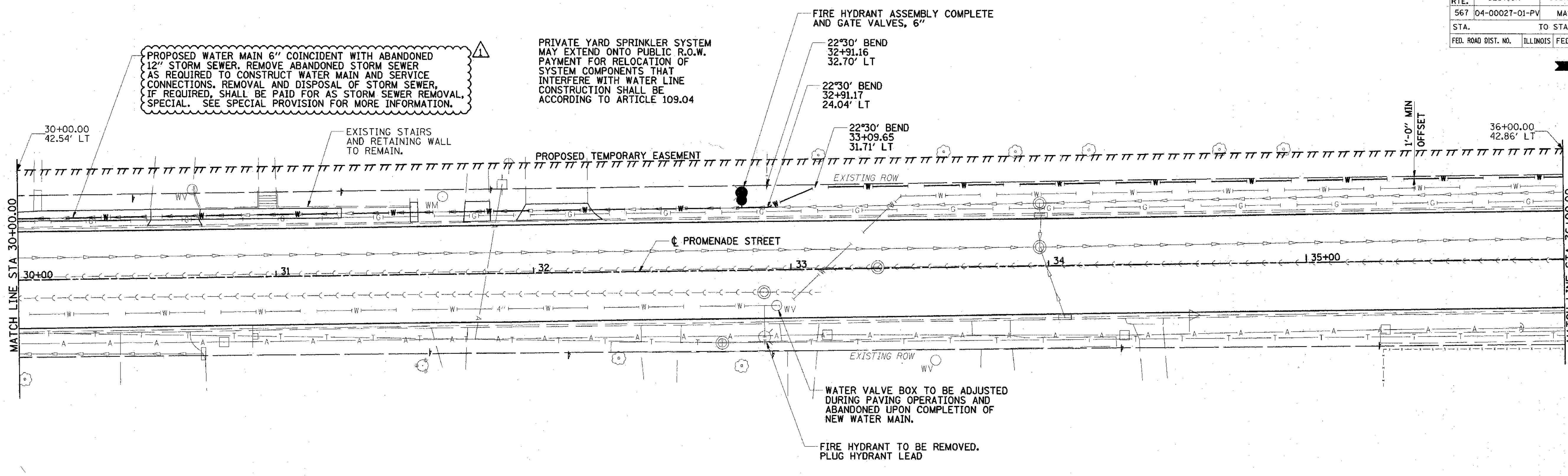
CONTRACT NO. 93406

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
567	04-00027-01-PV	MASON	79	61
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



THRUST RESTRAINT NOTES:

1. THRUST BLOCKS SHALL BE CAST-IN-PLACE CLASS SI CONCRETE OR EARLY STRENGTH CONCRETE, WHERE REQUIRED TO MINIMIZE SERVICE DISRUPTION.
2. THRUST BLOCKS FOR HORIZONTAL FITTINGS AND VERTICAL UPWARD DEFLECTIONS SHALL BEAR AGAINST UNDISTURBED SOIL OR COMPACTED BACKFILL.
3. THRUST BLOCK DIMENSIONS WERE DEVELOPED FOR A DESIGN PRESSURE OF 100 PSI, AN ASSUMED SOIL BEARING CAPACITY OF 1,800 PSF, AND A FACTOR OF SAFETY OF 1.5. IF THE BEARING CAPACITY OF THE UNDISTURBED NATIVE SOIL AT BOTTOM OF TRENCH DIFFERS SIGNIFICANTLY FROM THE ASSUMED BEARING CAPACITY, THE THRUST BLOCK BEARING AREAS SHOULD BE ADJUSTED BASED ON THE RATIO OF THE ACTUAL TO ASSUMED BEARING CAPACITY.
4. THRUST BLOCK DIMENSIONS APPLY ONLY TO NEW WATER MAIN CONSTRUCTION. THRUST RESTRAINT FOR CAPS ON EXISTING 4" WATER MAIN SHALL BE DESIGNED BY THE CONTRACTOR TO RESIST A THRUST FORCE OF 1,120 LB WITHOUT TRANSMITTING FORCE TO THE NEW WATER MAIN. THE CONTRACTOR SHALL SUBMIT DRAWINGS AND DESIGN CALCULATIONS FOR THE THRUST RESTRAINT TO THE ENGINEER FOR APPROVAL PRIOR TO DISRUPTING WATER SERVICE.
5. IF APPROVED BY THE ENGINEER, RESTRAINED JOINTS MAY BE USED IN LIEU OF THRUST BLOCKS. THE CONTRACTOR SHALL SUBMIT DESIGN CALCULATIONS FOR APPROVAL.
6. THE COST OF THRUST RESTRAINT SHALL BE INCLUDED IN THE COST OF WATER MAIN AND ASSOCIATED PAY ITEMS.

THRUST BLOCK VOLUME AND BEARING AREA FOR DOWNWARD DEFLECTIONS

FITTING	VOLUME (CU FT)	VERTICAL BEARING AREA (SQ FT)
6" 45° BEND	17.6	0.9
6" 22.5° BEND	9.5	0.2
6" 11.25° BEND	4.9	0.1
4" 45° BEND	8.5	0.4
4" 22.5° BEND	4.6	0.1
4" 11.25° BEND	2.4	-
6" X 6" TEE AT 45°	17.6	2.2
6" X 6" TEE AT 22.5°	9.5	2.9
6" X 6" TEE AT 11.25°	4.9	3.1
6" X 4" TEE AT 45°	8.5	1.1
6" X 4" TEE AT 22.5 °	4.6	1.4
6" X 4" TEE AT 11.25°	2.4	1.5

THRUST BLOCK BEARING AREA FOR HORIZONTAL FITTINGS AND UPWARD DEFLECTIONS

FITTING	AREA (SQ FT)
6" 45° BEND	2.4
6" 22.5° BEND	1.2
6" 11.25° BEND	0.6
6" CAP	3.1
6" VALVE	3.1
6" X 6" TEE	3.1
6" X 4" REDUCER	1.6
4" 45° BEND	1.1
4" 22.5° BEND	0.6
4" 11.25° BEND	0.3
4" CAP	1.5
4" VALVE	1.5
6" X 4" TEE	1.5
FIRE HYDRANT	4.4

NOTES:

1. DEPTH FROM GROUND SURFACE TO TOP OF BLOCKINGSHALL BE GREATER THAN HEIGHT OF BLOCKING.
2. BLOCKING HEIGHT SHALL BE NO LESS THAN THE PIPE DIAMETER.
3. BLOCKING WIDTH SHALL BE APPROXIMATELY TWICE THE BLOCKING HEIGHT.
4. BEARING AREA FOR VALVES IS AREA OF VERTICAL FACE OF THRUST BLOCK.

REVISIONS	
NAME	DATE
⚠ RDJ	4/14/06

ILLINOIS DEPARTMENT OF TRANSPORTATION

PROMENADE STREET (C.H. 20) WATER LINES AND UTILITIES

SCALE: VERT. HORIZ.
DATE 02/01/06
DRAWN BY TCJ
CHECKED BY JAD

LAYOUT	KET	8/04/05
DRAWN	EJM	2/01/06
REVIEWED	JAD	2/02/06

01:23:16 PM
04\13\2006, 01:23 PM
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