

# WATER MAIN EXTENSION

## MCKNIGHT WATER DISTRIBUTION PHASE II

### PROJECT NUMBER 448-89812

### O.C.A. NUMBER 636154

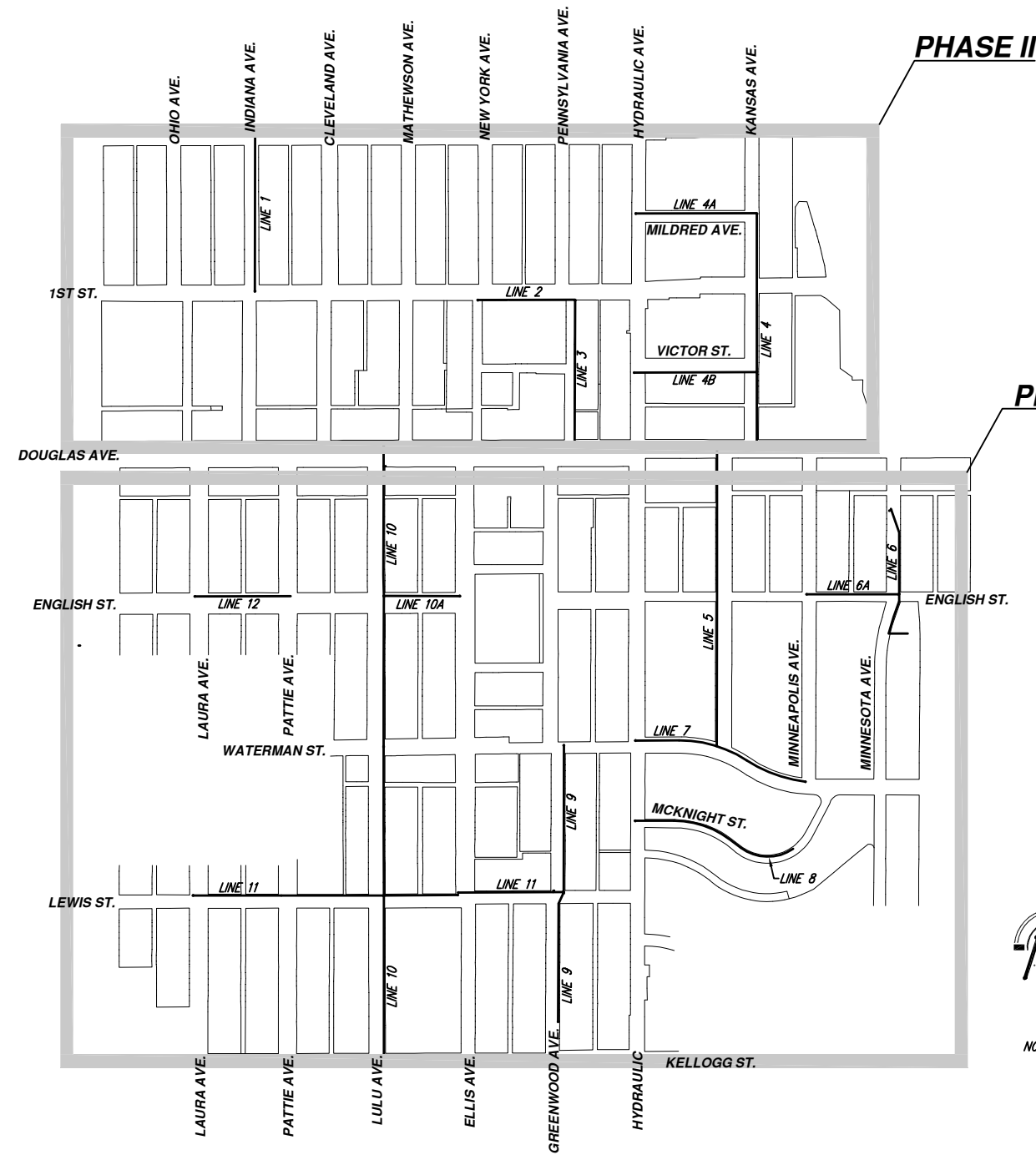
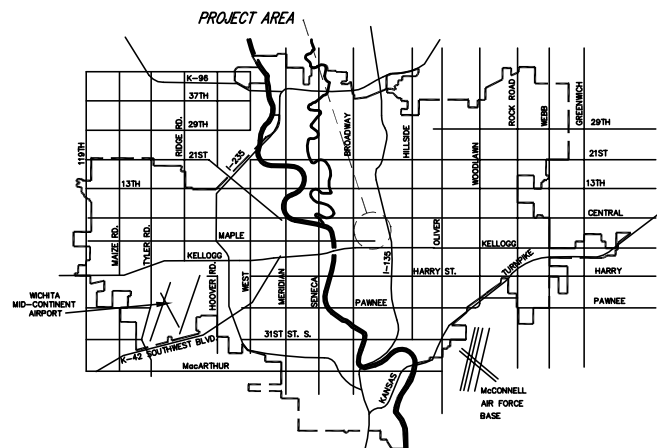
#### GENERAL NOTES

1. Contractor will be required to provide a minimum notice of 48 hours to utility companies prior to starting any excavation as follows:
 

Kansas One-Call	687-2470
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The Contractor must notify the following in case of an emergency:

Cox Communications	262-0661
Kansas Gas Service	832-3126
Westar Energy	383-8600
Aquila Energy	1-800-303-0357
Southwestern Bell Telephone Company	1-800-286-8313
City of Wichita Water Department	268-6000
City of Wichita Sewer Maintenance	268-6000
2. All water mains and appurtenances shall be installed in accordance with City of Wichita, Kansas, Standard Specifications for the Construction of City Projects.
3. Opening and closing water valves shall be done slowly to prevent damage to the water distribution system from water hammer. All valves closed by the Contractor must be reopened as new construction permits. Project inspector must ascertain that any valve closed by the Contractor is reopened. Contractor will be permitted to operate water valves only when the project inspector assigned to the project is present.
4. The Contractor shall give all property owners and/or tenants of developed property directly abutting the construction of this project a minimum of ten (10) days advance notice prior to start of construction.
5. The Contractor shall be responsible for preserving property irons. The Contractor will be required to re-establish any property irons which are damaged or destroyed by his construction operations. Such irons shall be re-established by a licensed land surveyor in accordance with state laws.
6. All areas of public R/W disturbed by construction of this project are to be restored in accordance with Administrative Regulation AR 78 of the City of Wichita.
7. This project has been designed for pipe installation by directional drilling. Any walk, driveway pavement, or any other removal and replacement items associated with the directional drilling process that are not indicated on the plans shall be incidental to the project.



#### INDEX OF SHEETS

1. INDEX SHEET
2. WATER ASSEMBLY DETAILS
3. LINE 1 - INDIANA PLAN & PROFILE
4. LINE 2 - 1st STREET PLAN & PROFILE
5. LINE 3 - PENNSYLVANIA PLAN & PROFILE
6. LINE 4 - KANSAS PLAN & PROFILE
7. LINE 4A - MILDRED & LINE 4B - VICTOR PLAN & PROFILE

#### BENCHMARKS

- C.O.W. Disc SW Cor. Hydraulic & Douglas, NW Cor. conc base traffic pole  
Elev. 1296.31
- Top 1/2" Iron Pipe Thimble, S R/W Kansas & Douglas  
Elev. 1296.70
- Top 3/4" Iron Pipe Thimble, S R/W 1st Street & Indiana  
Elev. 1294.97
- Top 1/2" Iron Pipe Thimble, S R/W 1st Street & Pennsylvania  
Elev. 1296.53
- Top 1/2" Iron Pipe Thimble, S R/W Douglas & Lulu  
Elev. 1295.64
- Top 1/2" Iron Pipe Thimble, CL Laura & English  
Elev. 1295.25
- Top 1/2" Iron Pipe Thimble, CL Laura & Lewis  
Elev. 1294.88
- Top 1/2" Iron Pipe Thimble, CL Lewis & Lulu  
Elev. 1292.58
- Top 1/2" Iron Pipe Thimble, CL Lewis & Greenwood (North)  
Elev. 1292.59
- Top 1/2" Iron Pipe Thimble, NEPC Waterman & Kansas  
Elev. 1292.16
- Top 1/2" Iron Pipe Thimble, SMPC English & Minnesota  
Elev. 1294.05

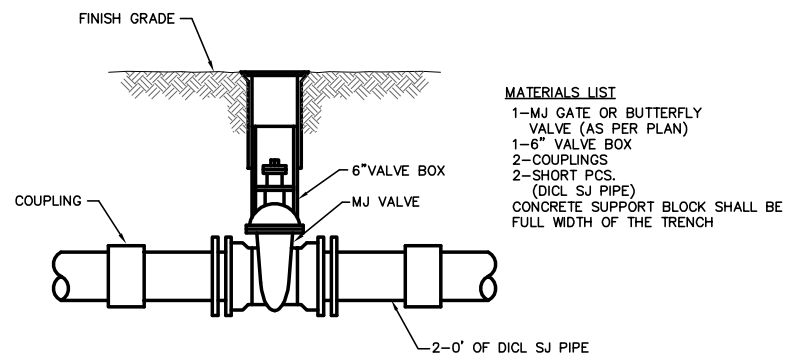


**CITY OF WICHITA, KANSAS**  
**JAMES L. ARMOUR, P.E., CITY ENGINEER**

REVISED: 1-29-07

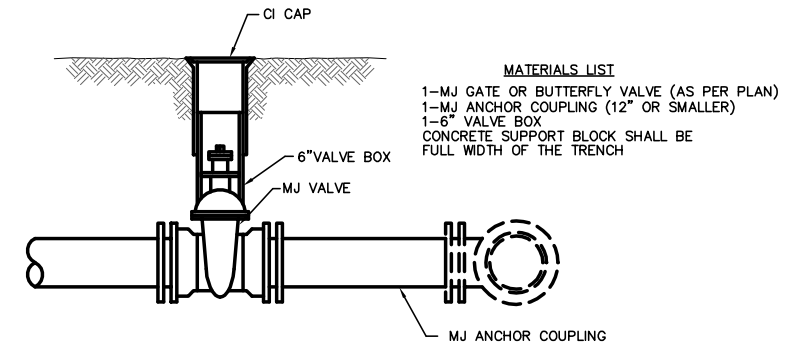


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 E-mail: info@rbkansas.com



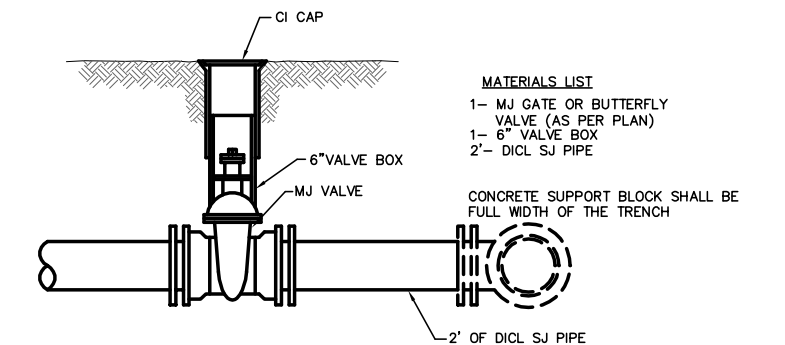
- MATERIALS LIST**  
 1-MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)  
 1-6" VALVE BOX  
 2-COUPPLINGS  
 2-SHORT PCS. (D.I.C. SJ PIPE)  
 CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH

**LINE VALVE ASSEMBLY**



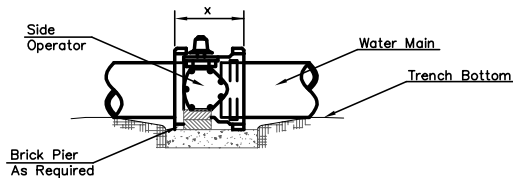
- MATERIALS LIST**  
 1-MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)  
 1-MJ ANCHOR COUPLING (12" OR SMALLER)  
 1-6" VALVE BOX  
 CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH

**ANCHORED VALVE ASSEMBLY**



- MATERIALS LIST**  
 1-MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)  
 1-6" VALVE BOX  
 2'- D.I.C. SJ PIPE  
 CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH

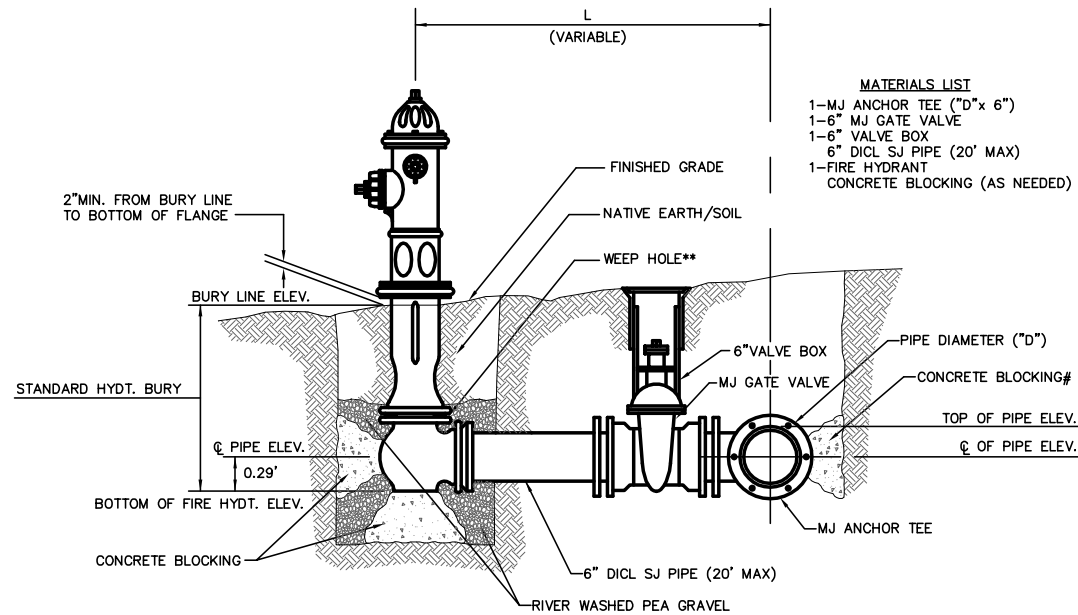
**VALVE ASSEMBLY**



**NOTES**

- This detail covers Butterfly Valve installation, inclusive, regardless of type of pipe or joint used. Larger lines to be detailed on plans.
- 6" Valve Box and Cover required per City of Wichita Std. Specifications.
- Conc. Support Block to be full width of trench.

**CONCRETE SUPPORT BLOCKING FOR BUTTERFLY VALVE INSTALLATION**



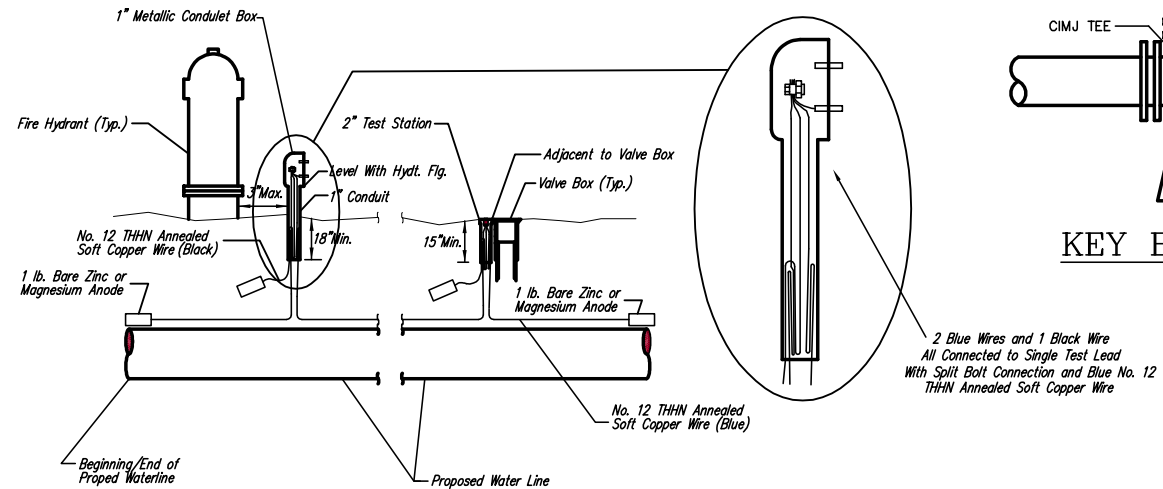
- MATERIALS LIST**  
 1-MJ ANCHOR TEE ("D"x 6")  
 1-6" MJ GATE VALVE  
 1-6" VALVE BOX  
 6" D.I.C. SJ PIPE (20' MAX)  
 1-FIRE HYDRANT  
 CONCRETE BLOCKING (AS NEEDED)

- \*\* CAUTION! WEEP HOLES TO BE KEPT CLEAR DURING CONSTRUCTION AND BACKFILL. CONCRETE FOR THRUST BLOCKING SHALL NOT OBSTRUCT WEEP HOLES.**
- # CONCRETE THRUST BLOCKING SHALL BE KEPT CLEAR OF BOLTS, NUTS, AND MJ ACCESSORIES.**
- \* IF HYDRANT BURY IS IN EXCESS OF 5', CONTRACTOR SHALL USE STANDARD 5' HYDRANT BURY AND HYDRANT BARREL EXTENSIONS AS NECESSARY.**

FIRE HYDRANTS REQUIRED			
STATION	BURY LINE ELEVATION	TOP OF PIPE ELEVATION	FIRE HYDRANT BURY REQUIRED*
11+31.92, Line 4	1295.96	1292.14	4.5'

REVISED: 1-29-07

**FIRE HYDRANT ASSEMBLY**  
 PER CITY OF WICHITA SPECIFICATIONS



**TRACER WIRE**

Conductive type pipe locator/tracer wire shall be installed to locate Polyvinyl Chloride (PVC) or any nonmetallic waterline pipes. The wire shall extend the entire length of the proposed pipe. The wire shall be taped to the waterline and pulled with the pipe. Split-bolt connectors shall be used at splice locations. Electrical tape shall cover all splices so no bare wire is exposed. Test stations shall be installed adjacent to all fire hydrants along the waterline and at blowoffs or valves near the ends of the waterlines. Any exceptions to the location of test stations shall be approved by the engineer. At each test station, the tracer wire shall be connected to a 1 lb. Zinc or magnesium anode. Anodes shall also be attached to the tracer wire at both the beginning and the end of the proposed waterline. A typical layout of the tracer wire and test station is provided in the above figure.

**WIRE**

The tracer wire shall be Blue No. 12 THHN annealed soft copper wire with thermal plastic insulation. The insulation shall be heat, oil, and gasoline resistant as manufactured by Temple Electric or approved equal. To allow for grade adjustment, a minimum of 12" of excess wire shall be coiled at the bottom of the test station for all wires. The insulation sheathing shall be removed such that 1" bare copper wire is exposed at all points of connection. Contractor shall attach wire being installed with proposed water main to any tracer wire installed with adjacent waterline projects.

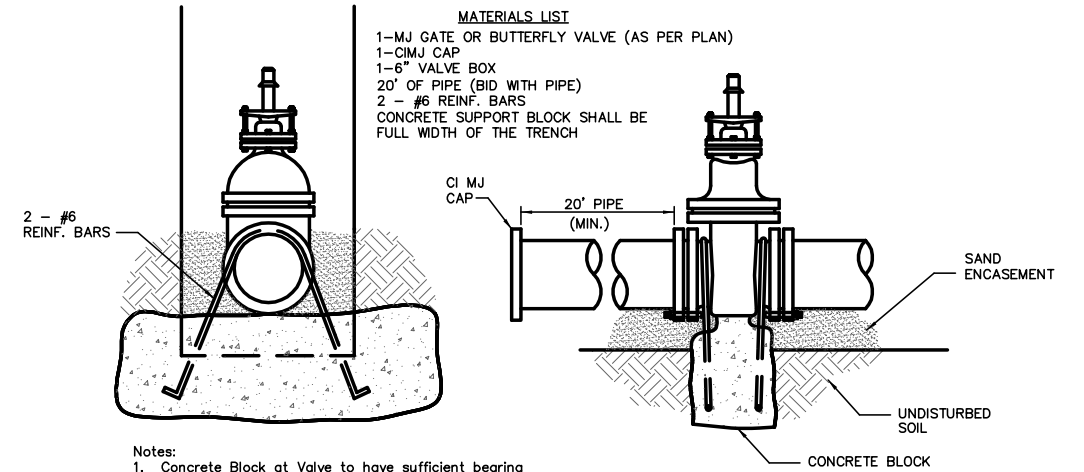
**TEST STATIONS**

The test station for fire hydrant applications shall be a 1 inch galvanized conduit style test station as manufactured by AGRA Industries with a removable solid cover having two leads extending from the face or approved equal. The test station for valve applications shall be 2 inch flush style test station T2PS3B as manufactured by HANDLEY Industries or approved equal. The conduit style shall be attached to a 1 inch rigid galvanized conduit with a minimum length of 36" and plastic end bushing. The flush style shall have the word "WATER" stamped or molded into the lid. All test stations shall be manufactured using molded blue tops or sufficiently coated with blue enamel paint. The tracer wire and the anode wire shall be installed to allow 10 inches of wire within the test station. In concrete environments such as sidewalks or in the downtown area the contractor shall use the flush style test station. The location of all test stations shall be approved by the engineer, recorded, and shown in the as-built drawings.

**ANODES**

The anodes shall be 1 lb. bare zinc or magnesium. The anodes shall be buried at the same elevation as the waterline at each test station. The anodes shall be connected to Black No. 12 THHN annealed soft copper wire which shall be extended to the test station.

**TRACER WIRE DETAIL**  
 COST IS SUBSIDIARY TO PIPE INSTALLATION



**MATERIALS LIST**

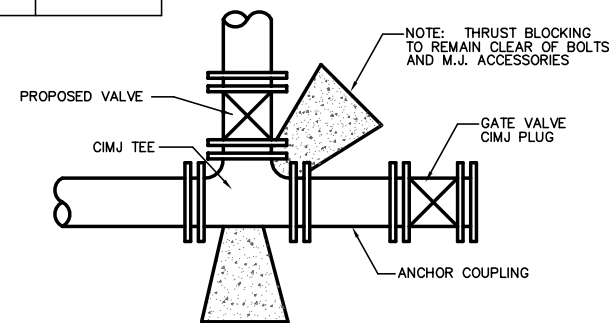
- 1-MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)  
 1-CIMJ CAP  
 1-6" VALVE BOX  
 20' OF PIPE (BID WITH PIPE)  
 2 - #6 REINF. BARS  
 CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH

**Notes:**

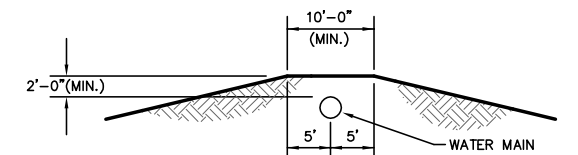
- Concrete Block at Valve to have sufficient bearing in undisturbed soil to prevent thrust movement as shown in table at right. Field Engineer to determine thrust loading of undisturbed soil and final size of thrust block.
- The thrust block shall be constructed such that bolts, nuts, and other MJ accessories are kept clear of concrete.
- All valves at dead ends and at other locations as called out on the plans shall be blocked as shown here.

THRUST AT VALVES	
VALVE	THRUST AT 150 #/sq. ft.
4"	1809 lbs.
6"	4245 lbs.
8"	7540 lbs.
12"	16965 lbs.

**ANCHORED VALVE ASSEMBLY, SPECIAL**

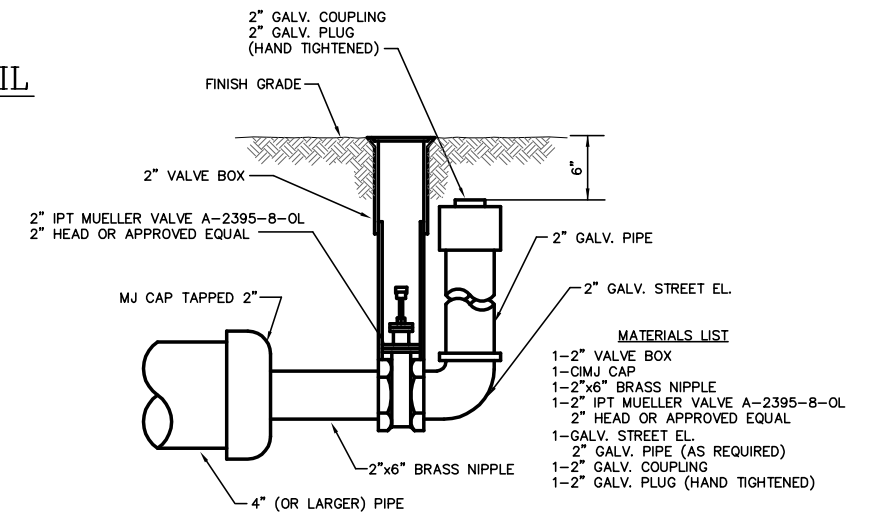


**KEY BLOCK DETAIL**



**PROTECTIVE FILL DETAIL**

MINIMUM PROTECTIVE FILL SHALL BE PROVIDED IN ALL INSTANCES WHERE COVER OVER THE PROP. WATER LINE IS LESS THAN (2) FEET. (COST SUBSIDIARY TO PIPE INSTALLATION)



**MATERIALS LIST**

- 1-2" VALVE BOX  
 1-CIMJ CAP  
 1-2"x6" BRASS NIPPLE  
 1-2" IPT MUELLER VALVE A-2395-8-OL  
 2" HEAD OR APPROVED EQUAL  
 1-GALV. STREET EL.  
 2" GALV. PIPE (AS REQUIRED)  
 1-2" GALV. COUPLING  
 1-2" GALV. PLUG (HAND TIGHTENED)

**2" BLOWOFF ASSEMBLY**

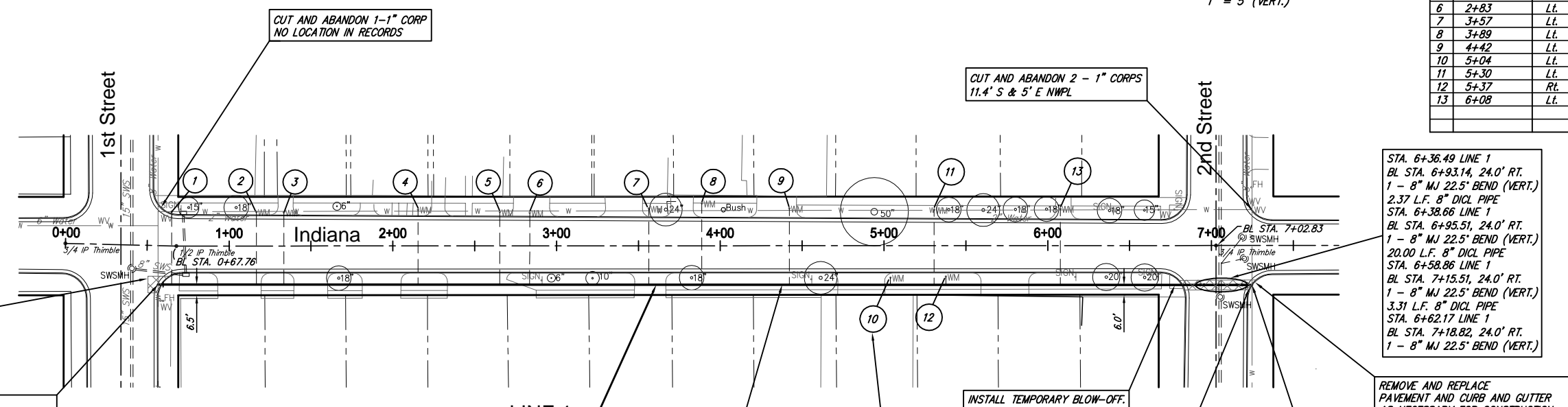
<p>THE CITY OF WICHITA</p> <p>CITY ENGINEER'S OFFICE          CITY HALL - SEVENTH FLOOR          435 NORTH MAIN STREET          WICHITA, KANSAS 67202          (316) 268-4201          (316) 268-4114 FAX</p>	<b>STANDARD WATER ASSEMBLY DETAILS</b>	
	JAMES L. ARMOUR, P.E. - CITY ENGINEER	
	PROJECT NUMBER 448-89812	OCA #
	DATE DEC 98	SHEET 2 OF 7

Revised: 6-7-00, MCG



SCALE : 1" = 40' (HORIZ.)  
1" = 5' (VERT.)

NEW WATER METER SUMMARY - LINE 1					
No.	BL Station	Lt./Rt.	Service (Long or Short)	Meter Size	Address
1	0+65	Lt.	Long		
2	1+17	Lt.	Long		
3	1+33	Lt.	Long		
4	2+15	Lt.	Long		
5	2+65	Lt.	Long		
6	2+83	Lt.	Long		
7	3+57	Lt.	Long		
8	3+89	Lt.	Long		
9	4+42	Lt.	Long		
10	5+04	Lt.	Short		
11	5+30	Lt.	Long		
12	5+37	Rt.	Short		
13	6+08	Lt.	Long		



REMOVE AND REPLACE PAVEMENT AND CURB AND GUTTER AS NECESSARY FOR CONSTRUCTION.

STA. 0+00 LINE 1  
BL STA. 0+57.18, 23.73' RT.  
CONNECT TO EXISTING 8" WATER MAIN.  
\*1 - 8"x 8" TAPPING SLEEVE  
\*1 - 8" TAPPING VALVE  
1 - 6" VALVE BOX TOP ELEV. MATCH  
\*FURNISHED AND INSTALLED BY DEPT. OF WATER AND SEWER.

CUT AND ABANDON 1-1" CORP  
NO LOCATION IN RECORDS

CUT AND ABANDON 2 - 1" CORPS  
11.4' S & 5' E NWPL

STA. 6+36.49 LINE 1  
BL STA. 6+93.14, 24.0' RT.  
1 - 8" MJ 22.5° BEND (VERT.)  
2.37 L.F. 8" DI CL PIPE  
STA. 6+38.66 LINE 1  
BL STA. 6+95.51, 24.0' RT.  
1 - 8" MJ 22.5° BEND (VERT.)  
20.00 L.F. 8" DI CL PIPE  
STA. 6+58.86 LINE 1  
BL STA. 7+15.51, 24.0' RT.  
1 - 8" MJ 22.5° BEND (VERT.)  
3.31 L.F. 8" DI CL PIPE  
STA. 6+62.17 LINE 1  
BL STA. 7+18.82, 24.0' RT.  
1 - 8" MJ 22.5° BEND (VERT.)

REMOVE AND REPLACE PAVEMENT AND CURB AND GUTTER AS NECESSARY FOR CONSTRUCTION.

STA. 6+68.22 LINE 1  
BL STA. 7+24.83, 24.04' RT.  
CONNECT TO EXISTING 8" WATER MAIN.  
\*1 - 8"x 8" TAPPING SLEEVE  
\*1 - 8" TAPPING VALVE  
1 - 6" VALVE BOX TOP ELEV. MATCH  
\*FURNISHED AND INSTALLED BY DEPT. OF WATER AND SEWER.



PROJECT NUMBER 448-89812	DESIGN TOR	DRAWN RA	REVIEWED 1-29-07
DRAWING FILE Base [Indiana]	UTILITY	DATE Jan. 28, 2004	REVIEW
WATER DISTRIBUTION SYSTEM Indiana - Line 1		SHEET 3 9 7	
WICHITA, KANSAS		RB JOB 2383W	

REMOVE AND REPLACE PAVEMENT AND CURB AND GUTTER AS NECESSARY FOR CONSTRUCTION.

STA. 0+00 LINE 2  
 BL STA. 1+05.45, 31.0' LT.  
 CONNECT TO EXISTING 8" WATER MAIN.  
 #1 - 8" x 8" TAPPING SLEEVE  
 #1 - 8" TAPPING VALVE  
 1 - 6" VALVE BOX TOP ELEV. MATCH  
 \*FURNISHED AND INSTALLED BY DEPT. OF WATER AND SEWER.

REMOVE AND REPLACE PAVEMENT, WALK AND CURB AND GUTTER AS NECESSARY FOR CONSTRUCTION.

STA. 3+33.71 LINE 2  
 BL STA. 4+39.17, 31.0' LT.  
 1 - 8"x6" MJ TEE (N)  
 1 - 6" ANCH. MJ GATE VALVE ASSY (N)  
 VALVE BOX ELEV. = MATCH  
 26 L.F. 6" PIPE (N)

STA. 4+06.91 LINE 2  
 BL STA. 5+12.36, 31.0' LT. =  
 STA. 6+88.65 LINE 3  
 1 - 8" MJ 90° BEND (S)

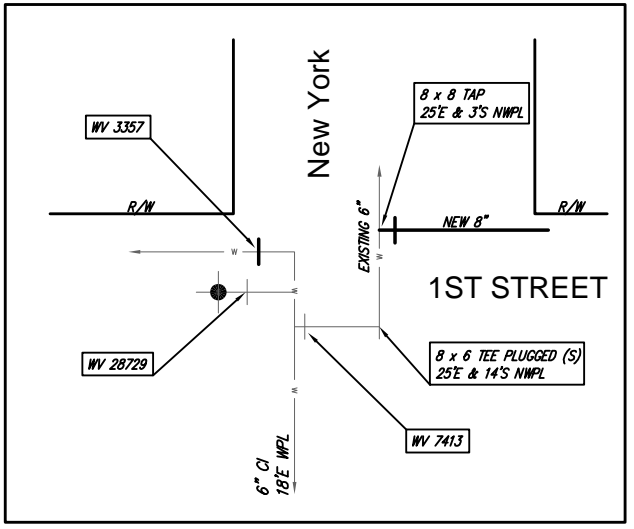
CONCRETE ENCASE 24 L.F. EXISTING 8" SANITARY SEWER (FROM MANHOLE)

AFTER WATER QUALITY TESTING, REMOVE 8.0 L.F. EXISTING 6" MAIN. CONNECT TO EXISTING 6" NORTH. CAP 6" LINE TO SOUTH.

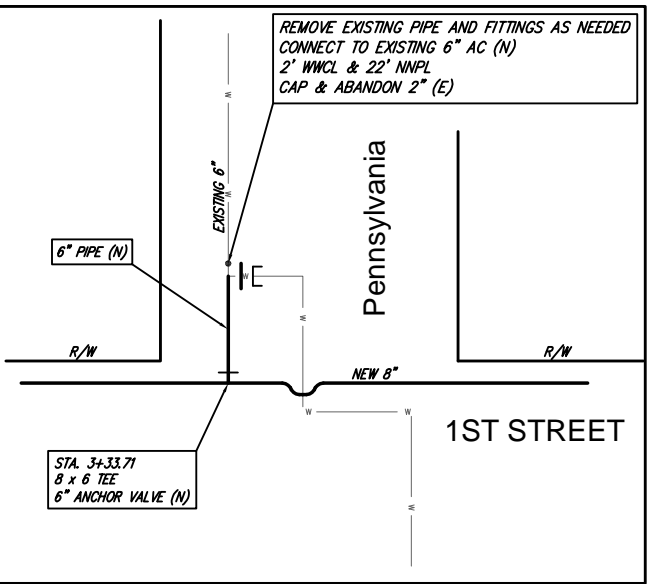
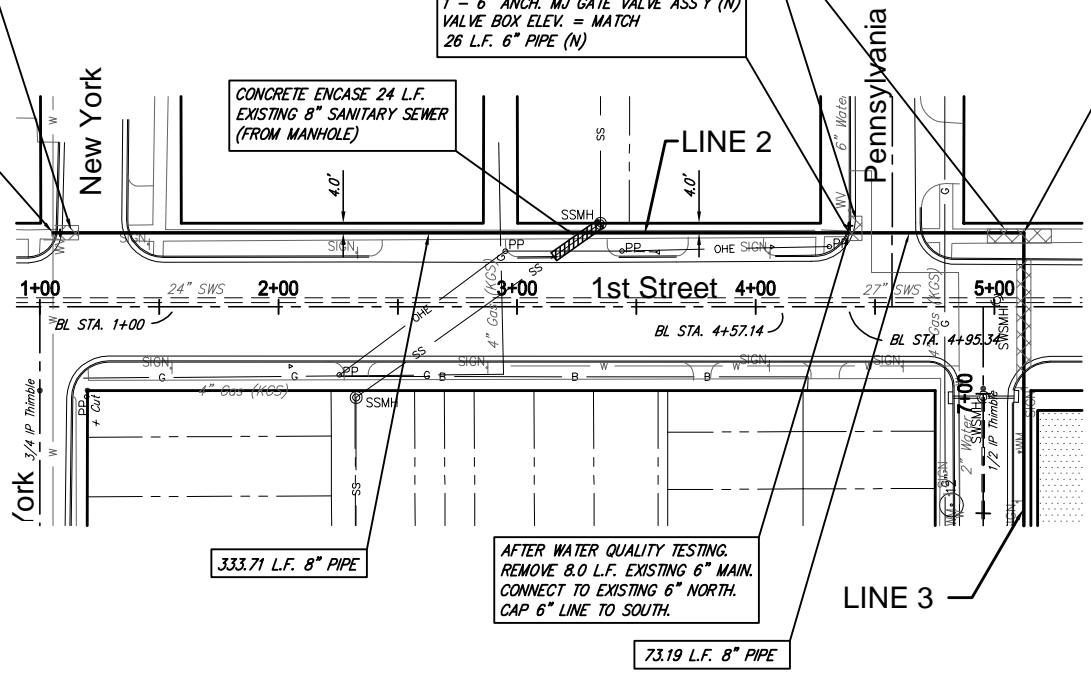
REMOVE EXISTING PIPE AND FITTINGS AS NEEDED  
 CONNECT TO EXISTING 6" AC (N)  
 2" WMCL & 22" NNPL  
 CAP & ABANDON 2" (E)



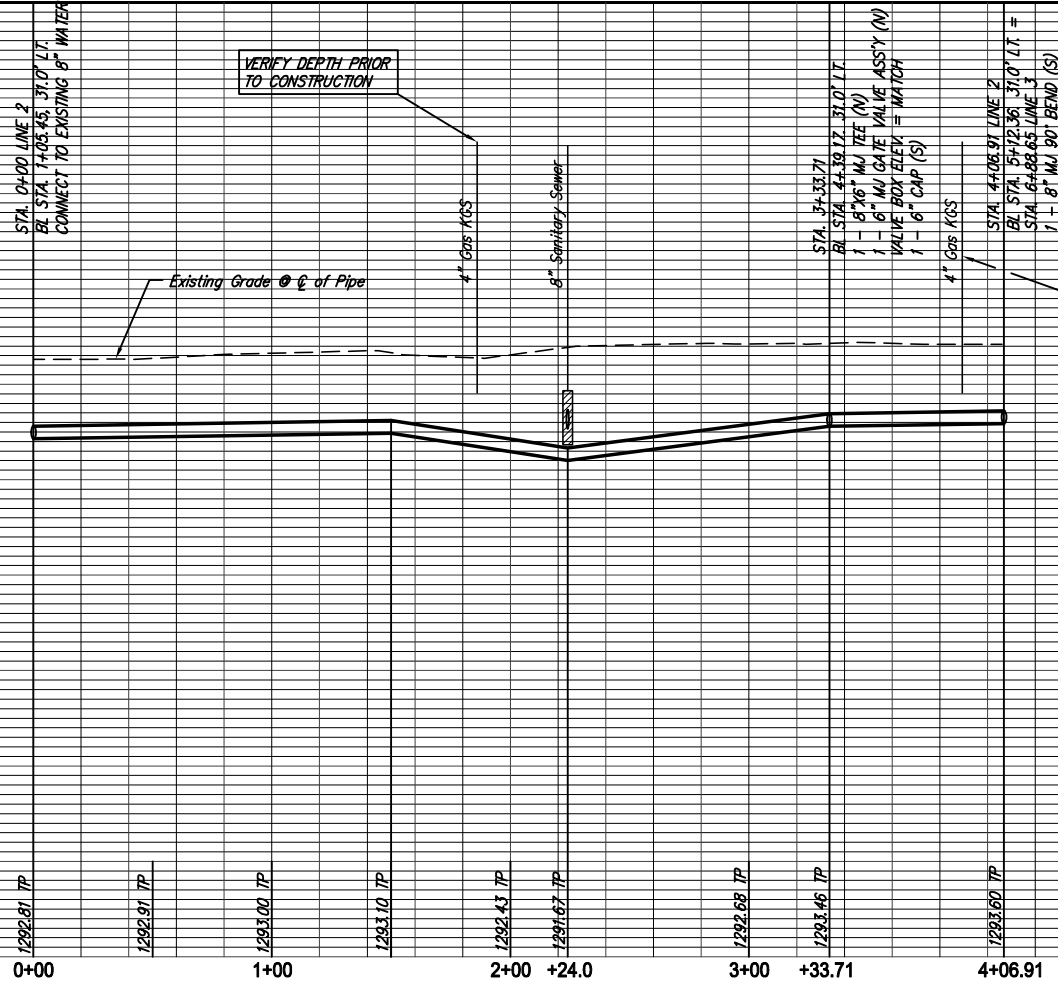
SCALE : 1" = 40' (HORIZ.)  
 1" = 5' (VERT.)



SCHEMATIC DETAIL



SCHEMATIC DETAIL



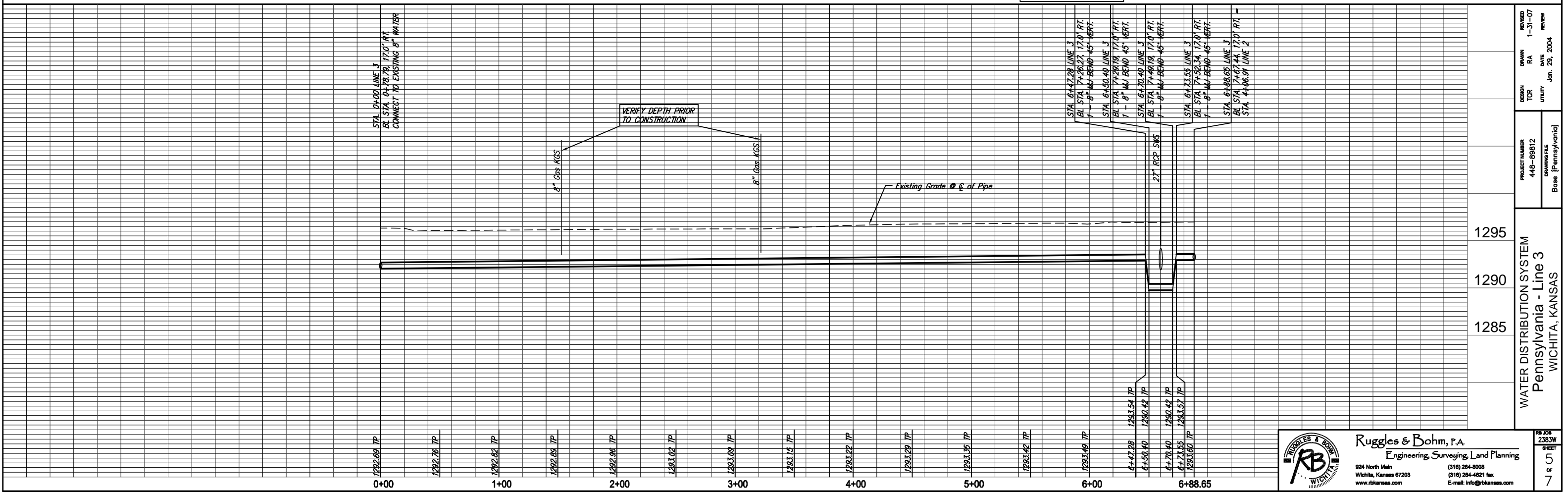
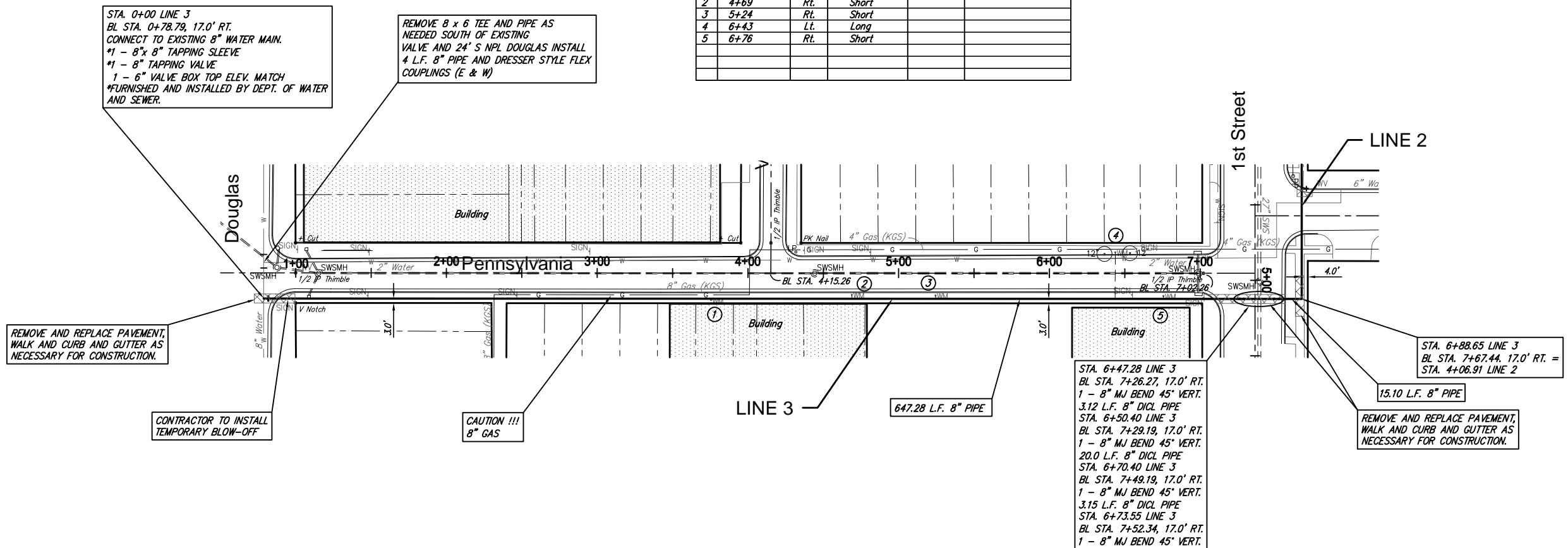
PROJECT NUMBER 448-89812	DESIGN TOR	DRAWN RA	REVIEW 1-31-07
DRAWING FILE Base [1st Street]	DATE Jan. 28, 2004		
1295			
1290			
1285			
WATER DISTRIBUTION SYSTEM 1st Street - Line 2 WICHITA, KANSAS			

**NEW WATER METER SUMMARY - LINE 3**

No.	BL Station	Lt./Rt.	Service (Long or Short)	Meter Size	Address
1	3+76	Rt.	Short		
2	4+69	Rt.	Short		
3	5+24	Rt.	Short		
4	6+43	Lt.	Long		
5	6+76	Rt.	Short		



SCALE : 1" = 40' (HORIZ.)  
1" = 5' (VERT.)



PROJECT NUMBER <b>448-88812</b>	DESIGN TOR UTILITY	DRAWING FILE Base {Pennsylvania}	REVISION 1-31-07 DATE Jan. 28, 2004
WATER DISTRIBUTION SYSTEM <b>Pennsylvania - Line 3</b> WICHITA, KANSAS			RB JOB 2383W SHEET 5 9 7

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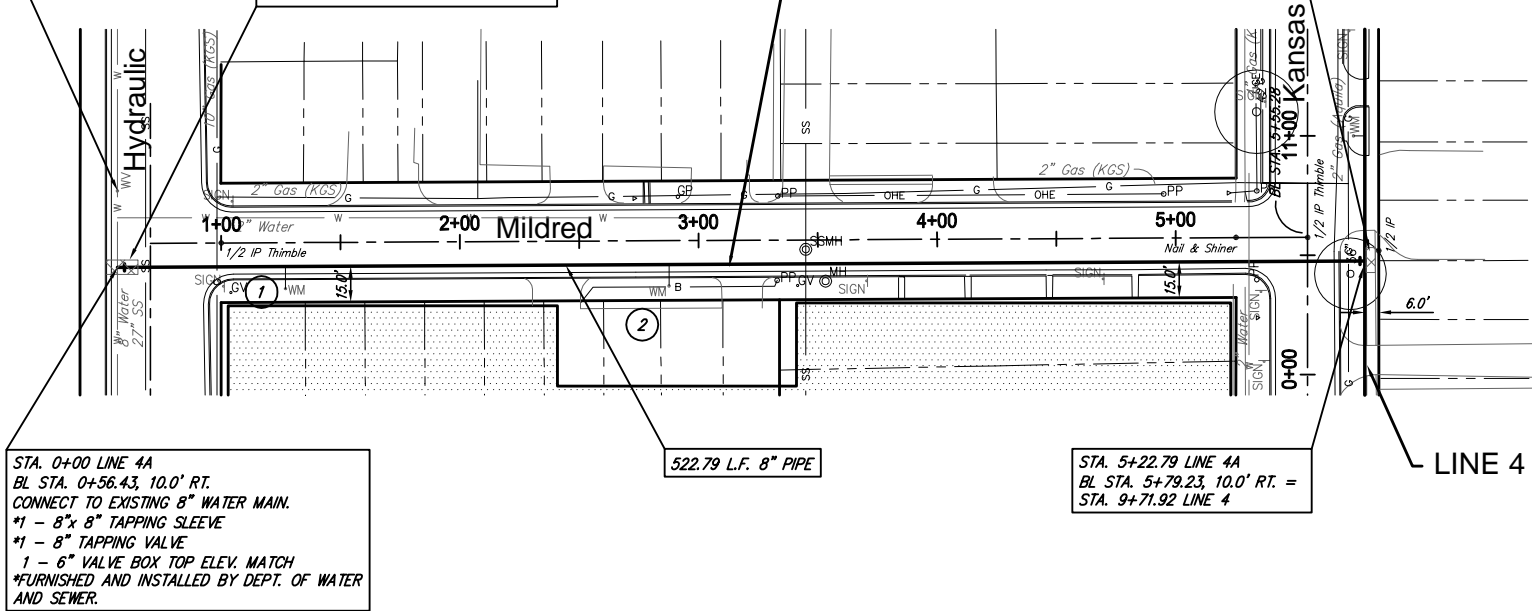
NEW WATER METER SUMMARY - LINE 4A					
No.	BL Station	Lt./Rt.	Service (Long or Short)	Meter Size	Address
1	1+26	Rt.	Short		
2	2+88	Rt.	Short		

CUT AND ABANDON 3-1" CORPS  
47' W & 13' TO 16' S NEPC

REMOVE AND REPLACE  
PAVEMENT AND CURB AND GUTTER  
AS NECESSARY FOR CONSTRUCTION.

REMOVE AND REPLACE WALK AS  
NECESSARY FOR CONSTRUCTION.

SCALE : 1" = 40' (HORIZ.)  
1" = 5' (VERT.)



STA. 0+00 LINE 4A  
BL STA. 0+56.43, 10.0' RT.  
CONNECT TO EXISTING 8" WATER MAIN.  
\*1 - 8"x 8" TAPPING SLEEVE  
\*1 - 8" TAPPING VALVE  
1 - 6" VALVE BOX TOP ELEV. MATCH  
\*FURNISHED AND INSTALLED BY DEPT. OF WATER  
AND SEWER.

522.79 L.F. 8" PIPE

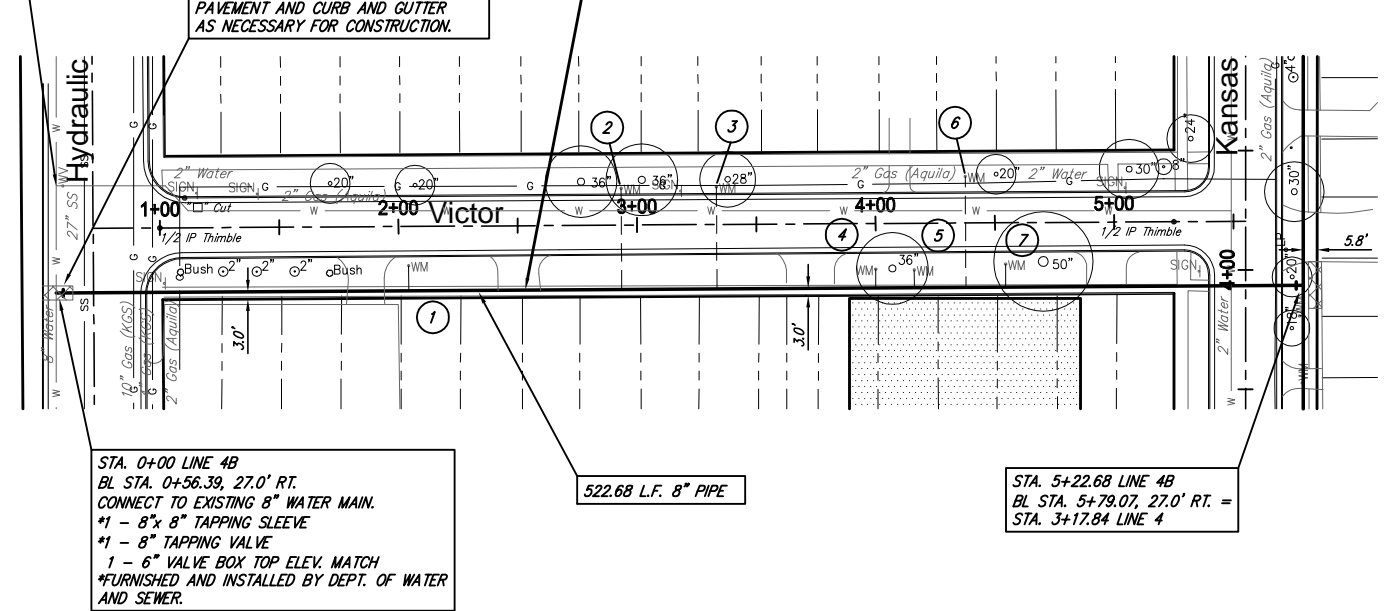
STA. 5+22.79 LINE 4A  
BL STA. 5+79.23, 10.0' RT. =  
STA. 9+71.92 LINE 4

NEW WATER METER SUMMARY - LINE 4B					
No.	BL Station	Lt./Rt.	Service (Long or Short)	Meter Size	Address
1	2+04	Rt.	Short		
2	2+93	Lt.	Long		
3	3+33	Lt.	Long		
4	4+00	Rt.	Short		
5	4+16	Rt.	Short		
6	4+37	Lt.	Long		
7	4+55	Rt.	Short		

CUT AND ABANDON 3-1" CORPS  
47' W & 10'-15' S NEPC

REMOVE AND REPLACE  
PAVEMENT AND CURB AND GUTTER  
AS NECESSARY FOR CONSTRUCTION.

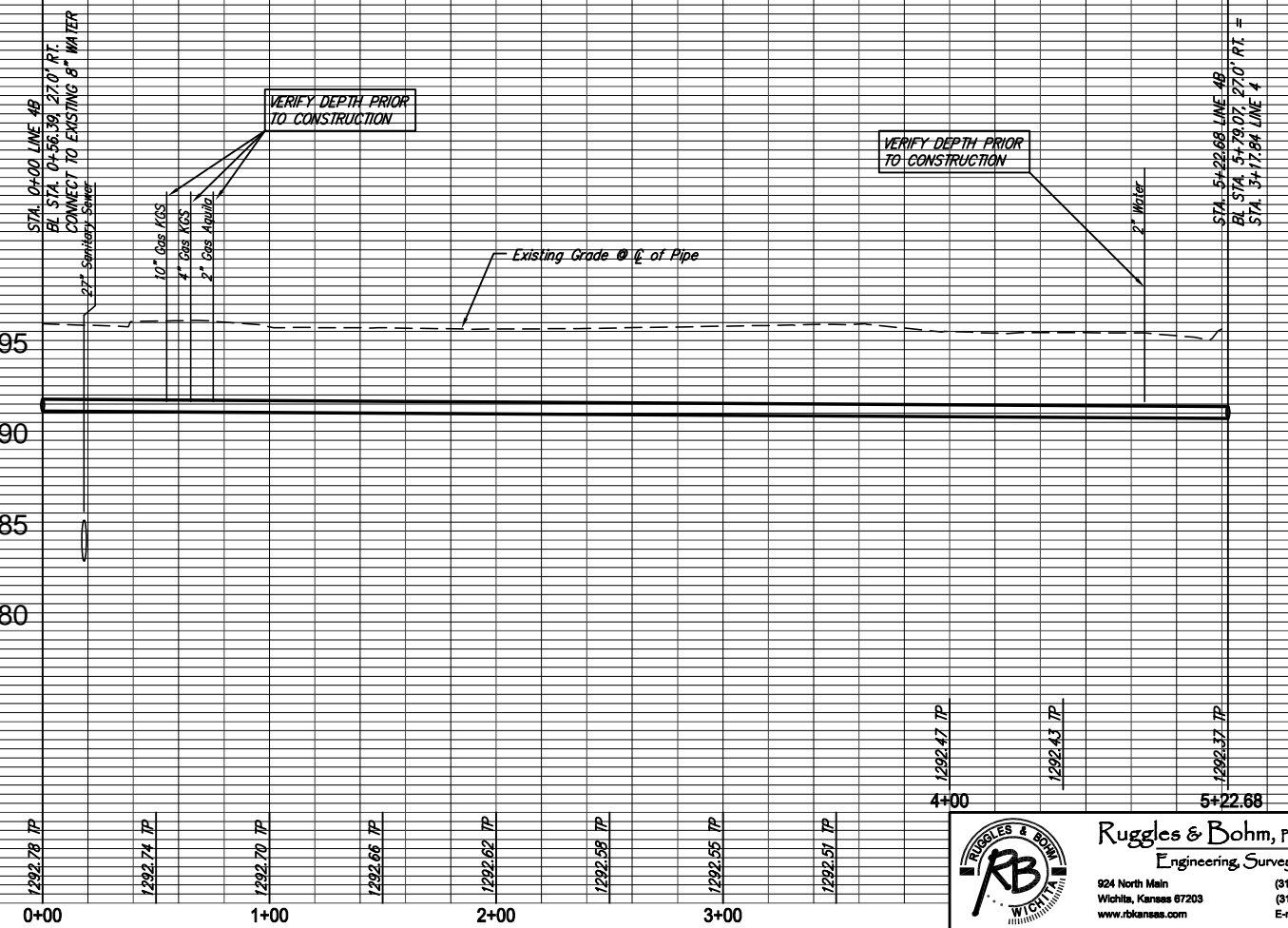
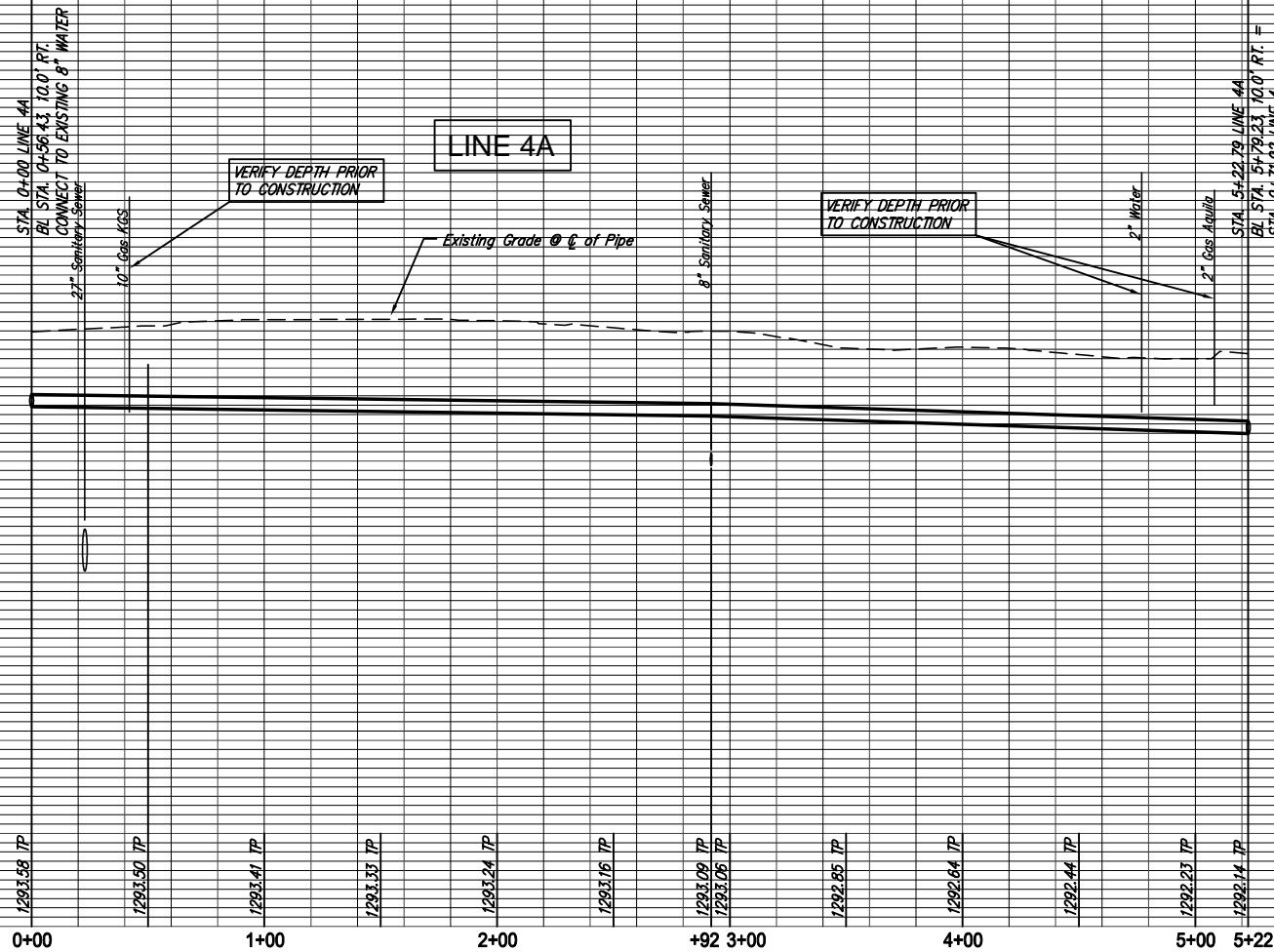
SCALE : 1" = 40' (HORIZ.)  
1" = 5' (VERT.)



STA. 0+00 LINE 4B  
BL STA. 0+56.39, 27.0' RT.  
CONNECT TO EXISTING 8" WATER MAIN.  
\*1 - 8"x 8" TAPPING SLEEVE  
\*1 - 8" TAPPING VALVE  
1 - 6" VALVE BOX TOP ELEV. MATCH  
\*FURNISHED AND INSTALLED BY DEPT. OF WATER  
AND SEWER.

522.68 L.F. 8" PIPE

STA. 5+22.68 LINE 4B  
BL STA. 5+79.07, 27.0' RT. =  
STA. 3+17.84 LINE 4



REVISIONS  
1-31-07  
DATE  
Jan. 29, 2004

DESIGN  
TOR  
UTILITY

PROJECT NUMBER  
448-89812

DRAWING FILE  
Base Mildred

WATER DISTRIBUTION SYSTEM  
Mildred - Line 4A & Victor - Line 4B  
WICHITA, KANSAS

Ruggles & Bohm, P.A.  
Engineering, Surveying, Land Planning  
824 North Main  
Wichita, Kansas 67203  
www.rbkansas.com  
(316) 264-8008  
(316) 264-4621 fax  
E-mail: info@rbkansas.com

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7  
8  
7