

# 2024 OREM CONSTRUCTION STANDARD DRAWINGS

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## Fiber Optic

- FO-1 - Fiber Junction Box

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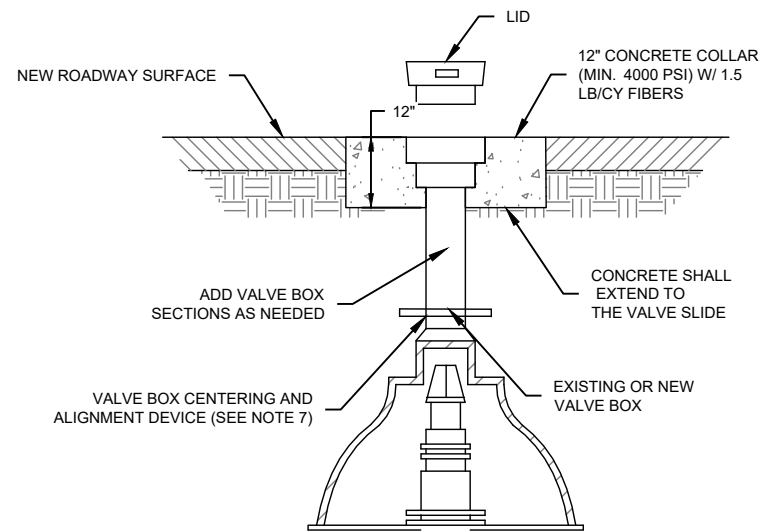
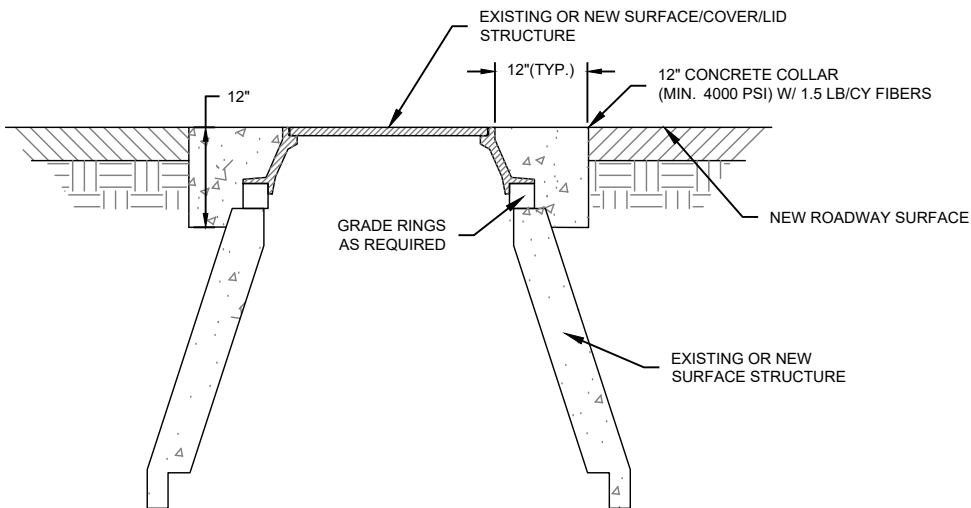
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CITY OF OREM

CONSTRUCTION STANDARD  
DRAWINGS





**NOTES:**

1. CONCRETE COLLARS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 33 05 14 OF THE SPECIFICATIONS.
2. SURFACE/COVERS/LIDS STRUCTURES SHALL BE BURIED NO MORE THAN 10 CONTINUOUS CALENDAR DAYS.
3. KEEP LID 1/4" LOW WHEN LEVELING HARDWARE DURING COLLAR INSTALLATION.
4. 2 CONCRETE RISERS ARE ALLOWED (MAX. 12" OF CONCRETE) AND MAX. 3" OF METAL GRADE RINGS ALLOWED.
5. REVERSIBLE HARDWARE IS NOT ALLOWED.
6. IF CONCRETE COLLAR DEPTH IS LESS THAN 10" USE ASPHALT COLLARS. ASPHALT COLLARS WILL ONLY BE ALLOWED WITH PRIOR APPROVAL FROM THE PROJECT MANAGER (MIN. 12" WIDE AND 6" THICK).
7. IF WATER VALVE IS INSTALLED AS PART OF NEW CONSTRUCTION INSTALL VALVE BOX ALIGNMENT RING. IF EXCAVATION ON EXISTING VALVE EXTENDS DOWN TO TOP OF BOX IT IS ALSO REQUIRED.

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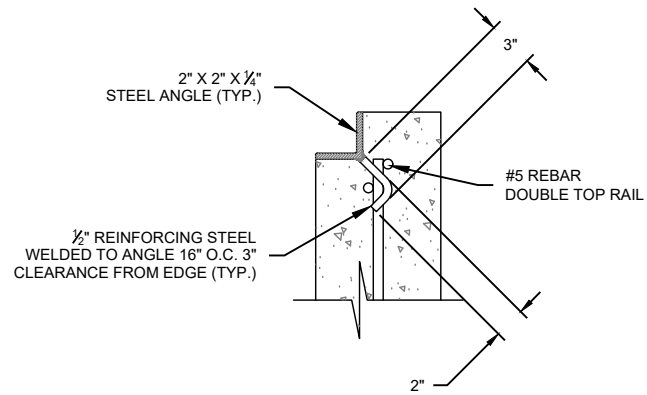
CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

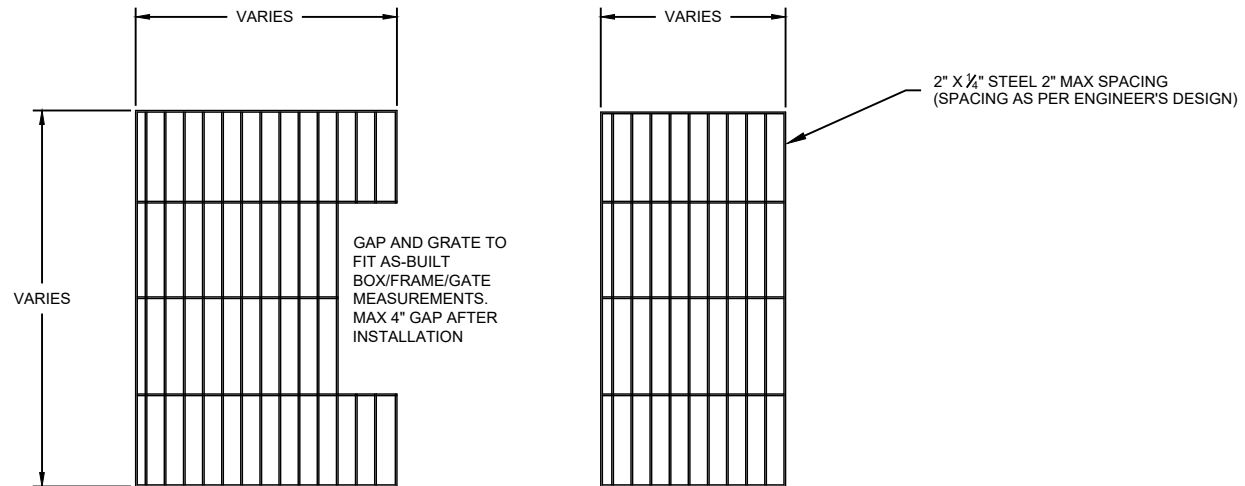
ADJUST STRUCTURES TO GRADE

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M-1

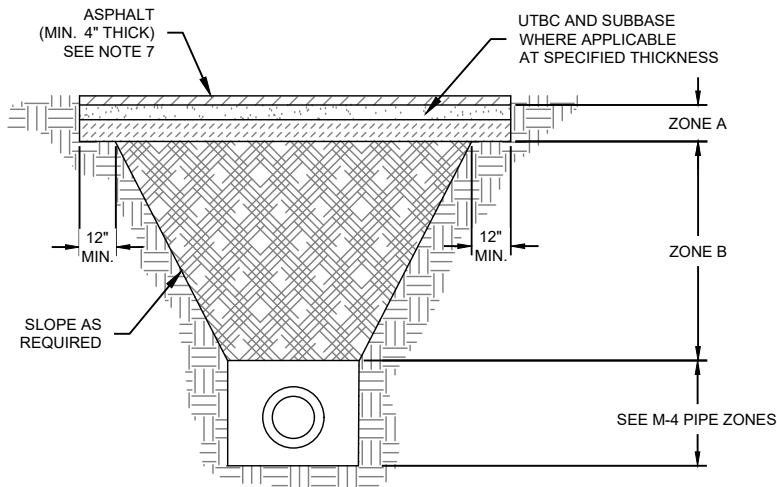


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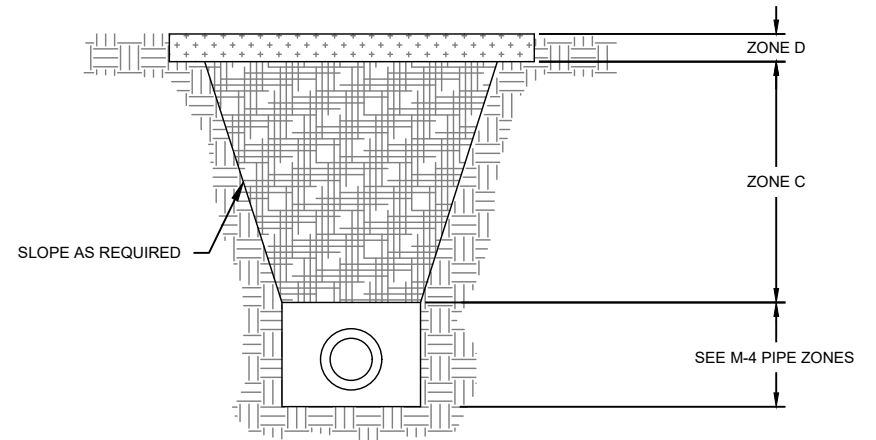


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BACKFILL IN ROADWAYS OR PARKING AREAS



BACKFILL FOR OUTSIDE OF ROADWAYS OR PARKING AREAS

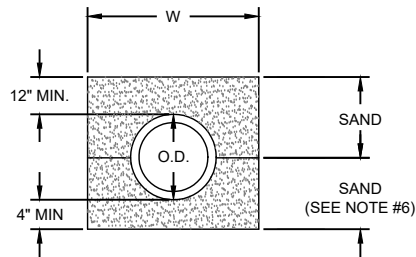
ZONE		BACK FILL MATERIAL				
		TYPE	GRADATION	COMPACTION	LIFT THICKNESS	TEST
A	ROADWAY	UTBC/ SUBBASE	-3/4"(UTBC) -3" (SUBBASE)	95%	MAX 12"	AASHTO T-180
B	LOAD	BACKFILL	-6"	95%	MAX 12"	AASHTO T-180
C	NON-LOAD	REUSE SPOILS	-6"	90%	NOT SPECIFIED	
D	NON-LOAD	TOP SOIL	-6"	90%	NOT SPECIFIED	

NOTES:

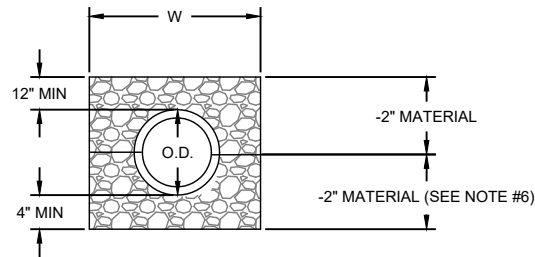
- CUT ASPHALT T-PATCH TO WIDTH OF TRENCH, CONSTRUCT PIPELINE & RESTORE SUB-SURFACE. THEN CUT ASPHALT 12" WIDER THAN THE TRENCH ON EACH SIDE. REMOVE ASPHALT & FINISH RESTORATION. IF TRENCH WALLS COLLAPSE OR WIDEN CUT 12" FROM THAT NEW FINAL WIDTH.
- LONGITUDINAL EDGE OF A ROADWAY PATCH SHALL BE CUT TO THE NEAREST SEAM OR ROAD STRIPING (AND/OR OUT OF THE WHEEL-PATH OF VEHICLES).
- NEW TRENCHES WITHIN 10 FT OF ONE ANOTHER SHALL BE COMBINED INTO A SINGLE PATCH.
- PATCHES EXTENDING MORE THAN 3/4 OF A ROADWAYS WIDTH SHALL BE EXTENDED TO THE FULL WIDTH OF THE ROAD (GUTTER TO GUTTER). WHEN TRENCHING IS WITHIN 24" OF A CURB AND GUTTER THE REMOVAL OF THE SURFACE LAYERS MUST BE EXTENDED ALL THE WAY TO THE LIP OF GUTTER.
- PLACE ASPHALT CONCRETE IN LIFTS NO GREATER THAN 3", OR LESS THAN 2".
- T-PATCH REQUIRED FOR ALL FINAL ASPHALT PAVEMENT RESTORATION.
- ASPHALT THICKNESS WILL MATCH THE EXISTING ASPHALT THICKNESS PLUS 1", WITH A MINIMUM OF 4". IF EXISTING ASPHALT THICKNESS IS 6" OR GREATER, THEN THE ASPHALT PATCH WILL MATCH THE EXISTING THICKNESS.
- LIMIT LENGTH OF OPEN TRENCHES TO 200 LINEAL FEET DAY OR NIGHT.

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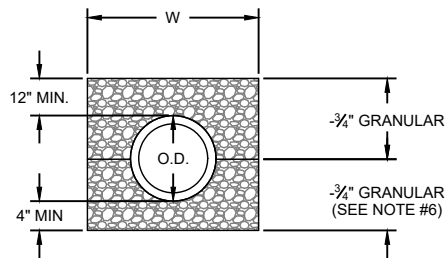




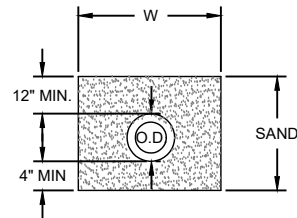
**DETAIL #1**  
DUCTILE IRON WRAPPED STEEL, PVC OR HDPE  
(WATERLINE)



**DETAIL #2**  
CONCRETE PIPE (STORM  
DRAIN)



**DETAIL #3**  
DELICATE PIPE PVC, PLASTIC  
OR HDPE  
(STORM DRAIN AND SEWER)



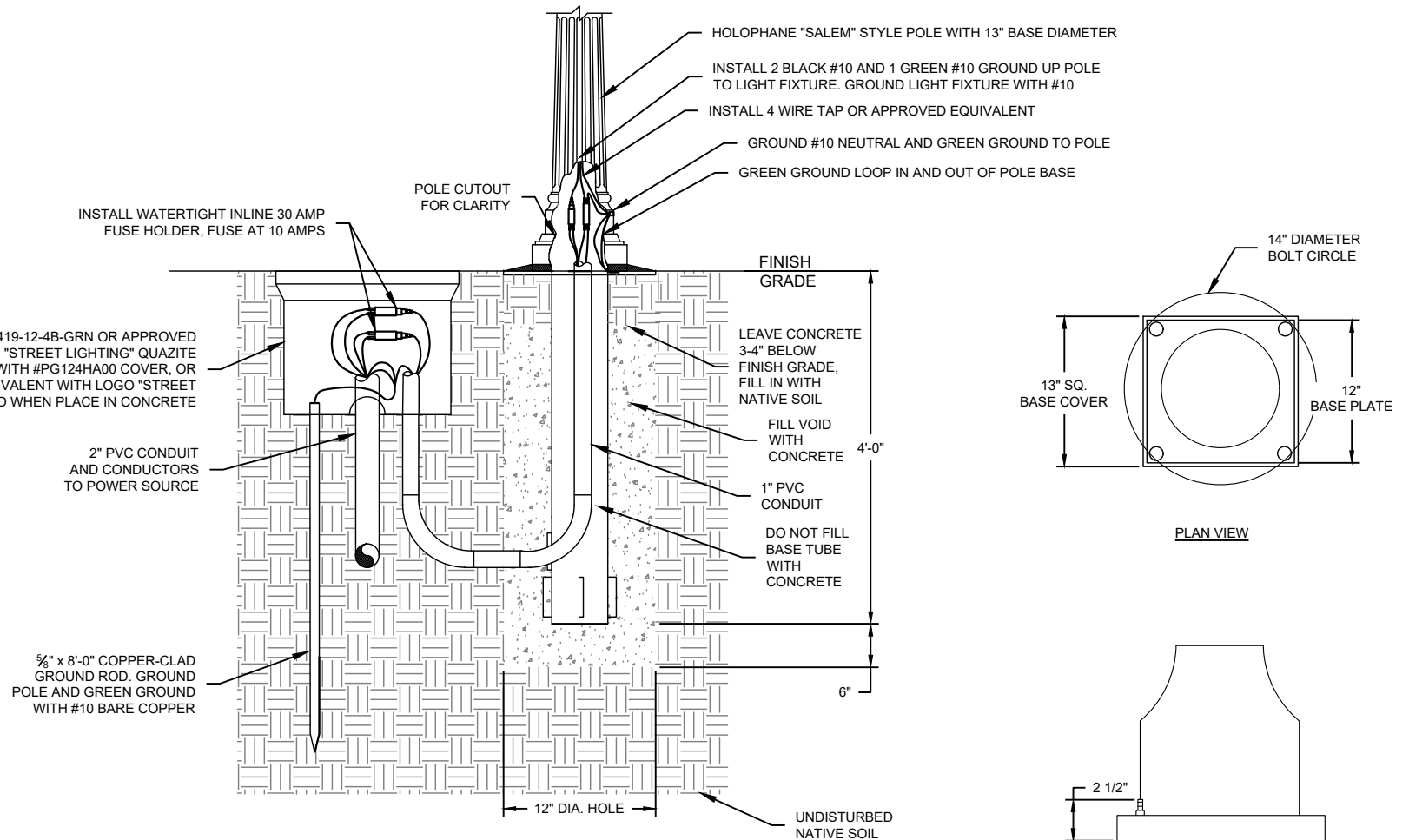
**DETAIL #4**  
STEEL PIPE OR PVC LINES LESS  
THAN 3" DIA.

**NOTES:**

1. ALL WATERLINE PIPE BEDDING SHALL BE SAND, MIN. 12" ABOVE TOP OF PIPE.
2. SAND IS ACCEPTABLE BEDDING FOR ALL FIBER OPTIC OR COMMUNICATIONS CONDUITS.
3. FOR CONCRETE PIPE "W" SHALL NOT EXCEED 24" GREATER THAN THE DIAMETER OF THE PIPE, "W" MUST ALLOW ENOUGH SPACE FOR COMPACTION EQUIPMENT.
4. DETAIL #2 CONSISTS OF TYPE III BEDDING FOR CONCRETE PIPE.
5. SEE TRENCH DETAILS FOR INFORMATION ABOUT BACKFILL.
6. PIPE BEDDING TO BE COMPACTED BY VIBRATING OR CONSOLIDATING TO A MIN. DENSITY OF 90% OF STANDARD PROCTOR MAX DENSITY (AASHTO-99). PIPE BEDDING TO MEET PIPE MANUFACTURER'S INSTALLATION SPECIFICATIONS. THE MORE RESTRICTIVE STANDARD TO BE APPLIED.
7. LIFTS SHALL NOT EXCEED 12" IN THICKNESS.
8. PLASTIC POLYETHYLENE, CORRUGATED STEEL, LARGE DIAMETER WRAPPED STEEL PIPE, VITRIFIED CLAY OR OTHER TYPES NOT LISTED.

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**NOTES:**

1. USE THE IN-LINE FUSE HOLDER APPROVED BY CITY.
2. USE SINGLE CONDUCTOR COPPER CABLE NO. 10 AWG TYPE THWN, THW, OR THHW, FOR ALL CONDUCTORS.
3. FURNISH POWER SOURCE AND INSTALL AS SHOWN.
4. USE NO. 10 AWG SOLID BARE COPPER GROUND WIRE.
5. WHEN LIGHTS ARE CONNECTED IN SERIES INSTALL JUNCTION BOX NEXT TO EACH LIGHT POLE BASE.
6. FIXTURE PART #: WAE3 P30 40K MVOLT MS GL3 GN SBR TGL PR7 AO PCLL L25.
7. POLE PART #: SMA 16 F5J 13S C03 GN.
8. BASE PART #: RICHMAR JHB48 SALEM POLE BASE OR APPROVED EQUIVALENT.

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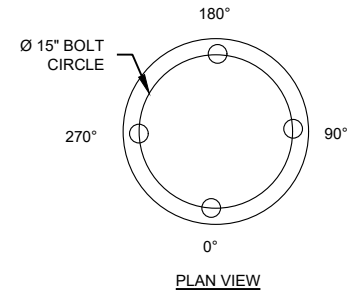
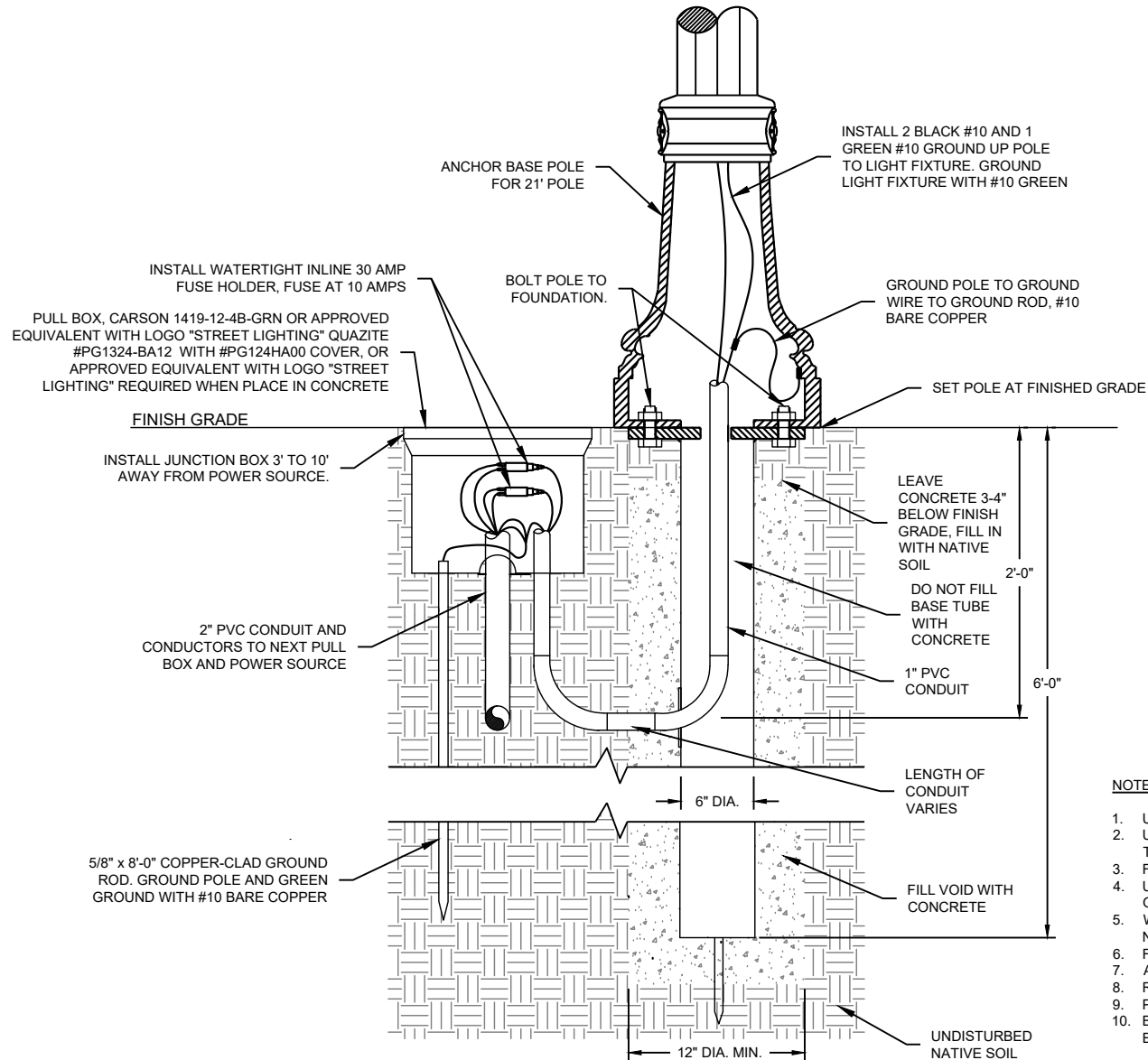
CONSTRUCTION STANDARD DRAWINGS

CITY OF OREM

RESIDENTIAL/TRAIL STREET LIGHTING

REV. 4/2024

M-5



**NOTES:**

1. USE THE IN-LINE FUSE HOLDER APPROVED BY CITY.
2. USE SINGLE CONDUCTOR COPPER CABLE NO. 10 AWG TYPE THWN, THW, OR THHW, FOR ALL CONDUCTORS.
3. FURNISH POWER SOURCE AND INSTALL AS SHOWN.
4. USE NO. 10 AWG SOLID BARE COPPER GROUND WIRE FROM GROUND ROD TO GROUND SPLICE.
5. WHEN LIGHTS ARE CONNECTED IN SERIES INSTALL JUNCTION BOX NEXT TO EACH LIGHT POLE BASE.
6. FIXTURE PART #: MPL3 P40S 40K MVOLT TG3 QSM GN PR7 PLLL L30.
7. ARM ADAPTER PART #: BHDF QSM GN.
8. ROADWAY ARM PART #: OUC 45IN 1A TN GN.
9. POLE PART #: NYS 21 FTB 20D E08 GN.
10. BASE PART #: RICHMAR JHB60 POLE BASE OR APPROVED EQUIVALENT.

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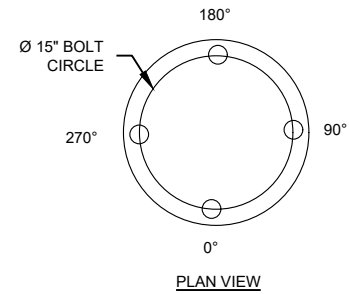
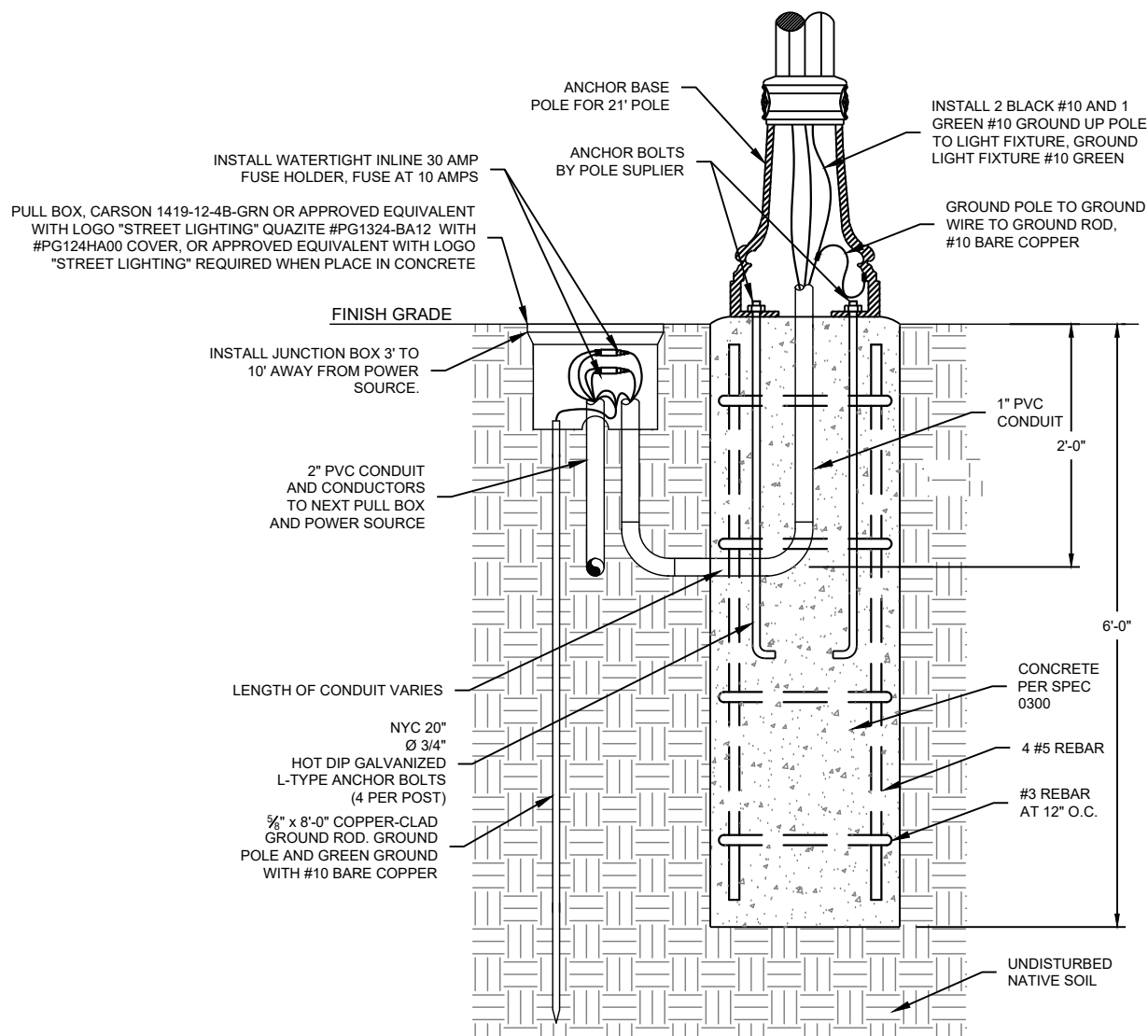
CONSTRUCTION STANDARD DRAWINGS

CITY OF OREM

CORRIDOR STREET LIGHTING

REV. 4/2024

M-6



**NOTES:**

1. USE THE IN-LINE FUSE HOLDER APPROVED BY CITY.
2. USE SINGLE CONDUCTOR COPPER CABLE NO. 10 AWG TYPE THWN, THW, OR THHW, FOR ALL CONDUCTORS.
3. FURNISH POWER SOURCE AND INSTALL AS SHOWN.
4. USE NO. 10 AWG SOLID BARE COPPER GROUND WIRE FROM GROUND ROD TO GROUND SPLICE.
5. WHEN LIGHTS ARE CONNECTED IN SERIES INSTALL JUNCTION BOX NEXT TO EACH LIGHT POLE BASE.
6. FIXTURE PART #: MPL3 P40S 40K MVOLT TG3 QSM GN PR7 PLLL L30.
7. ARM ADAPTER PART #: BHDF QSM GN.
8. ROADWAY ARM PART #: OUC 45IN 1A TN GN.
9. POLE PART #: NYS 21 FTB 20D E08 GN.
10. BASE PART #: RICHMAR JHB60 POLE BASE OR APPROVED EQUIVALENT.
11. INDUSTRIAL FIXTURE BASE THE SAME EXCEPT POLE IS 25 FT STRAIGHT, 5" STEEL AND FUSED AT 10 AMPS.

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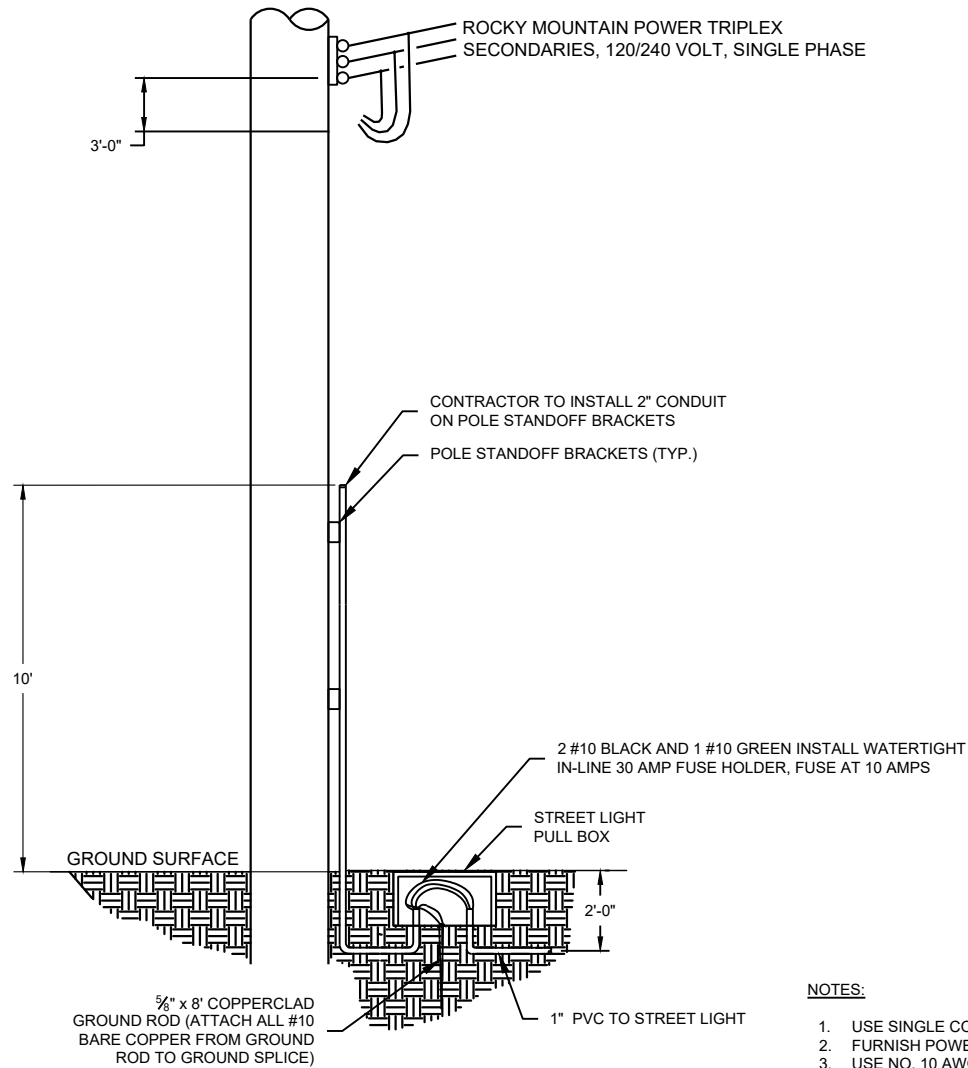
CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

CORRIDOR STREET LIGHTING W/  
CONCRETE BASE

REV. 4/2024  
M-7





NOTES:

1. USE SINGLE CONDUCTOR COPPER CABLE NO. 10 AWG TYPE THWN, THW, OR THHW, FOR ALL CONDUCTOR.
2. FURNISH POWER SOURCE AND INSTALL AS SHOWN.
3. USE NO. 10 AWG SOLID BARE OR STR GREEN COPPER GROUND WIRE.
4. PROVIDE CORROSION PROTECTION ON BURIED METALLIC CONDUIT TO BE 6" ABOVE FINISHED GRADE.
5. MEET LOCAL POWER UTILITY SERVICE REQUIREMENTS.

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CONSTRUCTION STANDARD  
DRAWINGS

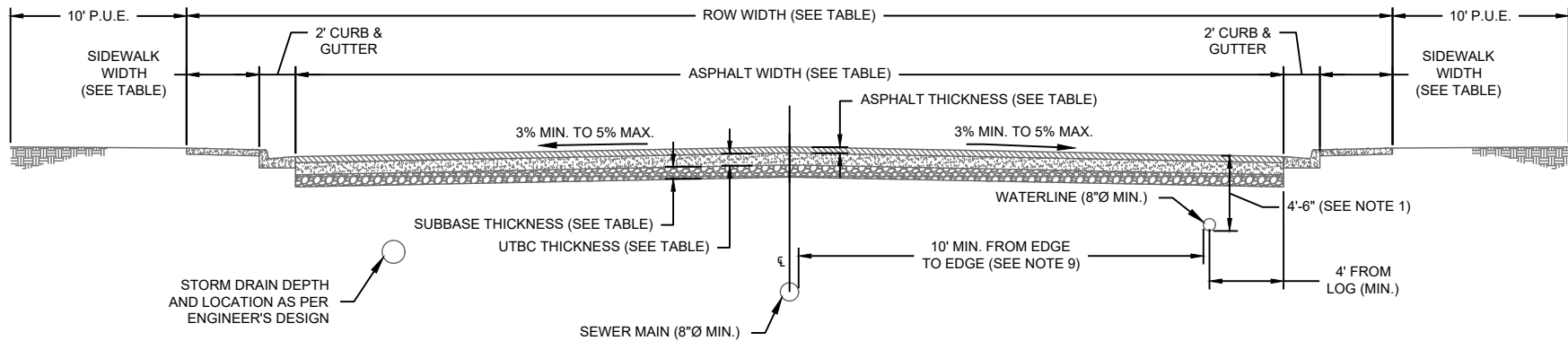
CITY OF OREM

POWER POLE RISER

REV. 4/2024

M-8

STREET TYPE	ASPHALT WIDTH MIN. (FT)	PAVEMENT MIX DESIGN (SEE NOTE 12)	ASPHALT DEPTH MIN. (IN)	UTBC DEPTH MIN. (IN)	SUBBASE DEPTH MIN. (IN)	NO. OF LANES	BIKE LANE/ SHLDR (FT)	ROW WIDTH (FT)	SIDEWALK WIDTH (FT)	PARK STRIP WIDTH (FT)
SUB LOCAL	28	½" PG 58-28	4	8	N/A	2	N/A	42	5	N/A
LOCAL	34	½" PG 58-28	4	8	N/A	2	6	48	5	N/A
COLLECTOR (2) LANES	50	½" PG 58-28 OR ½" PG 64-34	5	8	6	2	6/7	64	5	N/A
COLLECTOR (3) LANES	50	½" PG 58-28 OR ½" PG 64-34	5	8	6	3	7	64	5	N/A
MINOR ARTERIAL	50	½" PG 64-34	6	6	9	3	7	94	10	N/A
MAJOR ARTERIAL	64	½" PG 64-34	DETERMINED BY CITY ENGINEER	DETERMINED BY CITY ENGINEER	DETERMINED BY CITY ENGINEER	5	4	80	6	N/A
PRINCIPAL ARTERIAL	102+	½" PG 64-34	DETERMINED BY CITY ENGINEER	DETERMINED BY CITY ENGINEER	DETERMINED BY CITY ENGINEER	7	8	116+	5/10	N/A



**NOTES:**

- STANDARD TRENCH DEPTH FOR CULINARY WATER LINES IS 4'-6". MIN 3'-0" OF COVER FOR ALL CULINARY PIPING OR SERVICE LINES. NO PIPING SHALL HAVE MORE THAN 5'-6" OF COVER UNLESS APPROVED BY THE CITY ENGINEER.
- INSTALL 12" DOWELS AT 24" O.C. TO TIE CURB AND GUTTER TO SIDEWALK.
- POWER, GAS, CABLE, AND PHONE MUST BE LOCATED IN THE 10' P.U.E.
- MIN. ASPHALT AND UTBC THICKNESS MAY BE INCREASED DUE TO SOIL CONDITIONS AND TRAFFIC IMPACT LOADINGS (BASED ON GEO-TECHNICAL REPORTS).
- PRINCIPAL ARTERIAL CROSS-SECTION INCLUDES A 14' WIDE MEDIAN CENTERED IN ROADWAY.
- PARK STRIP REQUIREMENTS ON EACH SIDE OF ROADWAY ARE REQUIRED. THIS REQUIREMENT MAY BE WAIVED ONLY BY APPROVAL FROM THE PLANNING COMMISSION.
- AT THE TIME OF CONSTRUCTION, THE CITY MAY DETERMINE BASED ON PROFESSIONAL EXPERIENCE AND JUDGEMENT AND AT ITS SOLE DISCRETION, THE NEED FOR THE OWNER/DEVELOPER TO PAY FOR, REMOVE, AND REPLACE ANY EXISTING SUBSTANDARD IMPROVEMENTS SUCH AS CURBS, GUTTERS, SIDEWALKS, DRIVE APPROACHES, DRIVEWAYS, DECORATIVE CONCRETE, ADA WHEELCHAIR RAMPS, ETC., OR ANY UNUSED DRIVE APPROACHES.
- SIDEWALK WIDTHS MAY BE INCREASED ON COLLECTOR AND ARTERIAL STREETS AS DIRECTED BY THE CITY ENGINEER.
- FOR SUB LOCAL STREETS ADJUST SEPARATION DISTANCE BETWEEN SEWER AND WATERLINE AS NEEDED AND WITH APPROVAL OF THE CITY ENGINEER.
- PRINCIPAL ARTERIALS IN UDOT ROW REQUIRE 2.5' CURB AND GUTTER.
- SIDEWALK THICKNESS IS 4" WITH MIN 4" UTBC.
- PAVEMENT MIX DESIGN REQUIREMENTS MAY BE CHANGED FOR SPECIFIC STREETS AS DIRECTED BY CITY ENGINEER.

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CONSTRUCTION STANDARD DRAWINGS

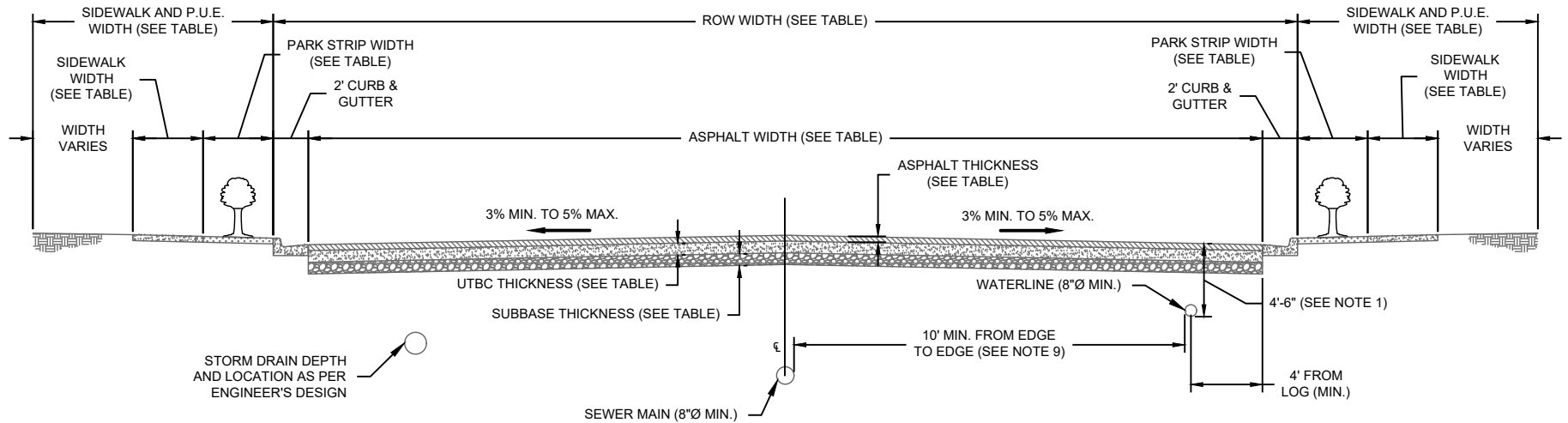
CITY OF OREM

TYPICAL STREET CROSS-SECTION W/OUT PARK STRIPS

REV. 4/2024

M-9

STREET TYPE	ASPHALT WIDTH MIN. (FT)	PAVEMENT MIX DESIGN (SEE NOTE 12)	ASPHALT DEPTH MIN. (IN)	UTBC DEPTH MIN. (IN)	SUBBASE DEPTH MIN. (IN)	NO. OF LANES	BIKE LANE/ SHLDR (FT)	ROW WIDTH (FT)	SIDEWALK WIDTH (FT)	PARK STRIP WIDTH (FT)	SW & P.U.E. WIDTH (FT)
SUB LOCAL	28	½" PG 58-28	4	8	N/A	2	N/A	32	5	8	20
LOCAL	34	½" PG 58-28	4	8	N/A	2	6	38	5	8	20
COLLECTOR (2) LANES	50	½" PG 58-28 OR ½" PG 64-34	5	8	6	2	6/7	54	5	8	20
COLLECTOR (3) LANES	50	½" PG 58-28 OR ½" PG 64-34	5	8	6	3	7	54	5	8	20
MINOR ARTERIAL	50	½" PG 64-34	6	6	9	3	7	74	10	10	30
MAJOR ARTERIAL	64	½" PG 64-34	DETERMINED BY CITY ENGINEER	DETERMINED BY CITY ENGINEER	DETERMINED BY CITY ENGINEER	5	4	68	6	10	25
PRINCIPAL ARTERIAL	102+	½" PG 64-34	DETERMINED BY CITY ENGINEER	DETERMINED BY CITY ENGINEER	DETERMINED BY CITY ENGINEER	7	8	107+	5/10	10	25/30



**NOTES:**

- STANDARD TRENCH DEPTH FOR CULINARY WATER LINES IS 4'-6". MIN 3'-0" OF COVER FOR ALL CULINARY PIPING OR SERVICE LINES. NO PIPING SHALL HAVE MORE THAN 5'-6" OF COVER UNLESS APPROVED BY THE CITY ENGINEER.
- INSTALL 12" DOWELS AT 24" O.C. TO TIE CURB AND GUTTER TO SIDEWALK.
- POWER, GAS, CABLE, AND PHONE MUST BE LOCATED IN THE 10' P.U.E.
- MIN. ASPHALT AND UTBC THICKNESS MAY BE INCREASED DUE TO SOIL CONDITIONS AND TRAFFIC IMPACT LOADINGS (BASED ON GEO-TECHNICAL REPORTS).
- PRINCIPAL ARTERIAL CROSS-SECTION INCLUDES A 14' WIDE MEDIAN CENTERED IN ROADWAY.
- PARK STRIP REQUIREMENTS ON EACH SIDE OF ROADWAY ARE REQUIRED. THIS REQUIREMENT MAY BE WAIVED ONLY BY APPROVAL FROM THE PLANNING COMMISSION.
- AT THE TIME OF CONSTRUCTION, THE CITY MAY DETERMINE BASED ON PROFESSIONAL EXPERIENCE AND JUDGEMENT AND AT ITS SOLE DISCRETION, THE NEED FOR THE OWNER/DEVELOPER TO PAY FOR, REMOVE, AND REPLACE ANY EXISTING SUBSTANDARD IMPROVEMENTS SUCH AS CURBS, GUTTERS, SIDEWALKS, DRIVE APPROACHES, DRIVEWAYS, DECORATIVE CONCRETE, ADA WHEELCHAIR RAMPS, ETC., OR ANY UNUSED DRIVE APPROACHES.
- SIDEWALK WIDTHS MAY BE INCREASED ON COLLECTOR AND ARTERIAL STREETS AS DIRECTED BY THE CITY ENGINEER.
- FOR SUB LOCAL STREETS ADJUST SEPARATION DISTANCE BETWEEN SEWER AND WATERLINE AS NEEDED AND WITH APPROVAL OF THE CITY ENGINEER.
- PRINCIPAL ARTERIALS IN UDOT ROW REQUIRE 2.5' CURB AND GUTTER.
- SIDEWALK THICKNESS IS 4" WITH MIN 4" UTBC.
- PAVEMENT MIX DESIGN REQUIREMENTS MAY BE CHANGED FOR SPECIFIC STREETS AS DIRECTED BY CITY ENGINEER.

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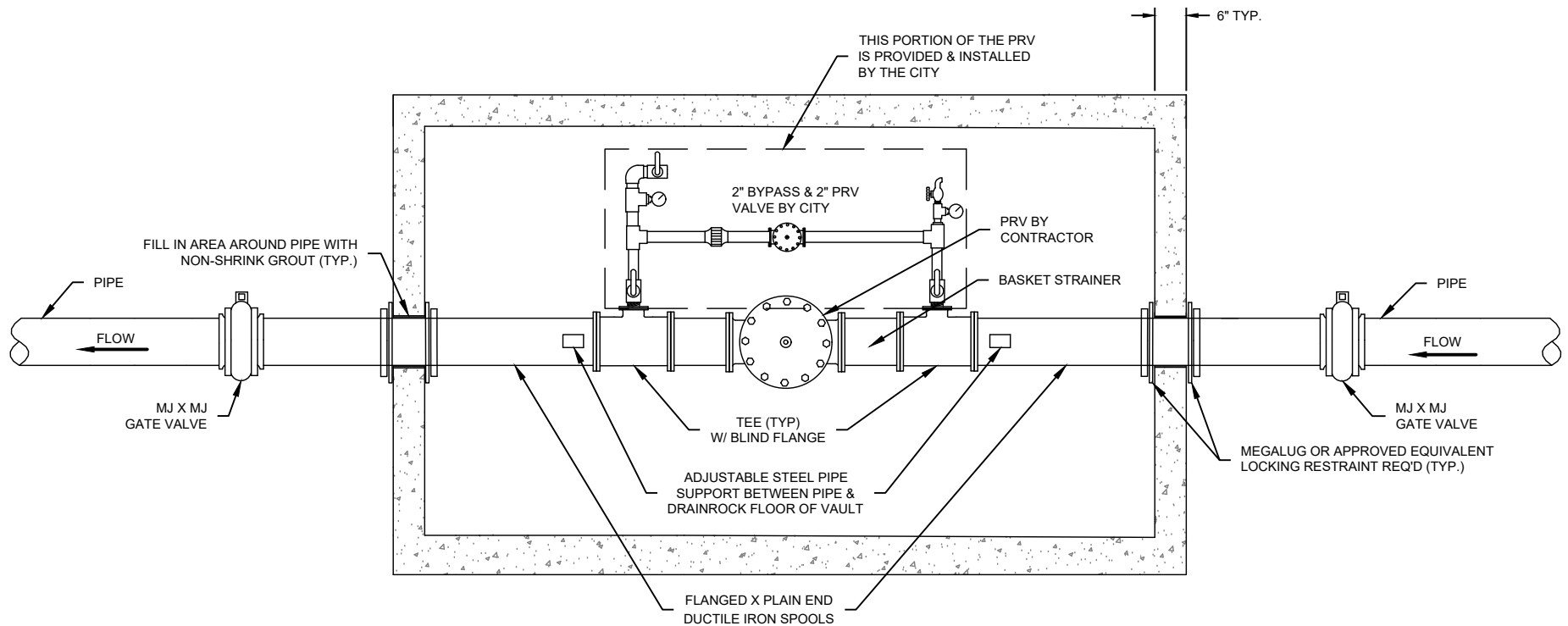
CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

TYPICAL STREET CROSS-SECTION  
W/ PARK STRIPS

REV. 4/2024

M-10



**NOTES:**

1. PRV PLANS ARE FOR REFERENCE ONLY. EACH PRV DESIGN IS SITE SPECIFIC AND MUST BE REVIEWED AND APPROVED BY WATER SECTION PERSONNEL.
2. PRESSURE REDUCING VALVES SHALL BE CLA-VAL MODEL #90-01.
3. CONTACT CITY WATER SECTION TO DETERMINE VAULT SIZE.
4. 20" MINIMUM CLEARANCE REQUIRED AROUND PRESSURE-REDUCING VALVES.
5. IF DUCTILE IRON PIPE IS INSTALLED IN A SOIL SENSITIVE AREA AS SHOWN IN DETAIL W-16, THEN DUCTILE IRON PIPE OUTSIDE THE VAULT MUST BE POLY WRAPPED.
6. TAPS IN VAULT TO BE INSTALLED BY WATER DIVISION PERSONNEL AT TIME OF PRV INSTALLATION.

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CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

SINGLE PRV PLAN VIEW

REV. 4/2024

W-1

MANHOLE RING & COVER (SEE NOTE 2 AND W-22);  
ACCESS MANHOLE SHALL BE PLACED ABOVE LADDER

MANHOLE RING & COVER (SEE NOTE 2 AND W-22);  
OPENING IN VAULT LID MUST BE CENTERED  
OVER PRESSURE REGULATOR VALVE.

LID MUST BE TRAFFIC REINFORCED WITH #5  
REBAR EVERY 6" ON CENTER, LID MUST ALSO  
HAVE LIFTING RINGS FOR REMOVAL

VAULT WALLS SHALL BE 6" THICK AND TRAFFIC  
REINFORCED WITH #5 REBAR EVERY 6" ON CENTER

CORE OR KNOCKOUT BOX NEEDS TO BE A  
MAXIMUM OF 2 INCHES DIAMETER LARGER  
THAN WATERLINE O.D.

HEIGHT VARIES W/  
ELEVATION OF PIPE

HEIGHT VARIES W/  
ELEVATION OF PIPE

OPENING FOR WATERLINE WITH FOAM  
KNOCKOUT. FILL IN OPENING BELOW  
WATERLINE WITH NON-SHRINK GROUT

KNOCKOUT BOX OPTION

RUST RESISTANT ACCESS  
STEPS, POSITIONED  
UNDER ACCESS MANHOLE

6' 6" MIN.

10'

8'

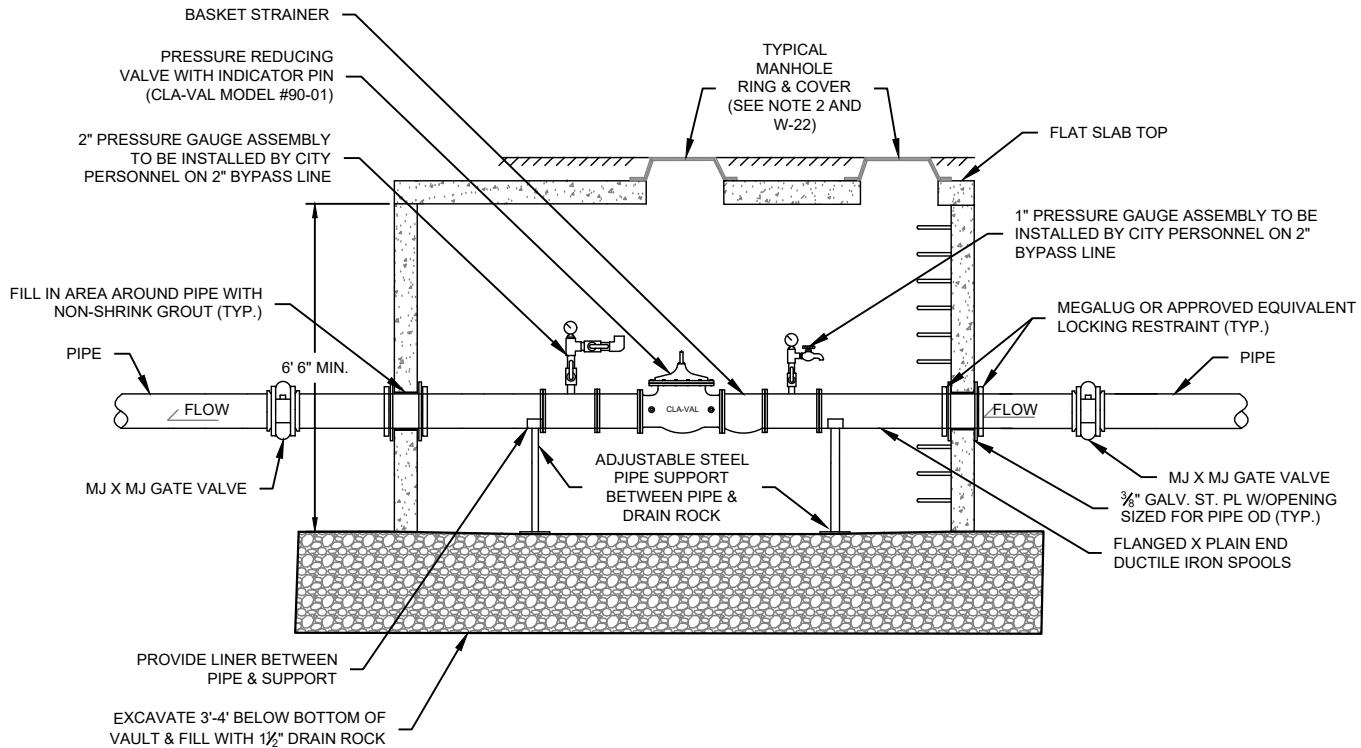
9"

**NOTES:**

1. PRV PLANS ARE FOR REFERENCE ONLY. EACH PRV DESIGN IS SITE SPECIFIC AND MUST BE REVIEWED AND APPROVED BY WATER SECTION PERSONNEL.
2. 10" AND SMALLER PRV VAULT LIDS WILL REQUIRE 24" TYPICAL MANHOLE RING AND COVER. D&L SUPPLY TYPE A-1180-R3 AND A-1180-15 OR APPROVED EQUAL. 12" AND LARGER PRV VAULT LIDS WILL REQUIRE 30" TYPICAL MANHOLE RING AND COVER. D&L SUPPLY TYPE A-1366 AND A-1363 OR APPROVED EQUAL.
3. ALL REINFORCING STEEL SHALL HAVE 2" CONCRETE COVER, MIN 4,000 PSI CONCRETE SHALL BE USED.

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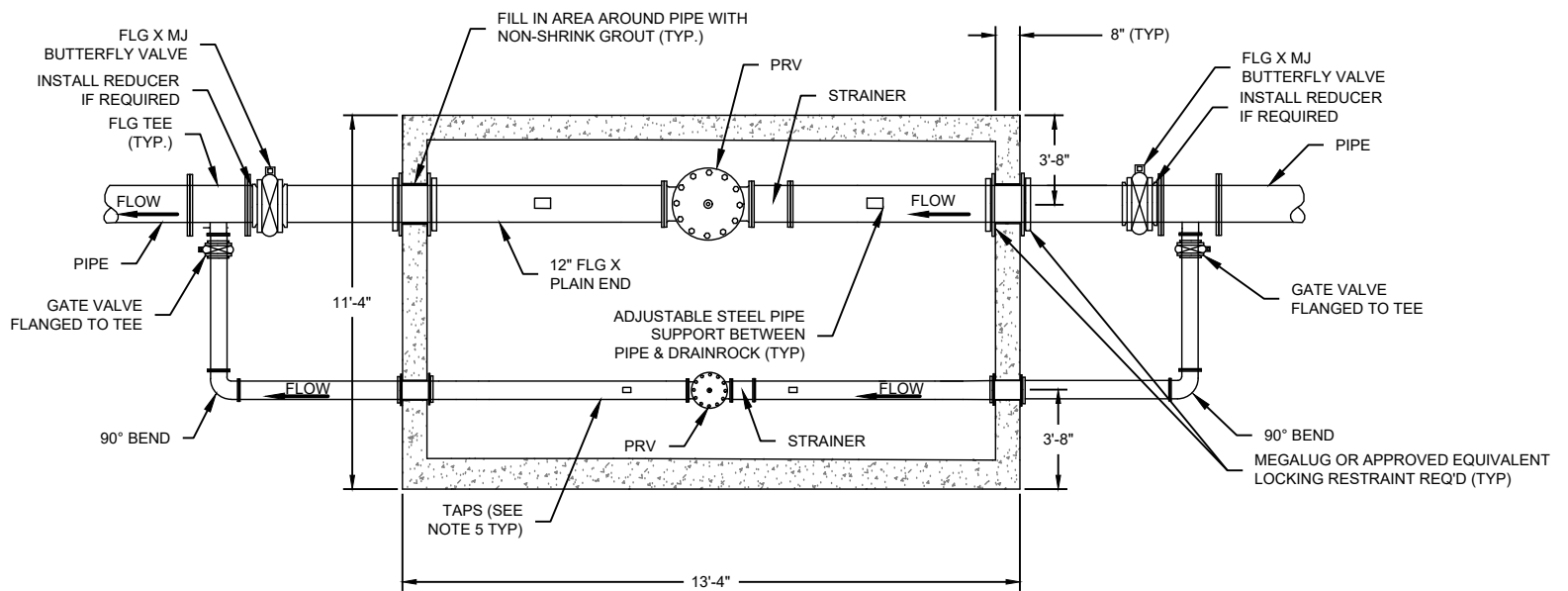


**NOTES:**

1. PRV PLANS ARE FOR REFERENCE ONLY. EACH PRV DESIGN IS SITE SPECIFIC AND MUST BE REVIEWED AND APPROVED BY WATER SECTION PERSONNEL.
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3. BYPASS PRESSURE REGULATOR WILL BE INSTALLED BY CITY PERSONNEL.
4. IF DUCTILE IRON PIPE IS INSTALLED IN A SOIL SENSITIVE AREA AS SHOWN IN DETAIL W-16 THEN DUCTILE IRON PIPE OUTSIDE THE VAULT MUST BE POLY WRAPPED.

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**NOTES:**

1. PRV PLANS ARE FOR REFERENCE ONLY. EACH PRV DESIGN IS SITE SPECIFIC AND MUST BE REVIEWED AND APPROVED BY WATER SECTION PERSONNEL.
2. PRESSURE REDUCING VALVES SHALL BE CLA-VAL MODEL #90-01.
3. 20" MINIMUM CLEARANCE REQUIRED AROUND PRESSURE-REDUCING VALVES.
4. IF DUCTILE IRON PIPE IS INSTALLED IN A SOIL SENSITIVE AREA AS SHOWN IN DETAIL W-16, THEN DUCTILE IRON PIPE OUTSIDE THE VAULT MUST BE POLY WRAPPED.
5. TAPS TO BE INSTALLED BY WATER DIVISION PERSONNEL AT TIME OF PRV INSTALLATION.

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CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

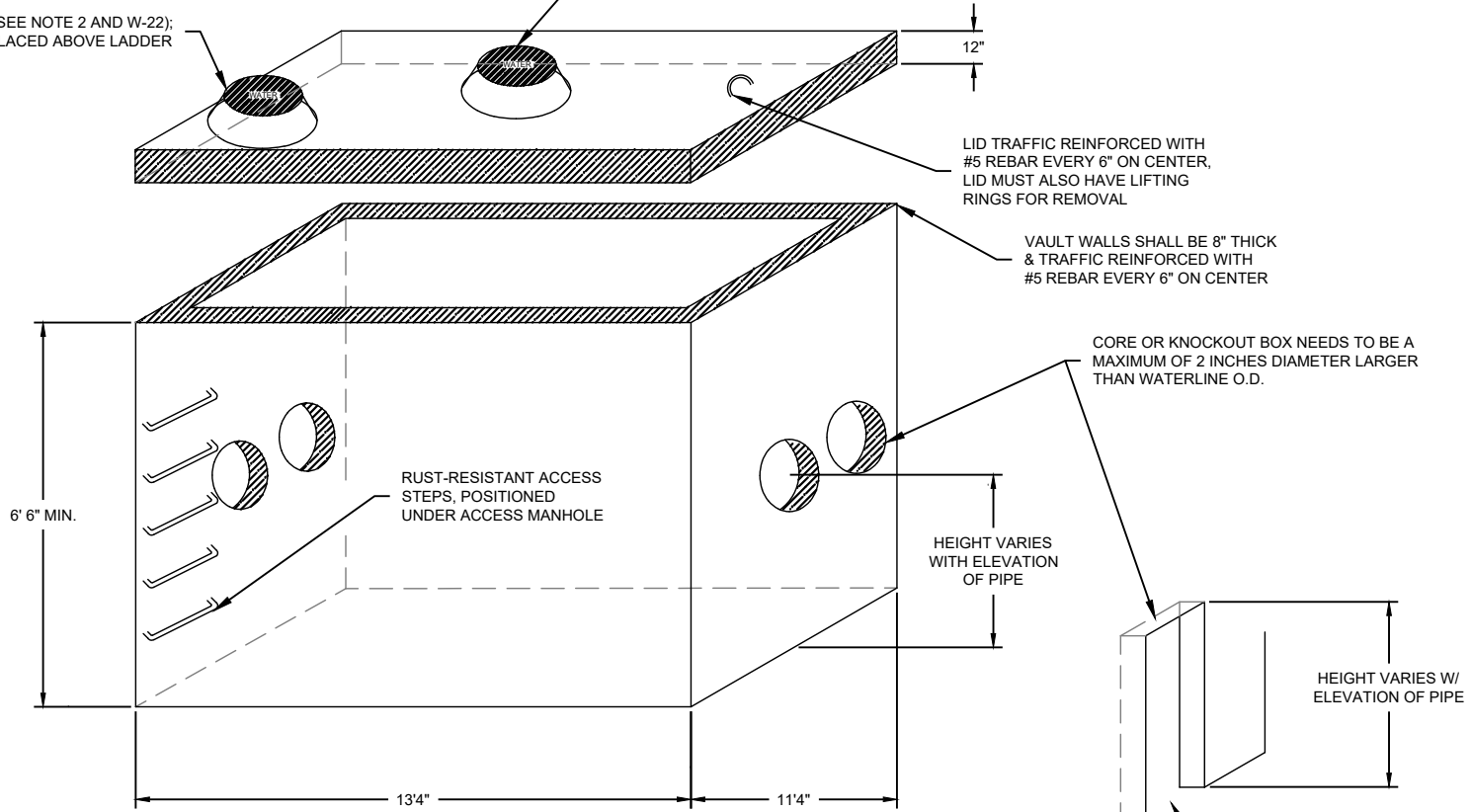
PRV WITH BYPASS PLAN VIEW

REV. 4/2024

W-4

MANHOLE RING & COVER (SEE NOTE 2 AND W-22);  
ACCESS MANHOLE SHALL BE PLACED ABOVE LADDER

MANHOLE RING & COVER (SEE NOTE 2 AND W-22);  
OPENING IN VAULT LID MUST BE CENTERED  
OVER PRESSURE REGULATOR VALVE.



CORE OR KNOCKOUT BOX NEEDS TO BE A  
MAXIMUM OF 2 INCHES DIAMETER LARGER  
THAN WATERLINE O.D.

LID TRAFFIC REINFORCED WITH  
#5 REBAR EVERY 6" ON CENTER,  
LID MUST ALSO HAVE LIFTING  
RINGS FOR REMOVAL

VAULT WALLS SHALL BE 8" THICK  
& TRAFFIC REINFORCED WITH  
#5 REBAR EVERY 6" ON CENTER

RUST-RESISTANT ACCESS  
STEPS, POSITIONED  
UNDER ACCESS MANHOLE

6' 6" MIN.

HEIGHT VARIES  
WITH ELEVATION  
OF PIPE

HEIGHT VARIES W/  
ELEVATION OF PIPE

OPENING FOR WATERLINE WITH FOAM  
KNOCKOUT. FILL IN OPENING BELOW  
WATERLINE WITH NON-SHRINK GROUT

KNOCKOUT BOX OPTION

**NOTES:**

1. PRV PLANS ARE FOR REFERENCE ONLY. EACH PRV DESIGN IS SITE SPECIFIC AND MUST BE REVIEWED AND APPROVED BY WATER SECTION PERSONNEL.
2. 10" AND SMALLER PRV VAULT LIDS WILL REQUIRE 24" TYPICAL MANHOLE RING AND COVER. D&L SUPPLY TYPE A-1180-R3 AND A-1180-15 OR APPROVED EQUAL. 12" AND LARGER PRV VAULT LIDS WILL REQUIRE 30" TYPICAL MANHOLE RING AND COVER. D&L SUPPLY TYPE A-1366 AND A-1363 OR APPROVED EQUAL.
3. ALL REINFORCING STEEL SHALL HAVE 2" OF CONCRETE COVER, MIN 4,000 PSI CONCRETE SHALL BE USED.

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CONSTRUCTION STANDARD  
DRAWINGS

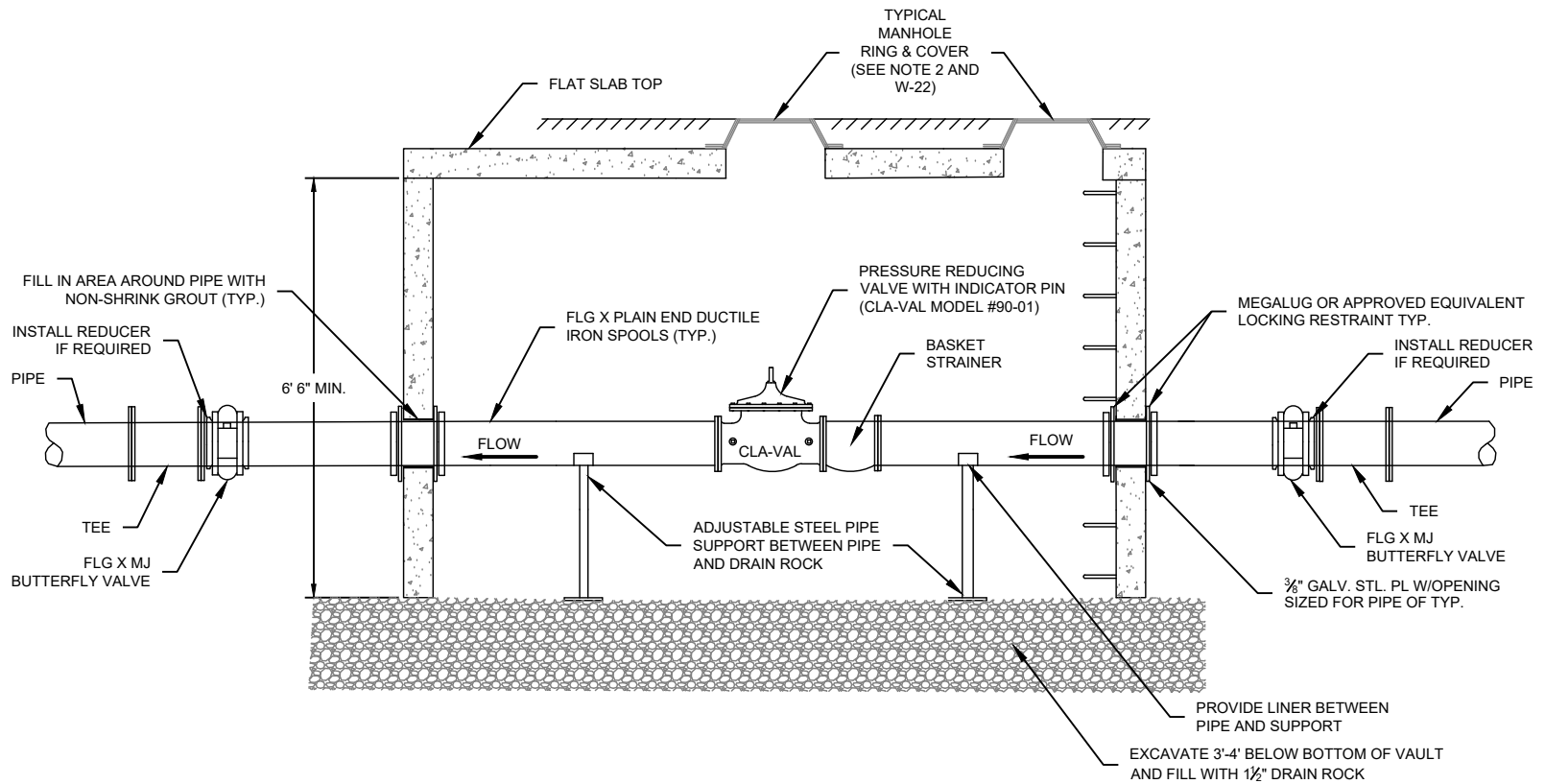
CITY OF OREM

PRV WITH BYPASS VAULT VIEW

REV. 4/2024

W-5





**NOTES:**

1. PRV PLANS ARE FOR REFERENCE ONLY. EACH PRV DESIGN IS SITE SPECIFIC AND MUST BE REVIEWED AND APPROVED BY WATER SECTION PERSONNEL.
2. 10" AND SMALLER PRV VAULT LIDS WILL REQUIRE 24" TYPICAL MANHOLE RING AND COVER. D&L SUPPLY TYPE A-1180-R3 AND A-1180-15 OR APPROVED EQUAL. 12" AND LARGER PRV VAULT LIDS WILL REQUIRE 30" TYPICAL MANHOLE RING AND COVER. D&L SUPPLY TYPE A-1366 AND A-1363 OR APPROVED EQUAL.
3. 1" AND 2" PRESSURE GAGES WILL BE INSTALLED BY CITY PERSONNEL.
4. IF DUCTILE IRON PIPE IS INSTALLED IN A SOIL SENSITIVE AREA AS SHOWN IN DETAIL W-16, THEN DUCTILE IRON PIPE OUTSIDE THE VAULT MUST BE POLY WRAPPED.

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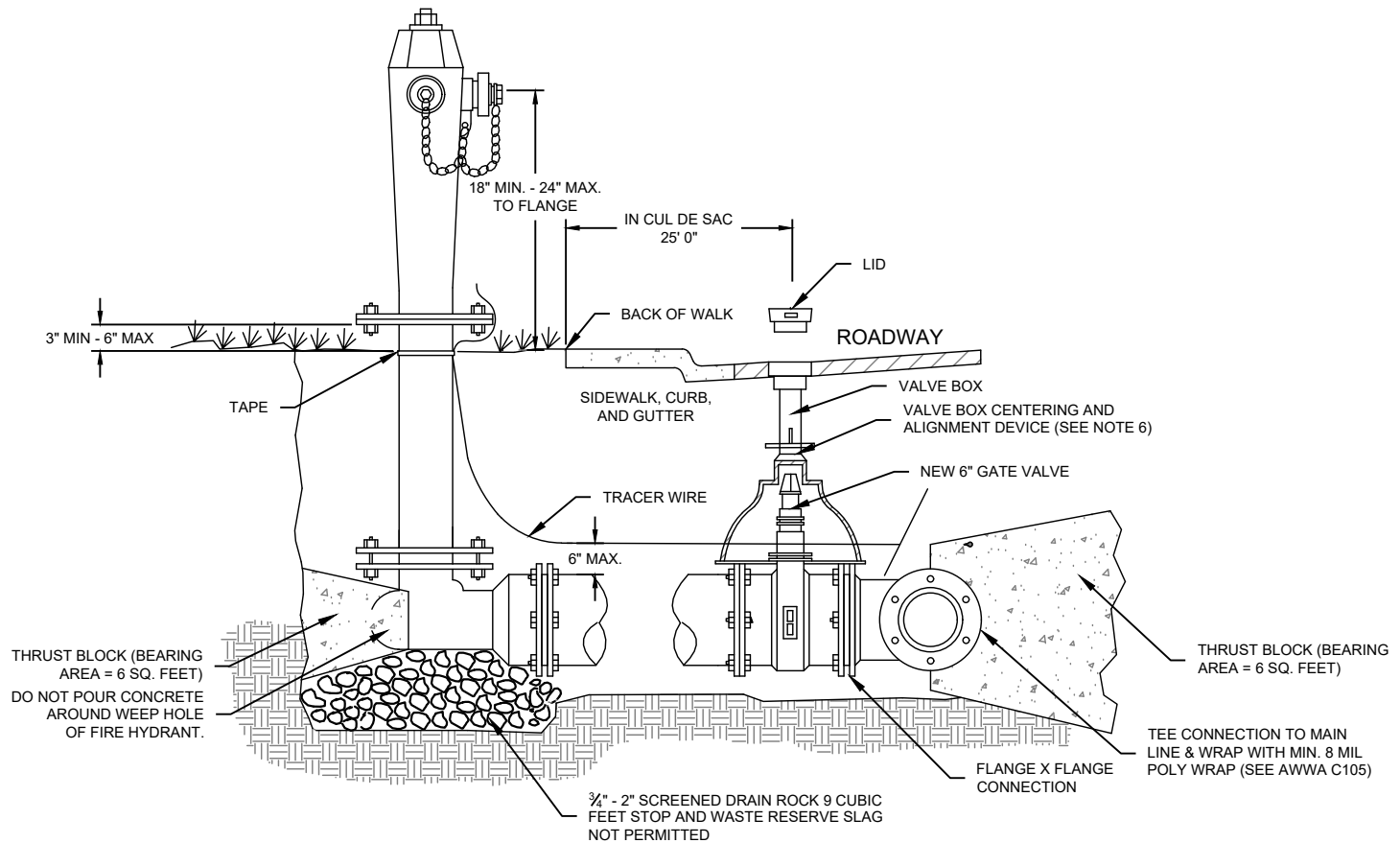
CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

PRV WITH BYPASS SECTION VIEW

REV. 4/2024

W-6



**NOTES:**

1. TRACER WIRE SHALL BE 14 GAUGE SOLID INSULATED COPPER WIRE TAPED ON TOP OF PIPE.
2. WIRE IS TO SPliced IN AT ALL SERVICE CONNECTIONS TO THE MAIN AND COVERED OR COATED WITH CORROSION PROTECTION USING WEATHER GEL CAPS OR MASTIC PAD.
3. IN LIMITED SITUATIONS, HYDRANT TIE RODS MAY BE REQUIRED IN COMBINATION WITH A THRUST BLOCK-ONE ON EACH SIDE.
4. END OF LINE INSTALLATION REQUIRES A MJ CONNECTION.
5. ALL TREES, SHRUBS, AND DEEP ROOTED VEGETATION MUST BE A MINIMUM OF 36" HORIZONTAL AND 10' VERTICAL FROM FIRE HYDRANTS
6. IF WATER VALVE IS INSTALLED AS PART OF NEW CONSTRUCTION INSTALL VALVE BOX ALIGNMENT RING, IF EXCAVATION ON EXISTING VALVE EXTENDS DOWN TO TOP OF BOX IT IS ALSO REQUIRED.

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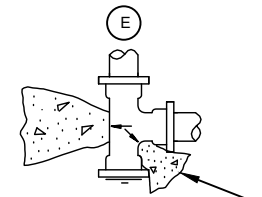
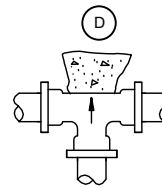
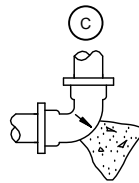
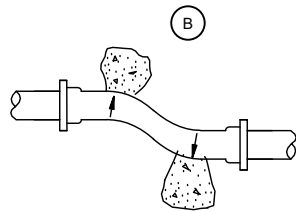
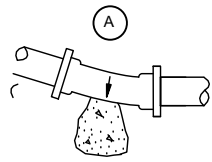
CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

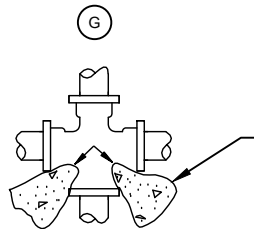
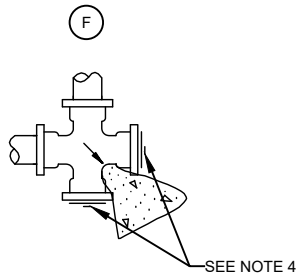
FIRE HYDRANT ASSEMBLY

REV. 4/2024

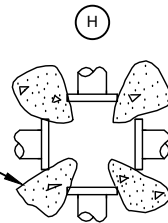
W-7



THE AREA OF BEARING PER THRUST BLOCK TO EQUAL THE FULL AREA SPECIFIED FOR THE LARGEST PIPE



THE AREA OF BEARING PER THRUST BLOCK TO EQUAL 1/2 THE AREA SPECIFIED FOR THE LARGEST PIPE



DIRECT BEARING THRUST BLOCKS

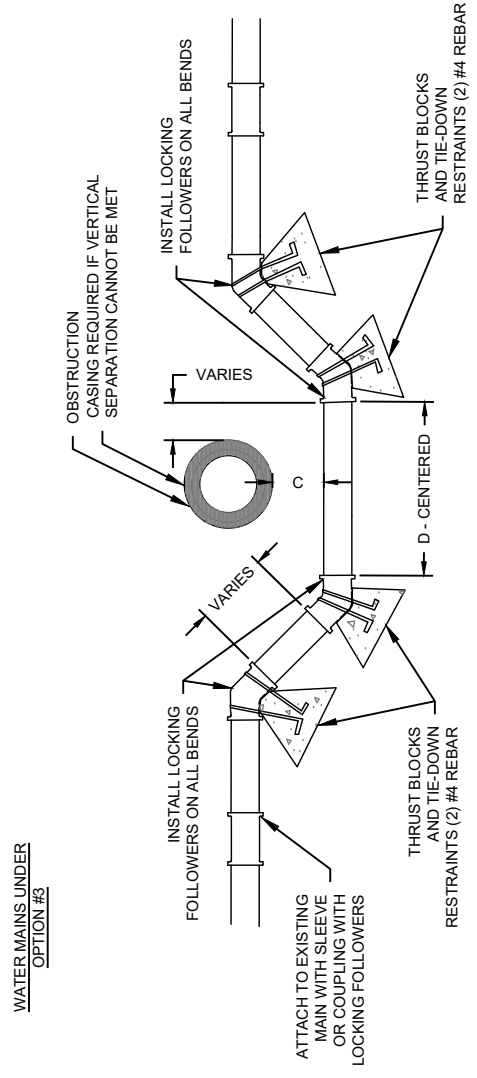
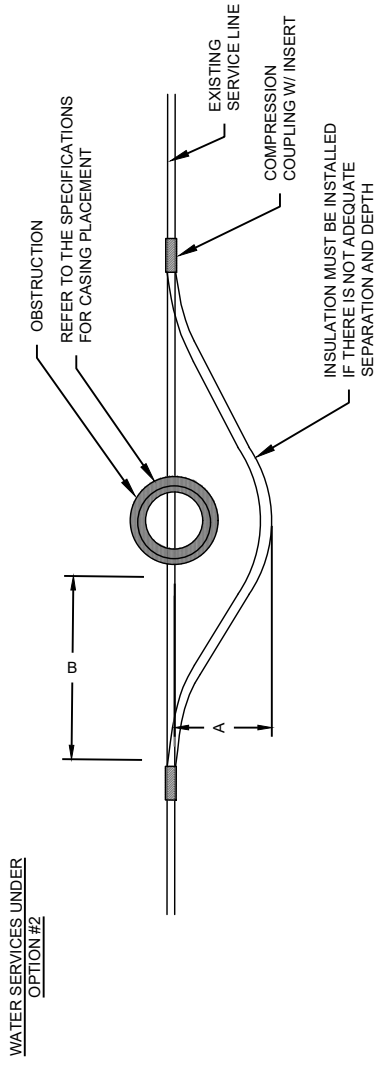
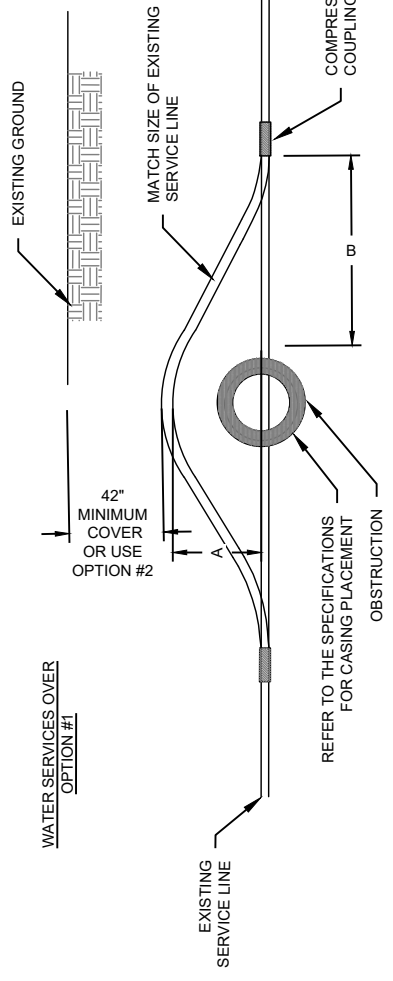
WATERLINE THRUST BLOCK BEARING AREA (SQ. FEET)							WATER DESIGN PSI
PIPE SIZE (INCHES)	IN LINE VAVLE, TEE OR END PLUG	90° ELBOW & CROSSES	45° ELBOW BENDS	30° ELBOW BENDS	22.5° & 11.25° ELBOW BEND	REDUCER ONE SIZE REDUCTION	
-	D, E, F	C, G, H	B	A	A	-	-
4"	2.4	3.4	2.0	2.0	2.0	2.0	150
6"	5.3	7.5	4.0	2.75	2.0	2.9	150
8"	9.4	13.2	7.1	4.9	3.7	5.3	150
10"	12.3	17.3	9.3	6.4	4.8	5.3	125
12"	14.2	20.0	11.8	7.4	5.5	5.4	100
14"	19.3	27.0	14.6	10.0	7.5	5.4	100
16"	24.0	33.0	18.0	14.0	9.0	10.0	100

NOTES:

1. MINIMUM BACKFILL COVER OVER TOP OF THRUST BLOCK = 3.0 FT.
2. FOR PIPES SIZES & CONDITIONS DIFFERENT FROM SHOWN REQUIRES PROFESSIONAL ENGINEER'S DESIGN.
3. LOCKING FOLLOWER RESTRAINTS REQ'D ON ALL BENDS (11.25°, 22.5°, 45° & 90°).
4. PRECAST BLOCKS MAY BE USED FOR THRUST BLOCKS ON BLIND FLANGE ENDS.

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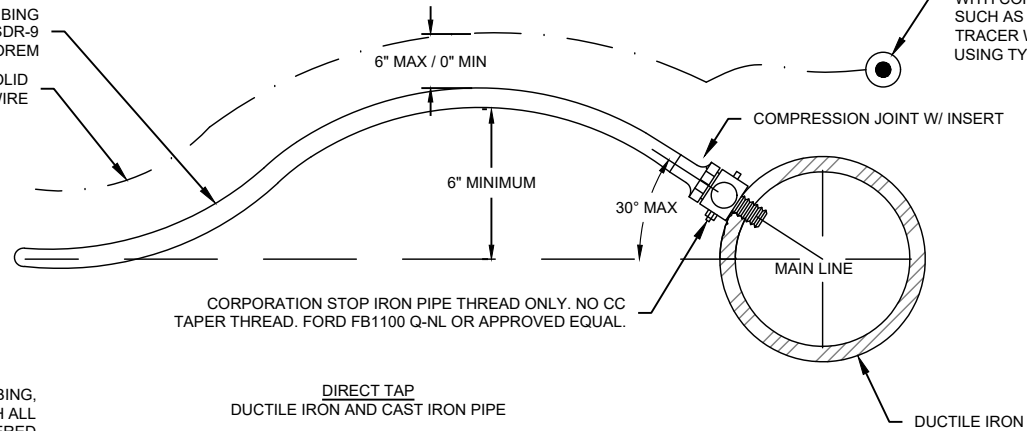
NOTES:

- CROSS REFERENCE WATER LATERAL CROSSING SEWER.
- ALL POLY LINE W/ COMPRESSION FITTINGS FOR WATER SERVICES REQUIRE INSERTS.
- ANY PIECE OF PIPE SPLICED TO THE SERVICE LINE MUST BE OF SAME MATERIAL AS EXISTING PIPE.

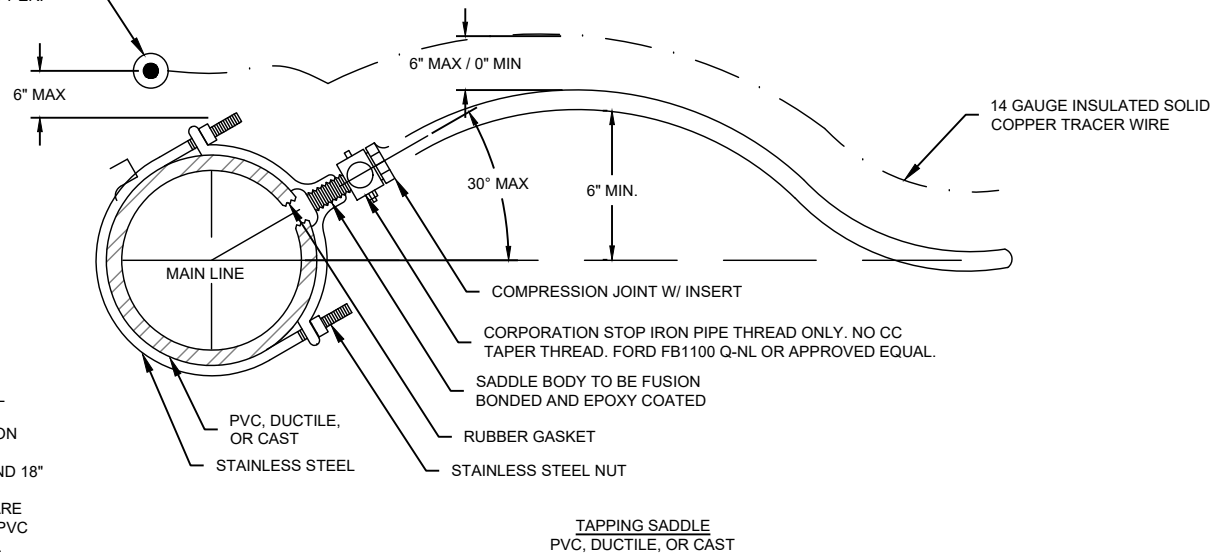
TABLE OF DIMENSIONS	
NO.	SEWER MAIN OTHER
A	18" 2"
B	10' - 0" 6"
C	18" 12" MIN.
D	O.D. + 20" O.D. + 12"

TYPE "K" 3/4" OR 1" COPPER TUBING  
OR BLUE HDPE CTS 200 PSI, SDR-9  
AS APPROVED BY CITY OF OREM  
14 GAUGE INSULATED SOLID  
COPPER TRACER WIRE

WHEN USING POLYETHYLENE TUBING,  
WIRE IS TO BE SPLICED WITH ALL  
SERVICE CONNECTIONS AND COVERED  
WITH CORROSION PROTECTION  
SUCH AS GEL CAPS OR MASTIC PADS.  
TRACER WIRE IS STILL REQUIRED WHEN  
USING TYPE "K" COPPER



WHEN USING POLYETHYLENE TUBING,  
WIRE IS TO BE SPLICED WITH ALL  
SERVICE CONNECTIONS AND COVERED  
WITH CORROSION PROTECTION SUCH  
AS GEL CAPS OR MASTIC PADS. TRACER  
WIRE IS STILL REQUIRED WHEN USING  
TYPE "K" COPPER.



**NOTES:**

1. 3/4" AND 1" TAPS FOR DUCTILE IRON PIPE 4" AND LARGER.
2. USE SAND ONLY FOR PIPE BEDDING.
3. ON EXISTING WATER MAINLINES OREM CITY WILL INSTALL ALL TAPS 2" AND SMALLER.
4. IF USING POLY, INSERTS ARE REQUIRED AT THE COMPRESSION FITTING.
5. TAPS MUST BE STAGGERED A MINIMUM OF 8" APART ON DI AND 18" APART ON PVC.
6. SADDLES MUST BE DESIGNED FOR THE TYPE OF PIPE THEY ARE BEING USED WITH, I.E. ROMAC 305, 306 OR EQUIVALENT FOR PVC AND ROMAC 202NS (NYLON COATED) OR EQUIVALENT FOR DI.

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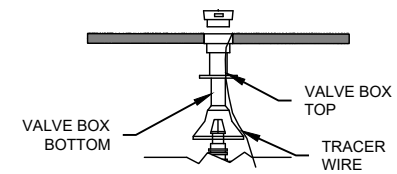
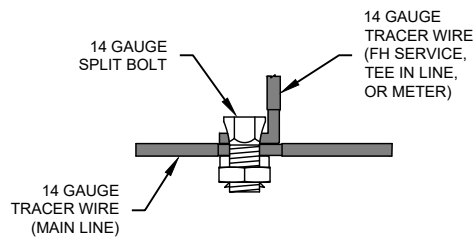
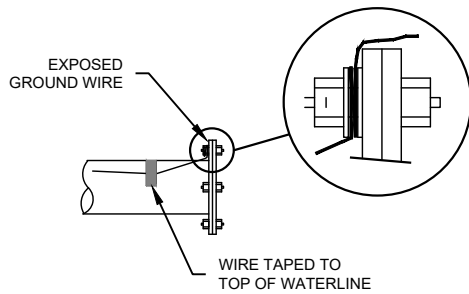
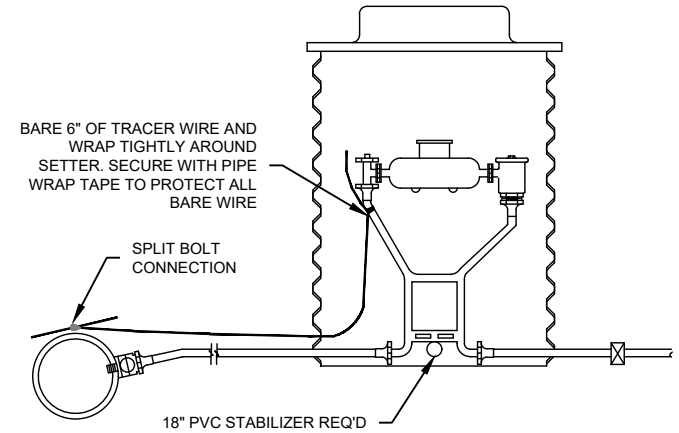
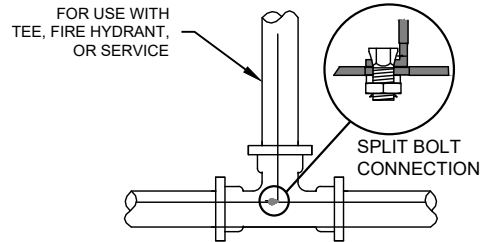
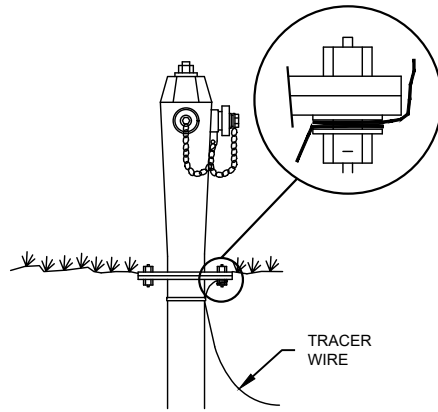
CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

WATERMAIN TAPS

REV. 4/2024

W-10



**NOTES:**

1. WIRE IS TO BE SPLICED IN AT ALL CONNECTIONS AND COVERED OR COATED WITH CORROSION PROTECTION USING EITHER GEL CAPS OR MASTIC PAD. INSTALLER TO WRAP W/ PIPE WRAP TAPE UPON COMPLETION OF WIRE CONNECTION.

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CONSTRUCTION STANDARD  
DRAWINGS

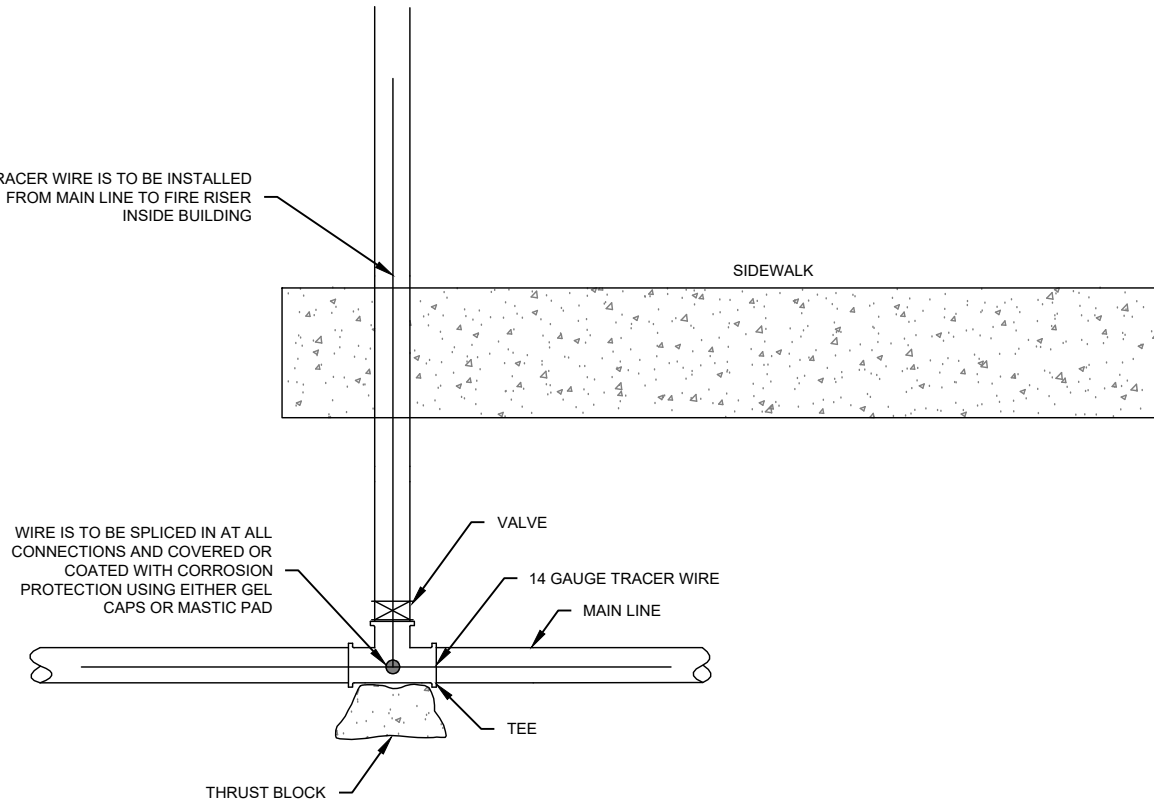
CITY OF OREM

TRACER WIRE DETAILS

REV. 4/2024

W-11

TRACER WIRE IS TO BE INSTALLED FROM MAIN LINE TO FIRE RISER INSIDE BUILDING



NOTES:

1. TRACER WIRE SHALL BE 14 GAUGE INSULATED COPPER WIRE INSTALLED WITHIN 6" ABOVE TOP OF PIPE.

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CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

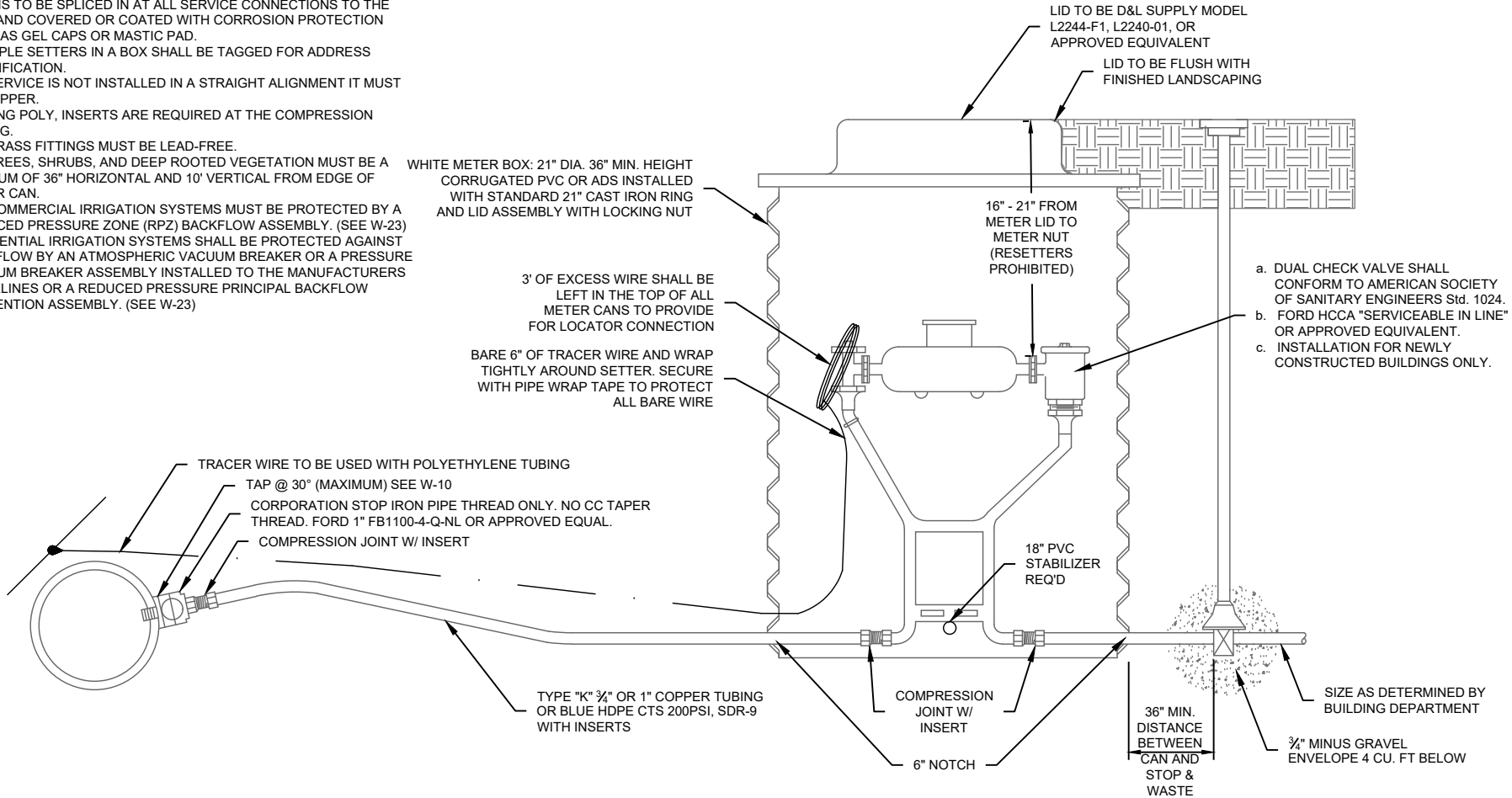
FIRE LINE PLAN

REV. 4/2024

W-12

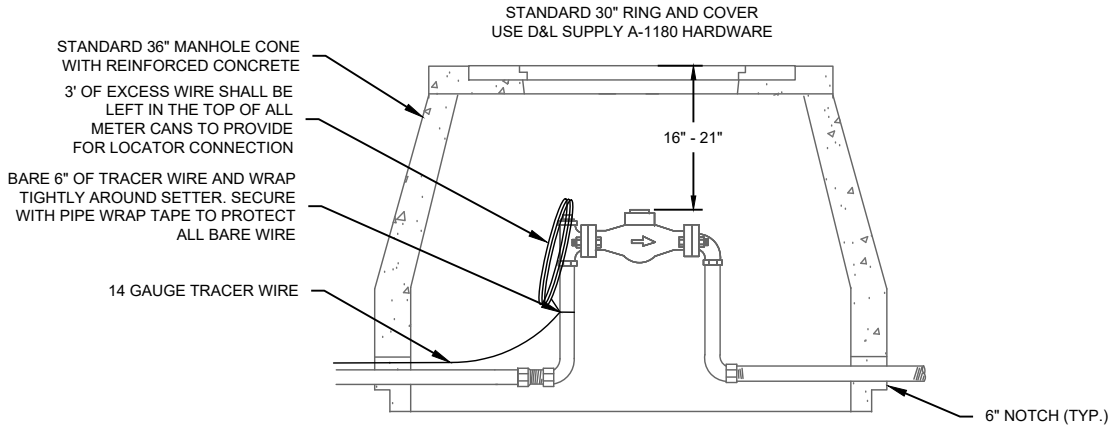
**NOTES:**

1. MIN. COVER ON SERVICE LINE IS 42".
2. FOR INSTALLATIONS WITH CONTINUOUS TRAFFIC FLOW ON METER LID, A STANDARD MANHOLE SECTION CONE WITH 36" MIN. HEIGHT REINFORCED CONCRETE WITH STANDARD 30" MANHOLE RING AND COVER SHALL BE USED AS APPROVED BY WATER SECTION PERSONNEL.
3. TRACER WIRE SHALL BE 14 GAUGE SOLID INSULATED COPPER WIRE INSTALLED WITHIN 6" ABOVE TOP OF PIPE.
4. WIRE IS TO BE SPLICED IN AT ALL SERVICE CONNECTIONS TO THE MAIN AND COVERED OR COATED WITH CORROSION PROTECTION SUCH AS GEL CAPS OR MASTIC PAD.
5. MULTIPLE SETTERS IN A BOX SHALL BE TAGGED FOR ADDRESS IDENTIFICATION.
6. IF A SERVICE IS NOT INSTALLED IN A STRAIGHT ALIGNMENT IT MUST BE COPPER.
7. IF USING POLY, INSERTS ARE REQUIRED AT THE COMPRESSION FITTING.
8. ALL BRASS FITTINGS MUST BE LEAD-FREE.
9. ALL TREES, SHRUBS, AND DEEP ROOTED VEGETATION MUST BE A MINIMUM OF 36" HORIZONTAL AND 10' VERTICAL FROM EDGE OF METER CAN.
10. ALL COMMERCIAL IRRIGATION SYSTEMS MUST BE PROTECTED BY A REDUCED PRESSURE ZONE (RPZ) BACKFLOW ASSEMBLY. (SEE W-23)
11. RESIDENTIAL IRRIGATION SYSTEMS SHALL BE PROTECTED AGAINST BACKFLOW BY AN ATMOSPHERIC VACUUM BREAKER OR A PRESSURE VACUUM BREAKER ASSEMBLY INSTALLED TO THE MANUFACTURERS GUIDELINES OR A REDUCED PRESSURE PRINCIPAL BACKFLOW PREVENTION ASSEMBLY. (SEE W-23)



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TRAFFIC LOAD INSTALLATION

FOR 2" AND SMALLER METER INSTALLATIONS

NOTES:

1. TRACER WIRE SHALL BE 14 GAUGE SOLID INSULATED COPPER WIRE INSTALLED WITHIN 6" ABOVE TOP OF PIPE.
2. WIRE IS TO SPLICED IN AT ALL SERVICE CONNECTIONS TO THE MAIN AND COVERED OR COATED WITH CORROSION PROTECTION USING EITHER GEL CAPS OR MASTIC PAD.
3. ALL BRASS FITTINGS MUST BE LEAD-FREE.
4. INSTALL ERT BOX IN LANDSCAPING WITH 2" CONDUIT. WORK WITH WATER SECTION ON EXACT LOCATION.

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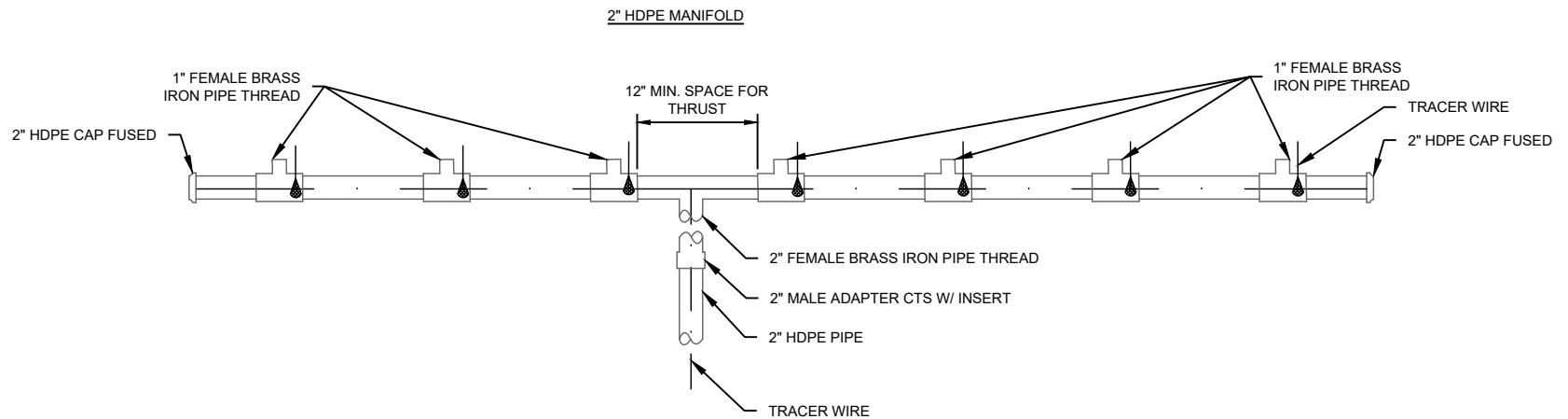


CONSTRUCTION STANDARD DRAWINGS

CITY OF OREM

WATER METER INSTALLATION FOR TRAFFIC LOADING

REV. 4/2024  
W-14



NOTES:

1. TRACER WIRE SHALL BE 14 GAUGE SOLID INSULATED COPPER WIRE, INSTALLED WITHIN 6" ABOVE TOP OF PIPE. WIRE IS TO BE SPLICED IN AT ALL CONNECTIONS AND COVERED OR COATED WITH CORROSION PROTECTION USING GEL CAPS OR MASTIC PAD.
2. 2" WATER SERVICE LINE AND GREATER CAN RECEIVE UP TO (7) 3/4" CORPS OR (4) 1" CORPS.
3. 1 1/2" WATER SERVICE LINE CAN RECEIVE UP TO (4) 3/4" CORPS OR (2) 1" CORPS.
4. PLUG ALL TEE SERVICE CONNECTIONS NOT USED.
5. COORDINATE WITH WATER SECTION PERSONNEL (MINIMUM TWO WEEKS IN ADVANCE) TO PURCHASE PRE-MANUFACTURED MANIFOLD SYSTEMS.

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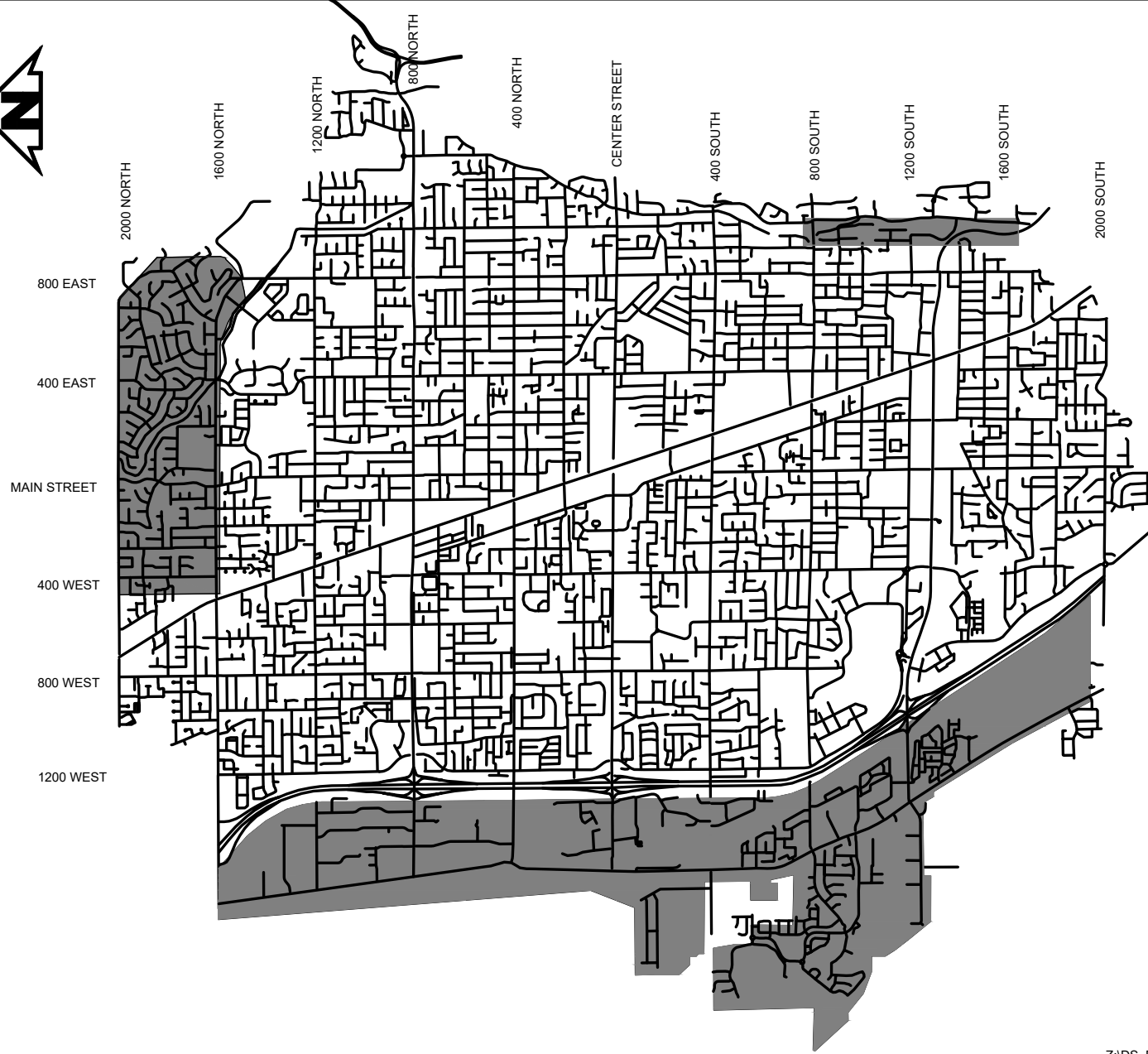
CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

FUSED HDPE MANIFOLD SYSTEM FOR  
SERVICE LINE CONNECTIONS

REV. 4/2024

W-15



**NOTES:**

1. THE NORTH AREA HAS UNSTABLE PURE CLAY WITH NO ROCKS. THE AREA IS BOUND BY 2000 NORTH, CASCADE DRIVE, 1600 NORTH, AND 400 WEST.
2. THE WEST AREA HAS A HIGH WATER TABLE AND SATURATED CORROSIVE SOILS. THE AREA IS BOUND BY I-15 AND CONTIGUES TO THE WEST.



CORROSIVE SOIL AREAS, C-900/ C909 PVC PIPE AND POLY SERVICES REQUIRED. ALL DUCTILE IRON FITTINGS AND FIRE HYDRANT BARRELS SHALL BE PROTECTED WITH POLY-WRAP AND WAX TAPE. ALL VALVES MUST BE EPOXY COATED WITH STAINLESS STEEL BOLTS AND VALVE STEM.

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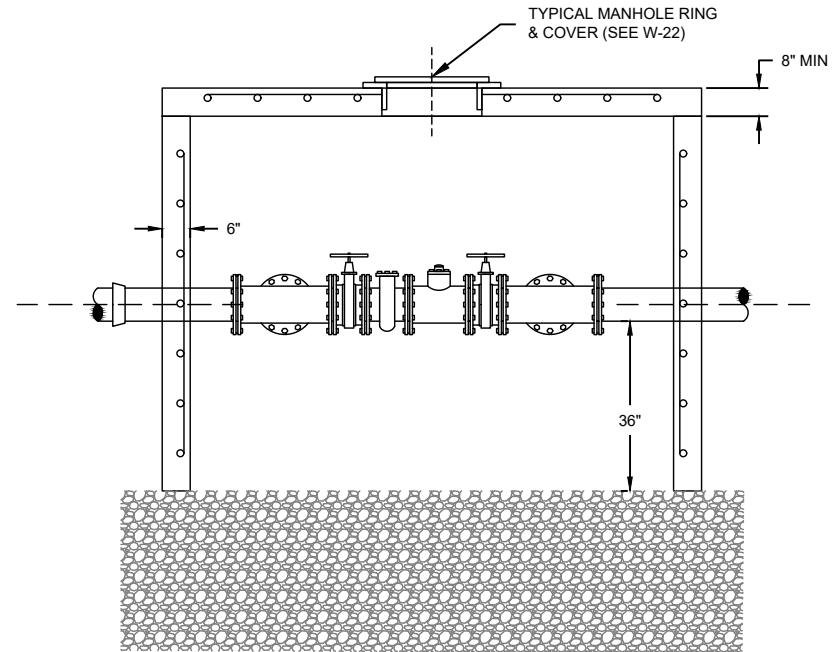
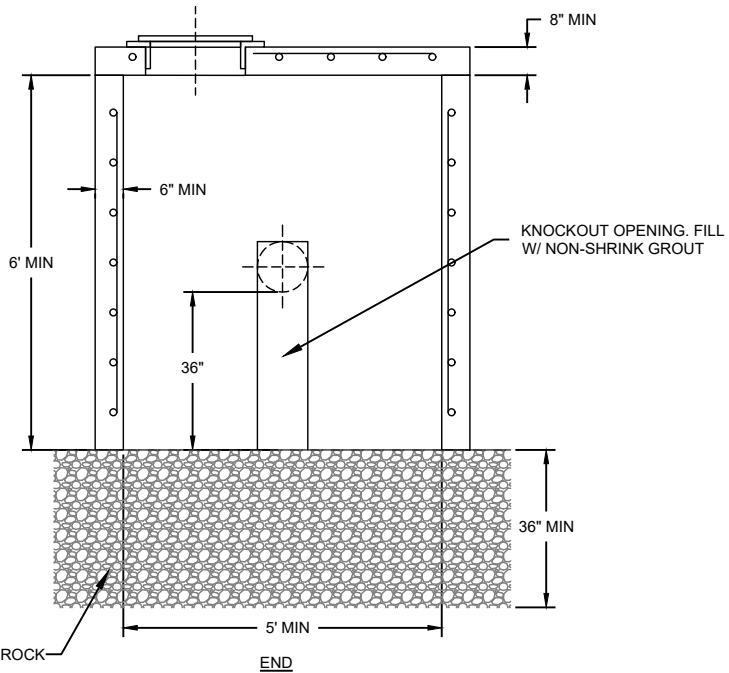
CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

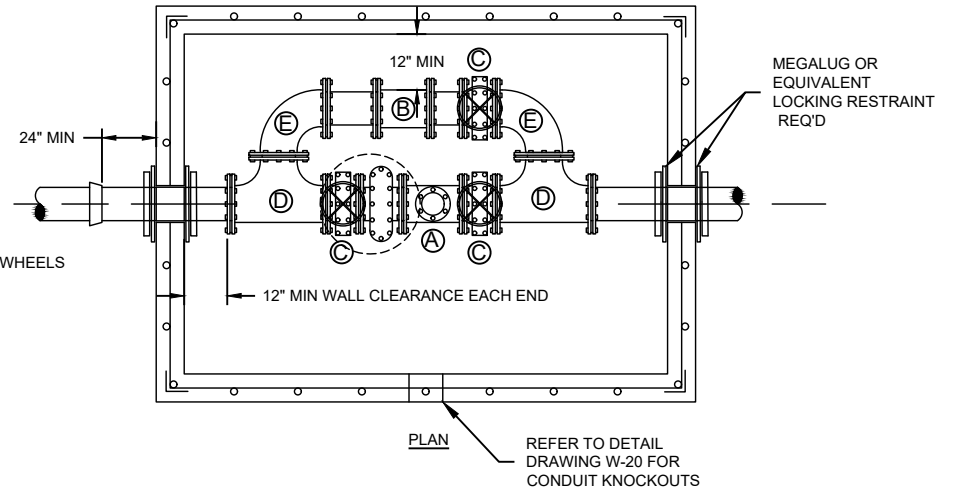
PVC PIPE REQUIRED - MAP

REV. 4/2024

W-16



SECTION



PLAN

REFER TO DETAIL  
DRAWING W-20 FOR  
CONDUIT KNOCKOUTS

LEGEND

- A) METER ASSEMBLY
- B) MJ SLEEVE
- C) FLANGED GATE VALVE W/ HAND WHEELS
- D) FLANGED TEE
- E) FLANGED ELBOW (90°)

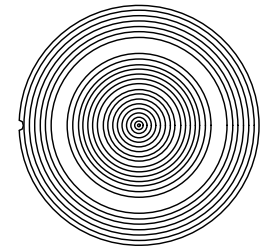
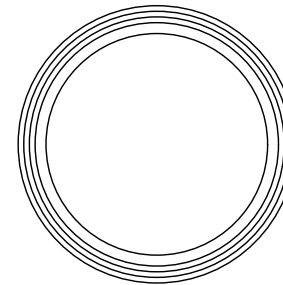
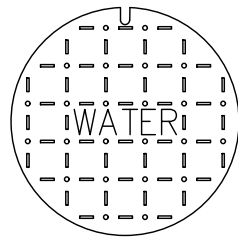
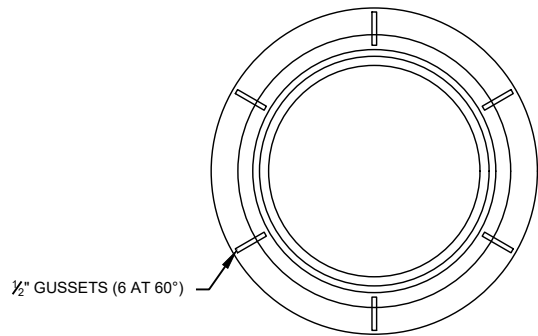
NOTES:

1. CITY WILL PROVIDE ALL METER ASSEMBLY COMPONENTS.
2. VAULT TOP MUST BE TRAFFIC RATED.
3. BYPASS SHALL BE SIZED SAME AS METER.
4. VAULT SHALL BE INSTALLED ON UNDISTURBED SOILS WITH 36" MINIMUM ROCK BASE.
5. CONTACT OREM CITY WATER SECTION PRIOR TO ORDERING VAULT TO DETERMINE SIZE.
6. REFER TO DRAWING DETAIL W-20 FOR VAULT DETAILS.

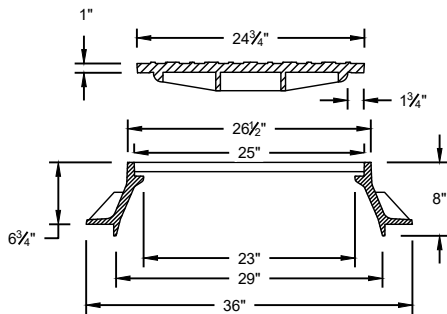
MEGALUG OR  
EQUIVALENT  
LOCKING RESTRAINT  
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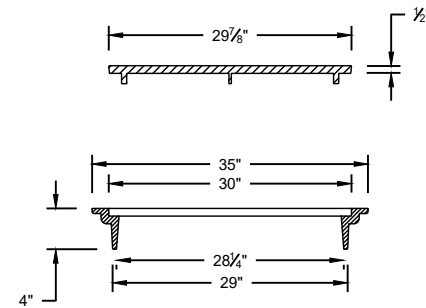




1/2" GUSSETS (6 AT 60°)



TYPICAL MANHOLE RING & COVER  
D&L SUPPLY TYPE A-1180-R3 AND A-1180-15



RING & COVER  
D&L SUPPLY TYPE B-5076-R1 AND B-5076-01

NOTES:

1. A-1180-R3 AND A-1180-15 COVER SHALL BE SPECIFIED FOR TRAFFIC AND SIDEWALK VAULT LOCATIONS.
2. B-5076-R1 AND B-5076-01 COVER SHALL BE SPECIFIED FOR NON-TRAFFIC OR NON-PEDESTRIAN AREA LOCATIONS.

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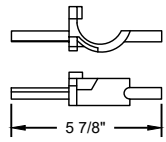
CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

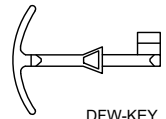
RING & COVER

REV. 4/2024

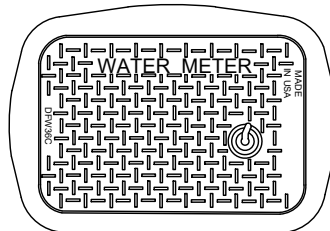
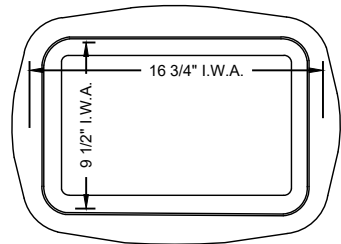
W-18



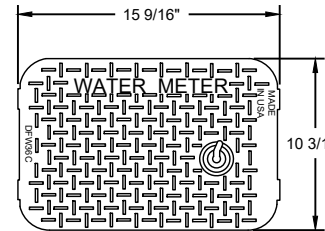
DFW-BLOCK-XL



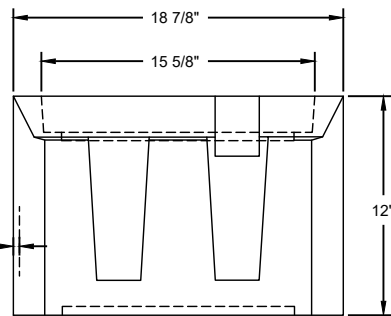
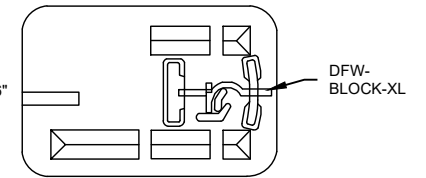
DFW-KEY



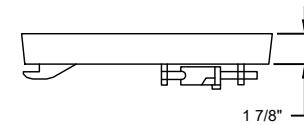
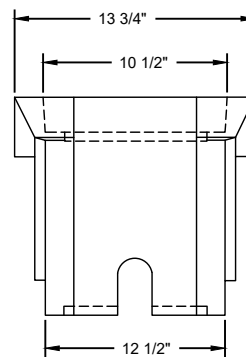
DFW36C4-12-4B



DFW36C-4B-LID



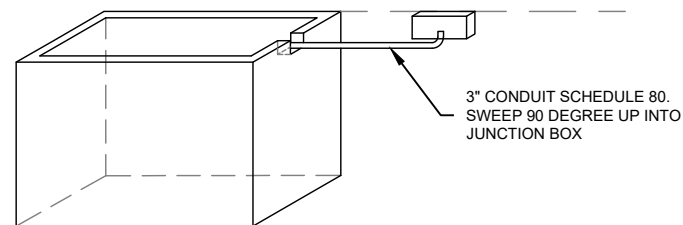
DFW36C4-12-BODY



1 7/8"

**NOTES:**

1. DIMENSIONS  $\pm 1/8"$  U.N.O.
2. LID MATERIAL: HDPE
3. BODY MATERIAL: LLDPE
4. WALL THICKNESS:  $3/8" \pm 5\%$
5. I.W.A. = INSIDE WORK AREA.
6. BOX IS RATED FOR INTERMITTENT TRAFFIC UP TO 16,000 LBS.
7. BOX SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO THE VAULT IN A LANDSCAPED AREA.
8. MAX. DISTANCE BETWEEN VAULT AND ENDPOINT WATER METER JUNCTION BOX SHALL BE 50FT. ANY LONGER REQUIRES OREM CITY WATER SECTION APPROVAL PRIOR TO INSTALLATION.
9. CONDUIT SHALL BE A STRAIGHT RUN WITH NO ADDITIONAL BENDS. THE ONLY EXCEPTION SHALL BE A SINGLE SWEEP BEND UP AND INTO THE BOX.
10. CITY SUPPLIES ERT JUNCTION BOX.



3" CONDUIT SCHEDULE 80.  
SWEEP 90 DEGREE UP INTO  
JUNCTION BOX

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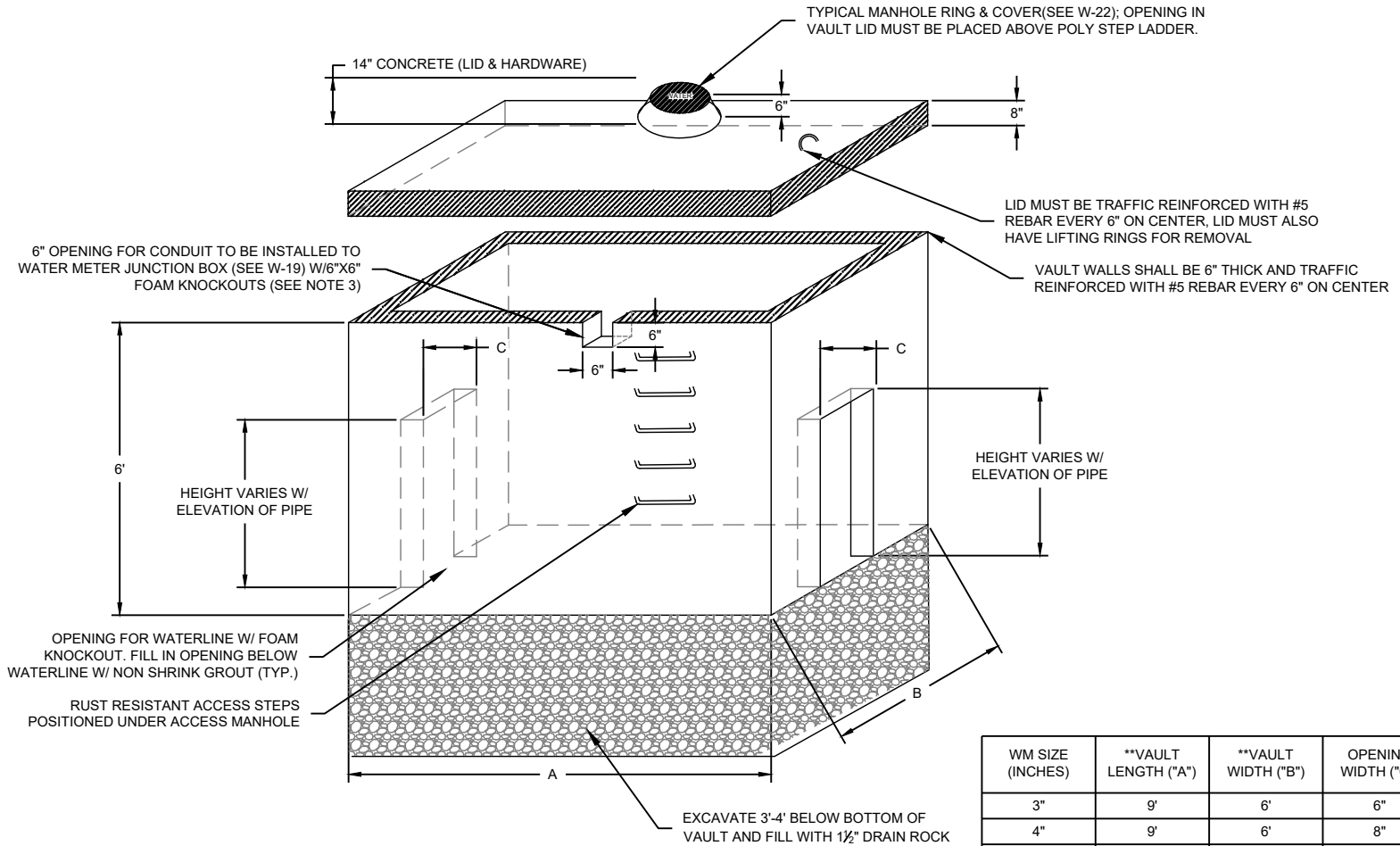
CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

WATER METER  
ERT JUNCTION BOX

REV. 4/2024

W-19



**NOTES:**

1. ALL REINFORCING STEEL SHALL HAVE MIN 2" CONCRETE COVER. MIN 4,000 PSI CONCRETE SHALL BE USED.
2. INSTALL FOAM AND SEALANT AROUND ALL OPENINGS FOR PIPE AND ERT CONDUIT.
3. THE LOCATION OF THE 3" CONDUIT OPENING FOR THE WATER METER JUNCTION BOX IS SITE SPECIFIC AND TO BE DETERMINED BY CITY PERSONNEL AT THE TIME OF DESIGN. WORK WITH WATER SECTION TO DETERMINE LOCATION OF CORE HOLE AND PLACEMENT OF CONDUIT AND ERT BOX. SEE W-19.

WM SIZE (INCHES)	**VAULT LENGTH ("A")	**VAULT WIDTH ("B")	OPENING WIDTH ("C")
3"	9'	6'	6"
4"	9'	6'	8"
6"	10'	7'	10"
8"	11'	8'	12"

\*\* VAULT DIMENSIONS LISTED ARE TO EXTERIOR EDGE OF WALLS, WALL THICKNESS IS 6"

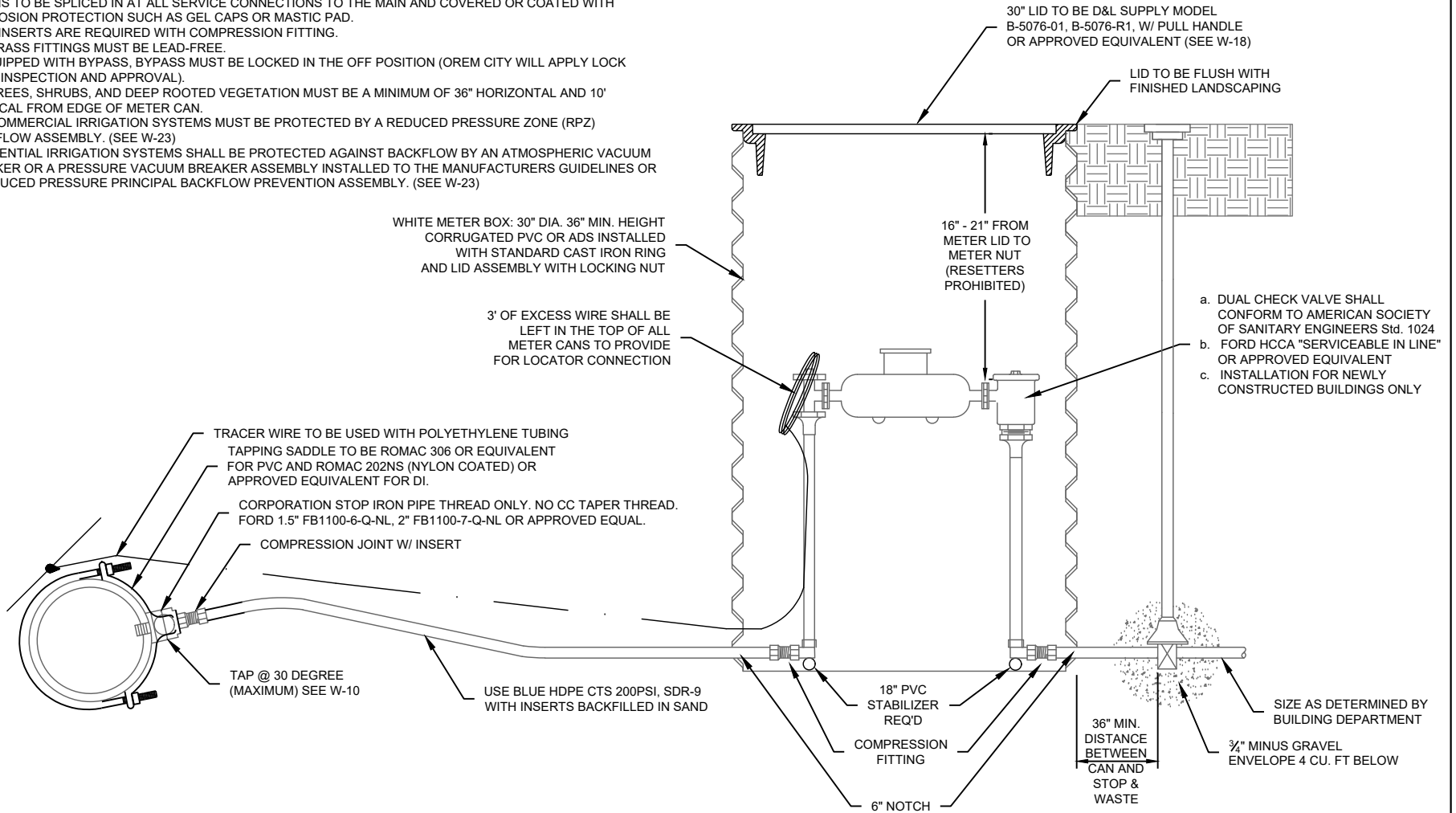
WATER METER VAULT TABLE

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**NOTES:**

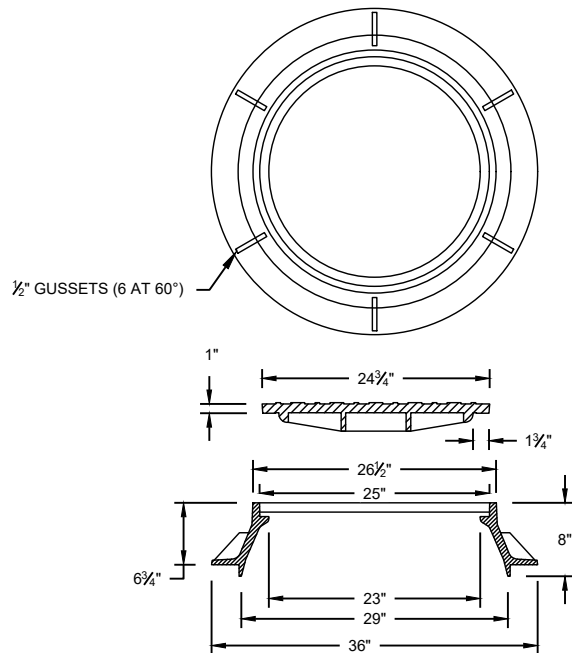
1. MIN. COVER ON SERVICE LINE IS 42".
2. FOR INSTALLATIONS WITH CONTINUOUS TRAFFIC FLOW ON METER LID, A STANDARD MANHOLE SECTION CONE WITH 36" MIN. HEIGHT REINFORCED CONCRETE WITH STANDARD 30" MANHOLE RING AND COVER SHALL BE USED AS APPROVED BY WATER SECTION PERSONNEL.
3. TRACER WIRE SHALL BE 14 GAUGE SOLID INSULATED COPPER WIRE INSTALLED WITHIN 6" ABOVE TOP OF PIPE.
4. WIRE IS TO BE SPLICED IN AT ALL SERVICE CONNECTIONS TO THE MAIN AND COVERED OR COATED WITH CORROSION PROTECTION SUCH AS GEL CAPS OR MASTIC PAD.
5. POLY INSERTS ARE REQUIRED WITH COMPRESSION FITTING.
6. ALL BRASS FITTINGS MUST BE LEAD-FREE.
7. IF EQUIPPED WITH BYPASS, BYPASS MUST BE LOCKED IN THE OFF POSITION (OREM CITY WILL APPLY LOCK UPON INSPECTION AND APPROVAL).
8. ALL TREES, SHRUBS, AND DEEP ROOTED VEGETATION MUST BE A MINIMUM OF 36" HORIZONTAL AND 10' VERTICAL FROM EDGE OF METER CAN.
9. ALL COMMERCIAL IRRIGATION SYSTEMS MUST BE PROTECTED BY A REDUCED PRESSURE ZONE (RPZ) BACKFLOW ASSEMBLY. (SEE W-23)
10. RESIDENTIAL IRRIGATION SYSTEMS SHALL BE PROTECTED AGAINST BACKFLOW BY AN ATMOSPHERIC VACUUM BREAKER OR A PRESSURE VACUUM BREAKER ASSEMBLY INSTALLED TO THE MANUFACTURERS GUIDELINES OR A REDUCED PRESSURE PRINCIPAL BACKFLOW PREVENTION ASSEMBLY. (SEE W-23)



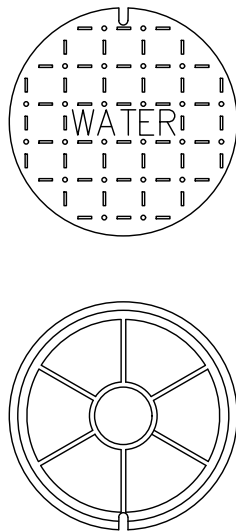
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10" AND SMALLER PRV VAULT LIDS WILL REQUIRE 24" TYPICAL MANHOLE RING AND COVER. D&L SUPPLY TYPE A-1180-R3 AND A-1180-15 OR APPROVED EQUAL.



12" AND LARGER PRV VAULT LIDS WILL REQUIRE 30" TYPICAL MANHOLE RING AND COVER. D&L SUPPLY TYPE A-1366 AND A-1363 OR APPROVED EQUAL.

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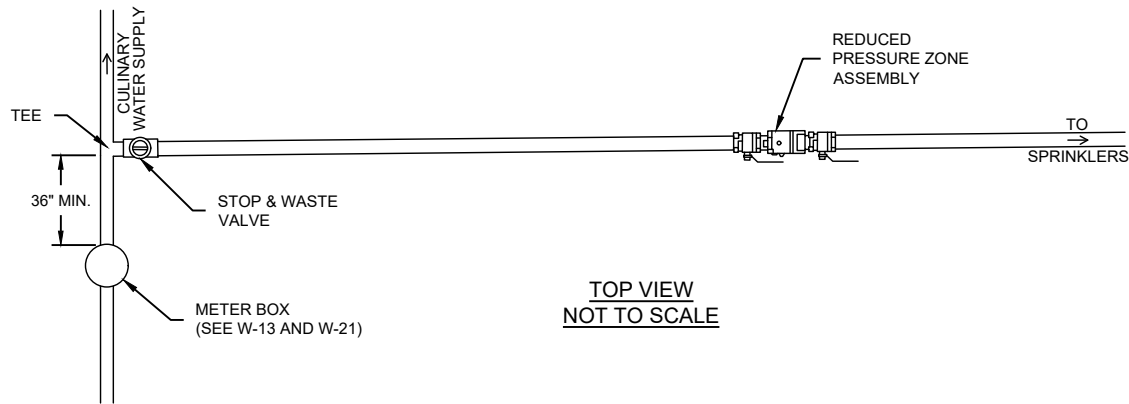
CONSTRUCTION STANDARD DRAWINGS

CITY OF OREM

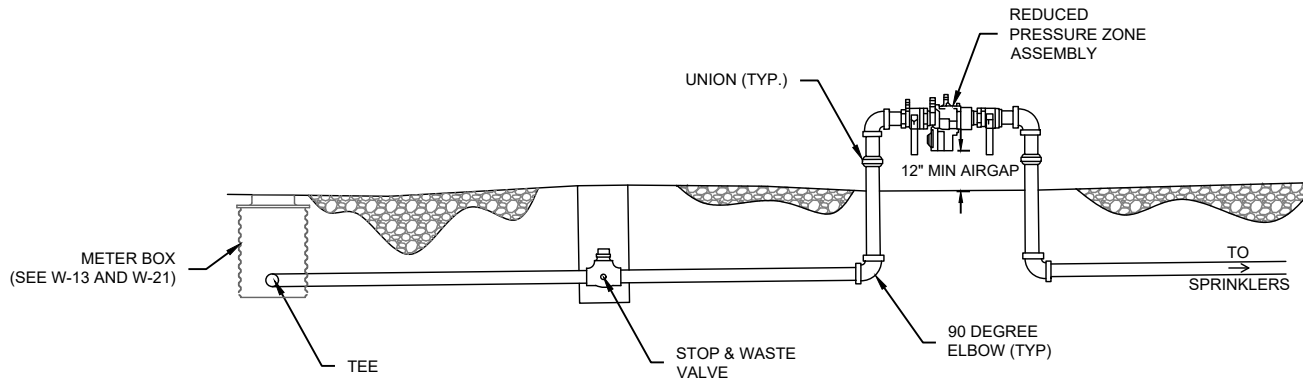
PRV RING & COVER

REV. 4/2024

W-22



TOP VIEW  
NOT TO SCALE



FRONT VIEW  
NOT TO SCALE

NOTES:

1. ALL COMMERCIAL IRRIGATION SYSTEMS MUST BE PROTECTED BY A REDUCED PRESSURE ZONE (RPZ) BACKFLOW ASSEMBLY.
2. RESIDENTIAL IRRIGATION SYSTEMS SHALL BE PROTECTED AGAINST BACKFLOW BY AN ATMOSPHERIC VACUUM BREAKER OR A PRESSURE VACUUM BREAKER ASSEMBLY INSTALLED TO THE MANUFACTURERS GUIDELINES OR A REDUCED PRESSURE PRINCIPAL BACKFLOW PREVENTION ASSEMBLY AS SHOWN.

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CONSTRUCTION STANDARD  
DRAWINGS

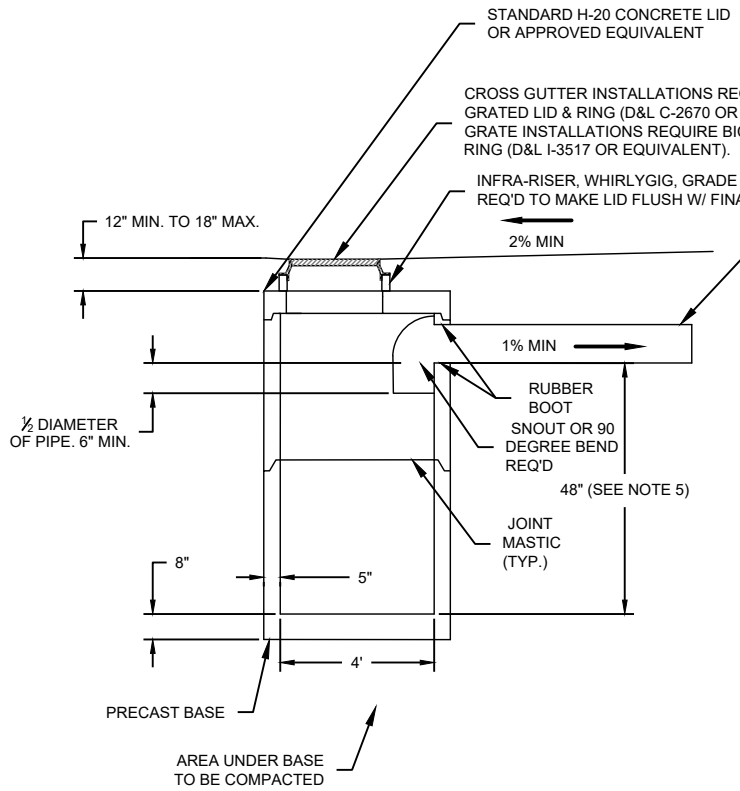
CITY OF OREM

RPZ BACKFLOW PREVENTER

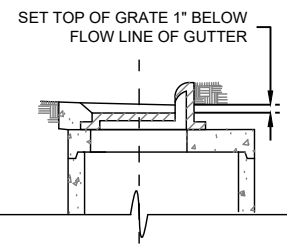
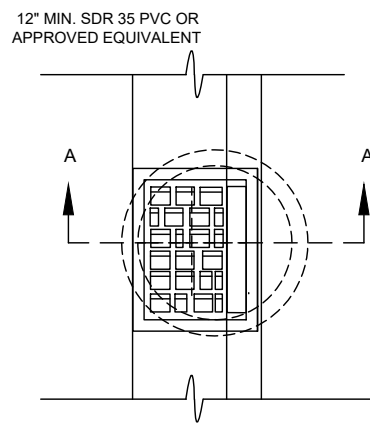
REV. 4/2024

W-23

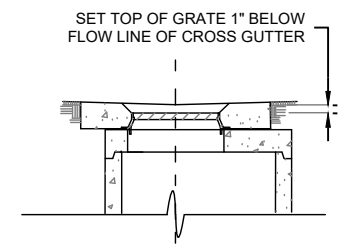
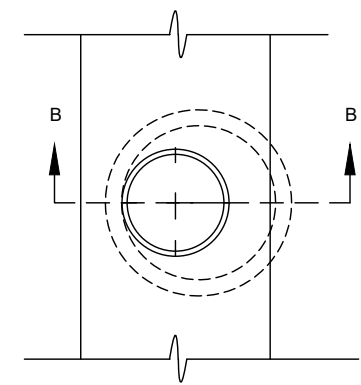




**PRE-TREATMENT CATCH BASIN**  
CROSS-SECTION



**CURB & GUTTER**  
SECTION A-A



**CROSS GUTTER**  
SECTION B-B

**NOTES:**

1. MANHOLE BASE AND ALL SECTIONS SHALL BE PRECAST TO CONFORM TO ASTM C478.
2. THE PRE-TREATMENT MANHOLE SHALL BE CONSTRUCTED TO ENSURE WATER TIGHTNESS.
3. ANY APPROVED EQUIVALENTS REQUIRE CITY ENGINEER'S WRITTEN APPROVAL.
4. SNOUTS ARE ALLOWED. INSTALL AS PER MANUFACTURERS RECOMMENDATIONS.
5. FOR PRE-TREATMENT OUTLET DIAMETER PIPE 21" AND LARGER, DEPTH = 2.5 TIMES THE DIAMETER. DEPTH IS DISTANCE BELOW THE OUTLET FLOW LINE AND THE BOTTOM OF THE PRE-TREATMENT STRUCTURE.

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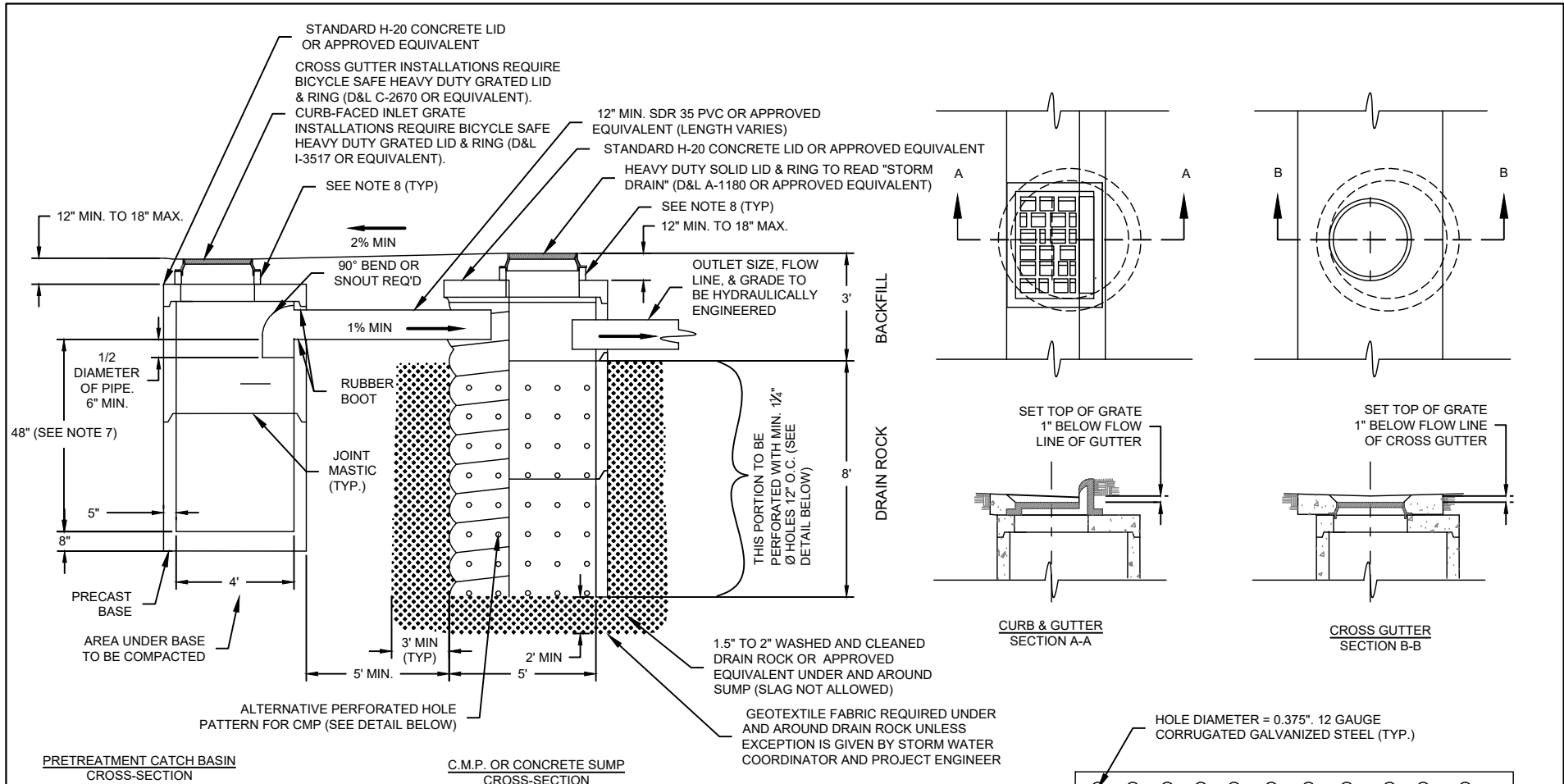
**CONSTRUCTION STANDARD  
DRAWINGS**

**CITY OF OREM**

**PRE-TREATMENT CATCH BASIN**

REV. 4/2024

SD-2

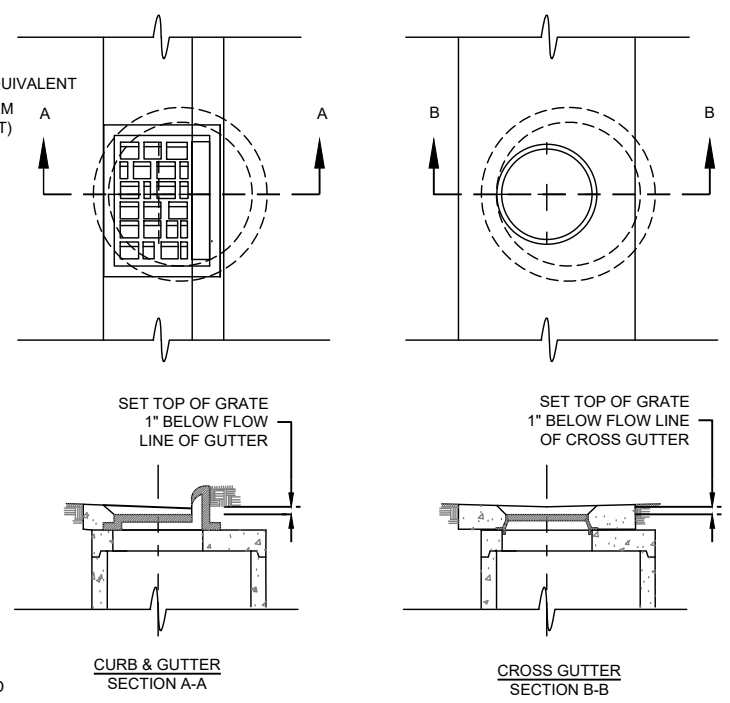
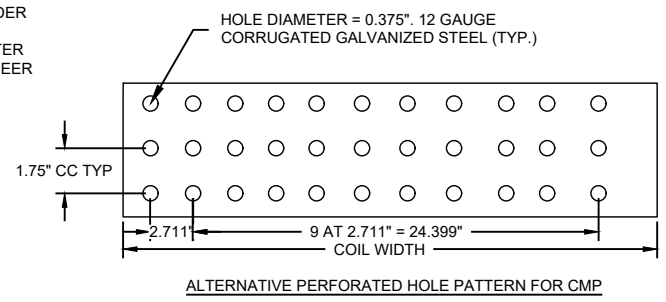
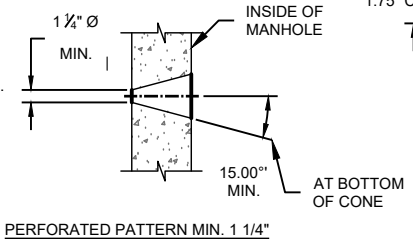


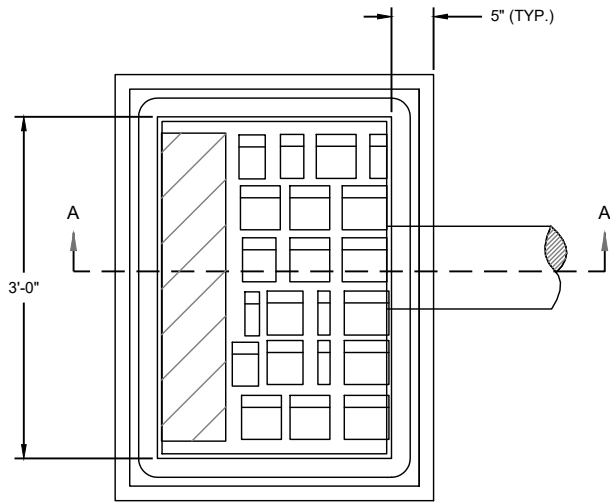
**PRETREATMENT CATCH BASIN CROSS-SECTION**

**C.M.P. OR CONCRETE SUMP CROSS-SECTION**

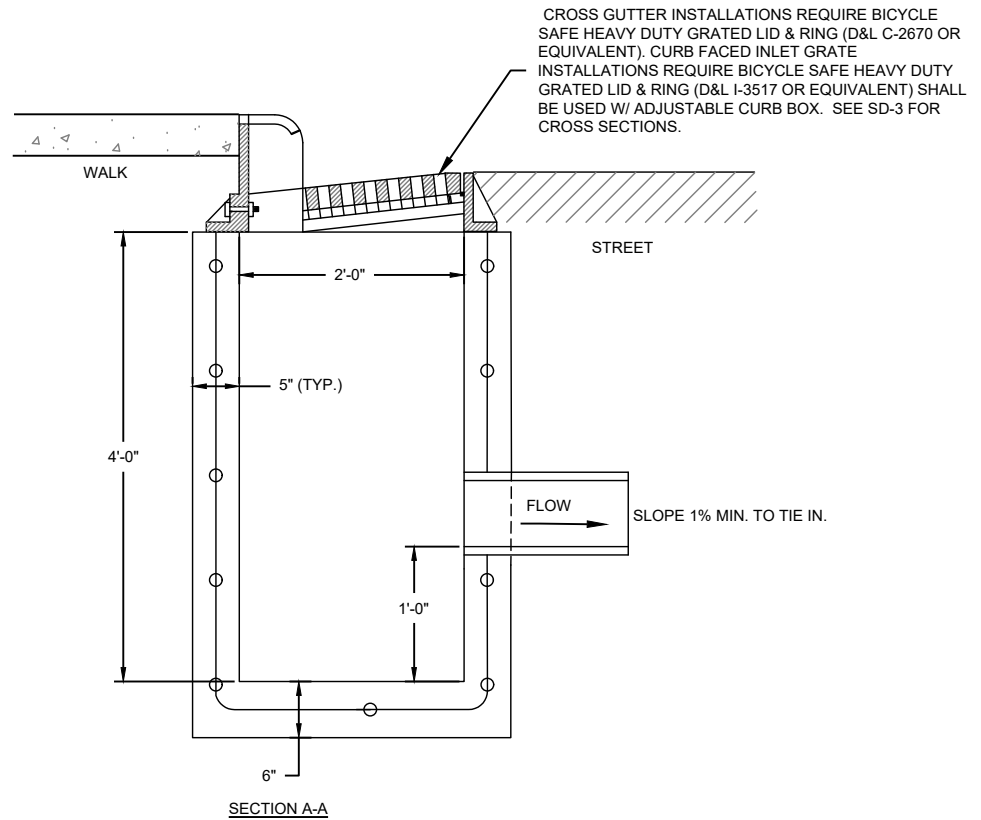
**NOTES:**

1. MANHOLE BASE AND ALL SECTIONS SHALL BE PRECAST TO CONFORM TO ASTM C478.
2. THE SUMP SHALL BE 5' GALVANIZED 12 GA. OR CONCRETE.
3. THE PRE-TREATMENT MANHOLE SHALL BE CONSTRUCTED TO ENSURE WATER TIGHTNESS.
4. THE SUMP SHALL BE LOCATED 5' OFFSET FROM MANHOLE PERPENDICULAR TO GUTTER ALIGNMENT.
5. THE SUMP LID SHALL NOT BE LOCATED IN THE SIDEWALK SECTION.
6. ANY APPROVED EQUIVALENTS REQUIRE CITY ENGINEER'S WRITTEN APPROVAL.
7. FOR PRE-TREATMENT OUTLET DIAMETER PIPE 21" AND LARGER, DEPTH = 2.5 TIMES THE DIAMETER. DEPTH IS DISTANCE BELOW THE OUTLET FLOW LINE AND THE BOTTOM OF THE PRE-TREATMENT STRUCTURE.
8. INFRA-RISER, WHIRLYGIG, GRADE RINGS, OR APPROVED EQUIVALENT REQ'D TO MAKE LID FLUSH W/ FINAL SURFACE. (NO SHIMS ALLOWED)





PLAN VIEW



CROSS GUTTER INSTALLATIONS REQUIRE BICYCLE SAFE HEAVY DUTY GRATED LID & RING (D&L C-2670 OR EQUIVALENT). CURB FACED INLET GRATE INSTALLATIONS REQUIRE BICYCLE SAFE HEAVY DUTY GRATED LID & RING (D&L I-3517 OR EQUIVALENT) SHALL BE USED W/ ADJUSTABLE CURB BOX. SEE SD-3 FOR CROSS SECTIONS.

**NOTES:**

1. REBAR #4 BARS SPACED A MAX 14" O.C. HORIZ. AND VERT. 14" OVER LAP ON REBAR REQUIRED.

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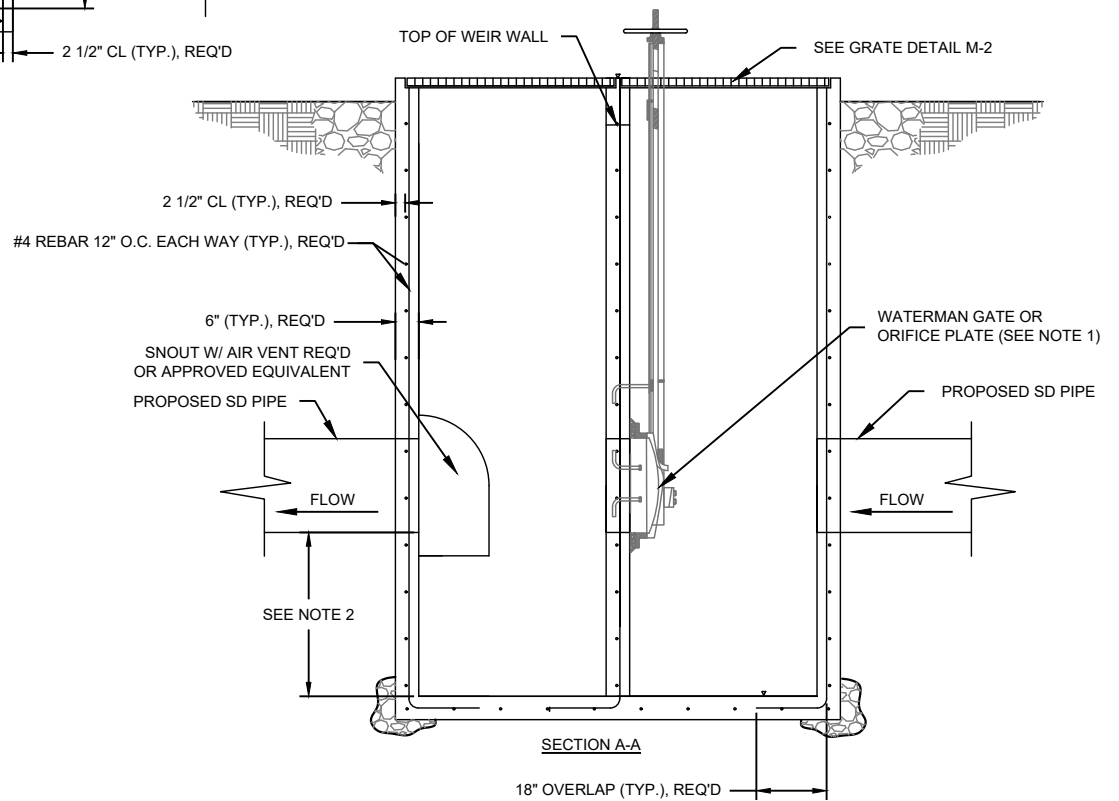
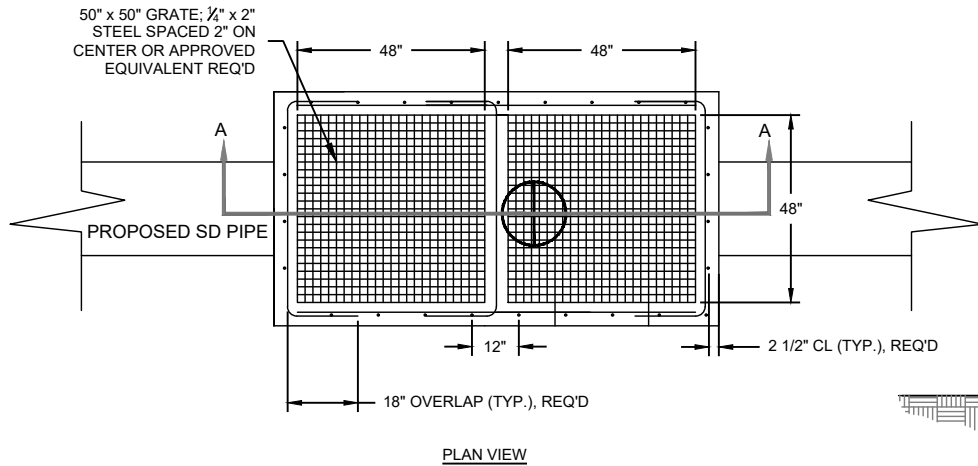
CONSTRUCTION STANDARD DRAWINGS

CITY OF OREM

STANDARD CATCH BASIN

REV. 4/2024

SD-4



**NOTES:**

1. ORIFICE PLATE SHALL BE GALVANIZED OR STAINLESS STEEL WITH MINIMUM THICKNESS OF 1/4". ORIFICE PLATE SIZE AND ELEVATION WILL VARY BASED ON DESIGN.
2. FOR PRE-TREATMENT OUTLET DIAMETER PIPE 21" AND LARGER, DEPTH = 2.5 TIMES THE DIAMETER. DEPTH IS DISTANCE BELOW THE OUTLET FLOW LINE AND THE BOTTOM OF THE PRE-TREATMENT STRUCTURE.

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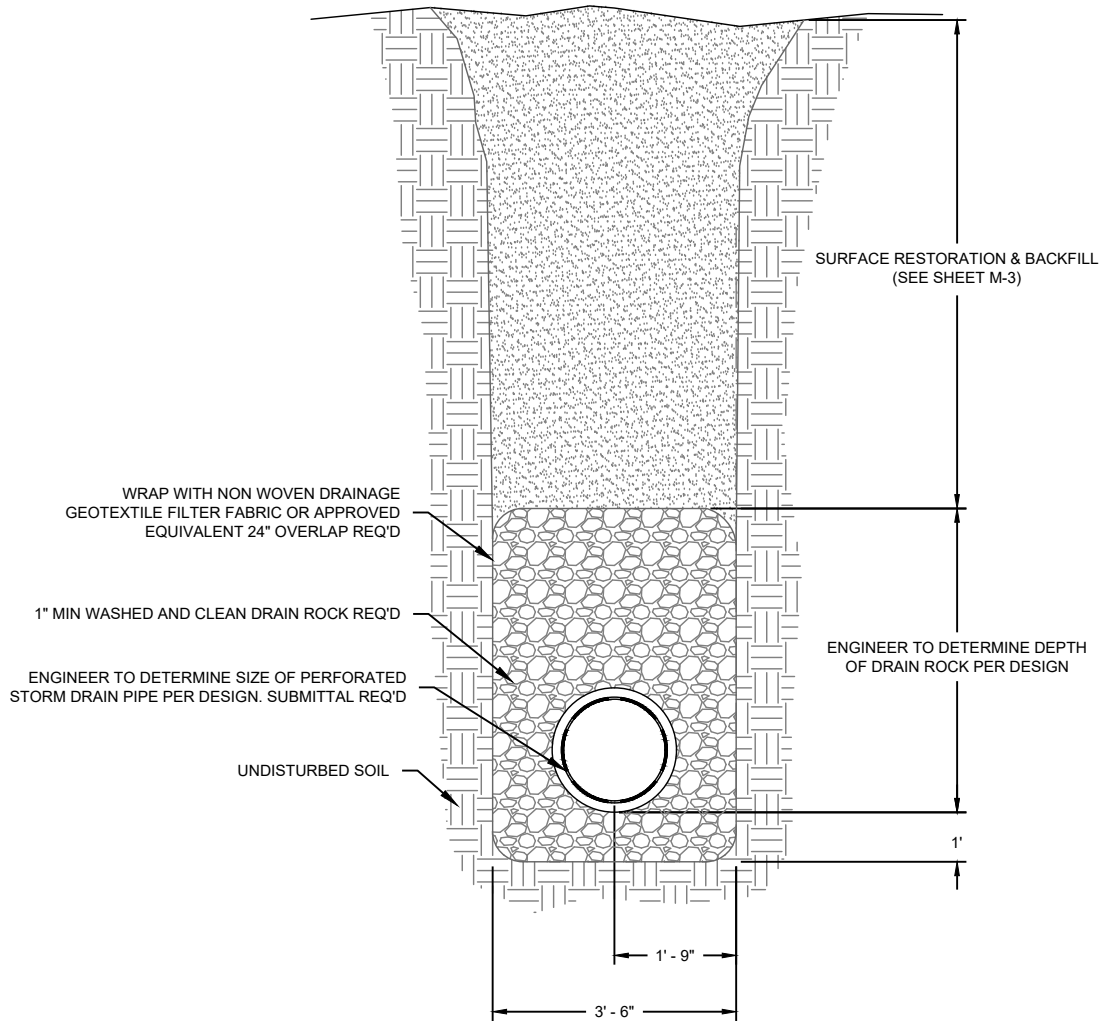
CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

OUTLET CONTROL STRUCTURE

REV. 4/2024

SD-5



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CONSTRUCTION STANDARD  
DRAWINGS

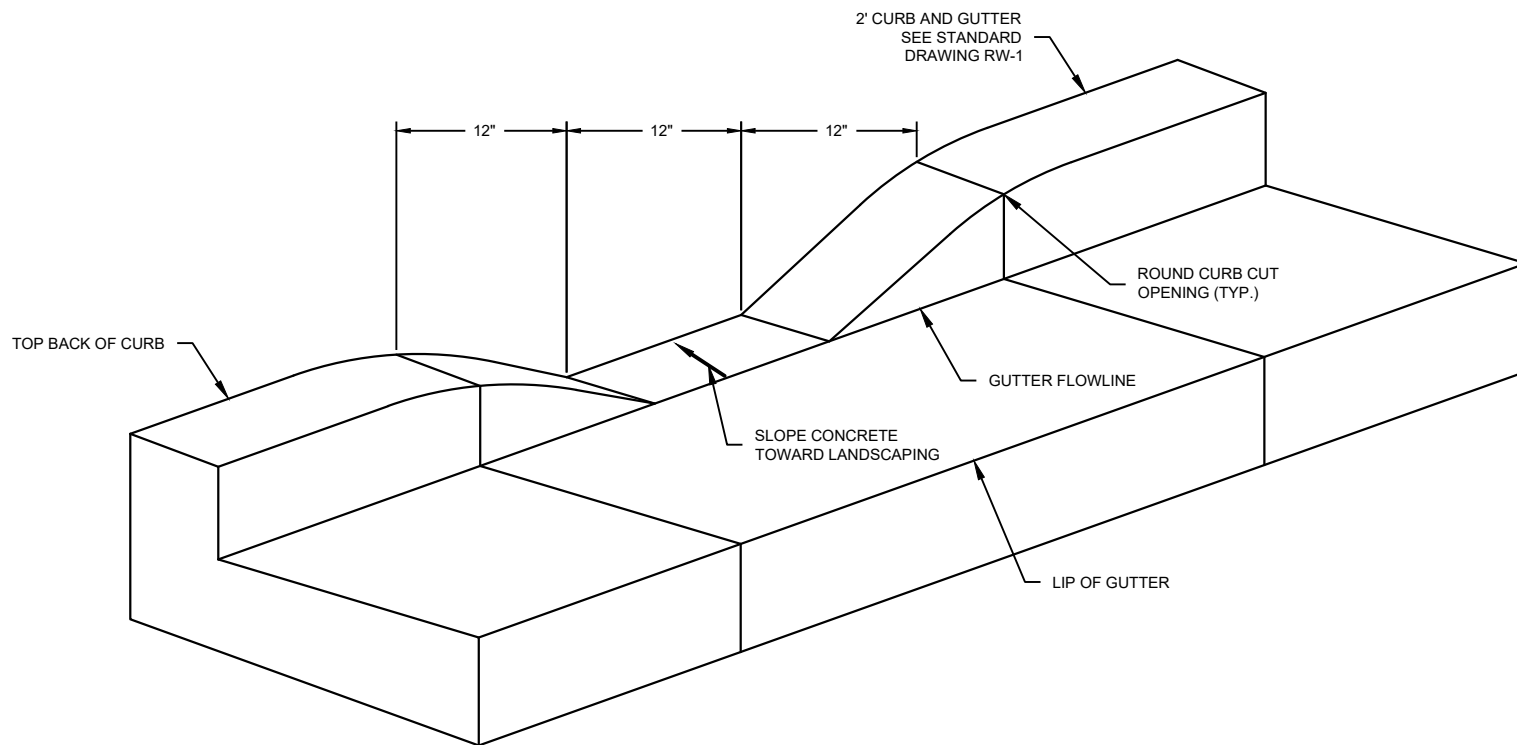
CITY OF OREM

GROUNDWATER TRENCH

REV. 4/2024

SD-6





**NOTES:**

1. LANDSCAPING ADJACENT TO CURB CUT IS TO BE INSTALLED 2" BELOW AND SLOPED AWAY FROM CURB CUT TO PREVENT BLOCKAGE.

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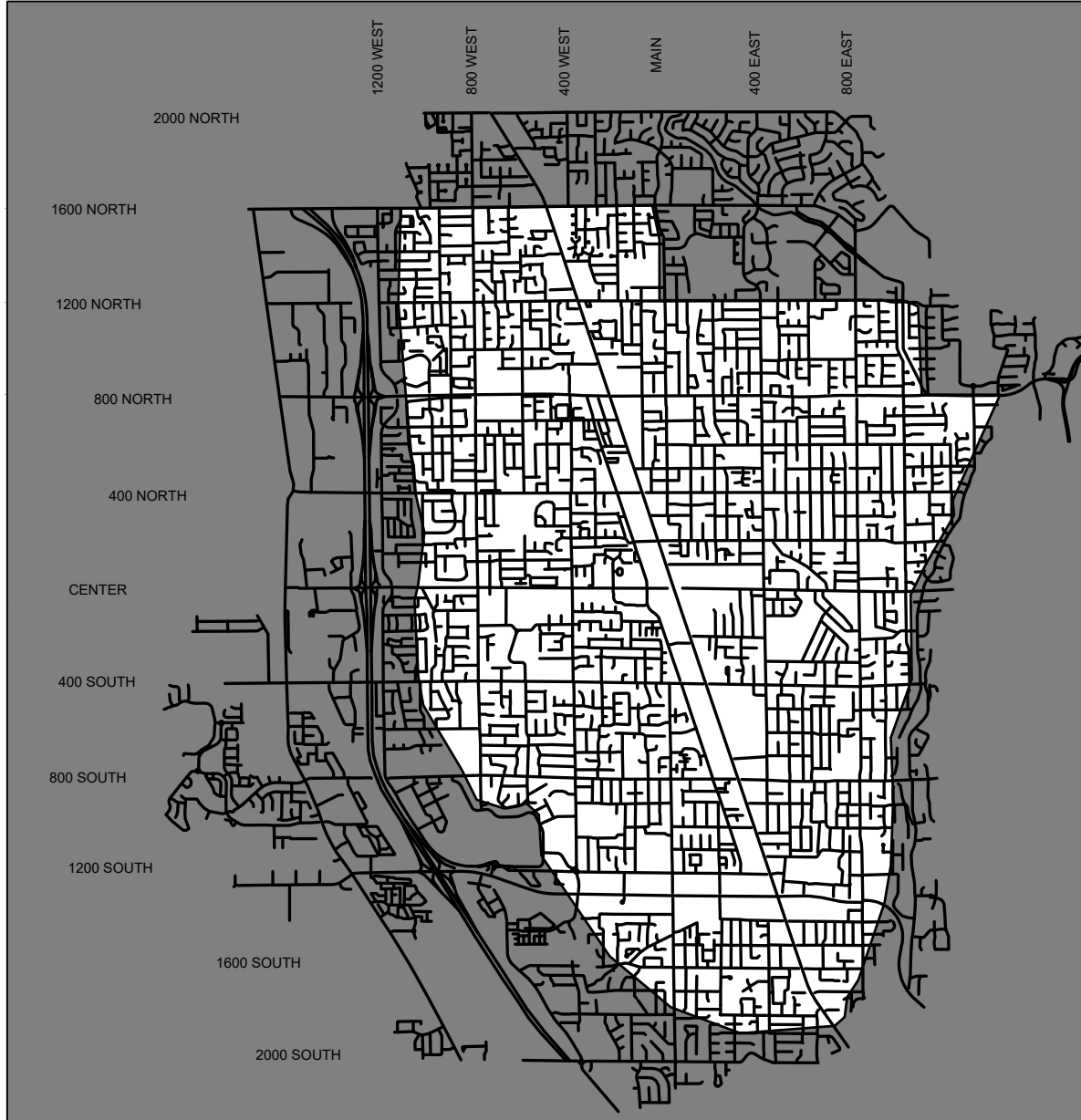
CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

CURB CUT

REV. 4/2024

SD-7



**NOTES:**

1. SUMPS MAY ONLY BE USED IF THE CITY ENGINEER APPROVES SUMPS BASED ON SOILS REPORTS W/ PERCOLATION RATES.

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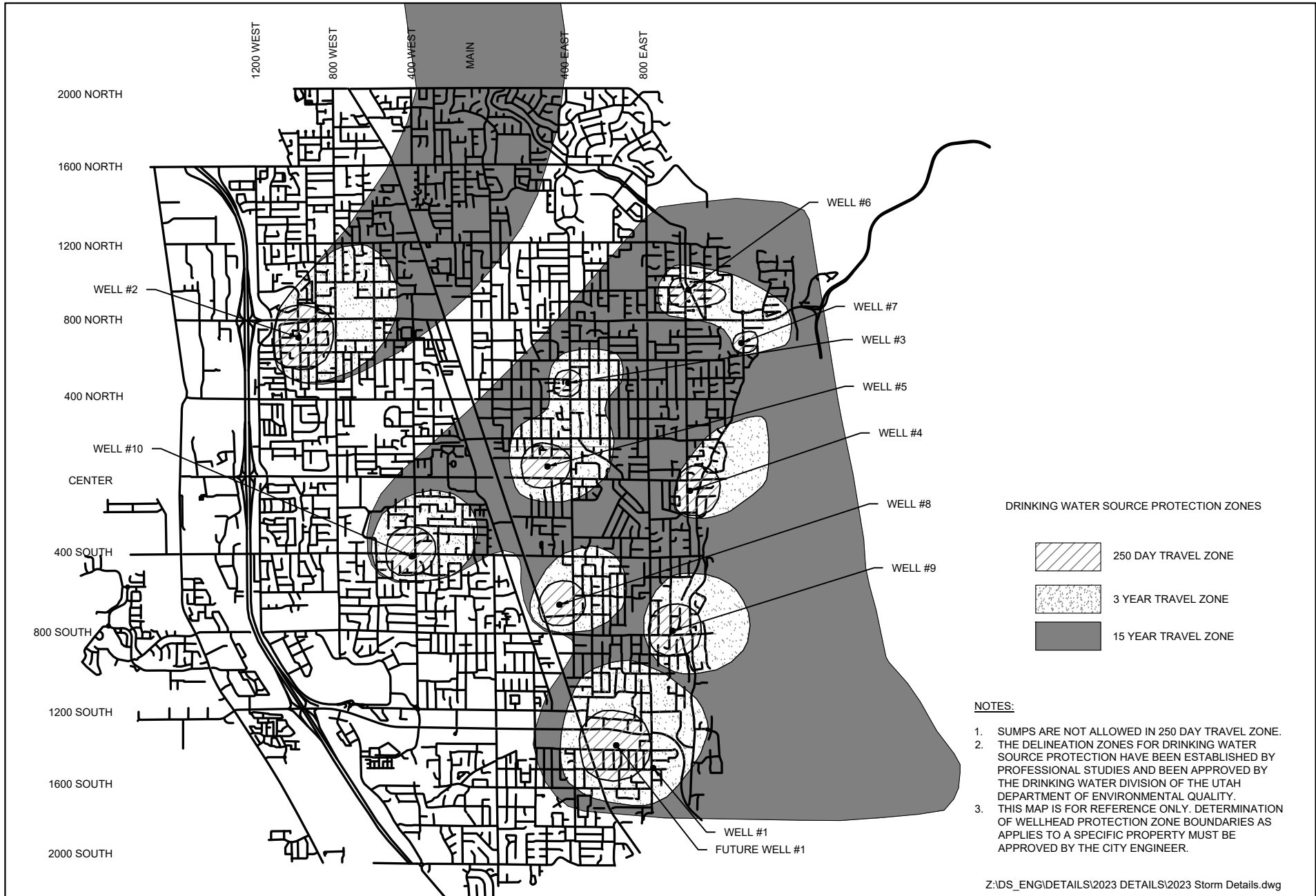
CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

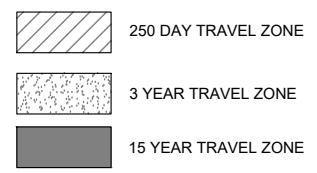
POOR PERCOLATION MAP

REV. 4/2024

SD-8



DRINKING WATER SOURCE PROTECTION ZONES



NOTES:

1. SUMPS ARE NOT ALLOWED IN 250 DAY TRAVEL ZONE.
2. THE DELINEATION ZONES FOR DRINKING WATER SOURCE PROTECTION HAVE BEEN ESTABLISHED BY PROFESSIONAL STUDIES AND BEEN APPROVED BY THE DRINKING WATER DIVISION OF THE UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY.
3. THIS MAP IS FOR REFERENCE ONLY. DETERMINATION OF WELLHEAD PROTECTION ZONE BOUNDARIES AS APPLIES TO A SPECIFIC PROPERTY MUST BE APPROVED BY THE CITY ENGINEER.

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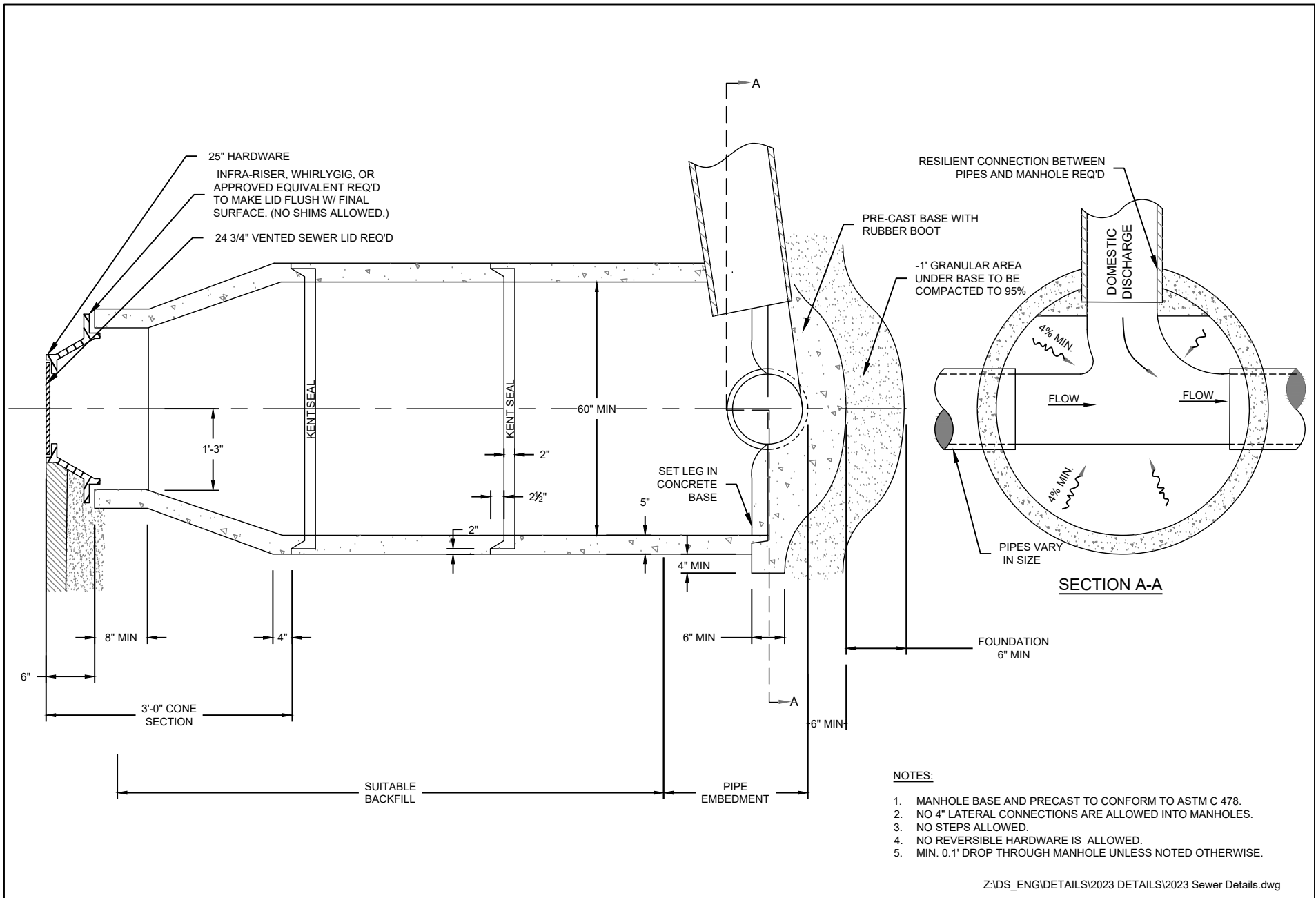


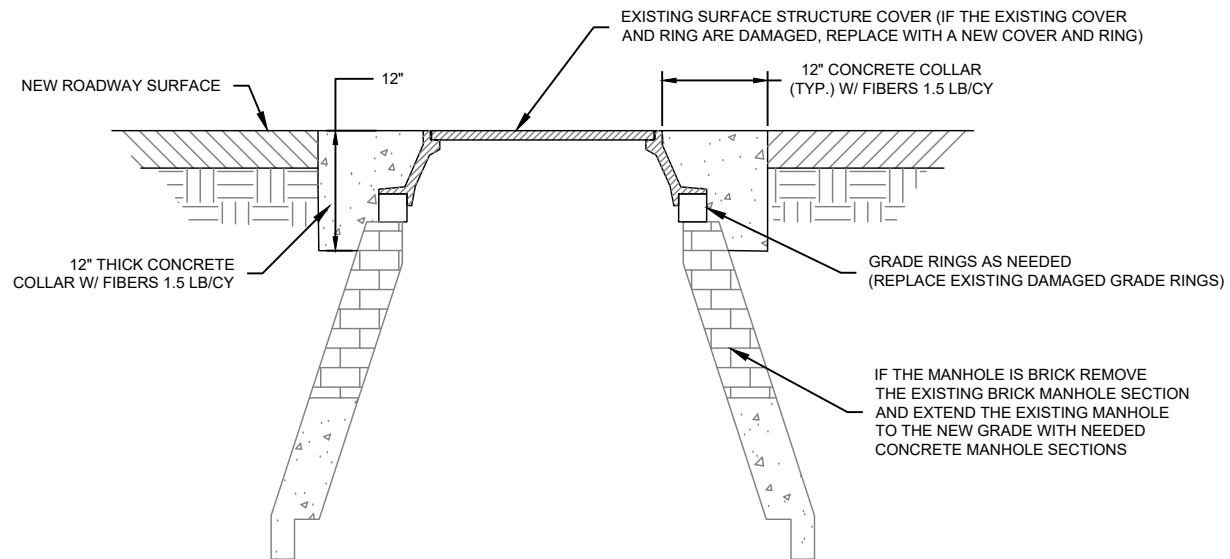
CONSTRUCTION STANDARD DRAWINGS

CITY OF OREM

DRINKING WATER SOURCE PROTECTION ZONES

REV. 4/2024  
SD-9





**NOTES:**

1. CONCRETE COLLARS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 33 05 14 THE SPECIFICATIONS.
2. SURFACE/COVERS/LIDS STRUCTURES SHALL BE BURIED NO MORE THAN 10 CONTINUOUS CALENDAR DAYS.
3. KEEP LID 1/4" LOW WHEN LEVELING HARDWARE DURING COLLAR INSTALLATION.
4. 2 CONCRETE RISERS ARE ALLOWED (MAX. 12" OF CONCRETE) AND MAX. 3" OF METAL GRADE RINGS ALLOWED.
5. REVERSIBLE HARDWARE IS NOT ALLOWED.

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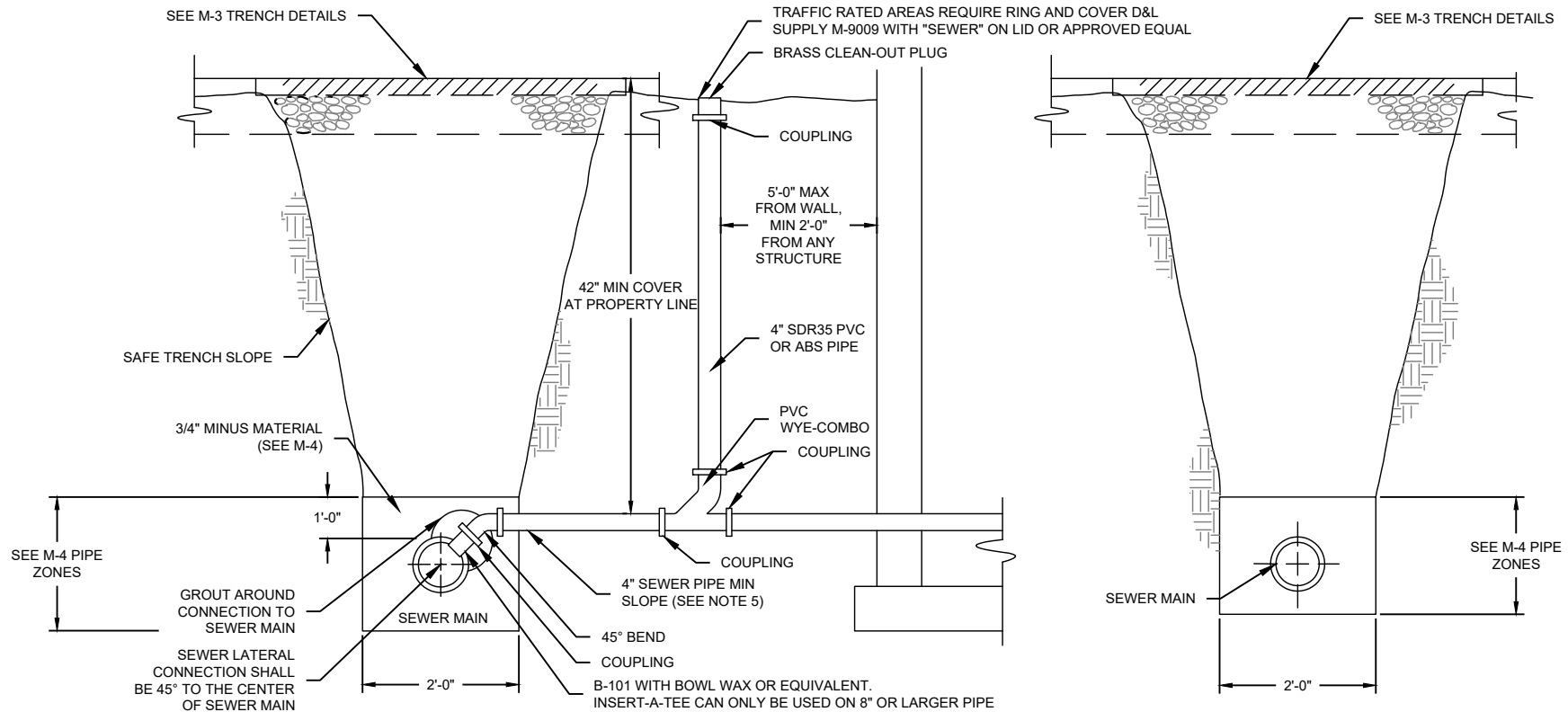
CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

RECONSTRUCT BRICK MANHOLE

REV. 4/2024

SS-2



**NOTES:**

1. CLEANOUT REQ'D EVERY 75.
2. INSTALL ADDITIONAL CLEANOUT REQ'D 5'-0" MAX. FROM WALL OF BUILDING STRUCTURE.
3. CLEANOUT REQ'D 2' MIN. TO 4' MAX. FROM PROPERTY LINE.
4. IF FERNCO'S ARE USED THEY ARE REQUIRED TO BE SHEAR BANDS OR APPROVED EQUAL.
5. ALL SEWER LATERALS ARE REQUIRED TO HAVE A MINIMUM OF 2.0% SLOPE. A 1.0% MINIMUM SLOPE MAY BE ALLOWED FOR THE FOLLOWING TYPES OF PIPE:
  - SDR-35 PVC PIPE FOR 6" DIAMETER AND LARGER
  - ABS OR SCHEDULE 40 PVC PIPE FOR 4" DIAMETER.
6. IF THE DIAMETER OF THE SEWER LATERAL PIPE IS GREATER THAN HALF THE SIZE OF THE SEWER MAIN LINE PIPE A MANHOLE SHALL BE PLACED AT THE MAIN LINE CONNECTION.

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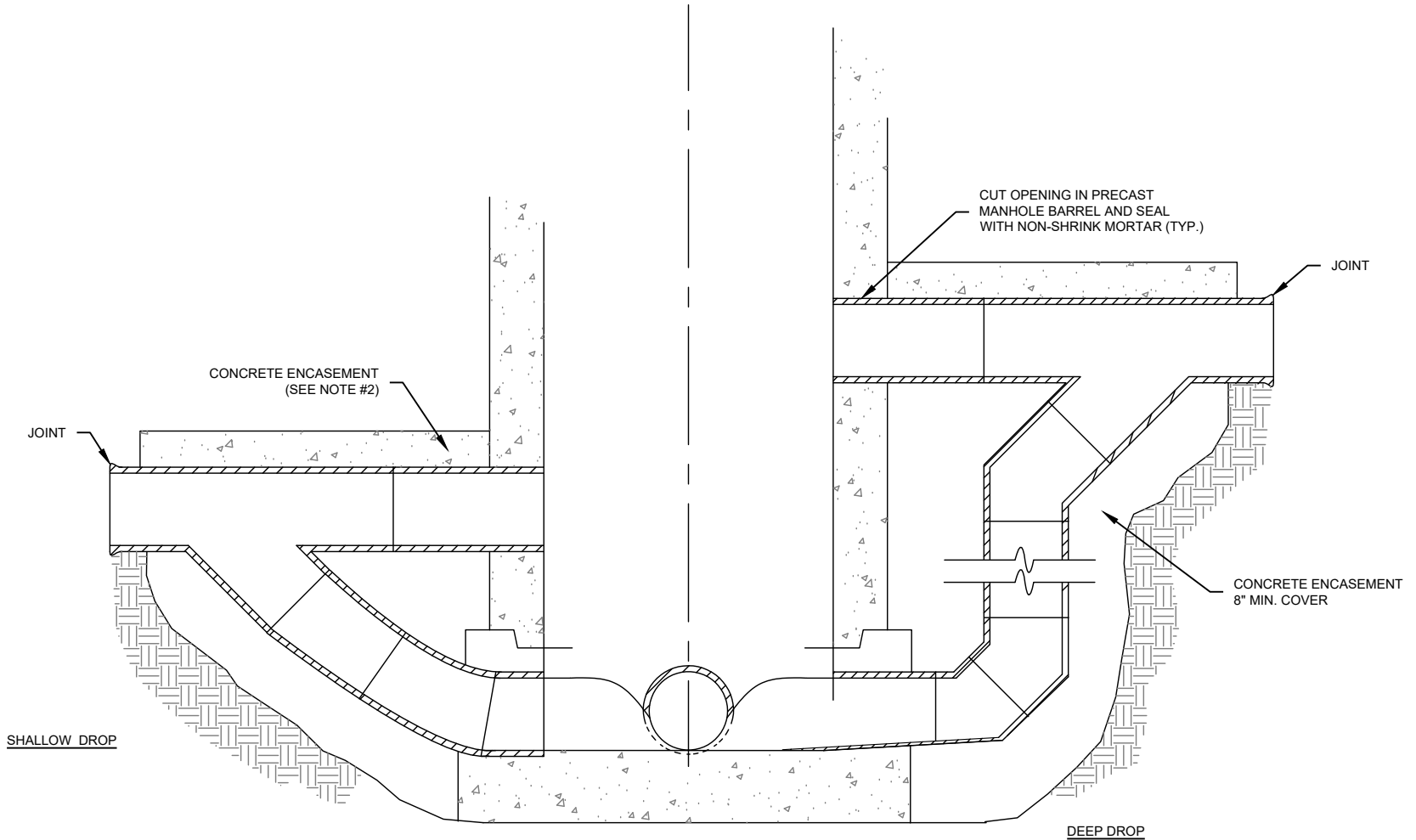
CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

SEWER LATERAL CONNECTION

REV. 4/2024

SS-3



**NOTES:**

1. CONCRETE PLACED AGAINST UNDISTURBED MATERIAL OR SHEETING.
2. EXTEND CASEMENT TO FIRST JOINT BEYOND EXCAVATION FOR DROP CONNECTION.
3. DROP PIPE TO BE SAME DIAMETER AS SEWER DISCHARGING INTO MANHOLE FOR SEWERS UP TO AND INCLUDING 12" SIZE.
4. IF THE ELEVATION DIFFERENCE FROM FLOWLINE IN TO FLOWLINE OUT IS 12" TO 24" USE SHALLOW DROP DETAIL. IF IT IS GREATER THAN 24" USE DEEP DROP DETAIL.
5. SEE MANHOLE DETAIL SS-1 FOR MORE DETAILS ON MANHOLE CONSTRUCTION.

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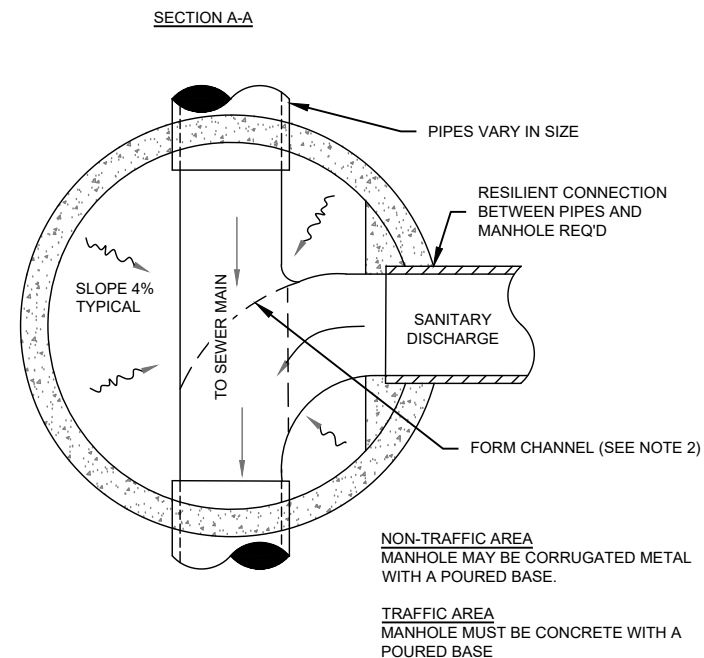
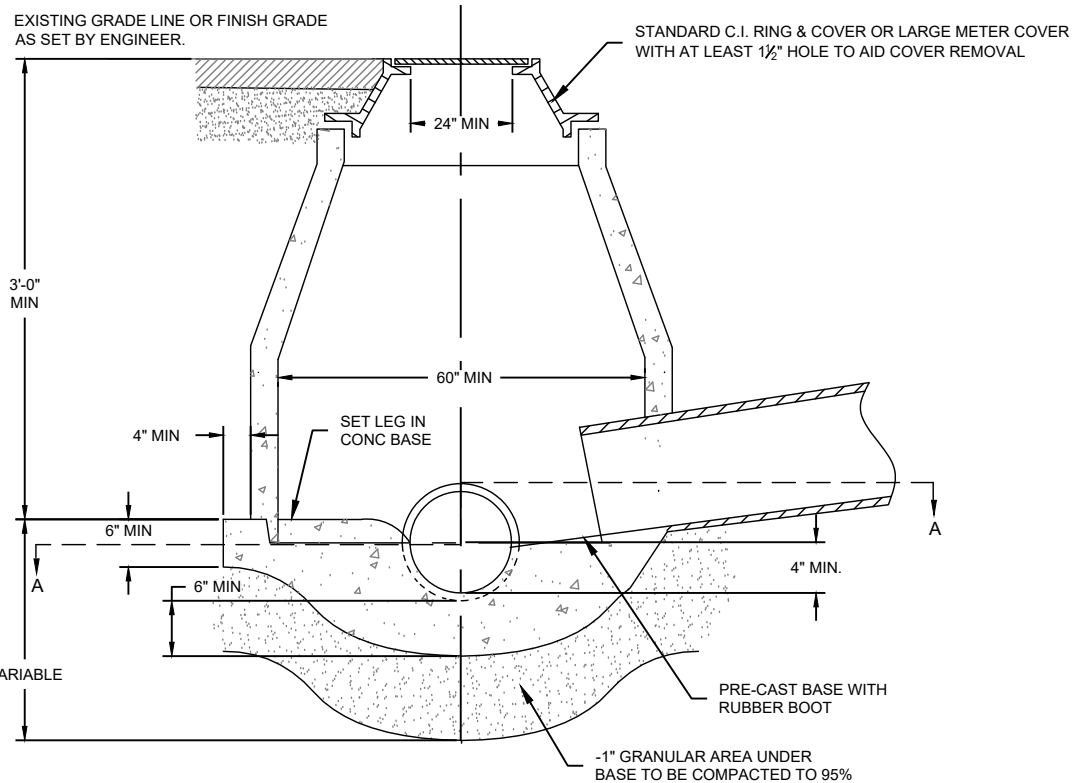
CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

DROP MANHOLE SECTION

REV. 4/2024

SS-4



NOTES:

1. SUBMITTAL REQUIRED FOR GREASE TRAPS PER SUPPLEMENTAL SPECIFICATIONS SECTION 33 31 00 SANITARY SEWERAGE SYSTEMS 3.12 SEWER GREASE TRAPS.
2. PROCESS INVERT SHALL BE HALF THE PIPE DIAMETER HIGHER THEN THE DOMESTIC. FORM CHANNEL FOR SANITARY SEWER. PROCESS SEWER MUST DROP INTO SANITARY SEWER.

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CONSTRUCTION STANDARD DRAWINGS

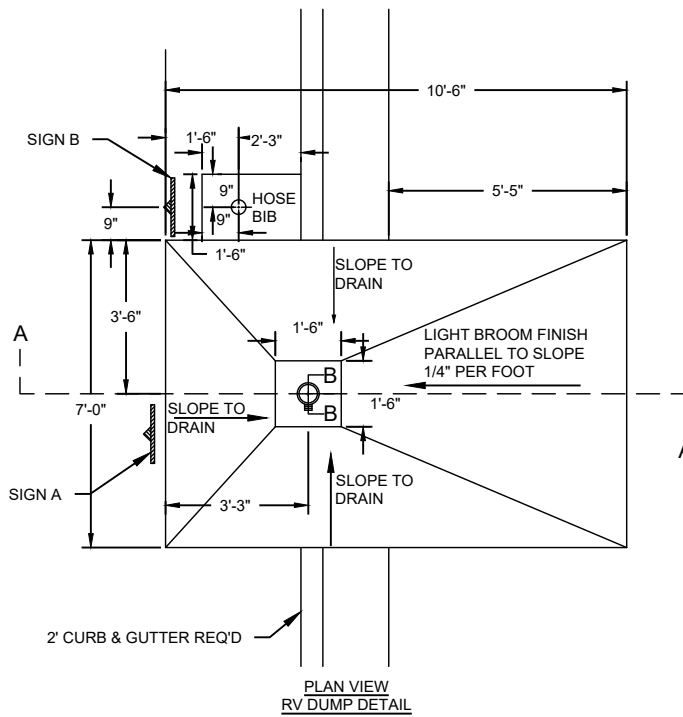
CITY OF OREM

GREASE TRAP SAMPLING MANHOLE

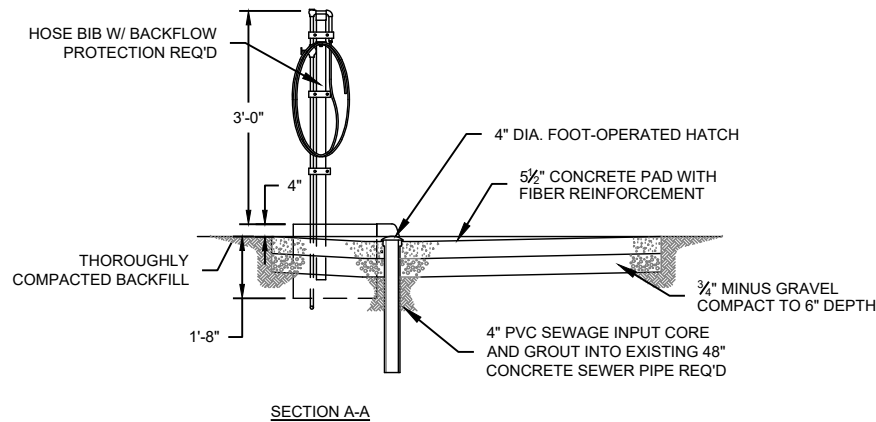
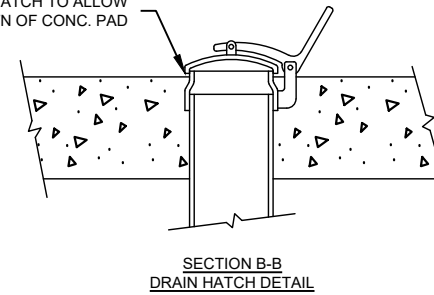
REV. 4/2024

SS-5





POUR TO TOP OF HATCH TO ALLOW  
EASY WASH-DOWN OF CONC. PAD



**HOLDING TANK DISPOSAL  
INSTRUCTIONS**

CONNECT YOUR HOSE TO HOLDING  
TANK - PLACE END SECURELY  
IN DRAIN OPENING WHILE  
HOLDING COVER OPEN WITH FOOT  
- OPEN TRAILER TANK VALVE -  
FLUSH TANK WITH WATER HOSE  
- FLUSH AWAY ANY SPILLAGE  
INTO DRAIN

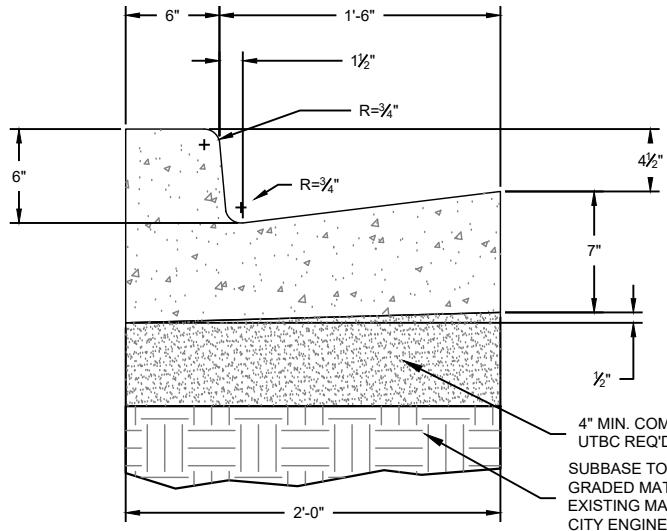
SIGN 'A'

**UNSAFE WATER**

USE THIS HOSE FOR FLUSHING  
TRAILER HOLDING TANK ONLY

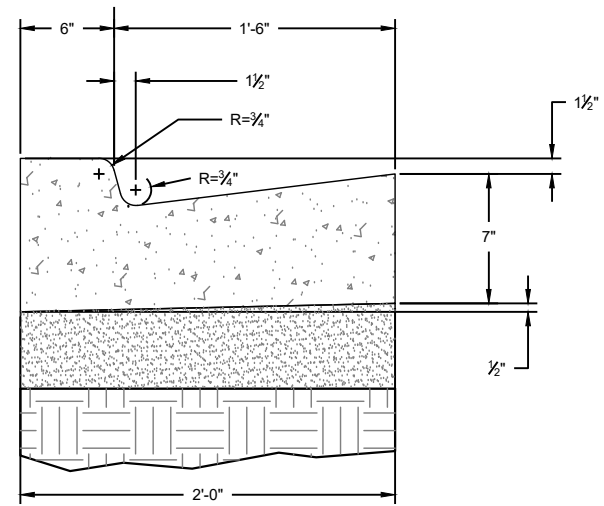
SIGN 'B'

TYPICAL SECTION

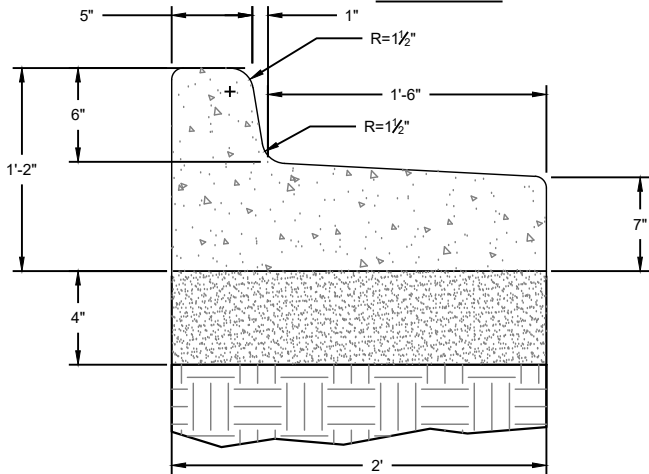


4" MIN. COMPACTED  
UTBC REQ'D (TYP.)  
SUBBASE TO BE A MINIMUM OF 6" OF A-1  
GRADED MATERIAL. REMOVAL OF  
EXISTING MATERIAL AS DETERMINED BY  
CITY ENGINEER. (TYP)

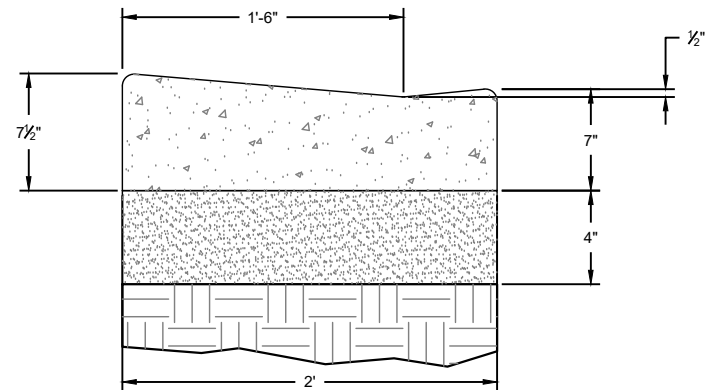
DRIVE APPROACH



TYPICAL SECTION W/ REVERSE  
CURB & GUTTER

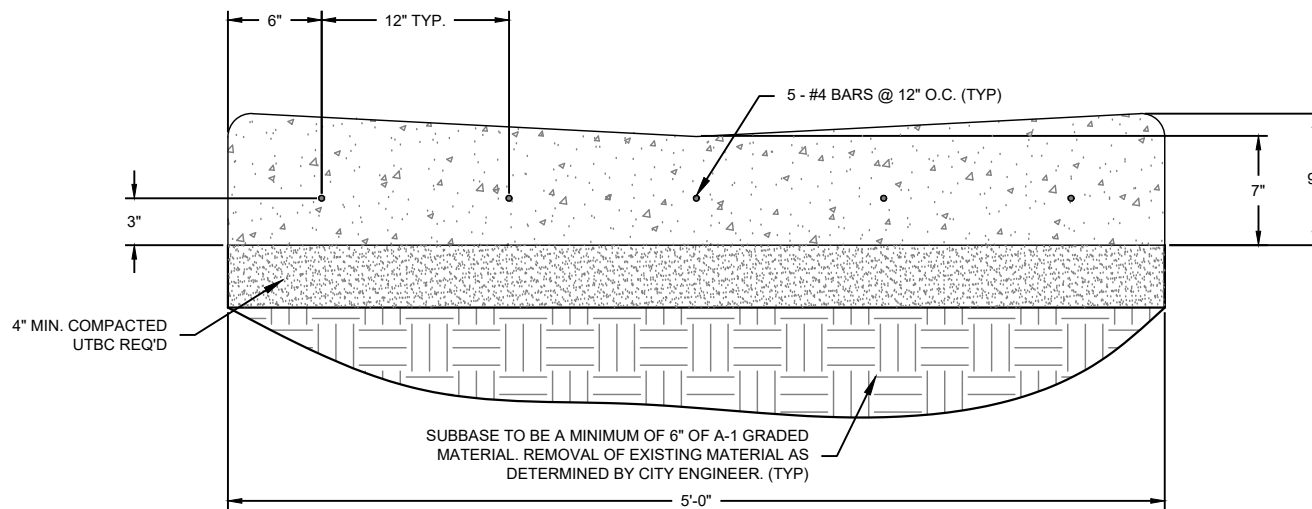


ADA RAMP



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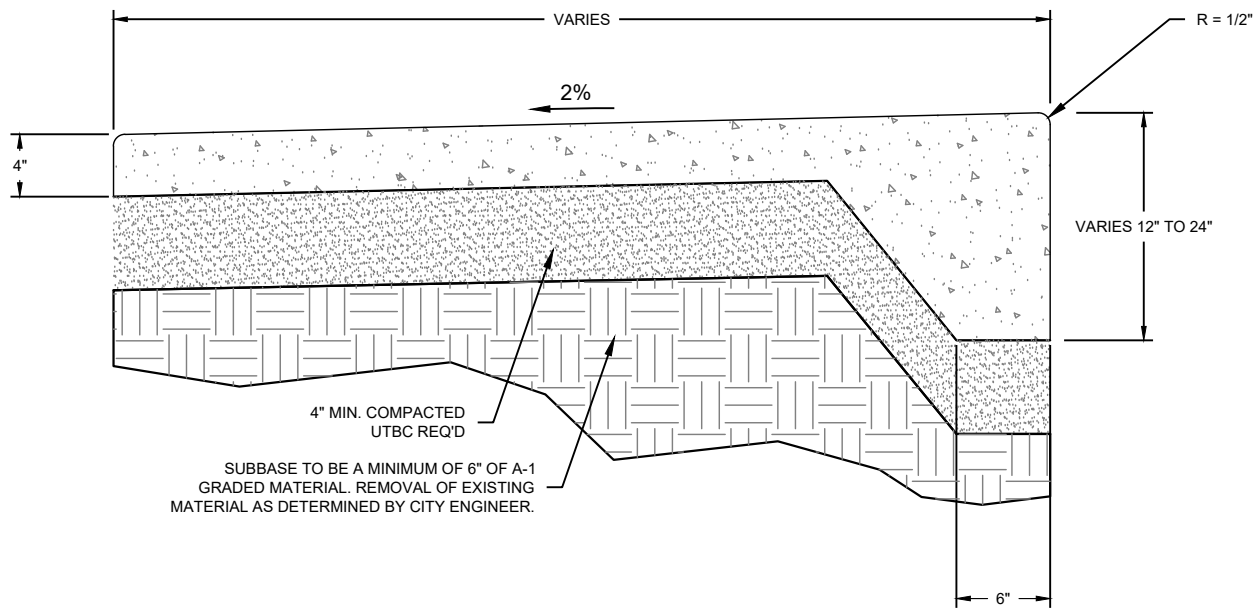
CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

5' CONCRETE CROSS GUTTER

REV. 4/2024

RW-2



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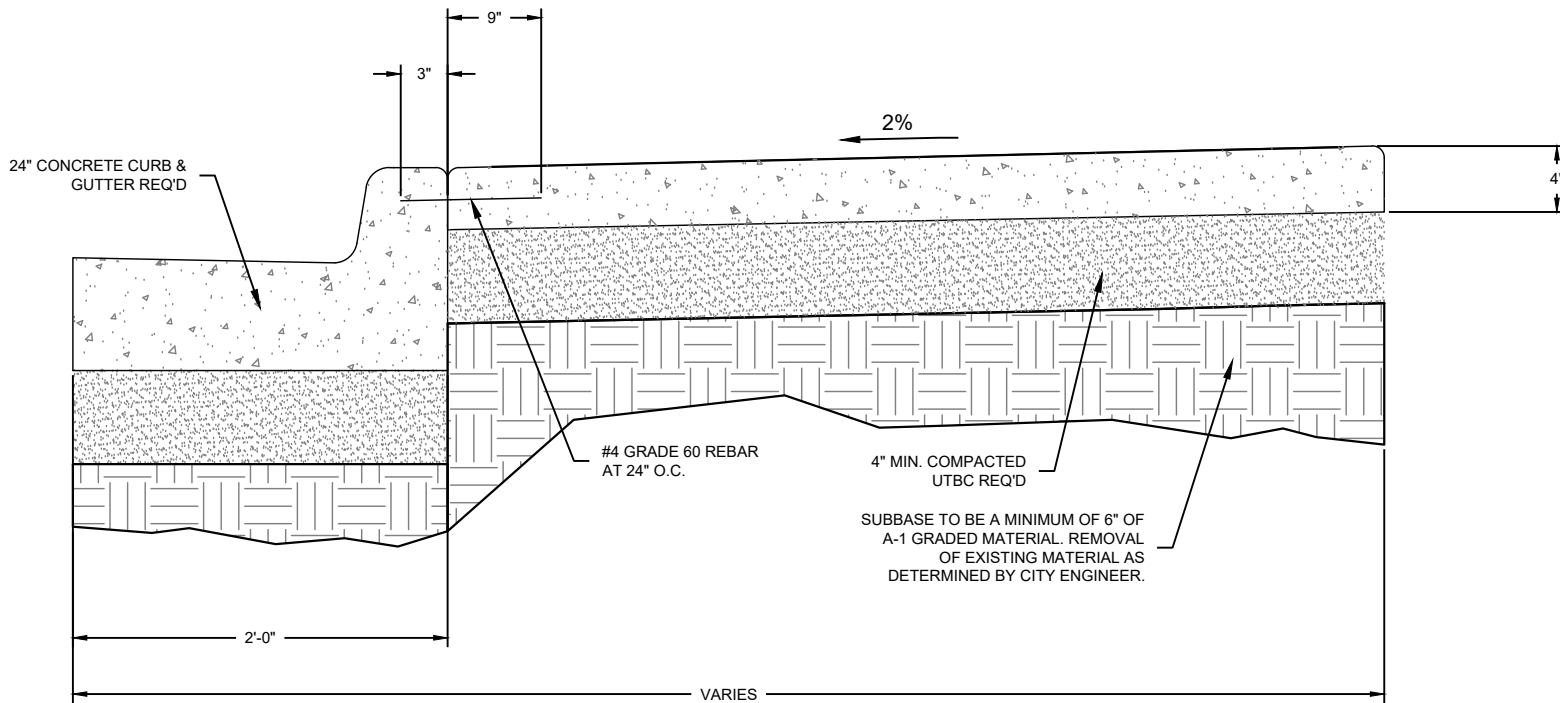
CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

THICKENED EDGE SIDEWALK

REV. 4/2024

RW-3



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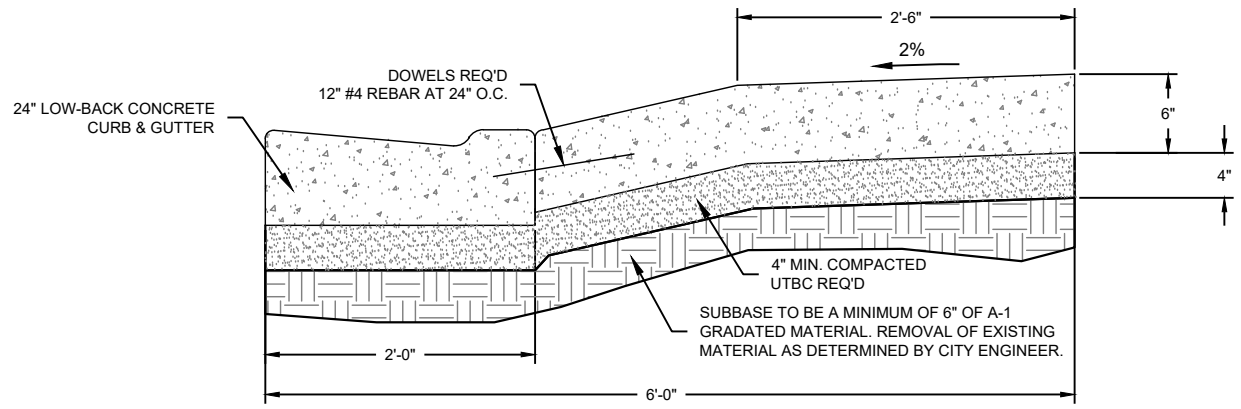
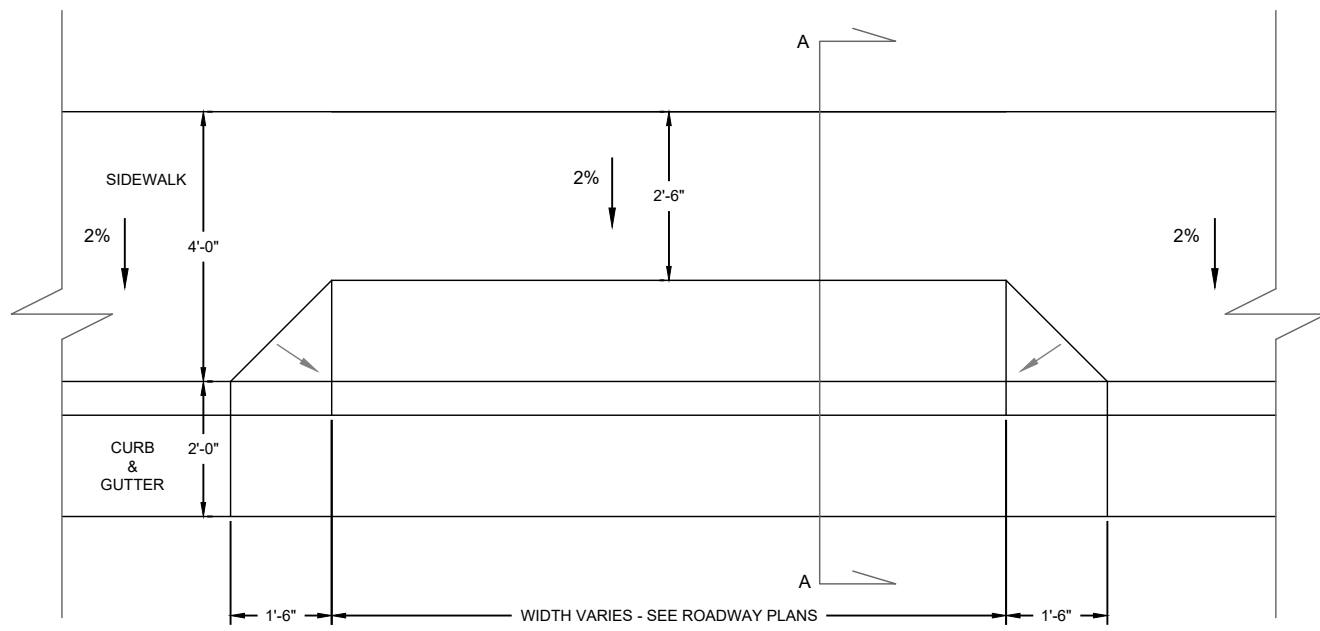
CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

CONCRETE CURB, GUTTER &  
SIDEWALK

REV. 4/2024

RW-4



SECTION A-A

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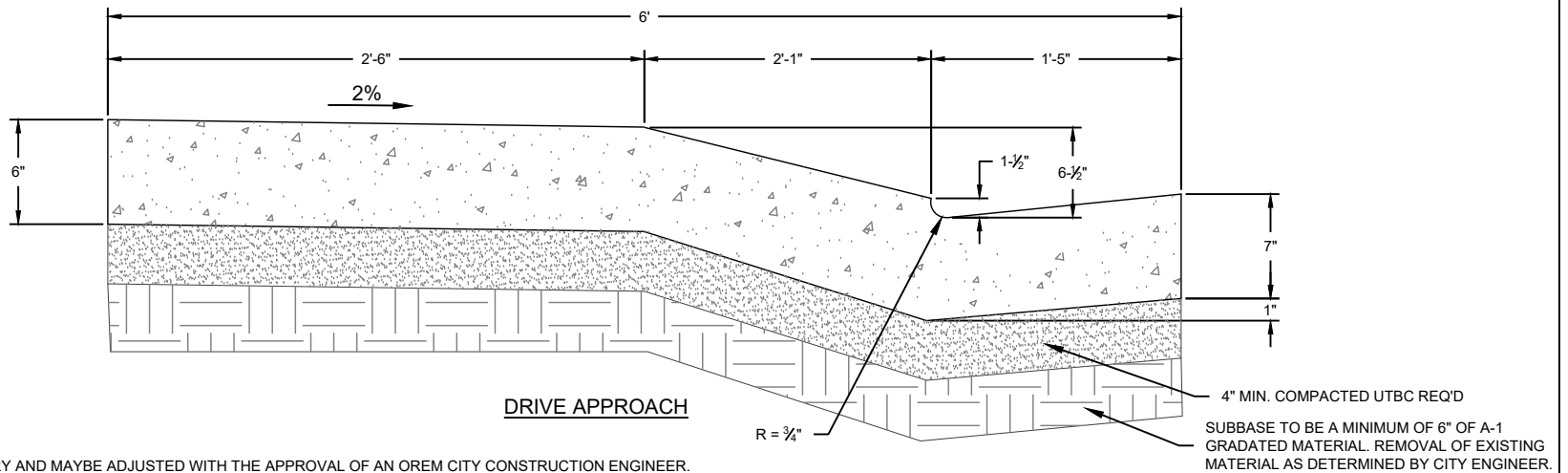
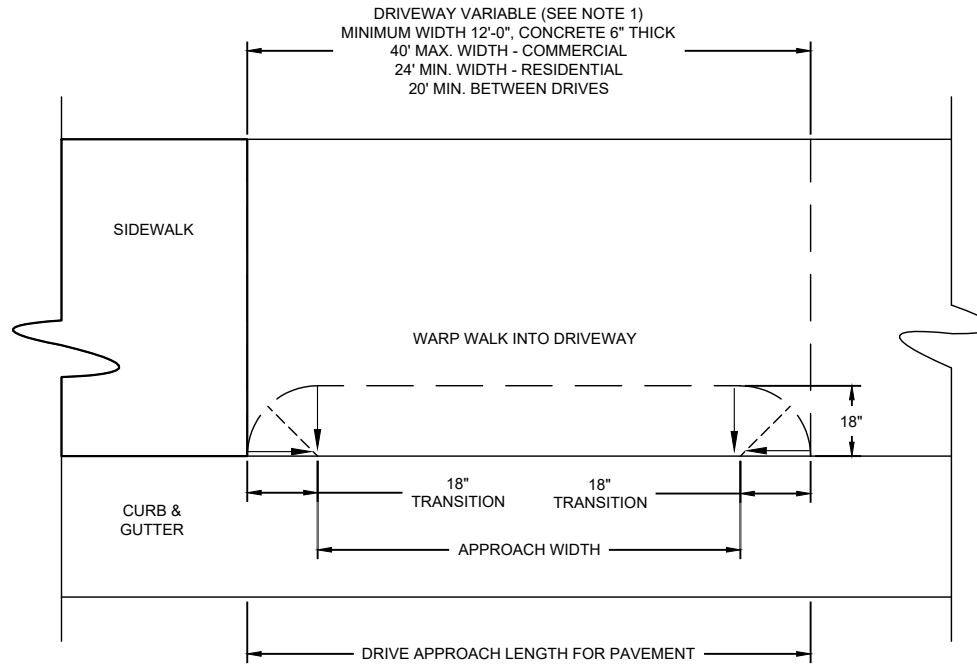


CONSTRUCTION STANDARD DRAWINGS

CITY OF OREM

6' CURB, GUTTER & SIDEWALK DRIVE APPROACH

REV. 4/2024  
RW-5



NOTES:

1. DRIVEWAY WIDTHS VARY AND MAYBE ADJUSTED WITH THE APPROVAL OF AN OREM CITY CONSTRUCTION ENGINEER.

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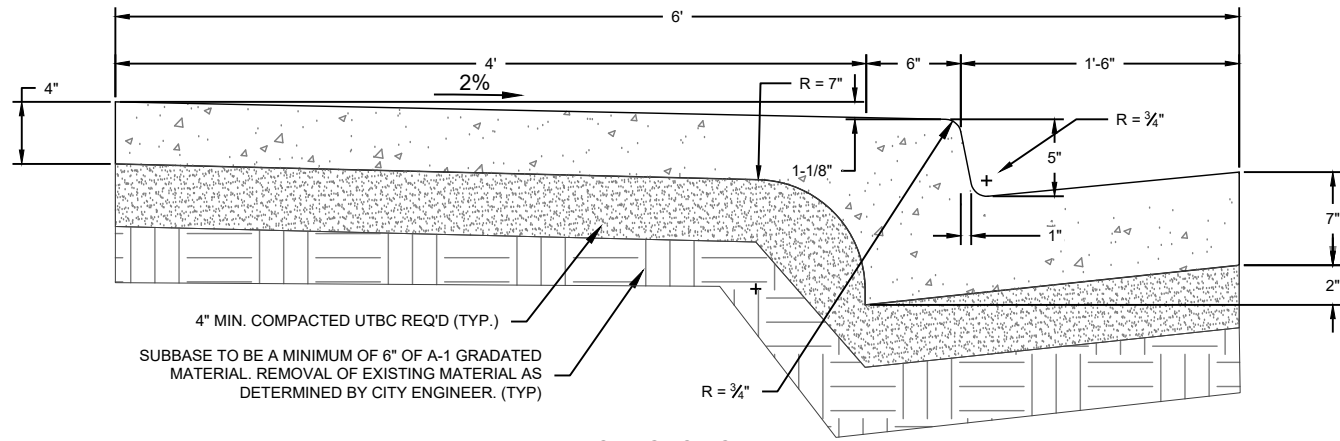
CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

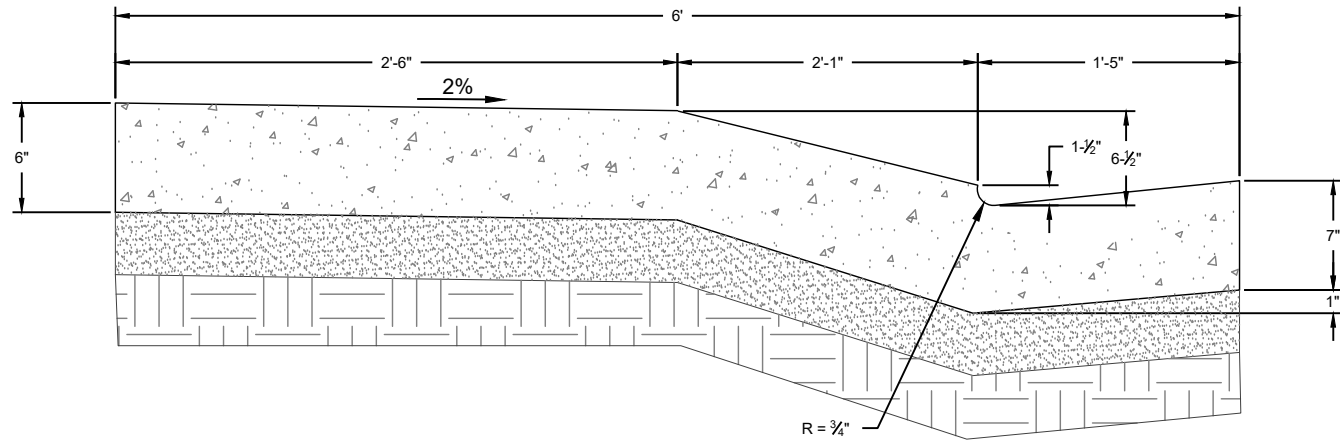
COMBINATION DRIVE APPROACH

REV. 4/2024

RW-6



TYPICAL SECTION



DRIVE APPROACH

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CONSTRUCTION STANDARD  
DRAWINGS

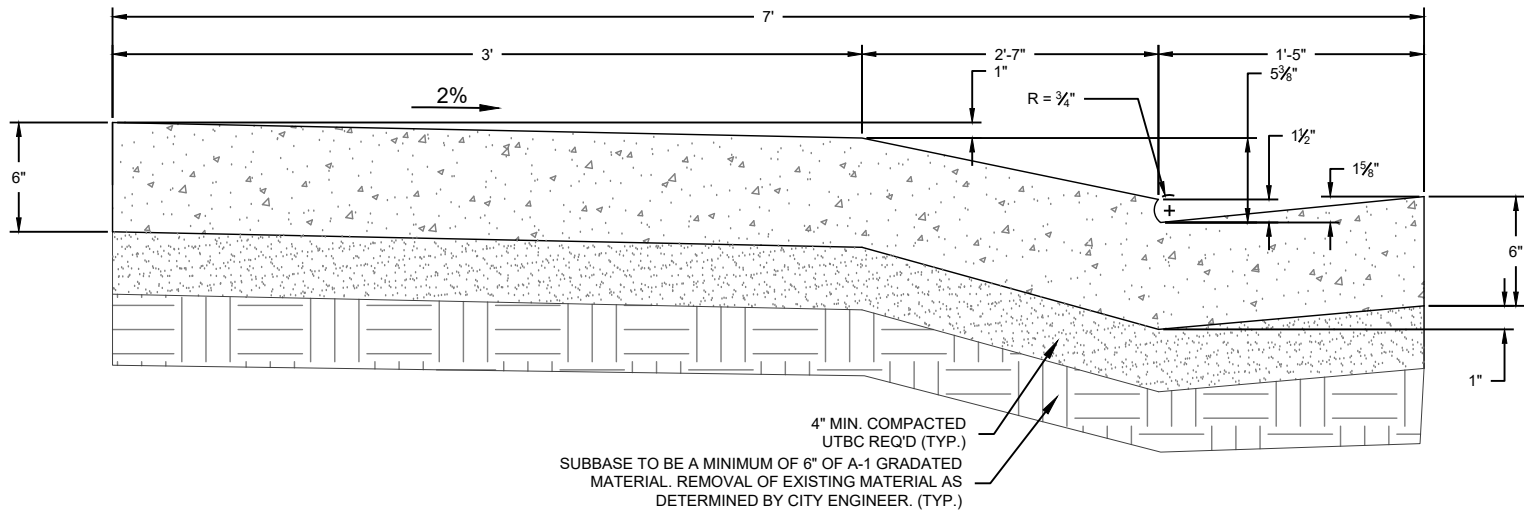
CITY OF OREM

6' MONOLITHIC CURB, GUTTER, AND  
SIDEWALK CROSS SECTIONS

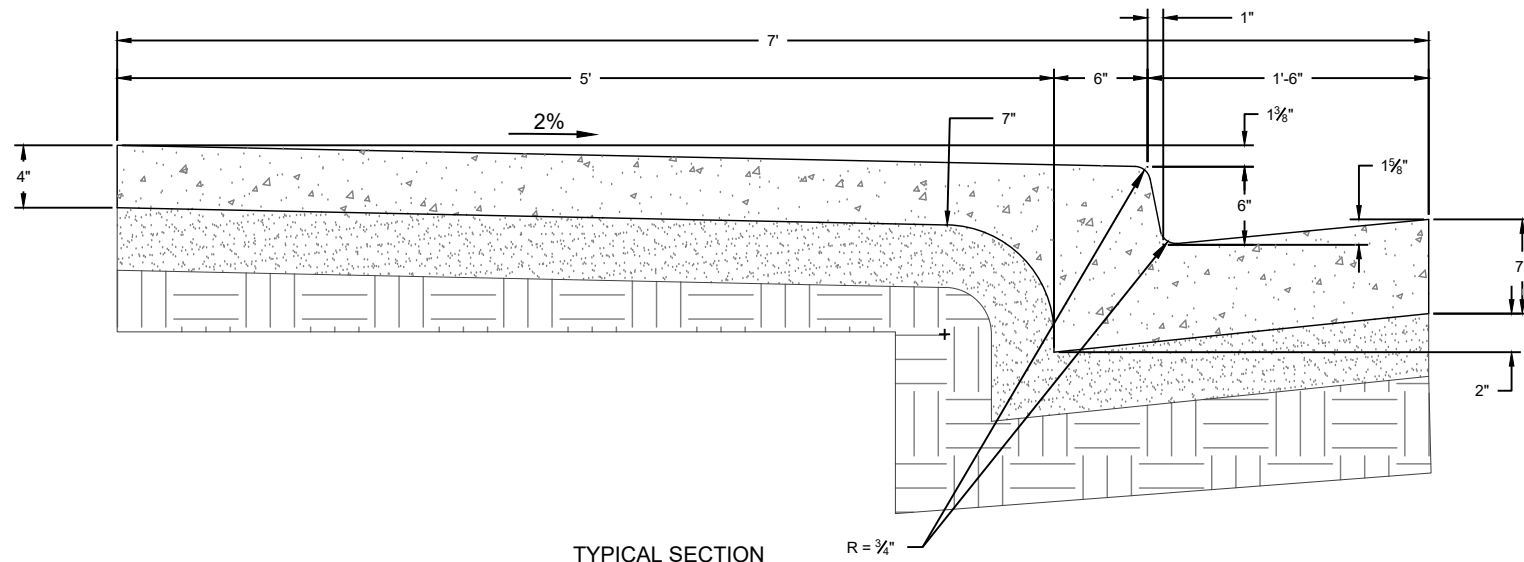
REV. 4/2024

RW-7



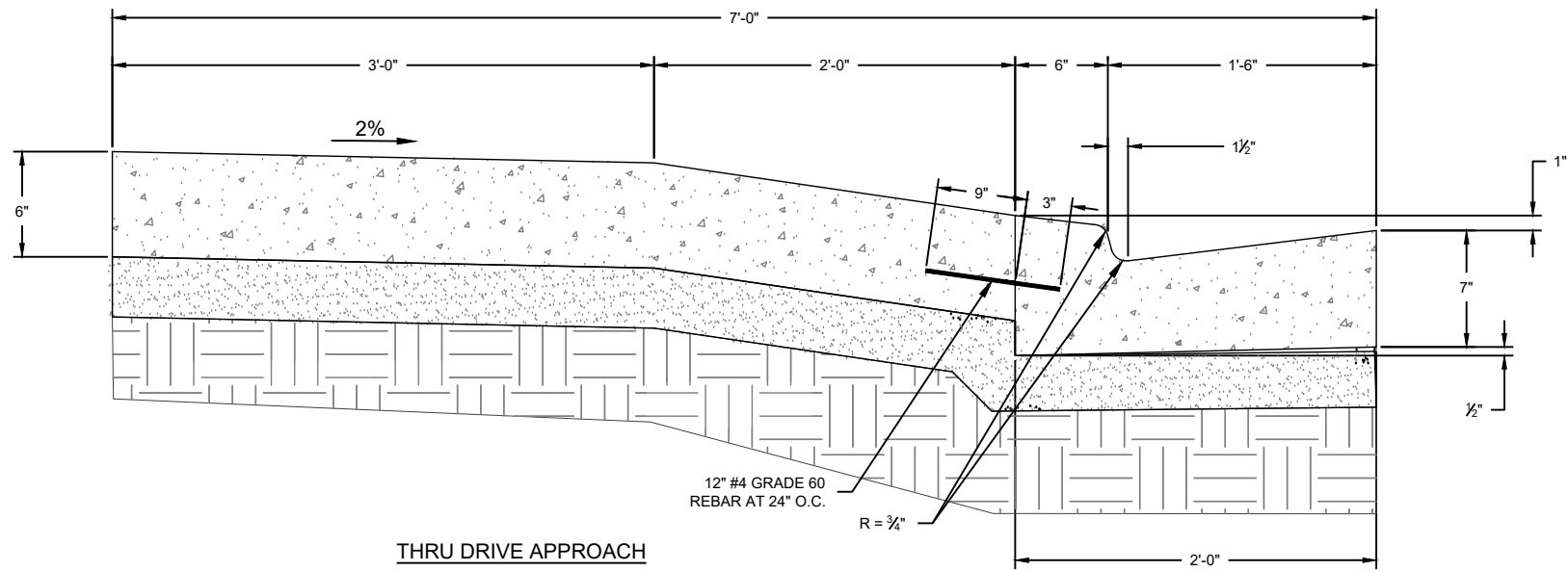
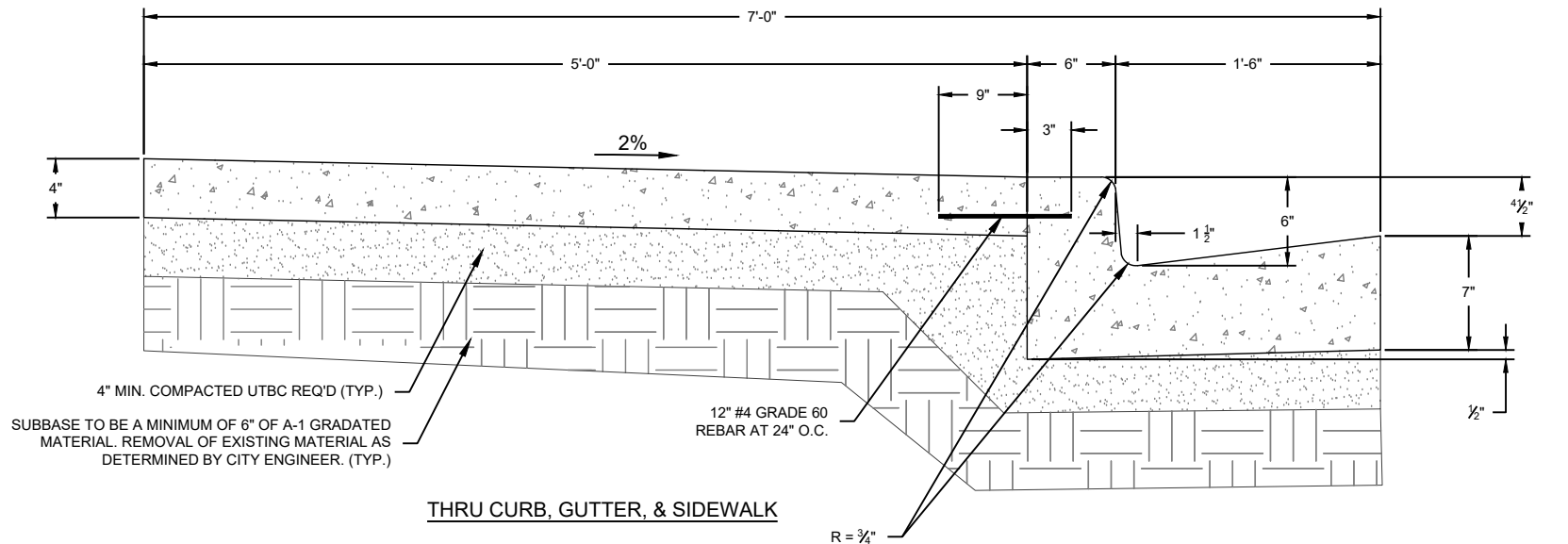


DRIVE APPROACH



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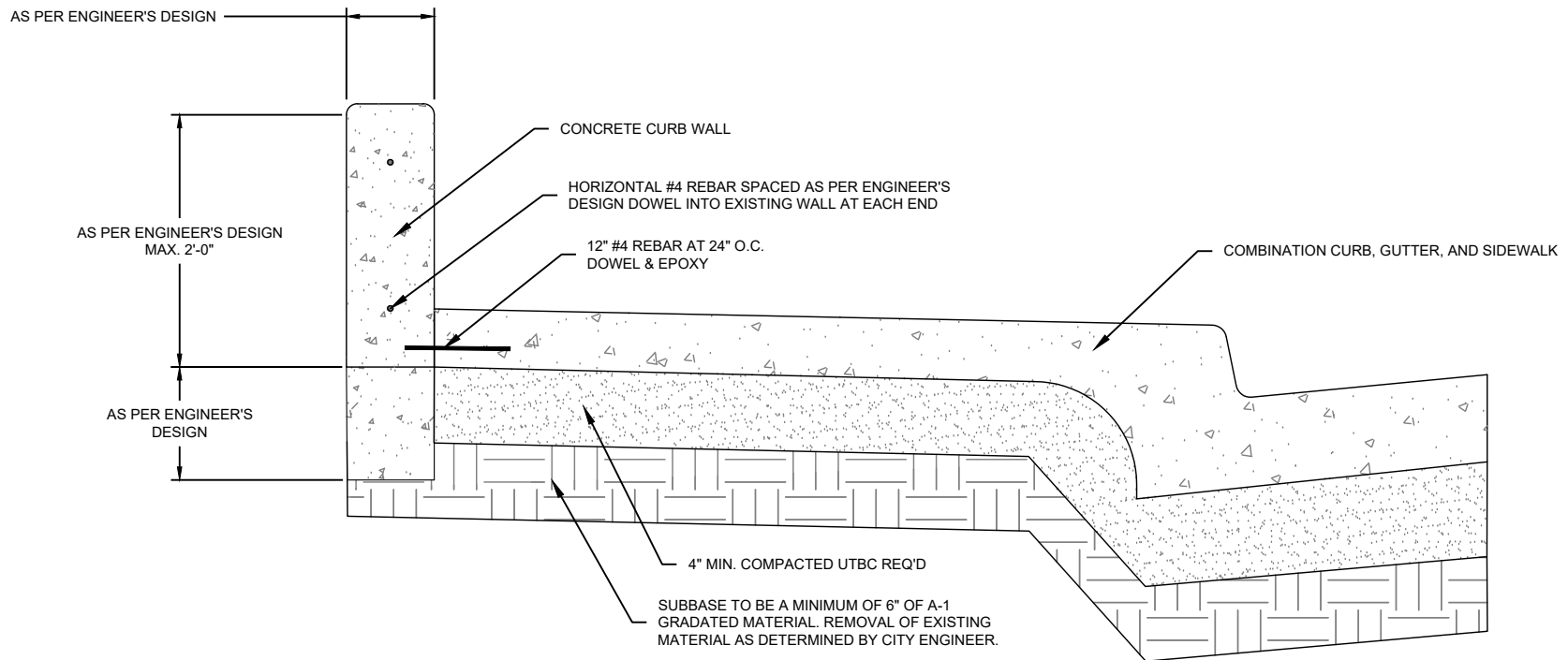
CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

7' CURB, GUTTER, AND SIDEWALK  
CROSS SECTIONS

REV. 4/2024

RW-9



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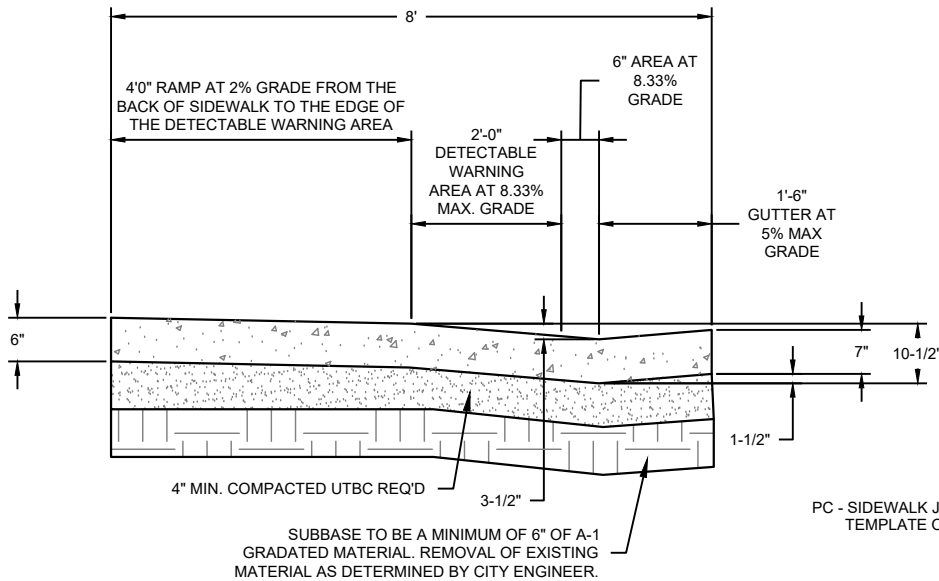
CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

CURB WALL

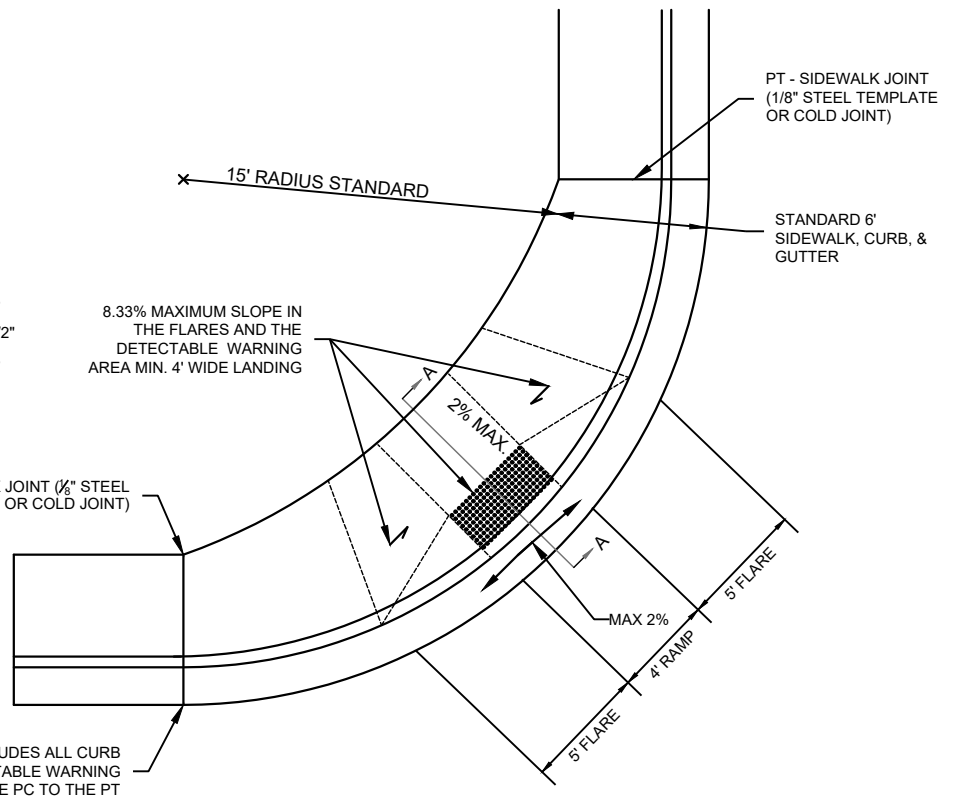
REV. 4/2024

RW-10



SUBBASE TO BE A MINIMUM OF 6" OF A-1 GRADATED MATERIAL. REMOVAL OF EXISTING MATERIAL AS DETERMINED BY CITY ENGINEER.

SECTION A-A  
THROUGH RAMP



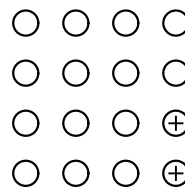
8.33% MAXIMUM SLOPE IN THE FLARES AND THE DETECTABLE WARNING AREA MIN. 4' WIDE LANDING

PC - SIDEWALK JOINT (1/8" STEEL TEMPLATE OR COLD JOINT)

WORK FOR ADA RAMP ITEM INCLUDES ALL CURB AND GUTTER, DOWELS, DETECTABLE WARNING SYMBOL AND FLATWORK FROM THE PC TO THE PT

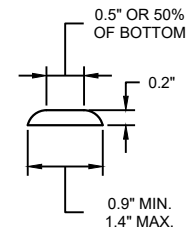
NOTES:

1. ANY MODIFICATIONS TO THIS STANDARD MUST BE APPROVED BY THE OREM CITY ENGINEER.
2. THE FLARES SHALL NOT EXCEED 8.33% GRADE.
3. THE MINIMUM DISTANCE FROM THE BACK OF SIDEWALK TO THE FLOW LINE OF THE GUTTER SHALL BE 6'-6" THROUGH THE RAMP.
4. THE RAMP SHALL NOT EXCEED A 2% GRADE.
5. WITH THE EXCEPTION OF THE DETECTABLE WARNING AREA, ALL CONCRETE SURFACES ON THE RAMP AND FLARES SHALL BE BROOMED ROUGH.
6. THE RAMP & FLARES SHALL BE VISUALLY CONTRASTING.
7. A 7" CONCRETE THICKNESS SHALL BE REQUIRED ON THE RADIUS.
8. A 4" CONCRETE THICKNESS SHALL BE REQUIRED IN THE WALKWAY OUTSIDE OF THE RADIUS
9. WORK FOR ADA RAMP ITEM INCLUDES ALL CURB AND GUTTER, DOWELS, DETECTABLE WARNING SYMBOL AND FLATWORK FROM THE PC TO THE PT.
10. COLOR OF ADA DETECTABLE WARNING STRIPS / TRUNCATED DOMES SHALL BE YELLOW.



DOME SPACING SHALL NOT EXCEED 2.4" O.C AND SHALL NOT BE LESS THAN 1.6" O.C

DETECTABLE WARNINGS  
RAISED TRUNCATED DOMES



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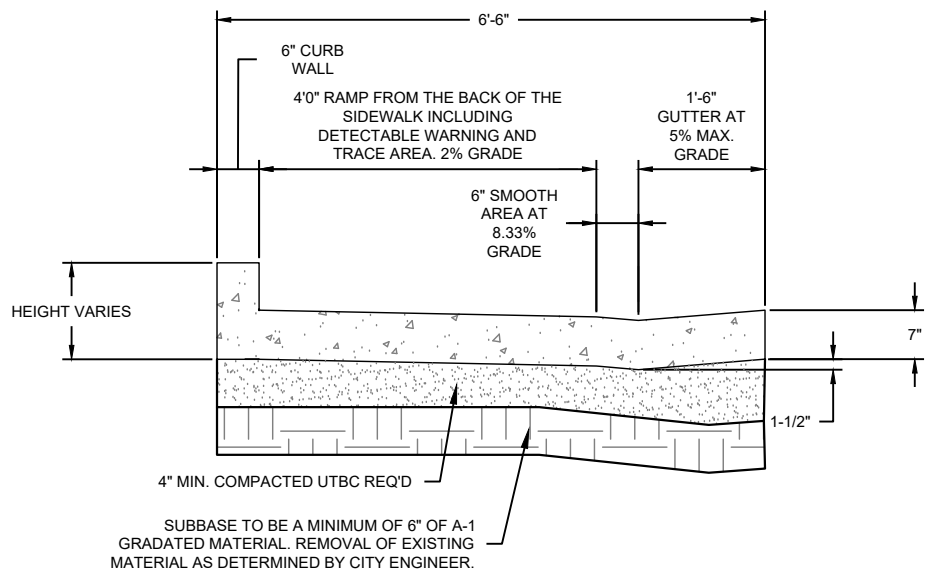
CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

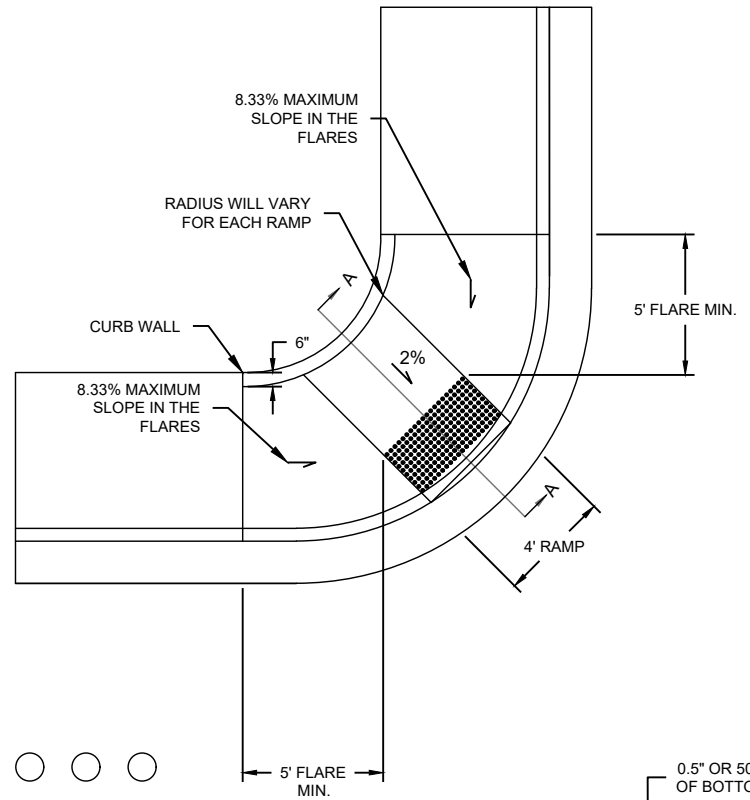
ADA RAMP

REV. 4/2024

RW-11

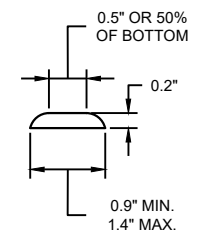
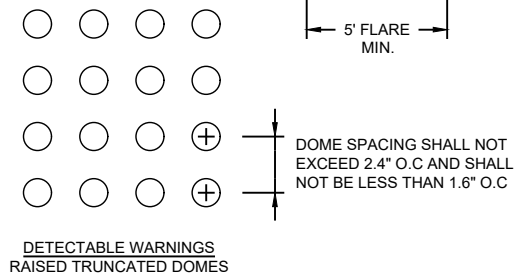


SECTION A-A  
THROUGH RAMP



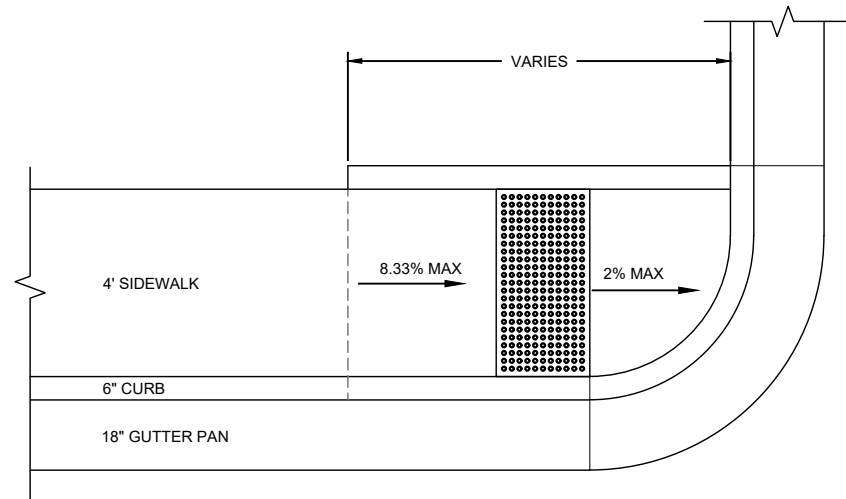
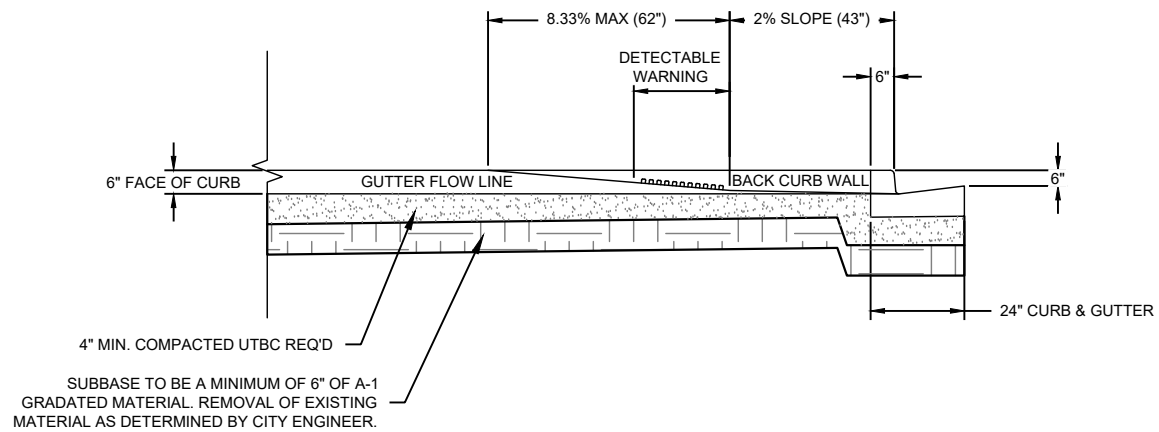
**NOTES:**

1. THIS IS ONLY A GENERAL DETAIL OF A MODIFIED ADA RAMP. EVERY MODIFIED RAMP MUST BE ADJUSTED ACCORDINGLY TO FIT TO THE CORNER ON WHICH IT IS INSTALLED.
2. ANY MODIFICATIONS TO THIS STANDARD MUST BE APPROVED BY THE PROJECT ENGINEER.
3. THE FLARES SHALL NOT EXCEED 8.33% GRADE.
4. THE MINIMUM DISTANCE FROM THE BACK OF CURB WALL TO THE FLOW LINE OF THE GUTTER SHALL BE 6'-6" THROUGH THE RAMP.
5. THE RAMP SHALL NOT EXCEED A 2% GRADE.
6. WITH THE EXCEPTION OF THE DETECTABLE WARNING AREA, ALL CONCRETE SURFACES ON THE RAMP AND FLARES SHALL BE BROOMED ROUGH.
7. THE RAMP & FLARES SHALL BE VISUALLY CONTRASTING.
8. A 7" CONCRETE THICKNESS SHALL BE REQUIRED ON THE RADIUS.
9. A 4" CONCRETE THICKNESS SHALL BE REQUIRED IN THE WALKWAY OUTSIDE OF THE RADIUS.
10. CURB WALL CAN BE POURED MONOLITHIC WITH THE RAMP.
11. COLOR OF ADA DETECTABLE WARNING STRIPS / TRUNCATED DOMES SHALL BE YELLOW.



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**NOTES:**

1. COLOR OF ADA DETECTABLE WARNING STRIPS / TRUNCATED DOMES SHALL BE YELLOW.

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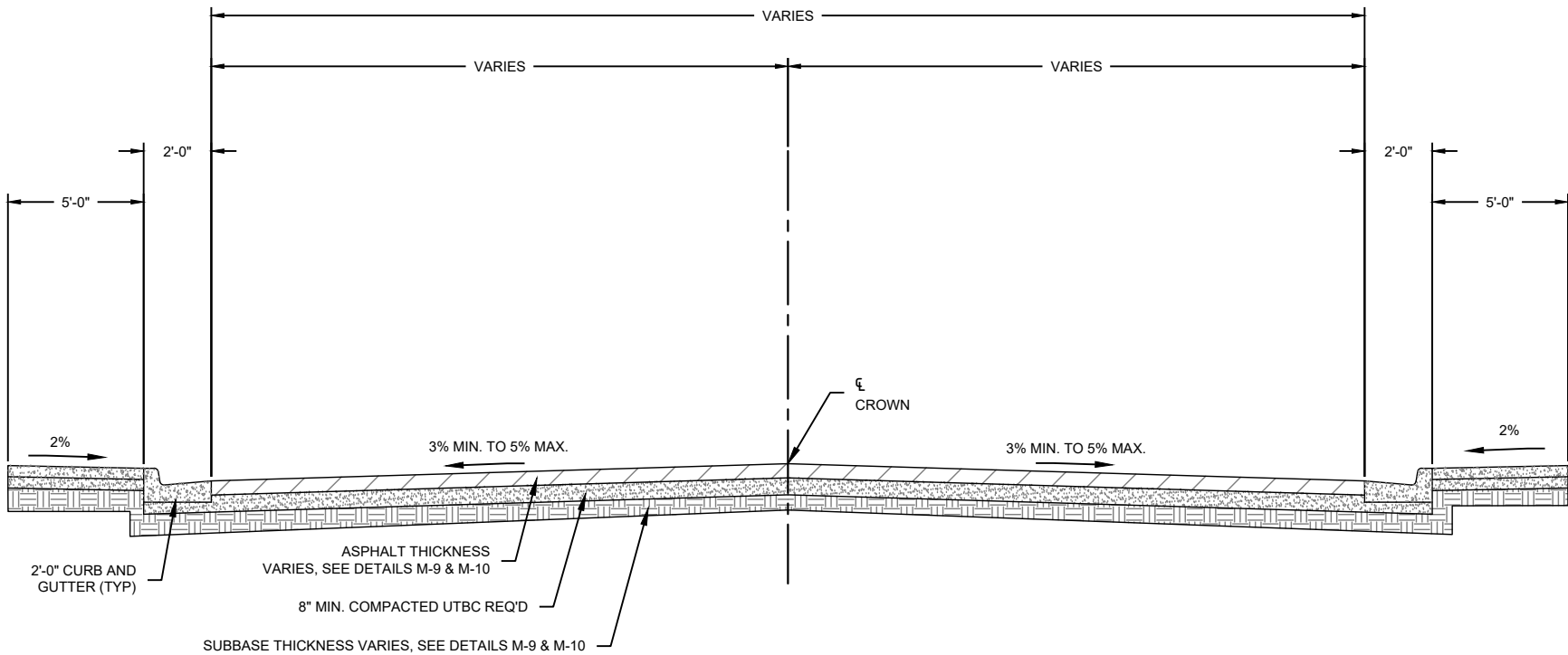
CONSTRUCTION STANDARD  
DRAWINGS

CITY OF OREM

QUARTER-ROUND ADA RAMP

REV. 4/2024

RW-13



ROADWAY CROSS SECTION WITH € CROWN

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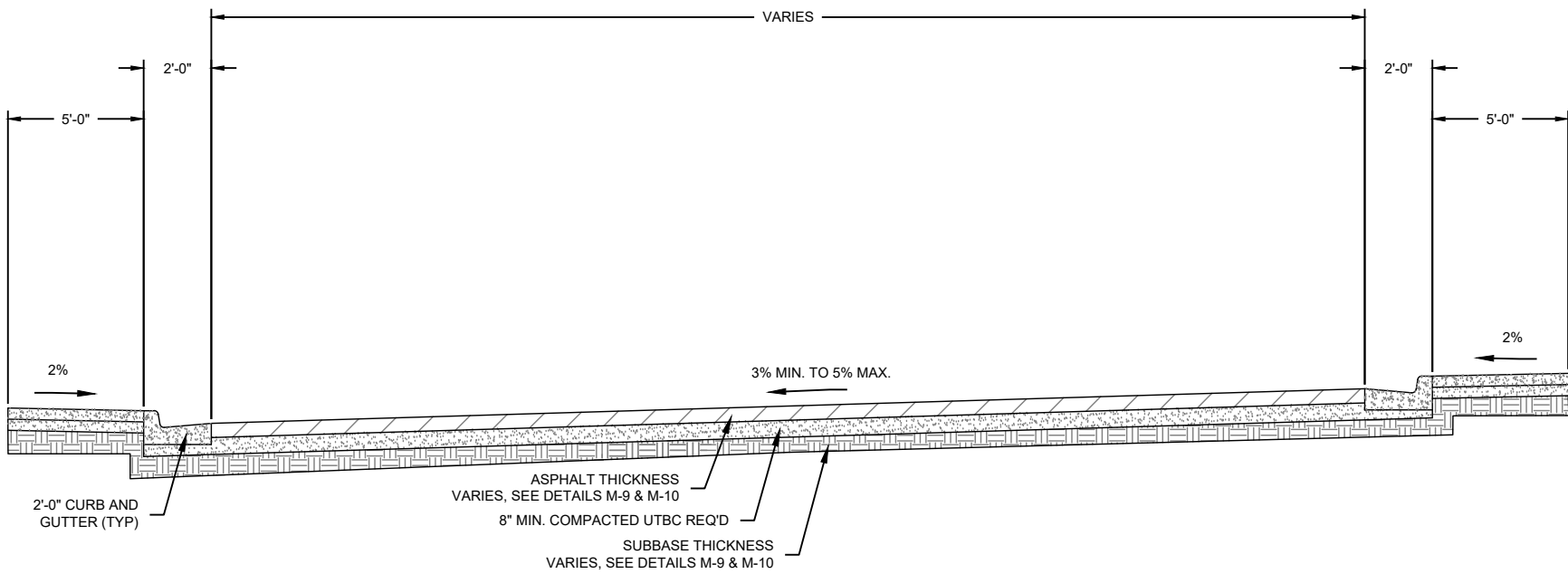
CONSTRUCTION STANDARD DRAWINGS

CITY OF OREM

ROADWAY CROSS SECTION WITH € CROWN

REV. 4/2024

RW-14



ROADWAY CROSS SECTION WITH SUPERELEVATION

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CONSTRUCTION STANDARD  
DRAWINGS

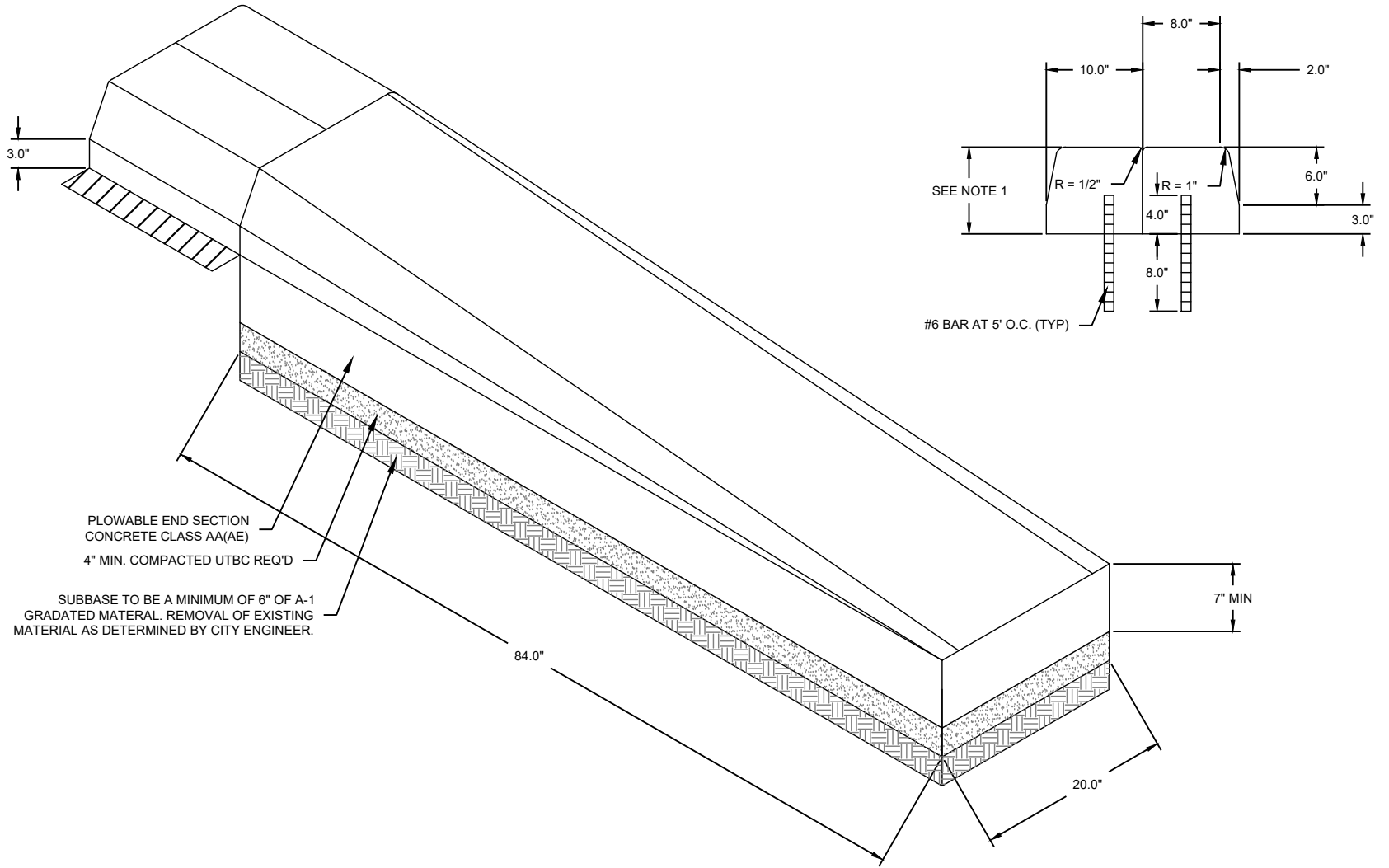
CITY OF OREM

ROADWAY CROSS SECTION WITH  
SUPERELEVATION

REV. 4/2024

RW-15





PLOWABLE END SECTION  
 CONCRETE CLASS AA(AE)  
 4" MIN. COMPACTED UTBC REQ'D  
 SUBBASE TO BE A MINIMUM OF 6" OF A-1  
 GRADATED MATERIAL. REMOVAL OF EXISTING  
 MATERIAL AS DETERMINED BY CITY ENGINEER.

**NOTES:**

1. MEDIAN CURB HEIGHT CAN BE ADJUSTED ON SPECIFIC ROADWAYS WITH APPROVAL OF CITY ENGINEER.

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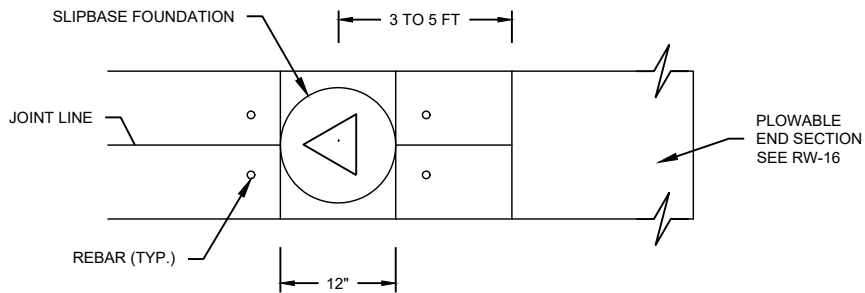


CONSTRUCTION STANDARD  
DRAWINGS

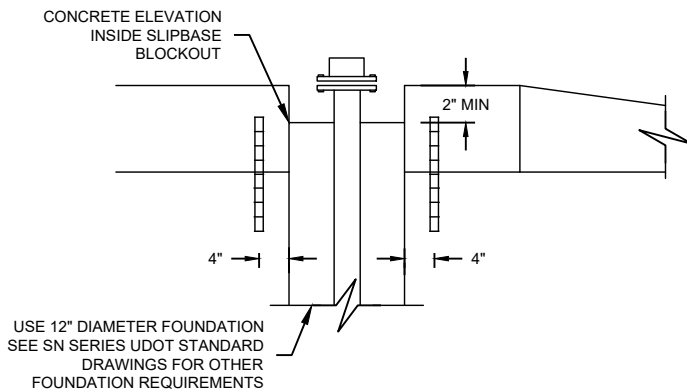
CITY OF OREM

ROADWAY MEDIAN  
PLOWABLE END SECTION

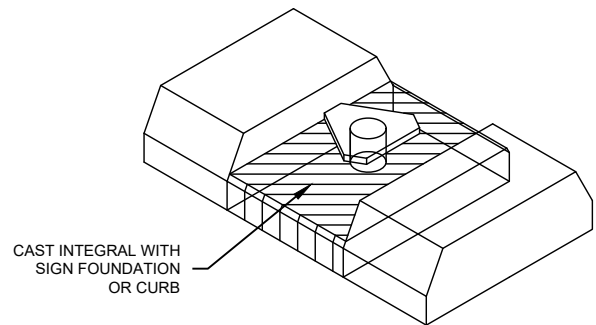
REV. 4/2024  
RW-16



PLAN VIEW



CROSS SECTION AT SIGN



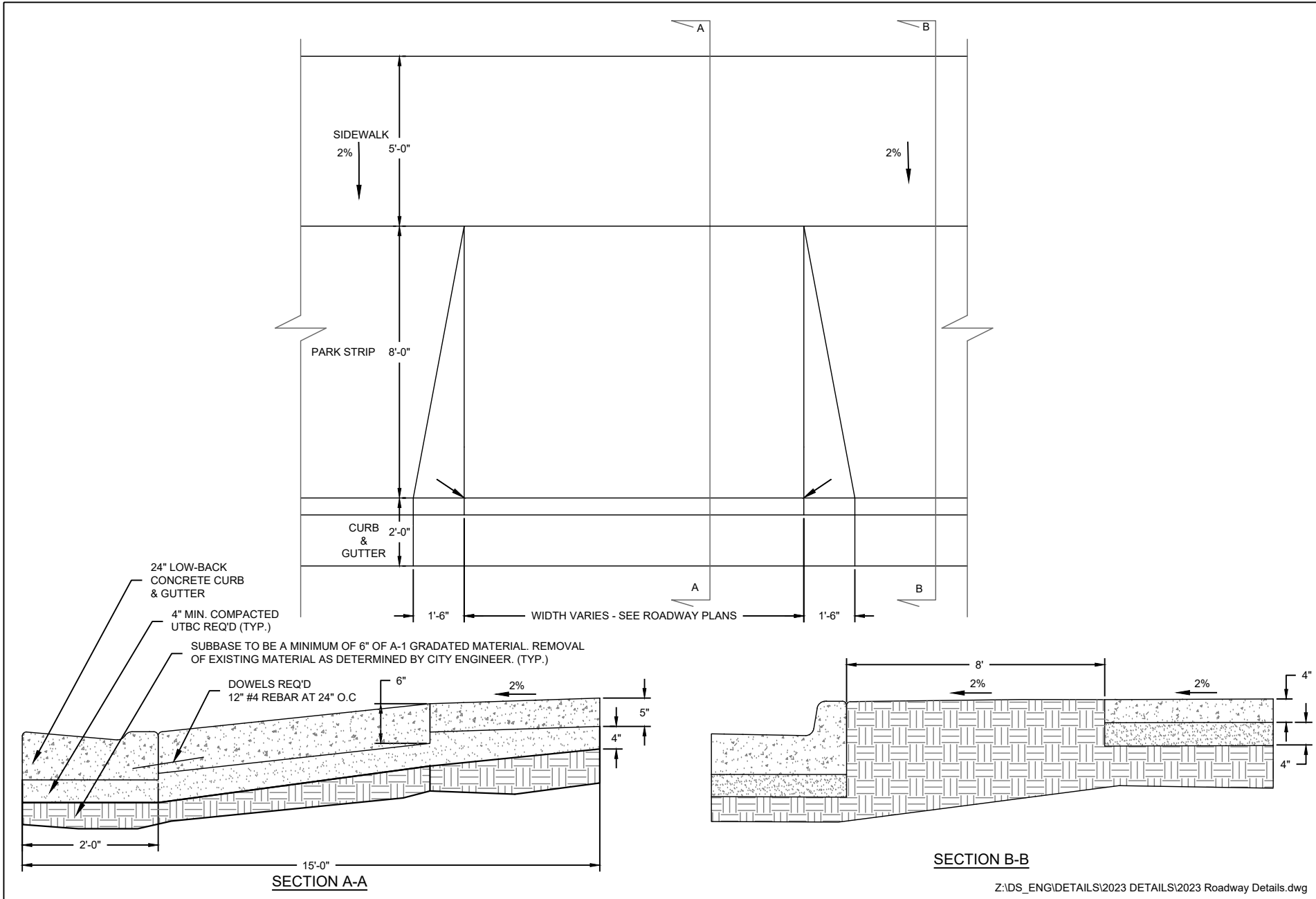
BLOCKOUT DETAIL

NOTES:

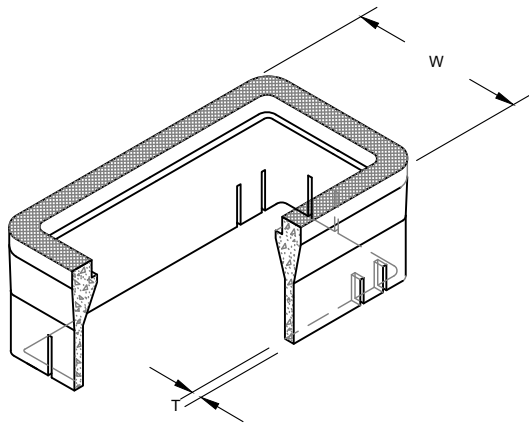
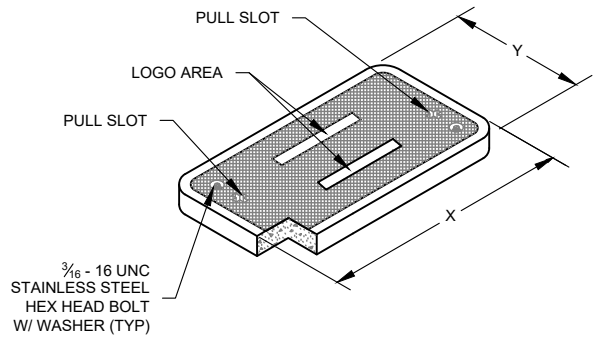
- 1) PLACE TOP OF SLIPBASE STUD POST FLUSH WITH THE TOP OF THE ISLAND, WITH A TOLERANCE OF  $\pm \frac{1}{8}$  INCH. (CANNOT BE BELOW TOP OF CURB.)

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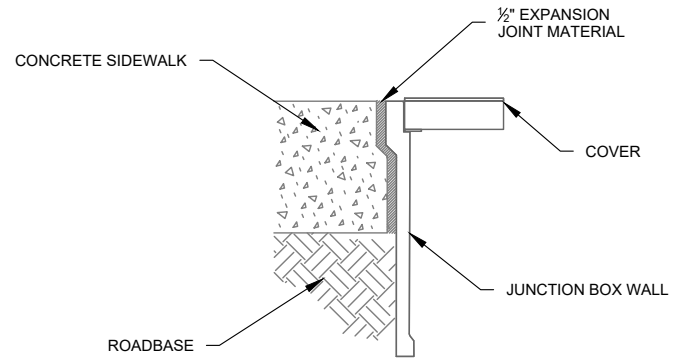
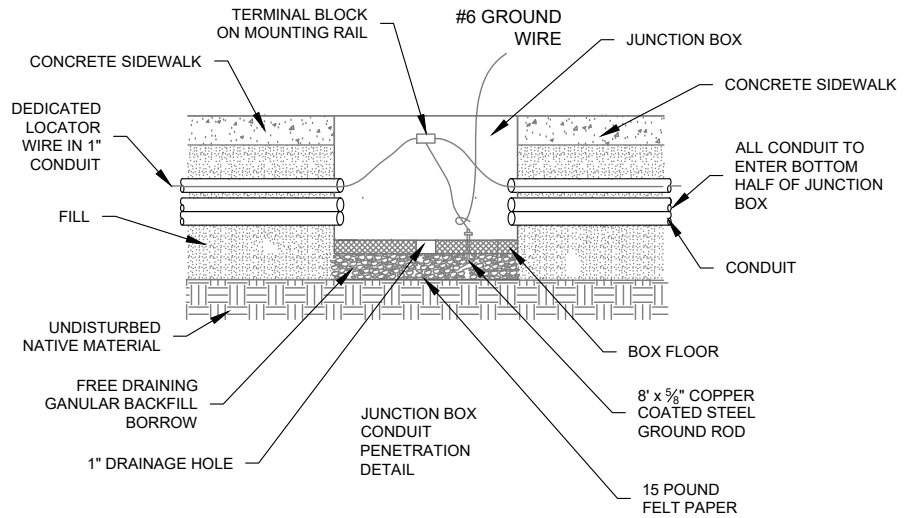


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BOX AND LID DIMENSIONS

BOX TYPE	"L" inch	"W" inch	"H" inch	"T" inch	"X" inch	"Y" inch	"Z" inch
I-PC	25"	16	24	1½"	23¼"	13¼"	2
II-PC	37⅝"	26	24	1½"	35⅝"	24	3
III-PC	47⅝"	32⅝"	24	2"	47⅝"	30⅝"	3



JUNCTION BOX CONCRETE SIDEWALK DETAIL

NOTES:

1. INSTALL CORRECTLY SIZED CONDUIT PLUG IN EACH CONDUIT ENTERING THE JUNCTION BOX.
2. REFER TO THE MOST CURRENT APPROVED UDOT STANDARDS AND SPECIFICATIONS.

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CONSTRUCTION STANDARD DRAWINGS

CITY OF OREM

FIBER JUNCTION BOX

REV. 4/2024

FO-1