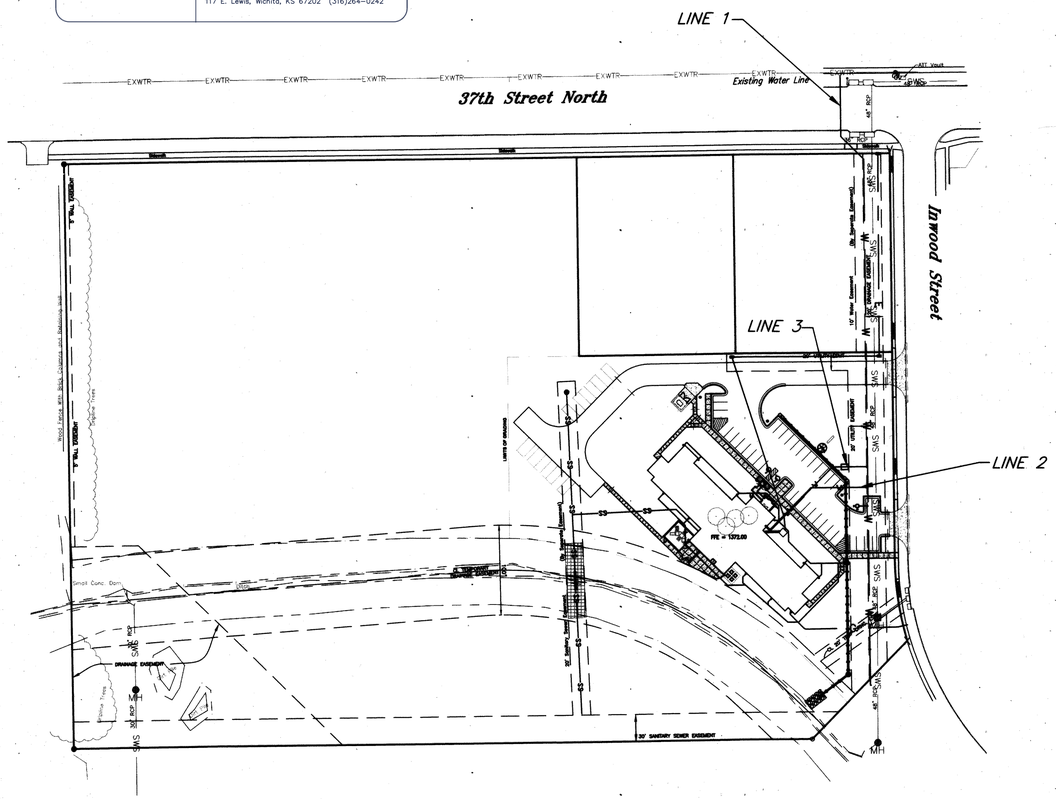
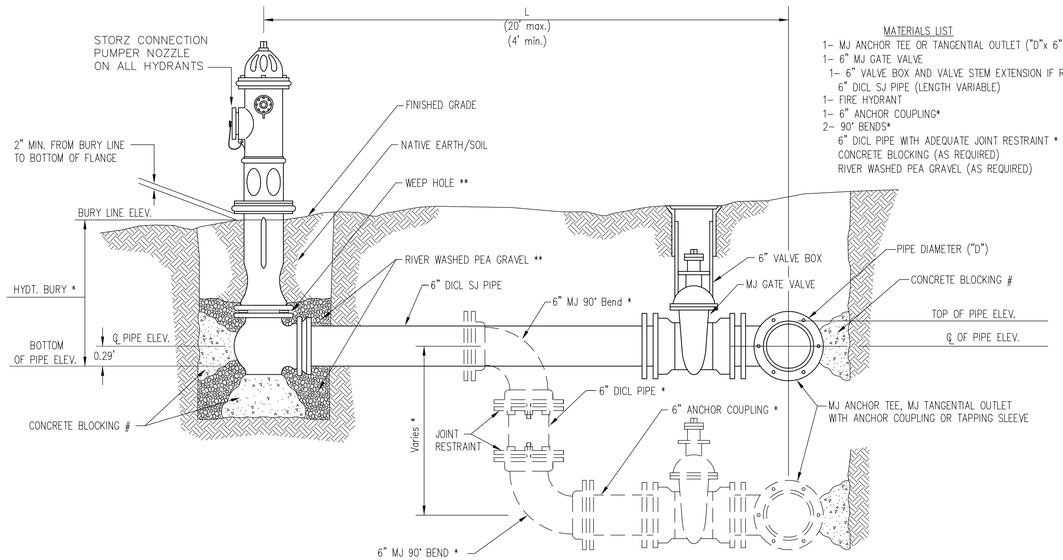
AS BUILTS

Contractor:
McCullough Excavation, Inc.
4/1/2014

Project Inspector:
Larry Gann

KEMILLER ENGINEERING PA
117 E. Lewis, Wichita, KS 67202 (316)264-0242


LINE 1
LINE 2
LINE 3
37th Street North
Inwood Street
Existing Water Line
EXWTR
SAN MH
SAN MH
SAN MH



MATERIALS LIST
1- MJ ANCHOR TEE OR TANGENTIAL OUTLET ("D"x 6")
1- 6" MJ GATE VALVE
1- 6" VALVE BOX AND VALVE STEM EXTENSION IF REQUIRED *
6" DICL SJ PIPE (LENGTH VARIABLE)
1- FIRE HYDRANT
1- 6" ANCHOR COUPLING*
2- 90° BENDS*
6" DICL PIPE WITH ADEQUATE JOINT RESTRAINT *
CONCRETE BLOCKING (AS REQUIRED)
RIVER WASHED PEA GRAVEL (AS REQUIRED)

* IF THE REQUIRED HYDRANT BURY IS IN EXCESS OF 5', BUT LESS THAN 7', CONTRACTOR SHALL USE STANDARD 5' HYDRANT BURY AND HYDRANT BARREL EXTENSIONS AS NECESSARY. IF THE REQUIRED HYDRANT BURY IS GREATER THAN 7', CONTRACTOR SHALL USE 5' HYDRANT BURY, 2-MJ 90° BENDS, 6" ANCHOR COUPLING AND 6" DICL PIPE AS NECESSARY FOR VERTICAL ADJUSTMENT. THE CONTRACTOR SHALL PROVIDE ADEQUATE THRUST BLOCKING AT HYDRANT AND MEGALUGS, OR SIMILAR RESTRAINT BETWEEN 90° BENDS TO SECURE ALL FITTINGS DURING TESTING AND OPERATION. THE CONTRACTOR SHALL PROVIDE A VALVE STEM EXTENSION PER DETAIL THIS SHEET.

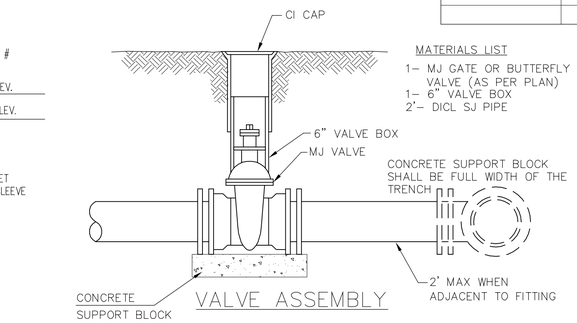
** CAUTION: WEEP HOLES TO BE KEPT CLEAR DURING CONSTRUCTION AND BACKFILL. CONCRETE FOR THRUST BLOCKING SHALL NOT OBSTRUCT WEEP HOLES. PLACE 1 CUBIC FOOT OF RIVER WASHED PEA GRAVEL AROUND EACH WEEP HOLE.

CONCRETE THRUST BLOCKING SHALL BE KEPT CLEAR OF BOLTS, NUTS, AND MJ ACCESSORIES.

FIRE HYDRANT ASSEMBLY

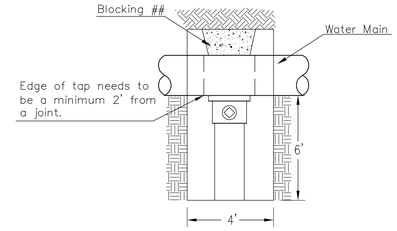
PER CITY OF WICHITA SPECIFICATIONS

FIRE HYDRANTS REQUIRED				
STATION	BURY LINE ELEVATION	TOP OF PIPE ELEVATION	FIRE HYDRANT BURY REQUIRED*	VALVE STEM EXT. REQUIRED (ft)*
4+88.88	1370.35	1366.00	5.0'	



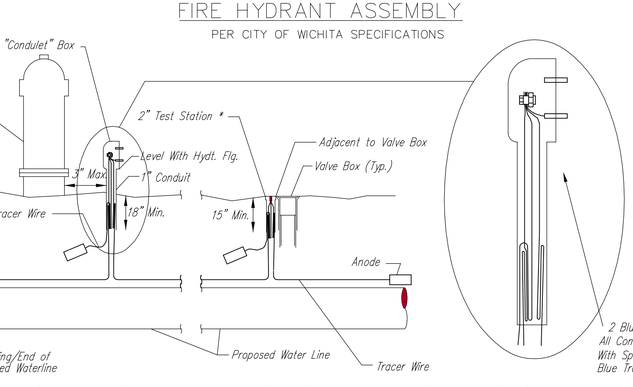
MATERIALS LIST
1- MJ GATE OR BUTTERFLY
VALVE (AS PER PLAN)
1- 6" VALVE BOX
2'- DICL SJ PIPE

VALVE ASSEMBLY



CITY TAP

When the City of Wichita makes tap, blocking is to be done by Contractor



* FLUSH STYLE TEST STATIONS SHALL ONLY BE USED IN PAVEMENT.

TRACER WIRE

Conductive type pipe locator/tracer wire shall be installed to locate all waterline pipe regardless of pipe material. 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 3 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 or Blue No. 12 AWG CCS with 30 mil HDPE 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 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

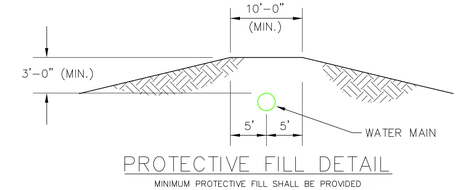
The test station for fire hydrant applications shall be a 1 inch galvanized "conduit" style test station as manufactured by AGRA Industries with a removable solid cover having two leads extending from the face or approved equal. The test station for valve applications shall be 2 inch flush style test station T2PS3B as manufactured by HANDLEY Industries or approved equal. The "conduit" style test station 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 3 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.

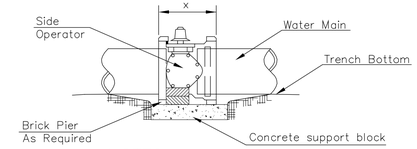
TRACER WIRE DETAIL

COST IS SUBSIDIARY TO PIPE INSTALLATION



PROTECTIVE FILL DETAIL

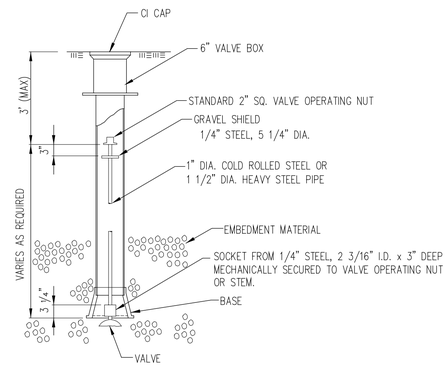
MINIMUM PROTECTIVE FILL SHALL BE PROVIDED IN ALL INSTANCES WHERE COVER OVER THE PROP. WATER LINE IS LESS THAN 3'.
(COST SUBSIDIARY TO PIPE INSTALLATION)



NOTES

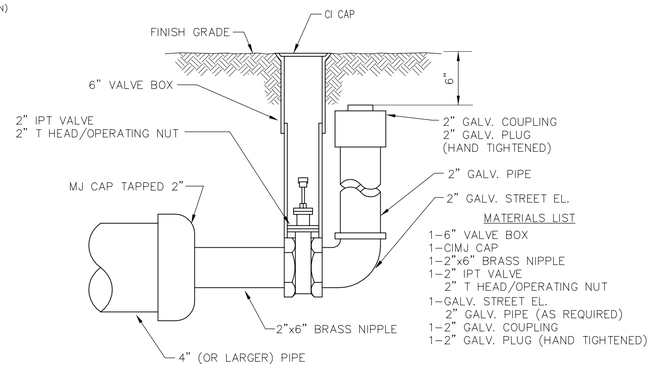
1. *This detail covers Butterfly Valve installation, inclusive, regardless of type of pipe or joint used. 24" and larger lines to be detailed on plans.*
2. *6" Valve Box and Cover required per City of Wichita Std. Specifications.*
3. *Conc. Support Block to be full width of trench.*

CONCRETE SUPPORT BLOCKING FOR BUTTERFLY VALVE INSTALLATION



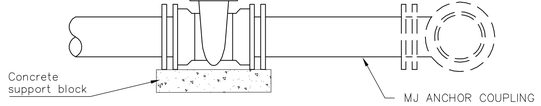
VALVE STEM EXTENSION DETAIL

NOTE: ONE VALVE STEM EXTENSION FOR EACH VALVE BURIED GREATER THAN 5'.



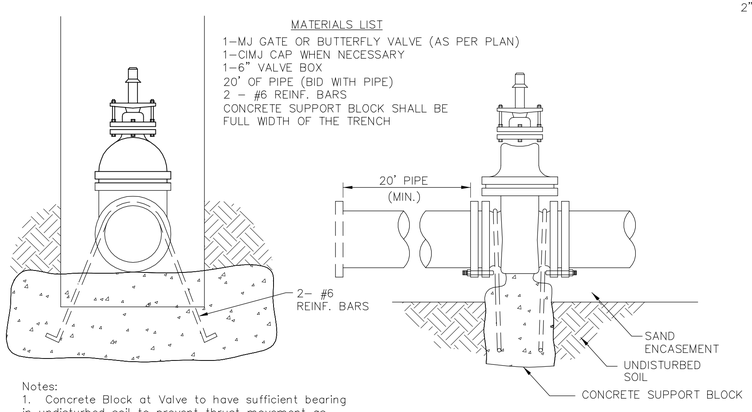
MATERIALS LIST
1-6" VALVE BOX
1-CIMJ CAP
1-2"x6" BRASS NIPPLE
1-2" IPT VALVE
2" T HEAD/OPERATING NUT
1-GALV. STREET EL.
2" GALV. PIPE (AS REQUIRED)
1-2" GALV. COUPLING
1-2" GALV. PLUG (HAND TIGHTENED)

2" BLOWOFF ASSEMBLY



ANCHORED 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



MATERIALS LIST
1-MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
1-CIMJ CAP WHEN NECESSARY
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:
1. 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.
2. The thrust block shall be constructed such that bolts, nuts, and other MJ accessories are kept clear of concrete.
3. 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 #/in²
4"	1809 lbs.
6"	4245 lbs.
8"	7540 lbs.
12"	16965 lbs.

ANCHORED VALVE ASSEMBLY, SPECIAL

GARY L. JANZEN
LICENSED
PROFESSIONAL ENGINEER
KANSAS
04/30/13

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

STANDARD WATER ASSEMBLY DETAIL

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
1767 PPW	607853	04/2013

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

SHEET
2 of 6

Notes For All Services – 3" thru 12":

1. When the standard vault dimensions are not applicable, such as when additional space is required for special pipe, fittings, additional meters, etc. the design engineer shall design a vault with the required dimensions for Public Works and Utilities approval.

2. The vault shall be poured concrete, cement blocks (voids to be completely filled with 2500 P.S.I. concrete), or approved precast structure (such as Clutter Inc. vaults approved 8/1/2000). The intent of these details shall not be limited by drawings or standards of precast structures.

3. Vault location to be determined by Public Works and Utilities prior to construction and approved by Department's field supervisor prior to installation. A final inspection will be required for acceptance. Vault location standards include but not limited to: not to be located where subjected to vehicular loads, not to be located in any right–of–way or utility easement, and must be located on the property being served.

4. The manhole ring and lid shall be Neenah R–6034 Frame with Type "C" Solid Lid and Drop Down Handle or US Foundry APS–30x30 (Aluminum). Where applicable the standard 10" Public Works and Utilities pattern meter reading lid and ring shall be located directly above water meter register. All meter registers shall have an approved lid directly vertical above. All joints of concrete to concrete or metal to concrete in the construction of the vault shall have an approved water tight mastic joint seal.

5. Any fittings or appurtenances required to achieve proper elevation of pipe through the vault shall be provided by the contractor and appropriately noted on as–builts submitted by the inspecting engineer. Such fittings shall be a minimum of 2' from the exterior wall of vault.

6. For all domestic services larger than 3" the contractor shall provide an outlet flange connection as shown 8" from the inside wall. Inlet and outlet wall sleeves shall be provided and installed by the contractor and shall be in alignment with one another. The inlet and outlet pipe shall be ductile iron pipe, cement lined, Class 150 per Standard Specifications and shall be continuous through vault wall and joint no less than 2' from the exterior wall of vault. Flanges of inlet and outlet pipes shall be in proper alignment and bolt pattern shall be rotated in such a way that valves and other fittings shall be in their proper vertical alignment when installed.

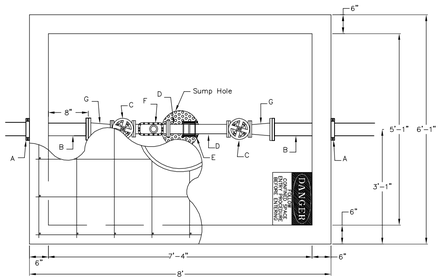
7. For all services 4" and larger the contractor shall install a mega lug, restrained joint, or approved equal on the exterior walls of the vault, which shall be manufactured of ductile iron conforming to ASTM A 536–80, heat treated to a minimum hardness of 370 BHN and have a working pressure of at least 250 P.S.I. For all services smaller than 4" the contractor shall install an approved vault clamp on the exterior walls of the vault.

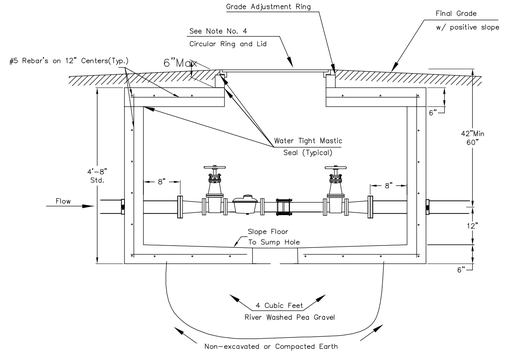
8. All valves, meters, assemblies, and fittings shall be provided with sufficient concrete or other approved supports to the vault floor.

9. The "Confined Space Warning" sign shall be fastened to the top of all vaults. If necessary for landscaping or site considerations, the sign may be fastened to the vault lid if it does not impede access to the handle. Acceptable materials: Aluminum 73415HH, Plastic 73439HH, or S.A. Vinyl 73463HH.

10. All meters shall have an electronic read register compatible with the current City of Wichita meter reading system. All detector meters shall be an 5/8 cubic foot Badger meter with ERT register or approved equal. Gallon meters shall not be accepted.

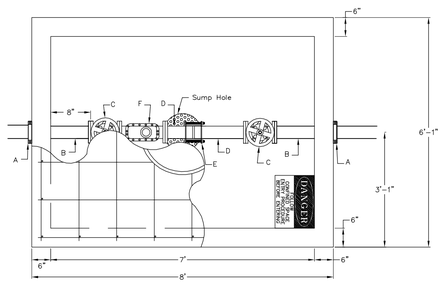
11. Additional Notes For Fire Services:
    A. A post indicator valve (PIV) is an option for the outlet valve and may be requested by the architect or owner. The PIV is not required by City of Wichita ordinance.
    B. When Siamese connections are required by the Wichita Fire Department, refer to the current City Code Section 15.
    C. If due to any reason the completed vault retains ground or drainage water in excess of 4" in depth from the floor of the vault, the property owner shall be responsible for providing and installing an appropriate automatic sump pump or approved equal, as well as any other appurtenances required to make such system function as intended.
    D. The property owner is responsible for completing an "Application for Private Fire Protection" prior to final acceptance of the project.

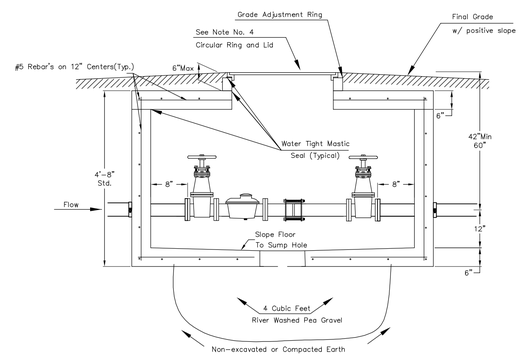




A – 4" Vault Clamp
B – Min. 3' Piece of 4" FL x PE DICL Pipe
C – 3" Flange Non–rising Stem Gate Wheel Valve
D – 3" FL x PE Pipe
E – 3" Flex Coupling
F – 3" Badger Recordall II Turbo Cubic Foot Meter with ERT Register or Sensus W–350DR Cubic Foot Meter with AMR Register.
G – 3" x 4" FL Reducer

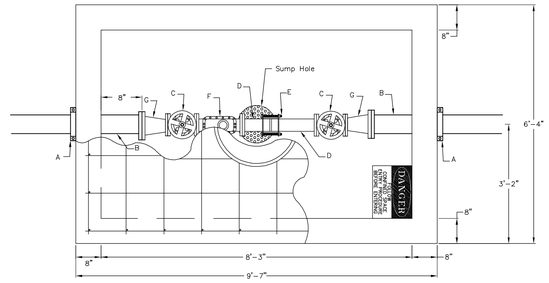
3" Domestic Service

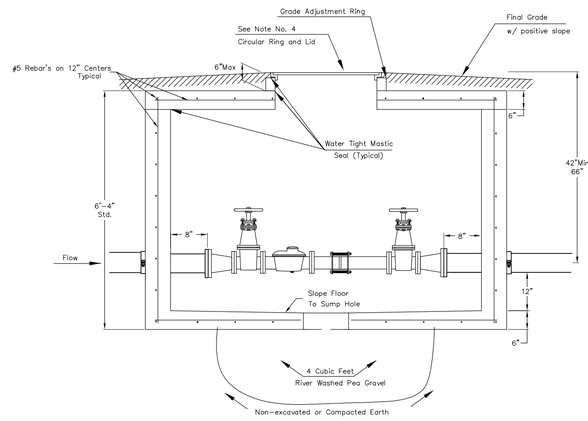




A – 4" Vault Clamp
B – Min. 3' Piece of 4" FL x PE DICL Pipe
C – 4" Flange Non–rising Stem Gate Wheel Valve
D – 4" FL x PE Pipe
E – 4" Flex Coupling
F – 4" Badger Recordall II Turbo Cubic Foot Meter with ERT Register or Sensus W–1000DR Cubic Foot Meter with AMR Register.

4" Domestic Service





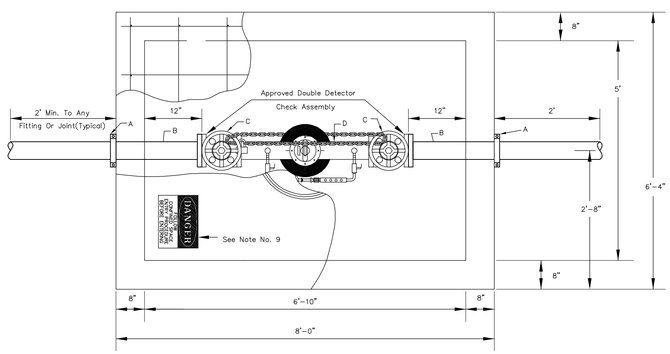
A – 6" Mega Lug (See Note 7)
B – Min. 3' Piece of 6" FL x PE DICL Pipe
C – 4" Flange Non–rising Stem Gate Wheel Valve
D – 4" FL x PE Pipe
E – 4" Flex Coupling
F – 4" Badger Recordall II Turbo Cubic Foot Meter with ERT Register or Sensus W–1000DR Cubic Foot Meter with AMR Register.
G – 6" x 4" Flange Reducer

6" Domestic Service with 4" meter

NOTE:

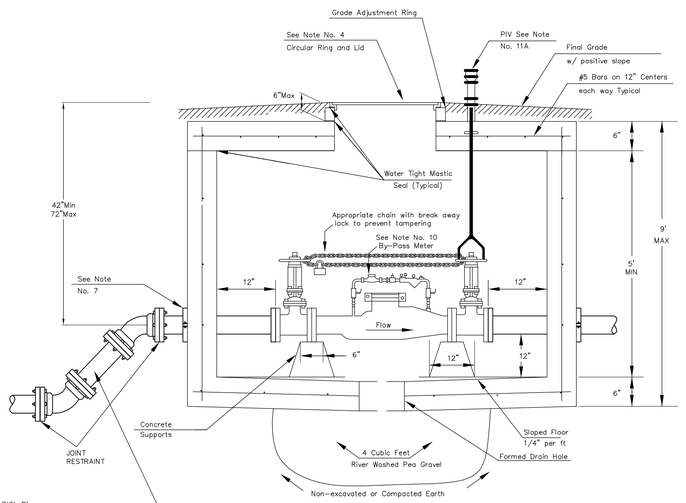
INSPECTOR FROM PUBLIC WORKS AND UTILITIES TO BE CONTACTED 24 HOURS PRIOR TO INSTALLATION TO SET VAULT.

CONTACT: 316-219-8928 OR 316-219-8929



NOTE:

Domestic Services larger than 6" shall be custom designed by Engineer.



A – Mega Lug (See Note 7)
B – Min. 3'–8" Piece of FL x PE DICL Pipe
C – Flange Gate Valve, Wheel Operated
D – Ames Model 3001SS or approved equal with metered(cubic foot) by–pass assembly

Use 45 degree fittings as necessary to keep depth of vault within 76 inch maximum. All fittings should be mega lug, restrained joint or approved equal.

4" thru 8" Fire Service

GARY L. JANZEN LICENSED 19244 KANSAS PROFESSIONAL ENGINEER
04/10/13

CITY OF WICHITA
PUBLIC WORKS & UTILITIES ENGINEERING DIVISION

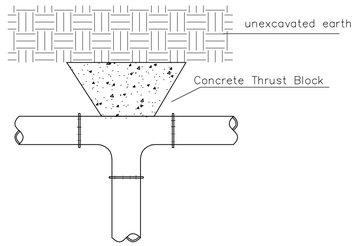
STANDARD VAULT DETAILS AND METER ASSEMBLIES

CITY ENGINEER
GARY JANZEN, P.E.

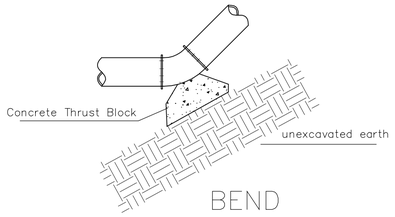
PROJECT NUMBER	OCA NUMBER	DATE
1767 PPW	607853	12/2011

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

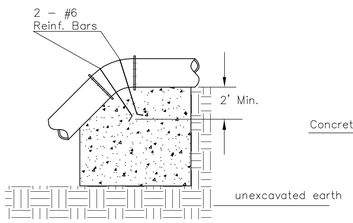
SHEET
3 of 6



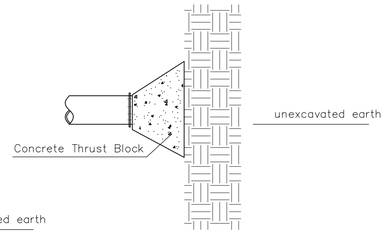
TEE



BEND



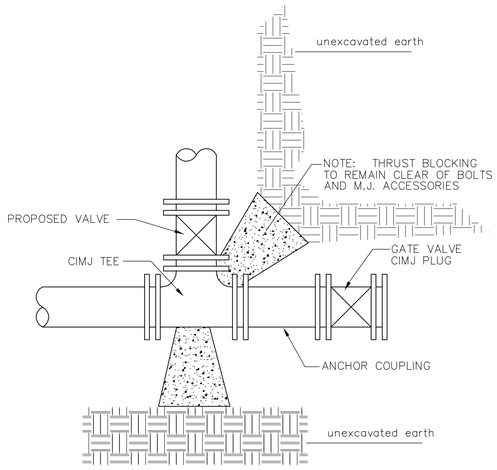
VERTICAL BEND



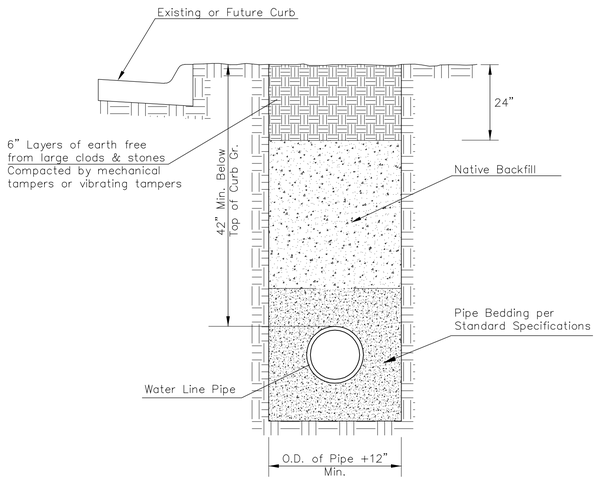
PLUG

PIPE SIZE	THRUST AT FITTINGS IN TONS–AT 150#/IN^{2}P					
	PLUG	90°	45°	22 1/2°	11 1/4°	TEE
6"	2.8	3.95	2.15	1.09	.55	2.8
8"	4.9	6.95	3.75	1.90	.96	4.9
12"	11.4	16.1	8.75	4.45	2.25	11.4
16"	20.15	28.5	15.4	7.85	3.95	20.15
20"	31.15	44.0	23.85	12.15	6.10	31.15
24"	44.55	63.0	34.1	17.4	8.75	44.55

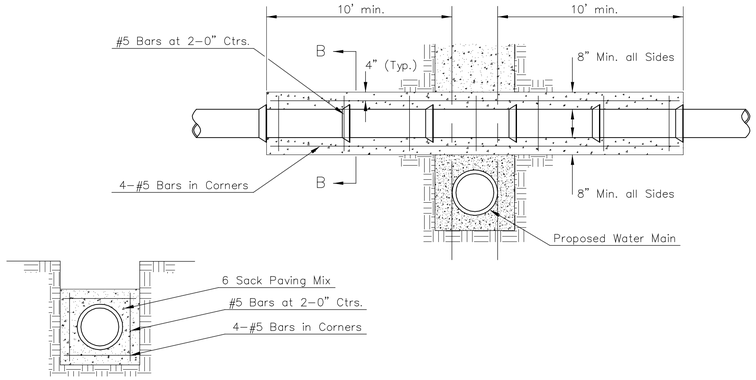
TYPICAL THRUST BLOCKS



KEY BLOCK DETAIL



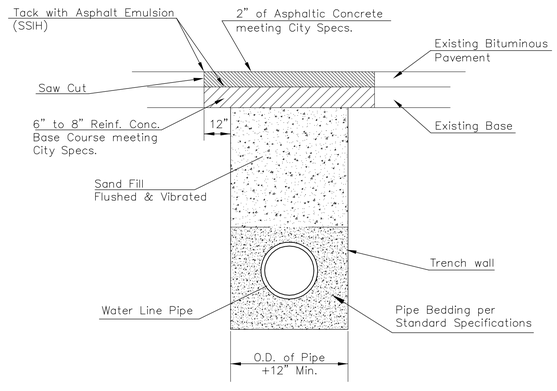
TRENCH COMPACTION IN ROAD RIGHT–OF–WAY



SECTION B–B

Note: Encasement to begin and end at a Bell on Sanitary Sewer Pipe.

REINFORCED CONCRETE ENCASEMENT OF SANITARY SEWER



PAVEMENT REPLACEMENT & TRENCH COMPACTION UNDER EXISTING AND PROPOSED CITY ROADS

* PLANS GOVERN
UNLESS OTHERWISE NOTED ON PLANS

GARY L. JANZEN
LICENSED
19284
KANSAS
PROFESSIONAL ENGINEER
04/22/13

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

MISCELLANEOUS WATER DETAILS

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
1767 PPW	607853	04/2013

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

SHEET
4 of 6

BENCHMARK

Benchmark – City of Wichita disc 36th Street North and Inwood, Northwest corner of hubguard on RCBC, south of 37th St.
Elevation = 1371.17 (NAVD 88)

Added an anchor coupling and New 6" valve to old valve
New valve from center of 37th N 35' north, and 89' west of center of Inwood
to street EL 45° bend, 31' north from center of 36th N & 89' west from center of Inwood
First 45° bend if 45' south of center of 37th N
star anchor coupling
sigma fittings
clow3(storz) FH

OLD VALVE
LEAKED
ADDED ANCHOR
COUPLING
NEW 6" CLOW
VALVE

45° bend at Sta. 1+19.83
is 69' south & 62' west of
center of 37th N & Inwood

Tee at Sta. 4+68.11 is
420' south & 65' west of
center of 37th N & Inwood

Tee at Sta. 4+88.88 is
444' south & 65' west of
center of 37th N & Inwood

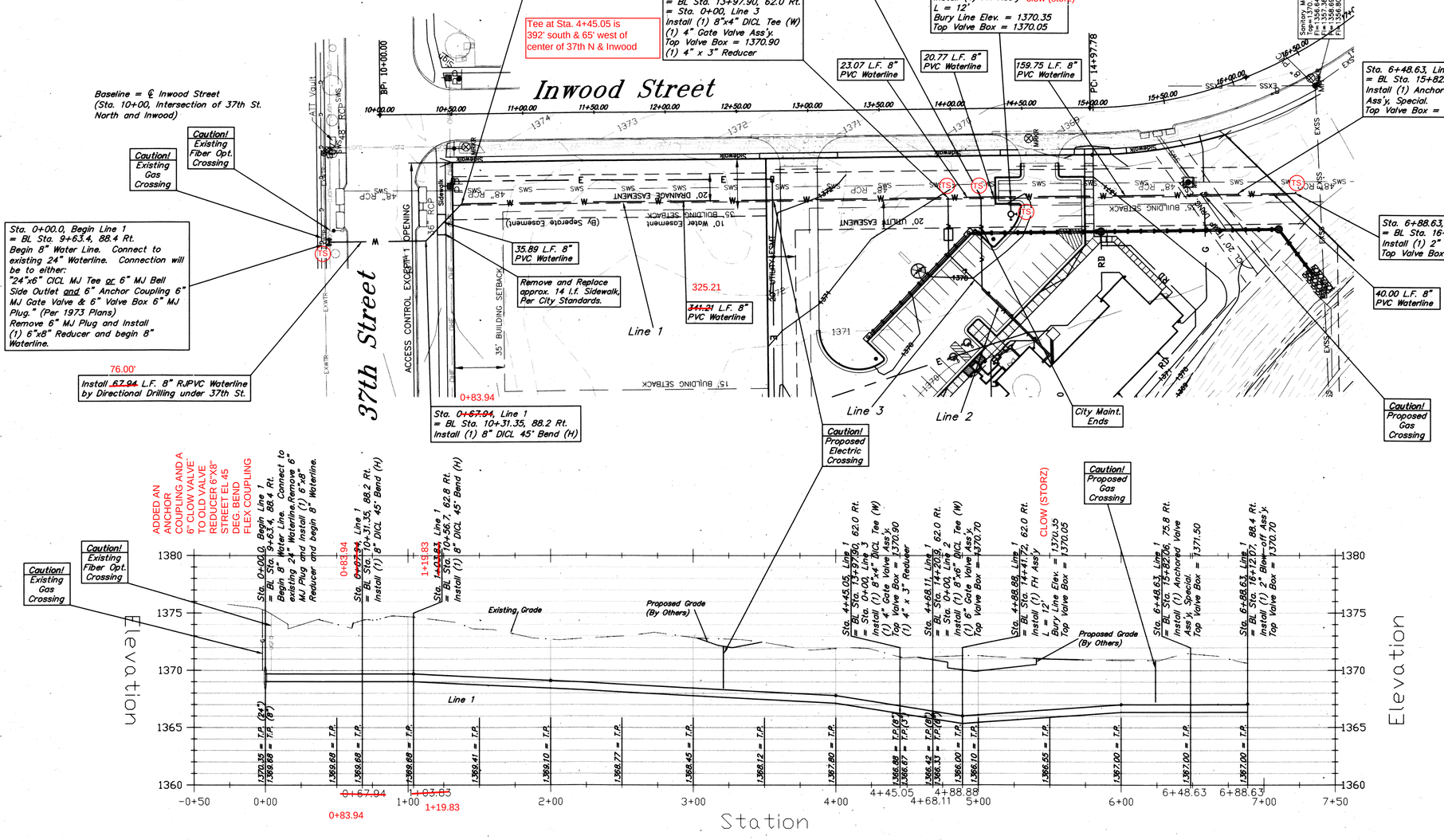
FH at Sta. 4+88.88 is
444' south & 77' west of
center of 37th N & Inwood
FH valve is 10.5' east of FH

Tee at Sta. 4+45.05 is
392' south & 65' west of
center of 37th N & Inwood

73' west & 604' south of
center of 37th N & Inwood

87' west & 645' south of
center of 37th N & Inwood

12" of 6" dicl
reducer 6"x8"
12" of 8" dicl
street el 45 deg.
bend
8" pvc
flex coupling
76' pf restrained
pvc
45 deg. bend (h)
35' of 8" pvc
45 deg. bend



Scale: 1" = 40' Horizontal
1" = 5' Vertical

AS BUILTS

kemiller engineering
516 S. Market, Wichita, KS 67202 (316)264-0242

Survey was performed by Third Party.

Contractor Shall Follow All Applicable Best Management Practices (BMP) For Erosion Control.

MICHAEL W. WILLIAMS LICENSED 15629 KANSAS PROFESSIONAL ENGINEER

Baughman

Wichita Children's Home
Line 1
Water Line Improvements

Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 P 316.262.7271 F 316.262.0149
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

PROJECT NUMBER 1767 PPW (607853)
DESIGN MWS
DRAWN MWS
APPROVED
DATE Aug. 2013
REVISIONS: 03-19-14 Revised Lines 2 & 3 MWS
SCALE Noted
SHEET 5 OF 6

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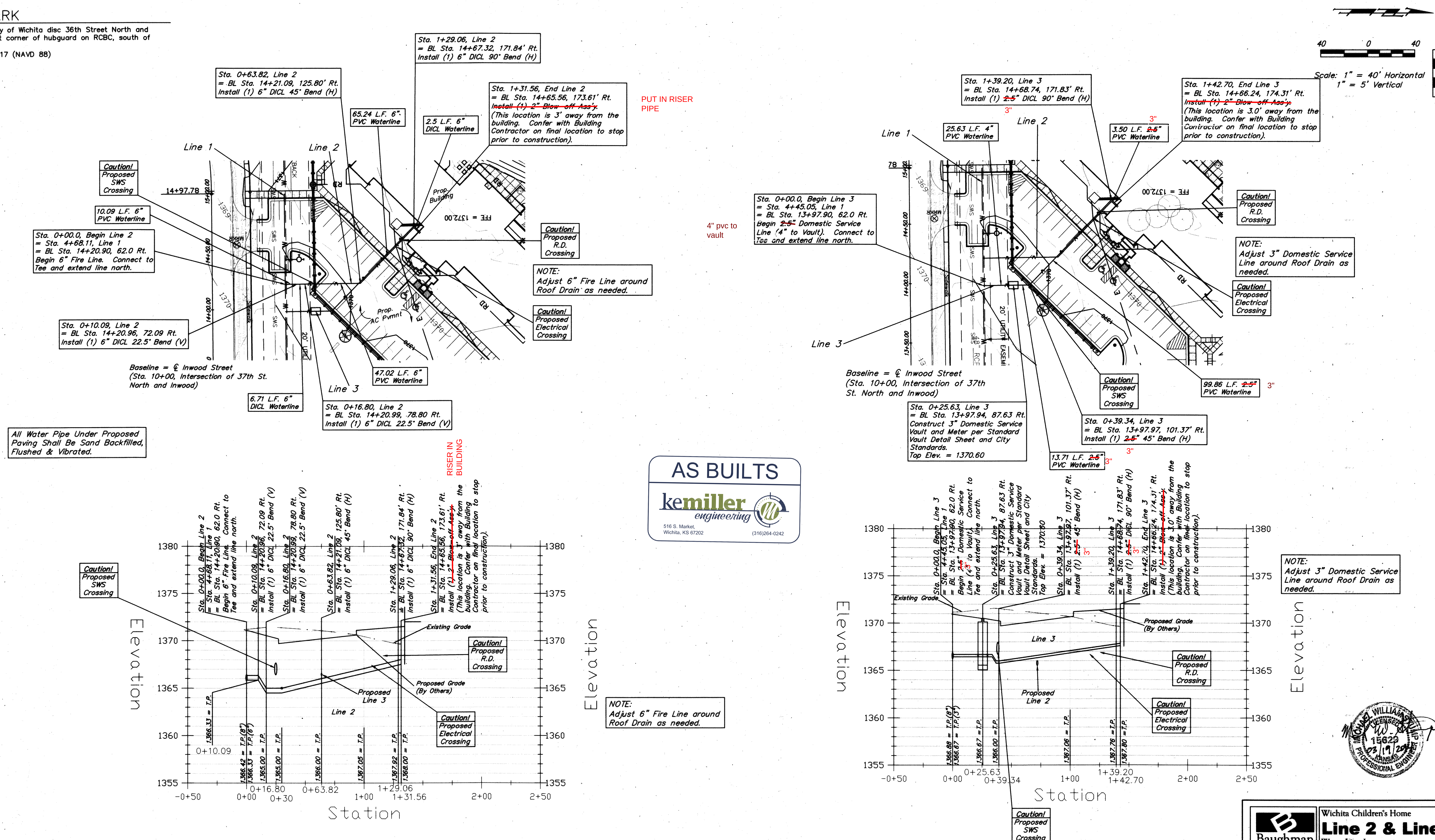
BENCHMARK

Benchmark – City of Wichita disc 36th Street North and Inwood, Northwest corner of hubguard on RCBC, south of 37th St.
Elevation = 1371.17 (NAVD 88)



AS BUILTS
kemiller engineering
516 S. Market, Wichita, KS 67202 (316)264-0242

All Water Pipe Under Proposed Paving Shall Be Sand Backfilled, Flushed & Vibrated.

Survey was performed by Third Party.

Contractor Shall Follow All Applicable Best Management Practices (BMP) For Erosion Control.

Baughman | Wichita Children's Home
Line 2 & Line 3
Water Line Improvements

Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

PROJECT NUMBER 1767 PPW (607853)		DESIGN MWS	DRAWN MWS
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		SHEET 6 OF 6	

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