PART VI

City of Bend Standard Drawings

CITY OF BEND STANDARD DRAWINGS

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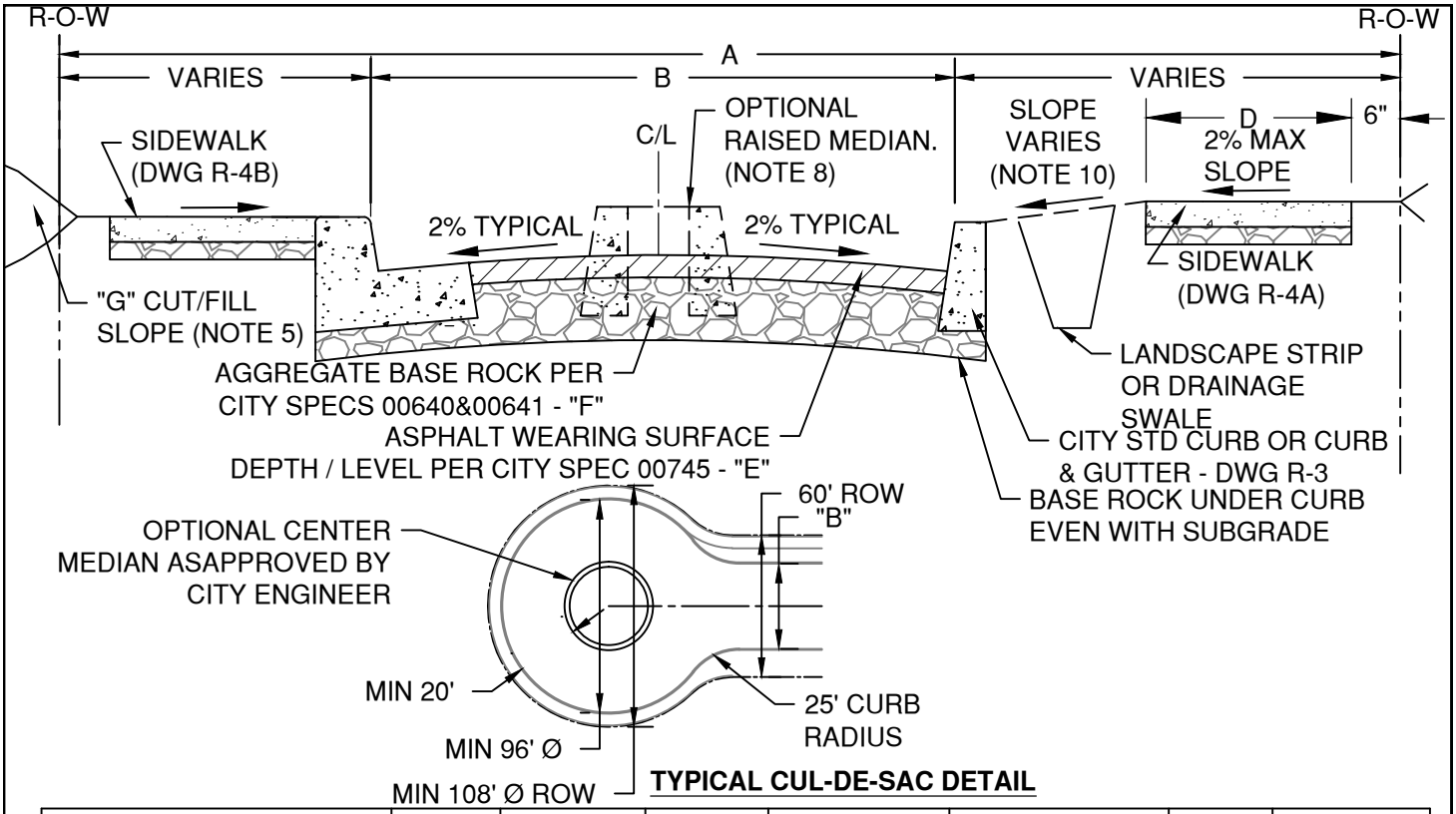
CITY OF BEND STANDARD DRAWINGS

Roadway (R)



TYPICAL CUL-DE-SAC DETAIL

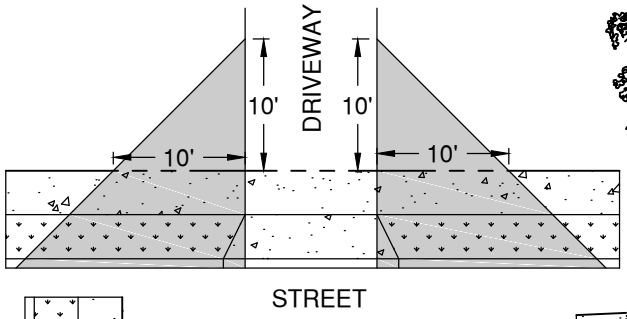
STREET TYPE	"A" ROW	"B" STREET	"C" CURB	"D" SIDEWALK	"E" AC DEPTH/LEVEL	"F" BASE	"G" CUT/FILL
ARTERIAL	100'	52'-76'	7"/16"	6'	8" - LEVEL IV	10"	4H:1V
COLLECTOR	80'	52'-60'	6"/14"	6'	6" - LEVEL III	8"	4H:1V
LOCAL	60'	24'-36'	6"/12"	5'/6'	4" - LEVEL III	6"	2H:1V
INDUSTRIAL LOCAL	60'	36'-44'	6"/12"	5'	4" - LEVEL III	8"	2H:1V
CUL-DE-SAC	Ø108'	Ø96'	6"/12"**	5'	4" - LEVEL III	6"	2H:1V
ALLEY	20'	20' (note 7)	--	--	4" - LEVEL III	6"	2H:1V

NOTES:

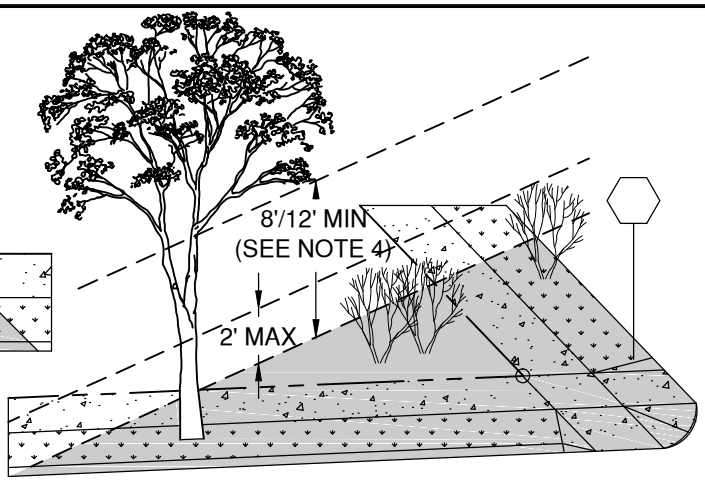
* STREET RESTORATION PER CITY STANDARDS 3.8

1. STREET WILL BE CENTERED IN THE RIGHT OF WAY UNLESS OTHERWISE APPROVED BY CITY ENGINEER.
2. SIDEWALKS SHALL BE INSTALLED PROPERTY TIGHT ON BOTH SIDES OF THE ROAD UNLESS OTHERWISE APPROVED.
3. SIDEWALK GRADE MUST MATCH STREET GRADES WHEN GREATER THAN 5.0%. SIDEWALKS SHALL COMPLY WITH PROWAG GUIDELINES.
4. RETAINING WALLS ARE NOT PERMITTED WITHIN THE ROW UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
5. MAX 1.5H:1V CUT SLOPES PERMITTED IN ROCK CUTS WHEN APPROVED BY A GEOTECHNICAL ENGINEER.
6. SUBGRADE FOR STREET AND SIDEWALK SHALL BE COMPACTED TO 95% RELATIVE MAXIMUM DENSITY PER CITY STD 00330
7. NEW ALLEY ROW AND PAVED WIDTH WILL BE 20' WIDE. WHERE ALLEYS ARE INSTALLED IN EXISTING ROW, THE PAVED WIDTH WILL EQUAL THE ROW WIDTH OR UP TO 2 FEET LESS THAN THE ROW WIDTH. 1-FOOT WIDE BUFFERS ON EACH SIDE OF THE ALLEY MAY BE LEFT UNPAVED WHEN ALLEYS ARE INSTALLED IN EXISTING ROW.
8. RAISED MEDIANS ARE AT THE CITY ENGINEER'S DISCRETION ON ARTERIALS & COLLECTORS.
9. IMPROVEMENT STANDARDS ARE BASED ON ZONE AND STREET CLASSIFICATION. REFERENCE THE BEND DEVELOPMENT CODE, SECTION 3.4 PUBLIC IMPROVEMENT STANDARDS FOR ADDITIONAL DETAIL.
10. THE CROSS SECTION OF THE PLANTER STRIP BETWEEN THE CURB AND RIGHT OF WAY SHALL NOT BE STEEPER THAN 4H:1V TO PROVIDE A RECOVERABLE ROADSIDE SLOPE. 2% TYPICAL / PREFERRED.
11. PAVEMENT SECTIONS SHOULD BE PROVIDED PER THE TABLE ON THIS STANDARD, OR AS SPECIFIED IN A STAMPED GEOTECHNICAL REPORT AS APPROVED BY THE CITY ENGINEER.

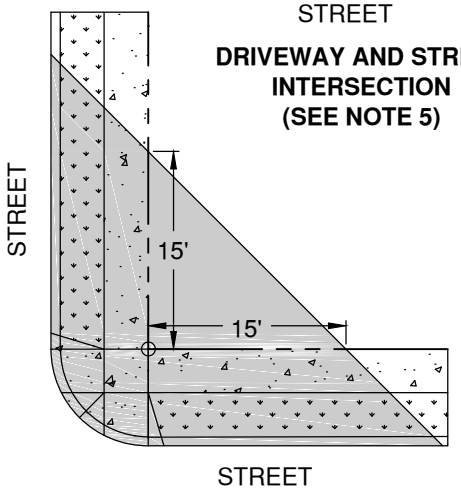
DRAWN CJH	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 3/31/19
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		TYPICAL STREET CROSS-SECTIONS	STD DWG R-1



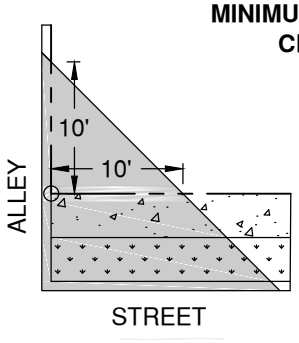
DRIVEWAY AND STREET INTERSECTION (SEE NOTE 5)



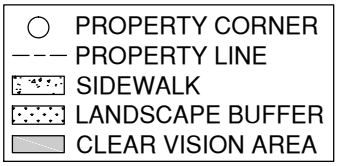
MAX HEIGHT OF SHRUBS AND MINIMUM LIMBING REQUIRED IN CLEAR VISION AREA



STREET/STREET INTERSECTION



STREET/ALLEY INTERSECTION



CLEAR VISION AREAS ARE ESTABLISHED AS FOLLOWS:

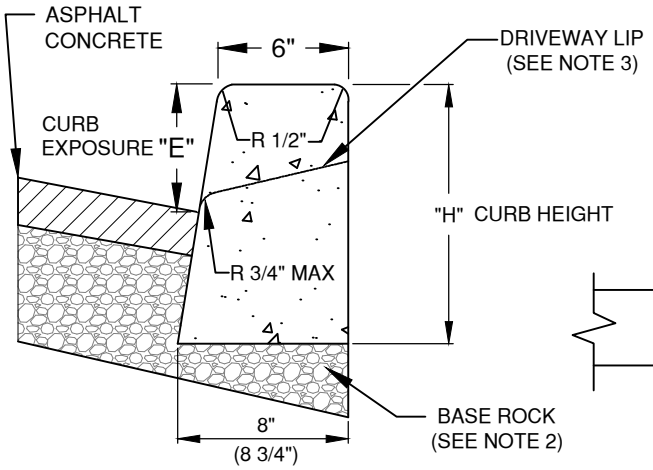
1) CLEAR VISION TRIANGLES SHALL BE ESTABLISHED AT THE CORNER OF ANY PROPERTY ADJACENT TO INTERSECTIONS OF PUBLIC OR PRIVATE STREETS, ALLEYS, MID-BLOCK LANES, AND/OR RAILROAD RIGHTS-OF-WAY.
2) THE TWO LEGS OF THE CLEAR VISION TRIANGLE ARE EACH MEASURED FROM THE POINT OF INTERSECTION OF THE TWO CORNER LOT LINES, SPECIAL SETBACK LINES, OR ACCESS EASEMENT LINES. WHERE LOT LINES HAVE ROUNDED CORNERS, THE LOT LINES ARE EXTENDED IN A STRAIGHT LINE TO A POINT OF INTERSECTION. THE CLEAR VISION AREA EXTENDS TO THE FACE OF CURB AT THE STREET OR ALLEY
3) THE LENGTH OF BOTH LEGS OF THE CLEAR VISION AREA TRIANGLE IS AS FOLLOWS:

TYPICAL, ALL ZONES:	15 FEET
RAILROADS:	15 FEET
ALLEY INTERSECTION:	10 FEET
DRIVEWAYS:	10 FEET

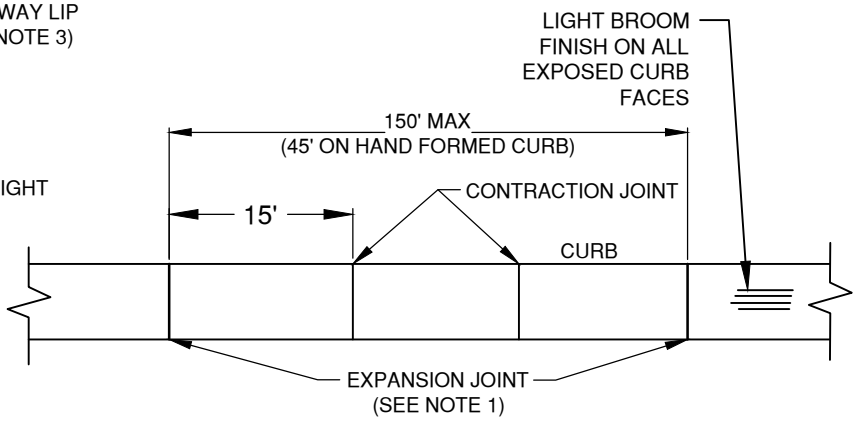
4) WITHIN THE CLEAR VISION AREA, OBSTRUCTIONS TO VISION OTHER THAN A STREET SIGN, POST, OR POLE LESS THAN 8 INCHES IN DIAMETER SHALL BE CLEARED FROM PROPERTY UNDER THE CONTROL OF THE CITY, HOMEOWNER, OR DEVELOPER. SHRUBS OR FOLIAGE MUST NOT EXCEED 2'-0" IN HEIGHT. PLANTING NEW TREES IS NOT PERMITTED WITHIN THE CLEAR VISION AREA. EXISTING TREES MUST BE PLANTED AND MAINTAINED/LIMBED TO A MINIMUM OF 8'-0" ABOVE THE TOP OF CURB OR 12'-0" ABOVE ADJACENT BIKE LANES.
5) DRIVEWAY APPROACHES AND DRIVEWAYS ARE NOT PERMITTED WITHIN THE CLEAR VISION AREA. ON-STREET PARKING IS NOT PERMITTED WITHIN 20 FEET OF AN ACCESSIBLE RAMP OR WITHIN 10 FEET OF A DRIVEWAY APPROACH.

NOTE: INTERSECTION SIGHT TRIANGLES ARE DISTINCT FROM, AND IN ADDITION TO, CLEAR VISION AREAS. INTERSECTION SIGHT TRIANGLE DIMENSIONS VARY WITH STREET WIDTH, GEOMETRY, TOPOGRAPHY, AND POSTED SPEED; ADDITIONAL CLEARING AS NECESSARY TO PROVIDE CLEAR INTERSECTION SIGHT DISTANCE IS ALSO REQUIRED; SEE CHAPTER 3.3 OF THE CITY OF BEND DESIGN STANDARDS.

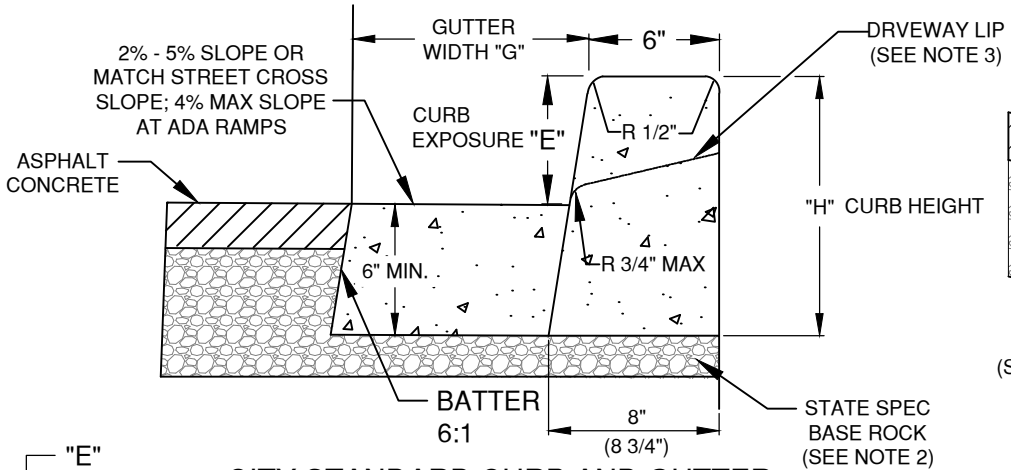
DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 12/1/17
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
2 / 12/1/17		CLEAR VISION AREAS AT INTERSECTIONS	STD DWG R-2



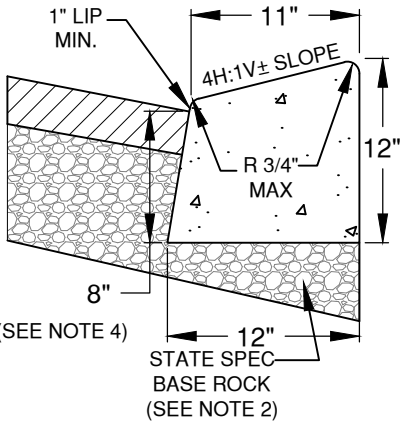
CITY STANDARD CURB



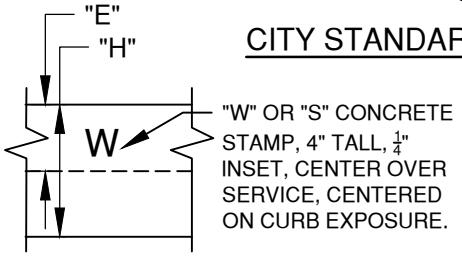
CURB EXPANSION & CONTRACTION JOINTS



CITY STANDARD CURB AND GUTTER



CITY MOUNTABLE CURB



CURB SERVICE STAMP

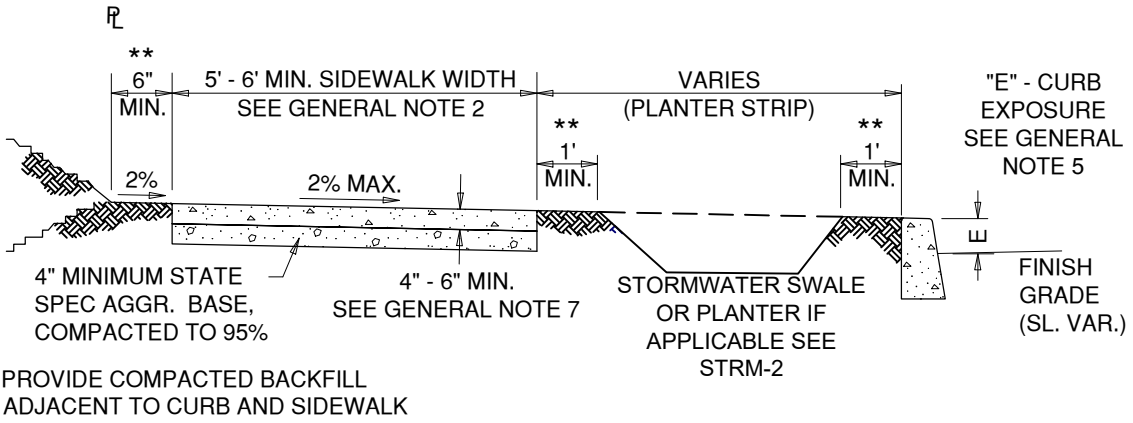
ROAD CLASS	CURB HEIGHT - H (INCHES)	CURB EXPOSURE - E (INCHES)	GUTTER WIDTH - G (INCHES)
ARTERIAL	16	7	12
COLLECTOR	14	6	18
LOCAL	12	6	18

NOTES:

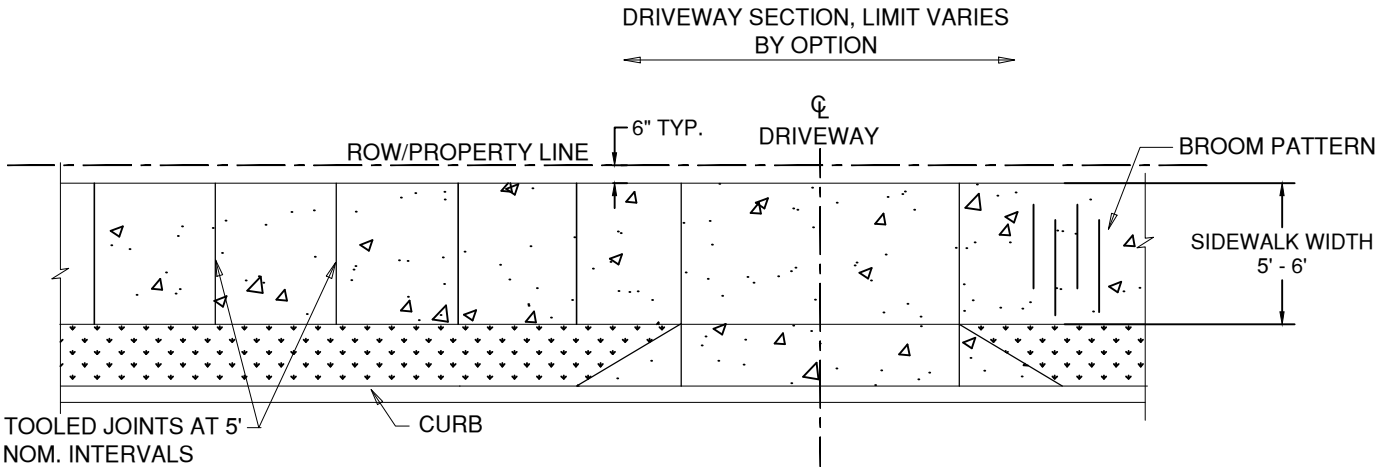
CONCRETE SHALL BE PER SPECIFICATION SECTION 00440 AND CONTAIN NO ADDITIVES TO CAUSE RAPID SETTING, 4% - 7% AIR ENTRAINMENT REQUIRED.

1. EXPANSION JOINTS REQUIRED AT END OF RADII, DRIVEWAY APRONS, POINTS OF CURVATURE, AND NO GREATER THAN 150' MAXIMUM.
2. STATE SPEC BASE ROCK UNDER CURB AS REQUIRED TO MATCH BOTTOM OF STREET SECTION OR A MINIMUM OF 4" THICK, WHICHEVER IS GREATER. COMPACT PER SPECIFICATION SECTION 00641.44
3. SLOPE DRIVEWAY TOWARD STREET. 3/4" MAXIMUM LIP AT GUTTER, 1" ON COLLECTORS AND ARTERIALS.
4. MOUNTABLE CURB PERMITTED ON LOCAL STREET CUL-DE-SACS, ALLEYS, AND WHERE PERMITTED BY THE CITY ENGINEER. WHERE SIDEWALK ABUTS CURB, SIDEWALK SHALL BE MIN. 6" THICK (DRIVEWAY APRON STANDARDS)
5. CURB AND GUTTER IS REQUIRED WHEN GUTTER SLOPE IS BETWEEN 0.5% - 0.75%.

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 3/31/19
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		CONCRETE CURB	STD DWG R-3



TYPICAL CROSS SECTION



TYPICAL PLAN VIEW

GENERAL NOTES FOR ALL DETAILS:

1. SIDEWALKS SET BACK ADJACENT TO PROPERTY LINE ARE STANDARD. USE CURB-TIGHT SIDEWALKS ONLY WHERE PERMITTED. SIDEWALK SHALL BE PROPERTY-TIGHT EXCEPT TO MEANDER AROUND TREES OR BARRIES (UTILITIES, SIGNS, ETC.) OR WHERE THE BEND DEVELOPMENT CODE ALLOWS HILLSIDE STANDARDS.

2. CURB TYPE AND SIDEWALK WIDTH AS SHOWN ON PLANS OR AS DIRECTED. MAY VARY DEPENDING ON ZONING. SIDEWALK WIDTH: 6' - ARTERIALS & COLLECTORS; 5'/6' - LOCAL STREETS.

3. CONST. EXPANSION JOINTS AT 25' MAXIMUM SPACING, AND AT POINTS OF TANGENCY, AND ON EACH SIDE OF DRIVEWAY APRONS. EXPANSION JOINTS MUST BE FULL DEPTH OF PAVING SECTION.

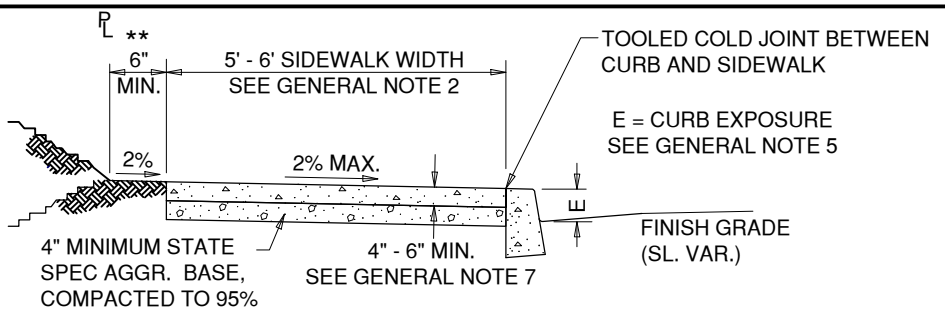
4. CONST. CONTRACTION JOINTS AT 5' MAXIMUM SPACING, AND AT ENDS OF EACH RAMP.

5. "E" = CURB EXPOSURE. FOR CURB DETAILS, SEE STD. DRG. R-3.

6. FOR DRIVEWAY DETAILS, SEE STD. DRGS. R-5A THROUGH R-5E.

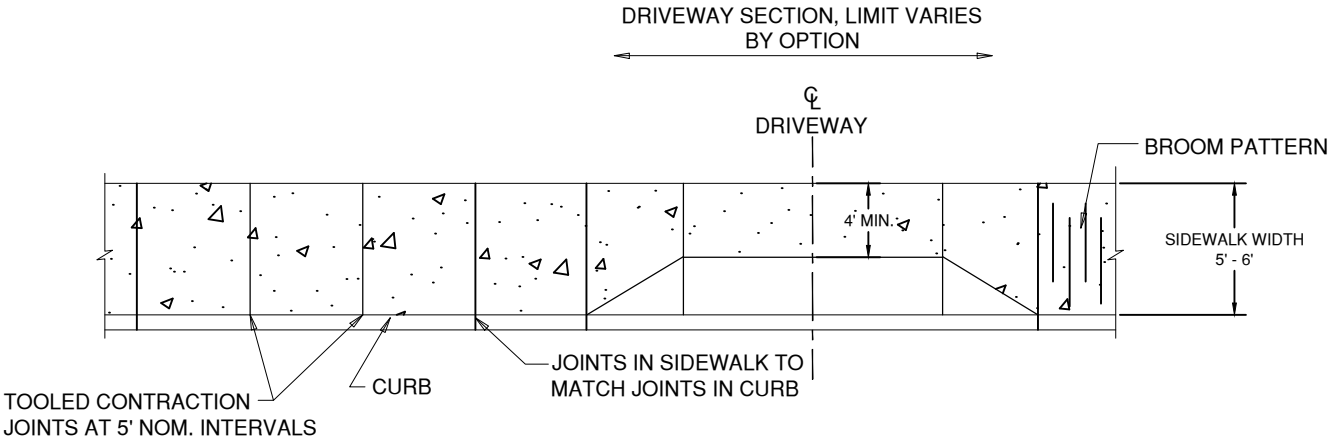
7. SIDEWALK THICKNESS AS SPECIFIED BY PLANS OR AS DIRECTED. MINIMUM 4" THICK OR THICKER, TYPICAL. MINIMUM 6" THICK IF SIDEWALK IS INTENDED AS PORTION OF DRIVEWAY OR IF MOUNTABLE CURB IS USED.

DRAWN LJC		CITY OF BEND		SCALE NTS
DIV ROADWAY		STANDARD DRAWING		DATE 12/1/17
REV	DATE	710 NW WALL ST., BEND, OREGON 97701		APPR
2	12/1/17	CITY OF BEND	SIDEWALK, SETBACK	STD DWG R-4A

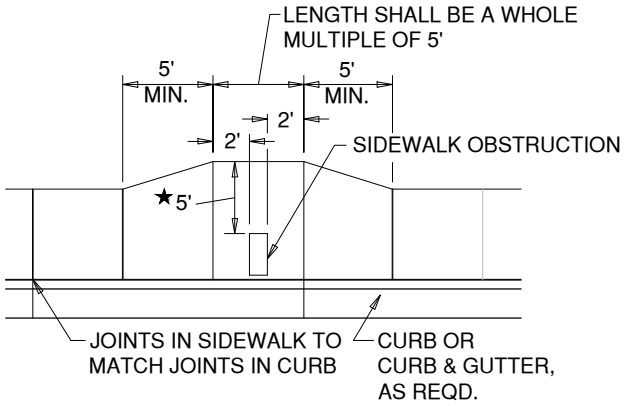


** PROVIDE COMPACTED BACKFILL ADJACENT TO CURB AND SIDEWALK

TYPICAL CROSS SECTION



TYPICAL PLAN VIEW



★ WHEN SITE CONSTRAINTS PROHIBIT A 5' PASSAGE, THE ENGINEER MAY DIRECT THIS TO BE REDUCED, BUT NO LESS THAN 4'.

REQUIRED SIDEWALK WIDENING AROUND OBSTRUCTIONS

GENERAL NOTES FOR ALL DETAILS:

1. SIDEWALKS SET BACK ADJACENT TO PROPERTY LINE ARE STANDARD. USE CURB-TIGHT SIDEWALKS ONLY WHERE PERMITTED.
2. CURB TYPE AND SIDEWALK WIDTH AS SHOWN ON PLANS OR AS DIRECTED. MAY VARY DEPENDING ON ZONING.
   SIDEWALK WIDTH: 6' - ARTERIALS & COLLECTORS; 5'/6' - LOCAL STREETS
3. CONST. EXPANSION JOINTS AT 25' MAXIMUM SPACING, AND AT POINTS OF TANGENCY, AND ON EACH SIDE OF DRIVEWAY APRONS. EXPANSION JOINTS MUST BE FULL DEPTH OF PAVING SECTION.
4. CONST. CONTRACTION JOINTS AT 5' MAXIMUM SPACING, AND AT ENDS OF EACH RAMP.
5. "E" = CURB EXPOSURE. FOR CURB DETAILS, SEE STD. DRG. R-3.
6. FOR DRIVEWAY DETAILS, SEE STD. DRGS. R-5A THROUGH R-5E.
7. SIDEWALK THICKNESS AS SPECIFIED BY PLANS OR AS DIRECTED. MINIMUM 4" THICK, TYPICAL. MINIMUM 6" THICK IF SIDEWALK IS INTENDED AS PORTION OF DRIVEWAY OR IF MOUNTABLE CURB IS USED.

DRAWN	LJC
DIV	ROADWAY
REV	DATE
2	12/1/17

CITY OF BEND

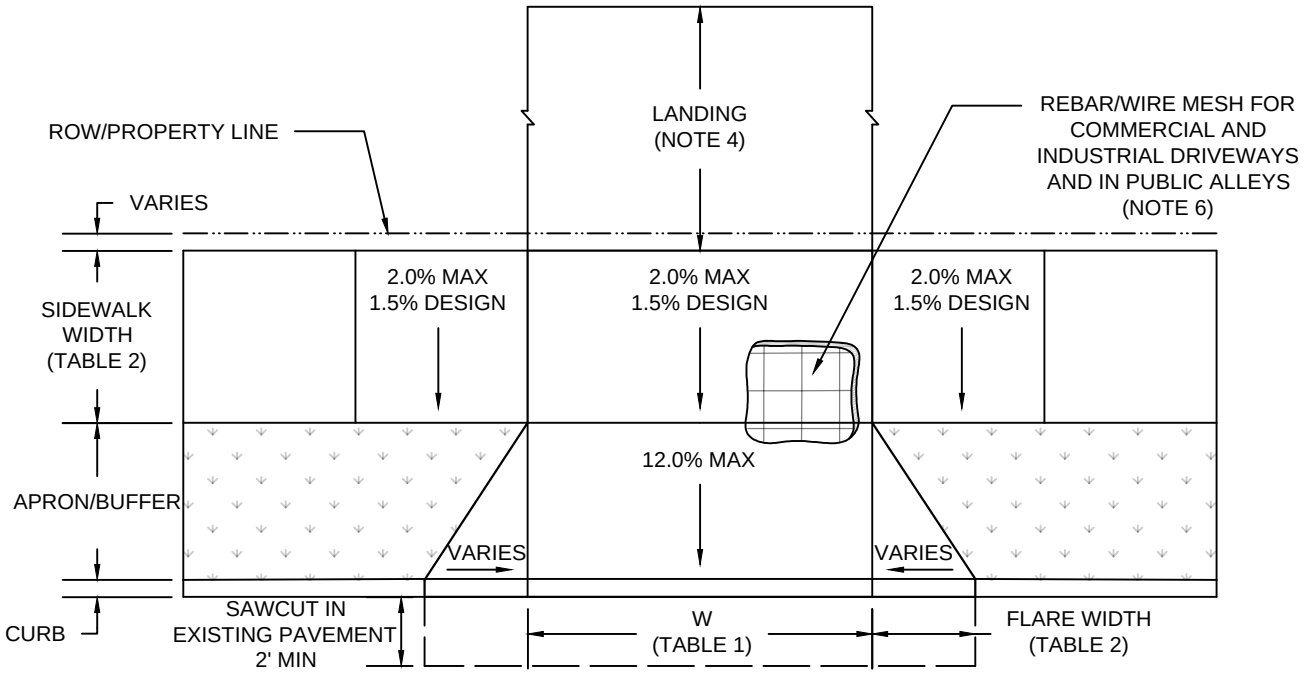
CITY OF BEND

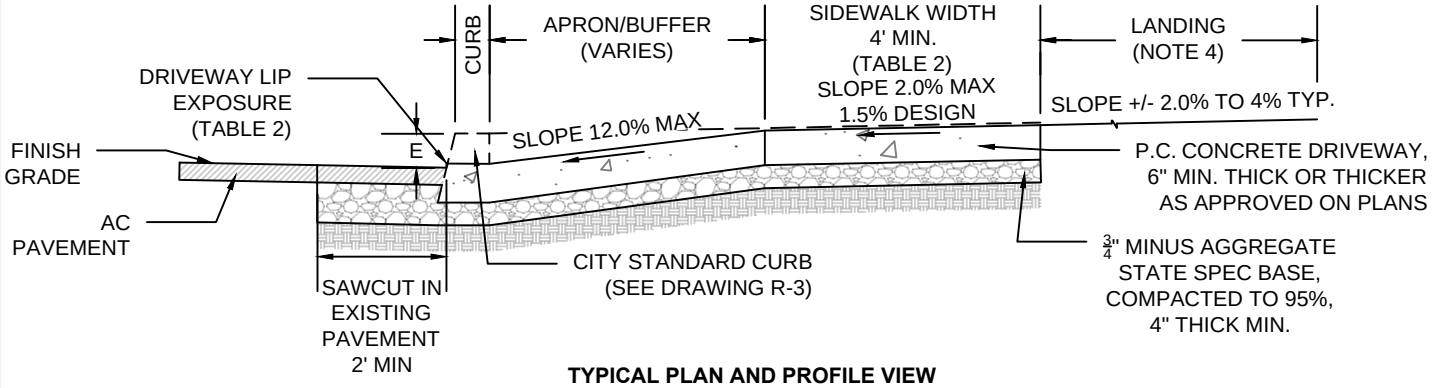
STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

SIDEWALK, CURB-TIGHT

SCALE	NTS
DATE	12/1/17
APPR	
STD DWG	R-4B





TYPICAL PLAN AND PROFILE VIEW
DRIVEWAY APPROACH, SETBACK SIDEWALK (STANDARD)

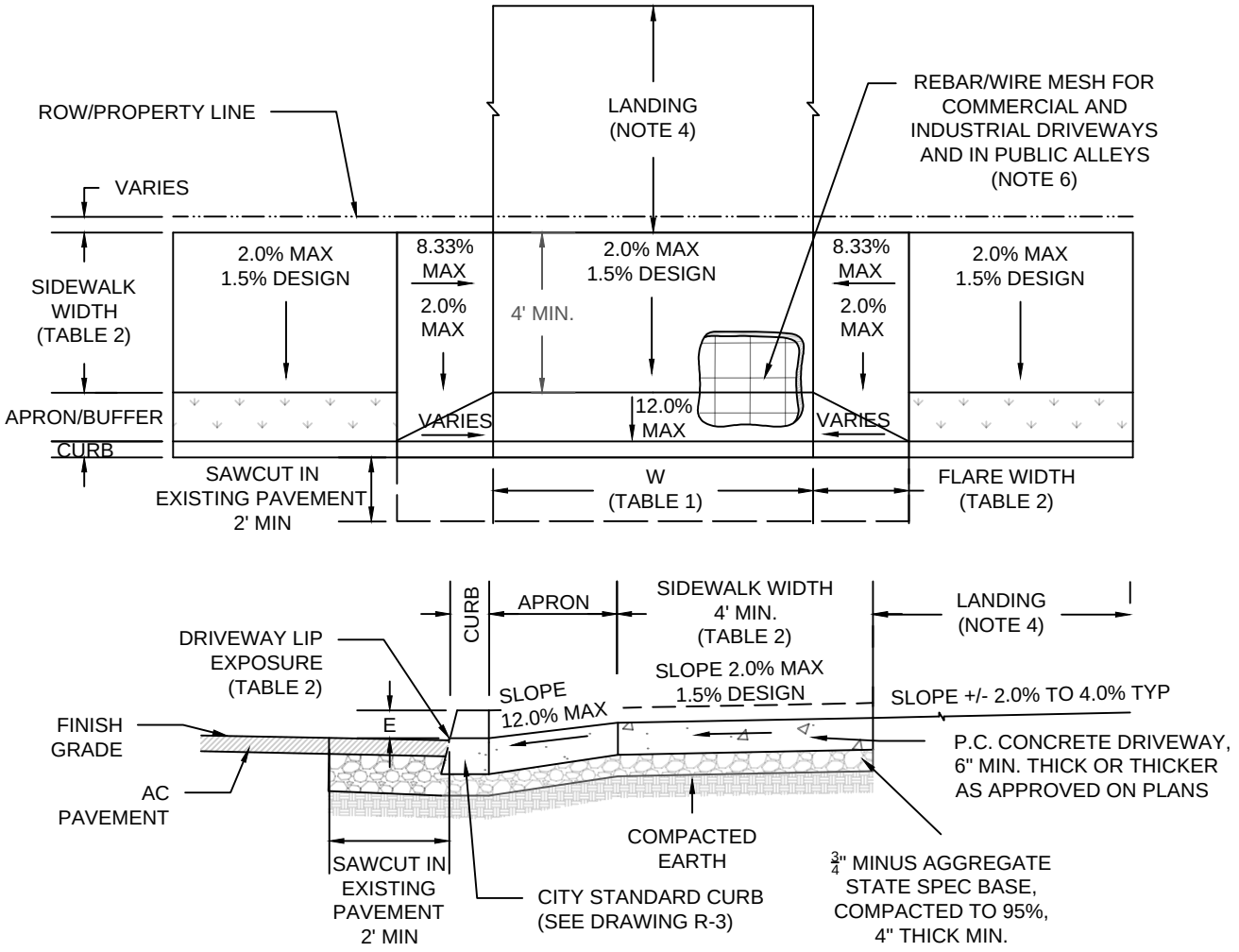
TABLE 1 - APPROACH WIDTH (W)	
TYPE	WIDTH
RESIDENTIAL	10' - 24'
MULTIFAMILY	20' - 30'
COMMERCIAL	10' - 35'

TABLE 2 - DRIVEWAY APPROACH WITH SETBACK SIDEWALK SPECIFICATIONS					
TYPE OF STREET	SIDEWALK WIDTH	CURB EXPOSURE "E"	LIP EXPOSURE (MINIMUM)	APRON GRADE, POSITIVE GRADE TO ROW	FLARE WIDTH
LOCAL	5' - 6'	6"	¾"	12.0% MAX	3'
COLLECTOR	6'	7"	1"	12.0% MAX	6'
ARTERIAL	6'	7"	1"	12.0% MAX	6'

GENERAL NOTES:

1. SIDEWALKS SHALL MEET ALL STANDARDS OF CURRENT PUBLIC RIGHTS OF WAY ACCESSIBILITY GUIDELINES (PROWAG).
2. CURB AND SIDEWALK TYPES VARY, SEE PLANS. SEE STD. DRG. R-3 FOR CURB DETAILS. SEE STD. DRGS. R-4A & R-4B FOR SIDEWALK DETAILS.
3. TOOLED JOINTS ARE REQUIRED AT ALL DRIVEWAY SLOPE BREAK LINES.
4. THE LANDING SHALL BE PAVED WITH CONCRETE, ASPHALT, OR OTHER APPROVED SURFACE FOR A MINIMUM OF 20 FEET. PAVING BEYOND THE LANDING SHALL BE IN ACCORDANCE WITH THE BEND DEVELOPMENT CODE. CONSTRUCT AS DIRECTED OR AS SHOWN ON PLANS. DO NOT ENTER PRIVATE PROPERTY WITHOUT APPROPRIATE PERMIT OR EASEMENT. MATERIAL WITHIN THE ROW SHALL BE CONCRETE.
5. CHECK THE GUTTER FLOW DEPTH AT DRIVEWAY LOCATIONS TO ASSURE THAT THE DESIGN FLOOD DOES NOT OVERTOP THE BACK OF SIDEWALK AT DRIVEWAY. IF OVERTOPPING OCCURS PLACE AN INLET AT UPSTREAM SIDE OF DRIVEWAY OR PERFORM OTHER APPROVED DESIGN MITIGATION.
6. #4 REBAR (2'0" ON CENTER, TO BE SUSPENDED TO CENTER OF CONCRETE DEPTH) REQUIRED IN COMMERCIAL AND INDUSTRIAL DRIVEWAYS AND IN PUBLIC ALLEYS. 6"X6" 10 GAUGE MINIMUM WELDED WIRE MAY BE USED IN LIEU OF REBAR.
7. A PUBLIC ACCESS EASEMENT MAY BE REQUIRED IF A PORTION OF THE DRIVEWAY APPROACH ENCROACHES ONTO PRIVATE PROPERTY.
8. CONCRETE DRIVEWAY APRON REQUIRED WHERE SIDEWALK AND/OR CURB IS EXISTING/PROPOSED, OTHERWISE AN ASPHALT APPROACH CAN BE INSTALLED TO EDGE OF PAVEMENT TO SIMILAR WIDTHS OF THE DRIVEWAY APRON AS APPROVED BY THE CITY ENGINEER.

DRAWN LJC	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV ROADWAY			DATE 12/1/17
REV / DATE 2 / 12/1/17			APPR
	CITY OF BEND	DRIVEWAY APPROACH, SETBACK (STANDARD)	STD DWG R-5A



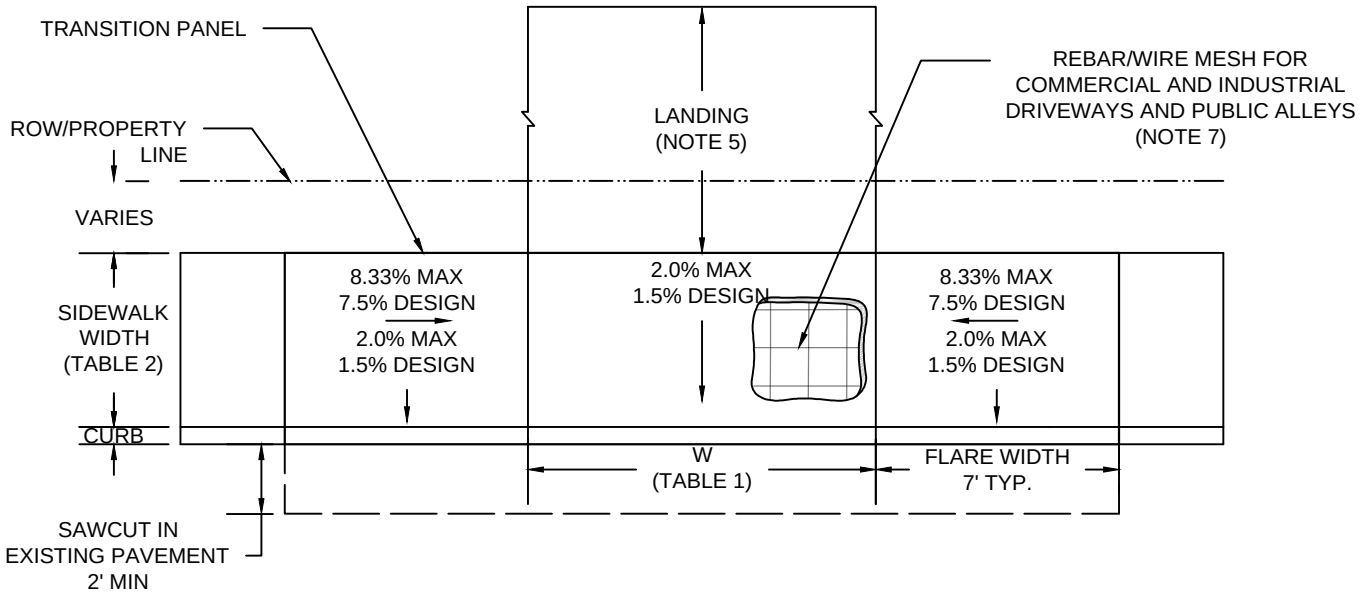
TYPICAL PLAN AND PROFILE VIEW
DRIVEWAY APPROACH, SETBACK, PARTIALLY LOWERED
(ALTERNATE B)

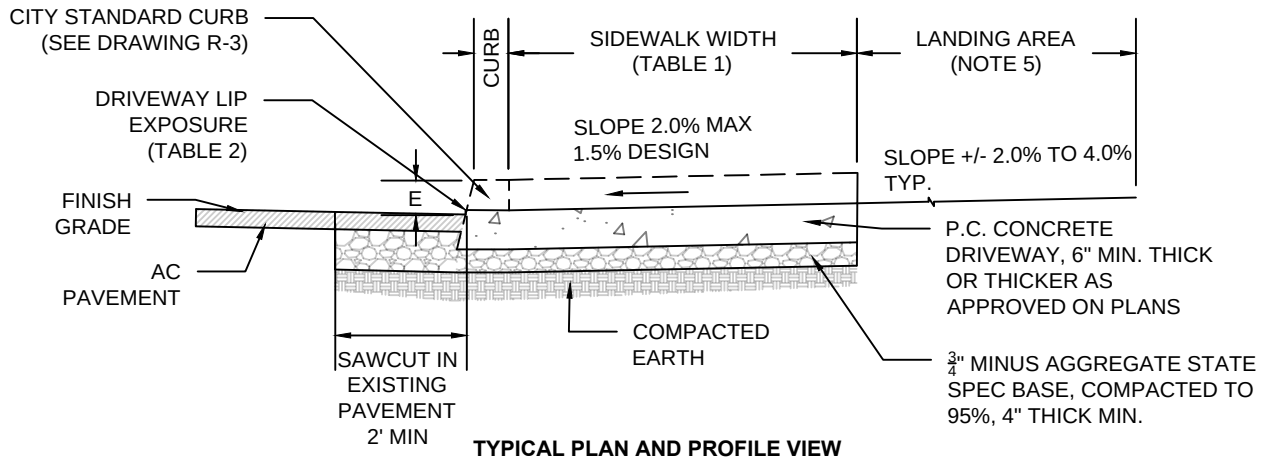
TABLE 1 - APPROACH WIDTH (W)	
TYPE	WIDTH
RESIDENTIAL	10' - 24'
MULTIFAMILY	20' - 30'
COMMERCIAL	10' - 35'

TABLE 2 - DRIVEWAY APPROACH WITH SETBACK, PARTIALLY LOWERED SIDEWALK SPECIFICATIONS					
TYPE OF STREET	SIDEWALK WIDTH	CURB EXPOSURE "E"	LIP EXPOSURE (MINIMUM)	APRON GRADE, POSITIVE GRADE TO ROW	FLARE WIDTH
LOCAL	5' - 6'	6"	¾"	12.0% MAX	3'
COLLECTOR	6'	7"	1"	12.0% MAX	6'
ARTERIAL	6'	7"	1"	12.0% MAX	6'

GENERAL NOTES:
1. SIDEWALKS SHALL MEET ALL STANDARDS OF CURRENT PUBLIC RIGHTS OF WAY ACCESSIBILITY GUIDELINES (PROWAG).
2. CURB AND SIDEWALK TYPES VARY, SEE PLANS. SEE STD. DRG. R-3 FOR CURB DETAILS. SEE STD. DRGS. R-4A & R-4B FOR SIDEWALK DETAILS.
3. TOOLED JOINTS ARE REQUIRED AT ALL DRIVEWAY SLOPE BREAK LINES.
4. THE LANDING SHALL BE PAVED WITH CONCRETE, ASPHALT, OR OTHER APPROVED SURFACE FOR A MINIMUM OF 20 FEET. PAVING BEYOND THE LANDING SHALL BE IN ACCORDANCE WITH THE BEND DEVELOPMENT CODE. CONSTRUCT AS DIRECTED OR AS SHOWN ON PLANS. DO NOT ENTER PRIVATE PROPERTY WITHOUT APPROPRIATE PERMIT OR EASEMENT. MATERIAL WITHIN THE ROW SHALL BE CONCRETE.
5. CHECK THE GUTTER FLOW DEPTH AT DRIVEWAY LOCATIONS TO ASSURE THAT THE DESIGN FLOOD DOES NOT OVERTOP THE BACK OF SIDEWALK AT DRIVEWAY. IF OVERTOPPING OCCURS PLACE AN INLET AT UPSTREAM SIDE OF DRIVEWAY OR PERFORM OTHER APPROVED DESIGN MITIGATION.
6. #4 REBAR (2'0" ON CENTER, TO BE SUSPENDED TO CENTER OF CONCRETE DEPTH) REQUIRED IN COMMERCIAL AND INDUSTRIAL DRIVEWAYS AND IN PUBLIC ALLEYS. 6"X6" 10 GUAGE MINIMUM WELDED WIRE MAY BE USED IN LIEU OF REBAR.
7. A PUBLIC ACCESS EASEMENT MAY BE REQUIRED IF A PORTION OF THE DRIVEWAY APPROACH ENCROACHES ONTO PRIVATE PROPERTY.
8. CONCRETE DRIVEWAY APRON REQUIRED WHERE SIDEWALK AND/OR CURB IS EXISTING/PROPOSED, OTHERWISE AN ASPHALT APPROACH CAN BE INSTALLED TO EDGE OF PAVEMENT TO SIMILAR WIDTHS OF THE DRIVEWAY APRON AS APPROVED BY THE CITY ENGINEER.

DRAWN LJC	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV ROADWAY			DATE 12/1/17
REV / DATE 2 / 12/1/17			APPR
	CITY OF BEND	DRIVEWAY APPROACH, SETBACK, PARTIALLY LOWERED (ALTERNATE B)	STD DWG R-5B





TYPICAL PLAN AND PROFILE VIEW
DRIVEWAY APPROACH, CURB-TIGHT, FULLY LOWERED (ALTERNATE C)

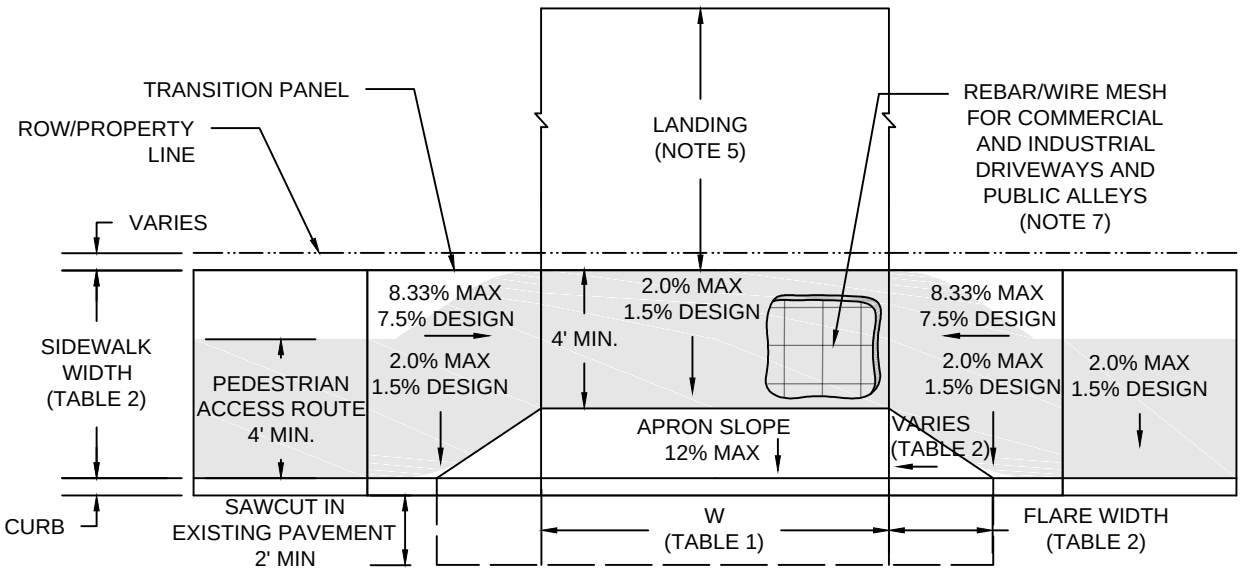
TABLE 1 - APPROACH WIDTH (W)	
TYPE	WIDTH
RESIDENTIAL	10' - 24'
MULTIFAMILY	20' - 30'
COMMERCIAL	10' - 35'

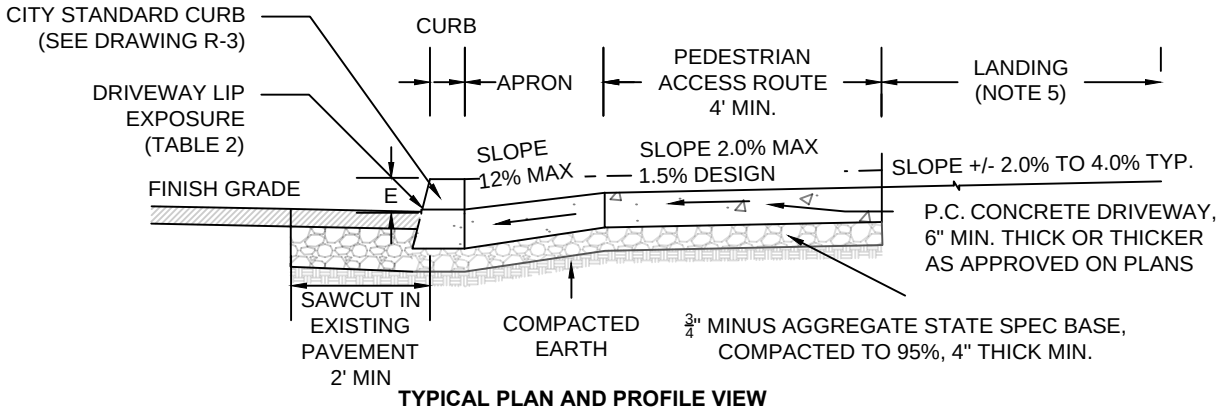
TABLE 2 - DRIVEWAY APPROACH WITH CURB-TIGHT, FULLY LOWERED SIDEWALK SPECIFICATIONS

TYPE OF STREET	SIDEWALK WIDTH	CURB EXPOSURE "E"	LIP EXPOSURE (MINIMUM)	APRON GRADE, POSITIVE GRADE TO ROW	FLARE WIDTH
LOCAL	5' - 6'	6"	¾"	2.0% MAX	7'
COLLECTOR	6'	7"	1"	2.0% MAX	7'
ARTERIAL	6'	7"	1"	2.0% MAX	7'

GENERAL NOTES:
1. SIDEWALKS SHALL MEET ALL STANDARDS OF CURRENT PUBLIC RIGHTS OF WAY ACCESSIBILITY GUIDELINES (PROWAG).
2. SETBACK SIDEWALK DRIVEWAY IS STANDARD. USE FULLY LOWERED CURB-TIGHT SIDEWALK DRIVEWAY AS DIRECTED OR SHOWN ON PLANS.
3. CURB AND SIDEWALK TYPES VARY, SEE PLANS. SEE STD. DRG. R-3 FOR CURB DETAILS. SEE STD. DRGS. R-4A & R-4B FOR SIDEWALK DETAILS.
4. TOOLED JOINTS ARE REQUIRED AT ALL DRIVEWAY SLOPE BREAK LINES.
5. THE LANDING SHALL BE PAVED WITH CONCRETE, ASPHALT, OR OTHER APPROVED SURFACE FOR A MINIMUM OF 20 FEET. PAVING BEYOND THE LANDING SHALL BE IN ACCORDANCE WITH THE BEND DEVELOPMENT CODE. CONSTRUCT AS DIRECTED OR AS SHOWN ON PLANS. DO NOT ENTER PRIVATE PROPERTY WITHOUT APPROPRIATE PERMIT OR EASEMENT. MATERIAL WITHIN THE ROW SHALL BE CONCRETE.
6. CHECK THE GUTTER FLOW DEPTH AT DRIVEWAY LOCATIONS TO ASSURE THAT THE DESIGN FLOOD DOES NOT OVERTOP THE BACK OF SIDEWALK AT DRIVEWAY. IF OVERTOPPING OCCURS PLACE AN INLET AT UPSTREAM SIDE OF DRIVEWAY OR PERFORM OTHER APPROVED DESIGN MITIGATION.
7. #4 REBAR (2'0" ON CENTER, TO BE SUSPENDED TO CENTER OF CONCRETE DEPTH) REQUIRED IN COMMERCIAL AND INDUSTRIAL DRIVEWAYS AND PUBLIC ALLEYS. 6"X6" 10 GAUGE MINIMUM WELDED WIRE MAY BE USED IN LIEU OF REBAR.
8. A PUBLIC ACCESS EASEMENT MAY BE REQUIRED IF A PORTION OF THE DRIVEWAY APPROACH ENCROACHES ONTO PRIVATE PROPERTY.
9. CONCRETE DRIVEWAY APRON REQUIRED WHERE SIDEWALK AND/OR CURB IS EXISTING/PROPOSED, OTHERWISE AN ASPHALT APPROACH CAN BE INSTALLED TO EDGE OF PAVEMENT TO SIMILAR WIDTHS OF THE DRIVEWAY APRON AS APPROVED BY THE CITY ENGINEER.

DRAWN LJC	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV ROADWAY			DATE 12/1/17
REV / DATE 2 / 12/1/17			APPR
	CITY OF BEND	DRIVEWAY APPROACH, CURB-TIGHT, FULLY LOWERED (ALTERNATE C)	STD DWG R-5C





TYPICAL PLAN AND PROFILE VIEW
DRIVEWAY APPROACH, CURB-TIGHT, PARTIALLY LOWERED (ALTERNATE D)

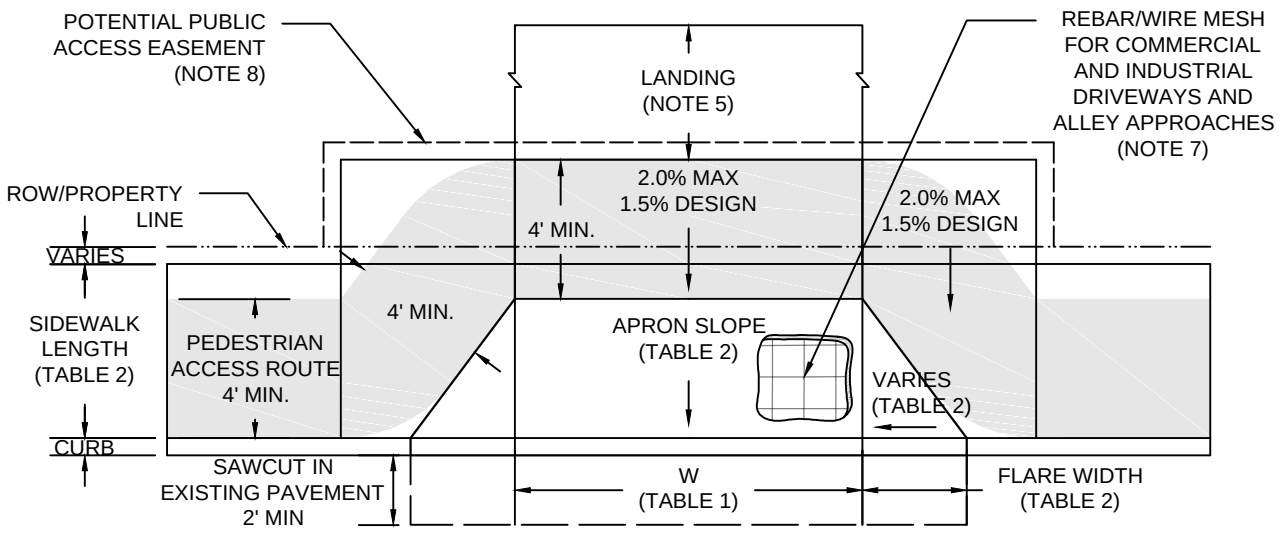
TABLE 1 - APPROACH WIDTH (W)	
TYPE	WIDTH
RESIDENTIAL	10' - 24'
MULTIFAMILY	20' - 30'
COMMERCIAL	10' - 35'

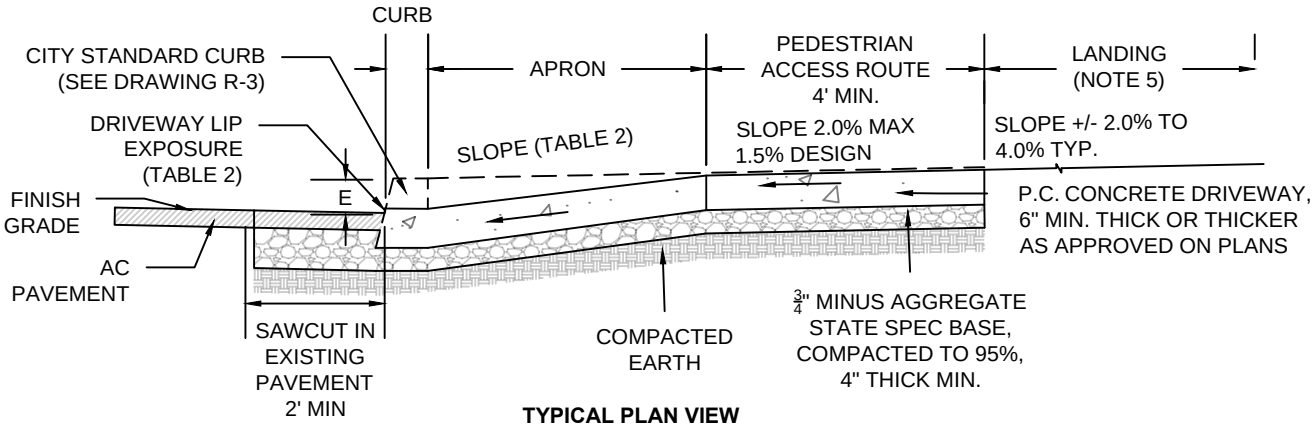
TABLE 2 - DRIVEWAY APPROACH WITH CURB-TIGHT, PARTIALLY LOWERED SIDEWALK SPECIFICATIONS

TYPE OF STREET	SIDEWALK WIDTH	CURB EXPOSURE "E"	LIP EXPOSURE (MINIMUM)	APRON GRADE, POSITIVE GRADE TO ROW	FLARE WIDTH
LOCAL	5' - 6'	6"	¾"	12.0% MAX	3'
COLLECTOR	6'	7"	1"	12.0% MAX	6'
ARTERIAL	6'	7"	1"	12.0% MAX	6'

GENERAL NOTES:
1. SIDEWALKS SHALL MEET ALL STANDARDS OF CURRENT PUBLIC RIGHTS OF WAY ACCESSIBILITY GUIDELINES (PROWAG).
2. SETBACK SIDEWALK DRIVEWAY IS STANDARD. USE PARTIALLY LOWERED CURB-TIGHT SIDEWALK DRIVEWAY AS DIRECTED OR SHOWN ON PLANS. ALTERNATE D REQUIRES 2 FEET MINIMUM FOR THE APRON.
3. CURB AND SIDEWALK TYPES VARY, SEE PLANS. SEE STD. DRG. R-3 FOR CURB DETAILS. SEE STD. DRGS. R-4A & R-4B FOR SIDEWALK DETAILS.
4. TOOLED JOINTS ARE REQUIRED AT ALL DRIVEWAY SLOPE BREAK LINES.
5. THE LANDING SHALL BE PAVED WITH CONCRETE, ASPHALT, OR OTHER APPROVED SURFACE FOR A MINIMUM OF 20 FEET. PAVING BEYOND THE LANDING SHALL BE IN ACCORDANCE WITH THE BEND DEVELOPMENT CODE. CONSTRUCT AS DIRECTED OR AS SHOWN ON PLANS. DO NOT ENTER PRIVATE PROPERTY WITHOUT APPROPRIATE PERMIT OR EASEMENT. MATERIAL WITHIN THE ROW SHALL BE CONCRETE.
6. CHECK THE GUTTER FLOW DEPTH AT DRIVEWAY LOCATIONS TO ASSURE THAT THE DESIGN FLOOD DOES NOT OVERTOP THE BACK OF SIDEWALK AT DRIVEWAY. IF OVERTOPPING OCCURS PLACE AN INLET AT UPSTREAM SIDE OF DRIVEWAY OR PERFORM OTHER APPROVED DESIGN MITIGATION.
7. #4 REBAR (2'0" ON CENTER, TO BE SUSPENDED TO CENTER OF CONCRETE DEPTH) REQUIRED IN COMMERCIAL AND INDUSTRIAL DRIVEWAYS AND PUBLIC ALLEYS. 6"X6" 10 GAUGE MINIMUM WELDED WIRE MAY BE USED IN LIEU OF REBAR.
8. A PUBLIC ACCESS EASEMENT MAY BE REQUIRED IF A PORTION OF THE DRIVEWAY APPROACH ENCROACHES ONTO PRIVATE PROPERTY.
9. CONCRETE DRIVEWAY APRON REQUIRED WHERE SIDEWALK AND/OR CURB IS EXISTING/PROPOSED, OTHERWISE AN ASPHALT APPROACH CAN BE INSTALLED TO EDGE OF PAVEMENT TO SIMILAR WIDTHS OF THE DRIVEWAY APRON AS APPROVED BY THE CITY ENGINEER.

DRAWN LJC	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV ROADWAY			DATE 12/1/17
REV / DATE 2 / 12/1/17			APPR
	CITY OF BEND	DRIVEWAY APPROACH, CURB-TIGHT, PARTIALLY LOWERED (ALTERNATE D)	STD DWG R-5D





TYPICAL PLAN VIEW
DRIVEWAY APPROACH, CURB-TIGHT, WRAPPING SIDEWALK
(ALTERNATE E)

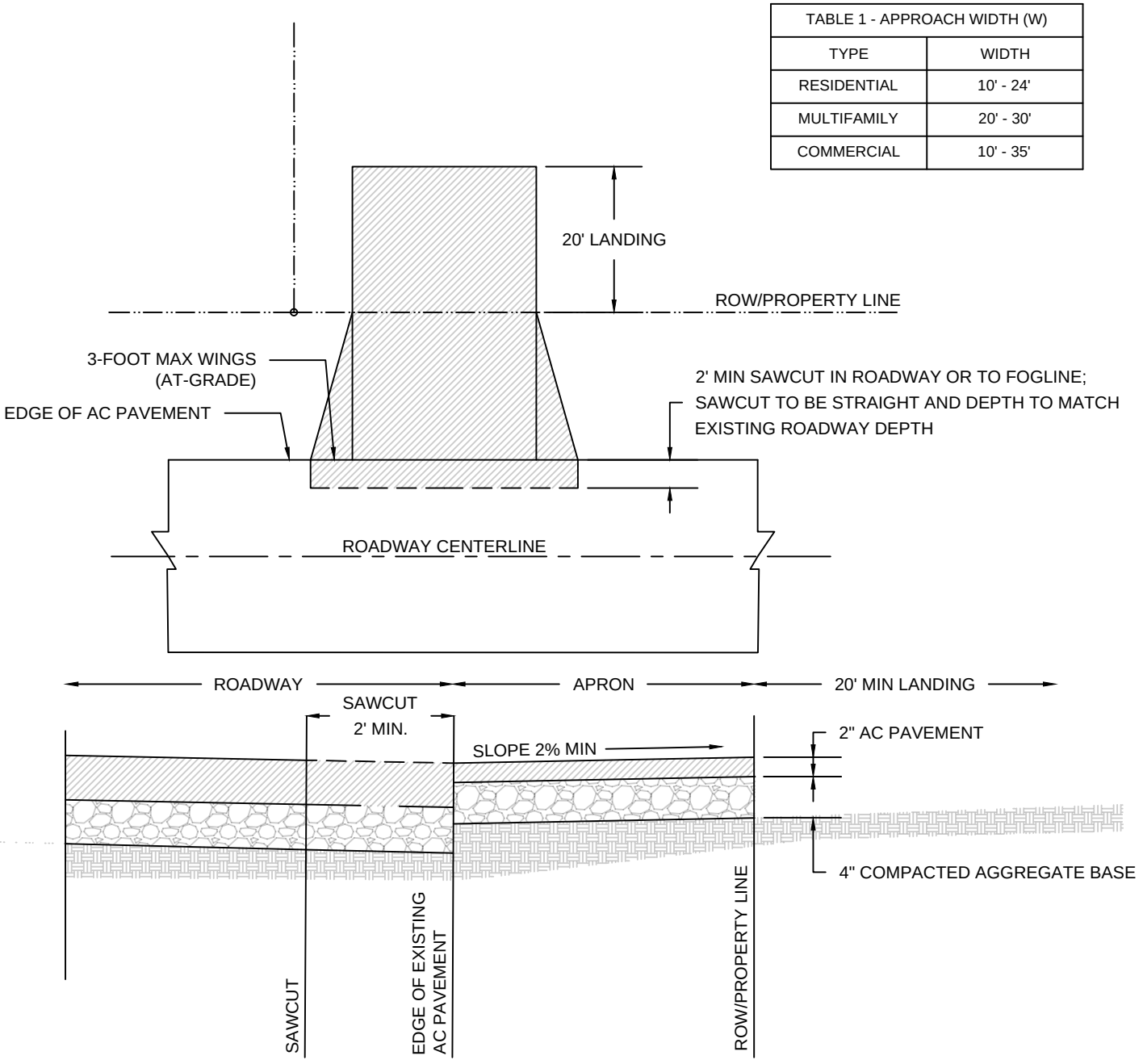
TABLE 1 - APPROACH WIDTH (W)	
TYPE	WIDTH
RESIDENTIAL	10' - 24'
MULTIFAMILY	20' - 30'
COMMERCIAL	10' - 35'

TABLE 2 - DRIVEWAY APPROACH SPECIFICATIONS WITH CURB-TIGHT WRAPPING SIDEWALK					
TYPE OF STREET	MINIMUM SIDEWALK WIDTH	CURB EXPOSURE "E"	LIP EXPOSURE (MINIMUM)	APRON GRADE, POSITIVE GRADE TO ROW	FLARE WIDTH
LOCAL	5' - 6'	6"	¾"	12.0% MAX	3'
COLLECTOR	6'	7"	1"	12.5% MAX	6'
ARTERIAL	6'	7"	1"	12.5% MAX	6'

GENERAL NOTES:
1. SIDEWALKS SHALL MEET ALL STANDARDS OF CURRENT PUBLIC RIGHTS OF WAY ACCESSIBILITY GUIDELINES (PROWAG).
2. SETBACK SIDEWALK DRIVEWAY IS STANDARD. USE CURB-TIGHT, WRAPPING SIDEWALK APPROACH AS DIRECTED OR SHOWN ON PLANS. ALTERNATE E REQUIRES A MINIMUM 4-FEET WIDE APRON.
3. CURB AND SIDEWALK TYPES VARY, SEE PLANS. SEE STD. DRG. R-3 FOR CURB DETAILS. SEE STD. DRGS. R-4A & R-4B FOR SIDEWALK DETAILS.
4. TOOLED JOINTS ARE REQUIRED AT ALL DRIVEWAY SLOPE BREAK LINES.
5. THE LANDING SHALL BE PAVED WITH CONCRETE, ASPHALT, OR OTHER APPROVED SURFACE FOR A MINIMUM OF 20 FEET. PAVING BEYOND THE LANDING SHALL BE IN ACCORDANCE WITH THE BEND DEVELOPMENT CODE. CONSTRUCT AS DIRECTED OR AS SHOWN ON PLANS. DO NOT ENTER PRIVATE PROPERTY WITHOUT APPROPRIATE PERMIT OR EASEMENT. MATERIAL WITHIN THE ROW SHALL BE CONCRETE.
6. CHECK THE GUTTER FLOW DEPTH AT DRIVEWAY LOCATIONS TO ASSURE THAT THE DESIGN FLOOD DOES NOT OVERTOP THE BACK OF SIDEWALK AT DRIVEWAY. IF OVERTOPPING OCCURS PLACE AN INLET AT UPSTREAM SIDE OF DRIVEWAY OR PERFORM OTHER APPROVED DESIGN MITIGATION.
7. #4 REBAR (2'0" ON CENTER, TO BE SUSPENDED TO CENTER OF CONCRETE DEPTH) REQUIRED IN COMMERCIAL AND INDUSTRIAL DRIVEWAYS. 6"X6" 10 GAUGE MINIMUM WELDED WIRE MAY BE USED IN LIEU OF REBAR.
8. A PUBLIC ACCESS EASEMENT MAY BE REQUIRED IF A PORTION OF THE DRIVEWAY APPROACH ENCROACHES ONTO PRIVATE PROPERTY.
9. CONCRETE DRIVEWAY APRON REQUIRED WHERE SIDEWALK AND/OR CURB IS EXISTING/PROPOSED, OTHERWISE AN ASPHALT APPROACH CAN BE INSTALLED TO EDGE OF PAVEMENT TO SIMILAR WIDTHS OF THE DRIVEWAY APRON AS APPROVED BY THE CITY ENGINEER.

DRAWN LJC	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV ROADWAY			DATE 12/1/17
REV / DATE 2 / 12/1/17			APPR
	CITY OF BEND	DRIVEWAY APPROACH, CURB-TIGHT, WRAPPING SIDEWALK (ALTERNATE E)	STD DWG R-5E

TABLE 1 - APPROACH WIDTH (W)	
TYPE	WIDTH
RESIDENTIAL	10' - 24'
MULTIFAMILY	20' - 30'
COMMERCIAL	10' - 35'



GENERAL NOTES:

1. CONCRETE DRIVEWAY APRON REQUIRED WHERE SIDEWALK AND/OR CURB IS EXISTING/PROPOSED, OTHERWISE AN ASPHALT APPROACH CAN BE INSTALLED TO EDGE OF PAVEMENT TO SIMILAR WIDTHS OF THE DRIVEWAY APRON AS APPROVED BY THE CITY ENGINEER.

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 12/1/17
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		DRIVEWAY APPROACH, ASPHALT	STD DWG R-5F

GRADE BREAKS. GRADE BREAKS AT THE TOP AND BOTTOM OF PERPENDICULAR CURB RAMPS SHALL BE PERPENDICULAR TO THE DIRECTION OF RAMP RUN. AT LEAST ONE END OF THE BOTTOM GRADE BREAK SHALL BE AT THE BACK OF CURB. GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF CURB RAMPS, BLENDED TRANSITIONS, LANDINGS, AND GUTTER AREAS WITHIN THE PEDESTRIAN ACCESS ROUTE. SURFACE SLOPES THAT MEET THE GRADE BREAKS SHALL BE FLUSH

TECHNICALLY NOT A PART OF THE PEDESTRIAN CIRCULATION PATH; HOWEVER, APPLY PROWAG R303.2.1.4 REQUIREMENTS FOR FLARES.

CURB EXPOSURE TO BE MINIMUM 3-INCHES (6-INCH PREFERRED) BETWEEN RAMPS UNLESS OTHERWISE APPROVED.

PROWAG DISCUSSION OF PROVISIONS. DETECTABLE WARNINGS PROVISIONS IN THIS DRAFT HAVE ALSO BEEN CLARIFIED WITH RESPECT TO THEIR PERMITTED SETBACK FROM THE GRADE BREAK MARKING THE FACE OF THE CURB. ONE CORNER OF THE DETECTABLE WARNING MUST BE WITHIN 8 in. OF THE GRADE BREAK; NO OTHER POINT ON THE LEADING EDGE OF THE DETECTABLE WARNING MAY BE MORE THAN 5 ft. FROM THE GRADE BREAK

DETECTABLE WARNINGS. DETECTABLE WARNING SURFACES COMPLYING WITH R305 SHALL BE PROVIDED, WHERE A CURB RAMP, LANDING, OR BLENDED TRANSITION CONNECTS TO A STREET.

SIZE. DETECTABLE WARNING SURFACES SHALL EXTEND 24 in. MINIMUM IN THE DIRECTION OF TRAVEL AND THE FULL WIDTH OF THE CURB RAMP (EXCLUSIVE OF FLARES), THE LANDING, OR THE BLENDED TRANSITION.

PERPENDICULAR CURB RAMPS. WHERE BOTH ENDS OF THE BOTTOM GRADE BREAK COMPLYING WITH R303.3.4 ARE 5.0 ft. OR LESS FROM THE BACK OF CURB, THE DETECTABLE WARNING SHALL BE LOCATED ON THE RAMP SURFACE AT THE BOTTOM GRADE BREAK. WHERE EITHER END OF THE BOTTOM GRADE BREAK IS MORE THAN 5.0 ft. FROM THE BACK OF CURB, THE DETECTABLE WARNING SHALL BE LOCATED ON THE LOWER LANDING.

ALIGNMENT. THE ROWS OF TRUNCATED DOMES IN A DETECTABLE WARNING SURFACE SHALL BE ALIGNED TO BE PERPENDICULAR OR RADIAL TO THE GRADE BREAK BETWEEN THE RAMP, LANDING, OR BLENDED TRANSITION AND THE STREET.

RAMPS AND LANDING SHALL BE POURED 6" THICK WITH CONCRETE CONFORMING TO CITY CONCRETE SPECIFICATIONS 00440.12

CROSS SLOPE. THE CROSS SLOPE OF RAMPS, BLENDED TRANSITIONS, AND TURNING SPACES SHALL BE 2% MAXIMUM.

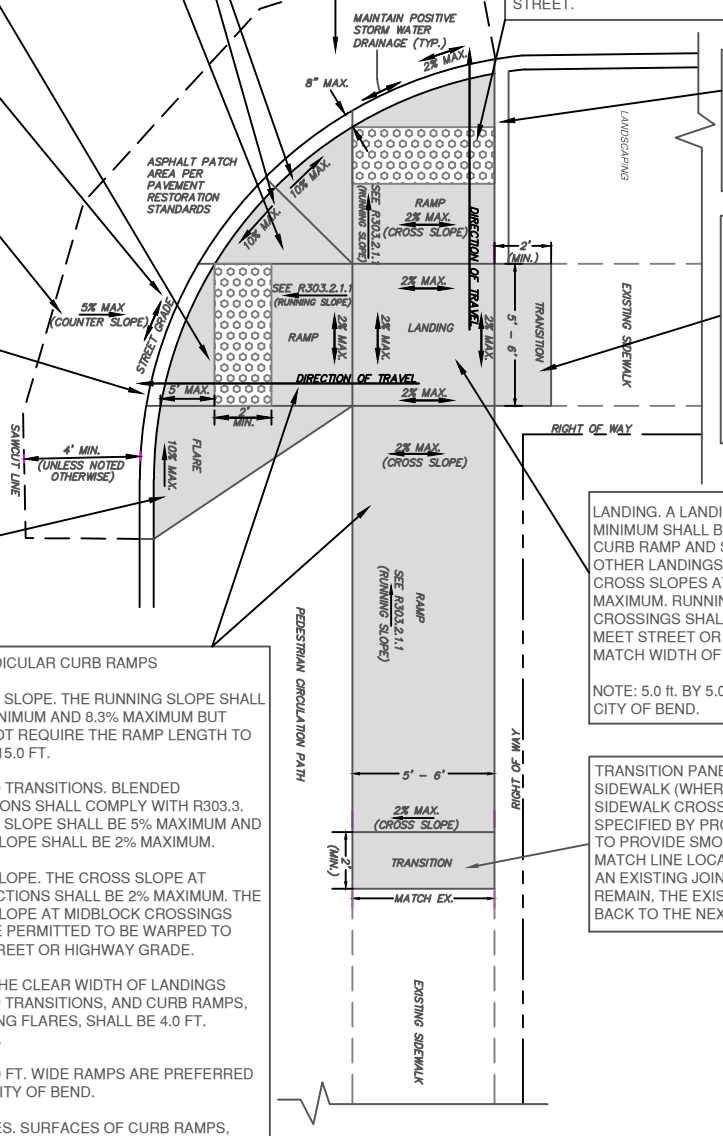
PEDESTRIAN STREET CROSSINGS WITHOUT YIELD OR STOP CONTROL. WHERE PEDESTRIAN STREET CROSSINGS WITHOUT YIELD OR STOP CONTROL, THE CROSS SLOPE OF THE PEDESTRIAN ACCESS ROAD SHALL BE 5 PERCENT MAX.

COUNTER SLOPES. THE COUNTER SLOPE OF THE GUTTER OR STREET AT THE FOOT OF A CURB RAMP, LANDING, OR BLENDED TRANSITION SHALL BE 5% MAXIMUM

SURFACE DISCONTINUITIES. SURFACE DISCONTINUITIES SHALL NOT EXCEED 0.5 in. MAXIMUM. VERTICAL DISCONTINUITIES BETWEEN 0.25 in. AND 0.5 in. MAXIMUM SHALL BE BEVELED AT 1:2 MINIMUM. THE BEVEL SHALL BE APPLIED ACROSS THE ENTIRE LEVEL CHANGE.

NOTE: THE CITY OF BEND PREFERS A GUTTER LIP AT THE RAMP TO BE FLUSH WITH ASPHALT.

FLARES. FLARED SIDES WITH A SLOPE OF 10% MAXIMUM, MEASURED PARALLEL TO THE CURB LINE, SHALL BE PROVIDED WHERE A PEDESTRIAN CIRCULATION PATH CROSSES THE CURB RAMP OR WHEN THE FLARE ABUTS A HARD SURFACE. THE CITY OF BEND REQUIRES FLARES UNLESS BARRIERS EXIST OR WHERE APPROVED BY THE CITY ENGINEER.



ADVISORY FLARES. SIDE OF RAMPS MAY BE RETURNED, PROVIDING USEFUL DIRECTIONAL CUES, IF PROTECTED FROM CROSS TRAVEL BY LANDSCAPING, STREET FURNITURE, POLES, OR EQUIPMENT.

TRANSITION PANEL FROM RAMP TO EXISTING SIDEWALK (WHERE REQUIRED TO MATCH EX. SIDEWALK CROSS SLOPE). MAX. GRADES ARE NOT SPECIFIED BY PROWAG. ADJUST LENGTH AS NEEDED TO PROVIDE SMOOTH TRANSITION. IF PROPOSED MATCH LINE LOCATION FALLS WITHIN 2 FT. FROM AN EXISTING JOINT IN THE SECTION OF SIDEWALK TO REMAIN, THE EXISTING WALK SHALL BE REMOVED BACK TO THE NEXT JOINT.

LANDING. A LANDING 5.0 ft. MINIMUM BY 5.0 ft. MINIMUM SHALL BE PROVIDED AT THE TOP OF THE CURB RAMP AND SHALL BE PERMITTED TO OVERLAP OTHER LANDINGS AND CLEAR SPACE. RUNNING AND CROSS SLOPES AT INTERSECTIONS SHALL BE 2% MAXIMUM. RUNNING AND CROSS SLOPE AT MIDBLOCK CROSSINGS SHALL BE PERMITTED TO BE WARPED TO MEET STREET OR HIGHWAY GRADE. LANDING SHALL MATCH WIDTH OF APPROACHING SIDEWALKS.

NOTE: 5.0 ft. BY 5.0 ft. LANDING IS PREFERRED BY THE CITY OF BEND.

TRANSITION PANEL FROM RAMP TO EXISTING SIDEWALK (WHERE REQUIRED TO MATCH EX. SIDEWALK CROSS SLOPE). MAX. GRADES ARE NOT SPECIFIED BY PROWAG. ADJUST LENGTH AS NEEDED TO PROVIDE SMOOTH TRANSITION. IF PROPOSED MATCH LINE LOCATION FALLS WITHIN 2 FEET FROM AN EXISTING JOINT IN THE SECTION OF SIDEWALK TO REMAIN, THE EXISTING WALK SHALL BE REMOVED BACK TO THE NEXT JOINT.

NOTES :

1. THESE ARE THE PROWAG AS CONSTRUCTED REQUIREMENTS. SLOPES USED FOR DESIGN ARE SIGNIFICANTLY LESS THAN THESE MAXIMUMS TO ALLOW FOR CONSTRUCTION TOLERANCES, UNLESS NOTED OTHERWISE. SEE THE PROWAG DOCUMENT FOR THE COMPLETE REQUIREMENTS.

2. RAMPS AND LANDINGS SHALL BE DESIGNED NOT TO THE MAX SLOPE ALLOWED UNDER PROWAG. DESIGN SLOPES SHALL MATCH THE FOLLOWING: WHERE PROWAG PERMITS 8.33% MAX SLOPE (12:1 RISE/RUN), DESIGN SHALL BE 7.5%. WHERE PROWAG PERMITS 2% MAX SLOPE (48:1 RUN/RISE), DESIGN SHALL BE 1.5%.

3. WHERE SIDEWALKS ARE CONSTRUCTED OUTSIDE THE RIGHT OF WAY, A PUBLIC ACCESS EASEMENT MUST BE RECORDED OVER THE PRIVATE PROPERTY ENCROACHMENT.

4. 6 INCHES OF CONCRETE AND 4 INCHES OF STATE SPEC BASE ROCK, COMPACTED TO 95%, IS REQUIRED FOR CONSTRUCTION OF CURB RAMPS.

PERPENDICULAR CURB RAMPS

RUNNING SLOPE. THE RUNNING SLOPE SHALL BE 5% MINIMUM AND 8.3% MAXIMUM BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15.0 FT.

BLENDED TRANSITIONS. BLENDED TRANSITIONS SHALL COMPLY WITH R303.3. RUNNING SLOPE SHALL BE 5% MAXIMUM AND CROSS SLOPE SHALL BE 2% MAXIMUM.

CROSS SLOPE. THE CROSS SLOPE AT INTERSECTIONS SHALL BE 2% MAXIMUM. THE CROSS SLOPE AT MIDBLOCK CROSSINGS SHALL BE PERMITTED TO BE WARPED TO MEET STREET OR HIGHWAY GRADE.

WIDTH. THE CLEAR WIDTH OF LANDINGS BLENDED TRANSITIONS, AND CURB RAMPS, EXCLUDING FLARES, SHALL BE 4.0 FT. MINIMUM.

NOTE: 5.0 FT. WIDE RAMPS ARE PREFERRED BY THE CITY OF BEND.

SURFACES. SURFACES OF CURB RAMPS, BLENDED TRANSITIONS, AND LANDINGS SHALL COMPLY WITH R301. GRATINGS, ACCESS COVERS, AND OTHER APPURTENANCES SHALL NOT BE LOCATED ON CURB RAMPS, LANDINGS, BLENDED TRANSITIONS AND GUTTERS WITHIN THE PEDESTRIAN ACCESS ROUTE.

TYPICAL PERPENDICULAR CURB RAMP ACCORDING TO PROWAG REQUIREMENTS

NOT TO SCALE – ROTATED TO FIT

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 3/31/19
REV | DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		TYPICAL PERPENDICULAR CURB RAMP	STD DWG R-6A

DETECTABLE WARNINGS. DETECTABLE WARNING SURFACES COMPLYING WITH R304 SHALL BE PROVIDED, WHERE A CURB RAMP, LANDING, OR BLENDED TRANSITION CONNECTS TO A STREET.

SIZE. DETECTABLE WARNING SURFACES SHALL EXTEND 24 in. MINIMUM IN THE DIRECTION OF TRAVEL AND THE FULL WIDTH OF THE CURB RAMP (EXCLUSIVE OF FLARES), THE LANDING, OR THE BLENDED TRANSITION.

ALIGNMENT. THE ROWS OF TRUNCATED DOMES IN A DETECTABLE WARNING SURFACE SHALL BE ALIGNED TO BE PERPENDICULAR OR RADIAL TO THE GRADE BREAK BETWEEN THE RAMP, LANDING, OR BLENDED TRANSITION AND THE STREET.

CROSS SLOPE. THE CROSS SLOPE OF RAMPS, BLENDED TRANSITIONS, AND TURNING SPACES SHALL BE 2% MAXIMUM.

PEDESTRIAN STREET CROSSINGS WITHOUT YIELD OR STOP CONTROL. WHERE PEDESTRIAN STREET CROSSINGS WITHOUT YIELD OR STOP CONTROL, THE CROSS SLOPE OF THE PEDESTRIAN ACCESS ROAD SHALL BE 5% MAX.

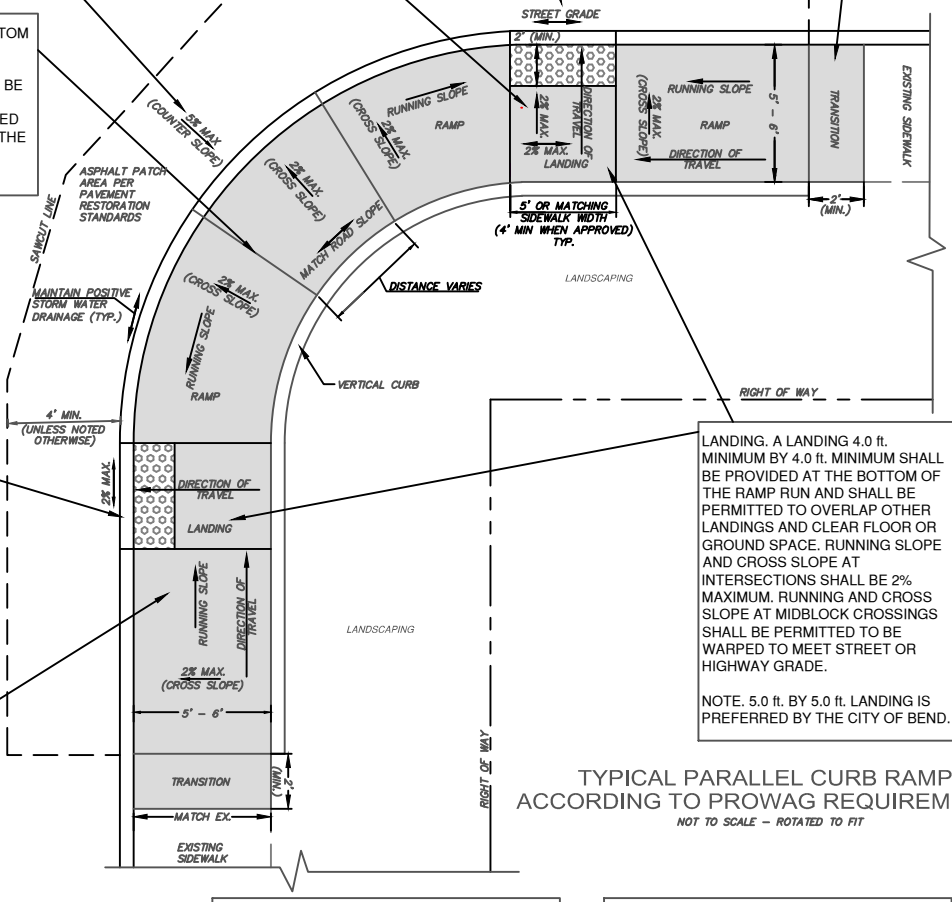
TRANSITION PANEL FROM RAMP TO EXISTING SIDEWALK (WHERE REQUIRED TO MATCH EX. SIDEWALK CROSS SLOPE). MAX. GRADES ARE NOT SPECIFIED BY PROWAG. ADJUST LENGTH AS NEEDED TO PROVIDE SMOOTH TRANSITION. IF PROPOSED MATCH LINE LOCATION FALLS WITHIN 2 FEET FROM AN EXISTING JOINT IN THE SECTION OF SIDEWALK TO REMAIN, THE EXISTING WALK SHALL BE REMOVED BACK TO THE NEXT JOINT.

COUNTER SLOPES. THE COUNTER SLOPE OF THE GUTTER OR STREET AT THE FOOT OF A CURB RAMP, LANDING, OR BLENDED TRANSITION SHALL BE 5% MAXIMUM

GRADE BREAKS. GRADE BREAKS AT THE TOP AND BOTTOM OF PERPENDICULAR CURB RAMPS SHALL BE PERPENDICULAR TO THE DIRECTION OF RAMP RUN. AT LEAST ONE END OF THE BOTTOM GRADE BREAK SHALL BE AT THE BACK OF CURB. GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF CURB RAMPS, BLENDED TRANSITIONS, LANDINGS, AND GUTTER AREAS WITHIN THE PEDESTRIAN ACCESS ROUTE. SURFACE SLOPES THAT MEET THE GRADE BREAKS SHALL BE FLUSH.

SURFACE DISCONTINUITIES. SURFACE DISCONTINUITIES SHALL NOT EXCEED 0.5 in. MAXIMUM. VERTICAL DISCONTINUITIES BETWEEN 0.25 in. AND 0.5 in. MAXIMUM SHALL BE BEVELED AT 1:2 MINIMUM. THE BEVEL SHALL BE APPLIED ACROSS THE ENTIRE LEVEL CHANGE.

NOTE: THE CITY OF BEND PREFERS A GUTTER LIP AT THE RAMP TO BE FLUSH WITH ASPHALT.



TYPICAL PARALLEL CURB RAMP
ACCORDING TO PROWAG REQUIREMENTS
NOT TO SCALE – ROTATED TO FIT

PARALLEL CURB RAMPS

RUNNING SLOPE. THE RUNNING SLOPE SHALL BE 8.3% MAXIMUM BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15.0 ft.

CROSS SLOPE. THE CROSS SLOPE SHALL BE 2% MAXIMUM.

DIVERGING SIDEWALKS. WHERE A PARALLEL CURB RAMP DOES NOT OCCUPY THE ENTIRE WIDTH OF A SIDEWALK, DROP-OFFS AT DIVERGING SEGMENTS SHALL BE PROTECTED.

WIDTH. THE CLEAR WIDTH OF LANDINGS BLENDED TRANSITIONS, AND CURB RAMPS, EXCLUDING FLARES, SHALL BE 4.0 ft. MINIMUM.

NOTE: 5.0 ft. WIDE RAMPS ARE PREFERRED BY THE CITY OF BEND.

SURFACES. SURFACES OF CURB RAMPS, BLENDED TRANSITIONS, AND LANDINGS SHALL COMPLY WITH R301. GRATINGS, ACCESS COVERS, AND OTHER APPURTENANCES SHALL NOT BE LOCATED ON CURB RAMPS, LANDINGS, BLENDED TRANSITIONS AND GUTTERS WITHIN THE PEDESTRIAN ACCESS ROUTE.

LANDING. A LANDING 4.0 ft. MINIMUM BY 4.0 ft. MINIMUM SHALL BE PROVIDED AT THE BOTTOM OF THE RAMP RUN AND SHALL BE PERMITTED TO OVERLAP OTHER LANDINGS AND CLEAR FLOOR OR GROUND SPACE. RUNNING SLOPE AND CROSS SLOPE AT INTERSECTIONS SHALL BE 2% MAXIMUM. RUNNING AND CROSS SLOPE AT MIDBLOCK CROSSINGS SHALL BE PERMITTED TO BE WARPED TO MEET STREET OR HIGHWAY GRADE.

NOTE. 5.0 ft. BY 5.0 ft. LANDING IS PREFERRED BY THE CITY OF BEND.

NOTES :
1. THESE ARE THE PROWAG AS CONSTRUCTED REQUIREMENTS. SLOPES USED FOR DESIGN ARE SIGNIFICANTLY LESS THAN THESE MAXIMUMS TO ALLOW FOR CONSTRUCTION TOLERANCES, UNLESS NOTED OTHERWISE.

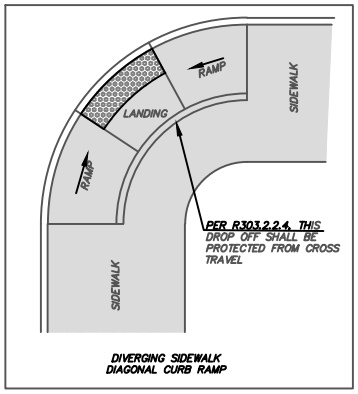
2. THIS IS INTENDED AS A SUMMARY OF PROWAG REQUIREMENTS. SEE THE PROWAG DOCUMENT FOR THE COMPLETE REQUIREMENTS.

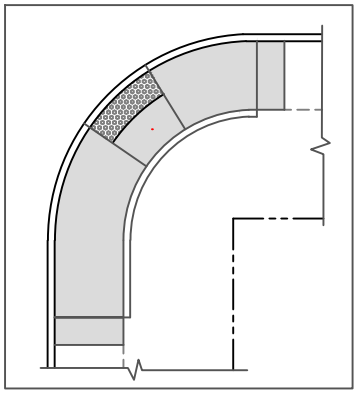
3. ANGLE POINT ALTERNATE IS ONLY ALLOWED WHEN DIRECTIONAL RAMPS ARE NOT POSSIBLE AND MUST BE APPROVED BY THE CITY ENGINEER.

4. DESIGN SLOPES: RAMPS AND LANDINGS SHALL BE DESIGNED NOT TO THE MAX SLOPE ALLOWED UNDER PROWAG. DESIGN SLOPES SHALL MATCH THE FOLLOWING: WHERE PROWAG PERMITS 8.33% MAX SLOPE (12:1 RUN/RISE), DESIGN SHALL BE 7.5%. WHERE PROWAG PERMITS 2% MAX SLOPE (48:1 RUN/RISE), DESIGN SHALL BE 1.5%.

5. WHERE SIDEWALKS ARE CONSTRUCTED OUTSIDE THE RIGHT OF WAY, A PUBLIC ACCESS EASEMENT MUST BE RECORDED OVER THE PRIVATE PROPERTY ENCROACHMENT.

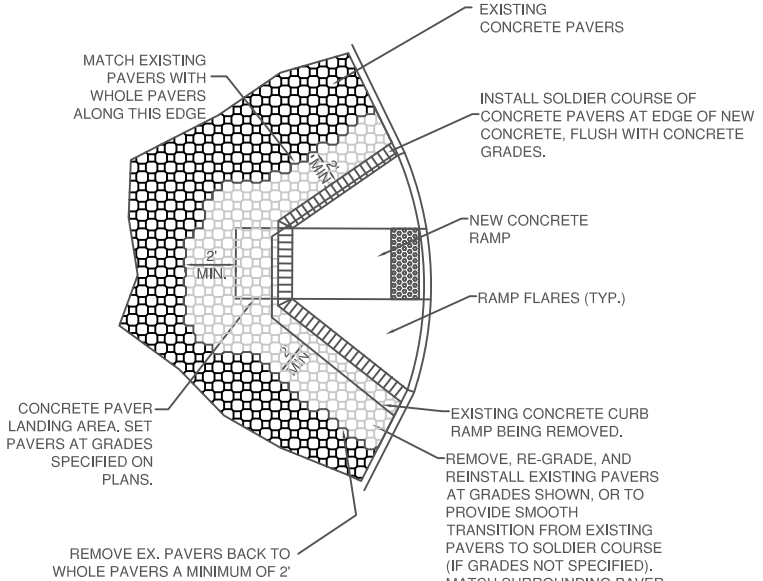
6. 6 INCHES OF CONCRETE AND 4 INCHES OF STATE SPEC AGGREGATE BASE, COMPACTED TO 95%, ARE REQUIRED FOR CONSTRUCTION OF CURB RAMPS. CONCRETE SHALL CONFORM TO CITY CONCRETE SPECIFICATIONS 00440.12





TYPICAL DIAGONAL CURB RAMP
REQUIRES CITY APPROVAL FOR CONSTRUCTION
ACCORDING TO PROWAG REQUIREMENTS
NOT TO SCALE – ROTATED TO FIT

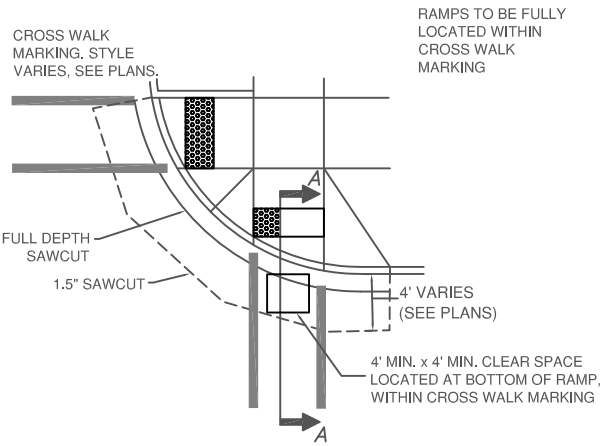
DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 3/31/19
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		TYPICAL PARALLEL CURB RAMP	STD DWG R-6B



NOTE: SET CONCRETE PAVERS IN ACCORDANCE WITH CITY OF BEND STANDARDS AND SPECIFICATIONS.

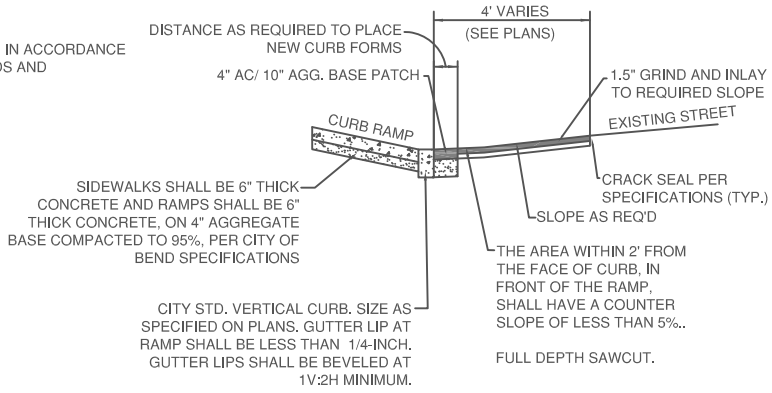
PAVER REPLACEMENT DETAIL

NOT TO SCALE



CROSS WALK - CURB RAMP ORIENTATION

NOT TO SCALE

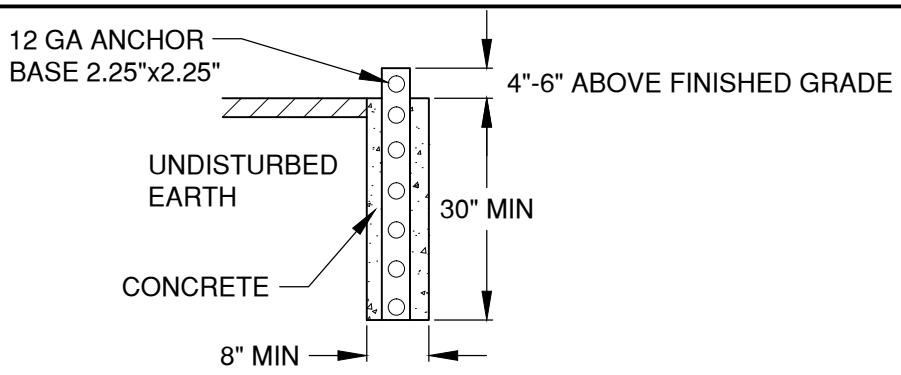


NOTE: IN AREAS WITH UNIT PAVER CROSS WALKS, REMOVE EXISTING PAVERS, AND RE-INSTALL AT GRADES TO ACHIEVE THESE REQUIREMENTS.

TYPICAL RAMP / ASPHALT PATCH SECTION

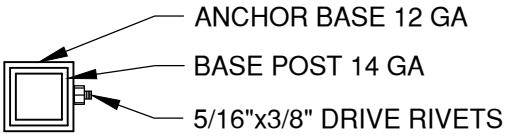
NOT TO SCALE

DRAWN LJC	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV ROADWAY			DATE 12/1/17
REV DATE			APPR
		CURB RAMP DETAILS	STD DWG R-6C

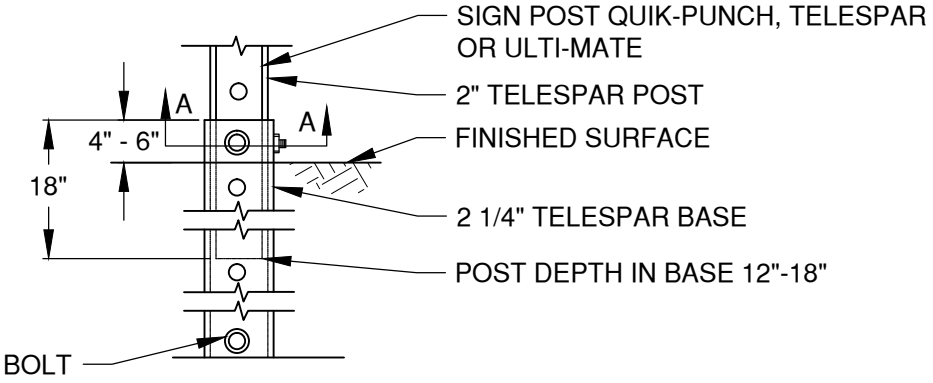


AUGERED HOLE POST HOLE DUG IN UNDISTURBED EARTH

INSTALLATION IN NEW CONSTRUCTION



SECTION A-A

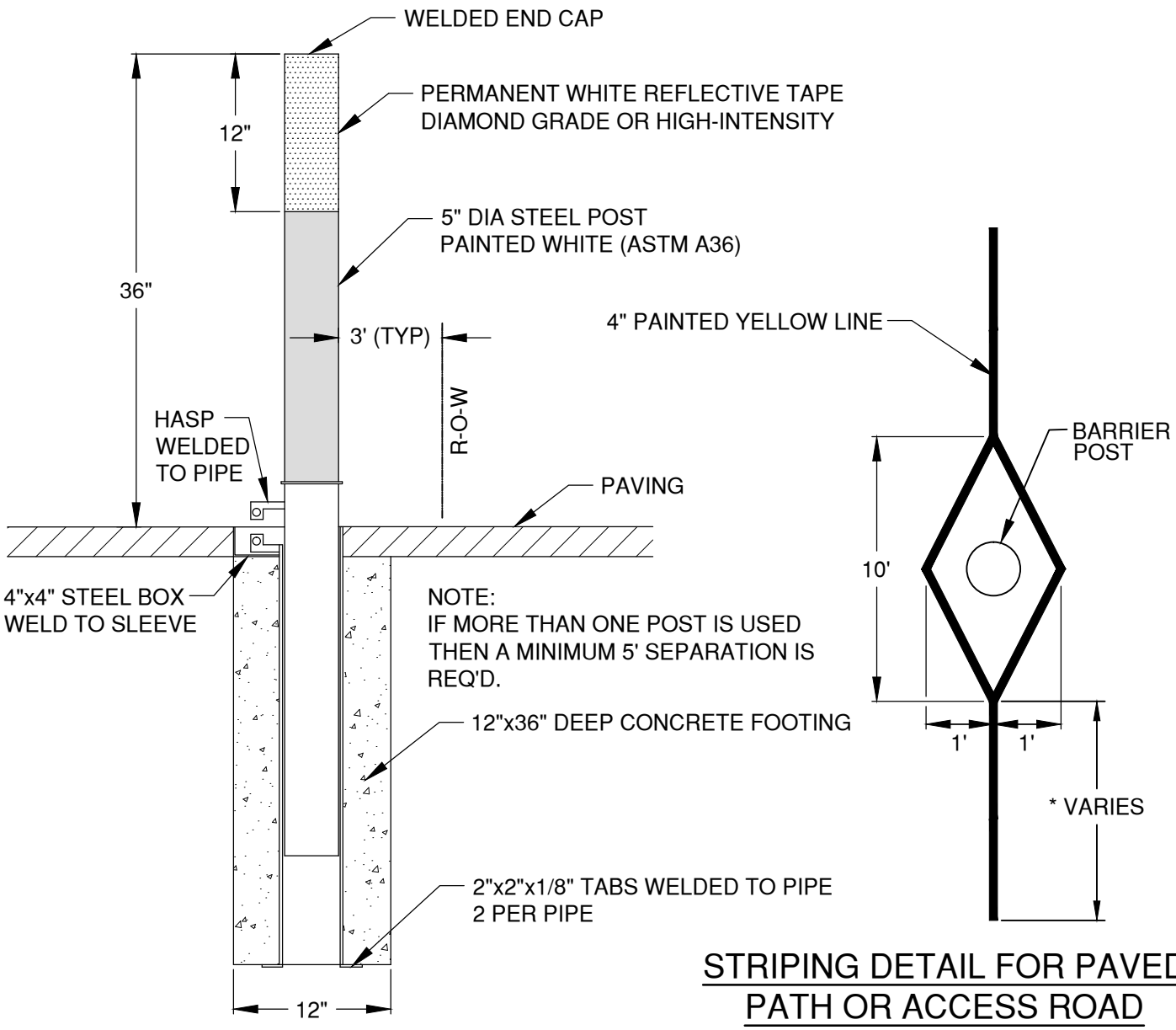


ANCHOR BASE DETAIL

NOTES:

1. ANCHOR BASE HOLES AND BOTTOM OF ANCHOR BASE SHALL BE COVERED SO THAT CONCRETE DOES NOT SEEP INTO ANCHOR BASE DURING SETTING
2. BASE SHOULD BE SET SEPARATELY FROM POST WITH ANCHOR BOLT IN BASE BOTTOM ONLY
3. POST SHOULD BE ABLE TO SLIDE FREELY WHEN RIVET IS REMOVED

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 12/1/17
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
2 / 12/1/17		STANDARD STREET SIGN SUPPORTS	STD DWG R-7



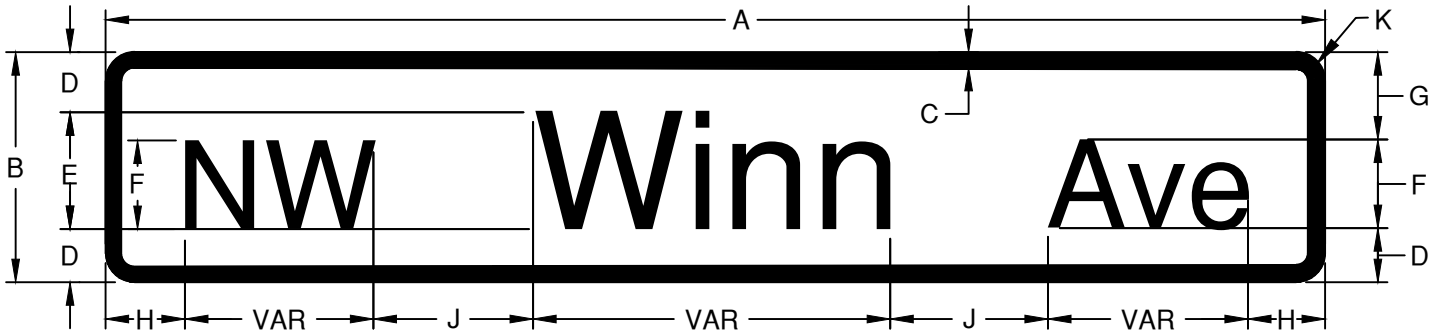
STRIPING DETAIL FOR PAVED PATH OR ACCESS ROAD

* Length of approach line varies by location, where possible, 25' min.

NOTES:

1. POSTS OR BOLLARDS SHALL BE SET BACK BEYOND THE CLEAR ZONE OF THE ADJACENT STREET OR BE OF A BREAKAWAY DESIGN. THE POST SHALL BE PERMANENTLY REFLECTORIZED FOR NIGHTTIME VISIBILITY AND PAINTED WHITE FOR IMPROVED DAYTIME AND NIGHT TIME VISIBILITY.
2. ON PAVED PATHS OR ACCESS ROADS, APPLY PAVEMENT MARKINGS PER STRIPING DETAIL.

DRAWN LJC	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV ROADWAY			DATE 12/1/17
REV 2 / DATE 12/1/17			APPR
		REMOVABLE POST AND MARKINGS	STD DWG R-7A



STREET NAME SIGNS

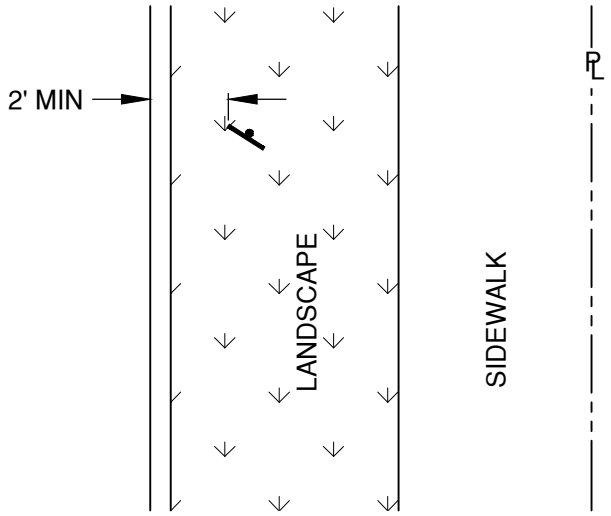
STREET NAME SIGN WITH DESCENDING STROKES

SIGN LOCATION	DIMENSIONS												
	A	B	C	D	E	F	G	H	J	K	L	M	N
LOCAL	VAR	8	0.375	2	4C	3C	3	3 MIN	3	1	1.75	2.25	2.75
COLLECTOR/ ARTERIAL ≤ 40MPH	VAR	12	0.5	3	6C	4.5C	5	4.5 MIN	4.5	1.5	2.75	3.25	4.75
COLLECTOR/ ARTERIAL > 40 MPH	VAR	18	0.75	5	8C	6C	7.67	5.33 MIN	6	1.875	5	5	7.67
OVERHEAD	VAR	24	1	6	12C	9C	10	9 MIN	9	2.25	5	6	9.50

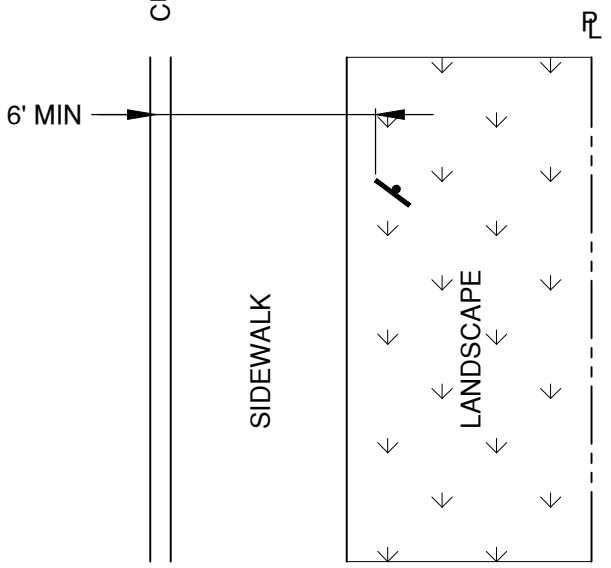
Notes:

1. Signs installed along public streets shall be fabricated and installed to conform to the MUTCD and City of Bend specifications.
2. Unless otherwise specified, street name signs shall be fabricated as follows:
   a. Sign Substrate: sheet aluminum (gauge 0.80 for ground-mount) with rounded corners
   b. Retro-reflective Sheeting: Green background with White legend, using HIP/Type G for ground-mounted signs, and Diamond grade/Type G2 for signs mounted overhead;
   c. Lettering shall be lower-case with initial upper-case letters;
   d. Series C 2000 Font, with lettering and letter spacing per the Federal Highway Administration's Standard Alphabets as shown in the current edition of the Standard Highway Signs and Pavement Markings Manual. (* Except for overhead signs, where signs exceed 36" long, series B2000 font shall be used);
   e. Bottom street signs (closest to the regulatory/stop sign) shall be double sided with predrilled holes. Signs shall be riveted back to back on the square tube post , centered on the post.
   f. Top street sign shall be single-sided.
3. All signs shall be reviewed and approved by the City of Bend Engineering Department prior to fabrications and installation.
4. Typical installation includes 2-inch square tube caps with 90-degree angle brackets on 2-inch perforated square tube steel posts. Use 5- or 6-inch blade mounts for signs less than 36" wide; 12-inch mounts for signs 36-inches or wider or over 6-inches high. See Standard Drawings R-7 and R-9.
5. Sign widths vary with legend. Where site constraints limit available space, reduced letter height, font style, line spacing, or edge spacing will be considered. Reductions in spacing between letters or words is not permitted.
6. Where private streets intersect with public streets, install a black on yellow PRIVATE DR sign with 4-inch capital letters (ODOT Sign Policy sign #OW14-3) directly below the private street name sign (or on a separate post, if not at an intersection).
7. For additional information, refer to MUTCD Section 2A and 2D, and City of Bend technical specification Section 00940.
8. Confirm sign size with City Engineer for signs on existing traffic signal poles or mast arms.

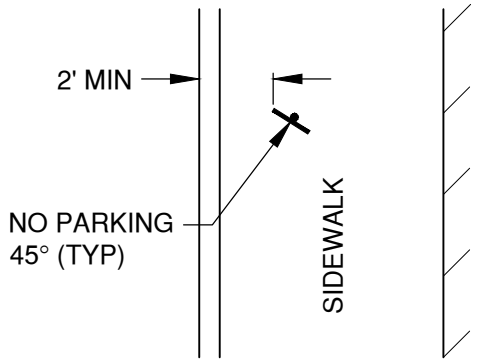
DRAWN			CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV ROADWAY					DATE 3/31/19
REV	DATE	APPR			APPR
				STANDARD STREET NAME SIGNS	STD DWG R-8



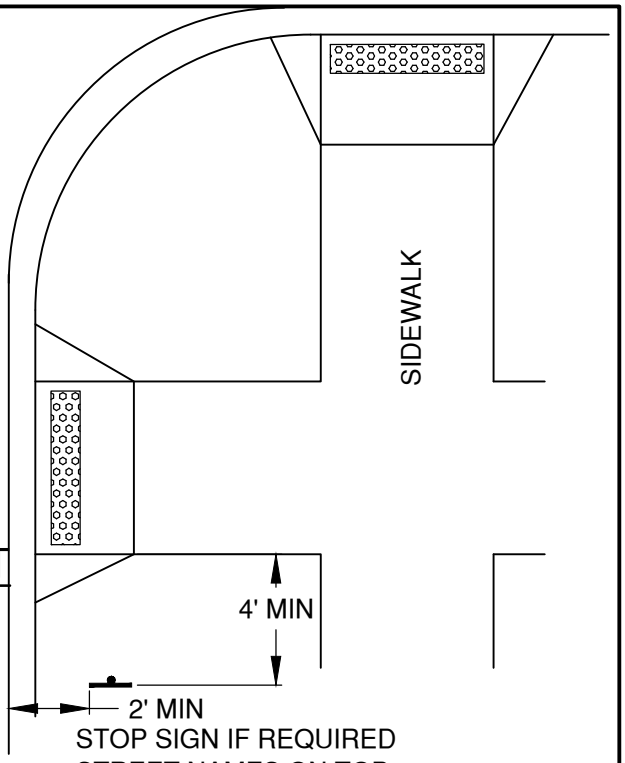
SIDEWALK PROPERTY TIGHT

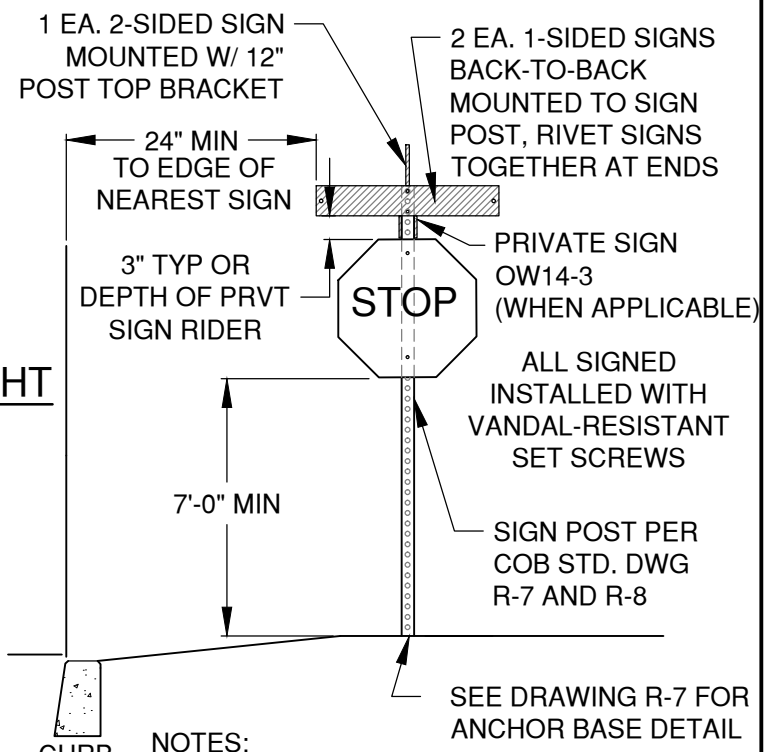


SIDEWALK CURB TIGHT



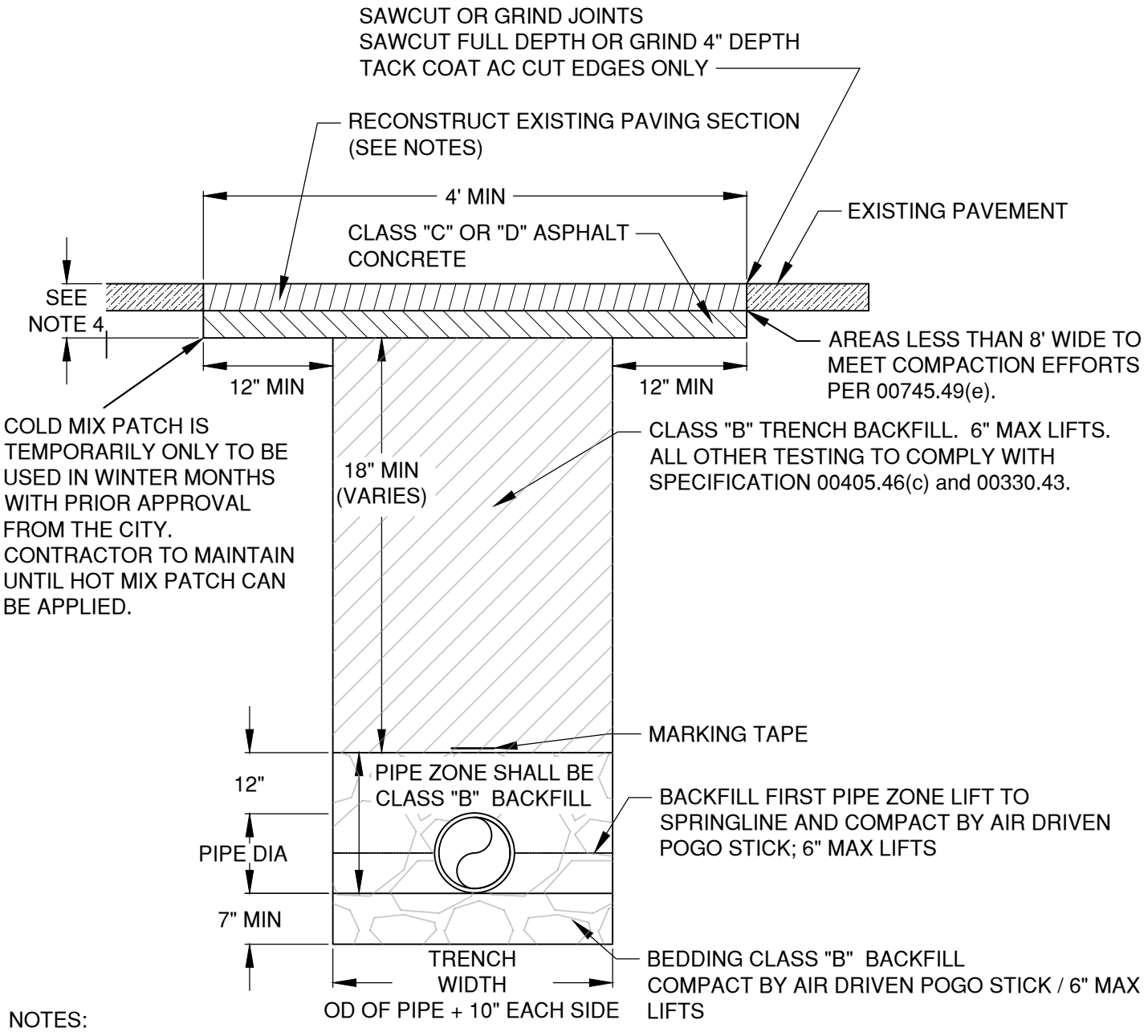
SIDEWALK FROM CURB TO NEAR BUILD





NOTES:
1) SET TO MUTCD SPECS SEE R-8 FOR COB STREET NAME SIGN REQUIREMENTS.
2) CHECK THAT SIGN IS NOT OBSCURED BY VEGETATION, TRIM IF NEEDED.

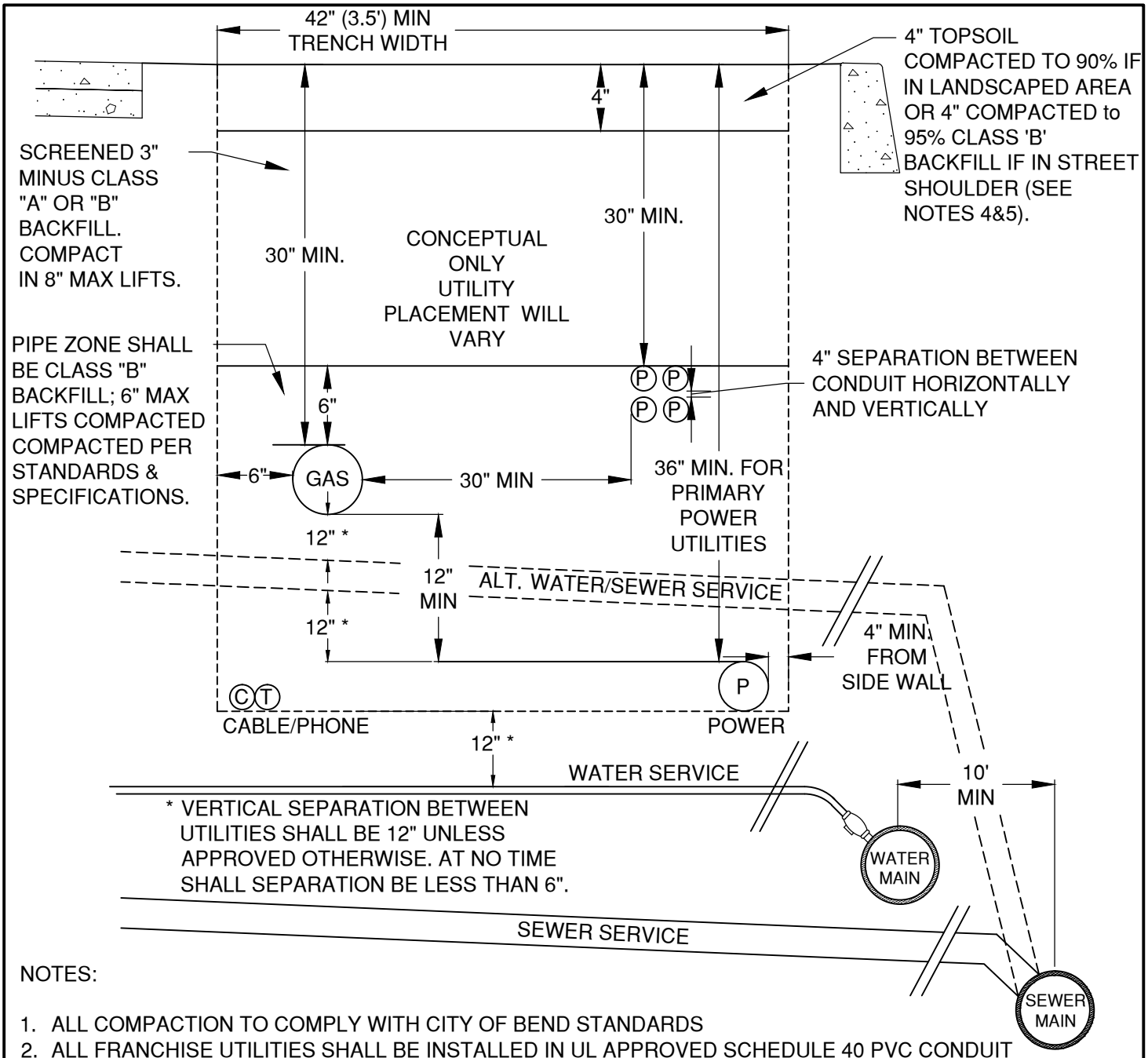
DRAWN LJC DIV ROADWAY REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 STANDARD STREET SIGN PLACEMENT	SCALE NTS DATE 3/31/19 APPR STD DWG R-9



NOTES:

1. CDF/CLSM - COMPLY WITH SPECIFICATION 00442
2. ALL EXISTING AC OR PCC PAVEMENT SHALL BE SAWCUT PRIOR TO REPAVING. CONCRETE SHALL BE CUT AND REPLACED TO THE NEAREST JOINT(S).
3. CONCRETE PAVEMENT SHALL BE REPLACED WITH CONCRETE TO A MINIMUM THICKNESS OF 6" OR TO THE THICKNESS OF REMOVED PAVEMENT, WHICHEVER IS GREATER
4. PLACE AC A MINIMUM THICKNESS AS SPECIFIED FOR MINIMUM PAVEMENT FOR STREET CONSTRUCTION OR TO THE THICKNESS OF REMOVED PAVEMENT, WHICHEVER IS GREATER. 2" LIFTS MAXIMUM FOR PLACEMENT
5. ALL COMPACTION TO COMPLY WITH SPECIFICATION SECTION 00330.43
6. THE FINAL 18" OF BACKFILL MAY BE CLASS B BACKFILL PROVIDED THE FINAL 4" TO FINISH GRADE IS PLACED AS HOT MIX ASPHALT CONCRETE PER SPECIFICATION SECTION 00745

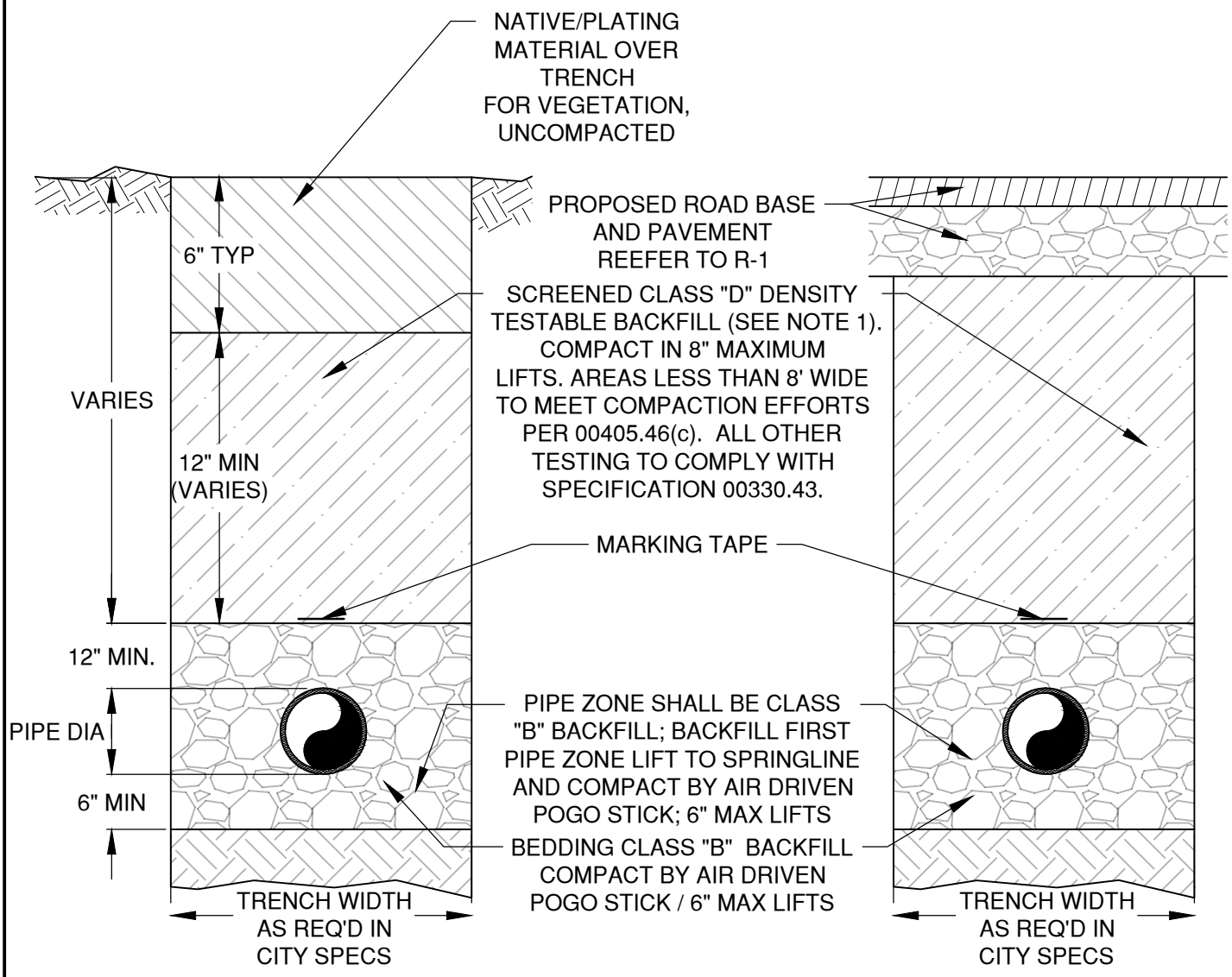
DRAWN LJC DIV ROADWAY REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 TRENCH IN EXISTING PAVEMENT	SCALE NTS DATE 3/31/19 APPR STD DWG R-10



NOTES:

1. ALL COMPACTION TO COMPLY WITH CITY OF BEND STANDARDS
2. ALL FRANCHISE UTILITIES SHALL BE INSTALLED IN UL APPROVED SCHEDULE 40 PVC CONDUIT WITH SCHEDULE 40 PVC FITTINGS UNLESS OTHERWISE APPROVED.
3. UTILITY SIZES AND LOCATION SHALL BE DETERMINED BY THE UTILITY COMPANY. LOCATION TO BE SHOWN AND APPROVED BY CITY WITH A RIGHT OF WAY (ROW) PERMIT.
4. WHERE STORM SWALES ARE PROPOSED WITHIN THE LANDSCAPE STRIP, FRANCHISE UTILITIES SHALL BE INSTALLED OUTSIDE OF THE SWALE AREA.
5. TOP SOIL LAYER TO BE COMPACTED TO 90% MAX DENSITY. WHERE SIDEWALK IS PLACED OVER FRANCHISE UTILITY TRENCH, NO TOP SOIL SHALL BE PLACED AND SIDEWALK TO BE CONSTRUCTED TO COMPLY WITH CITY STANDARDS R-4A AND R-4B
6. STANDARD SHOWN FOR NEW CONSTRUCTION. MODIFICATIONS SHALL BE MADE WHEN WITHIN EXISTING DEVELOPMENTS WHERE APPROVED BY THE CITY ENGINEER.
7. UTILITIES OUTSIDE THE RIGHT OF WAY SHALL BE WITHIN A PUBLIC UTILITIES EASEMENT (PUE). BACKFILL AND INSTALLATION REQUIREMENTS STILL COMPLY WITH THE PUE.

DRAWN CJH	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 12/1/2017
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
12/1/2017		FRANCHISE UTILITY JOINT TRENCH	STD DWG R-10A



TYPICAL TRENCHING IN UNIMPROVED AREAS, PROPOSED LANDSCAPE AREAS WITHIN ROW, OR WITHIN PUBLIC UTILITY EASEMENT OUTSIDE ROADWAY

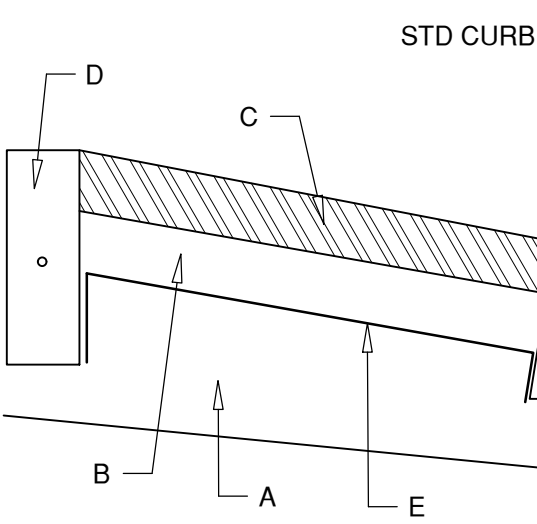
TYPICAL TRENCHING IN FULL ROAD RECONSTRUCT OR NEW PROPOSED ROADS

NOTES:

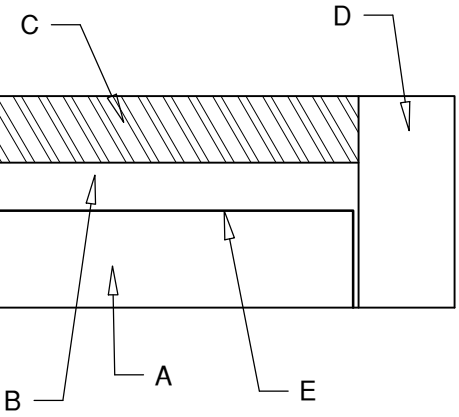
1. CLASS D BACKFILL SHALL BE PIT RUN OR BAR RUN MATERIAL, WELL-GRADED FROM COARSE TO FINE. THE MAXIMUM DIMENSION SHALL BE 3 INCHES.
2. ALL COMPACTION TO COMPLY WITH SPECIFICATION SECTION 00330.43 and 00405.46(c).
3. UNIMPROVED AREA CONSISTS OF ANY PORTION OF THE ROW THAT HAS NOT BEEN IMPROVED TO A CITY STANDARD AND CONSISTS MOSTLY OF NATIVE VEGETATED AREAS. UNIMPROVED AREAS ALSO INCLUDE AREAS WITHIN THE LANDSCAPE STRIP, PUEs, AND UNDER PROPOSED AND/OR FULLY RECONSTRUCTED STREETS, AS INDICATED IN THIS STANDARD.

DRAWN LJC DIV ROADWAY REV / DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 TRENCH IN UNIMPROVED AREAS	SCALE NTS DATE 3/31/19 APPR STD DWG R-11

ROADWAY/COMMERCIAL DRIVEWAY



SIDEWALK

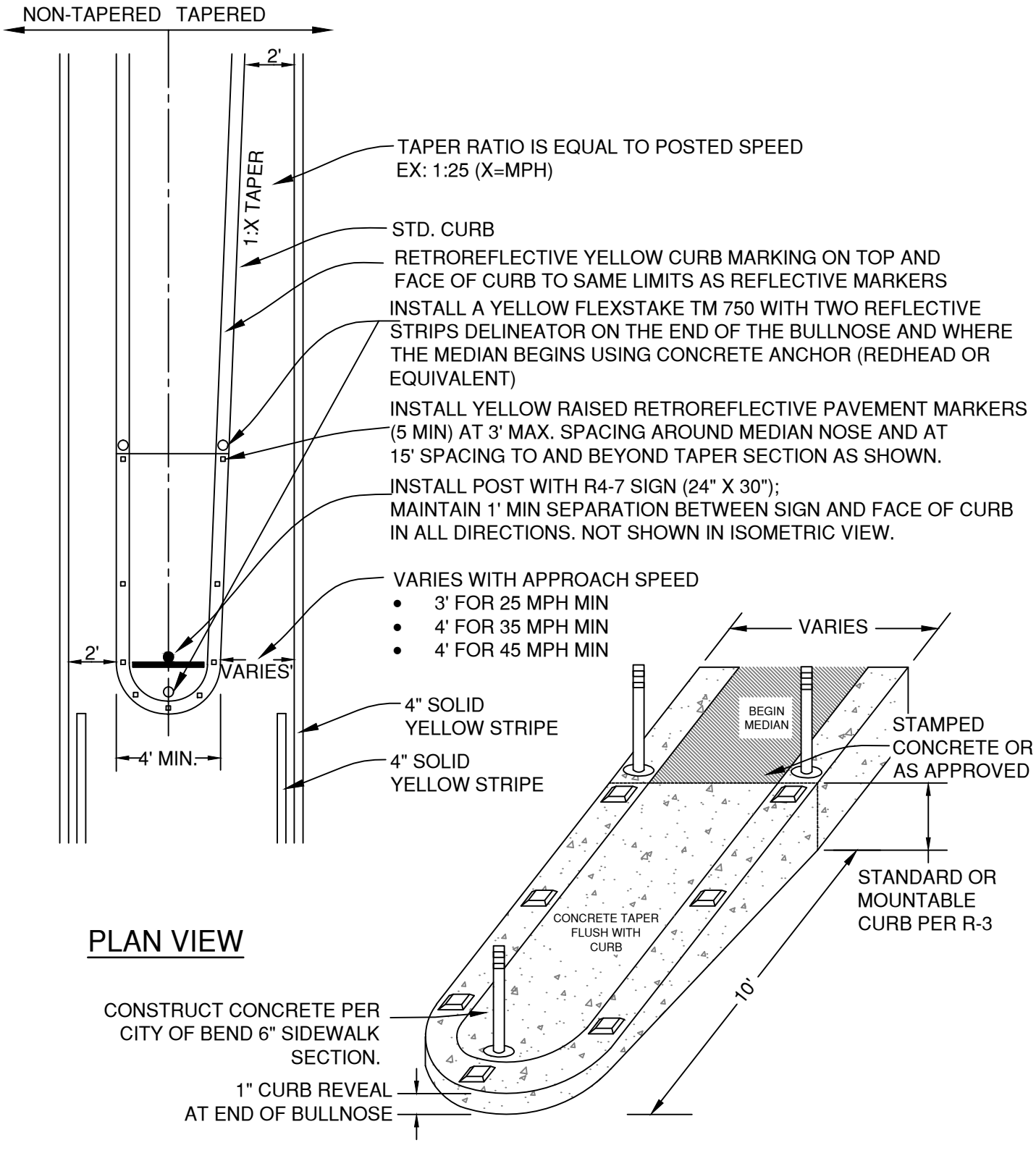


		DRIVEWAY/ ACCESSIBLE RAMP	URBAN SIDEWALK, URBAN H/C RAMP	ROADWAY/ COMMERCIAL D/W
A	BASE (SEE NOTE 4)	4"	4"	4" MIN CONC TREATED BASE
B	SAND LAYER (SEE NOTE 5)	1"	1"	1"
C	PAVER (HEIGHT) (SEE NOTE 6)	80 mm	60 mm	80 mm
D	EDGE RESTRAINT	4"x8" CONCRETE (SEE NOTE 2)	4"x8" CONCRETE (SEE NOTE 3)	DESIGN FOR ST W/ #4 REBAR
E	GEOTEXTILE (SEE NOTE 7)	YES	YES	YES

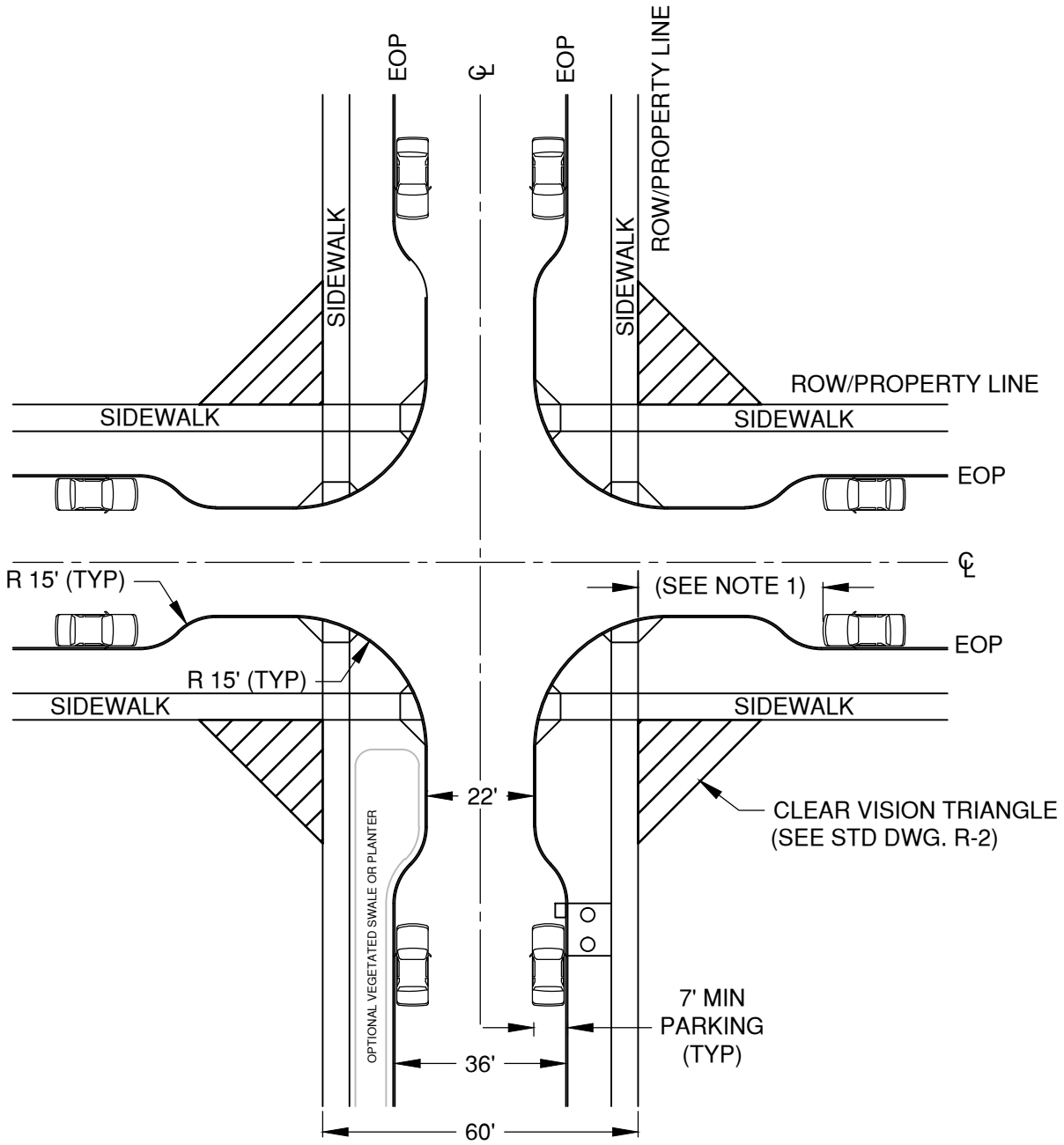
NOTES:

1. CONCRETE PAVERS FOR USE IN THE CENTRAL BUSINESS DISTRICT ONLY UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER. COORDINATION REQUIRED WITH STREETS DEPT.
2. #4 LONGITUDAL REBAR REQUIRED AT DRIVEWAYS
3. WHERE SUPPORT IS PROVIDED BY BUILDING FOUNDATIONS, EDGE RESTRAINT IS NOT REQ'D #4 LONGITUDINAL REBAR REQ'D AT DRIVEWAYS
4. BASE MATERIAL TO BE CLASS "B" BACKFILL, THOROUGHLY COMPACTED TO 95% OF MAX DENSITY. AASHTO TEST, T99-74 METHOD "C"
5. SAND LAYER TO BE CLASS "C" BACKFILL. SAND TO BE SCREENED, WETTED, COMPACTED BY VIBRATORY PLATE COMPACTOR, THEN RE-SCREEDED WITH ADDITIONAL SAND ADDED TO LOW SPOTS, PRIOR TO PLACING PAVERS
6. PAVERS, INCLUDING EDGE PIECES ARE TO BE LAID TIGHTLY, THEN COMPACTED INTO PLACE WITH A VIBRATORY PLATE COMPACTOR
7. FIBRETEX GEO-TEXTILE FABRIC GRADE 150
8. PAVERS SHALL BE SMOOTH SURFACED, FLAT AND SHALL NOT CONTAIN BEVELED EDGES WHEN USED AS THE SURFACE MATERIAL ALONG AN ACCESSIBLE PEDESTRIAN ROUTE

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 12/1/17
REV 2 / DATE 12/1/17		710 NW WALL ST., BEND, OREGON 97701	APPR
	CITY OF BEND	CONCRETE PAVERS	STD DWG R-20



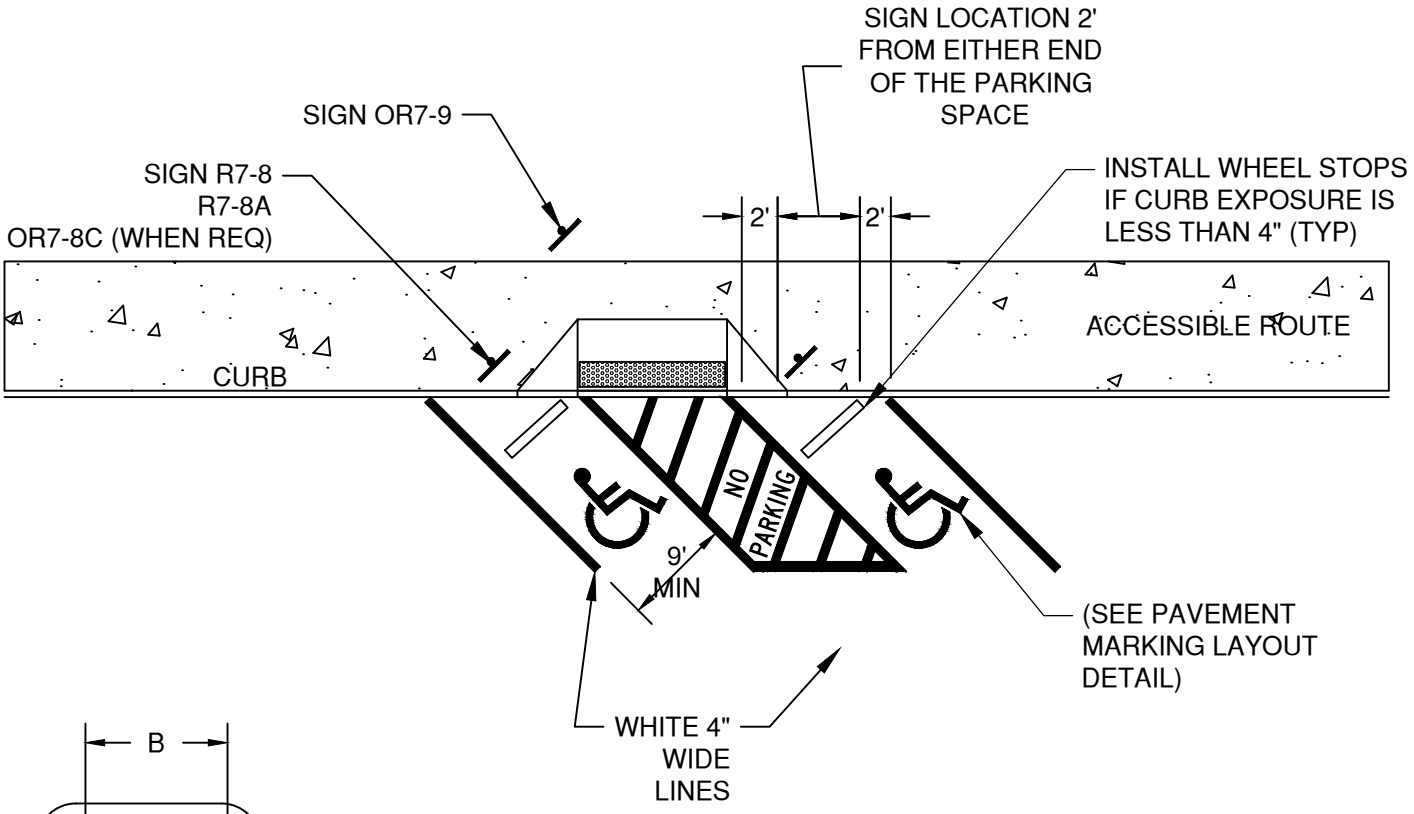
DRAWN LJC	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV ROADWAY			DATE 3/31/19
REV | DATE			APPR
	CITY OF BEND	MEDIAN END DETAIL	STD DWG R-25



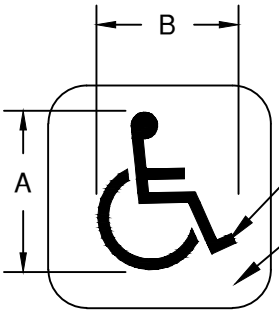
NOTES:

1. NO PARKING WITHIN 20' OF AN INTERSECTION
2. AS REQUIRED BY THE CITY ENGINEER, INSTALL YELLOW FLEXSTAKE TM 750 DELINEATOR FOR PLOW SIGNAGE AT CURB EXTENSIONS.
3. USE LOW GROWING VEGETATION FOR BIORETENTION SWALES/ PLANTERS LOCATED IN CURB EXTENSIONS.
4. CURB RETURNS TO BE CONSTRUCTED PER 3.5.1.2

DRAWN CJH	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 3/31/19
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		LOCAL STREET CURB EXTENSIONS	STD DWG R-26

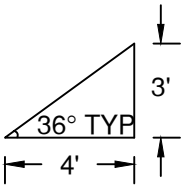


PLAN

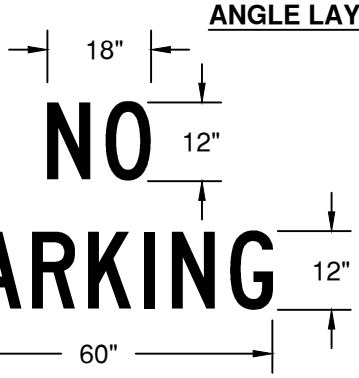


LEGEND	DIMENSIONS (INCHES)		
	A	B	C
MINIMUM	28	24	3
STANDARD	41	36	4

PAVEMENT MARKING LAYOUT



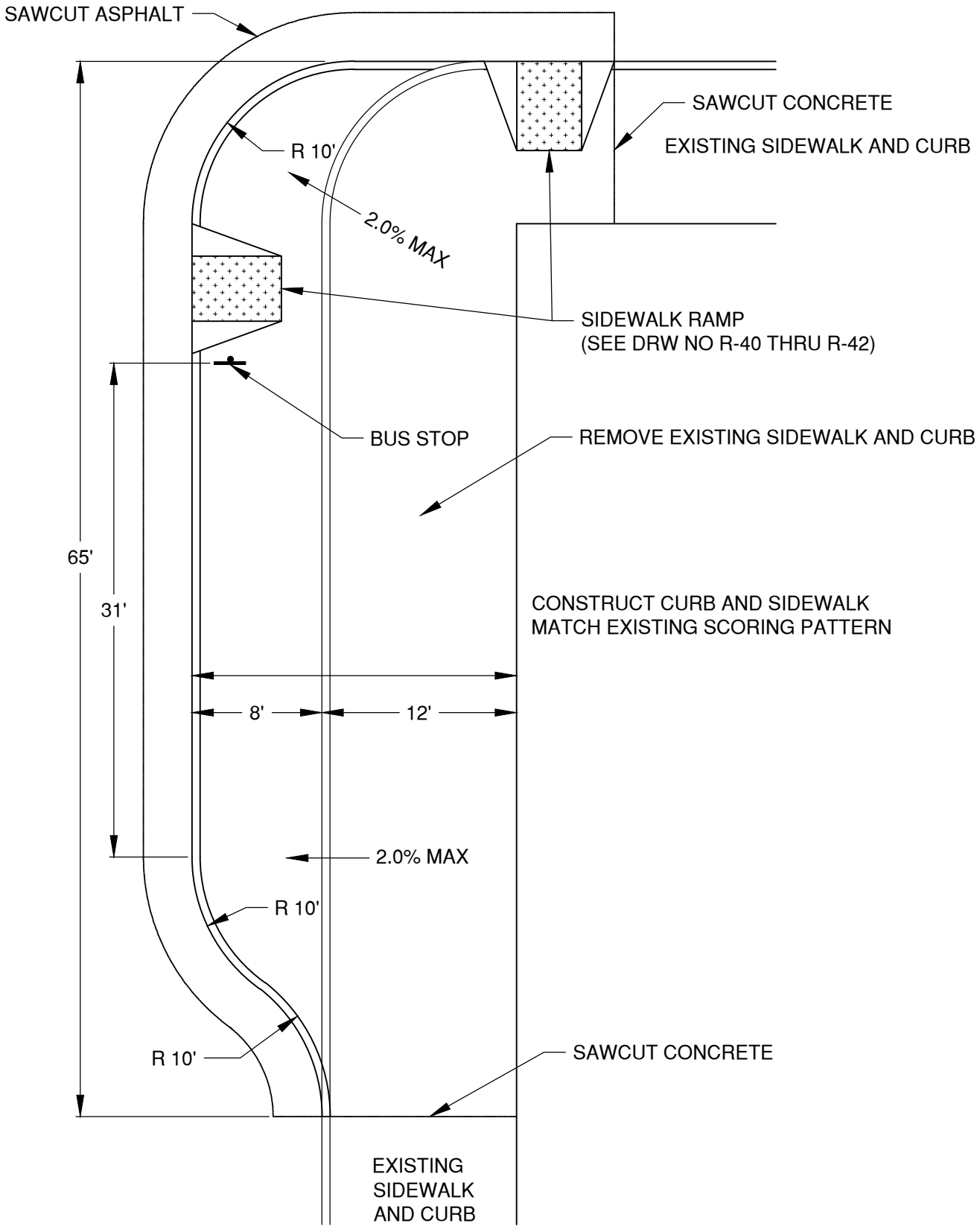
ACCESS AISLE ANGLE LAYOUT



NOTE:

1. THIS IS ONE EXAMPLE OF AN ACCESSIBLE PARKING CONFIGURATION. REFER TO ODOT ACCESSIBLE PARKING STANDARDS FOR ADDITIONAL DETAILS AND OTHER CONFIGURATIONS.
2. ALL SIGNS AND PLACEMENT SHALL CONFORM TO ODOT STANDARDS.

DRAWN	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV ROADWAY			DATE 3/31/19
REV / DATE			APPR
		ACCESSIBLE PARKING - ANGLE	STD DWG R-29



DRAWN	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 12/1/17
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		FULL CURB EXTENSION	STD DWG R-31

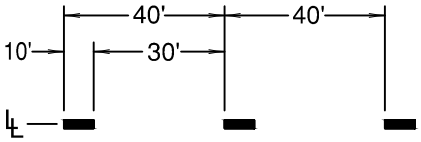
W

4" WHITE LINE

W-2

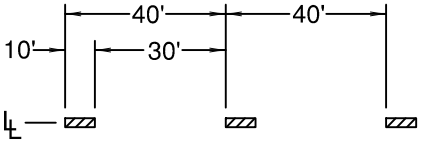
8" WHITE LINE

WB



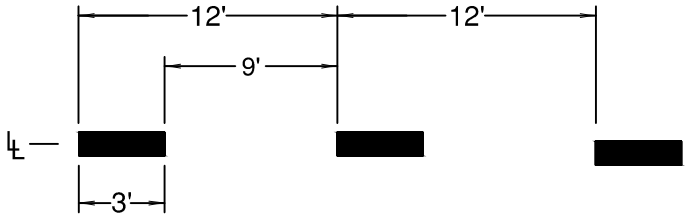
4" WHITE BROKEN LINE

YB



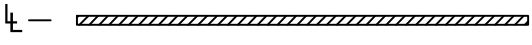
4" YELLOW BROKEN LINE

DLL-2



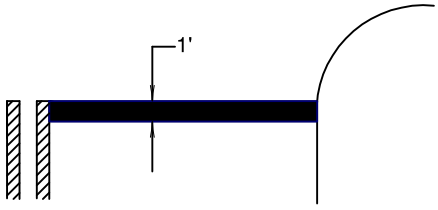
8" WHITE LANE DROP LINE

Y



4" YELLOW LINE

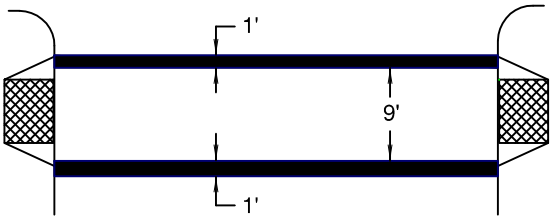
S



STOP BAR
1' WHITE BAR

INSTALL PER STANDARD DRAWING R-45
INSTALL AS TYPE B-HS PREFORMED THERMOPLASTIC
NOT REQUIRED AT LOCAL/LOCAL INTERSECTIONS
NOT REQUIRED IN FRONT OF MARKED CROSSWALKS

CW

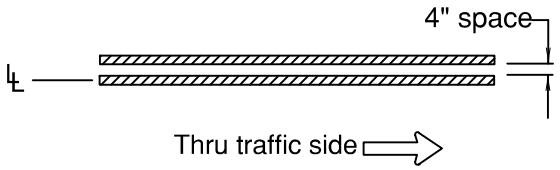


STANDARD CROSSWALK
TWO 1' WHITE BARS

INSTALL PER STANDARD DRAWING R-47
INSTALL AS TYPE B-HS PREFORMED THERMOPLASTIC
INSTALL AT CONTROLLED APPROACH

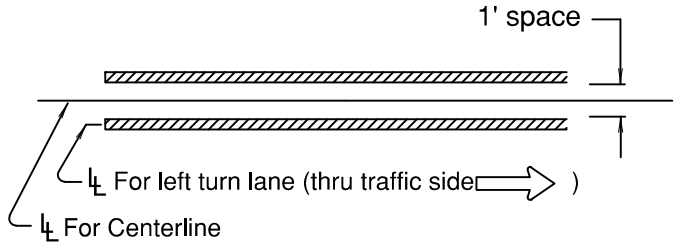
DRAWN CJH	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 3/31/19
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		PAVEMENT MARKINGS	STD DWG R-40

NDY



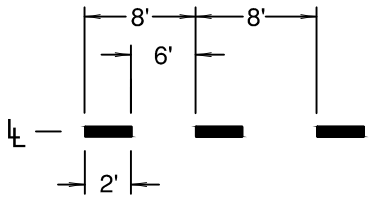
NARROW DOUBLE NO-PASS
TWO 4" YELLOW LINES

DY



DOUBLE NO-PASS
TWO 4" YELLOW LINES

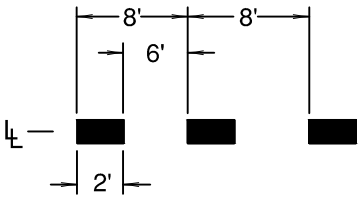
WD



4" WHITE DOTTED LINE

For lane extensions

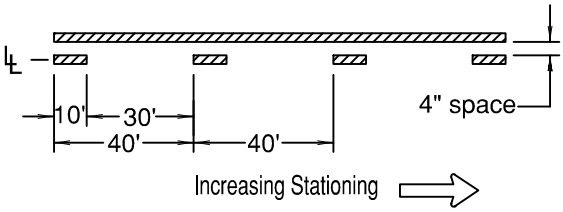
WD-2



8" WHITE DOTTED LINE

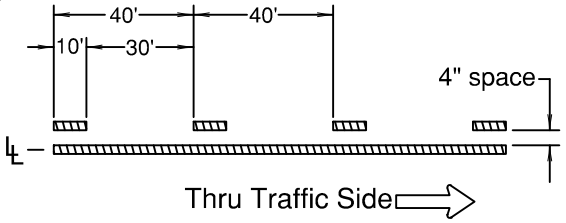
For lane extensions and bike lane extensions

NPL



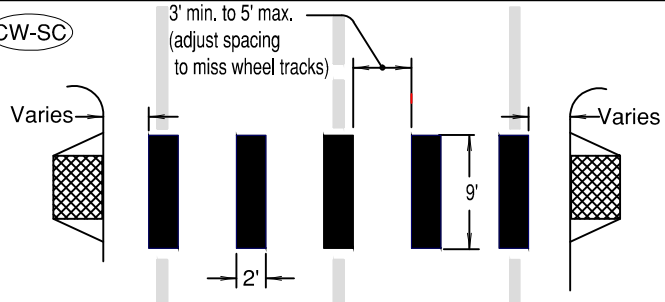
NO-PASS LEFT
4" YELLOW LINES

TWL



TWO-WAY LEFT TURN
4" YELLOW LINES

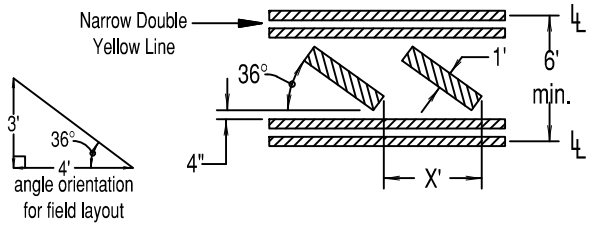
CW-SC



STAGGERED CONTINENTAL CROSSWALK
2' WHITE BARS

Install per Standard Drawing R-47; INSTALL AS TYPE B-HS PREFORMED THERMOPLASTIC; INSTALL AT UNCONTROLLED APPROACH

TM-(X)

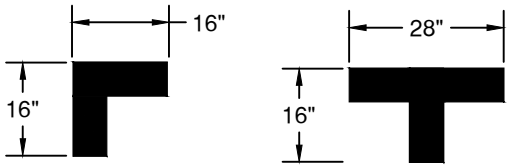


TRANSVERSE MEDIAN BARS
1' YELLOW BARS AT 20' SPACING

X = 20', Typical
(40' spacing may be used where median length exceeds 200')

DRAWN CJH	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 3/31/19
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		PAVEMENT MARKINGS	STD DWG R-41

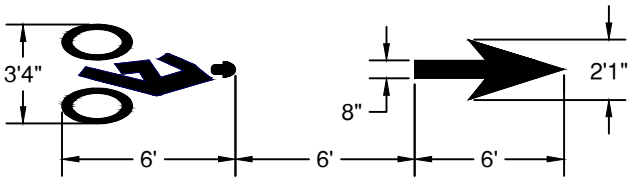
P



ON-STREET PARKING DETAIL (white)

PARKING STALL DESIGNATION REQUIRES CONFORMANCE TO PROWAG
Install in Type B - HS Preformed Thermoplastic or Methyl Methacrylate (MMA)

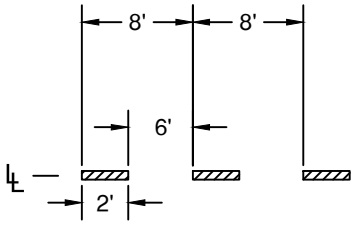
BS



BIKE LANE STANDARD STENCIL (white)

Center marking within lane width
Install in Type B - HS Preformed Thermoplastic
For proportion details, see current version of FHWA Standard Highway Signs

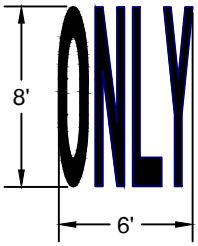
YD



4" YELLOW DOTTED LINE

For lane extensions
Install in Paint

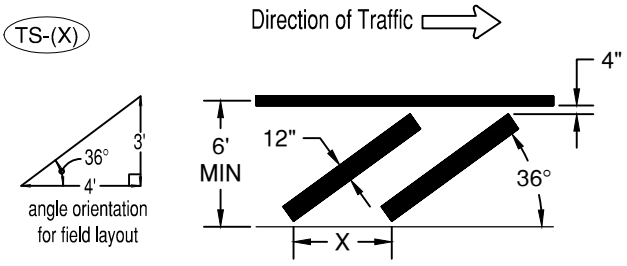
ON



ONLY (white)

Center marking within lane width
Install in Type B - HS Preformed Thermoplastic
For letter proportion details, see current version of FHWA Standard Highway Signs

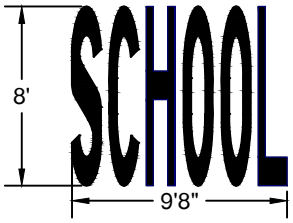
TS-(X)



TRANSVERSE SHOULDER BARS
1' WHITE BARS AT 20' SPACING

X = 20', Typical
(40' spacing may be used where median length exceeds 200')
Install in Paint

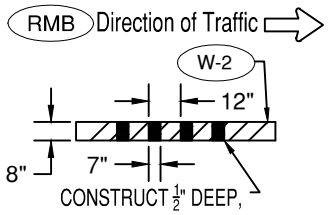
SCH



SCHOOL (white)

Center marking within lane width
Install in Type B - HS Preformed Thermoplastic
For letter proportion details, see current version of FHWA Standard Highway Signs
Install at school speed zone sign on arterial and collector roads

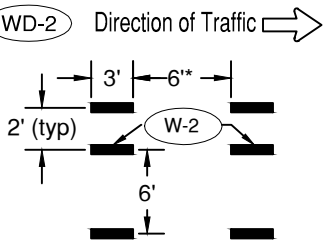
RMB



CONSTRUCT ½" DEEP, MILLED-IN EDGE LINE RUMBLE STRIP WHERE SHOWN ON THE PLANS. INSTALL PRIOR TO NEW PAINT APPLICATION.

8" RUMBLE STRIP

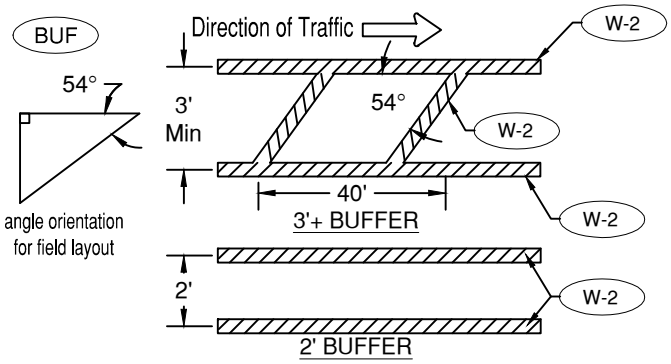
WD-2



BIKE MARKING EXTENSION THROUGH INTERSECTION

* 6' or bike lane width
Install buffer stripes in Methyl Methacrylate (MMA)

BUF

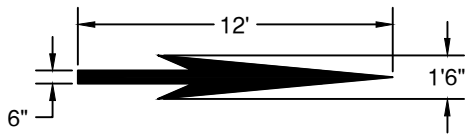


BUFFER STRIPE

Install buffer stripes in Methyl Methacrylate (MMA) / horizontal stripes parallel with traffic in paint

DRAWN CJH	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 3/31/19
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		PAVEMENT MARKINGS	STD DWG R-42

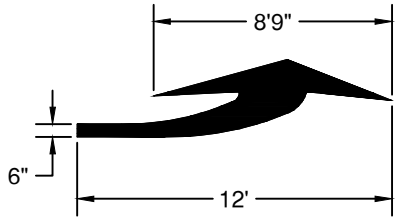
E-SA



ELONGATED STRAIGHT ARROW (white)

For arrow proportion details, see current version of FHWA Standard Highway Signs
Install in Type B - HS Preformed Thermoplastic
Center marking within lane width

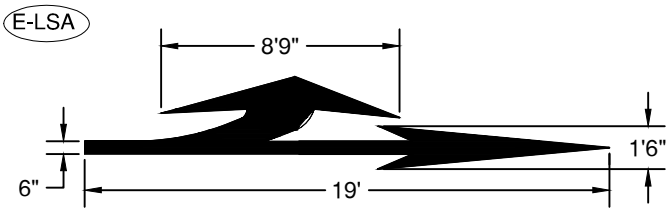
E-LA
E-RA



ELONGATED TURN ARROW (white)

For arrow proportion details, see current version of FHWA Standard Highway Signs
Install in Type B - HS Preformed Thermoplastic
Center marking within lane width
Use E-LA for Left Turn and E-RA for right turn.

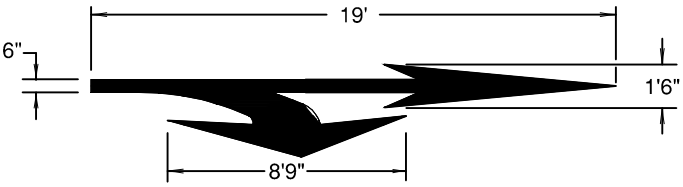
E-LSA



ELONGATED LEFT TURN STRAIGHT ARROW (white)

For arrow proportion details, see current version of FHWA Standard Highway Signs
Install in Type B - HS Preformed Thermoplastic
Center marking within lane width

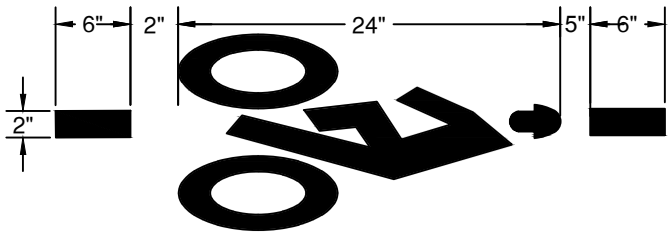
E-RSA



ELONGATED RIGHT TURN STRAIGHT ARROW (white)

For arrow proportion details, see current version of FHWA Standard Highway Signs
Install in Type B - HS Preformed Thermoplastic
Center marking within lane width

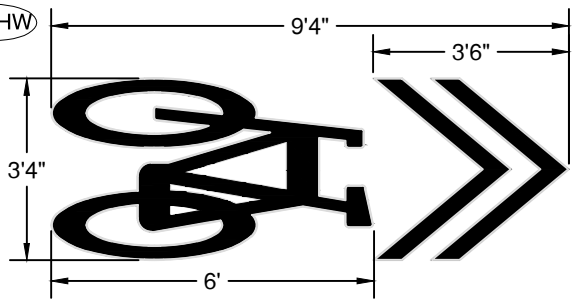
BD



BIKE DETECTOR (WHITE)

Install in Type B - HS Preformed Thermoplastic
Center marking within lane width

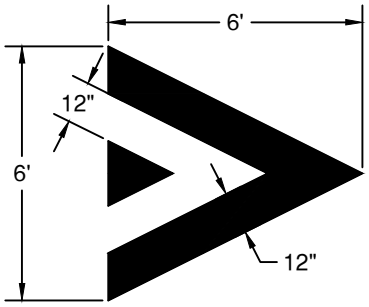
B-SHW



SHARROWS (WHITE)

Install in Type B - HS Preformed Thermoplastic
Center marking within lane width
Arrow may be turned in direction of travel.

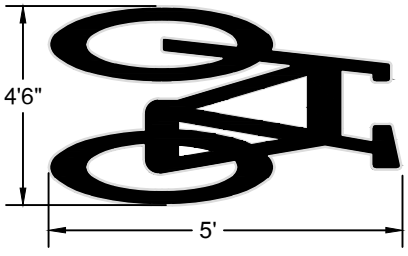
SB



SPEED BUMP MARKING (WHITE)

Install in Type B - HS Preformed Thermoplastic
Center marking within lane width

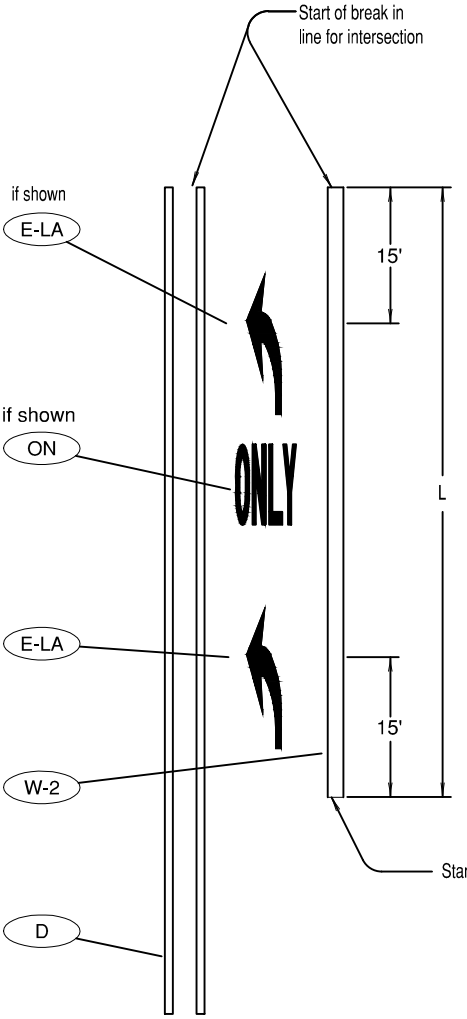
BSS



BIKE SYMBOL (WHITE)

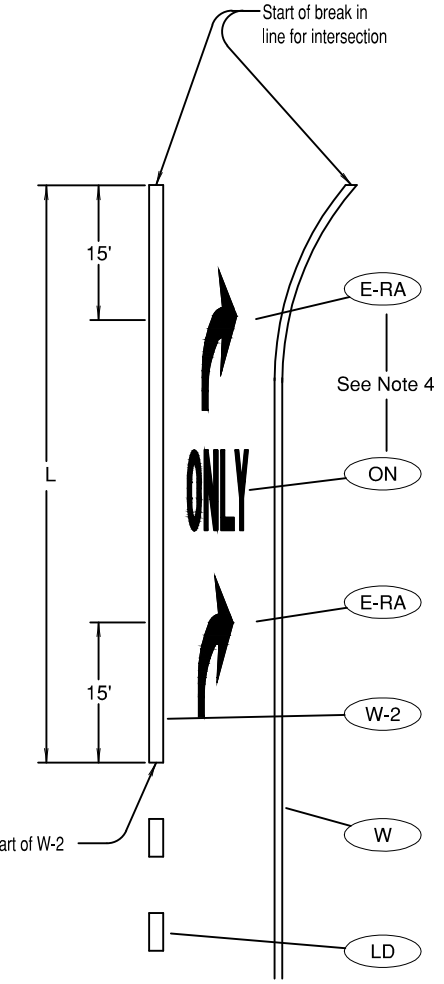
Install in Type B - HS Preformed Thermoplastic
Center marking within lane width

DRAWN CJH	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 3/31/19
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		PAVEMENT MARKINGS	STD DWG R-43



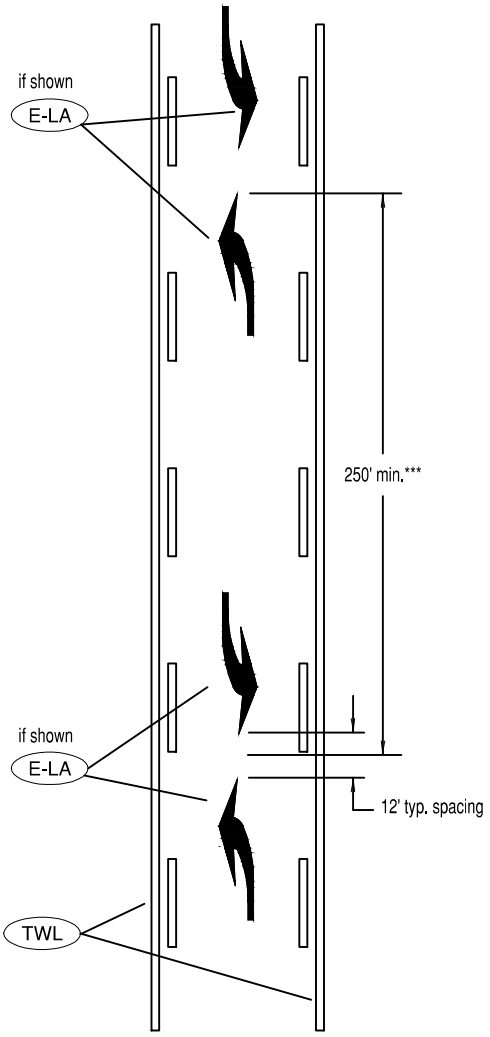
LANE USE ARROW PLACEMENT (L≤ 400')

DETAIL "A"



LANE USE ARROW PLACEMENT - TRAP LANE

DETAIL "B"



TWO-WAY LEFT TURN LANE ARROW MARKING PLACEMENT

DETAIL "C"

General Notes:

1.) Center pavement marking legends within the lane.

2.) Placement of lane use arrows with respect to the 8" wide white line (W-2) channelization shown in details "A", "B" and "C" apply to both left and right turn lanes.

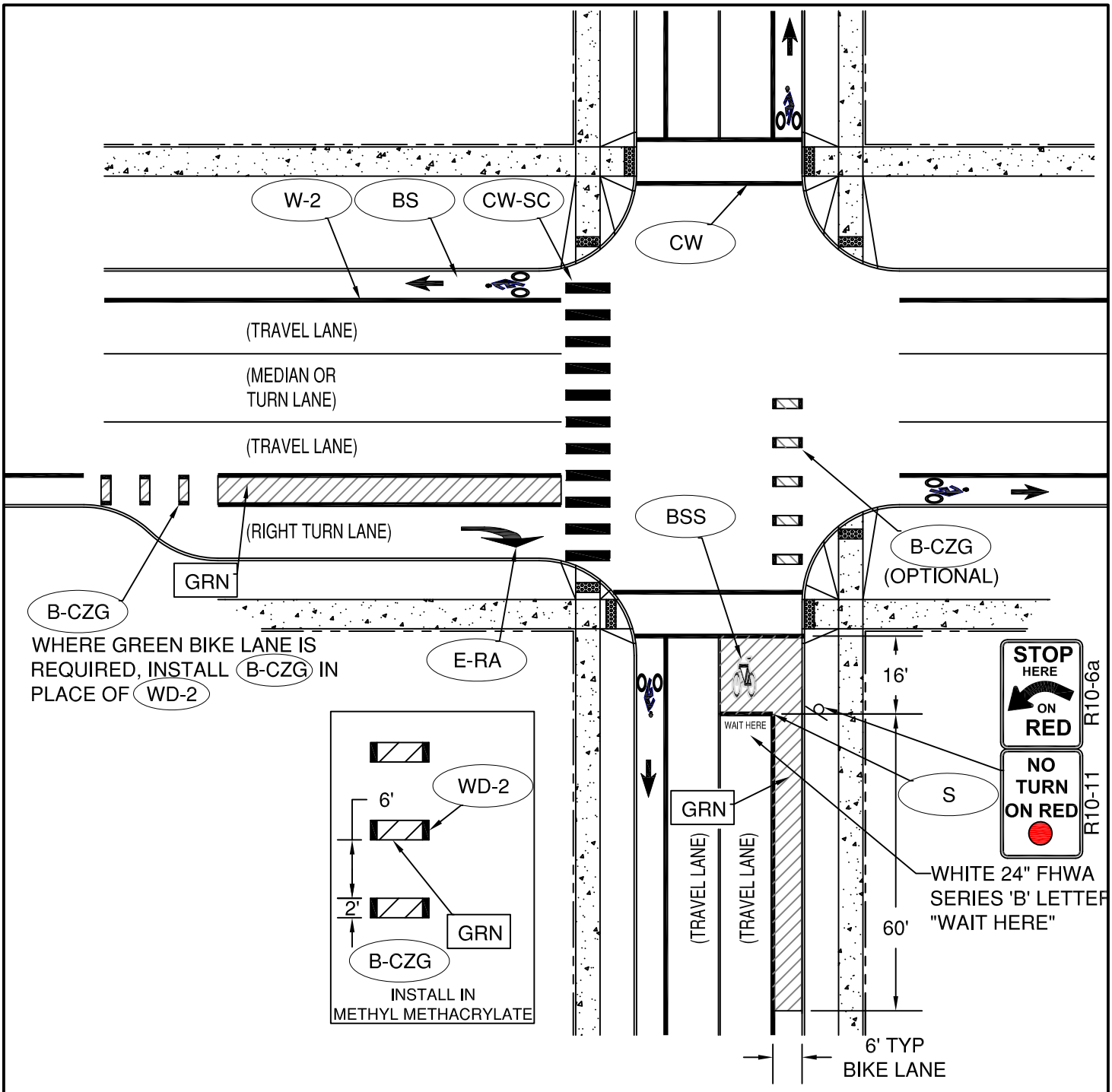
3.) When used for a short turn lane (<40'), the 2nd (downstream) arrow may be omitted.

4.) An ONLY symbol is only required where a through lane approaching an intersection becomes a mandatory turn lane.

** When L is greater than 200', install 3rd lane use arrow at the midpoint of the turn lane.

To be accompanied by Standard Dwg. Nos. R-40 thru R-43

DRAWN CJH	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 3/31/19
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		TURN LANE MARKING LAYOUT	STD DWG R-44

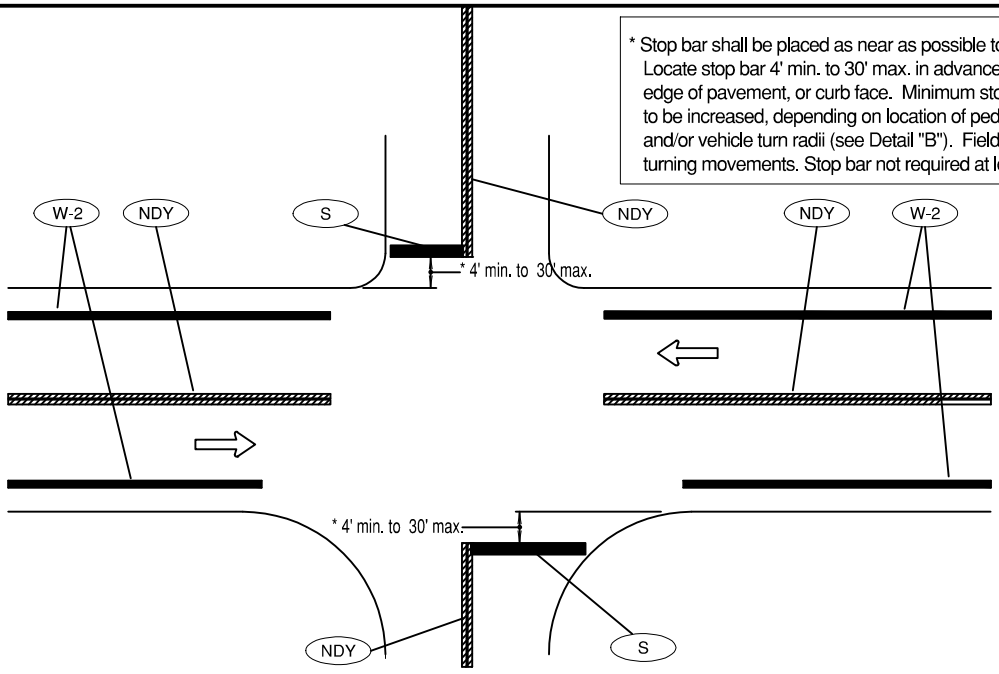


NOTES:

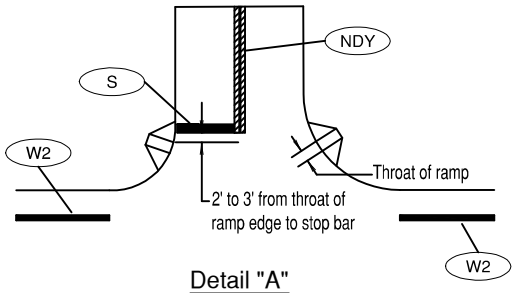
1. APPLICATION OF BIKE BOX AND GREEN PAINT INSTALLATION AS DIRECTED BY THE CITY ENGINEER.
2. B-CZG MARKINGS SHALL BE USED IN CONJUNCTION WITH GREEN METHYL METHACRYLATE INSTALLATION. USED TO DEFINE BIKE LANE ACROSS KEY VEHICLE CONFLICT AREAS AT RIGHT TURN LANES OR TO DELINEATE CONTINUATION OF BIKE LANE WITHIN CONFLICT AREAS.

DRAWN CJH	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 12/16/17
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		INTERSECTION BIKE SAFETY	STD DWG R-44A

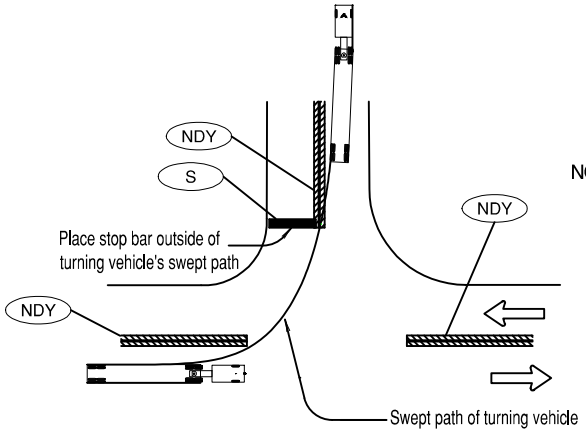
* Stop bar shall be placed as near as possible to the intersecting traveled way. Locate stop bar 4' min. to 30' max. in advance of the extended fog line, edge of pavement, or curb face. Minimum stop bar distance may need to be increased, depending on location of pedestrian ramps (see Detail "A") and/or vehicle turn radii (see Detail "B"). Field verify sight distance and truck turning movements. Stop bar not required at local/local intersections.



PAVEMENT MARKINGS FOR TYPICAL INTERSECTION



Detail "A"
STOP BAR PLACEMENT WITH
RESPECT TO PEDESTRIAN RAMPS

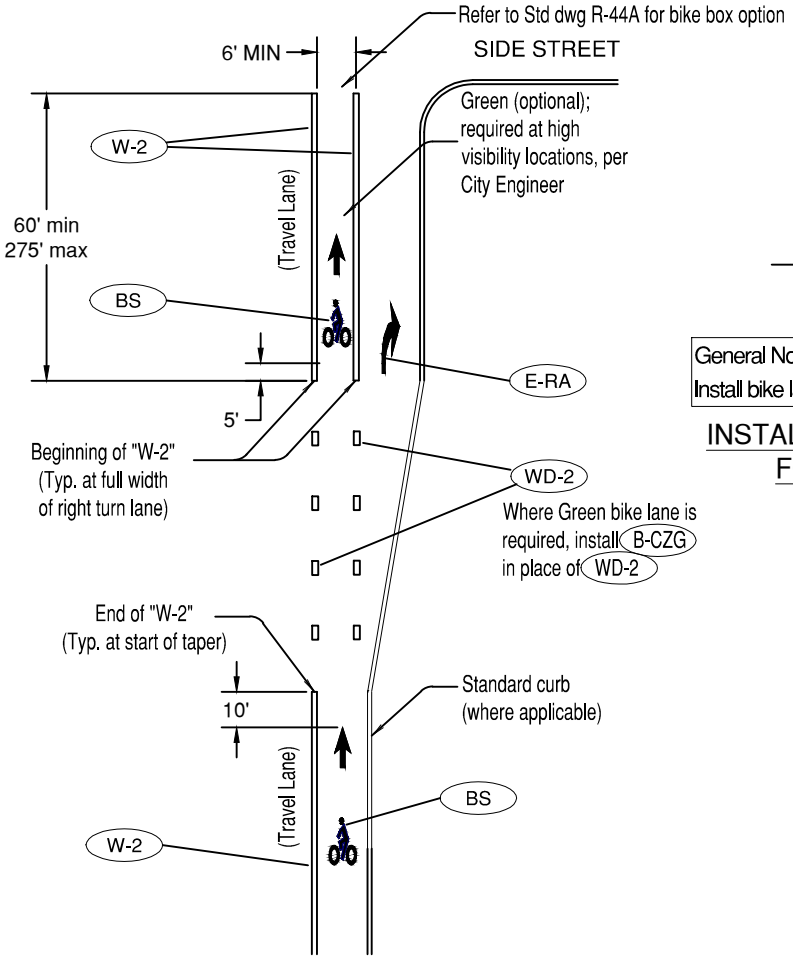


NOTE: Use W if <4' shoulder (no bike lane).
Use W-2 if a bike lane exists.

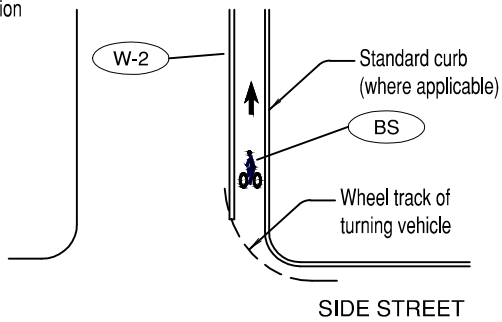
Detail "B"
STOP BAR PLACEMENT WITH
RESPECT TO TURN RADII

To be accompanied by Standard Dwg. Nos. R-40 thru R-43

DRAWN CJH	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV ROADWAY			DATE 3/31/19
REV DATE			APPR
		INTERSECTION PAVEMENT MARKING LAYOUT	STD DWG R-45

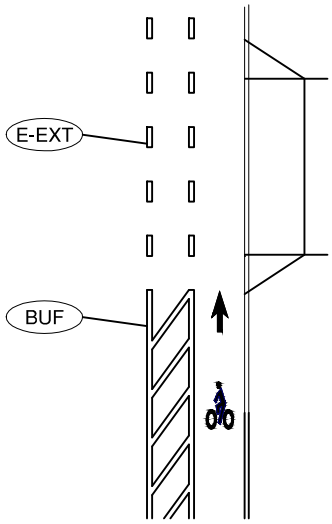


INSTALLATION OF BIKE LANE STENCILS
FOR BIKE LANE SEPARATED BY RIGHT TURN LANE



General Note:
Install bike lane stencil to avoid right turning vehicle wheel tracks.

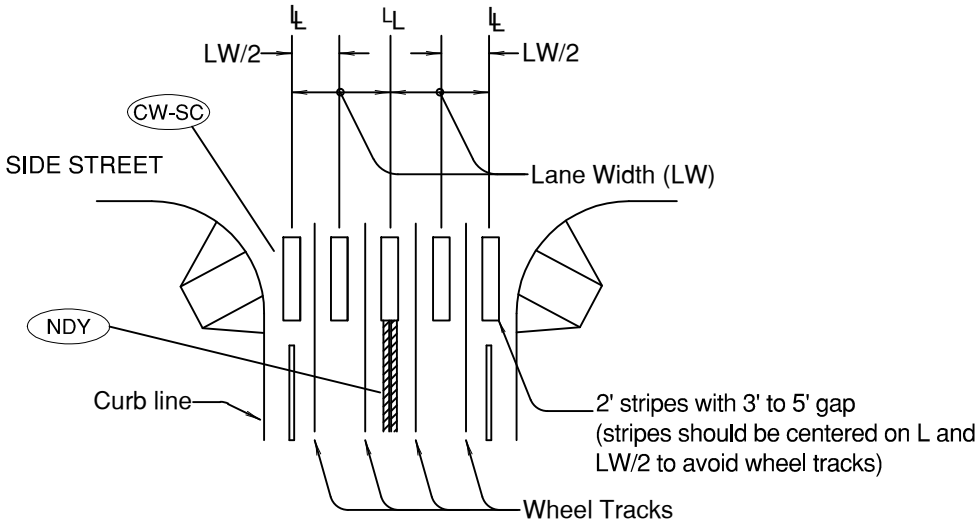
INSTALLATION OF BIKE LANE STENCILS
FOLLOWING INTERSECTIONS



BUFFER BIKE LANE
IN CONFLICT AREA

To be accompanied by Standard Dwg. Nos. R-40 thru R-43 and R-44A

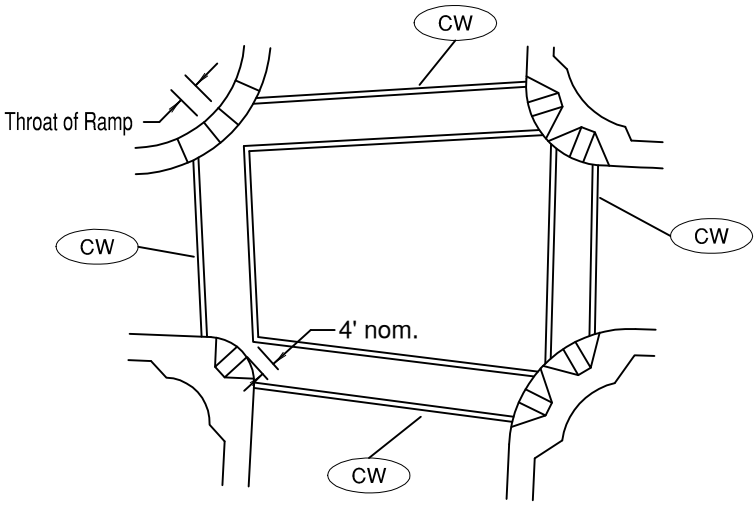
DRAWN CJH DIV ROADWAY REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 BIKE LANE MARKINGS	SCALE NTS DATE 3/31/19 APPR STD DWG R-46



STAGGERED CONTINENTAL LAYOUT

General Note:

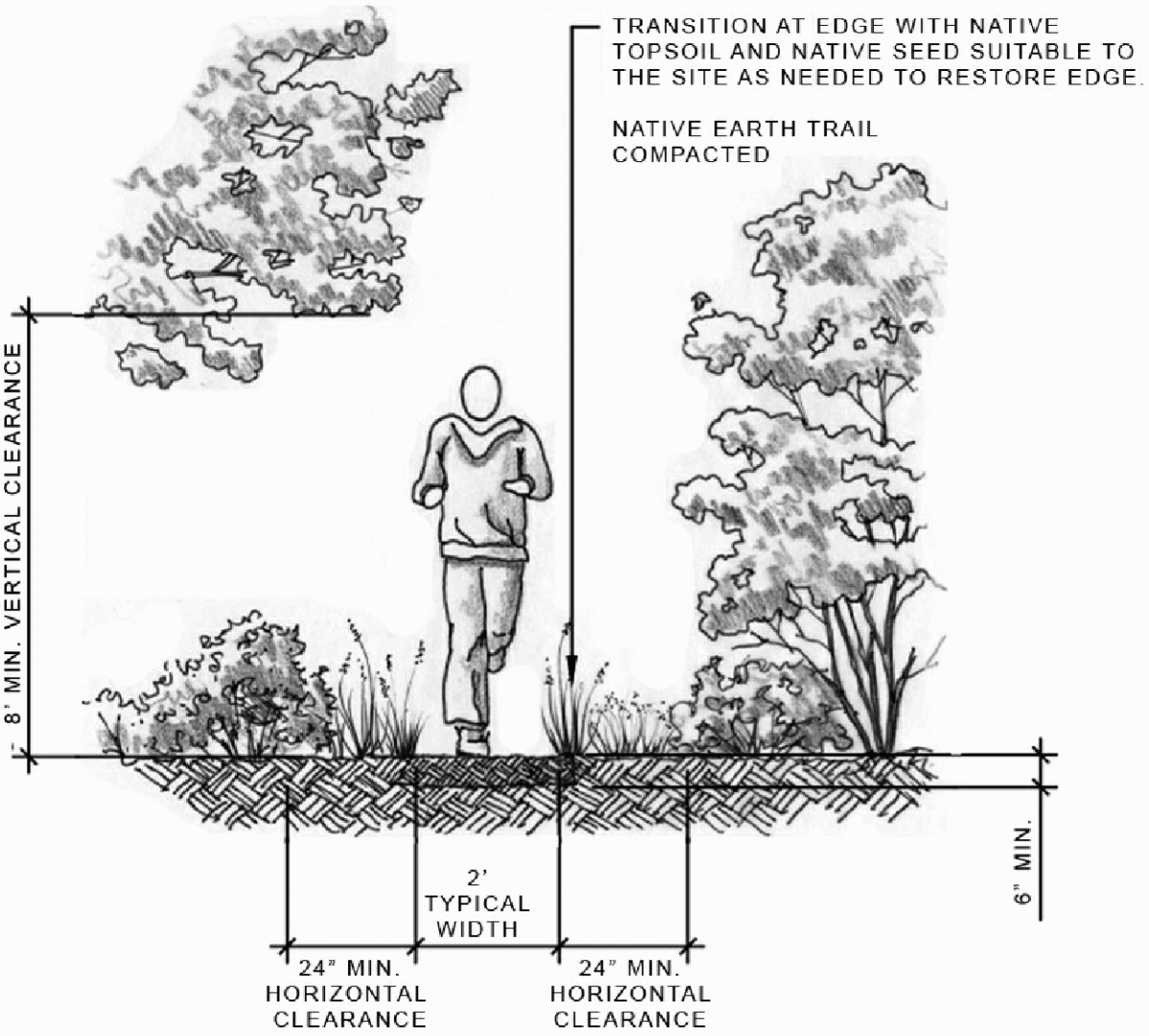
1. Install crosswalk bars such that the throat of the ADA ramp is entirely within crosswalk markings, or 5' back of extended fog line, edge of pavement, or curb face.



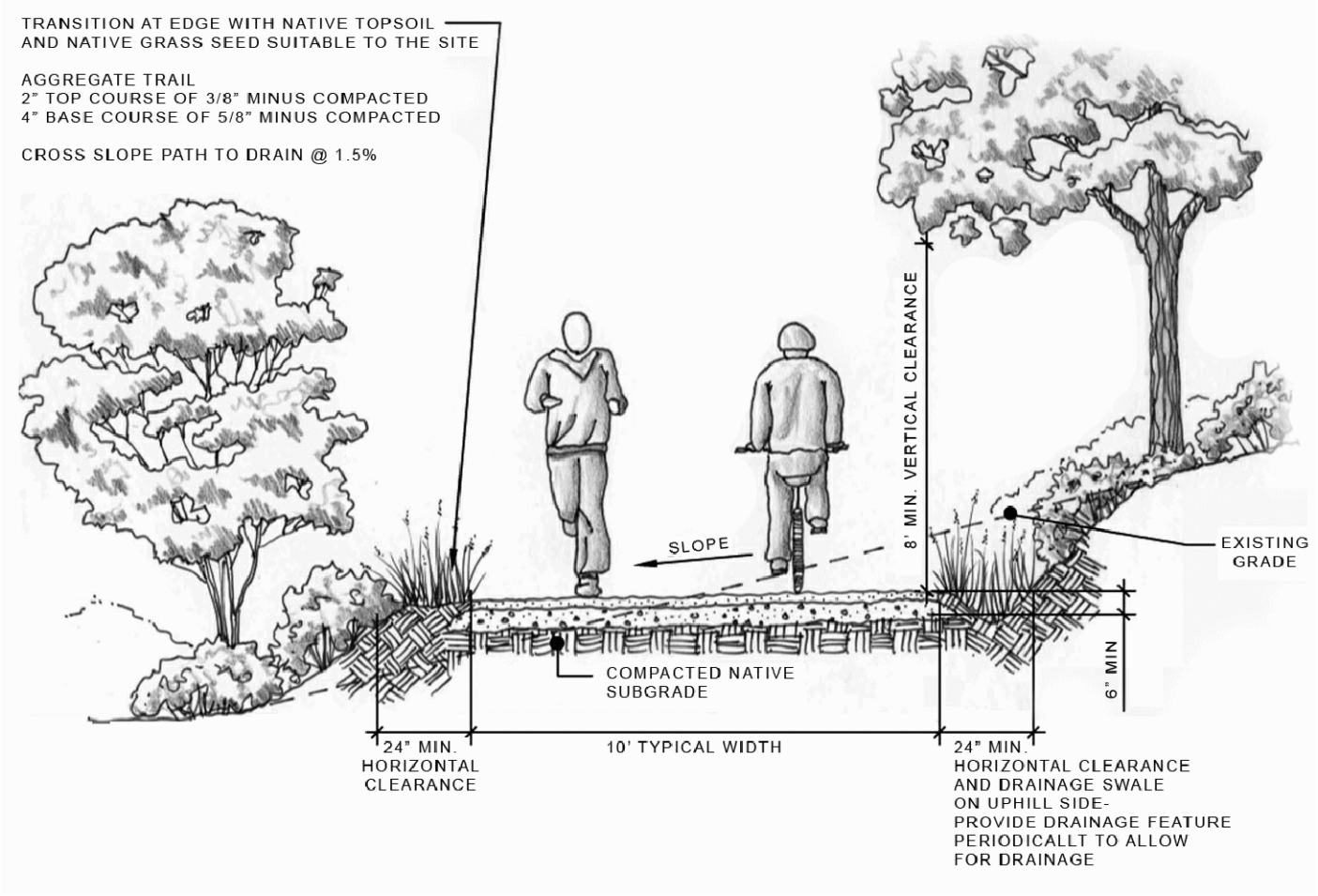
STANDARD CROSSWALK BARS AT 4-WAY CONTROLLED INTERSECTION

To be accompanied by Standard Dwg. Nos. R-40 thru R-43

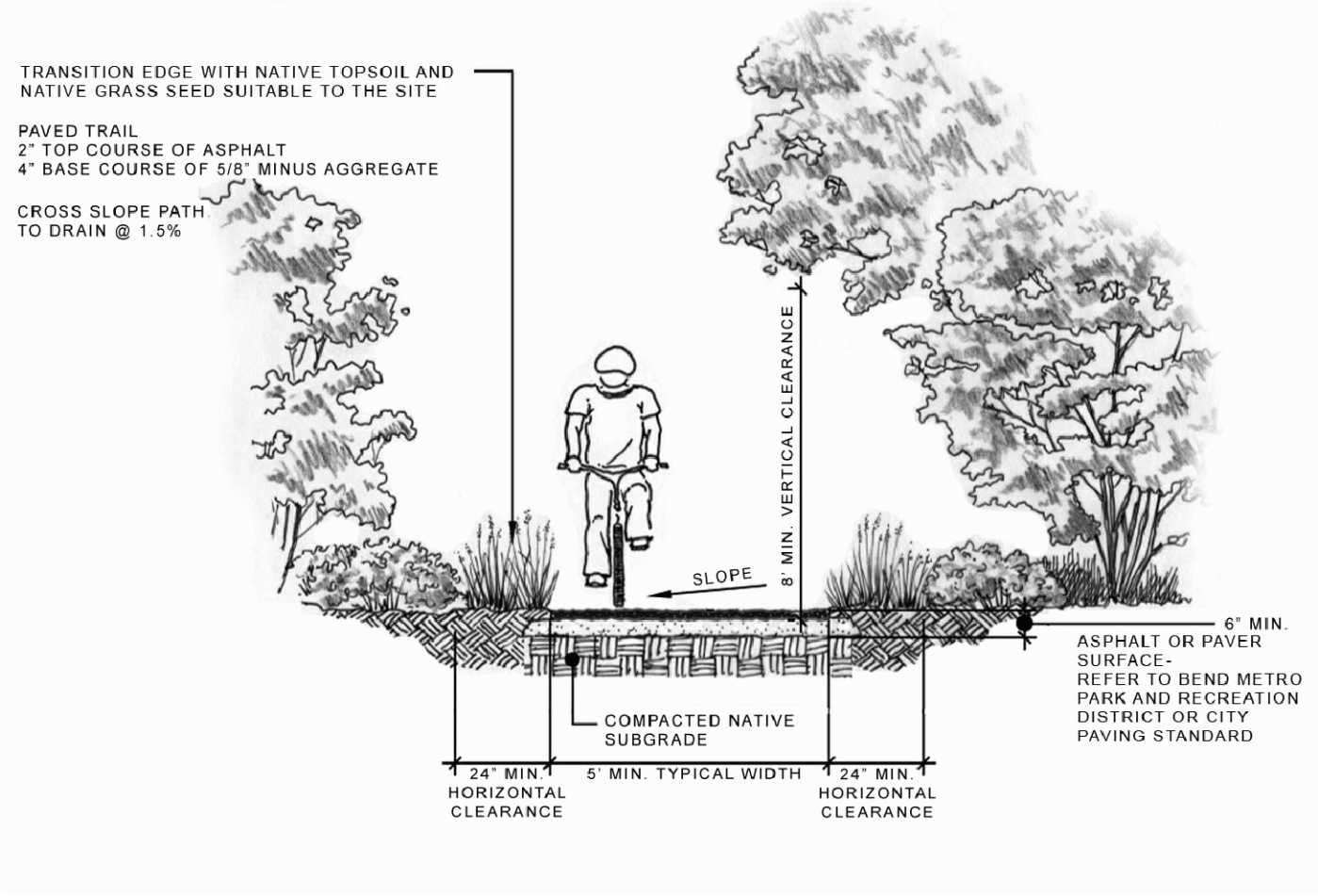
DRAWN	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 3/31/19
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		CROSSWALK MARKINGS	STD DWG R-47



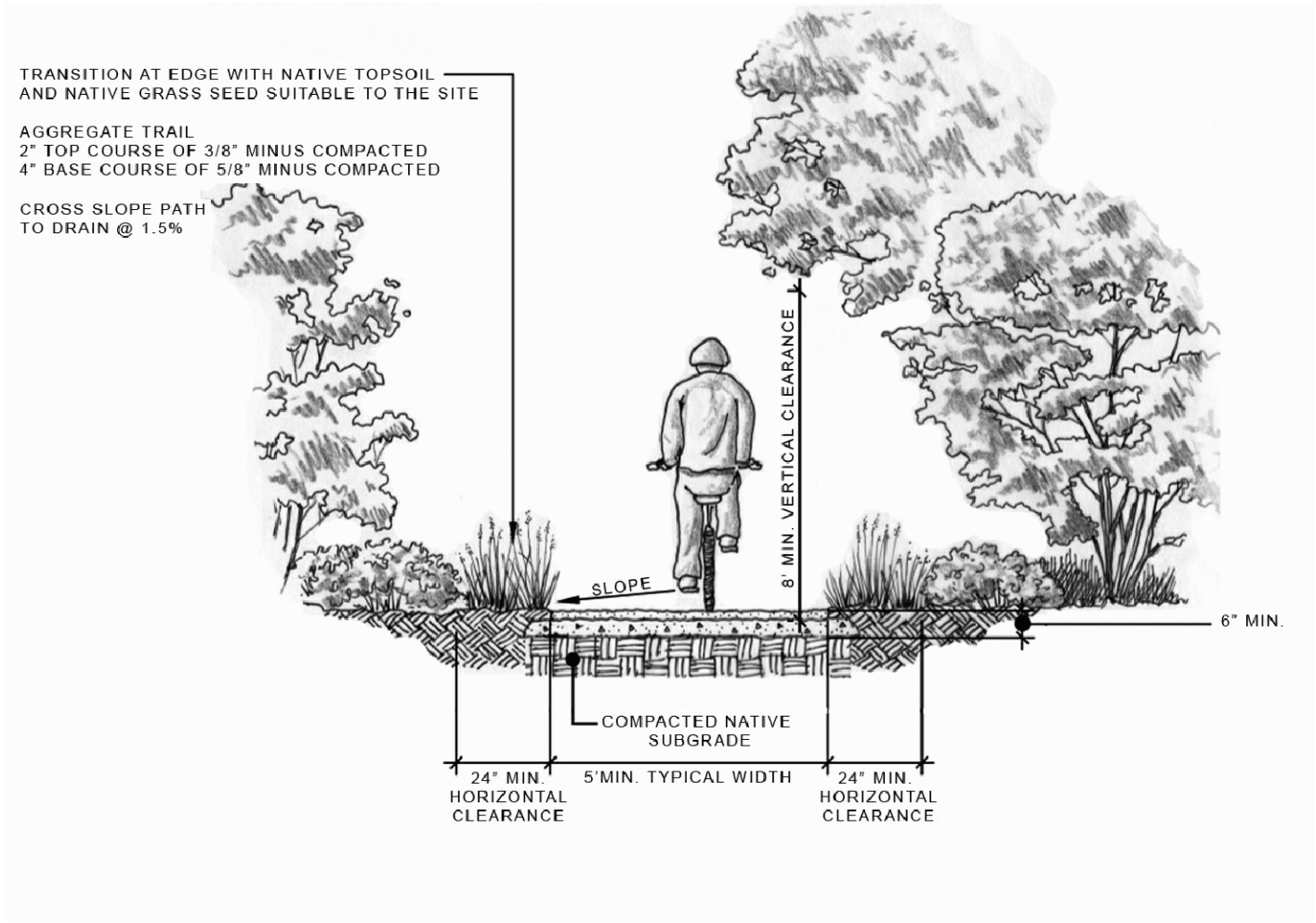
DRAWN	CITY OF BEND	CITY OF BEND STANDARDS AND SPECIFICATIONS 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV ROADWAY			DATE 12/1/17
REV DATE			APPR
		SINGLE TRACK TRAIL - NATIVE EARTH	DRW NO R-48



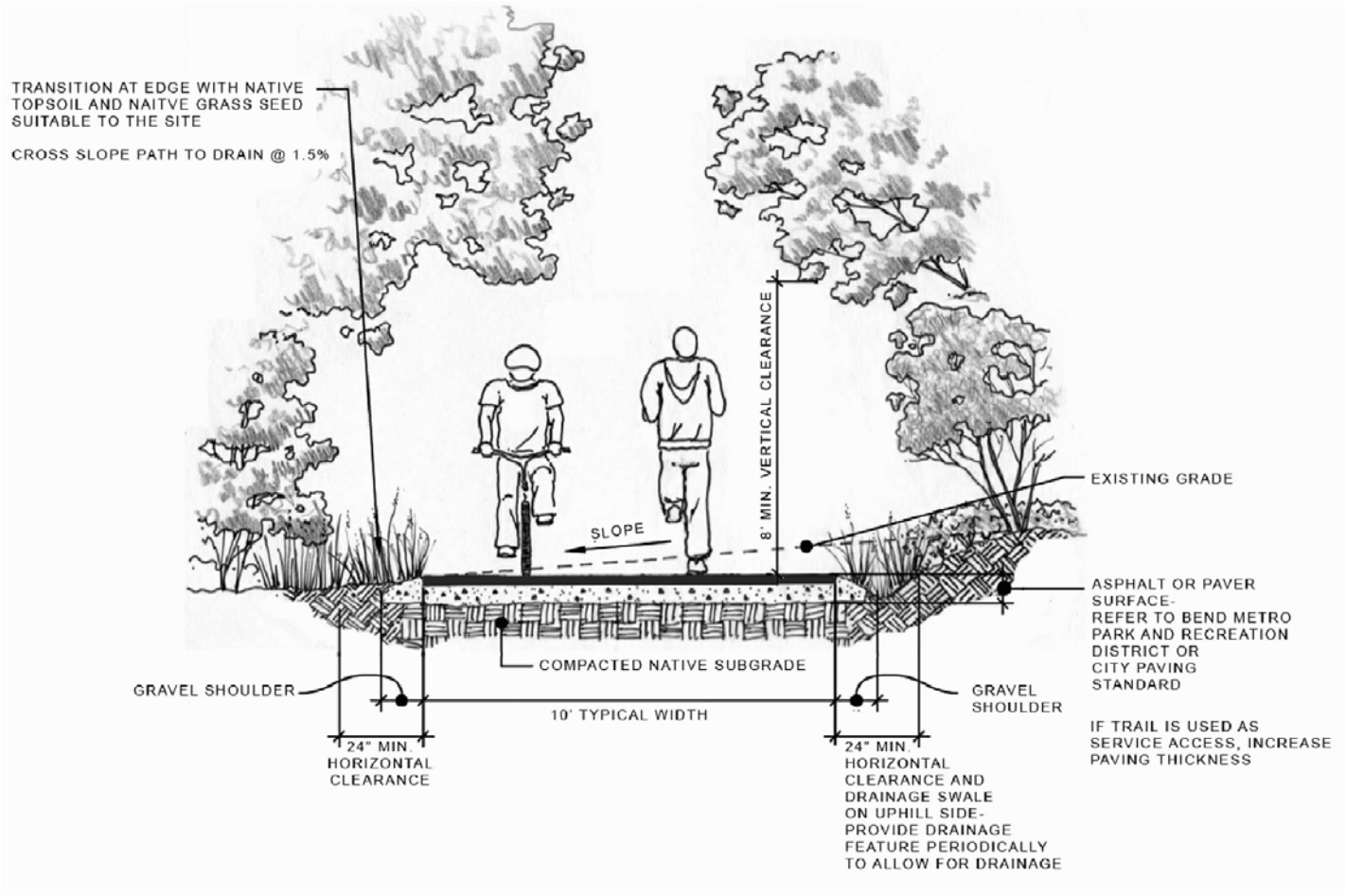
DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 12/1/17
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		PRIMARY TRAIL - AGGREGATE	STD DWG R-49



DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 12/1/17
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		CONNECTOR TRAIL - PAVED	STD DWG R-50



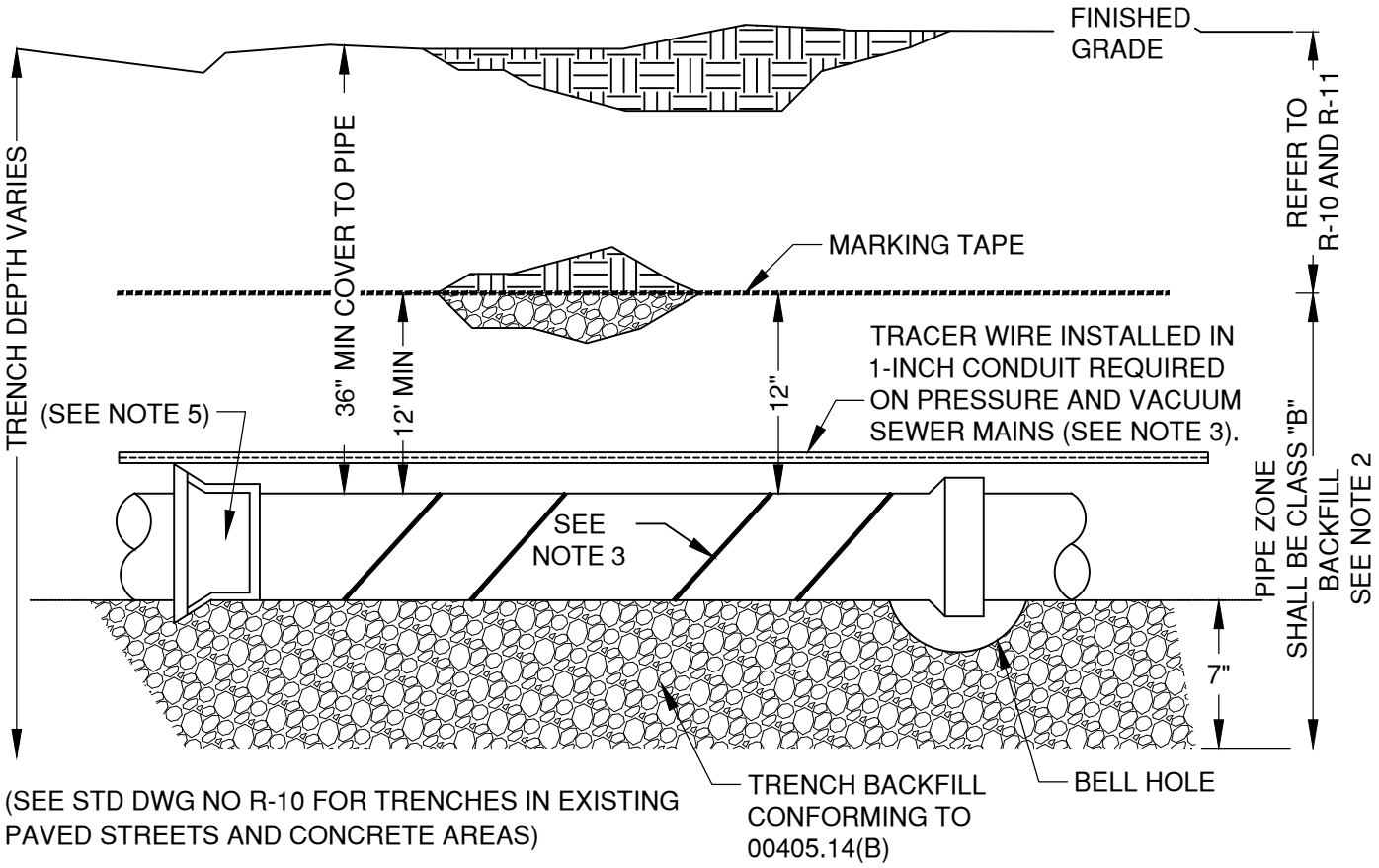
DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 12/1/17
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		CONNECTOR TRAIL - AGGREGATE	STD DWG R-51



DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 12/1/17
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		PRIMARY TRAIL - PAVED	STD DWG R-52

CITY OF BEND STANDARD DRAWINGS

Sanitary (S)

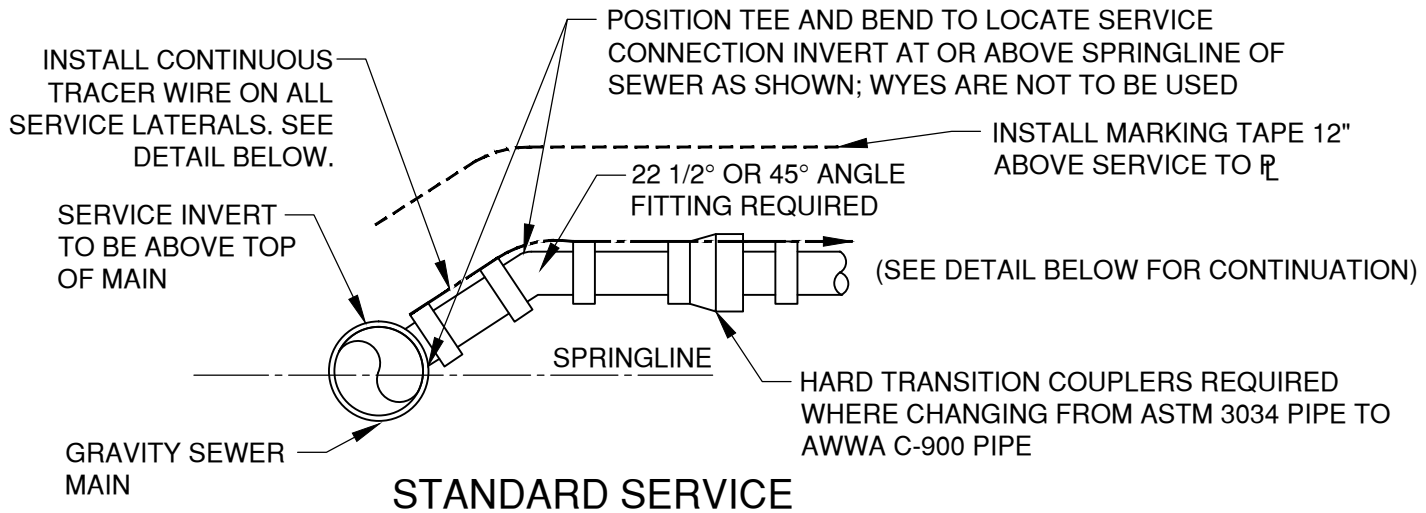


(SEE STD DWG NO R-10 FOR TRENCHES IN EXISTING PAVED STREETS AND CONCRETE AREAS)

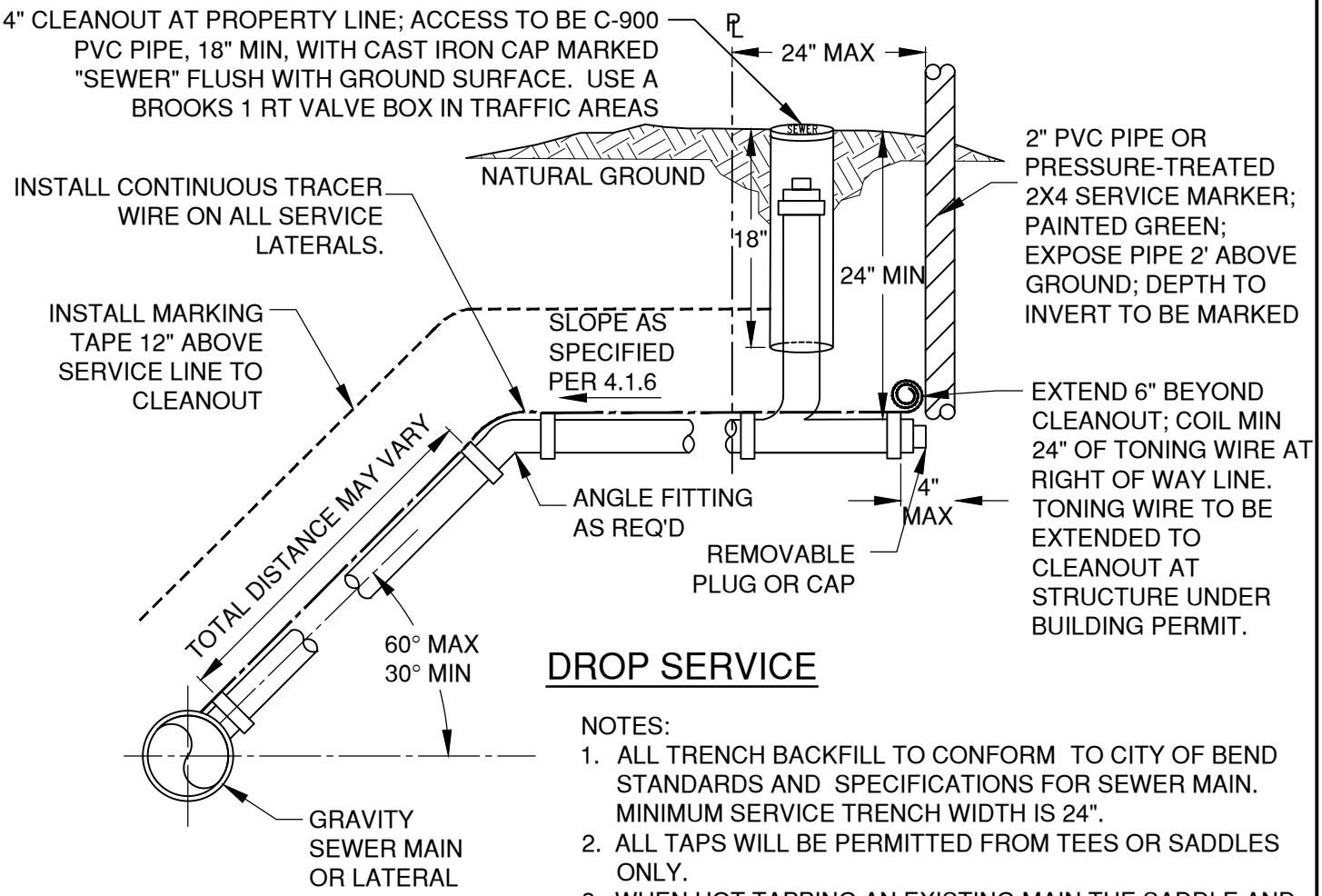
NOTES:

1. SCREENED MAX 3" MINUS BACKFILL PER R-10 OR R-11, MECHANICALLY COMPACTED TO 95.0% OF AASHTO T-99-74. BACKFILL SHALL BE CAREFULLY AND THOROUGHLY TAMPED IN LAYERS.
2. PIPE ZONE BACKFILL MATERIAL PIPE SHALL BE COMPACTED IN LAYERS NOT EXCEEDING 6". ALL PIPE ZONE MATERIAL SHALL BE $\frac{3}{4}$" MINUS ROCK CONFORMING TO OSS SPECIFICATIONS 00405.00 AND 02630.10.
3. FOR PRESSURE AND VACUUM SEWER MAINS ONLY, TRACER WIRE SHALL BE INSTALLED WITHIN A 1-INCH CONDUIT CENTERED ON TOP OF THE MAIN, AS CLOSE TO THE MAIN AS POSSIBLE. THE MAIN SHALL BE WRAPPED WITH MARKING TAPE A MIN OF 4 WRAPS PER 20 FEET OF MAIN. TRACER WIRE IS NOT REQUIRED ON GRAVITY SEWER MAIN.
4. PLACE TRACER WIRE ON GRAVITY, PRESSURE, AND VACUUM SEWER SERVICES PER SECTION 00445.11 (e) and 00445.48.
5. TRANSITION FITTING SHALL BE A HARD COUPLER WHERE CHANGING FROM ASTM 3034 OR ASTM F679 PIPE TO C-900 OR C905 PIPE
6. WHEN A SEWER LINE IS LOCATED ABOVE OR WITHIN 18" BELOW A WATERLINE, THE SEWER SHALL BE CONSTRUCTED WITH A MIN OF 20 LF OF AWWA C900 OR C905 PIPE CENTERED OVER THE WATERLINE PER OAR 333-061-0050 (9) AND BE APPROVED BY CITY/STATE.
7. WHEN INSTALLING A WATER LINE THAT CROSSES BELOW OR WITHIN 18 INCHES ABOVE AN EXISTING SEWER LINE, FOLLOW OAR 333-061-0050(9).

DRAWN LJC DIV SANITARY REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 PROFILE OF TYPICAL SEWER MAIN INSTALLATION	SCALE NTS DATE 3/31/19 APPR STD DWG S-1



STANDARD SERVICE

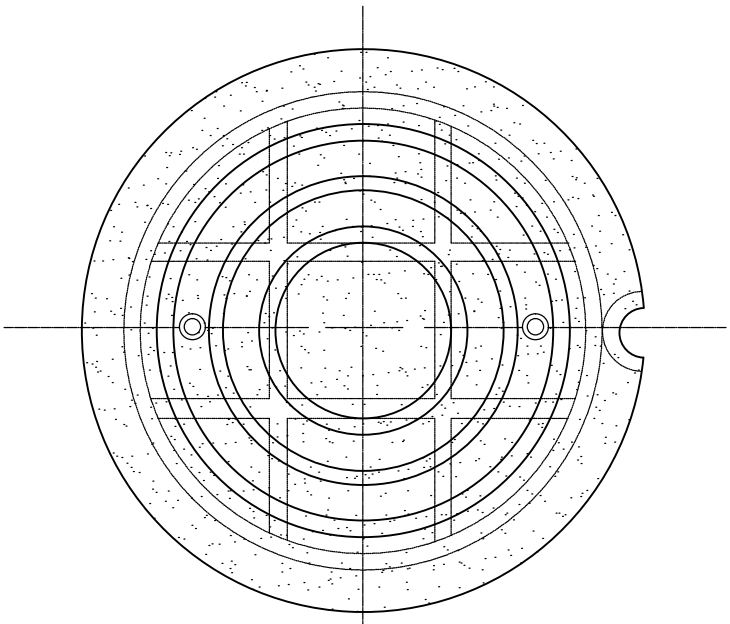


DROP SERVICE

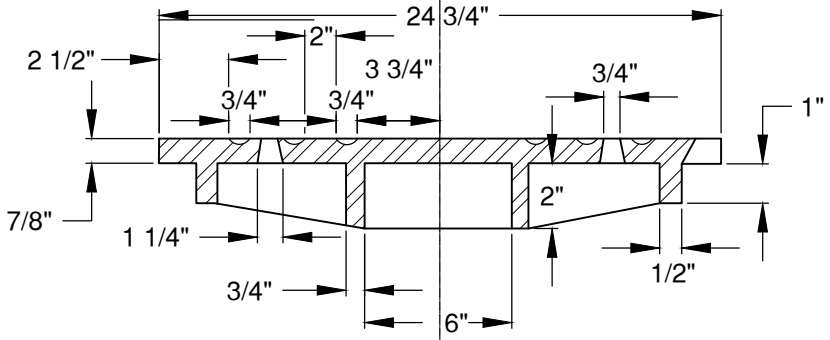
NOTES:

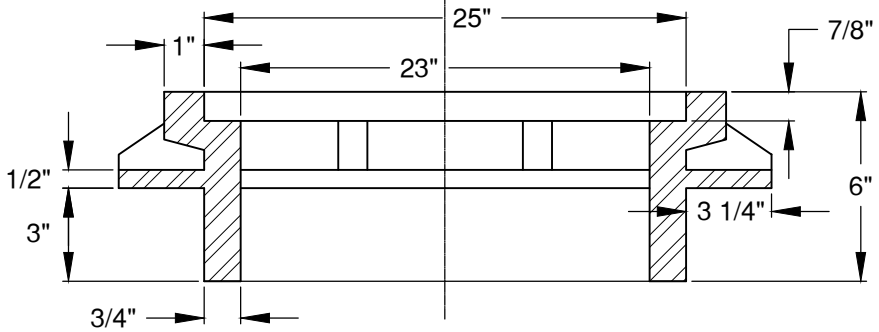
1. ALL TRENCH BACKFILL TO CONFORM TO CITY OF BEND STANDARDS AND SPECIFICATIONS FOR SEWER MAIN. MINIMUM SERVICE TRENCH WIDTH IS 24".
2. ALL TAPS WILL BE PERMITTED FROM TEES OR SADDLES ONLY.
3. WHEN HOT TAPPING AN EXISTING MAIN THE SADDLE AND TEE METHOD SHALL BE USED.
4. TRACER WIRE REQUIRED ON ALL SEWER SERVICES.
5. SEWER CONNECTION FROM THE PROPERTY LINE/ROW LINE TO THE CLEAN OUT NEAR THE BUILDING FOUNDATION REQUIRES A PLUMBING PERMIT.

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV SANITARY		STANDARD DRAWING	DATE 3/31/19
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		GRAVITY SEWER SERVICES	STD DWG S-2



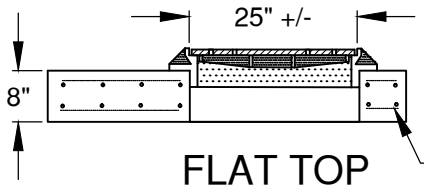
SEWER MANHOLE LID DETAIL
NTS





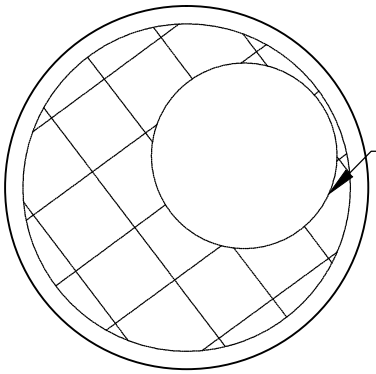
NOTES:
1. CITY SANITARY SEWER MANHOLE COVERS SHALL HAVE THE WORD "SEWER" CAST IN 2" RAISED LETTERS.
2. PRIVATE MANHOLE LIDS SHOULD NOT USE THE CITY OF BEND MANHOLE LID DETAIL.
3. HINGED MANHOLE LIDS ARE NOT PERMITTED UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
4. LOCKS ARE TO BE USED ON THE LID WHEN THE LID IS LOCATED OUTSIDE A ROADWAY IF REQUIRED BY THE CITY ENGINEER. IF A LOCK IS REQUIRED, THE LOCK SHALL BE TITUS SWIFTTWIST, OR EQUAL.
5. MANHOLE LIDS SHALL BE PLACED OUTSIDE THE PATH OF TRAVEL ON SIDEWALKS AND DRIVEWAY APRONS.

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV SANITARY		STANDARD DRAWING	DATE 3/31/19
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		STANDARD SEWER MANHOLE RING & COVER	STD DWG S-3A

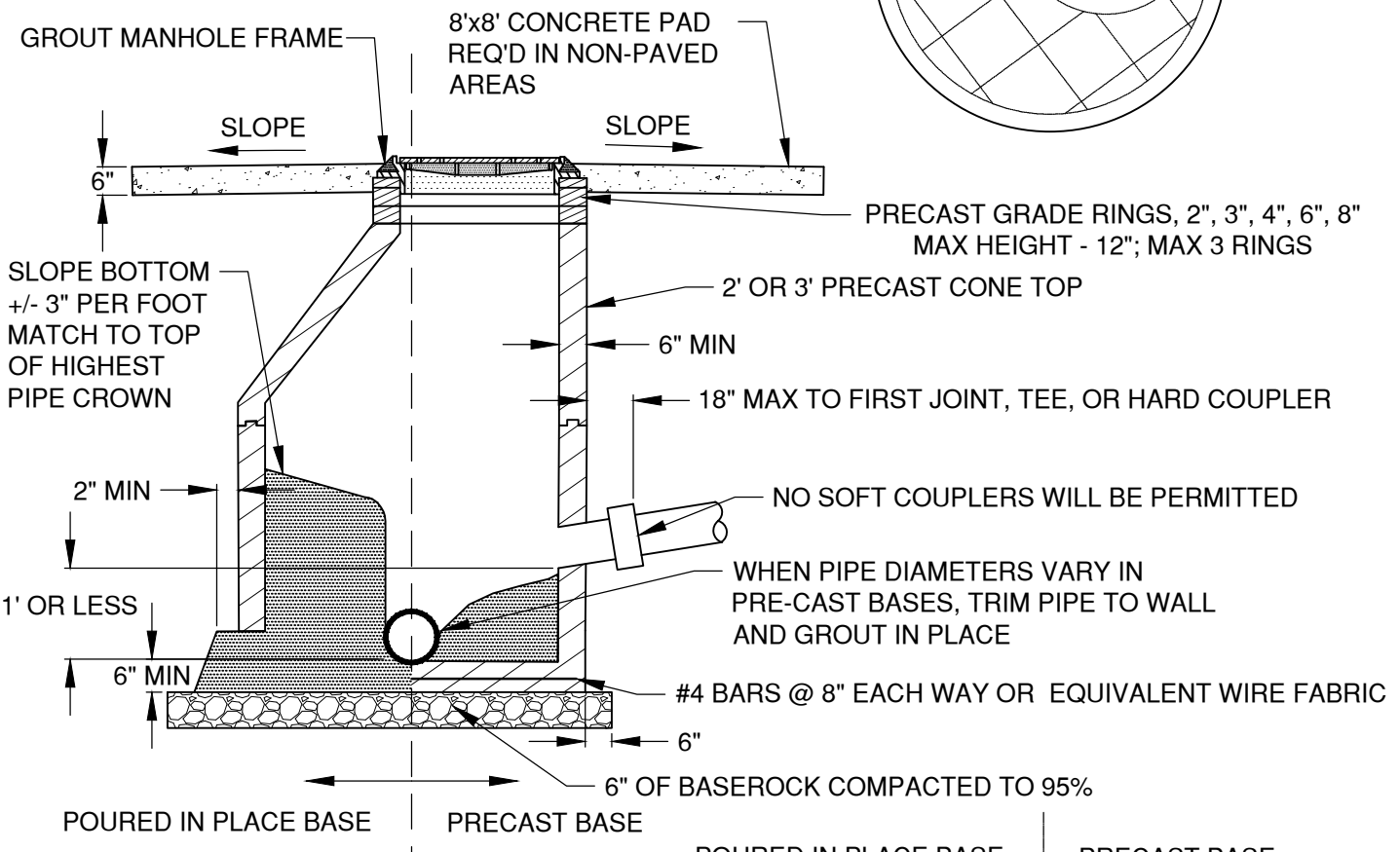


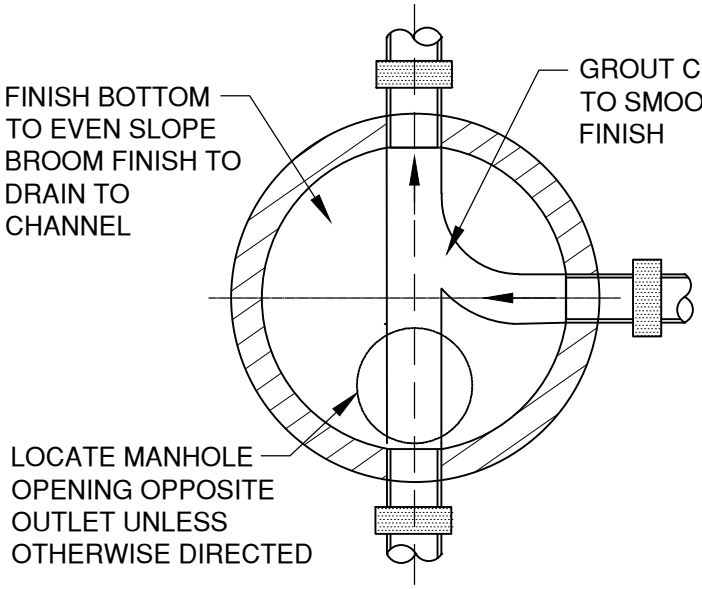
FLAT TOP

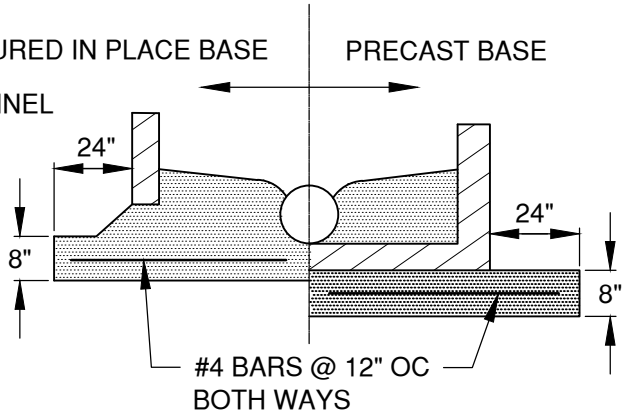
#4 BARS @ 12"
EACH WAY TOP & BOTTOM



#4 HOOPS

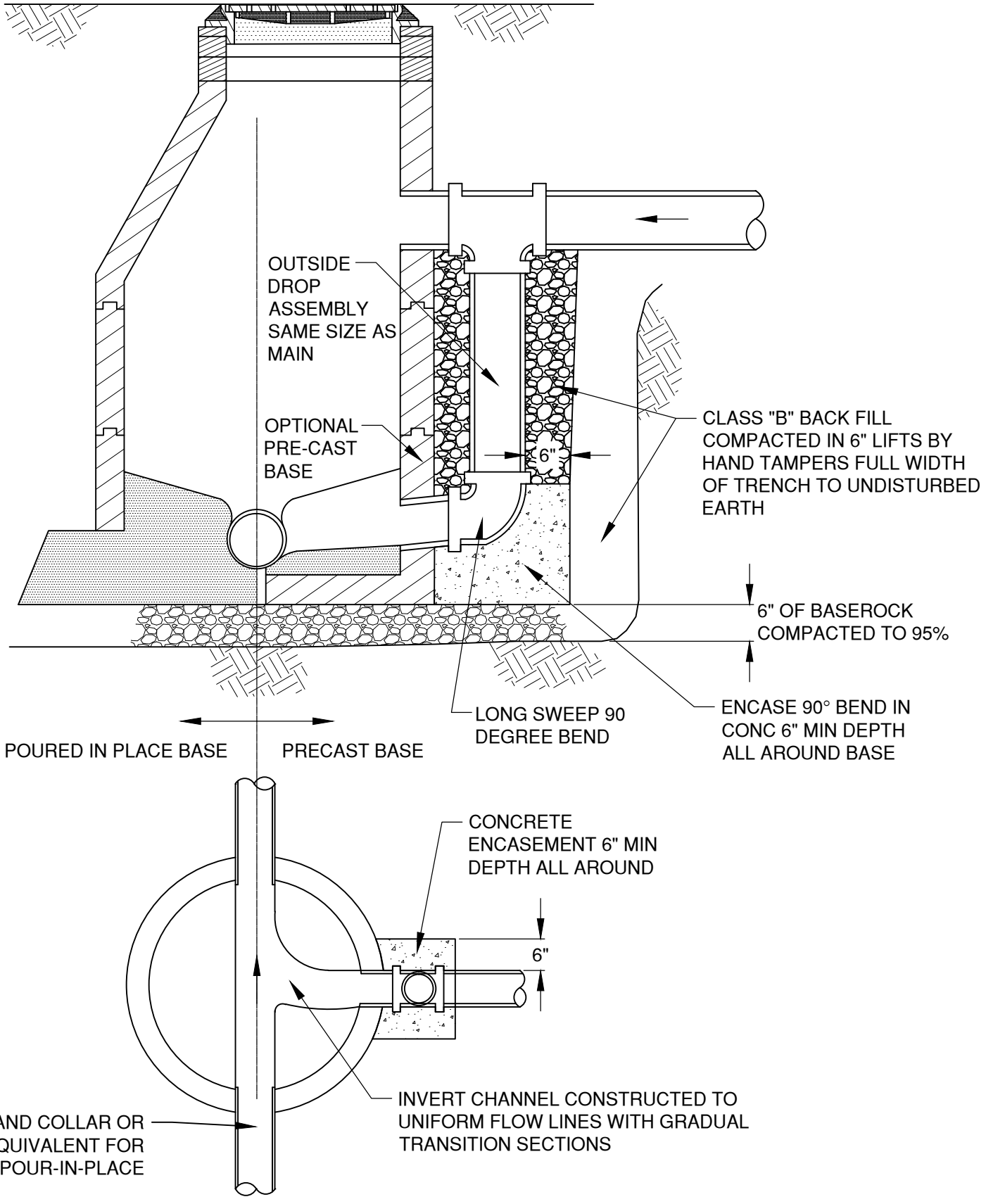




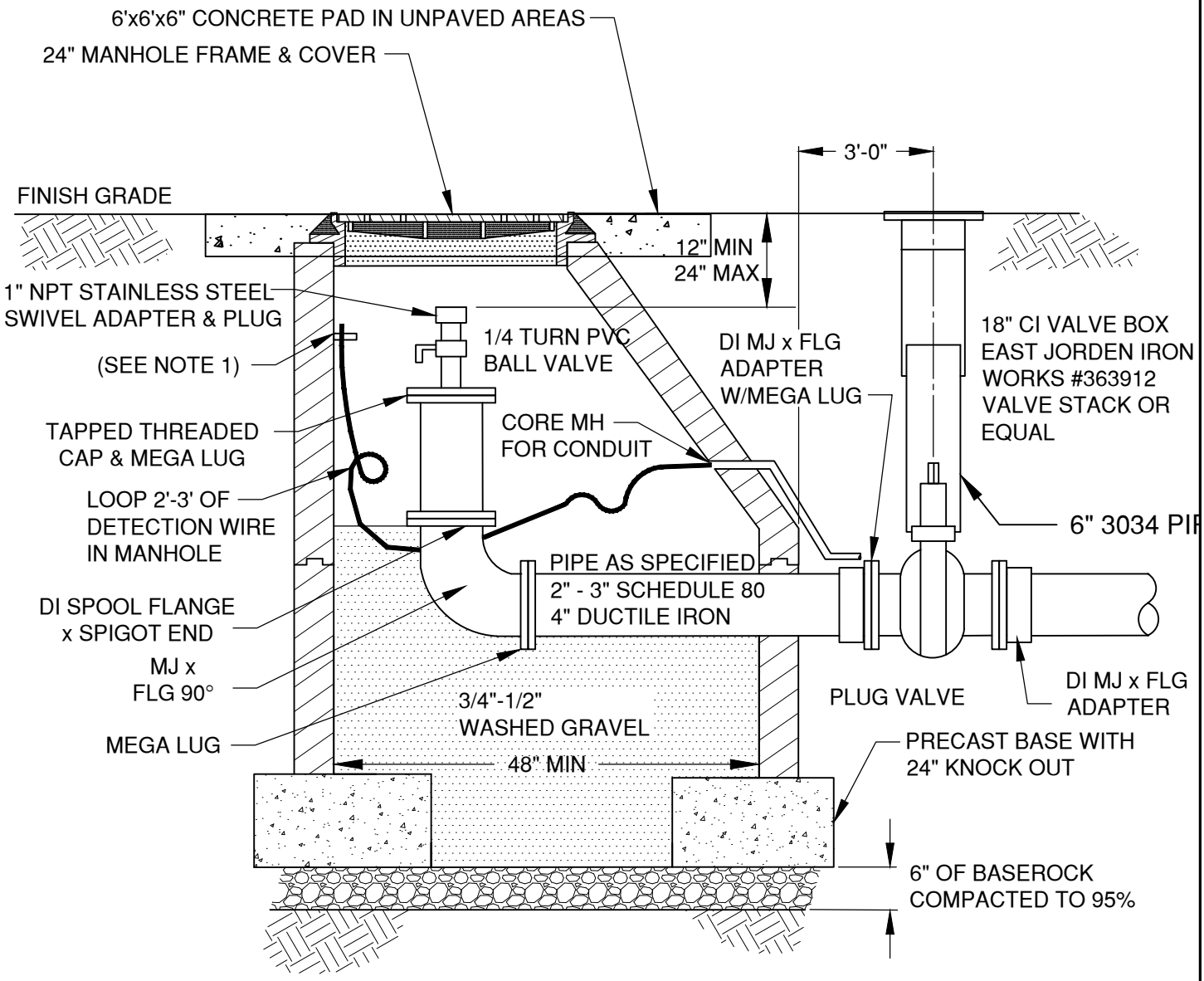


SPREAD FOOTING
(FOR FILL AREAS)

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV SANITARY		STANDARD DRAWING	DATE 3/31/19
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		STANDARD SEWER MANHOLE	STD DWG S-3B



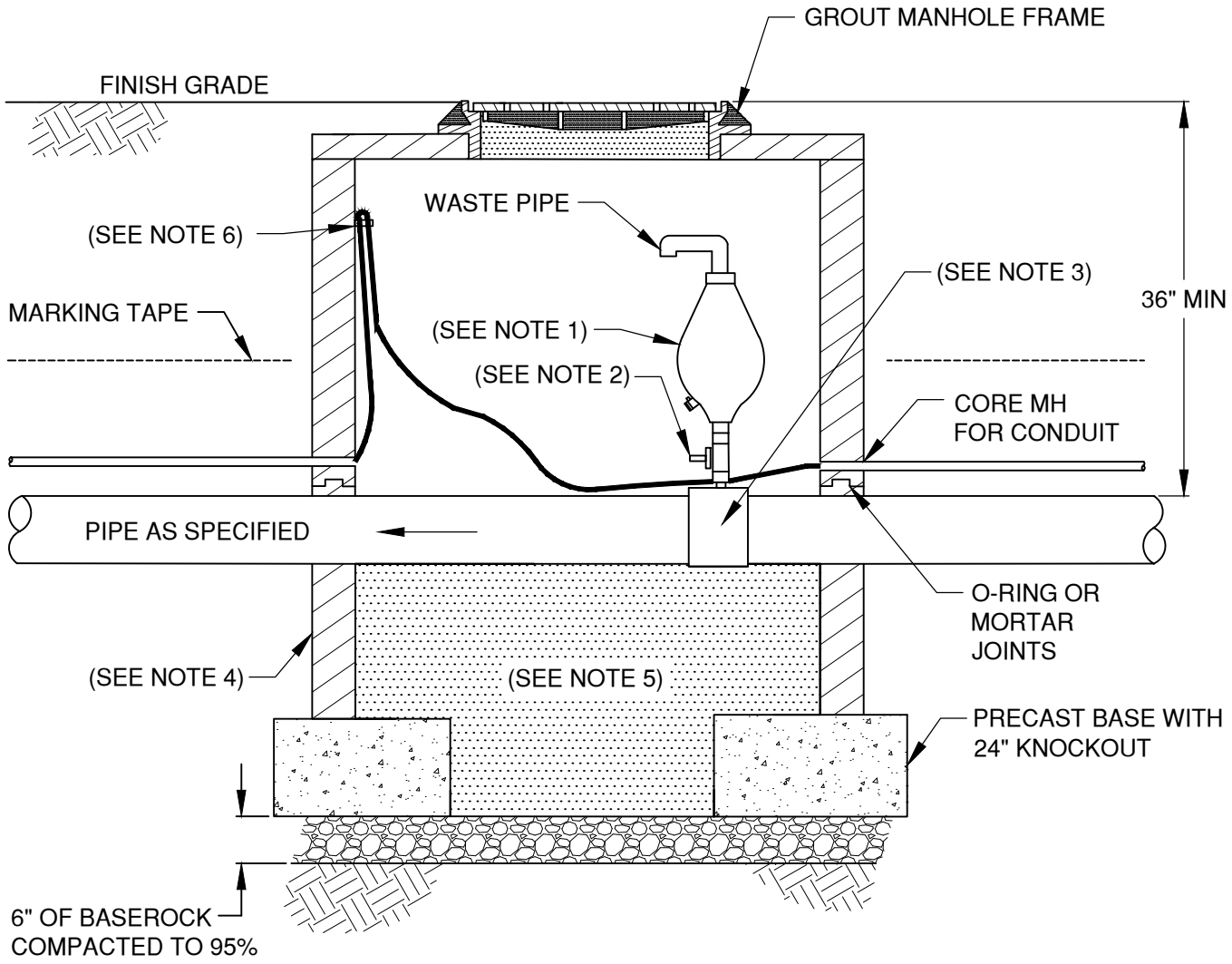
DRAWN LJC	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV SANITARY			DATE 12/1/17
REV 2 / DATE 12/1/17			APPR
		STANDARD OUTSIDE DROP SEWER MANHOLE	STD DWG S-4



NOTES:

1. DETECTION WIRE SHALL BE EXTENDED WITHIN 18-INCHES OF FINISHED GRADE OR 6" BELOW LOWEST GRADE RING, WHICH EVER IS GREATER, TO A 1.75-INCH STAINLESS STEEL RUBBER CUSHIONED CLAMP MOUNTED TO MANHOLE WITH AS MIN 1/4" X 1-3/4" CONCRETE ANCHOR SCREW.

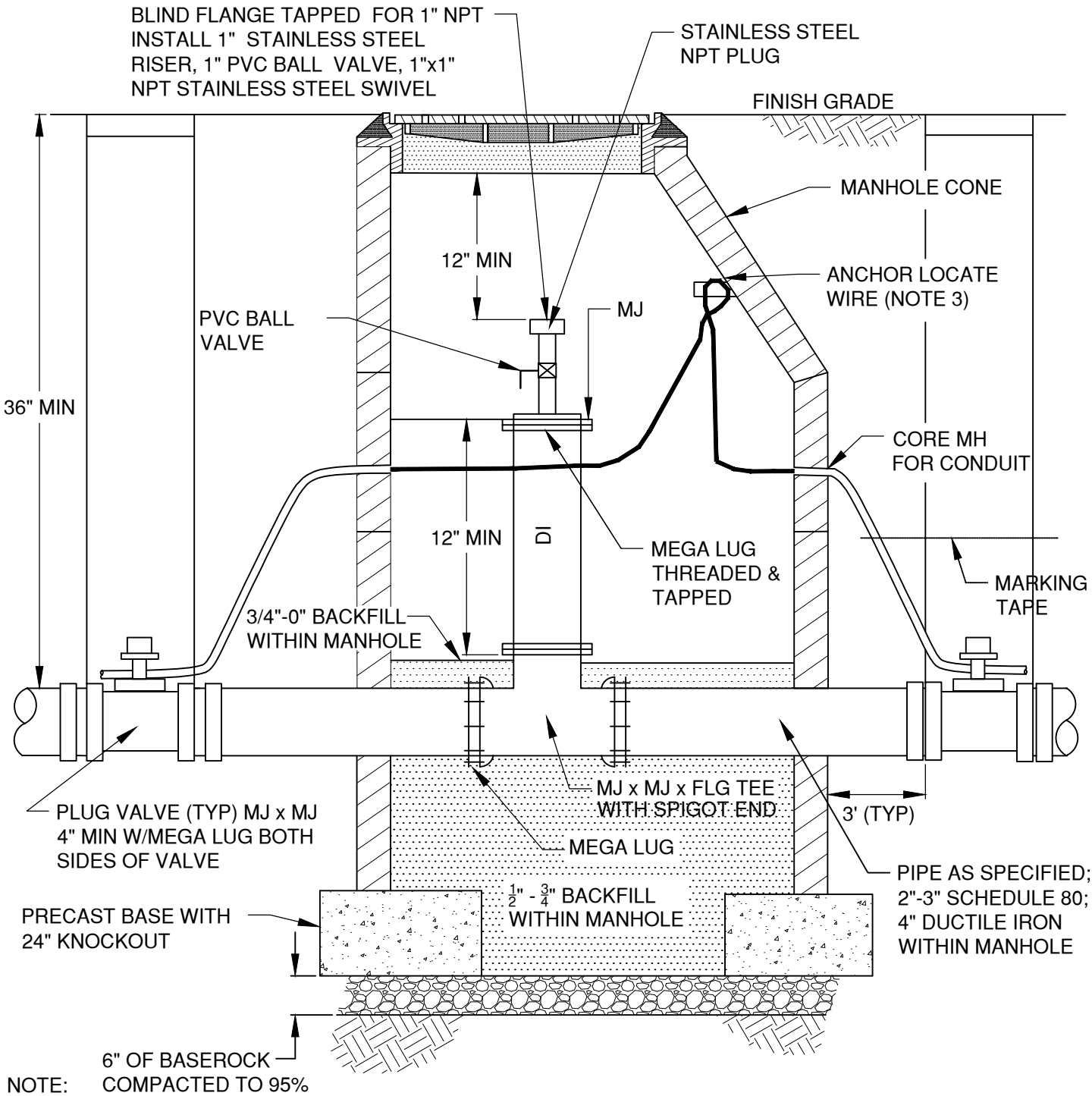
DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV SANITARY		STANDARD DRAWING	DATE 12/1/17
REV 2 / DATE 12/1/17		710 NW WALL ST., BEND, OREGON 97701	APPR
		3" & 4" PRESSURE SEWER LINE TERMINATION CLEANOUT	STD DWG S-5



NOTES:

1. ARI 2" D-025 COMBINATION AIR VALVE(SHORT VERSION) PER 00445.11(K)(2)(d)
2. 2" PVC BALL VALVE
3. 2" TEE OR 2" SADDLE TEE AS APPROVED FOR PRESSURE APPLICATIONS
4. 48" DIAMETER FLAT TOP MANHOLE. PRECAST SECTIONS TO CONFORM TO THE REQUIREMENTS OF ASTM C-478
5. 3/4"-1/2" WASHED GRAVEL
6. DETECTION WIRE SHALL BE EXTENDED WITHIN 18-INCHES OF FINISHED GRADE OR 6" BELOW LOWEST GRADE RING, WHICH EVER IS GREATER, TO A 1.75-INCH STAINLESS STEEL RUBBER CUSHIONED CLAMP MOUNTED TO MANHOLE WITH AS MIN 1/4" X 1-3/4" CONCRETE ANCHOR SCREW.

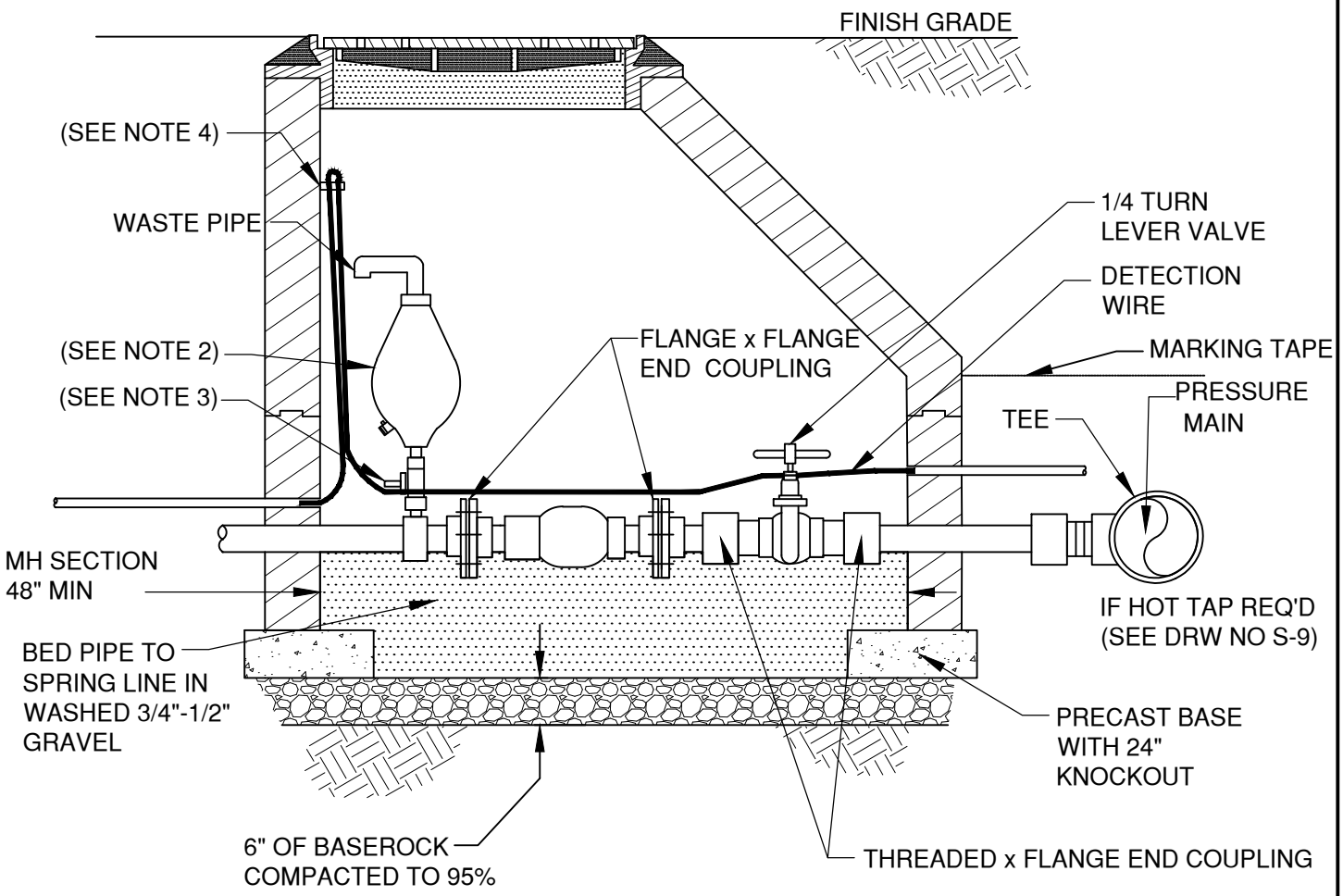
DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV SANITARY		STANDARD DRAWING	DATE 12/1/17
REV 2 / DATE 12/1/17		710 NW WALL ST., BEND, OREGON 97701	APPR
		AIR RELEASE/VAC BREAKER PRESSURE SEWER MH	STD DWG S-6



NOTE:

1. ALL DUCTILE IRON FITTINGS THROUGH MANHOLE
2. 48" MINIMUM DIAMETER MANHOLE
3. DETECTION WIRE SHALL BE EXTENDED WITHIN 18-INCHES OF FINISHED GRADE OR 6" BELOW LOWEST GRADE RING, WHICH EVER IS GREATER, TO A 1.75-INCH STAINLESS STEEL RUBBER CUSHIONED CLAMP MOUNTED TO MANHOLE WITH AS MIN 1/4" X 1-3/4" CONCRETE ANCHOR SCREW.

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV SANITARY		STANDARD DRAWING	DATE 12/1/17
REV 2 / DATE 12/1/17		710 NW WALL ST., BEND, OREGON 97701	APPR
		MAIN LINE CLEANOUT PRESSURE SEWER	STD DWG S-7

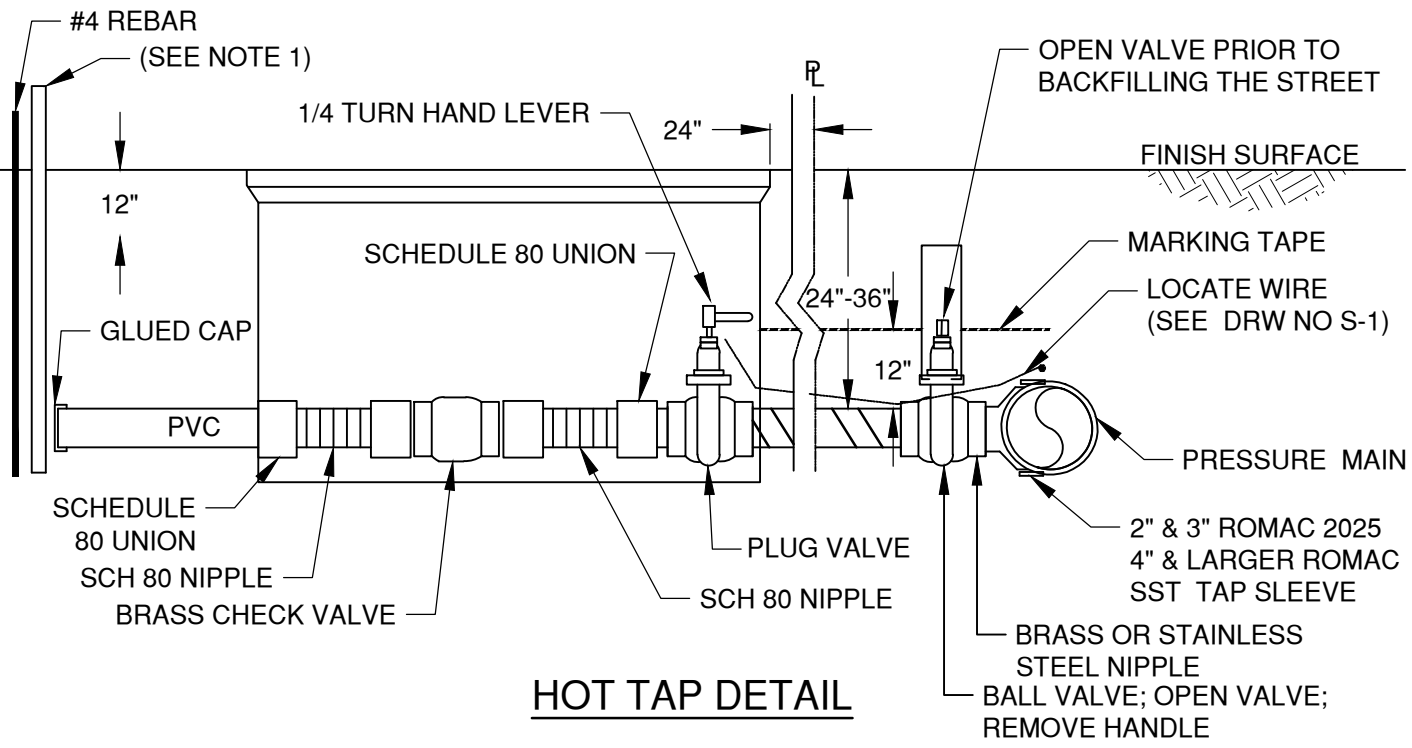


TYPICAL INSTALLATION IN TRAFFIC AREA

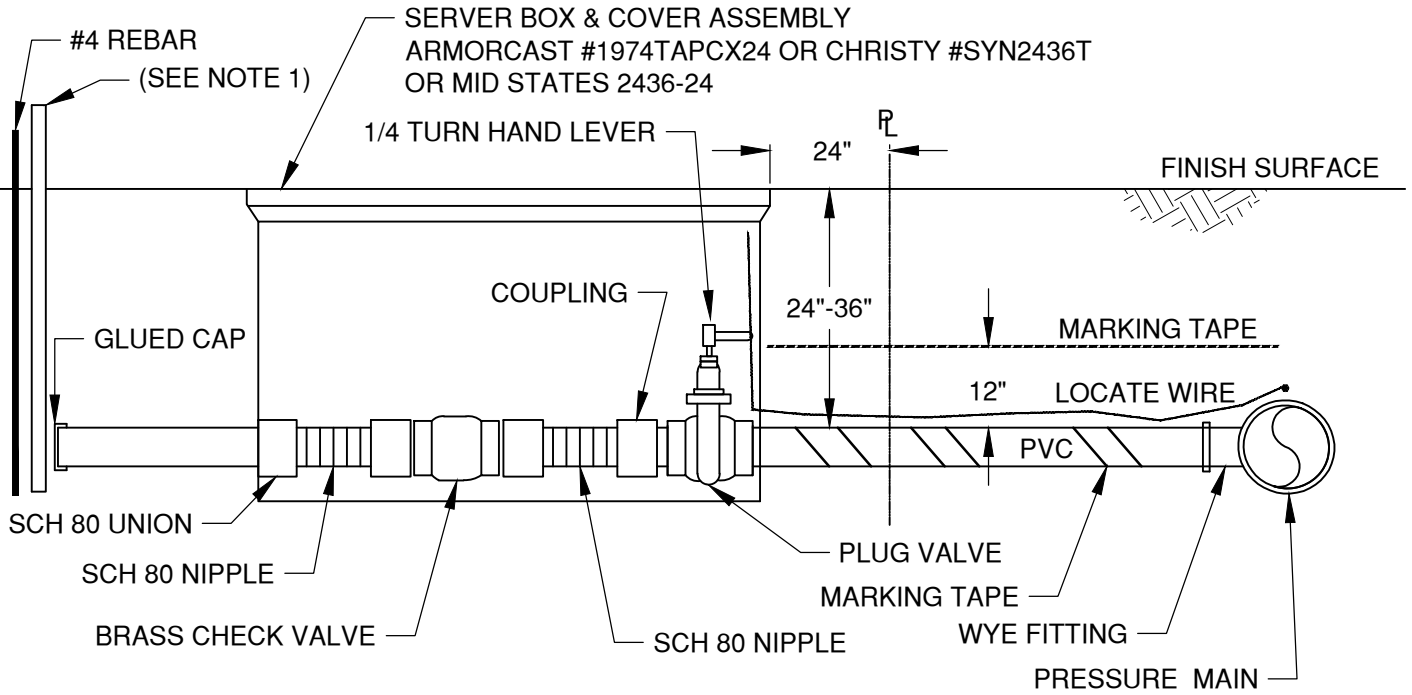
NOTE:

1. SHOWN WITH PLUG VALVE IN ENCLOSURE
2. ARI 2" D-025 COMBINATION AIR VALVE (SHORT VERSION)
3. 2" PVC BALL VALVE
4. "DETECTION WIRE SHALL BE EXTENDED WITHIN 18-INCHES OF FINISHED GRADE OR 6" BELOW LOWEST GRADE RING, WHICH EVER IS GREATER, TO A 1.75-INCH STAINLESS STEEL RUBBER CUSHIONED CLAMP MOUNTED TO MANHOLE WITH AS MIN 1/4" X 1-3/4" CONCRETE ANCHOR SCREW."

DRAWN LJC	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV SANITARY			DATE 12/1/17
REV 2 / DATE 12/1/17			APPR
	CITY OF BEND	PRESSURE SEWER AIR RELEASE - TRAFFIC AREA	STD DWG S-8



HOT TAP DETAIL

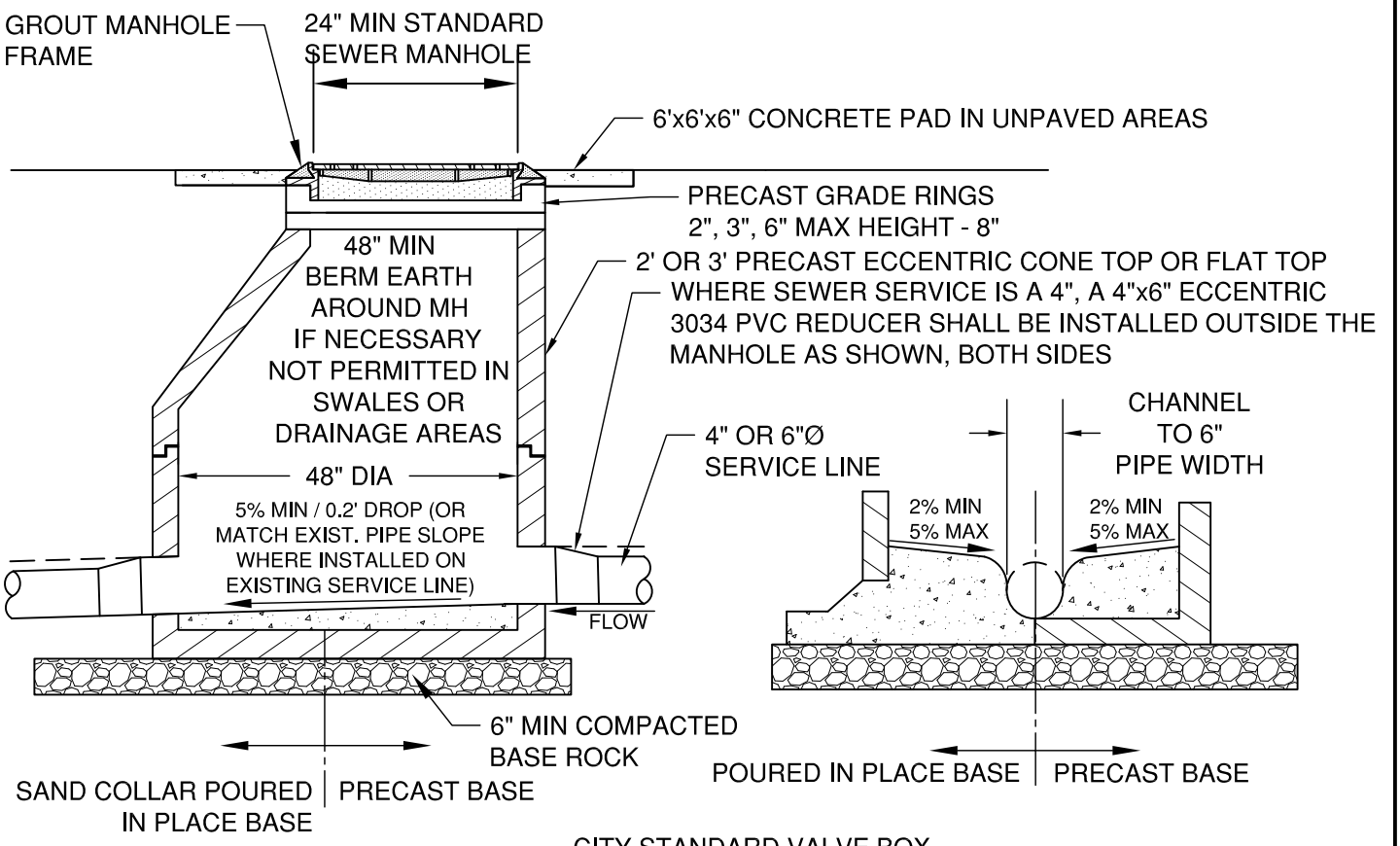


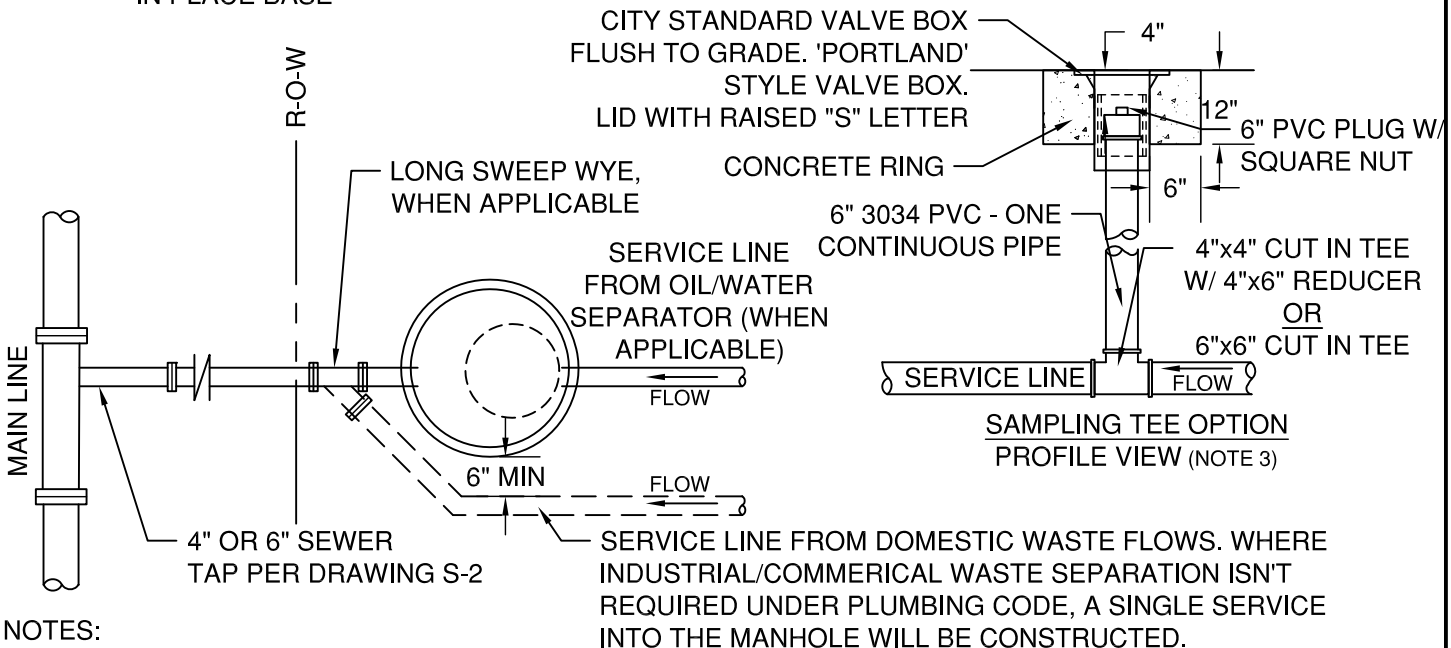
SERVICE LINE PROFILE

NOTE:

1. 2x4 SERVICE MARKER TO FULL DEPTH OF TRENCH. PROJECT END 6" MINIMUM ABOVE FINISH GRADE & PAINT GREEN ALL AROUND
2. SERVICE BOX COVER MARKED "SEWER"
3. CHECK VALVES 3" & LARGER APCO 100. 2" LEGEND T451

DRAWN LJC	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV SANITARY			DATE 12/1/17
REV 2 / DATE 12/1/17			APPR
		PRESSURE SEWER SERVICE - NON TRAFFIC AREA	STD DWG S-9

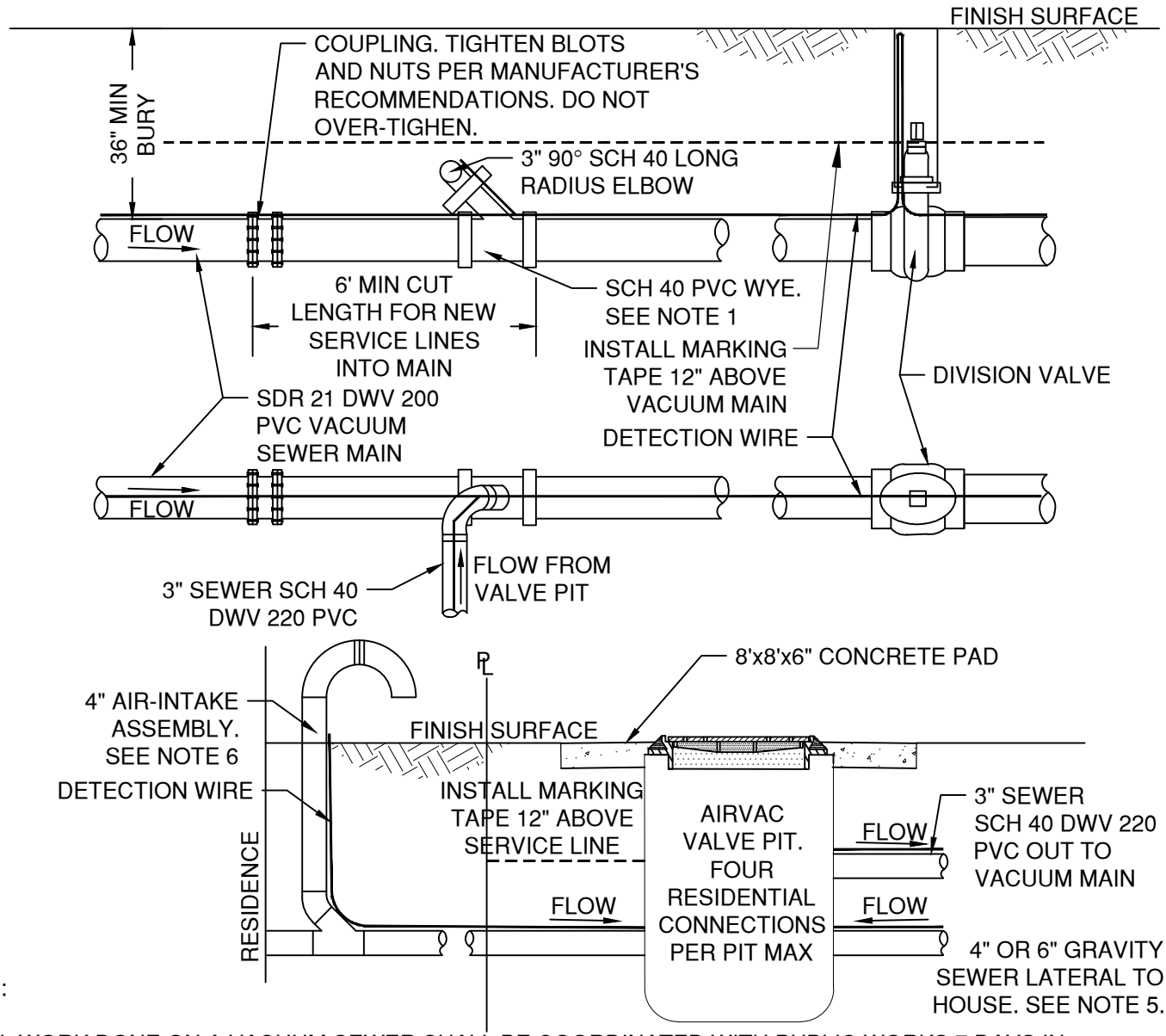




NOTES:

1. MULTIPLE SERVICE LINES SHALL CONNECT UPSTREAM AND OUTSIDE THE SAMPLE MANHOLE
2. SAMPLE MANHOLE TO BE LOCATED ON PRIVATE PROPERTY IN AN ACCESSIBLE AREA.
3. SAMPLING TEE OPTION IS ONLY PERMITTED WHEN APPROVED BY THE CITY ENGINEER. CONSIDERED IN SITUATIONS WHERE EXISTING UTILITIES OR EASEMENTS PREVENT THE INSTALLATION OF MANHOLE.

DRAWN CJH	CITY OF BEND		SCALE NTS
DIV SANITARY	STANDARD DRAWING		DATE 12/1/17
REV 2 / DATE 12/1/17	710 NW WALL ST., BEND, OREGON 97701		APPR
CITY OF BEND	INDUSTRIAL AND COMMERCIAL SERVICES SAMPLING MH		STD DWG S-15



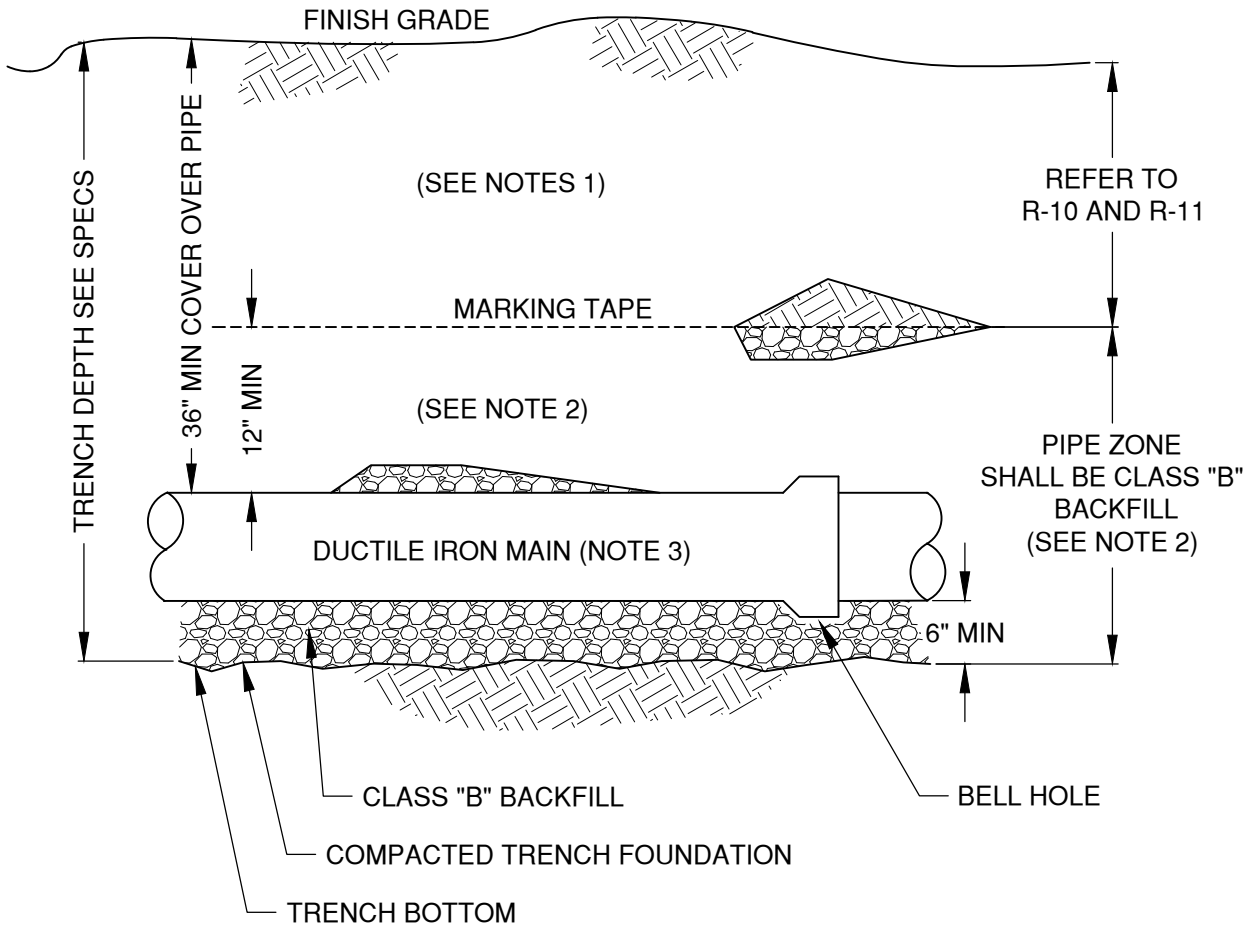
NOTE:

1. ALL WORK DONE ON A VACUUM SEWER SHALL BE COORDINATED WITH PUBLIC WORKS 7 DAYS IN ADVANCE TO COORDINATE VACUUM STATION SHUT DOWN.
2. ALL JOINTS TO BE CONNECTED USING STANDARD PRIMER AND SOLVENT CEMENT. KEEP ALL JOINTS CLEAN AND FREE OF DEBRIS. JOINTS TO BE SCH40 DWV 220 OR APPROVED EQUAL.
3. AFTER INSTALLATION IS COMPLETE, OPEN DIVISION VALVE AND PERFORM VISUAL AND AUDIBLE INSPECTION OF EACH JOINT FOR LEAKS PRIOR TO TRENCH CLOSURE.
4. TRENCH BACKFILL TO BE IN ACCORDANCE TO S-1. DETECTION TAP AND TRACER WIRE TO BE INSTALLED ON ALL MAINS AND SERVICES.
5. INSTALL GRAVITY SEWER LATERALS IN CONFORMANCE WITH PLUMBING CODE. SERVICE LINE FROM THE PIT TO THE HOUSE IS OWNED AND MAINTAINED BY PROPERTY OWNER. CONNECTIONS TO THE AIRVAC VALVE PIT SHALL BE MADE AS PER MANUFACTURER'S SPECIFICATION.
6. AIR-INTAKE SHALL BE INSTALLED IN CONFORMANCE TO THE PLUMBING CODE AND SHALL BE PERMITTED WITH THE BUILDING DEPARTMENT UNDER A PLUMBING PERMIT.
7. PIT TO BE INSTALLED OUTSIDE OF SIDEWALK AND APRON SURFACES IN ROW OR CITY EASEMENT.
8. ALL WORK SHALL CONFORM TO AIR VAC SPECIFICATIONS. NO MORE THAN FOUR SERVICES MAY CONNECT TO A ONE VACCUM PIT.

DRAWN CJH	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV SANITARY		STANDARD DRAWING	DATE 12/1/17
REV / DATE: 12/1/17		710 NW WALL ST., BEND, OREGON 97701	APPR
	CITY OF BEND	VACUUM SEWER SERVICE	STD DWG S-16

CITY OF BEND STANDARD DRAWINGS

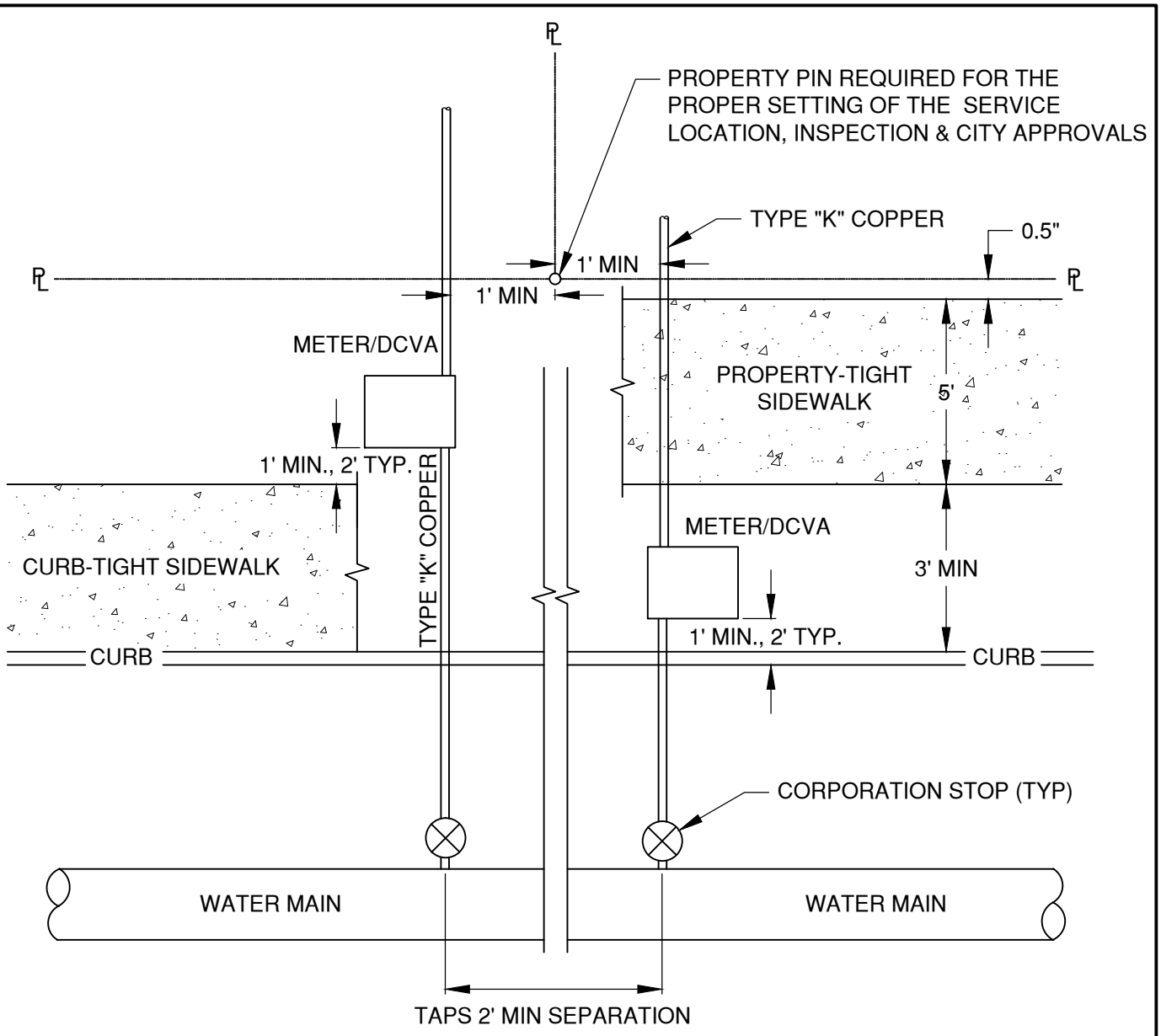
Water (W)



NOTES:

1. SCREENED MAX. 3" MINUS BACKFILL, PER R-10 AND R-11, MECHANICALLY COMPACTED TO 95.0% OF AASHTO T-99-74 SHALL BE CAREFULLY AND THOROUGHLY TAMPED IN LAYERS PER SECTION 00405.00.
2. SPECIFIED PIPE ZONE MATERIAL ABOVE, AROUND, AND BELOW PIPE SHALL BE CAREFULLY AND THOROUGHLY TAMPED IN LAYERS NOT EXCEEDING 6" SO THAT IT IS FULLY COMPACTED TO 95.0% OF AASHTO T-99-74 METHOD C. ALL PIPE ZONE MATERIAL SHALL BE $\frac{3}{4}$" MINUS ROCK CONFORMING TO OSS SPECIFICATIONS 00405.00 AND 01140.10.
3. MEGA-LUG AND FIELD LOK GASKETS, OR APPROVED EQUAL, ARE APPROVED FOR RESTRAINED JOINTS.
4. SEE DRW NO R-10 FOR TRENCHES IN EXISTING PAVED STREETS AND CONCRETE AREAS
5. WOOD BLOCKING IS NOT PERMITTED IN THE BACKFILLED TRENCH.

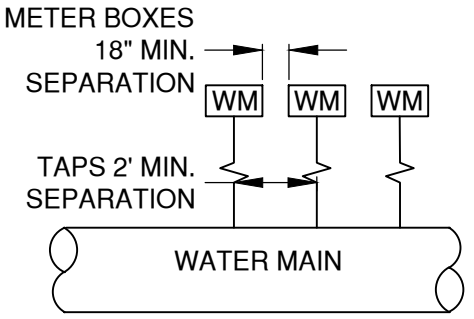
DRAWN LJC DIV WATER REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 WATER MAIN TYPICAL PROFILE	SCALE NTS DATE 3/31/19 APPR STD DWG W-1



TWO SERVICES SHARING ONE DITCH AT PROPERTY LINE

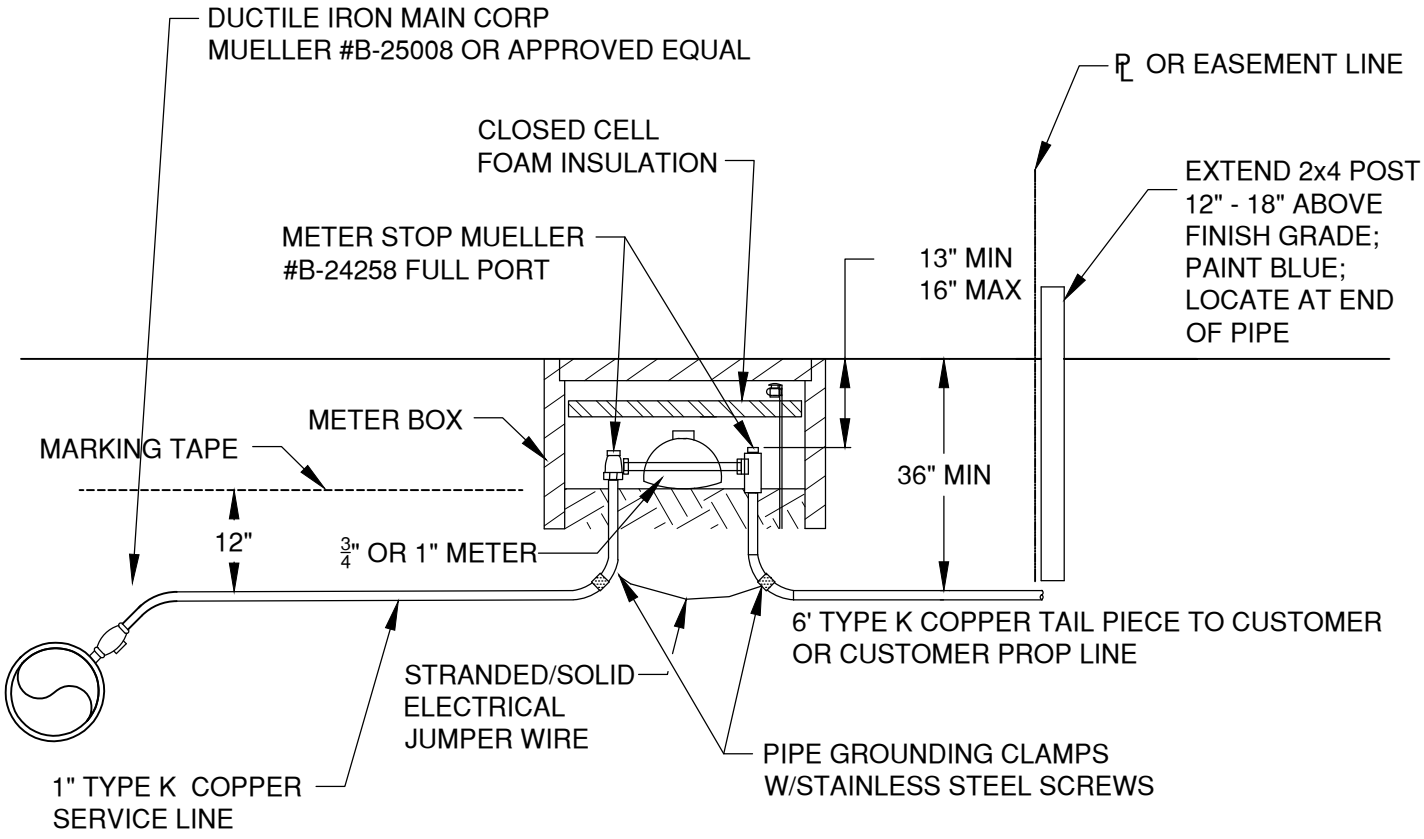
NOTE:

1. WATER METER BOXES SHALL BE LOCATED IN LANDSCAPE AREAS, NOT IN HARDSCAPE (I.E. SIDEWALKS& DRIVEWAYS). EXCEPTIONS REQUIRE APPROVAL OF CITY ENGINEER
2. SET WATER SERVICES A MINIMUM OF 10' FROM ALL SANITARY, FRANCHISE, STORM, AND ELECTRICAL SERVICES.
3. METER SHALL MATCH SERVICE LINE SIZE OR ONE SIZE SMALLER.
4. A 1" TAP NEAR A BELL SECTION SHALL BE SEPARATED FROM THE BELL BY A MINIMUM OF 2'. TAPS LARGER THAN 1" IN SIZE SHALL BE SEPARATED FROM THE BELL BY A MINIMUM OF 3'.
5. WHERE METERS ARE PLACED IN METER BANKS, A PERMANENT ADDRESS TAG PROVIDED BY THE CONTRACTOR SHALL BE PLACED ON THE METER BOX.



MULTIPLE METER BANK

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER		STANDARD DRAWING	DATE 3/31/19
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		RESIDENTIAL WATER SERVICE INSTALLATION	STD DWG W-4

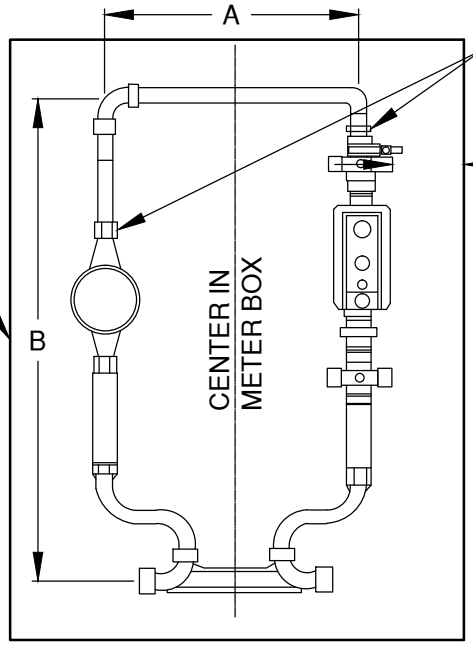


TYPICAL SERVICE

NOTES:

1. METER BOXES SHALL BE SET PARALLEL W/THE CURB LINE AND SHALL NOT BE INSTALLED WITHIN SIDEWALK OR PAVED AREAS
2. JUMPER SIZE 1" METER SETTER - 1 1/4"x11" SCHEDULE 80 THREADED NIPPLE (DOMESTIC) DRILLED TO PREVENT FLOW
3. METERS ARE TO BE THE SAME SIZE AS THE SERVICE LINE OR ONE SIZE SMALLER.

DRAWN LJC	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV WATER			DATE 12/1/17
REV / DATE 2 / 12/1/17			APPR
		3/4"-1" RESIDENTIAL METER SERVICE INSTALLATION	STD DWG W-4A



METER COUPLING WITH SADDLE METER NUT (TYP)

4-6" MIN. BETWEEN METER STOP AND METER BOX

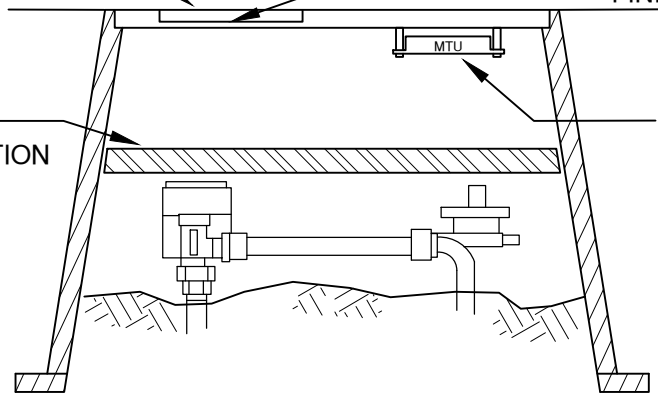
ASSEMBLY TO BE CENTERED IN THE METER BOX

BACKFLOW-WATTS 007 SERIES 3/4" OR 1"

	A	B
3/4"	5"	19 1/4"
1"	6"	22"

METER SETTER BAR TO REPLACE EXISTING JUMPER

PLAN



METAL READER DOOR

ADDRESSING TAG TO BE MOUNTED TO THE INSIDE METER DOOR (NOTE 3)

FINISH GRADE

CLOSED CELL FOAM INSULATION 1/2" MIN

METER TRANSMITTER UNIT (MTU) SHALL BE MOUNTED TO THE UNDERSIDE OF THE POLYMER METER BOX LID AT EITHER END OF THE LID AWAY FROM THE METAL READER DOOR.
ACLARA MTU SHALL BE MOUNTED WITH THE "ACLARA" EMBLEM TOWARDS THE LID AND THE ARROW BELOW THE EMBLEM POINTING TOWARDS THE METAL READER DOOR WITH SUPPLIED SPACERS AND (2) 2.5" #10 HEX HEAD SCREWS.

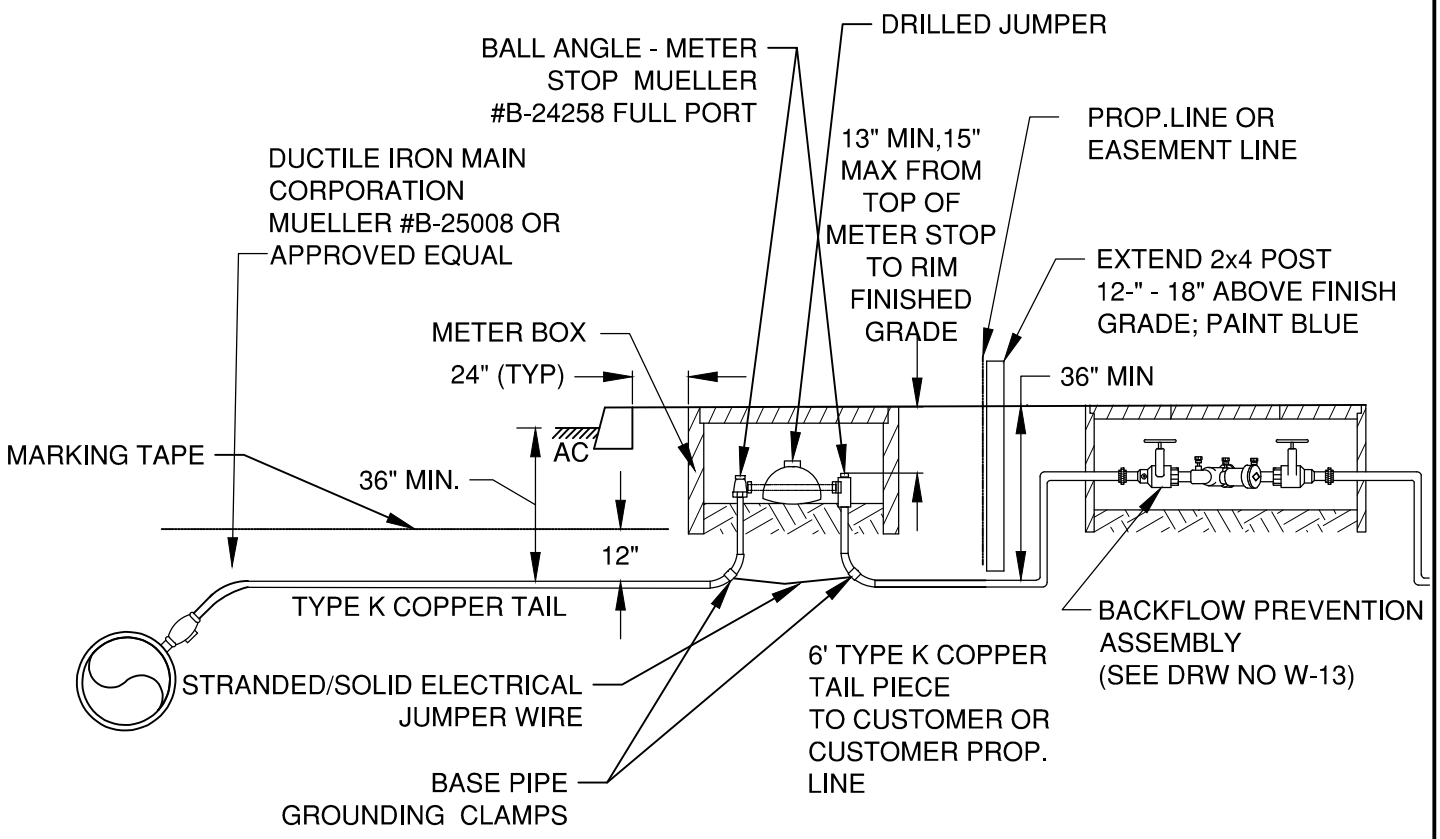
SECTION

OFFSET METER "LOOP" WITH BACKFLOW PREVENTION ASSEMBLY

NOTES:

1. METER BOXES SHALL BE SET PARALLEL W/THE CURB LINE AND SHALL NOT BE INSTALLED WITHIN SIDEWALK OR PAVED AREAS
2. JUMPER SIZE 1" METER SETTER - 1 1/4"x11" SCHEDULE 80 THREADED NIPPLE (DOMESTIC) DRILLED TO PREVENT FLOW
3. WHERE METER BOXES ARE INSTALLED IN A METER BANK, A BRASS OR STAINLESS STEEL TAG/PLAQUE TO BE MOUNTED TO THE INSIDE METER DOOR WITH THE LOT ADDRESS STAMPED.
4. CORRECTIONS OR REPAIRS TO AN EXISTING METER OR HARDWARE WITHIN THE METER BOX MAY REQUIRE THE EXISTING SERVICE TO BE UPGRADED TO CURRENT CITY STANDARDS.

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER		STANDARD DRAWING	DATE 12/1/17
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
2 / 12/1/17		3/4"-1" RESIDENTIAL METER SERVICE INSTALLATION	STD DWG W-4B

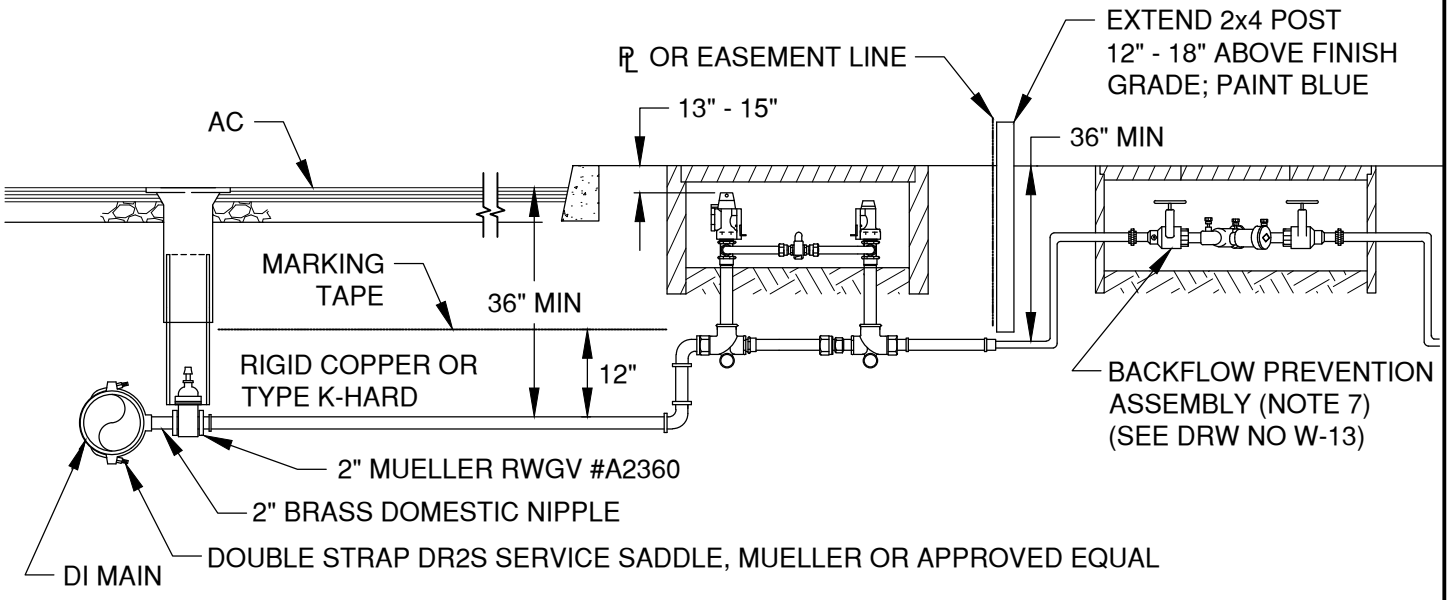


TYPICAL 1" SERVICE WITH METER

NOTES:

1. COMMERCIAL METERS NOT TO BE LESS THAN 1-INCH. METER SIZE TO MATCH SERVICE LINE SIZE.
2. BLOCK PIPE & SET METER OR INSTALL JUMPER PRIOR TO BACKFILLING TRENCH.
3. COMMERCIAL METERS WILL NOT BE SET UNTIL BACKFLOW PREVENTION ASSEMBLY IS IN PLACE.
4. COMMERCIAL METER BOXES SHALL BE INSTALLED PERPENDICULAR TO THE CURB LINE WITH DOUBLE CHECK TO BE LOCATED ON PROPERTY.
5. CORRECTIONS OR REPAIRS TO AN EXISTING METER OR HARDWARE WITHIN THE METER BOX MAY REQUIRE THE EXISTING SERVICE TO BE UPGRADED TO CURRENT CITY STANDARDS.
6. METER BOXES TO BE PLACED OUTSIDE OF HARD SURFACES INCLUDING SIDEWALKS AND APRONS.

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER		STANDARD DRAWING	DATE 12/1/17
REV / DATE: 2 / 12/1/17		710 NW WALL ST., BEND, OREGON 97701	APPR
		1" COMMERCIAL METER SERVICE INSTALLATION	STD DWG W-5

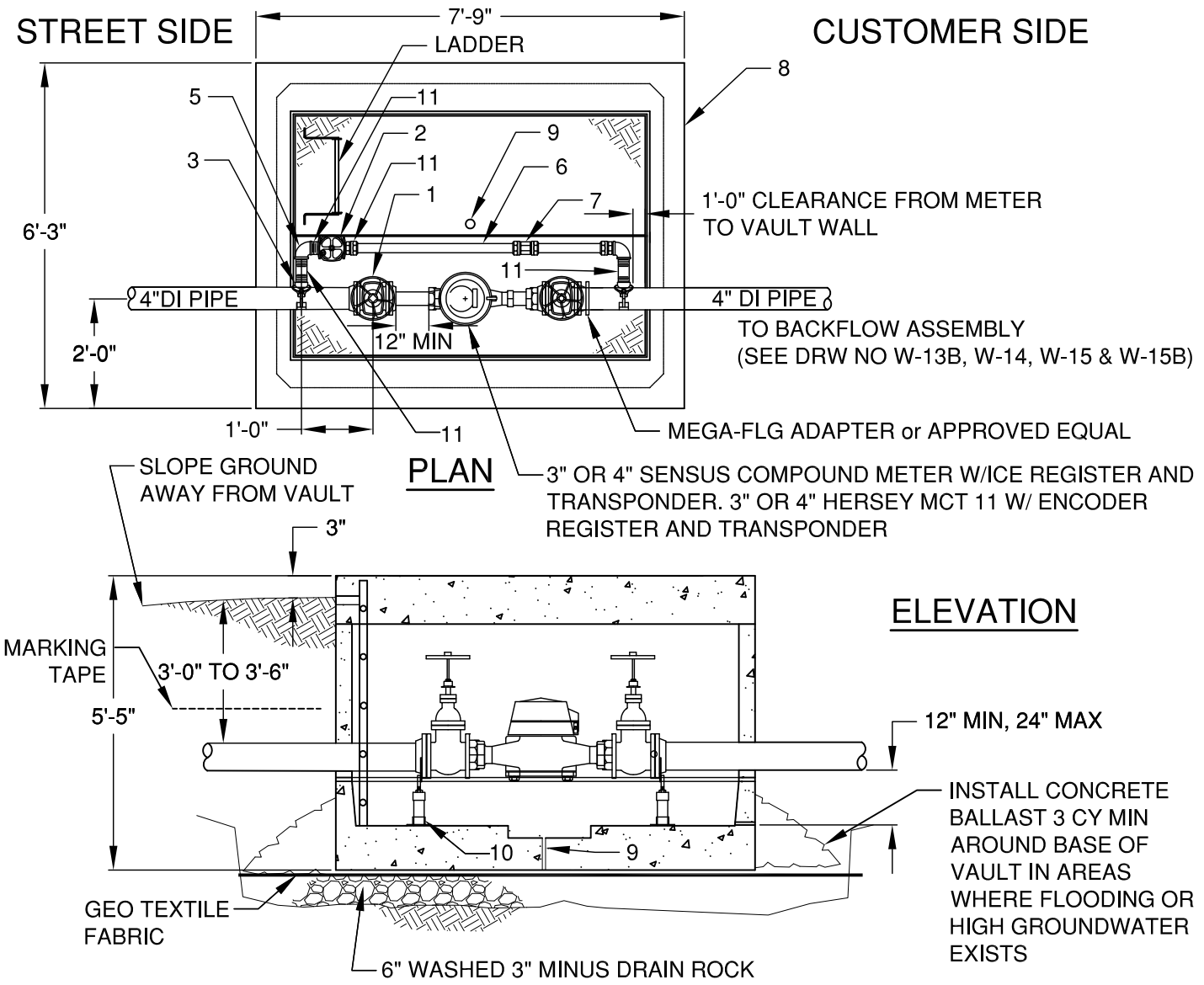


TYPICAL 1 1/2" & 2" SERVICE WITH METER

NOTES:

1. BLOCK PIPE & SET METER OR INSTALL JUMPER PRIOR TO BACKFILLING TRENCH
2. COMMERCIAL METERS WILL NOT BE SET UNTIL BACKFLOW PREVENTION ASSEMBLY IS IN PLACE
3. COMMERCIAL METER BOXES SHALL BE INSTALLED PERPENDICULAR TO THE CURB LINE WITH DOUBLE CHECK TO BE LOCATED ON PROPERTY
4. ALL METERS LESS THAN 2" WHEN USING A 2" SERVICE LINE ARE TO BE REDUCED WITHIN THE 2" METER SETTER
5. CORRECTIONS OR REPAIRS TO AN EXISTING METER OR HARDWARE WITHIN THE METER BOX MAY REQUIRE THE EXISTING SERVICE TO BE UPGRADED TO CURRENT CITY STANDARDS
6. DOUBLE CHECK ASSEMBLY SHALL BE INSTALLED USING THE UNIFORM BUILDING CODE (UBC) AND SHALL BE LOCATED ON A PRIVATE PROPERTY. THE ABOVE DIAGRAM IS FOR REFERENCE ONLY AND IS SUBJECT TO CHANGE BASED ON A REVIEW BY THE UBC PLANS EXAMINER.

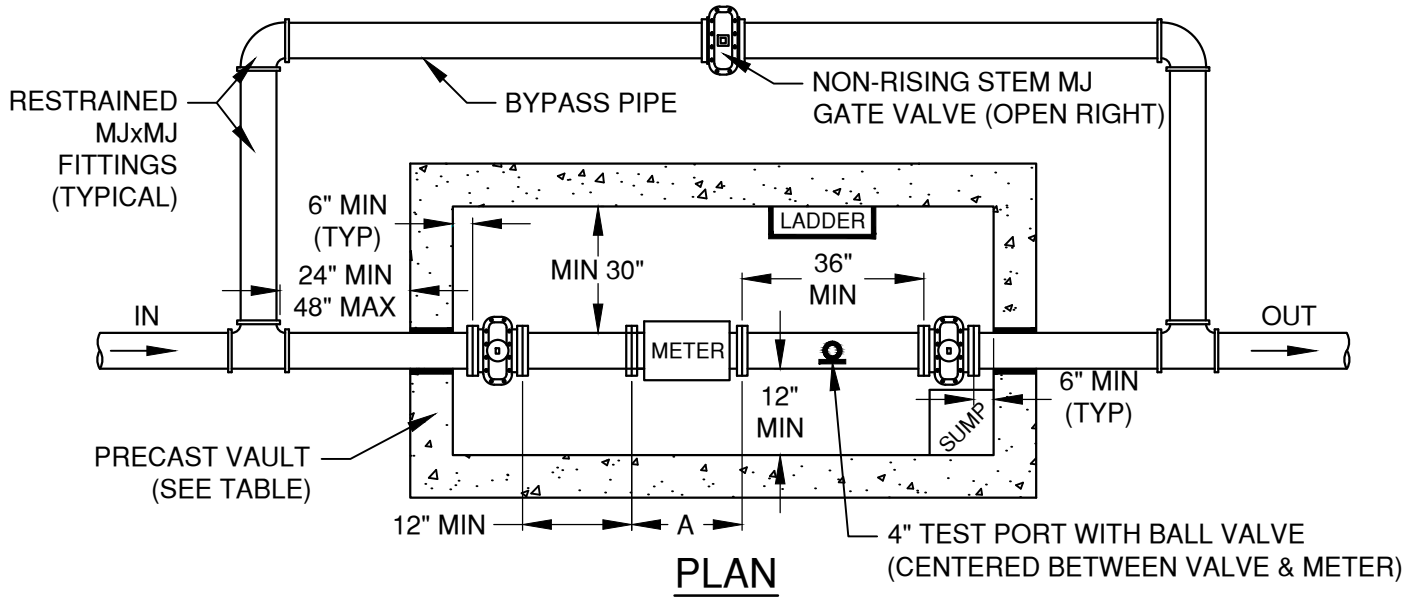
DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER		STANDARD DRAWING	DATE 12/1/17
REV 2 / DATE 12/1/17		710 NW WALL ST., BEND, OREGON 97701	APPR
		1 1/2" & 2" COMMERCIAL METER SERVICE INSTALLATION	STD DWG W-5A



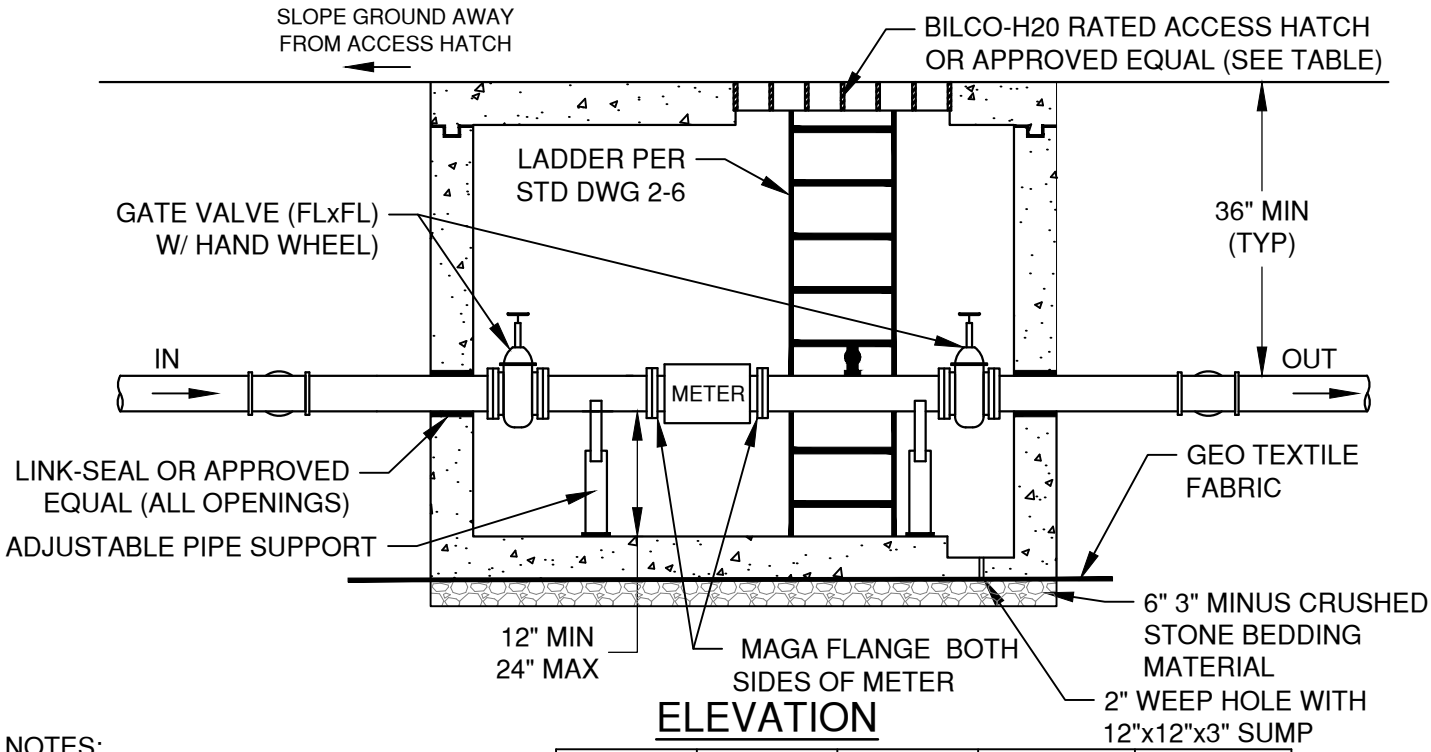
ITEM	QTY	DESCRIPTION
1	2EA	4"x3" FLG x FLG REDUCER & 3" FLG GATE VALVE WITH HANDWHEEL OR
	2	4"x4" FLG GATE VALVE WITH HANDWHEEL
2	1	2" SE GATE VALVE AWWA C509
3	2	DOUBLE STRAP DR-25 SERVICE SADDLE, MUELLER OR APPROVED EQUAL
5	2	2" BRASS 90° COMP x COMP
6	2	2" TYPE K HARD COPPER PIPE
7	1	2" COMP UNION
8	1	UTILITY VAULT 675-WA-730 WITH OPENING FOR BILCO DOOR JD-3AL AND OSHA APPROVED LADDER (SEE DRW NO W-6)
9	1	WEEP HOLE (12"x12"x3" SUMP)
10	2	2" PIPE STAND "STANDON"
11	4	2" MPT x COMP ADAPTER

NOTES:
1. SEAL ALL OPENINGS IN VAULT WITH NON SHRINK GROUT
2. CONTRACTOR TO BRING ERT'S TO PUBLIC WORKS FOR INSTALLATION AND INSPECTION
3. ENGINEER TO PROVIDE PIPE RESTRAINT DETAIL ENTERING & EXITING VAULT
4. METER SIZE TO MATCH SERVICE SIZE OR ONE SIZE SMALLER.
5. WHERE THE METER DOES NOT PROVIDE A TEST PORT, A 2" TEST PORT SHALL BE INSTALLED WITH 2" TAP SADDLE, 2" BRASS BALL VALVE AND 2" BRASS NIPPLE

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER	STANDARD DRAWING		DATE 12/1/17
REV / DATE	710 NW WALL ST., BEND, OREGON 97701		APPR
		3" & 4" COMMERCIAL METER INSTALLATION	STD DWG W-5B



PLAN



ELEVATION

NOTES:

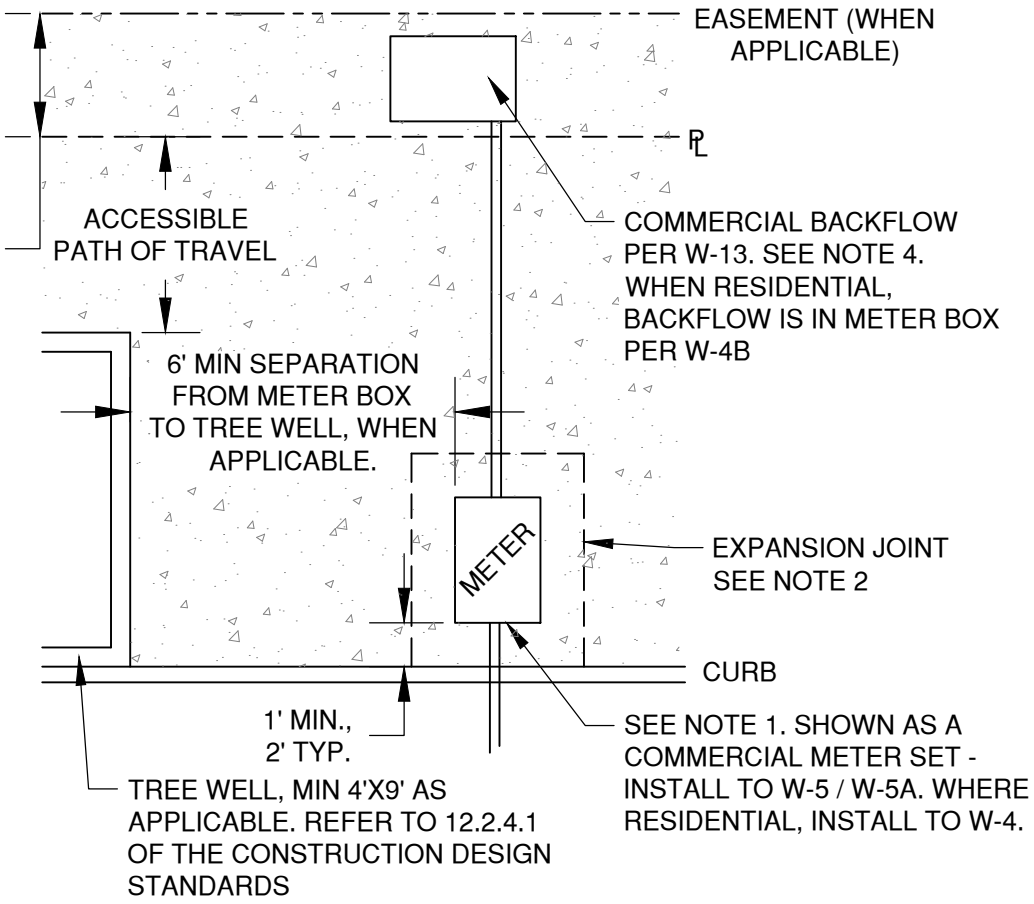
1. CONTRACTOR TO BRING ERT'S TO PUBLIC WORKS FOR INSTALLATION AND INSPECTION
2. ENGINEER TO PROVIDE PIPE RESTRAINT DETAIL ENTERING & EXITING VAULT
3. METER SIZE TO MATCH SERVICE SIZE OR ONE SIZE SMALLER.

METER (INCH)	BYPASS (INCHES)	VAULT*	BILCO DOOR	A (INCHES)
6"	4"	810-LA	J-5AL	15"±
8"	6"	810-LA	JD-3AL	17"±
10"	8"	612-LA	JD-3AL	20"±
12"	12"	612-LA	JD-3AL	24"±

* VAULT SIZES MAY VARY BY ENGINEER DESIGN PROVIDE MIN DIMENSIONS ARE MAINTAINED

DRAWN CJH DIV WATER REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 6" AND LARGE COMMERCIAL METER INSTALLATION
		SCALE NTS DATE 12/1/17 APPR STD DWG W-5C

SIDEWALK INSTALLATION WITHIN 5' PUBLIC ACCESS EASEMENT AS REQUIRED BY BEND CENTRAL DISTRICT. MAY NOT BE APPLICABLE FOR ALL PROJECTS.

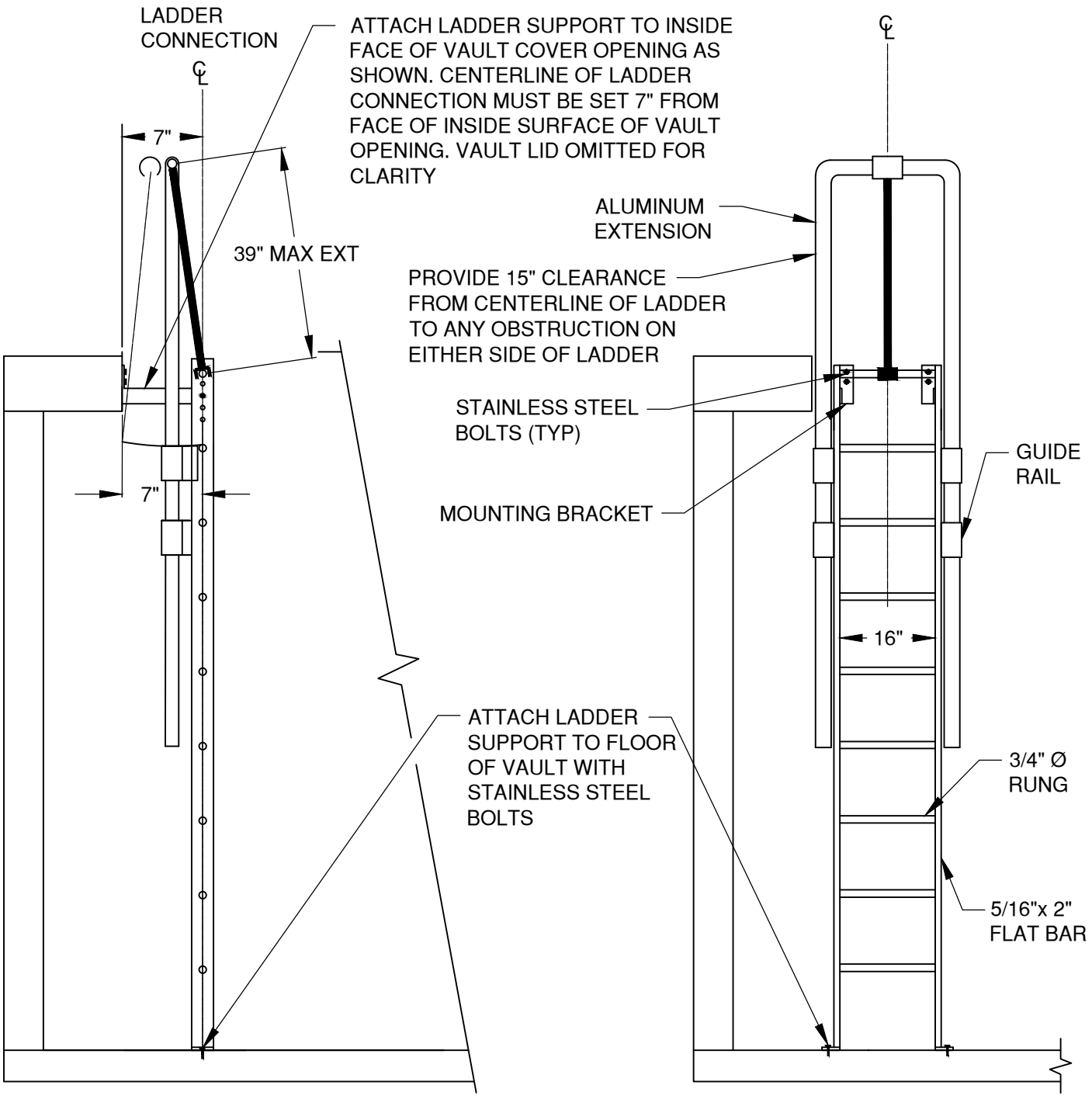


TYPICAL INSTALLATION IN THE BEND CENTRAL DISTRICT OR WHERE WIDENED SIDEWALKS ARE REQUIRED BY DEVELOPMENT CODE. METERS TO BE PERMITTED WITHIN HARDSCAPE ONLY WHEN APPROVED BY THE CITY ENGINEER.

NOTE:

1. WATER METER BOXES SHALL BE LOCATED IN LANDSCAPE AREAS WHEN POSSIBLE. IF WATER METER BOX CAN BE LOCATED ON PRIVATE PROPERTY TO REMOVE IT FROM SIDEWALK, A UTILITY EASEMENT SHALL BE GRANTED TO THE CITY TO MAINTAIN THE METER.
2. AN EXPANSION JOINT IN THE SIDEWALK SHALL BE INSTALLED 12-INCH AROUND THE ENTIRE PERIMETER OF THE METER BOX.
3. STATE SPEC BASE ROCK SHALL BE COMPACTED TO 95% IMMEDIATELY BELOW AND FOR A MINIMUM OF 3 FEET AROUND THE METER BOX.
4. BACKFLOWS SHALL BE INSTALLED ON PRIVATE PROPERTY. WHERE BACKFLOW DEVICES CANNOT BE PLACED WITHIN LANDSCAPE, THE BOX SHALL BE INSTALLED OUTSIDE THE RIGHT OF WAY AND OUTSIDE A PUBLIC UTILITY EASEMENT. INSTALLATION OF BACKFLOW DEVICES WITHIN A BUILDING WILL BE GRANTED ON A CASE BY CASE BASIS BY THE CITY ENGINEER ONLY WHERE IT CAN BE ADEQUATELY SHOWN NOT TO FIT OUTSIDE THE BUILDING (EXAMPLE, THE BACKFLOW, AND THEREFORE THE VAULT, IS TOO LARGE TO FIT)
5. SET WATER SERVICES A MINIMUM OF 10' FROM ALL SANITARY, FRANCHISE, STORM, AND ELECTRICAL SERVICES. ALL TREE WELLS SHALL BE A MINIMUM 6 FEET FROM THE METER BOX INSTALLATION.
6. WATER METERS SHALL NOT BE PLACED WITHIN VEHICULAR SURFACES (DRIVEWAYS) WITHOUT CITY ENGINEER APPROVAL.

DRAWN LJC	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV WATER			DATE 3/31/19
REV DATE			APPR
	CITY OF BEND	METER INSTALLATION IN SIDEWALKS	STD DWG W-5D



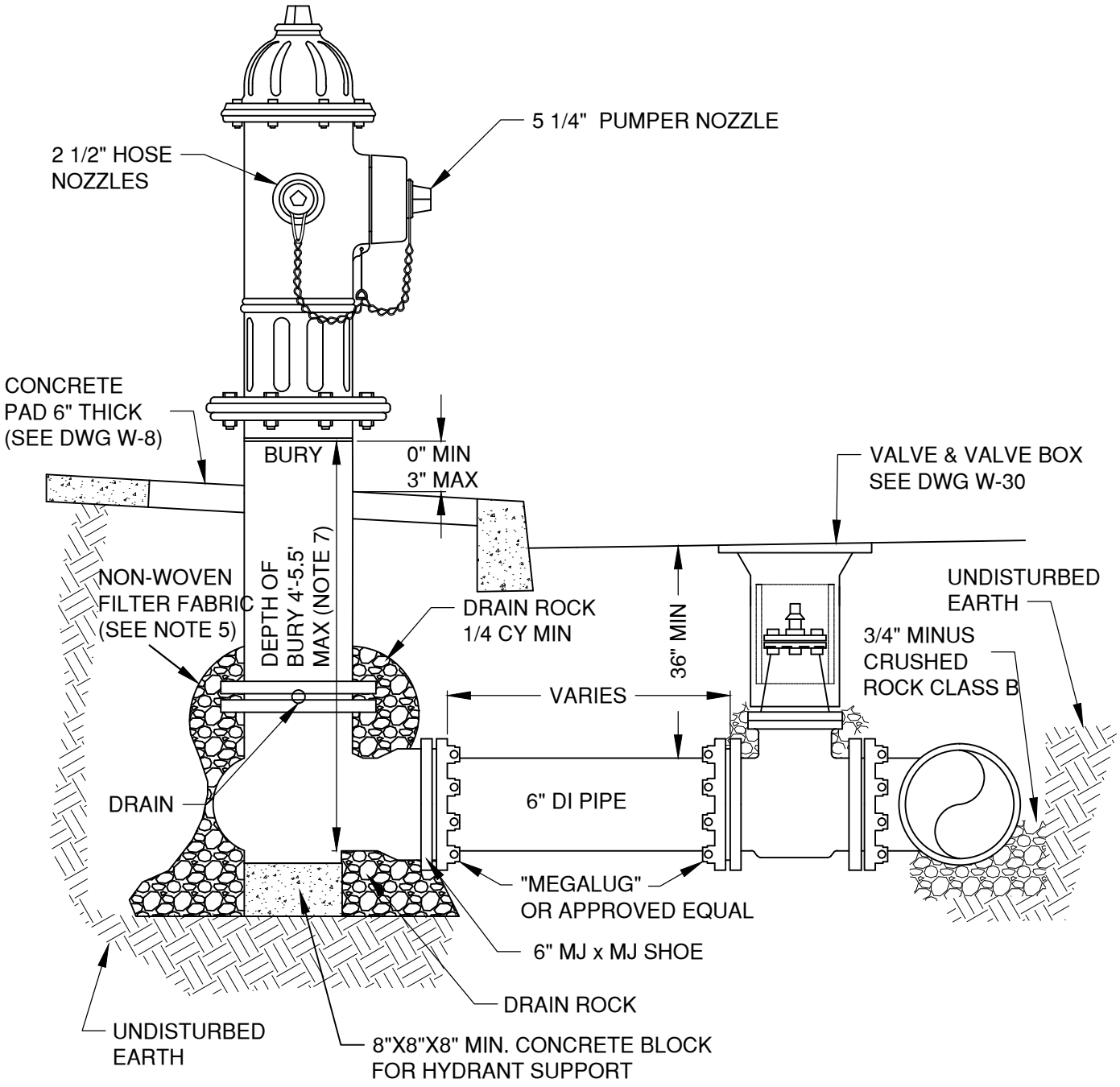
SIDE VIEW

FRONT VIEW

NOTES:

1. GALVANIZED LADDER W/AN ALUMINUM EXTENSION BY UTILITY VAULT (OR APPROVED EQUAL) (PER OAR 437, DIV 2, CODE OF FEDERAL REGULATIONS, TITLE 29, CHAPTER XVII PART 1910.27)
2. 5'-4" GALVANIZED LADDER FROM UTILITY VAULT TO BE CUT DOWN TO 4'-7" BY CONTRACTOR FOR USE IN VAULT 675-WA. UTILITY VAULT TO SUPPLY 49 1/2" ALUMINUM EXTENSION

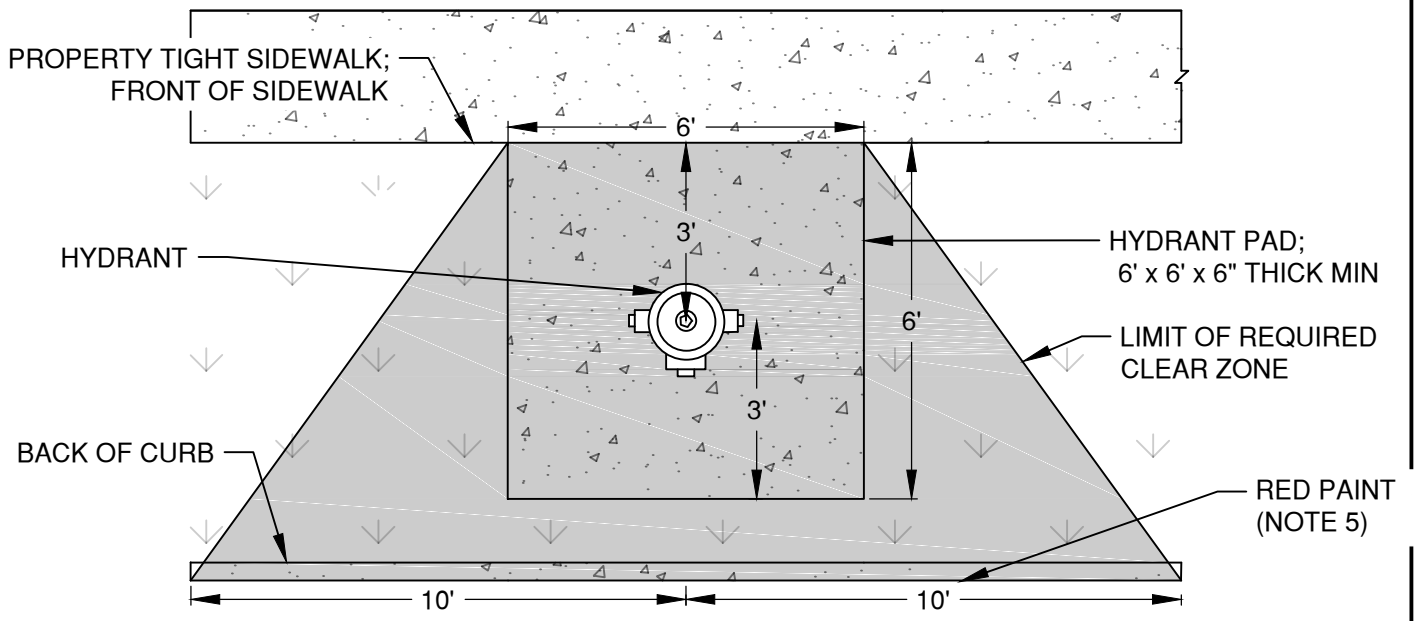
DRAWN	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV ROADWAY			DATE 12/1/17
REV / DATE			APPR
		GALV. LADDER W/ ALUM EXT FOR WATER VAULTS	STD DWG W-6



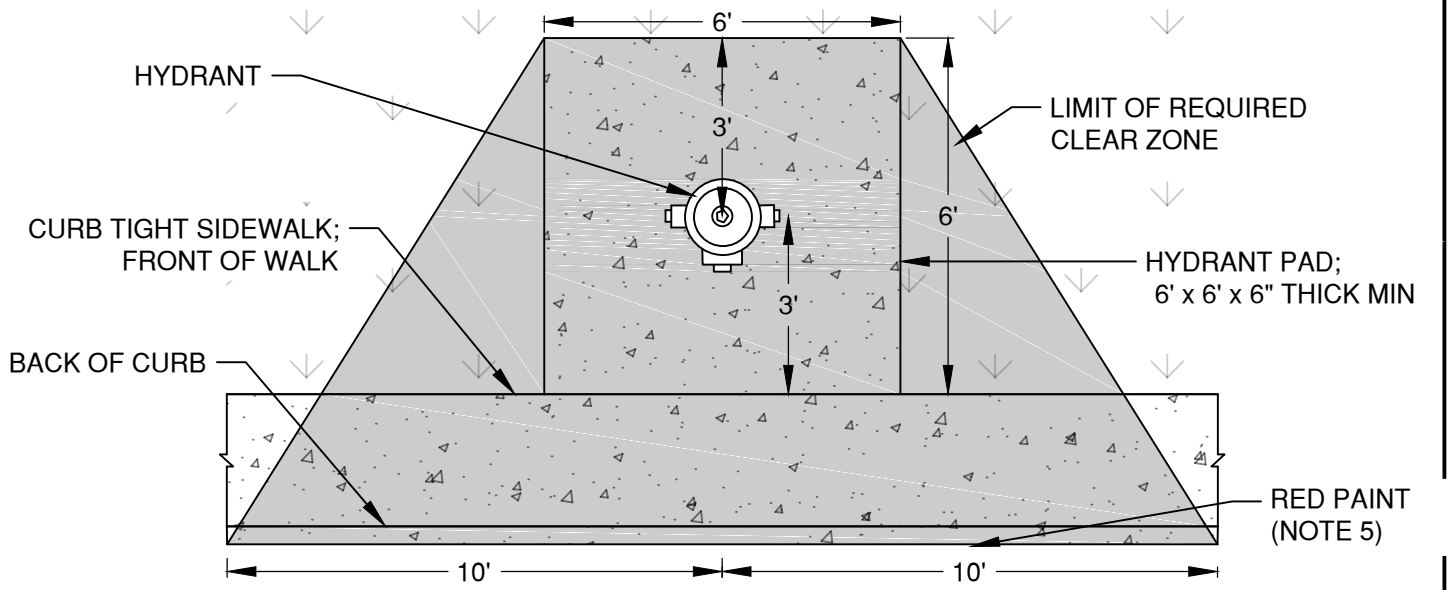
NOTES:

1. ALL PIPES SHALL HAVE RESTRAINED JOINTS.
2. MJ x MJ TEE OR MJxMJxSWIVEL (OPTIONAL) WITH 6-INCH VALVE AT THE MAINLINE.
3. FINISH GRADE OF HYDRANT SHALL BE SET AT BURY LINE TO A MAXIMUM OF 3" BELOW BURY LINE. NO HYDRANT EXTENSIONS PERMITTED ON NEW INSTALLATIONS.
4. SET HYDRANT PLUMB. COMPACT ALL BACKFILL PER SPECIFICATIONS.
5. NON-WOVEN SEPARATION FILTER FABRIC (OSS TABLE 02320-4) INSTALLED BETWEEN UNDISTURBED EARTH AND DRAINROCK PRIOR TO BACKFILL.
6. HYDRANTS SHALL BE MANUFACTURER'S RED. NO OTHER COLOR IS PERMITTED.
7. BURY DEPTH IS MAX 5.5' FEET. USE 45 DEGREE OR 22.5 DEGREE BENDS TO ADJUST ACCORDINGLY.

DRAWN LJC DIV WATER REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 TYPICAL HYDRANT	SCALE NTS DATE 3/31/19 APPR STD DWG W-7



PROPERTY TIGHT SIDEWALK HYDRANT LOCATION AND CLEAR ZONE
PLAN VIEW

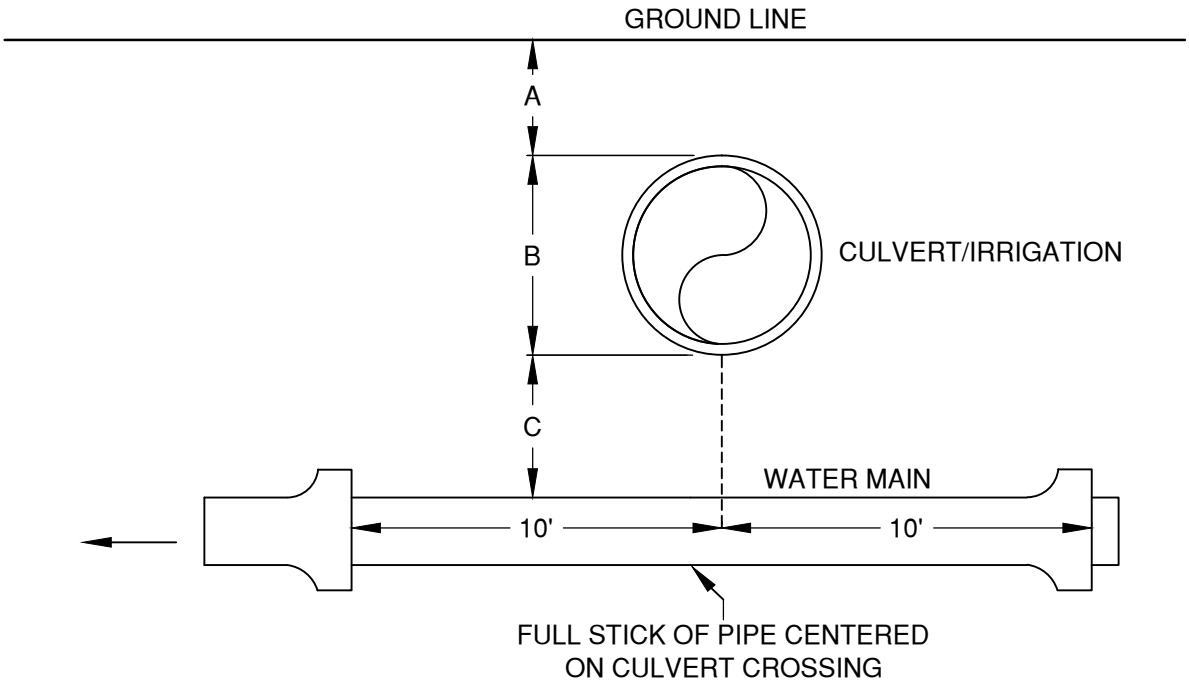


CURB TIGHT SIDEWALK HYDRANT LOCATION AND CLEAR ZONE
PLAN VIEW

NOTES:

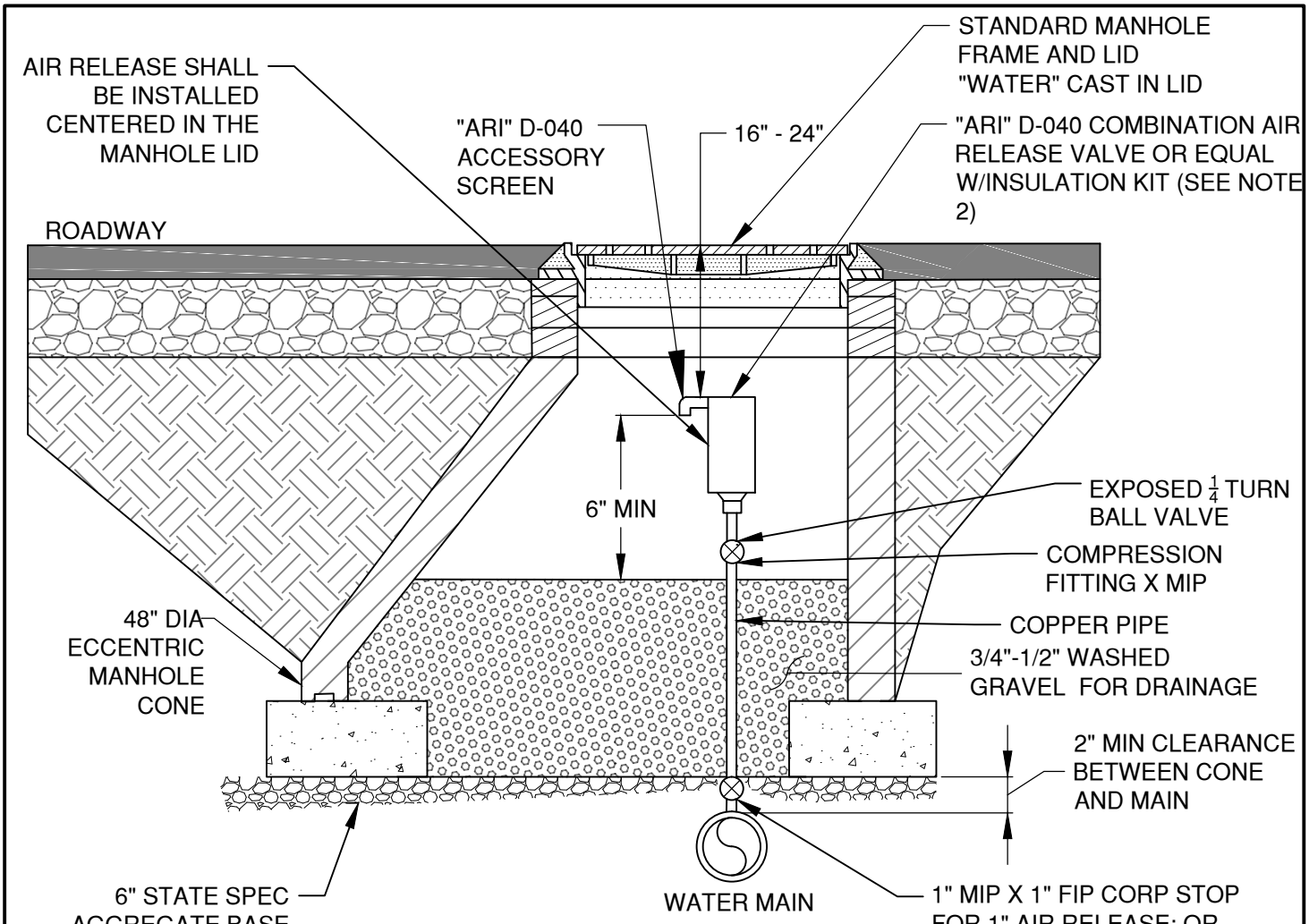
1. THE CLEAR ZONE PROHIBITS PARKING, FENCES, TREES, RETAINING WALLS, OR OTHER STRUCTURES THAT COULD INTERFERE WITH OPERATION OF HYDRANT. GRASS, MULCH, BARKDUST, AND GROUND COVER IS PERMITTED.
2. PROPERTY OWNERS SHOULD BE AWARE THAT GROUND COVER COULD BE DAMAGED WHEN THE HYDRANT IS USED OR WHEN HYDRANT MAINTENANCE IS PERFORMED.
3. CONCRETE PADS ARE TO BE A MINIMUM OF 6" THICK AND BE POURED AND PLACED ON 2" MIN. COMPACTED BASE ROCK PER SECTION OSS 00400.00
4. THERE SHALL BE A MINIMUM 4 FOOT CLEAR TRAVEL WIDTH ON SIDEWALKS ADJACENT TO HYDRANTS.
5. THE CURB SHALL BE PAINTED RED FOR A TOTAL OF 20 FEET, CENTERED ON THE HYDRANT.

DRAWN LJC DIV WATER REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 HYDRANT LOCATION AND CLEAR ZONE	SCALE NTS DATE 3/31/19 APPR STD DWG W-8

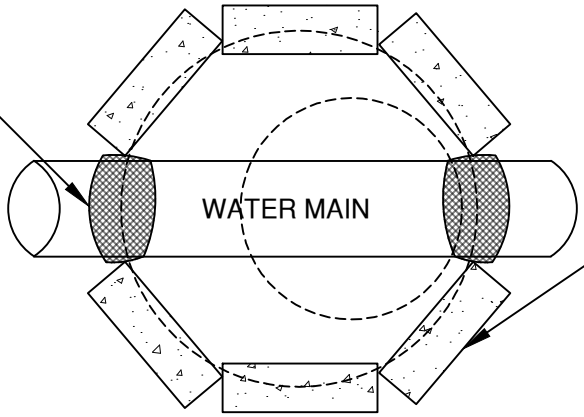


A	B	C
COVER FROM CULVERT TO FINISH GRADE	CULVERT SIZE	SEPARATION CULVERT TO MAIN
12" OR LESS	6" THRU 12"	NOT LESS THAN 18"
12" OR MORE	6" THRU 12"	NOT LESS THAN 12"
12" OR LESS	14" THRU 24"	NOT LESS THAN 30"
12" OR MORE	14" THRU 24"	NOT LESS THAN 24"
	GREATER THAN 24"	NOT LESS THAN 36"

DRAWN LJC	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV WATER			DATE 12/1/17
REV DATE			APPR
		SEPARATION OF WATER LINE TO IRRIGATION CULVERTS	STD DWG W-9



PROFILE VIEW

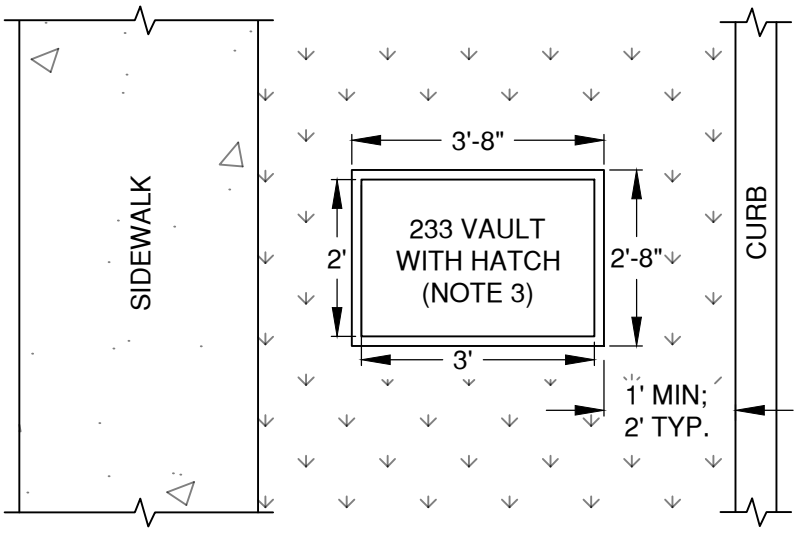


PLAN VIEW

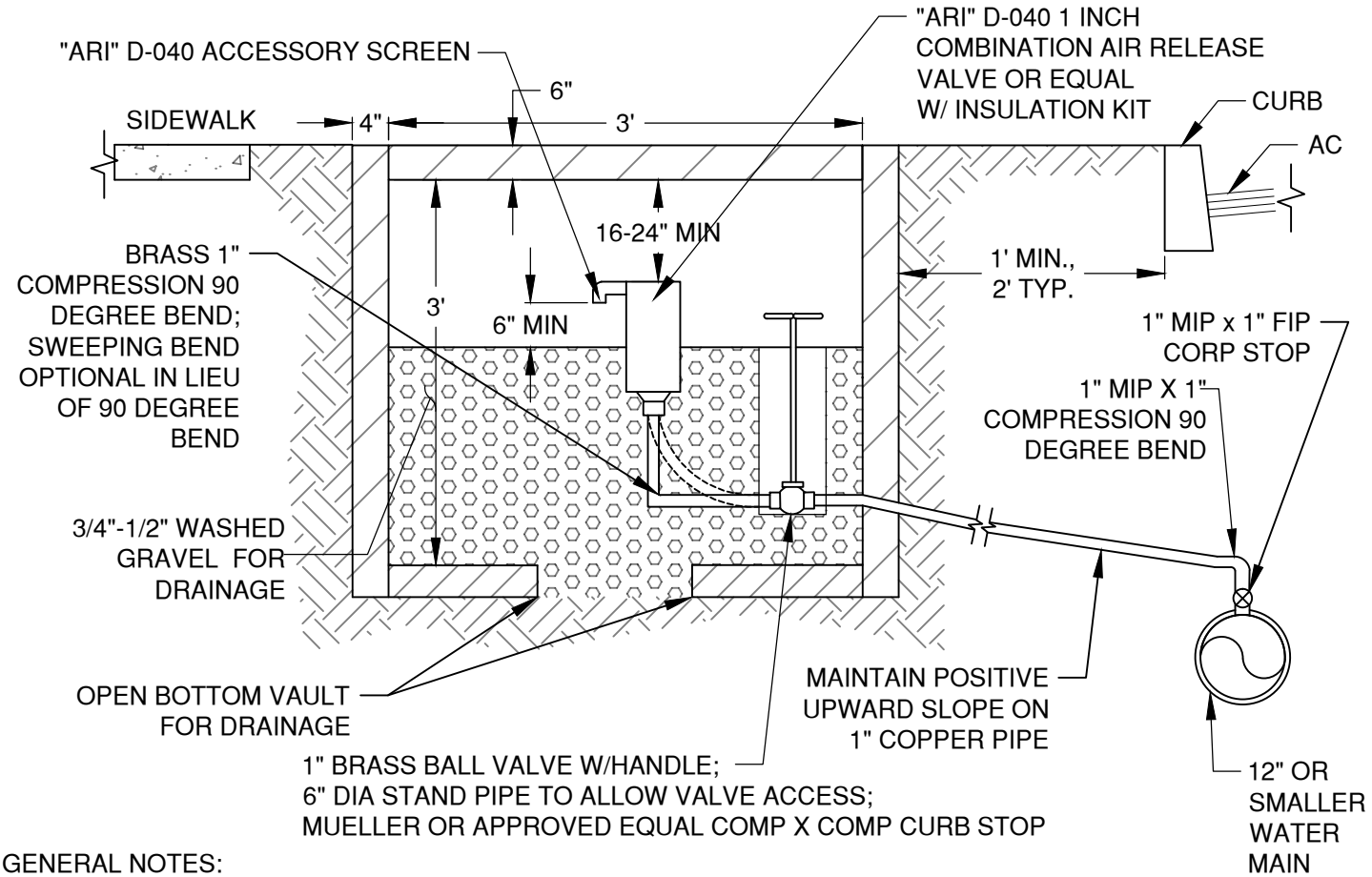
GENERAL NOTES:

1. AIR RELEASE OR COMBINATION VALVES SHALL BE INSTALL AT ALL HIGH POINTS. WHERE THE HIGH POINT IS AT THE TOP OF A LONG ASCENT (1,250 FEET+) A COMBINATION AIR/VACUUM VALVE SHALL BE INSTALLED.
2. 1" AIR RELEASE VALVE TO BE USED ON WATER MAINS LESS THAN 12" IN DIAMETER. 2" AIR RELEASE VALVE TO BE USED ON WATER MAINS GREATER THAN OR EQUAL TO 12" IN DIAMETER.

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER		STANDARD DRAWING	DATE 3/31/19
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
	CITY OF BEND	1" & 2" STANDARD AIR RELEASE VALVE - TRAFFIC AREA	STD DWG W-10



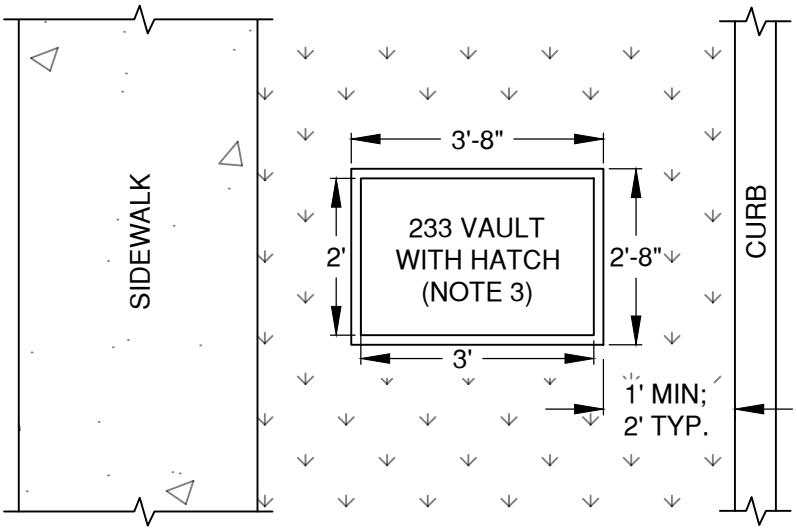
AIR RELEASE VALVE LOCATION
PLAN VIEW



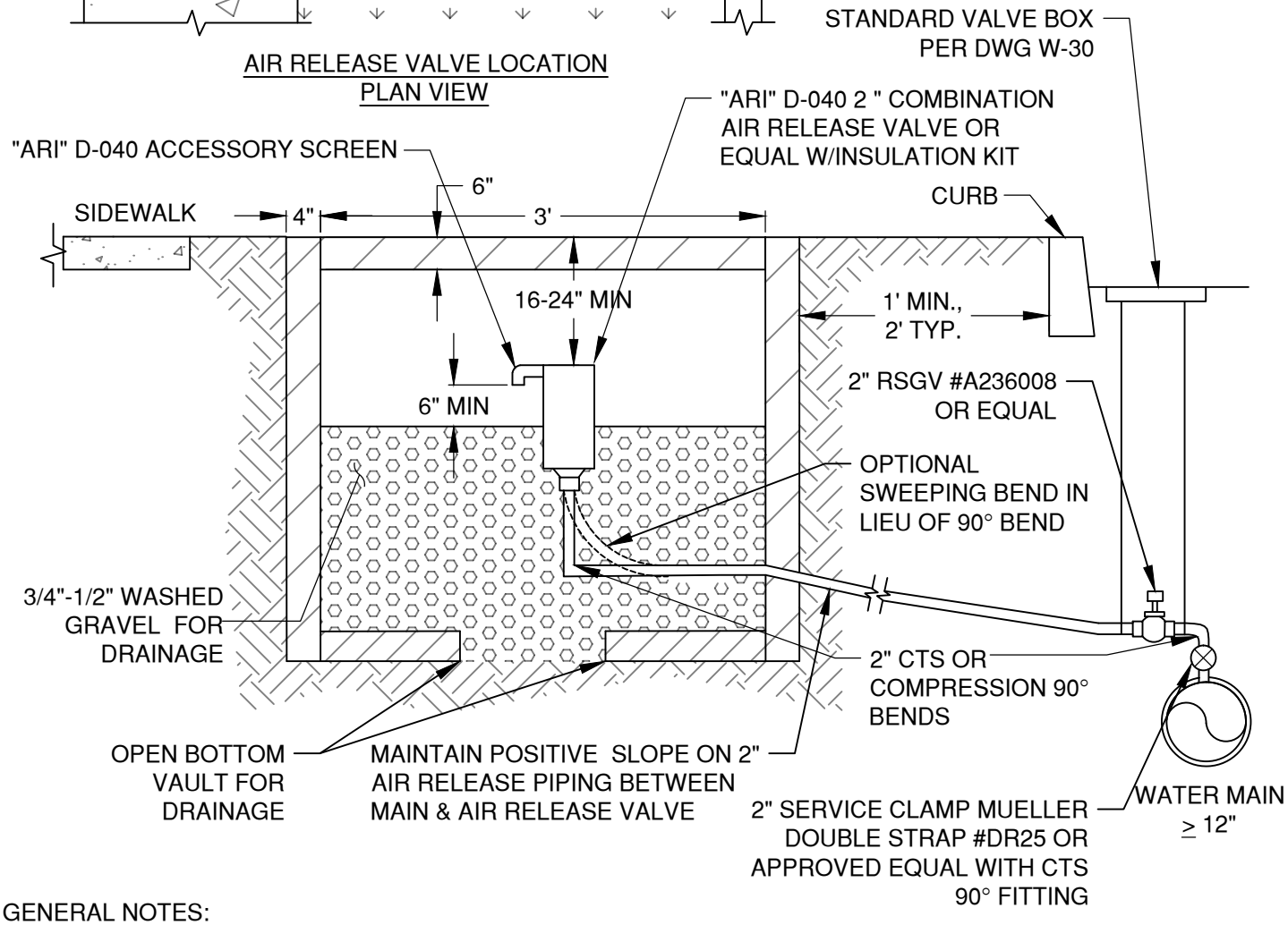
GENERAL NOTES:

1. AIR RELEASE OR COMBINATION VALVES SHALL BE INSTALL AT ALL HIGH POINTS. WHERE THE HIGH POINT IS AT THE TOP OF A LONG ASCENT (1,250 FEET+) A COMBINATION AIR/VACUUM VALVE SHALL BE INSTALLED.
2. IF 1" AIR RELEASE VALVE IS INSTALLED IN TRAFFIC AREA, INSTALL PER DRG W-10.
3. VAULT SHALL BE ADVANCED PRECAST PRODUCT 233 VAULT WITH 2'X3' HATCH AND OPEN BOTTOM, OR APPROVED EQUAL.

DRAWN LJC DIV WATER REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS DATE 3/31/19 APPR
		1" STANDARD AIR RELEASE VALVE	STD DWG W-10A



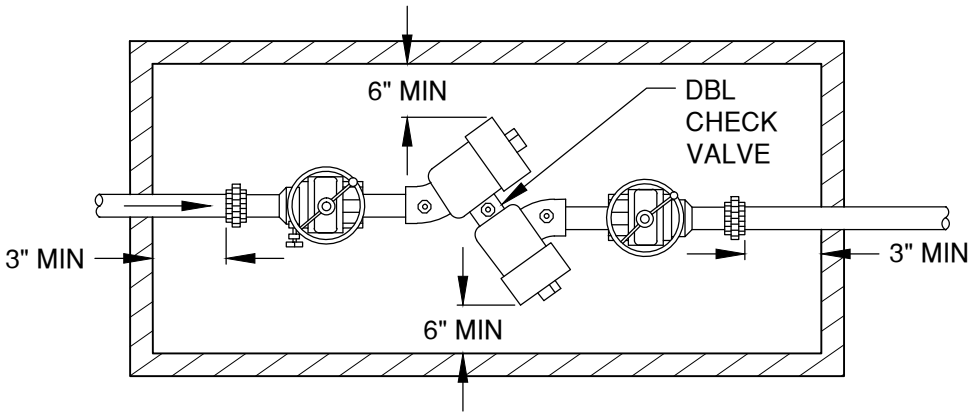
AIR RELEASE VALVE LOCATION
PLAN VIEW



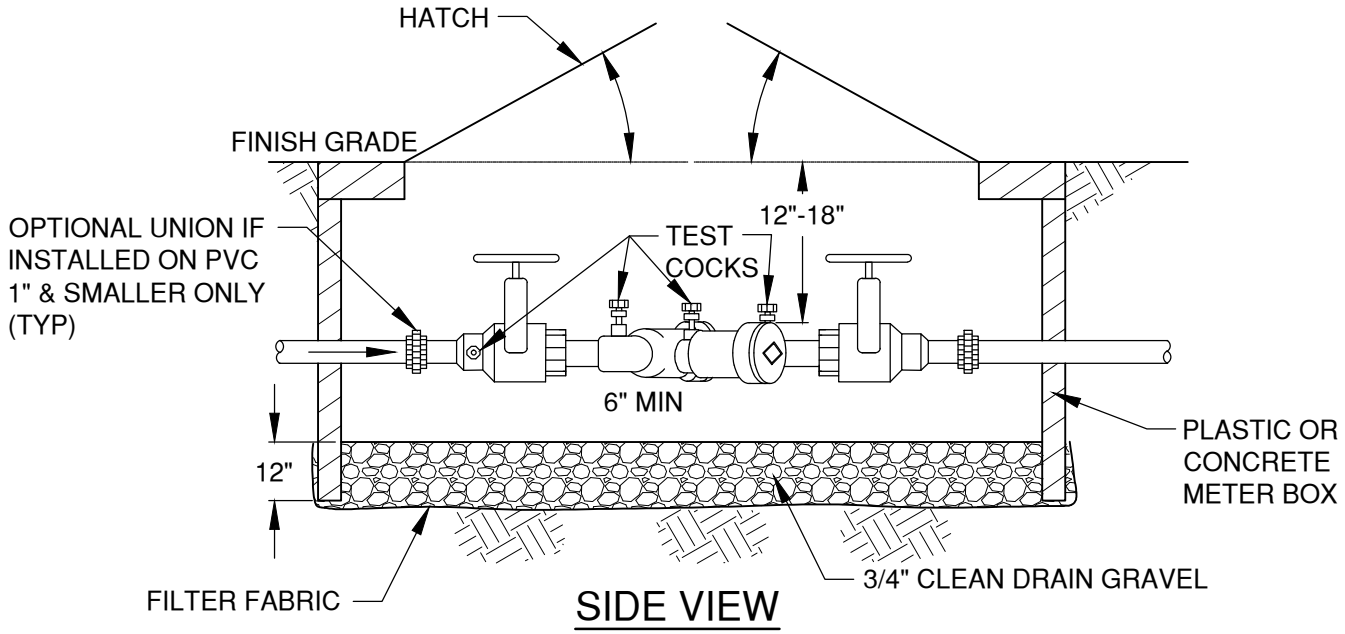
GENERAL NOTES:

1. AIR RELEASE OR COMBINATION VALVES SHALL BE INSTALL AT ALL HIGH POINTS. WHERE THE HIGH POINT IS AT THE TOP OF A LONG ASCENT (1,250 FEET+) A COMBINATION AIR/VACUUM VALVE SHALL BE INSTALLED.
2. USE DRG W-10B FOR 2" AIR RELEASE VALVES LOCATED IN TRAFFIC AREAS.
3. VAULT SHALL BE ADVANCED PRECAST PRODUCT 233 VAULT WITH 2'X3' HATCH AND OPEN BOTTOM, OR APPROVED EQUAL.

DRAWN LJC	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV WATER			DATE 3/31/19
REV / DATE: 4/8/18			APPR
	CITY OF BEND	2" STANDARD AIR RELEASE VALVE	STD DWG W-10B



TOP VIEW

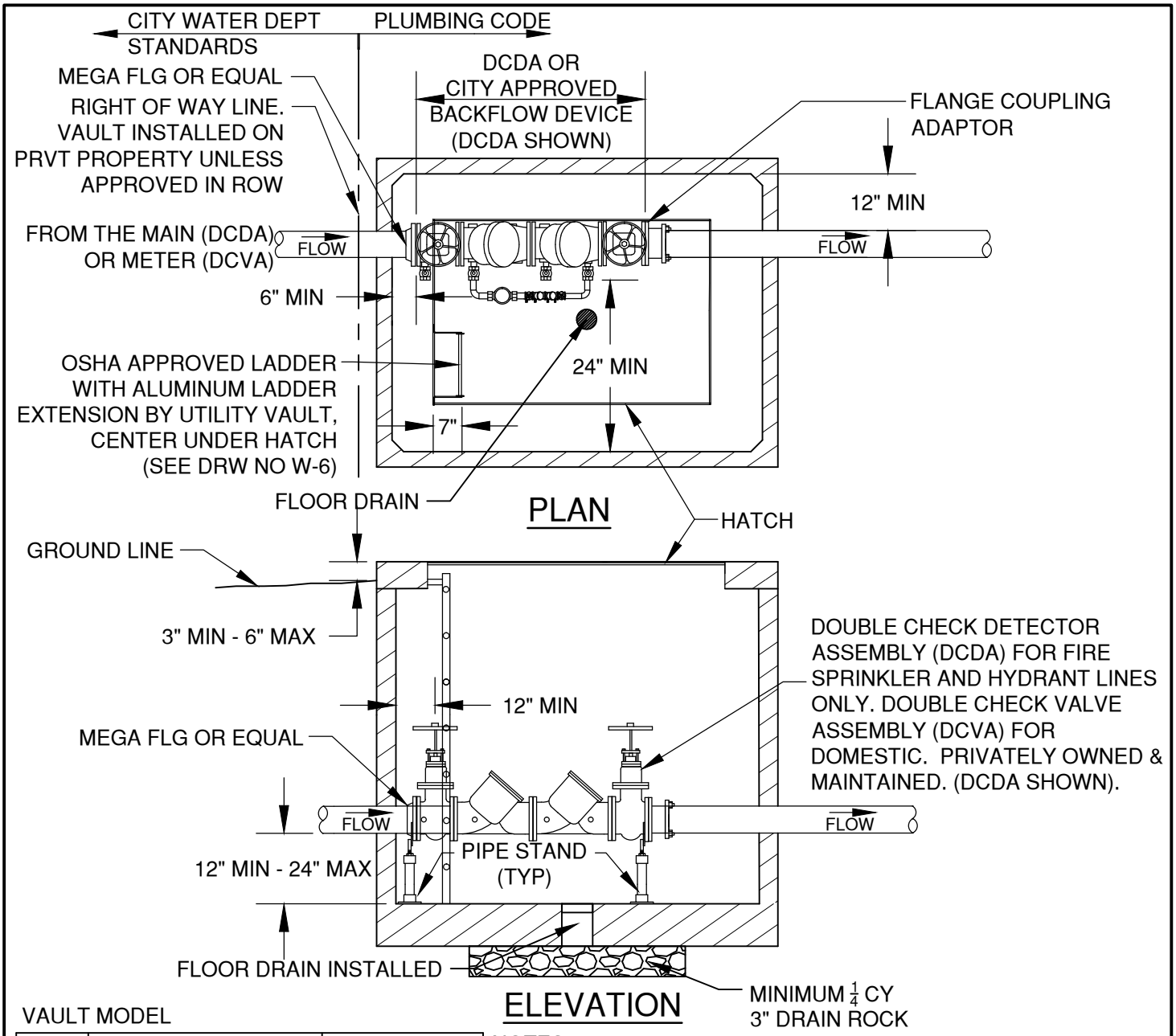


SIDE VIEW

NOTES:

1. DOUBLE CHECK VALVE ASSEMBLIES (DCVAs) MAY BE INSTALLED VERTICAL AS WELL AS HORIZONTAL PROVIDED THAT THE ASSEMBLY IS APPROVED FOR VERTICAL INSTALLATIONS
2. DCVAs MAY BE INSTALLED BELOW GRADE IN A VAULT PROVIDED WATER TIGHT, THREADED PLUGS ARE INSTALLED IN THE TEST COCKS, BUT THE ASSEMBLY SHALL NOT BE SUBJECT TO CONTINUOUS IMMERSION
3. BLOWOUT PORTS, WHEN REQUIRED MUST BE INSTALLED DOWNSTREAM OF LAST ASSEMBLY SHUTOFF
4. IF VAULT DEPTH EXCEEDS 4', USE OSHA APPROVED LADDER (SEE DRW NO W-6)
5. HATCH SIZE SELECTED TO MATCH VAULT DIMENSIONS

DRAWN LJC DIV WATER REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 TYPICAL DCVA INSTALLATIONS 2" AND SMALLER	SCALE NTS DATE 12/1/17 APPR STD DWG W-13



VAULT MODEL

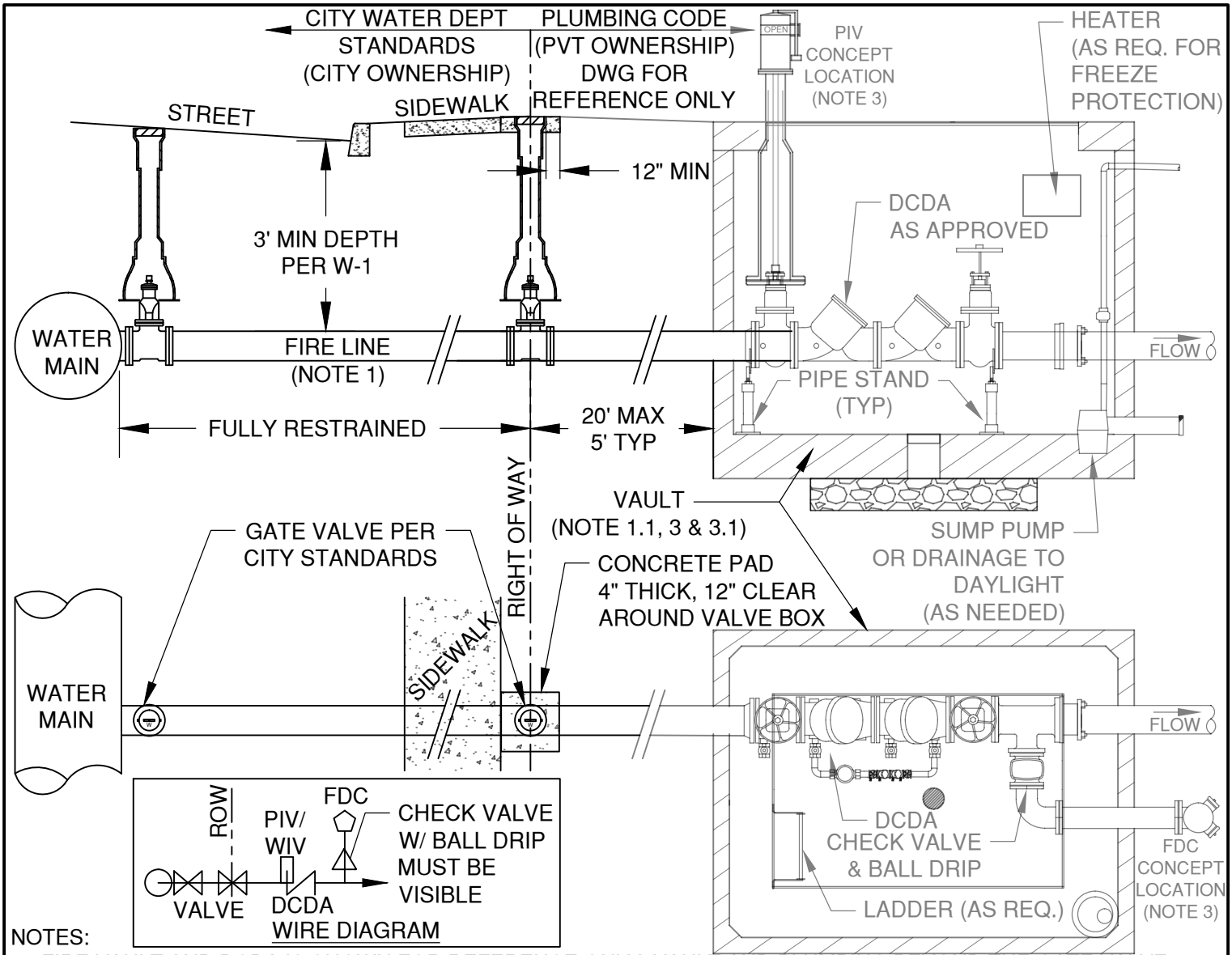
PIPE SIZE	UTILITY VAULT OR EQUAL		BILCO DOOR OR EQUAL
	W/ FDC*	W/O FDC	
3		660-WA	J-5AL
4	676-WA	687-WA	J-5AL
6	687-WA	676-WA	J-5AL
8	5106-LA	687-WA	JD-3AL
10	5106-LA	5106-LA	JD-3AL

* FOR FIRE SPRINKLER VAULTS, REFER TO W-13B. FIRE SPRINKLER VAULTS INSTALLED IN RIGHT OF WAY OR UTILITY EASEMENT ONLY WHEN APPROVED BY CITY ENGINEER.

NOTES:

1. ENGINEER TO PROVIDE RESTRAIN DETAIL FOR ALL PIPE ENTERING & EXITING VAULT
2. CONTRACTOR TO SEAL ALL OPENINGS IN VAULT WITH NON-SHRINK GROUT PRIOR TO BACKFILLING
3. CONDUIT BROUGHT TO VAULT FOR PUMP POWER AND DETECTOR WIRING.
4. ENGINEER OF RECORD DESIGN TO BE PROVIDED WITH PERMIT.
5. VAULT AND LID TO BE TRAFFIC RATED
6. ALL FIRE LINES SHALL HAVE THE VAULT & DOUBLE CHECK DETECTOR ASSEMBLY (DCDA) INSTALLED CONCURRENTLY FOR TESTING & DISINFECTION TO THE CITY MAIN.

DRAWN CJH	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV WATER			DATE 3/31/19
REV DATE			APPR
		2" & LARGER DOUBLE CHECK VALVE ASSEMBLY	STD DWG W-13A

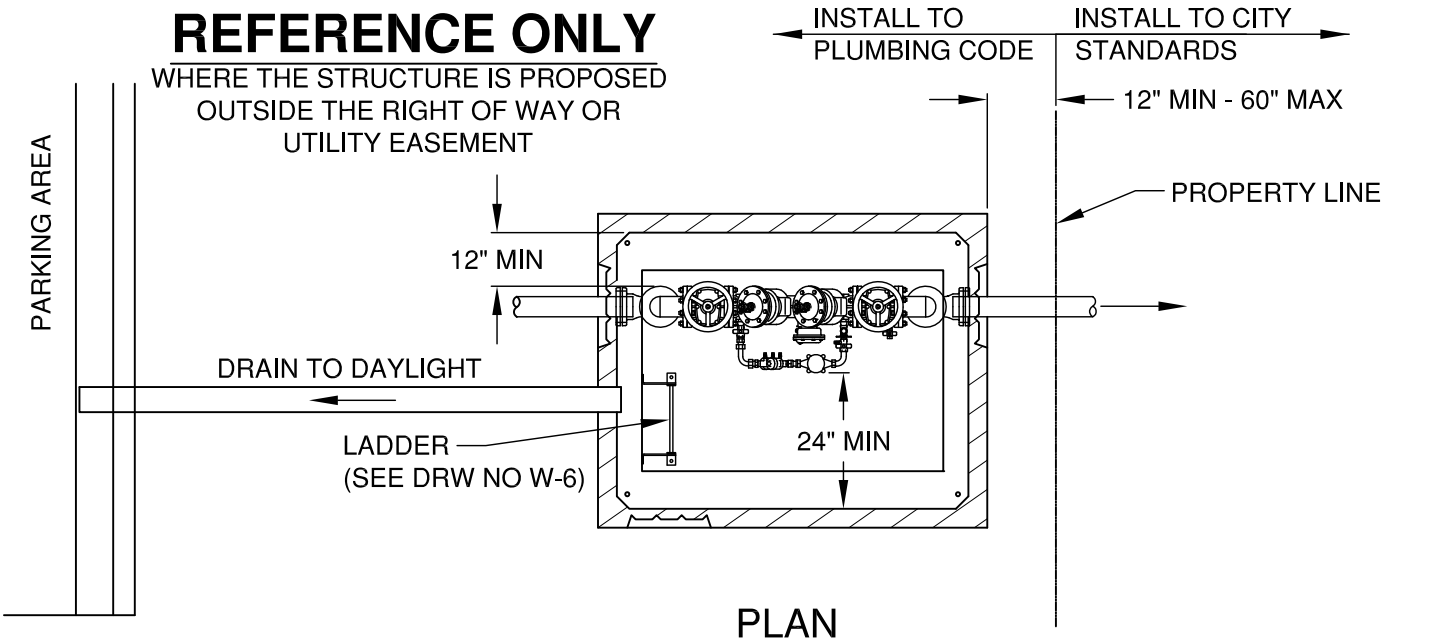


NOTES:

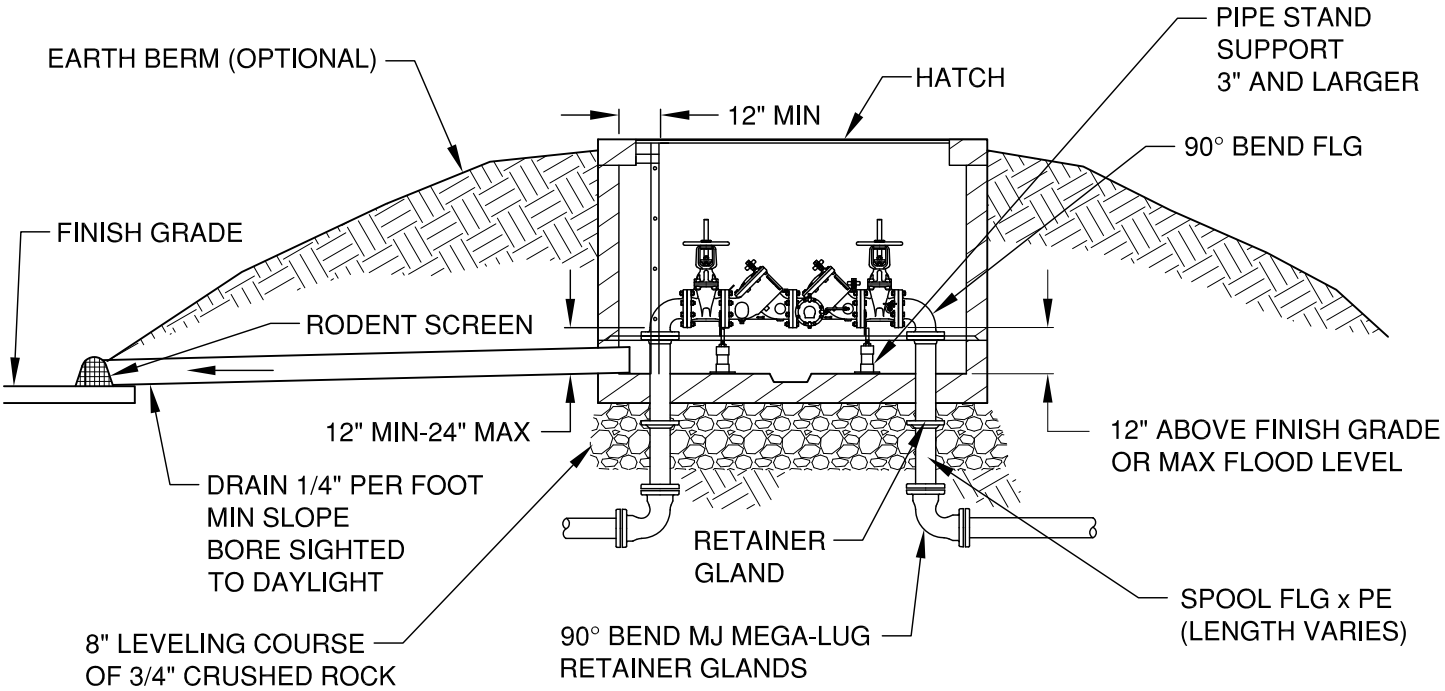
1. FIRE VAULT AND DCDA IS SHOWN FOR REFERENCE ONLY. VAULT AND PLUMBING BEYOND THE GATE VALVE SHALL BE INSTALLED PER PLUMBING CODE AND INSPECTED BY THE BUILDING DEPARTMENT.
   1.1. WHERE FIRE VAULT IS APPROVED BY CITY ENGINEER TO BE WITHIN THE RIGHT OF WAY OR PUBLIC EASEMENT, VAULT SIZES ON W-13A SHALL APPLY AND "FOR REFERENCE NOTES" ON THIS SHEET WOULD APPLY.
2. FIRE LINE TO BE 4" MIN DUCTILE IRON WATER MAIN PER CITY OF BEND SPECIFICATIONS. FIRE LINE TO BE SIZED BY ENGINEER UNDER A RIGHT OF WAY PERMIT.
3. VAULT TO BE SIZED BY ENGINEER IN CONFORMANCE TO BUILDING/FIRE/PLUMBING CODE, MEETING THE DOUBLE CHECK DETECTOR ASSEMBLY (DCDA) MANUFACTURER'S INSTALLATION SPECIFICATIONS.
   3.1. WHERE BUILDING IS WITHIN 20 FEET OF THE RIGHT OF WAY LINE, AND AS APPROVED BY THE BUILDING OFFICIAL, THE DCDA CAN BE WITHIN THE BUILDINGS MECHANICAL ROOM. ACCESS TO THE MECHANICAL ROOM TO BE PROVIDED BY AN EXTERIOR DOOR WITH KNOX BOX.
   3.2. VAULTS ARE TO BE PLACED OUT OF HARD SURFACES (SIDEWALKS, DRIVEWAYS/ROADWAYS,ECT.)
4. POST INDICATOR VALVE (PIV) AND FIRE DEPARTMENT CONNECTION (FDC) TO BE LOCATED IN CLEAR VIEW OF THE FRONTAGE STREET, WITH THE FDC LOCATED WITHIN AN ALLOWABLE DISTANCE FROM A HYDRANT. PIV AND FDC MAY BE MOUNTED ON THE BUILDING IN CONFORMANCE WITH THE FIRE CODE AND AS APPROVED. PIV AND FDC CAN BE MOUNTED OUTSIDE THE VAULT OR THROUGH THE VAULT LID PROVIDED THEY DON'T INTERFERE WITH VAULT ACCESS AND THE PENETRATIONS ARE GROUTED AND DON'T NEGATE THE STRUCTURAL INTEGRITY OF THE VAULT. PIV NOT TO BE USED IN-LIEU OF ISOLATION GATE VALVE AT PROPERTY LINE.
5. ALL ELECTRICAL TO VAULT AND PIV TO BE INSTALLED PER BUILDING AND FIRE CODE AS REQUIRED.

DRAWN CJH	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER		STANDARD DRAWING	DATE 3/31/19
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		FIRE SPRINKLER LINE	STD DWG W-13B

DRAWING IS FOR REFERENCE ONLY



PLAN



PROFILE

NOTES:

1. THIS DRAWING IS FOR REFERENCE ONLY. INSTALL PER PLUMBING CODE AND BUILDING DEPARTMENT REQUIREMENTS.
2. ENGINEER TO PROVIDE RESTRAINT DETAIL FOR ALL PIPE ENTERING & EXITING VAULT
3. CONTRACTOR TO SEAL ALL OPENINGS IN VAULT WITH NON-SHRINK GROUT PRIOR TO BACKFILLING
4. HIGH OR LOW HAZARD CONNECTIONS SHALL BE IDENTIFIED AND VERIFIED WITH CITY CROSS CONNECTION SPECIALIST

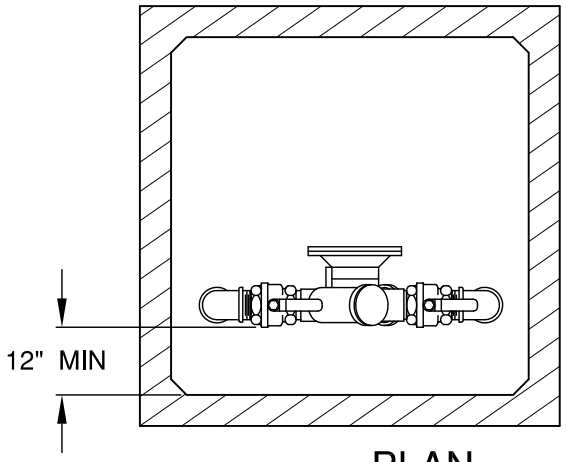
DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER	STANDARD DRAWING		DATE 12/1/17
REV / DATE	710 NW WALL ST., BEND, OREGON 97701		APPR
	2 1/2"-10" REDUCED PRESSURE BACKFLOW ASSEMBLY		STD DWG W-15

DRAWING IS FOR REFERENCE ONLY

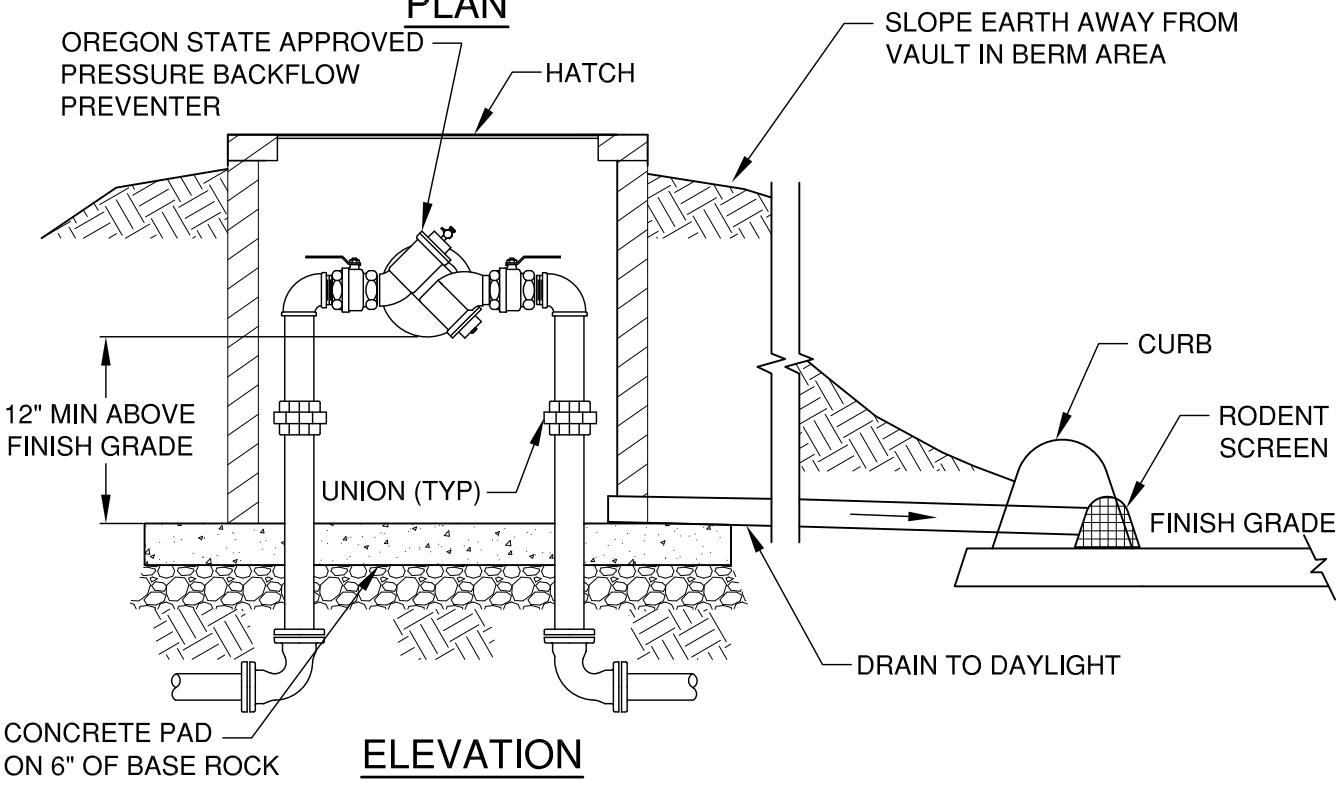
WHERE THE STRUCTURE IS PROPOSED OUTSIDE THE RIGHT OF WAY OR UTILITY EASEMENT

VAULT SPECIFICATIONS

WATER LINE DIAMETER	MODEL
1"	UTILITY VAULT 3030-LA (OR EQUAL)
1-1/2" - 2"	UTILITY VAULT 3642-PUT (OR EQUAL)



PLAN



ELEVATION

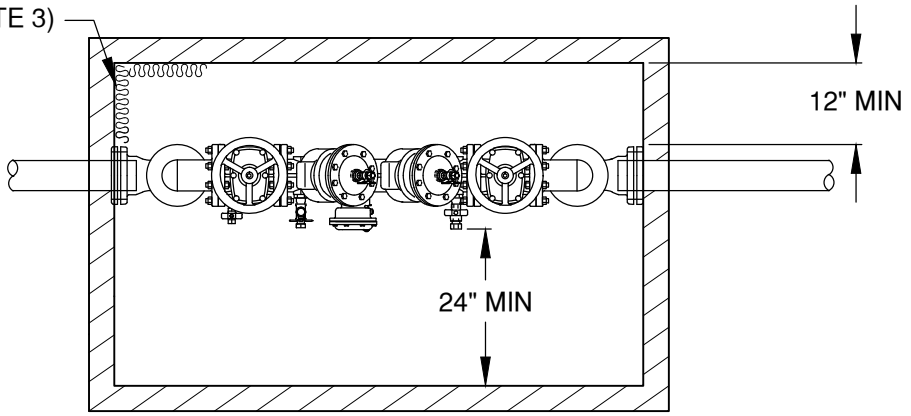
NOTES:

1. THIS DRAWING IS FOR REFERENCE ONLY. INSTALL PER PLUMBING CODE AND BUILDING DEPARTMENT REQUIREMENTS.
2. REDUCED PRESSURE BACKFLOW ASSEMBLY TO BE LOCATED DIRECTLY DOWN STREAM OF WATER METER
3. BRASS, STAINLESS, OR PLASTIC PLUGS TO BE INSTALLED IN TEST COCKS IF BELOW GROUND INSTALLATION
4. HIGH OR LOW HAZARD CONNECTIONS SHALL BE IDENTIFIED AND VERIFIED WITH CITY CROSS CONNECTION SPECIALIST

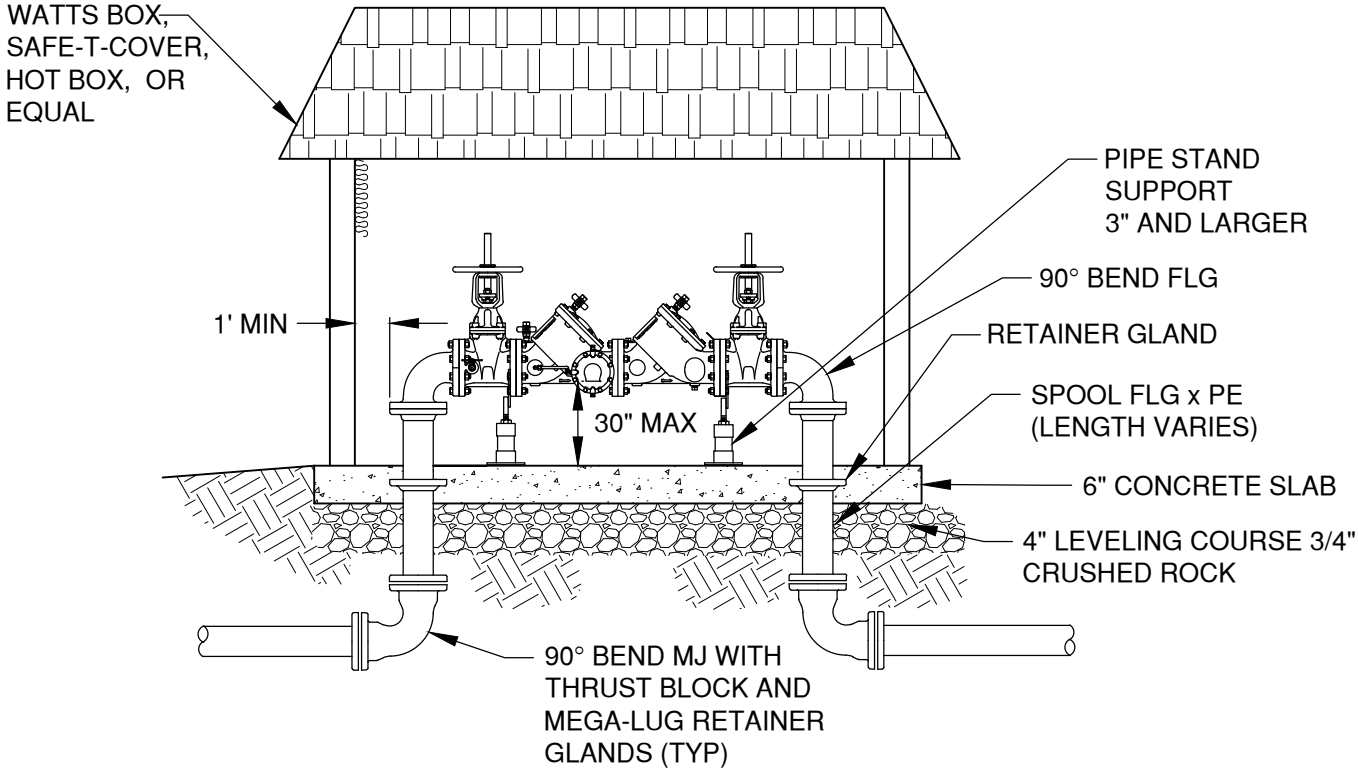
DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER	STANDARD DRAWING		DATE 12/1/17
REV / DATE	710 NW WALL ST., BEND, OREGON 97701		APPR
	1"-2" REDUCED PRESSURE BACKFLOW ASSEMBLY		STD DWG W-15A

DRAWING IS FOR REFERENCE ONLY

WHERE THE STRUCTURE IS PROPOSED OUTSIDE THE RIGHT OF WAY OR UTILITY EASEMENT



PLAN

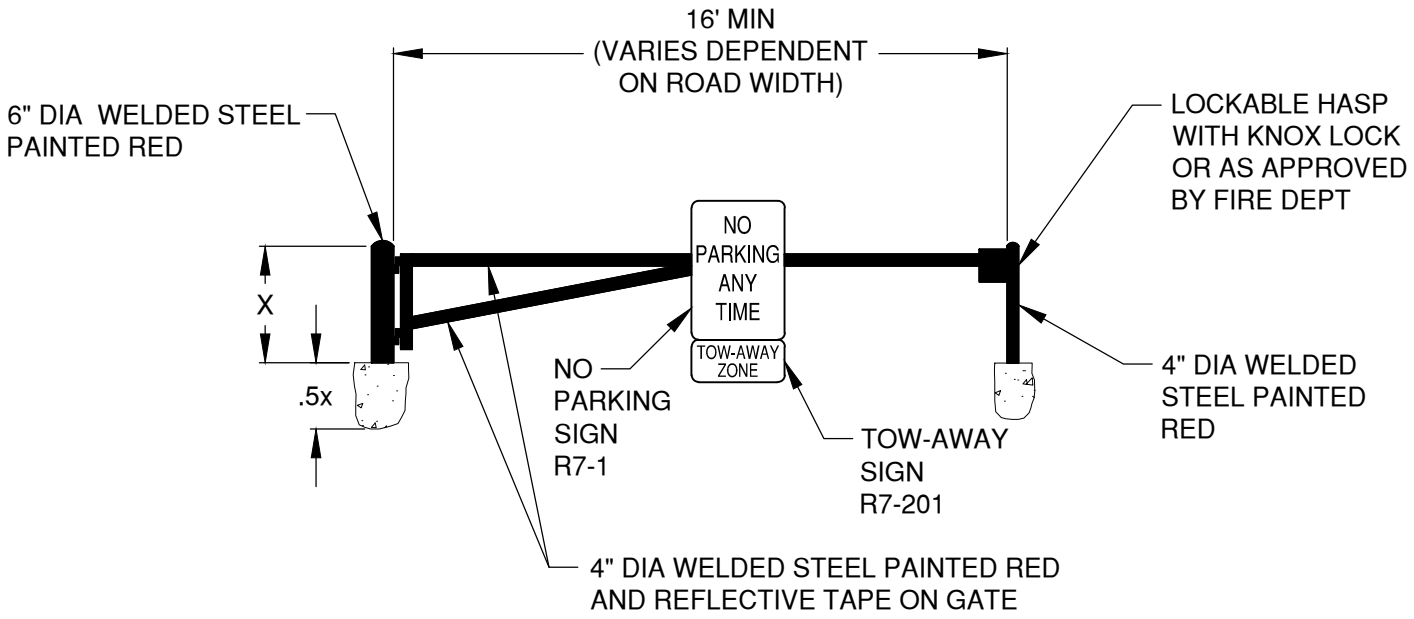


PROFILE

NOTES:

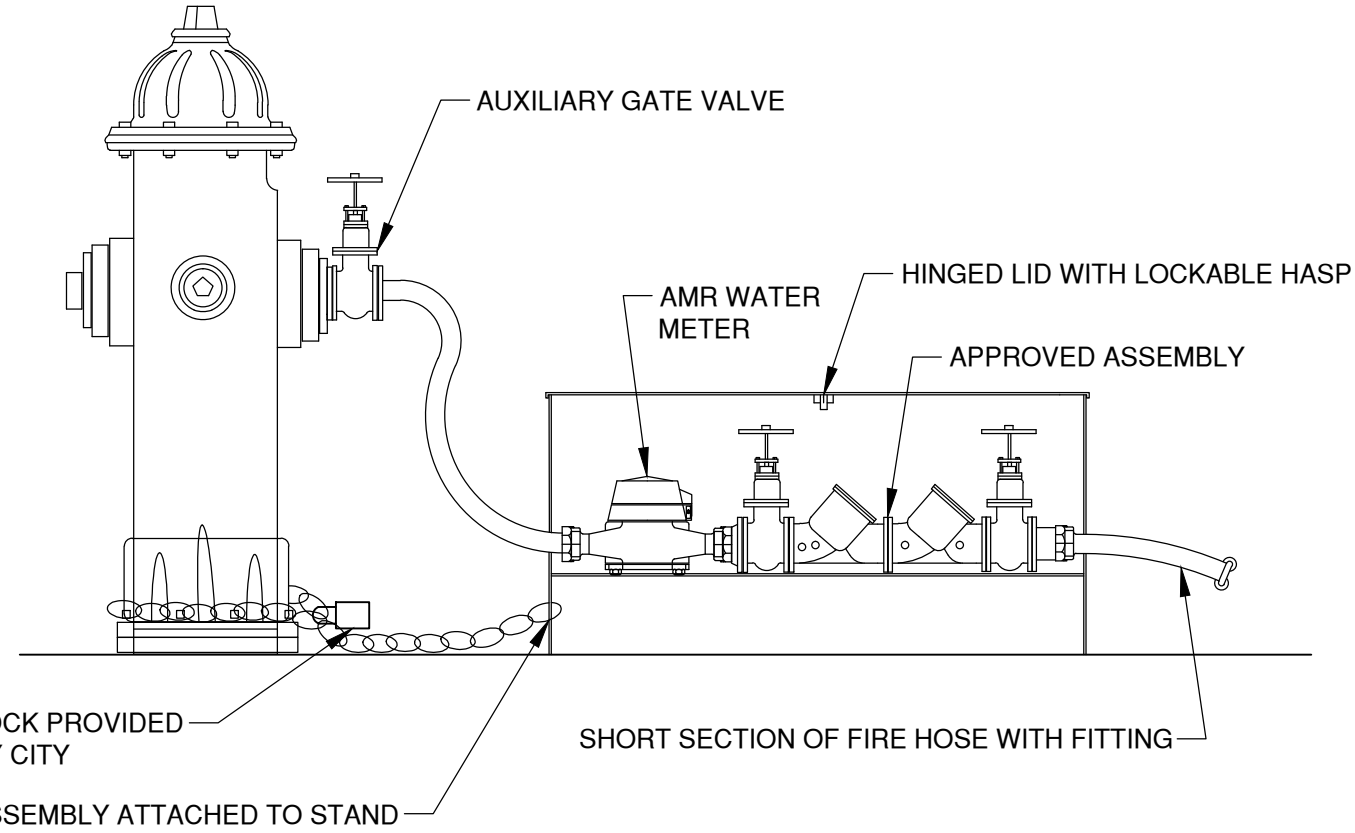
1. THIS DRAWING IS FOR REFERENCE ONLY. INSTALL PER PLUMBING CODE AND BUILDING DEPARTMENT REQUIREMENTS OR AS BY MANUFACTURER'S REQUIREMENTS.
2. REDUCED PRESSURE BACKFLOW ASSEMBLY SHALL BE INSTALLED HORIZONTALLY UNLESS APPROVED FOR OTHER ORIENTATION
3. ALL CLEARENCES APPLY TO OUTSIDE, IN-BUILDING, AND VAULT INSTALLATIONS
4. STRUCTURE TO BE INSULATED AND HAVE A HEAT SOURCE TO KEEP ENCLOSURE AT40°F (NFPA 13-4-5.4.1.1)
5. ENCLOSURE SHALL INCLUDE A BORE SIGHTED DRAIN TO DAYLIGHT CAPABLE OF DRAINING A FULL RELIEF VALVE DISCHARGE. MAKE/MODEL/SIZE WILL DICTATE THE SIZE OF THE ENCLOSURE.
6. ALL ASSEMBLIES 2 1/2" AND LARGER SHALL BE FLANGED
7. HIGH OR LOW HAZARD CONNECTIONS SHALL BE IDENTIFIED AND VERIFIED WITH CITY CROSS CONNECTION SPECIALIST

DRAWN LJC DIV WATER REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 2 1/2" + REDUCED PRESSURE BACKFLOW ASSEMBLY	SCALE NTS DATE 3/31/19 APPR STD DWG W-15B



FIRE ACCESS GATE

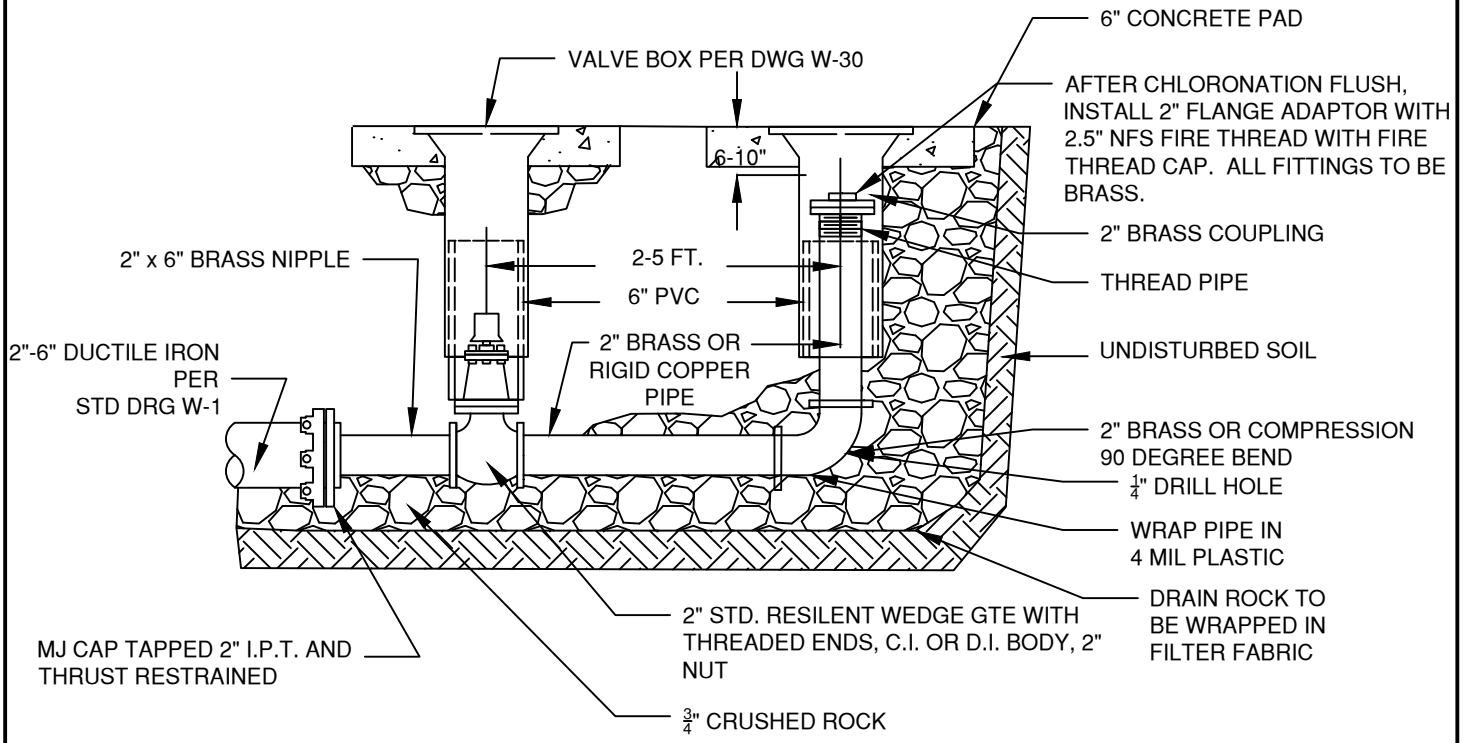
DRAWN LJC	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV ROADWAY			DATE 3/31/19
REV DATE			APPR
		FIRE GATE	STD DWG W-21



NOTES:

1. GATE VALVE, METER, REDUCED PRESSURE BACKFLOW ASSEMBLY & DOUBLE CHECK VALVE ASSEMBLY, & BOX WILL BE SUPPLIED & SET UP BY THE CITY WATER DEPT @ THE CONTRACTORS REQUEST AFTER OBTAINING A CITY HYDRANT PERMIT
2. HYDRANT PERMIT HOLDER TO PROTECT THE ENTIRE UNIT FROM FREEZING
3. BACKFLOW ASSEMBLY MUST BE TESTED IF UNIT IS MOVED TO ANOTHER LOCATION.

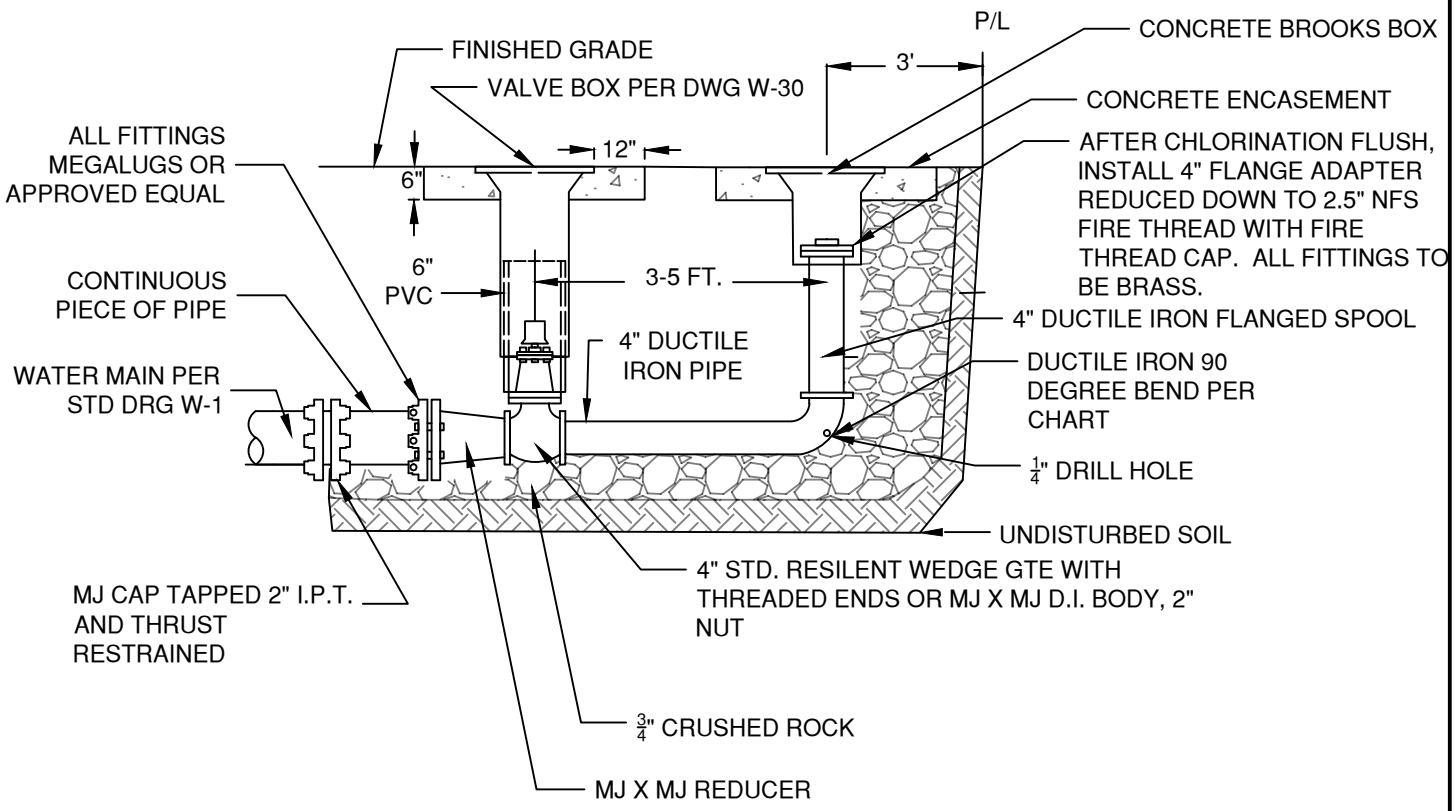
DRAWN	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV WATER			DATE 12/1/17
REV / DATE			APPR
		HYDRANT PERMIT/FILLING TANKER TRUCK	STD DWG W-22



NOTES:

1. USE CITY STANDARD VALVE BOXES, LIDS, AND 6" PVC EXTENSION.
2. BLOW-OFF UNIT SHALL BE BACKFILLED WITH 3/4" MINUS CRUSHED ROCK AND COMPACTED TO 95% OF MAX. DENSITY AS DETERMINED BY AASHTO T-180.
3. ON TEMPORARY BLOW-OFFS ONLY, AN MJ CAP TAPPED 4" OR 6" MAY BE SUBSTITUTED FOR REDUCER.
4. TEMPORARY BLOW-OFF IS ONE REMOVED AT THE END OF WATER LINE TESTING AND INSTALLATION AND PRIOR TO PROJECT PAVING. A PERMANENT BLOW-OFF REMAINS ON THE PROJECT AFTER ACCEPTANCE.
5. PLACE BLOW-OFF STANDPIPE 3' INSIDE ROW LINE AT THE END OF STREET (2' FROM BARRICADE).
6. USE CITY STANDARD VALVE BOX, LID, AND 6" PVC EXTENSION FOR BLOW-OFF VALVE.
7. BLOW OFF RISER TO BE ONE CONTINUOUS PIECE.
8. USE EBAA IRON "MEGALUG" OR APPROVED EQUAL RETAINER GLAND ON MJ CAP. RESTRAIN PER ENGINEER.
9. 2" PVC PLUG WITH SQUARE NUT TO BE HAND TIGHTENED ONLY.

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER		STANDARD DRAWING	DATE 3/31/19
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		STANDARD 2" BLOW-OFF ASSEMBLY	STD DWG W-23

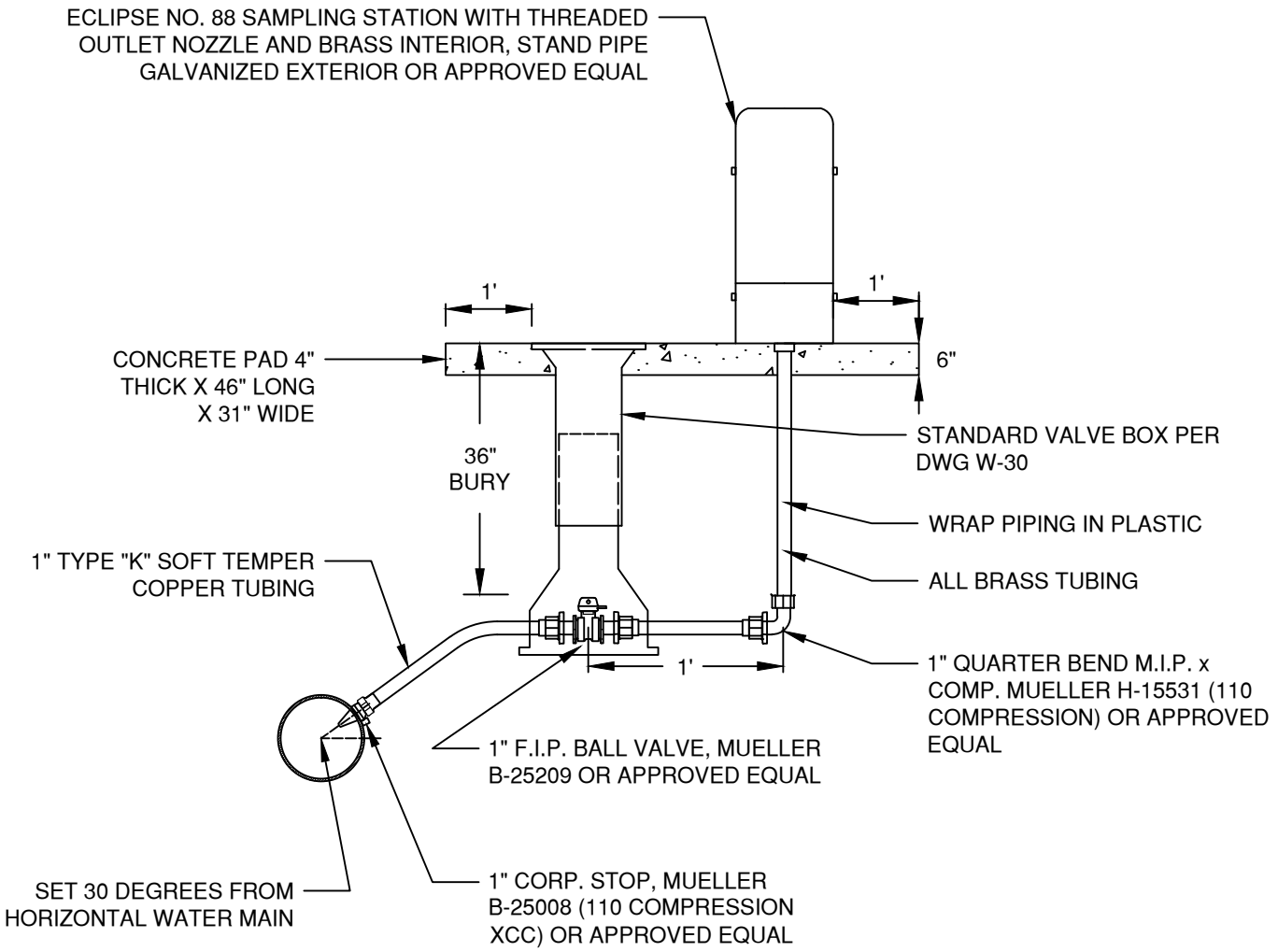


BLOW OFF SIZES REQUIRED	
MAIN SIZE	BLOW OFF SIZE
6" AND BELOW	2" (SEE DWG W-23)
8" - 12"	4"
ABOVE 12"	HYDRANT

NOTES:

1. USE CITY STANDARD VALVE BOXES, AND LIDS.
2. BLOW-OFF UNIT SHALL BE BACKFILLED WITH 3/4" MINUS CRUSHED ROCK AND COMPACTED TO 95% OF MAX. DENSITY AS DETERMINED BY AASHTO T-180.
3. ON TEMPORARY BLOW-OFFS ONLY, AN MJ CAP TAPPED 4" OR 6" MAY BE SUBSTITUTED FOR REDUCER.
4. TEMPORARY BLOW-OFF IS ONE REMOVED AT THE END OF WATER LINE TESTING AND INSTALLATION AND PRIOR TO PROJECT PAVING. A PERMANENT BLOW-OFF REMAINS ON THE PROJECT AFTER ACCEPTANCE.
5. PLACE BLOW-OFF STANDPIPE 3' INSIDE ROW LINE AT THE END OF STREET (2' FROM BARRICADE).
6. USE CITY STANDARD VALVE BOX, LID, AND 6" PVC EXTENSION FOR BLOW-OFF VALVE.
7. BLOW OFF RISER TO BE ONE CONTINUOUS PIECE.
8. USE EBAA IRON "MEGALUG" OR APPROVED EQUAL RETAINER GLAND ON MJ CAP. RESTRAIN PER ENGINEER.

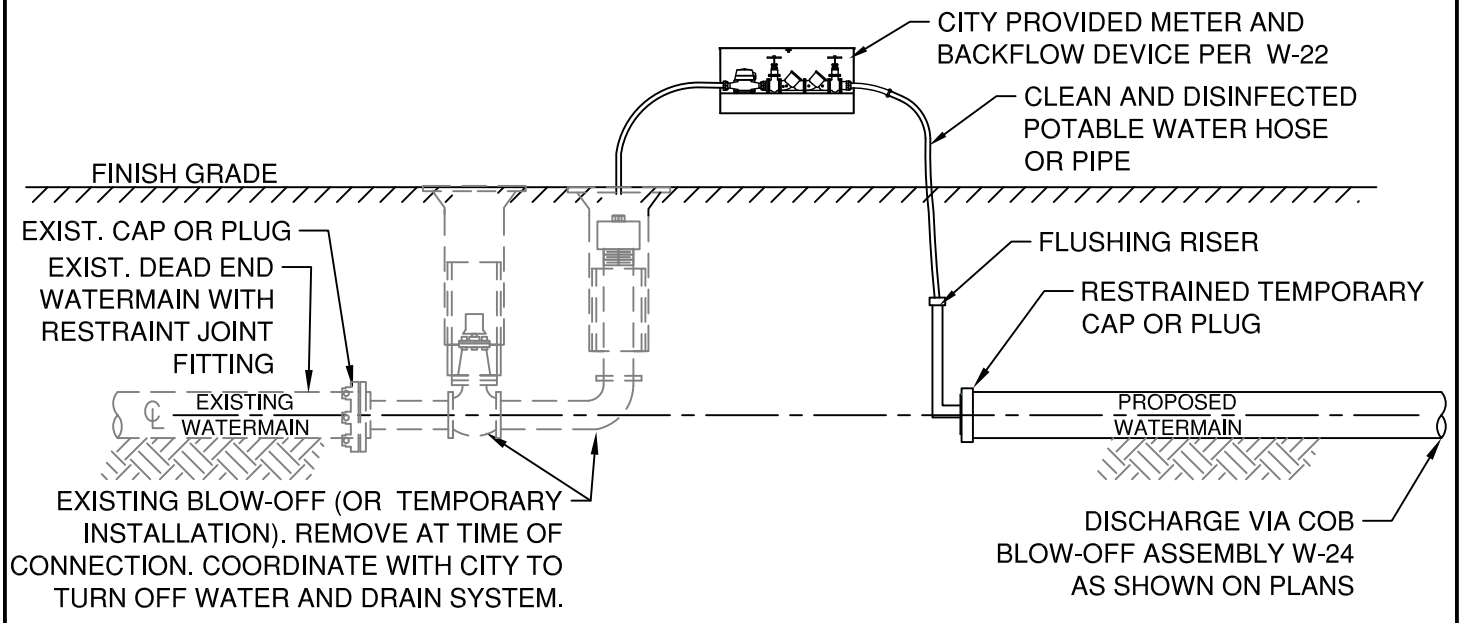
DRAWN LJC	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV WATER			DATE 3/31/19
REV / DATE: 1			APPR
		4" BLOW-OFF DETAIL	STD DWG W-24



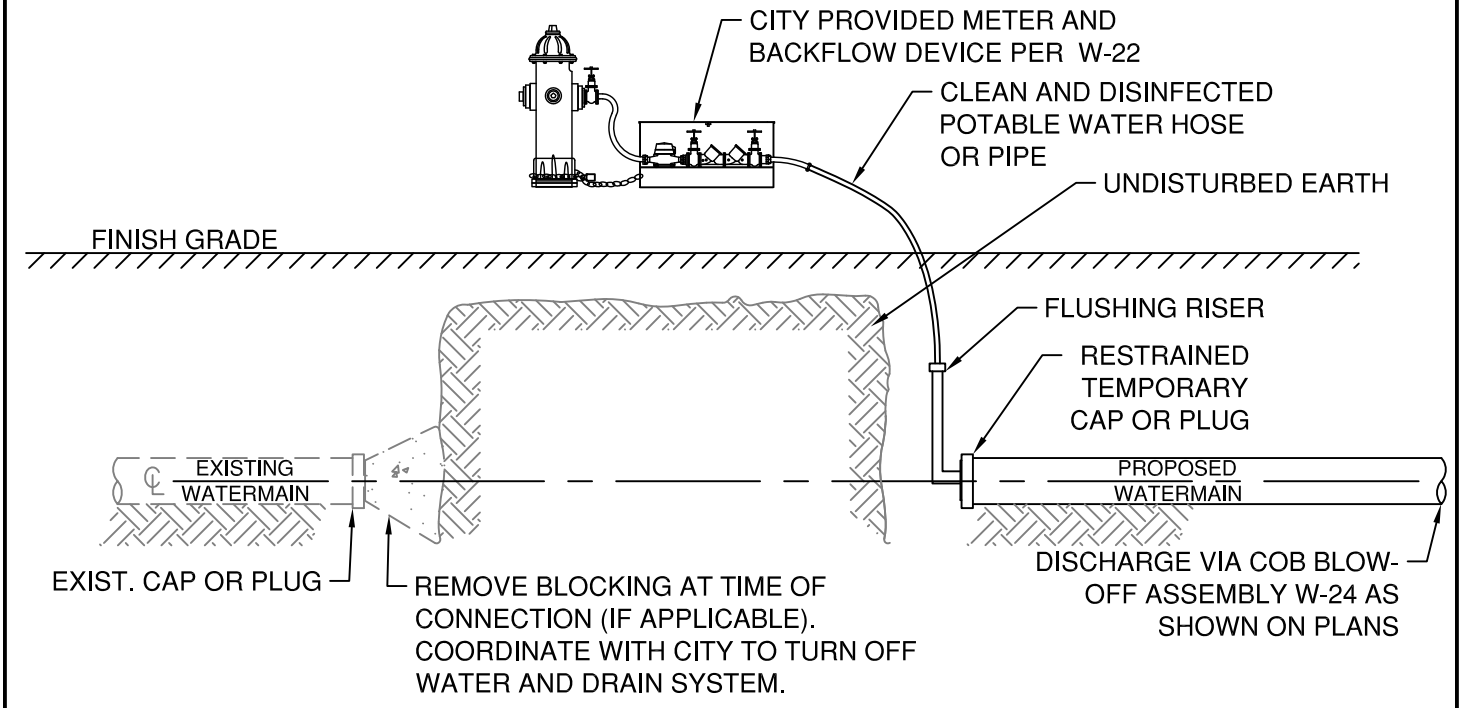
NOTES:

1. ALL PIPE AND STRUCTURES SHALL BE BACKFILLED WITH SCREENED MAX $\frac{3}{4}$" MINUS CRUSHED ROCK COMPACTED TO MIN. 95% OF MAX. DENSITY PER AASHTO T-180.
2. SET STATION AT LOT LINE UNLESS OTHERWISE SPECIFIED.
3. WHEN CROSSING, CATHODICALLY PROTECTED SYSTEM, INSTALL PVC SLEEVE PER DETAIL 503.
4. WHERE NO SIDEWALK EXISTS, PLACE CONC. PAD AS SHOWN. WHERE SIDEWALKS EXIST, PLACE MIN. 12" AROUND BACK OF SAMPLE STA. AND INCORPORATE INTO NEW SIDEWALK POUR.

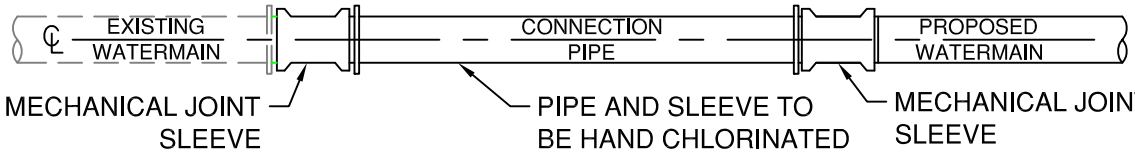
DRAWN LJC		CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV WATER				DATE 12/1/17
REV	DATE			APPR
2	12/1/17		STANDARD WATER SAMPLING STATION	STD DWG W-25



OPTION 1: TESTING AND FLUSHING USING A BLOW OFF ASSEMBLY

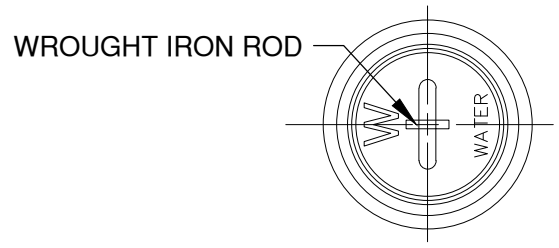


OPTION 2: TESTING AND FLUSHING USING NEARBY HYDRANT

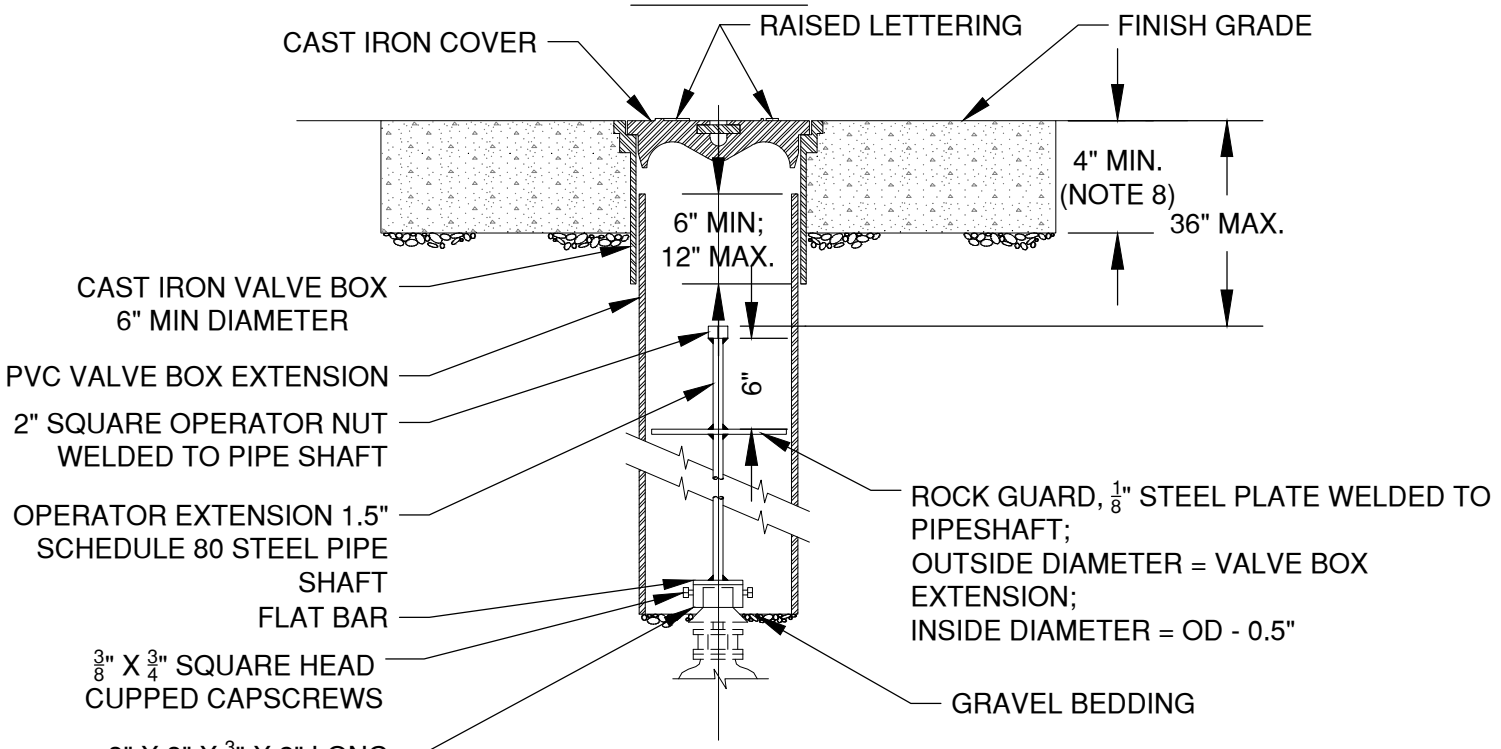


CONNECTION AFTER TESTING, FLUSHING AND APPROVAL

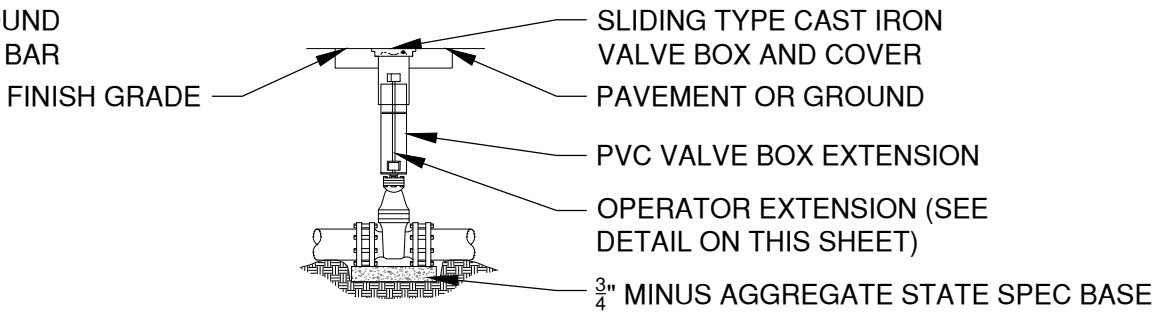
DRAWN CJH DIV WATER REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 CROSS CONNECTION DETAIL	SCALE NTS DATE 12/16/17 APPR STD DWG W-29



COVER PLAN



VALVE BOX EXTENSION SECTION



VALVE BOX ASSEMBLY DETAIL

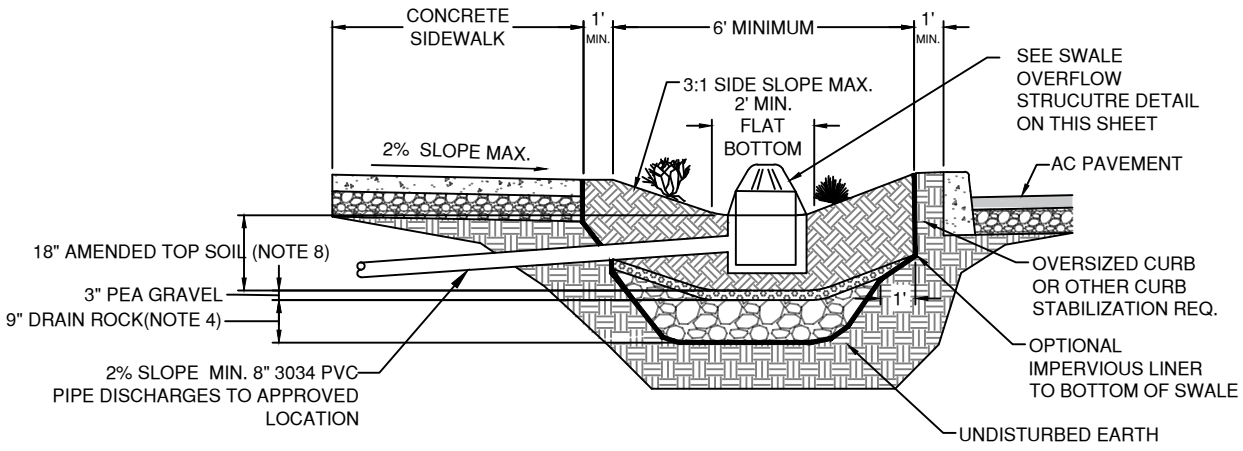
NOTES:

1. VALVE BOX NOT TO REST ON OPERATING ASSEMBLY.
2. OPERATOR EXTENSION REQUIRED WHEN VALVE NUT IS DEEPER THAN 4' FROM FINISH GRADE.
3. CENTER VALVE BOX ON AXIS OF OPERATOR NUT.
4. VALVES 12" AND SMALLER TO BE INSTALLED WITH COMPACTED AGGR. BASE ON UNDISTURBED GROUND. VALVES GREATER THAN 12" SHALL BE INSTALLED ON 4" THICK PRECAST CONCRETE BLOCK.
5. WELDS SHALL BE MINIMUM 0.5" ALL AROUND.
6. HOT DIP GALVANIZE OPERATOR EXTENSION AFTER FABRICATION.
7. CASTING SHALL MEET H20 LOAD REQUIREMENT.
8. PROVIDE CONCRETE OR ASPHALT PAD (24" SQUARE, 4" THICK), WHEN REQUIRED.
9. SEE PROJECT PLANS FOR DETAILS NOT SHOWN.
10. ALL VALVE BOXES SHALL BE PLACED OUTSIDE THE PATH OF TRAVEL ON SIDEWALK AND DRIVEWAY APRONS.

DRAWN LJC DIV WATER REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS DATE 3/31/19 APPR
		VALVE BOX AND OPERATOR EXTENSION ASSEMBLY	STD DWG W-30

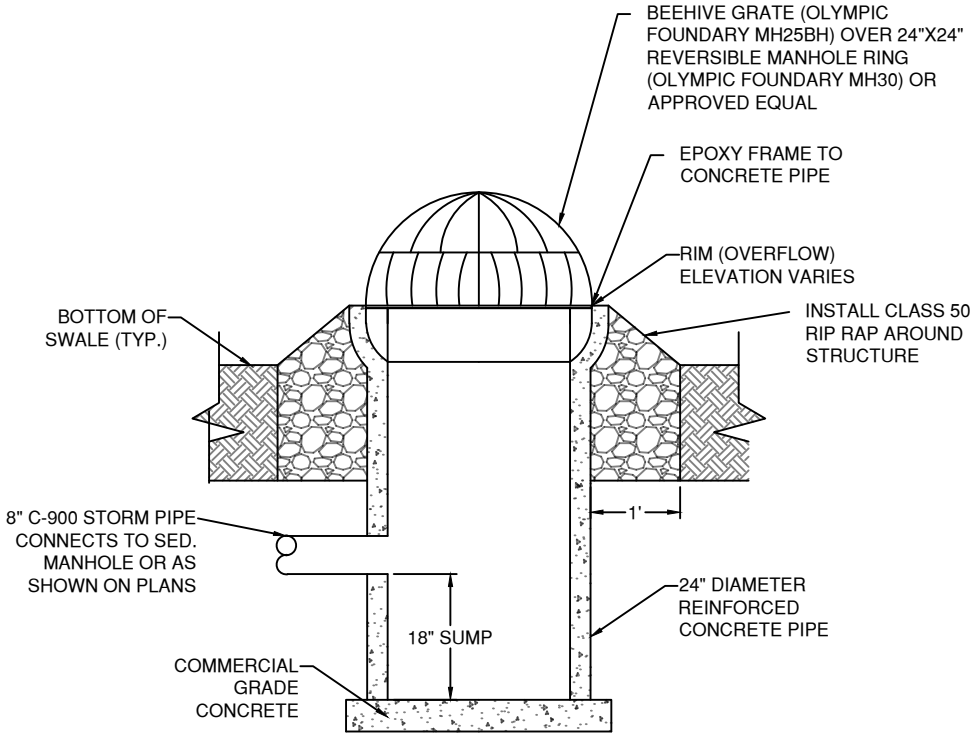
CITY OF BEND STANDARD DRAWINGS

Stormwater (STRM)



VEGETATED SWALE WITH OPTIONAL ROCK STORAGE RESERVOIR

NTS



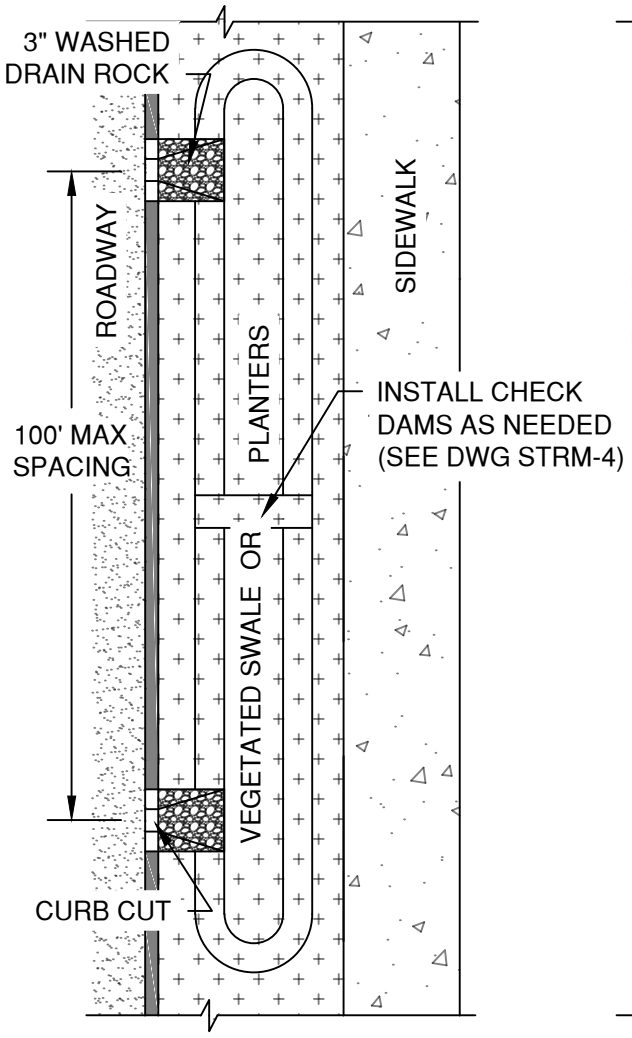
SWALE OVERFLOW STRUCTURE

NTS

NOTES:

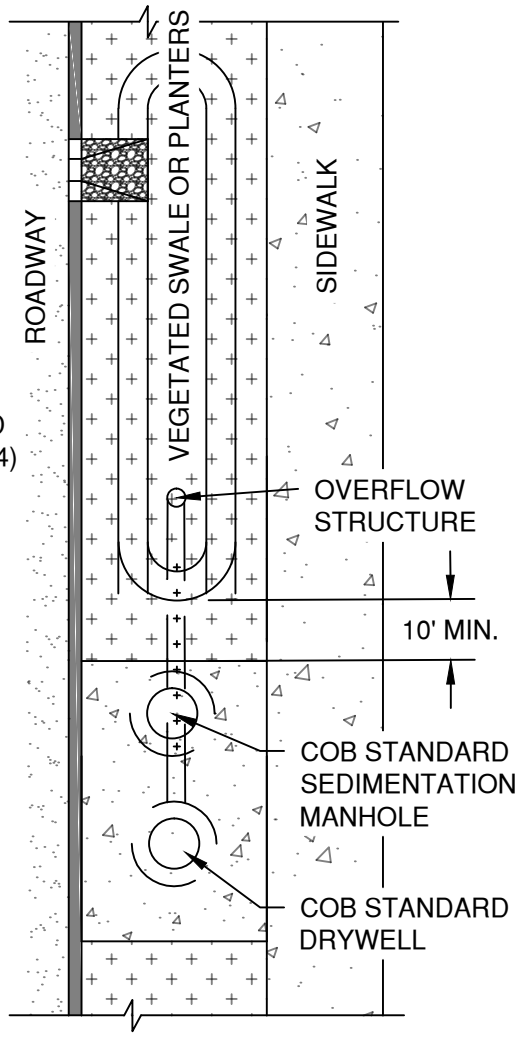
1. AMENDED TOPSOIL SHALL CONTAIN 20-30% TOPSOIL, 50-65% CLEAN SAND AND 5-20% COMPOST OR PEAT MOSS.
2. VOLUME AND DEPTH TO BE DETERMINED BY ENGINEER.
3. DRAIN ROCK AS REQUIRED FOR DRAINAGE CAPACITY. PEA GRAVEL TO BE USED TO PREVENT SOIL MIGRATION INTO DRAINAGE LAYER.
4. OPTIONAL ROCK RESERVOIR TO BE CONSTRUCTED WITH WASHED DRAIN ROCK WITH 40% VOIDS. NOT TO BE USED IN TREE WELLS.
5. AVOID COMPACTING SWALE AREA DURING CONSTRUCTION.
6. ADD HIGH POINT FLOW BYPASS TO AN APPROVED DISPOSAL POINT AS NECESSARY. OVERFLOW SHOULD PASS THROUGH A SEDIMENTATION MANHOLE OR PRE-TREATMENT PRIOR TO DISCHARGING TO A DRYWELL OR UIC.
7. AMENDED TOP SOIL CAN BE REPLACED WITH 3" WASHED DRAIN ROCK FOR ROCK SWALES.
8. INSTALL CHECK DAMS AS REQURED AND PER DWG STRM-4.

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV STORM		STANDARD DRAWING	DATE 12/1/17
REV 2 / DATE 12/1/17		710 NW WALL ST., BEND, OREGON 97701	APPR
		VEGETATED SWALE DETAIL	STD DWG STRM-2



VEGETATED SWALE/ PLANTER

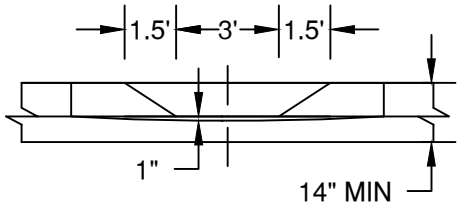
NTS



VEGETATED SWALE/ PLANTERS
W/ DRYWELL OVERFLOW

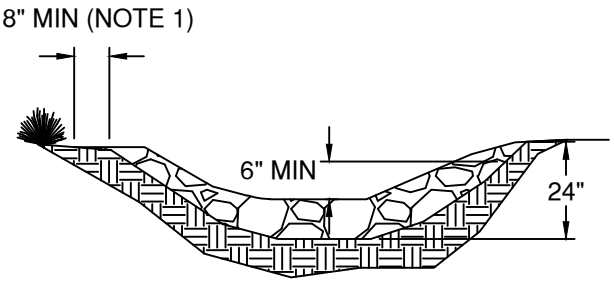
NTS

NOTE:
VOLUME AND DEPTH
TO BE DETERMINED
BY ENGINEER

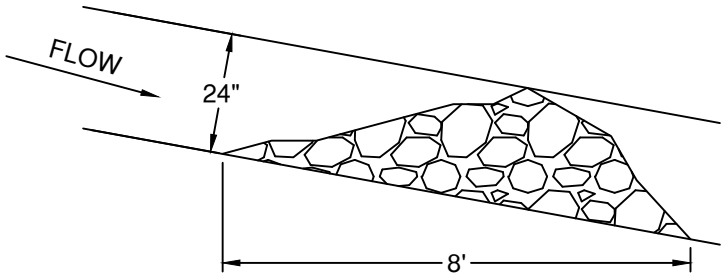


TYPICAL CURB CUT

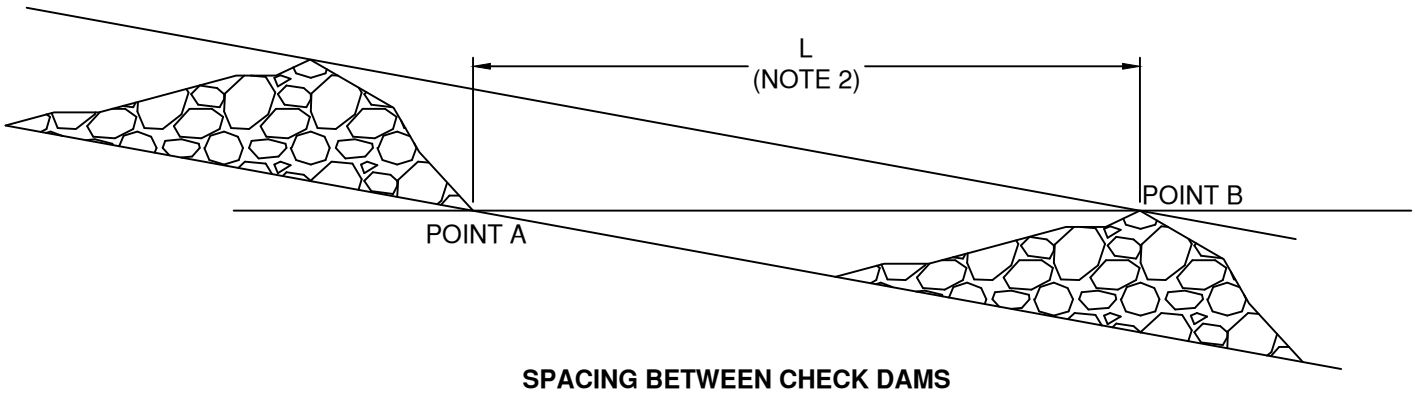
DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV STORM		STANDARD DRAWING	DATE 12/1/17
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
2 12/1/17		TYPICAL SWALE LAYOUT	STD DWG STRM-3



CHANNEL CROSS SECTION



CHECK DAM PROFILE

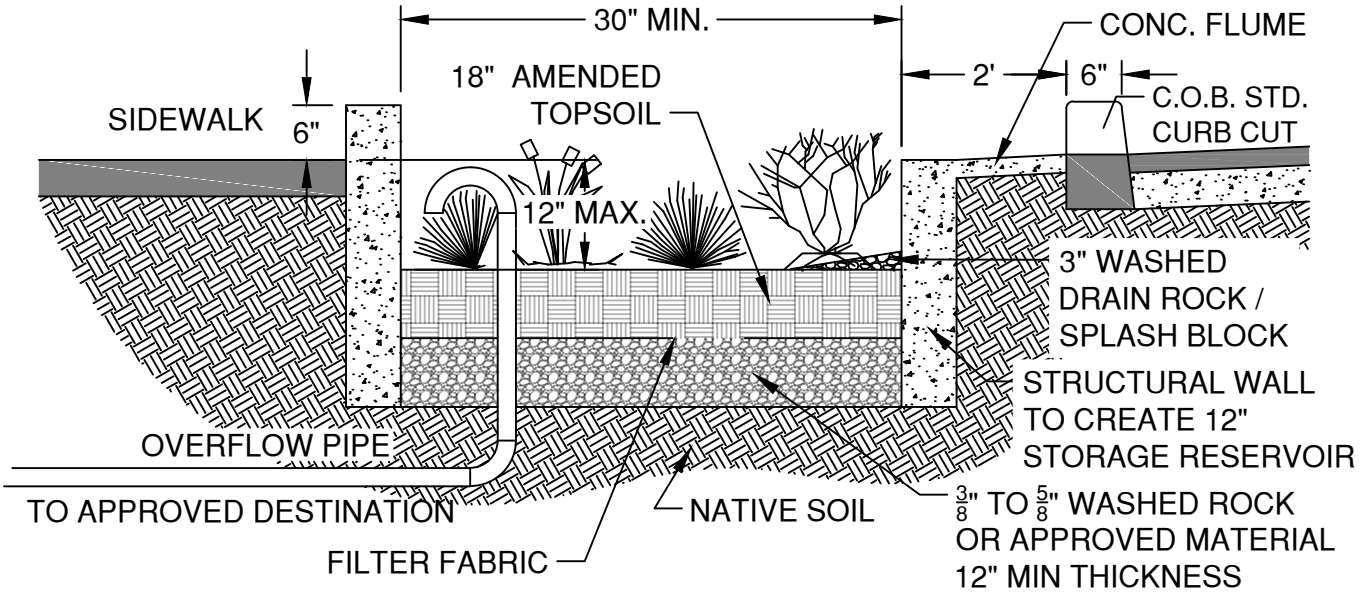


SPACING BETWEEN CHECK DAMS

NOTES:

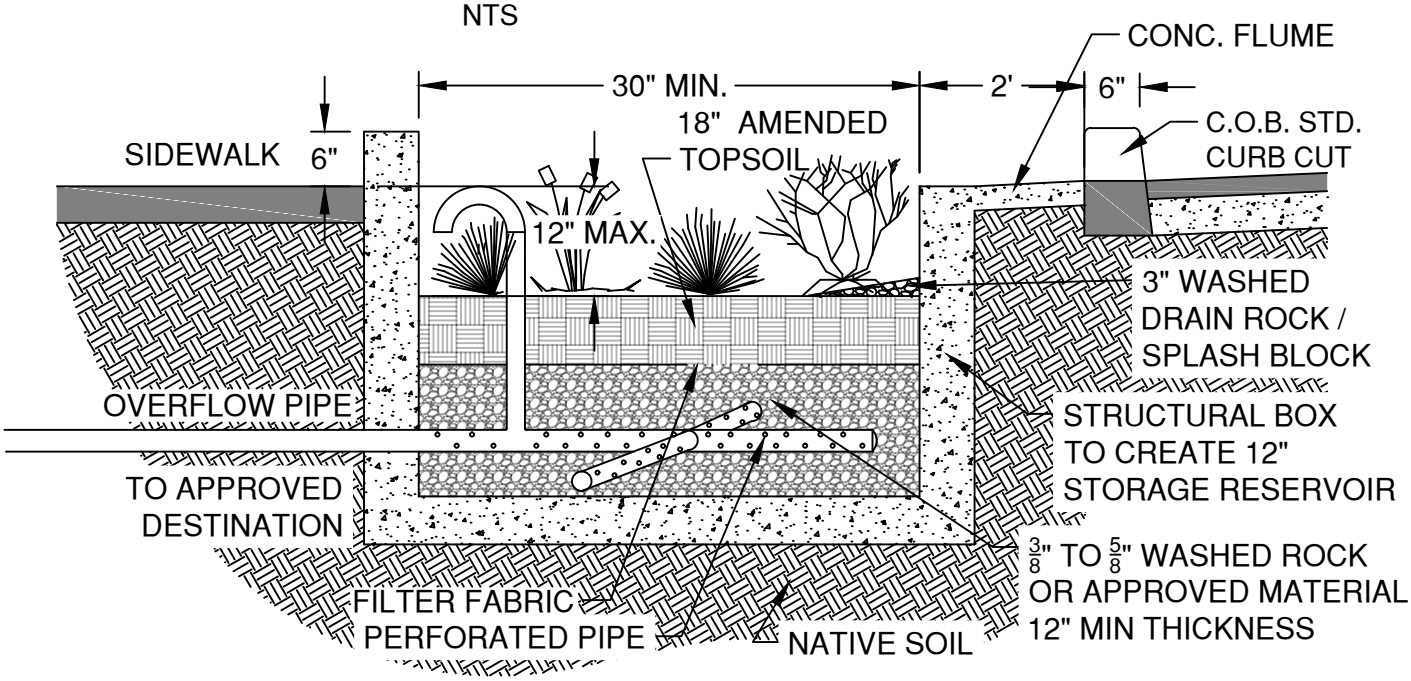
1. KEY STONE INTO THE CHANNEL BANKS AND EXTEND DAM A MINIMUM OF 18" TO PREVENT FLOW AROUND DAM.
2. L IS EQUAL TO THE DISTANCE SUCH THAT 'POINT A' AND 'POINT B' ARE OF EQUAL ELEVATION.
3. CHECK DAMS SHALL BE INSTALLED PER CENTRAL OREGON STORMWATER MANUAL (COSM) REQUIREMENTS.

DRAWN LJC	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV STORM			DATE 12/1/17
REV / DATE			APPR
	CITY OF BEND	CHECK DAM DETAIL	STD DWG STRM-4



INFILTRATION PLANTER TYPICAL SECTION

NTS



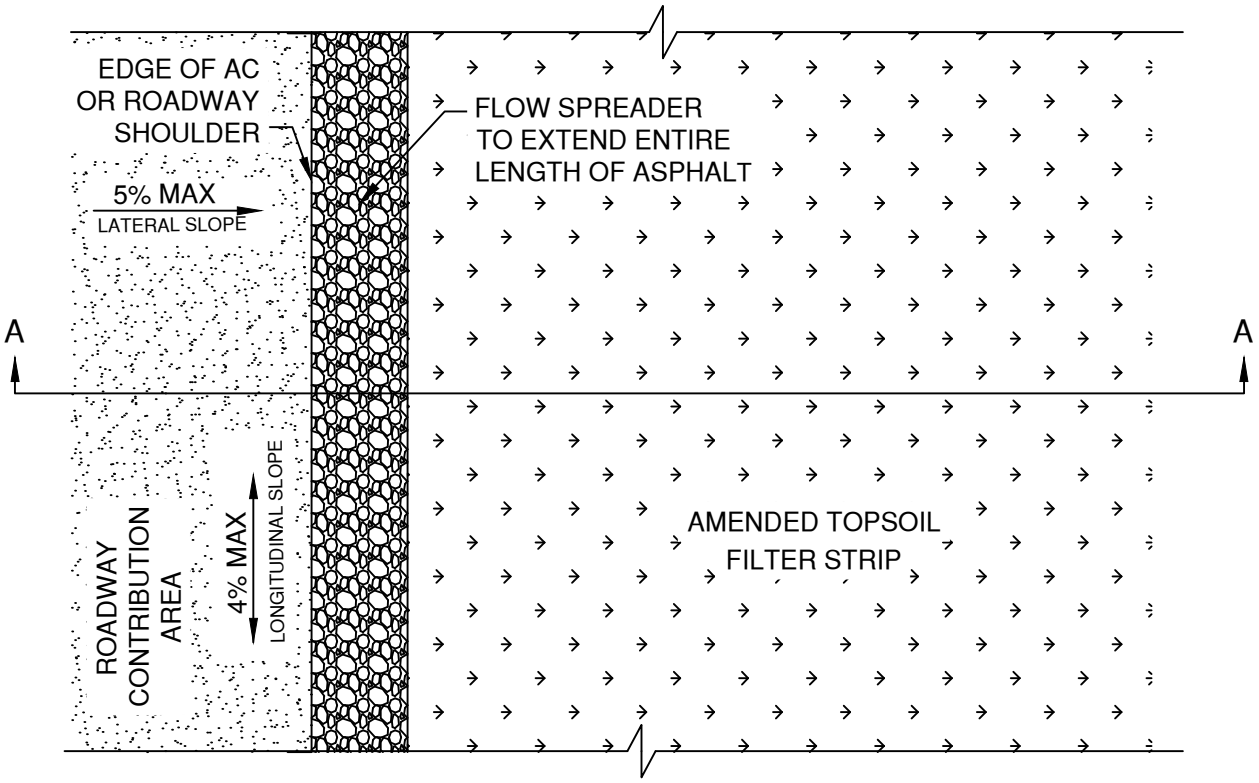
FLOW-THROUGH PLANTER TYPICAL SECTION

NTS

NOTE:

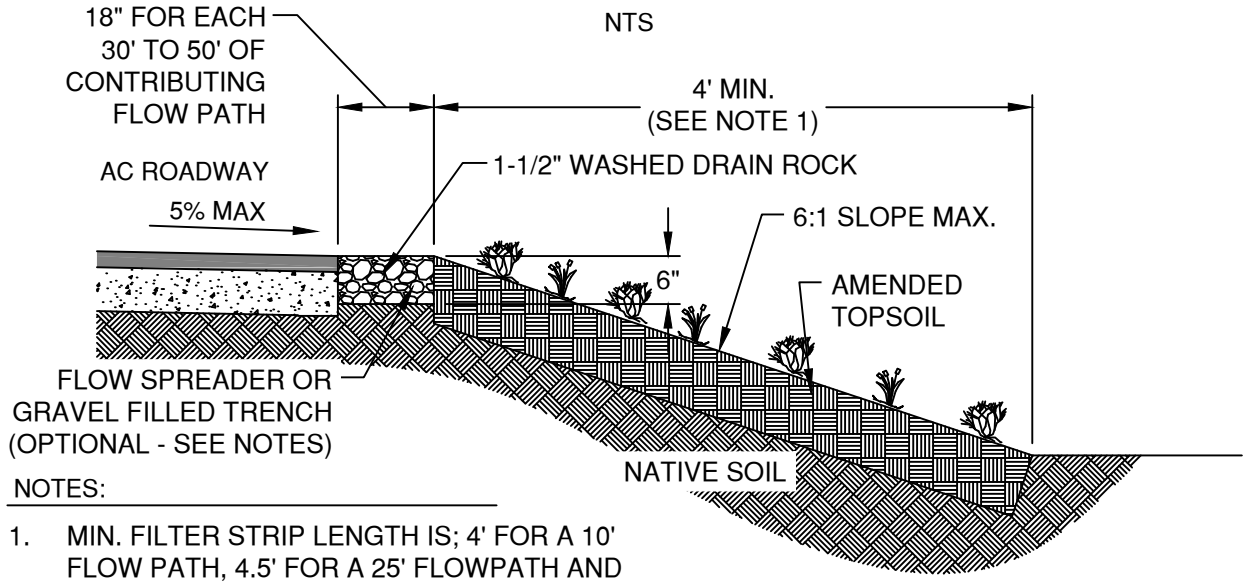
1. NOT FOR USE ALONG STREETS WITH POSTED SPEED ABOVE 25 MPH, UNLESS OUTSIDE THE CLEAR ZONE.
2. AMENDED TOPSOIL SHALL CONTAIN 20-30% TOPSOIL, 50-65% CLEAN SAND AND 5-20% COMPOST OR PEAT MOSS
3. VOLUME AND DEPTH TO BE DETERMINED BY ENGINEER.
4. USE INFILTRATION PLANTER IF EXISTING SITE HAS AN INFILTRATION RATES > 0.5 IN/HR.
5. PLACE OVERFLOW PIPE 2" BELOW TOP OF PLANTER.
6. TO AVOID UIC REGULATION DO NOT USE PERFORATED PIPE OUTSIDE OF THE

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV STORM		STANDARD DRAWING	DATE 12/1/17
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		STORMWATER PLANTER DETAIL	STD DWG STRM-5



PLAN VIEW

NTS



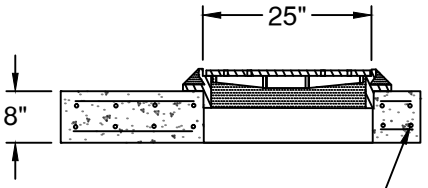
SECTION A-A

NTS

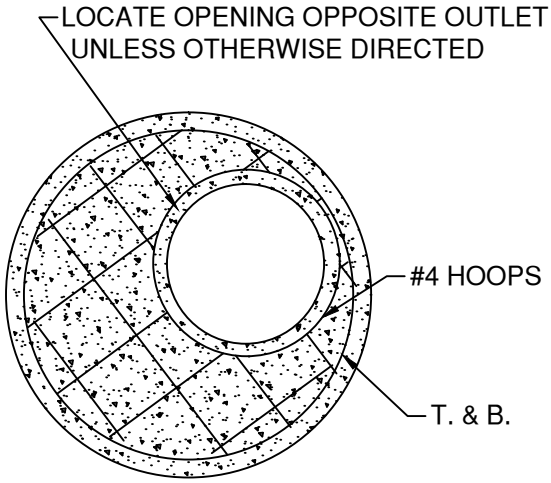
NOTES:

1. MIN. FILTER STRIP LENGTH IS; 4' FOR A 10' FLOW PATH, 4.5' FOR A 25' FLOWPATH AND 5.5' FOR A 30' FLOWPATH
2. AMENDED TOPSOIL SHALL CONTAIN 20-30% TOPSOIL, 50-65% CLEAN SAND AND 5-20% COMPOST OR PEAT MOSS
3. FLOW SPREADER IS OPTIONAL. IF USED THE GRAVEL MUST BE WIDER THAN DEEP TO AVOID UIC REGULATIONS.

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV STORM		STANDARD DRAWING	DATE 12/1/17
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		STORMWATER FILTER DETAIL	STD DWG STRM-6



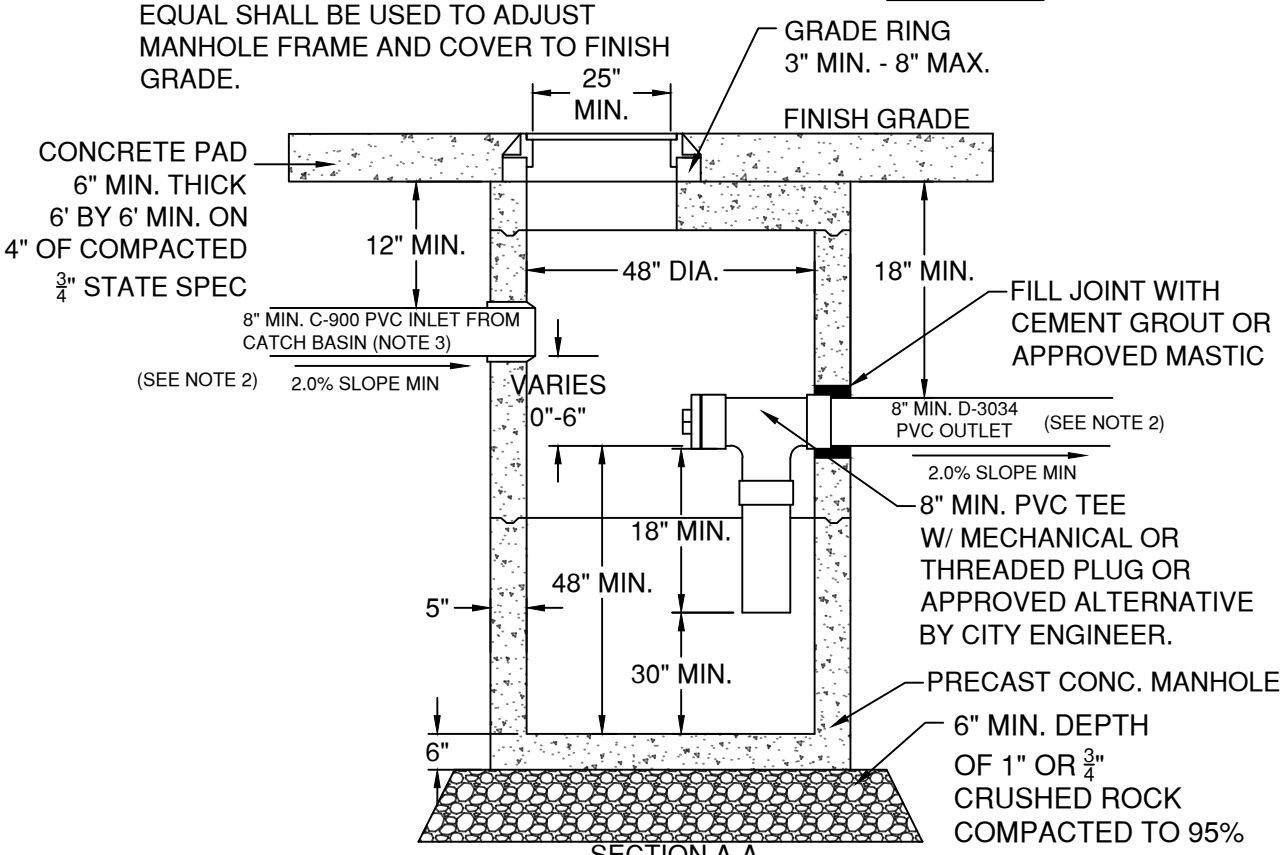
FLAT TOP
NTS



TOP VIEW

NOTES:

1. A 3 POINT MECHANICAL ADJUSTMENT SYSTEM SUCH AS RAD`S OR APPROVED EQUAL SHALL BE USED TO ADJUST MANHOLE FRAME AND COVER TO FINISH GRADE.

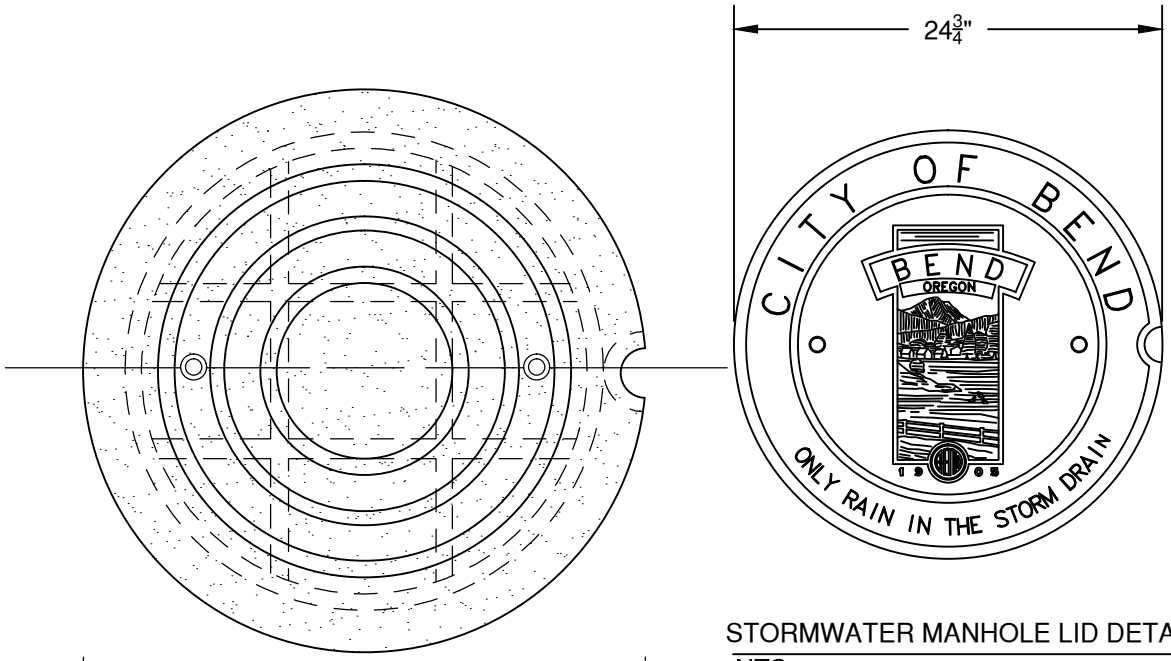


SECTION A-A
NTS

NOTES:

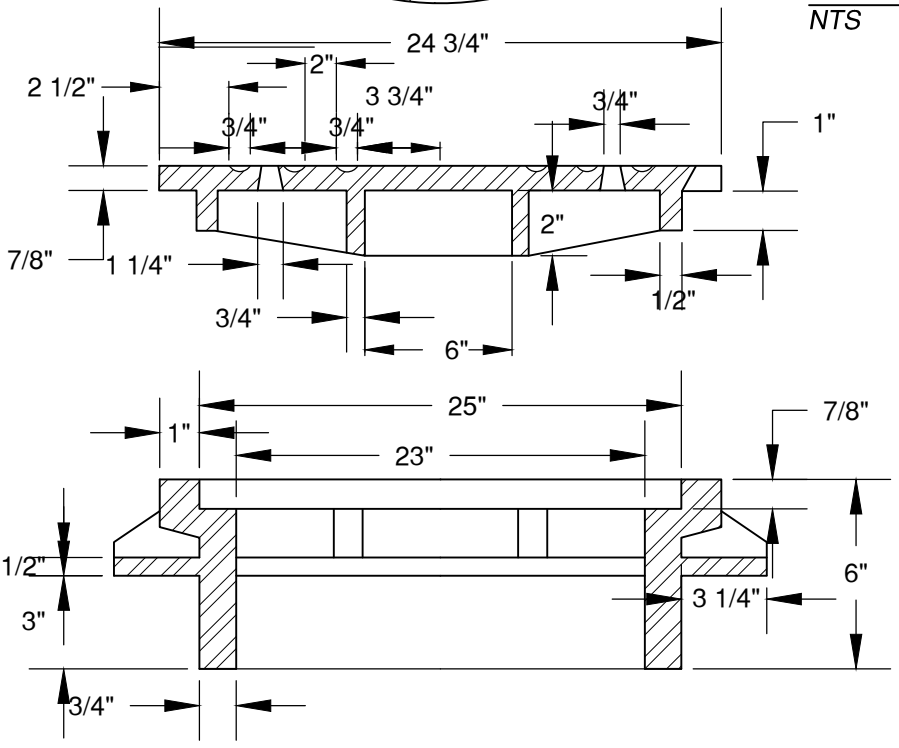
1. ALL PRE-CAST SECTIONS SHALL CONFORM TO REQUIREMENTS OF ASTM C-478.
2. ALL CONNECTING PIPES SHALL HAVE A FLEXIBLE JOINT WITHIN 18" OF MANHOLE WALL.
3. C-900 PIPE SHALL BE USED WITHIN TRAVEL AREAS. 3034 PIPE CAN BE USED IN LANDSCAPE STRIPS.
4. MANHOLES SHALL BE PLACED OUTSIDE SIDEWALK, APRONS & STREET SURFACES UNLESS APPROVED BY THE CITY ENGINEER.

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV STORM		STANDARD DRAWING	DATE 12/1/17
REV 2 / DATE 12/1/17		710 NW WALL ST., BEND, OREGON 97701	APPR
		STORMWATER SEDIMENTATION MANHOLE	STD DWG STRM-7



STORMWATER MANHOLE LID DETAIL

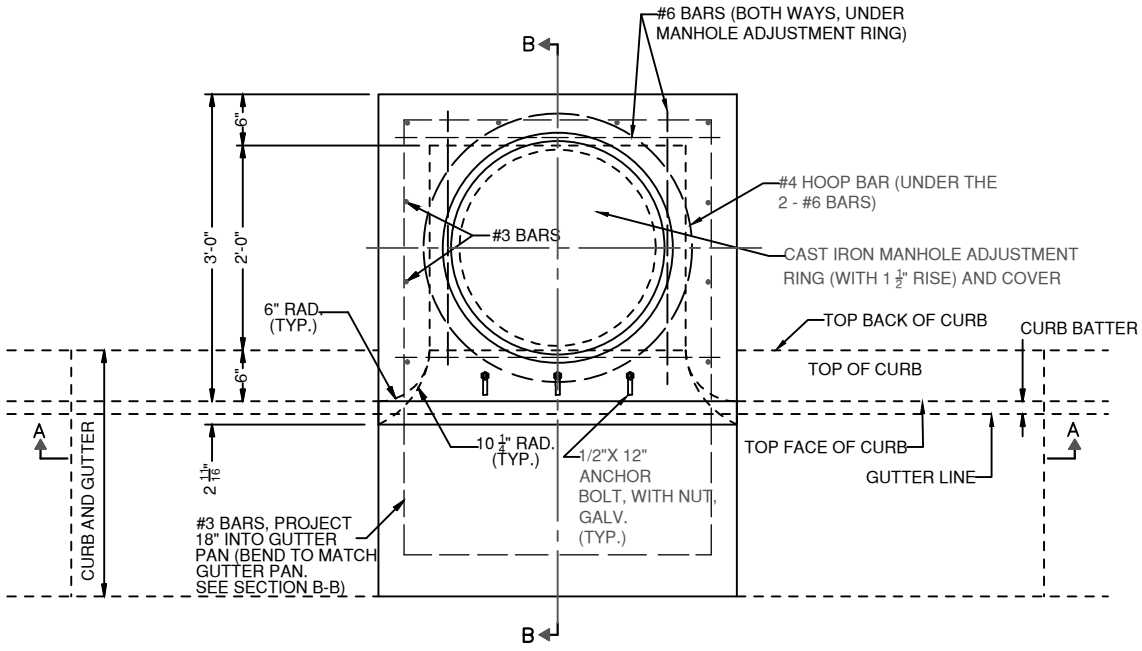
NTS



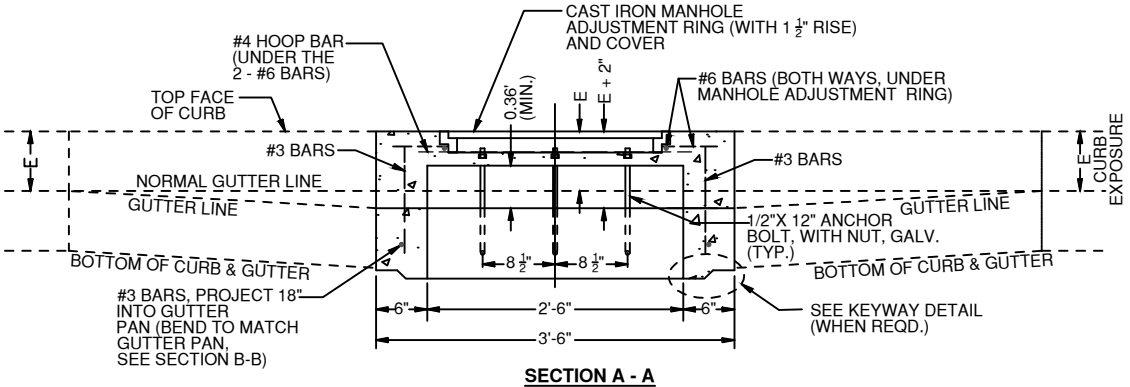
NOTE:

1. MANHOLE LID ONLY TO BE USED ON CITY OF BEND PUBLIC DRYWELLS AND SEDIMENTATION MANHOLES. PRIVATELY OWNED DRYWELLS AND SEDIMENT MANHOLES SHALL NOT USE A CITY OF BEND MANHOLE LID.
2. HINGED MANHOLE LIDS ARE NOT PERMITTED UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
3. ALL MANHOLE LIDS SHALL BE PLACED OUTSIDE THE PATH OF TRAVEL OF SIDEWALKS AND DRIVEWAY APRONS.

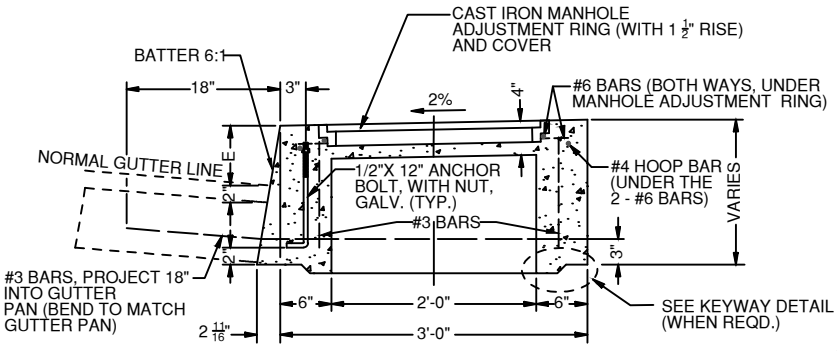
DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV STORM		STANDARD DRAWING	DATE 3/31/19
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		STORMWATER MANHOLE LID DETAIL	STD DWG STRM-8



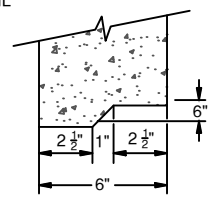
PLAN VIEW



SECTION A - A



SECTION B - B

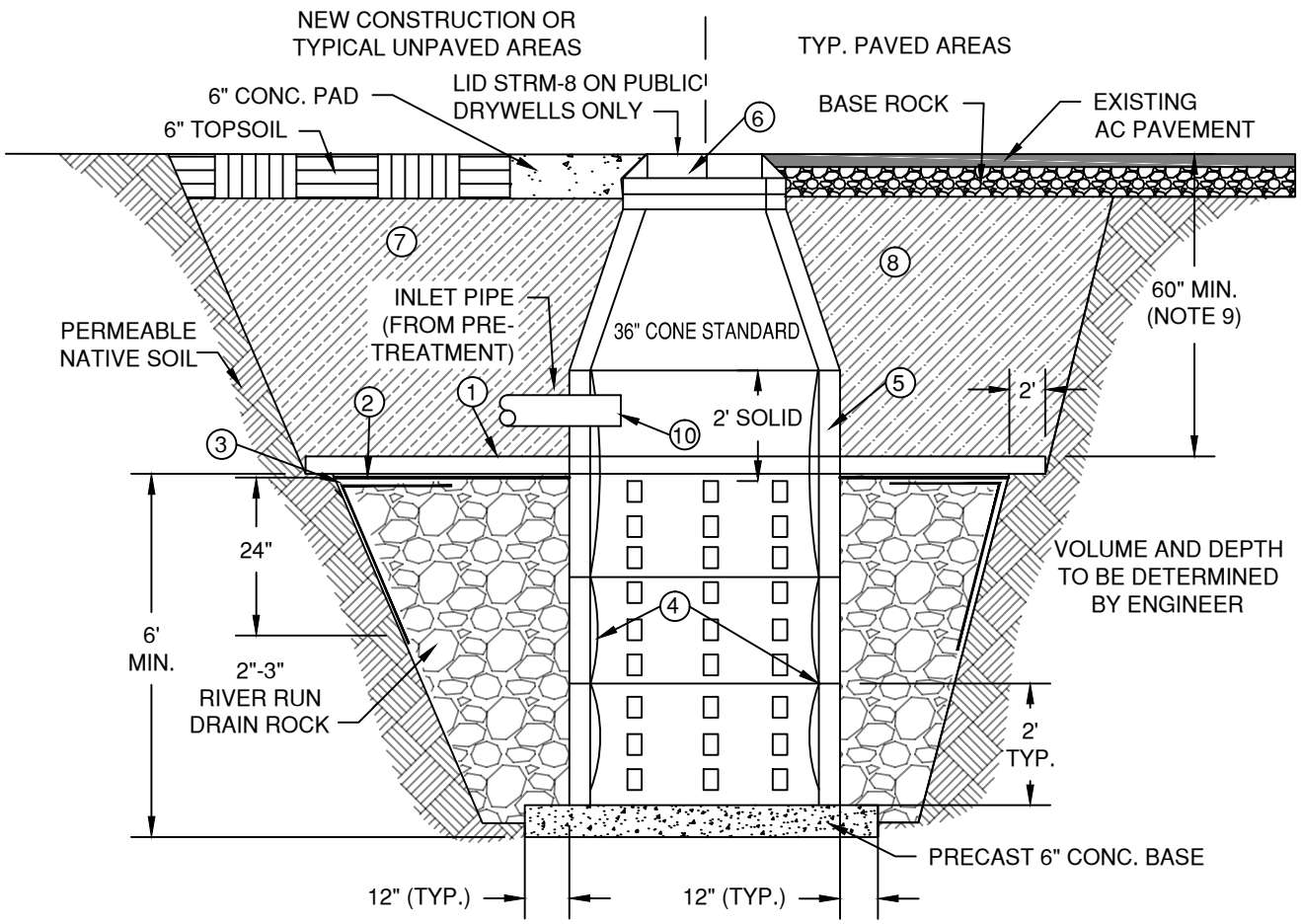


KEYWAY DETAIL

NOTES:

1. REMOVE SUFFICIENT CURB TO POUR BACK WALL. TOP SECTION MAY BE POURED MONOLITHIC WITH SIDEWALK.
2. CURB INLETS TO BE USED ON ARTERIAL AND COLLECTOR ROADWAYS.
3. "E" = CURB EXPOSURE.

DRAWN LJC	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV STORM			DATE 12/1/2017
REV: 2 — DATE: 12/1/17			APPR
	CITY OF BEND	STANDARD CATCH BASIN SPECIAL INLETS	STD DWG STRM-9

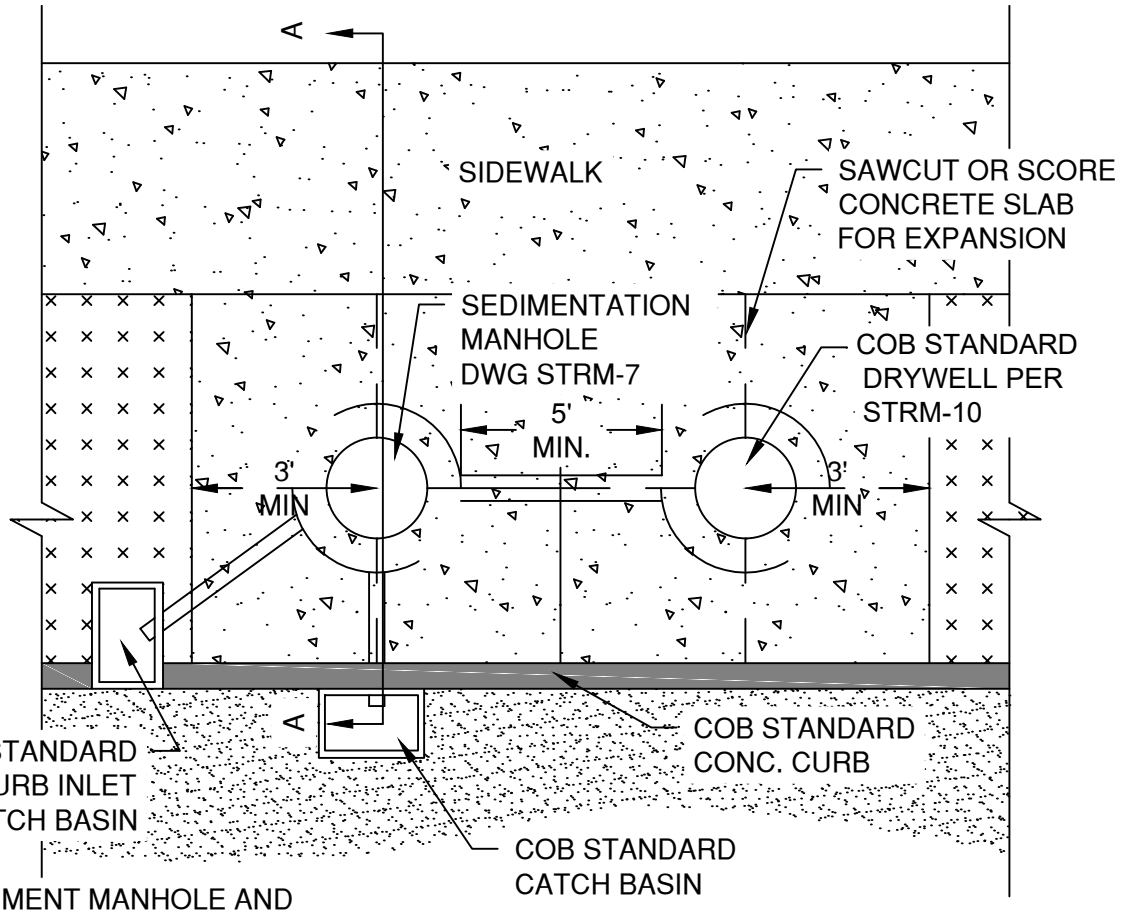


NOTES:

* SEE ALSO THE CITY OF BEND STANDARDS AND SPECIFICATIONS FOR DESIGN CRITERIA

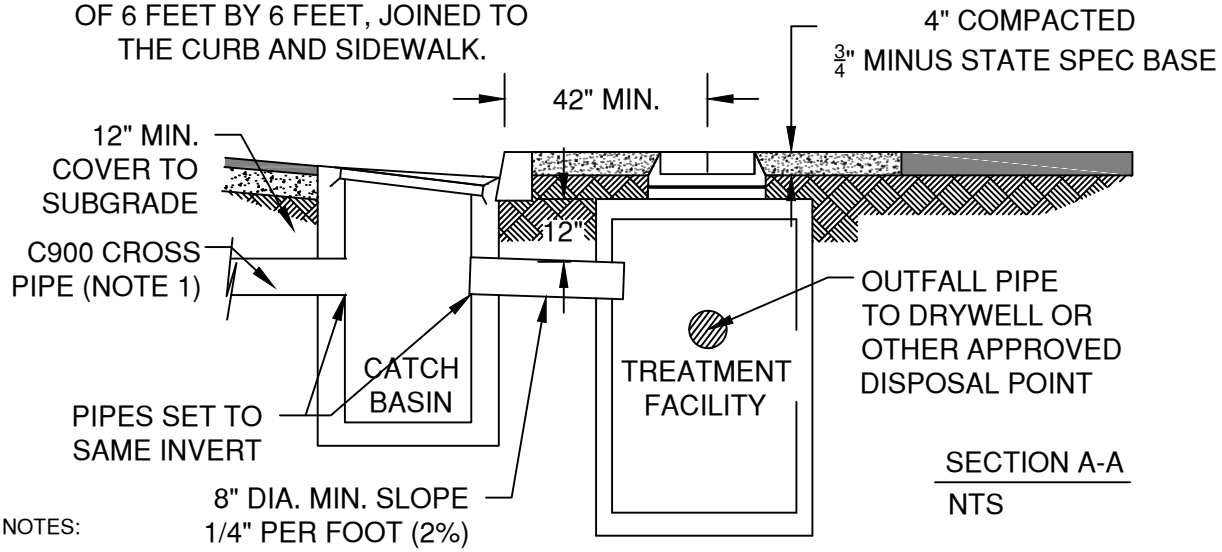
1. 6" CONCRETE CAP, CL. 3000, EXTEND TO UNDISTURBED MATERIAL 2' MIN. REQUIRED WITHIN ALL CITY OF BEND RIGHT OF WAY UNLESS NOTED OTHERWISE.
2. MOISTURE BARRIER-2 LAYERS OF 4 MIL POLY. ON ALL ROCK INSTALLATIONS.
3. WOVEN GEOFABRIC CONFORMING TO DRAINAGE GEOTEXTILE, OREGON TABLE 02320-1 REQUIRED ON ALL EARTH OR GRAVEL EXCAVATIONS TO 24" INTO ROCK. LAP 24" WITH MOISTURE BARRIER.
4. LINE INSIDE OF PERFORATED BARREL WITH HEAVY WEIGHT VINYL SCREEN, SUCH AS FULL FLOW VINYL SCREEN. LINER SHALL BE FULLY AND CONTINUOUSLY ANCHORED, TOP AND BOTTOM OF EACH SECTION. ATTACH BY OVERLAPPING 12" MIN. BETWEEN JOINT OF MANHOLE CONE AND PERFORATED BARREL SECTION. INLET PIPE SHALL BE EXTENDED THROUGH THE SCREEN IF SCREEN IS ATTACHED ABOVE THE PIPE.
5. PRE-CAST SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478. CONCRETE SHALL BE CL.3300, AIR ENTRAINED CONCRETE.
6. STANDARD RING AND COVER REQUIRED IN RIGHT-OF-WAY AREAS. NO SLOTTED COVERS WILL BE ALLOWED IN LIEU OF A CATCH BASIN.
7. CLASS "A" BACKFILL COMPACTED TO 95.0% OPTIMUM DRY DENSITY (AASHTO T-99).
8. CLASS "B" BACKFILL COMPACTED TO 95.0% OPTIMUM DRY DENSITY (AASHTO T-99).
9. PERFORATIONS TO BE 60" BELOW EXISTING UNDISTURBED GROUND.
10. INLET PIPE MUST BE DESIGNED SO IT CAN BE PLUGGED IN CASE OF SPILL. ALL PIPE PENETRATIONS ARE TO BE GROUTED OR WATER-TIGHT SEALED. PIPE INLETS NOT TO ENTER DRYWELL WITH PERFORATED BARREL.
11. DRYWELL RIMS TO BE PLACED OUTSIDE OF SIDEWALK, APRON & STREET SURFACES UNLESS APPROVED BY THE CITY ENGINEER.
12. PLANS SHALL PROVIDE VOLUME AND AREA OF ROCK PLACEMENT. ROCK PLACEMENT SHALL BE OUTSIDE WATER/SEWER TRENCHES. WHERE ROCK ENTERS PRIVATE PROPERTY, A DRAINAGE EASEMENT SHALL BE RECORDED.

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV STORM		STANDARD DRAWING	DATE 12/1/17
REV 2 / DATE 12/1/17		710 NW WALL ST., BEND, OREGON 97701	APPR
		STANDARD PRE-CAST DRYWELL	STD DWG STRM-10



SEDIMENT MANHOLE AND DRYWELL REQUIRE A CONCRETE PAD 6" THICK AND A MINIMUM SIZE OF 6 FEET BY 6 FEET, JOINED TO THE CURB AND SIDEWALK.

PLAN VIEW
NTS

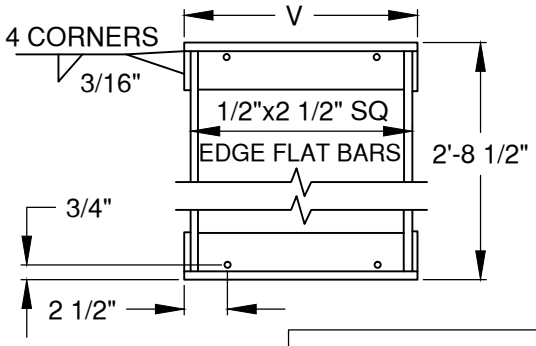


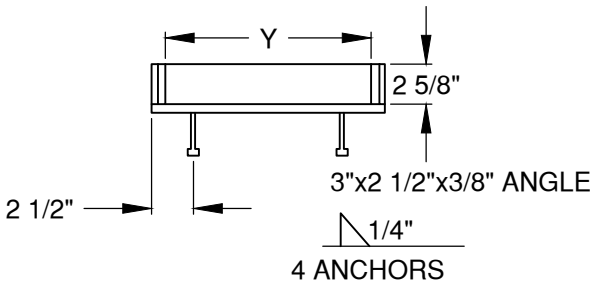
SECTION A-A
NTS

NOTES:

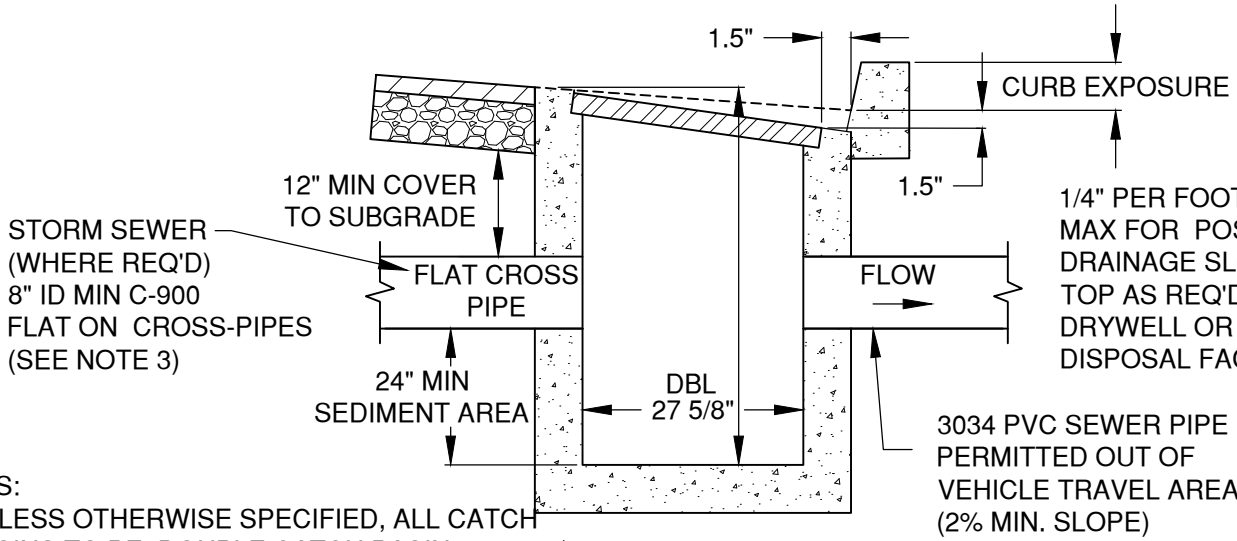
1. CROSS PIPE ELEV MAY REQUIRE OTHER UTILITIES (SEWER, WATER, ETC) TO BE LOWERED TO PROVIDE MINIMUM SEPARATIONS
2. ALL PIPE PENETRATIONS ARE TO BE GROUTED OR WATER TIGHT SEALED.
3. DRYWELL AND TREATMENT FACILITY NOT TO BE PLACED IN DRIVEWAY OR SIDEWALK UNLESS APPROVED BY THE CITY ENGINEER.

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV STORM		STANDARD DRAWING	DATE 12/1/2017
REV 2 / DATE 12/1/17		710 NW WALL ST., BEND, OREGON 97701	APPR
		DRYWELL W/ MANUFACTURED TREATMENT LAYOUT	STD DWG STRM-11



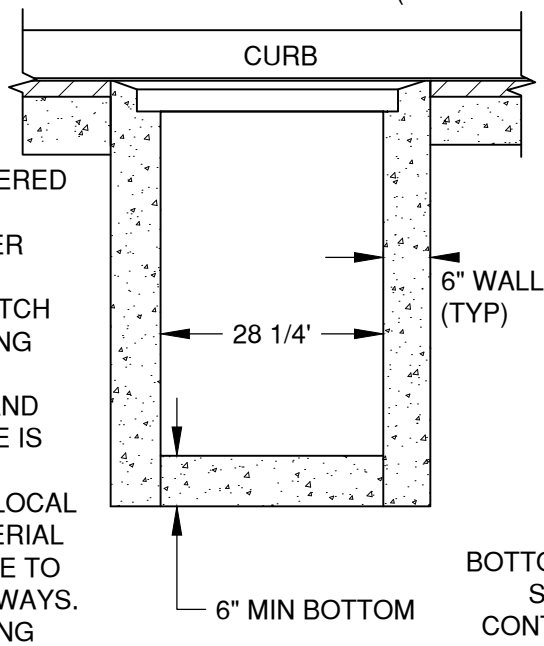


INLET TYPE	FRAME		GRATE (STRM- 13)		
	V	Y	Y1	NO OF BARS	TYPE
G-2, CG-2	2' - 4 3/4"	2' - 3 3/8"	1' - 1 1/2"	8	2"

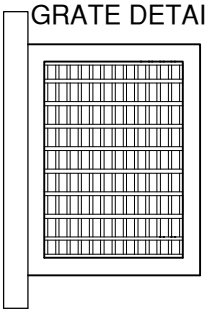


NOTES:

1. UNLESS OTHERWISE SPECIFIED, ALL CATCH BASINS TO BE DOUBLE CATCH BASIN
2. BACKFILL TO BE COMPACTED TO 95% OF OPTIMUM PER SPECIFICATION SECTION 00330.43
3. CROSS PIPE ELEV MAY REQUIRE OTHER UTILITIES (SEWER, WATER, ETC) TO BE LOWERED TO PROVIDE MINIMUM SEPARATIONS
4. ALL PIPE CONNECTIONS TO BE GROUTED PER SPECIFICATION SECTION 0470.40
5. CONTRACTOR IS RESPONSIBLE TO KEEP CATCH BASIN CLEAN AND FREE OF SEDIMENT DURING CONSTRUCTION
6. CONTRACTOR IS RESPONSIBLE TO COVER AND BARRICADE ALL CATCH BASINS UNTIL GRATE IS INSTALLED
7. STANDARD CATCH BASINS ARE LIMITED TO LOCAL STREETS AND SHALL NOT BE USED ON ARTERIAL & COLLECTOR ROADWAYS. CURB INLETS ARE TO BE USED ON ARTERIAL & COLLECTOR ROADWAYS.
8. SEE DRG R-14A FOR PAVEMENT RESURFACING



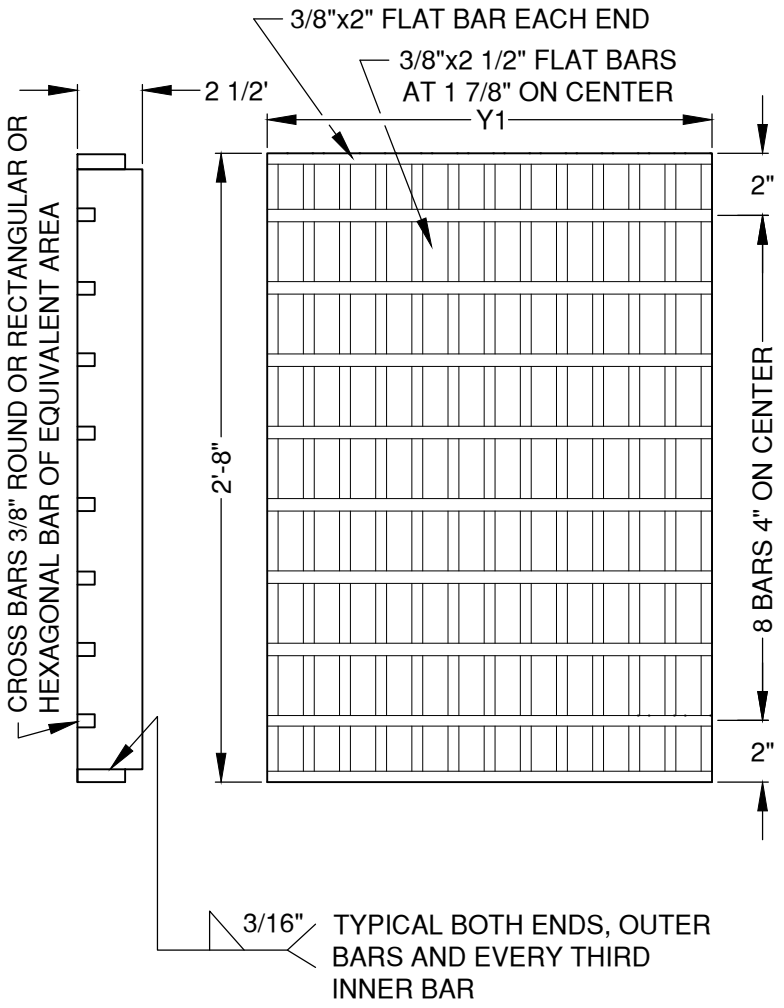
DETAIL SHOWING GRATE ORIENTATION TO CURB LINE. SEE STD DRG STRM-13 FOR GRATE DETAIL



BOTTOM MAY BE POURED SEPARATELY AT CONTRACTOR'S OPTION

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV STORM		STANDARD DRAWING	DATE 3/31/19
REV / DATE: 4/9/18		710 NW WALL ST., BEND, OREGON 97701	APPR
		STANDARD CATCH BASIN	STD DWG STRM-12

GRATE



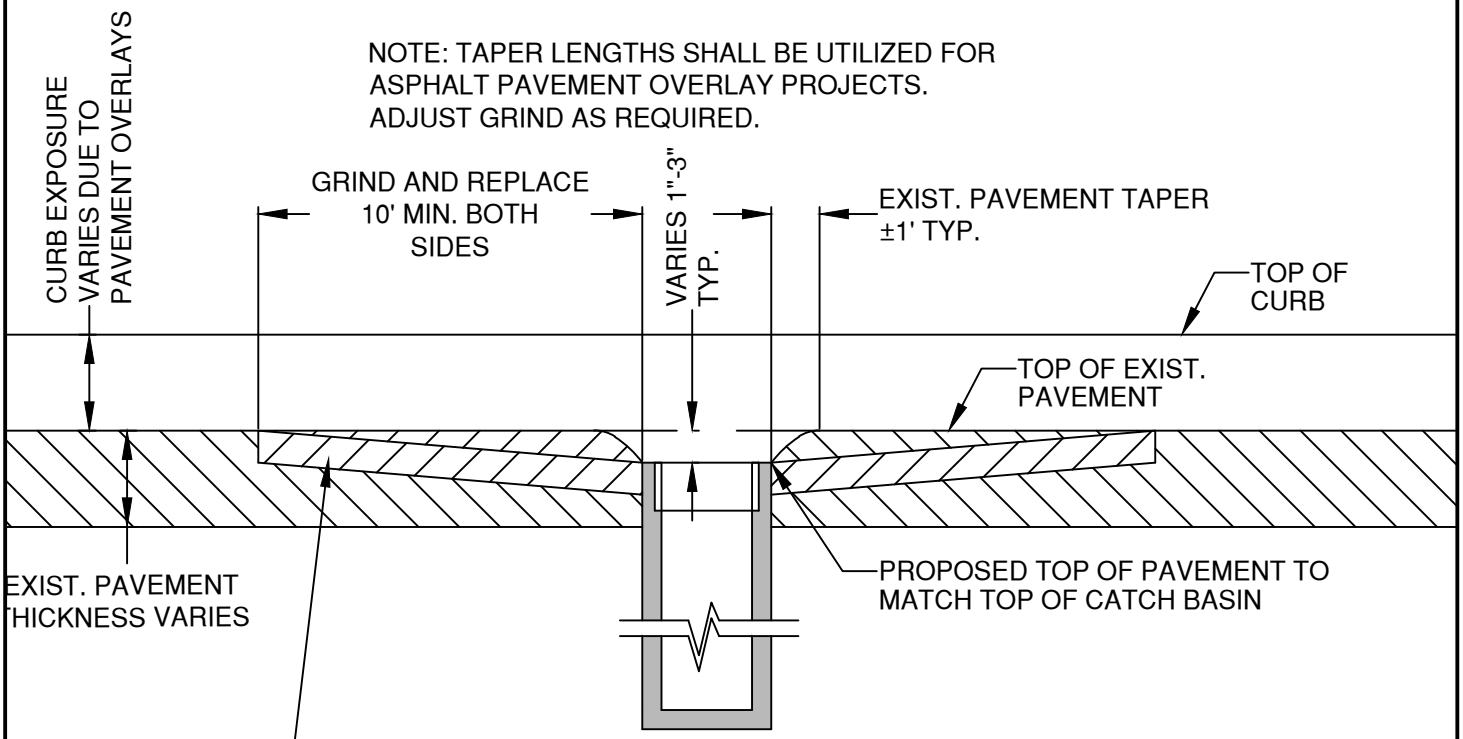
	FRAME		GRATE			
INLET TYPE	V (STRM-12)	Y (STRM-12)	Y1	NO. OF BARS	TYPE	REMARKS
G-2, CG-2	2'-4 3/4"	2'-3 3/8"	1'-1 1/2"	8	2"	2-GRATES

NOTES:

1. 3/8" CROSS BARS SHALL BE FLUSH WITH THE GRATE SURFACE AND MAY BE FILLET WELDED, RESISTANCE WELDED OR ELECTROFORGED TO BEARING BARS.
2. MUST MEET PROWAG STANDARD R302 WHEN IN THE PEDESTRIAN PATH OF TRAVEL.
3. SEE STANDARD DRG STRM-12 FOR STANDARD CATCH BASIN INSTALLATION

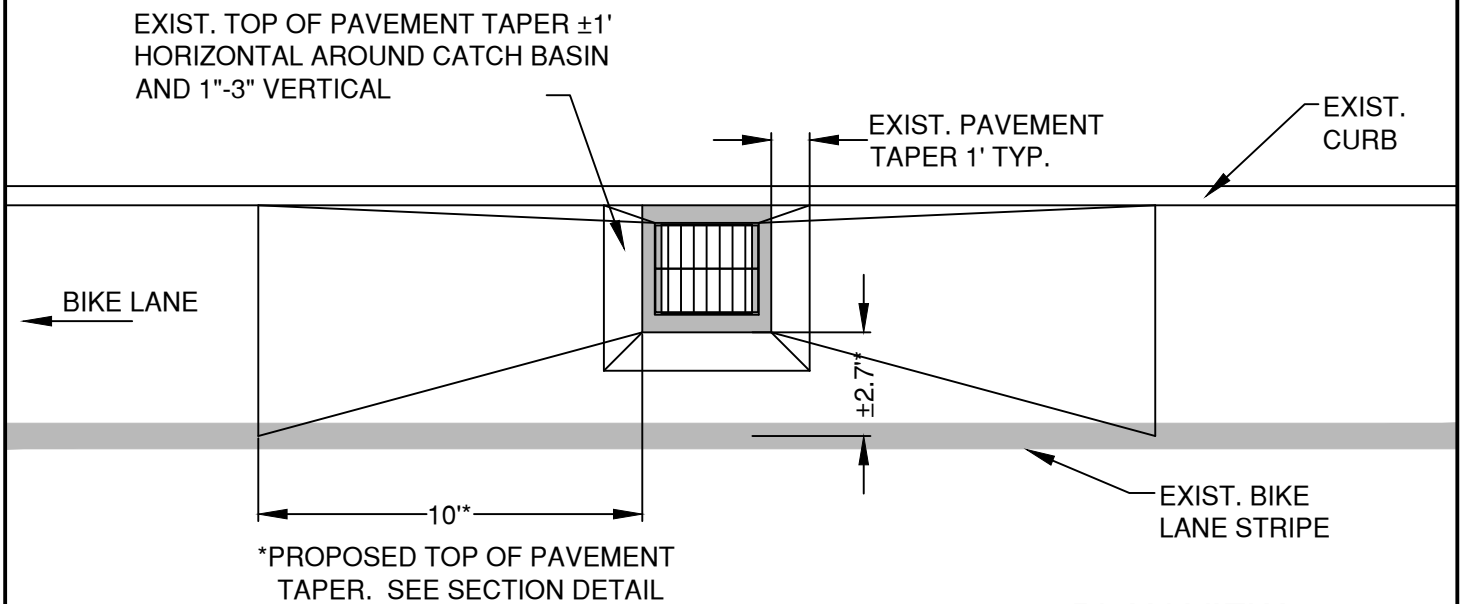
DRAWN LJC DIV STORM REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 STANDARD CATCH BASIN GRATE	SCALE NTS DATE 3/31/19 APPR STD DWG STRM-13

NOTE: TAPER LENGTHS SHALL BE UTILIZED FOR ASPHALT PAVEMENT OVERLAY PROJECTS. ADJUST GRIND AS REQUIRED.



SECTION VIEW

SCALE:
HORIZONTAL: 1"=5'
VERTICAL: 1"=1'



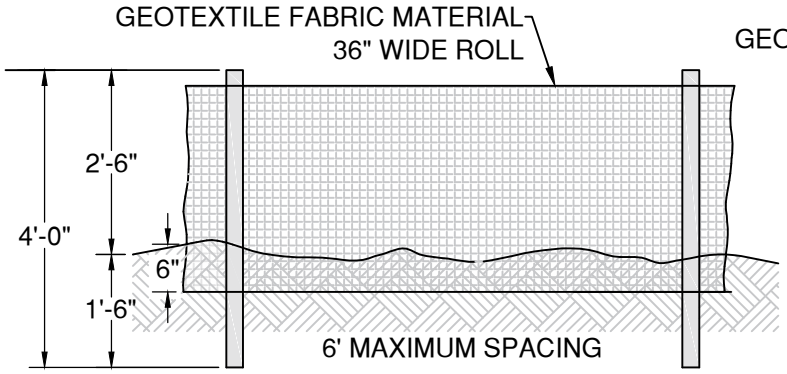
PLAN VIEW

SCALE:
HORIZONTAL: 1"=5'

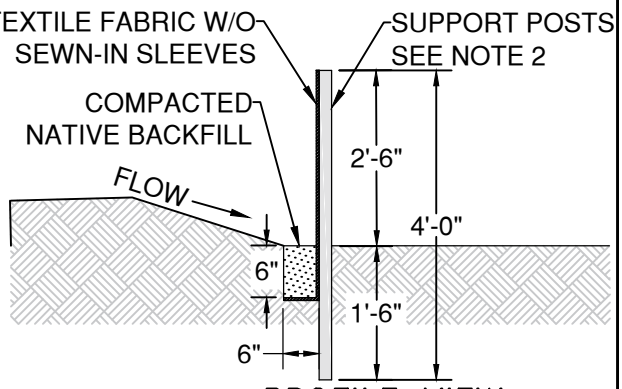
DRAWN LJC DIV STORM REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 EXISTING CATCH BASIN PAVEMENT RESURFACING	SCALE NTS DATE 3/31/19 APPR STD DWG STRM-14

CITY OF BEND STANDARD DRAWINGS

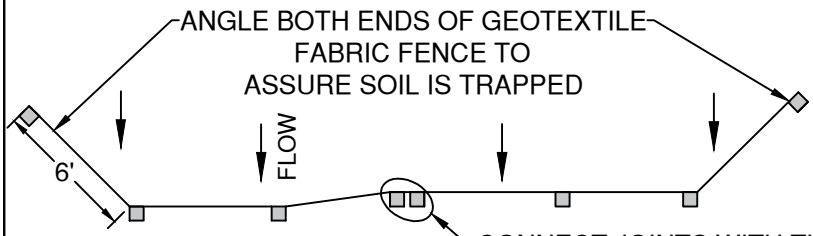
Erosion (E)



FRONT VIEW

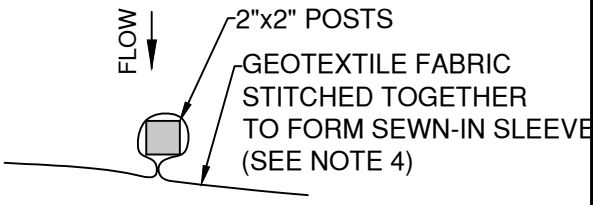


PROFILE VIEW

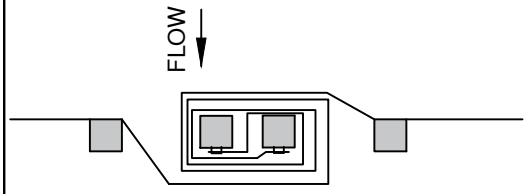


PLAN VIEW

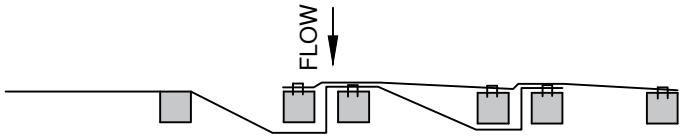
CONNECT JOINTS WITH TURNED END OR POST SPACING OVERLAP CONNECTION (SEE DETAILS AND NOTE 1)



SEWN–IN SLEEVE



TURNED END CONNECTION

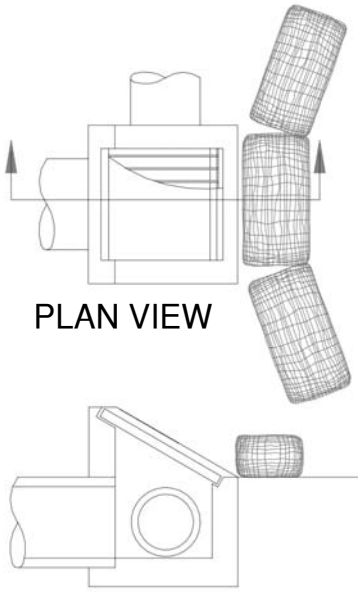


POST SPACING OVERLAP CONNECTION

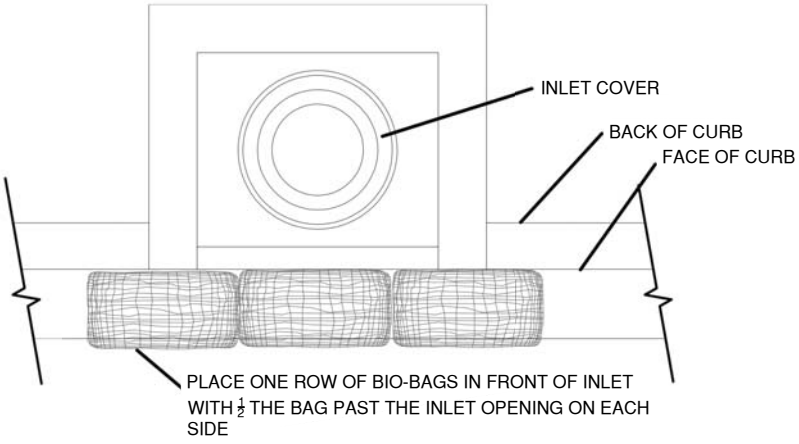
NOTES:

1. THE GEOTEXTILE FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, GEOTEXTILE SHALL BE SPLICED TOGETHER AT A SUPPORT POST UTILIZING A TURNED END OR POST SPACING OVERLAP CONNECTION.
2. THE FENCE POSTS SHALL BE SPACED A MAXIMUM OF 6 FEET APART AND INSTALLED INTO THE GROUND 18 INCHES MIN. FENCE POSTS SHALL BE 2" X 2" FIRE, PINE, OR STEEL AND INSTALLED ON THE DOWNHILL SIDE OF THE GEOTEXTILE FABRIC. THE GEOTEXTILE FABRIC FENCE SHALL BE INSTALLED TO FOLLOW THE SLOPE CONTOURS, TO MAXIMIZE PONDING EFFICIENCY WHERE FEASIBLE.
3. BURY BOTTOM OF THE GEOTEXTILE FABRIC 6 INCHES BELOW GRADE. BACKFILL AND COMPACT.
4. WHEN SEWN-IN SLEEVES ARE USED, THE POSTS SHALL BE INSTALLED WITHIN THE SLEEVE ON THE UPHILL SIDE GEOTEXTILE FABRIC.
5. GEOTEXTILE FABRIC FENCE SHALL BE REMOVED WHEN IT HAS SERVED ITS USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY PROTECTED AND STABILIZED.
6. GEOTEXTILE FABRIC FENCES SHALL BE INSPECTED BY APPLICANT/CONTRACTOR AFTER EACH RAIN OR SNOW EVENT AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
7. MAXIMUM RECOMMENDED FENCE WIDTH IS 500 FEET. MAXIMUM TRIBUTARY AREA IS 0.25 ACRE PER 100' OF FENCE. MAXIMUM RECOMMENDED SLOPE LENGTH IS 100'.

DRAWN LJC DIV STORM REV DATE 4/9/18	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 SEDIMENT FENCE DETAIL	SCALE NTS DATE 3/31/19 APPR STD DWG E-1



DITCH INLET

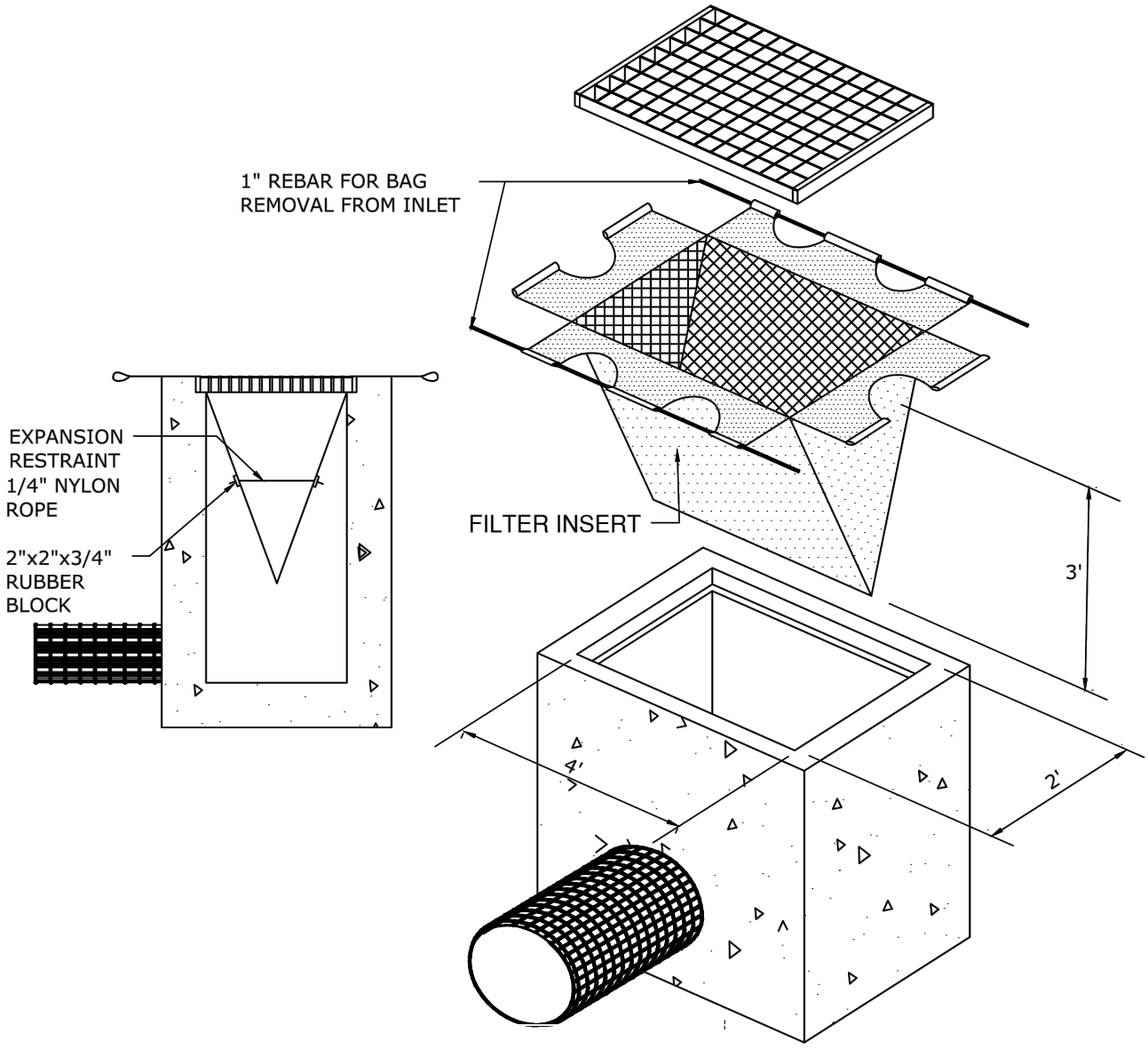


CURB INLET CATCH BASIN
BIO-BAG INLET PROTECTION

NOTES:
1. ADDITIONAL MEASURES MUST BE CONSIDERED DEPENDING ON SOIL TYPES.
2. BIO-BAGS SHOULD BE STAKED WHERE APPLICABLE USING (2) 1"X2"X3' WOOD STAKES OR APPROVED EQUAL.
3. BIO-FILTER BAGS MUST BE REMOVED AND HAULED OFF-SITE FOR DISPOSAL BY THE CONTRACTOR UPON PROJECT STABILIZATION.
4. BIO-FILTER BAGS MAY BE USED SHORT TERM WITH UTILITY WORK AND WITH PHASING OF DEVELOPMENT.
5. BIO-BAGS SHALL NOT BE USED ON ROADS WITH BIKE LANES.

MAINTENANCE NOTES:
6. SEDIMENT BARRIERS SHALL BE MAINTAINED UNTIL UPHILL AREA IS PERMANENTLY STABILIZED.
7. AT NO TIME SHALL MORE THAN 2-INCHES OF SEDIMENT BE ALLOWED TO ACCUMULATE BEHIND BIO-FILTER BAGS.
8. NEW SEDIMENT BARRIERS SHALL BE INSTALLED AS REQUIRED TO CONTROL SEDIMENT TRANSPORT.

DRAWN LJC		CITY OF BEND		SCALE NTS
DIV EROSION			STANDARD DRAWING	DATE 12/1/17
REV	DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
	12/1/17	CITY OF BEND	BIO-FILTER BAG INLET PROTECTION	STD DWG E-2A

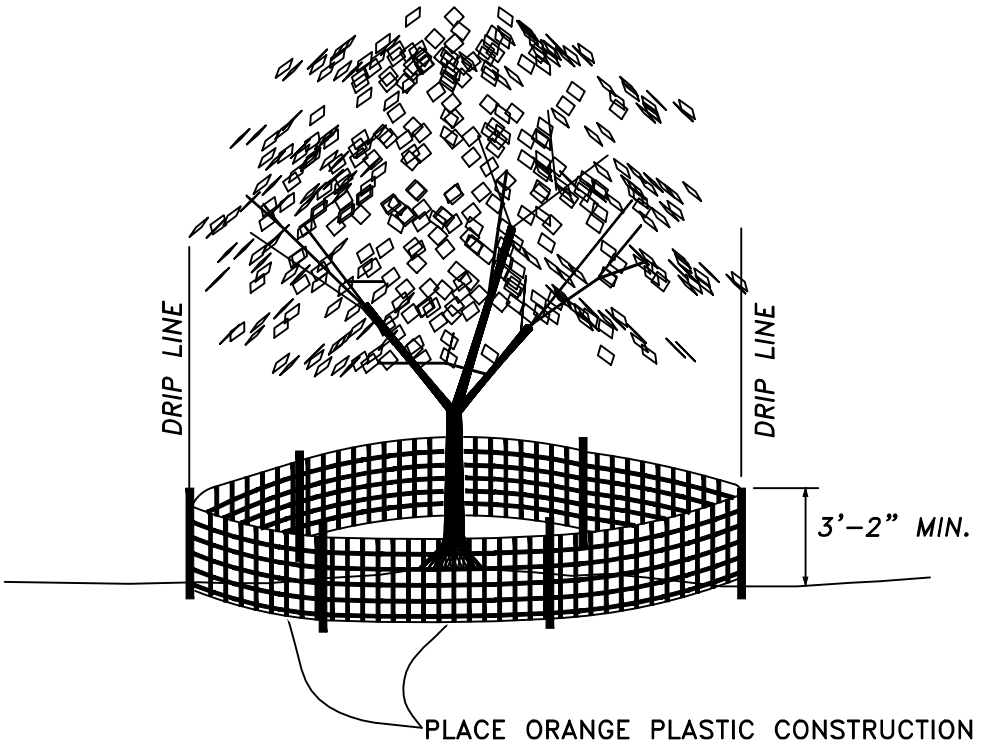


FILTER INSERT

NOTES:

1. INSTALL PRE-FABRICATED FILTER INSERTS ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
2. FIELD FABRICATED INSERTS ARE NOT PERMITTED.
3. PRE-FABRICATED INSERTS WITH PROVISIONS FOR OVERFLOW ARE ONLY ALLOWED WHEN ACCOMPANIED BY ADDITIONAL BMP TO PREVENT THE POTENTIAL OF SEDIMENTS ENTERING PROJECT STORM SYSTEMS.

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV EROSION		STANDARD DRAWING	DATE 12/1/17
REV / DATE: 12/1/17		710 NW WALL ST., BEND, OREGON 97701	APPR
		FILTER INSERT INLET PROTECTION	STD DWG E-2B

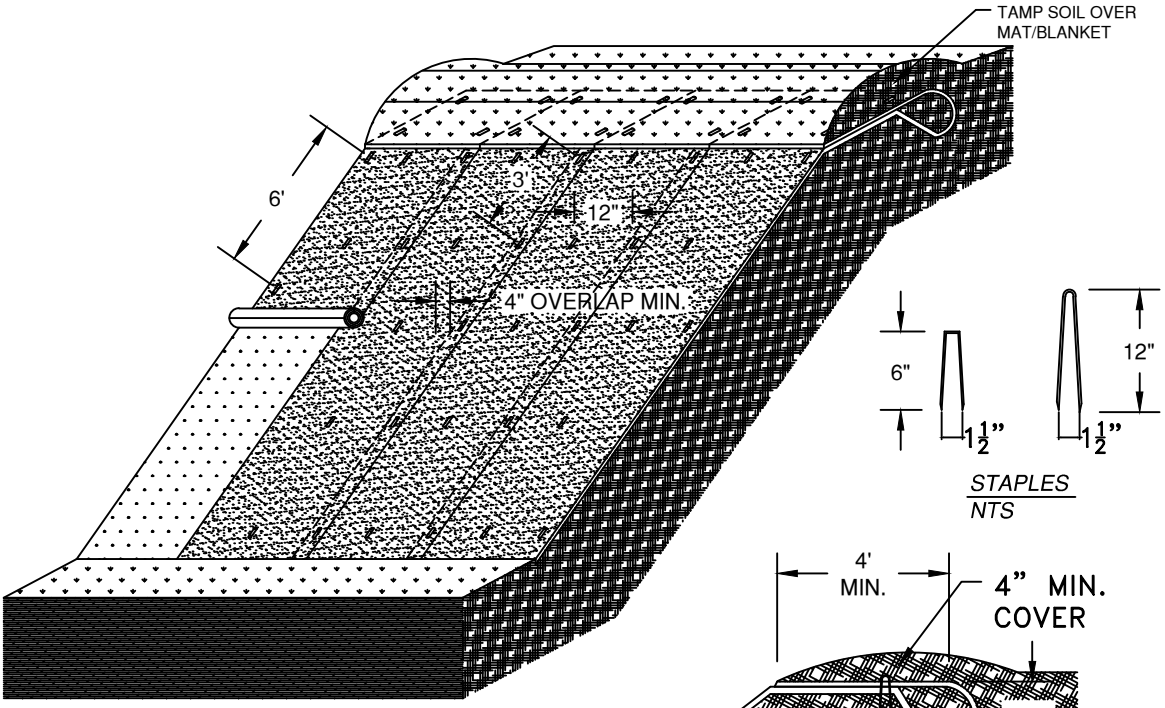


PLACE ORANGE PLASTIC CONSTRUCTION FENCING AROUND TREE OR PROTECTED VEGETATION PERIMETERS AT DRIP LINE, PRIOR TO ANY CONSTRUCTION ACTIVITIES ON SITE.

NOTE:

1. USE WOOD OR METAL FENCE POSTS. POST SPACING & DEPTH SHALL BE INSTALLED TO ADEQUATELY SUPPORT THE FENCE IN AN UPRIGHT MANNER.
2. MAXIMUM FENCE OPENINGS SHALL BE 2"X2".

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV EROSION		STANDARD DRAWING	DATE 12/1/17
REV / DATE: 12/1/17		710 NW WALL ST., BEND, OREGON 97701	APPR
		TREE/VEGETATION PROTECTION FENCING	STD DWG E-3



ISOMETRIC VIEW
NTS

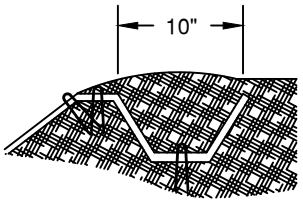
STAPLES
NTS

TOP BERM
NTS

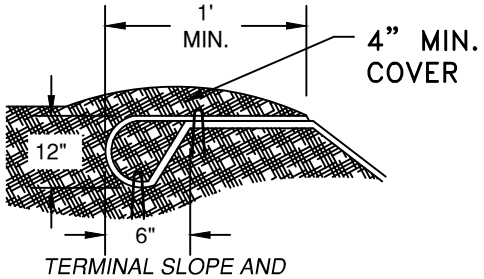
NOTES:
1. MATS/BLANKETS SHOULD BE INSTALLED VERTICALLY DOWN SLOPE.
2. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
3. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
4. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH.

SLOPE SOIL STABILIZATION
NTS

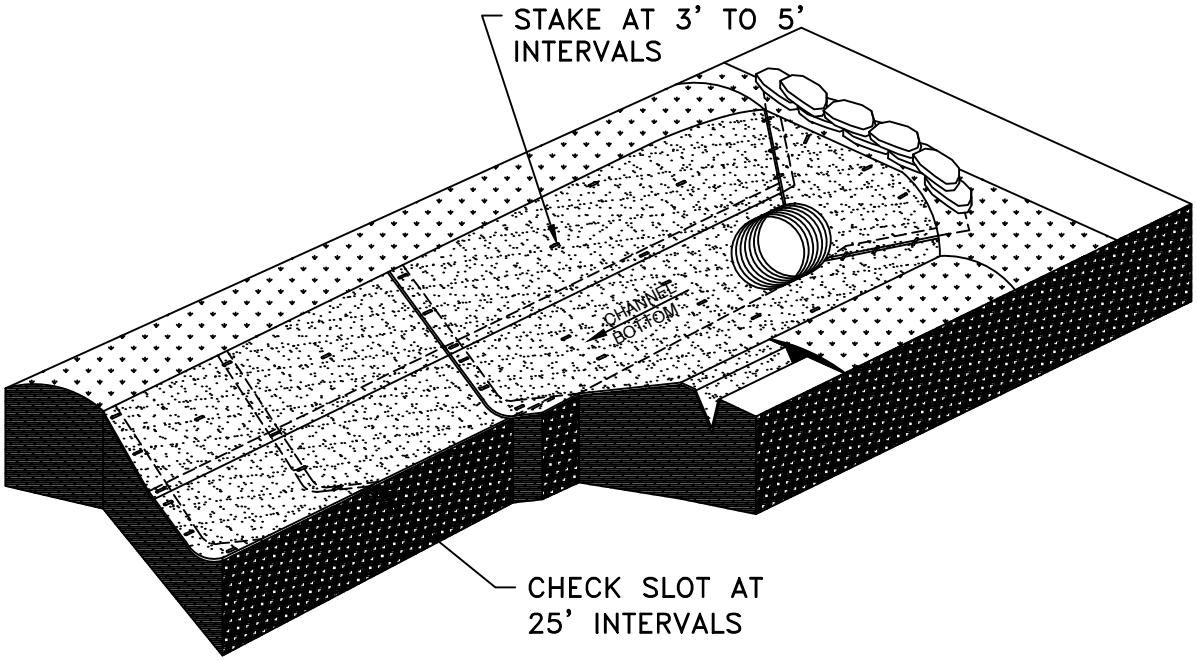
DRAWN LJC	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV EROSION			DATE 12/1/17
REV / DATE: 12/1/17			APPR
	CITY OF BEND	EROSION BLANKET - SLOPE INSTALLATION	STD DWG E-5

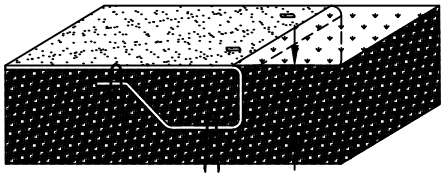


LONGITUDINAL ANCHOR TRENCH
NTS

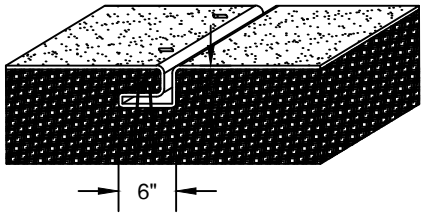


TERMINAL SLOPE AND CHANNEL ANCHOR TRENCH
NTS





INITIAL ANCHOR TRENCH
NTS

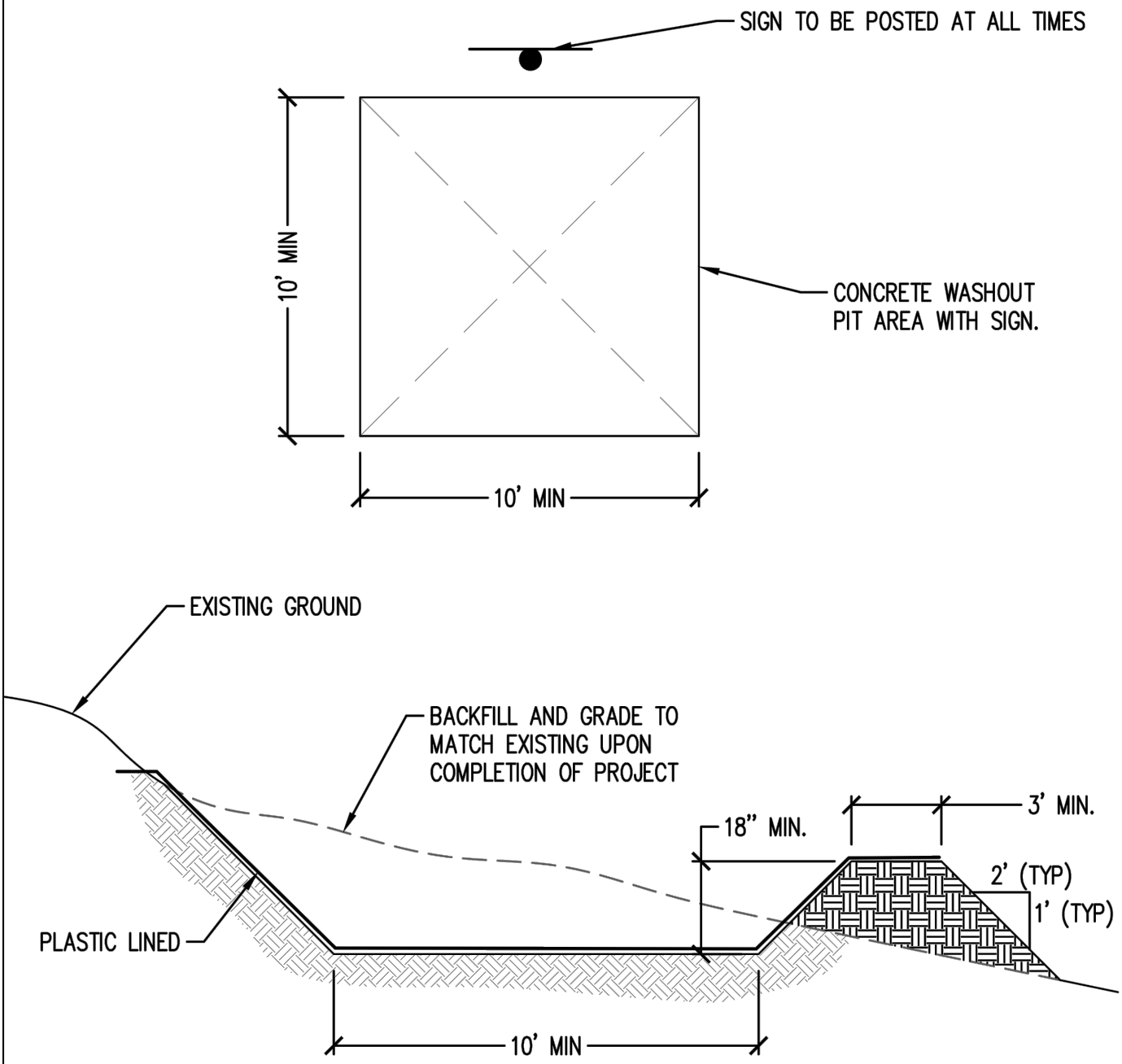


INTERMITTENT CHECK SLOT
NTS

NOTES:
1. CHECK SLOTS TO BE CONSTRUCTED PER MANUFACTURERS RECOMMENDATIONS.
2. STAKING OR STAPLING LAYOUT PER MANUFACTURES RECOMMENDATIONS.
3. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
4. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
5. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH.

CHANNEL STABILIZATION
NTS

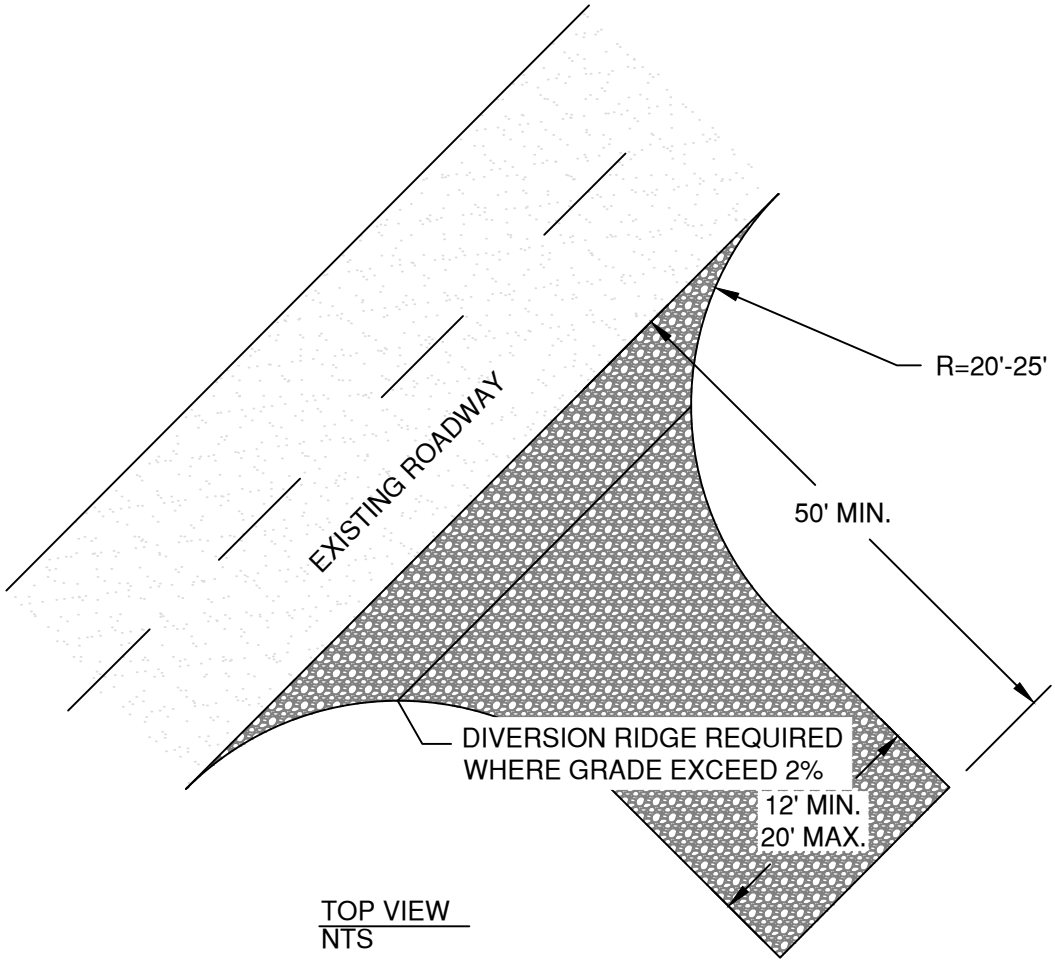
DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV EROSION		STANDARD DRAWING	DATE 12/1/17
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		EROSION BLANKET - CHANNEL INSTALLATION	STD DWG E-6



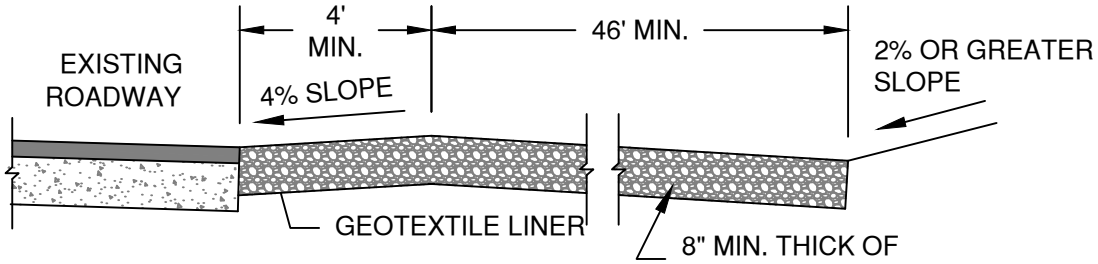
NOTES:

1. REMOVE AND LEGALLY DISPOSE OF WASTE MATERIAL WHEN IT ACCUMULATES TO $\frac{2}{3}$ OF WET STORAGE CAPACITY OF PIT.
2. CONCRETE WASHOUT AREA TO BE REPAIRED AND/OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE.
3. UPON COMPLETION OF CONSTRUCTION ACTIVITIES REQUIRING CONCRETE WASHOUT, THE WASHOUT SHALL BE REMOVED AND THE AREA RESTORED TO FINISH GRADE AND EXISTING CONDITION.
4. CONTRACTOR SHALL TAKE PRECAUTIONS SO AS TO NOT OVERFLOW PIT.

DRAWN LJC DIV EROSION REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 CONCRETE TRUCK WASHOUT	SCALE NTS DATE 12/1/17 APPR STD DWG E-7



TOP VIEW
NTS



PROFILE VIEW
NTS

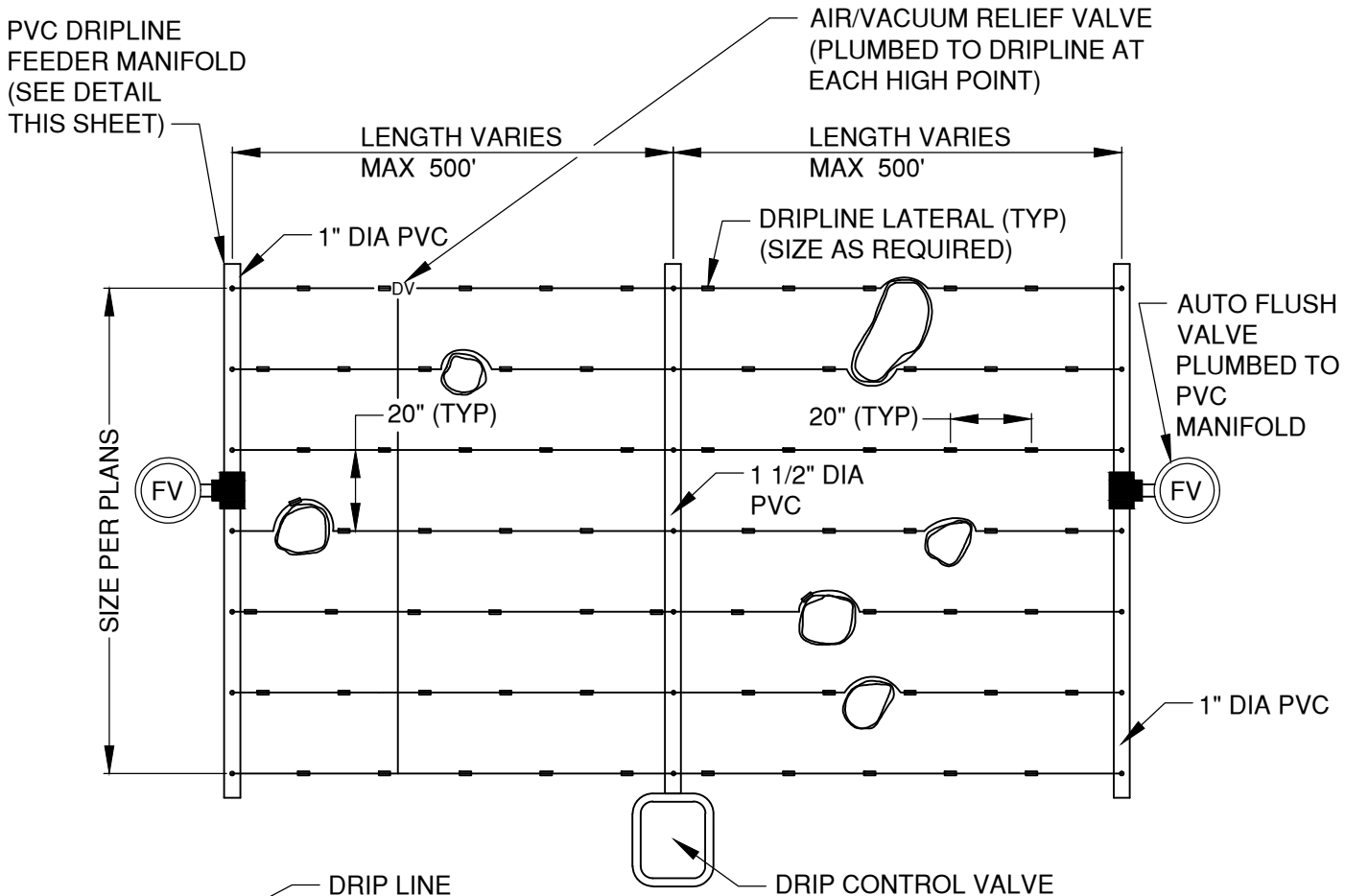
NOTES:

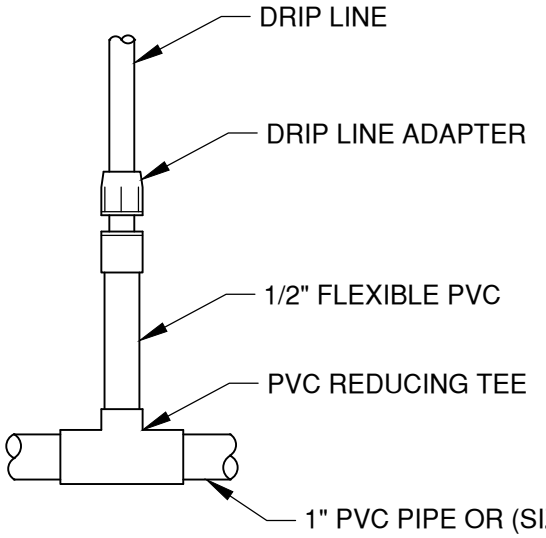
1. CONSTRUCTION ENTRANCE TO BE INSTALLED PRIOR TO ANY OTHER WORK ON SITE AND IS APPLICABLE AT ALL POINTS OF INGRESS AND EGRESS UNTIL SITE IS STABILIZED.
2. TRUCK WASH WATER MAY BE REQUIRED ON SITE TO PREVENT TRACKING ONTO EXISTING ROADWAY.
3. THE CONSTRUCTION AND USE OF THIS ENTRANCE IN NO WAY NEGATES THE CONTRACTOR`S RESPONSIBILITIES TO PREVENT TRACKING OF MATERIAL ONTO EXISTING ROADWAY.
4. MUST BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR DIRECT FLOW OF MUD/SEDIMENT ONTO STREETS. PERIODIC TOP DRESSING WITH STONE AND/OR CLEANOUT OR REPAIR SHALL BE NECESSARY.
5. ANY MATERIAL THAT STILL MAKES IT ONTO THE ROAD MUST BE SWEPT UP IMMEDIATELY.

DRAWN		CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV EROSION				DATE 3/31/19
REV	DATE			APPR
1			GRAVEL CONSTRUCTION ENTRANCE	STD DWG E-8

CITY OF BEND STANDARD DRAWINGS

Landscaping (L)



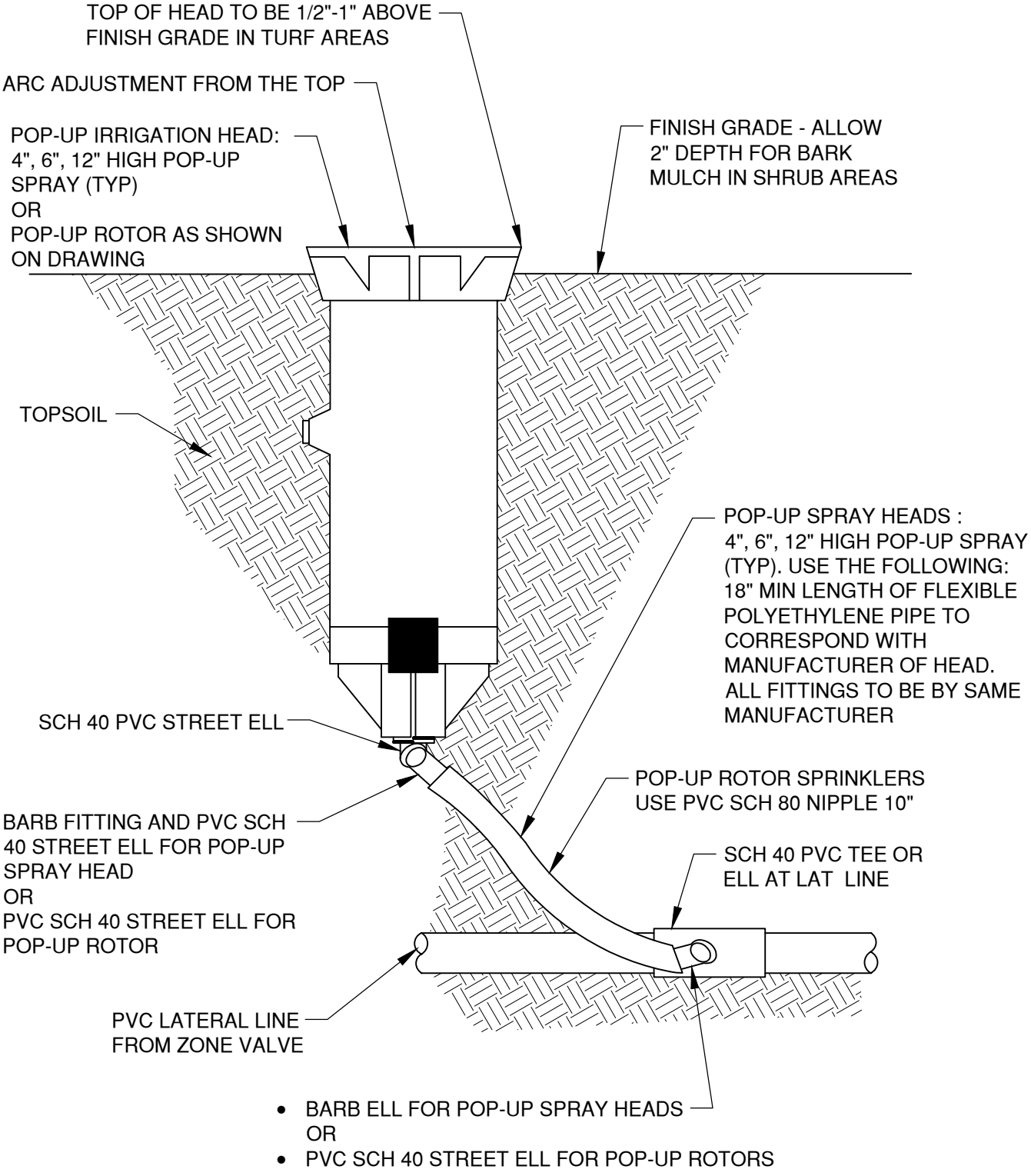


TYPICAL PVC DRIPLINE MANIFOLD CONNECTION

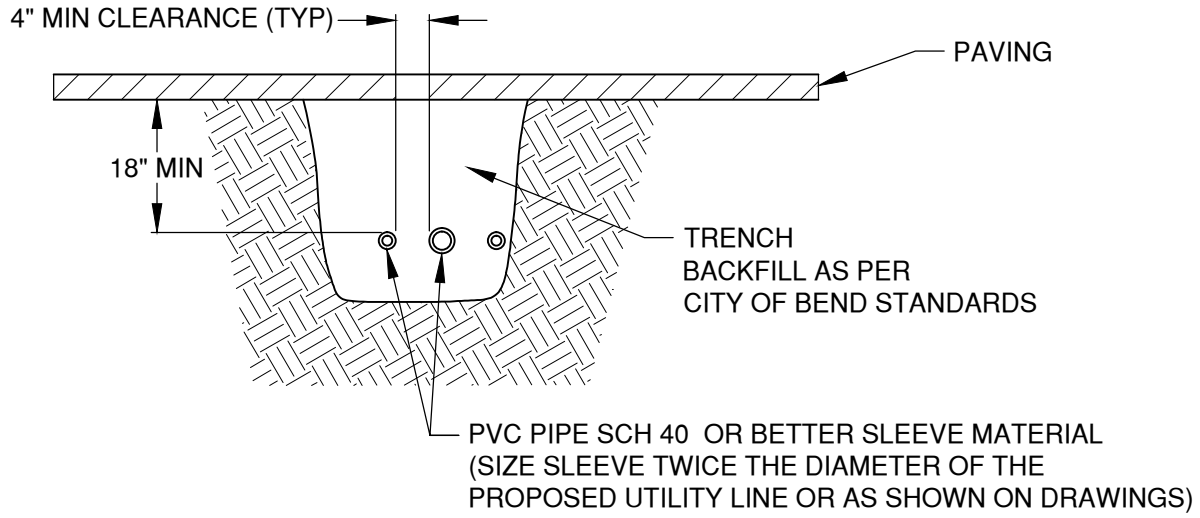
NOTES:

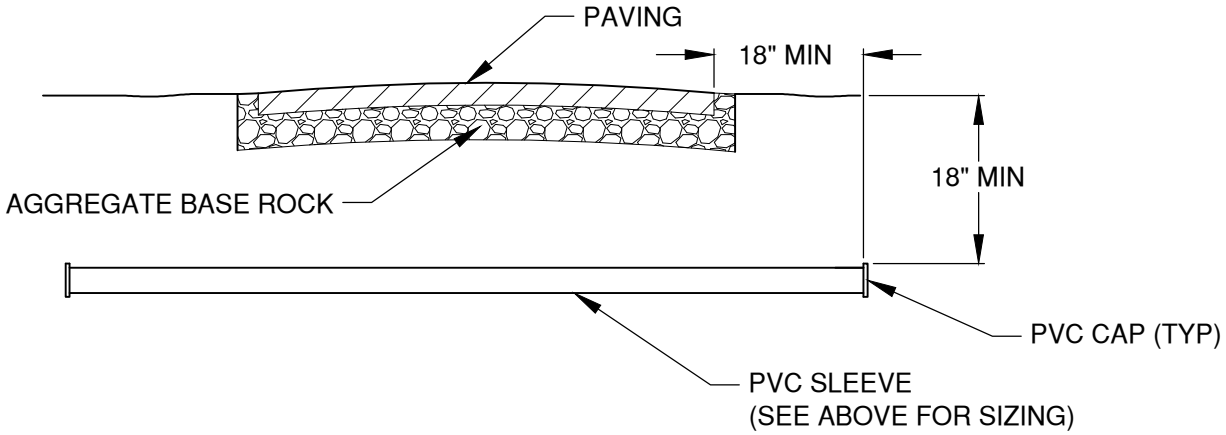
1. RELOCATE DRIP LINES AROUND OBSTACLES AS NEEDED

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV LNDSCP		STANDARD DRAWING	DATE 12/1/17
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		PLANTING OR TURF BED DRIP LAYOUT	STD DWG L-1

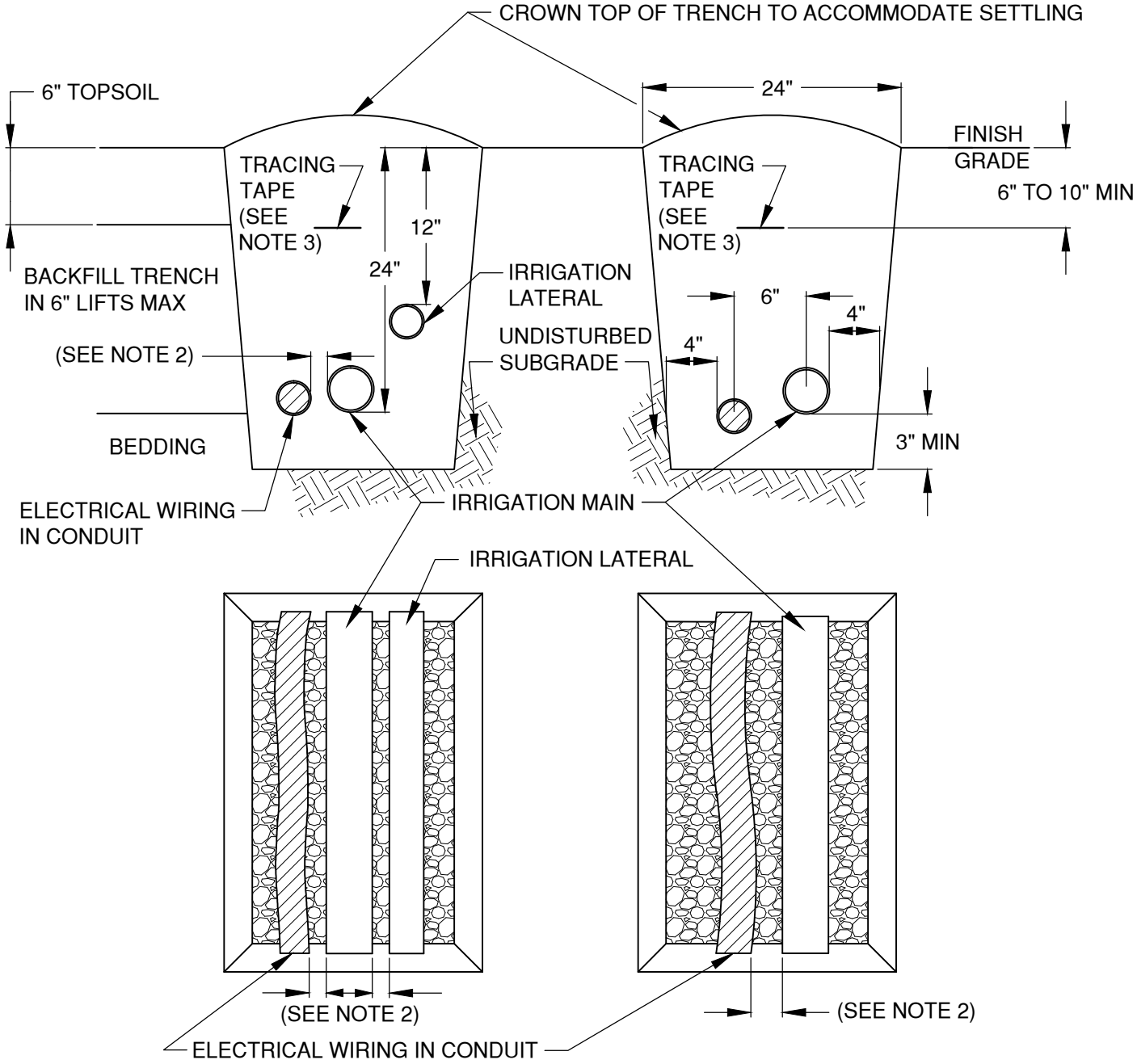


DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV LNDSCP		STANDARD DRAWING	DATE 12/1/17
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		SPRINKLER HEAD AND JOINTS	STD DWG L-2





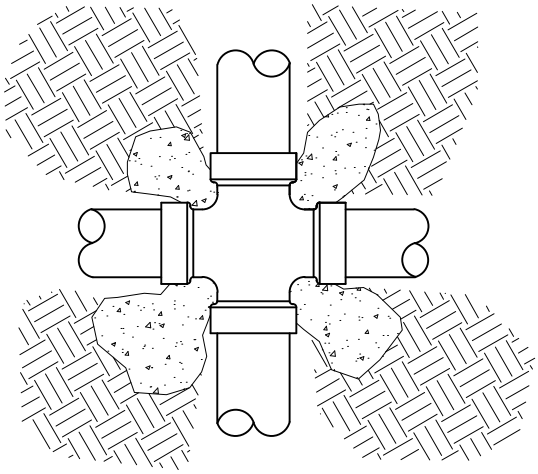
DRAWN LJC DIV LNDSCP REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 IRRIGATION SLEEVE UNDER PAVING	SCALE NTS DATE 12/1/17 APPR STD DWG L-3



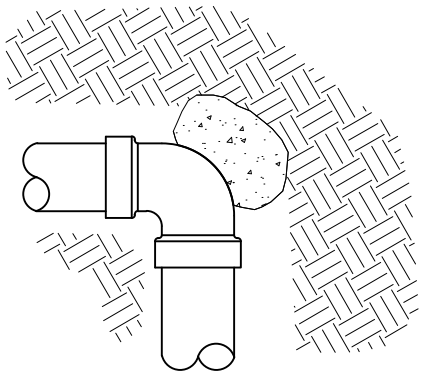
NOTES:

1. MINIMUM DEPTH OVER PVC PIPE:
   - 10" FOR 1-1/4" OR SMALLER
   - 12" FOR 1-1/2" TO 2" PIPE
   - 14" FOR 2-1/2" TO 3" LATERALS
   - 18" FOR MAINLINE PIPING AND SLEEVES
2. CLEARANCE BETWEEN PIPE:
   - 4" FOR PIPE 2" AND SMALLER
   - 6" FOR LARGER PIPE
3. PROVIDE A DETECTABLE TAPE OR WIRE USING A CONTINUOUS MINIMUM 14 GAUGE SINGLE STRAND LOCATOR WIRE IN TRENCH A MINIMUM 6" TO 10" BELOW FINISH GRADE. TRACING TAPE OR WIRE SHALL BE LOCATED A MINIMUM 6" ABOVE PIPING ON MAINLINE INSTALLATIONS

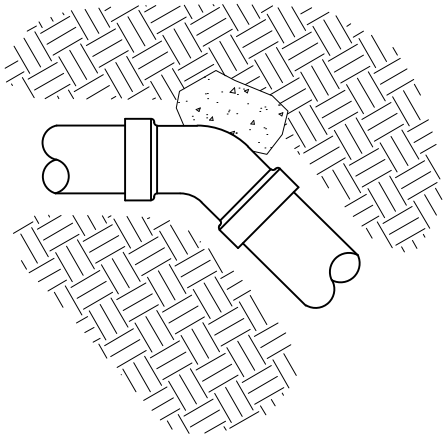
DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV LNDSCP		STANDARD DRAWING	DATE 12/1/17
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		IRRIGATION - TYPICAL TRENCH	STD DWG L-4



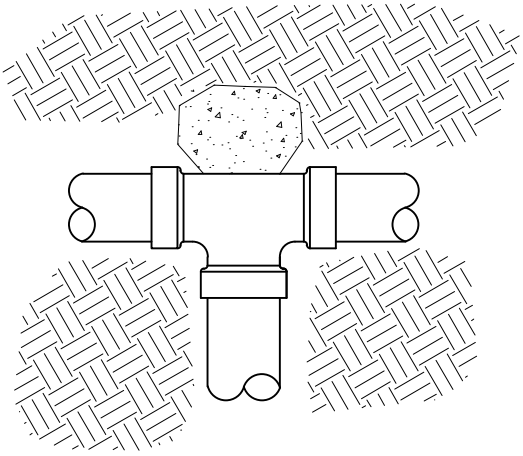
CROSS



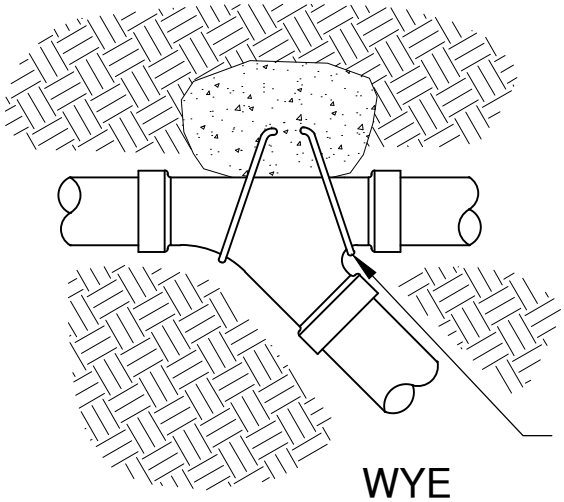
ELL



45° ELL



TEE



WYE

NOTES:

1. SUPPLY LINES 3" IN DIAMETER AND LARGER SHALL RECEIVE THRUST BLOCKS
2. USE A MINIMUM 1 CU FT OF CONCRETE IN EACH THRUST BLOCK POUR

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV LNDSCP		STANDARD DRAWING	DATE 12/1/17
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		IRRIGATION FITTINGS	STD DWG L-5

1 30" LINEAR LENGTH OF WIRE, COILED

2 WATER PROOF CONNECTION (1 OF 2)

3 ID TAG

4 VALVE BOX WITH COVER: AMETEK STANDARD OR EQUAL

5 FINISH GRADE/TOP OF MULCH ALLOW 2" DEPTH MIN FOR BARK IF LOCATED IN SHRUB BED

6 REMOTE CONTROL VALVE: AS SPECIFIED ON DRAWING

7 PVC CLASS 200 PIPE

8 PVC SADDLE FEMALE THREAD

9 TREATED WOOD OR BRICK SUPPORT (LENGTH AS REQ'D.)

10 CONTROL WIRING 24 VAC

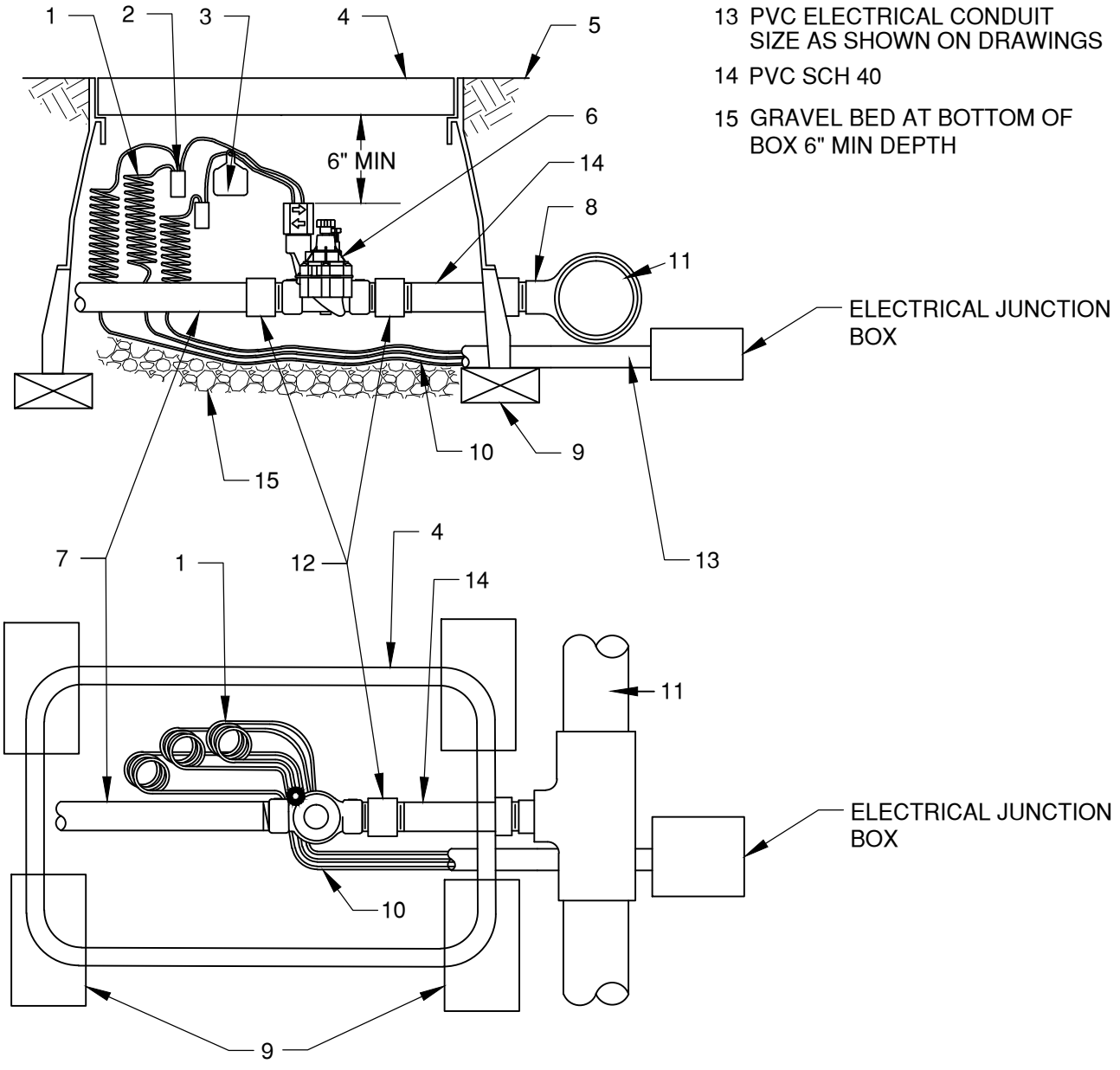
11 PVC MAINLINE PIPE

12 SCH 80 MALE ADAPTER

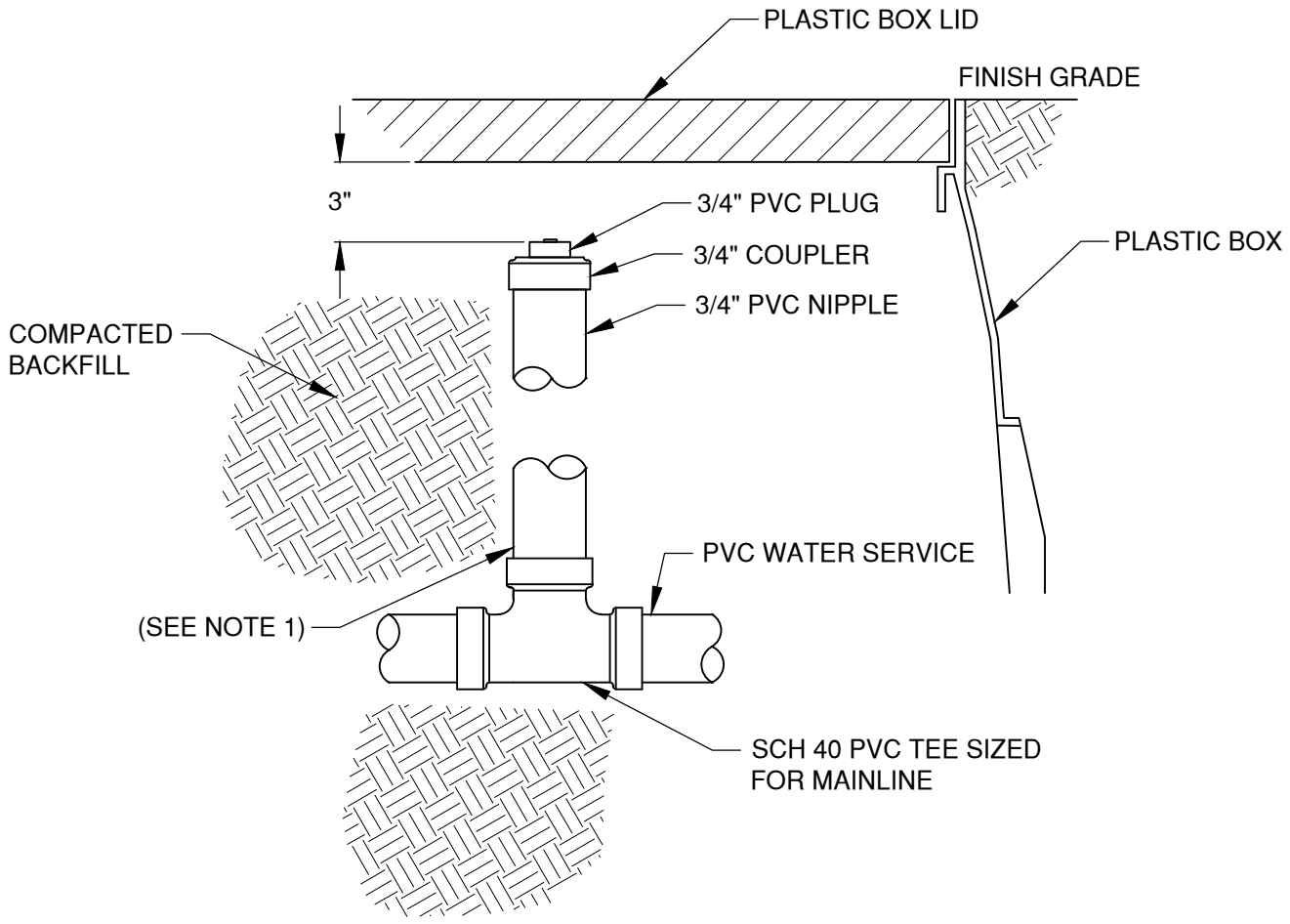
13 PVC ELECTRICAL CONDUIT SIZE AS SHOWN ON DRAWINGS

14 PVC SCH 40

15 GRAVEL BED AT BOTTOM OF BOX 6" MIN DEPTH



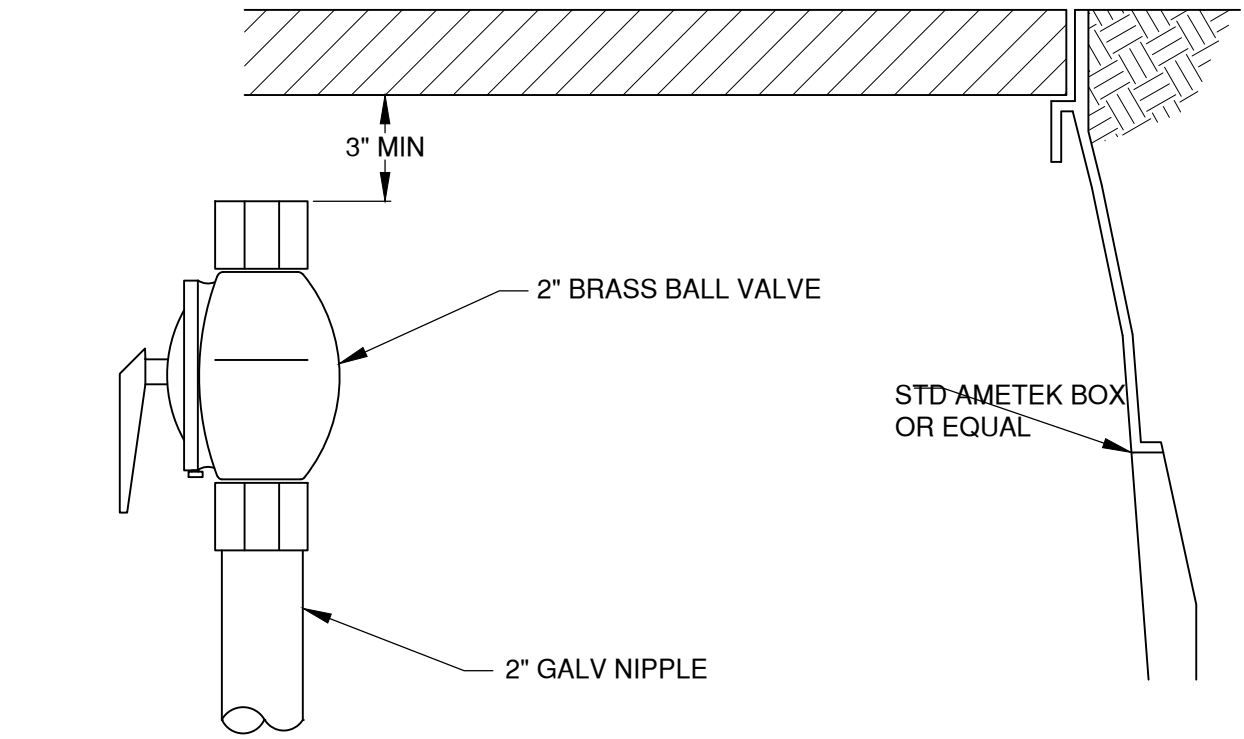
DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV LNDSCP		STANDARD DRAWING	DATE 12/1/17
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		IRRIGATION REMOTE CONTROL VALVE	STD DWG L-6

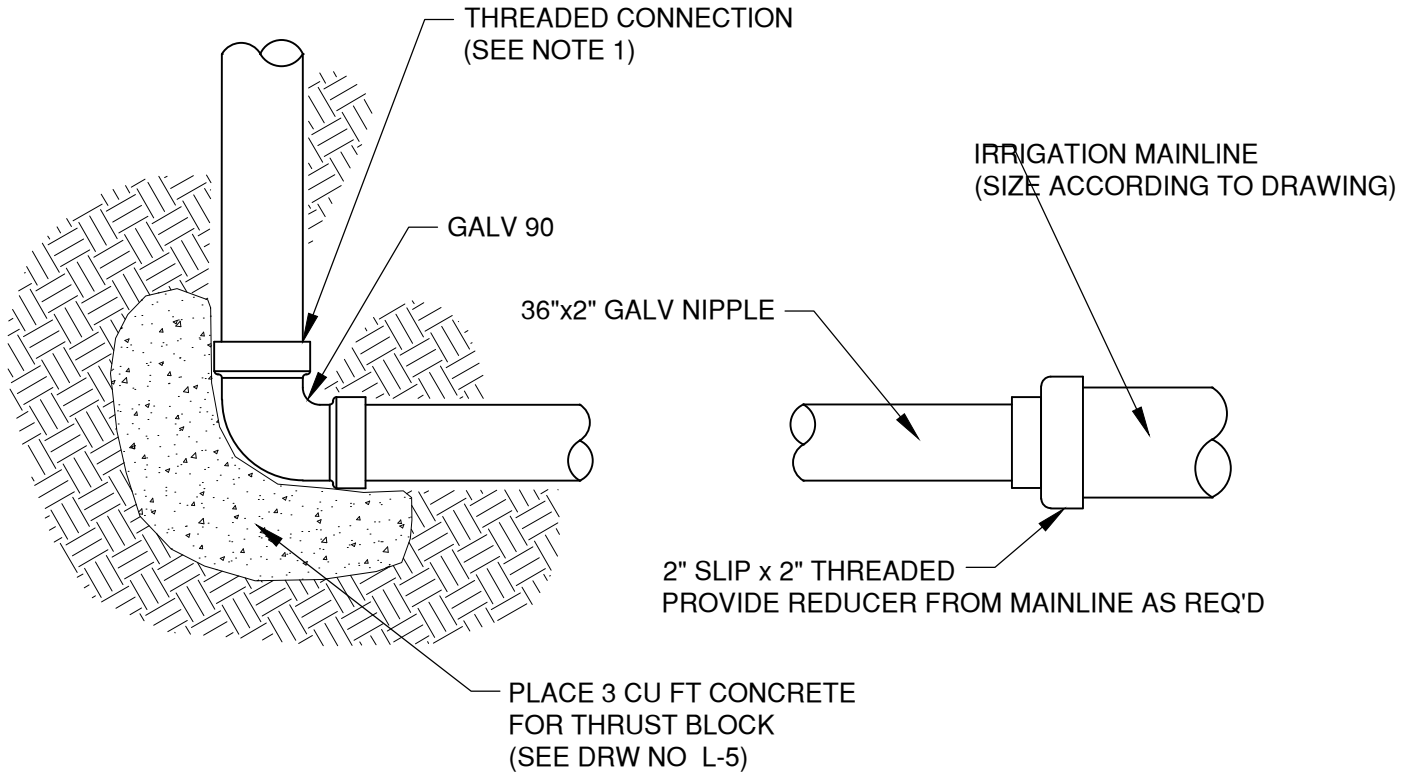


NOTES:

1. PROVIDE PVC BUSHINGS AS REQUIRED TO REDUCE SIZE FROM TEE
2. PROVIDE ALL THREADED PVC CONNECTIONS WITH A NON-HARDENING JOINT COMPOUND, COMPATIBLE WITH MANUFACTURERS RECOMMENDATION

DRAWN LJC DIV LNDSCP REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 IRRIGATION BLOW OUT	SCALE NTS DATE 12/1/17 APPR STD DWG L-7

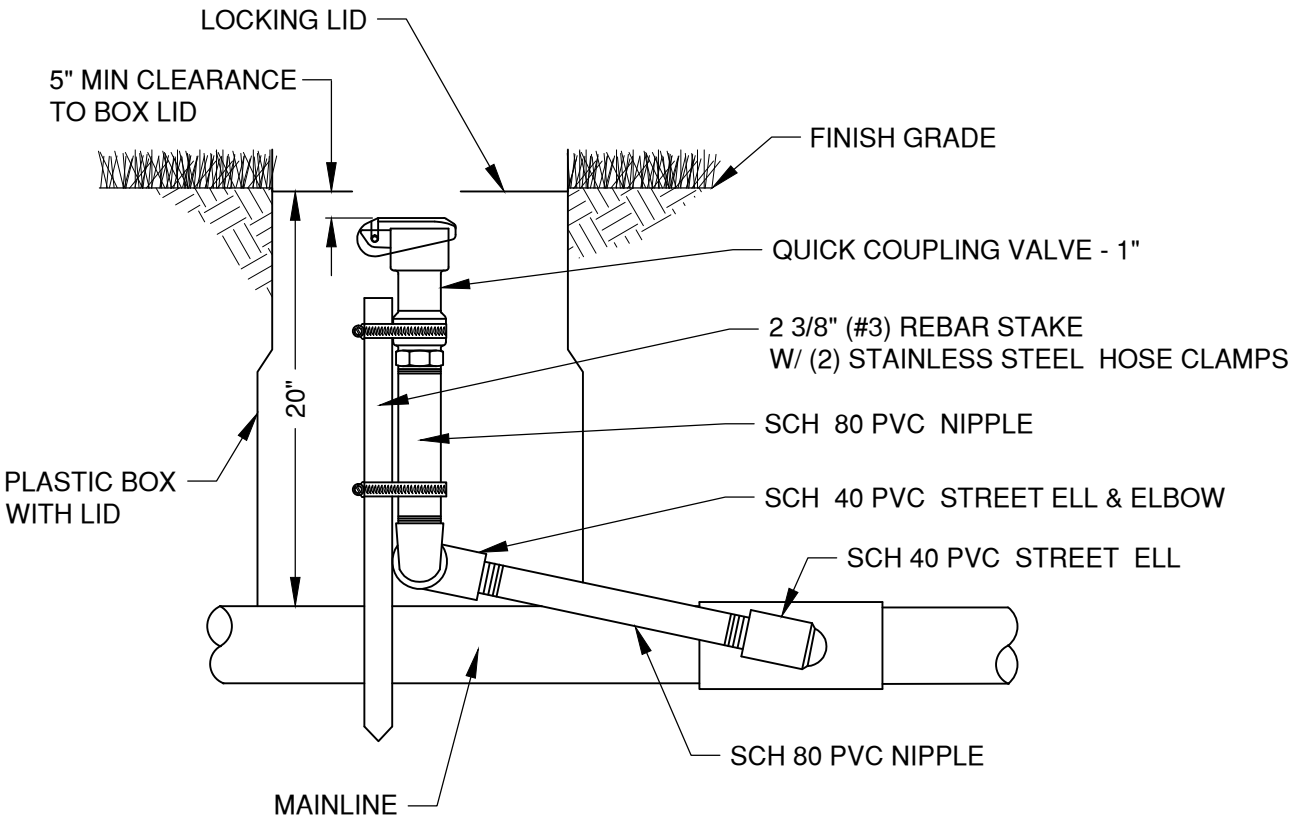




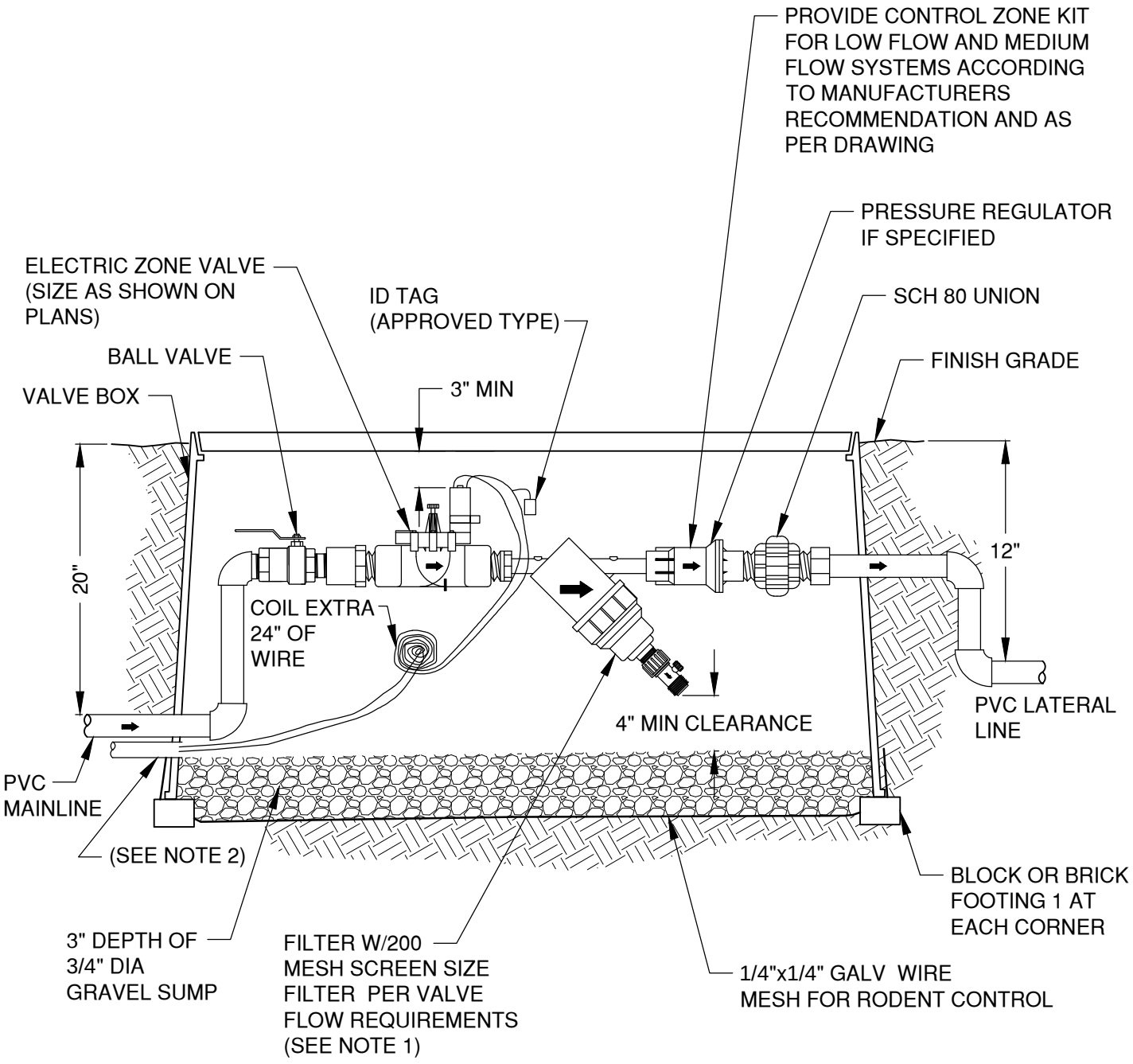
NOTES:

1. PROVIDE ALL THREADED CONNECTIONS WITH A NON-HARDENING, JOINT COMPOUND, COMPATIBLE WITH MANUFACTURERS RECOMMENDATION

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV LNDSCP		STANDARD DRAWING	DATE 12/1/17
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		TERMINATION POINT	STD DWG L-8



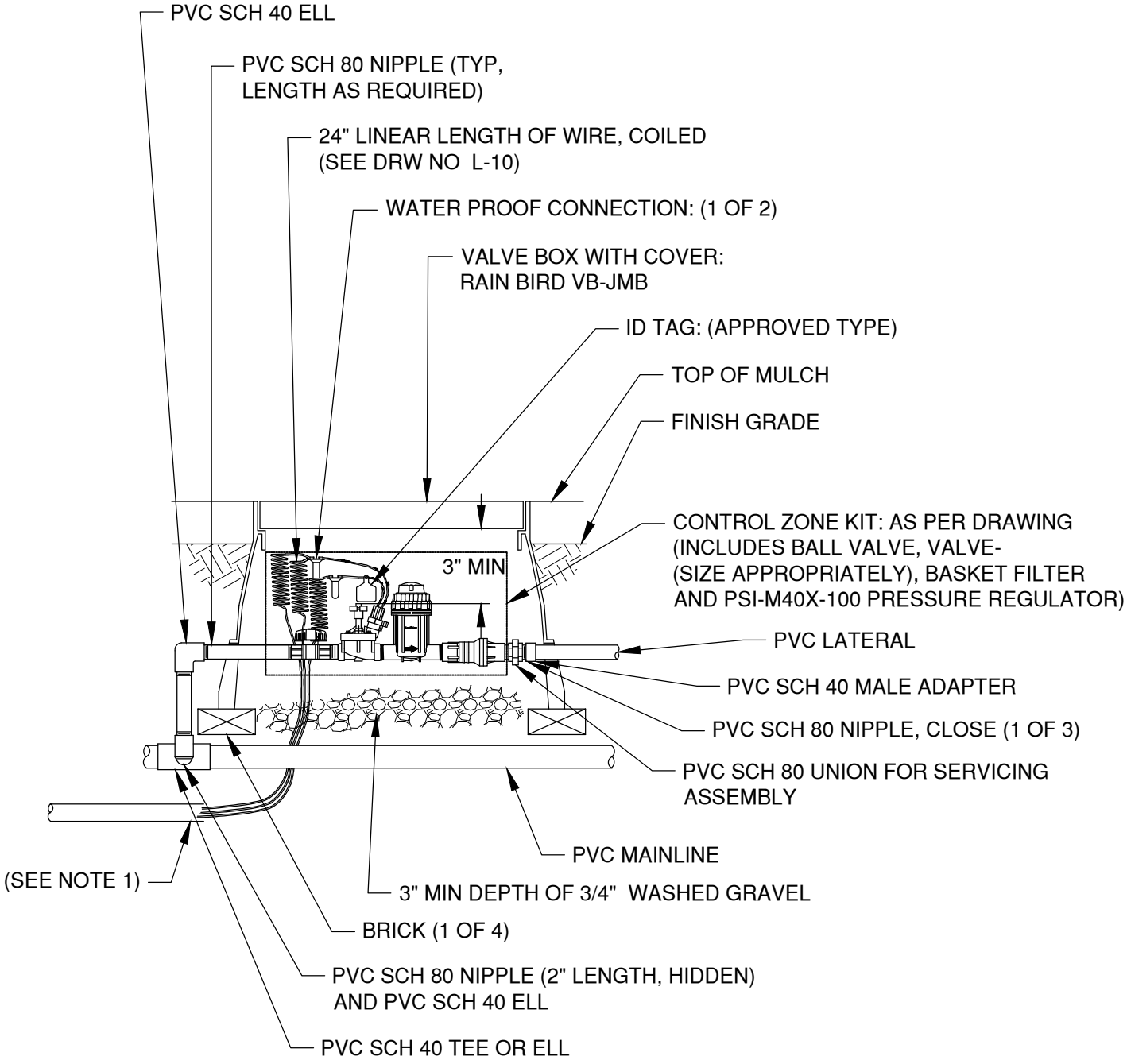
DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV LNDSCP		STANDARD DRAWING	DATE 12/1/17
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		QUICK COUPLING VALVE	STD DWG L-9



NOTES:

1. PROVIDE ADEQUATE SPACE FOR SERVICING THE SYSTEM
2. ALL ELECTRICAL WIRE TO BE INSTALLED IN APPROVED CONDUIT

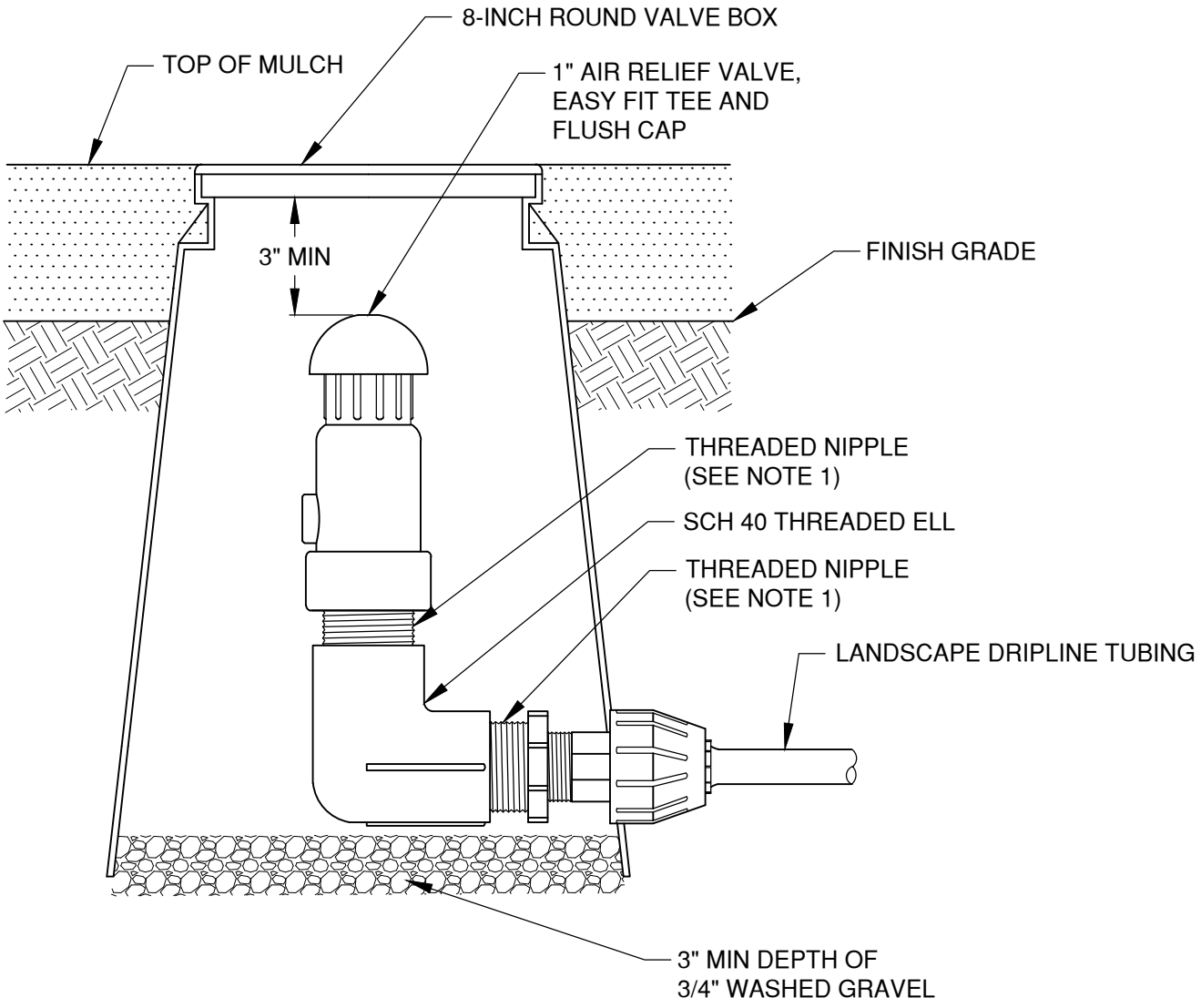
DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV LNDSCP		STANDARD DRAWING	DATE 12/1/17
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		DRIP CONTROL VALVE, FILTER, AND REGULATOR	STD DWG L-10



NOTES:

1. ALL ELECTRICAL WIRE TO BE INSTALLED IN APPROVED CONDUIT

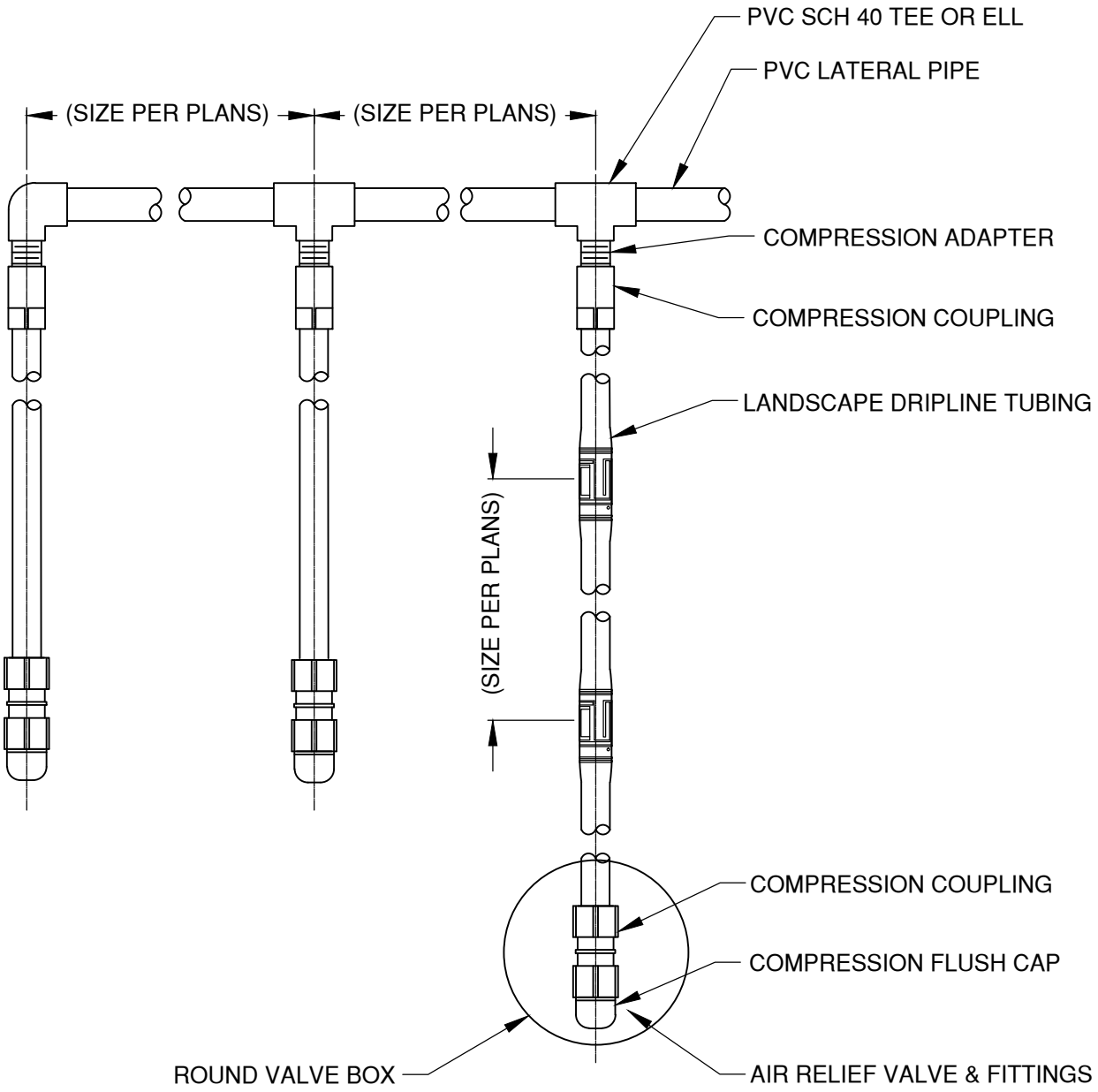
DRAWN LJC DIV LNDSCP REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 1" COMM. CONTROL ZONE KIT WITH BASKET FILTER	SCALE NTS DATE 12/1/17 APPR STD DWG L-12



NOTES:

1. PROVIDE ALL THREADED CONNECTIONS WITH A NON-HARDENING, JOINT COMPOUND, COMPATIBLE WITH MANUFACTURERS RECOMMENDATIONS

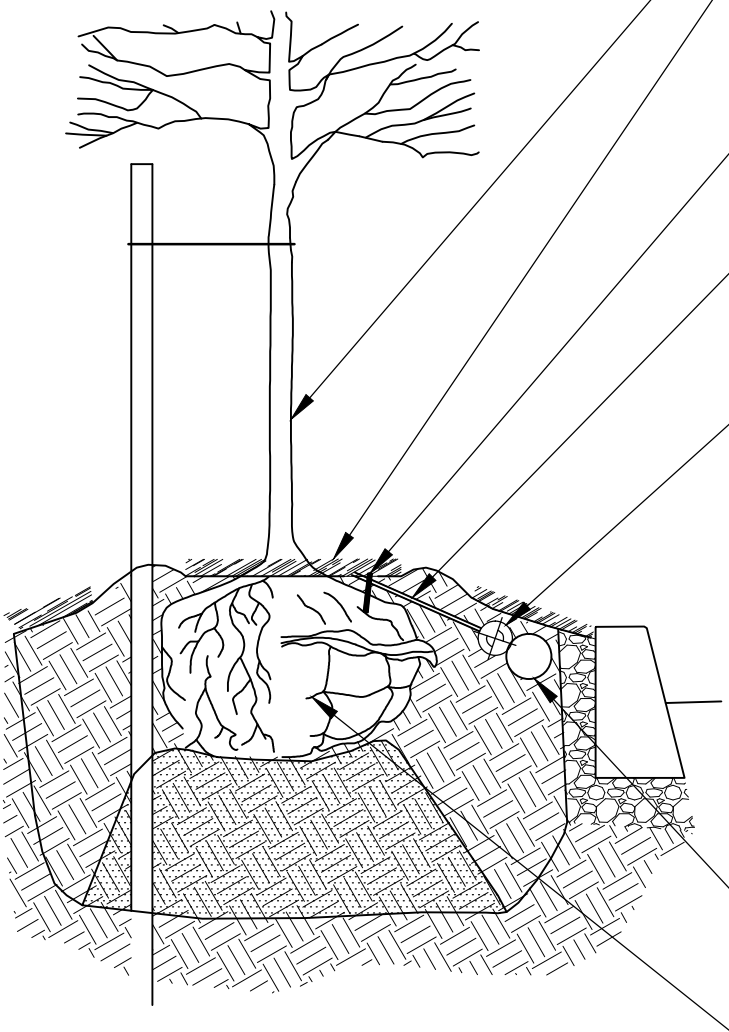
DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV LNDSCP		STANDARD DRAWING	DATE 12/1/17
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		AIR RELIEF VALVE IN KIT - AR VALVE KIT	STD DWG L-13



NOTES:

1. LATERAL AND EMITTER SPACING DEPENDS ON SOIL TYPE, AND PLANT SPECIES.
2. SEE OSS - DET 6110 - PLANTING OR TURF BED DRIP LAYOUT FOR OVERALL SPECIFICATION

DRAWN LJC	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV LNDSCP			DATE 12/1/17
REV / DATE			APPR
		DRIP IRRIGATION MAINLINE LAYOUT	STD DWG L-14



TREE OR SHRUB

MULCH AS SPECIFIED - ABOVE 1/2" DRIP LINE. 1/2" DRIP LINE TO BE LOCATED ON TOP OF FINISHED GRADE AND STAKED UNDERNEATH MULCH

STAKE AT END OF VINYL EMITTER DISTRIBUTION TUBING WITH END OF TUBE ABOVE FINISH GRADE

1/4" VINYL EMITTER DISTRIBUTION TUBING. STAKE AT END OF TUBING NEAR ROOT BALL, WITH 1/4" TUBING STAKE

DRIP EMITTERS PLUGGED INTO POLY DRIPLINE TUBING WITH SELF-PIERCING BARB CONNECTORS AT TREE LOCATIONS. SEE PLAN FOR QUANTITY PER TREE. PROVIDE EMITTERS EVENLY SPACED AROUND TREE OR SHRUB AS SPECIFIED, WITH A MIN OF 2 DISTRIBUTION POINTS PER PLANT

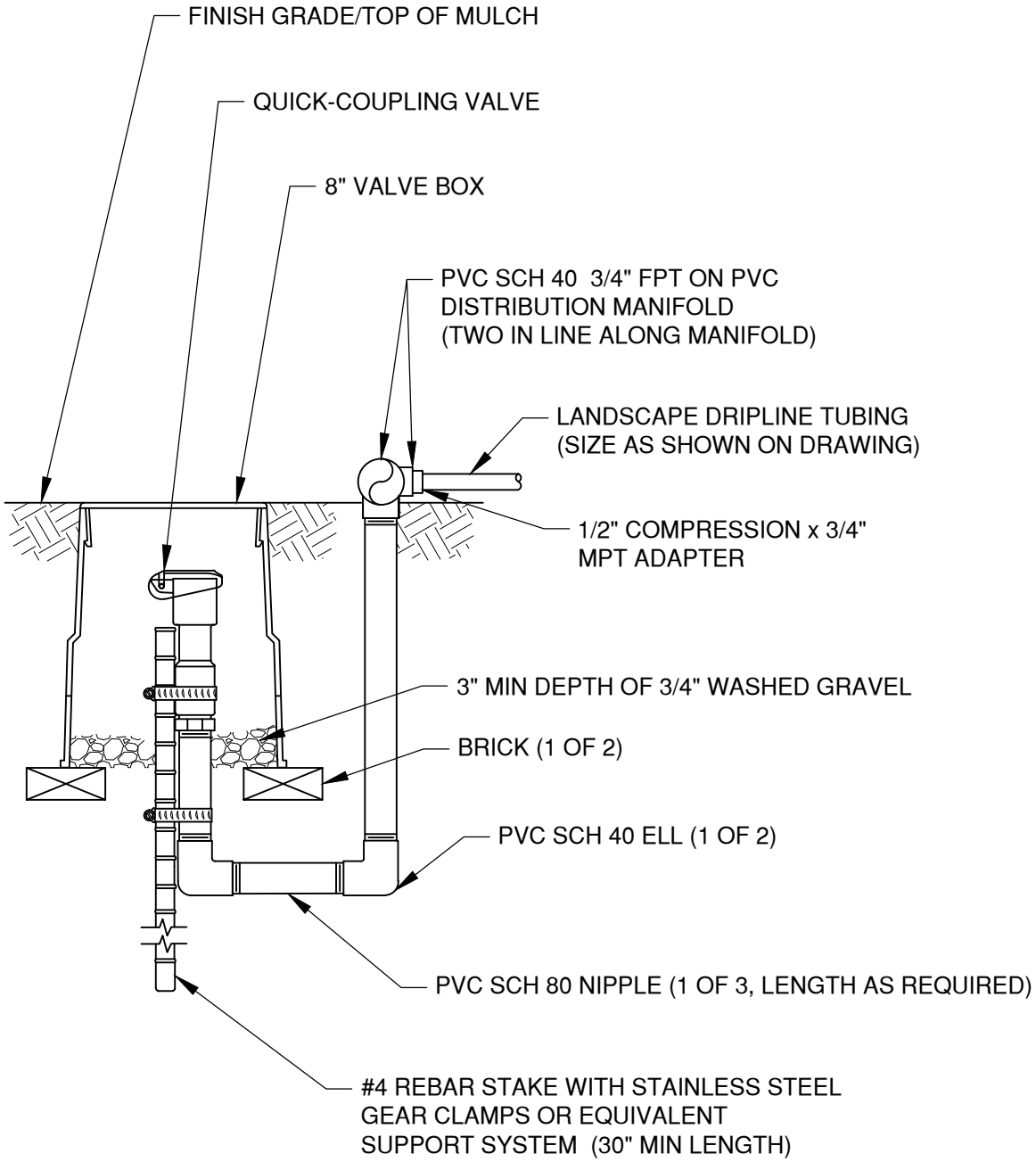
1/2" POLYETHYLENE DRIPLINE TUBING 2" BELOW FINISH GRADE AND STAKED 4' O/C

PLANT ROOTBALL/CONTAINER SOIL

NOTES:

1. USE MANUFACTURERS RECOMMENDED TOOL TO PERFORATE 1/2" POLYETHYLENE TUBING, FOR BARB CONNECTION POINTS OF ENTRY

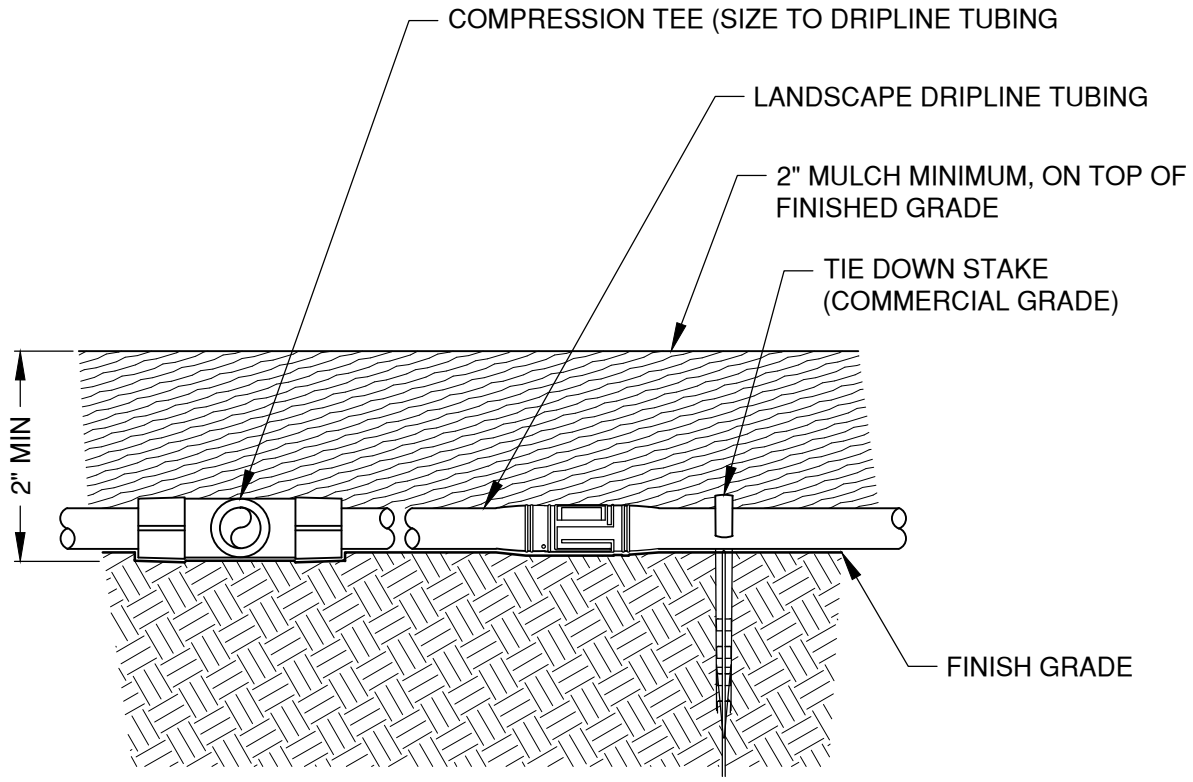
DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV LNDSCP		STANDARD DRAWING	DATE 12/1/17
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		POINT SOURCE DRIP EMITTER	STD DWG L-15



NOTES:

1. FURNISH FITTINGS AND PIPING NOMINALLY SIZED IDENTICAL TO NOMINAL QUICK COUPLING VALVE INLET SIZE

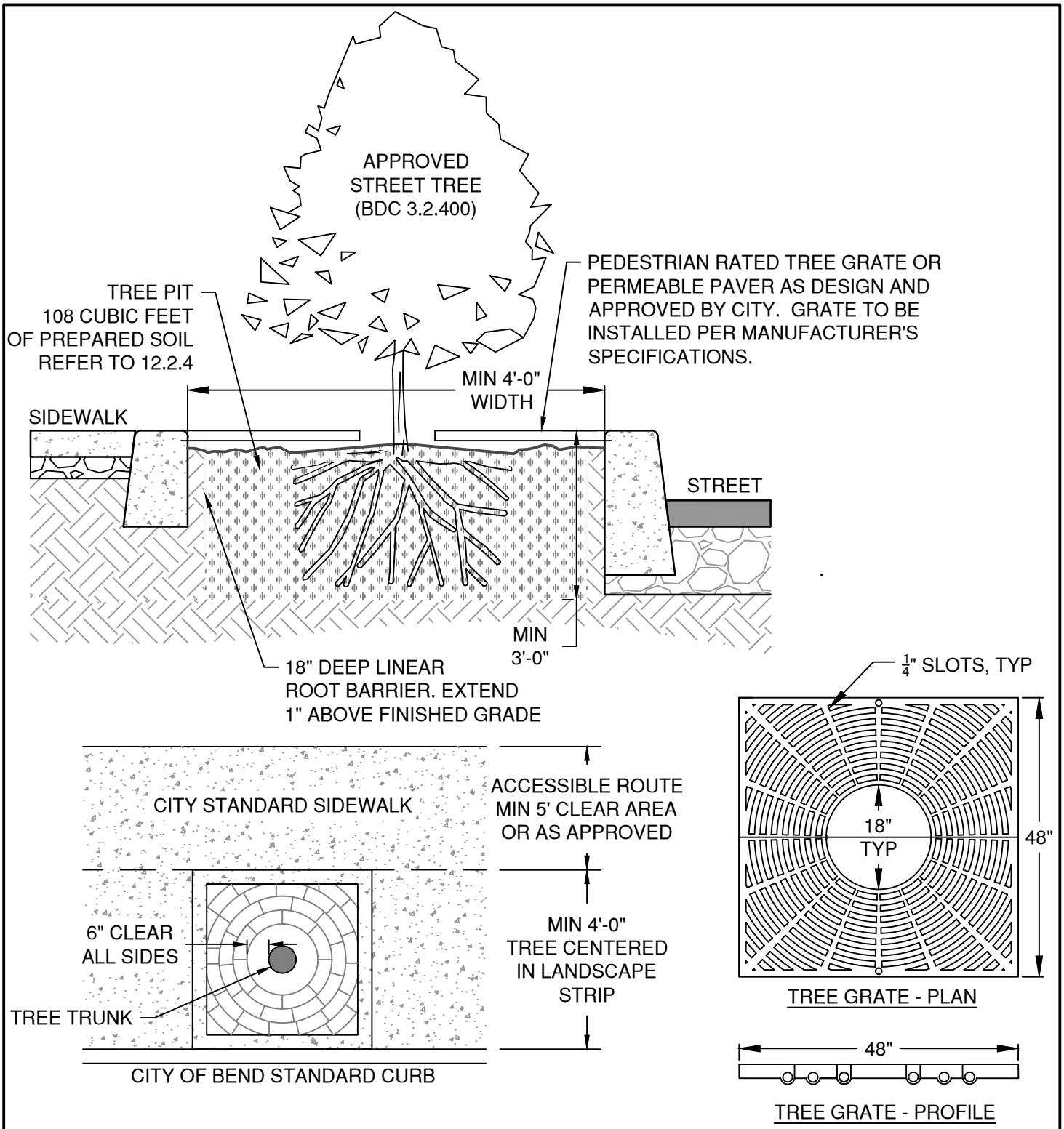
DRAWN LJC DIV LNDSCP REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 LANDSCAPE DRIPLINE FLUSH POINT POTABLE SYSTEM	SCALE NTS DATE 12/1/17 APPR STD DWG L-17



NOTES:

1. IF PUTTING LANDSCAPE DRIPLINE UNDER SOIL, DO NOT BURY MORE THAN 2" BELOW GRADE AND INCLUDE AIR RELIEF VALVE (SEE DRW NO L-13 "AIR RELIEF VALVE KIT-AR VALVE KIT")

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV LNDSCP		STANDARD DRAWING	DATE 12/1/17
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		DRIPLINE 2" BELOW GRADE POTABLE SYSTEM	STD DWG L-19



NOTES:

1. MINIMUM TREE WELL DIMENSIONS DICTATED BY BEND DEVELOPMENT CODE 12.2.4.1.
2. VEGETATION WITHIN THE TREE WELL SHALL HAVE DRIP SYSTEM IRRIGATION INSTALLED PER L-15.
3. TREE GRATE SHALL BE EJ 8954 PLAZA SET, OR APPROVED EQUAL.

DRAWN LJC	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV LNDSCP			DATE 3/31/19
REV / DATE			APPR
		TREE WELL DETAIL	STD DWG L-20