

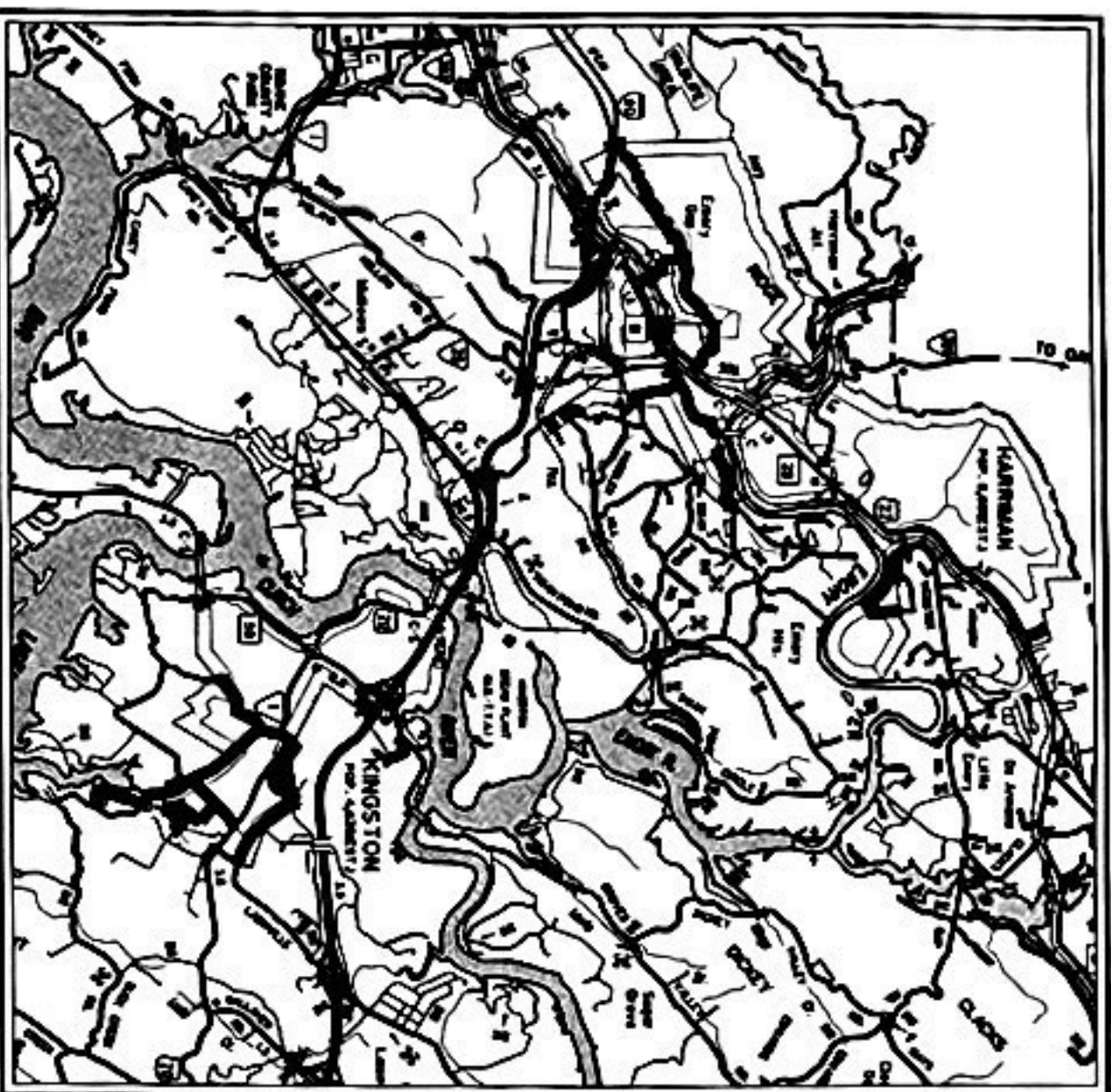
HARRIMAN UTILITY BOARD

Roane County, Tennessee

WATER AND SEWER LINES PINE RIDGE ROAD

CONTRACT 106

LOCATION MAP



PROJECT LOCATION



Project Engineer

2006

PLANS REVIEWED AND APPROVED BY HARRIMAN UTILITY BOARD

Frankie Davis

1-11-05
DATE

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APPROVAL EXPERTS

MAY 24 2007

IN BEST INTEREST OF THE STATE OF TENNESSEE
BY: [Signature] SECRETARY OF REVENUE

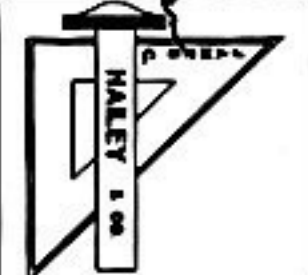
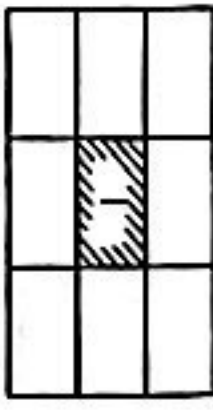
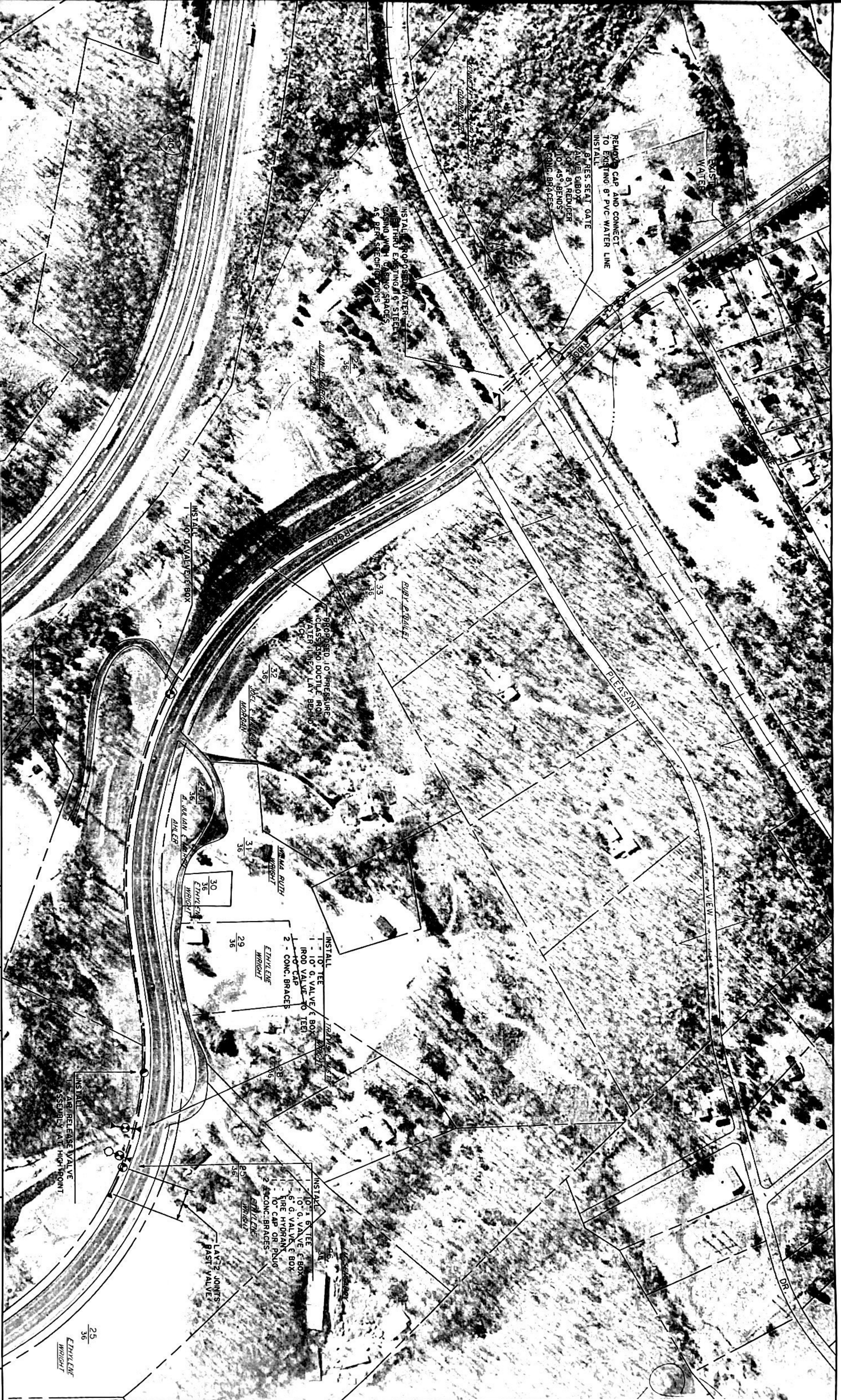
WPC 06-0219

SET NUMBER

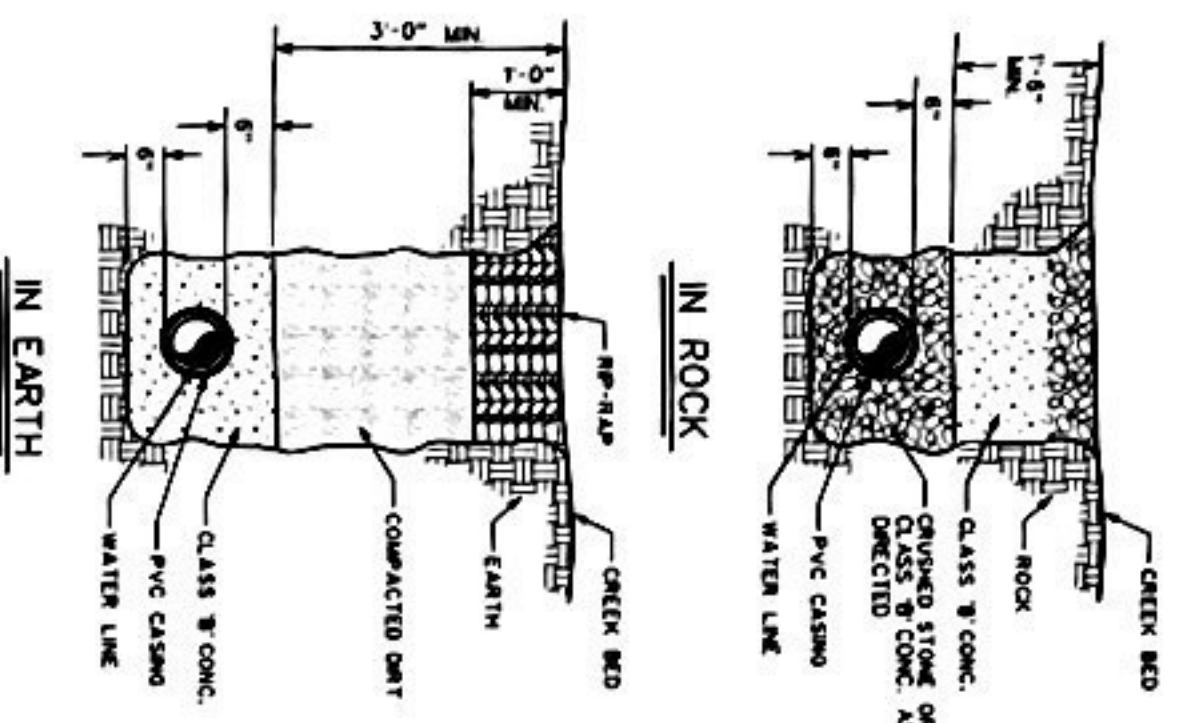
JCH PROJECT NO. 03225

JAMES C. HAILEY & CO. 2622 OLD LEBANON ROAD - SUITE 200 NASHVILLE, TENNESSEE

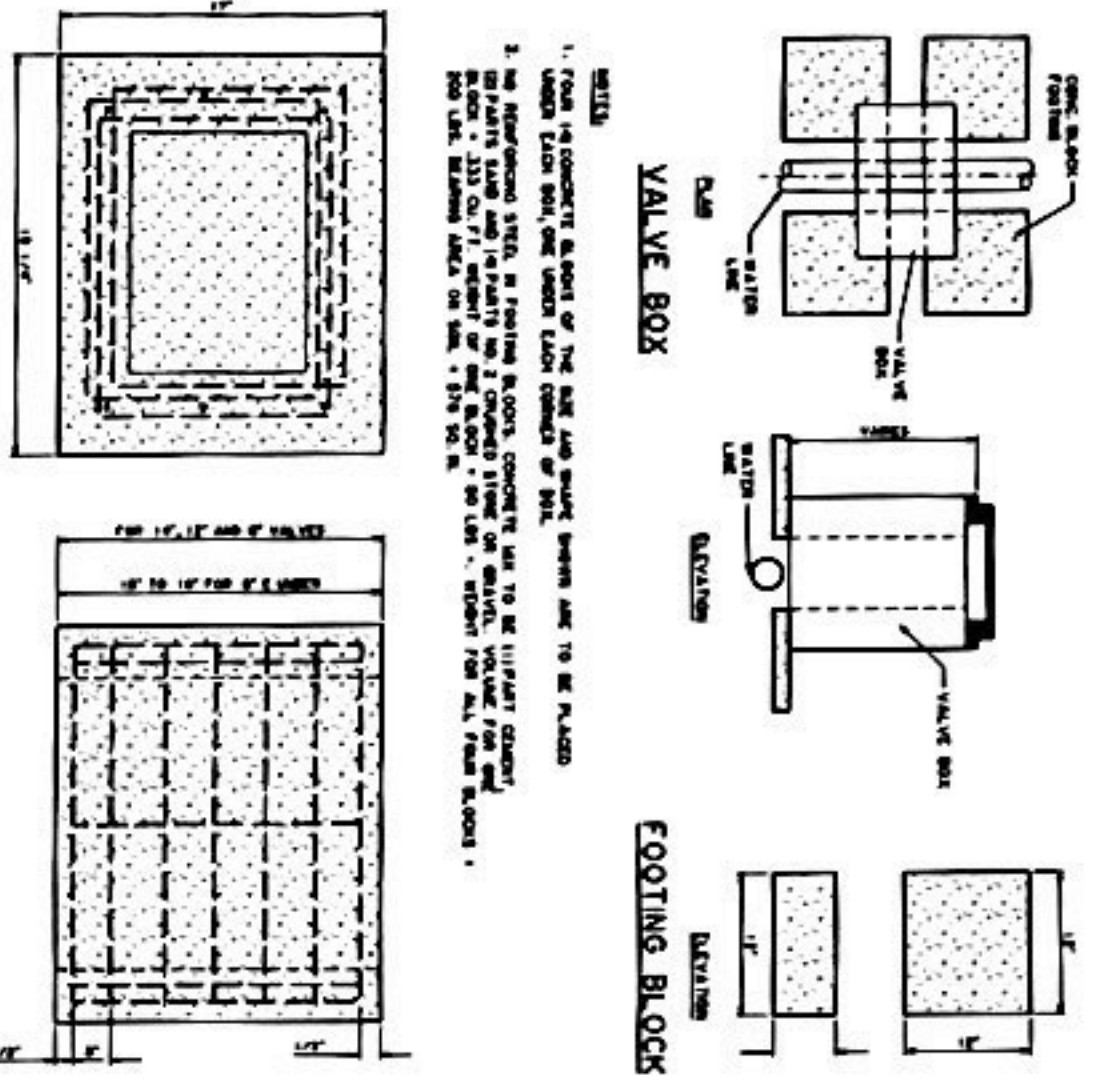




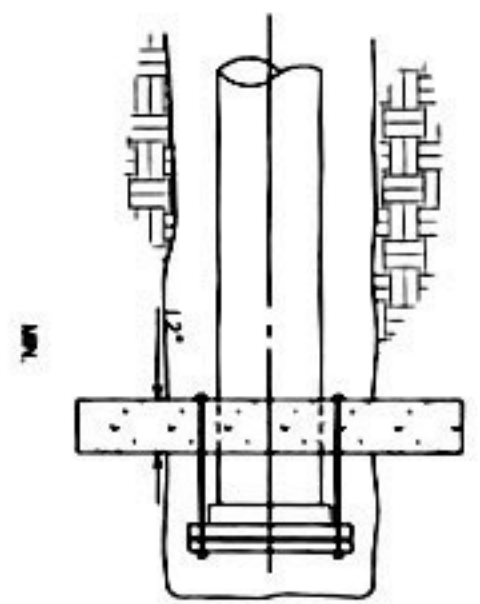
HARRIMAN UTILITY BOARD				WATER LINE ADDITIONS			
Roone County, Tennessee							
DESIGN	DRAWN	CHECKED	DATE	SCALE	PROJECT NO.		
RNW	LLB	RNW	JAN. 2006	1" = 100'	03225		
						36 SE	



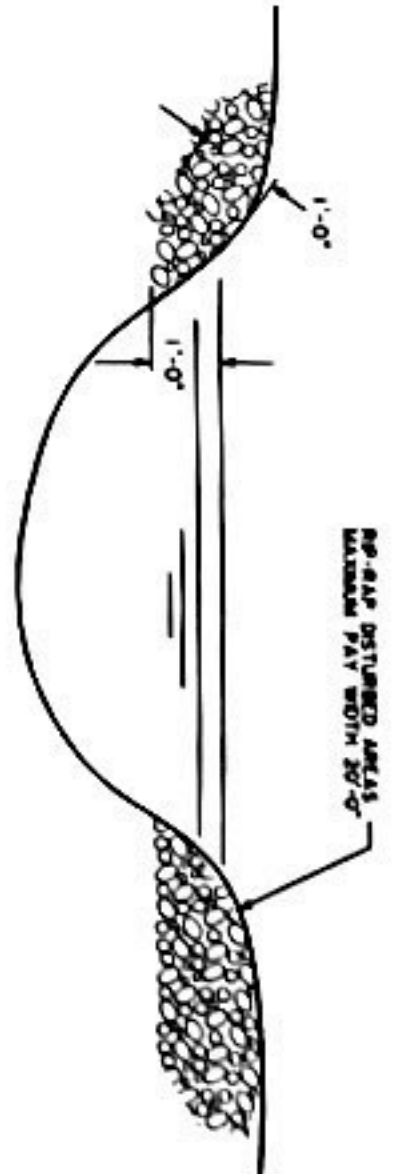
TYPICAL STREAM CROSSING DETAIL



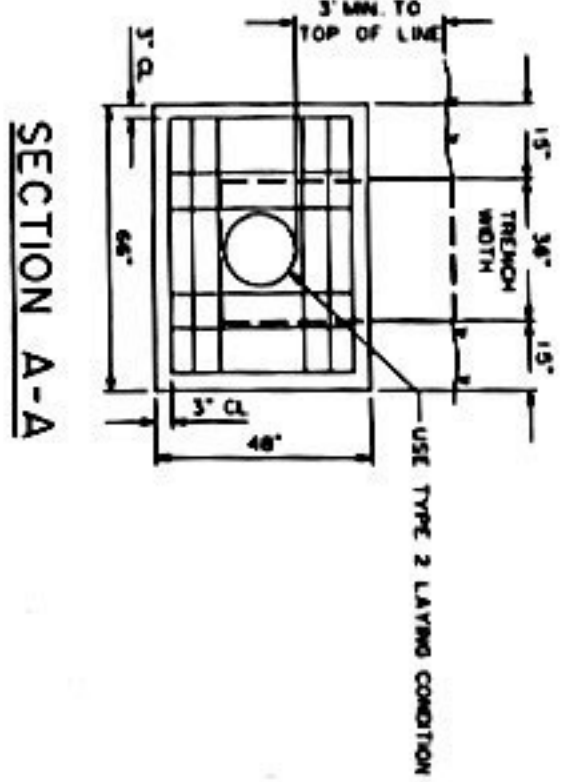
STANDARD CONCRETE VALVE BOX



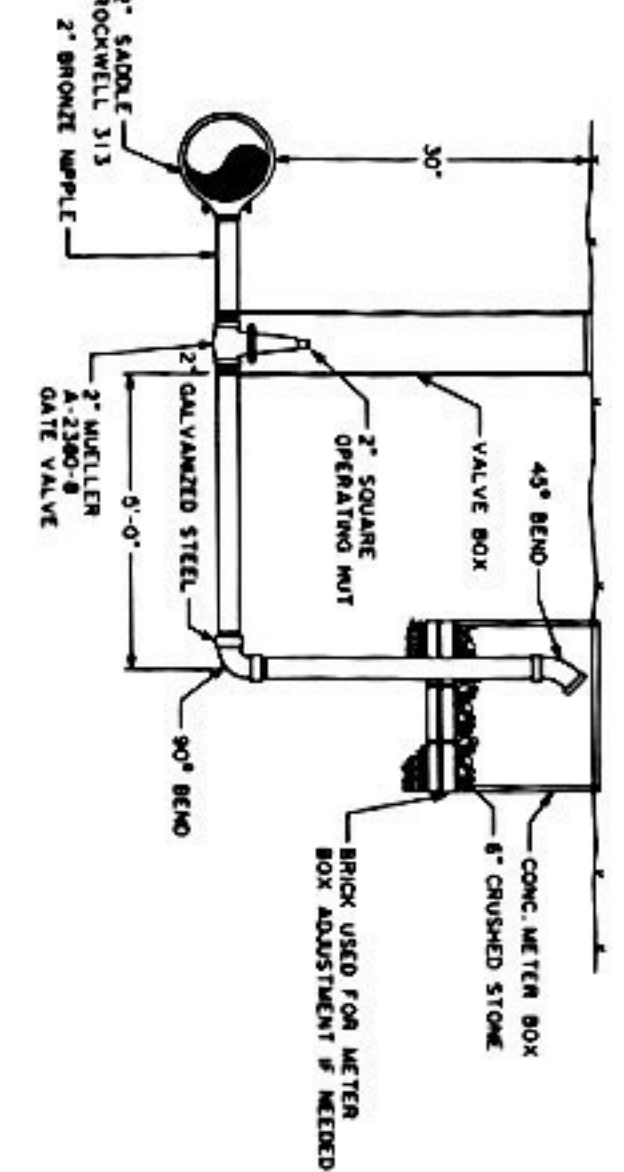
CONC. THRUST BLOCK (BRACE)
3/4" RODS - DEAD END



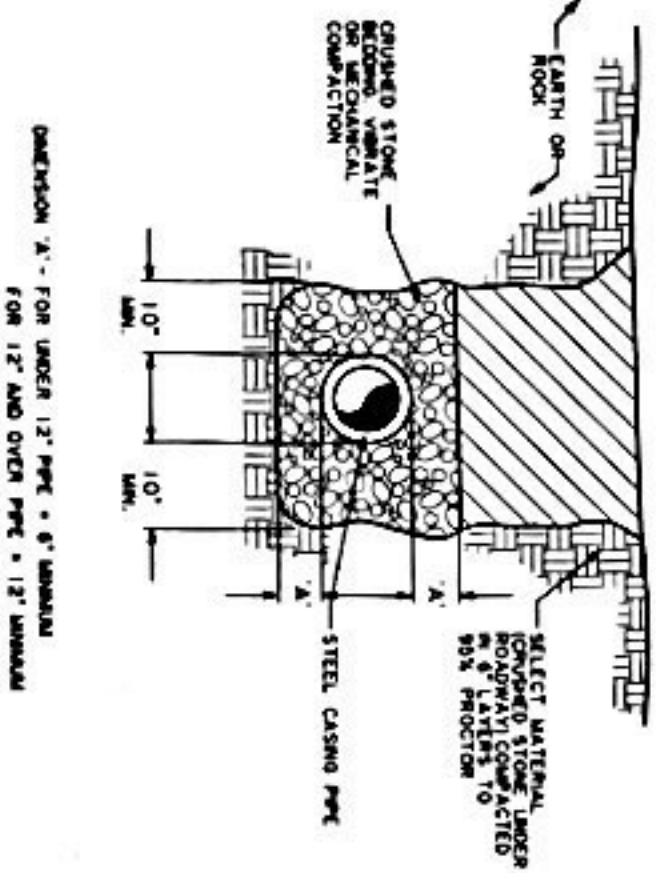
RIP-RAP DETAIL
STREAM CROSSING SECTION



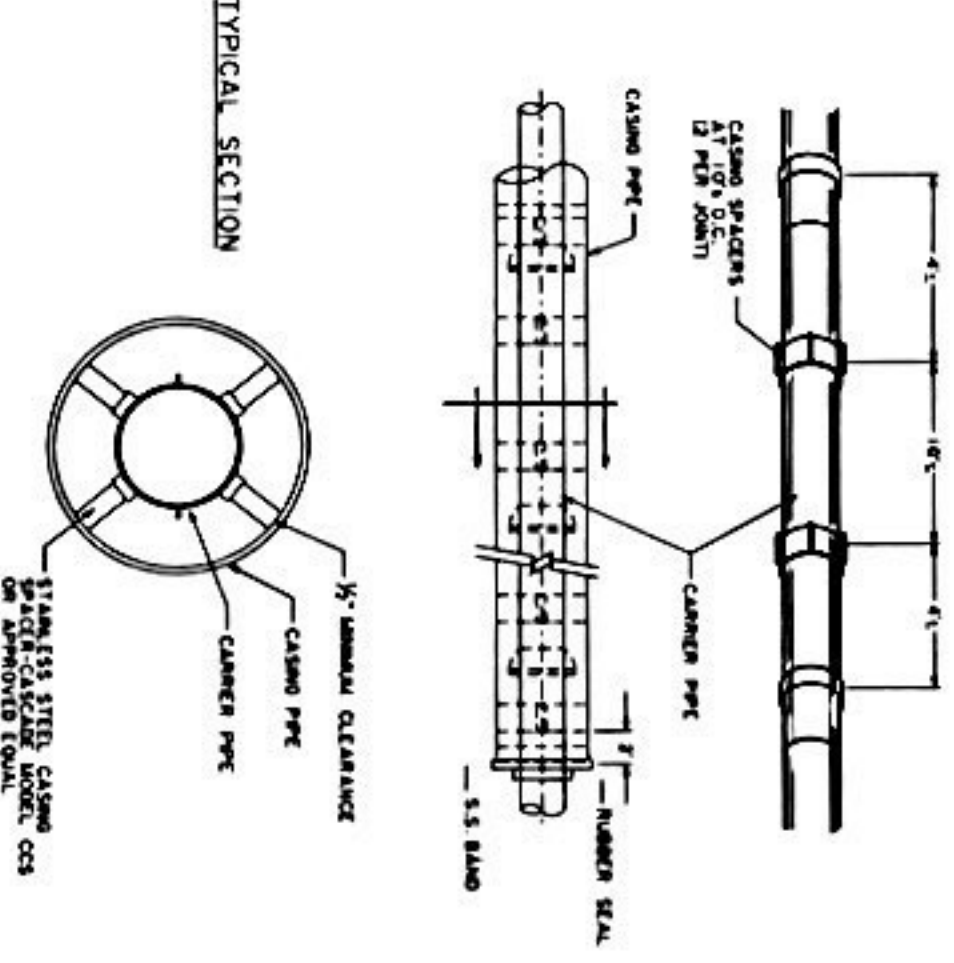
TYPICAL REINFORCED
CONCRETE REVERSE KICKER



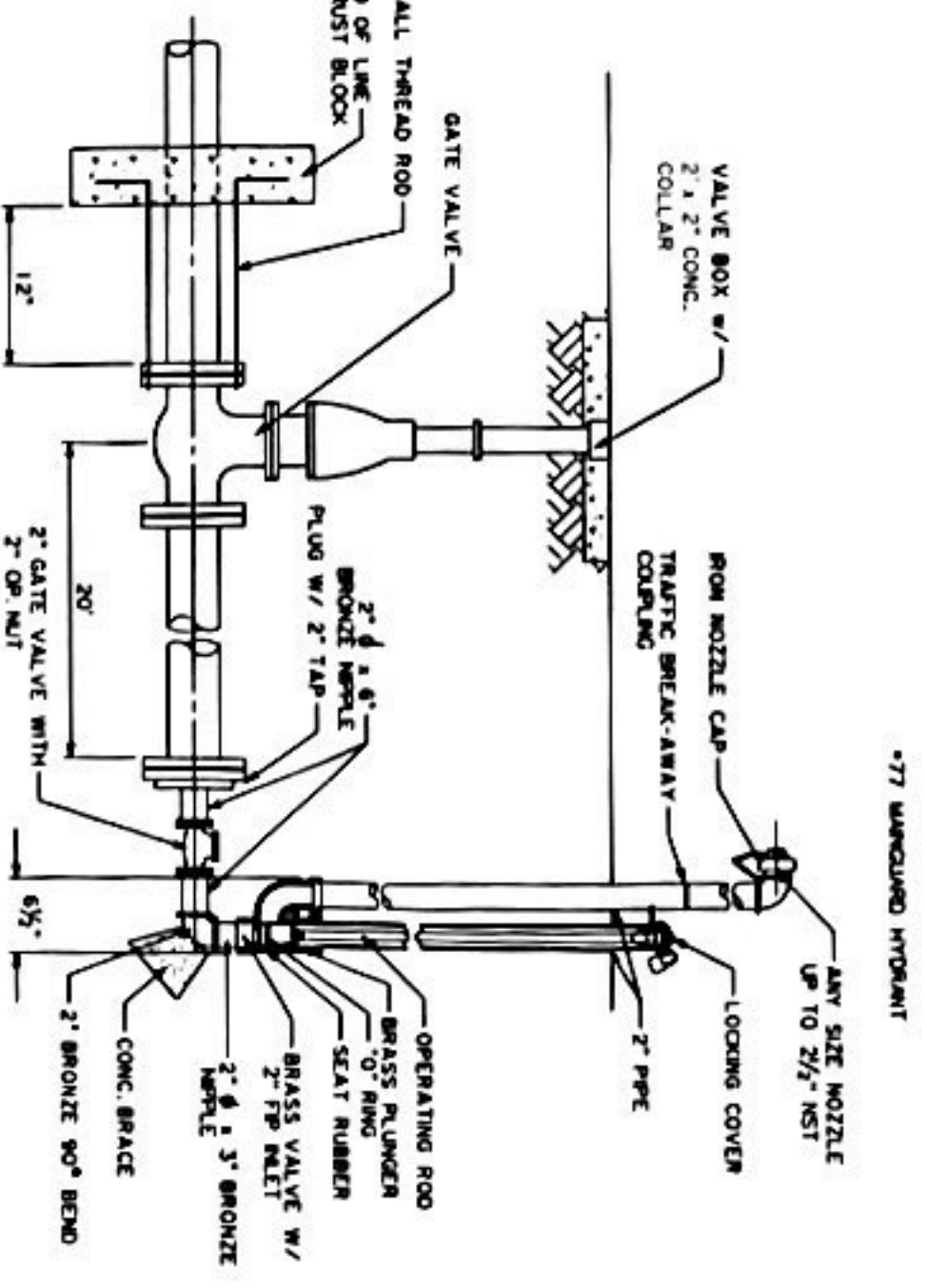
BLOW-OFF DETAIL FOR
MAINS OVER 4"



TRENCH SECTION FOR CASING
BY OPEN CUT



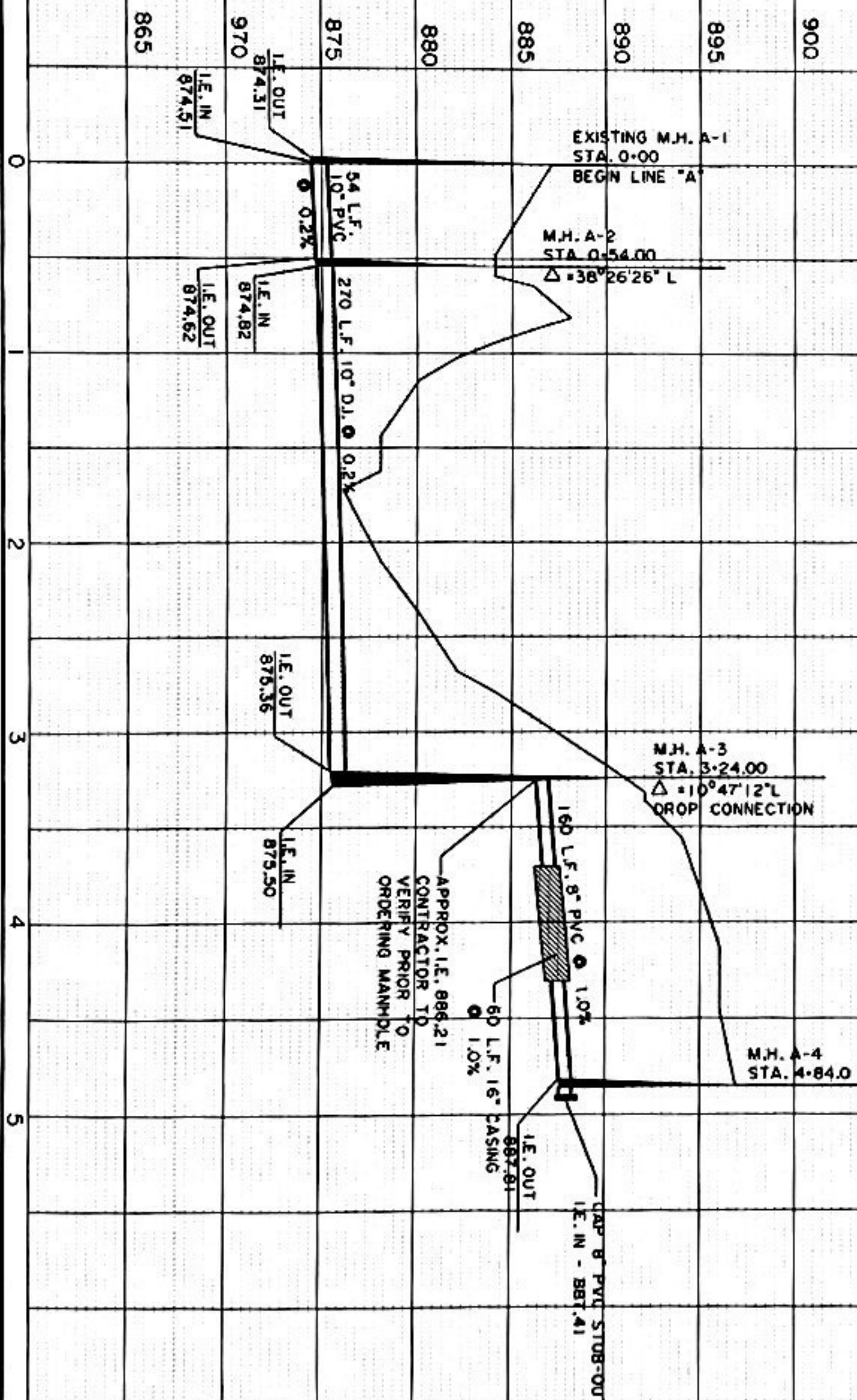
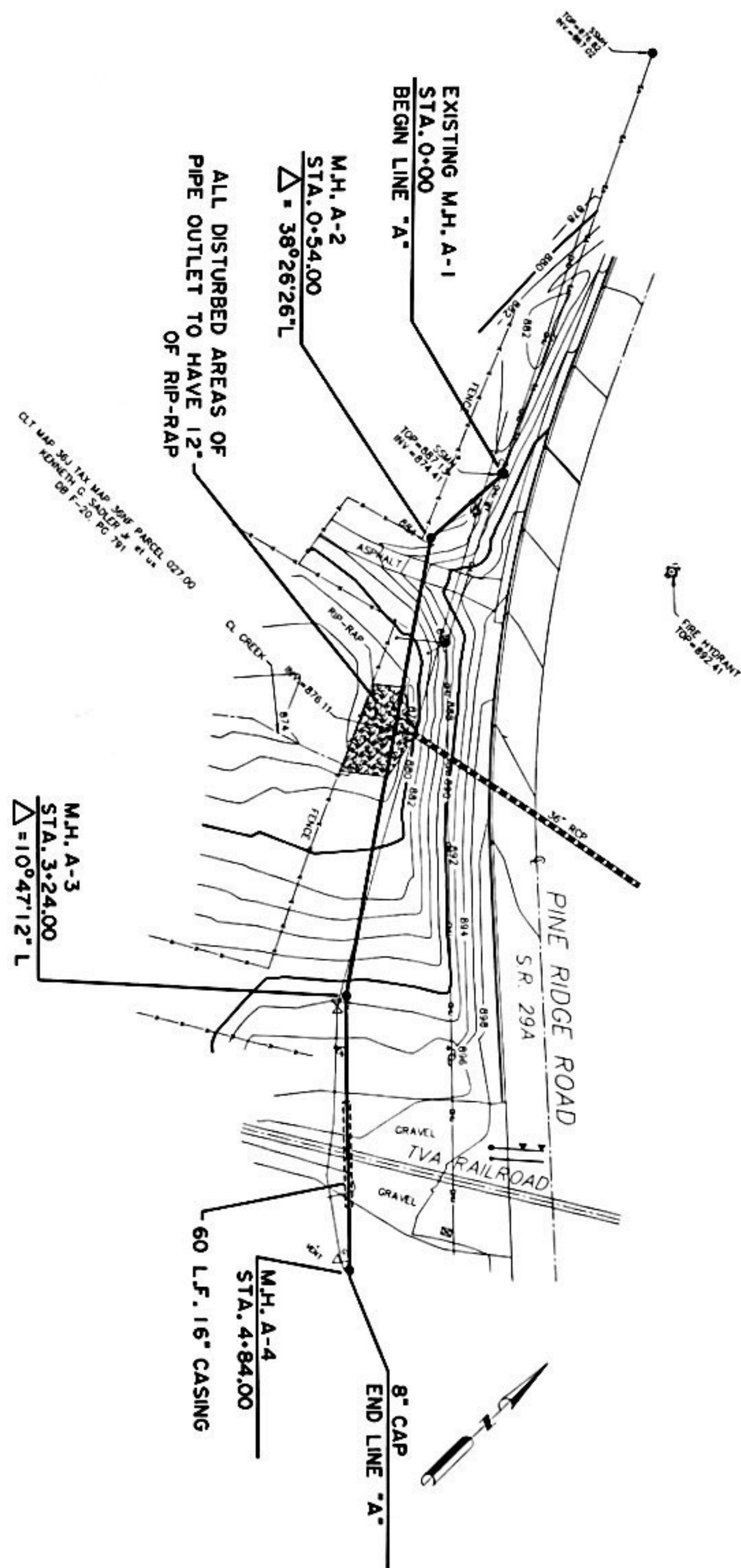
WATER LINE CASING DETAIL



END OF LINE BLOW-OFF
ASSEMBLY DETAIL



HARRIMAN UTILITY BOARD		STANDARD WATER DETAILS	
Roane County, Tennessee		FEB. 2006	
RNW	LLB	RNW	NONE
PROJECT NO.		03225	



HARRIMAN UTILITY BOARD
Roane County, Tennessee

PROPOSED SEWER LINE
PLAN/PROFILE

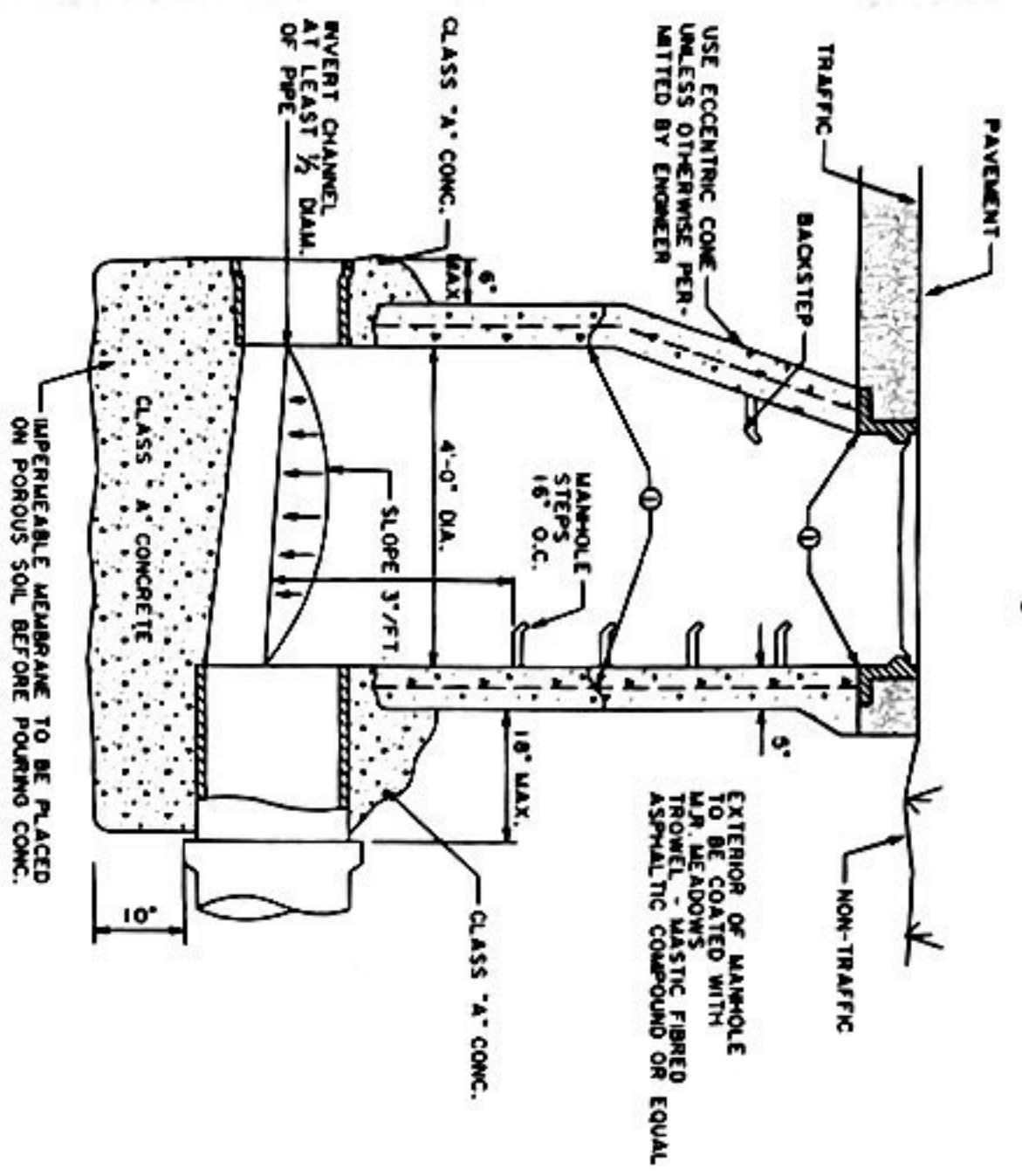


JAMES C. HAILEY & CO.
CONSULTING ENGINEERS
NASHVILLE, TENNESSEE

STANDARD PRECAST MANHOLE

MANHOLE TO HEIGHT OF CASTING ELEVATION (C.E.)
INDICATED ON DRAWING OR AS DIRECTED BY RESIDENT INSPECTOR.

① - BUTYL RESIN CONCRETE - 103 & 202

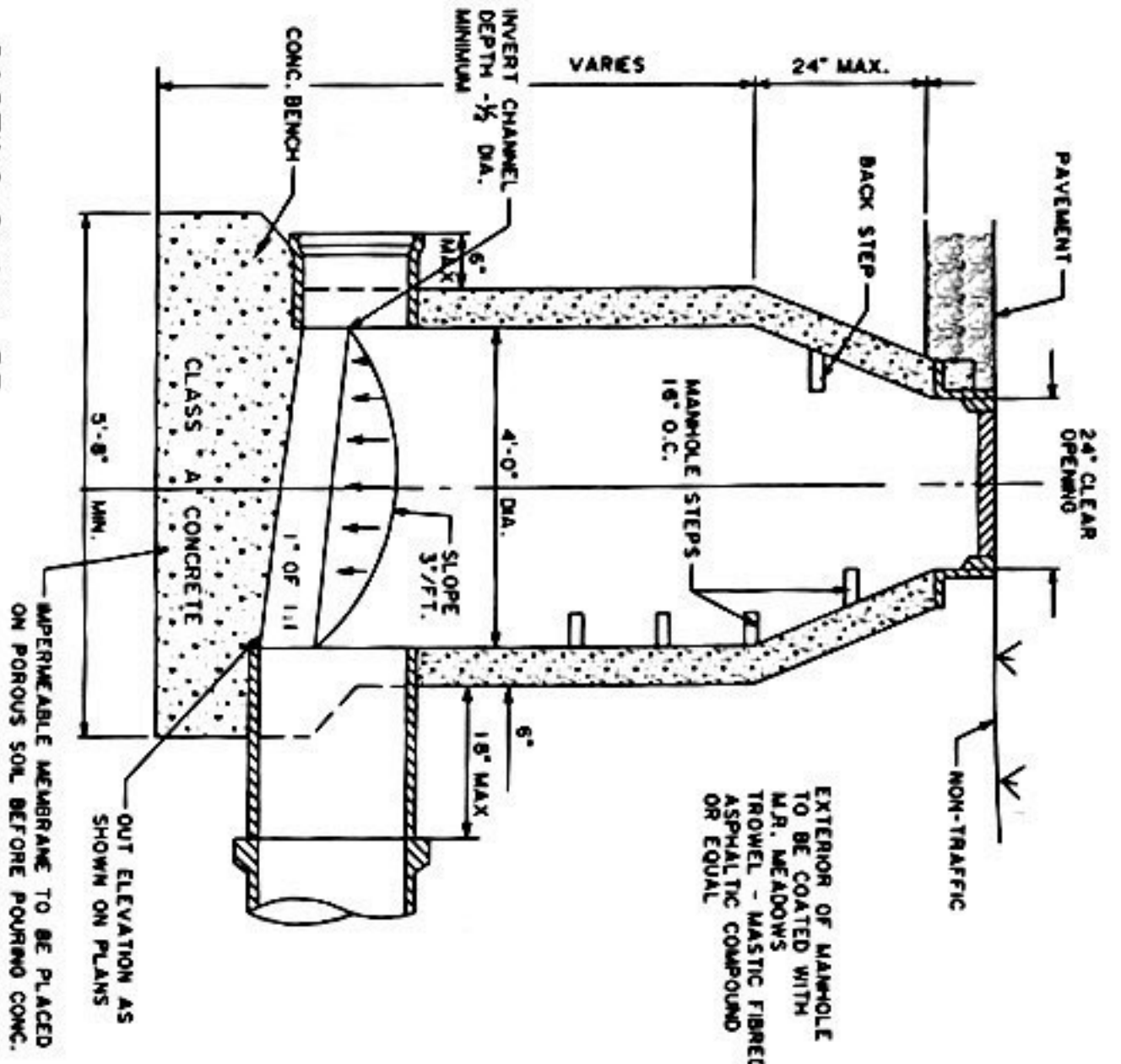


CASTING SHALL BE:

TRAFFIC - JOHN BOUGHARD & SONS, CO. NO. 1150 OR EQUAL
FIELD - JOHN BOUGHARD & SONS, CO. NO. 1150 OR EQUAL
WATER TIGHT - JOHN BOUGHARD & SONS, CO. NO. 1123 OR EQUAL
AS DIRECTED BY THE ENGINEER OR SHOWN ON THE DRAWINGS.

STANDARD "CAST-IN-PLACE" CONCRETE MANHOLE

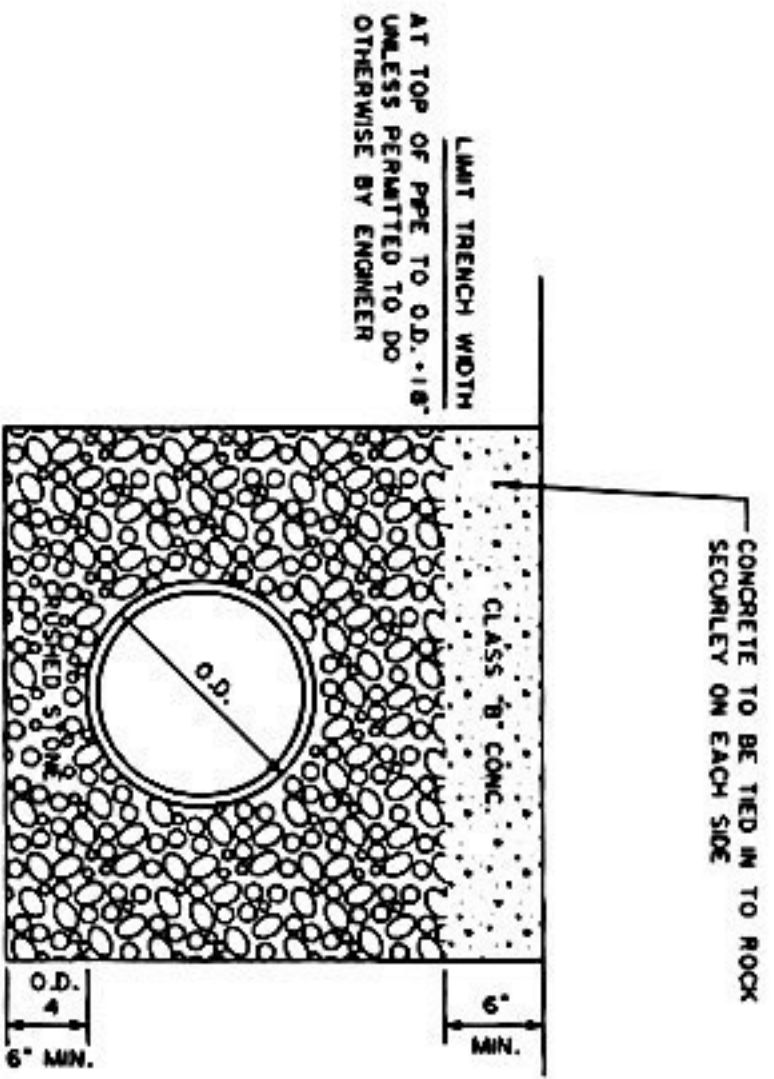
MANHOLE TO HEIGHT OF CASTING ELEVATION (C.E.)
INDICATED ON DRAWING OR AS DIRECTED BY RESIDENT INSPECTOR



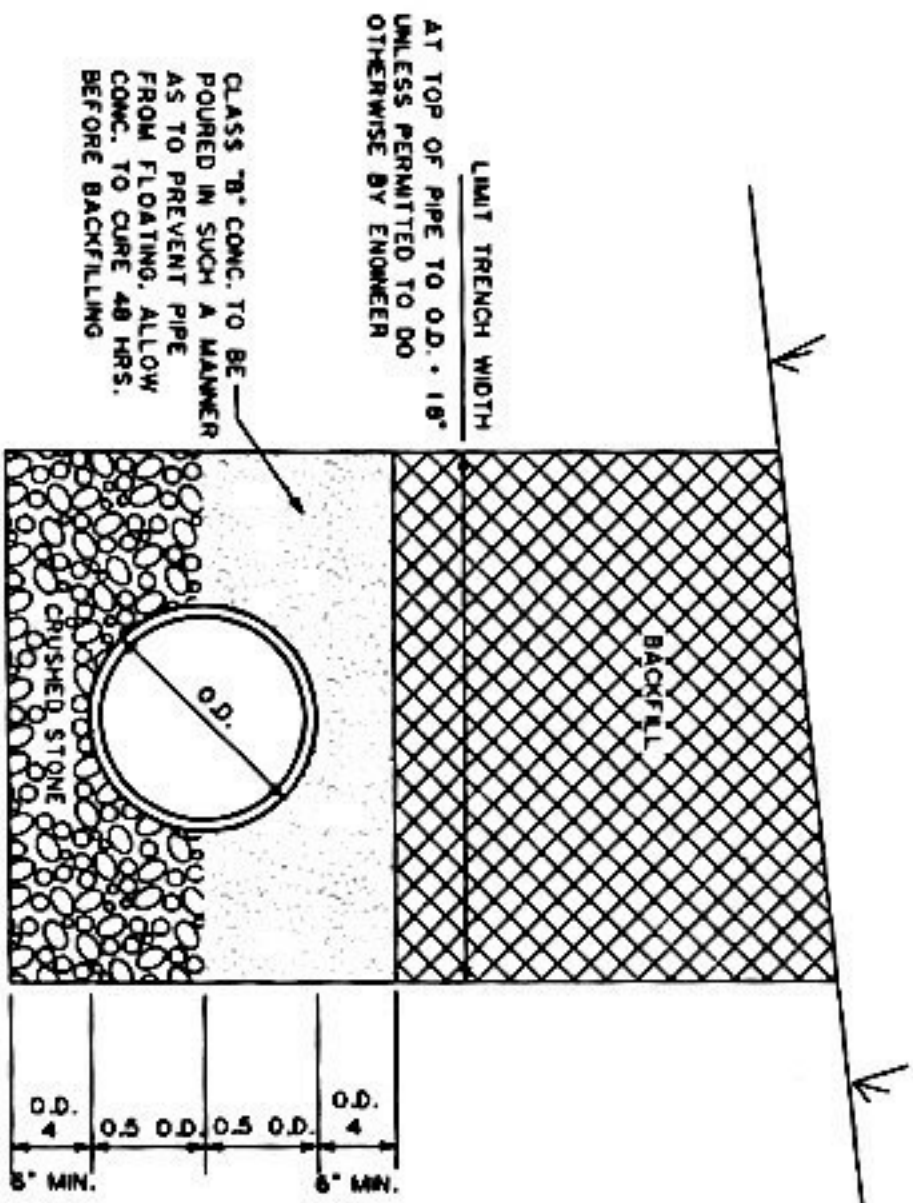
CASTING SHALL BE:

TRAFFIC - JOHN BOUGHARD & SONS, CO. NO. 1150 OR EQUAL
FIELD - JOHN BOUGHARD & SONS, CO. NO. 1150 OR EQUAL
WATER TIGHT - JOHN BOUGHARD & SONS, CO. NO. 1123 OR EQUAL
AS DIRECTED BY ENGINEER OR SHOWN ON THE DRAWINGS

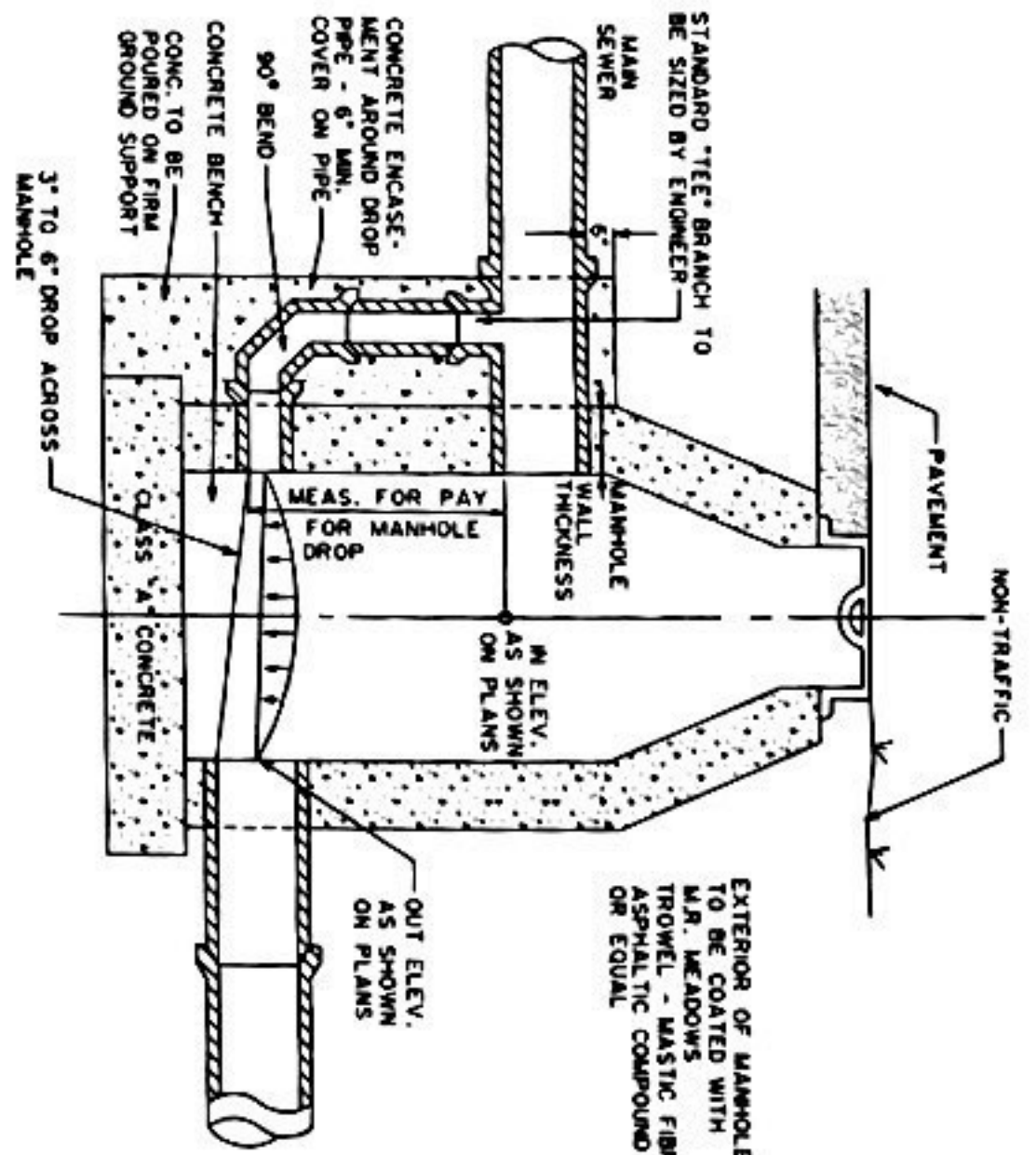
CONCRETE CAP



CONCRETE ENCASEMENT

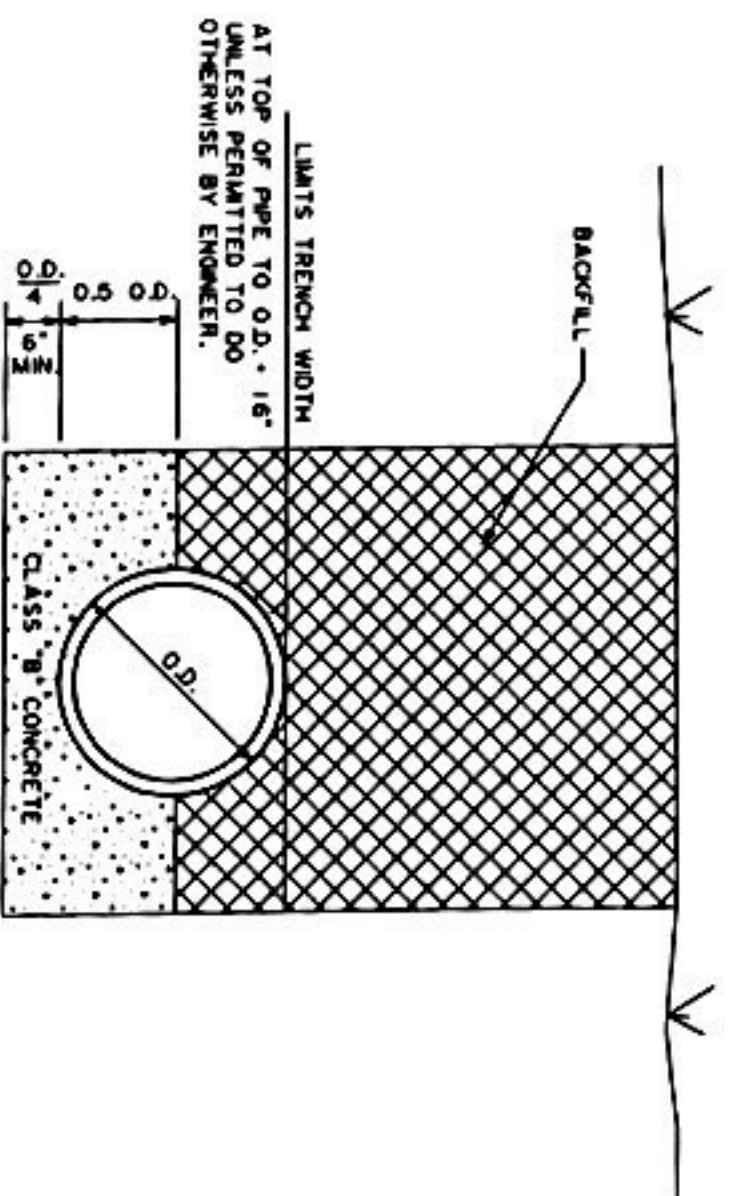


DROP MANHOLE CONSTRUCTION



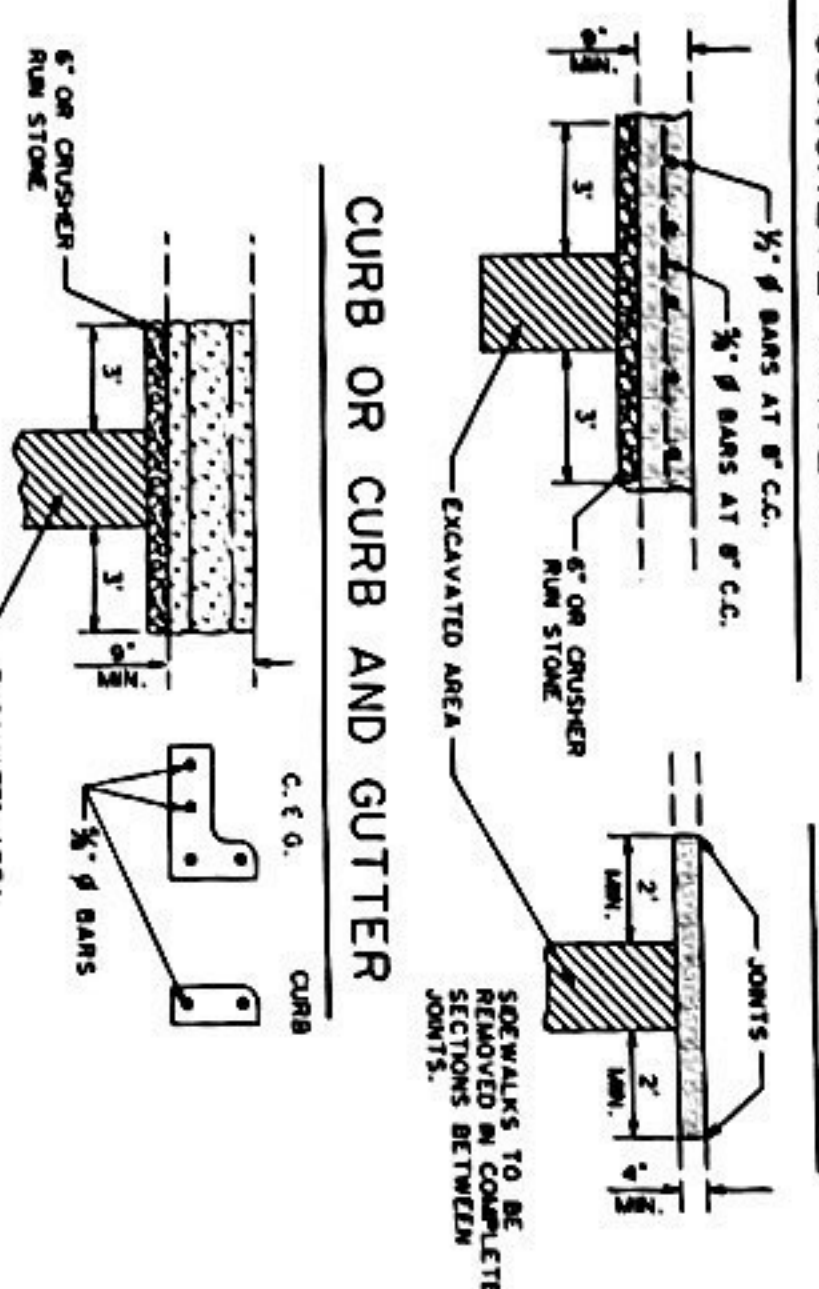
NOTE: USE DROP MANHOLE CONSTRUCTION WHENEVER "M. ELEV." OUT ELEV. EXCEEDS 30" OR WHEN INDICATED ON PLANS OR DIRECTED BY ENGINEER.

CONCRETE CRADLE



CONCRETE PAVEMENT

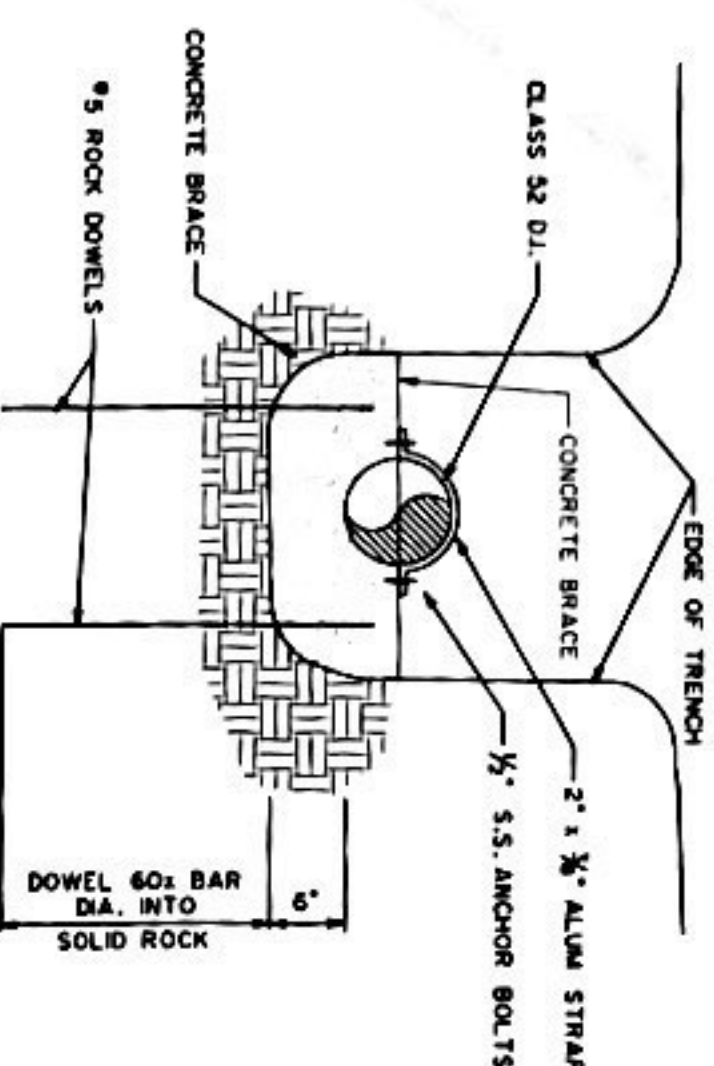
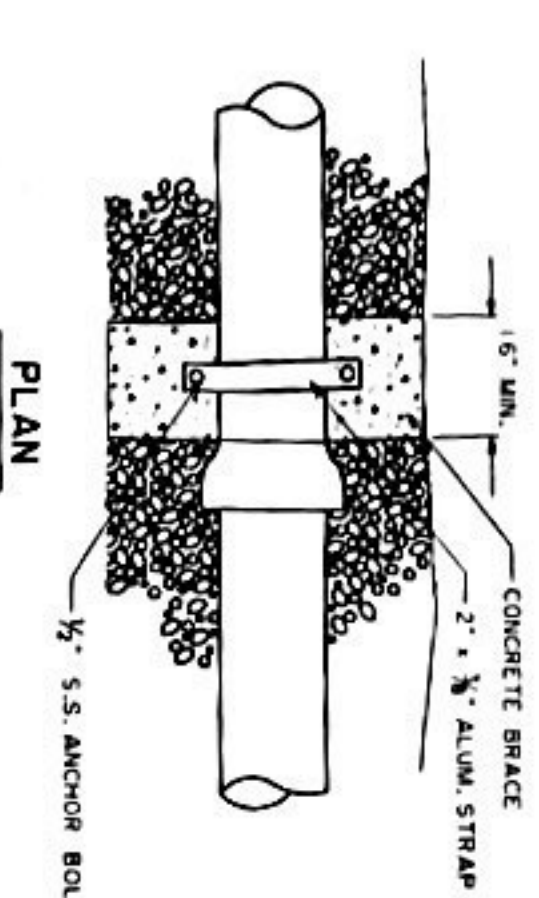
SIDEWALK



1. PAVEMENT, CURBS OR GUTTERS SHALL BE CUT FIRST AT END OF EXCAVATION. AFTER BACKFILL HAS BEEN MADE AND TAMPED, THE PAVEMENT SHALL AGAIN BE CUT 3" BACK OF EXCAVATION LINE BEFORE REPLACING.
2. CONCRETE BASES, WITH BITUMINOUS SURFACE SHALL BE CUT SAME AS PAVEMENT AND SURFACING MATERIAL REMOVED 1/2 FOOT BACK OF FINAL CUT.
3. EXISTING PAVEMENT BASES, CURBS, GUTTERS AND SIDEWALKS SHALL BE CUT AND BROUGHT TO A NEAT LINE BY USE OF AN AIR HAMMER OR OTHER SUITABLE EQUIPMENT.
4. WHEREVER TRENCHES ARE EXCAVATED WITHIN TRAVELED AREAS, PERMANENT REPAIRS TO BE MADE WITHIN FIVE DAYS.
5. BACKFILL FOR TRENCHES WITHIN PAVED AREAS SHALL BE PLACED IN 6" LAYERS AND EACH LAYER SHALL BE THOROUGHLY COMPACTED BY MEANS OF MECHANICAL TAMPS.
6. EXISTING BACKFILL, EVEN OF A TEMPORARY NATURE, SHALL NOT BE PLACED ABOVE AN ELEVATION 6" BELOW THE BOTTOM OF ANY CONCRETE PAVEMENT, BITUMINOUS PAVEMENT OR CRUSHED STONE OR GRAVEL BASE.
7. EXPANSION JOINTS REMOVED SHALL BE REPLACED.
8. ALL CONCRETE TO BE CLASS "A".

STANDARD METHOD

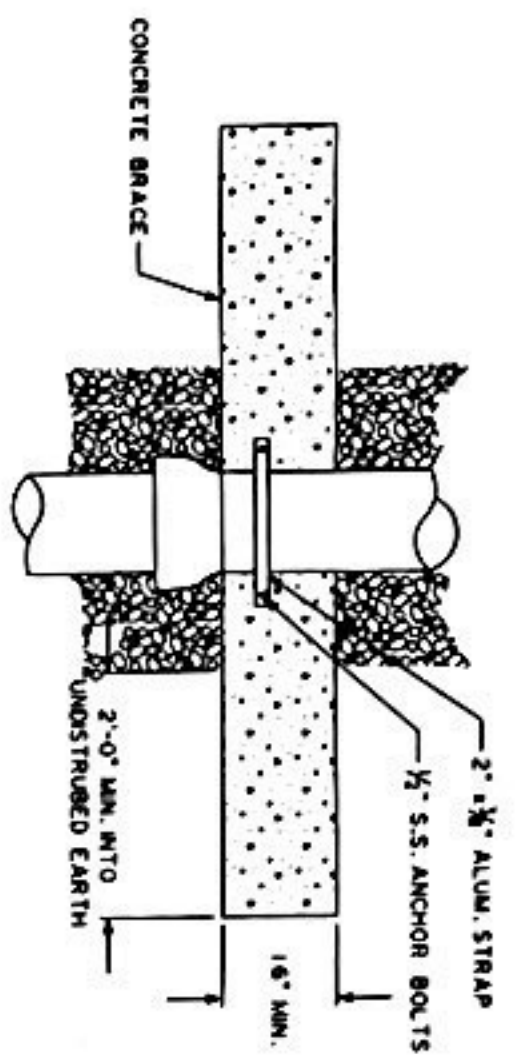
OPENING TRENCHES THROUGH HIGHWAYS
AND REPAIRING PAVEMENT, ETC.
(TENNESSEE HIGHWAY DEPARTMENT STANDARD)



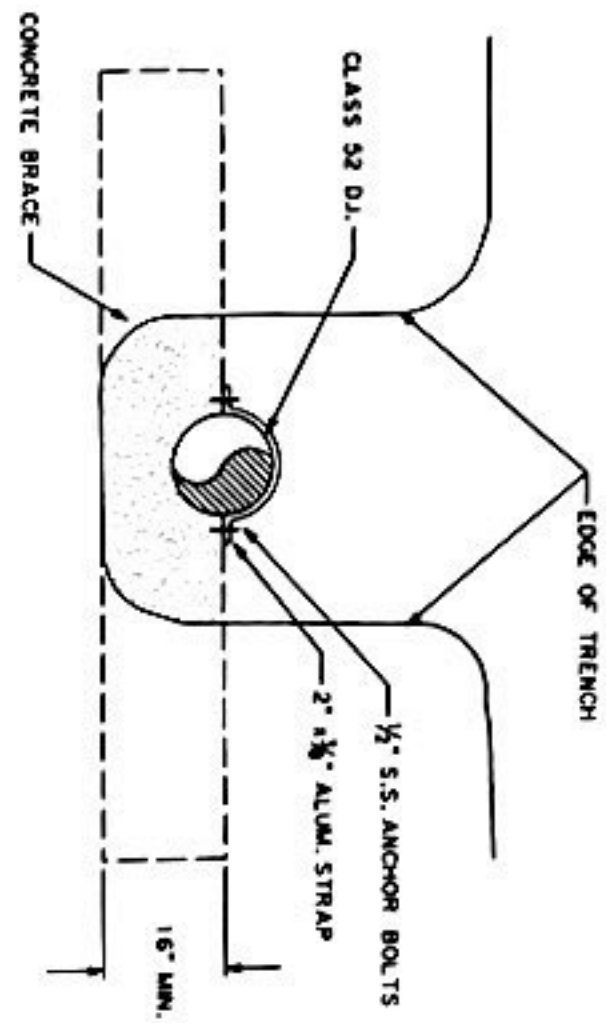
BRACING DETAIL FOR SEWER LINE OVER 20%
SLOPE - TYPICAL FOR ROCK



HARRIMAN UTILITY BOARD				STANDARD SEWER DETAILS			
Roane County, Tennessee				DATE	MADE	PROJECT NO.	
RNW	LLB	RNW		FEB. 2006	NONE	03225	



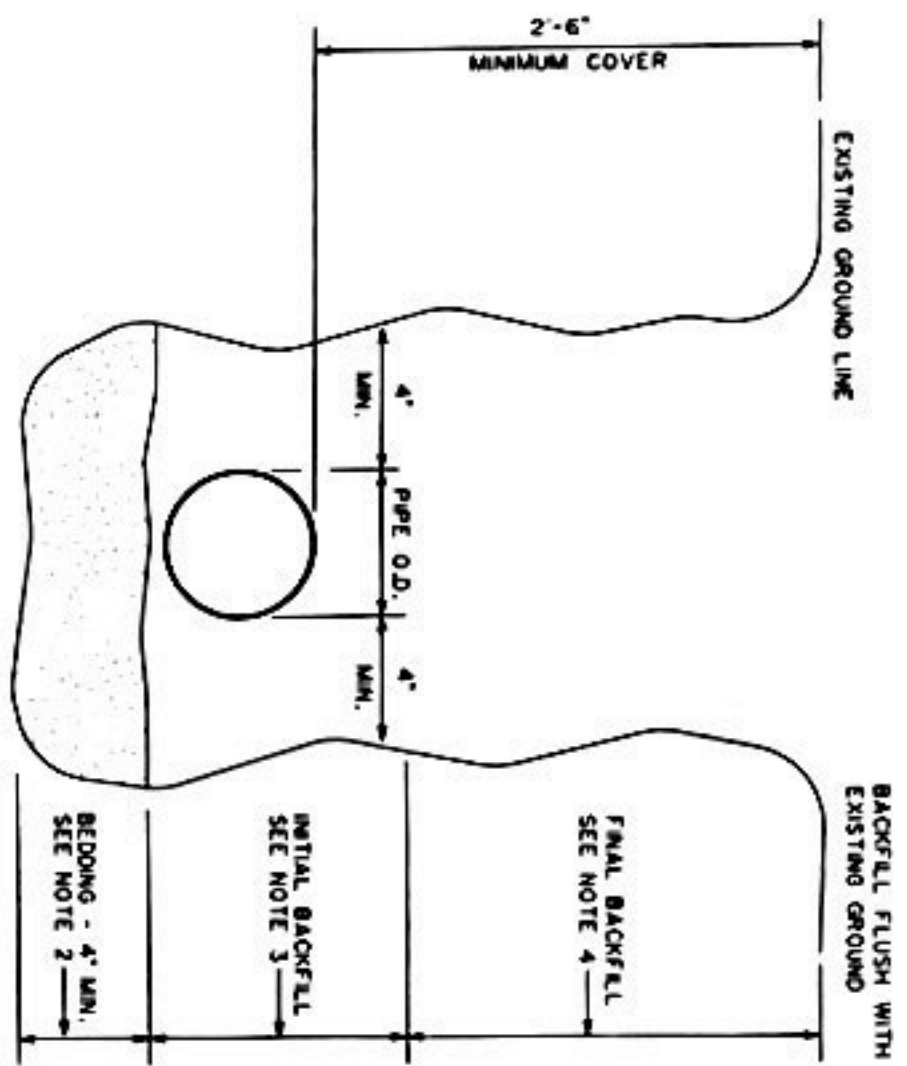
PLAN



SECTIONAL ELEVATION

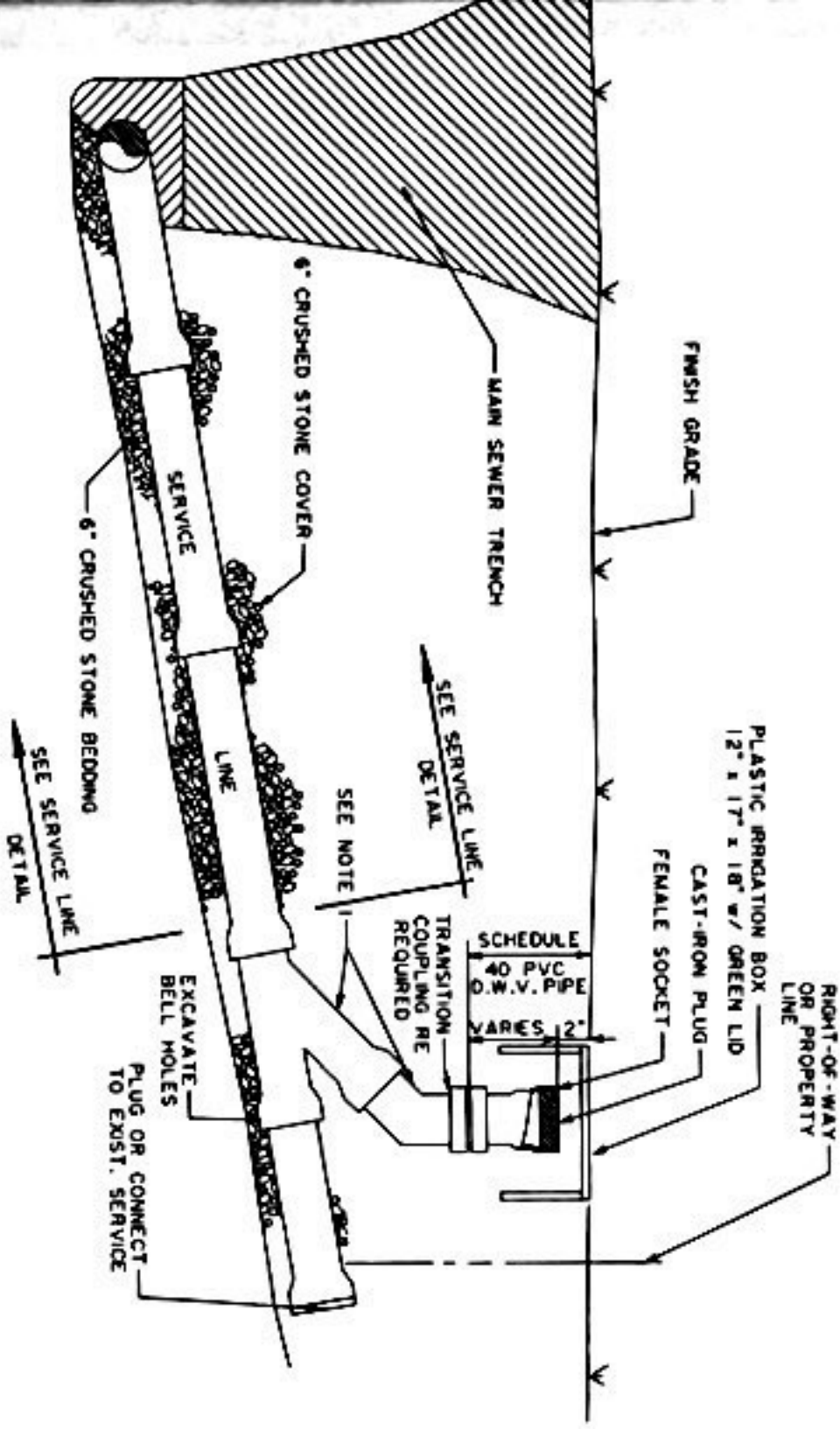
BRACING DETAIL FOR SEWER LINE OVER 20%
SLOPE - TYPICAL IN DIRT

- NOTES:
1. BACKFILL ALL EXCAVATIONS IN ACCORDANCE WITH THE SPECIFICATIONS.
 2. BEDDING TO BE CRUSHED STONE OR SAND.
 3. INITIAL BACKFILL TO BE CRUSHED STONE OR SAND A MINIMUM OF 6" ABOVE PIPE COMPACTED.
 4. FINAL BACKFILL TO BE COMPACTED IN 12" MINIMUM LAYERS.



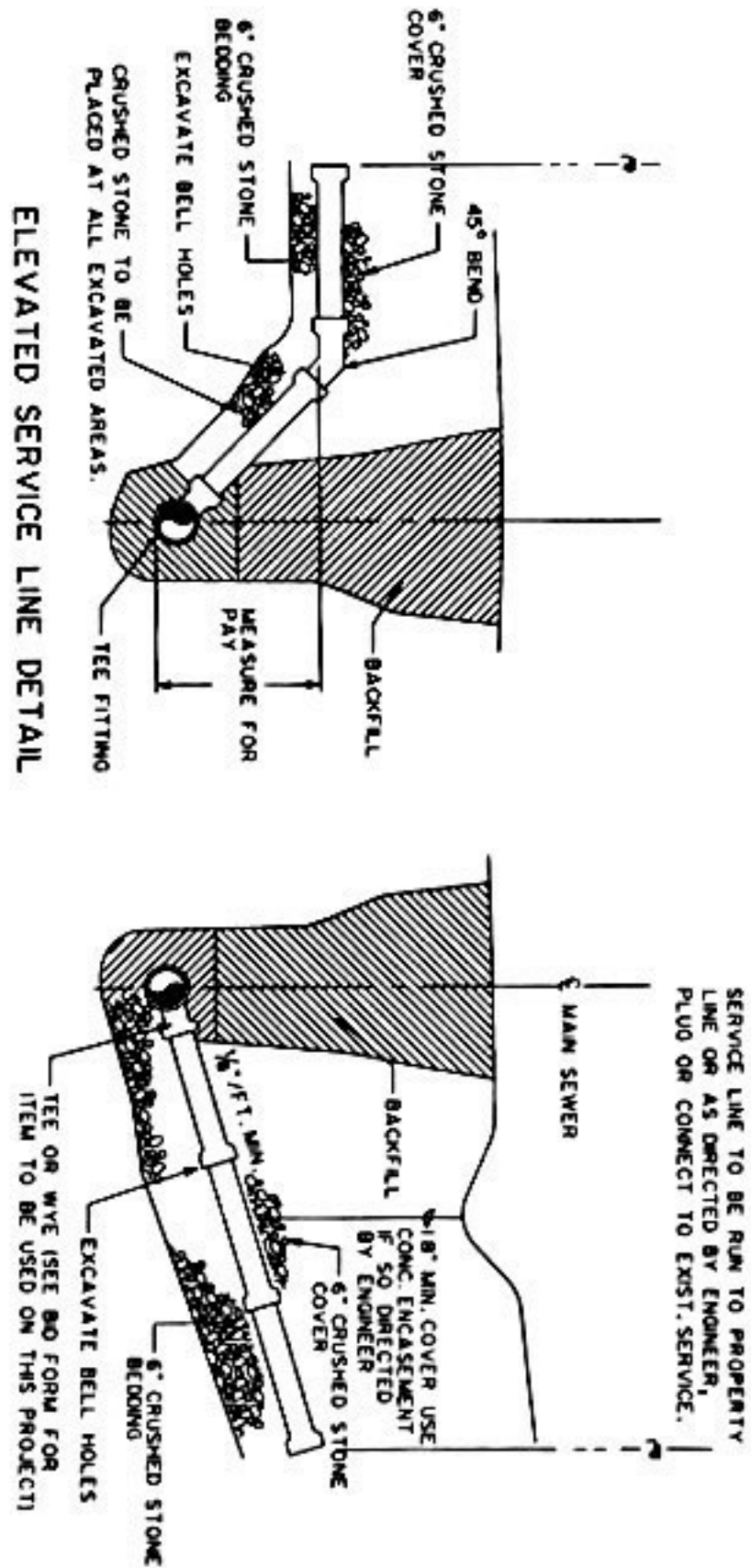
TYPICAL TRENCH SECTION
IN SOIL

SEWER SERVICE CLEAN-OUT DETAIL



- NOTES:
1. FITTINGS BY MAIN LINE PIPE MANUFACTURERS (RUBBER RING JOINT).
 2. CLEAN-OUT SHALL BE SAME SIZE AS SERVICE LINE.

SEWER SERVICE DETAIL



- NOTES:
1. BACKFILL ON SERVICE LINES TO BE AS DESCRIBED IN PROJECT SPECIFICATIONS.
 2. ELEVATED SERVICE LINE TO BE USED WHERE SHOWN ON PLANS OR DIRECTED BY ENGINEER.
 3. BATTER BOARDS NOT NEEDED FOR PIPE LAYING BUT GRADE TO BE REASONABLY ACCURATE AND ALLOWMENT STRAIGHT GRADE SHALL BE THAT SUFFICIENT TO MAINTAIN SERVICE TO BUILDING OR AS DIRECTED BY ENGINEER WITH MINIMUM TO BE THAT ALLOWED BY LOCAL PLUMBING CODE ONLY. MINIMUM.



HARRIMAN UTILITY BOARD				STANDARD SEWER DETAILS	
Roane County, Tennessee				DATE	PROJECT NO.
DESIGN	REVIEW	DATE	PROJECT NO.		
RNW	LLB	RNW	FEB. 2006	NONE	03225