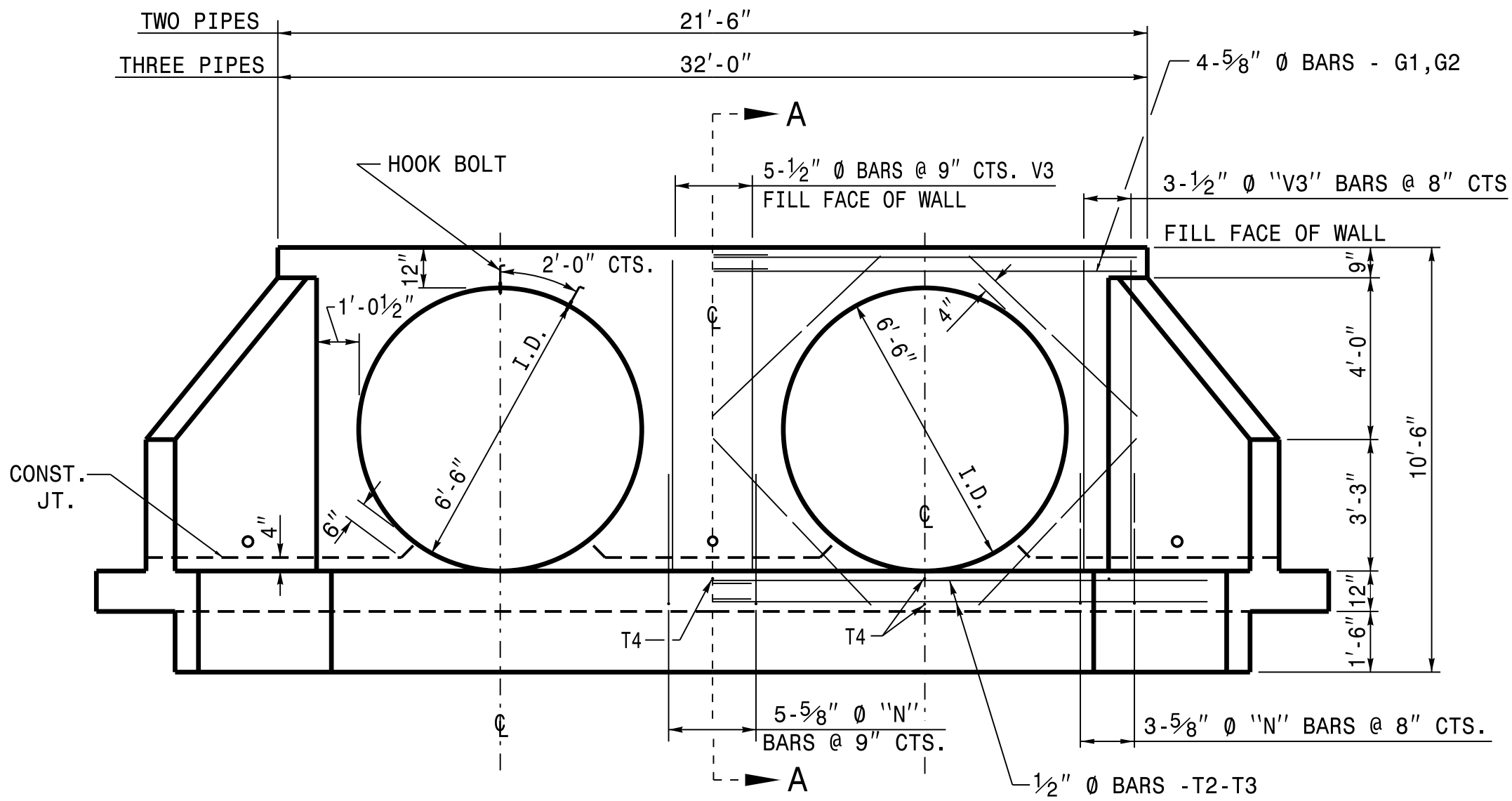
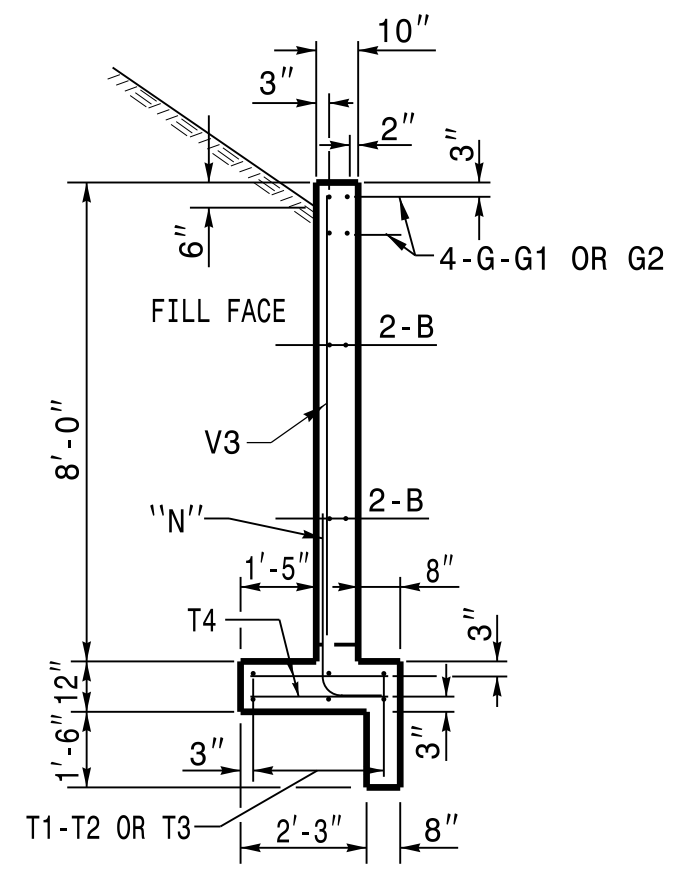


END ELEVATION



END ELEVATION



**SECTION A-A
FOR ALL ENDWALLS**

NOTES:

USE CLASS 'A' CONCRETE.

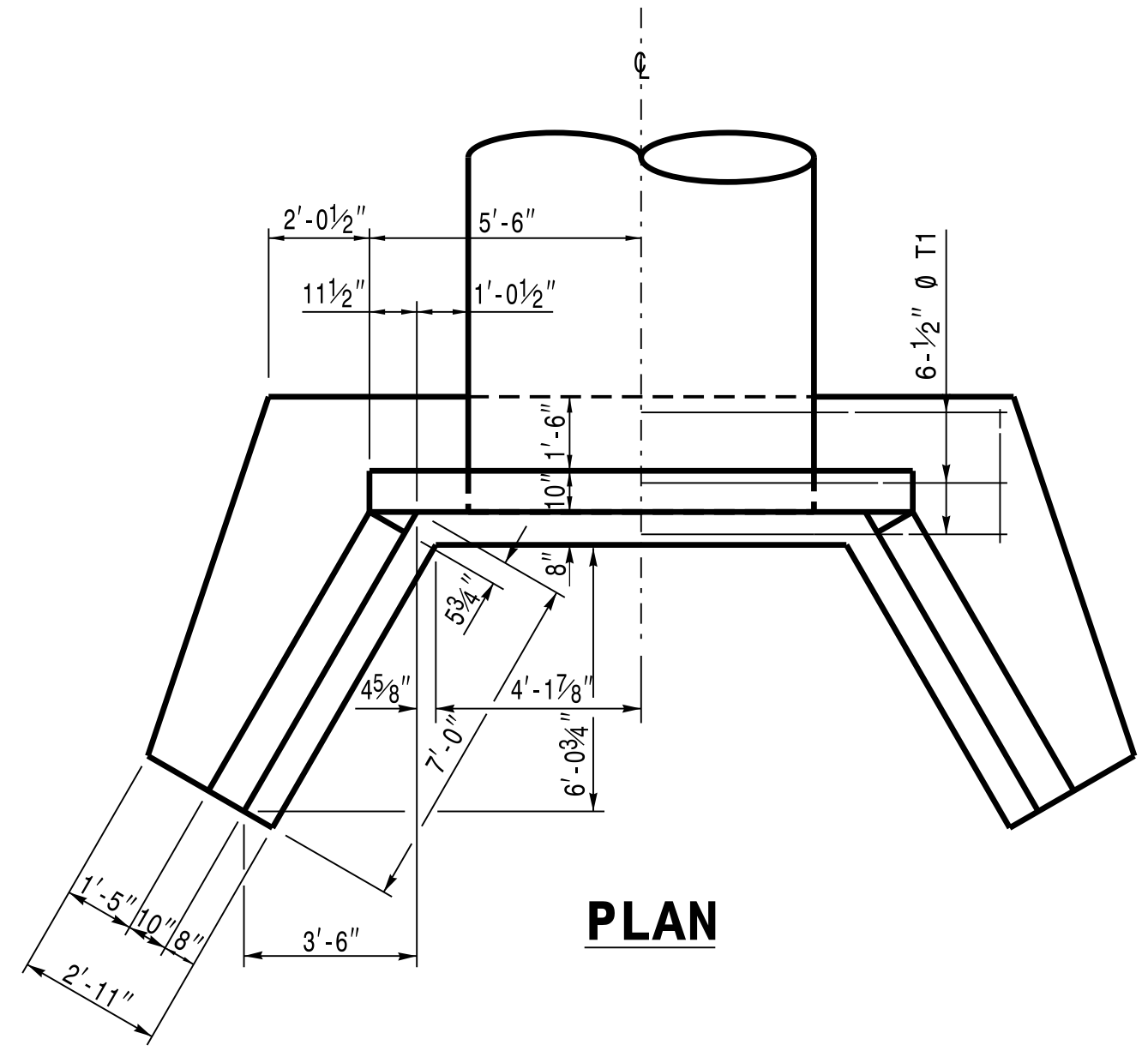
USE ASTM A615-GRADE 60 REINFORCING STEEL.

USE DEFORMED BARS FOR ALL REINFORCING STEEL. WHERE SPLICING OF REINFORCEMENT IS NECESSARY, BARS ARE TO BE LAPPED 45 DIAMETERS. ALL DIMENSIONS RELATIVE TO REINFORCEMENT ARE TO CENTERS OF BARS.

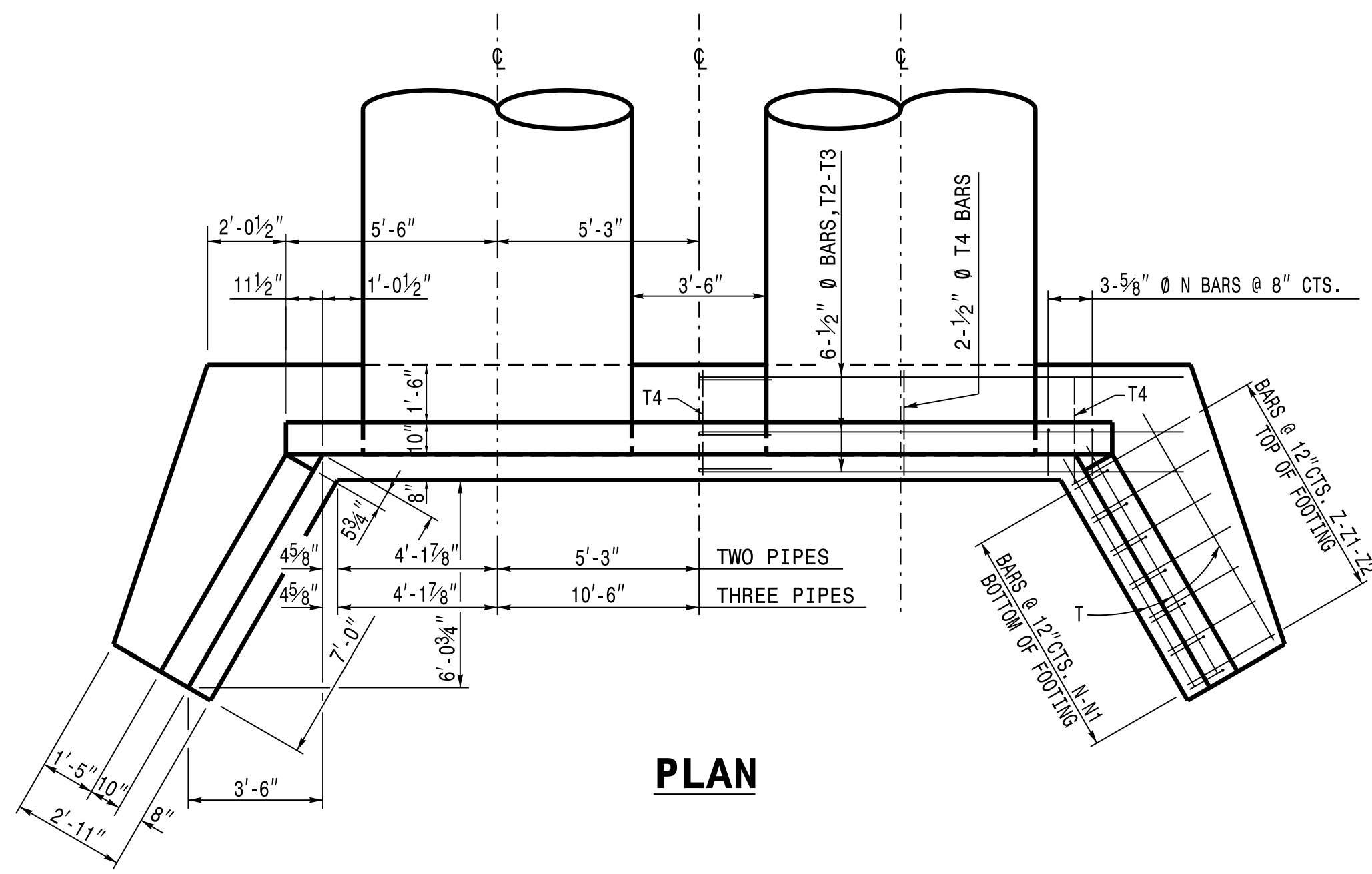
THE FOOTING, CURTAIN WALL AND 4" OF WALL ARE TO BE POURED IN ONE OPERATION ALLOWING NO TIME FOR INITIAL SET TO TAKE PLACE BETWEEN THEM. POUR THE REMAINING WALL IN ONE OPERATION.

CHAMFER ALL EXPOSED CORNERS 1".

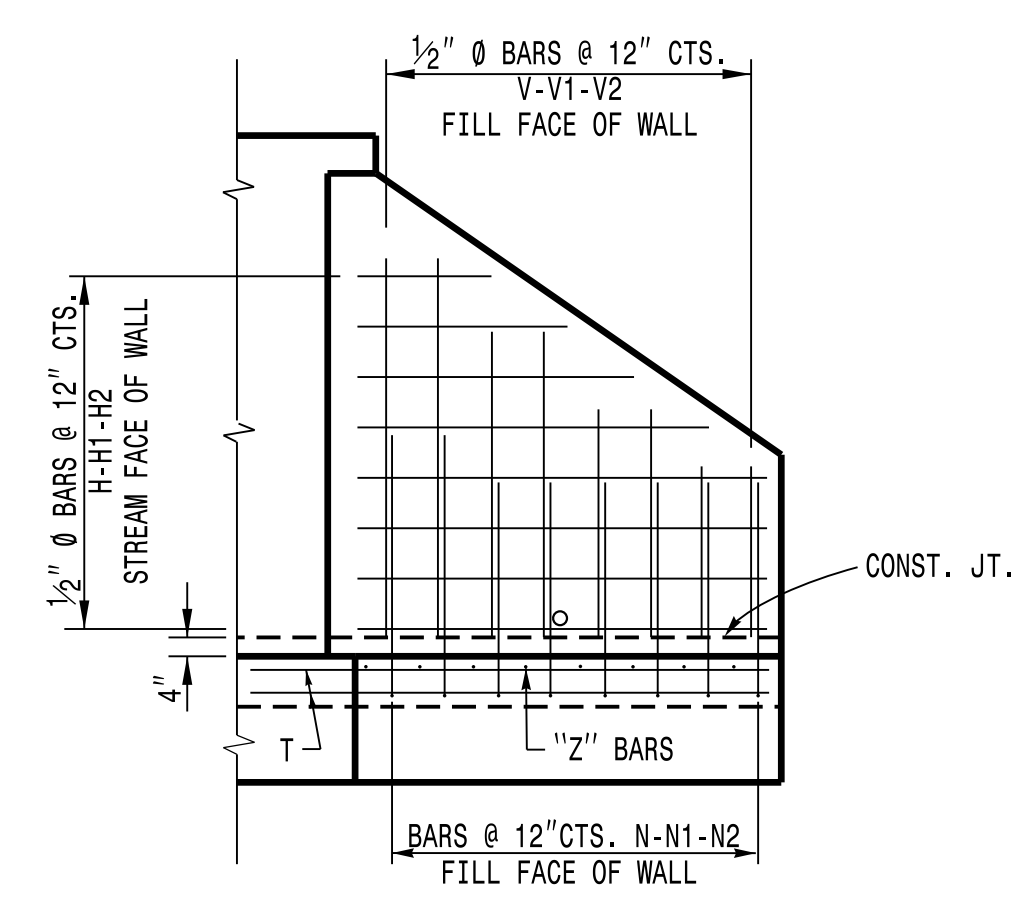
PLACE 3" DIAMETER DRAINS IN WALL AS SHOWN 6" ABOVE NORMAL FLOW LINE.



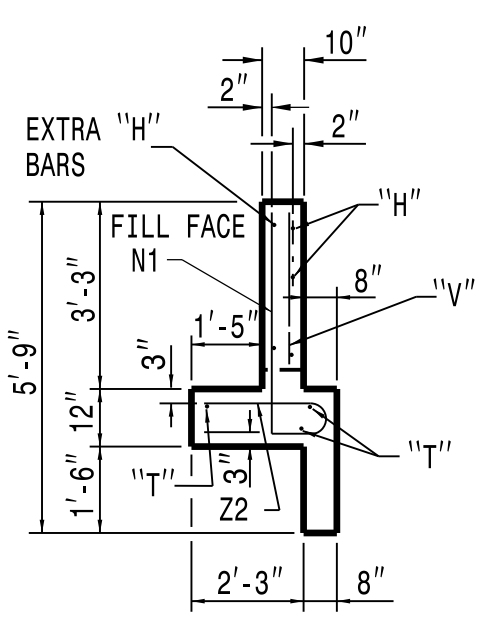
PLAN



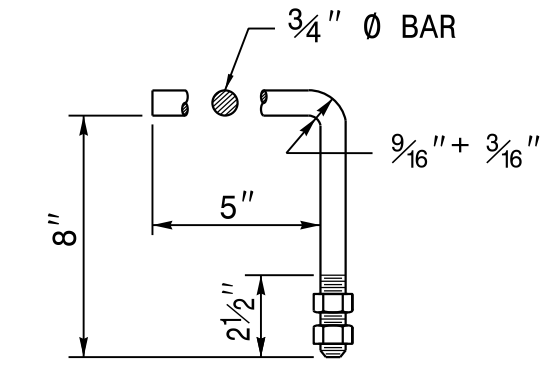
PLAN



**ELEVATION OF WING
SHOWING REINFORCEMENT**

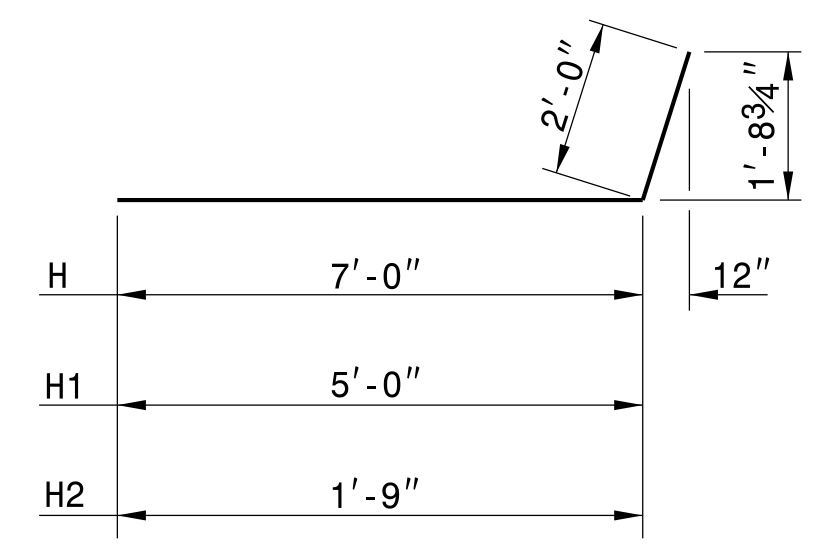


END OF WING

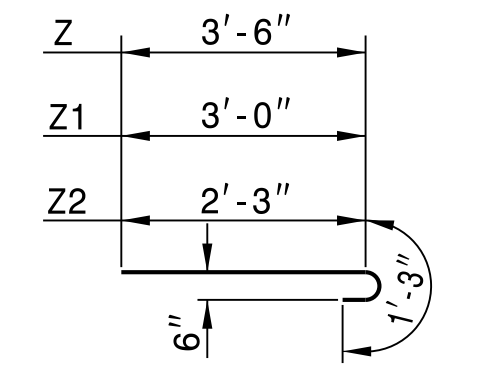


HOOK BOLT

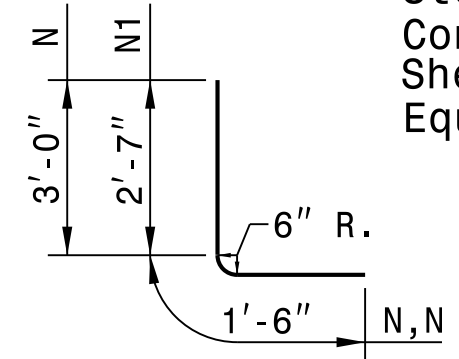
HOOK BOLTS (CONSTRUCT ANCHORS AT 2'-0" CTS. ALONG THE CIRCUMFERENCE OF THE 6'-6" CSP. EMBED THE HOOK BOLTS IN THE CONCRETE ENDWALL 8" IN DEPTH. THE GALVANIZED 3/4" DIA. HOOK BOLTS MUST MEET ASTM A-307 OR ASTM A-836. BOTH BOLTS AND NUTS MUST BE IN ACCORDANCE WITH ASTM A-153 FOR GALVANIZING.



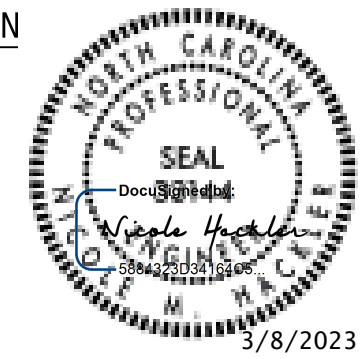
BARS H-H1-H2



BARS Z-Z1-Z2



BARS N-N1



BILL OF MATERIAL FOR ONE ENDWALL

REINFORCING STEEL	1 PIPE	2 PIPES	3 PIPES
BAR #4	NO. 8	NO. 16	NO. 24
WEIGHT	32	64	96
G #5	NO. 4	NO. 8	NO. 8
LENGTH	10'-9"	11'-9"	17'-0"
WEIGHT	45	98	142
H #4	NO. 10	NO. 10	NO. 10
LENGTH	9'-0"	7'-0"	3'-9"
WEIGHT	60	28	10
H1 #4	NO. 6	NO. 6	NO. 6
LENGTH	5'-0"	5'-0"	5'-0"
WEIGHT	28	28	28
H2 #4	NO. 4	NO. 4	NO. 4
LENGTH	1'-9"	1'-9"	1'-9"
WEIGHT	10	10	10
N #5	NO. 10	NO. 15	NO. 20
LENGTH	4'-6"	4'-1"	4'-1"
WEIGHT	47	27	36
N1 #4	NO. 10	NO. 10	NO. 10
LENGTH	4'-1"	4'-1"	4'-1"
WEIGHT	27	27	27
T #4	NO. 6	NO. 6	NO. 6
LENGTH	6'-6"	6'-6"	6'-6"
WEIGHT	26	26	26
T1 #4	NO. 6	NO. 6	NO. 6
LENGTH	15'-0"	15'-0"	15'-0"
WEIGHT	60	60	60
T2 #4	NO. 12	NO. 12	NO. 12
LENGTH	13'-9"	13'-9"	13'-9"
WEIGHT	110	110	110
T3 #4	NO. 4	NO. 4	NO. 4
LENGTH	19'-0"	19'-0"	19'-0"
WEIGHT	12	12	12
T4 #4	NO. 4	NO. 7	NO. 10
LENGTH	2'-9"	2'-9"	2'-9"
WEIGHT	7	13	18
V #4	NO. 6	NO. 6	NO. 6
LENGTH	5'-9"	5'-9"	5'-9"
WEIGHT	23	23	23
V1 #4	NO. 6	NO. 6	NO. 6
LENGTH	4'-6"	4'-6"	4'-6"
WEIGHT	18	18	18
V2 #4	NO. 8	NO. 8	NO. 8
LENGTH	2'-9"	2'-9"	2'-9"
WEIGHT	15	15	15
V3 #4	NO. 6	NO. 11	NO. 16
LENGTH	7'-6"	7'-6"	7'-6"
WEIGHT	30	55	80
Z #5	NO. 4	NO. 4	NO. 4
LENGTH	4'-9"	4'-9"	4'-9"
WEIGHT	20	20	20
Z1 #4	NO. 4	NO. 4	NO. 4
LENGTH	4'-3"	4'-3"	4'-3"
WEIGHT	11	11	11
Z2 #4	NO. 6	NO. 6	NO. 6
LENGTH	3'-6"	3'-6"	3'-6"
WEIGHT	14	14	14
TOTAL REINF. STEEL (lbs.)	473	662	834
CLASS "A" CONC. (cu. yds.)	7.9	10.8	13.8

DESIGN DATA

Specifications A.A.S.H.T.O. (1977)
 Steel in tension 20,000 LBS. PER SQ. IN.
 Concrete in compression 1,200 LBS. PER SQ. IN.
 Shear Class "A" Concrete SEE A.A.S.H.T.O.
 Equiv. fluid pressure of earth 30 LBS. PER CU. FT.

CONTRACT STANDARDS & DEVELOPMENT UNIT
 STANDARDS AND SPECIAL DESIGN
 Office 919-707-6950 FAX 919-250-4119

**DETAIL OF REINFORCED
CONCRETE ENDWALL FOR
78" DIAMETER PIPE - 90° SKEW**

ORIGINAL BY: _____ DATE: _____
 MODIFIED BY: R.E.D.&T.S.S. DATE: 6-96 & 5-00
 CHECKED BY: _____ DATE: _____
 FILE SPEC.: w:details\stand\endwpip84sk90.dgn

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED