

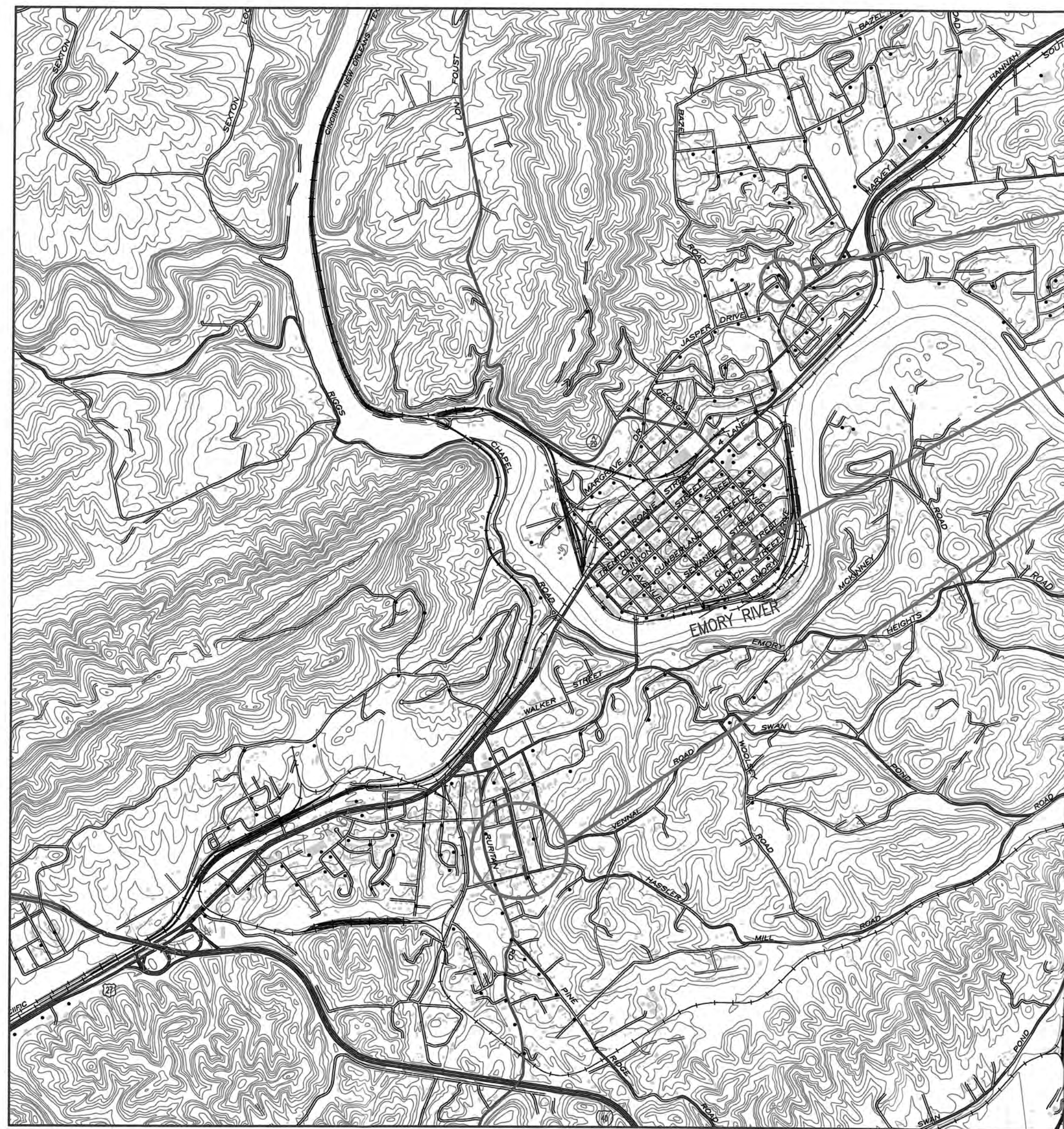
HARRIMAN UTILITY BOARD

Roane County, Tennessee

City Paving Project

LOCATION MAP

SCALE: 1" = 2000'



PROJECT LOCATIONS

REDWOOD ST.

TENNESSEE AVE.

RUSSELL RD.

General Notes

Project Engineer:
James Burnham, P.E.

Drawing By:
James Reed, Engr. Assistant

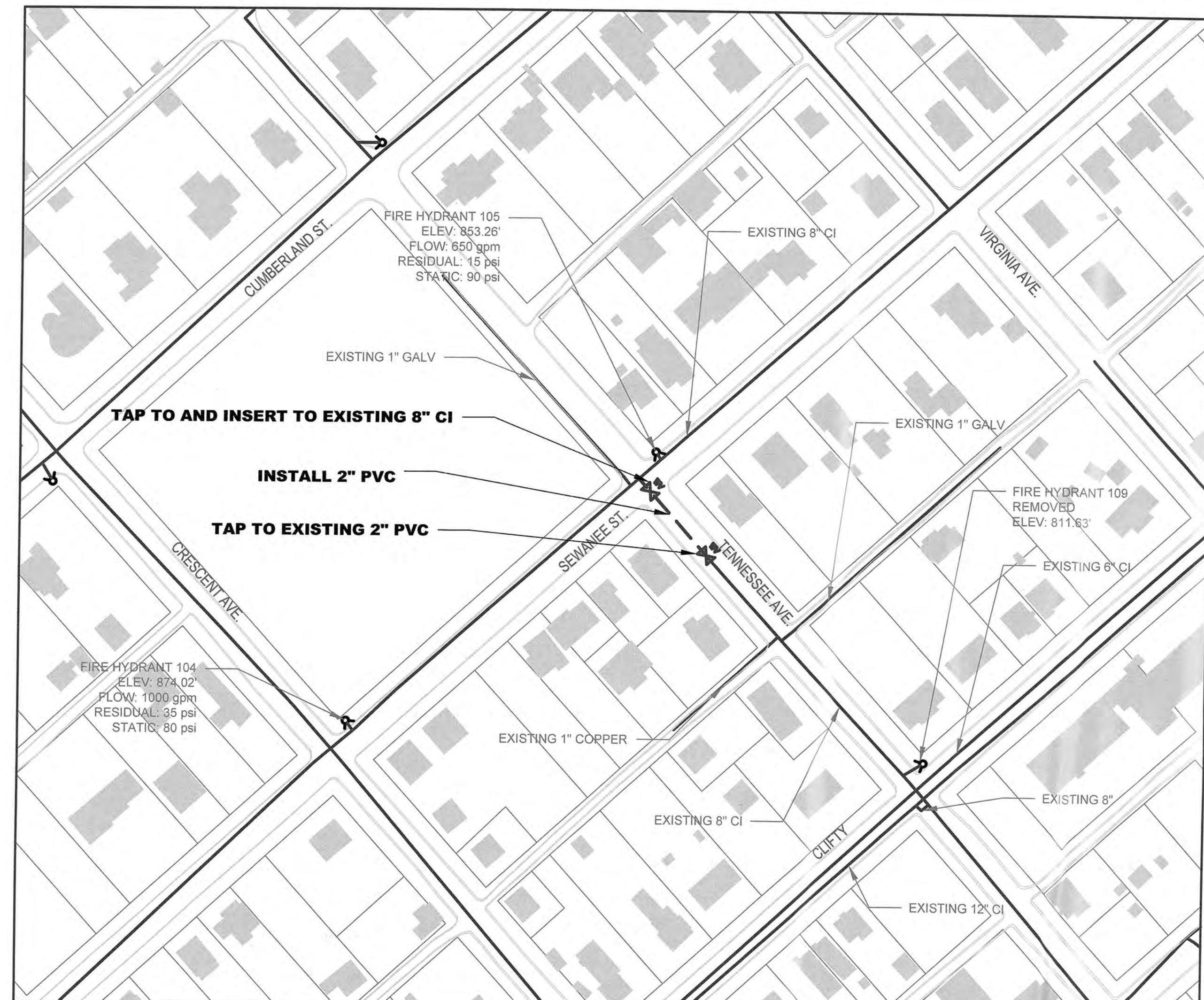


No.	Revision/Issue	Date

Firm Name and Address
Harriman Utility Board
300 N. Roane St.
Harriman, TN 37748

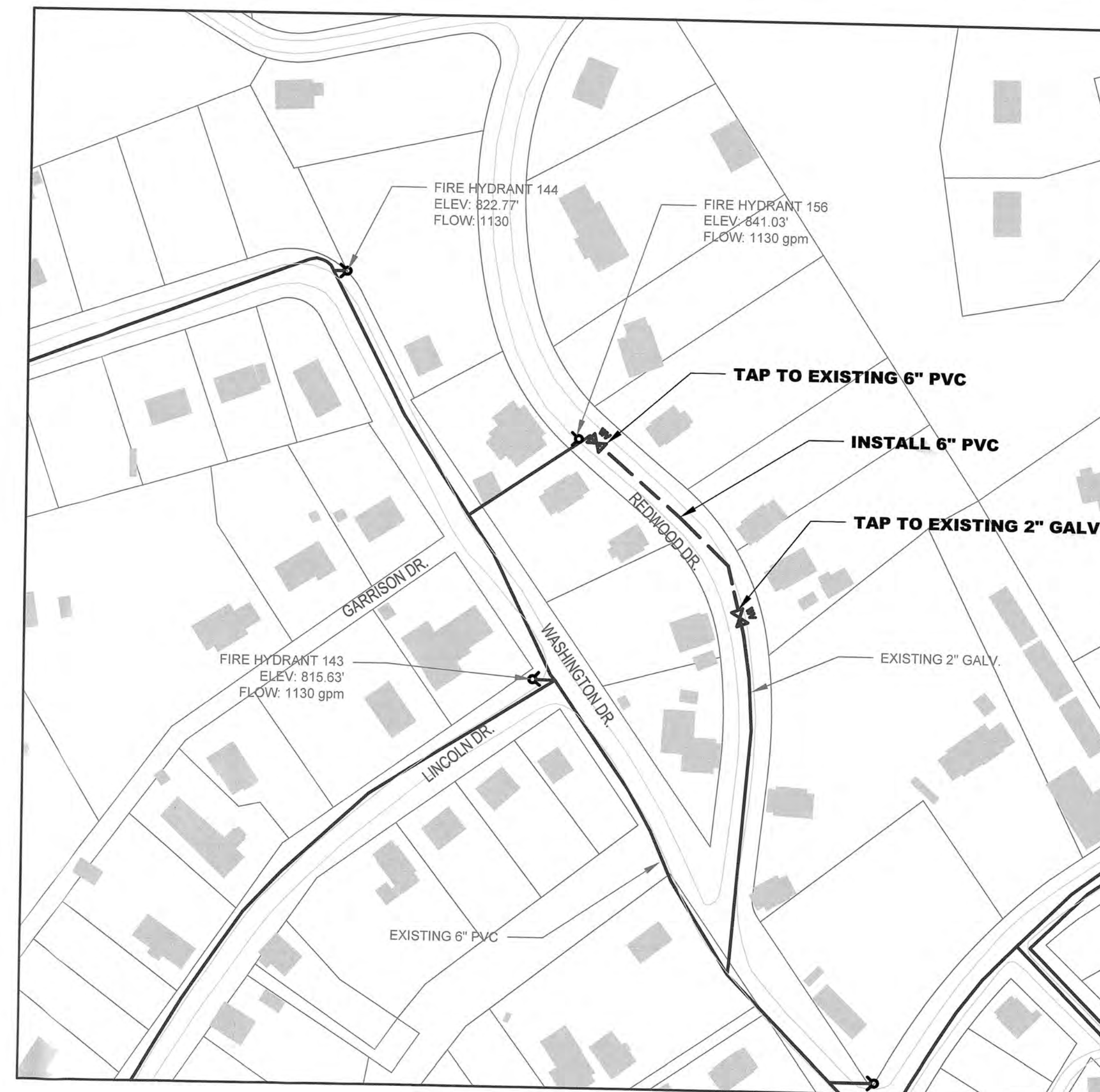
Project Name and Address
City Paving Project
Multiple Locations
Harriman, TN 37748

Project	Sheet
City Paving Project	1 of 3
Date	6/10/10
Scale	AS NOTED



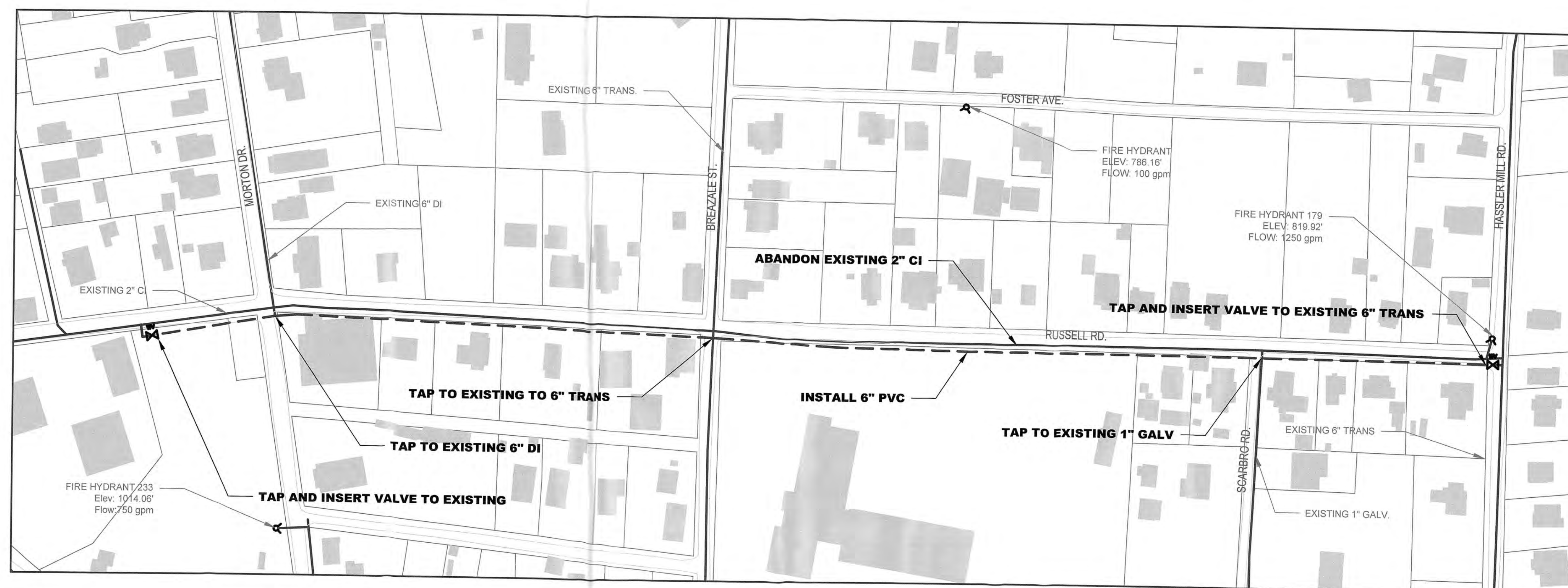
TENNESSEE AVE. NEW MAIN

SCALE: 1" = 100'



REDWOOD DR. NEW MAIN

SCALE: 1" = 100'



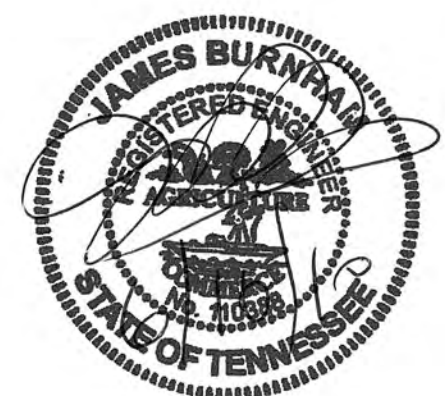
RUSSELL RD. REPLACE MAIN

SCALE: 1" = 100'

General Notes

SYMBOL KEY

- Fire Hydrant
- Water Valve
- Water Service
- Install Water Service
- Parcels
- EDGE OF PAVEMENT

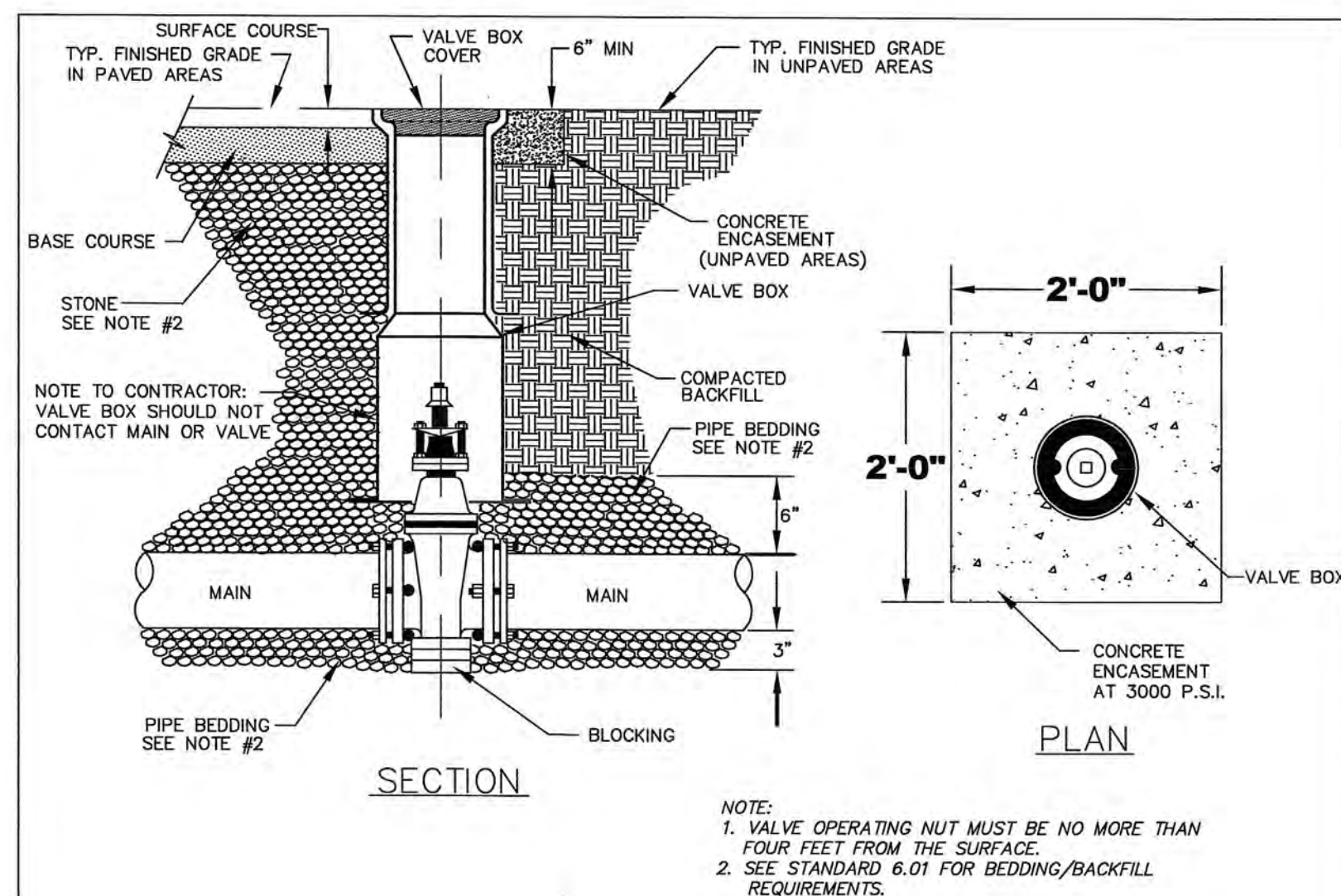


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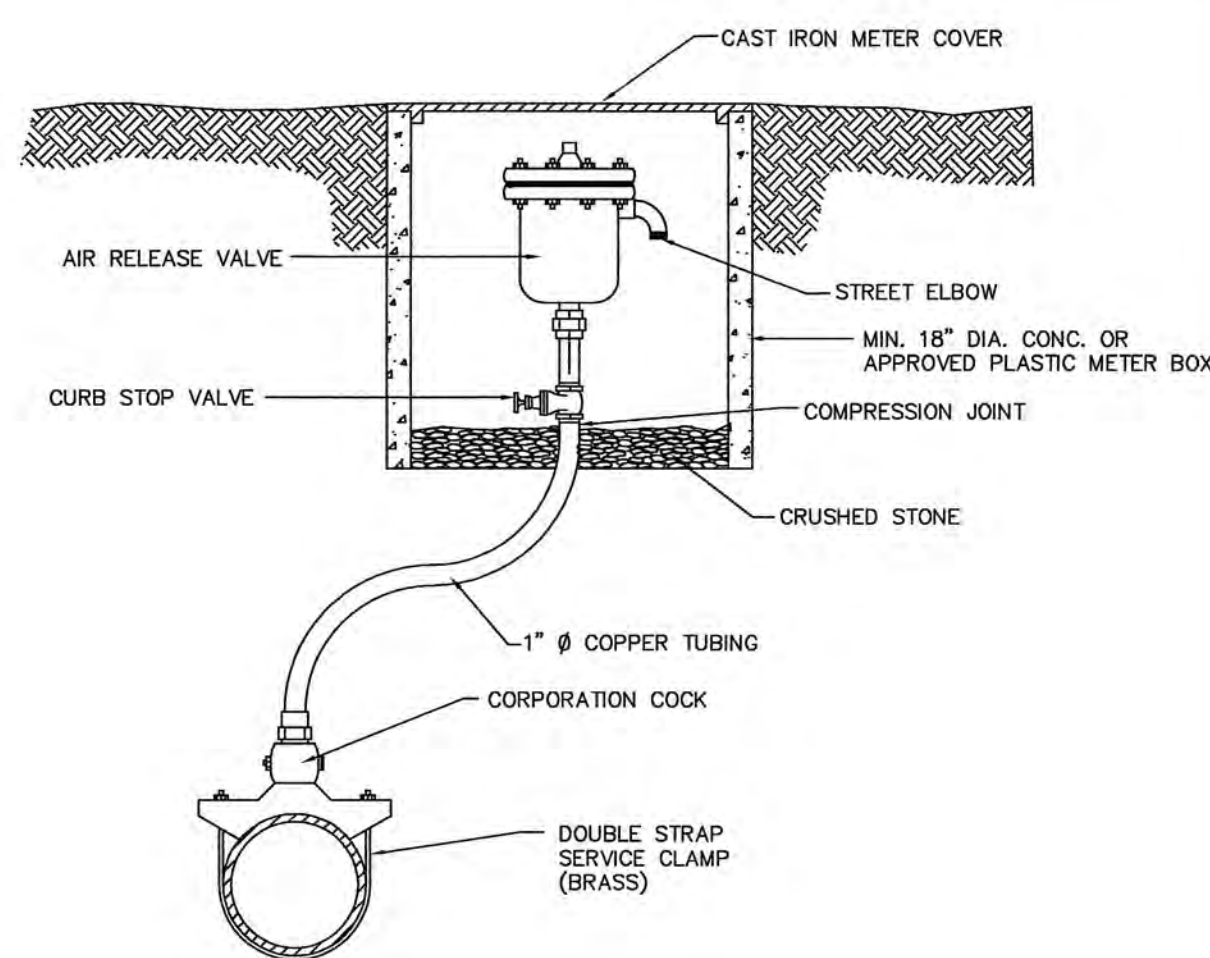
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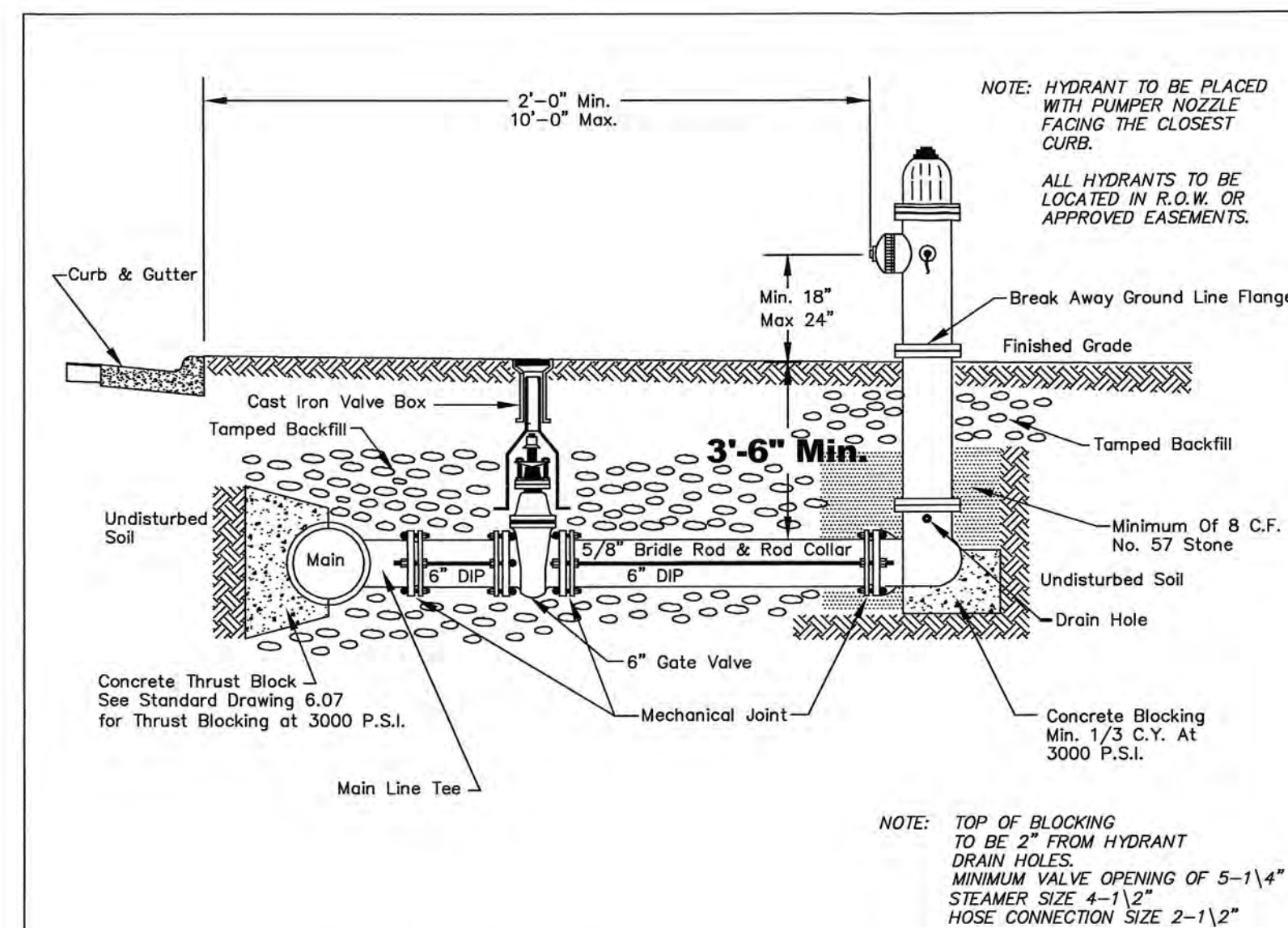
Project City Paving Project	Sheet
Date 6/10/10	2 of 3
Scale AS NOTED	



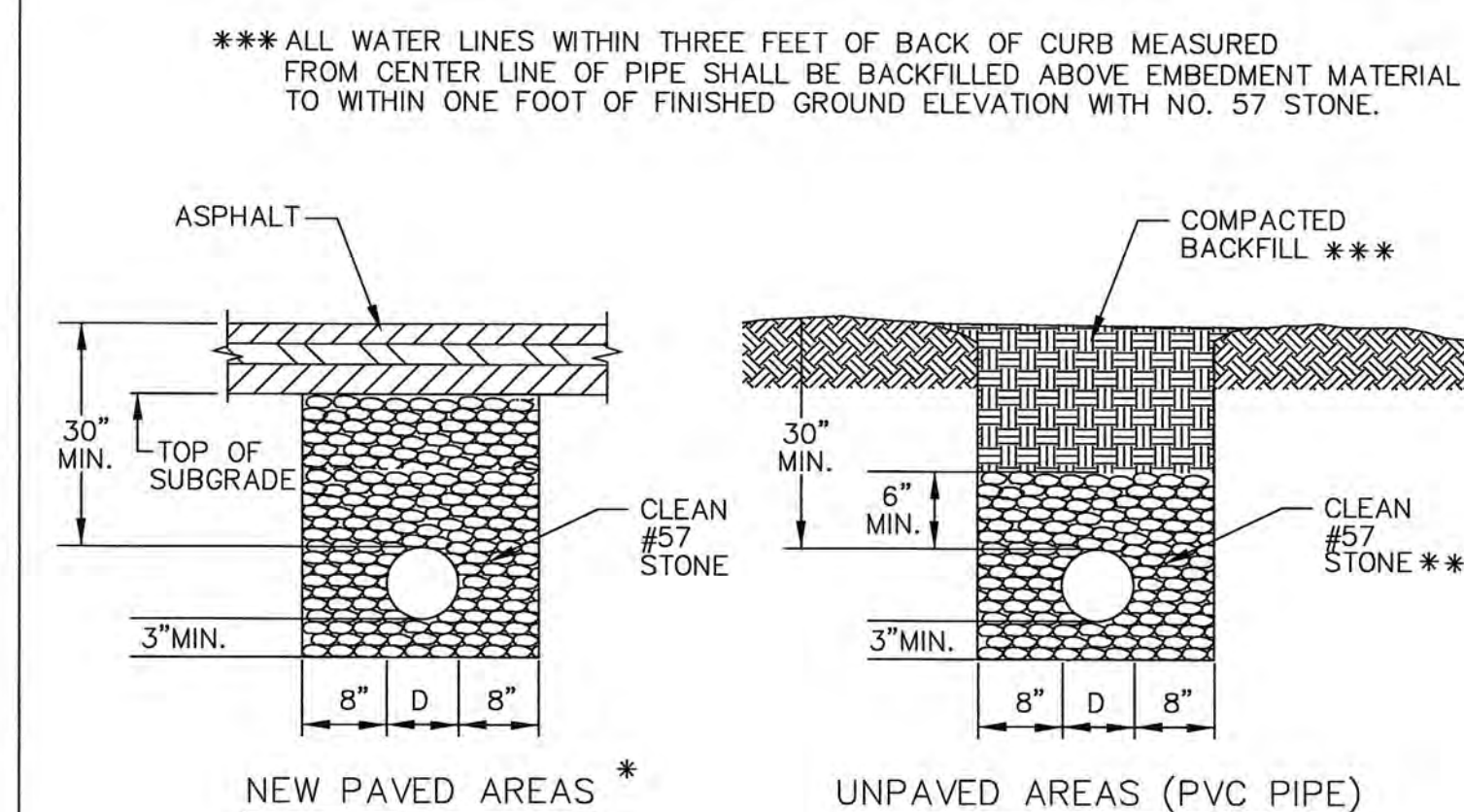
STANDARD VALVE BOX INSTALLATION



AIR RELEASE VALVE

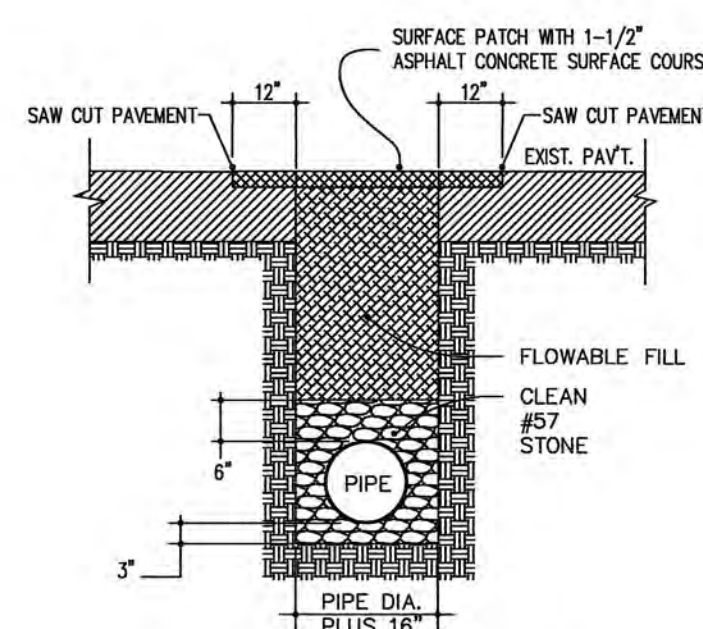


STANDARD FIRE HYDRANT INSTALLATION



* SEE STANDARD DRAWING 5.01 FOR INSTALLATION UNDER EXISTING ROADWAYS.
** DUCTILE IRON PIPE MAY OPTIONALLY BE BEDDED WITH CLASS I, II, OR III MATERIALS IN ACCORDANCE WITH ASTM D2321.

BACKFILLING & COMPACTION OF WATER LINES

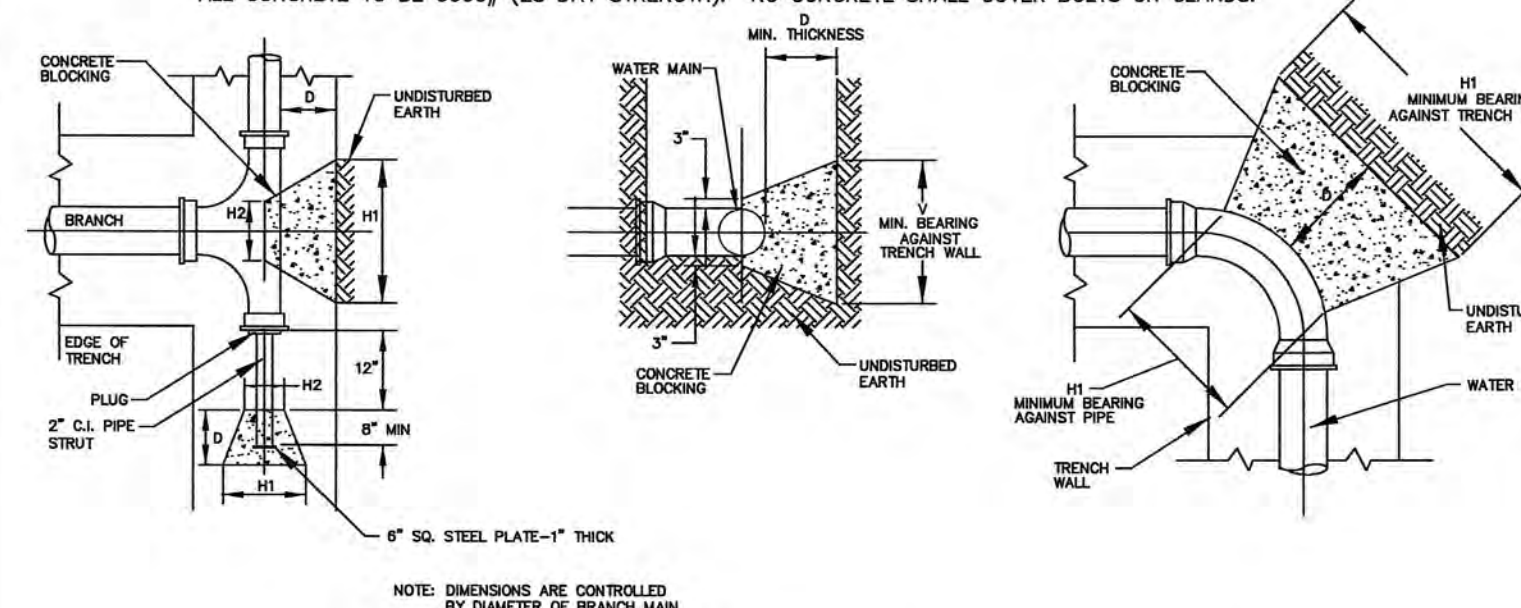


NOTE TO CONTRACTOR:
ALL PAVEMENT CUTS SHALL BE REPAIRED WITHIN A MAXIMUM OF THREE (3) DAYS FROM THE DATE THE CUT IS MADE. IF CONDITIONS DO NOT PERMIT A PERMANENT REPAIR WITHIN THE GIVEN TIME LIMIT, PERMISSION TO MAKE A TEMPORARY REPAIR MUST BE OBTAINED FROM THE ENGINEER.

STANDARD TRENCH AND PAVEMENT REPAIR SECTION

TABLE OF DIMENSIONS FOR CONCRETE BLOCKING--HORIZONTAL BENDS																														
90 DEGREE						45 DEGREE						22 1/2 DEGREE						11 1/4 DEGREE						TEES AND PLUGS						
PIPE SIZE	H1	H2*	V	D	CU.FT.	PIPE	H1	H2*	V	D	CU.FT.	PIPE	H1	H2*	V	D	CU.FT.	PIPE	H1	H2*	V	D	CU.FT.	TEES	H1	H2*	V	D	CU.FT.	
3"	18"	10"	12"	8"	0.71	14"	5.5"	9"	8"	0.40	10"	5.5"	7"	8"	0.27	7"	5.5"	5"	8"	0.19	16"	10"	10"	8"	0.58	16"	10"	10"	8"	0.58
4"	24"	12"	16"	8"	1.16	18"	7"	12"	8"	0.66	13"	7"	9"	8"	0.43	9"	7"	8"	0.28	21"	12"	14"	8"	0.95	21"	12"	14"	8"	0.95	
6"	36"	15"	24"	11"	3.31	27"	9"	18"	9"	1.54	19"	9"	13"	8"	0.81	14"	9"	8"	0.53	31"	15"	21"	8"	1.92	31"	15"	21"	8"	1.92	
8"	48"	18"	32"	16"	8.13	36"	10"	24"	13"	3.76	28"	10"	17"	8"	1.33	18"	10"	12"	8"	0.81	41"	17"	27"	12"	4.66	41"	17"	27"	12"	4.66
10"	60"	20"	40"	20"	15.72	45"	12"	30"	16"	7.12	32"	12"	21"	10"	2.48	23"	12"	15"	8"	1.22	51"	20"	41"	16"	11.14	51"	20"	41"	16"	11.14
12"	72"	22"	48"	25"	27.83	53"	13"	36"	20"	12.36	38"	13"	26"	13"	4.56	27"	13"	18"	8"	1.63	61"	22"	41"	20"	16.73	61"	22"	41"	20"	16.73

BASED ON 1000 PSF SOIL BEARING VALUE AND 150 PSI WATER PRESSURE IN PIPE W/NO SF
* DIMENSIONS FOR STANDARD FITTINGS SHOWN. MODIFY COMPACT FITTINGS
ALL CONCRETE TO BE 3000# (28 DAY STRENGTH). NO CONCRETE SHALL COVER BOLTS OR GLANDS.

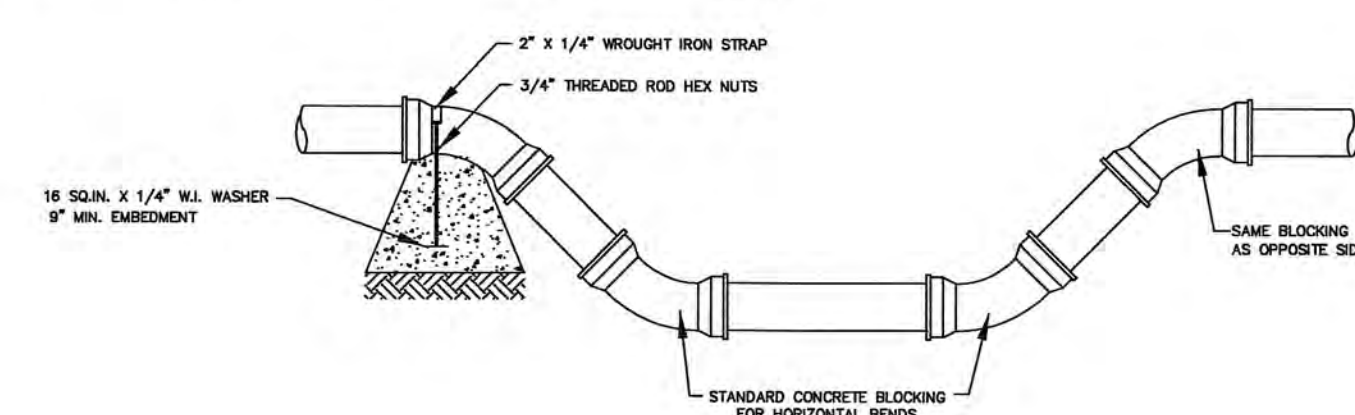


STANDARD REACTION BLOCKING--HORIZONTAL BEND

GRAVITY BLOCKING VOLUMES FOR VERTICAL BENDS(CU. FT.)				
Based on 150 psi pressure and 140 pcf concrete				
Pipe Size	45 Deg Bends	22 1/2 Deg Bends	11 1/4 Deg Bends	Area Pipe(Sq. In.)
3"	5.36	2.90	1.48	7.0686
4"	9.52	5.15	2.63	12.5664
6"	21.42	11.59	5.91	28.2743
8"	38.08	20.61	10.51	50.2655
10"	58.50	32.20	16.42	78.5398
12"	85.68	46.37	23.64	113.0973

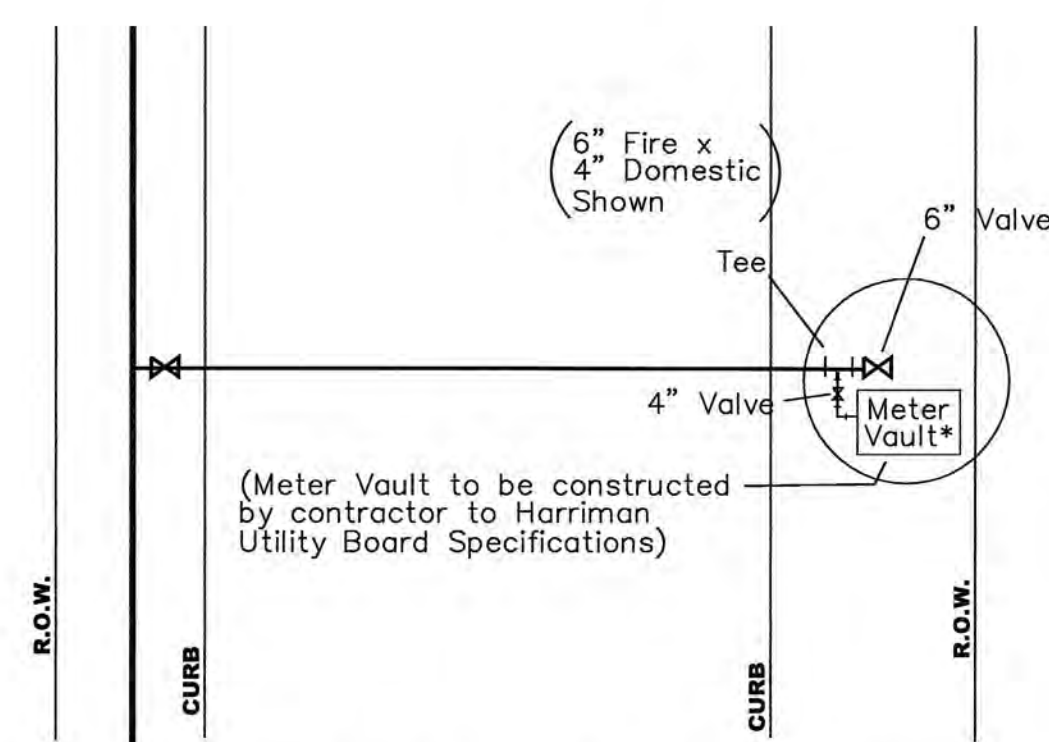
MINIMUM AREA(Sq. Ft.) REQ'D. TO RESIST HORIZONTAL THRUST @ VERTICAL BENDS				
Based on 1000 pcf Soil Bearing Value & 150 psi Water Pressure				
Pipe Size	45 Deg Bends	22 1/2 Deg Bends	11 1/4 Deg Bends	Area Pipe(Sq. In.)
3"	0.31	0.08	0.02	
4"	0.55	0.14	0.04	
6"	1.24	0.32	0.08	
8"	2.21	0.57	0.14	
10"	3.45	0.90	0.23	
12"	4.97	1.29	0.33	

HORIZONTAL THRUST IN POUNDS FOR 150 PSI WATER PRESSURE @ VERTICAL BENDS				
Provide adequate bearing area to resist Horizontal Thrust				
Pipe Size	45 Deg Bends	22 1/2 Deg Bends	11 1/4 Deg Bends	Area Pipe(Sq. In.)
3"	311	81	20	7.0686
4"	552	143	36	12.5664
6"	1242	323	81	28.2743
8"	2208	574	145	50.2655
10"	3451	897	226	78.5398
12"	4969	1291	326	113.0973



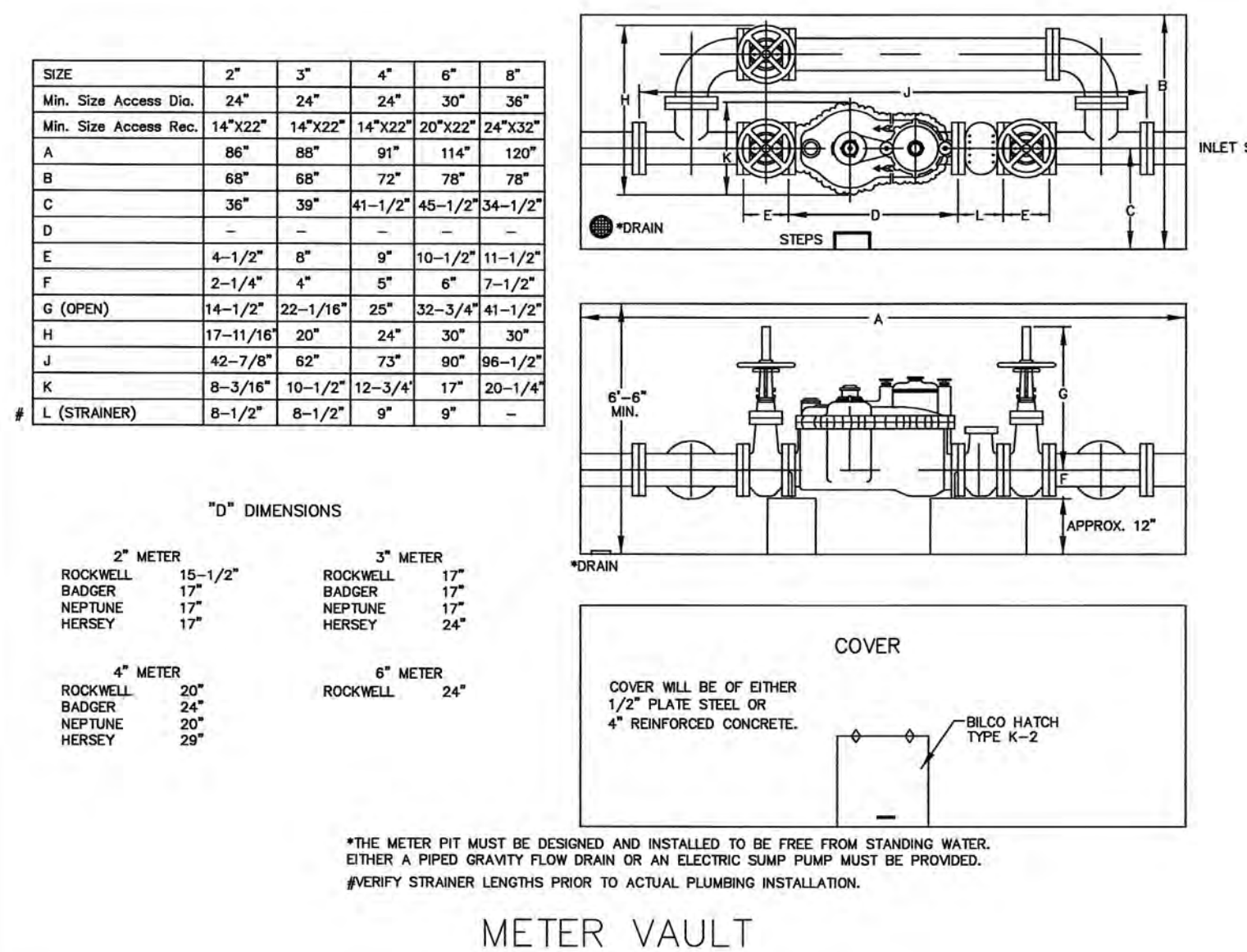
STANDARD REACTION BLOCKING--VERTICAL BEND

For providing valves and connections for both fire line and domestic water



*SEE METER VAULT DETAIL--STANDARD DETAIL 6.10

COMMERCIAL WATER LATERAL LAYOUT/METER VAULT



METER VAULT

General Notes



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Project

City Paving Project

Date

6/10/10

Scale

NOT TO SCALE

Sheet

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