIDLANT, FROM FIELD DATA COLLECTED IN NOVEMBER 2011, JUNE 2012 & JUNE 2013. TOPOGRAPHIC INFORMATION SHOWN REFLECTS THE CONDITIONS AT THE TIME OF SURVEY. TOPOGRAPHY AND CONDITIONS MAY HAVE CHANGED SINCE THE SURVEY WAS CONDUCTED.

2. THIS SURVEY DOES NOT GUARANTEE THE EXISTENCE OR NONEXISTENCE. SIZE. TYPE, DEPTH MATERIAL OR LOCATION OF ANY UNDERGROUND UTILITIES. ALL UTILITIES SHOWN ARE BASED ON ABOVEGROUND UTILITY STRUCTURES, AVAILABLE UTILITY MAPS AND SITE PLANS. THE CONTRACTOR SHALL HAVE ALL EXISTING SITE UTILITIES VERIFIED PRIOR TO ANY EXCAVATION.

3. EXISTING STRUCTURES AND OTHER FEATURES ON THE LANDWARD OF THE DUNE ARE BASED ON EXISTING AERIAL BASE MAP AND FOR REFERENCE ONLY.

4. TOPOGRAPHIC SURVEY WAS PERFORMED USING A TOPCON GR-5 RTK GPS.

5. ELEVATIONS SHOWN HEREON ARE IN FEET AND REFER TO NORTH AMERICAN VERTICAL DATUMN OF 1988 (NAVD 1988).

6. HORIZONTAL COORDINATES SHOWN HEREON ARE IN US SURVEY FEET AND REFER TO THE VIRGINIA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE (ZONE 4502), NAD 1983 1993.

7. HYDROGROGRAPHIC SURVEYING NOTES:

   A. ELEVATIONS SHOWN HEREON ARE IN FEET AND REFER TO NORTH AMERICAN VERTICAL DATUMN OF 1988 (NAVD 1988).

   B. THE HYDROGRAPHIC SURVEY WAS CONDUCTED USING CLASS 1 HYDROGRAPHIC SURVEY METHODS & ACCURACIES OUTLINED IN THE CORPS OF ENGINEERS' HYDROGRAPHIC SURVEYING MANUAL (EM 1110-2-1003).

   C. ALL SOUNDINGS WERE RECORDED USING AN ODOM HYDROTRAC SINGLE BEAM SONAR.

   D. HORIZONTAL DATUM IS BASED ON THE VIRGINIA SOUTH (LAMBERT) STATE PLANE COORDINATE SYSTEM, ZONE 4502, U.S. SURVEY FEET (NAD 1983 1993).

8. MEAN HIGH WATER (MHW) AND MEAN LOW WATER (MLW) ELEVATIONS WERE OBTAINED BY UTLITIZING THE ACOE "CORPSCON" COMPUTER PROGRAM BASED ON NAVD 88 DATUM.

## GENERAL NOTES

1. CONTRACTOR SHALL CONFINE THE WORK TO THE LIMIT OF CONTRACT AREA AVAILABLE (SEAWARD OF THE CONSTRUCTION BASE LINE BETWEEN NORTH/SOUTH LIMITS OF THE CONTRACT). THIS AREA GENERALLY DOES NOT INCLUDE ACCESS.

2. THE CONTRACTOR SHALL COORDINATE ACCESS TO THE WORK AREA LOCATIONS WITH THE CONTRACTOR OFFICER. THE CONTRACTOR SHALL RESTORE THE ACCESS AREA TO THEIR ORIGINAL CONDITION AFTER WORK IN THE AREA COMPLETED. THIS WORK INCLUDES REPLACEMENT OF SIGNAGE AND OTHER MISCELLANEOUS ITEMS THAT MIGHT BE REMOVED.

3. ALL WORK CONDUCTED MUST BE COORDINATED WITH RANGE OPERATIONS, N7 AND THE PUBLIC WORKS DEPARTMENT AT FORT STORY.

4. CONTRACTOR SHALL COORDINATE THE EXACT LIMITS OF THE STOCKPILE AREAS WITH THE CONTRACTOR OFFICER PRIOR TO THE BEGINING OF ANY DISTURBANCE.

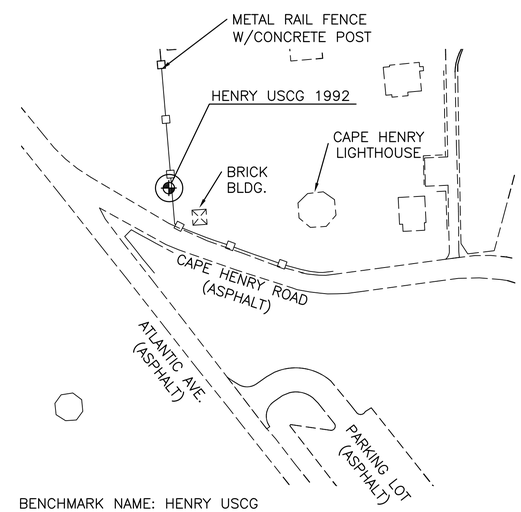
5. THE UTILITIES SHALL BE LOCATED PRIOR TO THE BEGINNING OF ANY CONSTRUCTION.

## LEGEND

| | EXISTING | NEW |
|---|---|---|
| BUILDING / STRUCTURE | 143 | |
| MAJOR CONTOUR | 10 | 10 |
| MINOR CONTOUR | 12 | 12 |
| BEACH FILL AREA | | |
| CONSTRUCTION BASELINE | | 2+00 |
| MEAN HIGH WATER (MHW) | MHW | |
| MEAN LOW WATER (MLW) | MLW | |
| BENCHMARK (BM) | | |
| CONTROL POINT (CP) | | |
| CHAIN LINK FENCE | X X | |
| HIGH VIZ FENCE | | |
| WOOD SAND FENCE | | |
| VEGETATION LINE | | |
| SANITARY MANHOLE | S | |
| FIRE HYDRANT | | |
| WATER VALVE | | |
| STORM PIPE | | |
| CONCRETE PAD | | |
| STONE REVETMENT | | |

## ABBREVIATIONS

T/S – TOE OF SLOPE
L – LEFT OF CONST BASELINE
N – NORTHING
ELEV – ELEVATION
T/B – TOB OF BANK
R – RIGHT OF CONST BASELINE
E – EASTING
CONST. – CONSTRUCTION




BENCHMARK NAME: HENRY USCG

DESCRIPTION:
METAL ROD IN ACCESS BOX FLUSH WITH GROUND
LOCATED ON THE NORTH SIDE OF CAPE HENRY ROAD
AT THE INTERSECTION OF ATLANTIC AVENUE.

ELEVATION: 9.28' (NAVD88)

LOCATION
NORTHING: 3506381.084
EASTING: 12211338.058

## SURVEY BENCHMARK - RTK GPS BASE STATION LOCATION

SCALE: 1" = 80'

| SYM | DESCRIPTION | DATE | APPR |
|---|---|---|---|

NAVFAC

AE LOGO

APPROVED
JAMES S. GEORGO, PE
FOR COMMANDER NAVFAC 9-20-2013
DATE

APPROVED
CDR LENN CARON
ACTIVITY – SATISFACTORY TO
DATE

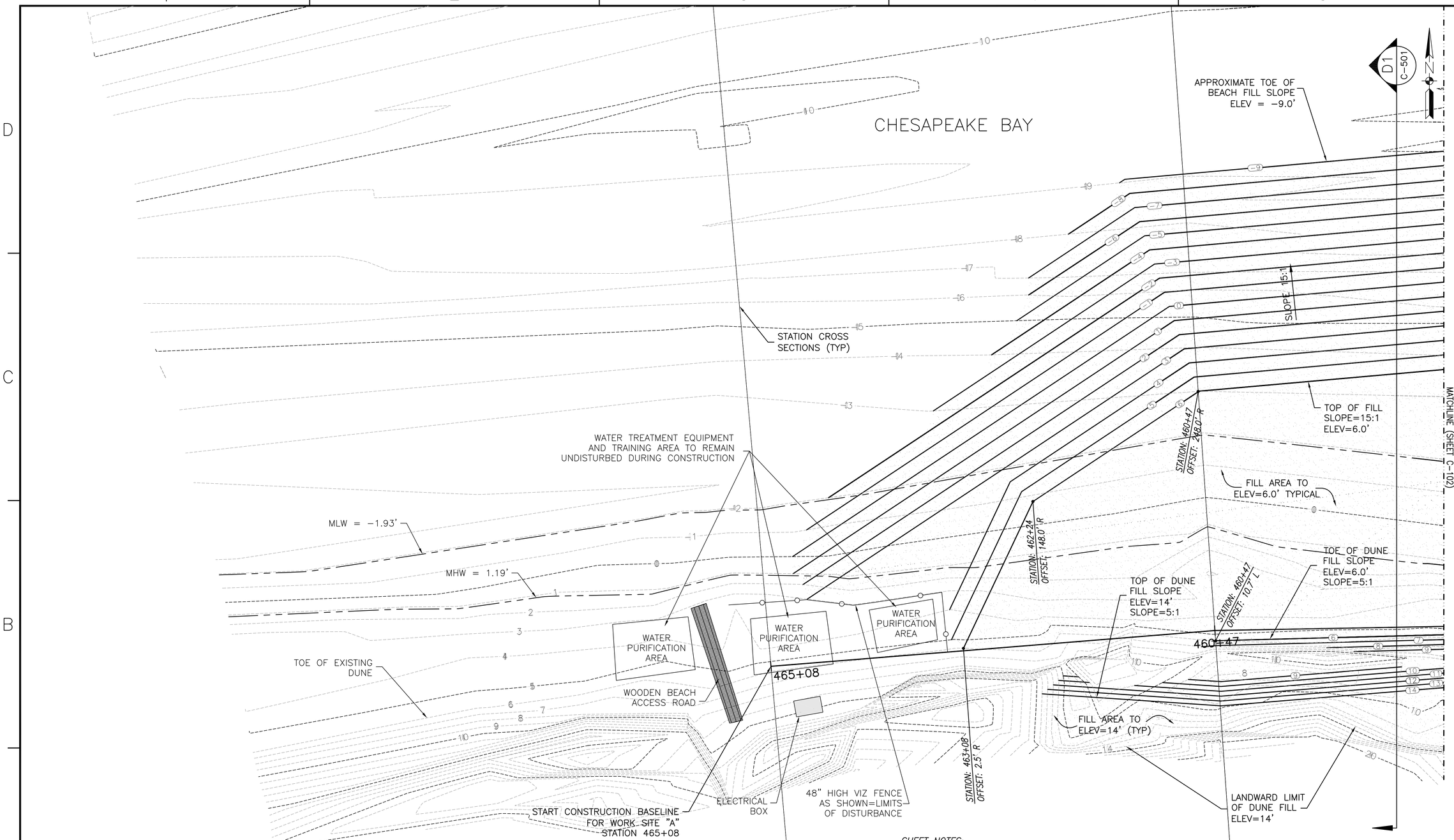
PROJECT MGR. SEAL
DES DSW DRW DSW CHK JSG
FIRE PROTECTION N/A
BRANCH MANAGER J. S. GEORGO, PE
CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAPITAL IMPROVEMENTS CORE ~ HYDROGRAPHIC BRANCH
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL STATION ~ NORFOLK, VIRGINIA
JEB LITTLE CREEK
VIRGINIA BEACH, VA
RM09-0528 EMERGENCY SHORELINE
EROSION CONTROL FORT STORY
PROJECT CONTROL, LEGEND AND NOTES

CODE ID. NO. 80091 SIZE D
SCALE: AS NOTED
MAXIMO NO.
JOB ORDER NO.
WORK ORDER NO. 1067811
CONSTR. CONTR. NO. N/A
NAVFAC DRAWING NO. 12625115
SHEET 2 OF 13
C-001

DRAWFORM REVISION: 2 FEB 2011

FILE NAME: D:\Documents and Settings\done.wray\My Documents\HYDRO\FSTY_Fort Story\Fort Story Shoreline Stabilization\Dwgs\RM09-0528 Emergency Shoreline Erosion2012.dwg LAYOUT NAME: C-001 PLOTTED: Friday, September 20, 2013 - 1:27pm USER: done.wray




*SHEET NOTES:*

1. *SEE SHEET C-001 FOR CONTROL DATA*
2. *SEE SHEET C-201 FOR CONSTRUCTION BASELINE COORDINATES AND AZIMUTHS AND BEACH DUNE CROSS-SECTIONS.*
3. *SEE SHEET C-501 FOR TYPICAL BEACH CROSS-SECTION DETAIL*

GRAPHIC SCALE

1" = 50'  0 25' 50' 100'

| SYM | DESCRIPTION | DATE | APPR |
|---|---|---|---|

NAVFAC

AE LOGO

APPROVED
JAMES S. GEORGO, PE
FOR COMMANDER NAVFAC DATE 9-20-2013

APPROVED
CDR LENN CARON
ACTIVITY - SATISFACTORY TO DATE

PROJECT MGR SEAL
DES DSW DRW DSW CHK JSG
FIRE PROTECTION N/A
BRANCH MANAGER J. S. GEORGO, PE
CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAPITAL IMPROVEMENTS CORE ~ HYDROGRAPHIC BRANCH
NAVAL STATION ~ NORFOLK, VIRGINIA
JEB LITTLE CREEK
VIRGINIA BEACH, VA

RM09-0528 EMERGENCY SHORELINE EROSION CONTROL FORT STORY

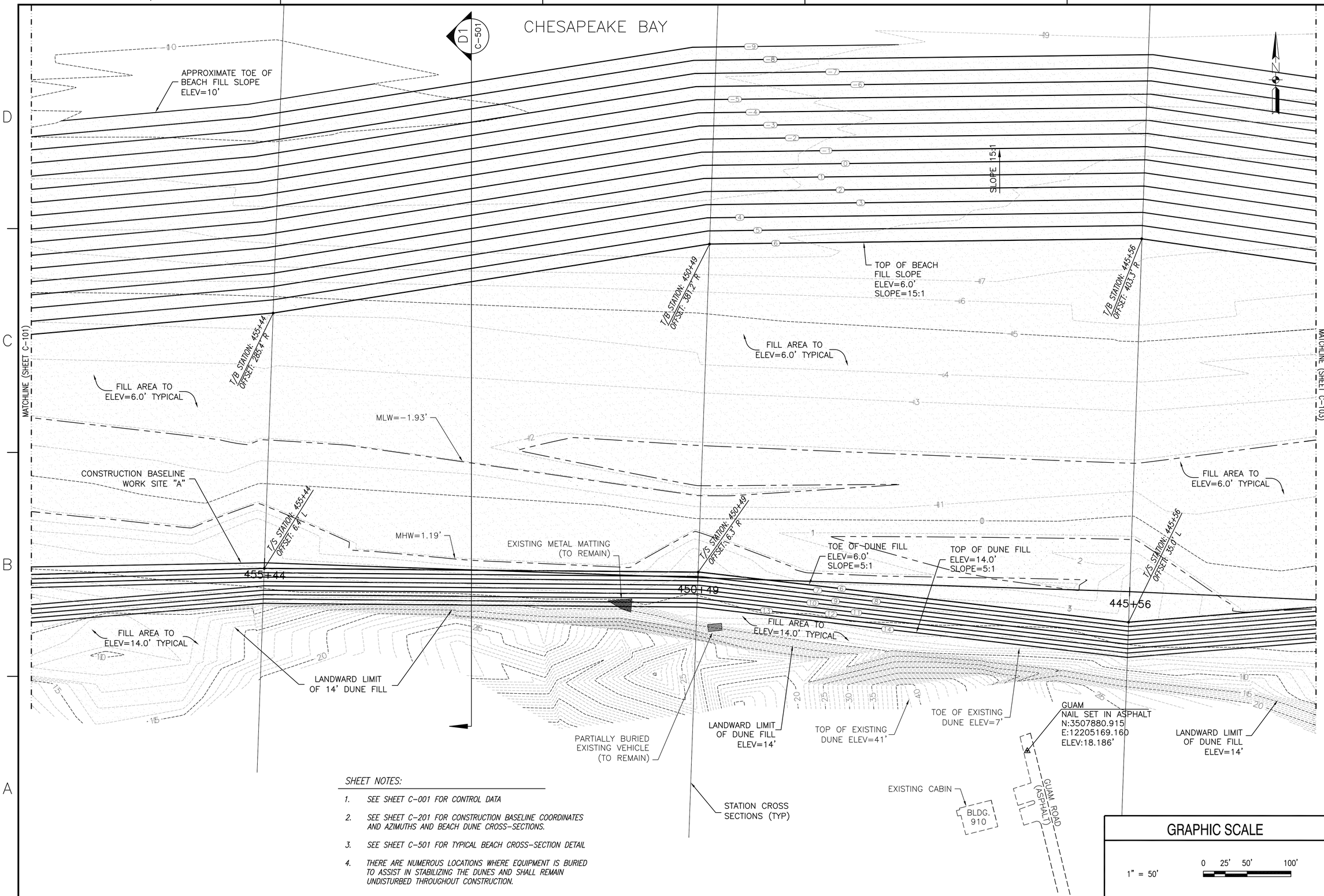
WORK SITE "A" SITE PLAN

CODE ID. NO. 80091 SIZE D
SCALE: AS NOTED
MAXIMO NO.
JOB ORDER NO.
WORK ORDER NO. 1067811
CONSTR. CONTR. NO. N/A
NAVFAC DRAWING NO. 12625116
SHEET 3 OF 13

C-101

DRAWFORM REVISION: 2 FEB 2011

FILE NAME: D:\Documents and Settings\dane.wray\My Documents\HYDRO\FSTY_Fort Story\Fort Story Shoreline Stabilization\Dwgs\RM09-0528 Emergency Shoreline Erosion2012.dwg LAYOUT NAME: C-101 PLOTTED: Friday, September 20, 2013 - 1:28pm USER: dane.wray




*SHEET NOTES:*

1. *SEE SHEET C-001 FOR CONTROL DATA*
2. *SEE SHEET C-201 FOR CONSTRUCTION BASELINE COORDINATES AND AZIMUTHS AND BEACH DUNE CROSS-SECTIONS.*
3. *SEE SHEET C-501 FOR TYPICAL BEACH CROSS-SECTION DETAIL*
4. *THERE ARE NUMEROUS LOCATIONS WHERE EQUIPMENT IS BURIED TO ASSIST IN STABILIZING THE DUNES AND SHALL REMAIN UNDISTURBED THROUGHOUT CONSTRUCTION.*

GRAPHIC SCALE

1" = 50'  0 25' 50' 100'

| SYM | DESCRIPTION | DATE | APPR |
|---|---|---|---|

NAVFAC

AE LOGO

APPROVED
JAMES S. GEORGO, PE
FOR COMMANDER NAVFAC
DATE 9-20-2013

APPROVED
CDR LENN CARON
ACTIVITY - SATISFACTORY TO
DATE

PROJECT MGR
SEAL
DES DSW DRW DSW CHK JSG
FIRE PROTECTION N/A
BRANCH MANAGER J. S. GEORGO, PE
CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
CAPITAL IMPROVEMENTS CORE - HYDROGRAPHIC BRANCH

NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
NAVAL STATION - NORFOLK, VIRGINIA
JEB LITTLE CREEK VIRGINIA BEACH, VA

RM09-0528 EMERGENCY SHORELINE EROSION CONTROL FORT STORY

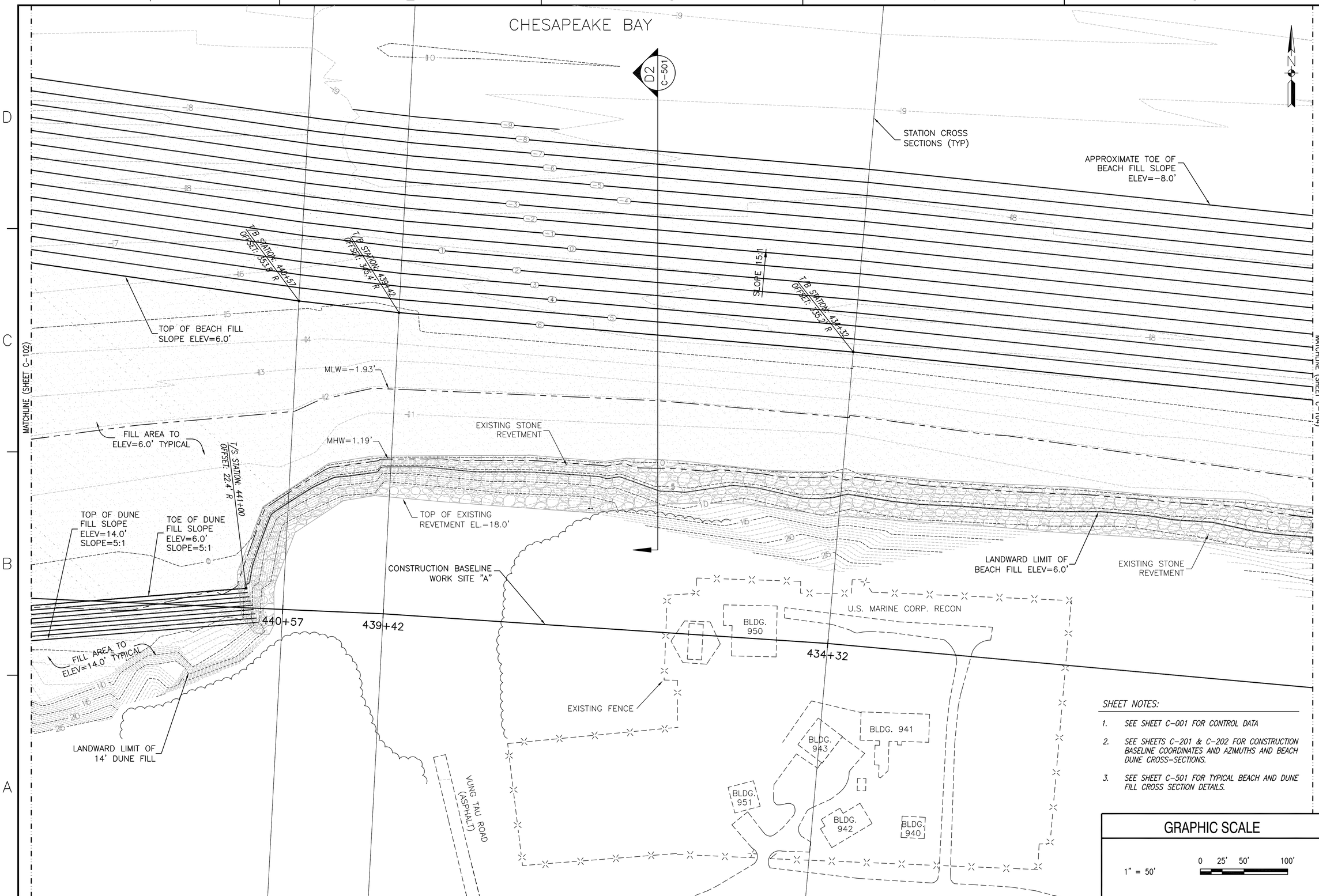
WORK SITE "A" SITE PLAN

CODE ID. NO. 80091 SIZE D
SCALE: AS NOTED
MAXIMO NO.
JOB ORDER NO.
WORK ORDER NO. 1067811
CONSTR. CONTR. NO. N/A
NAVFAC DRAWING NO. 12625117
SHEET 4 OF 13

C-102

DRAWFORM REVISION: 2 FEB 2011

FILE NAME: D:\Documents and Settings\dane.wray\My Documents\HYDRO\FSTY_Fort Story Shoreline Stabilization\Dwgs\RM09-0528 Emergency Shoreline Erosion2012.dwg LAYOUT NAME: C-102 PLOTTED: Friday, September 20, 2013 - 1:28pm USER: dane.wray




*SHEET NOTES:*

1. *SEE SHEET C-001 FOR CONTROL DATA*
2. *SEE SHEETS C-201 & C-202 FOR CONSTRUCTION BASELINE COORDINATES AND AZIMUTHS AND BEACH DUNE CROSS-SECTIONS.*
3. *SEE SHEET C-501 FOR TYPICAL BEACH AND DUNE FILL CROSS SECTION DETAILS.*

GRAPHIC SCALE

1" = 50'  0 25' 50' 100'

| STM | DESCRIPTION | DATE | APPR |
|---|---|---|---|

NAVFAC

AE LOGO

APPROVED
JAMES S. GEORGO, PE
FOR COMMANDER NAVFAC 9-20-2013
DATE

APPROVED
CDR LENN CARON
ACTIVITY - SATISFACTORY TO DATE

PROJECT MGR SEAL
DES DSW DRW DSW CHK JSG
FIRE PROTECTION N/A
BRANCH MANAGER J. S. GEORGO, PE
CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAPITAL IMPROVEMENTS CORE ~ HYDROGRAPHIC BRANCH
NAVAL STATION - NORFOLK, VIRGINIA
JEB LITTLE CREEK VIRGINIA BEACH, VA

RM09-0528 EMERGENCY SHORELINE EROSION CONTROL FORT STORY

WORK SITE "A" SITE PLAN

CODE ID. NO. 80091 SIZE D
SCALE: AS NOTED
MAXIMO NO.
JOB ORDER NO.
WORK ORDER NO. 1067811
CONSTR. CONTR. NO. N/A
NAVFAC DRAWING NO. 12625118
SHEET 5 OF 13

C-103

DRAWFORM REVISION: 2 FEB 2011

FILE NAME: D:\Documents and Settings\dane.wray\My Documents\HYDRO\FSTY_Fort Story\Fort Story Shoreline Stabilization\Dwgs\RM09-0528 Emergency Shoreline Erosion2012.dwg LAYOUT NAME: C-103 PLOTTED: Friday, September 20, 2013 - 1:28pm USER: dane.wray

CHESAPEAKE BAY

STATION: 428+50
OFFSET: 402.4' R

STATION: 428+40
OFFSET: 327.3' R

T/B STATION: 422+71
OFFSET: 548.6' R

T/B STATION: 416+94
OFFSET: 583.4' R

D3
C-501

APPROXIMATE TOE OF BEACH FILL SLOPE
ELEV=-7.0'

SLOPE 15:1

TOP OF BEACH FILL SLOPE
ELEV=1.0'

STATION CROSS SECTIONS (TYP)

TOP OF BEACH FILL
ELEV=1.0'

T/B STATION: 427+72
OFFSET: 256.4' R

T/B STATION: 427+35
OFFSET: 256.0' R

MATCHLINE (SHEET C-103)

FILL AREA TO
ELEV=6.0' TYPICAL

SLOPE 5:1

FILL AREA TO
ELEV=1.0' TYPICAL

MATCHLINE (SHEET C-105)

T/S STATION: 423+51
OFFSET: 184.1' R

INVERT=1.0'

160 LF – 48" D.I. PIPE @ 0.25%
INSTALL ON TIMBER SUPPORT FRAMES
AS SHOWN ON DETAIL SHEET C-502

TOE OF DUNE FILL
ELEV=1.0'

T/B STATION: 415+69
OFFSET: 86.0' R

T/S STATION: 414+31
OFFSET: 177.6' R

MATCH EXISTING PIPE
INVERT=1.41'

T/B STATION: 423+74
OFFSET: 25.8' R

T/B STATION: 423+65
OFFSET: 90.1' R

EXISTING STONE REVETMENT

428+38

427+61

LANDWARD LIMIT
OF DUNE FILL
ELEV=10.0'

FILL AREA TO
ELEV=20.0' TYPICAL

MLW=-1.93'

TOP OF DUNE FILL
ELEV=20.0'

SLOPE 15:1

MHW=1.19'

T/B STATION: 420+31
OFFSET: 8.5' L

T/B STATION: 420+62
OFFSET: 45.3' L

422+58

417+18

414+31

EXISTING STONE REVETMENT

CONST. BASELINE
WORK SITE "A"

LANDWARD LIMIT
OF DUNE FILL
ELEV=10.0'

EXISTING DRAINAGE
MANHOLE

EXISTING SAND
FENCE

*SHEET NOTES:*

1. *SEE SHEET C-001 FOR CONTROL DATA*
2. *SEE SHEET C-202 FOR CONSTRUCTION BASELINE COORDINATES AND AZIMUTHS AND BEACH DUNE CROSS-SECTIONS.*
3. *SEE SHEET C-501 FOR TYPICAL BEACH AND DUNE FILL CROSS-SECTION DETAILS*
4. *SEE SHEET C-502 FOR STORM PIPE DETAILS.*

GRAPHIC SCALE

1" = 50'

0 25' 50' 100'

| STM | DESCRIPTION | DATE | APPR |
|---|---|---|---|

NAVFAC

AE LOGO

APPROVED
JAMES S. GEORGO, PE
FOR COMMANDER NAVFAC
DATE 9-20-2013

APPROVED
CDR LENN CARON
ACTIVITY – SATISFACTORY TO
DATE

PROJECT MGR SEAL
DES DSW DRW DSW CHK JSG
FIRE PROTECTION N/A
BRANCH MANAGER J. S. GEORGO, PE
CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
CAPITAL IMPROVEMENTS CORE ~ HYDROGRAPHIC BRANCH

NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
NAVAL STATION – NORFOLK, VIRGINIA

JEB LITTLE CREEK
VIRGINIA BEACH, VA

RM09-0528 EMERGENCY SHORELINE
EROSION CONTROL FORT STORY

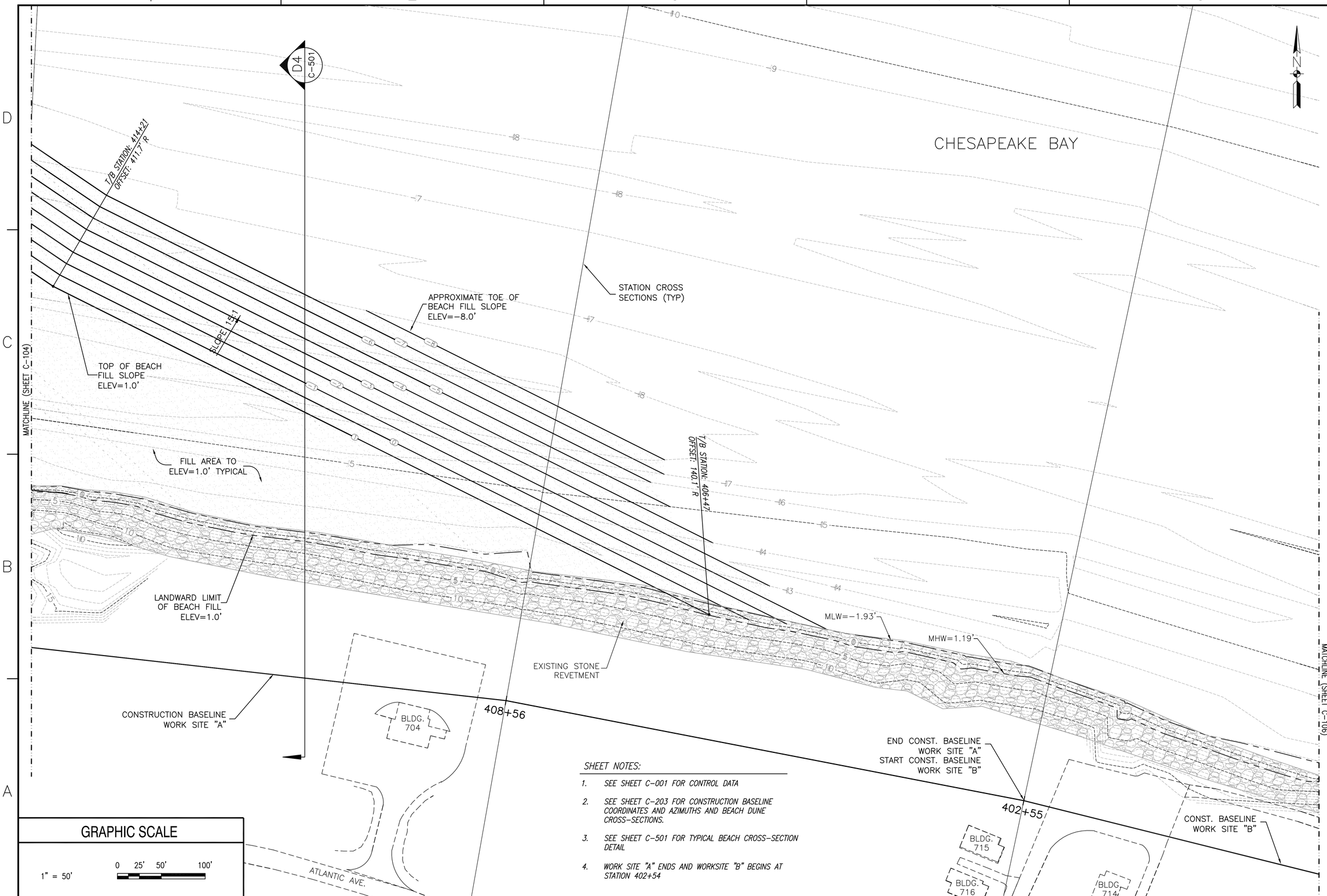
WORK SITE "A" SITE PLAN

CODE ID. NO. 80091 SIZE D
SCALE: AS NOTED
MAXIMO NO.
JOB ORDER NO.
WORK ORDER NO. 1067811
CONSTR. CONTR. NO. N/A
NAVFAC DRAWING NO. 12625119
SHEET 6 OF 13

C-104

DRAWFORM REVISION: 2 FEB 2011

FILE NAME: D:\Documents and Settings\cdane.wroy\My Documents\HYDRO\FSTY_Fort Story\Fort Story Shoreline Stabilization\Dwgs\RM09-0528 Emergency Shoreline Erosion2012.dwg LAYOUT NAME: C-104 PLOTTED: Friday, September 20, 2013 - 1:29pm USER: cdane.wroy




## GRAPHIC SCALE

1" = 50'

0 25' 50' 100'

*SHEET NOTES:*

1. *SEE SHEET C-001 FOR CONTROL DATA*
2. *SEE SHEET C-203 FOR CONSTRUCTION BASELINE COORDINATES AND AZIMUTHS AND BEACH DUNE CROSS-SECTIONS.*
3. *SEE SHEET C-501 FOR TYPICAL BEACH CROSS-SECTION DETAIL*
4. *WORK SITE "A" ENDS AND WORKSITE "B" BEGINS AT STATION 402+54*

| STM | DESCRIPTION | DATE | APPR |
|---|---|---|---|

NAVFAC

AE LOGO

APPROVED
JAMES S. GEORGO, PE
FOR COMMANDER NAVFAC 9-20-2013
DATE

APPROVED
CDR LENN CARON
ACTIVITY - SATISFACTORY TO
DATE

PROJECT MGR SEAL

DES DSW DRW DSW CHK JSG

FIRE PROTECTION N/A

BRANCH MANAGER J. S. GEORGO, PE

CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAPITAL IMPROVEMENTS CORE ~ HYDROGRAPHIC BRANCH
NAVAL STATION ~ NORFOLK, VIRGINIA
JEB LITTLE CREEK
VIRGINIA BEACH, VA

RM09-0528 EMERGENCY SHORELINE
EROSION CONTROL FORT STORY

WORK SITE "A" SITE PLAN

CODE ID. NO. 80091 SIZE D

SCALE: AS NOTED

MAXIMO NO.

JOB ORDER NO.

WORK ORDER NO. 1067811

CONSTR. CONTR. NO. N/A

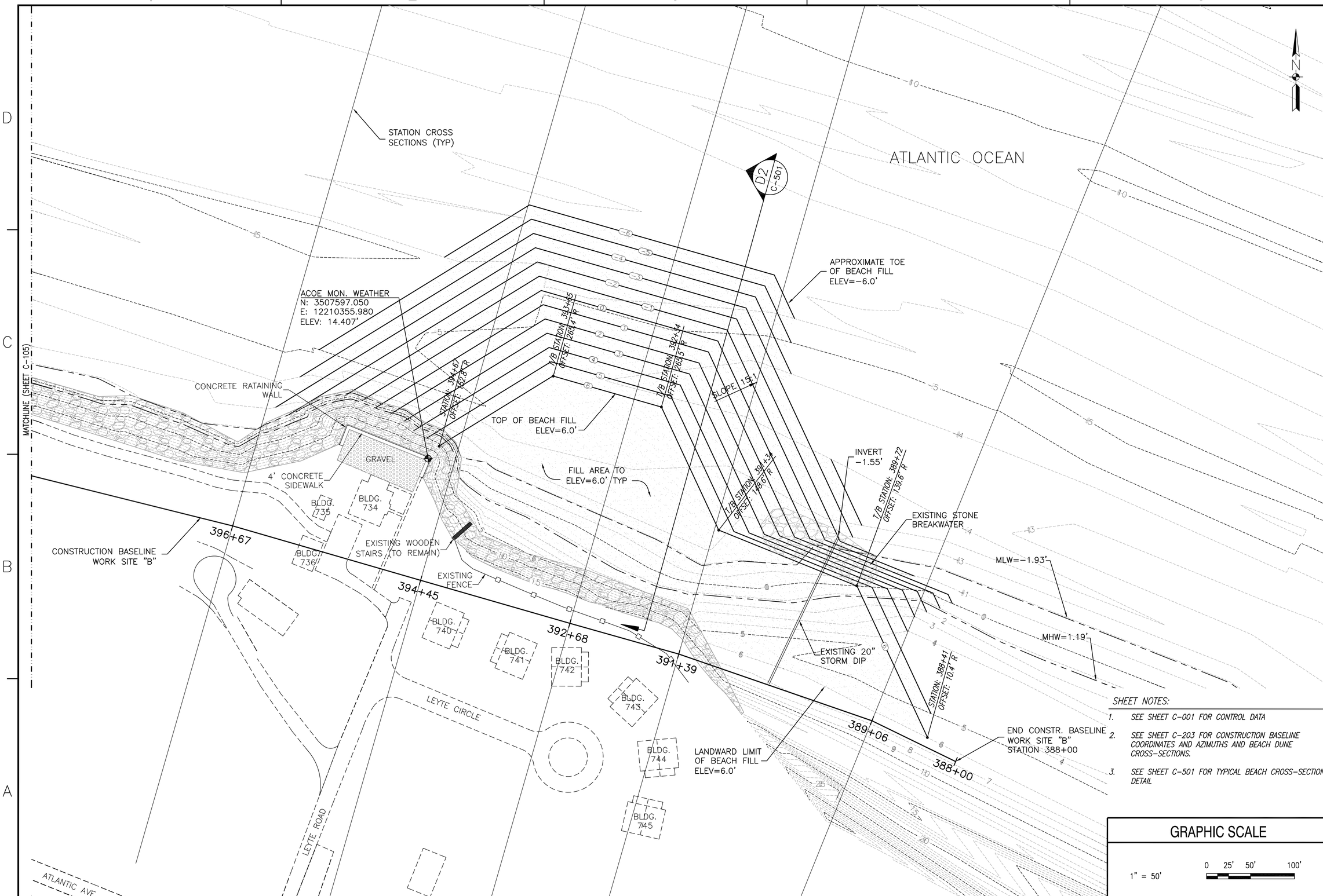
NAVFAC DRAWING NO. 12625120

SHEET 7 OF 13

C-105

DRAWFORM REVISION: 2 FEB 2011

FILE NAME: D:\Documents and Settings\done.wray\My Documents\HYDRO\FSTY_Fort Story\Fort Story Shoreline Stabilization\Dwgs\RM09-0528 Emergency Shoreline Erosion2012.dwg LAYOUT NAME: C-105 PLOTTED: Friday, September 20, 2013 - 1:29pm USER: done.wray




SHEET NOTES:

1. SEE SHEET C-001 FOR CONTROL DATA
2. SEE SHEET C-203 FOR CONSTRUCTION BASELINE COORDINATES AND AZIMUTHS AND BEACH DUNE CROSS-SECTIONS.
3. SEE SHEET C-501 FOR TYPICAL BEACH CROSS-SECTION DETAIL

GRAPHIC SCALE

1" = 50'  0 25' 50' 100'

| DESCRIPTION | DATE | APPR. |
|---|---|---|
| | | |

NAVFAC

AE LOGO

APPROVED
JAMES S. GEORGO, PE
FOR COMMANDER NAVFAC — DATE 9-20-2013

APPROVED
CDR LENN CARON
ACTIVITY – SATISFACTORY TO — DATE

PROJECT MGR — SEAL
DES DSW DRW DSW CHK JSG
FIRE PROTECTION N/A
BRANCH MANAGER J. S. GEORGO, PE
CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAPITAL IMPROVEMENTS CORE ~ HYDROGRAPHIC BRANCH
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL STATION ~ NORFOLK, VIRGINIA
VIRGINIA BEACH, VA
JEB LITTLE CREEK

RM09-0528 EMERGENCY SHORELINE EROSION CONTROL FORT STORY

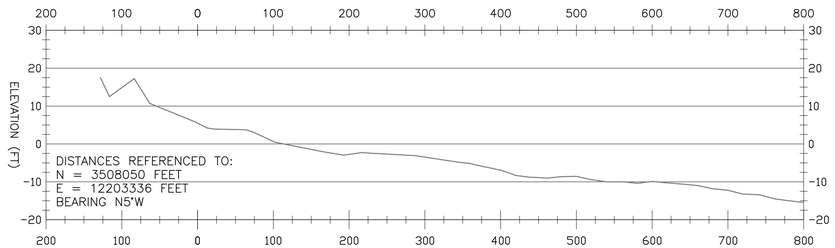
WORK SITE "B" SITE PLAN

CODE ID. NO. 80091 — SIZE D
SCALE: AS NOTED
MAXIMO NO.
JOB ORDER NO.
WORK ORDER NO. 1067811
CONSTR. CONTR. NO. N/A
NAVFAC DRAWING NO. 12625121
SHEET 8 OF 13

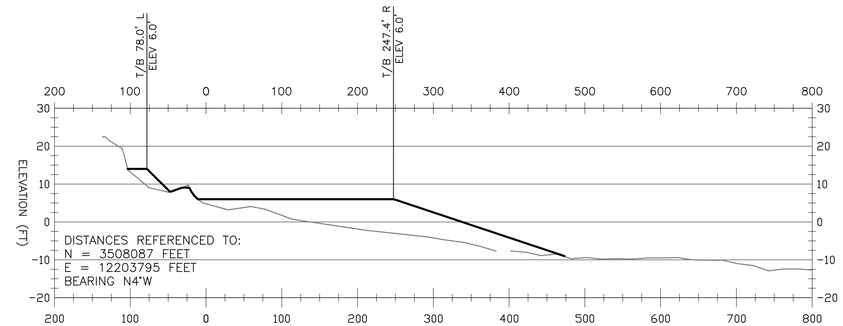
C-106

DRAWFORM REVISION: 2 FEB 2011

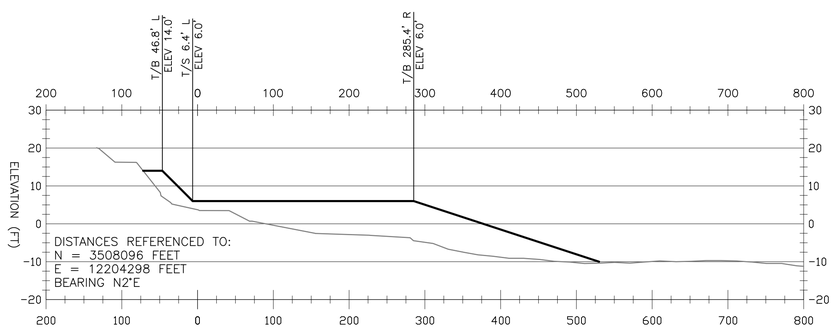
FILE NAME: D:\Documents and Settings\dane.wray\My Documents\HYDRO\FSTY_Fort Story\Fort Story Shoreline Stabilization\Dwgs\RM09-0528 Emergency Shoreline Erosion2012.dwg LAYOUT NAME: C-106 PLOTTED: Friday, September 20, 2013 - 1:30pm USER: dane.wray



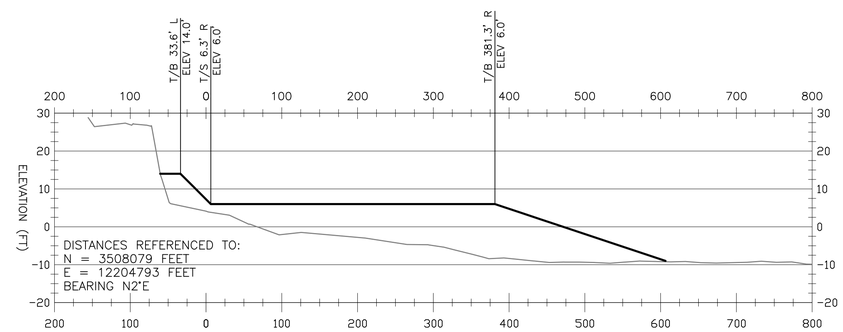

STATION 465+08



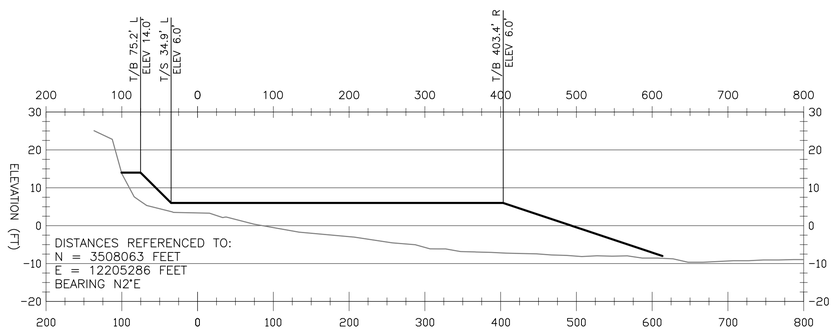

STATION 460+47



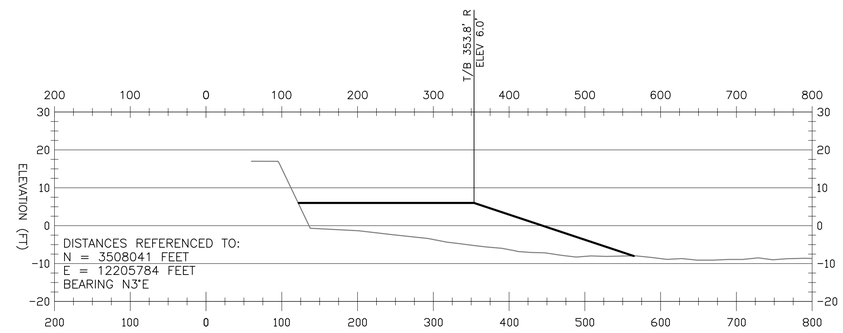

STATION 455+44




STATION 450+49




STATION 445+56




STATION 440+57

## GRAPHIC SCALE

HORIZ: 1" = 100'  0 50' 100' 200'

VERT: 1" = 20'  0 10' 20' 40'

| | | | |
|---|---|---|---|
| | | | APPR |
| | | | DATE |
| | | | DESCRIPTION |
| | | | MK |

NAVFAC

AE LOGO

APPROVED
JAMES S. GEORGO, PE
FOR COMMANDER NAVFAC 9-20-2013
DATE

APPROVED
CDR LENN CARON
ACTIVITY – SATISFACTORY TO
DATE

PROJECT MGR SEAL

DES DSW DRW DSW CHK JSG

FIRE PROTECTION N/A

BRANCH MANAGER J. S. GEORGO, PE

CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAPITAL IMPROVEMENTS CORE ~ HYDROGRAPHIC BRANCH
NAVAL STATION ~ NORFOLK, VIRGINIA
JEB LITTLE CREEK VIRGINIA BEACH, VA

RM09-0528 EMERGENCY SHORELINE
EROSION CONTROL FORT STORY

CROSS SECTIONS: STATION 440+57 TO STATION 465+08

CODE ID. NO. 80091 SIZE O

SCALE: AS NOTED

MAXIMO NO.

JOB ORDER NO.

WORK ORDER NO. 1067811

CONSTR. CONTR. NO. N/A

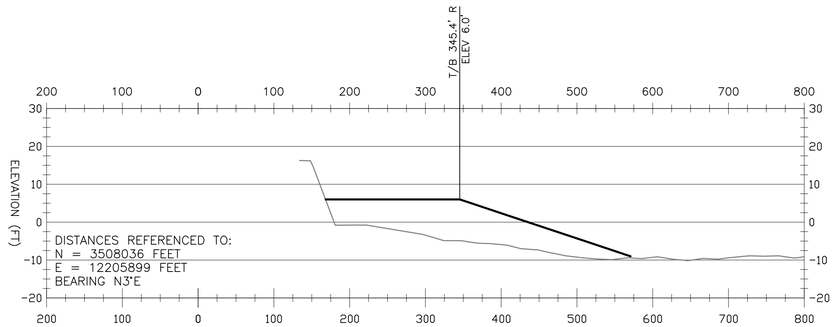
NAVFAC DRAWING NO. 12625122

SHEET 9 OF 13

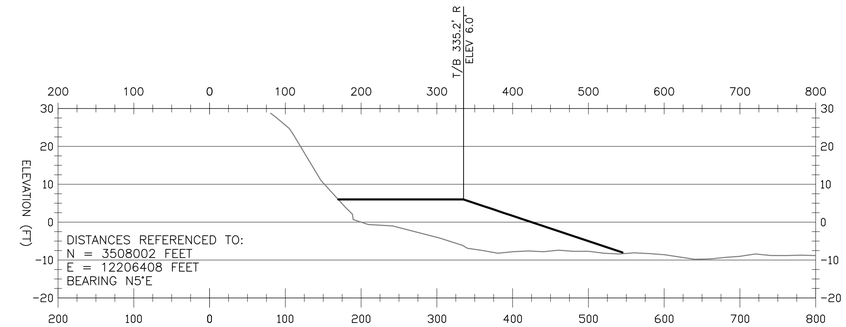
C-201

DRAWFORM REVISION: 2 FEB 2011

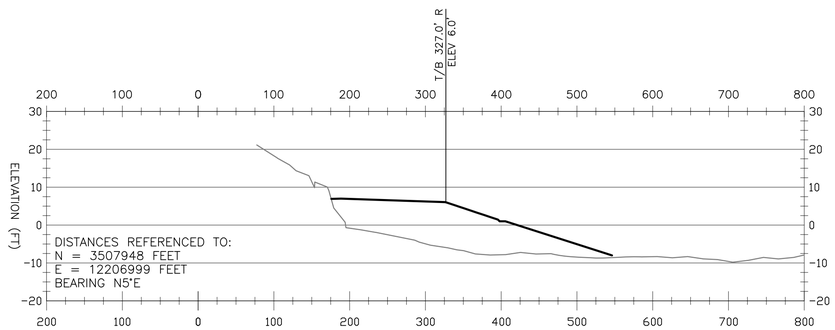
FILE NAME: D:\Documents and Settings\dane.wray\My Documents\HYDRO\FSTY_Fort Story Shoreline Stabilization\Dwgs\RM09-0528 Emergency Shoreline Erosion2012.dwg LAYOUT NAME: C-201 PLOTTED: Friday, September 20, 2013 - 1:30pm USER: dane.wray



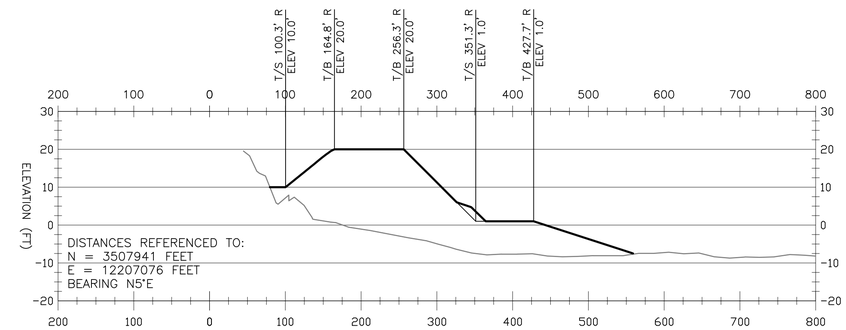

STATION 439+42



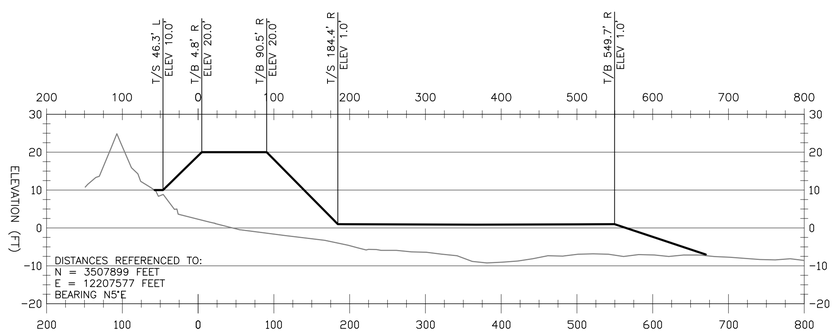

STATION 434+32



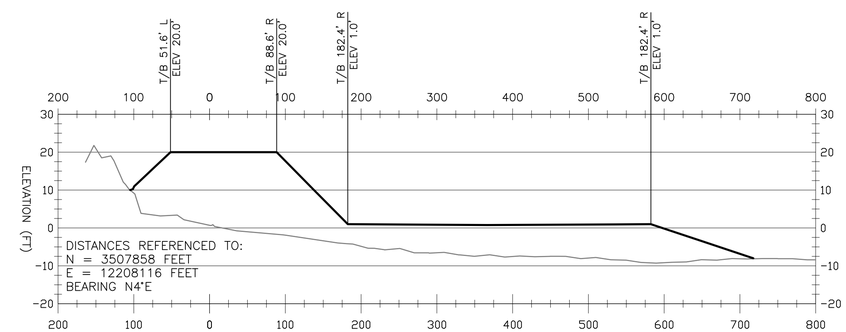

STATION 428+38




STATION 427+61




STATION 422+58




STATION 417+18

## GRAPHIC SCALE

HORIZ: 1" = 100'  0 50' 100' 200'

VERT: 1" = 20'  0 10' 20' 40'

| MK | DESCRIPTION | DATE | APPR |
|---|---|---|---|

NAVFAC

AE LOGO

APPROVED
JAMES S. GEORGO, PE
FOR COMMANDER NAVFAC DATE 9-20-2013

APPROVED
CDR LENN CARON
ACTIVITY – SATISFACTORY TO DATE

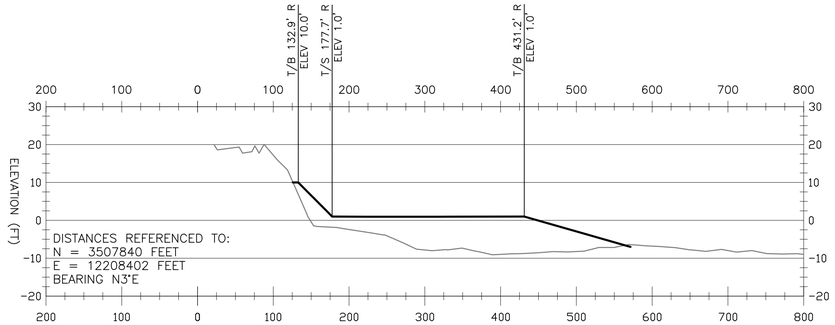
PROJECT MGR SEAL
DES DSW DRW DSW CHK JSG
FIRE PROTECTION N/A
BRANCH MANAGER J. S. GEORGO, PE
CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL STATION – NORFOLK, VIRGINIA
CAPITAL IMPROVEMENTS CORE ~ HYDROGRAPHIC BRANCH
JEB LITTLE CREEK
VIRGINIA BEACH, VA
RM09-0528 EMERGENCY SHORELINE EROSION CONTROL FORT STORY
CROSS SECTIONS: STATION 417+18 TO STATION 439+42

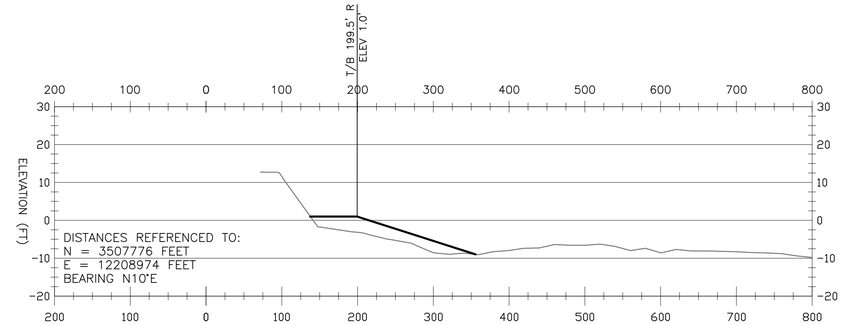
CODE ID. NO. 80091 SIZE D
SCALE: AS NOTED
MAXIMO NO.
JOB ORDER NO.
WORK ORDER NO. 1067811
CONSTR. CONTR. NO. N/A
NAVFAC DRAWING NO. 12625123
SHEET 10 OF 13
C-202

DRAWFORM REVISION: 2 FEB 2011

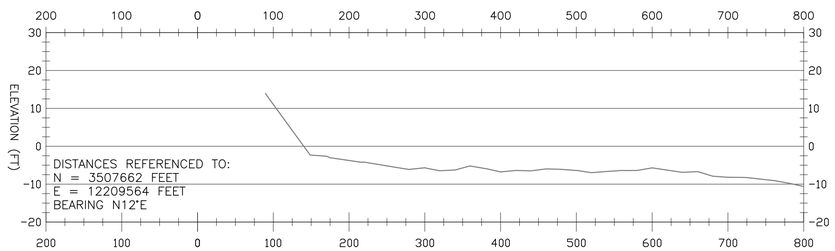
FILE NAME: D:\Documents and Settings\done.wroy\My Documents\HYDROY\FSTY_Fort Story\Fort Story Shoreline Stabilization\Dwgs\RM09-0528 Emergency Shoreline Erosion2012.dwg LAYOUT NAME: C-202 PLOTTED: Friday, September 20, 2013 - 1:34pm USER: done.wroy



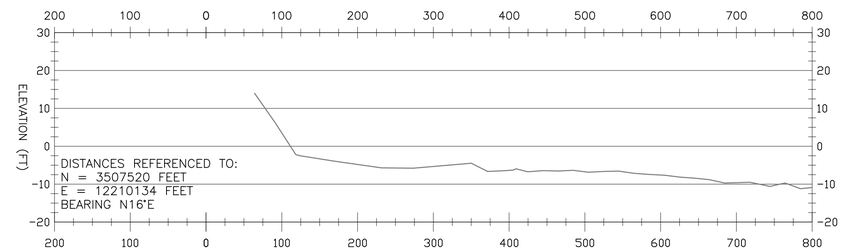

STATION 414+31



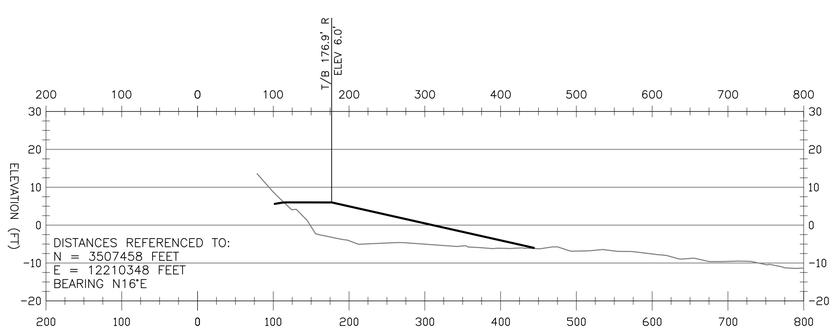

STATION 408+56



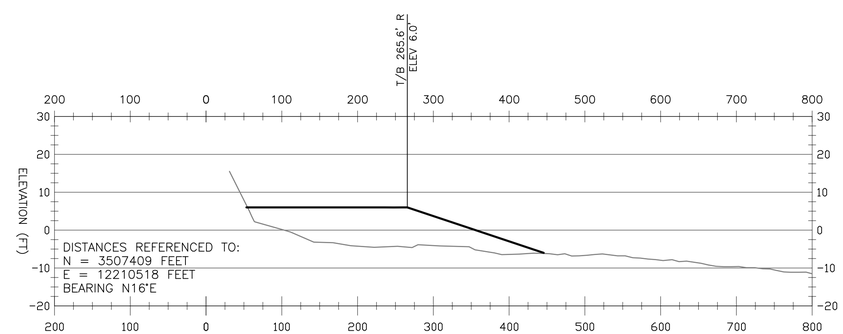

STATION 402+55



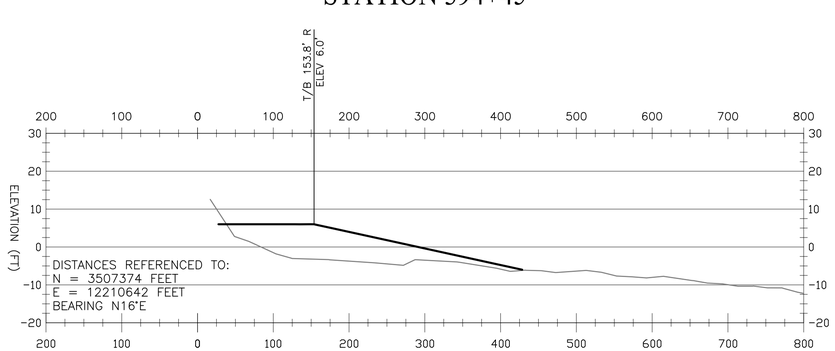

STATION 396+67



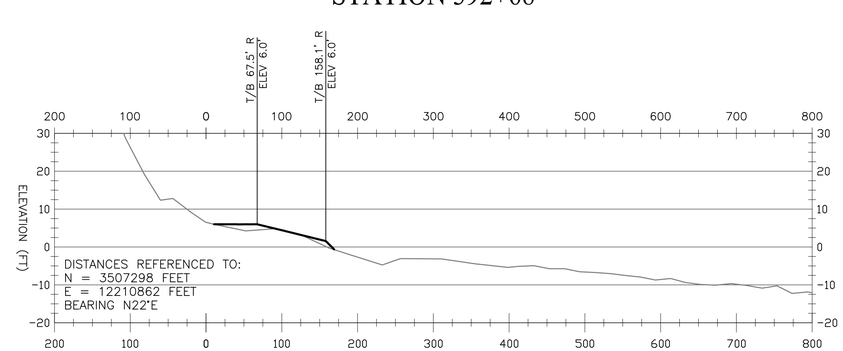

STATION 394+45




STATION 392+68




STATION 391+39




STATION 389+06

## GRAPHIC SCALE

HORIZ: 1" = 100' 0 50' 100' 200'

VERT: 1" = 20' 0 10' 20' 40'

| MKS | DESCRIPTION | DATE | APPR |
|---|---|---|---|

NAVFAC

AE LOGO

APPROVED
JAMES S. GEORGO, PE
FOR COMMANDER NAVFAC DATE 9-20-2013

APPROVED
CDR LENN CARON
ACTIVITY - SATISFACTORY TO DATE

PROJECT MGR SEAL
DES DSW DRW DSW CHK JSG
FIRE PROTECTION N/A
BRANCH MANAGER J. S. GEORGO, PE
CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAPITAL IMPROVEMENTS CORE ~ HYDROGRAPHIC BRANCH
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL STATION - NORFOLK, VIRGINIA
JEB LITTLE CREEK
VIRGINIA BEACH, VA

RM09-0528 EMERGENCY SHORELINE
EROSION CONTROL FORT STORY

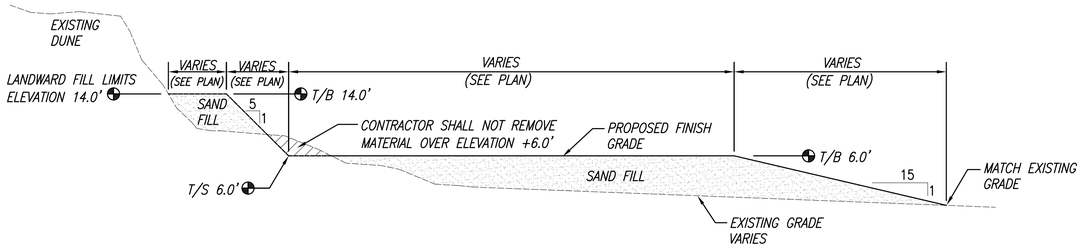
CROSS SECTIONS: STATION 389+06 TO STATION 414+31

CODE ID. NO. 80091 SIZE D
SCALE: AS NOTED
MAXIMO NO.
JOB ORDER NO.
WORK ORDER NO. 1067811
CONSTR. CONTR. NO. N/A
NAVFAC DRAWING NO. 12625124
SHEET 11 OF 13

C-203

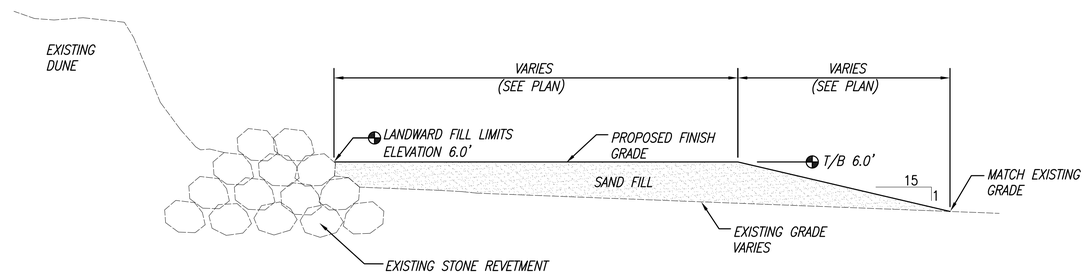
DRAWFORM REVISION: 2 FEB 2011

FILE NAME: D:\Documents and Settings\done.wray\My Documents\HYDRO\FSTY_Fort Story\Fort Story Shoreline Stabilization\Dwgs\RM09-0528 Emergency Shoreline Erosion2012.dwg LAYOUT NAME: C-203 PLOTTED: Friday, September 20, 2013 - 1:35pm USER: done.wray



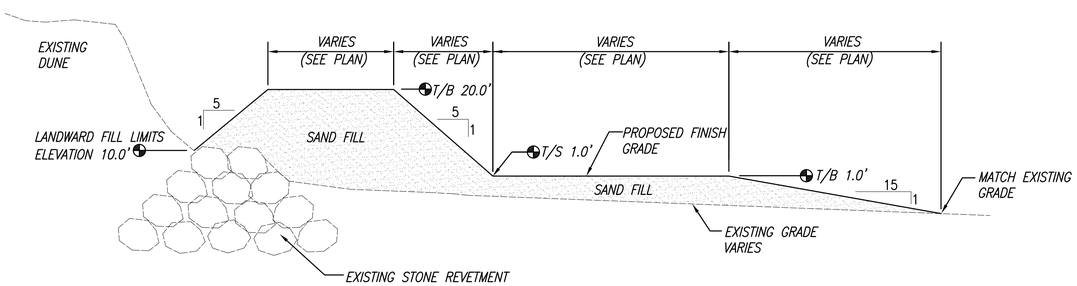

## D1 TYPICAL BEACH AND DUNE FILL CROSS SECTION WORK SITE A - STATION 441+00 TO STATION 465+08

NOT TO SCALE



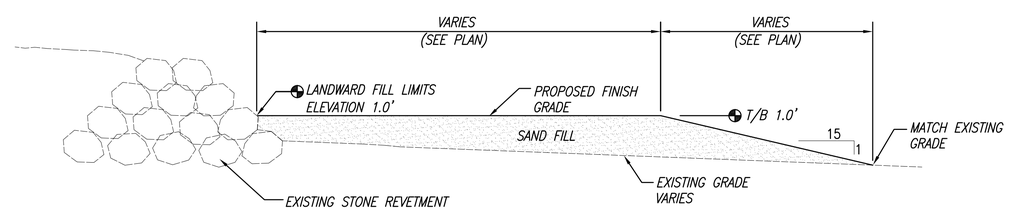

## D2 TYPICAL BEACH FILL CROSS SECTION - STATIONS 388+41 TO 396+67 AND STATIONS 428+38 TO 441+00

NOT TO SCALE




## D3 TYPICAL SECTION THRU PUBLIC WORKS COVE - STATION 414+31 TO STATION 428+38

NOT TO SCALE




## D4 TYPICAL BEACH FILL CROSS SECTION - STATION 406+47 TO 414+31

NOT TO SCALE

| MKS | DESCRIPTION | DATE | APPR |
|---|---|---|---|

NAVFAC

AE LOGO

APPROVED
JAMES S. GEORGO, PE
FOR COMMANDER NAVFAC DATE 9-20-2013

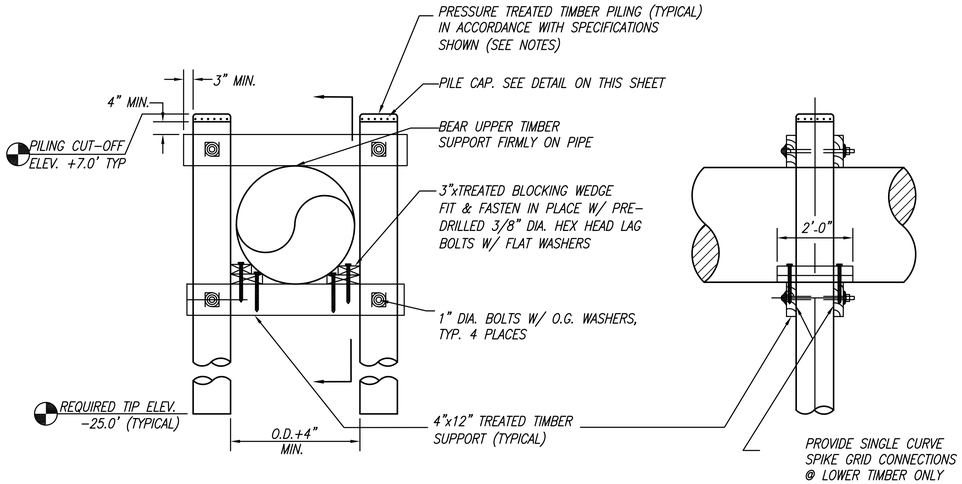
APPROVED
CDR LENN CARON
ACTIVITY – SATISFACTORY TO DATE

PROJECT MGR SEAL
DES DSW DRW DSW CHK JSG
FIRE PROTECTION N/A
BRANCH MANAGER J. S. GEORGO, PE
CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAPITAL IMPROVEMENTS CORE ~ HYDROGRAPHIC BRANCH
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL STATION – NORFOLK, VIRGINIA
JEB LITTLE CREEK VIRGINIA BEACH, VA
RM09-0528 EMERGENCY SHORELINE EROSION CONTROL FORT STORY
BEACH AND DUNE CONSTRUCTION DETAILS

CODE ID. NO. 80091 SIZE D
SCALE: AS NOTED
MAXIMO NO.
JOB ORDER NO.
WORK ORDER NO. 1067811
CONSTR. CONTR. NO. N/A
NAVFAC DRAWING NO. 12625125
SHEET 12 OF 13
C-501
DRAWFORM REVISION: 2 FEB 2011

FILE NAME: D:\Documents and Settings\done.wroy\My Documents\HYDRO\FSTY_Fort Story\Fort Story Shoreline Stabilization\Dwgs\RM09-0528 Emergency Shoreline Erosion2012.dwg LAYOUT NAME: C-501 PLOTTED: Friday, September 20, 2013 - 1:35pm USER: done.wroy




NOTES: 1.) ALL P.T. WOOD PRESERVATIVE SHALL BE AS FOLLOWS:
SOUTHERN YELLOW PINE – 2.5pcf C.C.A.
DOUGLAS FIR – 2.5pcf A.C.Z.A.
2.) ALL BOLTS AND FASTENERS SHALL BE HOT DIPPED GALVENIZED STEEL

## D5 TYPICAL STORM DRAIN OUTFALL PIPE SUPPORT DETAILS

SCALE: 1" = 2'  0 1' 2'

TIMBER PILING SPECIFICATIONS:

LENGTH: 35'

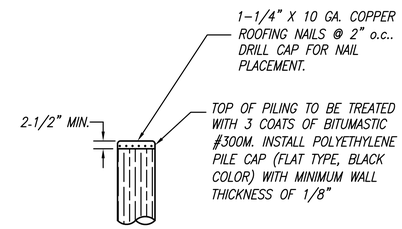
DESIGN BEARING CAPACITY: 20 KIPS

MINIMUM BUTT CIRCUMFERENCE: 38" (MEASURED 3' FROM BUTT END), APPROX. BUTT DIA. = 12"

MATERIAL: PRESSURE TREATED SOUTHER YELLOW PINE (2.5pcf C.C.A. MIN.) OR PRESSURE TREATED DOUGLAS FIR (2.5pcf A.C.Z.A. MIN.)

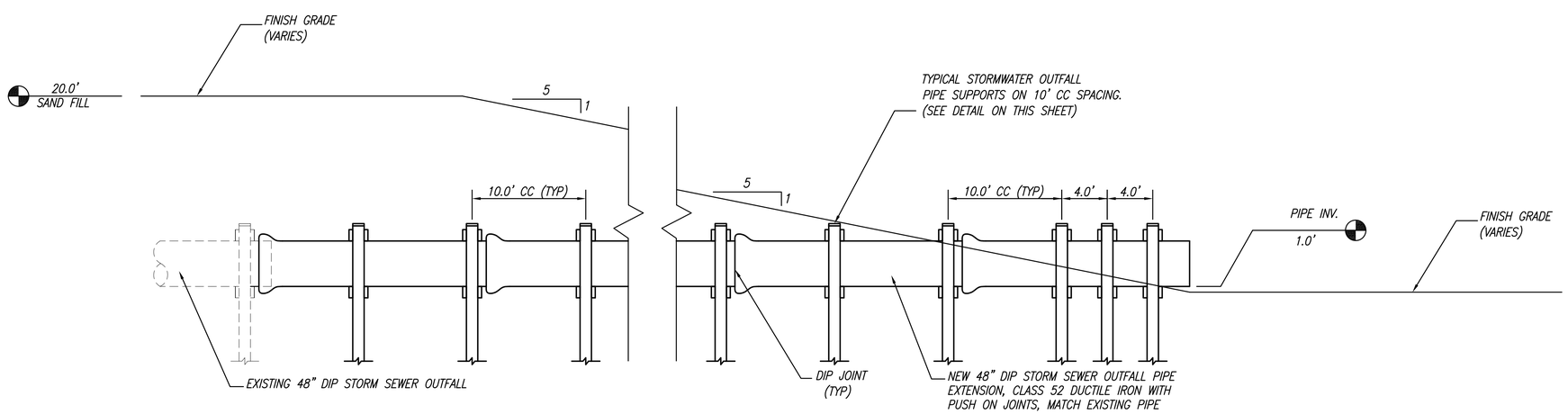
DRIVING CRITERIA: PILING SHALL BE DRIVEN USING A 12,000–15,000 FT–LB IMPACT HAMMER TO THE MINIMUM TIP ELEVATION SPECIFIED. PILING BEARING CAPACITY SHALL BE ESTIMATED BY THE GOVERNMENT USING GATES DYNAMIC PILE DRIVING FORMULA AND PILING INSTALLATION BLOW COUNT RECORDS.

ALL PILE DRIVING WORK SHALL BE CONDUCTED UPON DRY BEACH AREA. NO PILE DRIVING SHALL BE PERMITTED WHEN THE GROUND SURFACE IS SUBMERGED.




## D6 TYPICAL CAP DETAIL

SCALE: 1" = 2'  0 1' 2'




## D7 STORM DRAIN OUTFALL PROFILE 48" DUCTILE IRON PIPE STA 423+50 TO 423+73

SCALE: 1" = 6'  0 3' 6'

| MK | DESCRIPTION | DATE | APPR |
|---|---|---|---|

NAVFAC

AE LOGO

APPROVED
JAMES S. GEORGO, PE
FOR COMMANDER NAVFAC DATE 9-20-2013

APPROVED
CDR LENN CARON
ACTIVITY – SATISFACTORY TO DATE

PROJECT MGR SEAL

DES DSW DRW DSW CHK JSG
FIRE PROTECTION N/A
BRANCH MANAGER J. S. GEORGO, PE
CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAPITAL IMPROVEMENTS CORE ~ HYDROGRAPHIC BRANCH
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL STATION – NORFOLK, VIRGINIA
VIRGINIA BEACH, VA
JEB LITTLE CREEK
RM09-0528 EMERGENCY SHORELINE EROSION CONTROL FORT STORY
PIPE INSTALLATION DETAILS

CODE ID. NO. 80091 SIZE D
SCALE: AS NOTED
MAXIMO NO.
JOB ORDER NO.
WORK ORDER NO. 1067811
CONSTR. CONTR. NO. N/A
NAVFAC DRAWING NO. 12625126
SHEET 13 OF 13
C-502

DRAWFORM REVISION: 2 FEB 2011

FILE NAME: D:\Documents and Settings\done.wroy\My Documents\HYDRO\FSTY_Fort Story Shoreline Stabilization\Dwgs\RM09-0528 Emergency Shoreline Erosion2012.dwg LAYOUT NAME: C-502 PLOTTED: Friday, September 20, 2013 – 2:32pm USER: done.wroy