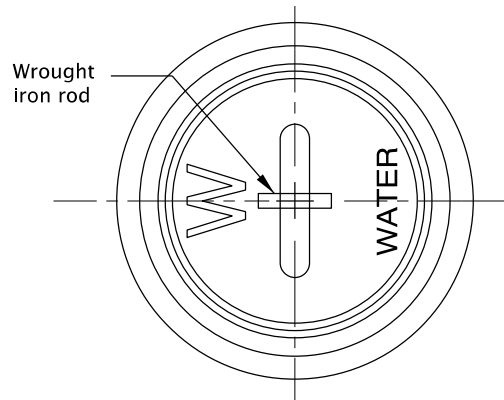
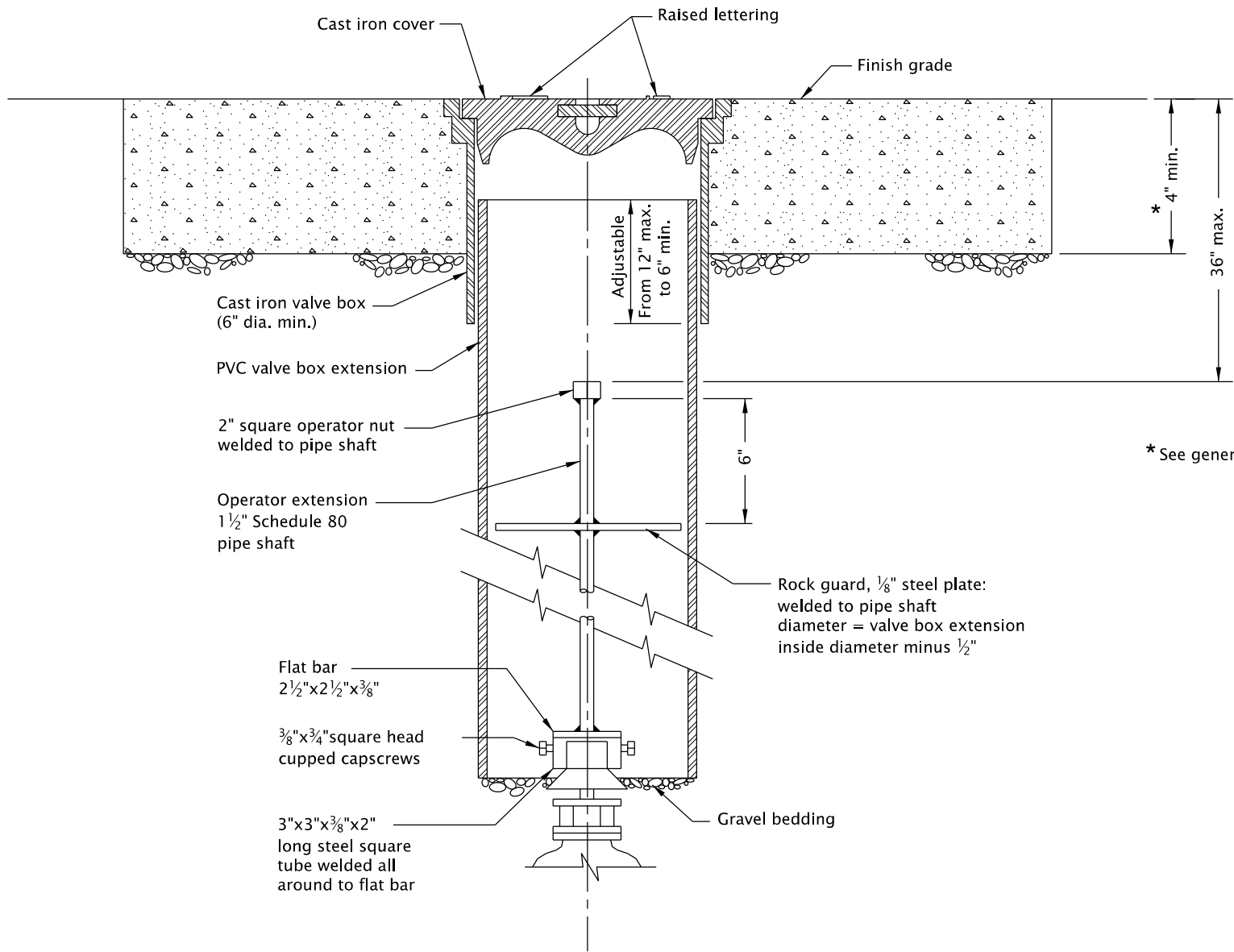


rd258.dgn 20-JUL-2020

RD258

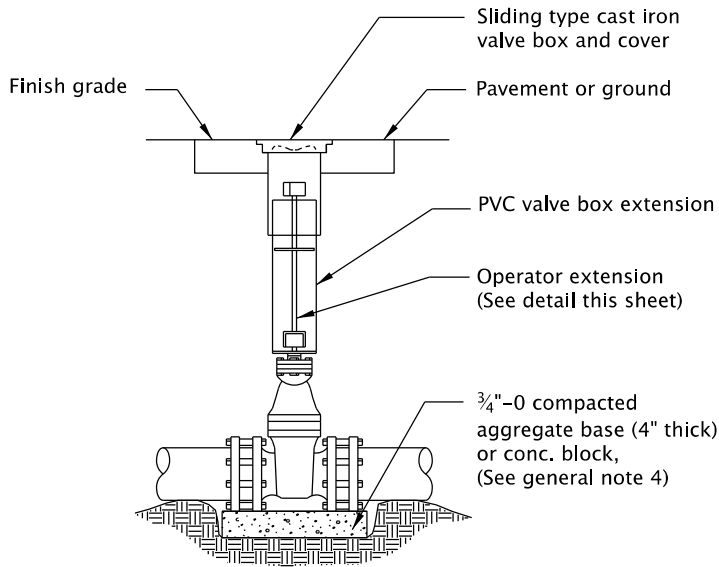


COVER PLAN



VALVE BOX EXTENSION SECTION

* See general note 8



VALVE BOX
ASSEMBLY DETAIL

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Valve box not to rest on operating assembly.
2. Operator extension required when valve nut is deeper than 4' from finish grade.
3. Center valve box on axis of operator nut.
4. Valves 12" and smaller shall be provided with compacted aggr. base on undisturbed ground. Valves greater than 12" shall be installed on precast concrete block, (4" thick).
5. Welds shall be minimum 1/4" all around.
6. Hot dip galvanize operator extension after fabrication.
7. Casting shall meet H20 load requirement.
8. Provide concrete or asphalt pad (24" square, 4" thick), when required.
9. See project plans for details not shown.

CALC. BOOK NO. N/A

SDR DATE 25-JUL-2017

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

OREGON STANDARD DRAWINGS
VALVE BOX AND OPERATOR
EXTENSION ASSEMBLY

2021

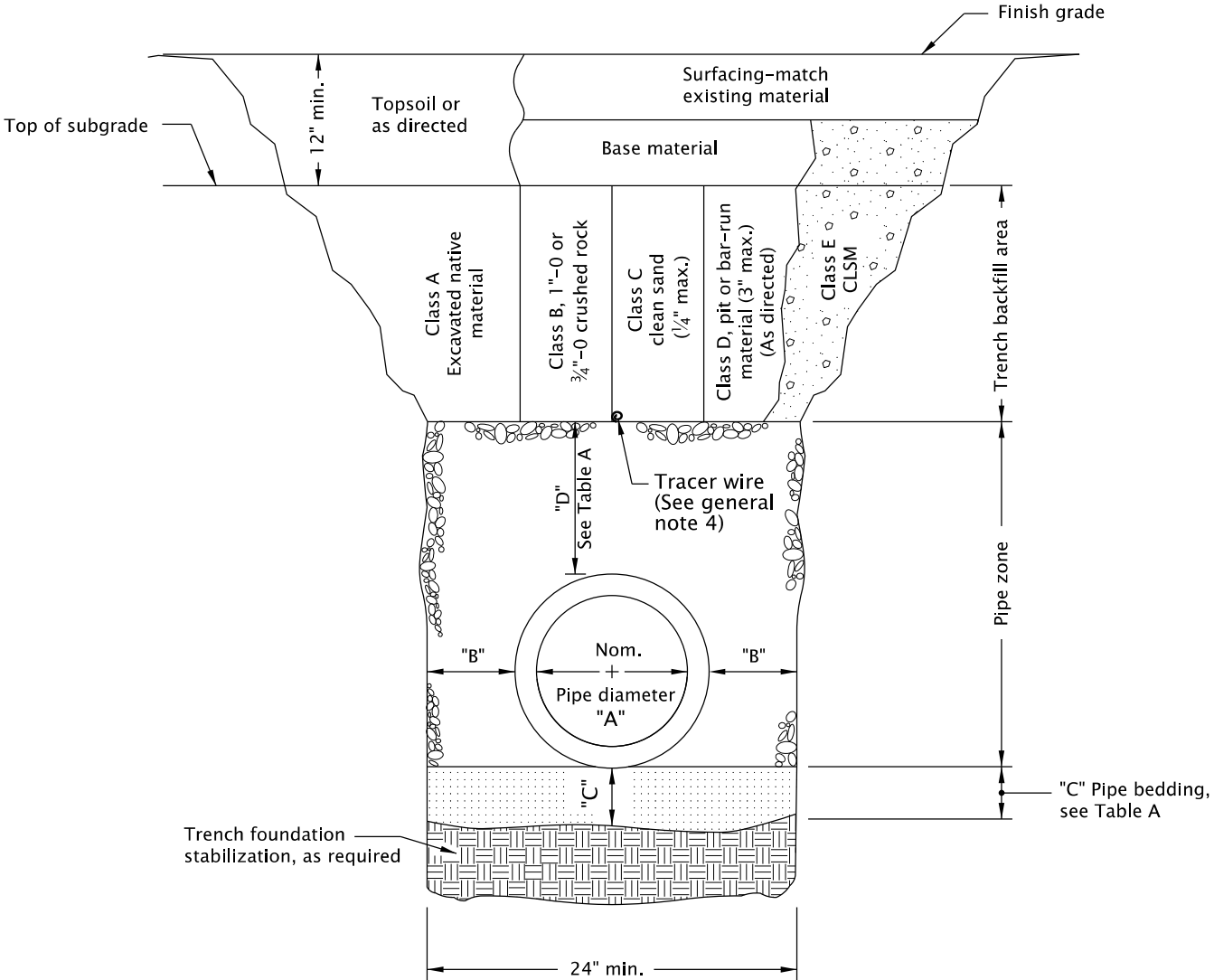
DATE REVISION DESCRIPTION

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.

TABLE A

"A" (in)	"B" (in)	"C" (in)	"D" (in)
4	10	4	8
6	10	4	8
8	10	6	10
10	10	6	10
12	12	6	10
15	12	6	10
18	16	6	12
21	16	6	12
24	18	6	12
30	18	6	12
36	24	6	14
42	24	6	14
48	24	6	14
54	24	6	14
60	24	6	14
66	24	6	14
72	24	6	14

For pipes over 72" diameter,
see general note 3.



MULTIPLE INSTALLATIONS	
DIAMETER	MIN. SPACE BETWEEN PIPES
Up to 48"	24"
48" to 72"	One half (1/2) dia. of pipe

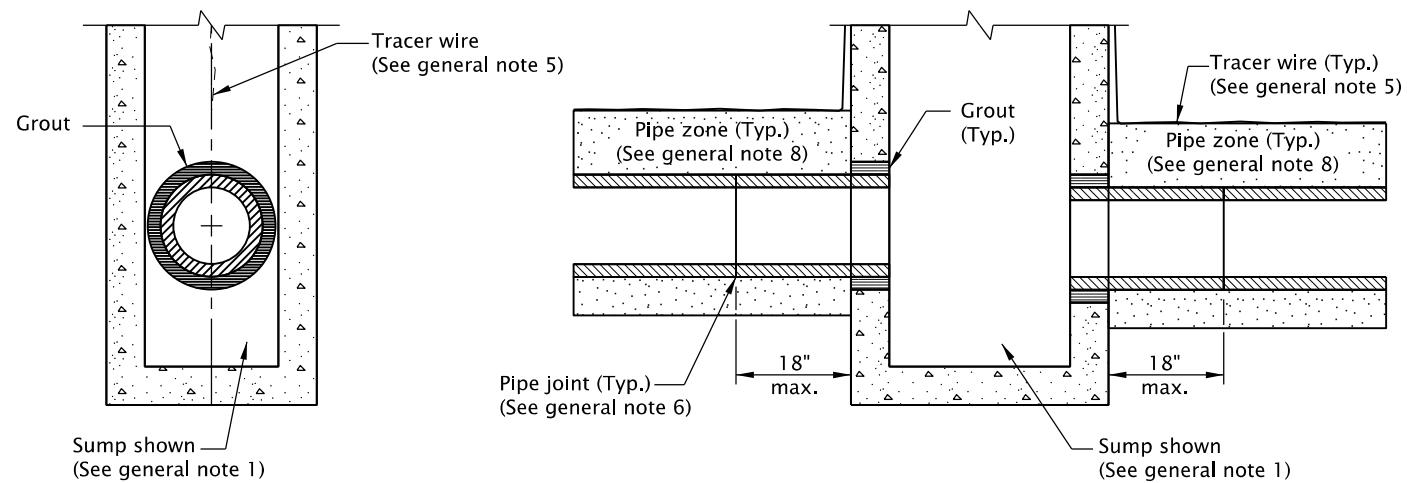
- GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:
1. Surfacing of paved areas shall comply with street cut Std. Dwg. RD302.
 2. For pipe installation in embankment areas where the trench method will not be used and the pipe is ≥ 36 " diameter, increase dimension "B" to nominal pipe diameter.
 3. Pipes over 72" diameter are structures, and are not applicable to this drawing.
 4. See Std. Dwg. RD336 for tracer wire details (When required).

CALC. BOOK NO. <u> N/A </u>	SDR DATE <u> 14-JUL-2014 </u>
-------------------------------	---------------------------------

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

OREGON STANDARD DRAWINGS	
TRENCH BACKFILL, BEDDING, PIPE ZONE AND MULTIPLE INSTALLATIONS	
2021	
DATE	REVISION DESCRIPTION

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.

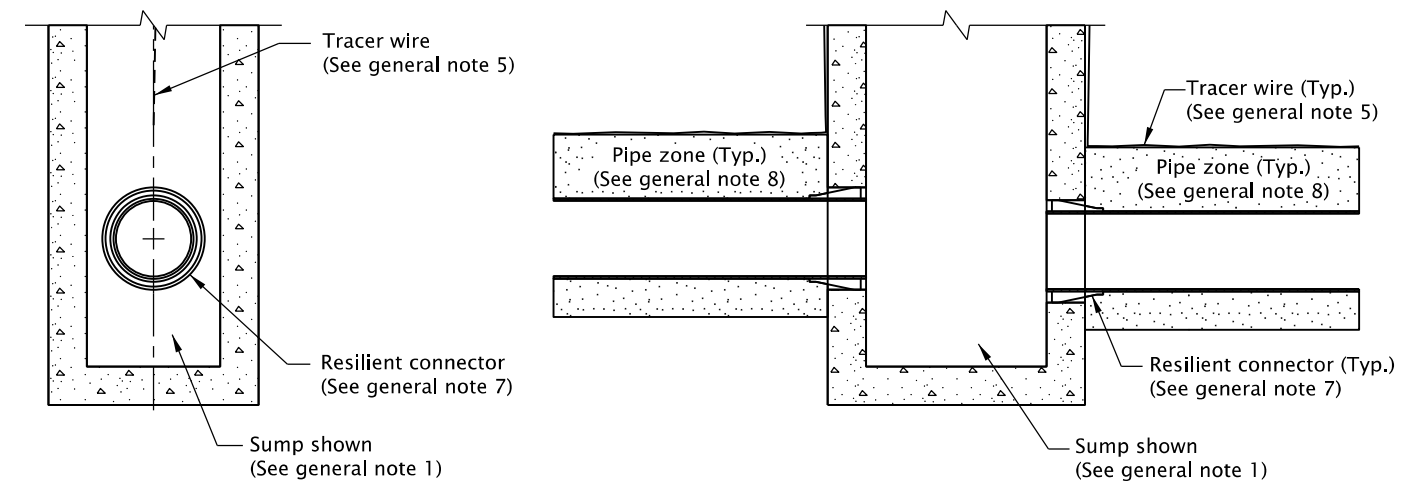


SECTION B-B

SECTION A-A

PLAN

CONNECTION OF RIGID PIPE TO STRUCTURE



SECTION D-D

SECTION C-C

PLAN

CONNECTION OF FLEXIBLE PIPE TO STRUCTURE

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. See Std. Dwg. RD364, RD365, and RD366 for inlet details not shown.
2. See appropriate standard drawings or special project details for other similar structures.
3. Location, elevation, diameter, slope, and number of pipe(s) varies, see project plans.
4. Maximum pipe diameter varies with pipe material.
5. All connecting pipes shall have a tracer wire, or approved alternate. See Std. Dwg. RD336 for tracer wire details.
6. When rigid pipe is used, the connecting pipe shall have a flexible, gasketted and unrestrained joint within 18" of structure wall. Joint type varies with manufacturer.
7. When flexible pipe is used, install resilient connectors conforming to requirements of ASTM C923.
8. Pipe zone varies, see Std. Dwg. RD300.

CALC. BOOK NO. N/A

SDR DATE 19-JUL-2021

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

OREGON STANDARD DRAWINGS

PIPE TO STRUCTURE CONNECTIONS

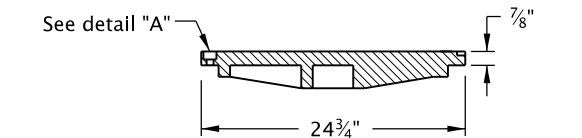
2021

DATE	REVISION	DESCRIPTION
07-2021	REVISED NOTES	

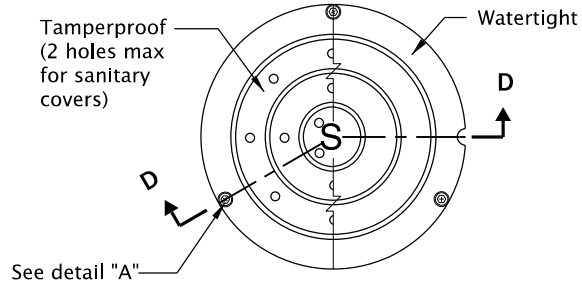
The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.

rd356.dgn 20-JUL-2020

RD356

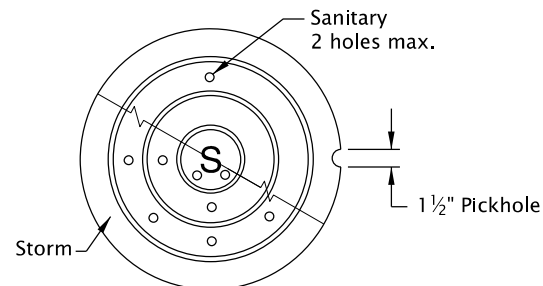


SECTION D-D

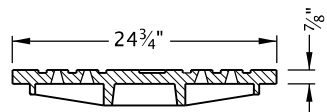


PLAN

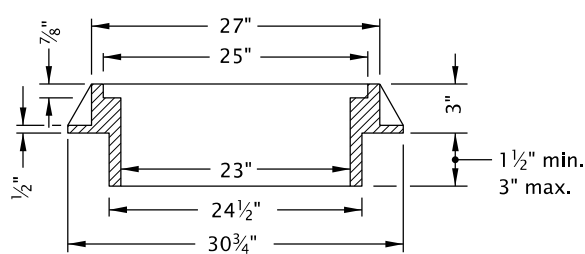
CAST IRON TAMPERPROOF & WATERTIGHT COVER
(Frames available in standard or suburban pattern)



COVER PLAN

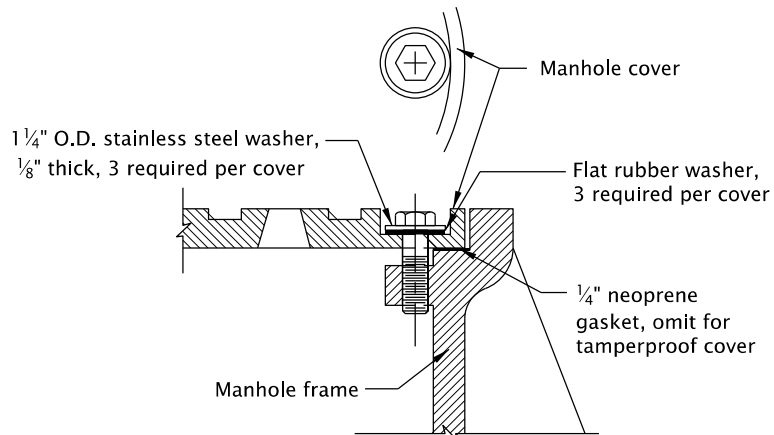


COVER SECTION



FRAME SECTION

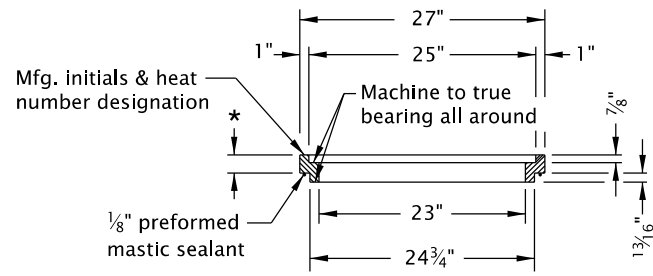
CAST IRON SUBURBAN MANHOLE COVER & FRAME
For use on local streets only, as specified



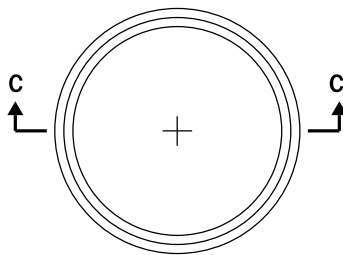
NOTE:
3 required, equally spaced, 1/2"x1 1/2" pentagonal or hexagonal head, bronze or stainless steel. Install frame so that one bolt boss is located over the manhole steps (See general note 8).

BOLT-DOWN (FOR TAMPERPROOF AND WATERTIGHT)
DETAIL "A"

* Std. depths 1 1/2", 2", 2 1/2" & 3"
Matl. to be grey cast iron ASTM A 48, Class 35B. Tolerance on non-machined surfaces to be |0.06", see general note 6

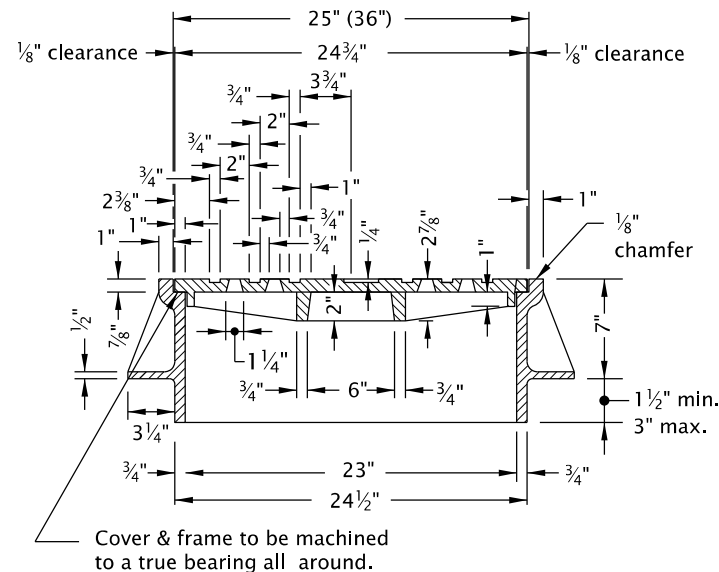


SECTION C-C



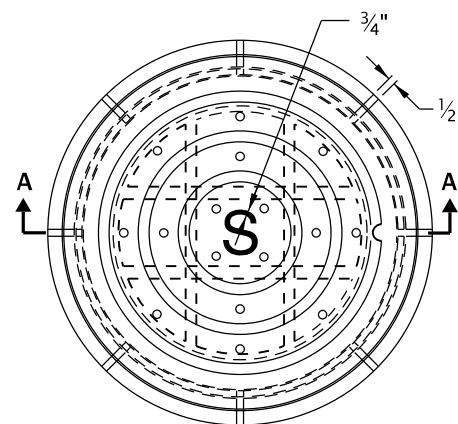
PLAN

MANHOLE ADJUSTMENT RING
For use with Standard Manhole Frame



SECTION A-A

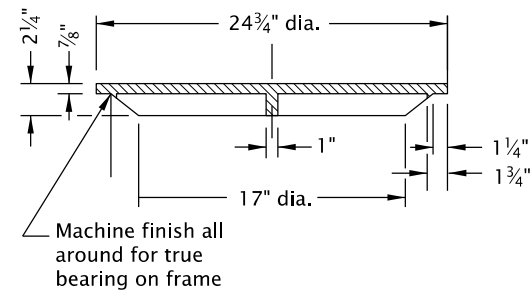
36" min. diameter cover is required for manholes with depths of 20' or greater. (See general note 4)



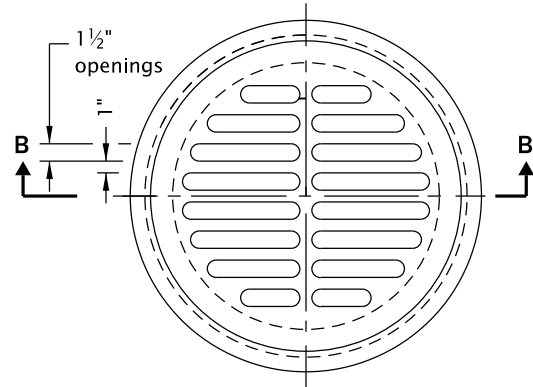
PLAN

NOTE:
Coat outside of frame with asphalt, where frame is to be placed in conc. pvmt., conc. gutter, or walk.

STANDARD MANHOLE COVER & FRAME



SECTION B-B



PLAN

For use with Standard Manhole Frame
(See general note 7)

STANDARD MANHOLE GRATE

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Tampertproof covers required on sanitary or storm drain manhole where located in pedestrian ways or easement areas. Covers for sanitary manholes shall have 2 holes maximum.
2. Watertight covers required if located where cover may be submerged (no holes).
3. Covers and frames shall be stamped with manufacturer's initials, heat number and point of origin.
4. See Std. Dwg. RD336 for manhole steps.

5. See Std. Dwg. RD360 for manhole frame adjustment.
6. See ODOT's QPL for alternate manhole adjustment rings.
7. Manhole grate allowed only in locations not subject to bicycle or pedestrian use.
8. See ODOT's QPL for alternate bolt-down products.

CALC. BOOK NO. N/A

SDR DATE 21-JUN-2019

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

OREGON STANDARD DRAWINGS

MANHOLE COVERS AND FRAMES

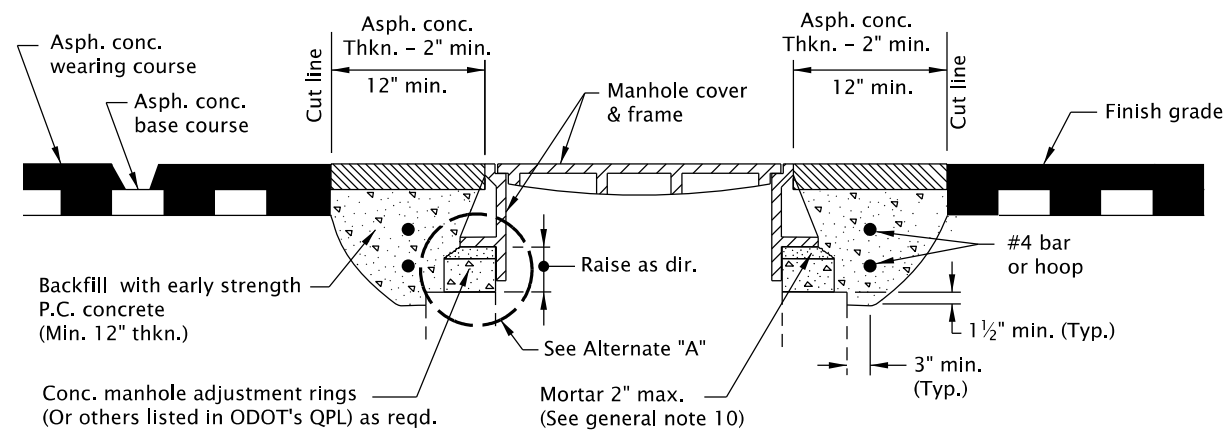
2021

DATE	REVISION	DESCRIPTION

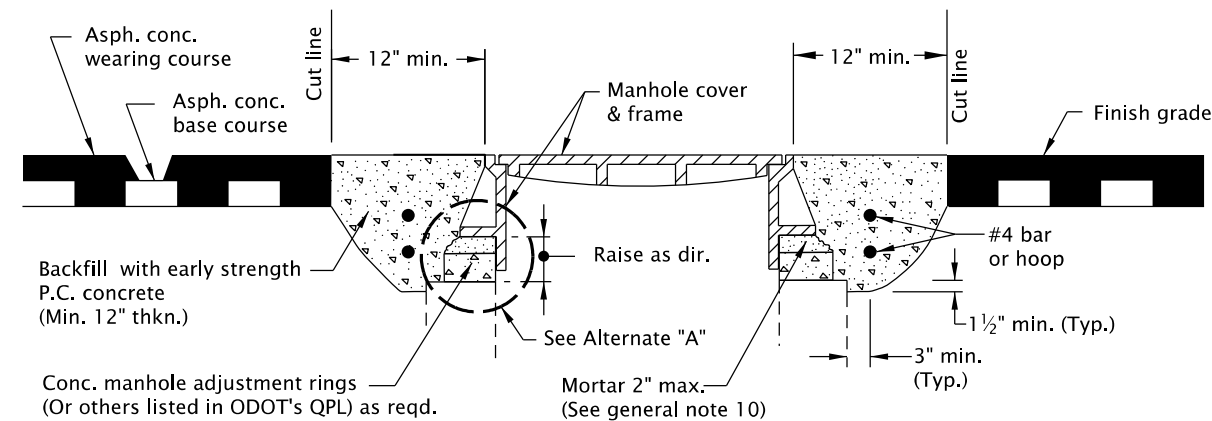
Effective Date: December 1, 2021 – May 31, 2022

RD356

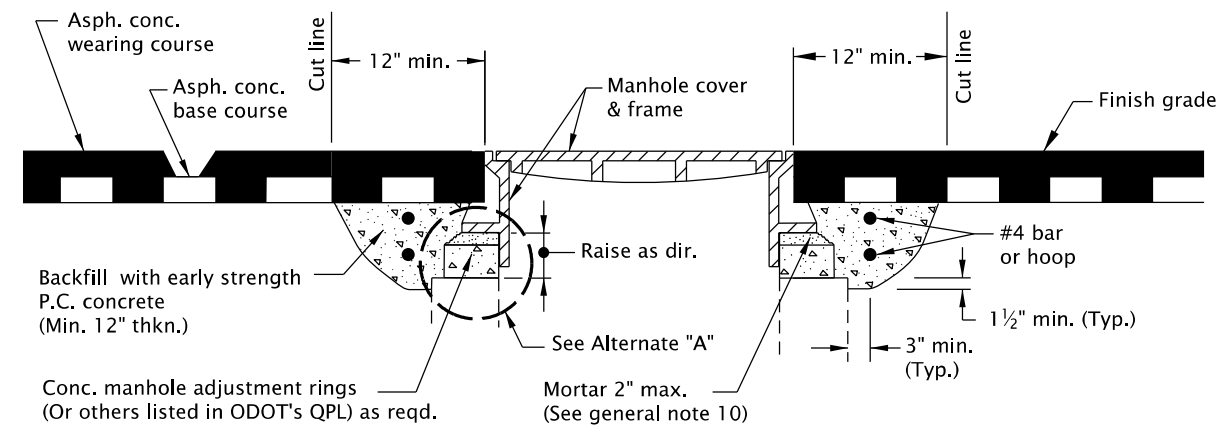
rd360.dgn 20-JUL-2020



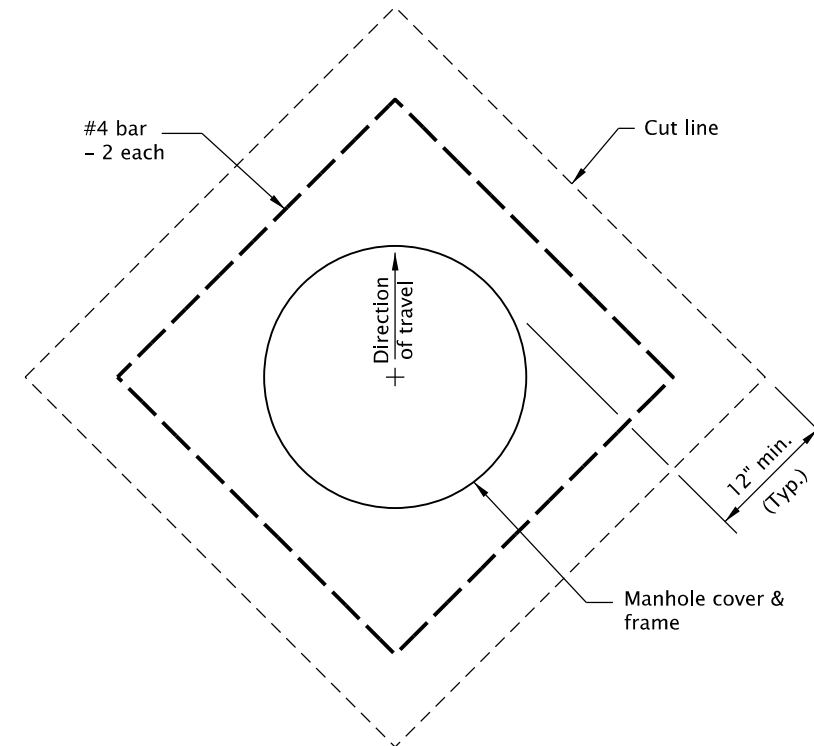
METHOD "A"



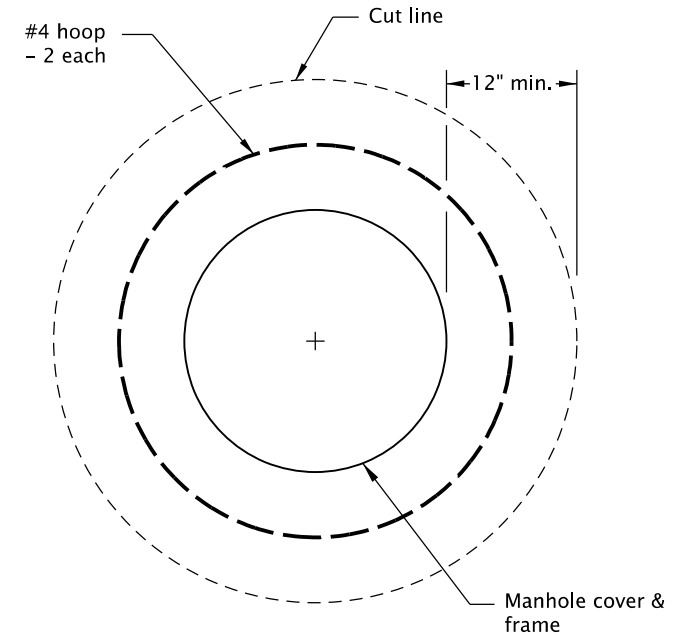
METHOD "B"



METHOD "C"



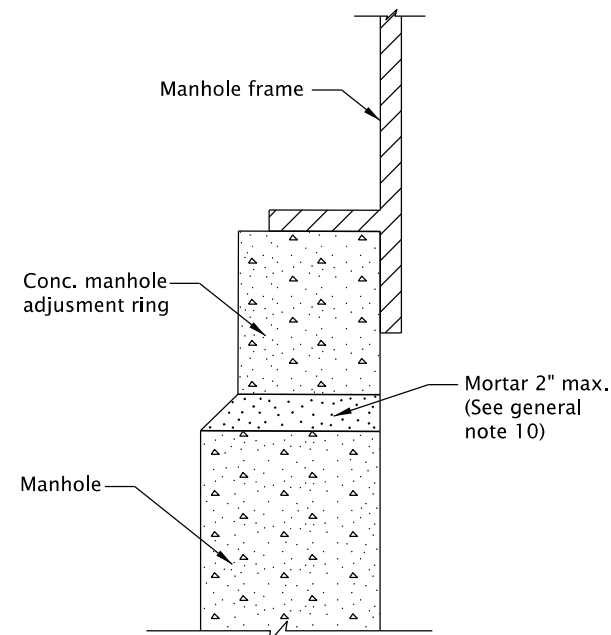
PLAN
SQUARE CUT



PLAN
CIRCULAR CUT

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Cover manhole with building paper and const. asph. conc. base course and wearing courses.
2. Saw cut square or circular excavation around manhole 12" min. from manhole frame.
3. Raise manhole cover and frame to finish grade by installing conc. manhole adjustment rings and leveling mortar, as shown.
4. Backfill with early strength Portland Cement Concrete. All concrete shall be commercial grade concrete.
5. Protect from traffic loading until conc. has cured to 3000 psi.
6. Apply tack coat to edges of existing pavement before installing patch.
7. Finish joint with asphalt seal and sand.
8. See Std. Dwg. RD336 for manhole steps details.
9. See appropriate manhole standard drawings for details not shown.
10. Use epoxy for synthetic grade rings.
11. See Std. Dwg. RD336 for tracer wire details.
12. See Std. Dwg. RD356 for manhole covers and frames.



ALTERNATE "A"

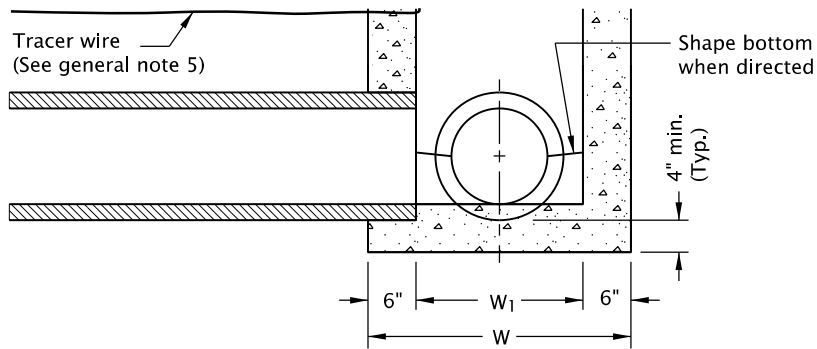
CALC. BOOK NO. <u>N/A</u>		SDR DATE <u>21-JUL-2015</u>	
<i>The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.</i>		NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications	
		OREGON STANDARD DRAWINGS	
		MANHOLE FRAME ADJUSTMENT	
		2021	
		DATE	REVISION DESCRIPTION

RD360

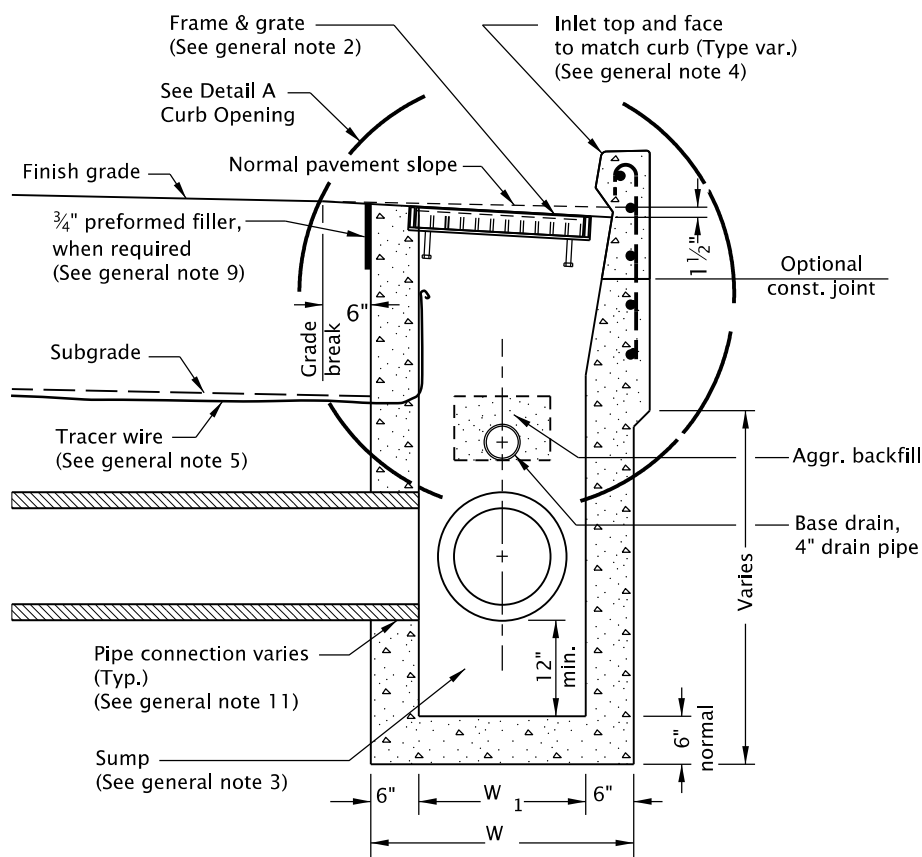
rd366.dgn 20-JUL-2020

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

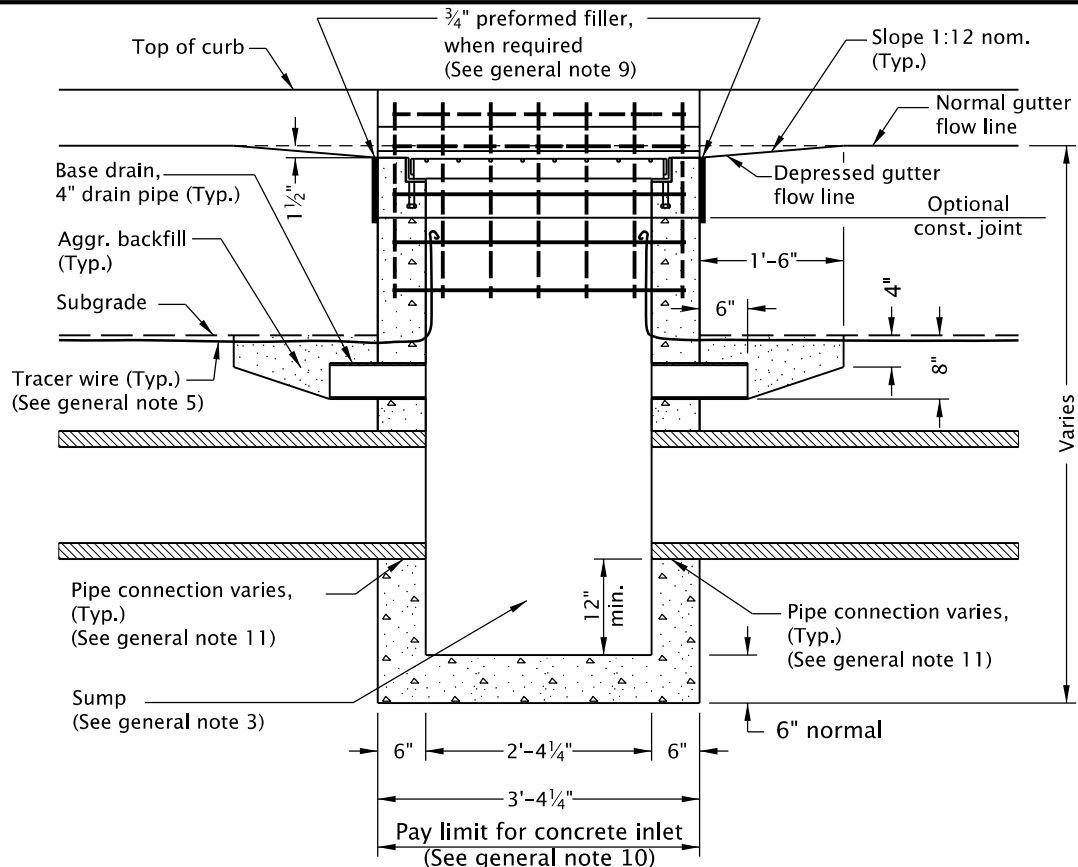
- Where precast inlets are used as an alternate to cast-in-place inlets, a 4" compacted leveling bed of sand or 1/4"-0 crushed aggregate shall be provided. All precast inlets shall conform to requirements of ASTM C913.
- Graphics show CG-1 inlet with Type 2 grate. See Table A for inlet dimensions. Type 1 grate allowed only in locations not subject to bicycle or pedestrian use. For frame and grate details, see Std. Dwg. RD365.
- Provide sump only where shown on plans, and allowed by jurisdiction. See Detail B for inlet without sump.
- For curb details, see Std. Dwg. RD700 & RD701.
- See Std. Dwg. RD336 for tracer wire details, or approved alternate.
- Max. pipe diameter varies with pipe material.
- Location, elevation, diameter, slope, and number of pipe(s) varies, see project plans.
- All concrete shall be commercial grade concrete.
- 3/4" preformed filler (in concrete pavement or gutter only) to extend through thickness of concrete.
- See Std. Dwg. RD363 for gutter transition section, when curb and gutter are required. (Pay limit for inlet is expanded when curb and gutter are monolithic)
- See Std. Dwg. RD339 for pipe to structure connections.



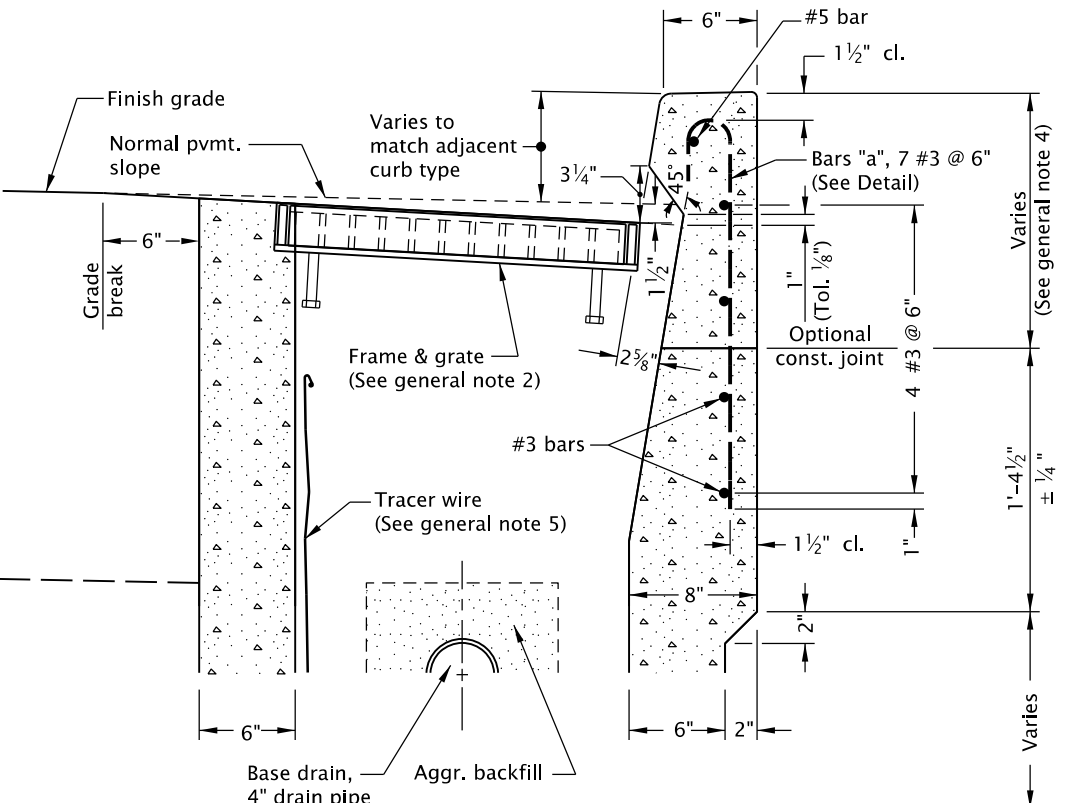
DETAIL B WITH-OUT SUMP



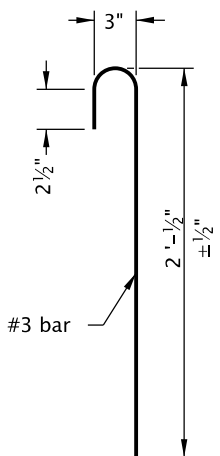
SECTION B - B



SECTION A - A



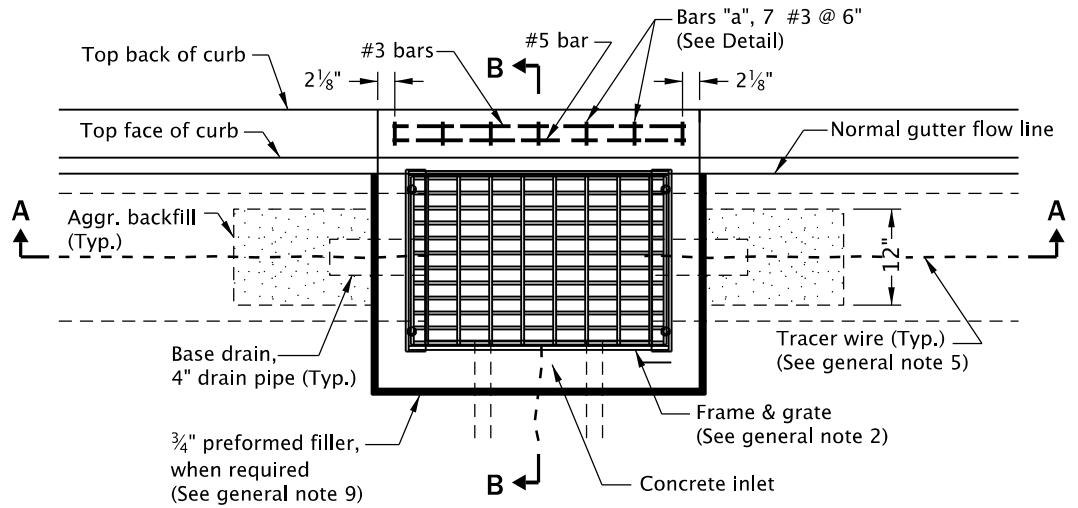
DETAIL A CURB OPENING



BAR "a" DETAILS

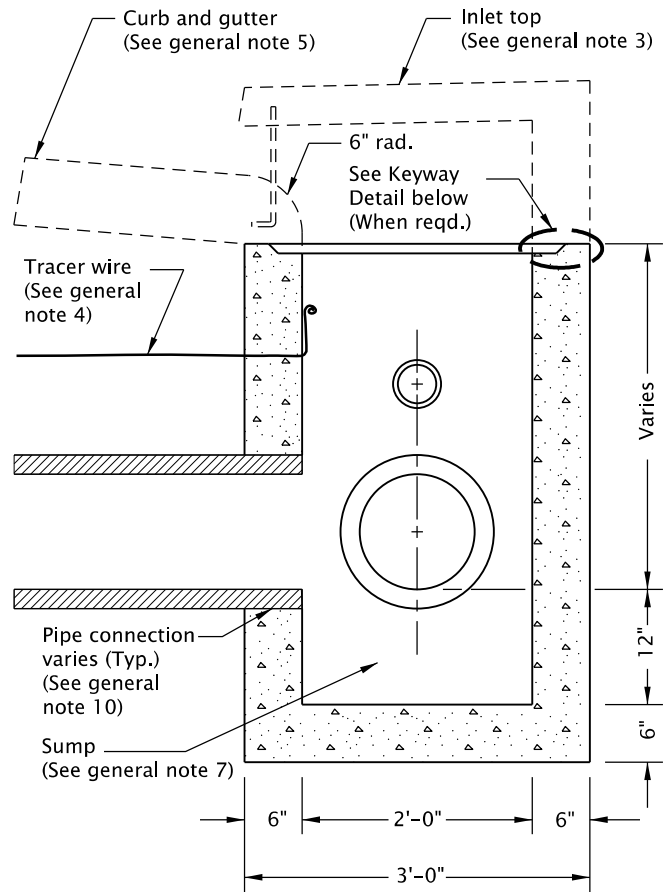
TABLE A		
INLET TYPE	W	W ₁
CG-1	2'-8 5/8"	1'-8 5/8"
CG-2	3'-3 5/8"	2'-3 5/8"

- NOTES:
- #3 "a" bars to be placed during curb construction.
 - All bars to be placed 1 1/2" clear of nearest face of concrete unless shown or noted otherwise.
 - All bars shall be full length.

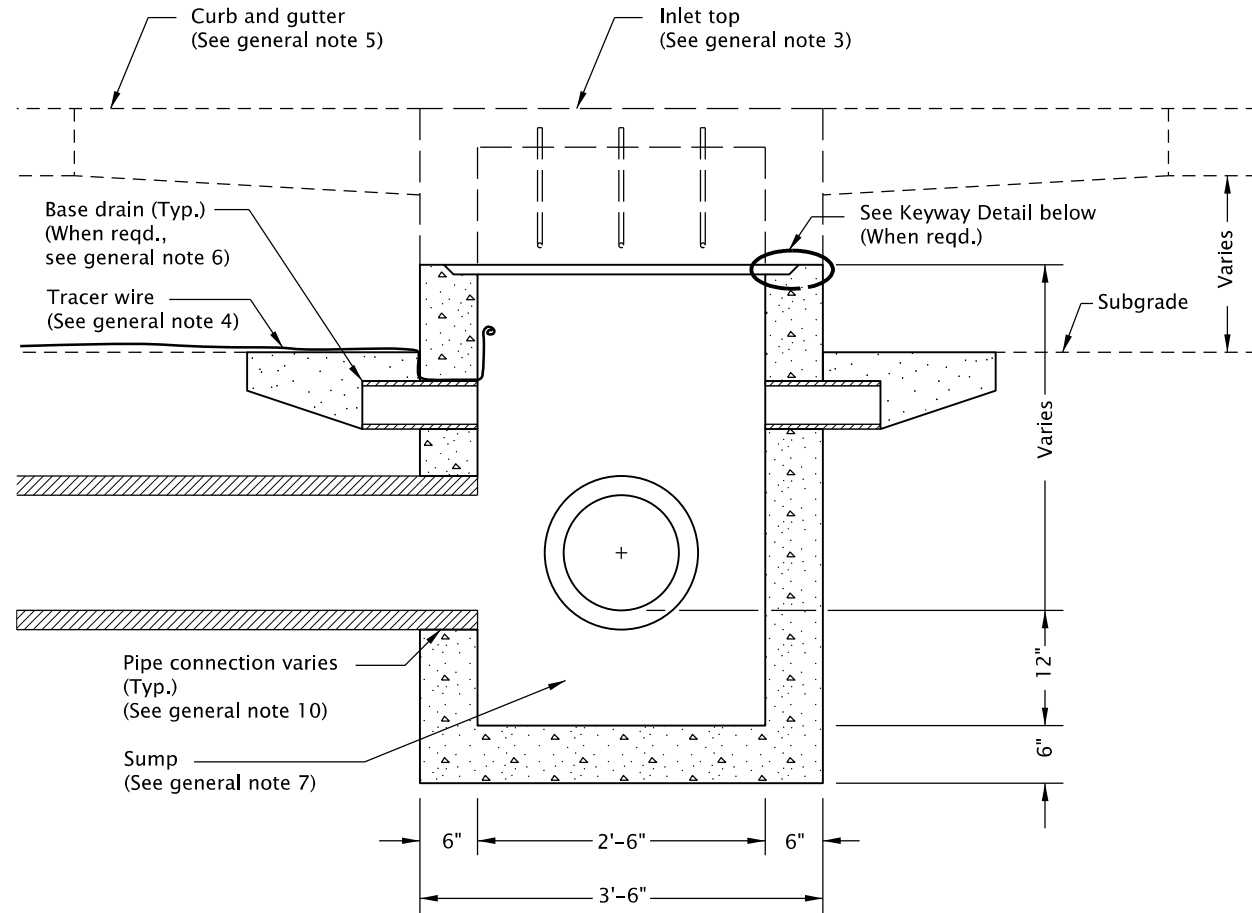


PLAN

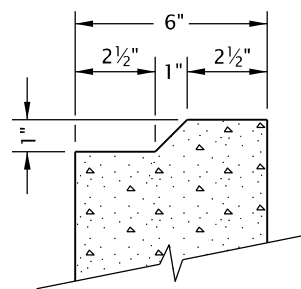
CALC. BOOK NO. N/A	SDR DATE 20-JUL-2020
<i>The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.</i>	NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications
	OREGON STANDARD DRAWINGS
	CONCRETE INLETS
	TYPE CG-1, CG-2
	2021
DATE	REVISION DESCRIPTION



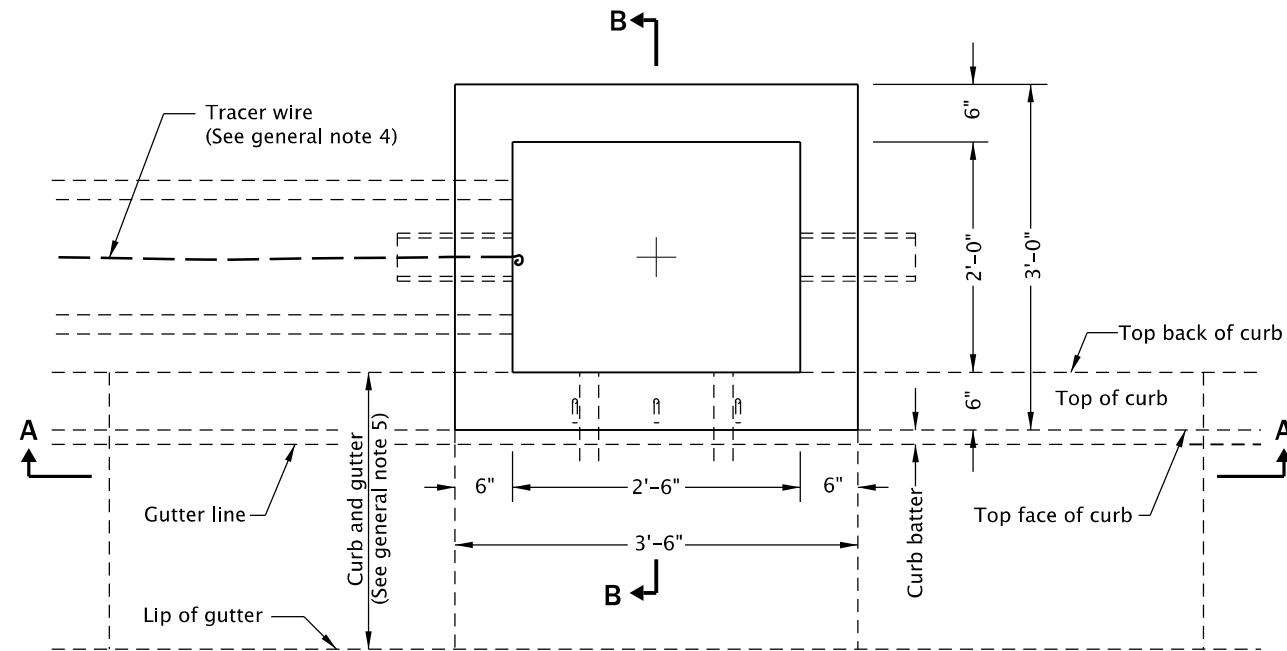
SECTION B - B



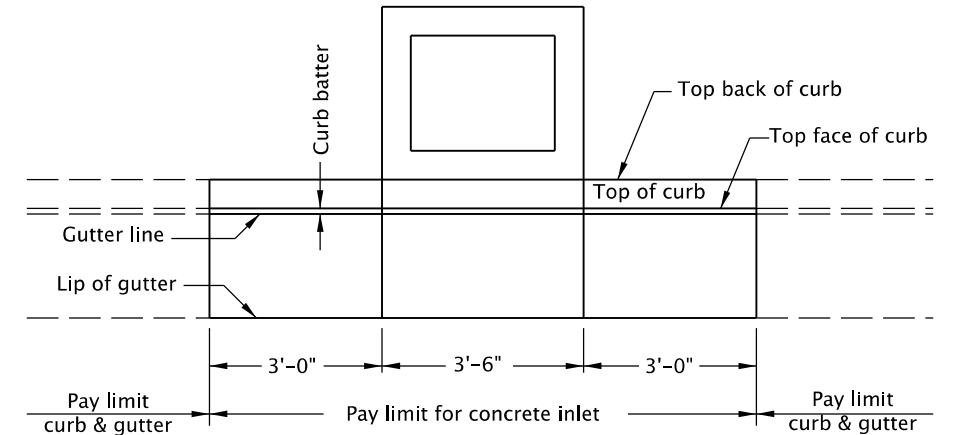
SECTION A - A



KEYWAY DETAIL



PLAN



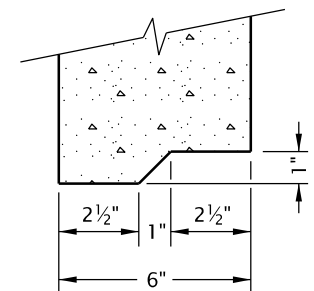
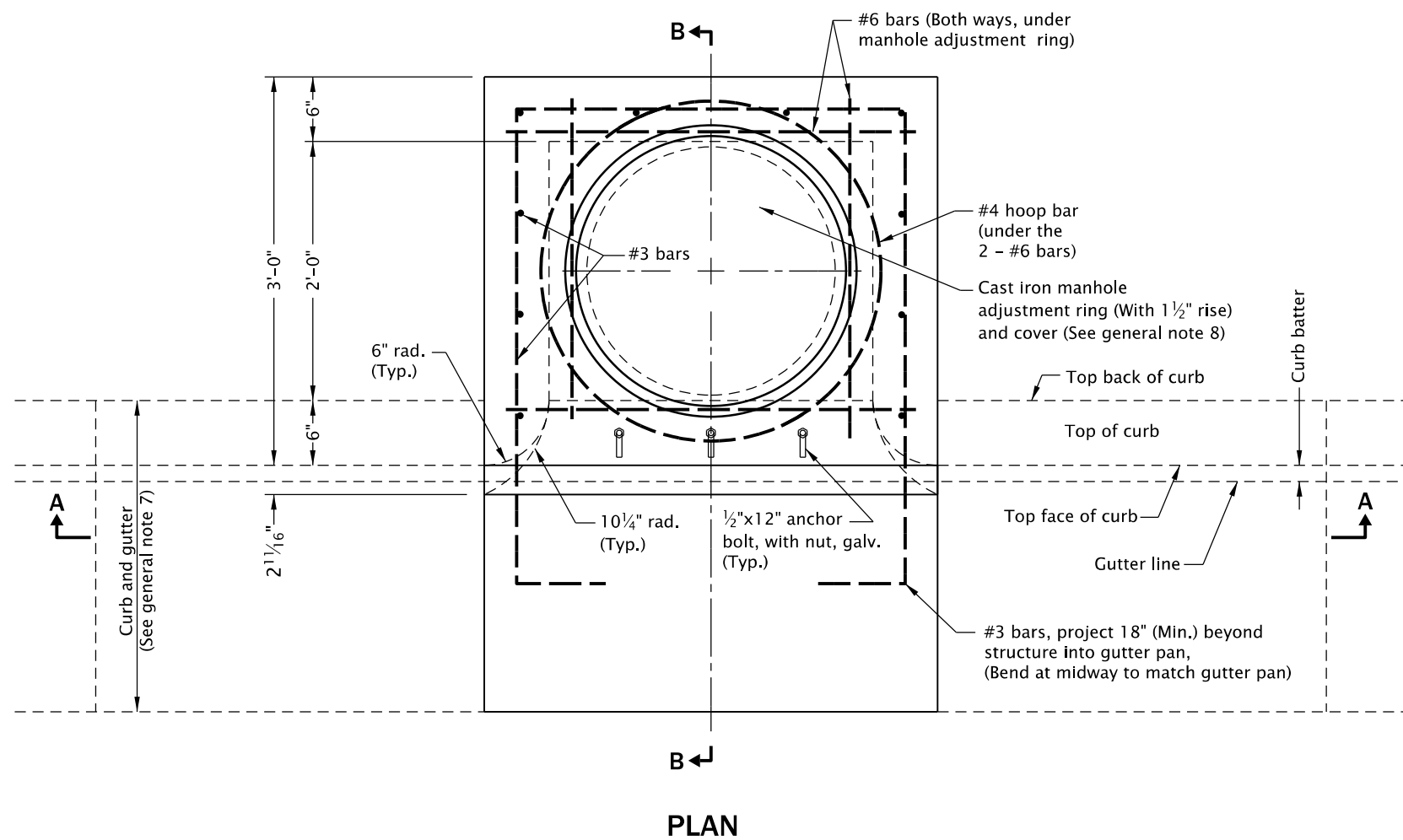
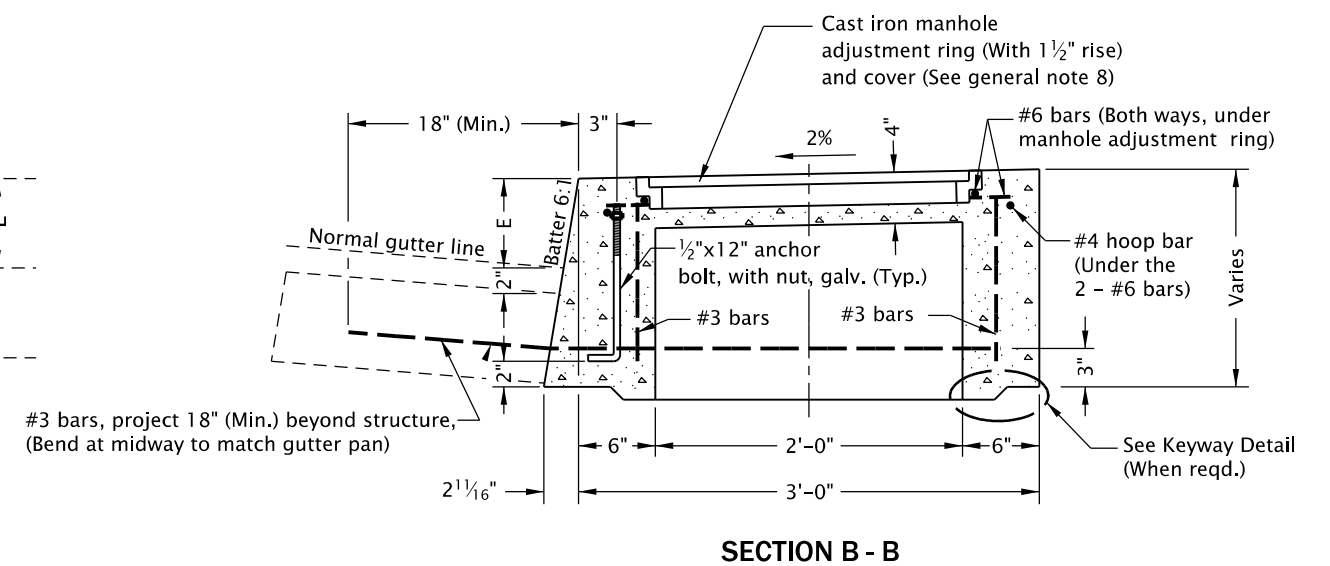
PLAN

PAY LIMIT

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. All concrete shall be commercial grade concrete.
2. Inlet base may be cast-in-place or precast. Where precast inlet base is used as an alternate, a 4" compacted leveling bed of sand or 1/4"-0 crushed aggregate shall be provided. All precast inlets shall conform to requirements of ASTM C913.
3. See Std. Dwgs. RD372 & RD373 for inlet top details.
4. See Std. Dwg. RD336 for tracer wire details, or approved alternate.
5. See Std. Dwgs. RD700 & RD701 for curb and gutter details.
6. See Std. Dwg. RD364 for base drain details.
7. Provide sump only where shown on plans, and allowed by jurisdiction. For sump details, see Std. Dwg. RD364.
8. Location, elevation, diameter, slope, and number of pipe(s) varies, see project plans.
9. Max. pipe diameter varies with pipe material.
10. See Std. Dwg. RD339 for pipe to structure connections.

CALC. BOOK NO. <u>N/A</u>		SDR DATE <u>21-JUL-2015</u>	
<i>The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.</i>		NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications	
		OREGON STANDARD DRAWINGS	
		CONCRETE INLET BASE	
		TYPE CG-3	
		2021	
		DATE	REVISION DESCRIPTION



KEYWAY DETAIL

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. All concrete shall be commercial grade concrete.
2. Inlet top may be cast-in-place or precast. All precast inlets shall conform to requirements of ASTM C913.
3. All reinforcement shall be 2" clear of nearest face of conc., unless otherwise shown.
4. Vary anchor bolt length and reinforcing bar placement as required by curb exposure E (See note 7 below).
5. See Std. Dwg. RD371 for inlet base details.
6. See Std. Dwg. RD371 for inlet pay limit.
7. See Std. Dwgs. RD700 & RD701 for curb and gutter details.
8. See Std. Dwg. RD356 for cast iron manhole adjustment ring and cover.

CALC. BOOK NO. _ _ N/A _ _

SDR DATE 16-JAN-2019

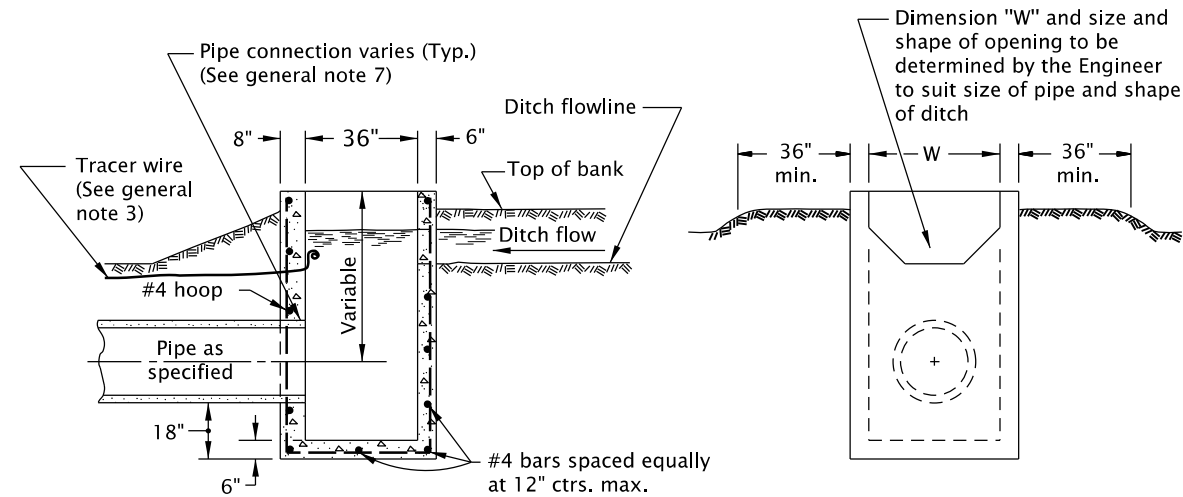
NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

OREGON STANDARD DRAWINGS
CONCRETE INLET TOP, OPTION 1
TYPE CG-3

2021

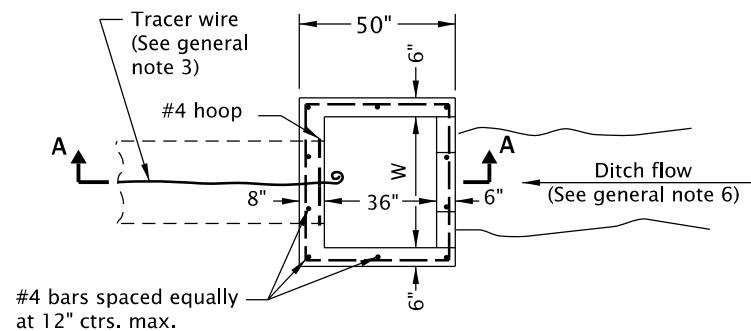
DATE	REVISION DESCRIPTION

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.



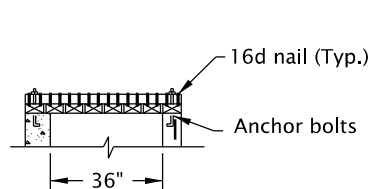
SECTION A-A

END VIEW

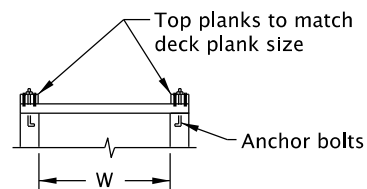


PLAN

SIPHON BOX

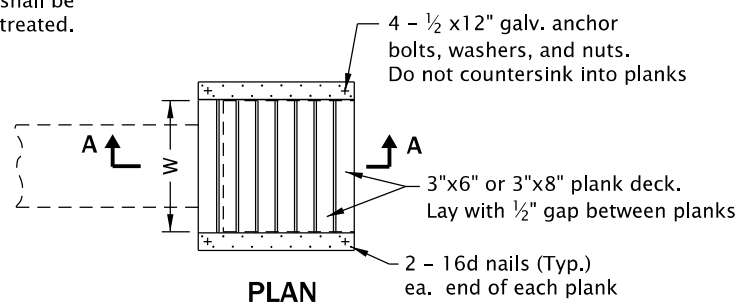


SECTION A-A



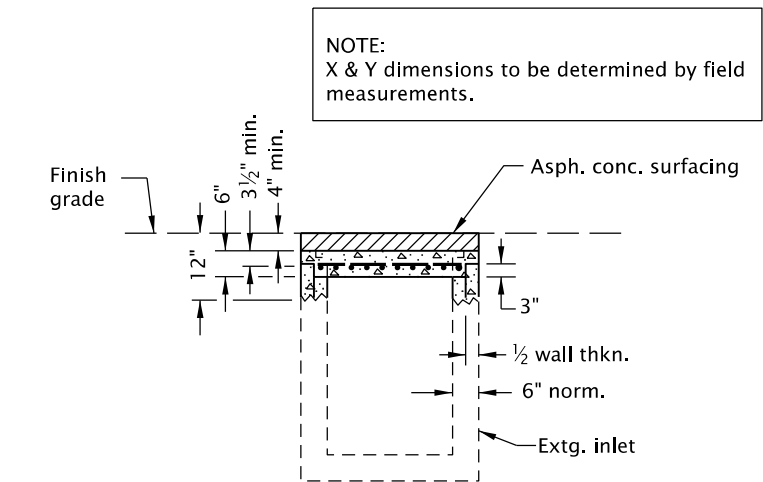
END VIEW

NOTE:
All wood shall be
pressure treated.



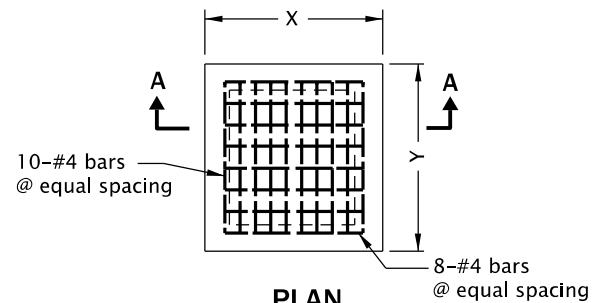
PLAN

SIPHON BOX COVER
SIPHON BOX AND COVER



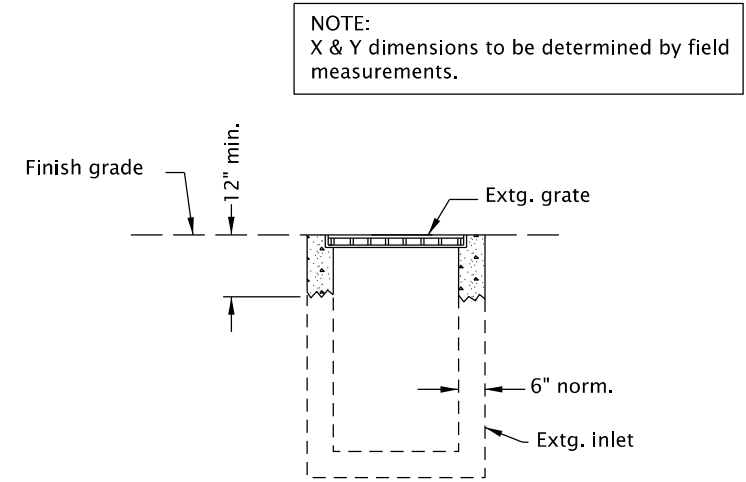
SECTION A-A

Place bars in concrete inlet
cap 1 1/2" min. clear of bottom
face of concrete and 3 1/2" min.
clear of top face of concrete.

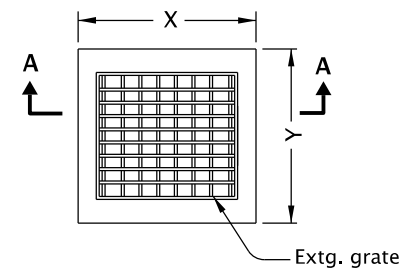


PLAN

CONCRETE INLET CAP



SECTION A-A



PLAN

ADJUST EXISTING INLET
(For details not shown, see Std. Dwg. RD366)

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. All reinforcement to be placed a minimum of 2" clear of nearest face of concrete unless otherwise shown or noted.
2. If metal frame and grate is reqd, conform to details for Type 1 grate. Size frame and grate to match dimensions of siphon box used, see Std. Dwg. RD364.
3. See Std. Dwg. RD336 for tracer wire details.
4. Max. pipe diameter varies with pipe material.
5. All precast products shall conform to requirements of ASTM C913.
6. Alignment of ditch, siphon box, and pipe varies, see project plans.
7. See Std. Dwg. RD339 for pipe to structure connections.

CALC. BOOK NO. N/A

SDR DATE 14-JUL-2014

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

OREGON STANDARD DRAWINGS
MISCELLANEOUS
DRAINAGE STRUCTURES
SIPHON BOX, INLET CAP &
INLET ADJUSTMENT
2021

DATE	REVISION	DESCRIPTION



Slope 5.0% normal.

Slope 4.0% max. at curb ramps.

Vary slope as reqd. for drainage

Vary where shown on plans, and allowed by jurisdiction.



1. Curb exposure "E" = 6" to 9", as measured vertically from flowline to highest point on curb. Vary as shown on plans or as directed. O.D.O.T standard "E"=7".
2. Const. curb expansion joints at 200' maximum spacing, and at points of tangency, and at ends of each driveways.
3. Const. curb contraction joints at 15' maximum spacing, and at ends of each inlet and curb ramp.
4. Transitions shall be used to connect curbs of different exposures "E".
("E" Is the total vertical dimension of those curb surfaces having a slope of 1:1 or steeper). Minimum desirable transition length shall be 20' for each 1" difference in "E".

5. Tops of all curbs shall slope toward the roadway at 1.5% max. (Max. 2.0% finished surface slope), unless otherwise shown, or as directed.
6. Dimensions are nominal, vary to conform with curb machine approved by the engineer.
7. Dimensions adjacent to radii are measured to the point of intersection of curb surfaces.
8. For sidewalk details, and monolithic curb & sidewalk, see Std. Dwgs. RD720 & RD721.
9. For drainage curbs, see Std. Dwg. RD701.
10. For curb ramp details, see Std. Dwgs. RD900 series.
11. On or along state highways, curb and gutter is required at curb ramp.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.

OREGON STANDARD DRAWINGS

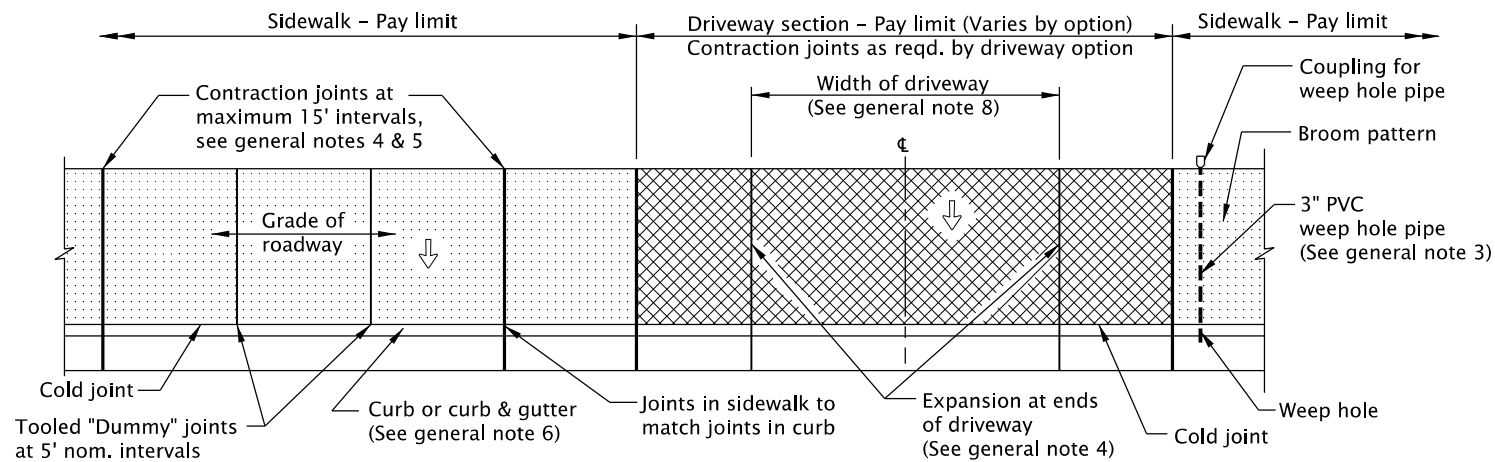
CURBS

2021

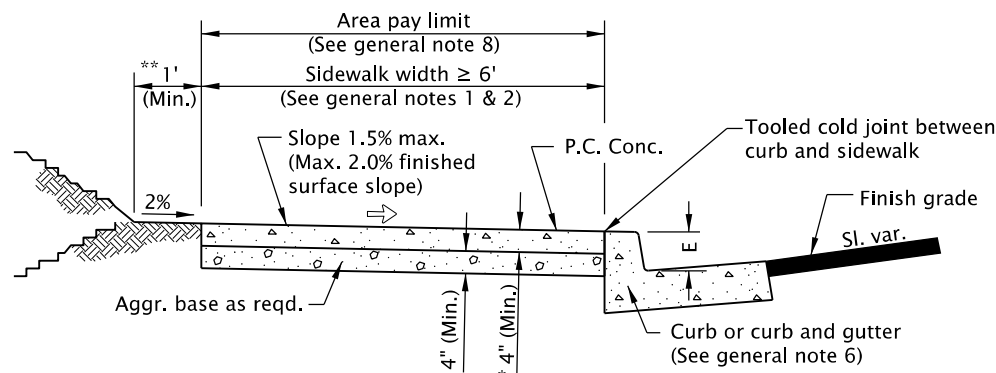
DATE	REVISION DESCRIPTION

rd720.dgn 20-JUL-2020

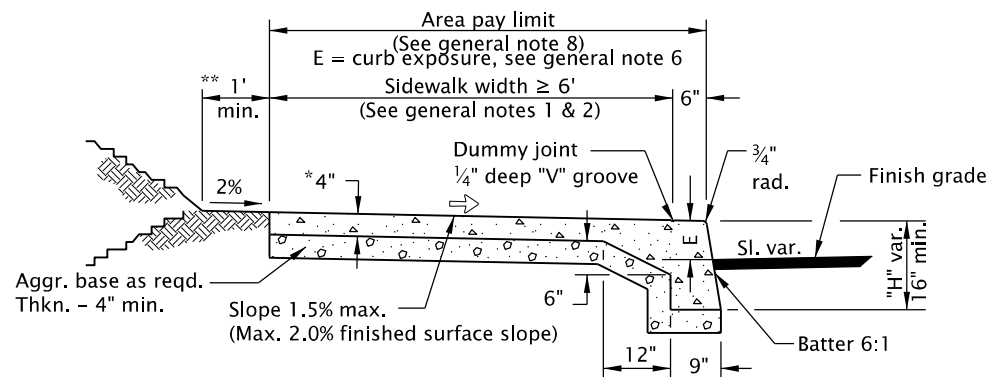
RD720



TYPICAL PLAN VIEW - CURB LINE SIDEWALK



TYPICAL CURB SIDEWALK CROSS SECTION



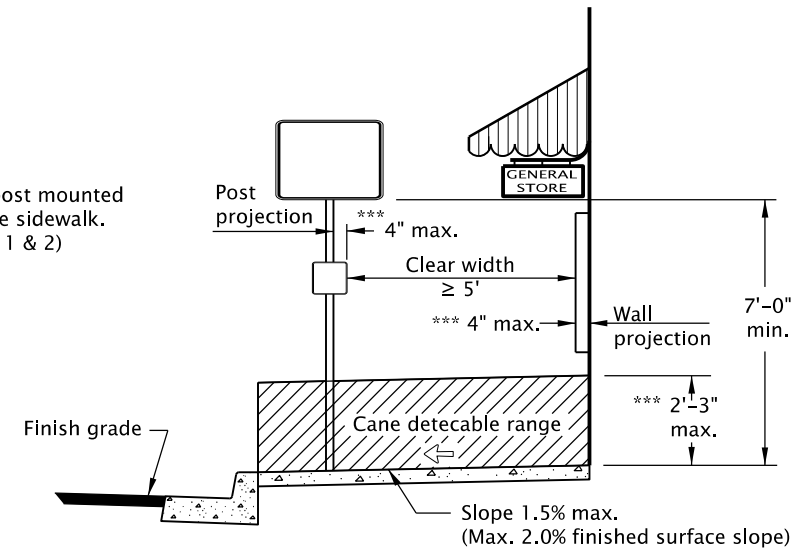
TYPICAL MONOLITHIC CURB & SIDEWALK CROSS SECTION

E = curb exposure, see general note 6

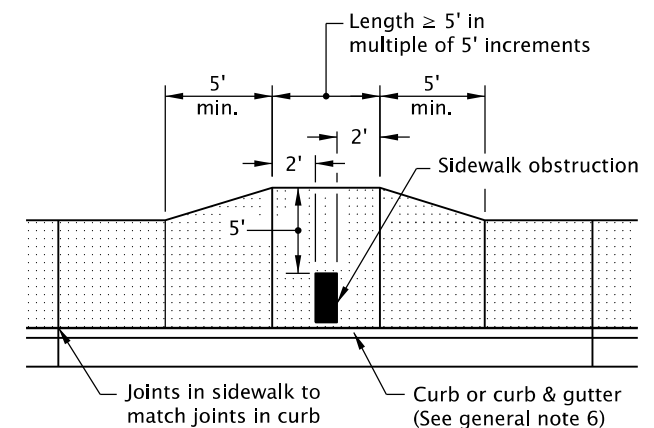
- * Min. 4" or as specified in plans. A thickness $\geq 6"$ if sidewalk is intended as portion of a driveway or mountable curb is used.
- ** Provide compacted backfill adjacent to curb and sidewalk

*** Objects with base below 2'-3" may protrude any distance as long as the 5' circulation path is maintained. When an object with a base higher than 2'-3" protrudes further than 4" provide a detection below protrusion to delineate edge.

Building, wall, or post mounted obstruction outside sidewalk. (See general notes 1 & 2)



CLEAR CIRCULATION PATH



REQUIRED SIDEWALK WIDENING AROUND OBSTRUCTIONS

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Include additional paved or unpaved 2' shy distance to vertical faces higher than 5' such as retaining walls, sound walls, fences and buildings.
2. Curb type and sidewalk width as shown on plans or as directed. On sidewalks 8' and wider, provide a longitudinal joint at the midpoint.
3. Install 3" pvc weep hole pipes in sidewalks where shown on plans, and allowed by jurisdiction. Place contraction joint over top of pipe. See Std. Dwg. RD700 for weep hole details.
4. Provide expansion joints around poles, posts, boxes, at ends of each driveway, and other fixtures which protrude through or against the structures. For sidewalk, monolithic curb & sidewalk, const. expansion joints at 45' maximum spacing. See Std. Dwg. RD722 for expansion joints details.
5. Const. contraction joints at 15' maximum spacing, and at ends of each curb ramp. See Std. Dwg. RD722 for contraction joints details.
6. For curb details, see Std. Dwgs. RD700 & RD701. ODOT standard E=7".

7. Sidewalk details are based on applicable ODOT standards.
8. Fully lowered sidewalk shown; see project plans for the driveway design specified. For driveway details not shown, see Std. Dwgs. RD725, RD730, RD735, RD740, RD745 & RD750.
9. See project plans for details not shown.

LEGEND

- Sidewalk pay limit.
- Driveway pay limit, varies by option, (See general note 8).
- Cross slope 1.5% max. (Max. 2.0% finished surface slope) (Normal sidewalk cross slope)

CALC. BOOK NO. N/A

SDR DATE 21-JUN-2019

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

OREGON STANDARD DRAWINGS

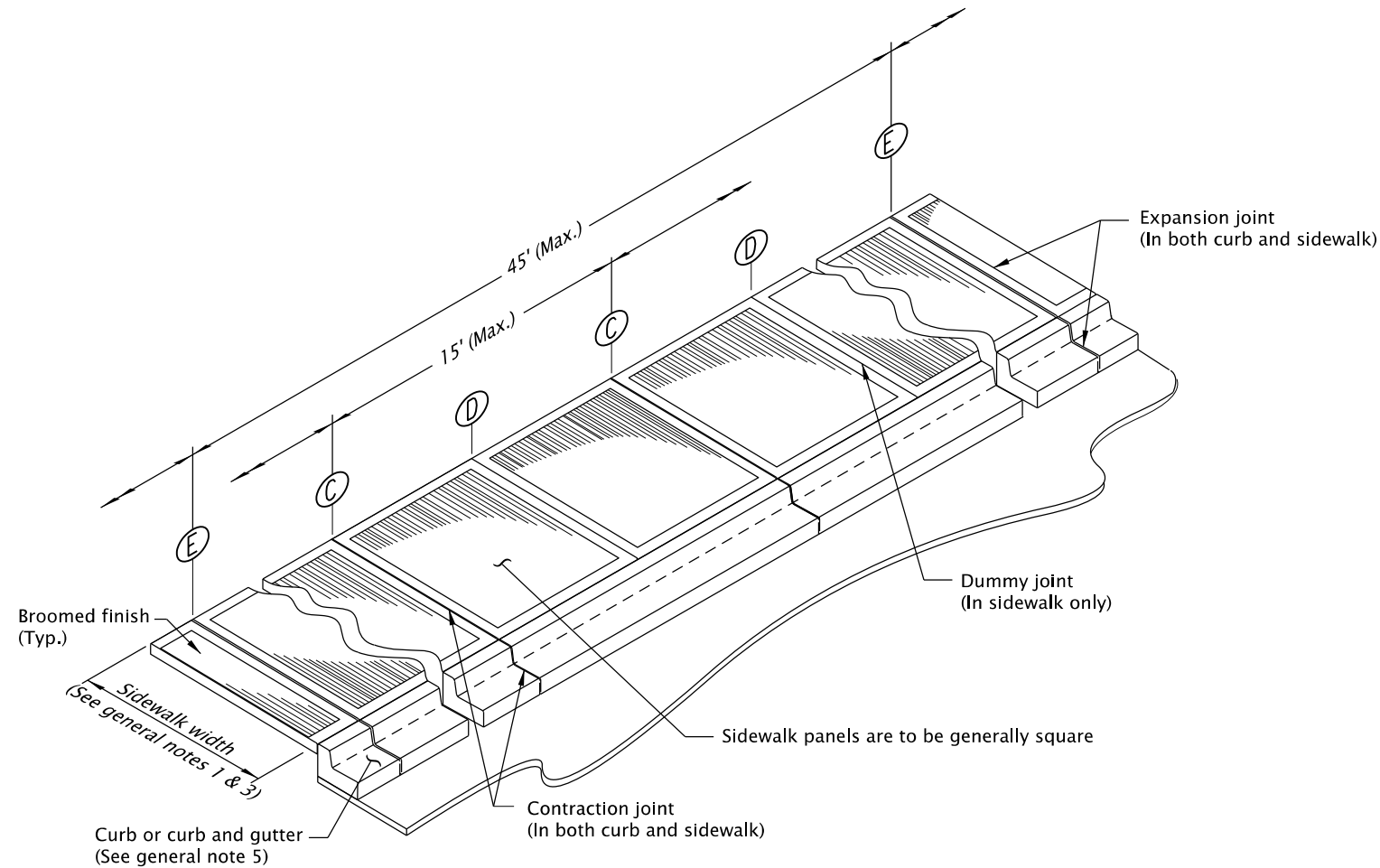
CURB LINE SIDEWALKS

2021

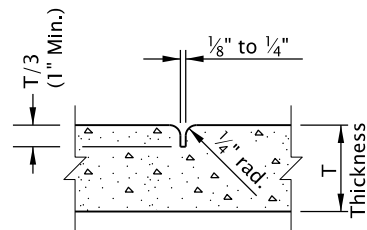
DATE	REVISION	DESCRIPTION

Effective Date: December 1, 2021 - May 31, 2022

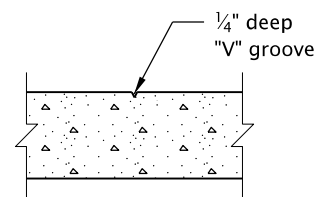
RD720



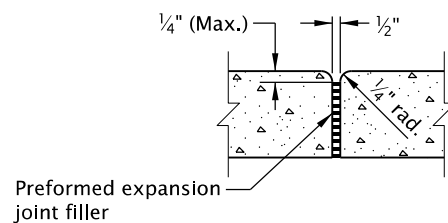
JOINT DETAIL
(Curb line sidewalk with curb and gutter shown)



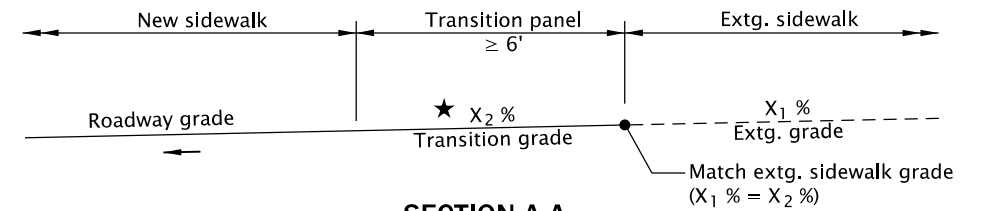
CONTRACTION JOINT
(See general note 6)



DUMMY JOINT

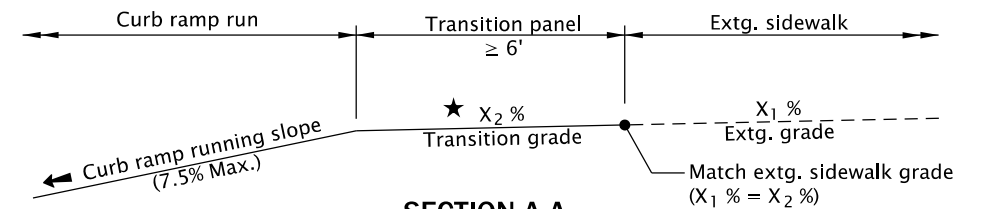


EXPANSION JOINT
(See general notes 2 & 5)

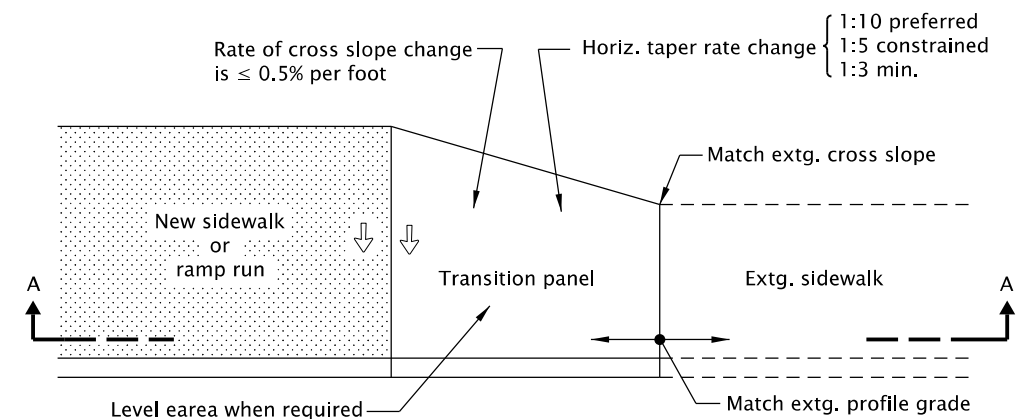


SECTION A-A
(SIDEWALK TRANSITION PANEL SHOWN)

★ Project the existing sidewalk profile grade through transition panel to new sidewalk or curb ramp run.



SECTION A-A
(CURB RAMP TRANSITION PANEL SHOWN)



PLAN

SIDEWALK AND CURB RAMP TRANSITION PANELS

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. See Std. Dwgs. RD720 & RD721 for concrete sidewalk details. See project plans for sidewalk width, placement and design specified.
2. Provide expansion joints around poles, boxes, at ends of each driveway and other fixtures which protrude through or against the structures. For sidewalk, monolithic curb and sidewalk, construction expansion joints at 45' max. spacing.
3. On sidewalks 8' and wider, provide a longitudinal joint at the midpoint of sidewalk panel.
4. See Std. Dwgs. RD700 & RD701 for concrete curb details. See project plans for the curb design specified.
5. For curb ramps, do not place expansion joints within the limits of curb ramps and between separate concrete pours.
6. Const. contraction joints at 15' max. spacing, and at each curb ramp, driveway, sidewalk and curb.

LEGEND:

- New sidewalk or ramp run
- Slope 1.5% max. (Max. 2.0% finished surface slope) (Normal sidewalk cross slope)
- Slope 7.5% max. (Max. 8.3% finished surface slope)
- Zero exposure

CALC. BOOK NO. N/A

SDR DATE 20-JUL-2020

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

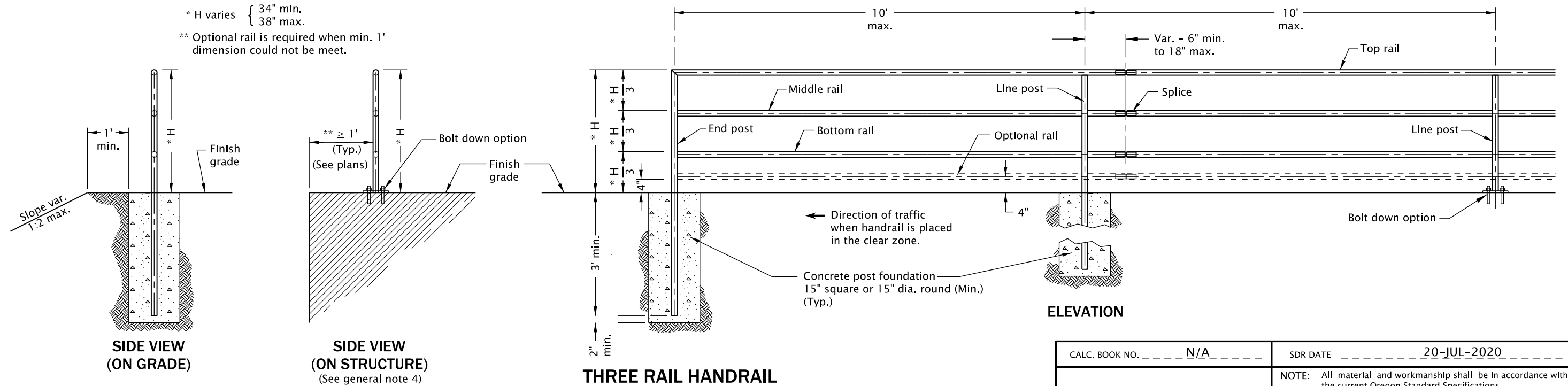
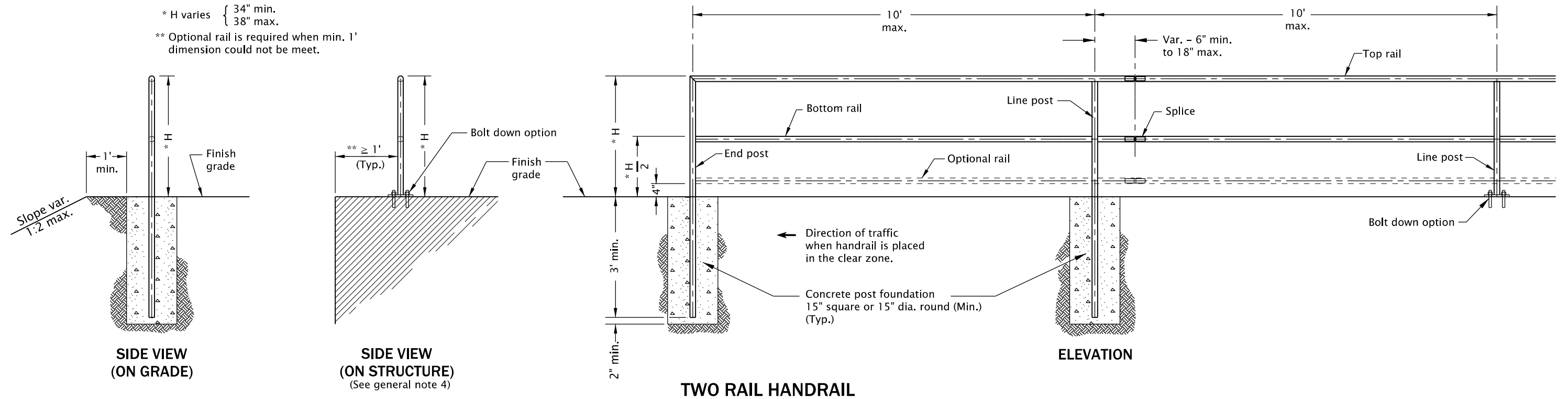
OREGON STANDARD DRAWINGS

SIDEWALK JOINTS AND TRANSITION PANELS

2021

DATE	REVISION	DESCRIPTION

rd770.dgn 20-JUL-2020



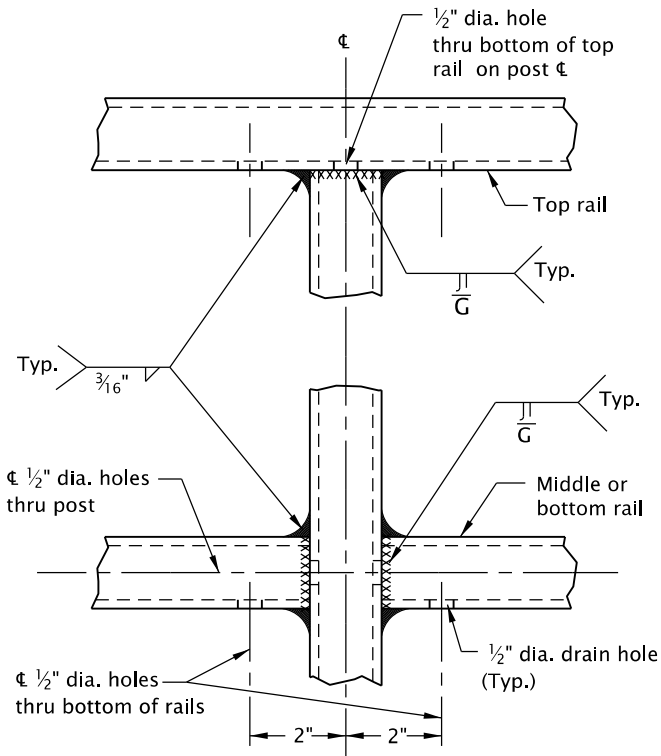
GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Handrail details are based on applicable ODOT Standards.
2. See Std. Dwg. RD771 for details not shown.
3. Hot-dip galvanize all metal parts after fabrication.
4. Structure varies, see project plans.
5. Handrail height (H) shall be constant within a ramp run or stairway.
6. All concrete shall be commercial grade concrete.
7. See Std. Dwg. RD120 for concrete stairway.
8. See project plans for details not shown.

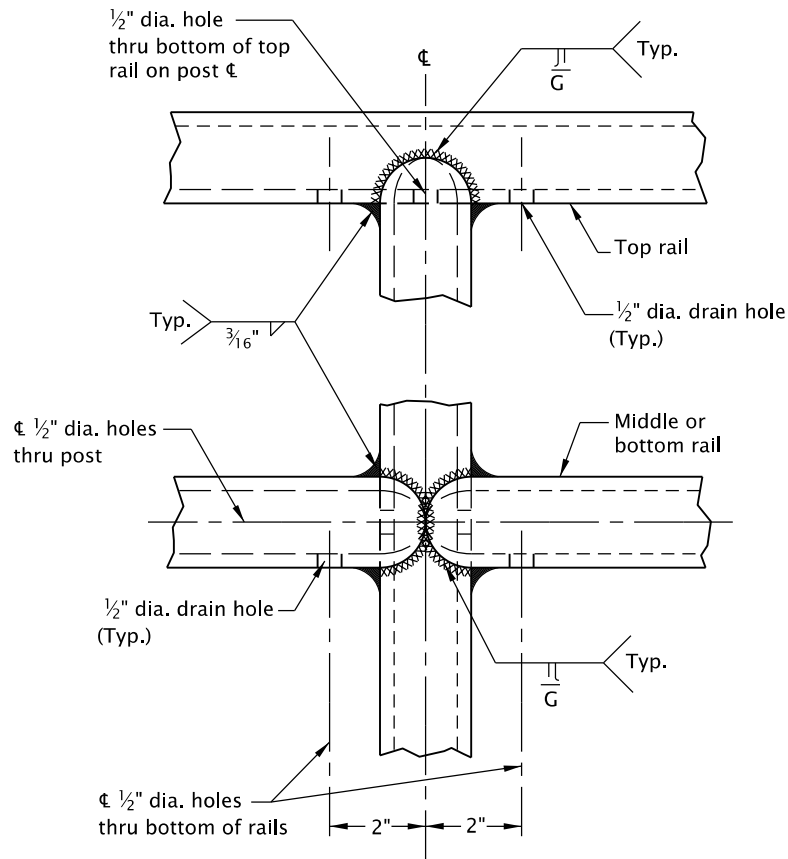
CALC. BOOK NO. N/A		SDR DATE 20-JUL-2020	
<i>The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.</i>		NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications	
		OREGON STANDARD DRAWINGS	
		METAL HANDRAIL	
		2021	
		DATE	REVISION DESCRIPTION

rd771.dgn 20-JUL-2020

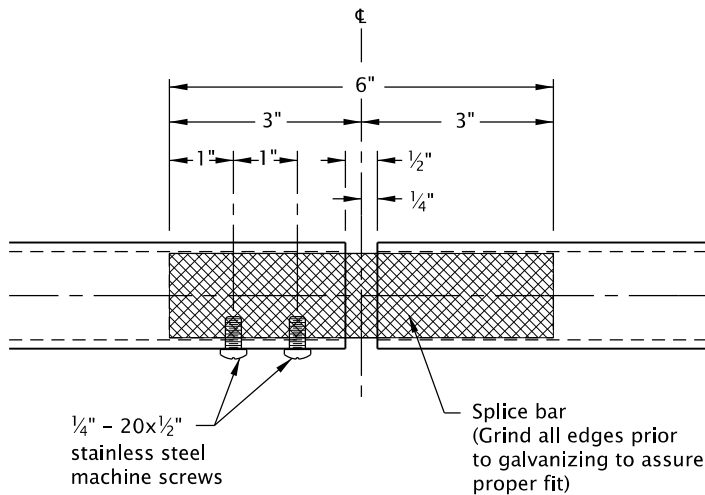
RD771



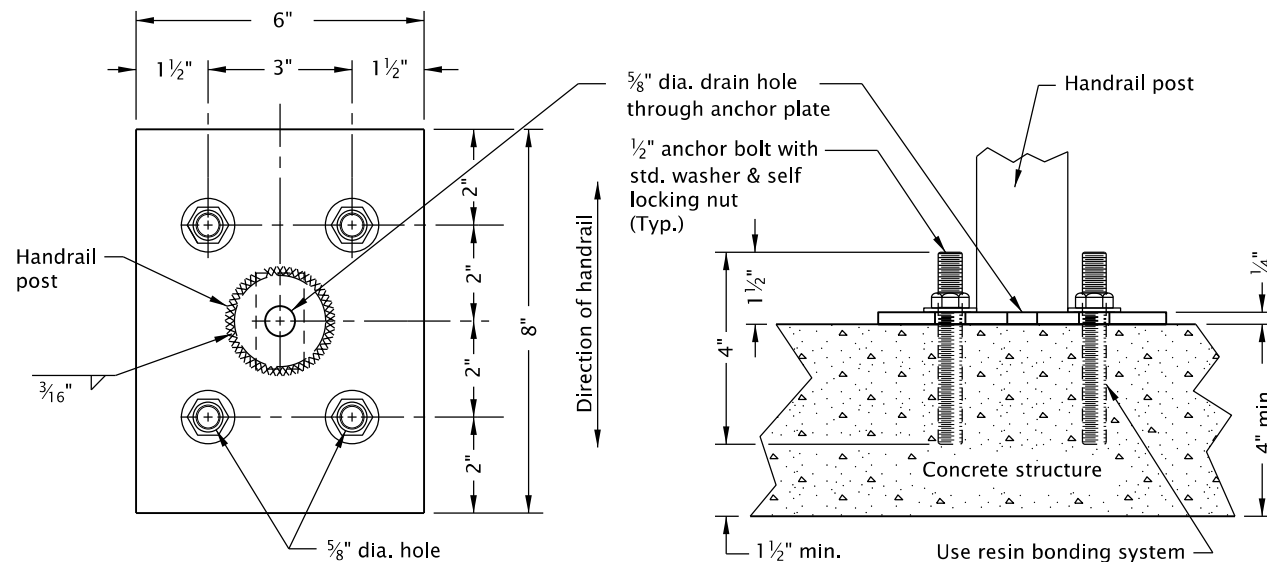
WELD DETAILS
FOR STEEL TUBING



WELD DETAILS
FOR STEEL PIPE



SPLICE DETAIL



PLAN VIEW

SIDE VIEW

ANCHOR PLATE FOR BOLT DOWN OPTION

MATERIAL TABLES

STEEL PIPE POST & RAIL MEMBERS				ROUND SPLICE BAR
NOM. DIA.	SCH.	O.D.	I.D.	O.D.
1 1/4"	40	1.660"	1.380"	1 1/4"
1 1/2"	10	1.900"	1.682"	1 1/2"
	40	1.900"	1.610"	

SQUARE STRUCTURAL STEEL TUBING POST & RAIL MEMBERS		SQUARE SPLICE BAR
Outside Dimensions	Wall Thickness	Outside Dimensions
1 1/2"x1 1/2"	1/8"	1"x1"
	3/16"	3/4"x3/4"

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

- Handrail details are based on applicable ODOT Standards.
- Select materials from tables. Posts and rails shall be identical material. Structural steel tubing shall conform to ASTM specification A500, grade B.
- Posts shall be vertical. The top rail shall be continuous over a minimum of two posts.
- On structure, the railing shall conform to the vertical alignment of the structure. Rails shall have a splice in the post space occurring at expansion joints.
- On grade, rails shall have splices at intervals not to exceed 100'.
- Hot-dip galvanize all metal parts after fabrication.
- See Std Dwg. RD770 for details not shown.
- See Std Dwg. RD120 for concrete stairway.
- See project plans for details not shown.

CALC. BOOK NO. N/A

SDR DATE 20-JUL-2020

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

OREGON STANDARD DRAWINGS

METAL HANDRAIL DETAILS

2021




DATE	REVISION	DESCRIPTION


The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.


CURB RAMP INDEX


STD. DWG. NO.	STD. DWG. TITLE
RD900	Curb Ramp Components And Legend
RD901	Curb Ramp Legend And Corner Identification
RD902	Detectable Warning Surface Details
RD904	Detectable Warning Surface Placement For Curb Ramps
RD905	Detectable Warning Surface Placement For Directional Curbs
RD906	Detectable Warning Surface Placement For Accessible Route Island
RD908	Detectable Warning Surface Placement
RD910, RD912	Perpendicular Curb Ramp
RD913	Perpendicular Curb Ramp With Closure
RD916	Perpendicular Curb Ramp Single Ramp
RD920	Parallel Curb Ramp
RD922	Parallel Curb Ramp Single Ramp
RD930, RD932 & RD936	Combination Curb Ramp
RD938	Combination Curb Ramp Single Ramp
RD940	Blended Transition Curb Ramp Single Ramp
RD950 & RD952	End Of Walk Curb Ramp
RD960	Unique Curb Ramp


LEGEND:


- 
-  Sidewalk or other traversable surface
- 


Detectable warning surface (DWS)
- 


Level area (Turning space/landing)
- 


Cross slope 1.5% max.
(Max. 2.0% finished surface slope)
(Normal sidewalk cross slope)
- 

Running slope 4.0% max.
(Max. 4.9% finished surface slope)
- 

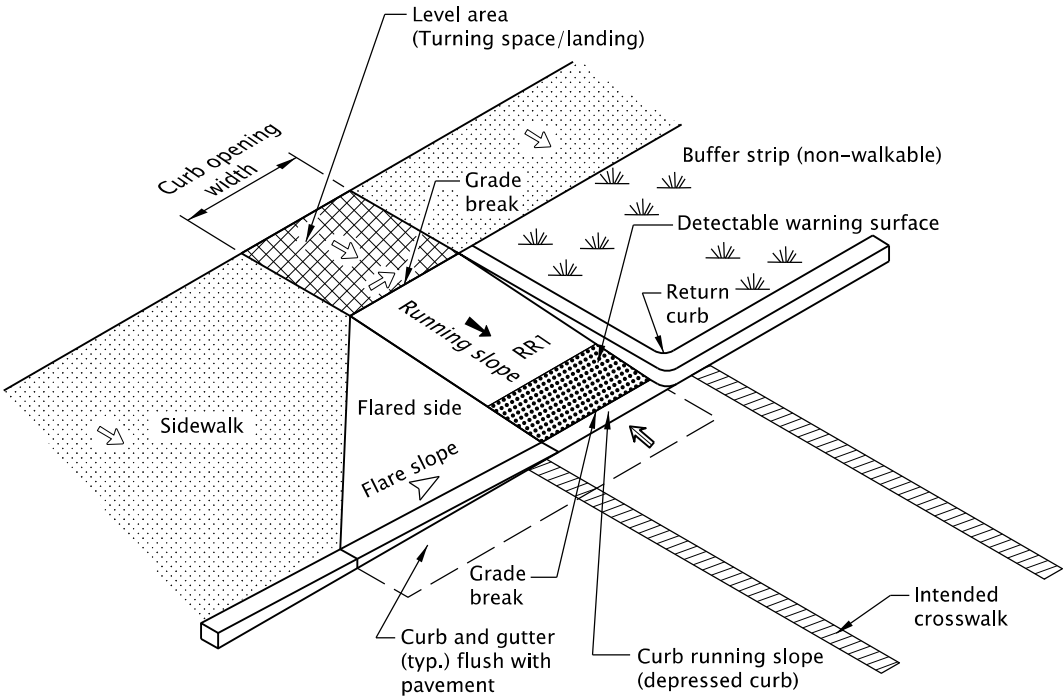
Running slope 7.5% max.
(Max. 8.3% finished surface slope)
- 

Counter slope 4.0% max, ascending or descending
(Max. 5.0% finished surface slope)
Slope as required for drainage
- 

Flare slope
(Max. 10.0% finished surface slope)
- 

4'x4' clear space
- 

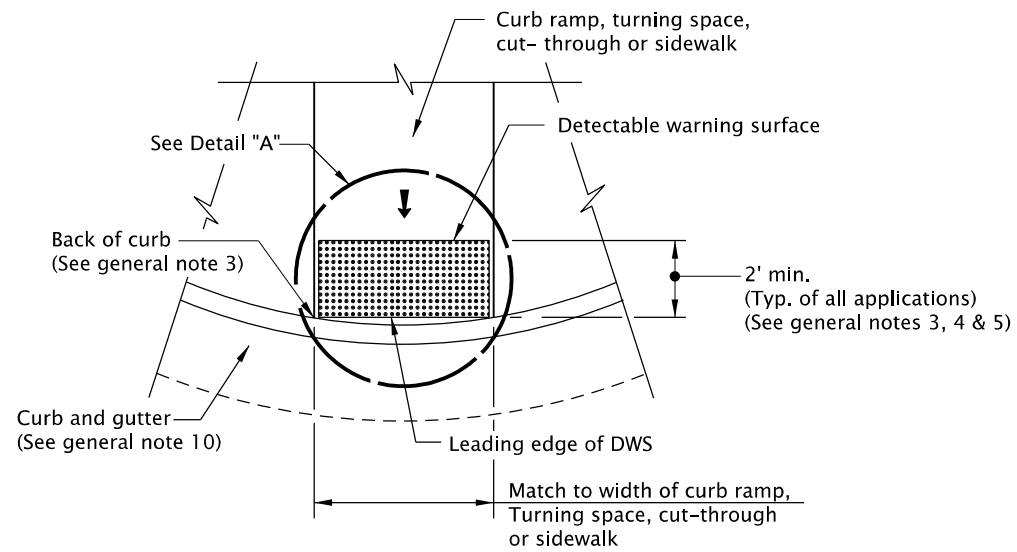
Ramp Run Position 1



TYPICAL CURB RAMP SYSTEM COMPONENTS
(PERPENDICULAR TYPE SHOWN)

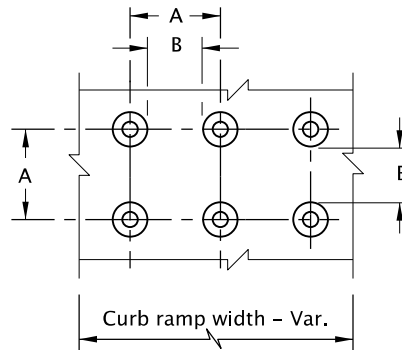
CALC. BOOK NO. N/A		SDR DATE 19-JUL-2021	
<i>The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.</i>		NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications	
		OREGON STANDARD DRAWINGS	
		CURB RAMP COMPONENTS AND LEGEND	
		2021	
		DATE	REVISION DESCRIPTION
		07-2020	DRAWING CREATED
		07-2021	REVISED DETAILS AND NOTES

rd902.dgn 19-JUL-2021

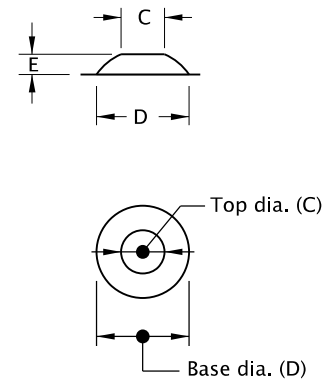


DETECTABLE WARNING SURFACE DETAIL

	A	B	C	D	E
MIN.	1.60"	0.65"	0.45"	0.90"	0.20"
MAX.	2.40"	--	0.91"	1.40"	0.20"

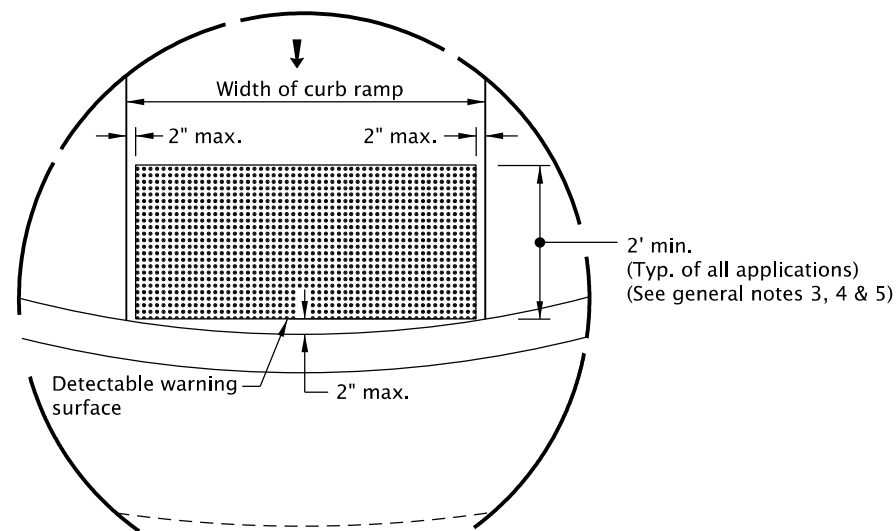


TRUNCATED DOME SPACING



TRUNCATED DOME

TRUNCATED DOME DETAILS






DETAIL "A"

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

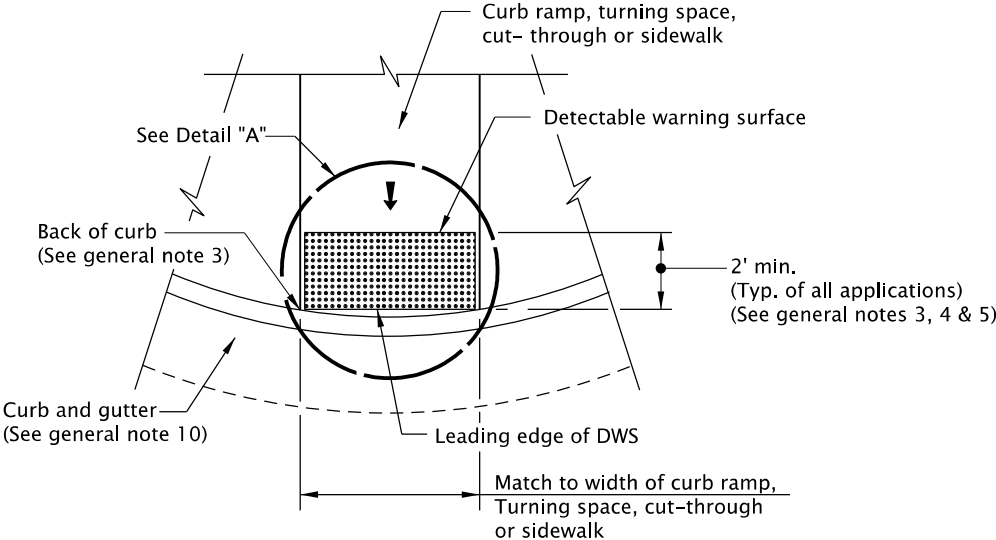
1. Detectable warning surface details & locations are based on applicable ODOT Standards.
2. See project plans for details not shown.
See Std. Dwgs. RD700 & RD701 for curbs.
3. The detectable warning surface shall extend the full width of the curb ramp opening, shared use path, blended transition, turning space, or other roadway entrance as applicable. A gap of up to 2 inches on each side of the detectable warning surface is permitted (measured at the leading edge of the detectable warning surface panel as shown in Detail "A").
4. Detectable warning surface shall be placed at the back of curb for a minimum depth of 2 ft. in the direction of pedestrian travel at curb ramps that are adjacent to traffic. Detectable warning surface may be radial or rectangular, but must comply with the truncated dome size and spacing standards. Detectable warning surface may be cut to meet necessary shape as shown in plans. Detectable warning surface across a grade break is prohibited. Place abutting panels within 1/4 inch of each other and install anchors, as specified by manufacturers, along cut edge.
5. Color to be safety yellow if no color specified in construction note. Alternative colors require a design exception on or along state highways.
6. Detectable warning surface shall be used in the following locations:
 - a) Curb ramps at street crossings.
 - b) Crossing islands (Accessible Route Islands).
 - c) Rail crossings.
7. Where public transportation stations (rail, bus, etc.) use platform boarding, detectable warning surface shall be placed along the full edge length of the station, when not protected by platform screens or guards, (see Std. Dwg. RD908).
8. Detectable warning surface shall not be used on the following locations:
 - a) End of sidewalk transitions that are not at a crosswalk, (see Std. Dwgs. RD950, RD952 and RD960).
 - b) Driveways, unless constructed with curb return or are signalized.
 - c) Parking lots, access aisles and passenger loading zones where curb ramp does not lead to vehicular way.
9. Where no curb is present, the detectable warning surface shall be placed at the edge of the roadway.
10. On or along state highways, curb and gutter is required at curb ramps.

LEGEND:

-  Detectable warning surface
-  Cross slope 1.5% max.
(Max. 2.0% finished surface slope)
(Normal sidewalk cross slope)
-  Running slope 7.5% max.
(Max. 8.3% finished surface slope)

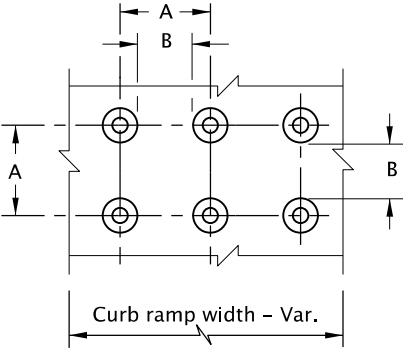
CALC. BOOK NO. _____	N/A	SDR DATE _____	19-JUL-2021
<i>The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.</i>	NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications		
	OREGON STANDARD DRAWINGS		
	DETECTABLE WARNING SURFACE DETAILS		
	2021		
	DATE	REVISION DESCRIPTION	
	07-2020	DRAWING CREATED	
07-2021	REVISED DETAIL AND NOTES		

rd902.dgn 19-JUL-2021

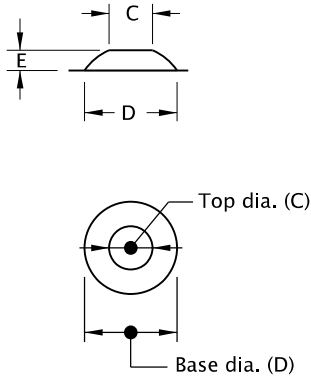


DETECTABLE WARNING SURFACE DETAIL

	A	B	C	D	E
MIN.	1.60"	0.65"	0.45"	0.90"	0.20"
MAX.	2.40"	--	0.91"	1.40"	0.20"

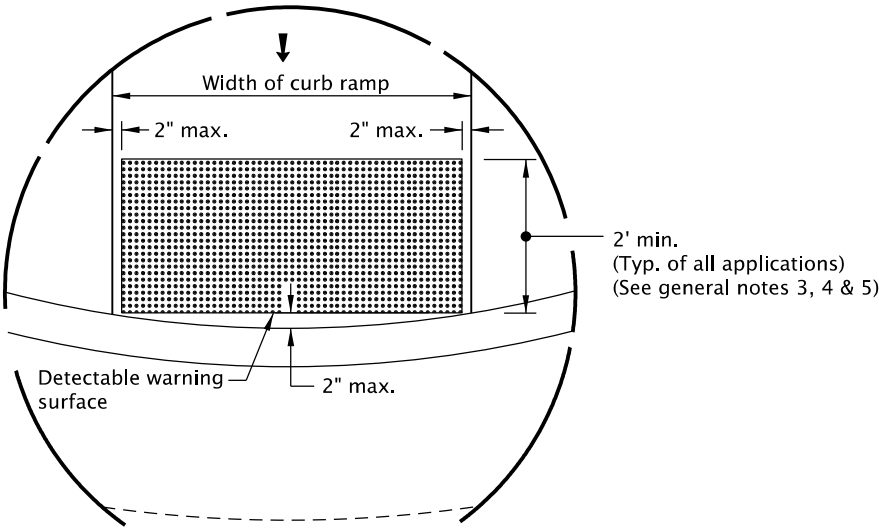


TRUNCATED DOME SPACING



TRUNCATED DOME

TRUNCATED DOME DETAILS






DETAIL "A"

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Detectable warning surface details & locations are based on applicable ODOT Standards.
2. See project plans for details not shown.
See Std. Dwgs. RD700 & RD701 for curbs.
3. The detectable warning surface shall extend the full width of the curb ramp opening, shared use path, blended transition, turning space, or other roadway entrance as applicable. A gap of up to 2 inches on each side of the detectable warning surface is permitted (measured at the leading edge of the detectable warning surface panel as shown in Detail "A").
4. Detectable warning surface shall be placed at the back of curb for a minimum depth of 2 ft. in the direction of pedestrian travel at curb ramps that are adjacent to traffic. Detectable warning surface may be radial or rectangular, but must comply with the truncated dome size and spacing standards. Detectable warning surface may be cut to meet necessary shape as shown in plans. Detectable warning surface across a grade break is prohibited. Place abutting panels within 1/4 inch of each other and install anchors, as specified by manufacturers, along cut edge.
5. Color to be safety yellow if no color specified in construction note. Alternative colors require a design exception on or along state highways.
6. Detectable warning surface shall be used in the following locations:
 - a) Curb ramps at street crossings.
 - b) Crossing islands (Accessible Route Islands).
 - c) Rail crossings.
7. Where public transportation stations (rail, bus, etc.) use platform boarding, detectable warning surface shall be placed along the full edge length of the station, when not protected by platform screens or guards, (see Std. Dwg. RD908).
8. Detectable warning surface shall not be used on the following locations:
 - a) End of sidewalk transitions that are not at a crosswalk, (see Std. Dwgs. RD950, RD952 and RD960).
 - b) Driveways, unless constructed with curb return or are signalized.
 - c) Parking lots, access aisles and passenger loading zones where curb ramp does not lead to vehicular way.
9. Where no curb is present, the detectable warning surface shall be placed at the edge of the roadway.
10. On or along state highways, curb and gutter is required at curb ramps.

LEGEND:

-  Detectable warning surface
-  Cross slope 1.5% max.
(Max. 2.0% finished surface slope)
(Normal sidewalk cross slope)
-  Running slope 7.5% max.
(Max. 8.3% finished surface slope)

CALC. BOOK NO. N/A

SDR DATE 19-JUL-2021

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

OREGON STANDARD DRAWINGS
DETECTABLE WARNING SURFACE DETAILS

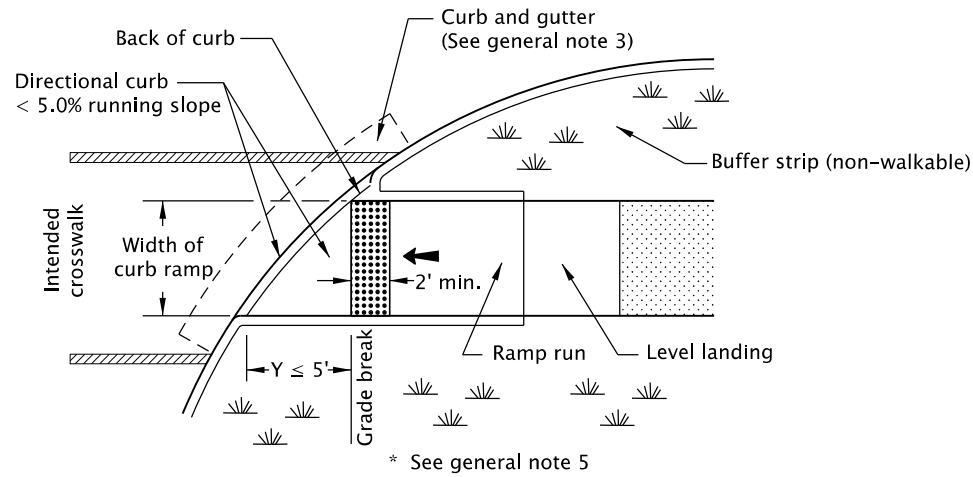
2021

DATE	REVISION	DESCRIPTION
07-2020	DRAWING CREATED	
07-2021	REVISED DETAIL AND NOTES	

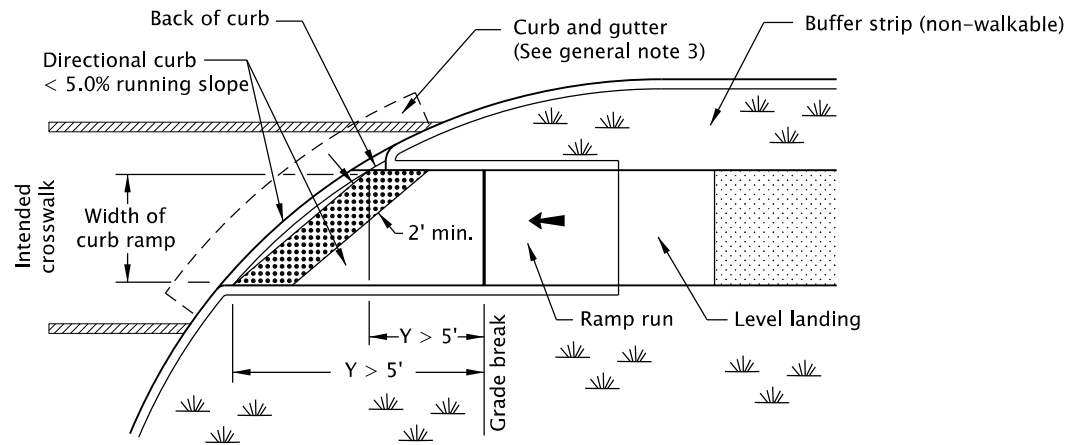
The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.

rd905.dgn 20-JUL-2020

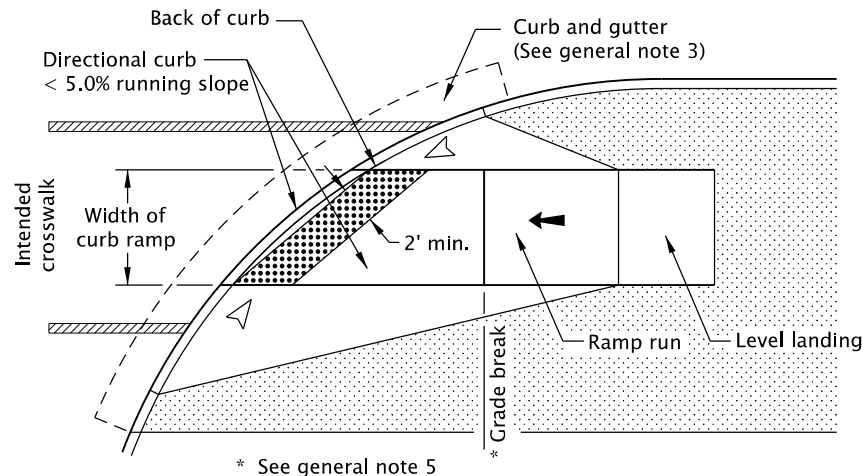
RD905



CURB RAMP CROSSING
GRADE BREAK ≤ 5 FT. FROM BACK OF CURB



CURB RAMP CROSSING
GRADE BREAK > 5 FT. FROM BACK OF CURB








CURB RAMP CROSSING
DIRECTIONAL CURB WITH FLARED CONSTRUCTION

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Detectable warning surface details & locations are based on applicable ODOT Standards.
2. See project plans for details not shown.
See Std. Dwgs. RD700 & RD701 for curbs.
See Std. Dwg. RD902 for detectable warning surface installation details.
3. On or along state highways, curb and gutter is required at curb ramps.
4. Detectable warning surface placement for perpendicular ramps vary as shown.
5. Detectable warning surface placement across the grade break is prohibited.

LEGEND:

-  Marked or intended crossing location
-  Sidewalk
-  Detectable warning surface
-  Running slope 7.5% max.
(Max. 8.3% finished surface slope)
-  Flare slope
(Max. 10.0% finished surface slope)

CALC. BOOK NO. N/A

SDR DATE 20-JULY-2020

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

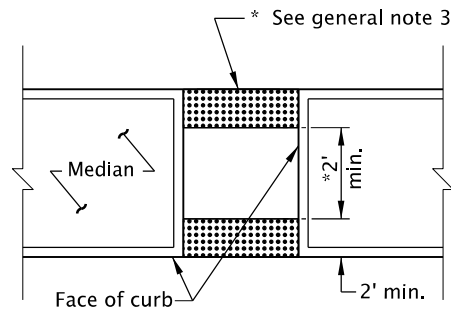
The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.

OREGON STANDARD DRAWINGS
DETECTABLE WARNING SURFACE
PLACEMENT FOR
DIRECTIONAL CURBS

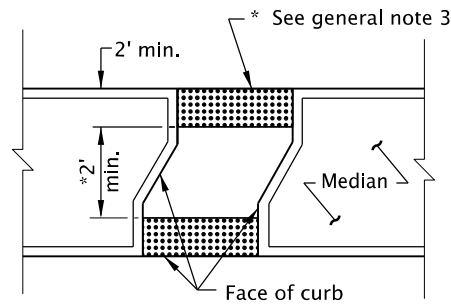
2021	
DATE	REVISION DESCRIPTION
07-2020	DRAWING CREATED

rd906.dgn 20-JUL-2020

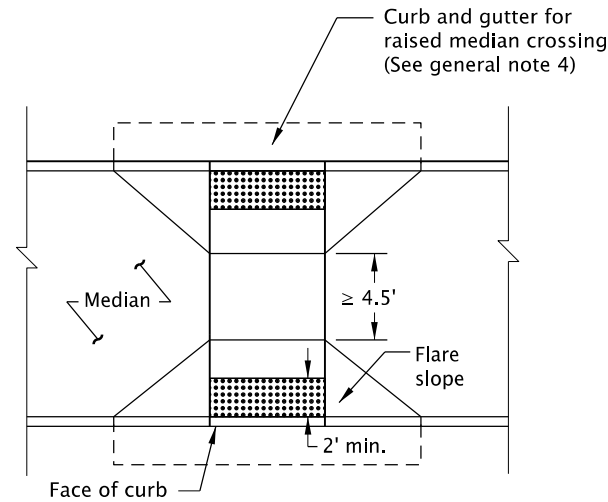
RD906



* Omit detectable warning surfaces if less than 2'



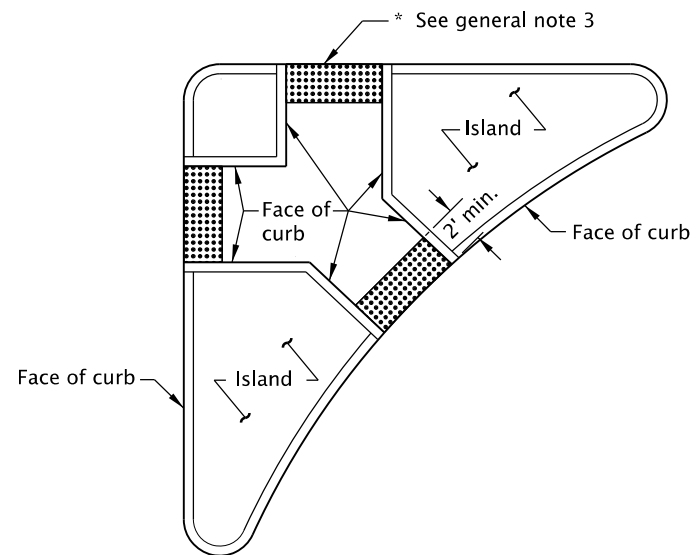
CUT-THROUGH
(Asph. conc. surface shown)



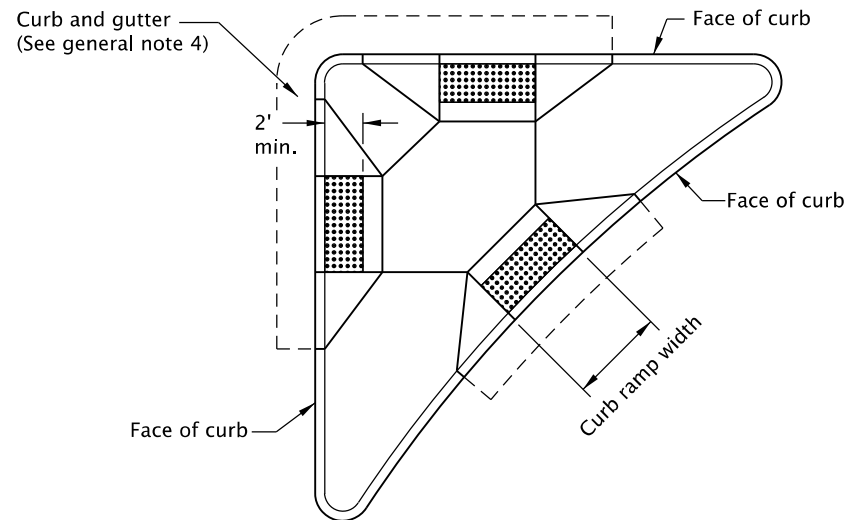
RAISED MEDIAN
(P.C. conc. surface shown)

MEDIAN CROSSING

* Omit detectable warning surfaces if less than 2'



CUT-THROUGH ISLAND
(Asph. conc. surface shown)




RAISED ISLAND
(P.C. conc. surface shown)

RIGHT TURN CHANNELIZATION ISLAND

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Detectable warning surface details & locations are based on applicable ODOT Standards.
2. See project plans for details not shown.
See Std. Dwgs. RD700 & RD701 for curbs.
See Std. Dwgs. RD710 & RD711 for accessible route island.
See Std. Dwg. RD902 for detectable warning surface installation details.
3. Detectable warning surfaces shall be separated by a 2.0 ft minimum length of walkway without detectable warnings. Where the island has no curb, the detectable warning surface shall be placed at the edge of roadway.
4. On or along state highways, curb and gutter is required at curb ramps.
5. Details intended for pedestrian route only. For protected bike lanes on multi-use paths, see project plans for specific details.

LEGEND:

 Detectable warning surface

CALC. BOOK NO. N/A

SDR DATE 20-JULY-2020

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

OREGON STANDARD DRAWINGS DETECTABLE WARNING SURFACE PLACEMENT FOR ACCESSIBLE ROUTE ISLAND

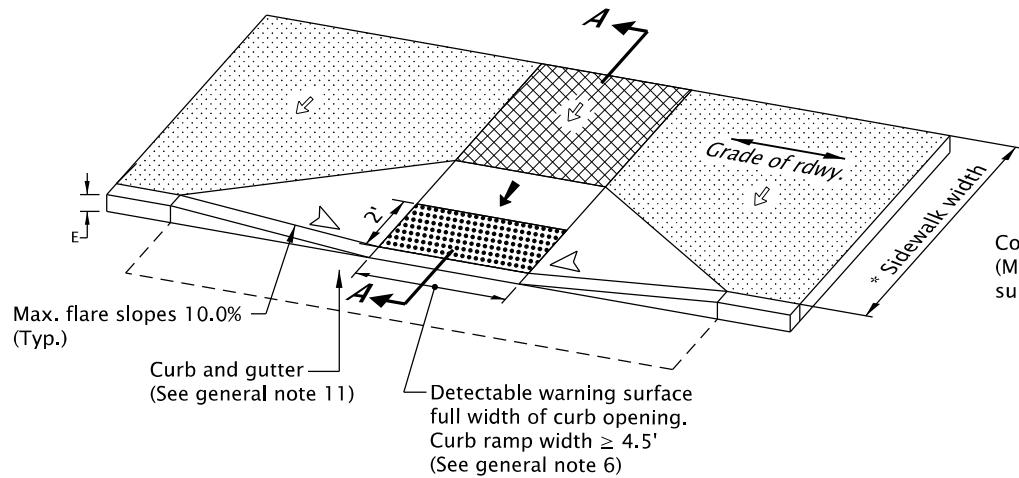
2021

DATE	REVISION	DESCRIPTION
07-2020	DRAWING CREATED	

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.

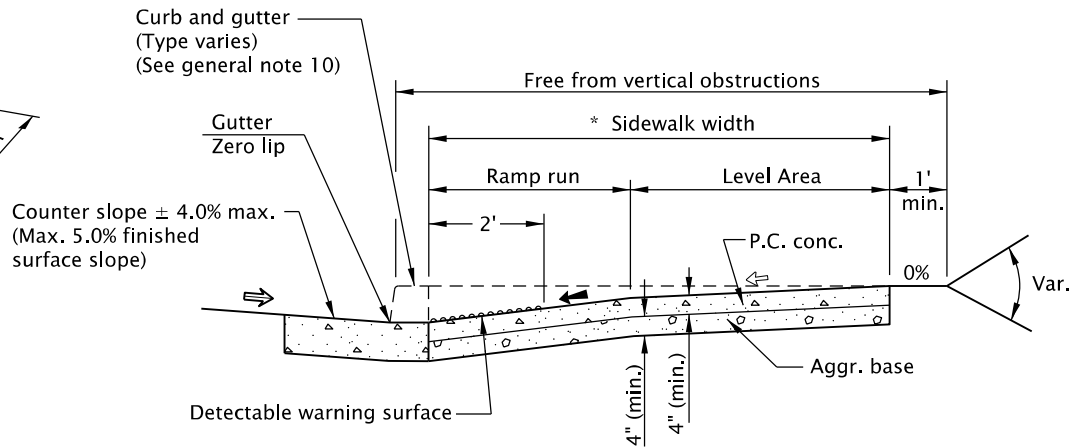
Effective Date: December 1, 2021 – May 31, 2022

RD906



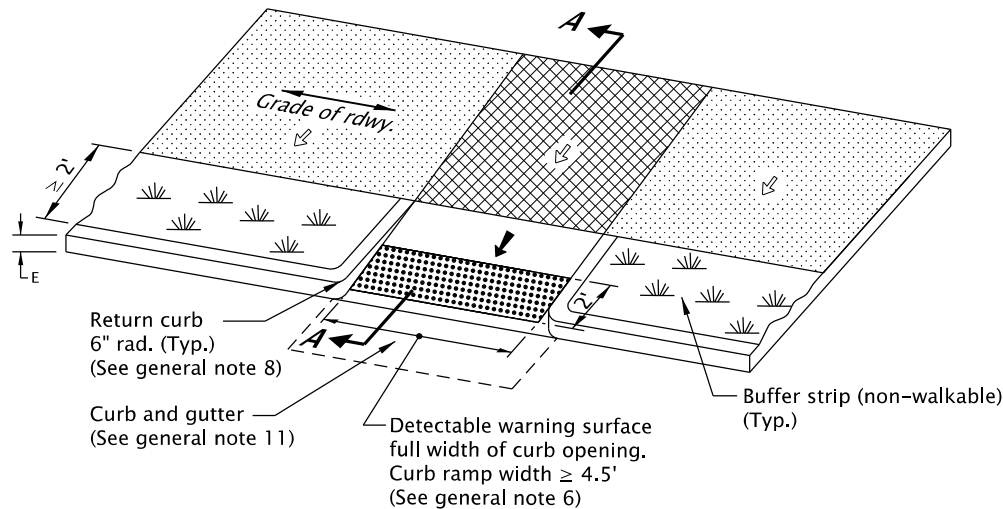
PERPENDICULAR CURB RAMP DETAIL

(Use "Parallel Curb Ramp Detail" or "Combination Curb Ramp Detail" when reqd. turning space cannot be obtained)

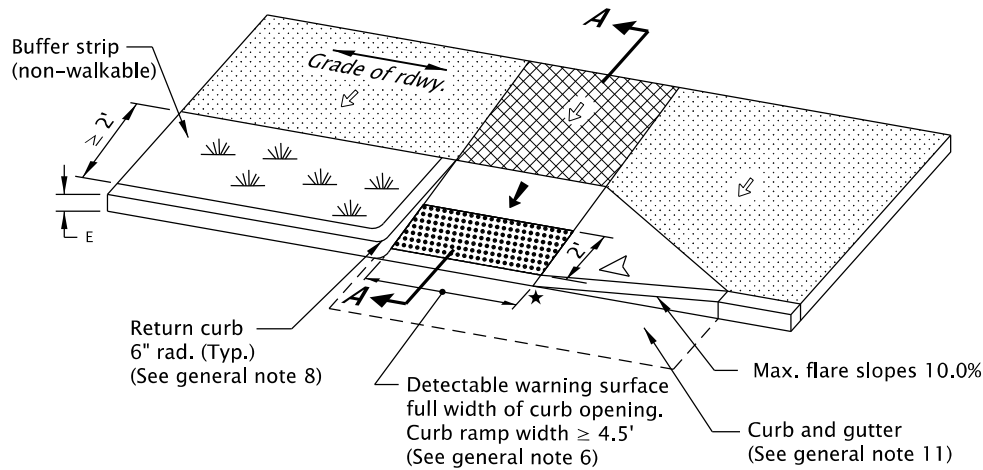


SECTION A-A

* NOTE: Minimum width of 14.25 feet sidewalk for E=7"



THROUGH BUFFER STRIP



WITH SINGLE FLARE

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Curb ramp details are based on applicable ODOT Standards.
2. See Std. Dwg. RD700 & RD701 for curbs.
See Std. Dwg. RD720 & RD721 for sidewalks.
See Std. Dwg. RD902 through RD908 for detectable warning surface installation details.
See Std. Dwg. RD912 through RD916 for curb ramp placement options.
3. Site conditions normally require a project specific design. See project plans for details not shown.
4. Tooled dummy joints are required at all curb ramp grade break lines, (see Std. Dwg. RD722).
5. Curb ramp slopes shown are relative to the true level horizon (zero bubble).
6. Place detectable warning surface at the back of curb for a minimum depth of 2' in the direction of pedestrian travel full width of curb ramp opening that is adjacent to traffic.
7. Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush.
8. Return curb may be provided in lieu of flared slope only if protected from traverse travel by landscaping, see Std. Dwg. RD721. Return curb shall not reduce width of approaching sidewalk.
9. Curb ramps for shared use paths intersecting a roadway shall be full width of path, excluding flares. When a curb ramp is used to provide bicycle access from a roadway to a sidewalk, the curb ramp opening will be $\geq 8'$ wide.
10. Place an inlet at upstream side of curb ramp or perform other approved design mitigation. Check the gutter flow depth at curb ramp locations to assure that the design flood does not overtop the back of sidewalk.
11. On or along state highways, curb and gutter is required at curb ramps.

LEGEND:

- Sidewalk
- Detectable warning surface
- Level area (Turning space/landing)
Unobstructed 4.5' x 4.5'
With obstruction 4.5' x 5.5' (Longer dimension in direction of pedestrian street crossing).
For the purposes of this application, a max. 2.0% finished surface slope (for drainage) measured perpendicular in two directions is considered level.
- Cross slope 1.5% max.
(Max. 2.0% finished surface slope)
(Normal sidewalk cross slope)
- Running slope 7.5% max.
(Max. 8.3% finished surface slope)
- Counter slope 4.0% max. ascending or descending,
(Max. 5.0% finished surface slope)
Slope as required for drainage
- Flare slope
(Max. 10% finished surface slope)

CALC. BOOK NO. N/A SDR DATE 20-JULY-2020

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

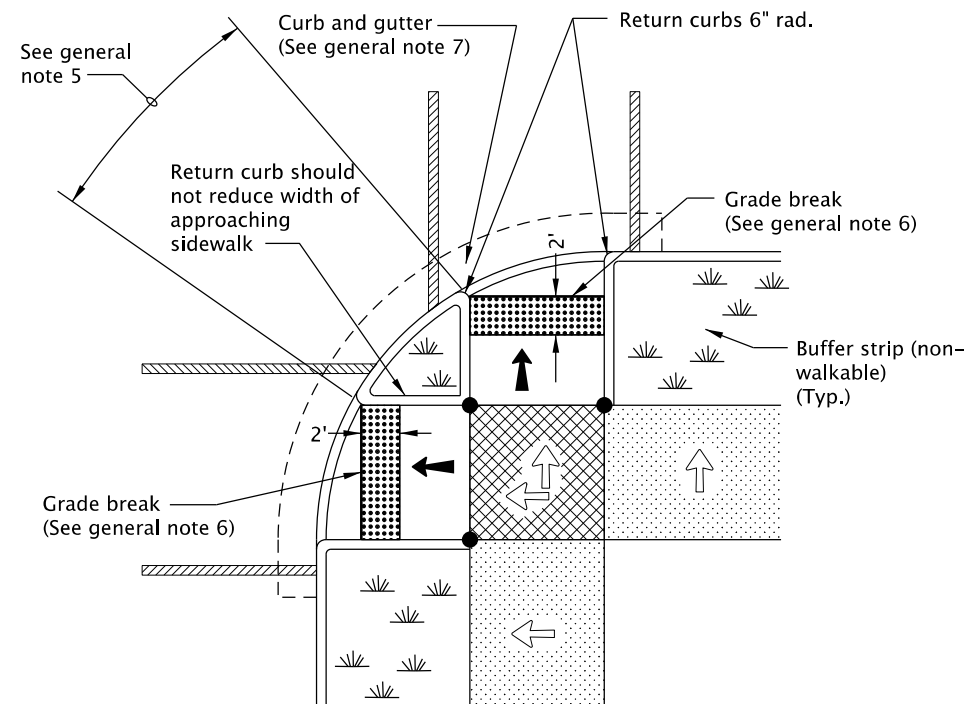
OREGON STANDARD DRAWINGS

PERPENDICULAR CURB RAMP

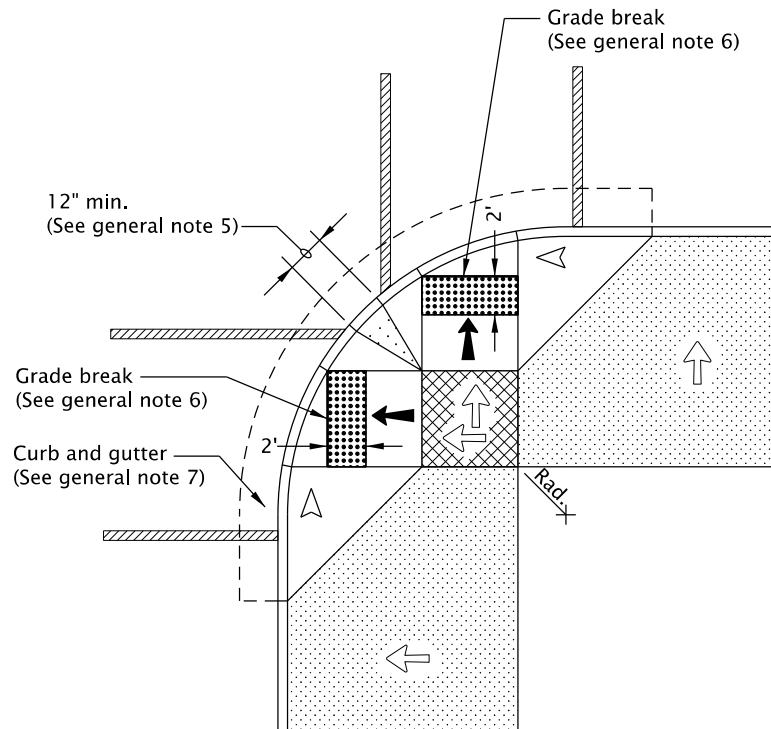
2021

DATE	REVISION	DESCRIPTION
07-2020	DRAWING CREATED	

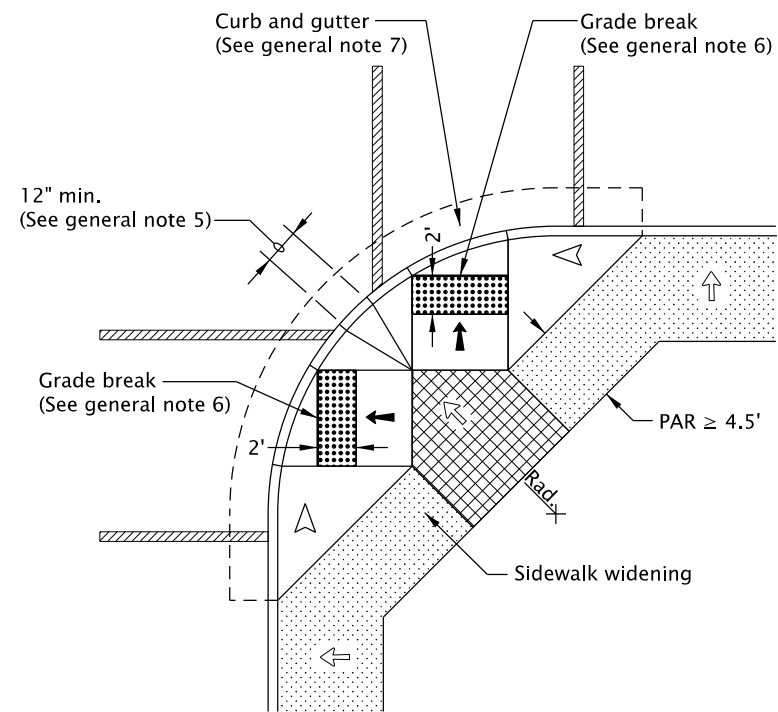
The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.



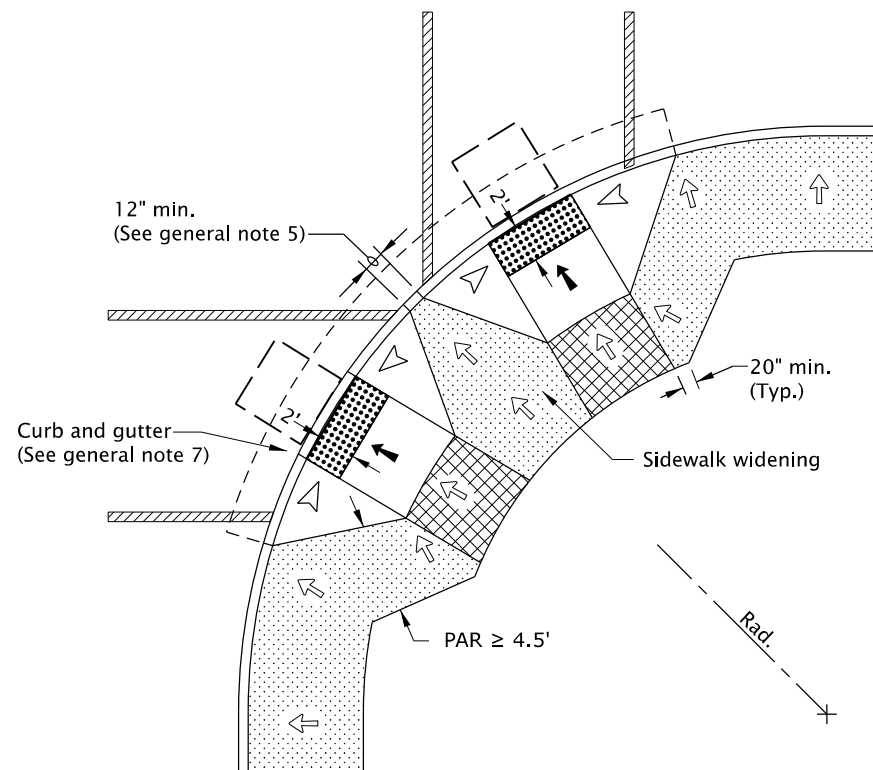
WITH LANDSCAPED BUFFER STRIP
OPTION "PR-1"



FOR WIDE SIDEWALKS
OPTION "PR-2"



FOR NARROW SIDEWALKS
OPTION "PR-3"



FOR NARROW SIDEWALKS
OPTION "PR-4"

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Curb ramp details are based on applicable ODOT Standards.
2. See project plans for details not shown.
See Std. Dwg. RD700 & RD701 for curbs.
See Std. Dwg. RD720 & RD721 for sidewalks.
See Std. Dwg. RD910 for perpendicular curb ramp details.
See Std. Dwg. RD902 through RD908 for detectable warning surface installation details.
3. Tooled dummy joints are required at all curb ramp grade break lines, (see Std. Dwg. RD722).
4. Curb ramp slopes shown are relative to the true level horizon (zero bubble).
5. When 2 curb ramps are immediately adjacent, the curb exposure (E) between the adjacent side flares may range between 3" and full design exposure.
6. Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush.
7. On or along state highways, curb and gutter is required at curb ramps.

LEGEND:

- Marked or intended crossing location
- Sidewalk
- Detectable warning surface
- Level area (Turning space/landing)
Unobstructed 4.5' x 4.5'
With obstruction 4.5' x 5.5' (Longer dimension in direction of pedestrian street crossing).
For the purposes of this application, a max. 2.0% finished surface slope (for drainage) measured perpendicular in two directions is considered level.
- Cross slope 1.5% max.
(Max. 2.0% finished surface slope)
(Normal sidewalk cross slope)
- Running slope 7.5% max.
(Max. 8.3% finished surface slope)
- Flare slope
(Max. 10% finished surface slope)
- Zero curb exposure
- 4' x 4' clear space
- PAR Pedestrian Access Route

CALC. BOOK NO. N/A

SDR DATE 19-JUL-2021

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

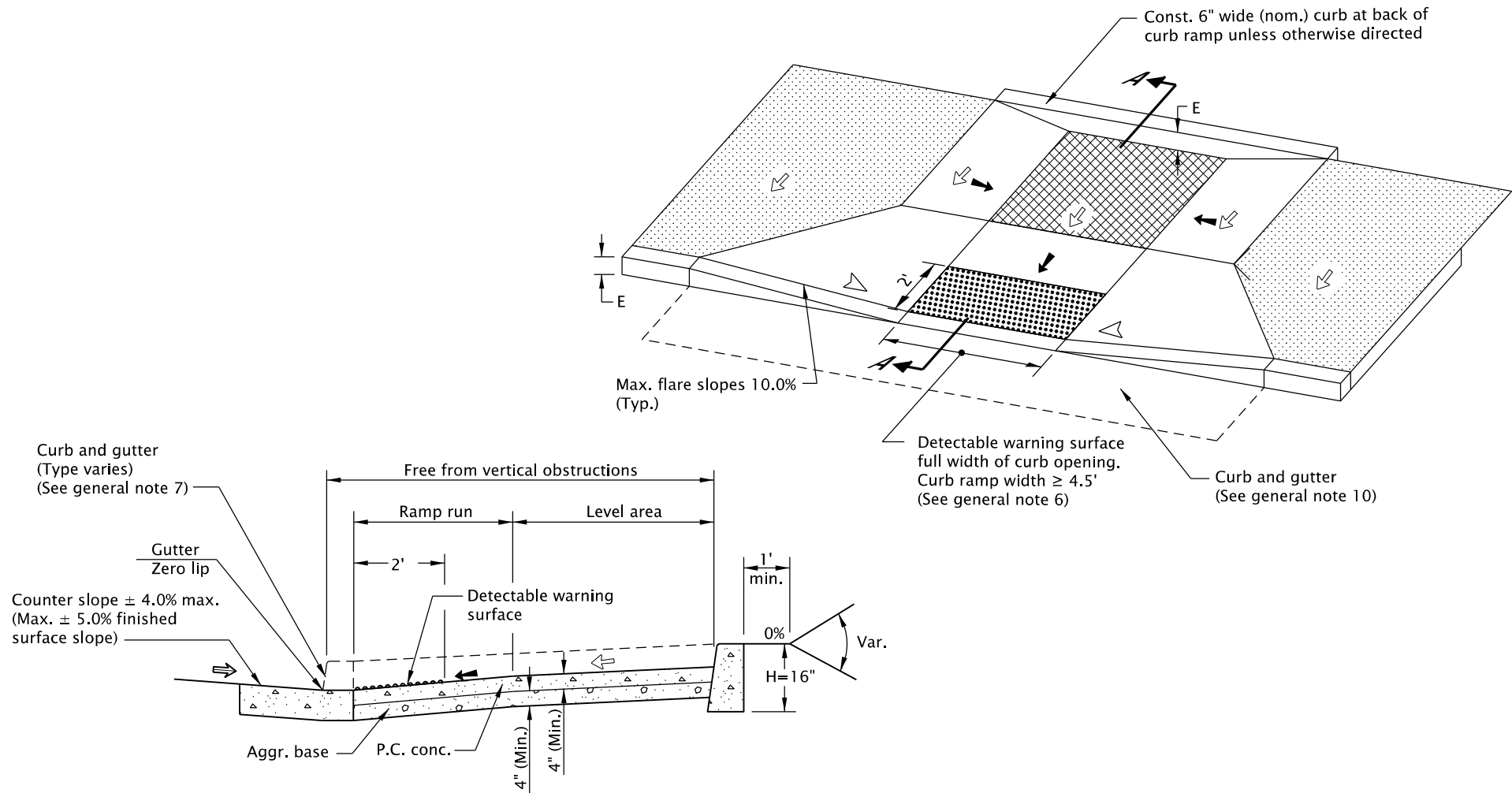
OREGON STANDARD DRAWINGS

PERPENDICULAR CURB RAMP

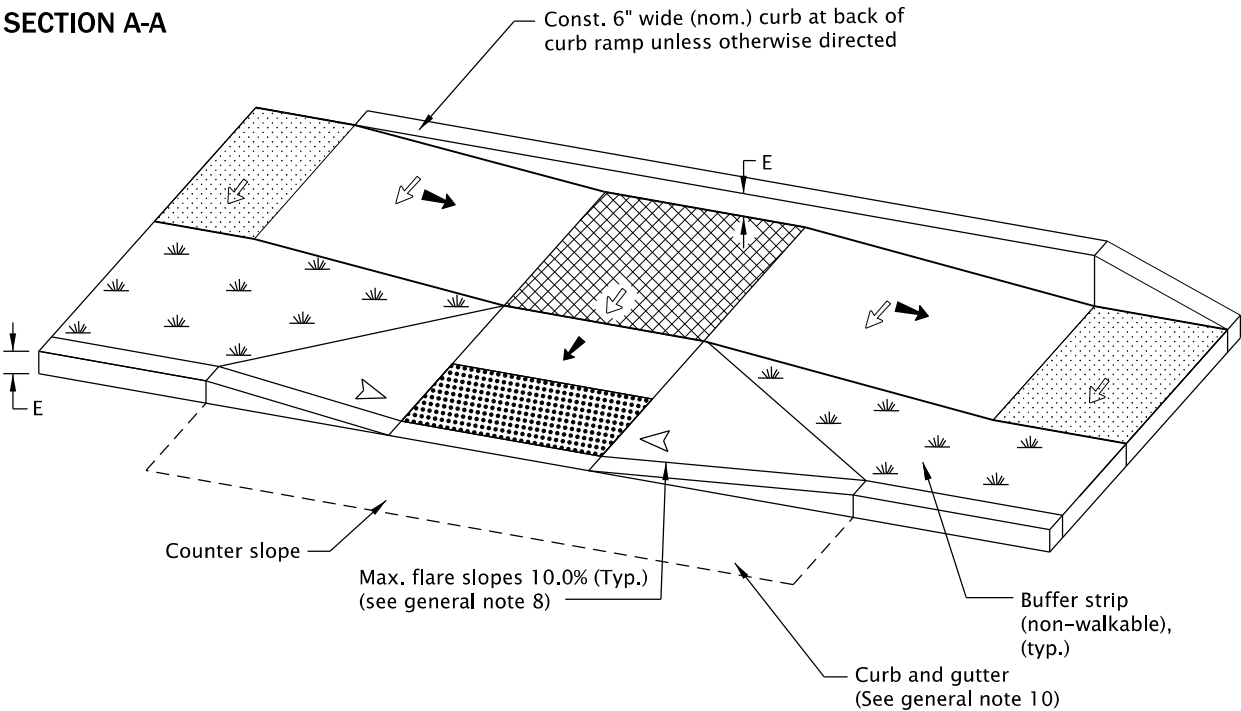
2021

DATE	REVISION	DESCRIPTION
07-2020	DRAWING CREATED	
07-2021	REVISED DETAIL AND NOTES	

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.



SECTION A-A



COMBINATION CURB RAMP DETAIL

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Curb ramp details are based on applicable ODOT Standards.
2. See project plans for details not shown.
See Std. Dwgs. RD700 & RD701 for curbs.
See Std. Dwgs. RD720 & RD721 for sidewalks.
See Std. Dwgs. RD902 through RD908 for detectable warning surface installation details.
3. Site conditions normally require a project specific design. See project plans for details not shown.
4. Tooled dummy joints are required at all curb ramp slope break lines, (see Std. Dwg. RD722).
5. Curb ramp slopes shown are relative to the true level horizon (zero bubble).
6. Place detectable warning surface at the back of curb for a minimum depth of 2' in the direction of pedestrian travel full width of curb ramp opening that is adjacent to traffic.
7. Place an inlet at upstream side of curb ramp or perform other approved design mitigation. Check the gutter flow depth at curb ramp locations to assure that the design flood does not overtop the back of sidewalk.
8. Return curb may be provided in lieu of flared slope only if protected from traverse travel by landscaping, see Std. Dwg. RD721. Return curb shall not reduce width of approaching sidewalk.
9. Curb ramps for shared use paths intersecting a roadway shall be full width of path, excluding flares. When a curb ramp is used to provide bicycle access from a roadway to a sidewalk, the curb ramp opening will be $\geq 8'$ wide.
10. On or along state highways, curb and gutter is required at curb ramps.
11. Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush.

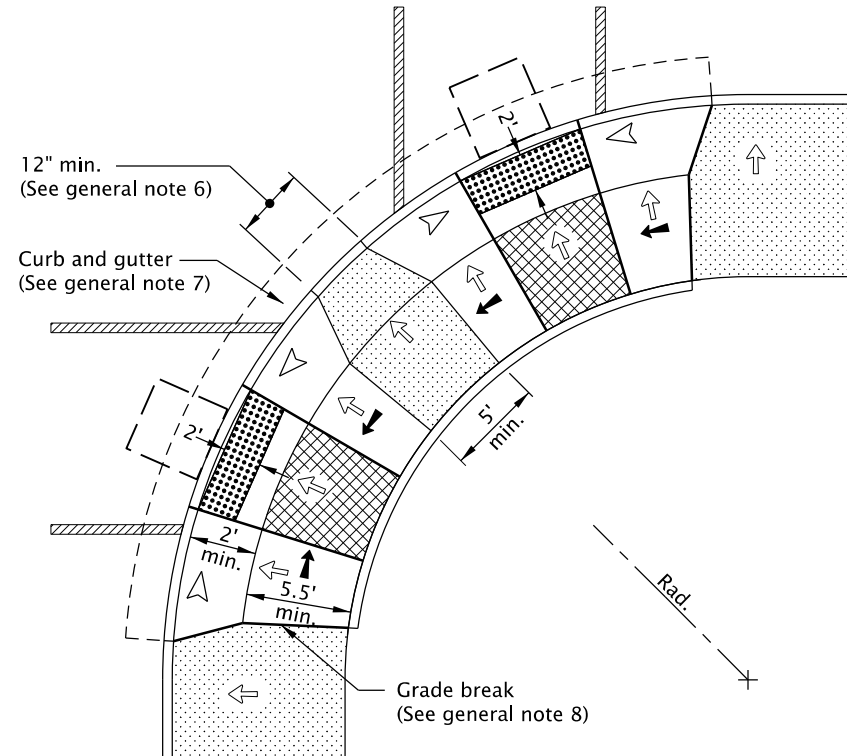
LEGEND:

- | | |
|--|--|
| | Marked or intended crossing location |
| | Sidewalk |
| | Detectable warning surface |
| | Level area (Turning space/landing)
Unobstructed 4.5' x 4.5'
With obstruction 4.5' x 5.5' (Longer dimension in direction of pedestrian street crossing).
For the purposes of this application, a max. 2.0% finished surface slope (for drainage) measured perpendicular in two directions is considered level. |
| | Cross slope 1.5% max.
(Max. 2.0% finished surface slope)
(Normal sidewalk cross slope) |
| | Running slope 7.5% max.
(Max. 8.3% finished surface slope) |
| | Counter slope 4.0% max. ascending or descending,
(Max. 5.0% finished surface slope)
Slope as required for drainage |
| | Flare slope
(Max. 10% finished surface slope) |

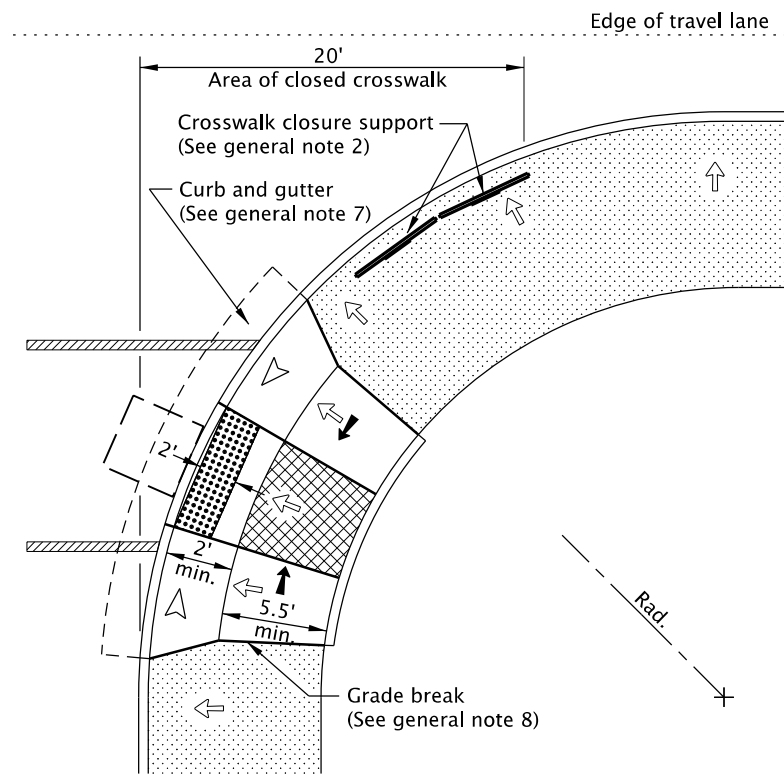
CALC. BOOK NO. N/A		SDR DATE 19-JUL-2021	
<i>The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.</i>		NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications	
		OREGON STANDARD DRAWINGS	
		COMBINATION CURB RAMP	
		2021	
		DATE	REVISION DESCRIPTION
		07-2020	DRAWING CREATED
		07-2021	REVISED DETAILS AND NOTES

rd932.dgn 20-JUL-2020

RD932



**COMBINATION CURB RAMPS
OPTION "CC-1"**



**COMBINATION CURB RAMP WITH CROSSWALK CLOSURE
OPTION "CC-2"**

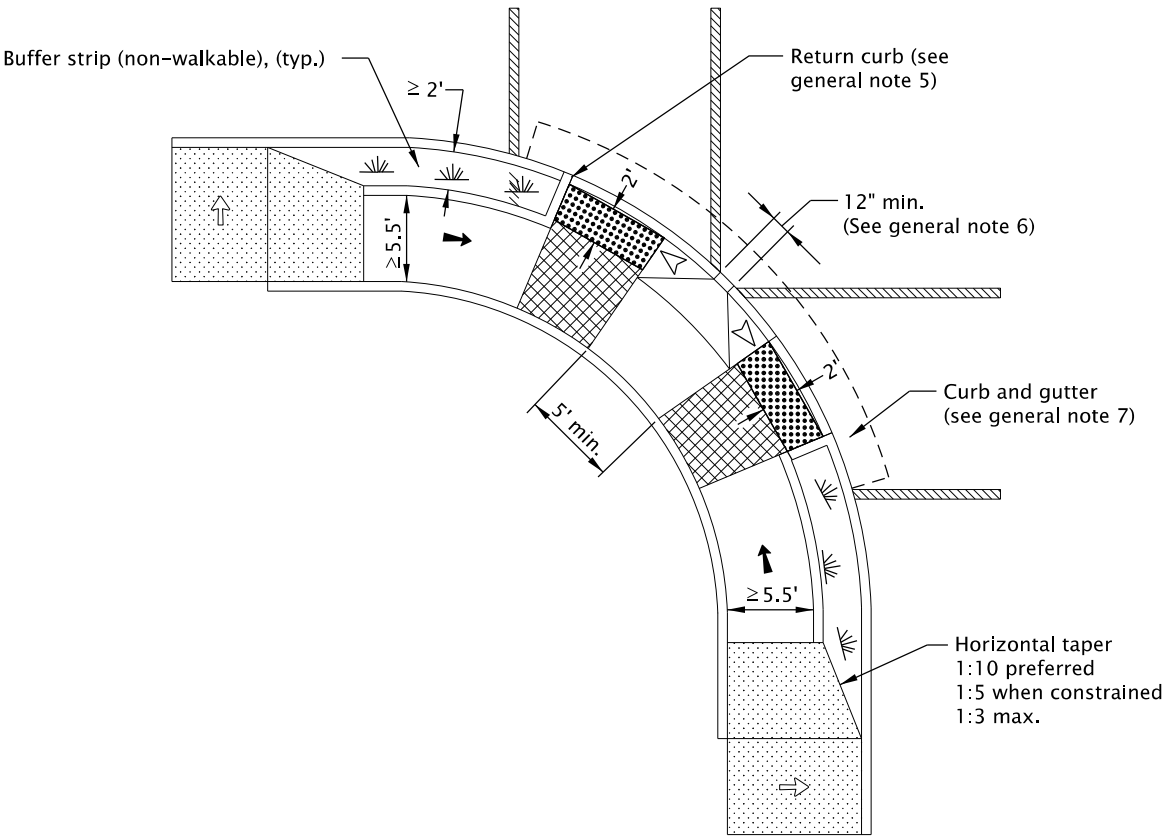
GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Curb ramp details are based on applicable ODOT Standards.
2. See project plans for details not shown.
See Std. Dwgs. RD700 & RD701 for curbs.
See Std. Dwgs. RD720 & RD721 for sidewalks.
See Std. Dwgs. RD902 through RD908 for detectable warning surface installation details.
See Std. Dwg. RD930 for combination curb ramp details.
See Std. Dwg. TM240 for crosswalk closure detail.
3. Site conditions normally require a project specific design. See project plans for details not shown.
4. Tooled dummy joints are required at all curb ramp slope break lines, (see Std. Dwg. RD722).
5. Curb ramp slopes shown are relative to the true level horizon (zero bubble).
6. When 2 curb ramps are immediately adjacent, the curb exposure (E) between the adjacent side flares may range between 3" and full design exposure.
7. On or along state highways, curb and gutter is required at curb ramps.
8. Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush.

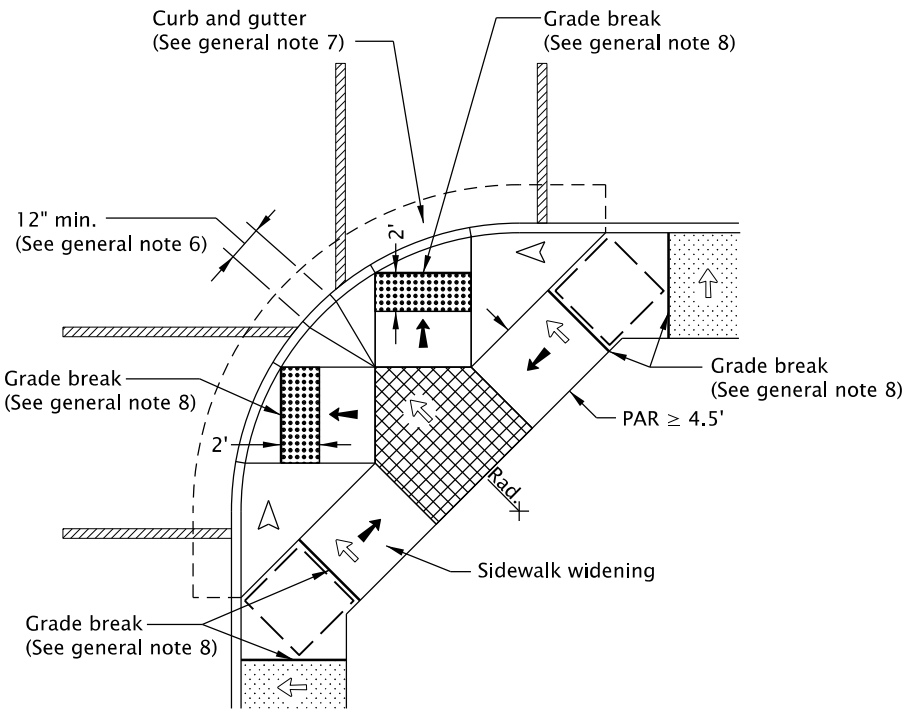
LEGEND:

- Marked or intended crossing location
- Sidewalk
- Detectable warning surface
- Level area (Turning space/landing)
Unobstructed 4.5' x 4.5'
With obstruction 4.5' x 5.5' (Longer dimension in direction of pedestrian street crossing).
For the purposes of this application, a max. 2.0% finished surface slope (for drainage) measured perpendicular in two directions is considered level.
- Cross slope 1.5% max.
(Max. 2.0% finished surface slope)
(Normal sidewalk cross slope)
- Running slope 7.5% max.
(Max. 8.3% finished surface slope)
- Flare slope
(Max. 10% finished surface slope)
- 4'x4' clear space

CALC. BOOK NO. <u> N/A </u>		SDR DATE <u> 20-JULY-2020 </u>	
<i>The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.</i>		NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications	
		OREGON STANDARD DRAWINGS	
		COMBINATION CURB RAMP	
		2021	
		DATE	REVISION DESCRIPTION
		07-2020	DRAWING CREATED



PARALLEL COMBINATION WITH LANDSCAPE BUFFER STRIP
OPTION "CC-3"



FOR NARROW SIDEWALKS
OPTION "CC-4"

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Curb ramp details are based on applicable ODOT Standards.
2. See project plans for details not shown.
See Std. Dwgs. RD700 & RD701 for curbs.
See Std. Dwgs. RD720 & RD721 for sidewalks.
See Std. Dwgs. RD902 through RD908 for detectable warning surface installation details.
See Std. Dwg. RD930 for combination curb ramp details.
3. Tooled dummy joints are required at all curb ramp grade break lines, (see Std. Dwg. RD722).
4. Curb ramp slopes shown are relative to the true level horizon (zero bubble).
5. Return curb may be provided in lieu of flared slope only if protected from traverse travel by landscaping, see Std. Dwg. RD721. Return curb shall not reduce width of approaching sidewalk.
6. When 2 curb ramps are immediately adjacent, the curb exposure (E) between the adjacent side flares may range between 3" and full design exposure.
7. On or along state highways, curb and gutter is required at curb ramps.
8. Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush.

LEGEND:

- Marked or intended crossing location
- Sidewalk
- Detectable warning surface
- Level area (Turning space/landing)
Unobstructed 4.5' x 4.5'
With obstruction 4.5' x 5.5' (Longer dimension in direction of pedestrian street crossing).
For the purposes of this application, a max. 2.0% finished surface slope (for drainage) measured perpendicular in two directions is considered level.
- Cross slope 1.5% max.
(Max. 2.0% finished surface slope)
(Normal sidewalk cross slope)
- Running slope 7.5% max.
(Max. 8.3% finished surface slope)
- Flare slope
(Max. 10% finished surface slope)
- Curb height
- 4' x 4' clear space
- Pedestrian Access Route

CALC. BOOK NO. N/A SDR DATE 19-JUL-2021

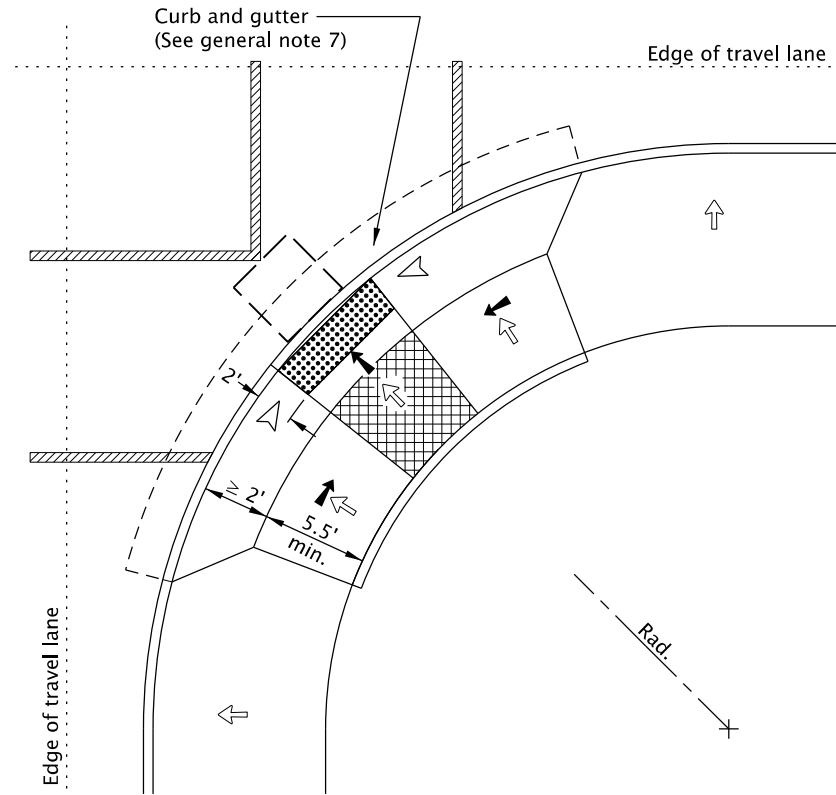
NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

OREGON STANDARD DRAWINGS
COMBINATION CURB RAMP

2021

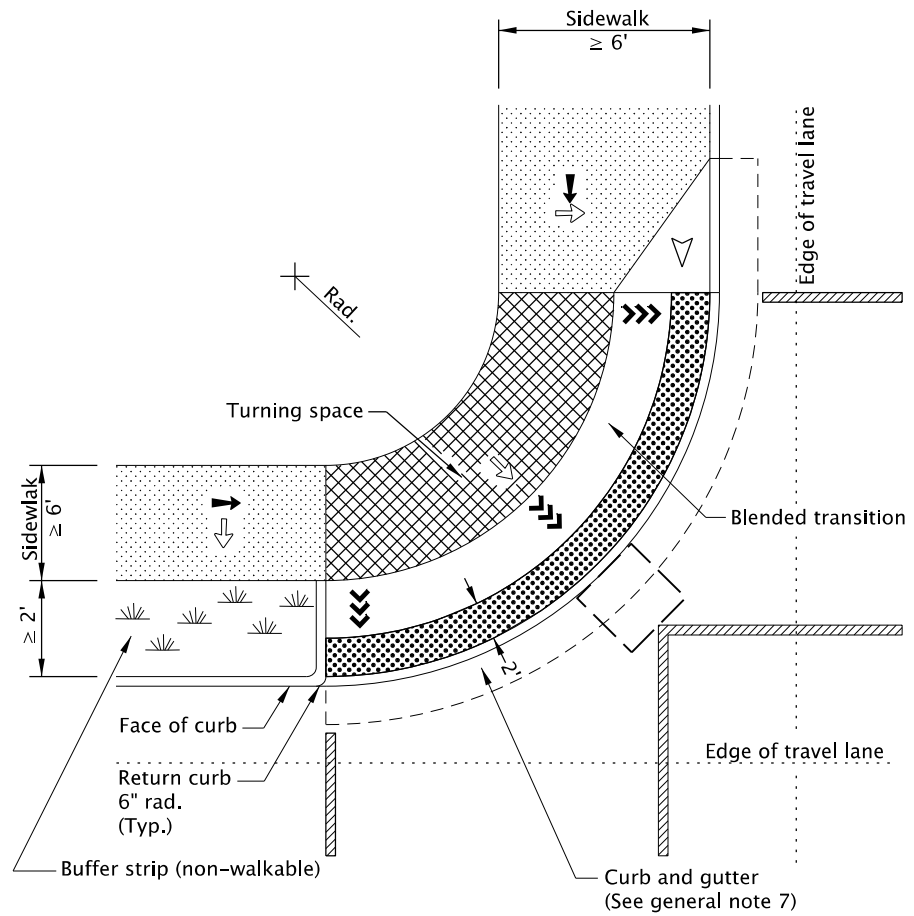
DATE	REVISION	DESCRIPTION
07-2021	DRAWING CREATED	

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.



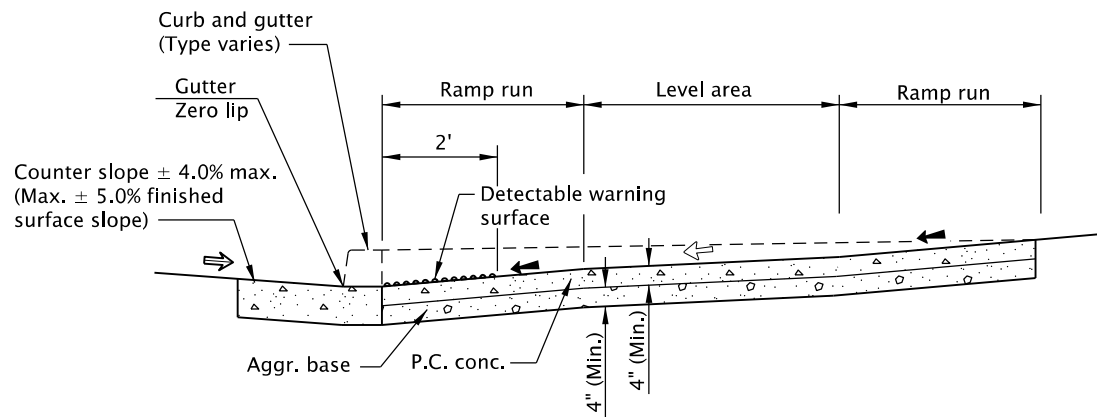
DIAGONAL COMBINATION CURB RAMP OPTION "CC-10"

(Use only when site constraints prohibit installing two curb ramps)

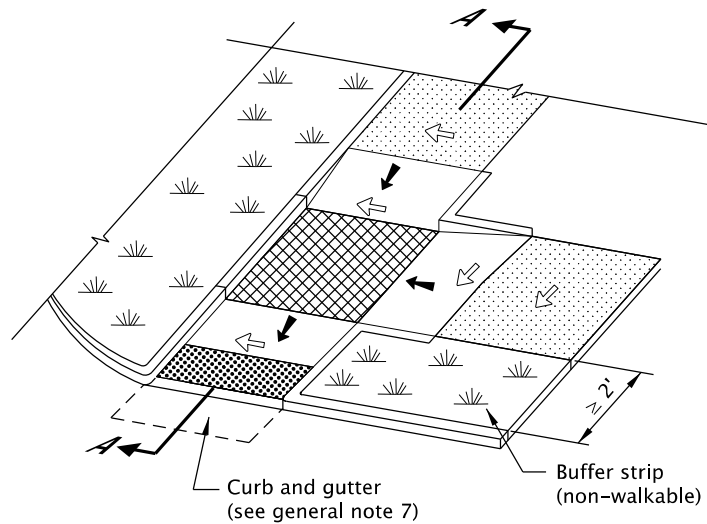


BLENDED TRANSITION COMBINATION CURB RAMP OPTION "CC-11"

(Use only when site constraints prohibit installing two curb ramps)







DIRECTIONAL COMBINATION CURB RAMP OPTION "CC-12"








GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Curb ramp details are based on applicable ODOT Standards.
2. See project plans for details not shown.
See Std. Dwg. RD700 & RD701 for curbs.
See Std. Dwg. RD720 & RD721 for sidewalks.
See Std. Dwg. RD902 through RD908 for detectable warning surface installation details.
See Std. Dwg. RD930 for combination curb ramp details.
3. Tooled dummy joints are required at all curb ramp slope break lines, (see Std. Dwg. RD722).
4. Curb ramp slopes shown are relative to the true level horizon (zero bubble).
5. Return curb may be provided in lieu of flared slope only if protected from traverse travel by landscaping, (see Std. Dwg. RD721). Return curb shall not reduce width of approaching sidewalk .
6. Only use curb ramp options allowed by jurisdiction. Single ramps require design exceptions on or along state highways.
7. On or along state highways, curb and gutter is required at curb ramps.
8. Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush.

LEGEND:

- | | |
|---|--|
|  | Marked or intended crossing location |
|  | Sidewalk |
|  | Detectable warning surface |
|  | Level area (Turning space/landing)
Unobstructed 4.5' x 4.5'
With obstruction 4.5' x 5.5' (Longer dimension in direction of pedestrian street crossing).
For the purposes of this application, a max. 2.0% finished surface slope (for drainage) measured perpendicular in two directions is considered level. |

- | | |
|---|--|
|  | Cross slope 1.5% max.
(Max. 2.0% finished surface slope)
(Normal sidewalk cross slope) |
|  | Running slope 7.5% max.
(Max. 8.3% finished surface slope) |
|  | Running slope 4.0% max.
(Max. 4.9% finished surface slope) |
|  | Flare slope
(Max. 10% finished surface slope) |
|  | 4'x4' clear space |

CALC. BOOK NO. **N/A**SDR DATE 19-JUL-2021

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

OREGON STANDARD DRAWINGS

**COMBINATION CURB RAMP
SINGLE RAMP**

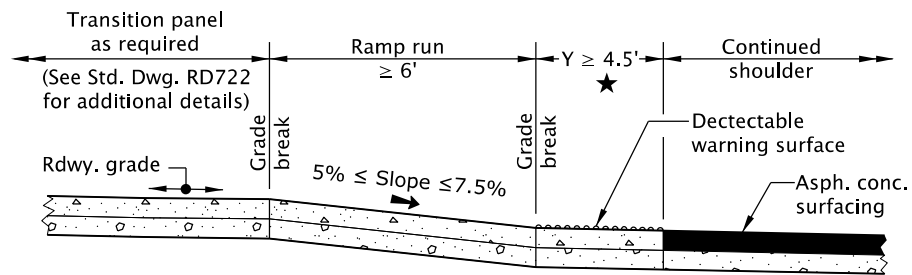
2021

DATE	REVISION DESCRIPTION
07-2020	DRAWING CREATED
01-2021	REVISED DETAIL & NOTES
07-2021	REVISED DETAIL & NOTES

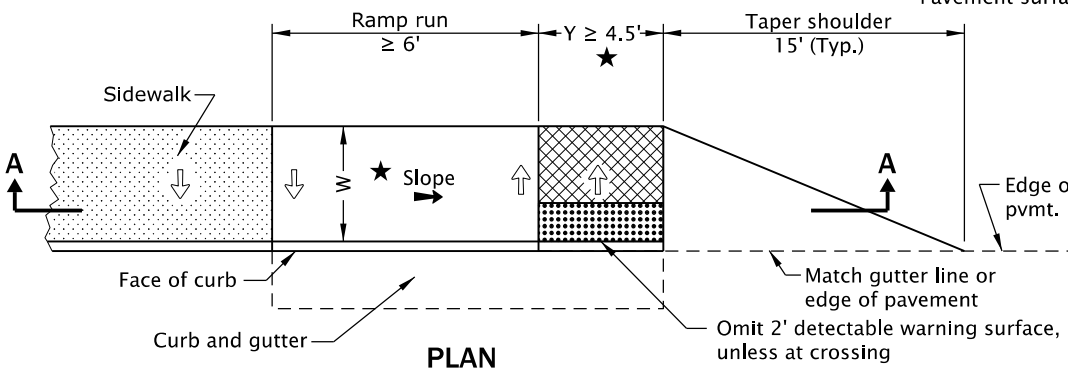
The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.

rd950.dgn 20-JUL-2020

RD950

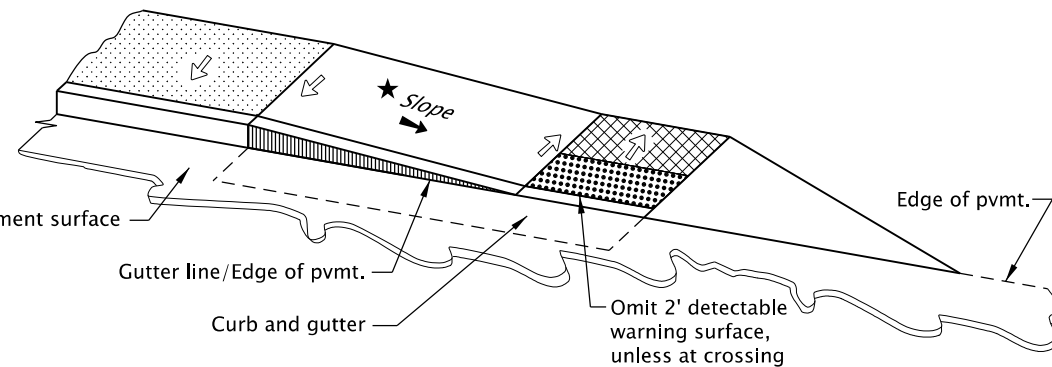


SECTION A-A



PLAN

★ See general note 12



ISOMETRIC VIEW

TAPER OPTION "EW-1"

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Curb ramp details are based on applicable ODOT Standards.
2. See project plans for details not shown.
See Std. Dwgs. RD700 & RD701 for curbs.
See Std. Dwgs. RD720 & RD721 for sidewalks.
See Std. Dwg. RD722 for transition panel details.
See Std. Dwgs. RD902 through RD908 for detectable warning surface installation details.
3. Site conditions normally require a project special design. See project plans for details not shown.
4. Tooled dummy joints are required at all curb ramp grade break lines, (see Std. Dwg. RD722).
5. Curb ramp slopes shown are relative to the true level horizon (zero bubble).
6. Place detectable warning surface at the back of curb for a minimum depth of 2' at curb ramp that is adjacent to traffic.
7. Place an inlet at upstream side of curb ramp or perform other approved design mitigation. Check the gutter flow depth at curb ramp locations to assure that the design flood does not overtop the back of sidewalk.
8. When a shared use path terminates, the curb ramp shall be the full width of the path, the turning space Y-dimension should be minimum 8' wide to enable bicycles to ride from ramp to shoulder.
9. Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush.
10. On or along state highways, curb and gutter is required at curb ramps.
11. All end of sidewalk options can be used for curved or tangent roadway sections. Superrelated roadways require site specific details.
12. When the slope of the ramp run is greater than 5.0%, a min. landing space of 4.5' x 4.5' with a 1.5% max. slope (2.0% finished surface) is required at the bottom of the curb ramp. See section A-A & section B-B.

LEGEND:



Sidewalk



Transition panel



Detectable warning surface



Level area (Turning space/landing)
Unobstructed 4.5' x 4.5'
With obstruction 4.5' x 5.5' (Longer dimension in direction of pedestrian street crossing).
For the purposes of this application, a max. 2.0% finished surface slope (for drainage) measured perpendicular in two directions is considered level.



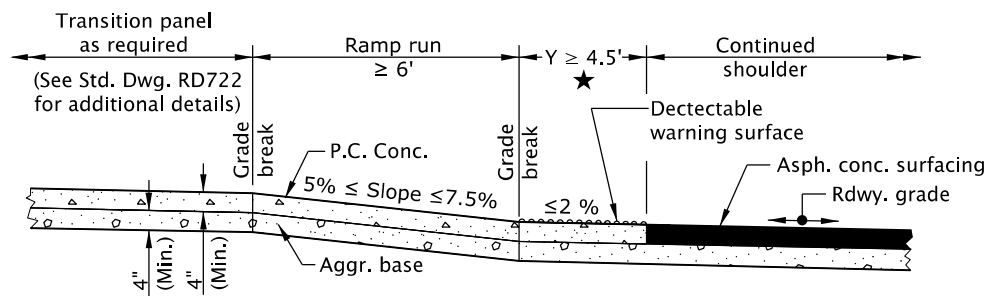
Cross slope 1.5% max.
(Max. 2.0% finished surface slope)
(Normal sidewalk cross slope)



Running slope 7.5% max.
(Max. 8.3% finished surface slope)

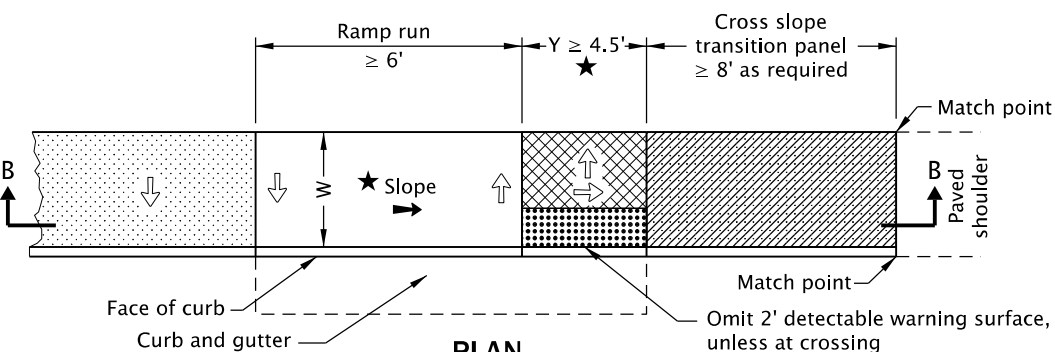


New construction sidewalk width.
See contract plans for dimension.

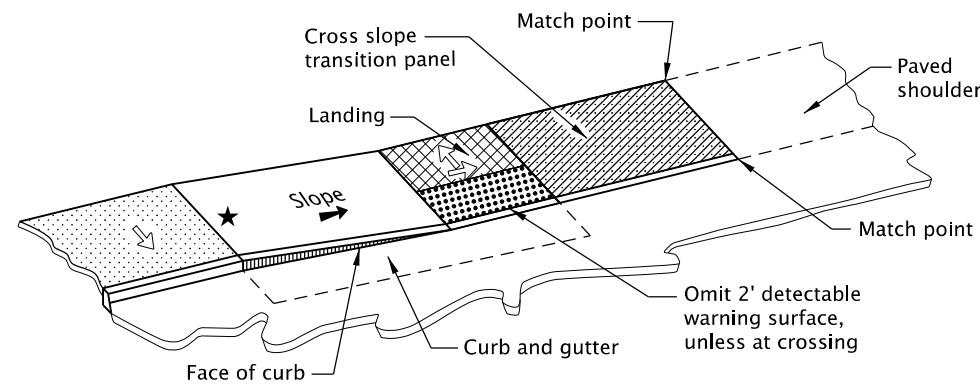


SECTION B-B

★ See general note 12



PLAN
(Curb ramp > 5.0% shown)



ISOMETRIC VIEW

SHOULDER OPTION "EW-2"

CALC. BOOK NO. N/A

SDR DATE 20-JULY-2020

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

OREGON STANDARD DRAWINGS

END OF WALK CURB RAMP

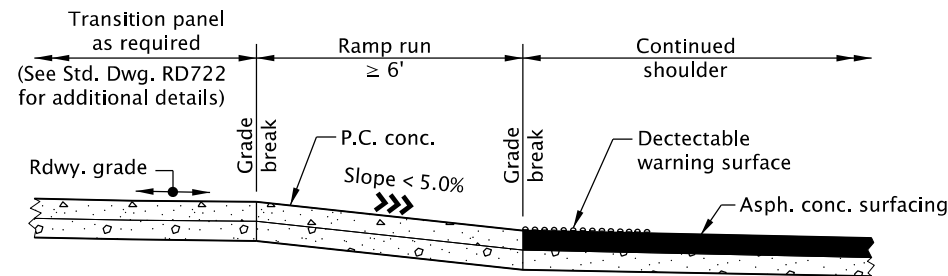
2021

DATE	REVISION	DESCRIPTION
07-2020	DRAWING CREATED	

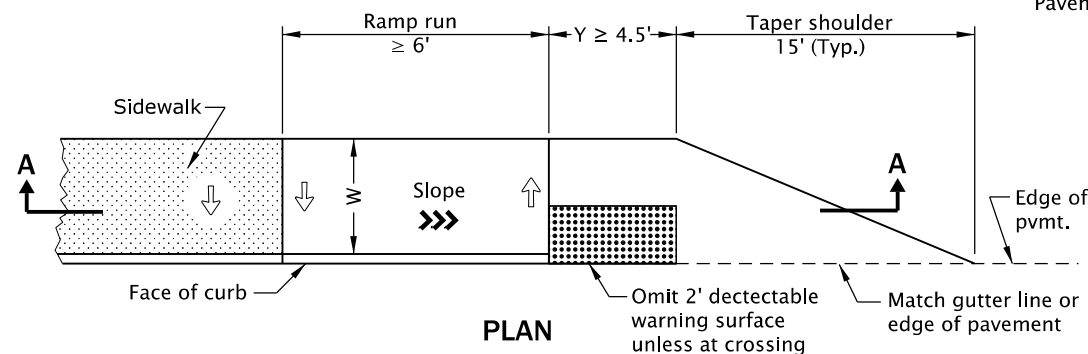
Effective Date: December 1, 2021 – May 31, 2022

RD950

rd952.dgn 19-JUL-2021

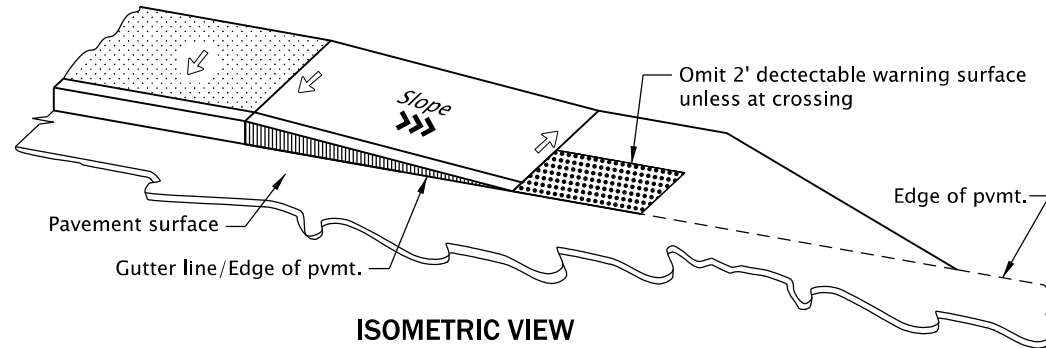


SECTION A-A

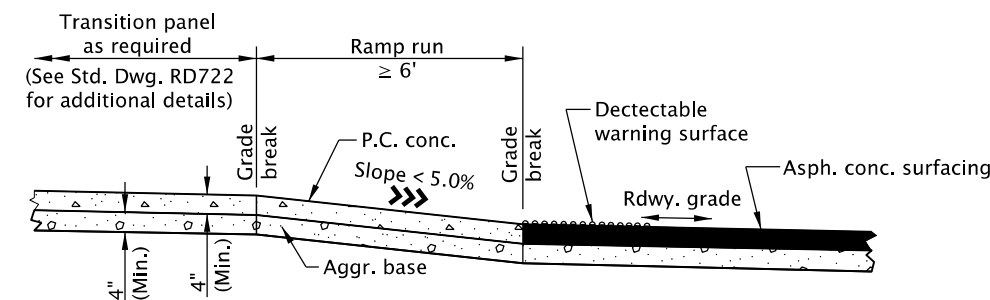


PLAN

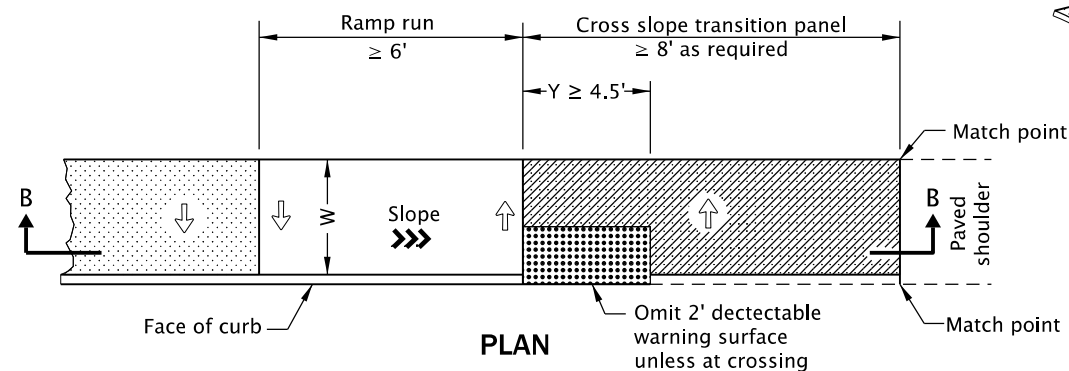
BLENDED TRANSITION
TAPER OPTION "EW-3"



ISOMETRIC VIEW

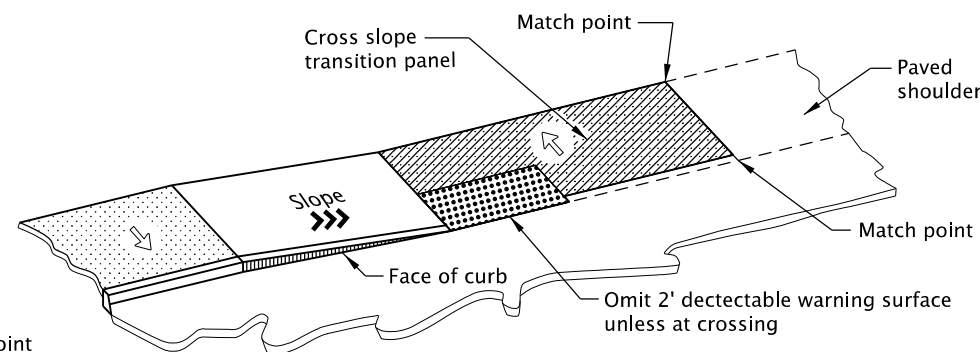


SECTION B-B



PLAN

BLENDED TRANSITION
SHOULDER OPTION "EW-4"









ISOMETRIC VIEW

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Curb ramp details are based on applicable ODOT Standards.
2. See project plans for details not shown.
See Std. Dwgs. RD700 & RD701 for curbs.
See Std. Dwgs. RD720 & RD721 for sidewalks.
See Std. Dwg. RD722 for transition panel details.
See Std. Dwgs. RD902 through RD908 for dectectable warning surface installation details.
3. Site conditions normally require a project special design. See project plans for details not shown.
4. Tooled dummy joints are required at all curb ramp grade break lines, (see Std. Dwg. RD722).
5. Curb ramp slopes shown are relative to the true level horizon (zero bubble).
6. Place dectectable warning surface at the back of curb for a minimum depth of 2' at curb ramp that is adjacent to traffic. When there is no curb, the dectectable warning surface shall be placed at the edge of roadway.
7. Place an inlet at upstream side of curb ramp or perform other approved design mitigation. Check the gutter flow depth at curb ramp locations to assure that the design flood does not overtop the back of sidewalk.
8. When a shared use path terminates, the curb ramp shall be the full width of the path, the turning space Y-dimension should be minimum 8' wide to enable bicycles to ride from ramp to shoulder.
9. Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush.
10. All end of sidewalk options can be used for curved or tangent roadway sections. Superrelated roadways require site specific details.

LEGEND:

-  Sidewalk
-  Transition panel
-  Dectectable warning surface
-  Cross slope 1.5% max.
(Max. 2.0% finished surface slope)
(Normal sidewalk cross slope)
-  Running slope 4.0% max.
(Max. 4.9% finished surface slope)
-  W New construction sidewalk width.
See contract plans for dimension.

CALC. BOOK NO. N/A

SDR DATE 19-JUL-2021

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

OREGON STANDARD DRAWINGS

END OF WALK CURB RAMP

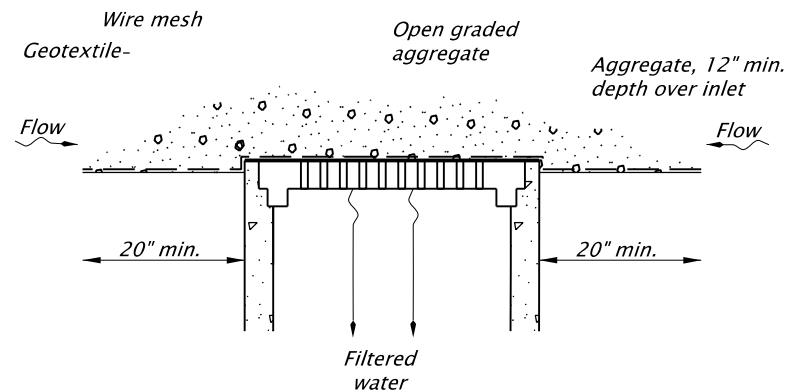
2021

DATE	REVISION	DESCRIPTION
07-2020	DRAWING CREATED	
07-2021	REVISED NOTES	

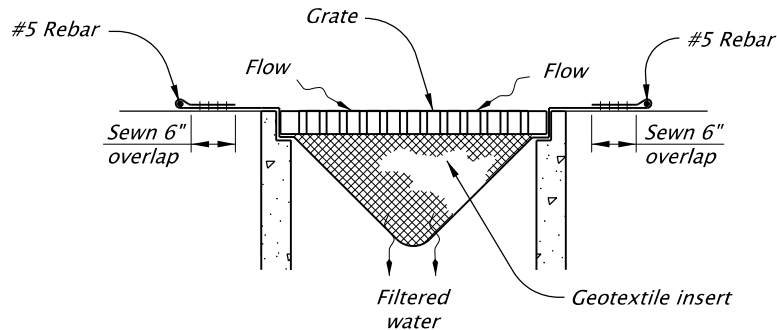
The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.

rd1010.dgn 01-20-2021

RD1010

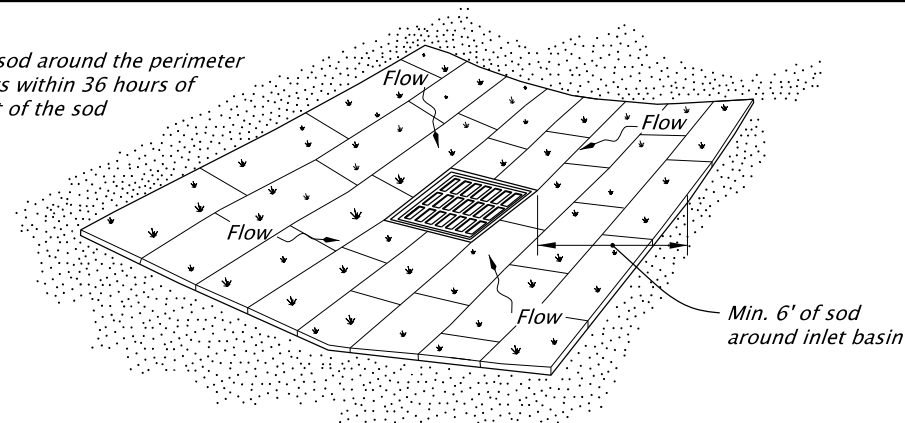


GEOTEXTILE/WIRE MESH/AGGREGATE - TYPE 2
NOT TO SCALE

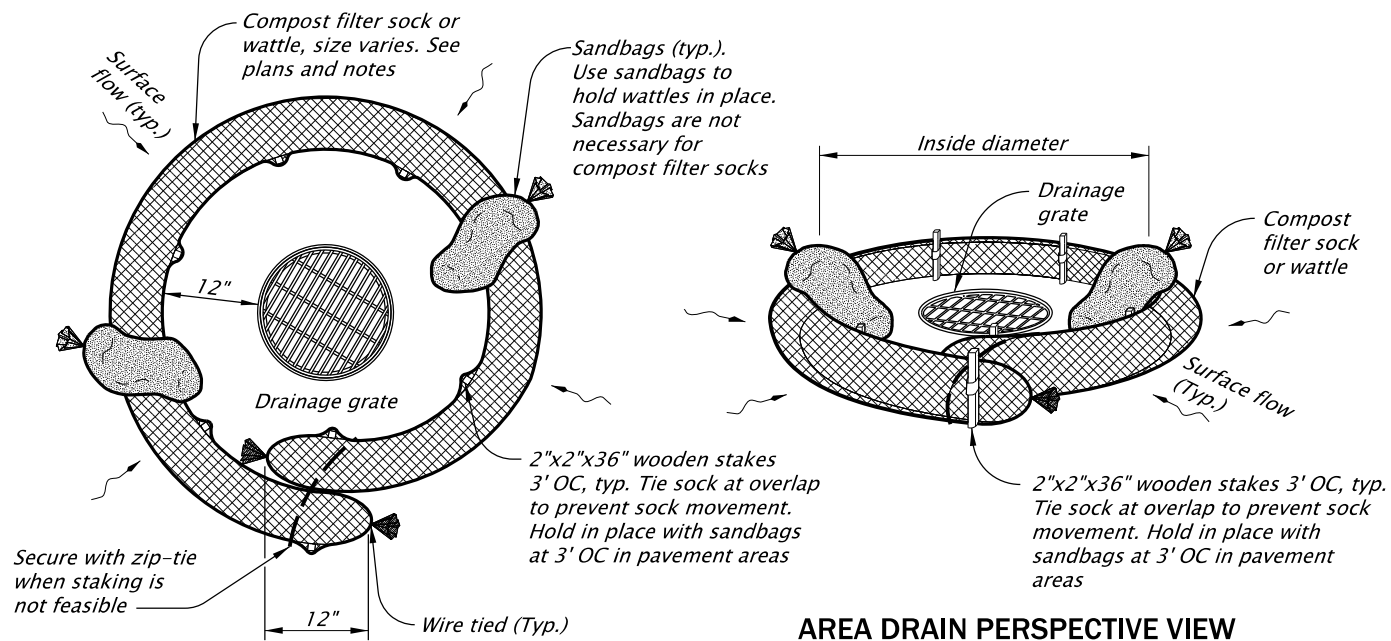


PREFABRICATED FILTER INSERT - TYPE 3
NOT TO SCALE

NOTE:
Install sod around the perimeter
of inlets within 36 hours of
harvest of the sod

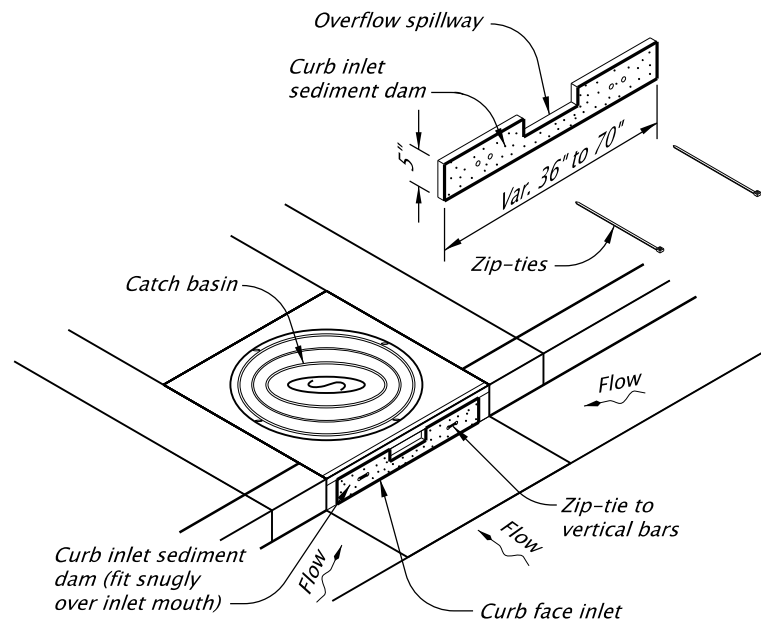


SOD PROTECTION - TYPE 6
NOT TO SCALE

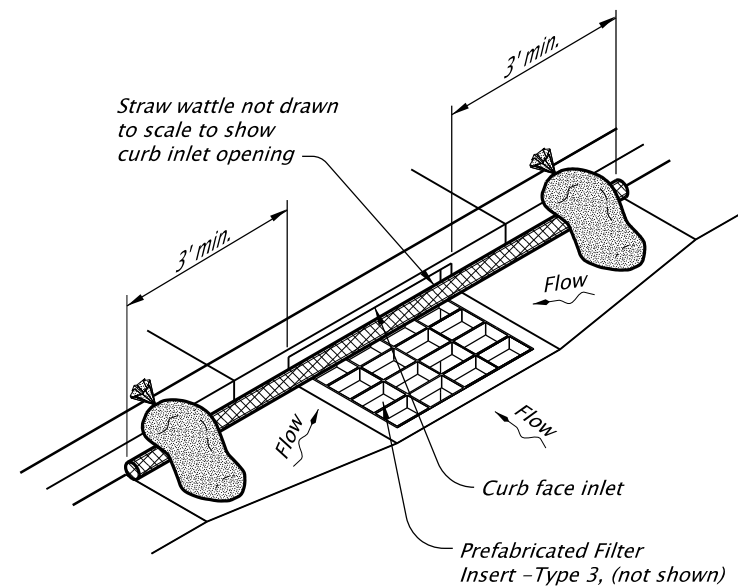


AREA DRAIN PLAN

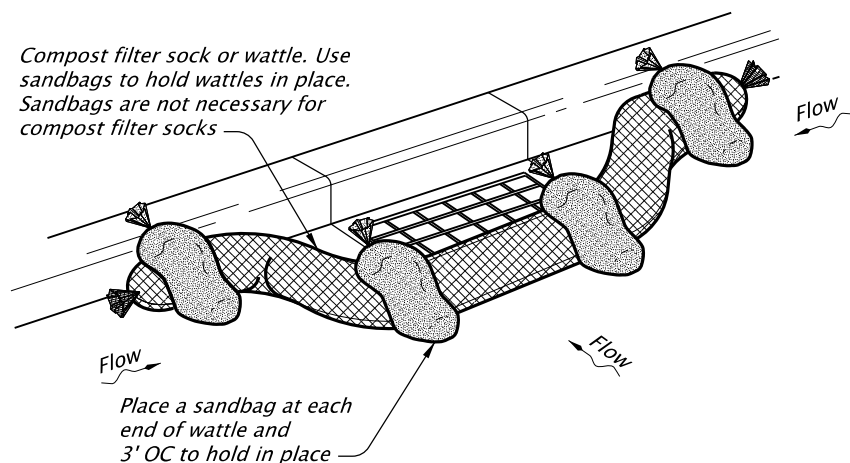
AREA DRAIN PERSPECTIVE VIEW



CURB INLET SEDIMENT DAM - TYPE 10
NOT TO SCALE



WATTLE BARRIER WITH FILTER INSERT - TYPE 11
NOT TO SCALE



CURB INLET PERSPECTIVE VIEW

COMPOST FILTER SOCK OR WATTLE - TYPE 7
NOT TO SCALE

NOTES:
Type 2 - Geotextile/wire mesh/aggregate
Place the wire mesh over the grate.
Place sediment fence geotextile over the
wire mesh and perimeter area around
structure.
Install aggregate over the geotextile fabric.

Type 3 - Prefabricated filter inserts
Install prefabricated filter inserts according
to the plans, special provisions, and
manufacturer recommendations.
Prefabricated inserts with provisions for
overflow are allowed only when
accompanied by additional BMP's to
prevent the potential of sediments
entering project storm systems.
Field fabricated inserts are not allowed.

Type 7 - Compost filter sock
Drive 2"x2" wood stakes a minimum of
6" into ground and flush with the top
of the sock.
Overlap ends of sock per manufacturers
recommendations (12" min., 36" max.).
Use 8" to 12" dia sock on curbside in traffic
areas.

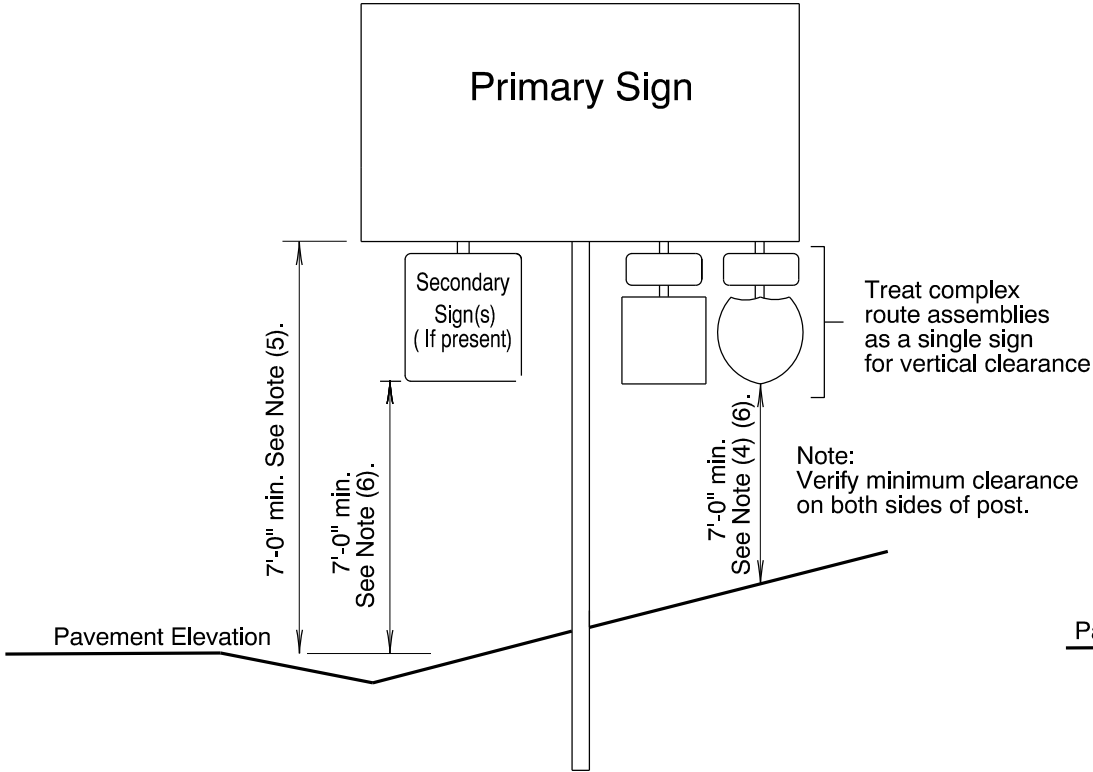
(Type 7 cont.)
Use 12" to 18" dia sock in non-traffic areas
or areas where the larger socks can be
used safely.
use synthetic mesh socks for temporary
installations.

Type 10 - Curb inlet sediment dam
Fit curb inlet sediment dam snugly into inlet
mouth. Curb inlet sediment dam is
required for use with inlet filter insert
where at-grade inlet grate and curb inlet
are combined at a catch basin.

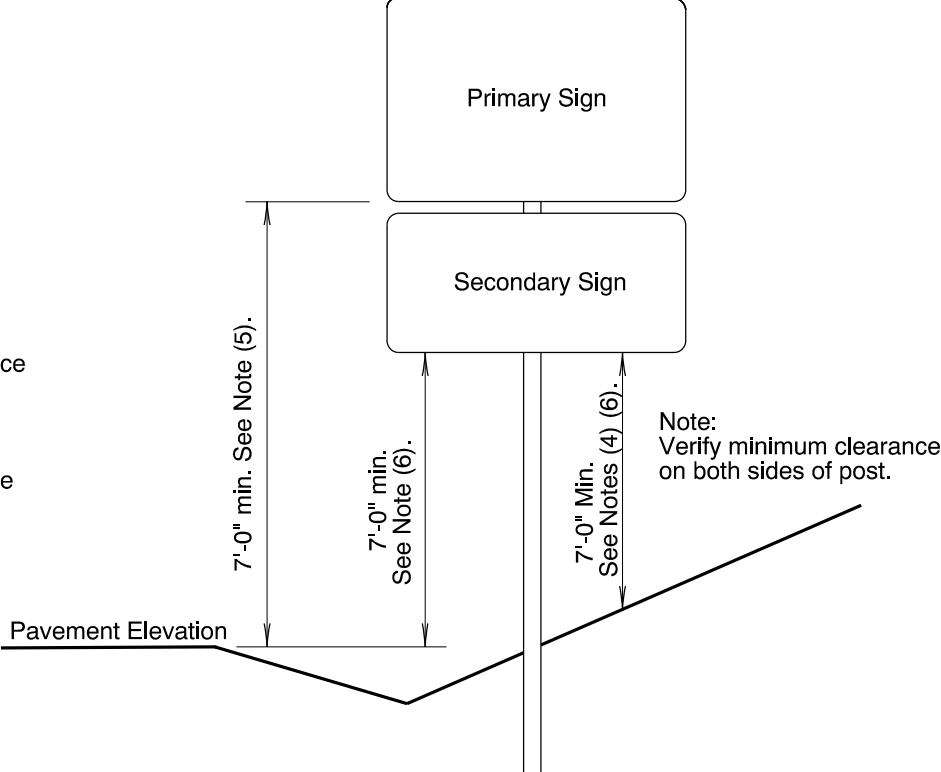
Type 11 - Wattle barrier with filter insert
Install prefabricated filter insert per Type 3
detail.
Install wattles over opening and 36" to each
side of opening tight against curb. Adjust
wattle to force storm water to flow through
filter insert or wattle prior to leaving the
site.
Adjust, replace or modify the inlet protection
as needed to prevent sediment laden water
from entering the catch basin.

CALC. BOOK NO. <u>N/A</u>	SDR DATE <u>January, 2021</u>
NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications	
OREGON STANDARD DRAWINGS	
INLET PROTECTION TYPE 2, 3, 6, 7, 10 AND 11	
2021	
DATE	REVISION DESCRIPTION
Jan 2021	Removed Calc book numbers
Jan 2021	Moved notes up from overlapping the sheet border

The selection and use of this
Standard Drawing, while de-
signed in accordance with
generally accepted engineer-
ing principles and practices,
is the sole responsibility of
the user and should not be
used without consulting a
Registered Professional En-
gineer.



MOUNTING HEIGHT
Guide Sign



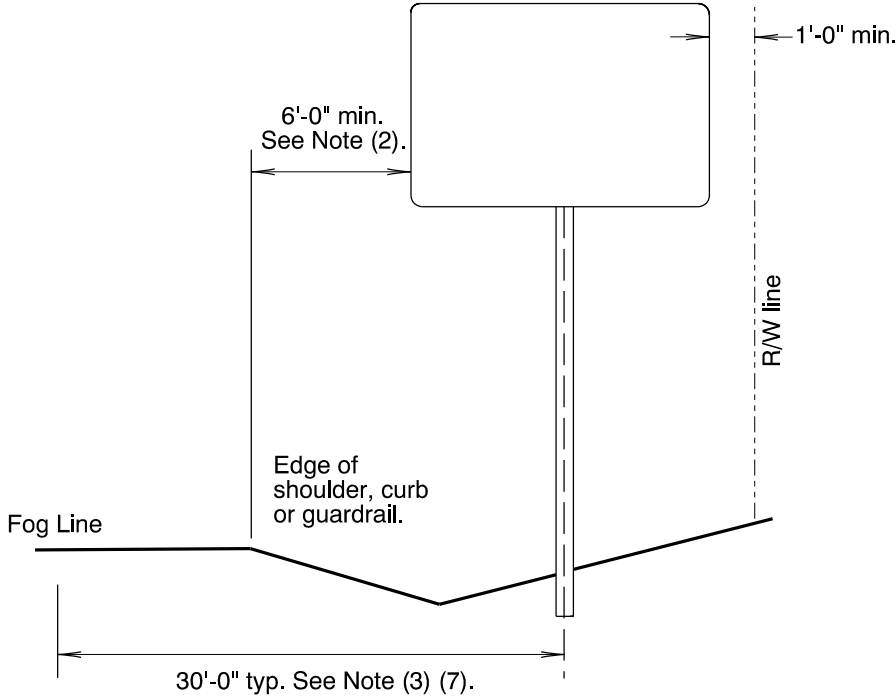
MOUNTING HEIGHT
All Other Signs

General Installation Notes:

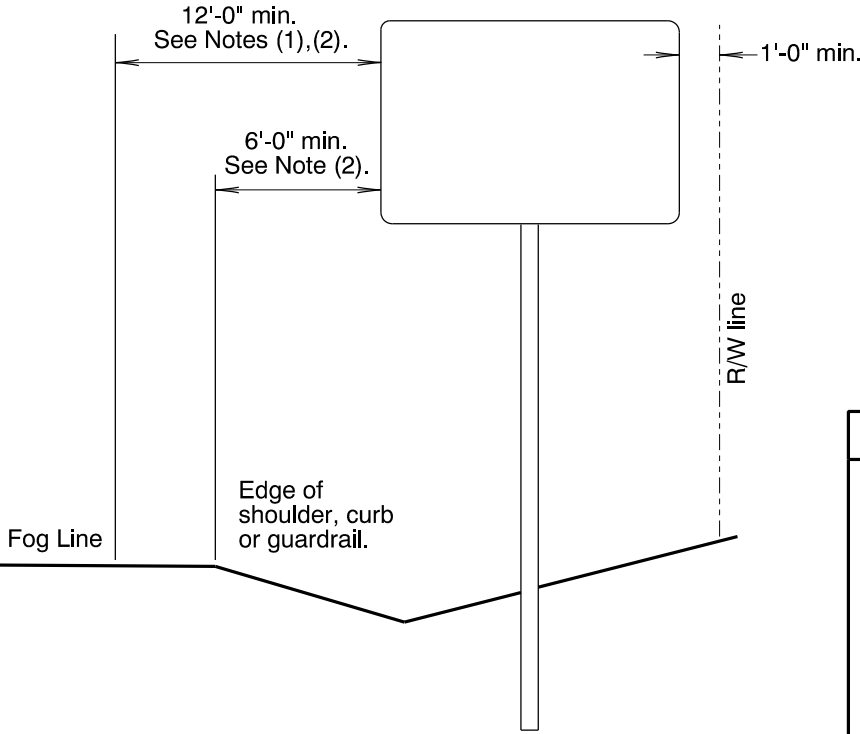
- Signing details shown on this sheet are intended to convey "typical" conditions only. Individual locations may require installation different from those shown.
For guidance regarding unique installations or exceptions call the Project Sign Designer or Region Traffic Section.
- Locate breakaway supports away from ditches to avoid problems with erosion, corrosion, debris, maintenance and breakaway performance. See Dwg. No. TM635 for more information.
- For wood post support details see Dwg. No. TM670.
- For perforated steelsquare tube support details see Dwg. No. TM681.
- For triangular base breakaway support details see Dwg. No. TM602.
- For multi-post breakaway support details see Dwg. No. TM600.
- Mounting heights should not be more than 3 inches more than the minimum heights shown, where practical.
- 2" vertical spacing between all signs.

Notes:

- 6' minimum if behind barrier.
- 2' minimum if restricted R/W.
- 20' for ramp terminals.
- 8' minimum if bicycle path underneath.
- 8' minimum if secondary signs attached.
- 5' minimum if outside clearzone, in rural areas and no pedestrians underneath.
- For multi-post installations measure distance from post closest to roadway.



LATERAL OFFSET
Guide Signs

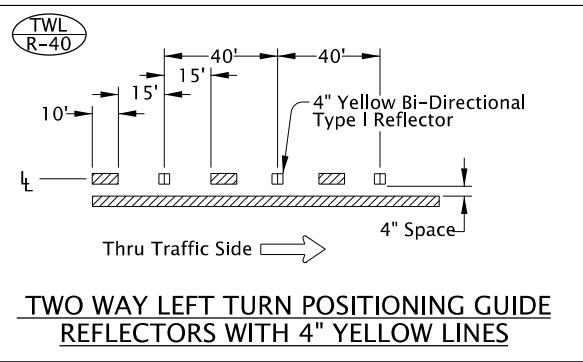
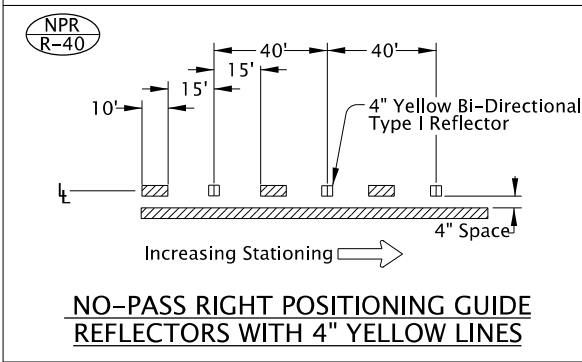
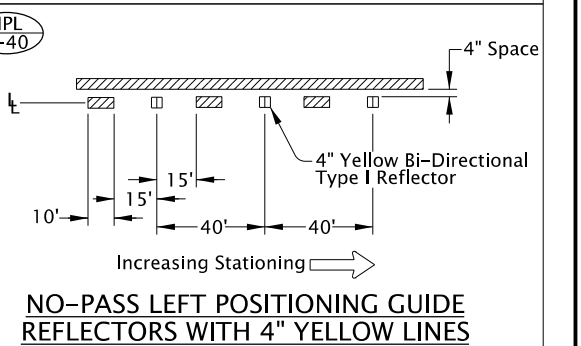
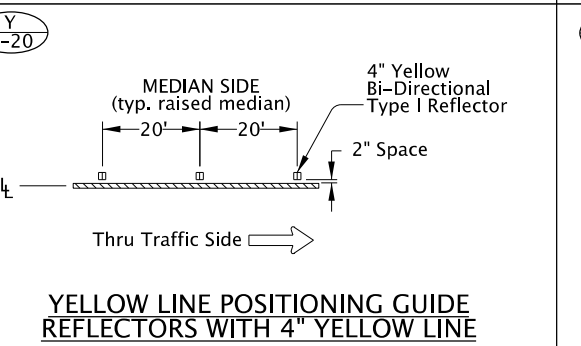
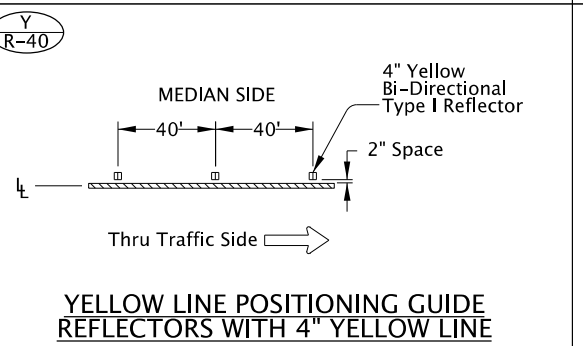
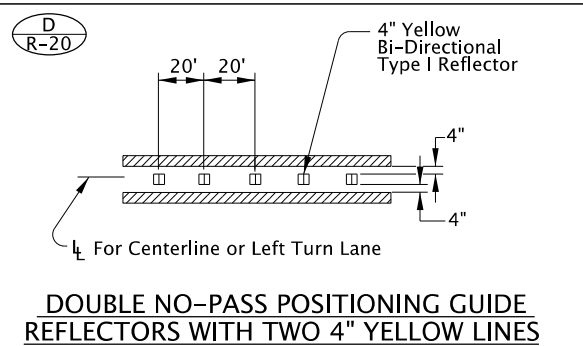
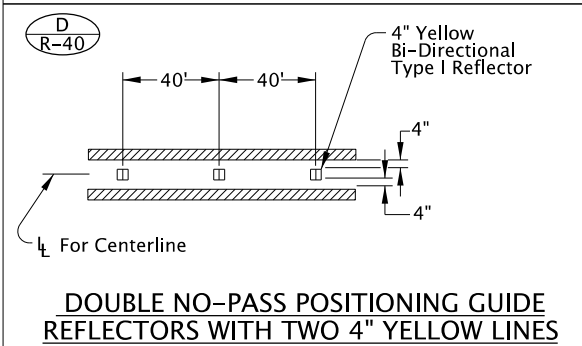
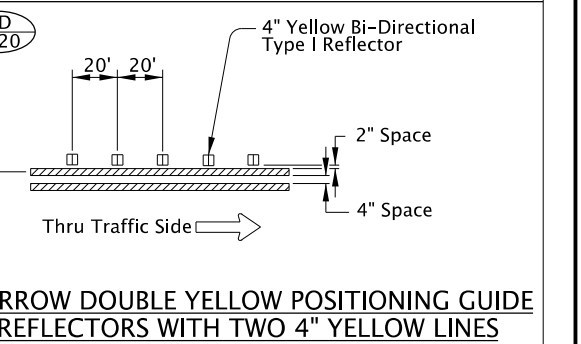
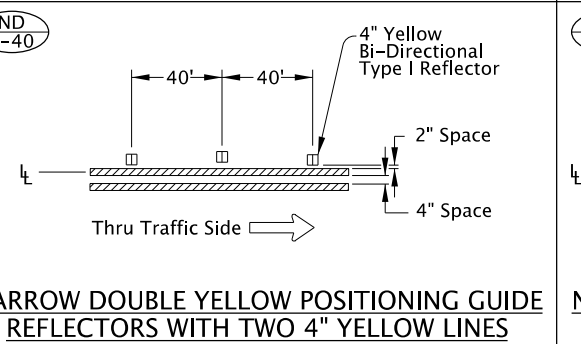
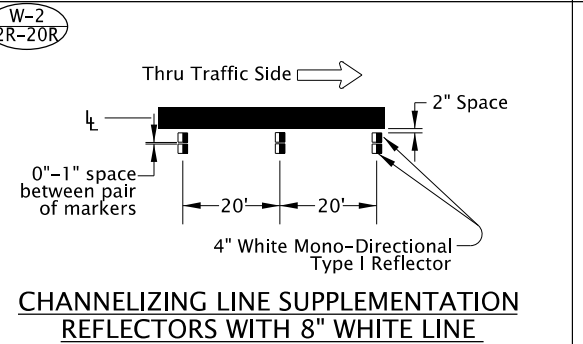
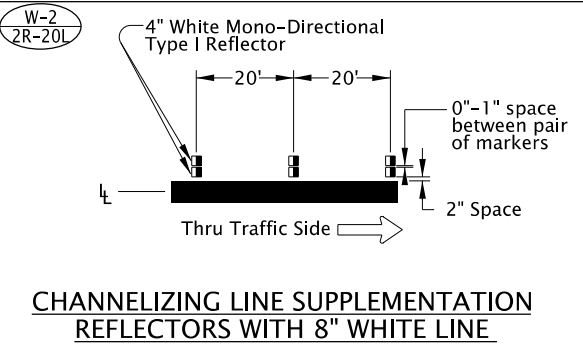
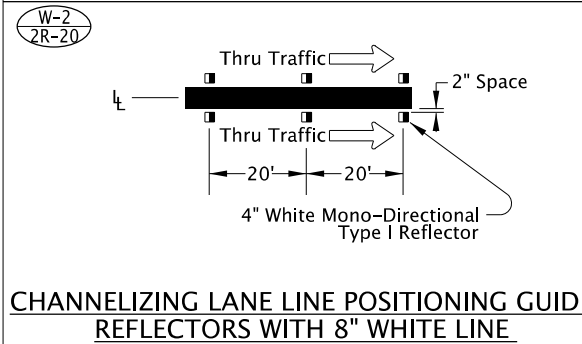
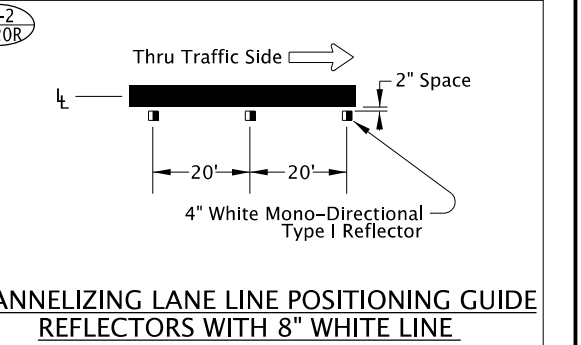
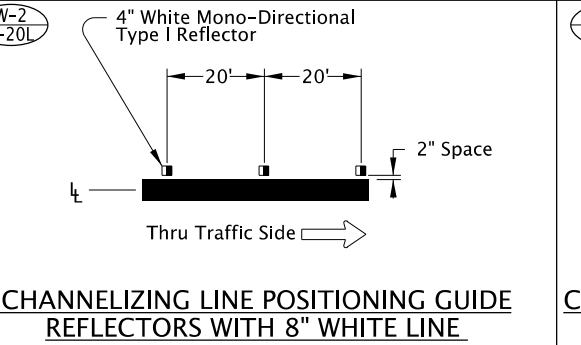
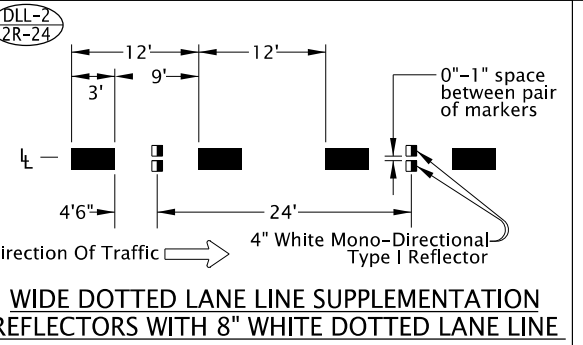
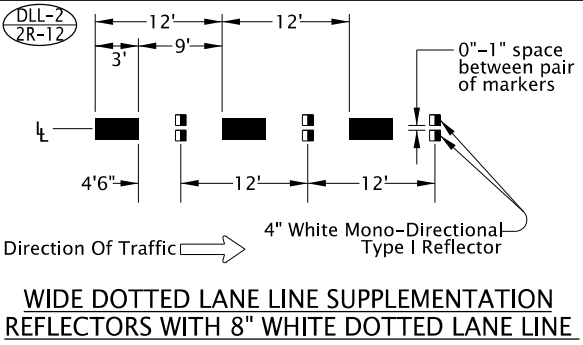
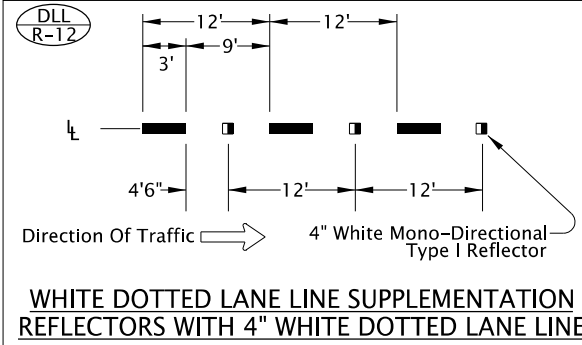
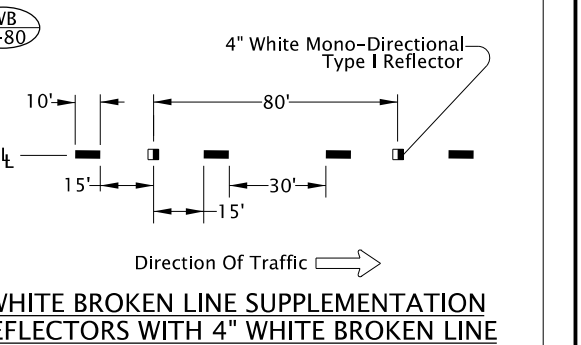
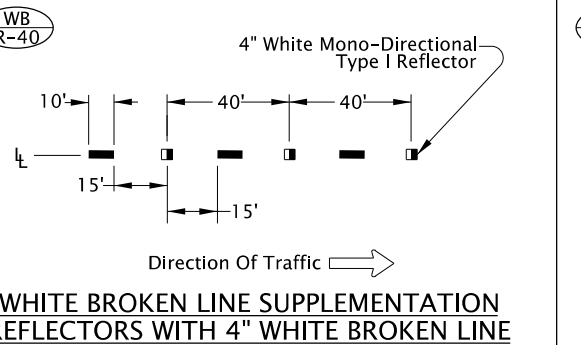
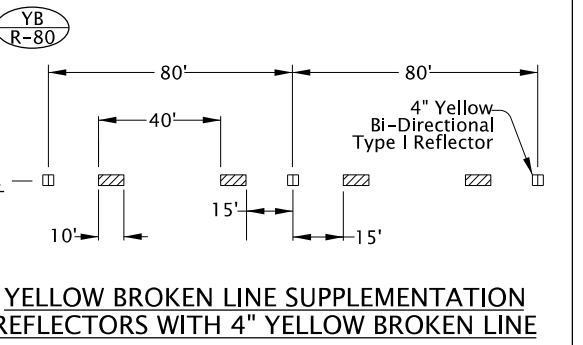
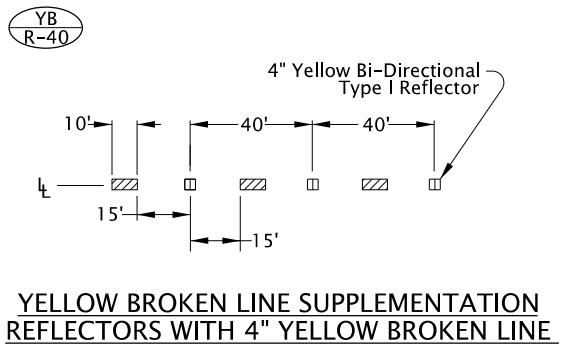
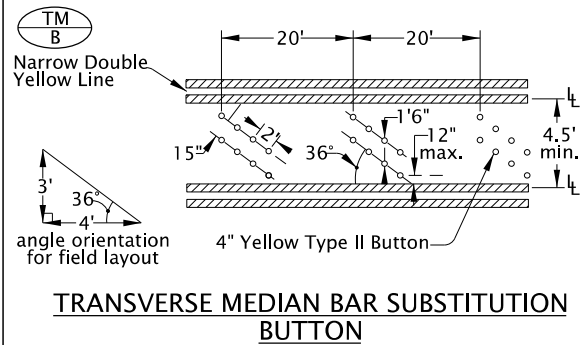


LATERAL OFFSET
All Other Signs

CALC. BOOK NO. N/A	SDR DATE 01/08/2018
NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications	
OREGON STANDARD DRAWINGS	
SIGN INSTALLATION DETAILS	
2021	
DATE	REVISION DESCRIPTION

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.

[illegible]

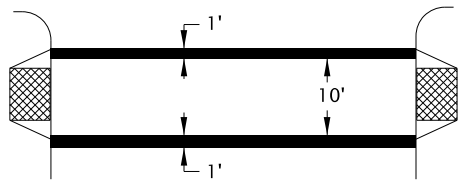


General note:
1) Surface mount Raised Pavement Markers (RPMs) unless otherwise specified.

- LEGEND**
- Direction Of Travel, Increasing Stationing or Thru Traffic Side
- Lane line dimensions are shown on the striping plans
- Mono-directional crystal white marker reflects white to the left in this symbol
- Bi-directional yellow marker reflects yellow both left and right in this symbol

CALC. BOOK NO. _ _ _ N/A _ _ _ _ _		SDR DATE _ _ _ 07/01/2020 _ _ _ _ _	
<i>The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.</i>		NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications.	
		OREGON STANDARD DRAWINGS	
		PAVEMENT MARKING STANDARD DETAIL BLOCKS	
		2021	
DATE		REVISION DESCRIPTION	
07/2020		Changed min. width of TM/B from 6' to 4.5'	

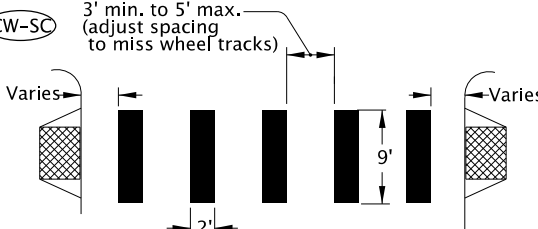
CW



STANDARD CROSSWALK
TWO 1' WHITE BARS

Install per Standard Drawing TM530

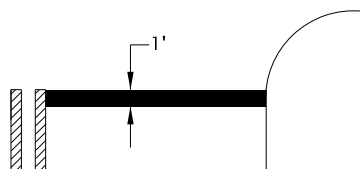
CW-SC



STAGGERED CONTINENTAL CROSSWALK
2' WHITE BARS

Install per Standard Drawing TM530

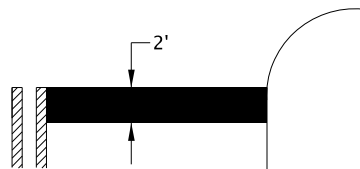
S



STOP BAR
1' WHITE BAR

Install per Standard Drawing TM530

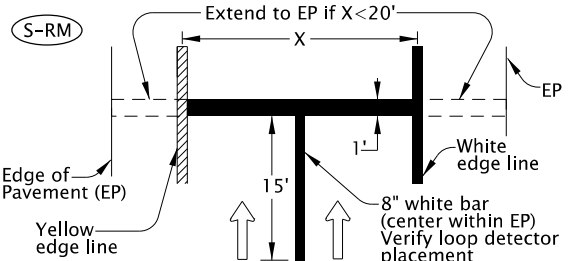
S-2



STOP BAR - LARGE
2' WHITE BAR

Install per Standard Drawing TM530

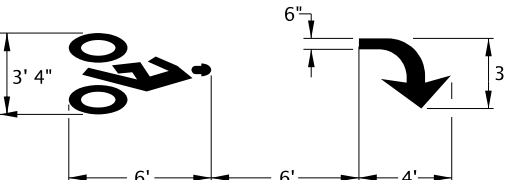
S-RM



RAMP METER STOP BAR
1' & 8" WHITE BARS

For multi-lane ramp meter applications

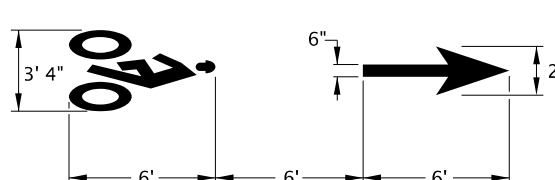
BR



BIKE RIGHT TURN STENCIL (white)

Center marking within lane width
For proportion details, see current version of Standard Highway Signs

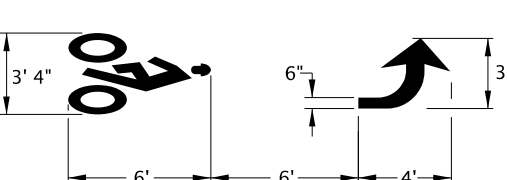
BS



BIKE LANE STANDARD STENCIL (white)

Center marking within lane width
For proportion details, see current version of Standard Highway Signs

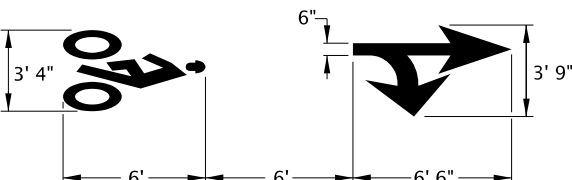
BL



BIKE LEFT TURN STENCIL (white)

Center marking within lane width
For proportion details, see current version of Standard Highway Signs

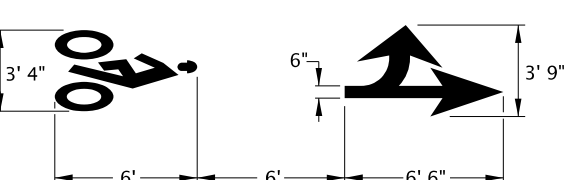
BRS



BIKE RIGHT TURN STRAIGHT STENCIL (white)

Center marking within lane width
For proportion details, see current version of Standard Highway Signs

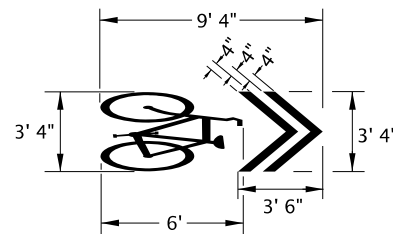
BLS



BIKE LEFT TURN STRAIGHT STENCIL (white)

Center marking within lane width
For proportion details, see current version of Standard Highway Signs

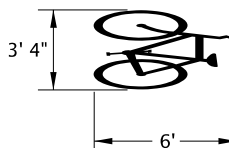
SLM



SHARED LANE MARKING (white)

Center marking within lane width or as shown
For proportion details, see current version of Standard Highway Signs

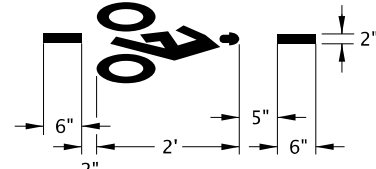
B



BIKE STENCIL (white)

Used for Intersection Bicycle Box applications
Place marking within bicycle box, centered with motor vehicle lane width

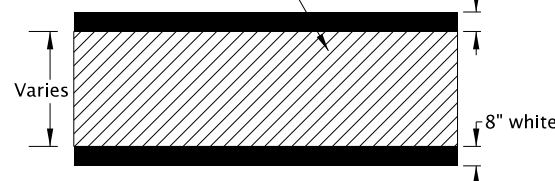
BD



BICYCLE DETECTOR MARKING (white)

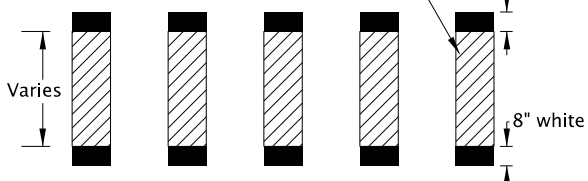
Place Bicycle Detector Pavement Marking in optimum location where bicycle acuates the traffic signal

GRN



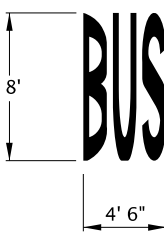
GREEN SUPPLEMENTAL BICYCLE LANE
SOLID LINE (green)

BLE-G



GREEN SUPPLEMENTAL BICYCLE LANE
DOTTED LINE EXTENSION (green)

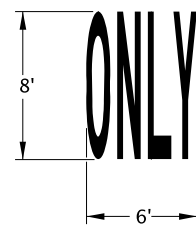
BUS



BUS (white)

Center marking within lane width
For letter proportion details, see current version of Standard Highway Signs

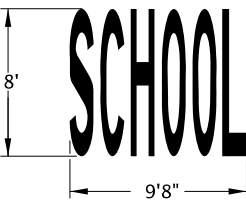
ON



ONLY (white)

Center marking within lane width
For letter proportion details, see current version of Standard Highway Signs

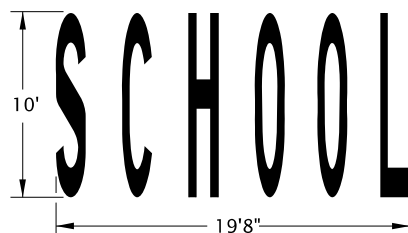
SCH



SCHOOL (white)

Center marking within lane width
For letter proportion details, see current version of Standard Highway Signs

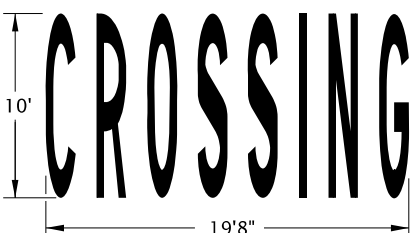
SCH-LG



SCHOOL - LARGE (white)

Center marking within width of two lanes
For letter proportion details, see current version of Standard Highway Signs

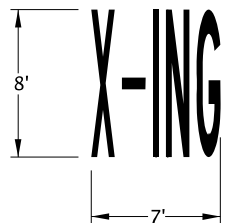
CRS-LG



CROSSING - LARGE (white)

Center marking within width of two lanes
For letter proportion details, see current version of Standard Highway Signs

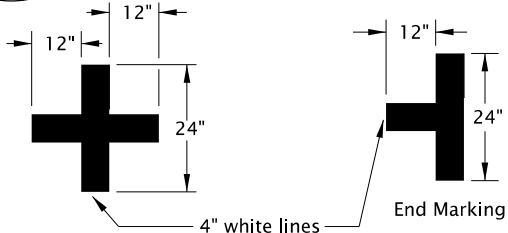
XNG



X-ING (white)

Center marking within lane width
For letter proportion details, see current version of Standard Highway Signs

P



ON-STREET PARKING DETAIL (white)

General Note:
1. Arrow, letter, and bike symbol dimensions nominal.

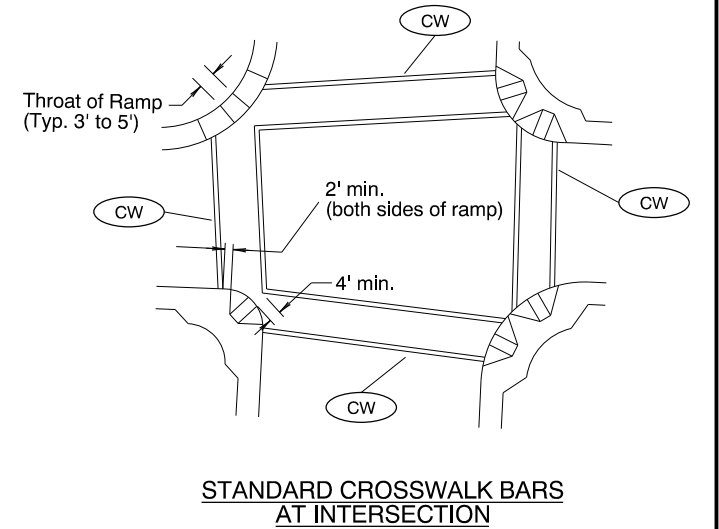
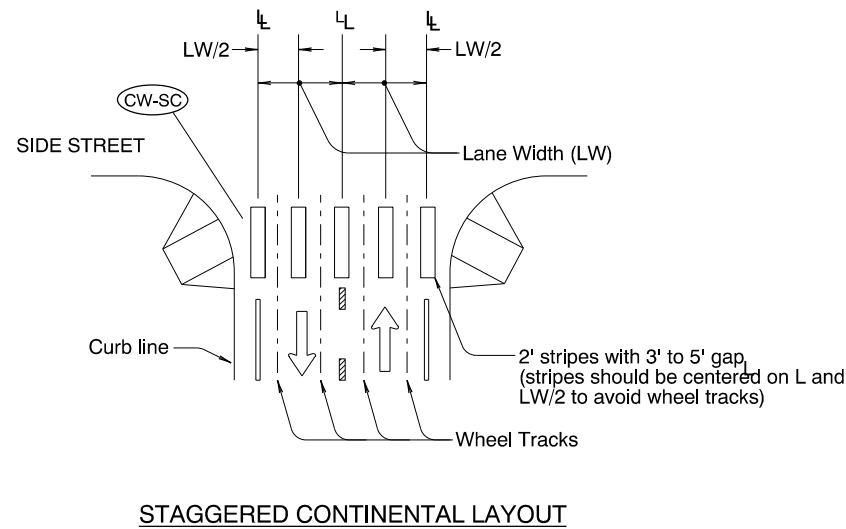
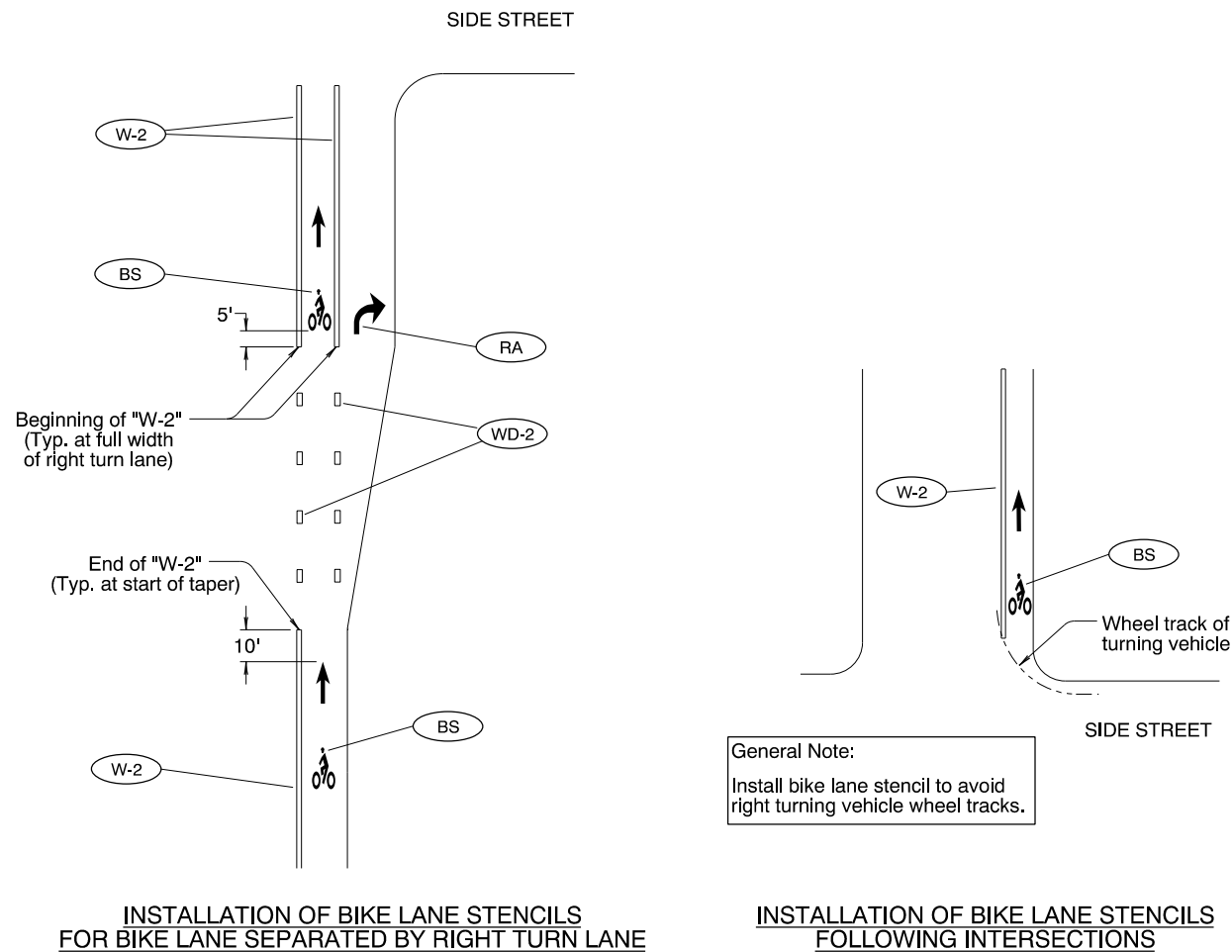
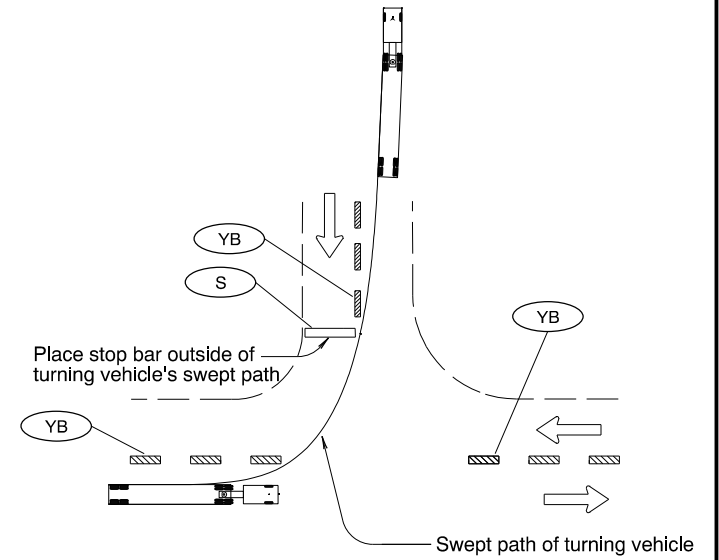
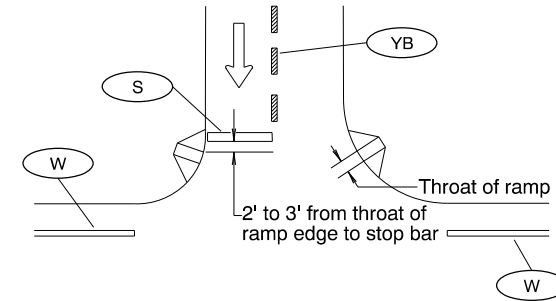
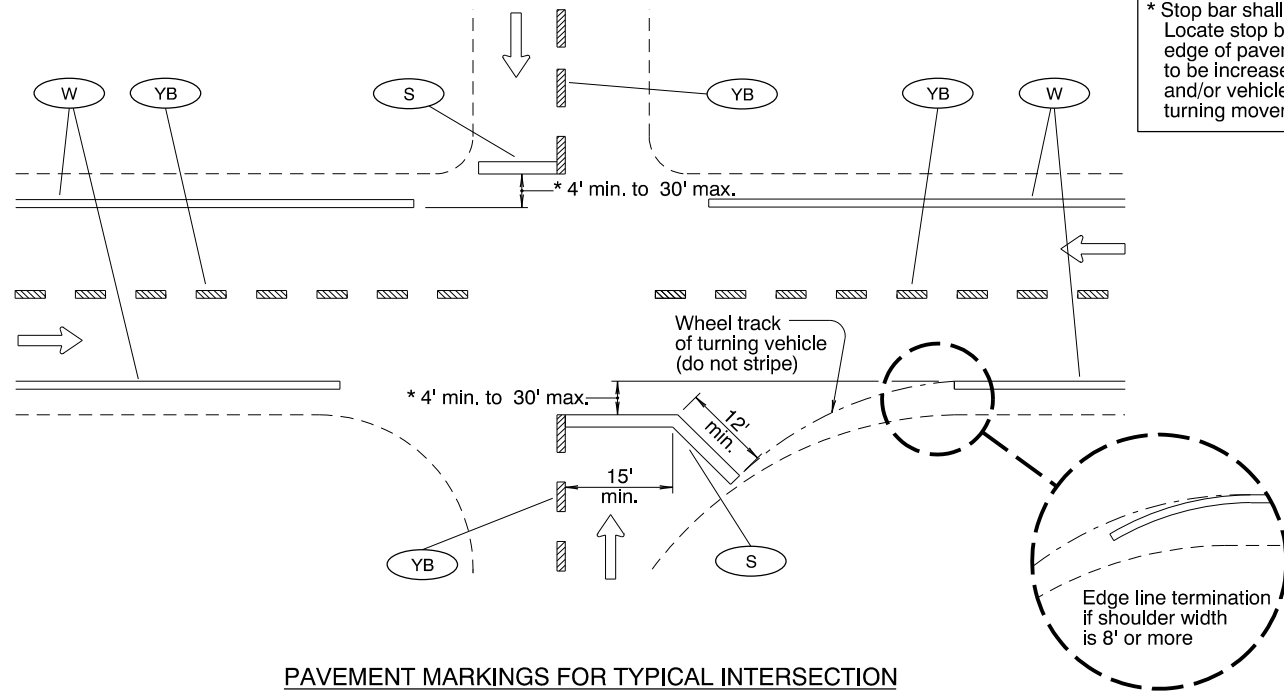
LEGEND
← Direction of Travel

CALC. BOOK NO. _ _ _ _ N/A _ _ _ _ _		SDR DATE _ _ _ _ 01/03/2020 _ _ _ _ _	
<i>The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.</i>		NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications.	
		OREGON STANDARD DRAWINGS	
		PAVEMENT MARKING STANDARD DETAIL BLOCKS	
		2021	
		DATE	REVISION DESCRIPTION

Effective Date: December 01, 2021 - May 31, 2022

TM503

TM530.dgn 7-01-2020



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

LEGEND
Direction of Travel
L - Lane line dimensions are shown on the striping plans

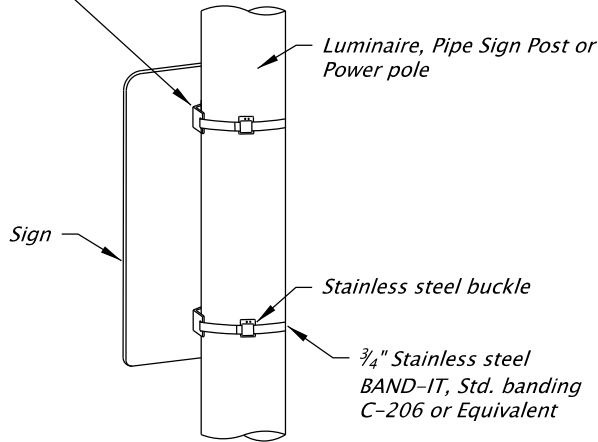
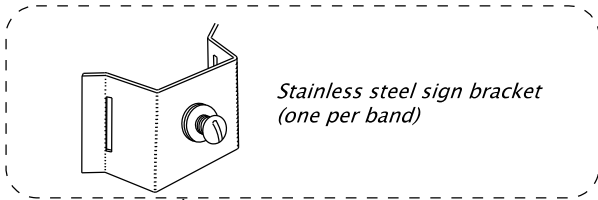
To be accompanied by Standard Dwg. Nos. TM500 thru TM504

CALC. BOOK NO. N/A	SDR DATE July 10, 2020
NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications	
OREGON STANDARD DRAWINGS INTERSECTION PAVEMENT MARKINGS (CROSSWALK, STOP BAR & BIKE LANE STENCIL)	
2021	
DATE	REVISION DESCRIPTION

Effective Date: December 1, 2021 - May 31, 2022

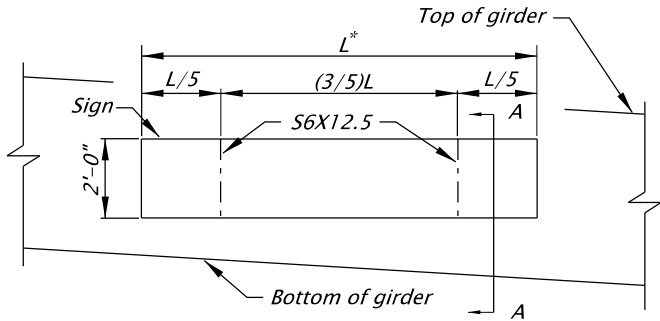
TM530

TM530



Signs mounted to vertical posts that use stainless steel clamps shall not be wider than 36". Use 2 clamps for all signs less than 48" in height and 3 clamps for signs 48" to 60" in height.

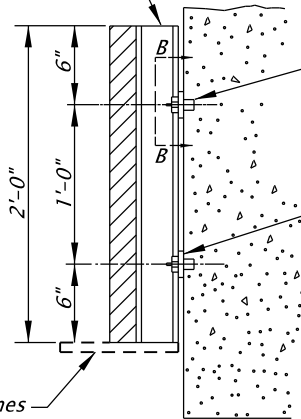
STAINLESS STEEL CLAMP (SSC) DETAIL
No Scale



* - L maximum is 14'-0".

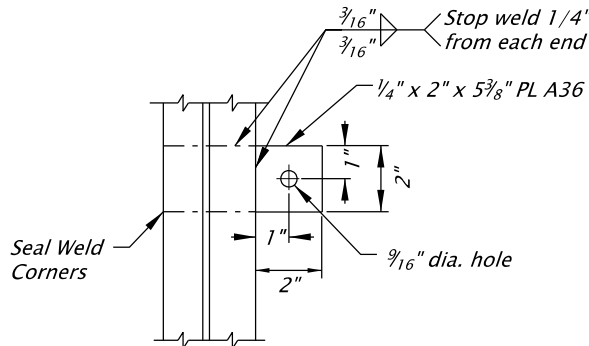
SIGN ELEVATION
No Scale

S6X12.5 - A36
Hot Dipped Galvanized



Signs mounted over travel lanes shall use the SIGN SUPPORT BRACKET DETAIL shown on TM618

SECTION A-A
No Scale



SECTION B-B
No Scale

- Notes:
1. Install resin bonded anchors according to Section 00535.
 2. Resin bonded anchors shall conform to ASTM A307.
 3. The hole depths shall develop the pullout strength specified in Table 00535-1.
 4. Tighten 1/2" dia. anchors using 16 ft-lb of torque for waxed galvanized and 40 ft-lb of torque for galvanized only connections.

ROAD NAME SIGN STRUCTURE MOUNT DETAIL

GENERAL NOTES

1. For Secondary Sign Mounts See TM678.

CALC. BOOK NO. _____		SDR DATE 06-JUL-2015	
<i>The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.</i>		NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications	
		OREGON STANDARD DRAWINGS	
		SIGN MOUNTS	
		2021	
		DATE	REVISION DESCRIPTION

TAPER TYPES & FORMULAS	
TAPER	FORMULA
Merging (Lane Closure)	"L"
Shifting	"L"/2 or ½"L"
Shoulder Closure	"L"/3 or ⅓"L"
Flagging (See Drg. TM850)	50' – 100'
Downstream (Termination)	Varies (See Drawings)

- ★ Use Pre-Construction Posted Speed to select the Speed from the Tables below:

TEMPORARY BARRIER FLARE RATE TABLE	
★ SPEED (mph)	MINIMUM FLARE RATE
≤ 30	8:1
35	9:1
40	10:1
45	12:1
50	14:1
55	16:1
60	18:1
65	19:1
70	20:1

MINIMUM LENGTHS TABLE					
"L" VALUE FOR TAPERS (ft)					BUFFER "B" (ft)
★ SPEED (mph)	W = Lane or Shoulder Width being closed or shifted				
	W ≤ 10	W = 12	W = 14	W = 16	
25	105	125	145	165	75
30	150	180	210	240	100
35	205	245	285	325	125
40	265	320	375	430	150
45	450	540	630	720	180
50	500	600	700	800	210
55	550	660	770	880	250
60	600	720	840	960	285
65	650	780	910	1000	325
70	700	840	980	1000	365
FREEWAYS					
55	1000	1000	1000	1000	250
60	1000	1000	1000	1000	285
65	1000	1000	1000	1000	325
70	1000	1000	1000	1000	365

NOTES:

- For Lane closures where $W < 10'$, use "L" value for $W = 10'$.
- For Shoulder closures where $W < 10'$, use "L" value for $W = 10'$ or calculate "L" using formula, for Speeds ≥ 45 : $L = WS$, Speeds < 45 : $L = S^2W/60$, S = Speed, W =Width

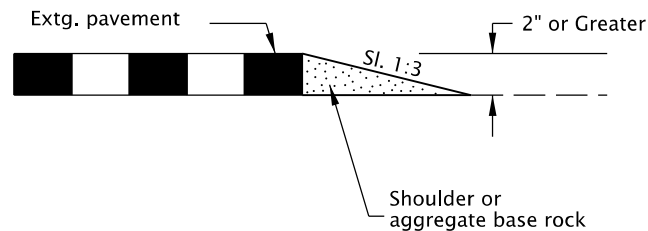
TRAFFIC CONTROL DEVICES (TCD) SPACING TABLE				
★ SPEED (mph)	Sign Spacing (ft)			Max. Channelizing Device Spacing (ft)
	A	B	C	
20 – 30	100	100	100	20
35 – 40	350	350	350	20
45 – 55	500	500	500	40
60 – 70	700	700	700	40
Freeway	1000	1500	2640	40

NOTES:

- Place traffic control devices on 10 ft. spacing for intersection and access radii.
- When necessary, sign spacing may be adjusted to fit site conditions. Limit spacing adjustments to 30% of the "A" dimension for all speeds.

NOTES:

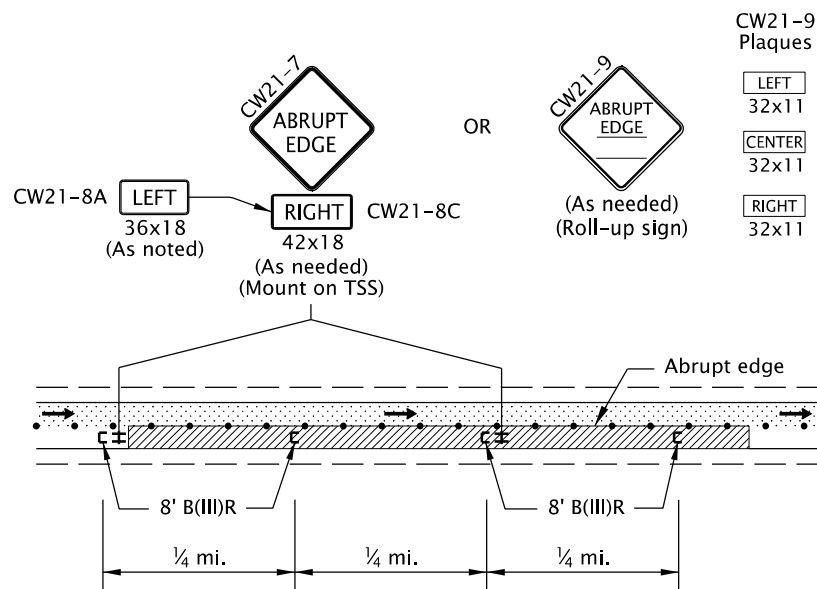
- When paved shoulders adjacent to excavations are less than four feet wide protect longitudinal abrupt edge as shown.
- Use aggregate wedge when abrupt edge is 2 inches or greater.



EXCAVATION ABRUPT EDGE

NOTES:

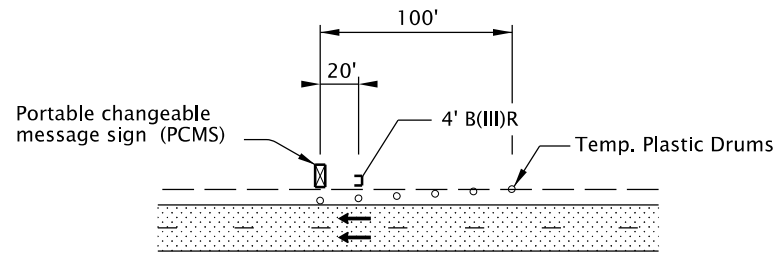
- Abrupt edges may be created by paving, operations, excavations or other roadway work. Use abrupt edge signing for longitudinal abrupt edges of 1 inch or greater.
- If the excavation is located on left side of traffic, replace the 8' B(III)R barricades with 8' B(III)L barricades and replace the "RIGHT" (CW21-8C) riders with "LEFT" (CW21-8A) riders.
- Continue signing and other traffic control devices throughout excavation area at spacings shown.
- If roll-up signs are used, attach the correct (CW21-9) plaques to the sign face using hook and loop fasteners. Place roll-up signs in advance of barricades.



TYPICAL ABRUPT EDGE DELINEATION

NOTES:

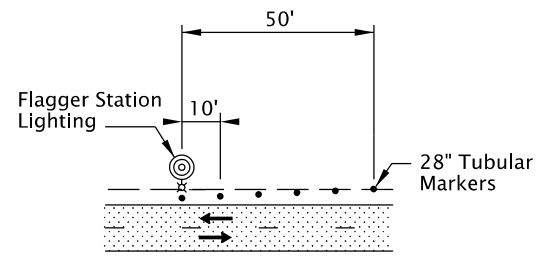
- Install PCMS beyond the outside shoulder, when possible.
- Use the appropriate type of barricade panels for PCMS location. Right shoulder, use Type B(III)R. Left shoulder, use Type B(III)L.
- Use six drums in shoulder taper on 20' spacing. The drums and barricade may be omitted when PCMS is placed behind a roadside barrier.
- Detail as shown is used for trailered and non-crashworthy components of:
 - Portable Traffic Signals
 - Smart Work Zone Systems



PORTABLE CHANGEABLE MESSAGE SIGN (PCMS) INSTALLATION

NOTES:

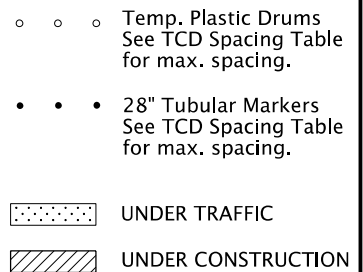
- Install Flagger Station Lighting beyond the outside shoulder, where practical.
- Use six tubular markers in shoulder taper on 10' spacing.
- Place cart / generator / power supply off of the shoulder, as far as practical.



FLAGGER STATION LIGHTING DELINEATION

GENERAL NOTES FOR ALL TCP DRAWINGS:

- Signs and other Traffic Control Devices (TCD) shown are the minimum required.
- Place a barricade approx. 20' ahead of all sequential arrow boards.
- Arrows shown in roadway are directional arrows to indicate traffic movements.
- All signs are 48" x 48" unless otherwise shown. Use fluorescent orange sheeting for the background of all temporary warning signs.
- All diamond shaped warning signs mounted on barrier sign supports shall be 36" by 36". All other signs mounted on barrier sign supports shall not exceed 12 sq. ft. in total sign area.
- Low speed highways have a pre-construction posted speed of 40 mph or less. High speed highways have a pre-construction posted speed of 45 mph or higher.
- Do not locate sign supports in locations designated for bicycle or pedestrian traffic.
- Combine drawing details to complete temporary traffic control for each work activity.
- To be accompanied by Dwg. Nos. TM820 & TM821.



CALC. BOOK NO. _ _ _ _ TM09-01 _ _ _ _

SDR DATE _ _ _ _ _ 01-JUL-2021 _ _ _ _ _

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

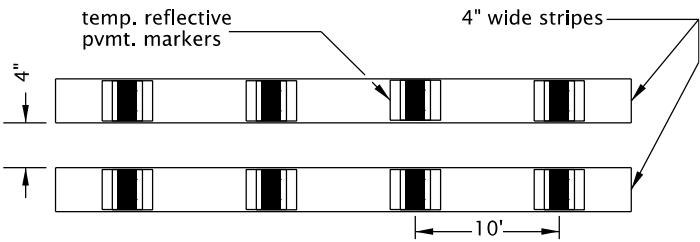
OREGON STANDARD DRAWINGS

TABLES, ABRUPT EDGE AND PCMS DETAILS

2021

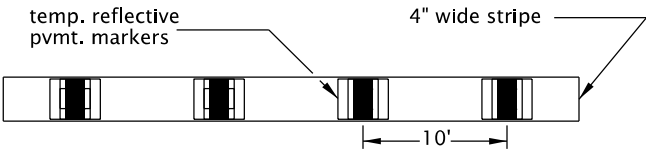
DATE	REVISION	DESCRIPTION

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.



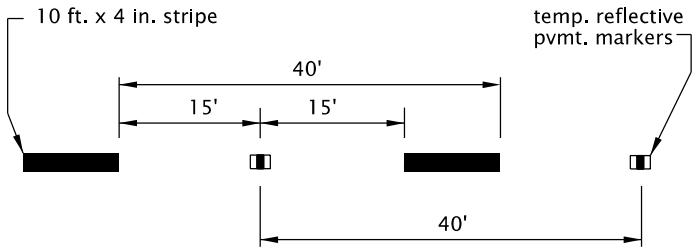
LAYOUT "A"
(Supplemented double solid lines)

- TYPICAL APPLICATIONS:
- To prohibit lane changes or passing (include appropriate regulatory signs).
 - Freeway or multilane shifts and crossovers.
 - For projects in place through winter months.
 - Two-lane, two-way centerlines.



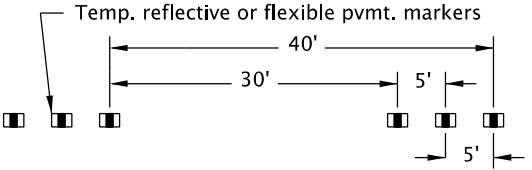
LAYOUT "B"
(Supplemented solid line)

- TYPICAL APPLICATIONS:
- Alignment shifts or crossovers.
 - To discourage lane changes in multilane sections.
 - For projects in place through winter months.



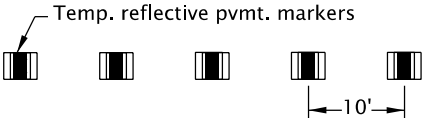
LAYOUT "C"
(Supplemented broken lines)

- TYPICAL APPLICATIONS:
- Freeway and multilane broken lines.
 - High ADT 2 lane roads (greater than 10,000).
 - For projects in place through winter months.



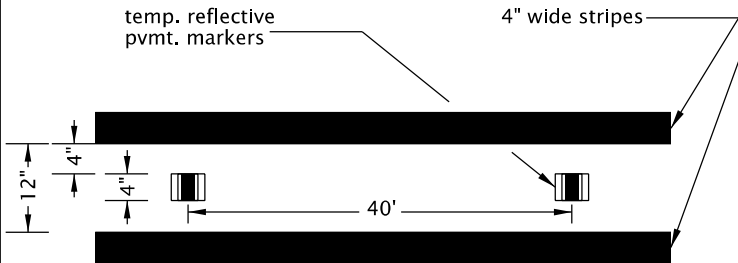
LAYOUT "D"
(Simulated broken lines)

- TYPICAL APPLICATIONS:
- During staging on finished/existing surfaces.
 - HMAC intermediate surfaces.
 - Emulsified asphalt surface treatments (chip seals) where permanent pavement markings cannot be placed within two weeks.



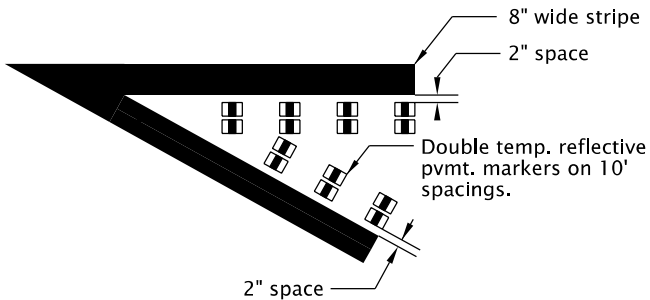
LAYOUT "E"
(Simulated Solid Lines)

- TYPICAL APPLICATIONS:
- Alignment shifts or crossovers.
 - To discourage lane changes in multilane sections.
 - Edge lines for short durations, less than 14 days.



LAYOUT "F"
(Supplemented wide double solid lines)

- TYPICAL APPLICATIONS:
- To prohibit lane changes or passing (include appropriate regulatory signs).
 - 2 lane, 2 way centerlines.
 - 2 lane, 1 way alignments on freeways or multi-lane highways.



LAYOUT "G"
(Supplemented solid 8" line)

- TYPICAL APPLICATIONS:
- Gore areas
 - Alignment splits (bifurcations)

- GENERAL NOTES FOR ALL DETAILS:
- When using Supplemented or Simulated lines:
 1. Yellow Bi-Directional Pavement Markers are required for Two-Way Traffic.
 2. White Mono-Directional Pavement Markers are required for one-way traffic or edge lines.
 - Supplemented lines are painted lines enhanced with Reflective Pavement Markers.
 - Simulated lines are Reflective Pavement Markers placed in a pattern to substitute for a painted line.
 - Pavement marking colors shall conform to the MUTCD.

CALC. BOOK NO. _ _ _ _ _ N/A _ _ _ _ _

SDR DATE _ _ _ _ _ 01-JUL-2020 _ _ _ _ _

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

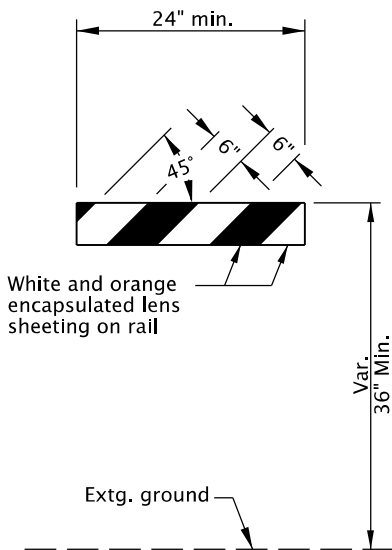
OREGON STANDARD DRAWINGS

TEMPORARY PAVEMENT MARKINGS

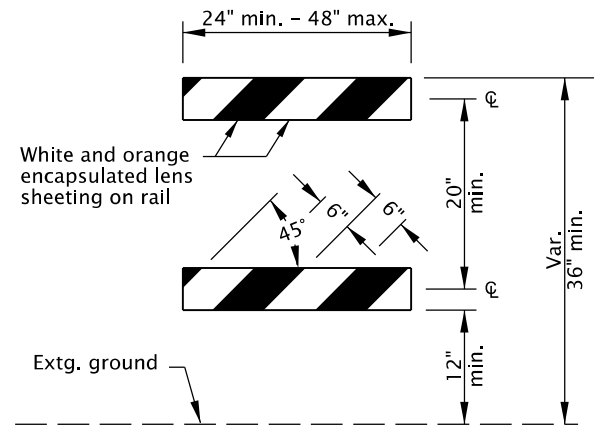
2021

DATE	REVISION	DESCRIPTION

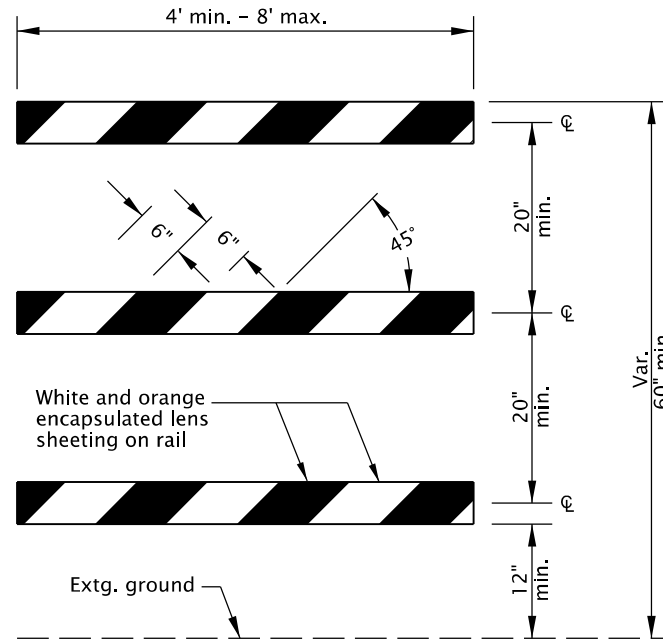
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TYPE I



TYPE II



TYPE III

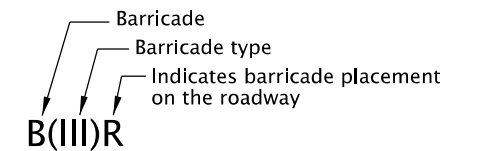
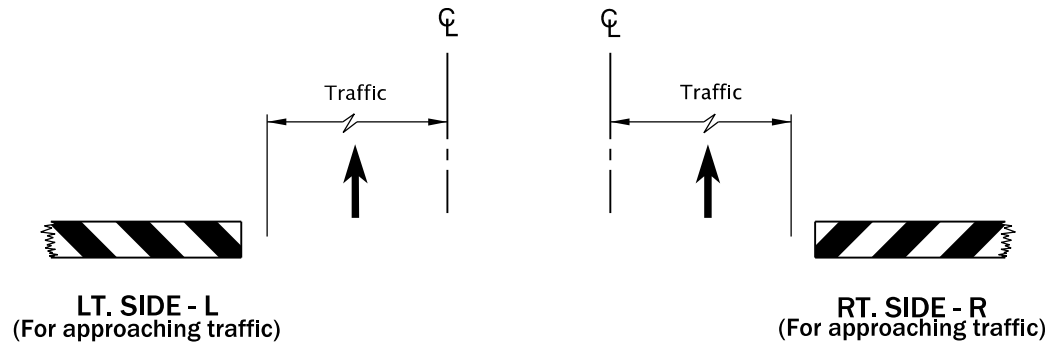
BARRICADE RAIL LAYOUT

GENERAL NOTES FOR ALL DETAILS:

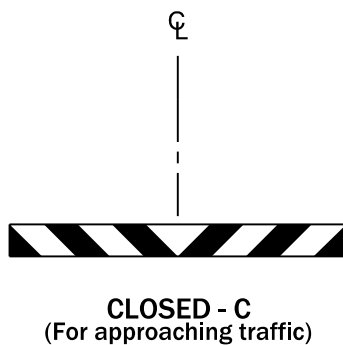
- Sandbags (approximately 25 lb sack filled with sand) may be placed on lower frame to provide additional ballast.
- Ballast shall not extend above bottom rail or be suspended from barricade.
- For rails less than 36" long, 4" wide stripes shall be used.
- Rails must be 8" min. to 12" max. in height.
- Use barricades from ODOT Qualified Products List (QPL).
- Use 4' Type III barricades where horizontal space is limited.
- Do not block bike lanes or shoulders unless the facility is properly closed and signed.
- Do not place barricades in sidewalks unless sidewalk is closed and a temporary pedestrian accessible route (TPAR) is signed according to the TCP. See Dwg. No. TM844.

NOTES:

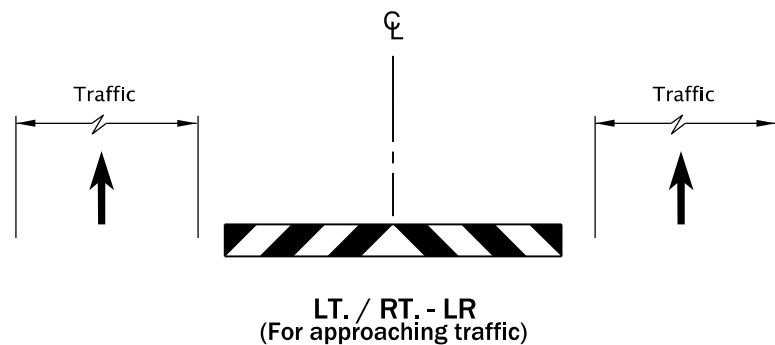
- Markings for barricade rails shall slope downward at an angle of 45° in the direction traffic is to pass.
- Where a barricade extends entirely across a roadway, it is desirable that the stripes slope downward in the direction toward which traffic must turn in detouring.
- Where both right and left turns are provided for, slope the chevron striping downward in both directions from the center of the barricade.
- For full roadway closures, the C or LR barricade may be used. Extend barricades completely across roadway unless access is required for local road users.



BARRICADE NOTATION



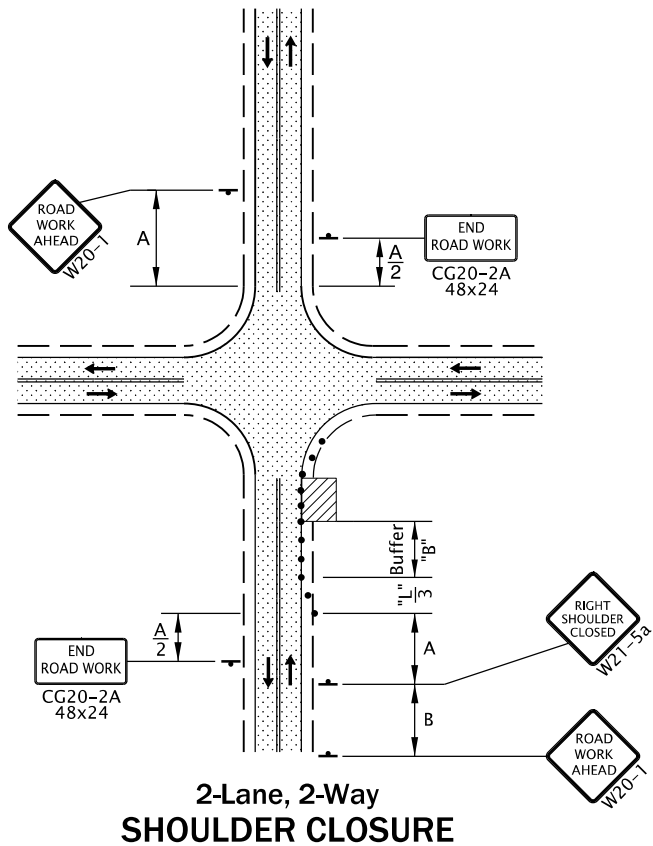
CLOSED - C
(For approaching traffic)



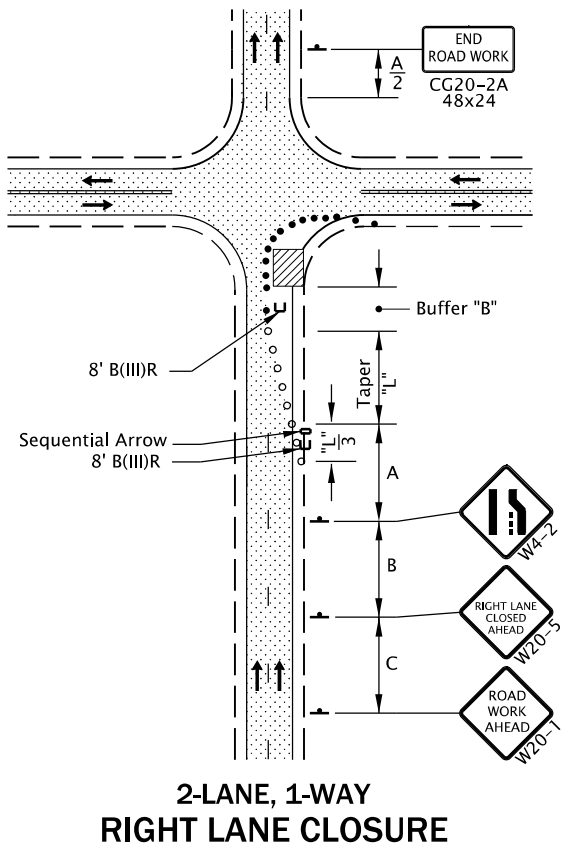
LT. / RT. - LR
(For approaching traffic)

DIAGRAM FOR BARRICADE PLACEMENT AND SLOPE MARKING

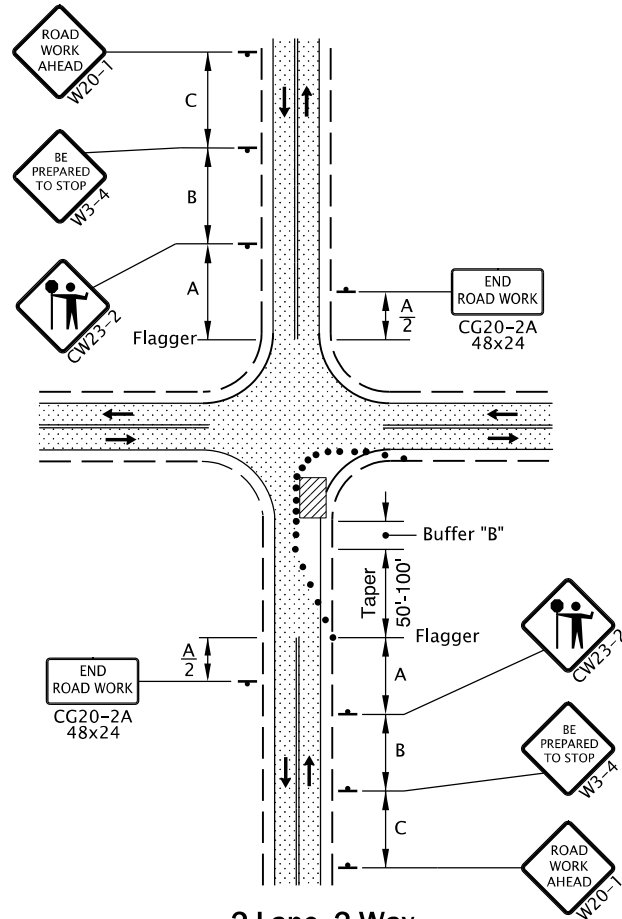
CALC. BOOK NO. _ _ _ _ _ N/A _ _ _ _ _		SDR DATE _ _ _ _ _ 01-JUL-2020 _ _ _ _ _	
<i>The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.</i>		NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications	
		OREGON STANDARD DRAWINGS	
		TEMPORARY BARRICADES	
		2021	
		DATE	REVISION DESCRIPTION



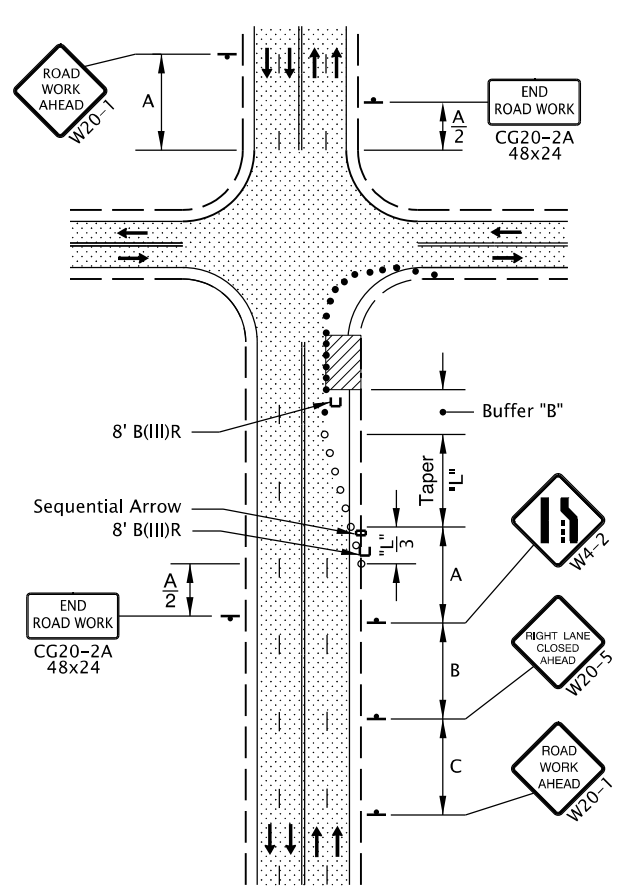
2-Lane, 2-Way
SHOULDER CLOSURE



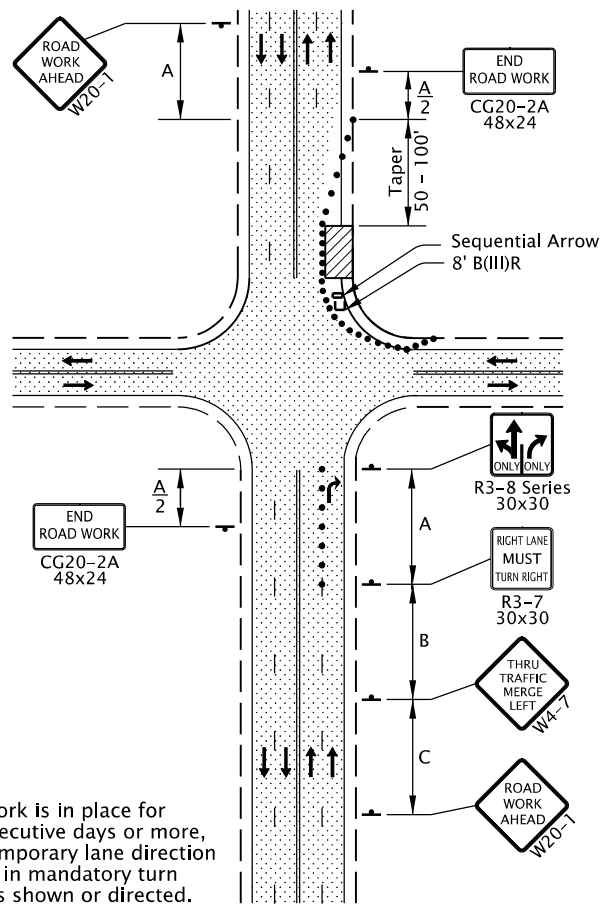
2-LANE, 1-WAY
RIGHT LANE CLOSURE



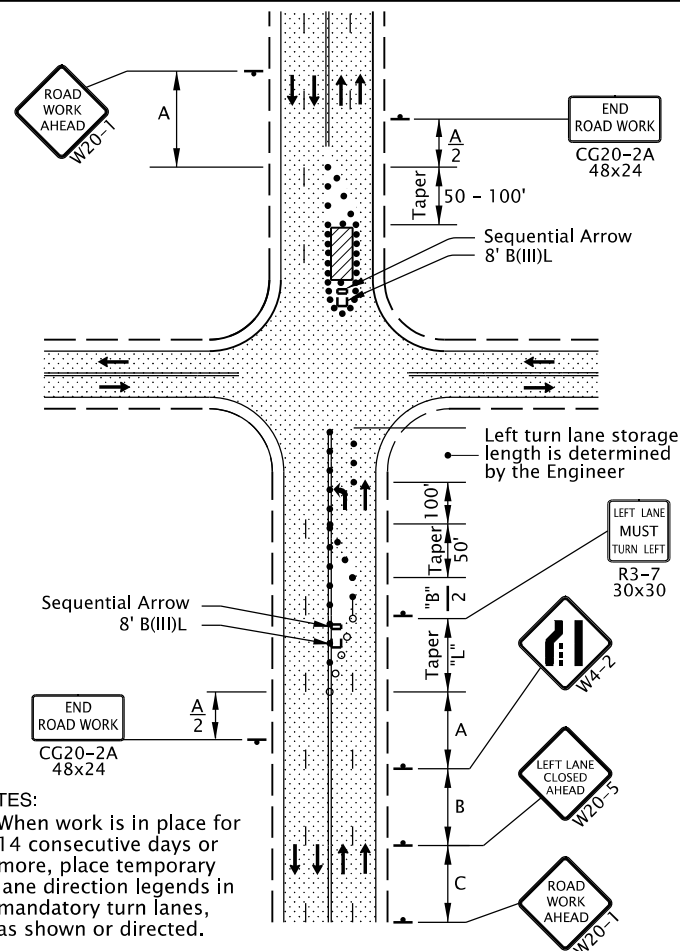
2-Lane, 2-Way
ONE LANE CLOSURE



4-Lane, 2-Way
RIGHT LANE CLOSURE, NEAR SIDE



4-Lane, 2-Way
RIGHT LANE CLOSURE, FAR SIDE



4-Lane, 2-Way
LEFT LANE CLOSURE, FAR SIDE

- NOTES:
- When work is in place for 14 consecutive days or more, place temporary lane direction legends in mandatory turn lanes, as shown or directed.

- NOTES:
- When work is in place for 14 consecutive days or more, place temporary lane direction legends in mandatory turn lanes, as shown or directed.

GENERAL NOTES FOR ALL DETAILS:

- Additional Traffic Control Measures (TCM) may be required for all legs of the intersection.
- The "FLAGGER" (CW23-2) symbol sign shall be used only in conjunction with the "BE PREPARED TO STOP" (W3-4) sign.
- To determine Taper Length ("L") and Buffer Length ("B"), use the "MINIMUM LENGTHS TABLE" on Dwg. TM800.
- For left lane or shoulder work, place TCD to close left lane or shoulder. Use "LEFT LANE CLOSED AHEAD" (W20-5) sign, "LEFT LANE ENDS" (W4-2L) symbol sign, or "LEFT SHOULDER CLOSED" (W21-5a) sign, where applicable.
- To determine sign spacing A, B, and C, use "TRAFFIC CONTROL DEVICES (TCD) SPACING TABLE" on Dwg. TM800.
- When a through road intersects within the work zone, place a "ROAD WORK AHEAD" (W20-1) sign in advance of the intersection at sign spacing A.
- Tubular markers may be used in lane closure tapers where posted speed is 40 mph or less.
- Where shoulder width is limited, Sequential Arrow may be placed within the lane closure taper.
- Place channelizing devices around intersection radii, business accesses and driveways at 10' spacing.
- Install a "BICYCLES ON ROADWAY" (CW11-1) sign in advance of the closure when a bike lane is closed, or when the shoulder is closed and bikes are expected.
- To be accompanied by Dwg. Nos. TM820, TM821 & TM840.

- 28" Tubular Markers
See TCD Spacing Table on TM800 for max. spacing.
- Temp. Plastic Drums
See TCD Spacing Table on TM800 for max. spacing.

UNDER TRAFFIC
UNDER CONSTRUCTION

CALC. BOOK NO. _____ N/A _____

SDR DATE _____ 01-JUL-2020 _____

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

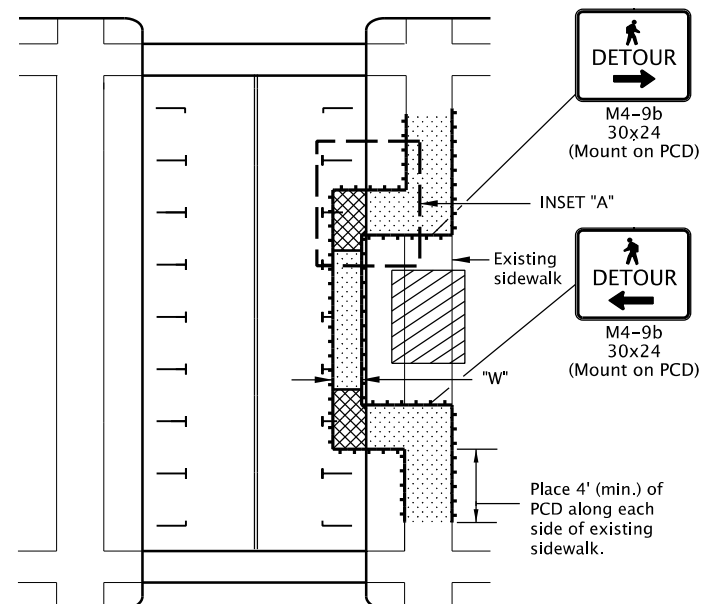
OREGON STANDARD DRAWINGS

INTERSECTION WORK ZONE DETAILS

2021

DATE REVISION DESCRIPTION

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.



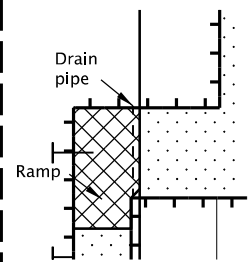
Within Roadway SIDEWALK DIVERSION

NOTES:

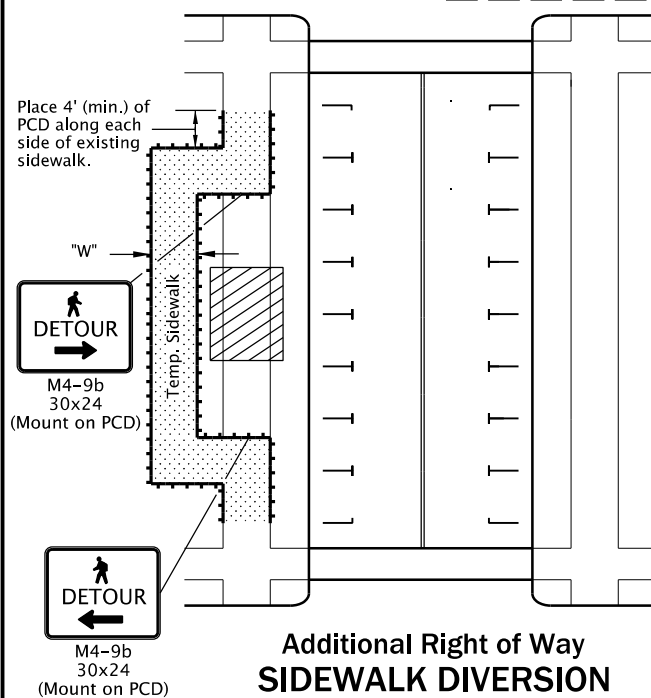
- Place or construct temp. sidewalk ramp, as needed.
- For roadways with a pre-construction posted speed of 40 mph or less.
- See inset "A" for Temp. Sidewalk Ramp details.
- "W" = 60", or, where 60" width cannot be maintained through the entire route, provide 48" min. width with 60" x 60" passing spaces every 200 ft.
- Use temporary ADA compliant surfaces to cross planter strips or other non-traversable surfaces.

NOTES:

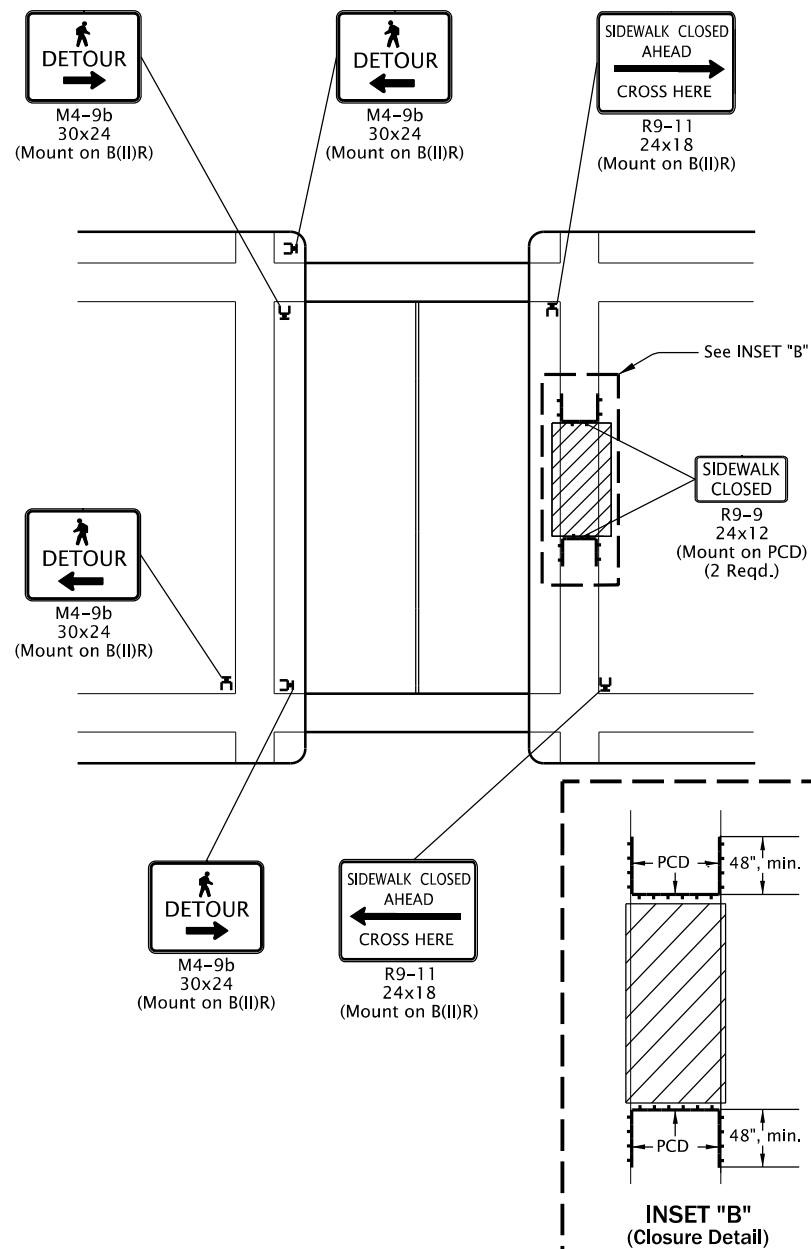
- Ramp size will vary. Ramp must meet ADA requirements incl. max design grade of 7.5% and max design cross slope of 1.5%.



INSET "A"
(Temp. Sidewalk Ramp)



Additional Right of Way SIDEWALK DIVERSION

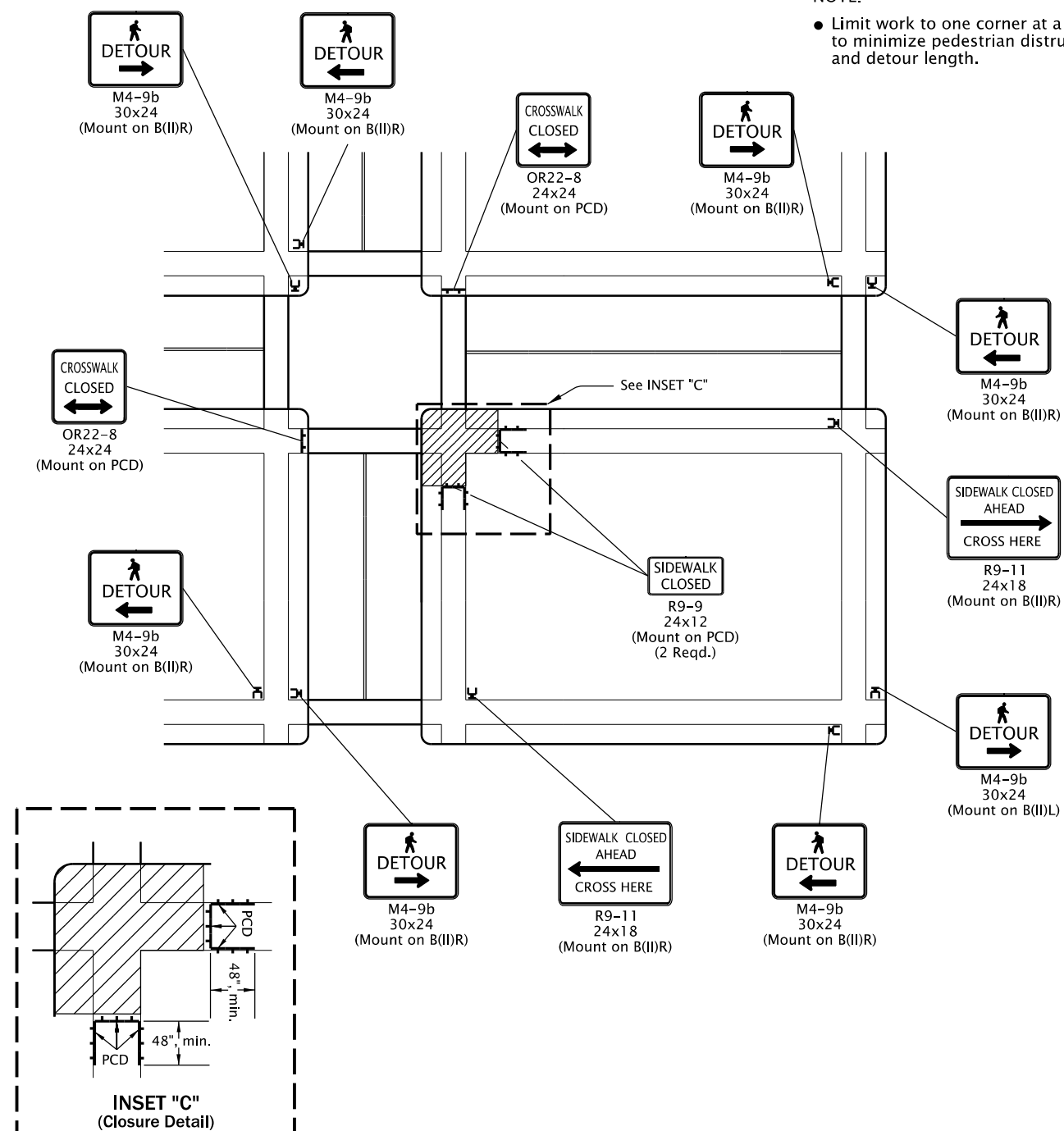


SIDEWALK CLOSURE, MIDBLOCK

GENERAL NOTES FOR ALL DETAILS:

- When closing or relocating crosswalks or other pedestrian facilities provide ADA compliant facilities. Include accessibility features consistent with existing pedestrian facilities by providing adequate slope transitions and surfacing.
- Provide non-slip, 60 inch minimum wide surface through entire pedestrian route. If not possible, provide 48" min. width with 60" x 60" passing spaces every 200 feet along the route.
- Only TCD for pedestrians are shown. Other devices may be necessary to control vehicular traffic.
- Stage work, as necessary, to provide a temporary pedestrian access route at all times. For roadways with no available detours, maintain one open sidewalk at all times.
- Minimize pedestrian out-of-direction travel.
- To be accompanied by Dwg. Nos. TM820 & TM821.

- UNDER PEDESTRIAN TRAFFIC
- UNDER CONSTRUCTION
- PEDESTRIAN CHANNELIZING DEVICE (PCD)



SIDEWALK CLOSURE, CORNER

NOTE:

- Limit work to one corner at a time to minimize pedestrian disruption and detour length.

CALC. BOOK NO. _____ N/A _____

SDR DATE _____ 01-JUL-2020 _____

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OREGON STANDARD DRAWINGS

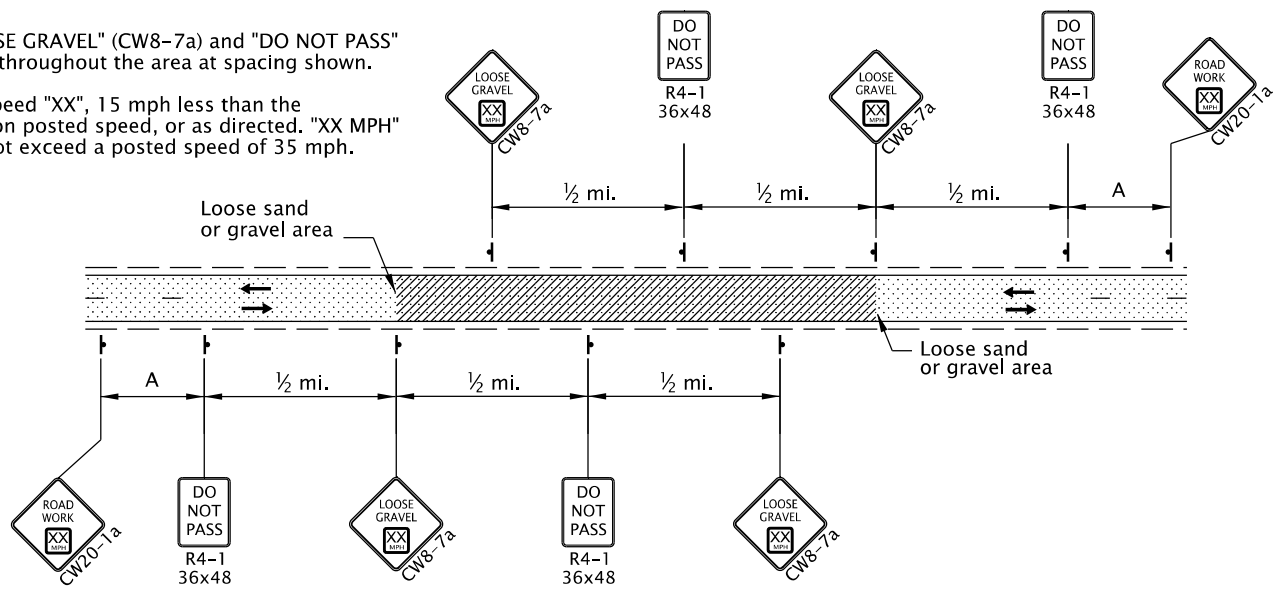
TEMPORARY PEDESTRIAN ACCESSIBLE ROUTES

2021

DATE	REVISION	DESCRIPTION

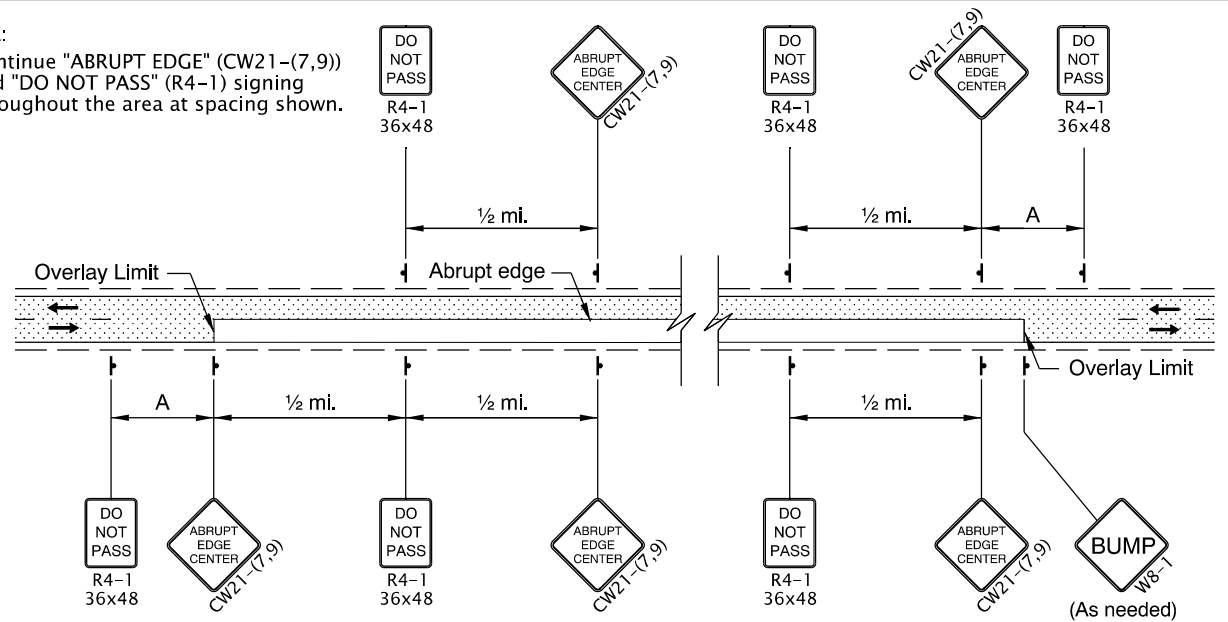
The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.

- NOTE:
- Continue "LOOSE GRAVEL" (CW8-7a) and "DO NOT PASS" (R4-1) signing throughout the area at spacing shown.
 - Use advisory speed "XX", 15 mph less than the pre-construction posted speed, or as directed. "XX MPH" placard shall not exceed a posted speed of 35 mph.



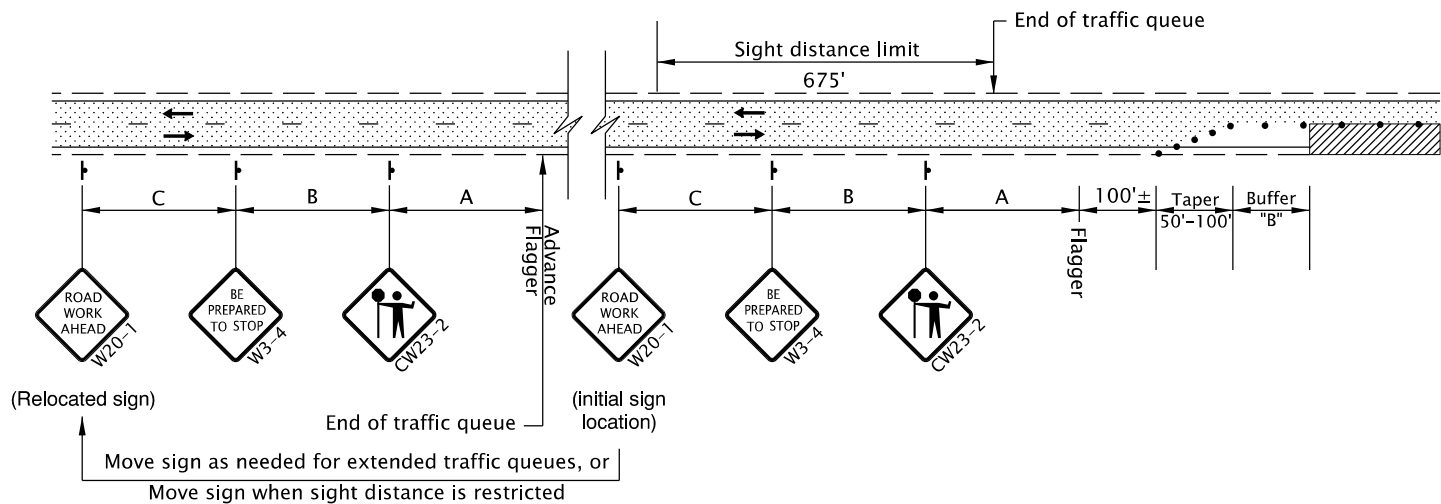
2-Lane, 2-Way Roadway
LOOSE GRAVEL IN ROADWAY SIGNING

- NOTE:
- Continue "ABRUPT EDGE" (CW21-(7,9)) and "DO NOT PASS" (R4-1) signing throughout the area at spacing shown.



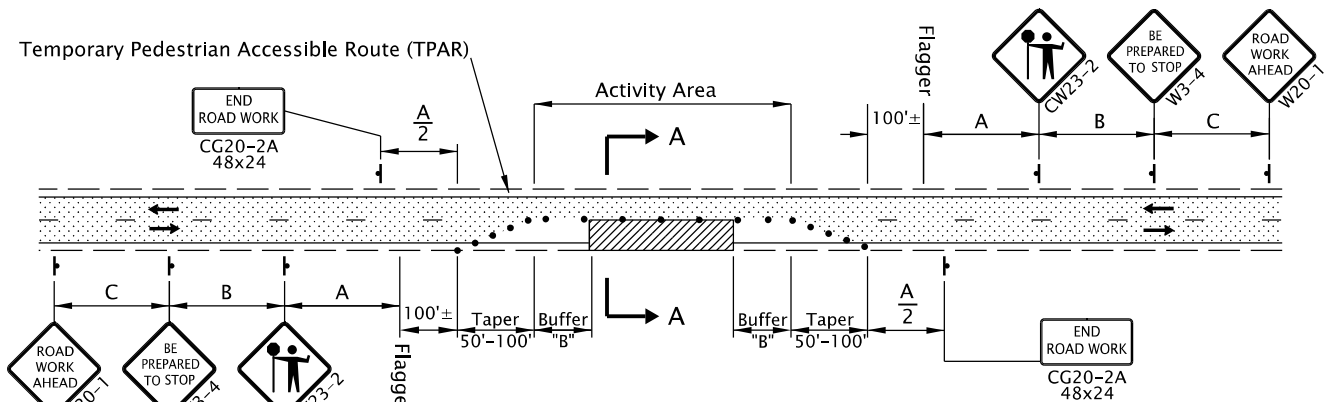
2-Lane, 2-Way Roadway
OVERLAY AREA SIGNING

- NOTES:
- Place Advance Flagger and additional signing when traffic queues extend beyond initial warning signing OR when sight distance is restricted.
 - Relocate initial "ROAD WORK AHEAD" (W20-1) sign in advance of additional "BE PREPARED TO STOP" (W3-4) and Flagger Ahead (CW23-2) signs, as shown.
 - Place additional Tubular Markers for Flagger and Advance Flagger Stations according to FLAGGER STATION DELINEATION detail.



ADVANCE FLAGGER FOR EXTENDED TRAFFIC QUEUES

- NOTE:
- When using pilot cars with flaggers to control traffic during paving operations, the Tubular Marker spacing along centerline may be increased to 200' within the Activity Area, as shown or as directed.
 - Include "WAIT FOR FLAGGER" (CR4-23) signs mounted on Type II Barricade located approx. 50' before each Flagger.
 - Coordinate and control pedestrians movements through the TPAR using Flaggers, other TCM, or as directed. When the existing shoulder is greater than or equal to 4' wide, provide a minimum of 4' of width for the TPAR.



2-Lane, 2-Way Roadway
ONE LANE CLOSURE

GENERAL NOTES FOR ALL DETAILS:

- The "FLAGGER" (CW23-2) symbol sign shall be used only in conjunction with the "BE PREPARED TO STOP" (W3-4) sign.
- Cover existing passing zone signing, as directed.
- Install temporary striping as required.
- To determine Taper Length ("L") and Buffer Length ("B"), use the "MINIMUM LENGTHS TABLE" shown on Dwg. No. TM800.
- To determine sign spacing A, B, and C, use "TRAFFIC CONTROL DEVICES (TCD) SPACING TABLE" on Dwg. No. TM800.
- Install a "BICYCLES ON ROADWAY" (CW11-1) sign in advance of the closure when a bike lane is closed, or when the shoulder is closed and bikes are expected.
- At night, flagger stations shall be illuminated according to the FLAGGER STATION LIGHTING DELINEATION detail on Dwg No. TM800.

- To be accompanied by Dwg. Nos. TM820 & TM821.

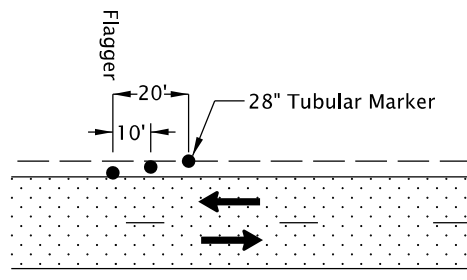
- 28" Tubular Markers on 20' max. spacing for flagger tapers and stations

- 28" Tubular Markers See TCD Spacing Table on TM800 for max. spacing.

- UNDER TRAFFIC
- UNDER CONSTRUCTION
- CONSTRUCTION UNDER TRAFFIC

NOTE:

- Use a minimum of 3 tubular markers in shoulder taper on 10' spacing for flagger station delineation.



FLAGGER STATION DELINEATION

CALC. BOOK NO. _ _ _ _ N/A _ _ _ _

SDR DATE _ _ _ _ 01-JUL-2020 _ _ _ _

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

OREGON STANDARD DRAWINGS

2-LANE, 2-WAY ROADWAYS

2021

DATE	REVISION	DESCRIPTION