
PART V

City of Bend Standard Drawings

Part V – City of Bend Standard Drawings

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CITY OF BEND STANDARD DRAWINGS

Roadway (R)

GENERAL NOTES FOR STD DWGS R-1A THROUGH R-1H:


- CENTER STREETS IN THE RIGHT-OF-WAY UNLESS OTHERWISE APPROVED BY CITY ENGINEER FOR UNIQUE TRANSITIONS OR SITE CONSTRAINTS.
- THE LEVEL OF TRAFFIC STRESS PER THE ODOT APM CH. 14 IS SHOWN ON EACH STANDARD CROSS-SECTION. MODIFICATION OF THE CROSS-SECTIONS MUST PROVIDE THE APPROPRIATE LTS.
- INSTALL SIDEWALKS/SHARED-USE PATHS PROPERTY TIGHT. SIDEWALKS/SHARED-USE PATHS MAY MEANDER AROUND UTILITIES, TREES, AND OTHER NON-MOVEABLE OBJECTS. EASEMENTS ARE REQUIRED WHERE SIDEWALK/SHARED-USE PATH MEANDERS OUT OF THE RIGHT-OF-WAY.
- PAVEMENT SECTIONS FOR STREETS AND SIDEWALKS PER THE THICKNESSES NOTED IN TABLE BELOW OR AS SPECIFIED IN A STAMPED GEOTECHNICAL REPORT APPROVED BY THE CITY ENGINEER.
- RETAINING WALLS AND STAIRS ARE NOT PERMITTED WITHIN THE RIGHT-OF-WAY UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
- STREET CROSS-SECTION/IMPROVEMENT STANDARDS ARE BASED ON STREET CLASSIFICATION. REFERENCE THE BEND DEVELOPMENT CODE SECTION 3.4 PUBLIC IMPROVEMENTS STANDARDS AND STANDARD CROSS-SECTIONS FOR ADDITIONAL DETAIL.
- THE CROSS-SLOPE OF THE PLANTER STRIP BETWEEN THE CURB AND RIGHT-OF-WAY SHALL NOT BE STEEPER THAN 4H:1V TO PROVIDE A RECOVERABLE ROADSIDE SLOPE. 50H:1V (2%) IS TYPICAL/PREFERRED.
- MAX 1.5H:1V CUT SLOPES PERMITTED IN ROCK CUTS WHEN APPROVED BY A GEOTECHNICAL ENGINEER.
- MASTER PLAN DEVELOPMENTS PER BEND DEVELOPMENT CODE 4.5.100(E)(2)(C) MAY PROPOSE MODIFIED STREET SECTIONS THAT INCLUDE ADDITIONS TO OR ENHANCEMENTS OF THE BASIC MINIMUM STANDARD SECTIONS SHOWN HERE.
- OFF STREET SHARED-USE PATHS (PATHS MEETING THE GENERAL ALIGNMENT OF THE TSP LOW STRESS NETWORK AND ARE MORE THAN 30 FT OUTSIDE OF THE RIGHT-OF-WAY) ARE ENCOURAGED, PARTICULARLY ALONG ARTERIAL STREET CORRIDORS. SIDEWALKS MAY BE REDUCED TO A MINIMUM 6 FT OR ELIMINATED WHEN THE SAME SIDE OF THE ROAD CORRIDOR IS SERVED BY A SHARED-USE PATH DEPENDING ON ADJACENT LAND USE AND PEDESTRIAN/BIKE ACCESS AND WITH CITY ENGINEER APPROVAL.
- TWELVE-FOOT CENTER MEDIAN ON ARTERIAL AND COLLECTOR CROSS-SECTIONS INCLUDES EITHER A STRIPED MEDIAN (TWO-WAY LEFT TURN LANE, DOUBLE YELLOW, AND/OR TURN BAY) OR A NINE-FOOT RAISED REFUGE ISLAND WITH A ONE AND A HALF FOOT SHY LINE STRIPE EACH SIDE AS REQUIRED PER STANDARDS.
- RAISED MEDIANS ARE AT THE CITY ENGINEER'S DISCRETION ON ARTERIALS & COLLECTORS. MEDIAN REFUGE ISLANDS FOR STREET CROSSINGS ON A LOW STRESS ROUTE OR AN ENHANCED CROSSING ON A CONNECTOR ROUTE DO NOT REQUIRE CITY ENGINEER APPROVAL.
- ON-STREET PARKING SPACES ARE NOT STRIPED. IN HIGH PARKING DEMAND AREAS, A PARKING LINE MAY BE USED WITH CITY ENGINEER APPROVAL.
- SEE BEND DEVELOPMENT CODE 3.4.200(F)(3) FOR STREETS AND INTERSECTIONS NOT IDENTIFIED FOR TRAVEL LANE EXPANSION WHERE ADDITIONAL RIGHT-OF-WAY IS NOT REQUIRED FOR VEHICLE TRAVEL LANES.
- PLTS = PEDESTRIAN LEVEL OF TRAFFIC STRESS / BLTS = BICYCLISTS LEVEL OF TRAFFIC STRESS.
- DEVIATIONS FROM THE PAVEMENT SECTIONS PROVIDED IN THE TABLE BELOW REQUIRE A STAMPED GEOTECHNICAL REPORT. PCC ROADWAYS REQUIRE A STAMPED GEOTECHNICAL REPORT.
- SEE CITY SPEC 00744/00745 FOR MAXIMUM AC PAVEMENT LIFT THICKNESS.
- WHERE EXISTING GROUND CROSS SLOPE EXCEEDS 12%, CURB-TIGHT SIDEWALK IS ALLOWED PER DESIGN STANDARD 3.4.7 - HILLSIDE.

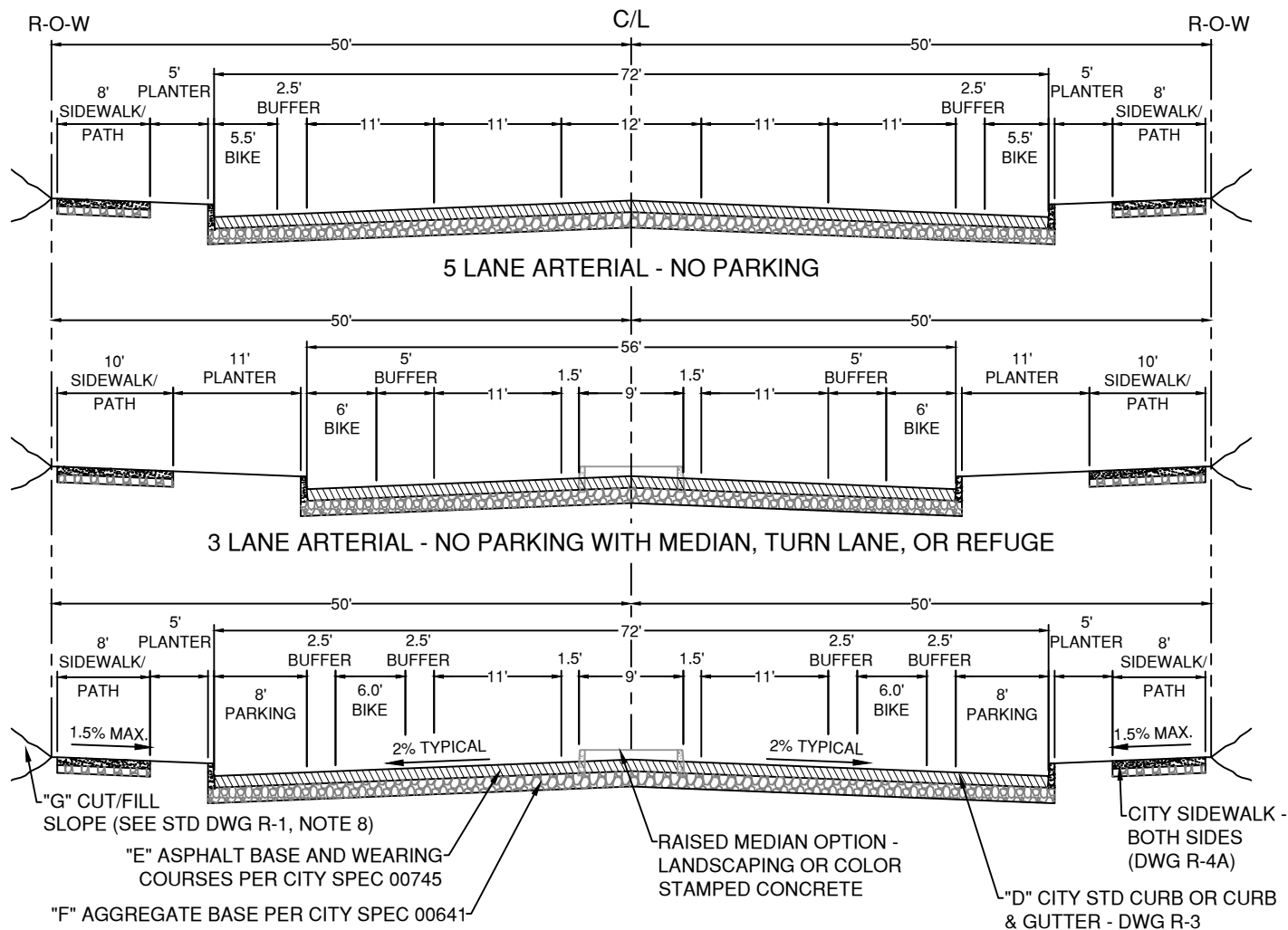
STREET TYPE	"A" ROW	"B" STREET	"C" SIDEWALK	"D" CURB	"E" ACP DEPTH/LEVEL	"F" BASE	"G" CUT/FILL
ARTERIAL	PER R-1A			7"/16"	8" - LEVEL IV	10"	4H:1V
COLLECTOR	PER R-1B & R-1C			6"/14"	6" - LEVEL III	8"	4H:1V
LOCAL	PER R-1D & R-1E			6"/12"	4" - LEVEL III	6"	2H:1V
INDUSTRIAL LOCAL	PER R-1F			6"/12"	4" - LEVEL III	8"	2H:1V
ALLEY	PER R-1G			--	4" - LEVEL III	6"	2H:1V
ROUNDAABOUT - ACP	VARIES	VARIES	VARIES	**	8" - LEVEL IV	10"	4H:1V
ROUNDAABOUT - PCC ***	VARIES	VARIES	VARIES	**	*	*	4H:1V

* THE STANDARD PAVEMENT SECTION FOR ARTERIAL STREETS IS ASPHALT. FOR RECONSTRUCTION, NEW STREETS MORE THAN 1/4 MILE LONG, AND FOR ROUNDAABOUTS, A LIFE CYCLE COST ANALYSIS EVALUATING ASPHALT, PERPETUAL PAVEMENT, CONCRETE, AND OTHER SECTIONS SHALL BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

* CURBS AT ROUNDAABOUTS AND ON SPLITTER ISLANDS SHALL BE HIGH-STRENGTH PER CITY SPEC 00759.13.

*** DOWELING REQUIRED AT ROUNDAABOUT JOINTS

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DIV ROADWAY			DATE 01/31/2022
REV			DATE
		TYPICAL STREET CROSS-SECTIONS - GENERAL NOTES	APPR
			STD DWG R-1



PLTS: 1 ≤ 35 MPH
2 ≥ 40 MPH

BLTS: 1
(SUP)

BLTS: 1 ≤ 30 MPH
(BIKE LANE) 2 = 35 MPH
3 ≥ 40 MPH

ARTERIAL GENERAL NOTES:

- SEE R-1 FOR GENERAL NOTES.
- WHERE PERMITTED BY THE BEND DEVELOPMENT CODE, ON-STREET PARKING MAY BE PROVIDED ON ARTERIAL STREETS WITH SPEEDS 35 MPH OR LESS. ON-STREET PARKING DESIGN PER ENGINEERING STANDARDS.
- PROTECTED BIKE LANES, OTHER THAN PARKING PROTECTED, REQUIRE CITY ENGINEER APPROVAL. PARKING PROTECTED BIKE LANES ALLOWED ON A CASE-BY-CASE BASIS.
- SIDEWALK MAY MEANDER WITH A MINIMUM 5 FT PLANTER STRIP. DESIGN MEANDERING CURVES FOR 10 MPH.
- FOR EXISTING ARTERIAL SECTIONS IN 100 FT RIGHT-OF-WAY WITH 52 FT PAVEMENT WIDTHS, THE CITY ENGINEER MAY APPROVE REDUCING THE BIKE LANE TO 6/2.5 FT TO MATCH THE 52 FT CURB-TO-CURB EXISTING CONSTRUCTED SECTIONS; EXCEPTION DOES NOT APPLY TO SECTIONS (NEW OR RECONSTRUCTED) AT THE OUTER EXTENTS OF THE NETWORK WHERE UNDEVELOPED LAND AND FUTURE EXPANSIONS/RECONSTRUCTIONS CAN ACCOMMODATE THE 56/72 FT PAVEMENT SECTION.
- THE FIVE-LANE ARTERIAL SECTION IS TO BE USED ON 3RD STREET, 27TH STREET SOUTH OF NEFF ROAD, REED MARKET ROAD EAST OF US 97, AND OTHER MAJOR ARTERIAL STREETS AS IDENTIFIED BY A TRAFFIC ANALYSIS WITH CITY ENGINEER APPROVAL (SEE STANDARDS FOR LANE ADDITIONS).
- PARKING IS NOT PERMITTED ON A FIVE LANE ARTERIAL.
- FOR PARKING ON ONE SIDE OF A THREE LANE ARTERIAL, COMBINE THE APPLICABLE HALF STREET SECTIONS FROM THE NO PARKING AND PARKING ON BOTH SIDES TYPICAL SECTIONS. THE ROAD CENTERLINE SHALL REMAIN IN THE CENTER OF ROW TO ALLOW FOR FUTURE EXPANSION.

DRAWN A.J.D.
DIV ROADWAY
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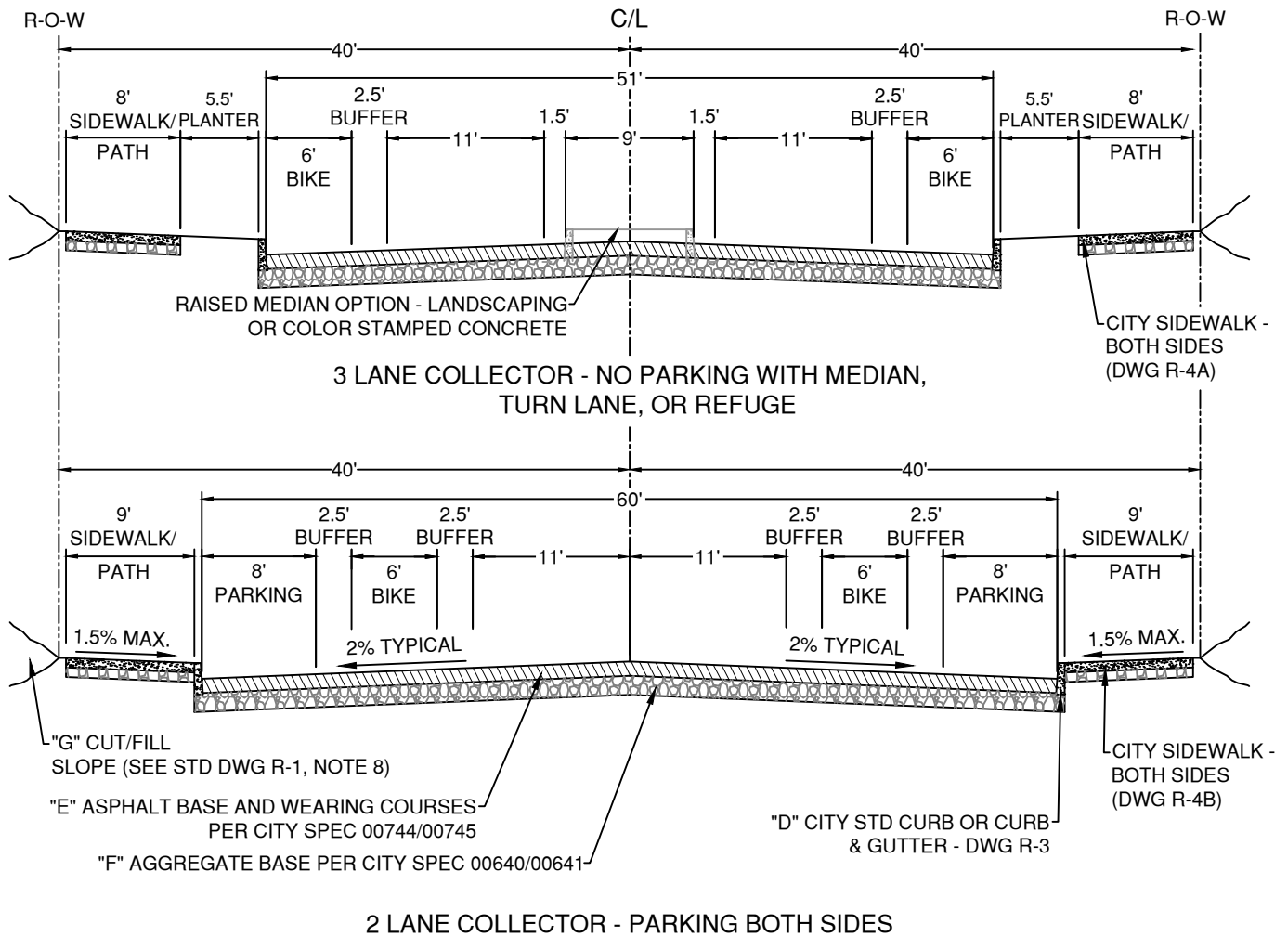
TYPICAL STREET CROSS-SECTIONS - ARTERIAL

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STD DWG R-1A



MAJOR COLLECTOR GENERAL NOTES:

- SEE R-1 FOR GENERAL NOTES.
- WHERE PERMITTED BY THE BEND DEVELOPMENT CODE, ON-STREET PARKING MAY BE PROVIDED ON COLLECTOR STREETS WITH SPEEDS 35 MPH OR LESS. ON-STREET PARKING DESIGN PER ENGINEERING STANDARDS.
- WHERE THE CROSS-SECTION DOES NOT PROVIDE FOR TREES IN A PLANTER STRIP, DEVELOPMENT MUST STILL MEET BEND DEVELOPMENT CODE TREE REQUIREMENTS IN AN ALTERNATE LOCATION ON-SITE OR PROVIDE MITIGATION AND RECEIVE APPROVAL OF A VARIANCE AS REQUIRED BY CODE.
- PROTECTED BIKE LANES, OTHER THAN PARKING PROTECTED, REQUIRE CITY ENGINEER APPROVAL. PARKING PROTECTED BIKE LANES ALLOWED ON A CASE-BY-CASE BASIS.
- SIDEWALK MAY MEANDER WITH A MINIMUM 5 FT PLANTER STRIP. DESIGN MEANDERING CURVES FOR 10 MPH.

DRAWN **AJD**
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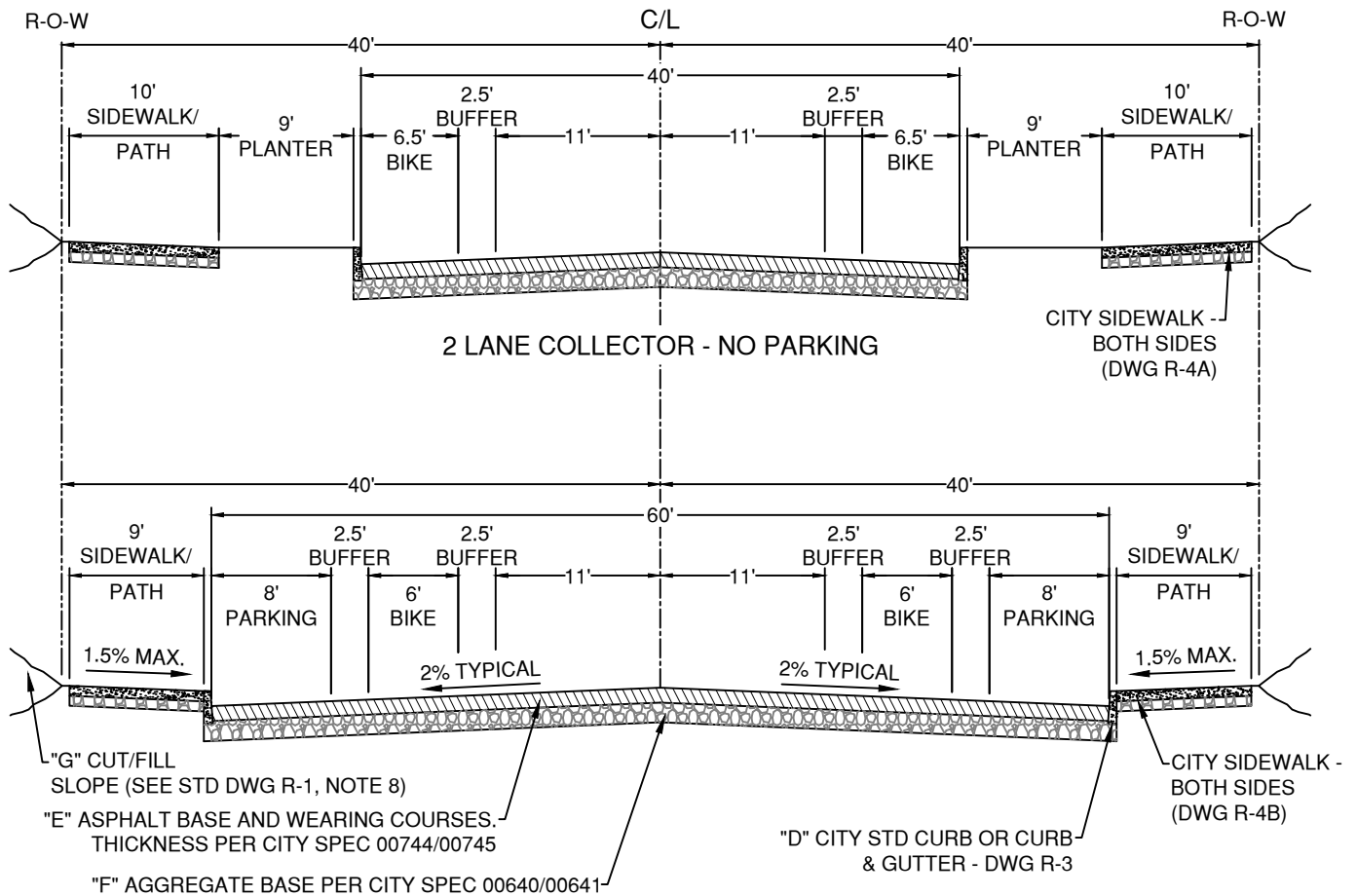
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STD DWG **R-1B**

TYPICAL STREET CROSS-SECTIONS - MAJOR COLLECTOR



2 LANE COLLECTOR - PARKING BOTH SIDES

PLTS: 1 ≤ 35 MPH
2 ≥ 40 MPH

BLTS: 1
(SUP)

BLTS: 1 ≤ 30 MPH
(BIKE LANE) 2 = 35 MPH
3 ≥ 40 MPH

MINOR COLLECTOR GENERAL NOTES:

- SEE R-1 FOR GENERAL NOTES.
- WHERE PERMITTED BY THE BEND DEVELOPMENT CODE, ON-STREET PARKING MAY BE PROVIDED ON COLLECTOR STREETS WITH SPEEDS 35 MPH OR LESS. ON-STREET PARKING DESIGN PER ENGINEERING STANDARDS.
- WHERE THE CROSS-SECTION DOES NOT PROVIDE FOR TREES IN A PLANTER STRIP, DEVELOPMENT MUST STILL MEET BEND DEVELOPMENT CODE TREE REQUIREMENTS IN AN ALTERNATE LOCATION ON-SITE OR PROVIDE MITIGATION AND RECEIVE APPROVAL OF A VARIANCE AS REQUIRED BY CODE.
- PROTECTED BIKE LANES, OTHER THAN PARKING PROTECTED, REQUIRE CITY ENGINEER APPROVAL. PARKING PROTECTED BIKE LANES ALLOWED ON A CASE-BY-CASE BASIS.
- SIDEWALK MAY MEANDER WITH A MINIMUM 5 FT PLANTER STRIP. DESIGN MEANDERING CURVES FOR 10 MPH.
- FOR PARKING ON ONE SIDE, COMBINE THE APPLICABLE HALF STREET SECTIONS FROM THE NO PARKING AND PARKING ON BOTH SIDES TYPICAL SECTIONS. THE ROAD CENTERLINE SHALL REMAIN IN THE CENTER OF ROW TO ALLOW FOR FUTURE EXPANSION.

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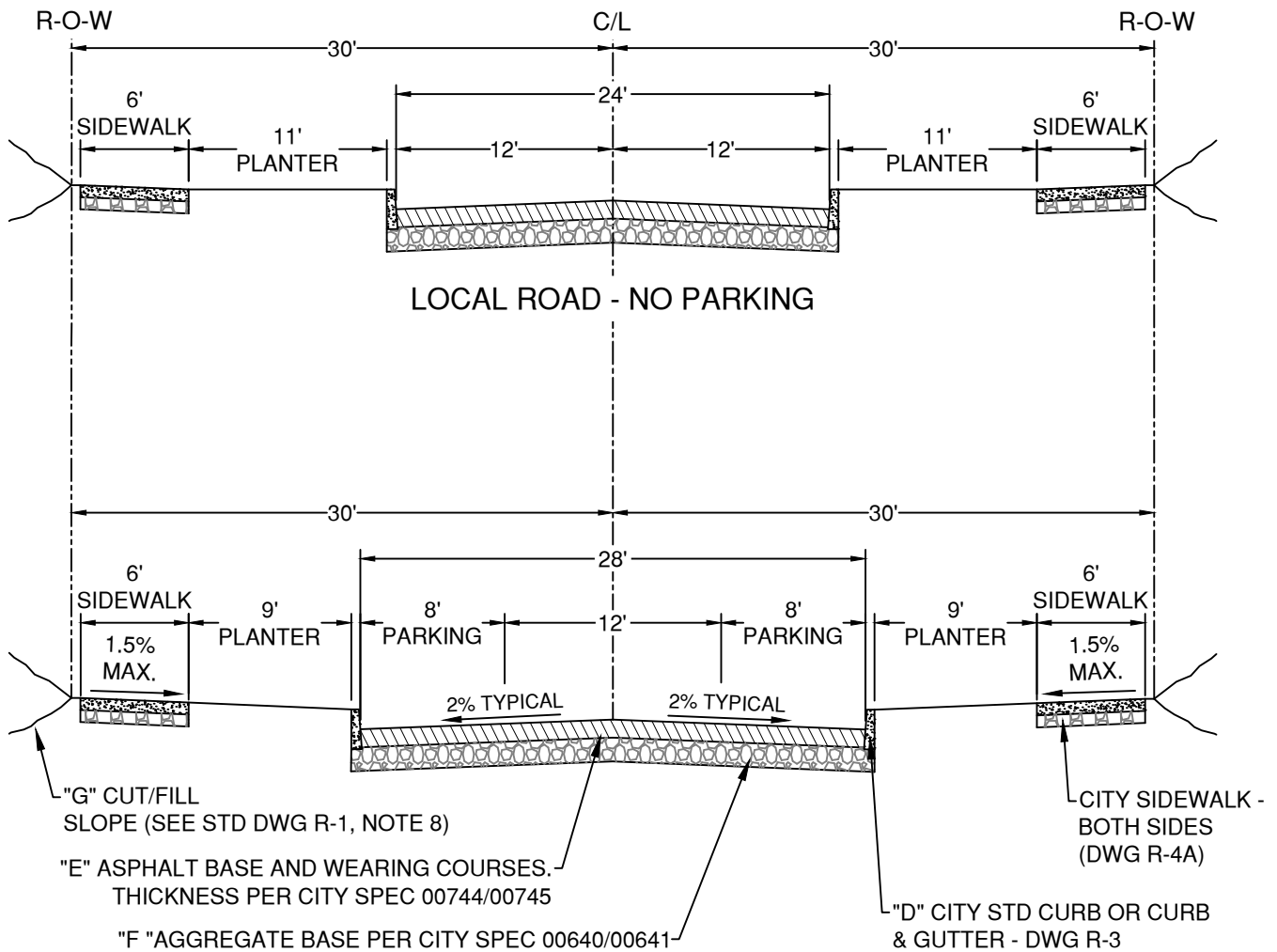
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STD DWG R-1C

TYPICAL STREET CROSS-SECTIONS - MINOR COLLECTOR



PLTS:1 BLTS:1
2 (STRIPED CENTERLINE)

LOCAL ROAD GENERAL NOTES:

1. SEE R-1 FOR GENERAL NOTES
2. UTILITY EASEMENTS MAY BE REQUIRED FOR PEDESTALS, TRANSFORMERS, ETC.
3. LOCAL ROADS WITH TRAVEL LANES LESS THAN 10' IN EACH DIRECTION ARE CONSIDERED QUEUING STREETS. SEE DESIGN STANDARDS SECTION 3.4.2.2 FOR APPROPRIATE QUEUING STREET APPLICATIONS.

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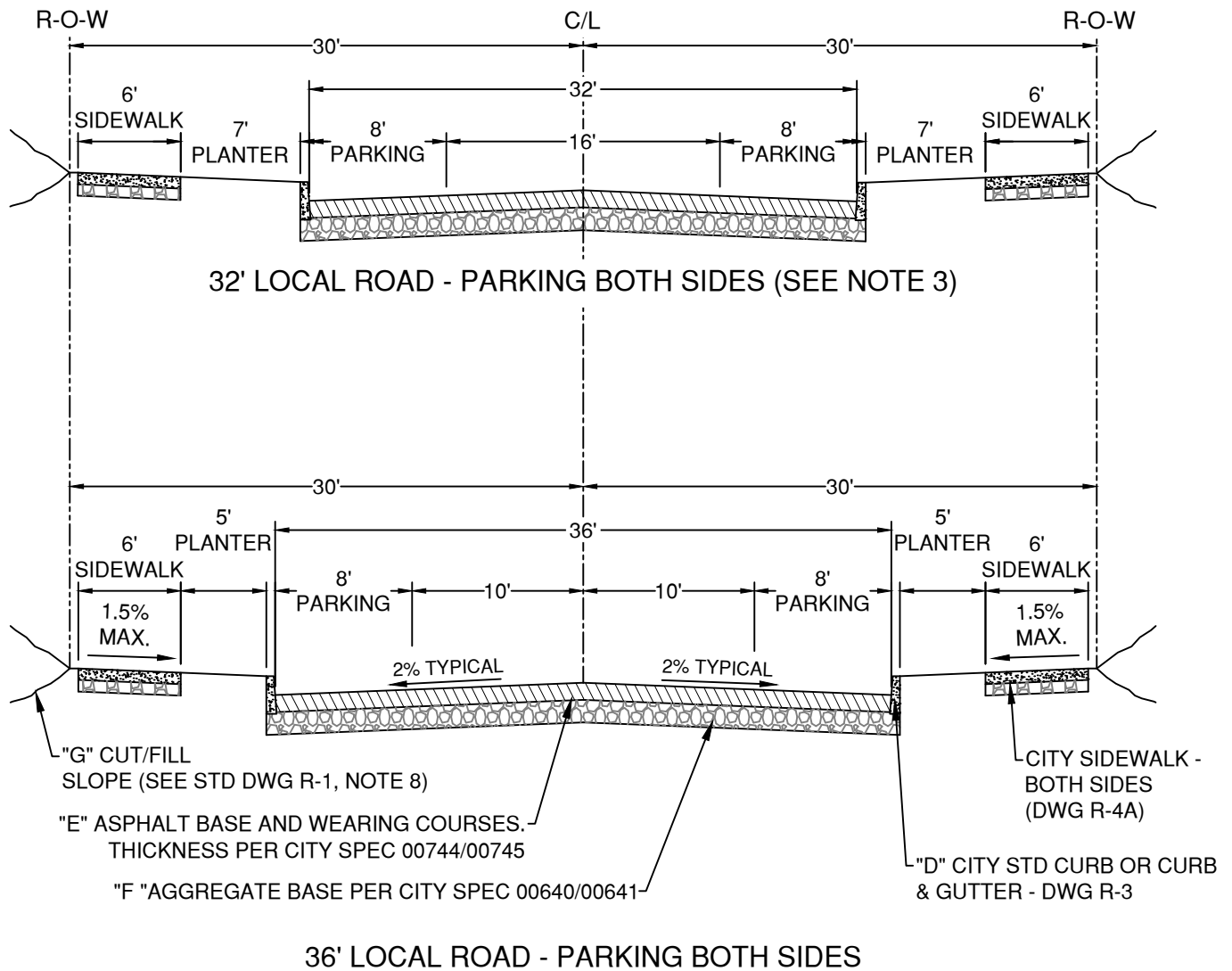
TYPICAL STREET CROSS-SECTION - LOCAL

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STD DWG **R-1D**



LOCAL ROAD GENERAL NOTES:

1. SEE R-1 FOR GENERAL NOTES
2. UTILITY EASEMENTS MAY BE REQUIRED FOR PEDESTALS, TRANSFORMERS, ETC.
3. LOCAL ROADS WITH TRAVEL LANES LESS THAN 10' IN EACH DIRECTION ARE CONSIDERED QUEUING STREETS. SEE DESIGN STANDARDS SECTION 3.4.2.2 FOR APPROPRIATE QUEUING STREET APPLICATIONS.

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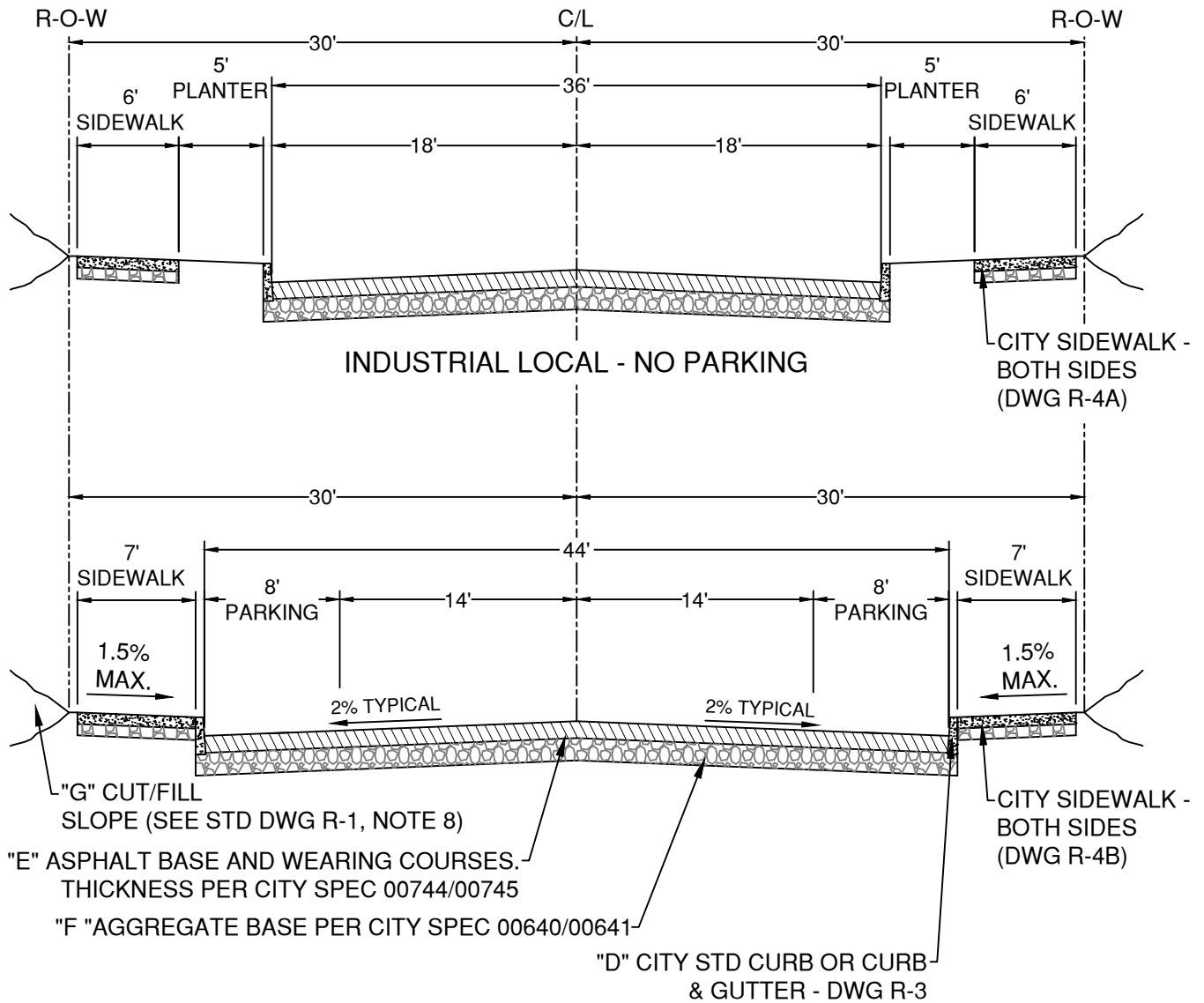
TYPICAL STREET CROSS-SECTION - LOCAL

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DATE **01/31/2022**

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STD DWG **R-1E**



PLTS:1 BLTS:1
2 (STRIPED CENTERLINE)

LOCAL ROAD GENERAL NOTES:

1. SEE R-1 FOR GENERAL NOTES
2. THE SIDE PARKING IS ON MAY ALTERNATE BY BLOCK. PROVIDE PARKING NEXT TO PARKS, SCHOOLS, AND OTHER ACTIVITY GENERATING LAND USES.
3. UTILITY EASEMENTS MAY BE REQUIRED FOR PEDESTALS, TRANSFORMERS, ETC.
4. FOR PARKING ON ONE SIDE, COMBINE THE APPLICABLE HALF STREET SECTIONS FROM THE NO PARKING AND PARKING ON BOTH SIDES TYPICAL SECTIONS. THE ROAD CENTERLINE SHALL REMAIN IN THE CENTER OF ROW TO ALLOW FOR FUTURE EXPANSION.

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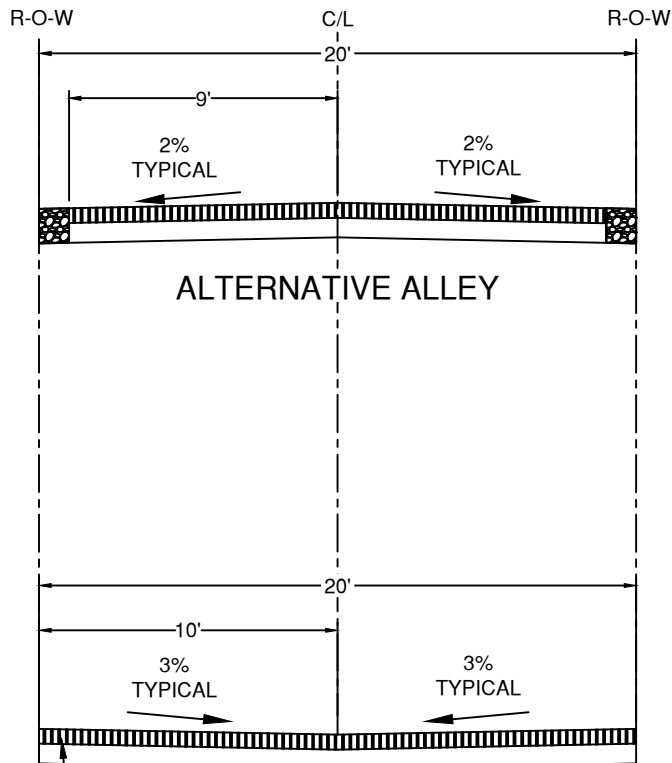
TYPICAL STREET CROSS-SECTION - INDUSTRIAL LOCAL

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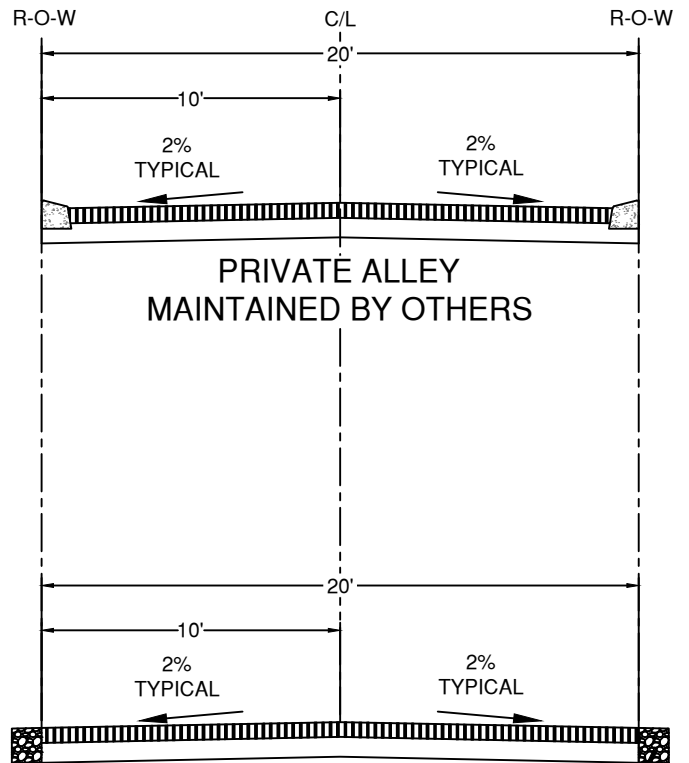
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STD DWG R-1F



ALTERNATIVE ALLEY

ASPHALT BASE AND WEARING COURSES.
THICKNESS PER "E" IN TABLE ON STD
DWG R-1 AND PER CITY SPEC 00744



STANDARD ALLEY

AGGREGATE BASE PER "F" IN
TABLE ON STD DWG R-1 AND
PER CITY SPEC 00640

ALLEY GENERAL NOTES:

1. SEE R-1 FOR GENERAL NOTES.
2. NEW ALLEY RIGHT-OF-WAY AND PAVED WIDTH WILL BE 20' WIDE. WHERE ALLEYS ARE INSTALLED IN EXISTING RIGHT-OF-WAY, THE PAVED WIDTH MAY BE UP TO 2 FEET LESS THAN THE RIGHT-OF-WAY WIDTH. 1-FOOT WIDE BUFFERS ON EACH SIDE OF THE ALLEY MAY BE LEFT UNPAVED WHEN ALLEYS ARE INSTALLED IN EXISTING RIGHT-OF-WAY.
3. SURFACE RESTORATION OF TRANSVERSE TRENCHING WILL NOT REQUIRE ASPHALT IF THE EXISTING ALLEY IS UNPAVED. RESTORE SURFACE TO MATCH EXISTING.

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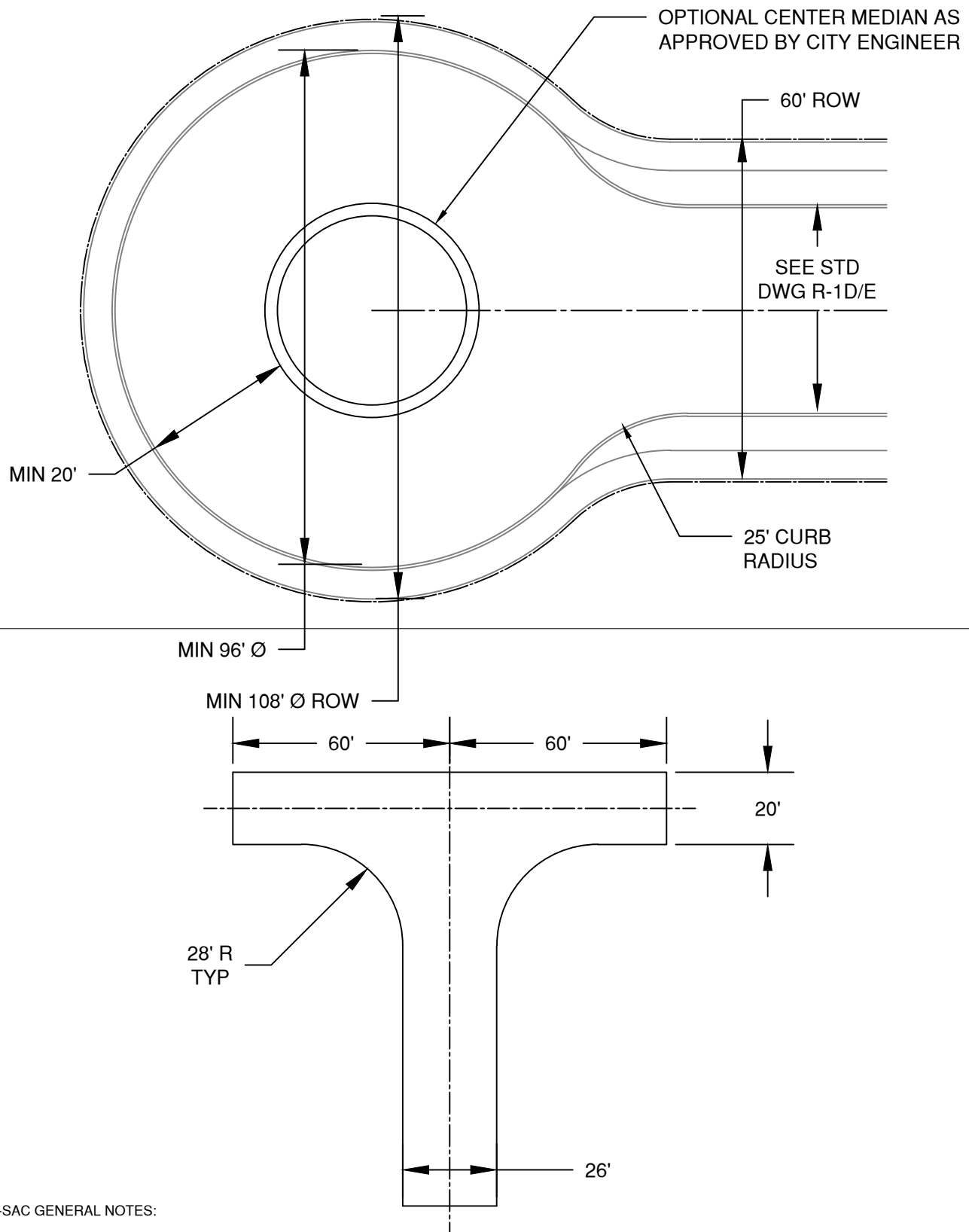
TYPICAL STREET SECTION - ALLEY

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STD DWG R-1G



CUL-DE-SAC GENERAL NOTES:

1. SEE R-1 FOR GENERAL NOTES.
2. SEE STD DWG R-1 AND R-1D/E FOR PAVEMENT AND BASE AGGREGATE DEPTHS ON LOCAL ROADS

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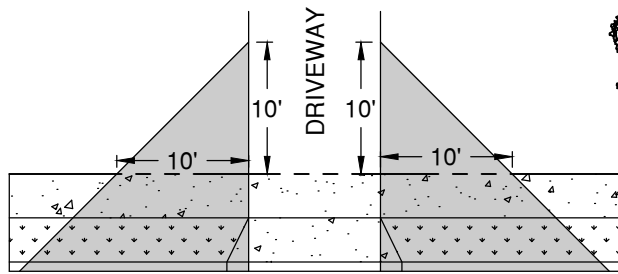
TYPICAL STREET DEAD-END TURNAROUND

SCALE NTS

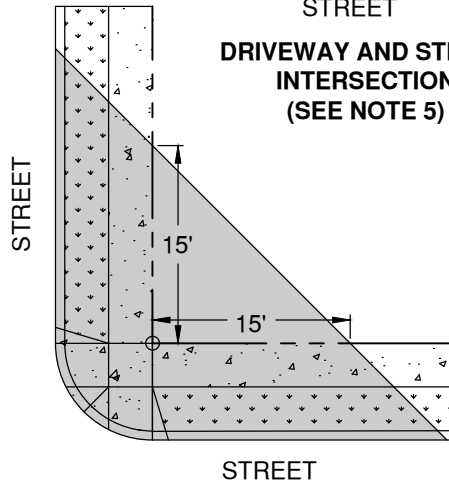
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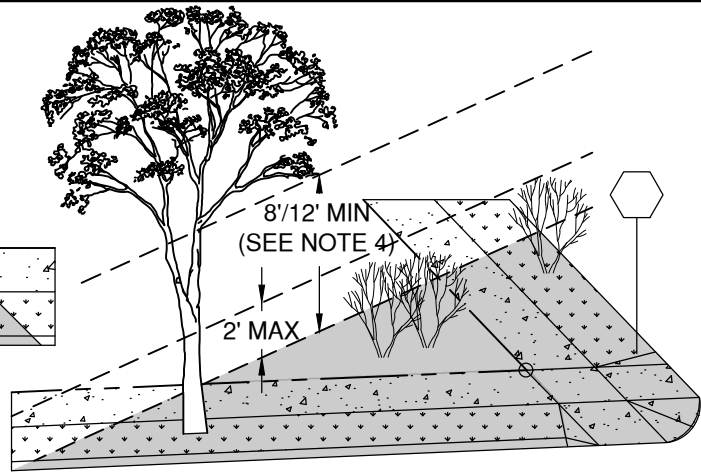
STD DWG R-1H



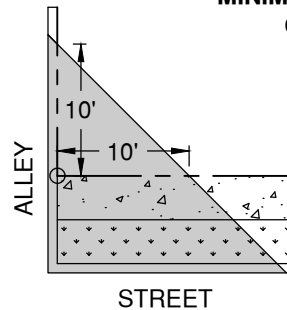
DRIVEWAY AND STREET INTERSECTION
(SEE NOTE 5)



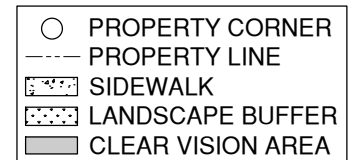
STREET/STREET INTERSECTION



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



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 OR INSTALLATION OF COMMUNICATION TOWERS AND TRANSFORMERS, ARE NOT PERMITTED WITHIN THE CLEAR VISION AREA. EXISTING TREES MUST BE 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 DESIGN DOES NOT INCLUDE SPACES 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 AJD
DIV ROADWAY
REV DATE



CITY OF BEND

CITY OF BEND

STANDARD DRAWING

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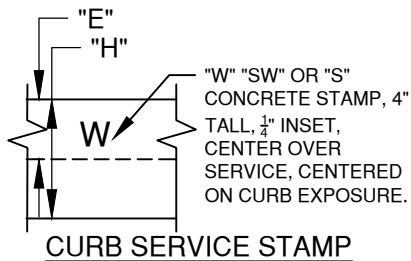
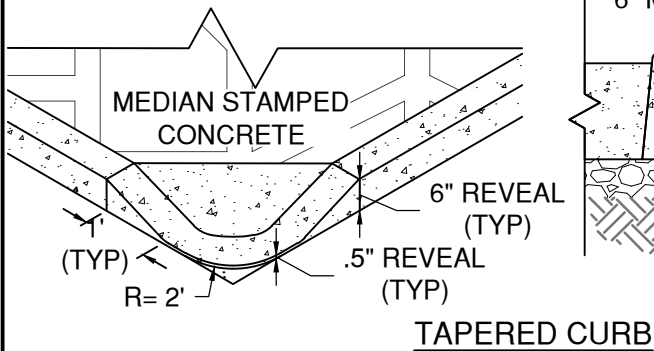
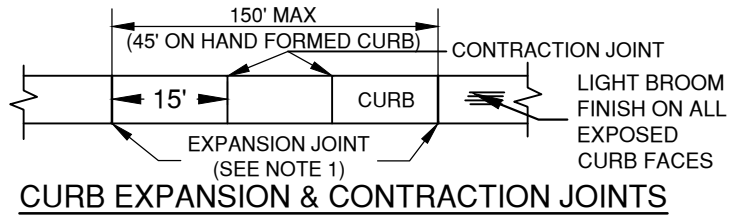
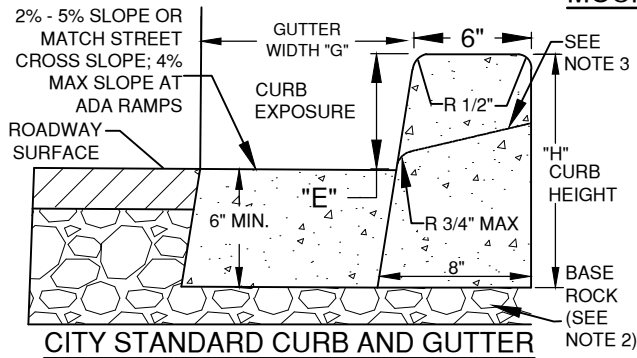
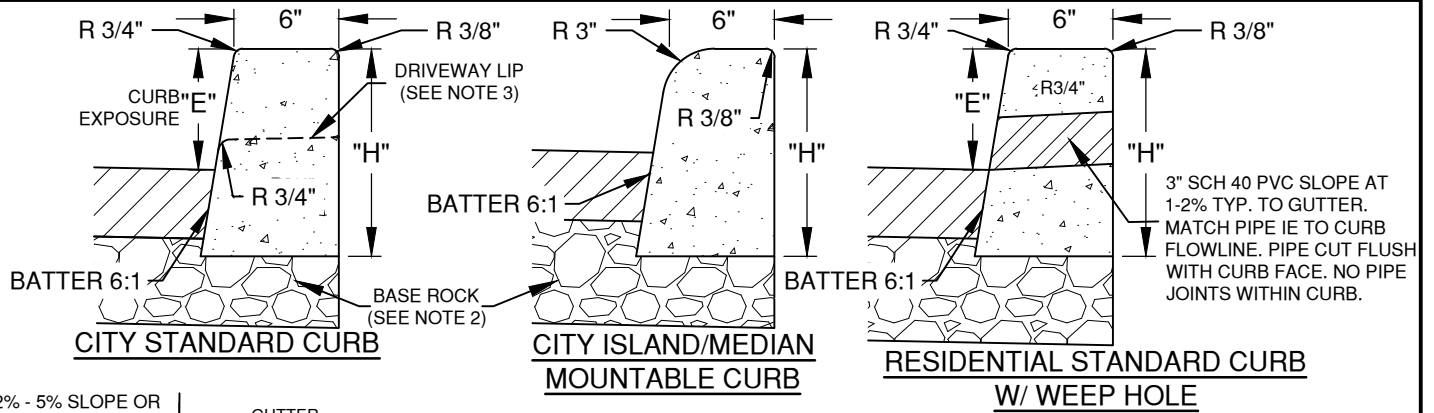
CLEAR VISION AREAS AT INTERSECTIONS

SCALE NTS

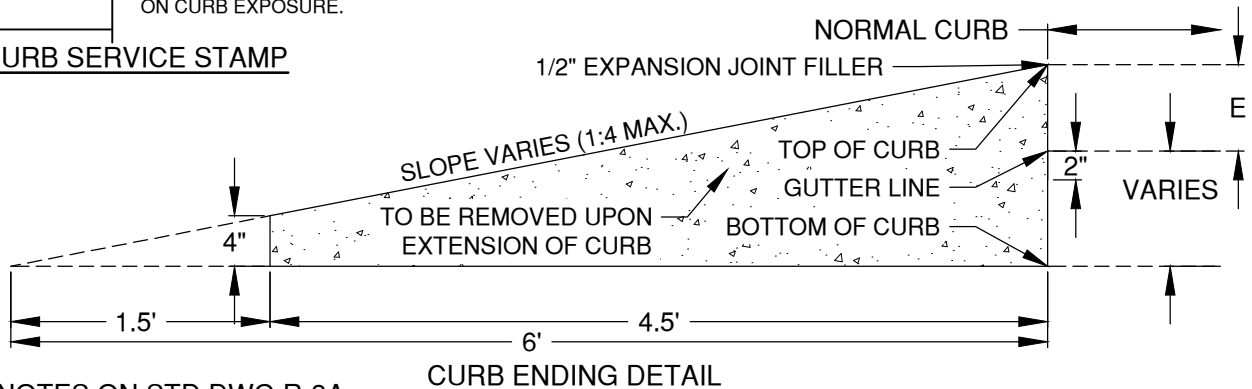
DATE 01/31/2022

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STD DWG R-2



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



SEE NOTES ON STD DWG R-3A

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 DIV ROADWAY
 REV DATE



CITY OF BEND

CITY OF BEND
 STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

CONCRETE CURB

SCALE NTS


DATE 01/31/2022

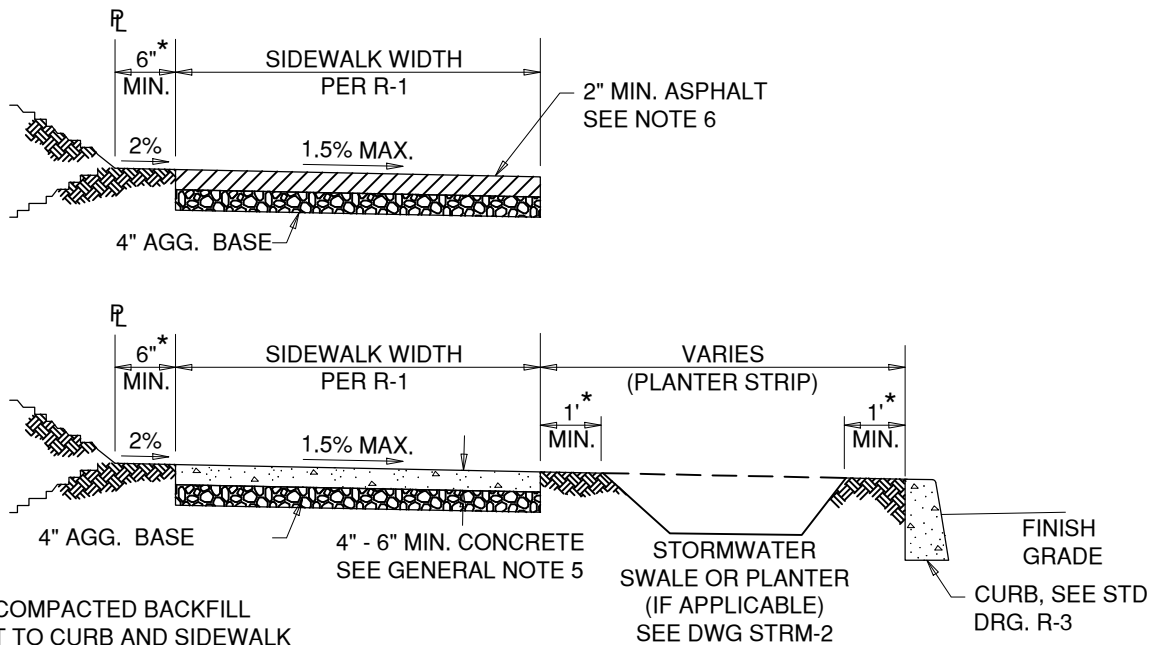
APPR

STD DWG R-3

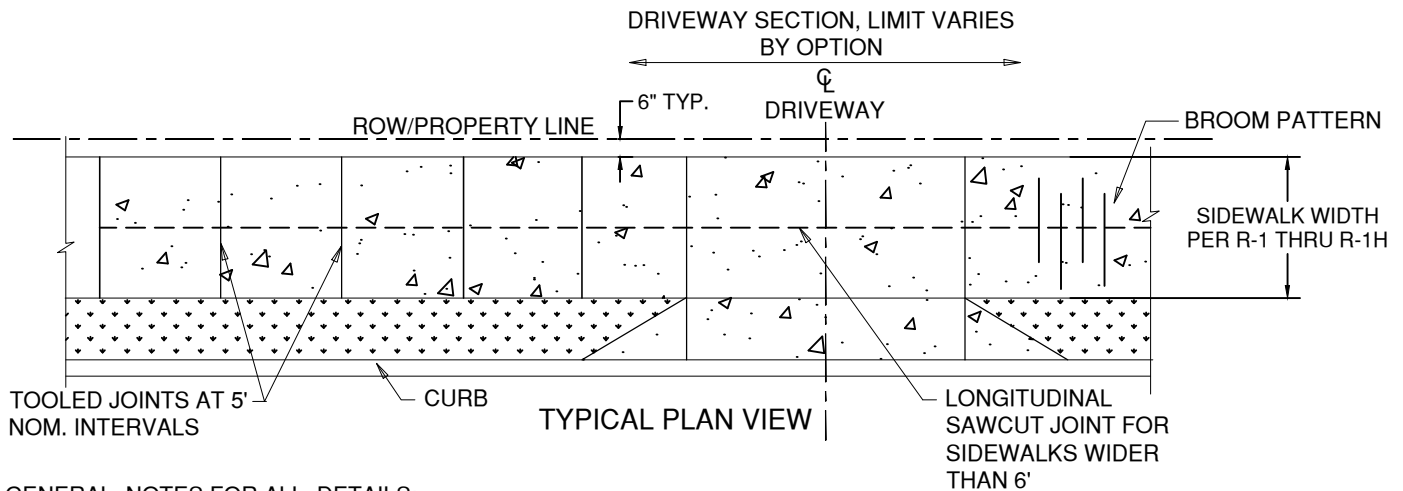
NOTES FOR STD DWG R-3:

1. EXPANSION JOINTS REQUIRED AT END OF RADII, DRIVEWAY APRONS, POINTS OF CURVATURE, AND NO GREATER THAN 150' MAXIMUM.
2. AGGREGATE BASE SHALL CONFORM TO SPECIFICATION SECTION 00640/00641. DEPTH AS REQUIRED TO MATCH BOTTOM OF STREET SECTION, 4" MIN.
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
5. CURB AND GUTTER MAY BE REQUIRED WHEN GUTTER SLOPE IS BETWEEN 0.5% - 0.75%.
6. WEEP HOLE CURBS ON RESIDENTIAL STREETS ONLY WHERE APPROVED. SIDEWALK CANNOT BE PLACED CURB TIGHT WITH WEEP HOLES. SEE R-4A AND STRM-18.
7. CONCRETE MATERIAL AND PLACEMENT SHALL CONFORM TO SPECIFICATION SECTION 00759.
8. LOCATE TAPERED CURB ON DOWNSTREAM SIDE OF PEDESTRIAN REFUGE IN CENTER MEDIAN CURB RAMPS TO PROTECT FROM SNOW PLOW DAMAGE.

DRAWN AJD			CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV ROADWAY				DATE 01/31/2022
REV	DATE			APPR
		CITY OF BEND	CONCRETE CURB NOTES	STD DWG R-3A



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 BARRIERS (UTILITIES, SIGNS, ETC.) OR PER DESIGN STANDARD SECTION 3.4.7 - HILLSIDE.
2. 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.
3. CONST. CONTRACTION JOINTS AT 5' MAXIMUM SPACING, AND AT ENDS OF EACH RAMP.
4. FOR DRIVEWAY DETAILS, SEE STD. DRGS. R-5A THROUGH R-5E.
5. SIDEWALK THICKNESS MINIMUM 4" THICK, TYPICAL. MINIMUM 6" THICK IF SIDEWALK IS INTENDED AS PORTION OF DRIVEWAY, CURB RAMP, OR ADJACENT TO MOUNTABLE CURB.
6. ASPHALT SHARED-USE PATH WHERE APPROVED BY THE ENGINEER.

DRAWN A.J.D.
DIV. ROADWAY
REV. DATE



CITY OF BEND

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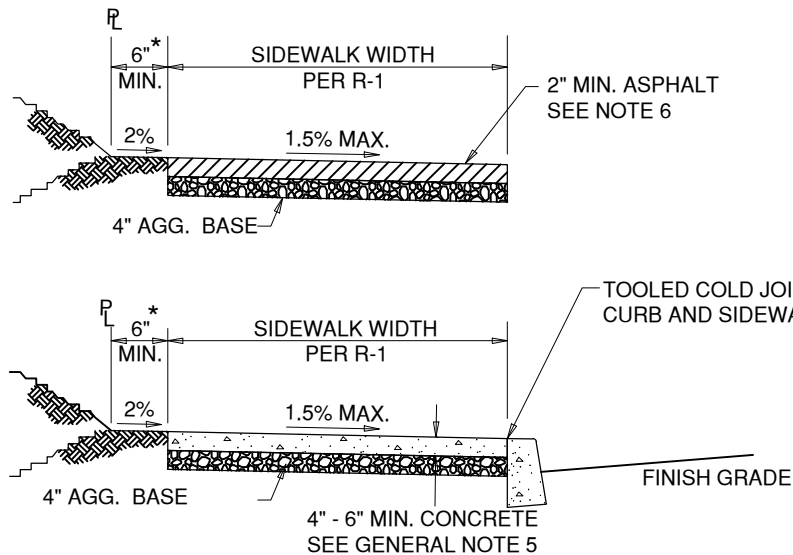
SHARED-USE PATH/SIDEWALK, SETBACK

SCALE NTS

DATE 01/31/2022

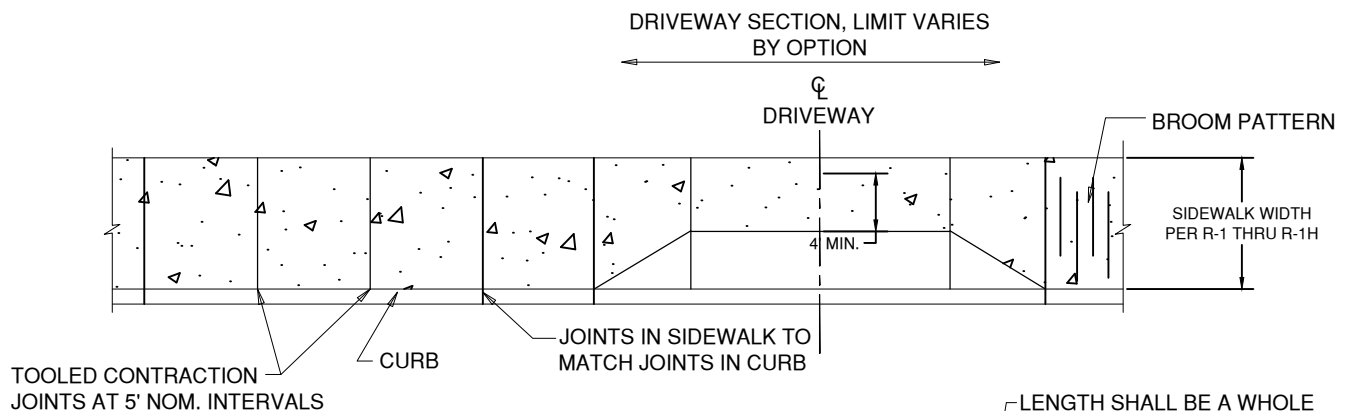
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STD DWG R-4A

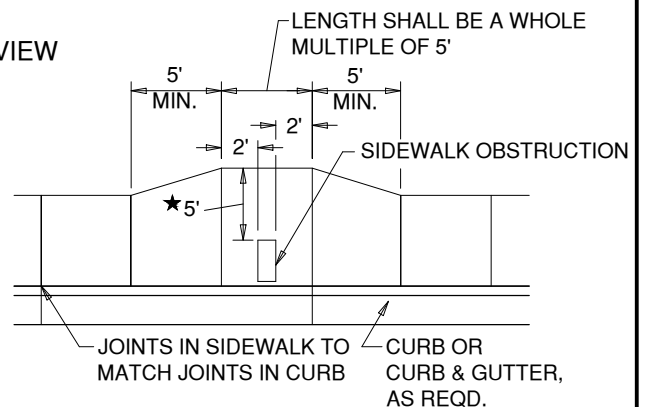


* PROVIDE COMPACTED BACKFILL
ADJACENT TO CURB AND SIDEWALK

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. 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.
3. CONST. CONTRACTION JOINTS AT 5' MAXIMUM SPACING, AND AT ENDS OF EACH RAMP.
4. FOR DRIVEWAY DETAILS, SEE STD. DRGS. R-5A THROUGH R-5E.
5. SIDEWALK THICKNESS MINIMUM 4" THICK, TYPICAL. MINIMUM 6" THICK IF SIDEWALK IS PORTION OF DRIVEWAY, CURB RAMP, OR ADJACENT TO MOUNTABLE CURB.
6. ASPHALT SHARED-USE PATH WHERE APPROVED BY THE ENGINEER.

DRAWN A.J.D.
DIV. ROADWAY
REV. DATE



CITY OF BEND

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STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

SHARED-USED PATH/SIDEWALK, CURB-TIGHT

SCALE NTS

DATE 01/31/2022

APPR

STD DWG R-4B

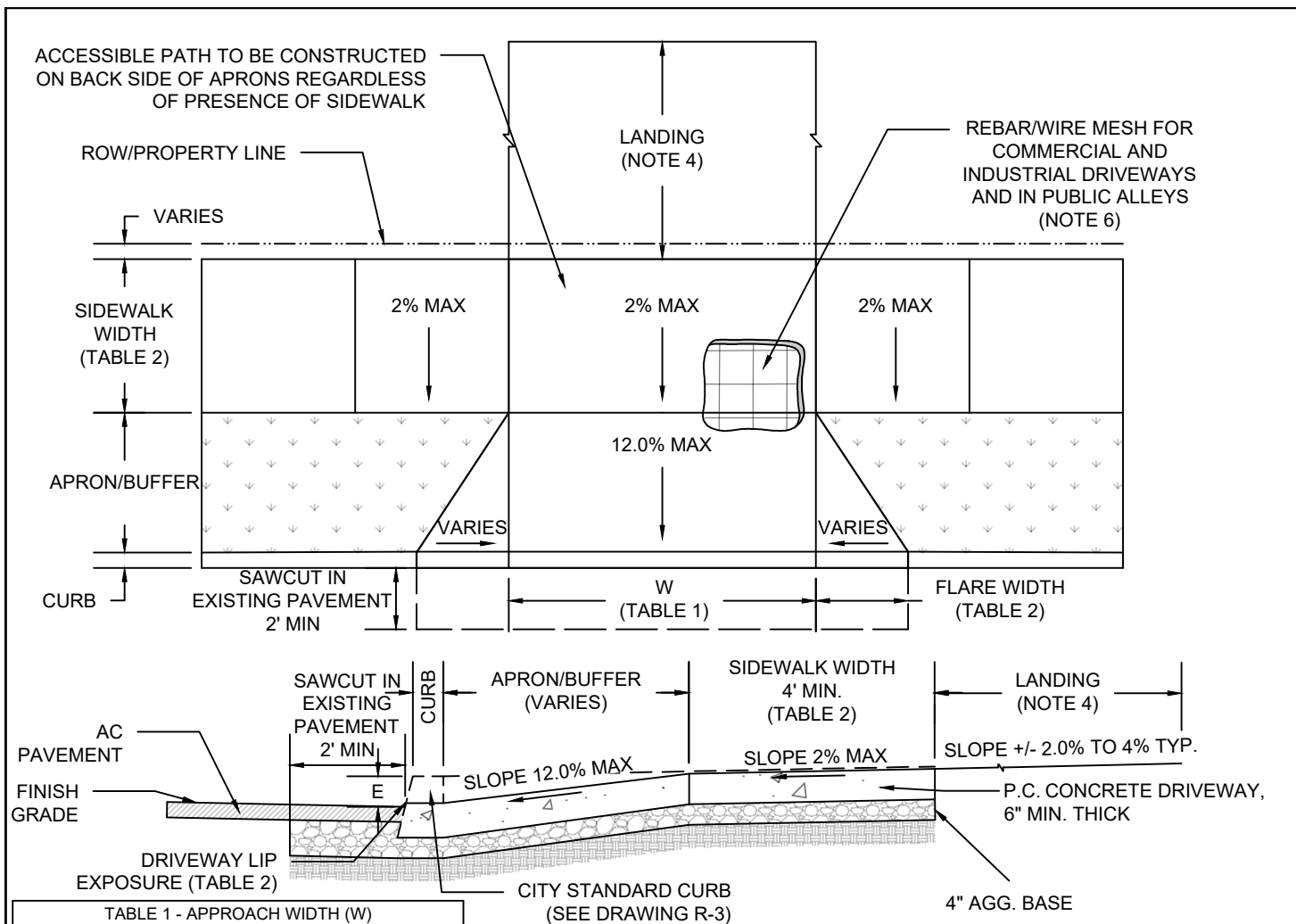



TABLE 1 - APPROACH WIDTH (W)	
TYPE	WIDTH
RESIDENTIAL	10' - 24'
SINGLE FAMILY	10'-24'
TOWNHOME	32' MAX SHARED; 16' MAX LOCAL STREETS
DUPLEX	SUM 32' MAX (2 APRON MAX)
TRIPLEX	SUM 32' MAX (3 APRON MAX)
QUADPLEX	SUM 32' MAX (4 APRON MAX)
MULTIFAMILY	20' - 30'
COMMERCIAL	10' - 35'

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

TABLE 2 - DRIVEWAY APPROACH WITH SETBACK SIDEWALK SPECIFICATIONS				
TYPE OF STREET	SIDEWALK WIDTH	LIP EXPOSURE	APRON GRADE, POSITIVE GRADE TO ROW	FLARE WIDTH
LOCAL	PER R-1D THRU R-1F	$\frac{3}{4}$ "	12.0% MAX	3'
COLLECTOR	PER R-1B & R-1C	1"	12.0% MAX	6'
ARTERIAL	PER R-1A	1"	12.0% MAX	6'

GENERAL NOTES:

- SIDEWALKS SHALL MEET ALL STANDARDS OF CURRENT PUBLIC RIGHTS OF WAY ACCESSIBILITY GUIDELINES (PROWAG).
- 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.
- TOOLED JOINTS ARE REQUIRED AT ALL DRIVEWAY SLOPE BREAK LINES.
- THE LANDING SHALL BE PAVED WITH CONCRETE OR ASPHALT 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.
- 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.
- #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.
- 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.
- REFER TO THE BEND DEVELOPMENT CODE 3.1.400 AND 3.6.200 FOR NUMBER AND WIDTH OF APRONS PERMITTED PER LOT.
- THIS SAME STANDARD APPLIES TO ALLEYS

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		DRIVEWAY APPROACH, SETBACK (STANDARD)	

ACCESSIBLE PATH TO BE CONSTRUCTED
ON BACK SIDE OF APRONS REGARDLESS
OF PRESENCE OF SIDEWALK

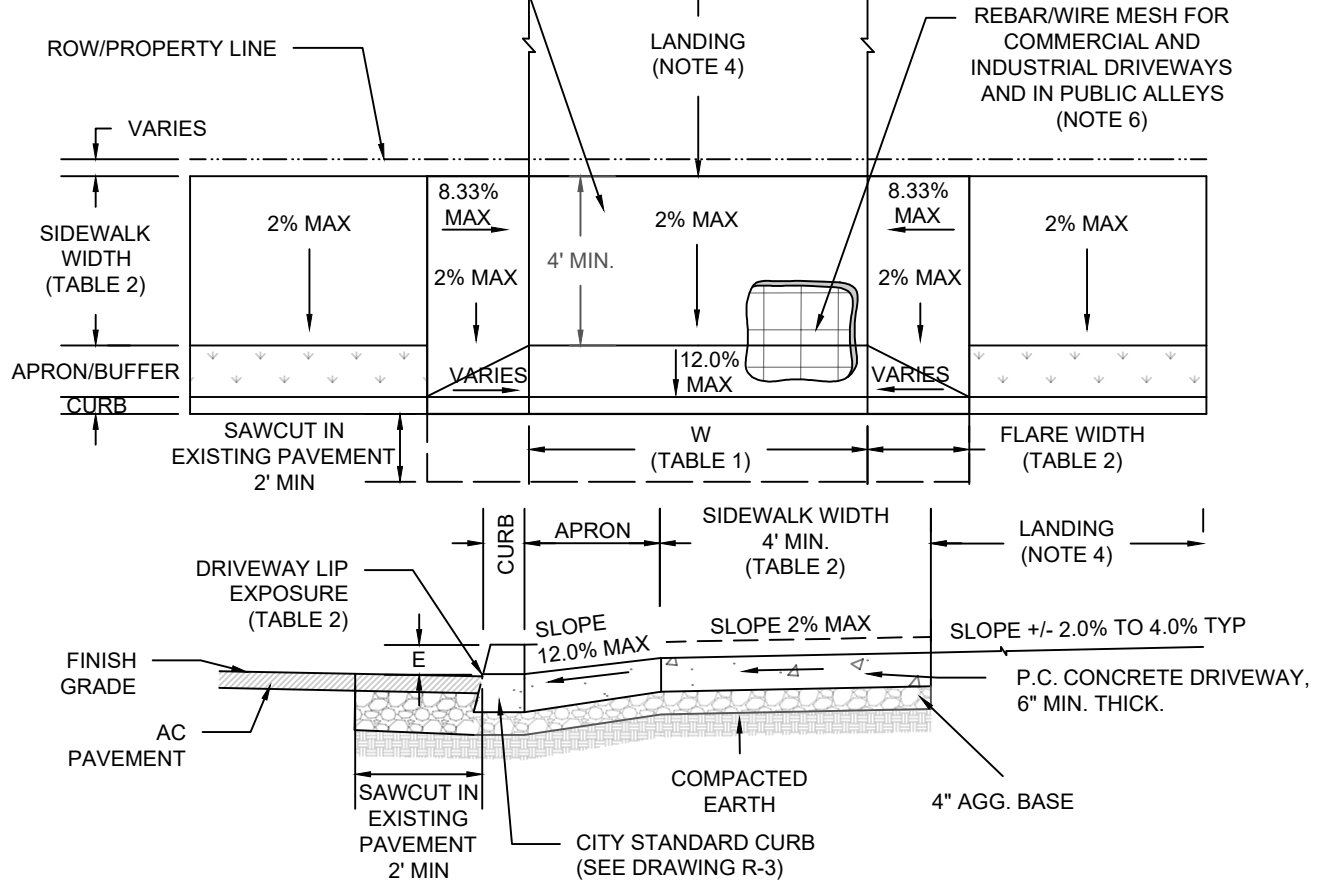


TABLE 1 - APPROACH WIDTH (W)

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DUPLEX	SUM 32' MAX (2 APRON MAX)
TRIPLEX	SUM 32' MAX (3 APRON MAX)
QUADPLEX	SUM 32' MAX (4 APRON MAX)
MULTIFAMILY	20' - 30'
COMMERCIAL	10' - 35'

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

TABLE 2 - DRIVEWAY APPROACH WITH SETBACK SIDEWALK SPECIFICATIONS

TYPE OF STREET	SIDEWALK WIDTH	LIP EXPOSURE	APRON GRADE, POSITIVE GRADE TO ROW	FLARE WIDTH
LOCAL	PER R-1D THRU R-1F	$\frac{3}{4}$ "	12.0% MAX	3'
COLLECTOR	PER R-1B & R-1C	1"	12.0% MAX	6'
ARTERIAL	PER R-1A	1"	12.0% MAX	6'

GENERAL NOTES:

- SIDEWALKS SHALL MEET ALL STANDARDS OF CURRENT PUBLIC RIGHTS OF WAY ACCESSIBILITY GUIDELINES (PROWAG).
- 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.
- TOOLED JOINTS ARE REQUIRED AT ALL DRIVEWAY SLOPE BREAK LINES.
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- 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.
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- 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.
- REFER TO THE BEND DEVELOPMENT CODE 3.1.400 AND 3.6.200 FOR NUMBER AND WIDTH OF APRONS PERMITTED PER LOT.
- THIS SAME STANDARD APPLIES TO ALLEYS

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DIV ROADWAY
REV DATE



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DRIVEWAY APPROACH, SETBACK, PARTIALLY LOWERED (ALTERNATE B)

SCALE NTS

DATE 01/31/2022

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ACCESSIBLE PATH TO BE CONSTRUCTED
ON BACK SIDE OF APRONS REGARDLESS
OF PRESENCE OF SIDEWALK

TRANSITION PANEL

ROW/PROPERTY
LINE

VARIES

SIDEWALK
WIDTH
(TABLE 2)

CURB

SAWCUT IN
EXISTING PAVEMENT
2' MIN

LANDING
(NOTE 5)

REBAR/WIRE MESH FOR
COMMERCIAL AND INDUSTRIAL
DRIVEWAYS AND PUBLIC ALLEYS
(NOTE 7)

8.33% MAX

2% MAX

2% MAX

8.33% MAX

2% MAX

W
(TABLE 1)

FLARE WIDTH
7' TYP.

CITY STANDARD CURB
(SEE DRAWING R-3)

DRIVEWAY LIP
EXPOSURE
(TABLE 2)

FINISH
GRADE

AC
PAVEMENT

CURB

SIDEWALK WIDTH
(TABLE 1)

LANDING AREA
(NOTE 5)

SLOPE 2% MAX

SLOPE +/- 2.0% TO 4.0%
TYP.

P.C. CONCRETE DRIVEWAY,
6" MIN. THICK.

COMPACTED
EARTH

4" AGG. BASE

SAWCUT IN
EXISTING PAVEMENT
2' MIN

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

TABLE 1 - APPROACH WIDTH (W)

TYPE	WIDTH
RESIDENTIAL	10' - 24'
SINGLE FAMILY	10'-24'
TOWNHOME	32' MAX SHARED; 16' MAX LOCAL STREETS
DUPLEX	SUM 32' MAX (2 APRON MAX)
TRIPLEX	SUM 32' MAX (3 APRON MAX)
QUADPLEX	SUM 32' MAX (4 APRON MAX)
MULTIFAMILY	20' - 30'
COMMERCIAL	10' - 35'

TABLE 2 - DRIVEWAY APPROACH WITH SETBACK SIDEWALK SPECIFICATIONS

TYPE OF STREET	SIDEWALK WIDTH	LIP EXPOSURE	APRON GRADE, POSITIVE GRADE TO ROW	FLARE WIDTH
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GENERAL NOTES:

- SIDEWALKS SHALL MEET ALL STANDARDS OF CURRENT PUBLIC RIGHTS OF WAY ACCESSIBILITY GUIDELINES (PROWAG).
- 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.
- TOOLED JOINTS ARE REQUIRED AT ALL DRIVEWAY SLOPE BREAK LINES.
- THE LANDING SHALL BE PAVED WITH CONCRETE OR ASPHALT 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.
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- REFER TO THE BEND DEVELOPMENT CODE 3.1.400 AND 3.6.200 FOR NUMBER AND WIDTH OF APRONS PERMITTED PER LOT.
- THIS SAME STANDARD APPLIES TO ALLEYS

DRAWN AJD
DIV ROADWAY
REV DATE



CITY OF BEND

CITY OF BEND

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

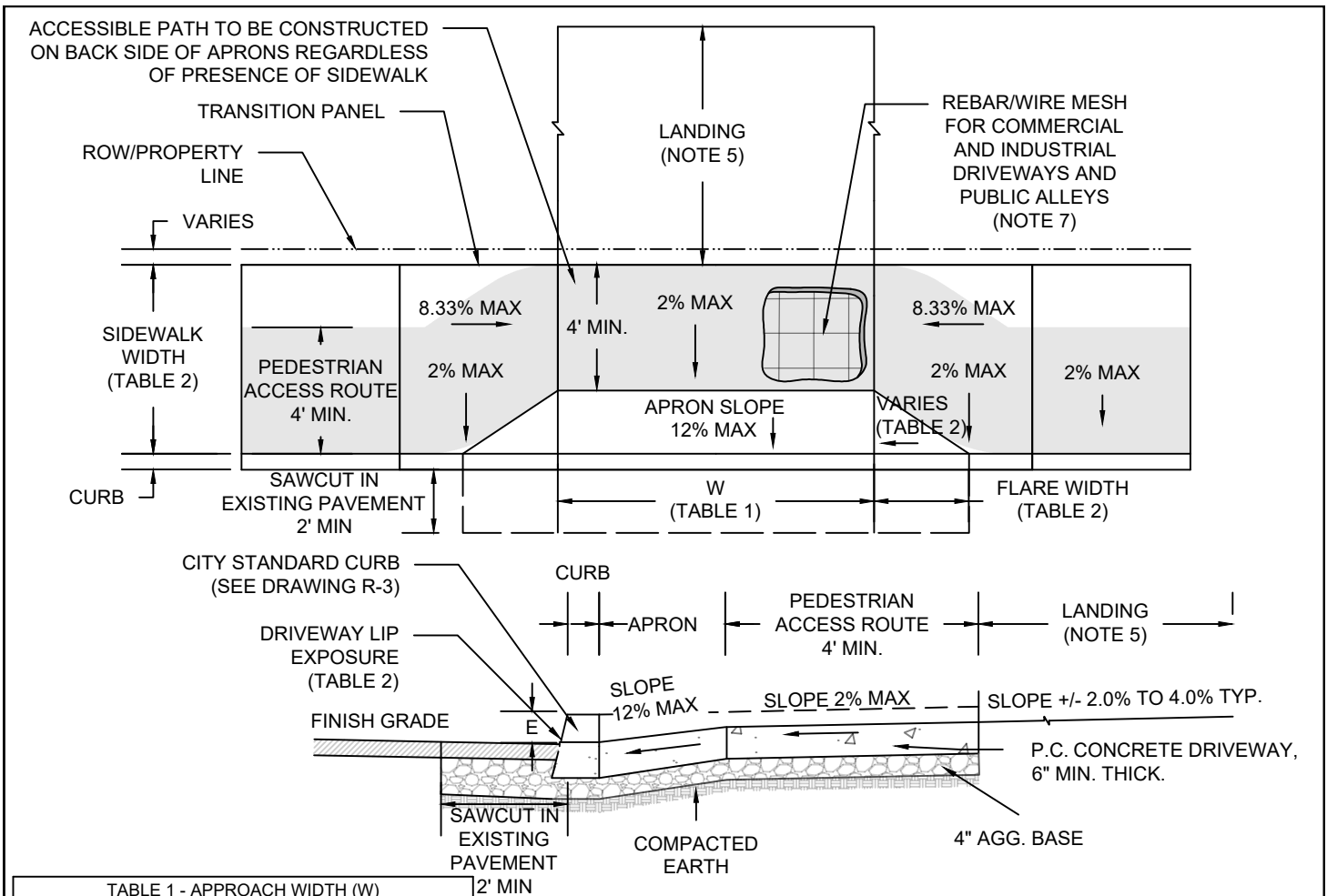
DRIVEWAY APPROACH, CURB-TIGHT, FULLY LOWERED (ALTERNATE C)

SCALE NTS

DATE 01/31/2022

APPR

STD DWG R-5C




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

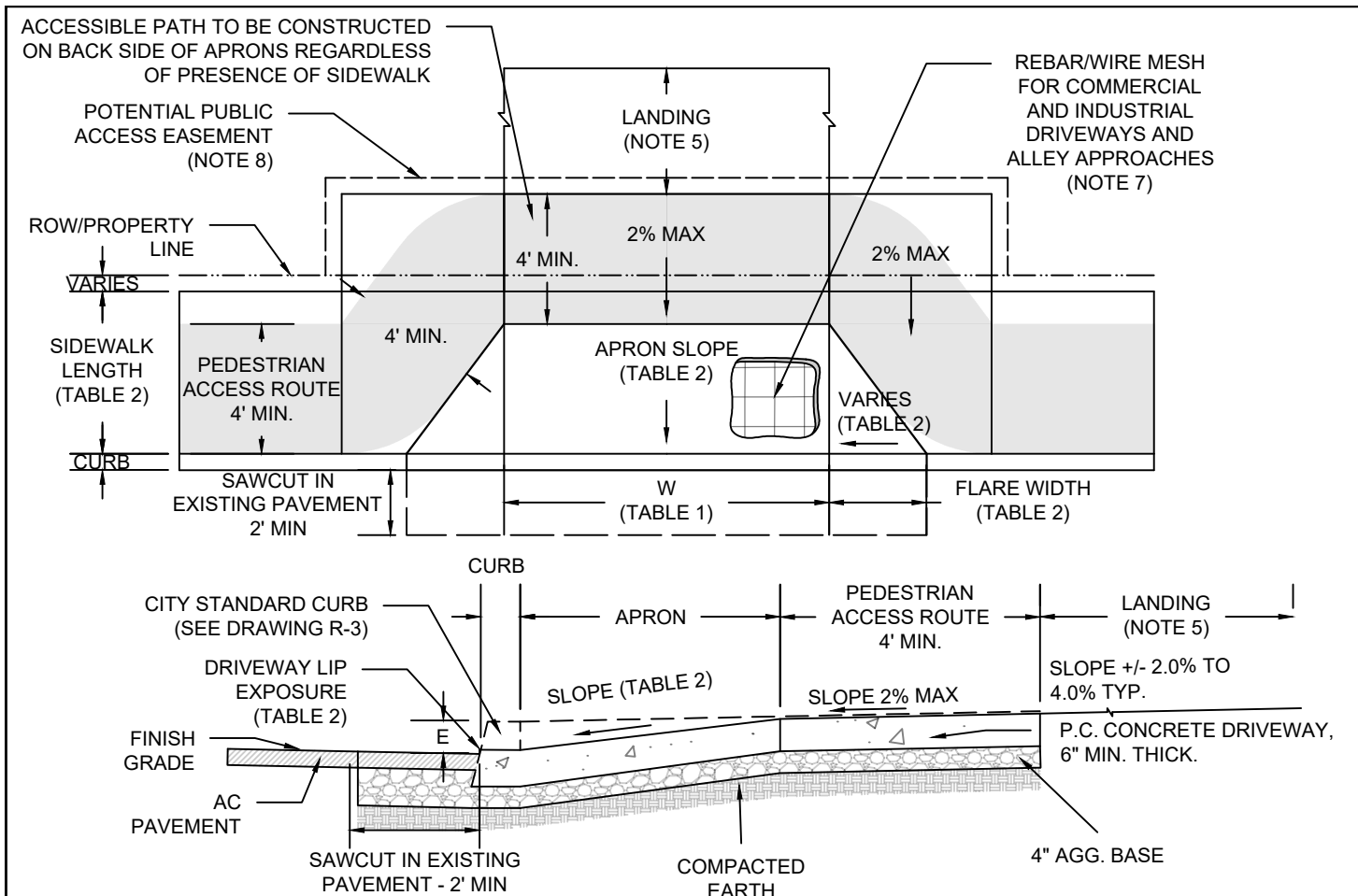
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- THIS SAME STANDARD APPLIES TO ALLEYS

DRAWN AJD	 <p>CITY OF BEND</p>	<p>CITY OF BEND</p> <p>STANDARD DRAWING</p> <p>710 NW WALL ST., BEND, OREGON 97701</p>	SCALE NTS
DIV ROADWAY			DATE 01/31/2022
REV DATE			APPR
			STD DWG R-5D
		DRIVEWAY APPROACH, CURB-TIGHT, PARTIALLY LOWERED (ALTERNATE D)	




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

TABLE 1 - APPROACH WIDTH (W)	
TYPE	WIDTH
RESIDENTIAL	10' - 24'
SINGLE FAMILY	10'-24'
TOWNHOME	32' MAX SHARED; 16' MAX LOCAL STREETS
DUPLEX	SUM 32' MAX (2 APRON MAX)
TRIPLEX	SUM 32' MAX (3 APRON MAX)
QUADPLEX	SUM 32' MAX (4 APRON MAX)
MULTIFAMILY	20' - 30'
COMMERCIAL	10' - 35'

TABLE 2 - DRIVEWAY APPROACH SPECIFICATIONS WITH CURB-TIGHT WRAPPING SIDEWALK				
TYPE OF STREET	MINIMUM SIDEWALK WIDTH	LIP EXPOSURE	APRON GRADE, POSITIVE GRADE TO ROW	FLARE WIDTH
LOCAL	PER R-1D THRU R-1F	$\frac{3}{4}$ "	12.0% MAX	3'
COLLECTOR	PER R-1B & R-1C	1"	12.5% MAX	6'
ARTERIAL	PER R-1A	1"	12.5% MAX	6'

GENERAL NOTES:

- SIDEWALKS SHALL MEET ALL STANDARDS OF CURRENT PUBLIC RIGHTS OF WAY ACCESSIBILITY GUIDELINES (PROWAG).
- 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.
- TOOLED JOINTS ARE REQUIRED AT ALL DRIVEWAY SLOPE BREAK LINES.
- THE LANDING SHALL BE PAVED WITH CONCRETE OR ASPHALT 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.
- 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.
- #4 REBAR (2" 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.
- 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.
- REFER TO THE BEND DEVELOPMENT CODE 3.1.400 AND 3.6.200 FOR NUMBER AND WIDTH OF APRONS PERMITTED PER LOT.
- THIS SAME STANDARD APPLIES TO ALLEYS


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CITY OF BEND			DRIVEWAY APPROACH, CURB-TIGHT, WRAPPING SIDEWALK (ALTERNATE E)	STD DWG R-5E

GENERAL NOTES :

1. CITY OF BEND STD DWGS R-6, R-6A, R-6B, AND R-6C ARE INTENDED AS A SUMMARY OF PROWAG REQUIREMENTS. SEE CURRENT PROWAG GUIDELINES FOR COMPLETE REQUIREMENTS.
2. SLOPES USED FOR DESIGN ARE TYPICALLY LESS THAN THE MAXIMUMS TO ALLOW FOR CONSTRUCTION TOLERANCES. RECOMMENDED DESIGN SLOPES ARE AS FOLLOWS:

PROWAG MAX. SLOPE	DESIGN MAX. SLOPE
1:10 (10%)	9.5%
1:12 (8.33%)	7.5%
1:20 (5.0%)	4.5%
1:50 (2%)	1.5%

3. GRADE BREAKS ARE NOT PERMITTED ON THE SURFACE OF CURB RAMPS, BLENDED TRANSITIONS, LANDINGS, AND GUTTER AREAS WITHIN THE PEDESTRIAN ACCESS ROUTE.
4. THE COUNTER SLOPE OF THE GUTTER OR STREET AT THE FOOT OF A CURB RAMP, LANDING, OR BLENDED TRANSITION SHALL BE 5% MAXIMUM.
5. SURFACES OF CURB RAMPS, BLENDED TRANSITIONS, AND LANDINGS SHALL COMPLY WITH R302.7. GRATINGS, ACCESS COVERS, AND OTHER APPURTENANCES SHALL NOT BE LOCATED ON CURB RAMPS, LANDINGS, BLENDED TRANSITIONS AND GUTTERS WITHIN THE PEDESTRIAN ACCESS ROUTE.
6. 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. SEE PROWAG R302.7.2.
7. WHERE SIDEWALKS ARE CONSTRUCTED OUTSIDE THE RIGHT OF WAY, A PUBLIC ACCESS EASEMENT MUST BE RECORDED OVER THE PRIVATE PROPERTY ENCROACHMENT.
8. 6 INCHES OF COMMERCIAL GRADE CONCRETE PER CITY SPEC 00440 AND 4 INCHES OF STATE SPEC AGGREGATE PER CITY SPEC 00640/00641 IS REQUIRED FOR CONSTRUCTION OF CURB RAMPS, FLARES, AND LANDINGS.
9. DETECTABLE WARNING SURFACES COMPLYING WITH PROWAG R305 SHALL BE PROVIDED, WHERE A CURB RAMP, LANDING, OR BLENDED TRANSITION CONNECTS TO A STREET.
10. 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.
11. 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.
12. THE CLEAR WIDTH OF LANDINGS BLENDED TRANSITIONS, AND CURB RAMPS, EXCLUDING FLARES, SHALL BE 4.0 FT. MINIMUM.

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		CITY OF BEND	CURB RAMP GENERAL NOTES	STD DWG R-6

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

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. THE GRADE FROM THE BOTTOM OF THE DETECTABLE WARNING TO THE LANDING SHALL BE A CONTINUOUS GRADE (5% MAXIMUM). SURFACE SLOPES THAT MEET THE GRADE BREAKS SHALL BE FLUSH.

FLARED SIDES ARE PREFERRED, PARTICULARLY WHERE SUBJECT TO DAMAGE FROM ONCOMING TRAFFIC AND SNOWPLOWS. IF ADJACENT CONSTRAINTS PREVENT FLARE CONSTRUCTION, SIDE OF RAMPS MAY BE RETURNED IF PROTECTED FROM CROSS TRAVEL BY LANDSCAPING, STREET FURNITURE, POLES, OR EQUIPMENT.

ONE CORNER OF THE DETECTABLE WARNING MUST BE WITHIN 2 in. OF THE GRADE BREAK; NO OTHER POINT ON THE LEADING EDGE OF THE DETECTABLE WARNING MAY BE MORE THAN 5 ft. FROM THE BACK OF CURB.

WHERE BOTH ENDS OF THE BOTTOM GRADE BREAK, COMPLYING WITH PROWAG R305.2.1, 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.

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.

FLARES REQUIRED UNLESS BARRIERS EXIST OR WHERE APPROVED BY THE CITY ENGINEER. FLARE SLOPE CAN EXCEED 10% WHERE ABUTTING MIN 2' LANDSCAPING AREA.

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.

PERPENDICULAR CURB RAMPS











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

THE RAMP CROSS SLOPE SHALL NOT EXCEED 2% AT YIELD OR STOP CONTROLLED INTERSECTIONS. AT UNCONTROLLED INTERSECTIONS, THE CROSS SLOPE MAY TRANSITION FROM 2% AT THE LANDING UP TO 5% AT THE CURB. AT MIDBLOCK CROSSINGS, THE CROSS SLOPE MAY TRANSITION TO MATCH THE ROAD GRADE.

WIDTH OF RAMP TO MATCH SUP/SIDEWALK STANDARD WIDTH FOR ROAD CROSS-SECTION; ALTERNATE MAY BE APPROVED BY CITY ENGINEER IN EXISTING NON-COMPLIANT AREAS WITH NO PLANS FOR SIDEWALK UPGRADES.

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 0.5% CHANGE PER FT. 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.

-  SIDEWALK OR OTHER TRAVERSABLE SURFACE
-  DETECTABLE WARNING SURFACE (DWS)
-  LEVEL AREA (TURNING SPACE/LANDING) 2% MAX. SLOPE IN ANY DIRECTION
-  CROSS SLOPE 2.0% MAX.
-  RUNNING SLOPE 5.0% MAX.
-  RUNNING SLOPE 8.3% MAX.
-  COUNTER SLOPE 5.0% MAX. ASCENDING OR DESCENDING
-  FLARE SLOPE 10% MAX.
-  4'X4' CLEAR SPACE
-  REQUIRED DESIGN ELEVATIONS SLOPES TO BE SHOWN WITH DESIGN

TYPICAL PERPENDICULAR CURB RAMP
ACCORDING TO PROWAG REQUIREMENTS
NOT TO SCALE - ROTATED TO FIT

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TYPICAL PERPENDICULAR CURB RAMP

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STD DWG R-6A

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.

GRADE BREAKS AT THE TOP AND BOTTOM OF PARALLEL CURB RAMPS SHALL BE PERPENDICULAR TO THE DIRECTION OF RAMP RUN. SURFACE SLOPES THAT MEET THE GRADE BREAKS SHALL BE FLUSH.

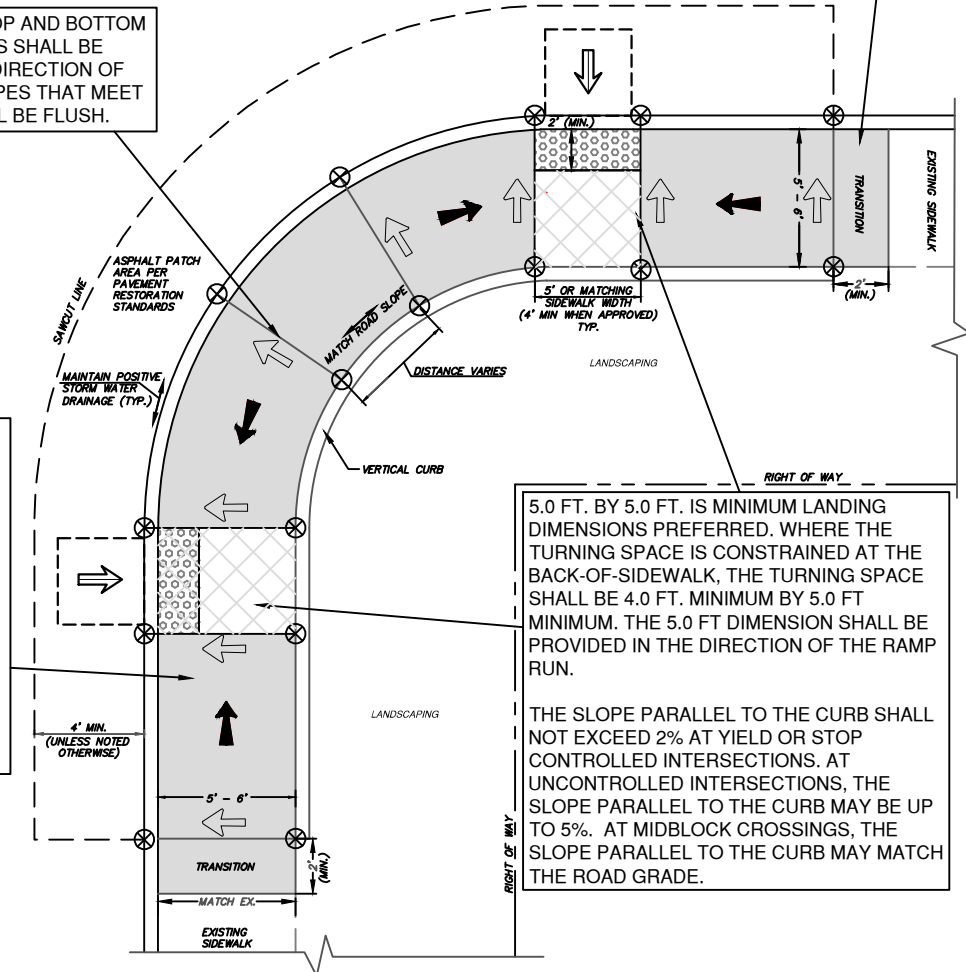
PARALLEL CURB RAMPS

THE RUNNING SLOPE SHALL BE 8.33% MAXIMUM BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15.0 FT.

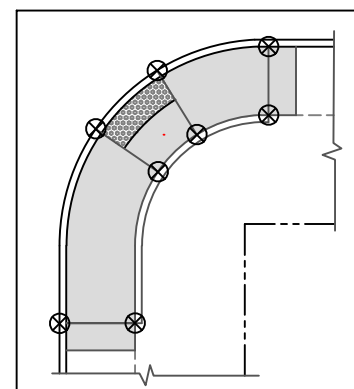
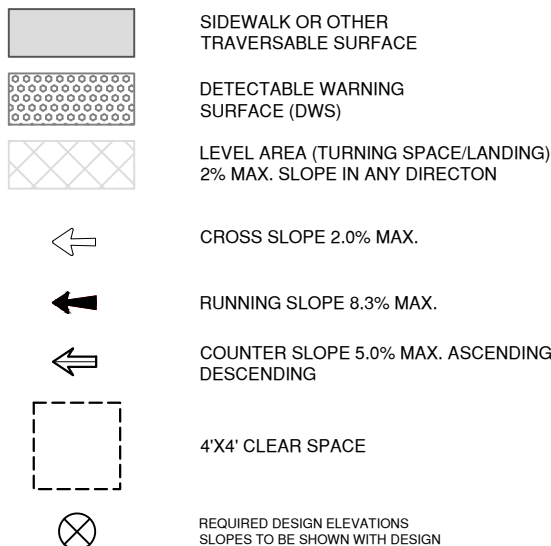
THE CROSS SLOPE SHALL BE 2% MAXIMUM.

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

LANDING WIDTH SHALL MATCH THE ADJACENT SIDEWALK WIDTH, 5.0 FT MIN., UNLESS OTHERWISE APPROVED.



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



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

NOTE: DIAGONAL CURB RAMP ALTERNATE IS ONLY ALLOWED WHEN DIRECTIONAL RAMPS ARE NOT POSSIBLE AND MUST BE APPROVED BY THE CITY ENGINEER.

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TYPICAL PARALLEL CURB RAMP

SCALE NTS

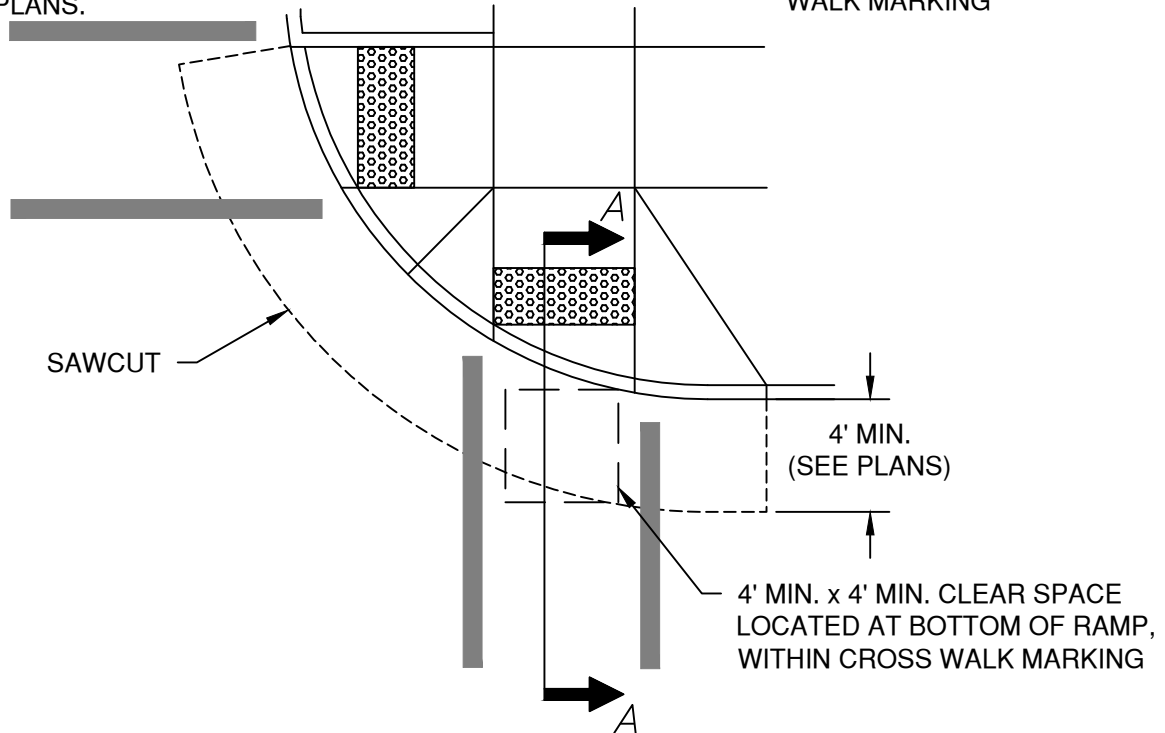
DATE 01/31/2022

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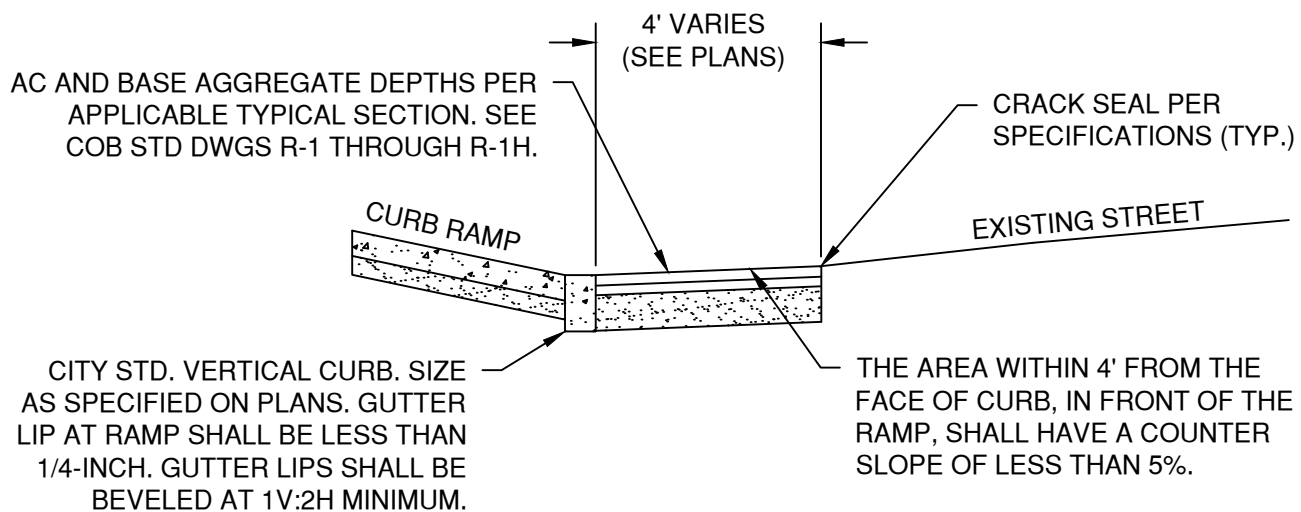
STD DWG R-6B

CROSSWALK MARKING.
STYLE VARIES, SEE
PLANS.

RAMPS TO BE FULLY
LOCATED WITHIN CROSS
WALK MARKING



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

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CURB RAMP DETAILS

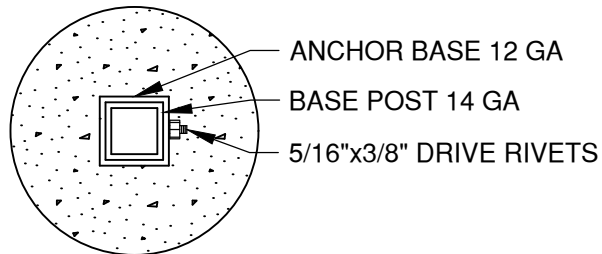
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DATE 01/31/2022

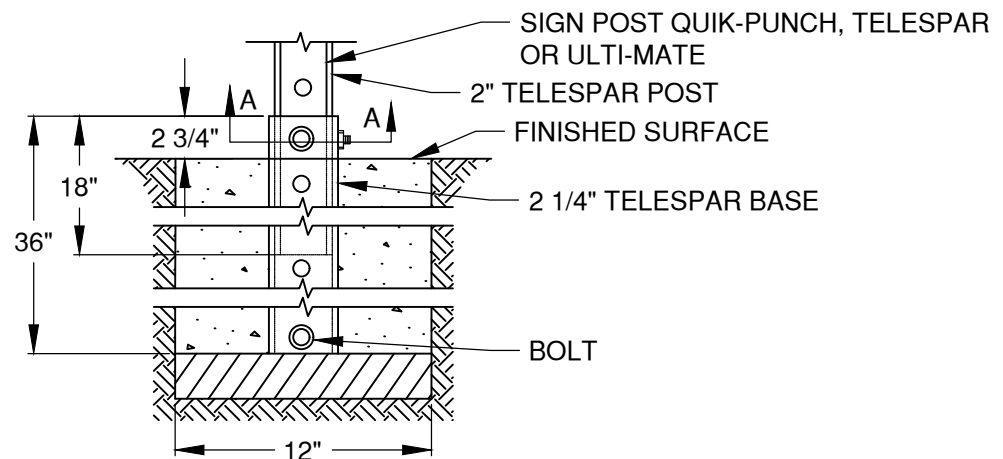
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STD DWG R-6C

INSTALLATION IN NEW CONSTRUCTION




SECTION A-A

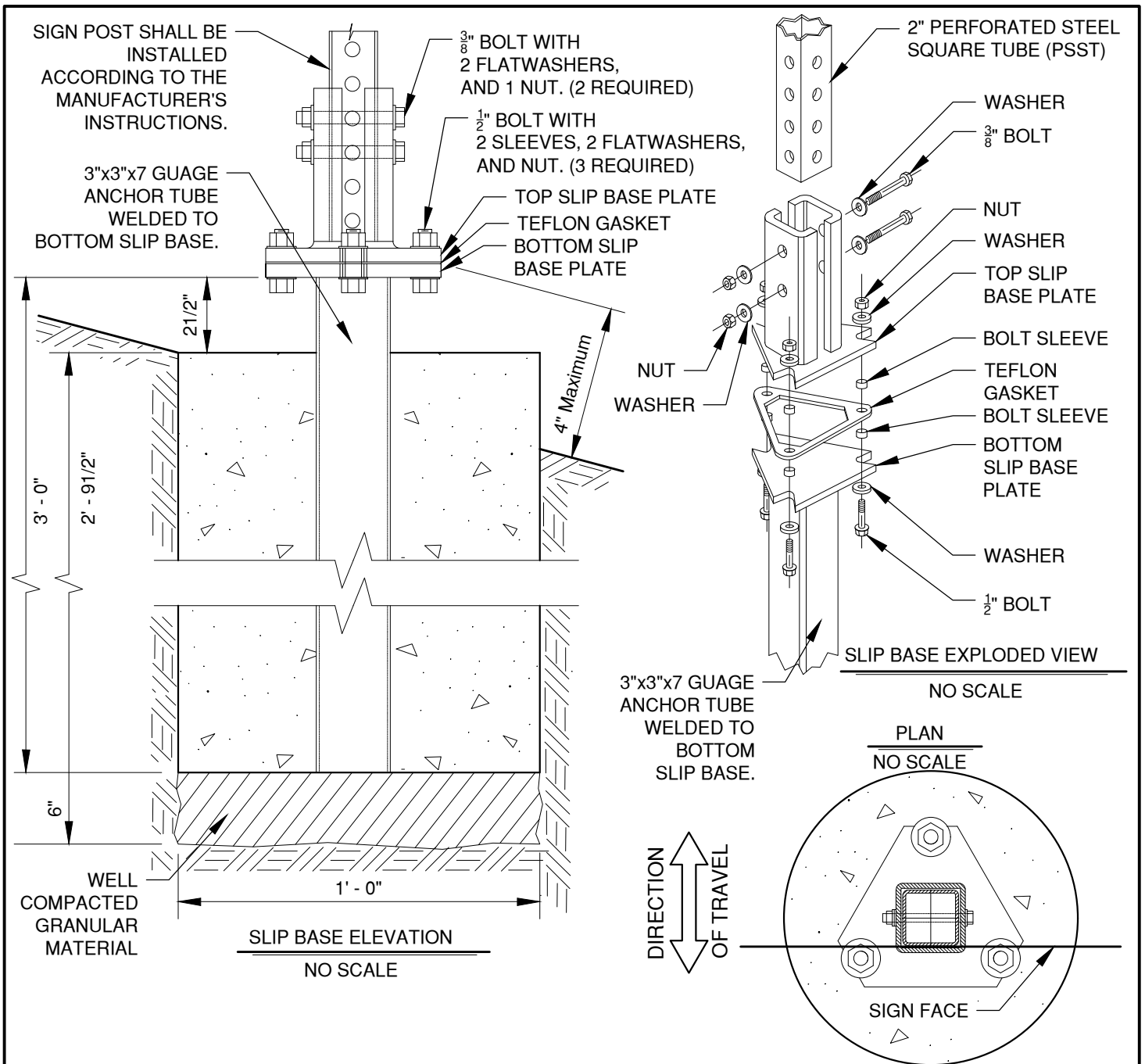


ANCHOR BASE DETAIL

NOTES:


1. USE PSST ANCHOR BASE FOUNDATION FOR ALL SIGN LOCATIONS OTHER THAN IN MEDIANS AND ROUNDABOUT SPLITTER ISLANDS PER STD DWG R-7A.
2. ANCHOR BASE HOLES AND BOTTOM OF ANCHOR BASE SHALL BE COVERED SO THAT CONCRETE DOES NOT SEEP INTO ANCHOR BASE DURING SETTING
3. BASE SHOULD BE SET SEPARATELY FROM POST WITH ANCHOR BOLT IN BASE BOTTOM ONLY
4. POST SHOULD BE ABLE TO SLIDE FREELY WHEN RIVET IS REMOVED
5. FOR LARGE SIGNS THAT EXCEED WINDLOADS 2 1/2" POSTS MAY BE APPROVED BY CITY ENGINEER

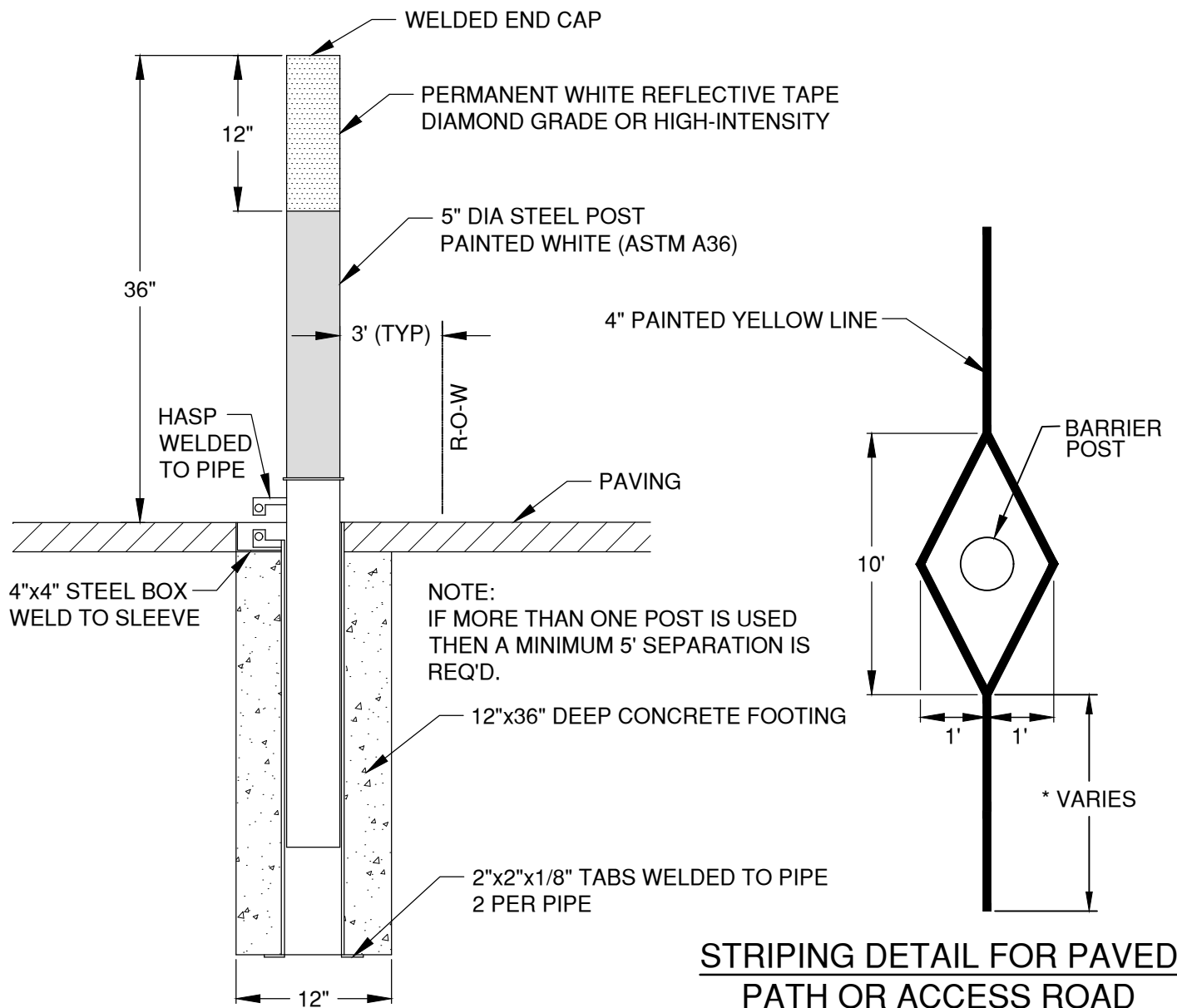
DRAWN AJD	 CITY OF BEND	CITY OF BEND STANDARD DRAWING <small>710 NW WALL ST., BEND, OREGON 97701</small>	SCALE NTS
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		PSST ANCHOR BASE FOUNDATION	STD DWG R-7



NOTES:

1. USE PSST SLIP BASE FOUNDATION FOR SIGNS INSTALLED IN MEDIANS AND ROUNDABOUT SPLITTER ISLANDS.
2. MATERIAL GRADE FOR BASE HARDWARE CONNECTION SHALL BE ACCORDING TO THE MANUFACTURER'S RECOMMENDATION AND BASED ON CRASH TESTING.
3. SLIP BASE STEEL SHALL BE HOT DIPPED GALVANIZED OR APPROVAL EQUAL.
4. FOOTING CONCRETE SHALL BE COMMERCIAL GRADE CONCRETE (FC=3000PSI) PER SPECIFICATION 00440. THE CGC MIXTURE MAY BE ACCEPTED AT THE SITE OF PLACEMENT ACCORDING TO 00440.14.
5. ALL SLIP BASES SHALL BE PRE-ASSEMBLED BY THE MANUFACTURER AND SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.
6. SLIP BASE DETAILS SHOWN ARE NOT FOR A SPECIFIC MANUFACTURER AND ARE ONLY SHOWN TO CONVEY GENERAL PIECES OF A SLIP BASE SYSTEM. SPECIFIC SLIP BASE MATERIAL WILL BE ACCORDING TO THE MANUFACTURER'S DOCUMENTATION.
7. FOR LARGE SIGNS THAT EXCEED WINDLOADS, 2 1/2" PSST MAY BE APPROVED BY CITY ENGINEER

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			STD DWG R-7A



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.

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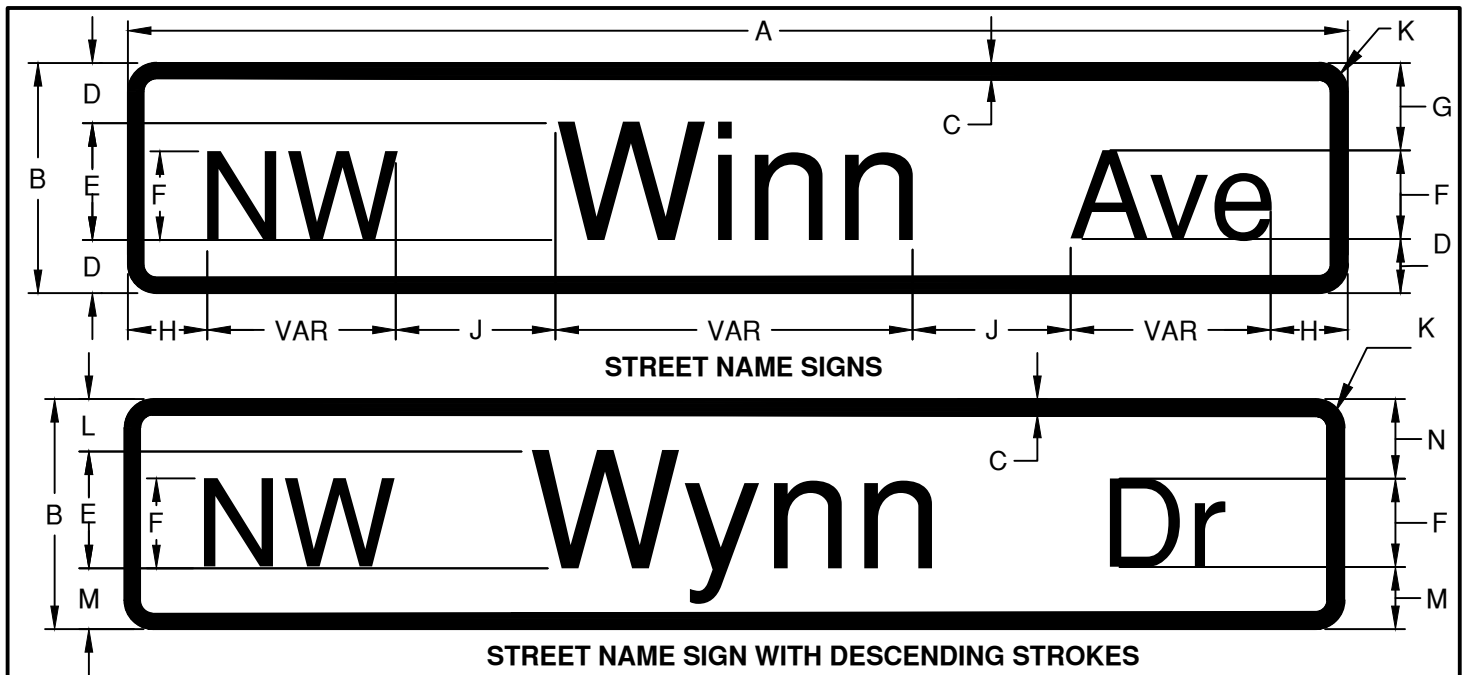
REMOVABLE POST AND MARKINGS

SCALE NTS

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STD DWG R-7B



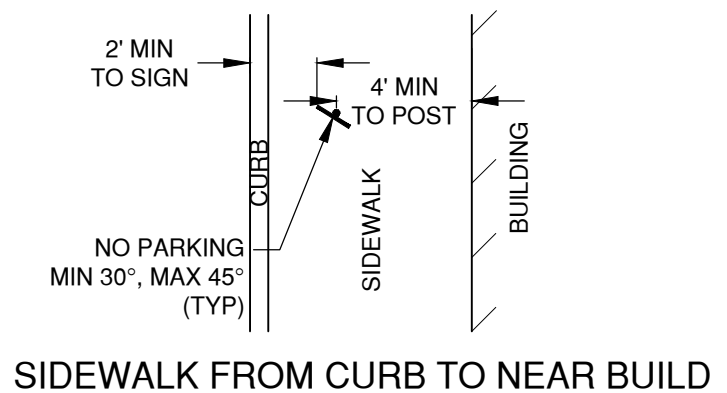
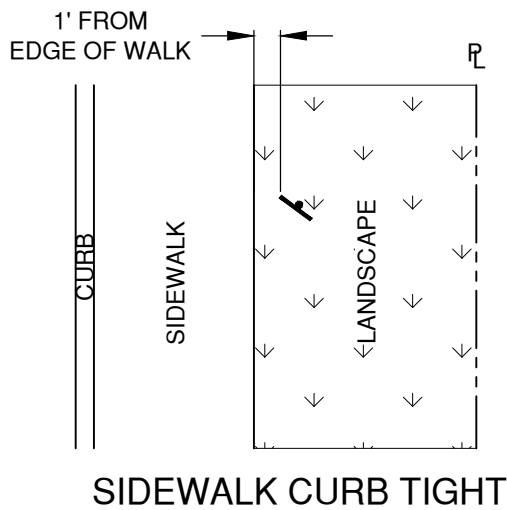
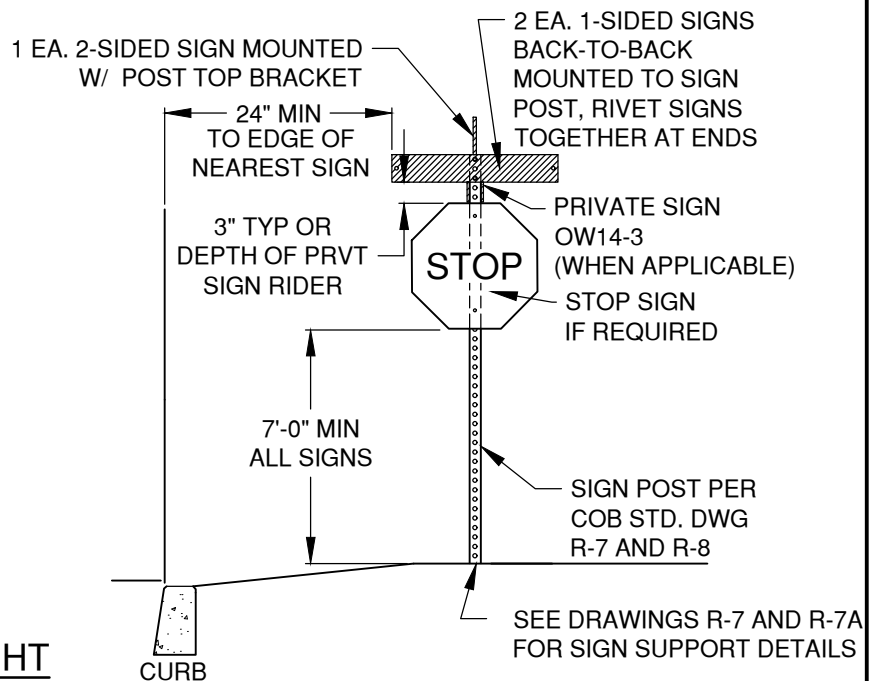
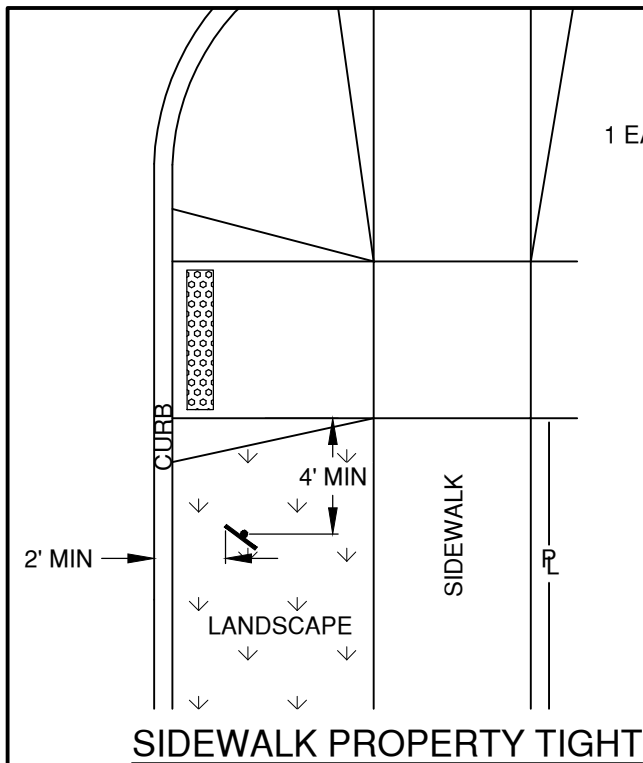
SIGN LOCATION	DIMENSIONS												
	A	B	C	D	E	F	G	H	J	K	L	M	N
LOCAL	VAR	8	0.375	2	4C	3C	3	3 MIN	3	1	1.75	2.25	2.75
COLLECTOR/ ARTERIAL \leq 40MPH	VAR	12	0.5	3	6C	4.5C	5	4.5 MIN	4.5	1.5	2.75	3.25	4.75
COLLECTOR/ ARTERIAL $>$ 40 MPH	VAR	18	0.75	5	8C	6C	7.67	5.33 MIN	6	1.875	5	5	7.67
OVERHEAD	VAR	24	1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

NOTES:

- SIGNS INSTALLED ALONG PUBLIC STREETS SHALL BE FABRICATED AND INSTALLED TO CONFORM TO THE MUTCD AND CITY OF BEND SPECIFICATIONS.
- UNLESS OTHERWISE SPECIFIED, STREET NAME SIGNS SHALL BE FABRICATED AS FOLLOWS:
 - SIGN SUBSTRATE: SHEET ALUMINUM (GAUGE 0.80 FOR GROUND-MOUNT) WITH ROUNDED CORNERS
 - 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;
 - LETTERING SHALL BE LOWER-CASE WITH INITIAL UPPER-CASE LETTERS;
 - SERIES C2000 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);
 - BOTTOM STREET SIGNS (CLOSEST TO THE REGULATORY/STOP SIGN) SHALL BE TWO SINGLE-SIDED WITH PREDRILLED HOLES. SIGNS SHALL BE RIVETED BACK TO BACK ON THE SQUARE TUBE POST, CENTERED ON THE POST.
 - BOTTOM STREET SIGNS SHALL BE USED FOR SIDE STREET.
 - TOP STREET SIGN SHALL BE DOUBLE SIDED. TOP SIGN USED FOR MAINLINE STREET.
- ALL SIGNS SHALL BE REVIEWED AND APPROVED BY THE CITY OF BEND ENGINEERING DEPARTMENT PRIOR TO FABRICATIONS AND INSTALLATION.
- 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.
- 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.
- 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).
- FOR ADDITIONAL INFORMATION, REFER TO MUTCD SECTION 2A AND 2D, AND CITY OF BEND TECHNICAL SPECIFICATION SECTION 00940.
- CONFIRM SIGN SIZE WITH CITY ENGINEER FOR SIGNS ON EXISTING TRAFFIC SIGNAL POLES OR MAST ARMS.

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				STANDARD STREET NAME SIGNS			STD DWG R-8

STANDARD STREET NAME SIGNS



NOTES:

1. SET TO MUTCD SPECS
2. SEE R-8 FOR COB STREET NAME SIGN REQUIREMENTS.
3. CHECK THAT SIGN IS NOT OBSCURED BY VEGETATION, TRIM IF NEEDED.
4. INSTALL ALL SIGNS WITH 5/16"X3/8" DRIVE RIVETS


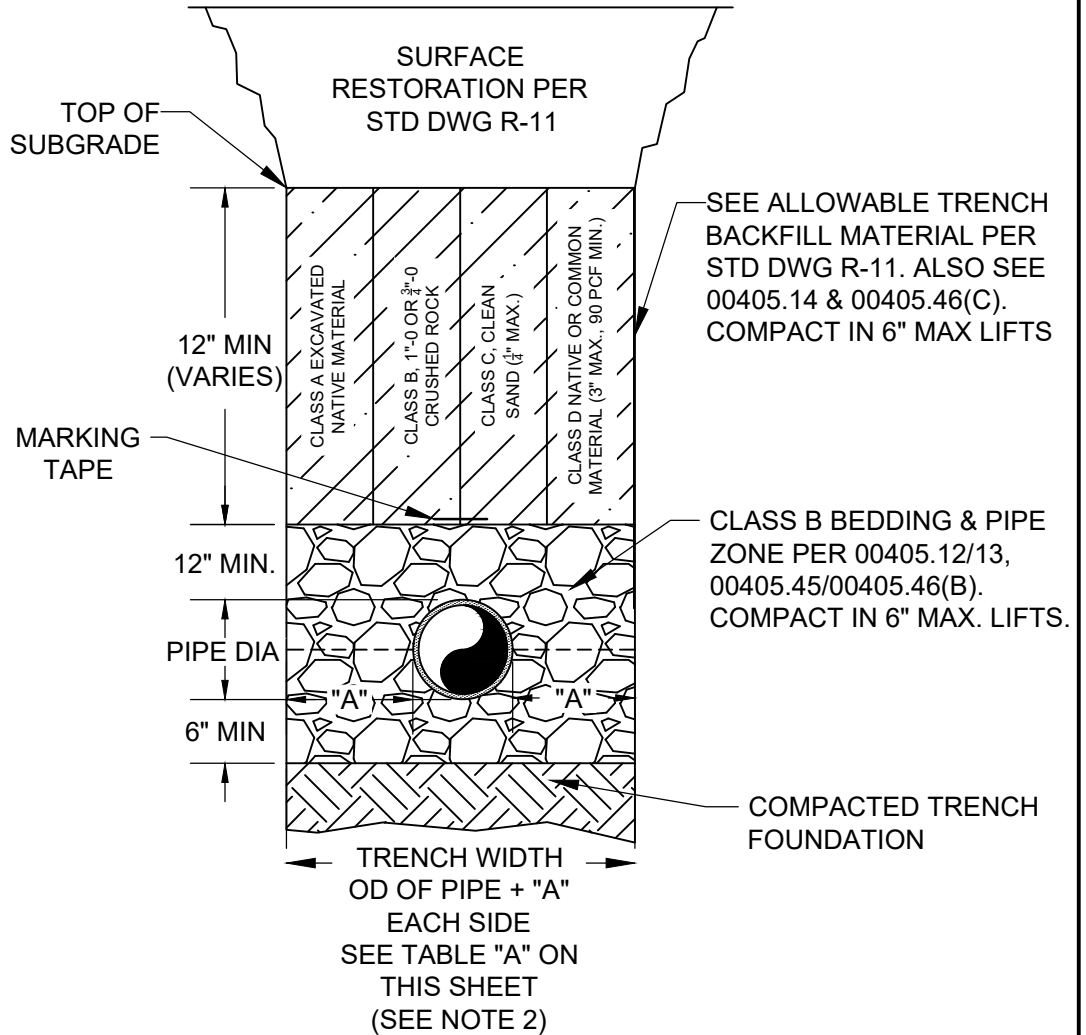
DRAWN AJD			CITY OF BEND	CITY OF BEND		SCALE NTS
DIV ROADWAY				STANDARD DRAWING		DATE 01/31/2022
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				STANDARD STREET SIGN PLACEMENT		STD DWG R-9

TABLE A	
PIPE DIA (IN)	"A" (IN)
4	10
6	10
8	10
10	10
12	12
15	12
18	16
21	16
24	18
30	18
36	24
42	24
48	24
54	24
60	24
66	24
72	24



NOTES:

1. ALL COMPACTION TO COMPLY WITH SPECIFICATION SECTION 00330.43 AND 00405.46(c).
2. A FRANCHISE UTILITY THAT IS A SINGLE CONDUIT AND IS 4 INCHES IN DIAMETER OR LESS MAY BE CENTERED IN A 12-INCH WIDE TRENCH PROVIDED THAT THE TRENCH CAN ACCOMMODATE THE COMPACTION EQUIPMENT. TRENCH PATCH SHALL BE IN ACCORDANCE WITH STD DWG R-11 WHERE THE TEE PATCH SHALL NOT BE LESS THAN 12 INCHES ON BOTH SIDES OF THE TRENCH. OVERALL WIDTH MAY BE REDUCED FROM 4 FEET, BUT IN NO CIRCUMSTANCES RESULT IN TEE PATCHES LESS THAN 12 INCHES AND AN OVERALL MINIMUM WIDTH OF 3 FEET.
3. CLASS E - CLSM, MAY BE ALLOWED FOR TRENCH BACKFILL WHERE COMPACTION CANNOT BE MET DUE TO THE PRESENCE OF EXISTING UTILITIES

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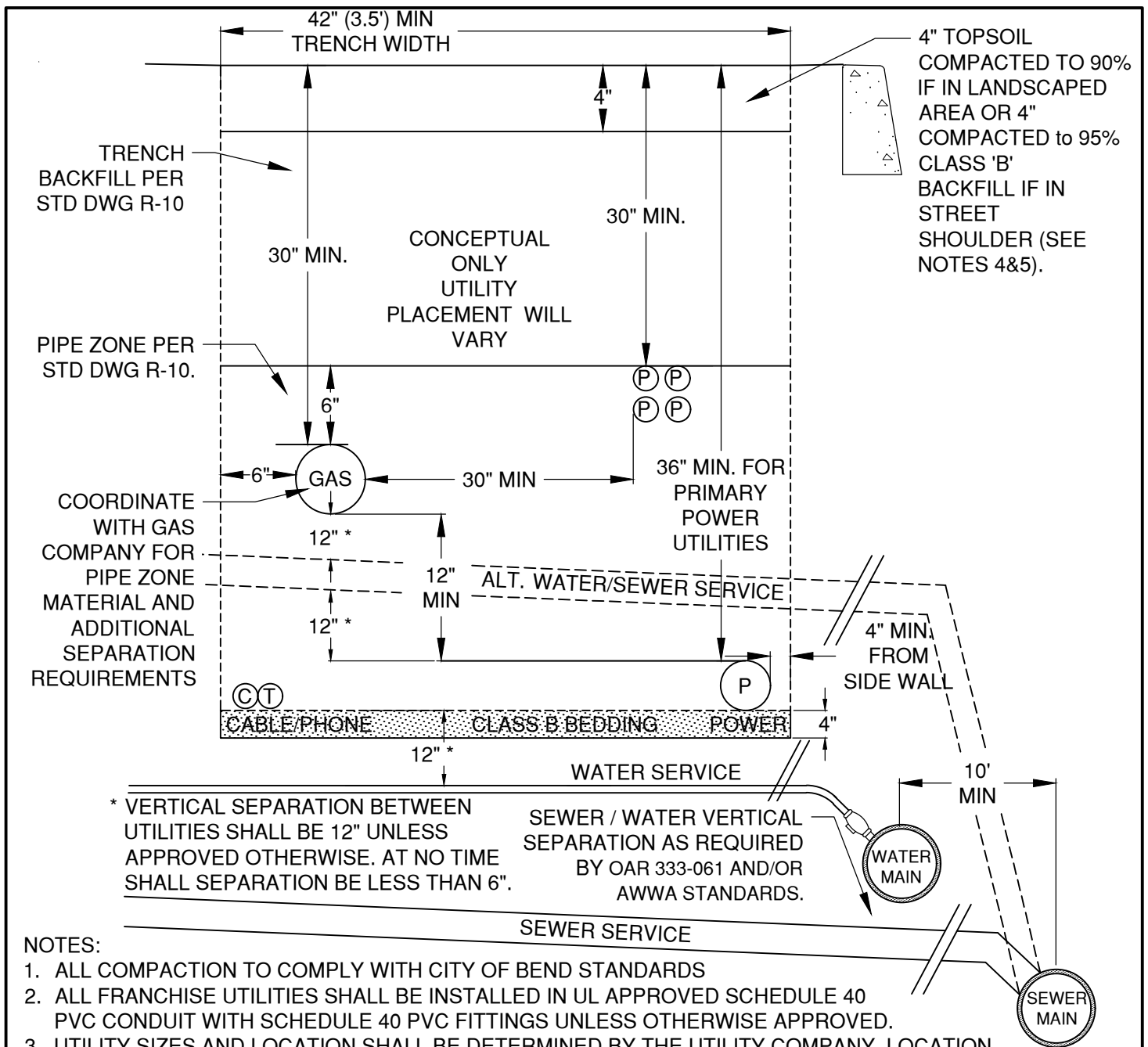
TYPICAL TRENCH SECTION

SCALE NTS


DATE 01/31/2022

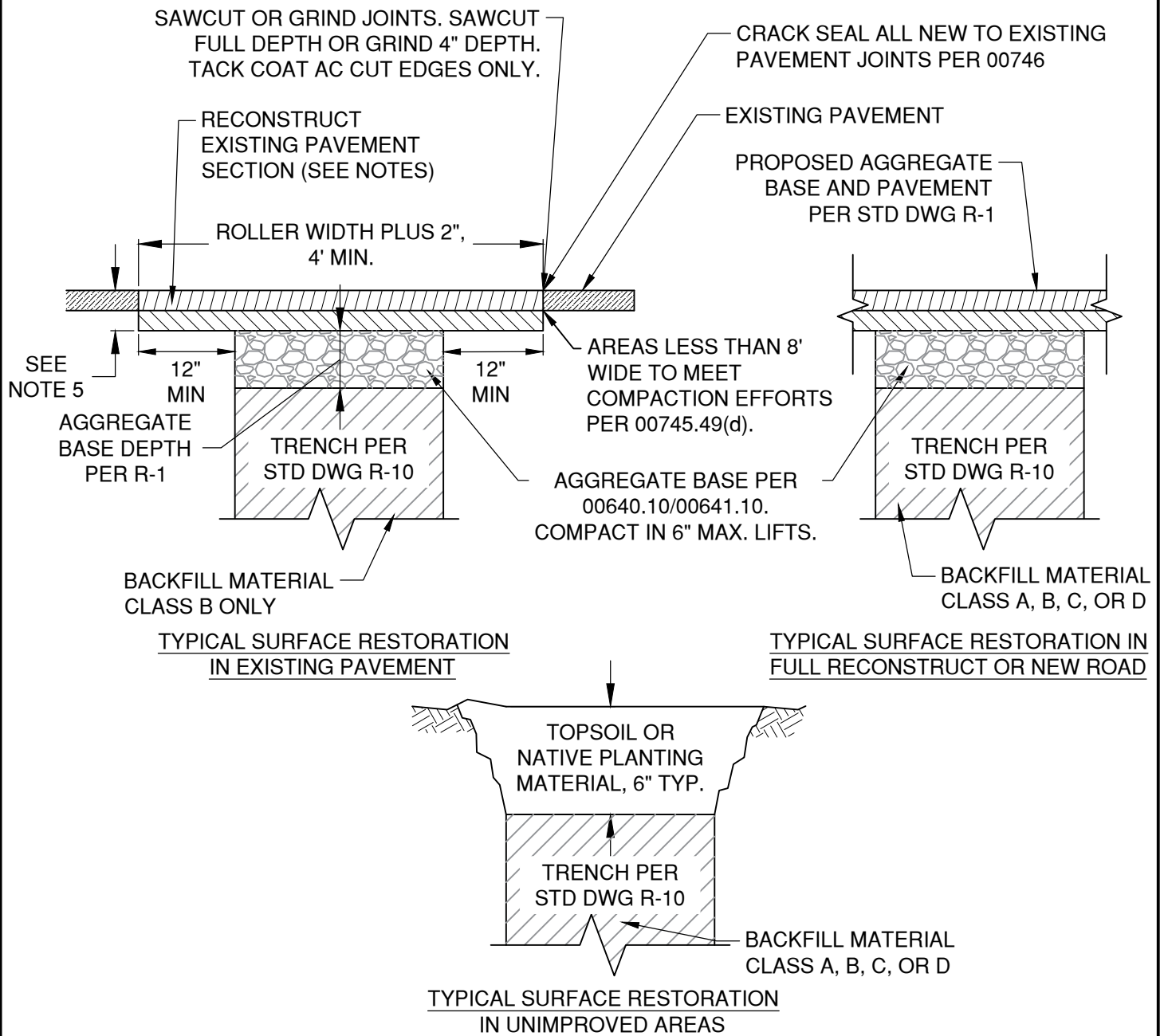
APPR

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.
 8. NO SWALES OR SURFACE STORMWATER DRAINAGE FACILITIES ARE PERMITTED OVER FRANCHISE UTILITIES.

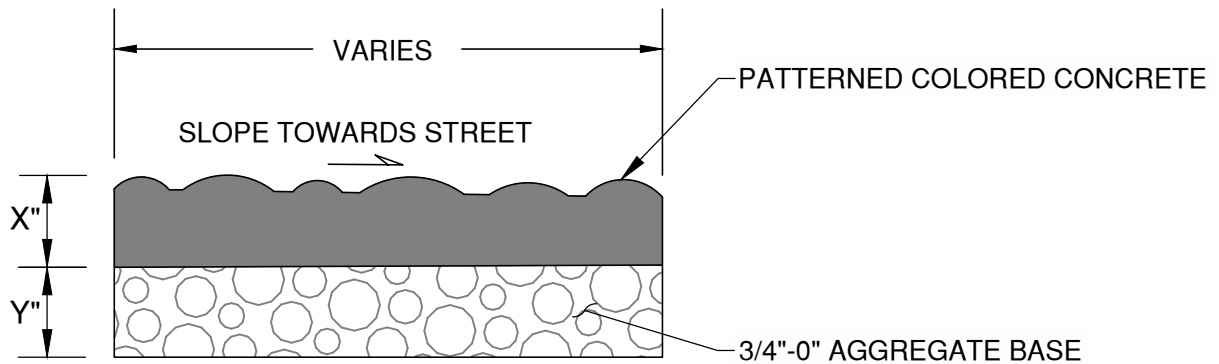
DRAWN AJD	 CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV ROADWAY			DATE 01/31/2022
REV DATE			APPR
		FRANCHISE UTILITY JOINT TRENCH	STD DWG R-10A



NOTES:

1. SURFACE RESTORATION IN EXISTING PAVEMENT TO COMPLY WITH SPECIFICATION 00495.
2. 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 AND PUEs.
3. ALL EXISTING AC OR PCC PAVEMENT SHALL BE SAWCUT PRIOR TO REPAVING. CONCRETE SHALL BE CUT AND REPLACED TO THE NEAREST JOINT(S).
4. CONCRETE PAVEMENT SHALL BE REPLACED WITH CONCRETE TO A MINIMUM THICKNESS OF 6" OR TO THE THICKNESS OF REMOVED PAVEMENT, WHICHEVER IS GREATER
5. PLACE ACP A MINIMUM THICKNESS PER R-1 OR TO THE THICKNESS OF REMOVED PAVEMENT, WHICHEVER IS GREATER. PLACE ACP IN 2" MAX LIFTS.

DRAWN AJD			CITY OF BEND	CITY OF BEND		SCALE NTS
DIV ROADWAY				STANDARD DRAWING	DATE 01/31/2022	
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				TRENCH SURFACE RESTORATION	STD DWG R-11	



X DIMENSION:


- MEDIAN/ALL ADJACENT TO TRAVEL LANE = 6"
- ONLY BACK SIDE OF SIDEWALK OR SEPARATE FROM TRAVEL LANE = 4"
- TRUCK APRON = 9"

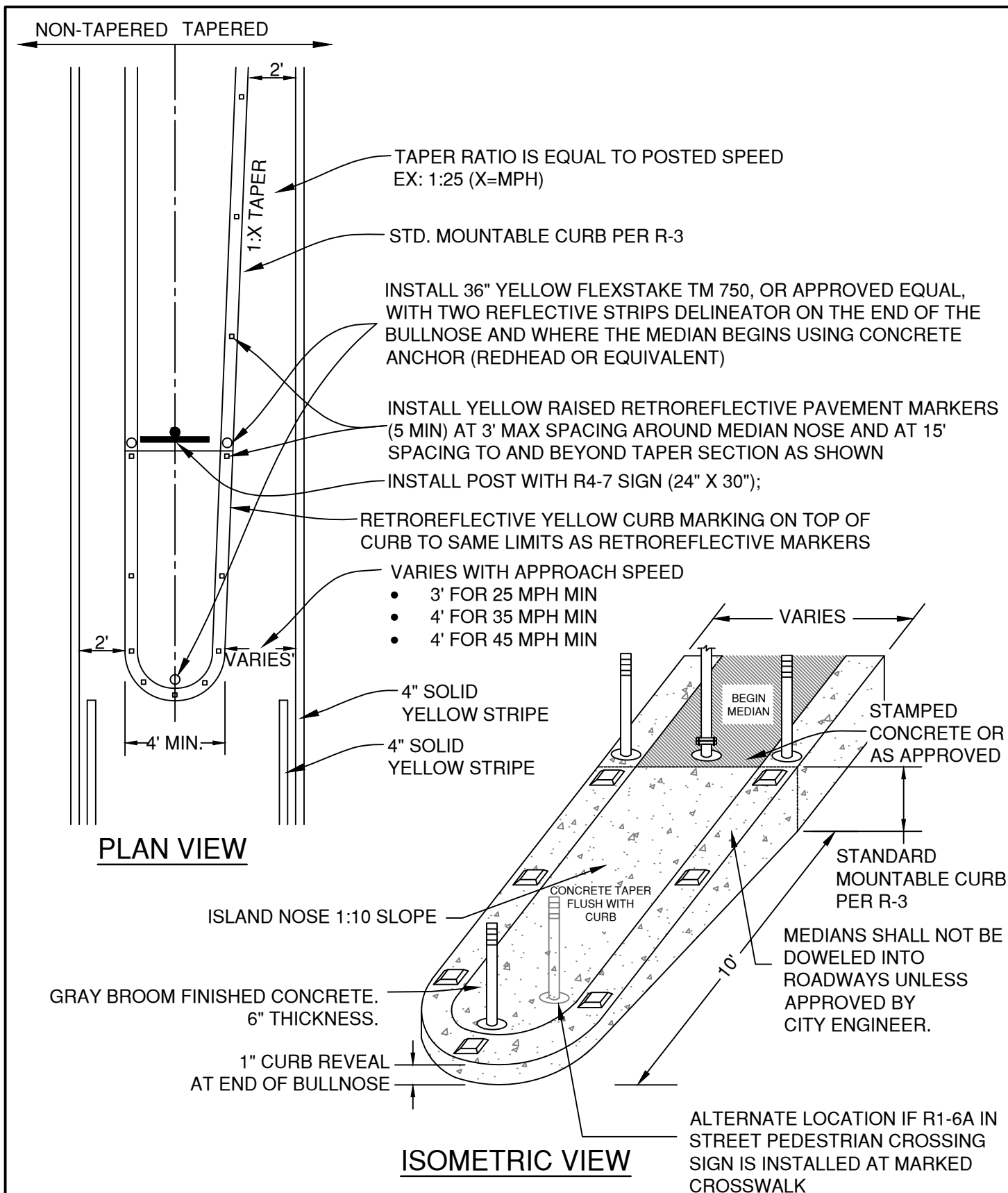
Y DIMENSION:


- MEDIAN/ALL ADJACENT TO TRAVEL LANE = 6"
- ONLY BACK SIDE OF SIDEWALK OR SEPARATE FROM TRAVEL LANE = 4"
- TRUCK APRON = 6"

NOTE:

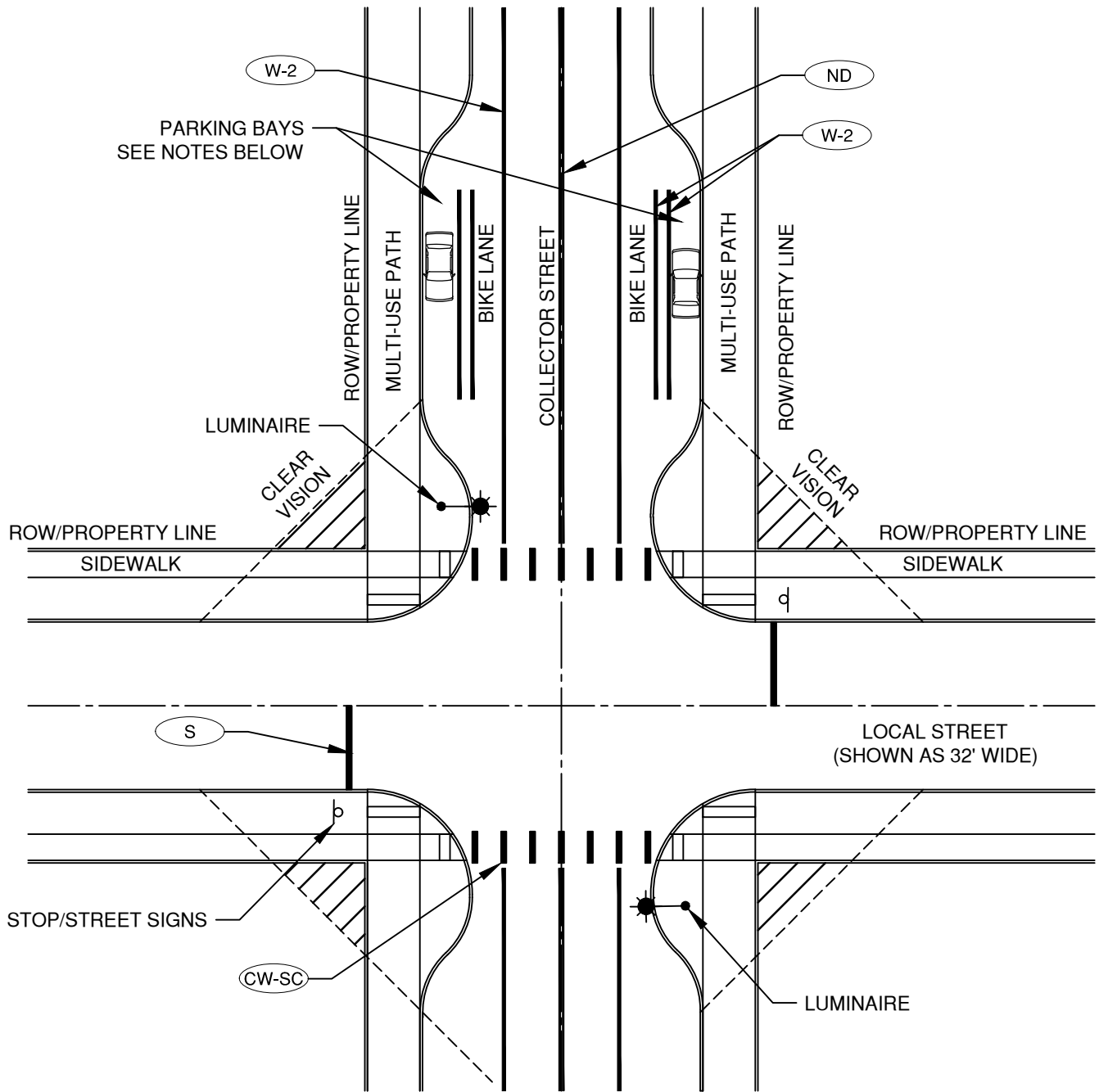
1. STAMPED CONCRETE SURFACE TEXTURE PATTERN SHALL BE BRICKFORM "FLAGSTONE" TM-700) WITH SAWCUT GROOVE JOINTS 1/3 CONCRETE DEPTH.
2. GLAZE AND SEAL PER MANUFACTURERS SPECS.
3. INTEGRAL COLOR: DAVIS SPANISH GOLD (3 LBS. #5084)
4. RELEASE COLOR: DAVIS DARK GREY (#860)

DRAWN AJD		CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
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	CITY OF BEND		STD DWG R-24



DRAWN AJD			CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV ROADWAY				DATE 01/31/2022
REV	DATE			APPR
				STD DWG R-25
CITY OF BEND			MEDIAN END DETAIL	

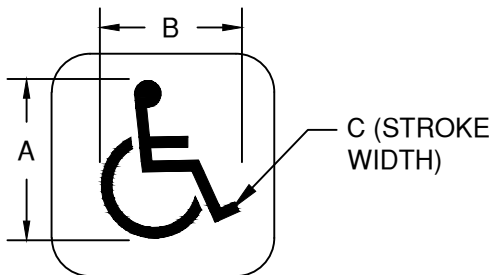
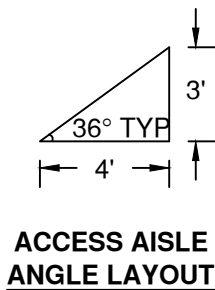
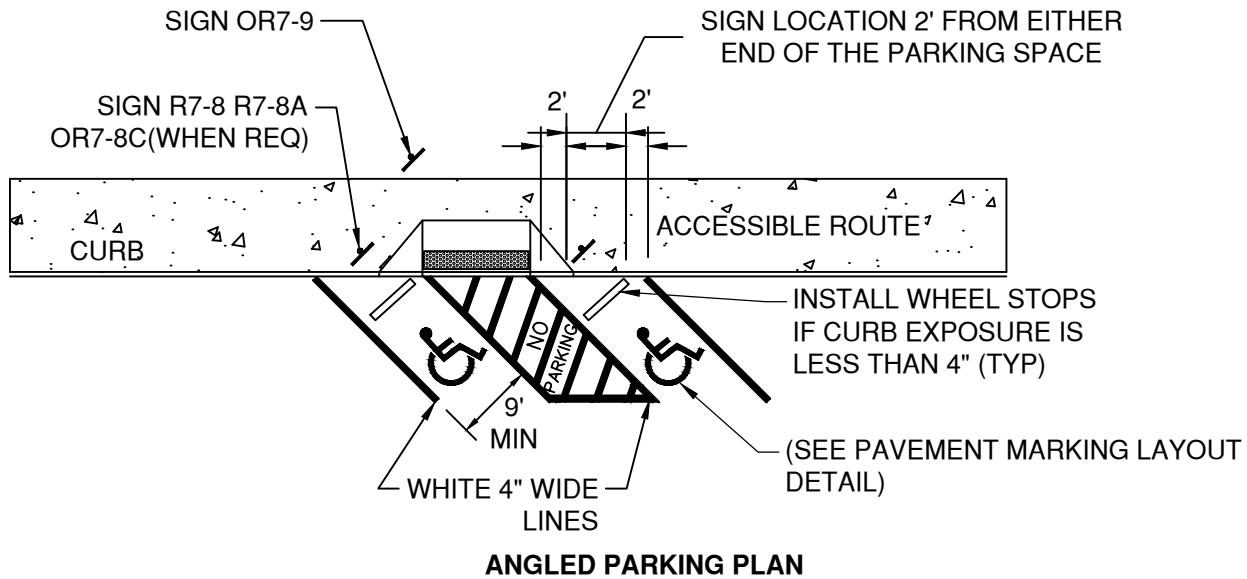
STD DWG R-26



NOTES:

1. PARKING BAYS SHALL BE DESIGNED OUTSIDE THE CLEAR VISION OF THE INTERSECTION. PARKING WILL BE PERMITTED IF CLEAR VISION AND SIGHT DISTANCE AS ANALYZED AS SAFE BY A PROFESSIONAL ENGINEER.
2. PARKING BAYS ON COLLECTORS ARE PERMITTED AS DIRECTED BY THE DEVELOPMENT CODE.
3. NO MORE THAN 10 PARKING BAYS WILL BE PERMITTED TOGETHER. TERMINATION OF BAYS WILL BE FOR VEGETATION PLANTING, UTILITY INSTALLATION (FRANCHISE UTILITY VAULTS, STORM FACILITIES, ETC).
4. PARKING IS NOT PERMITTED WITHIN THE INTERSECTION'S CLEAR VISION AND SIGHT DISTANCE AS DETERMINED BY AASHTO REQUIREMENTS AND ENGINEER REVIEW.

DRAWN AJD			CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701		SCALE NTS
DIV ROADWAY					DATE 01/31/2022
REV	DATE		APPR		
			STD DWG R-27		
			COLLECTOR / LOCAL INTERSECTION		

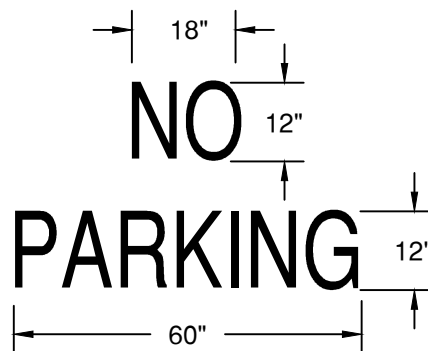
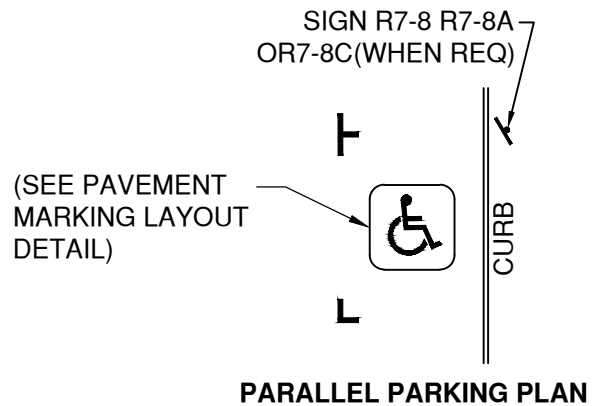


LEGEND	DIMENSIONS (INCHES)		
	A	B	C
MINIMUM	28	24	3
STANDARD	41	36	4

PAVEMENT MARKING 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	AJD
DIV	ROADWAY
REV	DATE



CITY OF BEND

CITY OF BEND

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

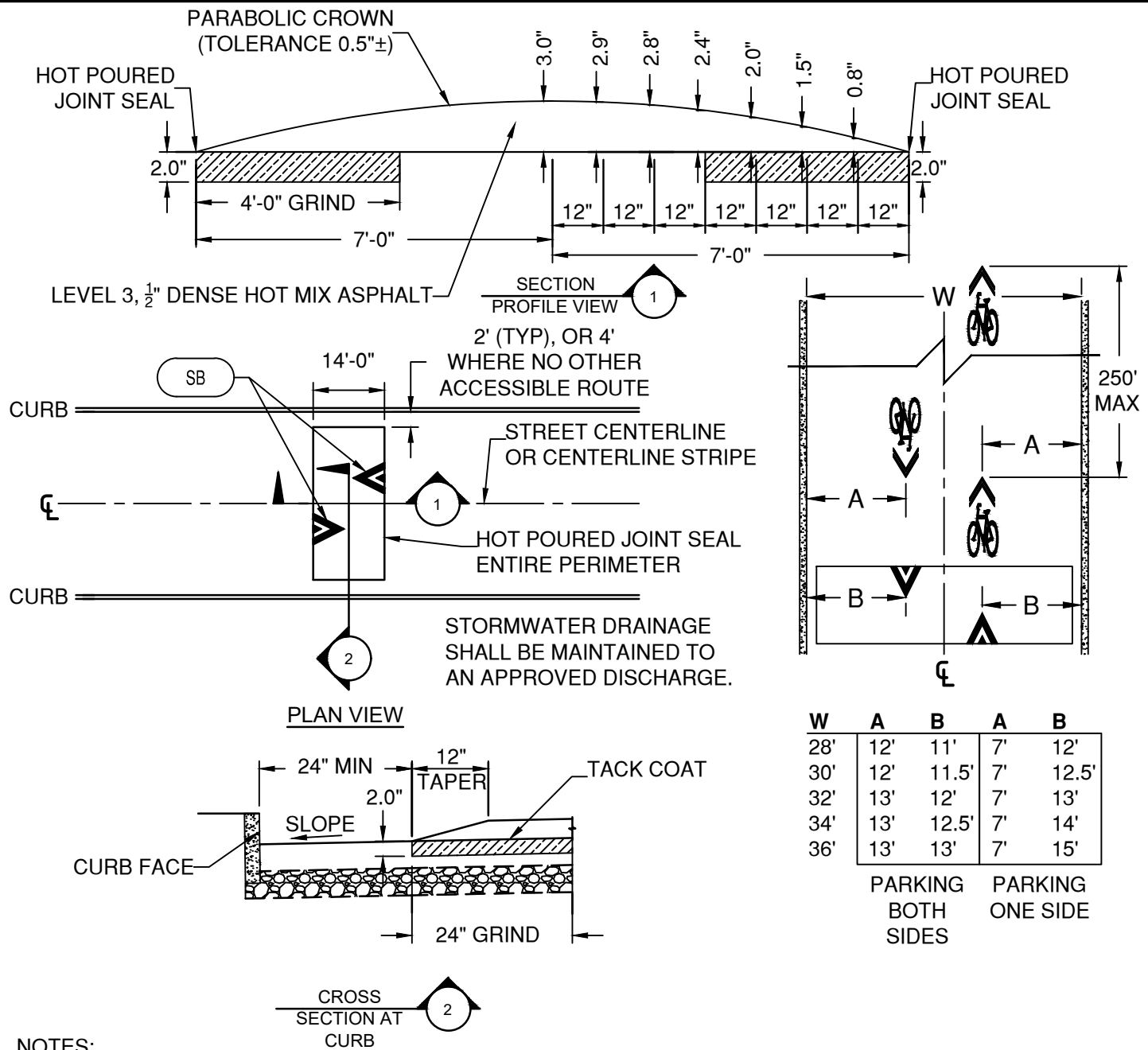
ACCESSIBLE PARKING - ANGLE

SCALE NTS

DATE 01/31/2022

APPR

STD DWG R-29



NOTES:

1. SPEED HUMPS ARE ONLY PERMITTED IN SELECT LOCATIONS. REFER TO CITY DESIGN STANDARDS.
2. WHERE SPEED HUMP IS A RETRO-FIT TO AN EXISTING ROAD:
 - 2.1. GRIND / KEY-IN PERIMETER TO THE DIMENSIONS SHOWN OR AS DIRECTED BY THE ENGINEER.
 - 2.2. APPLY TACK COAT TO ALL EXISTING SURFACES WHERE SPEED HUMP WILL BE IN CONTACT.
3. HOT POURED JOINT SEAL THE ENTIRE PERIMETER AFTER INSTALLATION.
4. ALL VERTICAL DIMENSIONS HAVE A REQUIRED MAXIMUM TOLERANCE OF +/- 1/4".
5. THE DISTANCE BETWEEN CURB AND EDGE OF THE SPEED HUMP VARIES. SEE ENGINEERED PLANS.
6. PAVEMENT MARKINGS ON SPEED BUMP SHALL BE INSTALLED CONCURRENTLY WITH THE ASPHALT STRUCTURES. PAVEMENT MARKINGS SHALL BE THERMO-PLASTIC.
7. PAVEMENT MARKINGS SHALL BE INSTALLED BEFORE OPENING ANY LANE TO TRAFFIC THAT IS OCCUPIED BY A NEW SPEED BUMP.
8. SPEED HUMPS ARE NOT PERMITTED IN ACCESSIBLE ROUTES OR WHERE IN CONFLICT WITH DRIVEWAYS.

DRAWN A.JD
DIV ROADWAY
REV DATE



CITY OF BEND

CITY OF BEND

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

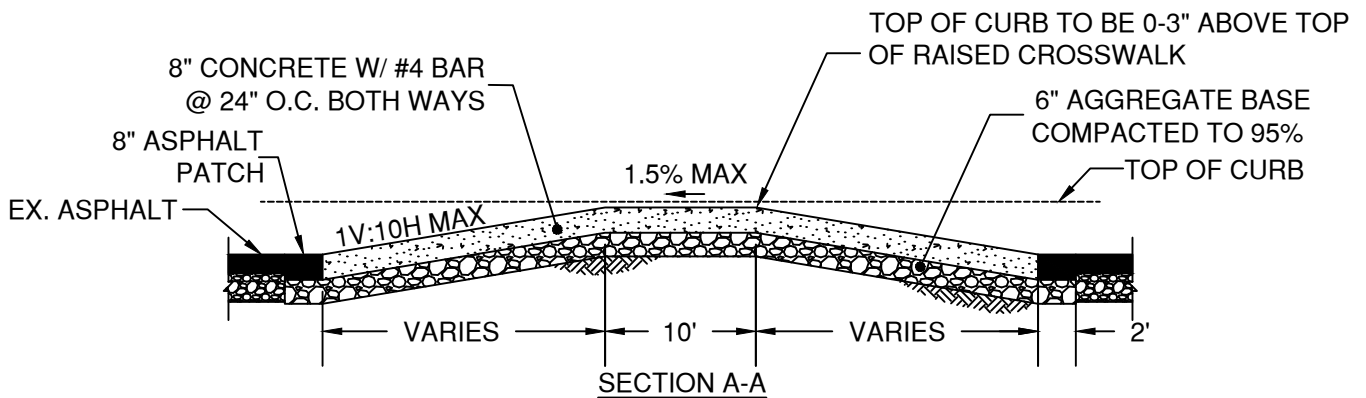
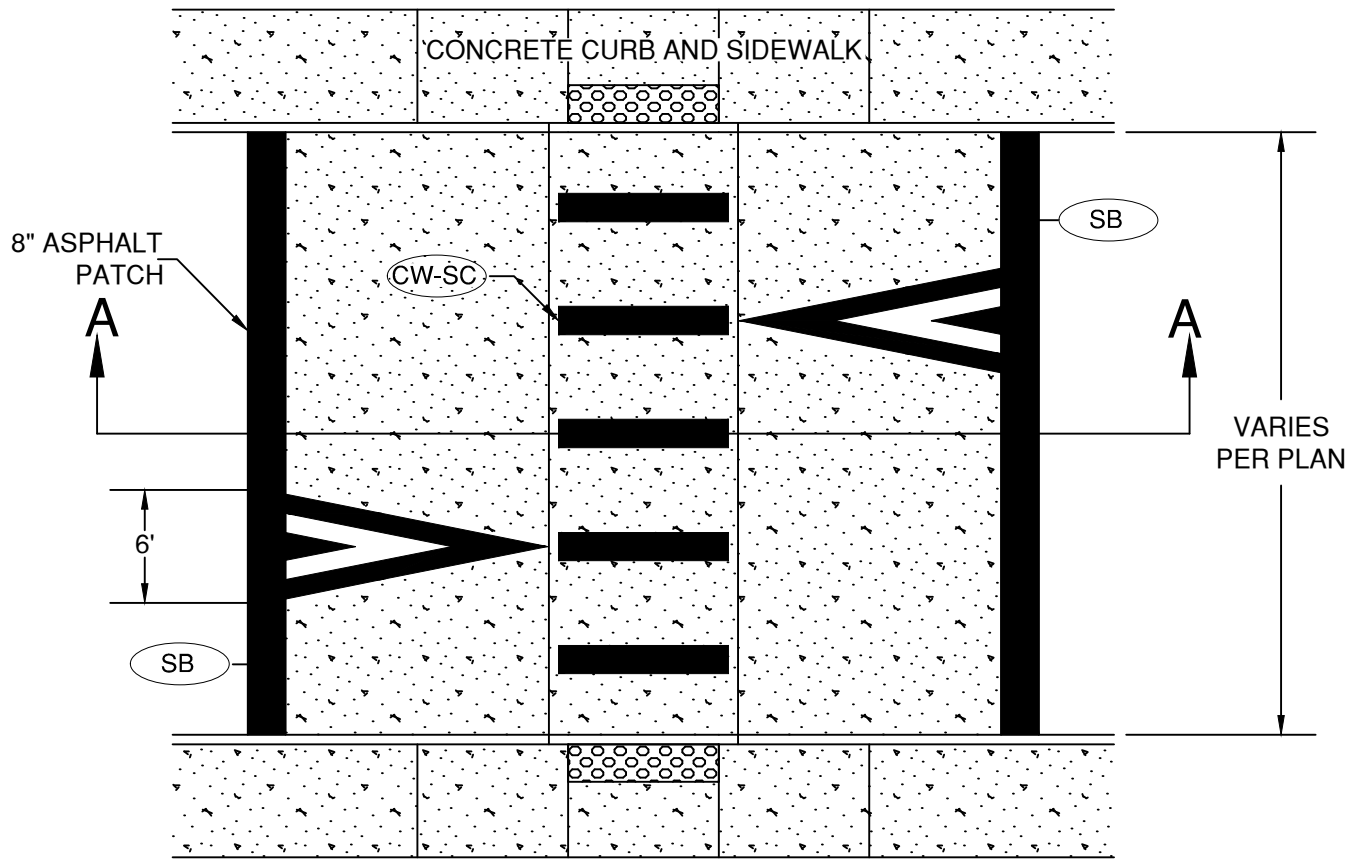
SPEED HUMPS AND SHARROW PLACEMENT

SCALE NTS

DATE 01/31/2022

APPR

STD DWG R-32



NOTES:

1. RAISED CROSSWALKS ARE ONLY PERMITTED IN SELECT LOCATIONS. REFER TO CITY DESIGN STANDARDS.
2. HOT POURED JOINT SEAL THE ENTIRE PERIMETER AFTER INSTALLATION.
3. PAVEMENT MARKINGS ON RAISED CROSSWALKS SHALL BE THERMO-PLASTIC.
4. PAVEMENT MARKINGS SHALL BE INSTALLED BEFORE OPENING ANY LANE TO TRAFFIC THAT IS OCCUPIED BY A NEW SPEED BUMP.

DRAWN AJD
DIV ROADWAY
REV DATE



CITY OF BEND

CITY OF BEND

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

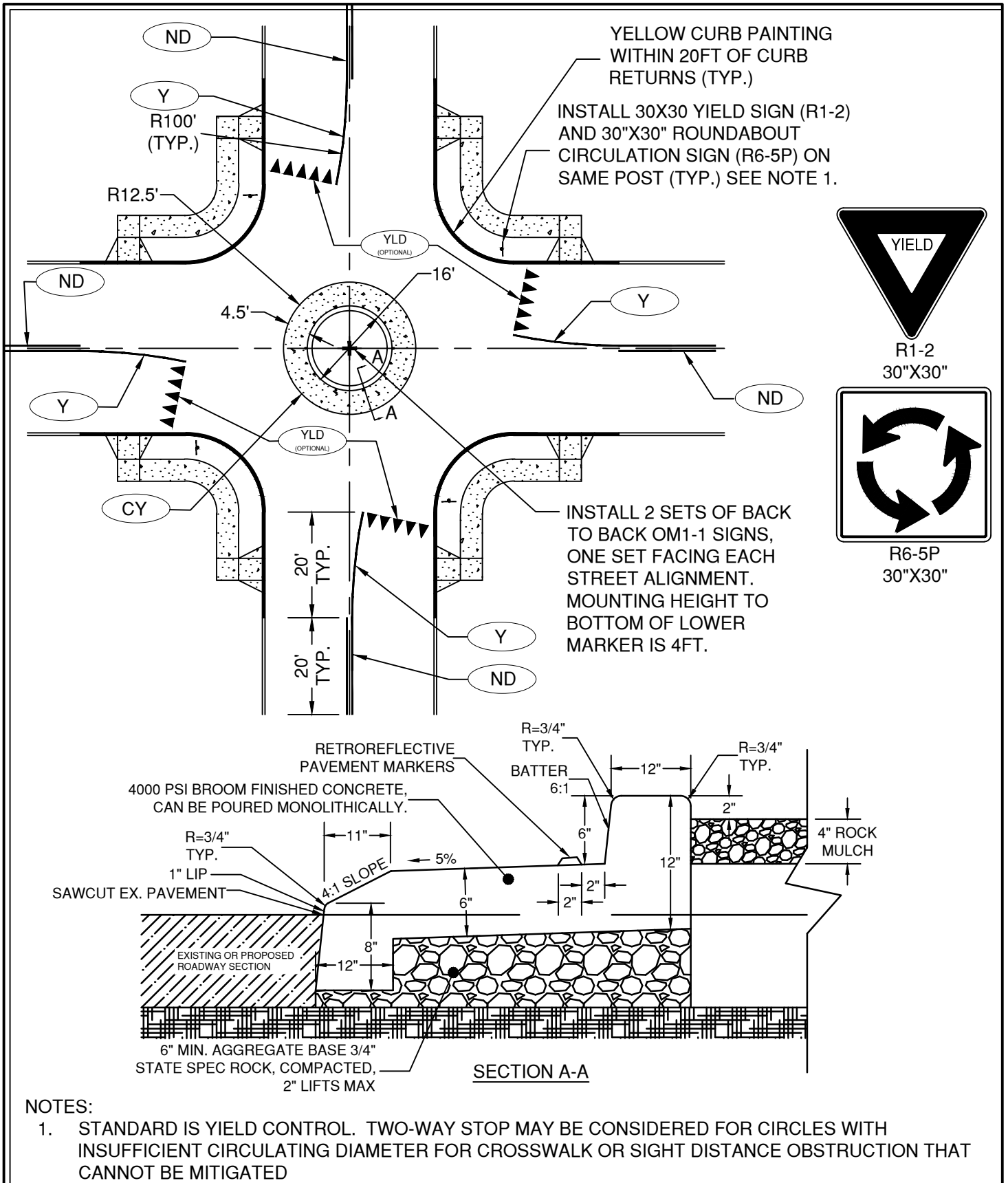
RAISED CROSSWALK


SCALE NTS

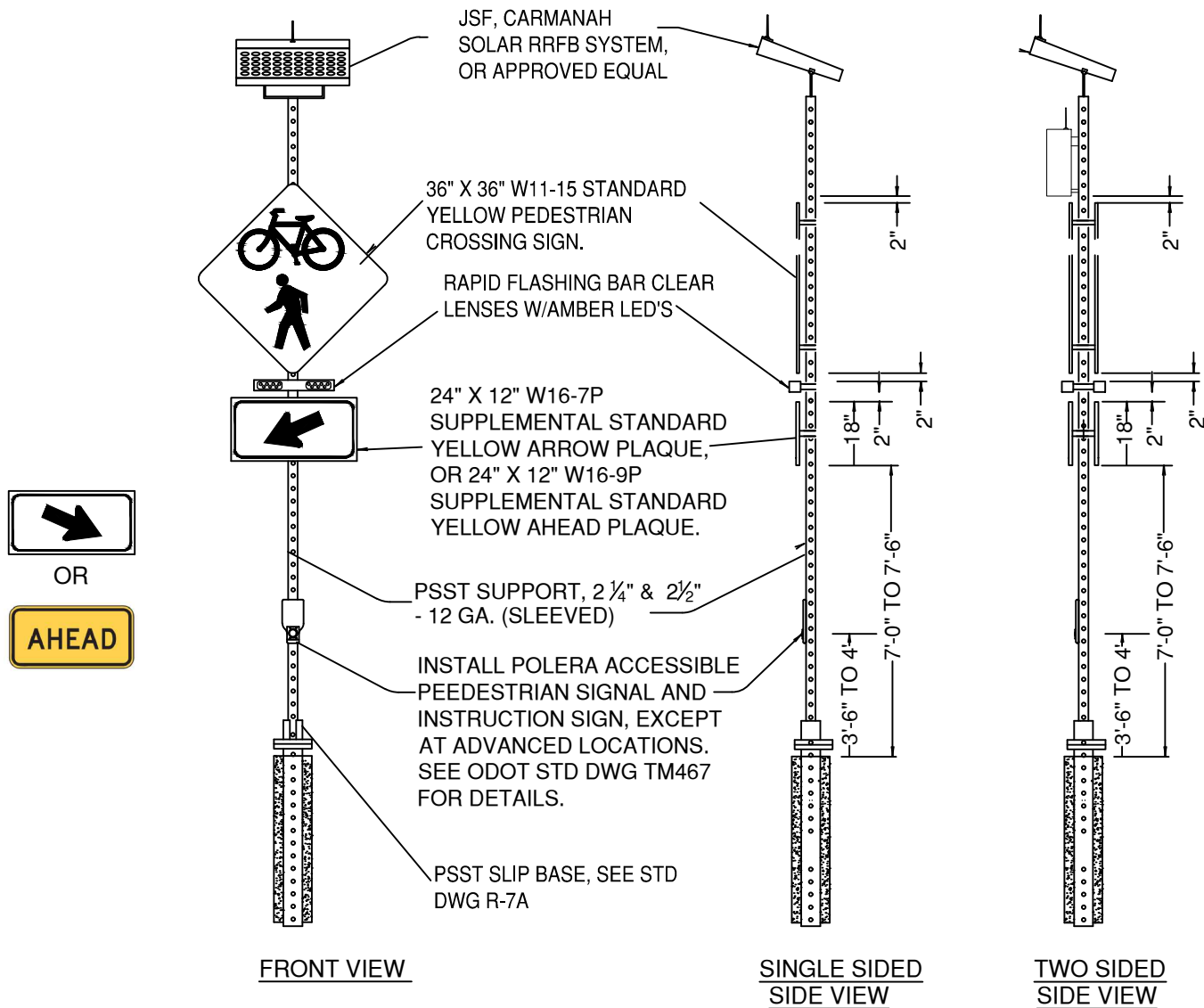
DATE 01/31/2022

APPR

STD DWG R-33



DRAWN AJD DIV ROADWAY REV DATE	 CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 TRAFFIC CIRCLE	SCALE NTS DATE 01/31/2022 APPR STD DWG R-34
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**RECTANGULAR RAPID FLASHING BEACON SYSTEM
PSST INSTALLATION**

NOTES:

1. REMOVE SOLAR EQUIPMENT IF USING COMMERCIAL POWER
2. ADD RADIO NETWORK CONTROLLER FOR WIRELESS EQUIPMENT IF NEEDED
3. USE SCHOOL CROSSING (S1-1) FOR DESIGNATED SCHOOL CROSSING

DRAWN	AJD
DIV	ROADWAY
REV	DATE



CITY OF BEND

CITY OF BEND

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701



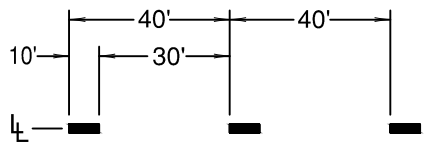
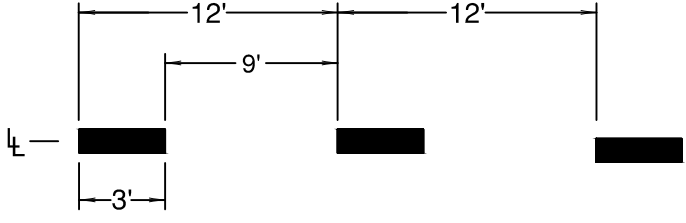
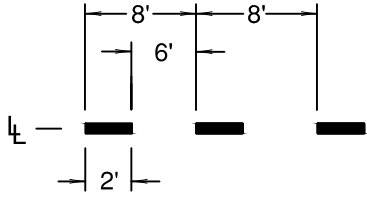
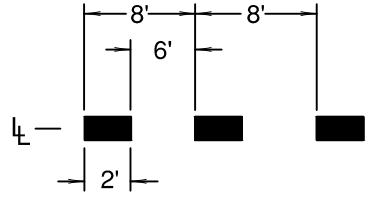
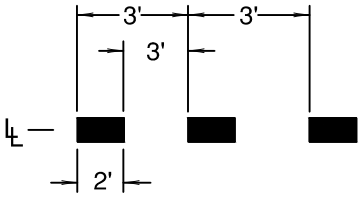
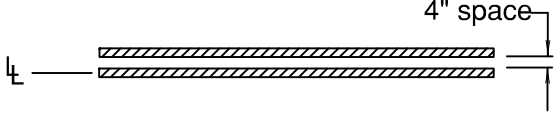
RECTANGULAR RAPID FLASHING BEACON


SCALE NTS


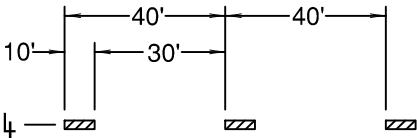
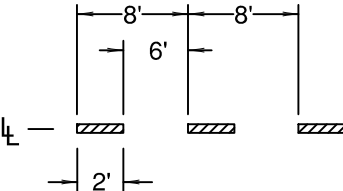
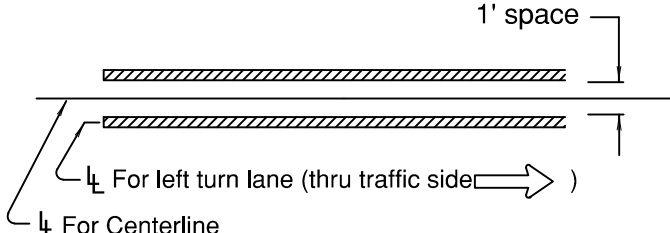
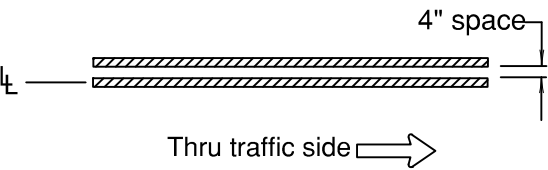
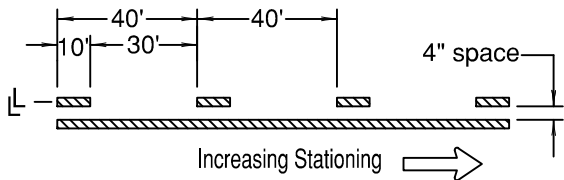
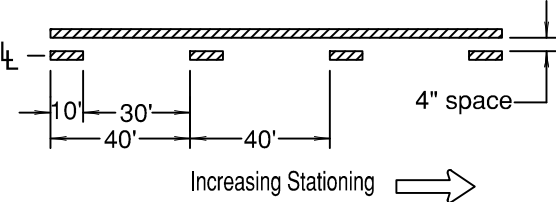
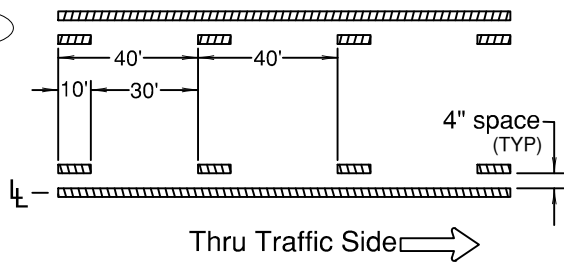
DATE 01/31/2022


APPR

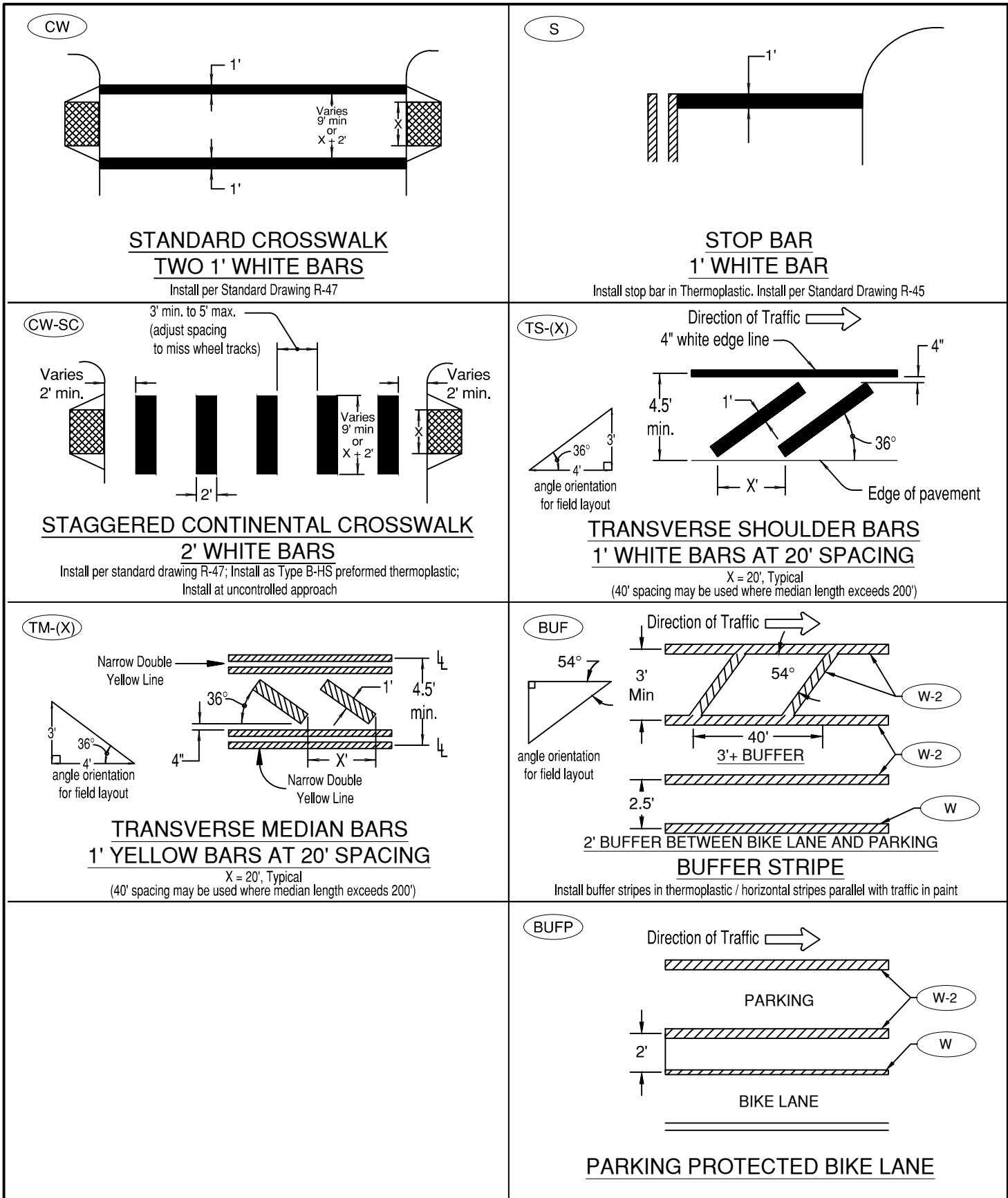
STD DWG R-35

<p>W</p>  <p><u>4" WHITE LINE</u></p>	<p>W-2</p>  <p><u>8" WHITE LINE</u></p>
<p>WB</p>  <p><u>4" WHITE BROKEN LINE</u></p>	<p>DLL-2</p>  <p><u>8" WHITE DOTTED LANE LINE</u></p>
<p>WD</p>  <p><u>4" WHITE DOTTED LINE</u> For lane extensions</p>	<p>WD-2</p>  <p><u>8" WHITE DOTTED LINE</u> For lane extensions</p>
<p>WRAB</p>  <p><u>8" WHITE DOTTED ROUNDABOUT CIRCULATING LINE</u> INSTALL AS TYPE B-HS PREFORMED THERMOPLASTIC</p>	<p>NDW</p>  <p><u>NARROW DOUBLE NO-LANE CHANGE TWO 4" WHITE LINES</u></p>

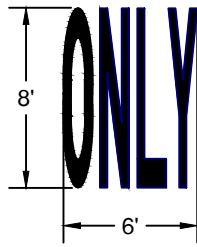
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<p>(Y)</p>  <p><u>4" YELLOW LINE</u></p>	<p>(YB)</p>  <p><u>4" YELLOW BROKEN LINE</u></p>
<p>(YD)</p>  <p><u>4" YELLOW DOTTED LINE</u> For lane extensions</p>	<p>(D)</p>  <p><u>DOUBLE NO-PASS</u> <u>TWO 4" YELLOW LINES</u></p>
<p>(ND)</p>  <p><u>NARROW DOUBLE NO-PASS</u> <u>TWO 4" YELLOW LINES</u></p>	<p>(NPR)</p>  <p><u>NO-PASS RIGHT</u> <u>4" YELLOW LINES</u></p>
<p>(NPL)</p>  <p><u>NO-PASS LEFT</u> <u>4" YELLOW LINES</u></p>	<p>(TWL)</p>  <p><u>TWO-WAY LEFT TURN</u> <u>4" YELLOW LINES</u> SEE R-44 FOR ARROW PLACEMENT</p>

<p>DRAWN AJD</p> <p>DIV ROADWAY</p> <p>REV DATE</p>	 <p>CITY OF BEND</p>	<p>CITY OF BEND</p> <p>STANDARD DRAWING</p> <p>710 NW WALL ST., BEND, OREGON 97701</p> <p>PAVEMENT MARKINGS - YELLOW</p>	<p>SCALE NTS</p> <p>DATE 01/31/2022</p> <p>APPR</p> <p>STD DWG R-41</p>
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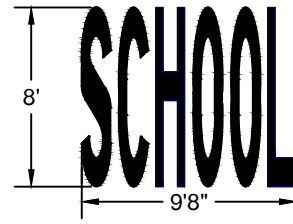
ON



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

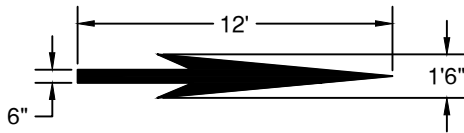
SCH



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

E-SA

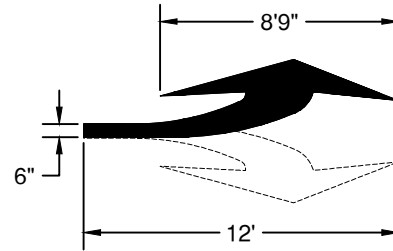


ELONGATED STRAIGHT ARROW (white)

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

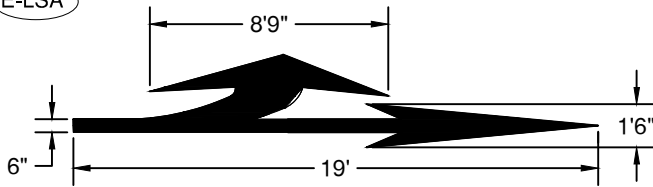
E-RA



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.

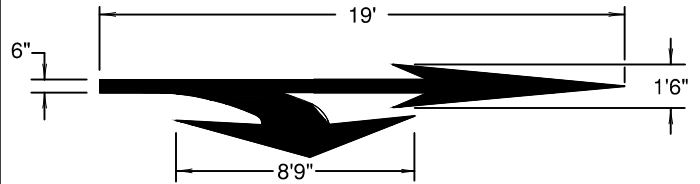
E-LSA



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

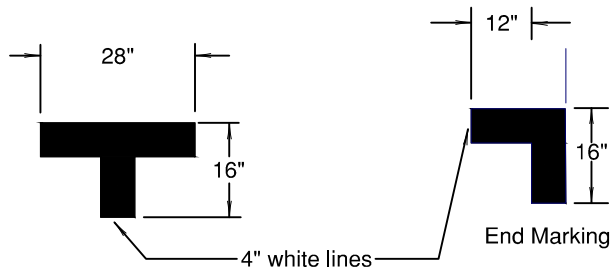
E-RSA



ELONGATED RIGHT TURN STRAIGHT ARROW (white)

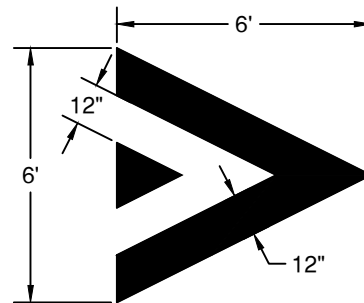
For arrow proportion details, see current version of FHWA Standard Highway Signs
Install in Type B - HS Preformed Thermoplastic
Center marking within lane width

P



ON-STREET PARKING DETAIL (white)

SB



SPEED BUMP MARKING (WHITE)

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

DRAWN AJD
DIV ROADWAY
REV DATE



CITY OF BEND

CITY OF BEND

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

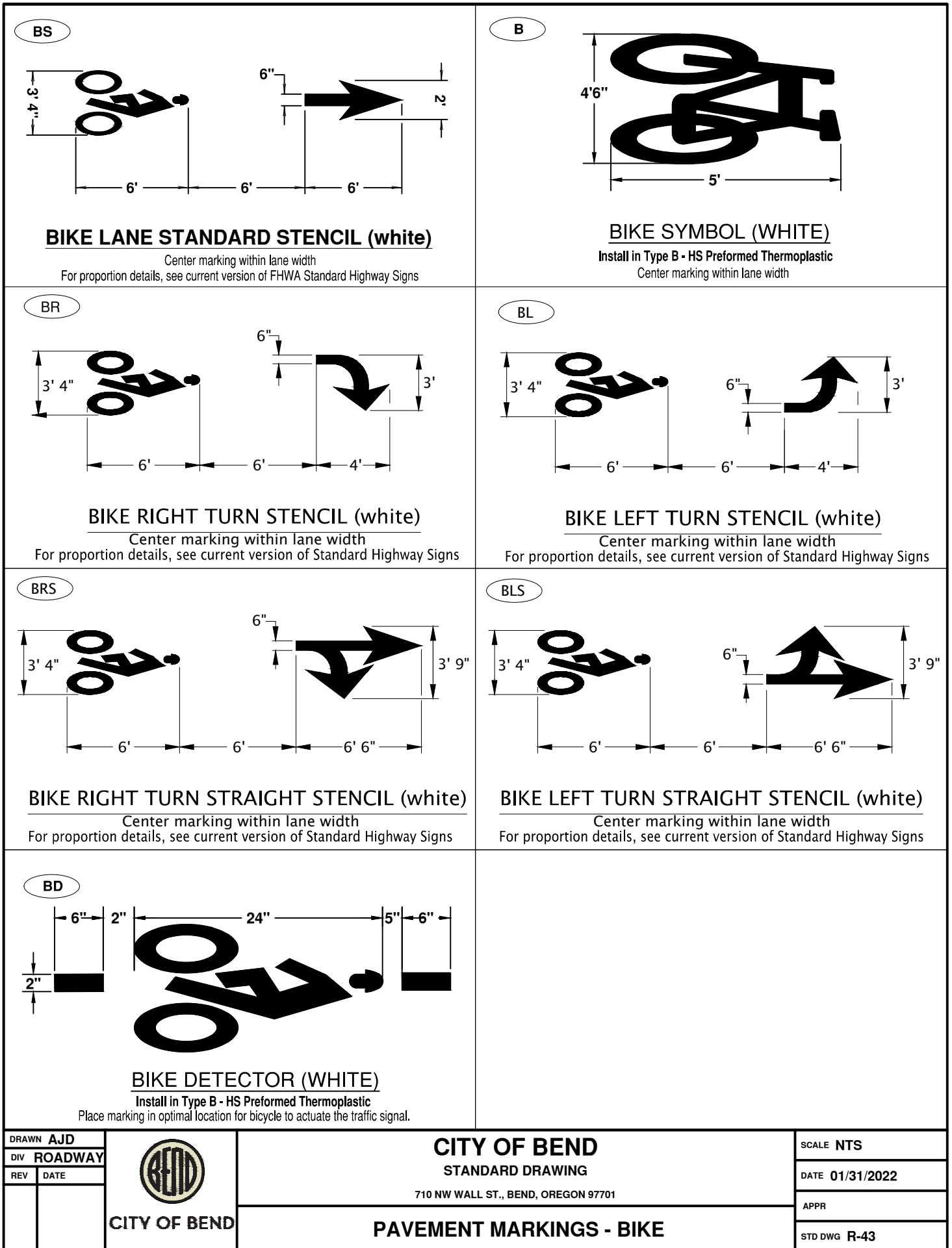
PAVEMENT MARKINGS

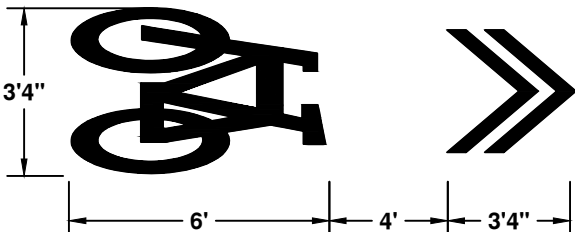
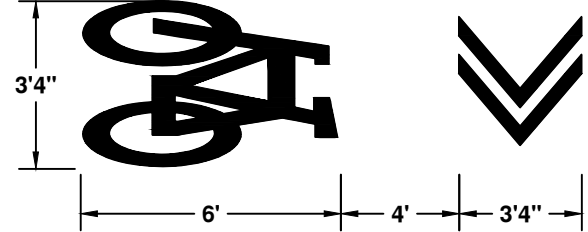
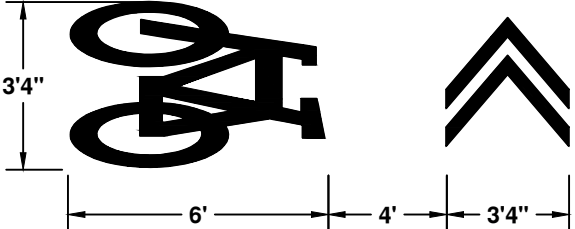
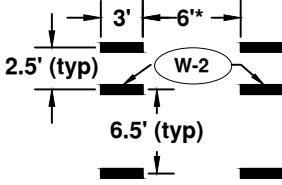
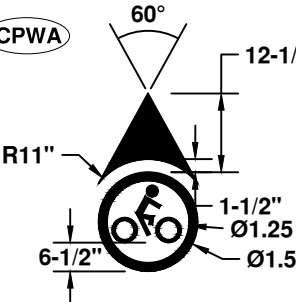
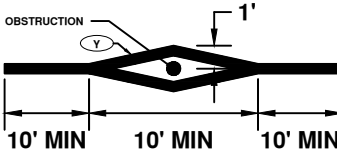

SCALE NTS

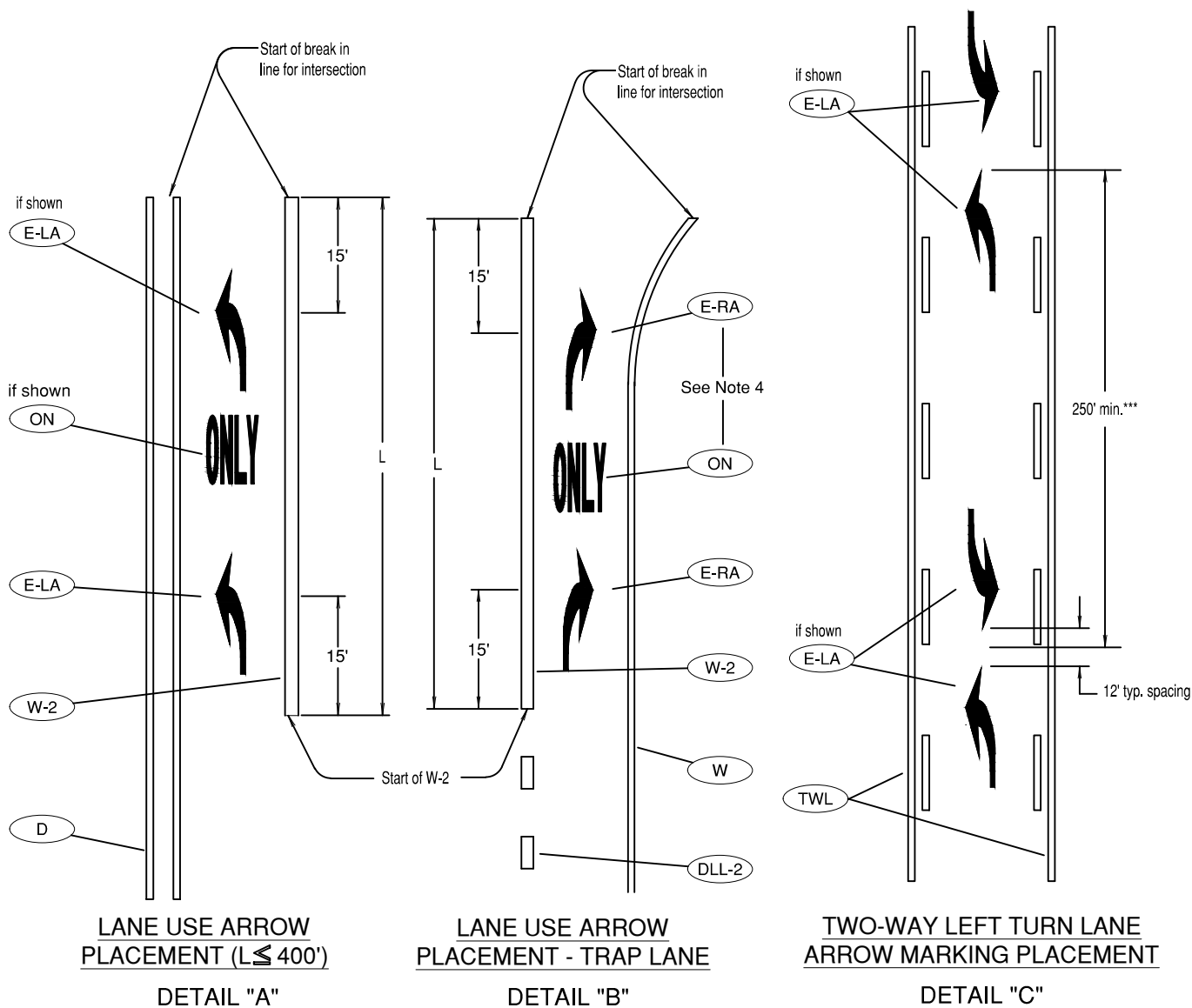
DATE 01/31/2022

APPR

STD DWG R-42B



<div>SLM</div>  <p>SHARROWS (WHITE) Install in Type B - HS Preformed Thermoplastic Locate marking per R-32 Arrow may be turned in direction of travel.</p>		<div>SLM-R</div>  <p>RIGHT TURN SHARROWS (WHITE) Install in Type B - HS Preformed Thermoplastic Locate marking per R-32</p>			
<div>SLM-L</div>  <p>LEFT TURN SHARROWS (WHITE) Install in Type B - HS Preformed Thermoplastic Locate marking per R-32</p>		<div>BLE</div> <p>Direction of Traffic →</p>  <p>BIKE MARKING EXTENSION THROUGH INTERSECTION * 6' or bike lane width Install buffer stripes in Methyl Methacrylate (MMA)</p>			
<div>CPWA</div>  <p>COMMON PATH WAYFINDING ARROW Black inner circle / Green ring / White arrow/bike symbol Arrow may be turned in direction of travel.</p>		<div>Y-OM</div>  <p>YELLOW MARKING OBSTRUCTION IN PATH</p>			
<div>DRAWN AJD</div> <div>DIV ROADWAY</div> <div>REV DATE</div>		<div><p>CITY OF BEND</p></div> <div><p>CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701</p><p>PAVEMENT MARKINGS - BIKE</p></div>		<div>SCALE NTS</div> <div>DATE 01/31/2022</div> <div>APPR</div> <div>STD DWG R-43A</div>	



General Notes:

- Center pavement marking legends within the lane.
- 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.
- When used for a short turn lane ($<40'$), the 2nd (downstream) arrow may be omitted.
- 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

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DIV ROADWAY
REV DATE



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STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

TURN LANE MARKING LAYOUT

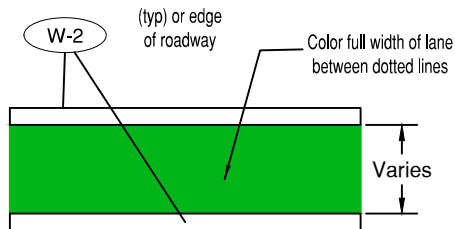
SCALE NTS

DATE 01/31/2022

APPR

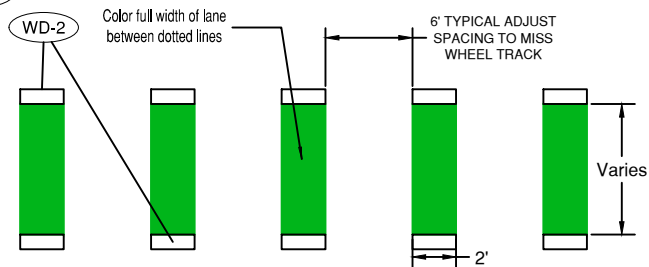
STD DWG R-44

GRN

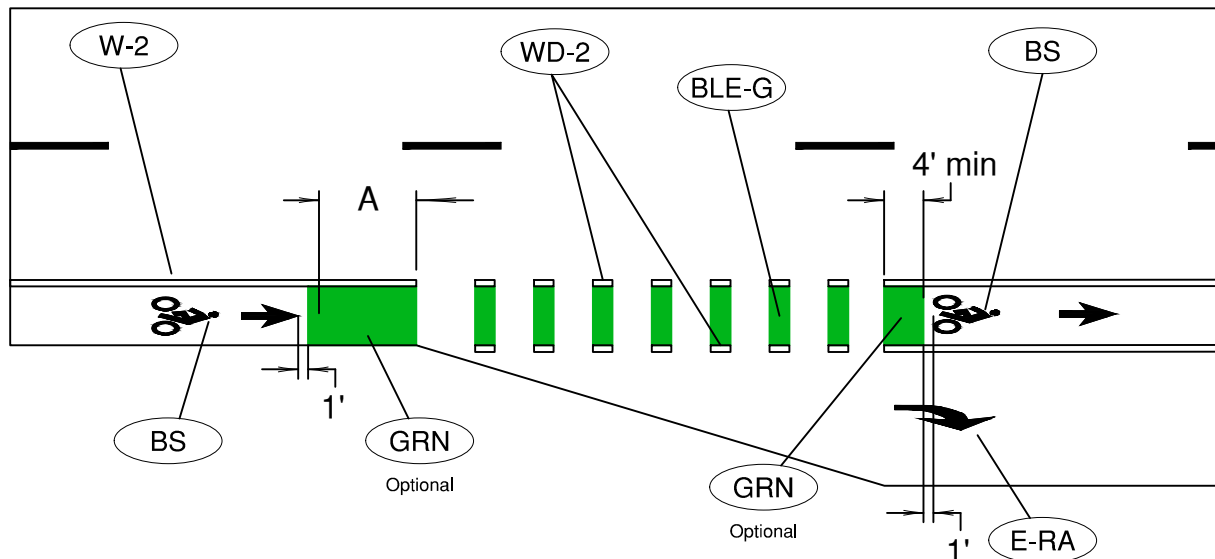


**GREEN SUPPLEMENTED BICYCLE LANE
SOLID LANE**

BLE-G



**GREEN SUPPLEMENTED BICYCLE LANE
DOTTED LINE EXTENSION**



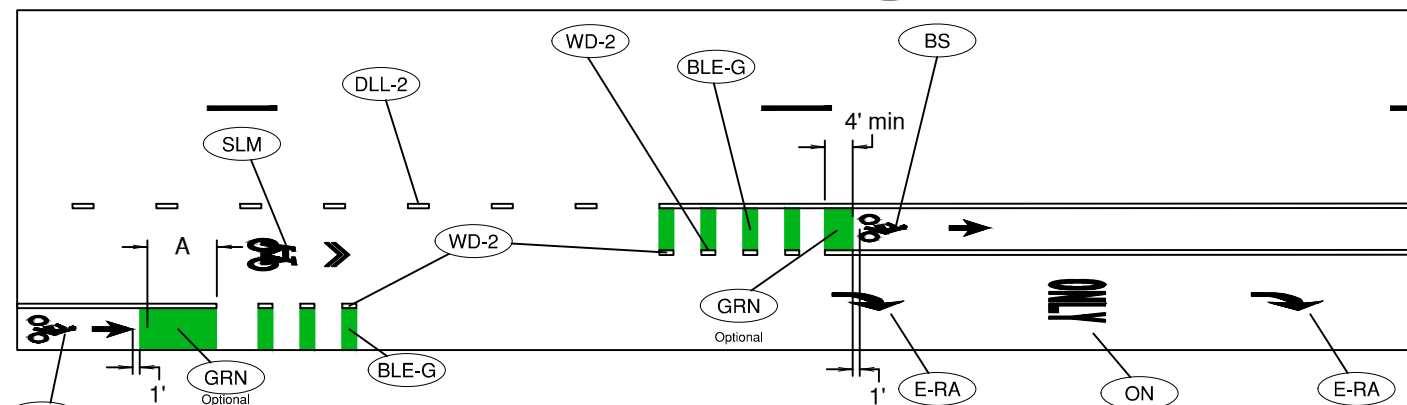
TYPICAL GREEN SUPPLEMENTED BICYCLE LANE ACROSS AN ADDED RIGHT TURN LANE TAPER

NOTES:

1. GREEN PAVEMENT MARKING USE PER DESIGN STANDARDS WITH CITY ENGINEER APPROVAL

POSTED SPEED (MPH)	A* (FT.) (MIN)
35 AND LESS	9
40	30
45	50

Add 20 ft if **BS** does not precede **GRN**



TYPICAL GREEN SUPPLEMENTED BICYCLE LANE AT A DROPPED RIGHT TURN LANE

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DIV ROADWAY
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710 NW WALL ST., BEND, OREGON 97701

INTERSECTION BIKE SAFETY

SCALE NTS

DATE 01/31/2022

APPR

STD DWG R-44A

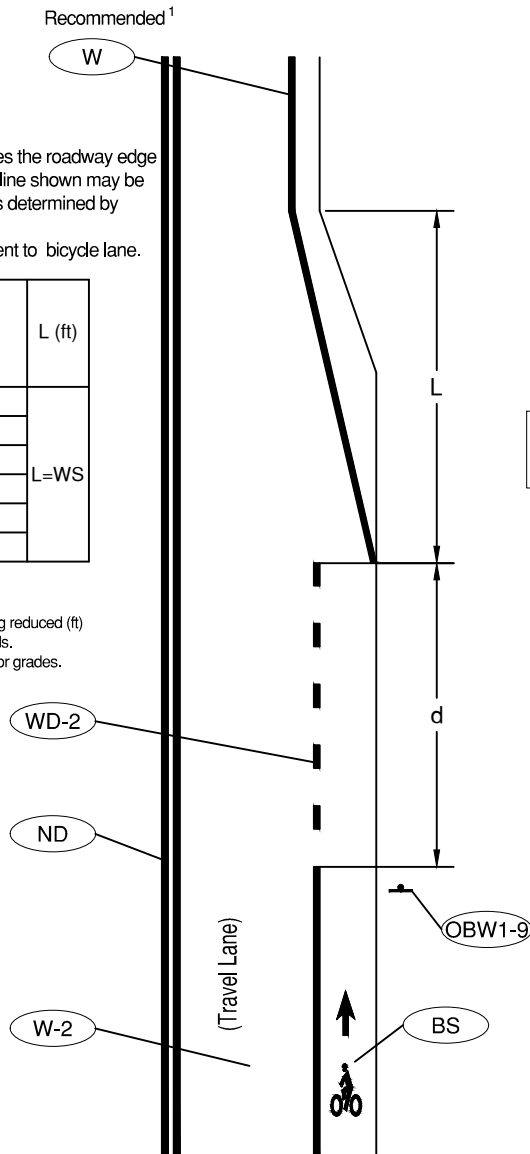
General Notes:

1. Where a curb clearly defines the roadway edge in the taper area, the edge line shown may be omitted in the taper area as determined by engineer judgement.
2. Motor vehicle speed adjacent to bicycle lane.

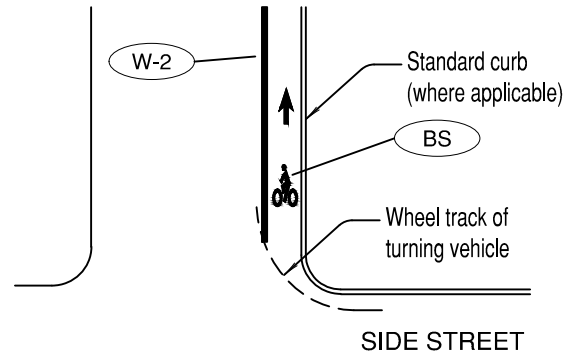
POSTED OR 85TH PERCENTILE SPEED (MPH) ²	d (FT)	L (ft)
20	128	L=WS
25	152	
30	176	
35	184	
40	192	
45+	200	

WHERE:

L = taper length
W = width of bicycle lane being reduced (ft)
"d" distances are for level roads.
Corrections should be made for grades.



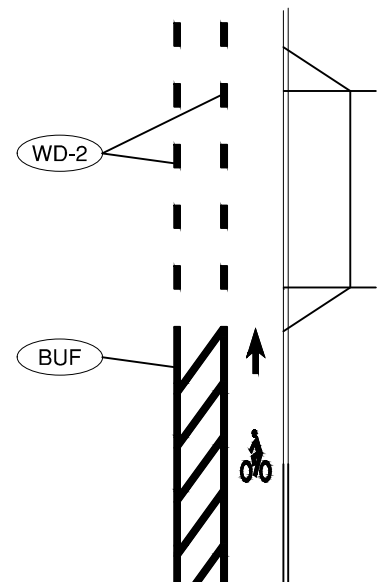
END OF BIKE LANE



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
(FOR HIGH VOLUME COMMERCIAL DRIVEWAYS)

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

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710 NW WALL ST., BEND, OREGON 97701

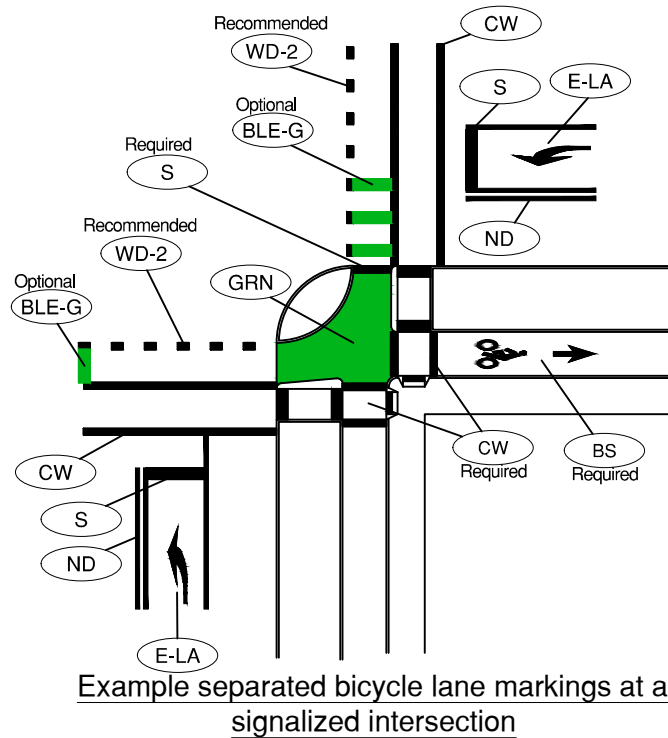
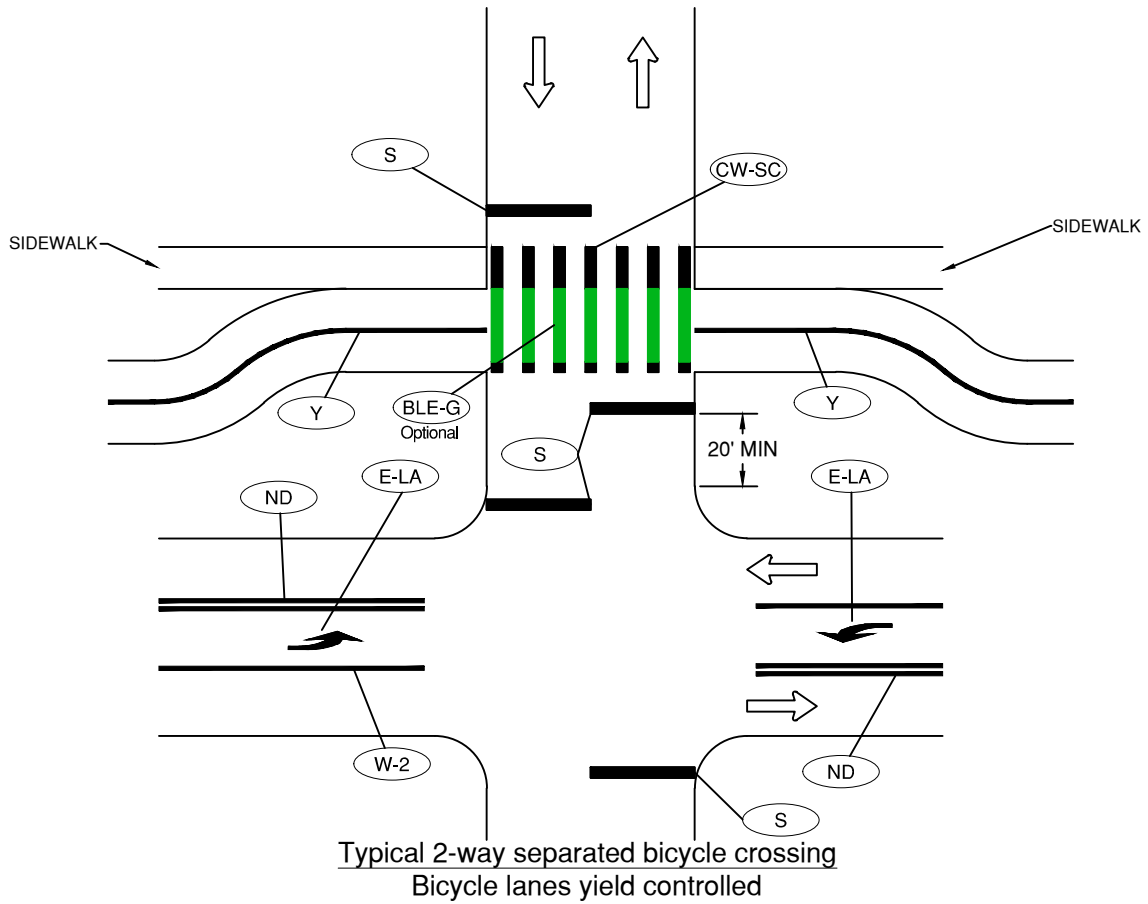
BIKE LANE MARKINGS

SCALE NTS

DATE 01/31/2022

APPR

STD DWG R-44B



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DIV ROADWAY
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STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

BIKE LANE MARKINGS

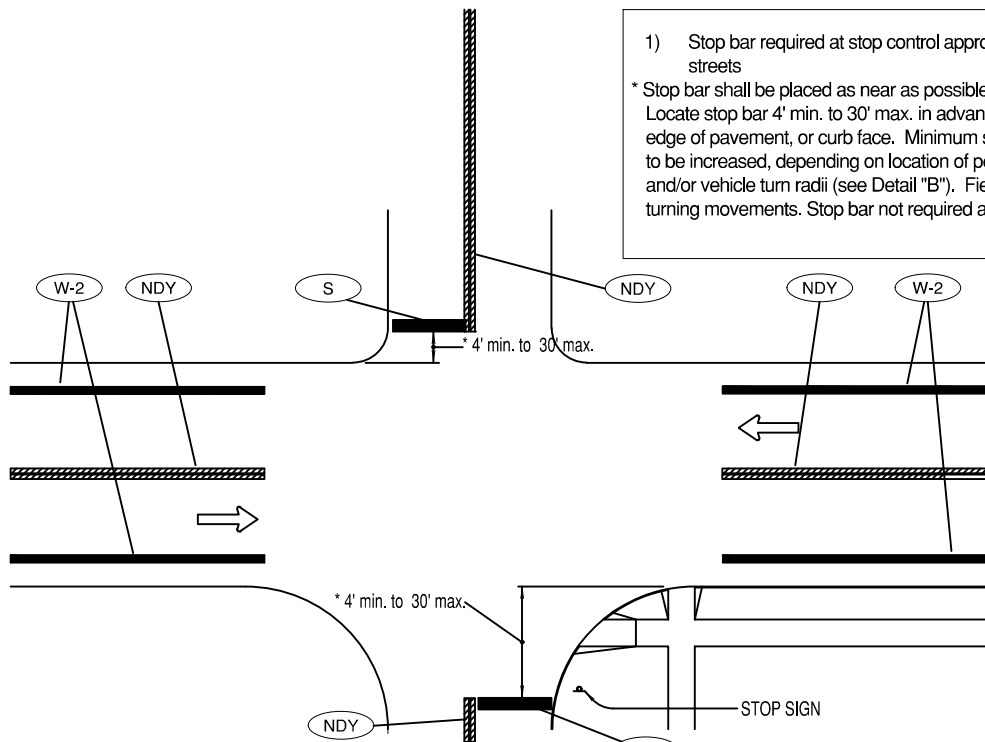
SCALE NTS

DATE 01/31/2022

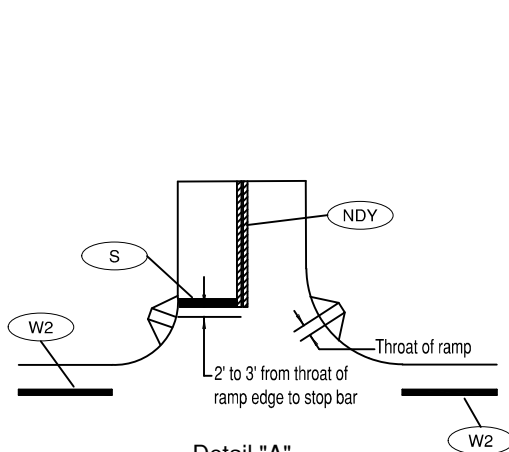
APPR

STD DWG R-44C

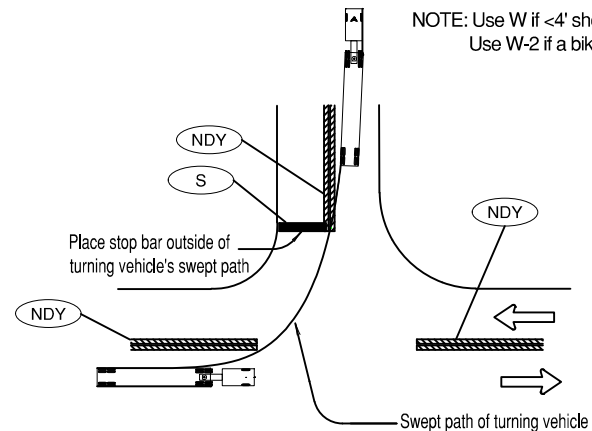
- 1) Stop bar required at stop control approaches on arterials and collector streets
- * Stop bar shall be placed as near as possible to the intersecting traveled way. Locate stop bar 4' min. to 30' max. in advance of the extended fog line, edge of pavement, or curb face. Minimum stop bar distance may 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 RAMP



Detail "B"
STOP BAR PLACEMENT WITH
RESPECT TO TURN RADII
WHERE NO RAMP

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

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DIV	ROADWAY
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710 NW WALL ST., BEND, OREGON 97701

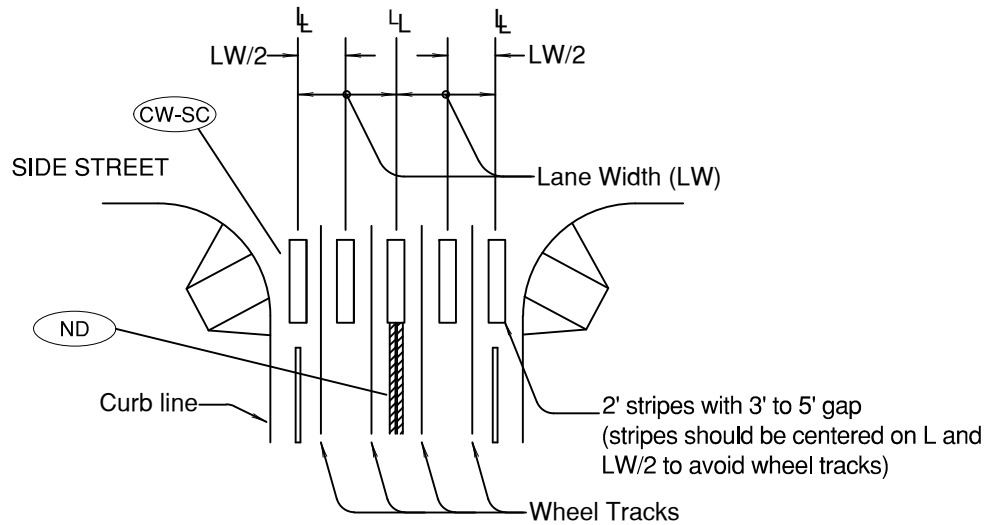
INTERSECTION PAVEMENT MARKING LAYOUT

SCALE NTS

DATE 01/31/2022

APPR

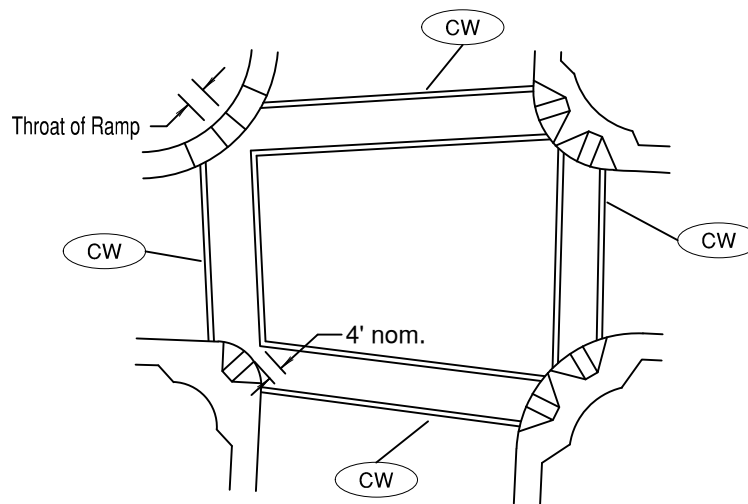
STD DWG R-45



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

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STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

CROSSWALK MARKINGS

SCALE NTS

DATE 01/31/2022

APPR

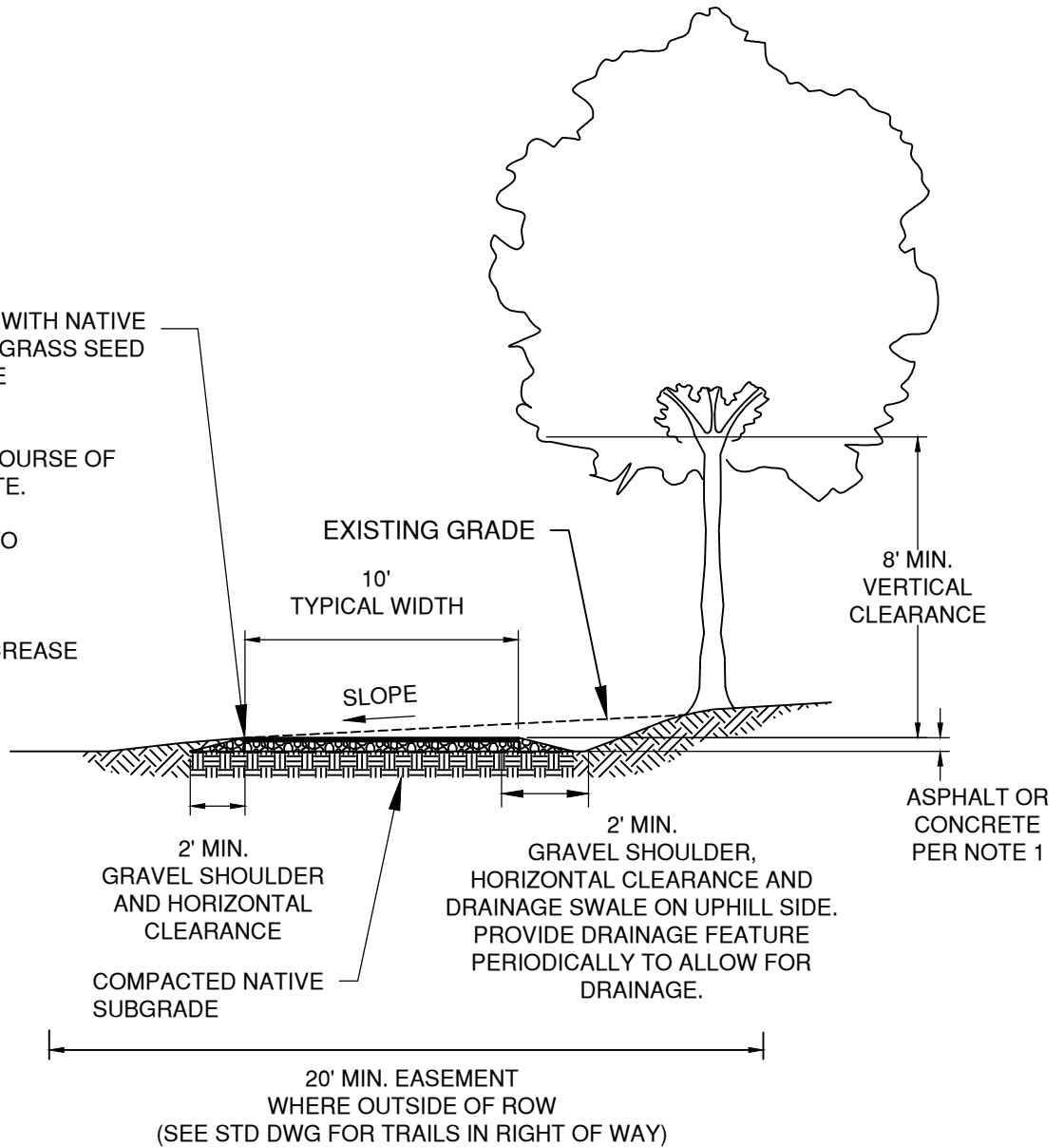
STD DWG R-47

TRANSITION AT EDGE WITH NATIVE
TOPSOIL AND NATIVE GRASS SEED
SUITABLE TO THE SITE

PAVED TRAIL
3" ASPHALT 4" BASE COURSE OF
5/8" MINUS AGGREGATE.

CROSS SLOPE PATH TO
DRAIN AT 1.5%

IF TRAIL IS USED AS
SERVICE ACCESS, INCREASE
PAVING THICKNESS



NOTES:

1. PRIMARY TRAIL SHALL BE PAVED WITH ASPHALT OR CONCRETE IN THE RIGHT-OF-WAY OR ADJACENT TO STREETS. OUTSIDE OF THE RIGHT-OF-WAY TRAIL MAY BE AGGREGATE AS APPROVED.
2. PRIMARY TRAILS ARE TYPICALLY FACILITIES OUTSIDE OF THE PUBLIC RIGHT-OF-WAY THAT ARE OWNED AND MAINTAINED BY THE BEND PARKS AND RECREATION DISTRICT OR PRIVATELY. (SEE STANDARD CROSS-SECTIONS FOR CITY SHARED USE PATHS IN THE RIGHT-OF-WAY.)
3. WHERE OUTSIDE OF RIGHT-OF-WAY, TRAIL EASEMENT DEDICATION IS REQUIRED INCLUDING A PUBLIC ACCESS EASEMENT AND UTILITY EASEMENT WHERE APPLICABLE.
4. TRAIL ALIGNMENTS ARE ENCOURAGED TO MEANDER AND NOT BE DESIGNED AS FENCED CANYONS.
5. TRAILS WITHIN RIGHT-OF-WAY SHALL MEET PROWAG REQUIREMENTS. TRAILS OUT OF RIGHT-OF-WAY SHALL MEET THE REQUIREMENTS OF THE UNITED STATES ACCESS BOARD ACCESSIBILITY STANDARDS FOR FEDERAL OUTDOOR DEVELOPED AREAS.

DRAWN AJD
DIV ROADWAY
REV DATE



CITY OF BEND

CITY OF BEND

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

PRIMARY TRAIL

SCALE NTS

DATE 01/31/2022

APPR

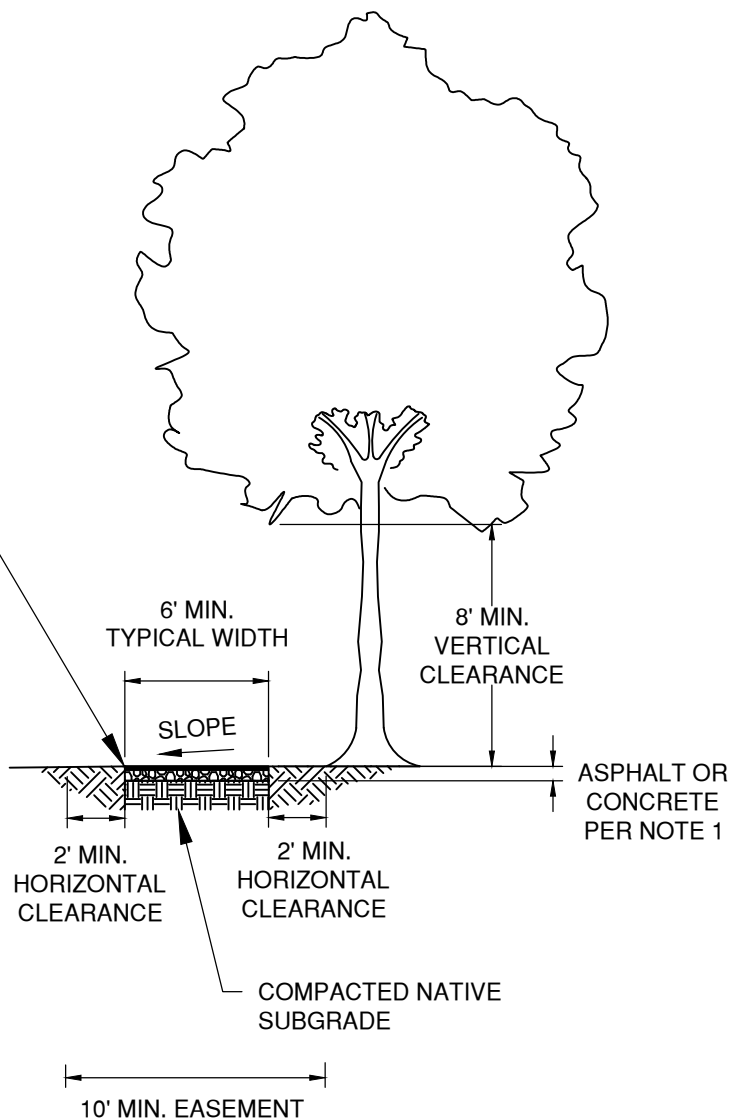
STD DWG R-48

TRANSITION AT EDGE WITH NATIVE
TOPSOIL AND NATIVE GRASS SEED
SUITABLE TO THE SITE

PAVED TRAIL
2.5" ASPHALT 4" BASE COURSE OF
5/8" MINUS AGGREGATE

AGGREGATE TRAIL
2" TOP COURSE OF
3/8" MINUS COMPACTED
4" BASE COURSE OF
5/8" MINUS COMPACTED

CROSS SLOPE PATH TO
DRAIN AT 1.5%



NOTES:

1. CONNECTOR TRAIL SHALL BE PAVED WITH ASPHALT OR CONCRETE IN THE RIGHT-OF-WAY OR ADJACENT TO STREETS. OUTSIDE OF THE RIGHT-OF-WAY TRAIL MAY BE AGGREGATE AS APPROVED.
2. CONNECTOR TRAILS ARE TYPICALLY FACILITIES OUTSIDE OF THE PUBLIC RIGHT-OF-WAY THAT ARE OWNED AND MAINTAINED BY THE BEND PARKS AND RECREATION DISTRICT OR PRIVATELY. (SEE STANDARD CROSS-SECTIONS FOR CITY SHARED USE PATHS IN THE RIGHT-OF-WAY.)
3. WHERE OUTSIDE OF RIGHT-OF-WAY, TRAIL EASEMENT DEDICATION IS REQUIRED INCLUDING A PUBLIC ACCESS EASEMENT AND UTILITY EASEMENT WHERE APPLICABLE.
4. TRAIL ALIGNMENTS ARE ENCOURAGED TO MEANDER AND NOT BE DESIGNED AS FENCED CANYONS.
5. NATIVE SURFACE TRAILS MAY BE USED WITHIN PARKS OR PRIVATE DEVELOPMENTS TO PROVIDE CONNECTIONS TO PRIMARY AND OTHER CONNECTOR TRAILS.
6. TRAILS WITHIN RIGHT-OF-WAY SHALL MEET PROWAG REQUIREMENTS. TRAILS OUT OF RIGHT-OF-WAY SHALL MEET THE REQUIREMENTS OF THE UNITED STATES ACCESS BOARD ACCESSIBILITY STANDARDS FOR FEDERAL OUTDOOR DEVELOPED AREAS AT A MINIMUM.

DRAWN AJD
DIV ROADWAY
REV DATE



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STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

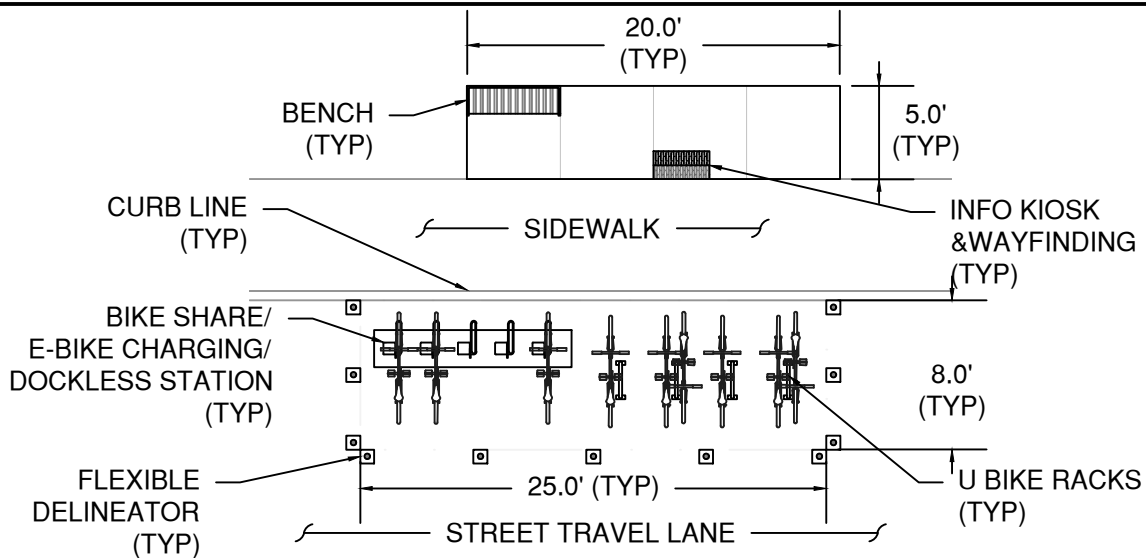
CONNECTOR TRAIL

SCALE NTS

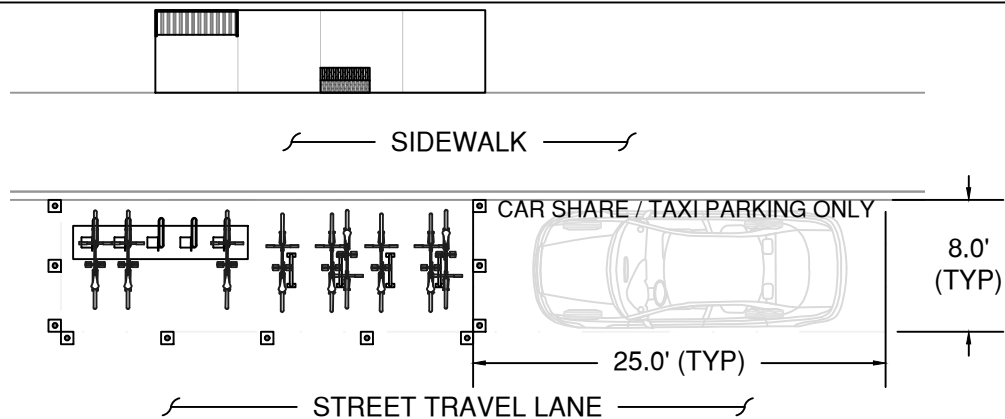
DATE 01/31/2022

APPR

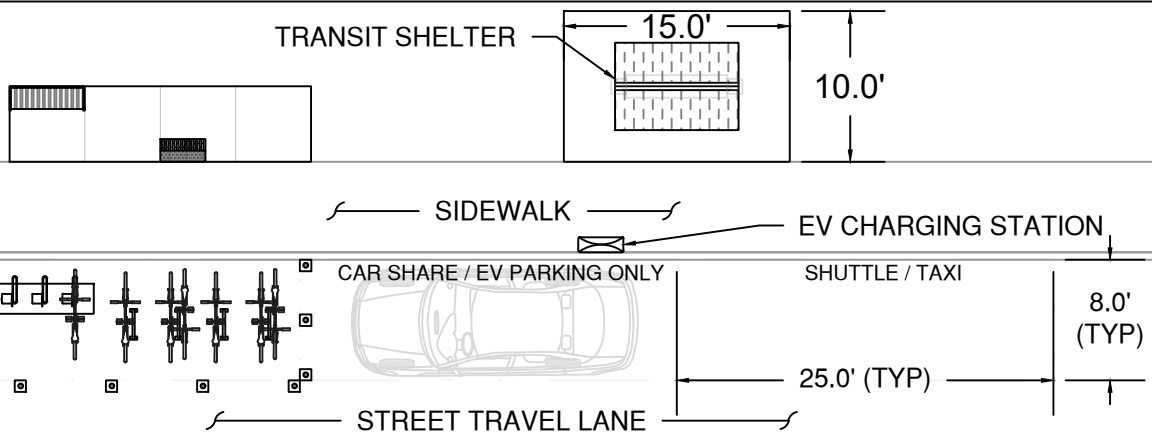
STD DWG R-49



SMALL MOBILITY POINT



MEDIUM MOBILITY POINT



MEDIUM (+) MOBILITY POINT

NOTES:

1. LOCATION & EXISTING CONDITIONS WILL DETERMINE LAYOUT
2. FINAL LAYOUT MUST MEET MINIMUM ADA STANDARDS FOR ACCESSIBLE DESIGN
3. ALL CONCEPTS SHOWN ARE FOR SPATIAL REPRESENTATION ONLY
4. BICYCLE PARKING STATIONS MAY BE PLACED WITH IN ON-STREET PARKING SPACES OR ON PRIVATE PROPERTY

DRAWN AJD
DIV ROADWAY
REV DATE



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STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

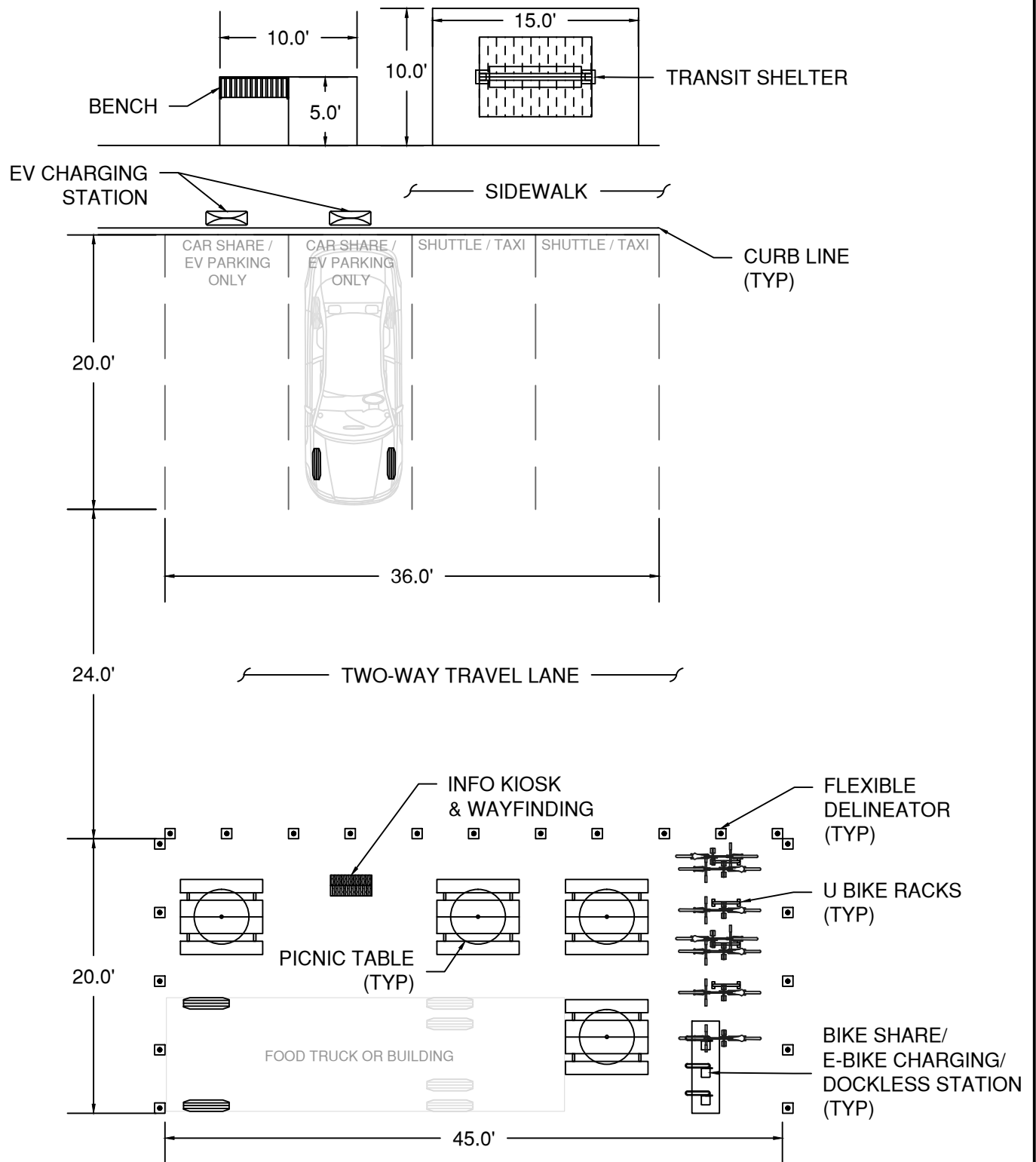
MOBILITY POINTS - SMALL/MEDIUM

SCALE NTS

DATE 01/31/2022

APPR

STD DWG R-50A



NOTES:

1. LOCATION & EXISTING CONDITIONS WILL DETERMINE LAYOUT
2. FINAL LAYOUT MUST MEET MINIMUM ADA STANDARDS FOR ACCESSIBLE DESIGN
3. ALL CONCEPTS SHOWN ARE FOR SPATIAL REPRESENTATION ONLY

DRAWN AJD
DIV ROADWAY
REV DATE



CITY OF BEND

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STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

MOBILITY POINTS - LARGE

SCALE NTS

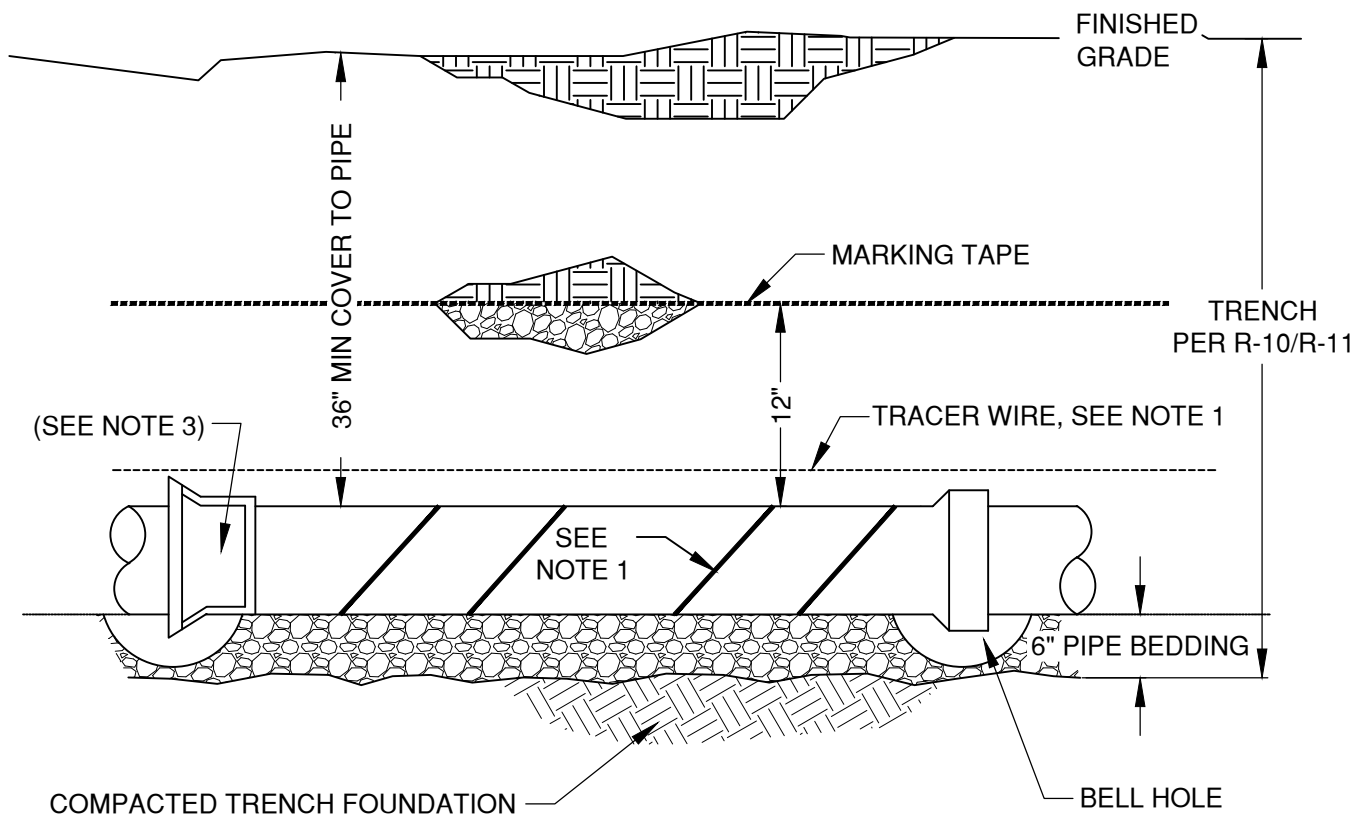
DATE 01/31/2022

APPR

STD DWG R-50B


CITY OF BEND STANDARD DRAWINGS

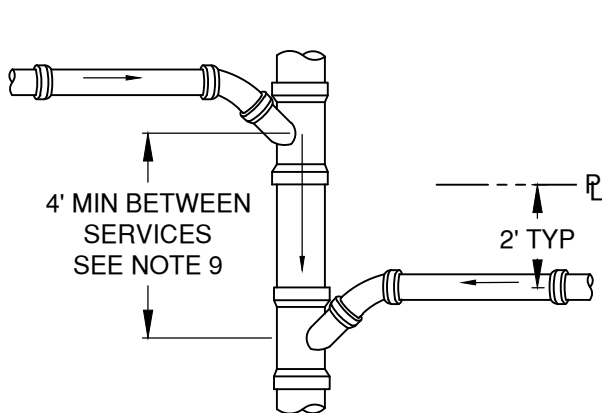
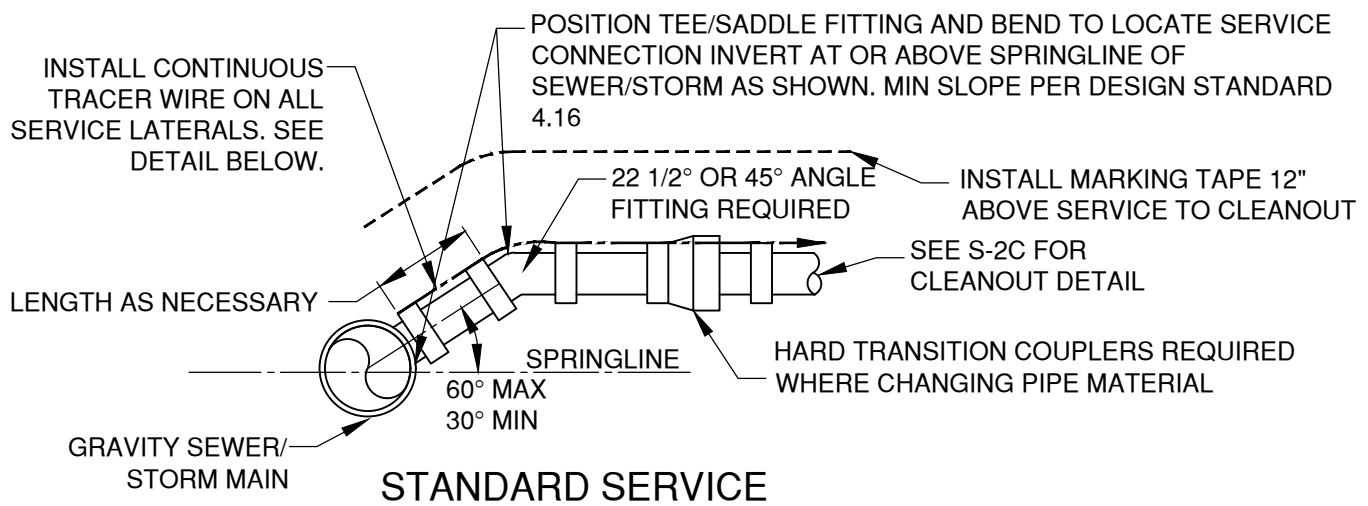
Sanitary (S)



NOTES:

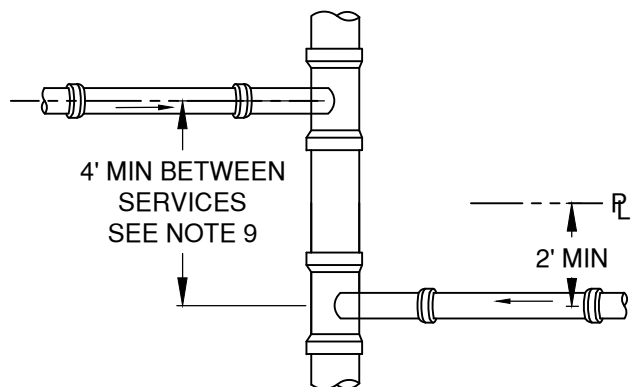
1. FOR PRESSURE AND VACUUM SEWER MAINS ONLY, TRACER WIRE SHALL BE CENTERED ON TOP OF THE MAIN, AS CLOSE TO THE MAIN AS POSSIBLE. THE MAIN SHALL BE WRAPPED WITH MARKING TAPE A MIN OF 4 WRAPS PER 20 FEET OF MAIN. TRACER WIRE IS NOT REQUIRED ON GRAVITY SEWER MAIN.
2. PLACE TRACER WIRE ON GRAVITY, PRESSURE, AND VACUUM SEWER SERVICES. TRACER WIRE AND MARKING TAPE TO BE PER SPECIFICATION SECTION 00445.11.
3. TRANSITION FITTING SHALL BE A HARD COUPLER WHERE CHANGING PIPE MATERIAL
4. 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 AWWA C905 PIPE CENTERED AT THE WATERLINE PER OAR 333-061-0050(9) AND BE APPROVED BY CITY/STATE.
5. WHEN INSTALLING A WATER LINE THAT CROSSES BELOW OR WITHIN 18 INCHES ABOVE A NON-POTABLE LINE, FOLLOW OAR 333-061-0050(9). ALL NON-POTABLE LINES SHALL BE TREATED AS "SEWER" LINES AS DESCRIBED IN OAR 333-061-0050(9).
6. COMPACTION SHALL MEET 00405.46(c) PER COB SPECIAL PROVISIONS

DRAWN AJD			CITY OF BEND	CITY OF BEND		710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV SANITARY				DATE 01/31/2022			
REV	DATE			APPR			
				STD DWG S-1			
				SEWER MAIN TYPICAL PROFILE			



WYE SERVICE CONNECTION

(FOR USE ON MAINS 12" AND SMALLER)




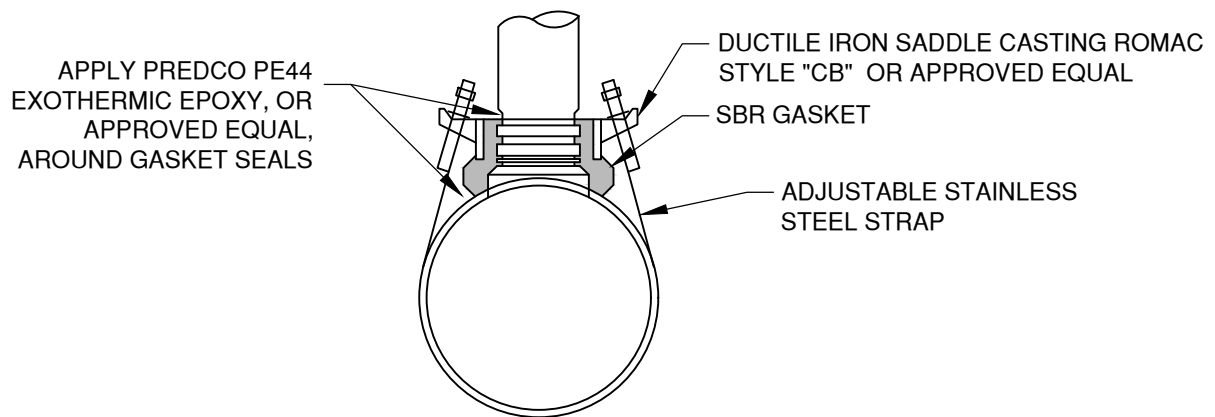
TEE SERVICE CONNECTION

(FOR USE ON MAINS LARGER THAN 12")

NOTES:

1. ALL TRENCHES TO CONFORM TO STD DWG R-10
2. SERVICES OFF NEW MAINS SHALL BE WYE OR TEE CONNECTIONS. SEE STD DWG S-2B FOR SERVICES OFF EXISTING MAINS
3. TRACER WIRE REQUIRED ON ALL SEWER / STORM SERVICES. MARKING TAPE SHALL BE INSTALLED AS SHOWN.
4. SEWER / STORM CONNECTION FROM THE PROPERTY LINE/ROW LINE TO THE CLEAN OUT NEAR THE BUILDING FOUNDATION REQUIRES A PLUMBING PERMIT.
5. WHEN A SEWER SERVICE IS LOCATED ABOVE OR WITHIN 18" BELOW A WATERLINE, THE SEWER SERVICE SHALL BE CONSTRUCTED WITH A MIN. 20 LF OF AWWA C900 OR AWWA C905 PIPE CENTERED AT THE WATERLINE PER OAR 333-061-0050(9).
6. STANDARD RESIDENTIAL SEWER SERVICES ARE 4"Ø. COMMERCIAL, INDUSTRIAL SEWER SERVICES ARE 6"Ø UNLESS OTHERWISE SIZED LARGER BY THE SITE'S ENGINEER.
7. WHERE A SERVICE CROSSES A NEW CURB, STAMP THE FACE OF CURB PER STD DWG R-3.
8. GRAVITY SEWER STANDARDS APPLY TO STORM SEWER MAINS.
9. MINIMUM 3' SECTIONS OF PIPE ARE REQUIRED BETWEEN FITTINGS.
10. ALL STORM SEWER LATERALS MUST COMPLY WITH CITY SEWER STANDARDS.


DRAWN AJD		<h2 style="text-align: center;">CITY OF BEND</h2>	SCALE NTS
DIV SANITARY			DATE 01/31/2022
REV DATE			APPR
		<p style="text-align: center;">STANDARD DRAWING</p> <p style="text-align: center;">710 NW WALL ST., BEND, OREGON 97701</p> <h2 style="text-align: center;">GRAVITY SEWER/STORM SERVICES ON NEW MAINS</h2>	STD DWG S-2A



SEWER SADDLE
FOR USE ON MAINS SMALLER 12"

NOTES:

1. INSTALL SERVICE LATERAL PER STD DWG S-2A
2. CONNECTION TO EXISTING MAINS MAY BE CUT-IN FITTINGS PER STD DWG S-2A OR TAPS PER THIS DETAIL. PVC MAINS TO UTILIZE CUT IN FITTINGS.
3. SEWER SADDLE SHALL BE ROMAC STYLE "CB" OR APPROVED EQUAL.
4. INSTALL CONNECTION PER THE MANUFACTURER'S RECOMMENDATIONS.

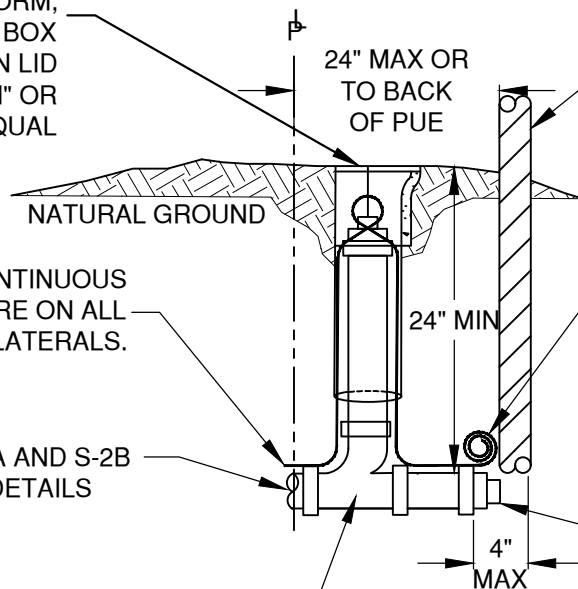
DRAWN AJD		CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV SANITARY			DATE 01/31/2022
REV DATE		GRAVITY SEWER/STORM SERVICE CONNECTION TO EXISTING MAIN	APPR
	CITY OF BEND		STD DWG S-2B

4" CLEANOUT AT PROPERTY
LINE WITH LID READING
"SEWER". FOR STORM,
CONCRETE BROOKS BOX
WITH CAST IRON LID
READING "STORM" OR
APPROVED EQUAL

INSTALL CONTINUOUS
TRACER WIRE ON ALL
SERVICE LATERALS.

NOTE: SEE S-2A AND S-2B
FOR SERVICE DETAILS

4"x4" WYE (RES TYP)
6"x4" WYE (IND/COMM TYP)



MARK SERVICE STUB AT ROW
WITH PRESSURE TREATED WOOD
OR CAPPED PVC EXTENDING 2'
ABOVE EXISTING GROUND. PAINT
MARKER GREEN FOR SEWER OR
PURPLE FOR STORM.

EXTEND 6" BEYOND CLEANOUT;
COIL MIN 24" OF TRACER WIRE AT
RIGHT OF WAY LINE. TRACER WIRE
TO BE EXTENDED TO CLEANOUT
AT STRUCTURE UNDER BUILDING
PERMIT.

REMOVABLE
PLUG OR CAP

NOTES:

1. SEE STD DWG S-2A FOR GENERAL NOTES.

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CITY OF BEND STANDARD DRAWING

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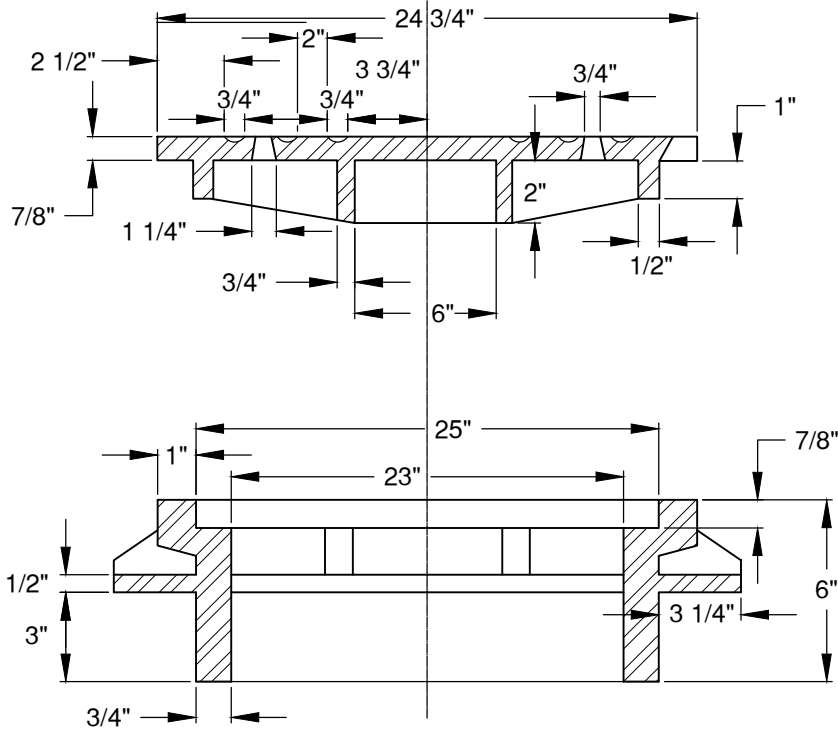
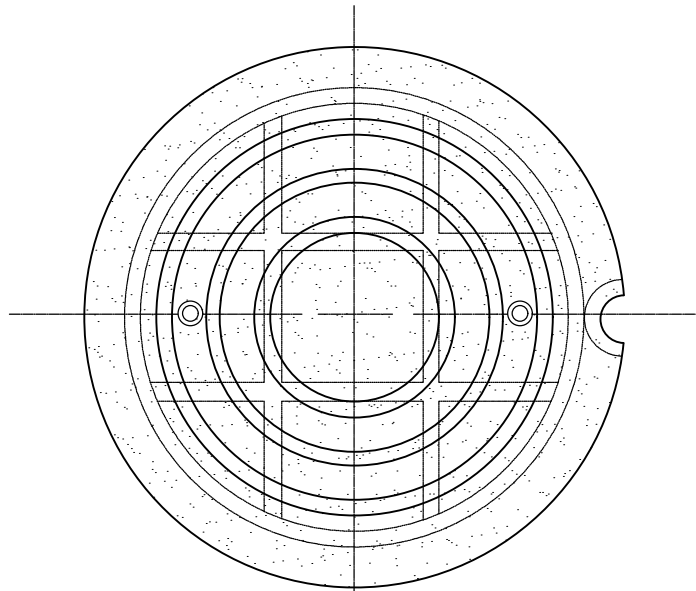
GRAVITY SEWER/STORM CLEANOUT

SCALE NTS

DATE 01/31/2022

APPR

STD DWG S-2C



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.
5. MANHOLE LIDS SHALL BE PLACED OUTSIDE THE PATH OF TRAVEL ON SIDEWALKS AND DRIVEWAY APRONS.

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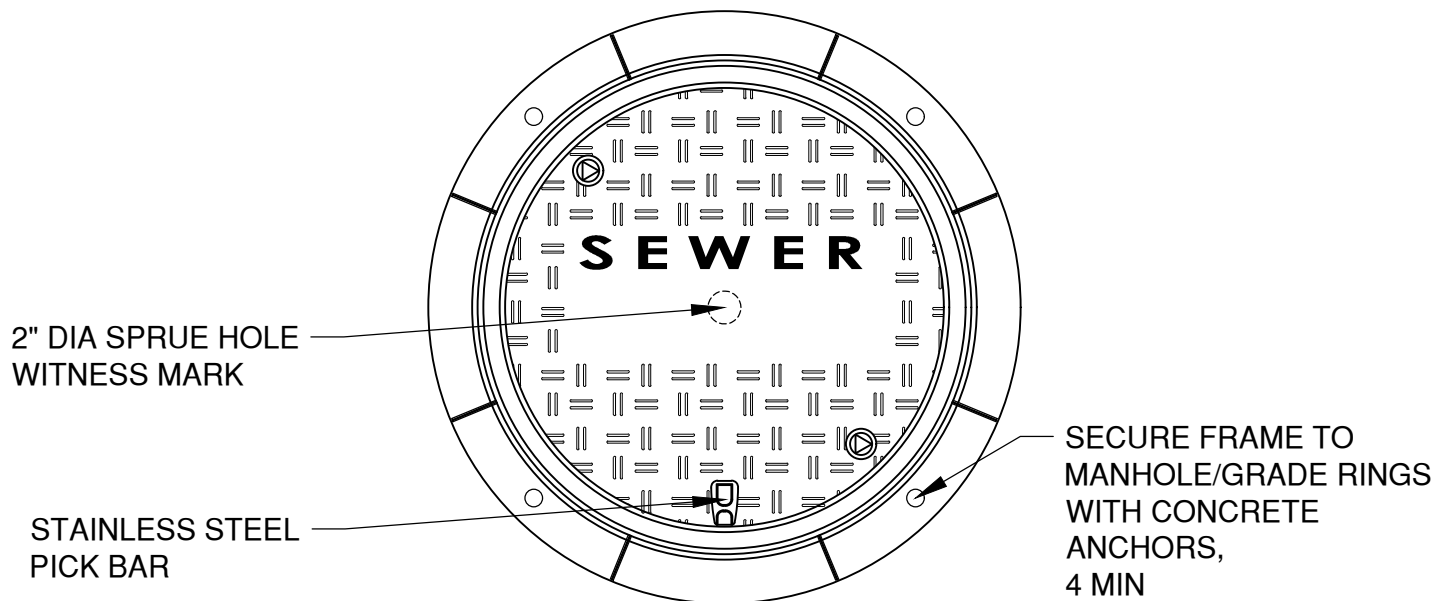
STANDARD SEWER MANHOLE RING & COVER

SCALE NTS

DATE 01/31/2022

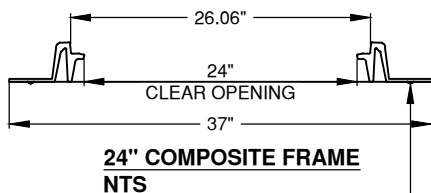
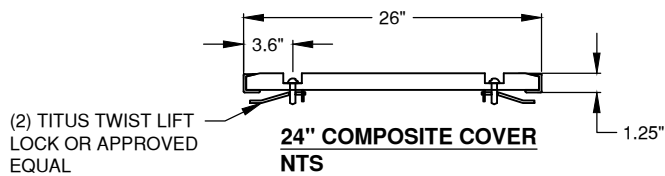
APPR

STD DWG S-3A

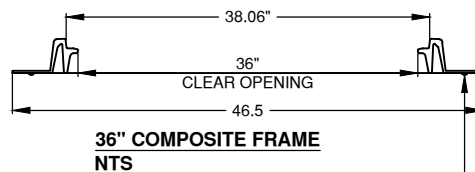
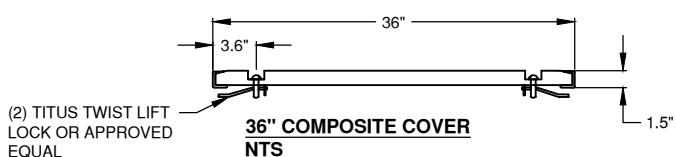


COMPOSITE COVER/FRAME ASSEMBLY NTS

FOR USE IN NON-TRAFFIC AREAS ONLY



APPLY WATER REPELLANT SEALER AROUND
ENTIRE FRAME CIRCUMFERENCE PRIOR TO
TIGHTENING THE CONCRETE ANCHORS.



APPLY WATER REPELLANT SEALER AROUND
ENTIRE FRAME CIRCUMFERENCE PRIOR TO
TIGHTENING THE CONCRETE ANCHORS.

DRAWN AJD
DIV SANITARY
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STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

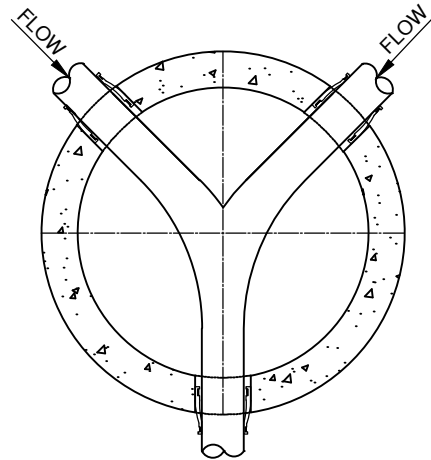
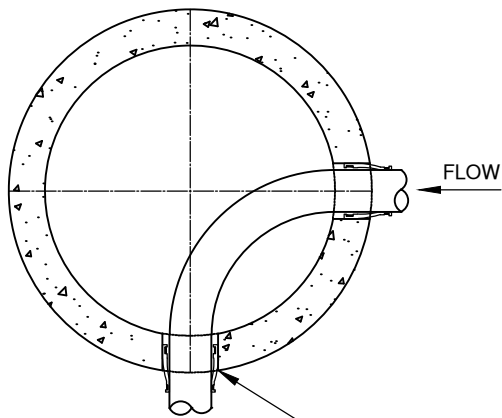
COMPOSITE MANHOLE FRAME AND COVER

SCALE NTS

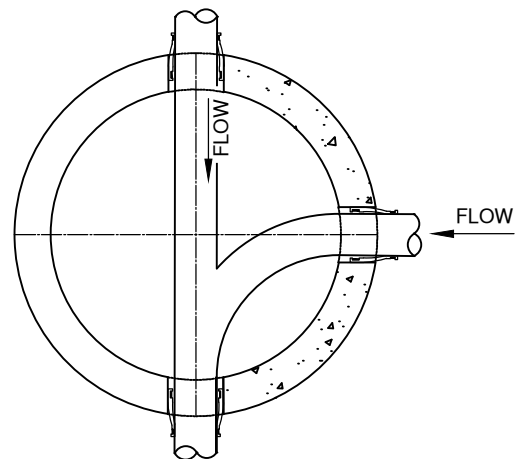
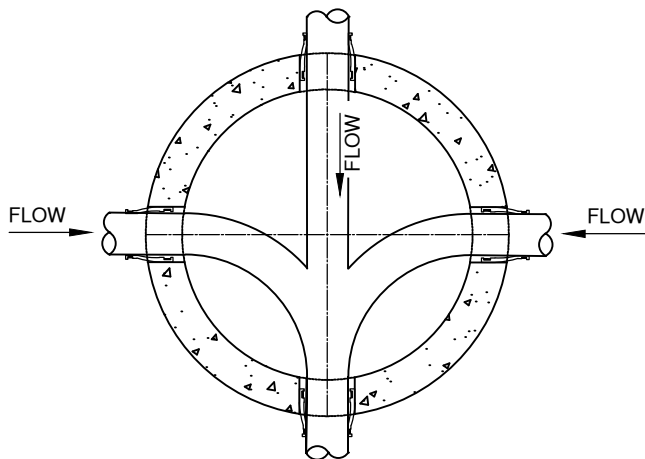
DATE 01/31/2022

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STD DWG S-3B



RESILIENT CONNECTOR WITH GROUT
FOR PRECAST BASE. SAND COLLAR OR
EQUIVALENT IN POURED IN PLACE BASE.



GENERAL NOTES:

1. FLOW CHANNELS DEVIATING FROM THE STANDARD CHANNELS REQUIRE A DETAIL FOR APPROVAL FROM THE ENGINEER
2. WIDTH OF CHANNEL SHOULD MATCH THE INSIDE DIAMETER OF INCOMING AND OUTGOING PIPES.
3. CHANNEL LINING SHALL BE BLENDED FOR SMOOTH CONTOUR BETWEEN PIPES.
4. GROUT CHANNEL TO SMOOTH FINISH.
5. FINISH BOTTOM TO EVEN SLOPE BROOM FINISH TO DRAIN TO CHANNEL.
6. LOCATE MANHOLE OPENING OPPOSITE OUTLET UNLESS OTHERWISE DIRECTED.

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CITY OF BEND

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STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

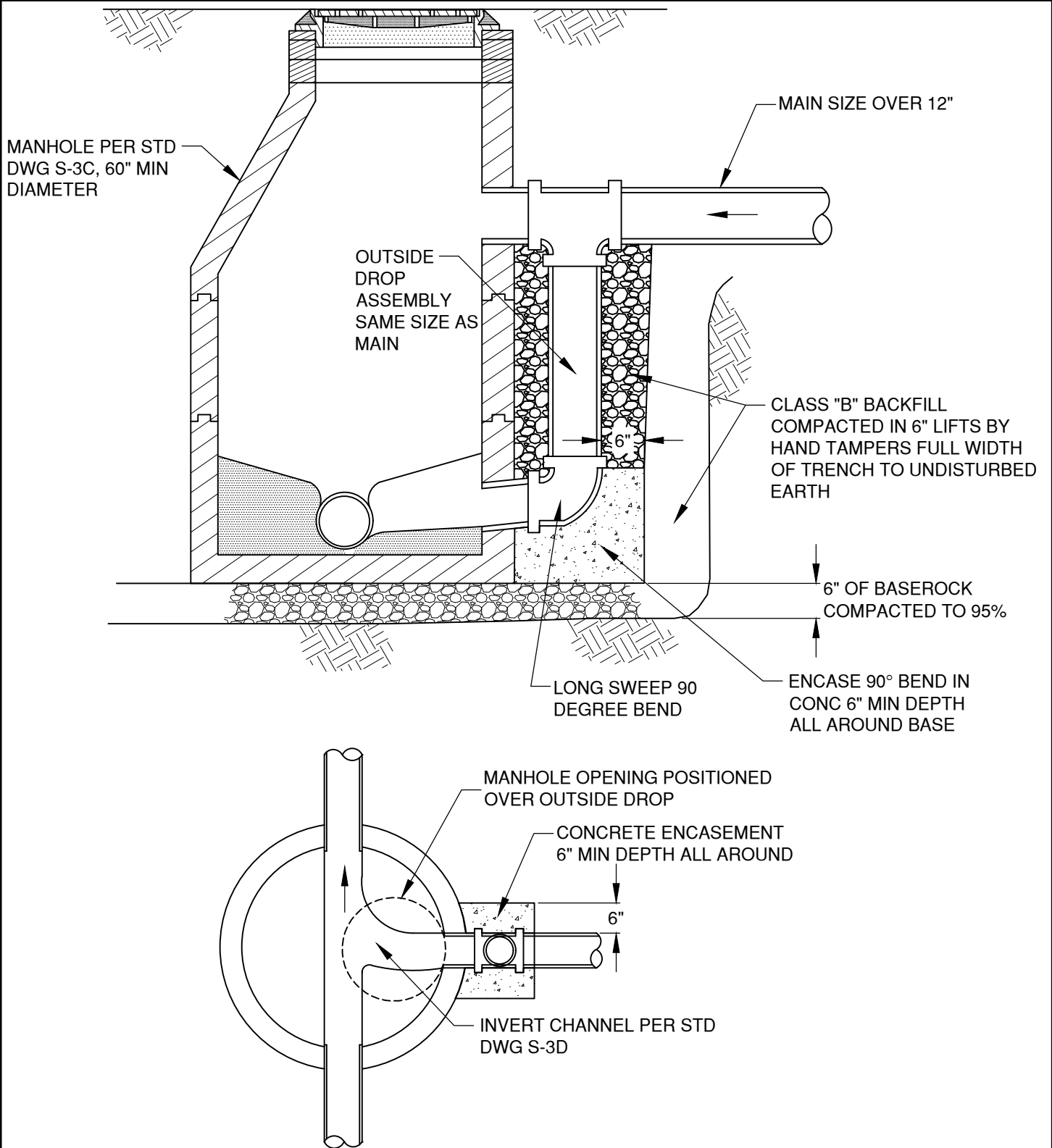
TYPICAL MANHOLE INVERT LAYOUT

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STD DWG S-3D



GENERAL NOTES:

1. OUTSIDE DROP MANHOLE FOR USE WITH MAIN SIZE OVER 12" ONLY

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710 NW WALL ST., BEND, OREGON 97701

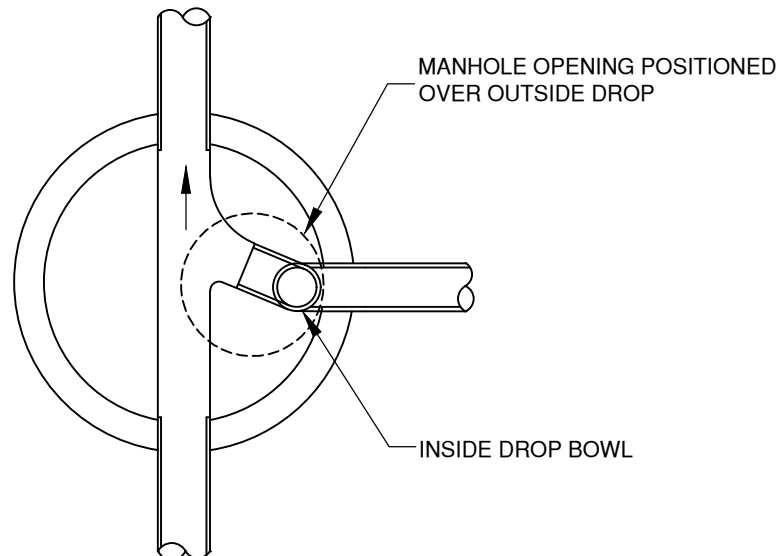
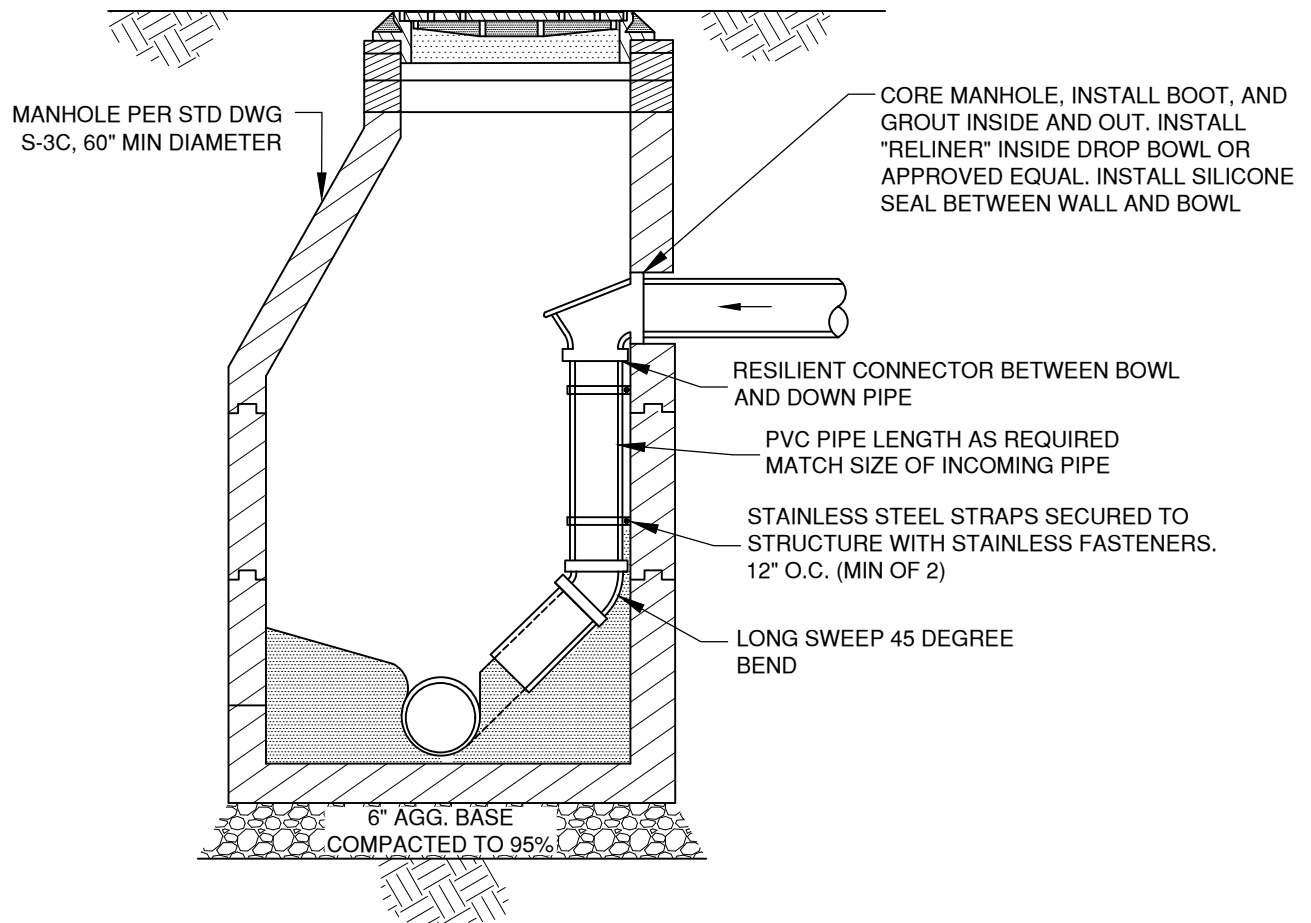
STANDARD OUTSIDE DROP - LARGER THAN 12" PIPE

SCALE NTS

DATE 01/31/2022


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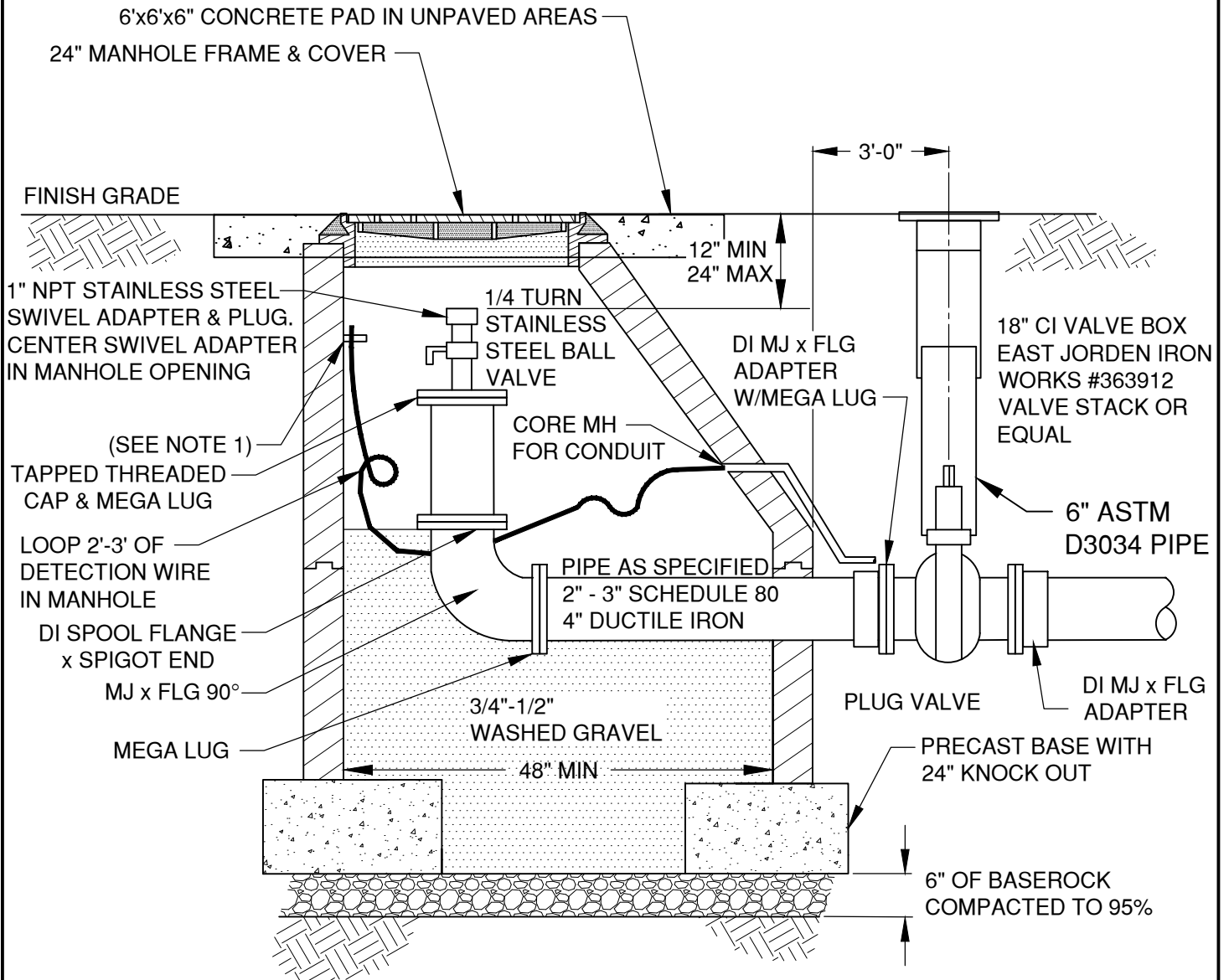
STD DWG S-4



NOTES:

1. INSIDE DROP MANHOLE FOR USE WITH MAIN SIZE 12" AND SMALLER ONLY

DRAWN AJD	 CITY OF BEND	<p align="center">CITY OF BEND</p> <p align="center">STANDARD DRAWING</p> <p align="center">710 NW WALL ST., BEND, OREGON 97701</p>	SCALE NTS
DIV SANITARY			DATE 01/31/2022
REV DATE			APPR
		<p align="center">STANDARD INSIDE DROP - 12" PIPE AND SMALLER</p>	STD DWG S-4A



NOTES:

1. TRACER 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.

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STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

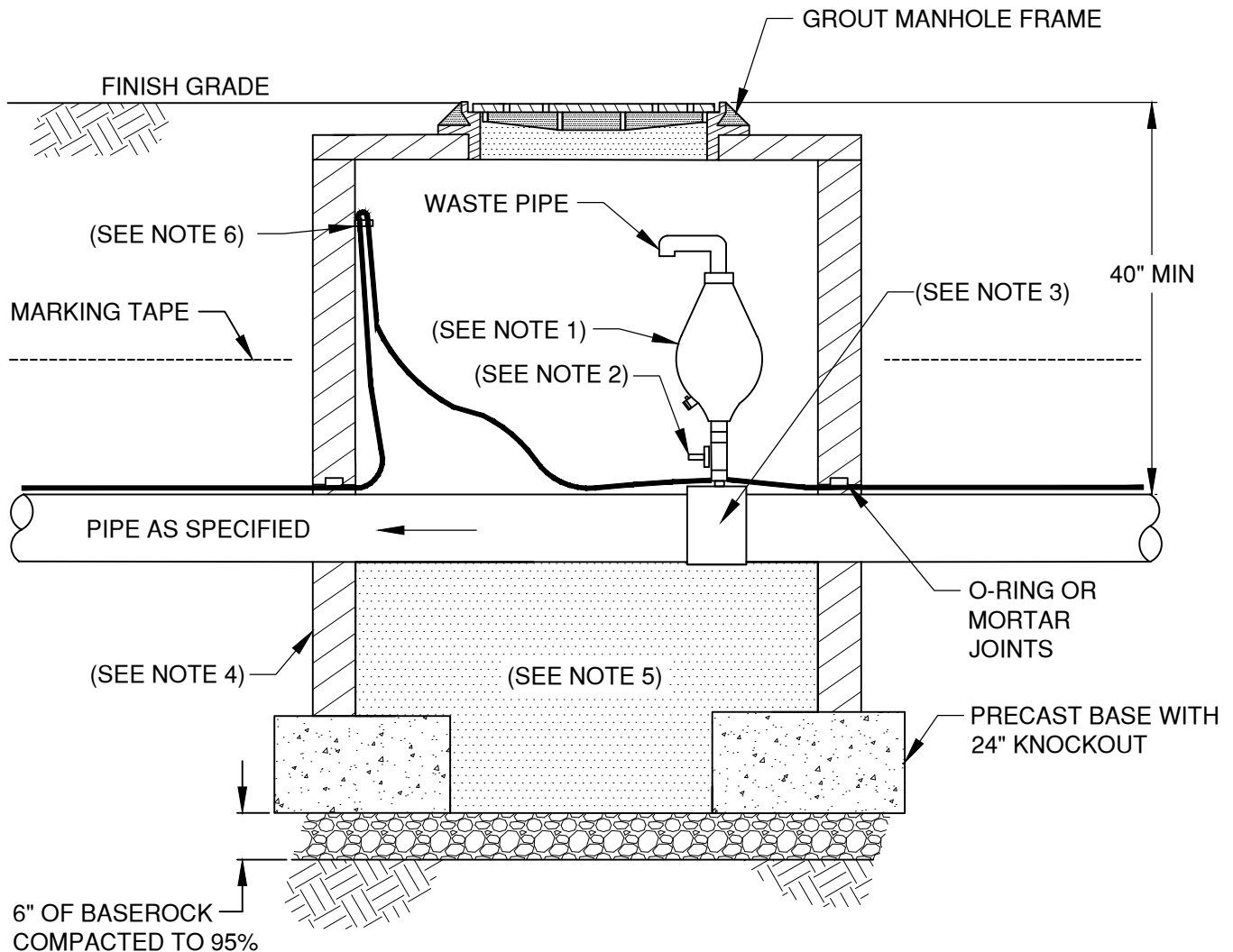
3" & 4" PRESSURE SEWER LINE TERMINATION CLEANOUT

SCALE NTS

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STD DWG S-5



NOTES:

1. 2" COMBINATION AIR VALVE(SHORT VERSION) PER. 00445.11(I)(2)(d)
2. 2" STAINLESS STEEL BALL VALVE
3. 2" TEE OR 2" SADDLE TEE AS APPROVED FOR PRESSURE APPLICATIONS
4. 48" DIAMETER FLAT TOP MANHOLE.
5. 3/4"-1/2" WASHED GRAVEL
6. TRACER 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.

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DIV	SANITARY
REV	DATE



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710 NW WALL ST., BEND, OREGON 97701

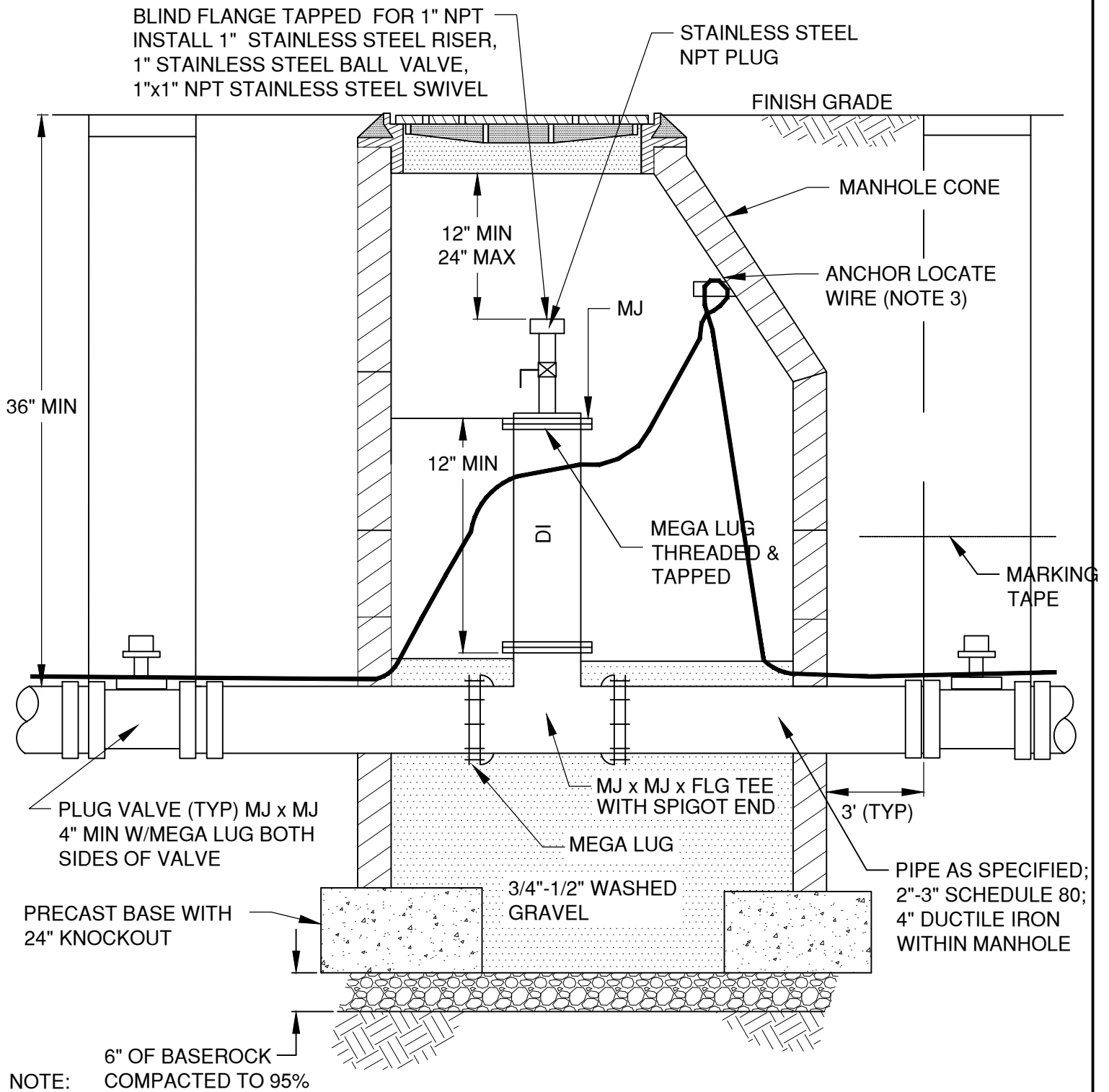
AIR RELEASE/VAC BREAKER PRESSURE SEWER MH

SCALE NTS


DATE 01/31/2022

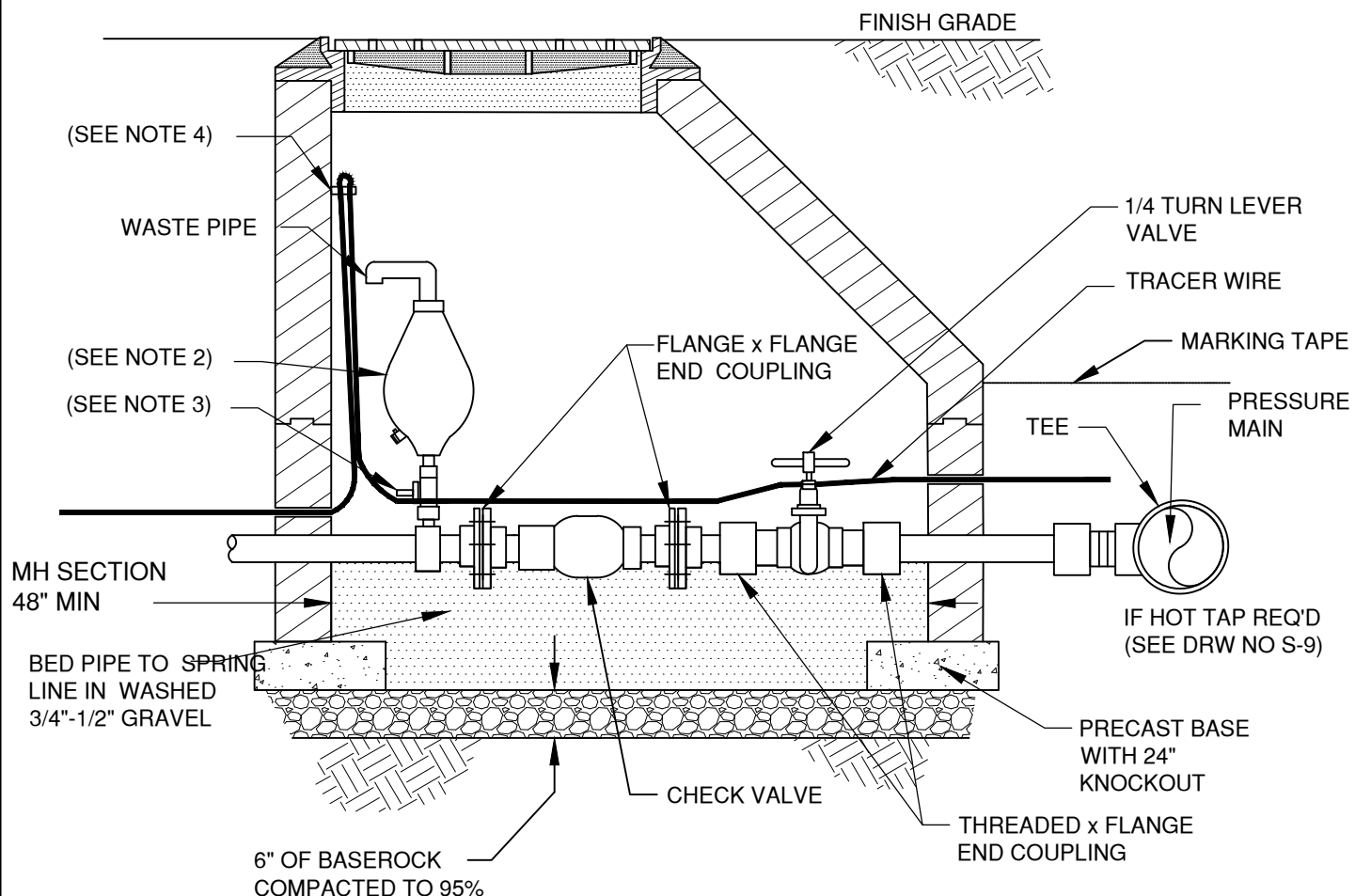
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STD DWG S-6



1. ALL DUCTILE IRON FITTINGS THROUGH MANHOLE
2. 48" MINIMUM DIAMETER MANHOLE
3. TRACER 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 AJD		CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV SANITARY			DATE 01/31/2022
REV DATE			APPR
	CITY OF BEND	MAIN LINE CLEANOUT PRESSURE SEWER	STD DWG S-7



TYPICAL INSTALLATION IN TRAFFIC AREA

NOTE:

1. SHOWN WITH PLUG VALVE IN ENCLOSURE
2. 2" COMBINATION AIR VALVE (SHORT VERSION) PER. 00445.11(l)(2)(d)
3. 2" STAINLESS STEEL BALL VALVE
4. TRACER 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 AJD
DIV SANITARY
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STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

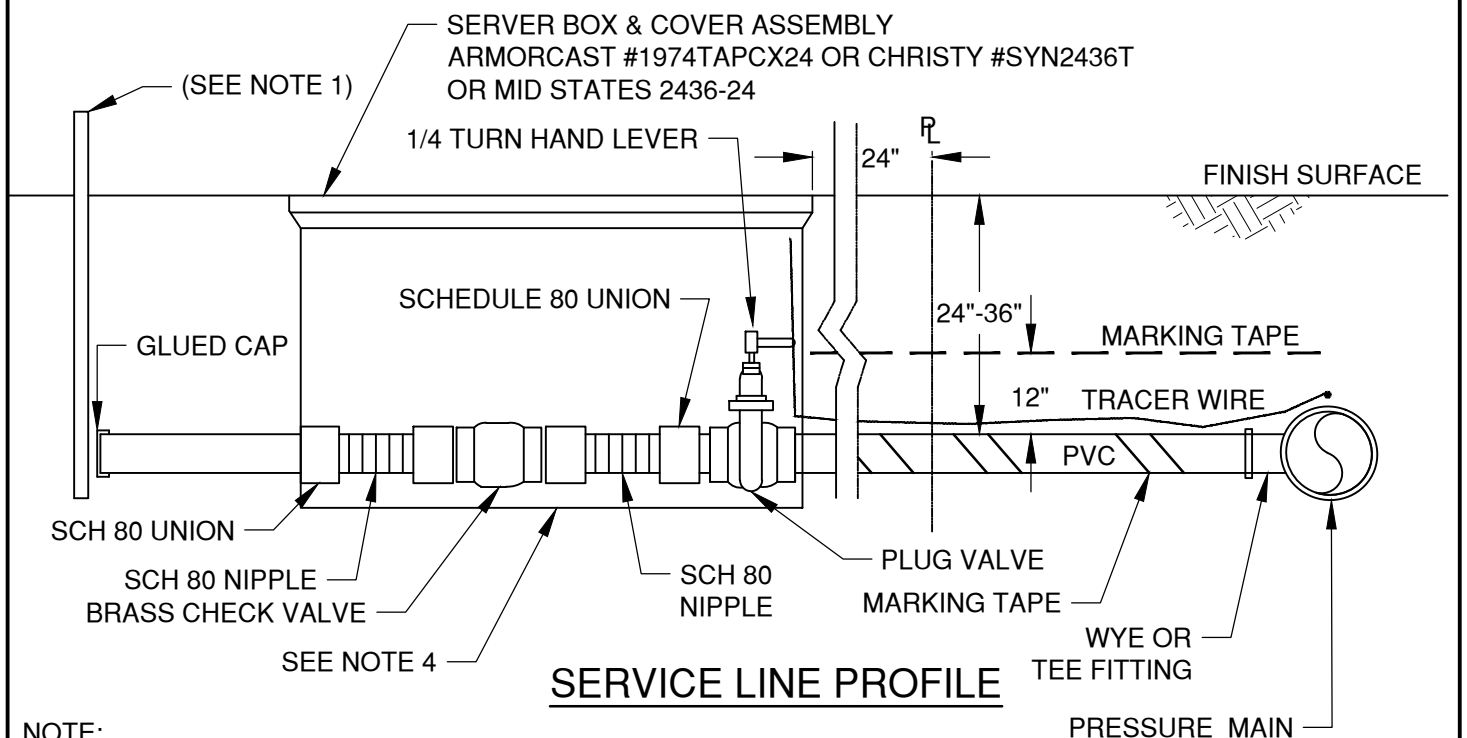
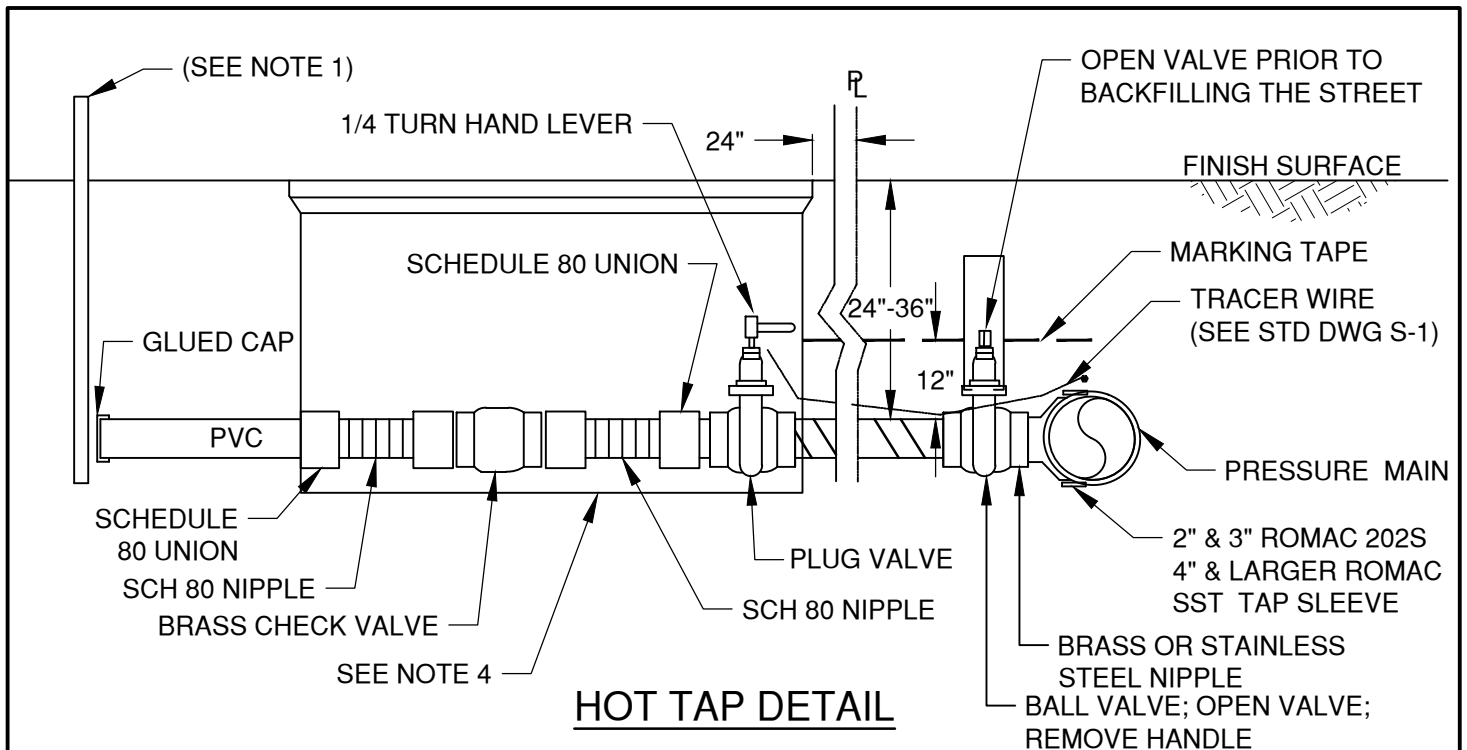
PRESSURE SEWER SERVICE - TRAFFIC AREA

SCALE NTS

DATE 01/31/2022


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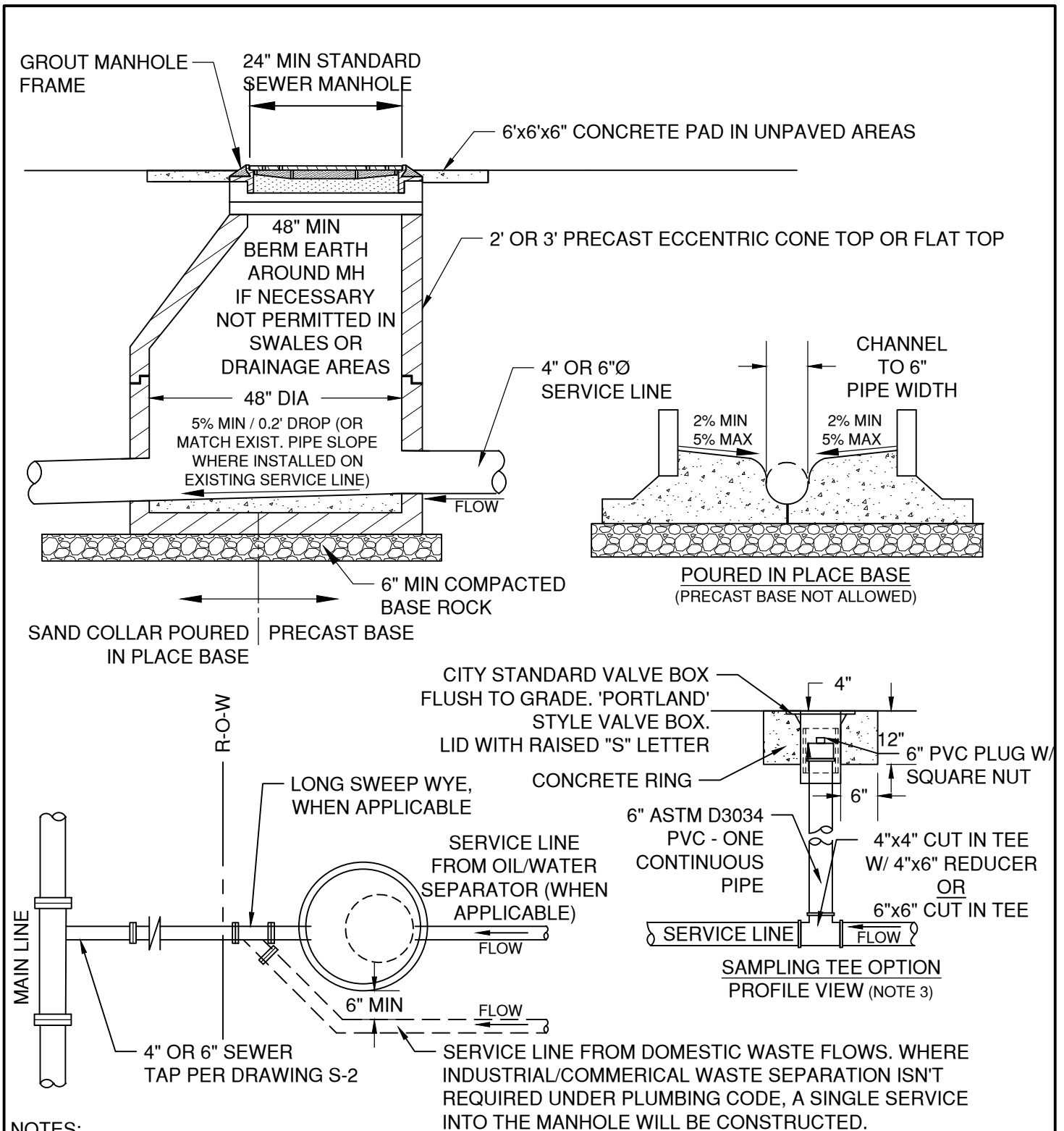
STD DWG S-8



NOTE:

1. 2x4 SERVICE MARKER TO FULL DEPTH OF TRENCH. PROJECT END 2FT MINIMUM ABOVE FINISH GRADE & PAINT GREEN ALL AROUND
2. SERVICE BOX COVER MARKED "SEWER"
3. CHECK VALVES 3" & LARGER APCO 100. 2" LEGEND T451
4. SERVICE BOX AND ALL APPARATUSES WITHIN ARE PRIVATELY OWNED BUT REQUIRED TO BE INSTALLED WITH PRESSURE SEWER SERVICE

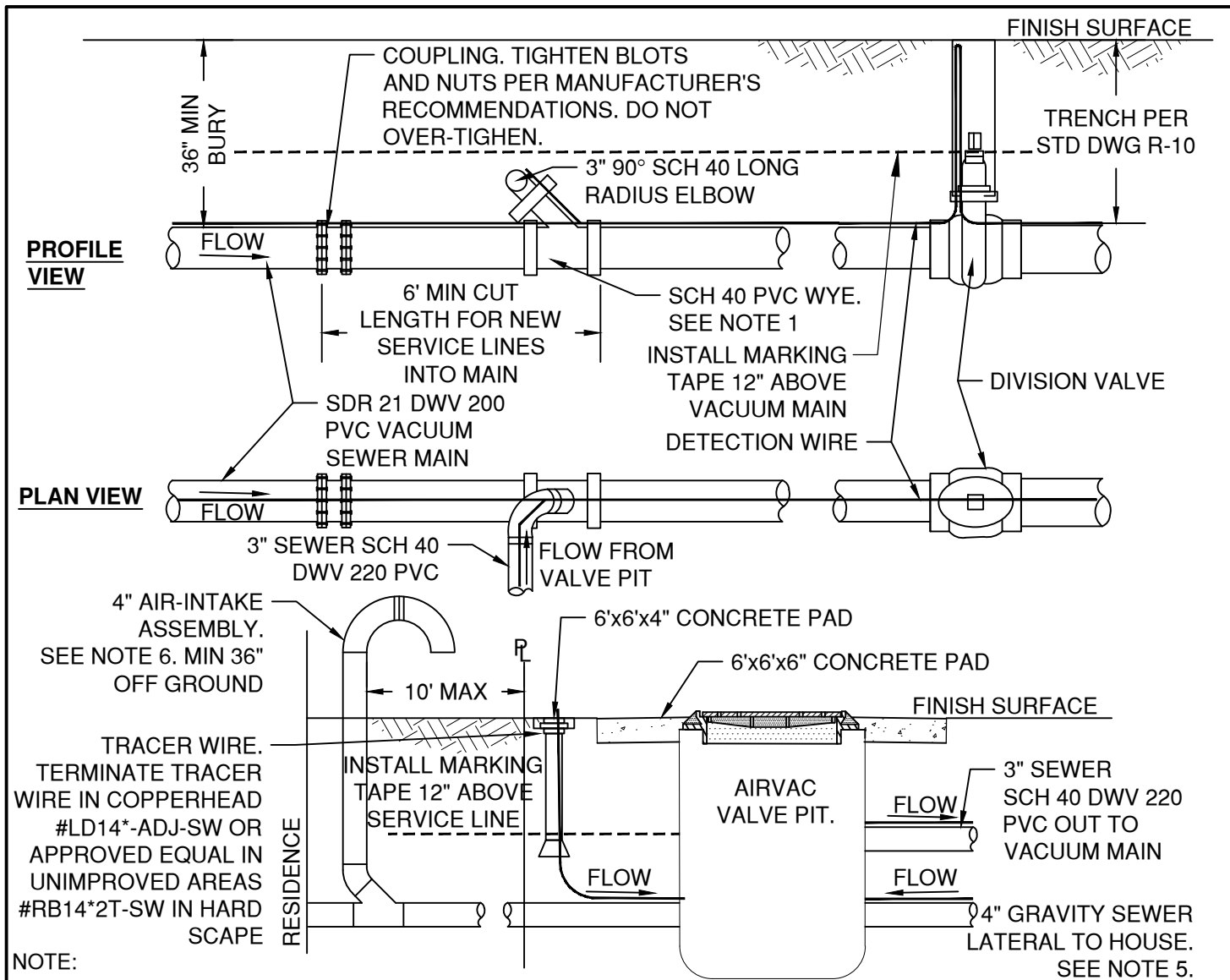
DRAWN AJD			CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	PRESSURE SEWER SERVICE - NON TRAFFIC AREA	SCALE NTS
DIV SANITARY						DATE 01/31/2022
REV	DATE					APPR
						STD DWG S-9




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 AND ARE INTENDED FOR RETROFITS ON EXISTING SYSTEMS ONLY. CONSIDERED IN SITUATIONS WHERE EXISTING UTILITIES OR EASEMENTS PREVENT THE INSTALLATION OF MANHOLE.

DRAWN AJD		CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV SANITARY			DATE 01/31/2022
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		CITY OF BEND INDUSTRIAL AND COMMERCIAL SERVICES SAMPLING MH	STD DWG S-15

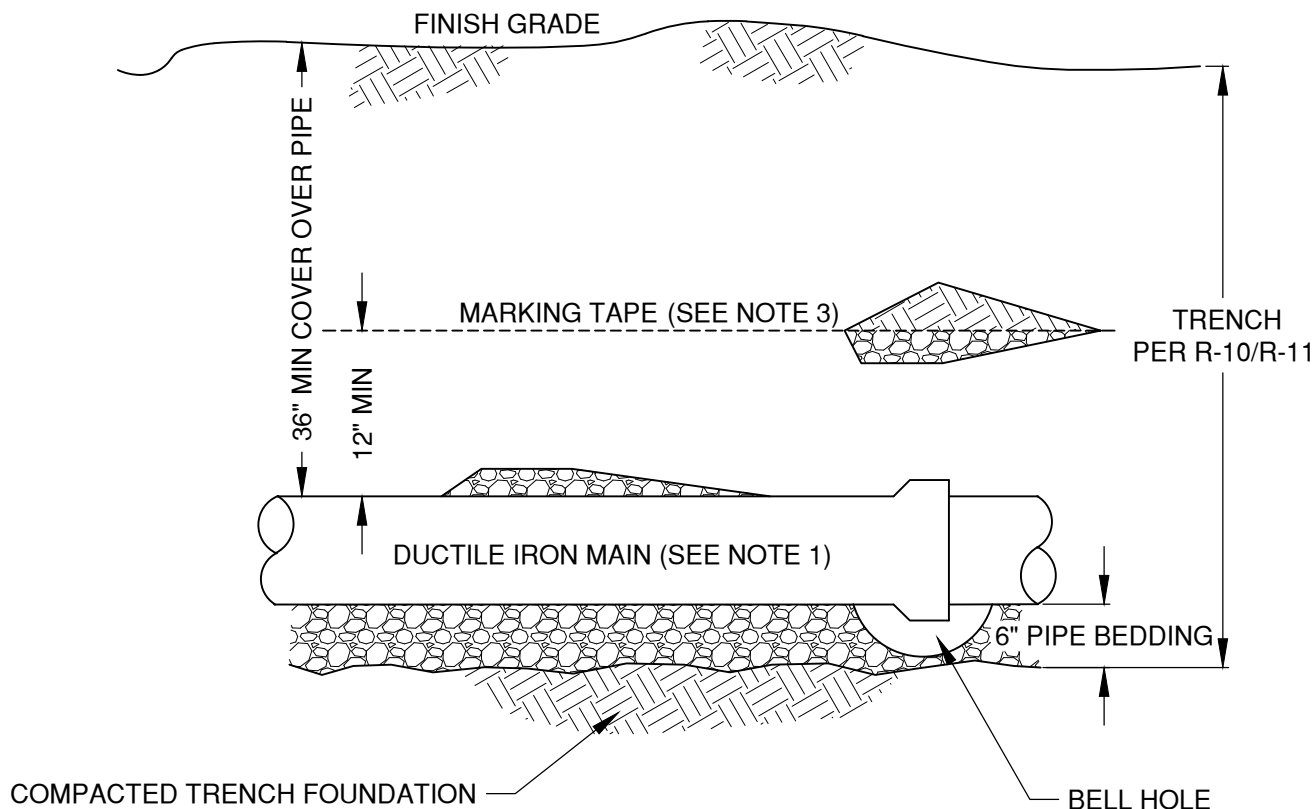


1. ALL WORK DONE ON A VACUUM SEWER SHALL BE COORDINATED WITH PUBLIC WORKS 7 DAYS IN ADVANCE TO COORDINATE VACUUM STATION SHUT DOWN.
2. ALL JOINTS TO BE CONNECTED USING STANDARD PRIMER AND SOLVENT CEMENT. KEEP ALL JOINTS CLEAN AND FREE OF DEBRIS. JOINTS TO BE SCH40 DWV 220 OR APPROVED EQUAL.
3. AFTER 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. MARKING TAPE 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 TWO SERVICES MAY CONNECT TO A ONE VACCUM PIT.
9. CONNECTION AVAILABILITY TO VALVE PIT TO BE DETERMINED BY THE CITY ENGINEER BASED ON MANUFACTURERS ALLOWABLE FLOW INTO PIT AND THE VACUUM SYSTEM.

DRAWN AJD			CITY OF BEND	CITY OF BEND		SCALE NTS
DIV SANITARY				STANDARD DRAWING	DATE 01/31/2022	
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				VACUUM SEWER SERVICE	STD DWG S-16	


CITY OF BEND STANDARD DRAWINGS

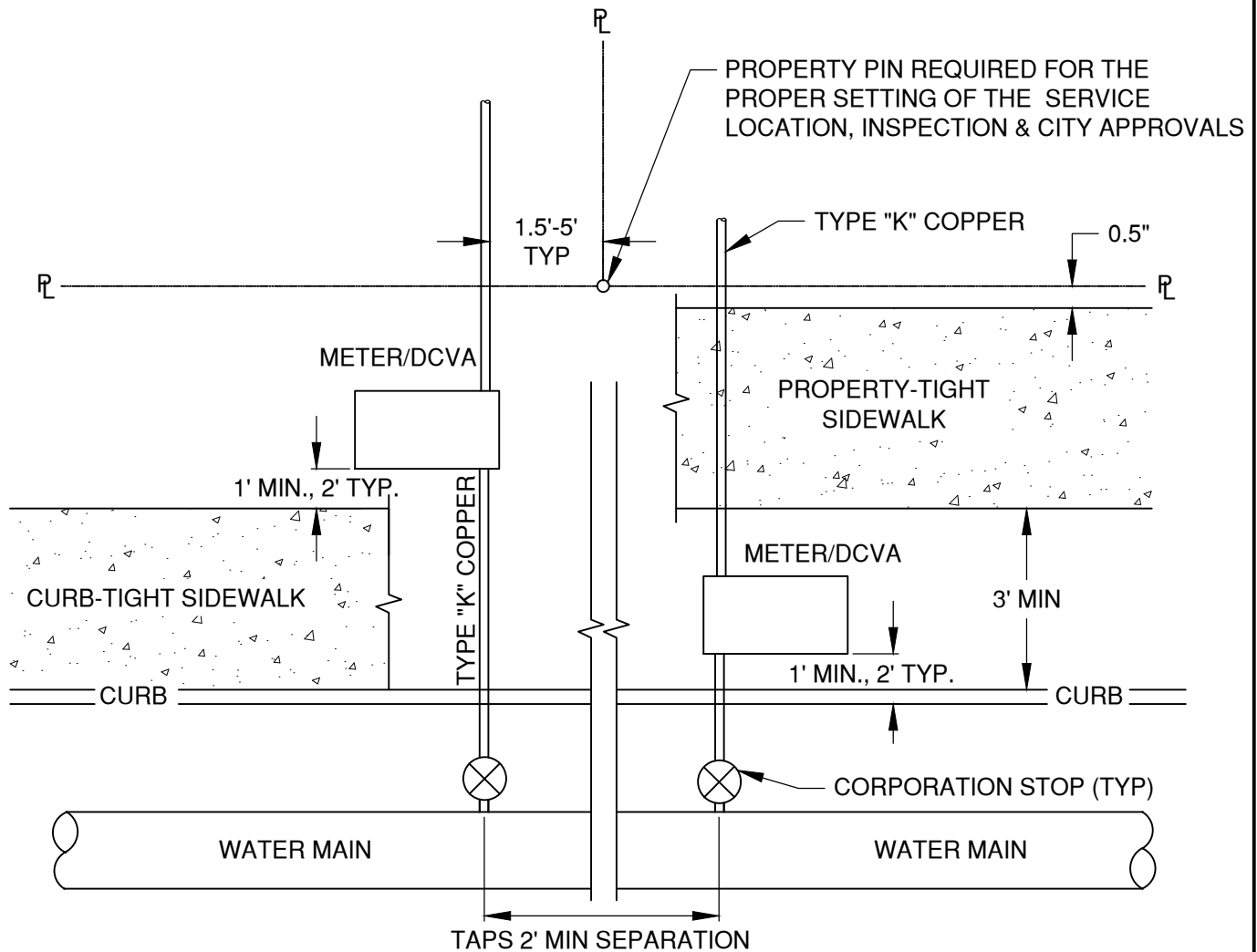
Water (W)



NOTES:

1. REFER TO SPECIFICATION SECTION 01140.41 FOR APPROVED PUSH-ON AND MECHANICAL JOINT RESTRAINT SYSTEMS.
2. WOOD BLOCKING IS NOT PERMITTED IN THE BACKFILLED TRENCH.
3. INSTALL MARKING TAPE ON ALL MAINS AND SERVICES PER SPECIFICATION SECTION 01140.10 AND 01140.45.
4. WHEN INSTALLING A WATER LINE THAT CROSSES BELOW OR WITHIN 18 INCHES ABOVE A NON-POTABLE LINE, FOLLOW OAR 333-061-0050(9). ALL NON-POTABLE LINES SHALL BE TREATED AS "SEWER" LINES AS DESCRIBED IN OAR 333-061-0050(9).
5. COMPACTION SHALL MEET REQUIREMENTS OF SPECIFICATION SECTION 00405.46(c)

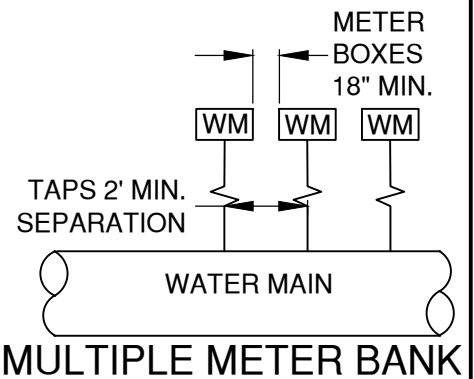
DRAWN AJD	 CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 WATER MAIN TYPICAL PROFILE	SCALE NTS
DIV WATER			DATE 01/31/2022
REV DATE			APPR
			STD DWG W-1



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 PRIOR TO 1 YEAR WARRANTY RELEASE.
6. IF AN EXISTING METER BOX, METER, OR HARDWARE WITHIN THE METER BOX DOES NOT MEET CURRENT CITY STANDARDS, CORRECTIONS OR REPAIRS SHALL BE MADE PRIOR TO THE METER BEING SET.
7. METER BOX SHALL BE SET ON 6" MIN CLASS B MATERIAL COMPACTED TO 95% OF MAXIMUM DENSITY.



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DIV WATER

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STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

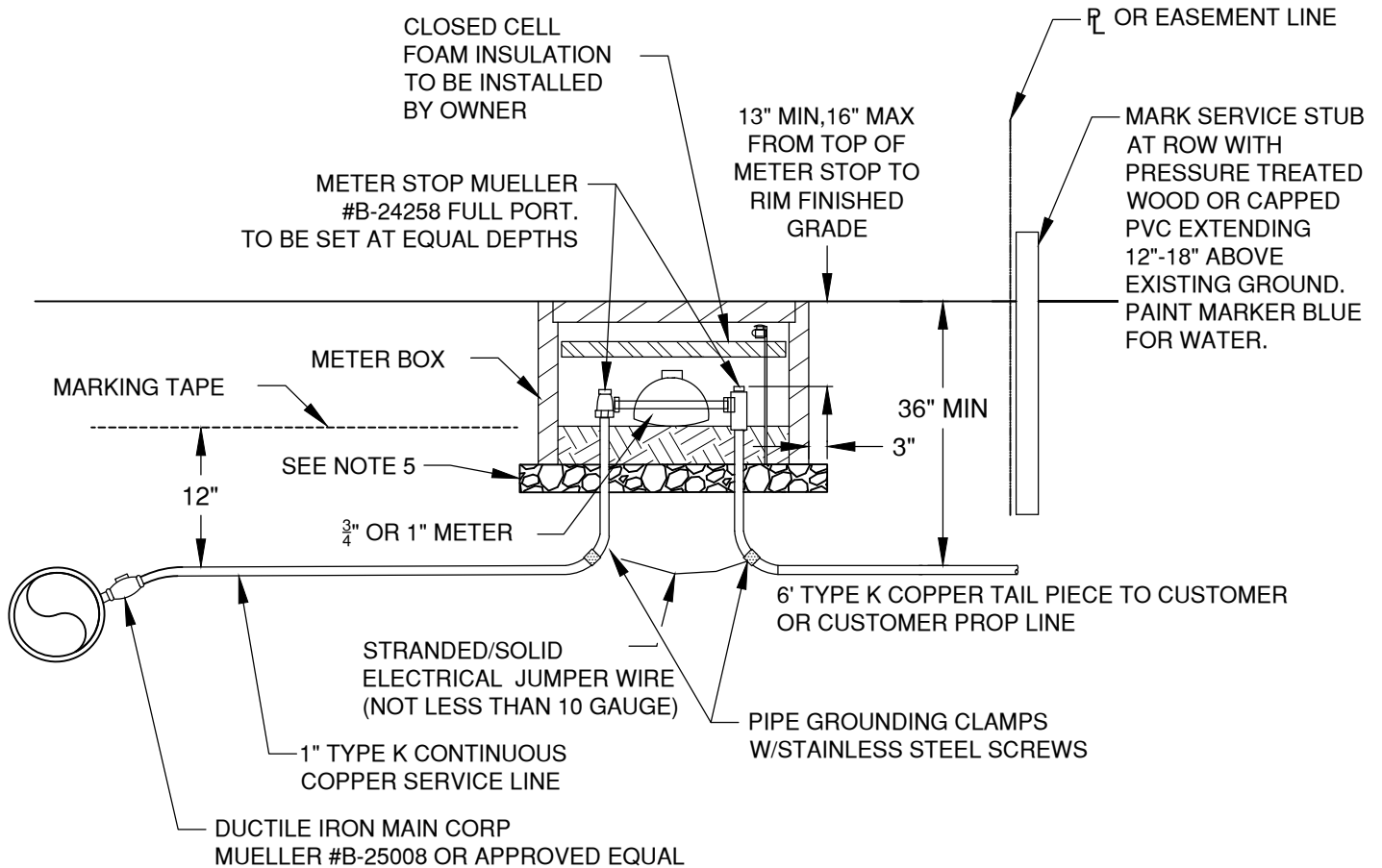
RESIDENTIAL WATER SERVICE INSTALLATION

SCALE NTS

DATE 01/31/2022

APPR


STD DWG W-4

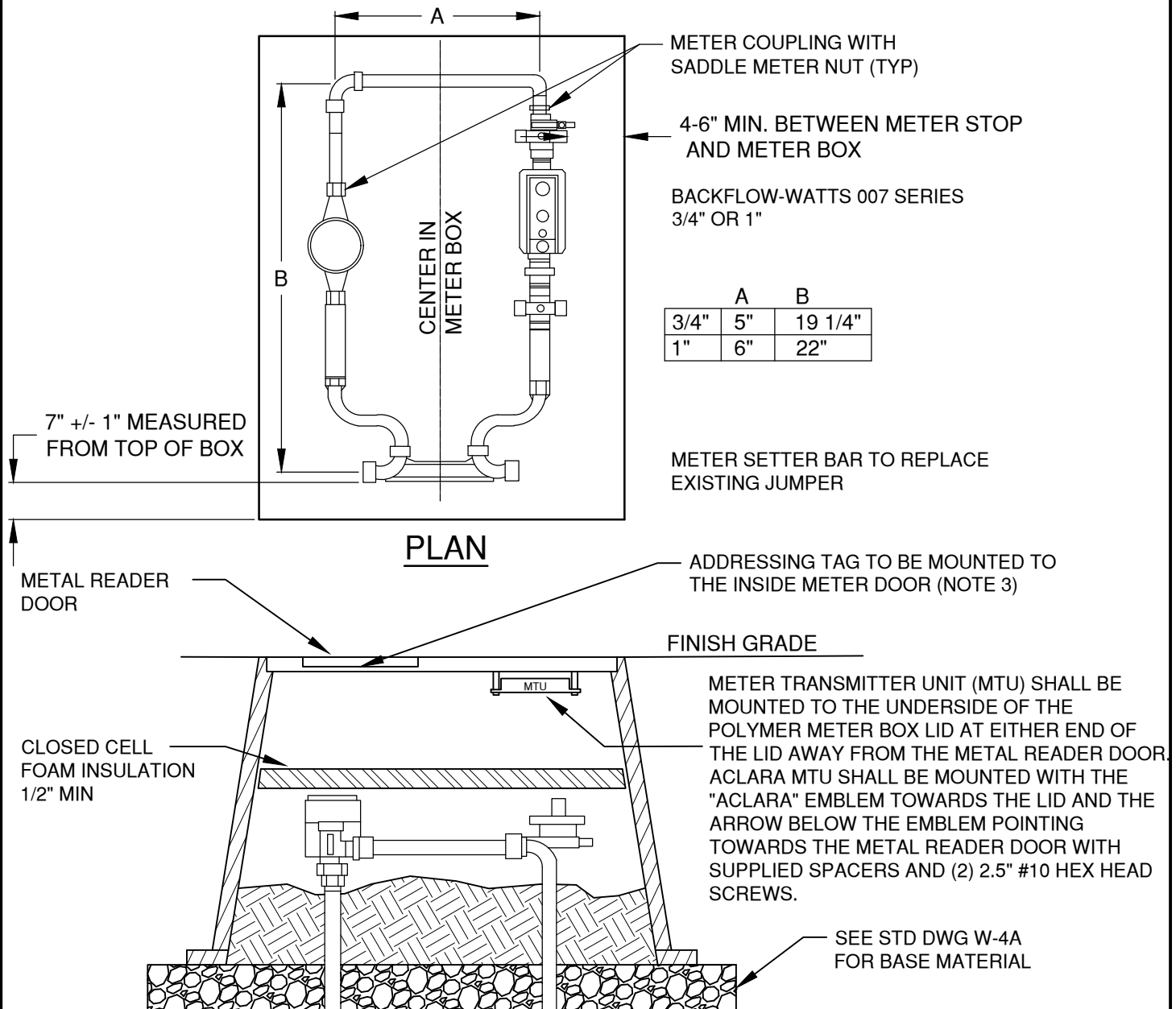


TYPICAL SERVICE

NOTES:

1. RESIDENTIAL 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.
4. IF AN EXISTING BOX, METER, OR HARDWARE WITHIN THE METER BOX DOES NOT MEET CURRENT CITY STANDARDS, CORRECTIONS OR REPAIRS SHALL BE MADE TO THE EXISTING SERVICE TO MEET CURRENT CITY STANDARDS PRIOR TO THE METER BEING SET.
5. METER SHALL BE SET ON 6" MIN CLASS B MATERIAL COMPACTED TO 95% OF MAXIMUM DENSITY.


DRAWN AJD			CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV WATER				DATE 01/31/2022
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			3/4"-1" RESIDENTIAL METER SERVICE INSTALLATION	STD DWG W-4A
CITY OF BEND				

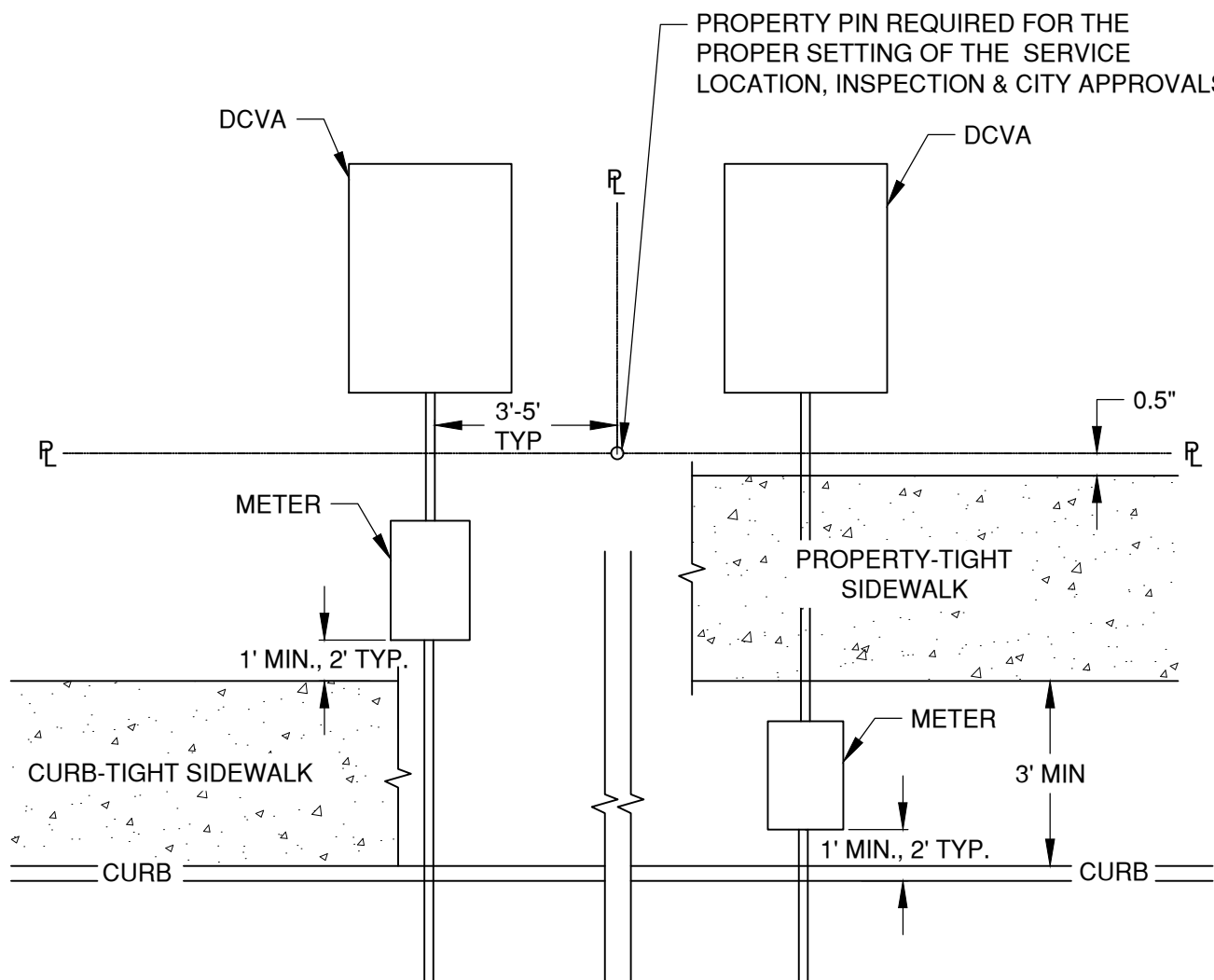


OFFSET METER "LOOP" WITH BACKFLOW PREVENTION ASSEMBLY

NOTES:

1. RESIDENTIAL 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 SHALL BE MOUNTED TO THE INSIDE METER DOOR WITH THE LOT ADDRESS STAMPED PRIOR TO 1 YEAR WARRANTY RELEASE.
4. IF THE METER ASSEMBLY/BOX OR SERVICE LINE IS DAMAGED DURING CONSTRUCTION/SITE IMPROVEMENT ACTIVITIES, DURING THE WARRANTY PERIOD, OR IF THE EXISTING METER BOX OR SERVICE LINE DOES NOT MEET CURRENT CITY STANDARDS, THE DEVELOPER/PROPERTY OWNER SHALL UPGRADE THE COMPONENTS OF THE SERVICE THAT IS OUT OF CONFORMANCE.

DRAWN AJD			<div>CITY OF BEND</div> <div>STANDARD DRAWING</div> <div>710 NW WALL ST., BEND, OREGON 97701</div>	SCALE NTS
DIV WATER				DATE 01/31/2022
REV	DATE			APPR
				STD DWG W-4B
		CITY OF BEND	3/4"-1" RESIDENTIAL METER SERVICE INSTALLATION	



NOTES:

1. COMMERCIAL METER BOXES SHALL BE INSTALLED PERPENDICULAR TO THE CURB LINE WITH DOUBLE CHECK VALVE ASSEMBLY TO BE LOCATED ON PRIVATE PROPERTY.
2. WATER METER BOXES SHALL BE LOCATED IN LANDSCAPE AREAS WHEN POSSIBLE, SEE STD DWG W-5E FOR LOCATING METER BOX IN HARD SURFACE.
3. 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.
4. BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED ON PRIVATE PROPERTY.
5. IF AN EXISTING METER BOX, METER, OR HARDWARE WITHIN THE METER BOX DOES NOT MEET CURRENT CITY STANDARDS, CORRECTIONS OR REPAIRS SHALL BE MADE TO THE EXISTING SERVICE TO MEET CURRENT CITY STANDARDS PRIOR TO THE METER BEING SET.
6. METER BOX SHALL BE SET ON 6" MIN CLASS B MATERIAL COMPACTED TO 95% OF MAXIMUM DENSITY.

DRAWN AJD
DIV WATER
REV DATE



CITY OF BEND

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STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

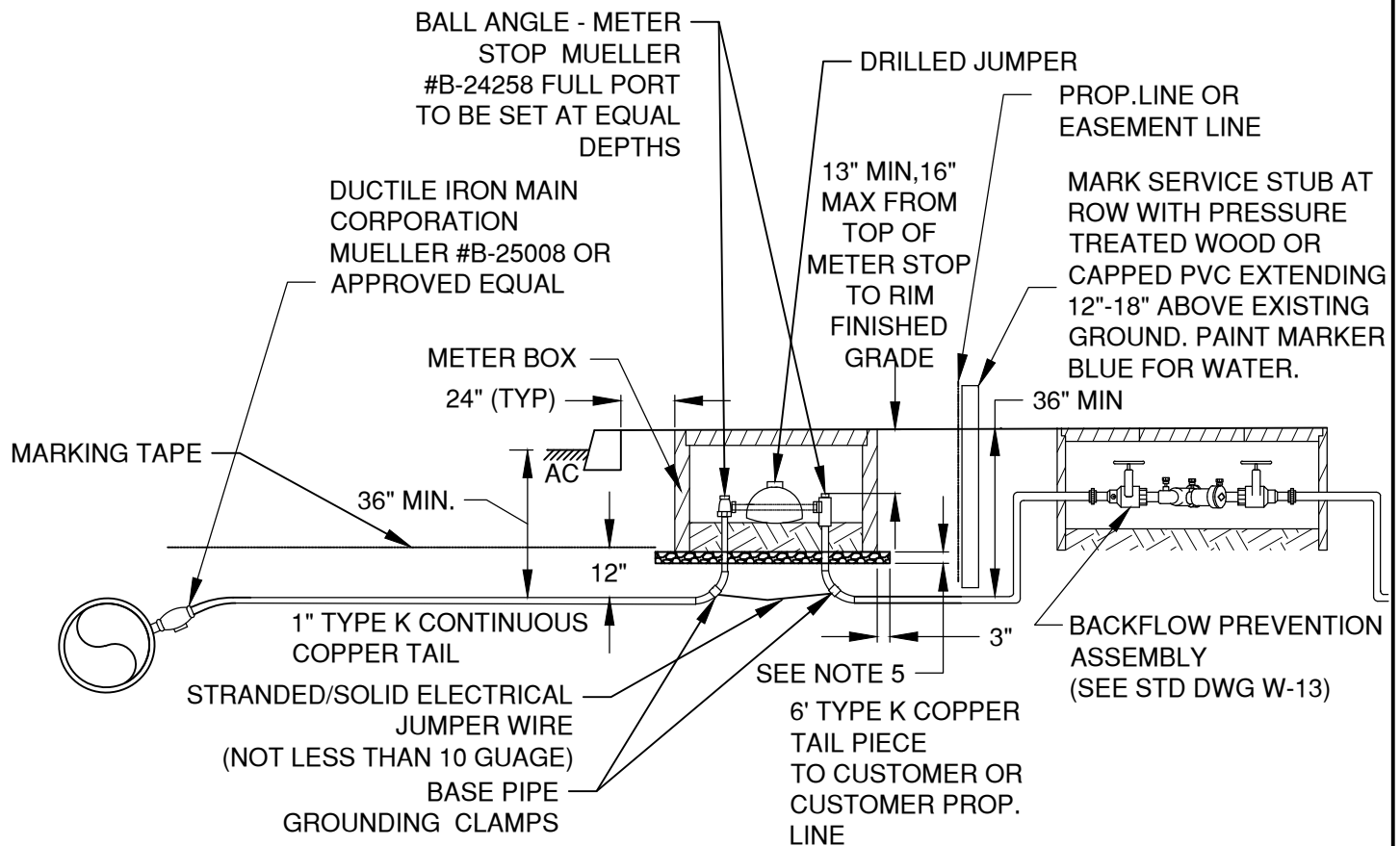
COMMERCIAL & IRR METER SERVICE INSTALLATION

SCALE NTS

DATE 01/31/2022

APPR


STD DWG W-5

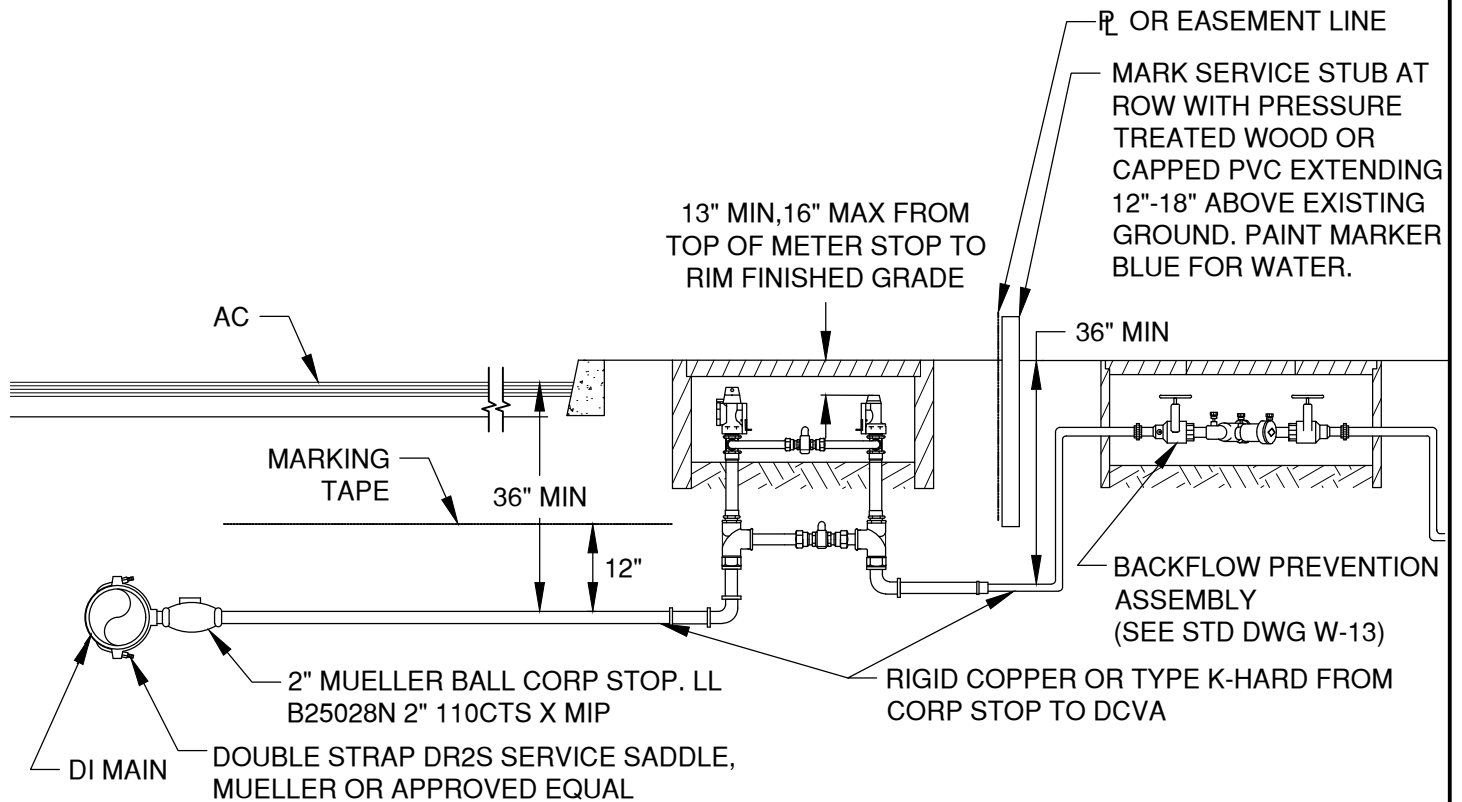


TYPICAL 1" SERVICE WITH METER

NOTES:

1. COMMERCIAL METERS NOT TO BE LESS THAN 1-INCH. METER SIZE TO MATCH SERVICE LINE SIZE.
2. COMMERCIAL METER BOXES SHALL BE INSTALLED PERPENDICULAR TO THE CURB LINE WITH DOUBLE CHECK VALVE ASSEMBLY TO BE LOCATED ON PRIVATE PROPERTY PER STD DWG W-5.
3. COMMERCIAL METERS WILL NOT BE SET UNTIL BACKFLOW PREVENTION ASSEMBLY IS IN PLACE.
4. IF AN EXISTING METER BOX, METER, OR HARDWARE WITHIN THE METER BOX DOES NOT MEET CURRENT CITY STANDARDS, CORRECTIONS OR REPAIRS SHALL BE MADE TO THE EXISTING SERVICE TO MEET CURRENT CITY STANDARDS PRIOR TO THE METER BEING SET.
5. METER BOX SHALL BE SET ON 6" MIN CLASS B MATERIAL COMPACTED TO 95% OF MAXIMUM DENSITY.

DRAWN AJD			CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701		SCALE NTS	
DIV WATER					DATE 01/31/2022	
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					STD DWG W-5A	
CITY OF BEND			1" COMMERCIAL & IRR METER SERVICE INSTALLATION			



TYPICAL 2" SERVICE WITH 1-1/2" AND 2" METER

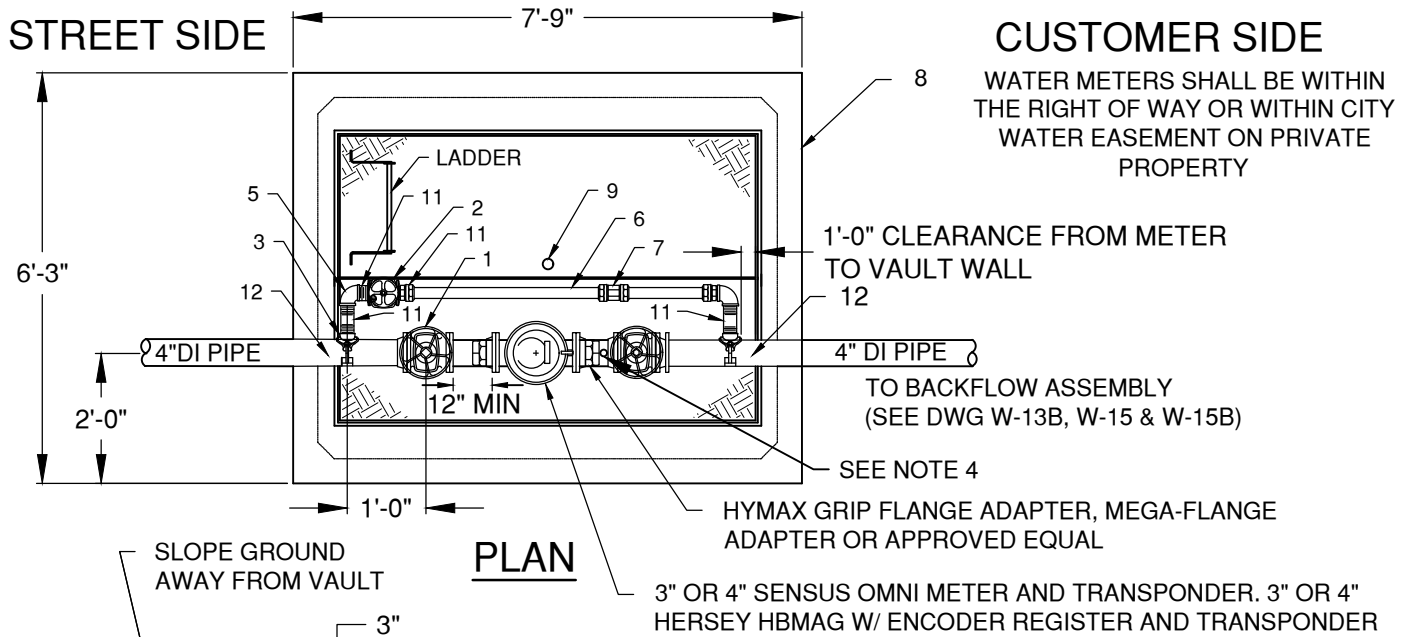
NOTES:

1. COMMERCIAL METERS WILL NOT BE SET UNTIL BACKFLOW PREVENTION ASSEMBLY IS IN PLACE
2. COMMERCIAL METER BOXES SHALL BE INSTALLED PERPENDICULAR TO THE CURB LINE WITH DOUBLE CHECK TO BE LOCATED ON PROPERTY
3. ALL METERS LESS THAN 2" WHEN USING A 2" SERVICE LINE ARE TO BE REDUCED WITHIN THE 2" METER SETTER
4. IF AN EXISTING METER BOX, METER, OR HARDWARE WITHIN THE METER BOX DOES NOT MEET CURRENT CITY STANDARDS CORRECTIONS OR REPAIRS SHALL BE MADE TO THE EXISTING SERVICE TO MEET CURRENT CITY STANDARDS PRIOR TO THE METER BEING SET.
5. 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.
6. METER BOX SHALL BE SET ON 6" MIN CLASS B MATERIAL COMPACTED TO 95% OF MAXIMUM DENSITY

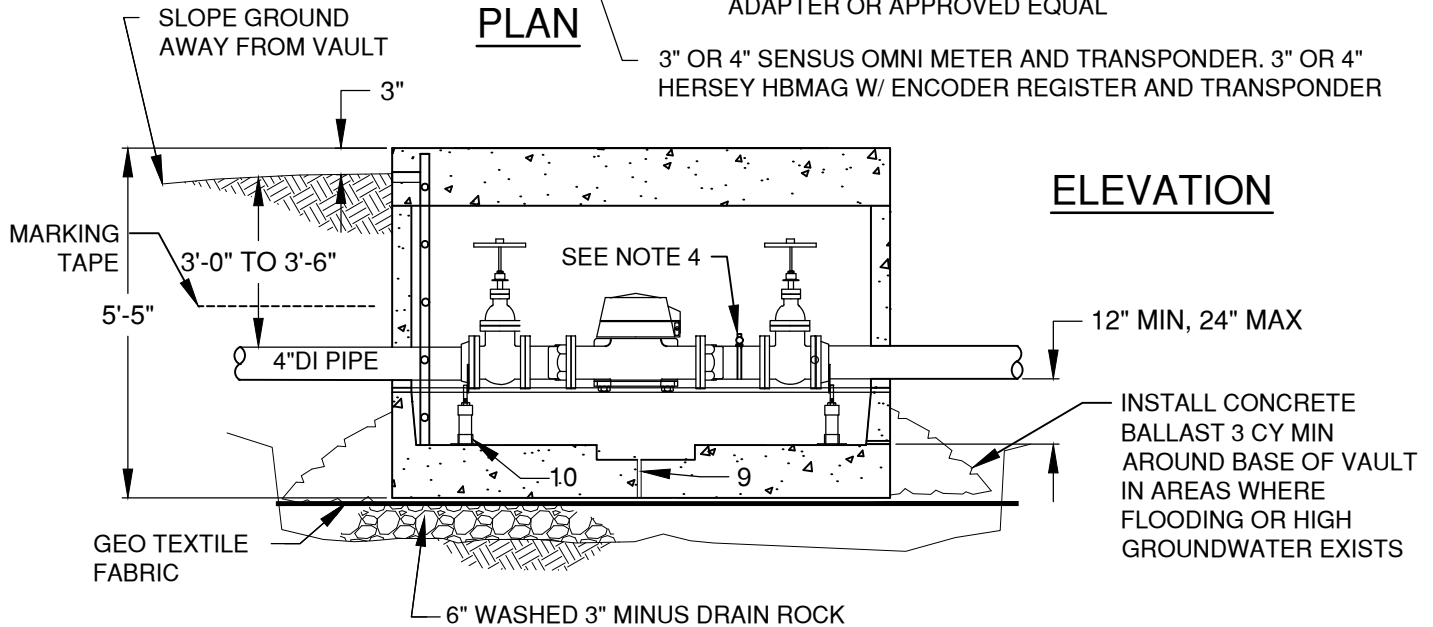
DRAWN AJD		CITY OF BEND STANDARD DRAWING <small>710 NW WALL ST., BEND, OREGON 97701</small>	SCALE NTS
DIV WATER			DATE 01/31/2022
REV DATE			APPR
		1 1/2" & 2" COMMERCIAL AND IRRIGATION METER SERVICE INSTALLATION	STD DWG W-5B
	CITY OF BEND		

STREET SIDE

CUSTOMER SIDE



ELEVATION



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	OLD CASTLE 675-WA WITH OPENING FOR BILCO DOOR JD-3AL AND OSHA APPROVED LADDER (SEE STD DWG W-6)
9	1	WEEP HOLE (12"x12"x3" SUMP)
10	2	2" PIPE STAND "STANDON"
11	4	2" MPT x COMP ADAPTER
12	2	4"x3" REDUCER (WHERE 3" METER IS INSTALLED)

NOTES:

1. SEAL ALL OPENINGS IN VAULT WITH NON SHRINK GROUT
2. ENGINEER TO PROVIDE PIPE RESTRAINT DETAIL ENTERING & EXITING VAULT
3. METER SIZE TO MATCH SERVICE SIZE OR ONE SIZE SMALLER.
4. 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.

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STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

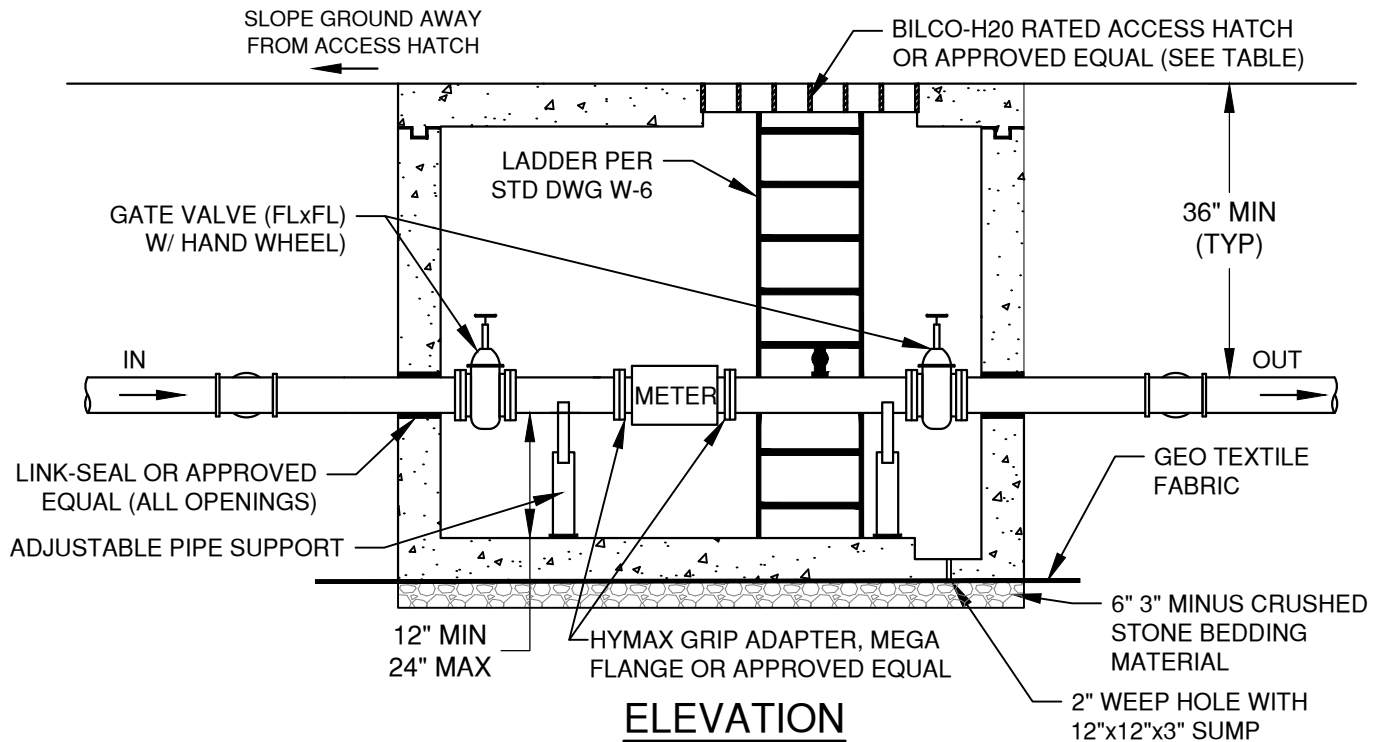
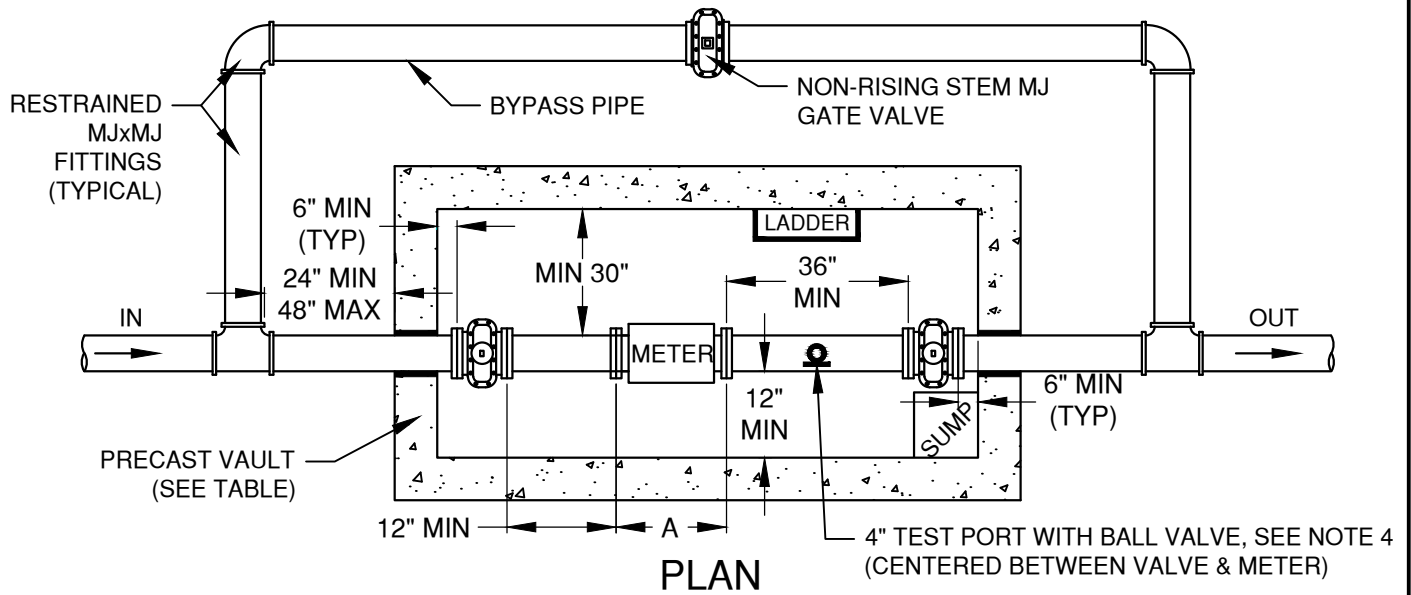
3" & 4" COMMERCIAL METER INSTALLATION

SCALE NTS

DATE 01/31/2022

APPR

STD DWG W-5C



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.
4. WHERE THE METER DOES NOT PROVIDE A TEST PORT, A 4" TEST PORT SHALL BE INSTALLED WITH 4" TAPPING SADDLE, 4" BRASS BALL VALVE, AND 4" BRASS NIPPLE.

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 AJD
DIV WATER
REV DATE



CITY OF BEND

CITY OF BEND

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

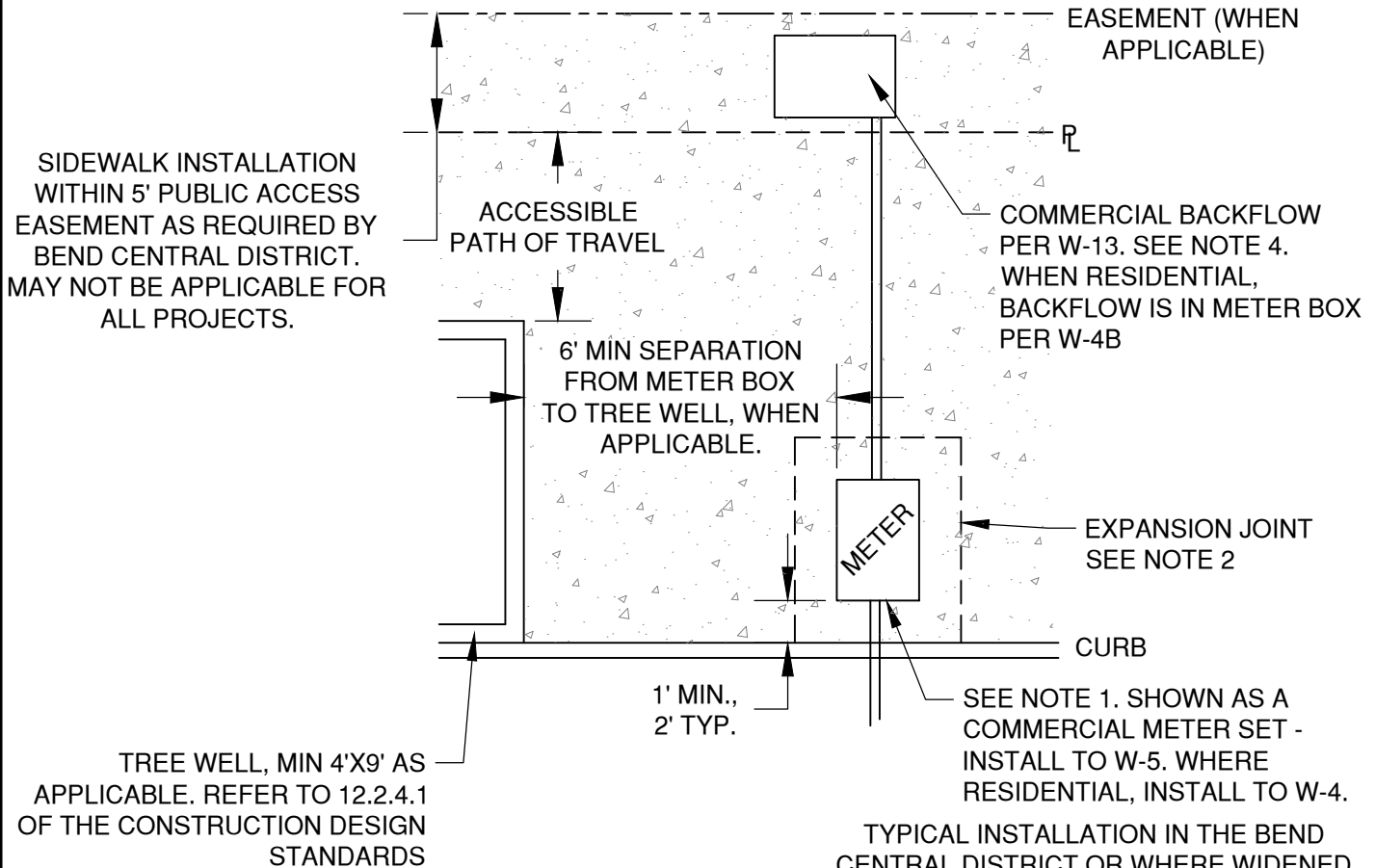
6" AND LARGER COMMERCIAL METER INSTALLATION

SCALE NTS

DATE 01/31/2022

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STD DWG W-5D



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. BACKFLOW DEVICE 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 DEVICE, 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.
7. COMMERCIAL WATER METER BOXES TO BE INSTALLED PERPENDICULAR TO THE CURB LINE, SEE STD DWG W-5. RESIDENTIAL WATER METER BOXES TO BE INSTALLED PARALLEL TO THE CURB LINE PER STD DWG W-4

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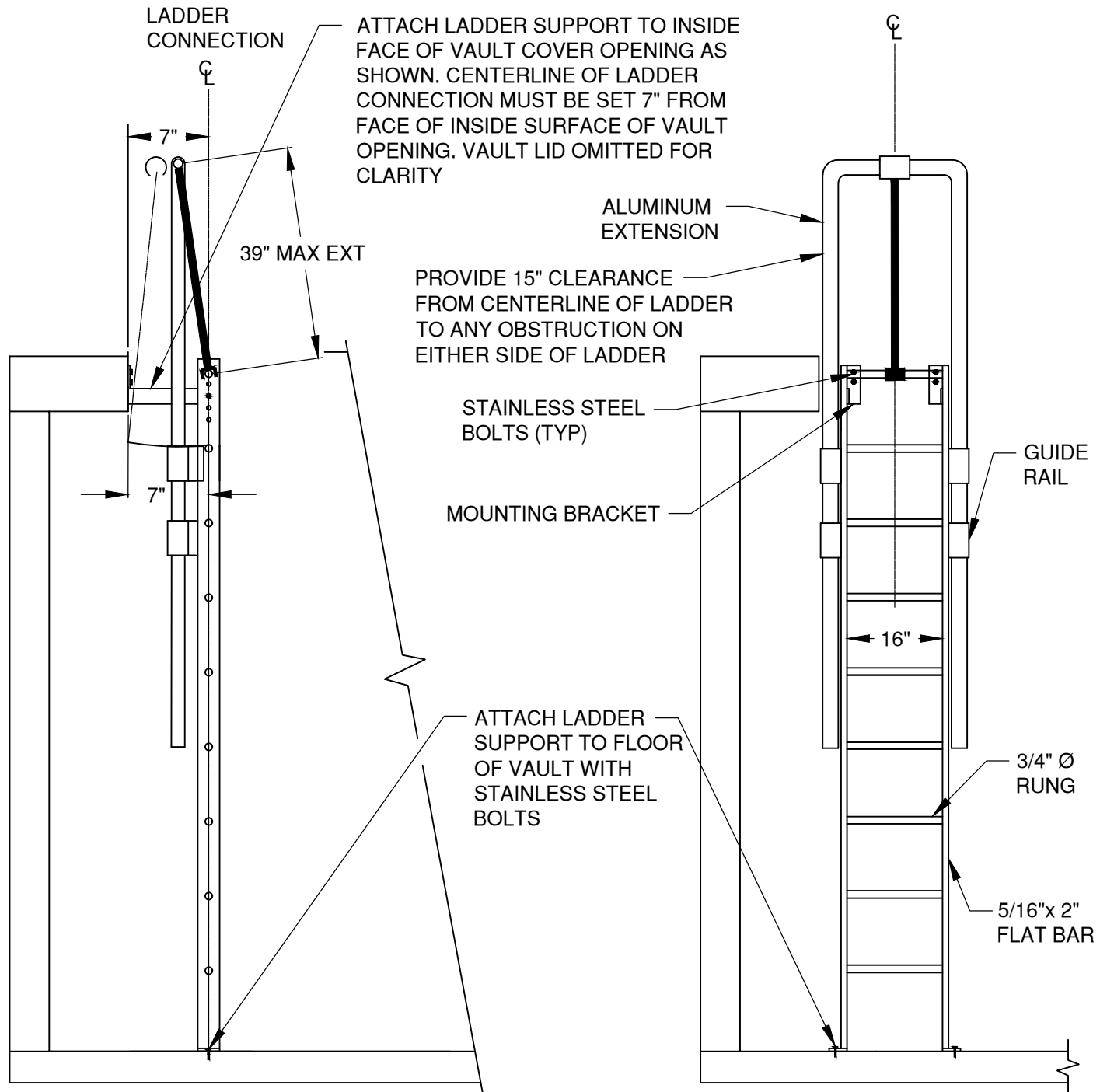
METER INSTALLATION IN SIDEWALKS

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DATE 01/31/2022

APPR

STD DWG W-5E



SIDE VIEW

FRONT VIEW

NOTES:

1. GALVANIZED LADDER W/AN ALUMINUM EXTENSION BY OLDCASTLE (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 OLDCASTLE TO BE CUT DOWN TO 4'-7" BY CONTRACTOR FOR USE IN VAULT 675-WA. OLDCASTLE TO SUPPLY 49 1/2" ALUMINUM EXTENSION

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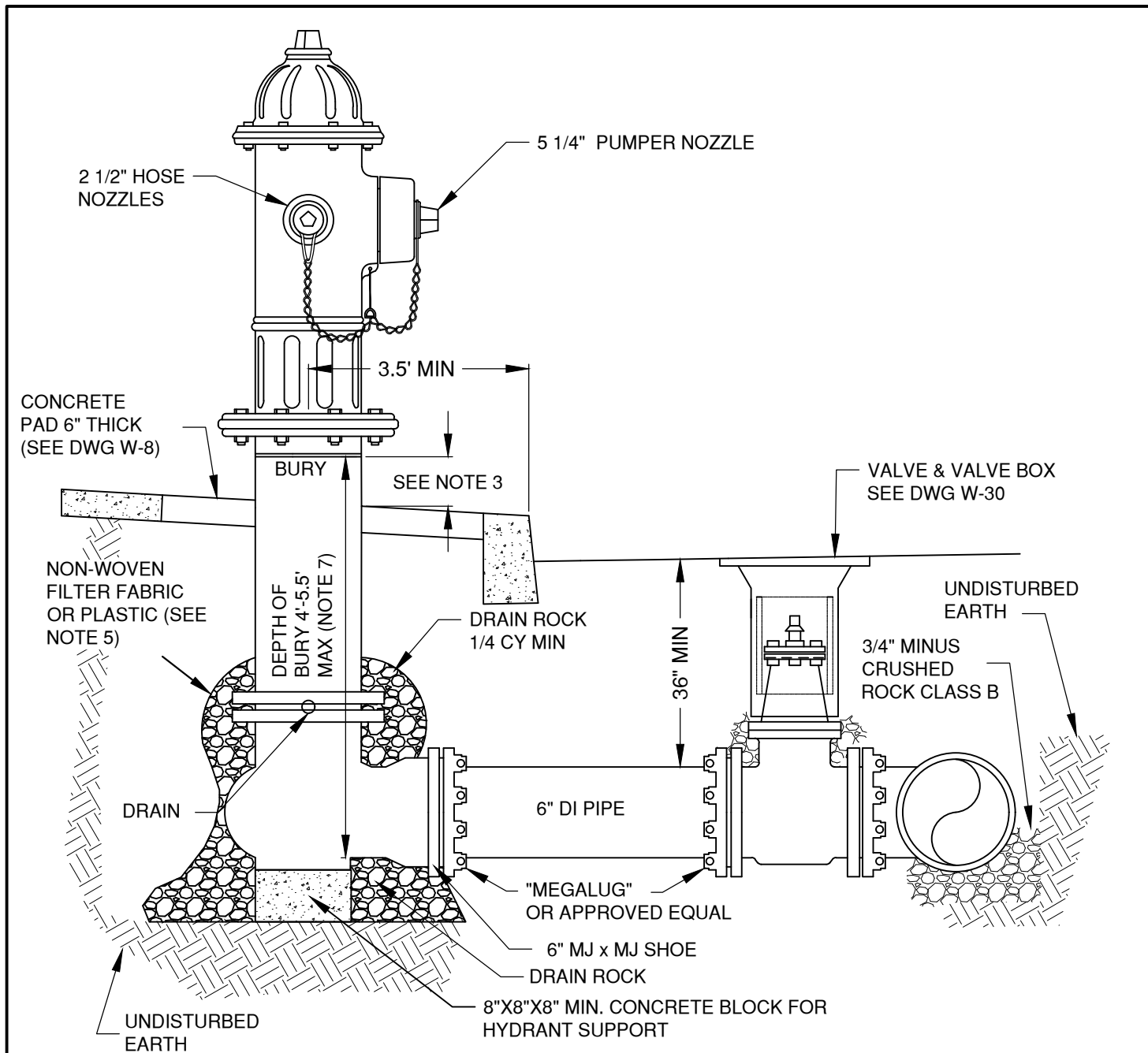
GALV. LADDER W/ ALUM EXT FOR WATER VAULTS

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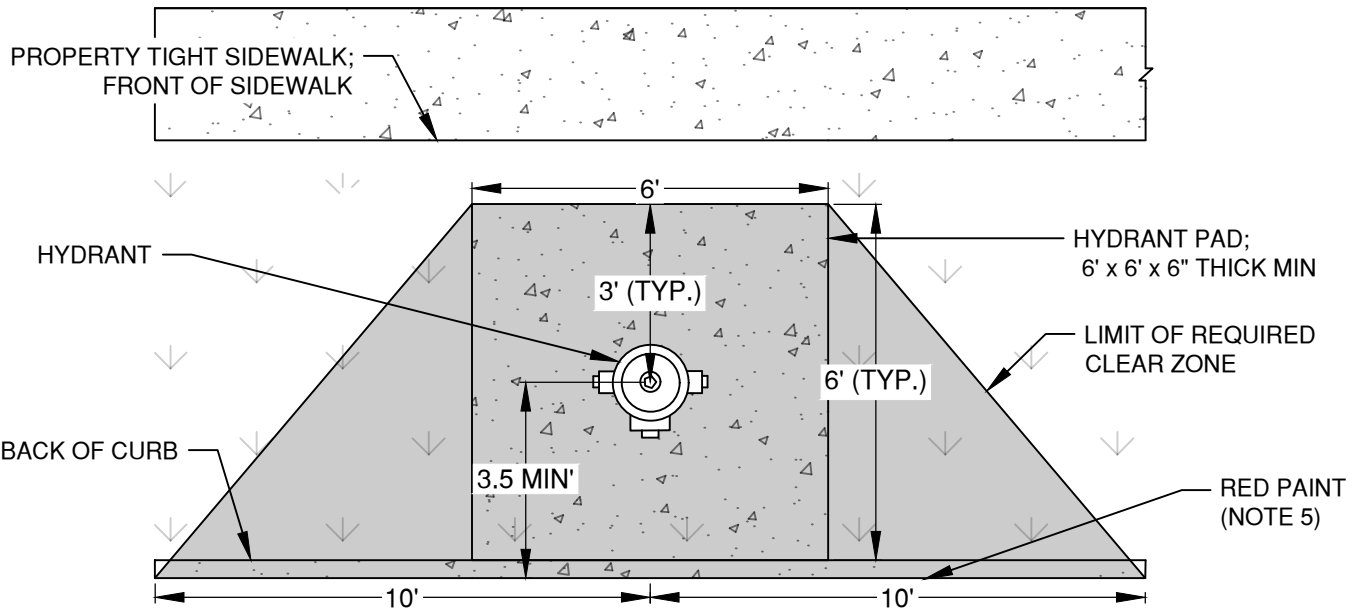
STD DWG W-6



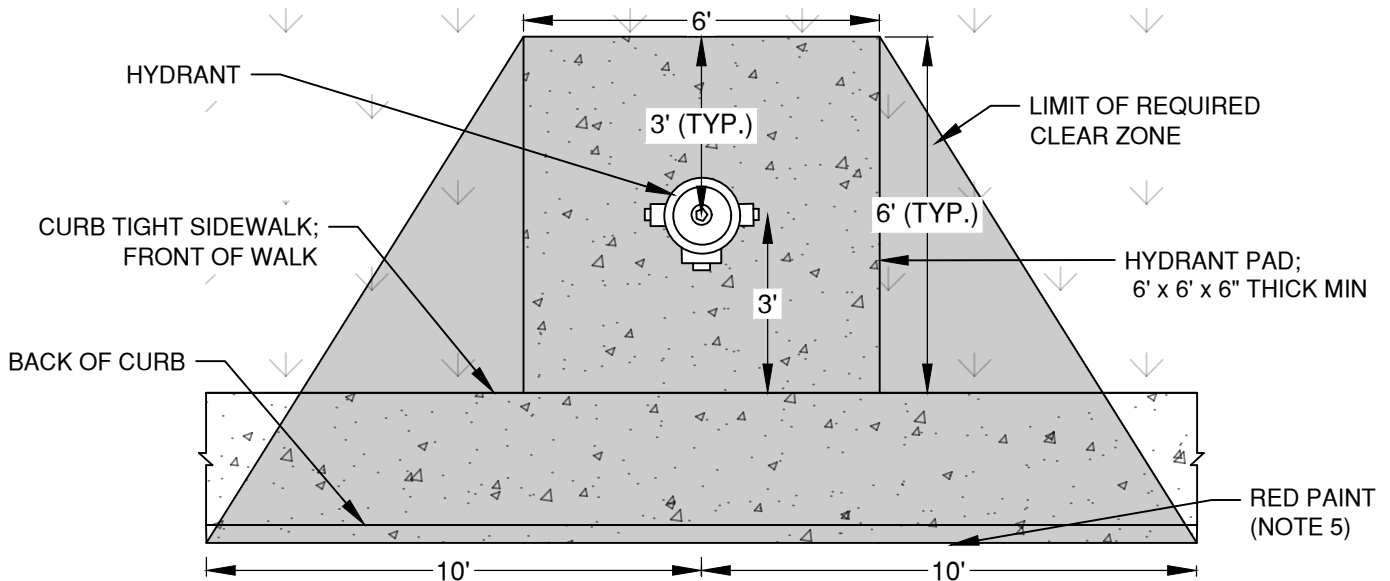
NOTES:

1. ALL PIPES SHALL HAVE RESTRAINED JOINTS.
2. MJ x MJ TEE OR MJxMJxSWIVEL (REQUIRES ENGINEER APPROVAL) 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 FOR NEW INSTALLATION AND MAX OF 6" FOR RETROFITS. NO HYDRANT EXTENSIONS PERMITTED ON NEW INSTALLATIONS.
4. SET HYDRANT PLUMB. COMPACT ALL BACKFILL PER SPECIFICATIONS.
5. NON-WOVEN SEPARATION FILTER FABRIC OR PLASTIC (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 6 FEET. USE 45 DEGREE OR 22.5 DEGREE BENDS TO ADJUST ACCORDINGLY.

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DIV WATER				DATE 01/31/2022				
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				STD DWG W-7				
				TYPICAL HYDRANT				



**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 00405.00
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.

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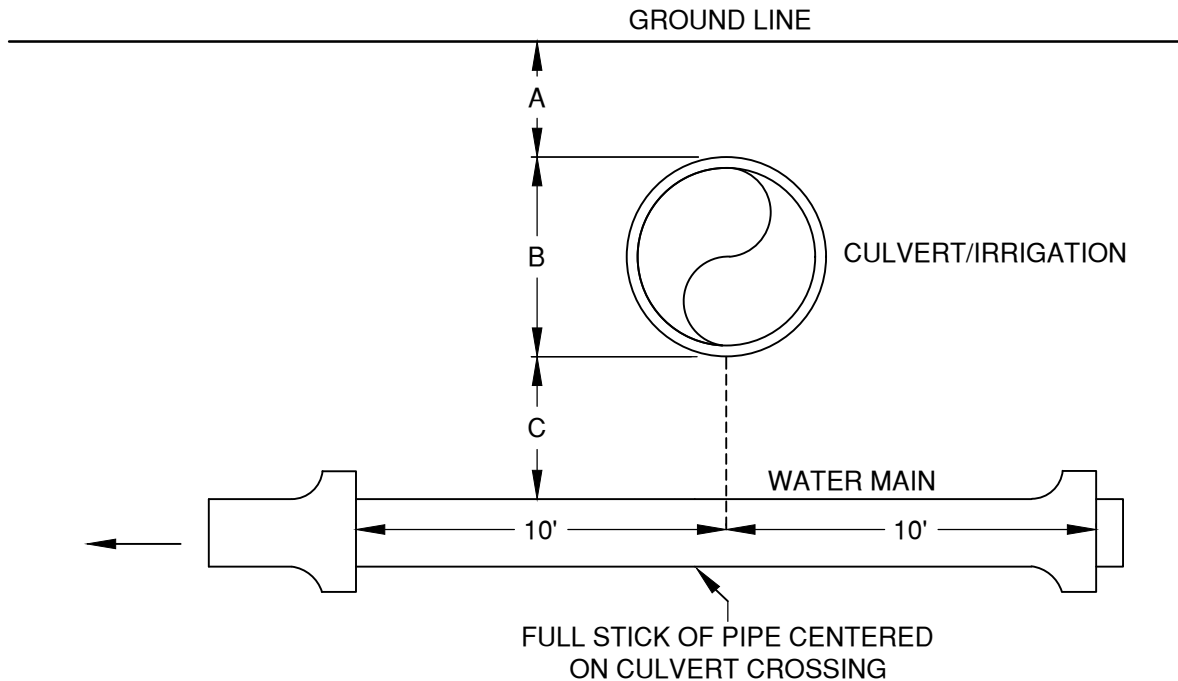
HYDRANT LOCATION AND CLEAR ZONE

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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"

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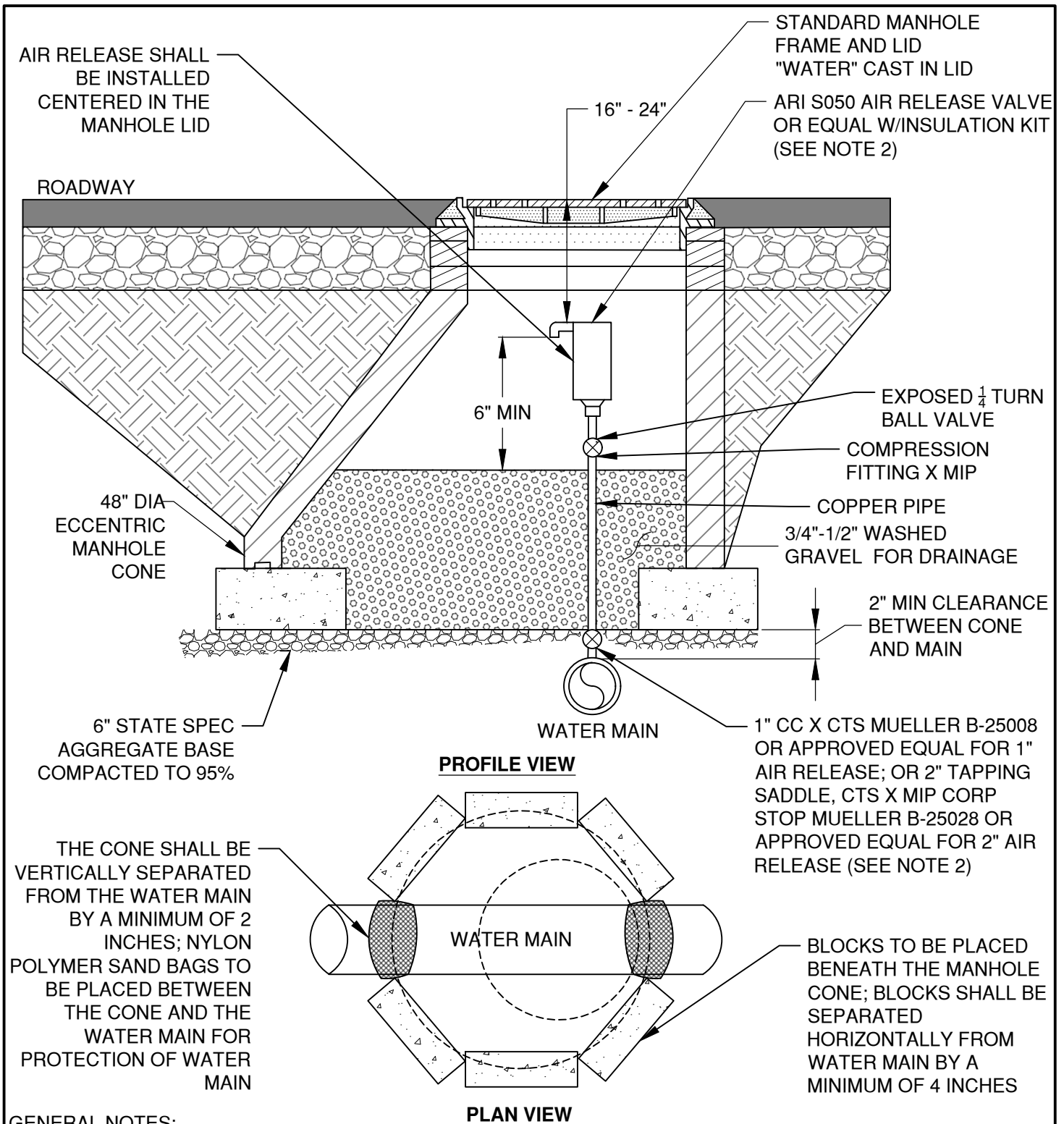
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STD DWG W-9

SEPARATION OF WATER LINE TO IRRIGATION CULVERTS



GENERAL NOTES:

- 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.
- 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.

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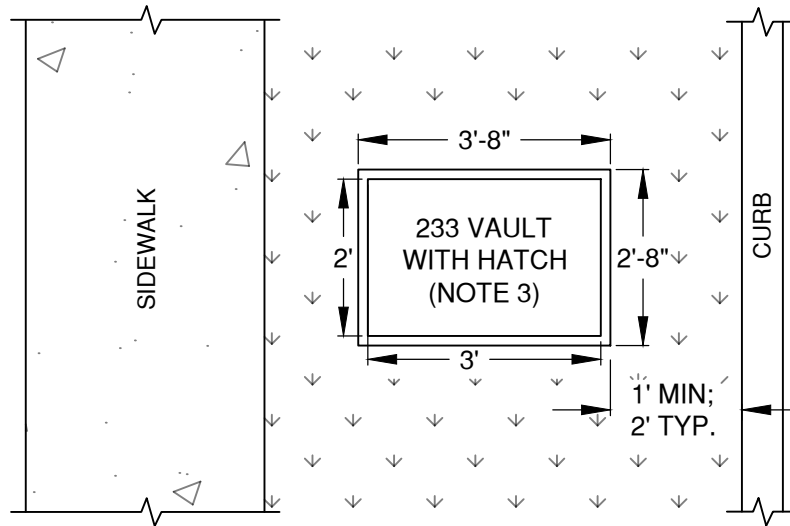
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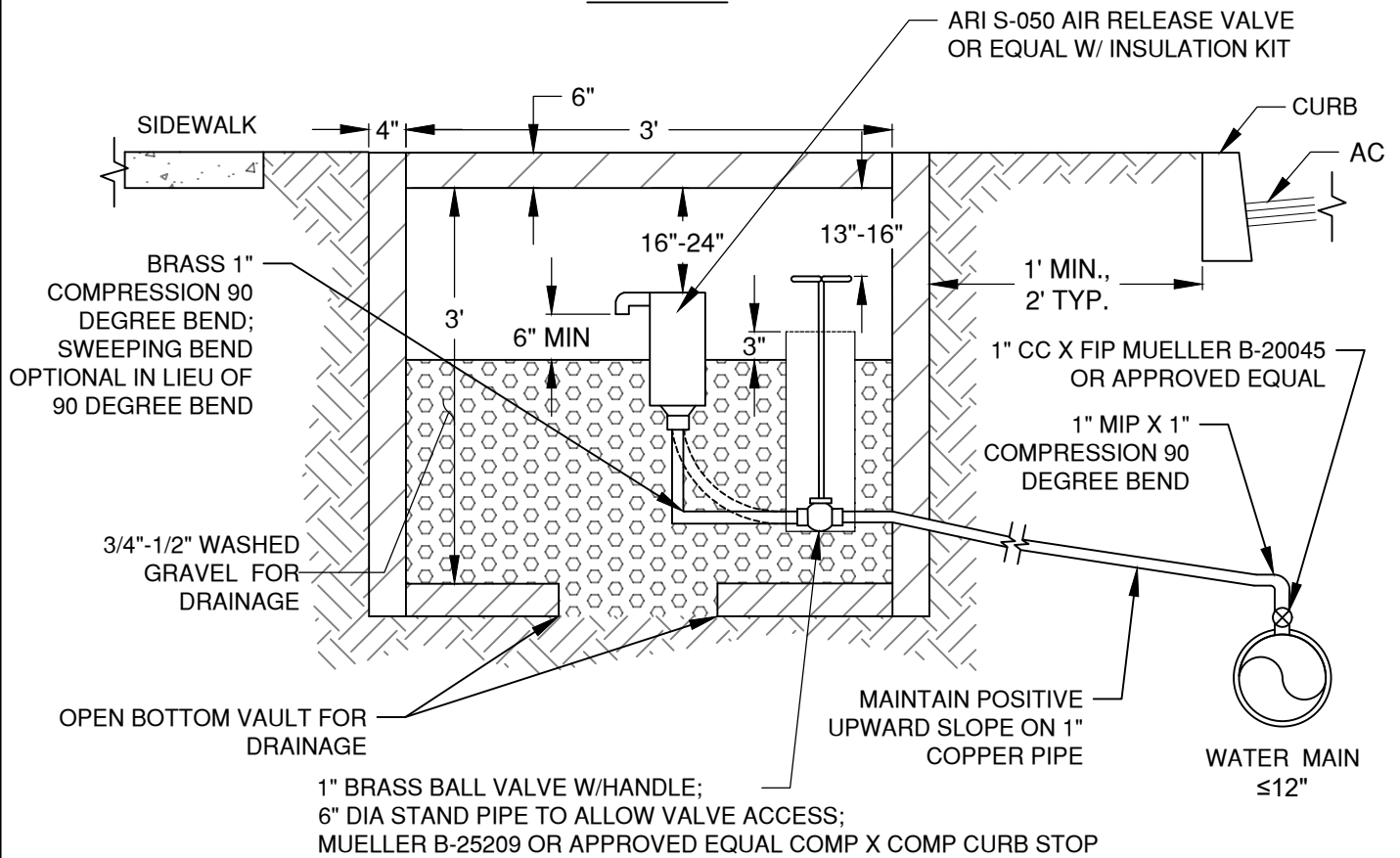
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STD DWG W-10

1" & 2" STANDARD AIR RELEASE VALVE - TRAFFIC AREA



**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 STD DWG W-10.
3. VAULT SHALL BE PRECAST VAULT WITH 2'X3' HATCH AND OPEN BOTTOM, OR APPROVED EQUAL.

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DIV **WATER**
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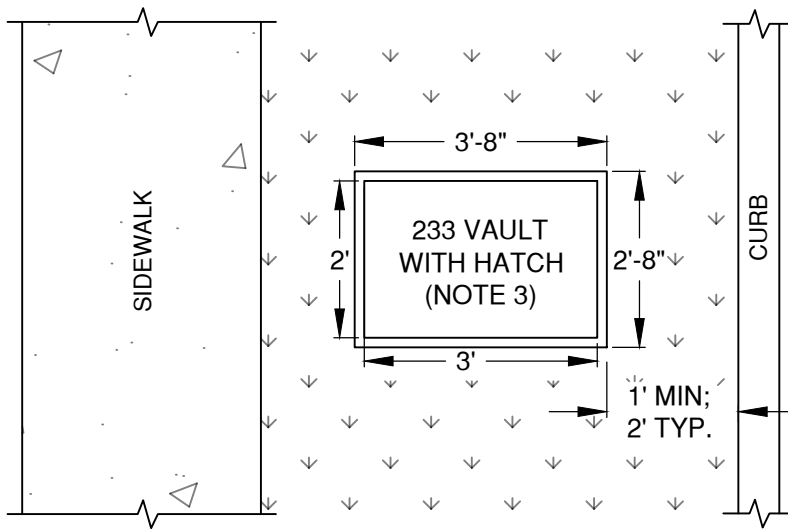
1" STANDARD AIR RELEASE VALVE

SCALE **NTS**

DATE **01/31/2022**

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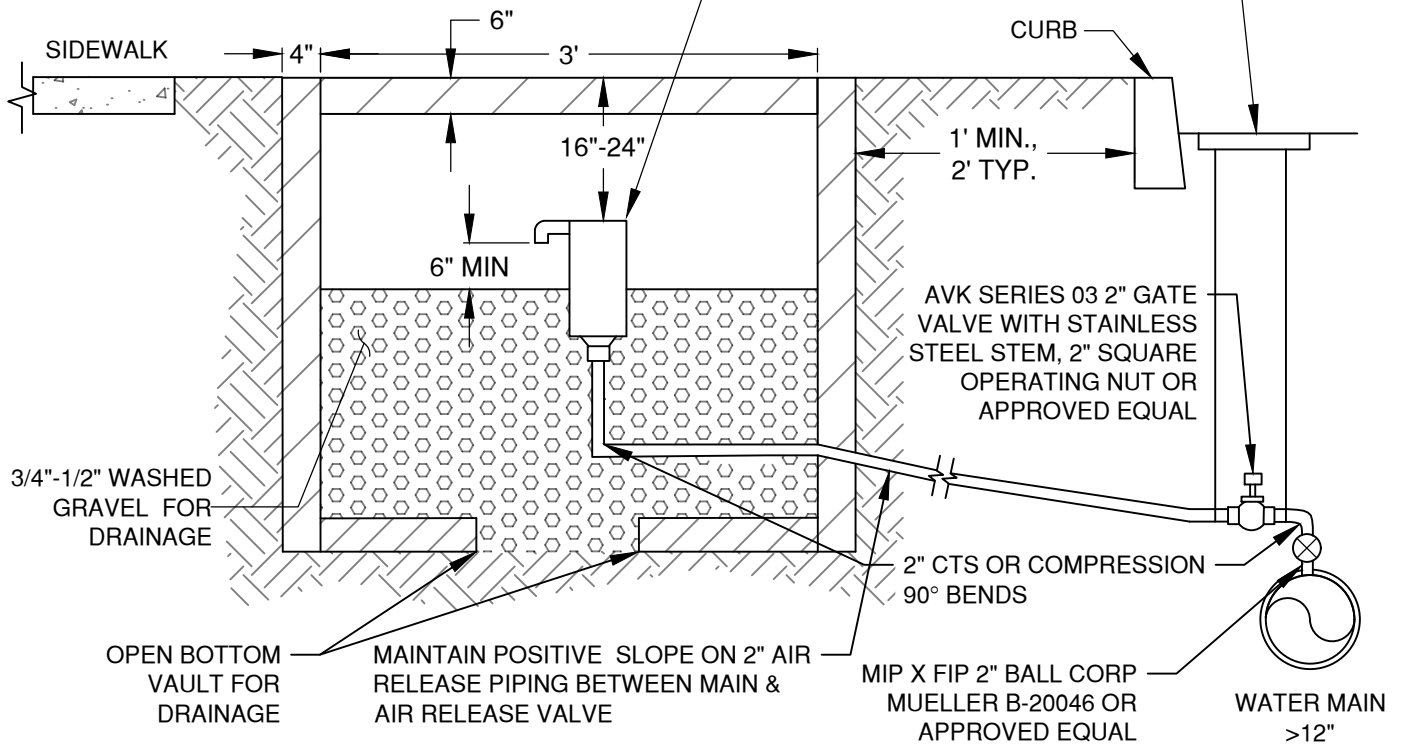
STD DWG **W-10A**



**AIR RELEASE VALVE LOCATION
PLAN VIEW**

STANDARD VALVE BOX
PER STD DWG W-30

ARI S050 AIR RELEASE VALVE OR
EQUAL W/INSULATION KIT



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. SEE STD DWG W-10 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.

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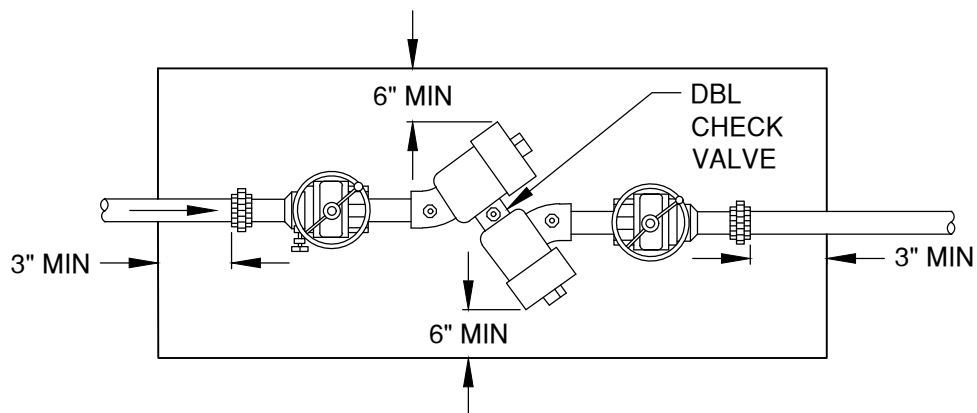
2" STANDARD AIR RELEASE VALVE

SCALE NTS

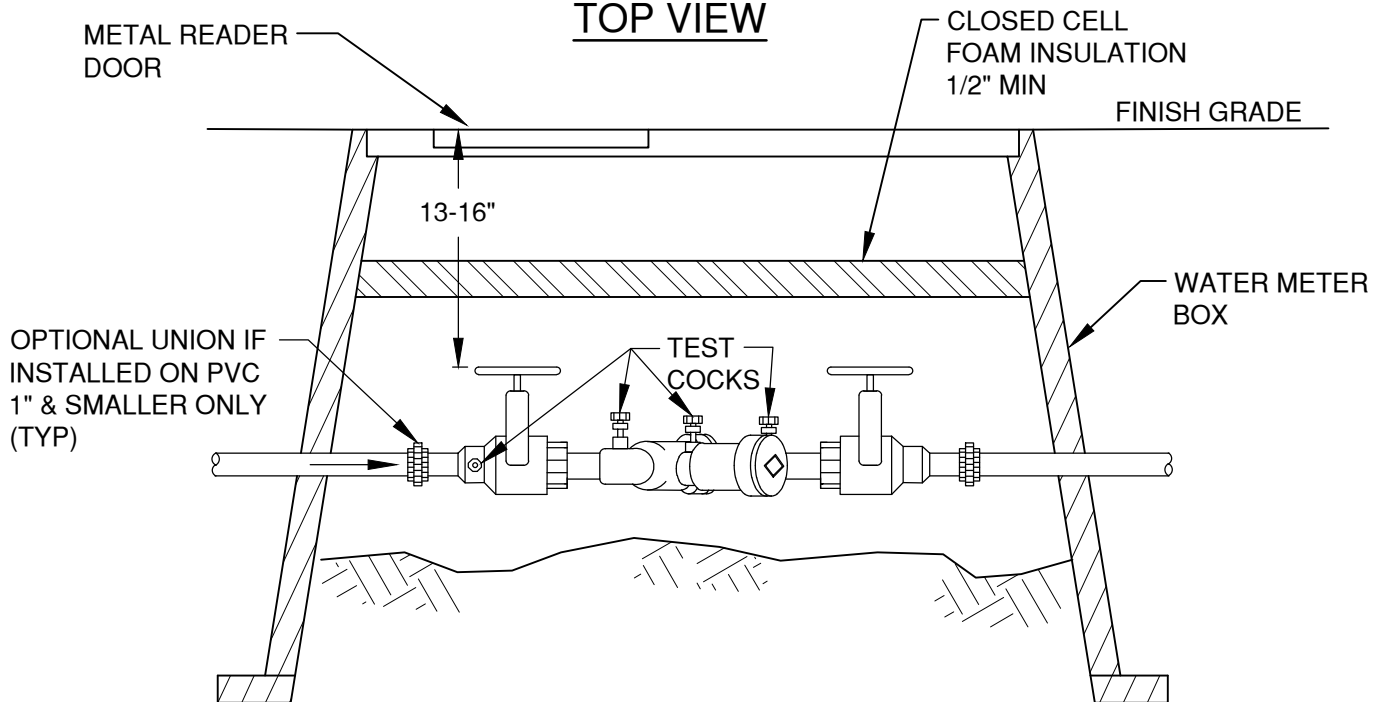
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STD DWG W-10B



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

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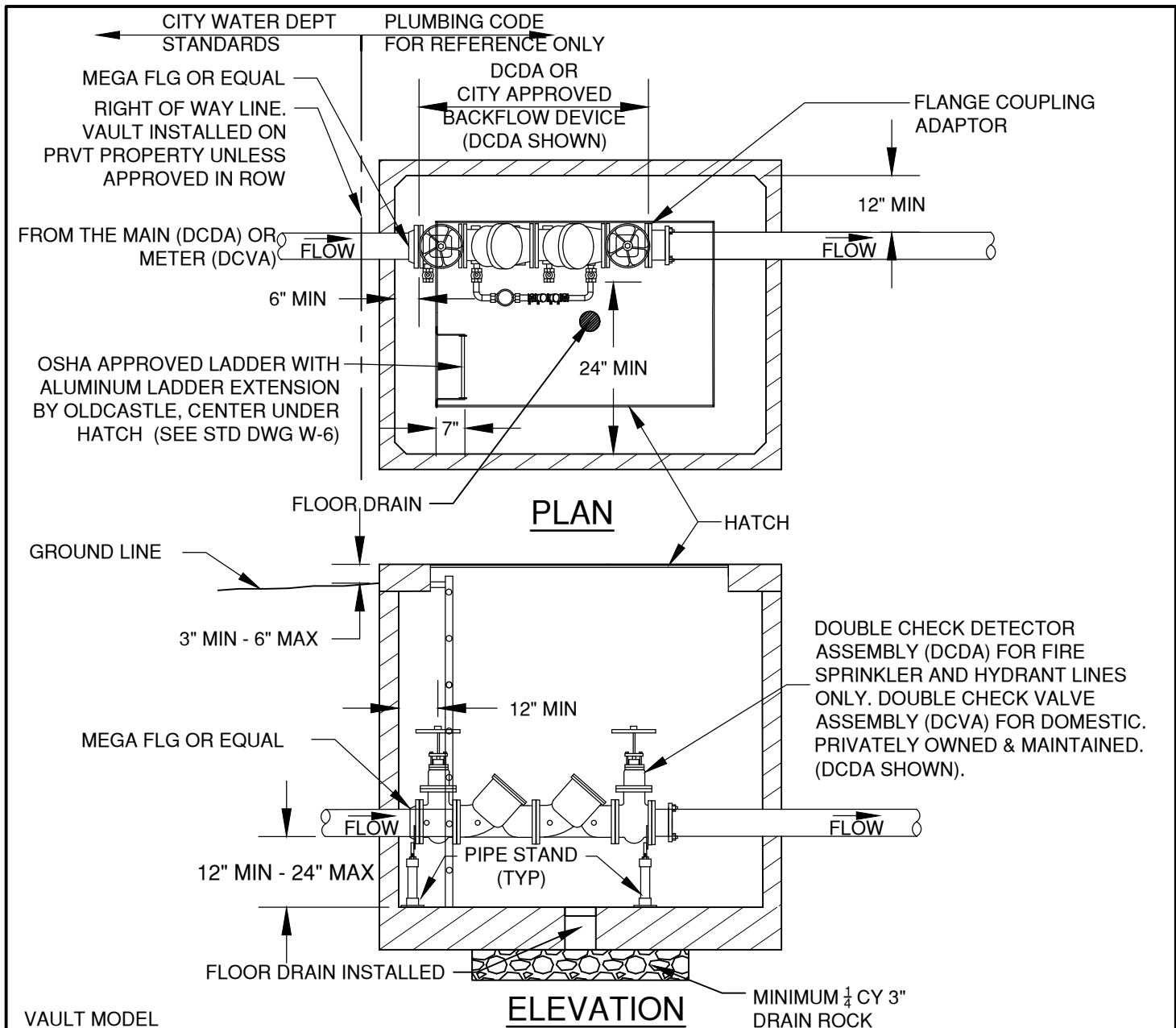
TYPICAL DCVA INSTALLATIONS 2" AND SMALLER

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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	577-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:

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

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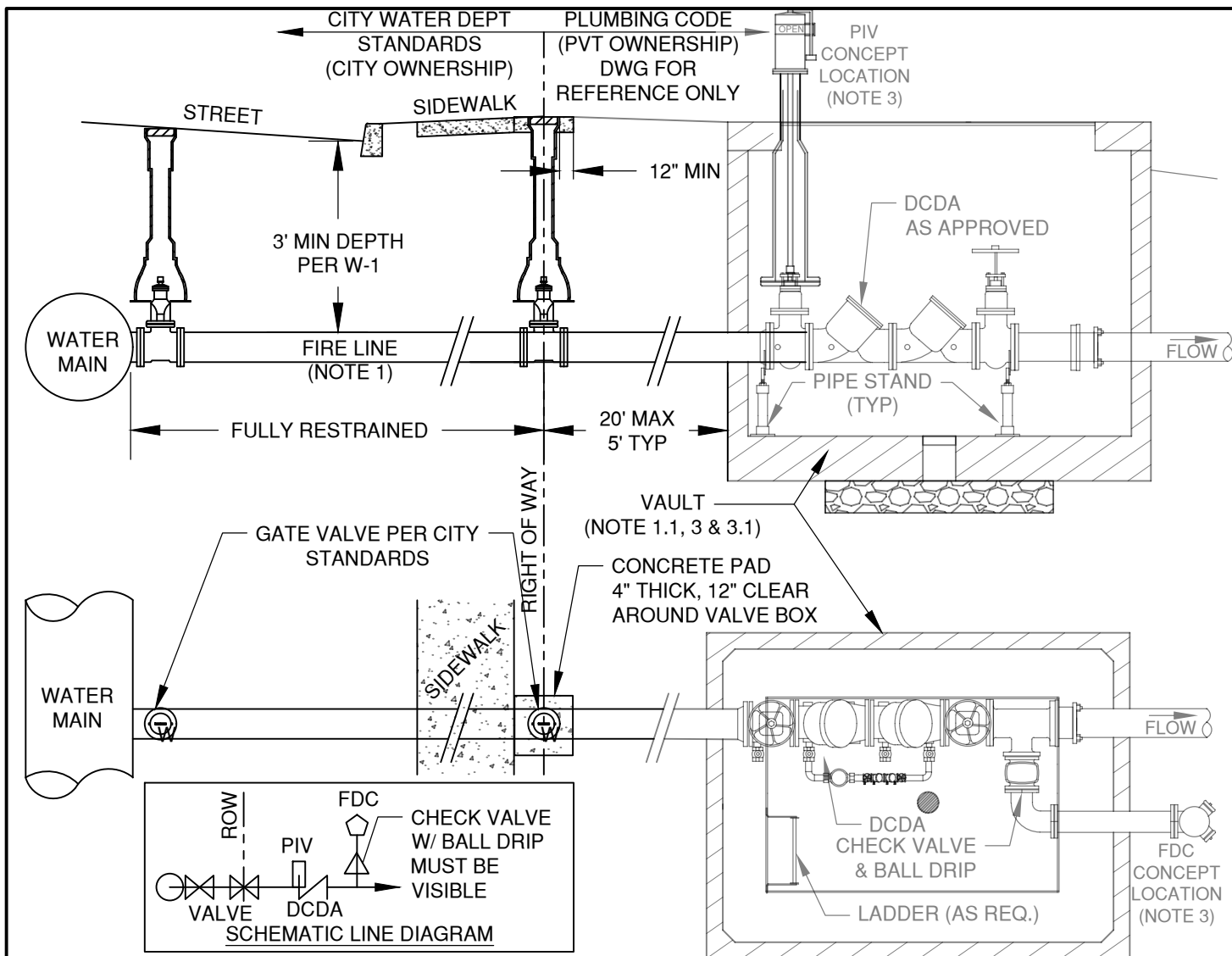
2" & LARGER DOUBLE CHECK VALVE ASSEMBLY

SCALE NTS

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APPR

STD DWG W-13A



NOTES:

- 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.
 - WHERE FIRE VAULT IS APPROVED BY CITY ENGINEER TO BE WITHIN THE ROW OR PUBLIC EASEMENT, VAULT SIZES ON STD DWG W-13A SHALL APPLY AND "FOR REFERENCE NOTES" ON THIS SHEET WOULD APPLY.
- 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.
- VAULT TO BE SIZED BY ENGINEER IN CONFORMANCE TO BUILDING/FIRE/PLUMBING CODE, MEETING THE DOUBLE CHECK DETECTOR ASSEMBLY (DCDA) MANUFACTURER'S INSTALLATION SPECIFICATIONS. DESIGN SHALL ACCOUNT FOR ANY FREEZE PROTECTION REQUIRED TO MEET FIRE CODE.
 - 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 WITH THE DCDA LOCATED AT THE BUILDING PENETRATION AND THE FDC VISIBLE FROM ROW. ACCESS TO THE MECHANICAL ROOM TO BE PROVIDED BY AN EXTERIOR DOOR WITH KNOX BOX.
 - VAULTS ARE TO BE PLACED OUT OF HARD SURFACES (SIDEWALKS, DRIVEWAYS/ROADWAYS, ECT.)
- 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.
- ALL ELECTRICAL TO VAULT AND PIV TO BE INSTALLED PER BUILDING AND FIRE CODE AS REQUIRED.
- PIPE SHALL MEET CITY ROW SPECIFICATIONS FROM MAIN TO DCDA

DRAWN AJD			CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701		SCALE NTS	
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REV	DATE		CITY OF BEND FIRE SPRINKLER LINE		APPR	
					STD DWG W-13B	

DRAWING IS FOR REFERENCE ONLY

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

INSTALL TO
PLUMBING CODE

INSTALL TO CITY
STANDARDS

12" MIN - 60" MAX

PROPERTY LINE

12" MIN

DRAIN TO DAYLIGHT

LADDER
(SEE STD DWG W-6)

24" MIN

PLAN

EARTH BERM (OPTIONAL)

HATCH

PIPE STAND
SUPPORT
3" AND LARGER

90° BEND FLG

FINISH GRADE

RODENT SCREEN

12" MIN-24" MAX

DRAIN 1/4" PER FOOT
MIN SLOPE
BORE SIGHTED
TO DAYLIGHT

8" LEVELING COURSE
OF 3/4" CRUSHED ROCK

12" ABOVE FINISH GRADE
OR MAX FLOOD LEVEL

RETAINER
GLAND

90° BEND MJ MEGA-LUG
RETAINER GLANDS

SPOOL FLG x PE
(LENGTH VARIES)

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
5. PIPE SHALL MEET CITY ROW SPECIFICATIONS FROM MAIN TO DCDA

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DIV WATER

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710 NW WALL ST., BEND, OREGON 97701

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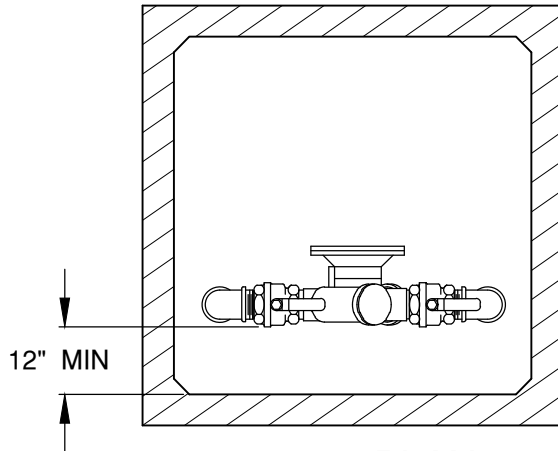
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STD DWG W-15

2 1/2"-10" REDUCED PRESSURE BACKFLOW ASSEMBLY

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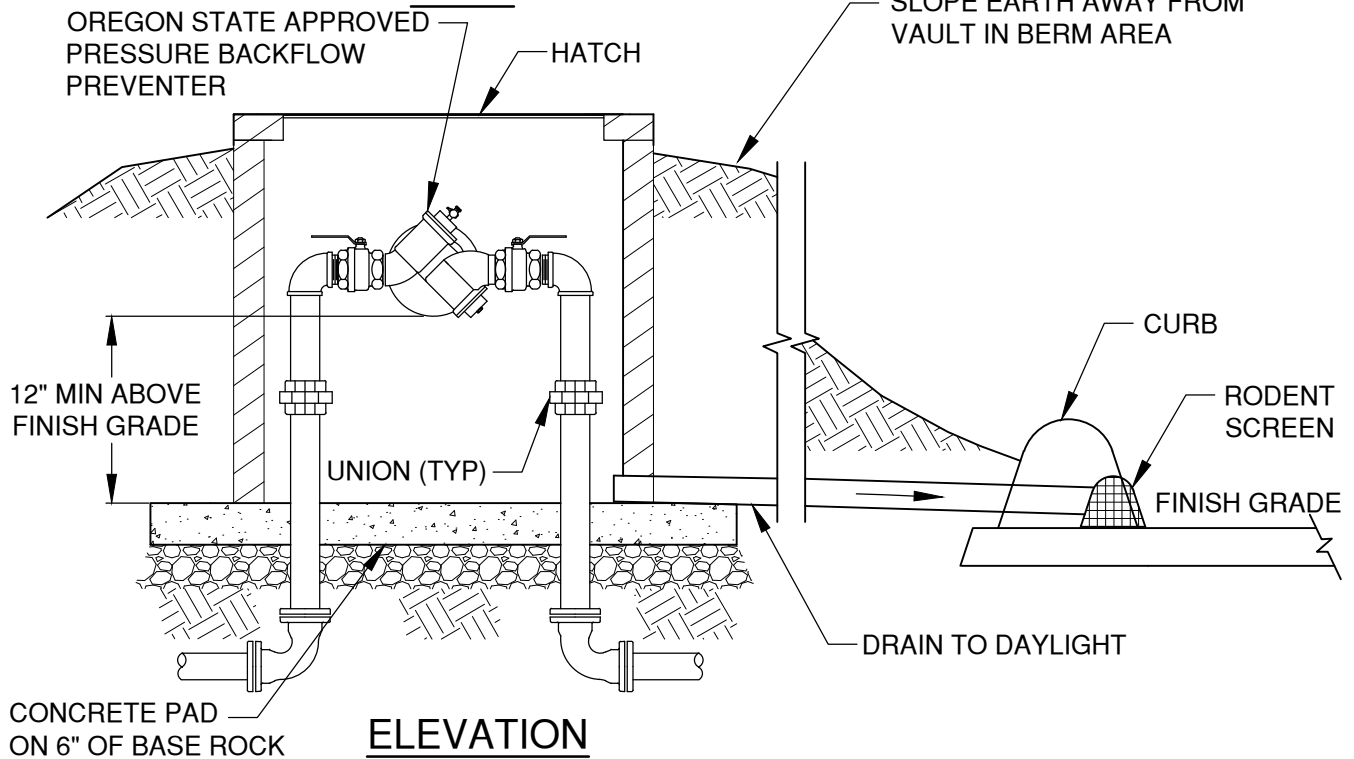
WHERE THE STRUCTURE IS PROPOSED
OUTSIDE THE RIGHT OF WAY OR
UTILITY EASEMENT



PLAN

VAULT SPECIFICATIONS

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



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

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710 NW WALL ST., BEND, OREGON 97701

1"-2" REDUCED PRESSURE BACKFLOW ASSEMBLY

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DATE 01/31/2022

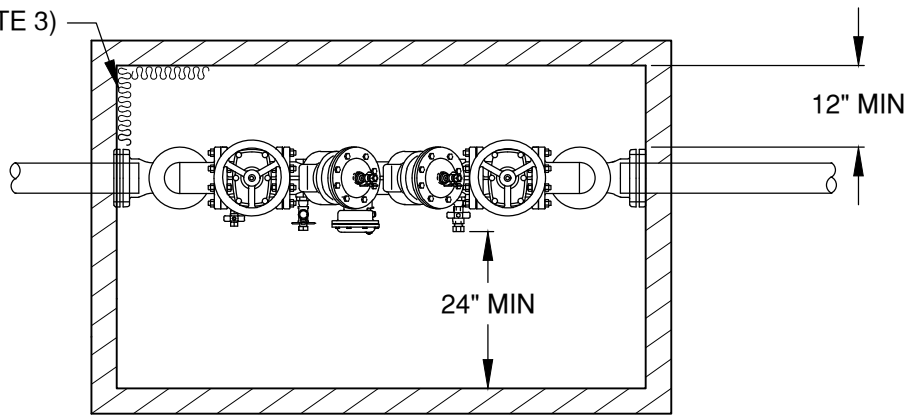
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STD DWG W-15A

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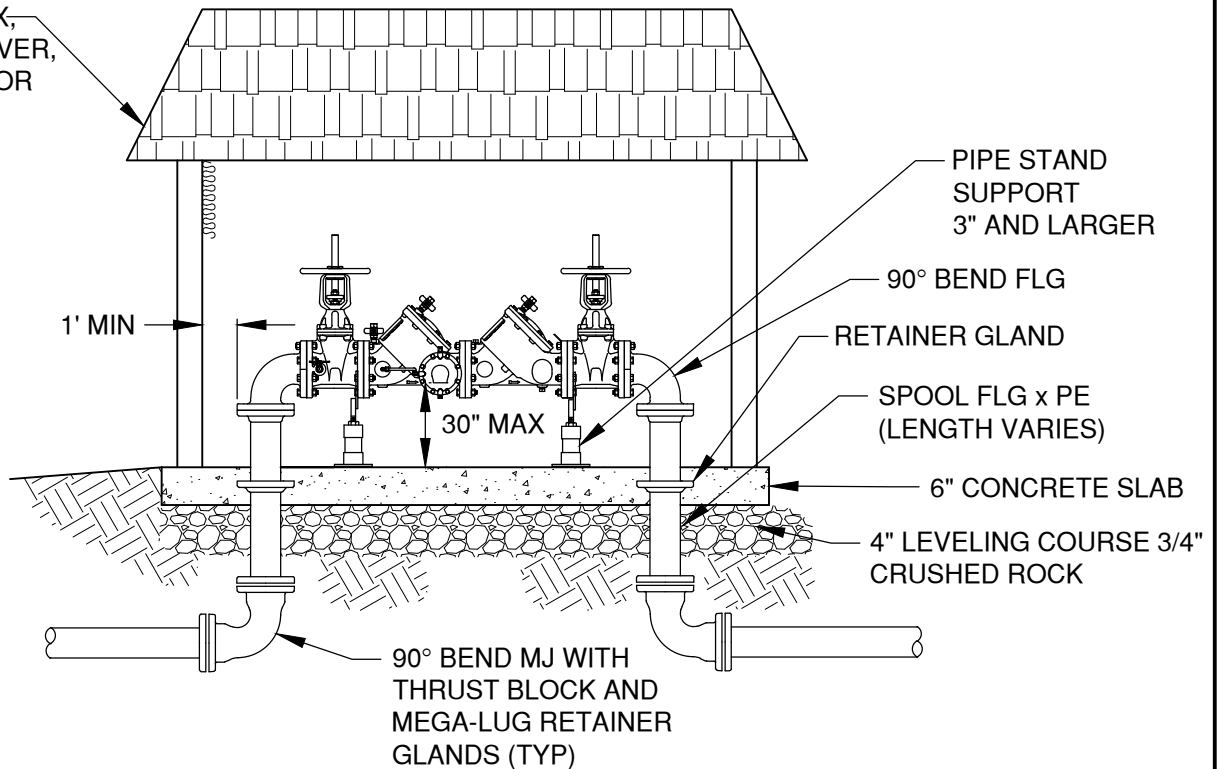
WHERE THE STRUCTURE IS PROPOSED
OUTSIDE THE RIGHT OF WAY OR
UTILITY EASEMENT

(SEE NOTE 3)



PLAN

1060 ASSE
CLASS 1;
WATTS BOX,
SAFE-T-COVER,
HOT BOX, OR
EQUAL



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 CLEARANCES APPLY TO OUTSIDE, IN-BUILDING, AND VAULT INSTALLATIONS
4. STRUCTURE TO BE INSULATED AND HAVE A HEAT SOURCE TO KEEP ENCLOSURE AT 40°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

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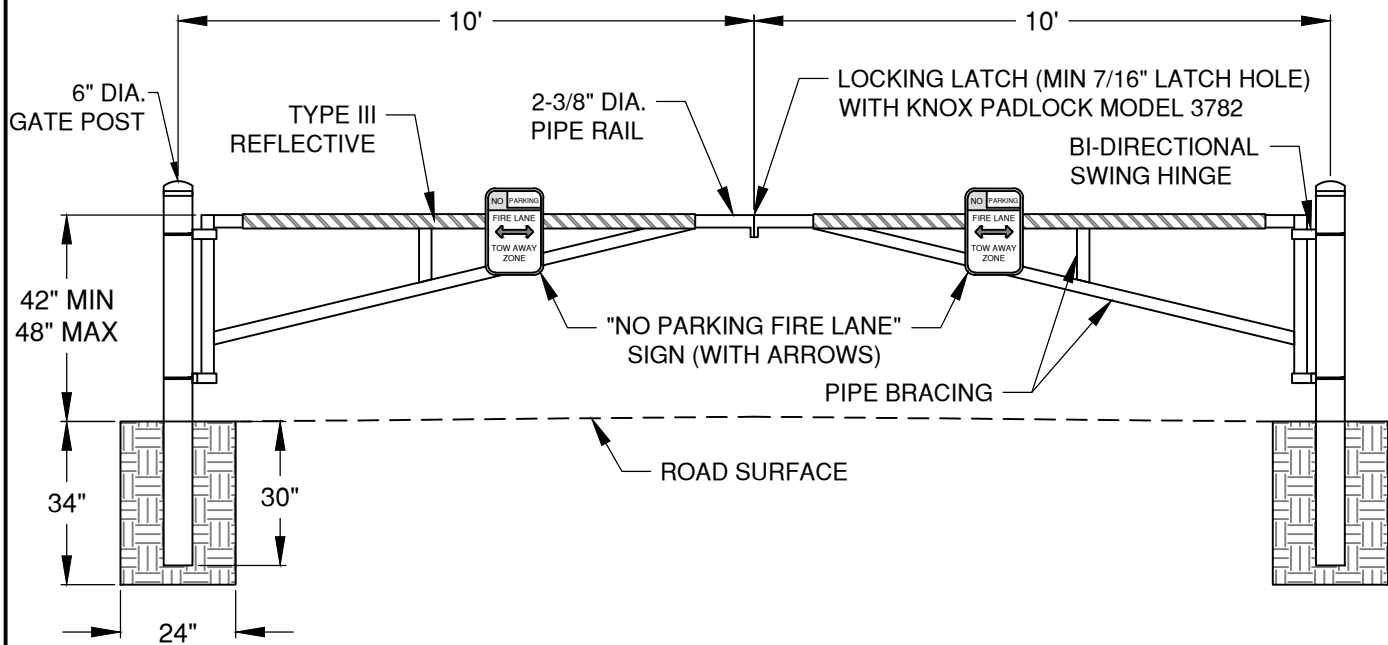
2 1/2" + REDUCED PRESSURE BACKFLOW ASSEMBLY

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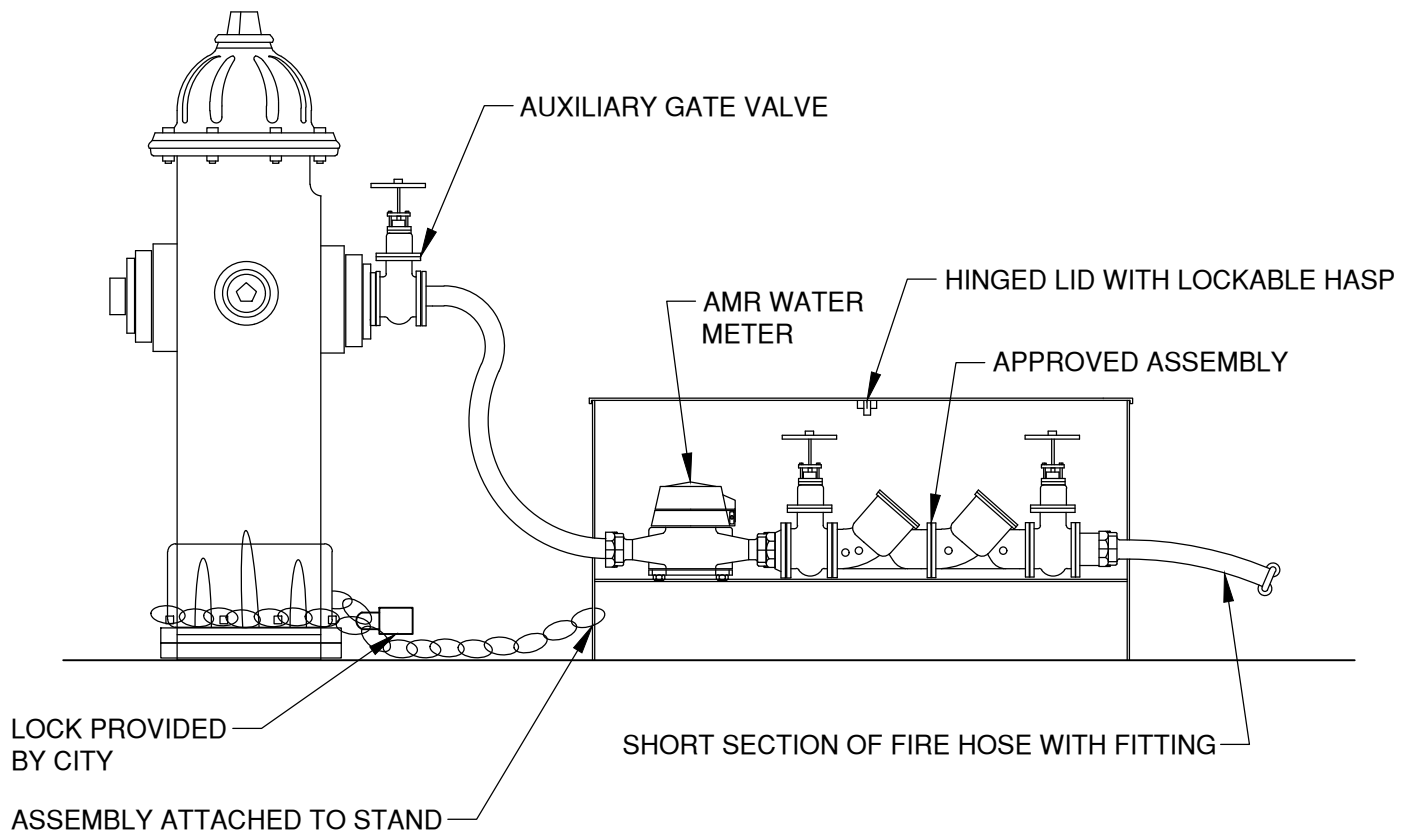
STD DWG W-15B



NOTES:


1. ALL MATERIAL SHALL BE SCHEDULE 40, GALVANIZED STEEL PIPE.
2. PROTECTIVE FINISH SHALL BE HOT-DIPPED, GALVANIZED GRAY.
3. CONTRACTOR TO INSTALL NO PARKING, FIRE LANE SIGN ON EACH SIDE OF GATE MEETING THE REQUIREMENTS OF OFC D103.6.
4. CONTRACTOR TO INSTALL TYPE III REFLECTIVE STRIPING ON BOTH SIDES OF GATE. STRIPING SHALL BE ALTERNATING RED/WHITE STRIPES, 6" WIDE AT 45 DEGREE ANGLE.
5. CONCRETE SHALL BE COMMERCIAL GRADE CONCRETE PER SPECIFICATION SECTION 00440.
6. GATE POSTS SHALL BE LOCATED OUTSIDE OF THE ROADWAY. IF PAVEMENT AND CURBS ARE PRESENT, GATE POSTS SHALL BE LOCATED BEHIND CURB.
7. COORDINATE INSTALLATION OF KNOX PADLOCK WITH CITY OF BEND FIRE DEPARTMENT.

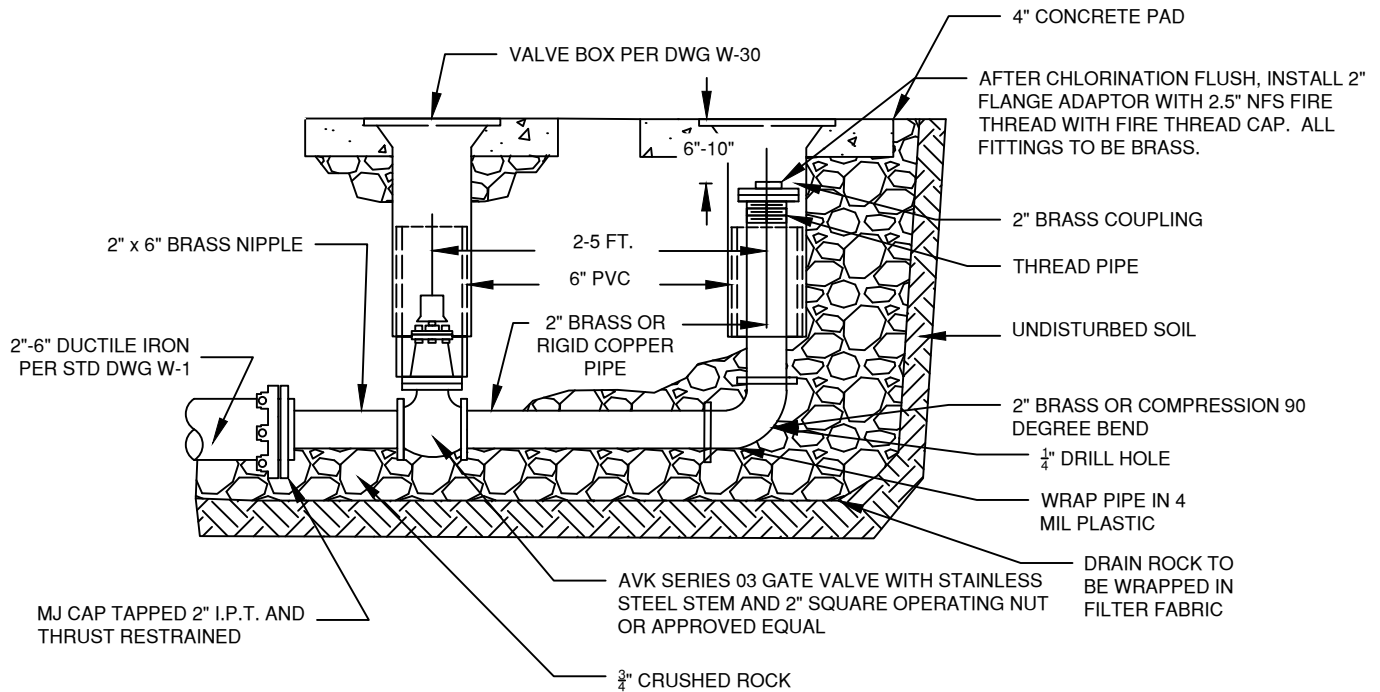
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DIV WATER			DATE 01/31/2022
REV DATE			APPR
	CITY OF BEND	FIRE GATE	STD DWG W-21



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.

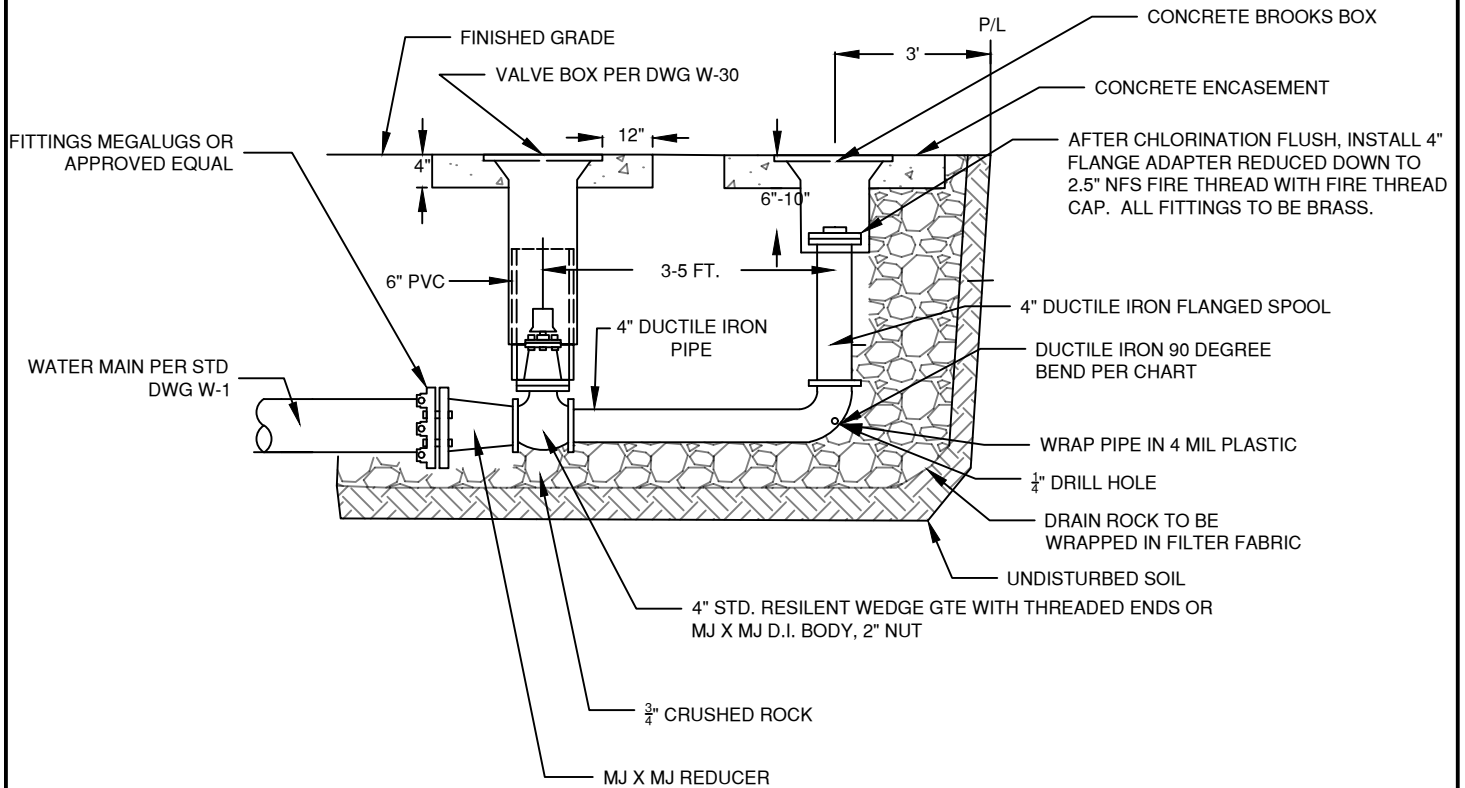
DRAWN AJD		<p align="center">CITY OF BEND</p> <p align="center">STANDARD DRAWING</p> <p align="center">710 NW WALL ST., BEND, OREGON 97701</p>	SCALE NTS
DIV WATER			DATE 01/31/2022
REV DATE		<p align="center">HYDRANT PERMIT/FILLING TANKER TRUCK</p>	APPR
	<p align="center">CITY OF BEND</p>		STD DWG W-22



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. ALL COMPACTION TO COMPLY WITH SPECIFICATION SECTION 00330.43 AND 00405.46(C).
3. 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.
4. PLACE BLOW-OFF STANDPIPE 3' INSIDE ROW LINE AT THE END OF STREET (2' FROM BARRICADE).
5. USE CITY STANDARD VALVE BOX, LID, AND 6" PVC EXTENSION FOR BLOW-OFF VALVE.
6. BLOW OFF RISER TO BE ONE CONTINUOUS PIECE.
7. USE EBAA IRON "MEGALUG" OR APPROVED EQUAL RETAINER GLAND ON MJ CAP. RESTRAIN PER ENGINEER.
8. 2" PVC PLUG WITH SQUARE NUT TO BE HAND TIGHTENED ONLY.


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				STANDARD 2" BLOW-OFF ASSEMBLY		STD DWG W-23

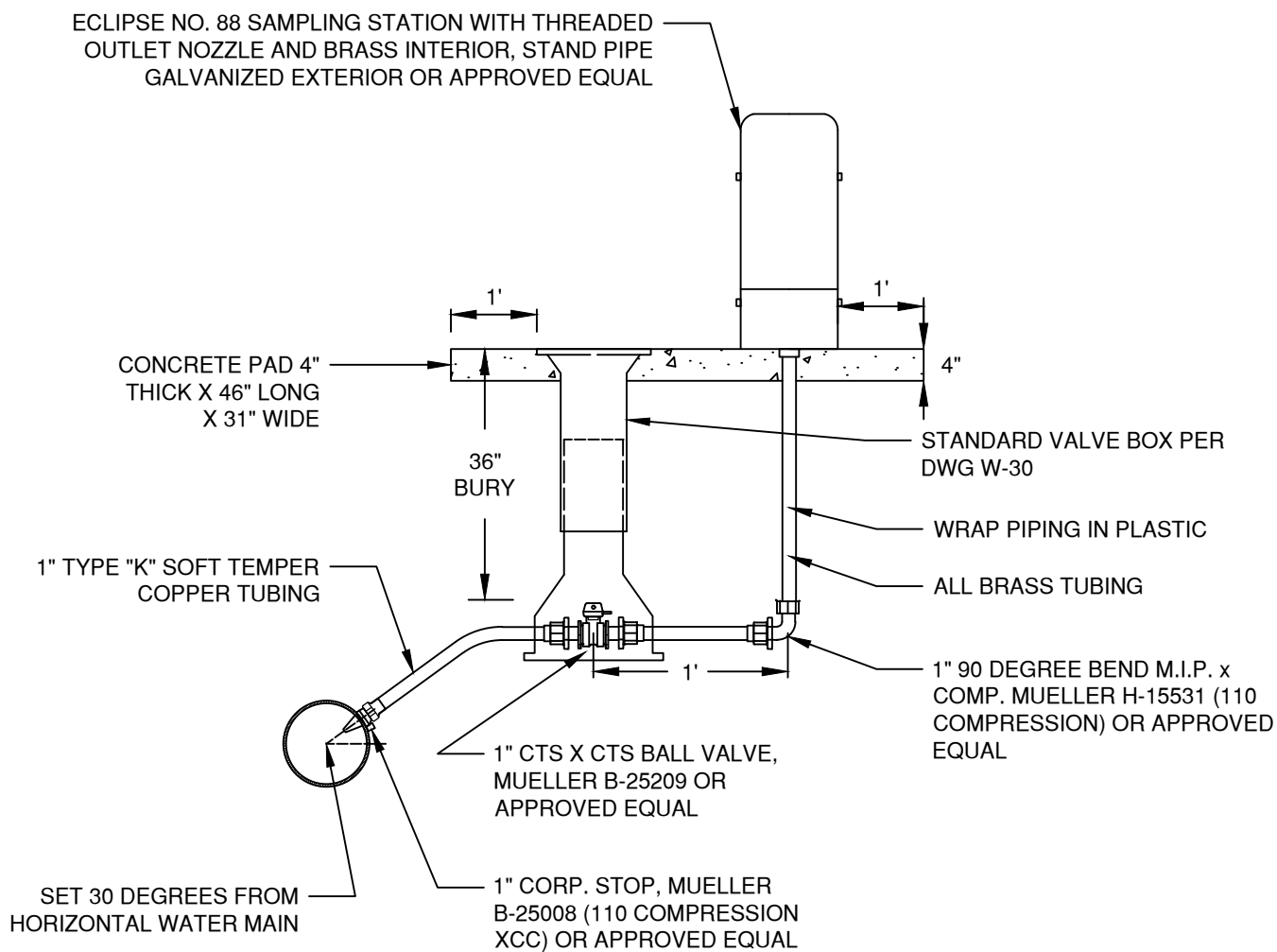


BLOW OFF SIZES REQUIRED	
MAIN SIZE	BLOW OFF SIZE
6" AND BELOW	2" (SEE DWG W-23)
8" - 12"	4"
ABOVE 12"	HYDRANT

NOTES:

1. USE CITY STANDARD VALVE BOXES, AND LIDS.
2. BLOW-OFF UNIT SHALL BE BACKFILLED WITH 3/4" MINUS CRUSHED ROCK. ALL COMPACTION TO COMPLY WITH SPECIFICATION SECTION 00330.43 AND 00405.46(C).
3. 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.
4. PLACE BLOW-OFF STANDPIPE 3' INSIDE ROW LINE AT THE END OF STREET (2' FROM BARRICADE).
5. USE CITY STANDARD VALVE BOX, LID, AND 6" PVC EXTENSION FOR BLOW-OFF VALVE.
6. BLOW OFF RISER TO BE ONE CONTINUOUS PIECE.
7. USE EBAA IRON "MEGALUG" OR APPROVED EQUAL RETAINER GLAND ON MJ CAP. RESTRAIN PER ENGINEER.

DRAWN AJD			CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701		SCALE NTS	
DIV WATER						DATE 01/31/2022	
REV	DATE					APPR	
						STD DWG W-24	
		CITY OF BEND		4" BLOW-OFF DETAIL			



NOTES:

1. ALL PIPE AND STRUCTURES SHALL BE BACKFILLED WITH SCREENED MAX $\frac{3}{4}$ " MINUS CRUSHED ROCK. ALL COMPACTION TO COMPLY WITH SPECIFICATION SECTION 00330.43 AND 00405.46(C).
2. SET STATION AT LOT LINE UNLESS OTHERWISE SPECIFIED.
3. WHEN CROSSING, CATHODICALLY PROTECTED SYSTEM, INSTALL COPPER IN PVC SLEEVE FOR 5' EACH SIDE OF THE CROSSING.
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.

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DIV	WATER
REV	DATE



CITY OF BEND

CITY OF BEND

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

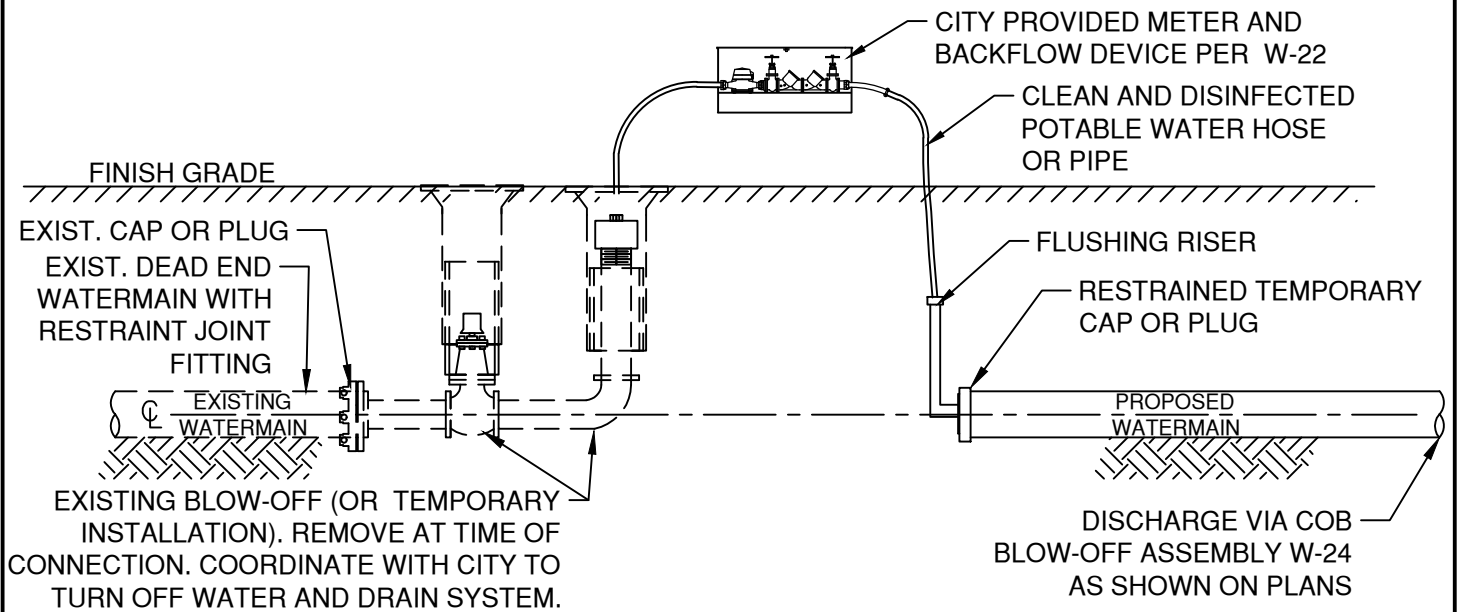
STANDARD WATER SAMPLING STATION

SCALE NTS

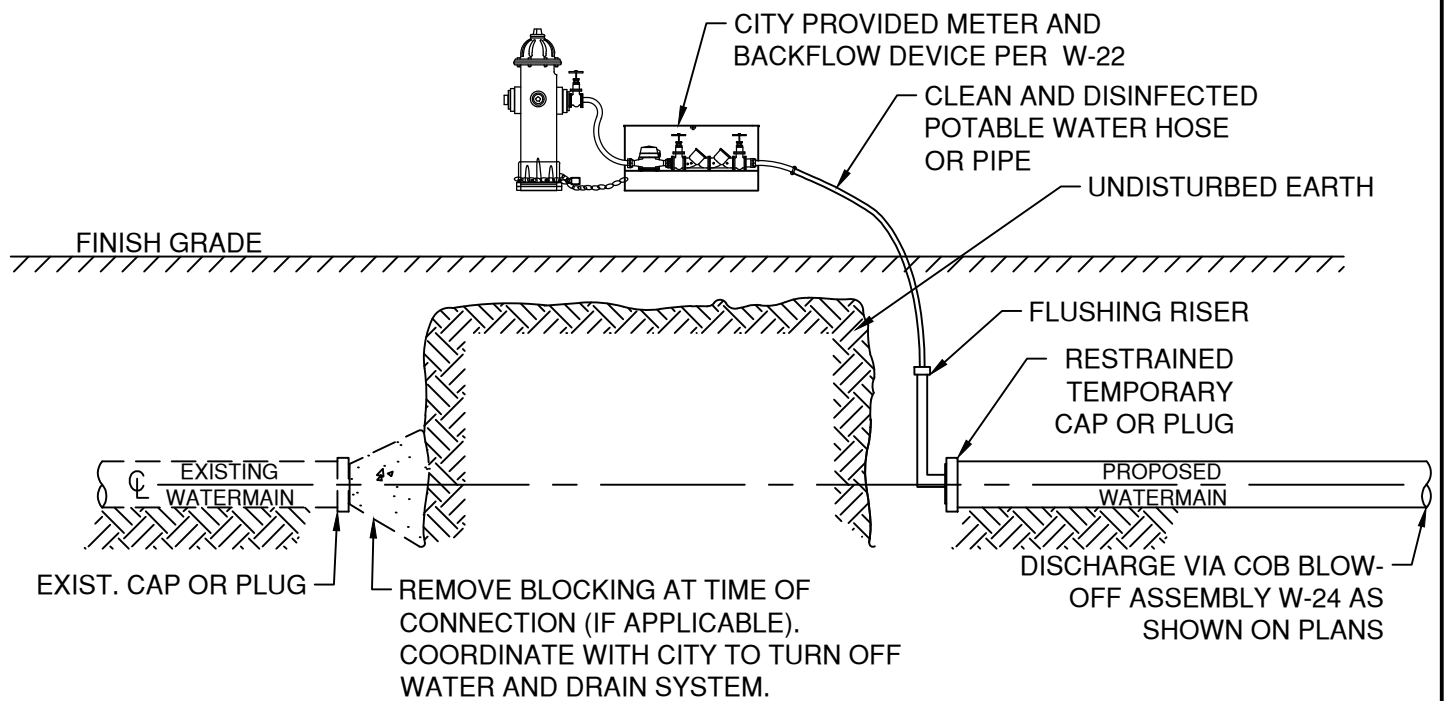
DATE 01/31/2022

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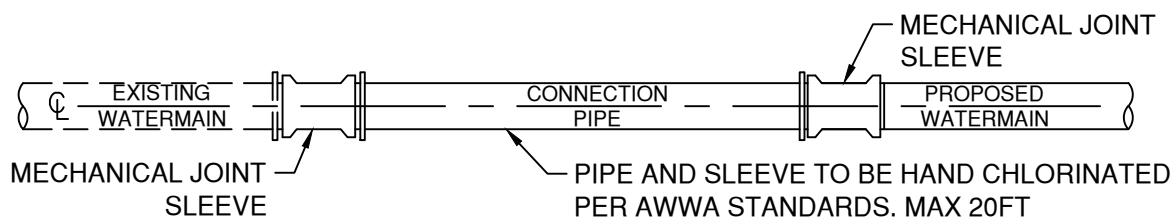
STD DWG W-25



OPTION 1: TESTING AND FLUSHING USING A BLOW OFF ASSEMBLY

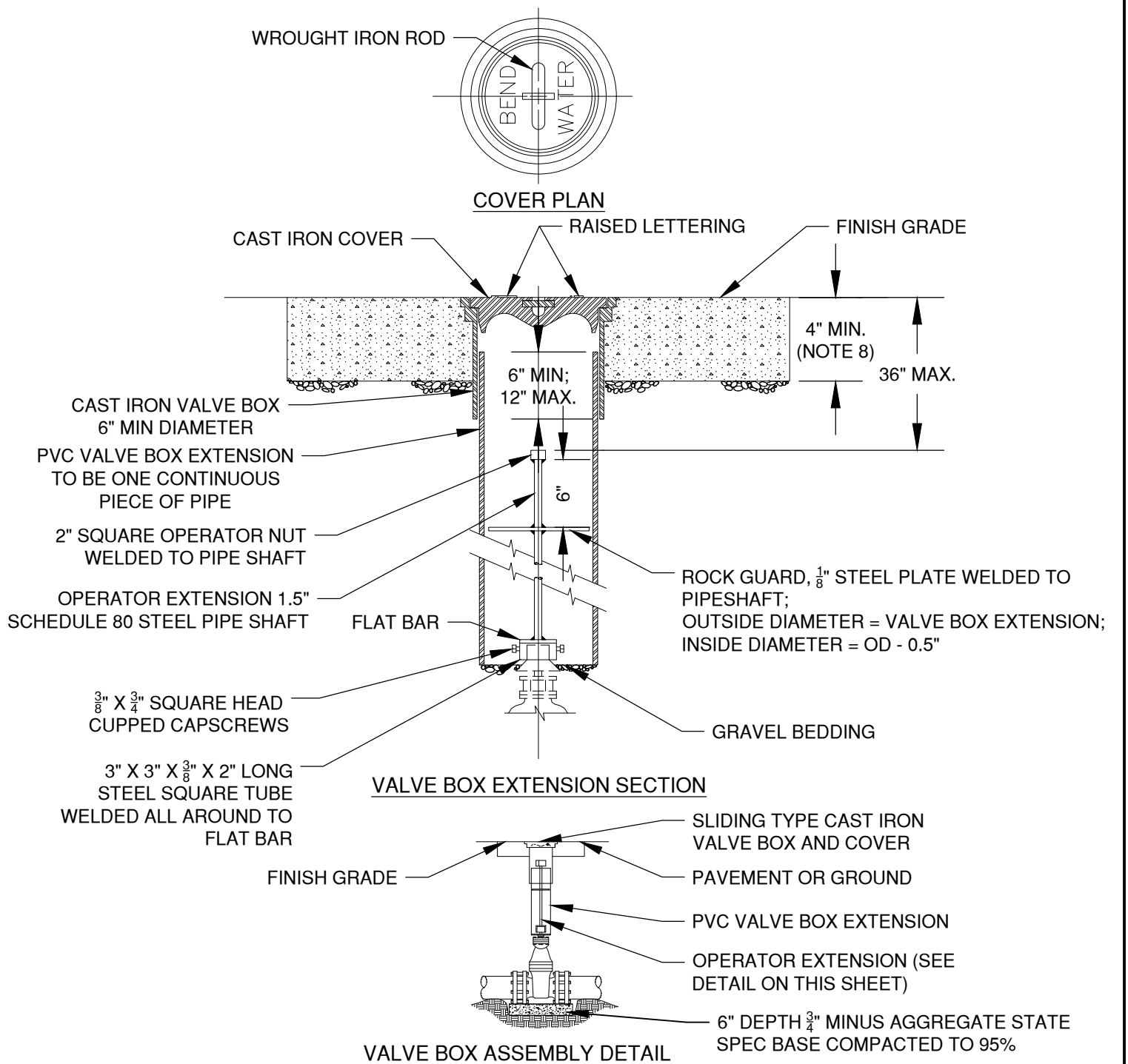


OPTION 2: TESTING AND FLUSHING USING NEARBY HYDRANT




CONNECTION AFTER TESTING, FLUSHING AND APPROVAL

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DIV WATER				STANDARD DRAWING		DATE 01/31/2022
REV	DATE			710 NW WALL ST., BEND, OREGON 97701		APPR
				CROSS CONNECTION DETAIL		STD DWG W-29

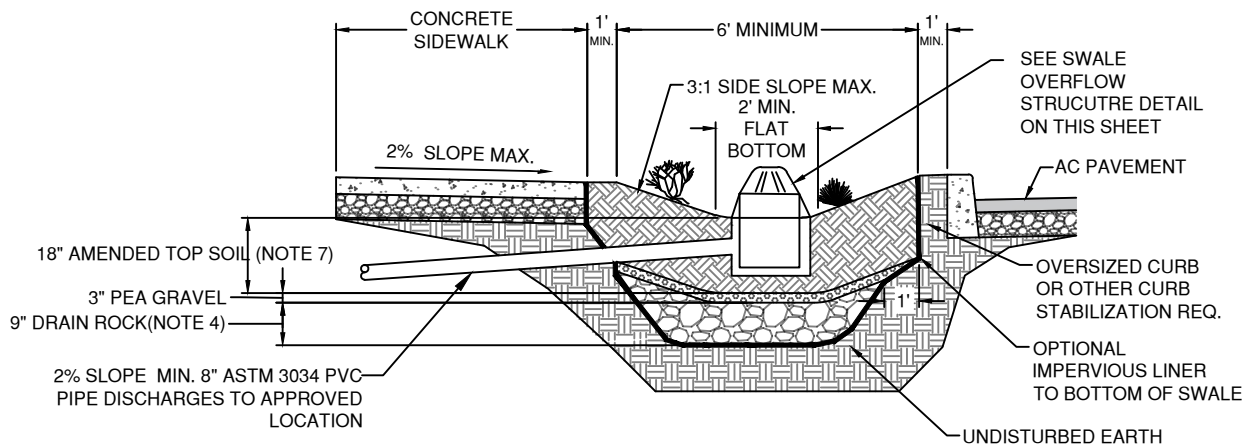


NOTES:

1. VALVE BOX NOT TO REST ON OPERATING ASSEMBLY.
2. OPERATOR EXTENSION REQUIRED WHEN VALVE NUT IS DEEPER THAN 6' FROM FINISH GRADE.
3. CENTER VALVE BOX ON AXIS OF OPERATOR NUT.
4. VALVES TO BE INSTALLED WITH COMPACTED AGGR. BASE ON UNDISTURBED GROUND.
5. WELDS SHALL BE MINIMUM 0.5" ALL AROUND.
6. HOT DIP GALVANIZE OPERATOR EXTENSION AFTER FABRICATION.
7. CASTING SHALL MEET H2O LOAD REQUIREMENT.
8. PROVED 24"x24"x4" CONCRETE PAD WITH EXPANSION JOINT AROUND VALVE BOX WHEN INSTALLED OUTSIDE OF ROADWAY.
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.

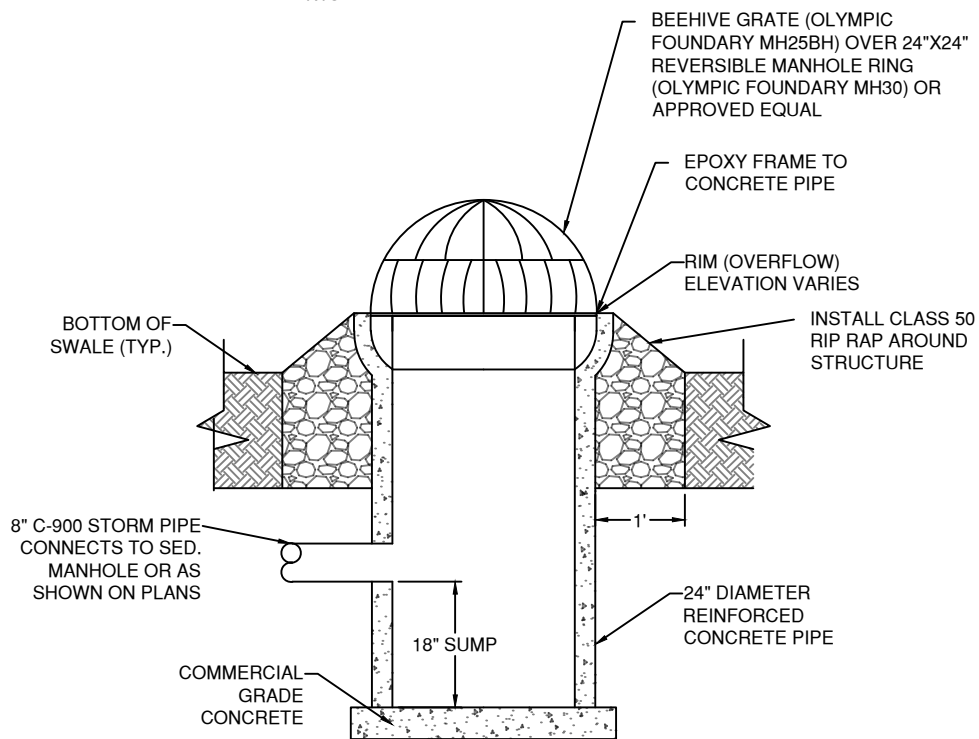
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DIV WATER			DATE 01/31/2022
REV DATE			APPR
	CITY OF BEND	VALVE BOX AND OPERATOR EXTENSION ASSEMBLY	STD DWG W-30

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 DRAIN ROCK FOR ROCK SWALES. ROCK SWALES CANNOT BE USED TO MEET PRETREATMENT REQUIREMENTS.
8. INSTALL CHECK DAMS AS REQUIRED AND PER DWG STRM-4.

DRAWN A.JD

DIV STORM

REV DATE



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STANDARD DRAWING

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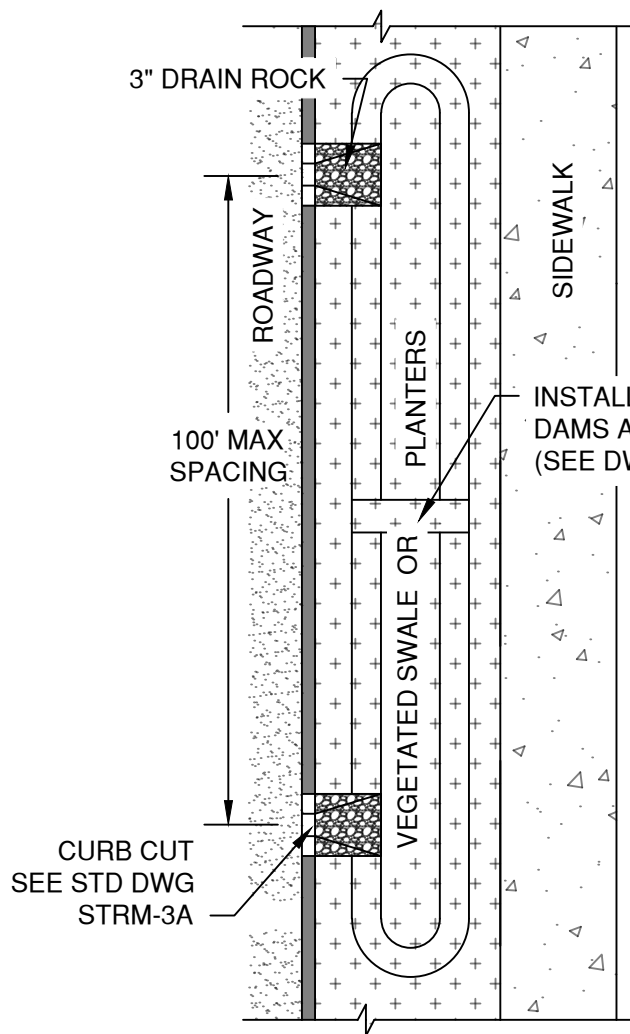
VEGETATED SWALE DETAIL

SCALE NTS

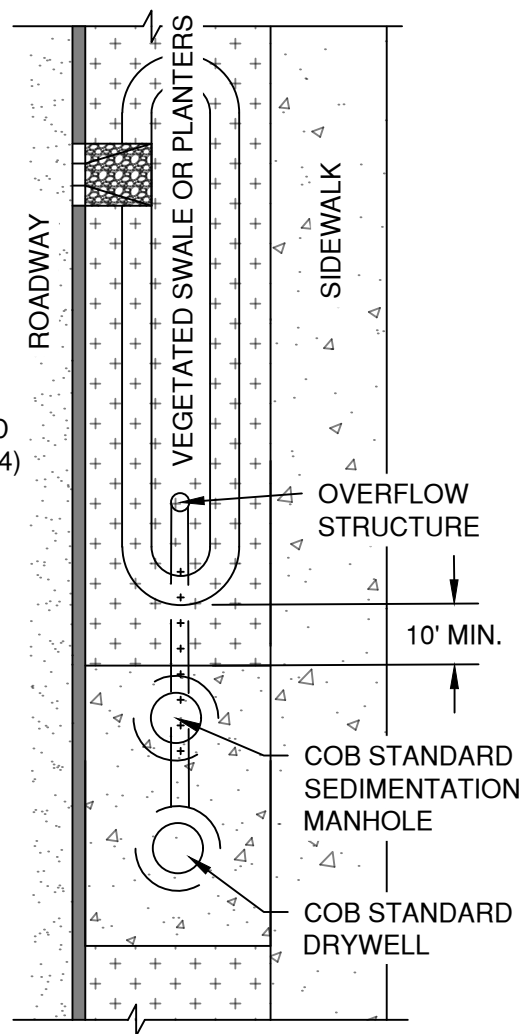
DATE 01/31/2022

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STD DWG STRM-2



VEGETATED SWALE/ PLANTER
NTS



VEGETATED SWALE/ PLANTERS
W/ DRYWELL OVERFLOW
NTS

NOTES:

1. SWALE/SURFACE INFILTRATION FACILITIES NOT PERMITTED WITHIN PUES OR OVER FRANCHISE UTILITIES
2. VOLUME AND DEPTH TO BE DETERMINED BY ENGINEER.

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DIV	STORM
REV	DATE



CITY OF BEND

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STANDARD DRAWING

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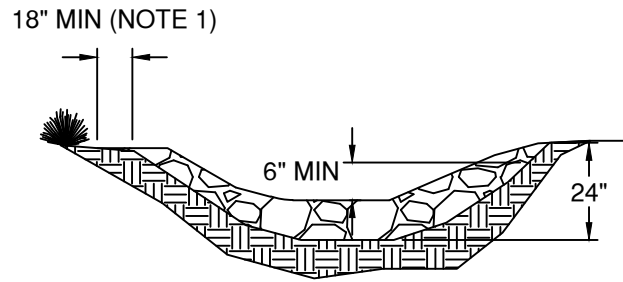
TYPICAL SWALE LAYOUT

SCALE NTS

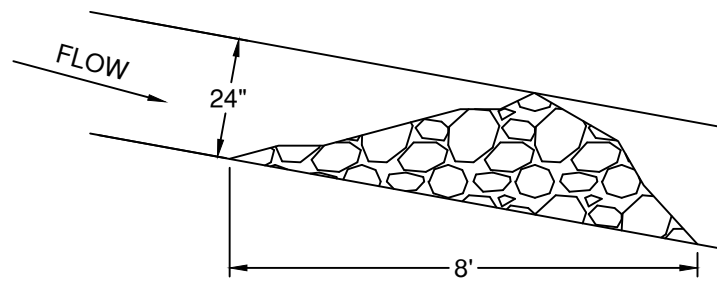
DATE 01/31/2022

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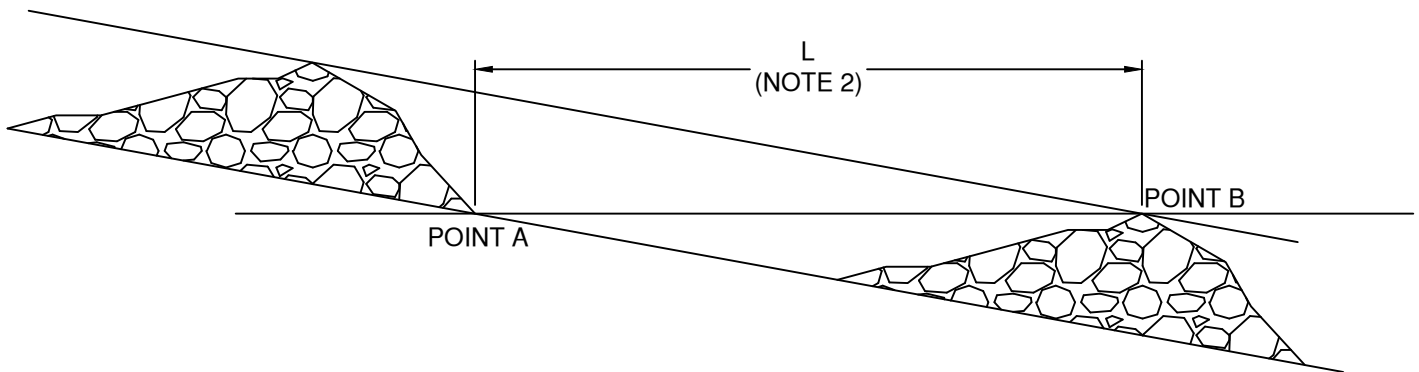
STD DWG STRM-3



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
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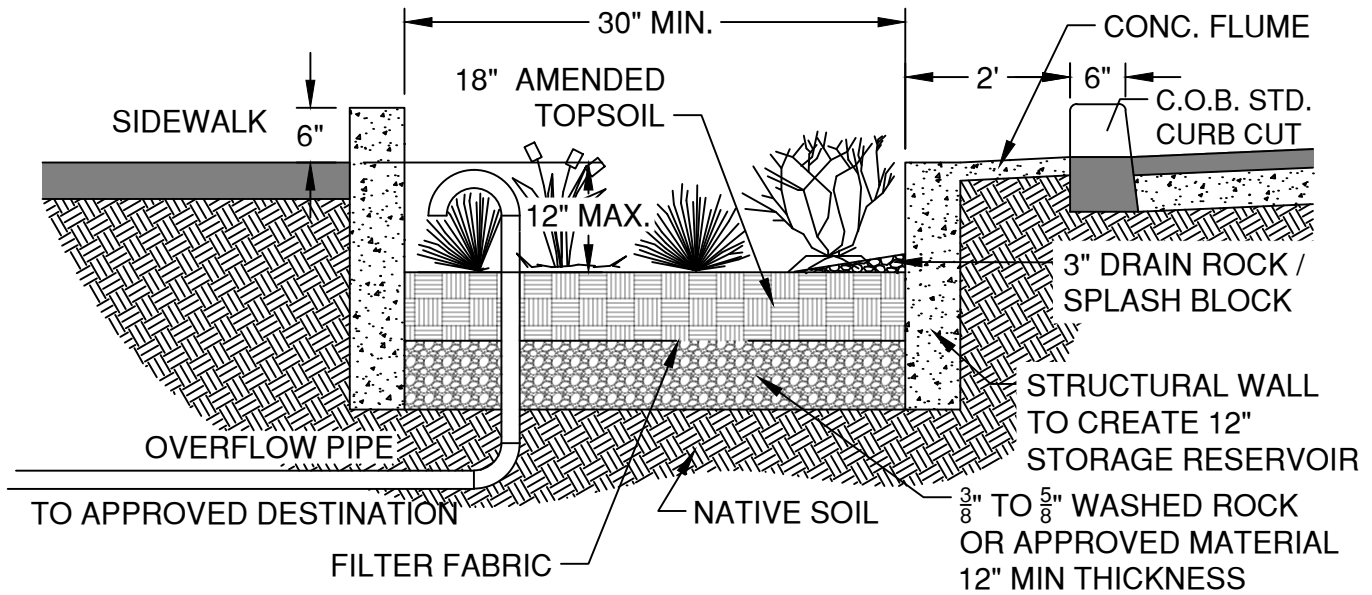
CHECK DAM DETAIL

SCALE NTS

DATE 12/1/17

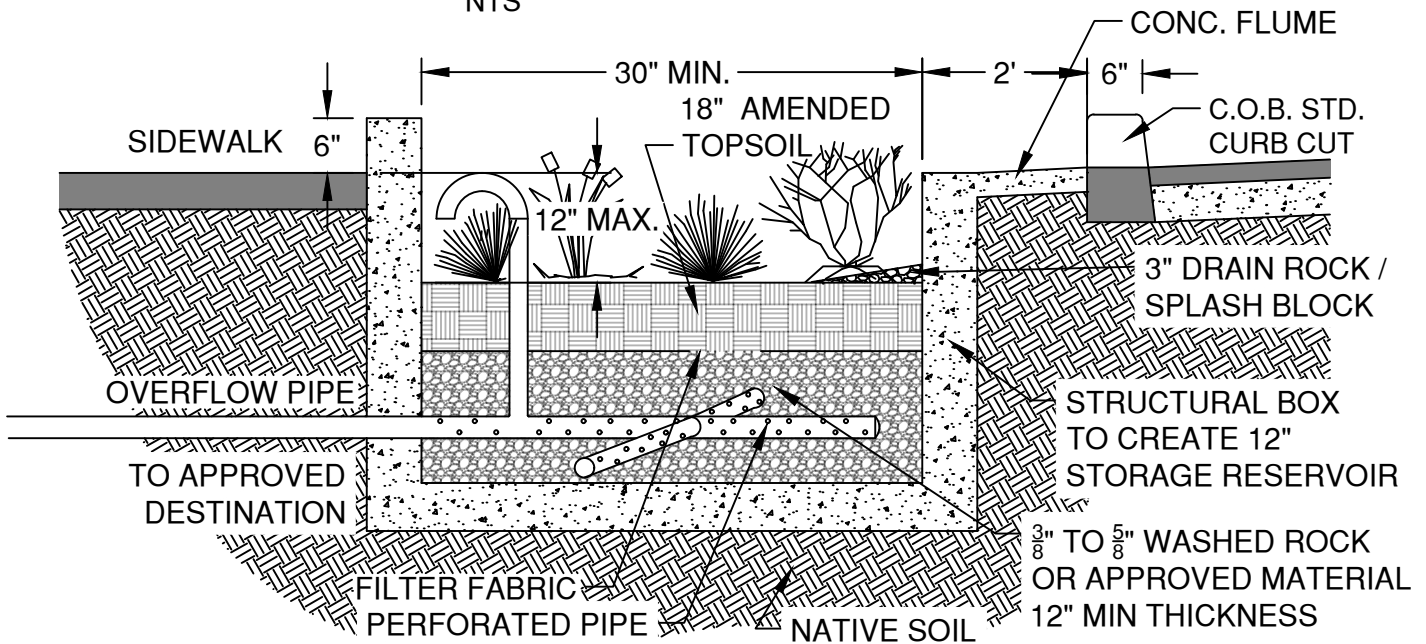
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STD DWG STRM-4



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 PER SPECIFICATION 01040
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 FLOW-THROUGH PLANTER OR WITH THE INFILTRATION PLANTER.

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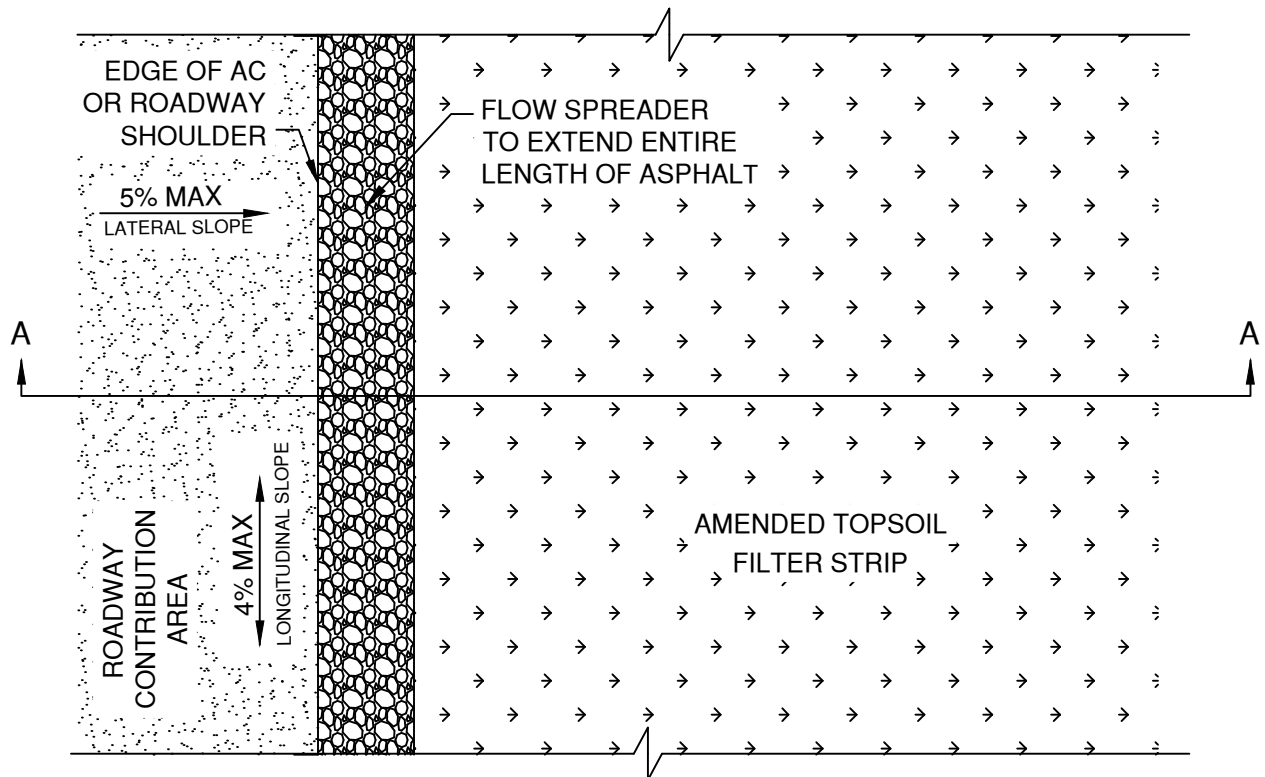
STORMWATER PLANTER DETAIL

SCALE NTS

DATE 01/31/2022

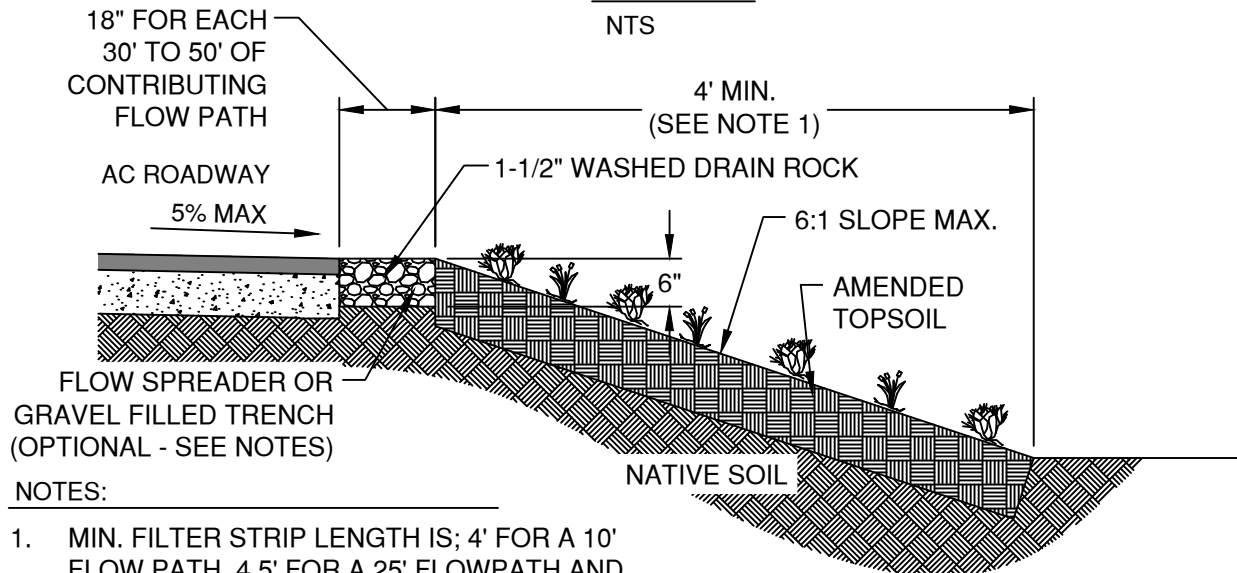
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STD DWG STRM-5



PLAN VIEW

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 PER SPECIFICATION 01040
3. FLOW SPREADER IS OPTIONAL. IF USED THE GRAVEL MUST BE WIDER THAN DEEP TO AVOID UIC REGULATIONS.

SECTION A-A

NTS

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DIV STORM
REV DATE



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STANDARD DRAWING

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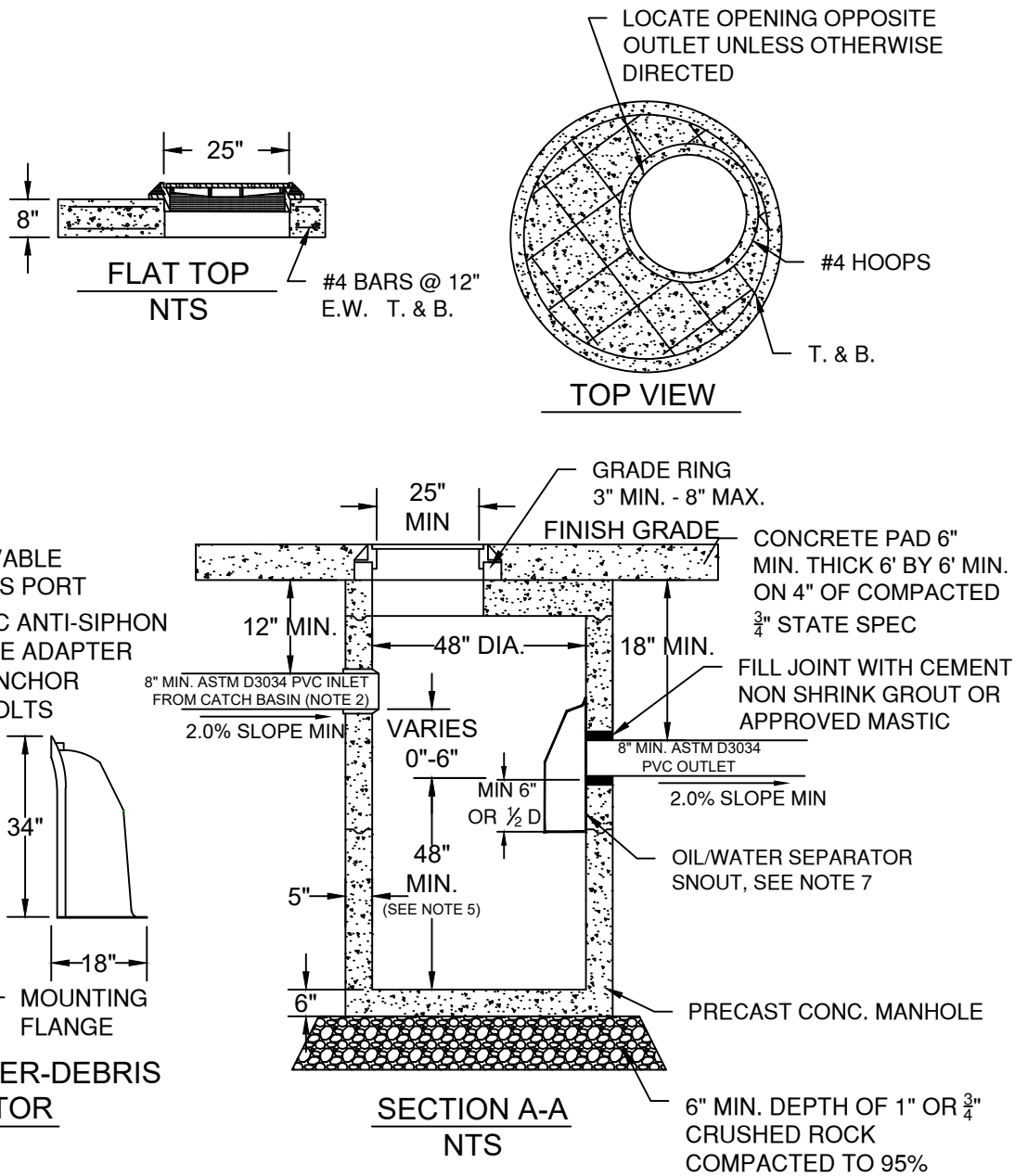
STORMWATER FILTER DETAIL

SCALE NTS

DATE 01/31/2022

APPR

STD DWG STRM-6



NOTES:

1. ALL PRE-CAST SECTIONS SHALL CONFORM TO REQUIREMENTS OF ASTM C-478.
2. AWWA C900 PIPE SHALL BE USED WITHIN TRAVEL AREAS. ASTM D3034 PIPE WHERE STORM PIPE WILL BE INSTALLED PER SANITARY SEWER REQUIREMENTS OR OUTSIDE OF TRAVEL AREAS.
3. MANHOLES SHALL BE PLACED OUTSIDE SIDEWALK, APRONS & STREET SURFACES UNLESS APPROVED BY THE CITY ENGINEER.
4. 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.
5. SUMP SIZE TO BE DESIGNED IN ACCORDANCE WITH COSM - 20 CF OF SUMP VOLUME FOR EACH 1.0 CFS DESIGN FLOW - NOT LESS THAN 48" DEPTH.
6. MANHOLES WITH MORE THAN 3 CONNECTIONS, OR PIPES 12" OR LARGER TO BE 60" MANHOLES
7. OIL/WATER SEPARATOR SNOOT BMP 24R, OR APPROVED EQUAL. SECURE TO MANHOLE WITH FIVE (5) 5/8"x1-12" STAINLESS STEEL RED HEAD BOLTS, WASHERS AND NUTS, OR AS APPROVED BY MANUFACTURER.

DRAWN A.JD
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STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701


STORMWATER SEDIMENTATION MANHOLE

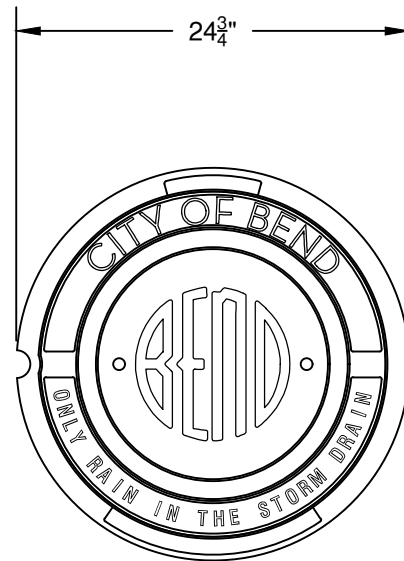
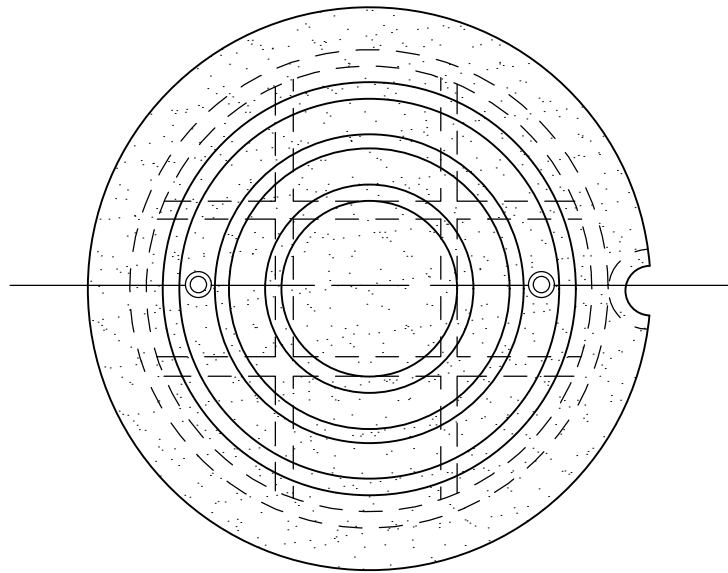
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DATE 01/31/2022

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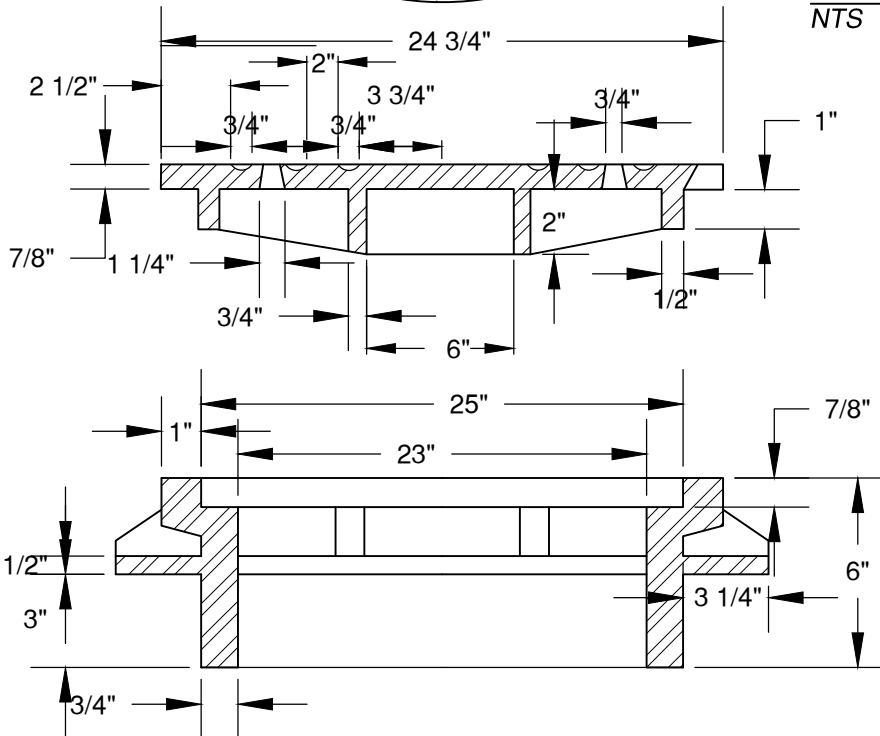
STD DWG STRM-7

DRAWN AJD			<p align="center"> CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 </p>	SCALE NTS
DIV STORM				DATE 01/31/2022
REV	DATE			APPR
		CITY OF BEND	STORMWATER SEDIMENTATION MANHOLE - ALTERNATE	STD DWG STRM-7A



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 AJD

DIV STORM

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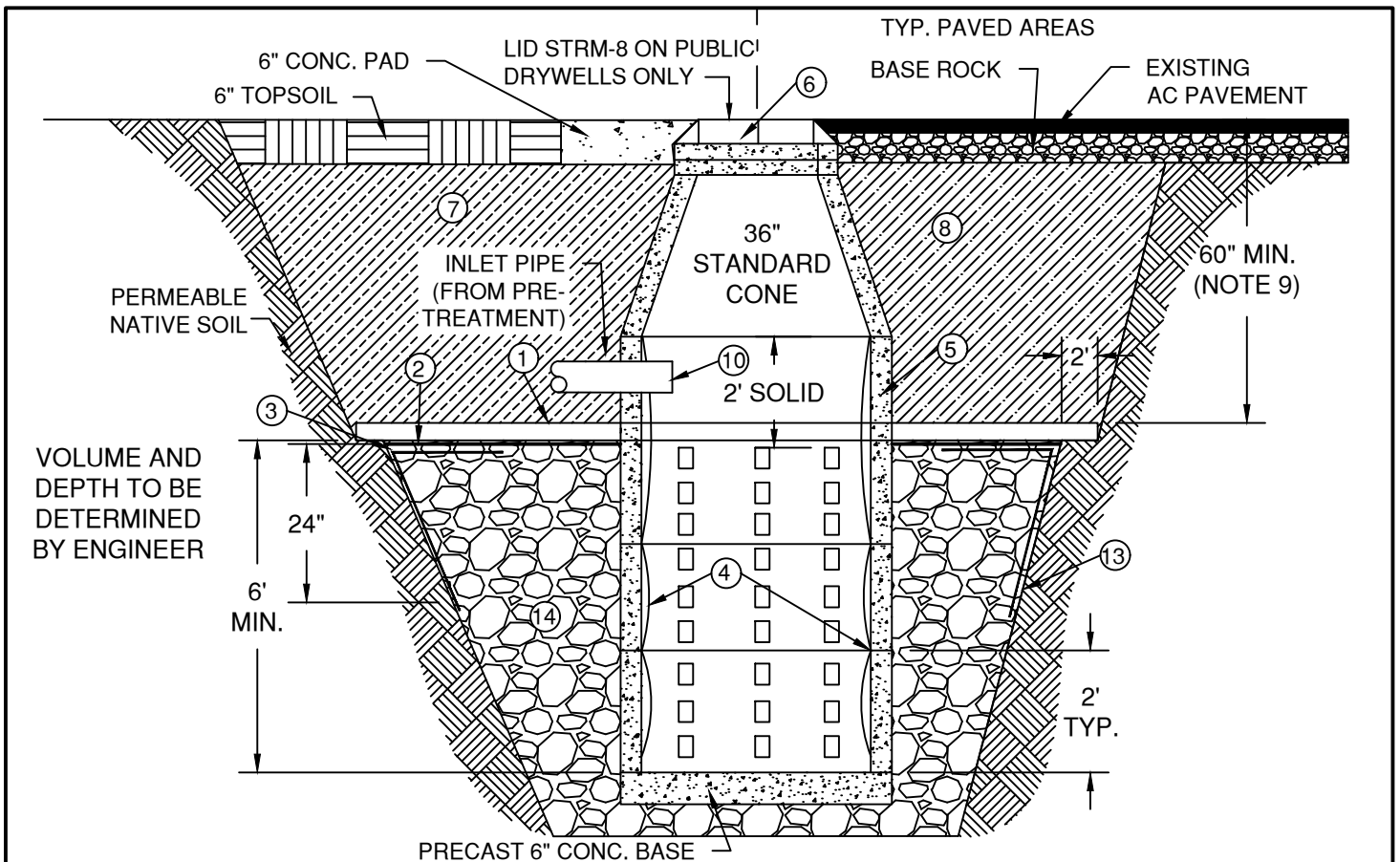
STORMWATER MANHOLE LID DETAIL

SCALE NTS

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STD DWG STRM-8



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. NONWOVEN 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 THAT MEETS THE REQUIREMENTS OF SPECIFICATION SECTION 00470. 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. ALL CONCRETE SHALL BE COMMERCIAL GRADE 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.
13. GEOFABRIC TO BE EXTENDED FROM THE CONCRETE CAP TO BOTTOM OF DRYWELL STRUCTURE. WHERE THE EXCAVATION IS WITHIN SOLID ROCK (NO SIDEWALL SLOUGHING), GEOFABRIC CAN BE WAIVED AT ENGINEER'S DISCRETION
14. CLEAN 2"-3" CRUSHED OR RIVER RUN DRAIN ROCK PER SECTION 00470.18.

DRAWN A.J.D.
DIV STORM
REV DATE



CITY OF BEND

CITY OF BEND

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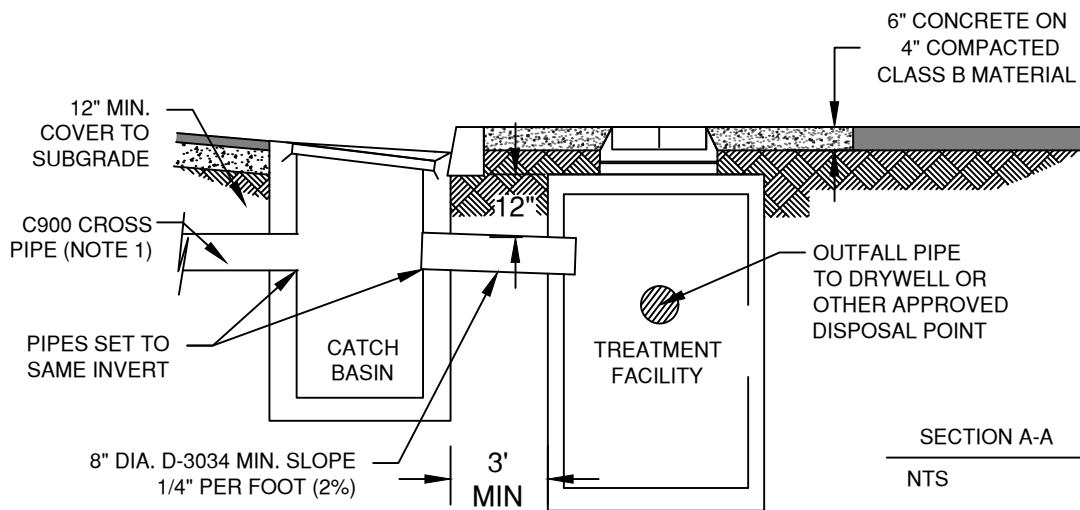
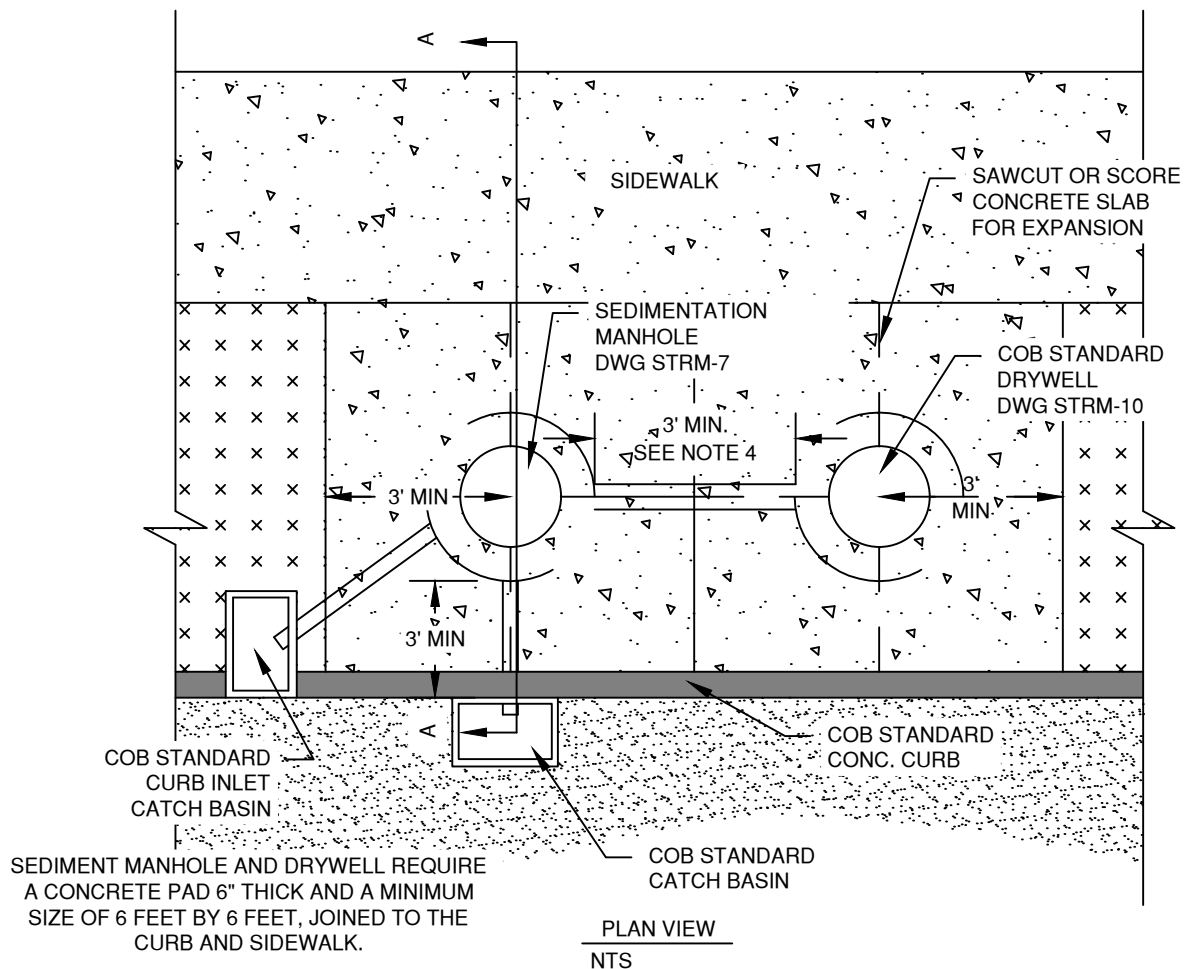
STANDARD PRE-CAST DRYWELL

SCALE NTS

DATE 01/31/2022

APPR

STD DWG STRM-10



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.
4. WHEN DRY UTILITIES WILL BE INSTALLED BETWEEN STRUCTURES, PROVIDE MINIMUM 5' SEPARATION.

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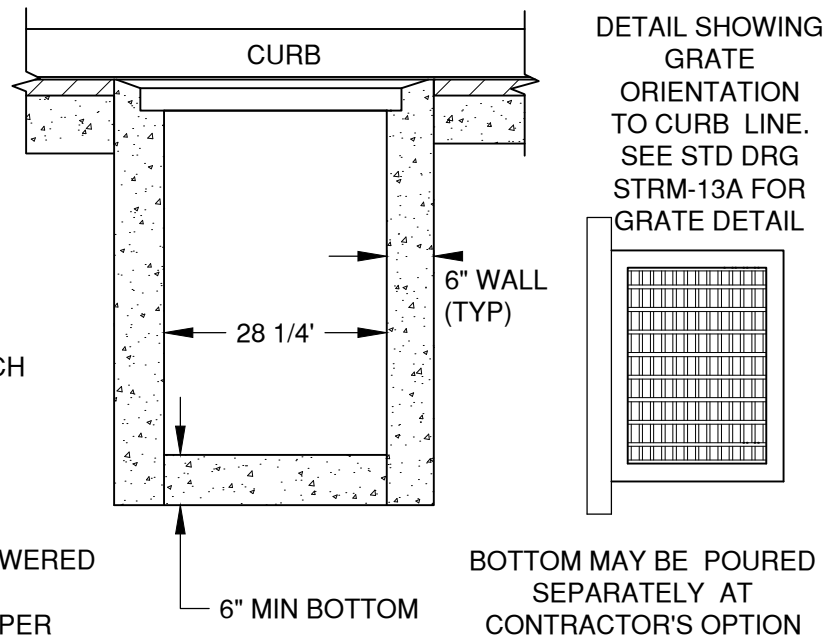
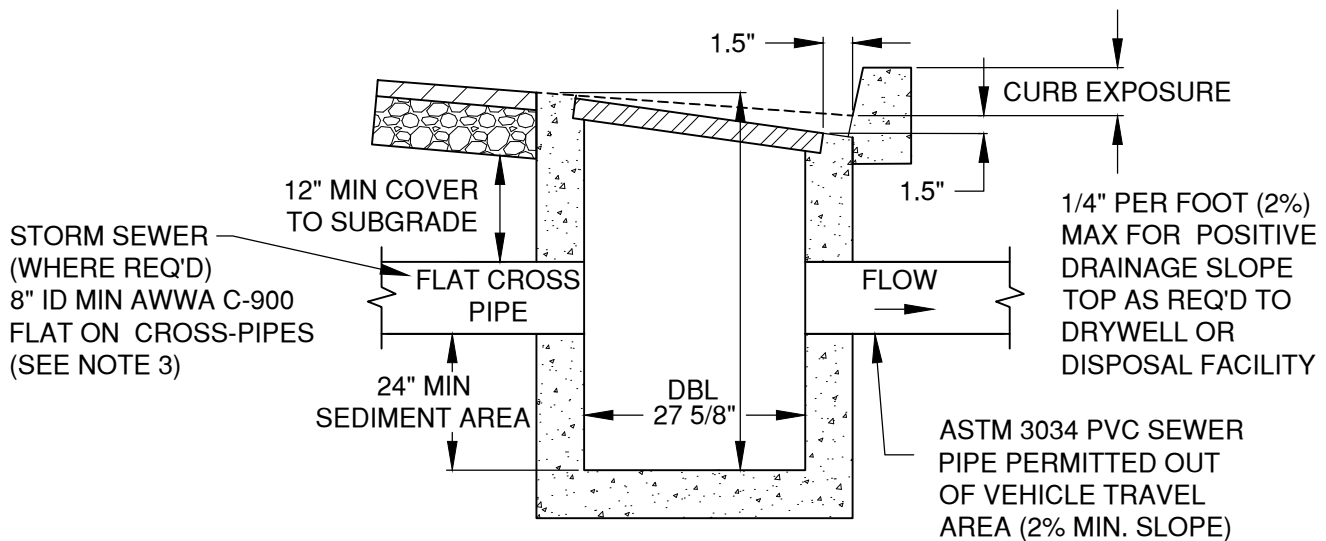
DRYWELL W/ MANUFACTURED TREATMENT LAYOUT

SCALE NTS

DATE 01/31/2022

APPR

STD DWG STRM-11



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 00470.40
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-11 FOR PAVEMENT RESURFACING

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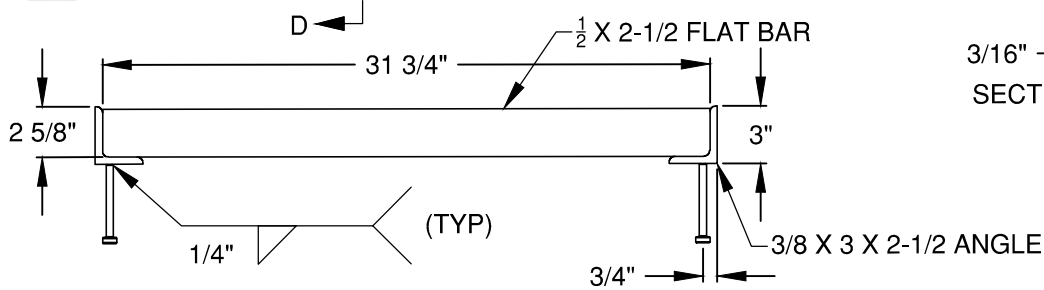
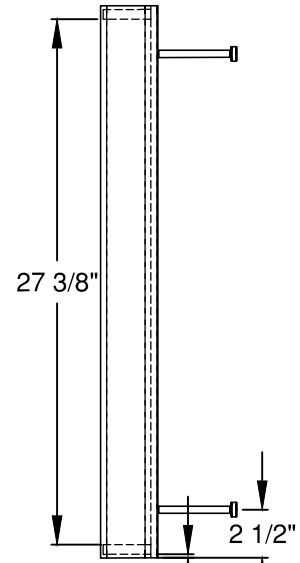
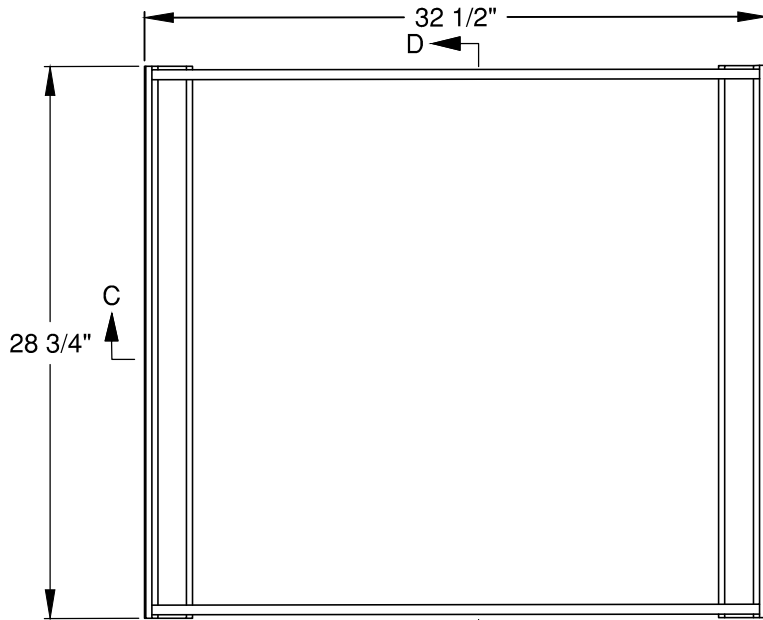
STANDARD CATCH BASIN

SCALE NTS

DATE 01/31/2022

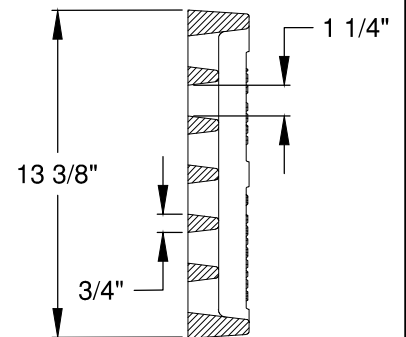
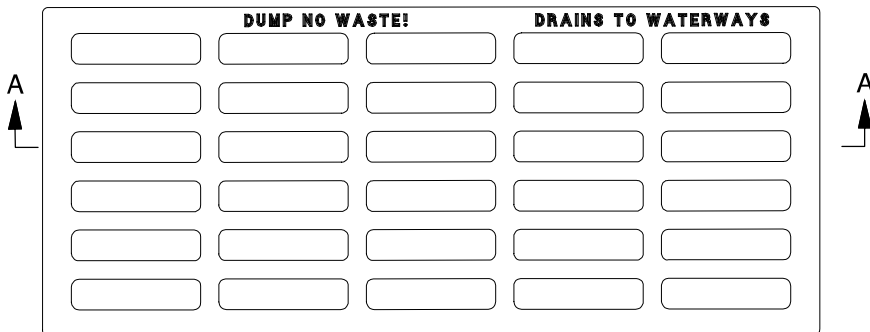
APPR

STD DWG STRM-12

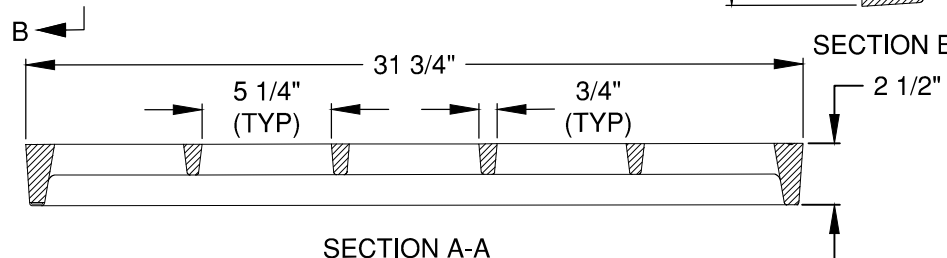


SECTION C-C

STEEL FRAME



SECTION B-B



SECTION A-A

DUCTILE IRON GRATE

DRAWN AJD
DIV STORM
REV DATE



CITY OF BEND

CITY OF BEND

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

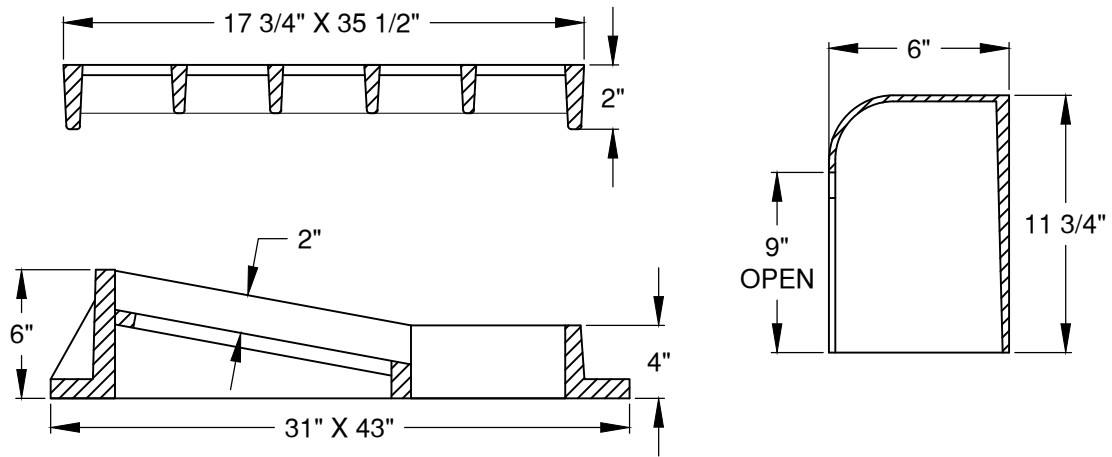
STORMWATER GRATE

SCALE NTS

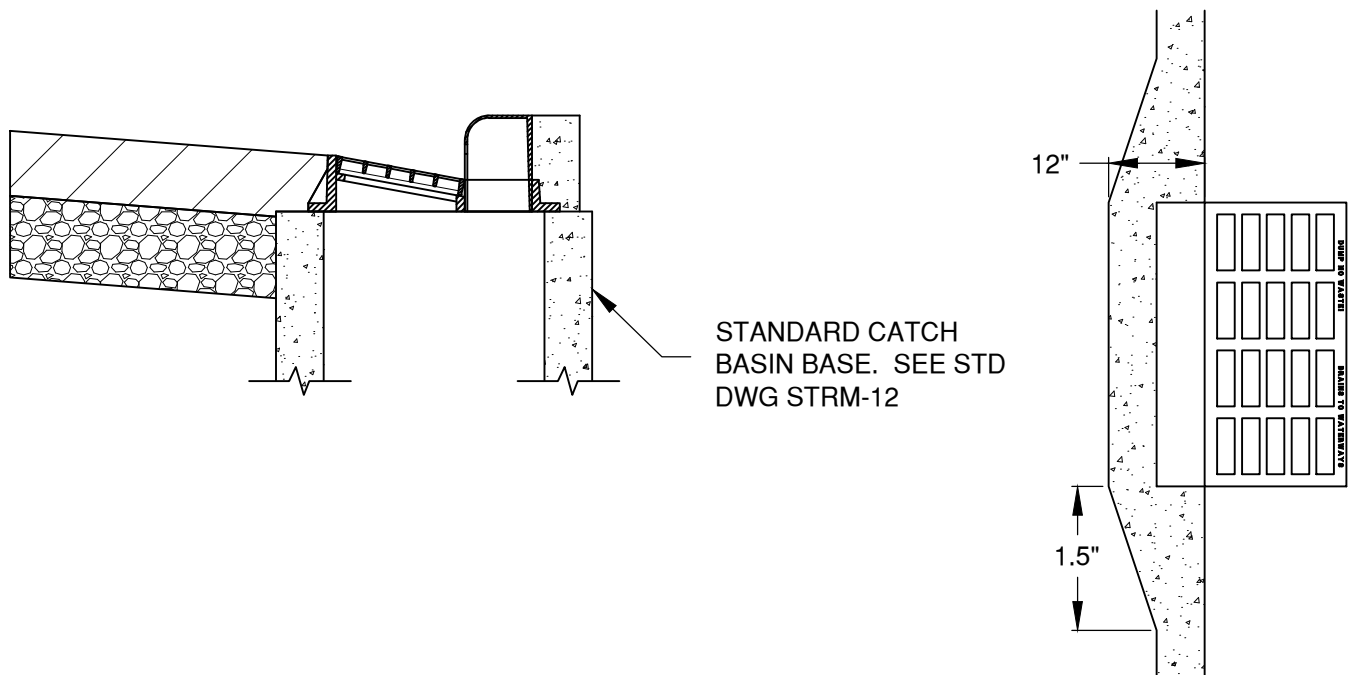
DATE 01/31/2022

APPR

STD DWG STRM-13A




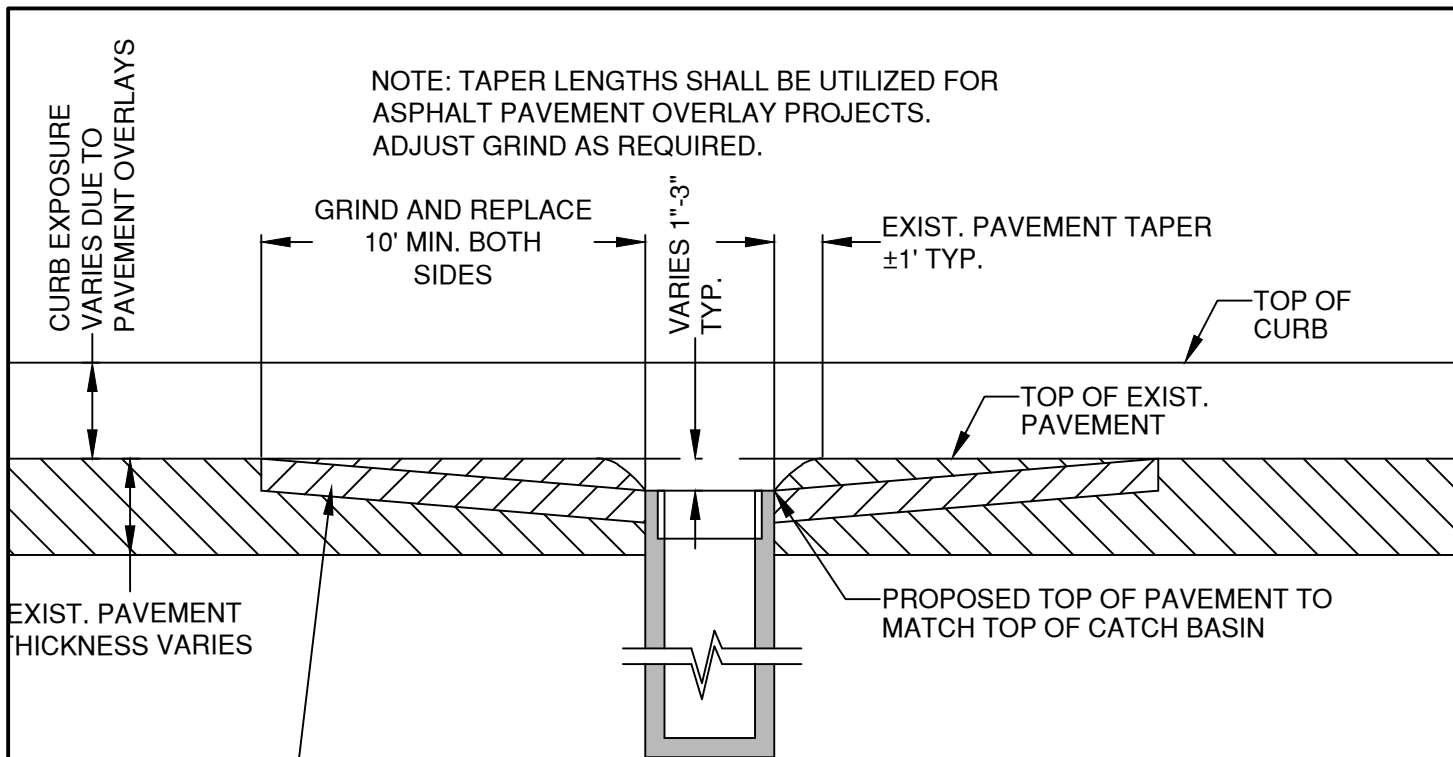
CAST IRON COMBINATION CATCH BASIN INLET



NOTES:

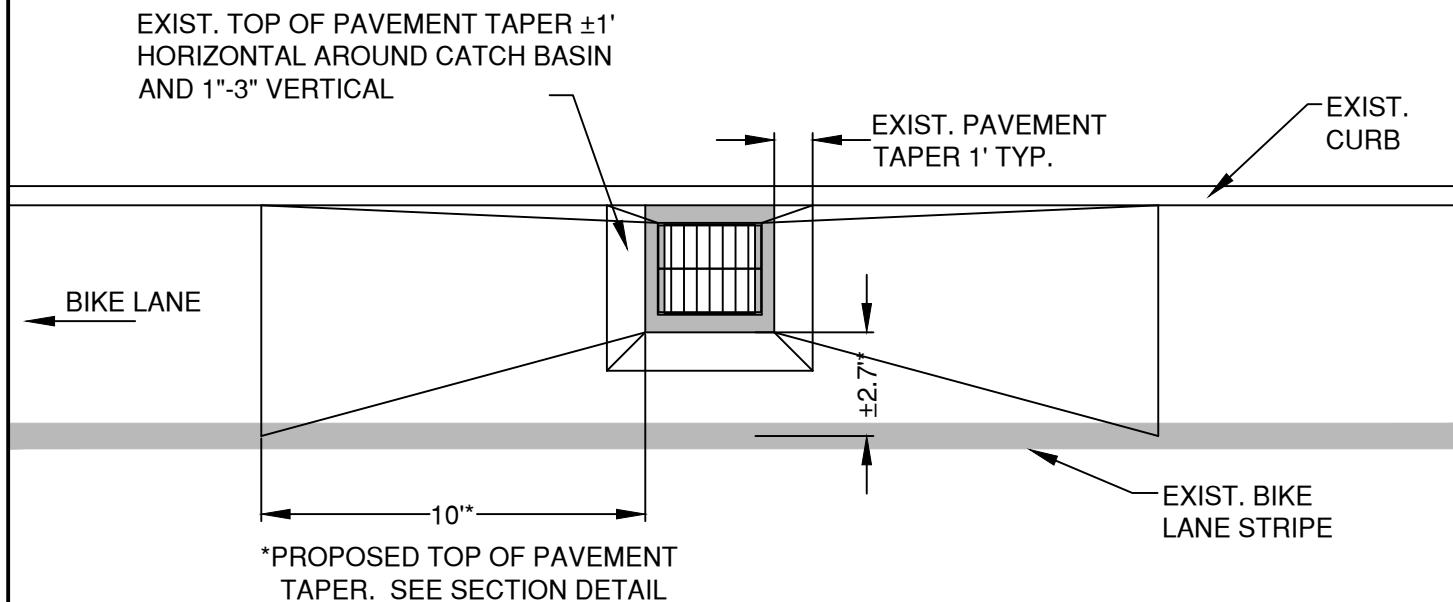
1. SEE NOTES ON STD DWG STRM-12
2. COMBINATION CATCH BASIN INLET TO BE USED ON COLLECTOR AND LOCAL STREETS WHEN THE ROAD GRADE EXCEED 6%

DRAWN AJD	 CITY OF BEND	CITY OF BEND STANDARD DRAWING <small>710 NW WALL ST., BEND, OREGON 97701</small>	SCALE NTS
DIV STORM			DATE 01/31/2022
REV DATE			APPR
		COMBINATION CATCH BASIN INLET	STD DWG STRM-13B



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

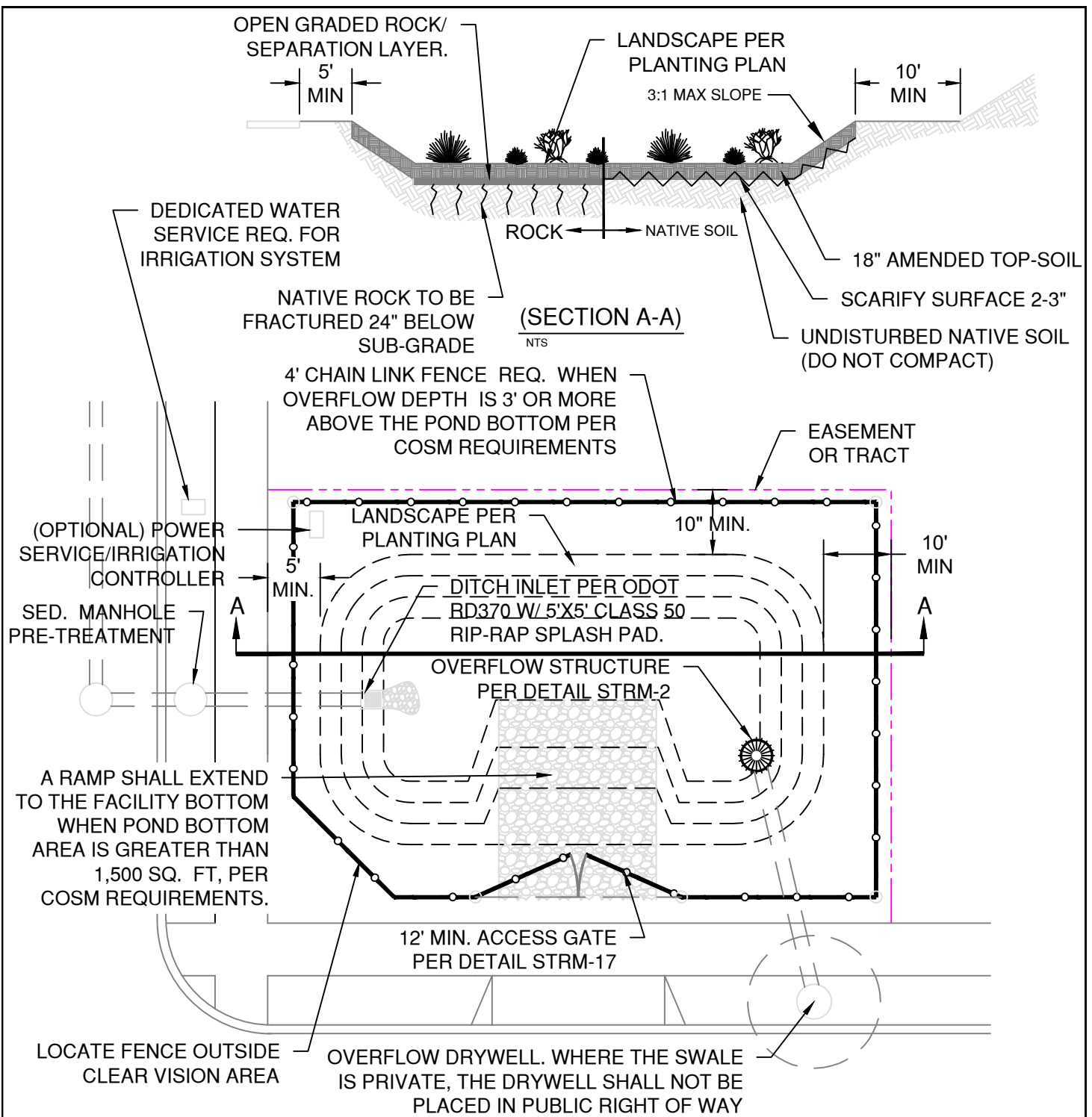
EXISTING CATCH BASIN PAVEMENT RESURFACING

SCALE NTS

DATE 3/31/19

APPR

STD DWG STRM-14



EXTENDED DETENTION DRY POND (PLAN VIEW)

NTS

NOTE:

THE WATER QUALITY TREATMENT STORM SHOULD DRAIN WITHIN 48 HOURS. IF ADDITIONAL STORAGE IS INCLUDED IN THE POND FOR LARGER STORM EVENTS, THE TOTAL FACILITY SHOULD DRAIN WITHIN 72 HOURS FOLLOWING THE PEAK DESIGN STORM EVENT.

DRAWN CJH

DIV STORM

REV DATE



CITY OF BEND

CITY OF BEND

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

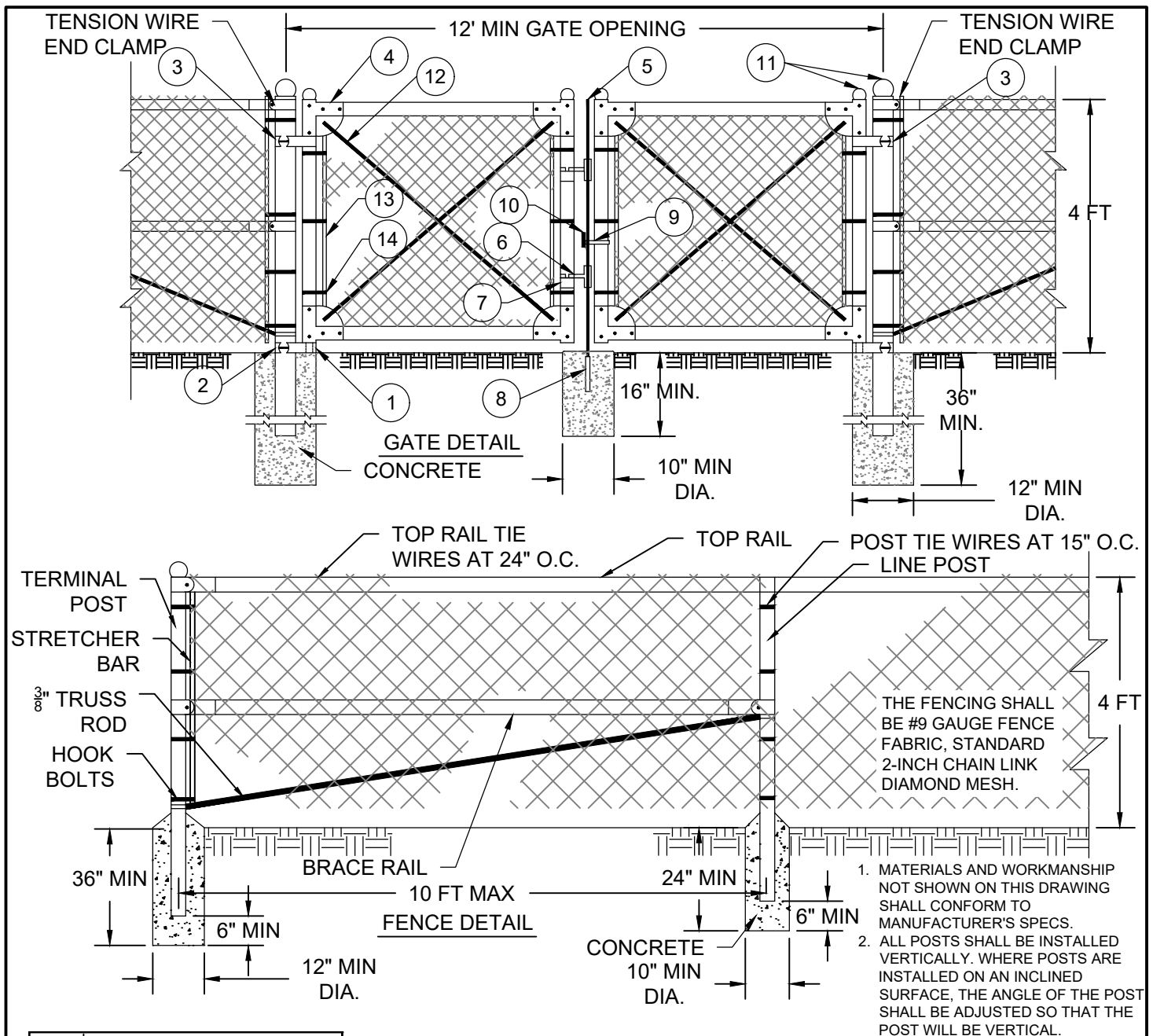
INFILTRATION POND DETAIL

SCALE NTS

DATE 1/2021

APPR

STD DWG STRM-16



PART NO.	DESCRIPTION
1	STRAIGHT PLUG
2	BOTTOM HINGE
3	TOP HINGE
4	CORNER ELBOW
5	PLUNGER ROD
6	LATCH FORK
7	FORK CATCH
8	PLUNGER ROD CATCH
9	LOCK KEEPER GUIDE
10	LOCK KEEPER W/ CITY LOCK
11	ORNAMENTAL TOPS
12	TRUSS RODS
13	STRETCHER BAR
14	HOOK BOLTS

GATE FRAME MEMBERS SIZE & WEIGHT			
GATE LEAF WIDTH OF 6 FT OR LESS	OUTSIDE DIMENSIONS INCHES	WEIGHT LBS/FT	
ROUND	1.66	2.27	
*ROUND	1.66	1.84	
* GRADE B HIGH STRENGTH STEEL			

GATE POST SIZE AND WEIGHT			
GATE LEAF WIDTH OF 6 FT OR LESS	OUTSIDE DIMENSIONS INCHES	WEIGHT LBS/FT	
ROUND	2.875	5.79	
*ROUND	2.875	4.64	
* GRADE B HIGH STRENGTH STEEL			

SHAPE, SIZE AND WEIGHT REQUIREMENTS FOR FENCE POSTS AND RAILS			
ITEM	SHAPE	OUTSIDE DIMENSIONS INCHES	WEIGHT LBS/FT.
**			
TERMINAL POST	ROUND	2.375	3.65
LINE POSTS	*ROUND	2.375	3.12
TOP & BRACE RAILS	ROUND	1.90	2.72
	*ROUND	1.90	2.28
	ROUND	1.66	2.27
	*ROUND	1.66	1.84
* GRADE B HIGH STRENGTH STEEL			
** INCLUDES END, CORNER, ANGLE, INTERSECTION AND INTERMEDIATE BRACED POSTS			

DRAWN A.J.D.

DIV STORM

REV DATE



CITY OF BEND

CITY OF BEND

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

CHAINLINK FENCE DETAIL

SCALE NTS

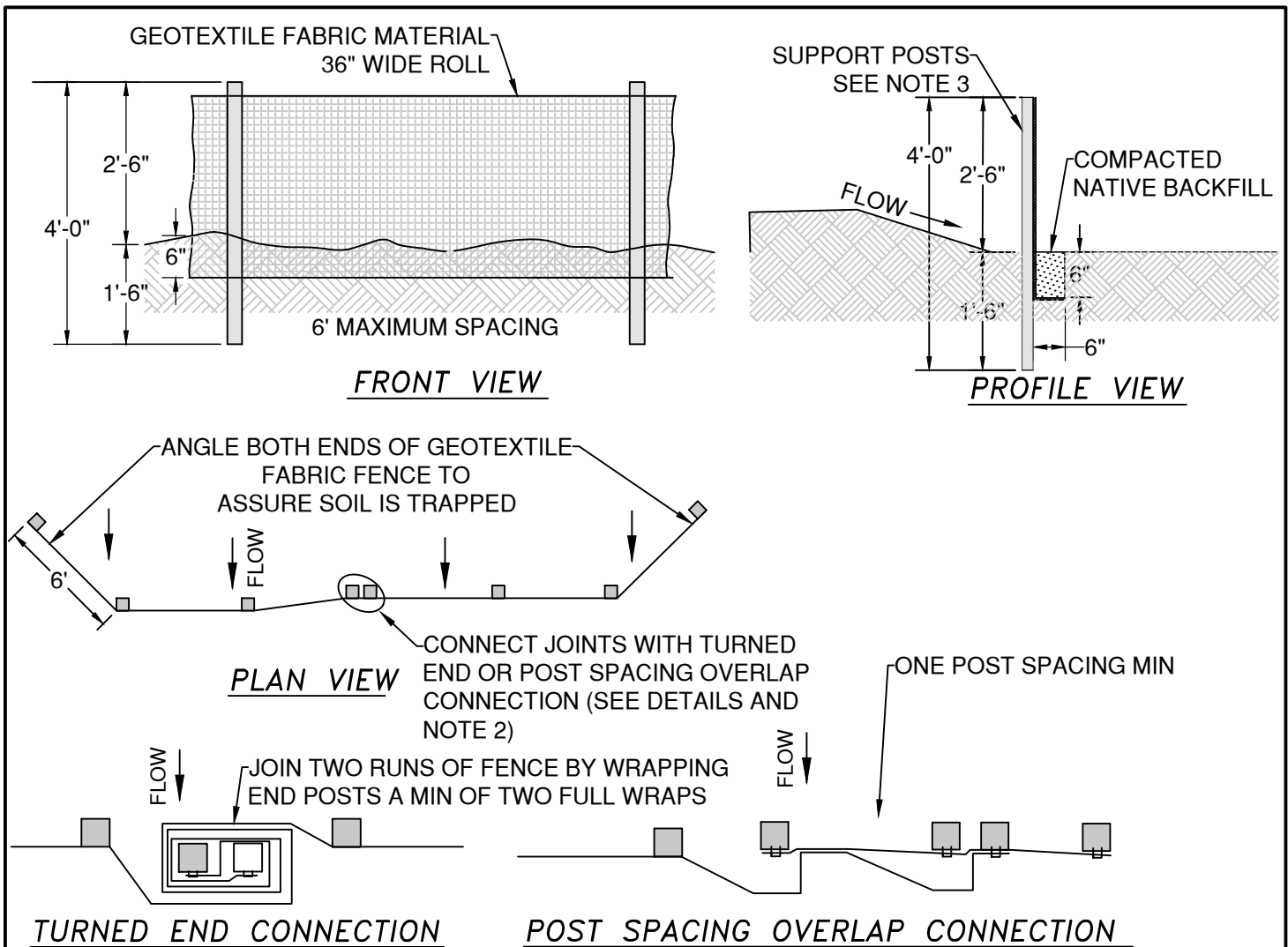
DATE 01/31/2022

APPR

STD DWG STRM-17


CITY OF BEND STANDARD DRAWINGS

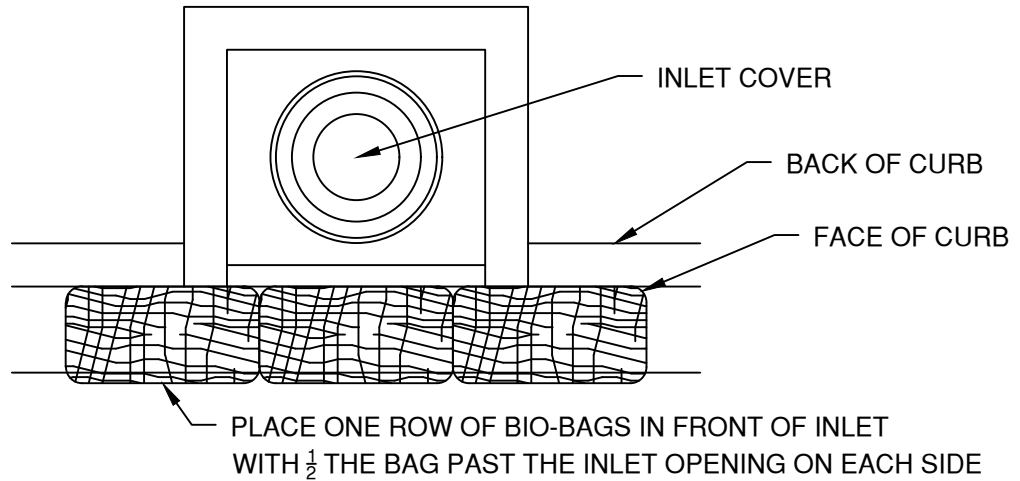
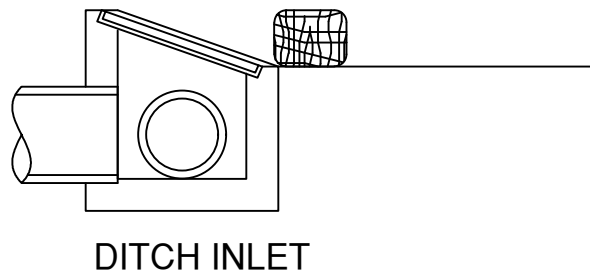
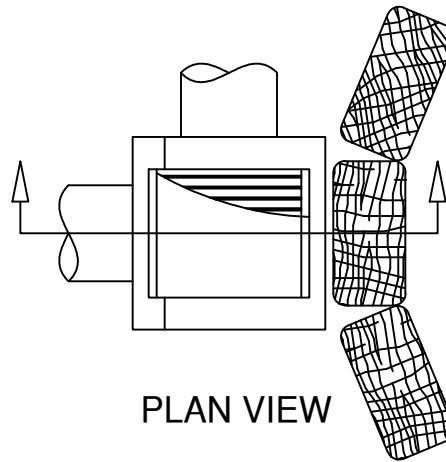
Erosion (E)



NOTES:

1. FABRIC WITHOUT SEWN-IN SLEEVES IS NOT RECOMMENDED. IF USED, INSTALL FENCE POSTS PER MANUFACTURER RECOMMENDATIONS.
2. 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.
3. 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" FIR, PINE, OR STEEL. THE GEOTEXTILE FABRIC FENCE SHALL BE INSTALLED TO FOLLOW THE SLOPE CONTOURS, TO MAXIMIZE PONDING EFFICIENCY WHERE FEASIBLE.
4. BURY BOTTOM OF THE GEOTEXTILE FABRIC 6 INCHES BELOW GRADE. BACKFILL AND COMPACT.
5. POSTS SHALL BE INSTALLED WITHIN THE SLEEVE ON THE UPHILL SIDE GEOTEXTILE FABRIC.
6. 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.
7. 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.
8. 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 AJD	 CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 SEDIMENT FENCE DETAIL	SCALE NTS
DIV EROSION			DATE 01/31/2022
REV DATE			APPR
			STD DWG E-1



CURB INLET 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. APPROVED EQUAL SHALL BE USED ON ROADS WITH BIKE LANES
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 AJD
DIV EROSION
REV DATE



CITY OF BEND

CITY OF BEND

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

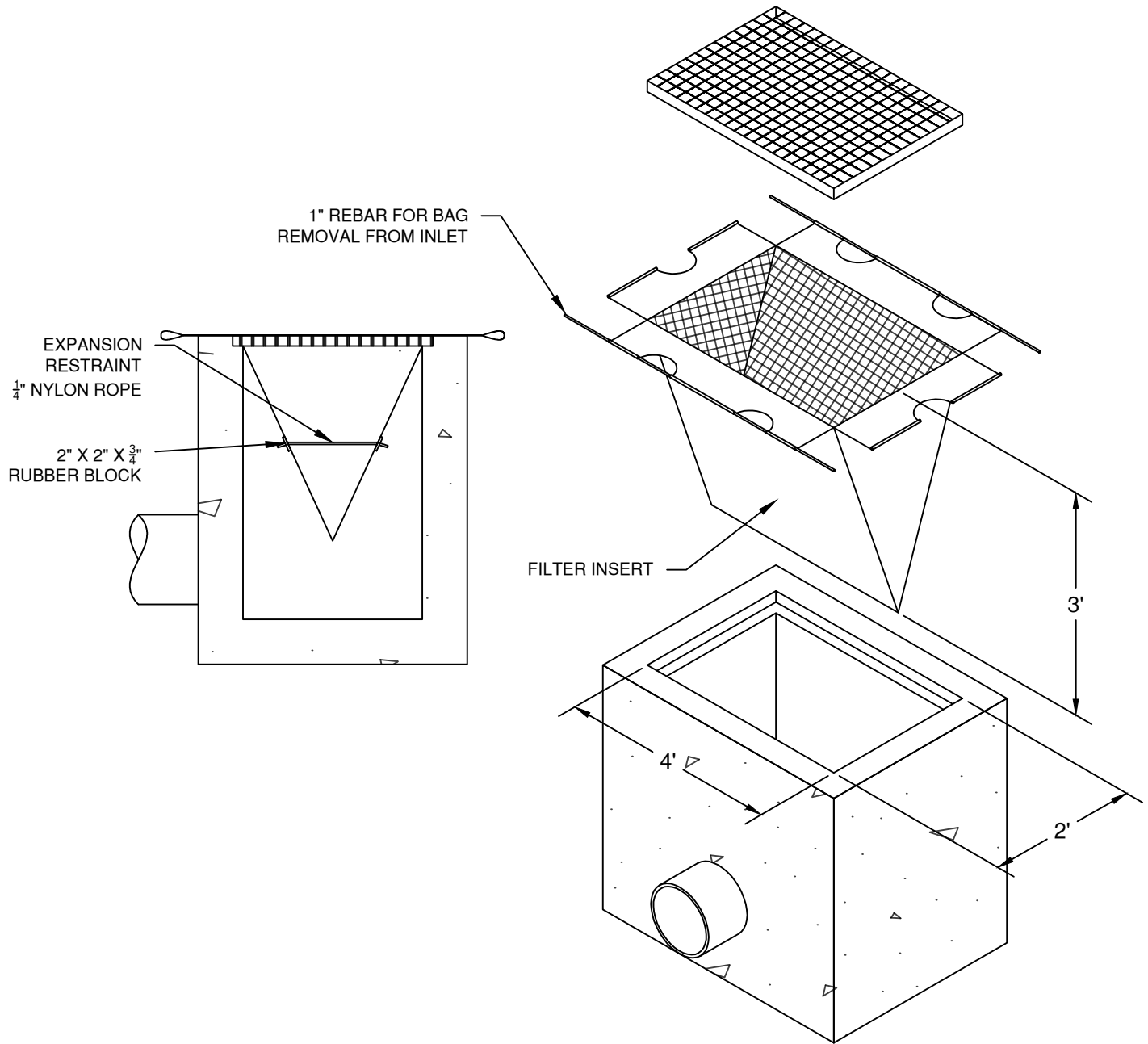
BIO-FILTER BAG INLET PROTECTION

SCALE NTS

DATE 01/31/2022

APPR

STD DWG E-2A



NOTES:

1. INSTALL PRE-FABRICATED FILTER INSERTS ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
2. FIELD FABRICATED INSERTS ARE NOT PERMITTED.
3. PRE-FABRICATED INSERTS WITH A PROVISION FOR OVERFLOW ARE REQUIRED AND ARE TO BE ACCOMPANIED BY ADDITIONAL BMPS TO PREVENT THE POTENTIAL OF SEDIMENTS ENTERING PROJECT STORM SYSTEMS.

DRAWN	AJD
DIV	EROSION
REV	DATE



CITY OF BEND

CITY OF BEND

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

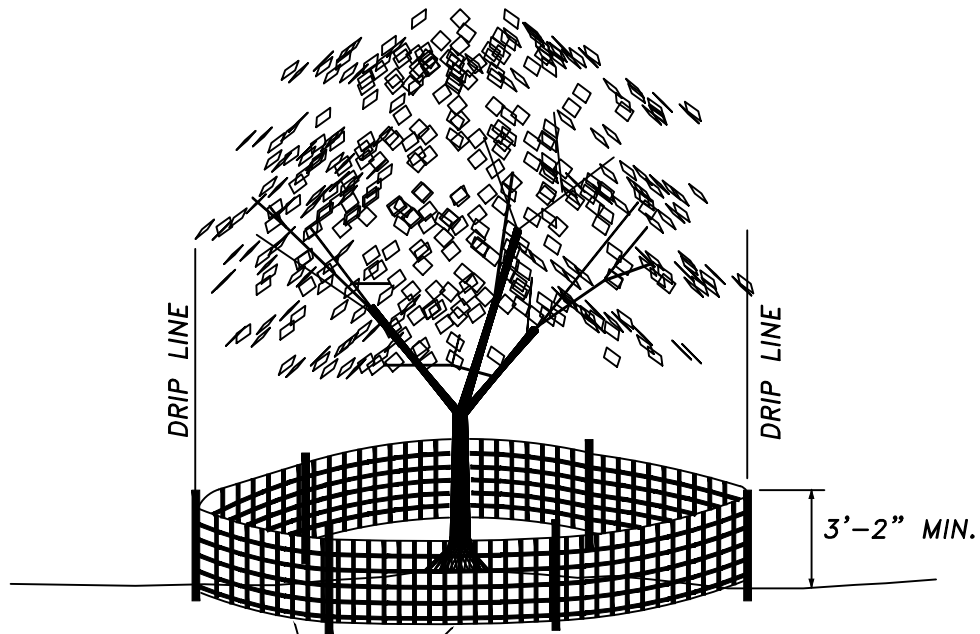
FILTER INSERT INLET PROTECTION

SCALE NTS

DATE 01/31/2022

APPR

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	
DIV EROSION	
REV	DATE
	12/1/17



CITY OF BEND

CITY OF BEND

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

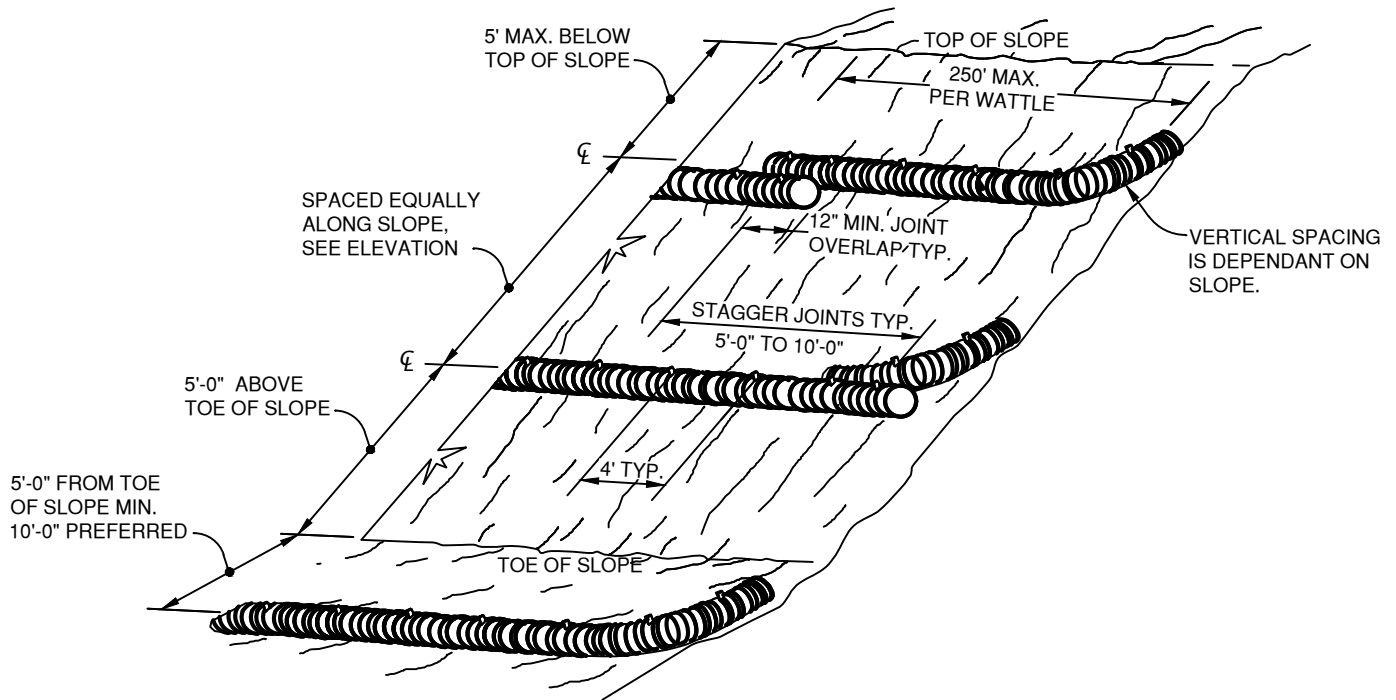
TREE/VEGETATION PROTECTION FENCING

SCALE NTS

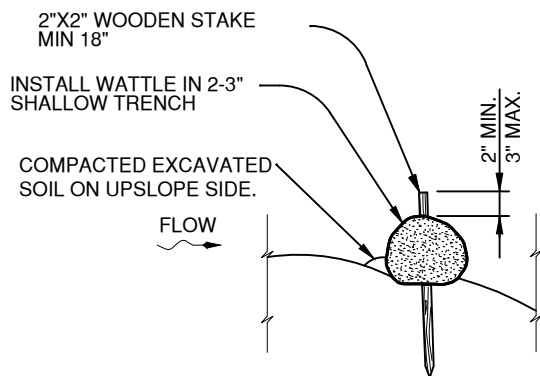
DATE 12/1/17

APPR

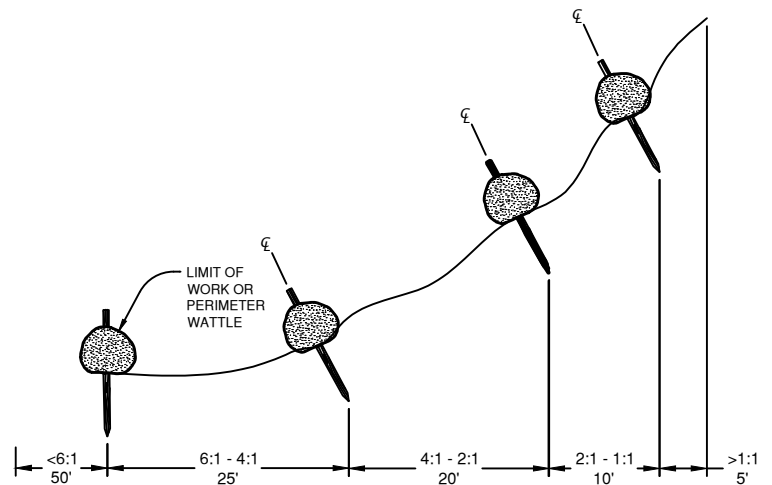
STD DWG E-3



SLOPE APPLICATION - PERSPECTIVE VIEW



STAKING DETAIL



SLOPE APPLICATION - PLAN VIEW

DRAWN AJD
DIV EROSION
REV DATE



CITY OF BEND

CITY OF BEND
STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

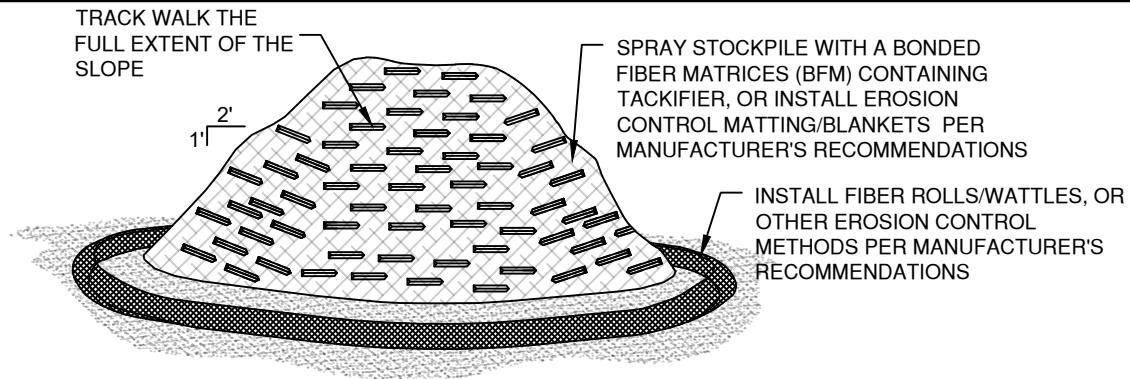
STRAW WATTLE

SCALE NTS

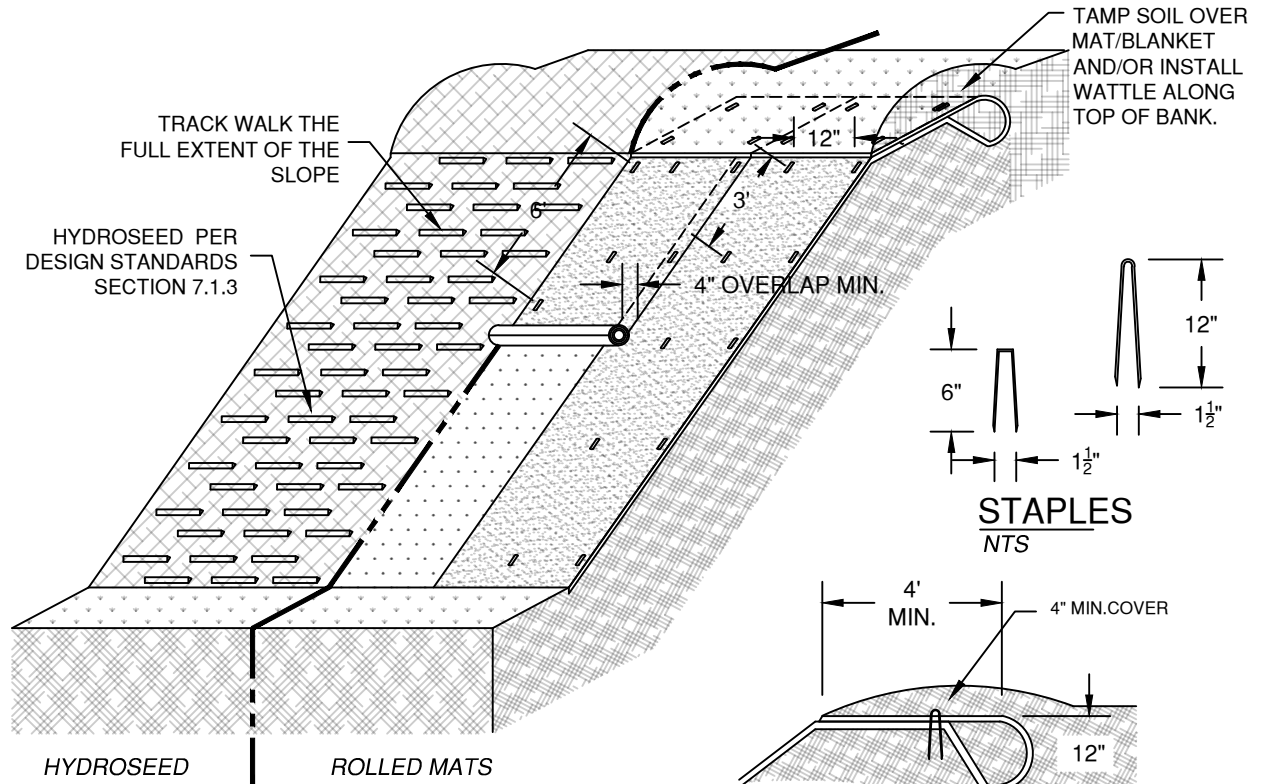
DATE 01/31/2022

APPR

STD DWG E-4

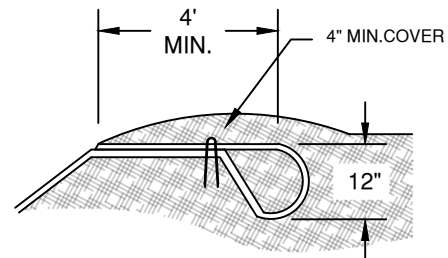


STOCKPILE STABILIZATION NTS



ISOMETRIC VIEW NTS

STAPLES NTS



TOP BERM NTS

NOTES:

1. PRIOR TO A SITE'S FINAL APPROVAL, ALL DISTURBED STEEP SLOPES MUST BE TREATED FOR LONG-TERM EROSION CONTROL. DISTURBED GROUND OF LESSER SLOPES SHALL BE TREATED FOR EROSION CONTROL IF SEDIMENTS HAS THE POTENTIAL TO LEAVE THE SITE.
2. MATS/BLANKETS SHOULD BE INSTALLED VERTICALLY DOWN SLOPE.
3. SLOPE SURFACE SHALL BE FREE OF ROCKS, AND ORGANIC DEBRIS.
4. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
5. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH
6. INSTALL SEDIMENT CONTROLS (I.E. STRAW WATTLES) IN CONJUNCTION WITH EROSION CONTROLS (I.E. ROLLED MATS, OR HYDROSEED) AS REQUIRED TO CONTROL SEDIMENT TRANSPORT.

DRAWN A.JD
DIV EROSION
REV DATE



CITY OF BEND

CITY OF BEND STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

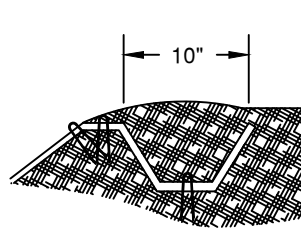
SLOPE / STOCKPILE STABILIZATION

SCALE NTS

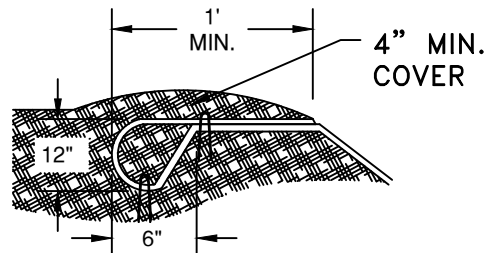
DATE 01/31/2022

APPR

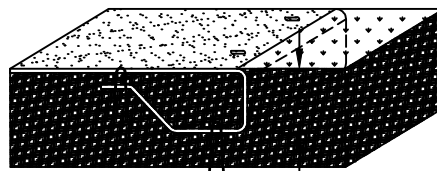
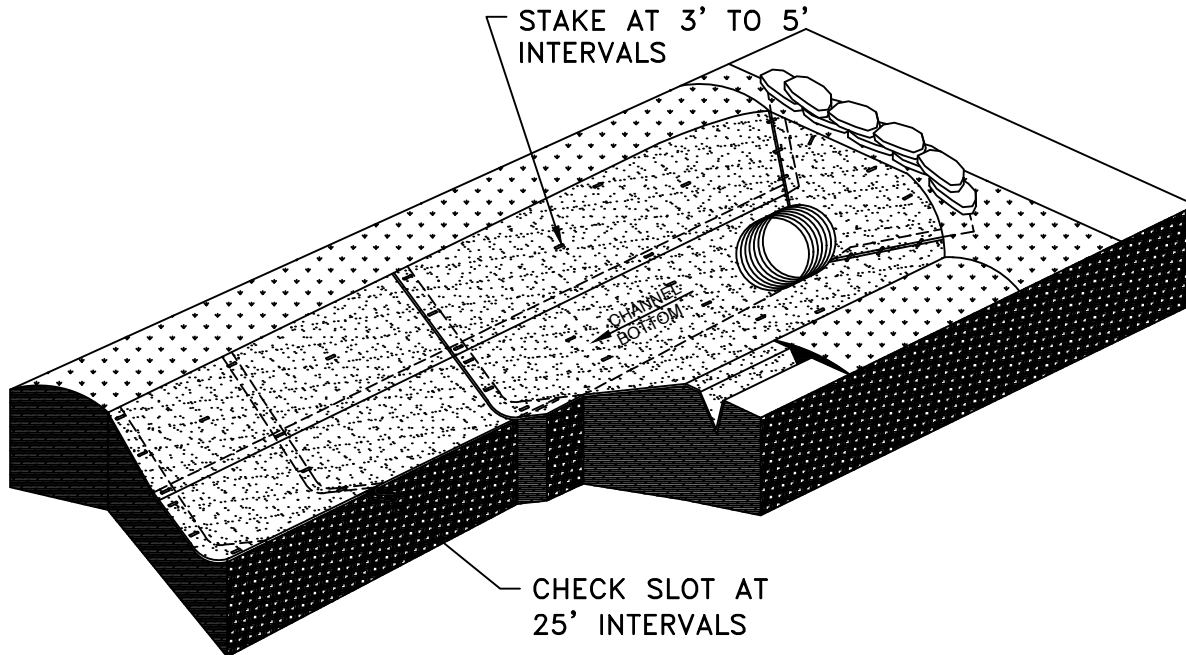
STD DWG E-5



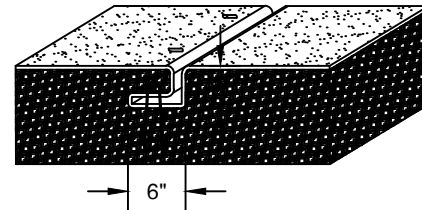
LONGITUDINAL ANCHOR TRENCH
NTS



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
DIV EROSION
REV DATE
12/1/17



CITY OF BEND

CITY OF BEND

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

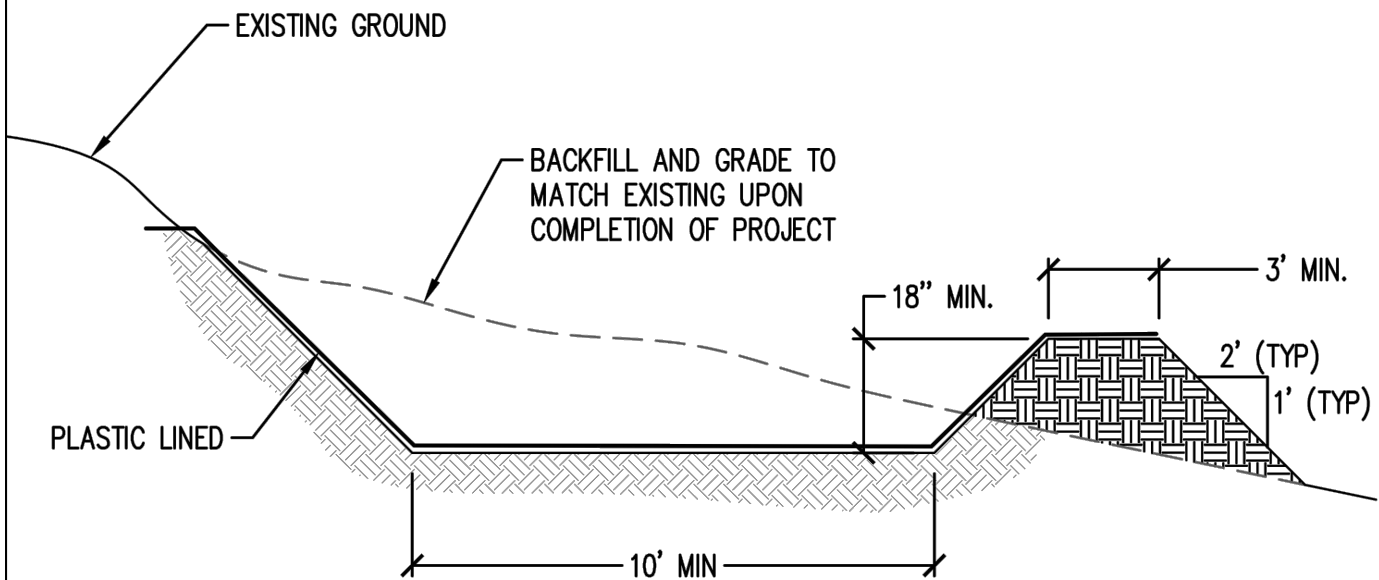
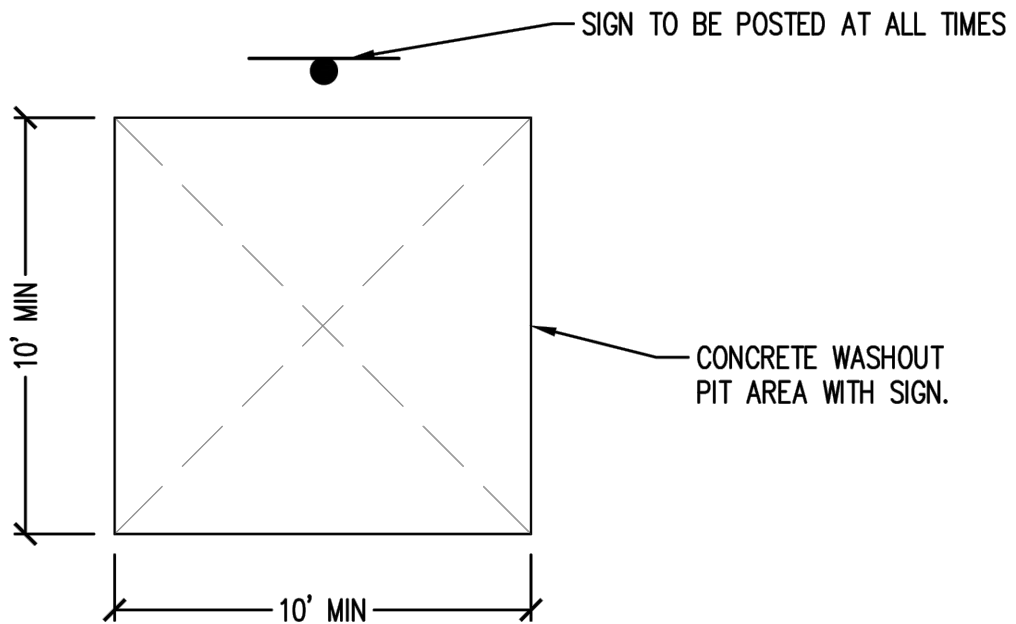
EROSION BLANKET - CHANNEL INSTALLATION

SCALE NTS

DATE 10/01/21


APPR

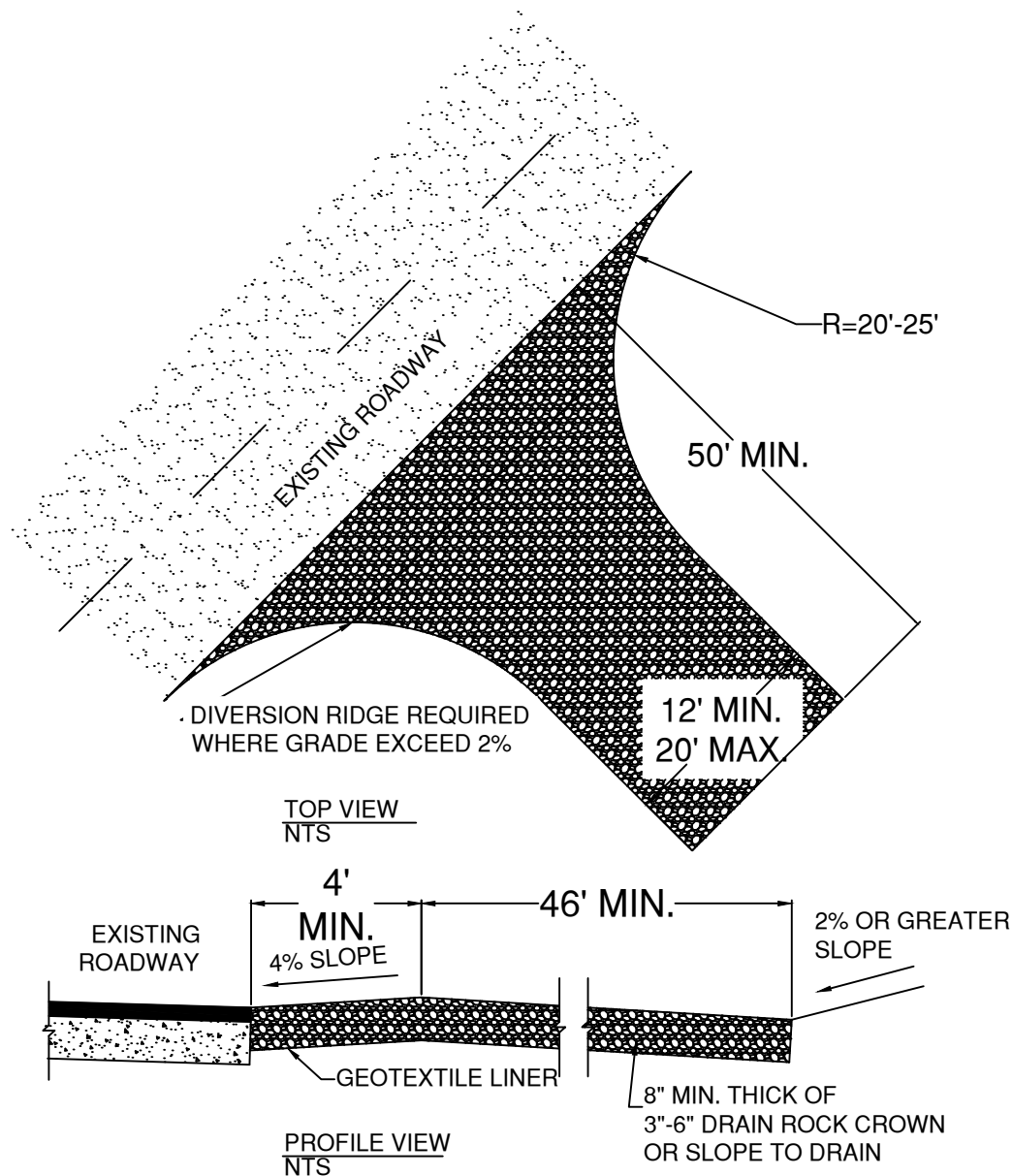
STD DWG E-6



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



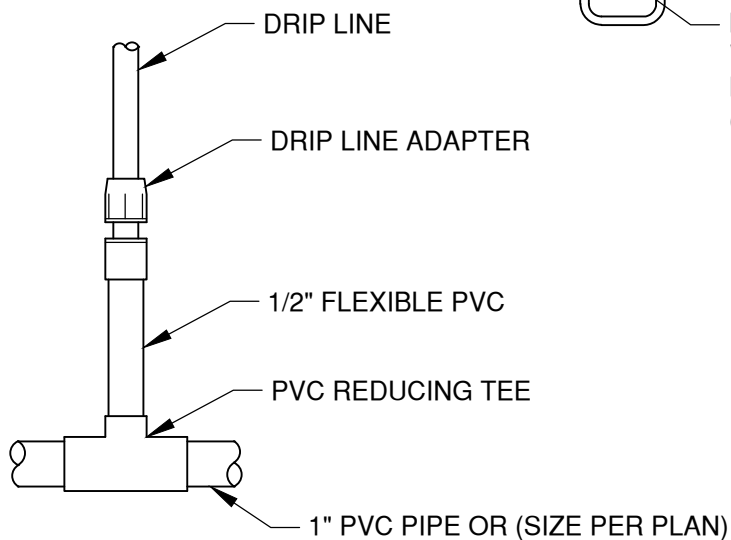
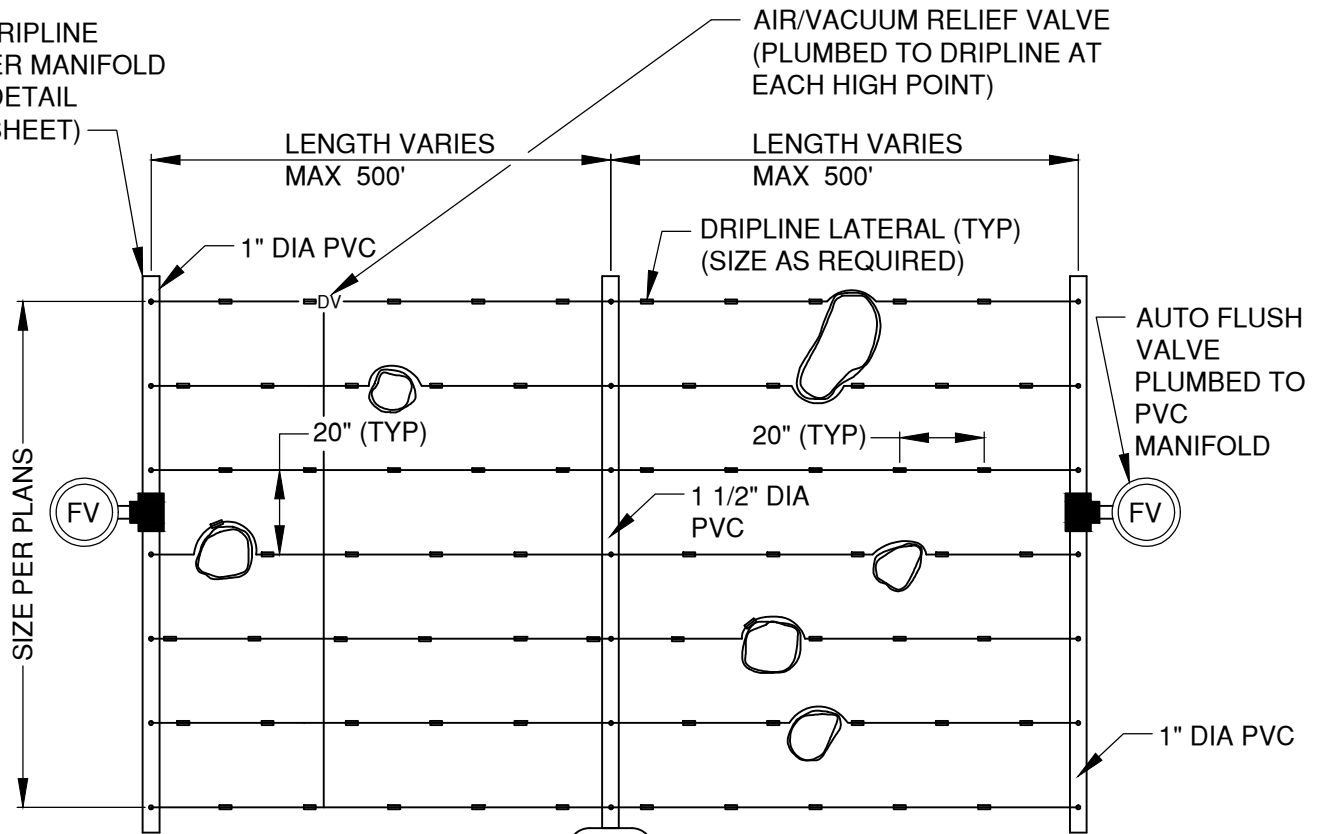
NOTES:

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. TIRE WASH FACILITY MAY BE REQUIRED ON SITE TO PREVENT TRACKING ONTO EXISTING ROADWAY. IF REQUIRED, CONSTRUCT TIRE WASH FACILITY PER ODOT STD DWG RD1060.
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 SWEEPED UP IMMEDIATELY. WASHING THE STREET IS NOT PERMITTED.

DRAWN AJD		<p align="center">CITY OF BEND</p> <p align="center">STANDARD DRAWING</p> <p align="center">710 NW WALL ST., BEND, OREGON 97701</p>	SCALE NTS
DIV EROSION			DATE 01/31/2022
REV DATE			APPR
		<p align="center">GRAVEL CONSTRUCTION ENTRANCE</p>	STD DWG E-8
CITY OF BEND			

CITY OF BEND STANDARD DRAWINGS
Landscaping (L)

PVC DRIPLINE
FEEDER MANIFOLD
(SEE DETAIL
THIS SHEET)



TYPICAL PVC DRIPLINE MANIFOLD CONNECTION

NOTES:

1. RELOCATE DRIP LINES AROUND OBSTACLES AS NEEDED

DRAWN LJC

DIV LNDSCP

REV DATE



CITY OF BEND

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STANDARD DRAWING

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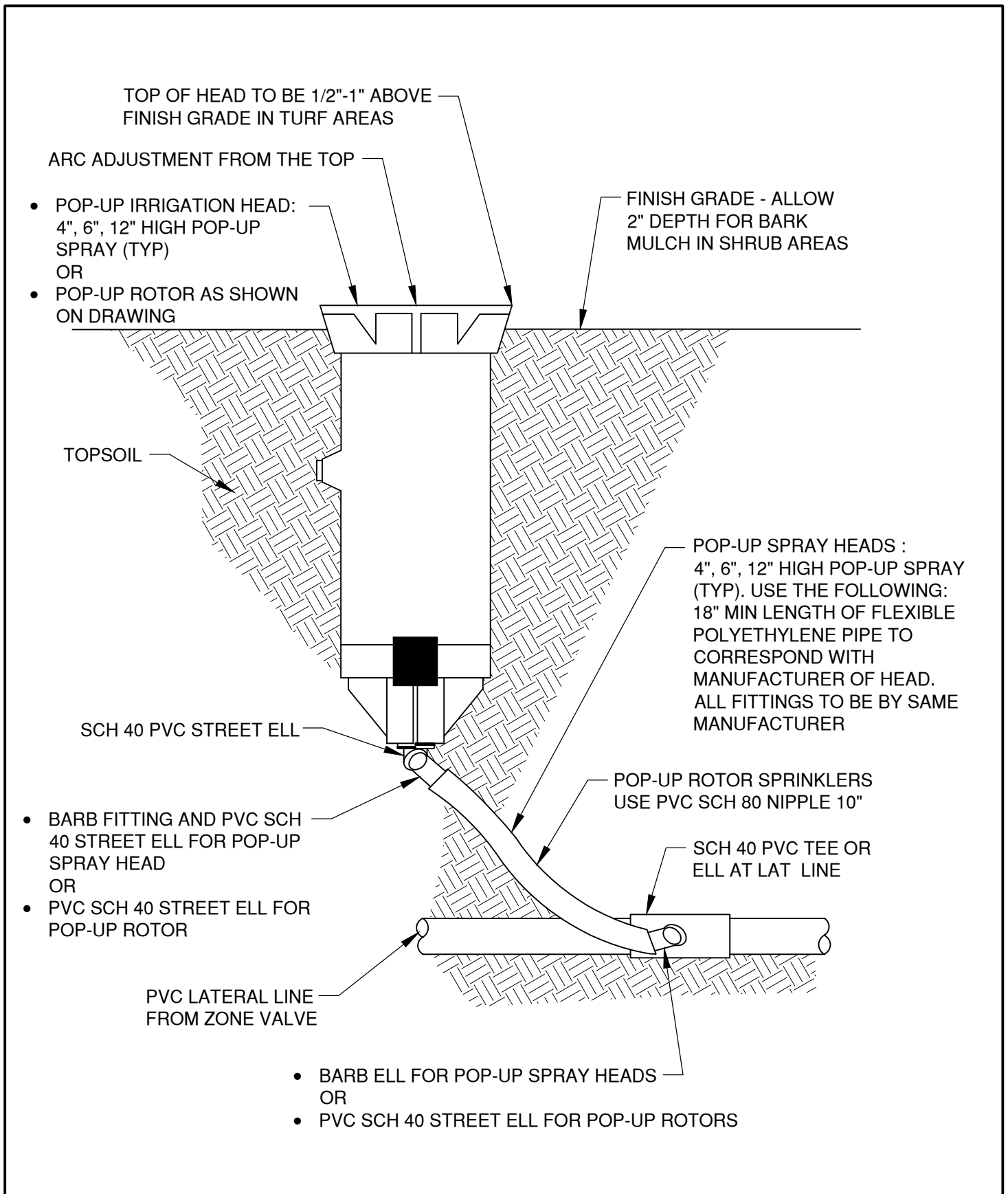
PLANTING OR TURF BED DRIP LAYOUT


SCALE NTS

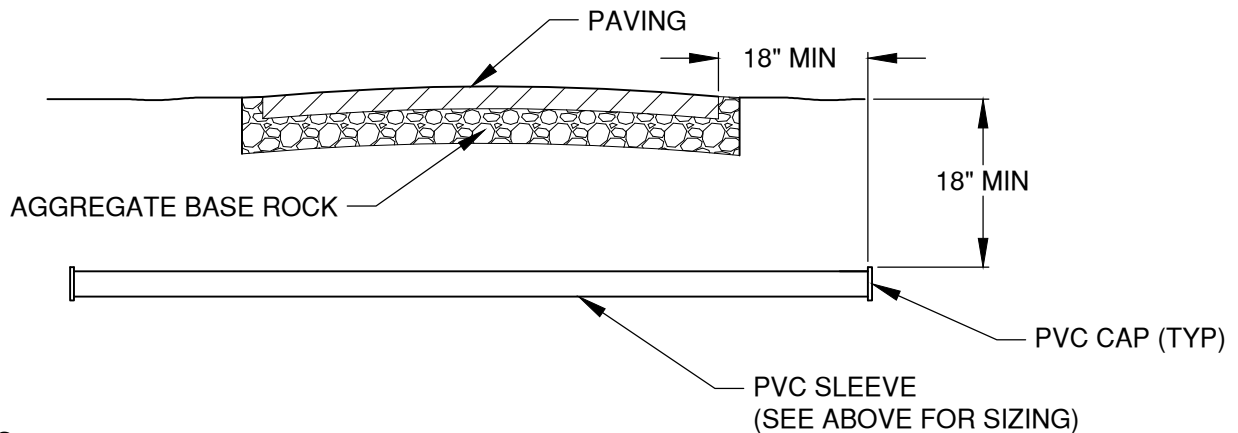
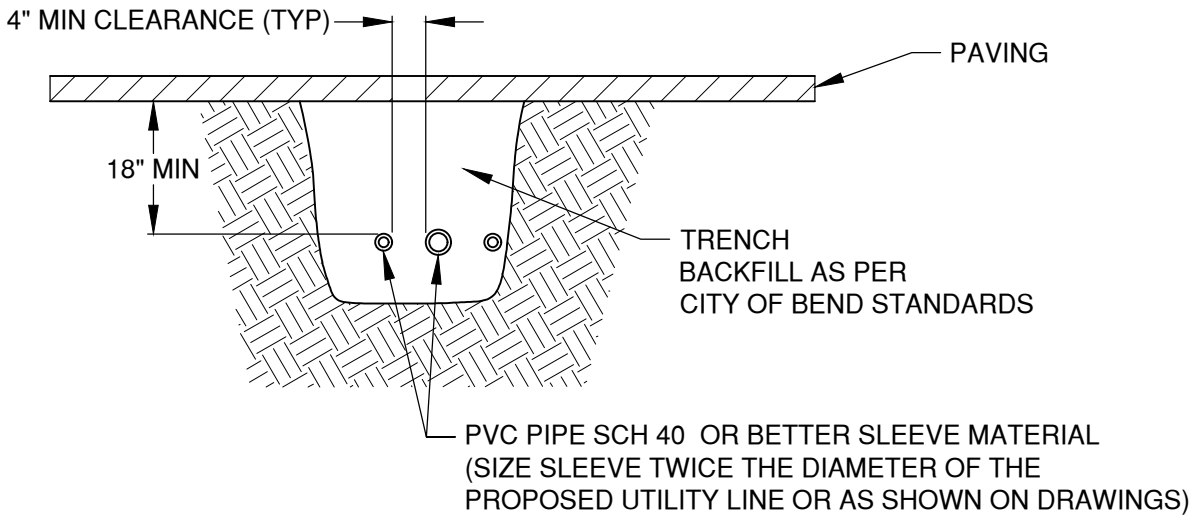
DATE 12/1/17

APPR

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	



NOTES:

1. COMPACTION SHALL MEET 00405.46C PER CITY OF BEND SPECIAL PROVISIONS
2. 12" MIN COVER UNDER SIDEWALKS
3. SEE STD DWGS R-10 AND R-11 FOR TRENCH BACKFILL AND ROAD RESTORATION REQUIREMENTS.

DRAWN	AJD
DIV	LNDSCP
REV	DATE



CITY OF BEND

CITY OF BEND

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

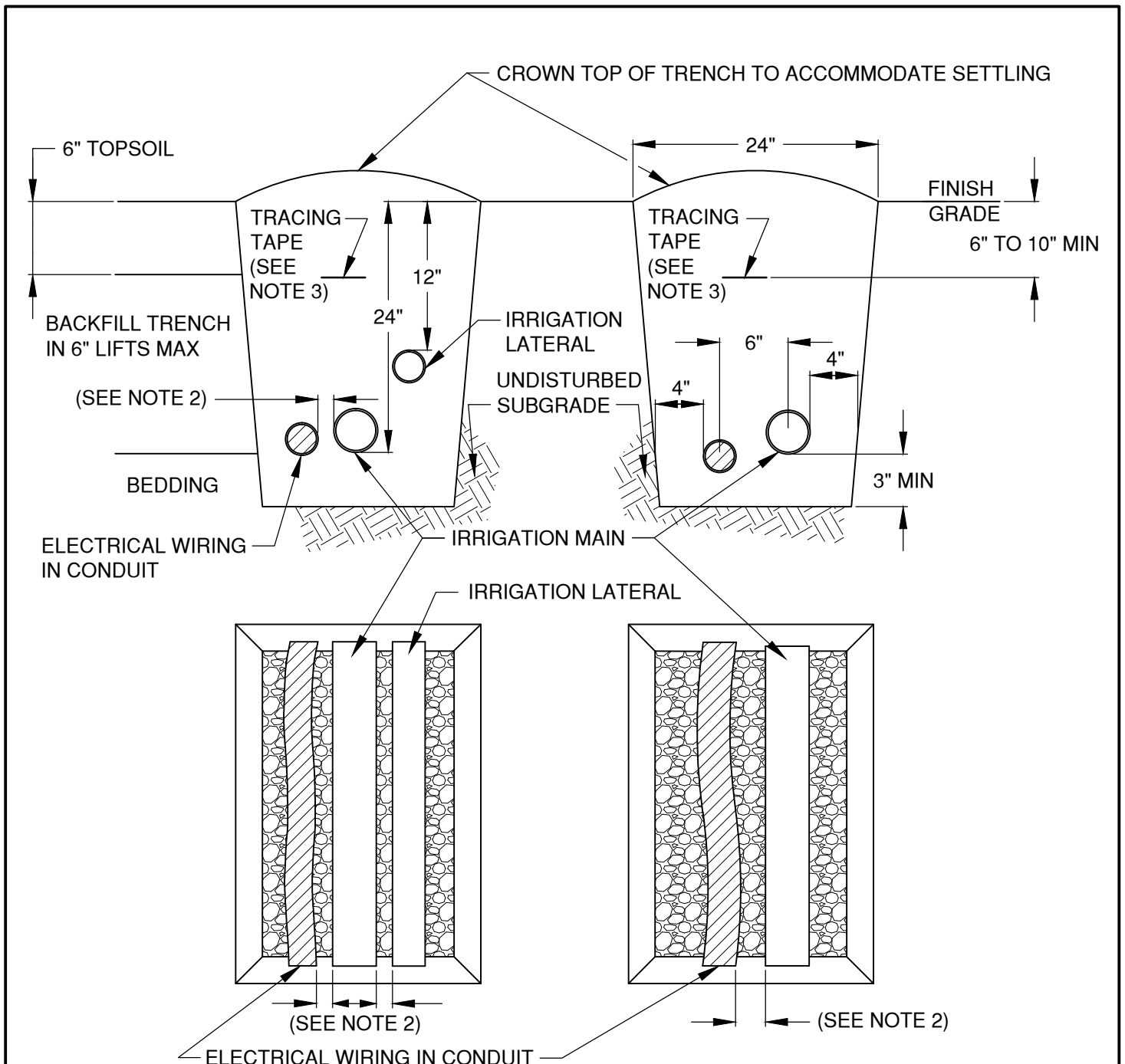
IRRIGATION SLEEVE UNDER PAVING

SCALE NTS

DATE 01/31/2022

APPR


STD DWG L-3

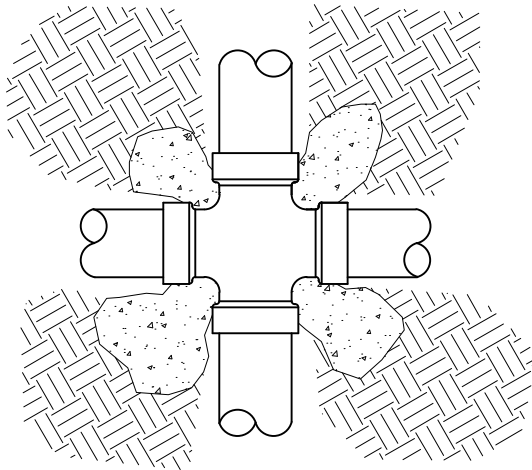


NOTES:

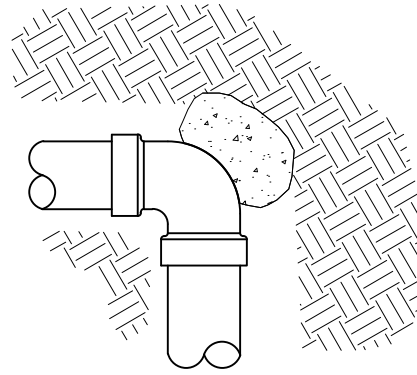
1. MINIMUM DEPTH OVER PVC PIPE:
10" FOR 1-1/4" OR SMALLER
12" FOR 1-1/2" TO 2" PIPE
14" FOR 2-1/2" TO 3" LATERALS
18" FOR MAINLINE PIPING AND SLEEVES
2. CLEARANCE BETWEEN PIPE:
4" FOR PIPE 2" AND SMALLER
6" FOR LARGER PIPE

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

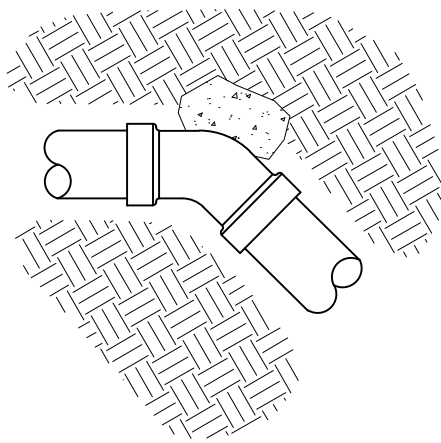
DRAWN LJC		CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701		SCALE NTS
DIV LNDSCP				DATE 12/1/17
REV	DATE	IRRIGATION - TYPICAL TRENCH		APPR
				STD DWG L-4



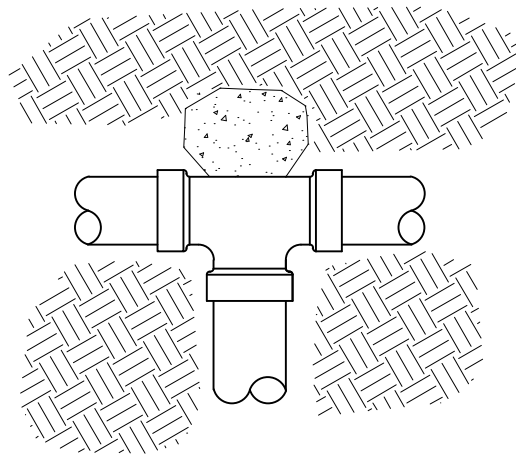
CROSS



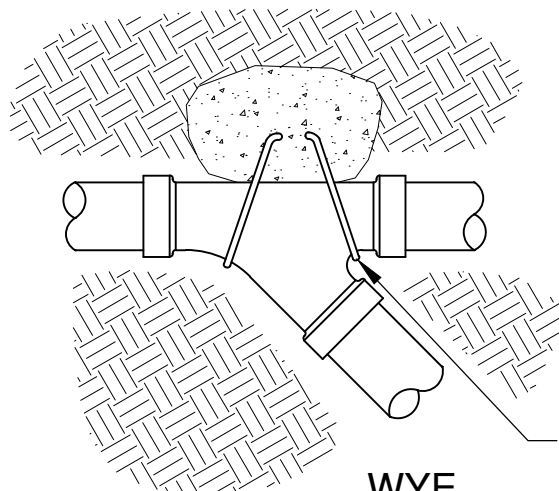
ELL



45° ELL



TEE



REBAR LOOP TIE

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	
DIV LNDSCP	
REV	DATE



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STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

IRRIGATION FITTINGS

SCALE NTS

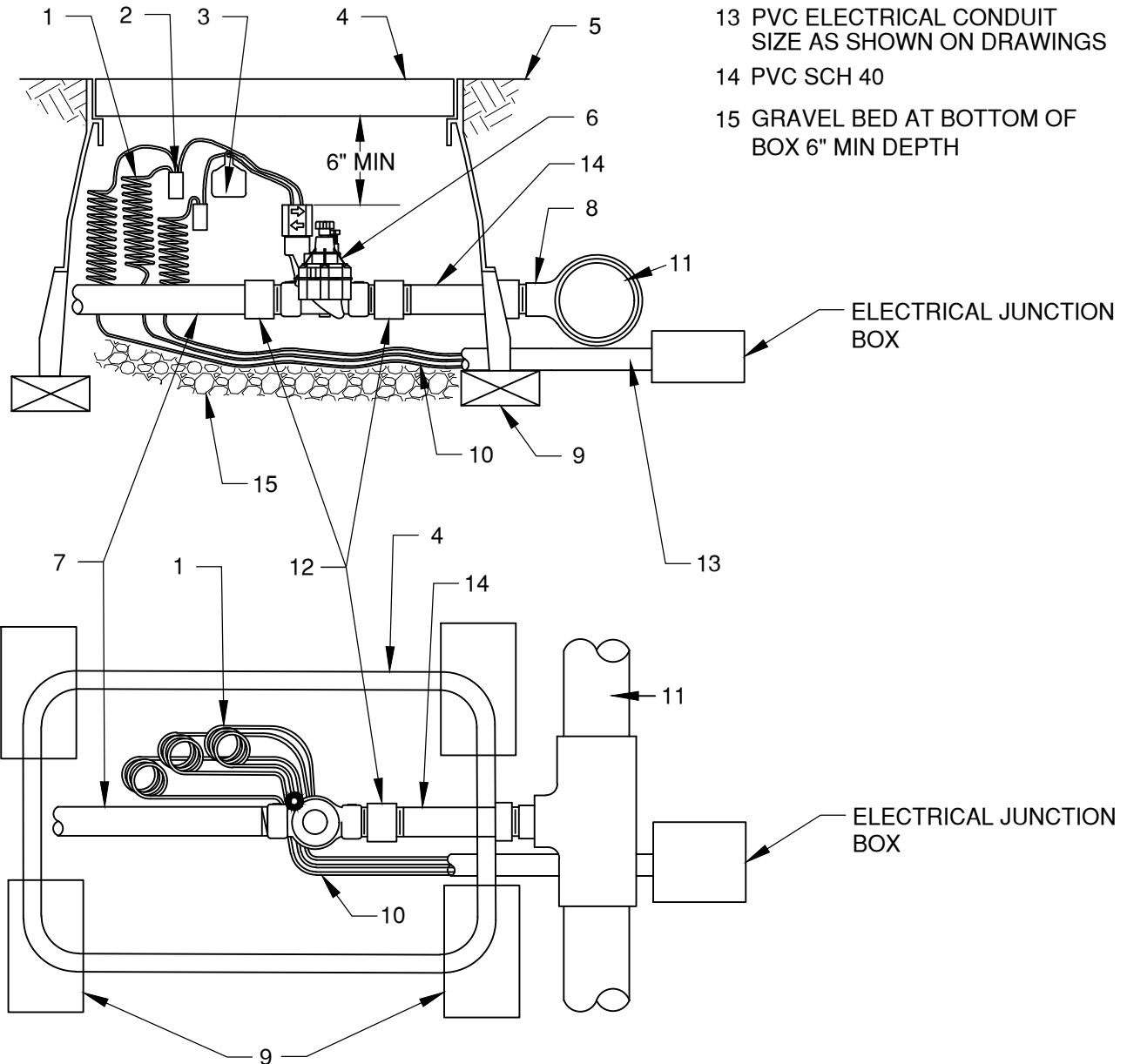
DATE 12/1/17

APPR

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 SCHEDULE 40 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
DIV	LNDSCP
REV	DATE
1	12/10/21



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710 NW WALL ST., BEND, OREGON 97701

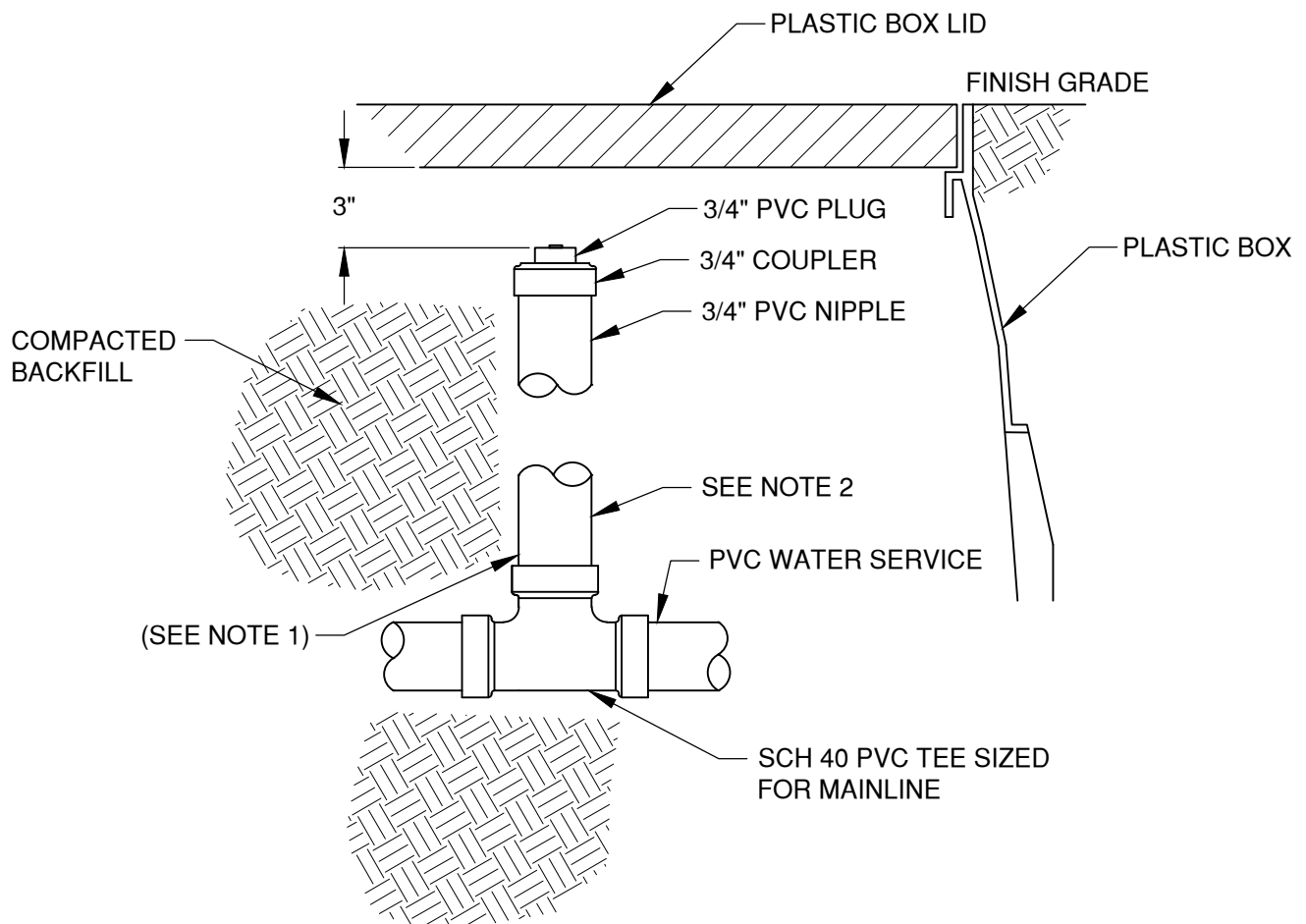
IRRIGATION REMOTE CONTROL VALVE

SCALE NTS

DATE 12/1/17

APPR

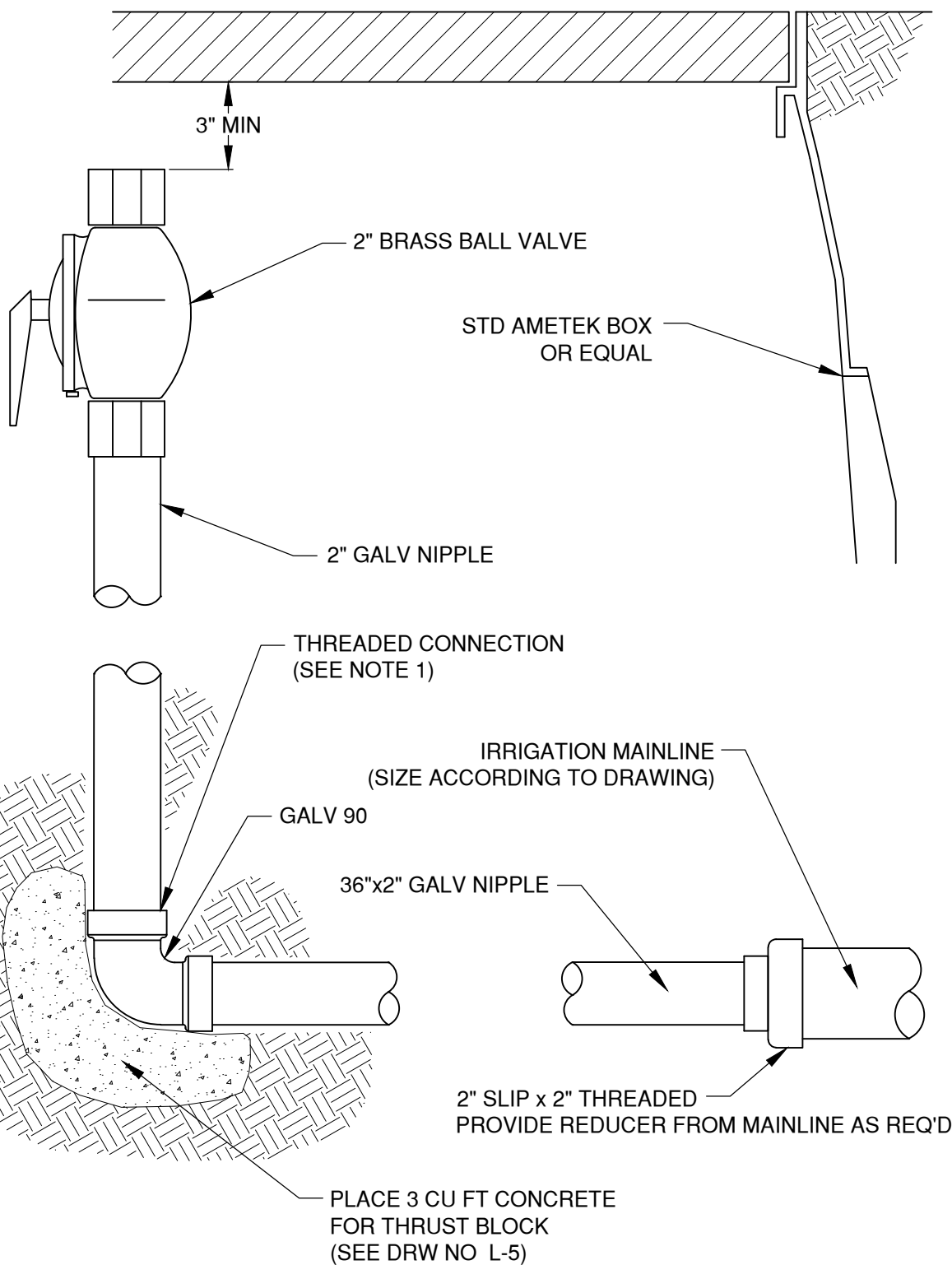
STD DWG L-6



NOTES:

1. PROVIDE PVC BUSHINGS AS REQUIRED TO REDUCE SIZE FROM TEE.
2. QUICK COUPLER ASSEMBLY REQUIRED, SEE STD DWG L-9.
3. PROVIDE ALL THREADED PVC CONNECTIONS WITH A NON-HARDENING JOINT COMPOUND, COMPATIBLE WITH MANUFACTURERS RECOMMENDATION.

DRAWN LJC			CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV LNDSCP				DATE 12/1/17
REV	DATE		APPR	
1	12/10/21			STD DWG L-7
CITY OF BEND			IRRIGATION BLOW OUT	



NOTES:

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

DRAWN	LJC
DIV	LNDSCP
REV	DATE



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STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

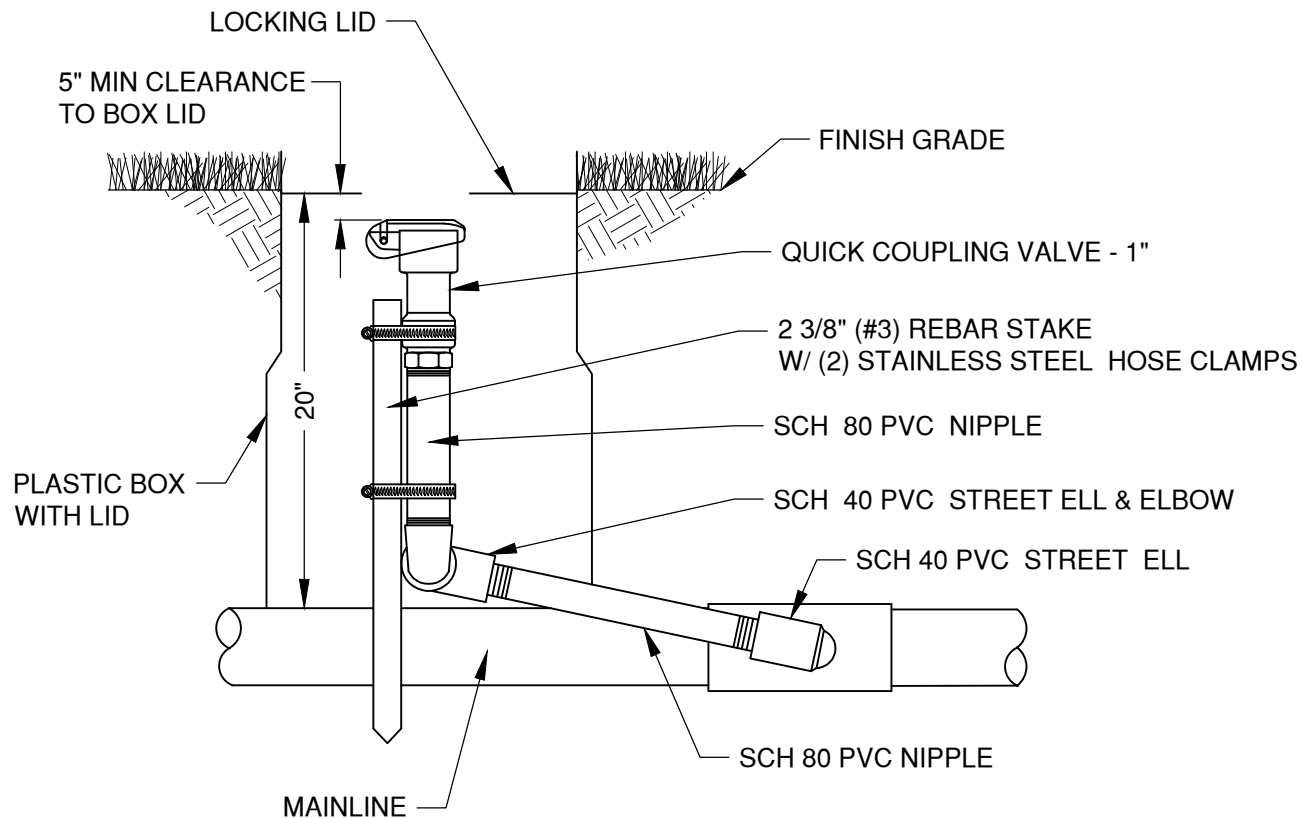
TERMINATION POINT

SCALE NTS

DATE 12/1/17

APPR

STD DWG L-8



DRAWN LJC
DIV LNDSCP
REV DATE



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CITY OF BEND STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

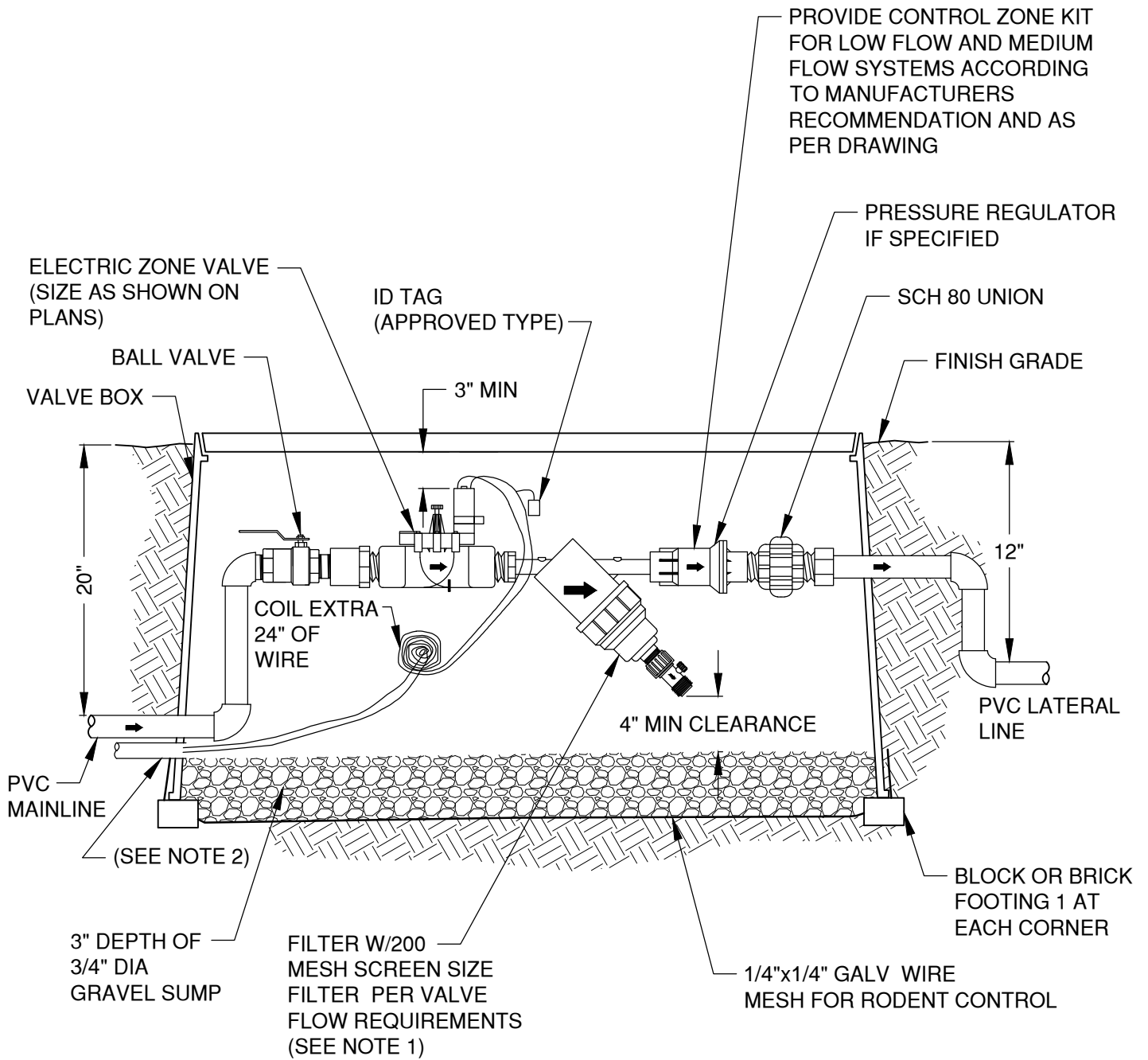
QUICK COUPLING VALVE

SCALE NTS

DATE 12/1/17

APPR

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
DIV	LNDSCP
REV	DATE



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STANDARD DRAWING

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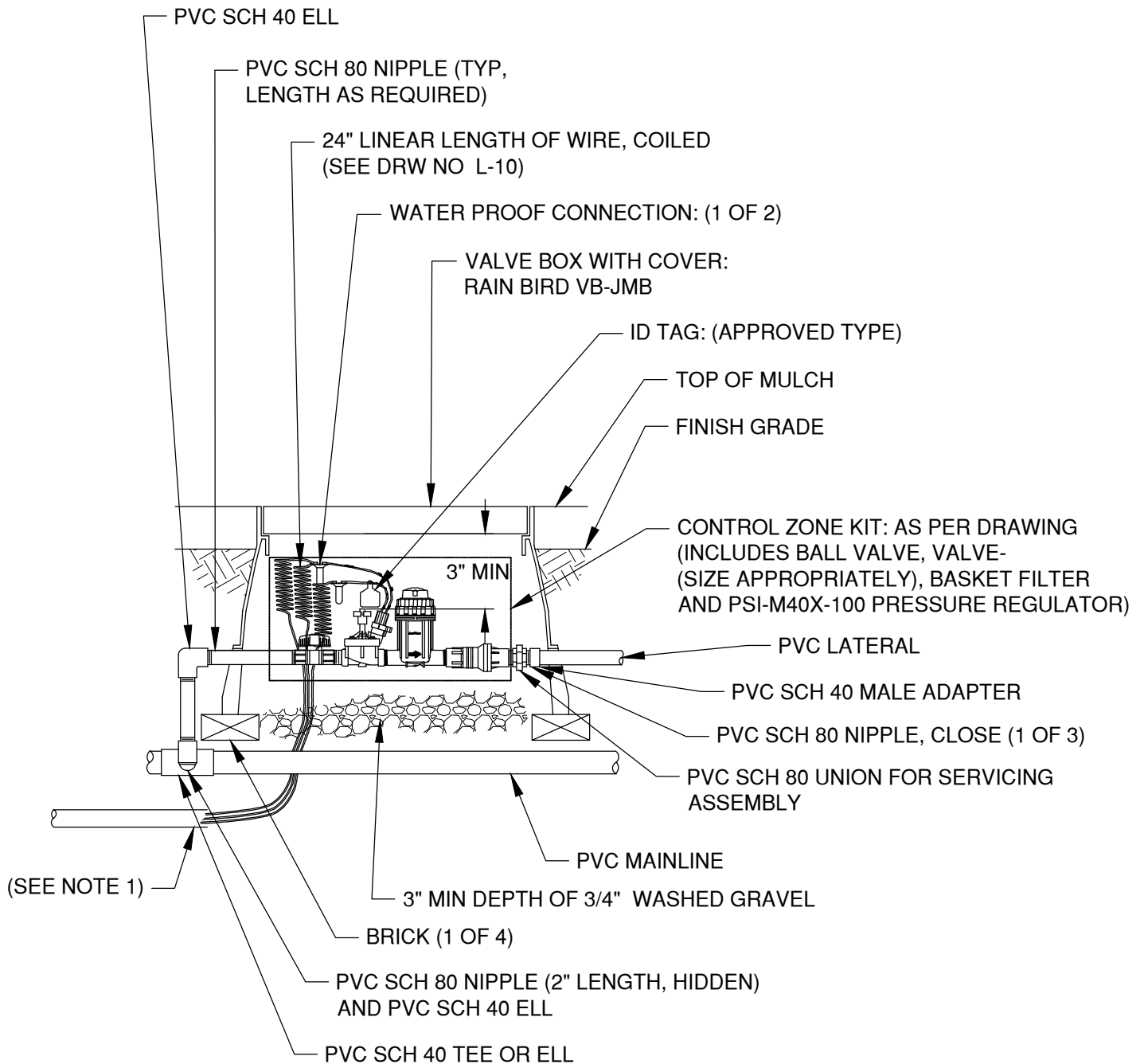
DRIP CONTROL VALVE, FILTER, AND REGULATOR

SCALE NTS

DATE 12/1/17


APPR

STD DWG L-10

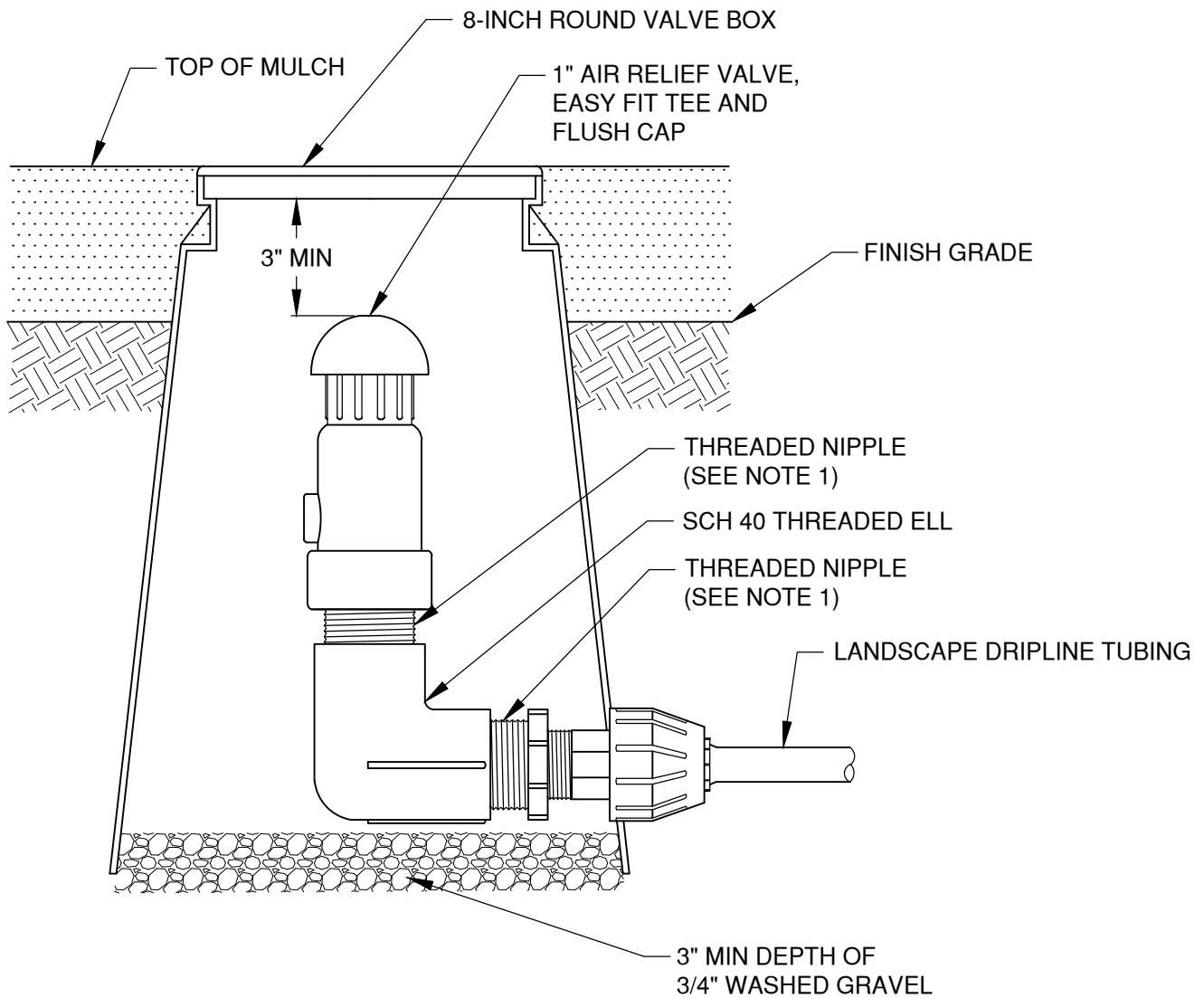


NOTES:

1. ALL ELECTRICAL WIRE TO BE INSTALLED IN APPROVED CONDUIT

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

CITY OF BEND



NOTES:

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

DRAWN	LJC
DIV	LNDSCP
REV	DATE



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STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

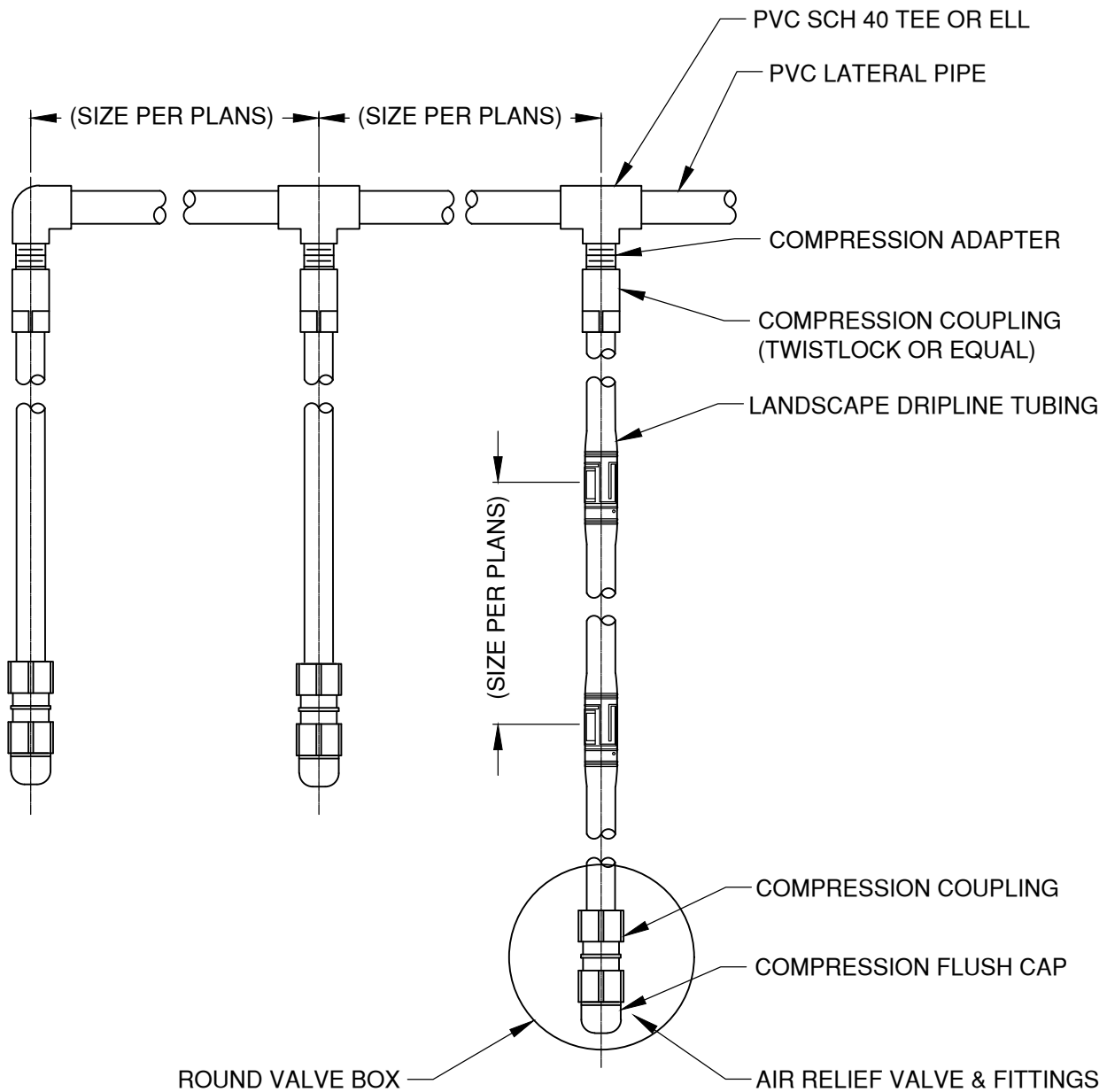
AIR RELIEF VALVE IN KIT - AR VALVE KIT

SCALE NTS

DATE 12/1/17

APPR

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
DIV	LNDSCP
REV	DATE
1	12/10/21



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STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

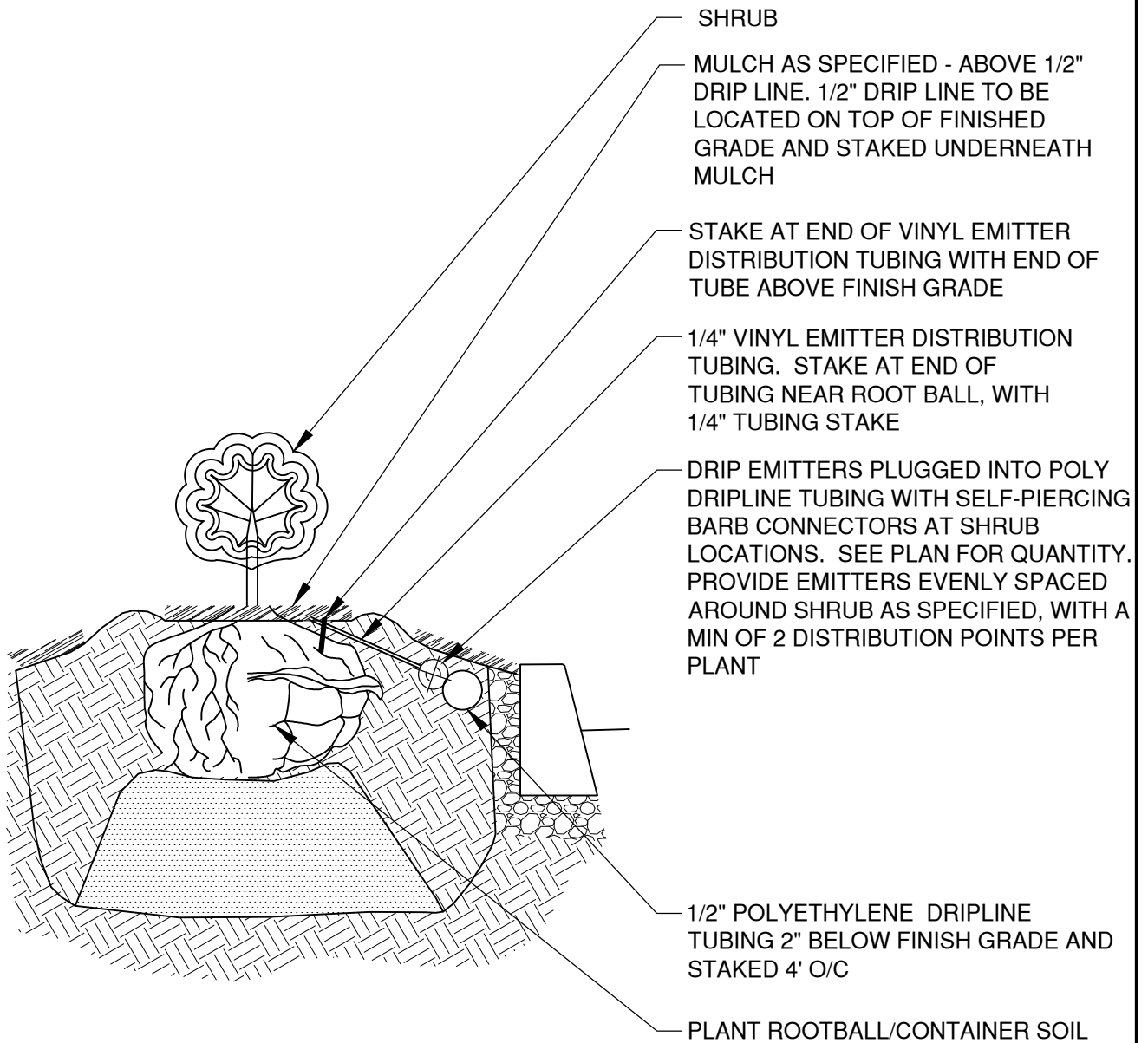
DRIP IRRIGATION MAINLINE LAYOUT

SCALE NTS

DATE 12/1/17


APPR

STD DWG L-14

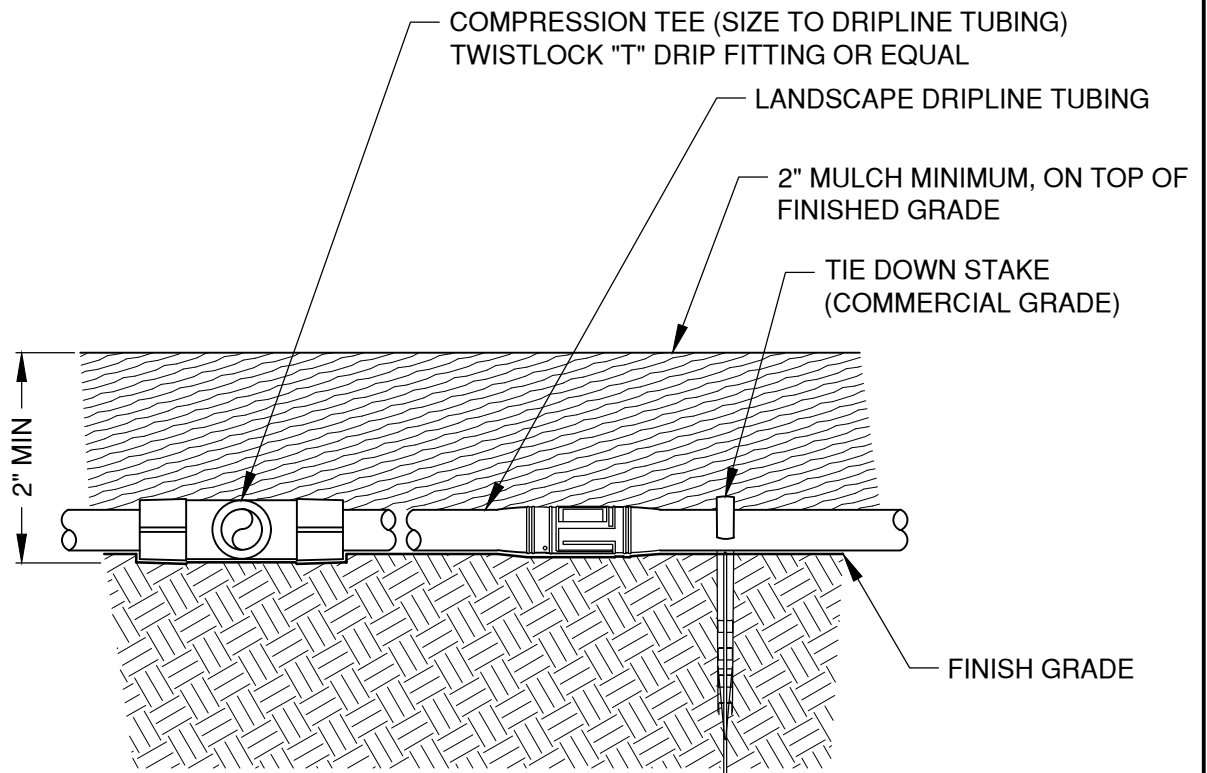


NOTES:

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


DRAWN AJD		CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV LNDSCP			DATE 01/31/2022
REV		POINT SOURCE DRIP EMITTER	APPR
DATE			STD DWG L-15

CITY OF BEND

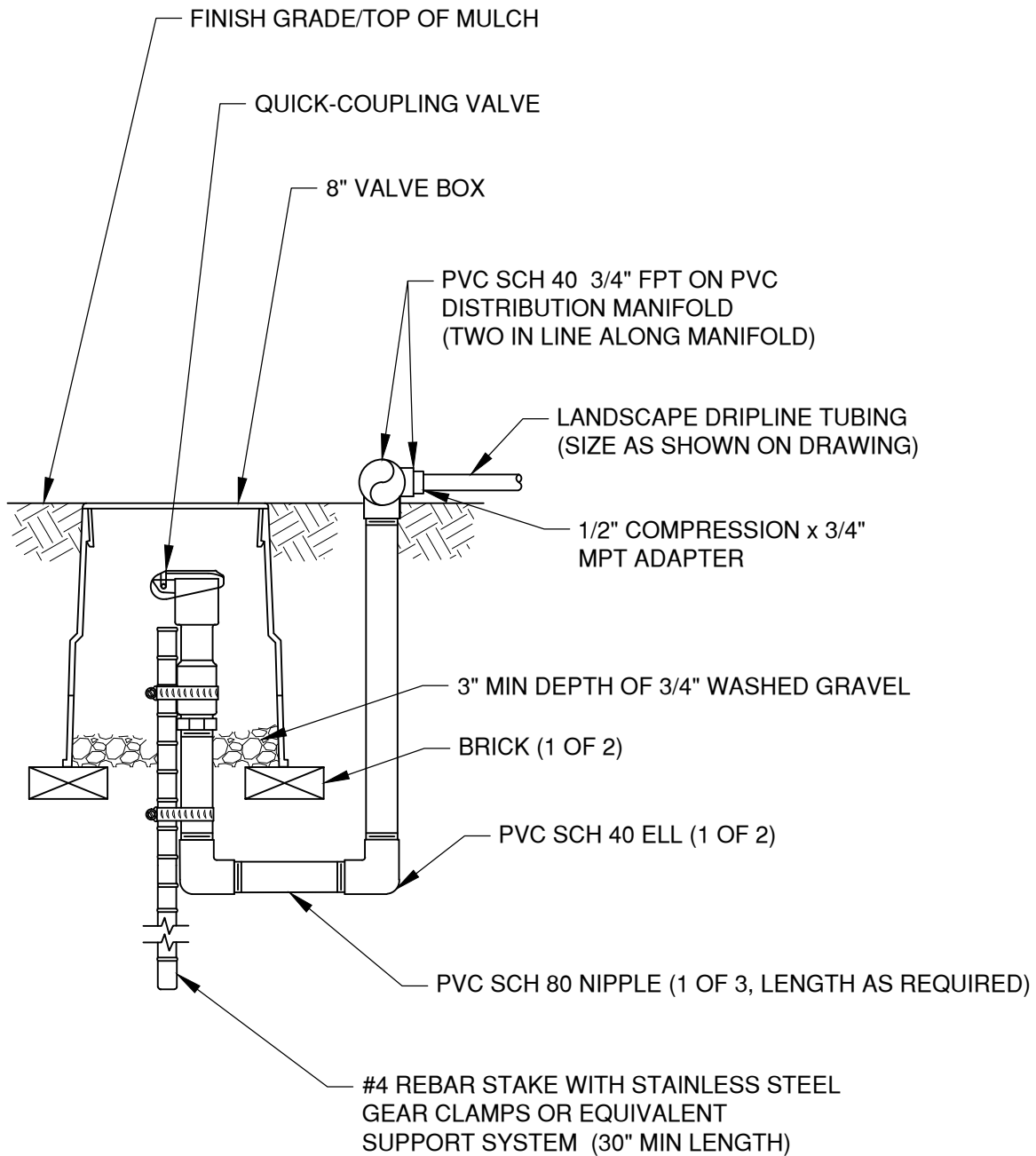


NOTES:

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 AJD		<p>CITY OF BEND</p> <p>STANDARD DRAWING</p> <p>710 NW WALL ST., BEND, OREGON 97701</p>	SCALE NTS
DIV LNDSCP			DATE 01/31/2022
REV		<p>DRIPLINE 2" BELOW GRADE POTABLE SYSTEM</p>	APPR
DATE			STD DWG L-16

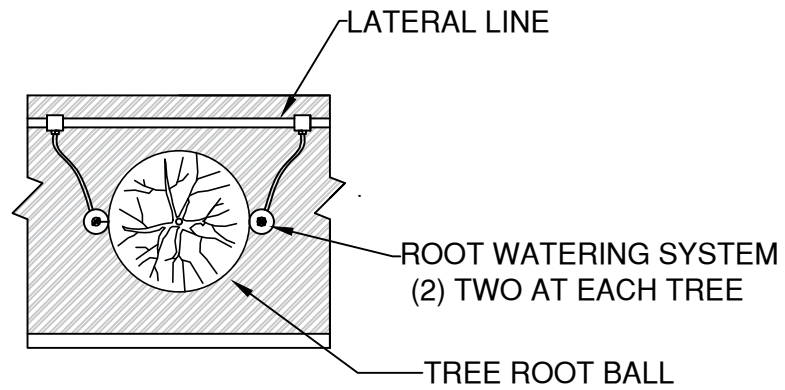
CITY OF BEND



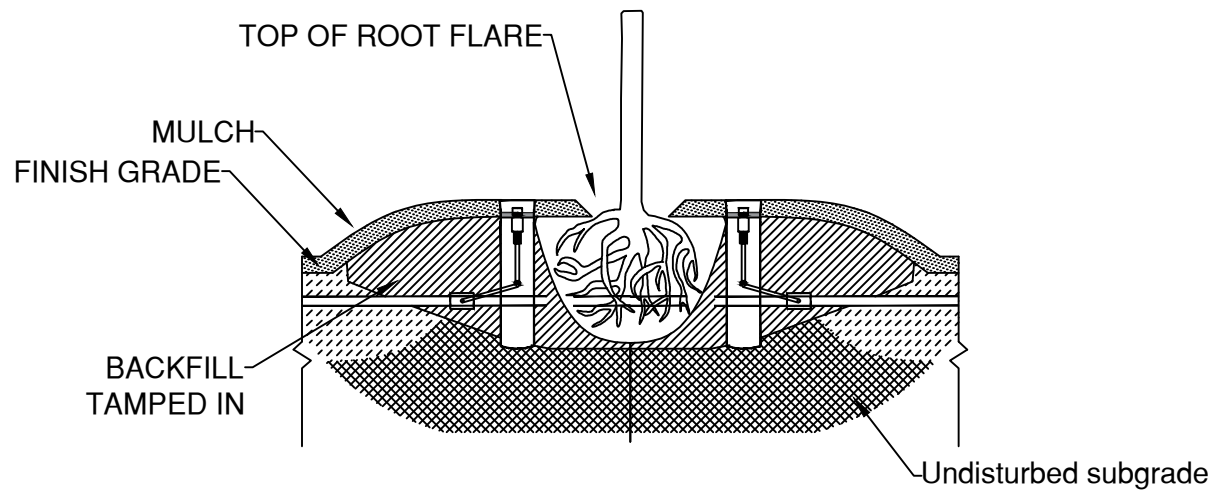
NOTES:

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

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



PLAN



SECTION

NOTES:

1. POSITION UNITS SPACE AROUND ROOT BALL OF TREE
2. INSTALL UNITS SO TOP PF RWS (RAIN BIRD RWS-BCG) IS EVEN WITH GROUND SURFACE.
LIMIT RWS TO NO DEEPER THAN BOTTOM OF ROOT BALL

DRAWN	AJD
DIV	LNDSCP
REV	DATE



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STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

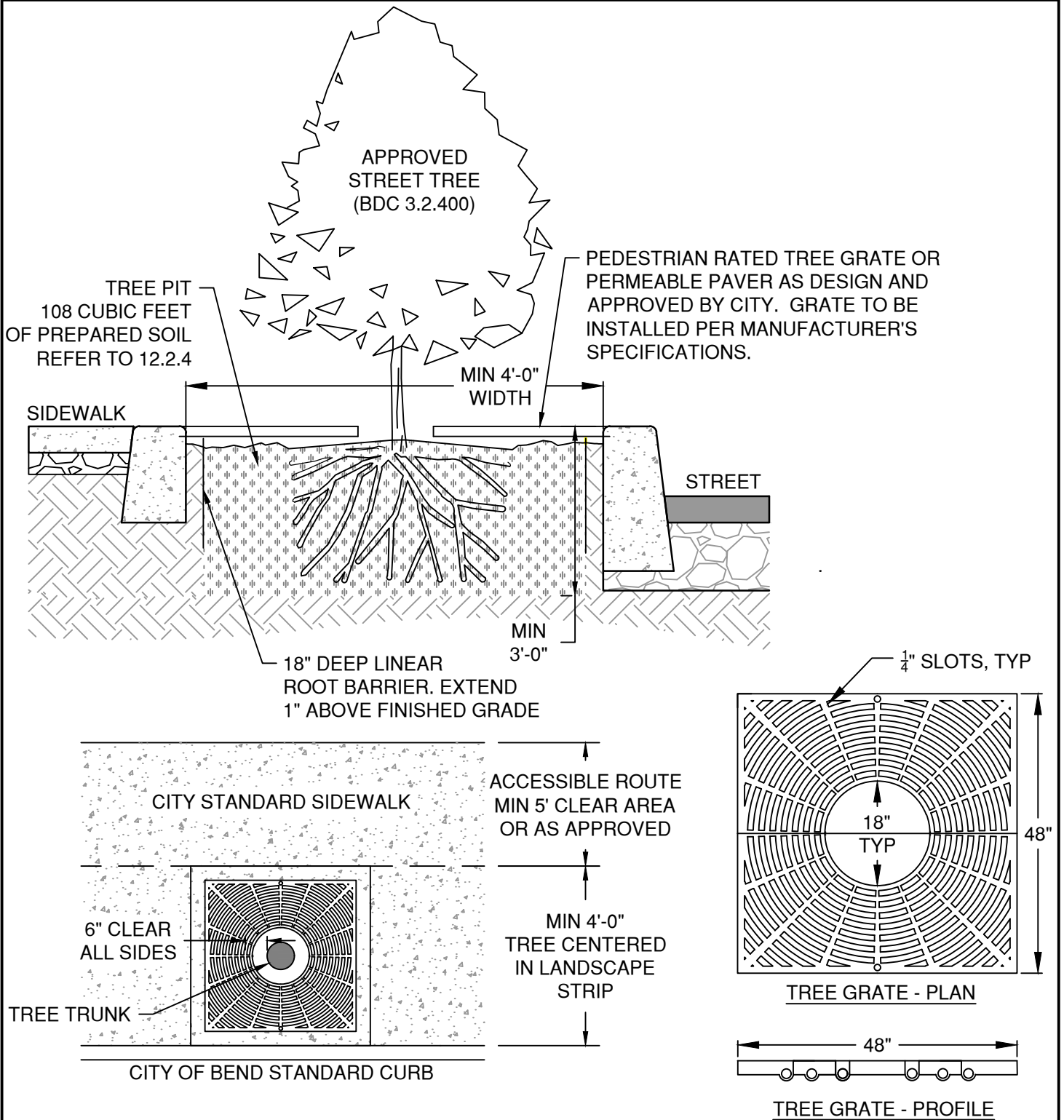
TREE ROOT WATERING SYSTEM DETAIL

SCALE NTS

DATE 01/31/2022


APPR

STD DWG L-18



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-18.
3. TREE GRATE SHALL BE EJ 8954 PLAZA SET, OR APPROVED EQUAL.

DRAWN A.JD	 CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV LNDSCP			DATE 01/31/2022
REV DATE			APPR
		TREE WELL DETAIL	STD DWG L-19