

1. VALVE EXTENSION TO BE USED ONLY WHEN TOP OF GATE VALVE IS DEEPER THAN 5 FEET FROM

NOTE:

- 2. ALL VALVE OPERATING NUT EXTENSIONS ARE TO BE MADE OF STEEL, SIZED AS NOTED, AND PAINTED WITH TWO (2) COATS OF METAL PAINT.
- 3. EXTENSIONS SHALL BE A MINIMUM OF ONE (1) FOOT LONG.
- 4. VALVE BOX LIDS LOCATED ON VALVES TO ISOLATE FIRE SUPPRESSION LINES FROM PUBLIC WATER LINES SHALL BE AMPRO USA, LL562 LOCKABLE LID.

- FINELY DIVIDED EARTH FREE OF ROCK, LUMPS AND CLODS EXCEEDING 6" SHALL BE PLACED BY HAND, AND COMPACTED AROUND THE CAST IRON PIPE TO A DEPTH OF 12" OVER THE TOP OF THE PIPE BEFORE BACKFILL IS BEGUN BY ANY MECHANICAL EQUIPMENT.
- ALL CONCRETE BLOCKING SHALL BE 28 DAY CONCRETE STRENGTH = 2000psi.
- ALL THRUST BLOCKING SHALL PROVIDE A MINIMUM OF 2 SQUARE FEET OF BEARING AREA OF CONCRETE ON
- WATER MAINS WILL NOT BE FULLY PRESSURIZED UNTIL CONCRETE HAS REACHED 7 DAY STRENGTH.
- ALL PIPE WILL BE LAID SO AS THE ENTIRE BARRELL WILL HAVE FULL BEARING ON THE FINE GRADED TRENCH BOTTOM. BELL HOLLES SHALL BE CUT FOR

2" SQUARE AWWA NUT EXTENSION WITH

CENTERING COLLAR. TERMINATE 4' TO 5'

FROM TOP OF BOX.

CONCRETE-BLOCKING

TEE OR TAPPING-SLEEVE & VALVE AS REQUIRED

VALVE BOX PER SPECS.-

AS REQ'D

-MECHANICAL JOINTS-WITH SET SCREW RETAINER GLANDS OR MEGA LUGS

BLOCK AS DIRECTED

STANDARD FIRE HYDRANT

6" STD. GATE VALVE

OPTIONAL

WITH SS BOLTS (SEE NOTE 8)

- 6. ALL FITTING SHALL BE MECHANICL JOINTS UNLESS OTHERWISE DIRECTED.
- 7. HYDRANTS SHALL BE LOCATED NO CLOSER THAN 3 FEET MEASURED FROM THE BACK OF CURB TO THE FACE OF THE STEAMER ON THE FIRE HYDRANT.

-BURY LINE

6" D.I. OR C909 PIPE 6" MJ ANCHOR

PEA GRAVEL - FILL TO 1 FT. ABOVE WEEP HOLE

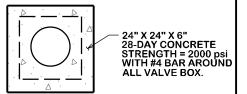
THRUST BLOCK

BLOCK USING 12"x12"x4" PRECAST CONCRETE

COUPLING

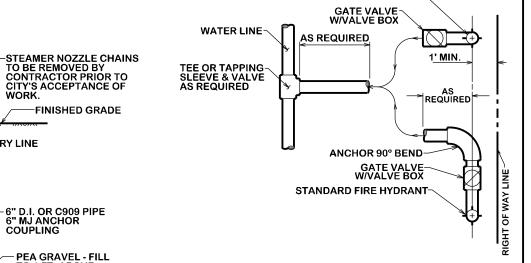
6" X 12" GRADELOK W/M.J. SPLIT GLANDS (ROTATE TO FINAL GRADE)

- 8. IF MAIN VALVE IS WITHIN 50 FEET OF FIRE HYDRANT THEN ASSEMBLY VALVE MAY BE OMITTED ON A DEAD END HYDRANT LEAD WITH NO ADDITIONAL CONNECTIONS.
- 9. HEIGHT OF FIRE HYDRANT MEASURED FROM THE STEAMER NOZZLE SHALL BE 18 TO 24 INCHES ABOVE NEAREST FINAL



VIEWA - A

STANDARD FIRE HYDRANT



FIRE HYDRANT LOCATION REALIGN AS NEEDED

STANDARD FIRE HYDRANT ASSEMBLY

W1-02

BRYAN - COLLEGE STATION STANDARD WATER DETAILS

CITY OF BRYAN

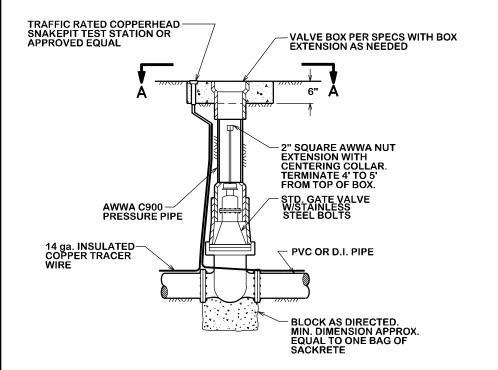
DRAWN BY: C.L.M.

ATE: 08-01-12

SCALE: N T S PROVED: W.P.K.

FIGURE:

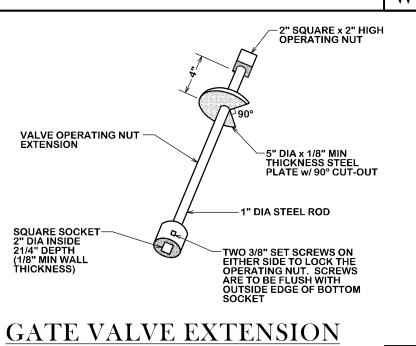
SHEET 1 OF 7

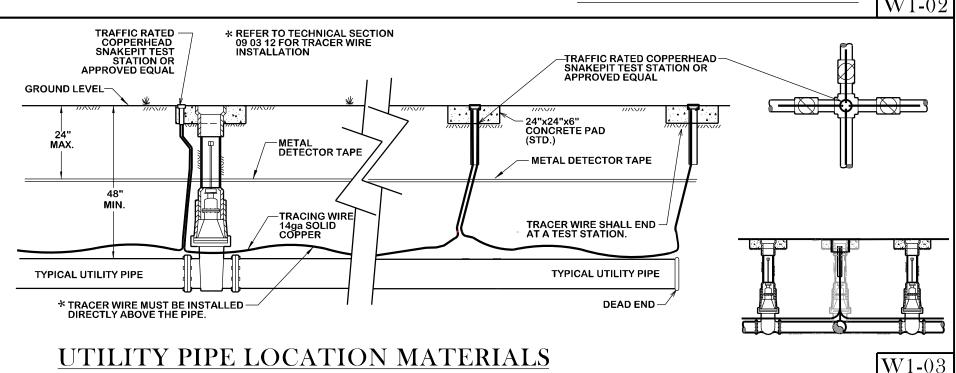




W1-00

W1-01





THRUST BLOCK NOTES:

- ALL CALCULATIONS ARE BASED ON INTERNAL PRESSURE OF 200 psi FOR 24" AND SMALLER INNER DIAMETER PIPE.
- 2. ALL BEARING SURFACES OF THRUST BLOCKS SHALL BE PLACED AGAINST UNDISTURBED EARTH OR ROCK.
- 3. CONCRETE FOR BLOCKING SHALL BE 2000 psi.
- 4. DIMENSIONS MAY BE VARIED AS REQUIRED BY FIELD WHERE AND AS DIRECTED BY THE ENGINEER. THE VOLUME OF CONCRETE BLOCKING SHALL NOT BE LESS THAN SHOWN
- 5. WATER MAIN SHALL NOT BE PRESSURIZED UNTIL ALL CONCRETE BLOCKING HAS REACHED 1500 psi.

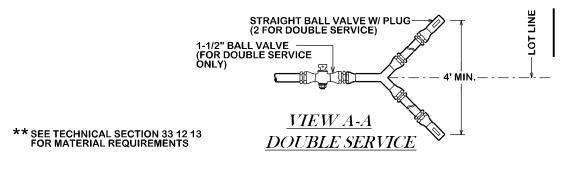
HORIZONTAL THRUST BLOCK SCHEDULE

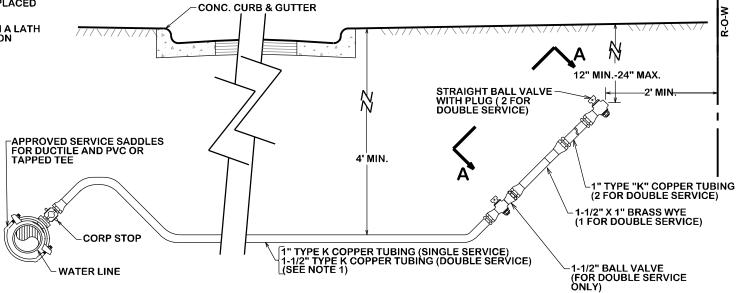
ĺ	BEND	SIZE	A (ft)	B (ft)	C (ft)	E (ft)	G (ft)	VOLUME (c.y.)
	90°	6,8"	5.0	1.5	1.5	0.9	2.7	0.4
		10,12"	6.5	2.5	1.5	1.2	4.0	1.0
	45°	6,8"	2.0	2.0	1.5	0.9	1.5	0.2
		10,12"	3.5	2.5	1.5	1.2	2.2	0.5
	22.5°	6,8"	1.5	1.5	1.5	0.9	8.0	0.1
		10,12"	2.0	2.5	1.5	1.2	1.1	0.3
	11.25°	6,8"	1.0	1.5	1.5	0.9	0.4	0.1
		10,12"	1.5	1.5	1.5	1.2	0.6	0.1

USE POLYETHYLENE WRAP OR EQUAL BETWEEN CONCRETE & PLUG TO PREVENT CONCRETE FROM STICKING TO PLUG.

NOTES:

- NO SPLICES IN COPPER TUBING WILL BE ALLOWED FOR SINGLE SERVICE OR BETWEEN THE SERVICE SADDLE AND THE WYE FOR DOUBLE SERVICE.
- 2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PRESSURE TEST LINE IMMEDIATELY AFTER THE STREET CROSSINGS HAVE BEEN INSTALLED.
- 3. MARK EACH SERVICE END WITH METAL "T" POST PAINTED BLUE.
- 4. MATERIAL USED SHALL BE AS SPECIFIED OR AN APPROVED EQUAL.
- 5. ALL CONNECTIONS TO BE COMPRESSION TYPE.
- 6. ALL SERVICE WYES & EXTENSIONS ARE TO BE INSTALLED WITH THE MAIN LINE CONSTRUCTION.
- 7. METERS AND VALVE BOXES SHALL BE PLACED BY THE CITY UPON PAYMENT OF FEE.
- 8. LOT CORNERS SHALL BE MARKED WITH A LATH UNDER THE SUPERVISION F A RPLS UPON COMPLETION OF CONSTRUCTION.





NEW WATER SERVICE

(SHORT AND LONG SIDE)

1 W2 - 01

POUR CONCRETE AGAINST UNDISTURBED EARTH

TRENCH
WIDTH

THRUST

THRUST

THRUST

TO

UNDISTURBED EARTH

TRENCH
WIDTH

THRUST

THRUST

THRUST

TO

OUTER AGAINST UNDISTURBED

DIA.

SECTION X-X

PLAN VIEW

THRUST BLOCK DETAILS

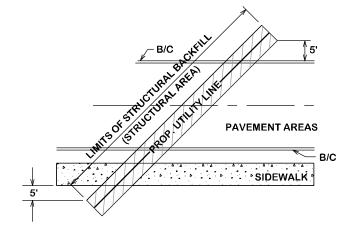
C THRUST C BASEN POUR AGAINST UNDISTURBED EARTH

TEE THRUST BLOCK

TYPICAL HORIZONTAL THRUST BLOCK

W2-00

STRUCTURAL BACKFILL AREA INCLUDES
ALL PAVED AREAS (SIDEWALKS, STREETS, ALLEYS,
DRIVEWAYS, AND PARKING AREAS) AND SHALL
EXTEND 5' BEYOND THE CURB LINE. STRUCTURAL
BACKFILL SHALL BE CEMENT STABILIZED (SEE
DETAIL W4-02 - AREASTO BE PAVED) OR EXCAVATED
SOIL COMPACTED TO 98% MAXIMUM DRY DENSITY AS
PER ASTM D698 WITHIN OPTIMUM TO +4% WET OF
OPTIMUM (SEE DETAIL W4-02 - NON-STRUCTURAL
AREAS)



STRUCTURAL BACKFILL AREA

NEAREST BELL-JOINT (TYP. EA. END) MAX MAX _MAX_<u>__6'8" TYP.</u> <u>6'8" TYP. MÁX</u> 1" MAX √CLR. STEEL CASING CARRIER PIPE--CASING SPACER 1-PC. PULL-ON WATER TIGHT NEOPRENE END - ADJUSTABLE TOP RUNNERS TO MAINTAIN 1" MAX CLR. SEAL W/ STN. STL. CLAMPS "APS" OR STEEL CASING **BAND CLAMP** NOTE: CASING SPACERS
4-RUNNER MIN. (THRU 24' DIA
CASING) OR 6-RUNNER MIN.
(24"-42" DIA. CASING) STAINLESS
STL. TYPE304; 8" WIDE BAND
W/ POLYMER RUNNERS; CENTERED
OR NON-CENTERED; CLEAR BELL,
RESTRAINED FROM FLOTATION;
INSULATED; "APS, INC., MOD SS18"
OR "CASCADE" 8" WIDE BAND STAINLESS STEEL (TYPE 304) NEOPRENE INSULATION SLEEVE BETWEEN PIPE AND BAND RUNNERS AT BOTTOM POLYMER RUNNER (TYP)

CASING DETAIL

W2-02

-1W2-03

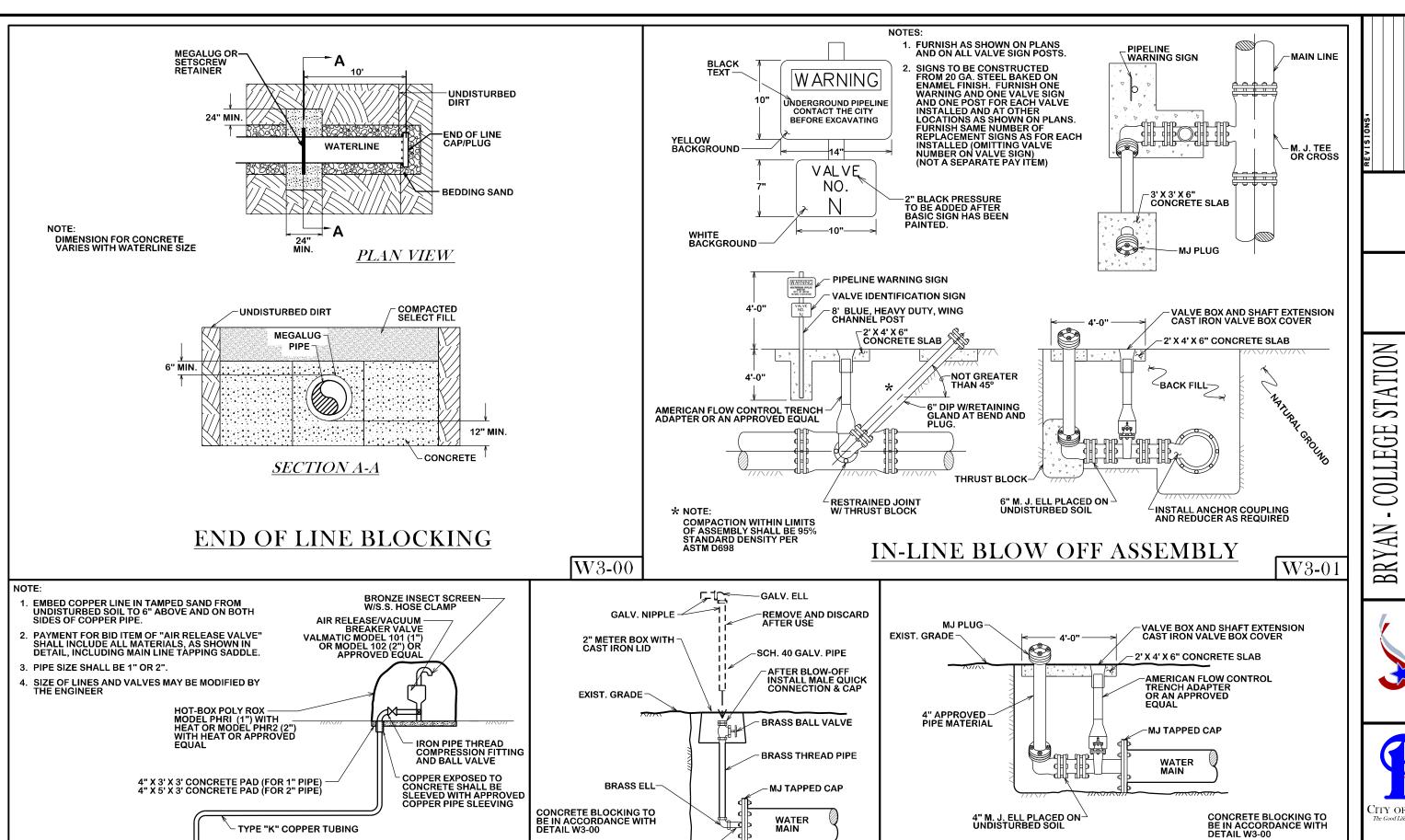
Chy of College State

BRYAN - COLLEGE STATION STANDARD WATER DETAILS



DRAWN BY: C.L.M.
DATE: 08-01-12
SCALE: N T S
APPROVED: W.P.K.
FIGURE:

W2 SHEET 2 OF



BRASS NIPPLE

W3-02

2" BLOW-OFF RISER

W3-03

TAPPING SADDLE W/ CORPORATION STOP.

AIR RELEASE VALVE & VACUUM CHECK VALVE

DETAILS

STANDARD WATER

DRAWN BY: C.L.M. DATE: 08-01-12 SCALE: N T S

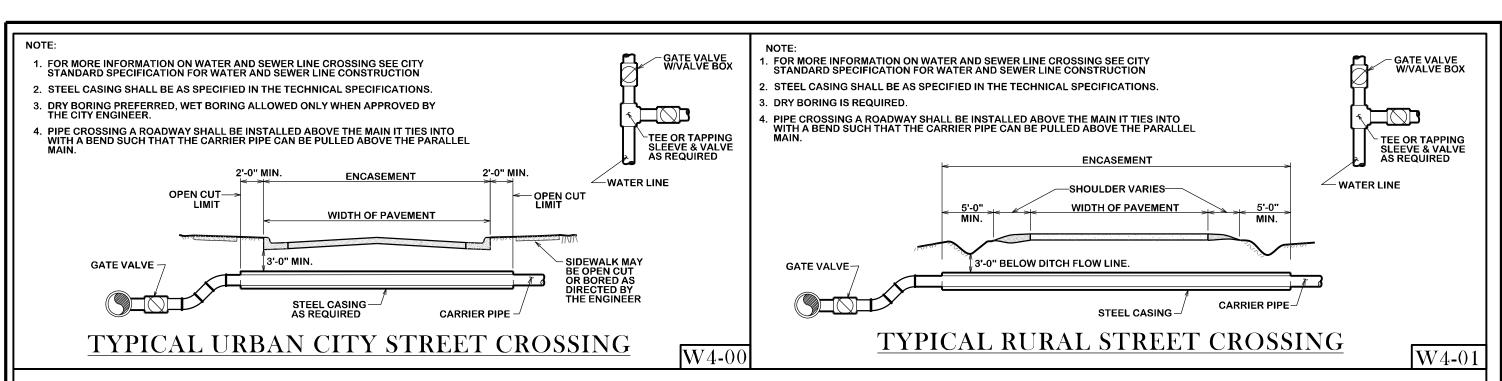
PPROVED: W.P.K

4" END OF LINE

BLOW-OFF

FIGURE: SHEET 3 OF

W3-04



(A) SELECT MATERIAL
MATERIAL EXCAVATED FROM THE DITCH, (WHICH IS FREE OF ROCKS, LUMPS, CLODS, OR DEBRIS LARGER THAN TWO (2)
INCHES IN THE LARGEST DIMENSION), COMPACTED TO A
MINIMUM OF 90% OF MAXIMUM DENSITY AS DETERMINED BY
ASTM D698 (STANDARD) AT A MOISTURE CONTENT WITHIN
OPTIMUM TO +4% OF OPTIMUM UNDER NON-STRUCTURAL

AREAS (ie...YARDS, PASTURES, EASEMENTS) AND TO A
MINIMUM OF 98% OF MAXIMUM DENSITY AS DETERMINED
BY ASTM D698 (STANDARD) AT A MOISTURE CONTENT WITHIN
OPTIMUM TO +4% OF OPTIMUM UNDER NEW STREET AREAS
AND STREETS TO BE RECONSTRUCTED.

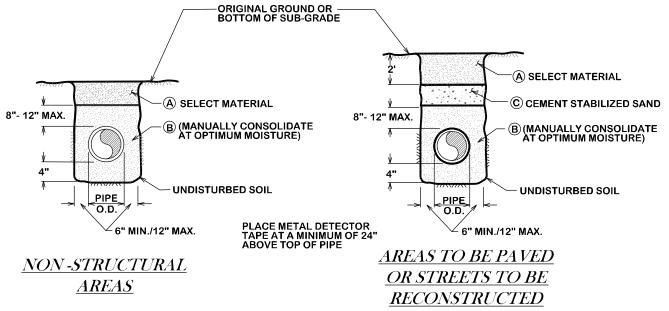
B GRANULAR MATERIAL

MATERIAL SHALL BE BANK RUN RIVER SAND WHICH IS FREE OF DETRIMENTAL QUANTITIES OF CLAY, DEBRIS, OR ORGANIC MATERIAL AND WHICH, WHEN TESTED BY STANDARD LABORATORY METHODS, MEET THE FOLLOWING REQUIREMENTS:

MAXIMUM LIQUID LIMIT________45
MAXIMUM PLASTICITY INDEX_______15
MAXIMUM PERCENT PASSING NO. 200 SIEVE_____35
MINIMUM PERCENT PASSING 3/4" SIEVE_____100

THE MATERIAL SHALL BE FREE FLOWING AND WHEN WET, SHALL NOT ADHERE TO FORM A BALL WHEN PRESSED IN THE HAND.

© CEMENT STABILIZED SAND



NOTES:

- 1. FOR BEDDING AND TRENCHING WITHIN ALL EXISTING PAVED AREAS, SEE DETAILS FOR OPEN CUT STREETS. (Details ST4-00, ST4-01, ST4-02). THIS NOTE DOES NOT APPLY TO STREETS BEING RECONSTRUCTED.
- 2. EVERY 100 FEET PROVIDE A WATER STOP BLOCK COMPOSED OF CEMENT SAND OR NATIVE MATERIAL DEPENDING ON EMBEDMENT. BLOCK SHALL BE 6 FEET IN LENGTH. NO BEDDING SAND IN THIS AREA.
- 3. ALL BEDDING & INSTALLATION OF PVC PIPE SHALL BE IN ACCORDANCE WITH ANSI/AWWA STANDARDS FOR PVC PIPE
- 4. ALL BEDDING & INSTALLATION OF DUCTILE IRON PIPE SHALL BE IN ACCORDANCE WITH ANSI/AWWA C150/A21.50
- 5. COMPACTION SHALL BE ATTAINED BY MECHANICAL TAMPING.
- 6. RELATIVE COMPACTION SHALL BE TESTED IN THE PRESENCE OF THE CITY ENGINEER.
- 7. DUST RESULTING FROM THE CONTRACTOR'S PERFORMANCE OF THE WORK, EITHER INSIDE OR OUTSIDE THE RIGHT-OF-WAY, SHALL BE CONTROLLED BY THE CONTRACTOR.
- 8. ALL TRENCHES SHALL BE BACK FILLED AND TEMPORARY PAVING OR PLATING PLACED AT THE END OF EACH WORKING DAY.

BEDDING AND TRENCH FOR DI PIPE & PVC PIPE

W4-02

GENERAL NOTES:

ALL AREAS WHERE EXISTING VEGETATION AND GRASS COVER HAVE BEEN BARED BY CONSTRUCTION SHALL BE ADEQUATELY BLOCK SODDED OR HYDROMULCHED AND WATERED UNTIL GROWTH IS ESTABLISHED. IN DEVELOPED AREAS WHERE GRASS IS PRESENT, BLOCK SOD WILL BE REQUIRED. BARED AREAS SHALL BE SEEDED OR SODDED WITHIN 14 CALENDAR DAYS OF LAST DISTURBANCE.

APPROVED EROSION CONTROL MEASURES MUST BE INSTALLED DURING THE ENTIRE TIME THAT EARTH HAS BEEN BARED BY CONSTRUCTION AND SHALL STAY IN PLACE UNTIL ACCEPTABLE VEGETATIVE GROWTH IS ESTABLISHED AFTER CONSTRUCTION IS COMPLETE AND THEN REMOVED BY CONTRACTOR.

ALL EROSION CONTROL MEASURES SHOULD BE CLEANED OF SILT AFTER EVERY RAIN.

ESTABLISHMENT OF VEGETATION MAY BE A WARRANTY ITEM.

BRYAN - COLLEGE STATIC STANDARD WATER DETA

DRAWN BY: C.L.M.

DATE: 08-01-12

SCALE: N T S Approved: W.P.K. Figure:

SHEET 4 OF 7



City of **B**ryan

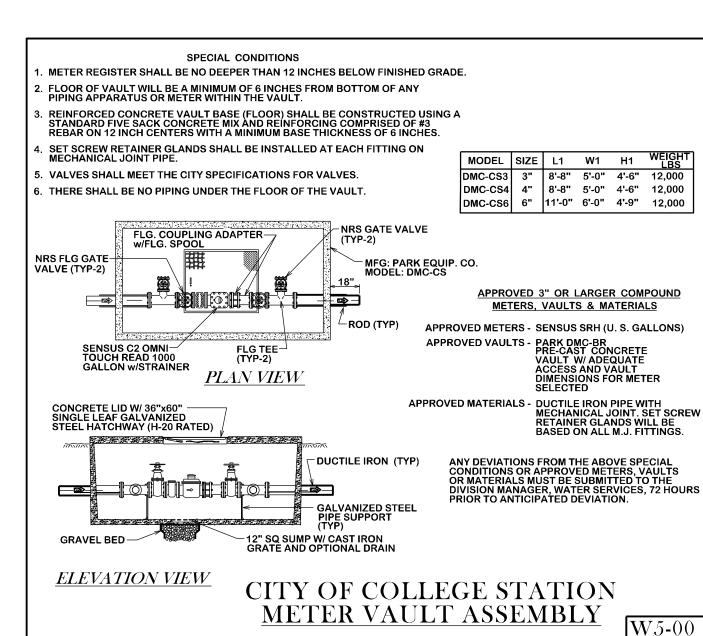
DRAWN BY: C.L.M. DATE: 08-01-12

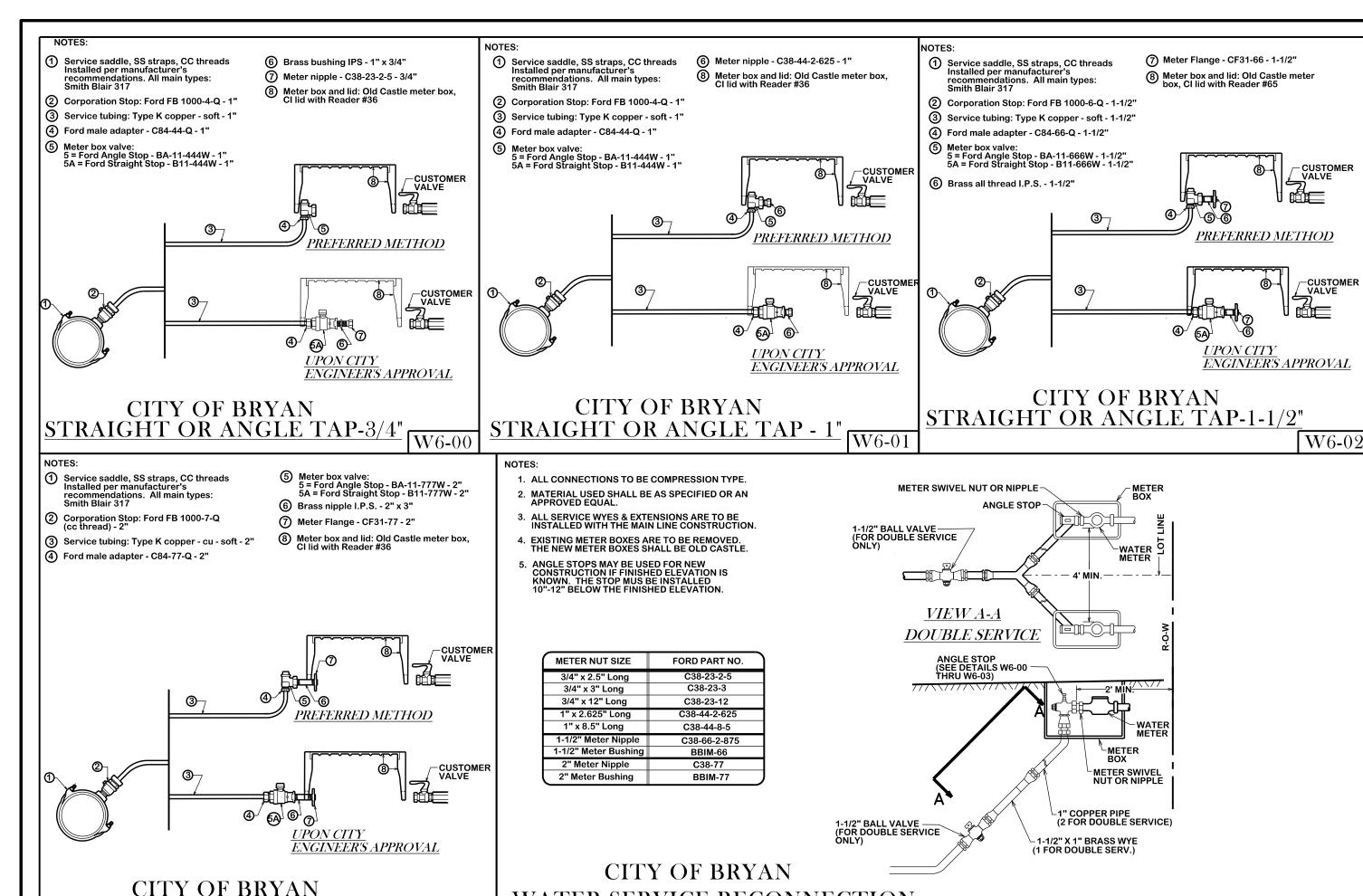
> PPROVED: W.P.K. FIGURE:

> > W 5

SHEET 5 OF

SCALE: N T S





WATER SERVICE RECONNECTION

STRAIGHT OR ANGLE TAP - 2"

W6-03

W6-04

SHEET 6 OF

DRAWN BY: C.L.M.

PPROVED: W.P.K. FIGURE:

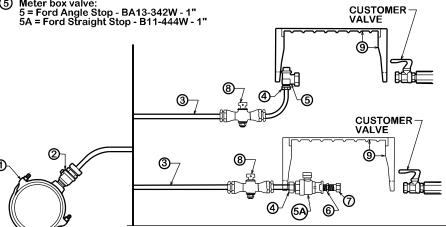
DATE: 08-01-12 SCALE: N T S

DETAIL

STANDARD WATER



- Service saddle, SS straps, CC threads installed per manufacturer's recommendations. All main types: Cambridge 800 Series or Ford \$70/\$90
- ② Corporation Stop: Ford FB 1000-4-1" 3 Service tubing: Type K copper - soft - 1"
- 4 Ford male adapter C84-44- 1"
- (5) Meter box valve: 5 = Ford Angle Stop BA13-342W 1" 5A = Ford Straight Stop B11-444W 1"



CITY OF COLLEGE STATION

STRAIGHT OR ANGLE TAP - 3/4"

NOTES:

W7-00

W7-03

(8) Swivel nut - C38-77 - 2"

(13) Ball valve

9 Meter adapter - BBIM 77 - 2"

(10) Brass nipple I.P.S. - 2" x 3"

1 Meter box and lid: Old Castle meter

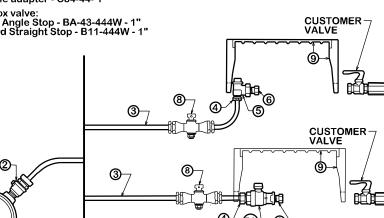
box, CI lid with Reader #65

12 Meter box and lid: Old Castle 12"

 Service saddle, SS straps, CC threads Installed per manufacturer's 6 Brass bushing IPS - 1" x 3/4" (7) Meter nipple - C38-23-2-5 - 3/4" recommendations. All main types: Cambridge 800 Series or Ford S70/S90 (8) Ball valve

box, CI lid with Reader #36

- Corporation Stop: Ford FB 1000-4- 1" Meter box and lid: Old Castle meter
 - 3 Service tubing: Type K copper soft 1"
 - (4) Ford male adapter C84-44- 1"
 - Meter box valve: 5 = Ford Angle Stop BA-43-444W 1" 5A = Ford Straight Stop B11-444W 1"



Meter nipple - C38-44-2-625 - 1"

Meter box and lid: Old Castle meter box, Cl lid with Reader #36

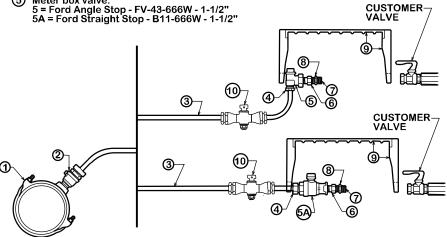
(8) Ball valve

CITY OF COLLEGE STATION STRAIGHT OR ANGLE TAP - 1"

W7-01

NOTES:

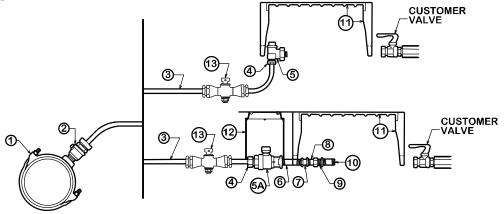
- Service saddle, SS straps, CC threads Installed per manufacturer's recommendations. All main types: Cambridge 800 Series or Ford S70/S90
- Corporation Stop: Ford FB 1000-6- 1-1/2"
- 3 Service tubing: Type K copper soft 1-1/2"4 Ford male adapter C84-66- 1-1/2"
- Meter box valve: 5 = Ford Angle Stop FV-43-666W 1-1/2" 5A = Ford Straight Stop B11-666W 1-1/2"
- 6 Swivel nut C38-66-2-875 1-1/2"
- Brass all thread I.P.S. 1-1/2"
- Meter adapter BBIM 66 1-1/2"
- Meter box and lid: Old Castle meter box, Cl lid with Reader #65
- (10) Ball valve



CITY OF COLLEGE STATION STRAIGHT OR ANGLE TAP - 1-1/2"

W7-02

- 1 Service saddle, SS straps, CC threads Installed per manufacturer's recommendations. All main types: Cambridge 800 Series or Ford S70/S90
- (2) Corporation Stop: Ford FB 1000-7 (cc thread) 2"
- 3 Service tubing: Type K copper cu soft 2"
- (4) Ford male adapter C84-77- 2"
- Meter box valve: 5 = Ford Angle Stop - FV-43-777W - 2" 5A = Ford Straight Stop - B11-777W - 2"
- (6) Brass nipple I.P.S. 2" x 6"
- 7 Brass coupling I.P.S. 2"

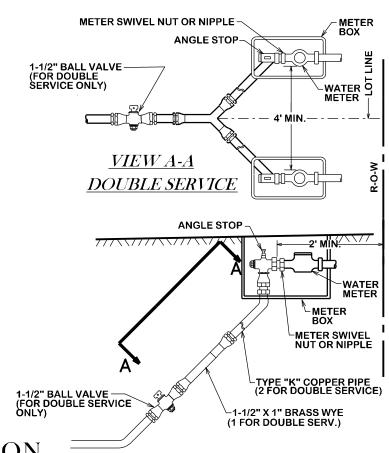


CITY OF COLLEGE STATION STRAIGHT OR ANGLE TAP - 2"

NOTES:

- 1. ALL CONNECTIONS TO BE COMPRESSION TYPE.
- 2. MATERIAL USED SHALL BE AS SPECIFIED OR AN APPROVED EQUAL.
- 3. ALL SERVICE WYES & EXTENSIONS ARE TO BE INSTALLED WITH THE MAIN LINE CONSTRUCTION.
- 4. EXISTING METER BOXES ARE TO BE REMOVED. THE NEW METER BOXES SHALL BE OLD CASTLE.

METER NUT SIZE	FORD PART NO.
3/4" x 2.5" Long	C38-23-2-5
3/4" x 3" Long	C38-23-3
3/4" x 12" Long	C38-23-12
1" x 2.625" Long	C38-44-2-625
1" x 8.5" Long	C38-44-8-5
1-1/2" Meter Nipple	C38-66-2-875
1-1/2" Meter Bushing	BBIM-66
2" Meter Nipple	C38-77
2" Meter Bushing	BBIM-77



CITY OF COLLEGE STATION WATER SERVICE RECONNECTION

BRYAN - COLLEGE STATION STANDARD WATER DETAILS





RAWN BY: C.L.M. ATE: 06-01-12 SCALE: N T S PROVED: W.P.K. FIGURE:

HEET 7 OF 7

W7 - 04