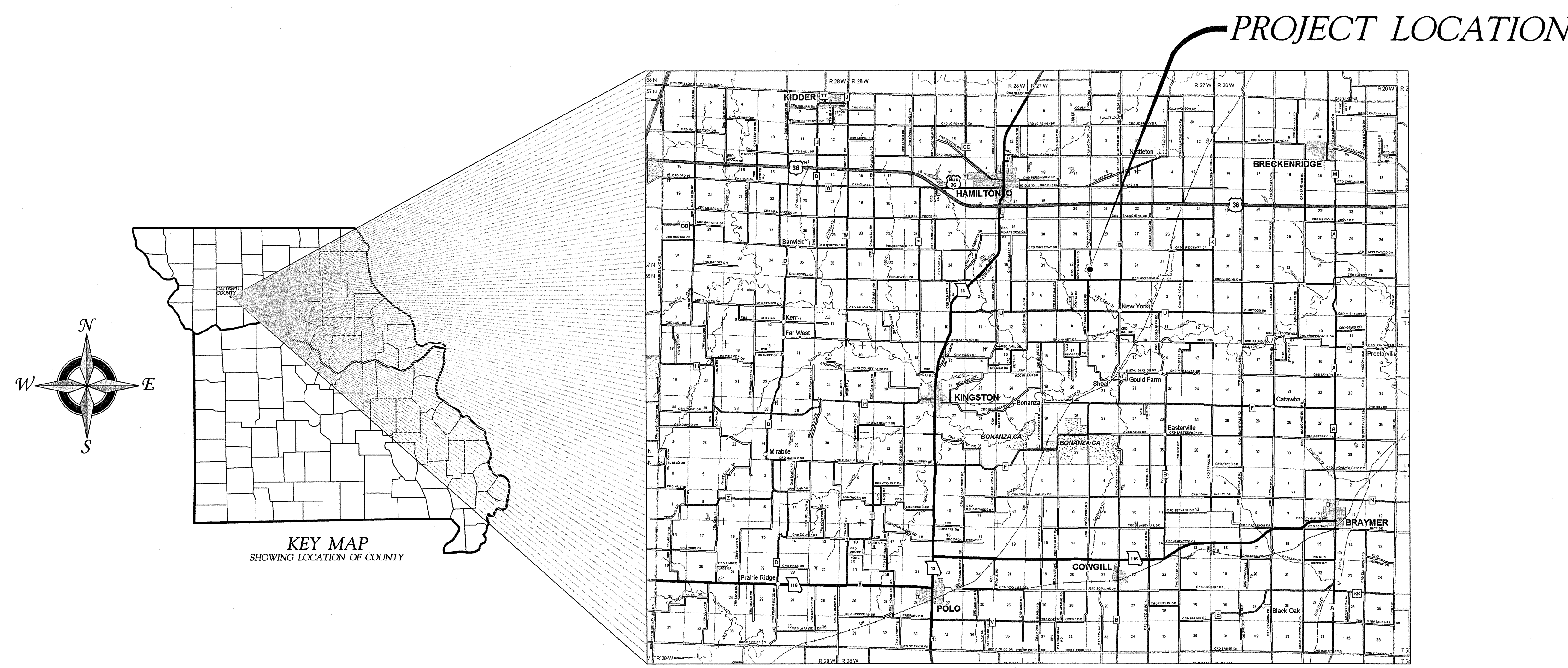


INTAKE STRUCTURE DESIGN  
LITTLE OTTER CREEK LAKE  
CALDWELL COUNTY, MISSOURI  
MARCH, 2009



QUANTITIES TABLE

DUCTILE IRON PIPE - 12" CLASS 55 AND FITTINGS	417 LINEAL FEET
DUCTILE IRON PIPE - 12" CLASS 52 AND FITTINGS	18 LINEAL FEET
VALVE VAULT STRUCTURE	1 LUMP SUM
LEVEL CONTROL VALVE SYSTEM	1 LUMP SUM
TRASH SCREENS	1 LUMP SUM
ALUMINUM LADDER	1 LUMP SUM
GRATING AND HANDRAIL MANWAY	1 LUMP SUM
STEEL REINFORCEMENT - GRADE 60	11,940 POUNDS
CONCRETE - CLASS 4000	137 CUBIC YARDS
SAND DIAPHRAM AND DRAIN ASSEMBLY - PLASTIC (PVC) 6" DIAMETER - MED SLOTTED AND FITTINGS	186 LINEAL FEET

OWNER APPROVAL  
CALDWELL COUNTY COMMISSION

PRESIDING COMMISSIONER

DATE

COVER SHEET  
INTAKE STRUCTURE DESIGN  
LITTLE OTTER CREEK LAKE  
CALDWELL COUNTY, MISSOURI

REVISED:

12/21/09  
C. D. Lyle

ALLSTATE  
CONSULTANTS  
ENGINEERING • PLANNING • SURVEYING • GEOTECHNICAL • INVESTIGATIVE

REUSE OF THIS DRAWING IN ANY MANNER IS  
STRICTLY PROHIBITED WITHOUT THE WRITTEN  
APPROVAL OF  
ALLSTATE CONSULTANTS LLC

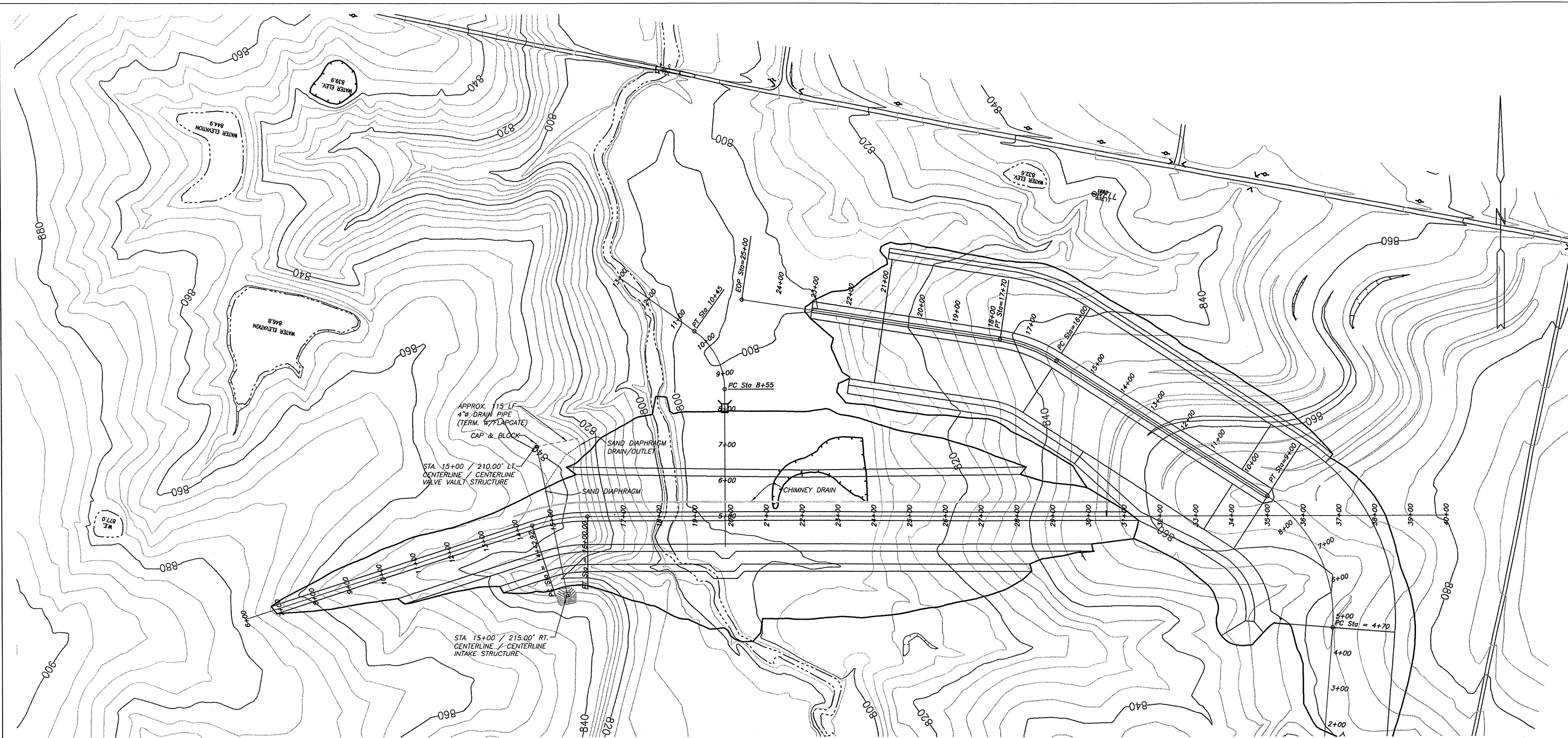
DATE  
MARCH, 2009

JOB NUMBER  
05384.01

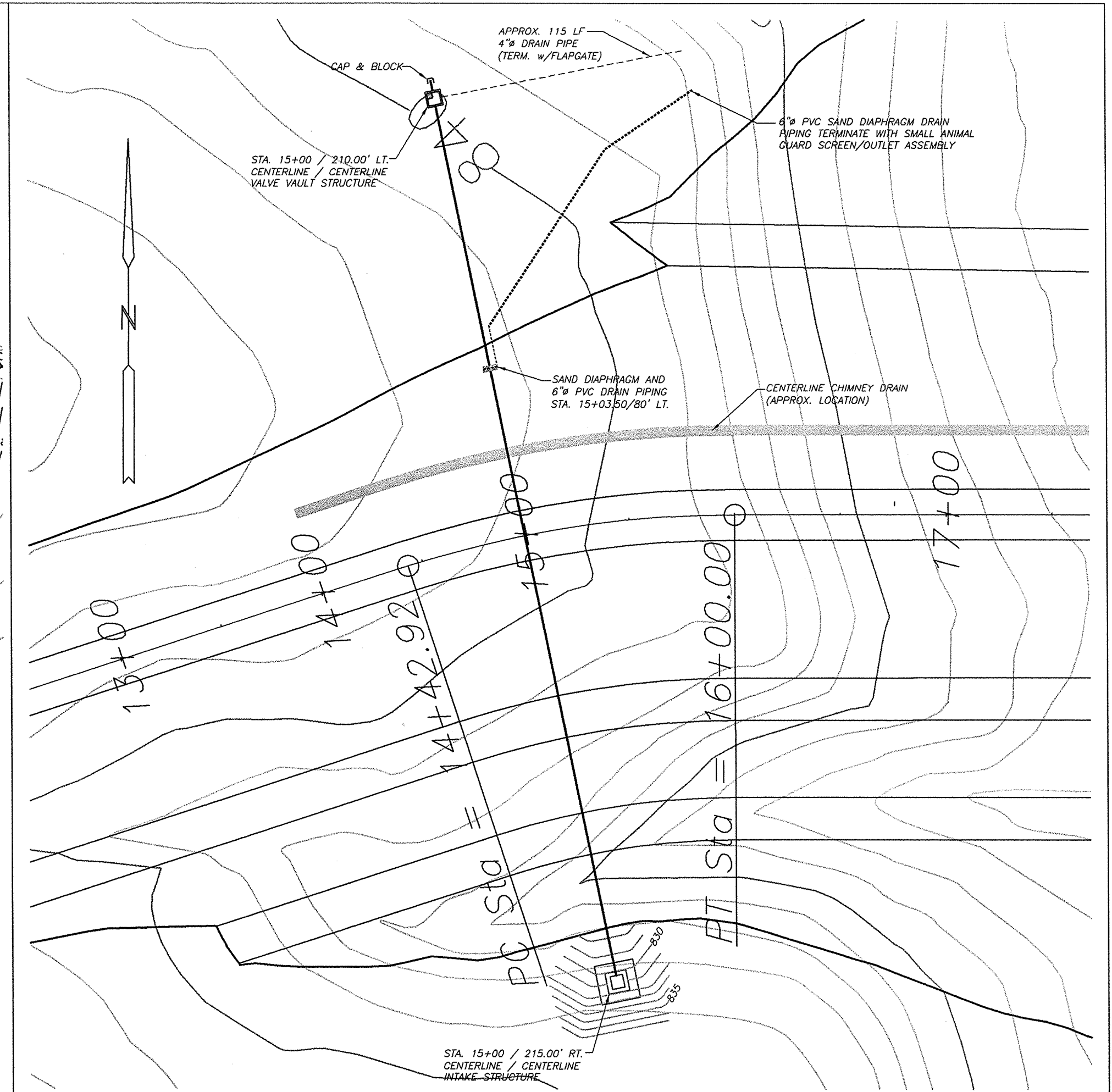
SCALE  
NOT TO SCALE

SHEET  
COVER





LITTLE OTTER CREEK DAM  
GENERALIZED ARRANGEMENT PLAN  
1" = 200'



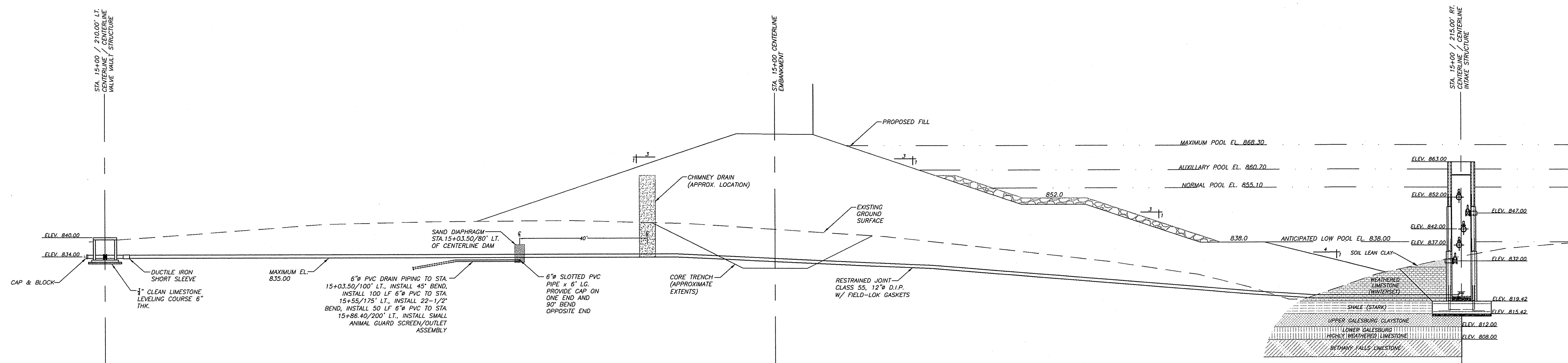
INTAKE STRUCTURE  
ARRANGEMENT PLAN  
1" = 50'

INTAKE STRUCTURE FOOTING COORDINATES

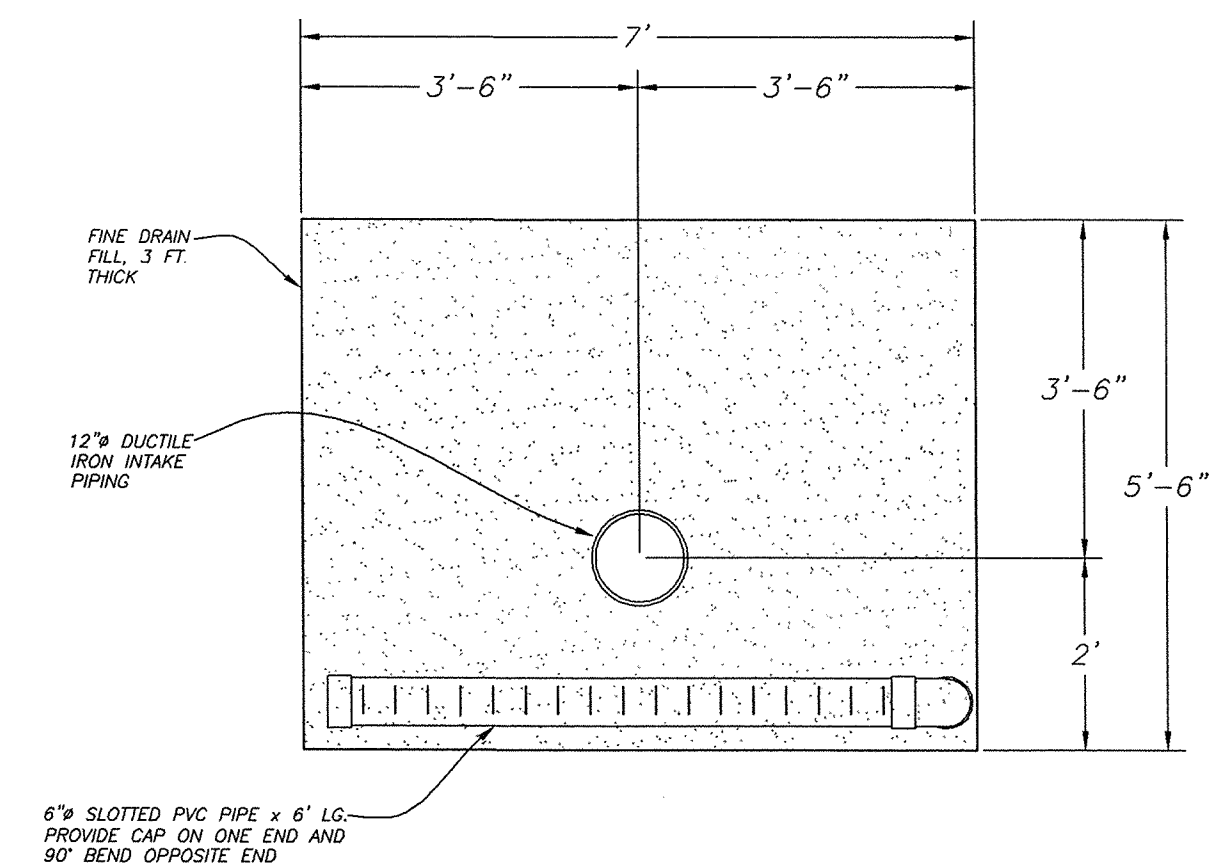
FOOTING 18'-6"x18'-6"	NORTHING	EASTING
SOUTHWEST CORNER	1288349.79	2944739.67
NORTHWEST CORNER	1288356.77	2944732.32
NORTHEAST CORNER	1288374.11	2944749.30
SOUTHEAST CORNER	1288357.13	2944756.65

TOP OF VALVE VAULT COORDINATES

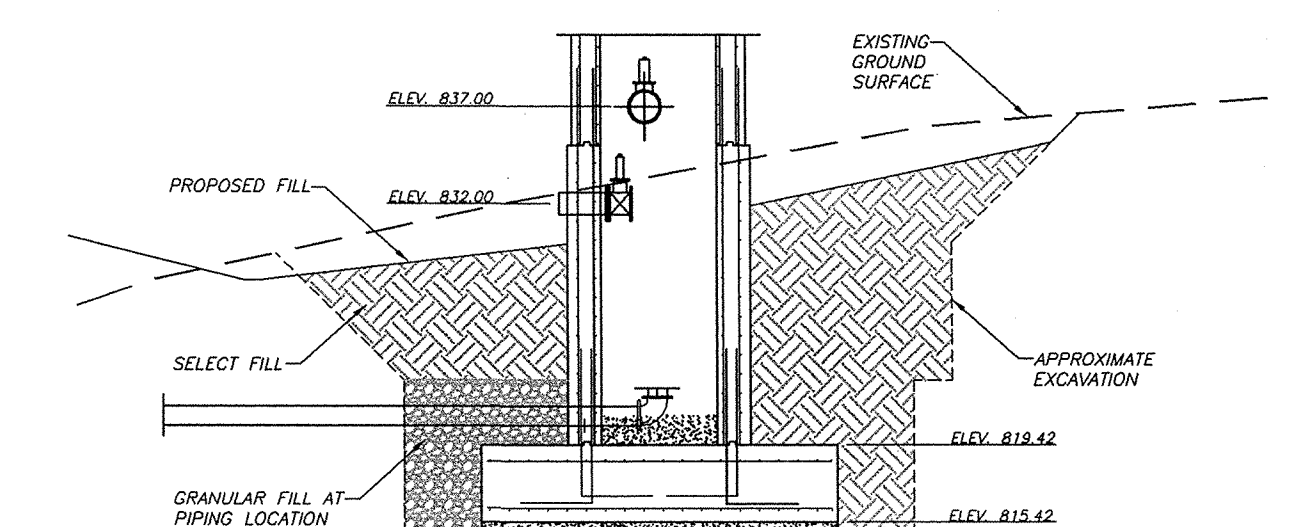
VALVE VAULT 7'-4"x7'-4"	NORTHING	EASTING
SOUTHWEST CORNER	1287967.05	2944911.28
NORTHWEST CORNER	1287973.78	2944908.37
NORTHEAST CORNER	1287976.70	2944915.11
SOUTHEAST CORNER	1287969.96	2944918.02



LITTLE OTTER CREEK DAM  
CROSS SECTION - STATION 15+00  
INTAKE STRUCTURE / VALVE VAULT / PIPING  
1" = 20'



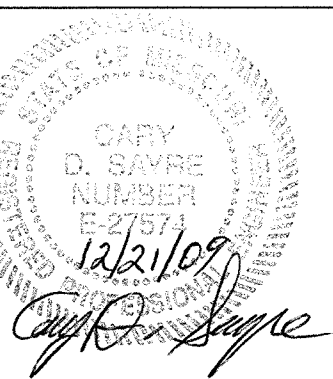
SAND DIAPHRAGM  
1" = 2'



INTAKE STRUCTURE DETAIL  
1" = 10'

OVERALL PLAN VIEW  
INTAKE STRUCTURE DESIGN  
LITTLE OTTER CREEK LAKE  
CALDWELL COUNTY, MISSOURI

REVISED:



REUSE OF THIS DRAWING IN ANY MANNER IS  
STRICTLY PROHIBITED WITHOUT THE WRITTEN  
APPROVAL OF  
ALLSTATE CONSULTANTS, LLC

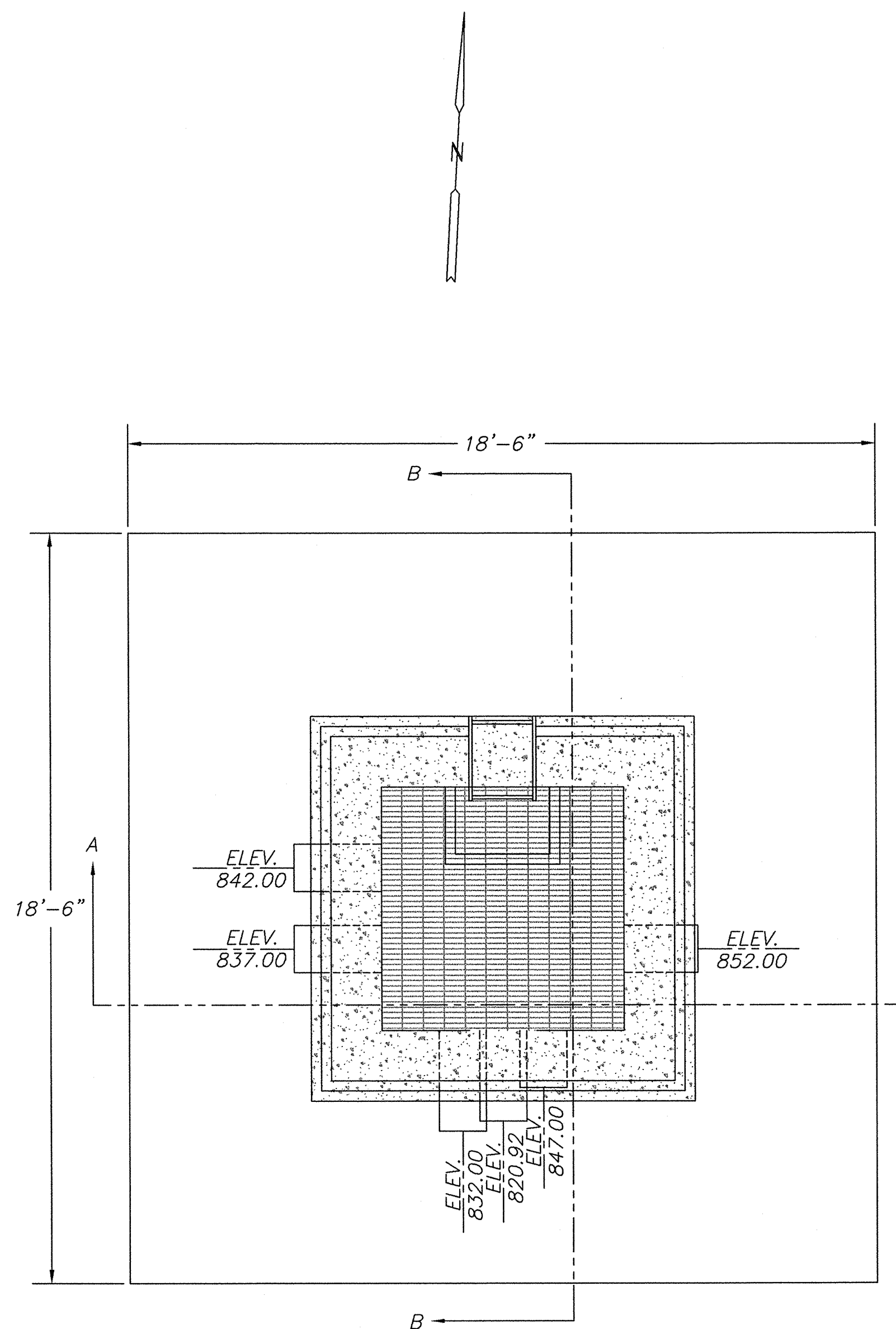
DATE  
MARCH, 2009

JOB NUMBER  
05384.01

SCALE  
NOTED

SHEET  
1

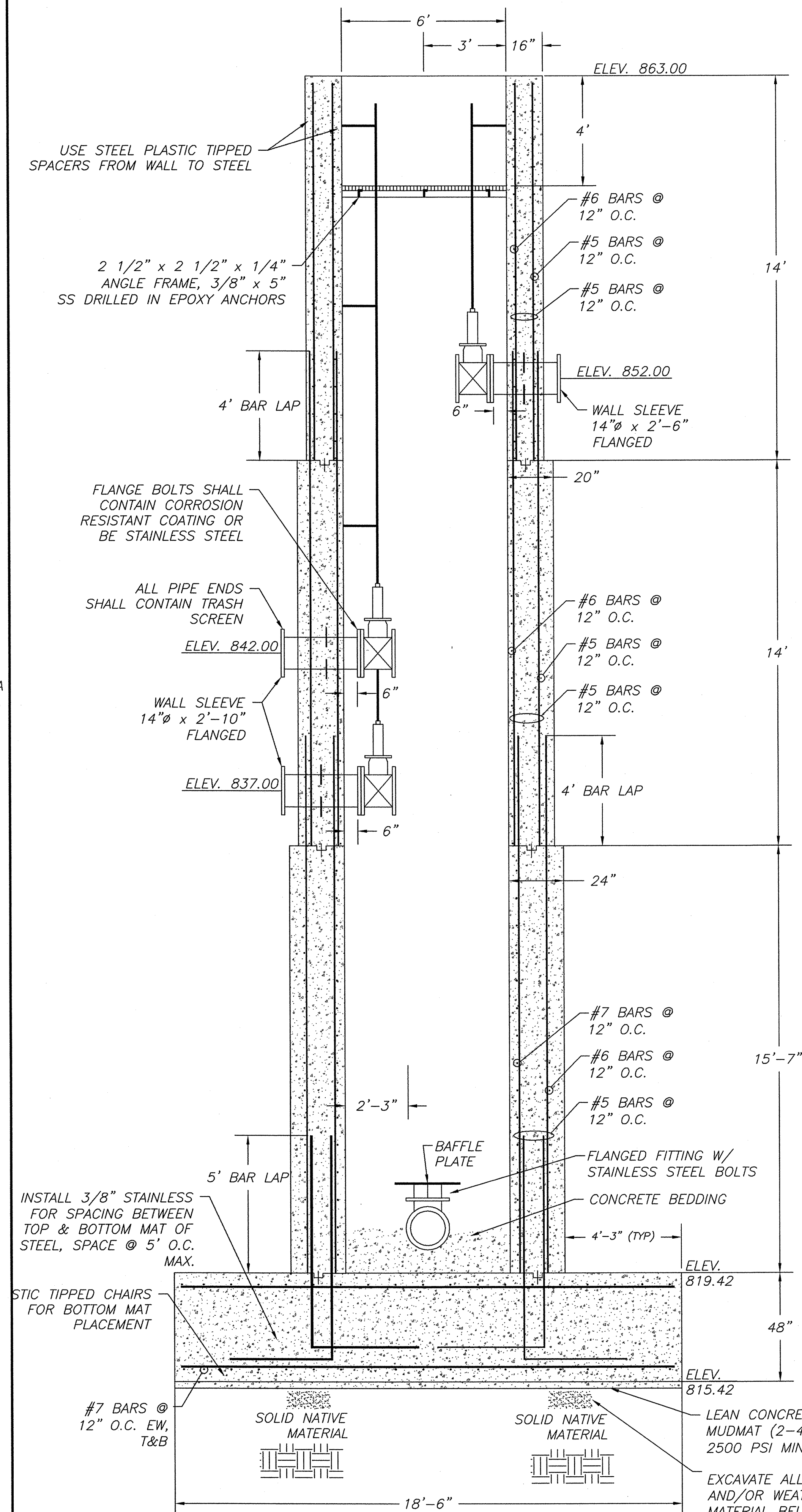




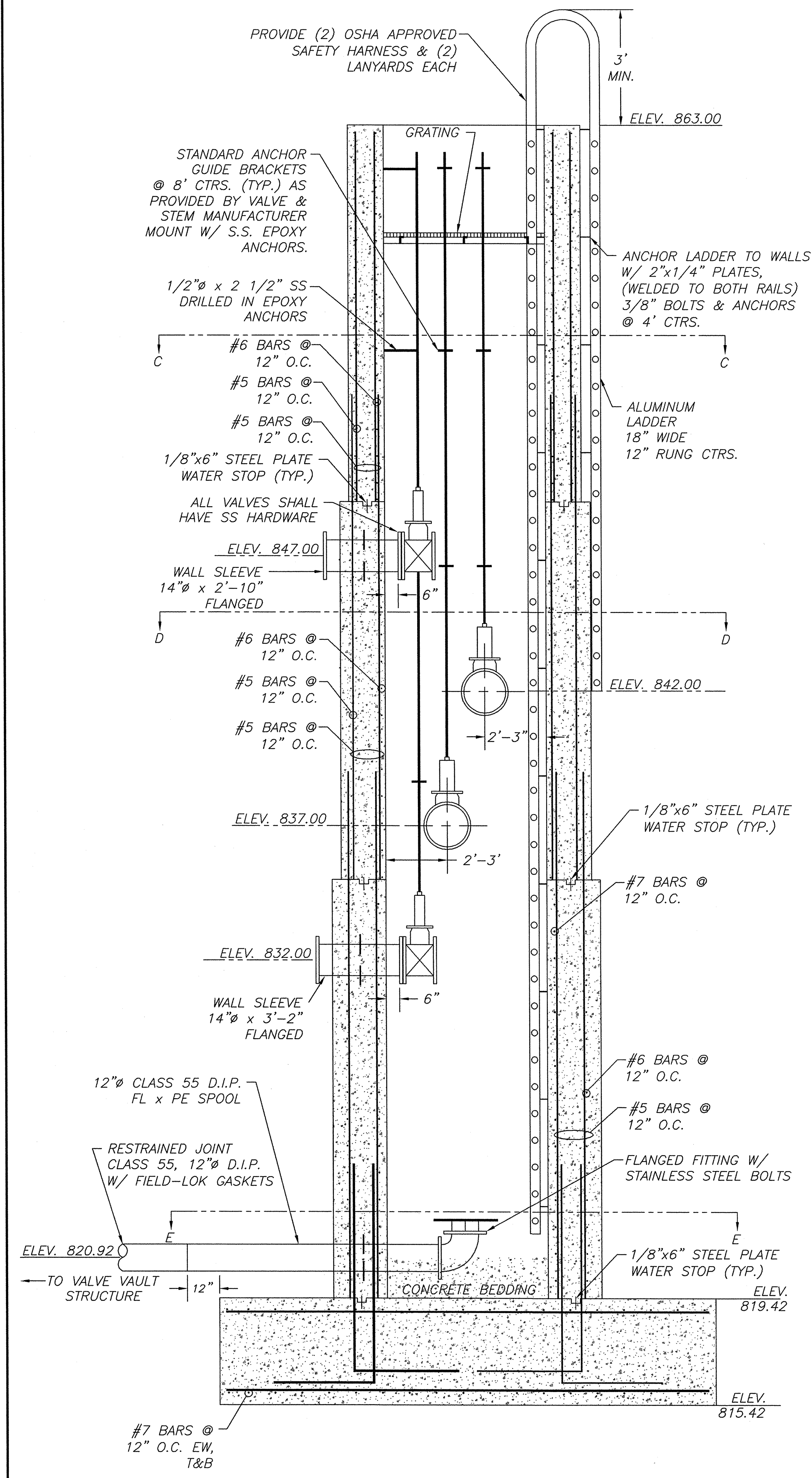
**INTAKE STRUCTURE - PLAN**  
3/8" = 1'

**GENERAL NOTES**

1. ALL VALVES, ALL NUTS BOLTS & HARDWARE SHALL BE STAINLESS STEEL
2. CONCRETE COMPRESSIVE STRENGTH SHALL BE MIN. 4000 PSI @ 28 DAYS
3. ALL REINFORCING STEEL SHALL BE GRADE 60.
4. ALL STEEL SHALL BE TIED @ 100% OF ALL BAR CROSSINGS/INTERSECTIONS
5. STEM EXTENSIONS TO BE PROVIDED W/ STD. VALVE NUT. CONTRACTOR TO PROVIDE TWO (2) HANDWHEEL OPERATORS THAT CAN BE INTER-CHANGED W/ EACH VALVE STEM. TOP OF STEMS SHALL TERMINATE IN A RANGE OF 3'-4' ABOVE GRATING PLATFORM. PROVIDE ADEQUATE CLEARANCE BETWEEN EXTENSION STEMS.



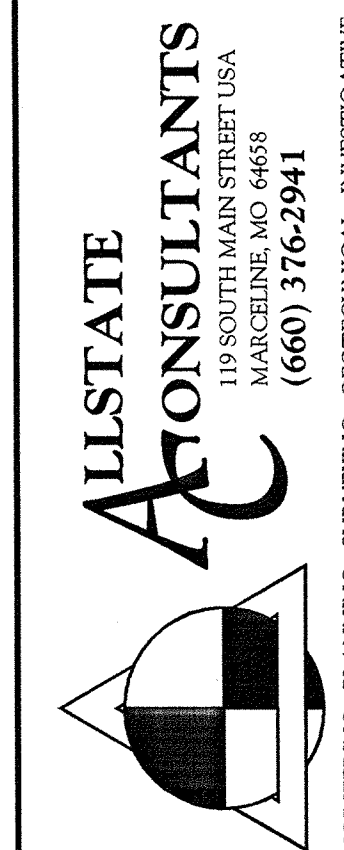
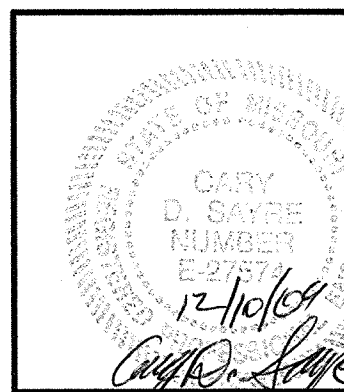
**INTAKE STRUCTURE SECTION A-A**  
3/8" = 1'



**INTAKE STRUCTURE SECTION B-B**  
3/8" = 1'

INTAKE STRUCTURE AND DETAILS  
LITTLE OTTER CREEK  
LAKE PROJECT  
CALDWELL COUNTY COMMISSION, MISSOURI

REVISED:



REUSE OF THIS DRAWING IN ANY MANNER IS STRICTLY PROHIBITED WITHOUT THE WRITTEN APPROVAL OF ALLSTATE CONSULTANTS LLC

DATE  
MARCH, 2009

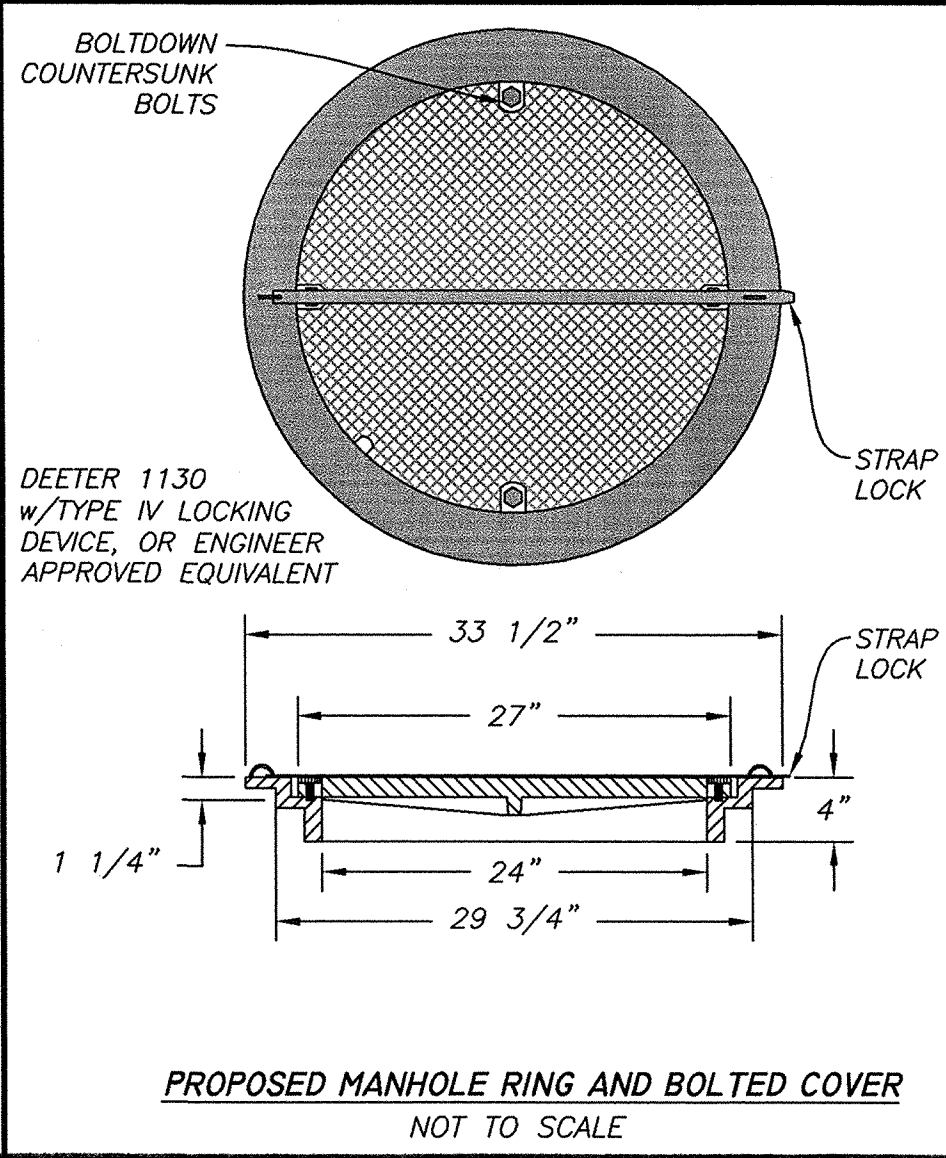
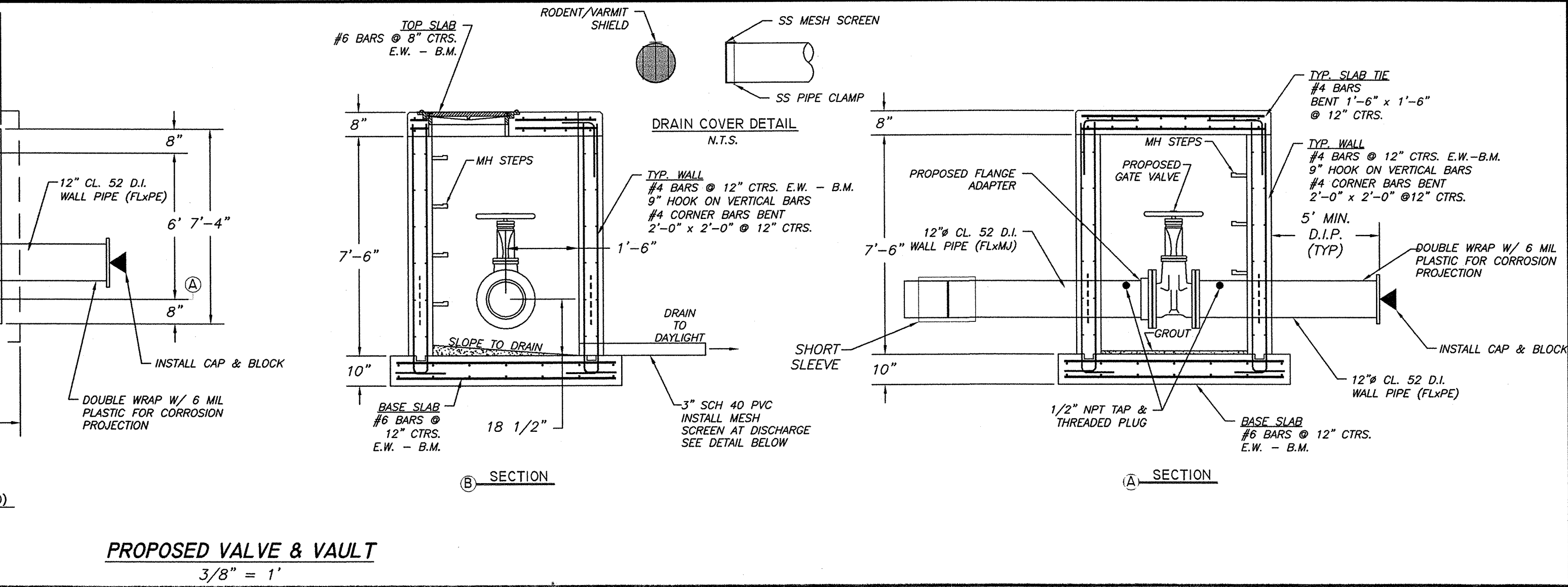
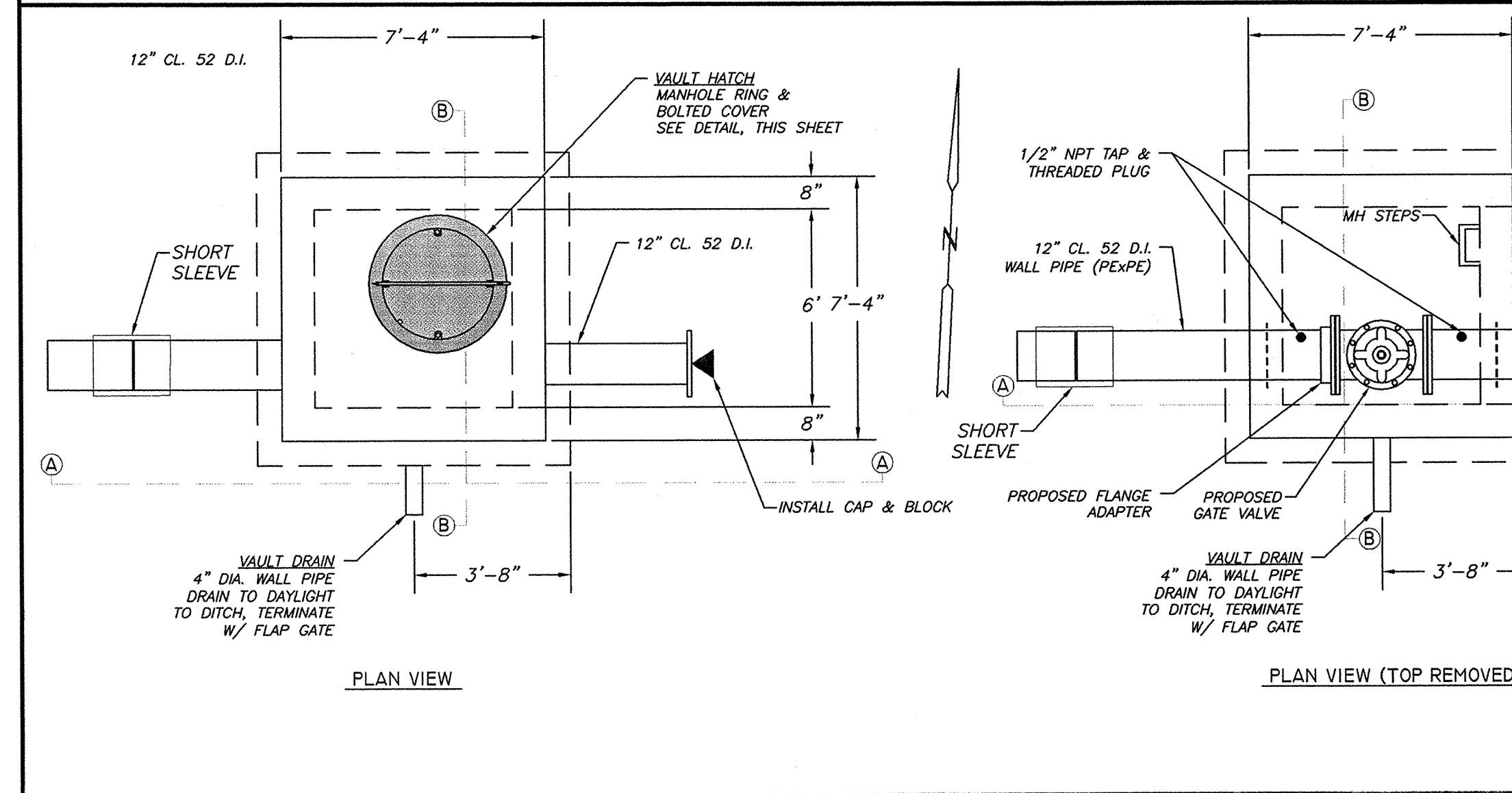
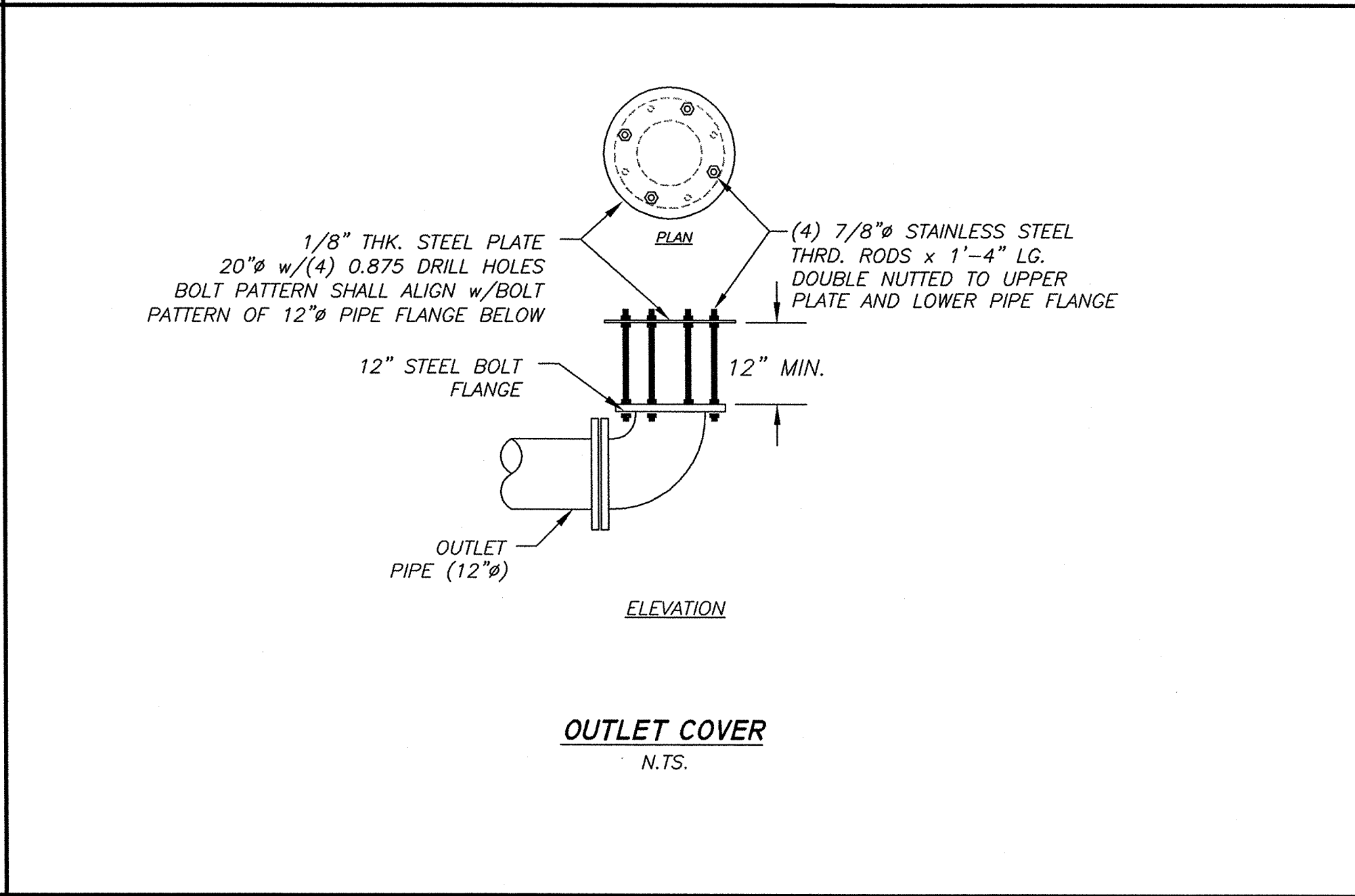
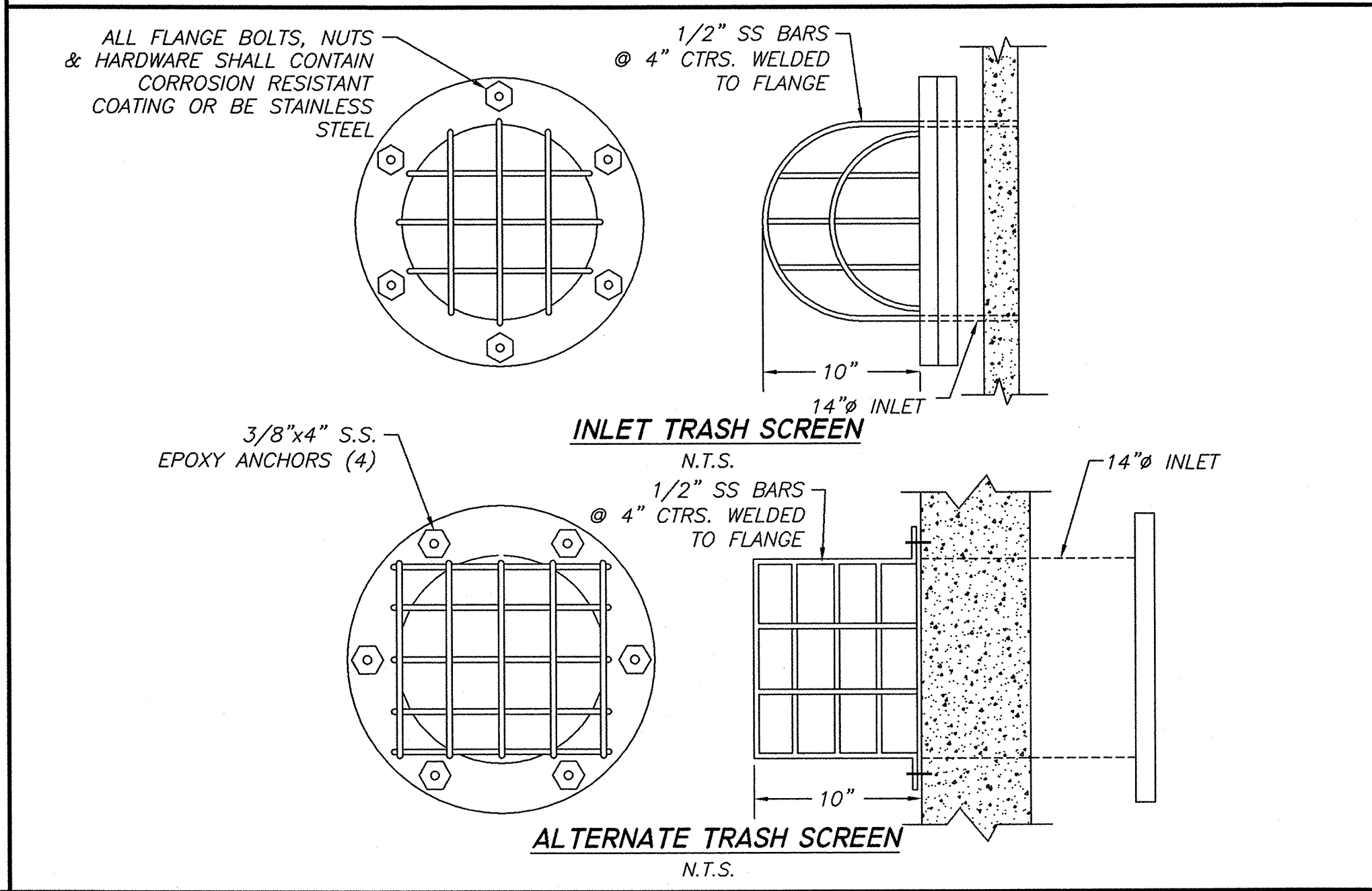
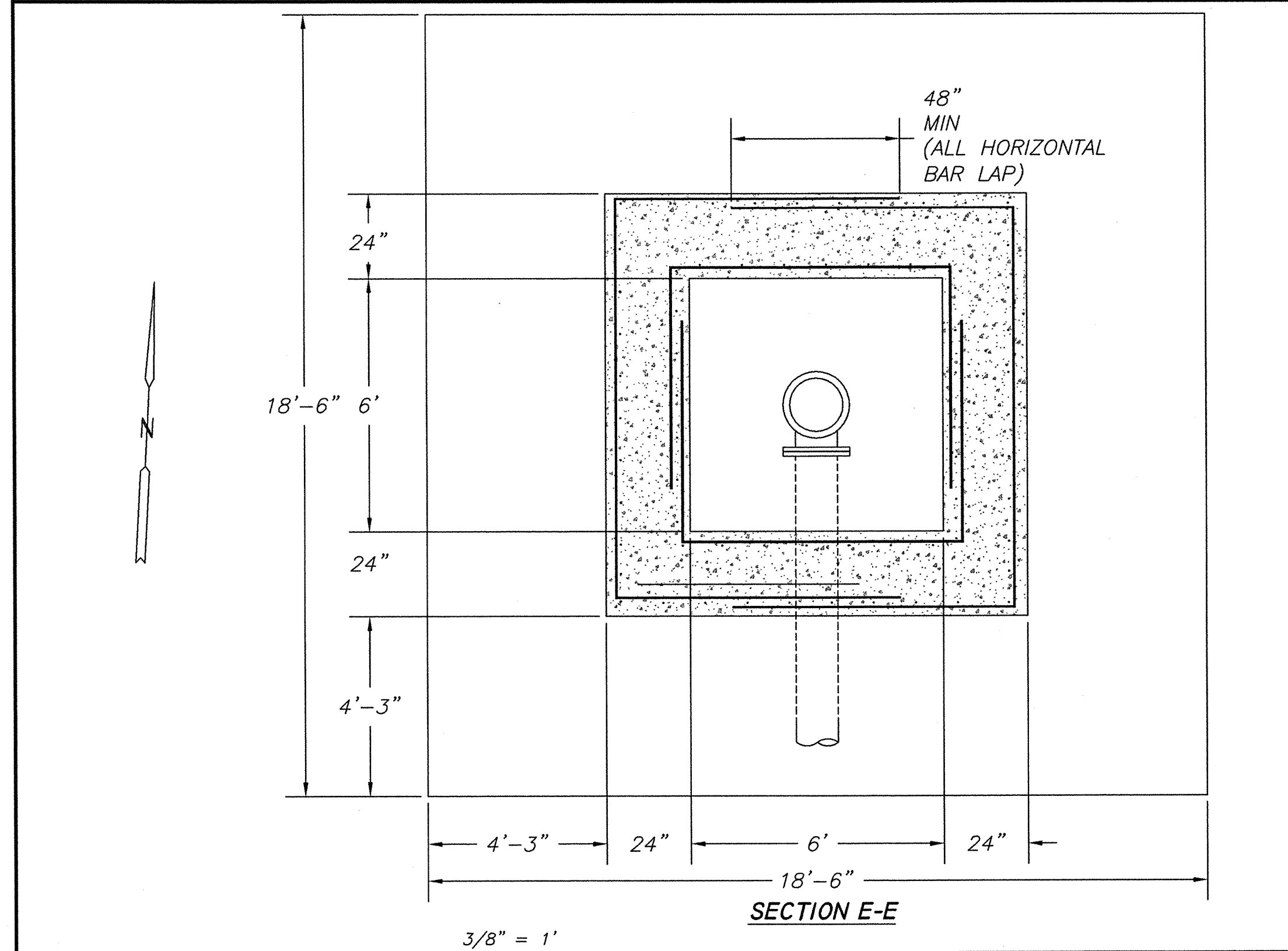
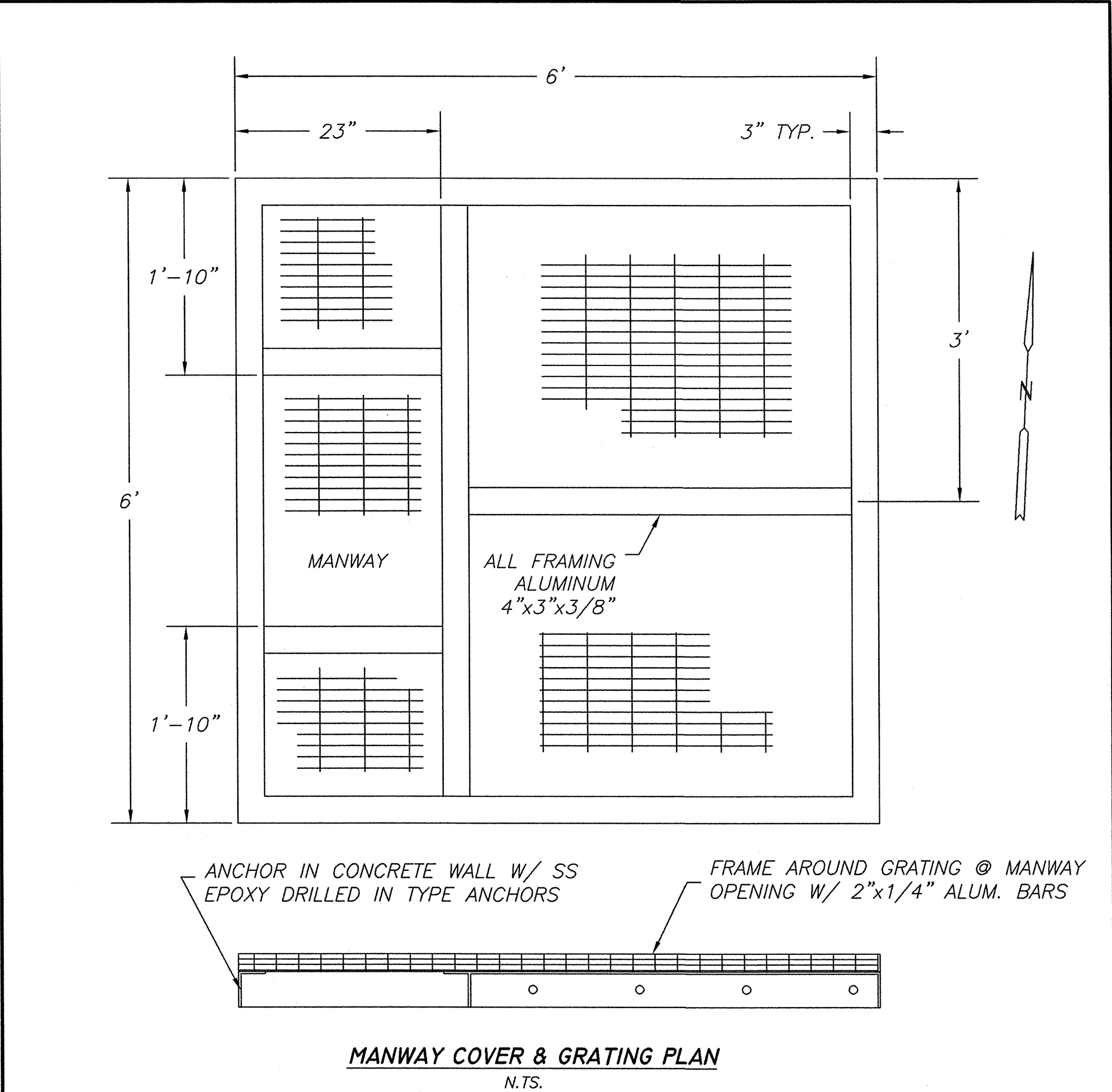
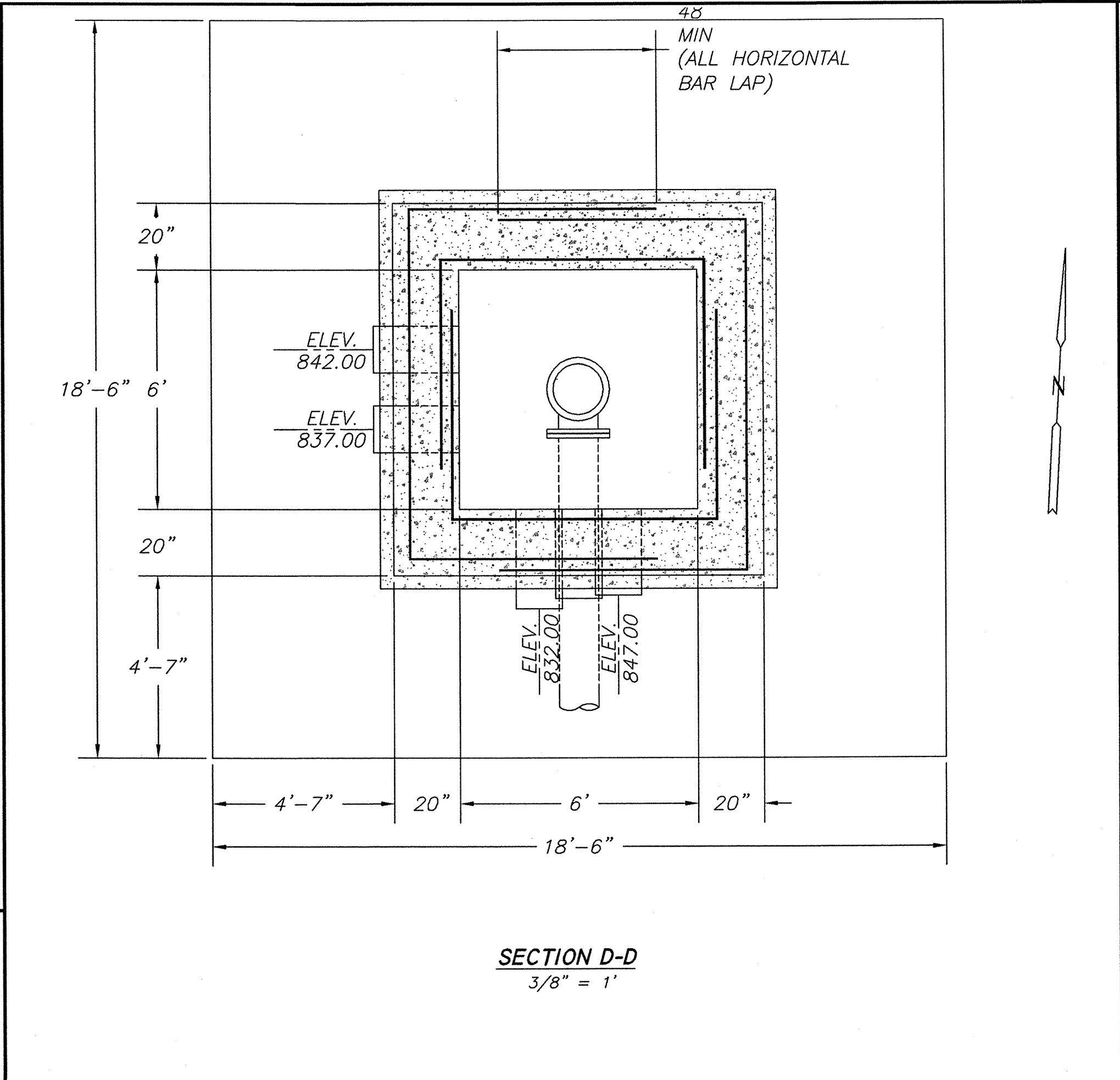
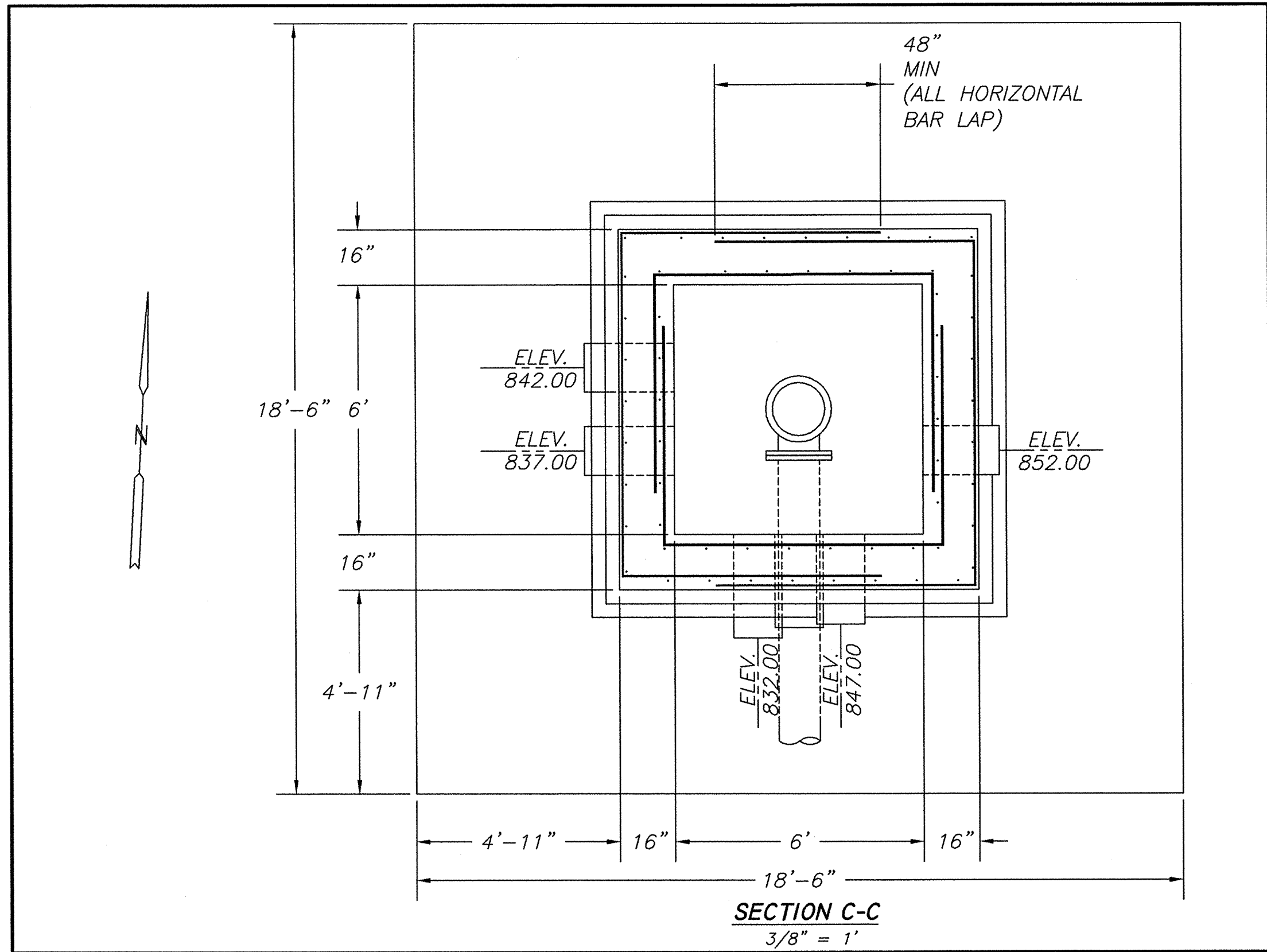
JOB NUMBER  
05384.01

SCALE  
NOTED

SHEET

2





INTAKE DETAILS  
INTAKE STRUCTURE DESIGN  
LITTLE OTTER CREEK LAKE  
CALDWELL COUNTY, MISSOURI

REVISED:



ALLSTATE  
CONSULTANTS  
119 SOUTH MAIN STREET USA  
MARCELINE, MO 64668  
(660) 376-2941  
ENGINEERING • PLANNING • SURVEYING • GEOTECHNICAL • INVESTIGATIVE

REUSE OF THIS DRAWING IN ANY MANNER IS  
STRICTLY PROHIBITED WITHOUT THE WRITTEN  
APPROVAL OF  
ALLSTATE CONSULTANTS, LLC

DATE  
MARCH, 2009

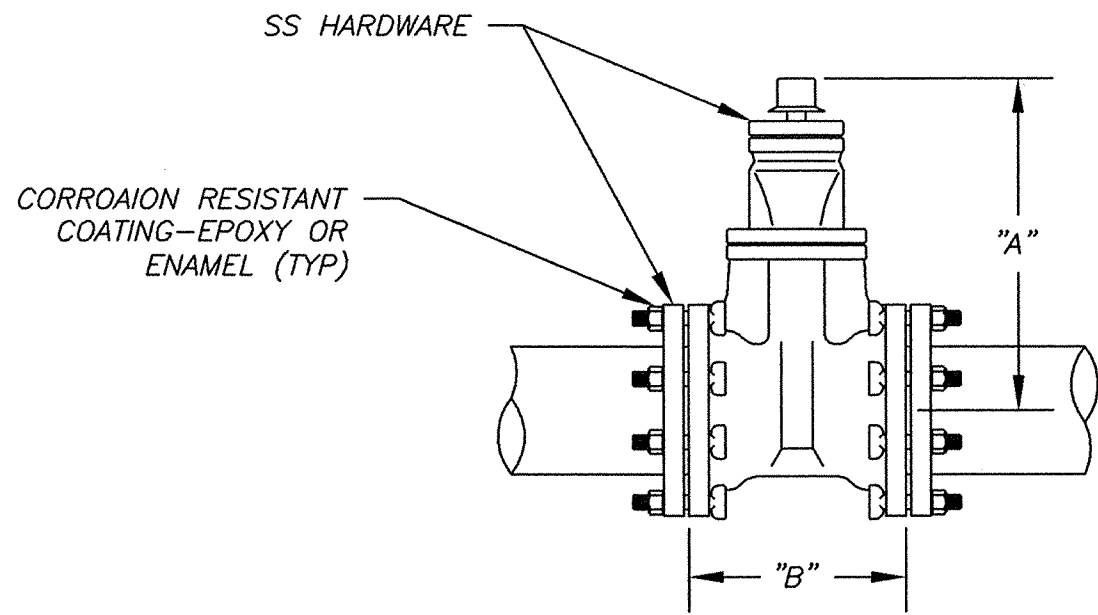
JOB NUMBER  
05384.01

SCALE  
NOTED

SHEET  
3

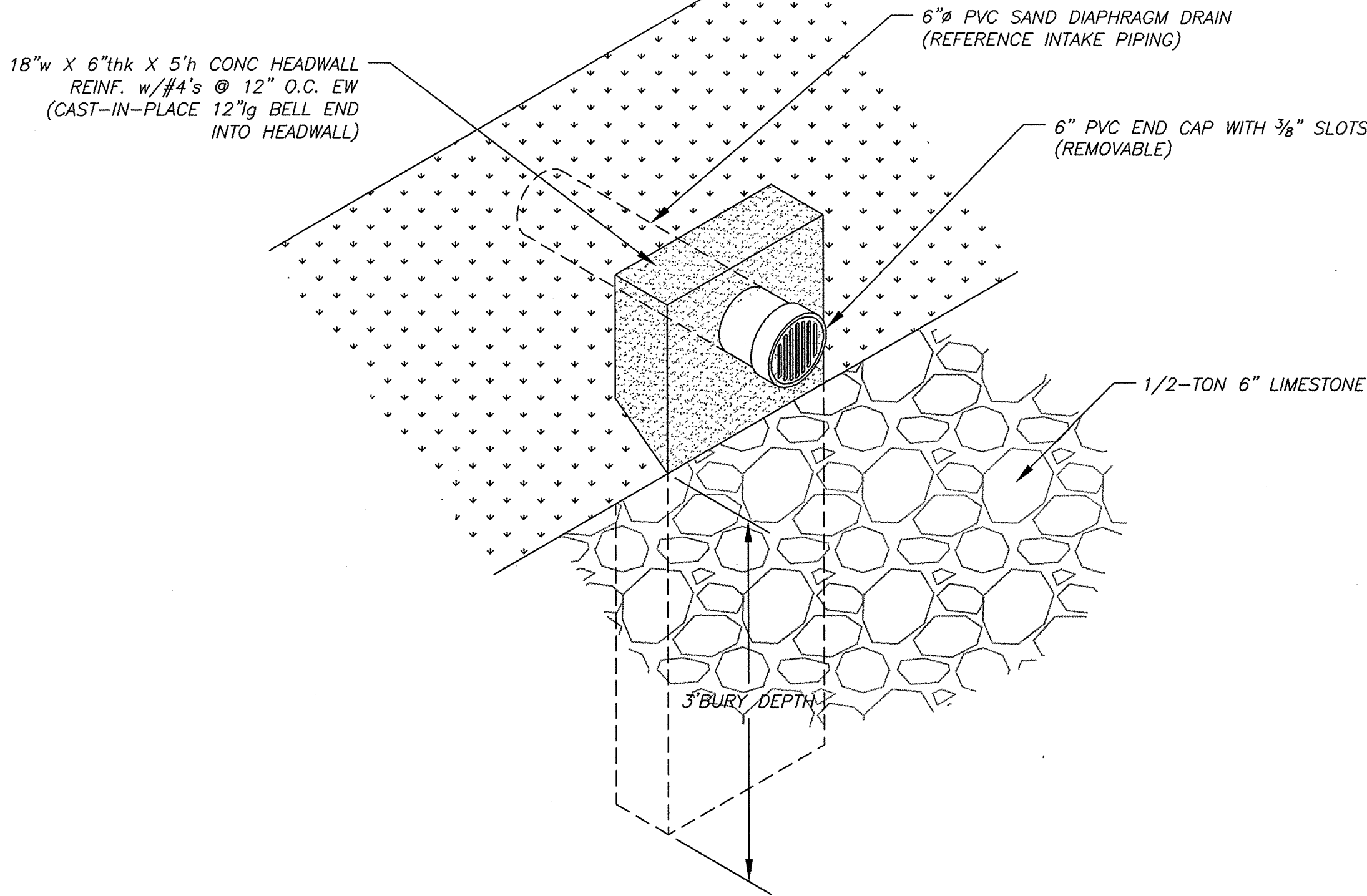


DIMENSION	NOMINAL SIZE									
	2"	3"	4"	6"	8"	10"	12"	14"	16"	
A	9.88"	12.38"	14.19"	18.00"	21.50"	25.50"	28.62"	32.04"	39.39"	
B	8.50"	9.00"	10.00"	11.50"	12.50"	14.75"	14.88"	15.00"	19.75"	

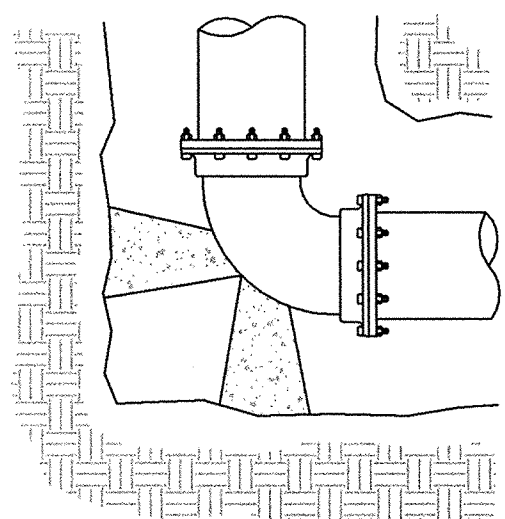


#### TYPICAL GATE VALVE

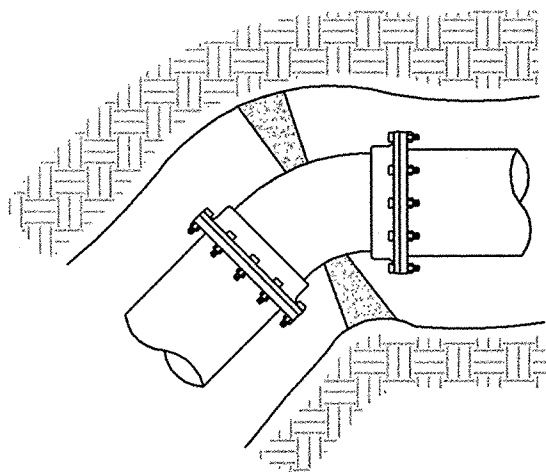
GATE VALVES SHALL BE MUELLER A-2360 RESILIENT WEDGE VALVES WITH MECHANICAL JOINT ENDS, OR ENGINEER APPROVED EQUIVALENT.



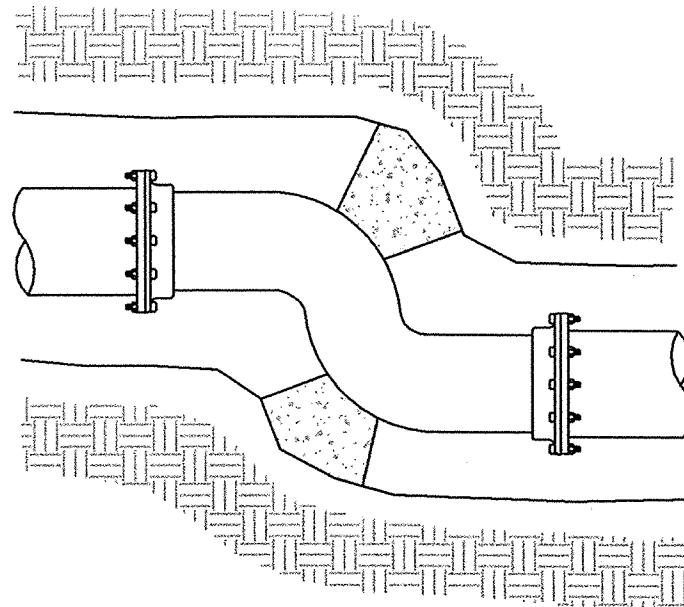
SMALL ANIMAL GUARD SCREEN /OUTLET ASSEMBLY



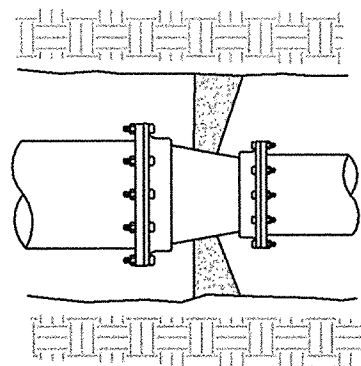
90° BEND



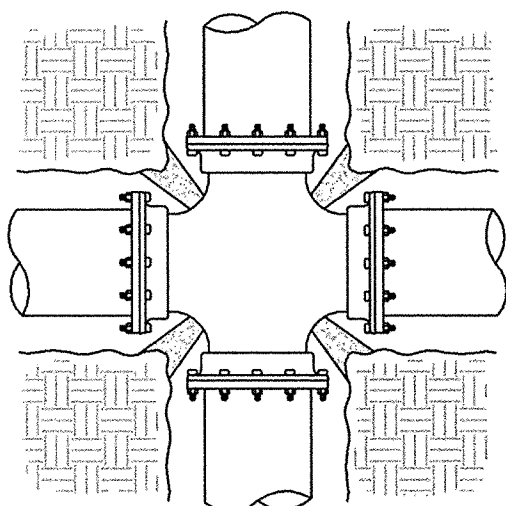
VERTICAL 45° BEND



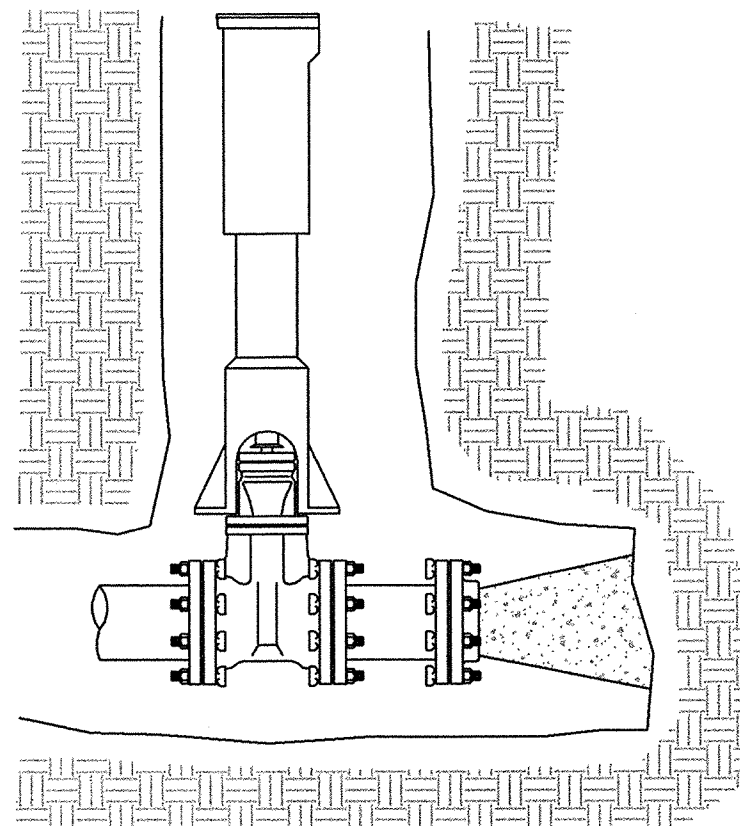
OFFSET



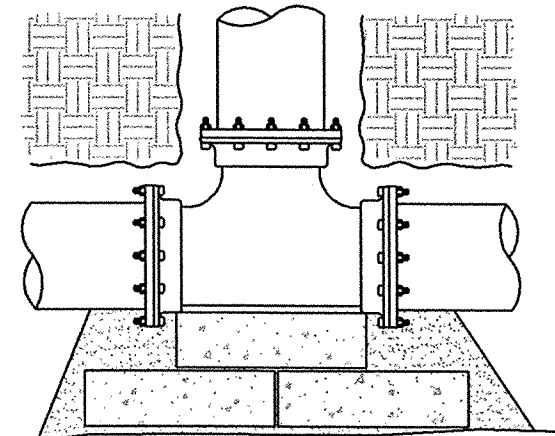
REDUCER



CROSS



WATER VALVE AND CAP



TEE

CONCRETE CAP BLOCKS WITH QUICK-CRETE FILL AT ALL VOIDS

#### MINIMUM BLOCKING

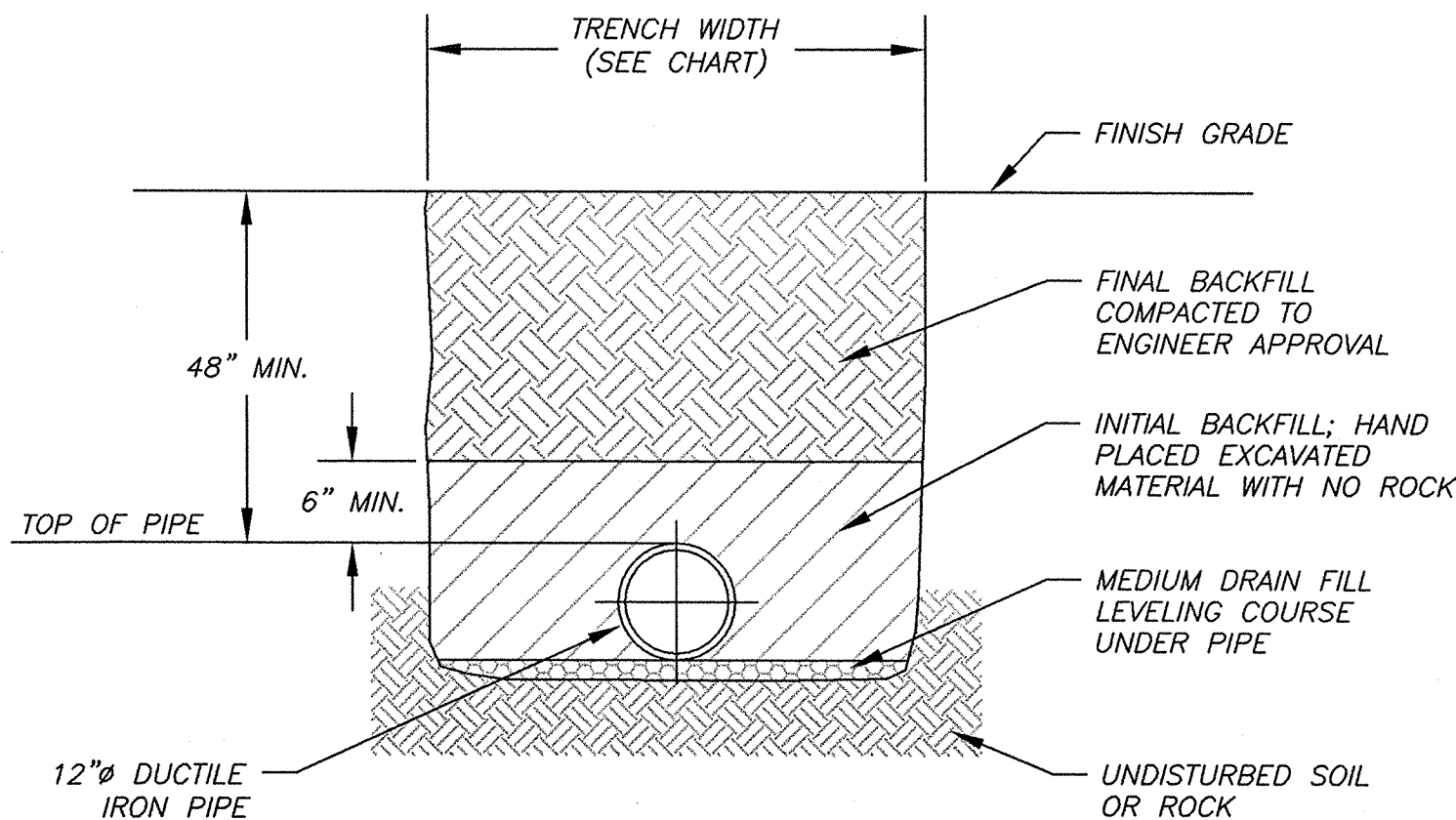
2" = 1.00 SQ. FT.  
4" = 1.26 SQ. FT.  
6" = 2.83 SQ. FT.  
8" = 5.03 SQ. FT.

#### TYPICAL THRUST BLOCKS

THRUST BLOCKS SHOWN ARE BASED UPON SOIL PRESSURE—3000 POUNDS/SQUARE FOOT. ACTUAL FIELD CONDITIONS MAY VARY. MINIMUM DIAMETER AND THICKNESS SHALL BE ONE FOOT UNLESS OTHERWISE APPROVED BY ENGINEER. ALL DUCTILE IRON FITTINGS, VALVES, ETC., SHALL BE PLASTIC WRAPPED TO KEEP CONCRETE FROM COMING INTO CONTACT WITH FITTING.

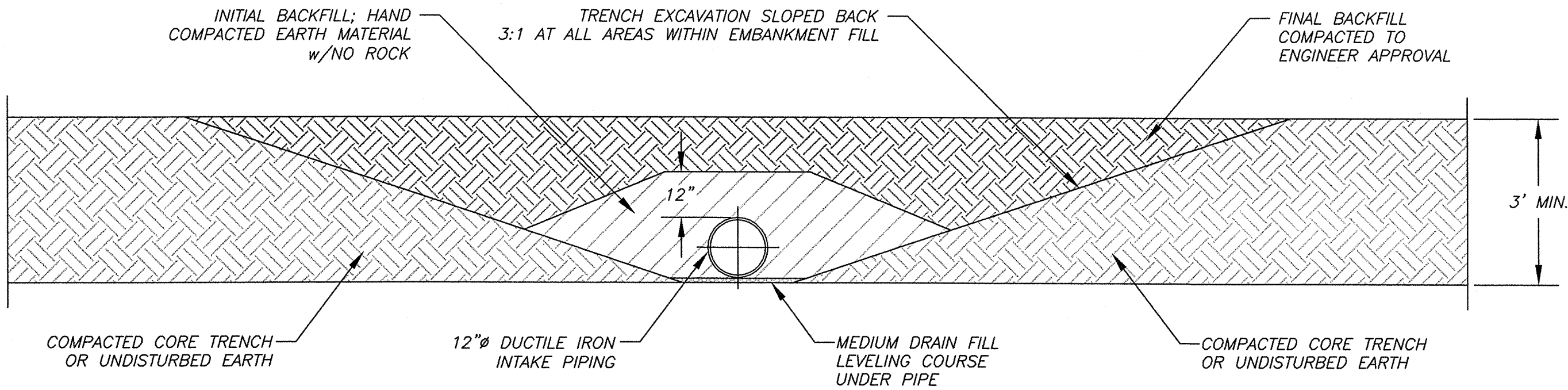
#### TRENCH WIDTHS

PIPE DIA	MIN. TRENCH WIDTH
2"-4"	PIPE DIA. +4"
6"-8"	PIPE DIA. +10"
10"-12"	PIPE DIA. +12"



#### DUCTILE IRON PIPE EMBEDMENT

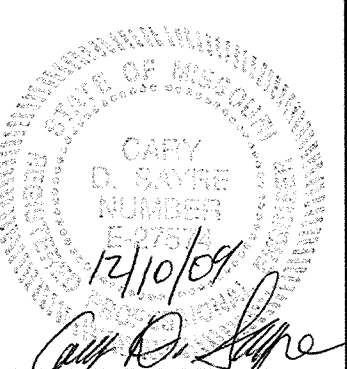
TYPICAL EMBEDMENT DETAIL FOR ALL DUCTILE IRON NOT LOCATED IN DAM OR EMBANKMENT AREA.



#### DUCTILE IRON PIPE EMBEDMENT @ EMBANKMENT FILL AREA

TYPICAL EMBEDMENT DETAIL FOR ALL DUCTILE IRON INTAKE PIPING LOCATED WITHIN CONFINES OF EMBANKMENT FILL / CORE TRENCH AREA

#### REVISED:



REUSE OF THIS DRAWING IN ANY MANNER IS STRICTLY PROHIBITED WITHOUT THE WRITTEN APPROVAL OF ALLSTATE CONSULTANTS, LLC.

DATE  
MARCH, 2009

JOB NUMBER  
05384.01

SCALE  
NOT TO SCALE

SHEET  
4

TYPICAL WATER DETAILS  
INTAKE STRUCTURE DESIGN  
LITTLE OTTER CREEK LAKE  
CALDWELL COUNTY, MISSOURI