CITY OF TUALATIN STANDARD DRAWINGS
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001	Oct 2020	STANDARD GENERAL NOTES
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		SEWERS (STORM AND SANITARY)
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011	Dec 2020	MANHOLE - 48-INCH FLAT TOP
012	Dec 2020	MANHOLE - 60-INCH ECCENTRIC CONE TOP
013	Dec 2020	MANHOLE - 60-INCH FLAT TOP
014	Dec 2020	MANHOLE - 72-INCH ECCENTRIC CONE TOP
015	Dec 2020	MANHOLE - 72-INCH FLAT TOP
016	Dec 2020	MANHOLE - 84-INCH ECCENTRIC CONE TOP
017	Dec 2020	MANHOLE - 84-INCH FLAT TOP
018	Dec 2020	MANHOLE - 96-INCH ECCENTRIC CONE TOP
019	Dec 2020	MANHOLE - 96-INCH FLAT TOP
020	3/1/2003	MANHOLE - OUTSIDE DROP ASSEMBLY
021	3/1/2004	MANHOLE - INSIDE DROP ASSEMBLY
030	3/1/2003	MANHOLE COVER AND FRAME - STANDARD
031	3/1/2003	MANHOLE COVER AND FRAME - WATERTIGHT
032	3/1/2003	MANHOLE STEPS
040	Dec 2020	CATCH BASIN - 36-INCH GUTTER GRATE INLET
041	Dec 2020	CATCH BASIN - 30-INCH CURB INLET
042	Dec 2020	CATCH BASIN - 48-INCH CURB INLET
043	Dec 2020	DITCH INLET - 24-INCH PIPE
050	3/1/2003	CATCH BASIN - GRATE AND FRAME
060	Dec 2020	MANHOLE - WATER QUALITY
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241	2/12/2018	TRENCH & SURFACE RESTORATION
270	7/1/2004	CONCRETE PIPE SLOPE ANCHORS
290	3/1/2004	UNDERCROSSING
300	7/23/2018	SEWER BUILDING LATERAL
310	3/1/2003	SUBGRADE DRAIN
330	3/1/2003	PIPELINE STREAM CROSSING
		TRANSPORTATION
425	10/1/2005	STREET UTILITY LOCATIONS
430	Oct 2020	STRIPING DETAILS
431	Oct 2020	BIKE LANE TUBULAR MARKER
432	Oct 2020	RIGHT TURN ADD LANE WITH BIKE LANE

CITY OF TUALATIN STANDARD DRAWINGS
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441	Dec 2020	COMMERCIAL DRIVEWAY APPROACH - CURBSIDE SIDEWALK
442	Dec 2020	RESIDENTIAL DRIVEWAY APPROACH - CURBSIDE PLANTER STRIP
443	Dec 2020	RESIDENTIAL DRIVEWAY APPROACH - CURBSIDE SIDEWALK
450	Dec 2020	PARABOLIC SPEED HUMP - CONSTRUCTION
451	3/1/2003	PARABOLIC SPEED HUMP - PAVEMENT MARKINGS AND STREET SIGNS
452	Dec 2020	SPEED TABLE HUMP - CONSTRUCTION
453	3/1/2003	SPEED TABLE HUMP - PAVEMENT MARKINGS AND STREET SIGNS
454	Oct 2020	SAFETY ISLAND
455	Oct 2020	SHARED USE PATH INTERSECTION WITH ROADWAY
456	Oct 2020	INTERSECTION SAFETY ISLAND
460	7/23/2018	ADA CURB RAMP - GENERAL NOTES
461	12/31/2016	ADA CURB RAMP - PERPENDICULAR
462	6/11/2015	ADA CURB RAMP - PARALLEL
463	11/19/2013	ADA CURB RAMP - MIDBLOCK
464	4/29/2012	ADA CURB RAMP - DETAILS
470	Dec 2020	CURB AND GUTTER
471	Dec 2020	CURB
475	7/23/2018	CONCRETE SIDEWALK
480	2/12/2018	ASHPALT REPAIR FOR NEWLY PAVED ROADS
481	2/12/2018	CONCRETE ROADWAY
482	2/12/2018	TEMPORARY STEEL PLATES
483	2/12/2018	TEMPORARY SURFACING
484	2/12/2018	PAVEMENT CORING REPAIR
490	Oct 2020	SINGLE SIDED (SOLAR) RETANGULAR RAPID FLASHING BEACON ASSEMBLY
491	Oct 2020	DUAL SIDED (SOLAR) RETANGULAR RAPID FLASHING BEACON ASSEMBLY
492	Oct 2020	SOLAR VEHICLE SPEED SIGN PEDESTAL
500	10/1/2005	MAILBOX POST INSTALLATION
510	3/1/2003	STREET BARRICADE
511	2/1/2002	STREET BARRICADE SIGN
512	3/1/2004	STORMWATER FACILITY SIGN
514	1/1/2013	TREE WELL AND GRATE
516	12/31/2016	STREET SIGN POST
517	12/31/2016	STREET NAME SIGN
520	4/1/2010	CENTERLINE SURVEY MONUMENT
530	7/9/2018	FOLD-DOWN BOLLARD

CITY OF TUALATIN STANDARD DRAWINGS
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DWG Number	Eff. Date	Title
		WATER
600	4/1/2010	VALVE - GATE
601	4/1/2010	VALVE - BUTTERFLY
602	3/1/2008	VALVE - 1-INCH AIR RELEASE
603	3/1/2008	VALVE - 2-INCH AIR RELEASE
604	3/1/2008	SAMPLE STATION
605	3/1/2008	MAINLINE VALVE ASSEMBLY - PERMANENT BLOW-OFF
607	12/1/2018	REDUCED PRESSURE BACKFLOW ASSEMBLY (EXTERIOR) - 3/4" THROUGH 2"
608	12/1/2018	REDUCED PRESSURE BACKFLOW ASSEMBLY (INTERIOR) - 3/4" THROUGH 2"
609	12/1/2018	DOUBLE CHECK BACKFLOW ASSEMBLY - 3/4" THROUGH 1"
610	12/1/2018	FIRE HYDRANT ASSEMBLY
611	12/1/2018	DOUBLE CHECK BACKFLOW ASSEMBLY - 1-1/2" THROUGH 2-1/2"
612	12/1/2018	REDUCED PRESSURE BACKFLOW ASSEMBLY (INTERIOR) - 2-1/2" THROUGH 10"
613	12/1/2018	DOUBLE CHECK BACKFLOW ASSEMBLY - 3" THROUGH 10"
614	12/1/2018	DOUBLE CHECK DETECTOR FIRE PROTECTION - WITHOUT FDC
615	12/1/2018	DOUBLE CHECK DETECTOR FIRE PROTECTION - WITH FDC CONNECTION
616	12/1/2018	DOUBLE CHECK VALVE ASSEMLY - INSIDE BLDG. 3/4" THROUGH 2"
617	12/1/2018	REDUCED PRESSURE BACKFLOW ASSEMBLY (EXTERIOR) - 2-1/2" THROUGH 10"
620	Dec 2020	PIPE JOINT RESTRAINT - BEARING THRUST BLOCKS
621	7/1/2003	PIPE JOINT RESTRAINT - GRAVITY THRUST BLOCKS
622	7/1/2003	PIPE JOINT RESTRAIN - STRADDLE THRUST BLOCKS
630	Oct 2020	WATER SERVICE - 5/8" X 3/4" METER
631	Oct 2020	WATER SERVICE - 1" METER
632	Oct 2020	WATER SERVICE - 1-1/2"METER
633	Oct 2020	WATER SERVICE - 2" METER
634	12/1/2018	WATER SERVICE - 3" AND LARGER METER COMPOUND TYPE
		TRANSPORTATION TOOLBOX
900	Oct 2020	CHANNELIZED RIGHT TURN LANE
901	Oct 2020	CURB EXTENSIONS AND CORNER RADII

GENERAL NOTES APPLICABLE TO ALL CITY OF TUALATIN DETAILS:

1. ALL STRUCTURES MUST BE LOCATED OUTSIDE OF THE PEDESTRIAN TRAVEL PATH. IF STRUCTURES ARE REQUIRED TO BE LOCATED PARTIALLY OR FULLY IN THE PEDESTRIAN TRAVEL WAY, THE STRUCTURES MUST ADHERE TO PROWAG'S SURFACE REQUIREMENTS (PROWAG R302.7).

2. RIMS OF STRUCTURES LOCATED WITHIN THE PEDESTRIAN TRAVEL WAY MUST BE FLUSH WITH SURROUNDING GRADE, AND CHANGES IN LEVEL MUST NOT EXCEED $\frac{1}{4}$" OR $\frac{1}{2}$" WITH A 1:2 BEVEL (PROWAG R302.7.2).

3. GAPS BETWEEN SURFACES OR GRATINGS MAY NOT EXCEED $\frac{1}{2}$" (PROWAG R302.7.3). STRUCTURES WITH GAPS THAT EXCEED $\frac{1}{2}$" SHALL BE LOCATED OUTSIDE THE PEDESTRIAN TRAVEL PATH.

4. SURFACES OF LIDS OF GRATES MUST BE FIRM, STABLE, AND SLIP RESISTANT (PROWAG R302.7).

5. OBJECTS LOCATED WITHIN THE PEDESTRIAN TRAVEL WAY MUST MEET PROWAG REQUIREMENTS, SPECIFICALLY ROUTE WIDTH (PROWAG R302.3), PROTRUSION LIMITS (PROWAG R402), AND CLEAR SPACE REQUIREMENTS (PROWAG R404).

6. CATCH BASINS AND ADJACENT GUTTER SECTIONS REQUIRING PAVEMENT DEFORMATIONS SHALL NOT BE LOCATED IN PEDESTRIAN STREET CROSSINGS (MARKED OR UNMARKED) OR OTHER PEDESTRIAN PATH OF TRAVEL, OR SHALL BE LOCATED IN A MANNER THAT ADHERES TO PROWAG'S SLOPE REQUIREMENTS (PROWAG R302.5.1).

7. DETAILS CONTAINED IN THE 900 SERIES (TRANSPORTATION TOOLBOX) ARE NOT REQUIRED, BUT MAY BE USED WITH CITY APPROVAL.

CITY OF TUALATIN, OR		**STANDARD GENERAL NOTES**	
REVISED: 09/2020 VALID: 10/2020	SCALE: NOT TO SCALE	DRAWN: M. SCHLAGEL APPROVED: K. MCMILLAN	DWG NO. **001**

CITY OF TUALATIN, OR

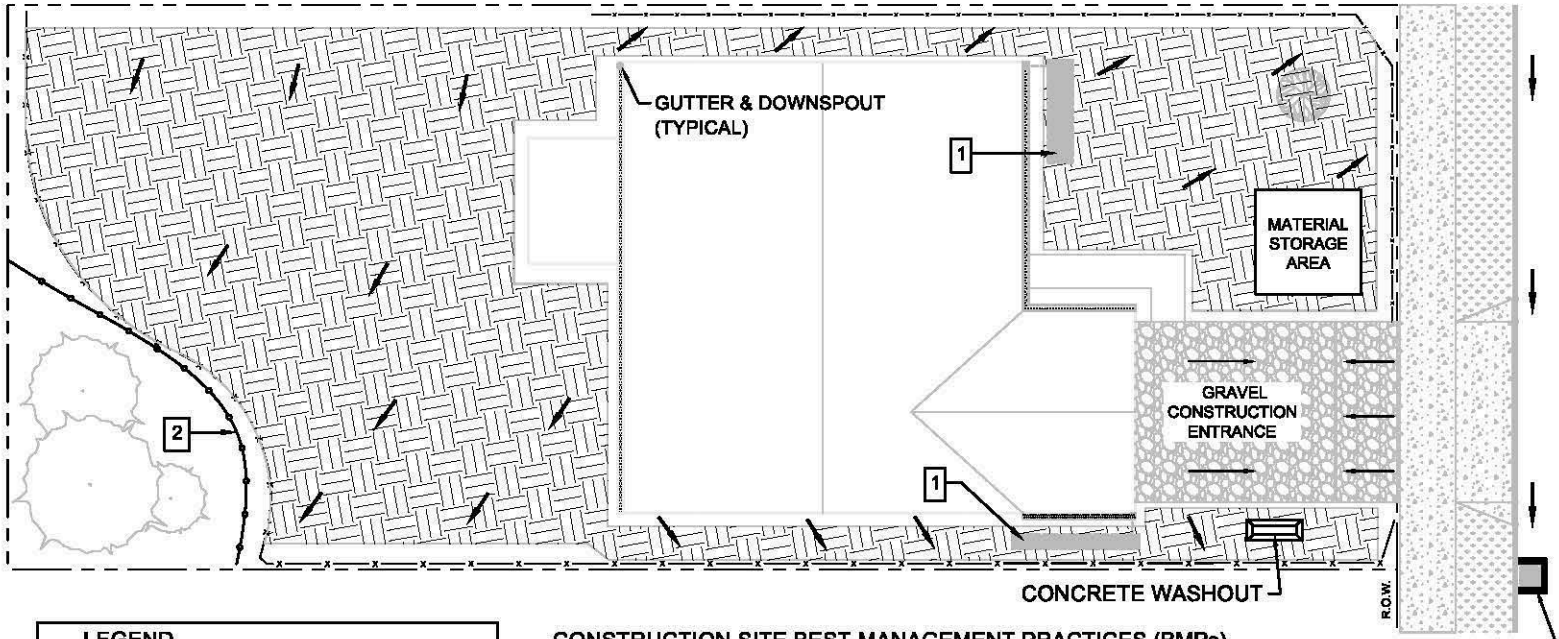
EROSION & SEDIMENT CONTROL EXAMPLE SINGLE FAMILY SITE PLAN

REVISED: 09/2020
VALID: 10/2020

SCALE: NOT TO SCALE

DRAWN: M. SCHLAGEL
APPROVED: K. MCMILLAN

DWG NO. 005



LEGEND

- PROPERTY LINE
- PERIMETER SEDIMENT CONTROL
- TEMP CONSTRUCTION FENCE
- GROUND SLOPE DIRECTION
- EXISTING VEGETATION
- STABILIZED SOIL
- EXISTING TREE
- EXISTING VEGETATION

KEYNOTES:

1. MINIMIZE COMPACTION OF SURFACE INFILTRATION AREAS. INSTALL PROTECTION FENCING WHEN FEASIBLE.
2. IF VEGETATED CORRIDOR AND/OR OTHER SENSITIVE AREAS ARE PRESENT, INSTALL CONSTRUCTION FENCE ALONG BOUNDARY.

CONSTRUCTION SITE BEST MANAGEMENT PRACTICES (BMPs)

REQUIRED BASE MEASURES

- PERIMETER SEDIMENT CONTROL
- CONSTRUCTION SITE ENTRANCE
- STORM DRAIN INLET PROTECTION

NON-STORMWATER POLLUTION CONTROL BMPs

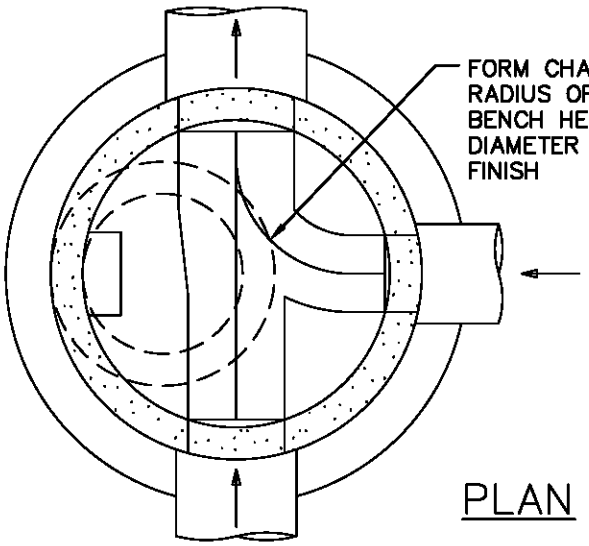
- STORE ALL PAINTS, STAINS, SOLVENTS, AND HAZARDOUS MATERIAL IN A COVERED STORAGE AREA.
- DISPOSE OF ALL TRASH/DEBRIS THAT COULD ENTER STORM SYSTEM IN A DUMPSTER OR TRASH CAN.
- CLEAN UP SPILLS PROMPTLY USING DRY CLEANUP METHODS.
- DISPOSE OF CONCRETE WASHOUT IN APPROVED LOCATIONS TO REDUCE POTENTIAL FOR DISCHARGE FROM CONSTRUCTION SITE.

ADDITIONAL CONSTRUCTION SITE BMPs

- SWEEP STREET AND/OR HARD SURFACES DAILY AND PROPERLY DISPOSE OF ALL MATERIALS.
- REMOVE TEMPORARY CONTROL MEASURES WHEN NO LONGER NEEDED.
- INSTALL GUTTERS & DOWNSPOUTS AS EARLY AS POSSIBLE. CAPTURE RUNOFF TO PREVENT ADDITIONAL ON SITE EROSION E.G. SWALE, RAIN GARDEN, FRENCH DRAIN.
- IF EXISTING VEGETATION IN RIGHT-OF-WAY IS DISTURBED AND SOIL IS EXPOSED, INSTALL A PERIMETER SEDIMENT CONTROL TO PREVENT MATERIAL FROM ENTERING ROADWAY.

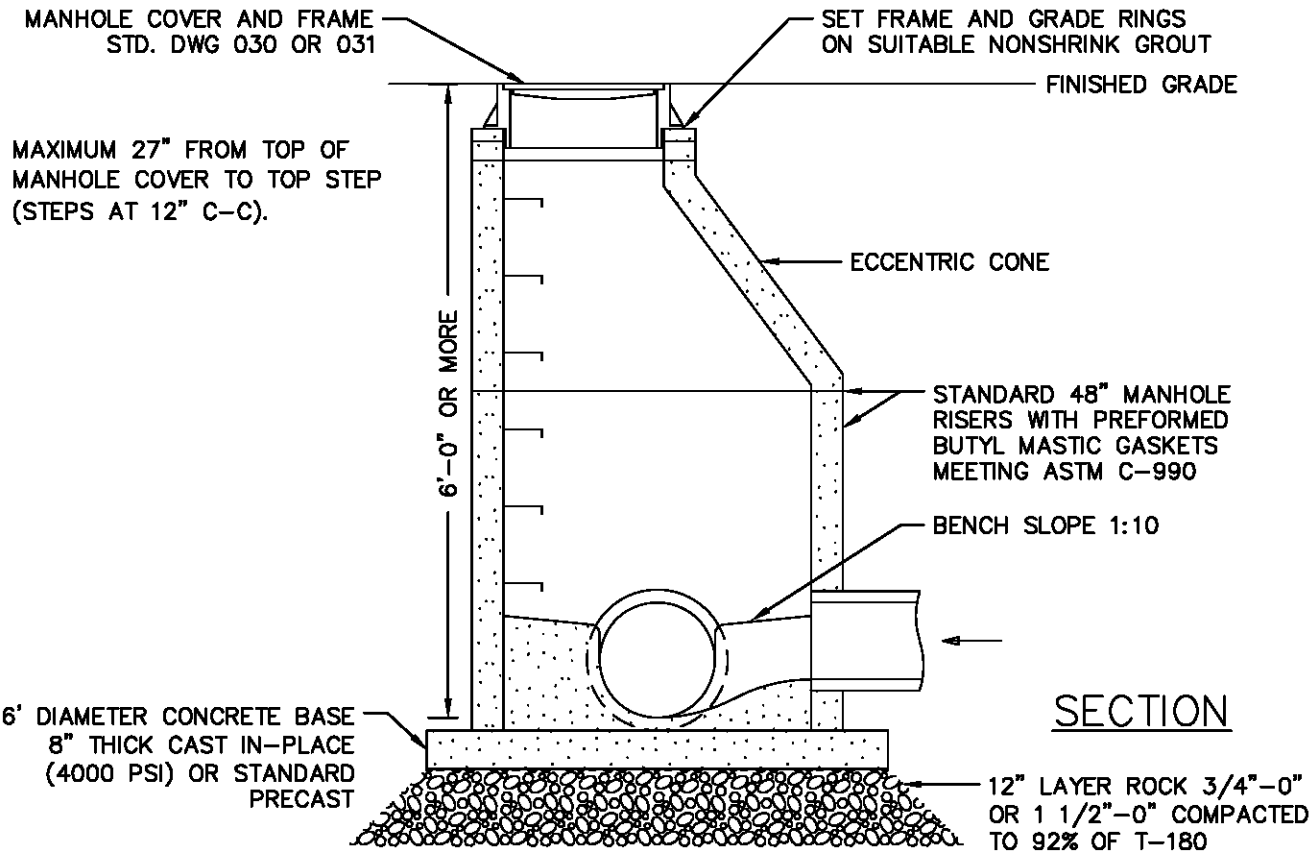
DO NOT DUMP OR WASH ANY MATERIAL INTO THE STORM DRAIN

DISCLAIMER: FOR GUIDANCE ONLY. BEST MANAGEMENT PRACTICES MAY VARY DEPENDING ON CONSTRUCTION SITE CHARACTERISTICS. FOR MORE INFORMATION ON EROSION CONTROL MEASURES PLEASE SEE CLEAN WATER SERVICES D&C STANDARDS CHAPTER 6 OR THE EROSION PREVENTION & SEDIMENT CONTROL MANUAL (VERSION 1, MAY 5, 2016)



PLAN

NOTES:
1. MAXIMUM PIPE DIAMETER 24".
2. MANHOLE TO CONFORM WITH ASTM C-478.
3. FALL THROUGH MANHOLE = 0.20 FT.
4. PLACE CONCRETE PIPE JOINT A MAXIMUM OF ONE PIPE DIAMETER FROM WALL OF MANHOLE.
5. LOCATE MANHOLE COVER/FRAME AND STEPS OVER BENCH LEDGE WITH MAXIMUM DEPTH OF GRADE RINGS OF 12".
6. IN PAVEMENT, PLACE MINIMUM 12" OF 3/4" MINUS OR 1-1/2" MINUS COMPACTED ROCK OUTSIDE RISERS.

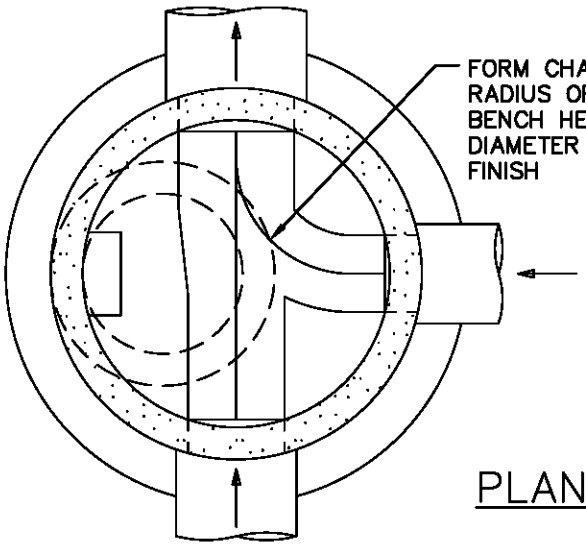


SECTION

CITY OF TUALATIN, OR

MANHOLE 48-INCH ECCENTRIC CONE TOP

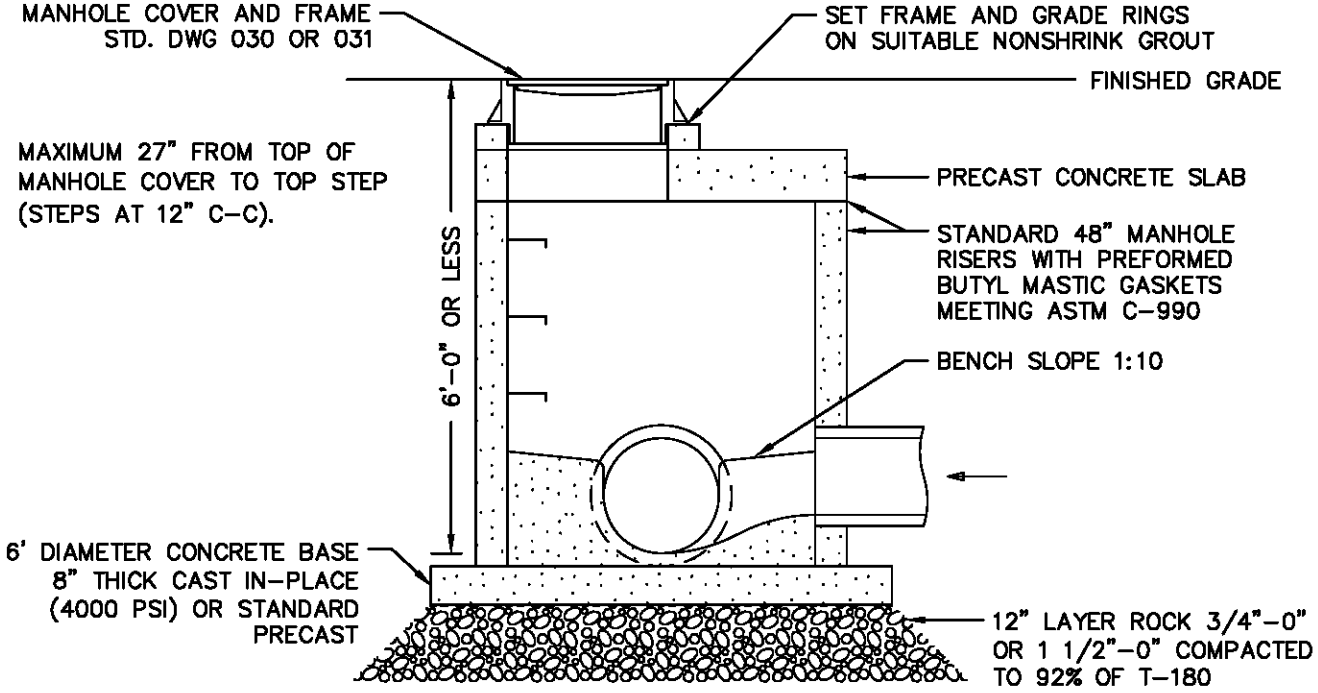
REVISED:	11/2020	SCALE: NOT TO SCALE	DRAWN: C. FERGESON	DWG NO.	010
VALID:	12/2020		APPROVED: K.MCMILLAN		



PLAN

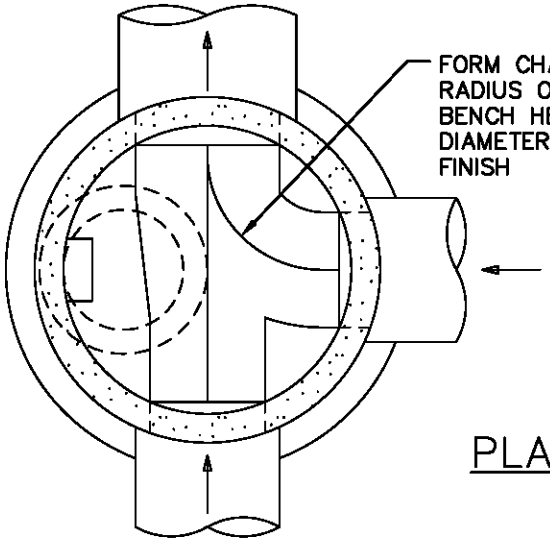
NOTES:

1. MAXIMUM PIPE DIAMETER 24".
2. MANHOLE TO CONFORM WITH ASTM C-478.
3. FALL THROUGH MANHOLE = 0.20 FT.
4. PLACE CONCRETE PIPE JOINT A MAXIMUM OF ONE PIPE DIAMETER FROM WALL OF MANHOLE.
5. LOCATE MANHOLE COVER/FRAME AND STEPS OVER BENCH LEDGE WITH MAXIMUM DEPTH OF GRADE RINGS OF 10".
6. IN PAVEMENT, PLACE MINIMUM 12" OF 3/4" MINUS OR 1-1/2" MINUS COMPACTED ROCK OUTSIDE RISERS.



SECTION

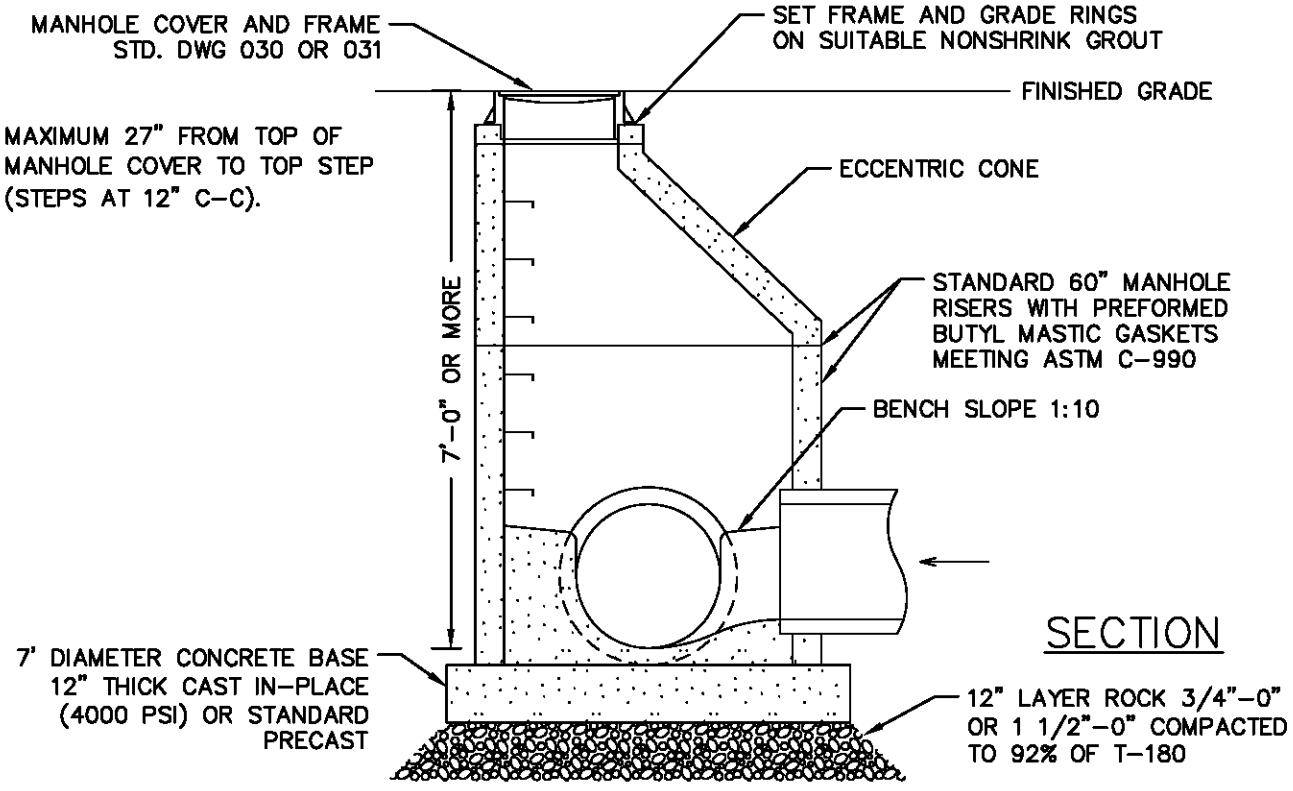
CITY OF TUALATIN, OR			**MANHOLE 48-INCH FLAT TOP**		
REVISED:	11/2020	SCALE: NOT TO SCALE	DRAWN: C. FERGESON	DWG NO.	011
VALID:	12/2020		APPROVED: K.MCMILLAN		



PLAN

NOTES:

1. MAXIMUM PIPE DIAMETER WITH HORIZONTAL PIPE ANGLE CHANGE = 30"; STRAIGHT THRU = 36".
2. MANHOLE TO CONFORM WITH ASTM C-478.
3. FALL THROUGH MANHOLE = 0.20 FT.
4. PLACE CONCRETE PIPE JOINT A MAXIMUM OF ONE PIPE DIAMETER FROM WALL OF MANHOLE.
5. LOCATE MANHOLE COVER/FRAME AND STEPS OVER BENCH LEDGE WITH MAXIMUM DEPTH OF GRADE RINGS OF 15".
6. IN PAVEMENT, PLACE MINIMUM 12" OF 3/4" MINUS OR 1-1/2" MINUS COMPACTED ROCK OUTSIDE RISERS.

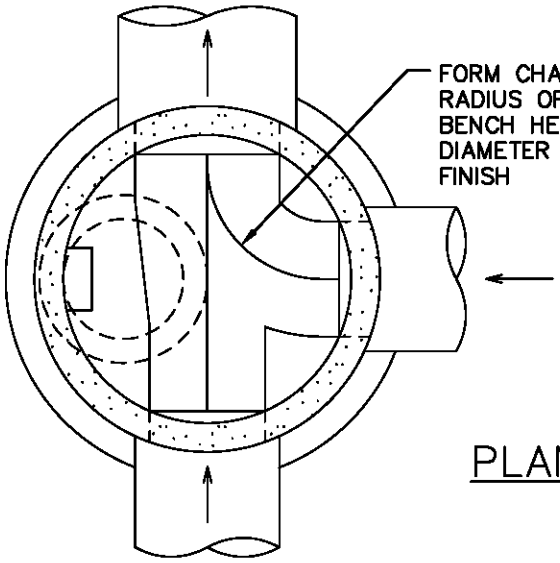


SECTION

CITY OF TUALATIN, OR

MANHOLE 60-INCH ECCENTRIC CONE TOP

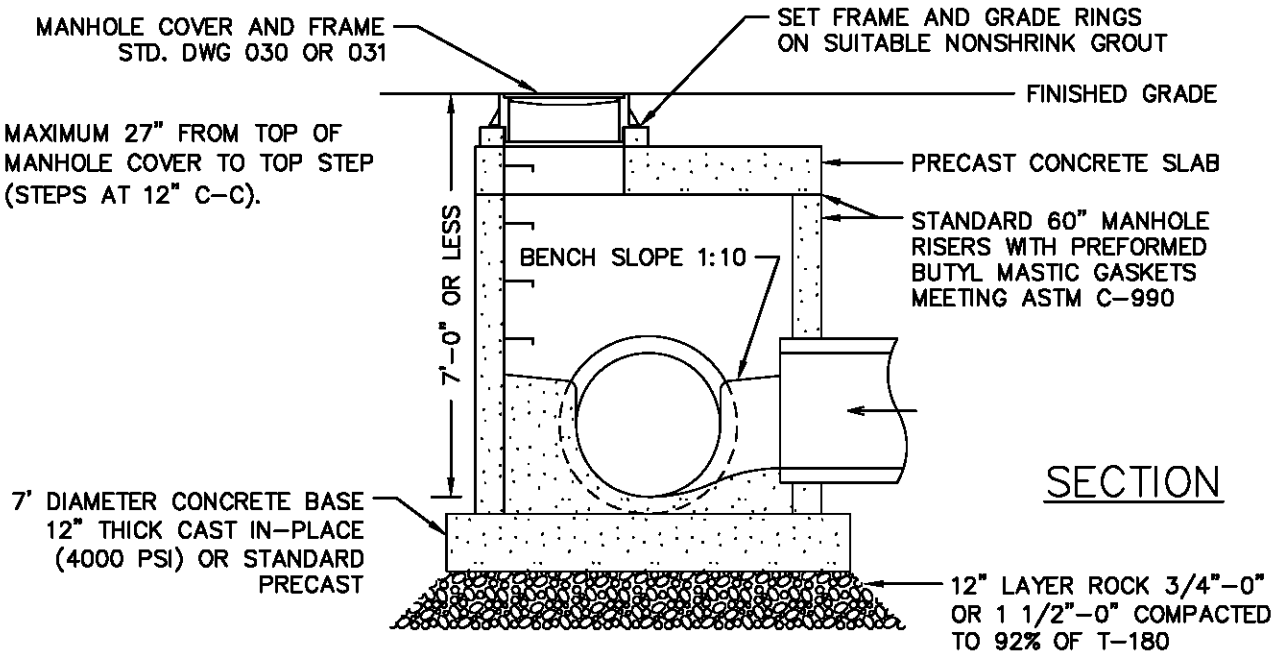
REVISED:	11/2020	SCALE: NOT TO SCALE	DRAWN: C. FERGESON	DWG NO.	012
VALID:	12/2020		APPROVED: K.MCMILLAN		



PLAN

NOTES:

1. MAXIMUM PIPE DIAMETER WITH HORIZONTAL PIPE ANGLE CHANGE = 30"; STRAIGHT THRU = 36".
2. MANHOLE TO CONFORM WITH ASTM C-478.
3. FALL THROUGH MANHOLE = 0.20 FT.
4. PLACE CONCRETE PIPE JOINT A MAXIMUM OF ONE PIPE DIAMETER FROM WALL OF MANHOLE.
5. LOCATE MANHOLE COVER/FRAME AND STEPS OVER BENCH LEDGE WITH MAXIMUM DEPTH OF GRADE RINGS OF 15".
6. IN PAVEMENT, PLACE MINIMUM 12" OF 3/4" MINUS OR 1-1/2" MINUS COMPACTED ROCK OUTSIDE RISERS.

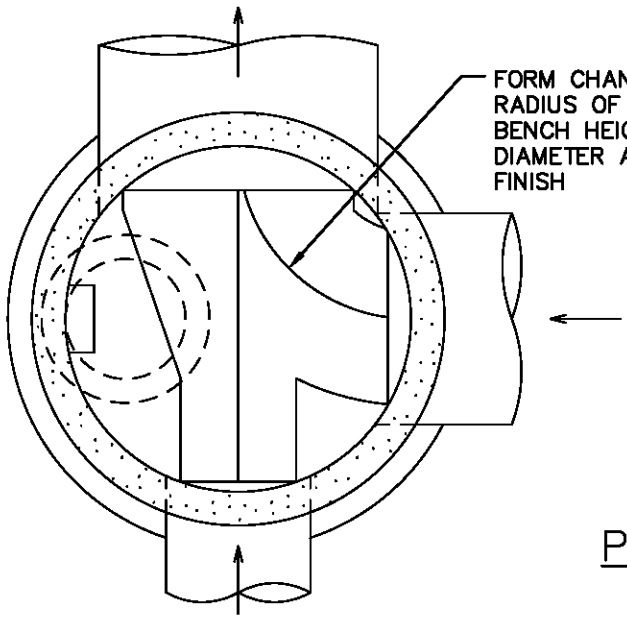


SECTION

CITY OF TUALATIN, OR

MANHOLE 60-INCH FLAT TOP

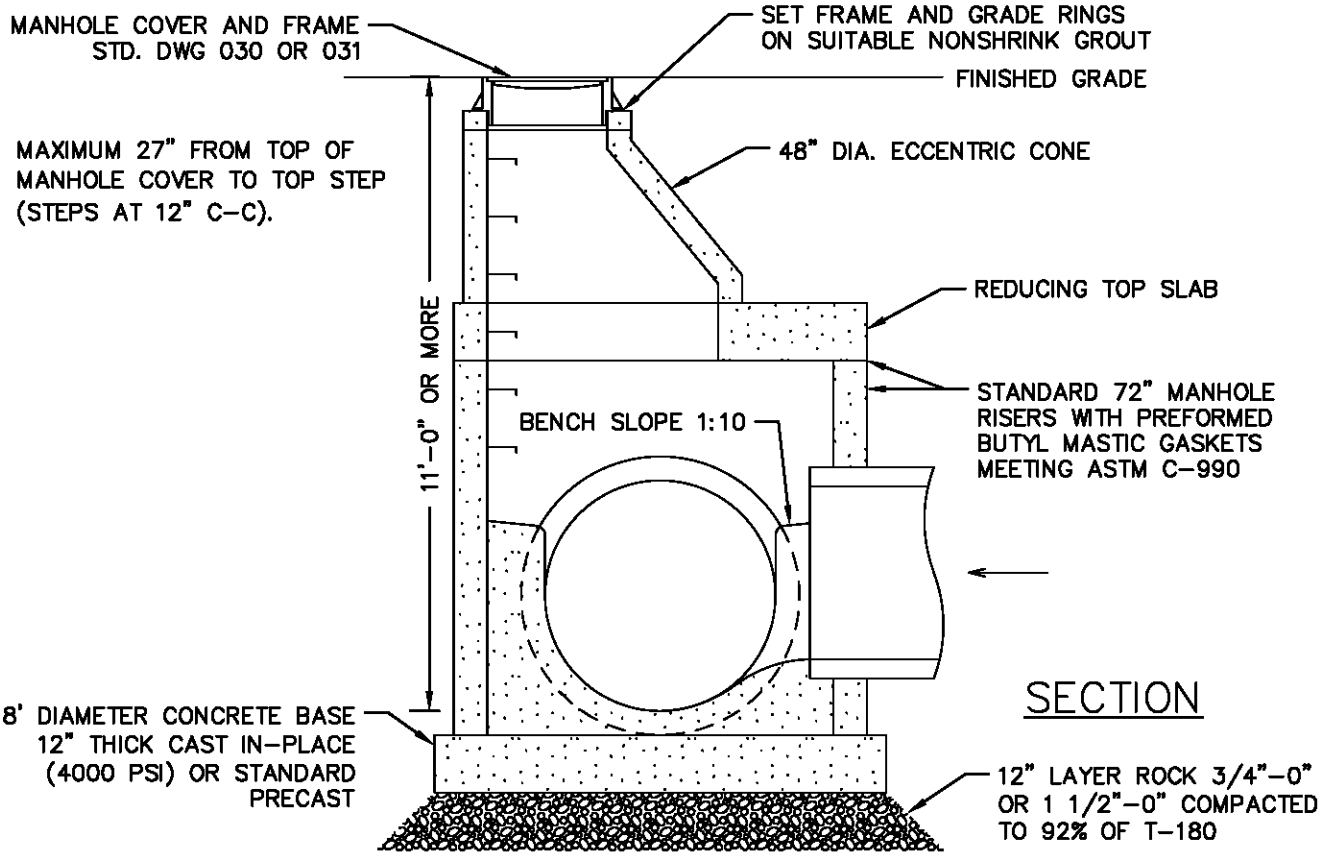
REVISED:	11/2020	SCALE: NOT TO SCALE	DRAWN: C. FERGESON	DWG NO.	013
VALID:	12/2020		APPROVED: K.MCMILLAN		



PLAN

NOTES:

1. MAXIMUM PIPE DIAMETER WITH HORIZONTAL PIPE ANGLE CHANGE = 36"; STRAIGHT THRU = 48".
2. MANHOLE TO CONFORM WITH ASTM C-478.
3. FALL THROUGH MANHOLE = 0.20 FT.
4. PLACE CONCRETE PIPE JOINT A MAXIMUM OF ONE PIPE DIAMETER FROM WALL OF MANHOLE.
5. LOCATE MANHOLE COVER/FRAME AND STEPS OVER BENCH LEDGE WITH MAXIMUM DEPTH OF GRADE RINGS OF 15".
6. IN PAVEMENT, PLACE MINIMUM 12" OF 3/4" MINUS OR 1-1/2" MINUS COMPACTED ROCK OUTSIDE RISERS.

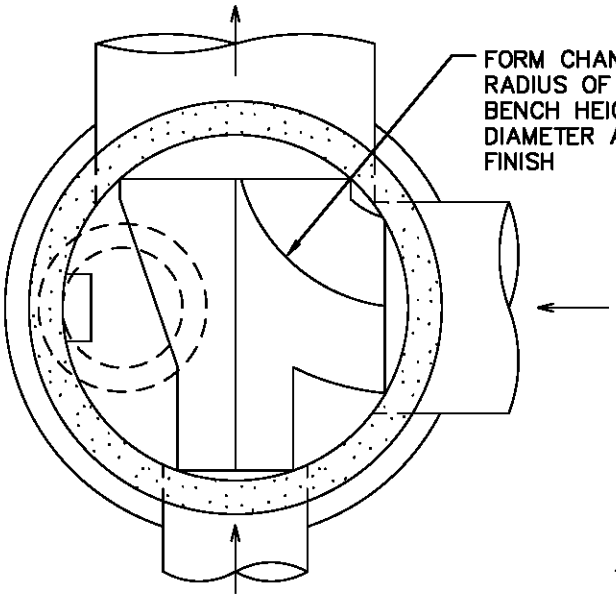


SECTION

CITY OF TUALATIN, OR

MANHOLE 72-INCH ECCENTRIC CONE TOP

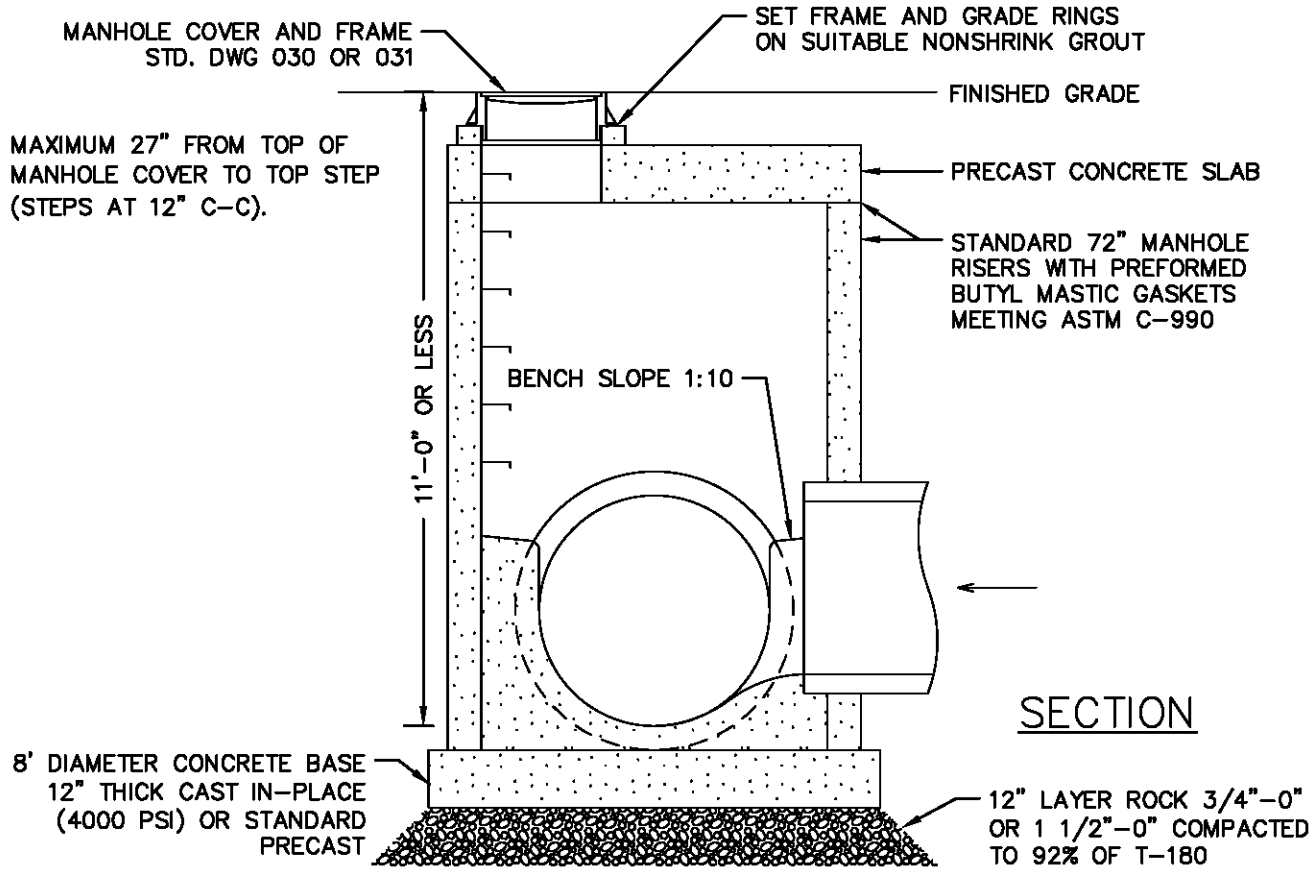
REVISED:	11/2020	SCALE: NOT TO SCALE	DRAWN: C. FERGESON	DWG NO.	014
VALID:	12/2020		APPROVED: K.MCMILLAN		



PLAN

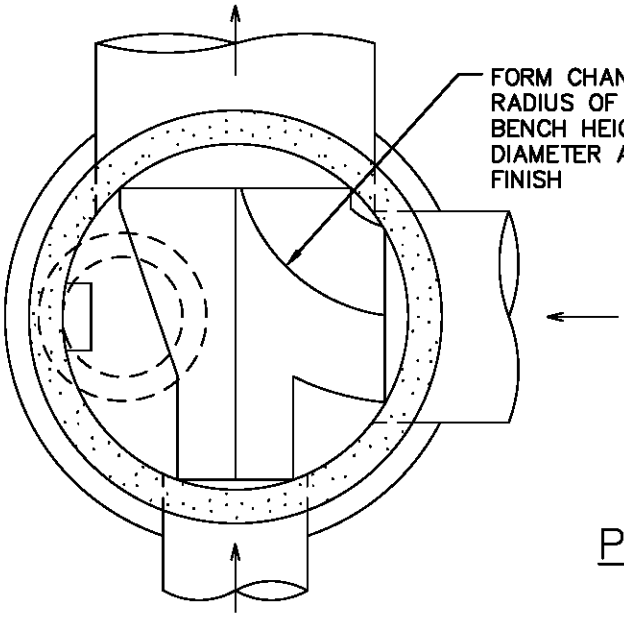
NOTES:

1. MAXIMUM PIPE DIAMETER WITH HORIZONTAL PIPE ANGLE CHANGE = 36"; STRAIGHT THRU = 48".
2. MANHOLE TO CONFORM WITH ASTM C-478.
3. FALL THROUGH MANHOLE = 0.20 FT.
4. PLACE CONCRETE PIPE JOINT A MAXIMUM OF ONE PIPE DIAMETER FROM WALL OF MANHOLE.
5. LOCATE MANHOLE COVER/FRAME AND STEPS OVER BENCH LEDGE WITH MAXIMUM DEPTH OF GRADE RINGS OF 15".
6. IN PAVEMENT, PLACE MINIMUM 12" OF 3/4" MINUS OR 1-1/2" MINUS COMPACTED ROCK OUTSIDE RISERS.



SECTION

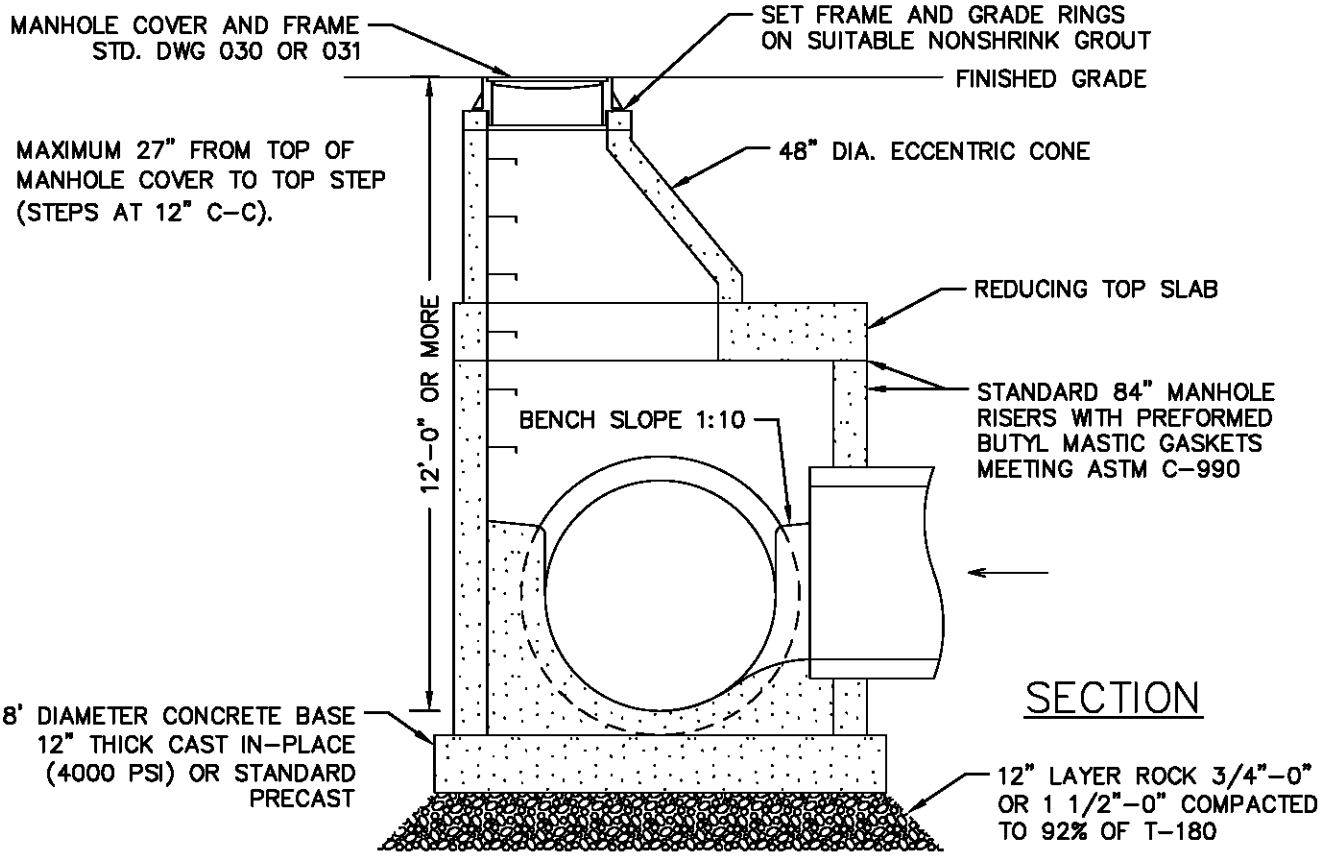
CITY OF TUALATIN, OR		**MANHOLE 72-INCH FLAT TOP**	
REVISED: 11/2020 VALID: 12/2020	SCALE: NOT TO SCALE	DRAWN: C. FERGESON APPROVED: K.MCMILLAN	DWG NO. 015



PLAN

NOTES:

1. MAXIMUM PIPE DIAMETER WITH HORIZONTAL PIPE ANGLE CHANGE = 42"; STRAIGHT THRU = 60".
2. MANHOLE TO CONFORM WITH ASTM C-478.
3. FALL THROUGH MANHOLE = 0.20 FT.
4. PLACE CONCRETE PIPE JOINT A MAXIMUM OF ONE PIPE DIAMETER FROM WALL OF MANHOLE.
5. LOCATE MANHOLE COVER/FRAME AND STEPS OVER BENCH LEDGE WITH MAXIMUM DEPTH OF GRADE RINGS OF 15".
6. IN PAVEMENT, PLACE MINIMUM 12" OF 3/4" MINUS OR 1-1/2" MINUS COMPACTED ROCK OUTSIDE RISERS.

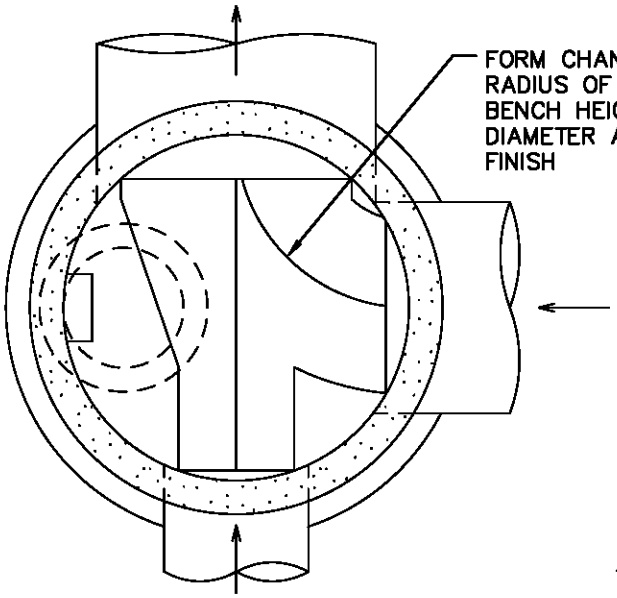


SECTION

CITY OF TUALATIN, OR

MANHOLE 84-INCH ECCENTRIC CONE TOP

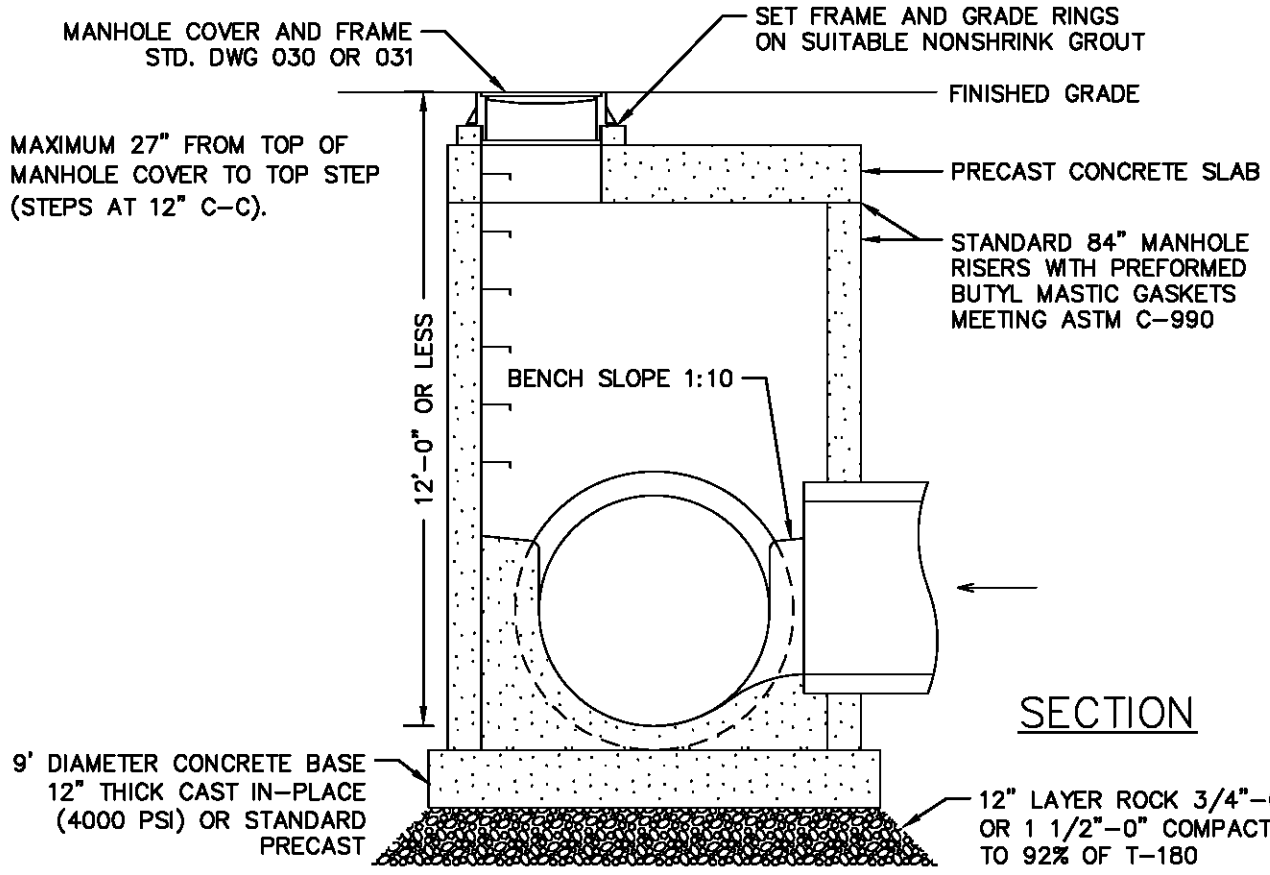
REVISED:	11/2020	SCALE: NOT TO SCALE	DRAWN: C. FERGESON	DWG NO.	016
VALID:	12/2020		APPROVED: K.MCMILLAN		



PLAN

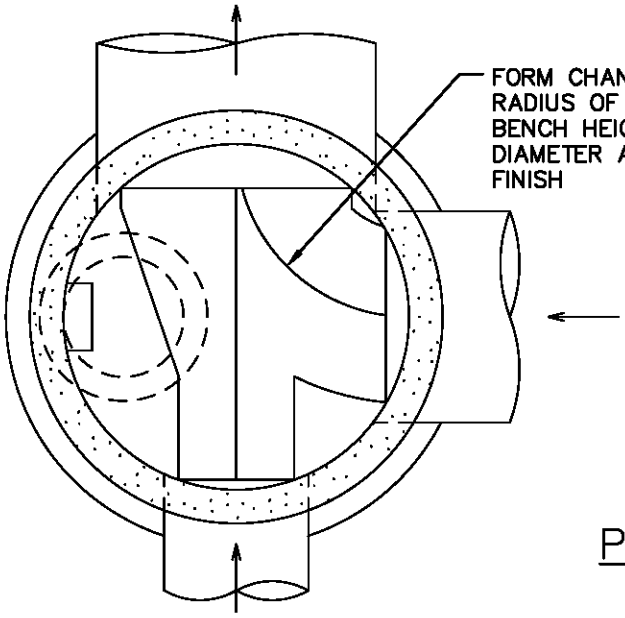
NOTES:

1. MAXIMUM PIPE DIAMETER WITH HORIZONTAL PIPE ANGLE CHANGE = 42"; STRAIGHT THRU = 60".
2. MANHOLE TO CONFORM WITH ASTM C-478.
3. FALL THROUGH MANHOLE = 0.20 FT.
4. PLACE CONCRETE PIPE JOINT A MAXIMUM OF ONE PIPE DIAMETER FROM WALL OF MANHOLE.
5. LOCATE MANHOLE COVER/FRAME AND STEPS OVER BENCH LEDGE WITH MAXIMUM DEPTH OF GRADE RINGS OF 15".
6. IN PAVEMENT, PLACE MINIMUM 12" OF 3/4" MINUS OR 1-1/2" MINUS COMPACTED ROCK OUTSIDE RISERS.



SECTION

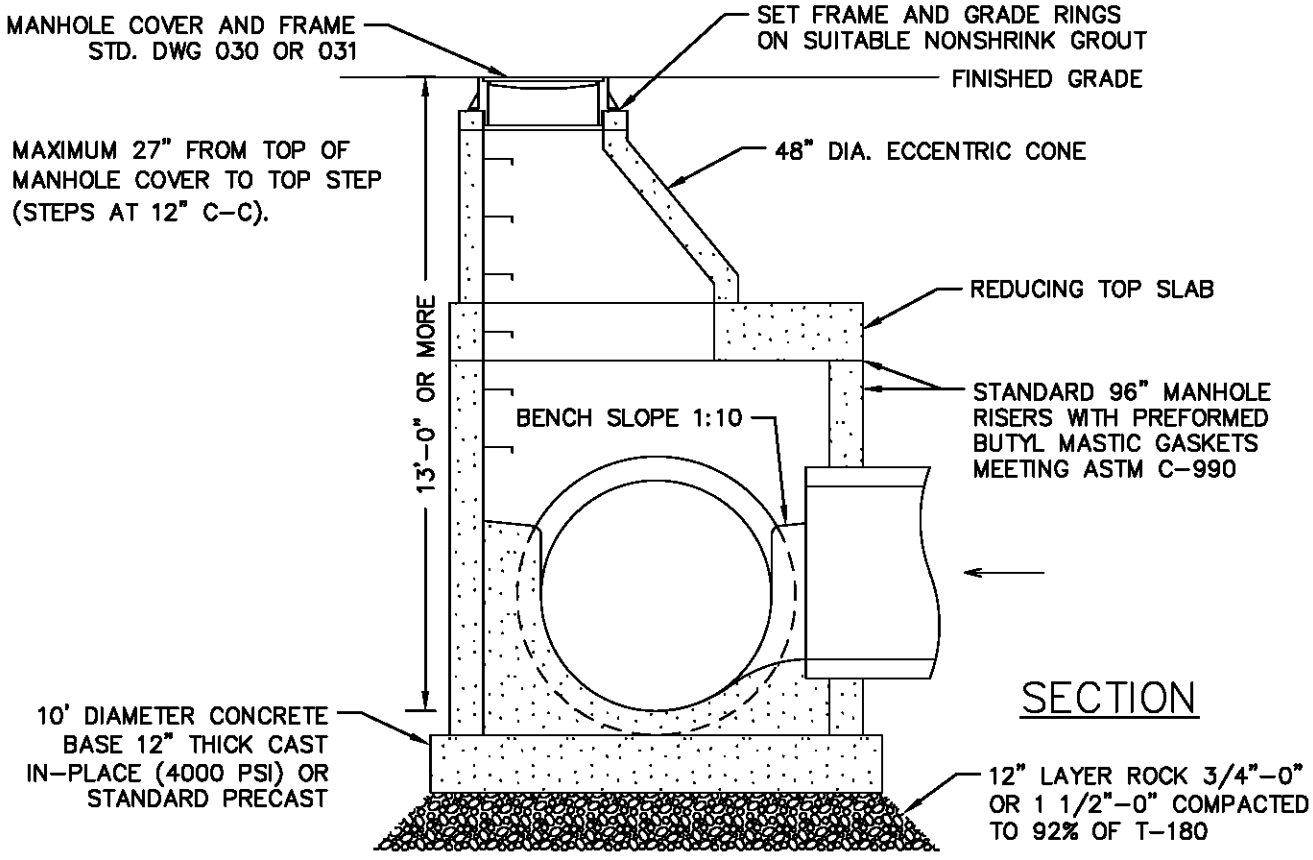
CITY OF TUALATIN, OR		**MANHOLE 84-INCH FLAT TOP**		
REVISED: 11/2020 VALID: 12/2020	SCALE: NOT TO SCALE	DRAWN: C. FERGESON APPROVED: K.MCMILLAN	DWG NO.	017



PLAN

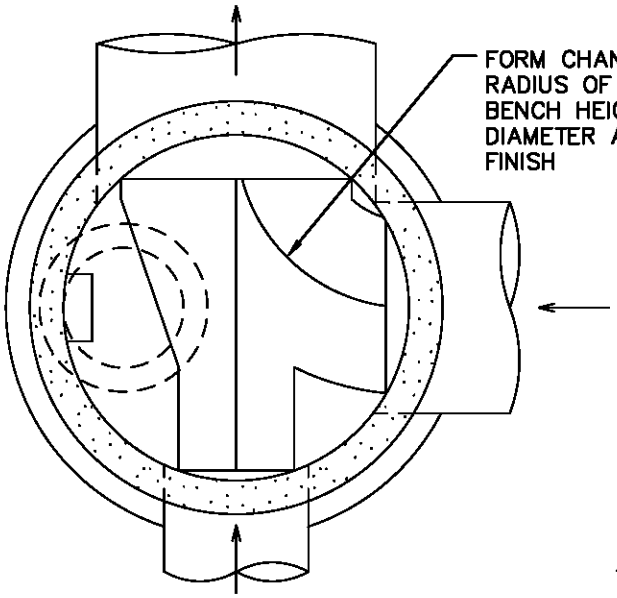
NOTES:

1. MAXIMUM PIPE DIAMETER WITH HORIZONTAL PIPE ANGLE CHANGE = 48"; STRAIGHT THRU = 72".
2. MANHOLE TO CONFORM WITH ASTM C-478.
3. FALL THROUGH MANHOLE = 0.20 FT.
4. PLACE CONCRETE PIPE JOINT A MAXIMUM OF ONE PIPE DIAMETER FROM WALL OF MANHOLE.
5. LOCATE MANHOLE COVER/FRAME AND STEPS OVER BENCH LEDGE WITH MAXIMUM DEPTH OF GRADE RINGS OF 15".
6. IN PAVEMENT, PLACE MINIMUM 12" OF 3/4" MINUS OR 1-1/2" MINUS COMPACTED ROCK OUTSIDE RISERS.



SECTION

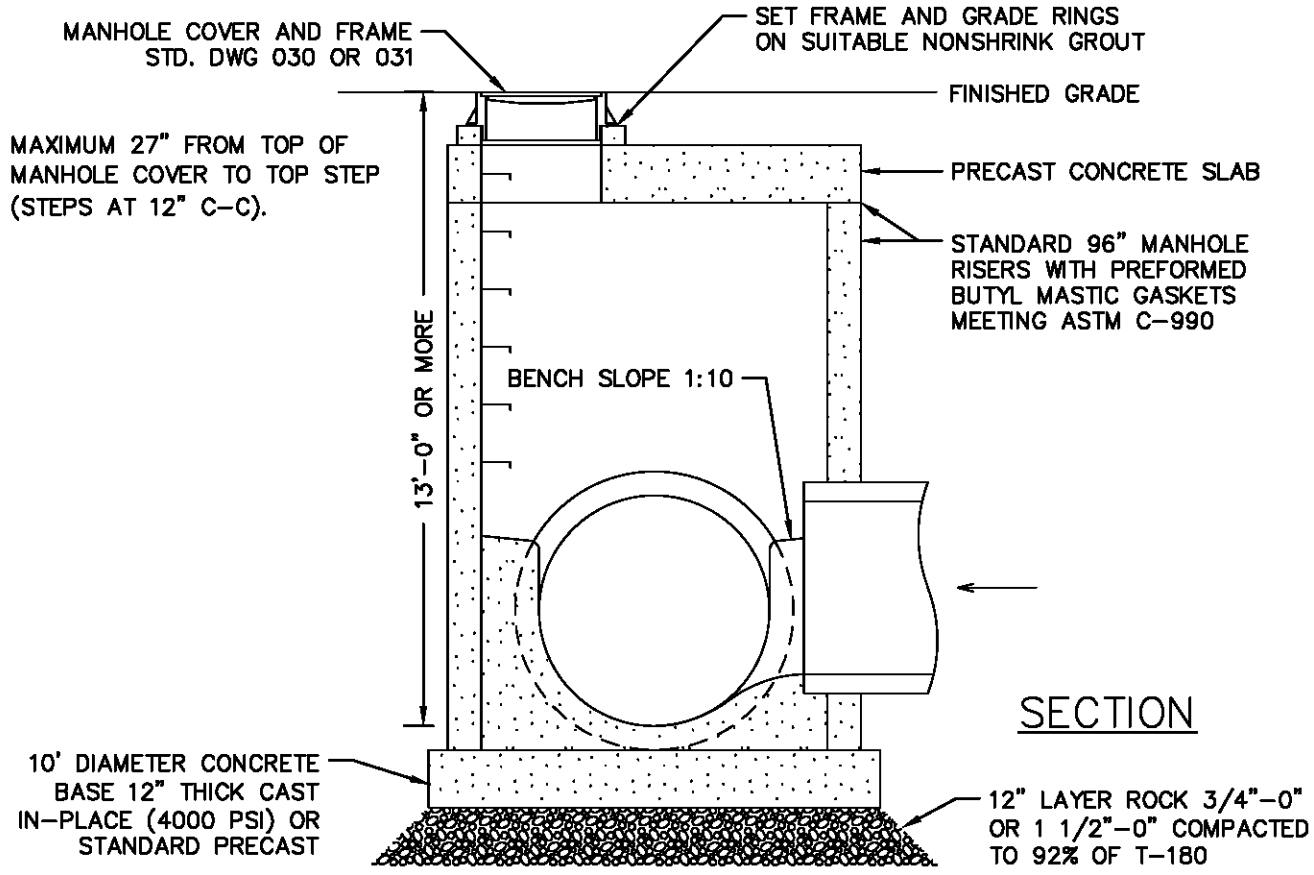
CITY OF TUALATIN, OR		MANHOLE 96-INCH ECCENTRIC CONE TOP	
REVISED: 11/2020 VALID: 12/2020	SCALE: NOT TO SCALE	DRAWN: C. FERGESON APPROVED: K.MCMILLAN	DWG NO. 018



PLAN

NOTES:

1. MAXIMUM PIPE DIAMETER WITH HORIZONTAL PIPE ANGLE CHANGE = 48"; STRAIGHT THRU = 72".
2. MANHOLE TO CONFORM WITH ASTM C-478.
3. FALL THROUGH MANHOLE = 0.20 FT.
4. PLACE CONCRETE PIPE JOINT A MAXIMUM OF ONE PIPE DIAMETER FROM WALL OF MANHOLE.
5. LOCATE MANHOLE COVER/FRAME AND STEPS OVER BENCH LEDGE WITH MAXIMUM DEPTH OF GRADE RINGS OF 15".
6. IN PAVEMENT, PLACE MINIMUM 12" OF 3/4" MINUS OR 1-1/2" MINUS COMPACTED ROCK OUTSIDE RISERS.

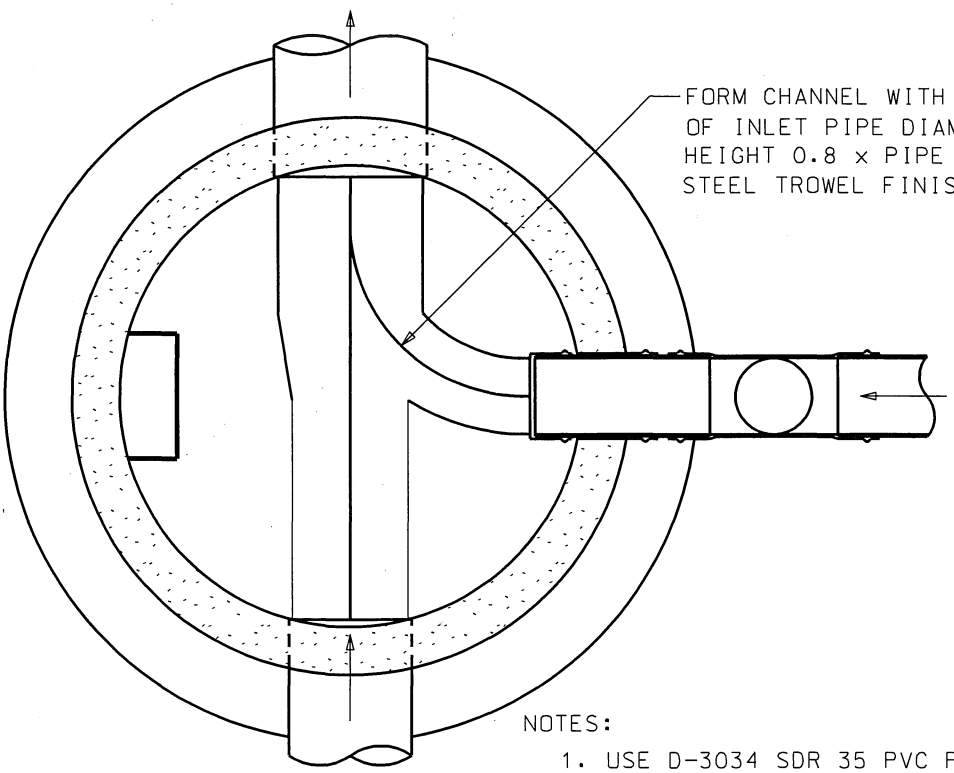


SECTION

CITY OF TUALATIN, OR

MANHOLE 96-INCH FLAT TOP

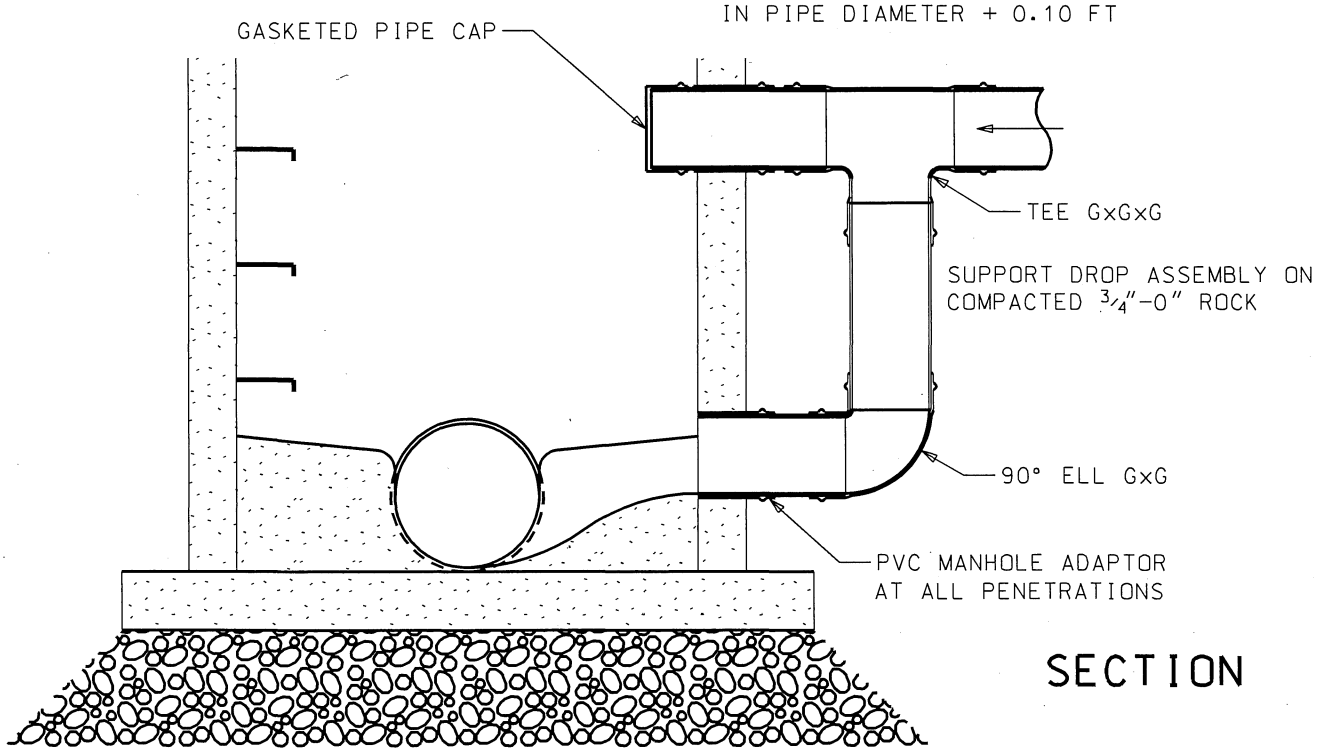
REVISED:	11/2020	SCALE: NOT TO SCALE	DRAWN: C. FERGESON	DWG NO.	019
VALID:	12/2020		APPROVED: K.MCMILLAN		



PLAN

NOTES:

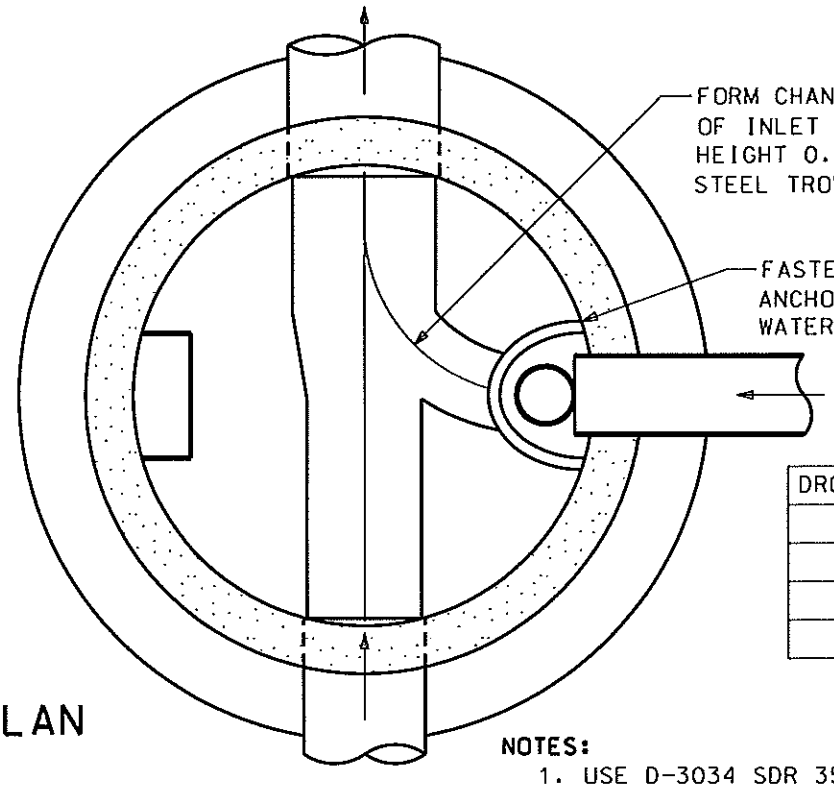
1. USE D-3034 SDR 35 PVC PIPE WITH GASKETED SEWER PIPE FITTINGS
2. FALL THROUGH MANHOLE = 0.8 x DIFFERENCE IN PIPE DIAMETER + 0.10 FT



SECTION

TO BE USED ON ALL NEW MANHOLE DROP INSTALLATIONS

CITY OF TUALATIN, OR		**MANHOLE OUTSIDE DROP ASSEMBLY**	
REVISED: 10/2001 VALID: 3/2003	SCALE: 1:20	DRAWN: D.L. APPROVED: K.L.H.	DWG NO. 020

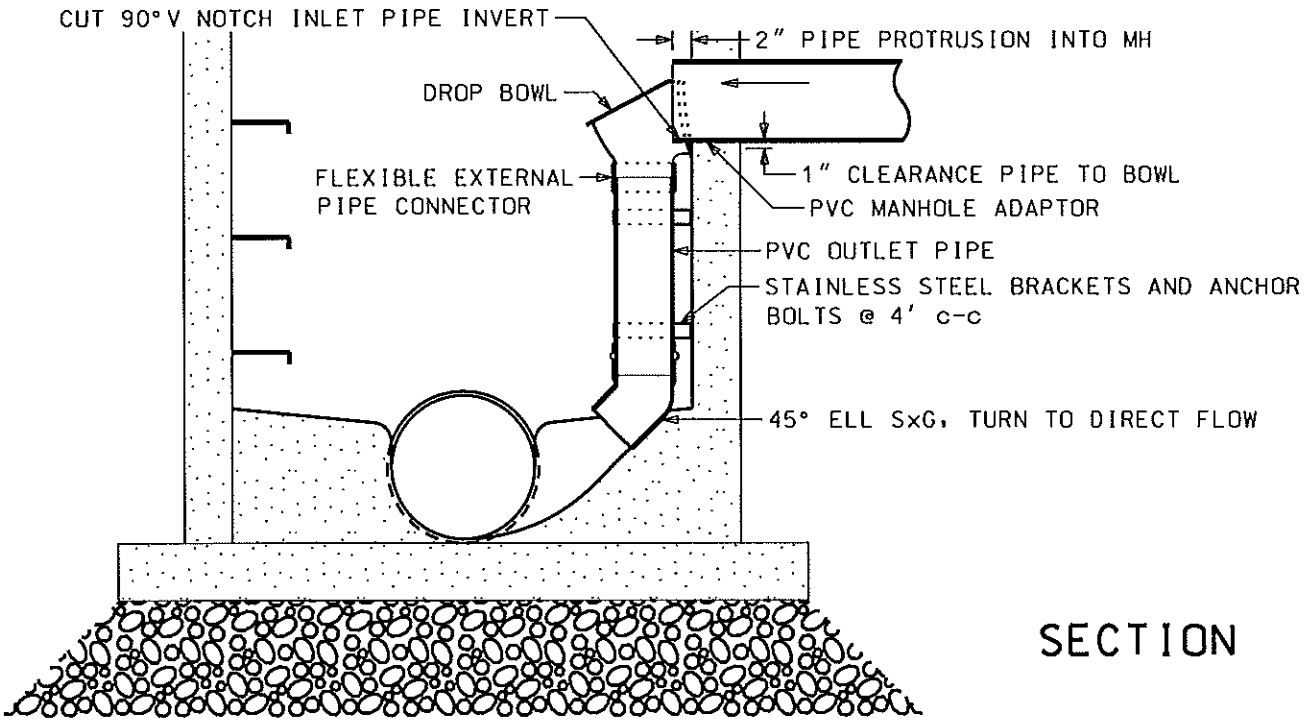


PLAN

DROP BOWL	INLET	OUTLET
A4	6"	4"
A6	8"	6"
B8	10"	8"
B10	12"	10"

NOTES:

1. USE D-3034 SDR 35 PVC PIPE AND "RELINER" FIBERGLASS DROP BOWL WITH GELCOAT FINISH
2. MINIMUM HORIZONTAL CLEARANCE 24" BETWEEN BOWL AND STEPS

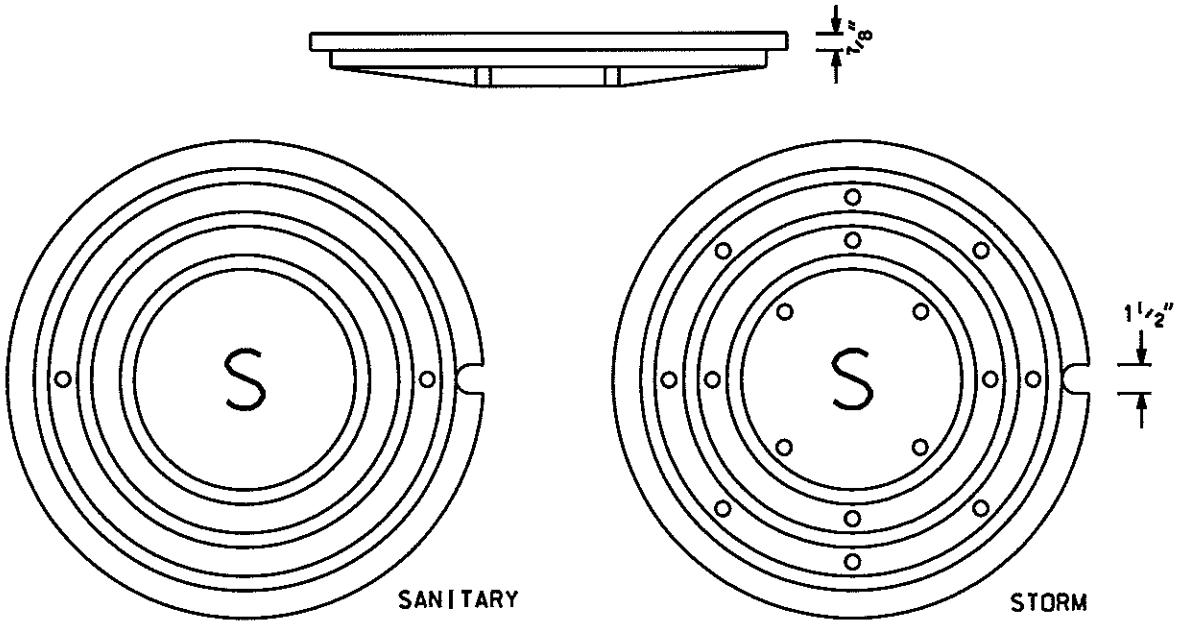


SECTION

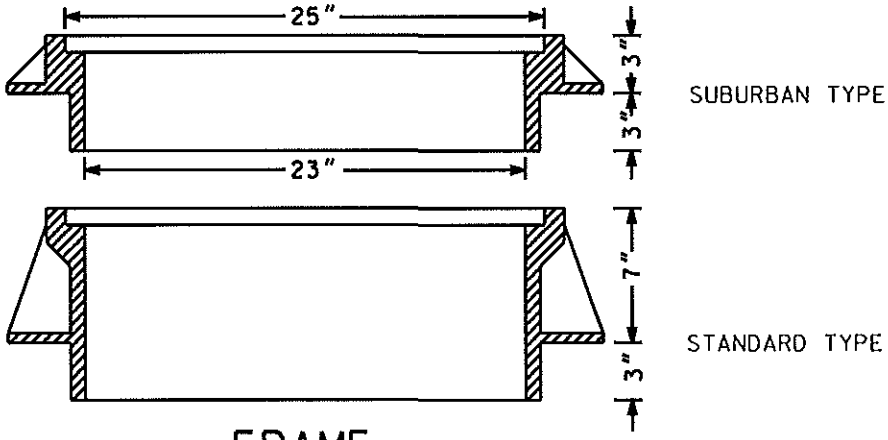
CITY OF TUALATIN, OR

MANHOLE INSIDE DROP ASSEMBLY

REVISED:	2/2004	SCALE: 1:20	DRAWN: D.L.	DWG NO.	021
VALID:	3/2004		APPROVED: K.L.H.		



COVER

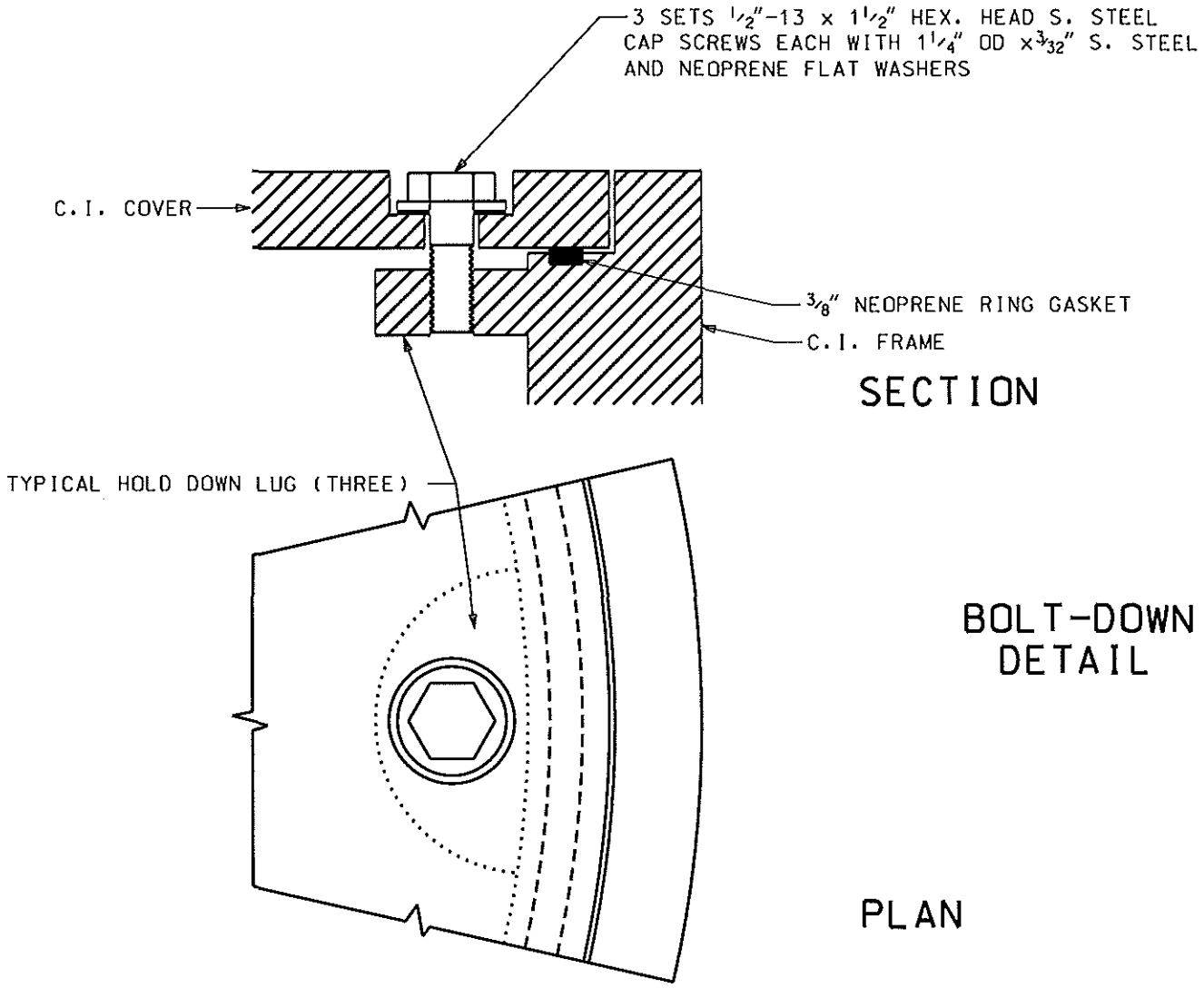


FRAME

NOTES:

1. ALL ASSEMBLIES ARE TO BE RATED FOR H-20 TRAFFIC LOADING
2. COVER & FRAME SHALL BE GRAY CAST IRON ASTM A-48 CLASS 30, WITH MATCHING SURFACES MACHINED TO A TRUE BEARING
3. NOTCH LID FOR LIFTING HOOK
4. **REFER TO STD DWG 031 FOR WATERTIGHT ASSEMBLY MODIFICATIONS**

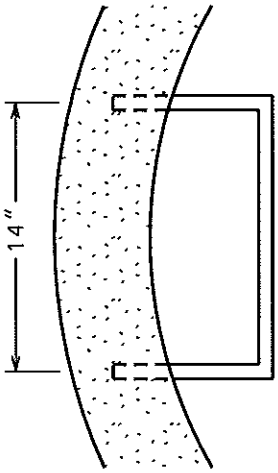
CITY OF TUALATIN, OR		MANHOLE COVER AND FRAME STANDARD	
REVISED: 7/1996 VALID: 3/2003	SCALE: 1:10	DRAWN: D.L. APPROVED: K.L.H.	DWG NO. 030



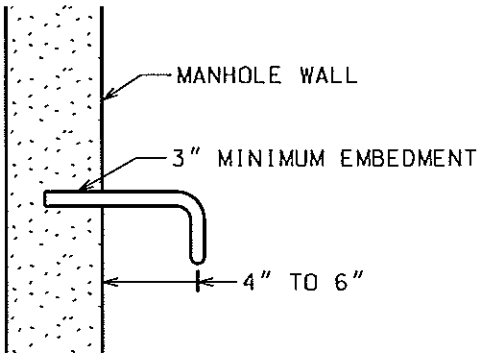
NOTES:

1. REFER TO STANDARD DWG 030
2. COVER SHALL INCORPORATE TWO DEPRESSED LIFTING HANDLES AND SHALL NOT INCLUDE THE NOTCH FOR A LIFTING HOOK OR DRAINAGE HOLES
3. THE THREE HOLD DOWN LUGS SHALL BE EVENLY SPACED AROUND THE INTERIOR OF THE FRAME
4. TO BE USED WHENEVER AN ASSOCIATED SANITARY SEWER MANHOLE IS LOCATED WITHIN A FLOODWAY, GREENWAY OR IS NOT IN A PAVED AREA

CITY OF TUALATIN, OR		MANHOLE COVER AND FRAME WATERTIGHT	
REVISED: 6/1997 VALID: 3/2003	SCALE: 1:2	DRAWN: D.L. APPROVED: K.L.H.	DWG NO. 031



PLAN

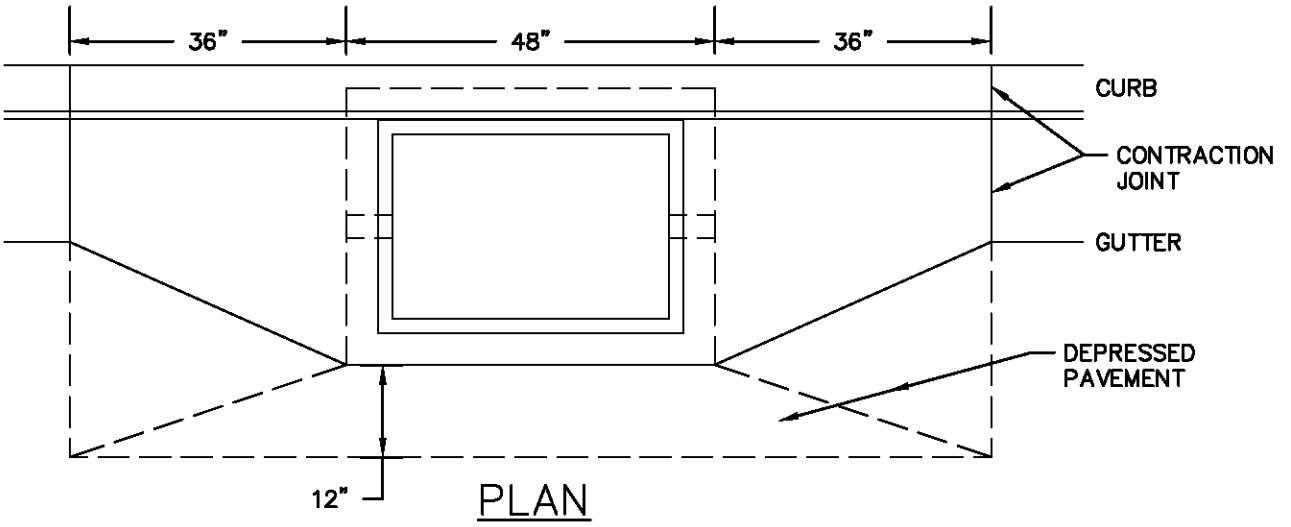


SECTION

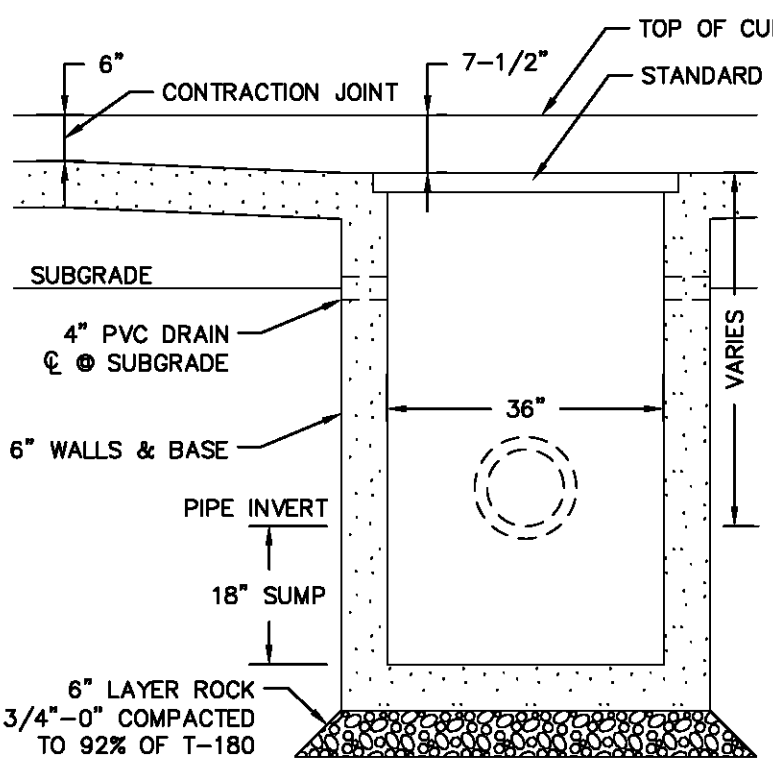
NOTES:

1. STEPS SHALL BE MANUFACTURED FROM ½" REINFORCING BAR (ASTM A-615 GRADE 60) ENCAPSULATED IN INJECTION MOLDED COPOLYMER POLYPROPYLENE WITH SERRATED NON-SLIP TOP SURFACE
2. STEPS SHALL BE VERTICALLY SPACED ON 12" CENTERS AND MUST BE FIRMLY EMBEDDED IN THE CONCRETE WALL MEETING THE PULLOUT REQUIREMENTS OF ASTM C-478
3. THE MINIMUM CLEAR HORIZONTAL DISTANCE BETWEEN THE RUNG AND THE OPPOSITE WALL OR OTHER OBSTRUCTION SHALL BE 24" MEASURED AT THE CENTER FACE OF THE STEP
4. THE MAXIMUM VERTICAL DISTANCE BETWEEN THE TOP RUNG AND THE MANHOLE COVER TOP SHALL BE 27"

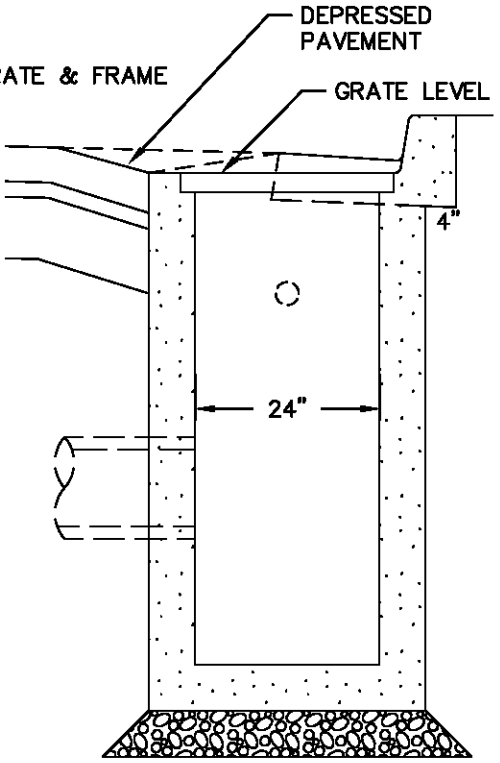
CITY OF TUALATIN, OR		MANHOLE STEPS	
REVISED: 9/2001 VALID: 3/2003	SCALE: 1:10	DRAWN: D.L. APPROVED: K.L.H.	DWG NO. 032



PLAN



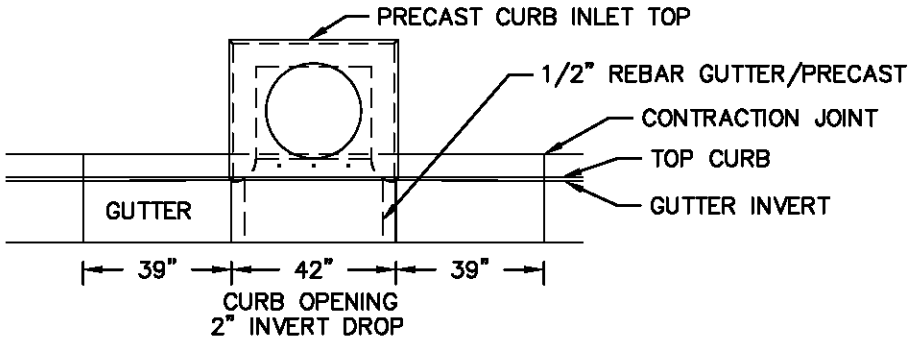
SECTION



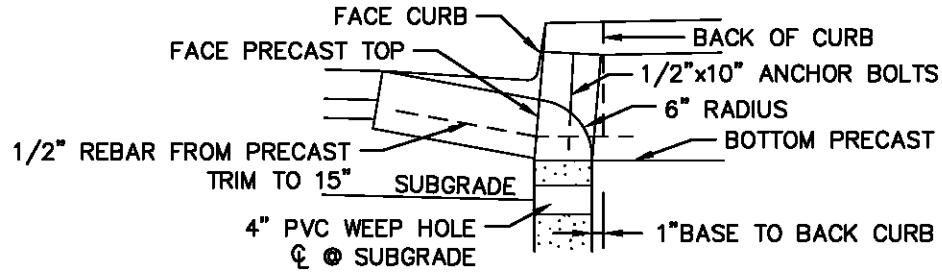
CROSS-SECTION

NOTES:
1. SEE STD DWG 050 FOR STANDARD GRATE AND FRAME.
2. CONCRETE COMPRESSIVE STRENGTH 3300 PSI AT 28 DAYS, ENTRAINED AIR 4% – 7%.

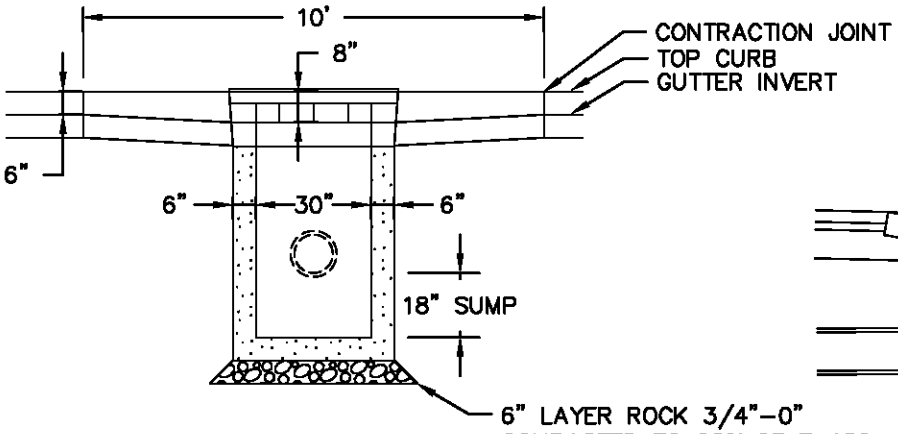
CITY OF TUALATIN, OR		CATCH BASIN 36-INCH GUTTER GRATE INLET	
REVISED: 11/2020 VALID: 12/2020	SCALE: NOT TO SCALE	DRAWN: C. FERGESON APPROVED: K. MCMILLAN	DWG NO. 040



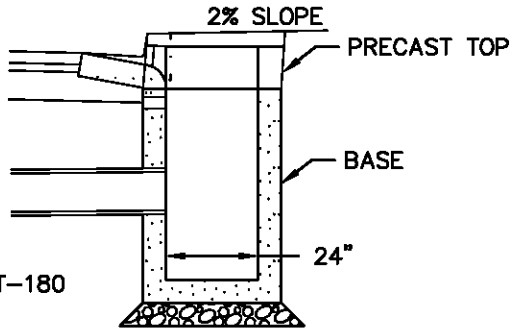
PLAN VIEW



TOP LEFT CNR OF SECTION



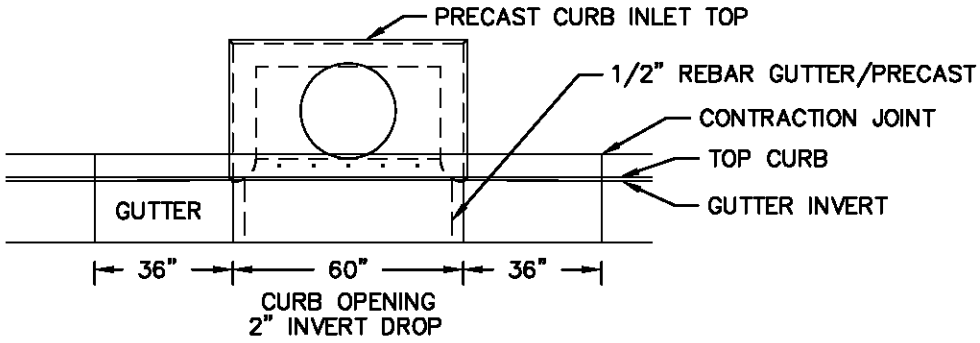
FRONT VIEW



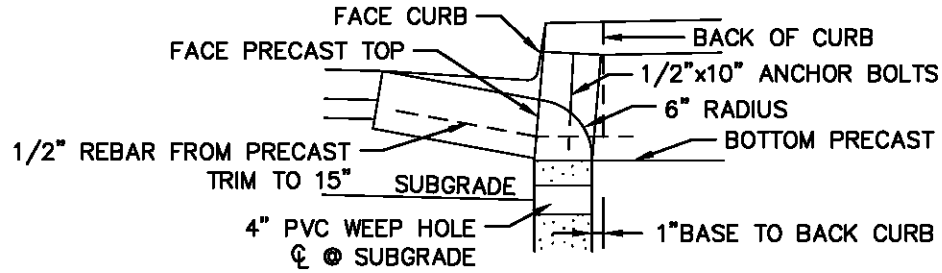
SECTION

NOTES:
1. ALL FABRICATED METAL PARTS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION.
2. BASE SHALL BE CAST-IN-PLACE WITH CONCRETE COMPRESSIVE STRENGTH 3300 P.S.I. AT 28 DAYS, ENTRAINED AIR 4-7%.
3. PRECAST CURB INLET 30" TOP SECTION MANUFACTURED BY UTILITY VAULT MODEL No. CI-30-23FC WITH CAST IRON MANHOLE COVER.
4. FOR GRADES GREATER THAN 4% USE CATCH BASIN CURB INLET 48-INCH, DWG NO. 042.

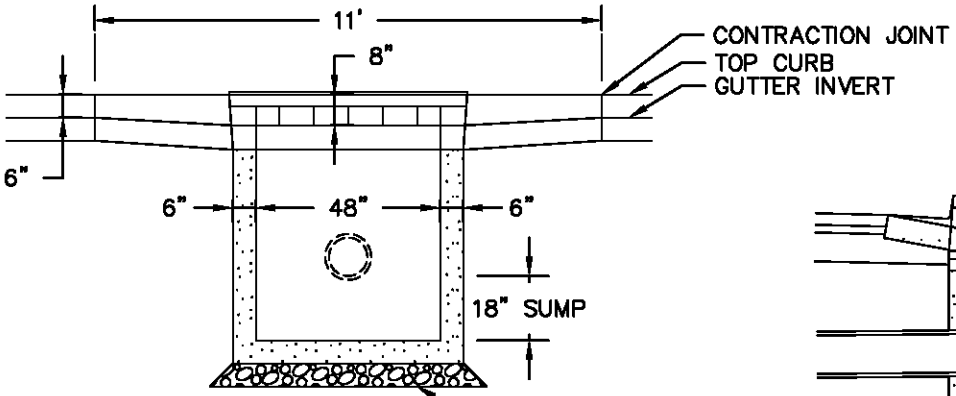
CITY OF TUALATIN, OR		CATCH BASIN CURB INLET 30-INCH	
REVISED: 11/2020 VALID: 12/2020	SCALE: NOT TO SCALE	DRAWN: C. FERGESON APPROVED: K.MCMILLAN	DWG NO. 041



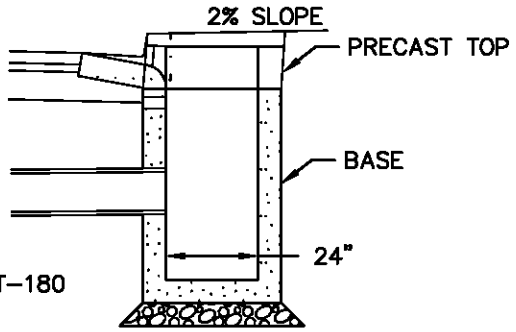
PLAN VIEW



TOP LEFT CNR OF SECTION



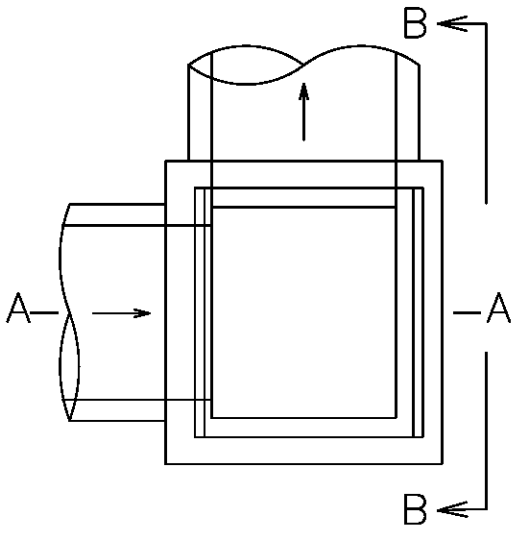
FRONT VIEW



SECTION

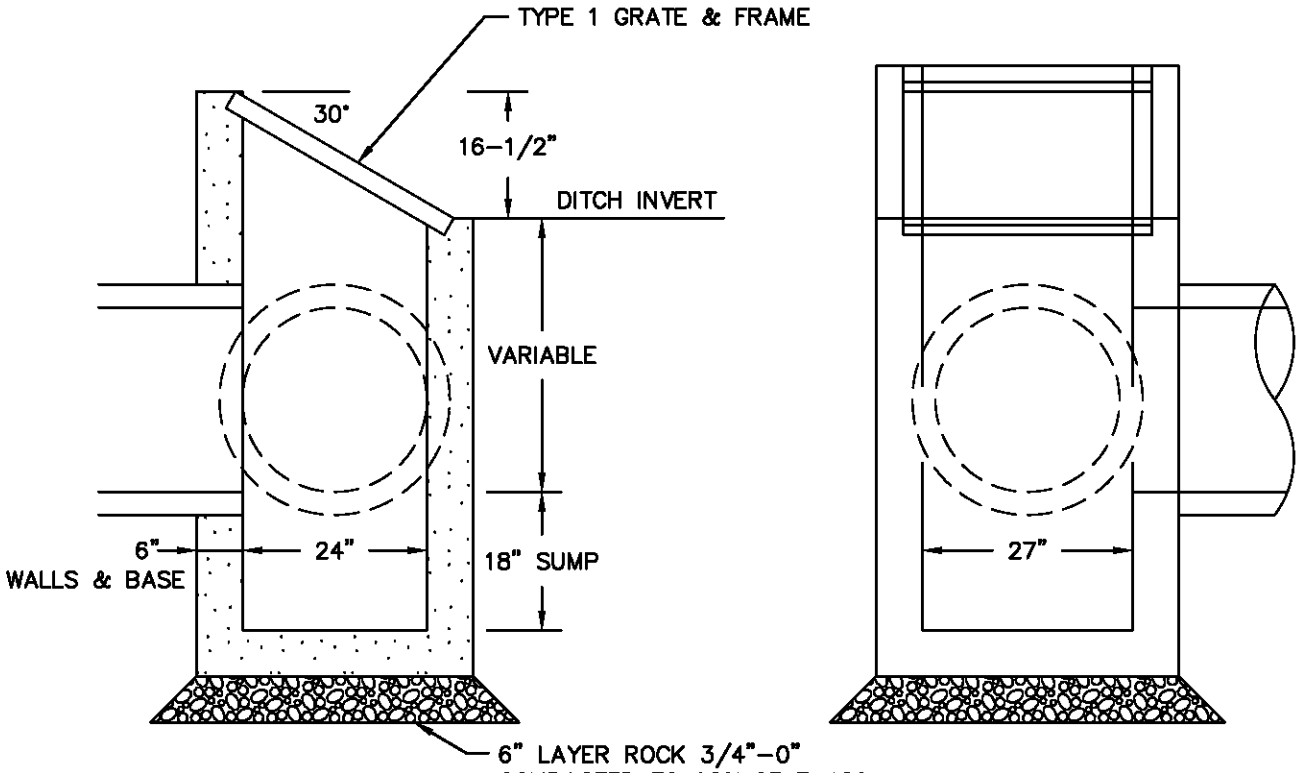
NOTES:
1. ALL FABRICATED METAL PARTS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION.
2. BASE SHALL BE CAST-IN-PLACE WITH CONCRETE COMPRESSIVE STRENGTH 3300 P.S.I. AT 28 DAYS, ENTRAINED AIR 4-7%.
3. PRECAST CURB INLET 48" TOP SECTION MANUFACTURED BY UTILITY VAULT MODEL No. CI-48-23FC WITH CAST IRON MANHOLE COVER.

CITY OF TUALATIN, OR		**CATCH BASIN CURB INLET 48-INCH**	
REVISED: 11/2020 VALID: 12/2020	SCALE: NOT TO SCALE	DRAWN: C. FERGESON APPROVED: K.MCMILLAN	DWG NO. **042**



NOTES:
1. SHALL BE CAST-IN-PLACE CONCRETE, COMPRESSIVE STRENGTH NOT LESS THAN 3300 PSI AT 28 DAYS, ENTRAINED AIR 4% – 7%.
2. GRATE NOT SHOWN FOR CLARITY. SEE DRAWING 050 FOR TYPE 1 GRATE AND FRAME.

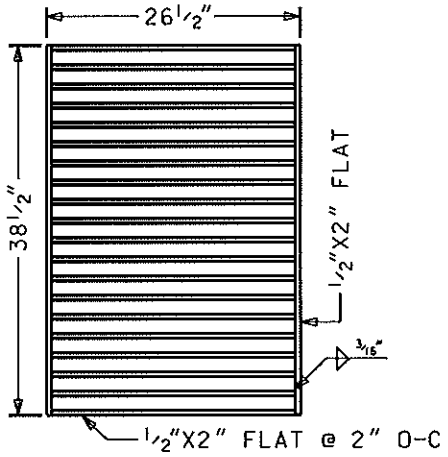
PLAN



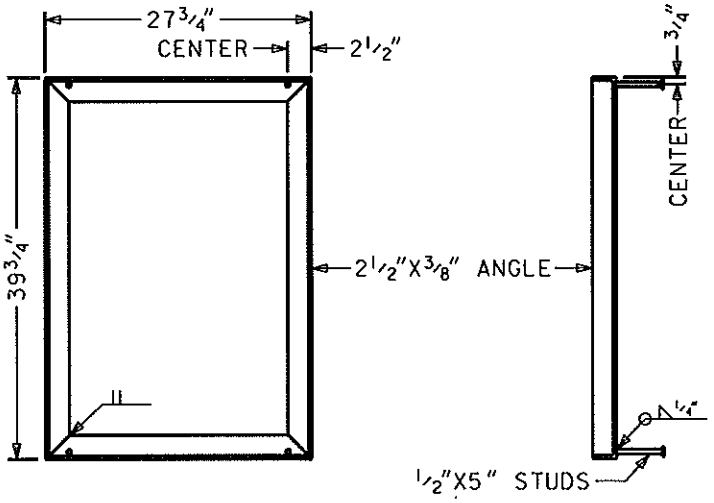
SECTION A–A

SECTION B–B

CITY OF TUALATIN, OR		**DITCH INLET 24-INCH PIPE**	
REVISED: 11/2020 VALID: 12/2020	SCALE: NOT TO SCALE	DRAWN: C. FERGESON APPROVED: K.MCMILLAN	DWG NO. 043



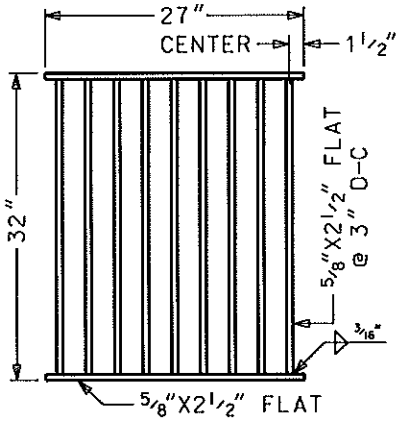
GRATE



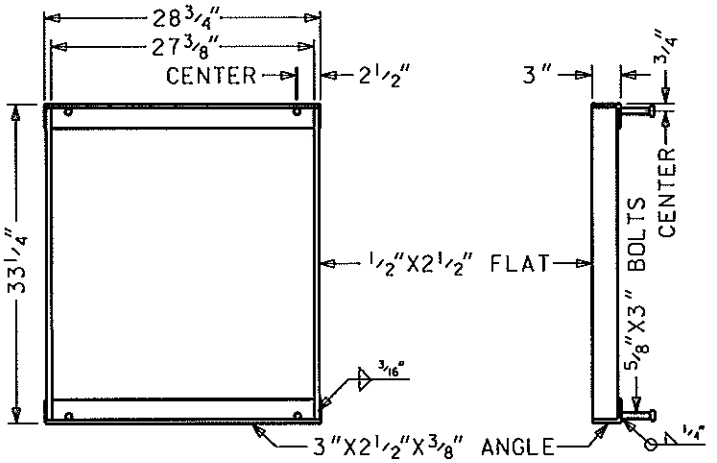
PLAN SECTION

FRAME

STANDARD



GRATE



PLAN SECTION

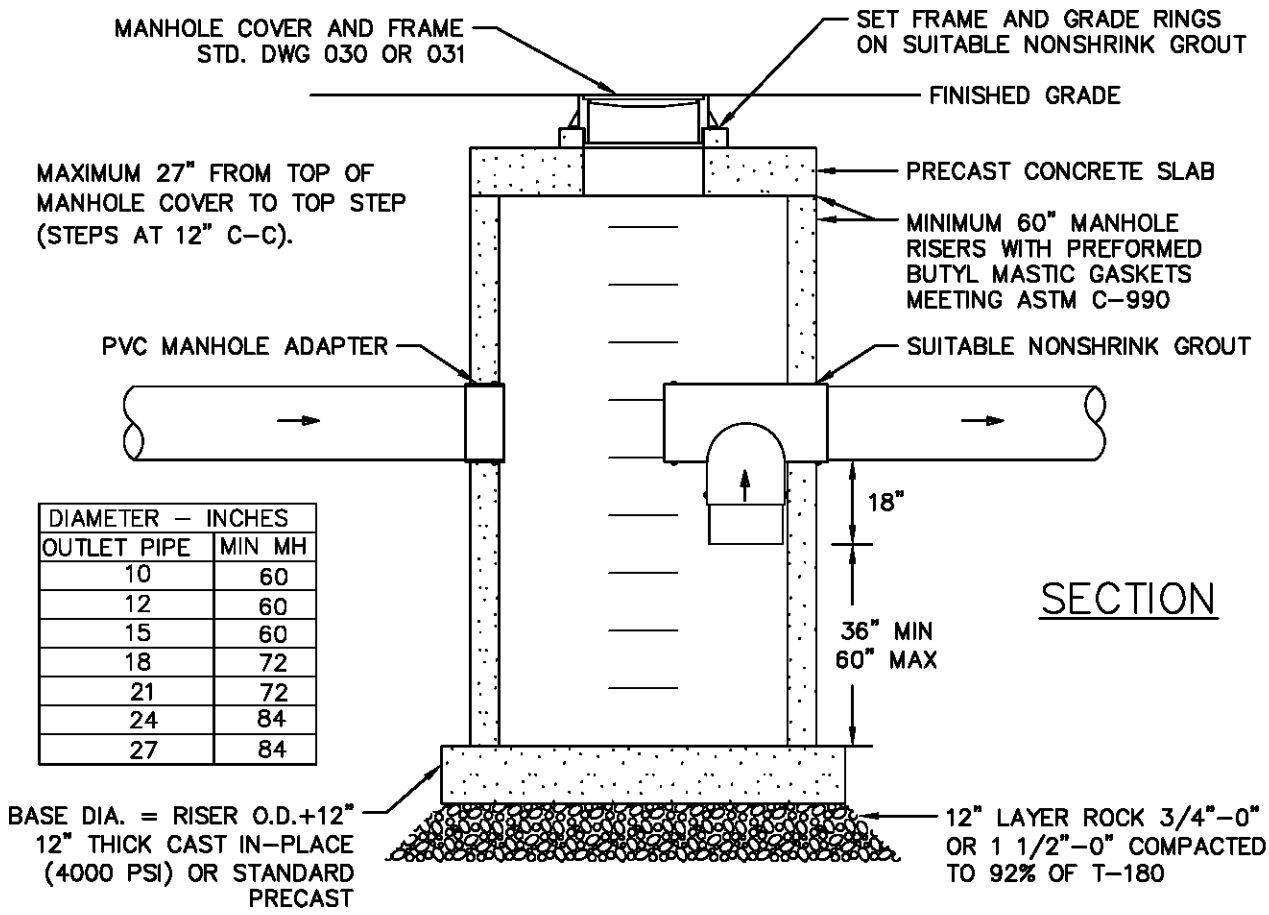
FRAME

TYPE 1

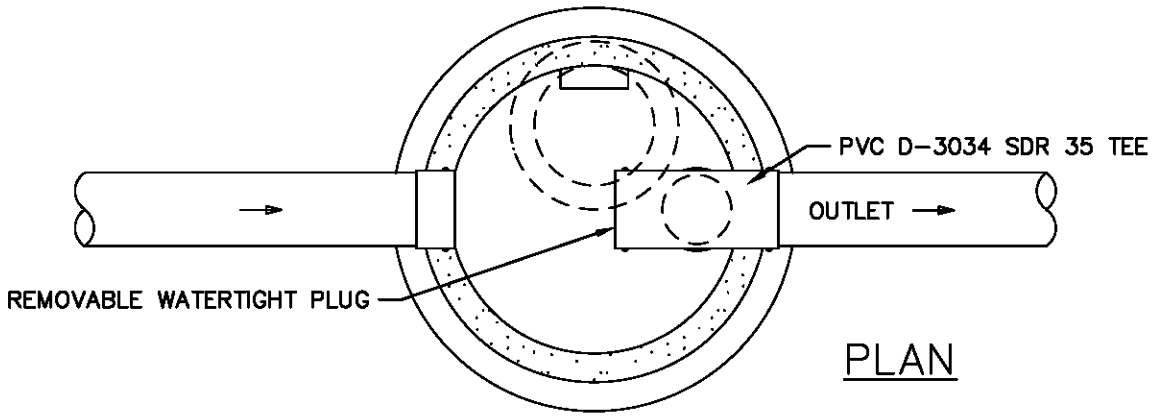
NOTE:

1. ALL FLAT BARS SHALL HAVE SQUARE EDGES

CITY OF TUALATIN, OR		GRATE AND FRAME CATCH BASIN	
REVISED: 2/2002 VALID: 3/2003	SCALE: 1:20	DRAWN: D.L. APPROVED: K.L.H.	DWG NO. 050



DIAMETER – INCHES	
OUTLET PIPE	MIN MH
10	60
12	60
15	60
18	72
21	72
24	84
27	84



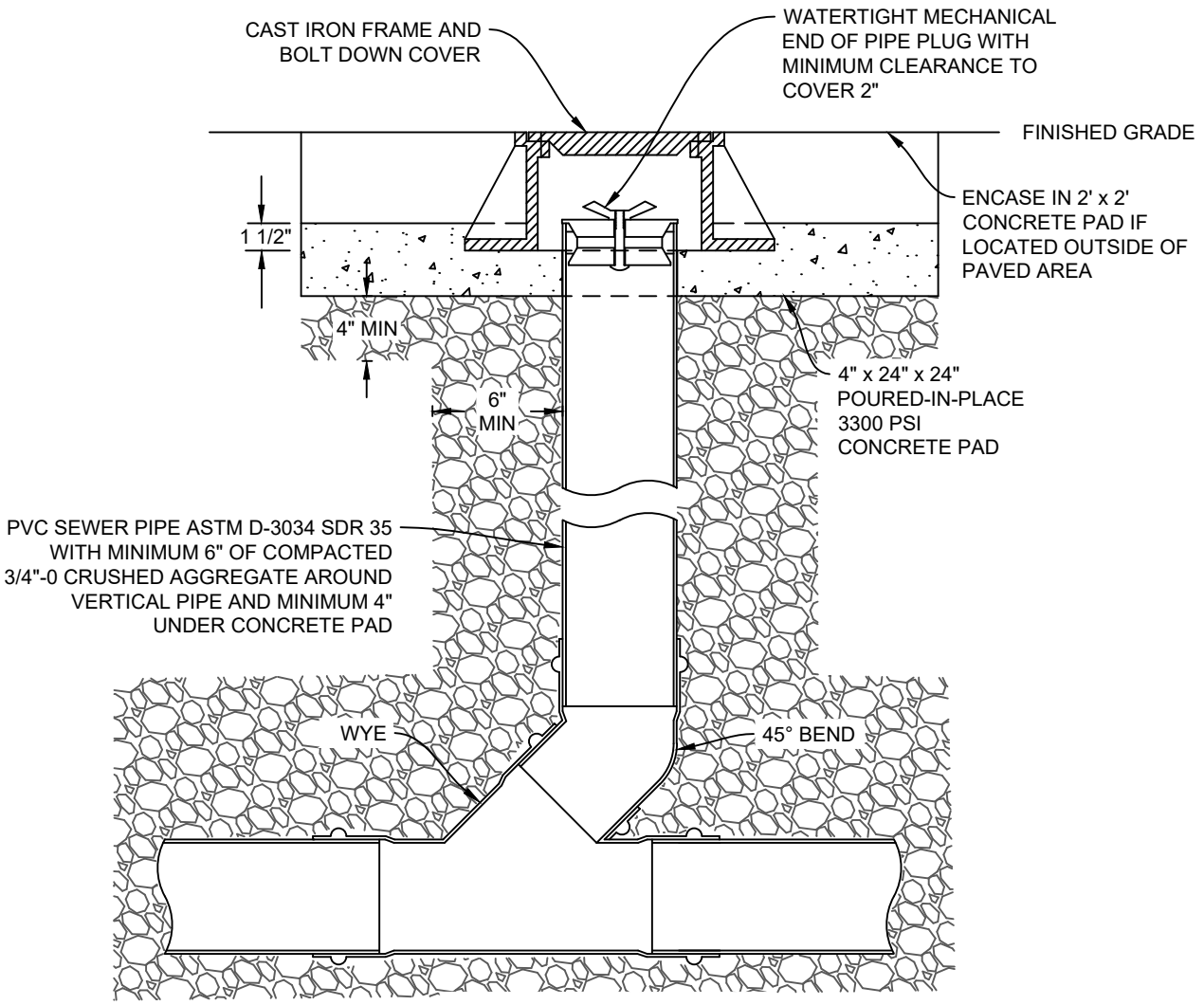
NOTES:

1. MANHOLE TO CONFORM WITH ASTM C–478.
2. MANHOLE DIAMETER VARIES WITH OUTLET PIPE DIAMETER, SEE TABLE ABOVE. MAINTAIN PIPE TEE/PLUG TO OPPOSITE WALL CLEARANCE OF 36".
3. IN PAVEMENT, PLACE MINIMUM 12" OF 3/4" MINUS OR 1–1/2" MINUS COMPACTED ROCK OUTSIDE RISERS.
4. PVC D–3034 SDR 35 TEE (SOLVENT SOFTEN EXTERIOR AND SAND), GROUT THROUGH WALL AND FASTEN TO WALL WITH S.S. BAND AND 1/2" S.S. ANCHOR BOLTS.
5. MINIMUM SUMP VOLUME 20 CUBIC FEET PER 1.0 CFS FLOW, WITH 25 YEAR EVENT, IF THIS IS EXCEEDED CONSTRUCT UPSTREAM FLOW SPLITTER OR INCREASE MANHOLE DIAMETER TO SUIT.

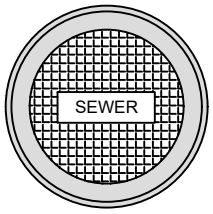
CITY OF TUALATIN, OR

MANHOLE WATER QUALITY

REVISED:	11/2020	SCALE: NOT TO SCALE	DRAWN: C. FERGESON	DWG NO.	060
VALID:	12/2020		APPROVED: K.MCMILLAN		



SECTION VIEW



SANITARY CLEANOUT LID EXAMPLE

STORM CLEANOUT LID EXAMPLE

NOTES:

1. FOR SANITARY CLEANOUT, USE CAST IRON FRAME AND BOLT DOWN COVER EMBOSSED WITH THE WORD "SANITARY", OF THE FOLLOWING TYPES:

   UP TO 8" DIAMETER PIPE: EJ 00367103, OR APPROVED EQUAL

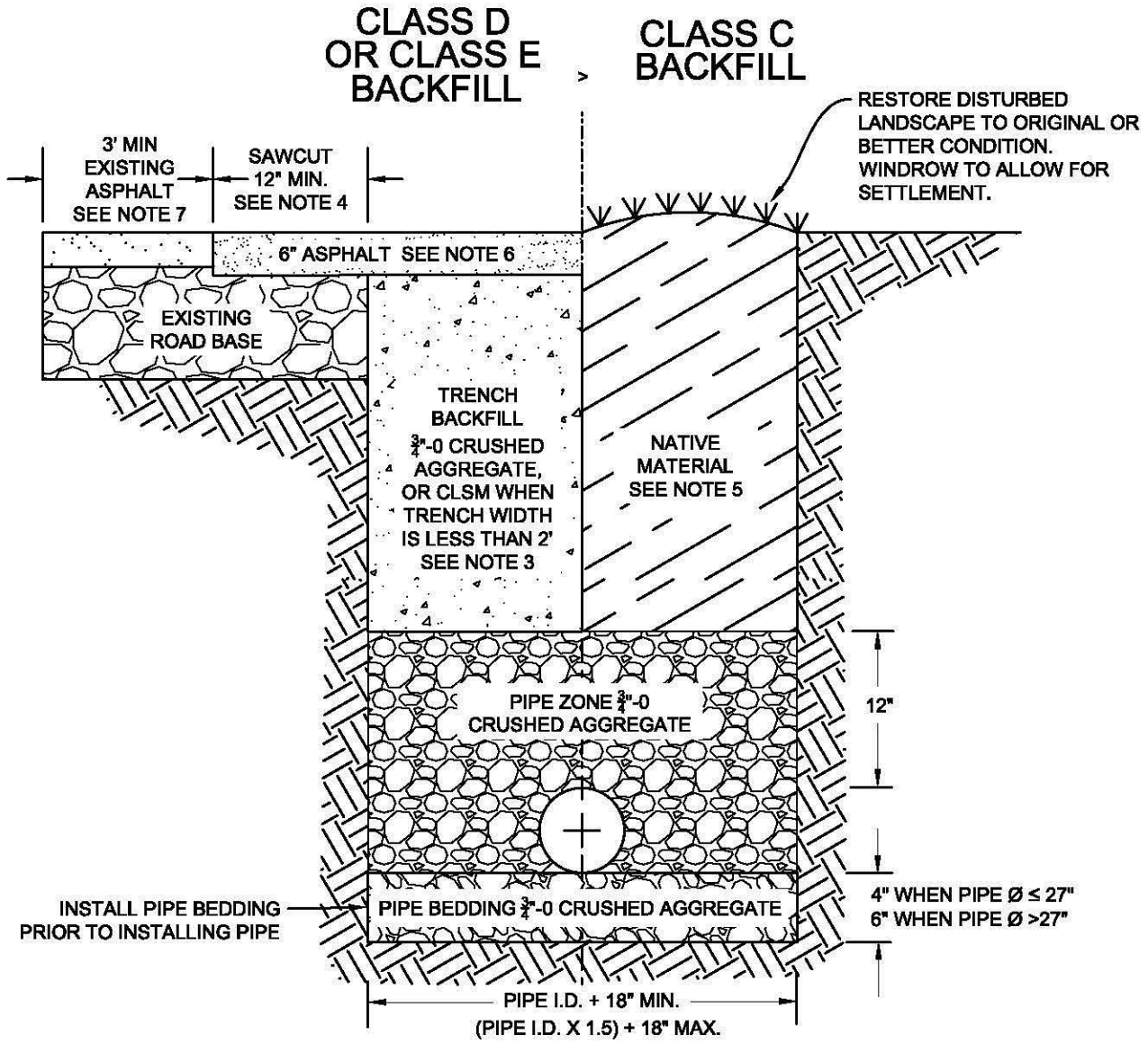
2. FOR STORM CLEANOUT, USE CAST IRON FRAME AND BOLT DOWN COVER EMBOSSED WITH THE WORD "STORM", OF THE FOLLOWING TYPES:

   UP TO 8" DIAMETER PIPE: EJ 00367143B01, OR APPROVED EQUAL

3. FOR SERVICE LATERAL CONNECTIONS, SEE STANDARD DWG 300, SEWER BUILDING LATERAL.

4. RISER PIPE SHALL BE SAME MATERIAL AND DIAMETER AS LATERAL PIPE.

CITY OF TUALATIN, OR			CLEANOUT
REVISED: 7/23/2018	DRAFTED BY: S. STRASSER APPROVED BY: J. FUCHS	SCALE: NTS	DRAWING NO. 100



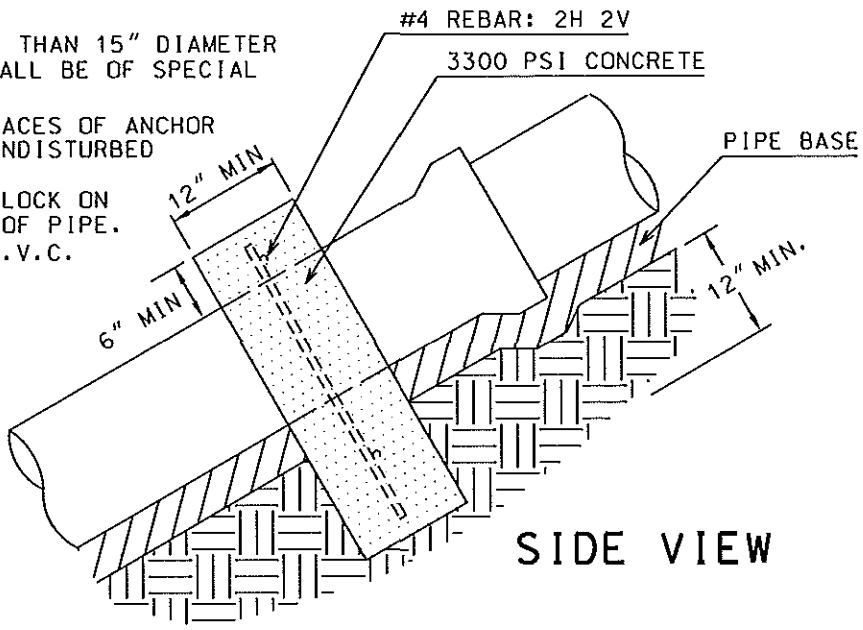
NOTES:

1. SEE STANDARD DRAWING NO. 480 FOR ROADS PAVED WITHIN THE LAST 5 YEARS.
2. SEE STANDARD DRAWING NO. 481 FOR CONCRETE ROADWAY RESTORATION.
3. WHEN TRENCH WIDTH IS LESS THAN 2' WIDE, BACKFILL WITH CLASS E, CONTROLLED LOW STRENGTH MATERIAL (CLSM) WITH A 28-DAY DESIGN STRENGTH OF 100-200 PSI.
4. SAWCUT A MINIMUM OF 12" OF PAVEMENT FROM EDGE OF TRENCH.
5. COMPACT CRUSHED AGGREGATE BACKFILL TO 92% AASHTO T 180, AND COMPACT NATIVE MATERIAL TO 90% AASHTO T 99, OR TO SATISFACTION OF CITY ENGINEER.
6. PROVIDE A MINIMUM ASPHALT THICKNESS OF 6" OR MATCH EXISTING THICKNESS, WHICHEVER IS GREATER.
7. IF LESS THAN 3' OF UNDISTURBED ASPHALT REMAINS BETWEEN THE EXCAVATION AND EDGE OF THE ROADWAY, REMOVE AND REPAIR THE REMAINING AREA.

CITY OF TUALATIN, OR			TRENCH & SURFACE RESTORATION	
REVISED: 2/12/2018	DRAFTED BY: S. STRASSER APPROVED BY: J. FUCHS	SCALE: NTS	DRAWING NO.	241

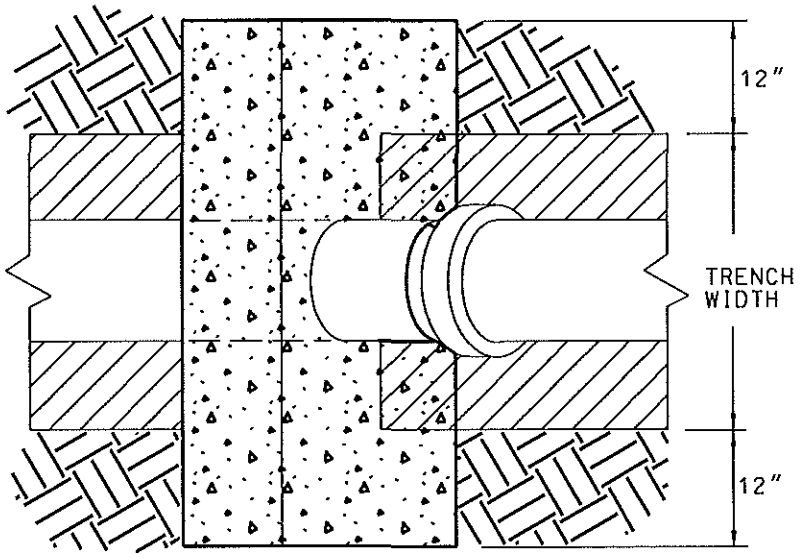
NOTE:

1. FOR PIPE LARGER THAN 15" DIAMETER ANCHOR BLOCK SHALL BE OF SPECIAL DESIGN.
2. POUR DOWNHILL FACES OF ANCHOR BLOCK AGAINST UNDISTURBED SOIL.
3. LOCATE ANCHOR BLOCK ON BARREL SECTION OF PIPE.
4. DO NOT USE ON P.V.C. PIPE.



SIDE VIEW

PLAN

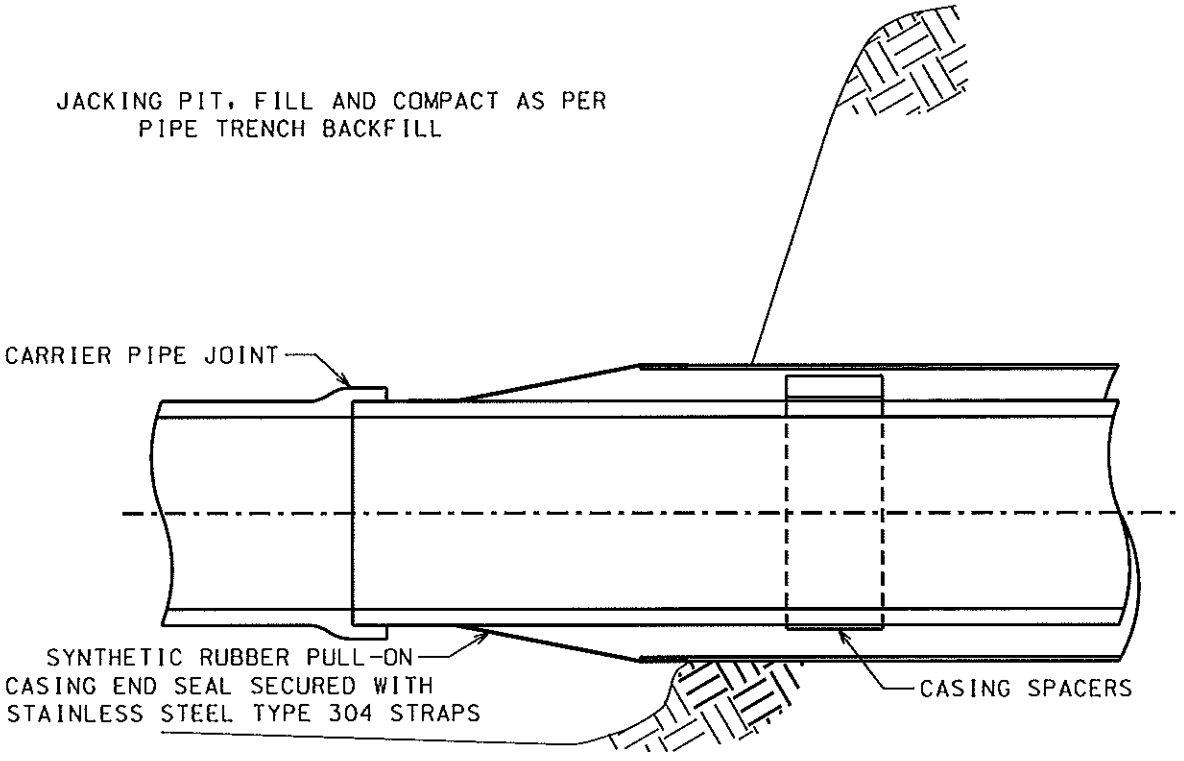


SLOPE	MINIMUM ANCHOR SPACING CENTER TO CENTER
0.20-0.34	35'
0.35-0.50	25'
0.51+	16'

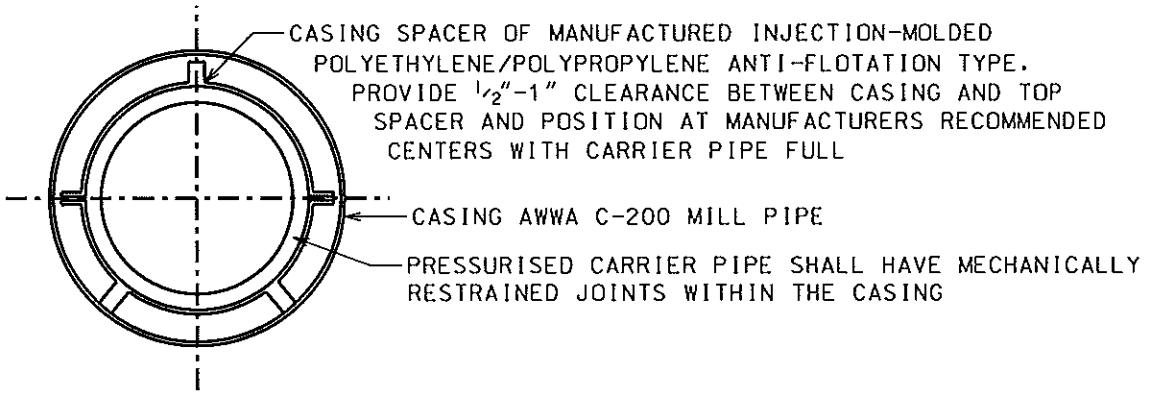
CITY OF TUALATIN, OR

CONCRETE PIPE SLOPE ANCHORS

REVISED: 11/2002 VALID: 7/2004	SCALE: 1:20	DRAWN: D.L. APPROVED: K.L.H.	DWG NO. 270

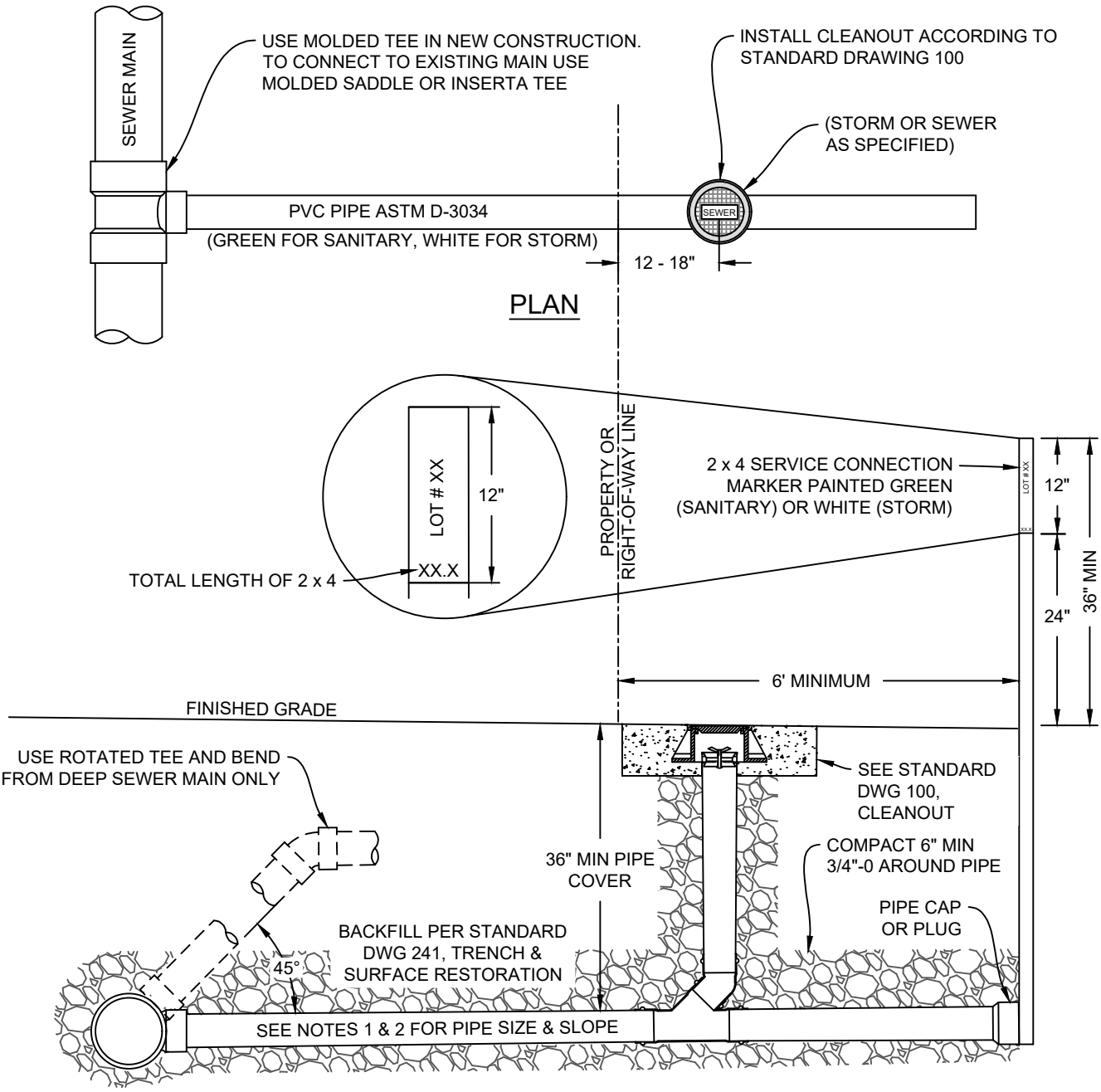


JACKING PIT SECTION ALONG PIPE CENTERLINE



CROSS SECTION

CITY OF TUALATIN, OR		UNDERCROSSING	
REVISED: 2/2004 VALID: 3/2004	SCALE: 1:12	DRAWN: D.L. APPROVED: K.L.H.	DWG NO. 290



ELEVATION

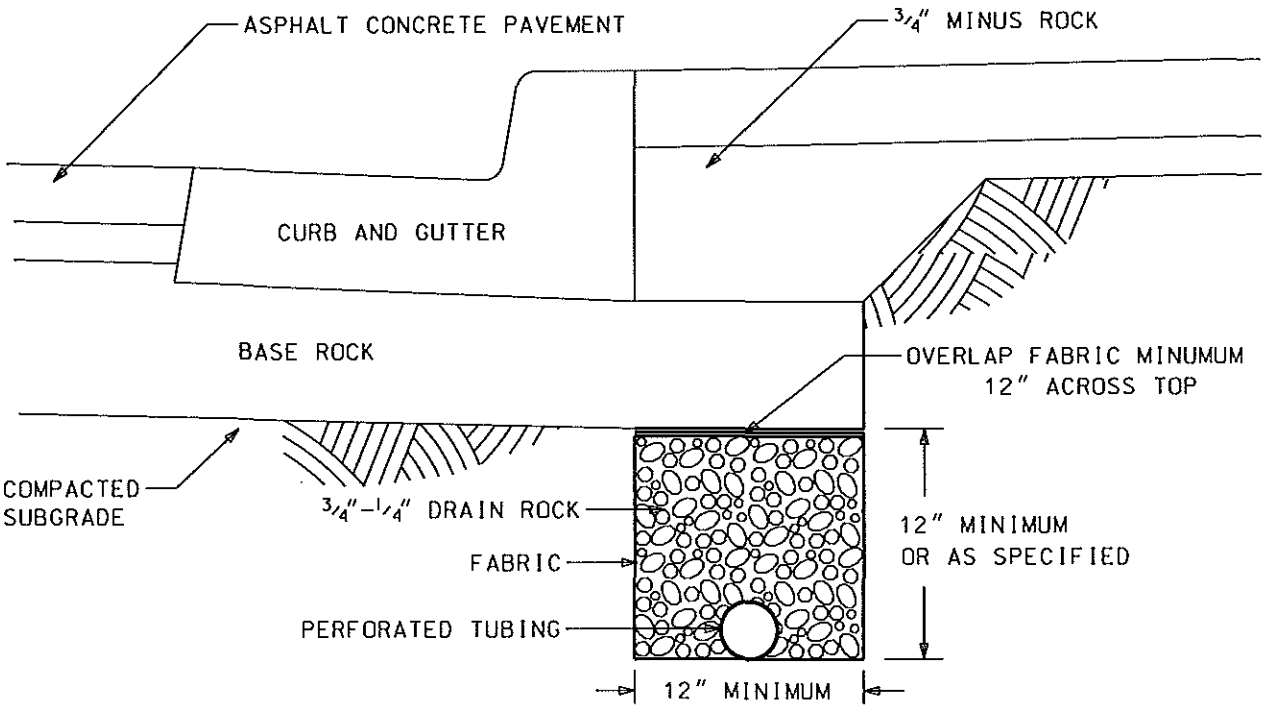
NOTES:

1. INSTALL 6" MINIMUM DIAMETER LATERAL PIPE WITHIN RIGHT OF WAY. WHERE SITE CONSTRAINTS EXIST, 4" DIAMETER PIPE MAY BE USED AS APPROVED BY THE CITY ENGINEER.
2. INSTALL 6" PIPE AT A MINIMUM SLOPE OF 1%, AND 4" PIPE AT A MINIMUM SLOPE OF 2%.
3. DO NOT BACKFILL PRIOR TO INSPECTION.
4. BACKFILL SERVICE CONNECTION MARKER AGAINST PIPE CAP TO SECURE IN PLACE.
5. PLACE MAGNETIC PIPE LOCATION TAPE 18" ABOVE PIPE (GREEN FOR SANITARY, WHITE FOR STORM). EXTEND LOCATION TAPE UP THE 2 x 4 SERVICE CONNECTION MARKER TO 12" BELOW THE TOP.
6. A TV INSPECTION IS REQUIRED FOR ACCEPTANCE OF SERVICE LATERALS.

CITY OF TUALATIN, OR

SEWER BUILDING LATERAL

REVISED:	7/23/2018	DRAFTED BY:	S. STRASSER	SCALE:	NTS	DRAWING NO.	300
		APPROVED BY:	J. FUCHS				

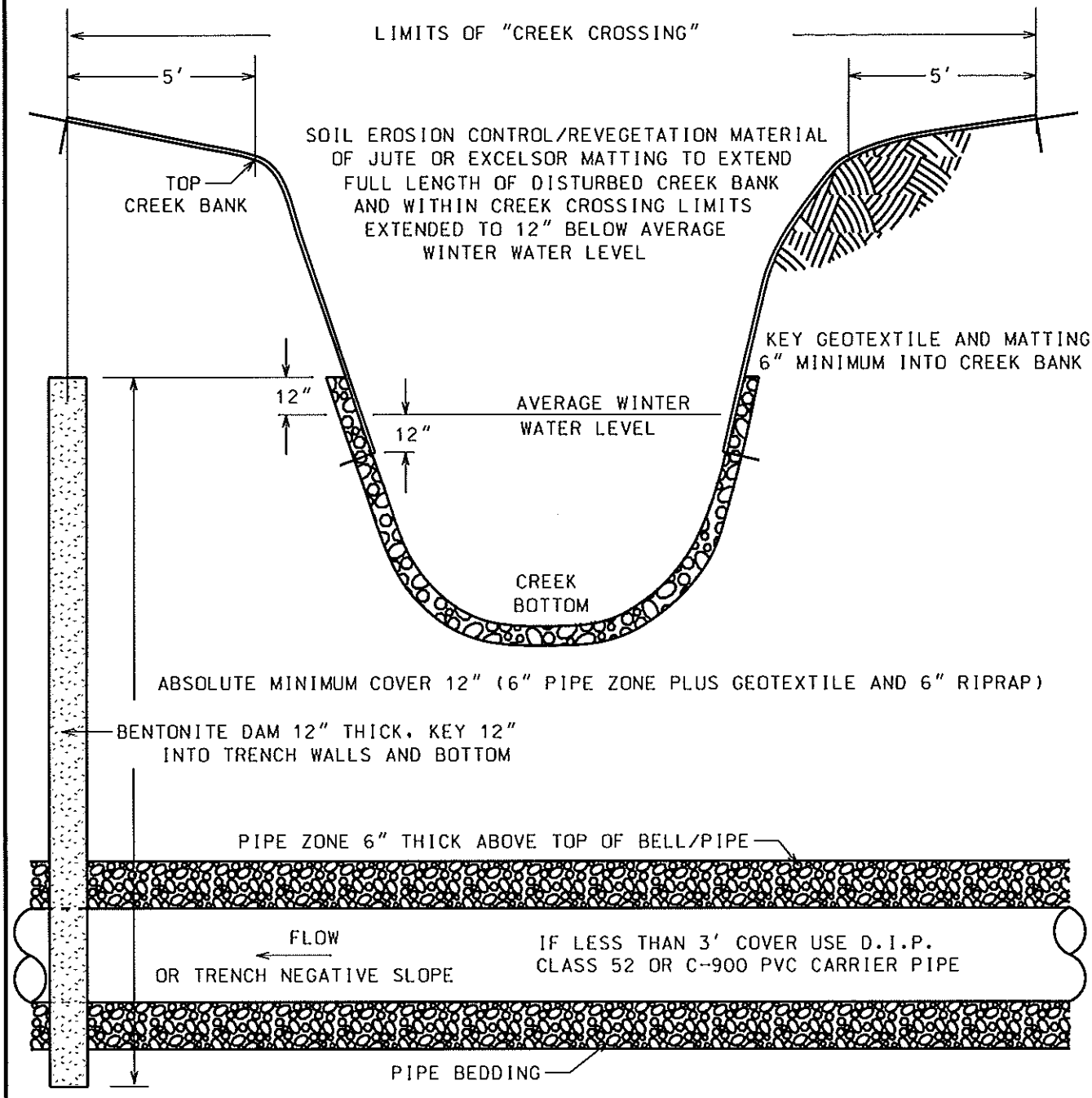


TYPICAL SUBGRADE DRAIN SECTION

NOTES:

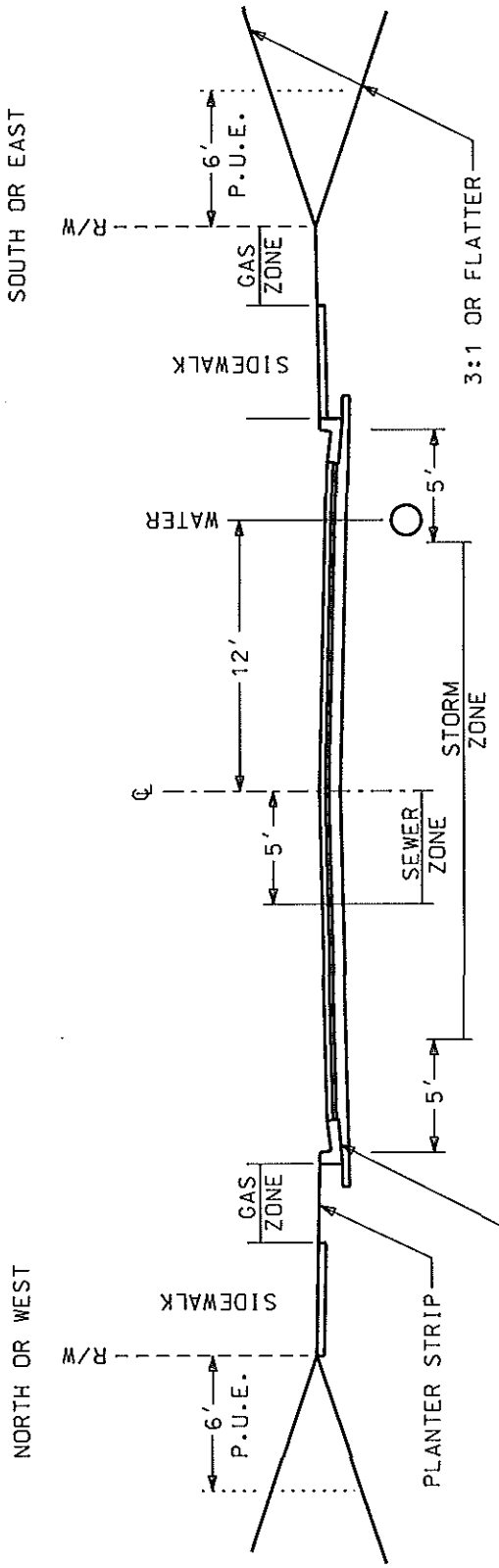
1. PROVIDE DIRECT CONTACT BETWEEN BASE ROCK AND TOP OF GEOTEXTILE DRAINAGE FABRIC AND ALSO BETWEEN FABRIC AND BOTTOM OF DRAINAGE TUBING
2. LOCATE SUBGRADE DRAIN WHERE THE GROUND SURFACE OUTSIDE THE R.O.W. SLOPES TOWARDS THE ROAD OR AS DIRECTED BY THE ENGINEER.
3. DISCHARGE DRAIN PIPE ABOVE MAXIMUM FLOW HYDRAULIC GRADE IN NEAREST CATCH BASIN BASIN OR STORM PIPE
4. 3" DIAMETER OR AS SPECIFIED. AASHTO M-252 TYPE CP, CORRUGATED POLYETHYLENE PERFORATED TUBING
5. FABRIC SHALL BE A DRAINAGE GEOTEXTILE MEETING THE REQUIREMENTS OF AASHTO M-288
6. USE PERFORATED END PLUG AT UPPER END AND TRANSITION TO PLAIN TUBING AT LOWER END WHERE TRANSITIONING OUTSIDE OF DRAIN ROCK/GEOTEXTILE ENVELOPE. ALSO PROVIDE BENTONITE DAM AT THIS POSITION.

CITY OF TUALATIN, OR		SUBGRADE DRAIN	
REVISED: 1/2002 VALID: 3/2003	SCALE: 1:10	DRAWN: D.L. APPROVED: K.L.H.	DWG NO. 310



NOTES:
1) RIPRAP SIZE AND THICKNESS TO BE DETERMINED BY ENGINEER WITH A MINIMUM THICKNESS OF 6" AND SIZE OF CLASS 50. PLACE ON RIPRAP GEOTEXTILE TYPE 2
2) WITHIN THE LIMITS OF THE CREEK CROSSING BACKFILL ABOVE THE PIPE ZONE TO THE FINISHED SURFACE WITH NATIVE MATERIAL
3) SHAPE AND COMPACT CREEK BANK TO ORIGINAL CONFIGURATION AS DETERMINED BY THE ENGINEER.
4) CHECK PIPE FOR FLOTATION WHEN EMPTY AND CORRECT, IF NECESSARY, TO PROVIDE NEGATIVE BUOYANCY.

CITY OF TUALATIN, OR		**PIPELINE STREAM CROSSING**	
REVISED: 4/2002 **VALID:** 3/2003	**SCALE:** 1:50	**DRAWN:** D.L. **APPROVED:** K.L.H.	**DWG NO.** 330



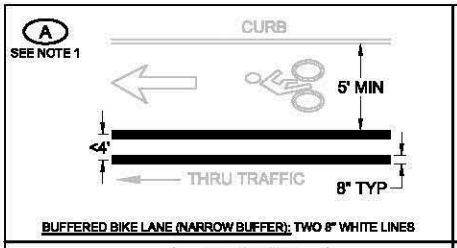
NOTE:

1. GAS AND SEWER ON THE NORTH OR WEST
2. WATER ON THE SOUTH OR EAST
3. 5-FOOT P.U.E. ADJACENT TO ALL SIDE AND REAR LOT LINES

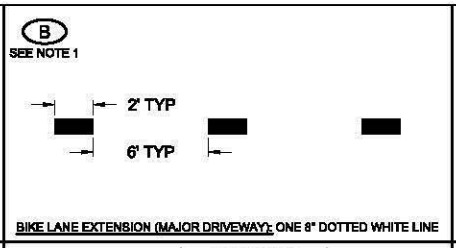
CITY OF TUALATIN, OR

STREET UTILITY LOCATIONS

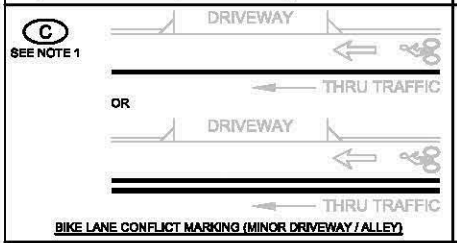
REVISED: 7/2004 VALID: 10/2005	SCALE: 1:100	DRAWN: D.L. APPROVED: K.L.H.	DWG NO. 425



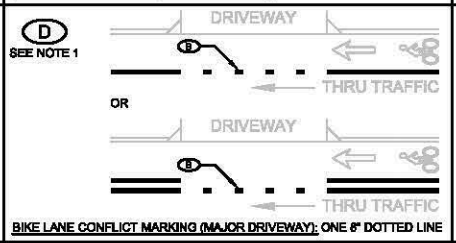
BUFFERED BIKE LANE (NARROW BUFFER): TWO 8" WHITE LINES



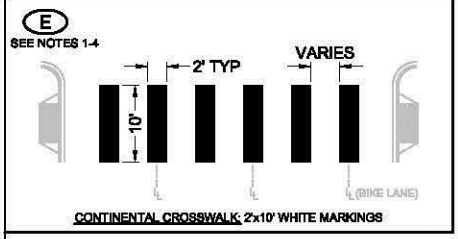
BIKE LANE EXTENSION (MAJOR DRIVEWAY): ONE 8" DOTTED WHITE LINE



BIKE LANE CONFLICT MARKING (MINOR DRIVEWAY / ALLEY)



BIKE LANE CONFLICT MARKING (MAJOR DRIVEWAY): ONE 8" DOTTED LINE



CONTINENTAL CROSSWALK: 2'x10' WHITE MARKINGS

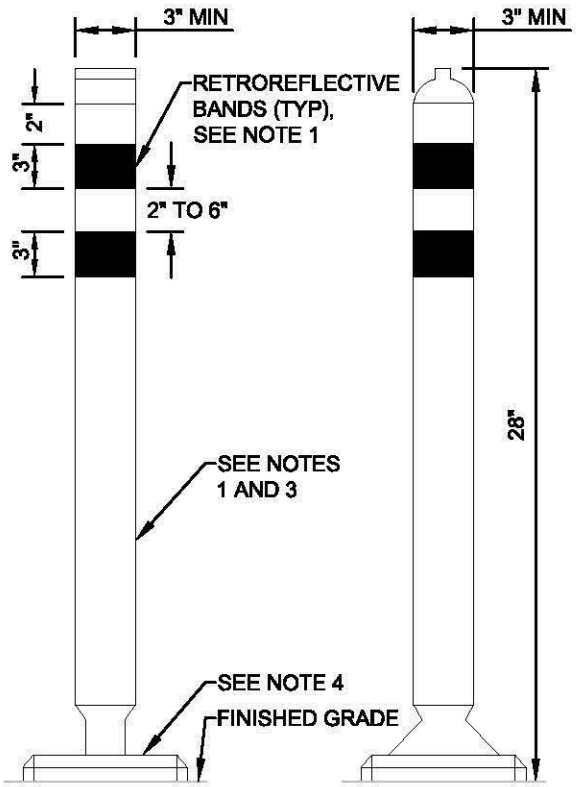
NOTES:

1. USE 120 MILLIMETER WHITE HIGH SKID THERMOPLASTIC PAVEMENT MARKING MATERIAL.
2. USE CONTINENTAL CROSSWALK MARKINGS FOR ALL MARKED CROSSWALKS.
3. PLACE CROSSWALK BARS PARALLEL TO THE DIRECTION OF MOTOR VEHICLE TRAFFIC TO AVOID TIRE WEAR.
4. CENTER CROSSWALK BARS ON LANE LINES (ℓ) AND AT CENTER OF LANES AS SHOWN TO AVOID TIRE WEAR.

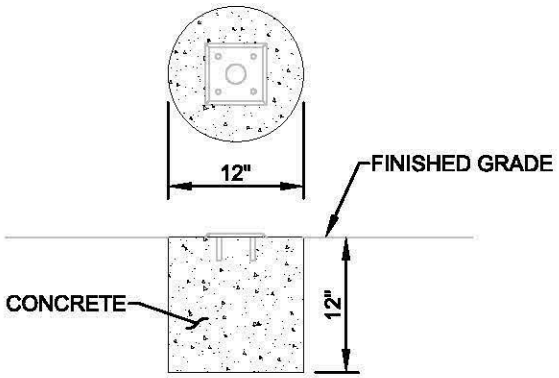
CITY OF TUALATIN, OR

STRIPING DETAILS

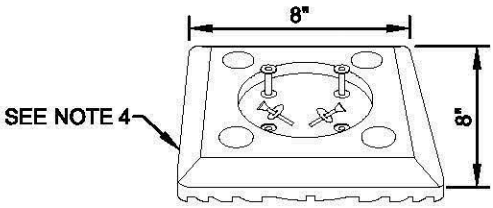
REVISED:	09/2020	SCALE: NOT TO SCALE	DRAWN: K. PAULSEN	DWG NO.	430
VALID:	10/2020		APPROVED: K. MCMILLAN		



FRONT SIDE



CONCRETE BASE



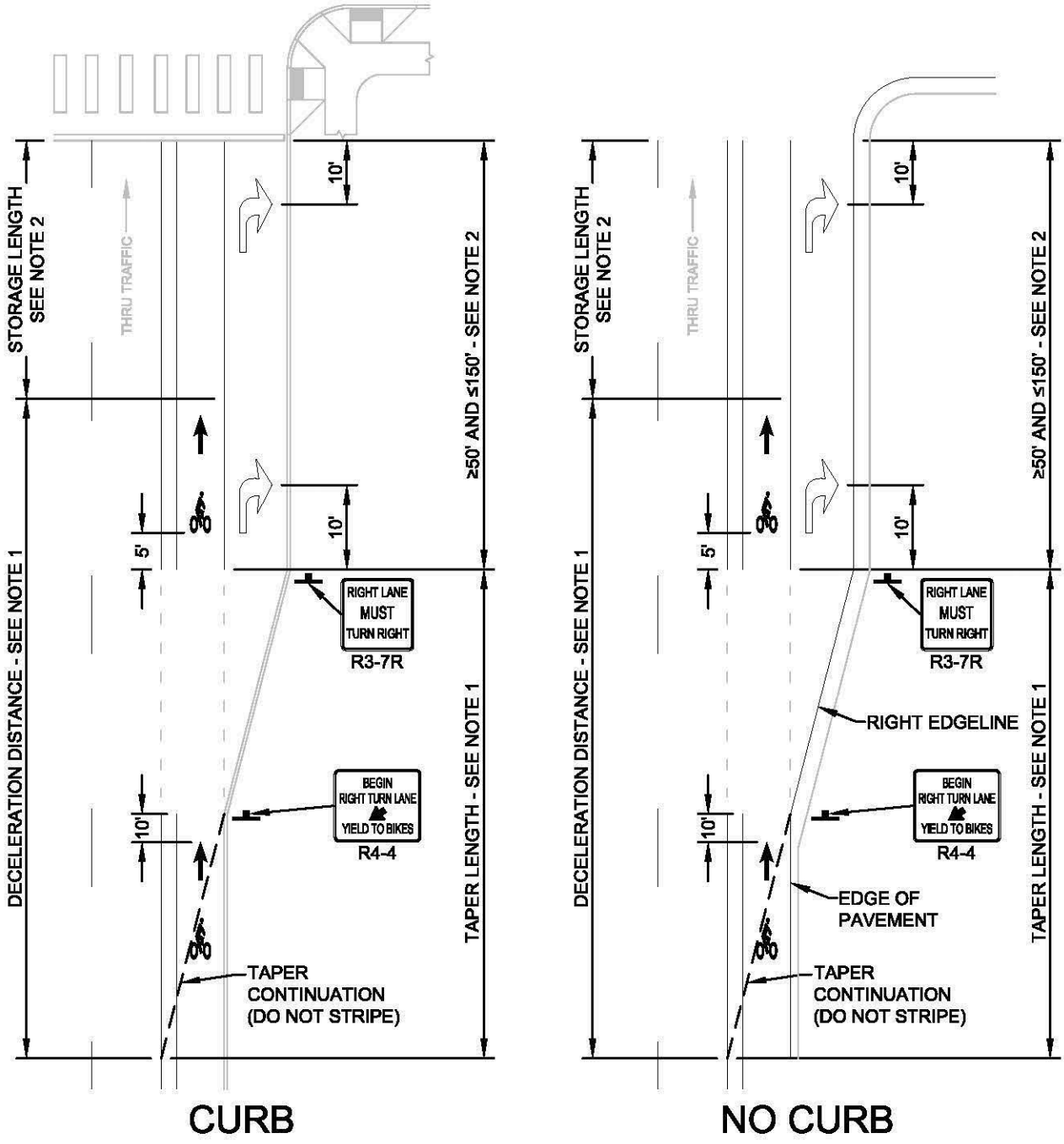
QUICK RELEASE FIXED BASE

MAXIMUM SPACING

NOTES:

1. TUBULAR MARKERS AND RETROREFLECTIVE MATERIAL TO BE THE SAME COLOR AS THE SUPPLEMENTED PAVEMENT MARKING.
2. MAXIMUM SPACING DISTANCE EQUALS THE NUMERICAL VALUE OF THE ROADWAY DESIGN SPEED (MPH), IN FEET.
3. TUBULAR MARKER SHALL BE OBTAINED FROM 'IMPACT RECOVERY SYSTEMS, INC' (HIGH PERFORMANCE FLEXIBLE DELINEATOR POST) OR APPROVED EQUAL. BOTTOM OF TUBULAR MARKER TO BE QUICK RELEASE. TUBULAR MARKER TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
4. BASE OF TUBULAR MARKER TO HAVE A "QUICK RELEASE SURFACE MOUNTED BASE". BASE TO BE INSTALLED USING ANCHOR KIT OR "J" BOLTS SET INTO CONCRETE PER MANUFACTURER'S SPECIFICATIONS.
5. TUBULAR MARKER ASSEMBLY COLOR AND REFLECTIVE FEATURES AS DIRECTED BY THE CITY ENGINEER.

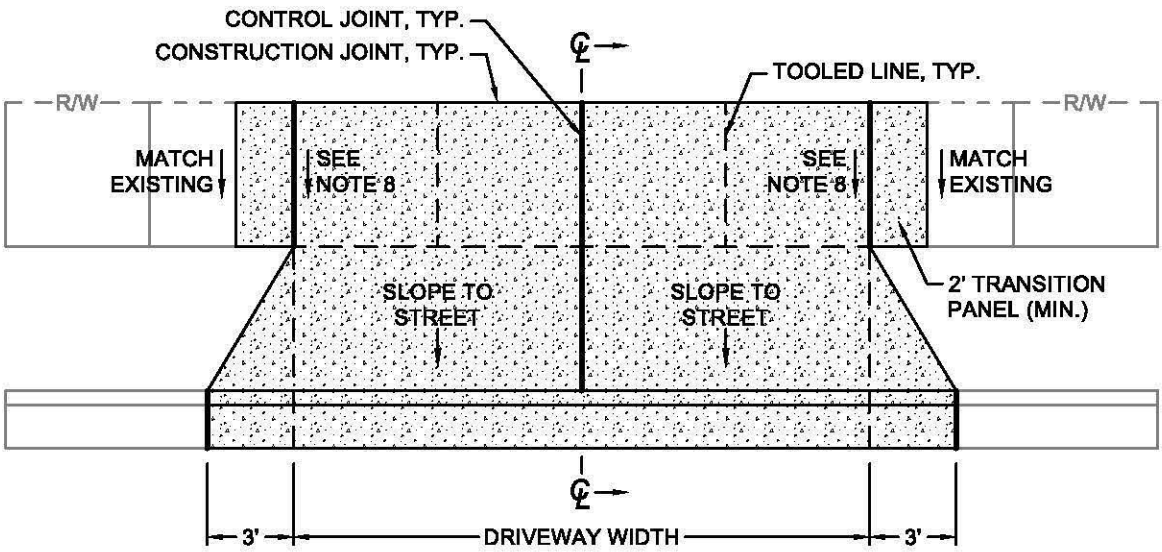
CITY OF TUALATIN, OR		BIKE LANE TUBULAR MARKER	
REVISED: 09/2020 VALID: 10/2020	SCALE: NOT TO SCALE	DRAWN: K. PAULSEN APPROVED: K. MCMILLAN	DWG NO. 431



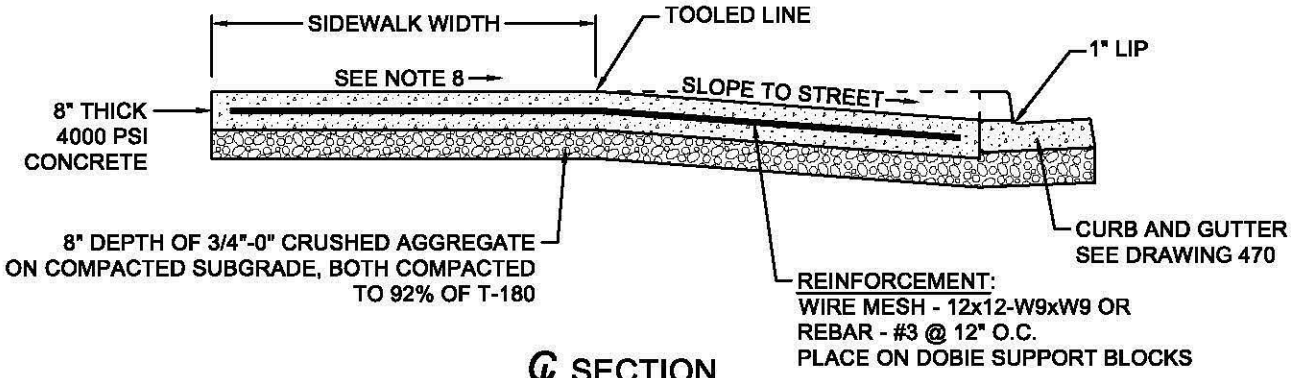
NOTES:

1. SEE THE OREGON DEPARTMENT OF TRANSPORTATION *HIGHWAY DESIGN MANUAL* FOR DESIGN VALUES.
2. TURN POCKET NOT TO EXCEED 150' STORAGE LENGTH UNLESS OTHERWISE APPROVED BY CITY ENGINEER BASED ON ENGINEERING STUDY.
3. AVOID POSITIONING A THROUGH BIKE LANE TO THE RIGHT OF A RIGHT TURN LANE UNLESS CONFLICTING MOVEMENTS ARE CONTROLLED BY A TRAFFIC CONTROL SIGNAL.

CITY OF TUALATIN, OR		RIGHT TURN ADD LANE WITH BIKE LANE	
REVISED: 09/2020 VALID: 10/2020	SCALE: NOT TO SCALE	DRAWN: K. PAULSEN APPROVED: K. MCMILLAN	DWG NO. 432



PLAN

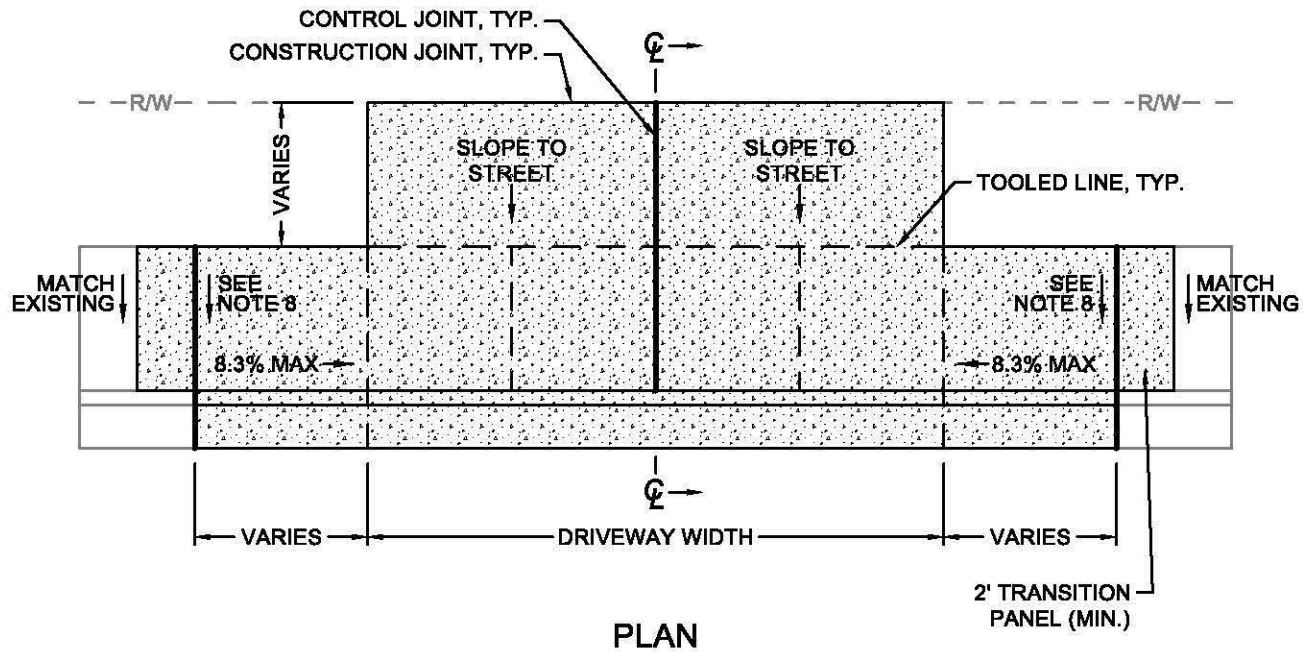


℄ SECTION

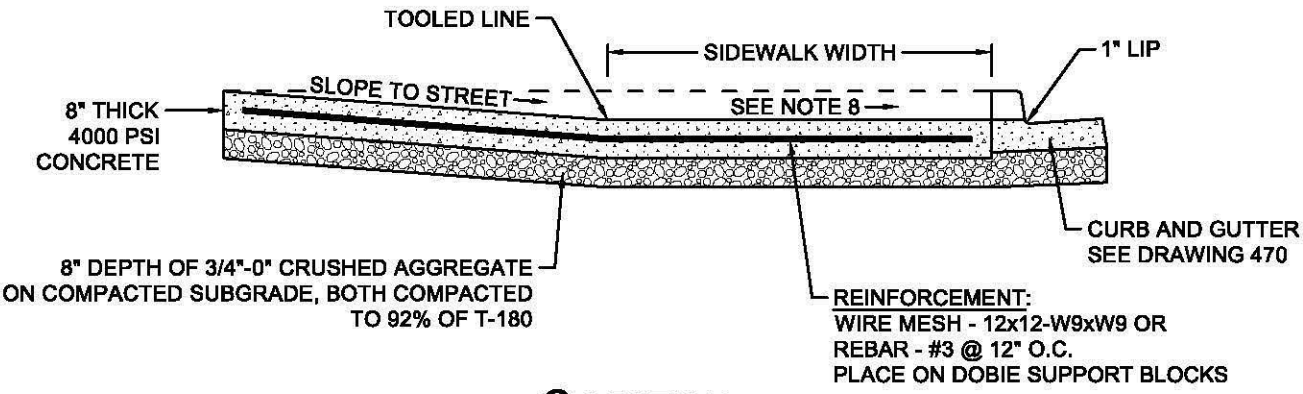
NOTES:

1. CONTROL JOINTS SHALL BE WEAKENED PLANE TYPE FORMED TO A DEPTH 2-3/4" WITH TOOLED EDGES (1/4"R EDGE, 3" FLAT) EXCEPT IN CURB AND GUTTER (1/4"R EDGE ONLY). NO MESH ACROSS CONTROL JOINTS.
2. TOOLED LINES ARE FOR COMESTIC PURPOSES ONLY, 1/4"R EDGE, 3" FLAT.
3. FOR LOCATION AND WIDTH OF DRIVEWAYS, MEET THE REQUIREMENTS OF THE TUALATIN DEVELOPMENT CODE.
4. FINISH CONCRETE APPROACH RAMP WITH BRUSH FINISH TRANSVERSE TO CENTERLINE.
5. POUR APPROACH SLAB AND WINGS (BOTH 8" THICK) MONOLITHIC WITH CURB AND GUTTER IF SO DIRECTED BY ENGINEER.
6. BEFORE OPENING TO TRAFFIC, ATTAIN 4,000 PSI COMPRESSIVE STRENGTH, ENTRAINED AIR 4% - 7%.
7. REMOVE THE CURB AND GUTTER IN ITS ENTIRETY AND POUR BACK AS A MONOLITHIC POUR IF AN EXISTING CURB AND GUTTER IS MODIFIED AS PART OF A DRIVEWAY APPROACH.
8. SIDEWALK CROSS SLOPE TO BE MAX 1.5% DESIGN SLOPE (2.0% MAX FINISHED SURFACE SLOPE).

CITY OF TUALATIN, OR		COMMERCIAL DRIVEWAY APPROACH CURBSIDE PLANTER STRIP	
REVISED: 11/2020 EFFECTIVE: 12/2020	SCALE: NOT TO SCALE	DRAFTED BY: C. FERGESON APPROVED BY: K. MCMILLAN	DRAWING NO: 440



PLAN

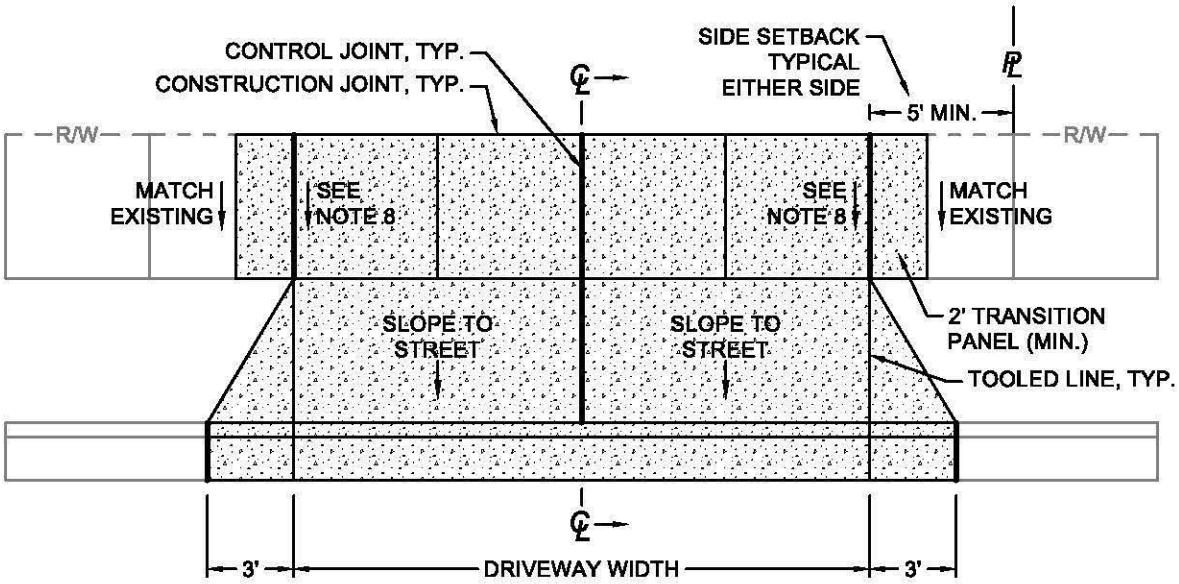


℄ SECTION

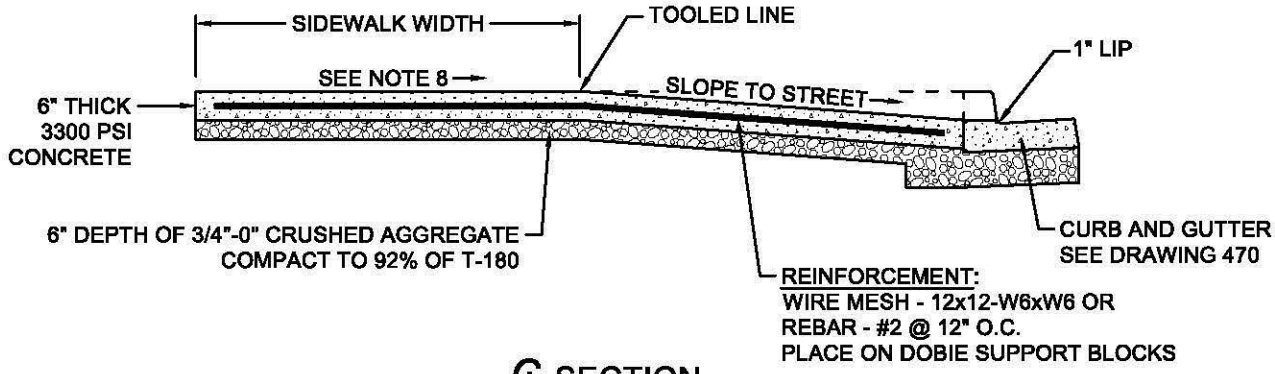
NOTES:

1. CONTROL JOINTS SHALL BE WEAKENED PLANE TYPE FORMED TO A DEPTH 2-3/4" WITH TOOLED EDGES (1/4"R EDGE, 3" FLAT) EXCEPT IN CURB AND GUTTER (1/4"R EDGE ONLY). NO MESH ACROSS CONTROL JOINTS.
2. TOOLED LINES ARE FOR COMESTIC PURPOSES ONLY, 1/4"R EDGE, 3" FLAT.
3. FOR LOCATION AND WIDTH OF DRIVEWAYS, MEET THE REQUIREMENTS OF THE TUALATIN DEVELOPMENT CODE.
4. FINISH CONCRETE APPROACH RAMP WITH BRUSH FINISH TRANSVERSE TO CENTERLINE.
5. POUR APPROACH SLAB AND RAMPS (BOTH 8" THICK) MONOLITHIC WITH CURB AND GUTTER IF SO DIRECTED BY ENGINEER.
6. BEFORE OPENING TO TRAFFIC, ATTAIN 4,000 PSI COMPRESSIVE STRENGTH, ENTRAINED AIR 4% - 7%.
7. REMOVE THE CURB AND GUTTER IN ITS ENTIRETY AND POUR BACK AS A MONOLITHIC POUR IF AN EXISTING CURB AND GUTTER IS MODIFIED AS PART OF A DRIVEWAY APPROACH.
8. SIDEWALK CROSS SLOPE TO BE MAX 1.5% DESIGN SLOPE (2.0% MAX FINISHED SURFACE SLOPE).

CITY OF TUALATIN, OR		COMMERCIAL DRIVEWAY APPROACH CURBSIDE SIDEWALK	
REVISED: 11/2020 EFFECTIVE: 12/2020	SCALE: NOT TO SCALE	DRAFTED BY: C. FERGESON APPROVED BY: K. MCMILLAN	DRAWING NO: 441



PLAN

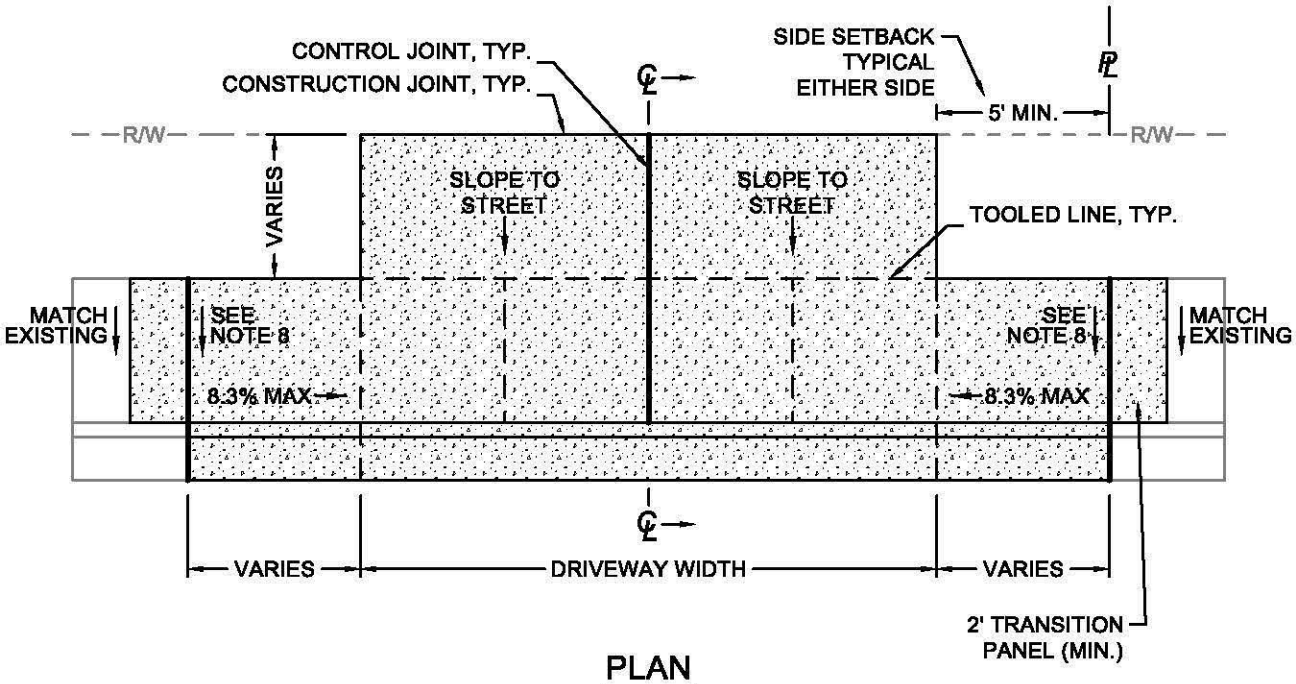


℄ SECTION

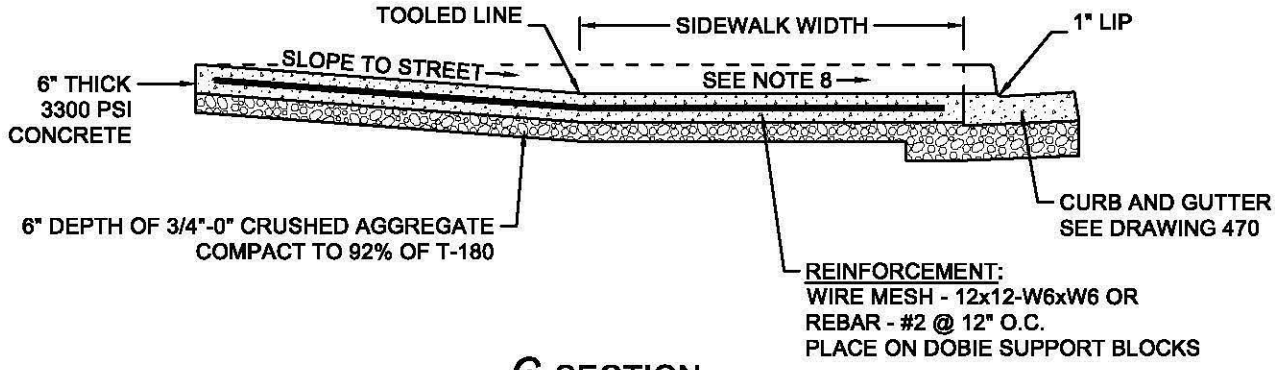
NOTES:

1. CONTROL JOINTS SHALL BE WEAKENED PLANE TYPE FORMED TO A DEPTH 2" WITH TOOLED EDGES (1/4"R EDGE, 3" FLAT) EXCEPT IN CURB AND GUTTER (1/4"R EDGE ONLY). NO MESH ACROSS CONTROL JOINTS.
2. TOOLED LINES ARE FOR COMESTIC PURPOSES ONLY, 1/4"R EDGE, 3" FLAT.
3. FOR LOCATION AND WIDTH OF DRIVEWAYS, MEET THE REQUIREMENTS OF THE TUALATIN DEVELOPMENT CODE.
4. FINISH CONCRETE APPROACH RAMP WITH BRUSH FINISH TRANSVERSE TO CENTERLINE.
5. POUR APPROACH SLAB AND WINGS (BOTH 6" THICK) MONOLITHIC WITH CURB AND GUTTER IF SO DIRECTED BY ENGINEER.
6. BEFORE OPENING TO TRAFFIC, ATTAIN 3,300 PSI COMPRESSIVE STRENGTH, ENTRAINED AIR 4% - 7%.
7. REMOVE THE CURB AND GUTTER IN ITS ENTIRETY AND POUR BACK AS A MONOLITHIC POUR IF AN EXISTING CURB AND GUTTER IS MODIFIED AS PART OF A DRIVEWAY APPROACH.
8. SIDEWALK CROSS SLOPE TO BE MAX 1.5% DESIGN SLOPE (2.0% MAX FINISHED SURFACE SLOPE).

CITY OF TUALATIN, OR	RESIDENTIAL DRIVEWAY APPROACH CURBSIDE PLANTER STRIP		
REVISED: 11/2020 EFFECTIVE: 12/2020	SCALE: NOT TO SCALE	DRAFTED BY: C. FERGESON APPROVED BY: K. MCMILLAN	DRAWING NO: 442



PLAN

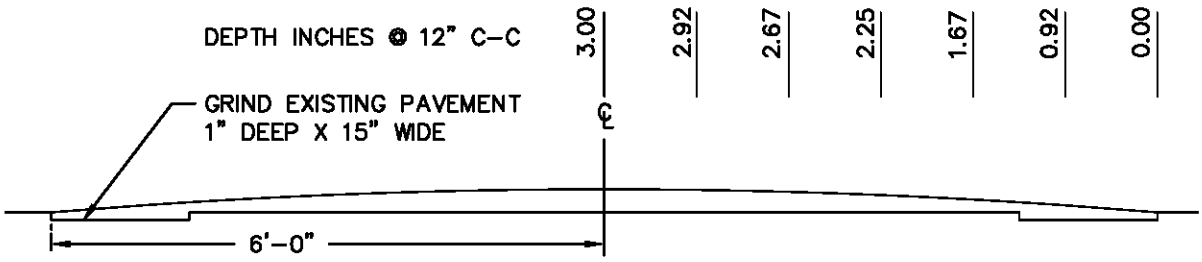


℄ SECTION

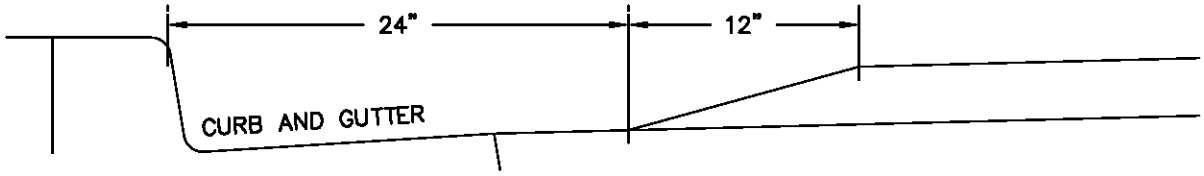
NOTES:

1. CONTROL JOINTS SHALL BE WEAKENED PLANE TYPE FORMED TO A DEPTH 2" WITH TOOLED EDGES (1/4"R EDGE, 3" FLAT) EXCEPT IN CURB AND GUTTER (1/4"R EDGE ONLY). NO MESH ACROSS CONTROL JOINTS.
2. TOOLED LINES ARE FOR COMESTIC PURPOSES ONLY, 1/4"R EDGE, 3" FLAT.
3. FOR LOCATION AND WIDTH OF DRIVEWAYS, MEET THE REQUIREMENTS OF THE TUALATIN DEVELOPMENT CODE.
4. FINISH CONCRETE APPROACH RAMP WITH BRUSH FINISH TRANSVERSE TO CENTERLINE.
5. POUR APPROACH SLAB AND RAMPS (BOTH 6" THICK) MONOLITHIC WITH CURB AND GUTTER IF SO DIRECTED BY ENGINEER.
6. BEFORE OPENING TO TRAFFIC, ATTAIN 3,300 PSI COMPRESSIVE STRENGTH, ENTRAINED AIR 4% - 7%.
7. REMOVE THE CURB AND GUTTER IN ITS ENTIRETY AND POUR BACK AS A MONOLITHIC POUR IF AN EXISTING CURB AND GUTTER IS MODIFIED AS PART OF A DRIVEWAY APPROACH.
8. SIDEWALK CROSS SLOPE TO BE MAX 1.5% DESIGN SLOPE (2.0% MAX FINISHED SURFACE SLOPE).

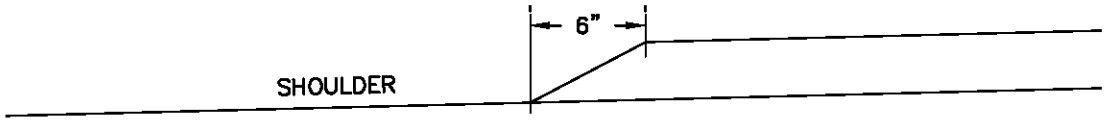
CITY OF TUALATIN, OR		RESIDENTIAL DRIVEWAY APPROACH CURBSIDE SIDEWALK	
REVISED: 11/2020 EFFECTIVE: 12/2020	SCALE: NOT TO SCALE	DRAFTED BY: C. FERGESON APPROVED BY: K. MCMILLAN	DRAWING NO: 443



LONGITUDINAL CENTERLINE PARABOLIC PROFILE



TRANSVERSE EDGE TAPER WITH CURB AND GUTTER

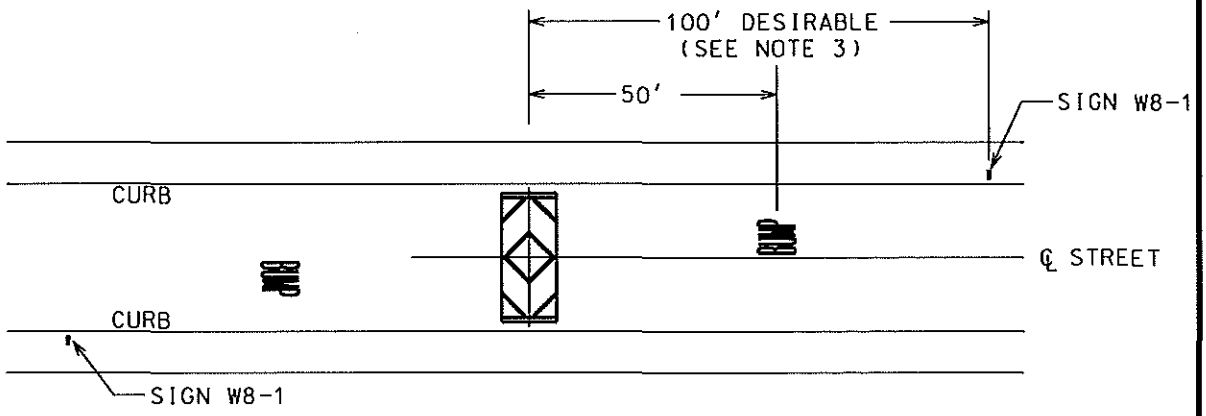


TRANSVERSE EDGE TAPER WITH NO CURB AND GUTTER

NOTES:

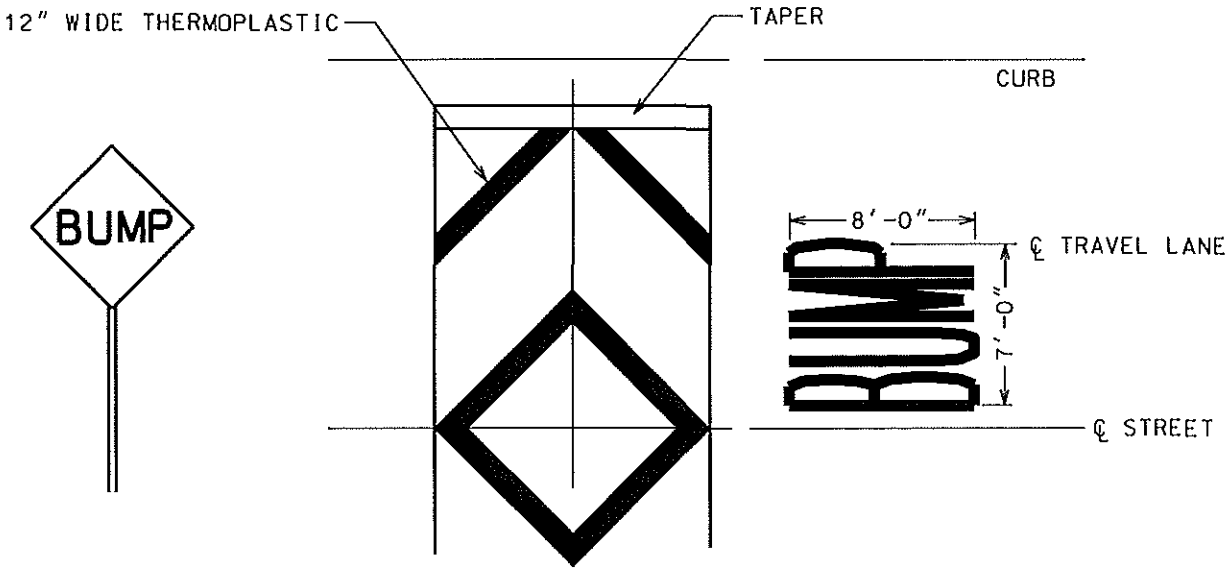
1. GRIND TRANSVERSE EDGES AS SHOWN TO ELIMINATE FEATHER EDGE.
2. AFTER GRINDING PAVEMENT APPLY ASPHALT EMULSION TACK COAT TYPE CSS–1 OR CSS–1H ON CLEAN DRY ASPHALT CONCRETE PAVEMENT.
3. ASPHALT TO BE LEVEL 3, 1/2" DENSE HOT MIXED ASPHALT CONCRETE PAVEMENT COMPACTED TO A MINIMUM OF 92% OF AASHTO T 209.
4. SEAL THE JOINT BETWEEN NEW AND ORIGINAL ASPHALT PAVEMENT BY CAREFULLY APPLYING ASPHALT EMULSION TACK COAT 6 INCHES WIDE AND COVERING WITH DRY PAVING SAND. ALTERNATIVELY, INSTALL 4 INCH ASPHALT CRACK REPAIR TAPE MANUFACTURED BY QUIK JOINT OR APPROVED EQUAL.
5. SURFACES OUTSIDE OF WORK AREA TO BE KEPT CLEAN AND FREE OF ASPHALT.
6. APPLY PAVEMENT MARKINGS AND WARNING SIGNS PER STD DWG 451.

CITY OF TUALATIN, OR		PARABOLIC SPEED HUMP CONSTRUCTION	
REVISED: 11/2020 VALID: 12/2020	SCALE: NOT TO SCALE	DRAWN: C. FERGESON APPROVED: K.MCMILLAN	DWG NO. 450



SIGN/MARKING LAYOUT

SCALE 1:500



SIGN W8-1

SCALE 1:50

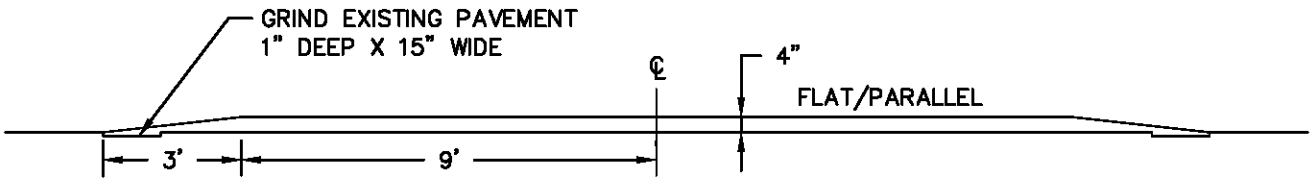
MARKINGS

SCALE 1:100

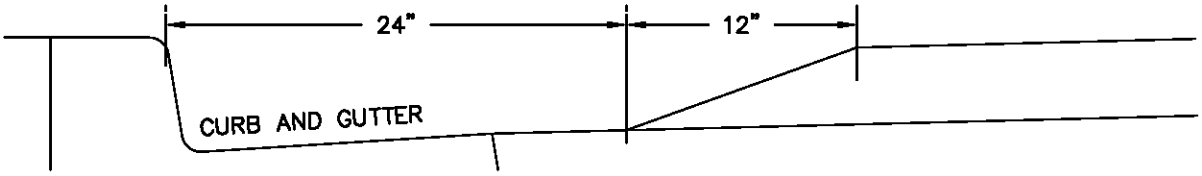
NOTES

1) PAVEMENT MARKINGS SHALL BE PREFORMED WHITE THERMOPLASTIC, TYPE B-1, 90 MIL OR GREATER THICKNESS, WITH PRECOATED ADHESIVE
2) WITH STD SIGN (30"x30") W8-1, SEE ALSO STD DWG 516
3) ACTUAL LOCATION OF W8-1 SHALL BE DETERMINED BY THE ENGINEER

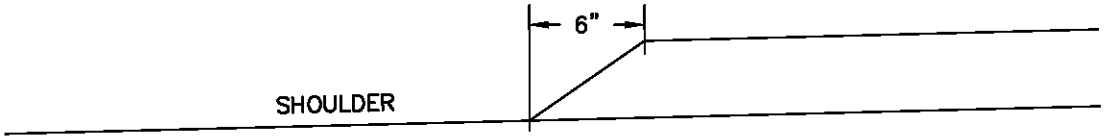
CITY OF TUALATIN, OR		PARABOLIC SPEED HUMP PAVEMENT MARKINGS AND STREET SIGNS	
REVISED: 10/2002 VALID: 3/2003	SCALE: AS SHOWN	DRAWN: D.L. APPROVED: K.L.H.	DWG NO. 451



LONGITUDINAL CENTERLINE PROFILE



TRANSVERSE EDGE TAPER WITH CURB AND GUTTER

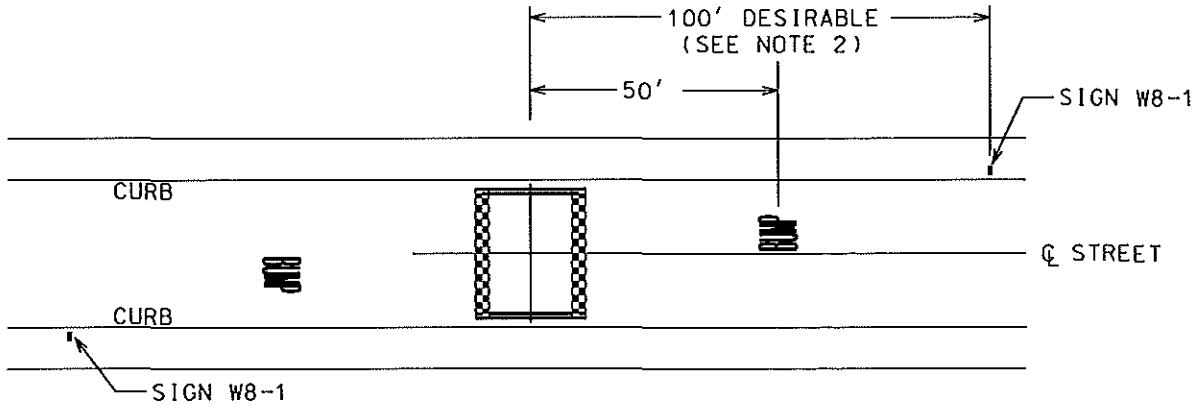


TRANSVERSE EDGE TAPER WITH NO CURB AND GUTTER

NOTES:

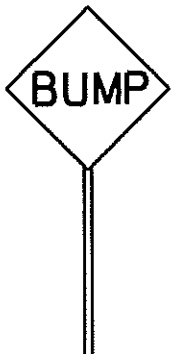
1. GRIND TRANSVERSE EDGES AS SHOWN TO ELIMINATE FEATHER EDGE.
2. AFTER GRINDING PAVEMENT APPLY ASPHALT EMULSION TACK COAT TYPE CSS-1 OR CSS-1H ON CLEAN DRY ASPHALT CONCRETE PAVEMENT.
3. ASPHALT TO BE LEVEL 3, 1/2" DENSE HOT MIXED ASPHALT CONCRETE PAVEMENT COMPACTED TO A MINIMUM OF 92% OF AASHTO T 209.
4. SEAL THE JOINT BETWEEN NEW AND ORIGINAL ASPHALT PAVEMENT BY CAREFULLY APPLYING ASPHALT EMULSION TACK COAT 6 INCHES WIDE AND COVERING WITH DRY PAVING SAND. ALTERNATIVELY, INSTALL 4 INCH ASPHALT CRACK REPAIR TAPE MANUFACTURED BY QUIK JOINT OR APPROVED EQUAL.
5. SURFACES OUTSIDE OF WORK AREA TO BE KEPT CLEAN AND FREE OF ASPHALT.
6. APPLY PAVEMENT MARKINGS AND WARNING SIGNS PER STD DWG 451.

CITY OF TUALATIN, OR		**SPEED TABLE HUMP CONSTRUCTION**	
REVISED: 11/2020 VALID: 12/2020	SCALE: NOT TO SCALE	DRAWN: C. FERGESON APPROVED: K.MCMILLAN	DWG NO. **452**



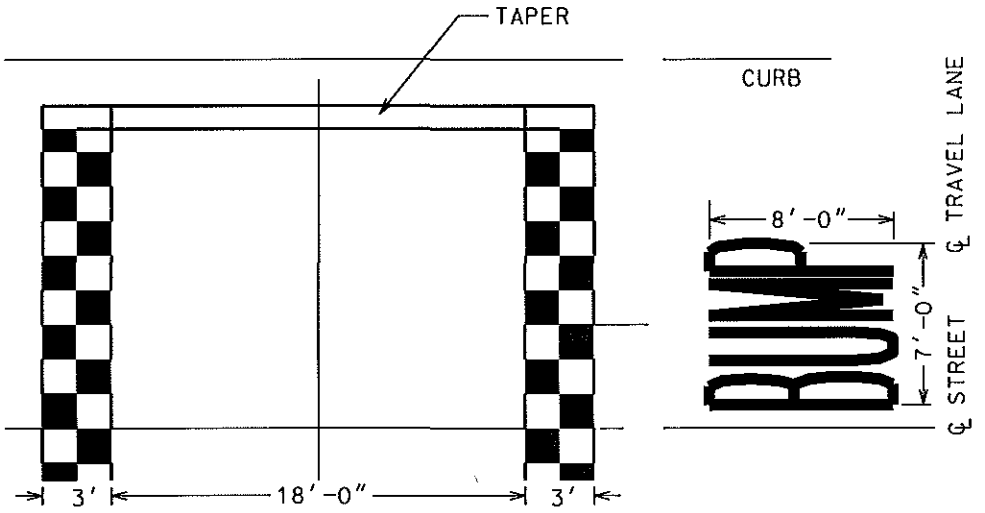
SIGN/MARKING LAYOUT

SCALE 1:500



SIGN W8-1

SCALE 1:50



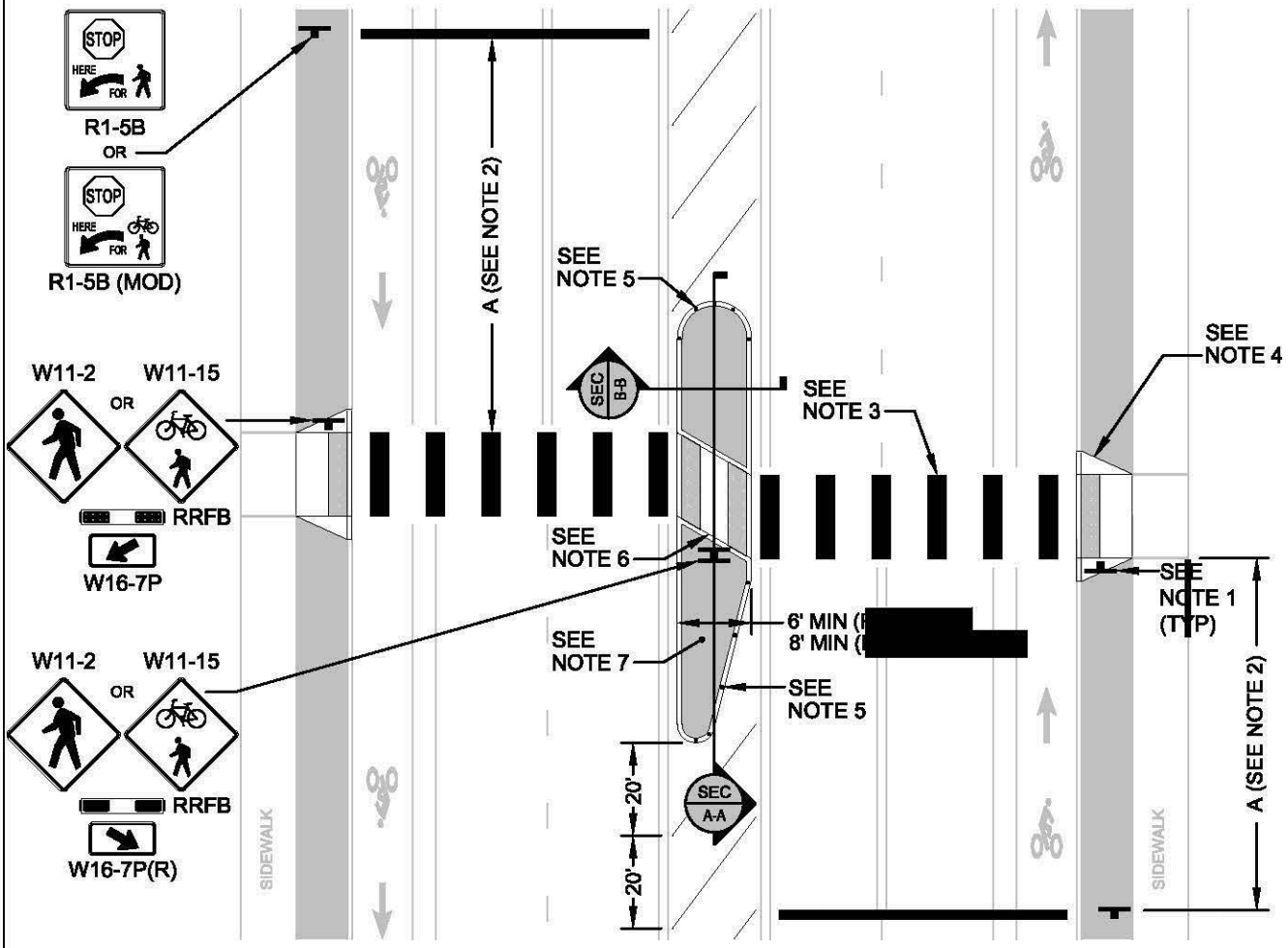
MARKINGS

SCALE 1:100

NOTES

1) PAVEMENT MARKINGS SHALL BE PREFORMED WHITE THERMOPLASTIC, TYPE B-1, 90 MIL OR GREATER THICKNESS, WITH PRECOATED ADHESIVE. THE MARKINGS ON THE SLOPE OF THE HUMP SHALL BE 18" SQUARE
2) THE ACTUAL LOCATION OF STANDARD SIGN W8-1 (30"X30") SHALL BE DETERMINED BY THE ENGINEER. SEE ALSO STD DWG 516 AND 452

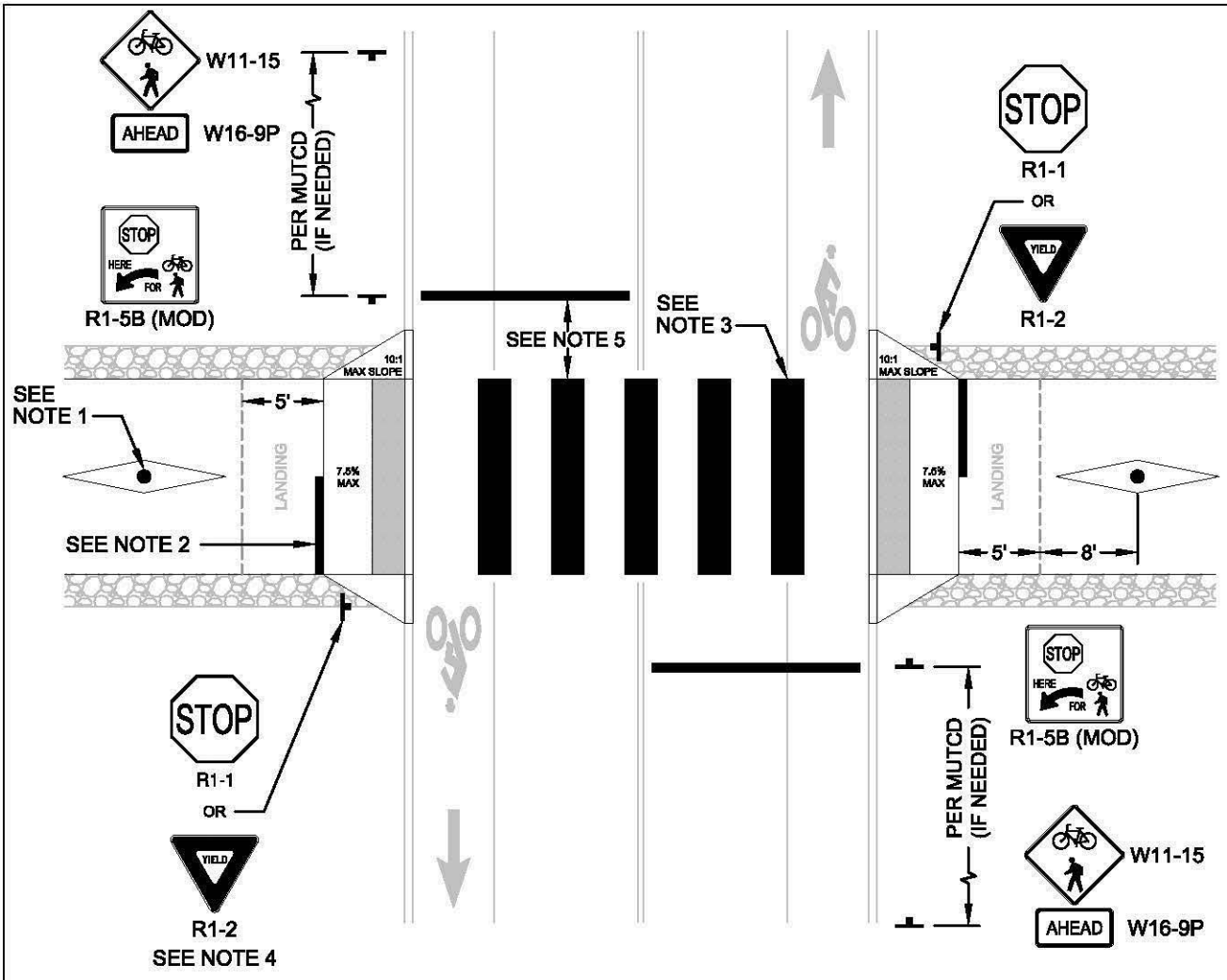
CITY OF TUALATIN, OR	SPEED TABLE HUMP PAVEMENT MARKINGS AND STREET SIGNS		
REVISED: 10/2002 VALID: 3/2003	SCALE: AS SHOWN	DRAWN: D.L. APPROVED: K.L.H.	DWG NO. 453



NOTES:

1. SINGLE SIDED OR DUAL SIDED (SOLAR) RECTANGULAR RAPID FLASHING BEACON (RRFB) SIGN ASSEMBLY AND PUSH BUTTON (SEE STD DWG #490 OR 491). NEAR-SIDE/FAR-SIDE PLACEMENT OF SIGN ASSEMBLY AT CROSSING LOCATION BASED ON SURROUNDING LAND USE AND APPROVAL BY CITY.
2. DISTANCE 'A' FOR ADVANCE 'STOP HERE FOR PEDESTRIANS' SIGN (R1-5B) AND LIMIT LINE BASED ON POSTED SPEED AND DETERMINED BY ENGINEER. ENGINEER TO ENSURE VISIBILITY OF RRFB SIGN ASSEMBLY AT CROSSING.
3. CONTINENTAL CROSSWALK, SEE STD DWG #430 DETAIL G.
4. CURB RAMP WITH TRUNCATED DOME DETECTABLE WARNING SURFACE PER STD DWG #460, 463, AND 464.
5. INSTALL YELLOW TYPE 1 BI-DIRECTIONAL RAISED PAVEMENT MARKER, MINIMUM OF 5 AT EACH END OF ISLAND. CITY ENGINEER TO APPROVE TYPE OF MEDIAN NOSE STYLE.
6. ANGLE OF 30°. ISLAND WALKWAY AT ROAD GRADE LEVEL. PROVIDE MINIMUM 2' SEPARATION BETWEEN TRUNCATED DOME DETECTABLE WARNING SURFACE PANELS.
7. DO NOT LANDSCAPE MEDIAN ISLAND.
8. SEE WASHINGTON COUNTY DETAIL 2310 FOR SECTIONS A-A AND B-B.

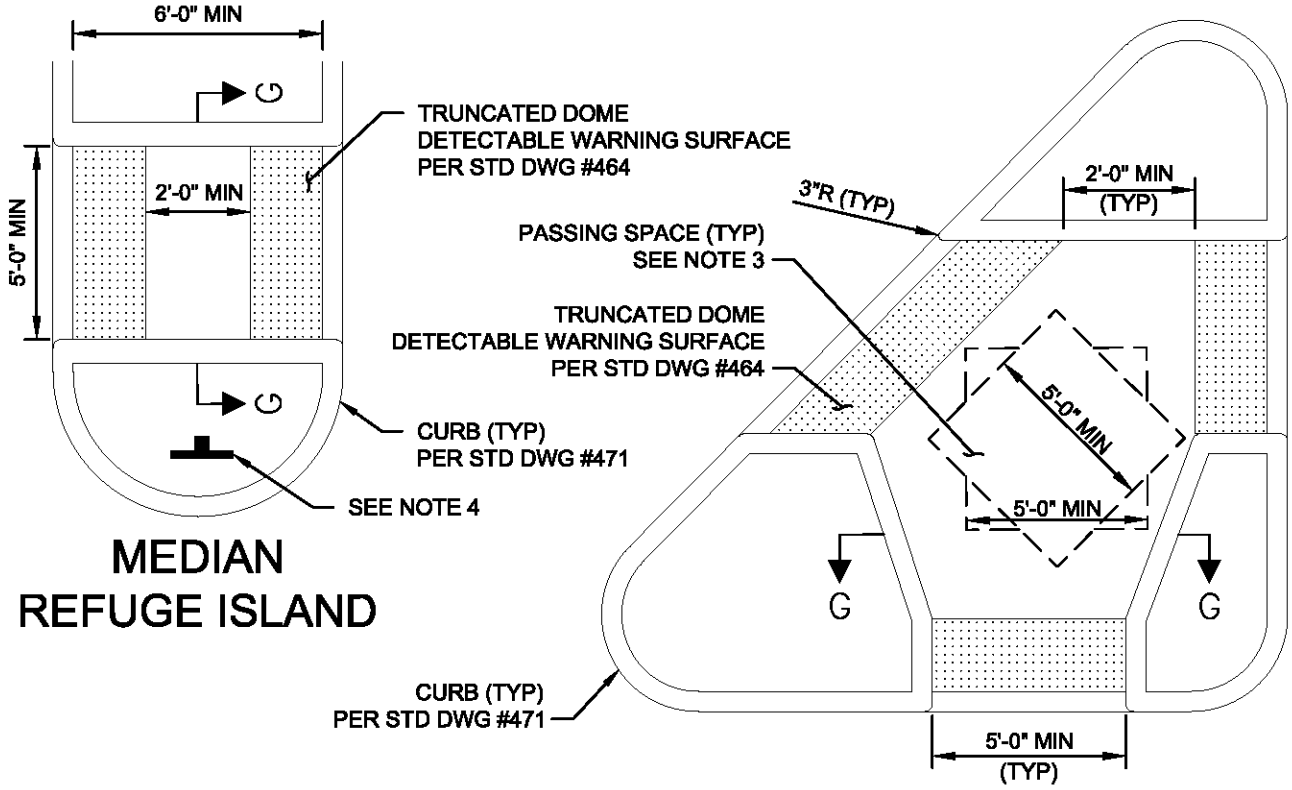
CITY OF TUALATIN, OR		SAFETY ISLAND	
REVISED: 09/2020 VALID: 10/2020	SCALE: NOT TO SCALE	DRAWN: K. PAULSEN APPROVED: K. MCMILLAN	DWG NO. 454

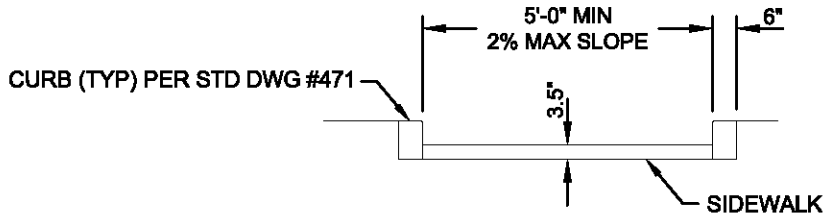


NOTES:

1. IF PATH IS WIDER THAN 9 FEET, INSTALL BOLLARD (SEE STD DWG #530) AND STRIPING (SEE MUTCD FIGURE 9C-8A).
2. (OPTIONAL) INSTALL LIMIT LINE OR YIELD MARKINGS CORRESPONDING TO TRAFFIC-CONTROL AT TRAIL APPROACH.
3. CONTINENTAL CROSSWALK, SEE STD DWG #430 DETAIL G.
4. DETERMINE 'STOP' OR 'YIELD' CONTROL BASED ON STOPPING SIGHT DISTANCE GUIDANCE IN CHAPTER 5 OF THE 2012 AASHTO *GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES*.
5. DISTANCE FOR ADVANCE 'STOP HERE FOR PEDESTRIANS' SIGN (R1-5B) AND LIMIT LINE BASED ON POSTED SPEED AND ENGINEER'S DISCRETION.
6. APPLY TREATMENT AT TRAIL CROSSINGS INTERSECTING ROADWAYS WITH POSTED SPEED ≤35 MPH AND WHERE THERE IS ADEQUATE SIGHT DISTANCE.
7. MEDIAN REFUGE ISLAND MAY BE REQUIRED AS DIRECTED BY CITY ENGINEER.
8. SIGNAL, RRFB, OR PHB MAY BE REQUIRED AS DIRECTED BY CITY ENGINEER.

CITY OF TUALATIN, OR		SHARED USE PATH INTERSECTION WITH ROADWAY	
REVISED: 09/2020 VALID: 10/2020	SCALE: NOT TO SCALE	DRAWN: K. PAULSEN APPROVED: K. MCMILLAN	DWG NO. 455





SECTION G-G

NOTES:

1. DETAILS ARE INTENDED TO SHOW MINIMUM REQUIRED CLEARANCES AND DETECTABLE WARNING SURFACE PLACEMENT LOCATIONS.
2. USE CUT-THROUGH OR STANDARD CURB RAMP DETAILS FOR PEDESTRIAN ACCESS ROUTES THROUGH ISLAND.
3. PROVIDE A MINIMUM 5'-0" x 5'-0" PASSING SPACE FOR EACH PEDESTRIAN ACCESS ROUTE THROUGH ISLAND.
4. INSTALL "KEEP RIGHT" SIGN (R4-7), USE ONLY IF NO PEDESTRIAN SIGNAGE IS ON ISLAND. USE WASHINGTON COUNTY DETAIL 6050 FOR SIGNING BASE.

CITY OF TUALATIN, OR		INTERSECTION SAFETY ISLAND	
REVISED: 09/2020 VALID: 10/2020	SCALE: NOT TO SCALE	DRAWN: K. PAULSEN APPROVED: K. MCMILLAN	DWG NO. 456

1. REFER TO STANDARD DRAWINGS 461, 462, AND 463 FOR TYPICAL RAMP GEOMETRY AND DIMENSIONS.

2. ALTERNATIVE ENGINEERED CURB RAMP DESIGNS THAT MEET ALL REQUIREMENTS OF THE UNITED STATES ACCESS BOARD PROPOSED PUBLIC RIGHTS- OF- WAY ACCESSIBILITY GUIDELINES (PROWAG) MAY BE USED IF APPROVED BY THE CITY ENGINEER.

3. MEET THE REQUIREMENTS OF PROWAG. GENERAL NOTES AND DETAILS ARE PROVIDED TO CONVEY MINIMUM REQUIREMENTS TO MEET PROWAG FOR DESIGN AND CONSTRUCTION OF ADA RAMPS. EACH PROJECT REQUIRES A DESIGN BY A STATE OF OREGON LICENSED ENGINEER.

4. SEE DWG. NO. 470 & 471 FOR CURB DETAILS. SEE DWG. NO. 475 FOR SIDEWALK DETAILS.

5. CONSTRUCT TURNING SPACE/LANDING WITH 1.5% MAX. SLOPE IN THE DIRECTION OF TRAVEL AND PERPENDICULAR TO THE DIRECTION OF TRAVEL. SLOPE TURNING/LANDING SPACE TO DRAIN TOWARDS STREET UNLESS OTHERWISE NOTED.

6. PROVIDE EDGED JOINTS AT ALL SIDEWALK RAMP SLOPE BREAK LINES.

7. FOR THE PURPOSE OF THESE DRAWINGS, A CURB RAMP IS CONSIDERED "PERPENDICULAR" IF THE ANGLE BETWEEN THE LONGITUDINAL AXIS OF THE RAMP AND A LINE TANGENT TO THE CURB AT THE RAMP CENTER IS 75 DEGREES OR GREATER.

8. SIDEWALK CURB RAMP SLOPES SHOWN ARE RELATIVE TO THE TRUE LEVEL HORIZON (ZERO BUBBLE). VERIFY ALL SLOPES USING A CALIBRATED SMART LEVEL.

9. PLACE TRUNCATED DOME DETECTABLE WARNING SURFACE IN THE LOWER 2' ADJACENT TO TRAFFIC OF THE THROAT OF THE RAMP ONLY. SEE DWG. NO. 464.

10. LOCATE THE RAMP WIDTH EXCLUDING FLARED SIDES COMPLETELY WITHIN THE LEGAL CROSSWALK LIMITS. SEE DWG. NO. 464.

11. CONSTRUCT RAMP FLARED SIDES 9.0% MAX SLOPE (10.0% MAX. FINISHED SURFACE SLOPE) MEASURED PARALLEL TO THE CURBLINE, WHEN IN THE PEDESTRIAN CIRCULATION PATH.

12. COUNTER SLOPE FOR STREETS, GUTTERS, AND TRANSITIONS, AT THE FOOT OF THE CURB RAMP IS 5.0% MAX.

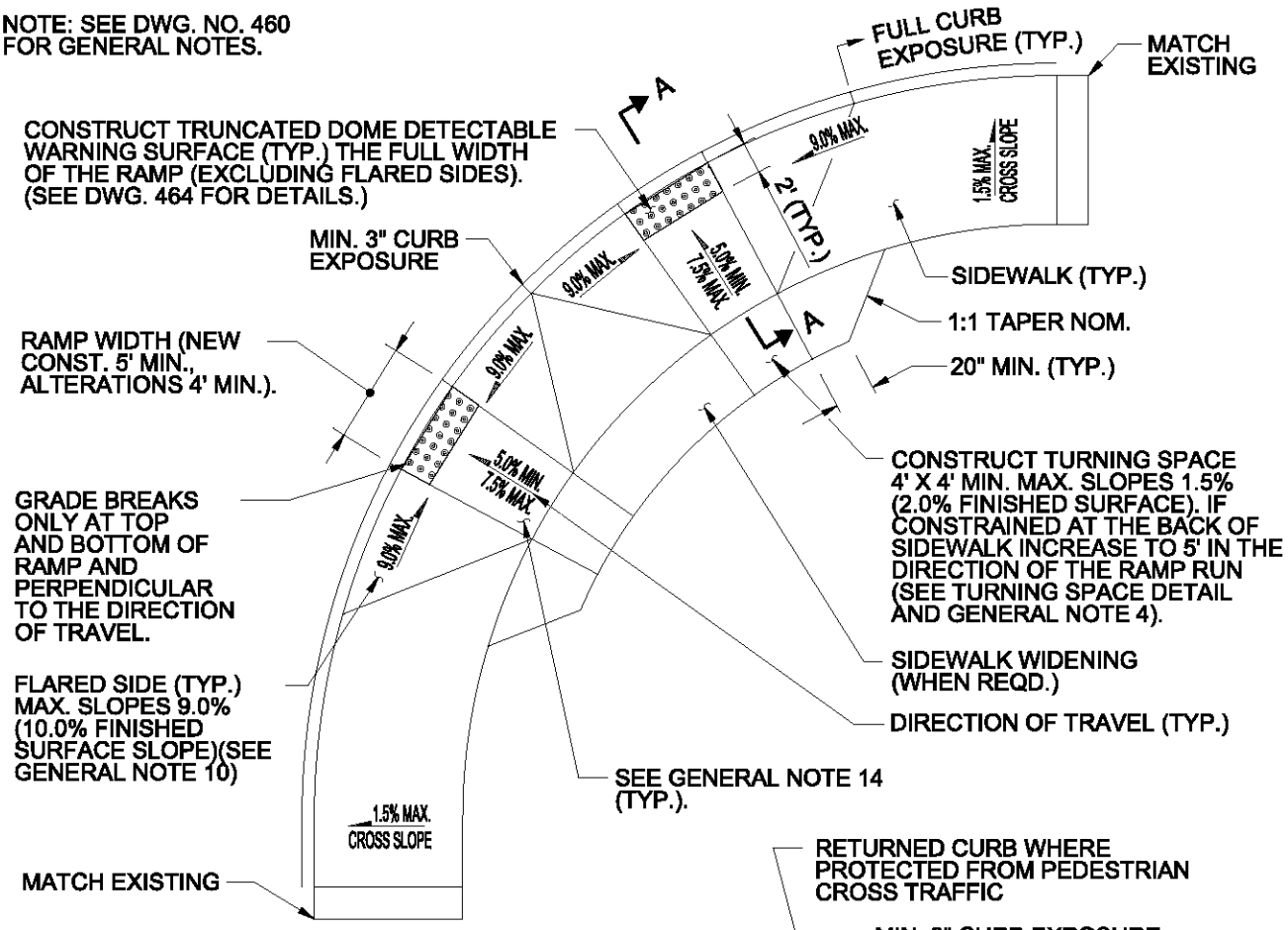
13. IF EXISTING ADJACENT SIDEWALK PANEL DOES NOT MEET PROWAG REQUIREMENTS, CONSTRUCT TRANSITIONAL PANEL THAT IS AT LEAST 2' LONG BETWEEN THE NEW CONSTRUCTION AND THE EXISTING SIDEWALK. EXTEND TRANSITION PANEL TO THE NEAREST CONTROL JOINT IF LESS THAN 2' OF THE EXISTING PANEL REMAINS. TRANSITIONAL SEGMENTS ARE INTENDED TO SMOOTHLY TRANSITION BETWEEN THE NEW RAMP AND SIDEWALK CROSS SLOPE AND THE EXISTING CROSS SLOPE.

14. REFER TO PROWAG SECTION R403 - OPERABLE PARTS AND MUTCD (CHAPTER 4) FOR PEDESTRIAN SIGNAL REQUIREMENTS.

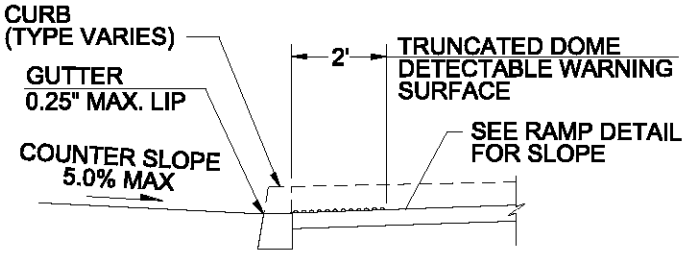
15. CONSTRUCT RAMPS WITH A RUNNING SLOPE BETWEEN 5.0% TO 7.5% MAXIMUM (8.3% FINISHED SURFACE). MEET RUNNING SLOPE REQUIREMENTS FOR UP TO 15.0'. RUNNING SLOPE FOR THAT PORTION OF RAMP LONGER THAN 15.0' MAY EXCEED 7.5% MAX. (8.3% MAX FINISHED SURFACE) TO MATCH SIDEWALK GRADE AS APPROVED BY THE CITY ENGINEER.

CITY OF TUALATIN, OR		ADA RAMP- GENERAL NOTES		
REVISED: 7/23/2018	DRAFTED BY: S. STRASSER APPROVED BY: J. FUCHS	SCALE: NTS	DRAWING NO.	460

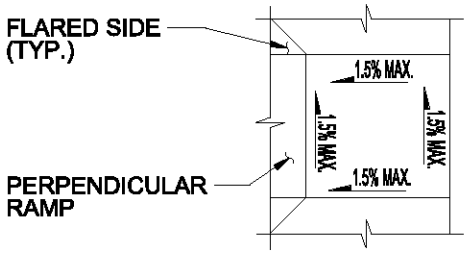
NOTE: SEE DWG. NO. 460 FOR GENERAL NOTES.



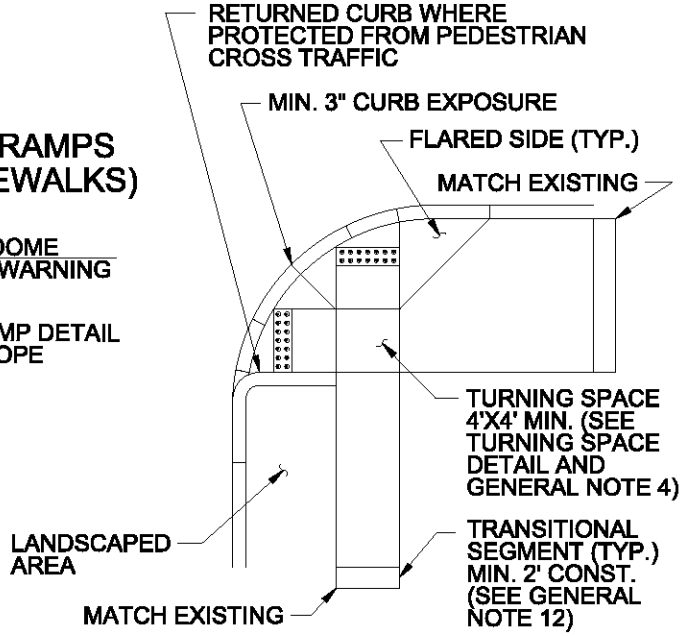
PERPENDICULAR RAMPS (FOR NARROW SIDEWALKS)



SECTION A-A



TURNING SPACE



PERPENDICULAR RAMPS (FOR WIDE SIDEWALKS/PLANTERS)

CITY OF TUALATIN, OR

REVISED:	11/22/2016	DRAFTED BY:	S. ATWOOD
EFFECTIVE:	12/31/2016	APPROVED BY:	D. HIPPENSTIEL

ADA RAMP - PERPENDICULAR

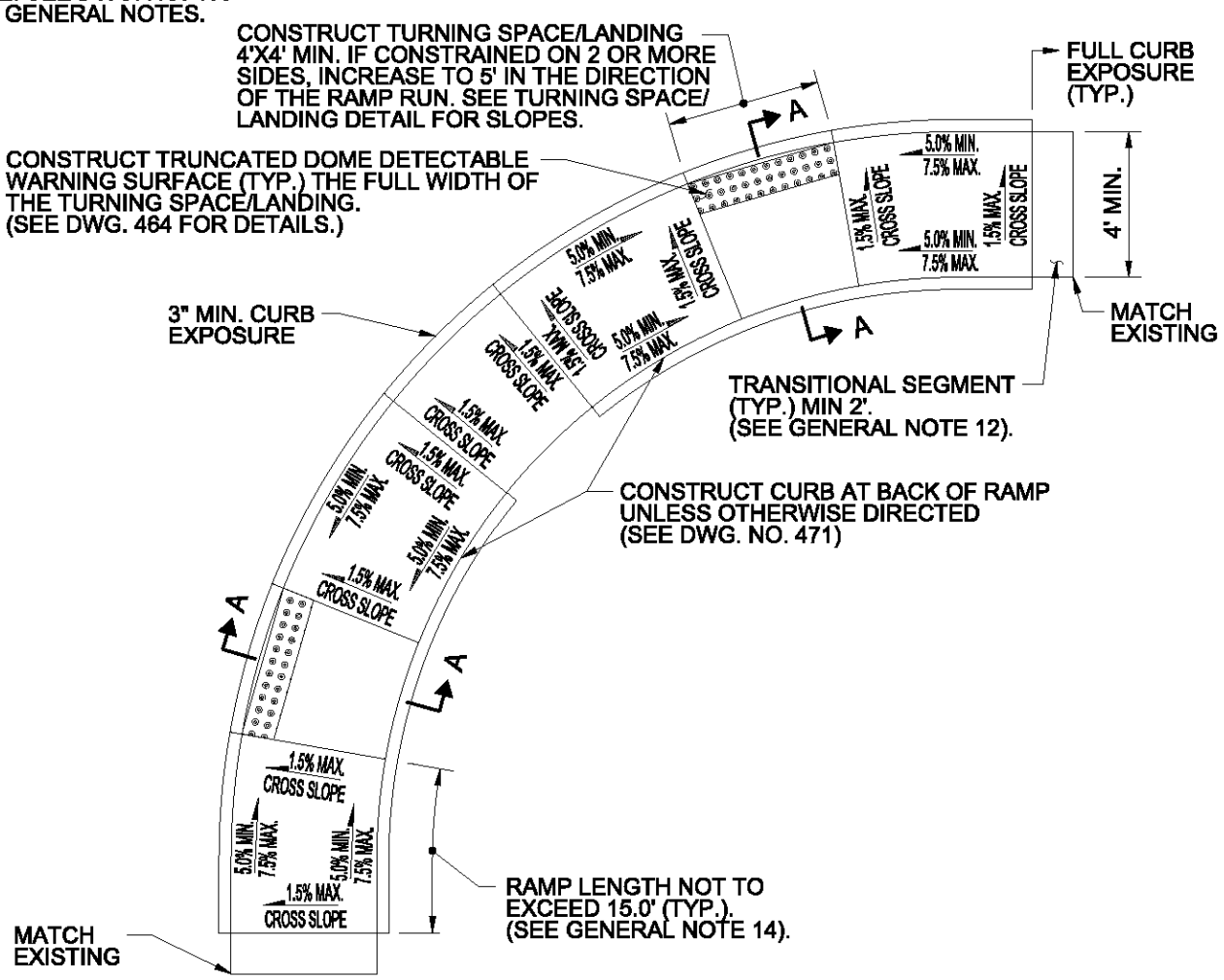
DRAWING NO: 461

PLOT TIME: 9:16:45 AM

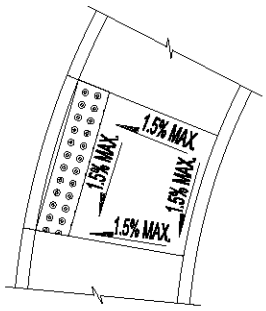
PLOT DATE: 11/22/2016

FILENAME: PERPENDICULAR CURB.dgn

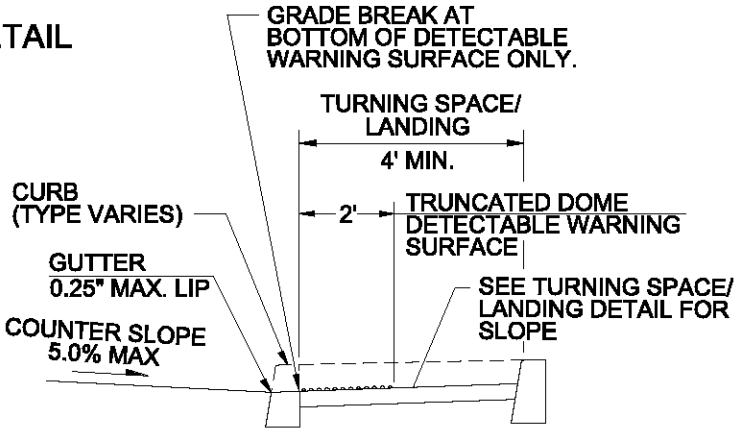
NOTE: SEE DWG. NO. 460
FOR GENERAL NOTES.



PARALLEL RAMP DETAIL



TURNING SPACE/
LANDING DETAIL



SECTION A-A

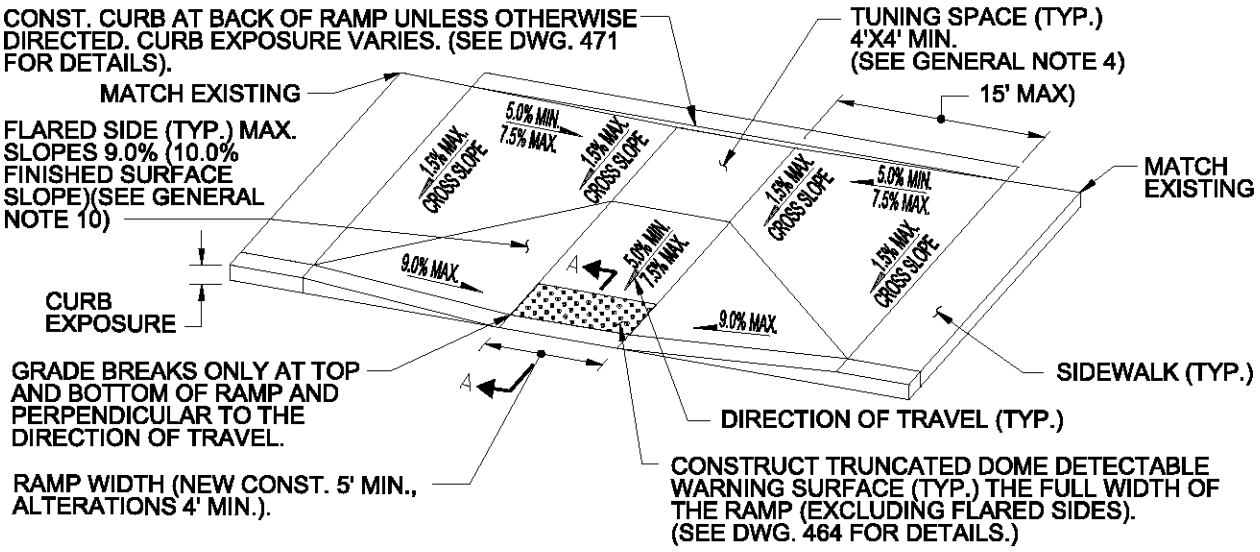
PLOT TIME: 9:17:56 AM
PLOT DATE: 11/22/2016
FILENAME: PARALLEL CURB.dgn

CITY OF TUALATIN, OR

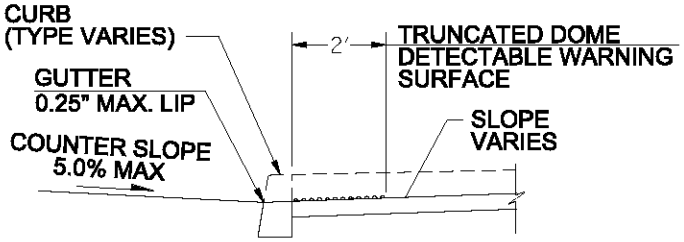
REVISED:	11/22/2016	DRAFTED BY:	S. ATWOOD
EFFECTIVE:	12/31/2016	APPROVED BY:	D. HIPPENSTIEL

ADA - RAMP
PARALLEL

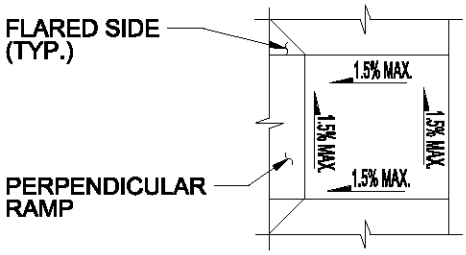
DRAWING NO: 462



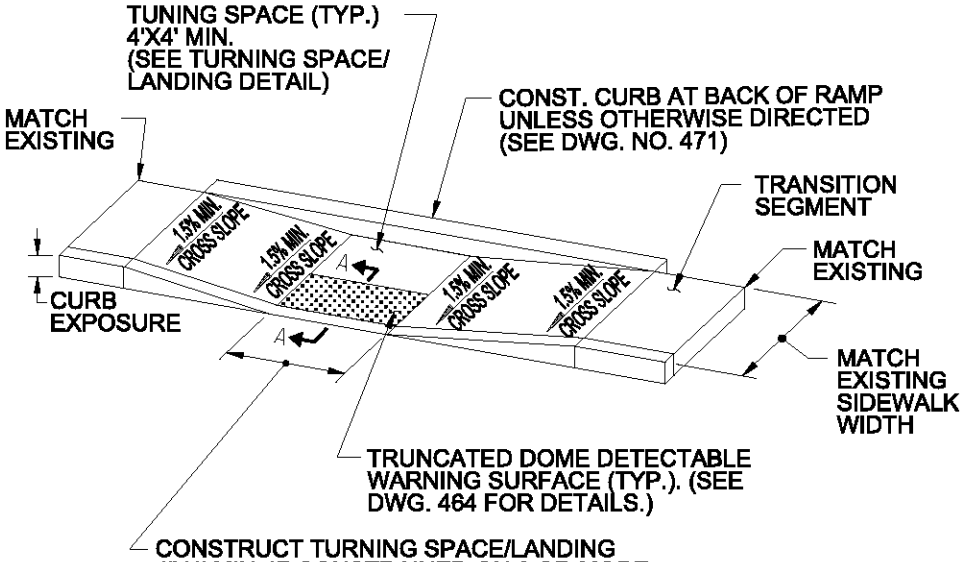
COMBINATION MIDBLOCK RAMP DETAIL



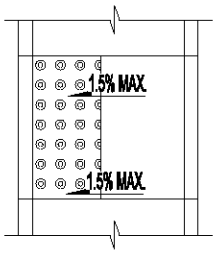
SECTION A-A



TURNING SPACE



PARALLEL MIDBLOCK RAMP DETAIL



TURNING SPACE/ LANDING DETAIL

NOTE: SEE DWG. NO. 460 FOR GENERAL NOTES.

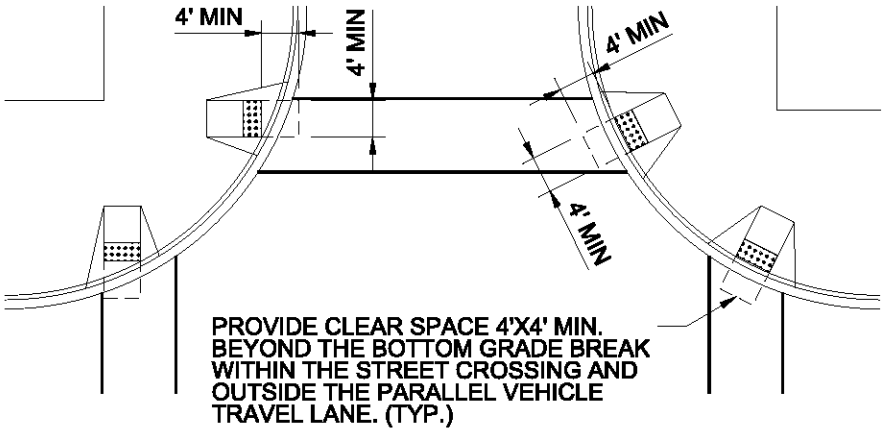
CITY OF TUALATIN, OR

REVISED:	11/22/2016	DRAFTED BY:	S. ATWOOD
EFFECTIVE:	12/31/2016	APPROVED BY:	D. HIPPENSTIEL

ADA RAMP - MIDBLOCK

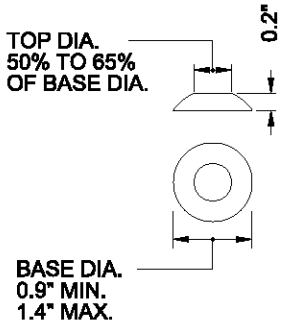
DRAWING NO: 463

NOTE: SEE DWG. NO. 460 FOR GENERAL NOTES.

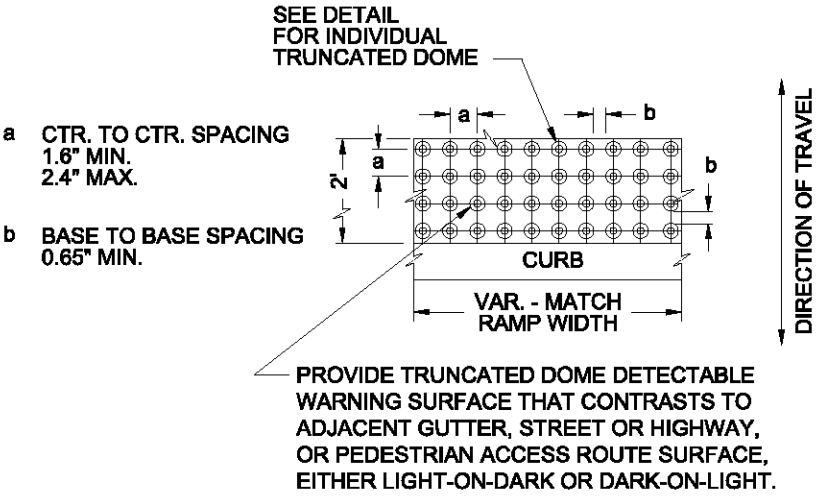


CLEAR SPACE

TRUNCATED DOME DETECTABLE WARNING SURFACE



INDIVIDUAL TRUNCATED DOME DETAIL



TRUNCATED DOME PATTERN

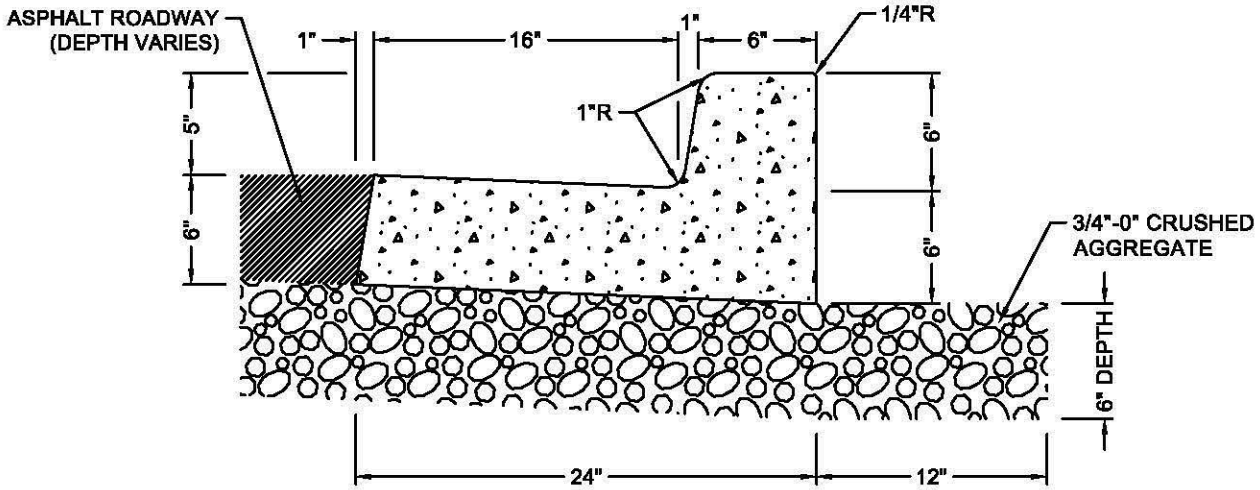
PLOT TIME: 9:20:19 AM
PLOT DATE:11/22/2016
FILENAME: DUAL CURB.dgn

CITY OF TUALATIN, OR

REVISED:	11/22/2016	DRAFTED BY:	S. ATWOOD
EFFECTIVE:	12/31/2016	APPROVED BY:	D. HIPPENSTIEL

ADA RAMP - DETAILS

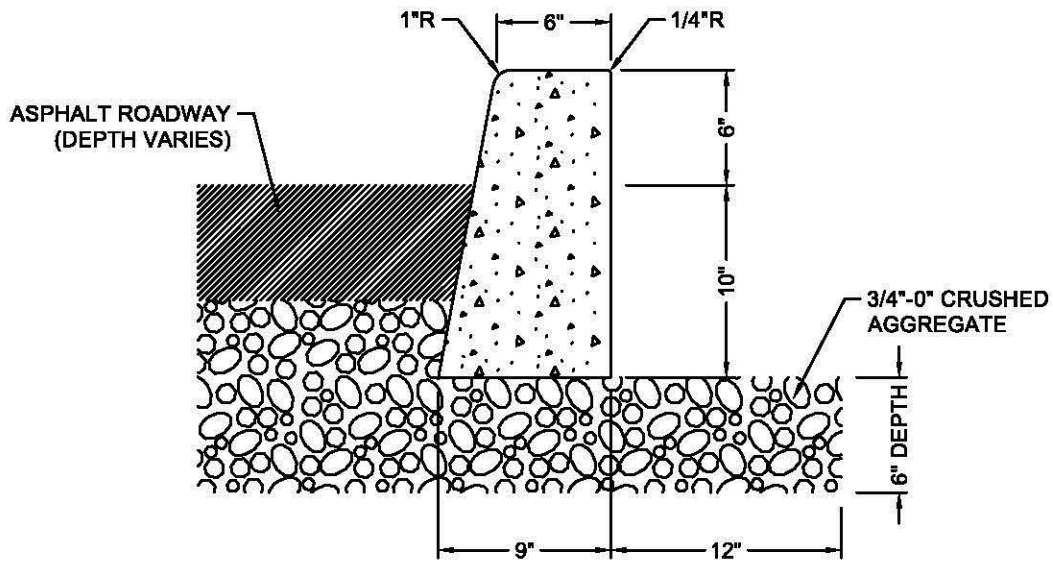
DRAWING NO: 464



NOTES:

1. CONCRETE SHALL ATTAIN 3300 PSI COMPRESSIVE STRENGTH AT 28 DAYS, ENTRAINED AIR 4% - 7%.
2. CONTROL JOINTS OF THE WEAKENED PLANE TYPE, DOWN THROUGH THE CURB TO HALF THE DEPTH OF THE GUTTER, SHALL BE SPACED AT 15' INTERVALS AND AT POINTS OF TANGENCY. FINISH THE EXPOSED EDGE WITH 1/4" RADIUS EDGER. DO NOT USE EXPANSION JOINTS.
3. CONSTRUCTION JOINTS SHALL BE FORMED WITH A SMOOTH FACE SQUARE TO THE CURB AND DOWN THROUGH HALF THE DEPTH OF THE GUTTER. FINISH FUTURE EXPOSED EDGE WITH 1/4" RADIUS EDGER. THE LOWER HALF OF THE GUTTER CROSS SECTION SHALL BE LEFT WITH A ROUGH EXPOSED AGGREGATE SURFACE TO INTERLOCK WITH A FUTURE EXTENSION OF THE CURB AND GUTTER.
4. BASE ROCK UNDER THE CURB AND ALSO PLACED 12" BEYOND THE BACK OF THE CURB SHALL BE COMPACTED TO 92% OF T-180.
5. DRAINAGE WEEP HOLES OF 3" DIAMETER PVC SCHEDULE 40 PIPE SHALL BE PLACED THROUGH THE CURB 1/2" ABOVE THE GUTTER INVERT AND EXTEND 3" BEYOND THE BACK OF THE CURB AT POSITIONS SHOWN ON THE PLANS, LOW POINTS IN THE CURB, OR WHERE DETERMINED BY THE ENGINEER.
6. THE BACK OF THE CURB SHALL BE BACKFILLED NOT EARLIER THAN 7 DAYS AFTER CONCRETE PLACEMENT AND PRIOR TO THE COMPACTION OF BASE AND TOP COURSE ROCK AND PAVEMENT.
7. THE EXPOSED SURFACES SHALL BE BROOM FINISHED IN THE DIRECTION OF GUTTER FLOW.

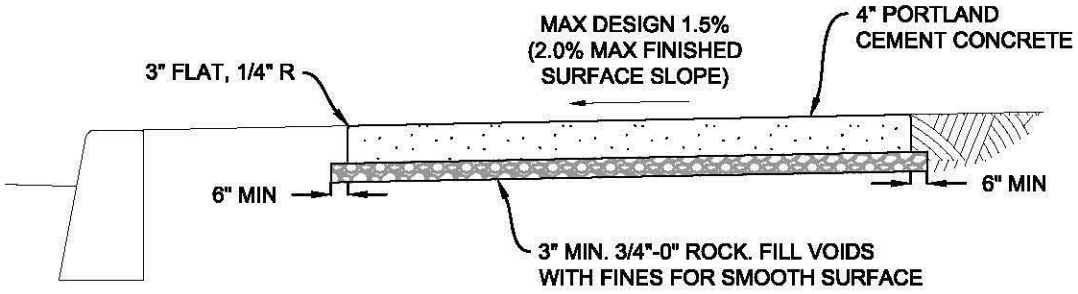
CITY OF TUALATIN, OR		CURB AND GUTTER	
REVISED: 11/2020 EFFECTIVE: 12/2020	SCALE: NOT TO SCALE	DRAFTED BY: C. FERGESON APPROVED BY: K. MCMILLAN	DRAWING NO: 470



NOTES:

1. CONCRETE SHALL ATTAIN 3300 PSI COMPRESSIVE STRENGTH AT 28 DAYS, ENTRAINED AIR 4% - 7%.
2. CONTROL JOINTS OF THE WEAKENED PLANE TYPE, DOWN THROUGH THE CURB TO HALF THE DEPTH OF THE CURB, SHALL BE SPACED AT 15' INTERVALS AND AT POINTS OF TANGENCY. FINISH THE EXPOSED EDGE WITH 1/4" RADIUS EDGER. DO NOT USE EXPANSION JOINTS.
3. CONSTRUCTION JOINTS SHALL BE FORMED WITH A SMOOTH FACE SQUARE TO THE CURB AND DOWN THROUGH HALF THE DEPTH OF THE CURB. FINISH FUTURE EXPOSED EDGE WITH 1/4" RADIUS EDGER. THE LOWER HALF OF THE CURB CROSS SECTION SHALL BE LEFT WITH A ROUGH EXPOSED AGGREGATE SURFACE TO INTERLOCK WITH A FUTURE EXTENSION OF THE CURB.
4. BASE ROCK UNDER THE CURB AND ALSO PLACED 12" BEYOND THE BACK OF THE CURB SHALL BE COMPACTED TO 92% OF T-180.
5. DRAINAGE WEEP HOLES OF 3" DIAMETER PVC SCHEDULE 40 PIPE SHALL BE PLACED THROUGH THE CURB WITH INVERT 5½" BELOW THE CURB TOP AND EXTEND 3" BEYOND THE BACK OF THE CURB AT POSITIONS SHOWN ON THE PLANS, LOW POINTS IN THE CURB, OR WHERE DETERMINED BY THE ENGINEER.
6. THE BACK OF THE CURB SHALL BE BACKFILLED NOT EARLIER THAN 7 DAYS AFTER CONCRETE PLACEMENT AND PRIOR TO THE COMPACTION OF BASE AND TOP COURSE ROCK AND PAVEMENT.
7. THE EXPOSED SURFACES SHALL BE BROOM FINISHED LONGITUDINALLY.

CITY OF TUALATIN, OR		CURB	
REVISED: 11/2020 EFFECTIVE: 12/2020	SCALE: NOT TO SCALE	DRAFTED BY: C. FERGESON APPROVED BY: K. MCMILLAN	DRAWING NO: 471

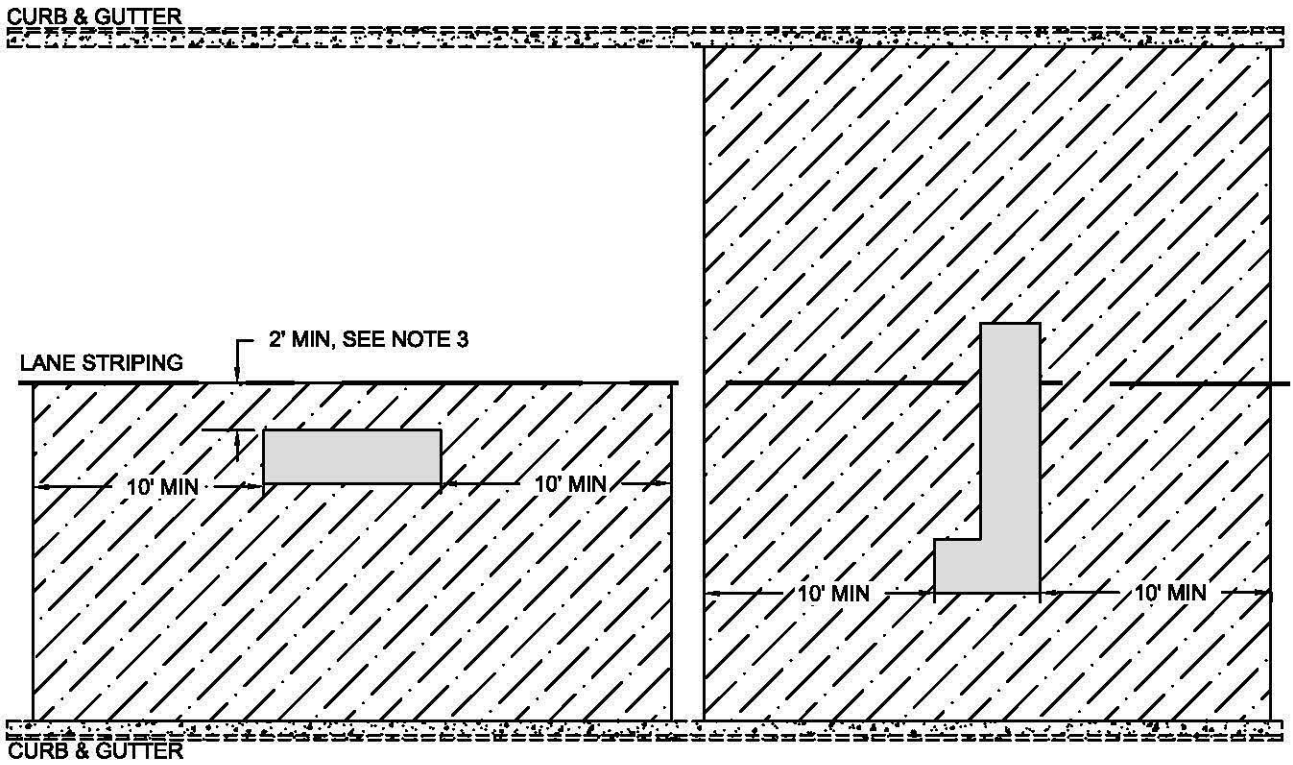


CROSS SECTION

NOTES:

1. PLATE COMPACT THE SIDEWALK SUBGRADE AND BASE ROCK TO SATISFACTION OF THE CITY ENGINEER. DO NOT COMPACT EARLIER THAN 7 DAYS AFTER CONSTRUCTING CURB OR BEFORE COMPLETING THE PLACEMENT OF PAVEMENT BASE ROCK. FILL VOIDS WITH FINES WHERE NECESSARY TO PROVIDE SMOOTH SURFACE.
2. USE PORTLAND CEMENT CONCRETE WITH 4-7% AIR ENTRAINMENT AND A 28 DAY COMPRESSIVE STRENGTH OF AT LEAST 3,300 PSI.
3. CONSTRUCT TRANSVERSE CONTROL JOINTS OF THE WEAKENED PLANE TYPE, 1-1/2" CONCRETE DEPTH AND SPACE AT 5' INTERVALS AND AT POINTS OF TANGENCY.
4. FORM CONTROL JOINTS WITH A SMOOTH FACE SQUARE TO THE SIDEWALK.
5. WHERE A STRUCTURE IS SURROUNDED BY OR IS ADJACENT TO THE SIDEWALK (EXCLUDING CURB), PROVIDE SEPARATION WITH $\frac{1}{2}$" PREMOLDED ASPHALT-IMPREGNATED, NON-EXTRUDING EXPANSION JOINT MATERIAL.
6. BROOM FINISH THE SURFACE TRANSVERSE TO THE DIRECTION OF TRAFFIC.
7. FINISH ALL EDGES WITH $\frac{1}{4}$" RADIUS EDGER WITH 3" FLAT.
8. WHERE PRACTICAL, ALIGN SIDEWALK CONTROL JOINTS WITH CURB JOINTS.
9. IN ACCORDANCE WITH THE UNITED STATES ACCESS BOARD PROPOSED PUBLIC RIGHTS-OF-WAY ACCESSIBILITY GUIDELINES, IF THE EXISTING ADJACENT SIDEWALK PANEL CROSS SLOPE IS GREATER THAN 2.0%, CONSTRUCT A TRANSITIONAL PANEL THAT IS AT LEAST 2' LONG BETWEEN THE NEW SIDEWALK PANEL AND THE EXISTING SIDEWALK. EXTEND TRANSITION PANEL TO THE NEAREST CONTROL JOINT IF LESS THAN 2' OF THE EXISTING PANEL REMAINS.

CITY OF TUALATIN, OR		CONCRETE SIDEWALK	
REVISED: 7/23/2018	DRAFTED BY: S. STRASSER APPROVED BY: J. FUCHS	SCALE: NTS	DRAWING NO. 475



LEGEND:

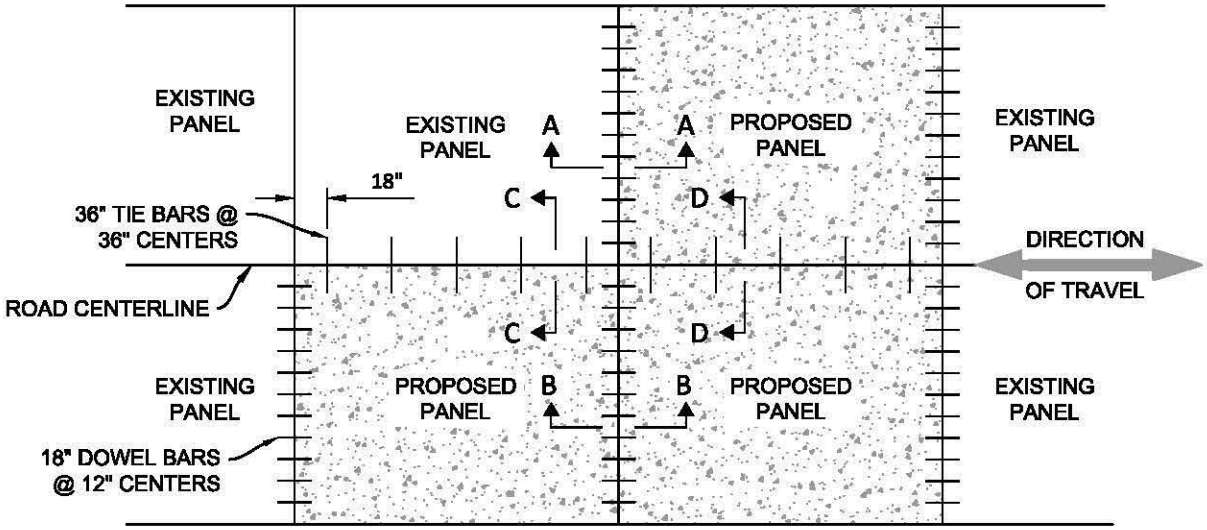
TRENCH AREA

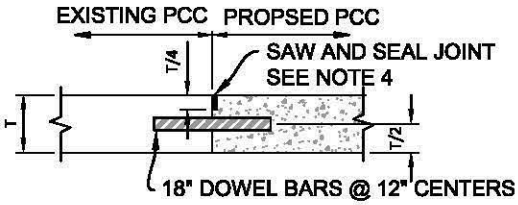
GRIND & INLAY AREA

NOTES:

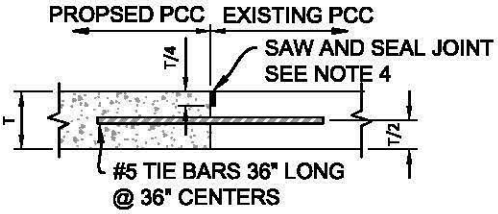
1. THIS STANDARD DRAWING APPLIES TO ROADS PAVED WITHIN THE LAST 5 YEARS.
2. ALL CUTS INTO ANY LANE REQUIRE A VERTICAL CUT AND A 2" GRIND AND INLAY REPLACEMENT EXTENDING FROM THE CURB AND GUTTER TO THE ROAD CENTERLINE, OR OTHER LANE STRIPING AS APPROVED BY THE CITY ENGINEER. EXTEND THE LENGTH OF THE GRIND AND INLAY TO 10' BEYOND THE EDGES OF THE TRENCH.
3. IF A TRENCH CUT IS MADE WITHIN 2' OF THE ROAD CENTERLINE OR IF A CUT CROSSES THE ROAD CENTERLINE, EXTEND THE GRIND AND INLAY THE ENTIRE WIDTH OF THE ROAD.
4. GRIND AND INLAY MUST BE AT LEAST 2" DEEP FOR THE ENTIRE AREA. AN INSPECTION IS REQUIRED BEFORE ASPHALT MAY BE APPLIED.
5. RESTORE ALL STRIPING.
6. REFERENCE STANDARD DRAWING NO. 241 FOR TRENCH REPAIR.

CITY OF TUALATIN, OR			ASPHALT REPAIR FOR NEWLY PAVED ROADS
REVISED: 2/12/2018	DRAFTED BY: S. STRASSER APPROVED BY: J. FUCHS	SCALE: NTS	DRAWING NO. 480



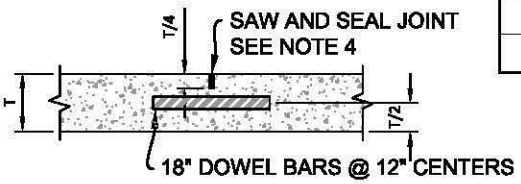


SECTION A-A
CONSTRUCTION JOINT

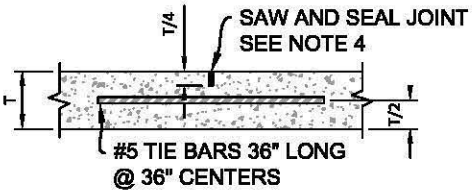


SECTION C-C
LONGITUDINAL CONSTRUCTION JOINT

DOWEL BAR TABLE	
PCC THKN (T)	DOWEL DIA
6" - 8"	1"
8 ½" - 10"	1 ¼"
10 ½" & UP	1 ½"



SECTION B-B
CONTRACTION JOINT

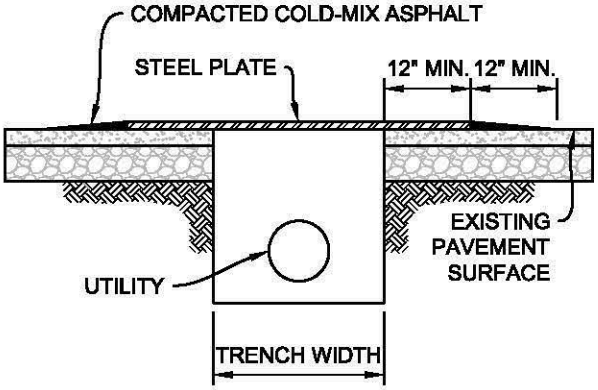


SECTION D-D
LONGITUDINAL CONTRACTION JOINT

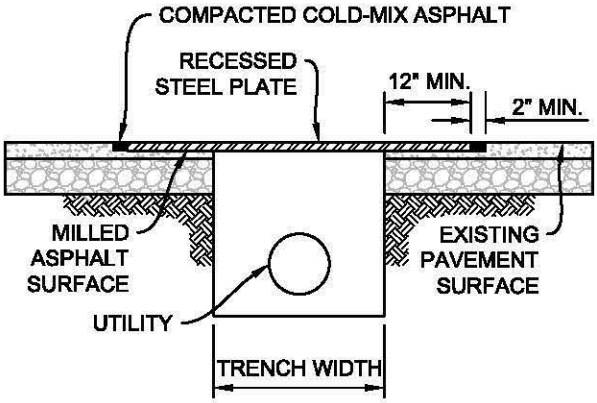
NOTES:

1. REPLACE FULL PANELS FOR ALL PCC PAVEMENT REPAIR, EXCEPT PAVEMENT CORING. REPAIR PAVEMENT CORING IN COMPLIANCE WITH STANDARD DRAWING 484, PAVEMENT CORING REPAIR.
2. PAVEMENT THICKNESS (T) FOR REPLACED PANELS MUST BE 10" MINIMUM OR MATCH EXISTING, WHICHEVER IS GREATER.
3. TINE FINISH THE CONCRETE SURFACE WITH ⅛" WIDE MARKINGS AT ½" CENTERS PERPENDICULAR TO THE DIRECTION OF TRAVEL, WITHOUT OVERLAP.
4. SAWCUT NEW JOINTS AS SOON AS CONCRETE HAS SET SUFFICIENTLY. FLUSH JOINTS WITH WATER AND VACUUM PRIOR TO FILLING WITH POURED RUBBER-ASPHALT JOINT FILLER.
5. ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI PRIOR TO OPENING TO TRAFFIC.

CITY OF TUALATIN, OR	CONCRETE ROADWAY		
REVISED: 2/12/2018	DRAFTED BY: S. STRASSER APPROVED BY: J. FUCHS	SCALE: NTS	DRAWING NO. 481



ASPHALT ROADWAYS BELOW 35 MPH AND ALL CONCRETE ROADWAYS



ASPHALT ROADWAYS 35 MPH AND GREATER

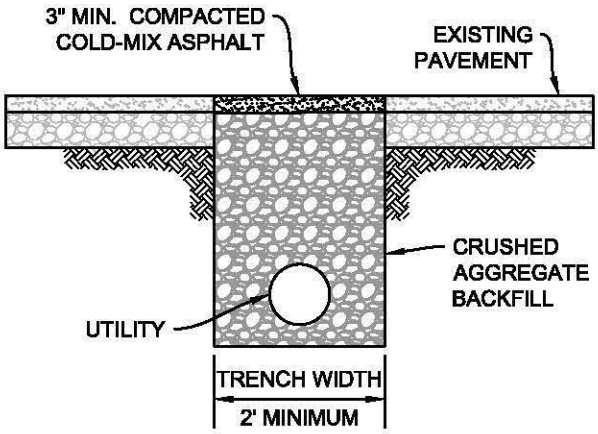
STEEL PLATE INSTALLATION

W8-24
SEE NOTE 9

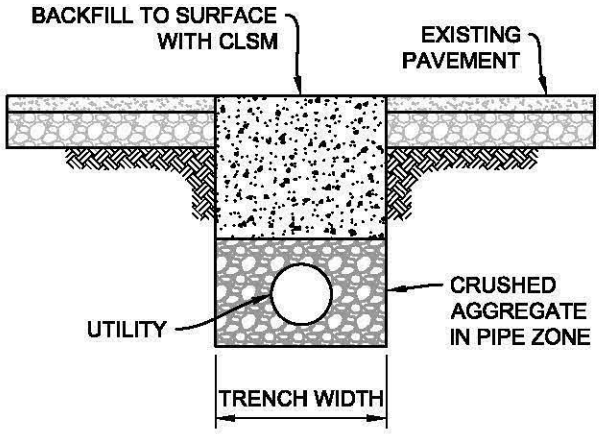
NOTES:

1. USE OF STEEL PLATES MUST BE APPROVED BY THE CITY ENGINEER.
2. USE 1" THICK MIN. STEEL PLATES ON ASPHALT ROADWAYS WITH SPEED LIMITS BELOW 35 MPH.
3. USE 1 ¼" THICK MIN. STEEL PLATES ON CONCRETE ROADWAYS AND ASPHALT ROADWAYS 35 MPH AND GREATER.
4. STEEL PLATES MUST MEET ASTM A36 STEEL REQUIREMENTS AND BE ABLE TO WITHSTAND H-20 TRAFFIC LOADING WITHOUT ANY MOVEMENT.
5. USE FLAT STEEL PLATES THAT DO NOT DEVIATE MORE THAN ¼" WHEN MEASURED WITH A 10' STRAIGHT EDGE.
6. BEFORE STEEL PLATES ARE INSTALLED, ADEQUATELY SHORE AND SUPPORT TRENCH WALLS TO SUPPORT BRIDGING AND TRAFFIC LOADS
7. INSTALL STEEL PLATES TO RESIST BENDING, VIBRATIONS, AND MOVEMENT. ANCHOR SECURELY TO PREVENT MOVEMENT. USE LEVELING SHIMS AS NEEDED TO REDUCE PLATE MOVEMENT.
8. WHEN MORE THAN ONE PLATE IS USED, TACK WELD PLATES TOGETHER AT EACH CORNER.
9. IN ACCORDANCE WITH MUTCD REQUIREMENTS FOR ADVANCE WARNING SIGNS, PLACE W8-24 "STEEL PLATE AHEAD" WARNING SIGN A DISTANCE IN FEET OF 4 TIMES THE POSTED SPEED LIMIT (100' MINIMUM) IN ADVANCE OF STEEL PLATE LOCATION.
10. DO NOT USE STEEL PLATES FOR MORE THAN 30 CONSECUTIVE DAYS.

CITY OF TUALATIN, OR				TEMPORARY STEEL PLATES
REVISED: 2/12/2018	DRAFTED BY: S. STRASSER APPROVED BY: J. FUCHS	SCALE: NTS	DRAWING NO.	482



COLD-MIX ASPHALT



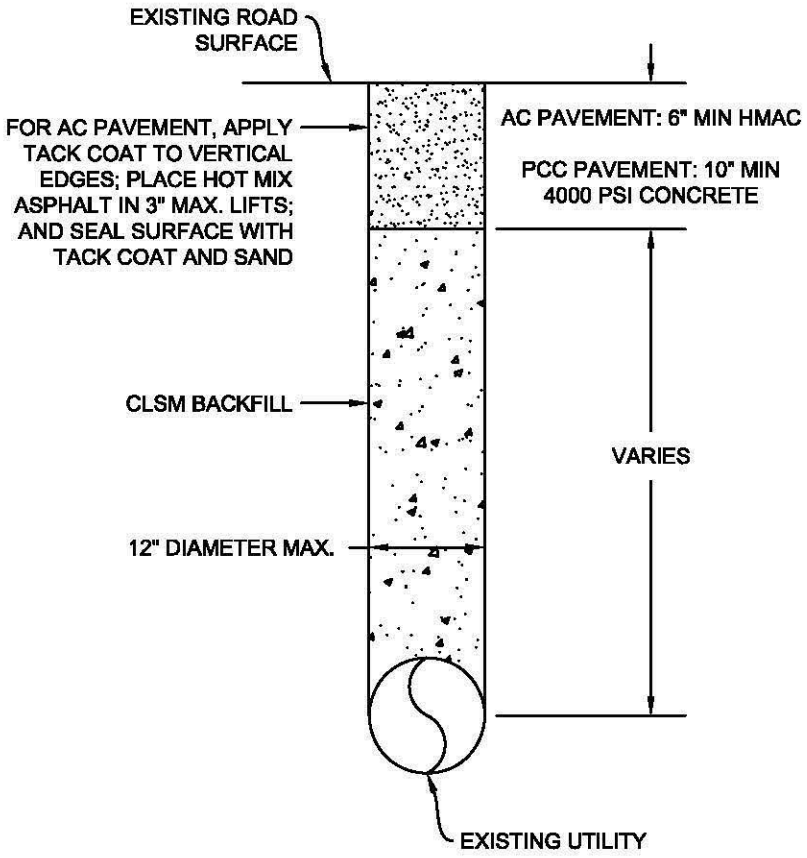
CONTROLLED LOW STRENGTH MATERIAL (CLSM)

TEMPORARY SURFACING

NOTES:

1. BACKFILL IN ACCORDANCE WITH STANDARD DRAWING NO. 241, TRENCH & SURFACE RESTORATION.
2. BACKFILL TRENCHES LESS THAN 2' WIDE WITH CONTROLLED LOW STRENGTH MATERIAL (CLSM). WIDER TRENCHES MAY ALSO BE BACKFILLED WITH CLSM.
3. USE CLSM WITH 28-DAY DESIGN STRENGTH OF 100-200 PSI. ALLOW CLSM TO SET FOR AT LEAST 24-HOURS BEFORE OPENING TO TRAFFIC.
4. COMPACT COLD-MIX ASPHALT IN 1.5" MAXIMUM LIFTS, TO SATISFACTION OF THE CITY ENGINEER.
5. FINISH AND MAINTAIN TEMPORARY SURFACE TO BE FLUSH WITH EXISTING SURFACE.

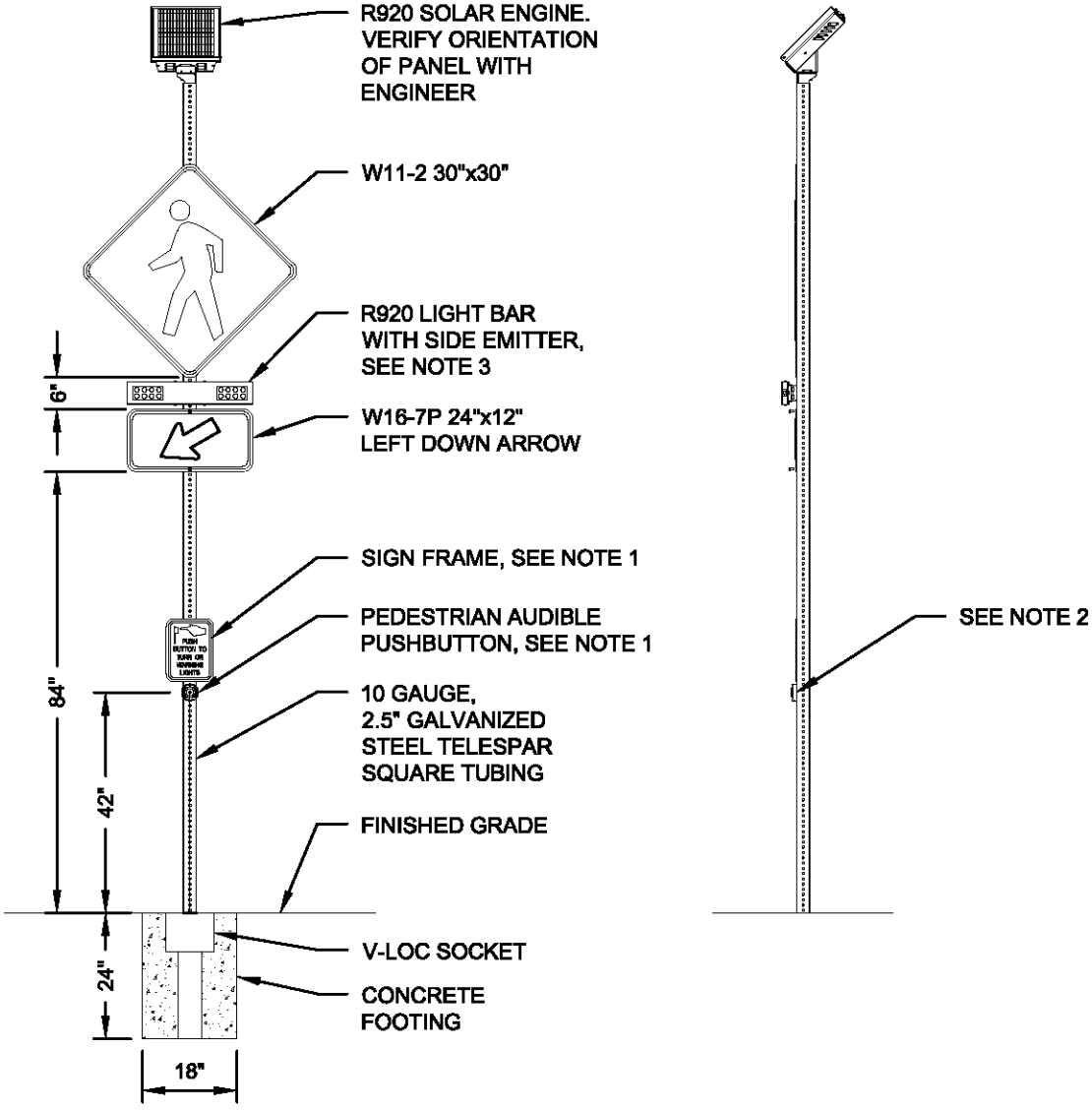
CITY OF TUALATIN, OR			TEMPORARY SURFACING	
REVISED: 2/12/2018	DRAFTED BY: S. STRASSER APPROVED BY: J. FUCHS	SCALE: NTS	DRAWING NO.	483



NOTES:

1. REPAIR EXCAVATIONS LARGER THAN 12" IN DIAMETER IN COMPLIANCE WITH STANDARD DRAWING 241, TRENCH AND SURFACE RESTORATION.
2. IF PAVEMENT CORING IS WITHIN 18" OF THE EDGE OF A CONCRETE PANEL, REPLACE THE ENTIRE PANEL IN COMPLIANCE WITH STANDARD DRAWING 481, CONCRETE ROADWAY.
3. IF MULTIPLE PAVEMENT CORINGS ARE WITHIN 3' OF EACH OTHER, REPAIR AS A SINGLE AREA TRENCH AND SURFACE RESTORATION, IN COMPLIANCE WITH STANDARD DRAWING 241 FOR ASPHALT, AND STANDARD DRAWING 481 FOR CONCRETE.
4. IF PAVEMENT CORING IS WITHIN A BIKE LANE, REPAIR IN COMPLIANCE WITH STANDARD DRAWING 241 FOR ASPHALT, AND STANDARD DRAWING 481 FOR CONCRETE.
5. IF PAVEMENT IS UNDERMINED OR DAMAGED DURING CONSTRUCTION THEN RESTORE PAVEMENT AS DIRECTED BY THE CITY ENGINEER.
6. REPAIR ASPHALT ROADS WITH HOT MIX PLACED IN 3" MAXIMUM LIFTS AND COMPACT WITH PNEUMATIC TAMPER (OR APPROVED EQUAL). TACK COAT ALL SIDE SURFACES AND SAND SEAL TOP SURFACE.
7. REPAIR CONCRETE ROADS WITH 4,000 PSI MIN. PREMIX OR BATCH PLANT CONCRETE. STRIKE LEVEL WITH EXISTING PAVEMENT AND FINISH TO MATCH EXISTING SURFACE TEXTURE.

CITY OF TUALATIN, OR	PAVEMENT CORING REPAIR		
REVISED: 2/12/2018	DRAFTED BY: S. STRASSER APPROVED BY: J. FUCHS	SCALE: NTS	DRAWING NO. 484

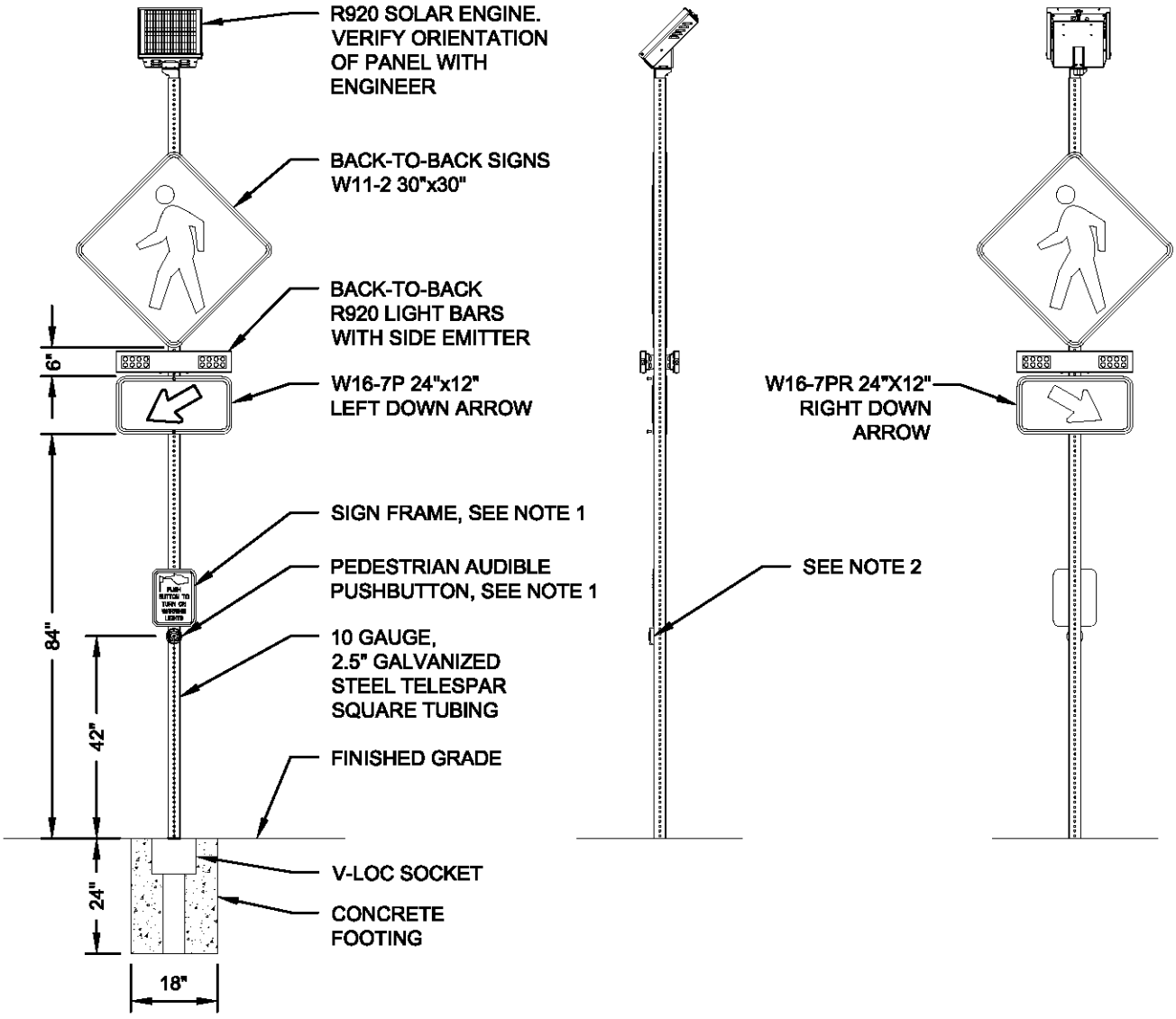


FRONT SIDE

NOTES:

1. INSTALL 'PUSHBUTTON' AND 'SIGN FRAME' ON SIDE OF POLE NEAREST TO CORRESPONDING CURB RAMP. ORIENT PUSHBUTTON TACTILE ARROW AND SIGN TOWARD THE CORRESPONDING CROSSING.
2. INSTALL 'CARMANAH' STYLE PEDESTRIAN PUSHBUTTON WHEN POLE IS LOCATED AT BACK OF SIDEWALK.
3. LIGHT BAR TO BE PROGRAMMED WITH STANDARD FHWA RRFB WW+S (WIG WAG AND SIMULTANEOUS) FLASH PATTERN.

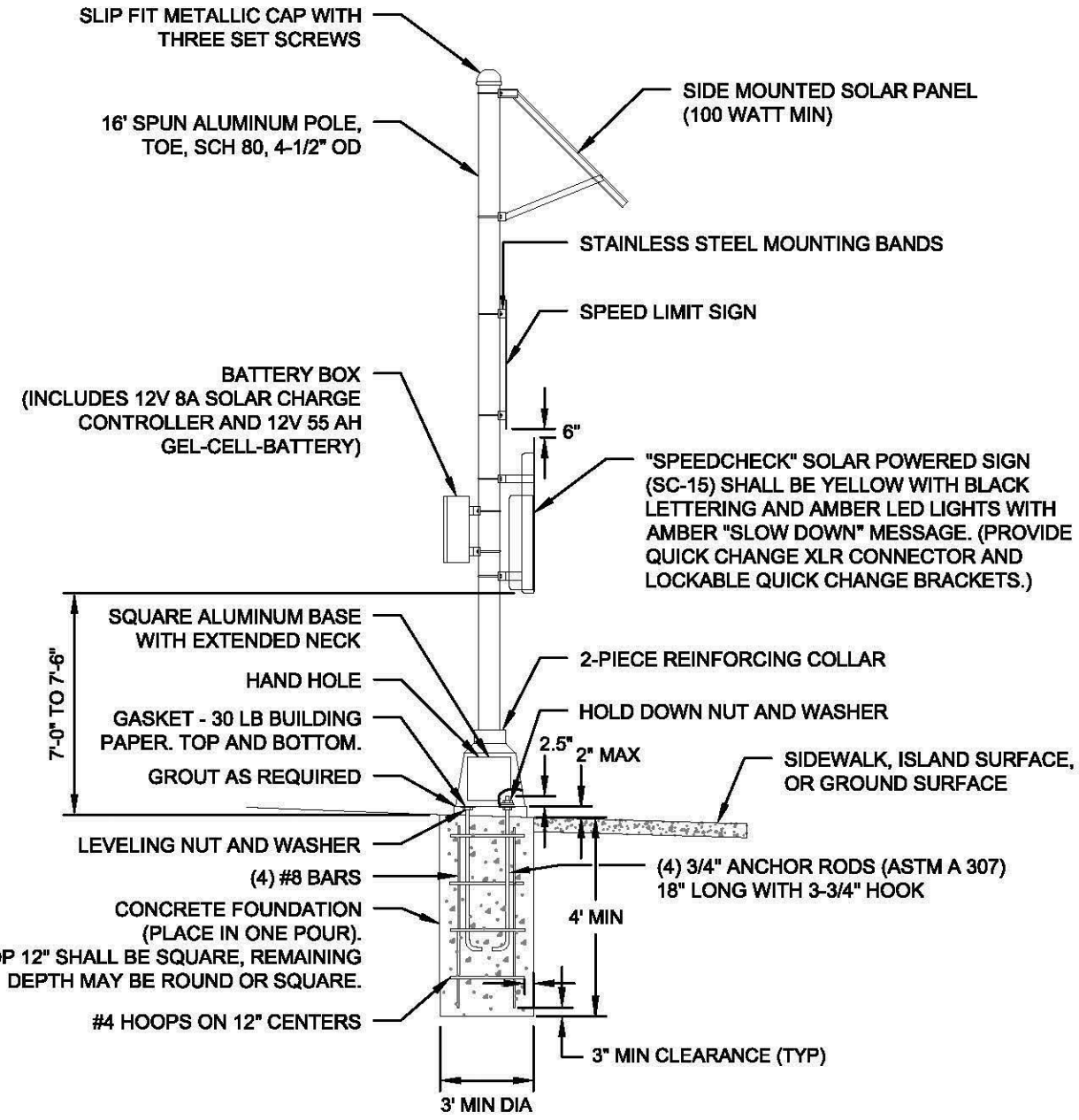
CITY OF TUALATIN, OR		SINGLE SIDED (SOLAR) RECTANGULAR RAPID FLASHING BEACON ASSEMBLY	
REVISED: 09/2020 VALID: 10/2020	SCALE: NOT TO SCALE	DRAWN: K. PAULSEN APPROVED: K. MCMILLAN	DWG NO. 490



NOTES:

1. INSTALL 'PUSHBUTTON' AND 'SIGN FRAME' ON SIDE OF POLE NEAREST TO CORRESPONDING CURB RAMP. ORIENT PUSHBUTTON TACTILE ARROW AND SIGN TOWARD THE CORRESPONDING CROSSING.
2. INSTALL 'CARMANAH' STYLE PEDESTRIAN PUSHBUTTON WHEN POLE IS LOCATED AT BACK OF SIDEWALK.
3. LIGHT BAR TO BE PROGRAMMED WITH STANDARD FHWA RRFB WW+S (WIG WAG AND SIMULTANEOUS) FLASH PATTERN.

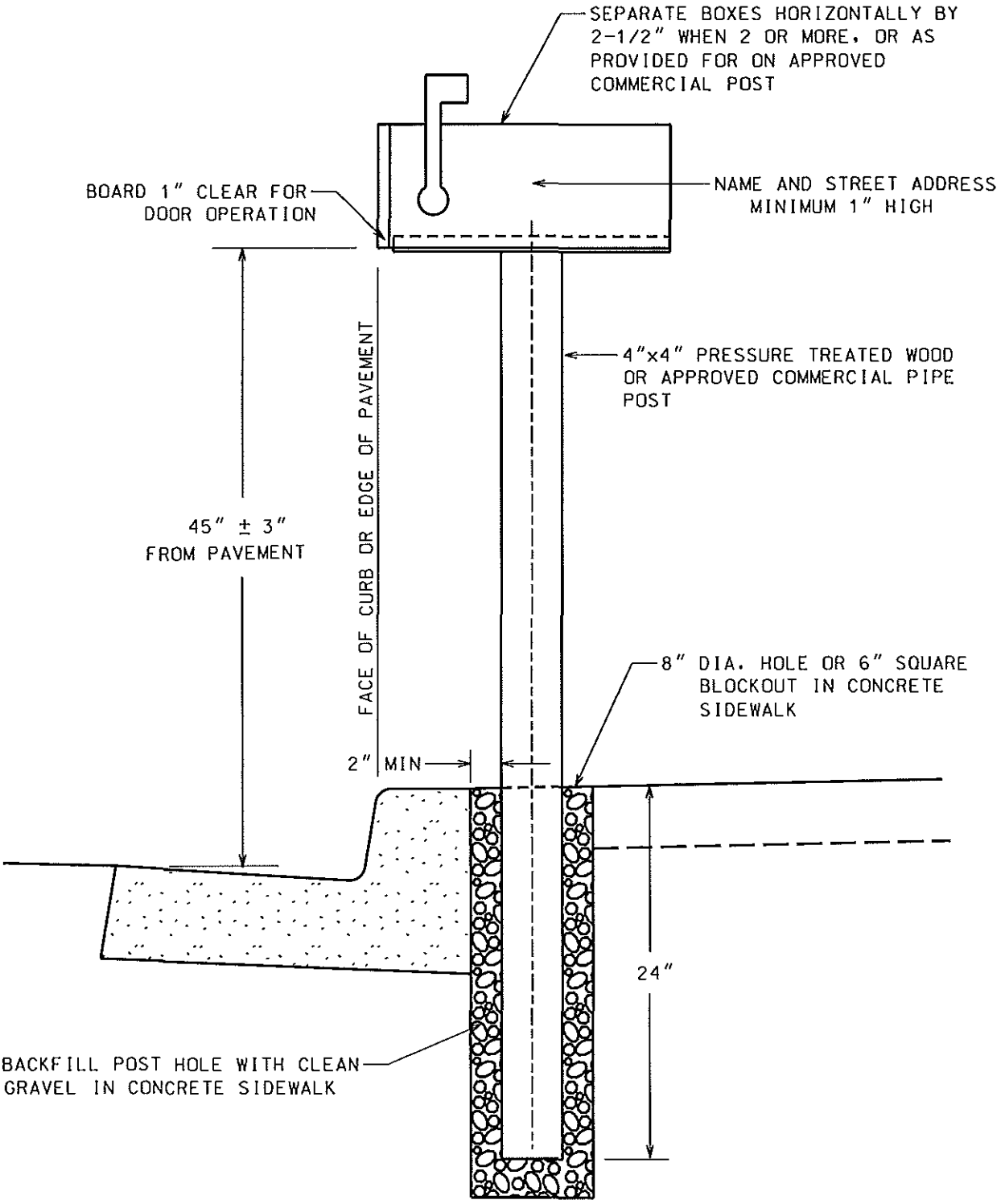
CITY OF TUALATIN, OR		DUAL SIDED (SOLAR) RECTANGULAR RAPID FLASHING BEACON ASSEMBLY	
REVISED: 09/2020 VALID: 10/2020	SCALE: NOT TO SCALE	DRAWN: K. PAULSEN APPROVED: K. MCMILLAN	DWG NO. 491



CITY OF TUALATIN, OR

SOLAR VEHICLE SPEED SIGN PEDESTAL

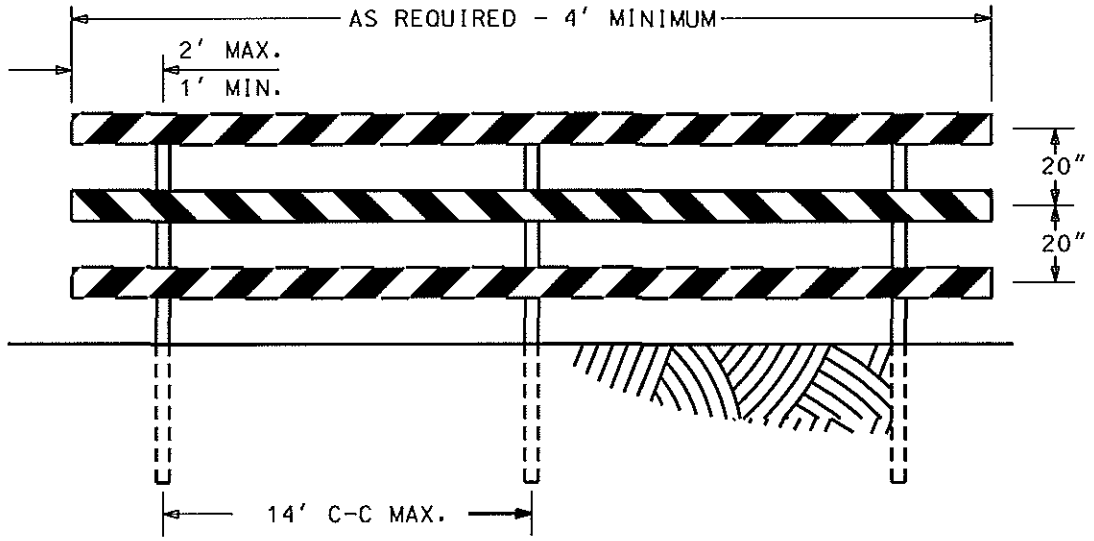
REVISED:	09/2020	SCALE: NOT TO SCALE	DRAWN: K. PAULSEN	DWG NO.	492
VALID:	10/2020		APPROVED: K. MCMILLAN		



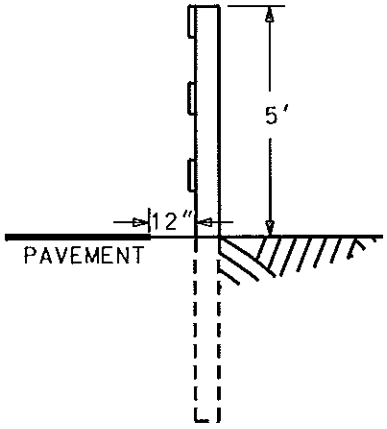
CITY OF TUALATIN, OR

MAILBOX POST INSTALLATION

REVISED: 7/2004 VALID: 10/2005	SCALE: 1:10	DRAWN: D.L. APPROVED: K.L.H.	DWG NO. 500



ELEVATION



END VIEW

NOTE: **PLASTIC REFLECTIVE PANELS**

1. 2" x 8" (S4S) RAILS (MINIMUM LENGTH 4') TO BE PAINTED WHITE ENAMEL AND THEN FACED WITH MANUFACTURED ALUMINUM REFLECTIVE BAR PANELS (TRAFFIC SAFETY SUPPLY CO.) WITH DIAGONAL 7" WIDE ALTERNATE RED AND WHITE STRIPES (RIGHT AND LEFT AS SHOWN FOR END BARRICADES AND ALL LEFT OR RIGHT WHERE TRAFFIC IS DEFLECTED). FASTEN WITH 1-1/4" PANHEAD STAINLESS STEEL WOOD SCREWS @ 12" C-C TOP AND BOTTOM.
2. 4" x 6" x 8' (S4S) POSTS TO BE PRESSURE TREATED LUMBER BURIED 3' AND PAINTED WITH WHITE ENAMEL ABOVE GROUND.
3. FASTEN RAILS TO POSTS WITH $^{5}/_{8}$" HOT DIPPED GALVANIZED ROUND HEAD STEP SQUARE NECK BOLTS, NUTS AND WASHERS.
4. WHEN REQUIRED STREET BARRICADE SIGN (STD DWG 511) OR OTHER, SHALL BE CENTERED AND FASTENED WITH GALVANIZED BOLTS TO THE UPPER RAIL.
5. BACKFILL POST HOLES WITH NATIVE MATERIAL OR WHEN IN SOFT GRADE $^{3}/_{4}$" MINUS CRUSHED ROCK. DO NOT USE CONCRETE.

CITY OF TUALATIN, OR	STREET BARRICADE		
REVISED: 10/2002 VALID: 3/2003	SCALE: 1:50	DRAWN: D.L. APPROVED: K.L.H.	DWG NO. 510

NOTES:

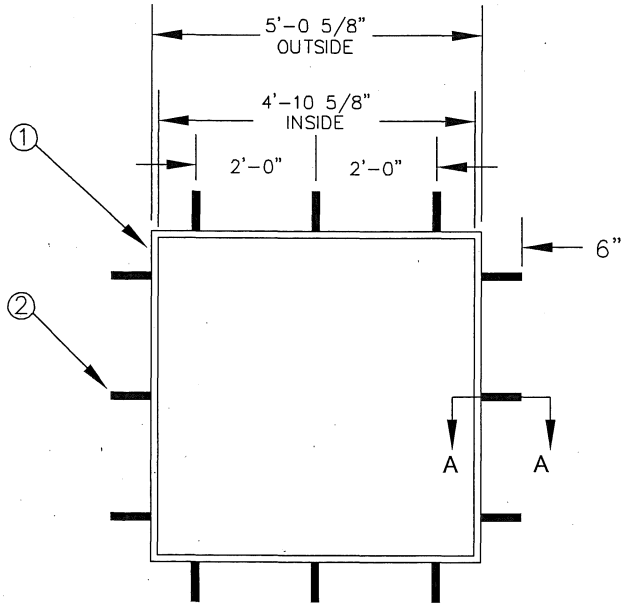
1. SIGN SHALL HAVE BLACK LETTERING ON WHITE BACKGROUND. ON ALUMINUM SHEET REFLECTORIZED ALL AS PER O.S.H.D. 02910.10 AND 02910.20

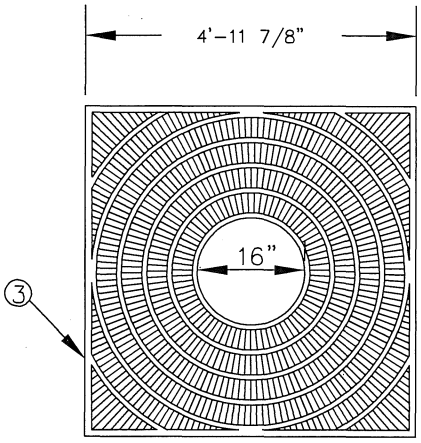
CITY OF TUALATIN, OR		STREET BARRICADE SIGN	
DATE OF LAST REVISION: 2/2002	SCALE: 1:5	DRAWN: D.L. APPROVED: K.L.H.	DWG NO. 511

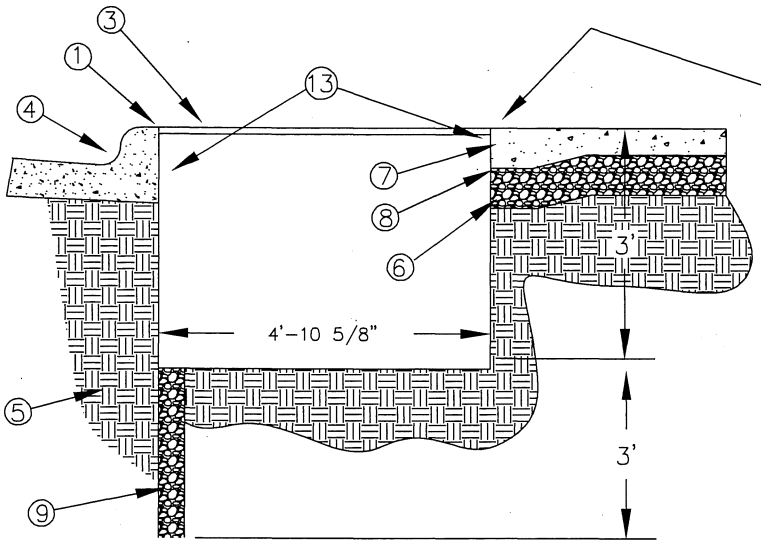
NOTES:

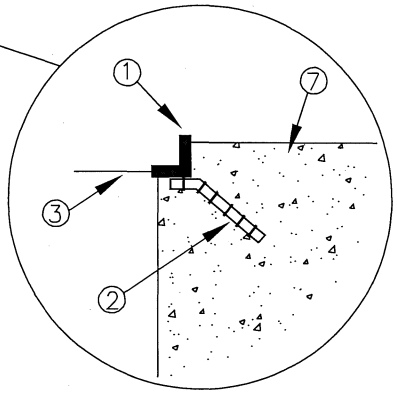
1. SIGN SHALL HAVE BLACK LETTERING ON WHITE BACKGROUND, ON ALUMINUM SHEET REFLECTORIZED ALL AS PER O.S.H.D. 02910.10 AND 02910.20
2. SITE ADDRESS AS PER CONSTRUCTION PLANS

CITY OF TUALATIN, OR		**STORMWATER FACILITY SIGN**	
REVISED: 11/2003 VALID: 3/2004	SCALE: 1:5	DRAWN: D.L. APPROVED: K.L.H.	DWG NO. 512





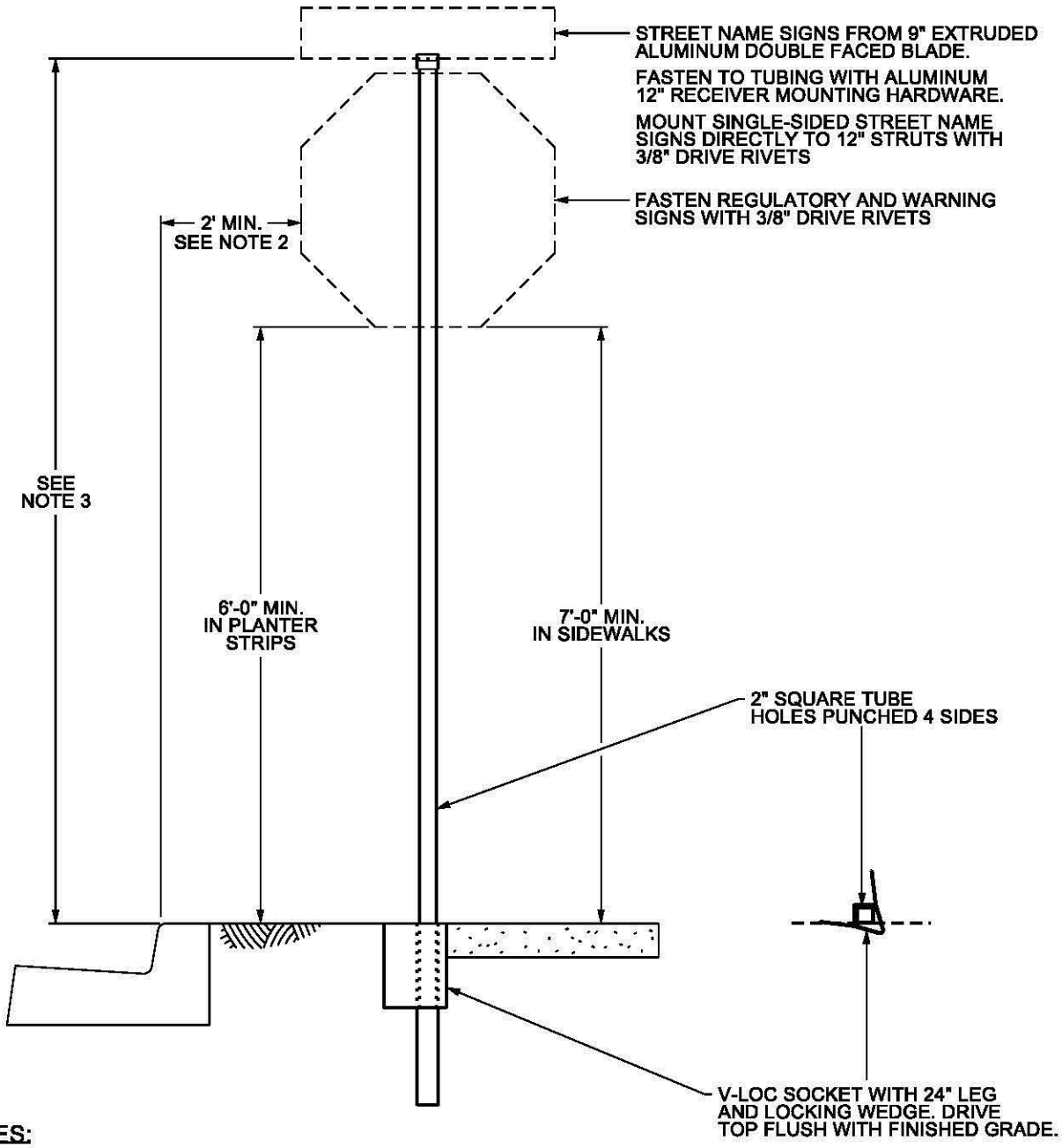




Notes:

1. 1" X 1" X ¼" L SHAPE STEEL FRAME.
2. #3 REBAR, WELD TO FRAME
3. ¾" THICK TREE GRATE CAST IN 2 PIECES, NO OPENINGS GREATER THAN ⅜", 16" DIA CENTER OPENING
4. CURB AND GUTTER, REFER TO COT DRAWING NO. 470 OR NO. 471 AS APPLICABLE.
5. COMPACTED SUBGRADE.
6. MINIMUM 2" LAYER OF COMPACTED ¾" MINUS CLEAN CRUSHED AGGREGATE.
7. 4" CONCRETE SIDEWALK, REFER TO COT DRAWING NO. 475.
8. THICKENED EDGE (6" X 6")
9. 4" DIAMETER X 3' DEEP AUGERED HOLE WITH 4" RIGID PVC PERFORATED PIPE. FILL PIPE WITH DRAIN ROCK AND COVER WITH FILTER SOCK.
10. TREE GRATE SHALL BE SQUARE 5' FAN DESIGN (W/ FLAT BLACK POWDER COAT), URBAN ACCESSORIES, POLY-GRATE II, OR APPROVED EQUAL.
11. TREE GRATE SHALL BE CAST IRON PER ASTM A-48 CLASS 3b, RECYCLED PLASTIC, OR APPROVED EQUAL.
12. TREE GRATE FRAME SHALL BE TYPE "S" FRAME, URBAN ACCESSORIES OR APPROVED EQUAL.
13. A ROOT CONTROL SYSTEM, BIOBARRIER, DEEPROOT, OR APPROVED EQUAL, SHALL BE INSTALLED ON ALL SIDES ADJACENT TO HARDSCAPE. IT SHALL BE INSTALLED VERTICALLY A MINIMUM OF 12" IN DEPTH FROM FINISH GRADE & PER MANUFACTURERS RECOMMENDATIONS.

CITY OF TUALATIN, OR		**TREE WELL AND GRATE**	
REVISED: 01/2013 VALID: 01/2013	SCALE: N.T.S.	DRAWN: JLS APPROVED: KH	DWG NO. 514



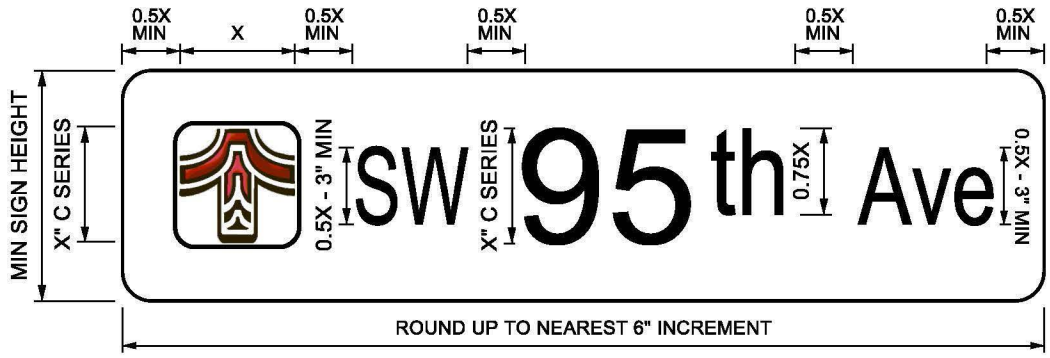
NOTES:

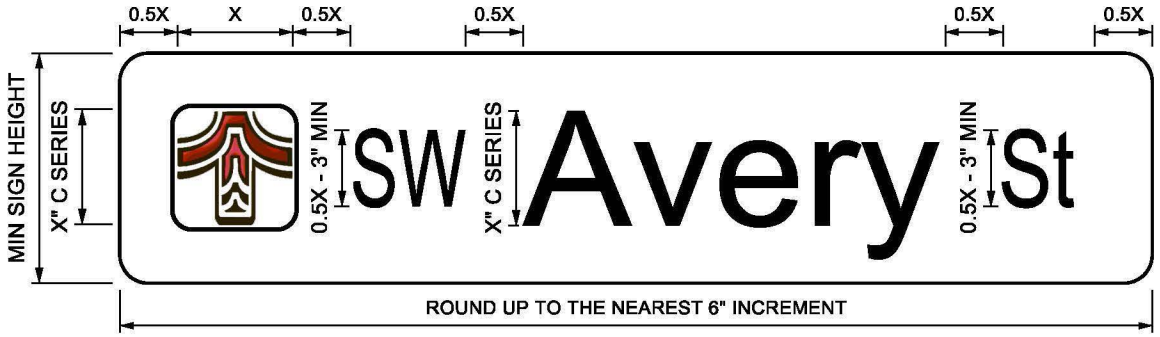
1. MEET REQUIREMENTS OF THE MOST CURRENT VERSION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE OREGON SUPPLEMENTS.
2. LATERAL OFFSET OF THE SIGN FROM THE FACE OF CURB CAN BE REDUCED TO 1 FOOT WHERE SIDEWALK WIDTH IS LIMITED OR WHERE EXISTING POLES ARE CLOSE TO THE CURB, AS DETERMINED BY THE CITY ENGINEER.
3. IF STREET NAME SIGN IS MOUNTED ALONE, MOUNT SIGN 9'-0" MIN. ABOVE FINISHED SURFACE.

CITY OF TUALATIN, OR

STREET SIGN POST

REVISED:	11/22/2016	DRAFTED BY:	M. PALMER	DRAWING NO:	516
EFFECTIVE:	12/31/2016	APPROVED BY:	J. FUCHS		





MOUNTING TYPE	ROADWAY TYPE	SPEED LIMIT	MINIMUM LETTER SIZE	MIN SIGN HEIGHT
			X - INITIAL UPPERCASE	
OVERHEAD	ALL TYPES	ALL SPEED LIMITS	12 INCH	18 INCH
POST-MOUNTED	MULTI-LANE	MORE THAN 40 MPH	8 INCH	15 INCH
POST-MOUNTED	MULTI-LANE	40 MPH OR LESS	6 INCH	12 INCH
POST-MOUNTED	2-LANE	MORE THAN 25 MPH	6 INCH	12 INCH
POST-MOUNTED	2-LANE	25 MPH OR LESS	5 INCH	9 INCH

*X IS THE INITIAL UPPERCASE LETTER HEIGHT

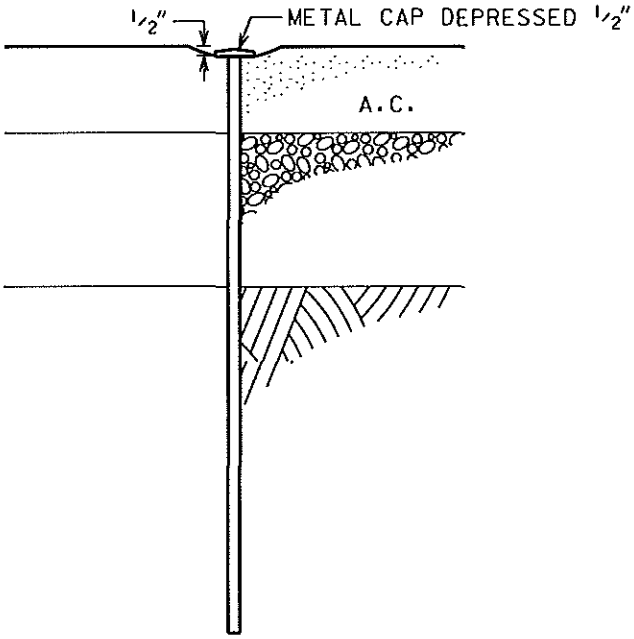
GENERAL NOTES:

1. POST MOUNTED SIGNS SHALL HAVE ROUNDED CORNERS AND NO BORDER WHEN LARGER THAN 9 INCH HEIGHT AND A RECTANGULAR EXTRUDED BLADE WITH NO BORDER WHEN 9 INCH HEIGHT. OVERHEAD SIGNS SHALL HAVE 1.5" RADIUS ROUNDED CORNERS WITH A 1" WHITE BORDER.
2. 9 INCH POST MOUNTED SIGNS SHALL BE EXTRUDED ALUMINUM WITH ODOT TYPE G, TYPE IV SHEETING PRINTED INCLUDING LOGO.
3. POST MOUNTED SIGNS LARGER THAT 9 INCHES IN HEIGHT SHALL BE ALUMINUM SHEET METAL WITH A MIN 0.125" THICKNESS WITH ODOT TYPE G, TYPE IV SHEETING, SINGLE SIDED, HOLE PUNCHED.
4. OVERHEAD SIGNS SHALL BE ALUMINUM SHEET METAL WITH A MIN 0.125" THICKNESS AND SHALL BE ODOT TYPE G, TYPE IV SHEETING, SINGLE SIDED, HOLE PUNCHED.
5. UPPERCASE LETTERING, DIRECTION, AND STREET TYPE SHALL BE FHWA SERIES C AT FULL HEIGHT.
6. LOWERCASE LETTERING, DIRECTION, AND STREET TYPE SHALL BE 2/3 LOOP HEIGHT SERIES C.
7. ALL SIGNS SHALL CONFORM TO CURRENT MUTCD AND ODOT SUPPLEMENT.
8. LEGEND HEIGHT FOR POST MOUNTED SIGNS AT THE INTERSECTION SHALL BE DICTATED BY THE HIGHEST SPEED ROADWAY.
9. CENTER STREET NAMES AND CITY LOGO VERTICALLY ON SIGN.
10. CITY LOGO INFORMATION SHALL BE PROVIDED BY CITY ENGINEER.

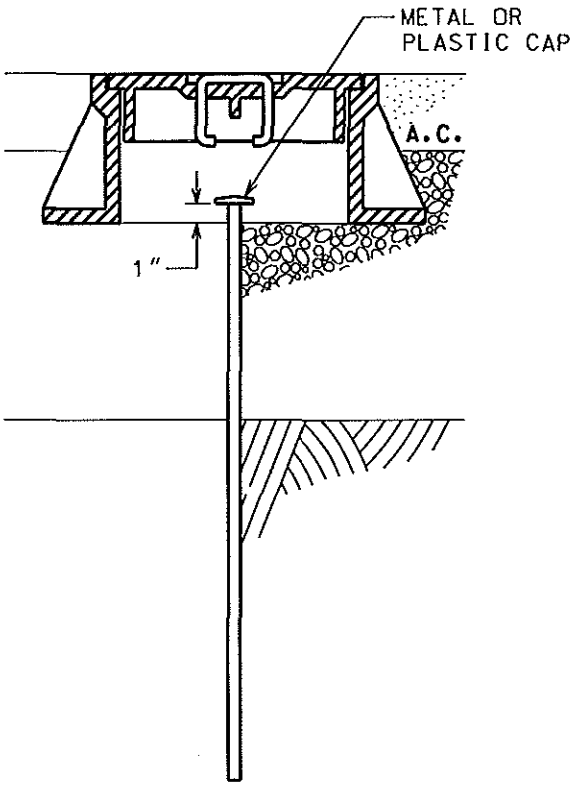
CITY OF TUALATIN, OR

STREET NAME SIGN

REVISED:	11/22/2016	DRAFTED BY:	M. PALMER	DRAWING NO:	517
EFFECTIVE:	12/31/2016	APPROVED BY:	J. FUCHS		



STANDARD

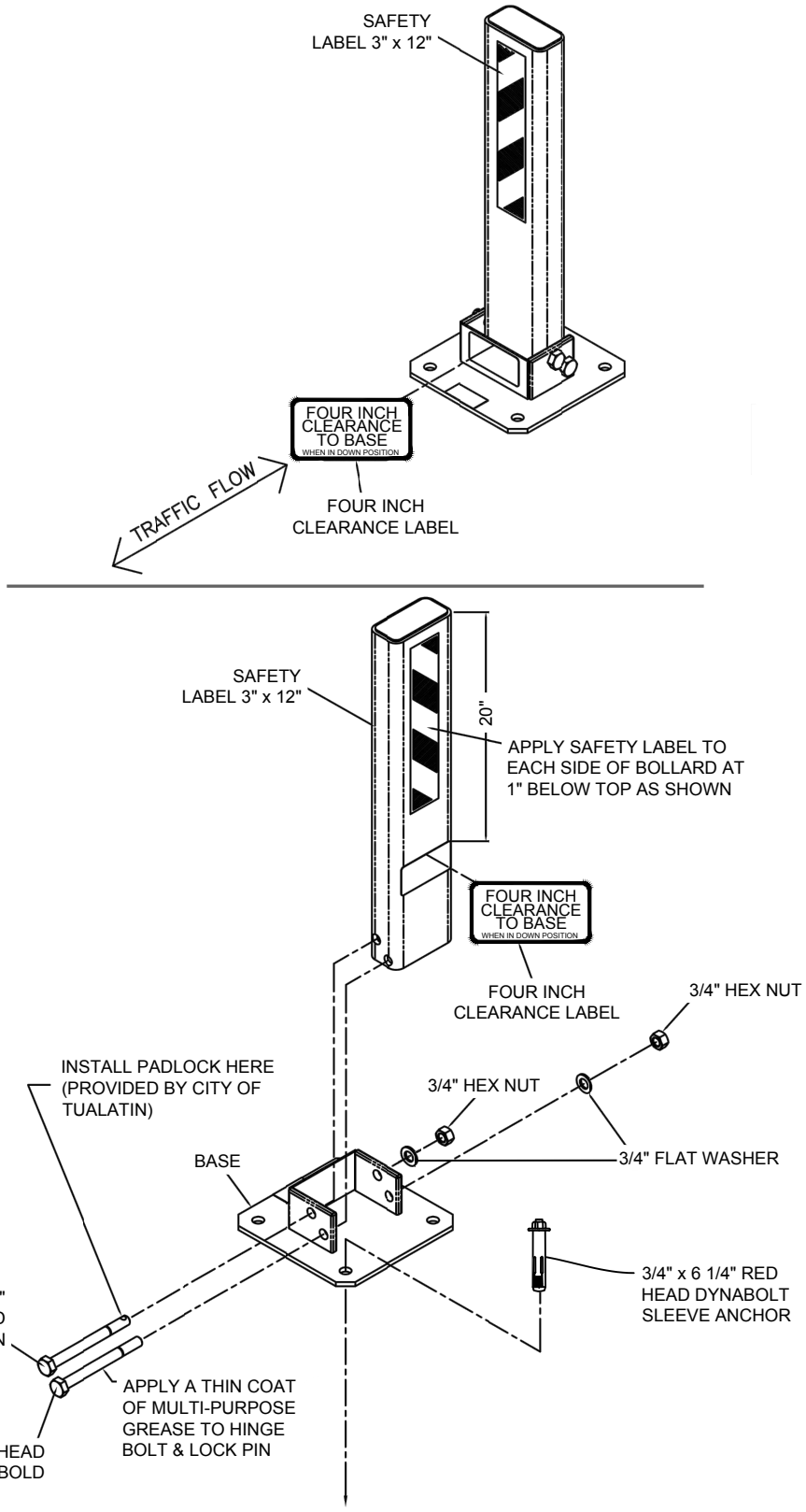


INTERSECTIONS

NOTES:

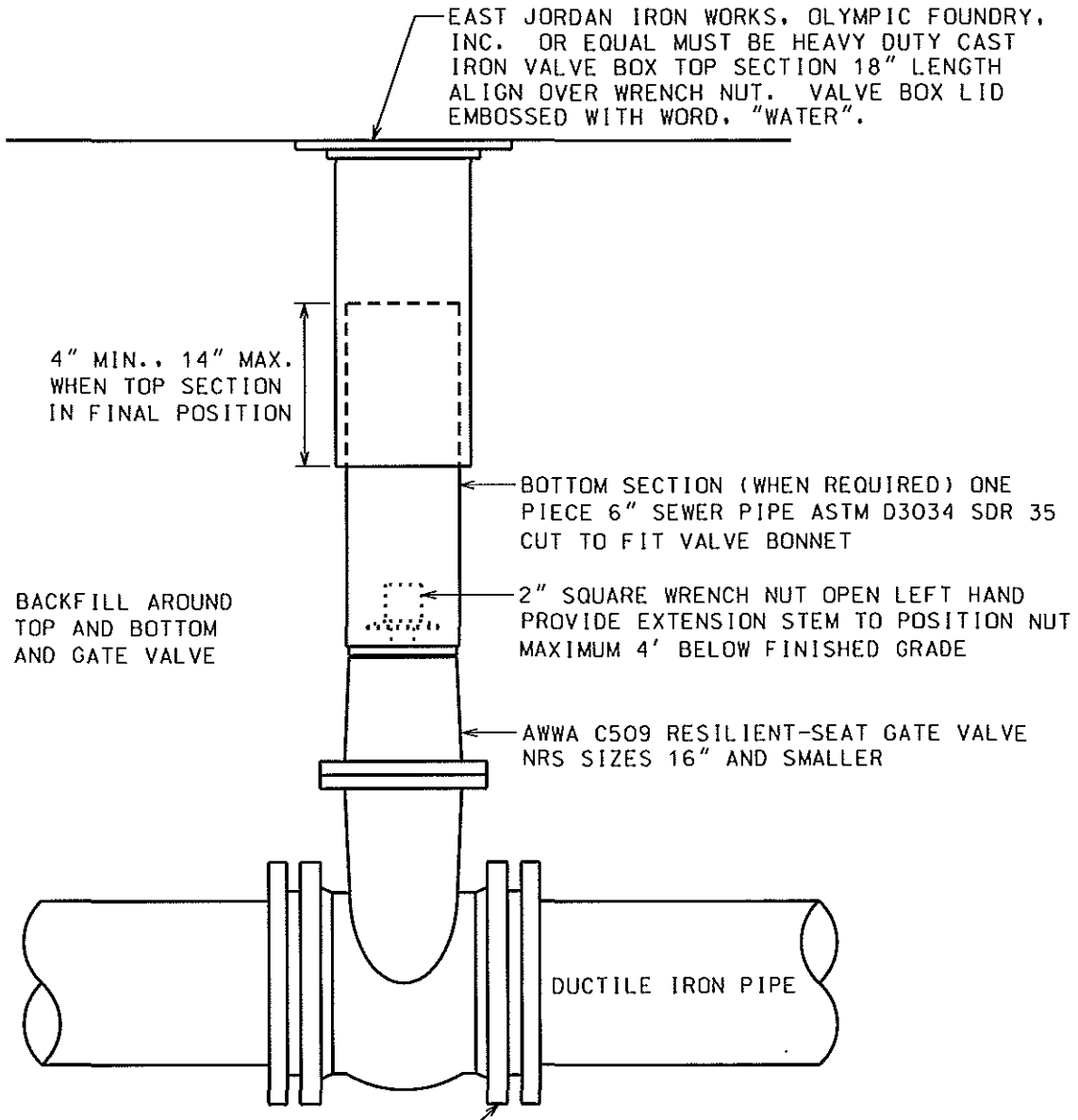
1. MONUMENTS SHALL BE IN ACCORDANCE WITH ORS 209.250(4), AND THE REQUIREMENTS OF THE COUNTY SURVEYOR
2. ALL MONUMENTS SHALL COMPRISE EITHER:
   5/8" O.D. x 30" IRON ROD OR 3/4" I.D. x 30" IRON PIPE
3. USE EAST JORDAN IRON WORKS OR OLYMPIC FOUNDARY. RISER RINGS MAY BE USED WHEN AN ASPHALT OVERLAY.
4. 8" BOXES ALLOWED FOR LOCAL STREETS.
5. 12" BOXES REQUIRED FOR COLLECTOR AND ARTERIAL STREETS.

CITY OF TUALATIN, OR		**CENTERLINE SURVEY MONUMENT**	
REVISED: 3/2010 VALID: 4/2010	SCALE: 1:10	DRAWN: L.V. APPROVED: K.L.H.	DWG NO. 520

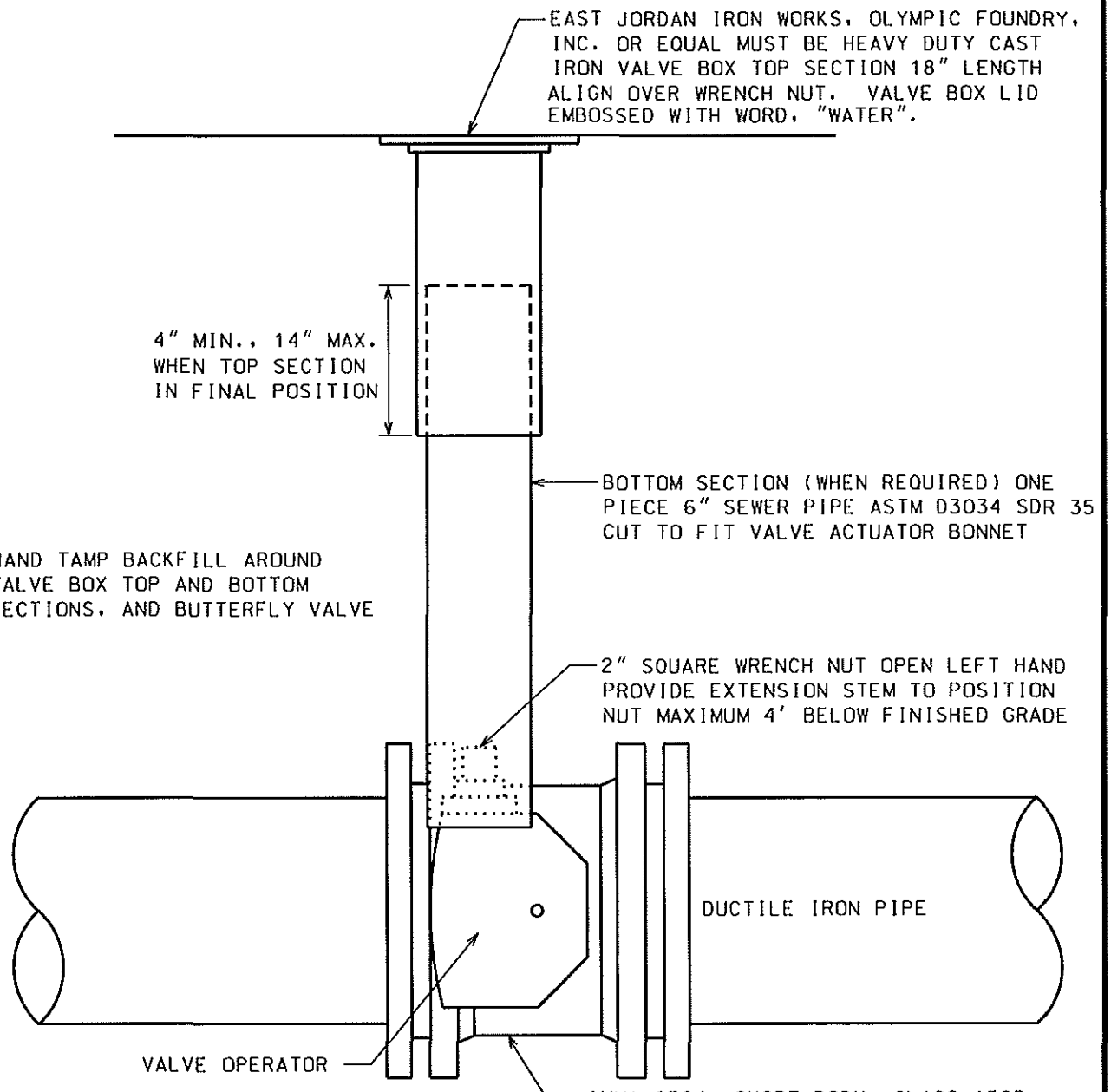


NOTE: USE TRAFFICGUARD LPHDHBA2 LOW PROFILE HEAVY DUTY HINGED BOLLARD OR EQUIVALENT .

CITY OF TUALATIN, OR				FOLD-DOWN BOLLARD	
REVISED: 7/9/18	DRAFTED BY: S. STRASSER APPROVED BY: J. FUCHS	SCALE: NTS	DRAWING NO. 530



CITY OF TUALATIN, OR		VALVE GATE	
REVISED: 3/2010 VALID: 4/2010	SCALE: 1:10	DRAWN: L.V. APPROVED: K.L.H.	DWG NO. 600



CITY OF TUALATIN, OR	VALVE BUTTERFLY		
REVISED: 3/2010 VALID: 4/2010	SCALE: 1:10	DRAWN: L.V. APPROVED: K.L.H.	DWG NO. 601

CITY OF TUALATIN, OR

1-INCH AIR RELEASE VALVE

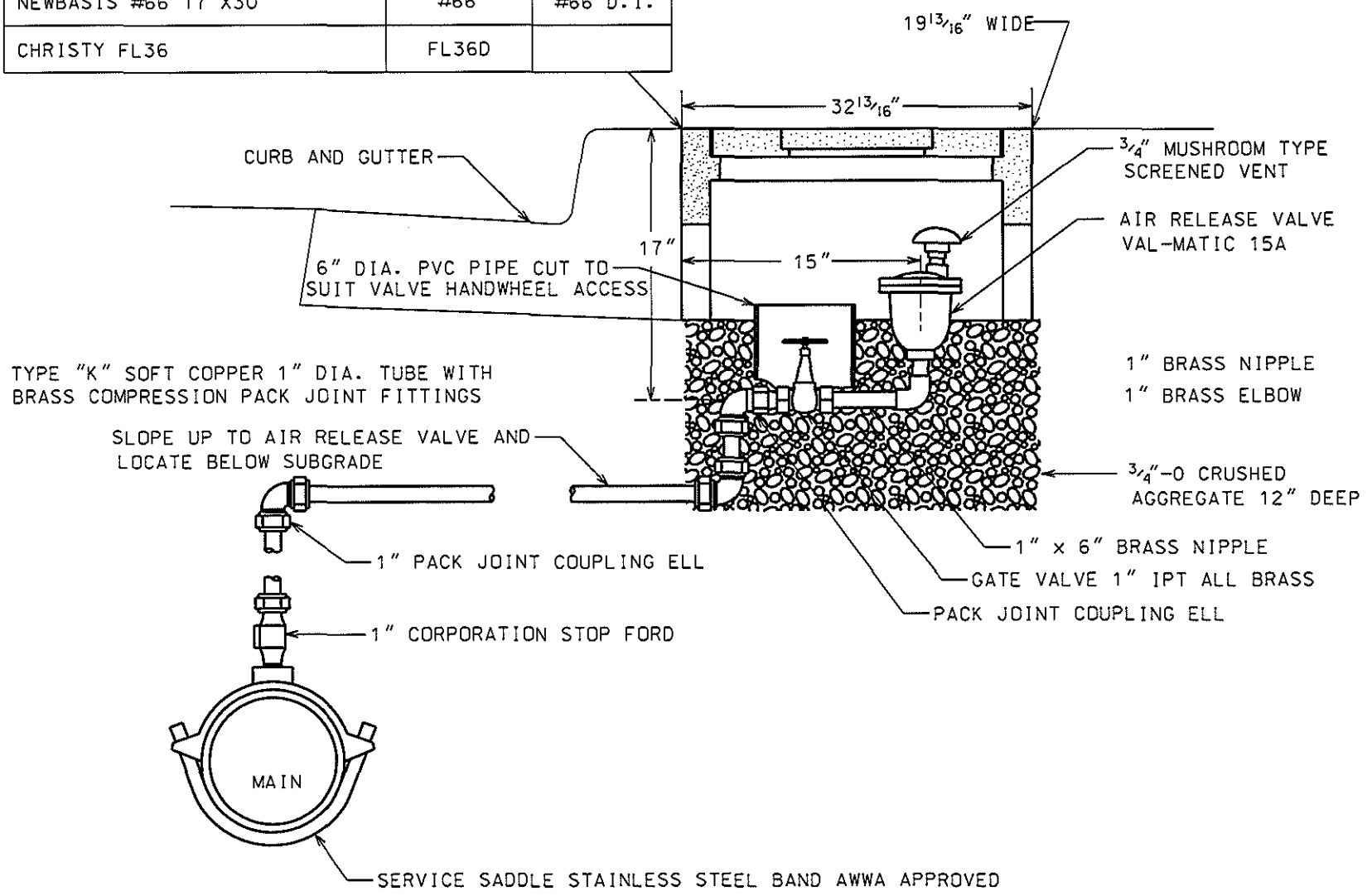
REVISED: 3/2008
VALID: 3/2008

SCALE: 1:10

DRAWN: S.N.
APPROVED: K.L.H.

DWG NO. 602

METER BOX No.	SIDEWALK	DRIVEWAY
NEWBASIS #66 17"X30"	#66	#66 D.I.
CHRISTY FL36	FL36D	



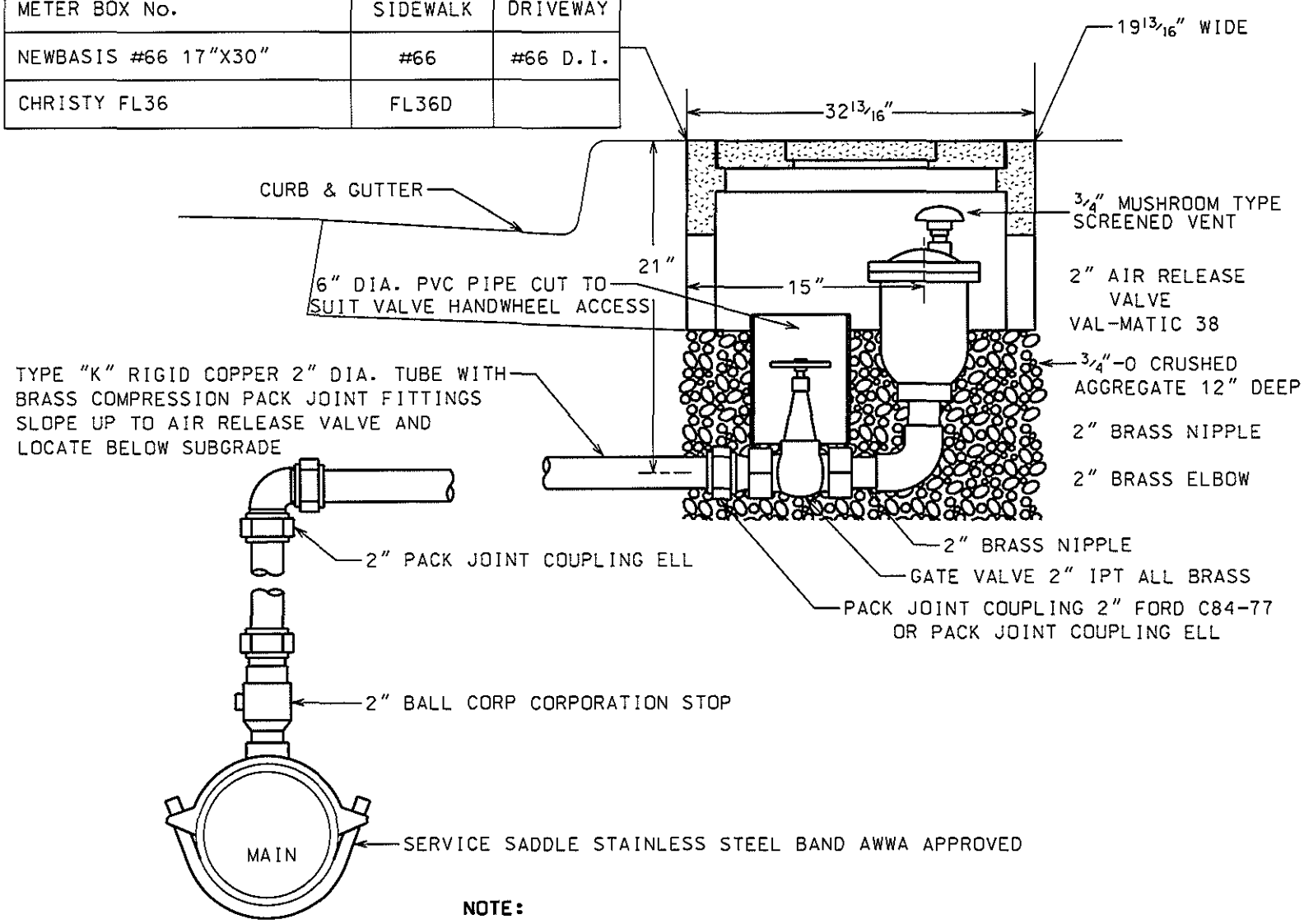
NOTE:

1. FLUSH LINE AFTER CONNECTION TO CORPORATION STOP AND BEFORE CONNECTION TO AIR RELEASE VALVE
2. VALVES AND FITTINGS FROM FORD OR MUELLER SHALL MEET THE REQUIREMENTS OF AWWA C-800

CITY OF TUALATIN, OR

VALVE 2-INCH AIR RELEASE

METER BOX No.	SIDEWALK	DRIVEWAY
NEWBASIS #66 17"X30"	#66	#66 D.I.
CHRISTY FL36	FL36D	



NOTE:

1. FLUSH LINE AFTER CONNECTION TO CORPORATION STOP AND BEFORE CONNECTION TO AIR RELEASE VALVE
2. VALVES & FITTINGS FROM FORD OR MUELLER SHALL MEET THE REQUIREMENTS OF AWWA C-800
3. TO BE USED ONLY ON 18" DIAMETER PIPE OR LARGER.

REVISED: 3/2008
VALID: 3/2008

SCALE: 1:10

DRAWN: S.N.
APPROVED: K.L.H.

DWG NO. 603

CITY OF TUALATIN, OR

SAMPLE STATION

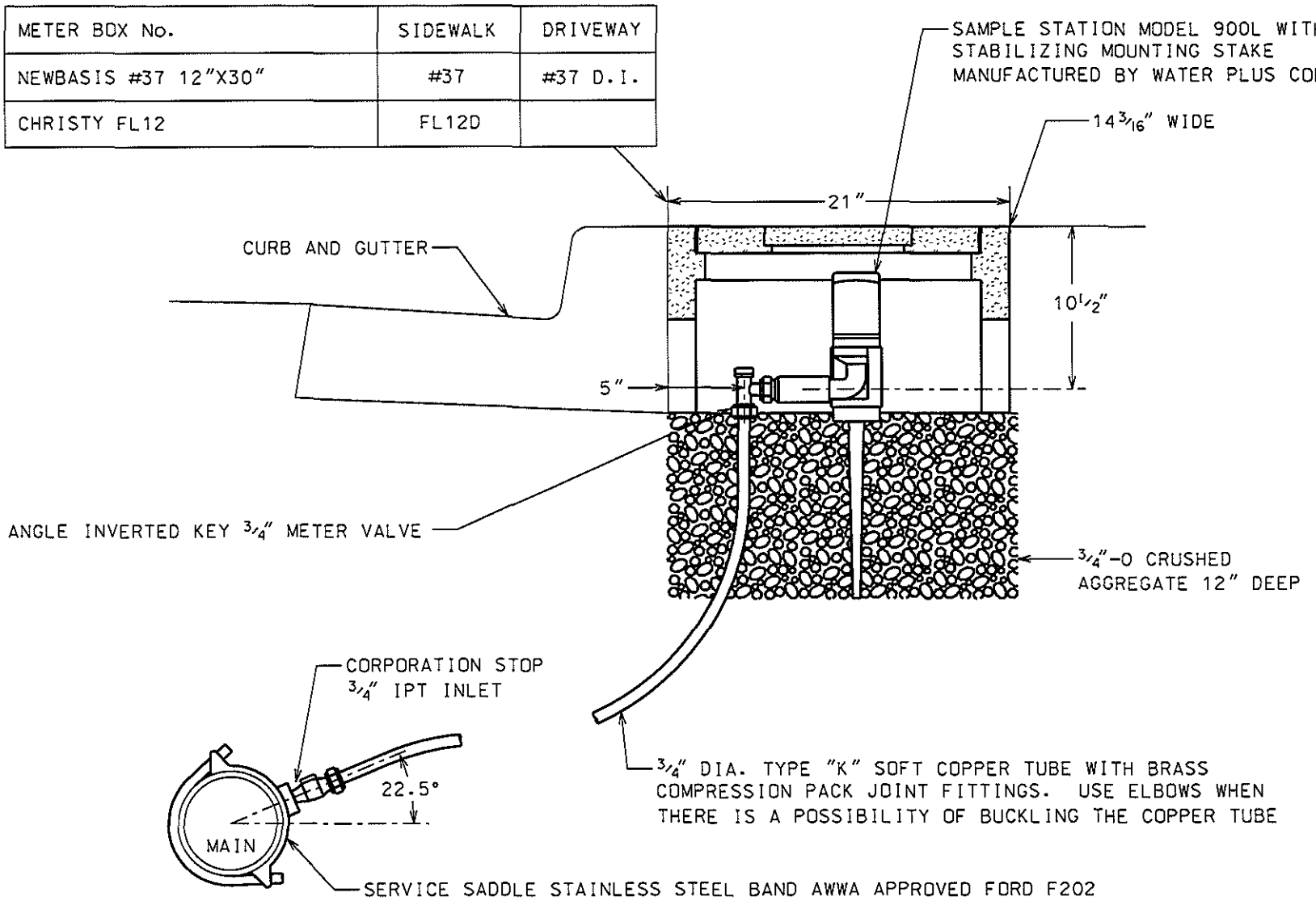
REVISED: 3/2008
VALID: 3/2008

SCALE: 1:10

DRAWN: S.N.
APPROVED: K.L.H.

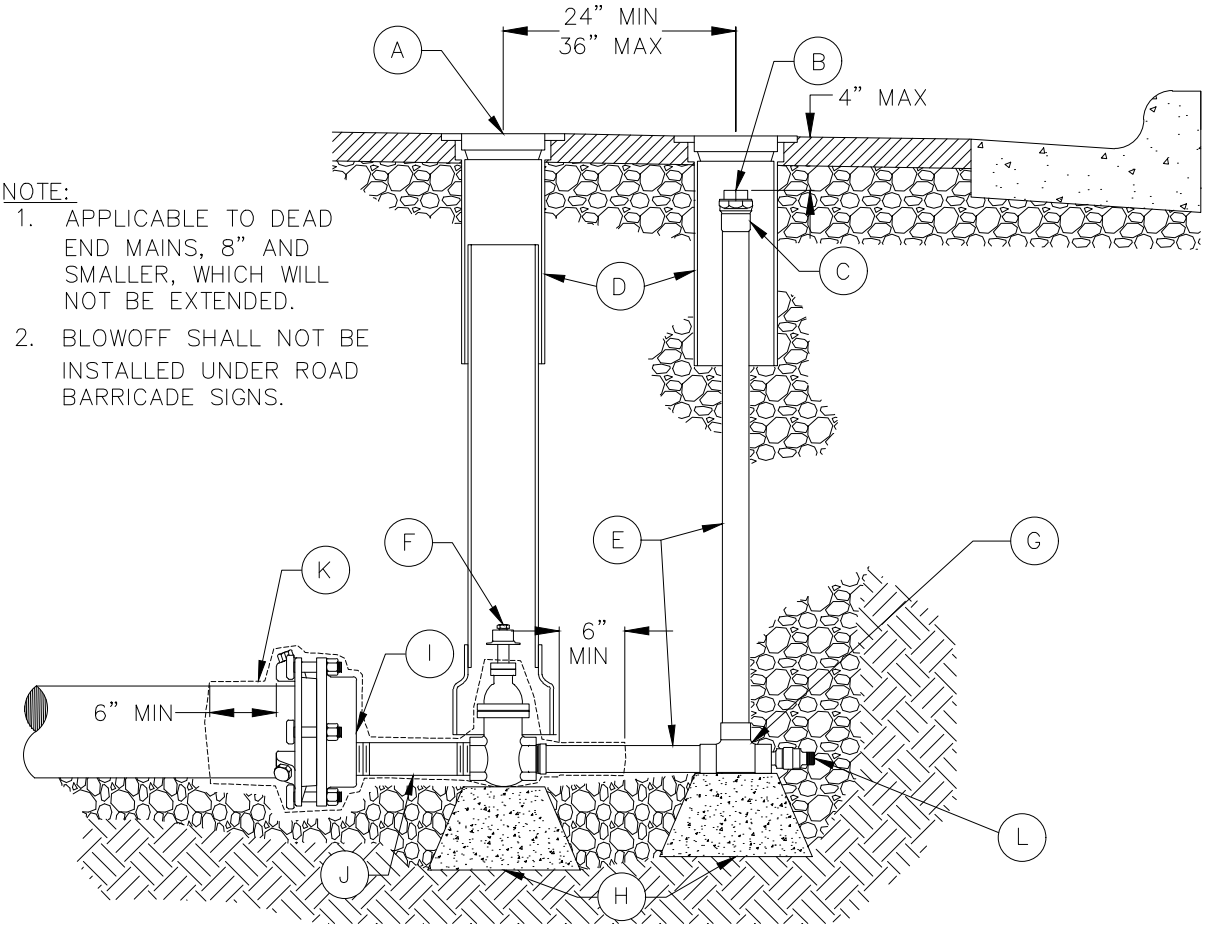
DWG NO. 604

METER BOX No.	SIDEWALK	DRIVEWAY
NEWBASIS #37 12"X30"	#37	#37 D.I.
CHRISTY FL12	FL12D	



NOTE:

1. FLUSH LINE AFTER CONNECTION TO CORPORATION STOP AND BEFORE CONNECTION TO SAMPLE STATION
2. VALVES & FITTINGS FROM FORD OR MUELLER. SHALL MEET THE REQUIREMENTS OF AWWA C-800



NOTE:

1. APPLICABLE TO DEAD END MAINS, 8" AND SMALLER, WHICH WILL NOT BE EXTENDED.
2. BLOWOFF SHALL NOT BE INSTALLED UNDER ROAD BARRICADE SIGNS.

A. FINISHED GRADE. IF OUTSIDE THE PAVED AREA PROVIDE 4" THICK CONCRETE PAD OVER 4" COMPACTED 1"–0" CRUSHED ROCK. PAD SHALL EXTEND OF A MINIMUM OF 6" AROUND VALVE BOXES.

B. 2" BRASS PLUG HAND–TIGHT. USE FOOD GRADE GREASE ON PLUG THREADS.

C. 2" BRASS THREADED COUPLING..

D. VALVE BOX ASSEMBLY PER DETAIL 600.

E. 2" THREADED BRASS PIPING.

F. 2" IRON BODY GATE VALVE WITH 2" OPERATOR NUT.

G. 2" TEE, THREADED BRASS.

H. 8" X 8" CONCRETE PIER BLOCK ON NATIVE SOIL.

I. MJ CAP WITH OFFSET 2" TAP AT BOTTOM. TAP MAY BE CENTERED ON CAP FOR 4" MAINS.

J. 2" X 8" BRASS NIPPLE.

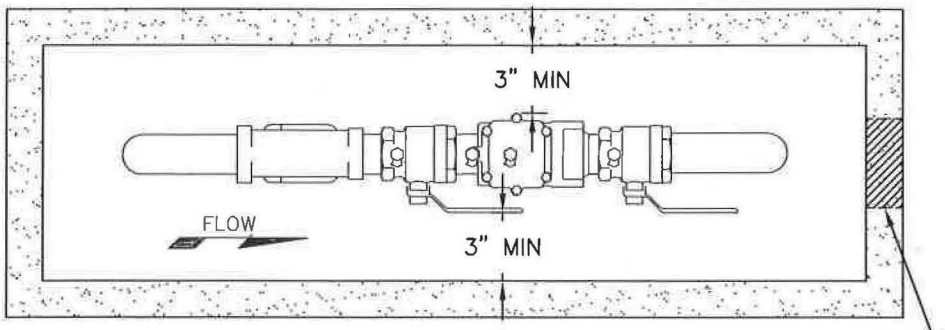
K. WRAP CAP WITH 3 LAYERS OF POLYETHYLENE ENCASEMENT. EXTEND POLYETHYLENE 6" MINIMUM BEYOND VALVE AND CAP. SECURE TO PIPE WITH 10 MIL PVC PIPE WRAP TAPE.

L. INSTALL BALL DRIP VALVE.

CITY OF TUALATIN, OR

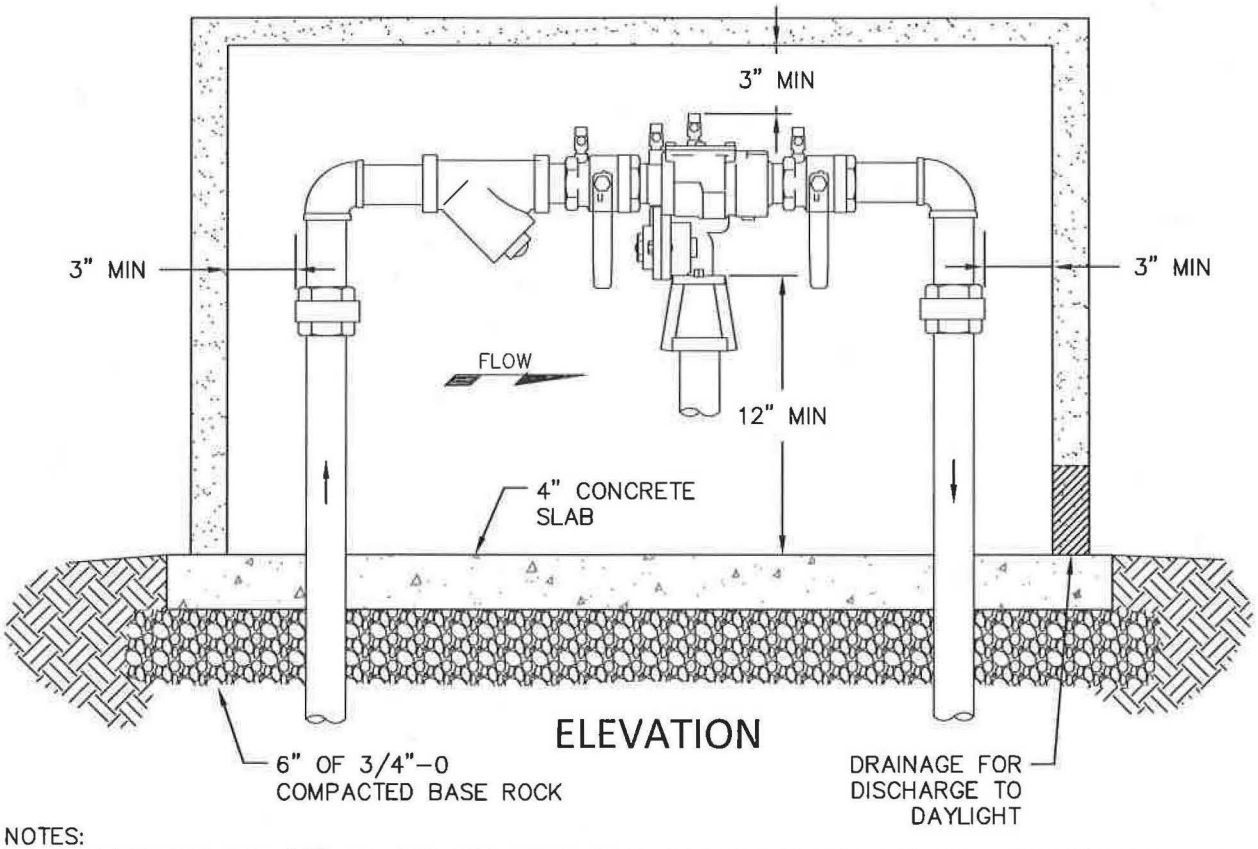
MAINLINE VALVE ASSEMBLY PERMANENT BLOW–OFF

REVISED: 05/2023 VALID: 05/2023	SCALE: NTS	DRAWN: BD APPROVED: MM	DWG NO. 605



PLAN

DRAINAGE FOR DISCHARGE TO DAYLIGHT

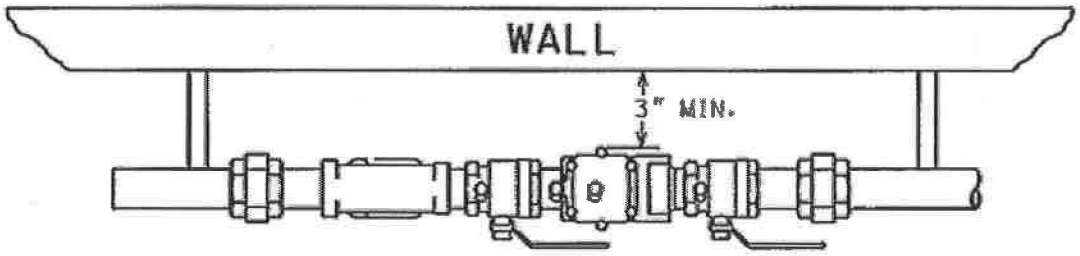


ELEVATION

NOTES:

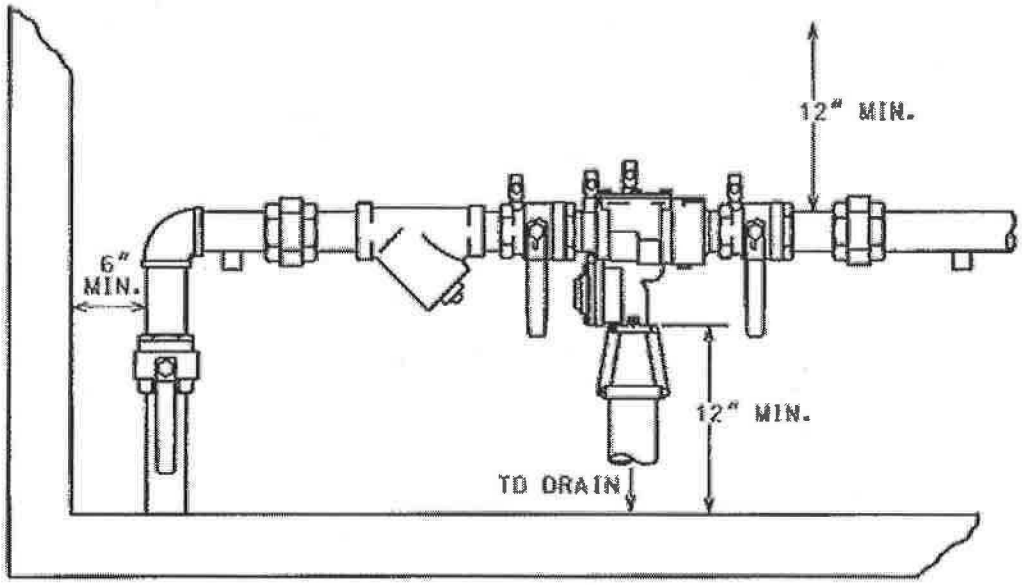
1. COMPLY WITH OAR 333-61-070 AND AWWA C511, WHICH REQUIRES BACKFLOW ASSEMBLY TO BE APPROVED BY THE OREGON STATE HEALTH DIVISION. FLUSH SUPPLY LINE BEFORE INSTALLATION.
2. MOUNT ASSEMBLY ABOVE GROUND IN A HEATED, INSULATED, AND PROTECTIVE ENCLOSURE (HOT BOX OR SIMILAR) AT THE RIGHT-OF-WAY IN A LOCATION APPROVED BY CITY OF TUALATIN.
3. PLACE FLOOR LEVEL ABOVE THE 100-YEAR FLOOD ELEVATION WITH ADEQUATE DRAINAGE FOR DISCHARGE TO DAYLIGHT CAPABLE OF DRAINING A FULL RELIEF VALVE DISCHARGE SIZED PER AWWA STANDARDS.
4. DESIGNED HEATING TO MAINTAIN A MINIMUM AMBIENT TEMPERATURE OF 40°F WITH AN OUTSIDE TEMPERATURE OF -10°F AND WIND SPEED OF 20 MPH.
5. CLEARANCES SHOWN ARE MINIMUM.
6. WALL MOUNT ALL ELECTRICAL EQUIPMENT TO MEET ALL RELEVANT CODES FOR ELECTRICAL EQUIPMENT AND INSTALLATION.
7. PROVIDE INSPECTOR WITH CERTIFIED TEST REPORT UPON COMPLETION.

CITY OF TUALATIN, OR			REDUCED PRESSURE BACKFLOW ASSEMBLY 3/4" THRU 2"	
REVISED: 12/2018 VALID: 12/2018	SCALE: NOT TO SCALE		DRAWN: C. FERGESON APPROVED: K. MCMILLAN	DWG NO. 607



PLAN

NOTE:
PLACEMENT OF THE REDUCED PRESSURE BACKFLOW ASSEMBLY INSIDE THE BUILDING REQUIRES PRIOR PUBLIC WORKS APPROVAL.

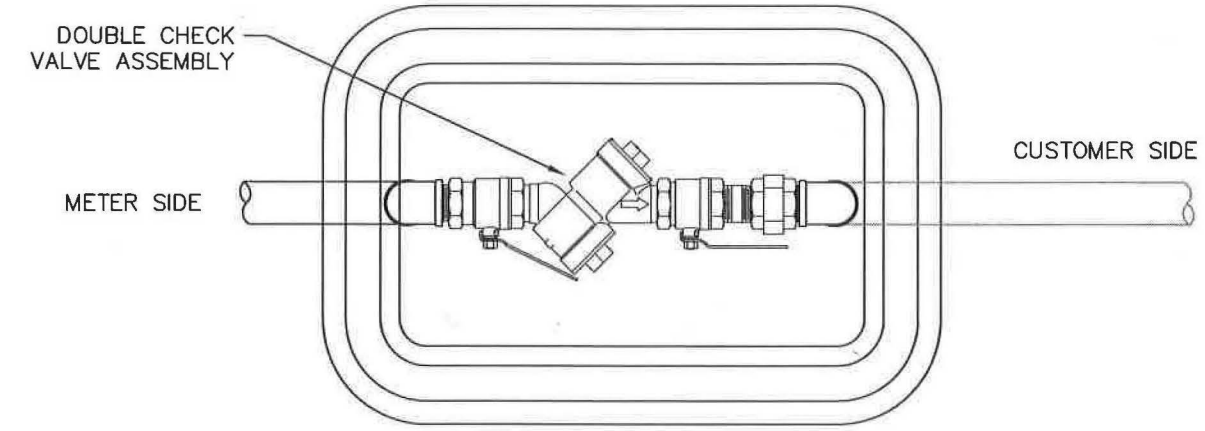


ELEVATION

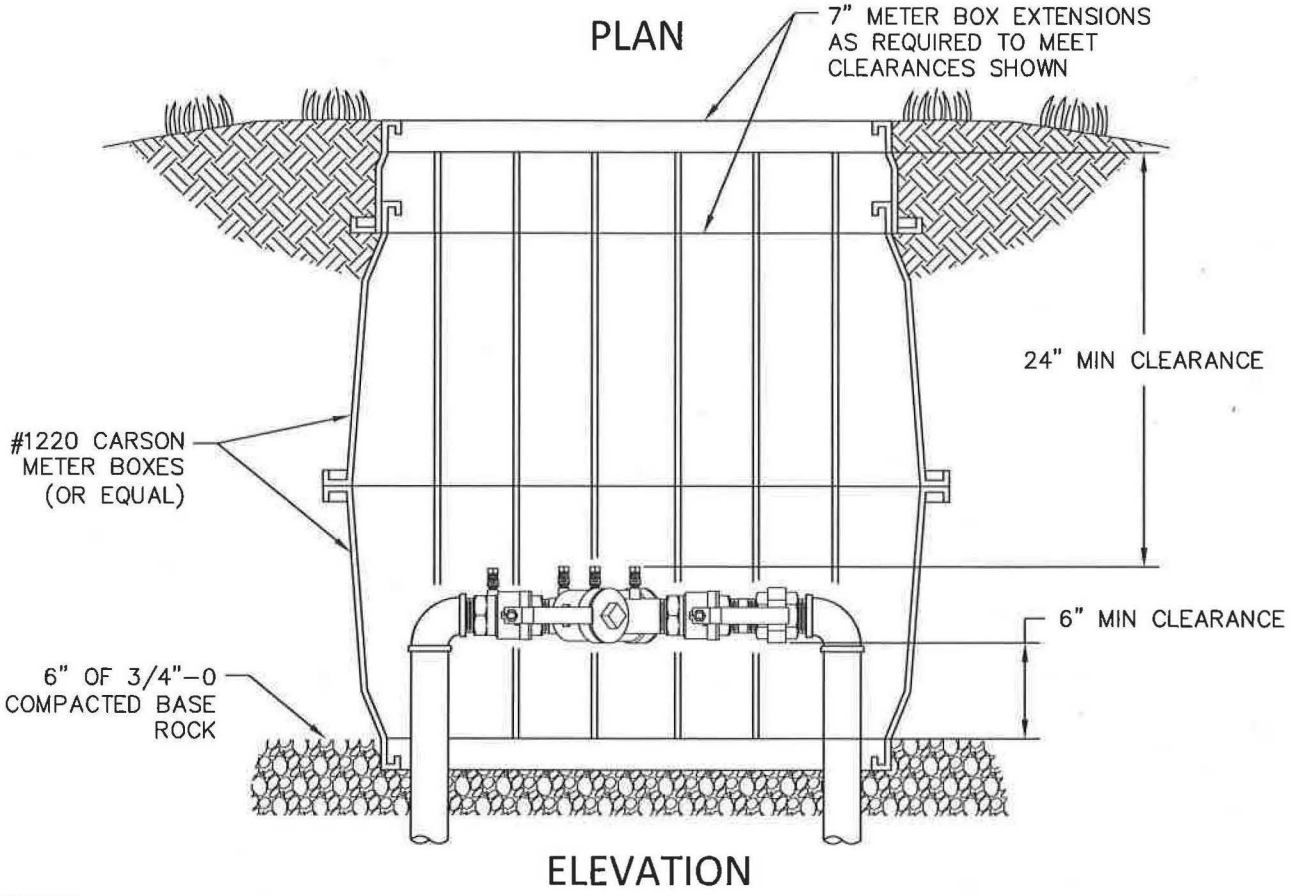
NOTES:

1. BACKFLOW ASSEMBLY TO BE APPROVED BY THE OREGON STATE HEALTH DIVISION AND COMPLY WITH OAR 333-61-070 AND AWWA C511. FLUSH SUPPLY LINE BEFORE INSTALLATION
2. ASSEMBLY SHALL BE MOUNTED ABOVE GROUND IN A BUILDING, WITH FLOOR LEVEL ABOVE THE 100-YEAR FLOOD ELEVATION. PROVIDE ADEQUATE FLOOR DRAIN DISCHARGE TO DAYLIGHT
3. HEATING SHALL BE DESIGNED TO MAINTAIN A MINIMUM AMBIENT TEMPERATURE OF 40°F WITH AN OUTSIDE TEMPERATURE OF -10°F AND WIND SPEED OF 20 MPH
4. CLEARANCES SHOWN ARE MINIMUM.
5. ELECTRICAL EQUIPMENT AND INSTALLATION SHALL MEET ALL RELEVANT CODES
6. PROVIDE CERTIFIED TEST REPORT UPON COMPLETION TO INSPECTOR

CITY OF TUALATIN, OR			REDUCED PRESSURE BACKFLOW ASSEMBLY 3/4" THRU 2"	
REVISED: 12/2018 VALID: 12/2018	SCALE: NOT TO SCALE	DRAWN: C. FERGESON APPROVED: K. MCMILLAN	DWG NO.	608



PLAN



ELEVATION

NOTES:

1. INSTALL BACKFLOW ASSEMBLY AS APPROVED BY THE OREGON STATE HEALTH DIVISION WITH TWO INTEGRAL BALL VALVES AND INSTALLED WITH UNIONS AT BOTH ENDS AND PLUGS IN TEST COCKS.
2. INSTALL BELOW GROUND IN A CARSON BROOKS, AMETEK OR SIMILAR ENCLOSURE. MAY ALSO BE MOUNTED ABOVE GROUND IN A HEATED INSULATED PROTECTIVE ENCLOSURE AT THE RIGHT-OF-WAY.
3. PROVIDE DEVICE CLEARANCES AS FOLLOWS: TOP 24", ENDS 3", BOTTOM AND SIDES 6".
4. DEVICE TO BE TESTED AND APPROVED BY A CERTIFIED TESTER AND A COPY OF THE REPORT PROVIDED TO THE BACKFLOW INSPECTOR, TUALATIN CITY OPERATIONS DEPARTMENT.
5. FLUSH LINE FROM METER BEFORE INSTALLATION OF BACKFLOW ASSEMBLY.

CITY OF TUALATIN, OR		DOUBLE CHECK BACKFLOW ASSEMBLY 3/4" THRU 1"	
REVISED: 12/2018 VALID: 12/2018	SCALE: NOT TO SCALE	DRAWN: C. FERGESON APPROVED: K. MCMILLAN	DWG NO. 609

CITY OF TUALATIN, OR

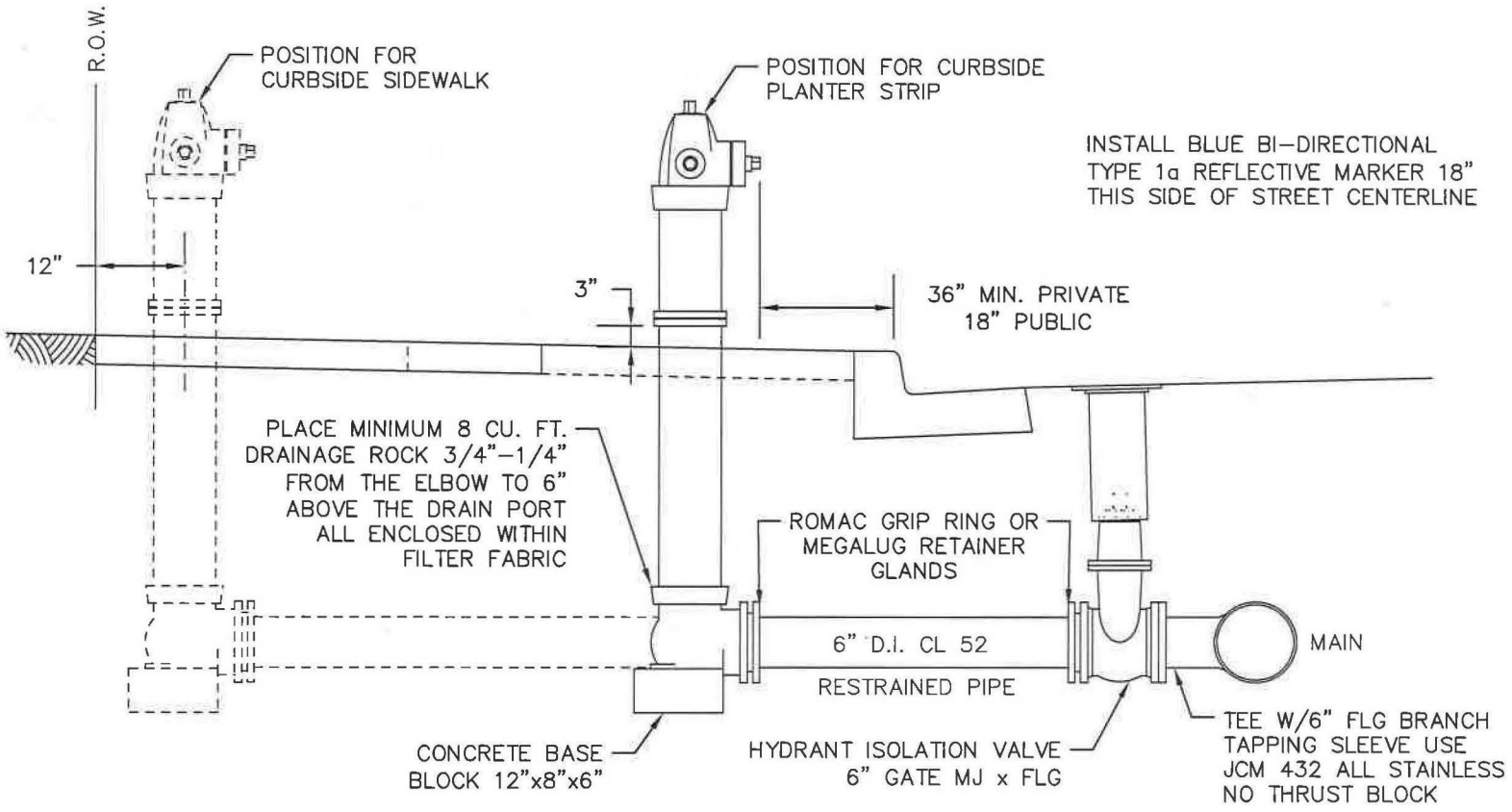
REVISED: 12/2018
VALID: 12/2018

SCALE: 1:25

DRAWN: C. FERGESON
APPROVED: K. MCMILLAN

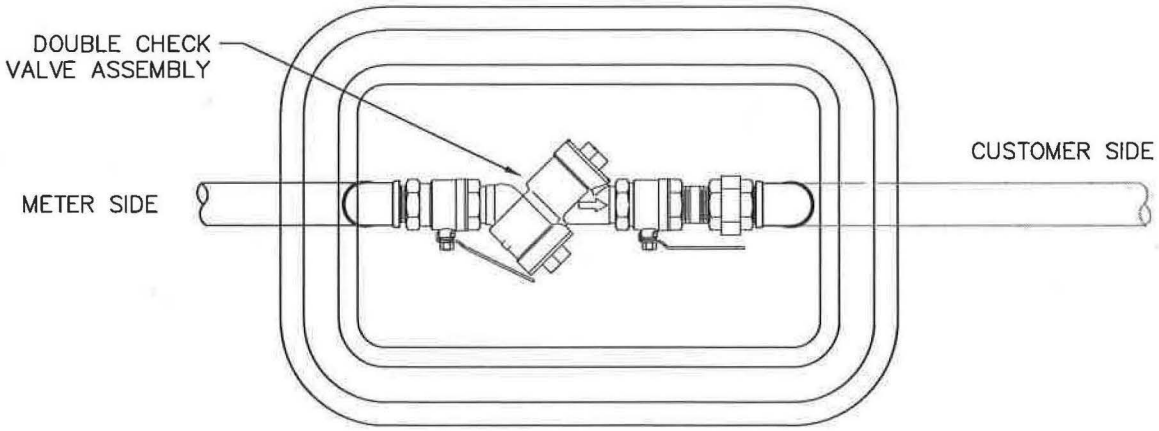
DWG NO. 610

FIRE HYDRANT ASSEMBLY

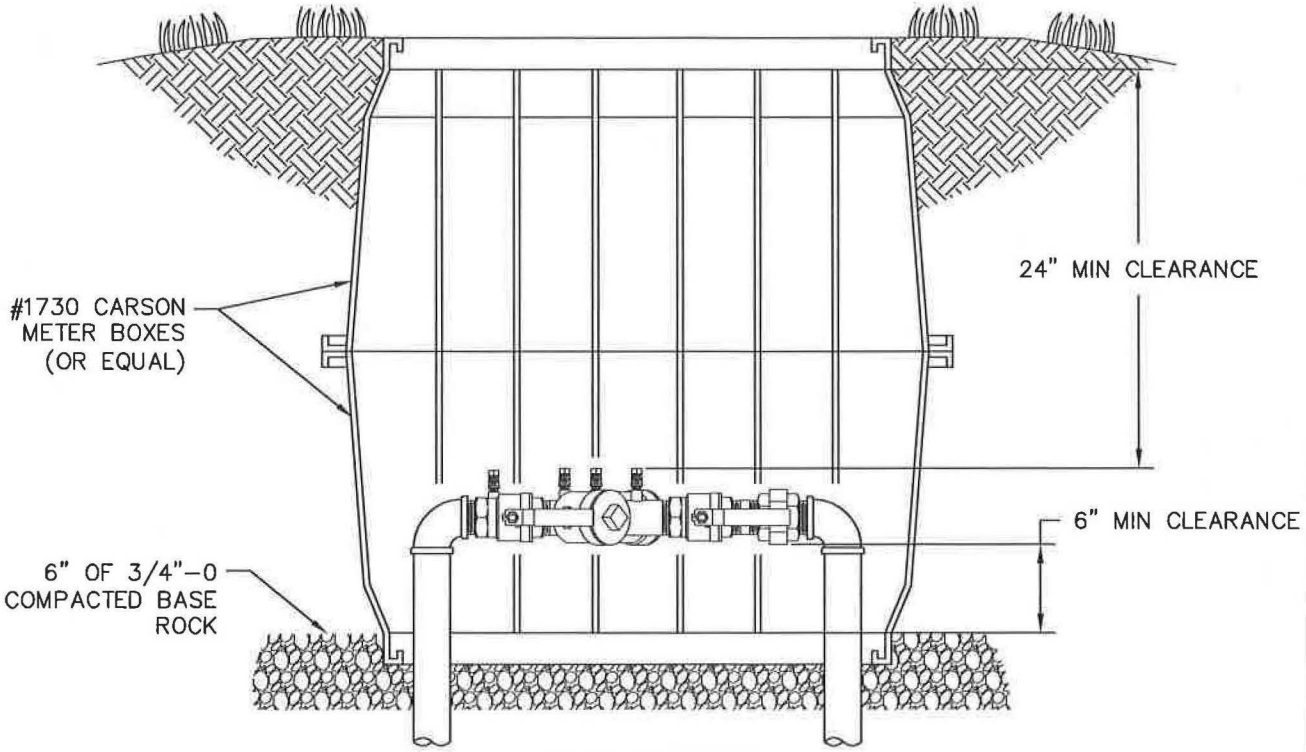


NOTE:

1. APPLY WATER MAIN'S TEST PRESSURE AGAINST CLOSED MAIN VALVE IN THE HYDRANT AND NOT THROUGH THE HYDRANT.
2. FIRE HYDRANT REQUIREMENTS: WATEROUS PACER WB-67 (WITH 16" UPPER STANDPIPE), CLOW MEDALLION OR F-2500, MUELLER SUPER CENTURION 250, M & H VALVE 929 RELIANT, EAST JORDAN 5CD 250, OR KENNEDY K-81; WITH ONE 4-1/2" PUMPER AND TWO 2-1/2" HOSE NOZZLES, SHOE 6" M.J. 5-1/4" VALVE WITH 1" PENTAGON OPERATING NUT. FACTORY POWDER COATED RED, PRIVATE HYDRANTS ARE TO BE YELLOW. REMOVE NOZZLE CAP CHAINS.
3. INSTALL HYDRANT IN ACCORDANCE WITH AWWA MANUAL M17 AND CONFORM TO AWWA C502.
4. PROVIDE HORIZONTAL CLEAR ZONE OF 36" MINIMUM AROUND FIRE HYDRANT.



PLAN

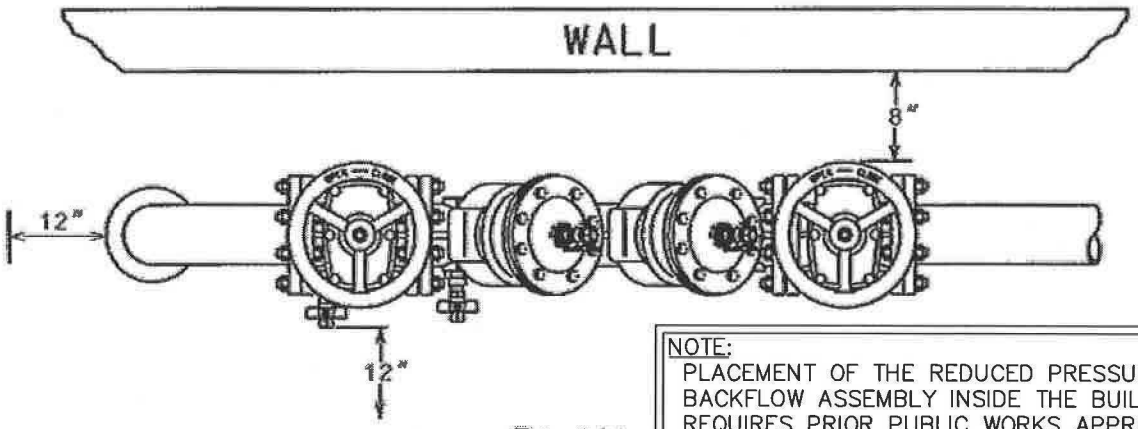


ELEVATION

NOTES:

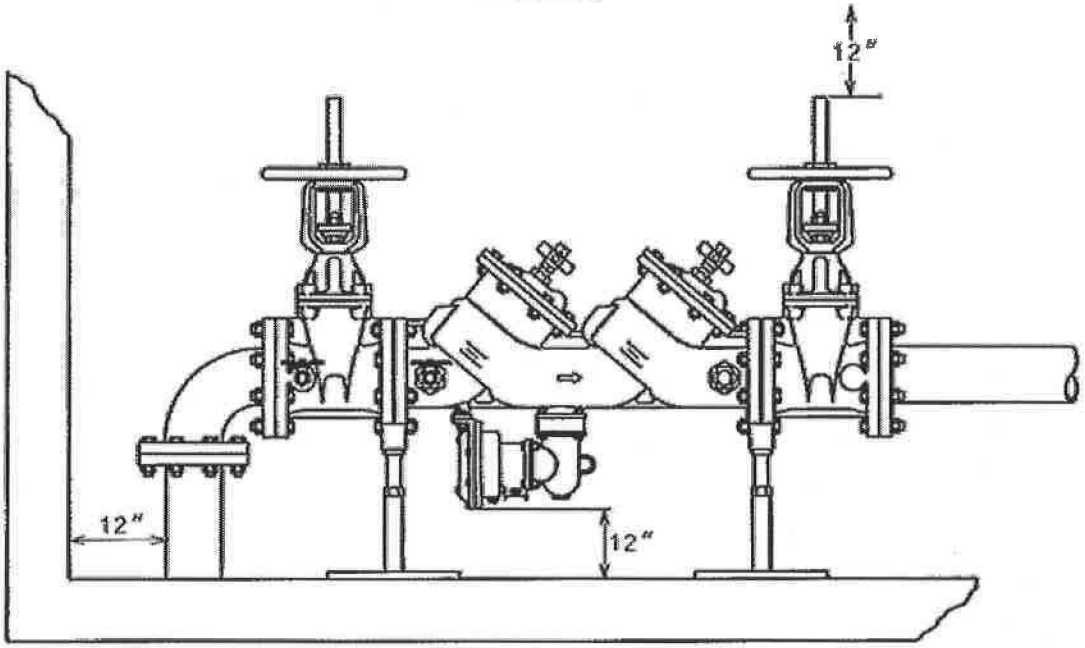
1. INSTALL BACKFLOW ASSEMBLY AS APPROVED BY THE OREGON STATE HEALTH DIVISION WITH TWO INTEGRAL BALL VALVES AND INSTALLED WITH UNIONS AT BOTH ENDS AND PLUGS IN TEST COCKS.
2. INSTALL BELOW GROUND IN A CARSON BROOKS, AMETEK OR SIMILAR ENCLOSURE. MAY ALSO BE MOUNTED ABOVE GROUND IN A HEATED INSULATED PROTECTIVE ENCLOSURE AT THE RIGHT-OF-WAY.
3. PROVIDE DEVICE CLEARANCES AS FOLLOWS: TOP 24", ENDS 3", BOTTOM AND SIDES 6".
4. DEVICE TO BE TESTED AND APPROVED BY A CERTIFIED TESTER AND A COPY OF THE REPORT PROVIDED TO THE BACKFLOW INSPECTOR, TUALATIN CITY OPERATIONS DEPARTMENT.
5. FLUSH LINE FROM METER BEFORE INSTALLATION OF BACKFLOW ASSEMBLY.

CITY OF TUALATIN, OR		**DOUBLE CHECK BACKFLOW ASSEMBLY 1-1/2" THRU 2-1/2"**	
REVISED: 12/2018 VALID: 12/2018	SCALE: NOT TO SCALE	DRAWN: C. FERGESON APPROVED: K. MCMILLAN	DWG NO. 611



PLAN

NOTE:
PLACEMENT OF THE REDUCED PRESSURE BACKFLOW ASSEMBLY INSIDE THE BUILDING REQUIRES PRIOR PUBLIC WORKS APPROVAL.

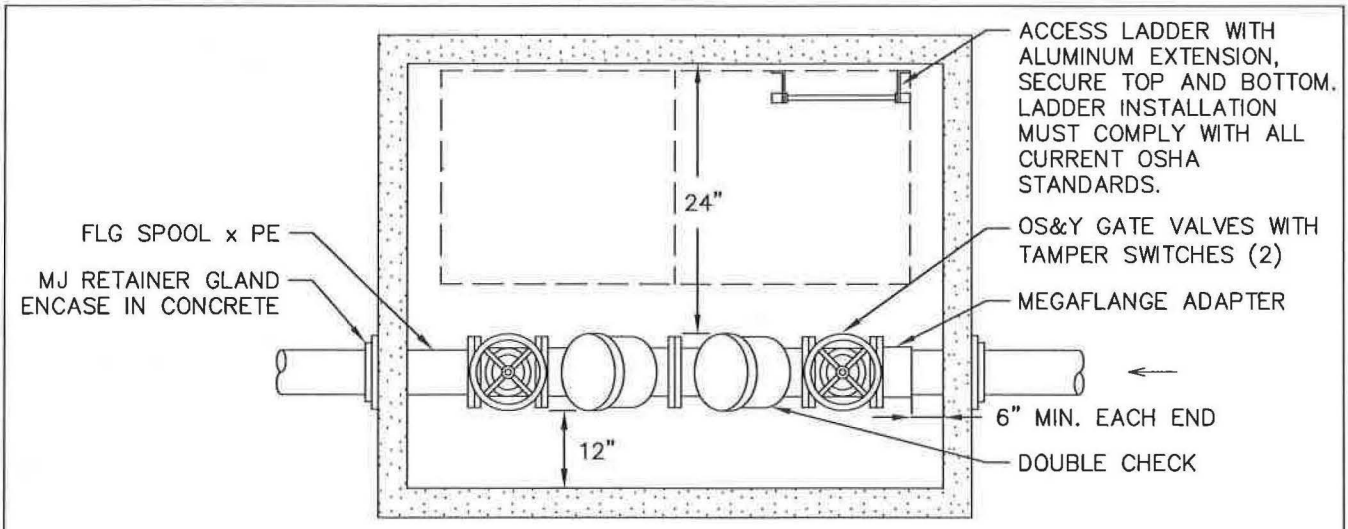


ELEVATION

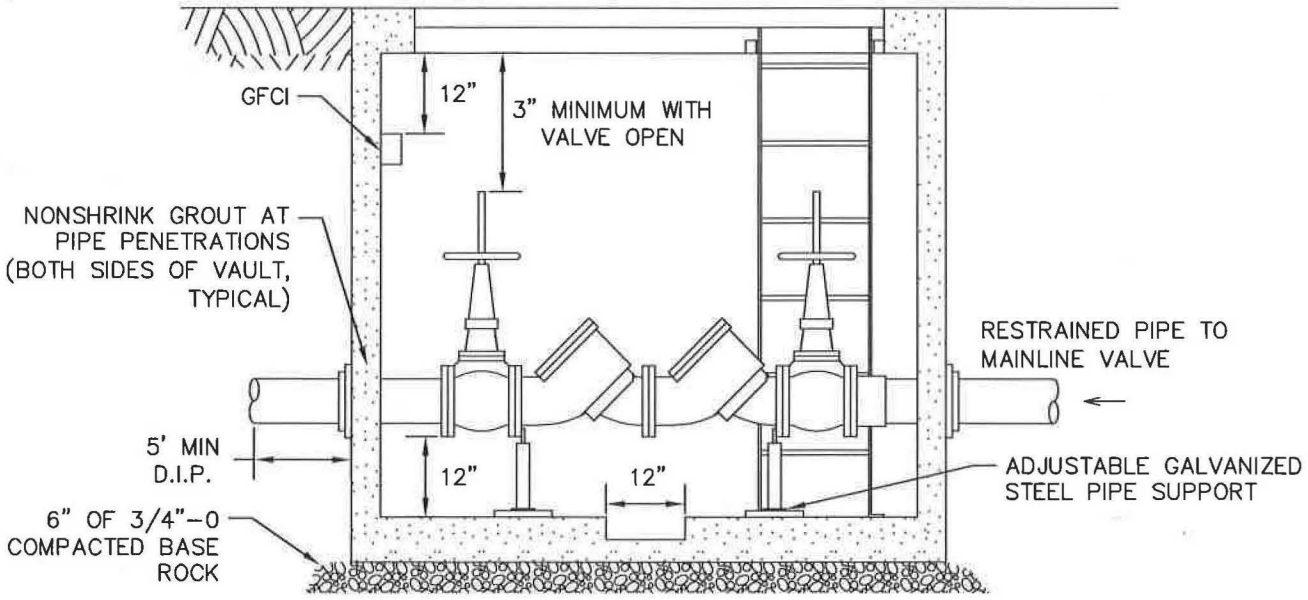
NOTES:

1. BACKFLOW ASSEMBLY TO BE APPROVED BY THE OREGON STATE HEALTH DIVISION AND COMPLY WITH OAR 333-61-070 AND AWWA C511. FLUSH SUPPLY LINE BEFORE INSTALLATION
2. ASSEMBLY SHALL BE MOUNTED ABOVE GROUND IN A BUILDING, WITH FLOOR LEVEL ABOVE THE 100-YEAR FLOOD ELEVATION. PROVIDE ADEQUATE FLOOR DRAIN DISCHARGE TO DAYLIGHT
3. HEATING SHALL BE DESIGNED TO MAINTAIN A MINIMUM AMBIENT TEMPERATURE OF 40°F WITH AN OUTSIDE TEMPERATURE OF -10°F AND WIND SPEED OF 20 MPH
4. CLEARANCES SHOWN ARE MINIMUM.
5. ELECTRICAL EQUIPMENT AND INSTALLATION SHALL MEET ALL RELEVANT CODES
6. PROVIDE CERTIFIED TEST REPORT UPON COMPLETION TO INSPECTOR

CITY OF TUALATIN, OR	REDUCED PRESSURE BACKFLOW ASSEMBLY 2 1/2" THRU 10"		
REVISED: 12/2018 VALID: 12/2018	SCALE: NOT TO SCALE	DRAWN: C. FERGESON APPROVED: K. MCMILLAN	DWG NO. 612



PLAN



ELEVATION

NOTES:

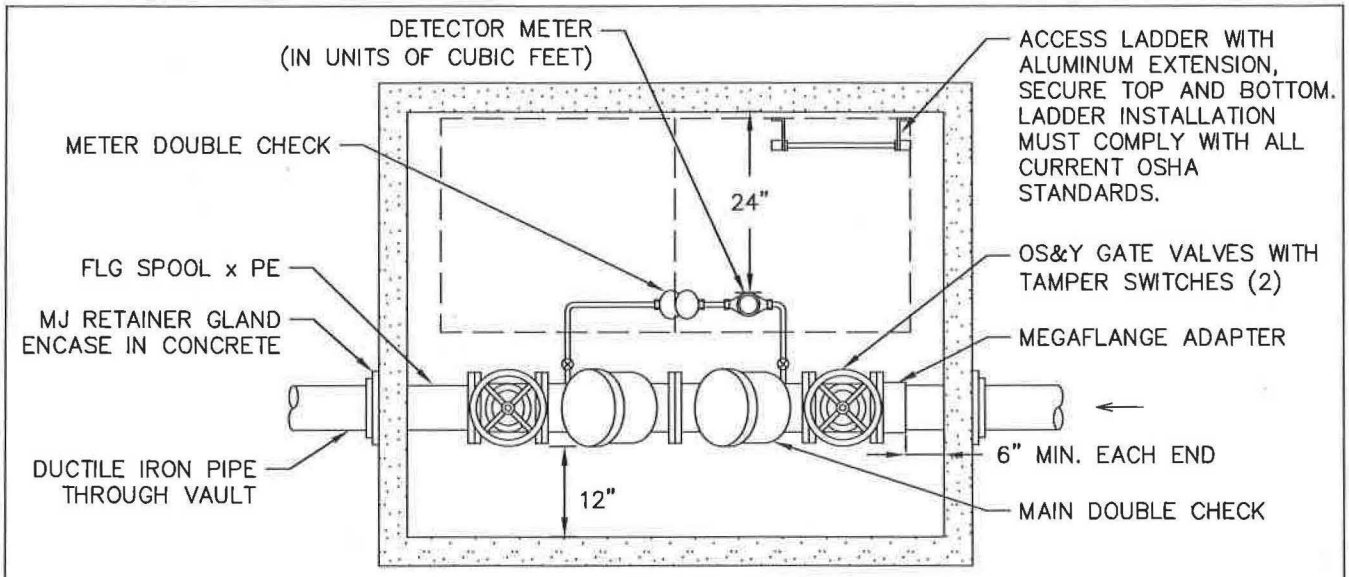
1. USE DUCTILE IRON PIPE THROUGH AND 5' BEYOND VAULT ON PRIVATE SIDE DUE TO VAULT SETTLEMENT. NO PIPE BELL ENDS INSIDE VAULT.
2. INSTALL PLUGS IN TEST COCKS.
3. ASSEMBLY MAY ALSO BE MOUNTED ABOVE GROUND IN AN INSULATED PROTECTIVE ENCLOSURE AT THE RIGHT-OF-WAY.
4. CHECK VAULT FLOTATION AND CORRECT IF NECESSARY.
5. BACKFLOW ASSEMBLY AND INSTALLATION TO COMPLY WITH AWWA C510 AND OAR 333-61-070.
6. PROVIDE SUMP PUMP WITH DIAPHRAGM OR VERTICAL FLOAT SWITCH AND 2" PVC CHECK VALVE AND PIPE DISCHARGE TO DAYLIGHT. SUPPLY POWER THRU GFCI INTERNAL WALL MOUNT 12" BELOW CEILING.
7. PROVIDE INSPECTOR WITH CERTIFIED TEST REPORT UPON COMPLETION.

PIPE SIZE	OLDCASTLE	COVER OFFSET
3"	577-LA	2-332P
4"	687-WA	2-332P
6"	687-WA	2-332P
8"	5106-WA	3-332P
10"	5106-WA	3-332P

CITY OF TUALATIN, OR

DOUBLE CHECK BACKFLOW ASSEMBLY 3" THRU 10"

REVISED:	12/2018	SCALE: NOT TO SCALE	DRAWN: C. FERGESON	DWG NO.	613
VALID:	12/2018		APPROVED: K.MCMILLAN		



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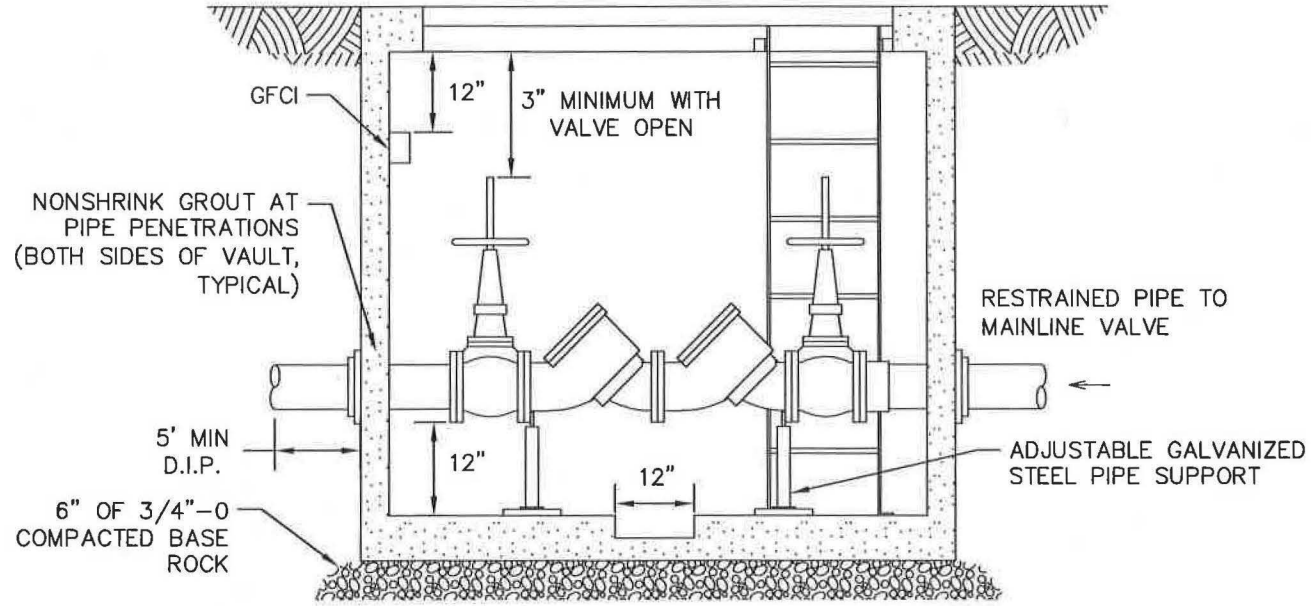


ELEVATION

NOTES:

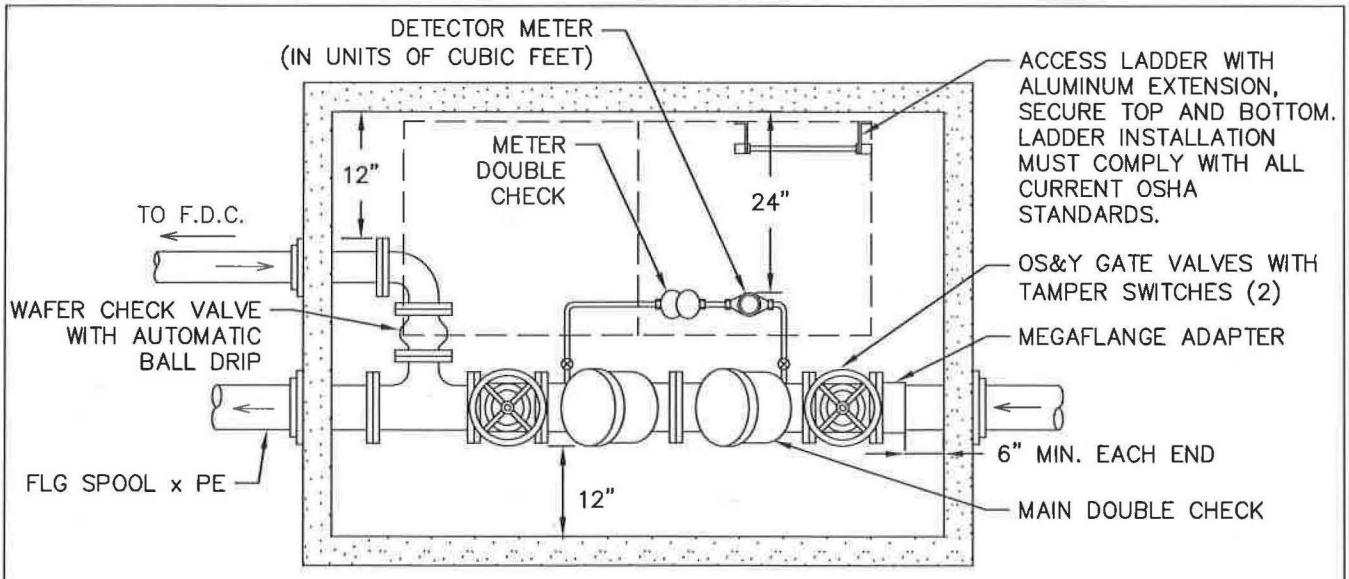
1. USE DUCTILE IRON PIPE THROUGH AND 5' BEYOND VAULT ON PRIVATE SIDE DUE TO VAULT SETTLEMENT. NO PIPE BELL ENDS INSIDE VAULT.
2. INSTALL PLUGS IN TEST COCKS.
3. ASSEMBLY MAY ALSO BE MOUNTED ABOVE GROUND IN AN INSULATED PROTECTIVE ENCLOSURE AT THE RIGHT-OF-WAY.
4. CHECK VAULT FLOTATION AND CORRECT IF NECESSARY.
5. BACKFLOW ASSEMBLY AND INSTALLATION TO COMPLY WITH AWWA C510 AND OAR 333-61-070.
6. PROVIDE SUMP PUMP WITH DIAPHRAGM OR VERTICAL FLOAT SWITCH AND 2" PVC CHECK VALVE AND PIPE DISCHARGE TO DAYLIGHT. SUPPLY POWER THRU GFCI INTERNAL WALL MOUNT 12" BELOW CEILING.
7. PROVIDE INSPECTOR WITH CERTIFIED TEST REPORT UPON COMPLETION.

PIPE SIZE	OLDCASTLE	COVER OFFSET
4"	687-WA	2-332P
6"	687-WA	2-332P
8"	5106-WA	3-332P
10"	5106-WA	3-332P

CITY OF TUALATIN, OR

DOUBLE CHECK DETECTOR FIRE PROTECTION WITHOUT FDC

REVISED:	12/2018	SCALE: NOT TO SCALE	DRAWN: C. FERGESON	DWG NO.	614
VALID:	12/2018		APPROVED: K. MCMILLAN		



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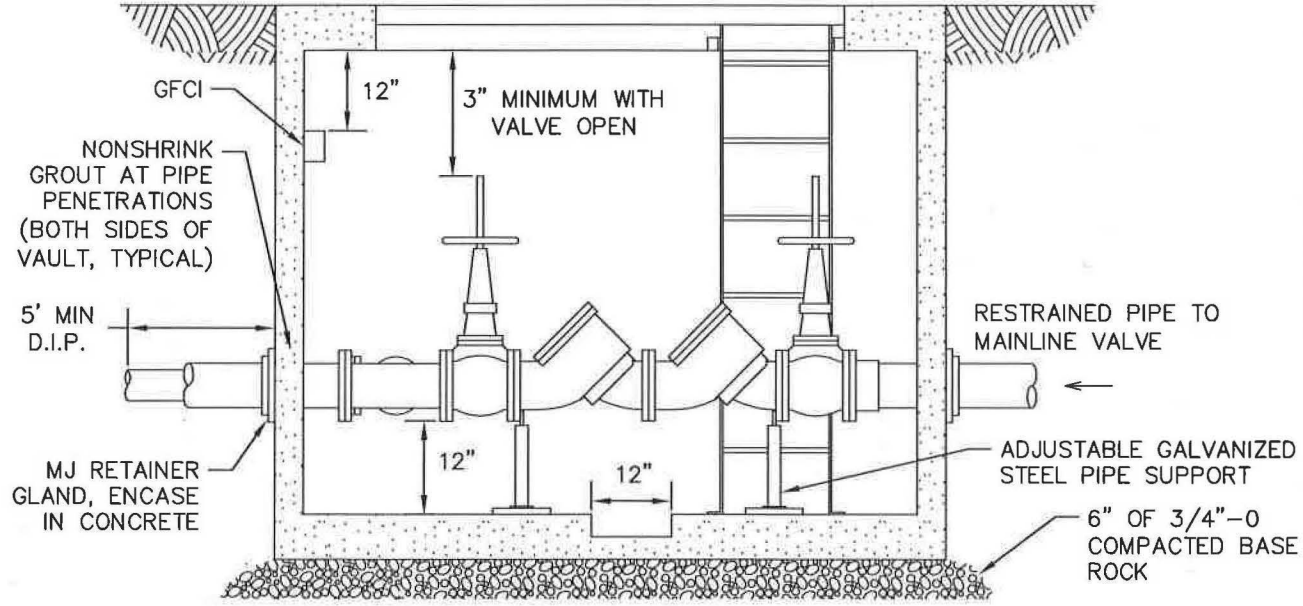


ELEVATION

NOTES:

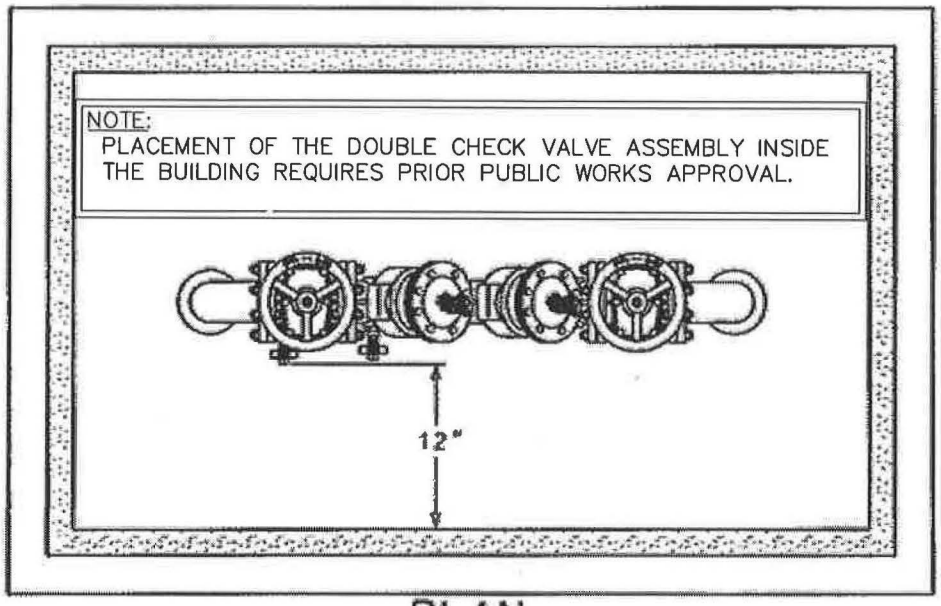
1. USE DUCTILE IRON PIPE THROUGH AND 5' BEYOND VAULT ON PRIVATE SIDE DUE TO VAULT SETTLEMENT. NO PIPE BELL ENDS INSIDE VAULT.
2. INSTALL PLUGS IN TEST COCKS.
3. ASSEMBLY MAY ALSO BE MOUNTED ABOVE GROUND IN AN INSULATED PROTECTIVE ENCLOSURE AT THE RIGHT-OF-WAY.
4. CHECK VAULT FLOTATION AND CORRECT IF NECESSARY.
5. BACKFLOW ASSEMBLY AND INSTALLATION TO COMPLY WITH AWWA C510 AND OAR 333-61-070.
6. PROVIDE SUMP PUMP WITH DIAPHRAGM OR VERTICAL FLOAT SWITCH AND 2" PVC CHECK VALVE AND PIPE DISCHARGE TO DAYLIGHT. SUPPLY POWER THRU GFCI INTERNAL WALL MOUNT 12" BELOW CEILING.
7. PROVIDE INSPECTOR WITH CERTIFIED TEST REPORT UPON COMPLETION.

PIPE SIZE	OLDCASTLE	COVER OFFSET
4"	687-WA	2-332P
6"	687-WA	2-332P
8"	5106-WA	3-332P
10"	5106-WA	3-332P

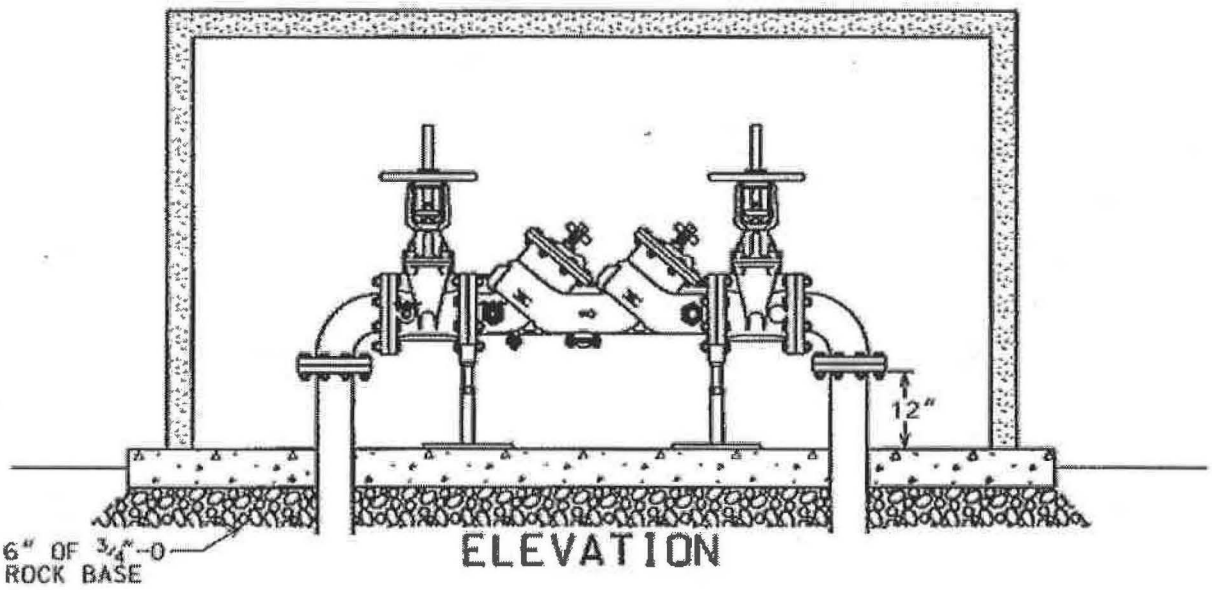
CITY OF TUALATIN, OR

DOUBLE CHECK DETECTOR FIRE PROTECTION WITH FDC CONNECTION

REVISED:	12/2018	SCALE: NOT TO SCALE	DRAWN: C. FERGESON	DWG NO.	615
VALID:	12/2018		APPROVED: K. MCMILLAN		



PLAN

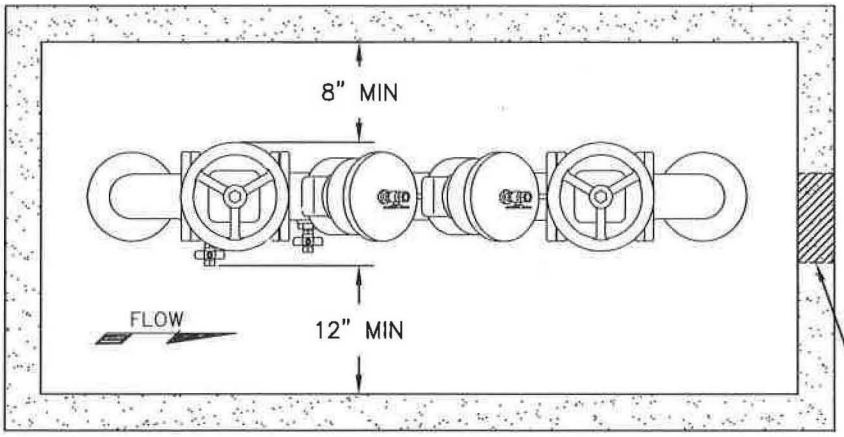


ELEVATION

NOTES:

1. BACKFLOW ASSEMBLY TO BE APPROVED BY THE OREGON STATE HEALTH DIVISION AND COMPLY WITH OAR 333-61-070 AND AWWA C511. FLUSH SUPPLY LINE BEFORE INSTALLATION
2. ASSEMBLY SHALL BE MOUNTED ABOVE GROUND IN A HEATED, INSULATED AND PROTECTIVE ALUMINUM ENCLOSURE (HOT BOX OR SIMILAR) OR BUILDING, WITH FLOOR LEVEL ABOVE THE 100-YEAR FLOOD ELEVATION. PROVIDE ADEQUATE FLOOR DRAIN DISCHARGE TO DAYLIGHT
3. HEATING SHALL BE DESIGNED TO MAINTAIN A MINIMUM AMBIENT TEMPERATURE OF 40°F WITH AN OUTSIDE TEMPERATURE OF -10°F AND WIND SPEED OF 20 MPH
4. CLEARANCES SHOWN ARE MINIMUM. PROVIDE RESTRAINED PIPING SYSTEM THRU ENCLOSURE
5. ELECTRICAL EQUIPMENT AND INSTALLATION SHALL MEET ALL RELEVANT CODES
6. PROVIDE CERTIFIED TEST REPORT UPON COMPLETION TO INSPECTOR

CITY OF TUALATIN, OR	DOUBLE CHECK VALVE ASSEMBLY INSIDE BLDG. 3/4" THRU 2"		
REVISED: 12/2018 VALID: 12/2018	SCALE: NOT TO SCALE	DRAWN: C. FERGESON APPROVED: K. MCMILLAN	DWG NO. 616



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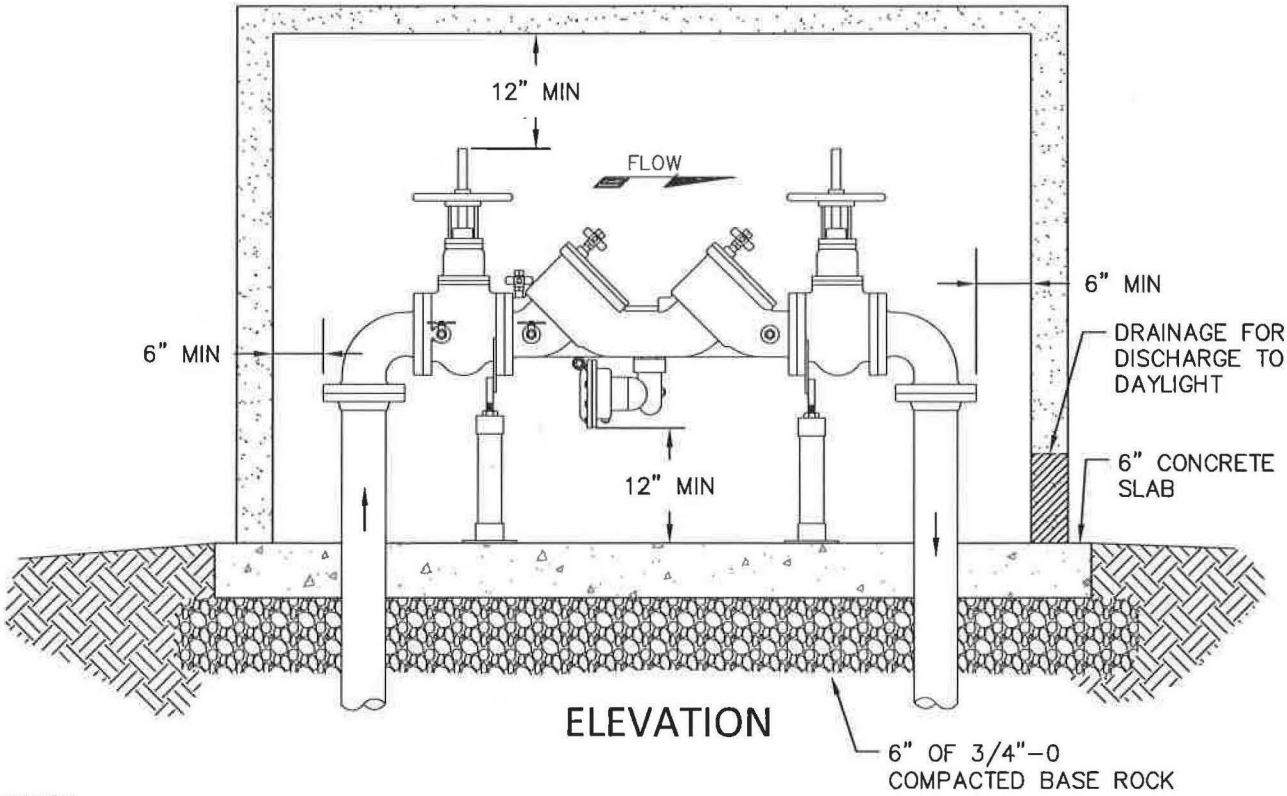


ELEVATION

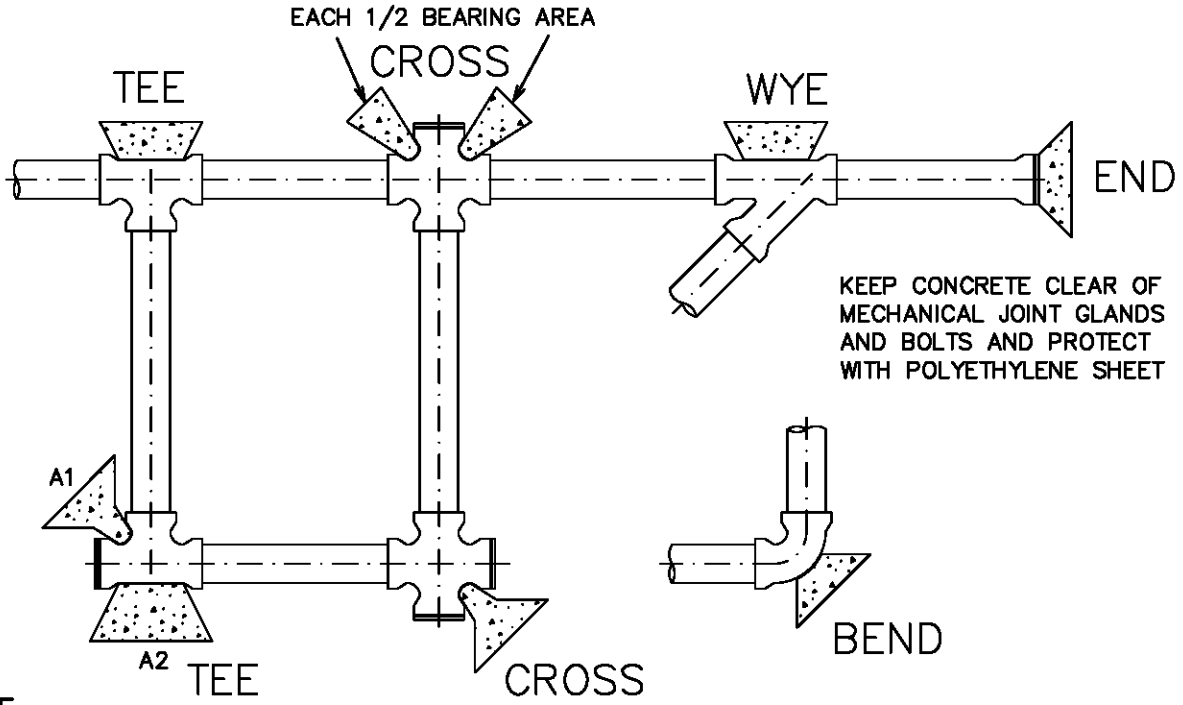
NOTES:

1. COMPLY WITH OAR 333-61-070 AND AWWA C511, WHICH REQUIRES BACKFLOW ASSEMBLY TO BE APPROVED BY THE OREGON STATE HEALTH DIVISION. FLUSH SUPPLY LINE BEFORE INSTALLATION.
2. MOUNT ASSEMBLY ABOVE GROUND IN A HEATED, INSULATED AND PROTECTIVE ENCLOSURE (HOT BOX OR SIMILAR) AT THE RIGHT-OF-WAY IN A LOCATION APPROVED BY CITY OF TUALATIN.
3. PLACE FLOOR LEVEL ABOVE THE 100-YEAR FLOOD ELEVATION WITH ADEQUATE DRAINAGE FOR DISCHARGE TO DAYLIGHT CAPABLE OF DRAINING A FULL RELIEF VALVE DISCHARGE, SIZED PER AWWA STANDARDS.
4. DESIGNED HEATING TO MAINTAIN A MINIMUM AMBIENT TEMPERATURE OF 40°F WITH AN OUTSIDE TEMPERATURE OF -10°F AND WIND SPEED OF 20 MPH.
5. CLEARANCES SHOWN ARE MINIMUM.
6. WALL MOUNT ALL ELECTRICAL EQUIPMENT TO MEET ALL RELEVANT CODES FOR ELECTRICAL EQUIPMENT AND INSTALLATION.
7. PROVIDE INSPECTOR WITH CERTIFIED TEST REPORT UPON COMPLETION.

CITY OF TUALATIN, OR			REDUCED PRESSURE BACKFLOW ASSEMBLY 2-1/2" THRU 10"	
REVISED: 12/2018 VALID: 12/2018	SCALE: NOT TO SCALE		DRAWN: C. FERGESON APPROVED: K. MCMILLAN	DWG NO. 617

THRUST BLOCK REQUIREMENTS AT SOIL/CONCRETE INTERFACE:

1. BLOCK HEIGHT TO BE LESS THAN TOTAL DEPTH SOIL SURFACE TO BOTTOM OF BLOCK BUT NOT LESS THAN PIPE DIAMETER.
2. BLOCK WIDTH TO VARY BETWEEN EQUAL TO OR NOT GREATER THAN TWICE BLOCK HEIGHT.



NOTE:

THRUST BLOCKS TO BE USED ONLY WHEN CONNECTING TO AN UNKNOWN LENGTH OF PIPE AND AT ALL LIVE TAPS. OTHERWISE, USE APPROVED MJ RETAINER GLANDS AND RESTRAINED PIPE.

FITTING SIZE INCHES	BEARING AREA SQ. FT.					
	BEND 90° CROSS TEE A1	TEE A2	TEE WYE END	BEND 45°	BEND 22.5°	BEND 11.25°
3	1.31	1.85	0.92	0.71	0.36	0.18
4	1.92	2.71	1.36	1.04	0.53	0.27
6	3.97	5.61	2.80	2.15	1.09	0.55
8	6.82	9.65	4.82	3.69	1.88	0.95
10	10.26	14.52	7.26	5.55	2.83	1.42
12	14.51	20.53	10.26	7.86	4.00	2.01
14	19.50	27.58	13.79	10.55	5.38	2.70
16	25.22	35.67	17.83	13.65	6.96	3.50
18	31.68	44.80	22.40	17.14	8.74	4.39
20	38.87	54.97	27.48	21.03	10.72	5.39
24	55.45	78.42	39.21	30.01	15.30	7.69

DESIGN CRITERIA:

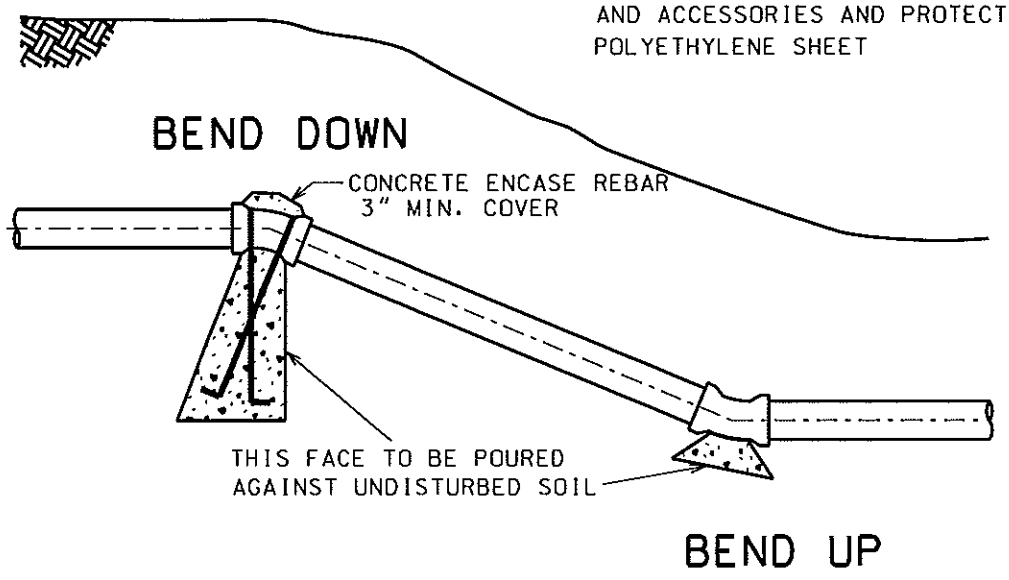
1. TEST PRESSURE 150 LB/SQ.IN., CONCRETE 3300–1 1/2", AFTER POURING BLOCK DO NOT APPLY TEST PRESSURE FOR AT LEAST FIVE DAYS.
2. SAFETY FACTOR 1.5, SOIL SANDY SILT WITH BEARING STRENGTH 3,000 LB/SQ.FT.
3. CONCRETE POURED AGAINST UNDISTURBED SOIL OR SOIL COMPACTED TO AT LEAST 92% MODIFIED PROCTOR DENSITY, T–180.
4. SUBMIT BEARING AREA CALCULATIONS WITH CHANGE IN SOIL OR TEST PRESSURE.

CITY OF TUALATIN, OR

PIPE JOINT RESTRAINT BEARING THRUST BLOCKS

REVISED:	11/2020	SCALE: NOT TO SCALE	DRAWN: C. FERGESON	DWG NO.	620
VALID:	12/2020		APPROVED: K.MCMILLAN		

KEEP CONCRETE CLEAR OF MJ JOINT AND ACCESSORIES AND PROTECT WITH POLYETHYLENE SHEET



NOTE:

ALWAYS USE APPROVED RETAINER GLANDS AND RESTRAINED PIPE INSTEAD OF GRAVITY AND BEARING THRUST BLOCKS WHENEVER POSSIBLE

DESIGN CRITERIA:

1. TEST PRESSURE 150 LB/SQ.IN. CONCRETE 3300-1½", DO NOT APPLY TEST PRESSURE BEFORE FIVE DAYS AFTER POURING THRUST BLOCK
2. SAFETY FACTOR 1.5
3. WEIGHT CONCRETE 140 LB/CU.FT.
4. SOIL SANDY SILT BEARING STRENGTH 3000 LB/SQ.FT.
5. SUBMIT REDESIGN WITH CHANGE IN SOIL OR TEST PRESSURE

FITTING SIZE INCHES	REBAR SIZE	CUBIC YARDS CONCRETE			BEARING AREA SQ. FT.		
		VERTICAL BEND DOWN			VERTICAL BEND UP		
		45°	22.5°	11.25°	45°	22.5°	11.25°
3	# 4	0.52	0.28	0.14	0.71	0.36	0.18
4		0.76	0.41	0.21	1.04	0.53	0.27
6		1.57	0.85	0.43	2.15	1.09	0.55
8		2.71	1.47	0.75	3.69	1.88	0.95
10	# 6	4.07	2.20	1.12	5.55	2.83	1.42
12	# 8	5.76	3.12	1.59	7.86	4.00	2.01
14		7.74	4.19	2.14	10.55	5.38	2.70
16	# 10	10.01	5.42	2.76	13.65	6.96	3.50
18		12.57	6.80	3.47	17.14	8.74	4.39
20	# 14	15.42	8.35	4.26	21.03	10.72	5.39
24		22.00	11.91	6.07	30.01	15.30	7.69

CITY OF TUALATIN, OR

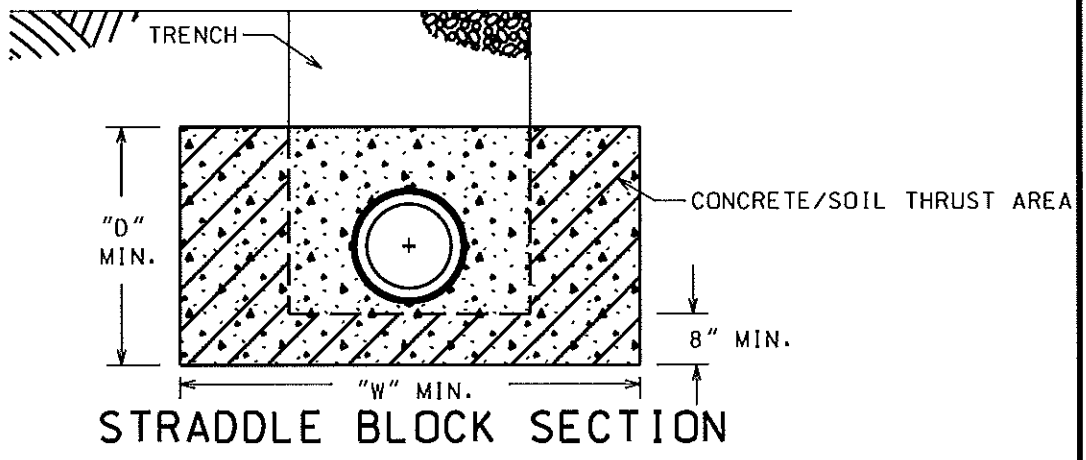
PIPE JOINT RESTRAINT GRAVITY THRUST BLOCKS

REVISED: 10/2001
VALID: 7/2003

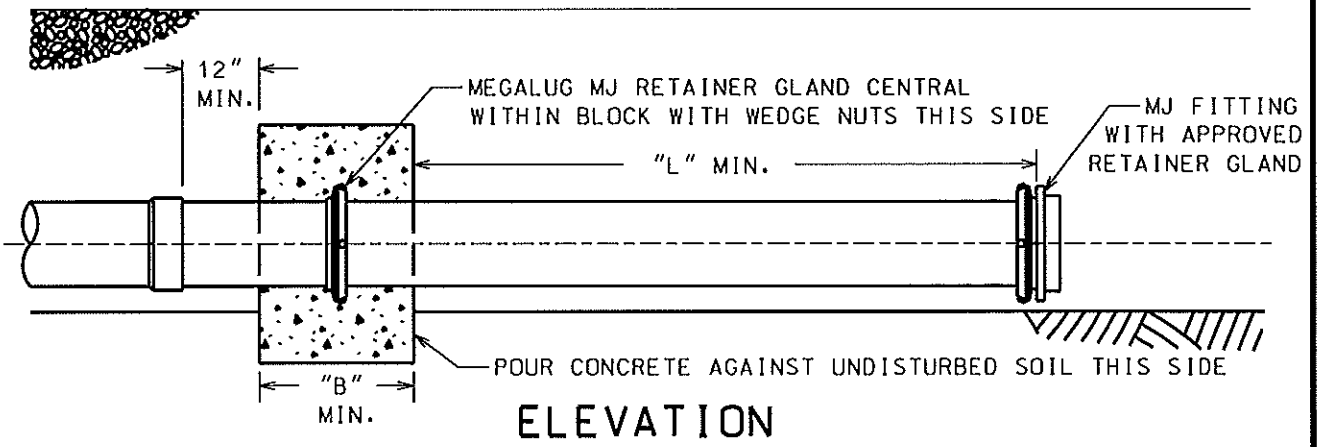
SCALE: NOT TO SCALE

DRAWN: D.L.
APPROVED: K.L.H.

DWG NO. 621



STRADDLE BLOCK SECTION



ELEVATION

NOTES:

1. DESIGN: CONCRETE 3300 PSI, SANDY SILT BEARING STRENGTH 3000 LB/SQ.FT., ANGLE INTERNAL FRICTION 25°, DENSITY 95 LB/CU.FT., TEST PRESSURE 150 LB/SQ.IN.
2. APPLY TEST PRESSURE NO LESS THAN 5 DAYS AFTER POURING CONCRETE STRADDLE BLOCK
3. IF TRENCH EXCEEDS MAXIMUM WIDTH SHOWN SUBMIT REDESIGN FOR APPROVAL
4. BLOCK SHALL PROTRUDE INTO TRENCH WALL BOTH SIDES AN EQUAL AMOUNT
5. **CONCRETE 3300-1 1/2, 4-7% AIR, PROVIDE 2 CONCENTRIC HOOPS 3" RADIAL CLEARANCE**

INCHES						SQ.FT.
PIPE DIA.	"W" BLOCK WIDTH MIN.	"D" BLOCK DEPTH MIN.	"B" BLOCK THICKNESS MIN.	"L" MIN.	"T" TRENCH WIDTH MAX.	BEARING AREA
3	36	27.96	9	25	23.94	0.92
4	36	28.80	12	36	25.20	1.36
6	36	30.90	12	68	28.35	2.80
8	48	33.05	15	81	31.58	4.82
10	60	35.10	18	90	34.65	7.26
12	72	37.20	24	99	37.80	10.26
14	84	39.30	27	107	40.95	13.79
16	108	41.40	30	101	44.10	17.83
18	120	43.50	36	107	47.25	22.40
20	132	45.60	42	112	50.40	27.48
24	168	49.80	48	112	56.70	39.21

CITY OF TUALATIN, OR

PIPE JOINT RESTRAINT STRADDLE THRUST BLOCK

REVISED:	10/2001	SCALE:	1:30	DRAWN: D.L.	DWG NO. 622
VALID:	7/2003			APPROVED: K.L.H.	

CITY OF TUALATIN, OR

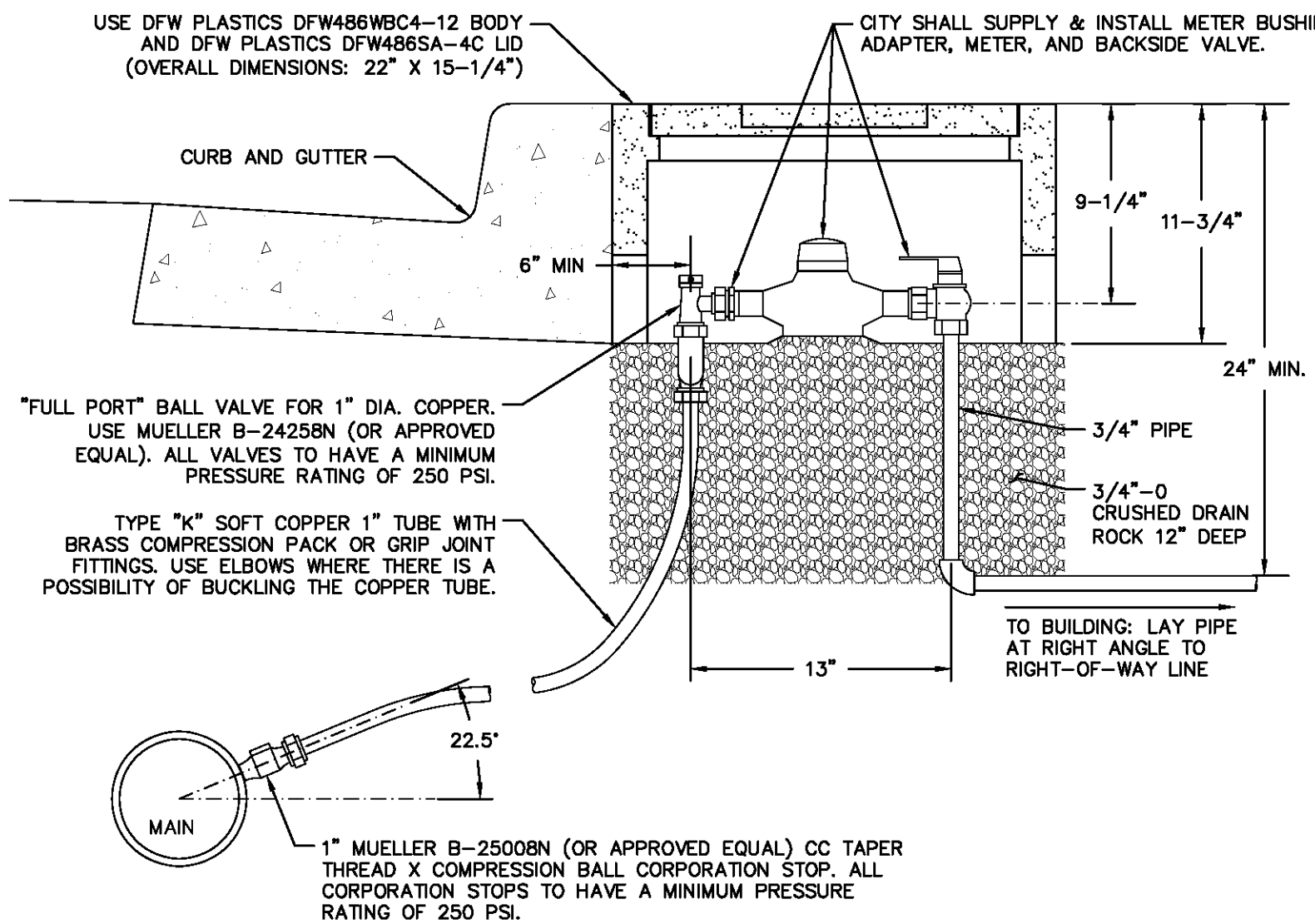
WATER SERVICE 5/8" X 3/4" METER

REVISED: 09/2020
VALID: 10/2020

SCALE: NOT TO SCALE

DRAWN: C. FERGESON
APPROVED: K. MCMILLAN

DWG NO. 630



NOTES:

1. FLUSH LINE AFTER CONNECTION TO CORPORATION STOP AND BEFORE CONNECTION TO METER.
2. MAXIMUM CONTINUOUS FLOW RATE PER METER SHALL NOT EXCEED 10 GPM.
3. APPROVED EQUAL VALVES & FITTINGS FROM FORD OR MUELLER TO MEET THE REQUIREMENTS OF AWWA C800 UNDERGROUND SERVICE LINE VALVES AND FITTINGS.

7/23/18

CITY OF TUALATIN, OR

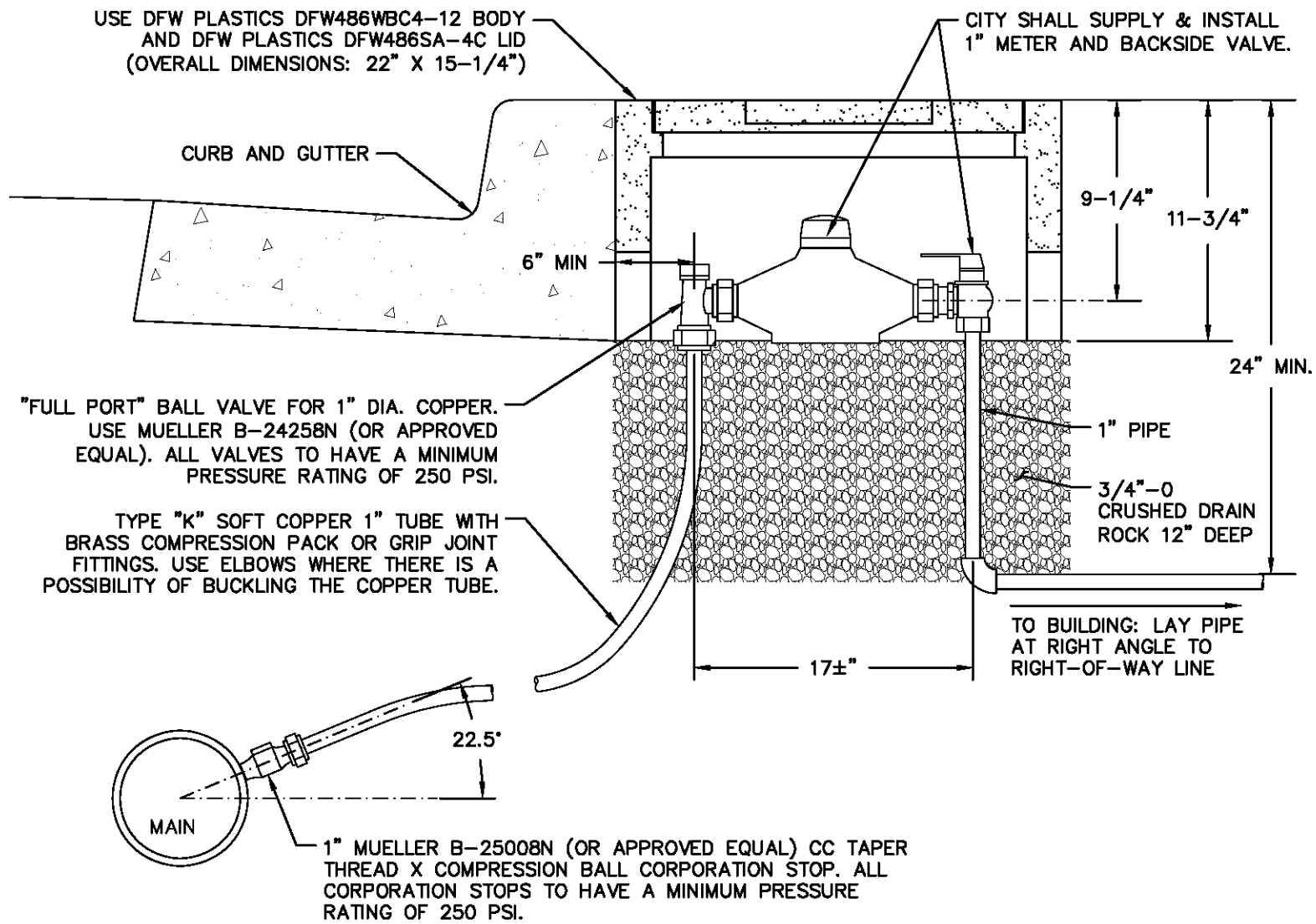
WATER SERVICE
1" METER

REVISED: 09/2020
VALID: 10/2020

SCALE: NOT TO SCALE

DRAWN: C. FERGESON
APPROVED: K. MCMILLAN

DWG NO. 631



NOTES:
1. FLUSH LINE AFTER CONNECTION TO CORPORATION STOP AND BEFORE CONNECTION TO METER.
2. MAXIMUM CONTINUOUS FLOW RATE PER METER SHALL NOT EXCEED 25 GPM.
3. APPROVED EQUAL VALVES & FITTINGS FROM FORD OR MUELLER TO MEET THE REQUIREMENTS OF AWWA C800 UNDERGROUND SERVICE LINE VALVES AND FITTINGS.

7/23/18

CITY OF TUALATIN, OR

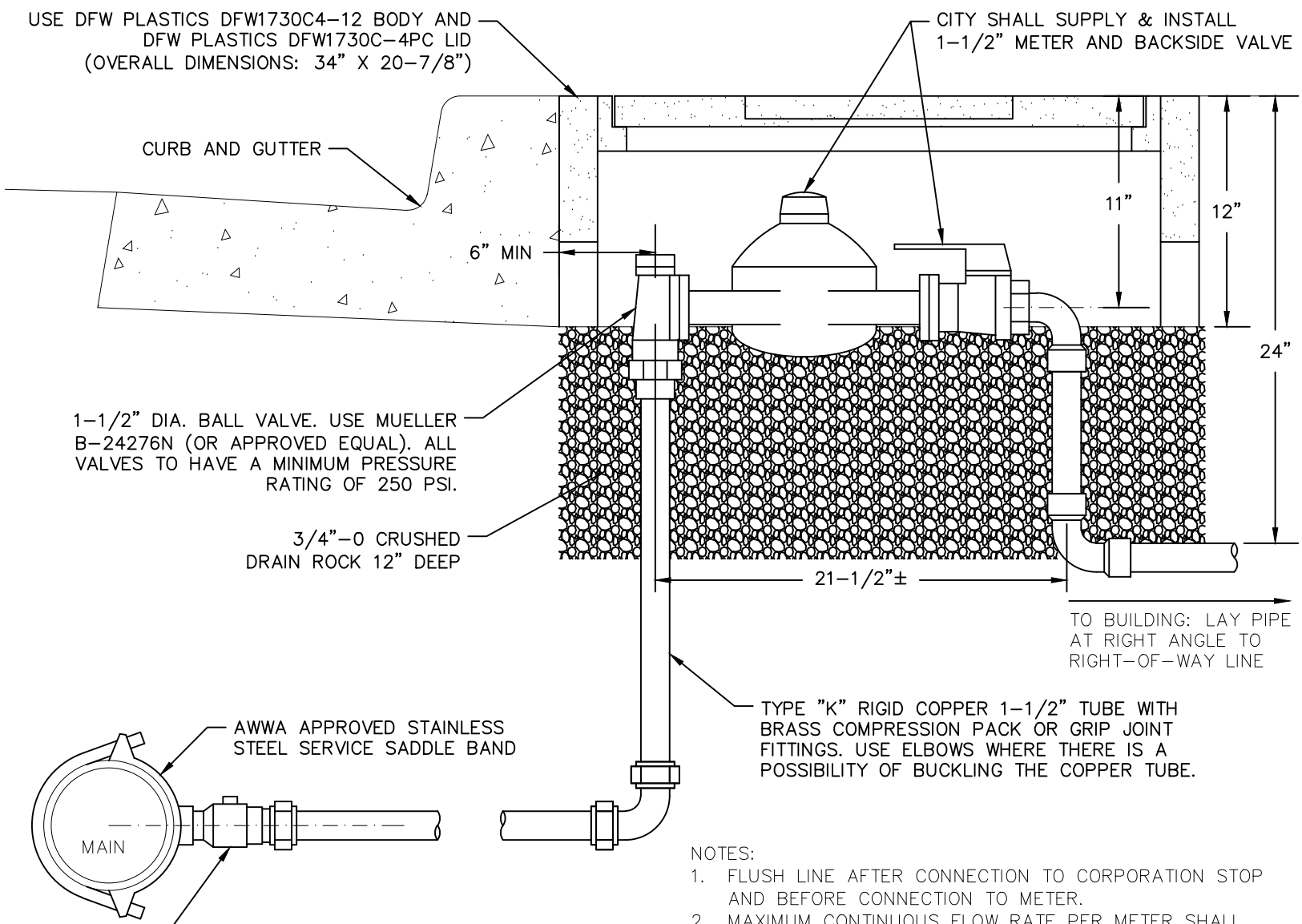
WATER SERVICE 1-1/2" METER

REVISED: 09/2020
VALID: 10/2020

SCALE: NOT TO SCALE

DRAWN: C. FERGESON
APPROVED: K. MCMILLAN

DWG NO. 632



NOTES:

1. FLUSH LINE AFTER CONNECTION TO CORPORATION STOP AND BEFORE CONNECTION TO METER.
2. MAXIMUM CONTINUOUS FLOW RATE PER METER SHALL NOT EXCEED 50 GPM.
3. APPROVED EQUAL VALVES & FITTINGS FROM FORD OR MUELLER TO MEET THE REQUIREMENTS OF AWWA C800 UNDERGROUND SERVICE LINE VALVES AND FITTINGS.

CITY OF TUALATIN, OR

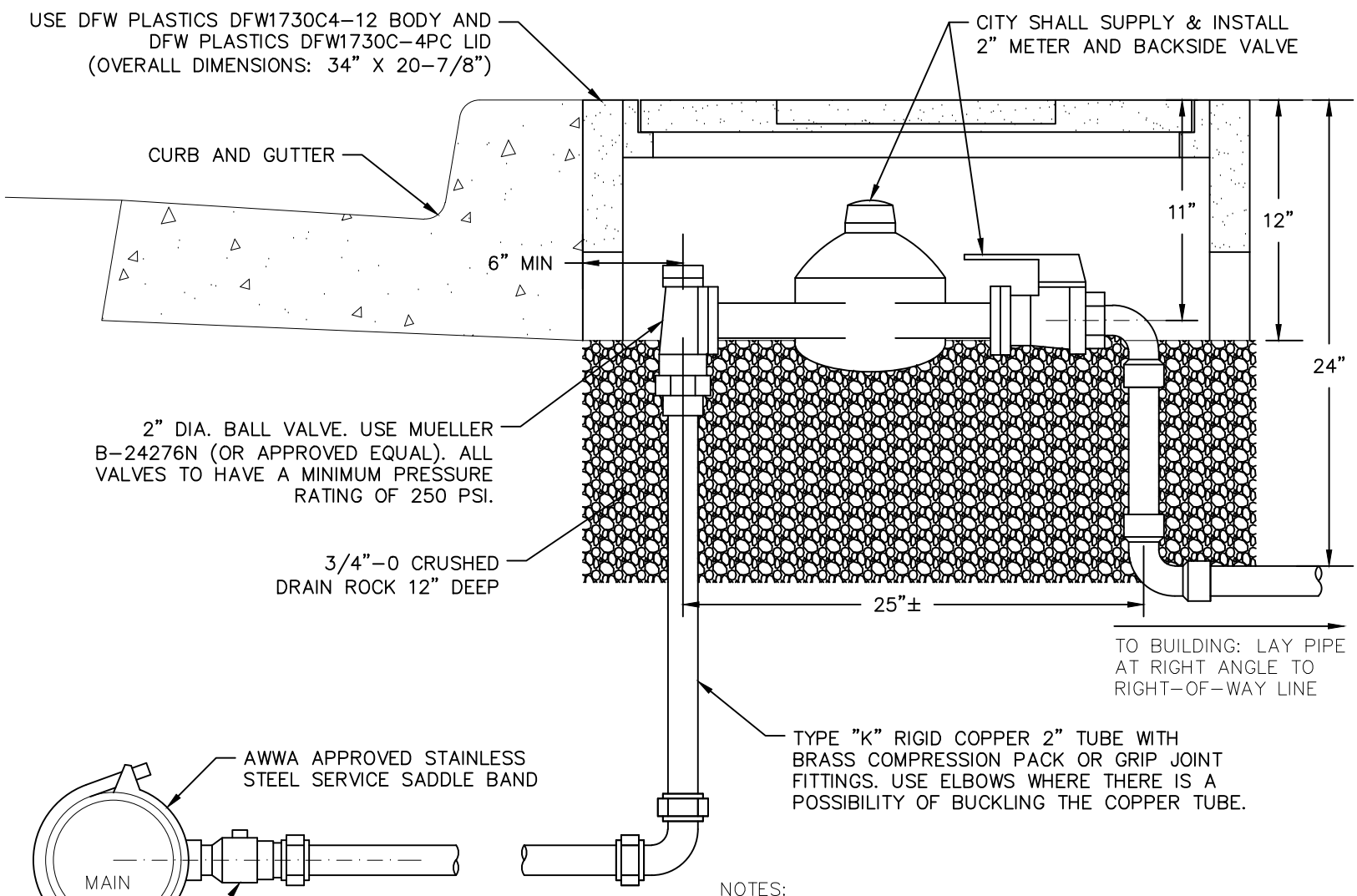
WATER SERVICE 2" METER

REVISED: 09/2020
VALID: 10/2020

SCALE: NOT TO SCALE

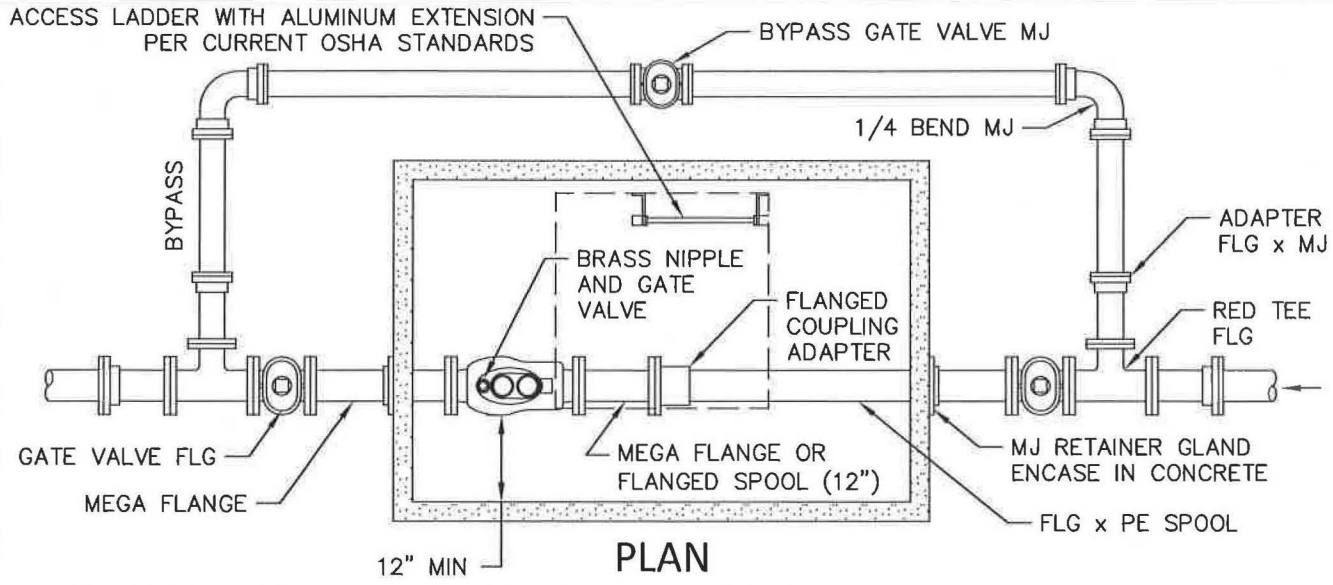
DRAWN: C. FERGESON
APPROVED: K. MCMILLAN

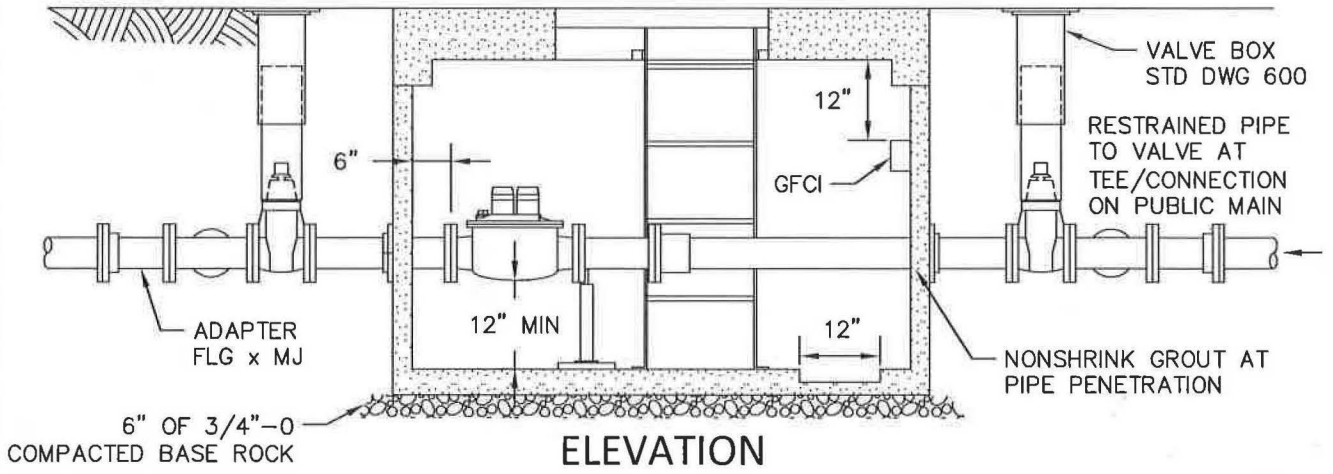
DWG NO. 633



NOTES:

1. FLUSH LINE AFTER CONNECTION TO CORPORATION STOP AND BEFORE CONNECTION TO METER.
2. MAXIMUM CONTINUOUS FLOW RATE PER METER SHALL NOT EXCEED 80 GPM.
3. APPROVED EQUAL VALVES & FITTINGS FROM FORD OR MUELLER TO MEET THE REQUIREMENTS OF AWWA C800 UNDERGROUND SERVICE LINE VALVES AND FITTINGS.





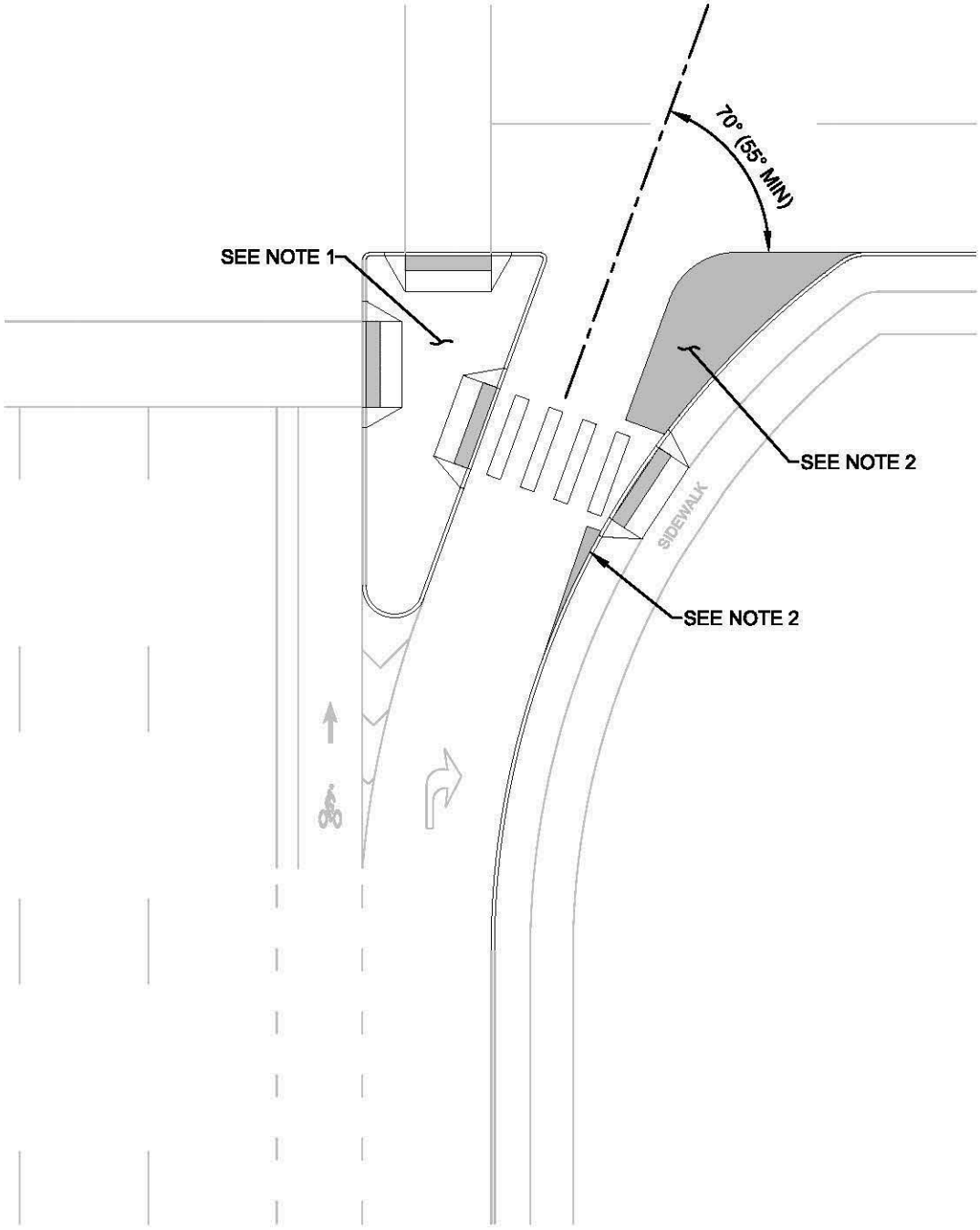
METER SIZE	OLD CASTLE	COVER	BY-PASS DIAMETER	MAX. CONTINUOUS FLOW RATE GPM	METER LENGTH
3"	577-LA	2-332P	3"	320	17"
4"	687-WA	2-332P	3"	500	20"
6"	687-WA	2-332P	4"	1000	24"
8"	5106-WA	3-332P	6"	1600	55-3/8"

NOTES:
1. USE DUCTILE IRON PIPE CL 52 THROUGH VAULT AND BYPASS
2. SENSUS OMNI METER COMPLYING WITH AWWA C702 READING IN 100 CUBIC FEET AND INCORPORATING A SENSUS OMNI ENCODER WITH EACH PIT RECEPTACLE FASTENED TO THE VAULT TOP WITH TWO S.S. ANCHOR BOLTS, LABEL S AND L. ELECTRICAL WIRING FED THROUGH HOLES DRILLED IN CONCRETE TOP AND NEATLY SPIRAL WRAP PROTECTED AND TIED. PROVIDE CERTIFIED TEST FOR METER AND ENCODER BEFORE ACCEPTANCE.
3. PROVIDE MANUFACTURED ADJUSTABLE GALVANIZED STEEL SUPPORT AT INLET END OF METER
4. USE APPROVED RETAINER GLANDS WITH MJ FITTINGS. USE NO THRUST BLOCKS OR RODS.
5. CHECK VAULT FLOTATION AND CORRECT IF NECESSARY
6. PROVIDE SUMP PUMP WITH DIAPHRAGM OR VERTICAL FLOAT SWITCH AND 2" PVC CHECK VALVE AND PIPE DISCHARGE TO DAYLIGHT. SUPPLY POWER THRU GFCI INTERNAL WALL MOUNT 12" BELOW CEILING.

CITY OF TUALATIN, OR

WATER SERVICE 3" AND LARGER METER COMPOUND TYPE

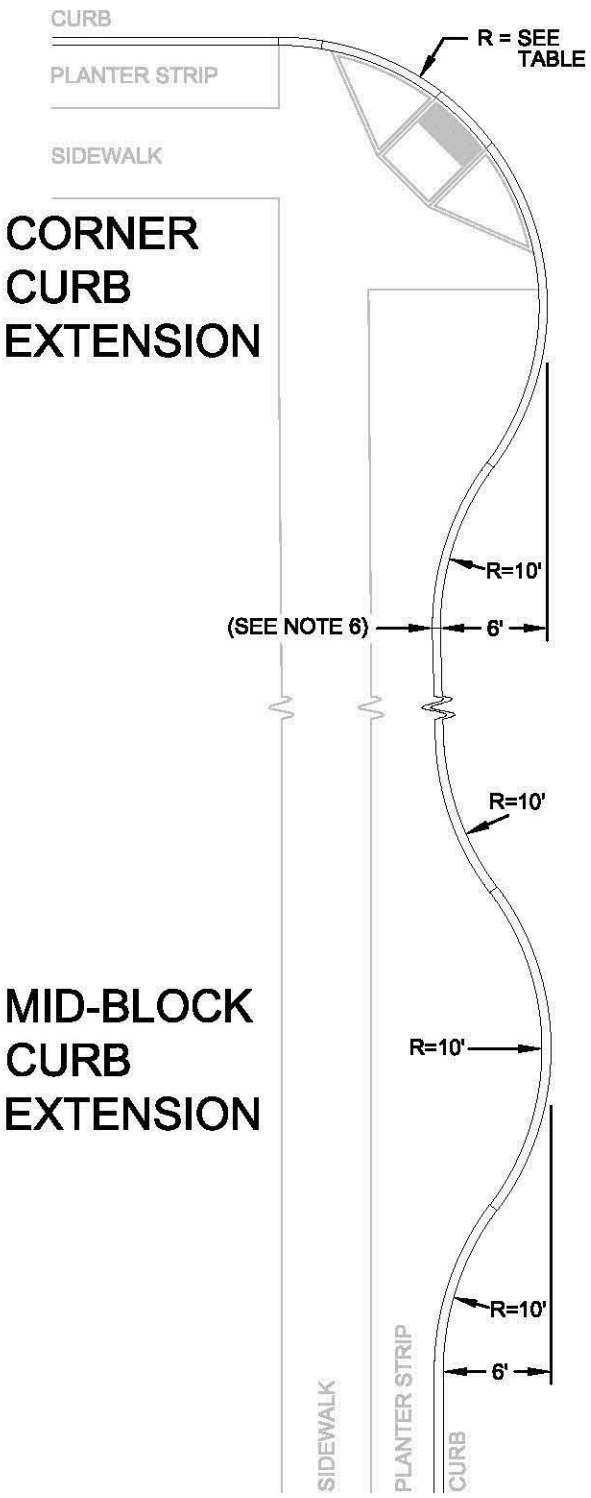
REVISED:	12/2018	SCALE: NOT TO SCALE	DRAWN: C. FERGESON	DWG NO.	634
VALID:	12/2018		APPROVED: K. MCMILLAN		



NOTES:

1. INTERSECTION SAFETY ISLAND, SEE STD DWG #456.
2. MOUNTABLE TRUCK APRON TO ACCOMMODATE DESIGN VEHICLE.

CITY OF TUALATIN, OR	CHANNELIZED RIGHT TURN LANE		
REVISED: 09/2020 VALID: 10/2020	SCALE: NOT TO SCALE	DRAWN: K. PAULSEN APPROVED: K. MCMILLAN	DWG NO. 900



INTERSECTING STREETS	CURB RADIUS
LOCAL STREETS	10'
CONNECTOR/COLLECTOR STREETS	20'
MINOR ARTERIALS	25'
MAJOR ARTERIALS	30'

NOTES:

1. SIZE CURB EXTENSIONS SO GUTTER PAN JOINT, IF PRESENT, IS OUTSIDE OF THE BIKE LANE.
2. BEGIN CURVATURE OF CURB BULB NO LESS THAN 10' BEYOND THE CROSSWALK.
3. IF CURB EXTENSION IS LANDSCAPED, USE LOW GROWING VEGETATION TO MAINTAIN ADEQUATE SIGHT DISTANCE.
4. PLACE 4" WHITE MONO-DIRECTIONAL TYPE I REFLECTORS ON TOP OF CURB, IN ADVANCE OF THE CURB RAMP. POSITION REFLECTORS AT 2' INCREMENTS OFFSET FROM THE CURB LINE PARALLEL TO THE PATH OF APPROACHING TRAFFIC.
5. DESIGN FOR DRAINAGE TO CATCH BASIN.
6. FOR PARKING USE 8' MINIMUM DEPTH (TYP).

CITY OF TUALATIN, OR

CURB EXTENSIONS AND CORNER RADII

REVISED:	09/2020	SCALE: NOT TO SCALE	DRAWN: K. PAULSEN	DWG NO.	901
VALID:	10/2020		APPROVED: K. MCMILLAN		