



# City of Forest Grove Standard Details



*A place where families and businesses thrive.*



# City of Forest Grove Standard Details



*A place where families and businesses thrive.*

# TABLE OF CONTENTS

## 100. Sidewalks

- 101. COMMERCIAL OR INDUSTRIAL OPTIONAL DRIVEWAY TYPE
- 102. RESIDENTIAL DRIVEWAY WITH STREET SAW CUT
- 103. CURBLINE SIDEWALK 6' DOWLED INTO EXISTING CURB
- 104. DOWNTOWN BRICK SIDEWALK
- 105. DOWNTOWN TREE WELL GRATE
- 106. KEYED COMBINATION CURB & SIDEWALK
- 107. NON-RESIDENTIAL DRIVEWAY (CURBSIDE SIDEWALK)
- 108. NON-RESIDENTIAL DRIVEWAY (PROPERTY LINE SIDEWALK)
- 109. REMOVABLE BOLLARD
- 110. RESIDENTIAL DRIVEWAY CURBSIDE SIDEWALK
- 111. RESIDENTIAL DRIVEWAY SIDEWALK AWAY FROM CURB
- 112. SIDEWALK AND PARKWAY CULVERT DETAIL
- 113. CONCRETE SIDEWALK
- 114. STANDARD MOUNTED BASE DETAIL
- 115. TREE PLANTING IN PARKWAYS
- 116. SIDEWALK TRANSITION PANELS

## 200. Signage

- 201. PEDESTRIAN CROSSWALK STRIPING DETAIL 1
- 202. PEDESTRIAN CROSSWALK STRIPING DETAIL 2
- 203. SIGN STANDARDS 1

- 204. SIGN STANDARDS 2
- 205. SIGN STANDARDS 3
- 206. SIGNING DETAILS ALTERNATIVE
- 207. SIGNING DETAILS
- 208. STOP AND STREET SIGN TYPICAL INSTALLATION
- 209. STOP BAR STRIPING DETAIL

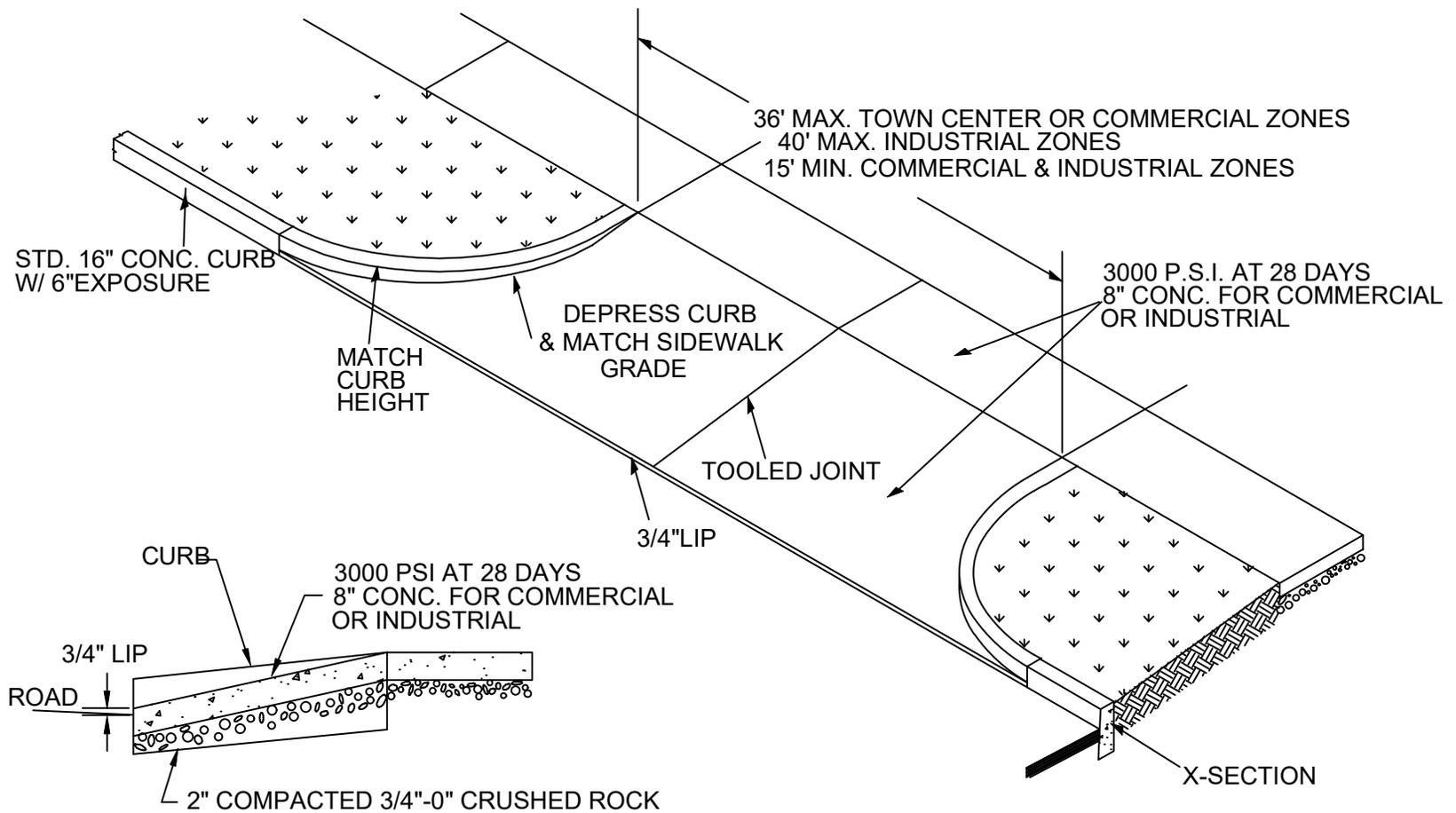
### 300. Streets

- 301. MOUNTABLE CURB & GUTTER FOR CUL-DE-SACS
- 302. CURB & GUTTER JOINT SPACING
- 303. DOUBLE SIDED STREET BARRICADE TYPE III (MODIFIED)
- 304. EMERGENCY MOUNTABLE P.C.C. CURB & GUTTER
- 305. NON MOUNTABLE P.C.C. CURB
- 306. RESIDENTIAL CUL-DE-SAC DETAIL-24' STREET
- 307. STD. ROOF DRAIN OUTLET FOR CUL-DE-SACS
- 308. STREET BARRICADE TYPE III
- 309. SURVEY STREET MONUMENT
- 311. T-CUT ASPHALT REPAIR OVER TRENCH
- 312. TYPICAL STREET SECTION
- 313. TYPICAL UTILITY LOCATION

### 400. Water

- 401. 1" COMBINATION AIR & VACCUM VALVE
- 402. 2" COMBINATION AIR & VACUUM VALVE
- 403. TYPICAL 8" BLOWOFF ASSEMBLY
- 404. D.I.P. WATERLINE BEDDING AND BACKFILL DETAILS

- 405. DOUBLE CHECK DETECTOR ASSEMBLY
- 406. DOUBLE WATER SERVICE CONNECTION
- 407. FIRE HYDRANT INSTALLATION WITH WATER MAIN IN PARKWAY
- 408. FIRE HYDRANT INSTALLATION WITH WATER MAIN IN STREET
- 409. GATE VALVE & BOX SETTING DETAIL
- 410. WATER SAMPLING STATION EXLIPSE NO.88 SAMPLING STATION
- 411. SINGLE WATER SERVICE TYPICAL INSTALLATION
- 412. TYPICAL 2" BLOWOFF ASSEMBLY
- 413. TYPICAL GATE VALVE LOCATION
- 414. WATER MAIN ADJUSTMENT
- 415. WET TAP
- 416. VAULT LADDER INSTALLATION
- 417. SUMP PUMP INSTALLATION
- 418. 3" WATER METER VAULT (DETAIL NOTES)
- 419. 3" WATER METER VAULT (PROFILE)
- 420. 3" WATER METER VAULT (PLAN)



COMMERCIAL OR INDUSTRIAL OPTIONAL DRIVEWAY TYPE DETAIL

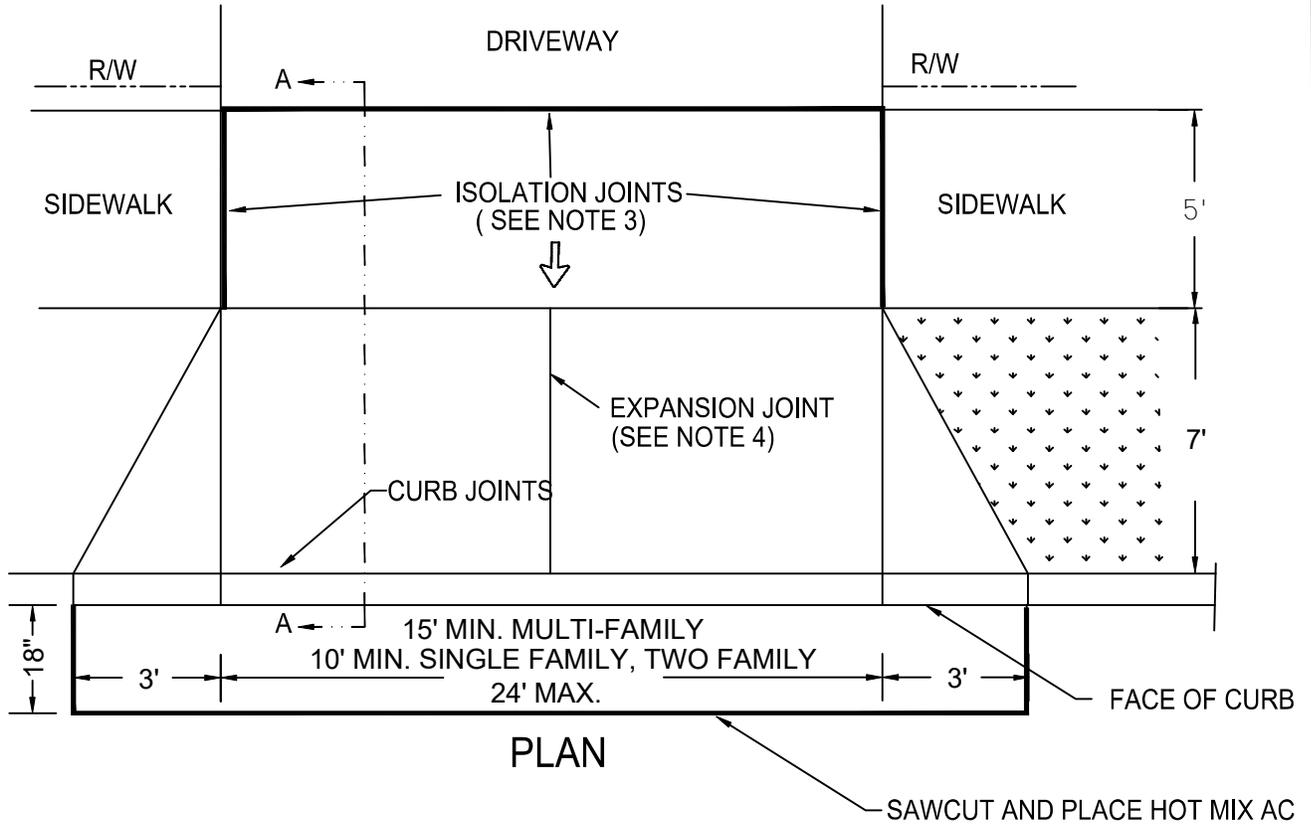
ENGINEERING DEPARTMENT  
 1924 COUNCIL STREET  
 P.O. BOX 326  
 FOREST GROVE, OR 97116

DRAWING NO. 101

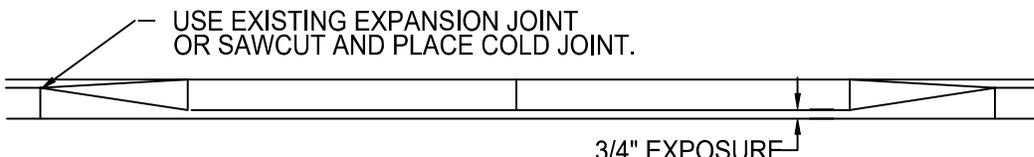
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\\w2kleng\Eng Dept\STANDARD DETAILS\100s SIDEWALKS\COMMERCIAL OR INDUSTRIAL OPT DRIVEWAY.dwg

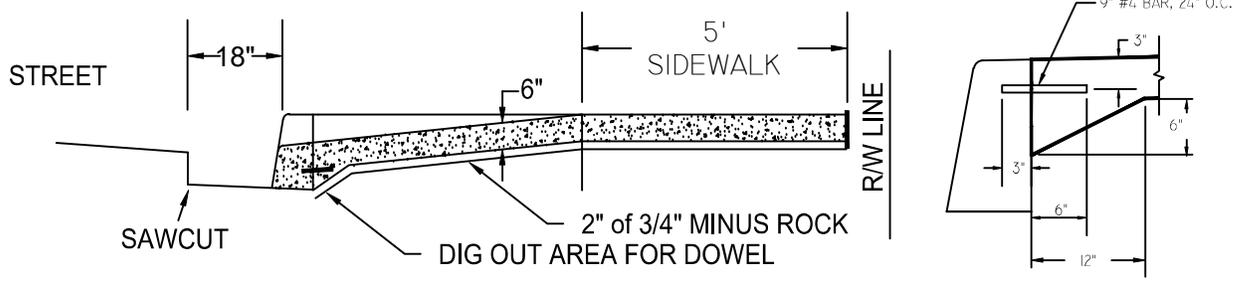
LAST REV. 7/20/22



PLAN



ELEVATION



NOTES:

SECTION A-A

1. CONCRETE TO HAVE STRENGTH OF 3000 P.S.I. IN 28 DAYS.
2. CURB JOINT SHALL BE A TROWELED JOINT WITH A MINIMUM 1/2" RADIUS ALONG BACK OF CURB.
3. ISOLATION JOINTS SHALL BE 1/2" PREMOLDED ASPHALT IMPREGNATED MATERIAL EXTENDING FROM SUBGRADE TO FINISHED GRADE, NO WOOD PRODUCTS ALLOWED.
4. EXPANSION JOINT SPACING SHALL BE A MAXIMUM OF 12'.
5. SUB GRADE SHALL BE FIRM WITH NO SOFT SPOTS WITH A MINIMUM OF 2" OF 3/4-0" ROCK.
6. STEEL TIES 9" LONG DRILL HOLE 3" INTO EXISTING CURB #4 BAR 24" ON CENTER.

LEGEND:

↓ CROSS SLOPE 1.5% MAX (MAX 2.0 % FINISHED SURFACE SLOPE)



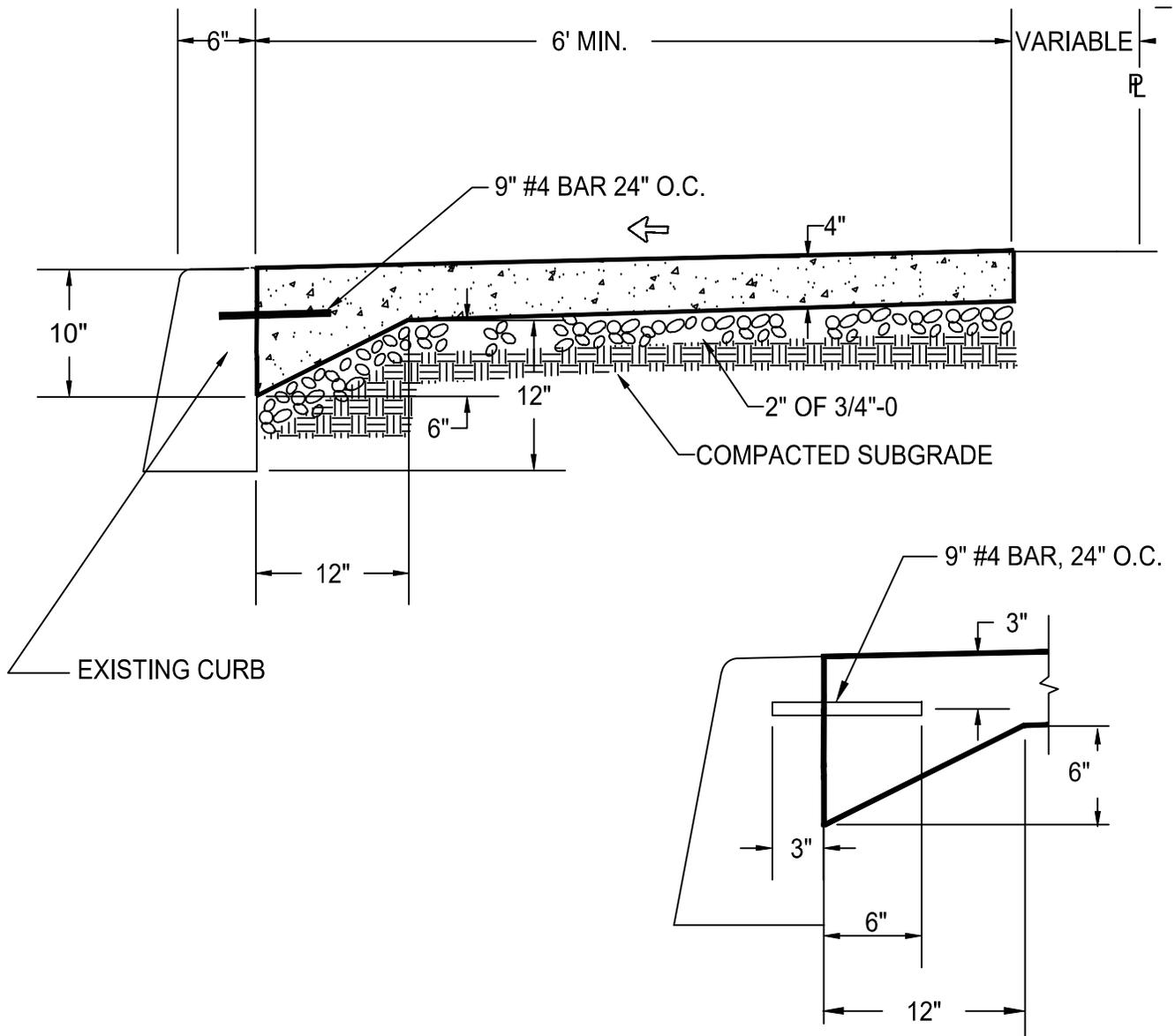
RESIDENTIAL DRIVEWAY  
WITH STREET SAW CUT

ENGINEERING  
DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO.  
102

SCALE  
NONE

LAST REV. 7/20/22



**NOTES:**

1. CONCRETE TO HAVE STRENGTH OF 3000 P.S.I. IN 28 DAYS 2" TO 4" SLUMP.
2. STEEL TIES-9" #4 BAR 24" O.C.
3. PANELS TO BE 5 FEET LONG
4. EXPANSION JOINTS TO BE PLACED AT SIDES OF DRIVEWAY APPROACHES, UTILITY VAULTS & AT SPACING NOT TO EXCEED 90' OR AS DIRECTED BY THE ENGINEER.
5. DRAIN BLOCKOUTS IN CURBS SHALL BE EXTENDED TO BACK OF SIDEWALK WITH 3" DIA. SCH. 40 ABS OR PVC PIPE AT 2% SLOPE, CONTRACTION JOINT TO BE PLACED OVER PIPE.
6. BROOM TRANSVERSE TO DIRECTION OF PEDESTRIAN TRAVEL (TYP.)

**LEGEND:**

↓ CROSS SLOPE 1.5% MAX (MAX 2.0 % FINISHED SURFACE SLOPE)



**CURBLINE SIDEWALK  
6' DOWELED  
INTO EXISTING CURB**

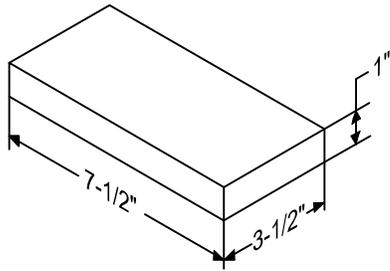
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DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO.  
103

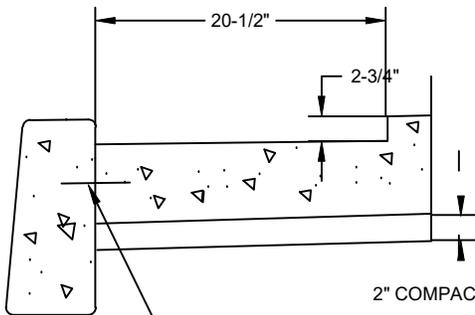
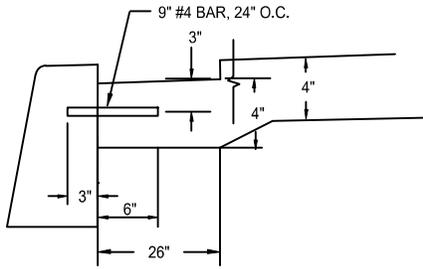
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\\w2k\eng\Eng Dept\STANDARD DETAILS\100s SIDEWALKS\CURBLINE SIDEWALK 6' DOWLED INTO EXISTING.dwg

LAST REV. 7/20/22



**BRICK PAVER**  
mutual materials  
burgundy "mica - tile"



DOWEL SIDEWALK TO CURB  
PER STANDARD DETAIL FOR  
DOWELING SIDEWALKS

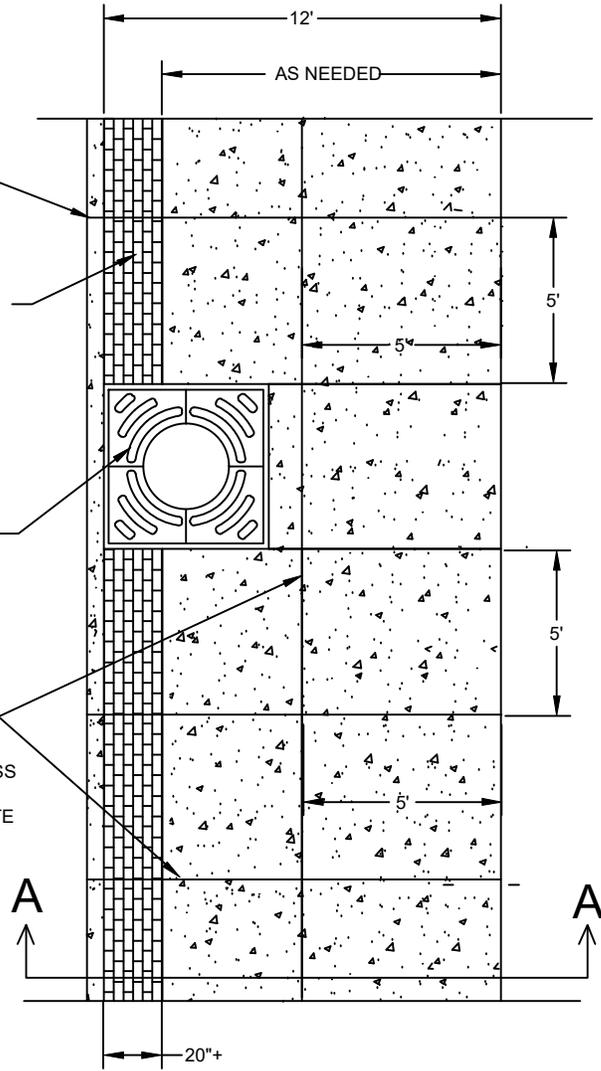
USE MORTAR BED TO ADJUST  
BRICKS FLUSH TO TOP OF CURB  
AND SIDEWALK

DEEP TOOL JOINTS  
SHALL LINE UP WITH  
JOINTS IN CURB

5 rows of brick with  
1/2" grout seams.  
provide expansion at  
max. 30' intervals.

5' X 5' NOM.  
TREE WELL

DEEP TOOL  
JOINT  
1/4 OF  
THICKNESS  
OF  
CONCRETE



2" COMPACTED AGGR.

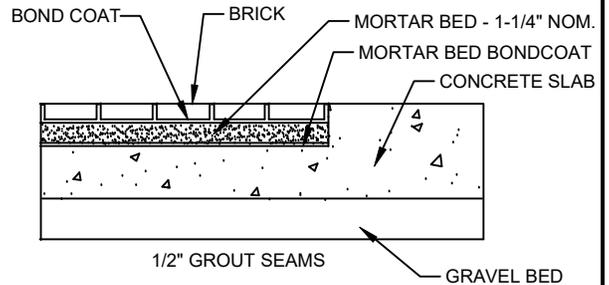
**SIDEWALK CROSS SECTION A-A**

**NOTES:**

1. CONCRETE TO REACH STRENGTH OF 3000 P.S.I. IN 28 DAYS 2" TO 4" SLUMP.
2. EXPANSION JOINTS TO BE PLACED AT SIDES OF DRIVEWAY APPROACHES, UTILITY VAULTS & AT SPACING NOT TO EXCEED 90' OR AS DIRECTED BY THE ENGINEER.
3. FOR SIDEWALKS ADJACENT TO THE CURB & POURED AT THE SAME TIME AS THE CURB . THE JOINT BETWEEN THEM SHALL BE A TROWELED JOINT WITH A MIN. 1/2" RADIUS.
4. DRAIN BLOCKOUTS IN CURBS SHALL BE EXTENDED TO BACK OF SIDEWALK WITH 3" DIA. SCH. 40 ABS OR PVC PIPE AT 2% SLOPE, CONTRACTION JOINT TO BE PLACED OVER PIPE.

**LEGEND:**

↓ CROSS SLOPE 1.5% MAX (MAX 2.0 % FINISHED SURFACE SLOPE)



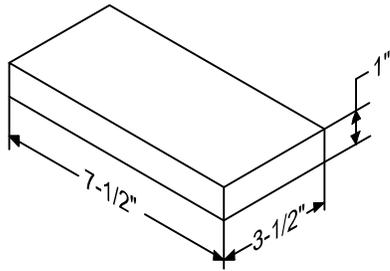
**DOWNTOWN  
BRICK SIDEWALK**

ENGINEERING  
DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

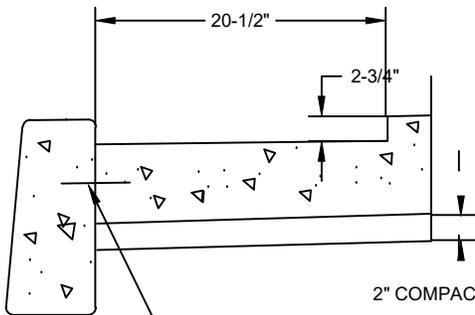
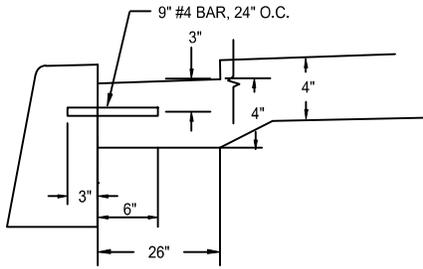
DRAWING NO.  
104

SCALE  
NONE

LAST REV. 7/20/22



**BRICK PAVER**  
mutual materials  
burgundy "mica - tile"



DOWEL SIDEWALK TO CURB  
PER STANDARD DETAIL FOR  
DOWELING SIDEWALKS

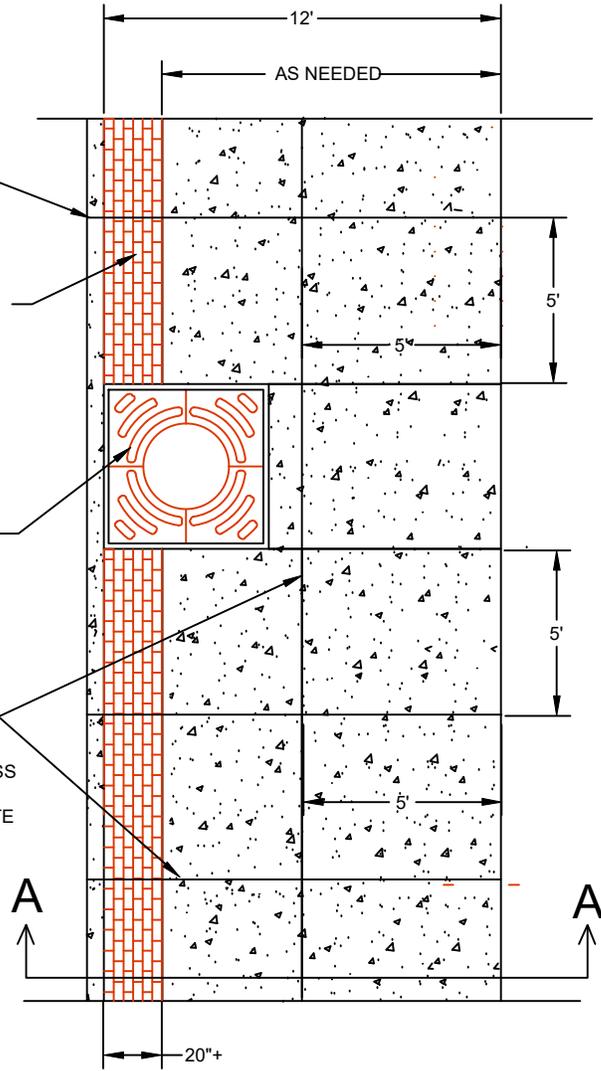
USE MORTAR BED TO ADJUST  
BRICKS FLUSH TO TOP OF CURB  
AND SIDEWALK

DEEP TOOL JOINTS  
SHALL LINE UP WITH  
JOINTS IN CURB

5 rows of brick with  
1/2" grout seams.  
provide expansion at  
max. 30' intervals.

5' X 5' NOM.  
TREE WELL

DEEP TOOL  
JOINT  
1/4 OF  
THICKNESS  
OF  
CONCRETE



2" COMPACTED AGGR.

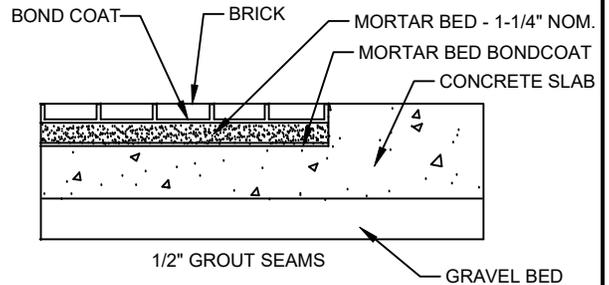
**SIDEWALK CROSS SECTION A-A**

**NOTES:**

1. CONCRETE TO REACH STRENGTH OF 3000 P.S.I. IN 28 DAYS 2" TO 4" SLUMP.
2. EXPANSION JOINTS TO BE PLACED AT SIDES OF DRIVEWAY APPROACHES, UTILITY VAULTS & AT SPACING NOT TO EXCEED 90' OR AS DIRECTED BY THE ENGINEER.
3. FOR SIDEWALKS ADJACENT TO THE CURB & POURED AT THE SAME TIME AS THE CURB . THE JOINT BETWEEN THEM SHALL BE A TROWELED JOINT WITH A MIN. 1/2" RADIUS.
4. DRAIN BLOCKOUTS IN CURBS SHALL BE EXTENDED TO BACK OF SIDEWALK WITH 3" DIA. SCH. 40 ABS OR PVC PIPE AT 2% SLOPE, CONTRACTION JOINT TO BE PLACED OVER PIPE.

**LEGEND:**

↓ CROSS SLOPE 1.5% MAX (MAX 2.0 % FINISHED SURFACE SLOPE)



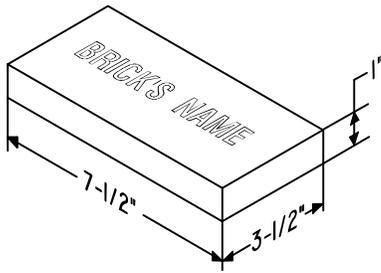
**DOWNTOWN  
BRICK SIDEWALK**

ENGINEERING  
DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

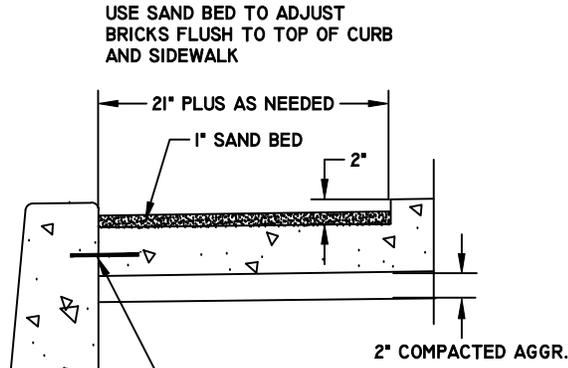
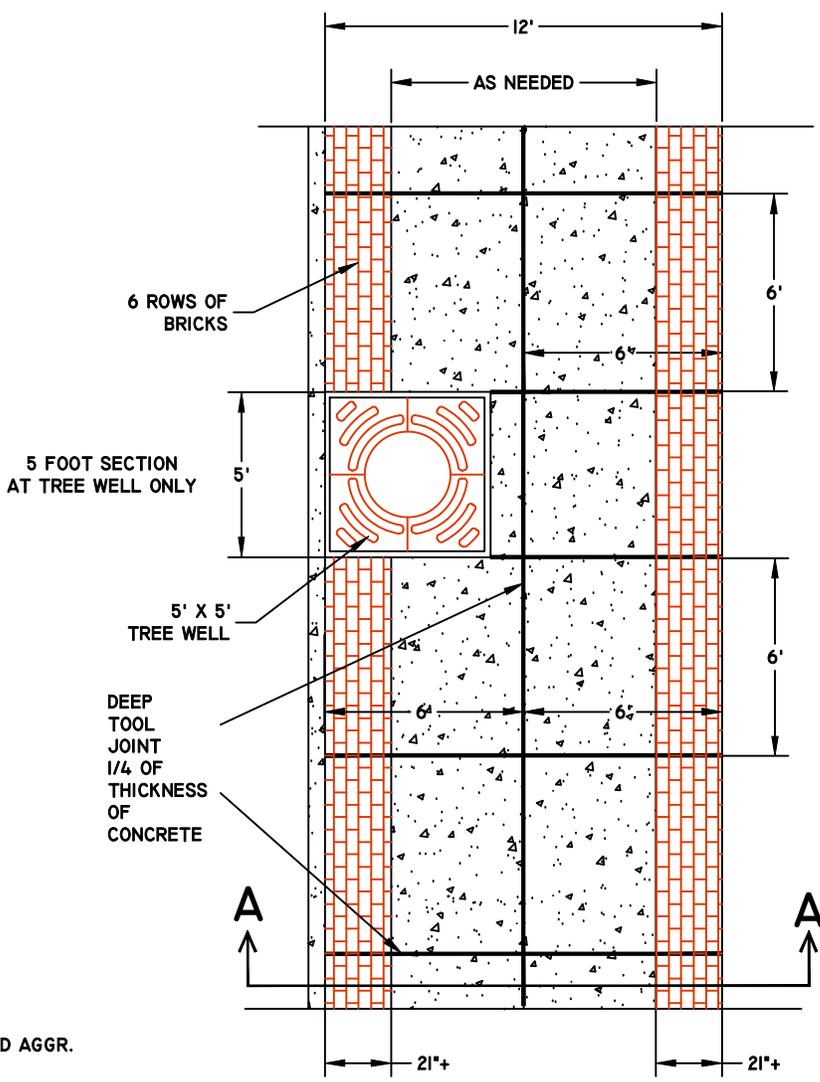
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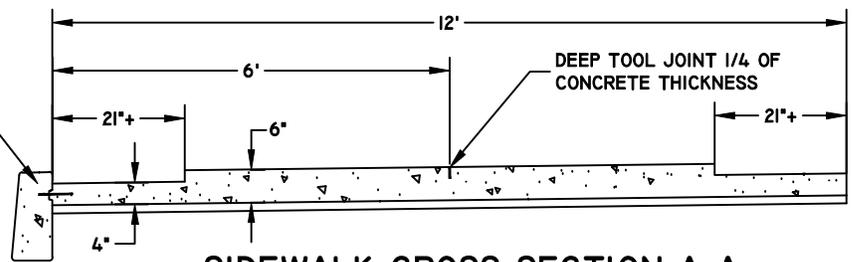
LAST REV. 7/20/22



**MORTARLESS  
BRICK PAVER**



DOWEL SIDEWALK TO CURB  
PER STANDARD DETAIL FOR  
DOWELING SIDEWALKS



**SIDEWALK CROSS SECTION A-A**

- NOTES:
1. CONCRETE TO REACH STRENGTH OF 3000 P.S.I. IN 28 DAYS 2" TO 4" SLUMP.
  2. EXPANSION JOINTS TO BE PLACED AT SIDES OF DRIVEWAY APPROACHES, UTILITY VAULTS & AT SPACING NOT TO EXCEED 90' OR AS DIRECTED BY THE ENGINEER.
  3. FOR SIDEWALKS ADJACENT TO THE CURB & POURED AT THE SAME TIME AS THE CURB . THE JOINT BETWEEN THEM SHALL BE A TROWELED JOINT WITH A MIN. 1/2" RADIUS.
  4. DRAIN BLOCKOUTS IN CURBS SHALL BE EXTENDED TO BACK OF SIDEWALK WITH 3" DIA. SCH. 40 ABS OR PVC PIPE AT 2% SLOPE, CONTRACTION JOINT TO BE PLACED OVER PIPE.



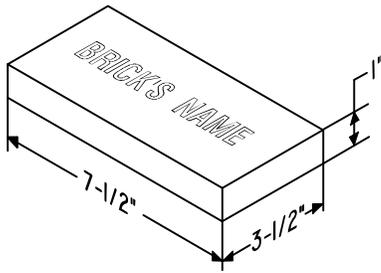
**DOWNTOWN  
TREE WELL GRATE**

ENGINEERING  
DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

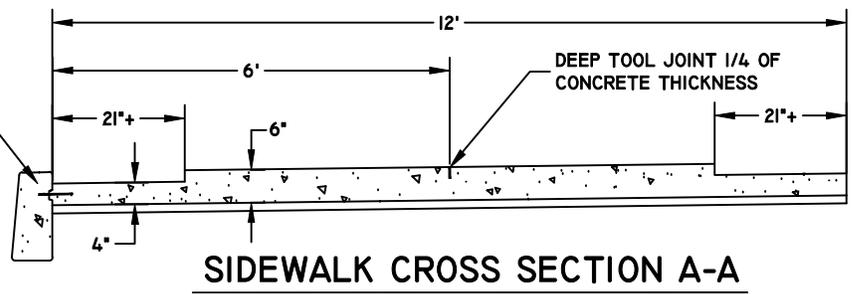
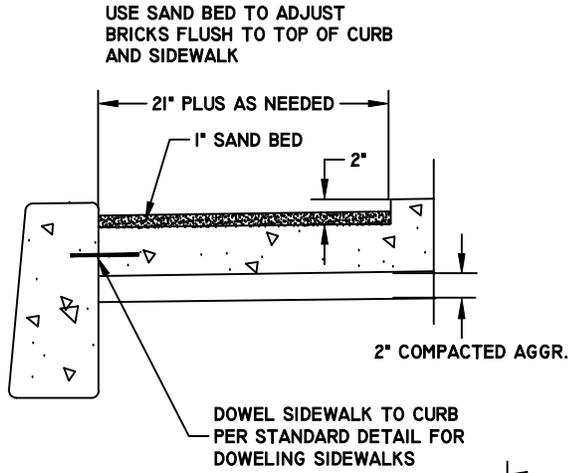
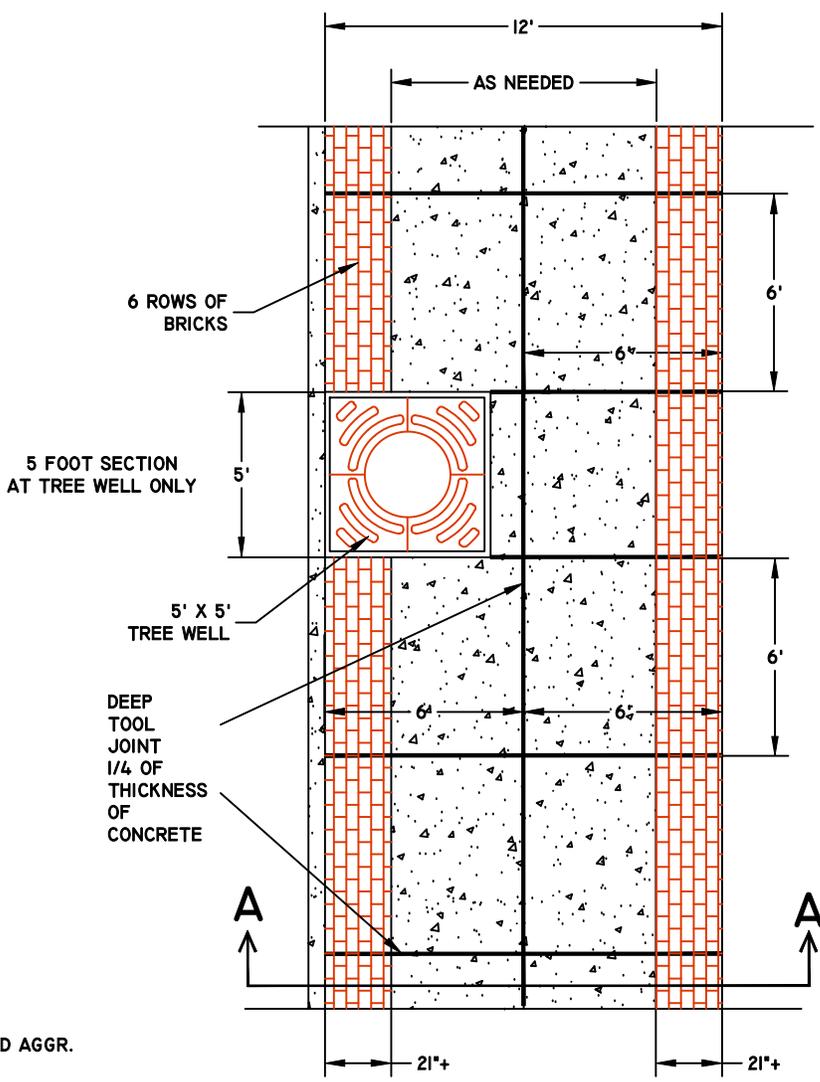
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105

SCALE  
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LAST REV. 8/9/22



**MORTARLESS  
BRICK PAVER**



**SIDEWALK CROSS SECTION A-A**

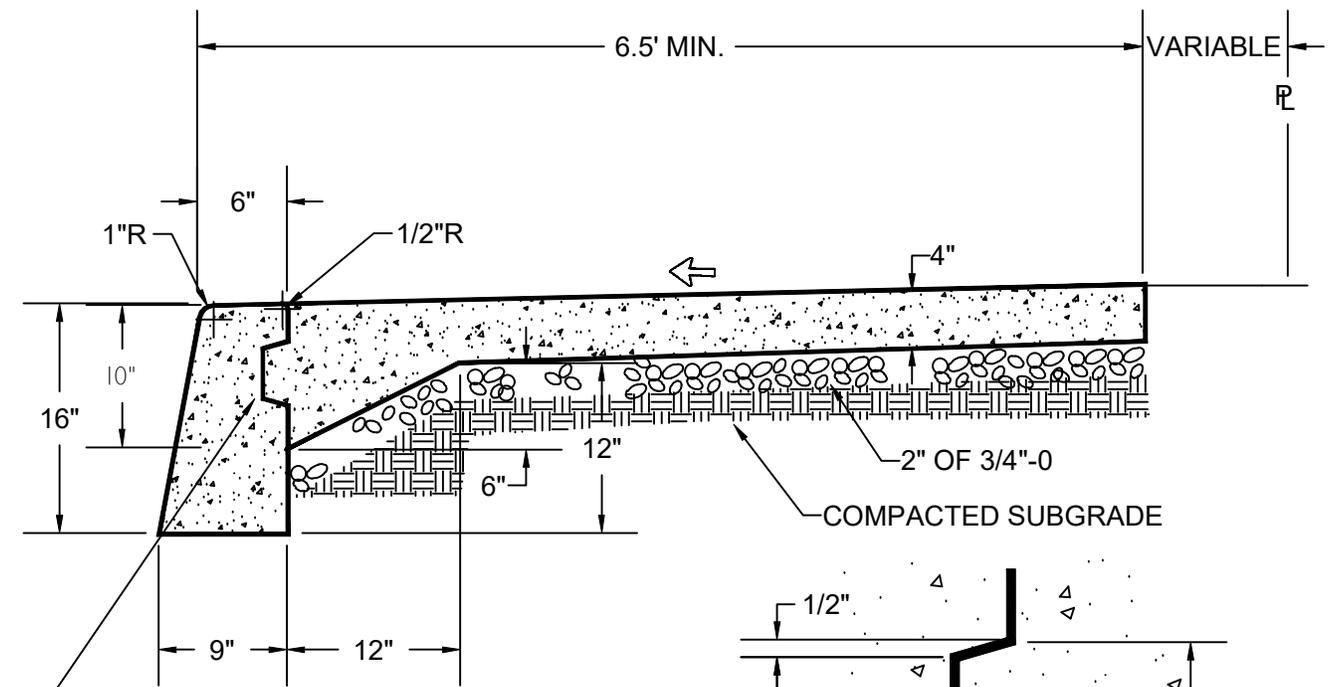
- NOTES:**
1. CONCRETE TO REACH STRENGTH OF 3000 P.S.I. IN 28 DAYS 2" TO 4" SLUMP.
  2. EXPANSION JOINTS TO BE PLACED AT SIDES OF DRIVEWAY APPROACHES, UTILITY VAULTS & AT SPACING NOT TO EXCEED 90' OR AS DIRECTED BY THE ENGINEER.
  3. FOR SIDEWALKS ADJACENT TO THE CURB & POURED AT THE SAME TIME AS THE CURB . THE JOINT BETWEEN THEM SHALL BE A TROWELED JOINT WITH A MIN. 1/2" RADIUS.
  4. DRAIN BLOCKOUTS IN CURBS SHALL BE EXTENDED TO BACK OF SIDEWALK WITH 3" DIA. SCH. 40 ABS OR PVC PIPE AT 2% SLOPE, CONTRACTION JOINT TO BE PLACED OVER PIPE.



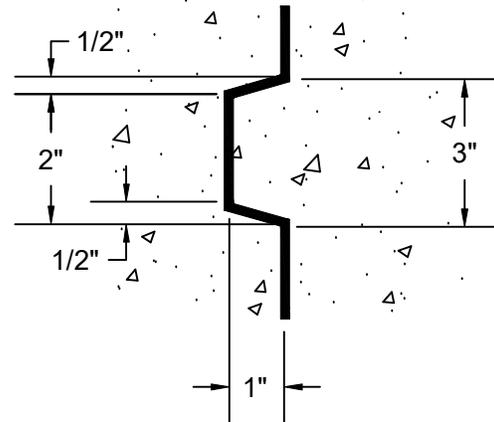
**DOWNTOWN  
TREE WELL GRATE**

ENGINEERING  
DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO.  
105  
SCALE  
NONE



TAPERED 2"x4" KEYWAY TO BE FORMED INTO CURB AS SHOWN WHERE CURB & SIDEWALK WILL NOT BE POURED AT THE SAME TIME.



### KEYWAY

#### NOTES:

1. CONCRETE TO HAVE STRENGTH OF 3000 P.S.I. IN 28 DAYS 2" TO 4" SLUMP.
2. KEYED COMBINATION CURB & SIDEWALK WILL ONLY BE PERMITTED TO BE USED WHEN THE ENGINEER DETERMINES THAT IT IS NOT FEASIBLE TO CONSTRUCT MONOLITHIC COMBINATION CURB & SIDEWALK.
3. PANELS TO BE 5 FEET LONG
4. EXPANSION JOINTS TO BE PLACED AT SIDES OF DRIVEWAY APPROACHES, UTILITY VAULTS & AT SPACING NOT TO EXCEED 90' OR AS DIRECTED BY THE ENGINEER.
5. FOR SIDEWALKS ADJACENT TO THE CURB & POURED AT THE SAME TIME AS THE CURB . THE JOINT BETWEEN THEM SHALL BE A TROWELED JOINT WITH A MIN. 1/2" RADIUS.
6. DRAIN BLOCKOUTS IN CURBS SHALL BE EXTENDED TO BACK OF SIDEWALK WITH 3" DIA. SCH. 40 ABS OR PVC PIPE AT 2% SLOPE, CONTRACTION JOINT TO BE PLACED OVER PIPE.

#### LEGEND:

- ↓ CROSS SLOPE 1.5% MAX (MAX 2.0 % FINISHED SURFACE SLOPE)



## KEYED COMBINATION CURB & SIDEWALK

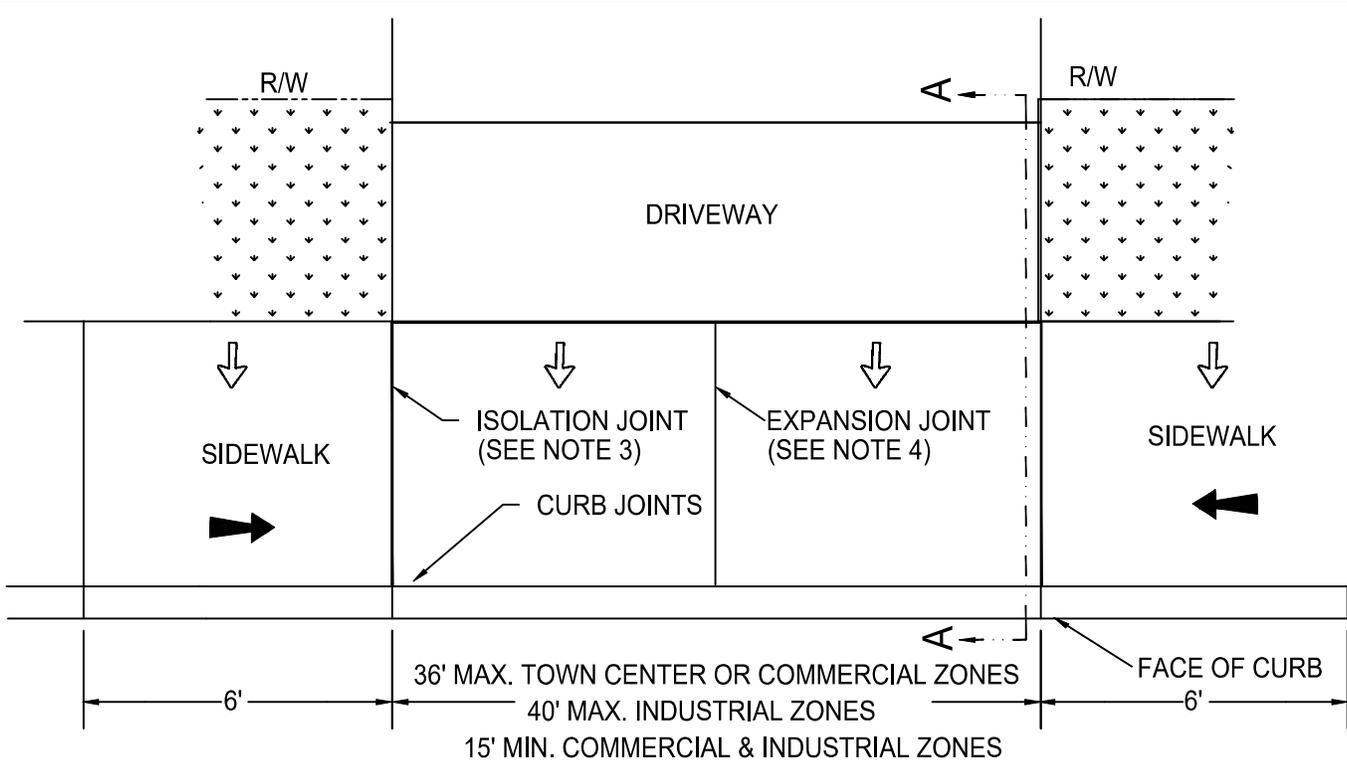
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1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO.  
106

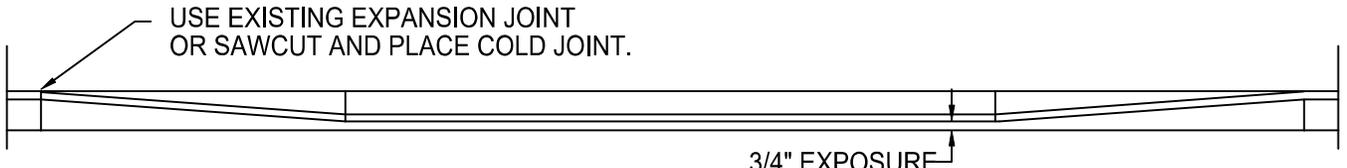
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\\w2kleng\Eng Dept\STANDARD DETAILS\100s SIDEWALKS\KEYED COMBINATION CURB & SIDEWALK.dwg

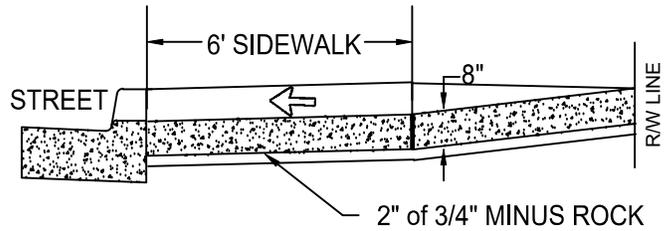
LAST REV. 7/20/22



**PLAN**



**ELEVATION**



**SECTION A-A**

**NOTES:**

1. CONCRETE TO HAVE STRENGTH OF 3000 P.S.I. IN 28 DAYS.
2. CURB JOINT SHALL BE A TROWELED JOINT WITH A MINIMUM 1/2" RADIUS ALONG BACK OF CURB.
3. ISOLATION JOINTS SHALL BE 1/2" PREMOLDED ASPHALT IMPREGNATED MATERIAL OR EQUAL EXTENDING FROM SUBGRADE TO FINISHED GRADE.
4. EXPANSION JOINT SPACING SHALL BE A MAXIMUM OF 12'.
5. SUB GRADE SHALL BE FIRM WITH NO SOFT SPOTS WITH A MINIMUM OF 2" OF 3/4-0" ROCK

**LEGEND:**

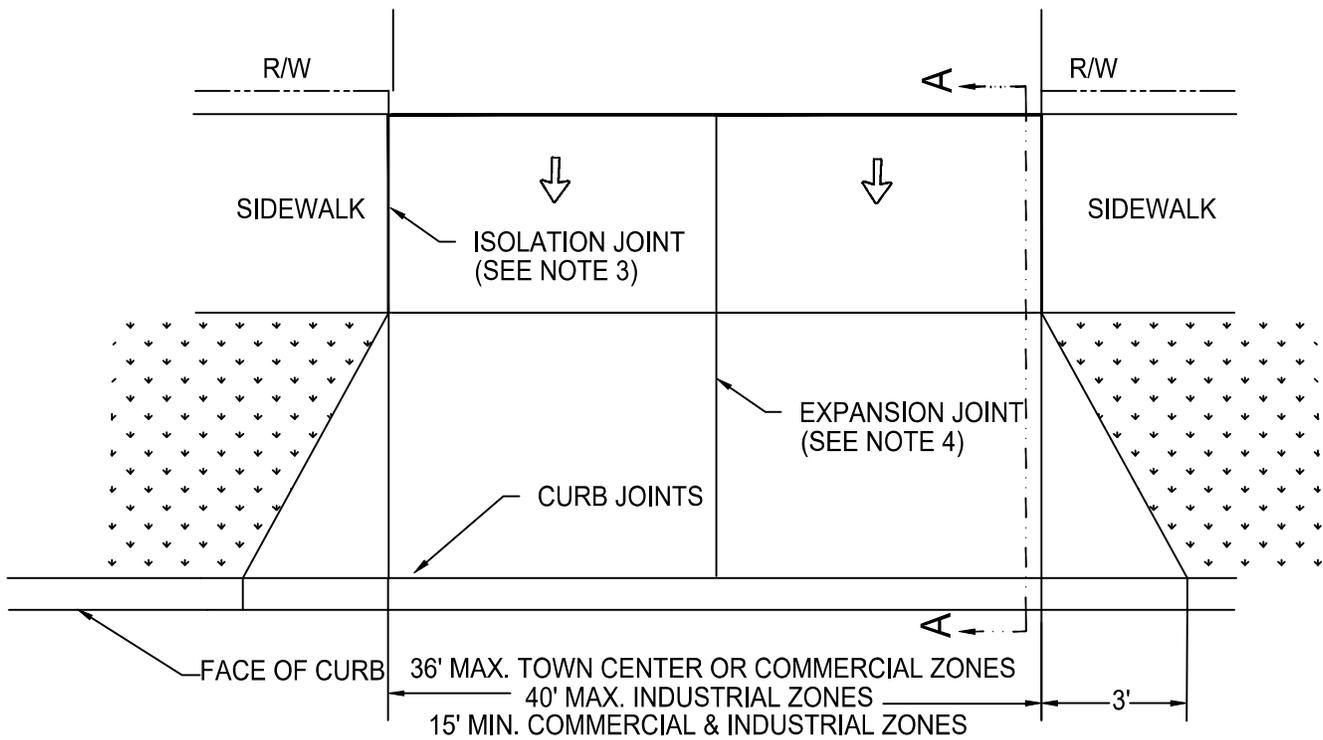
- ↓ CROSS SLOPE 1.5% MAX (MAX 2.0 % FINISHED SURFACE SLOPE)
- ← RUNNING SLOPE 7.5% MAX (MAX 8.3% FINISHED SURFACE SLOPE)



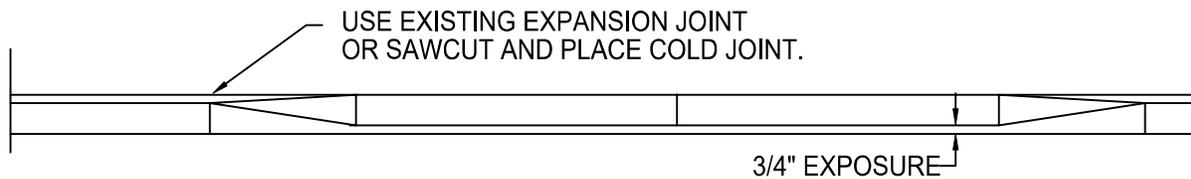
**NON-RESIDENTIAL DRIVEWAY  
(CURBSIDE SIDEWALK)**

**ENGINEERING DEPARTMENT**  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

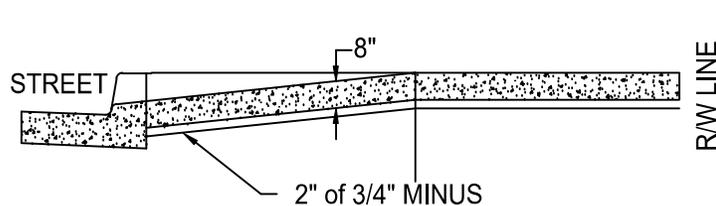
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**SCALE NONE**  
**LAST REV. 7/20/22**



**PLAN**



**ELEVATION**



**SECTION A-A**

**NOTES:**

1. CONCRETE TO HAVE STRENGTH OF 3000 P.S.I. IN 28 DAYS.
2. CURB JOINT SHALL BE A TROWELED JOINT WITH A MINIMUM 1/2" RADIUS ALONG BACK OF CURB.
3. ISOLATION JOINTS SHALL BE 1/2" PREMOLDED ASPHALT IMPREGNATED MATERIAL OR EQUAL EXTENDING FROM SUBGRADE TO FINISHED GRADE.
4. EXPANSION JOINT SPACING SHALL BE A MAXIMUM OF 12'.

**LEGEND:**

↓ CROSS SLOPE 1.5% MAX (MAX 2.0 % FINISHED SURFACE SLOPE)



**NON-RESIDENTIAL DRIVEWAY  
(PROPERTY LINE SIDEWALK)**

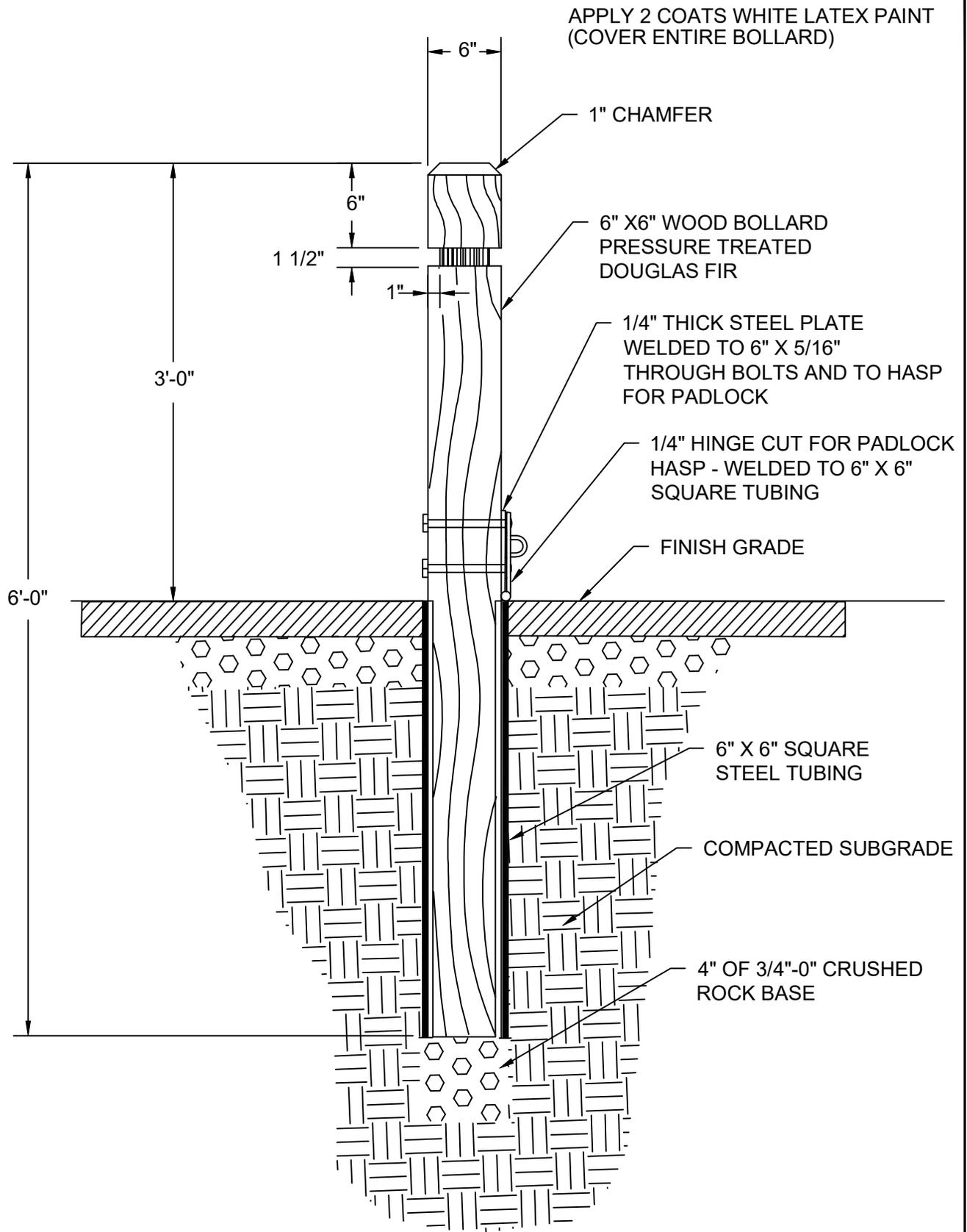
**ENGINEERING DEPARTMENT**  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

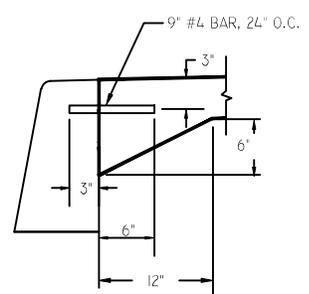
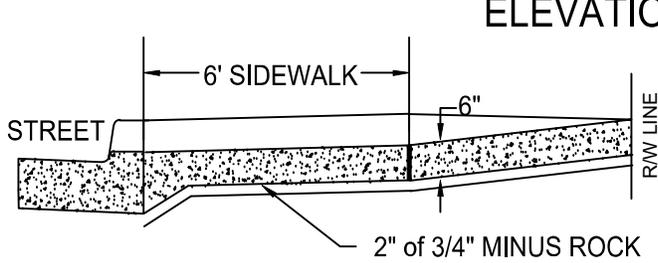
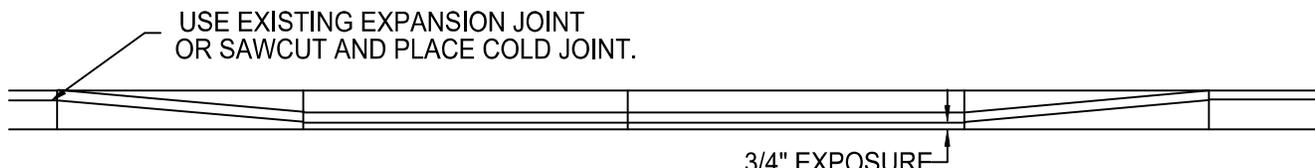
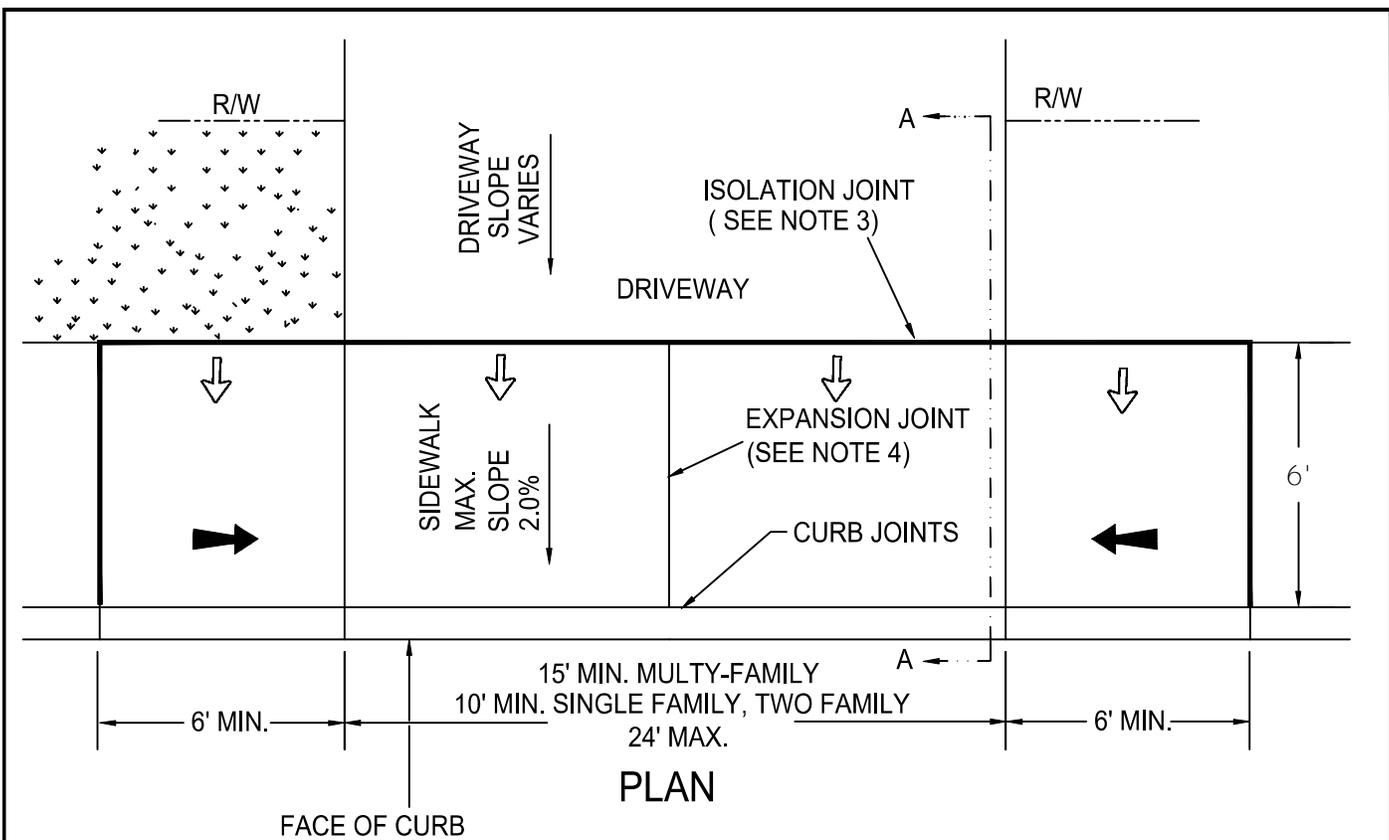
**DRAWING NO.**  
108

**SCALE**  
NONE

\\w2k\eng\Eng Dept\STANDARD DETAILS\100s SIDEWALKS\NON-RESIDENTIAL DRIVEWAY(PROPERTY LINE).dwg

**LAST REV.** 9/8/21





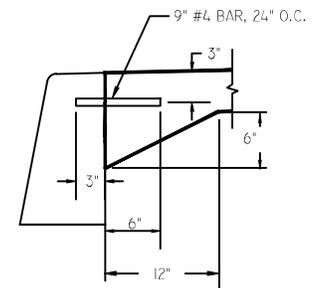
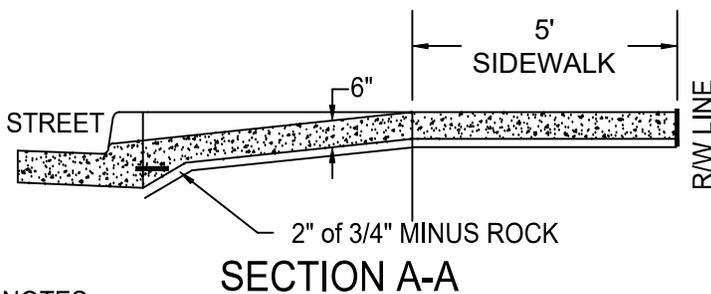
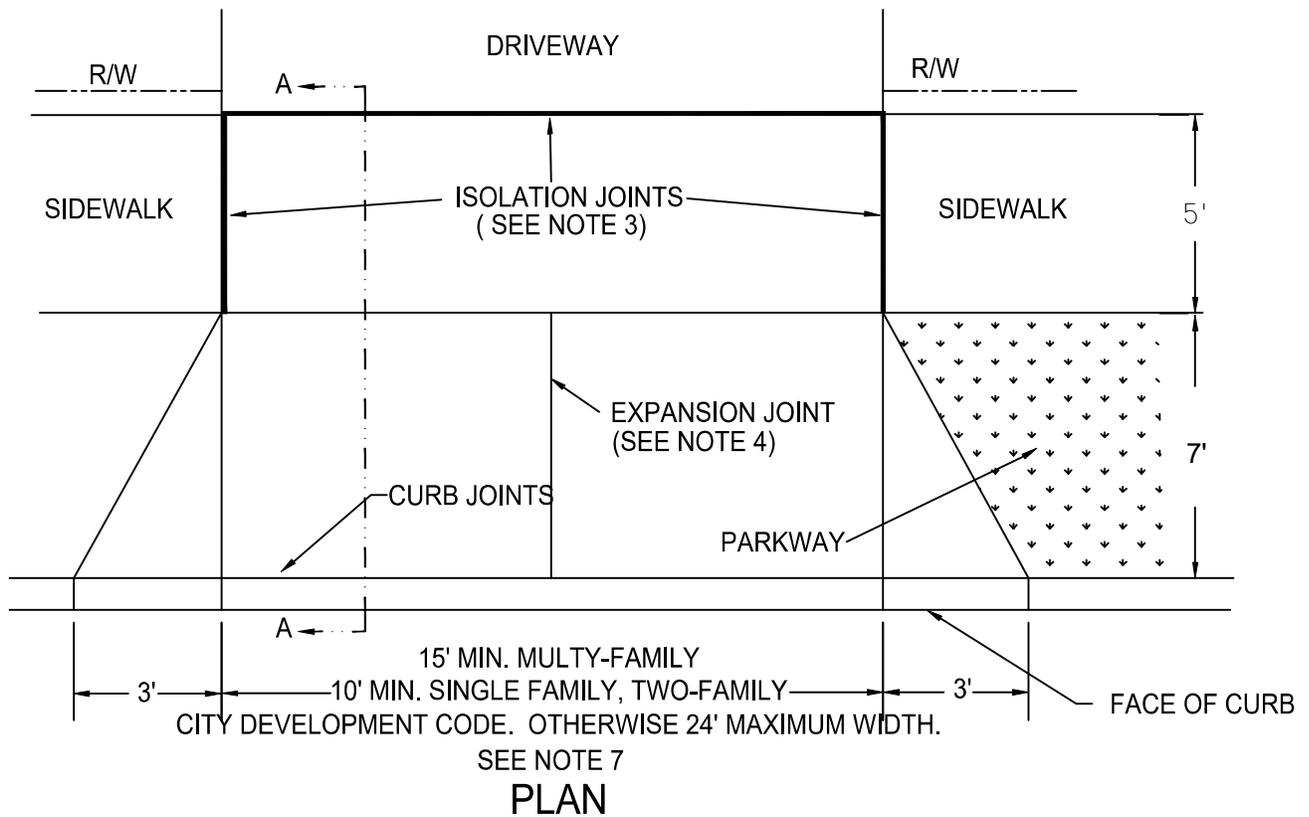
**NOTES: SECTION A-A**

1. CONCRETE TO HAVE STRENGTH OF 3000 P.S.I. IN 28 DAYS.
2. CURB JOINT SHALL BE A TROWELED JOINT WITH A MINIMUM 1/2" RADIUS ALONG BACK OF CURB.
3. ISOLATION JOINTS SHALL BE 1/2" PREMOLDED ASPHALT IMPREGNATED MATERIAL EXTENDING FROM SUBGRADE TO FINISHED GRADE, NO WOOD PRODUCTS ALLOWED.
4. EXPANSION JOINT SPACING SHALL BE A MAXIMUM OF 12'.
5. SUB GRADE SHALL BE FIRM WITH NO SOFT SPOTS WITH A MINIMUM OF 2" OF 3/4 - 0" ROCK
6. STEEL TIES 9" LONG DRILL HOLE 3" INTO EXISTING CURB 4# BAR 24" ON CENTER.

**LEGEND:**

- ↓ CROSS SLOPE 1.5% MAX (MAX 2.0 % FINISHED SURFACE SLOPE)
- ← RUNNING SLOPE 7.5% MAX (MAX 8.3% FINISHED SURFACE SLOPE)

	<b>RESIDENTIAL DRIVEWAY (CURBSIDE SIDEWALK)</b>	<b>ENGINEERING DEPARTMENT</b> <small>1924 COUNCIL STREET P.O. BOX 326 FOREST GROVE, OR 97116</small>	<b>DRAWING NO. 110</b>
	<small>\\w2k\eng\Eng Dept\STANDARD DETAILS\100s SIDEWALKS\RESIDENTIAL DRIVEWAY CURBSIDE.dwg</small>	<b>SCALE NONE</b>	<b>LAST REV. 7/20/22</b>



**NOTES:**

1. CONCRETE TO HAVE STRENGTH OF 3000 P.S.I. IN 28 DAYS.
2. CURB JOINT SHALL BE A TROWELED JOINT WITH A MINIMUM 1/2" RADIUS ALONG BACK OF CURB.
3. ISOLATION JOINTS SHALL BE 1/2" PREMOLDED ASPHALT IMPREGNATED MATERIAL EXTENDING FROM SUBGRADE TO FINISHED GRADE, NO WOOD PRODUCTS ALLOWED.
4. EXPANSION JOINT SPACING SHALL BE A MAXIMUM OF 12'.
5. SUB GRADE SHALL BE FIRM WITH NO SOFT SPOTS WITH A MINIMUM OF 2" OF 3/4-0" ROCK.
6. STEEL TIES 9" LONG DRILL HOLE 3" INTO EXISTING CURB 4# BAR 24" ON CENTER.
7. UP TO 30' MAX. WHEN MEETING SPECIAL REQ'S OF SEC. 17.8.130 OF



**RESIDENTIAL DRIVEWAY  
(PROPERTY LINE SIDEWALK)**

ENGINEERING  
DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO.  
111

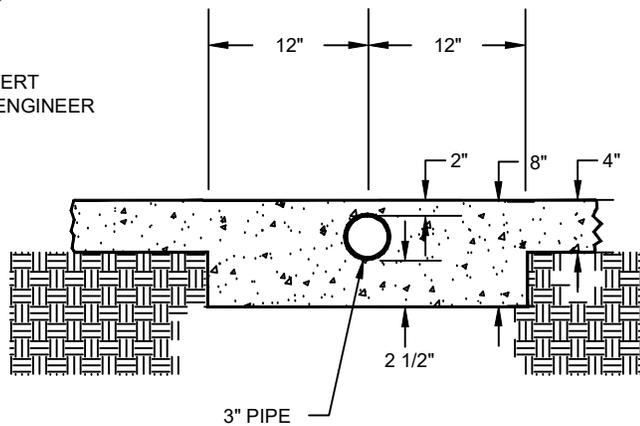
SCALE  
NONE

WET CUT JOINT LINE  
EVERY 5' SPACE JOINT  
TO MATCH DRAIN PIPE  
(MIN. 1" DEEP CUT)

INSTALL 3" PARKWAY CULVERT THROUGH  
SIDEWALK TO MEET WEEP HOLES IN CURB  
INSTALL WEEP HOLES AND CULVERTS AS  
DIRECTED BY ENGINEER.

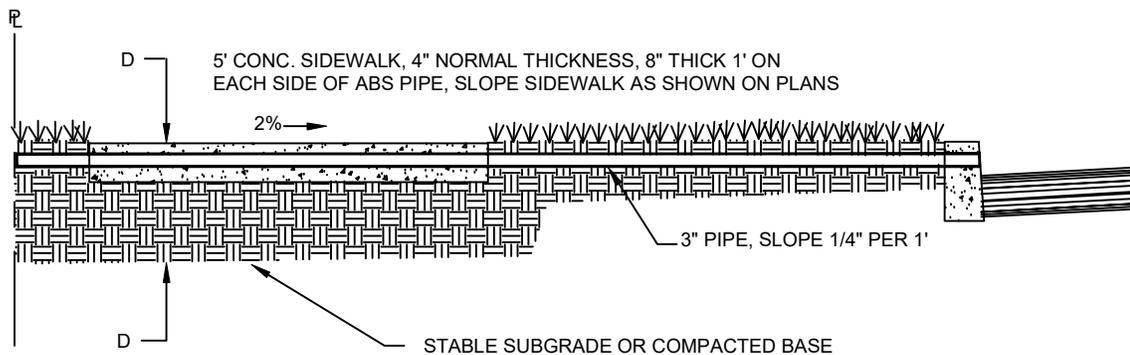
4" OF CONCRETE ON  
2" OF 3/4"-0" CRUSHED  
AGGREGATE

3' PARKWAY CULVERT  
AS DIRECTED BY ENGINEER



SECTION D-D  
N.T.S.

NOTES:  
PIPE MATERIAL SHALL FOLLOW CURRENT CLEAN WATER SERVICES STANDARDS  
CONCRETE SHALL REACH 3000 PSI AT 28 DAYS



SECTION C-C  
N.T.S.

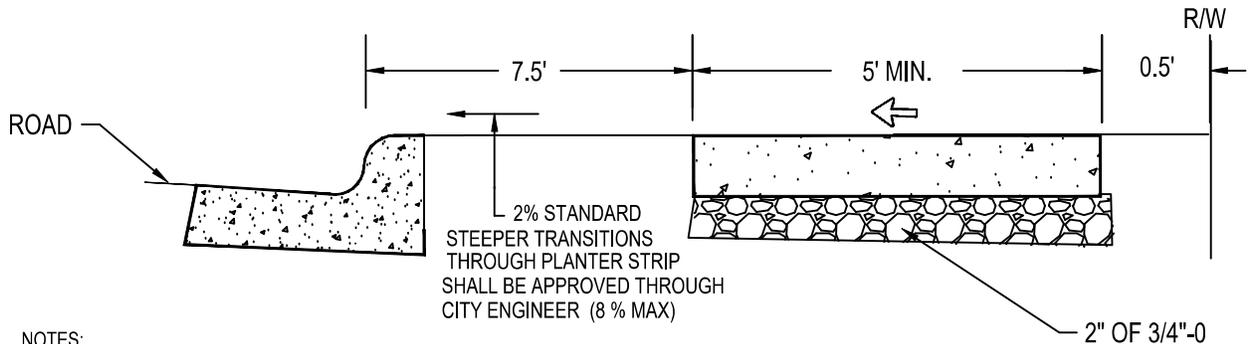
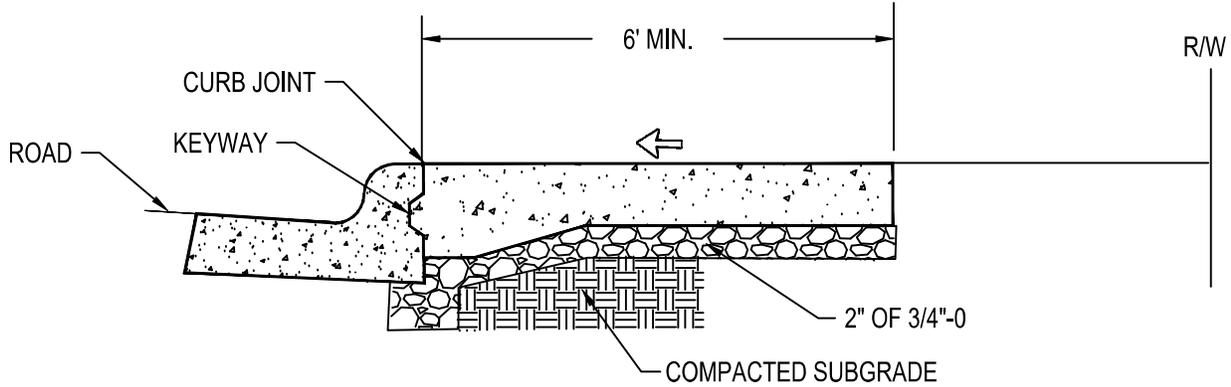
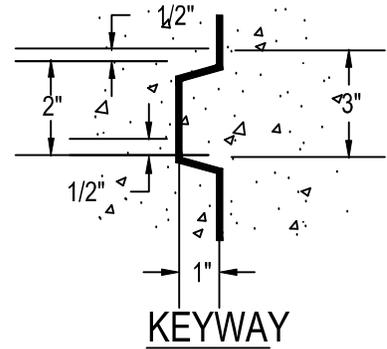
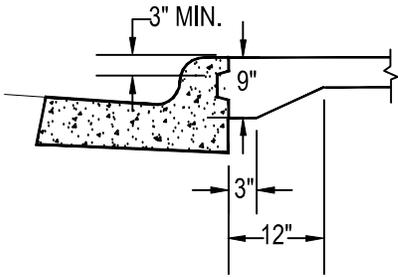


SIDEWALK AND PARKWAY  
CULVERT DETAIL

ENGINEERING  
DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

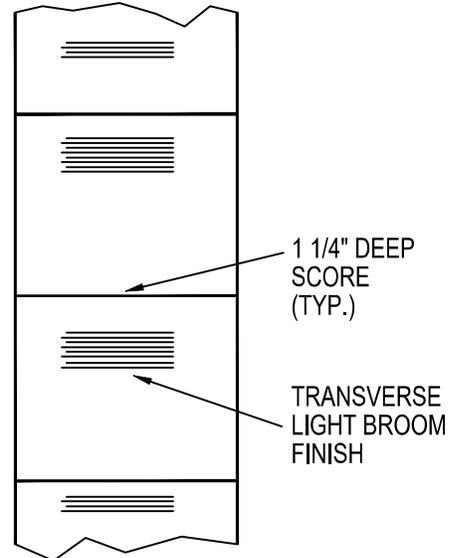
DRAWING NO.  
112

SCALE  
NONE



**NOTES:**

1. CONCRETE TO HAVE STRENGTH OF 3000 P.S.I. IN 28 DAYS 2" TO 4" SLUMP.
2. KEYED COMBINATION CURB & SIDEWALK WILL ONLY BE PERMITTED TO BE USED WHEN THE ENGINEER DETERMINES THAT IT IS NOT FEASIBLE TO CONSTRUCT MONOLITHIC COMBINATION CURB & SIDEWALK.
3. PANELS TO BE 5' LONG.
4. EXPANSION JOINTS TO BE PLACED AT SIDES OF DRIVEWAY APPROACHES, UTILITY VAULTS & AT SPACING NOT TO EXCEED 90' OR AS DIRECTED BY THE ENGINEER.
5. FOR SIDEWALKS ADJACENT TO THE CURB & POURED AT THE SAME TIME AS THE CURB; THE JOINT BETWEEN THEM SHALL BE A TROWELED JOINT WITH A MIN. 1/2" RADIUS.
6. DRAIN BLOCKOUTS IN CURBS SHALL BE EXTENDED TO BACK OF SIDEWALK WITH 3" DIA. SCH. 40 ABS OR PVC PIPE AT 2% SLOPE, CONTRACTION JOINT TO BE PLACED OVER PIPE.
7. SIDEWALKS SHALL HAVE A MINIMUM THICKNESS OF 6" IF MOUNTABLE CURB IS USED, OR IF THE SIDEWALK IS INTENDED AS A PORTION OF A DRIVEWAY, OTHERWISE, SIDEWALKS SHALL HAVE A MINIMUM THICKNESS OF 4".
8. BROOM TRANSVERSE TO DIRECTION OF PEDESTRIAN TRAVEL (TYP.)
9. PLACING CONCRETE IN COLD WEATHER: DO NOT PLACE CONCRETE WHEN THE AMBIENT TEMPERATURE IS BELOW 40 DEGREES F. ANY CONCRETE DAMAGED BY FREEZING SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE OWNER.
10. FOR TRANSITION BETWEEN NEW AND EXISTING SIDEWALK SEE STD. DRG. NO. 116



**LEGEND:**

↓ CROSS SLOPE 1.5% MAX (MAX 2.0 % FINISHED SURFACE SLOPE)



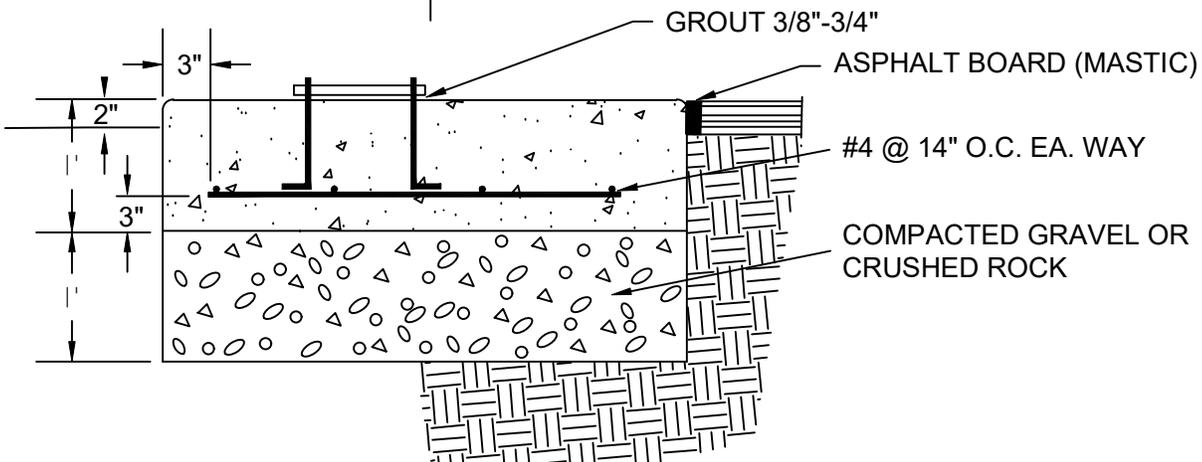
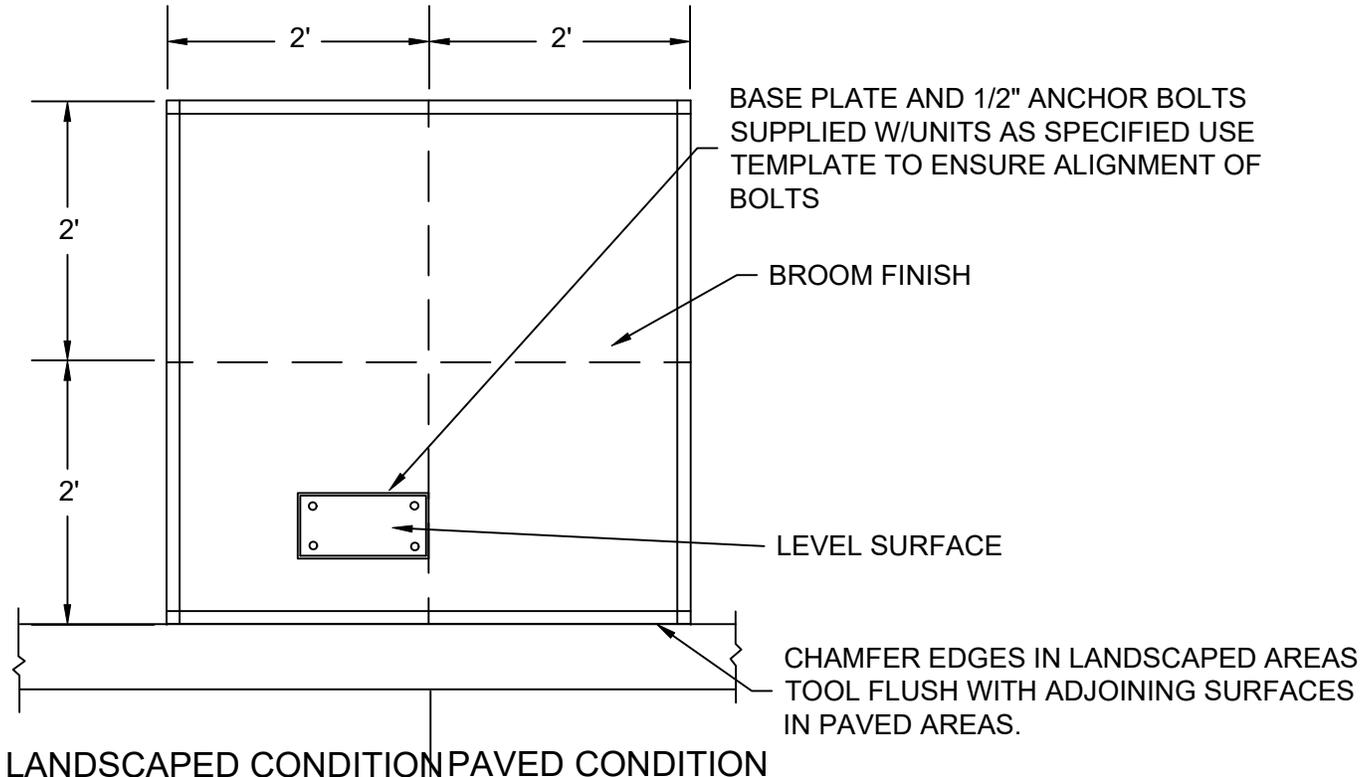
**CONCRETE SIDEWALK**

ENGINEERING  
DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO.  
113

SCALE  
NONE

LAST REV. 7/20/22



**NOTES:**

1. CONCRETE: 3000 PSI @ 28 DAYS, 6% AIR ENTRAINMENT 3" SLUMP, PLACE IN ACCORDANCE WITH ACI-301.
2. REINFORCING STEEL ASTM A615, GRADE 60 .
3. ANCHOR BOLTS: AS SPECIFIED BY MANUFACTURER.
4. GROUT: NON-SHRINK, NON-METALLIC.
5. THIS BASE DETAIL CAN BE USED FOR NEIGHBORHOOD DELIVERY AND COLLECTION BOX UNITS (NDCBU), CLUSTER BOXES AND PARCEL LOCKERS WITH 4" X 10" BOLT PATTERN.
6. REQUIRED EXPANSION BOLT CAPACITY, BASED ON CALCULATED DESIGN LOAD = 3100 LBS TENSION, 2000LBS SHEAR.



**STANDARD MOUNTED  
BASE DETAIL**

ENGINEERING  
DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

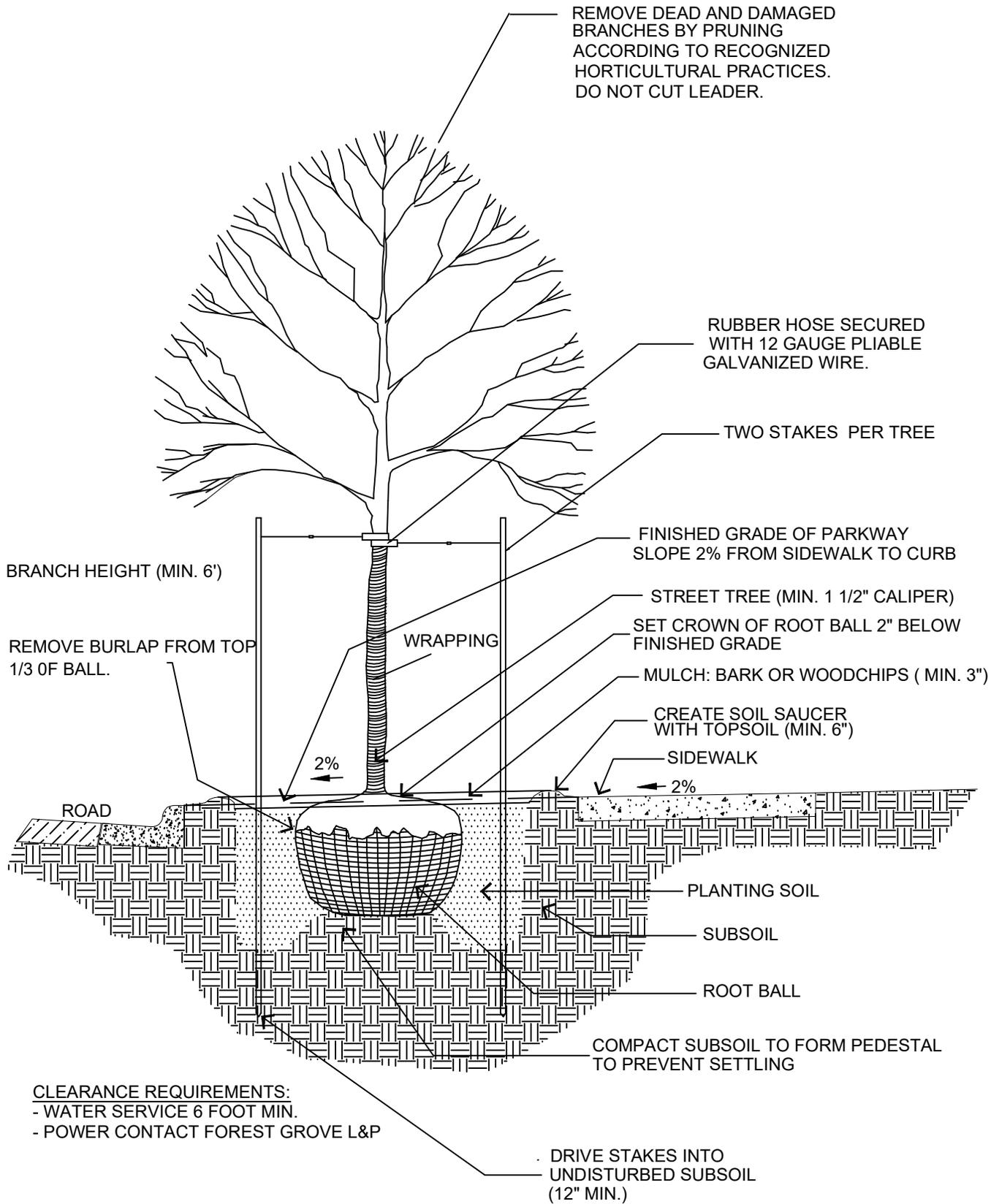
DRAWING NO.  
114

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SCALE  
NONE

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LAST REV. 7/20/22



**CLEARANCE REQUIREMENTS:**  
 - WATER SERVICE 6 FOOT MIN.  
 - POWER CONTACT FOREST GROVE L&P

DRIVE STAKES INTO  
 UNDISTURBED SUBSOIL  
 (12" MIN.)



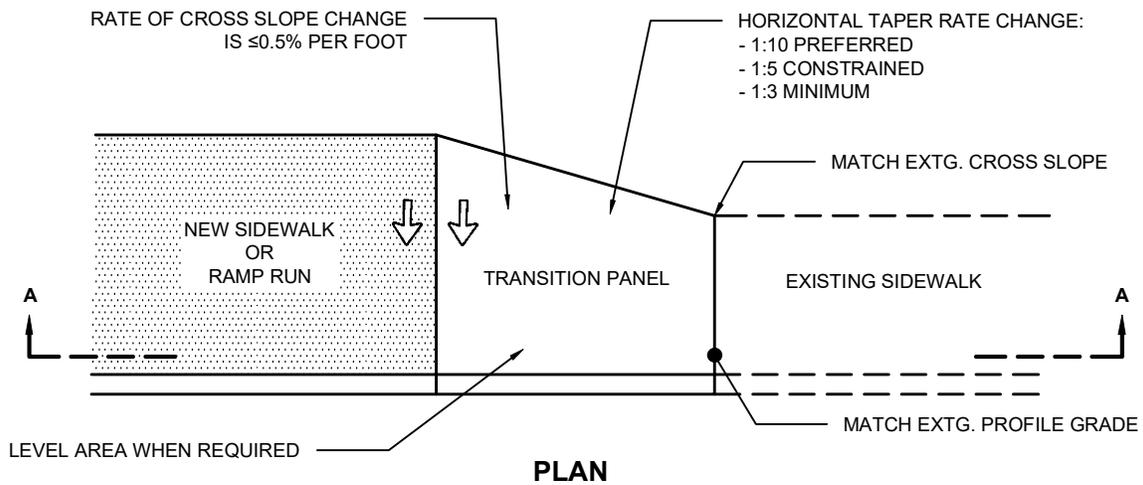
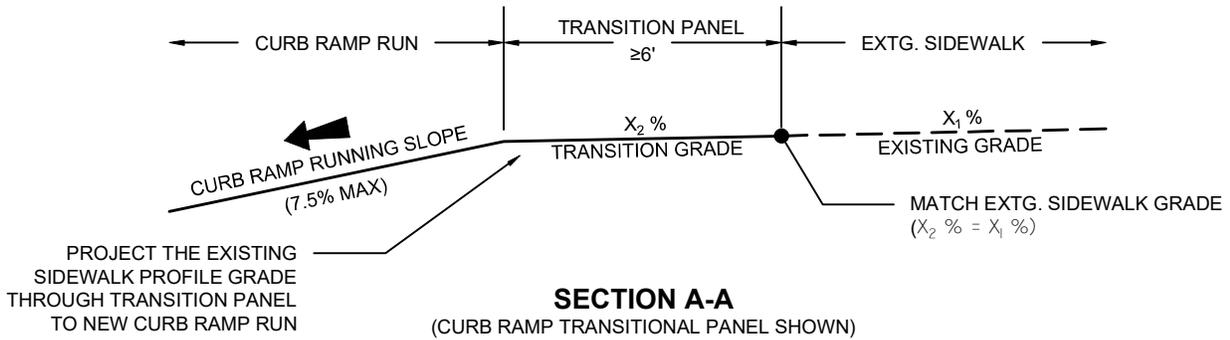
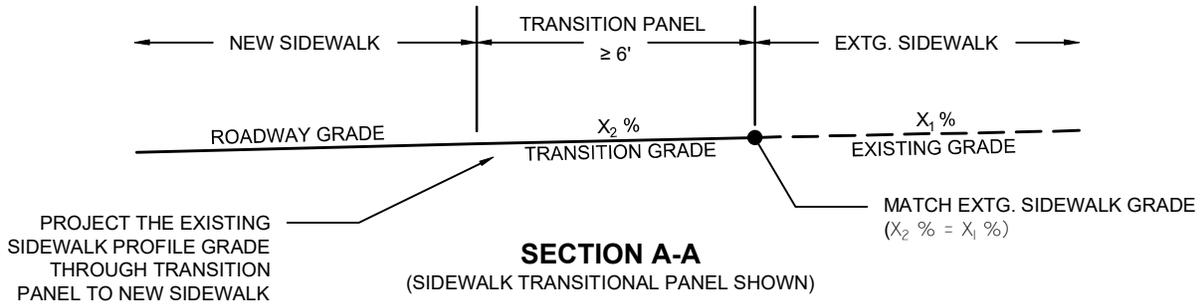
# TREE PLANTING IN PARKWAYS

ENGINEERING  
 DEPARTMENT  
 1924 COUNCIL STREET  
 P.O. BOX 326  
 FOREST GROVE, OR 97116

DRAWING NO.  
 115

SCALE  
 NONE

LAST REV. 8/9/22



LEGEND:

NEW SIDEWALK OR RAMP RUN

ZERO EXPOSURE

CROSS SLOPE 1.5% MAX  
(MAX 2.0% FINISHED SURFACE SLOPE)

RUNNING SLOPE 7.5% MAX  
(MAX 8.3% FINISHED SURFACE SLOPE)

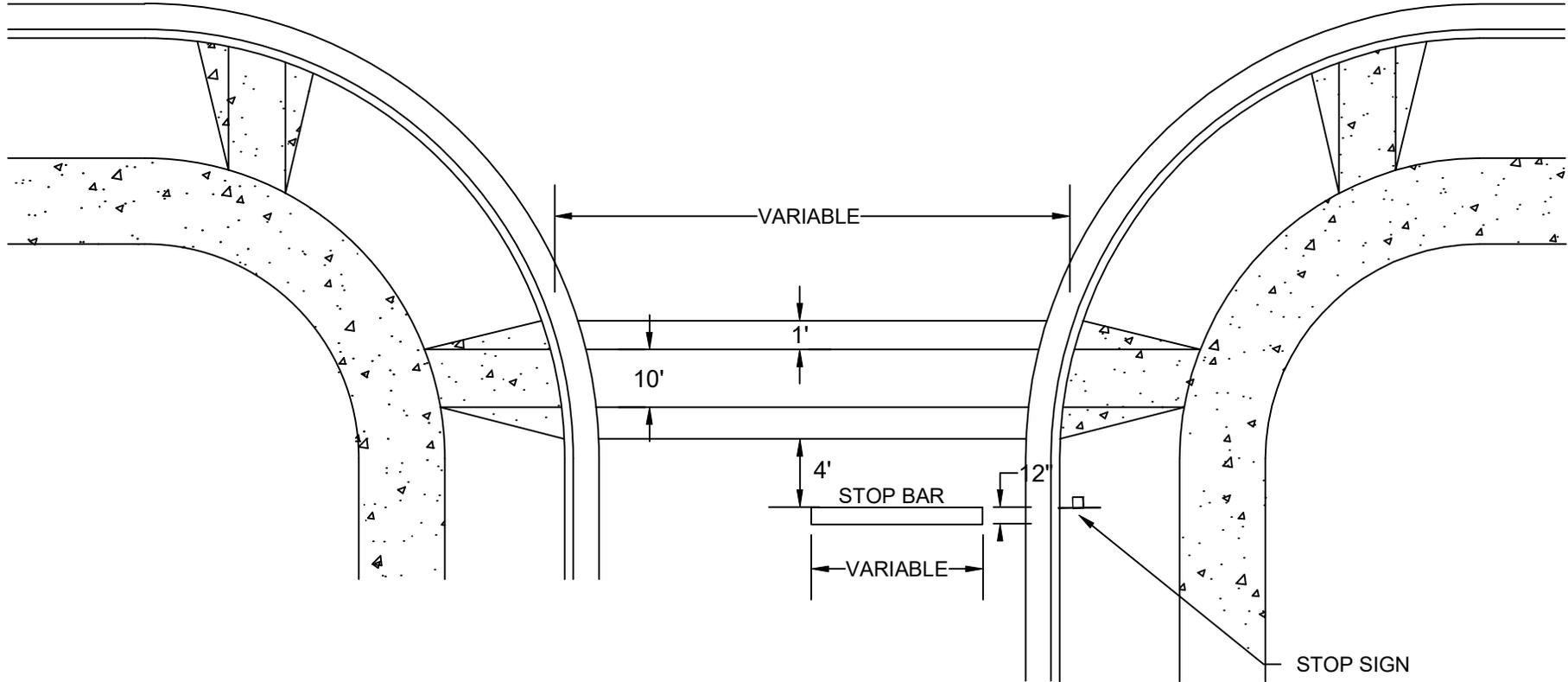


**SIDEWALK TRANSITION  
PANELS**

ENGINEERING  
DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO.  
116

SCALE  
NONE



WHITE THERMOPLASTIC  
WITH REFLECTIVE GLASS BEADS

ALL THERMOPLASTIC PAVEMENT MARKING  
SHALL CONFORM TO ODOT SECTION 2840  
AS TO MATERIALS AND INSTALLATION.

IF TYPE B WHITE PREFABRICATED RETROREFLECTIVE FILM  
IS USED, IT SHALL BE 12" WIDE AND ONE PIECE. IT SHALL BE  
USED WITH THE PROPER PRIMER AND TEMPERATURE RANGE  
IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.



**PEDESTRIAN  
CROSSWALK  
STRIPING DETAIL 1**

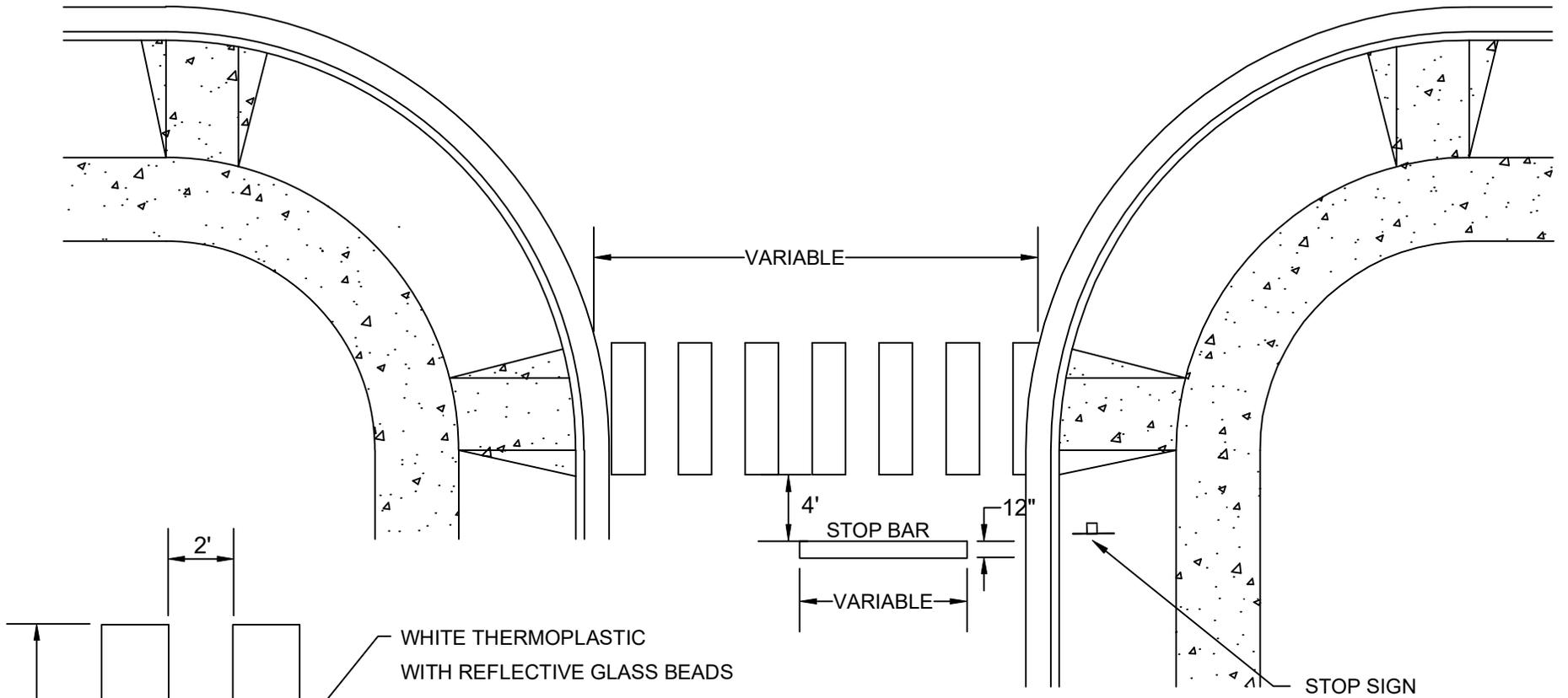
ENGINEERING  
DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO.  
201

SCALE  
NONE

\\w2kleng\Eng Dept\STANDARD DETAILS\200s SIGNAGE\PEDESTRIAN CROSSWALK STRIPING DETAIL 1.dwg

LAST REV. 7/20/22



WHITE THERMOPLASTIC WITH REFLECTIVE GLASS BEADS

ALL THERMOPLASTIC PAVEMENT MARKING SHALL CONFORM TO ODOT SECTION 2840 AS TO MATERIALS AND INSTALLATION.

IF TYPE B WHITE PREFABRICATED RETROREFLECTIVE FILM IS USED, IT SHALL BE 12" WIDE AND ONE PIECE. IT SHALL BE USED WITH THE PROPER PRIMER AND TEMPERATURE RANGE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.



**PEDESTRIAN CROSSWALK STRIPING DETAIL 2**

ENGINEERING DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO. 202

SCALE NONE

LAST REV. 7/20/22

\\w2k\eng\Eng Dept\STANDARD DETAILS\200s SIGNAGE\PEDESTRIAN CROSSWALK STRIPING DETAIL 2.dwg



R1-1

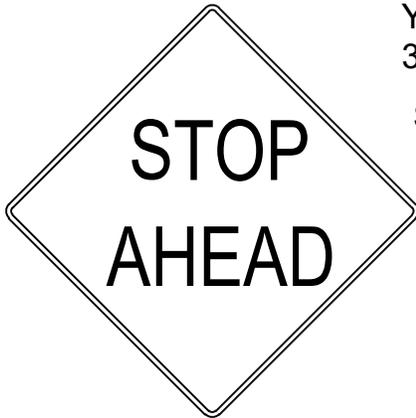
SEE ODOT & MUTCD FOR MOST CURRENT STANDARD DETAIL

STOP SIGNS ARE 30"X30" R-1-1 ON SHEET ALUMINUM UNLESS DIRECTED OTHERWISE BY CITY ENGINEER.



R1-4 18" X 6"

ALL GUIDE, WARNING, STREET NAME SIGNS WILL BE FACED WITH 3M # 3930 SERIES HIGH INTENSITY PRISMATIC (HIP)



W-3-1 30" X 30"

SCHOOL ZONE SIGNS IN THE FLUORESCENT YELLOW GREEN WILL BE FACED WITH 3M 4000 SERIES VIP DIAMOND GRADE (DG CUBED).

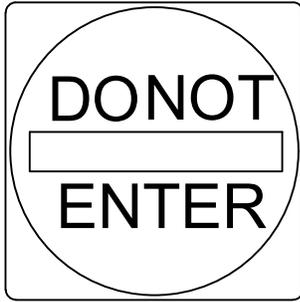
SEE SIGNING DETAIL SHEET FOR MOUNTING



OR2-1 (OREGON)  
24" X 30" FOR 25 MPH  
30" X 36" FOR 30 MPH OR ON COLLECTORS



OR5 (OREGON)  
24" X 48"



R5-1 30" X 30"

ALL GUIDE, WARNING, STREET NAME SIGNS  
WILL BE FACED WITH 3M # 3930  
SERIES HIGH INTENSITY PRISMATIC (HIP)

SCHOOL ZONE SIGNS IN THE FLUORESCENT  
YELLOW GREEN WILL BE FACED WITH  
3M 4000 SERIES VIP DIAMOND GRADE (DG CUBED).

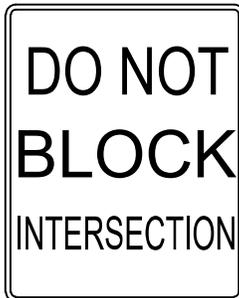
SEE SIGNING DETAIL SHEET FOR MOUNTING



R6-1 (R) 36" X 18"  
R6-1 (L) 36" X 18"



W-11-2 NO LINES 30" X 30"



R10-7 24" X 30"



W-14-2 30" X 30"



W-14-1 30" X 30"

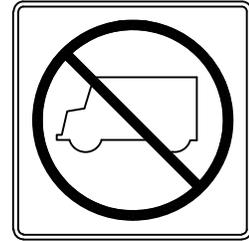


W-14-1P 24" X 6"  
(L OR R)



R7-2A 12" X 18"

TIME APPLICABLE IF NOT ANY TIME, 2" LETTERS WITH ARROW(S) FOR DIRECTION OF RESTRICTION



R5-2 24" X 24"



R7-9A 12" X 18"

ALL GUIDE, WARNING, STREET NAME SIGNS WILL BE FACED WITH 3M # 3930 SERIES HIGH INTENSITY PRISMATIC (HIP)



R7-12P 12" X 6"

SCHOOL ZONE SIGNS IN THE FLUORESCENT YELLOW GREEN WILL BE FACED WITH 3M 4000 SERIES VIP DIAMOND GRADE (DG CUBED).



R5-2P 24" X 18"



R7 12" X 18"

SEE SIGNING DETAIL SHEET FOR MOUNTING



R12-1 24" X 30"



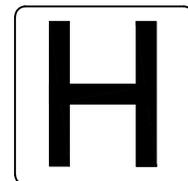
PRIVATE RD 12" X 18"



Z-7 18" X 12"



OR HC 12" X 18" 18" X 24"

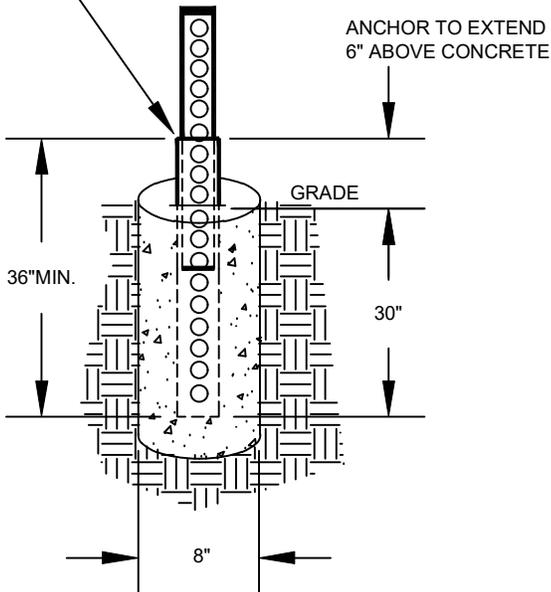


D9-2 18" X 18"

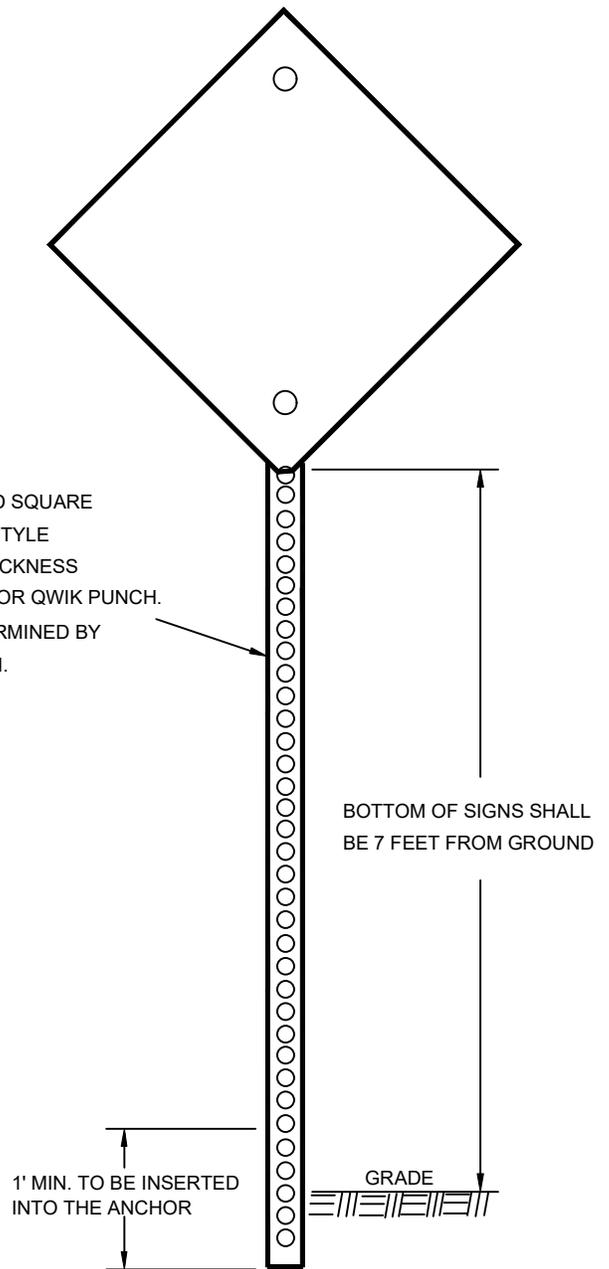
ALL GUIDE, WARNING, STREET NAME SIGNS  
WILL BE FACED WITH 3M # 3930  
SERIES HIGH INTENSITY PRISMATIC (HIP)

SCHOOL ZONE SIGNS IN THE FLUORESCENT  
YELLOW GREEN WILL BE FACED WITH  
3M 4000 SERIES VIP DIAMOND GRADE  
(DG CUBED).

ANCHOR 12 GAUGE  
36" MIN LENGTH 2-1/4"  
GALVANIZED SQUARE BREAKAWAY  
STYLE PERFORATED OR QUIK  
PUNCH TYPE V-LOCK ANCHORING  
SYSTEM ALSO ACCEPTABLE.



2" GALVANIZED SQUARE  
BREAKAWAY STYLE  
12 GAUGE THICKNESS  
PERFORATED OR QUIK PUNCH.  
LENGTH DETERMINED BY  
EACH LOCTION.



**NOTES:**

ANCHOR SHALL BE BURIED IN GROUND 30"  
WITH 6" REMAINING ABOVE GRADE LEVEL.  
ANCHOR SHALL BE SET IN 8" DIAMETER  
CONCRETE FOOTING.  
SIGN POST SHALL BE INSTALLED IN ANCHOR  
MINIMUM OF 1 FOOT.



**SIGNING DETAILS  
(ALTERNATE)**

ENGINEERING  
DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

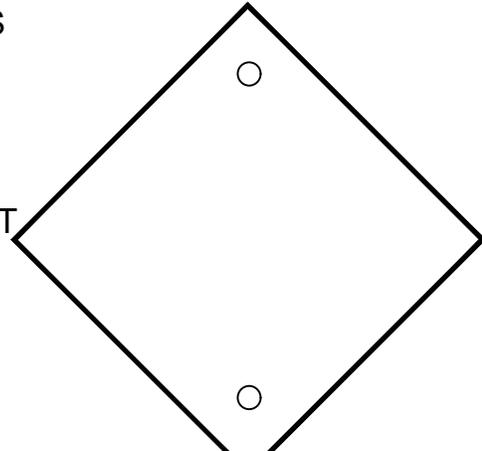
DRAWING NO.  
206

SCALE  
NONE

LAST REV. 7/20/22

ALL GUIDE, WARNING, STREET NAME SIGNS  
 WILL BE FACED WITH 3M # 3930  
 SERIES HIGH INTENSITY PRISMATIC (HIP)

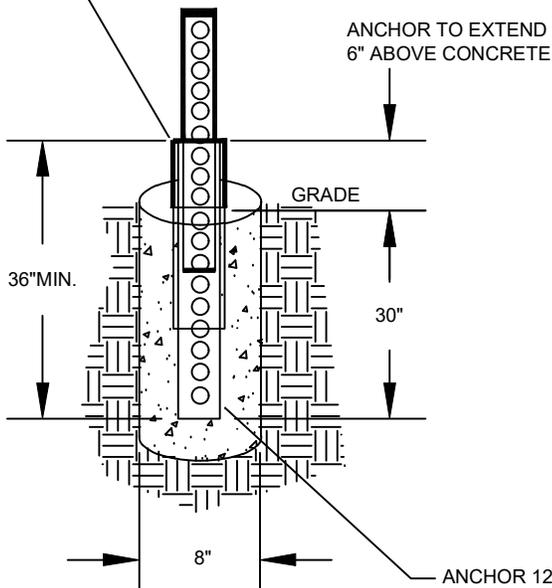
SCHOOL ZONE SIGNS IN THE FLUORESCENT  
 YELLOW GREEN WILL BE FACED WITH  
 3M 4000 SERIES VIP DIAMOND GRADE  
 (DG CUBED).



2" GALVANIZED SQUARE  
 BREAKAWAY STYLE  
 12 GAUGE THICKNESS  
 PERFORATED OR QWIK PUNCH.  
 LENGTH DETERMINED BY  
 EACH LOCTION.

SLEEVE: 2 1/2" GALVANIZED SQUARE  
 12 GAUGE PERFORATED OR QWIK PUNCH  
 18" MINIMUM LENGTH

BOTTOM OF SIGNS SHALL  
 BE 7 FEET FROM GROUND



1' MIN. TO BE INSERTED  
 INTO THE ANCHOR

ANCHOR 12 GAUGE  
 36" MIN LENGTH 2-1/4"  
 GALVANIZED SQUARE BREAKAWAY  
 STYLE PERFORATED OR QUIK  
 PUNCH TYPE V-LOCK ANCHORING  
 SYSTEM ALSO ACCEPTABLE.

**NOTES:**

ANCHOR SHALL BE BURIED IN GROUND 30"  
 WITH 6" REMAINING ABOVE GRADE LEVEL.  
 ANCHOR SHALL BE SET IN 8" DIAMETER  
 CONCRETE FOOTING.  
 SIGN POST SHALL BE INSTALLED IN ANCHOR  
 MINIMUM OF 1 FOOT.



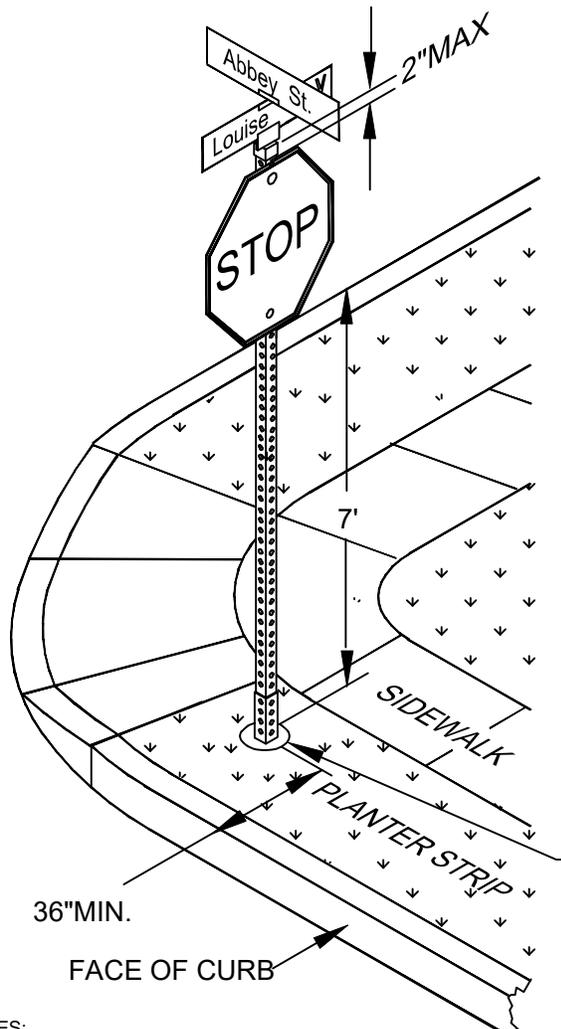
**SIGNING DETAILS**

ENGINEERING  
 DEPARTMENT  
 1924 COUNCIL STREET  
 P.O. BOX 326  
 FOREST GROVE, OR 97116

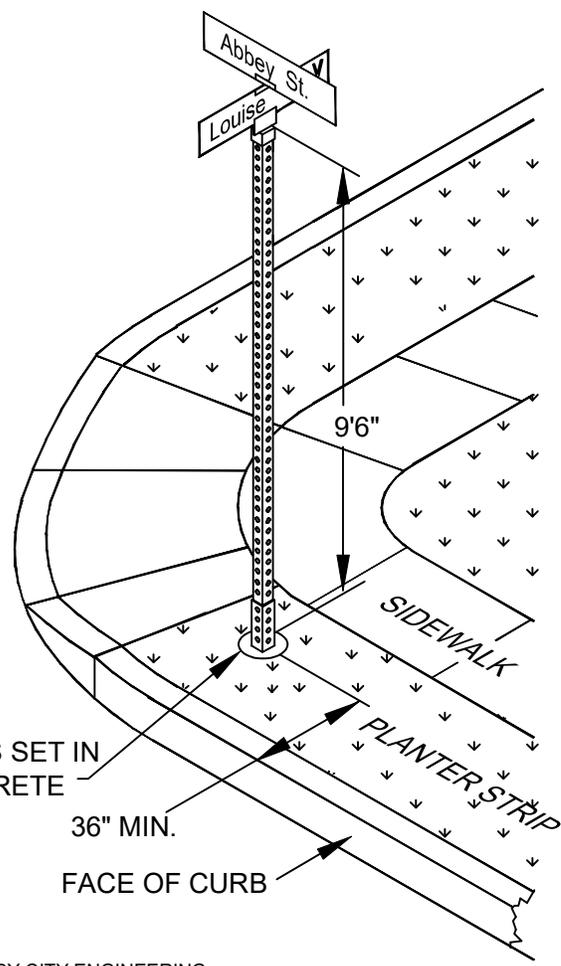
DRAWING NO.  
 207

SCALE  
 NONE

LAST REV. 7/20/22



POSTS SET IN CONCRETE



36" MIN. FACE OF CURB

**NOTES:**

STANDARD LOCATION DIMENSIONS ABOVE UNLESS DIRECTED OTHERWISE BY CITY ENGINEERING  
 STREET NAME SIGNS ARE TO BE PLACED ON SOUTH WEST CORNER WHERE POSSIBLE  
 CONTRACTOR TO SUPPLY STREET SIGNS,

**POST MOUNTED STREET SIGN SPECIFICATIONS LOCAL STREETS WITH SPEED LIMITS OF 25 MPH OR LESS:**

6" EXTRUDED BLADE BY REQUIRED LENGTH DEPENDING UPON LENGTH OF NAME WITH A 24" MINIMUM.  
 STREET NAME SHALL APPEAR ON BOTH SIDES OF SIGN

**COLOR:**

GREEN BACKGROUND 3M #3930 SERIES HIGH INTENSITY PRISMATIC (HIP).

WHITE LETTERING 3M #3930 SERIES HIGH INTENSITY PRISMATIC (HIP) .

HEIGHT OF LETTERS TO BE 4" INCH UPPER AND LOWER CASE SERIES "B", PREFIX AND SUFFIX TO BE 4" INCH SERIES "B" UPPER AND LOWER CASE LETTERS. SUFFIX LESS THAN 5 LETTERS SHALL NOT BE ABBREVIATED.

**POST MOUNTED STREET NAME SIGN SPECIFICATIONS FOR ARTERIAL/COLLECTOR STREETS WITH SPEED LIMITS OF 30 MPH OR ABOVE.**

9" EXTRUDED BLADE BY REQUIRED LENGTH DEPENDING ON LENGTH OF NAME, 24" MINIMUM.

STREET NAME SHALL APPEAR ON BOTH SIDES OF SIGN.

**COLOR:**

GREEN BACKGROUND 3M 3930 SERIES HIGH INTENSITY PRISMATIC (HIP)

WHITE LETTERING 3M #3930 SERIES HIGH INTENSITY PRISMATIC (HIP)

HEIGHT OF LETTER TO BE 6" INCH UPPER AND LOWER CASE SERIES "B", PREFIX AND SUFFIX TO BE (6) INCH SERIES "B" UPPER AND LOWER CASE LETTERS. SUFFIX LESS THAN 5 LETTERS SHALL NOT BE ABBREVIATED.

**SPECIFICATIONS FOR STREET SIGN HARDWARE:**

SIGNS SHALL BE MOUNTED ON 2"X2" BREAKAWAY POSTS IN SOCKET WITH 8" DIA. CONCRETE 30" DEEP FOOTING (SEE SIGN DETAIL DRAWING).

STREET SIGNS SHALL BE MOUNTED TO POST WITH 2"X2" POST CAP FOR EXTRUDED SIGNS.

STOP SIGNS TO HAVE BOTH STREET NAMES LOCATED ON TOP (BOTH SIDES).

STOP SIGNS SHALL BE 30"X30" R-1-1 ON SHEET ALUMINUM (UNLESS OTHERWISE NOTED).

(SEE ODOT STD. SPECS. SECTION 00940.41).



**STOP & STREET SIGN  
 TYPICAL INSTALLATION**

ENGINEERING  
 DEPARTMENT  
 1924 COUNCIL STREET  
 P.O. BOX 326  
 FOREST GROVE, OR 97116

DRAWING NO.  
 208

SCALE  
 NONE

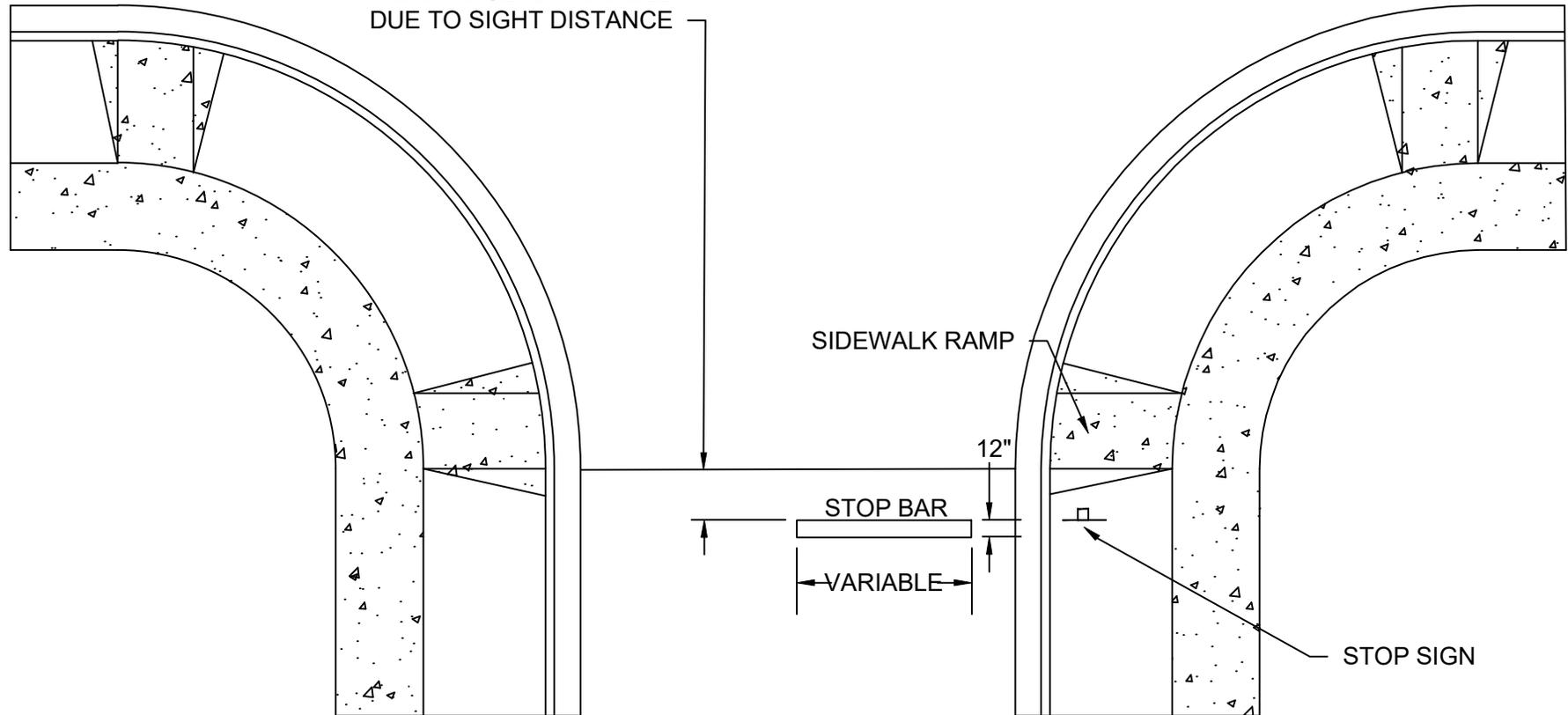
\\w2k\eng\Eng Dept\STANDARD DETAILS\200s SIGNAGE\STOP AND STREET SIGN TYPICAL INSTALLATION.DWG

LAST REV. 7/20/22

ALL THERMOPLASTIC PAVEMENT MARKING SHALL CONFORM TO ODOT SECTION 2840 AS TO MATERIALS AND INSTALLATION.

IF TYPE B WHITE PREFABRICATED RETROREFLECTIVE FILM IS USED, IT SHALL BE 12" WIDE AND ONE PIECE. IT SHALL BE USED WITH THE PROPER PRIMER AND TEMPERATURE RANGE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

DISTANCE IS VARIABLE DUE TO SIGHT DISTANCE



**STOP BAR STRIPING DETAIL**

ENGINEERING DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

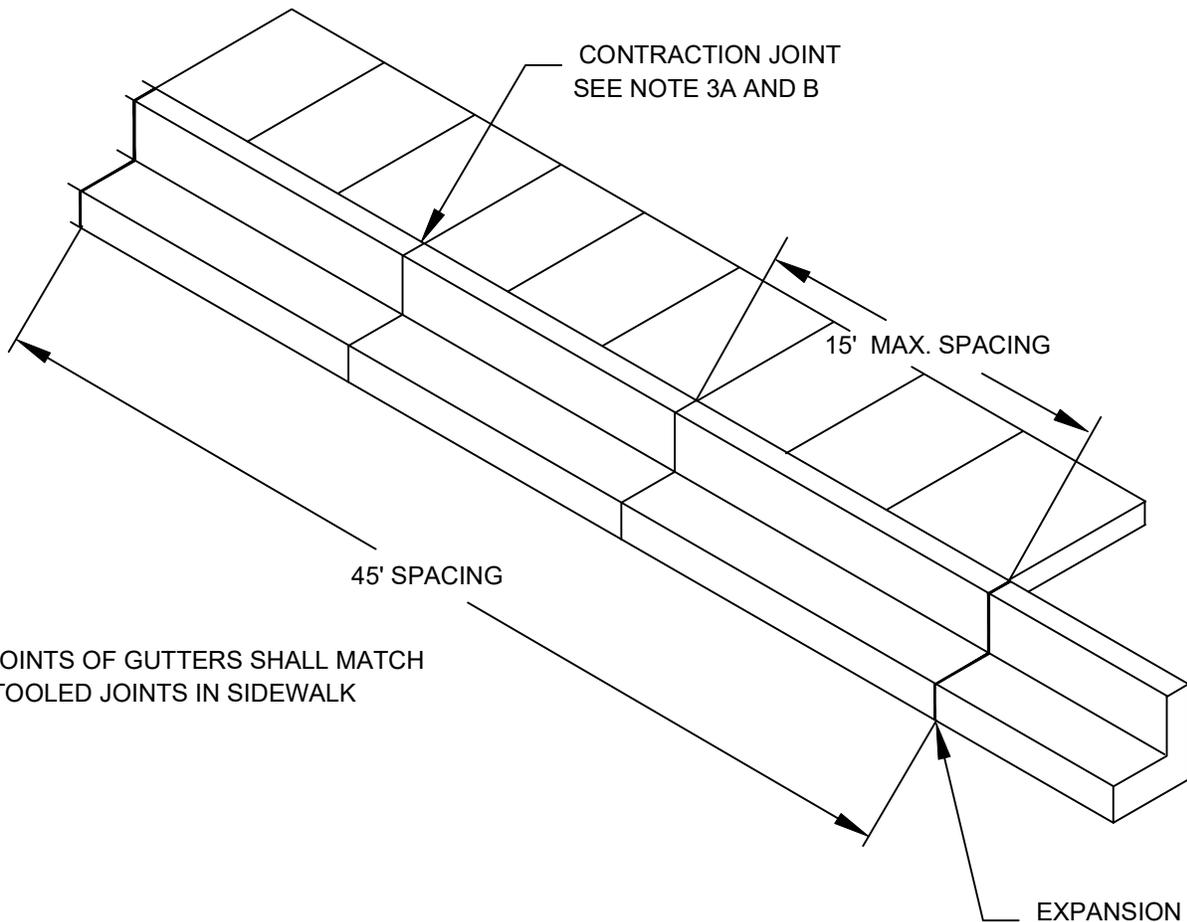
DRAWING NO. 209

SCALE NONE

\\w2kleng\Eng Dept\STANDARD DETAILS\200s SIGNAGE\STOP BAR STRIPING DETAIL.dwg

LAST REV. 7/20/22





JOINTS OF GUTTERS SHALL MATCH TOOLED JOINTS IN SIDEWALK

1. CONCRETE TO HAVE A BREAKING STRENGTH OF 3000 P.S.I. AFTER 28 DAYS.
2. EXPANSION JOINTS
  - A. TO BE PROVIDED:
    - 1) AT EACH POINT OF TANGENCY OF THE CURB.
    - 2) AT EACH COLD JOINT.
    - 3) AT EACH SIDE OF INLET STRUCTURES.
    - 4) AT EACH END OF DRIVEWAYS.
    - 5) AT LOCATIONS NECESSARY TO LIMIT SPACING TO 45 FEET.
  - B. MATERIAL TO BE PRE-MOLDED, ASPHALT IMPREGNATED, NON-EXTRUDING, WITH A THICKNESS OF 1/2 INCH.
3. CONTRACTION JOINTS
  - A. SPACING TO BE NOT MORE THAN 15 FEET.
  - B. THE DEPTH OF JOINT SHALL BE AT LEAST 1 1/2 INCHES.
4. BASE ROCK-2"-0 OR 3/4"-0, 95% COMPACTION. BASE ROCK SHALL BE TO SUBGRADE OF STREET STRUCTURE OR 4" IN DEPTH, WHICHEVER IS GREATER.
5. DRAINAGE BLOCKOUT- 3" DIAMETER SCH 40 PVC OR ABS PIPE.
  - A. I.D. PIPE WITH COUPLING
  - B. DRAINAGE ACCESS THROUGH EXISTING CURBS SHALL BE CORE DRILLED OR CURB SAW CUT VERTICALLY 18" EACH SIDE OF DRAIN AND REPOURED TO FULL DEPTH OF CURB.
6. JOINTS IN CURB AND JOINTS IN CURB SIDE WALK SHOULD LINE UP WHERE POSSIBLE.

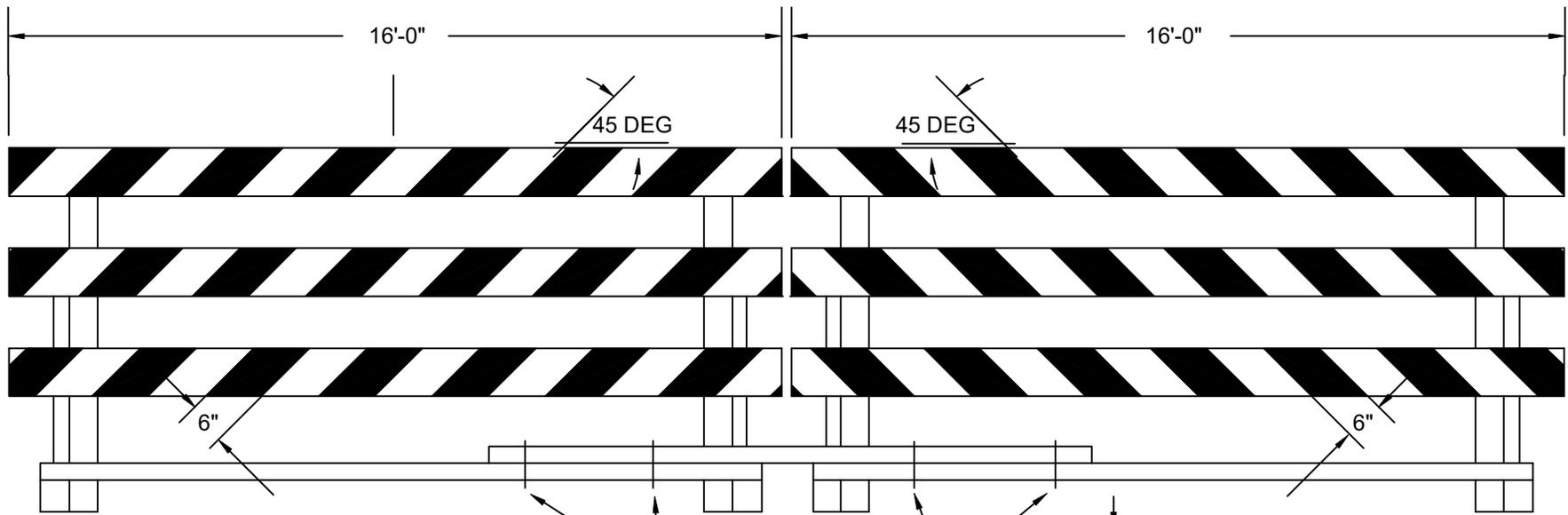


## CURB & GUTTER JOINT SPACING

ENGINEERING  
DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO.  
302

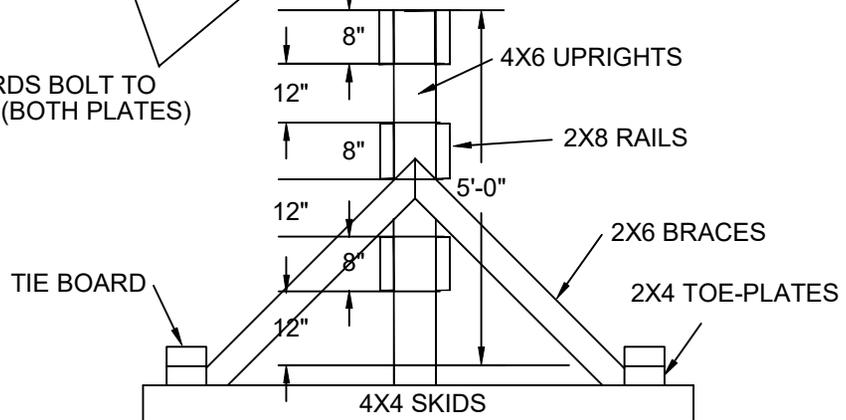
SCALE  
NONE



NOTES:

1. RAILS TO BE PAINTED RED WITH WHITE STRIPES SHALL BE REFLECTORIZED ON BOTH SIDES, WITH CHEVRONS AS SHOWN. ALL WOOD SHALL BE PAINTED WHITE  
\*FOR WIDER APPLICATIONS, MULTIPLE SECTIONS AS SHOWN SHALL BE USED.
2. SEE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS AND THE OREGON SUPPLEMENT 3F-1 BARRICADES 6C-8 BARRICADE DESIGN 6C-9 BARRICADE APPLICATION
3. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT STATE OF OREGON STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
4. ASSEMBLE WITH 5/8" GALV. MACHINE BOLTS, NUTS AND WASHERS.
5. ALL WOOD SHALL BE PRESSURE TREATED.

2X4 TIE BOARDS BOLT TO TOE-PLATES (BOTH PLATES)



**DOUBLE SIDED  
STREET BARRICADE  
TYPE III (MODIFIED)**

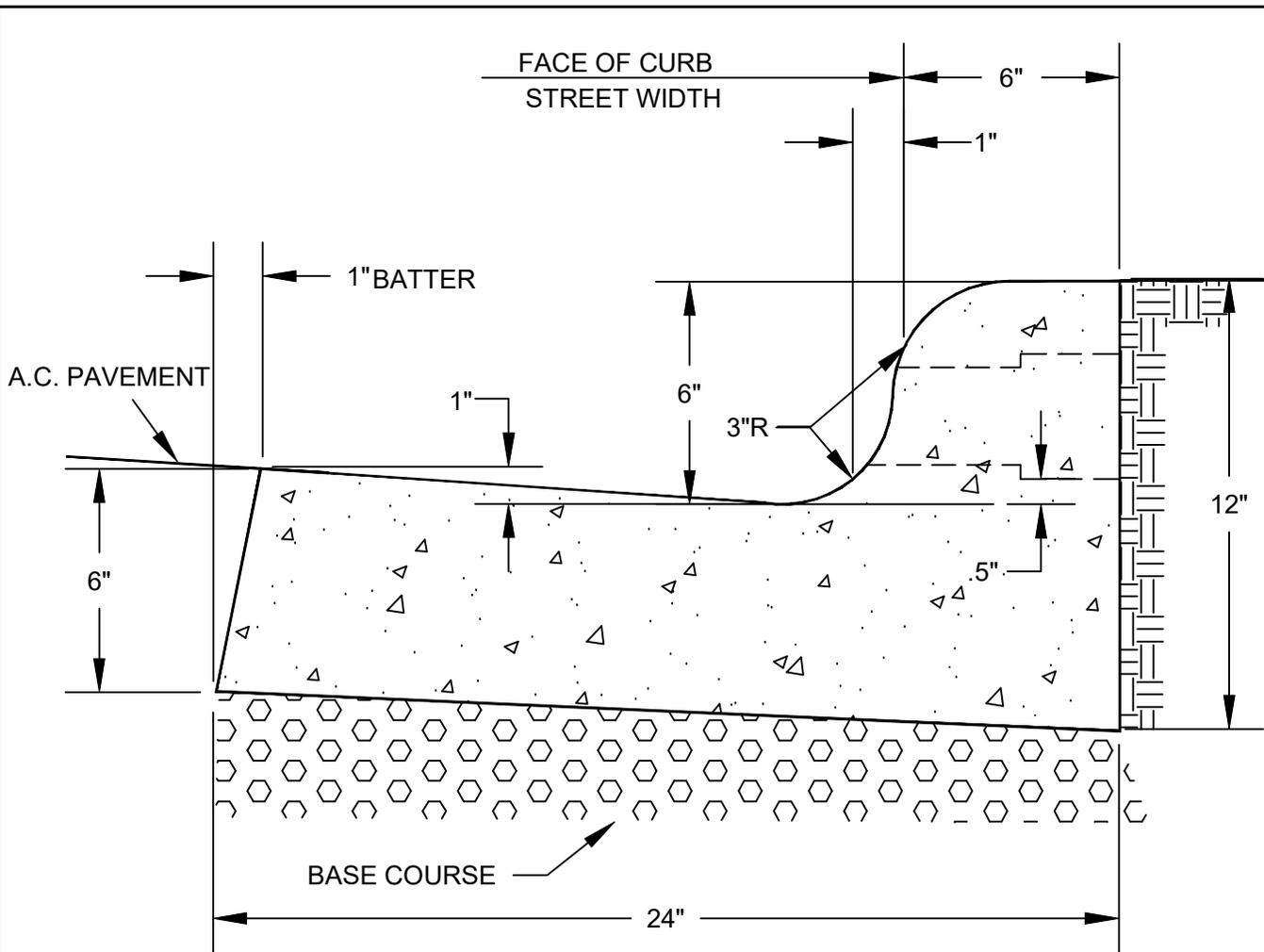
ENGINEERING  
DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO.  
303

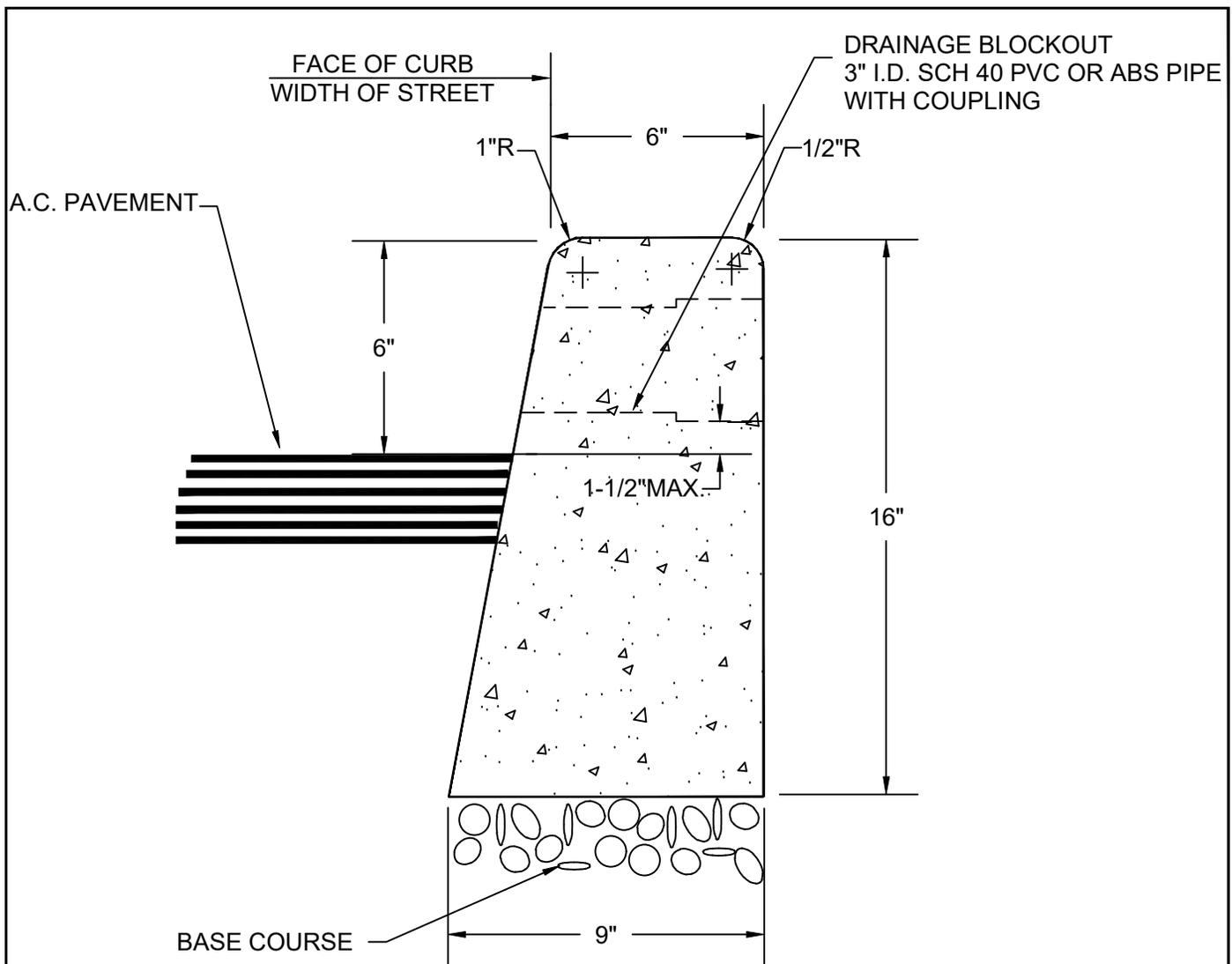
SCALE  
NONE

\\w2k\eng\Eng Dept\STANDARD DETAILS\300s STREETS\DOUBLE SIDED ST BARRICADE TYPE III(MOD).DWG

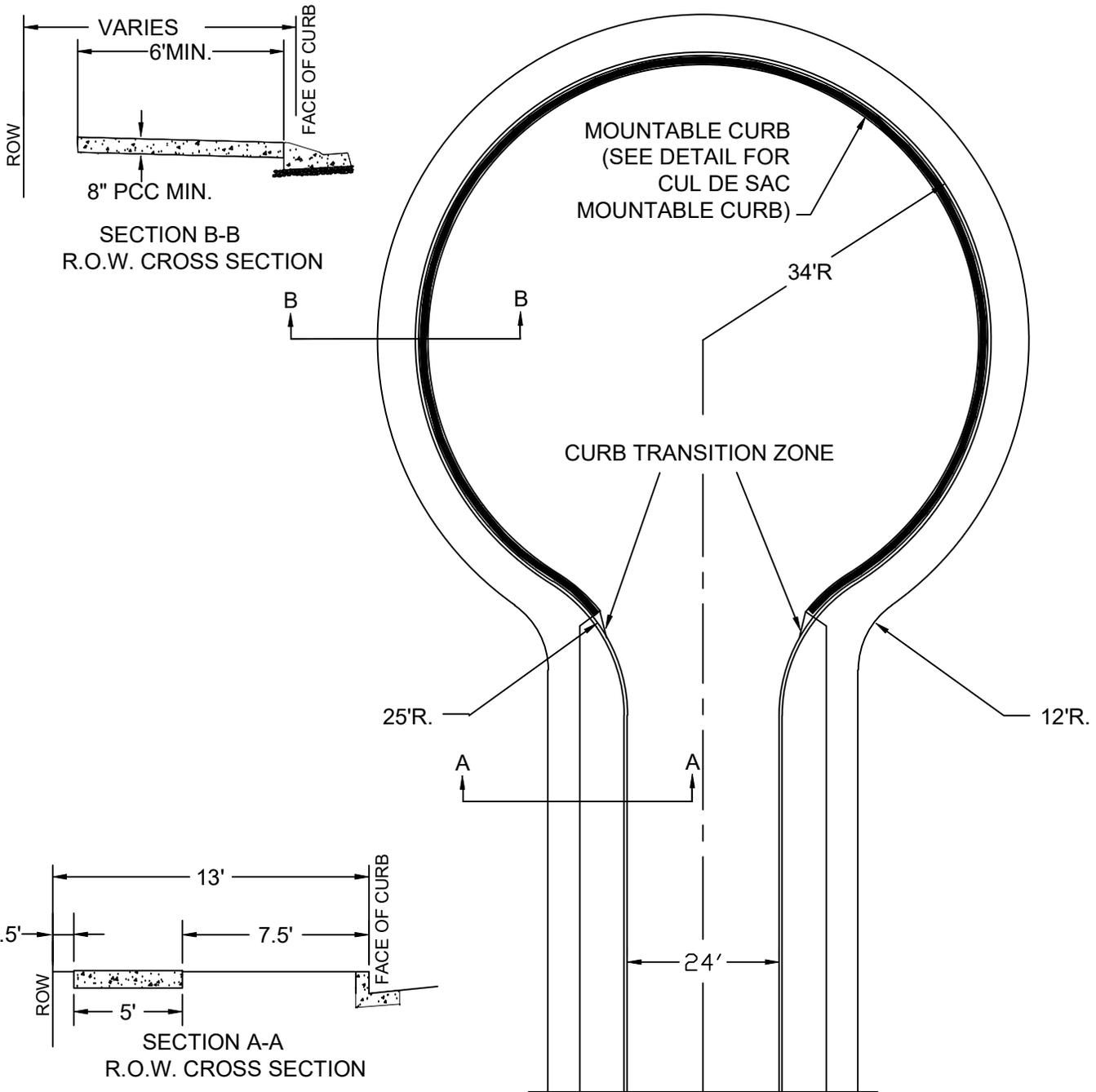
LAST REV. 8/10/22



1. CONCRETE TO HAVE A BREAKING STRENGTH OF 3000 P.S.I. AFTER 28 DAYS.
2. EXPANSION JOINTS
  - A. TO BE PROVIDED:
    - 1) AT EACH POINT OF TANGENCY OF THE CURB.
    - 2) AT EACH COLD JOINT.
    - 3) AT EACH SIDE OF INLET STRUCTURES.
    - 4) AT EACH END OF DRIVEWAYS.
    - 5) AT LOCATIONS NECESSARY TO LIMIT SPACING TO 45 FEET.
  - B. MATERIAL TO BE PRE-MOLDED, ASPHALT IMPREGNATED, NON-EXTRUDING, WITH A THICKNESS OF 1/2 INCH.
3. CONTRACTION JOINTS
  - A. SPACING TO BE NOT MORE THAN 15 FEET.
  - B. THE DEPTH OF JOINT SHALL BE AT LEAST 1 1/2 INCHES.
4. BASE ROCK-2"-0 OR 3/4"-0, 95% COMPACTION. BASE ROCK SHALL BE TO SUBGRADE OF STEEL STRUCTURE OR 4" IN DEPTH, WHICHEVER IS GREATER.
5. DRAINAGE BLOCKOUT- 3" DIAMETER SCH 40 PVC OR ABS PIPE.
  - A. I.D. PIPE WITH COUPLING
  - B. DRAINAGE ACCESS THROUGH EXISTING CURBS SHALL BE CORE DRILLED OR CURB SAW CUT VERTICALLY 18" EACH SIDE OF DRAIN AND REPOURED TO FULL DEPTH OF CURB.



1. CONCRETE TO HAVE A BREAKING STRENGTH OF 3000 P.S.I. AFTER 28 DAYS.
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    - 1) AT EACH POINT OF TANGENCY OF THE CURB.
    - 2) AT EACH COLD JOINT.
    - 3) AT EACH SIDE OF INLET STRUCTURES.
    - 4) AT EACH END OF DRIVEWAYS.
    - 5) AT LOCATIONS NECESSARY TO LIMIT SPACING TO 45 FEET.
  - B. MATERIAL TO BE PRE-MOLDED, ASPHALT IMPREGNATED, NON-EXTRUDING, WITH A THICKNESS OF 1/2 INCH.
3. CONTRACTION JOINTS
  - A. SPACING TO BE NOT MORE THAN 15 FEET.
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  - B. DRAINAGE ACCESS THROUGH EXISTING CURBS SHALL BE CORE DRILLED OR CURB SAW CUT VERTICALLY 18" EACH SIDE OF DRAIN AND REPOURED TO FULL DEPTH OF CURB.



**NOTES:**

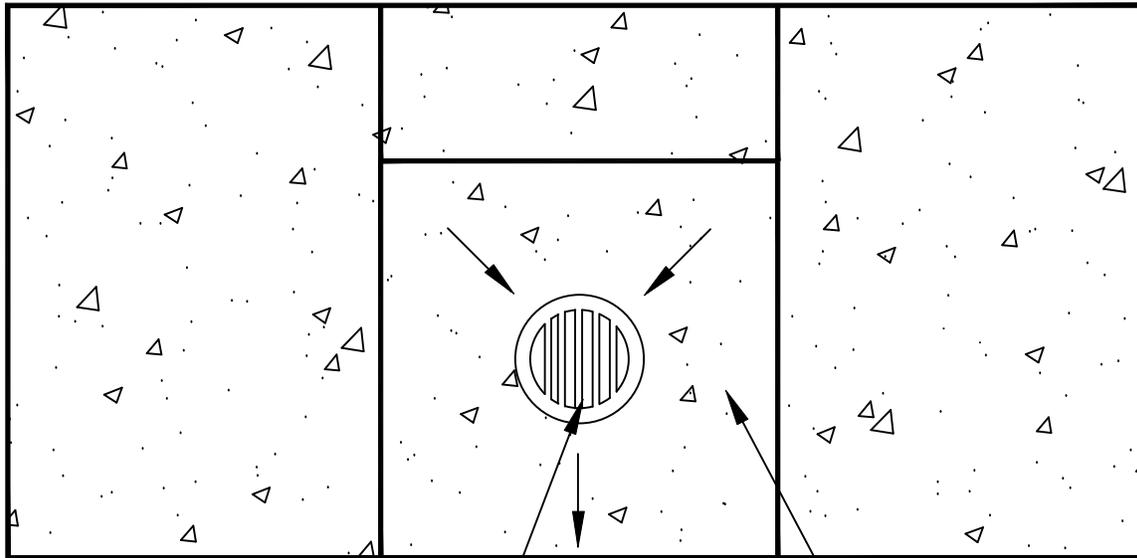
1. SIDEWALKS IN CUL-DE-SAC SHALL HAVE NO OBSTRUCTIONS (FIREHYDRANTS, SIGNS STREETLIGHT POLES ETC.)
2. CURB AND SIDEWALKS IN CUL-DE-SAC ARE CONSIDERED PART OF FIRE LANE ACCESS.
3. CUL-DE-SAC SHALL HAVE "NO ON STREET PARKING".



**RESIDENTIAL CUL-DE-SAC  
DETAIL - 24' STREET**

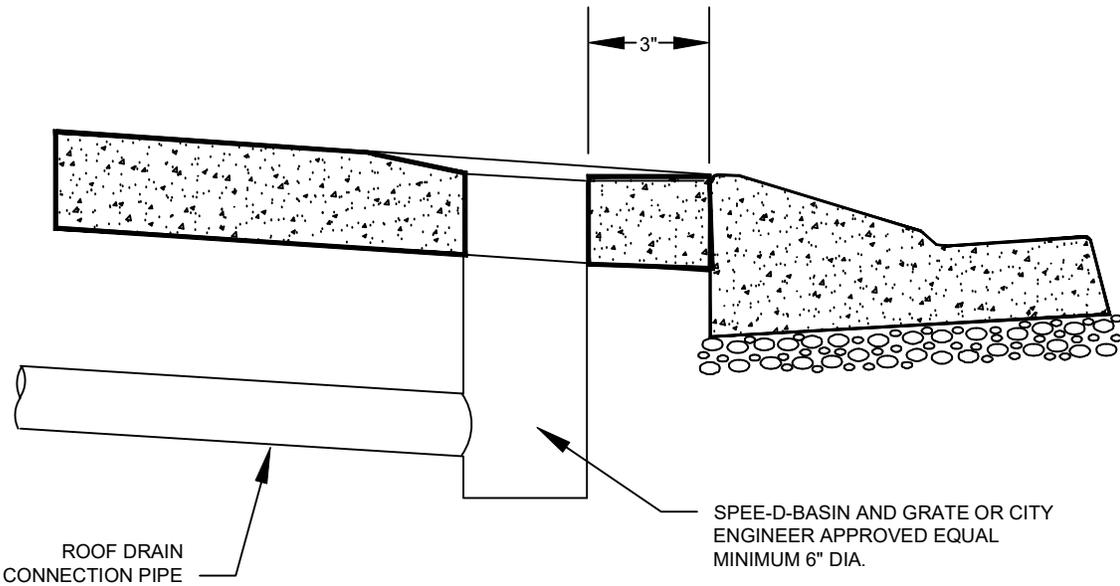
ENGINEERING  
DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO.  
**306**  
SCALE  
**NONE**



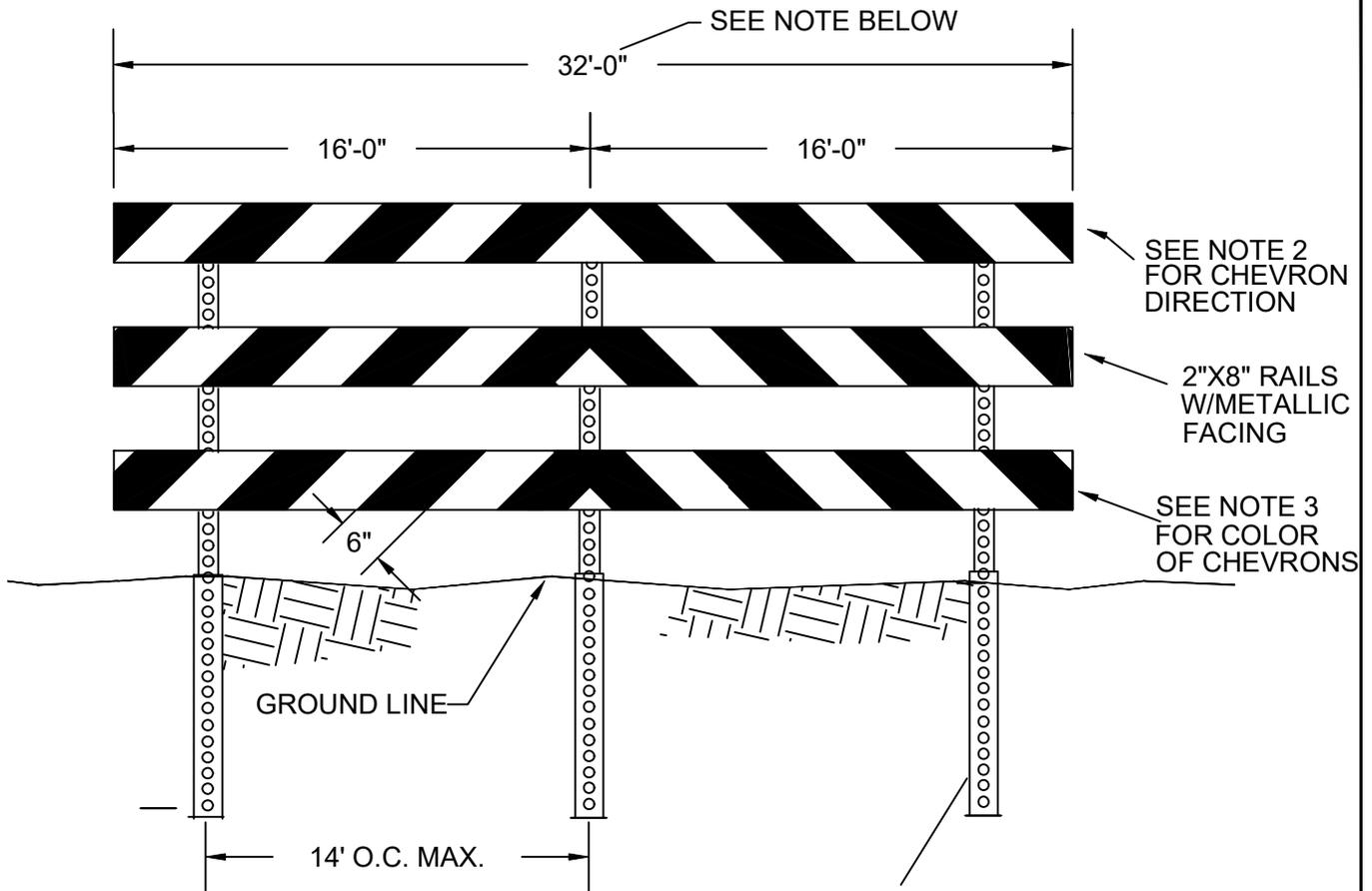
SIDES SHALL BE 1/2" HIGHER THAN GRATE ELEVATION EXCEPT AT FRONT CURB

GRATE MAY BE ROUND OR SQUARE



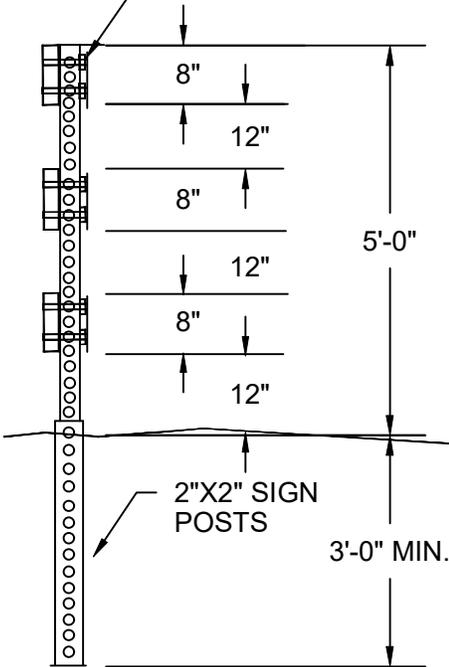
ROOF DRAIN CONNECTION PIPE

SPEE-D-BASIN AND GRATE OR CITY ENGINEER APPROVED EQUAL MINIMUM 6" DIA.



A MINIMUM OF 2X2 INCH X 6 FOOT GALVANIZED "UNISTRUT TELESPAR" OR 12 GAGE PROFORATED POSTS OR APPROVED EQUAL

3/8" GALV. SQ HD MACHINE BOLTS W/ WASHERS



NOTES:

1. METALLIC FACED RAILS TO BE PAINTED RED WITH WHITE REFLECTORIZED STRIPES  
ALL WOOD SUPPORTS SHALL BE PAINTED WHITE.  
\*FOR WIDER APPLICATIONS, MULTIPLE SECTIONS AS SHOWN SHALL BE USED.
2. DIRECTION OF CHEVRONS MAY VARY  
LEFT STRIPES FOR RIGHT PASSING.  
RIGHT STRIPES FOR LEFT PASSING.  
UPWARD LEFT AND RIGHT STRIPES FOR PASSING ON BOTH SIDES.  
DOWNWARD LEFT AND RIGHT STRIPES FOR NO PASSING
3. SEE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS AND THE OREGON SUPPLEMENT  
3F-1 BARRICADES  
6C-8 BARRICADE DESIGN  
6C-9 BARRICADE APPLICATION
4. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT STATE OF OREGON STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
5. ALL WOOD SHALL BE PRESSURE TREATED.

NOTE: WIDTH OF 32 FEET TO BE USED FOR 32 FT. WIDE STREET ONLY



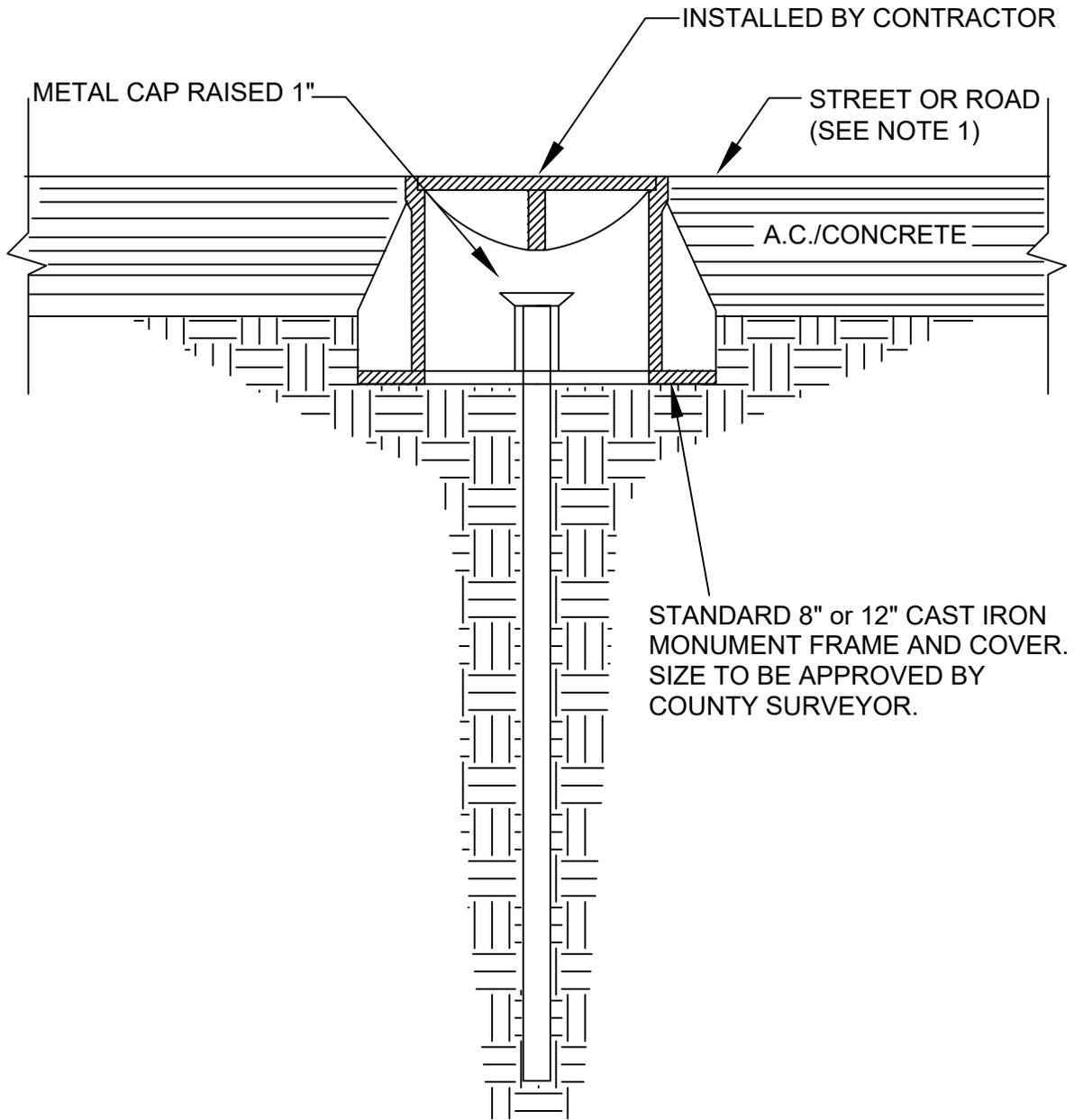
# STREET BARRICADE TYPE III

ENGINEERING  
DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO.  
308

SCALE  
NONE

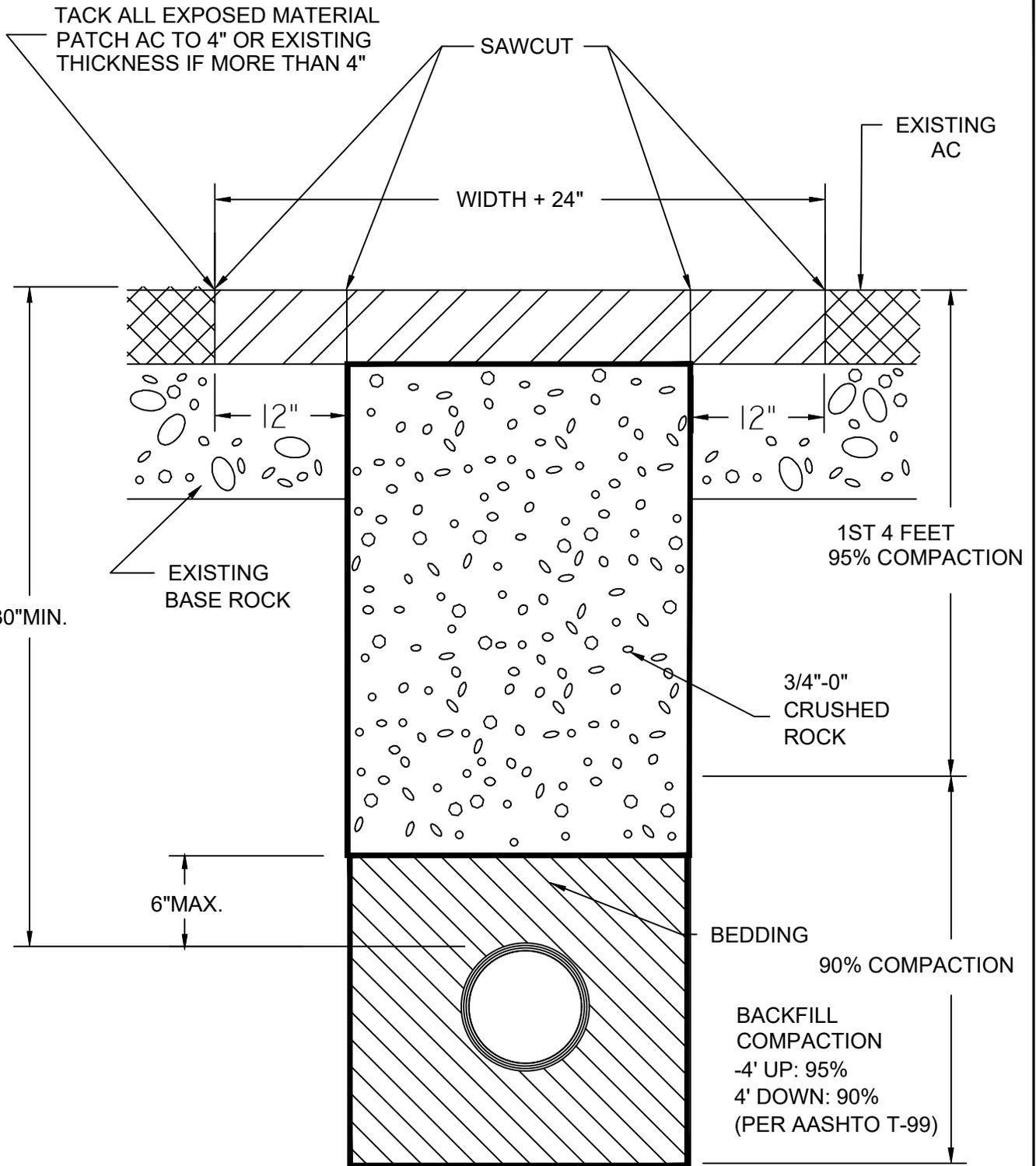
LAST REV. 7/20/22



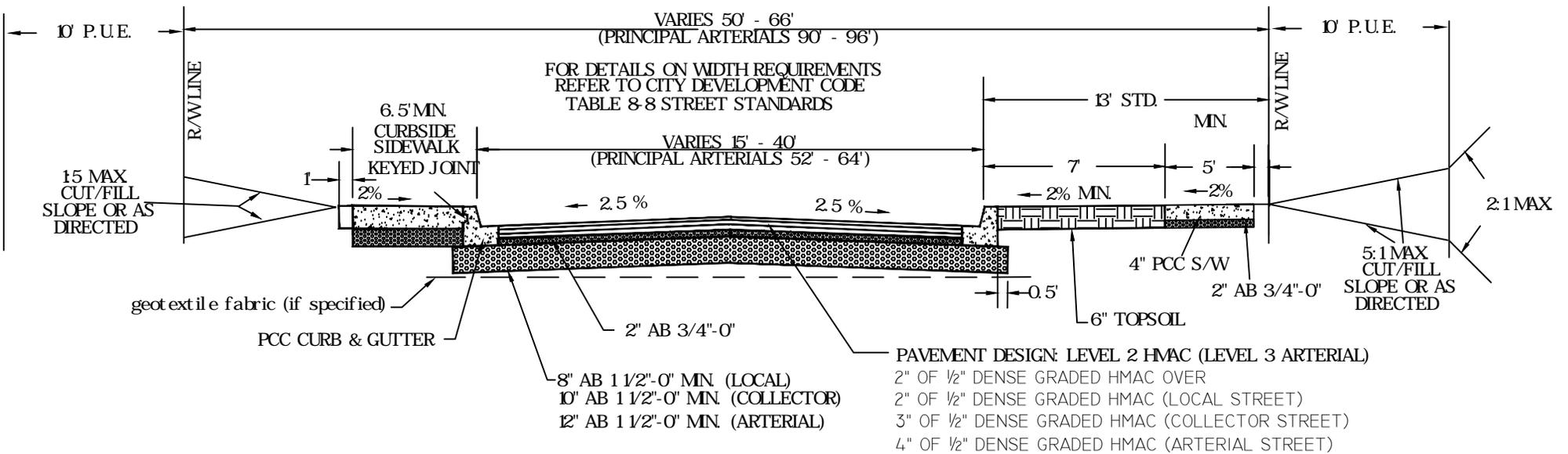
NOTES:

1. SEE ORS 92.010(14) FOR THE DEFINITION OF "ROAD" OR "STREET".
2. ALL MONUMENTS SHALL BE IN ACCORDANCE WITH ORS 209.250 (4). AND ORS CHAPTER 92 - SUBDIVISIONS AND PARTITIONS.
3. SURVEY MONUMENT TO BE INSTALLED BY LICENSED OREGON LAND SURVEYOR.
4. ALL MONUMENTS SHALL USE EITHER 5/8" DIA. X 30" LONG IRON ROD OR 3/4" DIA. X 30" LONG IRON PIPE.

	<b>STREET SURVEY MONUMENT</b>	ENGINEERING DEPARTMENT 1924 COUNCIL STREET P.O. BOX 326 FOREST GROVE, OR 97116	DRAWING NO. 309
		LAST REV. 10/27/2025	



**NOTES:** T-CUT TO BE DONE AFTER EXCAVATION AND BACKFILL OF TRENCH  
AC DESIGN: LEVEL 2 HMAC (LEVEL 3 Moderate Truck Traffic)



**NOTES:**

Asphalt Construction Specifications: Follow Current Oregon Standard Specifications Section 00744

Lift Thickness: A minimum of a 2", with a maximum of 4" on base only

Temp Notes:

Asphalt shall normally be placed on dry prepared surfaces and when temperatures are as noted below or warmer. Placing during rain or other adverse weather conditions normally will not be permitted, except that material in transit at the time adverse conditions occur may be placed provided it is of proper temperature, has been covered during transit, and is placed on a foundation free from pools or flow of water.

AC MIX SHOULD BE A MINIMUM OF 260°F AT THE TIME BREAKDOWN ROLLING BEGINS.

2" lift or greater with air temperatures at 40 degrees and rising

STIFF SUBGRADE CONDITIONS:

The Contractor shall excavate and shape subgrade to line, grade, cross section per plan including to a line one foot beyond paving, curb or form. Subgrade shall be no less than 95% of max density designated by ASTM D1557 and AASHTO T180-D modified proctor smooth bucket the subgrade and proof roll. over excavate soft spots and backfill with larger rock beat on rock until no movement.

Subgrade areas which cannot be stabilized to specified density, but in the judgement of the Engineer otherwise meet the requirements herein, may be removed and aerated or stabilized with an approved soil stabilizing material, all at no additional expense to the owner.



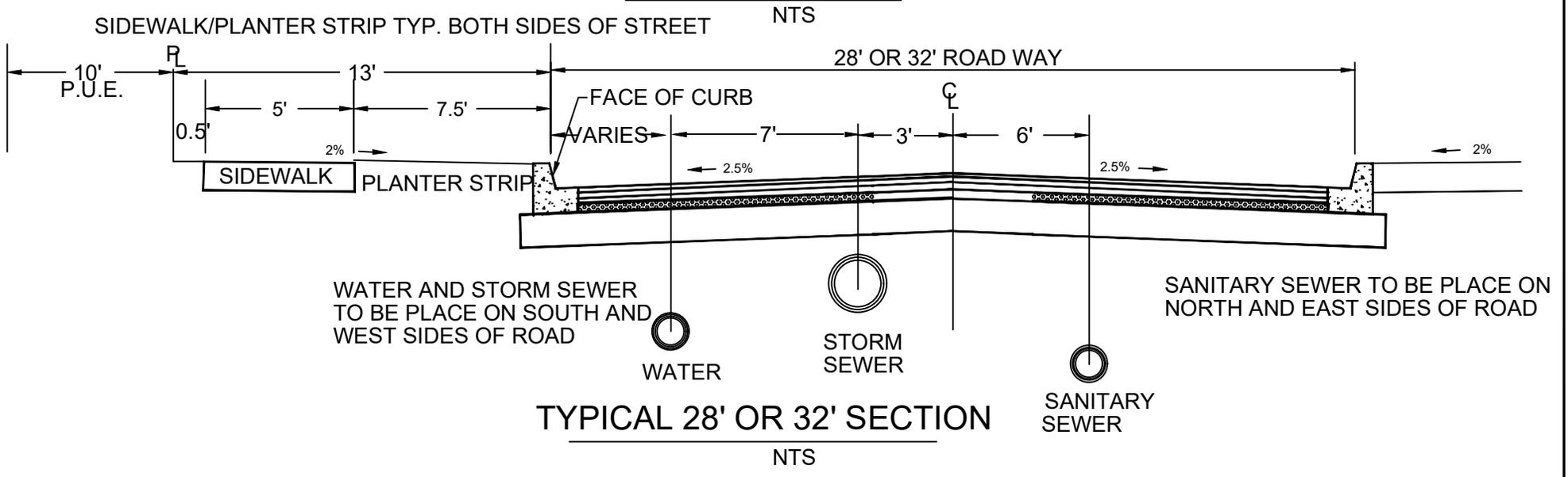
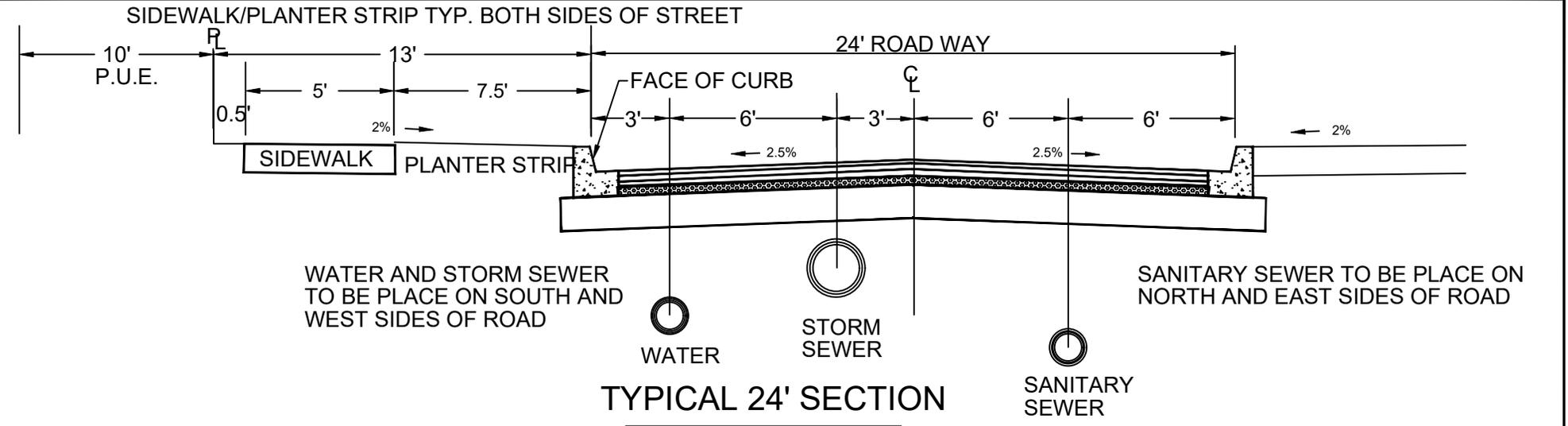
**TYPICAL STREET SECTION**

ENGINEERING DEPARTMENT  
 1924 COUNCIL STREET  
 P.O. BOX 326  
 FOREST GROVE, OR 97116

DRAWING NO. 312

SCALE NONE

LAST REV. 11/7/22

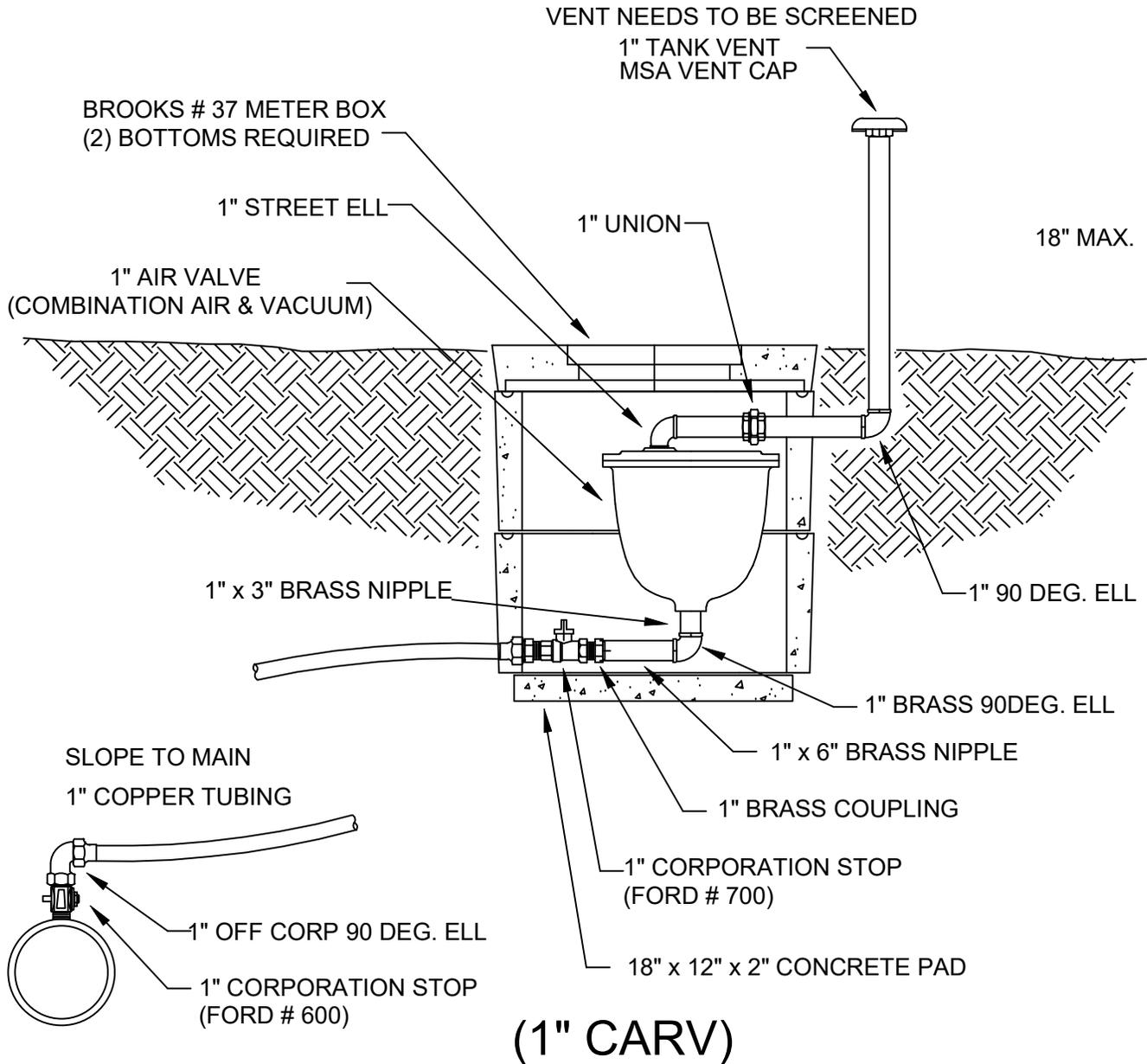


**TYPICAL UTILITY LOCATION**

\\w2k\eng\Eng Dept\STANDARD DETAILS\300s STREETS\TYPICAL UTILITY LOCATION.DWG

ENGINEERING DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO. 313  
SCALE NONE  
LAST REV. 7/20/22



**NOTES:**

1. FOR 12" AND SMALLER WATER MAINS
2. VENT PIPING TO BE GALV.
3. SLOPE COPPER TUBING FROM MAIN UP TO AIR VALVE 1% MIN.
4. ENCASE TUBING FROM WATER MAIN TO BOX WITH 6 INCHES OF SAND

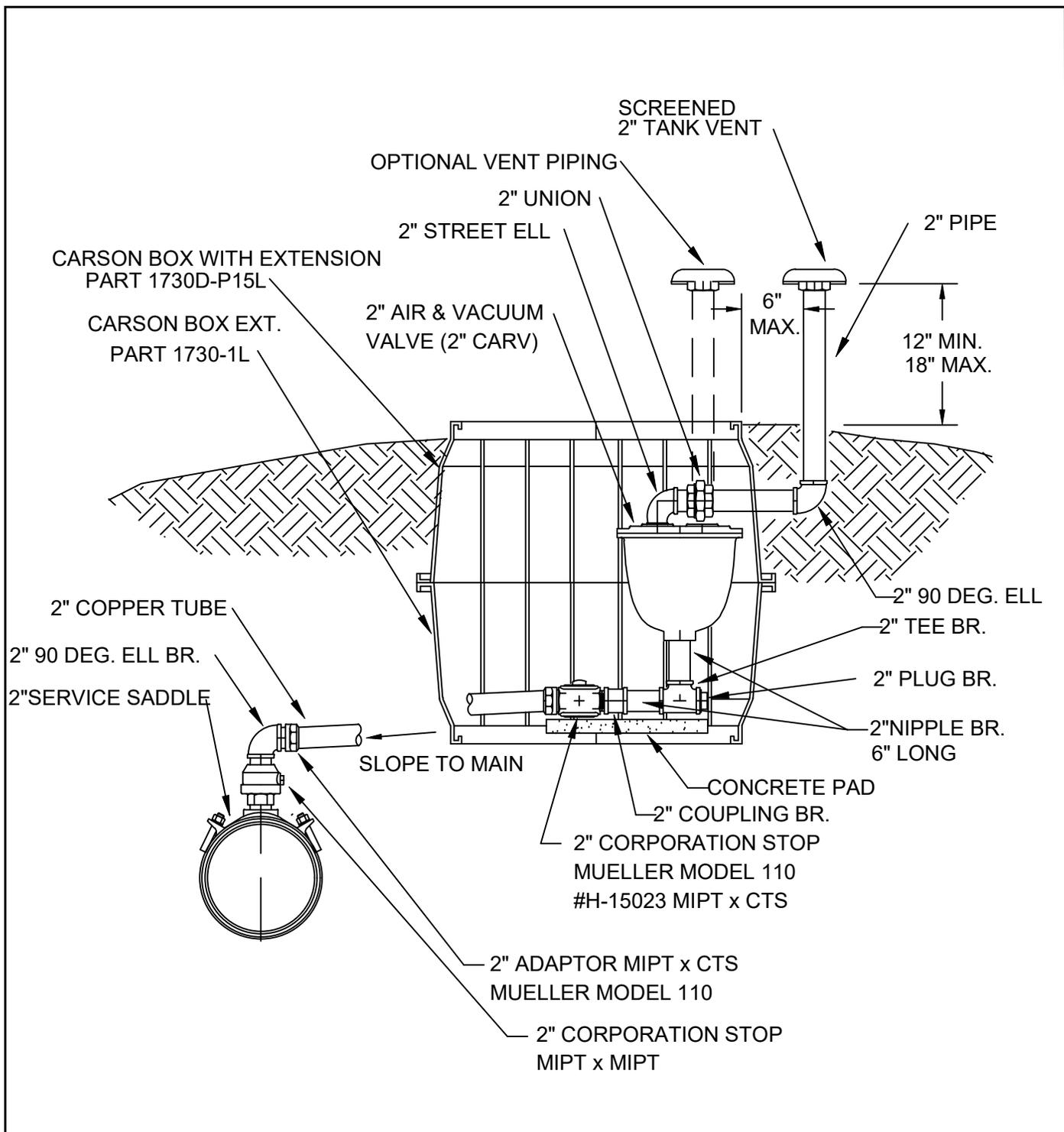


**1" COMBINATION  
AIR & VACUUM VALVE**

ENGINEERING  
DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO.  
401

SCALE  
NONE



**(2" CARV)**

**NOTES:**

- 1. VENT PIPING TO BE GALV.
- 2. SLOPE COPPER TUBE FROM MAIN UP TO AIR VALVE 1% MIN.
- 3. TUBING FROM WATER MAIN TO BOX SHALL BE ENCASED WITH 6 INCHES OF SAND



**2" COMBINATION  
AIR & VACUUM VALVE**

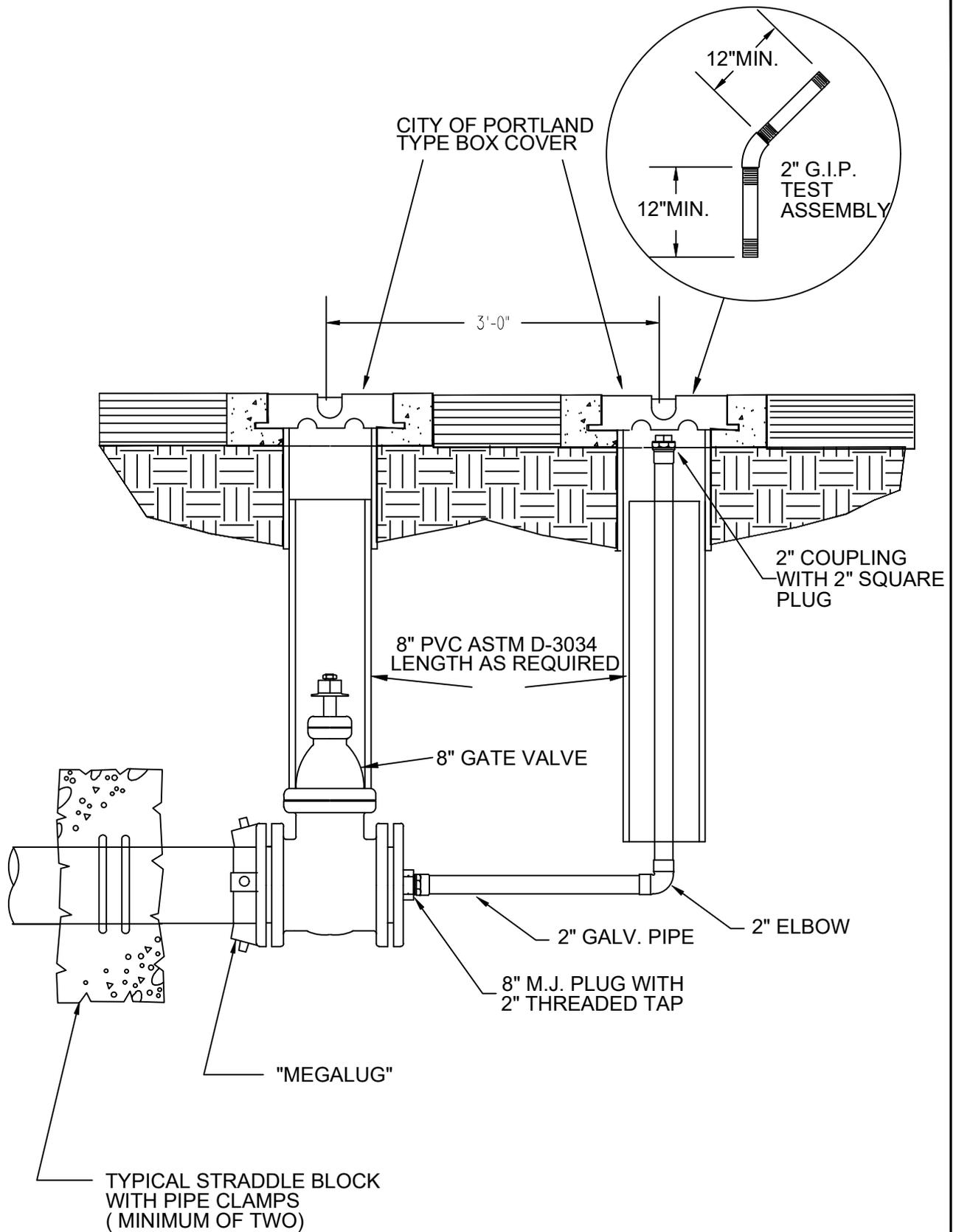
\\w2kleng\Eng Dept\STANDARD DETAILS\WATER\2 INCH CARV.DWG

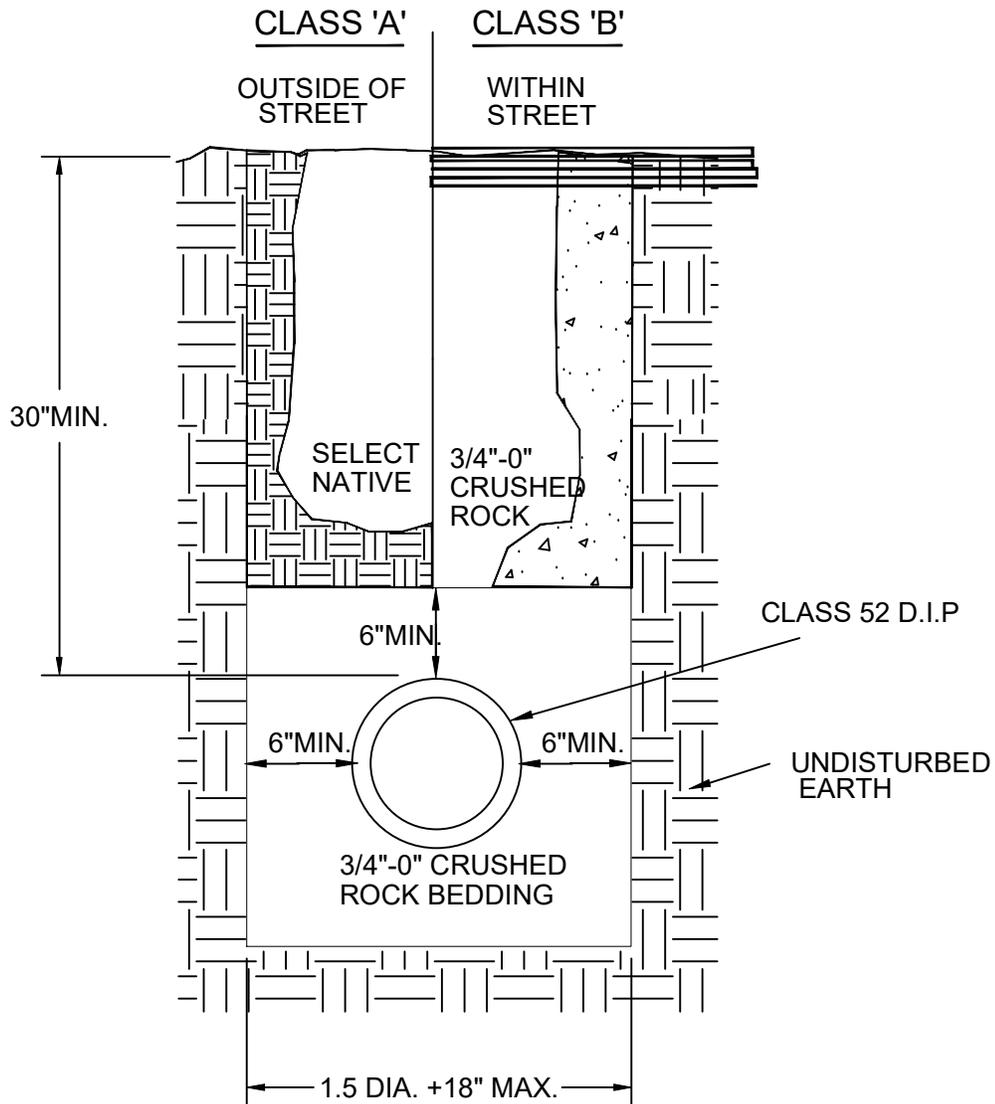
ENGINEERING  
DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO.  
402

SCALE  
NONE

LAST REV. 7/18/22





**NOTES:**

1. SEE STANDARD WATER CONSTRUCTION NOTES FOR MORE DETAILS.
2. WATER MAINS SHALL BE PUSH-ON RESTRAINED JOINT DUCTILE IRON PIPE THAT IS CEMENT-MORTAR LINED, SHALL CONFORM WITH ANSI A21.6 AND ANSI A21.11, AND SHALL BE U.S. TYTON JOINT, AS MANUFACTURED BY UNITED STATES PIPE AND FOUNDRY COMPANY AND PACIFIC STATES CAST IRON COMPANY, OR OTHER MANUFACTURES APPROVED BY THE CITY. THE TYPE AND THICKNESS CLASS SHALL BE PIPE CLASS 52 FOR PIPE DIAMETERS OF 10" AND SMALLER, PIPE CLASS 51 FOR PIPE DIAMETERS BETWEEN 12" AND 16", AND PIPE CLASS 50 FOR DIAMETERS OF 18" AND LARGER. ALL PUSH-ON GASKETS SHALL BE FIELD LOK 350 RESTRAINING GASKETS DESIGNED FOR USE WITH TYTON JOINT MANUFACTURED PIPE OR PUSH-ON RESTRAINING GASKETS DESIGNED FOR USE WITH THE JOINT TYPE OF THE ALTERNATIVE PIPE MANUFACTURER APPROVED BY THE CITY. PUSH-ON RESTRAINED GASKETS SHALL CONFORM TO ANSI/AWWA C11/A21.11. GASKETS FOR PIPE SIZES 4-INCH TO 12-INCH SHALL BE RATED FOR 350 psi. GASKETS FOR 18-INCH TO 24-INCH PIPES SHALL BE RATED FOR 250 PSI. A NON-TOXIC VEGETABLE SOAP LUBRICANT SHALL BE SUPPLIED FROM THE PIPE MANUFACTURER IN SUFFICIENT QUANTITIES FOR INSTALLING THE PIPE FURNISHED.
3. ALL JOINTS (TEES, ELBOWS, BENDS AND BLOW OFFS) TO BE MECHANICALLY RESTRAINED (MEGALUG, FIELD LOK-GRIP RING, OR TUFGRIP). THRUST BLOCKS SHALL NOT BE USED.
4. CITY OF FOREST WATER LINE CORROSION CONTROL METHOD IS AS FOLLOWS:
  - A. MIN. 3/4"-0" ROCK BEDDING EXTENDING A MINIMUM OF 6 INCHES IN ALL DIRECTIONS FROM OUTERMOST PORTIONS OF PIPE EXTERIOR
  - B. SERVICES SHALL HAVE FULL SAND ENCASEMENT TO PROTECT PIPING

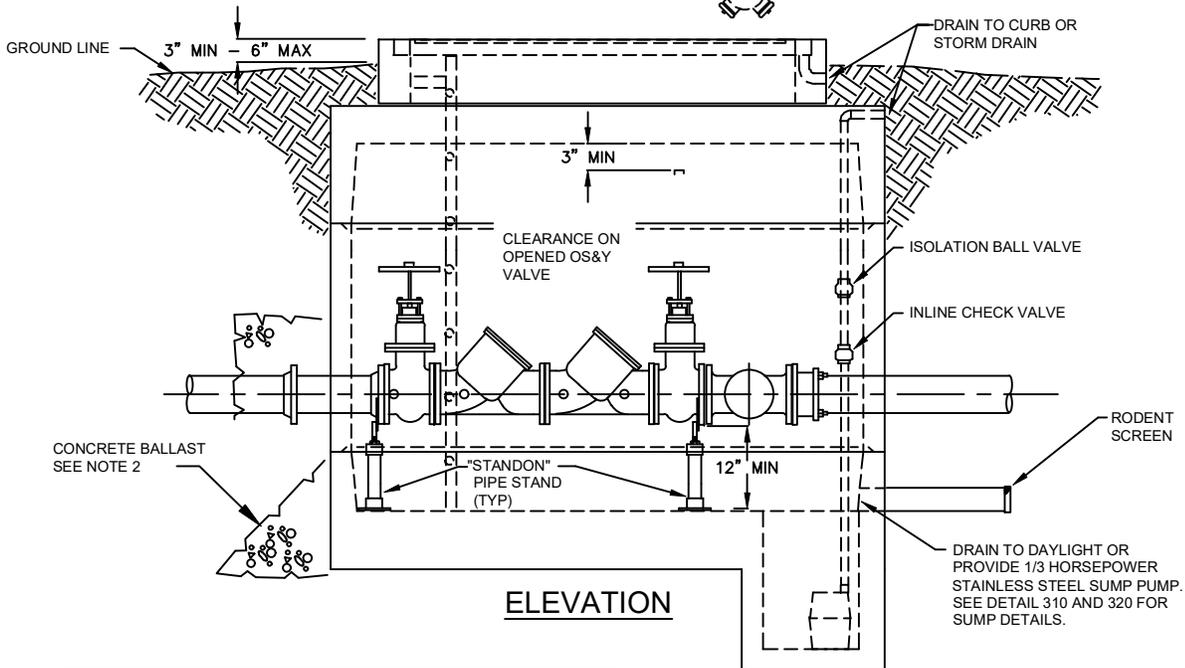
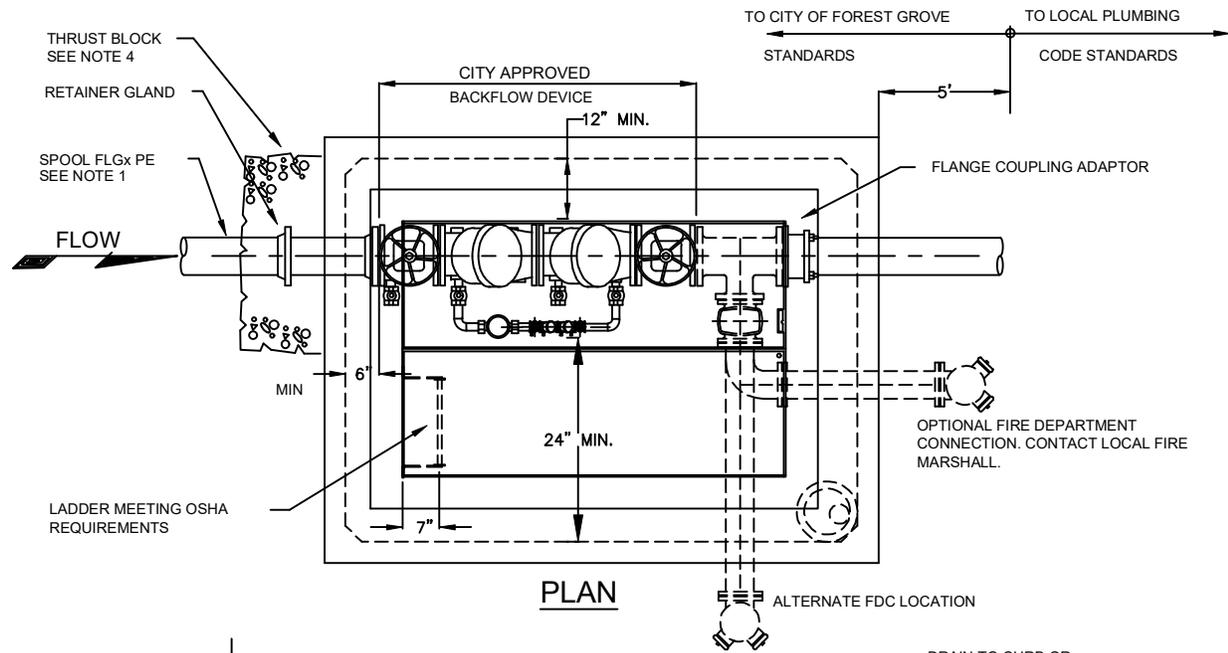


**D.I.P WATERLINE  
BEDDING AND BACKFILL DETAILS**

ENGINEERING  
DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO.  
404

SCALE  
NONE



SIZE	UTILITY VAULT WITH FDC *	UTILITY VAULT W/O FDC *	BILCO DOOR *
3	577-WA	577-WA	J-5AL
4	577-WA	577-WA	J-5AL
6	676-WA	676-WA	J-5AL
8	687-WA	687-WA	JD-3AL
10	5106-LA	5106-LA	JD-3AL

\* "OR EQUAL" APPROVED BY CITY ENGINEER

**NOTES:**

1. CONTRACTOR TO SEAL ALL OPENINGS IN VAULT WITH NON SHRINK GROUT
2. CLEARANCE BETWEEN WALL AND DEVICE 12"±1" MIN., EXCEPT 8"±1" FOR 660-WA VAULT
3. THRUST BLOCK 1'-0" MIN THICKNESS
4. DETECTOR METER TO READ IN CUBIC FEET
5. SET VAULT TOP FLUSH WITH GRADE AROUND EXISTING PEDESTRIAN AREAS (I.E. CURB, SIDEWALK, ETC)
6. PLATE STRAINER REQUIRED AND TO BE INSTALLED PER METER MANUFACTURERS SPECIFICATIONS.
7. CITY STANDARD PIPE: DUCTILE IRON OR TYPE "K" SOFT COPPER TUBING. JOINTS SHALL BE FULL MECHANICALLY RESTRAINED.



**DOUBLE CHECK  
DETECTOR ASSEMBLY**

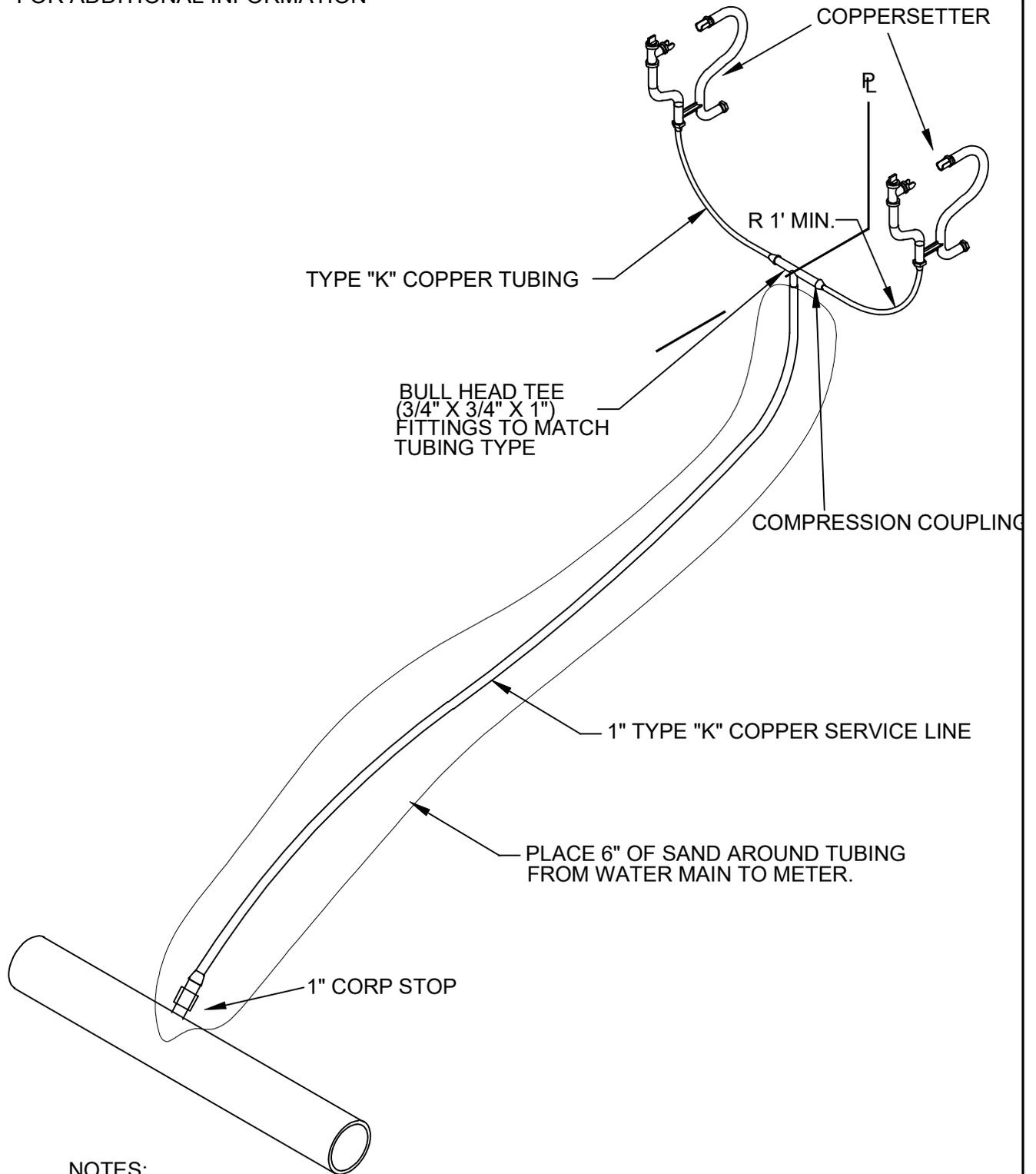
ENGINEERING  
DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO.  
405

SCALE  
NONE

LAST REV. 7/18/22

SEE SINGLE WATER SERVICE DETAIL  
FOR ADDITIONAL INFORMATION



NOTES:

1. METER BOXES TO BE INSTALLED PER SINGLE WATER SERVICE SHALL BE: ARMORCAST BRAND WITH MOUSE HOLES. POLYMER CONCRETE P6000485 12" x 20" x 12" ROTOCAST BOX WITH A6000484RCI 12' X 20" X 1 3/4" RPM COVER WITH CAST IRON READ LID OR POLYMER CONCRETE P6001534X18 17" X 30" X 18" ROTOCAST METER BOX WITH A6001643RCI 17" X 30" X 2" RPM COVER W/CAST IRON READ LID LID.

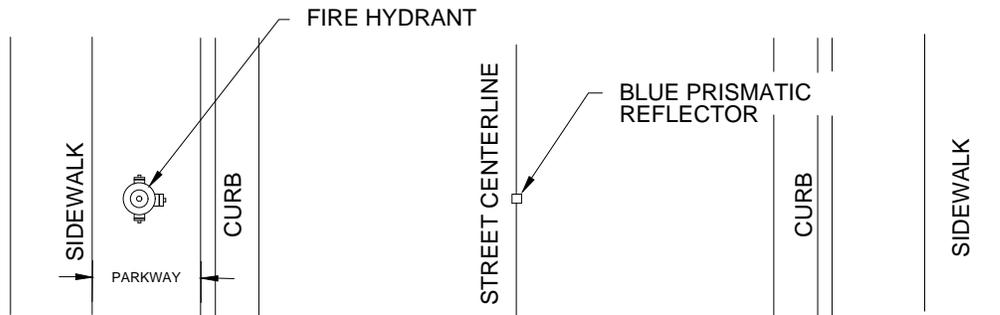


DOUBLE WATER SERVICE  
CONNECTION

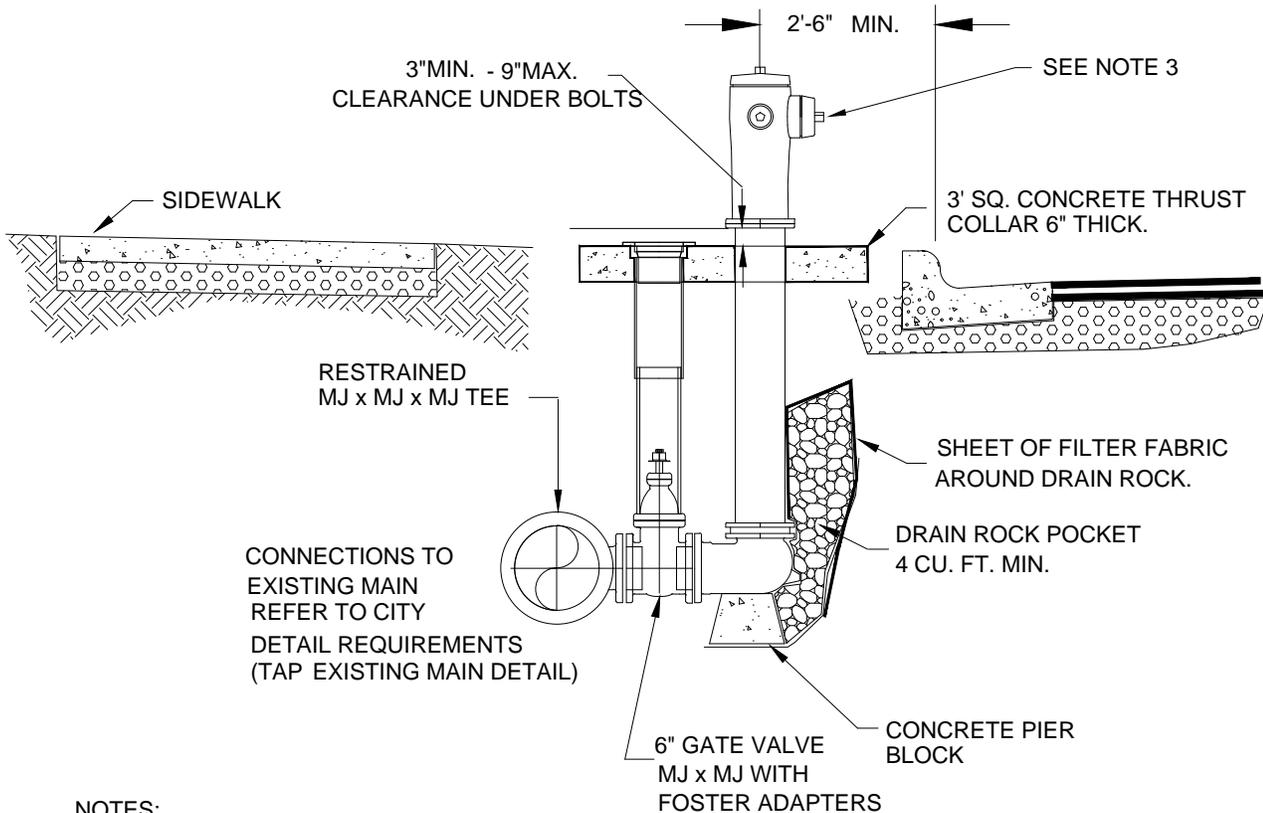
ENGINEERING  
DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO.  
406

SCALE  
NONE



**BLUE REFLECTOR LOCATION DETAIL**



**NOTES:**

1. DRY TOP CONSTRUCTION WITH O-RING STEM SEALS.
2. VALVE OPENINGS SHALL BE NOMINAL 6" WITH RESTRAINED MECHANICAL JOINT INLET CONNECTIONS.(AS SPECIFIED)
3. HYDRANTS SHALL BE EQUIPPED WITH TWO 2-1/2" HOSE NOZZLE / NH THREADS, ONE 4-1/2" PUMPER NOZZLE / NH THREADS, AND ONE 4" STORZ X 4-1/2" NH PERMANENT HYDRANT ADAPTER WITH SNAP-TITE STORZ BLIND CAP.
4. OPERATING AND NOZZLE NUTS SHALL BE 1-1/2" PENTAGONAL NUTS.
5. THE MAIN VALVE SHALL OPEN WHEN TURNED COUNTERCLOCKWISE.
6. HYDRANTS SHALL BE OF THE BREAK-FLANGE OR SAFETY TOP TYPE AND CONFORM TO THE LATEST REVISION OF A.W.W.A. C502.
7. DEPTH OF BURY SHALL BE A MINIMUM OF 3 FEET.
8. COLOR: ACE HARDWARE OIL BASE "SAFETY RED". (APPLY 2 COATS AFTER INSTALLATION)
9. MUELLAR SUPER CENTURIAN 250 A-423, KENNEDY GUARDIAN K81D, M & H STYLE 929,CLOW MEDALLION.
10. 5 FOOT RADIUS OF CLEARANCE AROUND HYDRANT.
11. A BLUE PRISMATIC REFLECTOR (VIEWABLE FROM BOTH DIRECTIONS) PERPENDICULAR TO FIRE HYDRANT ON STREET CENTERLINE IS REQUIRED AT EVERY FIRE HYDRANT INSTALLATION.

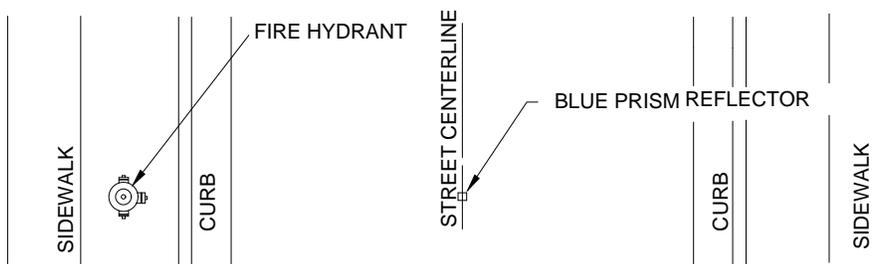


**FIRE HYDRANT INSTALLATION WITH WATER MAIN IN PARKWAY**

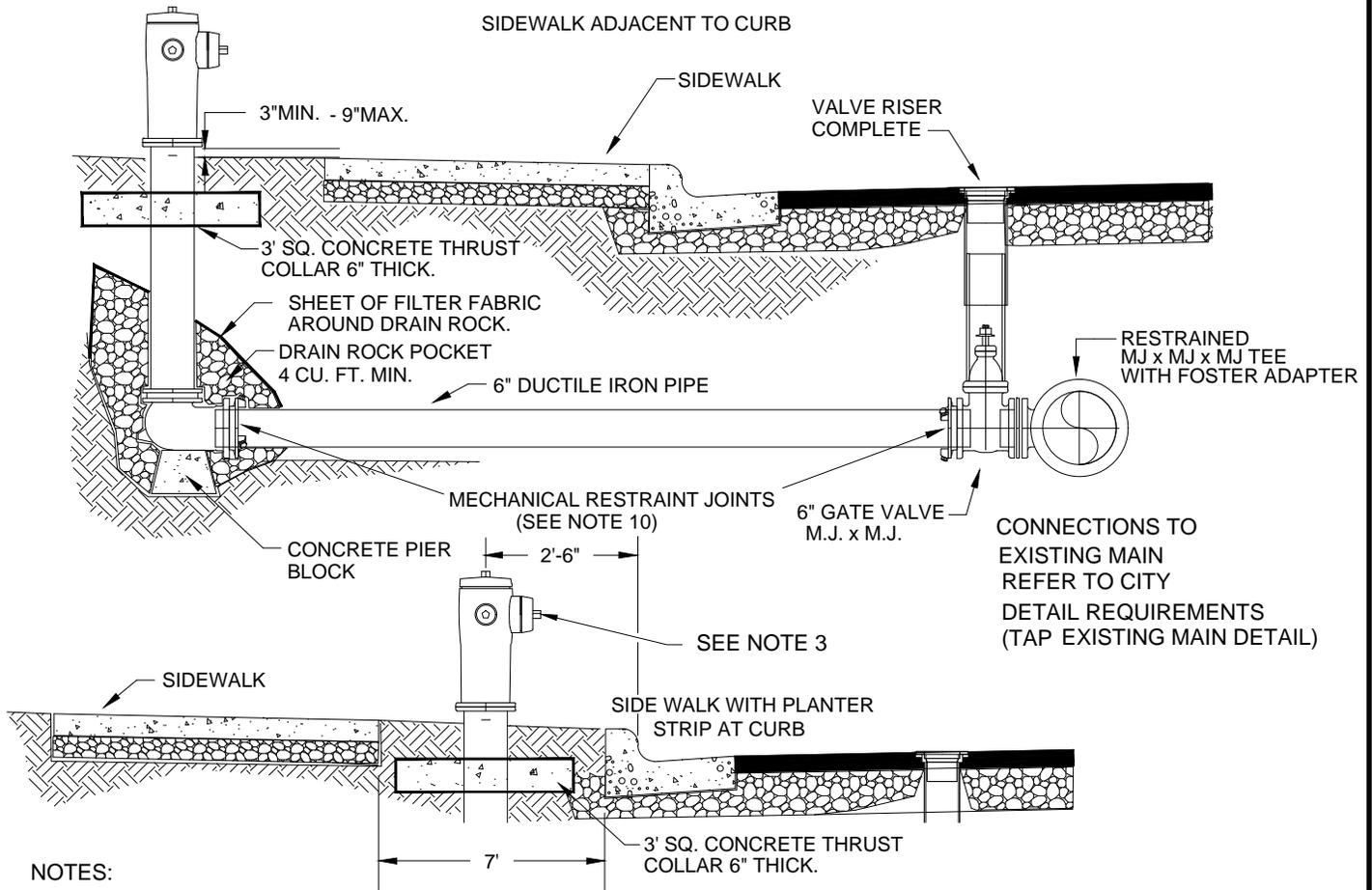
ENGINEERING DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO.  
407

SCALE  
NONE



BLUE REFLECTOR LOCATION DETAIL



NOTES:

1. DRY TOP CONSTRUCTION WITH O-RING STEM SEALS.
2. VALVE OPENINGS SHALL BE NOMINAL 6" MECHANICAL JOINT INLET CONNECTIONS. (AS SPECIFIED)
3. HYDRANTS SHALL BE EQUIPPED WITH TWO 2-1/2" HOSE NOZZLE / NH THREADS, ONE 4-1/2" PUMPER NOZZLE / NH THREADS, AND ONE 4" STORZ X 4-1/2" NH PERMANENT HYDRANT ADAPTER WITH SNAP-TITE STORZ BLIND CAP.
4. OPERATING AND NOZZLE NUTS SHALL BE 1-1/2" PENTAGONAL NUTS.
5. THE MAIN VALVE SHALL OPEN WHEN TURNED COUNTERCLOCKWISE.
6. HYDRANTS SHALL BE OF THE BREAK-FLANGE OR SAFETY TOP TYPE AND CONFORM TO THE LATEST REVISION OF A.W.W.A. C502.
7. DEPTH OF BURY SHALL BE A MINIMUM OF 3 FEET.
8. COLOR: ACE HARDWARE OIL BASE "SAFETY RED". (APPLY 2 COATS AFTER INSTALLATION)
9. MUELLER SUPER CENTURIAN 250 A-423, KENNEDY GUARDIAN K81D, M & H STYLE 929, CLOW MEDALLION.
10. JOINTS FULLY RESTRAINED: MEGALUG, GRIP RING OR TUFGRIP
11. A BLUE PRISMATIC REFLECTOR (VIEWABLE FROM BOTH DIRECTIONS) PERPENDICULAR TO FIRE HYDRANT ON STREET CENTERLINE IS REQUIRED AT EVERY FIRE HYDRANT INSTALLATION.
12. THERE SHALL BE 5 FOOT OF CLEARANCE AROUND FIRE HYDRANT
13. REMOVE CONNECTIVE CHAIN BETWEEN HYDRANT BARREL AND PORT CAP



FIRE HYDRANT INSTALLATION WITH WATER MAIN IN STREET

ENGINEERING DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

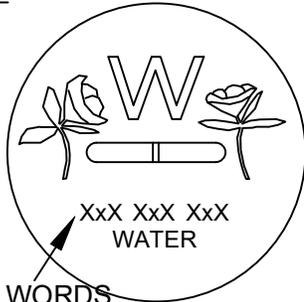
DRAWING NO. 408

SCALE NONE

PROVIDE 1'-6" SQ. BY 4" THICK  
CONCRETE PAD, IF SPECIFIED.



**Cover Plan  
EJ**



**Cover Plan  
Olympic Foundry**

HAND TAMP BACKFILL  
AROUND TOP SECTION

AWWA C509  
RESILIANT SEATED  
EPOXY COATED  
NRS  
2" SQUARE OPERATING NUT/LEFT TURN

ACCEPTABLE VALVES:  
CLOW  
KENNEDY KEN - SEAL II  
M & H STYLE 4067  
US PIPE METROSEAL 250  
MUELLER A-2360  
AMERICAN 2500

GRIND OFF WORDS  
"PORTLAND OR."

LENGTH AS REQUIRED  
8" INCH PVC ONLY

GATE VALVE

MAIN

VALVE SIZE AND TYPE  
AS SPECIFIED OR SHOWN  
ON PLANS.

**NOTES:**

1. ORDER MJ GATE VALVES WITHOUT ACCESSORIES
2. PORTLAND WATER BUREAU STANDARD VALVE BOX AND COVER AS MANUFACTURED BY OLYMPIC FOUNDRY:
  - 8" CAST IRON VALVE BOX BODY/PORTLAND STYLE/#5-603A
  - 8" CAST IRON VALVE BOX LID /PORTLAND STYLE/#5-603B
  - GRIND OFF WORDS "PORTLAND OR." LEAVE WORD "WATER".
  - BITUMINOUS COATING ON VALVE BODY + LID.
3. or EJ 8-INCH MODEL 00366310-TOP SECTION AND 00366329-COVER



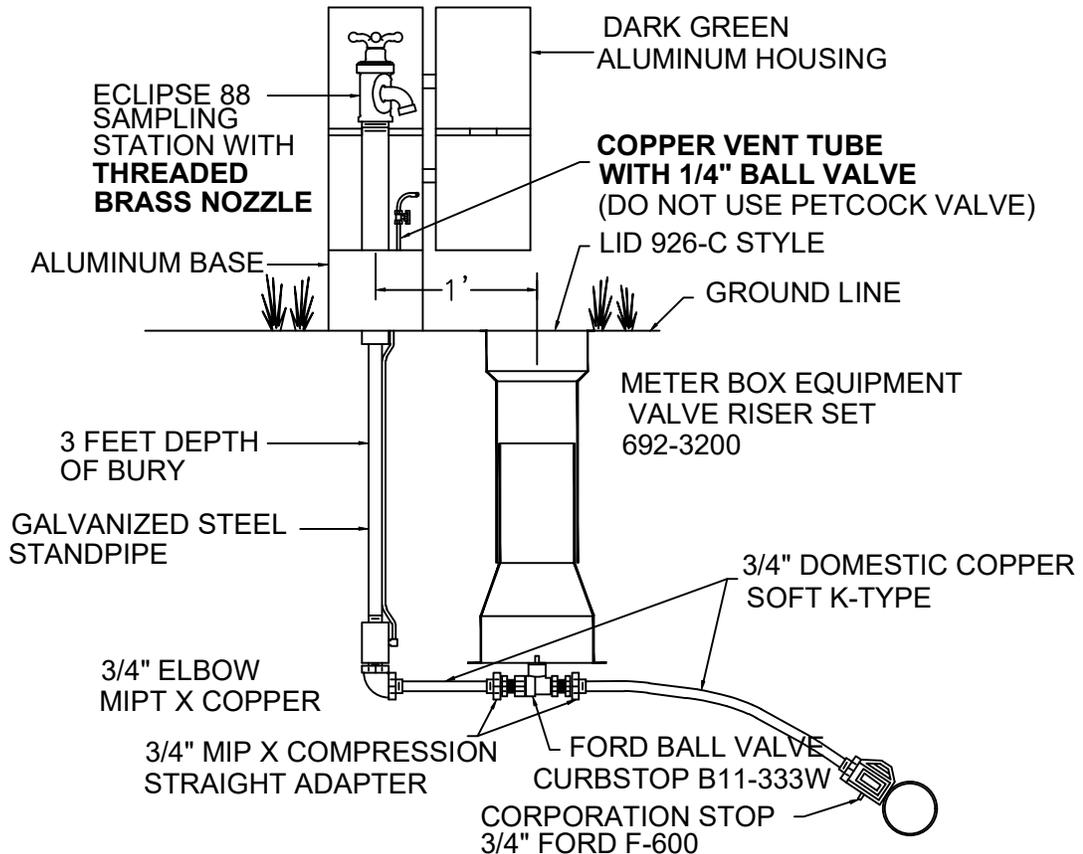
**GATE VALVE & BOX  
SETTING DETAIL**

ENGINEERING  
DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO.  
409

SCALE  
NONE

LAST REV. 8/10/22



SAMPLING STATIONS SHALL BE 3' BURY, WITH A 3/4" FIP INLET, AND A 3/4" THREADED BRASS HOSE NOZZLE.

ALL STATIONS SHALL BE ENCLOSED IN A LOCKABLE, NONREMOVABLE, ALUMINUM-CAST HOUSING.

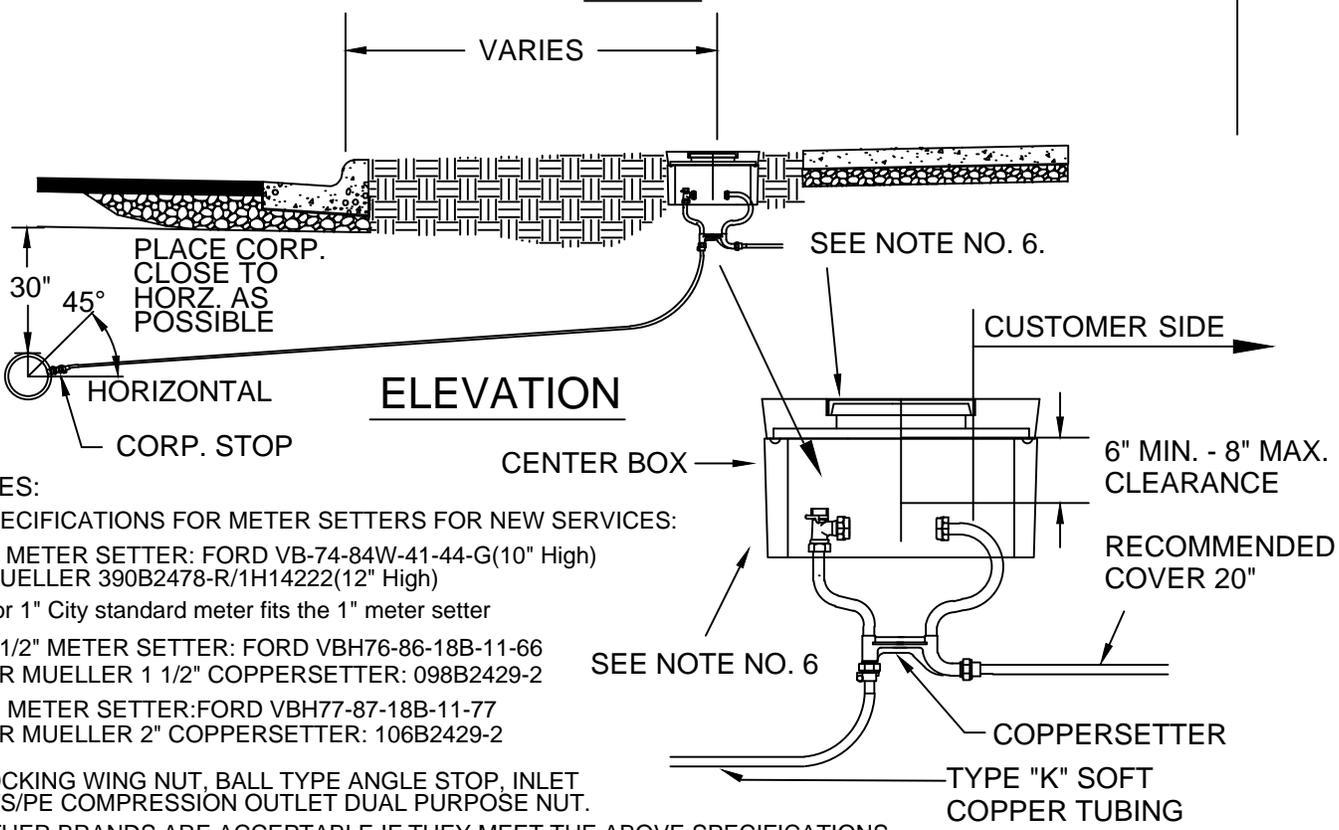
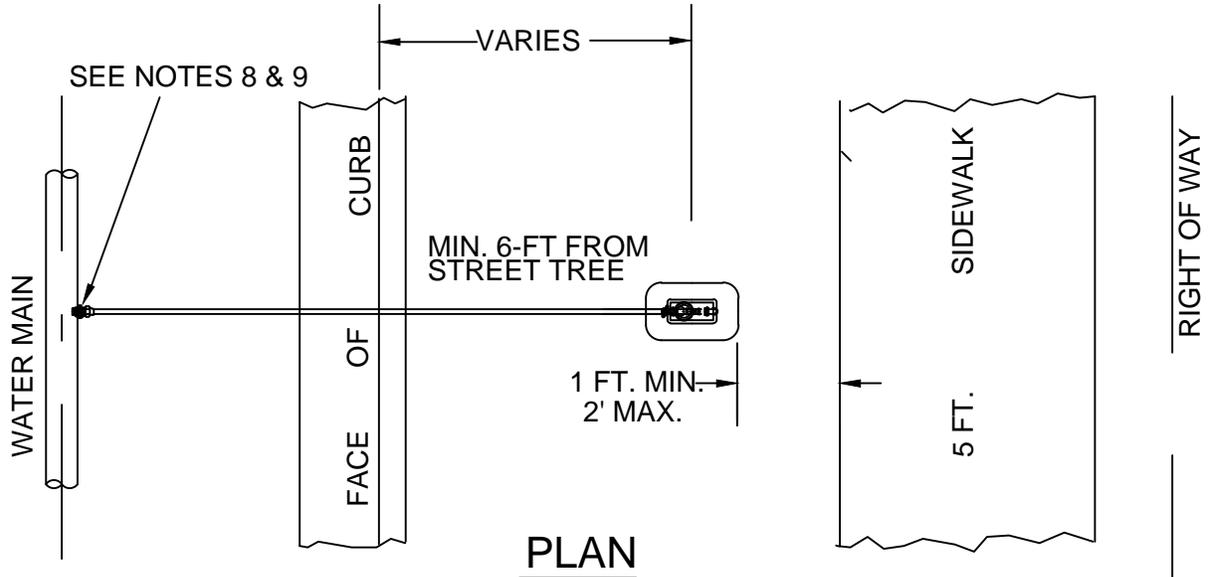
WHEN OPENED, THE STATION SHALL REQUIRE NO KEY FOR OPERATION, AND THE WATER WILL FLOW IN AN ALL BRASS WATERWAY.

ALL WORKING PARTS WILL ALSO BE OF BRASS AND BE REMOVABLE FROM ABOVE GROUND WITH NO DIGGING. EXTERIOR PIPING SHALL BE GALVANIZED STEEL (BRASS PIPE ALSO AVAILABLE).

A COPPER VENT TUBE WILL ENABLE EACH STATION TO BE PUMPED FREE OF STANDING WATER TO PREVENT FREEZING AND TO MINIMIZE BACTERIA GROWTH.

ECLIPSE NO. 88 SAMPLING STATION SHALL BE MANUFACTURED BY KUPFERLE FOUNDRY, ST. LOUIS, MO 63102.

PAINT SHALL BE DARK GREEN AS PROVIDED BY KUPFERLE FOUNDRY OR EQUAL.



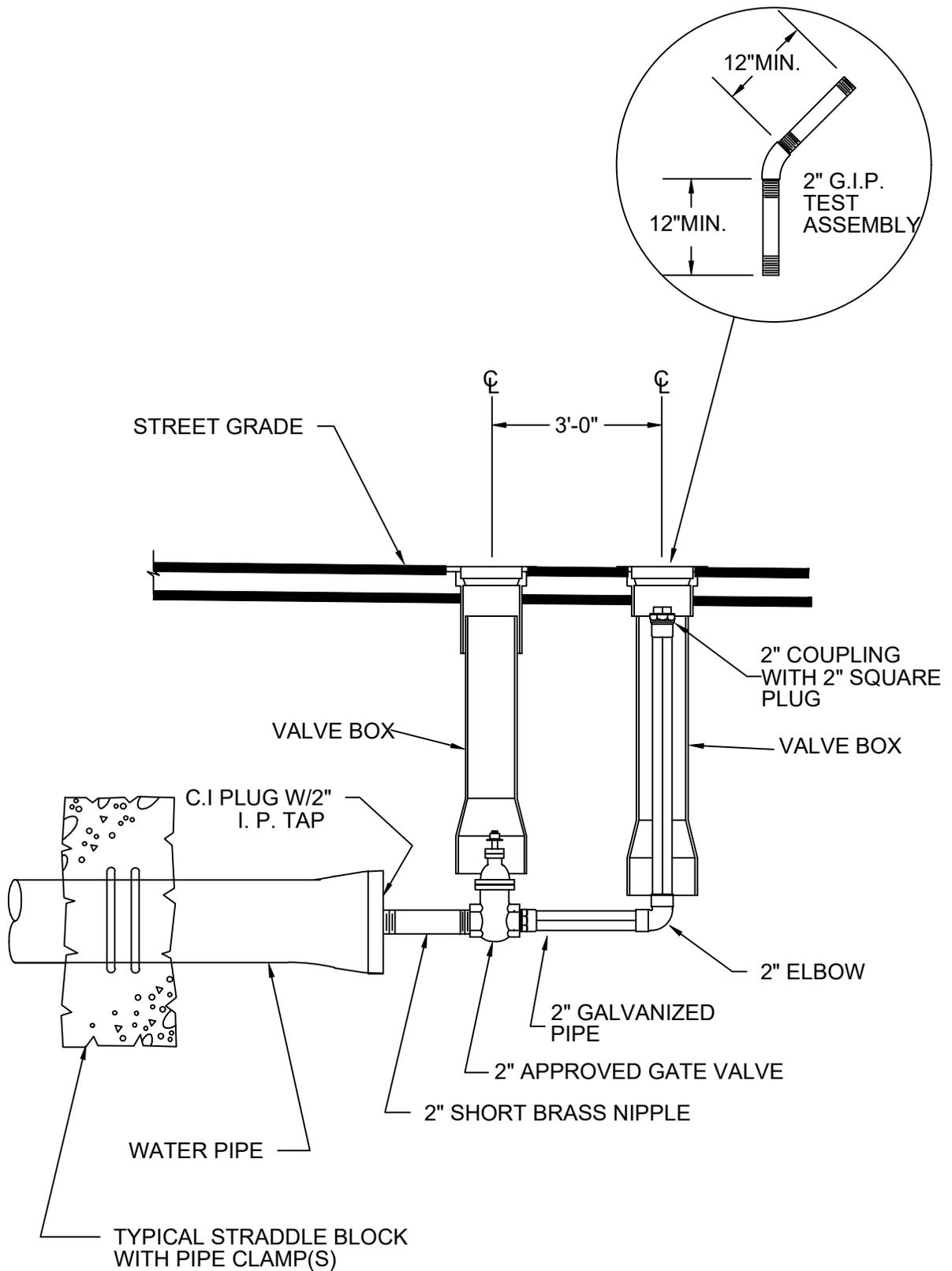
- NOTES:
- SPECIFICATIONS FOR METER SETTERS FOR NEW SERVICES:
    - 1" METER SETTER: FORD VB-74-84W-41-44-G(10" High) MUELLER 390B2478-R/1H14222(12" High)  
3/4" or 1" City standard meter fits the 1" meter setter
    - 1-1/2" METER SETTER: FORD VBH76-86-18B-11-66 OR MUELLER 1 1/2" COPPERSETTER: 098B2429-2
    - 2" METER SETTER: FORD VBH77-87-18B-11-77 OR MUELLER 2" COPPERSETTER: 106B2429-2
  - LOCKING WING NUT, BALL TYPE ANGLE STOP, INLET CTS/PE COMPRESSION OUTLET DUAL PURPOSE NUT.
  - OTHER BRANDS ARE ACCEPTABLE IF THEY MEET THE ABOVE SPECIFICATIONS.
  - SPECIFICATIONS FOR WATER SERVICE TUBING.
    - COPPER TUBING: ASST. B88, TYPE K, SOFT 60' COILS / 40' COILS.
  - INSTALL TUBING WITH 6" SAND (ENCASEMENT ENTIRE OUTSIDE OF TUBING).
  - INSTALL ARMORCAST BRAND WITH MOUSE HOLES. POLYMER CONCRETE P6000485 12" x 20" x 12" ROTOCAST BOX WITH A6000484RCI 12" X 20" X 1 3/4" RPM COVER W/CAST IRON READ LID OR POLYMER CONCRETE P6001534X18 17"X30" X 18" ROTOCAST BOX WITH A6001643RCI 17" X 30" X 2" RPM COVER WITH CAST IRON READ LID.
  - WATER SERVICE SHALL HAVE MINIMUM 6 FEET CLEARANCE FROM STREET TREES.
  - WET TAPPING OF EXISTING PUBLIC WATER MAIN SHALL BE BY A & A DRILLING SERVICES OR CITY APPROVED EQUAL.
  - CONNECTION TO EXISTING PUBLIC WATER MAINS SHALL BE AS FOLLOWS:
    - WET TAPS FOR 1" WATER SERVICES SHALL USE 1" CORP STOPS WITH CC THREADS.
    - WET TAPS FOR 1 1/2" AND 2" WATER SERVICES SHALL USE DOUBLE STRAP SERVICE SADDLES. DOUBLE STRAP SERVICE SADDLES SHALL BE BY ROMAC INDUSTRIES INC. MODEL NUMBER 202S WITH 2" FIP OUTLET OR FORD IRON SERVICE SADDLES WITH 2" FIP OUTLET.
    - 1 1/2" OR 2" WATER SERVICES SHALL INCLUDE A 1 1/2" OR 2" BALL CORP STOP WITH MIPTXCTS THREADS, RESPECTIVELY.
    - WET TAPS LARGER THAN 2" SHALL BE PER CITY'S WET TAP STANDARD DETAIL.

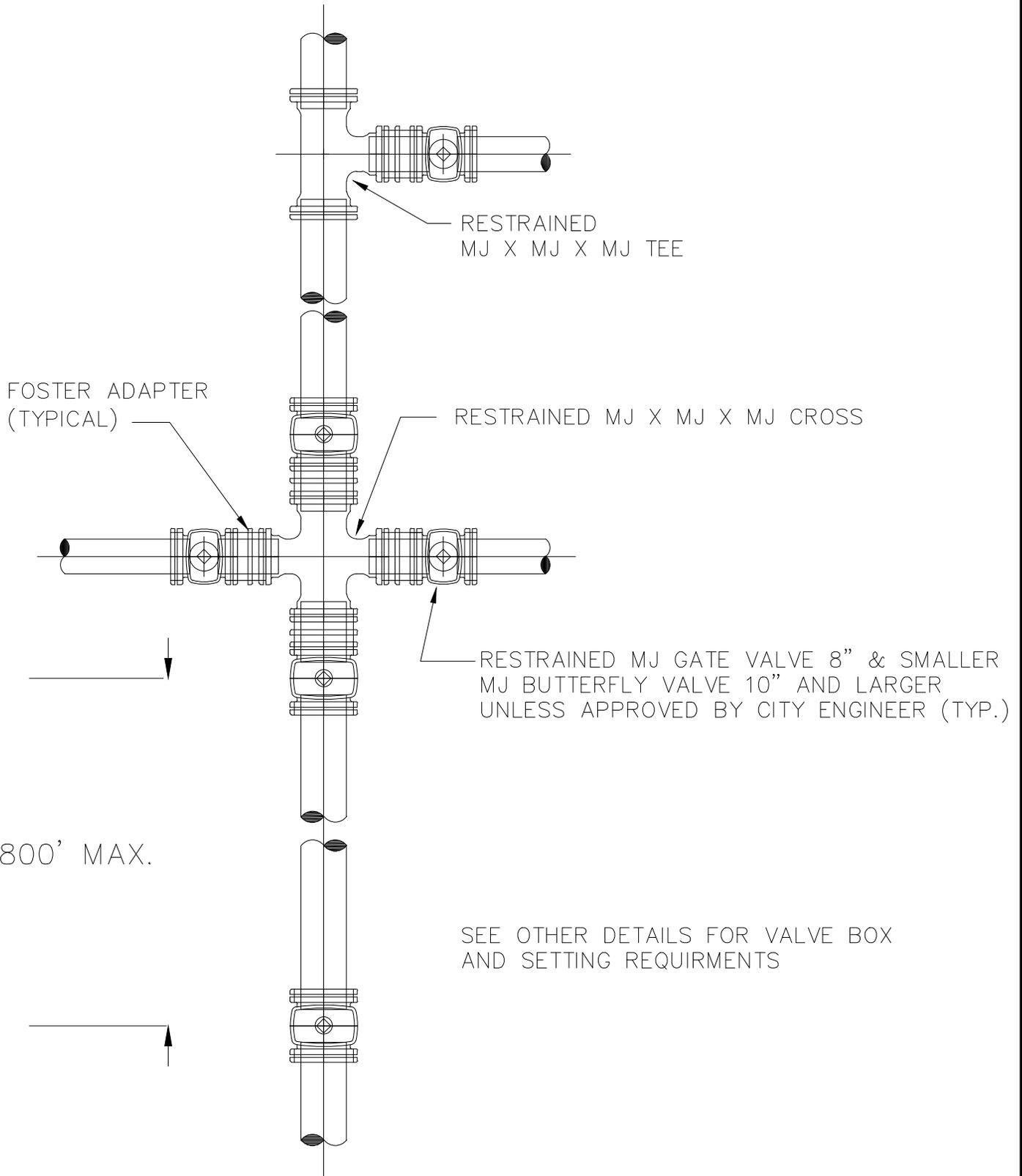


**WATER SERVICE TYPICAL INSTALLATION**

ENGINEERING DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO. 411  
SCALE NONE  
LAST REV. 11/1/22





**TYPICAL GATE VALVE LOCATION**

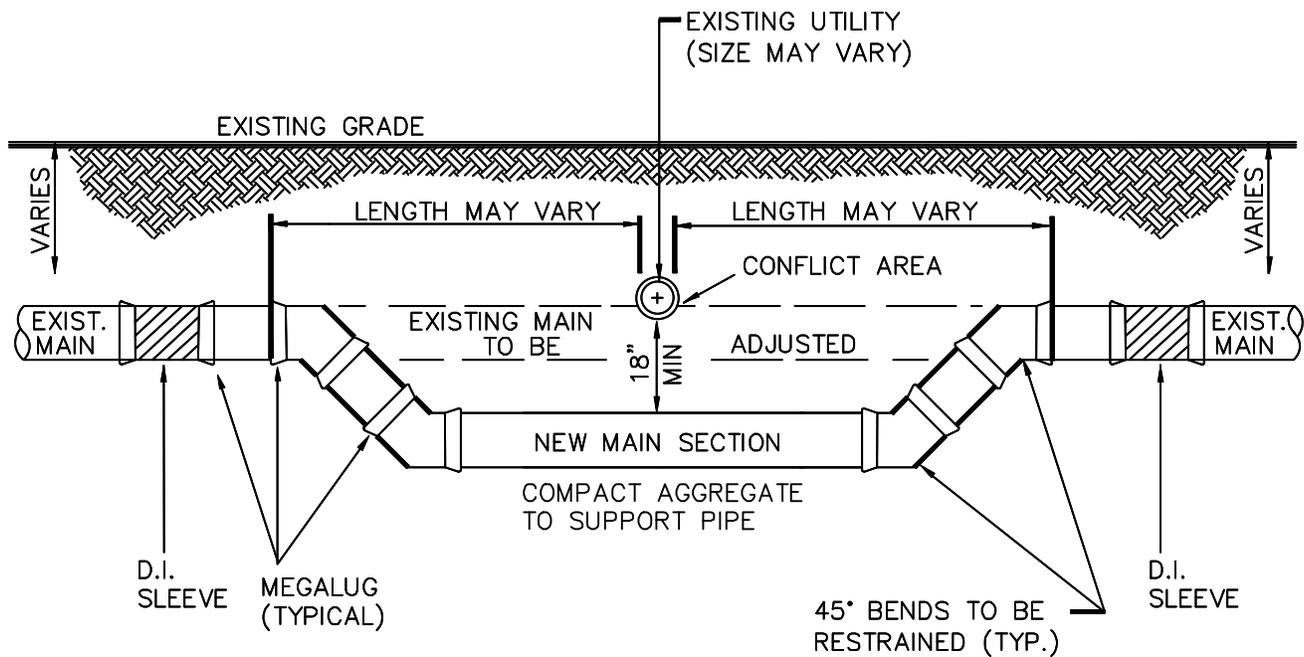
\\w2kleng\Eng Dept\STANDARD DETAILS\400s WATER\Typical Gate Valve Location.dwg

ENGINEERING DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO. 413

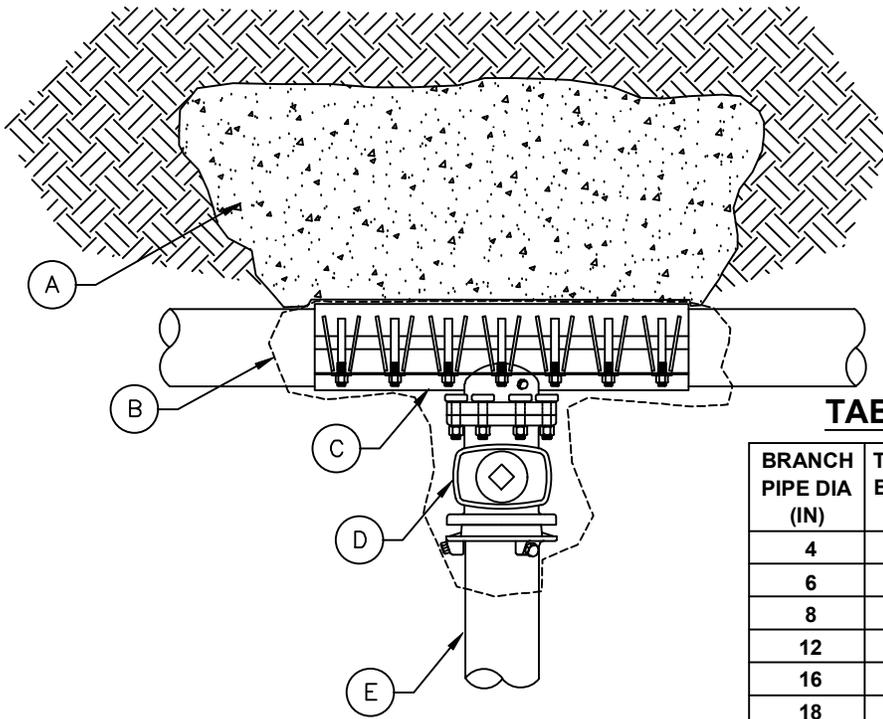
SCALE NONE

LAST REV. 4/6/23



**NOTE:**

1. ALL PIPE TO CONFORM TO AWWA C151 CLASS 52.
2. ALL FITTINGS AND JOINTS TO BE MECHANICALLY RESTRAINED.
3. TO MINIMIZE WATER SHUT OFF TIME, PRE-FABRICATE ADJUSTMENT SECTION PRIOR TO WATER SHUT OFF.
4. DISINFECT ADJUSTMENT SECTIONS PRIOR TO CONNECTION TO EXISTING WATER MAIN.
5. THIS DETAIL NOT TO BE USED FOR SANITARY SEWER CROSSINGS.



**TABLE 1**

BRANCH PIPE DIA (IN)	THRUST BLOCK BEARING AREA (SF)
4	1.3
6	2.8
8	5.0
12	11.3
16	20.1
18	26.0

**KEYNOTES:**

- A. CONCRETE THRUST BLOCK POURED AGAINST UNDISTURBED EARTH. THRUST BLOCK SIZE SHALL BE PER TABLE 1 AND SHALL NOT BE LESS THAN ONE FOOT IN ANY DIMENSION. CONCRETE SHALL BE CLASS 3500 (6.5 SACK MIN.)
- B. WRAP TAPPING SADDLE AND VALVE WITH 3 LAYERS OF 3 MIL PVC PRIOR TO POURING THRUST BLOCK AND BACKFILLING. EXTEND PVC 6" MINIMUM BEYOND SADDLE AND VALVE AND SECURE TO PIPE WITH DUCT TAPE.
- C. STAINLESS STEEL TAPPING SADDLE WITH GASKET AND FLANGED CONNECTION.
- D. LINE-SIZE GATE VALVE (FLG X MJ) PER CITY OF FOREST GROVE DETAIL AND SPECIFICATION.
- E. CITY STANDARD PIPE: DUCTILE IRON OR TYPE "K" SOFT COPPER TUBING. JOINTS ON BRANCH PIPE SHALL BE FULLY MECHANICALLY RESTRAINED.

**GENERAL NOTES:**

1. BEFORE INSTALLING TAPPING SADDLE, CONTRACTOR SHALL THOROUGHLY CLEAN PIPE TO REMOVE ALL DIRT, ROCKS, AND OTHER FOREIGN MATERIAL FROM PIPE WHERE SADDLE WILL BE INSTALLED.
2. SADDLE BOLTS SHALL BE TORQUED TO MANUFACTURER'S SPECIFICATIONS.
3. CONTRACTOR SHALL ENSURE THAT GASKET IS PROPERLY ALIGNED AND FREE OF FOREIGN MATERIAL PRIOR TO TIGHTENING SADDLE.
4. SADDLE LOCATION AND INSTALLATION SHALL BE APPROVED BY THE CITY OF FOREST GROVE ENGINEERING DEPARTMENT.
5. CONTRACTOR SHALL AIR TEST SADDLE TO 40 PSI PRIOR TO TAPPING
6. CONTRACTOR SHALL FLUSH AND PRESSURE TEST VALVE FOR PRIOR TO BACKFILLING.
7. APPROVED TAPPING SLEEVES FOR USE IN CITY OF FOREST GROVE JURISDICTION: JCM 432 SS, ROMAC SST WITH STAINLESS STEEL FLANGE, OR CITY OF FOREST GROVE APPROVAL EQUAL.
8. PROPOSED CONNECTION AND TYPE OF CONNECTION TO CITY WATER SYSTEM NEEDS TO BE GIVEN APPROVAL BY THE CITY PRIOR TO ACTUAL CONNECTION WORK. CITY NEEDS TO BE GIVEN ADVANCED NOTIFICATION (at least 24 hours) PRIOR TO CONNECTION, NEEDING TO ISOLATE, OR TAPPING, THE FOREST GROVE WATER SYSTEM. NOTIFICATION SHALL BE TO WATER DEPARTMENT, Lonny Schmidt AT 503.702.5949 OR 503.992.3258 AND ENGINEERING AT 503.992.3228. ALL WET TAPS SHALL BE INSTALLED BY A CONTRACTOR APPROVED BY THE CITY OF FOREST GROVE AND UNDER THE DIRECTION OF A WATER DEPARTMENT REPRESENTATIVE. SEE CITY STANDARD DETAIL FOR WET TAP. CONTACT THE WATER DEPARTMENT FOR A LIST OF APPROVED TAPPING CONTRACTORS.



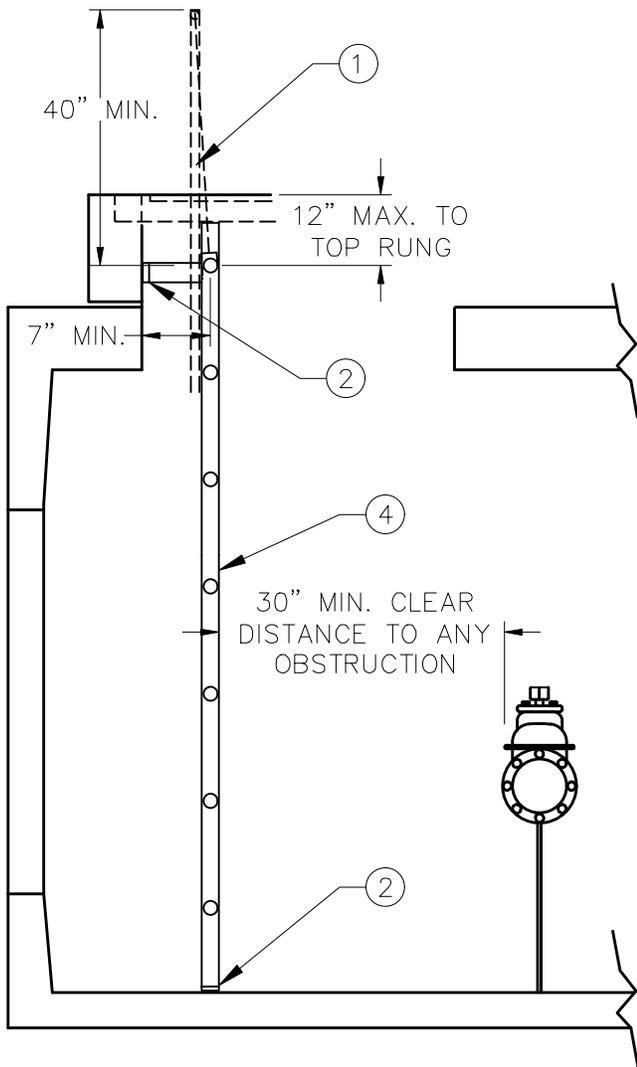
**WET TAP**

ENGINEERING DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

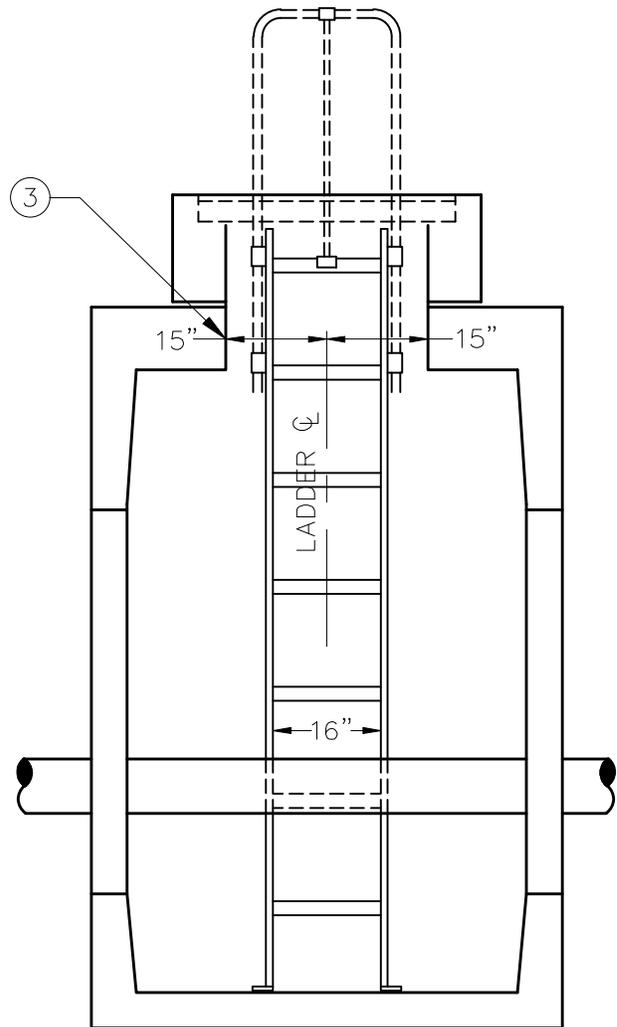
DRAWING NO.  
415

SCALE  
NONE

LAST REV. 7/18/22



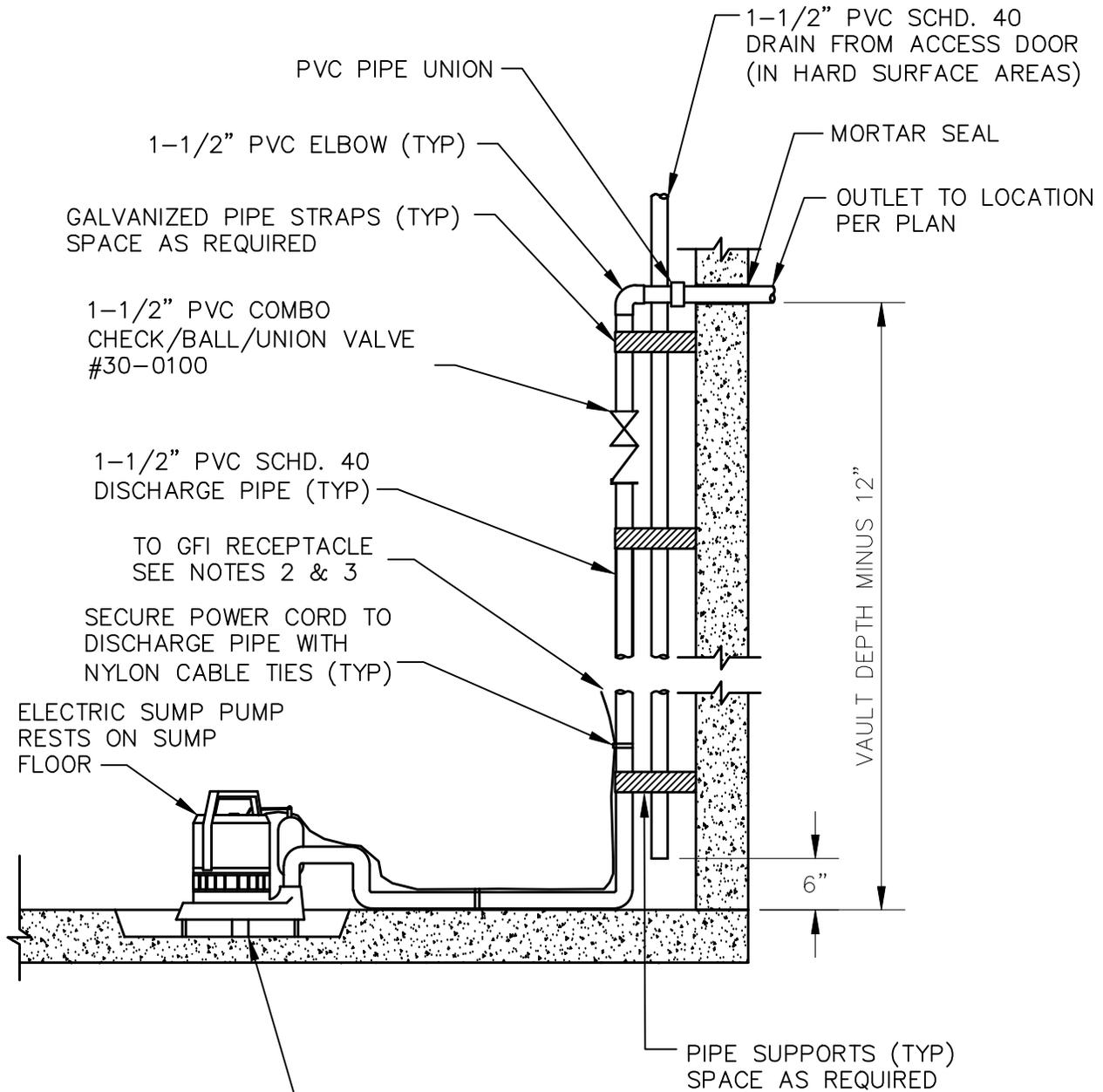
**SIDE VIEW**



**FRONT VIEW**

**KEYNOTES:**

- ① LADDER EXTENSION SHALL BE ALUMINUM AND EXTEND 40" ABOVE THE TOP RUNG OF THE LADDER. EXTENSION SHALL BE BOLTED UP BEHIND LADDER RUNGS.
- ② ATTACH LADDER SUPPORT TO INSIDE FACE OF VAULT OPENING AND FLOOR OF VAULT WITH STAINLESS STEEL HARDWARE AS SHOWN. C OF RUNG MUST BE SET 7" FROM FACE OF SURFACE BEHIND RUNG.
- ③ PROVIDE 15" MINIMUM LATERAL CLEARANCE ON EACH SIDE OF LADDER C.
- ④ LADDER SHALL MEET THE REQUIREMENTS OF OSHA AND SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION.



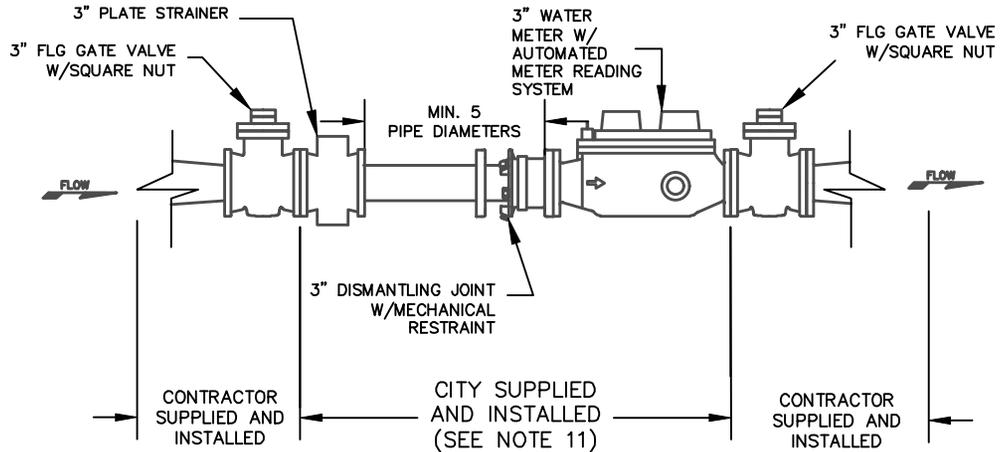
12" DIAMETER X 3" DEEP SUMP.  
 FOR SUMP LOCATION SEE WMV-3B AND  
 WMV-3C.  
 ADJUST PIPING AND PIPE STRAP  
 LOCATIONS AS REQUIRED.

**NOTES:**

1. SUMP PUMP – EBARA EPD-3AS1, HONDA WSP33K1AA, OR APPROVED EQUAL
2. MOUNT GFI RECEPTACLE 6" BELOW CEILING OF VAULT UNLESS LOCATED OTHERWISE BY NATIONAL AND/OR LOCAL ELECTRIC CODES. (GFI RECEPTACLE NOT SHOWN).
3. GFI RECEPTACLE SHALL BE LOCATED SO THE SUMP PUMP ELECTRICAL CORD WILL PLUG DIRECTLY INTO IT.

**SPECIFICATIONS**

<b>METER SIZE</b>	<b>3" METER</b>
INCOMING LINE SIZE	3" OR 4"
BY-PASS LINE SIZE	2" (INTERNAL)
OLDCASTLE VAULT NO. (OR APPROVED EQUAL)	687-WA (53" REDUCED INTERIOR DEPTH)
DOOR NO. (OR APPROVED EQUAL) W/ LIFT ASSIST SEE NOTE 10 & 12	BILCO: JD-3AL EJ: H48721707
METER SPEC. SEE NOTE 11	BADGER RECORDALL METER WITH ADE (ABSOLUTE DIGITAL ENCODER 5' CABLE/ ITRON IN LINE CONNECTOR/METER TO REGISTER IN BALLOONS)
STRAINER SEE NOTE 11	BADGER 3" PLATE STRAINER



**NOTES:**

- TOP OF VAULT SHALL BE A MINIMUM OF 3 INCHES TO 5 INCHES ABOVE FINISH GRADE.
- CONCRETE BALLAST (3 CUBIC YARDS MINIMUM) IS A MINIMUM FIGURE ONLY – ENGINEER IS RESPONSIBLE TO ENSURE THAT ADEQUATE BALLAST IS PROVIDED TO PREVENT FLOATING OF VAULT.
- INSTALL 4" DRAIN FROM BOTTOM OF VAULT FLOOR TO DAYLIGHT, TO AN APPROVED STORM SEWER SYSTEM OR INSTALL SUMP PUMP AND ASSOCIATED PIPING PER STD. DRG. NO. 417
- ALL VAULT WALL OPENINGS SHALL BE CORE DRILLED AND SEALED WITH NON-SHRINK GROUT.
- SERVICE LINES SHALL BE MECHANICALLY RESTRAINED FROM MAINLINE THROUGH VAULT TO BACKFLOW ASSEMBLY.
- ALL PIPING AND FITTINGS THROUGH VAULT SHALL BE LEVEL, 18" MINIMUM AND 42" MAXIMUM ABOVE THE FLOOR OF VAULT.
- BURIED PIPING SHALL BE BACKFILLED PER CITY'S T-CUT ASPHALT REPAIR OVER TRENCH DETAIL.
- VAULT SHALL BE EQUIPPED WITH OSHA-APPROVED ALUMINUM EXTENSION LADDER. SEE STD DRG NO. 416.
- SEE STD. DRG. NO. 419 ELEVATION VIEW AND STD. DRG. NO. 420 PLAN VIEW FOR ADDITIONAL REQUIREMENTS.
- HATCH DOOR DRAIN CHANNEL SHALL BE PLUMBED TO AN APPROVED STORM SEWER OR TO THE VAULT SUMP WHEN INSTALLED FLUSH WITH FINISHED GRADE.
- AFTER THE CONTRACTOR HAS COMPLETED INSTALLATION OF THE PIPING INSIDE THE WATER METER VAULT, TO INCLUDE THE 3" DIAMETER SPOOL PIECE PROVIDED BY THE CITY, CITY CREWS WILL COMPLETE INSTALLATION OF WATER METER. CITY CREWS WILL SUPPLY AND INSTALL THE WATER METER, PLATE STRAINER, DISMANTLING JOINT, AND SPOOL PIECE BETWEEN THE TWO 3" GATE VALVES. DEVELOPER/CONTRACTOR ARE REQUIRED TO PAY FOR MATERIALS AND LABOR ASSOCIATED WITH WORK PERFORMED BY CITY CREWS TO INSTALL THE ABOVE ITEMS.
- DEVELOPER/CONTRACTOR TO PROVIDE VAULT DOOR SUBMITTAL TO CITY FOR REVIEW AND APPROVAL BEFORE PLACING ORDER FOR DOOR.



**3" WATER METER VAULT  
(DETAIL NOTES)**

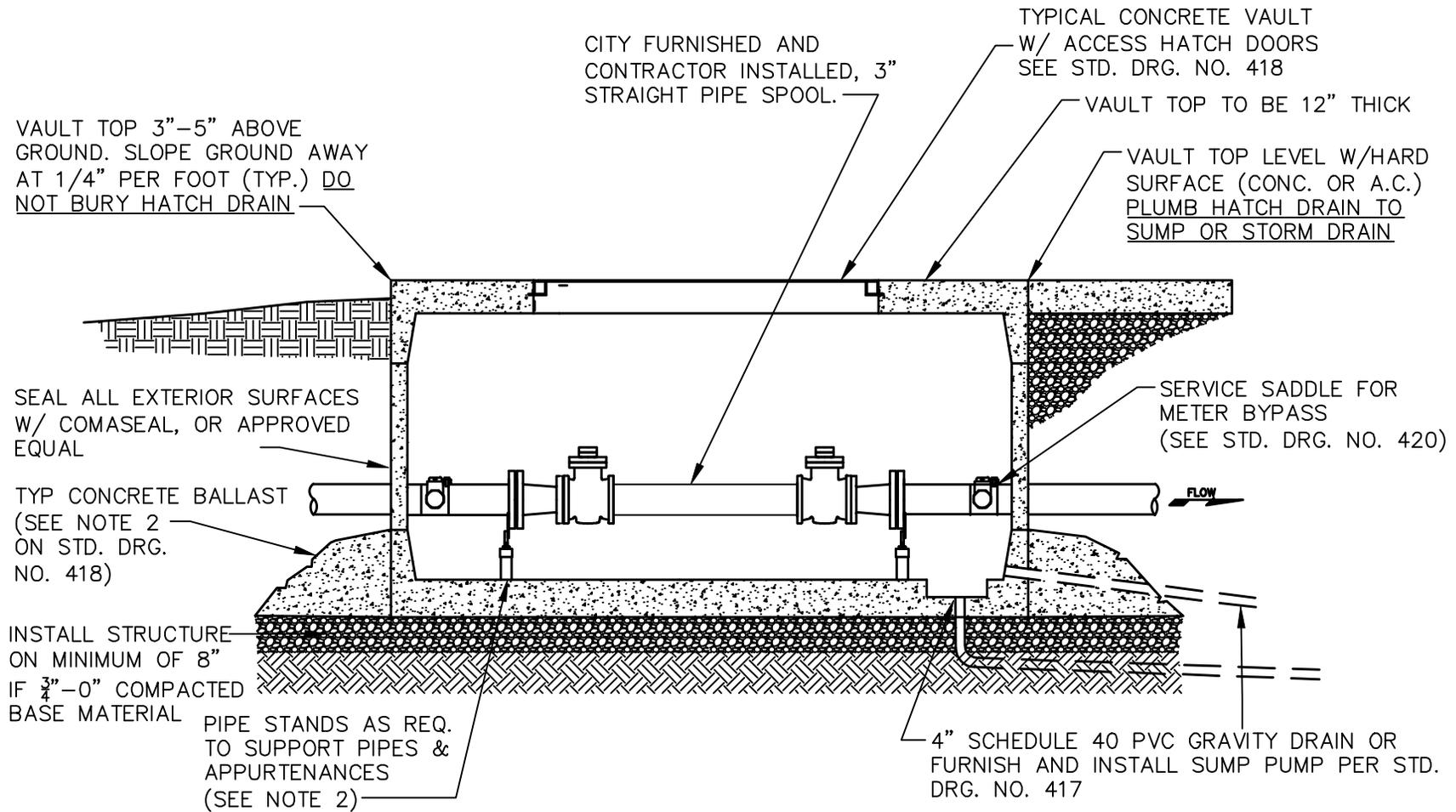
ENGINEERING DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO.  
418

SCALE  
NONE

\\w2kleng\Eng Dept\STANDARD DETAILS\400s WATER\3 INCH WATER METER VAULT (DETAIL NOTES).dwg

LAST REV. 8/15/22



**NOTES:**

1. SEE STANDARD DRAWING 416, 417, 418 AND 420 FOR ADDITIONAL REQUIREMENTS.
2. PIPE SUPPORTS FOR 2" BYPASS NOT SHOWN.
3. IF INCOMING AND/OR OUTGOING LINES ARE 3" DIAMETER, ADJUST LAYOUT APPROPRIATELY.



**3" WATER METER VAULT  
(PROFILE)**

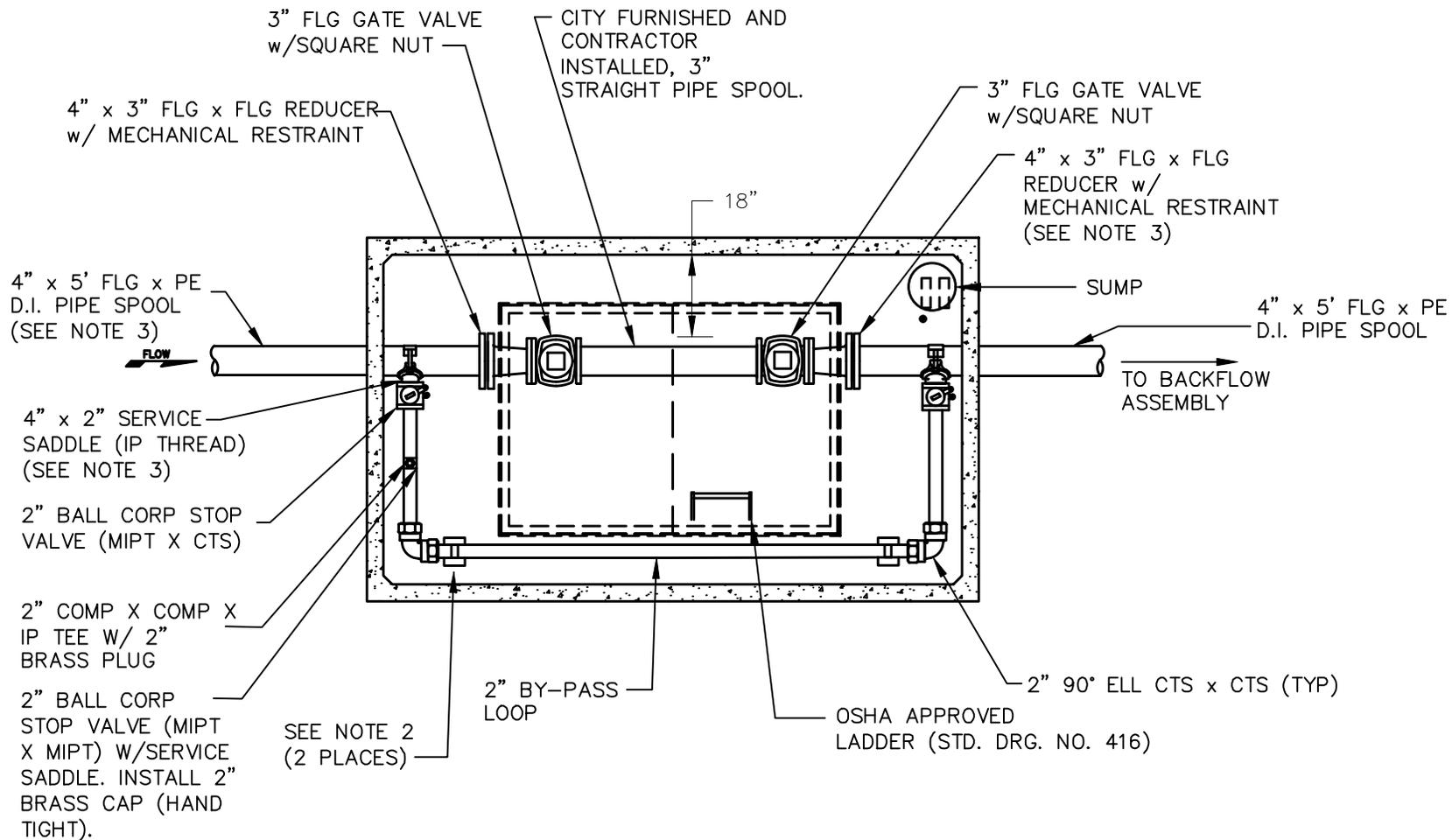
ENGINEERING DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO.  
419

SCALE  
NONE

\\w2k1eng\Eng Dept\STANDARD DETAILS\WATER\3 INCH WATER METER VAULT (PROFILE).dwg

LAST REV. 7/18/22



**NOTES:**

1. SEE STANDARD DRAWING NO. 416, 417, 418, AND 419 FOR ADDITIONAL REQUIREMENTS.
2. TYPICAL PIPE SUPPORTS – STANDON MODEL S92.
3. IF INCOMING AND/OR OUTGOIN LINES ARE 3" DIAMETER, ADJUST LAYOUT APPROPRIATELY.



**3" WATER METER  
VAULT (PLAN)**

ENGINEERING  
DEPARTMENT  
1924 COUNCIL STREET  
P.O. BOX 326  
FOREST GROVE, OR 97116

DRAWING NO.  
420

SCALE  
NONE

\\w2k\eng\Eng Dept\STANDARD DETAILS\WATER\3 INCH WATER METER VAULT (PLAN).dwg

LAST REV. 7/18/22