

NOTE:
EXTEND THE APRON UP THE CHANNEL BANKS TO A MINIMUM HEIGHT OF 1FOOT.

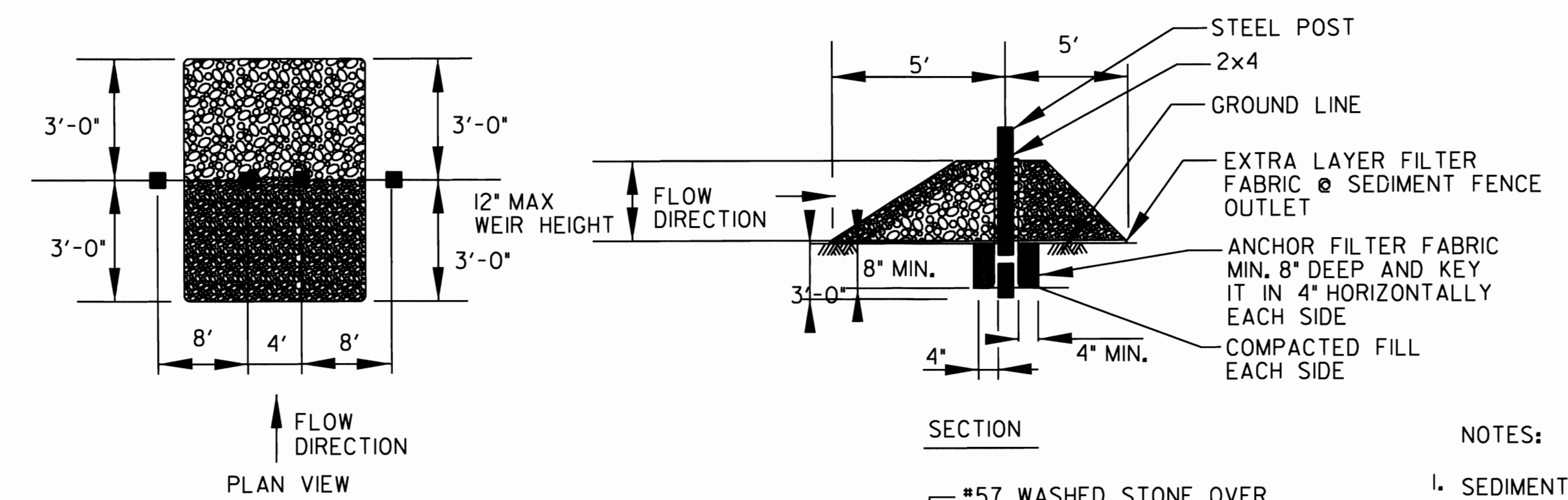
CONSTRUCTION SPECIFICATIONS

1. ENSURE THAT THE SUBGRADE FOR THE FILTER AND RIP RAP FOLLOWS THE REQUIRED LINES AND GRADES SHOWN IN THE PLAN. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO THE DENSITY OF THE SURROUNDING UNDISTURBED MATERIAL. LOW AREAS IN THE SUBGRADE ON UNDISTURBED SOIL MAY ALSO BE FILLED BY INCREASING THE RIP RAP THICKNESS.
2. THE RIP RAP AND GRAVEL FILTER SHALL CONFORM TO THE SPECIFIED GRADING LIMITS SHOWN ON THE PLANS.
3. FILTER CLOTH, WHEN USED, SHALL MEET DESIGN REQUIREMENTS AND BE PROPERLY PROTECTED FROM PUNCHING OR TEARING DURING INSTALLATION. REPAIR AND DAMAGE BY REMOVING THE RIP RAP AND PLACING ANOTHER PIECE OF FILTER CLOTH OVER THE DAMAGED AREA. ALL CONNECTING JOINTS SHALL OVERLAP SO THE TOP LAYER IS ABOVE THE DOWNSTREAM LAYER A MINIMUM OF 1FOOT. IF THE DAMAGE IS EXTENSIVE, REPLACE THE ENTIRE FILTER CLOTH.
4. RIP RAP MAY BE PLACED BY EQUIPMENT, BUT TAKE CARE TO AVOID DAMAGING THE FILTER.
5. THE MINIMUM THICKNESS OF THE RIP RAP SHOULD BE 1.5 TIMES THE MAXIMUM STONE DIAMETER.
6. RIP RAP MAY BE FIELD STONE OR ROUGH QUARRY STONE. IT SHOULD BE HARD, ANGULAR, HIGHLY WEATHER- RESISTANT AND WELL GRADED.
7. CONSTRUCT THE APRON ON ZERO GRADE WITH NO OVERFILL AT THE END. MAKE THE TOP OF THE RIP RAP AT THE DOWNSTREAM END LEVEL WITH THE RECEIVING AREA OR SLIGHTLY BELOW IT.
8. ENSURE THAT THE APRON IS PROPERLY ALIGNED WITH THE RECEIVING STREAM AND PREFERABLY STRAIGHT THROUGHOUT ITS LENGTH. IF A CURVE IS NEEDED TO FIT THE SITE CONDITIONS, PLACE IT IN THE UPPER SECTION OF THE APRON.
9. IMMEDIATELY AFTER CONSTRUCTION, STABILIZE ALL DISTURBED AREAS WITH VEGETATION.

MAINTENANCE

INSPECT RIP RAP OUTLET STRUCTURES WEEKLY AND AFTER SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENTS TO SEE IF ANY EROSION AROUND OR BELOW THE RIP RAP HAS TAKEN PLACE, OR IF STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.

1 RIP RAP OUTLET PROTECTION
CG101 C-504 N.T.S.



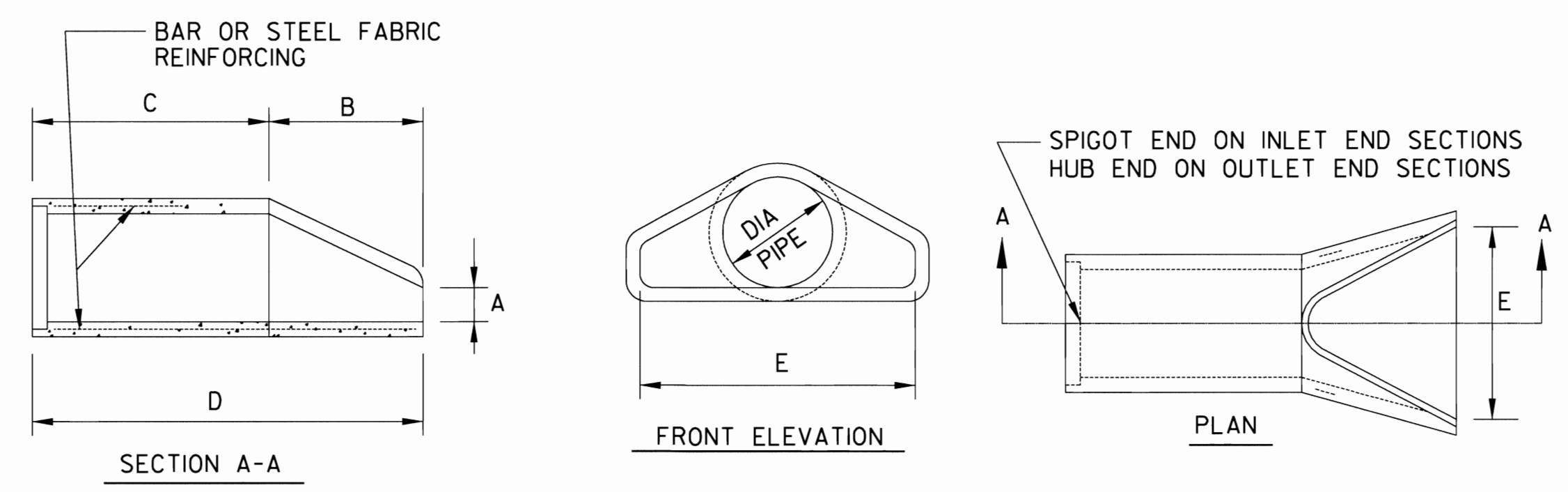
NOTES:

1. SEDIMENT FENCE SHALL BE INSTALLED OUTSIDE TOE OF EARTHFILL EMBANKMENTS.
2. WIRE SHALL BE A MINIMUM OF 32" IN WIDTH AND SHALL HAVE A MIN. OF 6 LINE WIRES WITH 12" STAY SPACING.
3. FILTER FABRIC SHALL BE A MINIMUM OF 36" IN WIDTH AND SHALL BE FASTENED SECURELY TO THE WIRE.
4. THE FILTER FABRIC SHALL MEET THE FOLLOWING REQUIREMENTS:
A) EOS IS NOT LARGER THAN U.S. STANDARD SIEVE NO. 70
B) GRAB STRENGTH 90-120 LB
C) CONFORM TO ASTM D-1682 OR ASTM D-177
5. STEEL POSTS SHALL BE 6'-0" IN HEIGHT AND BE OF SELF-FASTENER ANGLE STEEL TYPE.

MAINTENANCE:

1. CONTRACTOR REPLACE STONE AS NEEDED TO ENSURE DEWATERING.
2. SEDIMENT MUST BE REMOVED WHEN HALF OF STONE OUTLET IS COVERED.
3. ANY SEDIMENT FENCING WHICH HAS BEEN UNDERMINED OR TOPPED MUST BE REPLACED IMMEDIATELY.

2 SEDIMENT FENCE OUTLET DETAIL
CG101 C-504 N.T.S.



END SECTION DIMENSIONS					
DIA	A	B	C	D	E
12"	4"	2'-0"	2'-0"	4'-0"	2'-0"
15"	6"	2'-3"	1'-9"	4'-0"	2'-6"
18"	9"	2'-3"	1'-9"	4'-0"	3'-0"
24"	9 1/2"	3'-7"	2'-6"	6'-1"	4'-0"
30"	1'-0"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"
36"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	6'-0"
42"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"
48"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"
54"	2'-3"	5'-5"	2'-9 1/4"	8'-2 1/4"	7'-6"
60"	2'-11"	5'-0"	3'-3"	8'-3"	8'-0"

3 FLARED END SECTION CONCRETE PIPE DETAIL
CG101 C-504 N.T.S.

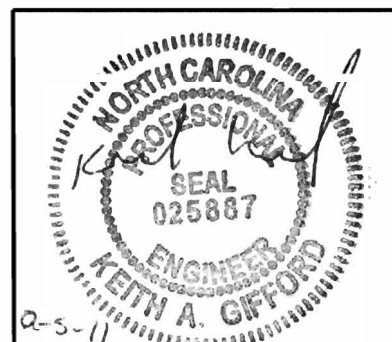


SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: KAG	DATE: 5 AUGUST 2011
OWN BY: DRJ	SOLICITATION NO.: TBD
SUBMITTED BY: K. GIFFORD	CONTRACT NO.: TBD
FILE NAME: BC2C-504	CATEGORY CODE: 214-10-22
SIZE: D	PLOT DATE: 5 AUGUST 2011
SCALE: AS SHOWN	

U.S. ARMY ENGINEER DISTRICT
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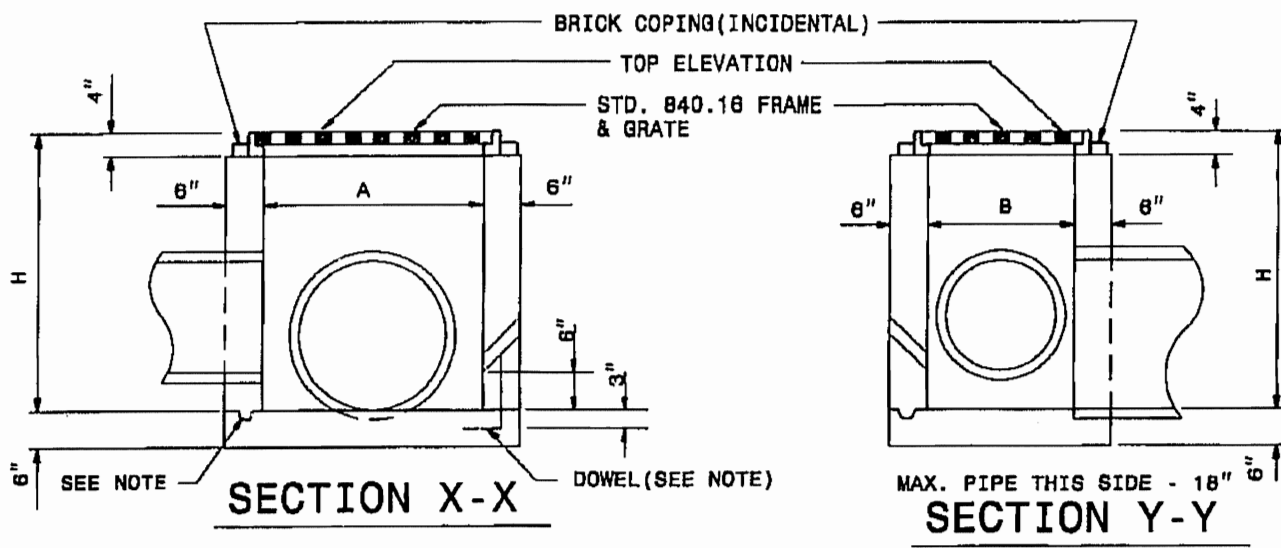
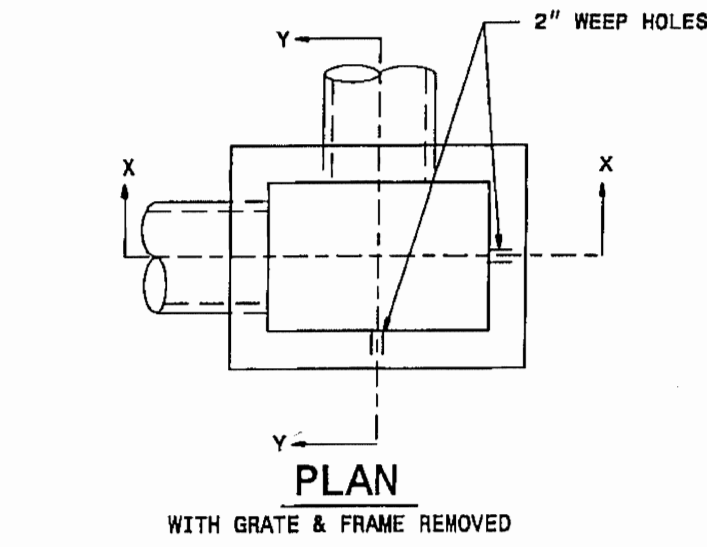
PLATE REFERENCE NUMBER
C-504
SHEET 16



STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
CONCRETE DROP INLET
12" THRU 30" PIPE

SHEET 1 OF 1
840.14



DIMENSIONS AND QUANTITIES FOR DROP INLET (BASED ON MIN. HEIGHT, H)									
DIMENSIONS OF BOX & PIPE				CUBIC YARDS CONC. IN BOX		DEDUCTIONS FOR ONE PIPE			
PIPE	SPAN	WIDTH	MIN. HEIGHT	BOTTOM SLAB	WALL PER FT. HT.	PER. PER FT. HT.	C.M.	R.G.	
12"	3'-0"	2'-0"	2'-0"	0.222	0.222	0.592	0.015	0.026	
15"	3'-0"	2'-3"	2'-3"			0.648	0.023	0.038	
18"	3'-0"	2'-6"	2'-6"			0.708	0.033	0.049	
24"	3'-0"	3'-0"	3'-0"			0.814	0.059	0.085	
30"	3'-0"	3'-6"	3'-6"	0.222	0.222	0.925	0.092	0.127	

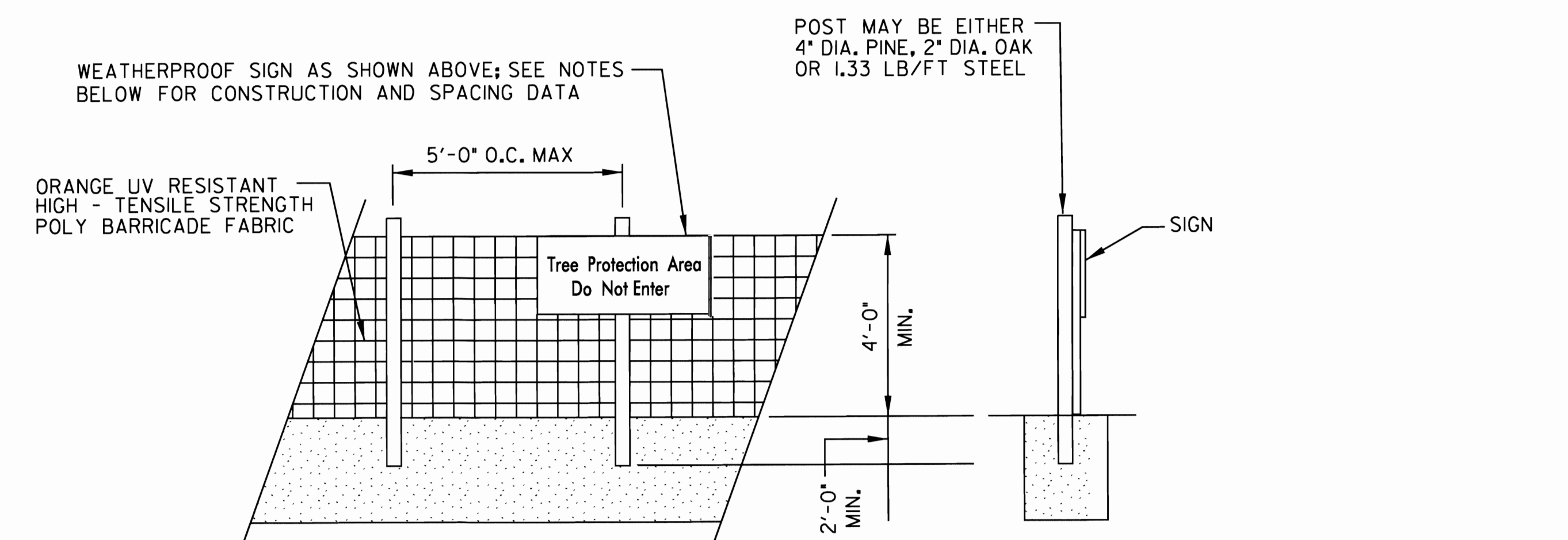
GENERAL NOTES:
USE CLASS "B" CONCRETE THROUGHOUT.
PROVIDE ALL DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.09.
OPTIONAL CONSTRUCTION - MONOLITHIC POUR 2" KEYWAY OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
CONSTRUCT WITH PIPE CROWNS MATCHING.
INSTALL 2" WEEP HOLES AS DIRECTED BY THE ENGINEER.
INSTALL STONE DRAINS, OF A MINIMUM OF 1 CUBIC FOOT OF NO. 7MM STONE IN A POROUS FABRIC BAG OR WRAP, AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.
CHAMFER ALL EXPOSED CORNERS 1".
DRAWING NOT TO SCALE.

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ENGLISH STANDARD DRAWING FOR
CONCRETE DROP INLET
12" THRU 30" PIPE

SHEET 1 OF 1
840.14

1 CONCRETE DROP INLET (NCDOT 840.14)
CG101 C-505 N.T.S.



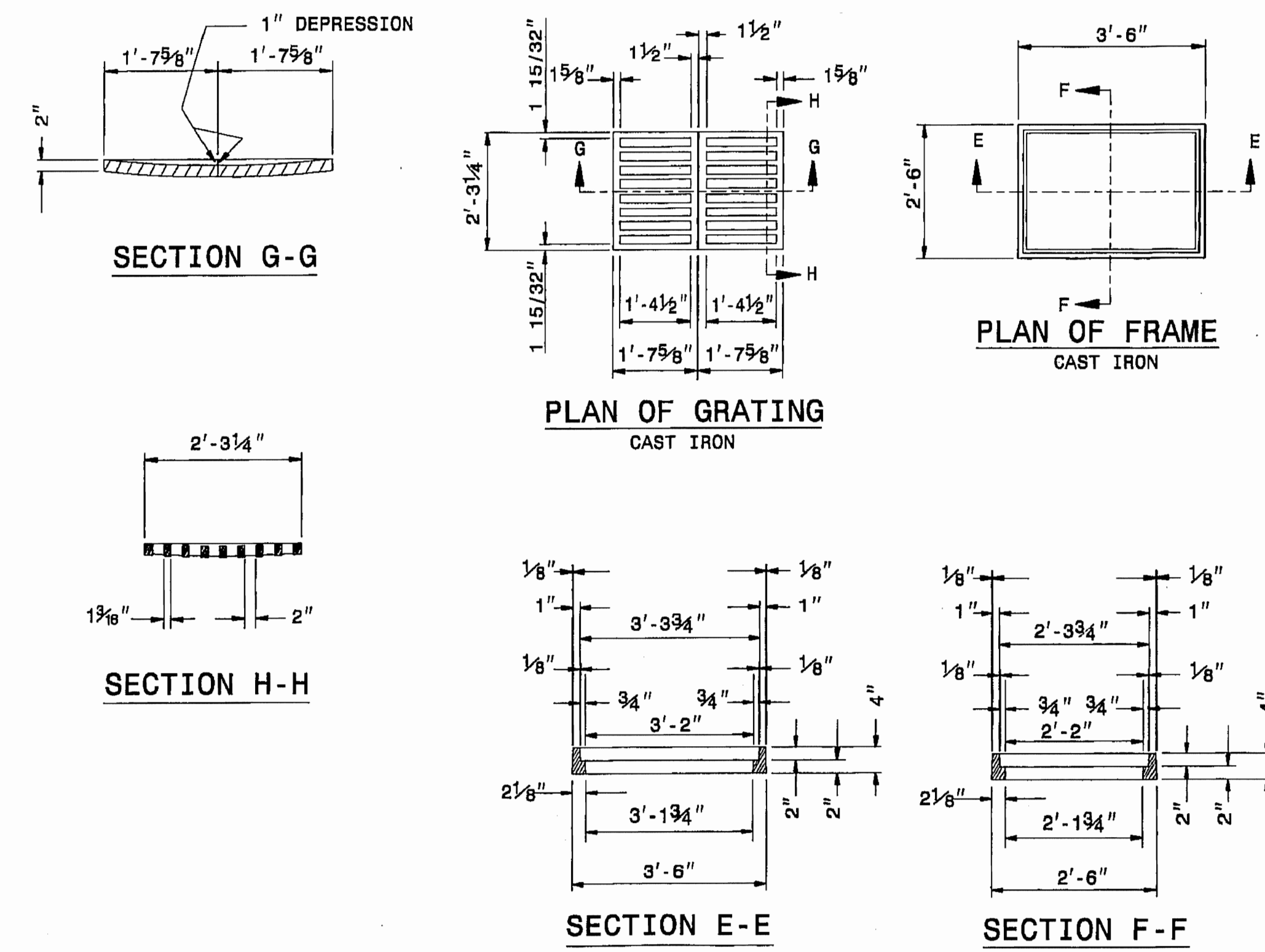
- NOTES:
- LETTERS ARE TO BE 3" HIGH MINIMUM, CLEARLY LEGIBLE AND SPACED AS DETAILED.
 - SIGNS ARE TO BE PLACED NO GREATER THAN 200' ON CENTER.
 - PLACE SIGN AT EACH END OF LINEAR TREE PROTECTION AREA AND 200' ON CENTER THEREAFTER.
 - FOR TREE PROTECTION AREAS LESS THAN 200' IN PERIMETER, PROVIDE NO LESS THAN ONE SIGN PER PROTECTION AREA.
 - ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC.
 - MAINTAIN TREE PROTECTION FENCE THROUGHOUT DURATION OF PROJECT.
 - REMOVE TREE PROTECTION WHEN FINAL SITE STABILIZATION IS ACHIEVED AS DETERMINED BY WATER MANAGEMENT BRANCH (WMB).

3 TREE PROTECTION FENCE DETAIL
CG101 C-505 N.T.S.

STATE OF NORTH CAROLINA
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DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
DROP INLET FRAME AND GRATE
FOR USE WITH STD. DWG.S 840.14 AND 840.15

SHEET 1 OF 1
840.16



STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
DROP INLET FRAME AND GRATE
FOR USE WITH STD. DWG.S 840.14 AND 840.15

SHEET 1 OF 1
840.16

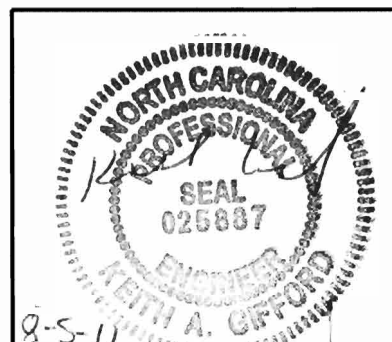
2 CONCRETE DROP INLET FRAME AND GRATE (NCDOT 840.16)
CG101 C-505 N.T.S.

EROSION AND SEDIMENTATION CONTROL NOTES

- CONTRACTOR TO GRADE SITE TO ALLOW POSITIVE DRAINAGE TO PREVENT PONDING.
- AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENTATION CONTROLS MUST BE REMOVED. AREAS DISTURBED DURING REMOVAL OF THE CONTROLS MUST BE STABILIZED.
- UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENTATION CONTROLS MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENTATION CONTROLS AFTER EACH STORM EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING, AND RENETTING MUST BE PERFORMED IMMEDIATELY.
- THE CONTRACTOR WILL BE RESPONSIBLE FOR THE PROPER CONSTRUCTION, STABILIZATION, AND MAINTENANCE OF ALL EROSION AND SEDIMENTATION CONTROLS AND RELATED ITEMS INCLUDED ON THIS PLAN AND PER NCDENR STANDARDS AND REQUIREMENTS.
- SHOULD ANY MEASURES CONTAINED WITHIN THIS PLAN PROVE INCAPABLE OF ADEQUATELY REMOVING SEDIMENT FROM ON-SITE FLOWS PRIOR TO DISCHARGE OR OF STABILIZING THE SURFACES INVOLVED, ADDITIONAL MEASURES MUST BE IMMEDIATELY IMPLEMENTED BY THE CONTRACTOR TO ELIMINATE ALL SUCH PROBLEMS.
- IF UNFORESEEN EROSION CONDITIONS DEVELOP DURING CONSTRUCTION, THE CONTRACTOR MUST TAKE ACTION TO REMEDY SUCH CONDITIONS AND TO PREVENT DAMAGE TO ADJACENT PROPERTIES AS A RESULT OF INCREASED RUNOFF AND/OR SEDIMENT DISPLACEMENT.
- ALL SOD/GRASS SURFACED AREAS DISTURBED BY CONTRACTOR SHALL BE REGRADED TO PROPERLY DRAIN. CONTRACTOR SHALL RESTORE AREAS WITH TOPSOIL AND SEED IN ACCORDANCE WITH SPECIFICATION SECTION 32 92 19 AND DETAIL ON SHEET C-501.
- THE CONTRACTOR WILL PROVIDE A GROUND COVER (TEMPORARY OR PERMANENT) ON EXPOSED SLOPES WITHIN 21 CALENDAR DAYS FOLLOWING COMPLETION OF ANY PHASE OF GRADING, PERMANENT GROUND COVER FOR ALL DISTURBED AREA WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT.

CONSTRUCTION SEQUENCE

- OBTAIN UTILITY CLEARANCE/DIGGING PERMIT.
- INSTALL CONSTRUCTION ENTRANCE, SEDIMENT FENCE, SEDIMENT FENCE OUTLET, AND HARDWARE CLOTH INLET PROTECTION AS SHOWN ON THIS SHEET.
- CALL CONTRACTING OFFICER FOR ONSITE INSPECTION BY PROJECT INSPECTOR. IF APPROVED, BEGIN DEMOLITION.
- MAINTAIN DEVICES AS NEEDED PER NCDENR MAINTENANCE INSTRUCTIONS.
- FOLLOW TEMPORARY SEEDING INSTRUCTION AS CONSTRUCTION PROGRESSES.
- STABILIZE SITE AS AREAS ARE BROUGHT UP TO FINISHED GRADE WITH CONCRETE PADS, ETC.
- WHEN CONSTRUCTION IS COMPLETE AND ALL AREAS ARE STABILIZED COMPLETELY. ARRANGE FOR INSPECTION BY WMB.
- IF SITE IS APPROVED, REMOVE EROSION AND SEDIMENTATION MEASURES. SEED RESULTING BARE AREAS.



U.S. ARMY CORPS OF ENGINEERS WILMINGTON

DESIGNED BY: KAG
OWN BY: DRJ
SUBMITTED BY: K. GIFFORD
FILE NAME: BZC-505
SIZE: D

DATE: 5 AUGUST 2011
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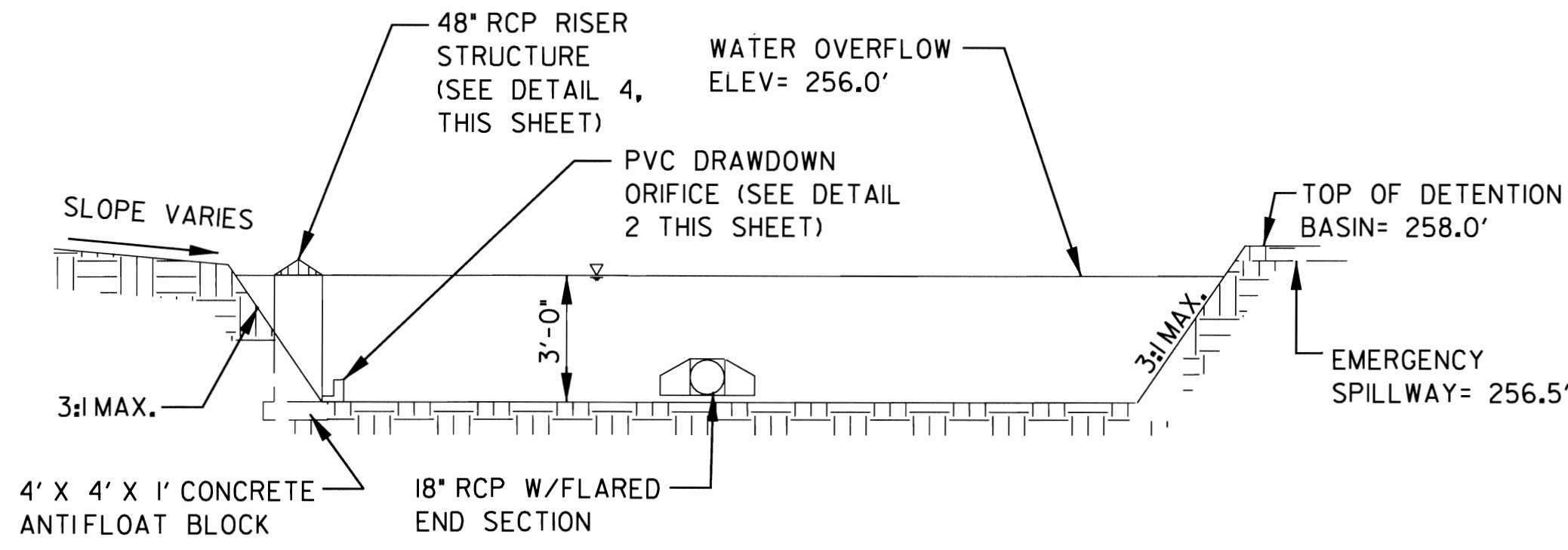
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS WILMINGTON DISTRICT
GREENHORNE & O'MARA CONSULTING ENGINEERS
1000 N. WILSON ROAD, SUITE 1000 WILMINGTON, NC 28403

JSOC SOF FACILITY MOTOR POOL ADDITION - SOLSE FORT BRAGG, NORTH CAROLINA

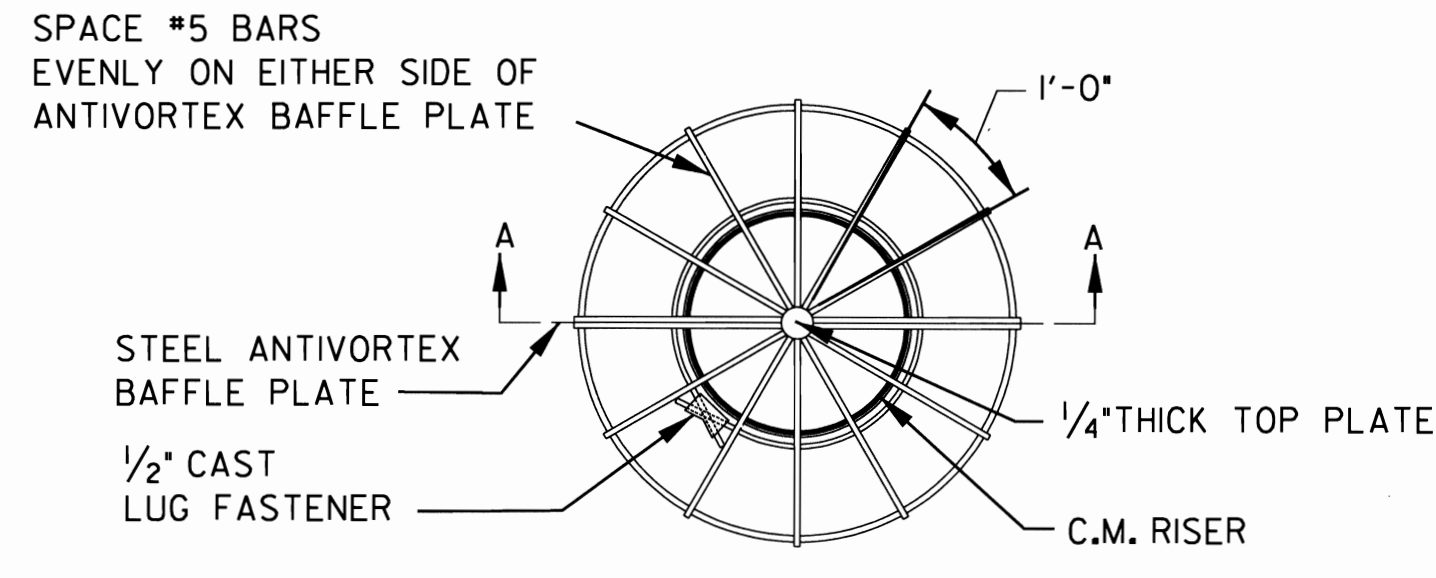
EROSION CONTROL DETAILS AND CONSTRUCTION SEQUENCE

PLATE REFERENCE NUMBER C-505 SHEET 17

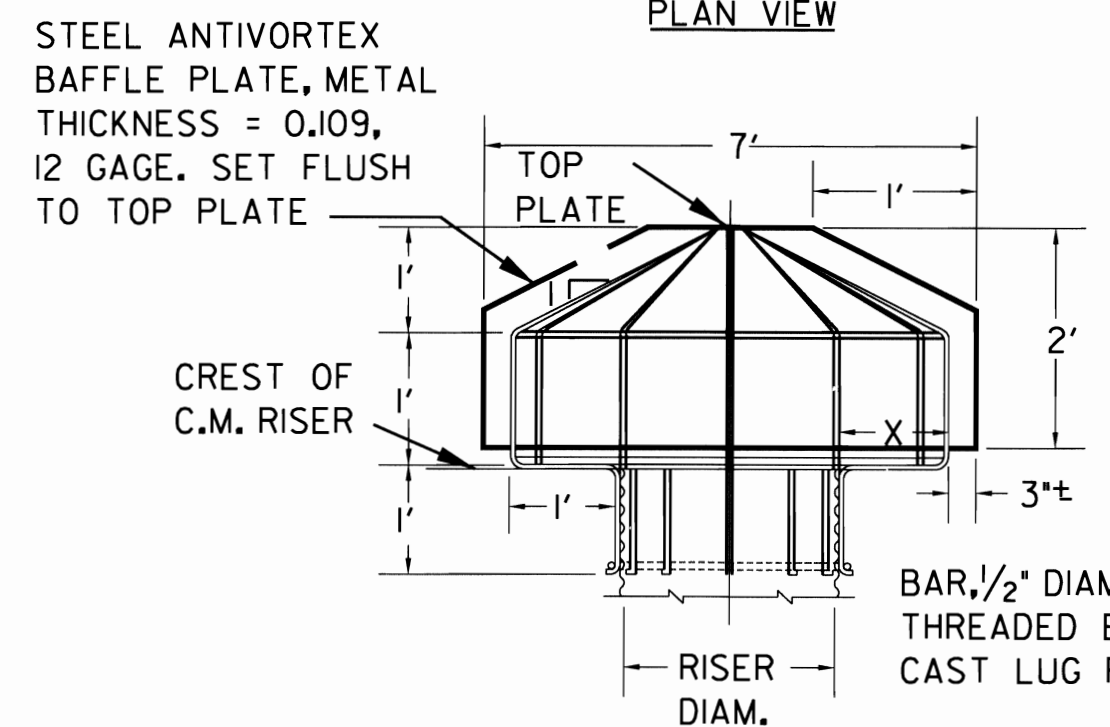
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1 DRY DETENTION BASIN (SECTION A-A)
CG101 C-507 N.T.S.



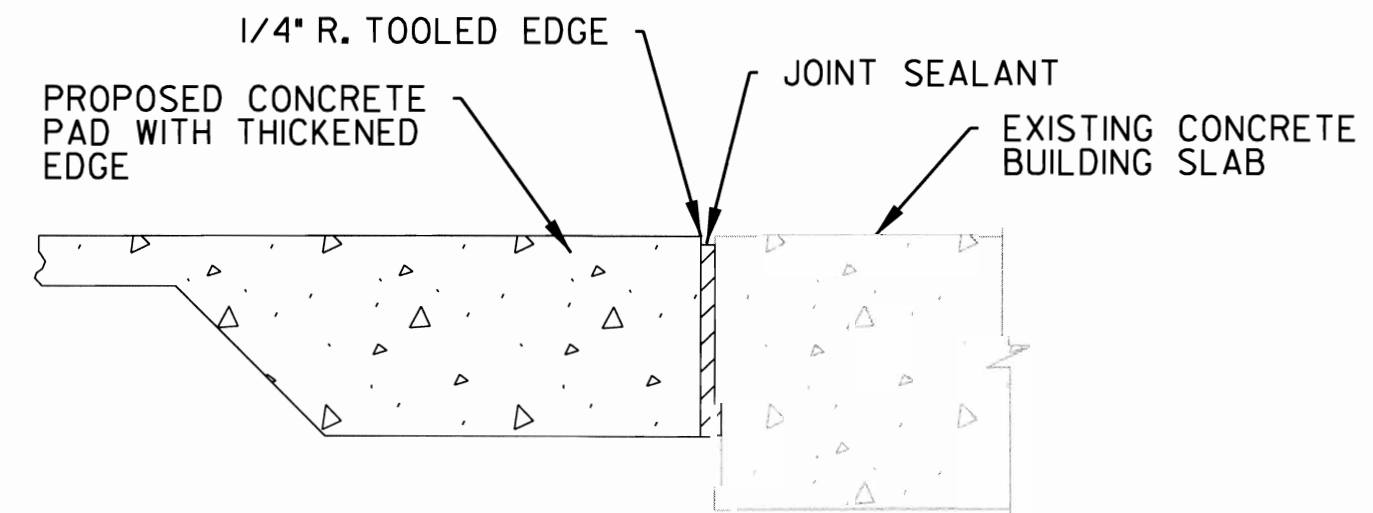
PLAN VIEW



SECTION A-A

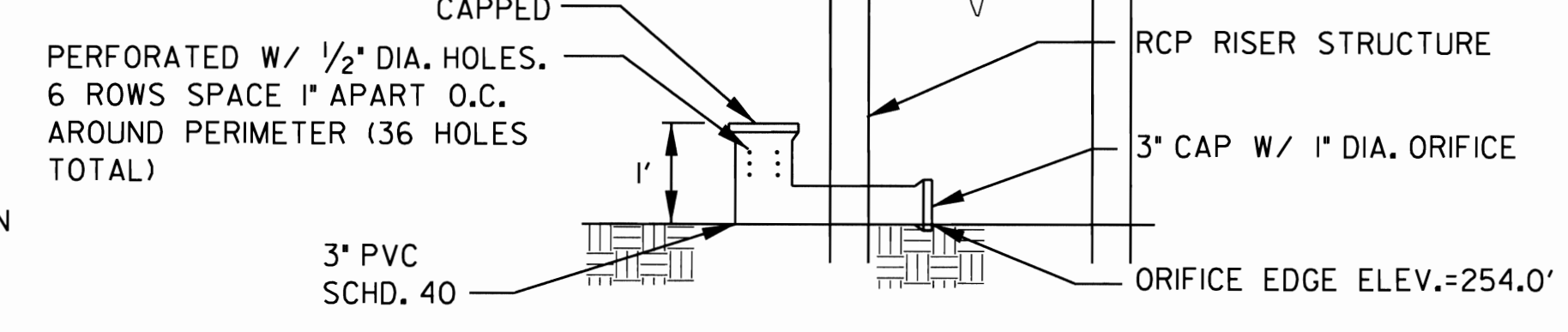
ALL BARS FORMING CONICAL TRASH RACK ARE MARK © BARS, UNLESS OTHERWISE NOTED.

3 METAL TRASH RACK AND BAFFLE PLATE DETAIL
C-507 C-507 N.T.S.

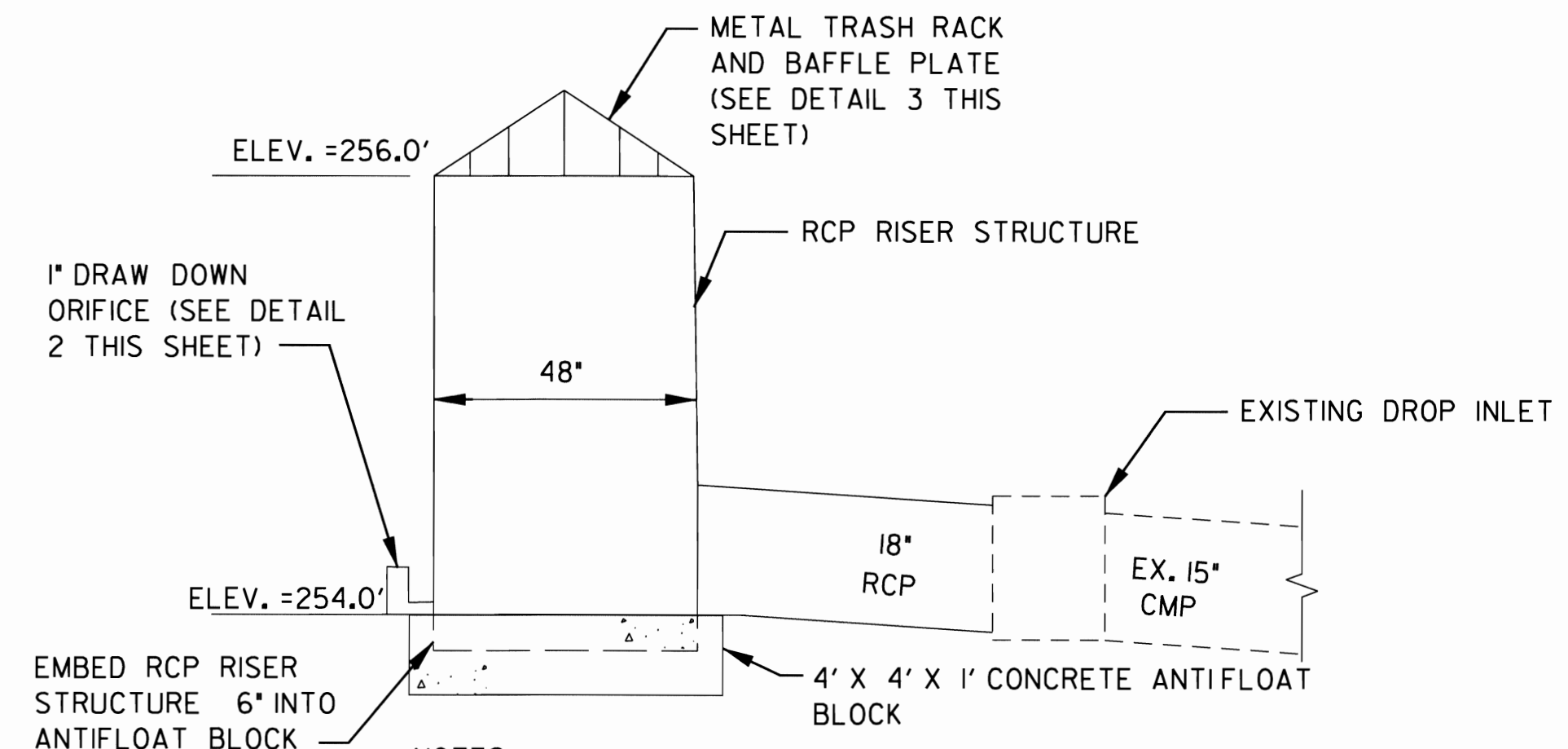


EXPANSION JOINT REQUIRED BETWEEN ADJOINING RIGID FEATURES (I.E. CONC. PAD TO BUILDING SLAB)

6 EXPANSION JOINT (EXP) @ BUILDING
CS101 C-507 N.T.S.

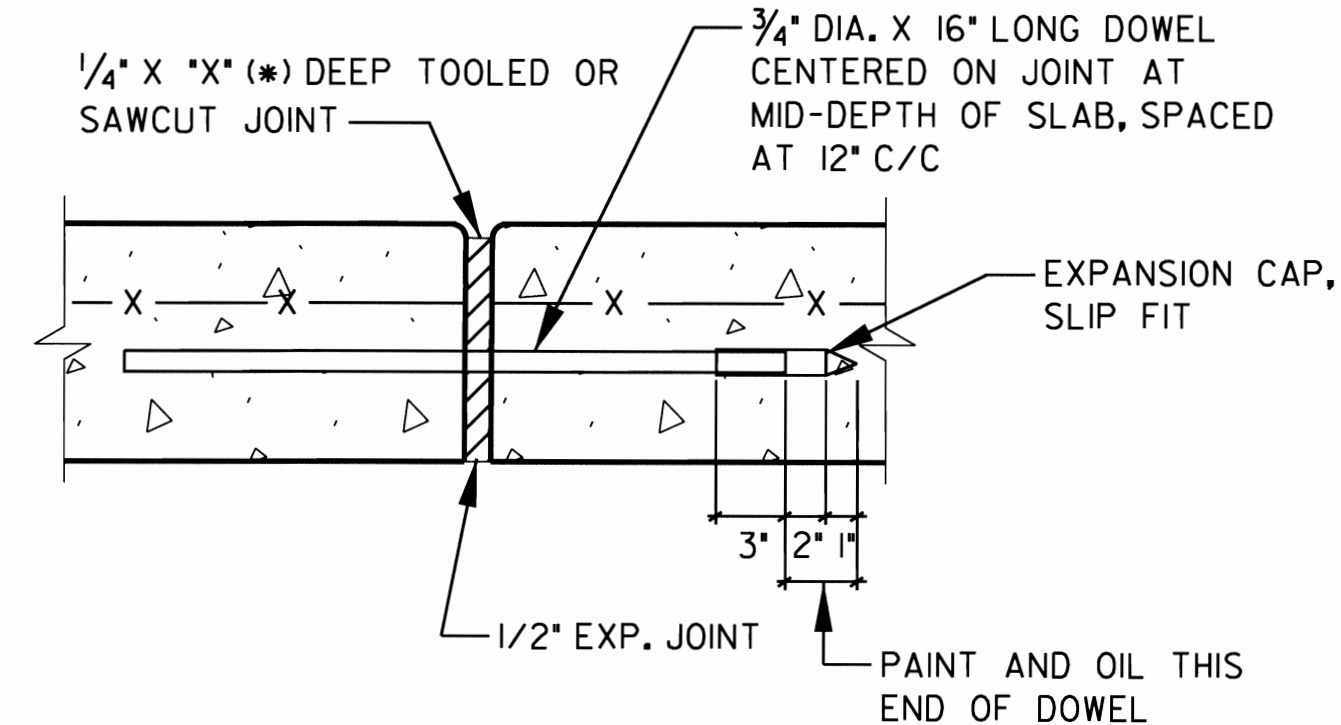


2 DRAW DOWN ORIFICE
C-507 C-507 N.T.S.



NOTES:
1. GROUT INVERT OF RISER TO MATCH PIPE INVERT.
2. PIPE JOINT TO BE MADE WATER PROOF. (REFER TO SPEC SECTION 33 40 00 FOR WATER TIGHT JOINTS)

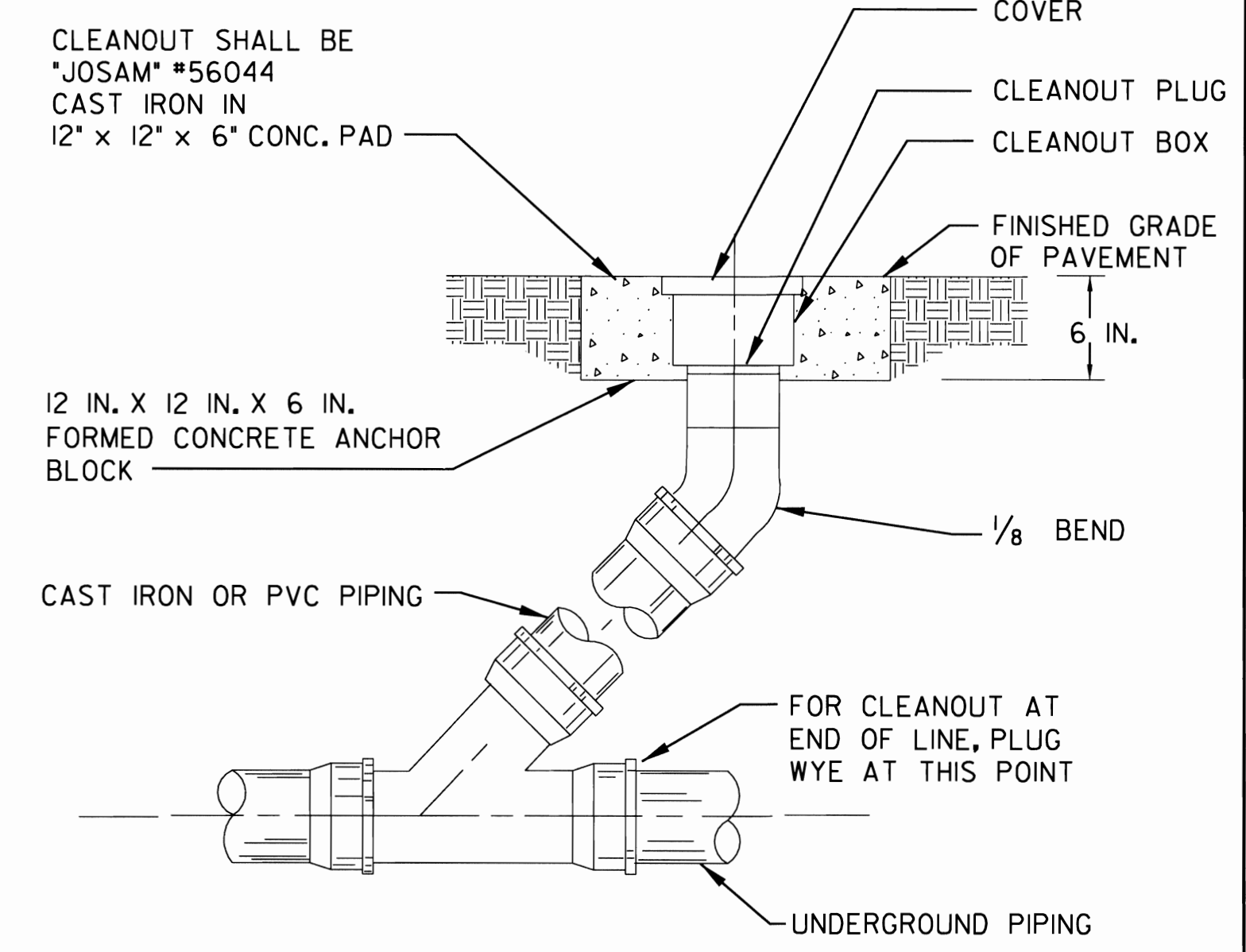
4 DETENTION BASIN OUTLET STRUCTURE
CG101 C-507 N.T.S.



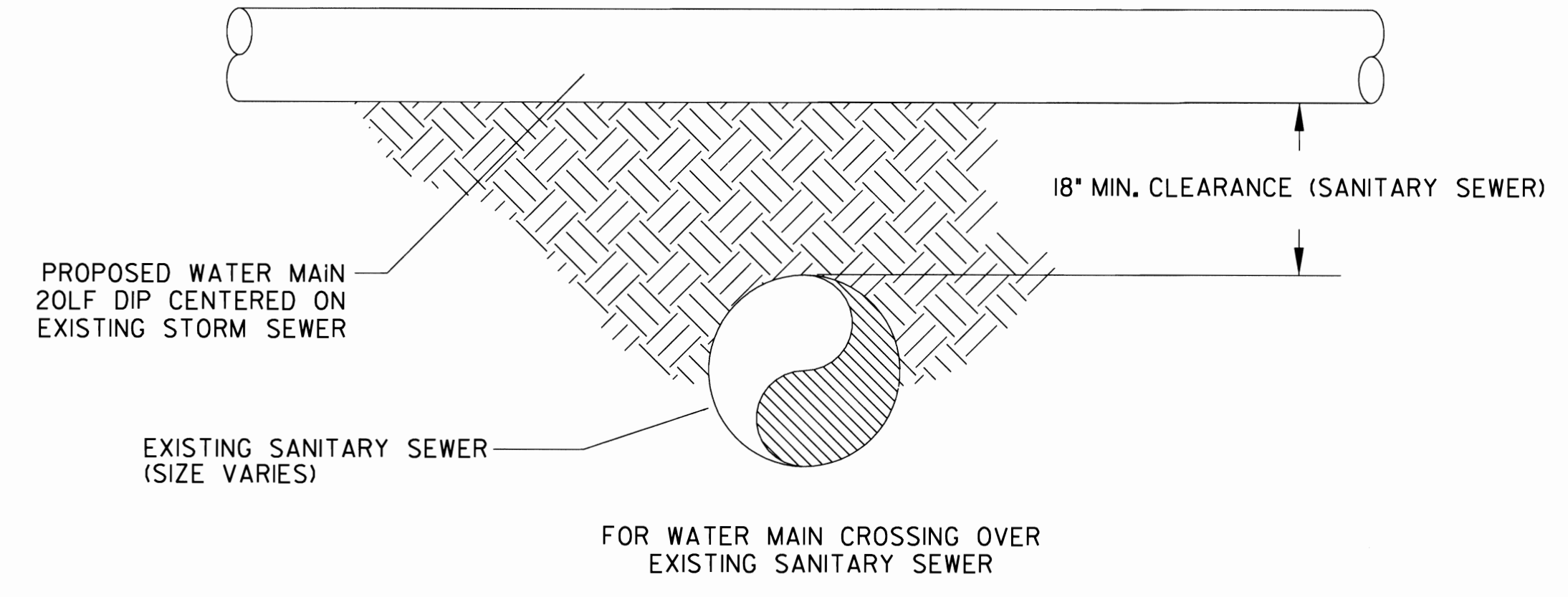
*-X DENOTES 1/4 X DEPTH OF SLAB

7 EXPANSION JOINT (EXP) @ BETWEEN SLABS
CS101 C-507 N.T.S.

EXPANSION JOINT REQUIRED BETWEEN ADJOINING RIGID FEATURES (I.E. CONC. PAD TO CONC. PAD)

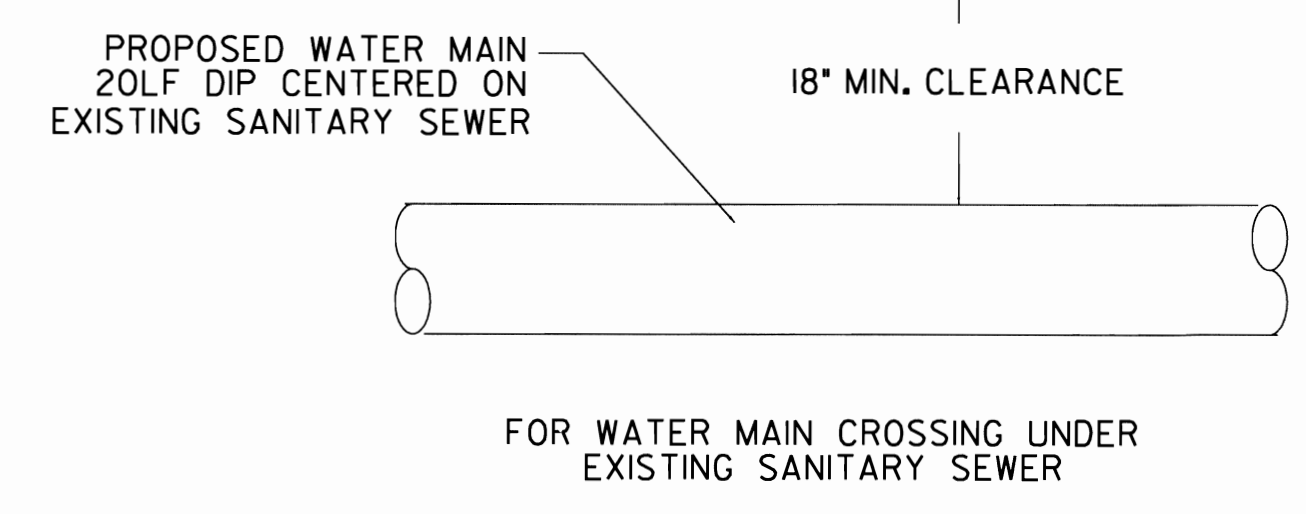


5 SANITARY CLEANOUT DETAIL
CS101 C-507 N.T.S.



NOTES:

1. WATERLINE SHALL BE DUCTILE IRON PIPE AT ALL AREAS WHERE MINIMUM CLEARANCE CANNOT BE OBTAINED AND WHEN CROSSING UNDER SANITARY SEWER.
2. WATER / SANITARY SEWER LINE CROSSINGS SHALL BE INSTALLED ACCORDING TO TITLE 15A NORTH CAROLINA ADMINISTRATIVE CODE, SUBCHAPTER 18C, SECTION 0.0906 RELATIONS OF WATERMANS TO SEWERS.



8 PIPE CROSSING DETAIL (SANITARY /WATER)
CS101 C-507 N.T.S.



NO.	DATE	BY	DESCRIPTION

DESIGNED BY: KAG	DATE: 5 AUGUST 2011
DWN BY: KAG	SOLICITATION NO.: TBD
SUBMITTED BY: K. GIFFORD	CONTRACT NO.:
SIZE: D	USD ARMY CODE: 214-10-22
AS SHOWN	PLOT DATE: 5 AUGUST 2011

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USOC SOF FACILITY MOTOR POOL ADDITION - SOLISE
FORT BRAGG, NORTH CAROLINA
SITE CIVIL, UTILITY, AND DETENTION BASIN DETAILS

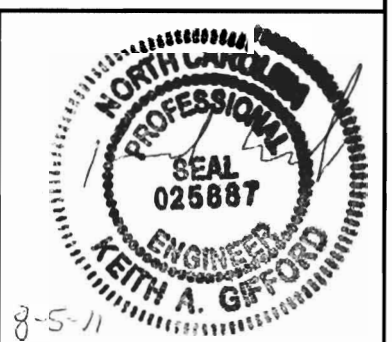


PLATE REFERENCE NUMBER
C-507
SHEET 19

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