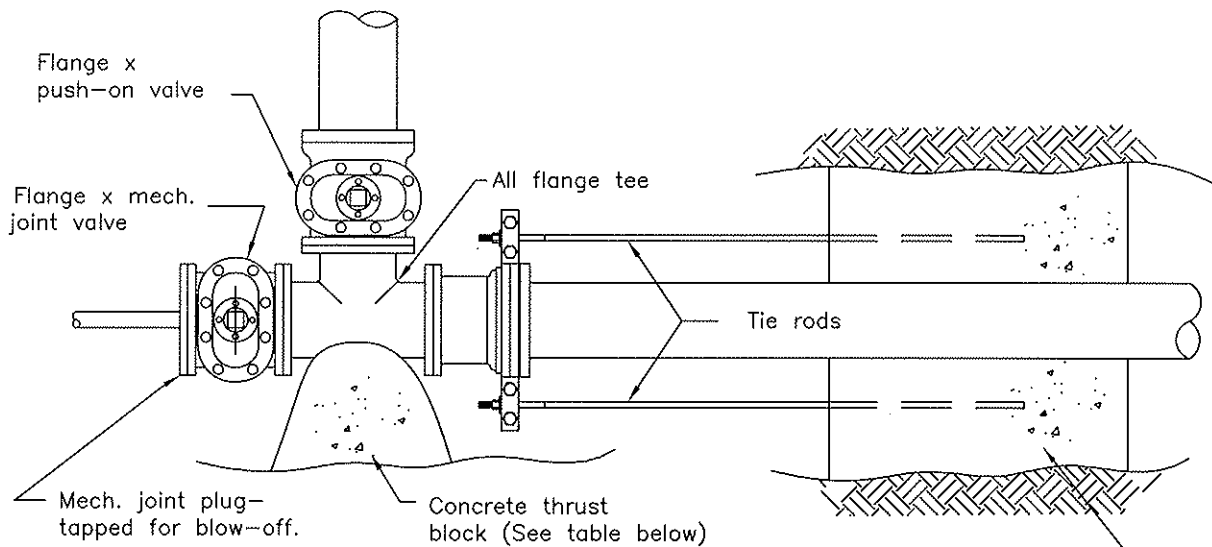


ELEVATION



PLAN

Concrete shall extend at least to the undisturbed earth at both sides of trench.

MINIMUM DIMENSIONS				
PIPE SIZE	TIE RODS	HARNES BLOCK*	A	THRUST BLOCK**
6"	5/8"	4 Sq. Ft.	2'	4 Sq. Ft.
8"	3/4"	7 Sq. Ft.	3'	7 Sq. Ft.
12"	1-1/8"	15 Sq. Ft.	3'	15 Sq. Ft.
OVER 12" BY DESIGN ENGINEER				

* Bearing area below grade of pipe against undisturbed ground.


** Bearing area against undisturbed ground.

CITY OF ROHNERT PARK

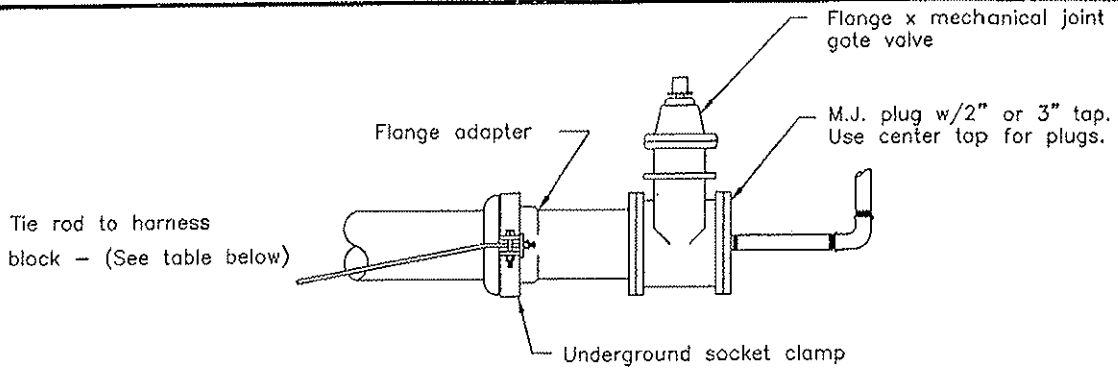
HARNES INSTALLATION FOR FLANGE FITTINGS

SCALE: NONE

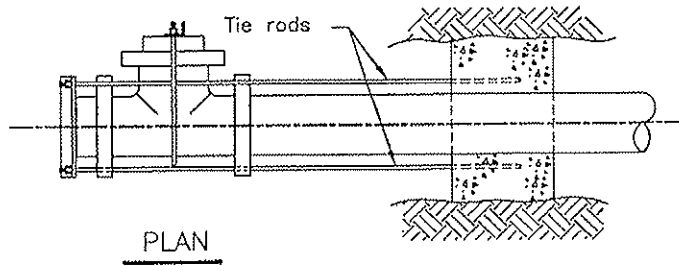
DATE: OCTOBER 2010

Approved: 

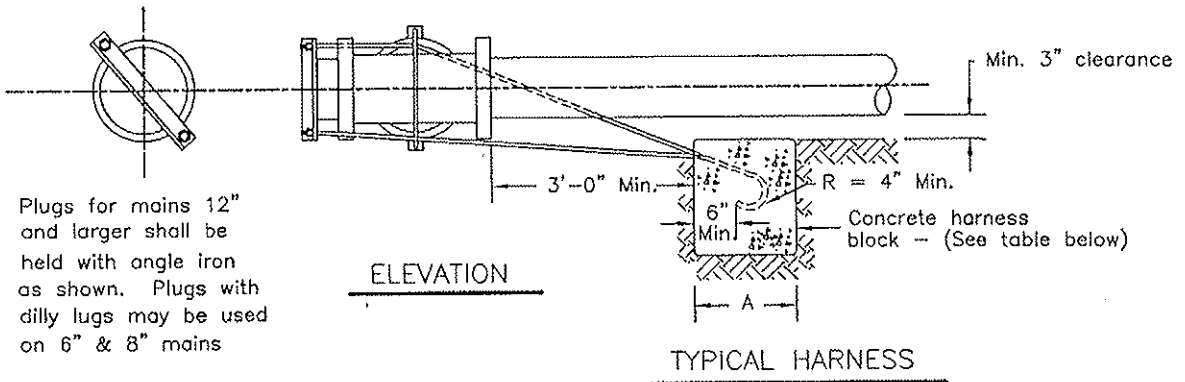
STD. - 851



HARNES FOR VALVE WITH PLUG



Concrete shall extend at least to the undisturbed earth at both sides of trench



Plugs for mains 12" and larger shall be held with angle iron as shown. Plugs with dilly lugs may be used on 6" & 8" mains

MINIMUM DIMENSIONS				
PIPE SIZE	TIE RODS	ANGLE IRON	* HARNES BLOCK	A
6"	5/8"	3"x3"x1/4"	4 Sq. Ft.	2'
8"	3/4"	3 1/2"x3"x1/4"	7 Sq. Ft.	3'
12"	1 1/8"	4"x3"x1/2"	15 Sq. Ft.	3'
OVER 12" BY THE DESIGN ENGINEER				

* Bearing area below grade of pipe against undisturbed ground

CITY OF ROHNERT PARK

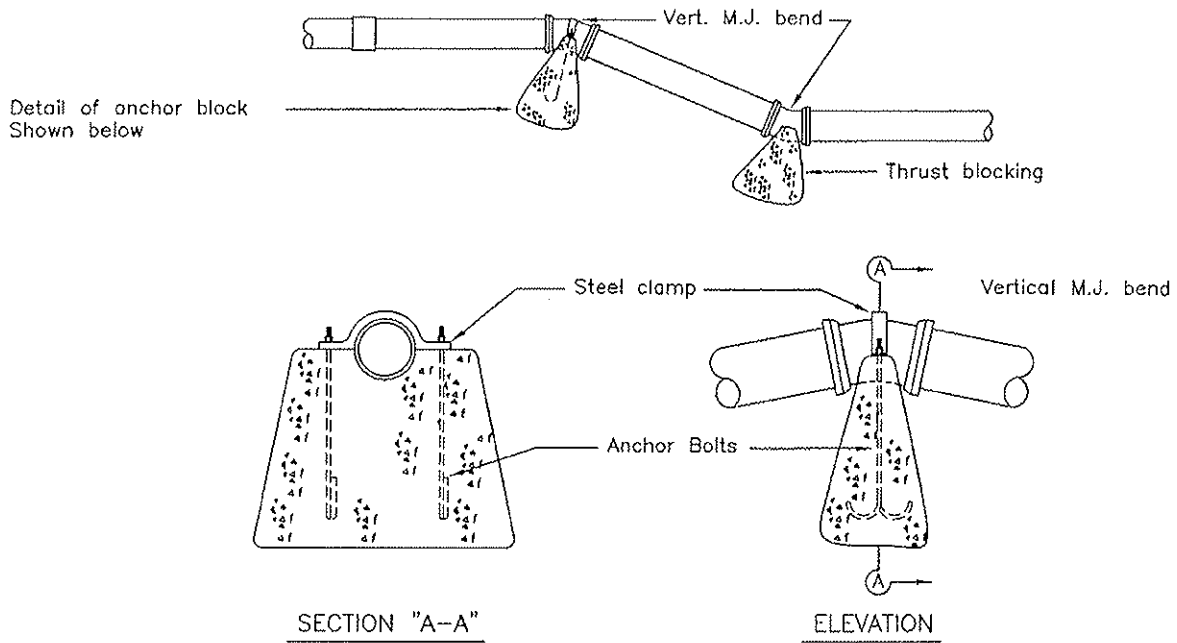
HARNES INSTALLATION

SCALE: NONE

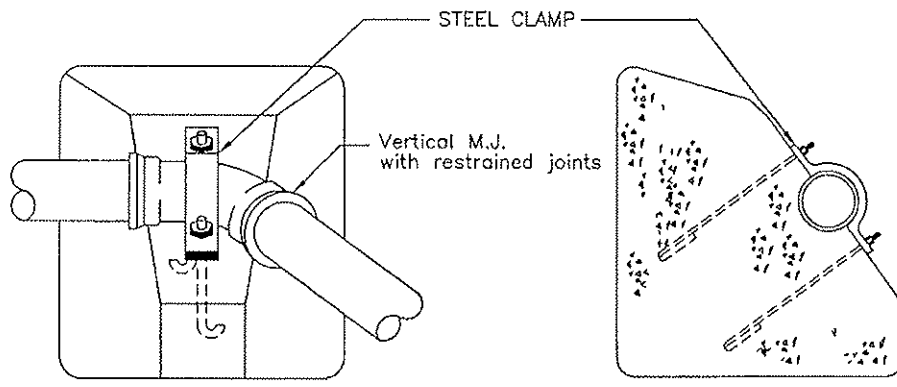
DATE: JANUARY 2006

Approved:

STD. - 852



TYPICAL CONCRETE ANCHOR BLOCK FOR VERTICAL BEND



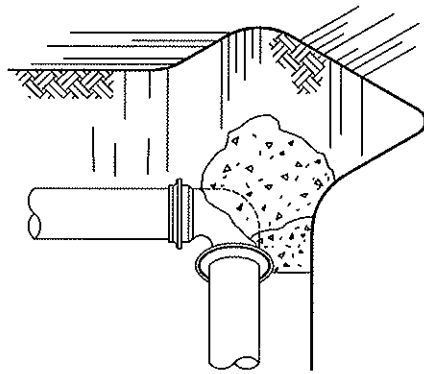
TYPICAL CONCRETE ANCHOR BLOCK FOR COMBINATION
HORIZONTAL - VERTICAL BEND

- NOTES:
- Concrete anchor blocks shall be installed by the Contractor to withstand a thrust produced by the test pressure plus 50 p.s.i. Minimum dimensions for anchor bolts and clamps are listed in table below.
 - Use mechanical restrained joints at all fittings.

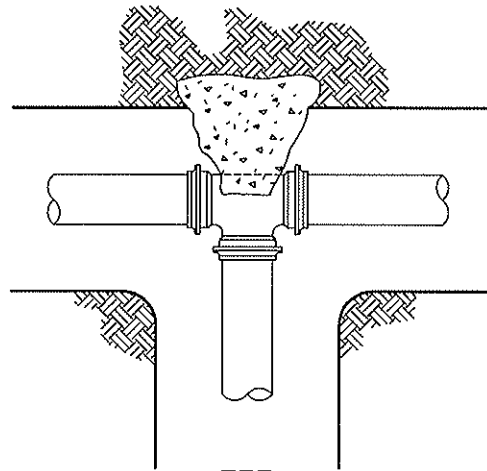
PIPE SIZE	ANCHOR BOLTS	STEEL CLAMPS
6"	5/8"	3" x 1/4"
8"	3/4"	3-1/4" x 1/4"
12"	1-1/8"	4" x 1/2"

For pipes greater than 12", design Engineer must submit calcs. To size anchor bolts & clamps.

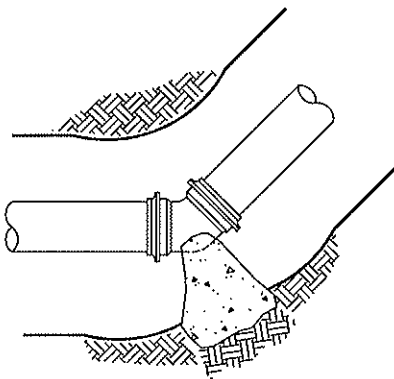
CITY OF ROHNERT PARK	
CONCRETE ANCHOR BOLTS FOR VERTICAL BENDS	
SCALE: NONE	DATE: JANUARY 2006
Approved: <i>[Signature]</i>	STD. - 853



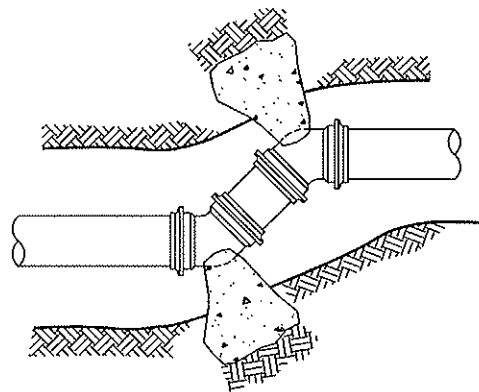
BEND
TYPICAL CONC. BLOCKING
SHOWN IN PERSPECTIVE.



TEE



TYPICAL BEND



OFFSET

NOTES:

1. To use this standard, a geotechnical engineer shall confirm the soil bearing capacity or a value of 1000 P.S.F. shall be used.
2. Safe bearing load of soil for horizontal thrust shall not be exceeded.
3. Concrete blocking, cast-in-place, to extend from bells of fittings to undisturbed soil and entire bearing area must be against undisturbed soil.
4. In using the Thrust Blocking Table below, the Design Engineer shall specify thrust blocking requirements for all other soil bearing conditions.
5. For plugged leg(s) of tee or cross use harness type blocking as shown on STD. 852 and concrete blocking indicated in table below.
6. Restrained joint pipe may be substituted, with calculations, in lieu of thrust blocks.

MIN. REQ'D BEARING AREA IN SQ. FT. PER 100 P.S.I. TEST PRESSURE*					
PIPE SIZE	SOIL BEARING CAPACITY(PSF)	TEES & DEAD ENDS	90° BENDS	45° BENDS	22-1/2° BENDS
6"	1000	4	6	3	2
8"	1000	7	10	5	3
12"	1000	16	22	12	6

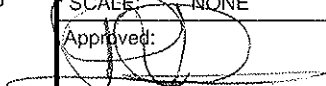
* MULTIPLY NO. IN TABLE BY TEST PRESSURE & DIVIDE BY 100
For pipes greater than 12", Design Engineer must submit calculations to size concrete thrust blocks.

CITY OF ROHNERT PARK

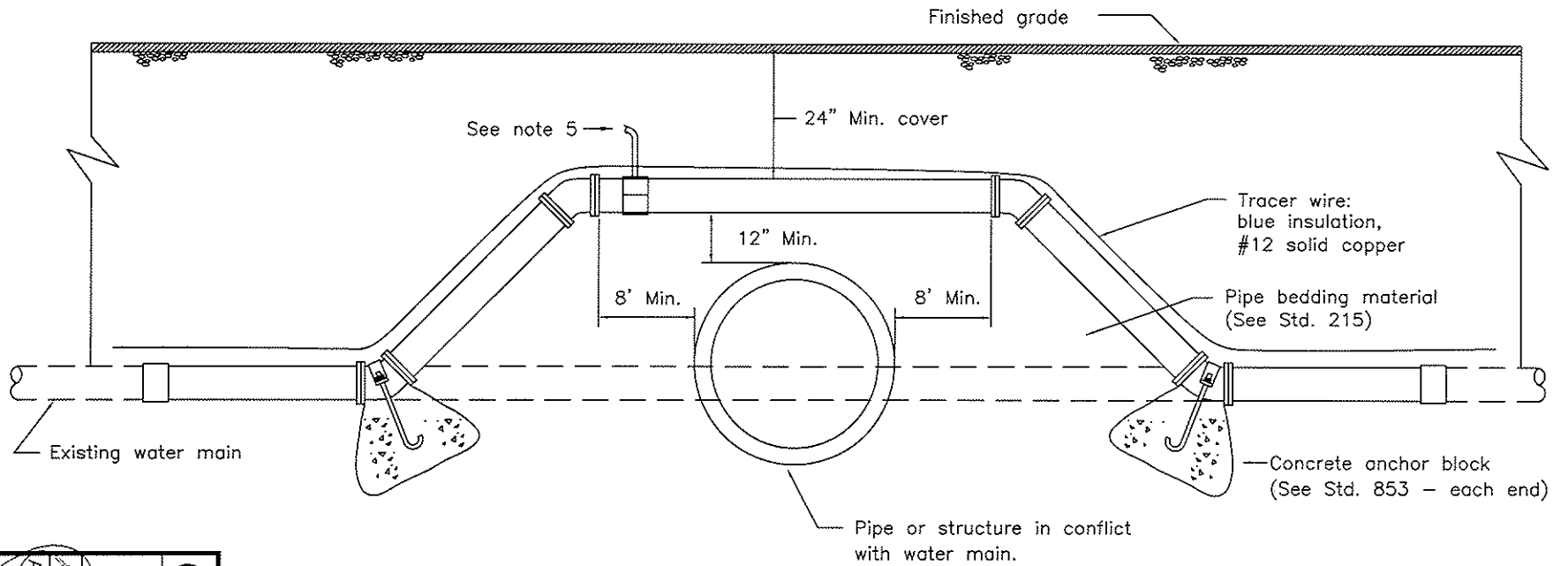
CONCRETE THRUST BLOCKS
FOR HORIZONTAL BENDS

SCALE: NONE

DATE: OCTOBER 2010

Approved: 

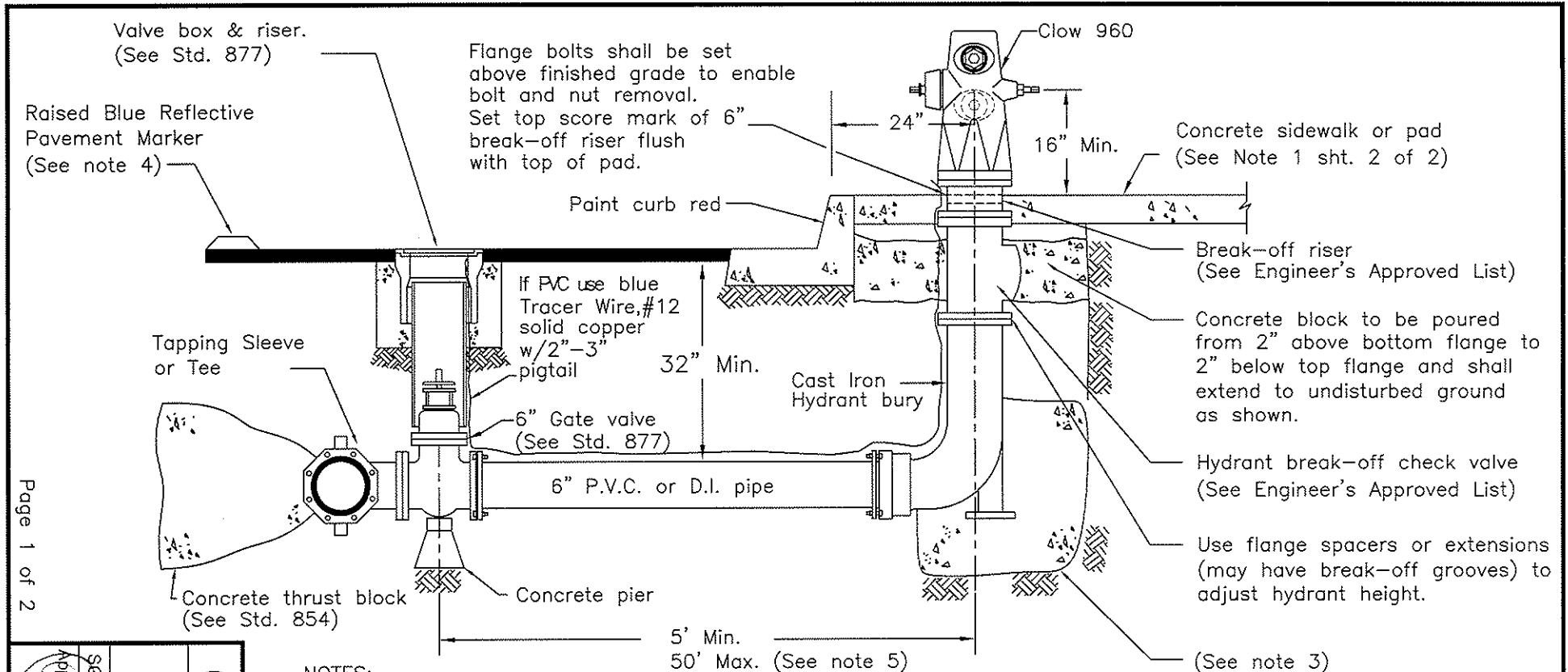
STD. - 854



SCATTER Approved	NONE	DATE:	OCTOBER 2010
			STD. - 856
CITY OF ROHNERT PARK			
WATER MAIN OVER STRUCTURE			

NOTES:

1. All pipe and fittings shall be ductile iron & shall be wrapped in polyethylene per City of Rohnert Park Std. Construction Specifications found in section 71 (71-1.02C) sewer.
2. Only mechanical joint fittings with restrained joints shall be used.
3. All bends shall be 45° or 22-1/2° fittings. - No 90° bends allowed.
4. To be used only at the direct approval of the City Engineer
5. Install air and vacuum/air release valve at high point per Std. 883.
6. Installation must comply with CHD standards.



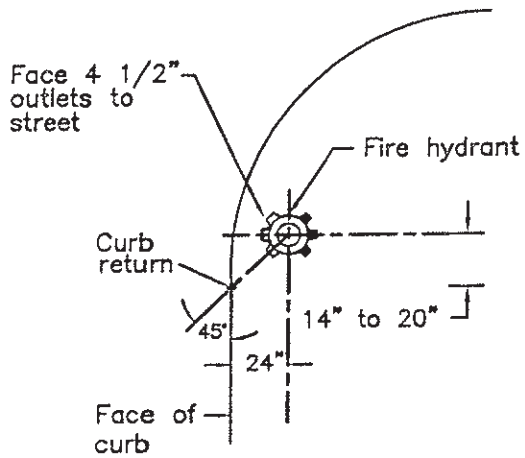
Page 1 of 2

NOTES:

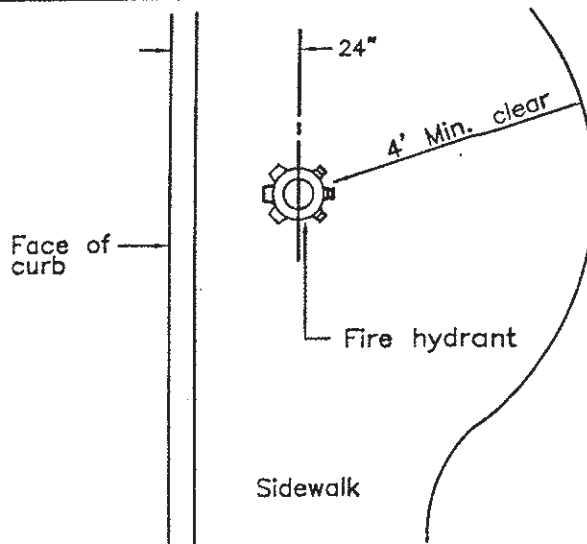
1. Residential and commercial fire hydrants have two 2-1/2" & one 4-1/2" outlets.
2. Paint fire hydrant in accordance with AWWA Standard Specification C503. The finished paint color shall be Rustoleum Product, body-Silver Shield Aluminum, top and outlet caps-Safety Blue. All damaged paint surfaces shall be corrected by touch up prior to acceptance.
3. Restrained joints are required for all new construction from gate valve to hydrant bury. Thrust blocks are only required where existing services are being modified and restrained joints are not used.
4. Blue reflective pavement markers should be placed 6 inches from the centerline stripe, or approximate center of the pavement where there is no centerline stripe, on the side nearest the fire hydrant.
5. If hydrant lateral length exceeds 50 feet, contact City Engineer's office for approval.

APPROVED HYDRANTS
(See Engineer's Approved List)

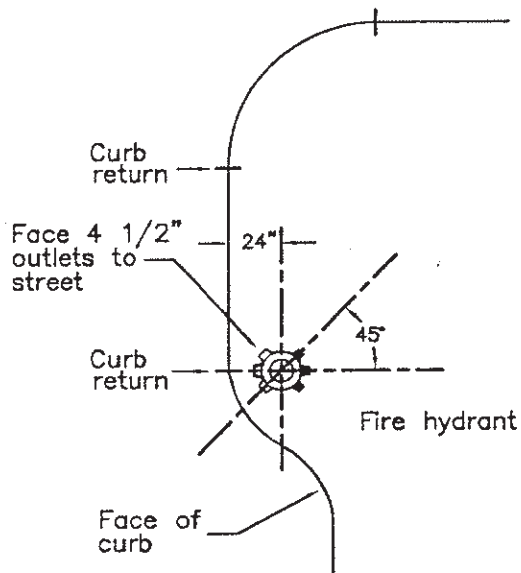
Applied 	SCALE: NONE	DATE: OCTOBER 2010	CITY OF ROHNERT PARK FIRE HYDRANT and LATERAL
STD. - 857			



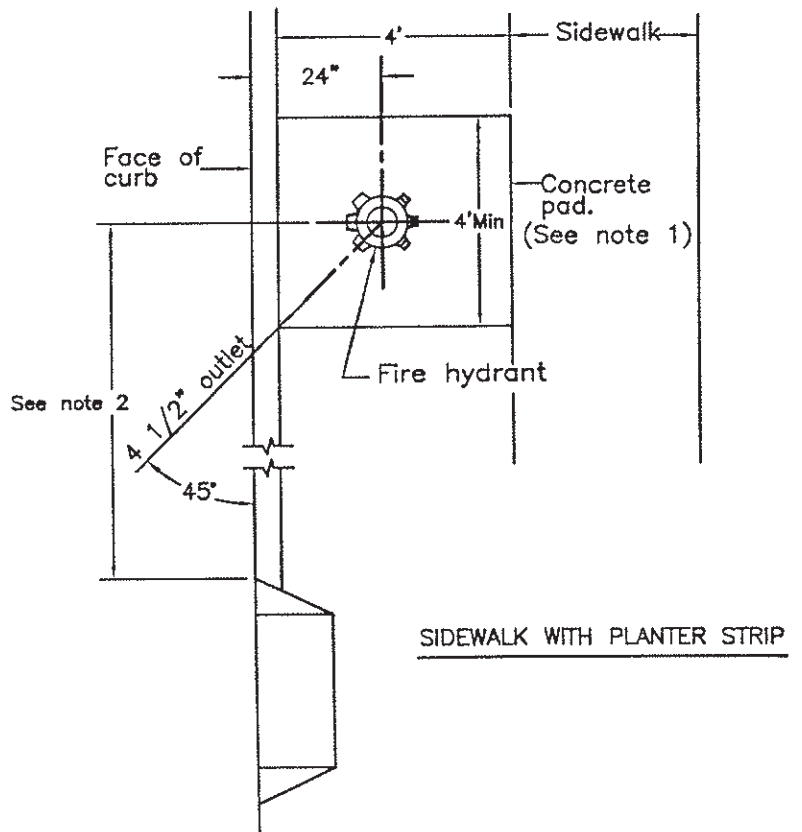
CURB RETURN



CONTIGUOUS SIDEWALK



CURB RETURN WITH NECKDOWN



SIDEWALK WITH PLANTER STRIP

NOTES:

1. Where no sidewalk exists, or where hydrant is installed in planter strip or behind sidewalk, a 4" thick 4' x 4' concrete pad shall be installed.

2. Hydrants to be a minimum of 10 feet from driveway approach in commercial or multi-family developments and a minimum of 5 feet from driveway approach in one or two family developments.

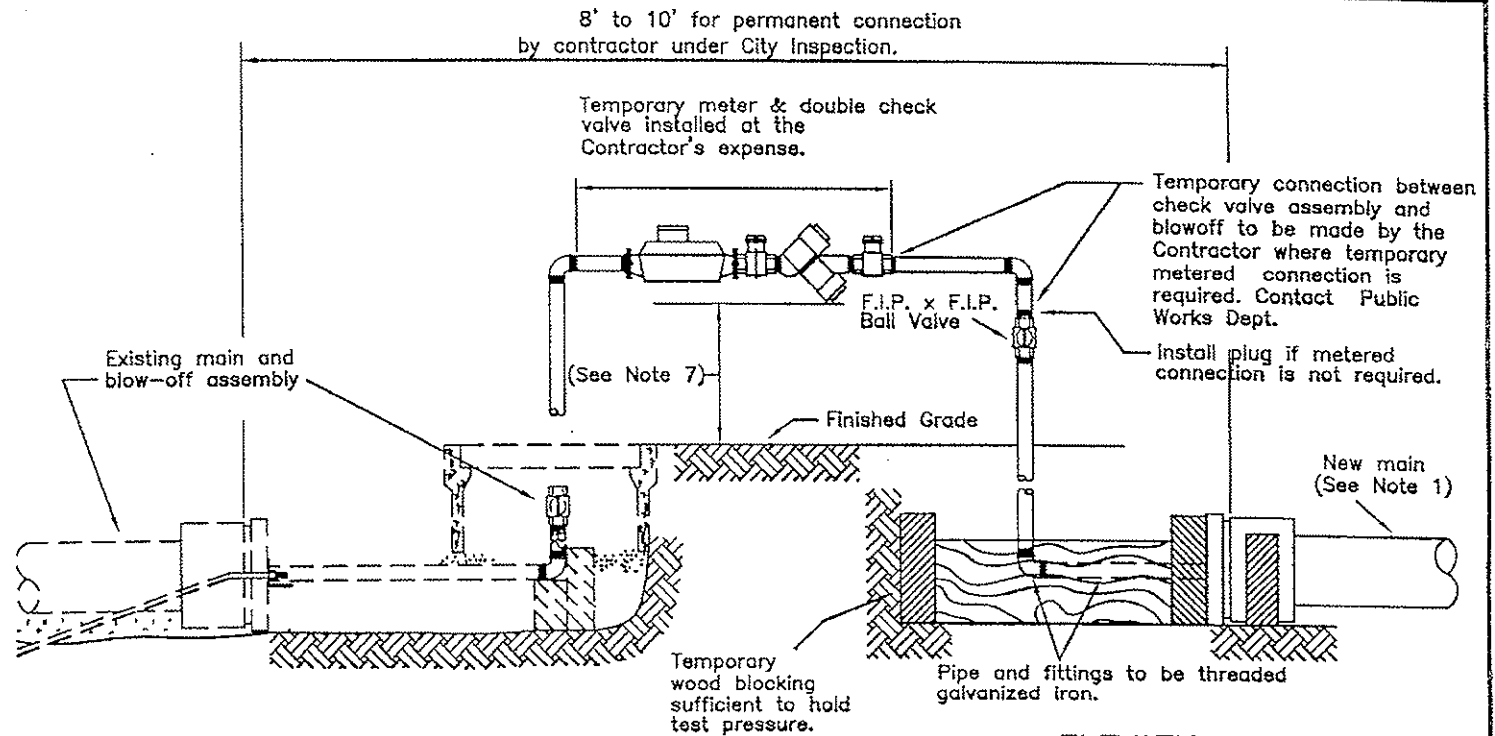
CITY OF ROHNERT PARK

FIRE HYDRANT LOCATION

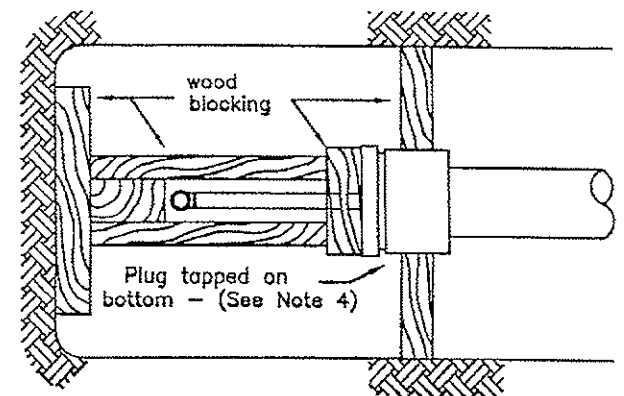
SCALE: NONE DATE: JANUARY 2006

Approved: *[Signature]*

STD. - 857



ELEVATION



PLAN

NOTES:

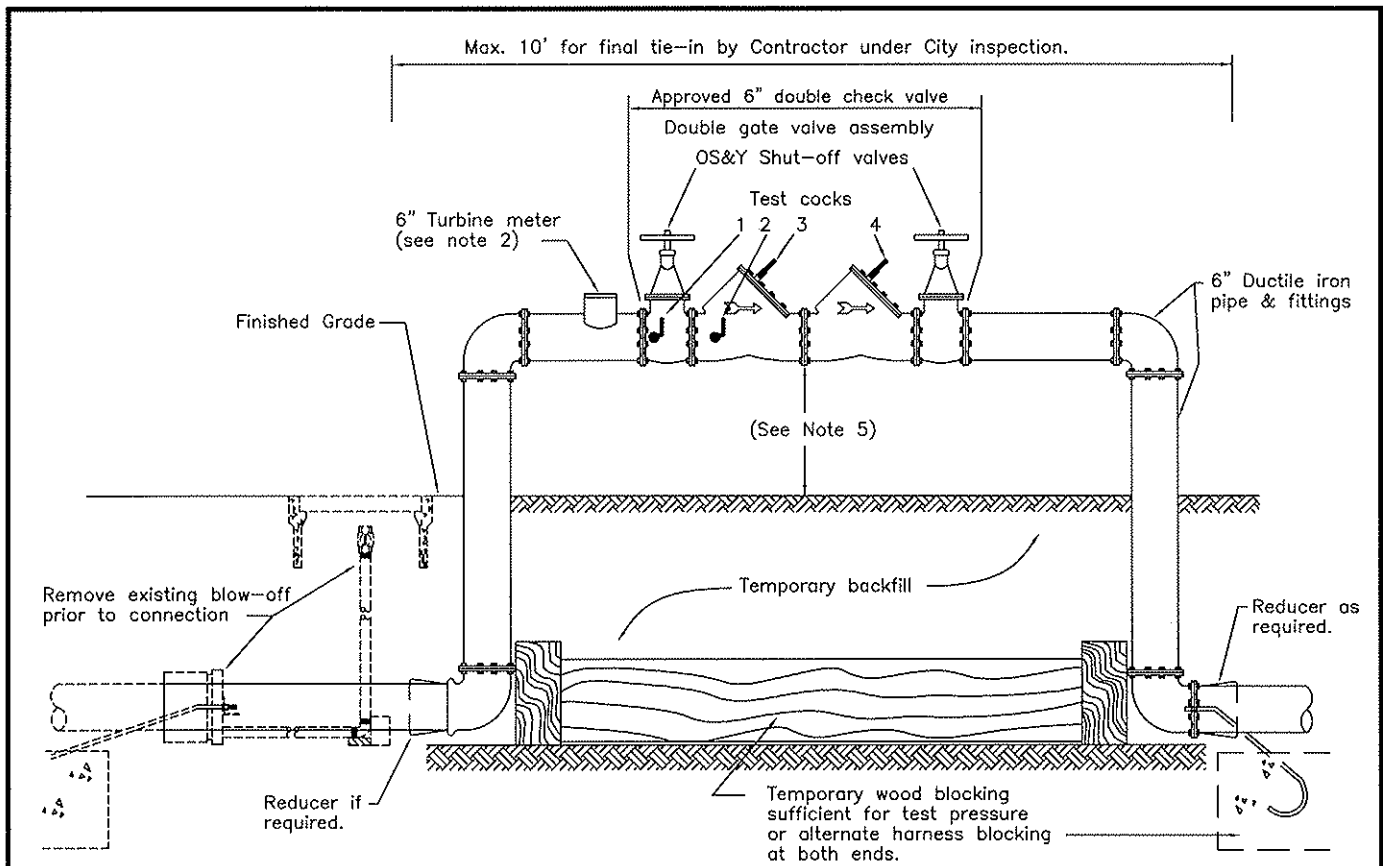
1. End of new main to be on same line and grade as existing where feasible.
2. Wood blocking to be used for thrust produced by test pressure plus 50 P.S.I.
3. Safe bearing load of soil for horizontal thrust shall not be exceeded.
4. See Std. 861 for blowoff size chart. ("Blowoff" is pipe and fittings, up to and including valve.)
5. The Contractor shall make the final tie-in under the inspection of a City Public Works Utilities Services representative. Inspection fees must be paid prior to scheduling tie-in.
6. Should the blowoff on the existing main be located out of the traveled way as indicated on Std. 861, the temporary blowoff piping shall be extended out of the traveled way and the risers, meter, and check valve will be installed out of the traveled way.
7. Clearance to be 12" min. above finished grade or 6" above the inundation level, whichever is higher.
8. This installation is not acceptable when combustible material is stored on site or construction above grade begins. (See Standard 860 when fire flow is required).

CITY OF ROHNERT PARK

TEMPORARY BLOWOFF AND/OR
METERED CONNECTION FOR
MAINS UNDER CONSTRUCTION


Approved: *[Signature]*
SCALE: NONE DATE: JANUARY 2006

STD. - 859



NOTES:

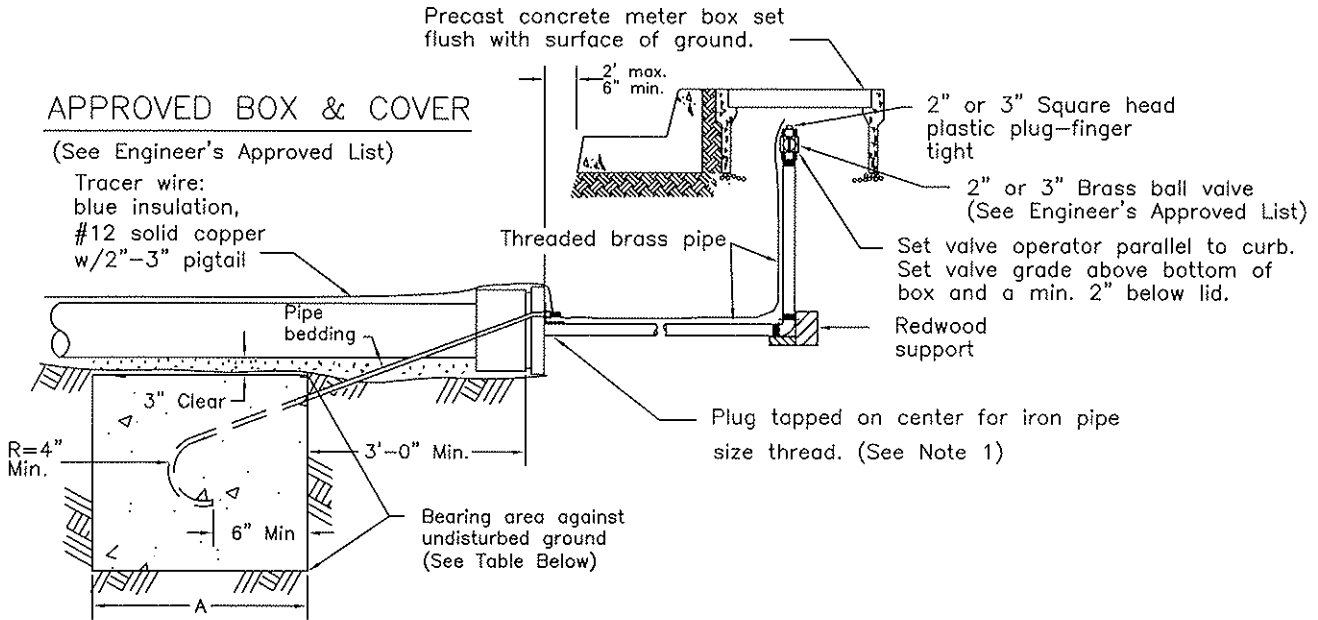
1. This assembly shall be installed when combustible materials will be stored or constructed on-site prior to acceptance of the on-site water main by the City. Fire flow & access must be satisfactory to the City Fire Department.
2. The Contractor shall furnish the meter and have the meter and double check valve tested and certified on-site prior to activating the system. The contractor is responsible for any fees and charges incurred.
3. The Contractor shall make final tie-in under the inspection of a City Public Works inspector. Inspection fees must be paid prior to scheduling tie-in.
4. Meters to be gallon reading type only.
5. Clearance to be 12" min. above finished grade or 6" above the inundation level, whichever is higher.
6. Fire lines shall be flushed per City Standard Specifications and adequate fire flow provided prior to combustible materials being stored or construction beginning on site.
7. The meter shall be installed with proper lengths of pipe both upstream and down stream of the meter. See manufacturers specifications for determining pipe length(s).
8. A Utility Billing account shall be opened with City prior to flowing water through meter.

CITY OF ROHNERT PARK	
TEMPORARY METERED CONNECTION WHEN FIRE FLOW IS REQUIRED	
SCALE: NONE	DATE: OCTOBER 2010
Approved: 	STD. - 860

APPROVED BOX & COVER

(See Engineer's Approved List)

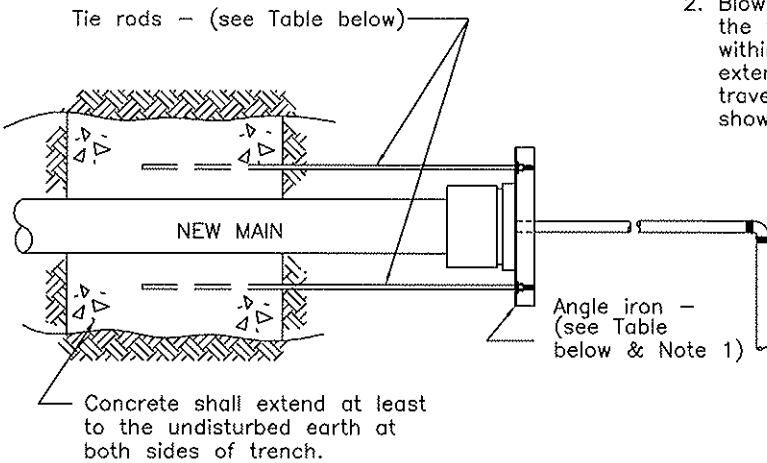
Tracer wire:
blue insulation,
#12 solid copper
w/2"-3" pigtail



ELEVATION

NOTES

- For 6" & 8" mains, M.J. plugs or caps with dilly lugs and 2" center tap may be used in lieu of angle iron. Install angle iron off-center to accommodate center tap.
- Blow-off shall not be installed within the traveled way. If main ends within street area, blow-off to be extended to area outside of traveled way and installed as shown above.



PLAN

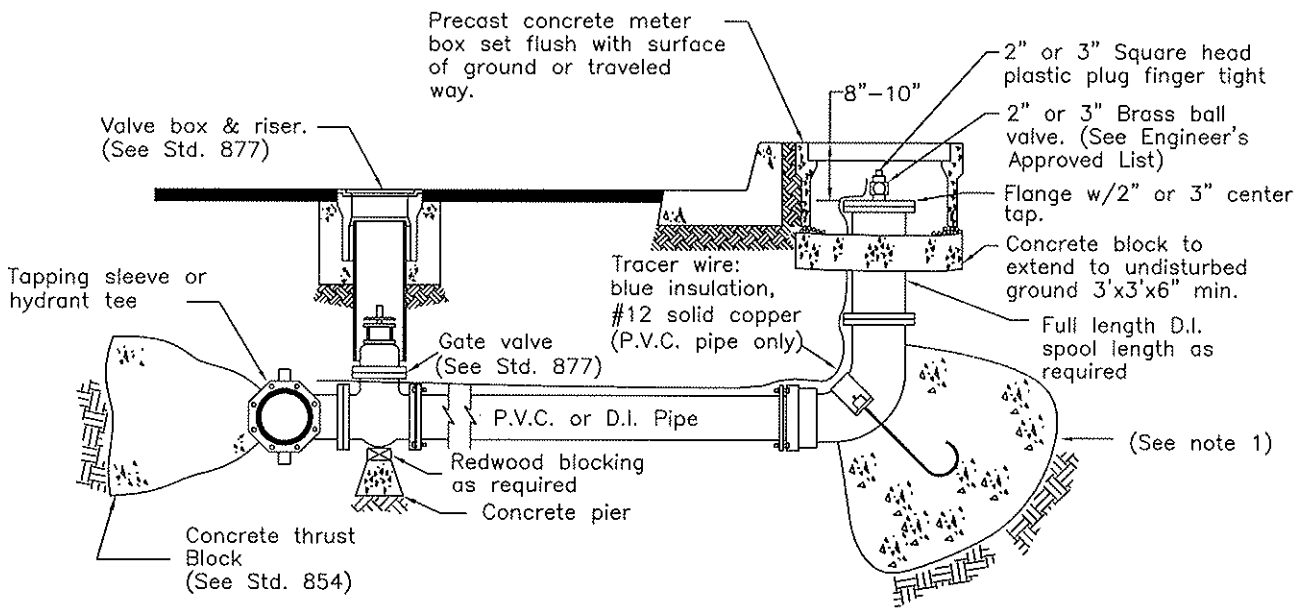
MINIMUM DIMENSIONS					
PIPE SIZE	TIE RODS	ANGLE IRON	BEARING AREA	A	SIZE B.O.
6"	5/8"	3"x3"x1/4" *	4 Sq. Ft.	2'	2"
8"	3/4"	3 1/2"x3"x1/4"*	7 Sq. Ft.	3'	2"
12"	1-1/8"	4"x3"x1/2"	15 Sq. Ft.	3'	3"
OVER 12"	BY THE DESIGN ENGINEER				3"

* (see note 1)

CITY OF ROHNERT PARK

BLOW-OFF with HARNESS

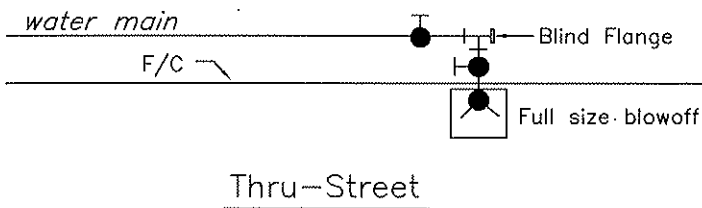
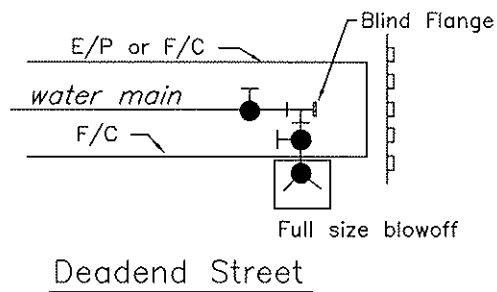
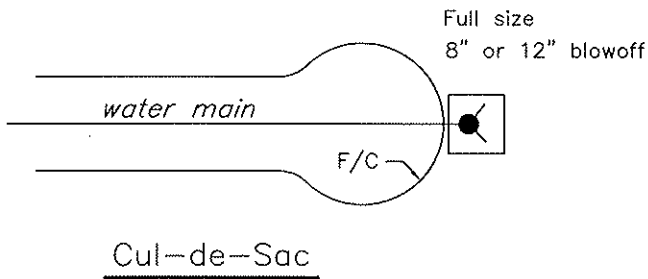
SCALE: NONE	DATE: OCTOBER 2010
Approved:	STD. - 861



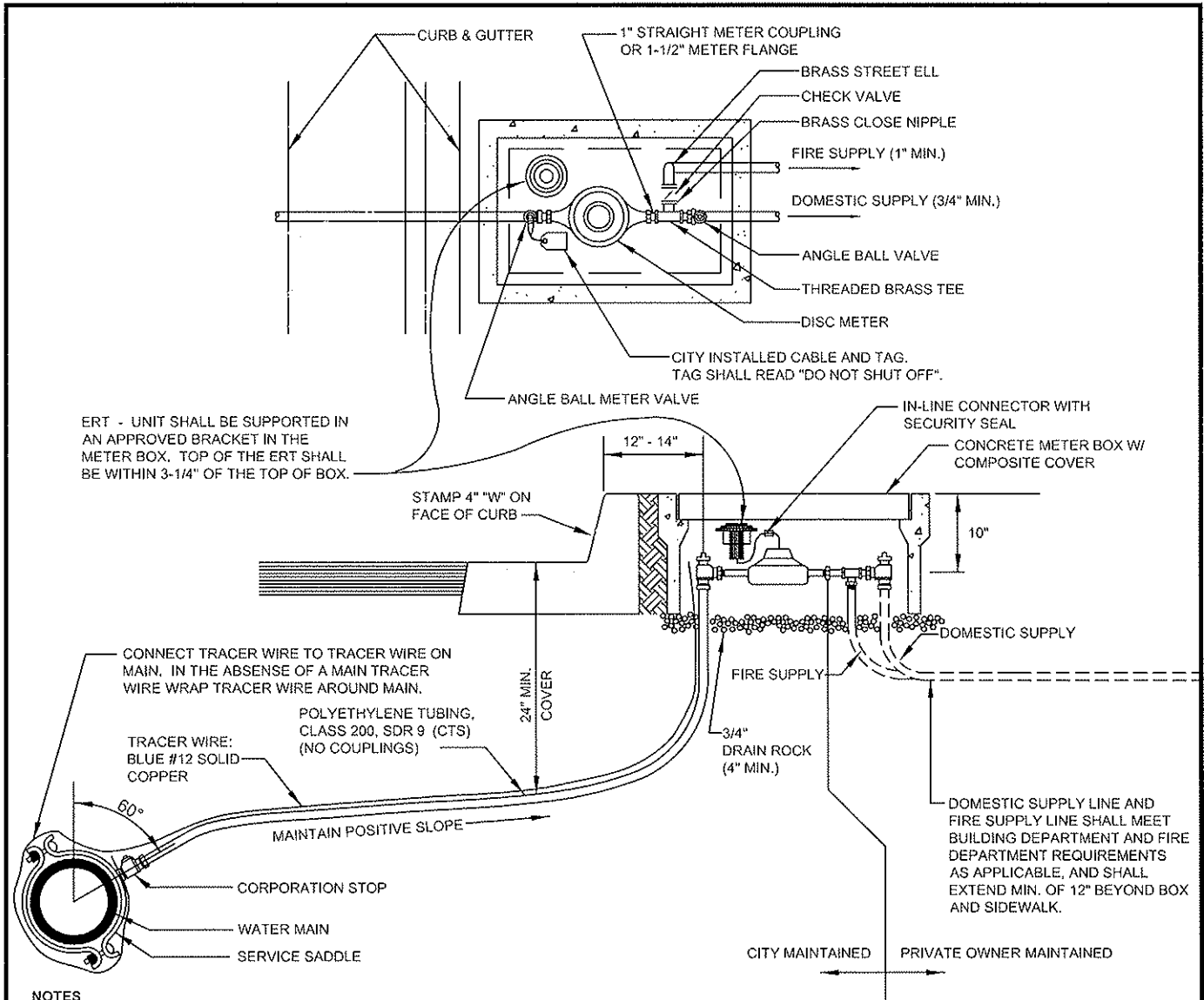
NOTES

Approved Box & Cover
(See Engineer's Approved List)

1. Restrained joints are required for all new construction from gate valve to 90° bend. Thrust blocks are only required where existing services are being modified and restrained joints are not used.
2. Blowoff piping to be the same size as the main.



CITY OF ROHNERT PARK	
FULL SIZE BLOW-OFF	
SCALE: NONE	DATE: OCTOBER 2010
Approved:	STD. - 862



NOTES

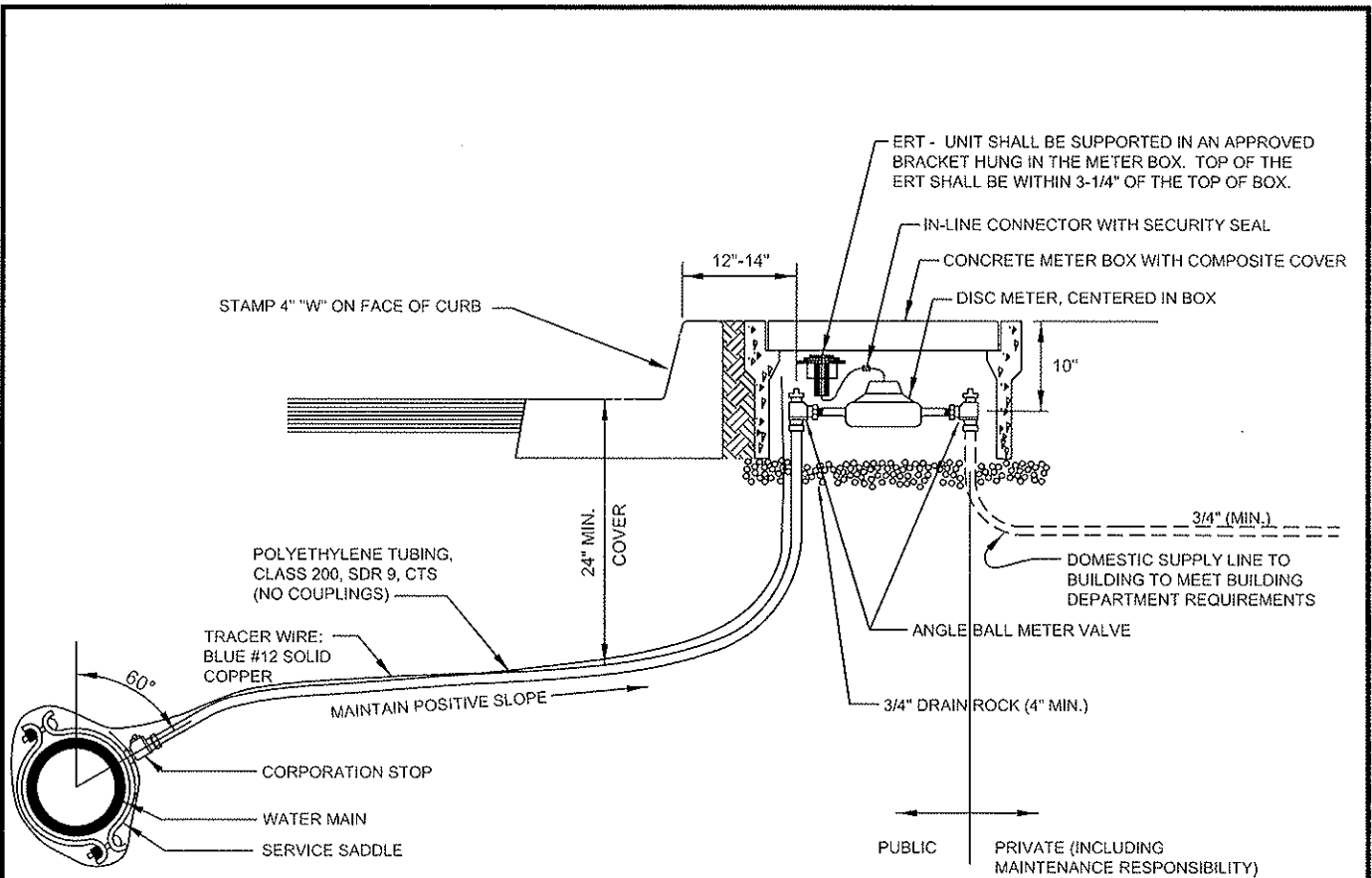
1. THIS STANDARD APPLIES TO COMMERCIAL AND RESIDENTIAL SERVICES WHICH WHICH REQUIRE OR PROVIDE FIRE SPRINKLER SERVICE .
2. SET METER BOX COVER FLUSH WITH FINISHED SURFACE. THE ADDRESS MUST BE CLEARLY MARKED ON TOP OF THE METER BOX WITH PERMANENT MARKER BEFORE CITY WILL ACTIVATE SERVICE.
3. OLD METER TO BE DELIVERED TO CORP. YARD OF PUBLIC WORKS DEPT. FOR FINAL READING. METER SHALL BE FURNISHED AND SET BY CONTRACTOR. PROVIDE ERT AND TRANSMITTING REGISTER WITH 5' LEAD.
4. SERVICE LATERAL AND BUILDING SUPPLY LINES SHALL BE INSTALLED UNDER BOX, KNOCKOUTS SHALL NOT BE USED AND BE GROUTED.
5. WATER SERVICE TO BE LOCATED IN MIDDLE THIRD OF LOT AND OUTSIDE OF DRIVEWAY APPROACH UNLESS OTHERWISE NOTED ON PLANS.
6. SERVICE LATERAL BEDDING (PEA GRAVEL) SHALL BE PLACED PRIOR TO INSTALLATION OF POLYETHYLENE TUBING.
7. REFER TO CITY WATER STANDARDS FOR CONSTRUCTION STANDARDS, SPECIFICATIONS AND ENGINEERS LIST OF APPROVED MATERIALS..
8. HYDRAULIC CALCULATIONS SHALL BE PROVIDED IN ACCORDANCE WITH NFPA 13D. HYDRANT FLOW DATA SHALL BE BASED ON ACTUAL HYDRANT FLOW TEST DATA AS PROVIDED BY THE CITY FIRE DEPARTMENT. CALCULATIONS ARE SUBJECT TO FIRE SERVICES DIVISION APPROVAL.
9. SERVICE LATERALS OF 1-1/2" (MINIMUM) SIZE SHALL BE REQUIRED FOR DUAL METER INSTALLATIONS.
10. ALL COMPRESSION FITTINGS SHALL HAVE STAINLESS STEEL INSERTS.
11. NO FENCING SHALL BE INSTALL BETWEEN STREET AND METER BOX.

12. THE METER SHALL BE INSTALLED WITH PROPER LENGTHS OF PIPE BOTH UPSTREAM AND DOWN STREAM OF THE METER SEE MANUFACTURERS SPECIFICATIONS FOR DETERMINING PIPE LENGTH(S).
13. A UTILITY BILLING ACCOUNT SHALL BE OPENED WITH CITY PRIOR TO FLOWING WATER THROUGH METER.

RETROFIT NOTES

1. PROVIDE HYDRAULIC CALCULATIONS VERIFYING AVAILABLE PRESSURE AND FLOW PRIOR TO MODIFICATIONS FOR FIRE SERVICE RETROFITS.
2. A SEPARATE FIRE SERVICE SHALL BE INSTALLED (PER OTHER CITY STANDARDS) WHEN CALCULATIONS SHOW FIRE

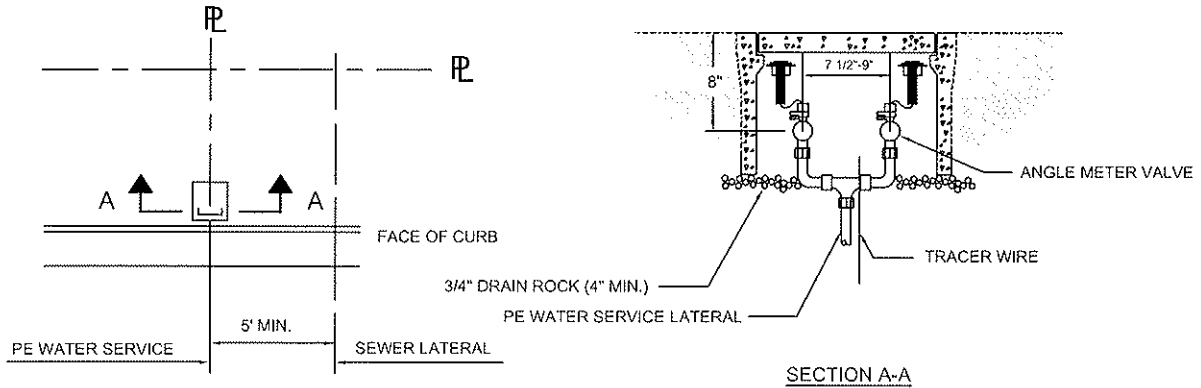
CITY OF ROHNERT PARK	
WATER SERVICE W/ FIRE SYSTEM SUPPLY - 1" & 1-1/2" DISC METERS	
SCALE: NONE	DATE: OCTOBER 2010
Approved:	STD. - 863A



NOTES

1. THIS STANDARD APPLIES TO COMMERCIAL OR RESIDENTIAL SERVICES WHICH HAVE A SEPARATE FIRE SPRINKLER SYSTEM.
2. SET METER BOX COVER FLUSH WITH FINISHED SURFACE. THE ADDRESS MUST BE CLEARLY MARKED ON TOP OF METER BOX WITH PERMANENT MARKER BEFORE CITY WILL ACTIVATE SERVICE.
3. METER SHALL BE FURNISHED AND SET BY CONTRACTOR. PROVIDE ERT AND TRANSMITTING REGISTER WITH 5' LEAD.
4. SERVICE LATERAL AND BUILDING SUPPLY LINES SHALL BE INSTALLED UNDER BOX; KNOCKOUTS SHALL NOT BE USED. KNOCKOUTS SHALL BE GROUTED
5. WATER SERVICE TO BE LOCATED IN MIDDLE THIRD OF LOT AND OUTSIDE OF DRIVEWAY APPROACH UNLESS OTHERWISE NOTED ON PLANS.
6. SERVICE LATERAL BEDDING (PEA GRAVEL) SHALL BE PLACED PRIOR TO INSTALLATION OF POLYETHYLENE TUBING.
7. REFER TO CITY WATER STANDARDS FOR CONSTRUCTION STANDARDS, SPECIFICATIONS AND ENGINEER'S LIST OF APPROVED MATERIALS.
8. SERVICE LATERALS SHALL BE AT LEAST ONE SIZE LARGER THAN THE LARGEST METER BEING INSTALLED FOR DUAL SERVICE INSTALLATIONS.
9. ALL COMPRESSION FITTINGS SHALL HAVE STAINLESS STEEL INSERTS.
10. CONNECT SERVICE TRACER WIRE TO THE TRACER WIRE ON THE MAIN, IN ABSENCE OF TRACER WIRE ON THE MAIN WRAP TRACER WIRE AROUND MAIN.
11. NO FENCING SHALL BE INSTALLED BETWEEN STREET AND METER BOX.
12. THE METER SHALL BE INSTALLED WITH PROPER LENGTHS OF PIPE BOTH UPSTREAM AND DOWN STREAM OF THE METER SEE MANUFACTURERS SPECIFICATIONS FOR DETERMINING PIPE LENGTH(S).
13. A UTILITY BILLING ACCOUNT SHALL BE OPENED WITH CITY PRIOR TO FLOWING WATER THROUGH METER.

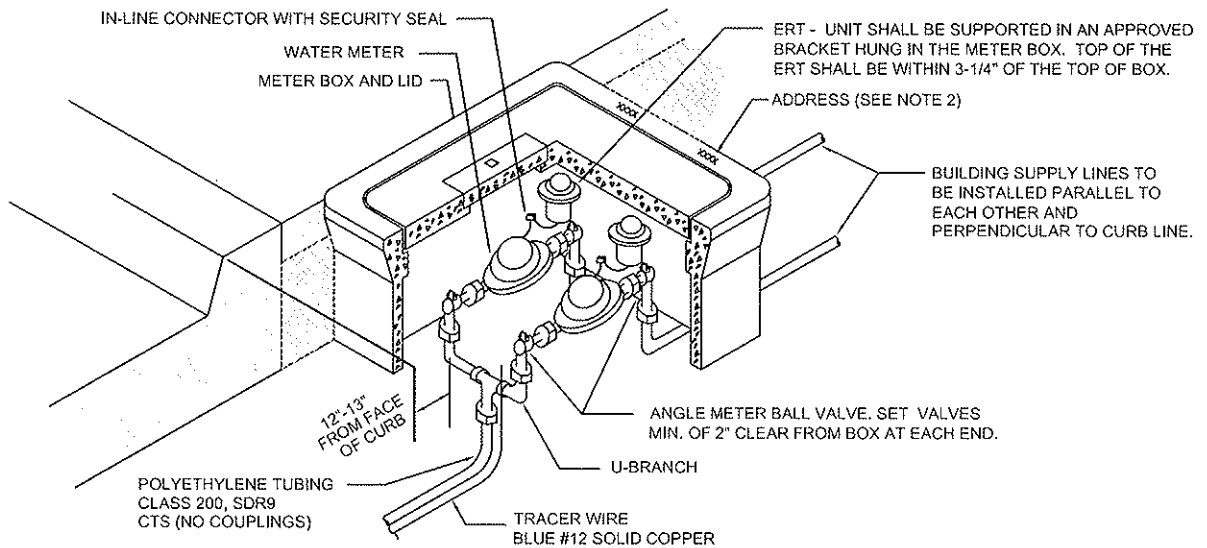
CITY OF ROHNERT PARK	
WATER SERVICE	
5/8" X 3/4", 1" & 1-1/2" DISC METERS	
SCALE: NONE	DATE: OCTOBER 2010
Approved:	STD. - 863B



PLAN VIEW

SECTION A-A

SINGLE METER BOX INSTALLATION FOR DUAL 3/4" OR 1" MANIFOLD



NOTES

1. THIS STANDARD APPLIES TO COMMERCIAL SERVICES WITH A SEPARATE FIRE SERVICE OR RESIDENTIAL SERVICES WITHOUT A FIRE SPRINKLER SYSTEM.
2. SET METER BOX COVER FLUSH WITH FINISHED SURFACE. THE ADDRESS MUST BE CLEARLY MARKED ON TOP OF METER BOX WITH PERMANENT MARKER BEFORE CITY WILL ACTIVATE SERVICE.
3. METER SHALL BE FURNISHED AND SET BY CONTRACTOR. PROVIDE ERT AND TRANSMITTING REGISTER WITH 5' LEAD.
4. SERVICE LATERAL AND BUILDING SUPPLY LINES SHALL BE INSTALLED UNDER BOX; KNOCKOUTS SHALL NOT BE USED. KNOCKOUTS SHALL BE GROUTED. BUILDING SUPPLY LINES SHALL EXTEND 12" BEYOND BOX AND SIDEWALK.
5. WATER SERVICE TO BE LOCATED IN MIDDLE THIRD OF LOT AND OUTSIDE OF DRIVEWAY APPROACH UNLESS OTHERWISE NOTED ON PLANS.
6. SERVICE LATERAL BEDDING (PEA GRAVEL) SHALL BE PLACED PRIOR TO INSTALLATION OF POLYETHYLENE TUBING.
7. REFER TO CITY WATER STANDARDS FOR CONSTRUCTION STANDARDS, SPECIFICATIONS AND ENGINEER'S LIST OF APPROVED MATERIALS.
8. SERVICE LATERALS SHALL BE AT LEAST ONE SIZE LARGER THAN THE LARGEST METER BEING INSTALLED FOR DUAL SERVICE INSTALLATIONS.
9. ALL COMPRESSION FITTINGS SHALL HAVE STAINLESS STEEL INSERTS.
10. CONNECT SERVICE TRACER WIRE TO THE TRACER WIRE ON THE MAIN, IN ABSENCE OF TRACER WIRE ON THE MAIN WRAP TRACER WIRE AROUND MAIN.
11. NO FENCING SHALL BE INSTALLED BETWEEN STREET AND METER BOX.
12. FOR LATERAL INSTALLATION SEE STANDARD 863A.
13. FOR DUAL 1" METERS USE 1 1/2" PE TUBING FOR DUAL 5/8"x3/4" METERS USE 1" PE TUBING.

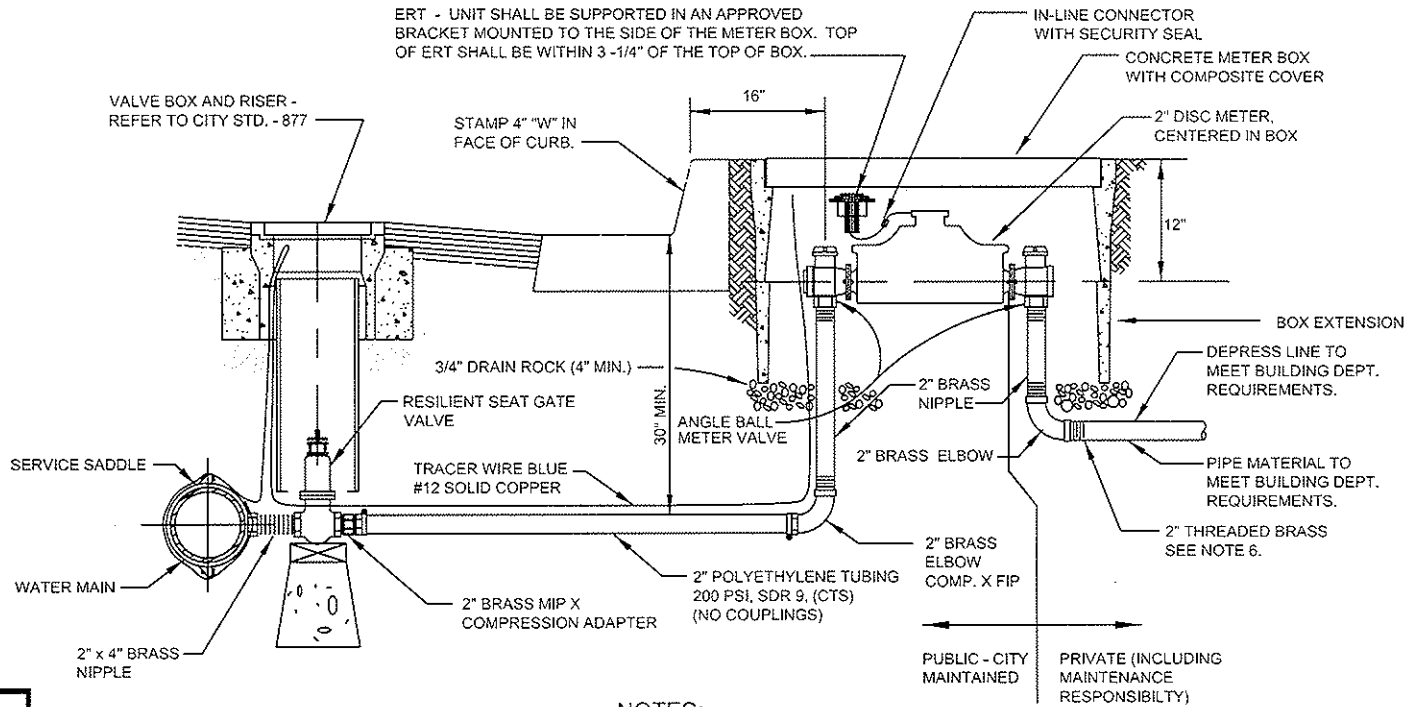
CITY OF ROHNERT PARK

DUAL WATER SERVICE 5/8" X 3/4" & 1" DISC METERS

SCALE: NONE DATE: OCTOBER 2010

Approved:

STD. - 864



NOTES:

1. ALL COMPRESSION FITTINGS SHALL HAVE STAINLESS STEEL INSERTS.
2. METER SHALL BE FURNISHED AND SET BY CONTRACTOR. PROVIDE ERT AND TRANSMITTING REGISTER WITH 5' LEAD.
3. SERVICE LATERAL BEDDING (PEA GRAVEL) SHALL BE PLACED PRIOR TO INSTALLATION OF POLYETHYLENE TUBING.
4. METER BOX SHALL BE SET WITH COVER FLUSH WITH FINISHED SURFACE. THE ADDRESS SHALL BE CLEARLY MARKED ON TOP OF METER BOX WITH PERMANENT MARKER BEFORE CITY WILL ACTIVATE SERVICE.
5. SERVICE LATERAL AND BUILDING SUPPLY LINE SHALL BE INSTALLED UNDER BOX, KNOCKOUTS SHALL NOT BE USED. KNOCKOUTS SHALL BE GROUTED.
6. EXTEND BUILDING SERVICE LINE TO A MINIMUM OF EITHER 12" BEYOND BACK OF METER BOX OR 12" BEYOND BACK OF SIDEWALK AND CAP.
7. REFER TO CITY WATER STANDARDS FOR CONSTRUCTION STANDARDS, SPECIFICATIONS AND ENGINEER'S LIST OF APPROVED MATERIALS.
8. NO FENCING SHALL BE INSTALLED BETWEEN STREET AND METER BOX.
9. DISTANCE BETWEEN BOX ENDS AND ANGLE BALL METER VALVES TO BE EQUAL.
10. CONNECT SERVICE TRACER WIRE TO THE TRACER WIRE ON THE MAIN. IN ABSENCE OF MAIN TRACER WIRE, WRAP SERVICE TRACER WIRE AROUND THE MAIN. RUN CONTINUOUS FROM MAIN TO METER BOX WITH LOOPS INTO EACH VALVE BOX.
11. THIS STANDARD APPLIES TO IRRIGATION SERVICES ONLY SERVED OFF CITY OF ROHNERT PARK WATER SYSTEM. REFER TO STD-865B FOR ALL OTHER 2-INCH DOMESTIC WATER SERVICES.

<p>CITY OF ROHNERT PARK</p>	<p>IRRIGATION SERVICE - 2" DISC METER</p>
<p>SCALE: NONE</p>	<p>DATE: OCTOBER 2010</p>
<p>Approved:</p>	<p>STD. - 865A</p>