

# KIF - UTILITY RESTORATION HARRIMAN UTILITY BOARD - WATER

## DRAWING INDEX

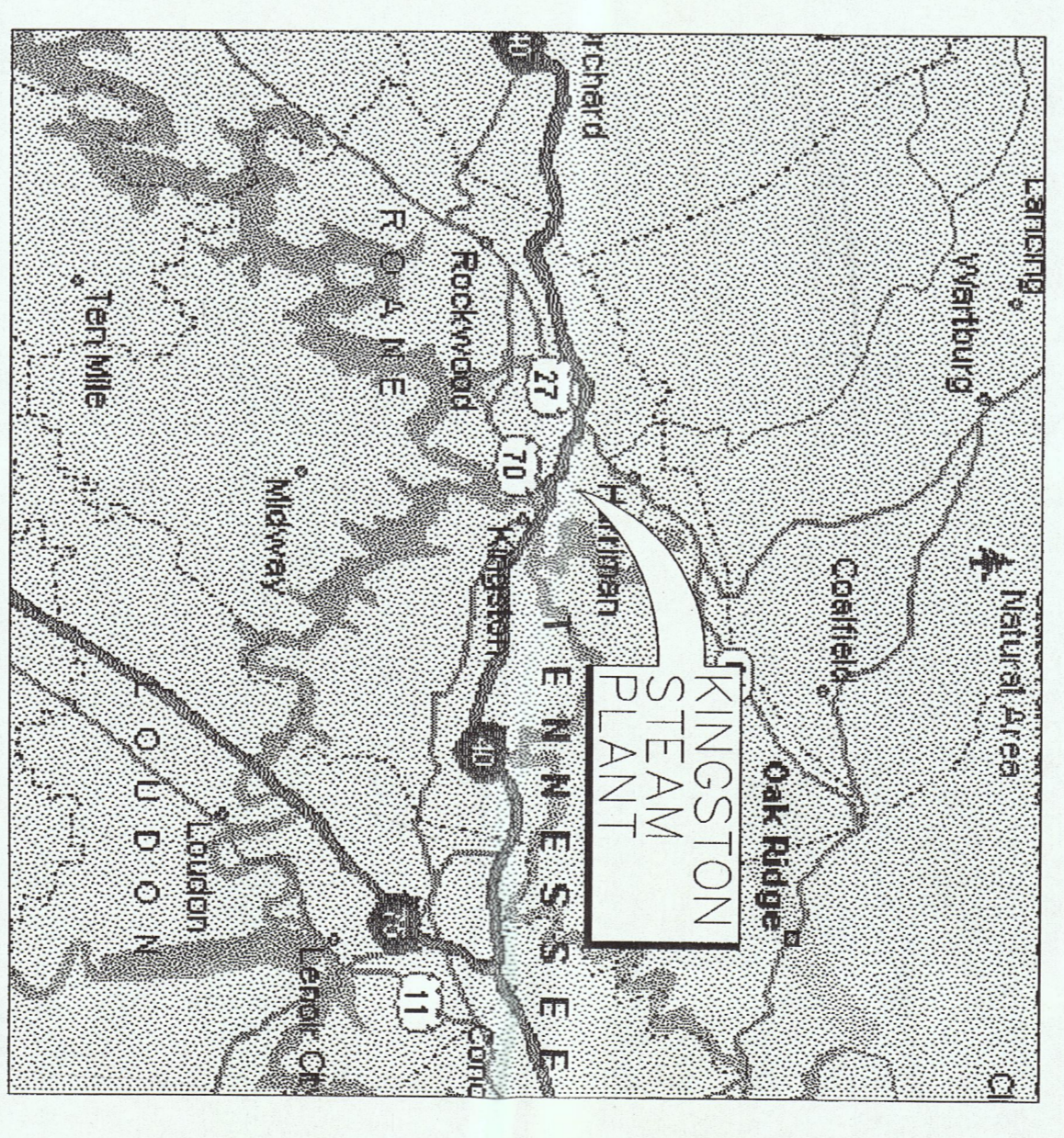
DRAWING INDEX	TITLE SHEET
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ALL-HW016	EROSION CONTROL DETAIL SHEET

NOTE:  
THESE RECORD DRAWINGS PREPARED BY C.T.I. ARE BASED UPON THE REPRESENTATIONS OF OTHERS (MAYBE CONSTRUCTION COMPANY, OF CHATTANOOGA, TENNESSEE) AND ARE NOT FOR BIDDING, PERMIT OR CONSTRUCTION PURPOSES. THESE DRAWINGS HAVE BEEN REVIEWED BY C.T.I. AND ARE BELIEVED TO REFLECT TO THE BEST OF OUR KNOWLEDGE, AN ACCURATE RECORD OF THE WORK AS CONSTRUCTED. THE INFORMATION CONTAINED HEREIN SHOULD BE FIELD-VERIFIED PRIOR TO BEING USED FOR FUTURE DESIGN AND/OR CONSTRUCTION.

*Handwritten in red:*  
TVA  
2010 Site Plan



SITE MAP



VICINITY MAP



CTI ENGINEERS, INC.  
174 DURBIN ROAD, SUITE A  
KNOXVILLE, TN 37922  
865-248-2750

PREPARED BY:  
JOHN L. KING, PE  
TENNESSEE LICENSE NO. 103702  
DATE: 7/31/09

RECORD DRAWING  
12-14-2010

I CERTIFY THAT THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY THE HARRIMAN UTILITY BOARD  
CHUCK FLORA, GENERAL MANAGER  
DATE

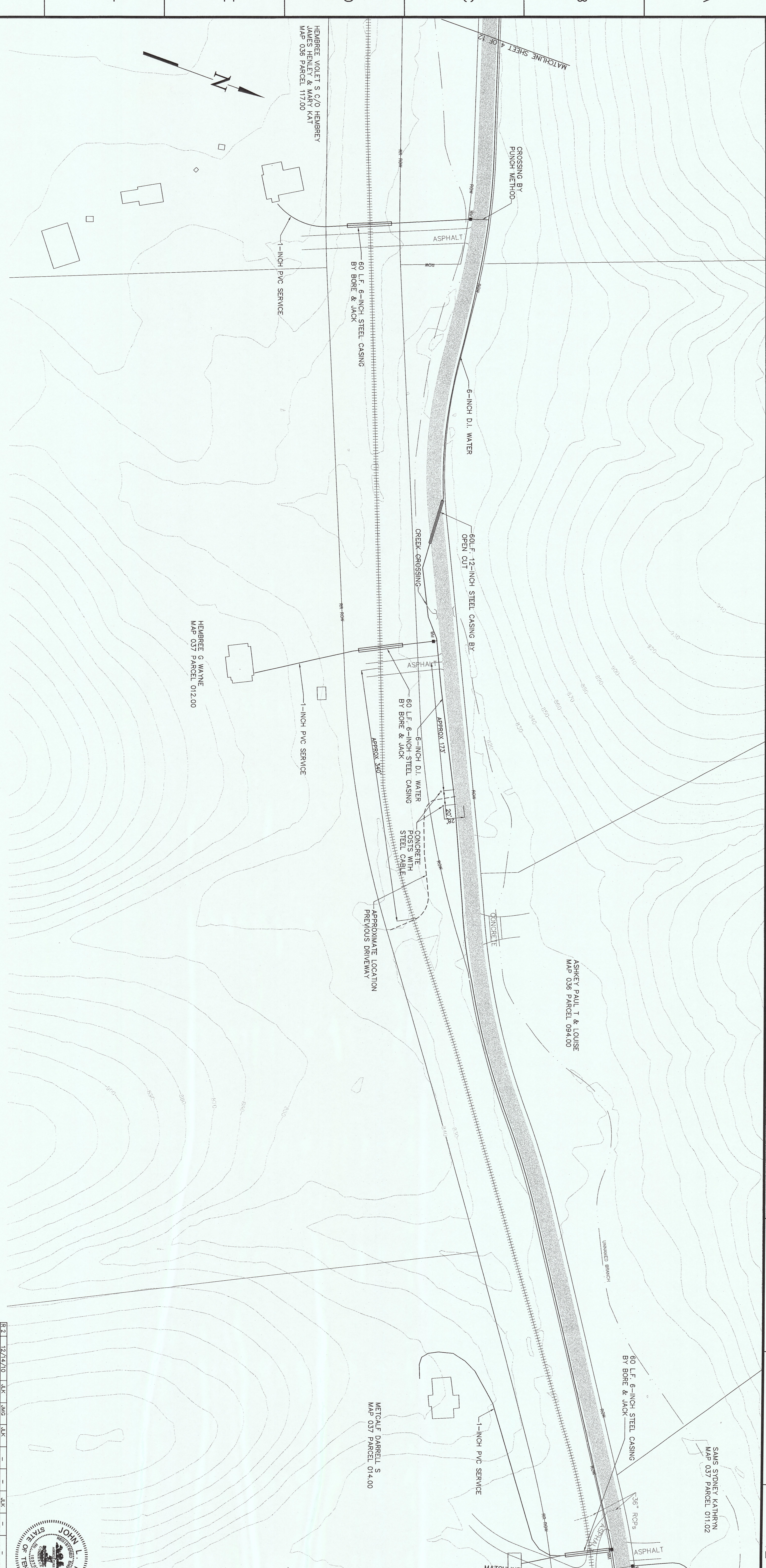
PROJECT NO.	121410	DATE	3/17/09	SCALE	AS NOTED
DESIGNED BY	JLK	DRAWN BY	JMG	CHECKED BY	DLA
APPROVED BY		REVIEWED BY		DATE	
KINGSTON FOSSIL PLANT TENNESSEE VALLEY AUTHORITY FOSSIL AND HYDRO ENGINEERING					
ALL-HW001.1 R 1					







MO1 C 9C 2 3 4 5 6 7 8 9 10 11 12



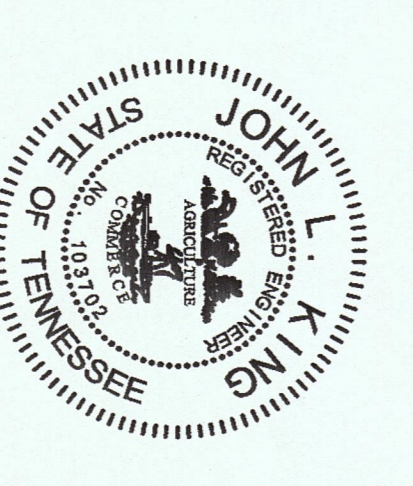
PLAN  
SCALE: 1" = 50'

**RECORD DRAWING**  
12-14-2010

FARM TO HASSLER  
MILL ROAD  
TVA ESR NO. 765  
CTI NO. C07070-12

**CIVIL**  
YARD  
KIF - UTILITY EXTENSIONS  
HARRIMAN UTILITY BOARD - WATER  
PLAN SHEET 3 OF 12

DESIGNED BY	J.M.G.	CHECKED BY	D.L.L.	APPROVED BY	
DRAWN BY	J.M.G.	DATE	3/17/08	SCALE	1" = 50'
PROJECT	KINGSTON FOSSIL PLANT				
CLIENT	TENNESSEE VALLEY AUTHORITY				
PROJ. NO.	765-HW005.2				
DATE	3/17/08				
SCALE	1" = 50'				





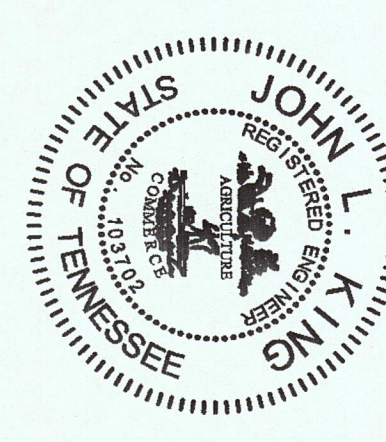
PLAN  
SCALE: 1" = 50'

**RECORD DRAWING**  
12-14-2010

FARM TO HASSLER  
MILL ROAD  
TVA ESR NO. 765  
CTI NO. C07070-12

CONSOLIDATED TECH, INC.  
TASK COMPLETED BY: [ ]  
REV. NO. [ ]

DESIGNED BY	ALM	DRAWN BY	ALM	CHECKED BY	ALM	DATE	3/7/09
PROJECT NO.	765-HW006.2	SHEET NO.	4 OF 12	SCALE	1" = 50'	DATE	3/7/09
<p><b>CIVIL</b> YARD KIF - UTILITY EXTENSIONS HARRIMAN UTILITY BOARD - WATER PLAN SHEET 4 OF 12</p>							



PLOT FACTOR: 1:1  
W: 17A  
C.A.D. DRAWING  
DO NOT ALTER MANUALLY





M01 C 9C 2 3 4 5 6 7 8 9 10 11 12



PLAN  
SCALE: 1" = 50'

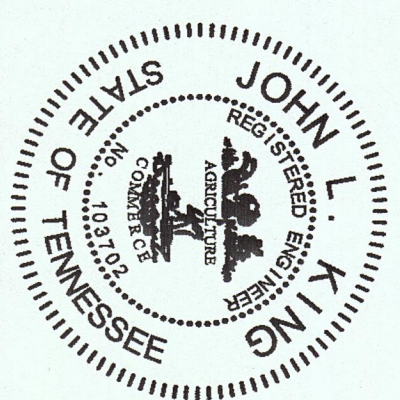
**RECORD DRAWING**  
12-14-2010

HASSLER MILL ROAD WEST  
ON SWAN POND ROAD

TVA ESP NO. 766  
CTI NO. C09/05-13

CTI ENGINEERS, INC.  
TASK COMPLETED BY: [ ]  
REV NO. [ ]

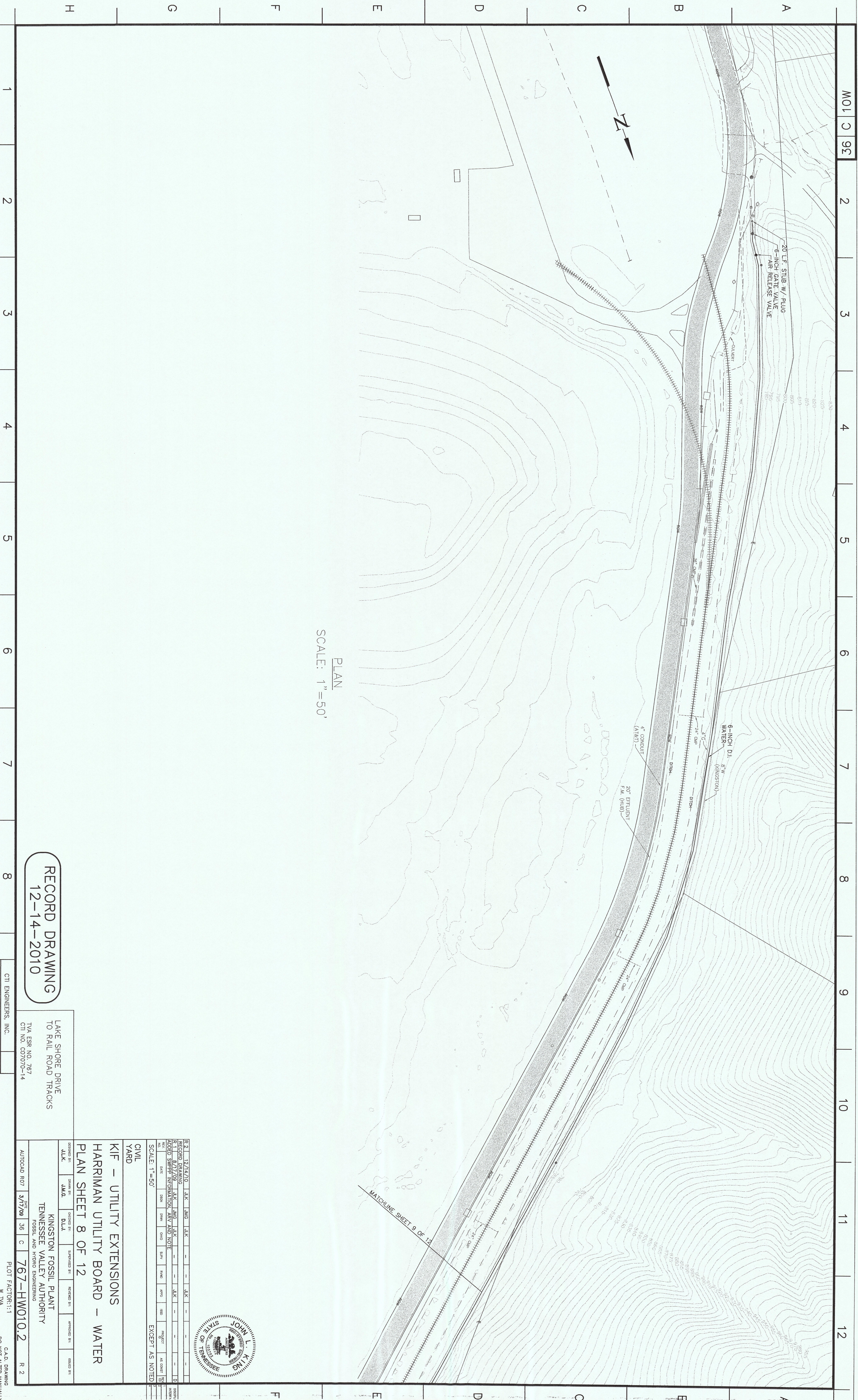
RECORD NO.	R 11	DATE	12/14/10	DESIGNER	JLK	CHECKER	JMG	APPROVED BY	JLK	DATE	12/14/10
PROJECT	KINGSTON FOSSIL PLANT										
CLIENT	TENNESSEE VALLEY AUTHORITY										
SCALE	1" = 50'										
EXCEPT AS NOTED	EXCEPT AS NOTED										



CIVIL  
YARD  
KIF - UTILITY EXTENSIONS  
HARRIMAN UTILITY BOARD - WATER  
PLAN SHEET 7 OF 12

KINGSTON FOSSIL PLANT  
TENNESSEE VALLEY AUTHORITY  
FOSSIL AND HYDRO ENGINEERING

AUTOLOAD R07 DATE 3/17/09 36 1 C 766-HW009.1 R 1  
PLOT FACTOR: 1:1  
C.A.D. DRAWING  
DO NOT ALTER MANUALLY



PLAN  
SCALE: 1" = 50'

**RECORD DRAWING**  
12-14-2010

LAKE SHORE DRIVE  
TO RAIL ROAD TRACKS

TVA ESR NO. 767  
CTI NO. 007070-14

CTI ENGINEERS, INC.  
TASK COMPLETED BY: REV. NO.

NO.	DATE	BY	DESCRIPTION
1	8/17/09	J.K.	RECORD DRAWING
2	3/17/09	J.K.	DESIGN SHEET INFORMATION, REV AND NOTE

SCALE: 1" = 50'

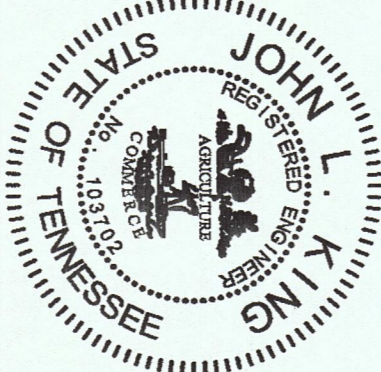
CIVIL  
YARD

KIF - UTILITY EXTENSIONS  
HARRIMAN UTILITY BOARD - WATER  
PLAN SHEET 8 OF 12

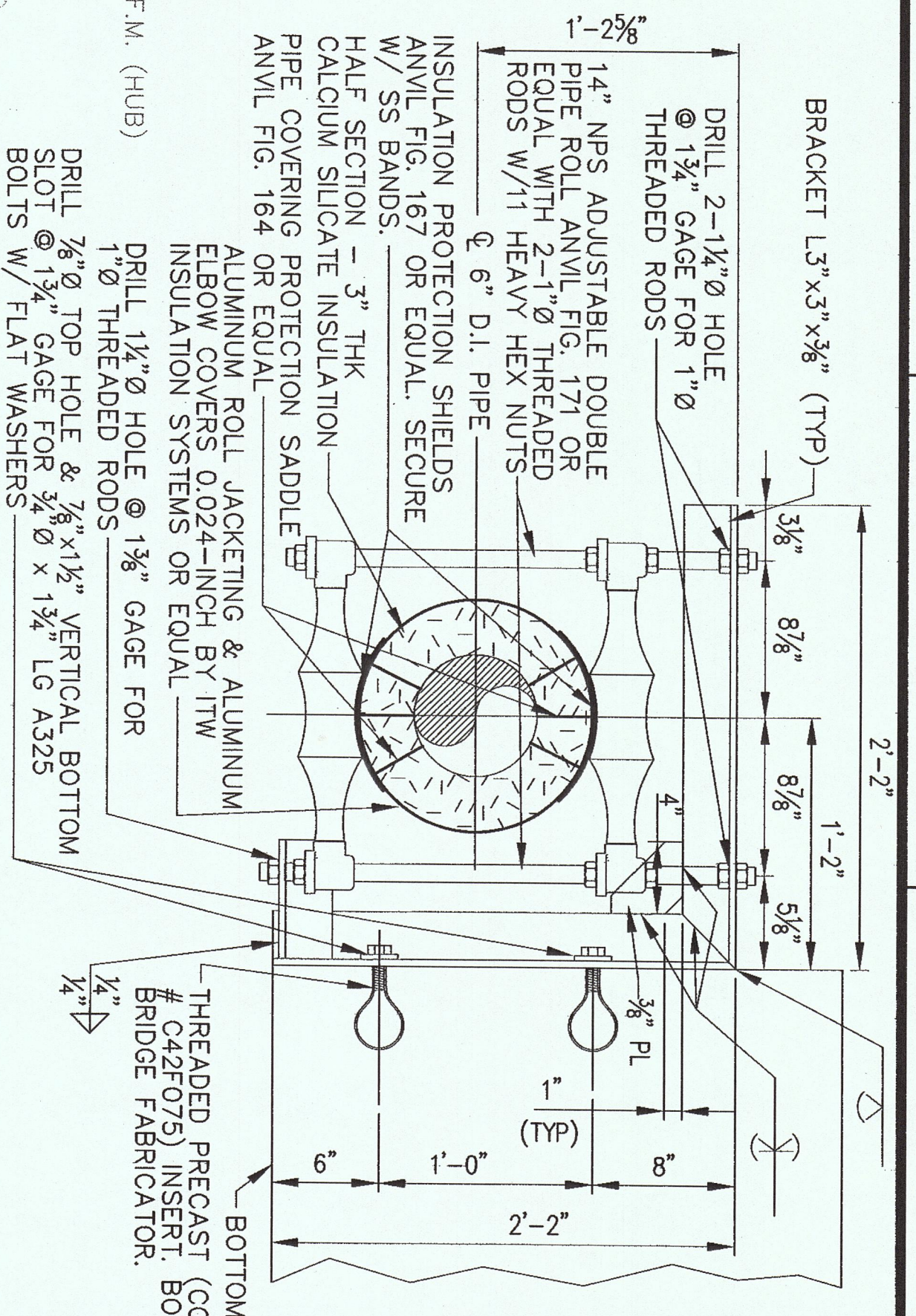
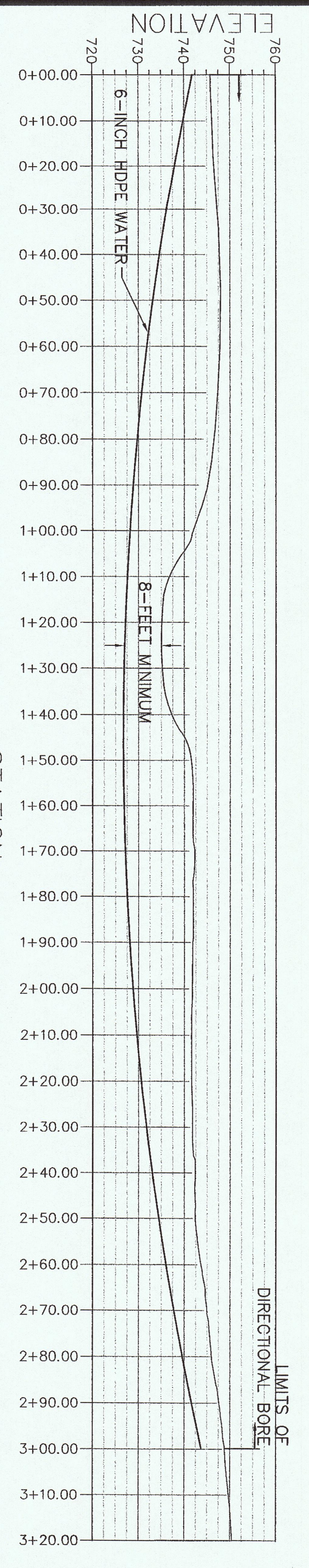
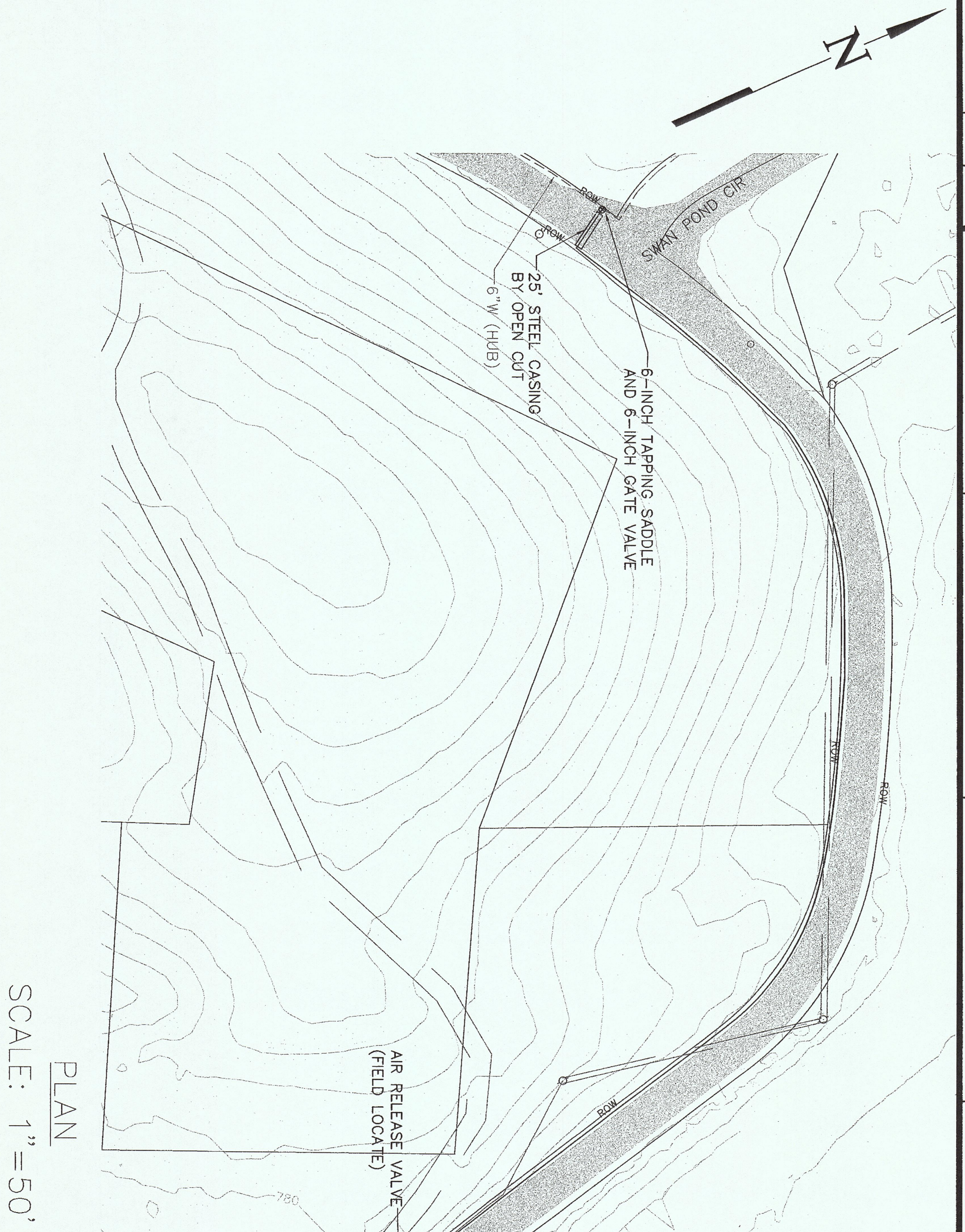
DESIGNED BY	DRAWN BY	CHECKED BY	IN CHARGE BY	APPROVED BY	DATE
J.L.K.	J.L.K.	J.L.K.	J.L.K.	J.L.K.	3/17/09

AUTOCAD REV 3/17/09 36 | C | 767-HW010.2

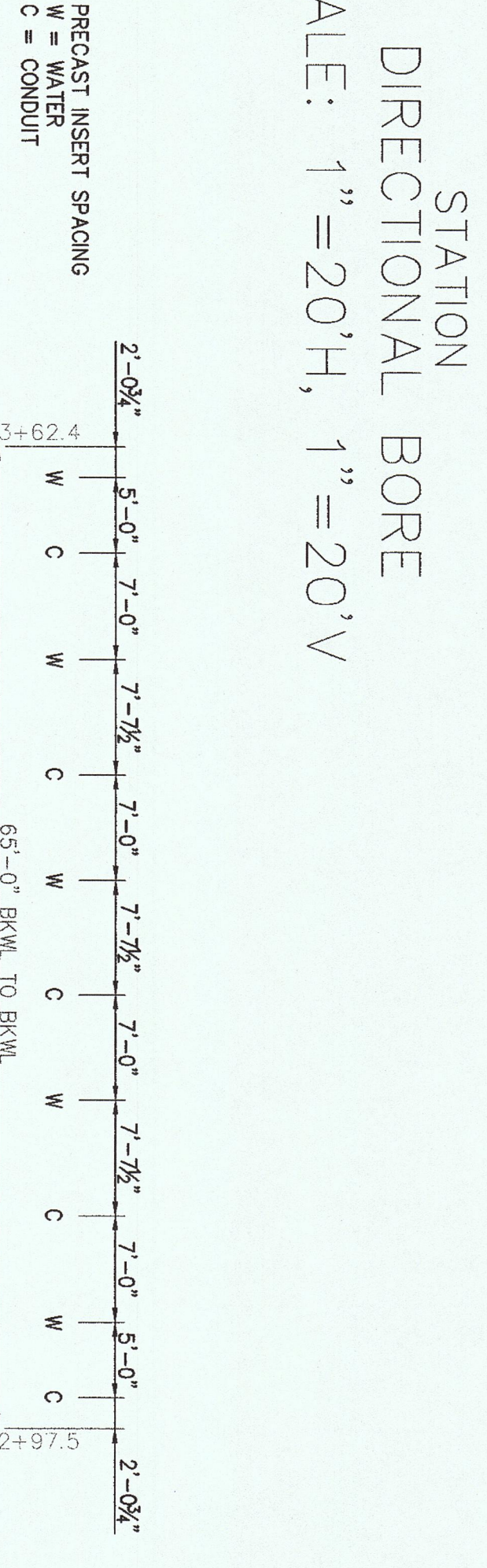
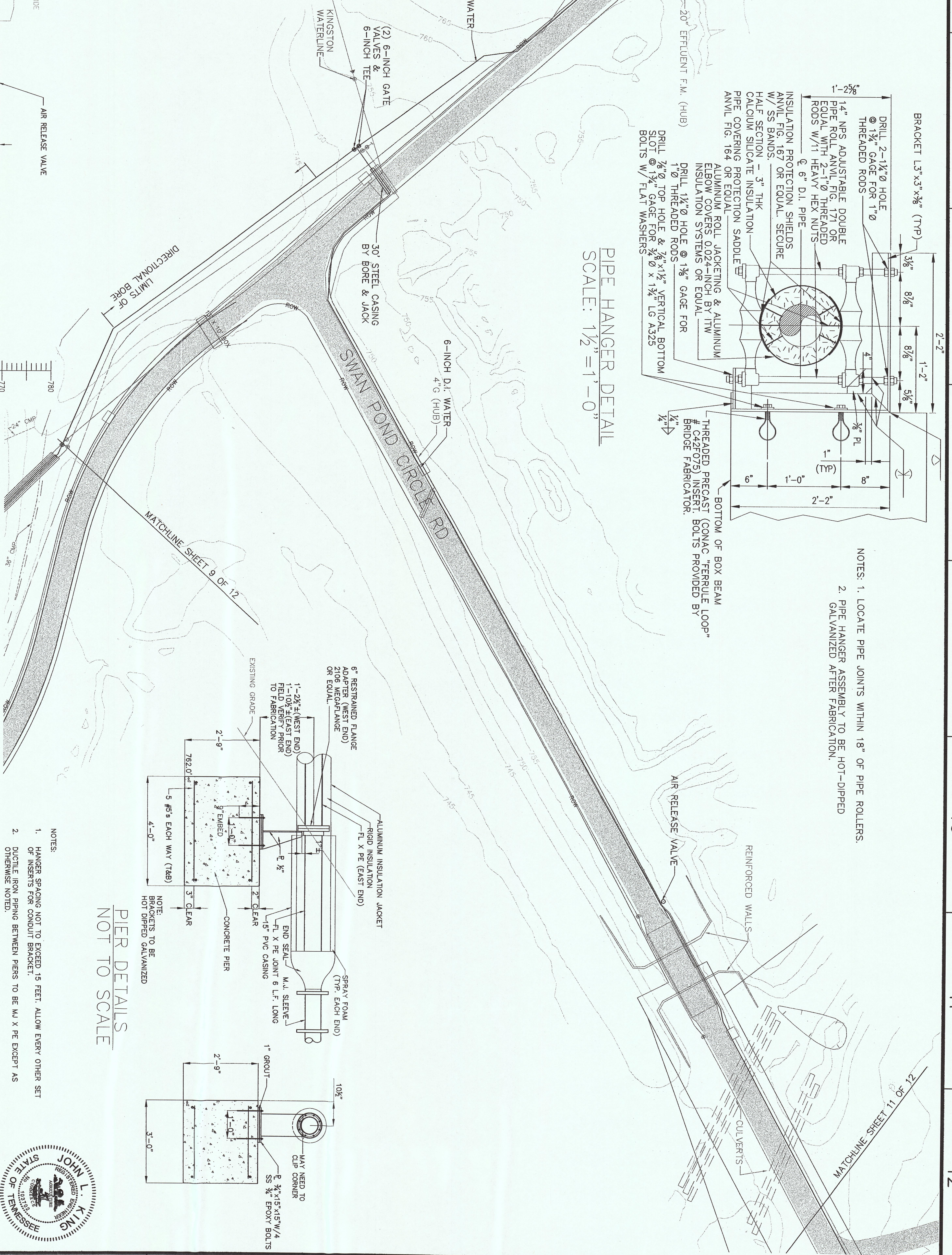
PLANT FACTOR: 1:1  
W. TVA  
CALC. DRAWING  
DO NOT ALTER MANUALLY



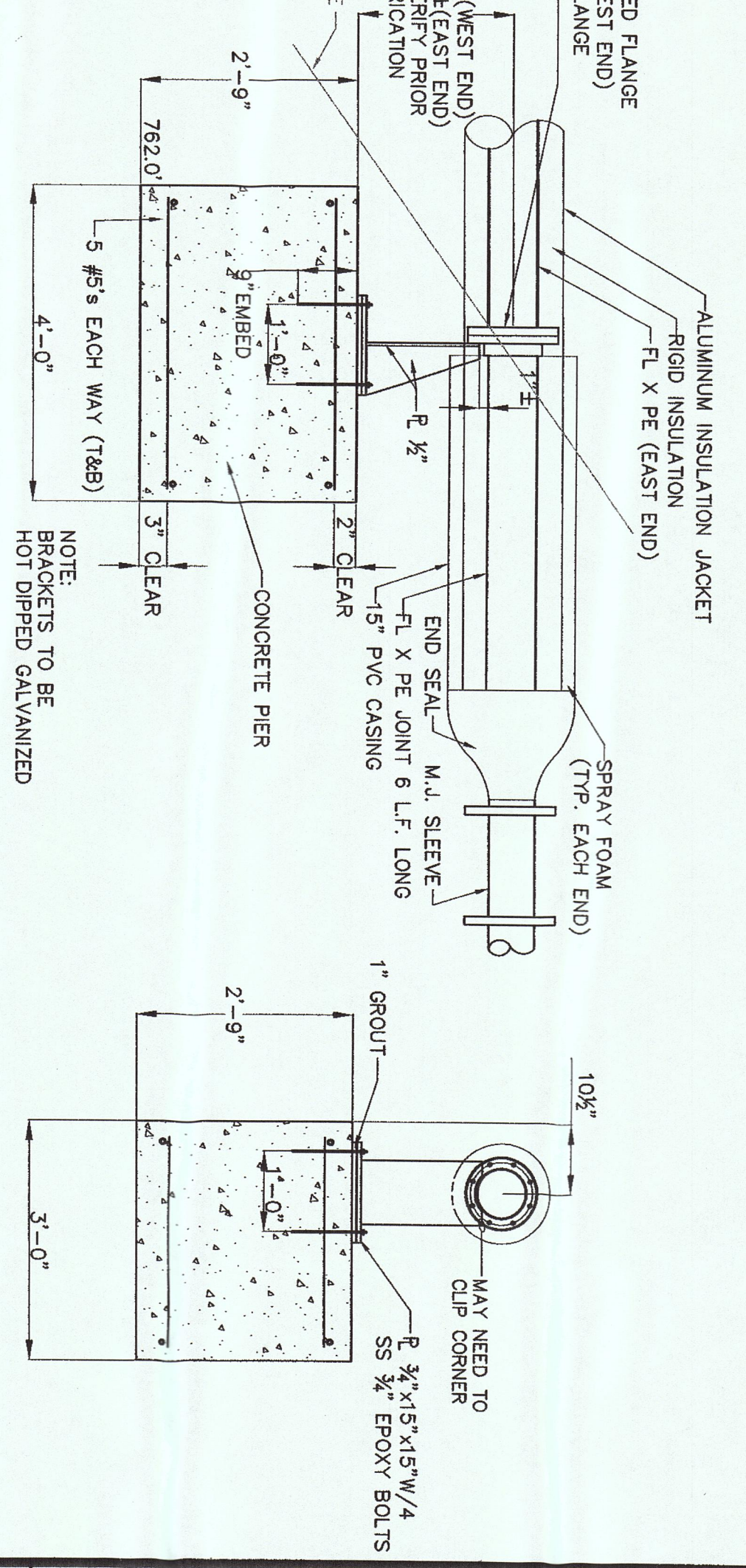




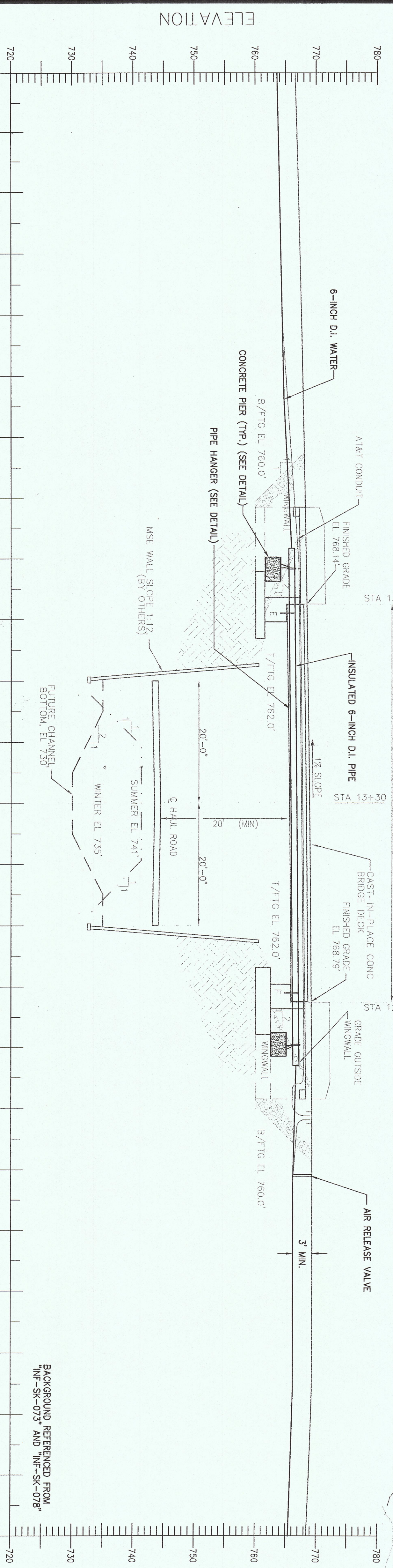
- NOTES:  
1. LOCATE PIPE JOINTS WITHIN 18" OF PIPE ROLLERS.  
2. PIPE HANGER ASSEMBLY TO BE HOT-DIPPED GALVANIZED AFTER FABRICATION.



PIER DETAILS  
NOT TO SCALE



- NOTES:  
1. HANGER SPACING NOT TO EXCEED 15 FEET. ALLOW EVERY OTHER SET OF INSERTS FOR CONDUIT BRACKET.  
2. DUCTILE IRON PIPING BETWEEN PIERS TO BE W.I.X.P.E EXCEPT AS OTHERWISE NOTED.



NOTE: ELEVATIONS SHOWN FOR FINISHED GRADE ARE AT CENTERLINE OF ROAD AND BRIDGE.

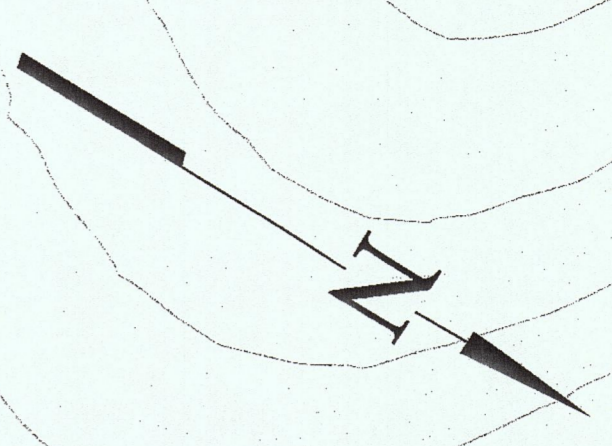
**RECORD DRAWING**  
12-14-2010

LAKE SHORE DRIVE  
TO RAIL ROAD TRACKS

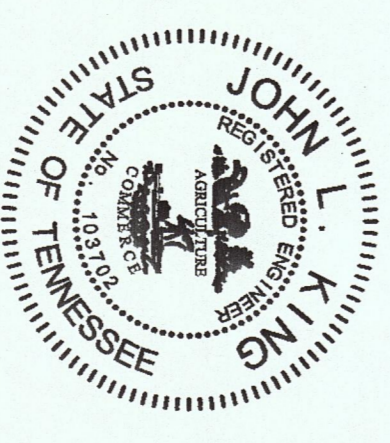
CIVIL  
YARD  
KIF - UTILITY EXTENSIONS  
HARRIMAN UTILITY BOARD - WATER  
PLAN SHEET 10 OF 12

DESIGNED BY	CHKD BY	DATE	DESIGNED BY	CHKD BY	DATE
J.M.K.	J.M.K.	5/17/08	J.M.K.	J.M.K.	5/17/08

PROJECT NO. 767  
767-HW012.5



PLAN  
SCALE: 1"=50'



RECORD DRAWING	DATE	BY	CHK	DATE	BY	CHK	DATE	BY	CHK	DATE	BY	CHK	DATE	BY	CHK
12/14/10	JKK	JKK	JKK	JKK	JKK	JKK	JKK	JKK	JKK	JKK	JKK	JKK	JKK	JKK	JKK

CIVIL  
YARD  
KIF - UTILITY EXTENSIONS  
HARRIMAN UTILITY BOARD - WATER  
PLAN SHEET 1 OF 12

**RECORD DRAWING**  
12-14-2010

FARM TO HASSLER MILL ROAD  
TVA ESP. NO. 765  
CTI NO. C07070-12

KINGSTON FOSSIL PLANT  
TENNESSEE VALLEY AUTHORITY  
FOSSIL AND HYDRO ENGINEERING

AUTOCAD R07 3/17/09 36 C 765-HW003.2 R. 2

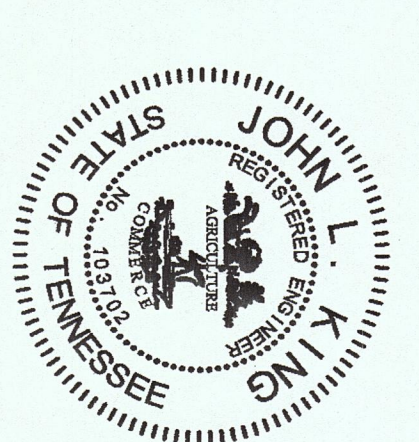
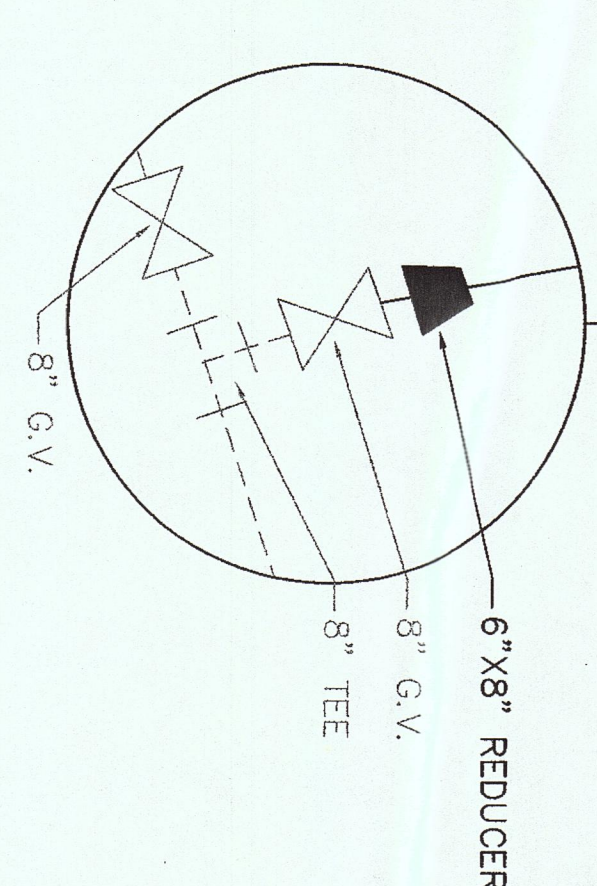
CTI ENGINEERS, INC.  
TASK COMPLETED BY: REV NO.

PLOT FACTOR: 1:1  
W\_TVA

C.A.D. DRAWING  
DO NOT ALTER MANUALLY



PLAN  
SCALE: 1" = 50'



REV.	DATE	BY	CHKD.	DESCRIPTION
R. 3	12/24/10	JLK	JMG	JLK
R. 2	4/12/10	JLK	JMG	JLK
R. 1	4/12/10	JLK	JMG	JLK

RECORDED DRAWING  
 RECHECKED BY: JMG  
 DRAWN BY: JLK  
 CHECKED BY: JMG  
 DATE: 4/12/10

ADDED SWEEP INFORMATION  
 DATE: 4/12/10  
 BY: JLK  
 CHECKED BY: JMG

SCALE: 1" = 50'  
 EXCEPT AS NOTED

**RECORD DRAWING**  
 12-14-2010

LAKE SHORE DRIVE  
 TO RAIL ROAD TRACKS  
 TVA ESR NO. 767  
 CTT NO. C07070-14

DESIGNED BY:	CHKD. BY:	DATE:	PROJECT:
JLK	JMG	3/17/08	767-HW014.3
DRAWN BY:	CHKD. BY:	DATE:	PROJECT:
JMG	DLL	3/17/08	767-HW014.3
SCALE:	DATE:	BY:	CHKD. BY:
1" = 50'	3/17/08	JMG	DLL

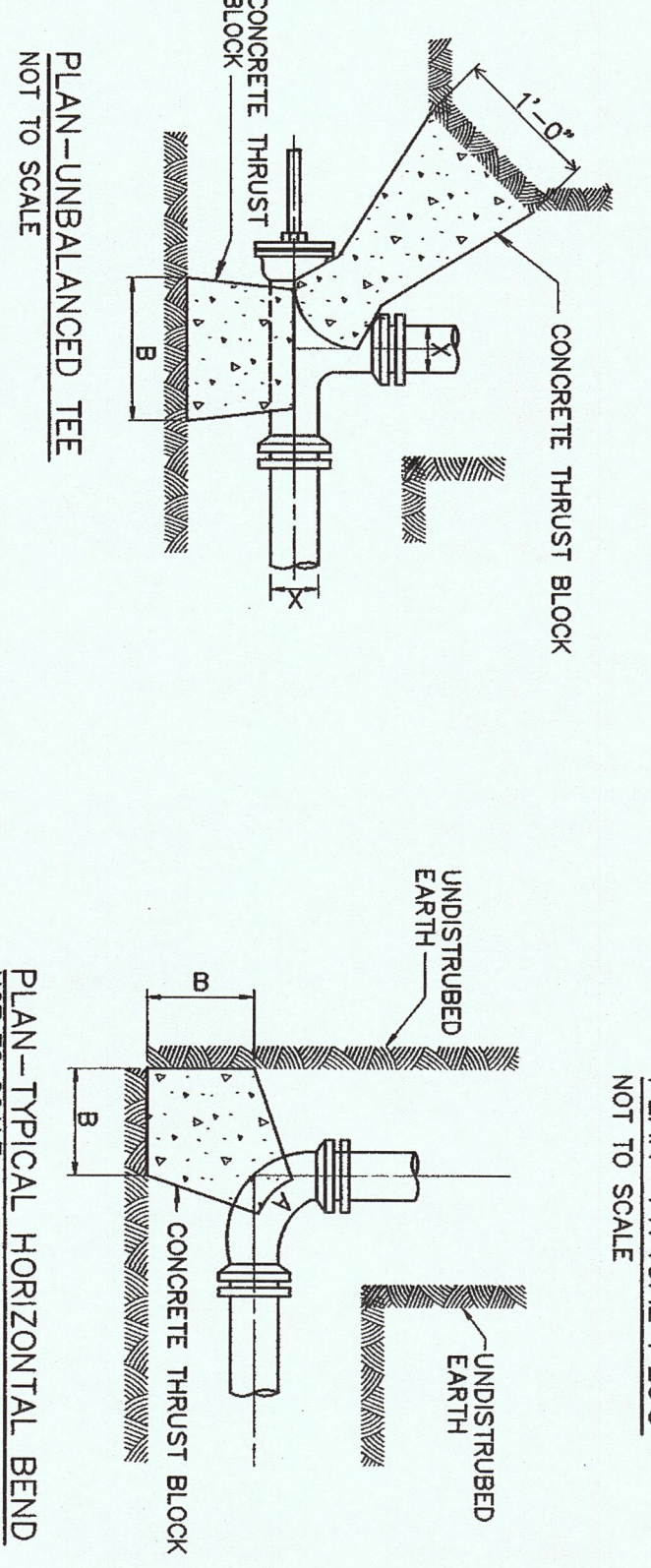
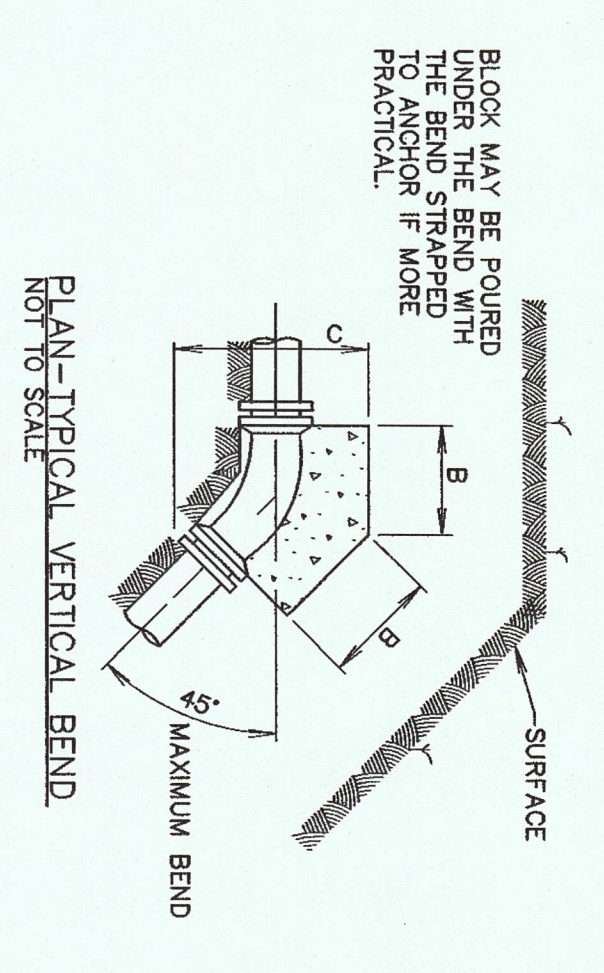
CIVIL  
 YARD  
 KIF - UTILITY EXTENSIONS  
 HARRIMAN UTILITY BOARD - WATER  
 PLAN SHEET 12 OF 12

KINGSTON FOSSIL PLANT  
 TENNESSEE VALLEY AUTHORITY  
 FOSSIL AND HYDRO ENGINEERING

AUTOGAD 807 13/17/08 36 C 767-HW014.3 R. 3

CTI ENGINEERS, INC.  
 TASK COMPLETED BY: REV. NO.

PLLOT FACTOR: 1:1  
 W\_LVA  
 C.A.D. DRAWING  
 DO NOT ALTER MANUALLY

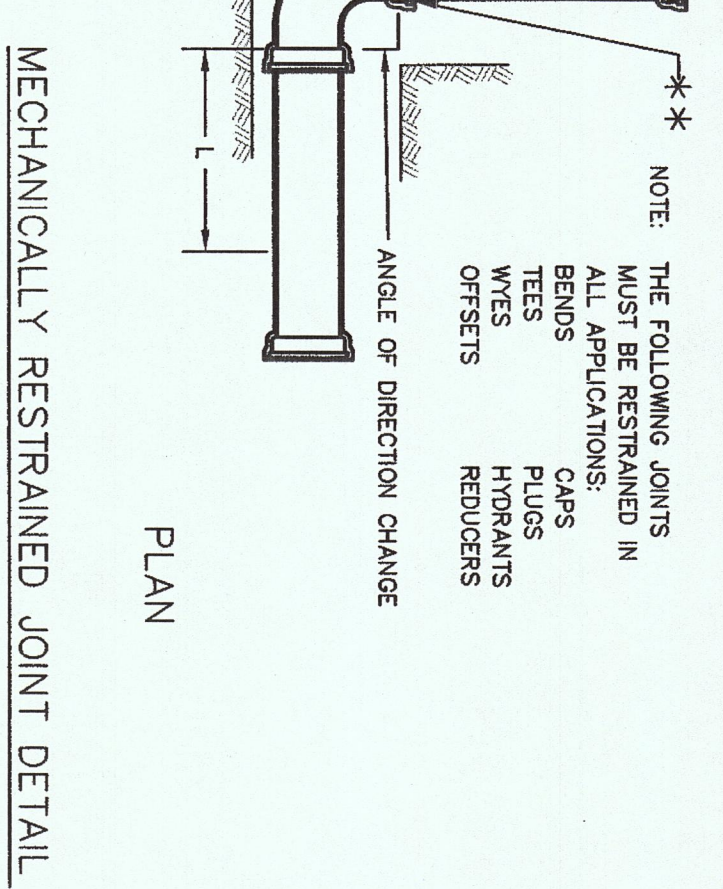
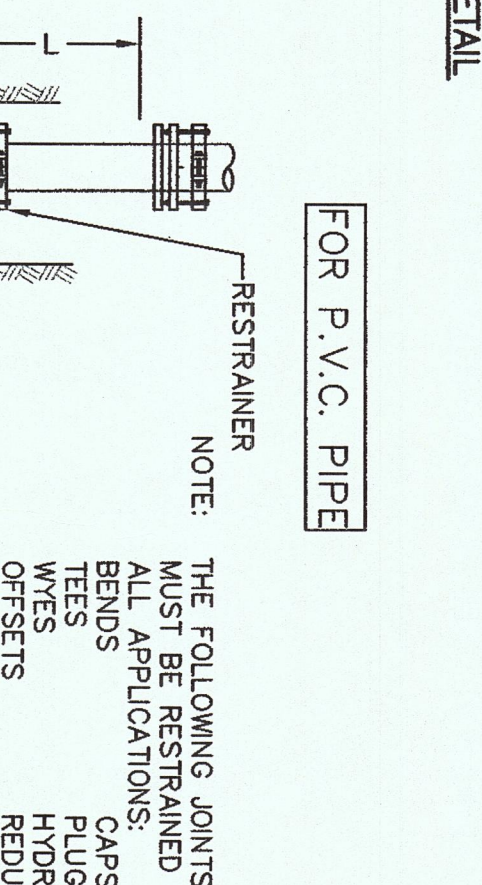
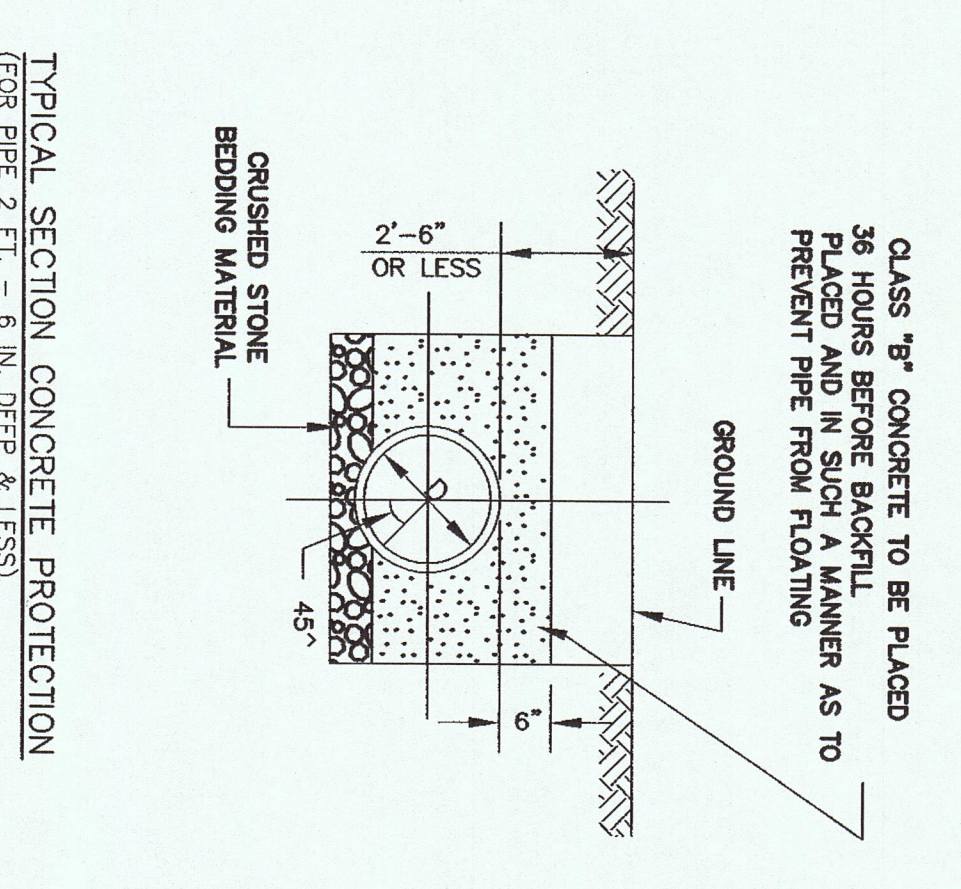
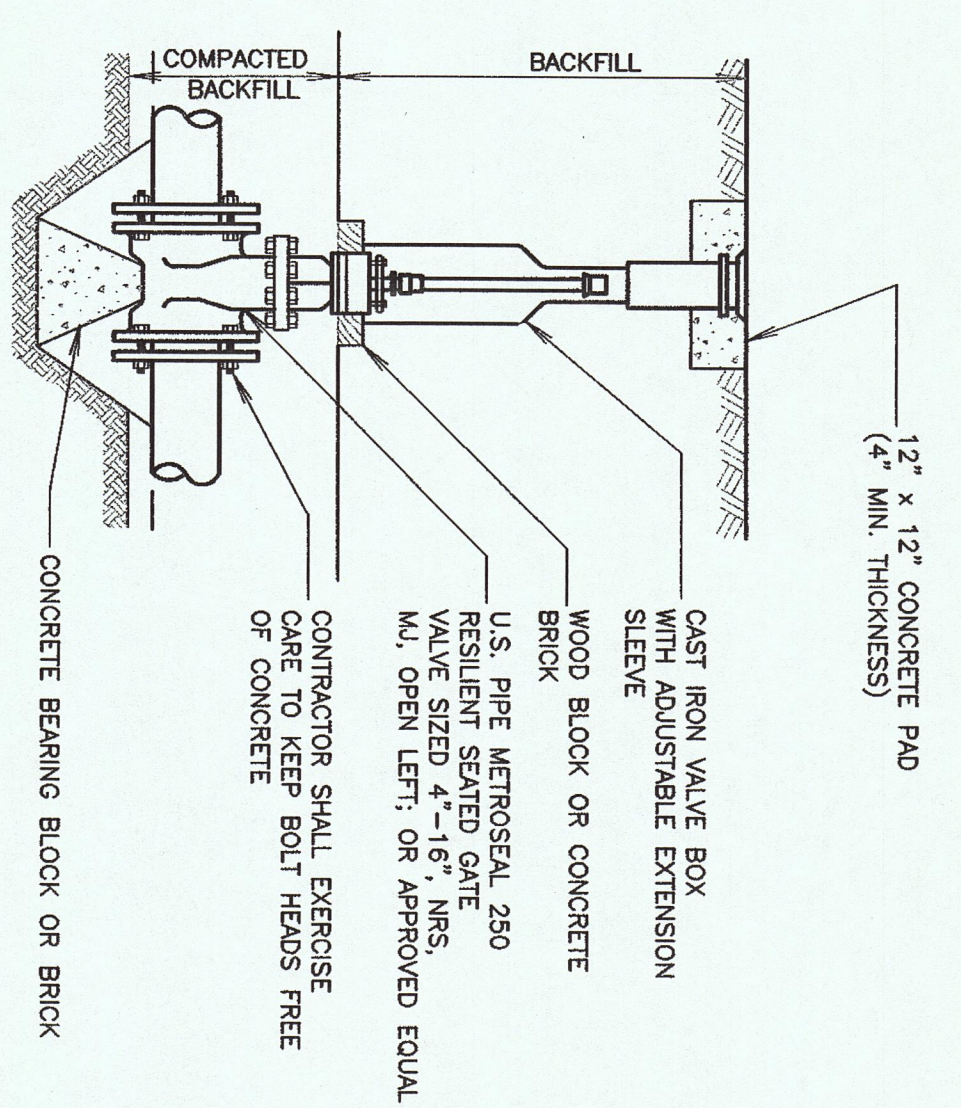
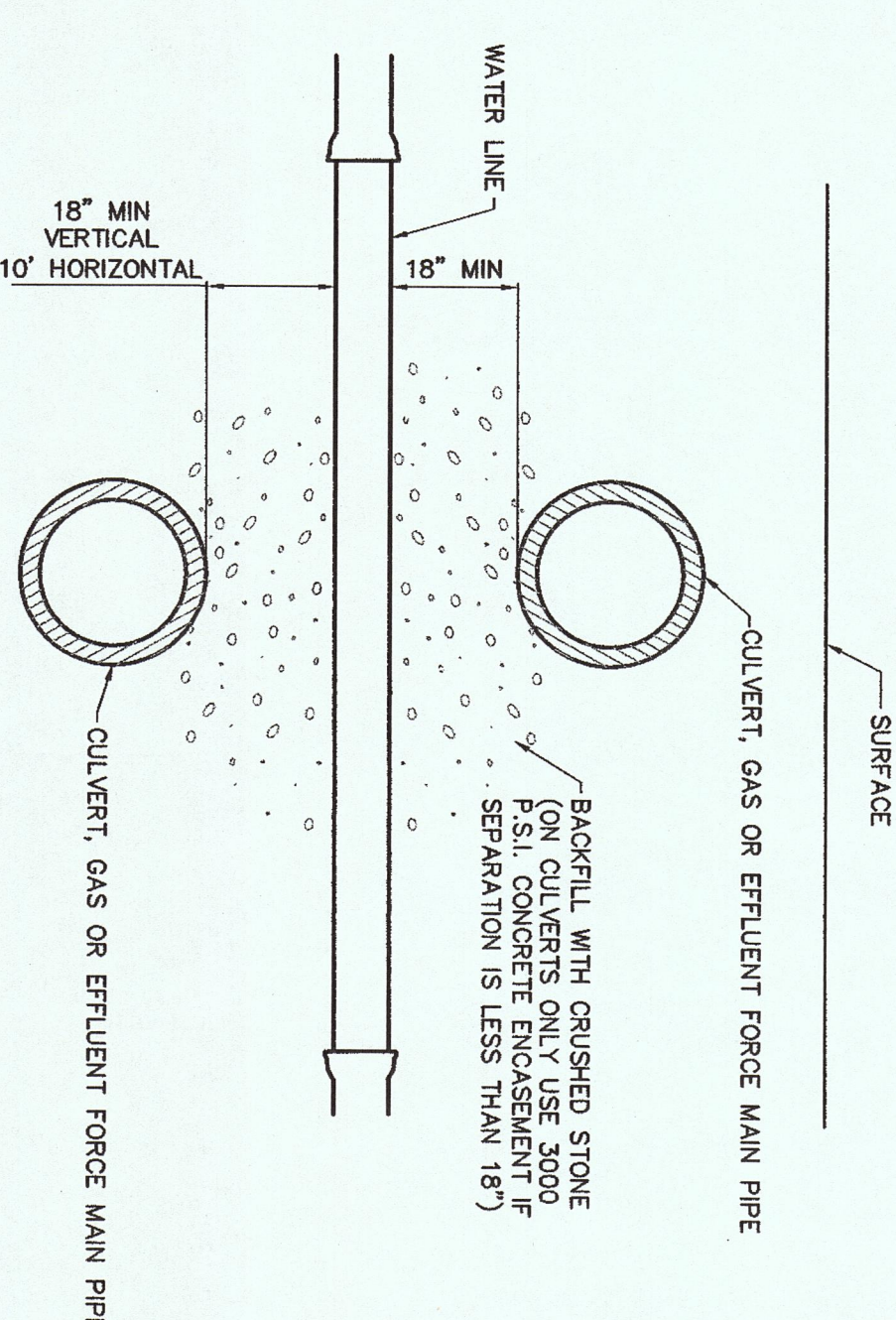
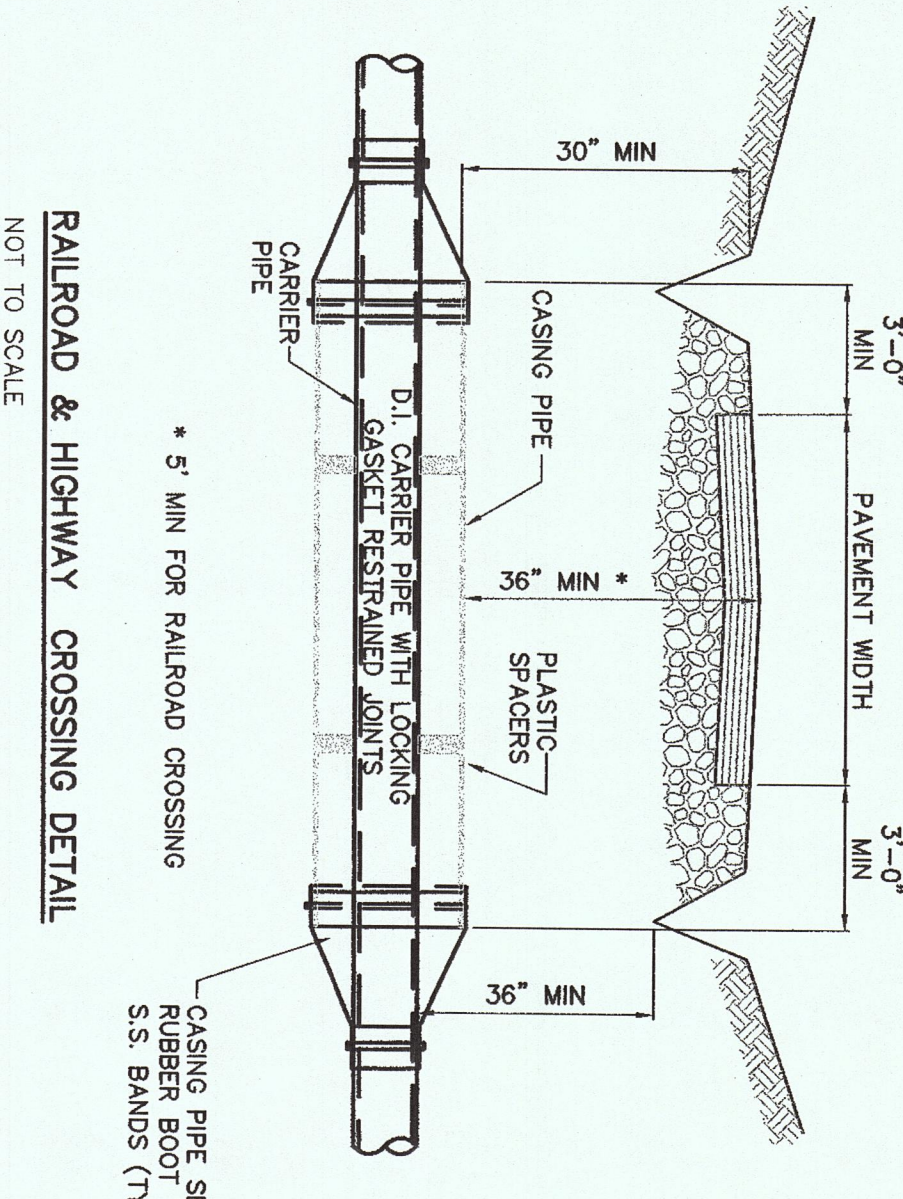
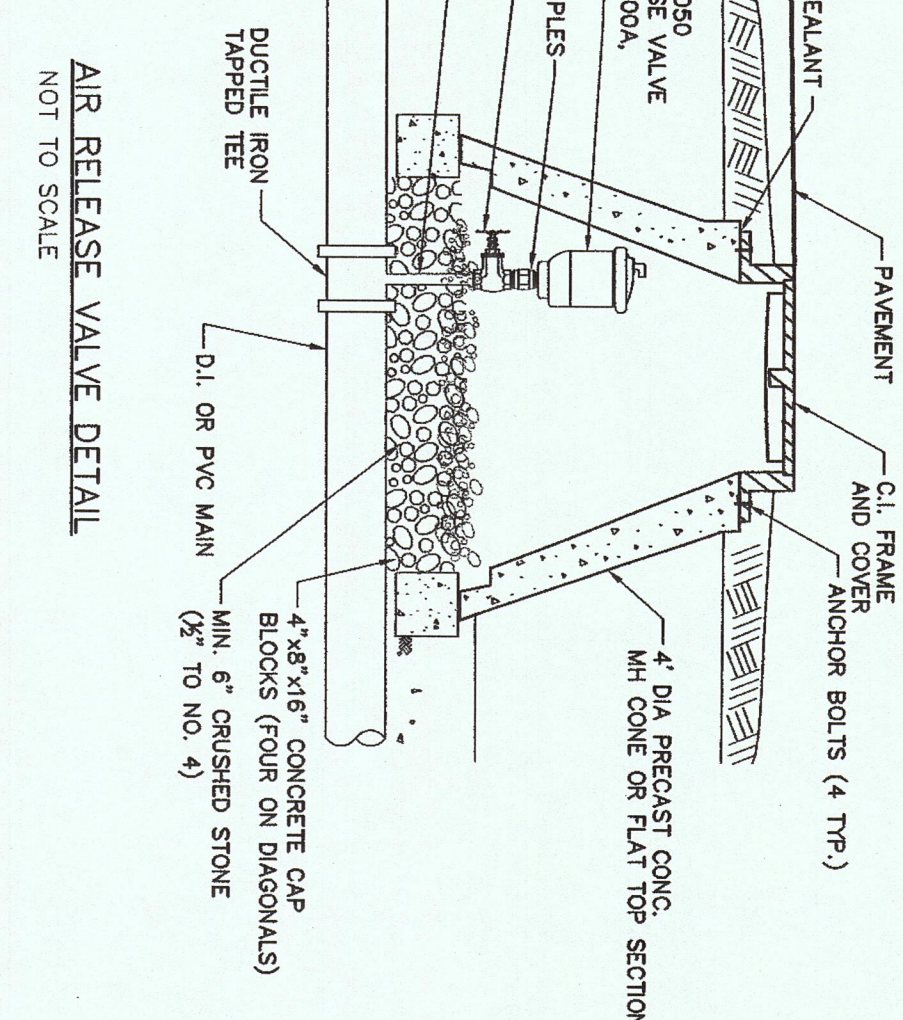
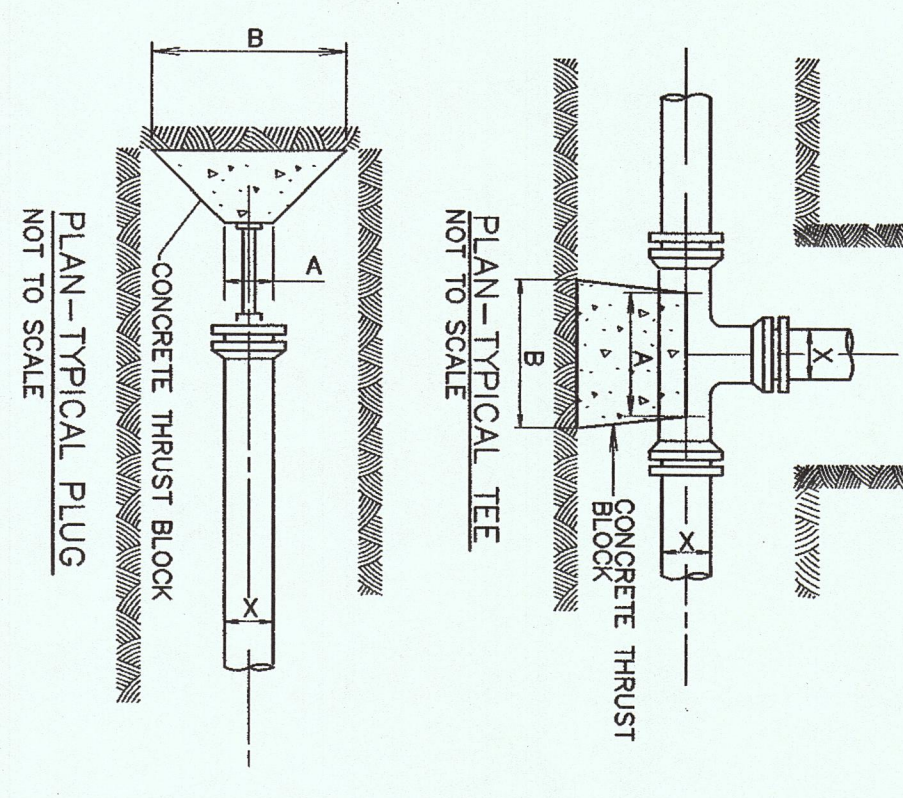


SIZE	A	B	DEPTH (CONCRETE)	SIZE	A	B	DEPTH (CONCRETE)
1 1/2" BEND	1'-0"	1'-0"	1'-0"	1 1/2" BEND	1'-0"	1'-0"	1'-0"
2" BEND	1'-0"	1'-0"	1'-0"	2" BEND	1'-0"	1'-0"	1'-0"
3" BEND	1'-0"	1'-0"	1'-0"	3" BEND	1'-0"	1'-0"	1'-0"
4" BEND	1'-0"	1'-0"	1'-0"	4" BEND	1'-0"	1'-0"	1'-0"
6" BEND	1'-0"	1'-0"	1'-0"	6" BEND	1'-0"	1'-0"	1'-0"
8" BEND	1'-0"	1'-0"	1'-0"	8" BEND	1'-0"	1'-0"	1'-0"
10" BEND	1'-0"	1'-0"	1'-0"	10" BEND	1'-0"	1'-0"	1'-0"
12" BEND	1'-0"	1'-0"	1'-0"	12" BEND	1'-0"	1'-0"	1'-0"
15" BEND	1'-0"	1'-0"	1'-0"	15" BEND	1'-0"	1'-0"	1'-0"
18" BEND	1'-0"	1'-0"	1'-0"	18" BEND	1'-0"	1'-0"	1'-0"
24" BEND	1'-0"	1'-0"	1'-0"	24" BEND	1'-0"	1'-0"	1'-0"
30" BEND	1'-0"	1'-0"	1'-0"	30" BEND	1'-0"	1'-0"	1'-0"
36" BEND	1'-0"	1'-0"	1'-0"	36" BEND	1'-0"	1'-0"	1'-0"
42" BEND	1'-0"	1'-0"	1'-0"	42" BEND	1'-0"	1'-0"	1'-0"
48" BEND	1'-0"	1'-0"	1'-0"	48" BEND	1'-0"	1'-0"	1'-0"
54" BEND	1'-0"	1'-0"	1'-0"	54" BEND	1'-0"	1'-0"	1'-0"
60" BEND	1'-0"	1'-0"	1'-0"	60" BEND	1'-0"	1'-0"	1'-0"
72" BEND	1'-0"	1'-0"	1'-0"	72" BEND	1'-0"	1'-0"	1'-0"
84" BEND	1'-0"	1'-0"	1'-0"	84" BEND	1'-0"	1'-0"	1'-0"
96" BEND	1'-0"	1'-0"	1'-0"	96" BEND	1'-0"	1'-0"	1'-0"
108" BEND	1'-0"	1'-0"	1'-0"	108" BEND	1'-0"	1'-0"	1'-0"
120" BEND	1'-0"	1'-0"	1'-0"	120" BEND	1'-0"	1'-0"	1'-0"

NOTE: ALL CONCRETE FOR THRUST BLOCKS SHALL BE READY-MIXED 3000 PSI (MIN) CLASS TYPE II CONCRETE. ALL CONCRETE SHALL BE REINFORCED WITH #4 REBAR (MIN) AT 12" ON CENTER. CONCRETE SHALL BE PLACED AND FINISHED TO THE TOP OF THE THRUST BLOCKS. THE FINISH OF THE THRUST BLOCKS SHOULD BE INCREASED BY THE FOLLOWING FACTORS:

NOTE: ALL CONCRETE FOR THRUST BLOCKS SHALL BE READY-MIXED 3000 PSI (MIN) CLASS TYPE II CONCRETE. ALL CONCRETE SHALL BE REINFORCED WITH #4 REBAR (MIN) AT 12" ON CENTER. CONCRETE SHALL BE PLACED AND FINISHED TO THE TOP OF THE THRUST BLOCKS. THE FINISH OF THE THRUST BLOCKS SHOULD BE INCREASED BY THE FOLLOWING FACTORS:

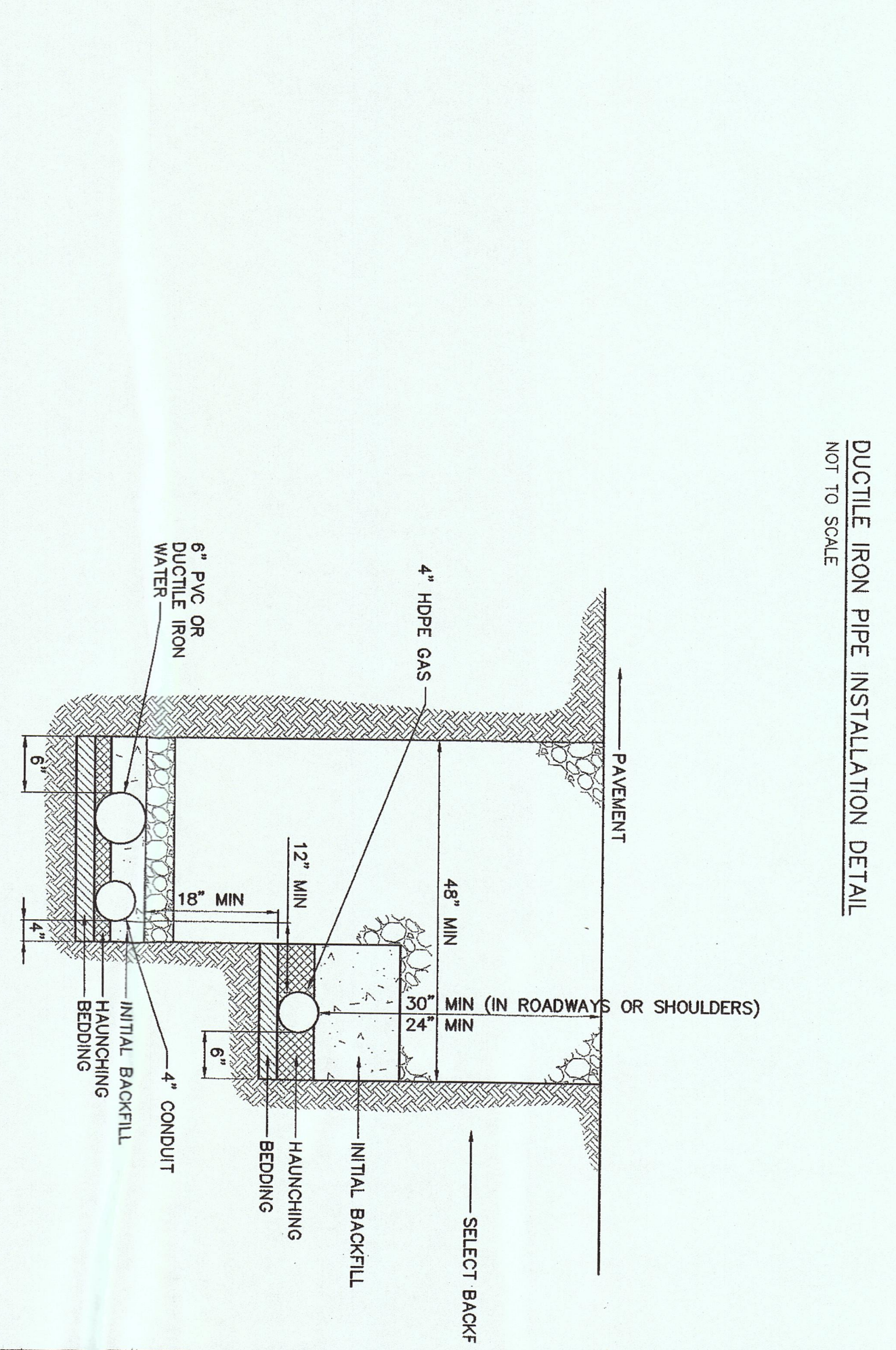
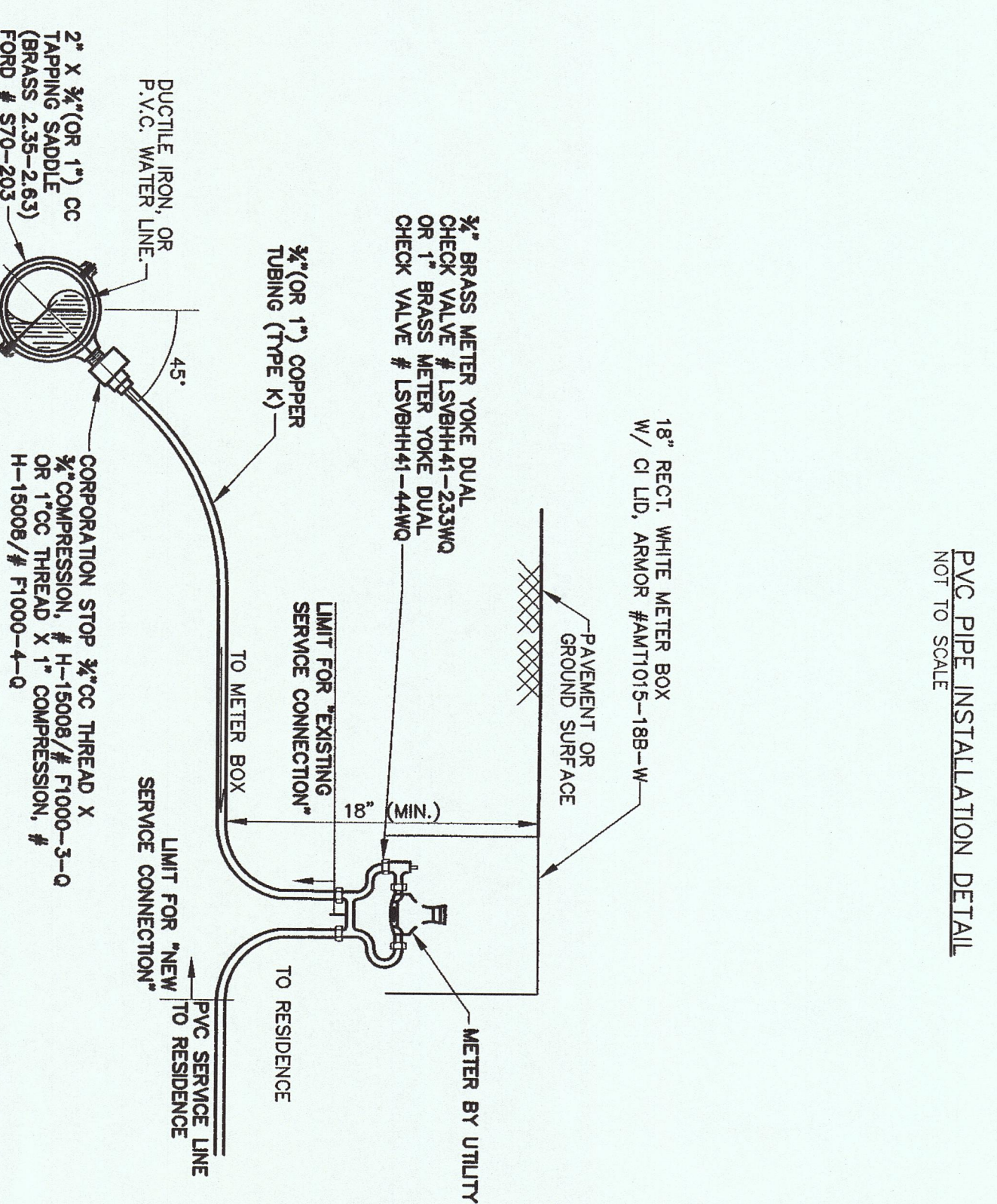
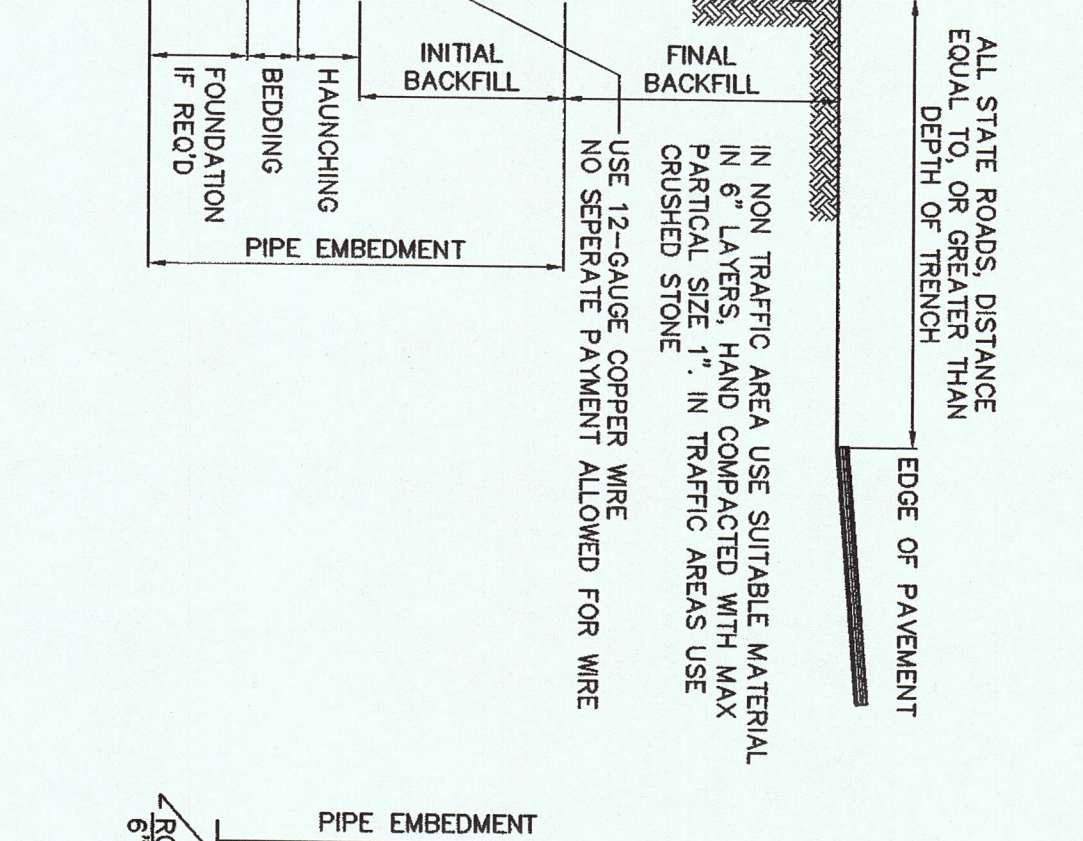
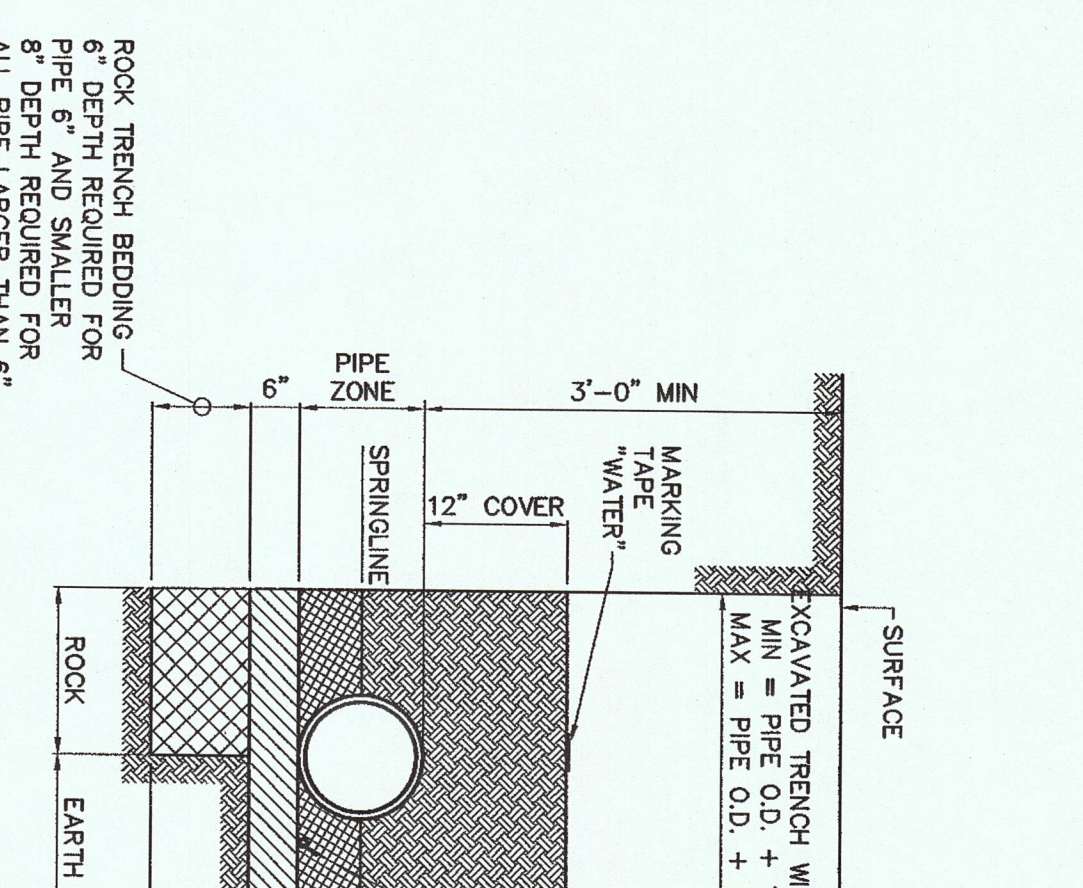
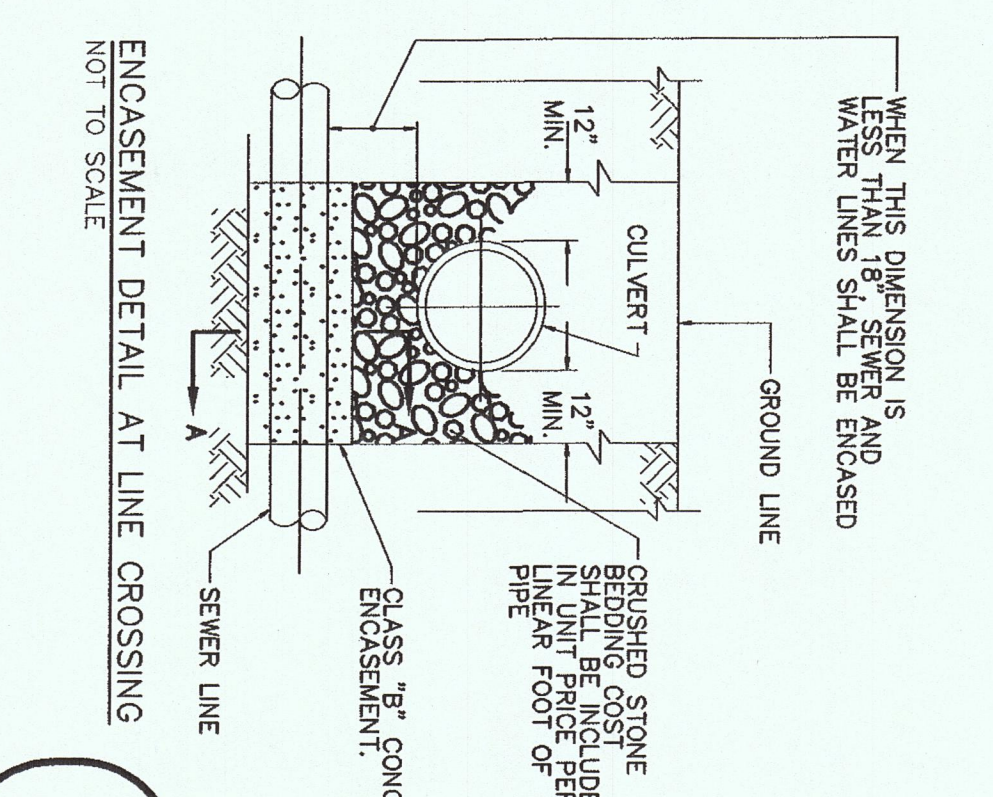
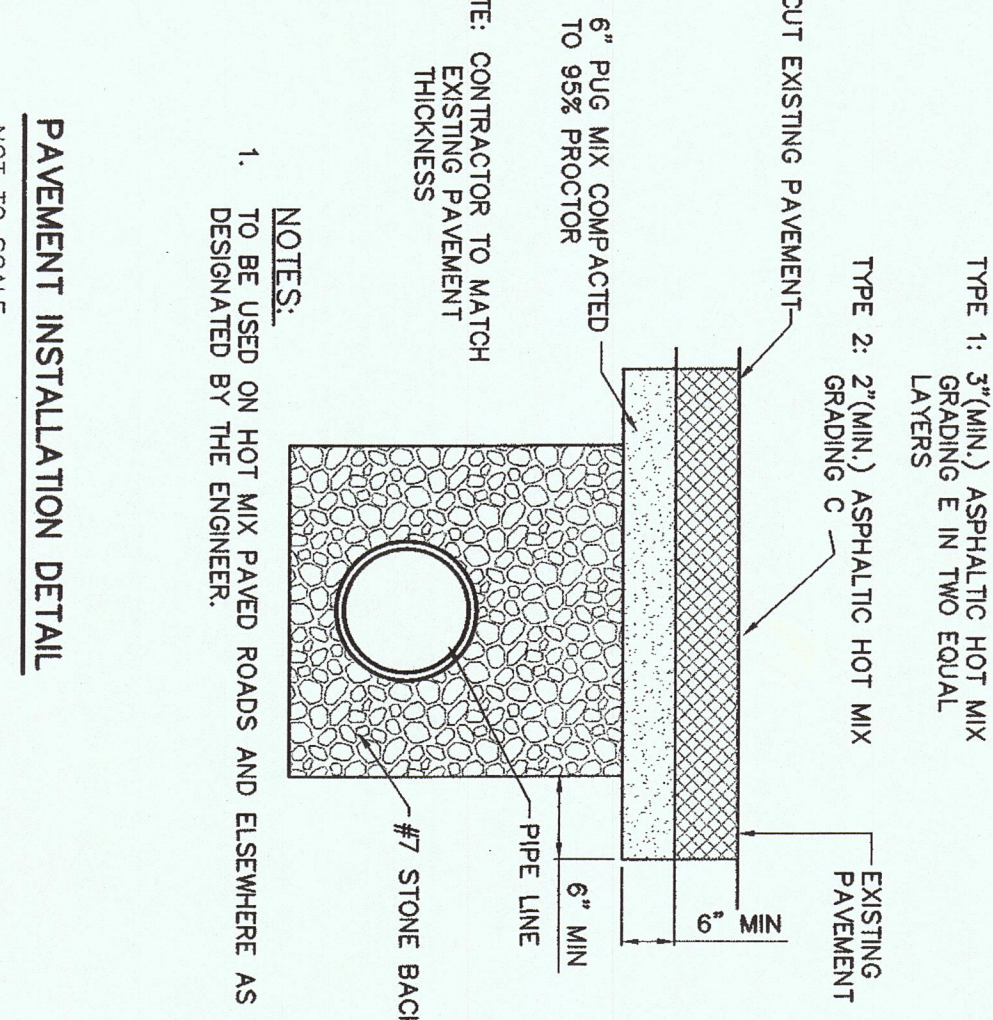
NOTE: ALL CONCRETE FOR THRUST BLOCKS SHALL BE READY-MIXED 3000 PSI (MIN) CLASS TYPE II CONCRETE. ALL CONCRETE SHALL BE REINFORCED WITH #4 REBAR (MIN) AT 12" ON CENTER. CONCRETE SHALL BE PLACED AND FINISHED TO THE TOP OF THE THRUST BLOCKS. THE FINISH OF THE THRUST BLOCKS SHOULD BE INCREASED BY THE FOLLOWING FACTORS:



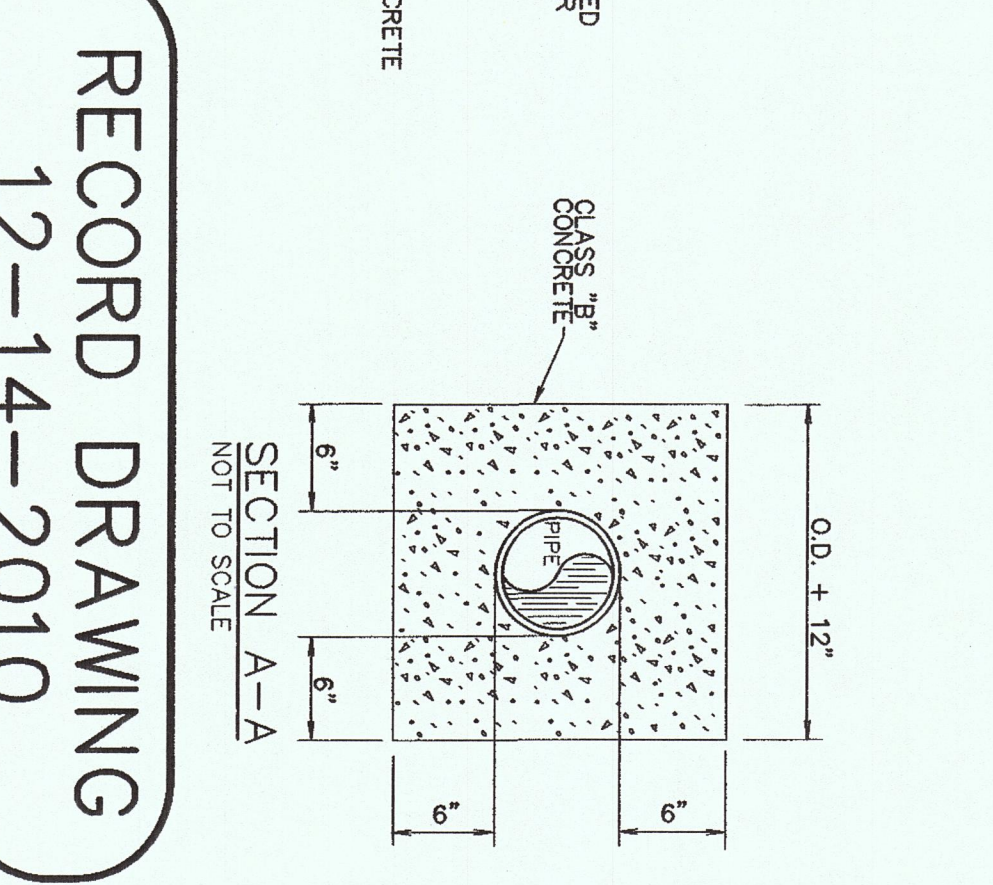
RESTRAINED JOINT DETAIL

NOTE: L = MINIMUM LENGTH TO BE RESTRAINED ON EACH SIDE OF FITTING (FEET)

PIPE SIZE (INCHES)	TEST PRESSURE - 150 PSI	TEST PRESSURE - 200 PSI
1/2"	1'-0"	1'-0"
3/4"	1'-0"	1'-0"
1"	1'-0"	1'-0"
1 1/4"	1'-0"	1'-0"
1 1/2"	1'-0"	1'-0"
2"	1'-0"	1'-0"
2 1/2"	1'-0"	1'-0"
3"	1'-0"	1'-0"
3 1/2"	1'-0"	1'-0"
4"	1'-0"	1'-0"
4 1/2"	1'-0"	1'-0"
5"	1'-0"	1'-0"
5 1/2"	1'-0"	1'-0"
6"	1'-0"	1'-0"
6 1/2"	1'-0"	1'-0"
7"	1'-0"	1'-0"
7 1/2"	1'-0"	1'-0"
8"	1'-0"	1'-0"
8 1/2"	1'-0"	1'-0"
9"	1'-0"	1'-0"
9 1/2"	1'-0"	1'-0"
10"	1'-0"	1'-0"
10 1/2"	1'-0"	1'-0"
11"	1'-0"	1'-0"
11 1/2"	1'-0"	1'-0"
12"	1'-0"	1'-0"
12 1/2"	1'-0"	1'-0"
13"	1'-0"	1'-0"
13 1/2"	1'-0"	1'-0"
14"	1'-0"	1'-0"
14 1/2"	1'-0"	1'-0"
15"	1'-0"	1'-0"
15 1/2"	1'-0"	1'-0"
16"	1'-0"	1'-0"
16 1/2"	1'-0"	1'-0"
17"	1'-0"	1'-0"
17 1/2"	1'-0"	1'-0"
18"	1'-0"	1'-0"
18 1/2"	1'-0"	1'-0"
19"	1'-0"	1'-0"
19 1/2"	1'-0"	1'-0"
20"	1'-0"	1'-0"
20 1/2"	1'-0"	1'-0"
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100"	1'-0"	1'-0"



- NOTES:
- BACKFILLING, COMPACTING, GRADING, AND SITE-CLEANUP SHALL OCCUR DAILY AS PRE-INSTALLATION PROGRESS.
  - GATE VALVES AND AIR RELEASE VALVES SHALL BE FIELD LOCATED AT THE APPROXIMATE LOCATIONS INDICATED ON THE DRAWINGS. AIR RELEASE VALVES SHALL BE LOCATED AT THE HIGH POINTS ALONG THE LINE.
  - THE SPACING OF THE LINE SHALL BE INSTALLED AT THE MINIMUM SPACING INDICATED ON THE DRAWINGS UNLESS OTHERWISE NOTED. THE AIR RELEASE VALVES, ADDITIONAL DEPTH WILL BE POINT LOCATIONS AS WELL AS ALONG THE LINE SEGMENTS LEADING UP TO THAT HIGH POINT.
  - THE WATER MAIN SHALL BE CONSTRUCTED OF 300-17 CLASS 250 P.V.C. AND CLASS 350 DUCTILE IRON UNLESS OTHERWISE NOTED.
  - PROMOTE THRUST RESTRAINT AT ALL FITTINGS USING MECHANICALLY RESTRAINED JOINTS, UNLESS OTHERWISE NOTED.
  - INSTALL ALL DUCTILE IRON PIPING, FITTINGS AND APPURTENANCES WITH A CONTINUOUS PROTECTIVE WRAP (WRAP OR TUBE) OF 4-MIL HDPE OR 8-MIL LLD POLYETHYLENE FILM IN ACCORDANCE WITH AIAA/CIP/04/01.
  - WHERE SHOT ROCK OR ROCK FILL (> 1/2" DIAMETER STONE) IS ENCOUNTERED, EXCAVATION AND BACKFILL SHALL PROCEED AS IN ROCK EXCAVATION EXCEPT THAT WOODS IN ROCK BENEATH ROCK TRENCH BEDDING SHALL BE FILLED BY FORMABLE FILL OR PLACEMENT OF ACCEPTABLE GEOMORPHIC MATERIAL.
  - THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION SCHEDULING AND TRAFFIC CONTROL. ALL WORK SHALL BE ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS AND ANY TRAFFIC CONTROL REQUIREMENTS IMPOSED BY LOCAL OFFICES AND BY TVA.
  - CONTRACTOR TO FIELD LOCATE EXISTING WELL LINE TO RELOCATE AND CONNECT NEW P.V.C. SERVICE TO EXISTING WELL LINE PRIOR TO SERVICE COORDINATE WITH UTILITY FOR WELL INSTALLATION.
  - CONNECTIONS TO EXISTING 2-INCH P.V.C. WATER LINES SHALL USE A THREADED BRASS NIPPLE, A THREADED 2-INCH GATE VALVE AND A BELL BY MALE THREADED ADAPTER, OR APPROVED EQUAL.



RECORD DRAWING  
12-14-2010

HARRIMAN UTILITY BOARD - WATER  
DETAIL SHEET

KIF - UTILITY EXTENSIONS

KINGSTON FOSSIL PLANT  
TENNESSEE VALLEY AUTHORITY  
FOSSIL AND HYDRO ENGINEERING

SCALE: AS SHOWN EXCEPT AS NOTED

YARD CIVIL

DESIGNED BY: A.L.K. CHECKED BY: D.L.L. SURVEYED BY: REVISED BY: APPROVED BY: DATE: 3/17/09 36 C ALL-HW015.1 R 1

PROJECT NO. 36 C ALL-HW015.1

DATE: 3/17/09

SCALE: AS SHOWN EXCEPT AS NOTED

YARD CIVIL

DESIGNED BY: A.L.K. CHECKED BY: D.L.L. SURVEYED BY: REVISED BY: APPROVED BY: DATE: 3/17/09 36 C ALL-HW015.1 R 1

PROJECT NO. 36 C ALL-HW015.1

DATE: 3/17/09

SCALE: AS SHOWN EXCEPT AS NOTED

YARD CIVIL

DESIGNED BY: A.L.K. CHECKED BY: D.L.L. SURVEYED BY: REVISED BY: APPROVED BY: DATE: 3/17/09 36 C ALL-HW015.1 R 1

PROJECT NO. 36 C ALL-HW015.1

DATE: 3/17/09

SCALE: AS SHOWN EXCEPT AS NOTED

YARD CIVIL

DESIGNED BY: A.L.K. CHECKED BY: D.L.L. SURVEYED BY: REVISED BY: APPROVED BY: DATE: 3/17/09 36 C ALL-HW015.1 R 1

PROJECT NO. 36 C ALL-HW015.1

DATE: 3/17/09

SCALE: AS SHOWN EXCEPT AS NOTED

YARD CIVIL

DESIGNED BY: A.L.K. CHECKED BY: D.L.L. SURVEYED BY: REVISED BY: APPROVED BY: DATE: 3/17/09 3

