

# CONTRACT DRAWINGS FOR HEATHERSTONE

## STREETS, DRAINAGE, SANITARY SEWER & WATER SYSTEM

INDEX TO DRAWINGS

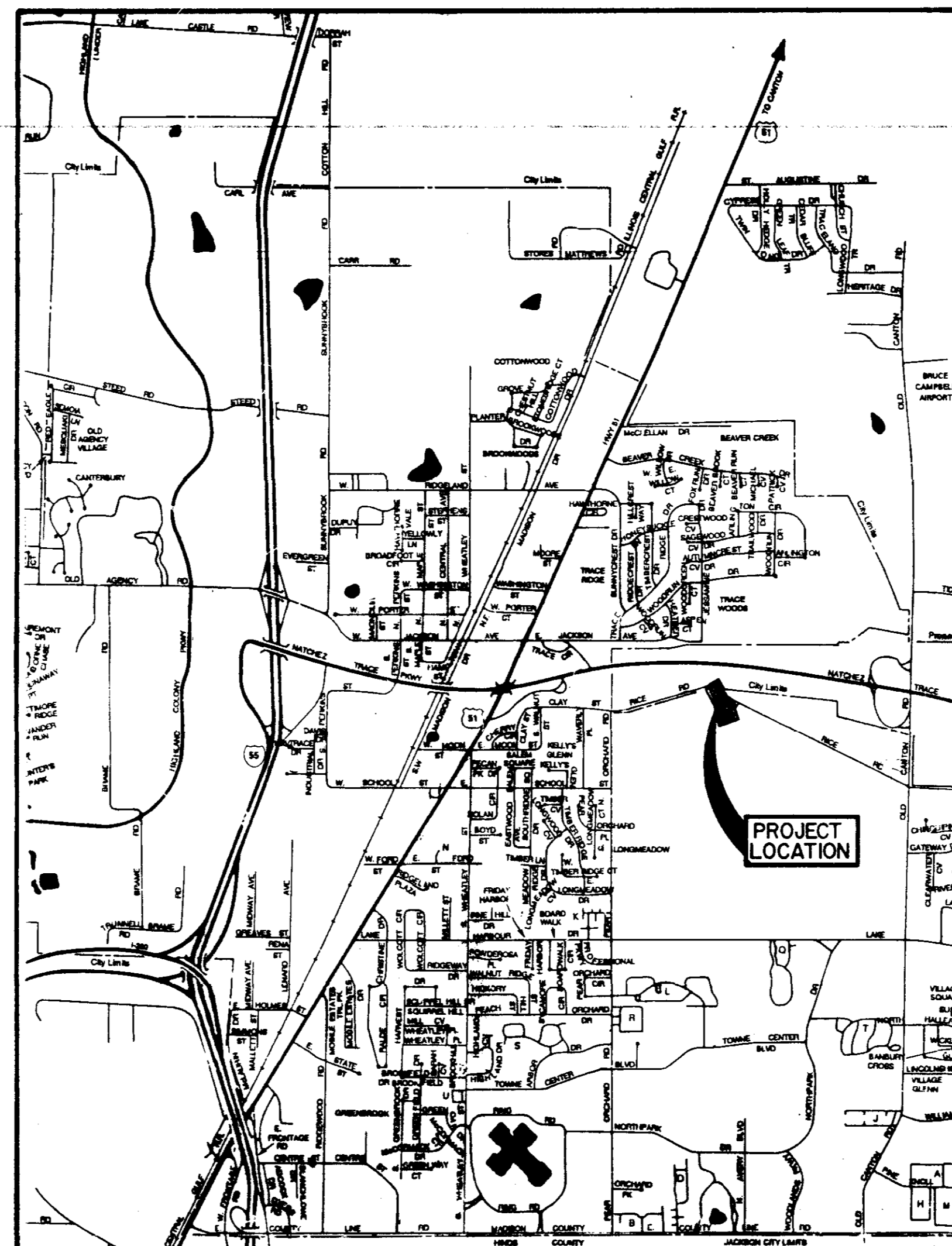
Cover Sheet	1
General Layout	2
Drainage Layout	3
Stormwater Pollution Prevention	4
Profile Sheets	5 - 9
Standard Details	10 - 14

WATER DISTRIBUTION SYSTEM

<u>Item</u>	<u>Estimated Quantity</u>	<u>Unit</u>
Connection to Existing Water Main	2	EA
6" Water Main, C-900, Class 150	1,500	LF
6"x6"x6" Tee	4	EA
6" Gate Valve with Box	4	EA
6" Fire Hydrant with Gate Valve	4	EA
3/4" Service Line	800	LF
Service Assembly	26	EA
Service Marker	26	EA
6" - 45° Bend	6	EA
6" Plug	1	EA

STORMWATER POLLUTION PREVENTION

<u>Item</u>	<u>Estimated Quantity</u>	<u>Unit</u>
Stormwater Pollution Prevention	1	LS



VICINITY MAP

SANITARY SEWER SYSTEM

<u>Item</u>	<u>Estimated Quantity</u>	<u>Unit</u>
Connection to Existing Main	1	EA
8" Gravity Sanitary Sewer (0'-6')	604	LF
8" Gravity Sanitary Sewer (6'-8')	173	LF
8" Gravity Sanitary Sewer (8'-10')	166	LF
8" Gravity Sanitary Sewer (10'-12')	288	LF
8" Gravity Sanitary Sewer (12'-14')	209	LF
48" Standard Manhole (0'-6')	3	EA
48" Standard Manhole (6'-8')	2	EA
48" Standard Manhole (8'-10')	1	EA
48" Standard Manhole (10'-12')	1	EA
48" Standard Manhole (12'-14')	1	EA
Undercut and Select Backfill	200	CY
6" Sanitary Sewer Service	250	LF
6" Service Tee	22	EA
Service Marker	26	EA
Clean Out	1	EA

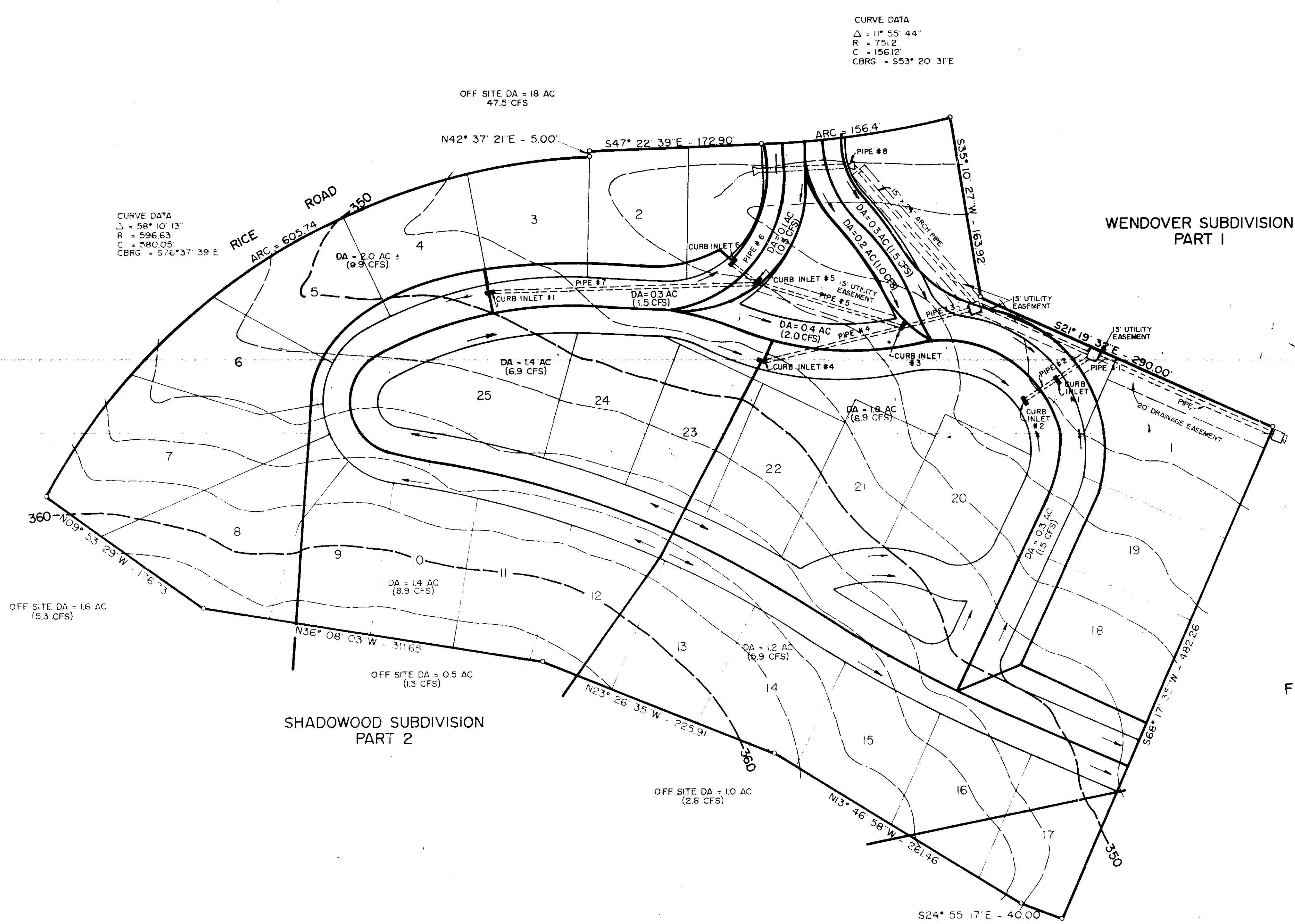
STREETS AND DRAINAGE

<u>Item</u>	<u>Estimated Quantity</u>	<u>Unit</u>
Sub-Base Preparation	6,100	SY
4" Asphaltic Base Course	6,100	SY
1 1/2" Asphaltic Surface Course	6,100	SY
Concrete Curb and Gutter	4,680	LF
Curb Inlet	7	EA
15" Reinforced Concrete Pipe	151	LF
18" Reinforced Concrete Pipe	372	LF
36" Reinforced Concrete Pipe	88	LF
29"x19" Reinforced Concrete Pipe	117	LF
29"x19" Flared End Section	1	EA
36" Flared End Section	2	EA
Rock Rip-Rap	24	TN

GRASS PLANTING

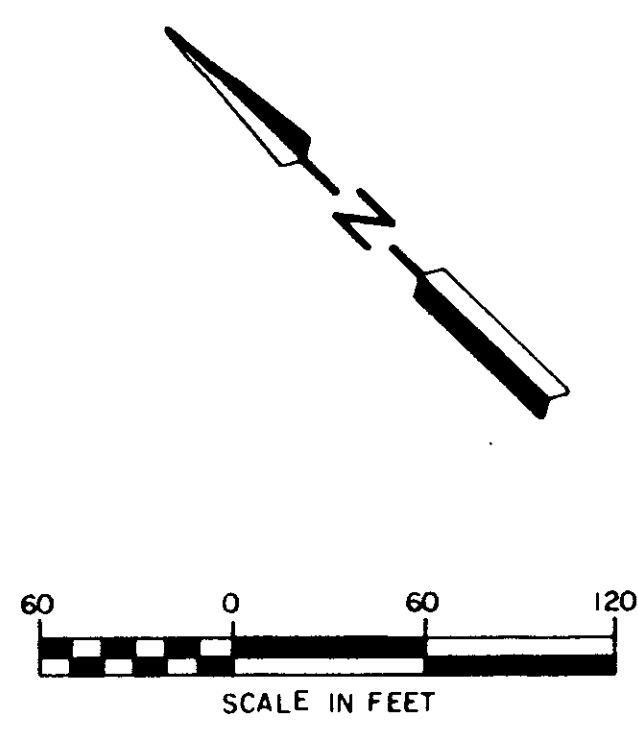
<u>Item</u>	<u>Estimated Quantity</u>	<u>Unit</u>
Seeding	2.5	AC



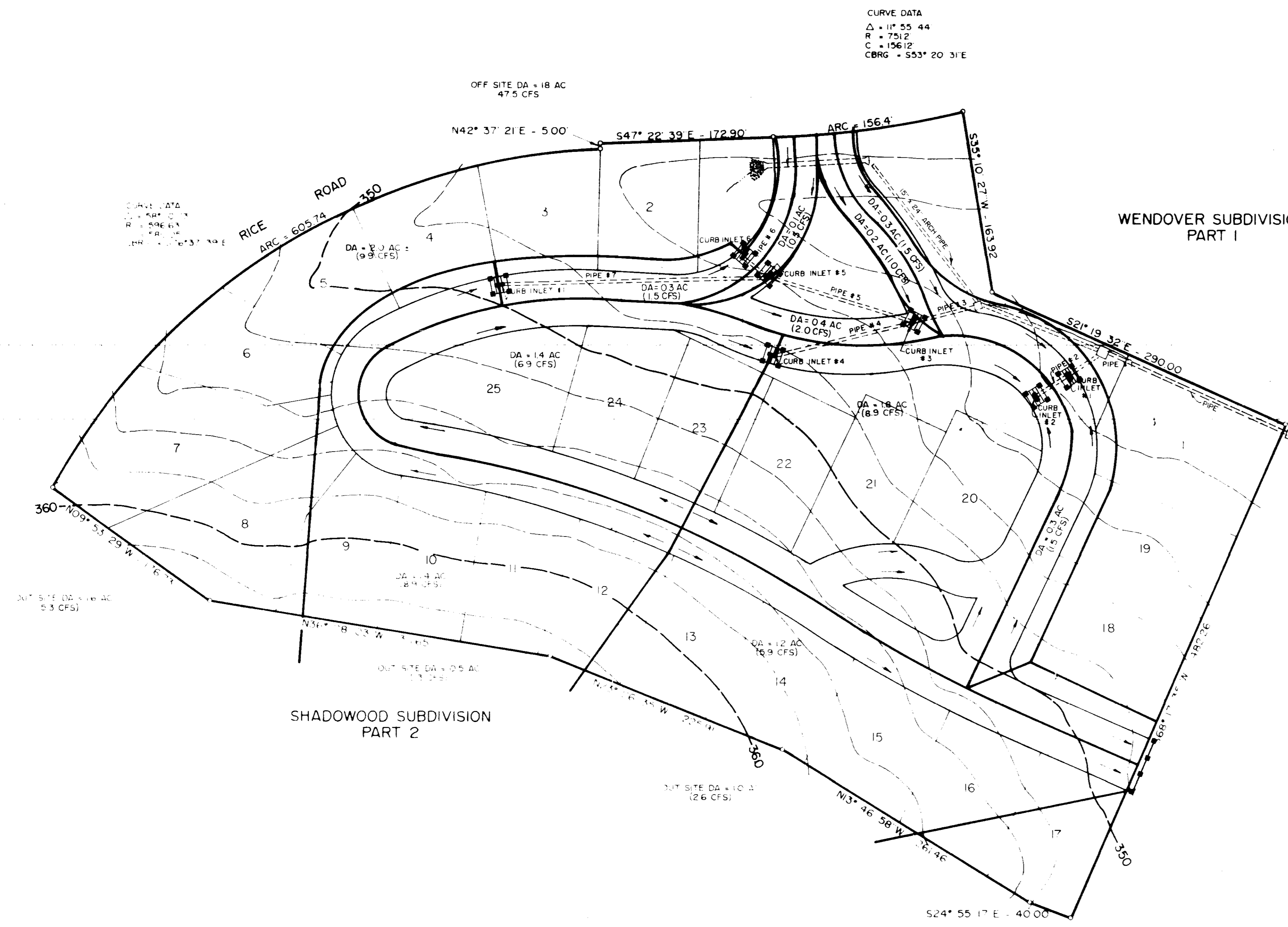


CURVE DATA  
 $\Delta = 11^\circ 55' 44''$   
 $R = 751.2$   
 $C = 156.12'$   
 $CBRG = 55^\circ 20' 31'' E$

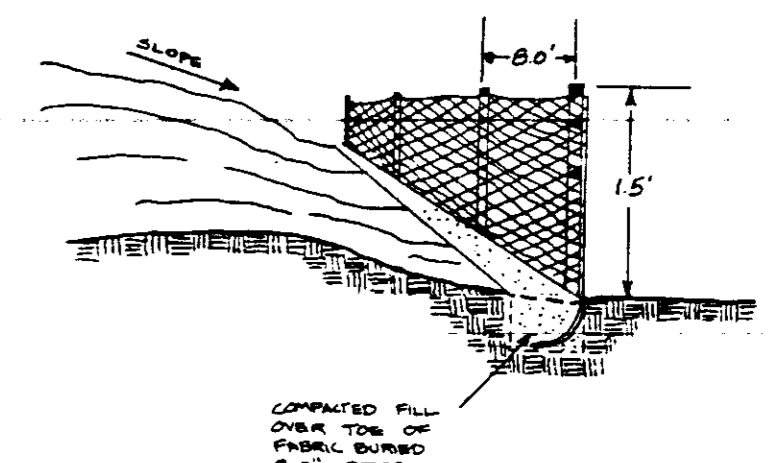
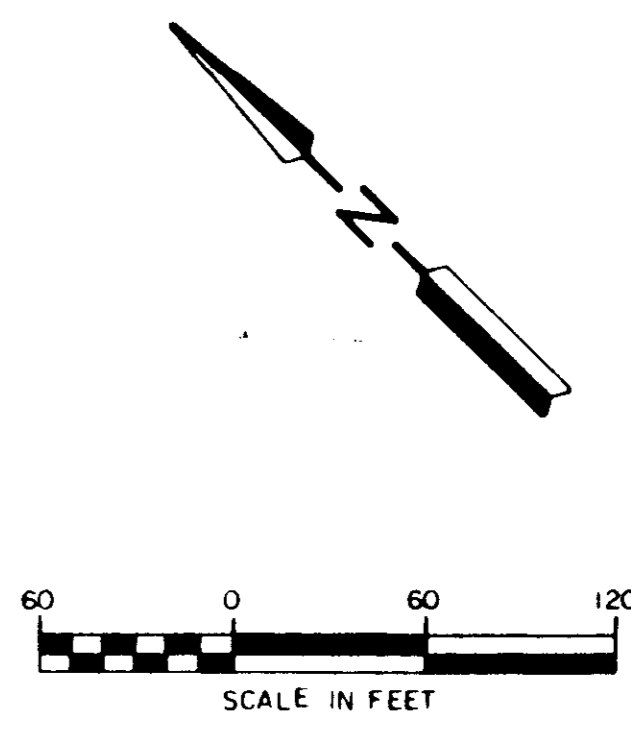
CURVE DATA  
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 $CBRG = 57^\circ 37' 39'' E$



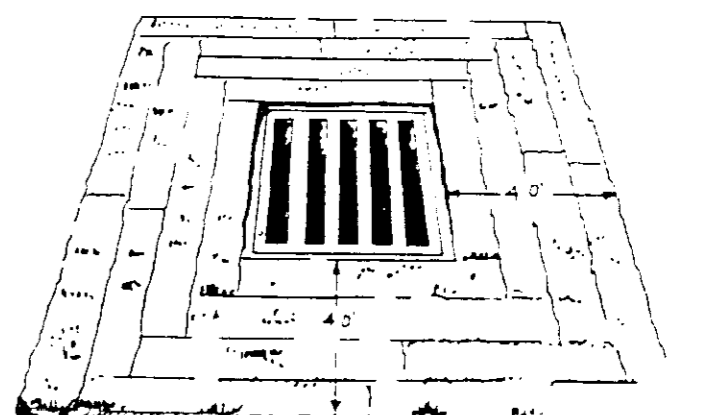
<b>HEATHERSTONE</b>			
<b>DRAINAGE LAYOUT</b>			
<b>BROWNING INC.</b>			
<small>Consulting Engineers Jackson, Mississippi</small>			
<small>Designed By : P.L.B.</small>	<small>Scale : 1" = 60'</small>	<small>Date : JAN, 1995</small>	<small>Sheet 3 of 14</small>
<small>Drawn By : J.F.</small>			



CURVE DATA  
 $\Delta = 11^\circ 55' 44''$   
 $R = 751.2$   
 $C = 156.12$   
 $CBRG = S53^\circ 20' 31'' E$



TYPICAL SILT FENCE INSTALLATION



TYPICAL INLET INSTALLATION

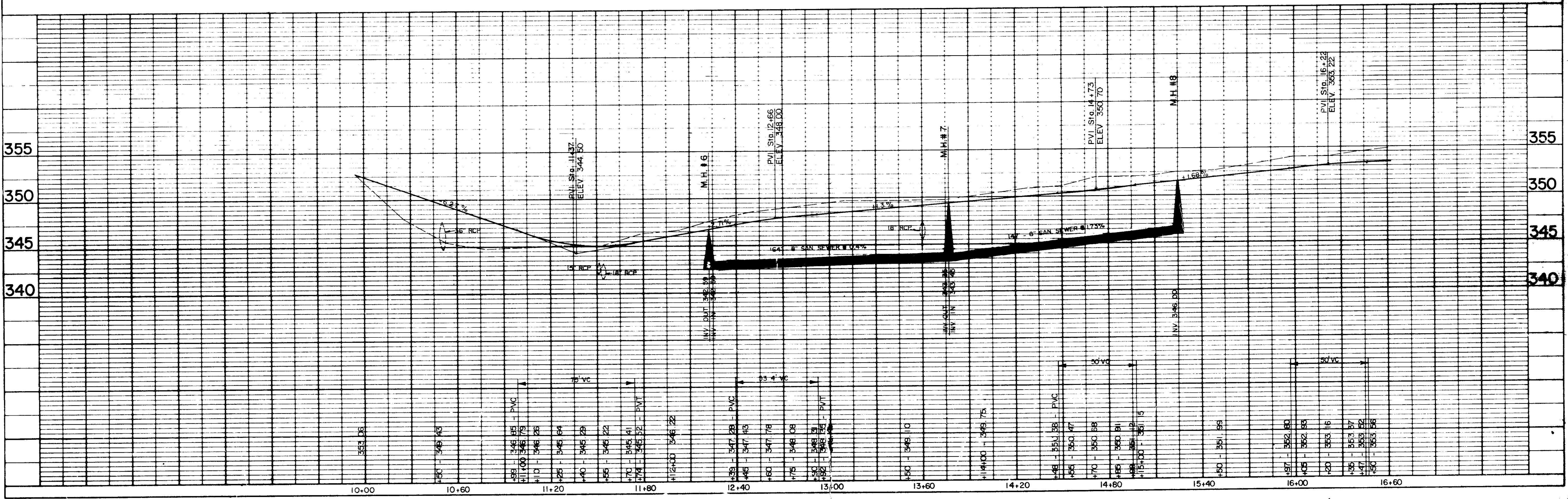
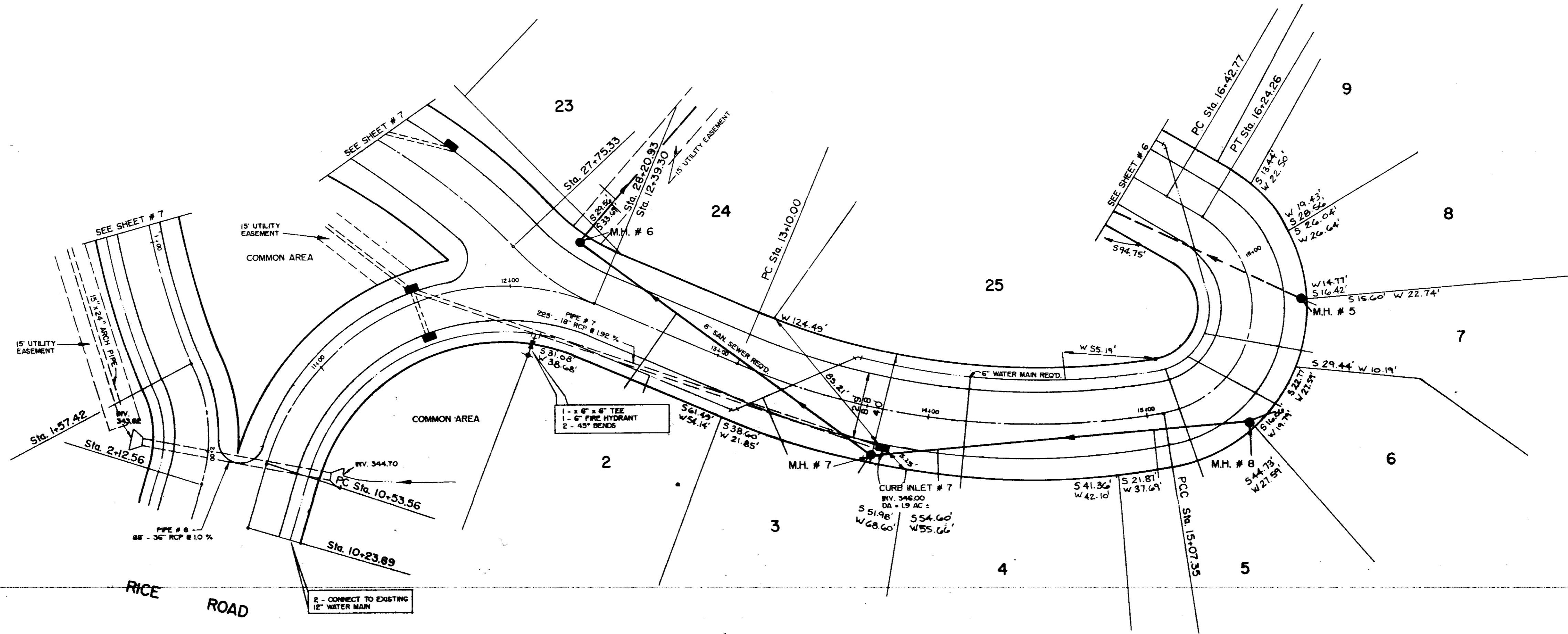
FUTURE DEVELOPMENT

- LEGEND
- Sediment Fence
  - Storm Drain
  - Inlet Protection
  - Rip Rap As Req'd

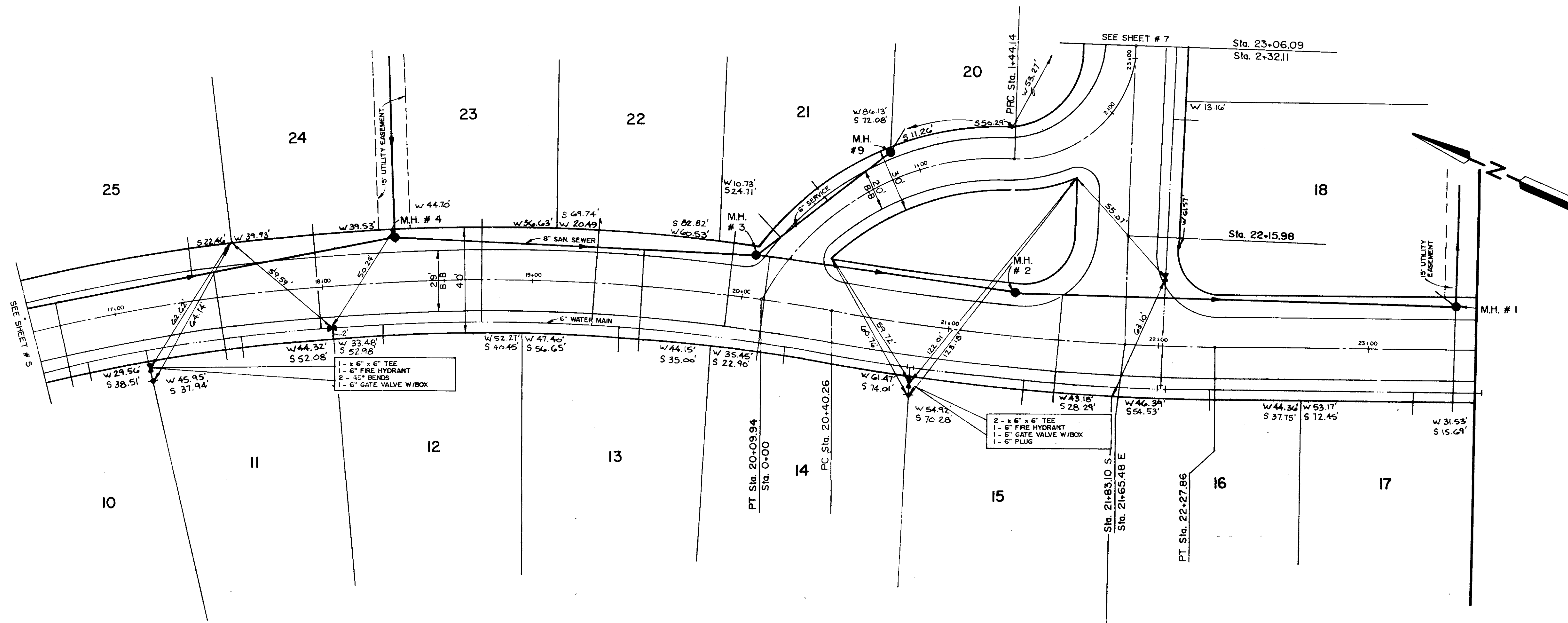
<b>HEATHERSTONE</b>		
<b>DRAINAGE LAYOUT AND STORMWATER POLLUTION PREVENTION PLAN</b>		
BROWNING INC. Consulting Engineers Jackson, Mississippi		
Designed By: P.L.B.	Scale: 1" = 60'	Sheet 4 of 14
Drawn By: J.F.	Date: JAN, 1995	

DATE	
BY	
CHECKED	
APPROVED	
PROJECT	
LOCATION	
SCALE	
NO. OF SHEETS	
SHEET NO.	

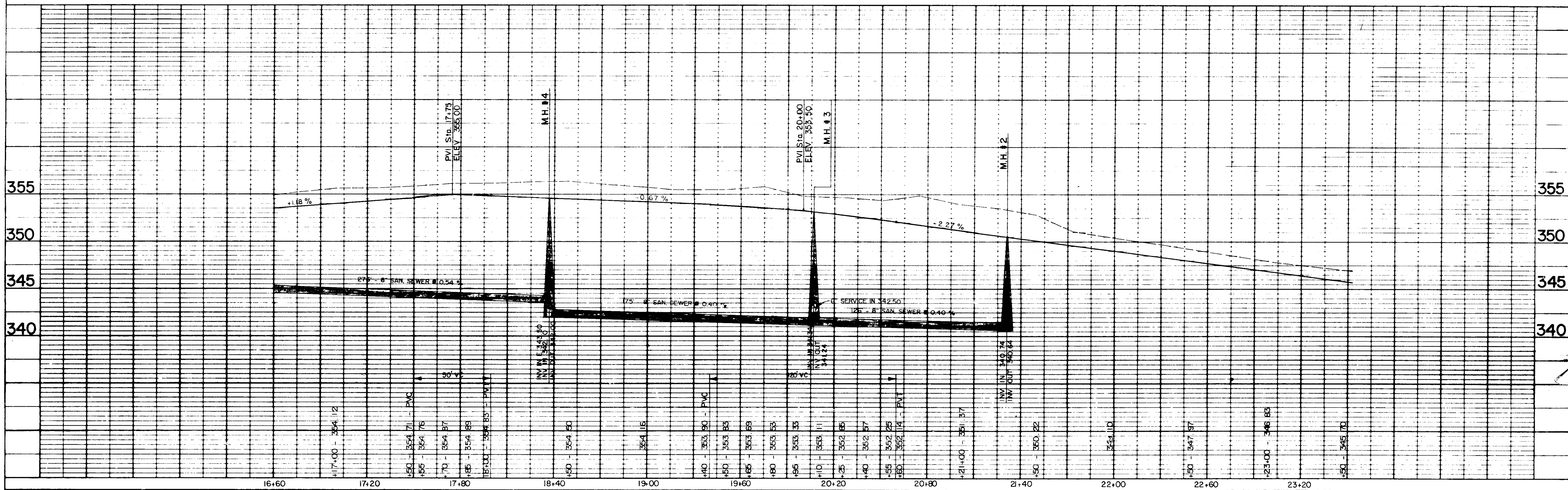
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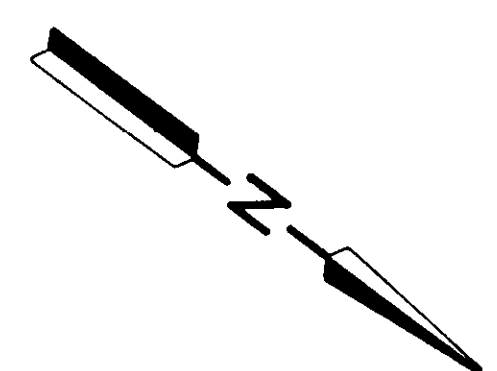
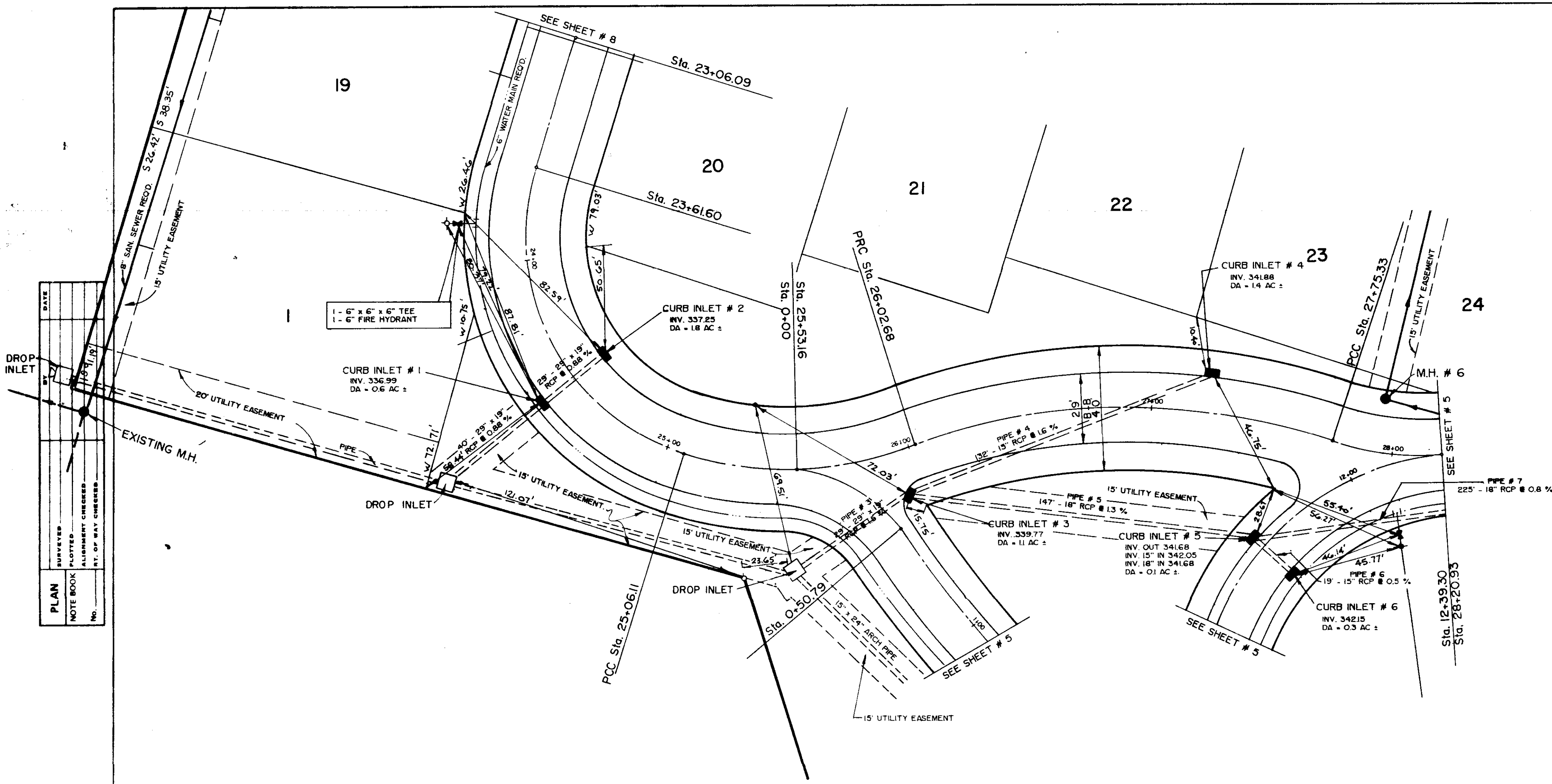


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BY	
PLAN	APPROVED
NOTE BOOK	REVISIONS
NO.	



DATE	
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PROFILE	APPROVED
NOTE BOOK	REVISIONS
NO.	



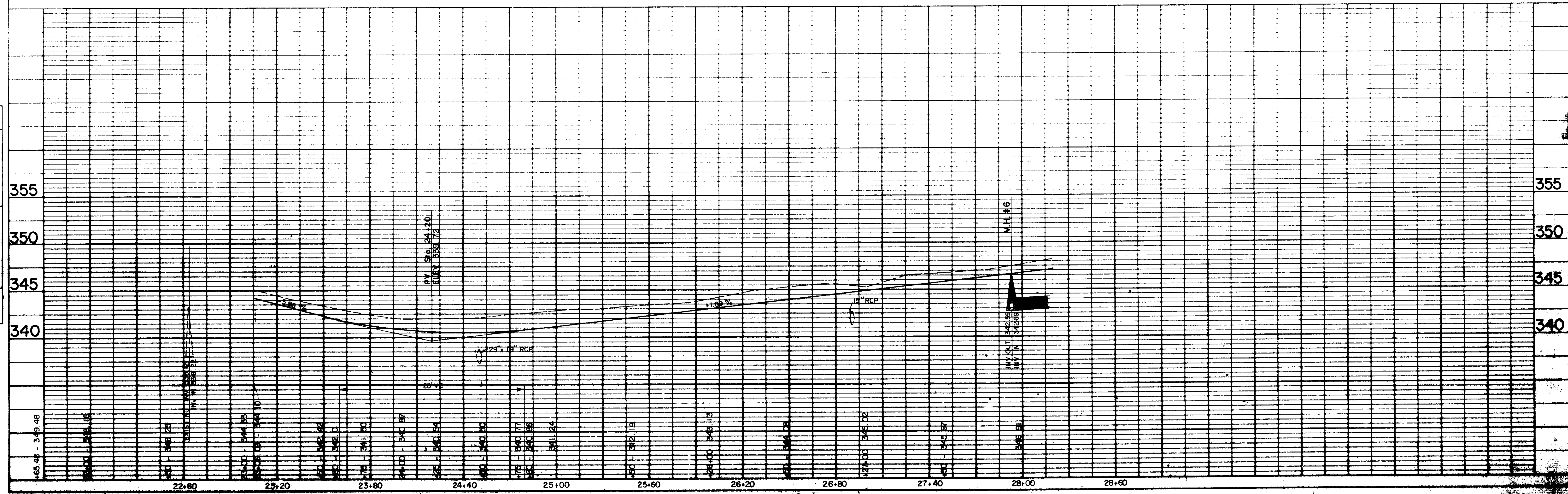


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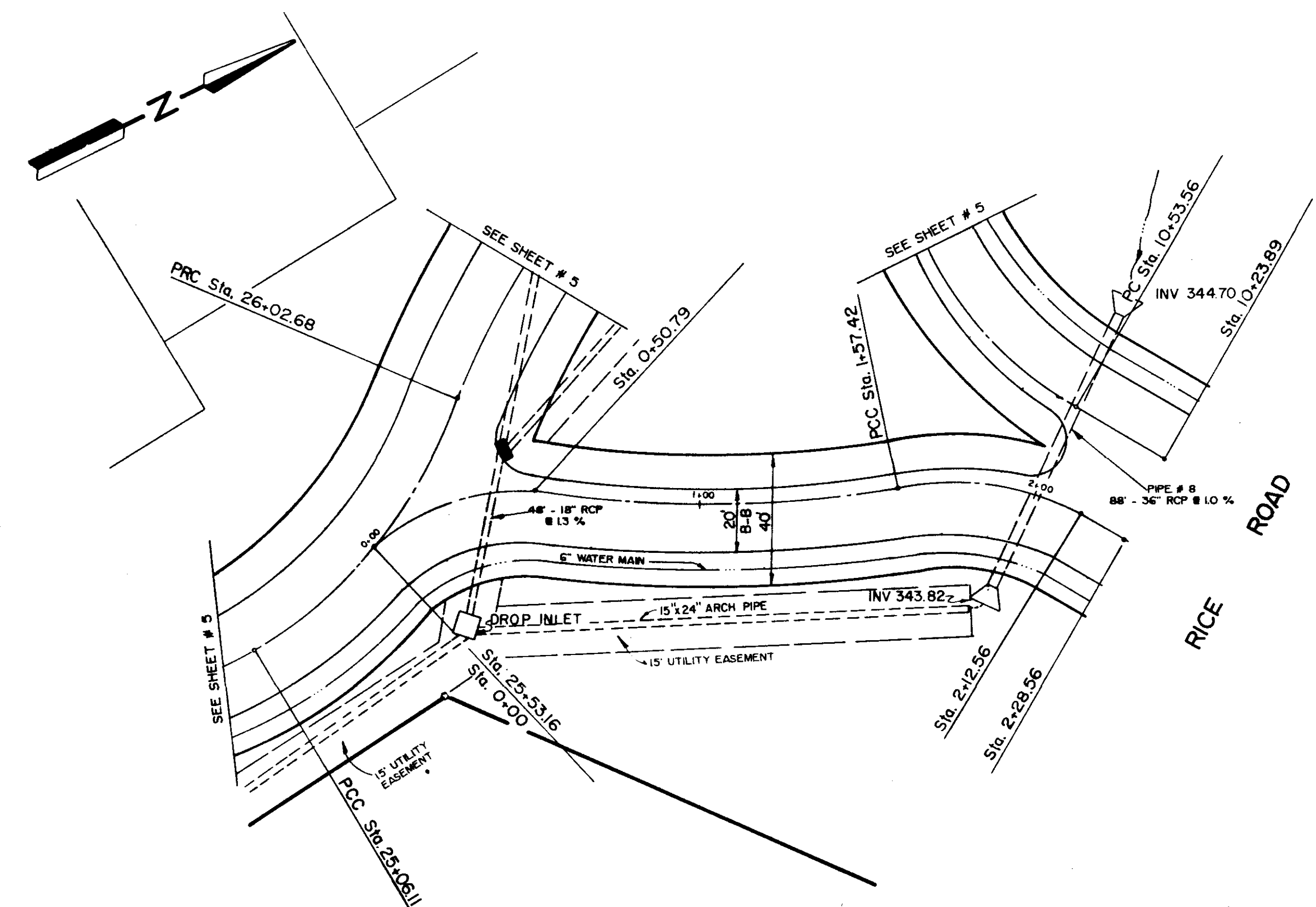
PLAN  
 SURVEYOR  
 NOTE BOOK  
 ALIGNED CENTER  
 E. N. S. 1000  
 1" = 40' HORIZ. CENTER  
 No.

DATE	BY	REVISION

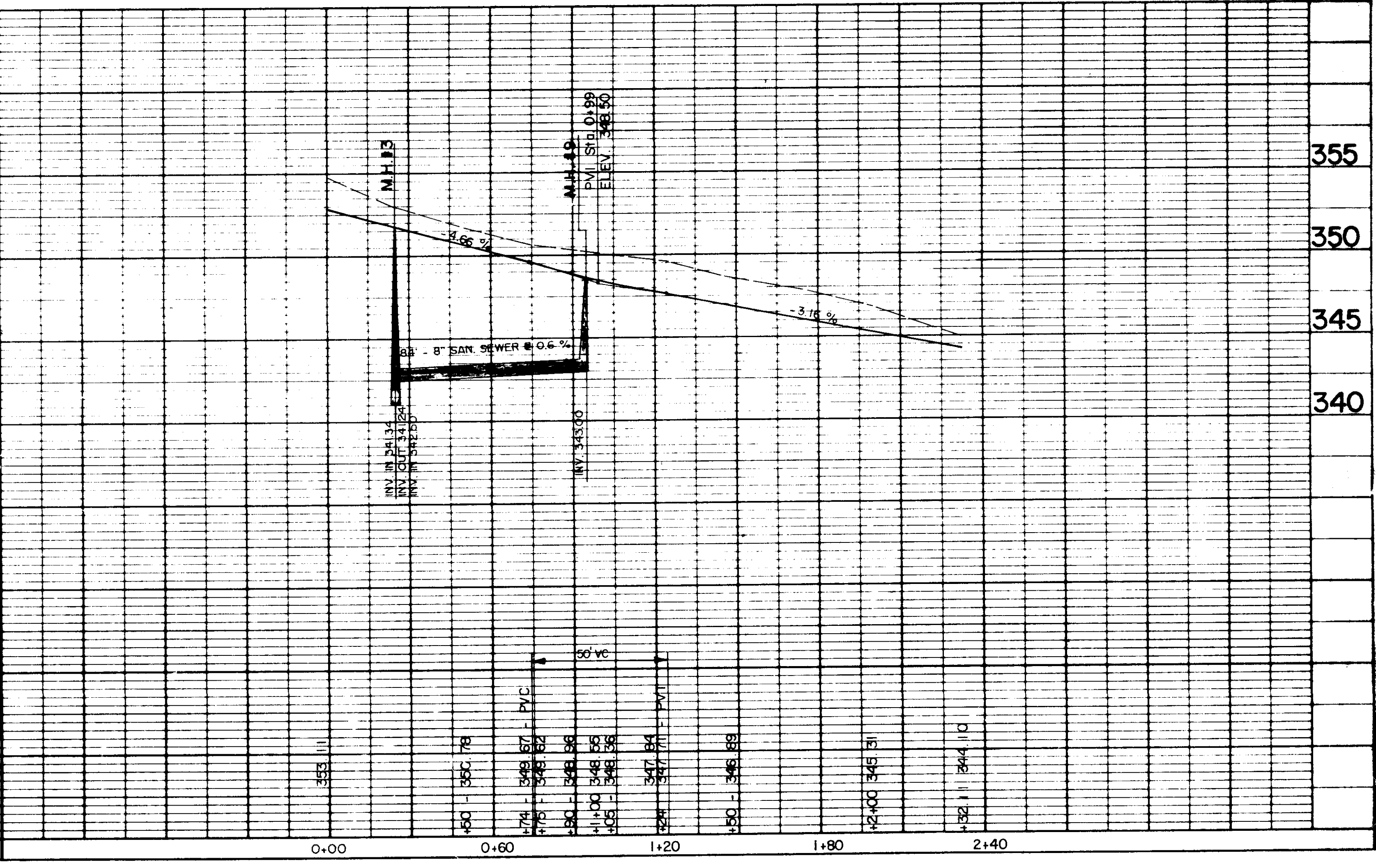
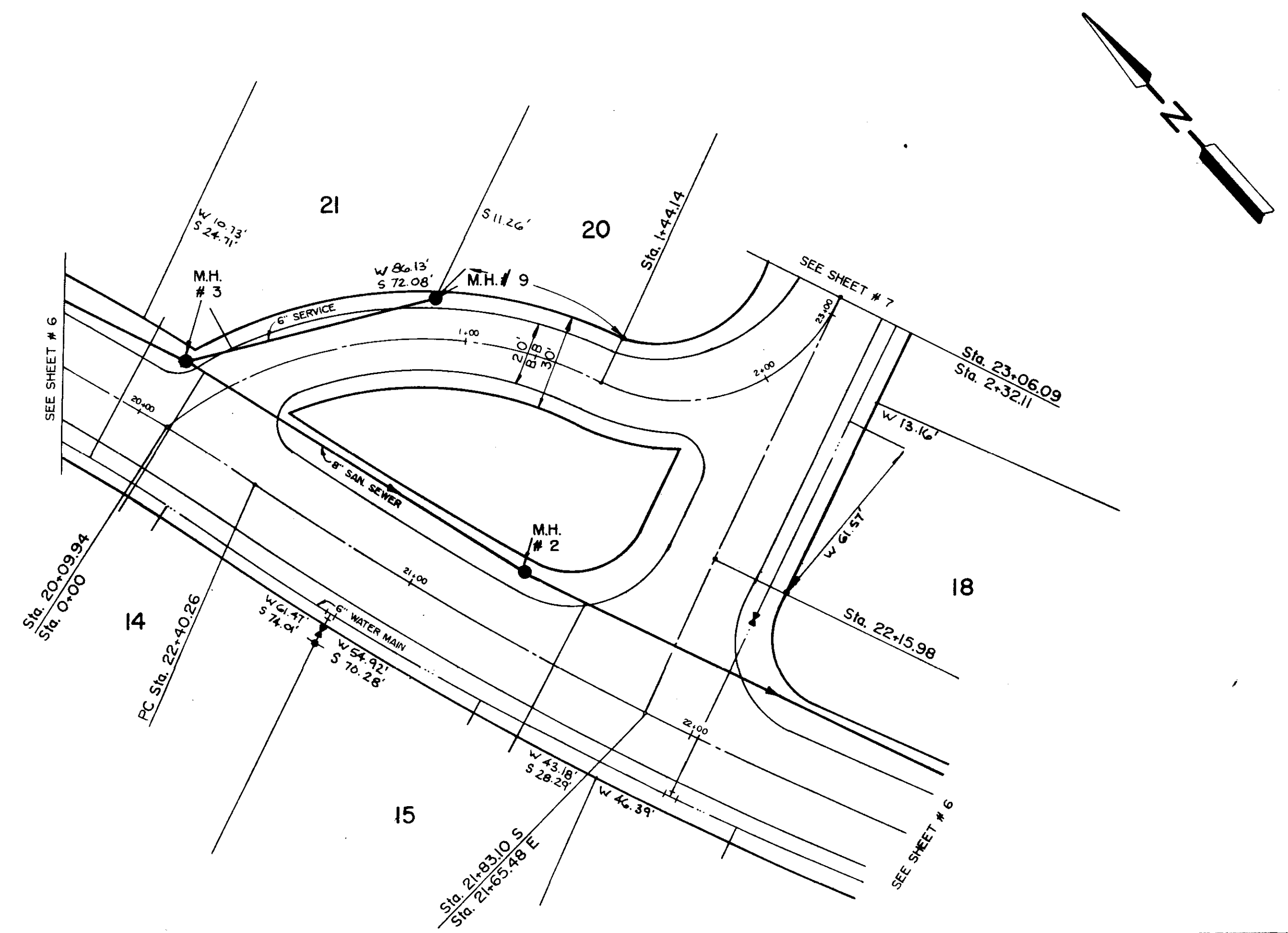
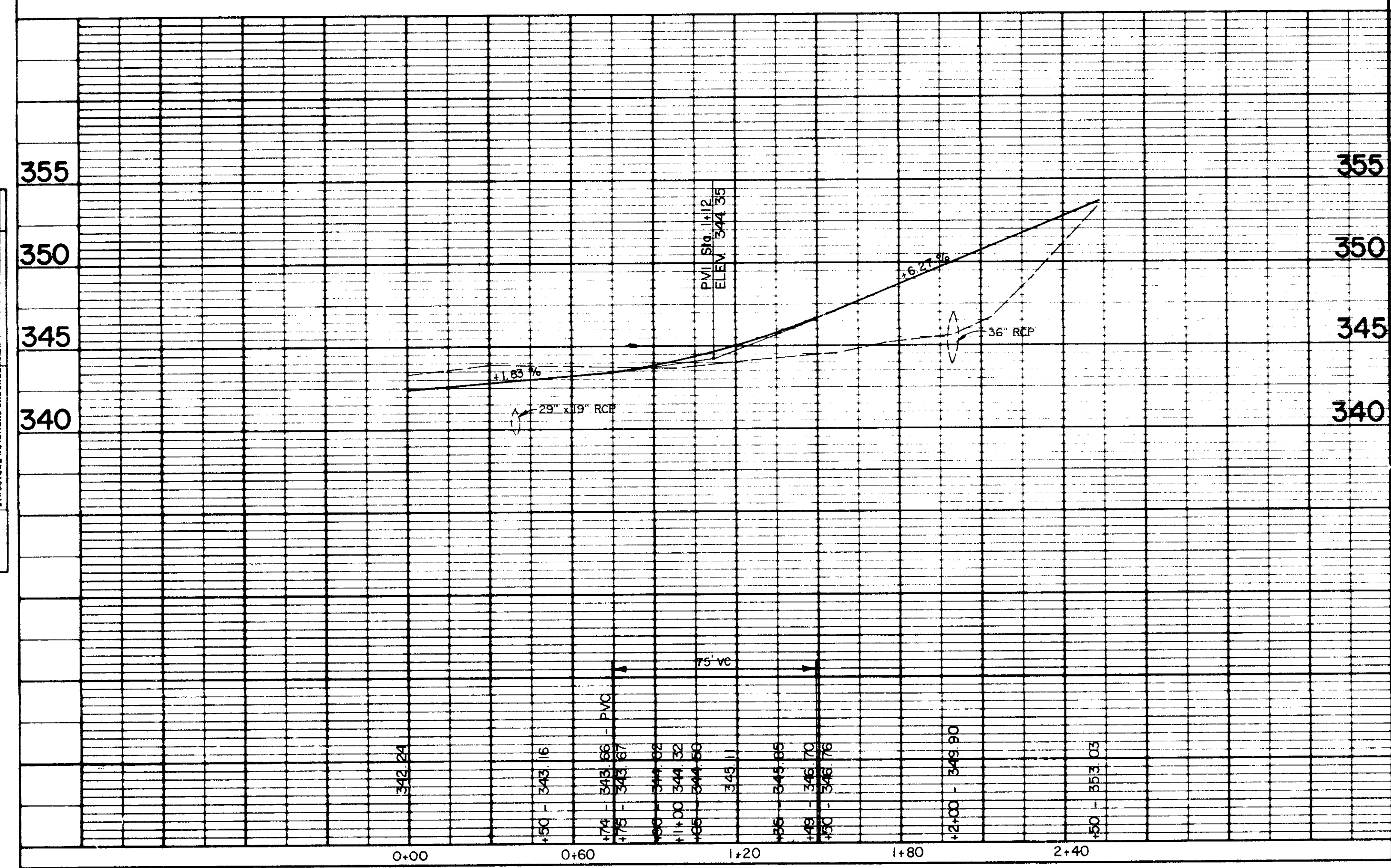
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 SURVEYOR  
 NOTE BOOK  
 ALIGNED CENTER  
 E. N. S. 1000  
 1" = 40' HORIZ. CENTER  
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PLAN	DATE
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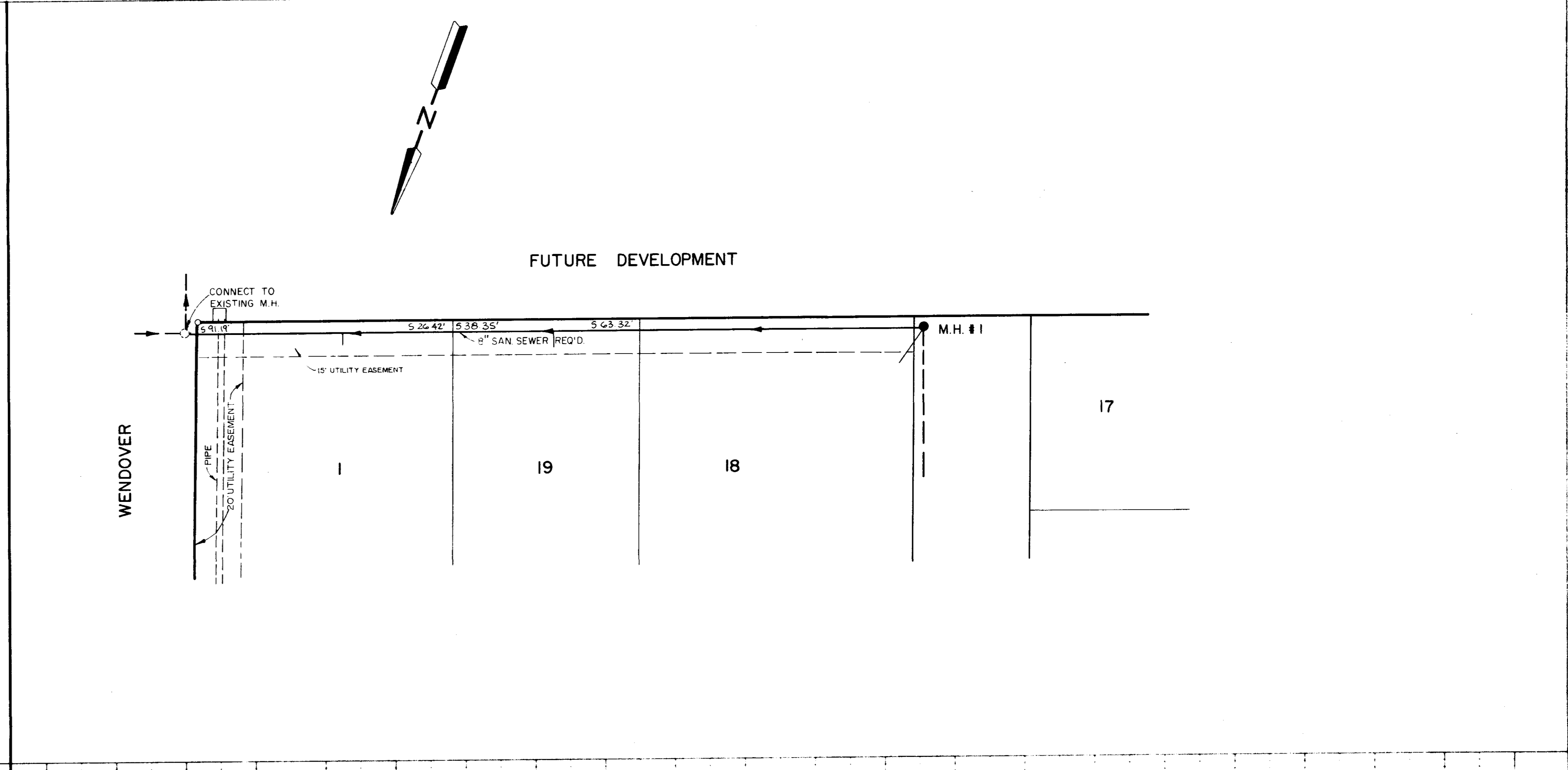
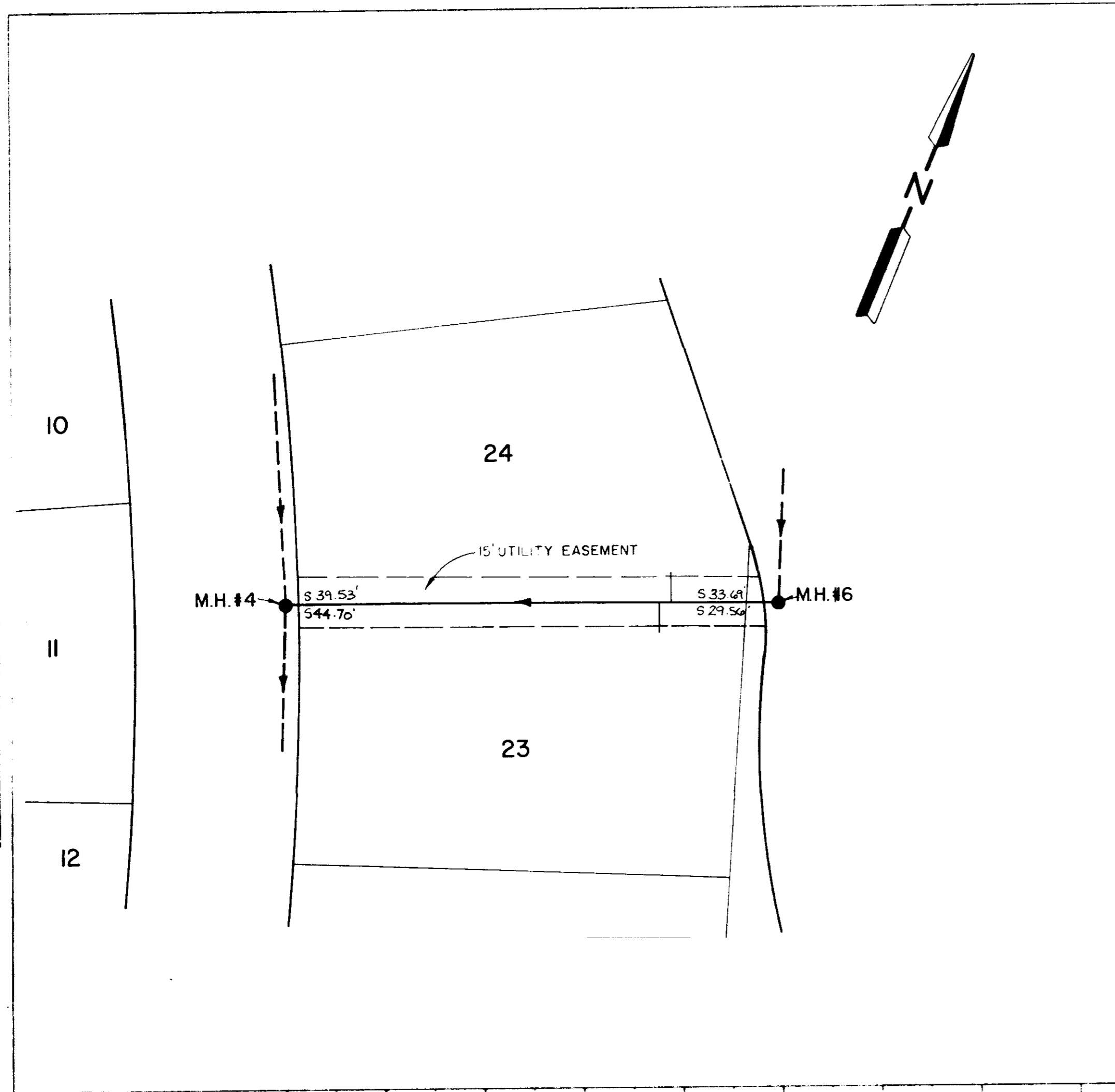


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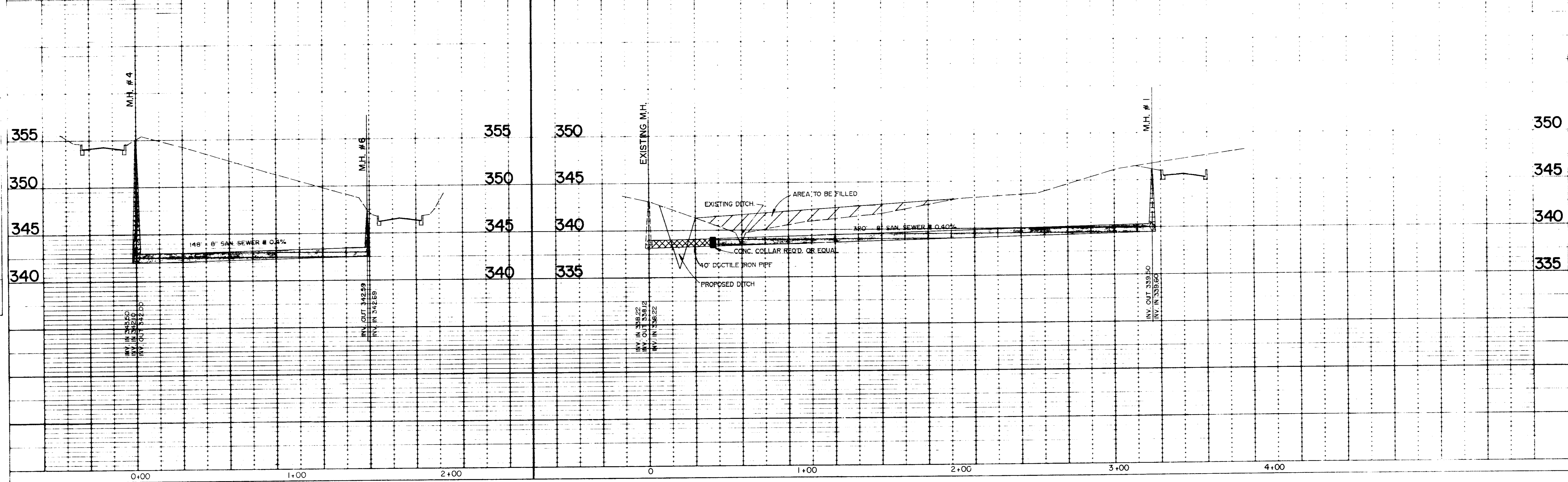


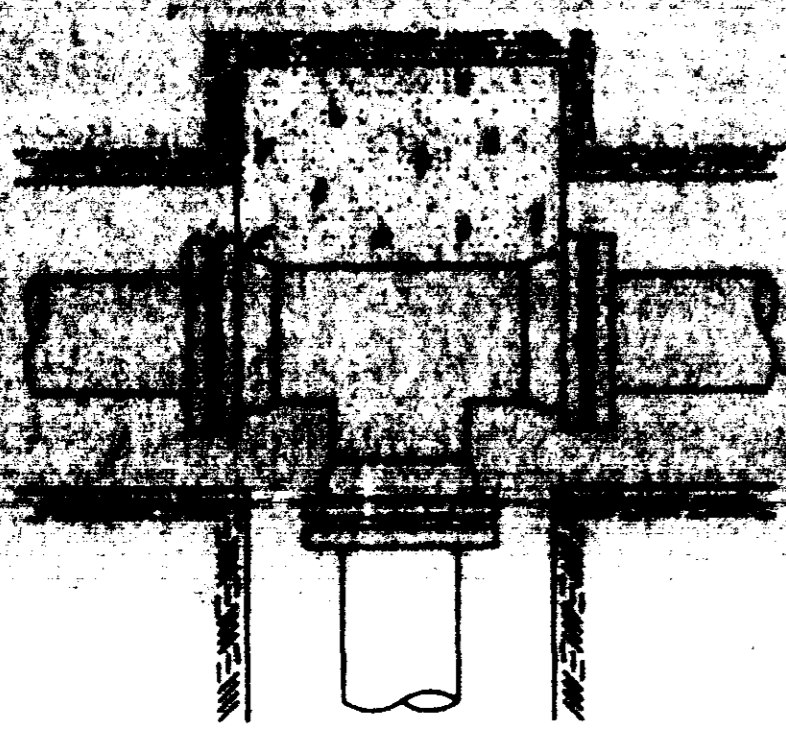


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 CHECKED BY: [unclear]  
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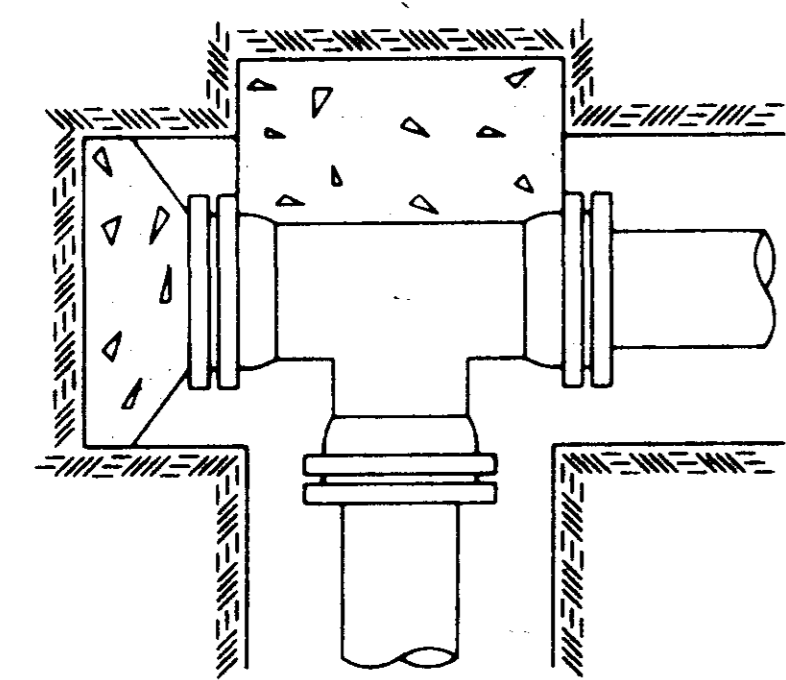


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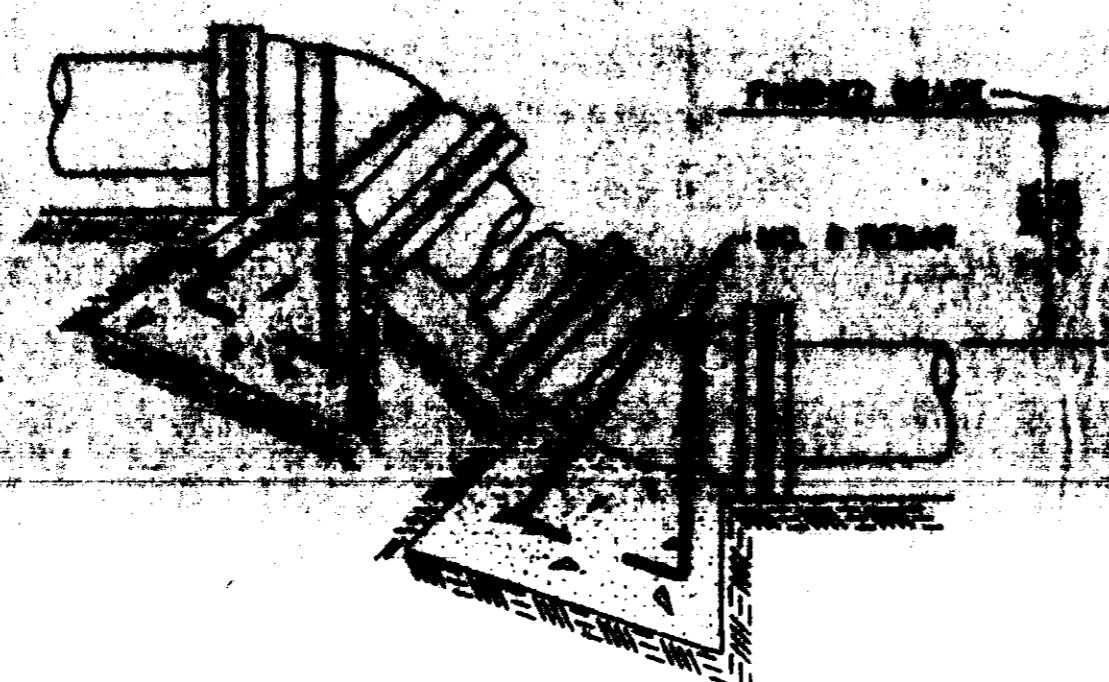




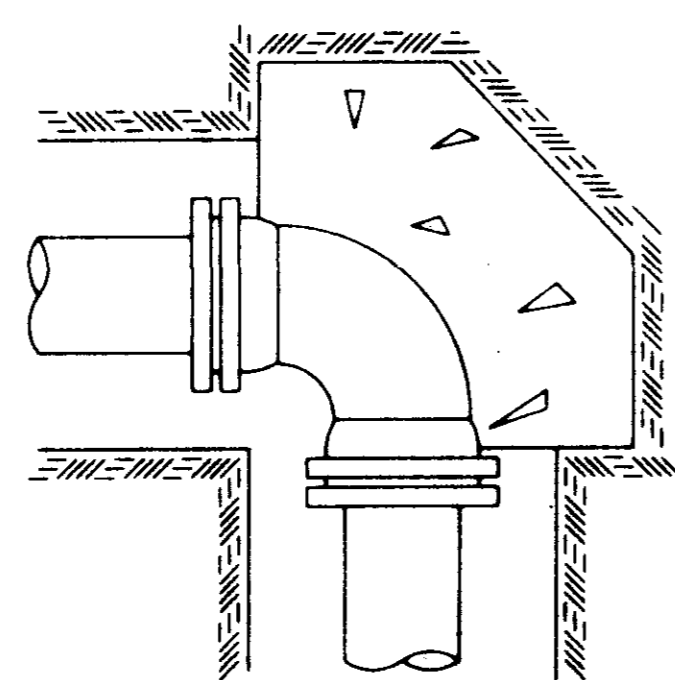
TEE



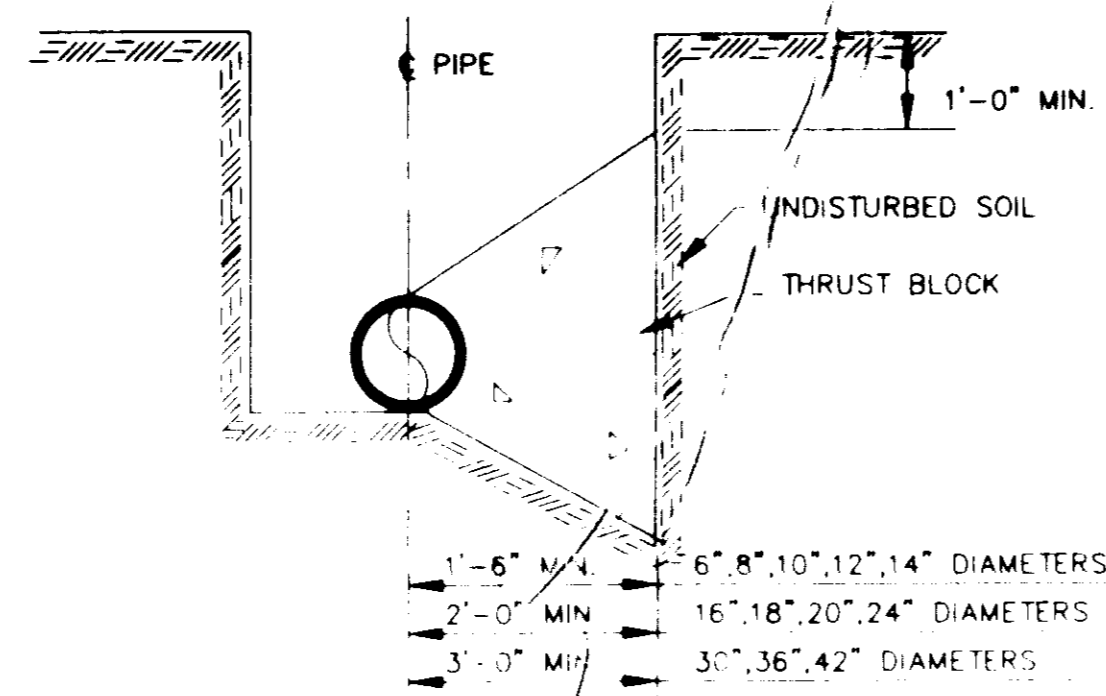
PLUGGED TEE



VERTICAL BENDS



90° BEND



TYPICAL CROSS SECTION

TYPICAL THRUST BLOCKING IN WATER MAINS AND SEWAGE FORCE MAINS

N.T.S.  
NOTE: ALL THRUST BLOCKS 2,500 PSI CONCRETE AGAINST UNDISTURBED EARTH

BEARING AREA IN SQ. FT.

NOMINAL PIPE DIAMETER (IN)	DEAD-END OR TEE	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND
6	2.5	3.0	2.0	2.0	2.0
8	4.0	6.0	3.0	2.0	2.0
10	6.0	9.0	5.0	2.5	2.0
12	9.0	11.0	6.0	3.5	2.0
14	12.0	18.0	9.0	5.0	2.5
16	16.0	22.5	12.0	6.0	3.0
18	20.0	28.0	15.0	8.0	4.0
20	24.5	34.0	19.0	10.0	5.0
24	35.0	49.0	27.0	14.0	7.0
30	54.0	76.0	41.0	21.0	10.0
36	77.0	108.0	59.0	30.0	15.0
42	104.0	146.0	79.0	40.0	20.0

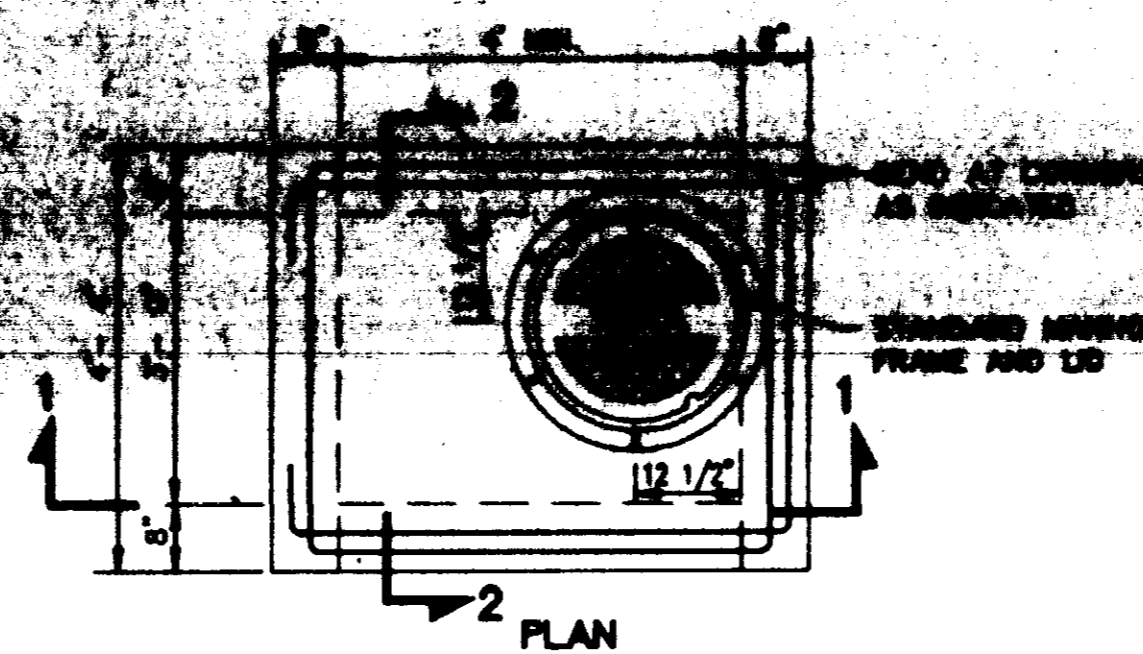
NOTE:  
ABOVE VALUES CALCULATED USING P=100 AND ALLOWANCE.  
SOIL BRG. = 1500 PSF. FOR DIFFERENT P, MULTIPLY ABOVE VALUES BY P/100.  
FOR DIFFERENT SOIL BRG, MULTIPLY ABOVE VALUES BY 1500/S.B.

VERTICAL BENDS

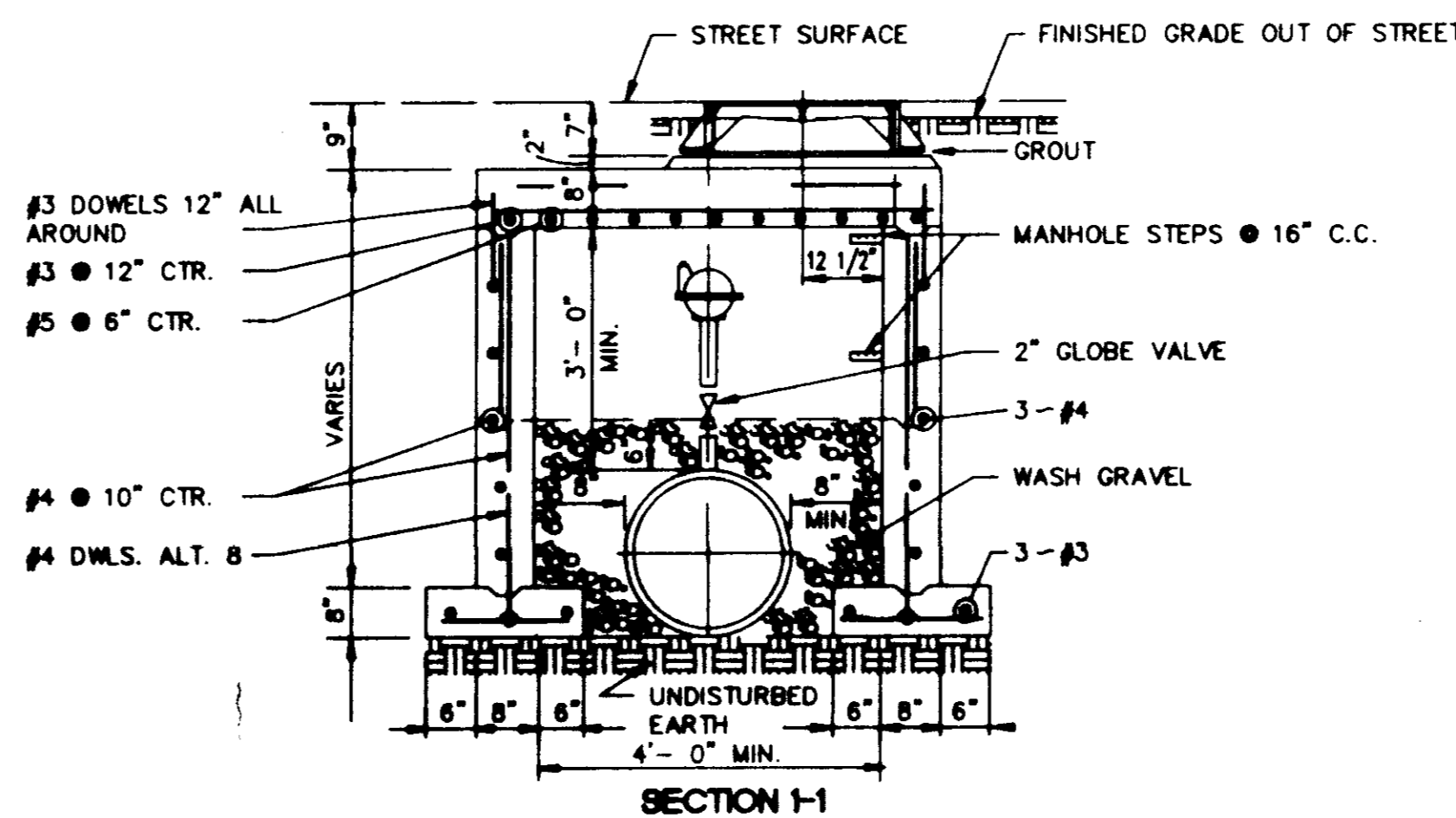
NOMINAL PIPE DIAMETER (IN)	DEAD-END OR TEE	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND
6	—	—	26.0(1.0)	14.0(5)	7.0(3)
8	—	—	45.0(1.7)	25.0(9)	13.0(5)
10	—	—	68.0(2.5)	37.0(14)	19.0(7)
12	—	—	97.0(3.6)	52.0(19)	27.0(10)
14	—	—	130(4.8)	70.0(26)	36.0(13)
16	—	—	168(6.2)	91.0(34)	46.0(17)
18	—	—	211(7.8)	114(4.2)	58.0(2.2)
20	—	—	259(9.6)	140(5.2)	72.0(2.6)
24	—	—	370(13.7)	200(7.4)	102(3.8)
30	—	—	568(21.1)	308(11.4)	156(5.8)
36	—	—	814(30.1)	440(16.3)	227(8.3)
42	—	—	1100(40.7)	595(22.0)	304(11.2)

VOLUME OF BLOCKS INCLUDING SOIL LOAD CU. FT. (CU. YDS.)

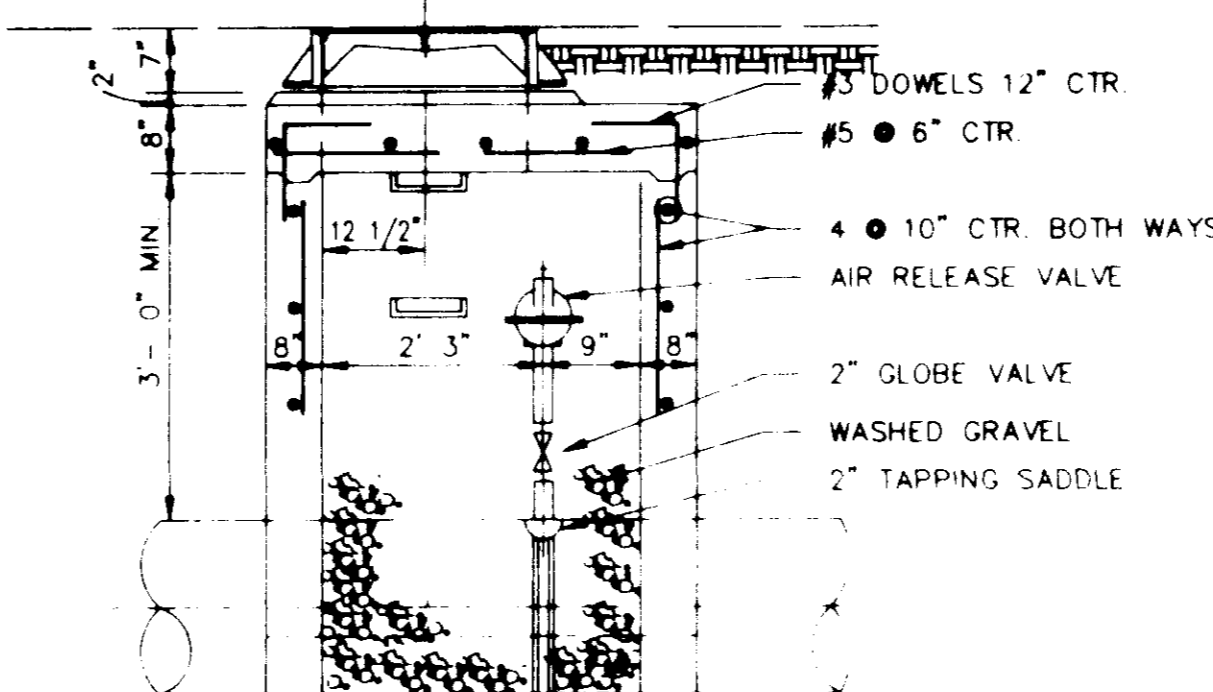
NOTE:  
ABOVE VALUES REPRESENT THE VOLUME OF BLOCKS INCLUDING SOIL LOAD IN CU.FT. (CU.YDS.) THE VALUES WERE CALCULATED USING A P=100 PSI AND A S.F.=1.5. FOR DIFFERENT P, MULTIPLY VALUES BY P/100.



PLAN



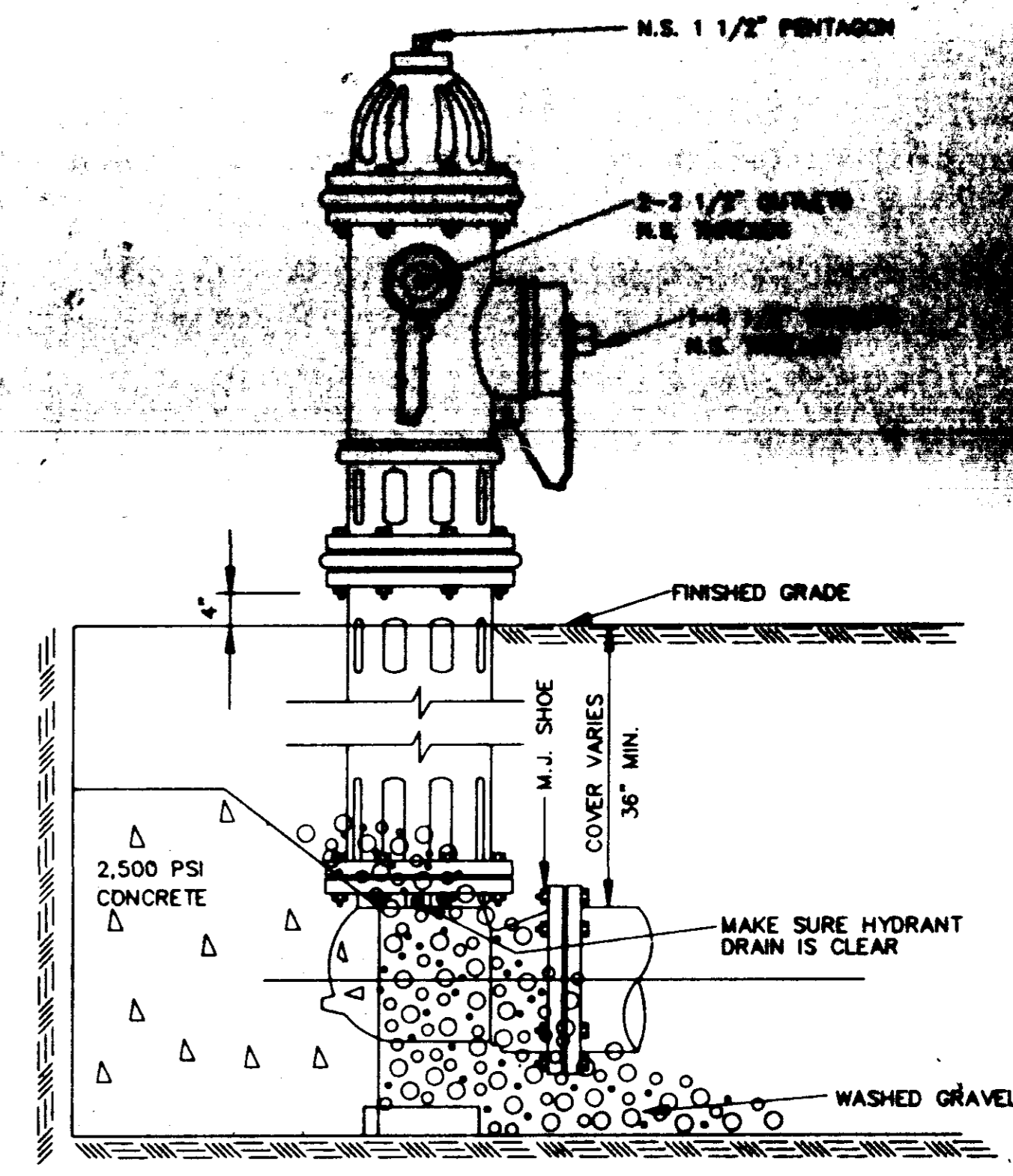
SECTION 1-1



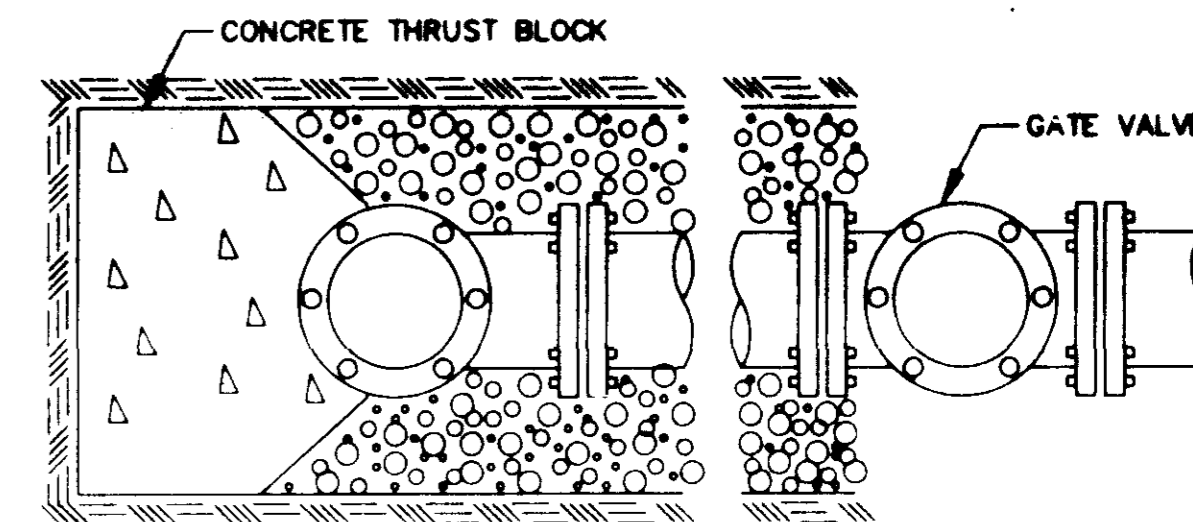
SECTION 2-2

TYPICAL AIR OR AIR VACCUUM RELEASE VALVE INSTALLATION WITH MANHOLE

NOT TO SCALE



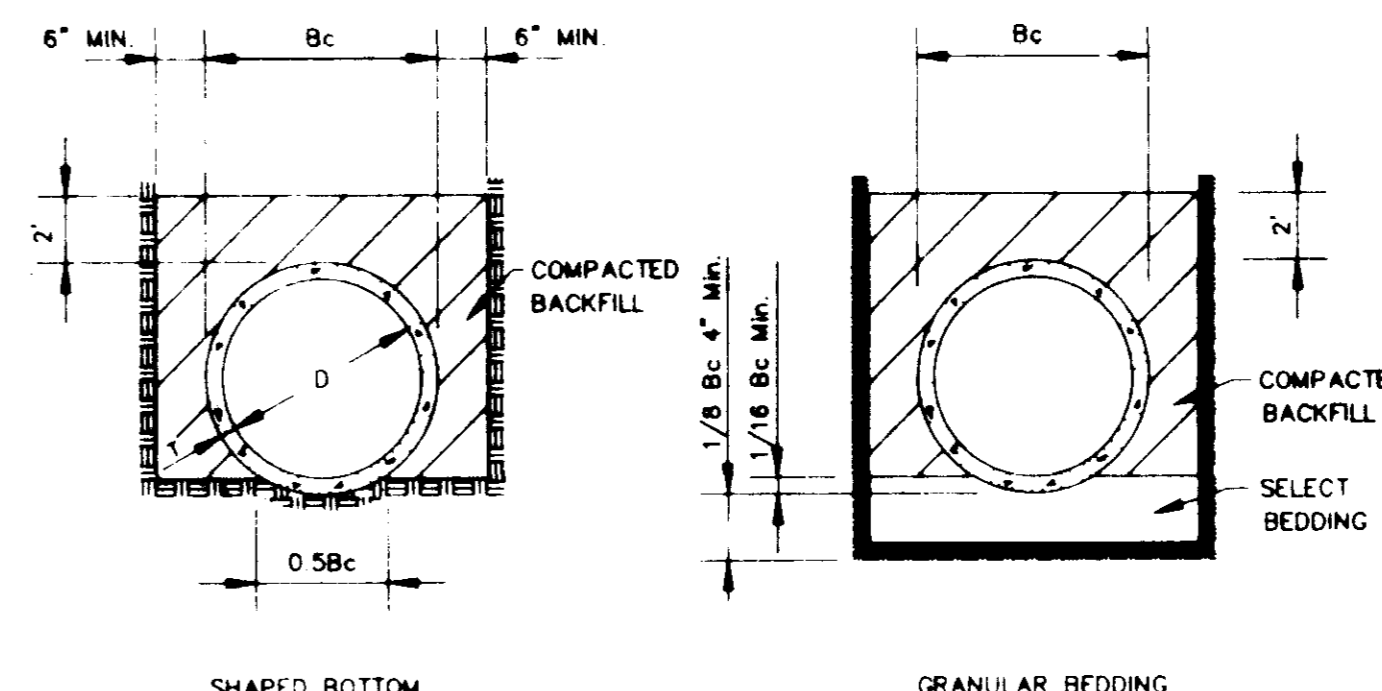
ELEVATION



PLAN

TYPICAL FIRE HYDRANT INSTALLATION

NOTE: GATE VALVES WILL BE REQUIRED ON ALL FIRE HYDRANT LEGS.  
N.T.S.



TYPICAL TRENCH DETAILS

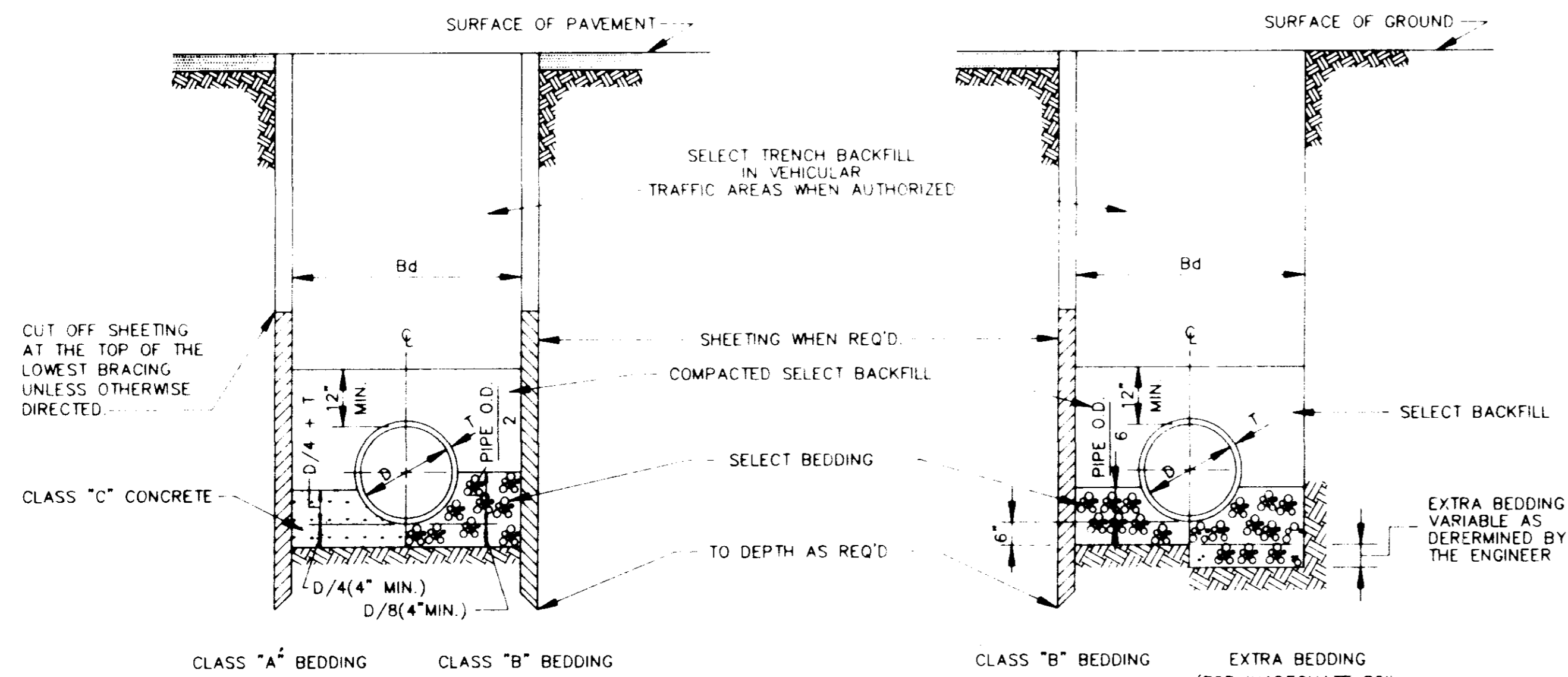
N.T.S.

CITY OF RIDGELAND, MS.

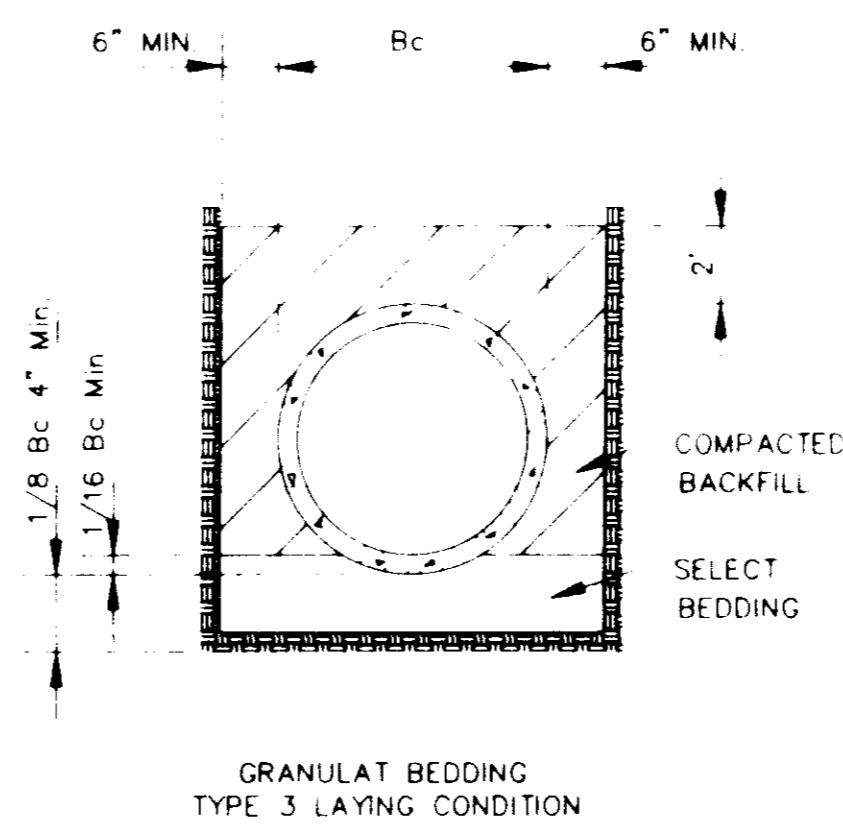
**STANDARD DETAILS**

HEATHERSTONE

DSGN	PLB	THE CITY OF RIDGELAND	DRAWING NO.
DRWN	J.F.		10 OF 14
CHKD	PLB		
SCALE	N.T.S.		



TYPICAL TRENCH DETAILS (FORCE MAIN)



CLASS "A" BEDDING

MATERIAL SHALL BE CLASS "C" CONCRETE CRADLES. THE PIPE SHALL BE LAID ON CONCRETE SADDLES CONSTRUCTED TO PROVIDE VERTICAL AND LATERAL SUPPORT FOR THE PIPE WHILE THE CRADLE IS BEING PLACED. PIPE SUPPORTS OF WOOD BLOCKS, LOOSE BRICK, ETC., WILL NOT BE PERMITTED. THE CRADLE SHALL BE POURED AFTER THE JOINTS HAVE BEEN MADE. CARE BEING TAKEN TO PREVENT MOVEMENT OF THE PIPE. WHENEVER THE CONTRACTOR PLACES CONCRETE OUTSIDE THE DIMENSIONS SHOWN ON THE DRAWINGS, THE COST OF SUCH CONCRETE WILL BE AT THE CONTRACTOR'S EXPENSE.

CLASS "B" BEDDING

MATERIAL SHALL BE SELECT BEDDING AS SPECIFIED. MATERIAL SHALL BE CAREFULLY PLACED AND THOROUGHLY COMPACTED BY TAMPING.

CLASS "C" BEDDING (STANDARD BEDDING)

MATERIAL SHALL BE THE SAME AS FOR CLASS "B" BEDDING AND SHALL BE PLACED AS SHOWN BY STANDARD DETAILS FOR THE TYPE OF PIPE USED.

CLASS "A" BEDDING CLASS "B" BEDDING CLASS "B" BEDDING EXTRA BEDDING (FOR INADEQUATE SOIL BEARING CAPACITY)

BEDDING FOR VITRIFIED CLAY, CONCRETE & ABS PIPE

TYPICAL TRENCH DETAILS  
N.T.S.

TABLE "A"  
PIPE SIZE

CARRIER PIPE (INCHES)	CASING PIPE	
	DIA. (INCHES)	STEEL PIPE WALL THICK.
8	16	1/4"
10	20	5/16"
12	24	3/8"
14 & 16	30	1/2"
18	36	1/2"
24	36	1/2"
30	54	1/2"
36	54	1/2"
42	66	SEE TABLE "B"
48	72	-
54	78	-
60	84	-
66	96	-
72	108	-
84	120	-
96	144	-

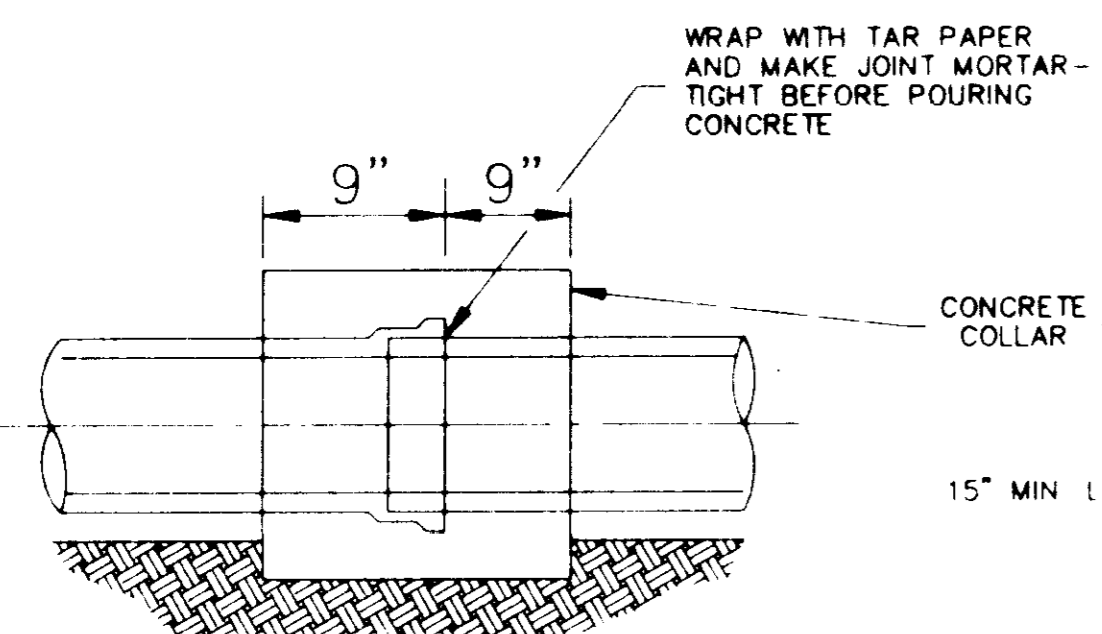
TABLE "B"  
GAGES OF LINER PLATE FOR CONTINUOUS LOAD-CARRYING STRUCTURES

NOMINAL DIA. (INCHES)	HEIGHT OF COVER (FEET)							
	2-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40
48	12	12	12	12	12	12	12	10
54	12	12	12	12	12	12	12	8
60	12	12	12	12	12	12	12	7
66	12	12	12	12	12	10	8	5
72	12	12	12	12	12	10	8	5
78	12	12	12	12	10	8	7	5
84	12	12	10	10	8	5	5	5
96	12	10	10	10	8	5	5	5
108	10	10	10	8	7	5	5	5
120	10	10	10	8	7	5	5	3
144	8	8	8	8	5	3	1	1

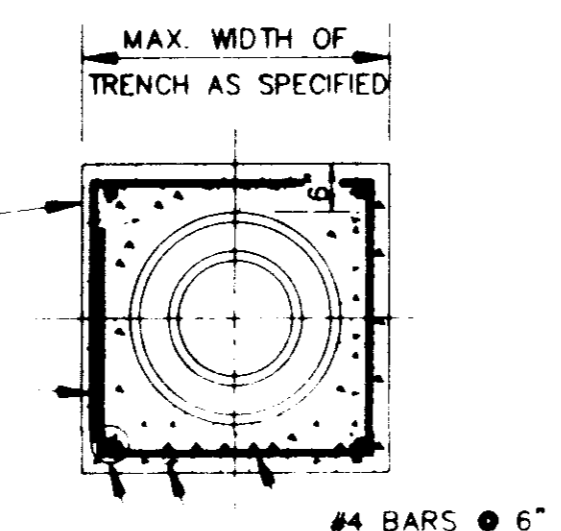
MIN. THICKNESS FOR LINER PLATE CASING IN RAILROAD CROSSING-10 GAGE

CASING PIPE

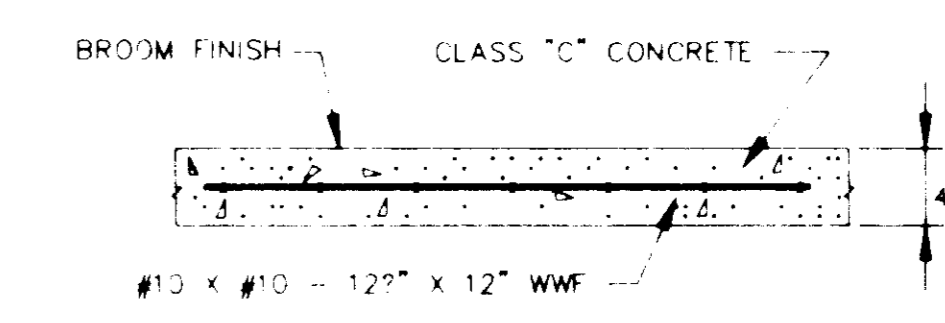
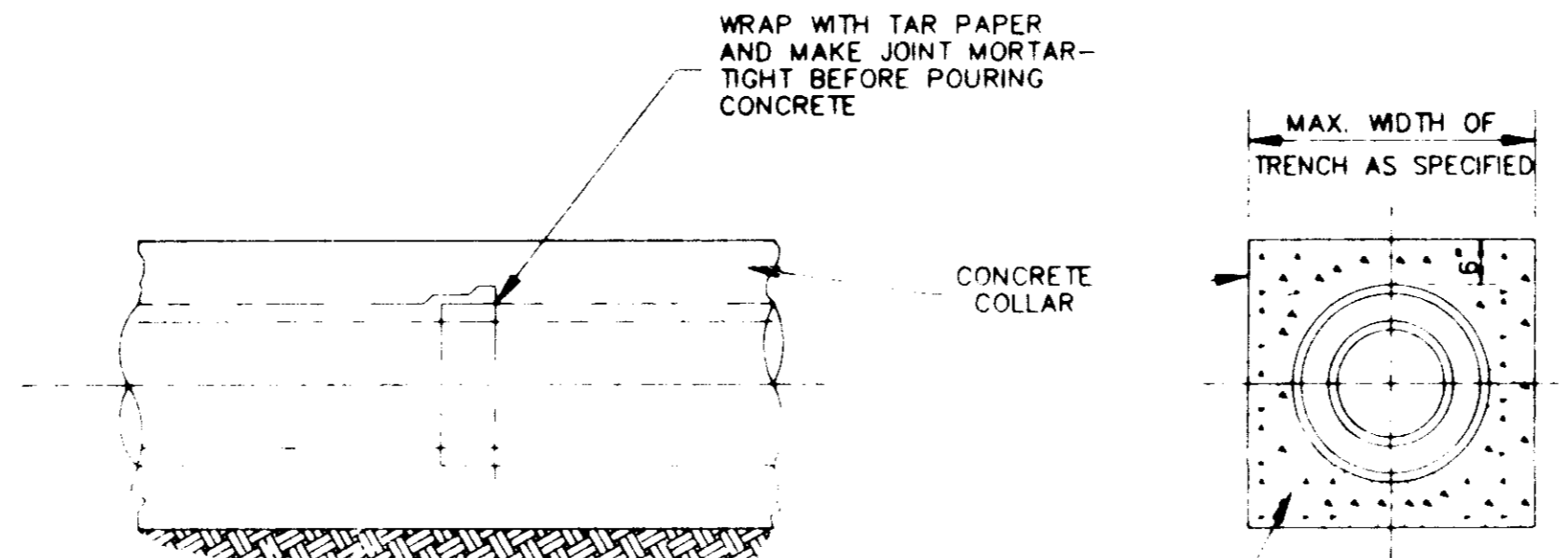
SIZE AND THICKNESS OF PIPE FOR RAILROAD & HIGHWAY CROSSING



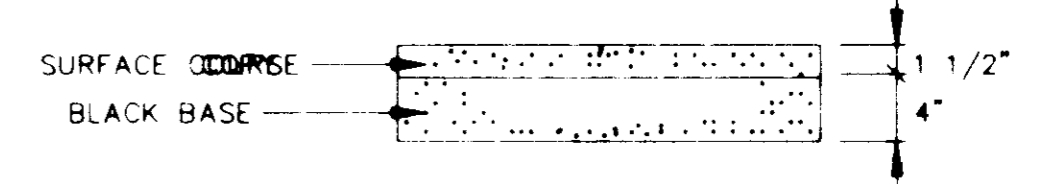
TYPICAL DETAIL OF CONCRETE COLLAR  
N.T.S.



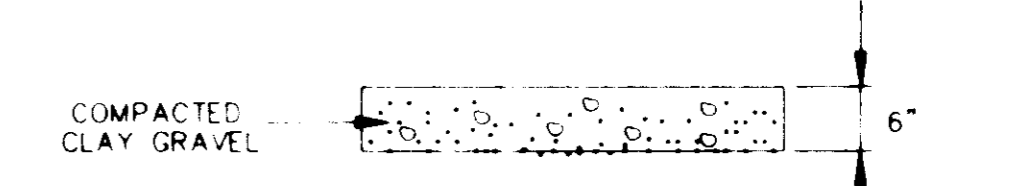
TYPICAL DETAIL OF CONCRETE ENCASUREMENT  
N.T.S.



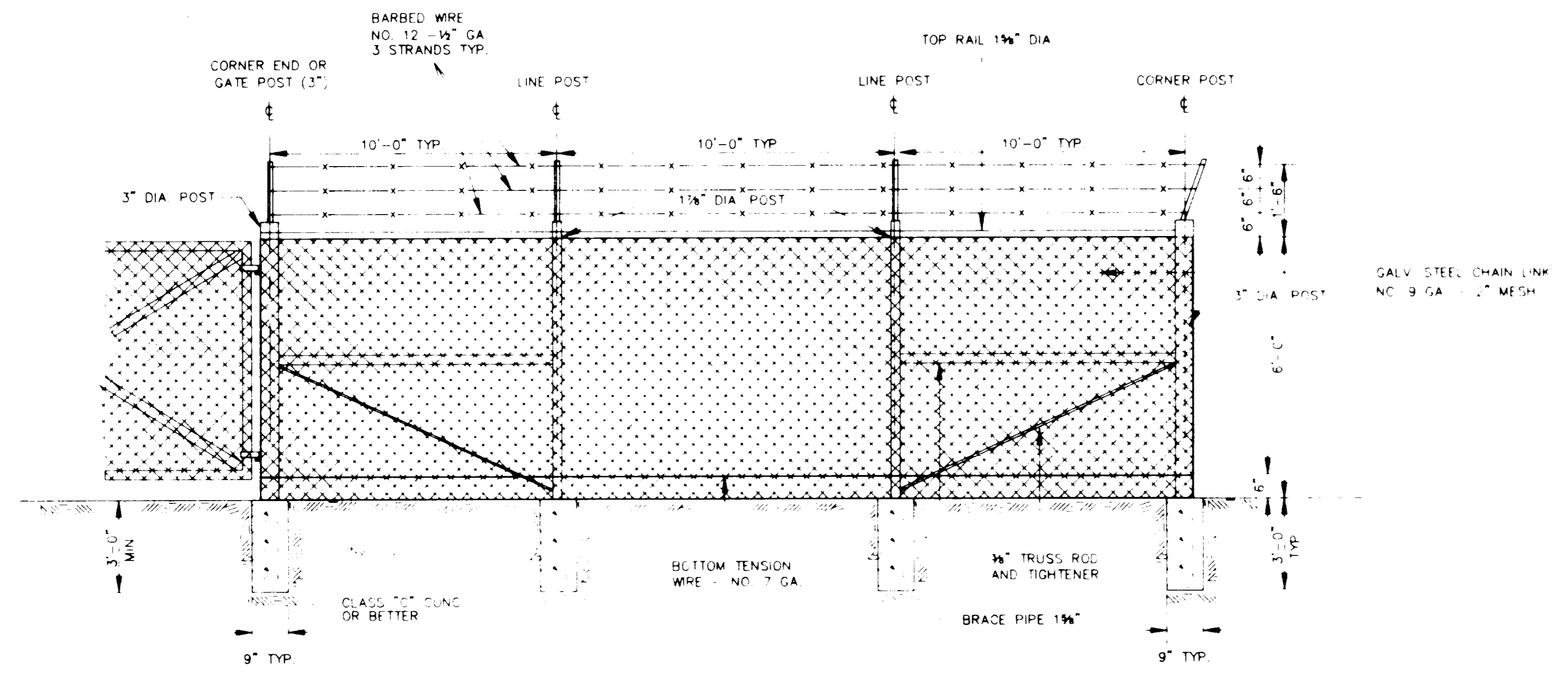
TYPICAL CONC. DRIVEWAY AND SIDEWALK REPAIR



TYPICAL ASPHALT DRIVEWAY REPAIR



TYPICAL GRAVEL DRIVEWAY REPAIR



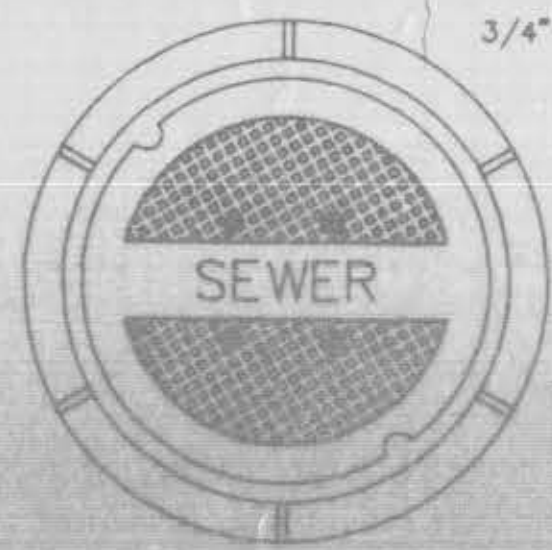
CHAIN LINK FENCE DETAIL  
N.T.S.

CITY OF RIDGELAND, MS.

**STANDARD DETAILS**

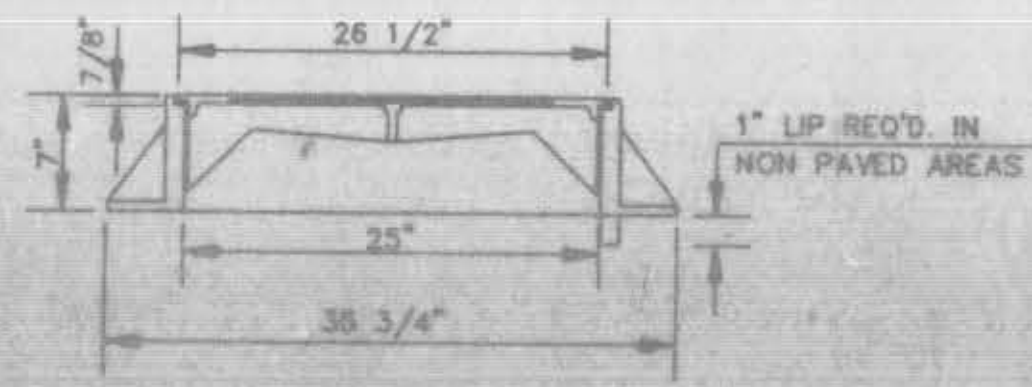
HEATHERSTONE

DBGN	P.L.B.	THE CITY OF RIDGELAND	DRAWING NO.
DRWN	J.F.		11 OF 14
CHKD	P.L.B.		
SCALE	N.T.S.		

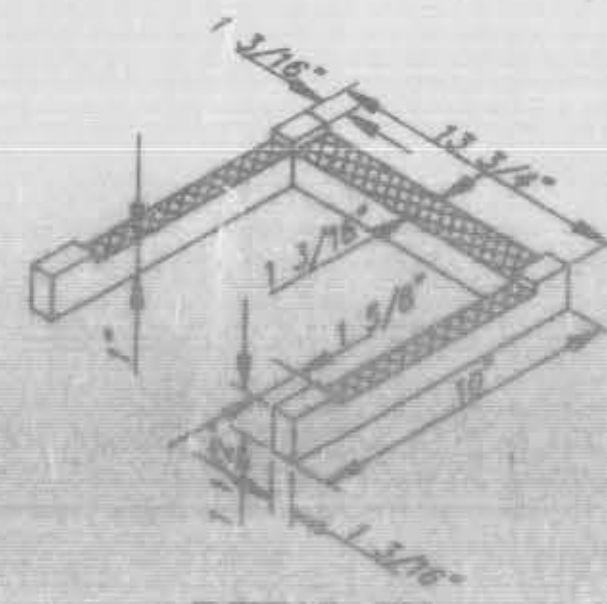


3/4" HOLES

TOP PLAN OF COVER



SECTION

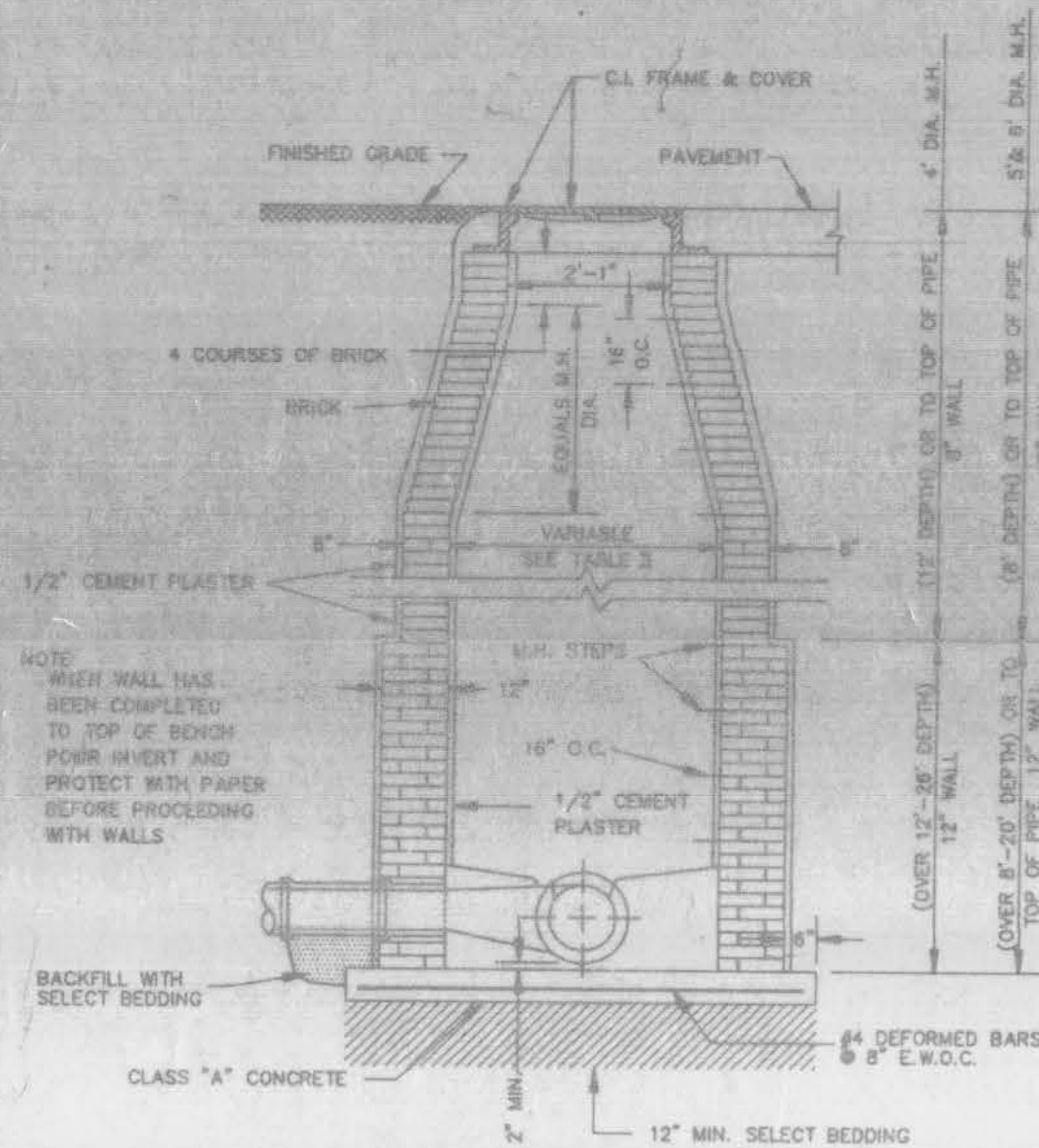


DETAIL 'B'

FRAME & COVER WEIGHT 420 LBS.

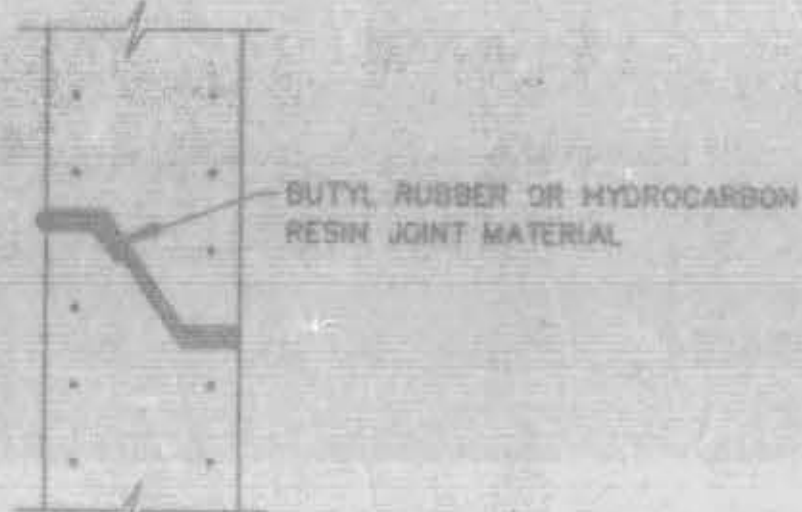
**STANDARD MANHOLE FRAME AND COVER**

N.T.S.



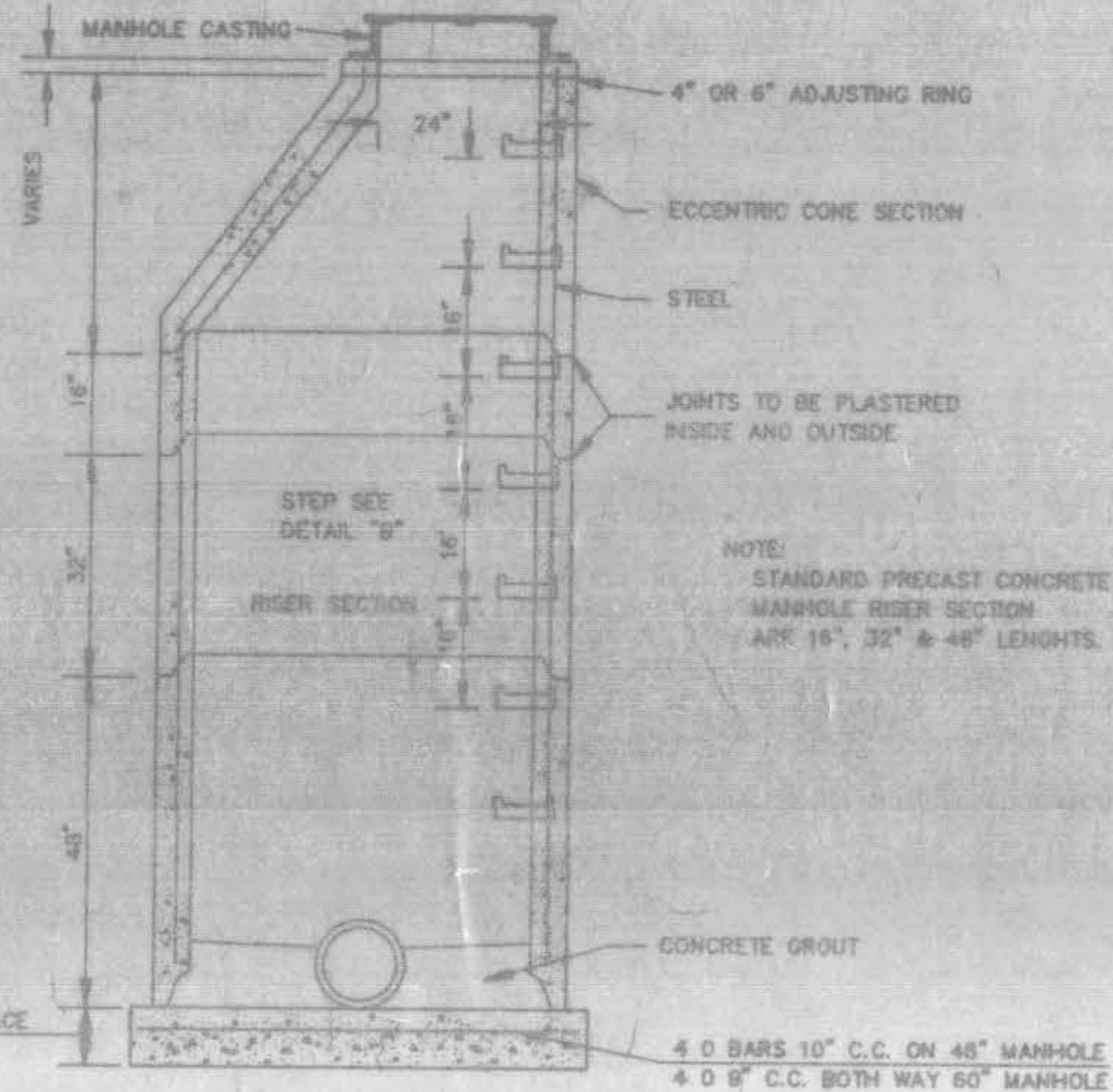
**STANDARD BRICK MANHOLE**

N.T.S.



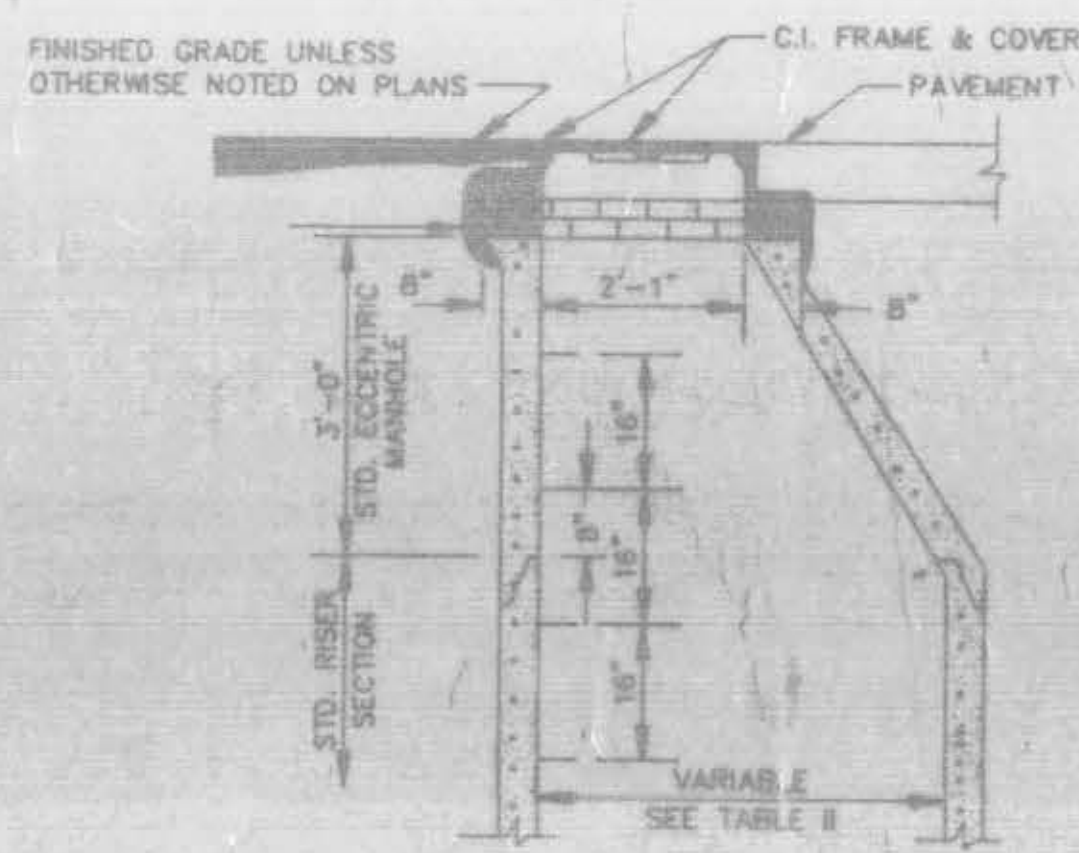
**TYPICAL PRECAST CONCRETE MANHOLE JOINT DETAIL**

N.T.S.



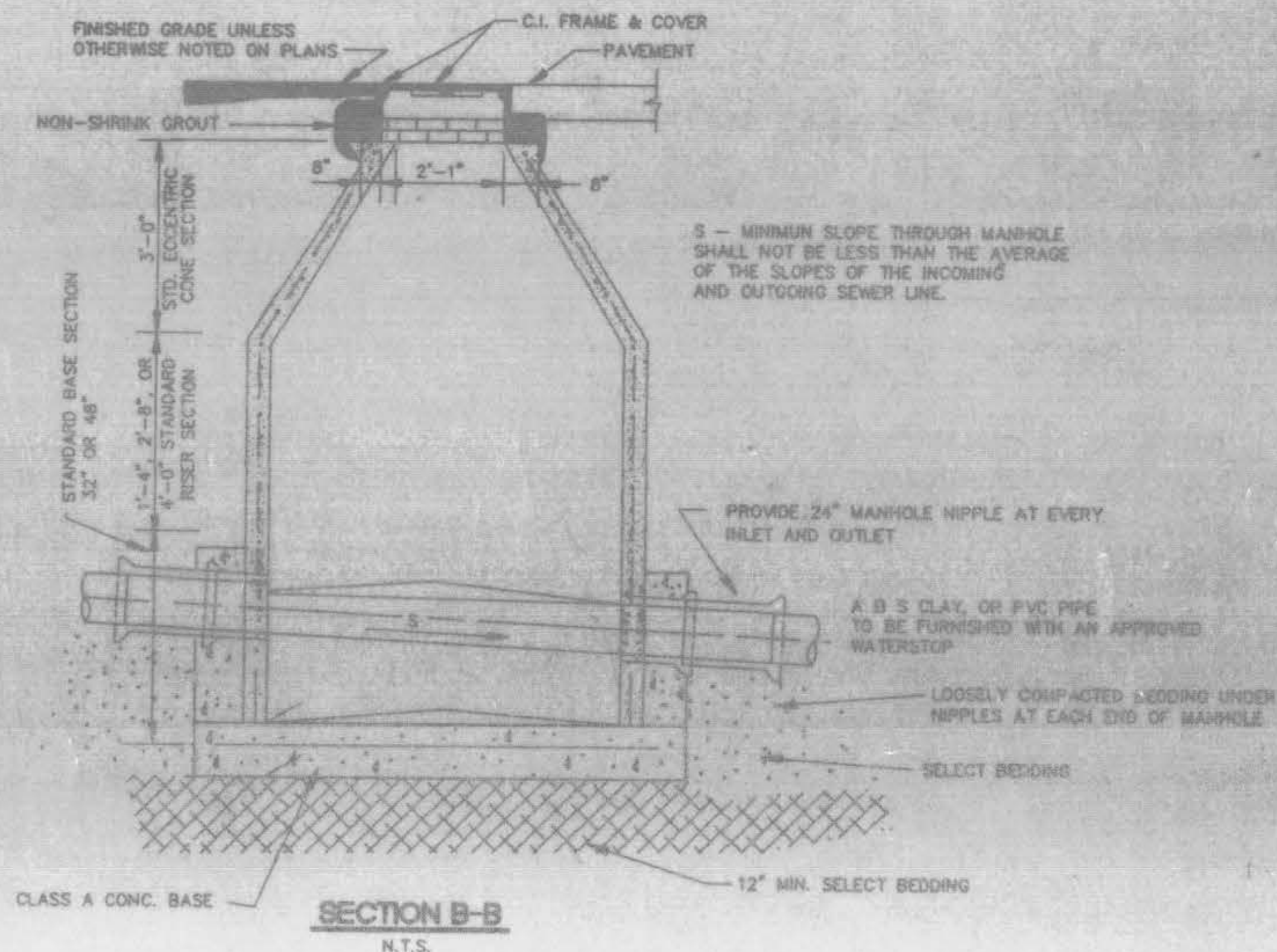
**SECTION OF PRECAST CONCRETE MANHOLE**

N.T.S.



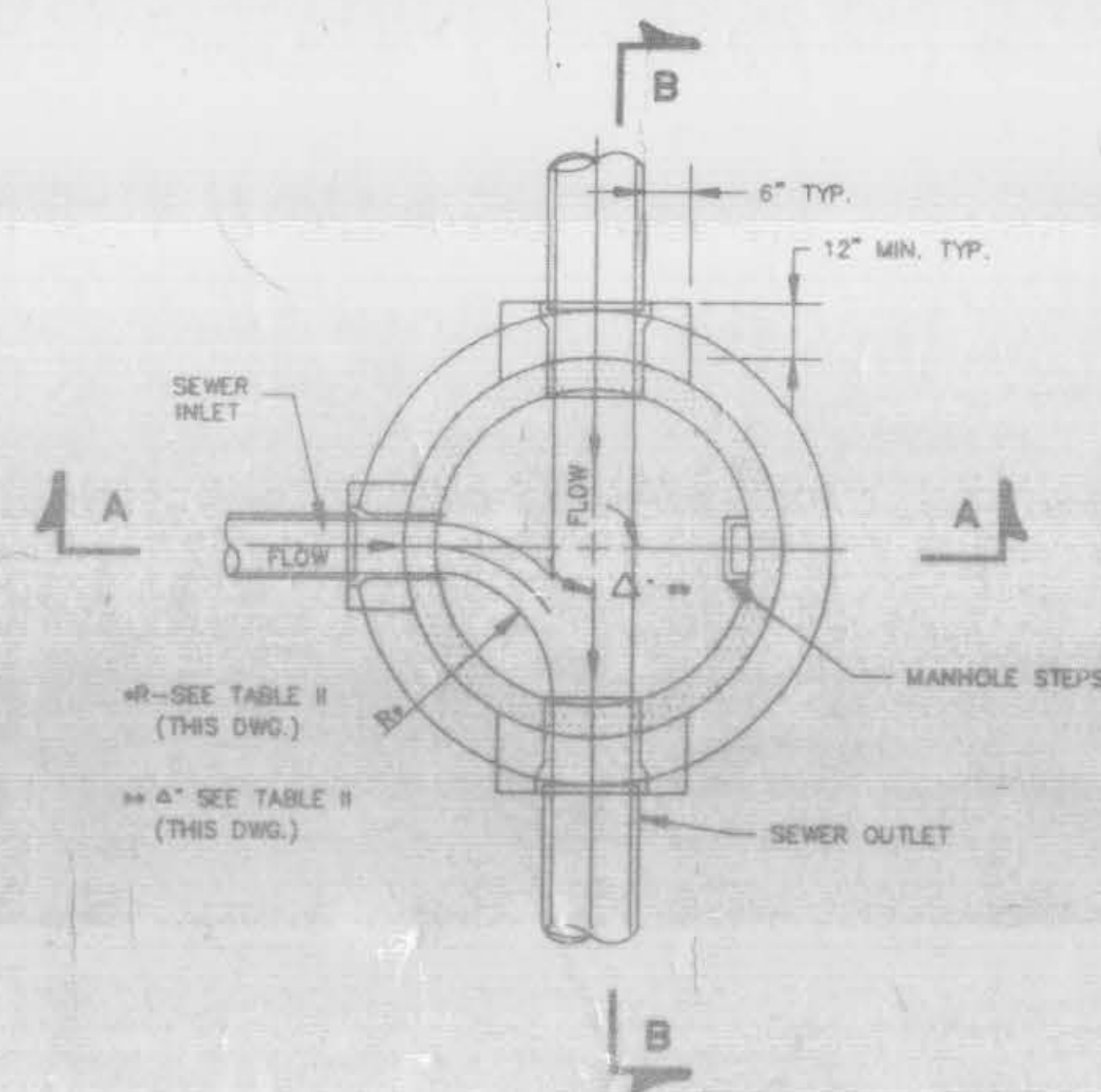
**STANDARD ECCENTRIC CONE FOR ALL DIAMETER MANHOLES**

N.T.S.



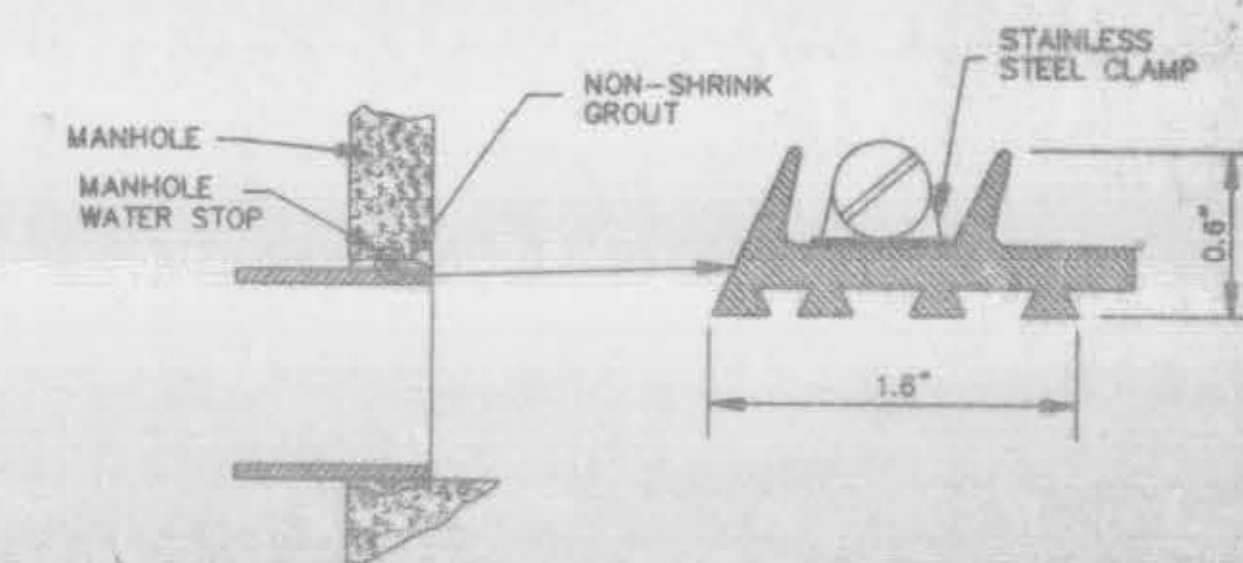
**SECTION B-B**

N.T.S.



**SECTIONAL PLAN STANDARD MANHOLE**

N.T.S.



**TYPICAL MANHOLE WATER STOP FOR ABS, CLAY OR PVC PIPE**

EXISTING AND "STRADDLE" MANHOLES  
N.T.S.

CITY OF RIDGELAND, MS.

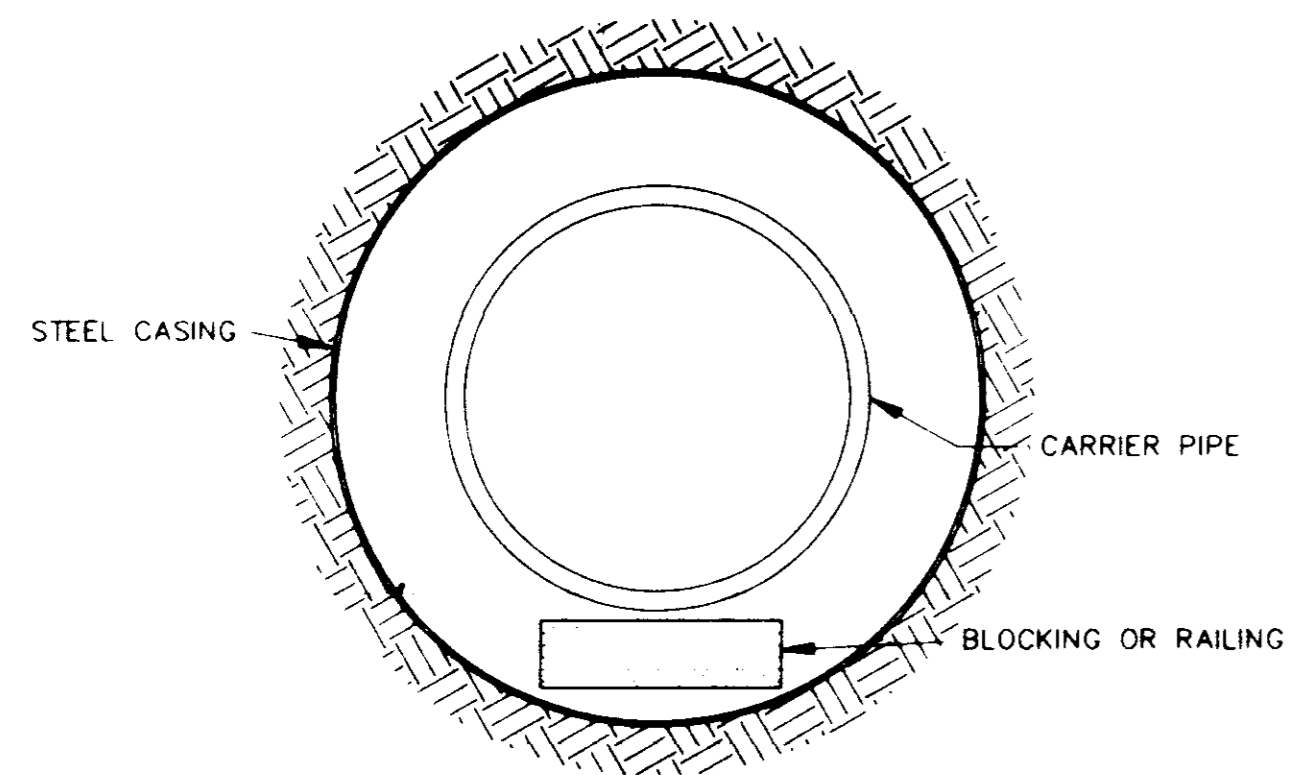
**STANDARD DETAILS**

HEATHERSTONE

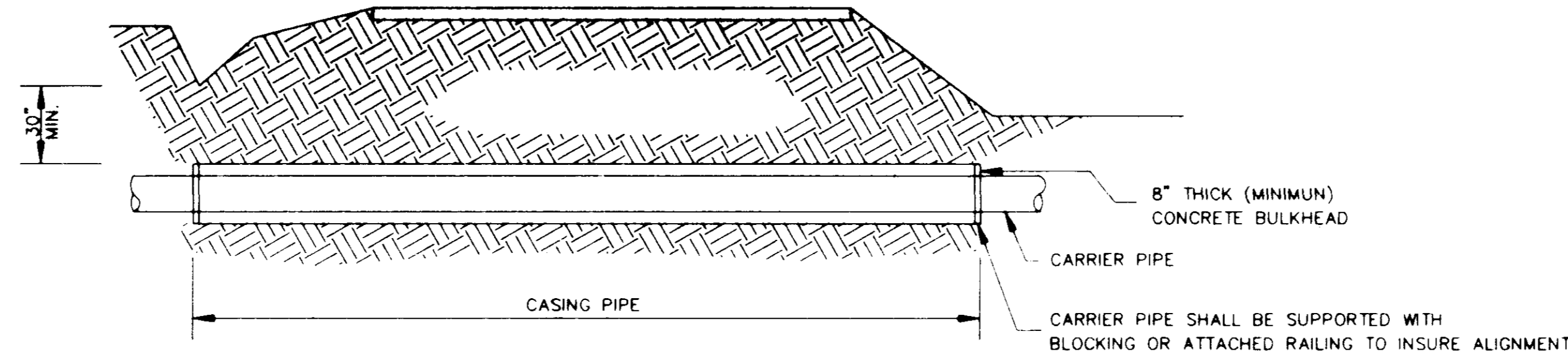
DSGN: P.L.B.  
DRWN: J.F.  
CHND: P.L.B.  
SCALE: N.T.S.



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RIDGELAND  
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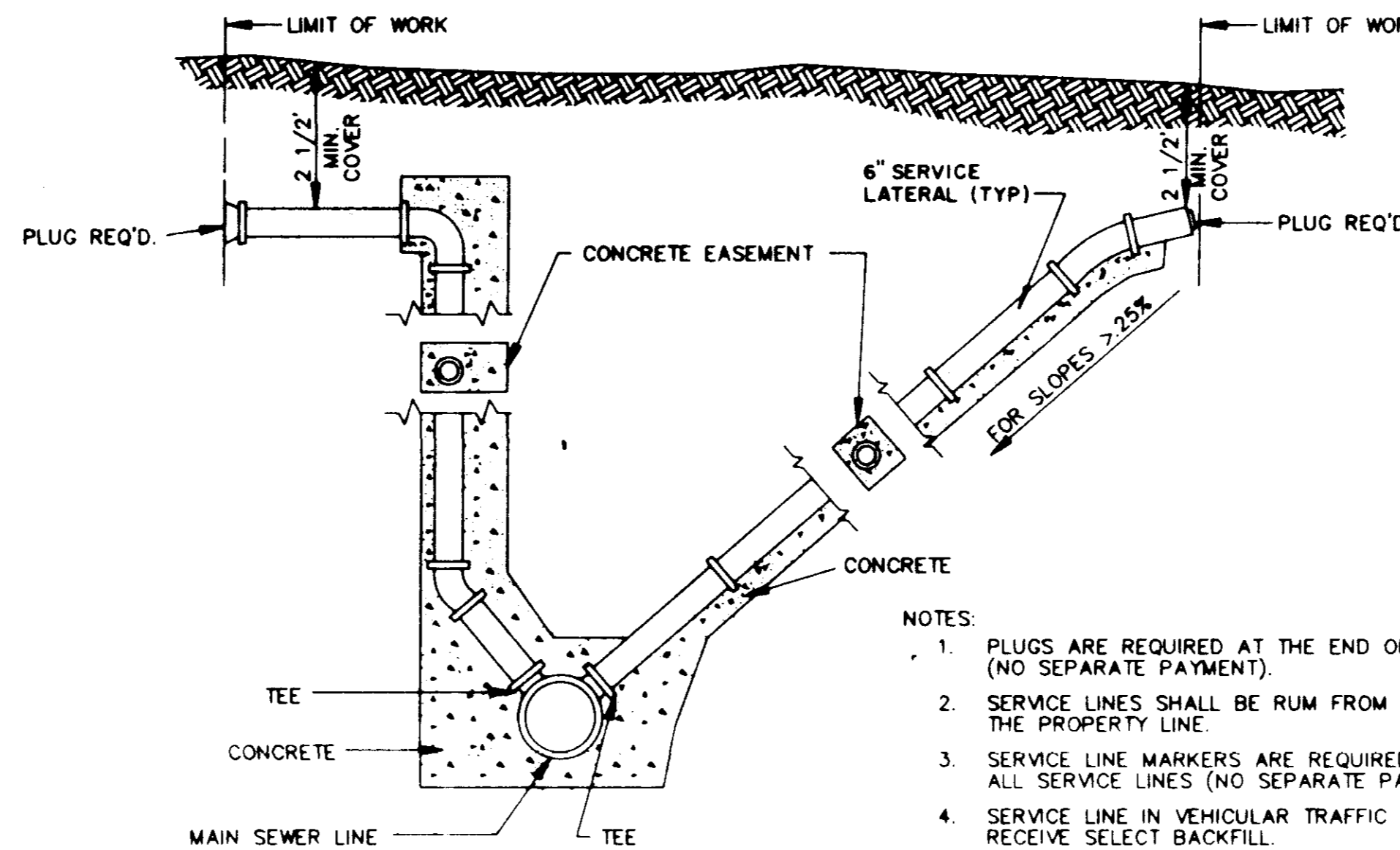
**BORE SECTION**  
N.T.S.



**TYPICAL BORE SECTION**  
N.T.S.

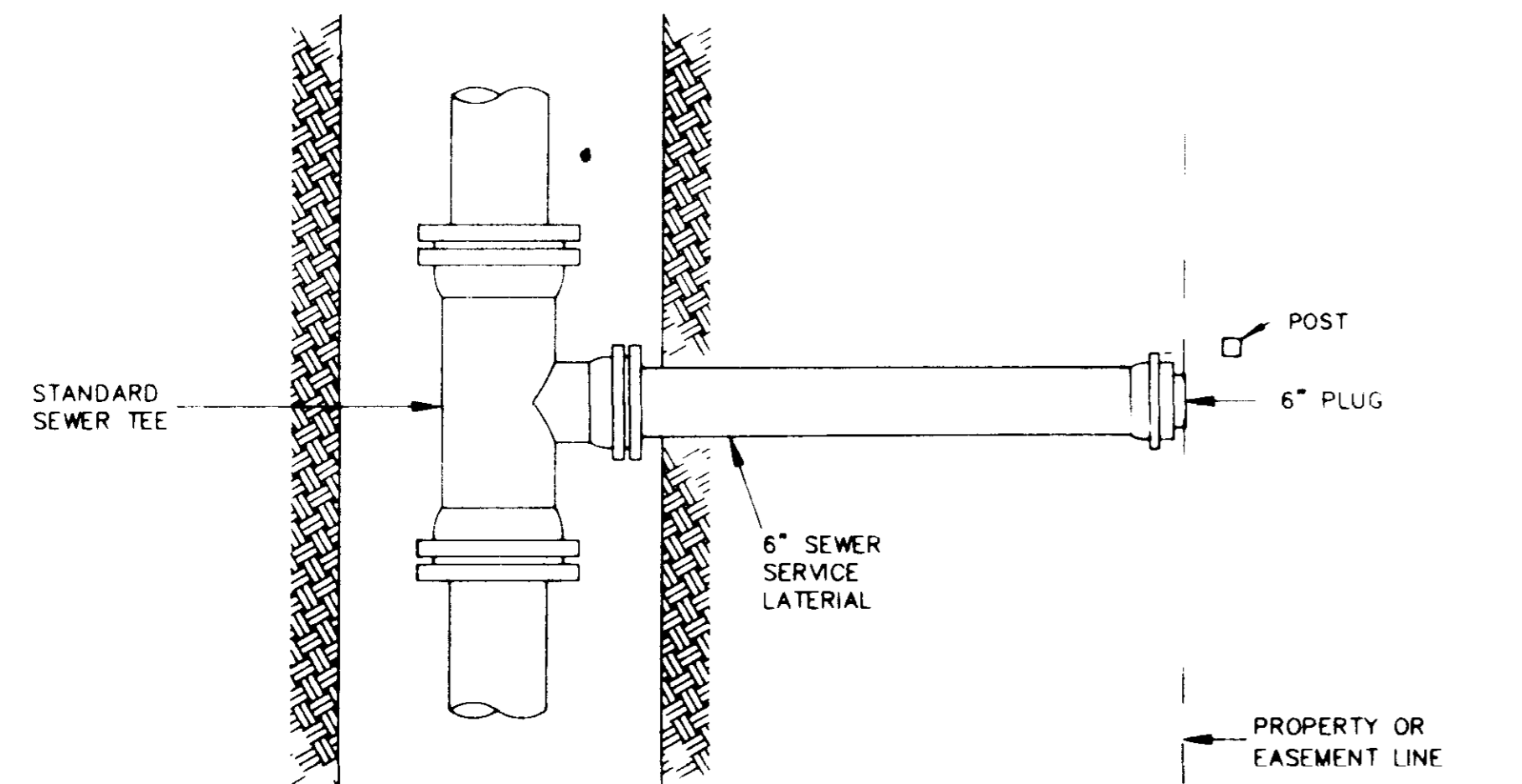
TABLE II GOVERNING DIMENSIONS FOR MANHOLES			
PIPE SIZE	Δ ANGLE	BASE DIAMETER **	"R" *
8" THRU 12"	0° TO 90°	4'	1'- 6"
15"	0° TO 60°	4'	1'- 10"
15"	60° TO 90°	4'	1'- 10"
18"	0° TO 60°	4'	2'- 3"
18"	60° TO 90°	4'	1'- 10"
21"	0° TO 60°	4'	2'- 7"
21"	60° TO 90°	5'	2'- 4"
24"	0° TO 45°	4'	3'- 0"
24"	45° TO 90°	5'	2'- 3"
30"	0° TO 60°	5'	3'- 9"
30"	60° TO 90°	6'	2'- 8"
36"	0° TO 60°	6'	4'- 6"
36"	60° TO 90°	7'	3'- 11"
42"	0° TO 60°	7'	5'- 3"
42"	60° TO 90°	8'	4'- 7"
48"	0° TO 60°	8'	6'- 0"
48"	60° TO 90°	9'	5'- 3"

\* SEE SECTIONAL PLAN, STANDARD MANHOLE  
\*\* PRECAST MANHOLE

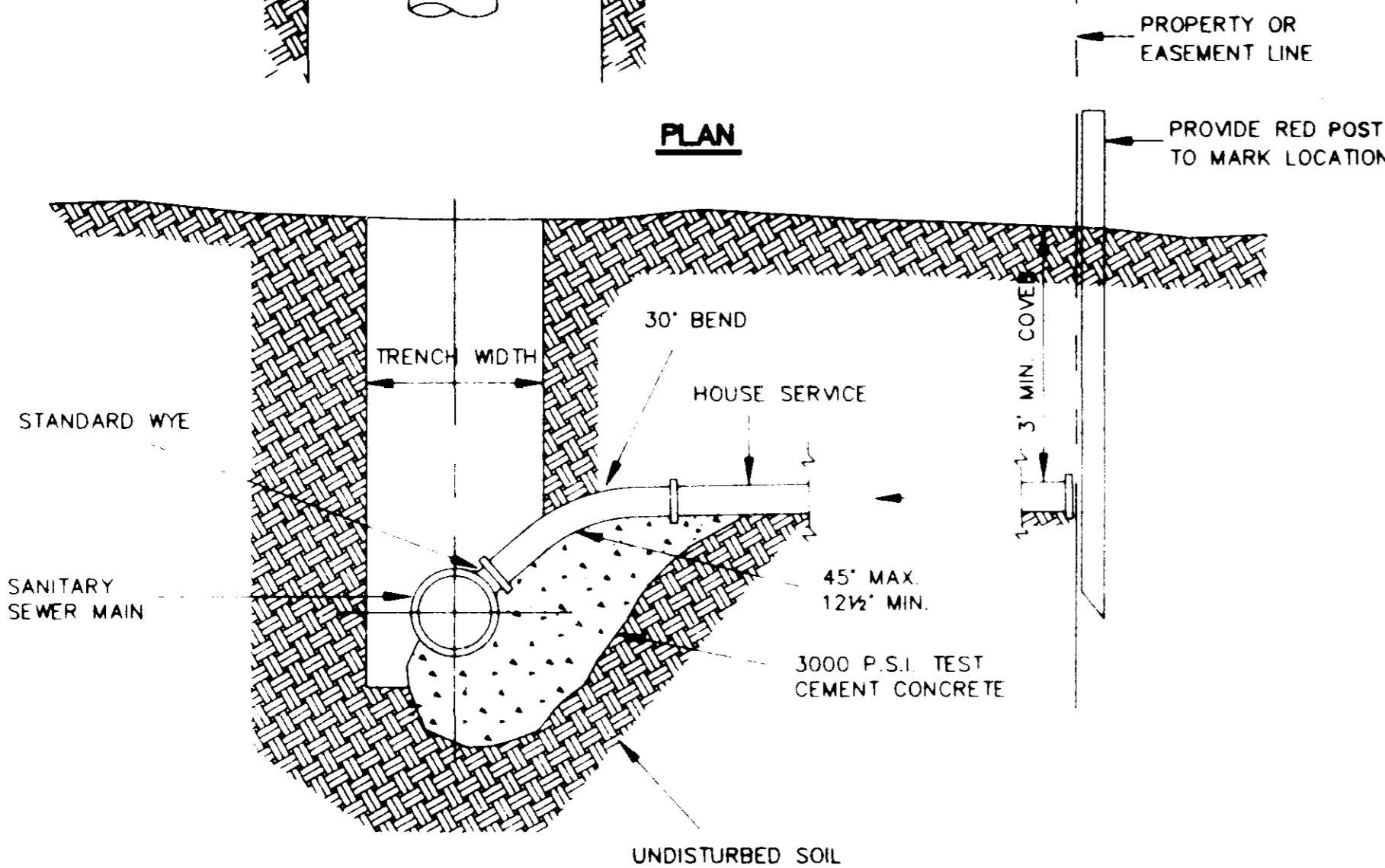


- NOTES:
1. PLUGS ARE REQUIRED AT THE END OF ALL SERVICE LINES (NO SEPARATE PAYMENT).
  2. SERVICE LINES SHALL BE RUM FROM THE SEWER LINES TO THE PROPERTY LINE.
  3. SERVICE LINE MARKERS ARE REQUIRED AT THE END OF ALL SERVICE LINES (NO SEPARATE PAYMENT).
  4. SERVICE LINE IN VEHICULAR TRAFFIC AREA SHALL RECEIVE SELECT BACKFILL.
  5. WHEN MINIMUM COVER CAN NOT BE OBTAINED DUCTILE IRON PIPE SHALL BE USED.

**SERVICE CONNECTION FOR DEEP SEWER**  
N.T.S.

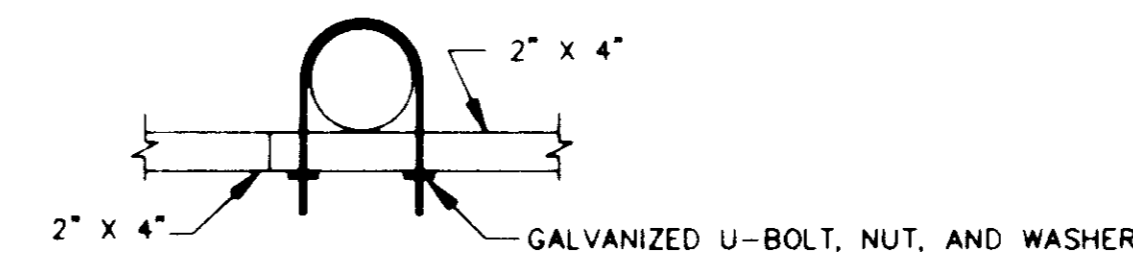


**PLAN**

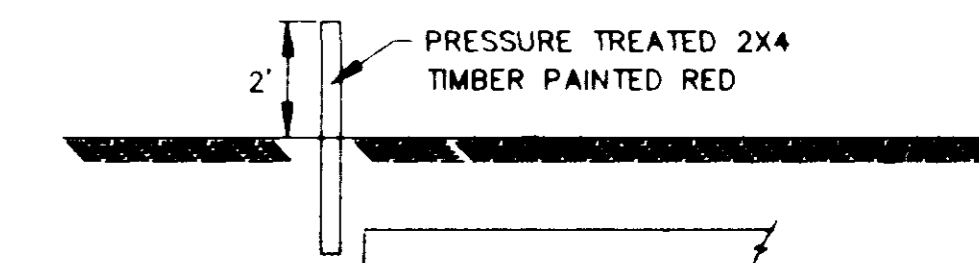


**ELEVATION**

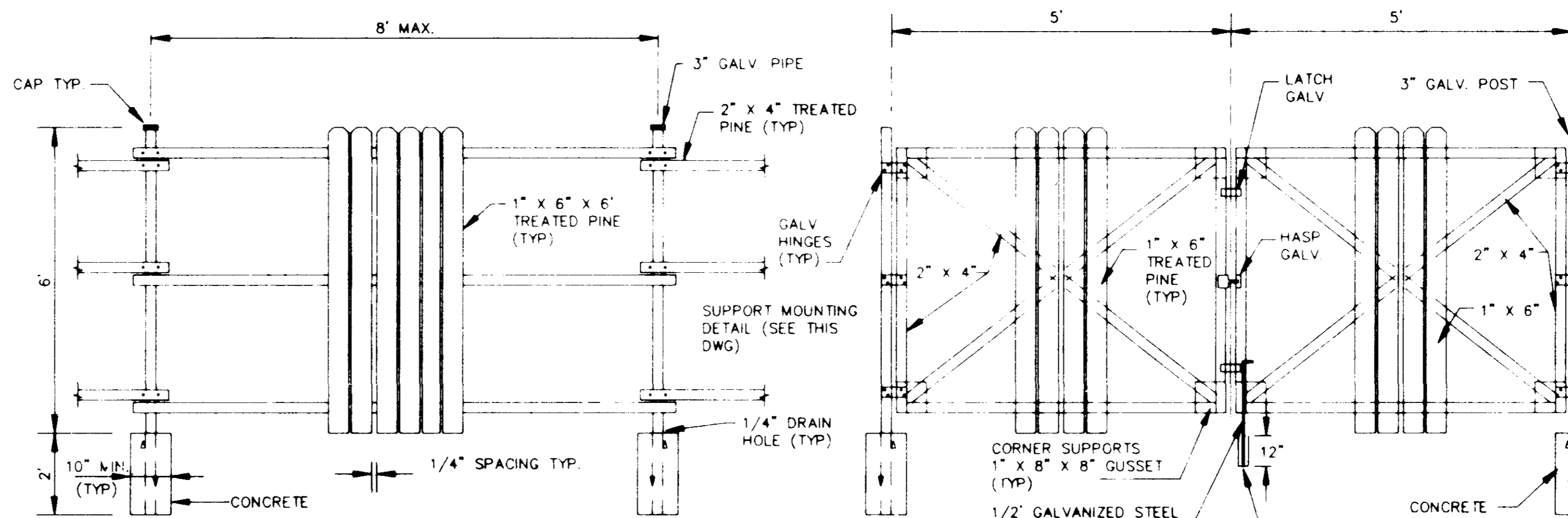
**SEWER SERVICE CONNECTION**  
N.T.S.



**SUPPORT MOUNTING DETAIL**  
N.T.S.



**SERVICE LINE MARKER**  
(NO SEPARATE PAYMENT)  
N.T.S.



**FENCE DETAIL**  
N.T.S.

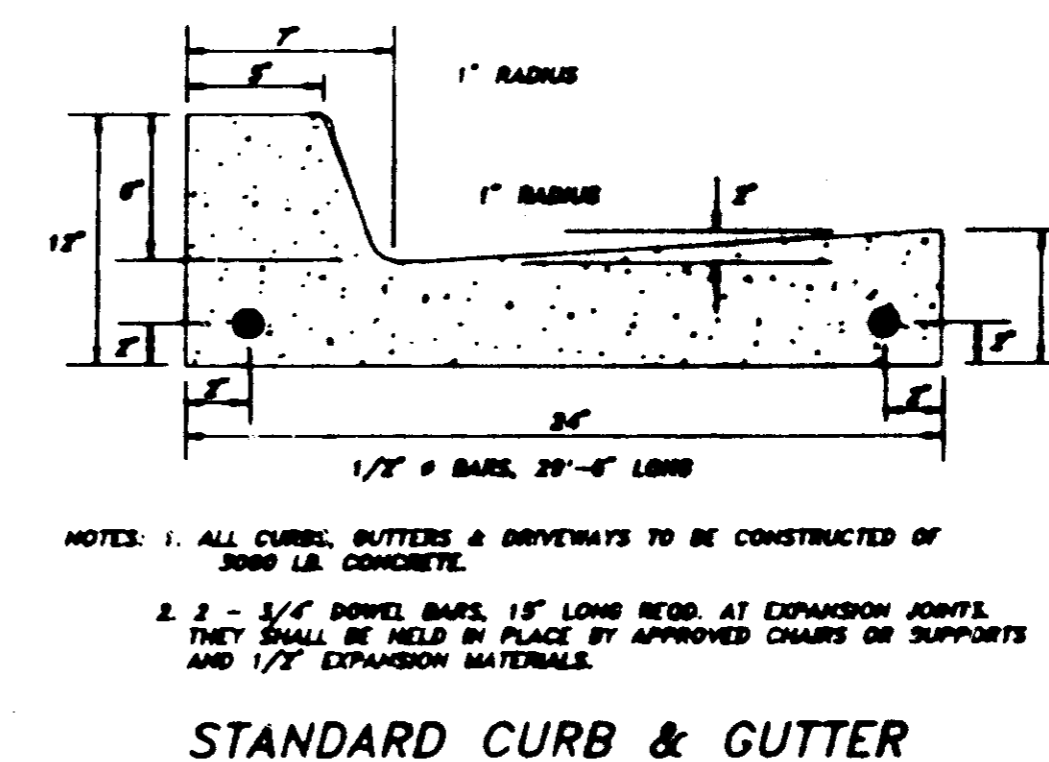
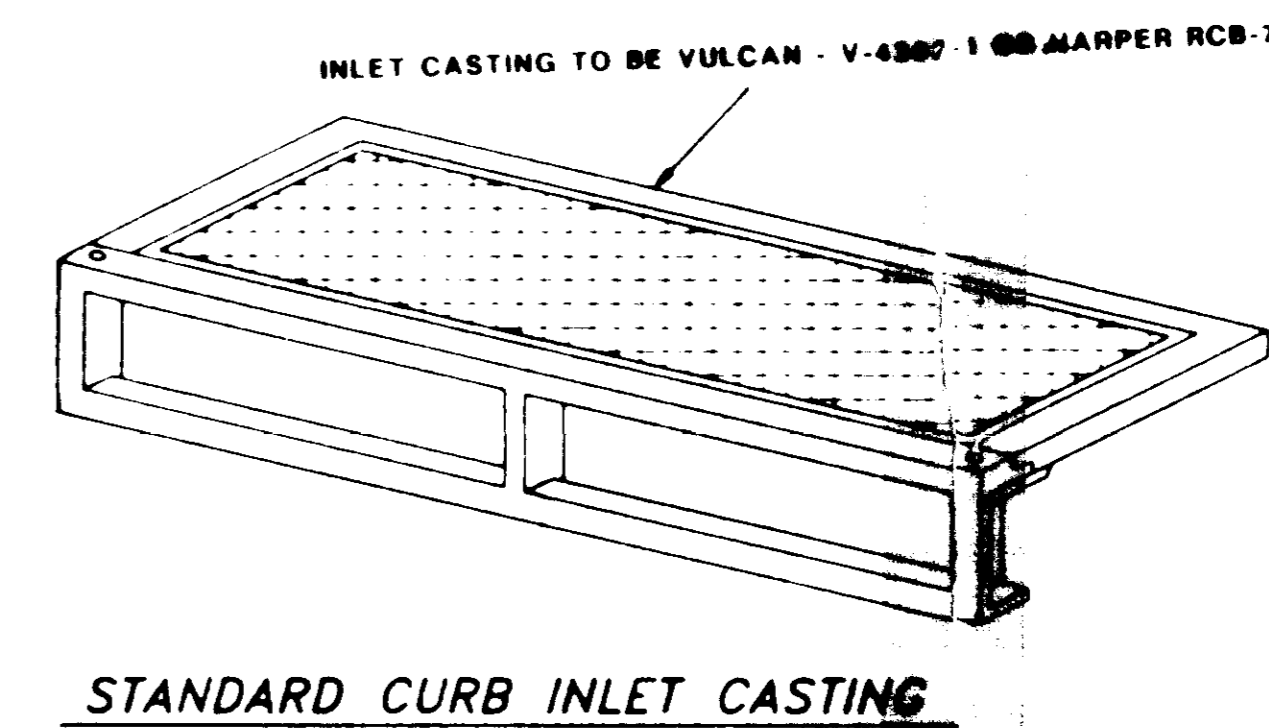
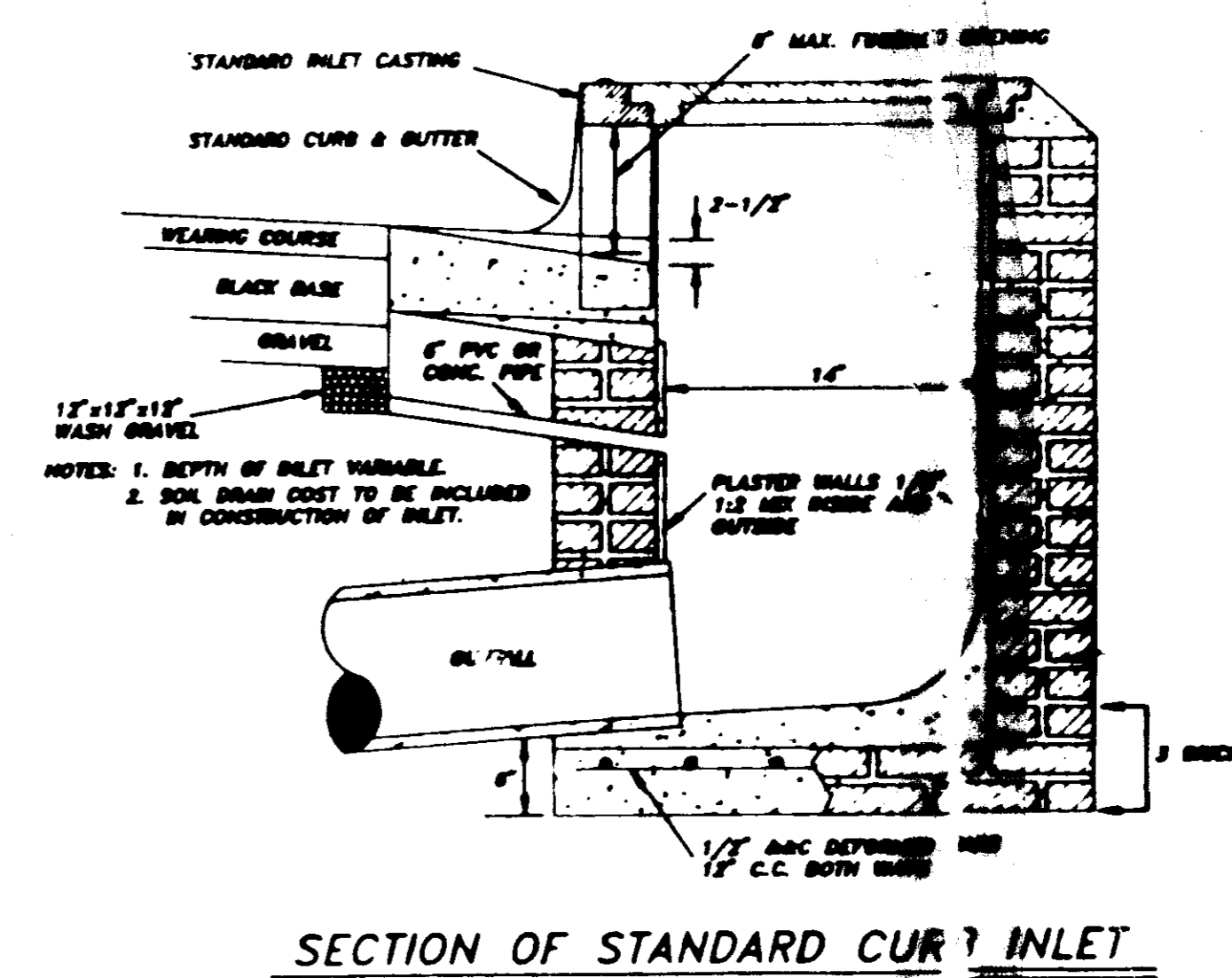
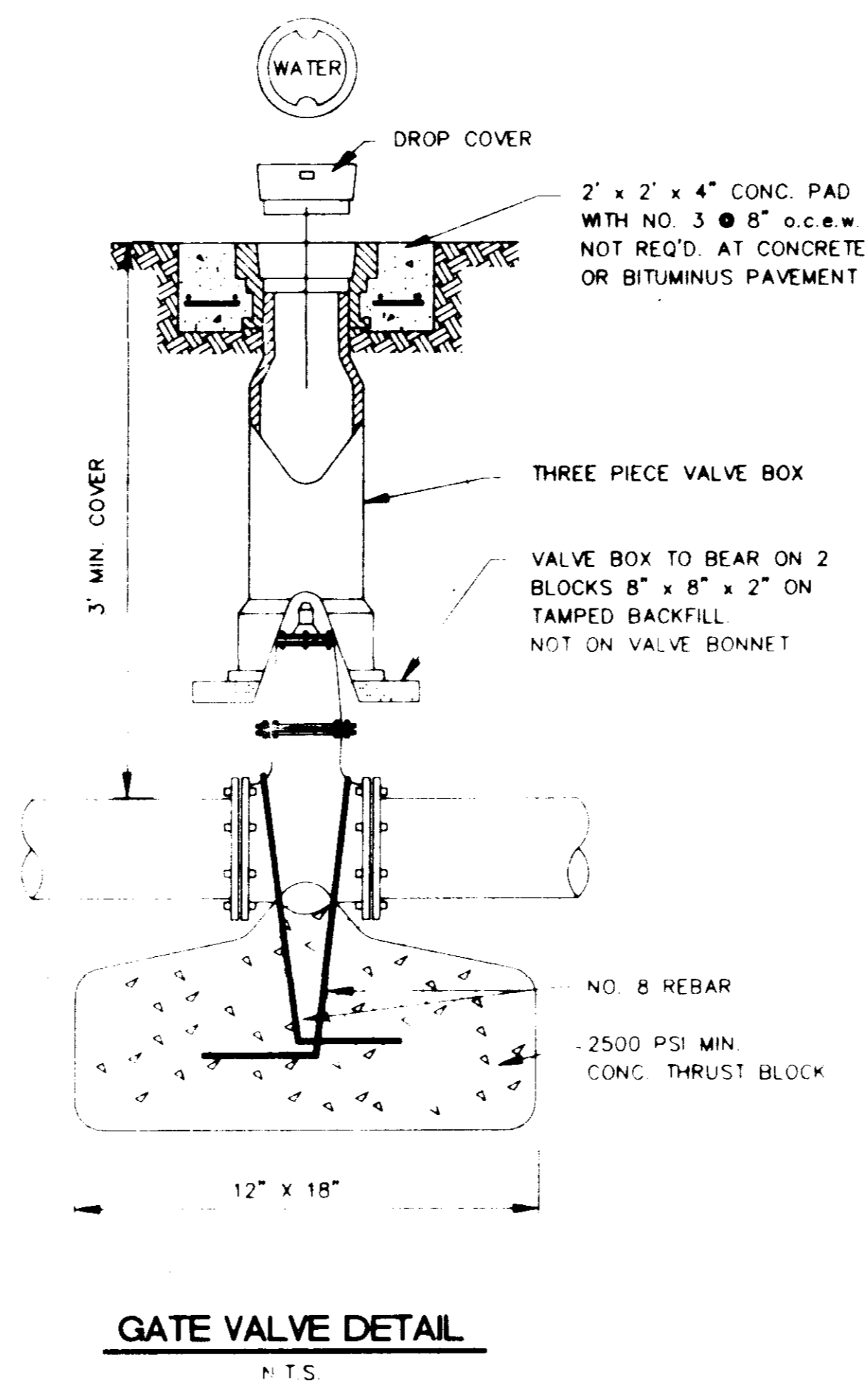
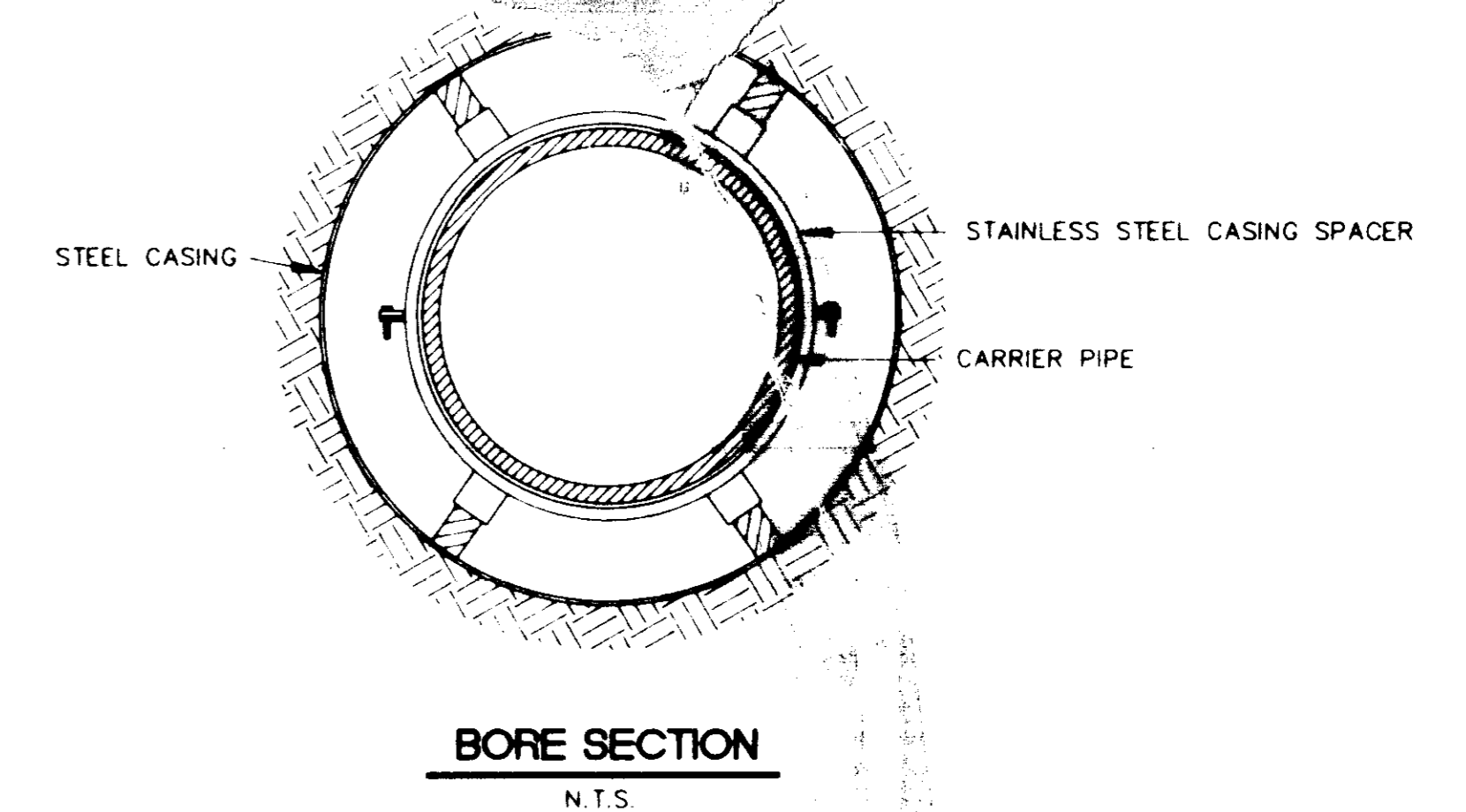
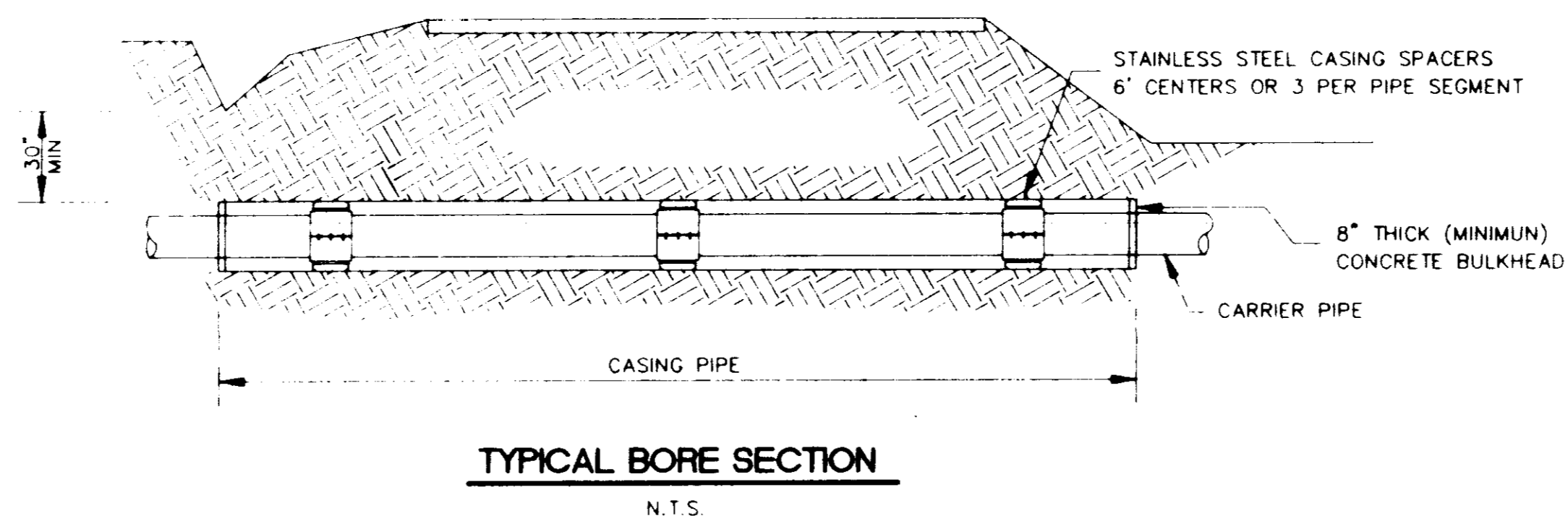
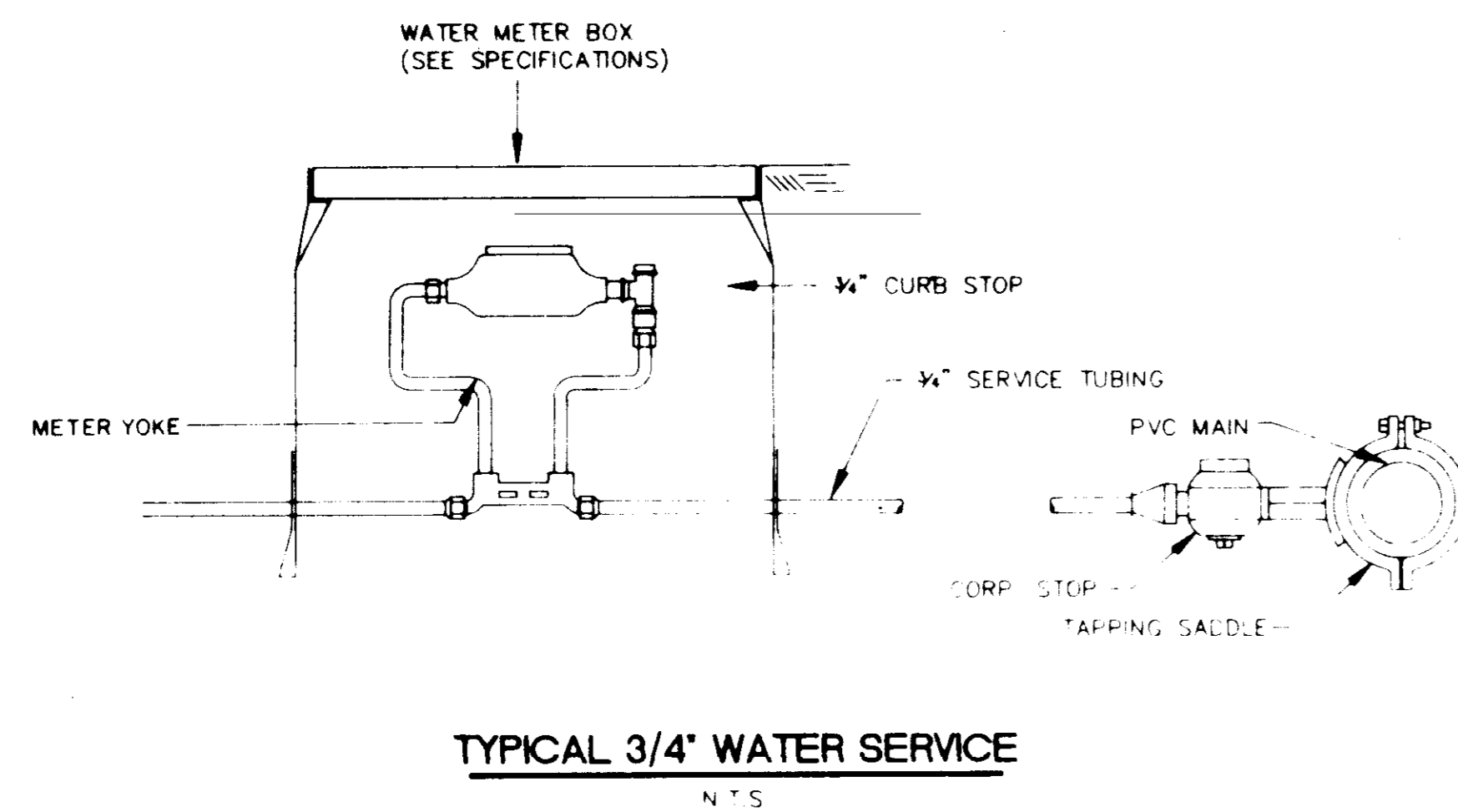
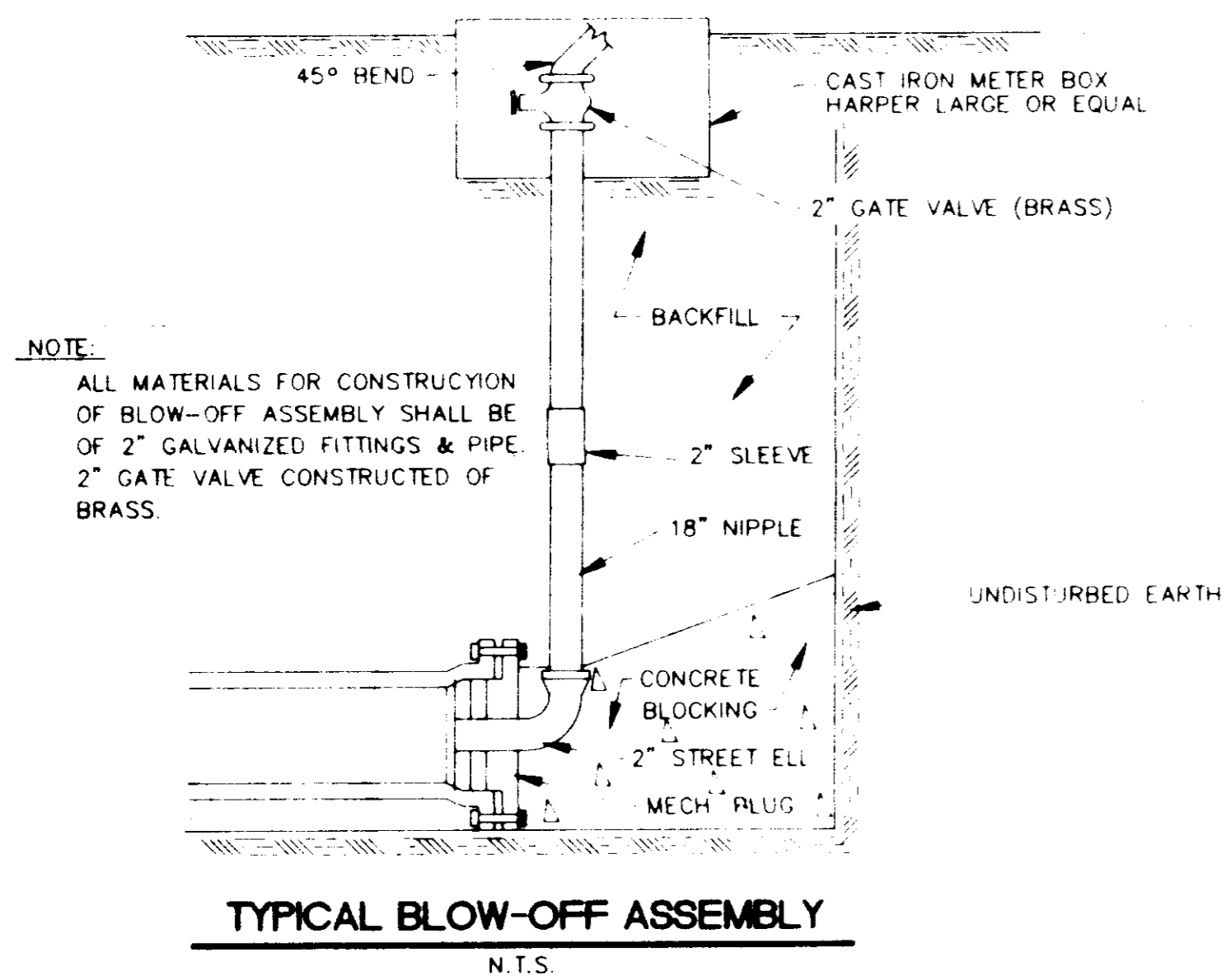
**GATE DETAIL**  
N.T.S.

CITY OF RIDGELAND, MS.

**STANDARD DETAILS**

HEATHERSTONE

DSGN	PLB	 THE CITY OF RIDGELAND	DRAWING NO.
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CHKD	PLB		
SCALE	N.T.S.		



CITY OF RIDGELAND, MS.

**STANDARD DETAILS**

HEATHERSTONE

DSGN:	PLB	THE CITY OF RIDGELAND	DRAWING NO.
DRWN:	J.F.		14 OF 14
CHKD:	PLB		
SCALE:	N.T.S.		