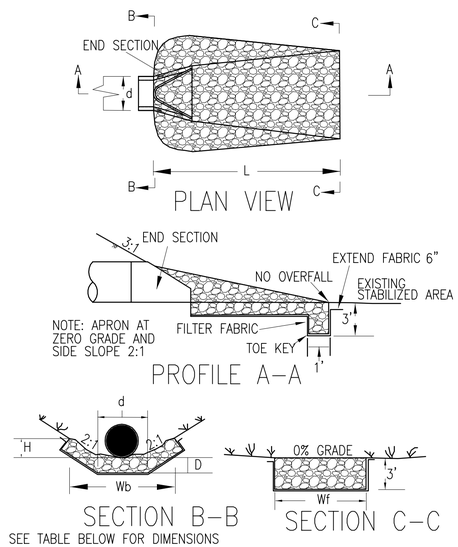


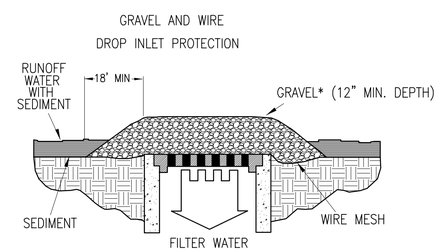
OUTLET PROTECTION NOTES:

1. THE SUBGRADE FOR THE RIPRAP OR FILTER SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL. BRUSH, TREES, STUMPS AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED.
2. PLACEMENT OF THE FILTER FABRIC SHOULD BE DONE IMMEDIATELY AFTER SLOPE PREPARATION. FOR GRANULAR FILTERS, THE STONE SHOULD BE SPREAD IN A UNIFORM LAYER TO THE SPECIFIED DEPTH (NORMALLY 6 INCHES). WHERE MORE THAN ONE LAYER OF FILTER MATERIAL IS USED, THE LAYER SHOULD BE SPREAD SO THAT THERE IS MINIMAL MIXING OF THE LAYERS.
3. WHEN INSTALLING GEOTEXTILE FILTER CLOTHS, THE CLOTH SHOULD BE PLACED DIRECTLY ON THE PREPARED SLOPE. THE EDGES OF THE SHEETS SHOULD OVERLY BY AT LEAST 12 INCHES. ANCHOR PINS, 15 INCHES LONG, SHOULD BE SPACED EVERY 3 FET ALONG THE OVERLAP. THE UPPER AND LOWER ENDS OF THE CLOTH SHOULD BE BURIED AT LEAST 12 INCHES. CARE SHOULD BE TAKEN NOT TO DAMAGE THE CLOTH WHEN PLACING THE RIPRAP. IF DAMAGE OCCURS, THAT SHEET SHOULD BE REMOVED AND REPLACED. FOR LARGE STONE (CLASS II OR GREATER), A 6-INCH LAYER OF GRANULAR FILTER WILL BE NECESSARY TO PREVENT DAMAGE TO THE CLOTH.
4. PLACEMENT OF RIPRAP SHOULD FOLLOW IMMEDIATELY AFTER PLACEMENT OF THE FILTER. THE RIPRAP SHOULD BE PLACED SO THAT IT PRODUCES A DENSE WELL-GRADED MASS OF STONE WITH A MINIMUM OF VOIDS. THE DESIRED DISTRIBUTION OF STONES THROUGHOUT THE MASS MAY BE OBTAINED BY SELECTIVE LOADING AT THE QUARRY, CONTROLLED DUMPING OF SUCCESSIVE LOADS DURING FINAL PLACING, OR BY A COMBINATION OF THESE METHODS. THE RIPRAP SHOULD BE PLACED TO ITS FULL THICKNESS IN ONE OPERATION. THE RIPRAP SHOULD NOT BE PLACED IN LAYERS. THE RIPRAP SHOULD NOT BE PLACED BY DUMPING INTO CHUTES OR SIMILAR METHODS WHICH ARE LIKELY TO CAUSE SEGREGATION OF THE VARIOUS STONE SIZES. CARE SHOULD BE TAKEN NOT TO DISLODGE THE UNDERLYING MATERIAL WHEN PLACING THE STONES.
5. THE FINISHED SLOPE SHOULD BE FREE OF POCKETS OF SMALL STONE OR CLUSTERS OF LARGE STONES. HAND PLACING MAY BE NECESSARY TO ACHIEVE THE REQUIRED GRADES AND A GOOD DISTRIBUTION OF STONE SIZES. FINAL THICKNESS OF THE RIPRAP BLANKET SHOULD BE WITHIN PLUS OR MINUS $\frac{1}{4}$ OF THE SPECIFIED THICKNESS.

OP	STR.	FLOW	PIPE DIA.	TAIL-WATER	STONE DIA	RIPRAP TYPE	RIPRAP DEPTH	APRON LENGTH	APRON BACK WIDTH	APRON FRONT WIDTH	RIPRAP HEIGHT	SIDE SLOPE
		Q10	d	T_w	d_{50}		D	L	Wb	Wf	H	H:V
#	#	(cfs)	(in)	(ft)	(ft)		(ft)		(ft)	(ft)	(ft)	(ft/ft)
OP1	FES-H1	13.84	24	1.22	0.50	CLASS AI	1.00	10.00	10.88	12.00	2.22	2.00
OP2	FES-H2	15.11	24	1.27	0.50	CLASS AI	1.00	10.00	8.25	6.00	2.27	2.00
OP4	FES-H4	8.51	24	0.96	0.50	CLASS AI	1.00	10.00	9.84	6.00	1.96	2.00

OUTLET PROTECTION

NTS CE111, CE113, CE114 **B2**



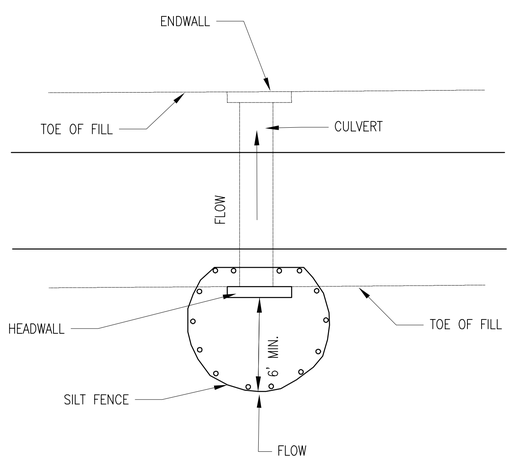
*GRAVEL SHALL BE CLEAN 3/4" TO 2" COARSE AGGREGATE

GRAVEL AND WIRE DROP INLET PROTECTION NOTES:

1. WIRE MESH SHALL BE LAID OVER THE DROP INELT SO THAT THE WIRE EXTENDS A MINIMUM OF 1 FOOT BEYOND EACH SIDE OF THE INLET STRUCTURE. WIRE MESH WITH $\frac{1}{2}$ INCH OPENINGS SHALL BE USED. IF MORE THAN ONE STRIP OF MESH IS NECESSARY, THE STRIPS SHALL BE OVERLAPPED.
2. THE DEPTH OF STONE SHALL BE AT LEAST 12 INCHES OVER THE ENTIRE INLET OPENING. THE STONE SHALL EXTEND BEYOND THE INLET OPENING AT LEAST 18 INCHES ON ALL SIDES.
3. IF THE STONE FILTER BECOMES CLOGGED WITH SEDIMENT SO THAT IT NO LONGER ADEQUATELY PERFORMS ITS FUNCTION, THE STONES MUST BE PULLED AWAY FROM THE INLET, CLEANED AND/OR REPLACED.

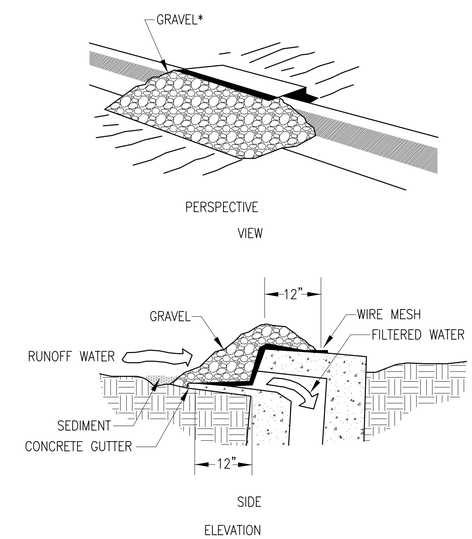
GRAVEL AND WIRE DROP INLET PROTECTION

NTS CE102, CE104, CE111, CE112, CE113, CE114 **A4**



CULVERT INLET PROTECTION

NTS CE101, CE102, CE103, CE113 **A2**



* GRAVEL SHALL BE CLEAN 3/4" TO 2" COARSE AGGREGATE

GRAVEL CURB INLET PROTECTION

NTS CE102, CE111, CE112, CE114 **A5**

SYM	DESCRIPTION	DATE	APPR
	SIGNATURE SUBMITTAL	6/10/2014	

NAVFAC

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DES	SM	DRW KC	CHK JL
PM	MMP		
BRANCH MANAGER	BDB		
CHIEF ENG/ARCH	RLJ/CRB		
FIRE PROTECTION	DAS		

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL STATION ~ NORFOLK, VIRGINIA
HAMPTON ROADS IPT
NAVAL WEAPONS STATION YORKTOWN, VIRGINIA
P-984 REGIMENTAL HEADQUARTERS
EROSION & SEDIMENT CONTROL DETAILS

SCALE: AS NOTED
EPROJECT NO. 1113910
CONSTR. CONTR. NO. N40085-08-D-9739
NAVFAC DRAWING NO. 12664771
SHEET OF
CE502

DRAWFORM REVISION: 6 AUG 2007

TEMPORARY SEEDING

Species	Seeding Rate (lbs./acre	Seeding Depth (in.)	Planting Dates	Fertilizer (lbs./acre)	Lime (tons/acre)	Mulching (tons/acre)
50% Annual Ryegrass (Lolium multi-florum) & 50% Cereal (Winter) Rye (Secale cereale)	50 - 100	0.25 - 0.50	Sept. 1 - Feb. 15	600 (10-20-10) *Fertilizer to be incorporated into the top 2 to 4 inches of the soil if possible	2 *Pulverized agricultural grade limestone	Straw or Hay 1.5 - 2 (Minimum 2 tons for winter cover) *Must be free from weeds and coarse matter, be anchored, and spread with mulch blower or by hand.
Annual Ryegrass (Lolium multi-florum)	60 - 100		Feb. 16 - Apr. 30			
German Millet (Setaria italica)	50		May 1 - Aug. 31			

TEMPORARY SEEDING (D2)
NTS

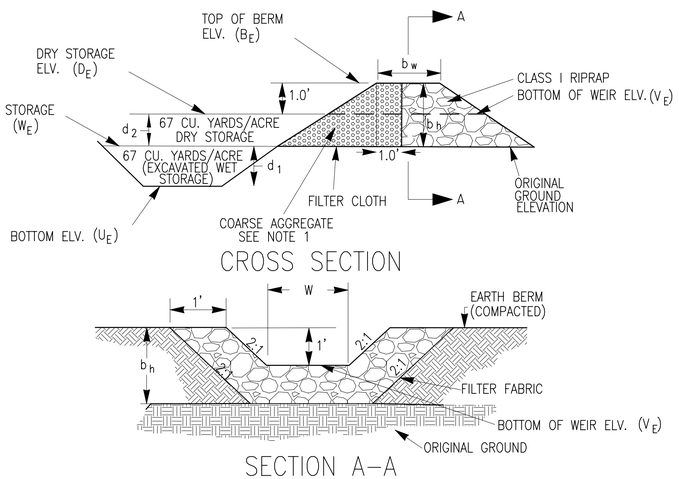
SODDING

Sod Type	Recommended Varieties	Maintenance Fertilization	Application Dates
Tall Fescue	90%-100%: Amigo, Apache, Bonanza, Chieftain, Finelawn 5GL, Mesa, Rebel II, Shenandoah, Tribute	4 lbs. nitrogen per 1000 sq. ft./year 1 lb. phosphorus per 1000 sq. ft./year 2 lbs. Potash per 1000 sq. ft./year	75% of the total requirements should be applied between September 1 and December 31. The balance should be applied during the remainder of the year.
	0%-10%: Kentucky bluegrass: Baron, Cheri, Columbia, Monopoly, Nassau, Ram I, Victa	Apply 4 to 5 lbs. nitrogen per 1000 sq. ft./year. Phosphorus and Potash should only be applied according to soil tests. Maintenance fertilization should utilize slow release fertilizers which reduce the number of applications per year and subsequently reduce the adverse impacts on groundwater.	Between May 1 and August 15

SODDING (D5)
NTS

SEDIMENT TRAP VALUES:

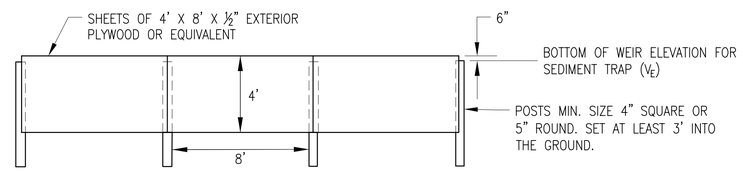
NAME	AREA	TOTAL VOLUME	WET VOLUME	DRY VOLUME	BOTTOM ELEVATION (U_E)	WET STORAGE ELEVATION (W_E)	DRY STORAGE ELEVATION (D_E)	TOP OF BERM ELEVATION (B_E)	WET STORAGE DEPTH (d_1)	DRY STORAGE DEPTH (d_2)	BERM HEIGHT (b_h)	BERM WIDTH (b_w)	BOTTOM OF WEIR ELEVATION (V_E)	WEIR WIDTH (w)	CAPACITY
	(acres)	(cubic feet)	(cubic feet)	(cubic feet)	(feet)	(feet)	(feet)	(feet)	(feet)	(feet)	(feet)	(feet)	(feet)	(feet)	(%)
ST1	0.47	1,772.34	878.39	893.95	50.00	52.00	53.30	54.30	2.00	1.30	2.30	2.50	53.30	2.90	1.03
ST2	2.40	8,744.40	4,374.99	4,369.41	52.60	54.60	56.10	57.10	2.00	1.50	2.50	2.50	56.10	6.76	1.01
ST3	1.24	4,549.71	2,386.65	2,163.07	56.00	57.50	58.55	59.55	1.50	1.05	2.05	2.00	58.55	7.15	1.02
ST4	2.75	10,017.26	5,036.33	4,980.93	52.30	54.30	55.80	56.80	2.00	1.50	2.50	2.50	55.80	16.48	1.01
ST5	2.28	8,390.74	4,056.51	4,334.23	59.40	61.40	63.00	64.00	2.00	1.60	2.60	2.50	63.00	13.25	1.02
ST6	1.86	6,780.37	3,366.94	3,413.43	57.50	59.50	61.00	62.00	2.00	1.50	2.50	2.00	61.00	10.70	1.01



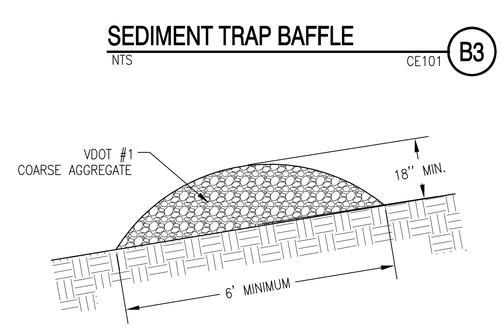
TEMPORARY SEDIMENT TRAP NOTES:

1. COARSE AGGREGATE SHALL BE VDOT #3, #357, OR #5
2. THE AREA UNDER THE EMBANKMENT SHALL BE CLEARED, GRUBBED, AND STRIPPED OF ANY VEGETATION AND ROOT MAT.
3. FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS OR OTHER WOODY VEGETATION, ORGANIC MATERIAL, LARGE STONES, AND OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHOULD BE COMPACTED IN 6–INCH LAYERS BY TRAVERSING WITH CONSTRUCTION EQUIPMENT.
4. THE EARTHEN EMBANKMENT SHALL BE SEEDED WITH TEMPORARY OR PERMANENT VEGETATION IMMEDIATELY AFTER INSTALLATION.
5. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE MINIMIZED.
6. THE STRUCTURE SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE UPSLOPE DRAINAGE AREA HAS BEEN STABILIZED.
7. ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER (EXCEPT FOR EXCAVATED, WET STORAGE AREA WHICH MAY BE AT A MAXIMUM 1:1 GRADE).

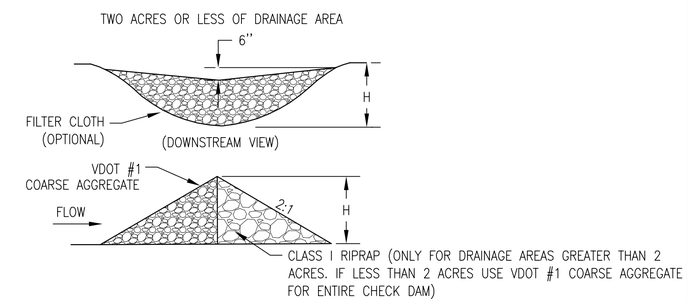
SEDIMENT TRAP (A2)
NTS CE101, CE103, CE104



SEDIMENT TRAP BAFFLE (B3)
NTS CE101

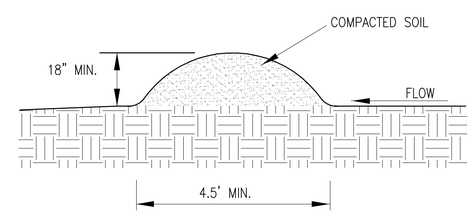


RIGHT-OF-WAY DIVERSION (A3)
NTS CE104



NAME	AREA	HEIGHT	USE CLASS I RIPRAP
	(acres)	(feet)	
CD1	0.87	1.00	No
CD2	1.29	1.00	No
CD3	0.84	1.00	No
CD4	2.01	2.00	Yes
CD5	2.61	2.00	Yes

ROCK CHECK DAM (B5)
NTS CE103, CE104, CE113



TEMPORARY DIVERSION DIKE NOTES:

1. TEMPORARY DIVERSION DIKES MUST BE INSTALLED AS A FIRST STEP IN THE LAND–DISTURBING ACTIVITY AND MUST BE FUNCTIONAL PRIOR TO UPSLOPE LAND DISTURBANCE.
2. THE DIKE SHOULD BE ADEQUATELY COMPACTED TO PREVENT FAILURE.
3. TEMPORARY OR PERMANENT SEEDING AND MULCH SHALL BE APPLIED TO THE DIKE IMMEDIATELY FOLLOWING ITS CONSTRUCTION.
4. THE DIKE SHOULD BE LOCATED TO MINIMIZE DAMAGES BY CONSTRUCTION OPERATIONS AND TRAFFIC.

TEMPORARY DIVERSION DIKE (A5)
NTS CE101, CE103, CE104

SYM	DESCRIPTION	DATE	APPR
	SIGNATURE SUBMITTAL	6/10/2014	

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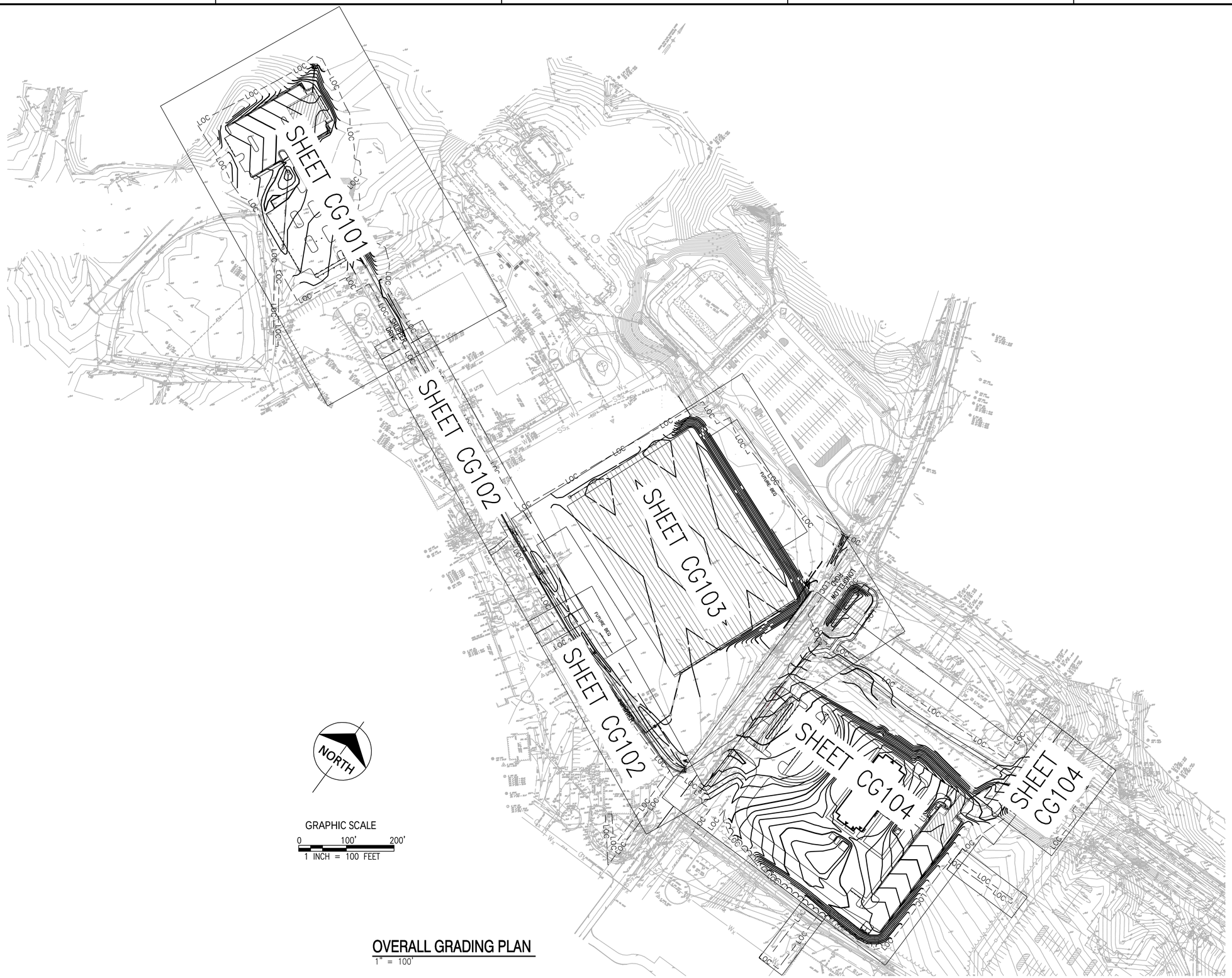
APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES	SM	DRW KC	CHK JL
PM	MMP		
BRANCH MANAGER	BDB		
CHIEF ENG/ARCH	RLJ/CRB		
FIRE PROTECTION	DAS		

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
HAMPTON ROADS PT
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL STATION – NORFOLK, VIRGINIA
NAVAL WEAPONS STATION YORKTOWN, VIRGINIA
P-984 REGIMENTAL HEADQUARTERS
EROSION & SEDIMENT CONTROL DETAILS

SCALE: AS NOTED
EPROJECT NO. 1113910
CONSTR. CONTR. NO. N40085–08–D–9739
NAVFAC DRAWING NO. 12664772
SHEET OF
CE503

DRAWFORM REVISION: 6 AUG 2007



OVERALL GRADING PLAN

1" = 100'

SYM	DESCRIPTION	DATE	APPR
	SIGNATURE SUBMITTAL	6/10/2014	

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DES TC	DRW TC	CHK JL	
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CHIEF ENG/ARCH	RLJ/CRB		
FIRE PROTECTION	DAS		

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
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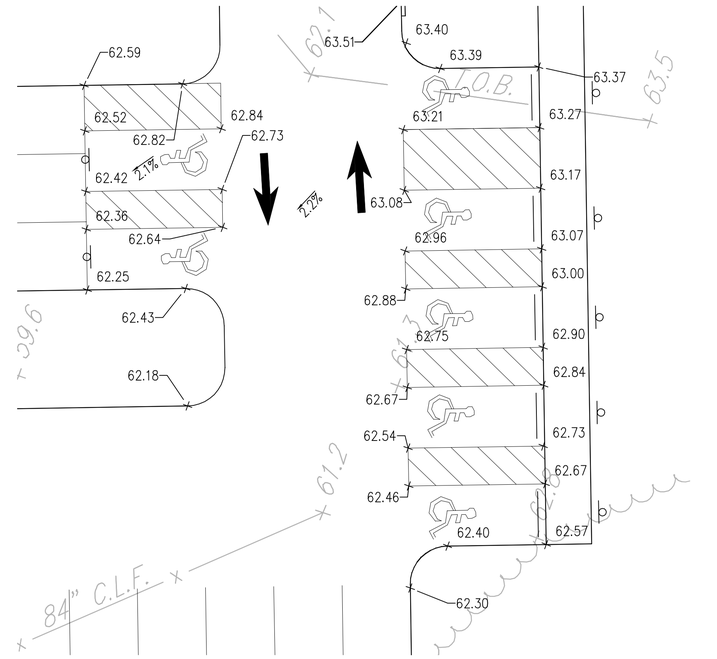
HAMPTON ROADS IPT
NAVAL WEAPONS STATION
YORKTOWN, VIRGINIA
P-984 REGIMENTAL HEADQUARTERS
OVERALL GRADING PLAN

SCALE: AS NOTED
EPROJECT NO. 1113910
CONSTR. CONTR. NO. N40085-08-D-9739
NAVFAC DRAWING NO. 12664774
SHEET OF
CG100

DRAWFORM REVISION: 6 AUG 2007



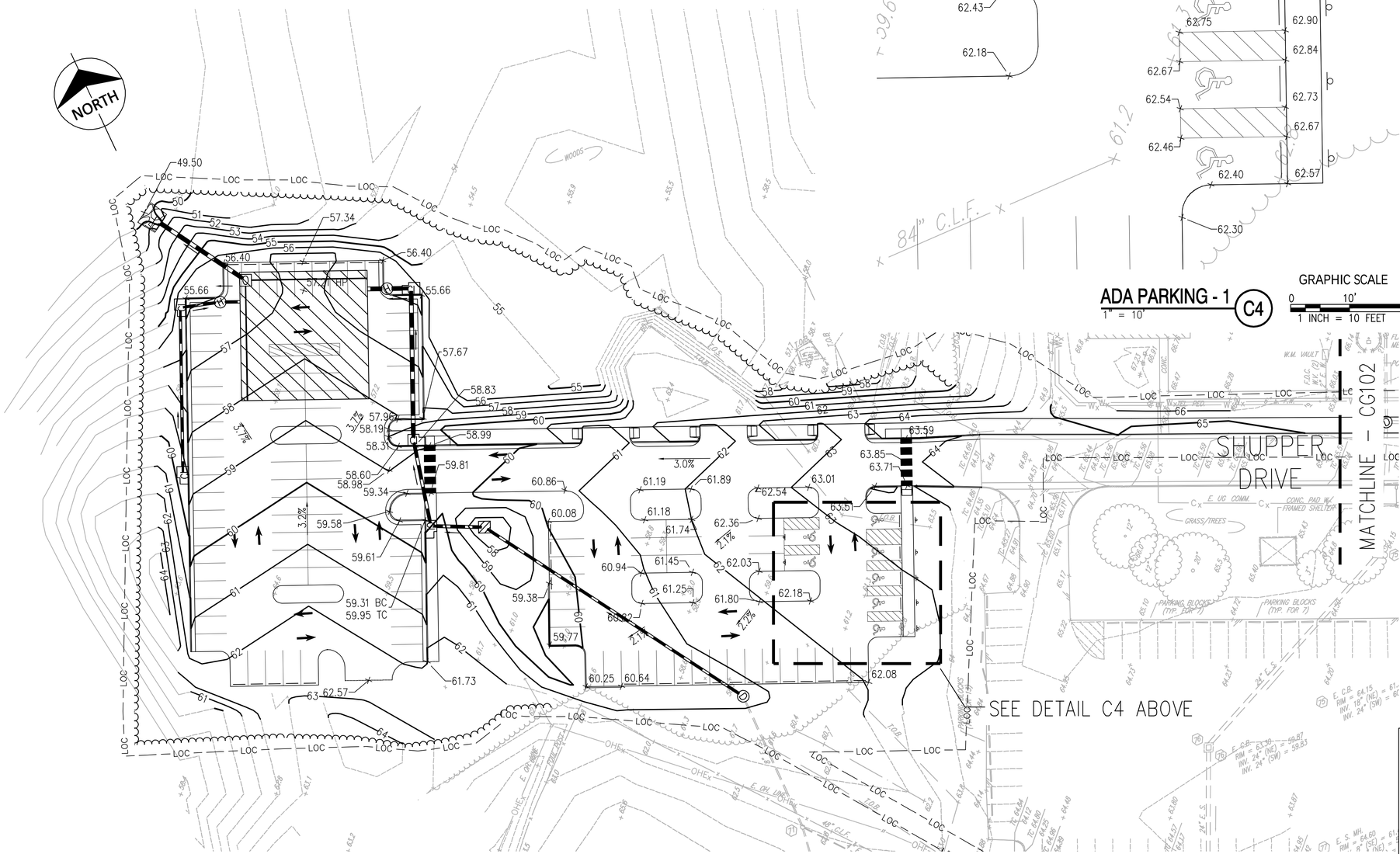
ADA PARKING - 1 (C4)

1" = 10'

GRAPHIC SCALE

0 10' 20'

1 INCH = 10 FEET



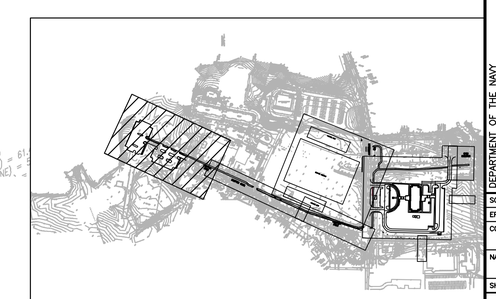
GRADING PLAN - PARKING

1" = 30'

GRAPHIC SCALE

0 30' 60'

1 INCH = 30 FEET



GRADING LEGEND

61.60	SPOT GRADE
60	MAJOR PROPOSED CONTOUR
61	MINOR PROPOSED CONTOUR
60	EXISTING CONTOUR
TW61.00 / BW62.00	TOP OF WALL SPOT GRADE / BOTTOM OF WALL SPOT GRADE
61.53(T) / 61.03(B)	TOP OF STEP / BOTTOM OF STEP
1.0%	GRADE SLOPE

NOTES:

1. SPOT SHOTS AT CURB REPRESENT ELEVATIONS AT EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
2. FINAL RETAINING WALL AND FOOTER DESIGN WILL BE INCORPORATED IN THE STRUCTURAL PORTION OF THE BUILDING DESIGN PACKAGE

SYM	DESCRIPTION	DATE	APPR
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FIRE PROTECTION	DAS				

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HAMPTON ROADS IPT

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NAVAL STATION – NORFOLK, VIRGINIA

NAVAL WEAPONS STATION
YORKTOWN, VIRGINIA

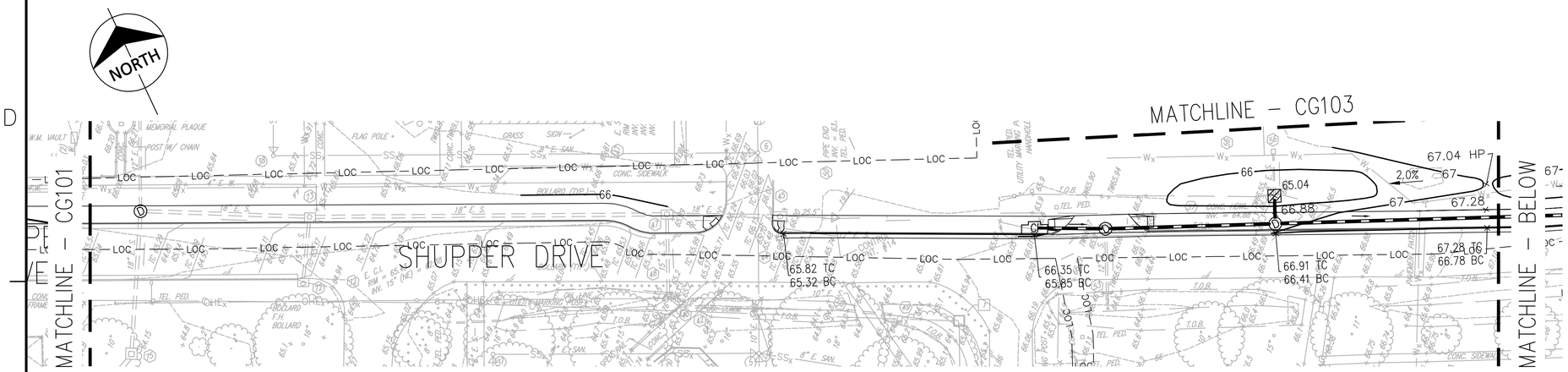
P-984 REGIMENTAL HEADQUARTERS

GRADING PLAN – PARKING

SCALE:	AS NOTED
EPROJECT NO.	1113910
CONSTR. CONTR. NO.	N40085-08-D-9739
NAVFAC DRAWING NO.	12664775
SHEET	OF

CG101

DRAWFORM REVISION: 6 AUG 2007



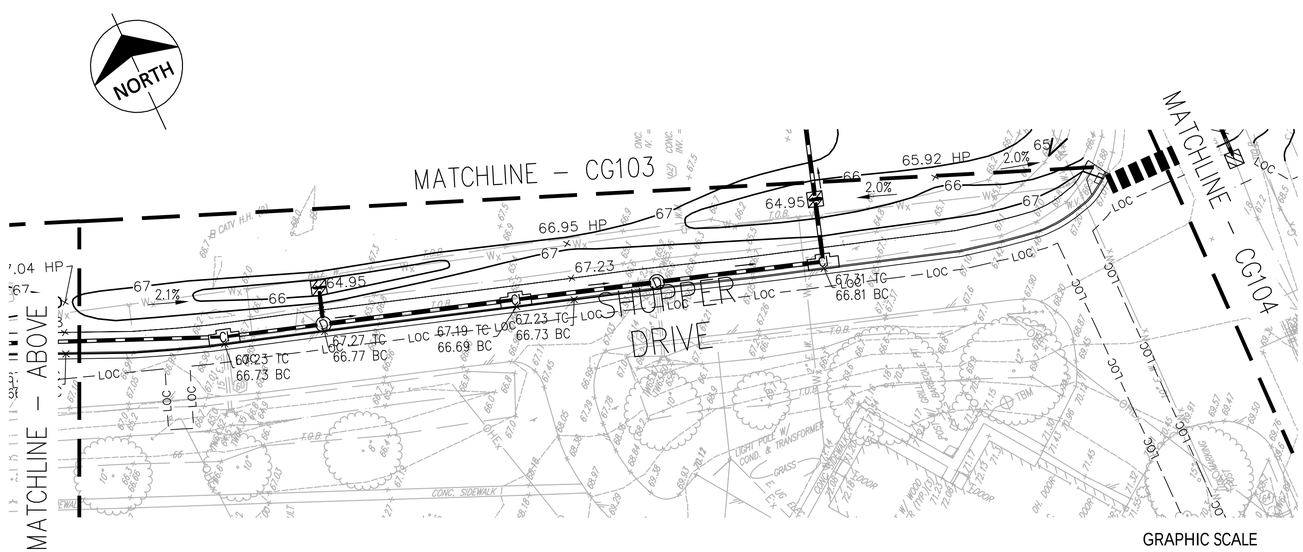
GRADING PLAN - SIDEWALK 1

1" = 30'

GRAPHIC SCALE

0 30' 60'

1 INCH = 30 FEET



GRADING PLAN - SIDEWALK 2

1" = 30'

GRAPHIC SCALE

0 30' 60'

1 INCH = 30 FEET

GRADING LEGEND

+ 61.60	SPOT GRADE
60	MAJOR PROPOSED CONTOUR
61	MINOR PROPOSED CONTOUR
60	EXISTING CONTOUR
TW61.00 / BW62.00	TOP OF WALL SPOT GRADE / BOTTOM OF WALL SPOT GRADE
61.53(T) / 61.03(B)	TOP OF STEP / BOTTOM OF STEP
1.0%	GRADE SLOPE

NOTES:

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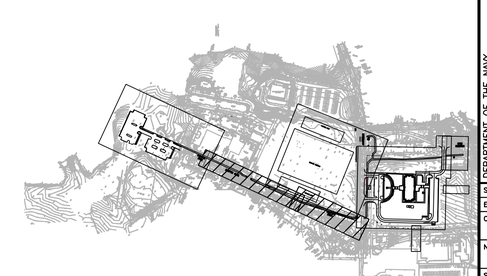
2. FINAL RETAINING WALL AND FOOTER DESIGN WILL BE INCORPORATED IN THE STRUCTURAL PORTION OF THE BUILDING DESIGN PACKAGE



SYM	DESCRIPTION	DATE	APPR
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FIRE PROTECTION	DAS		

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NAVAL STATION – NORFOLK, VIRGINIA
HAMPTON ROADS IPT
NAVAL WEAPONS STATION
YORKTOWN, VIRGINIA

P-984 REGIMENTAL HEADQUARTERS

☐RADIN☐ PLAN - SIDE☐ AL☐

SCALE: AS NOTED

EPROJECT NO. 1113910

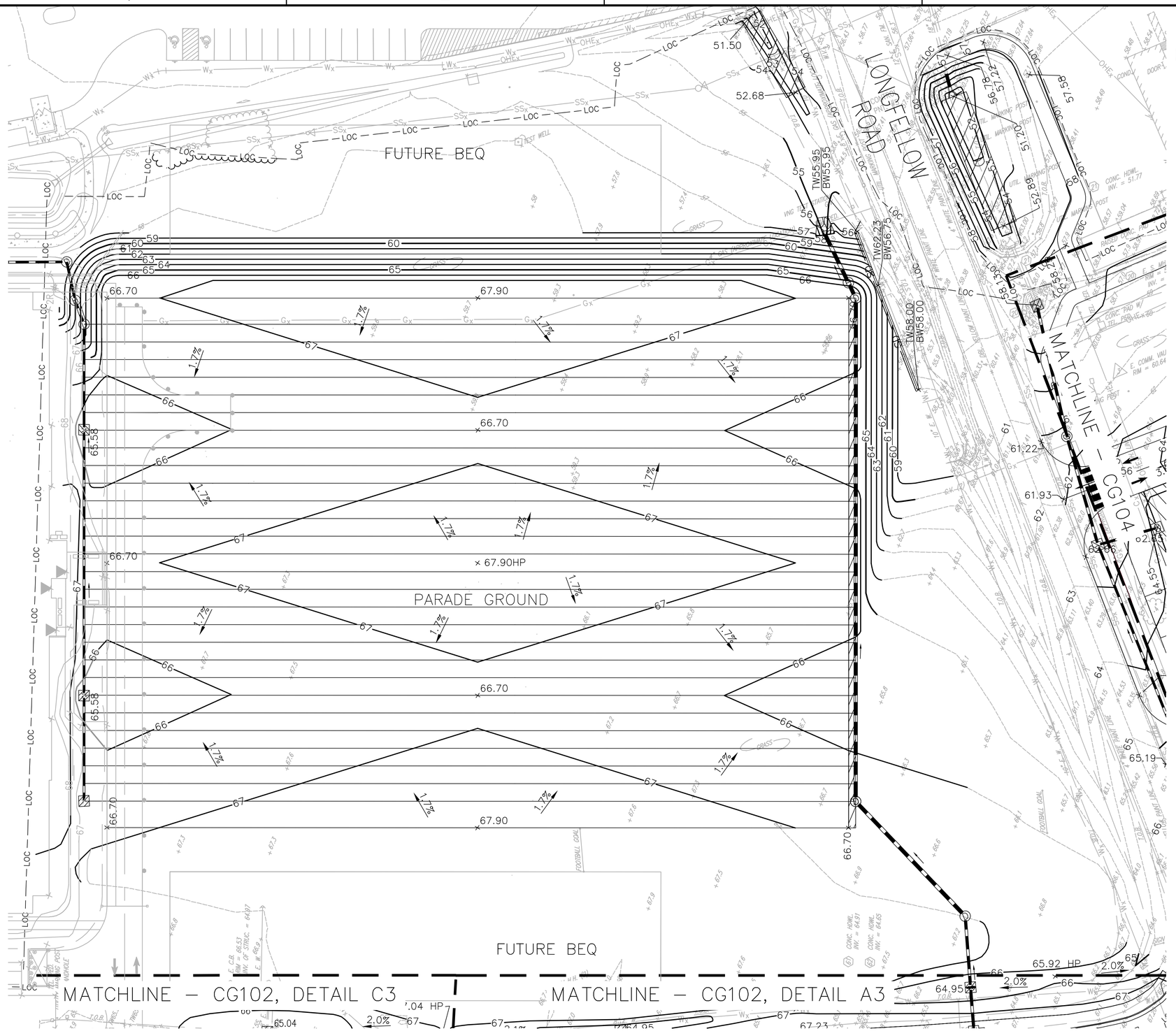
CONSTR. CONTR. NO. N40085-08-D-9739

NAVFAC DRAWING NO. 12664776

SHEET OF

CG102

DRAWFORM REVISION: 6 AUG 2007



GRADING LEGEND

61.60	SPOT GRADE
60	MAJOR PROPOSED CONTOUR
61	MINOR PROPOSED CONTOUR
60	EXISTING CONTOUR
TW61.00 / BW62.00	TOP OF WALL SPOT GRADE / BOTTOM OF WALL SPOT GRADE
61.53(T) / 61.03(B)	TOP OF STEP / BOTTOM OF STEP
1.0%	GRADE SLOPE

NOTES:

1. SPOT SHOTS AT CURB REPRESENT ELEVATIONS AT EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
2. FINAL RETAINING WALL AND FOOTER DESIGN WILL BE INCORPORATED IN THE STRUCTURAL PORTION OF THE BUILDING DESIGN PACKAGE

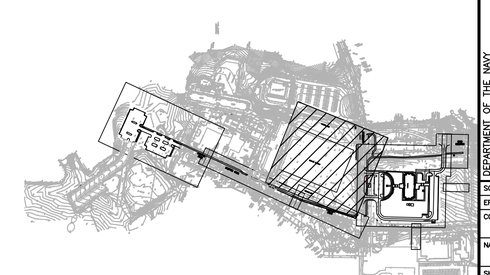
GRADING PLAN - PARADE GROUND

1" = 30'

GRAPHIC SCALE

0 30' 60'

1 INCH = 30 FEET



SYM	DESCRIPTION	DATE	APPR
	SIGNATURE SUBMITTAL	6/10/2014	

NAVFAC

COMMONWEALTH OF VIRGINIA
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Fax: 757.466.1493

AE LOGO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES	TC	DRW TC	CHK JL
PM	MMP		
BRANCH MANAGER	BDB		
CHIEF ENG/ARCH	RLJ/CRB		
FIRE PROTECTION	DAS		

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
NAVAL STATION – NORFOLK, VIRGINIA
NAVAL WEAPONS STATION
HAMPTON ROADS PT
YORKTOWN, VIRGINIA

P-984 REGIMENTAL HEADQUARTERS

GRADING PLAN – PARADE GROUND

SCALE: AS NOTED

EPROJECT NO. 1113910

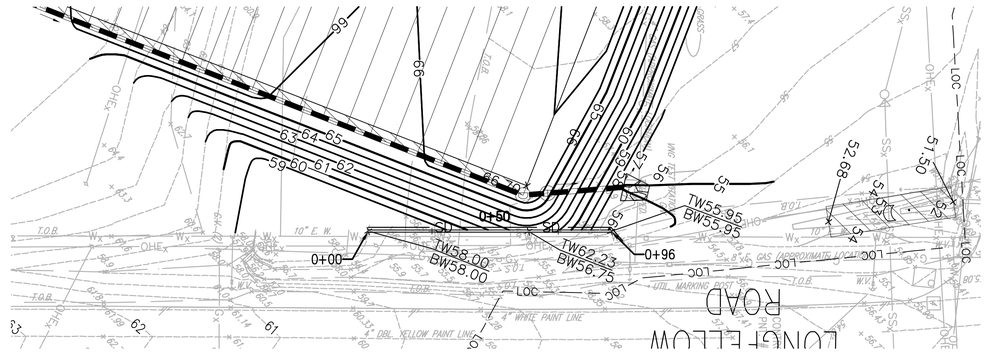
CONSTR. CONTR. NO. N40085-08-D-9739

NAVFAC DRAWING NO. 12664777

SHEET OF

CG103

DRAWFORM REVISION: 6 AUG 2007



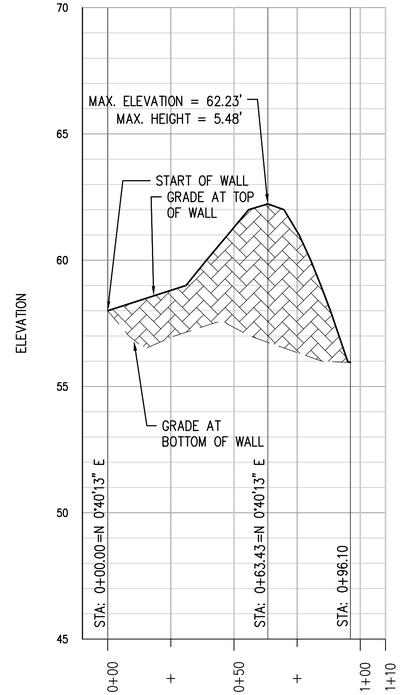
RETAINING WALL PLAN (C3)

1" = 30'

GRAPHIC SCALE

0 30' 60'

1 INCH = 30 FEET



RETAINING WALL PROFILE (A3)

1" = 30'(H) 1"=3'(V)

NORTH

GRADING LEGEND

61.60	SPOT GRADE
60	MAJOR PROPOSED CONTOUR
61	MINOR PROPOSED CONTOUR
60	EXISTING CONTOUR
TW61.00 / BW62.00	TOP OF WALL SPOT GRADE / BOTTOM OF WALL SPOT GRADE
61.53(T) / 61.03(B)	TOP OF STEP / BOTTOM OF STEP
1.0%	GRADE SLOPE

NOTES:

1. SPOT SHOTS AT CURB REPRESENT ELEVATIONS AT EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
2. FINAL RETAINING WALL AND FOOTER DESIGN WILL BE INCORPORATED IN THE STRUCTURAL PORTION OF THE BUILDING DESIGN PACKAGE

SYM	DESCRIPTION	DATE	APPR
	SIGNATURE SUBMITTAL	6/10/2014	

NAVFAC

COMMONWEALTH OF VIRGINIA
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AE LOGO

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FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES TC	DRW TC	CHK JL	
PM	MMP		
BRANCH MANAGER	BDB		
CHIEF ENG/ARCH	RLJ/CRB		
FIRE PROTECTION	DAS		

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL STATION ~ NORFOLK, VIRGINIA
HAMPTON ROADS IPT
NAVAL WEAPONS STATION
YORKTOWN, VIRGINIA

P-984 REGIMENTAL HEADQUARTERS

RETAINING WALL PLAN & PROFILE

SCALE: AS NOTED

EPROJECT NO. 1113910

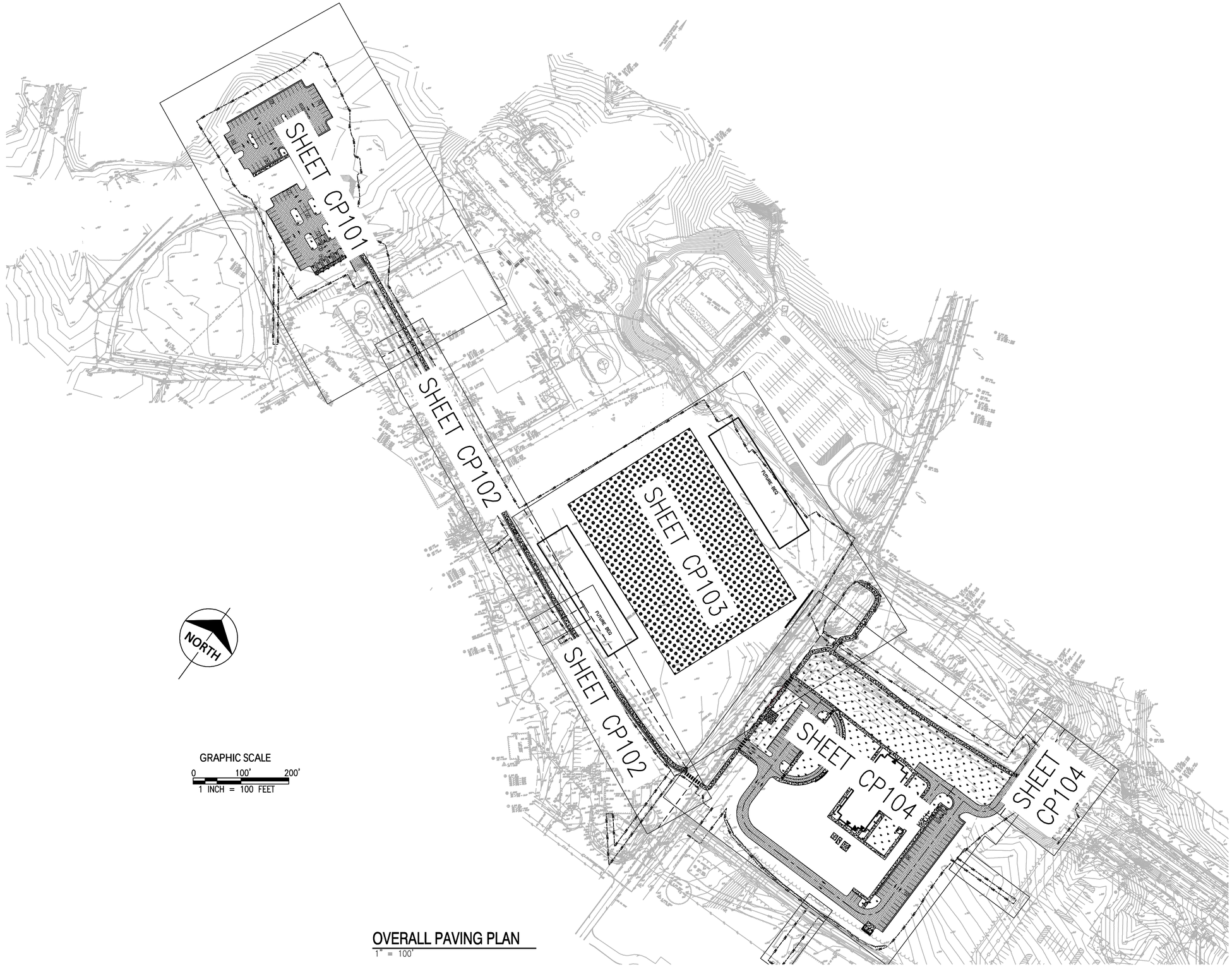
CONSTR. CONTR. NO. N40085-08-D-9739

NAVFAC DRAWING NO. 12664779

SHEET OF

CI201

DRAWFORM REVISION: 6 AUG 2007



GRAPHIC SCALE

0 100' 200'

1 INCH = 100 FEET

OVERALL PAVING PLAN

1" = 100'

SYM	DESCRIPTION	DATE	APPR
	SIGNATURE SUBMITTAL	6/10/2014	

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COMMONWEALTH OF VIRGINIA
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ACTIVITY

SATISFACTORY TO DATE

DES KC	DRW KC	CHK	JL
PM	MMP		
BRANCH MANAGER	BDB		
CHIEF ENG/ARCH	RLJ/CRB		
FIRE PROTECTION	DAS		

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
HAMPTON ROADS IPT
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL STATION - NORFOLK, VIRGINIA
NAVAL WEAPONS STATION
YORKTOWN, VIRGINIA

P-984 REGIMENTAL HEADQUARTERS

OVERALL PAVING PLAN

SCALE: AS NOTED

EPROJECT NO. 1113910

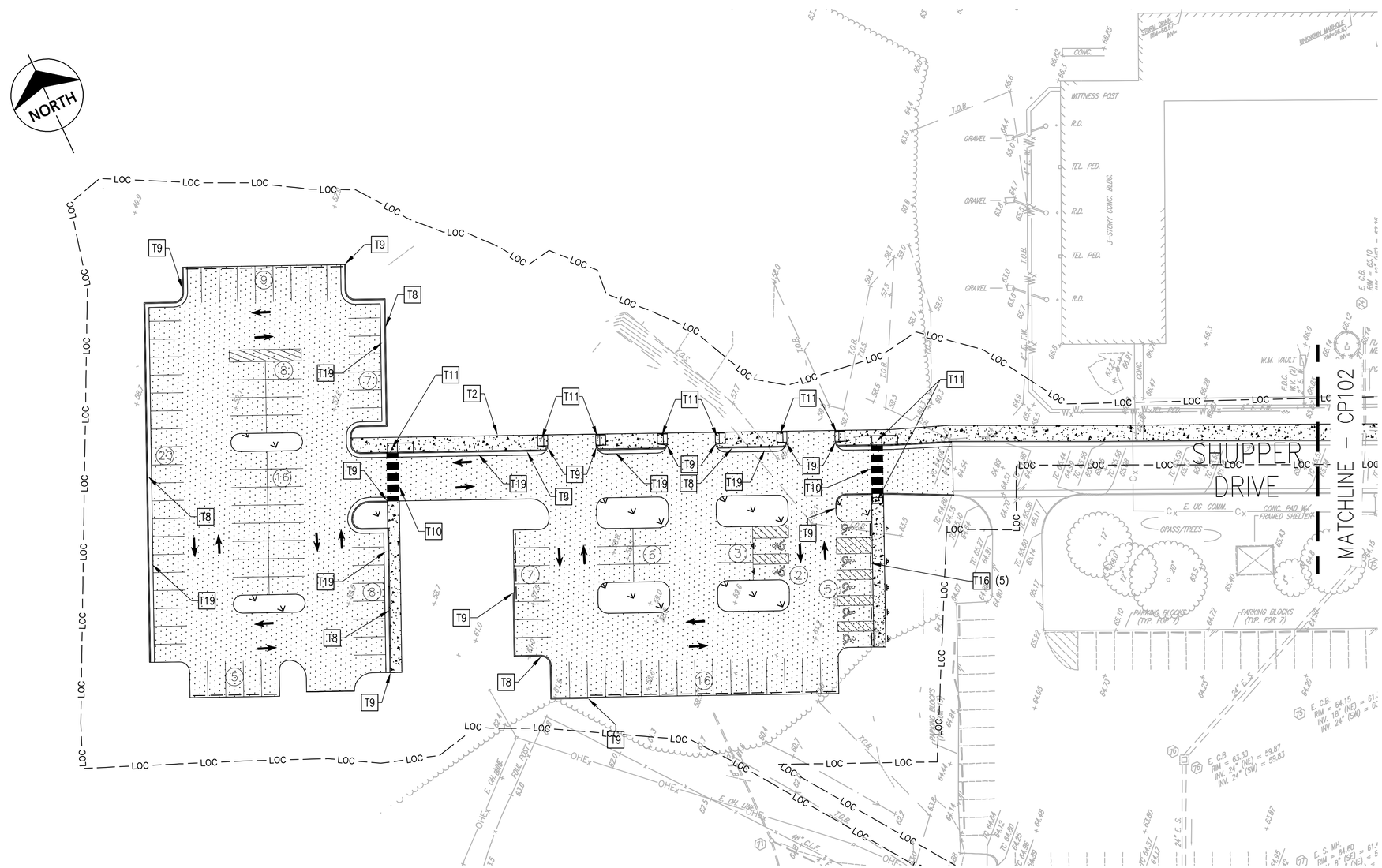
CONSTR. CONTR. NO. N40085-08-D-9739

NAVFAC DRAWING NO. 12664780

SHEET OF

CP100

DRAWFORM REVISION: 6 AUG 2007



PAVING PLAN - PARKING

1" = 30'

GRAPHIC SCALE

0 30' 60'

1 INCH = 30 FEET

LEGEND

- ASPHALT PAVEMENT MILL AND OVERLAY
- ASPHALT PAVEMENT
  PARKING LOTS (SEE DETAIL B2 ON SHEET CP501)
  SHUPPER DR EXT (SEE DETAIL B5 ON SHEET CP501)
- CONCRETE UNIT PAVERS
- CONCRETE
- PLANTING AREA (SEE PLANTING PLAN)
- PARADE GROUND
- TRAFFIC ARROW (SEE DETAIL C2 ON SHEET CP511)
- CROSSWALK (SEE DETAIL D2 ON SHEET CP511)
- BOLLARD (SEE DETAIL B2 ON SHEET CP511)
- TRAFFIC SIGN (SEE DETAILS ON CP511)
- FLAG POLE

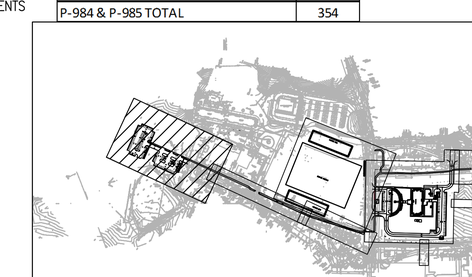
KEYNOTES

SITE	
T1	6' SIDEWALK (SEE DETAIL D3 ON SHEET CP501)
T2	8' SIDEWALK (SEE DETAIL D3 ON SHEET CP501)
T3	BIKE RACK PAD (SEE DETAIL D5 ON SHEET CP501)
T4	SMOKING GAZEBO
T5	MAIN ENTRY PLAZA WITH BENCHES AND RECEPTACLE
T6	DUMPSTER & DUMPSTER PAD & RECYCLING ENCLOSURES(SEE DETAIL D5 ON SHEET CP501)
T7	EDGE OF PAVEMENT
T8	6" CURB (SEE DETAIL C2 ON SHEET CP501)
T9	CURB TAPER (SEE DETAIL C4 ON SHEET CP501)
T10	CROSSWALK (SEE DETAIL D2 ON SHEET CP511)
T11	ABA ACCESS RAMP (SEE SHEET CP502)
T12	ABA ACCESSIBLE ROUTE
T13	FLAGPOLE
T14	TORII GATE AND CANNON PLAZA
T15	SEAT WALL
T16	WHEEL STOP (SEE DETAIL A3 ON SHEET CP501)
T17	DROP ARM
T19	GUTTER (SEE DETAIL C1 ON SHEET CP501)
T20	HAND RAILS (SEE DETAIL B5 ON SHEET CP501)

PARKING LOT COUNT	
REMOTE PARKING:	
P-984 HEADQUARTERS	
POV PARKING SPACES	105
P-985 BACHELOR ENLISTED QUARTERS	
POV PARKING SPACES	157
TOTAL P-984&P-985 PARKING SPACES	262
P-984/985 ABA PARKING REQUIRED	7
ABA PARKING PROVIDED	7
WEST OF BUILDING:	
POV PARKING SPACES	24
ABA PARKING REQUIRED	1
ABA PARKING	1
EAST OF BUILDING:	
POV PARKING SPACES	57
ABA PARKING REQUIRED	3
ABA PARKING	3
P-984 & P-985 TOTAL	354

NOTES

1. SEE LANDSCAPING PLANS FOR SODDING REQUIREMENTS



SYM	DESCRIPTION	DATE	APPR
	SIGNATURE SUBMITTAL	6/10/2014	

NAVFAC

COMMONWEALTH OF VIRGINIA
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AE LOGO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES KC	DRW KC	CHK JL
PM		MMP
BRANCH MANAGER		BDB
CHIEF ENG/ARCH		RLJ/CRB
FIRE PROTECTION		DAS

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL STATION ~ NORFOLK, VIRGINIA
NAVAL WEAPONS STATION
HAMPTON ROADS IPT
YORKTOWN, VIRGINIA

P-984 REGIMENTAL HEADQUARTERS

PAVING PLAN – PARKING

SCALE: AS NOTED

EPROJECT NO. 1113910

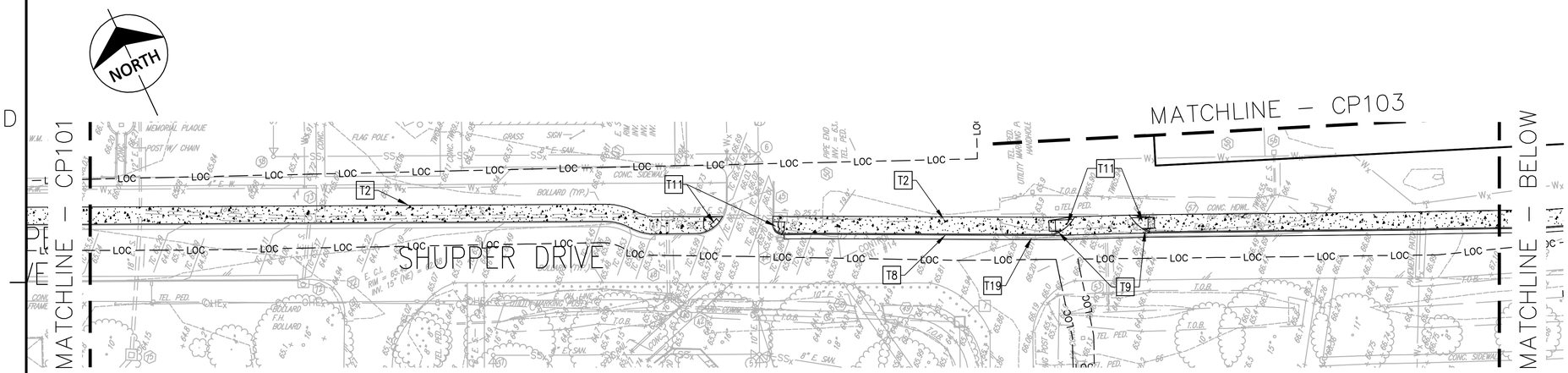
CONSTR. CONTR. NO. N40085-08-D-9739

NAVFAC DRAWING NO. 12664781

SHEET OF

CP101

DRAWFORM REVISION: 6 AUG 2007



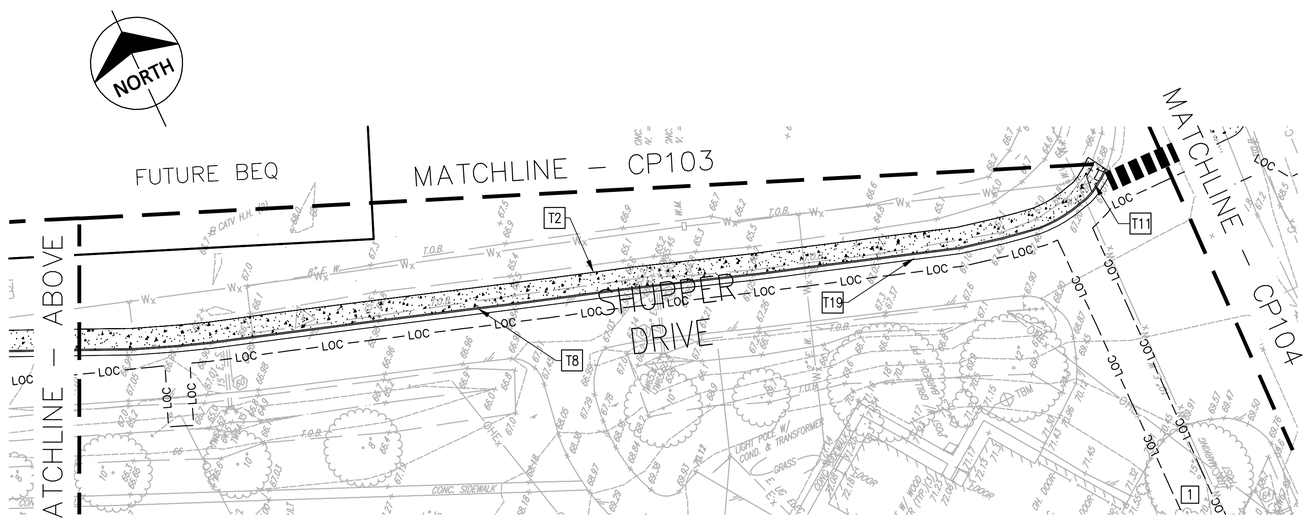
PAVING PLAN - SIDEWALK 1

1" = 30'

GRAPHIC SCALE

0 30' 60'

1 INCH = 30 FEET



PAVING PLAN - SIDEWALK 2

1" = 30'

GRAPHIC SCALE

0 30' 60'

1 INCH = 30 FEET

LEGEND

- ASPHALT PAVEMENT MILL AND OVERLAY
- ASPHALT PAVEMENT
  PARKING LOTS (SEE DETAIL B2 ON SHEET CP501)
  SHUPPER DR EXT (SEE DETAIL B5 ON SHEET CP501)
- CONCRETE UNIT PAVERS
- CONCRETE
- PLANTING AREA (SEE PLANTING PLAN)
- PARADE GROUND
- TRAFFIC ARROW (SEE DETAIL C2 ON SHEET CP511)
- CROSSWALK (SEE DETAIL D2 ON SHEET CP511)
- BOLLARD (SEE DETAIL B2 ON SHEET CP511)
- TRAFFIC SIGN (SEE DETAILS ON CP511)
- FLAG POLE

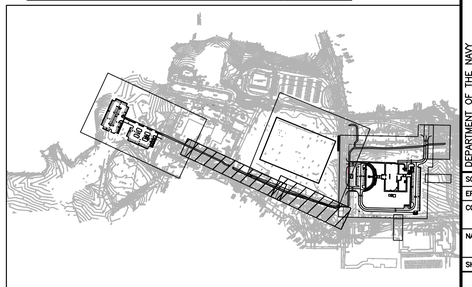
KEYNOTES

	SITE
T1	6' SIDEWALK (SEE DETAIL D3 ON SHEET CP501)
T2	8' SIDEWALK (SEE DETAIL D3 ON SHEET CP501)
T3	BIKE RACK PAD (SEE DETAIL D5 ON SHEET CP501)
T4	SMOKING GAZEBO
T5	MAIN ENTRY PLAZA WITH BENCHES AND RECEPTACLE
T6	DUMPSTER & DUMPSTER PAD & RECYCLING ENCLOSURES(SEE DETAIL D5 ON SHEET CP501)
T7	EDGE OF PAVEMENT
T8	6" CURB (SEE DETAIL C2 ON SHEET CP501)
T9	CURB TAPER (SEE DETAIL C4 ON SHEET CP501)
T10	CROSSWALK (SEE DETAIL D2 ON SHEET CP511)
T11	ABA ACCESS RAMP (SEE SHEET CP502)
T12	ABA ACCESSIBLE ROUTE
T13	FLAGPOLE
T14	TORII GATE AND CANNON PLAZA
T15	SEAT WALL
T16	WHEEL STOP (SEE DETAIL A3 ON SHEET CP501)
T17	DROP ARM
T19	GUTTER (SEE DETAIL C1 ON SHEET CP501)
T20	HAND RAILS (SEE DETAIL B5 ON SHEET CP501)

PARKING LOT COUNT	
REMOTE PARKING:	
P-984 HEADQUARTERS	
POV PARKING SPACES	105
P-985 BACHELOR ENLISTED QUARTERS	
POV PARKING SPACES	157
TOTAL P-984&P-985 PARKING SPACES	262
P-984/985 ABA PARKING REQUIRED	7
ABA PARKING PROVIDED	7
WEST OF BUILDING:	
POV PARKING SPACES	24
ABA PARKING REQUIRED	1
ABA PARKING	1
EAST OF BUILDING:	
POV PARKING SPACES	57
ABA PARKING REQUIRED	3

NOTES

1. SEE SITE ELECTRICAL PLANS FOR PROPOSED COMMUNICATION UTILITY WORK ON SOUTH SIDE OF SHUPPER DRIVE.
2. SEE LANDSCAPING PLANS FOR SODDING REQUIREMENTS



SYM	DESCRIPTION	DATE	APPR
	SIGNATURE SUBMITTAL	6/10/2014	

NAVFAC

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AE LOGO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES	KC	DRW KC	CHK JL
PM	MMP		
BRANCH MANAGER	BDB		
CHIEF ENG/ARCH	RLJ/CRB		
FIRE PROTECTION	DAS		

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
HAMPTON ROADS IPT

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

NAVAL WEAPONS STATION
YORKTOWN, VIRGINIA

P-984 REGIMENTAL HEADQUARTERS

PAVING PLAN – SIDEWALK

SCALE: AS NOTED

EPROJECT NO. 1113910

CONSTR. CONTR. NO. N40085-08-D-9739

NAVFAC DRAWING NO. 12664782

SHEET OF

CP102

DRAWFORM REVISION: 6 AUG 2007

PAVING PLAN - PARADE GROUND

1" = 30'

GRAPHIC SCALE

0 30' 60'

1 INCH = 30 FEET

NORTH

GRAPHIC SCALE

0 30' 60'

1 INCH = 30 FEET

LEGEND

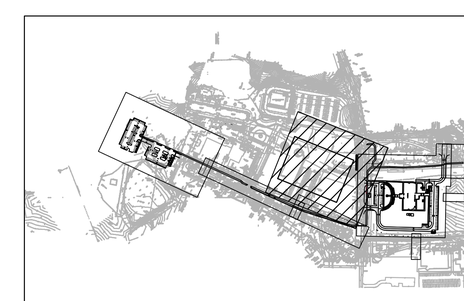
- ASPHALT PAVEMENT MILL AND OVERLAY
- ASPHALT PAVEMENT
  PARKING LOTS (SEE DETAIL B2 ON SHEET CP501)
  SHUPPER DR EXT (SEE DETAIL B5 ON SHEET CP501)
- CONCRETE UNIT PAVERS
- CONCRETE
- PLANTING AREA (SEE PLANTING PLAN)
- PARADE GROUND
- TRAFFIC ARROW (SEE DETAIL C2 ON SHEET CP511)
- CROSSWALK (SEE DETAIL D2 ON SHEET CP511)
- BOLLARD (SEE DETAIL B2 ON SHEET CP511)
- TRAFFIC SIGN (SEE DETAILS ON CP511)
- FLAG POLE

KEYNOTES

SITE	
T1	6' SIDEWALK (SEE DETAIL D3 ON SHEET CP501)
T2	8' SIDEWALK (SEE DETAIL D3 ON SHEET CP501)
T3	BIKE RACK PAD (SEE DETAIL D5 ON SHEET CP501)
T4	SMOKING GAZEBO
T5	MAIN ENTRY PLAZA WITH BENCHES AND RECEPTACLE
T6	DUMPSTER & DUMPSTER PAD & RECYCLING ENCLOSURES(SEE DETAIL D5 ON SHEET CP501)
T7	EDGE OF PAVEMENT
T8	6" CURB (SEE DETAIL C2 ON SHEET CP501)
T9	CURB TAPER (SEE DETAIL C4 ON SHEET CP501)
T10	CROSSWALK (SEE DETAIL D2 ON SHEET CP511)
T11	ABA ACCESS RAMP (SEE SHEET CP502)
T12	ABA ACCESSIBLE ROUTE
T13	FLAGPOLE
T14	TORII GATE AND CANNON PLAZA
T15	SEAT WALL
T16	WHEEL STOP (SEE DETAIL A3 ON SHEET CP501)
T17	DROP ARM
T19	GUTTER (SEE DETAIL C1 ON SHEET CP501)
T20	HAND RAILS (SEE DETAIL B5 ON SHEET CP501)

NOTES

1. SEE LANDSCAPING PLANS FOR SODDING REQUIREMENTS



SYM	DESCRIPTION	DATE	APPR
	SIGNATURE SUBMITTAL	6/10/2014	

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ACTIVITY

SATISFACTORY TO DATE

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PM	MMP		
BRANCH MANAGER	BDB		
CHIEF ENG/ARCH	RLJ/CRB		
FIRE PROTECTION	DAS		

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
HAMPTON ROADS IPT
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL STATION ~ NORFOLK, VIRGINIA
NAVAL WEAPONS STATION
YORKTOWN, VIRGINIA
P-984 REGIMENTAL HEADQUARTERS
PAVING PLAN – PARADE GROUND

SCALE: AS NOTED

EPROJECT NO. 1113910

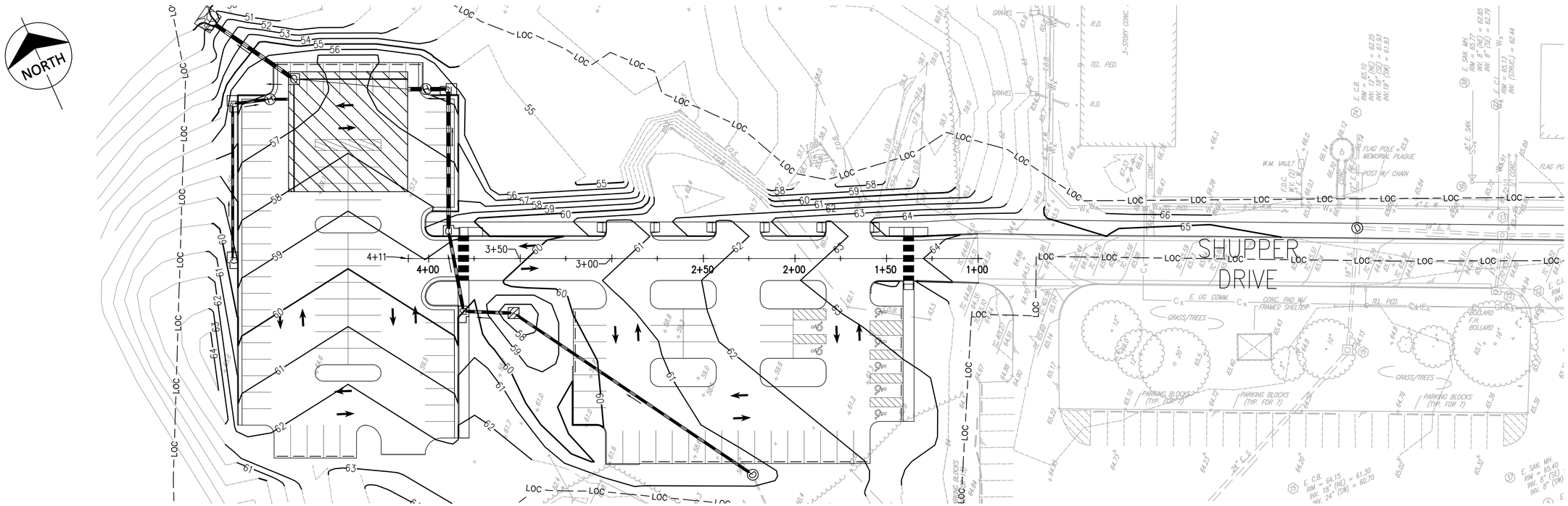
CONSTR. CONTR. NO. N40085-08-D-9739

NAVFAC DRAWING NO. 12664783

SHEET OF

CP103

DRAWFORM REVISION: 6 AUG 2007



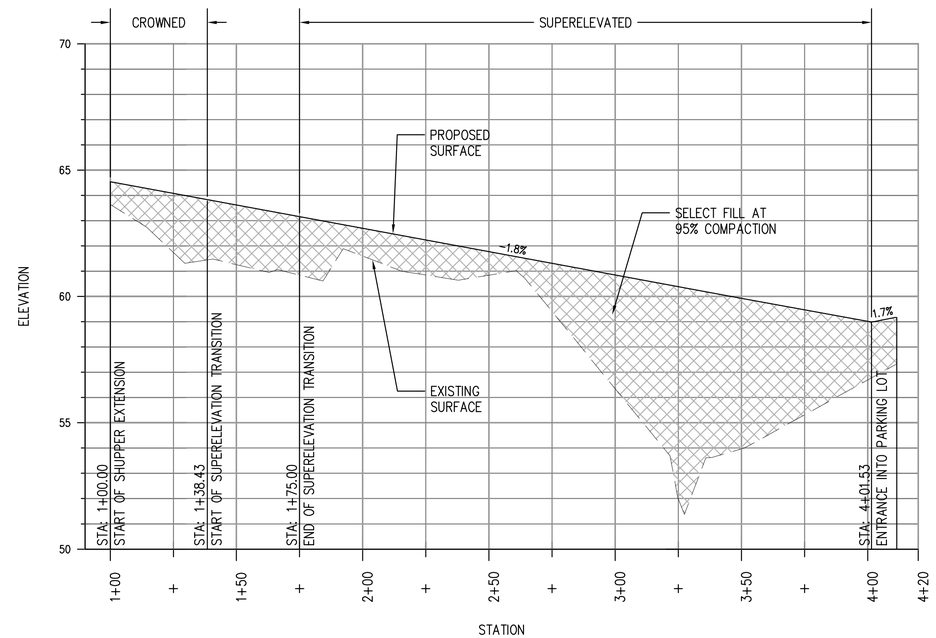
SHUPPER DRIVE EXTENSION PLAN

1" = 30'

GRAPHIC SCALE

0 30' 60'

1 INCH = 30 FEET



SHUPPER DRIVE EXTENSION PROFILE

1"=30'(H) 1"=3'(V)

SYM	DESCRIPTION	DATE	APPR
	SIGNATURE SUBMITTAL	6/10/2014	

NAVFAC

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ACTIVITY

SATISFACTORY TO DATE

DES	TC	DRW TC	CHK JL
PM	MMP		
BRANCH MANAGER	BDB		
CHIEF ENG/ARCH	RLJ/CRB		
FIRE PROTECTION	DAS		

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
HAMPTON ROADS IPT
NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
NAVAL STATION – NORFOLK, VIRGINIA
NAVAL WEAPONS STATION
YORKTOWN, VIRGINIA

P-984 REGIMENTAL HEADQUARTERS

ROADWAY PLAN & PROFILE – SHUPPER DRIVE EXTENSION

SCALE: AS NOTED

EPROJECT NO. 1113910

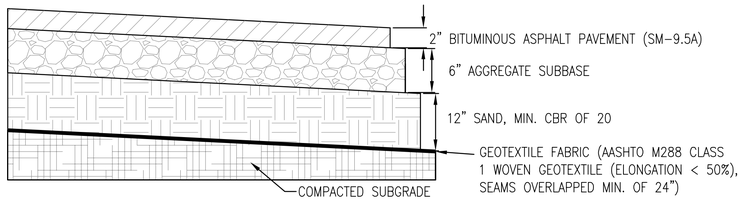
CONSTR. CONTR. NO. N40085-08-D-9739

NAVFAC DRAWING NO. 12664785

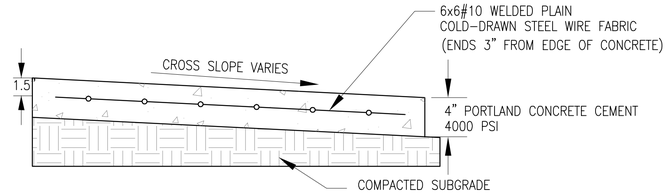
SHEET OF

CP201

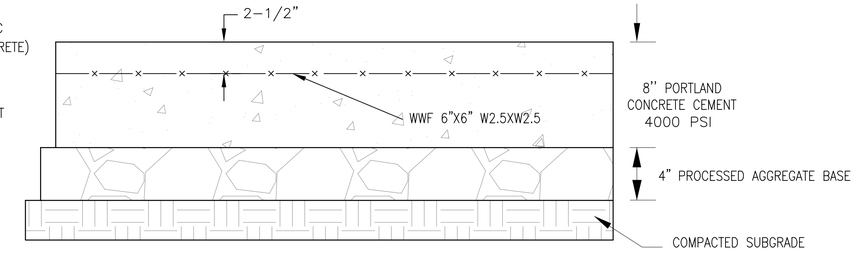
DRAWFORM REVISION: 6 AUG 2007



ASPHALT PAVEMENT - SHUPPER DR EXT. (D2)
NTS CP101

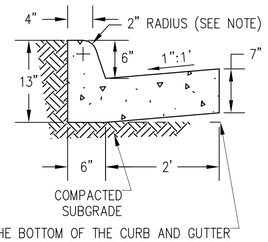


SIDEWALK (D3)
NTS CP101, CP102, CP103, CP104



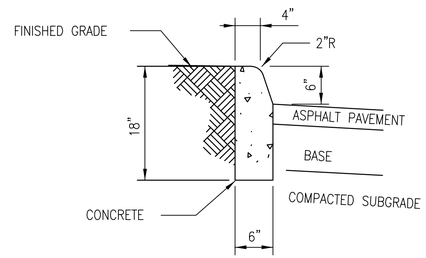
DUMPSTER/TRANSFORMER/MECHANICAL CONCRETE PAD (D5)
NTS CP104

NOTE: STANDARD CURB SHAPE OF THE STATE IN WHICH THE PROJECT IS LOCATED MAY BE SUBSTITUTED.

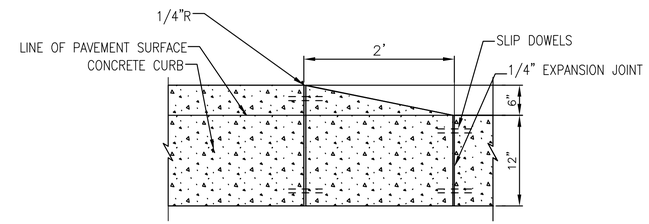


THE BOTTOM OF THE CURB AND GUTTER MAY BE CONSTRUCTED PARALLEL TO THE SLOPE OF SUBSURFACE COURSES PROVIDED A MINIMUM THICKNESS OF 7" IS MAINTAINED.

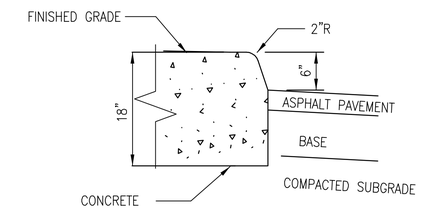
CURB AND GUTTER (C1)
NTS CP101



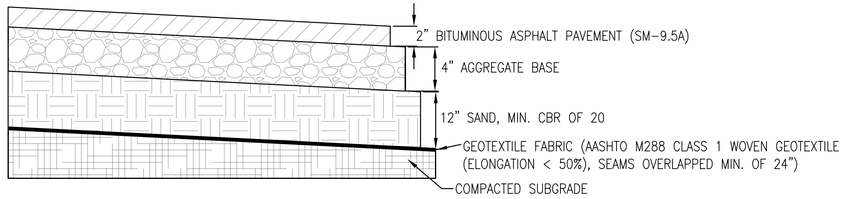
STANDARD 6" CURB (C2)
NTS CP101, CP102, CP104



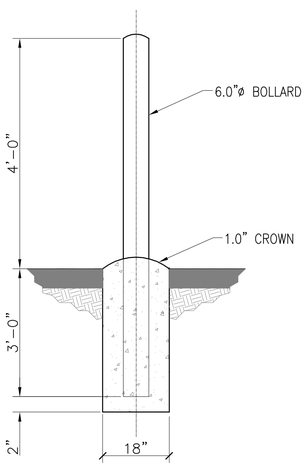
CURB TAPER (C4)
NTS CP101, CP102, CP103, CP104



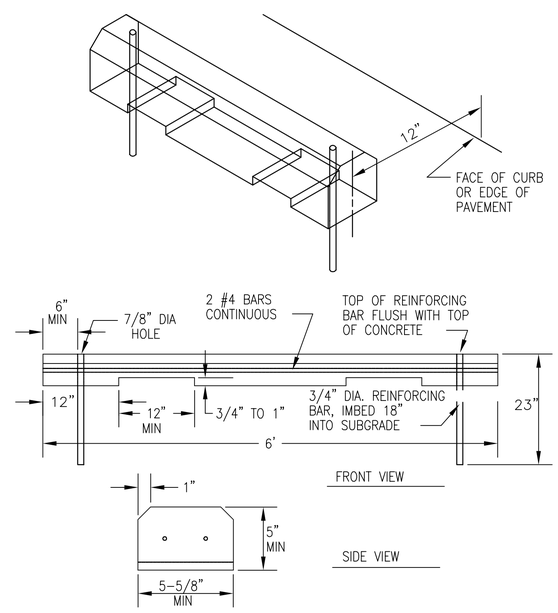
CURB END (C5)
NTS CP101, CP102, CP103, CP104



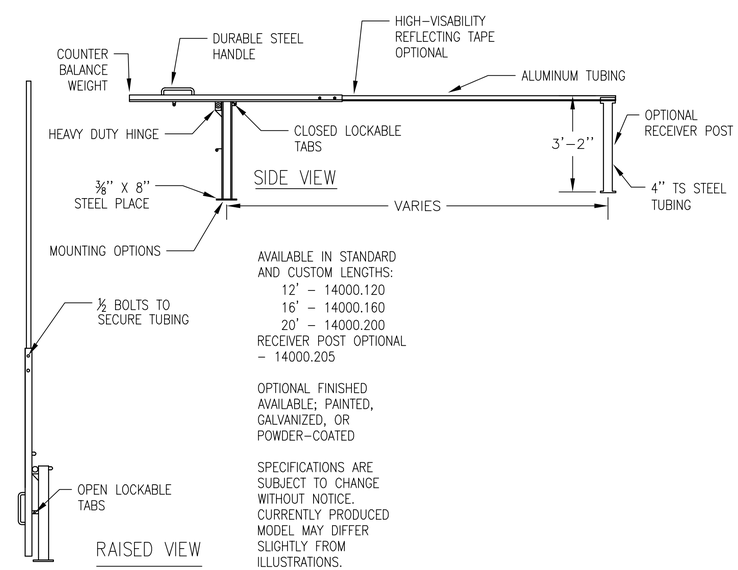
ASPHALT PAVEMENT - PARKING LOTS (B2)
NTS CP101, CP102, CP103, CP104



PERMANENT BOLLARD (A1)
NTS CP104



WHEEL STOP (A3)
NTS CP101, CP104



AVAILABLE IN STANDARD AND CUSTOM LENGTHS:
12' – 14000.120
16' – 14000.160
20' – 14000.200
RECEIVER POST OPTIONAL – 14000.205

OPTIONAL FINISHED AVAILABLE; PAINTED, GALVANIZED, OR POWDER-COATED

SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE. CURRENTLY PRODUCED MODEL MAY DIFFER SLIGHTLY FROM ILLUSTRATIONS.

DROP ARM (A5)
NTS CP104

SYM	DESCRIPTION	DATE	APPR
	SIGNATURE SUBMITTAL	6/10/2014	

NAVFAC

COMMONWEALTH OF VIRGINIA
JON-MICHAEL C. LEMON
Lic. No. 041993
06/10/2014
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AE LOGO

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

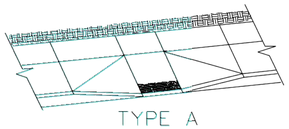
DES KC	DRW KC	CHK JL	
PM	MMP		
BRANCH MANAGER	BDB		
CHIEF ENG/ARCH	RLJ/CRB		
FIRE PROTECTION	DAS		

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
NAVAL STATION – NORFOLK, VIRGINIA
HAMPTON ROADS IPT
NAVAL WEAPONS STATION YORKTOWN, VIRGINIA
P-984 REGIMENTAL HEADQUARTERS
PAVING DETAILS

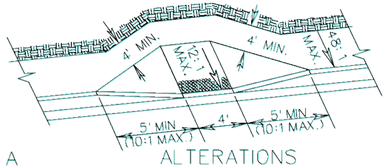
SCALE: AS NOTED
EPROJECT NO. 1113910
CONSTR. CONTR. NO. N40085-08-D-9739
NAVFAC DRAWING NO. 12664786
SHEET OF
CP501

DRAWFORM REVISION: 6 AUG 2007

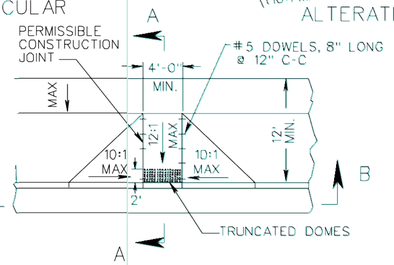
SURVEYED BY
SUPERVISED BY AAA
DESIGNED BY BBB

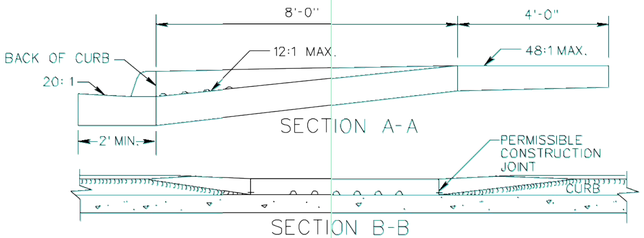


TYPE A
PERPENDICULAR



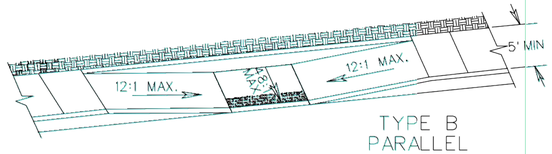
ALTERATIONS



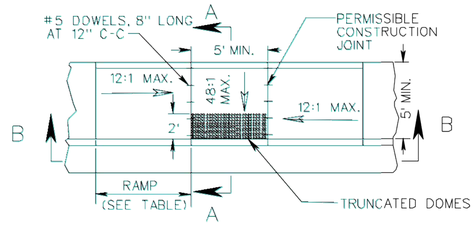


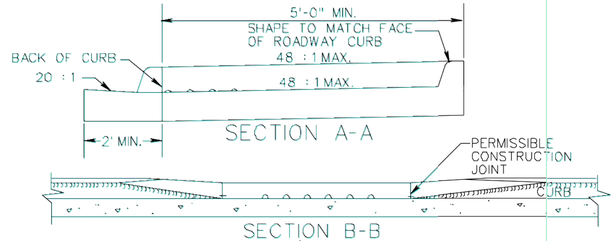
SECTION A-A

SECTION B-B



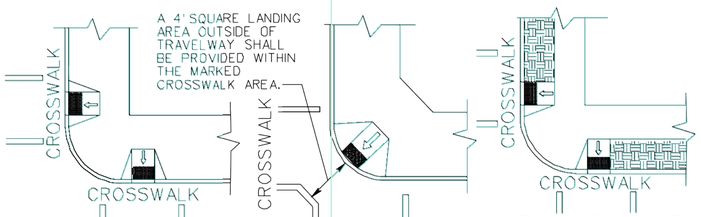
TYPE B
PARALLEL





SECTION A-A

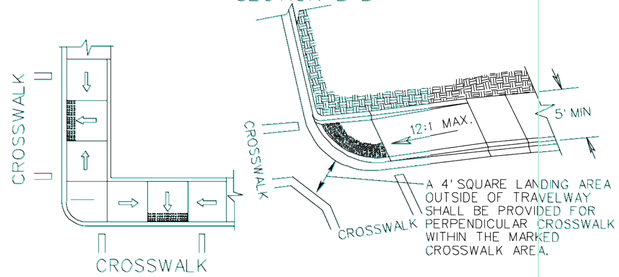
SECTION B-B



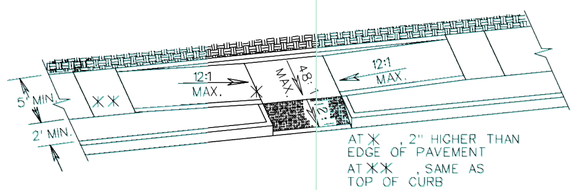
TYPICAL PLACEMENT AT INTERSECTION WITHIN CROSSWALK

CROSSWALK DIAGONAL VARIATION

TYPICAL PLACEMENT AT INTERSECTION WITHIN CROSSWALK (WITH BUFFER STRIP)



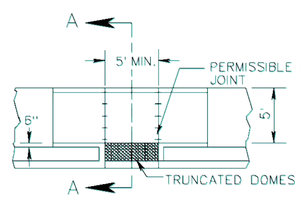
TYPICAL PLACEMENT AT INTERSECTION WITHIN CROSSWALK



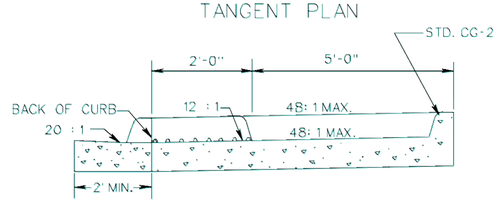
TYPE C
PARALLEL & PERPENDICULAR

THE SELECTION OF CURB TYPE AND THE CONFIGURATION OF THE UTILITY STRIP MAY VARY TO MEET EXISTING FIELD CONDITIONS AND ROADWAY GEOMETRICS PROVIDING THE DIMINSIONS AND SLOPES ARE AS NOTED.

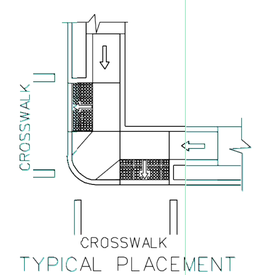
THIS COMBINED (PARALLEL & PERPENDICULAR) DESIGN FOR ALTERATIONS CAN BE USED WITH ADJOINING BUFFER STRIP. LANDING AT BOTTOM OF TWO SLOPING SIDES WITH 60" X 60" MIN. DIMENSIONS. THE SHORT PERPENDICULAR RUN TO THE STREET CAN BE PROTECTED BY A LANDSCAPED SETBACK OR CONNECTED TO THE SIDEWALK WITH A WARPED SURFACE.



TANGENT PLAN



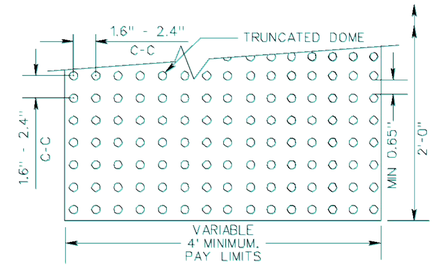
SECTION A-A



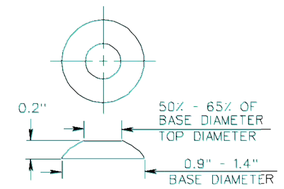
TYPICAL PLACEMENT AT INTERSECTION WITH BUFFER STRIP

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO
	VA.				



DETECTABLE WARNING DETAIL



TRUNCATED DOME DETAIL

TYPE B
PARALLEL APPLICATION

ROADWAY GRADE IN PERCENT	MINIMUM RAMP LENGTH IN FEET	
	4" CURB	6" CURB
0	4	6
1	5	7
2	5	8
3	6	9
4	8	12
5	10	15
6	14	15

NOTE:
THE REQUIRED LENGTH OF A PARALLEL RAMP IS LIMITED TO 15 FEET, REGARDLESS OF THE SLOPE.

TYPE C
PARALLEL & PERPENDICULAR APPLICATION

ROADWAY GRADE IN PERCENT	MINIMUM RAMP LENGTH IN FEET	
	4" CURB	6" CURB
0	2	4
1	2	5
2	3	5
3	3	6
4	4	8
5	5	10
6	7	14
7	13	15
8	15	15

NOTES:

1. THE DETECTABLE WARNING SHALL BE PROVIDED BY TRUNCATED DOMES.
2. DETECTABLE WARNING TO BE CLASS A-3 CONCRETE (CLASS A-4 IF PRECAST) WITH SLIP RESISTANT INTEGRAL SURFACE COVERING THE FULL WIDTH OF THE RAMP FLOOR BY 2' IN LENGTH IN THE DIRECTION OF PEDESTRIAN TRAVEL. OTHER TYPES OF MATERIAL WITH THE TRUNCATED DOMES DETECTABLE WARNING MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
3. SLOPING SIDES OF CURB RAMP MAY BE POURED MONOLITHICALLY WITH RAMP FLOOR OR BY USING PERMISSIBLE CONSTRUCTION JOINT WITH REQUIRED BARS.
4. IF RAMP FLOOR IS PRECAST, HOLES MUST BE PROVIDED FOR DOWEL BARS SO THAT ADJOINING FLARED SIDES CAN BE CAST IN PLACE AFTER PLACEMENT OF PRECAST RAMP FLOOR. PRECAST CONCRETE SHALL BE CLASS A-4.
5. REQUIRED BARS ARE TO BE NO. 5 X 8" PLACED 1' CENTER TO CENTER ALONG BOTH SIDES OF THE RAMP FLOOR, MID-DEPTH OF RAMP FLOOR. MINIMUM CONCRETE COVER 1½".
6. CURB / CURB AND GUTTER SLOPE TRANSITIONS ADJACENT TO CURB RAMPS ARE INCLUDED IN PAYMENT FOR CURB / CURB AND GUTTER.
7. CURB RAMPS ARE TO BE LOCATED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THEY ARE TO BE PROVIDED AT INTERSECTIONS WHEREVER AN ACCESSIBLE ROUTE WITHIN THE RIGHT OF WAY OF A HIGHWAY FACILITY CROSSES A CURB REGARDLESS OF WHETHER SIDEWALK IS EXISTING, PROPOSED, OR NONEXISTENT. THEY MUST BE LOCATED WITHIN PEDESTRIAN CROSSWALKS AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER, AND SHOULD NOT BE LOCATED BEHIND VEHICLE STOP LINES. EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. ACCESSIBLE ROUTES PROVIDE A CONTINUOUS UNOBSTRUCTED, STABLE, FIRM AND SLIP RESISTANT PATH CONNECTING ALL ACCESSIBLE ELEMENTS OF A FACILITY THAT CAN BE APPROACHED, ENTERED AND USED BY PEDESTRIANS.
8. RAMPS MAY BE PLACED ON RADIAL OR TANGENTIAL SECTIONS PROVIDED THAT THE CURB OPENING IS PLACED WITHIN THE LIMITS OF THE CROSSWALK AND THAT THE SLOPE AT THE CONNECTION OF THE CURB OPENING IS PERPENDICULAR TO THE CURB.
9. TYPICAL CONCRETE SIDEWALK IS 4" THICK. WHEN THE ENTRANCE RADII CANNOT ACCOMMODATE THE TURNING REQUIREMENTS OF ANTICIPATED HEAVY TRUCK TRAFFIC THE CONCRETE SIDEWALK DEPTH SHOULD BE INCREASED TO 7".
10. WHEN CURB RAMPS ARE USED IN CONJUNCTION WITH A SHARED USE PATH, THE MINIMUM WIDTH SHALL BE THE WIDTH OF THE SHARED USE PATH.

REV. 7/05
SPECIAL DESIGN SECTION
DRAWING NO. A 59

PLAN NO.	PROJECT	FILE NO.	SHEET NO.

ABA ACCESS RAMP

NTS CP101, CP102, CP104 A3

SYM	DESCRIPTION	DATE	APPR
	SIGNATURE SUBMITTAL	6/10/2014	

NAVFAC

COMMONWEALTH OF VIRGINIA
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AE LOGO

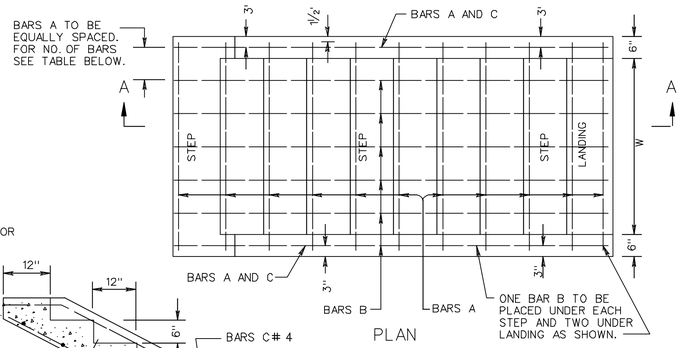
APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES	KC	DRW KC	CHK JL
PM	MMP		
BRANCH MANAGER	BDB		
CHIEF ENG/ARCH	RLJ/CRB		
FIRE PROTECTION	DAS		

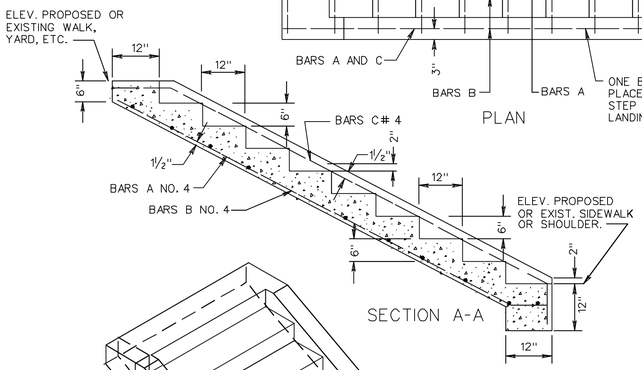
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
NAVAL STATION – NORFOLK, VIRGINIA
HAMPTON ROADS IPT
NAVAL WEAPONS STATION YORKTOWN, VIRGINIA
P-984 REGIMENTAL HEADQUARTERS
PAVING DETAILS

SCALE: AS NOTED
EPROJECT NO. 1113910
CONSTR. CONTR. NO. N40085-08-D-9739
NAVFAC DRAWING NO. 12664787
SHEET CP502 OF

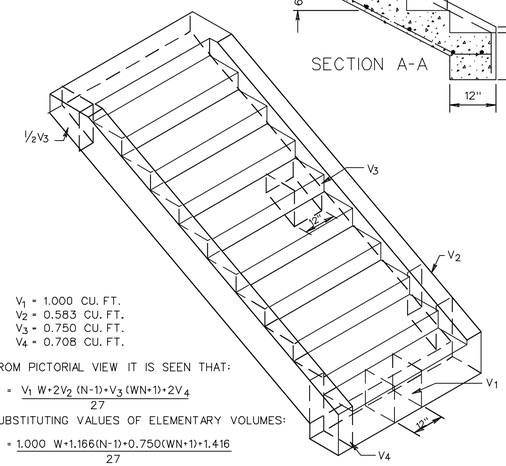
DRAWFORM REVISION: 6 AUG 2007



PLAN



SECTION A-A



V_1 = 1.000 CU. FT.
V_2 = 0.583 CU. FT.
V_3 = 0.750 CU. FT.
V_4 = 0.708 CU. FT.

FROM PICTORIAL VIEW IT IS SEEN THAT:

$$V = \frac{V_1 W + 2V_2 (N-1) + V_3 (WN+1) + 2V_4}{27}$$

SUBSTITUTING VALUES OF ELEMENTARY VOLUMES:

$$V = \frac{1.000\ W + 1.166(N-1) + 0.750(WN+1) + 1.416}{27}$$

V - INDICATES TOTAL VOLUME OF STEPS IN CUBIC YARDS.

V_1, V_2, V_3 & V_4 - INDICATE ELEMENTARY VOLUMES USED IN COMPUTING V.

W - INDICATES CLEAR WIDTH OF STEPS, IN FEET, BETWEEN SIDEWALLS.

N - INDICATES NUMBER OF STEPS IN INSTALLATION EXCLUSIVE OF LANDING.

L1 - INDICATES LENGTH OF BARS A, IN INCHES. L1 = 13.416N + 8"
L2 - INDICATES LENGTH OF BARS B, IN INCHES. L2 = 12W + 9"
L3 - INDICATES LENGTH OF BARS C, IN INCHES. L3 = 13.416N + 18"

A LANDING IS TO BE PROVIDED WHERE 12 OR MORE STEPS ARE REQUIRED. MINIMUM SIZE OF LANDING TO BE W + 1 FOOT X 4 FEET.

THIS ITEM MAY BE PRECAST OR CAST IN PLACE.
CONCRETE TO BE CLASS A3 IF CAST IN PLACE, 4000 PSI IF PRECAST.
FOR OTHER WIDTHS THE APPROXIMATE SPACING OF BARS A IN INCHES WILL BE EQUAL TO 80/N WITH A MINIMUM SPACING OF 6".
REINFORCING BARS TO BE USED IN INSTALLATIONS OF 6 OR MORE STEPS.
FOR TABULATION OF CONCRETE AND STEEL QUANTITIES SEE SHEET 2.

NUMBER OF BARS A									
	N=1-5	N=6	N=7	N=8	N=9	N=10	N=11	N=12	N=13-25
W = 3'	NO STEEL	4	5	5	6	6	7	7	8
W = 4'		5	6	7	7	8	8	9	10
W = 5'		6	7	8	9	9	10	11	12

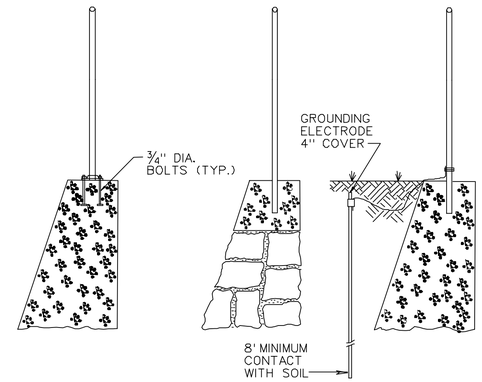
HANDRAIL IS TO BE PROVIDED FOR STEPS HAVING THREE OR MORE RISERS, AND WILL MEET THE FOLLOWING CONDITIONS:

1. ON STEPS LESS THAN 44 INCHES WIDE HAVING BOTH SIDES ENCLOSED, AT LEAST ONE HANDRAIL, PREFERABLY ON THE RIGHT SIDE DESCENDING.
2. ON STEPS LESS THAN 44 INCHES WIDE HAVING ONE SIDE OPEN, ONE HANDRAIL ON EACH SIDE.
3. ON STEPS LESS THAN 44 INCHES WIDE HAVING BOTH SIDES OPEN, ONE HANDRAIL ON EACH SIDE.
4. ON STEPS MORE THAN 44 INCHES WIDE BUT LESS THAN 88 INCHES WIDE, ONE HANDRAIL ON EACH SIDE.
5. ON STEPS 88 OR MORE INCHES WIDE, ONE HANDRAIL ON EACH SIDE, AND ONE INTERMEDIATE HANDRAIL LOCATFD APPROXIMATFLY MIDWAY OF THF WIDTH.

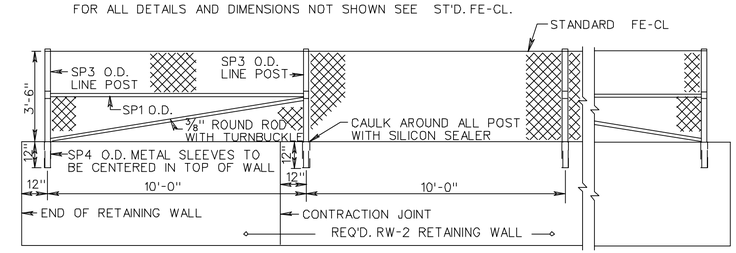
N	W - 3'		W - 4'		W - 5'		INCREMENTS *		N
	CONCRETE	REINF. STEEL	CONCRETE	REINF. STEEL	CONCRETE	REINF. STEEL	CONCRETE	REINF. STEEL	
	Cu. Yards	Lbs.	Cu. Yards	Lbs.	Cu. Yards	Lbs.	Cu. Yards	Lbs.	
1	0.275		0.34		0.405		0.065		1
2	0.401		0.494		0.587		0.093		2
3	0.528		0.648		0.768		0.12		3
4	0.654		0.802		0.95		0.148		4
5	0.781		0.957		1.133		0.176		5
6	0.907	51	1.111	61	1.315	71	0.204	10	6

STANDARD CONCRETE STEPS

NTS CP104 A2



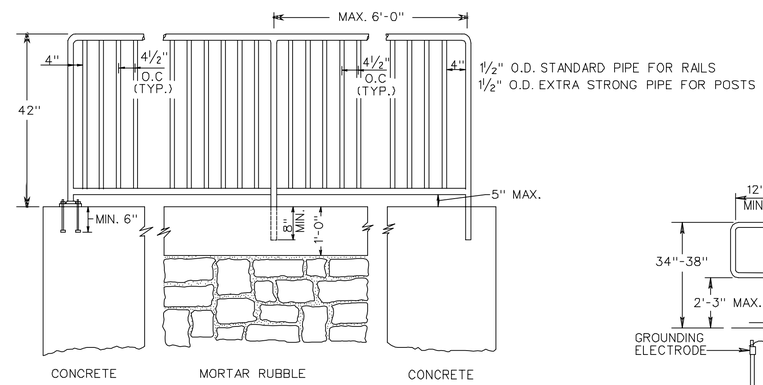
FOR ALL DETAILS AND DIMENSIONS NOT SHOWN SEE ST'D. FE-CL.



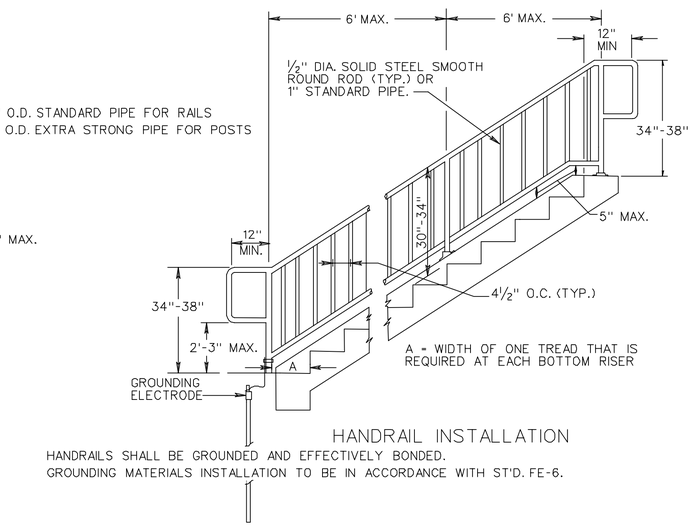
ALTERNATE INSTALLATION ON WALLS

NOTES:
THIS HANDRAIL IS TO BE USED ONLY AS A PROTECTION FOR PEDESTRIANS AND SHOULD NOT BE PLACED IN ANY LOCATION WHERE IT MIGHT BE SUBJECT TO ANY VEHICULAR IMPACT FOR VEHICULAR PROTECTION STANDARD GUARDRAIL SHOULD BE USED.

HANDRAIL TO BE IN ACCORDANCE WITH THE LATEST EDITION OF THE VIRGINIA UNIFORM STATEWIDE BUILDING CODE.



HANDRAIL (GUARD) INSTALLATION ON WALLS



A = WIDTH OF ONE TREAD THAT IS REQUIRED AT EACH BOTTOM RISER

HANDRAIL INSTALLATION

HANDRAILS SHALL BE GROUNDED AND EFFECTIVELY BONDED.
GROUNDING MATERIALS INSTALLATION TO BE IN ACCORDANCE WITH ST'D. FE-6.

STANDARD HAND RAILS

NTS CP104 B5

SYM	DESCRIPTION	DATE	APPR
	SIGNATURE SUBMITTAL	6/10/2014	

NAVFAC

COMMONWEALTH OF VIRGINIA
JON-MICHAEL C. LEMON
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APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES KC	DRW KC	CHK JL
PM	MMP	
BRANCH MANAGER	BDB	
CHIEF ENG/ARCH	RLJ/CRB	
FIRE PROTECTION	DAS	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
HAMPTON ROADS IPT
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL STATION - NORFOLK, VIRGINIA
NAVAL WEAPONS STATION
YORKTOWN, VIRGINIA
P-984 REGIMENTAL HEADQUARTERS
PAVING DETAILS

SCALE: AS NOTED
EPROJECT NO. 1113910
CONSTR. CONTR. NO. N40085-08-D-9739
NAVFAC DRAWING NO. 12664788
SHEET OF
CP503

DRAWFORM REVISION: 6 AUG 2007