

STATE OF MAINE



Department of Transportation

Standard Details

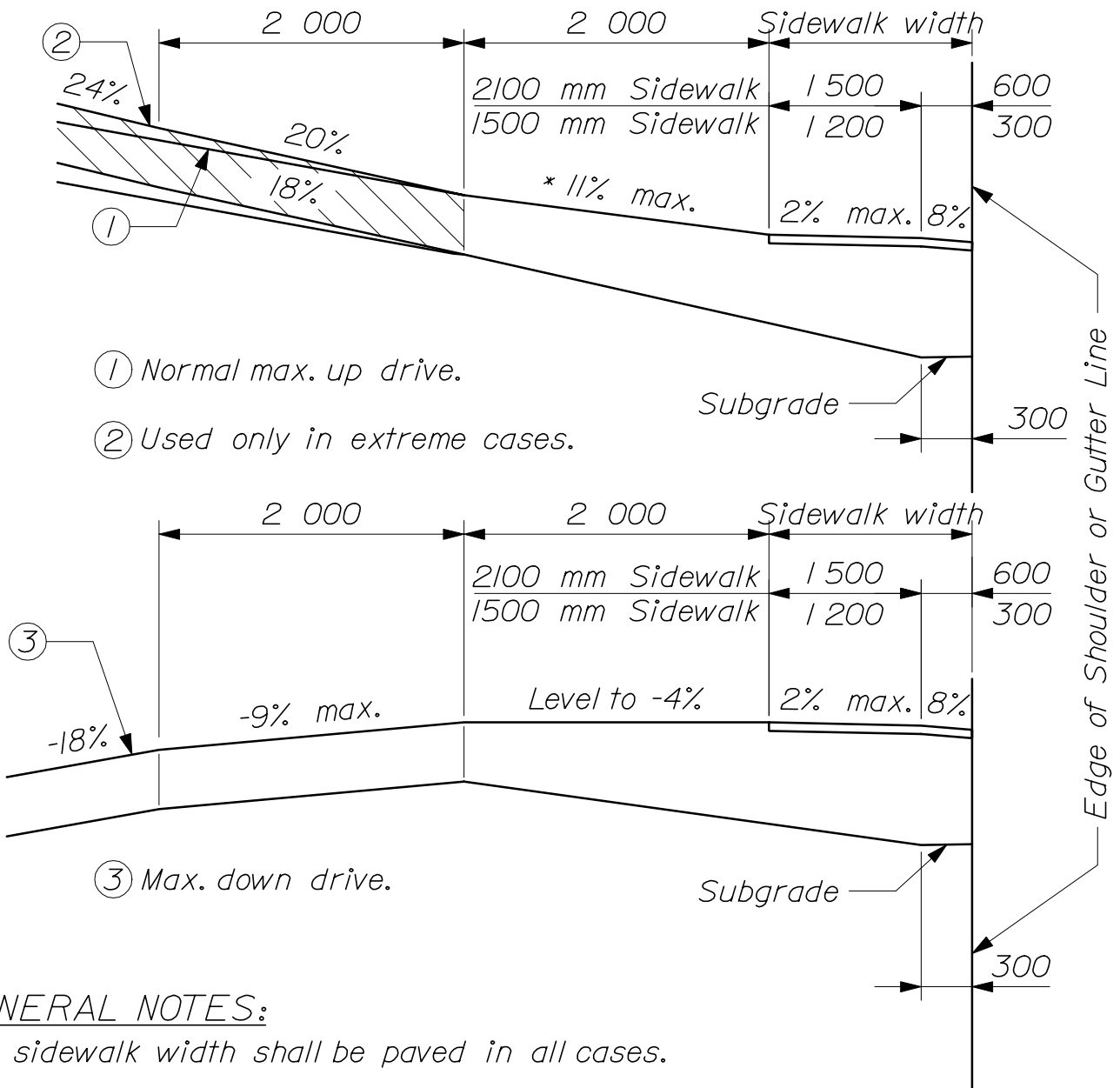
Revision of December 2002



DIVISION 800

MISCELLANEOUS

DETAILS



GENERAL NOTES:

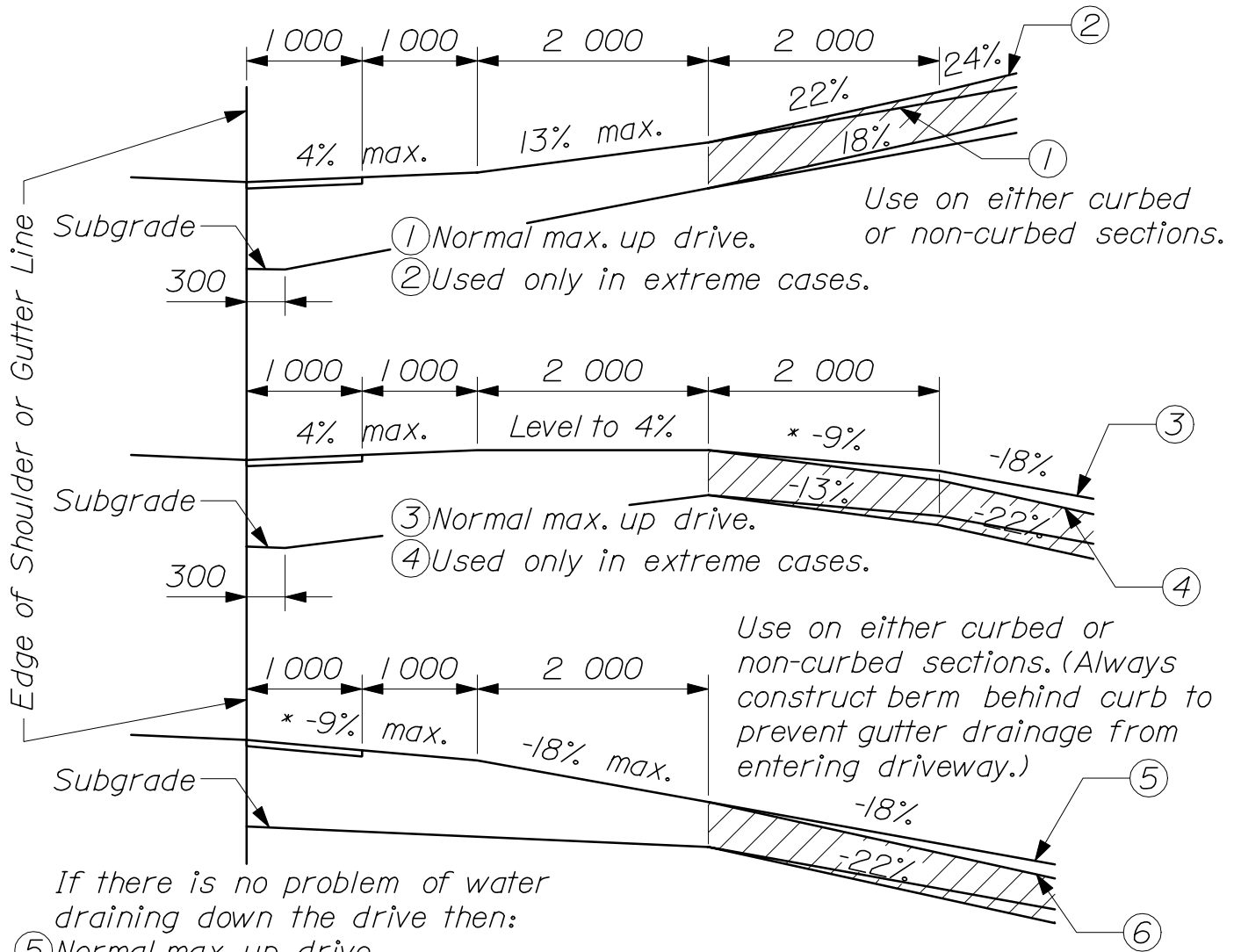
1. The sidewalk width shall be paved in all cases.
2. All residential or commercial drives 10% and over shall be paved.

NOTES ON MAXIMUM DRIVEWAY PROFILES:

1. These profiles are a guide for the majority of cases, but should be field checked when the main line grade is steep (4% to 6% or greater) or the angle of approach to the drive is unusual.
2. Generally the majority of drives on a project will be built with flatter profiles than these maximum cases.
- *3. When grading drives which are flatter than the maximum profiles the following rule of thumb should be used. Do not exceed a grade % change of more than 9% in a 2 000 mm increment of driveway length. This applies to both up and down profiles.

DRIVES ON SIDEWALK SECTIONS

801(01)



- ⑤ Normal max. up drive.
- ⑥ Used only in extreme cases.

Use only on non-curbed sections on seasonal or limited use entrances or when drainage is not a factor.

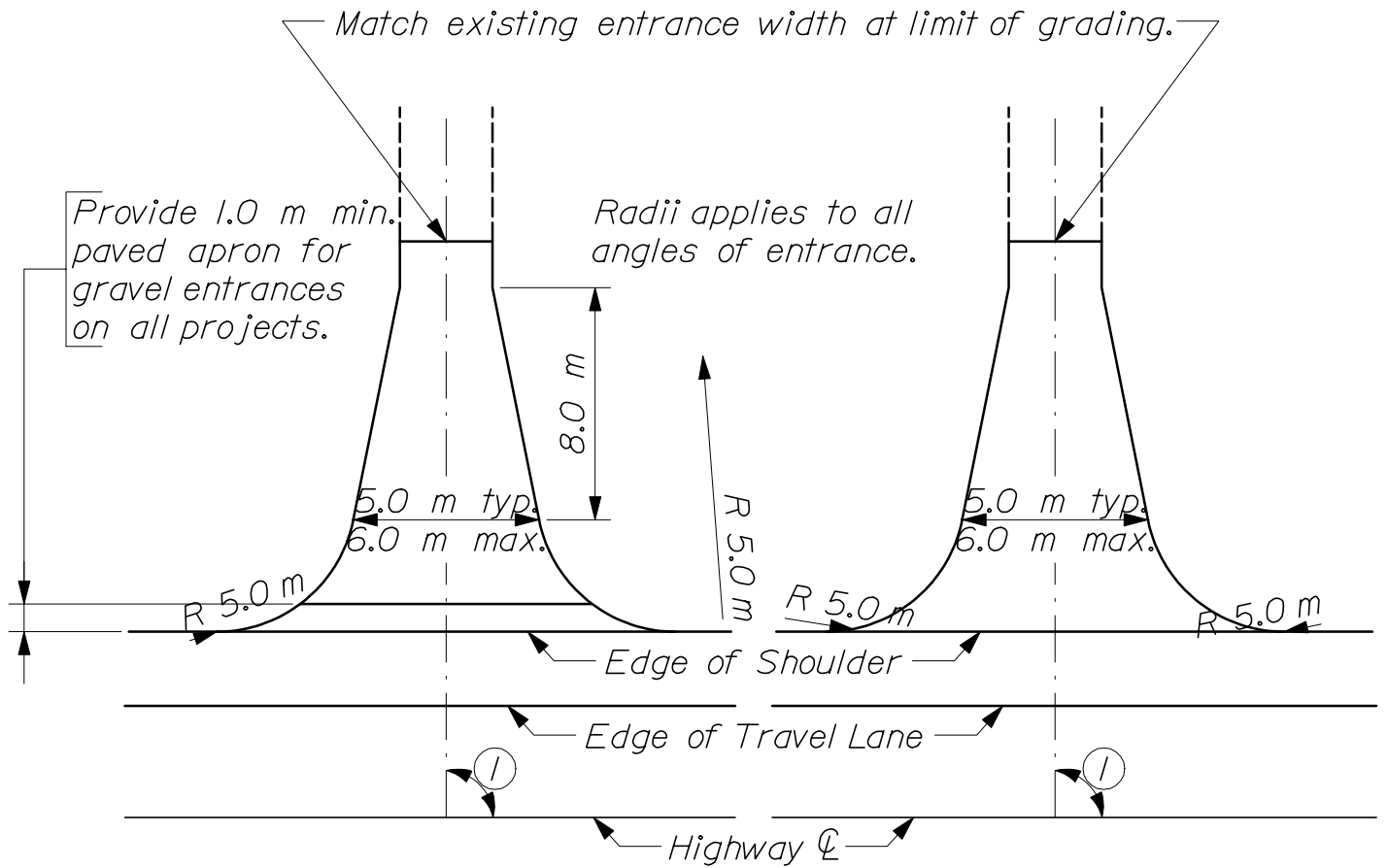
GENERAL NOTES:

1. The first 1000 mm shown as pavement shall be paved only when abutting a paved area.
2. All residential or commercial drives 10% and over shall be paved.

NOTES ON MAXIMUM DRIVEWAY PROFILES:

1. These profiles are a guide for the majority of cases, but should be field checked when the main line grade is steep (4% to 6% or greater) or the angle of approach to the drive is unusual.
2. Generally the majority of drives on a project will be built with flatter profiles than these maximum cases.
- * 3. When grading drives which are flatter than the maximum profiles the following rule of thumb should be used: Do not exceed a grade % change of more than 9% in a 2000 mm increment of driveway length. This applies to both up and down profiles.

DRIVES ON NON-SIDEWALK SECTIONS



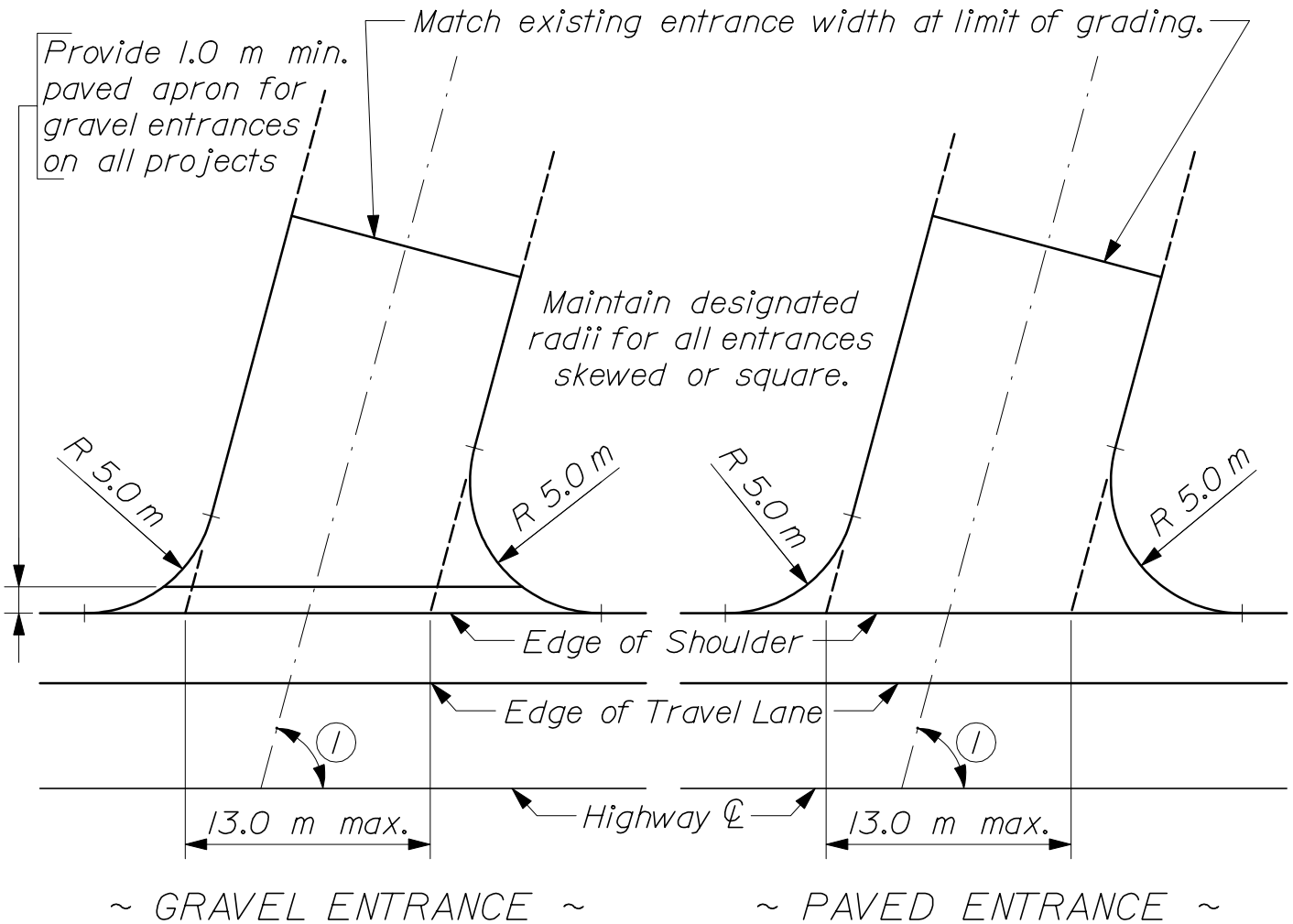
~ GRAVEL ENTRANCE ~ ~ PAVED ENTRANCE ~

① Entrance angle should not be less than 45°.

RESIDENTIAL ENTRANCE ONTO UNCURBED
HIGHWAY - PAVED SHOULDERS

801(03)

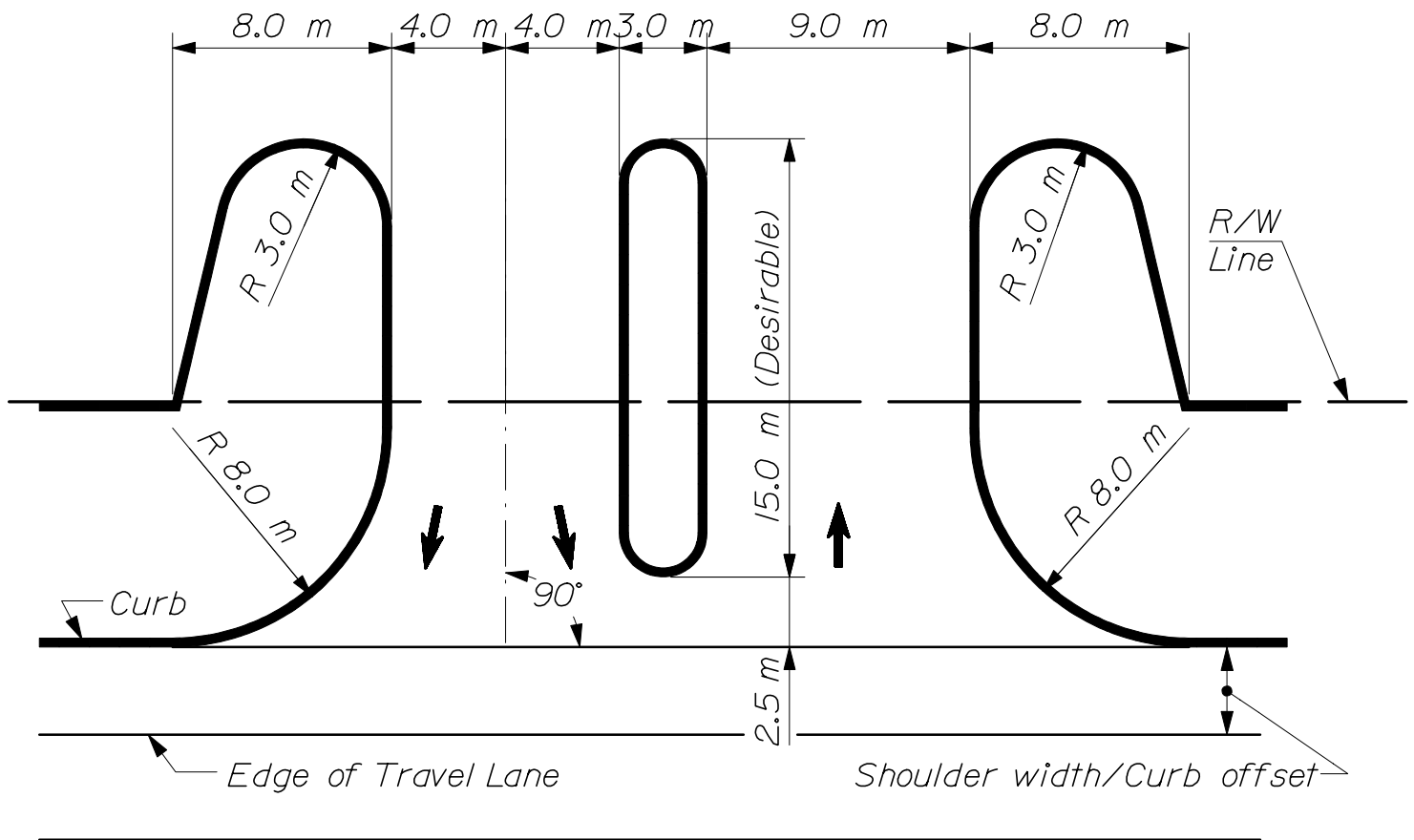
Entrances with a high number of truck movements may be designed on an individual basis.



① Entrance angle should not be less than 45°.

COMMERCIAL/INDUSTRIAL ENTRANCE ONTO
ONTO UNCURBED HIGHWAY - PAVED SHOULDERS

801(04)



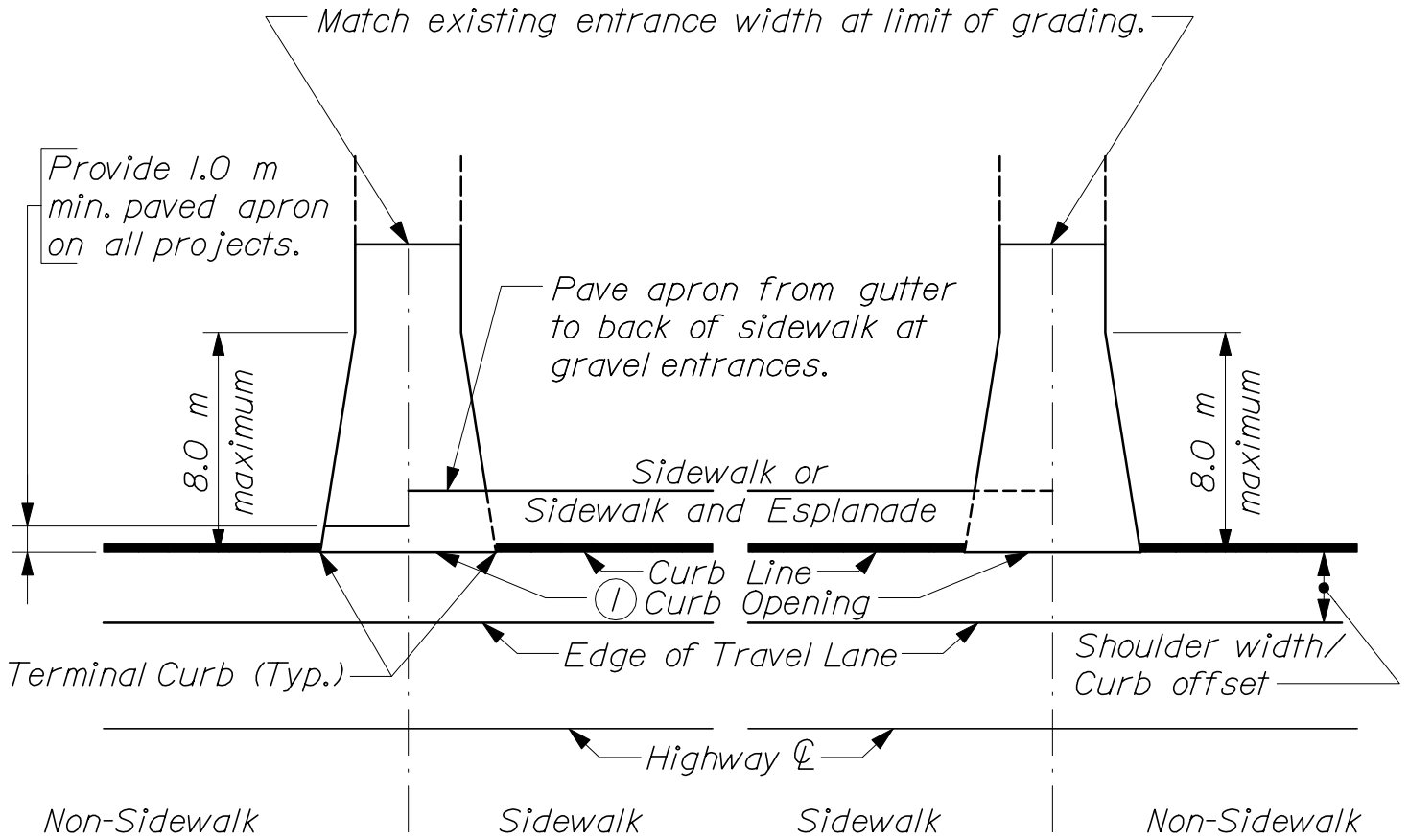
~ PAVED ENTRANCE ~

NOTES:

1. This type of entrance suitable for other high traffic volume, public-type installations.
2. All island borders shall be curbed.

SHOPPING CENTER ENTRANCE ONTO
HIGHWAY - PAVED SHOULDERS

801(05)



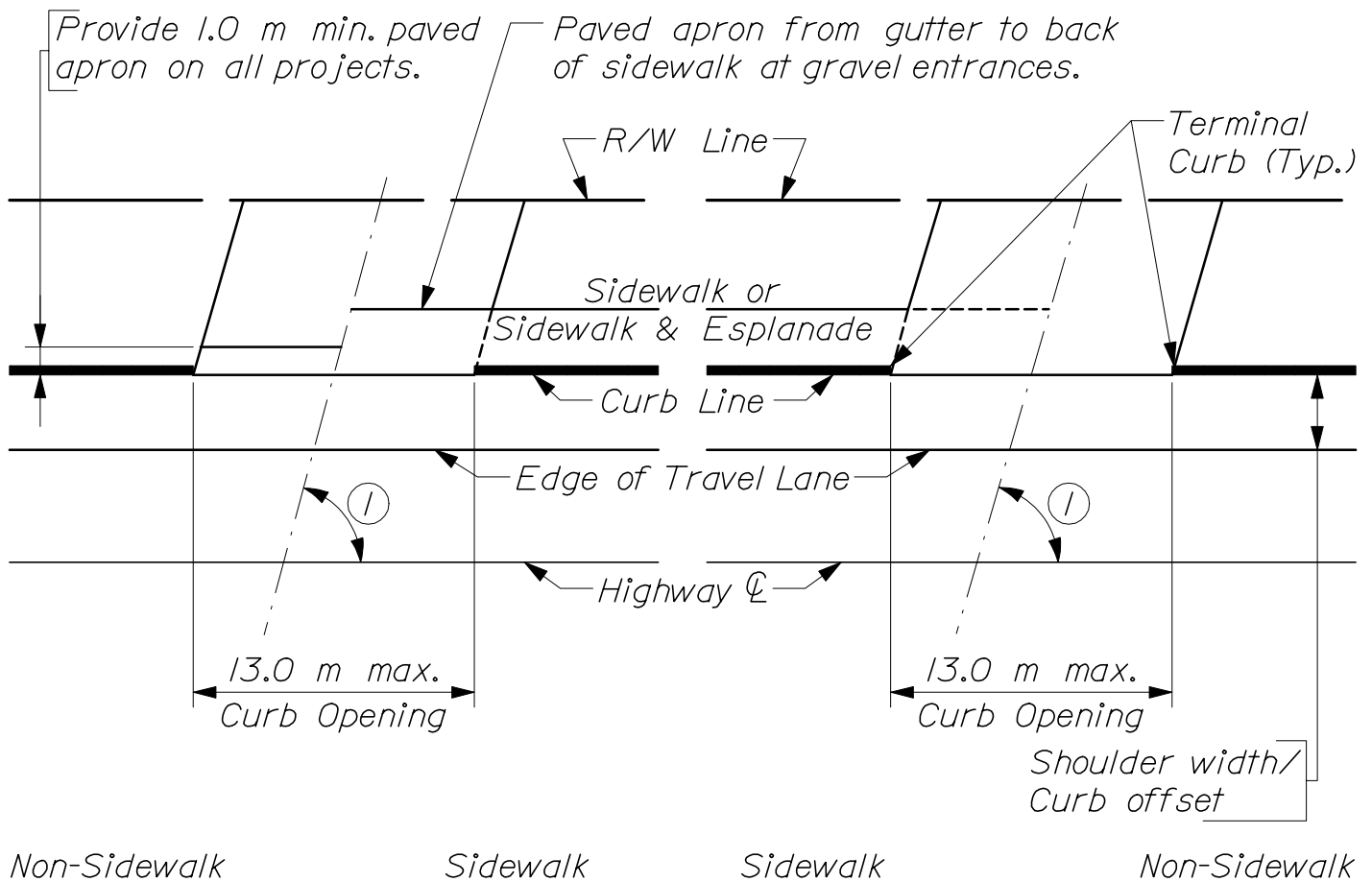
~ GRAVEL ENTRANCE ~

~ PAVED ENTRANCE ~

① Minimum curb opening is 6.0 m where the shoulder width is > 2.0 m and 8.0 m where the shoulder width is < 2.0 m.

RESIDENTIAL ENTRANCE ONTO CURBED HIGHWAY WITH/WITHOUT SIDEWALKS

801(06)



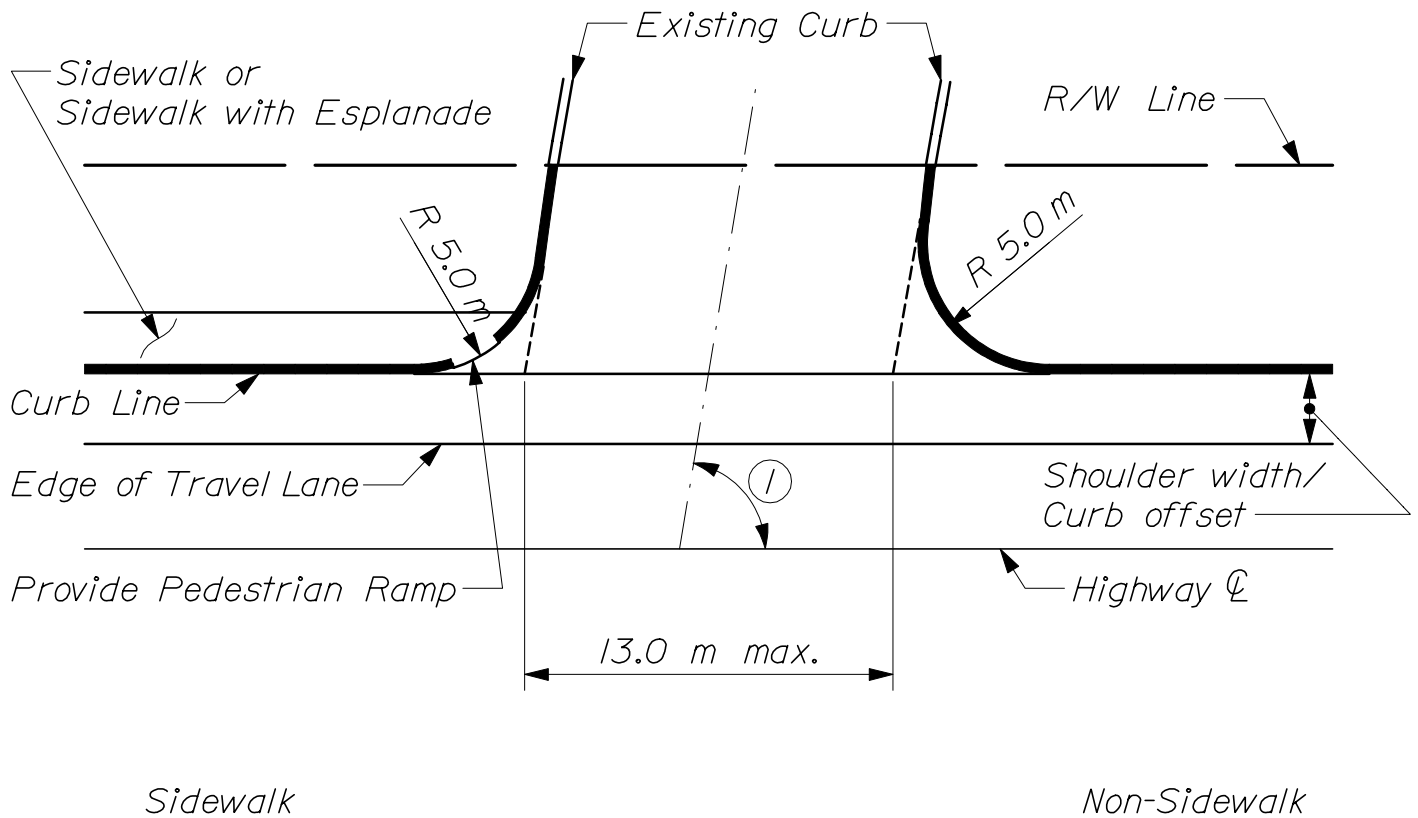
~ GRAVEL ENTRANCE ~

~ PAVED ENTRANCES ~

- ① Minimum entrance angle is 45° where the shoulder width ≥ 2.0 m and 60° where the shoulder width < 2.0 m.
- ② If there are high truck turning volumes, the designer should consider providing turning radii of 5.0 m - 8.0 m and/or a wider opening and/or limiting the angle of turn to accommodate trucks.

UNCURBED COMMERCIAL/INDUSTRIAL ENTRANCE ONTO CURBED HIGHWAY WITH/WITHOUT SIDEWALK

801(07)

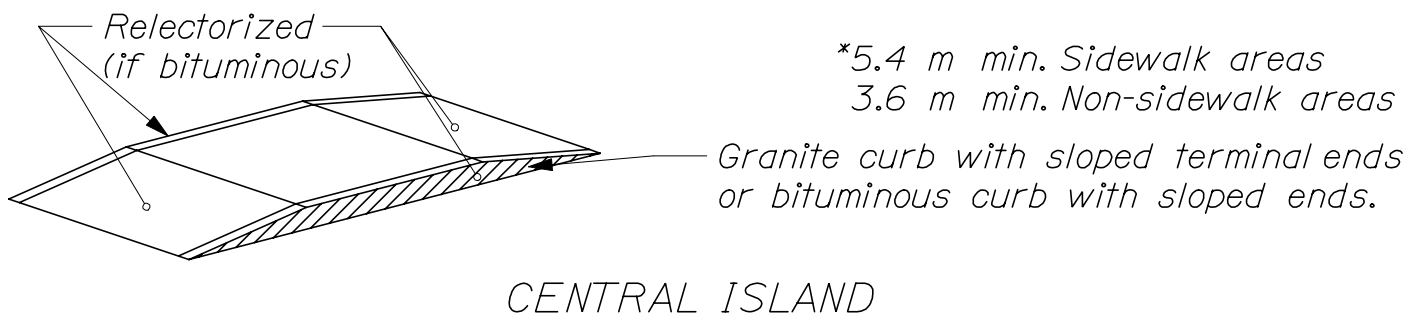
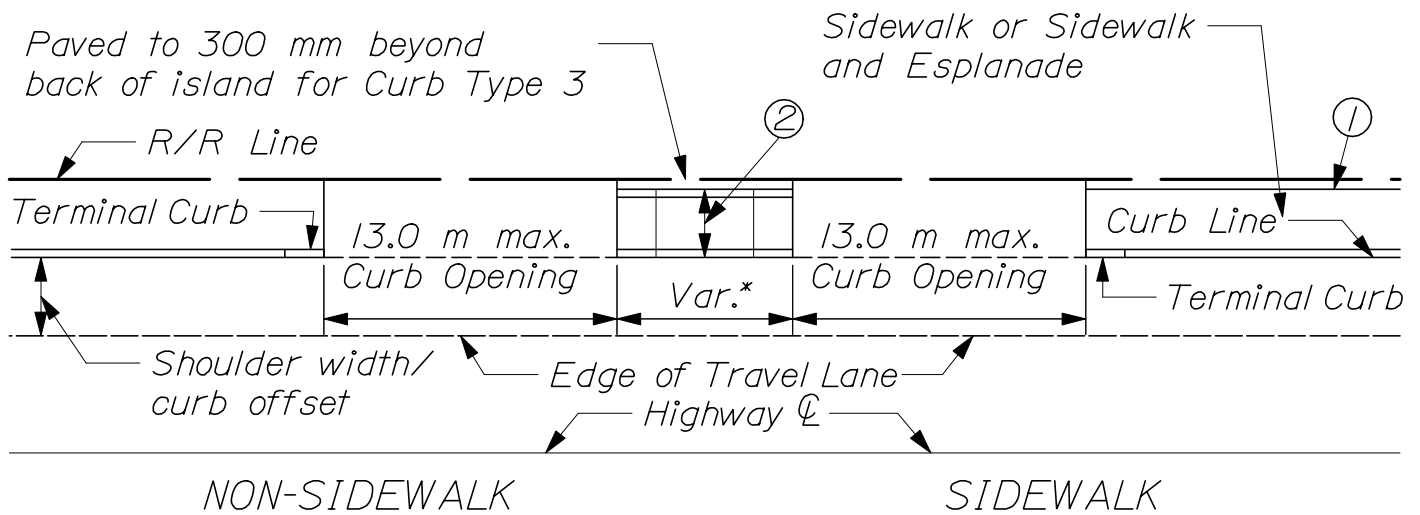


~ PAVED ENTRANCE ~

① Minimum entrance angle is 45° where the shoulder width ≥ 2.0 m and 60° where the shoulder width < 2.0 m.

CURBED COMMERCIAL/INDUSTRIAL ENTRANCE
 ONTO CURBED HIGHWAY
 WITH/WITHOUT SIDEWALK

801(08)



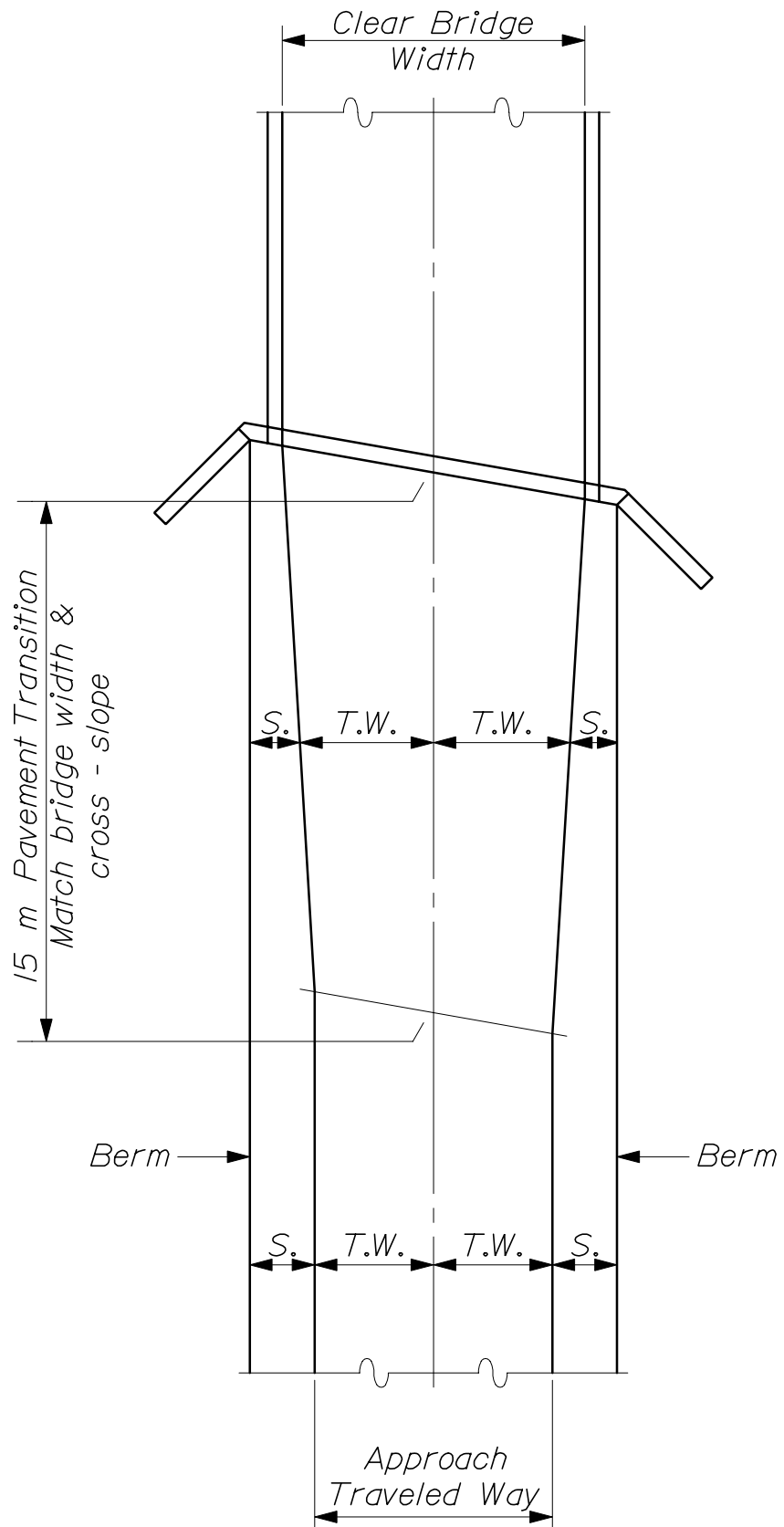
- ① Where parking of Service Area abuts sidewalk, a curb, guardrail or fence should be provided.
- ② Island width will extend within 300 mm of Right-of-Way line, if practical. When island width exceeds 3.0 m, use design in figure 8-41 in Highway Design Guide.
- ③ If there are high truck turning volumes, the designer should consider providing turning radii of 5.0 m - 8.0 m and/or wider opening and/or limiting the angle of turn to accommodate trucks.

COMMERCIAL/INDUSTRIAL DOUBLE ENTRANCES ONTO CURBED HIGHWAY

(NARROW RIGHT-OF-WAY)

801(09)

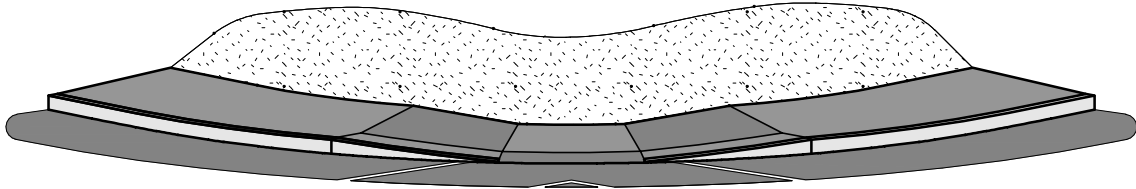
T.W. = Traveled Way Pavement & Cross - slope
S. = Shoulder Pavement & Cross - slope



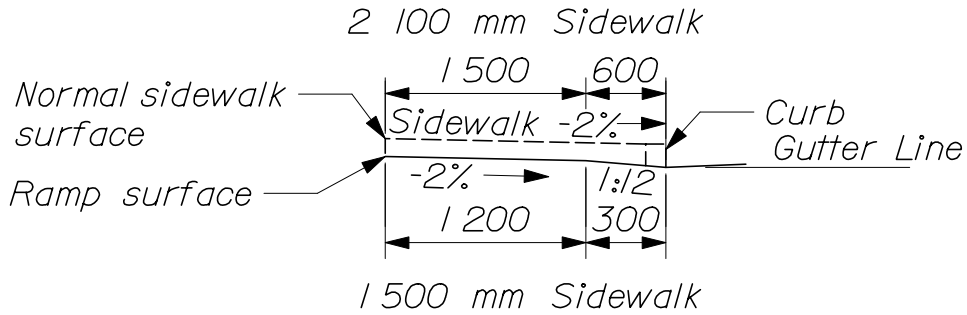
PAVEMENT TRANSITION AT BRIDGE
80(10)

GENERAL NOTES

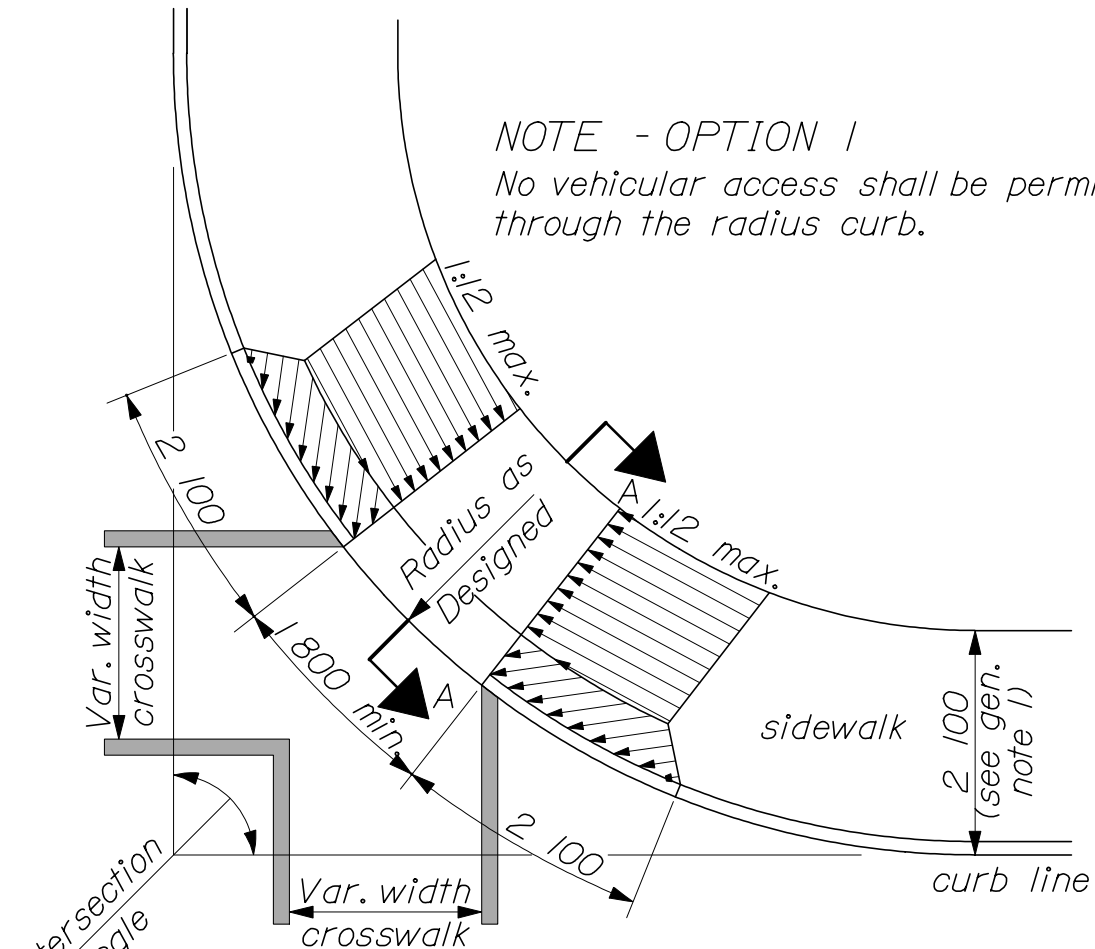
- 1. When the sidewalk is less than 1500 mm in width, a minimum pad 1500 mm x 1500 mm sloping no more than 2% shall be provided whenever a change in direction must be made.*
- 2. There shall be a minimum of 300 mm Aggregate Subbase Course-Gravel under the 50 mm pavement on pedestrian ramps.*
- 3. Curb openings for pedestrian ramps shall be 1800 mm minimum.*



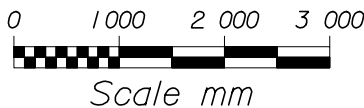
PERSPECTIVE VIEW
(not to scale)



SECTION A-A



PLAN VIEW



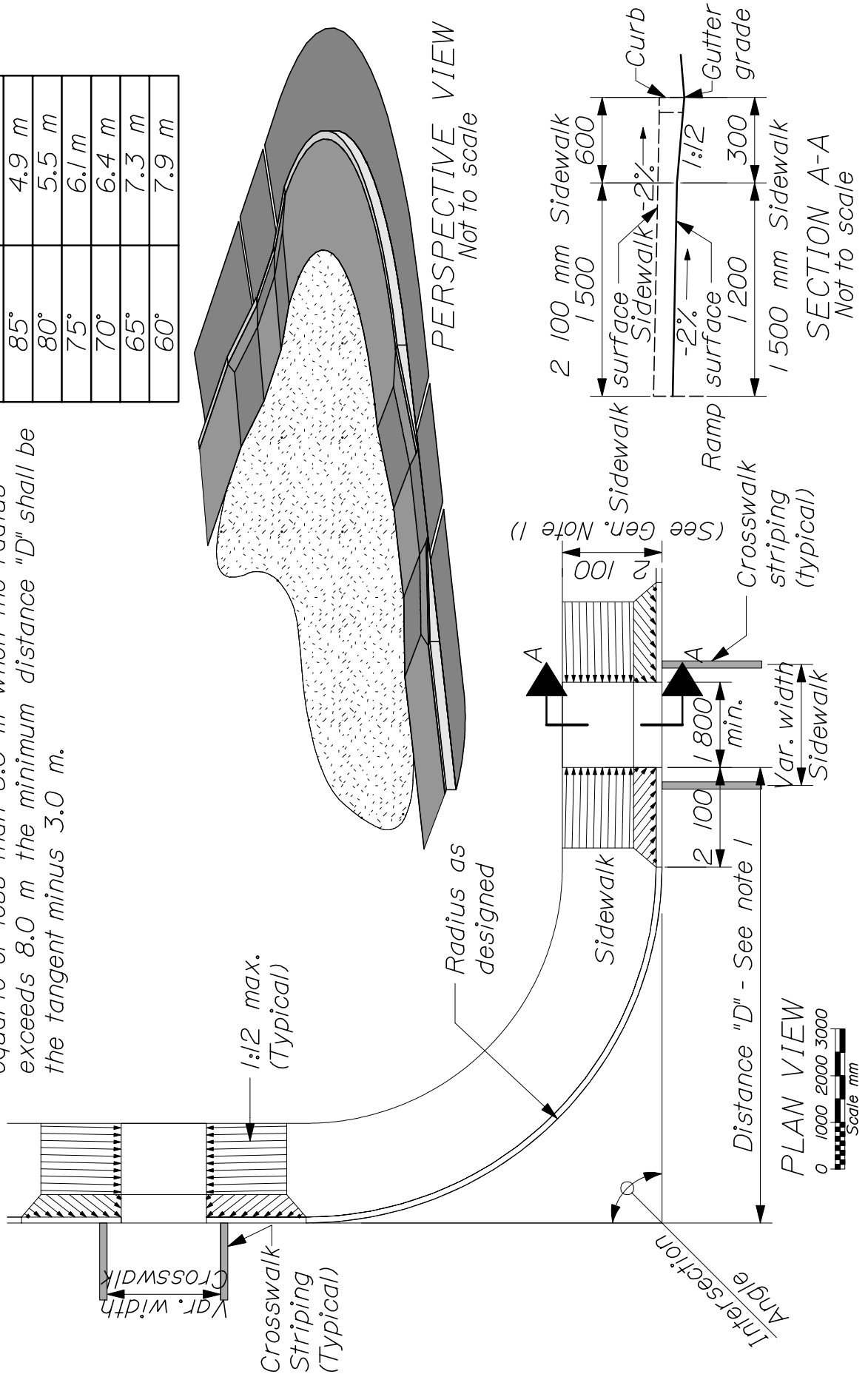
PEDESTRAIN RAMP - OPTION 1
80(12)

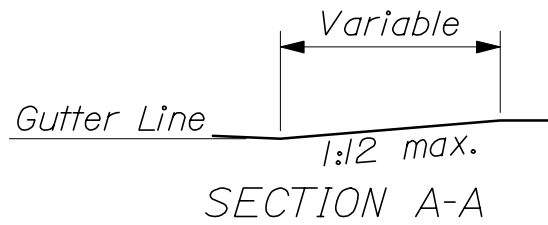
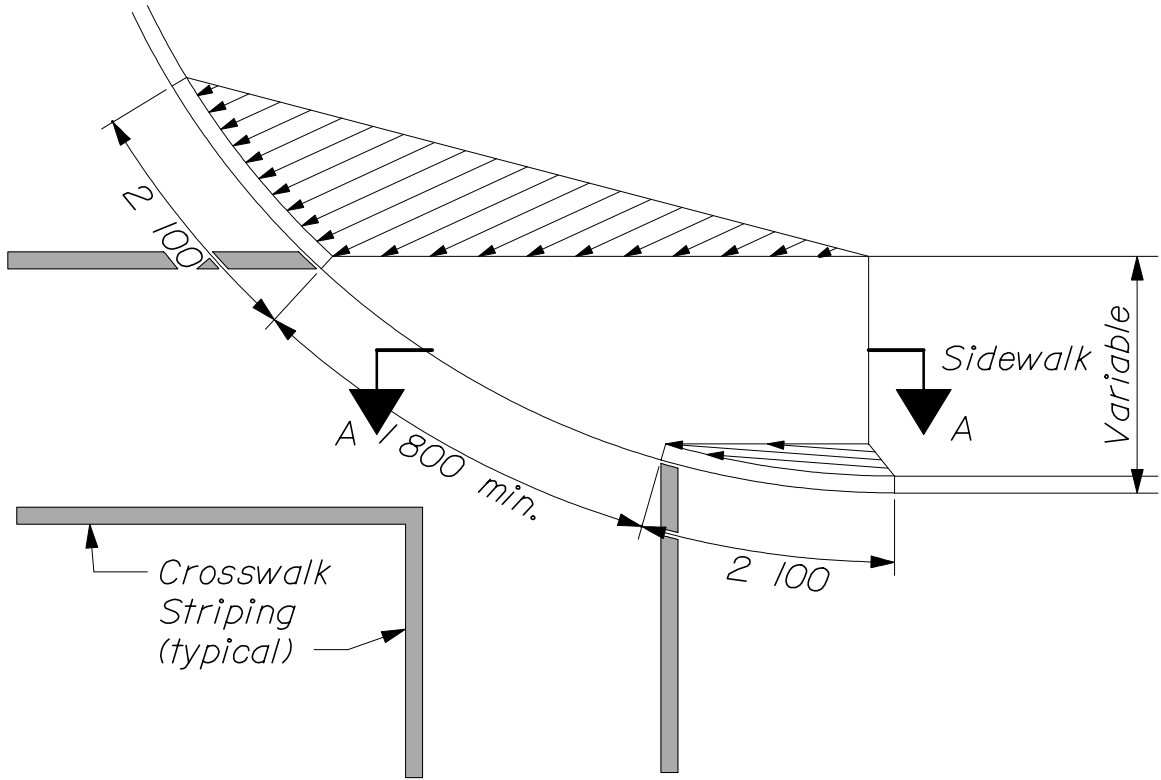
NOTES - OPTION 2

The desirable distance "D" is the tangent distance of the curb radius plus 2 100 mm. When local conditions do not permit the use of this distance the distances shown in the table below may be used:

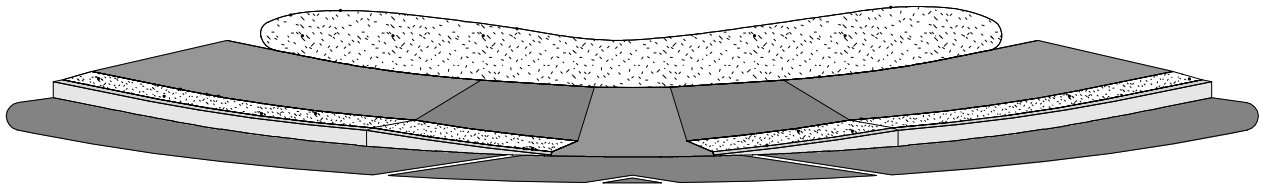
Intersection Angle	Absolute Minimum "D"
90°	4.6 m
85°	4.9 m
80°	5.5 m
75°	6.1 m
70°	6.4 m
65°	7.3 m
60°	7.9 m

These distances shall be used when the radius is equal to or less than 8.0 m when the radius exceeds 8.0 m the minimum distance "D" shall be the tangent minus 3.0 m.

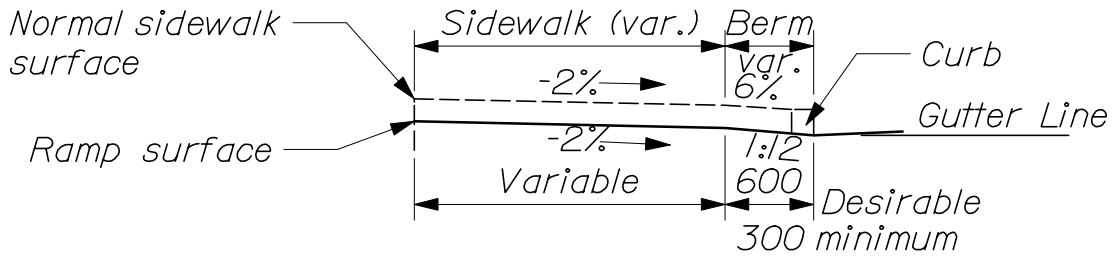




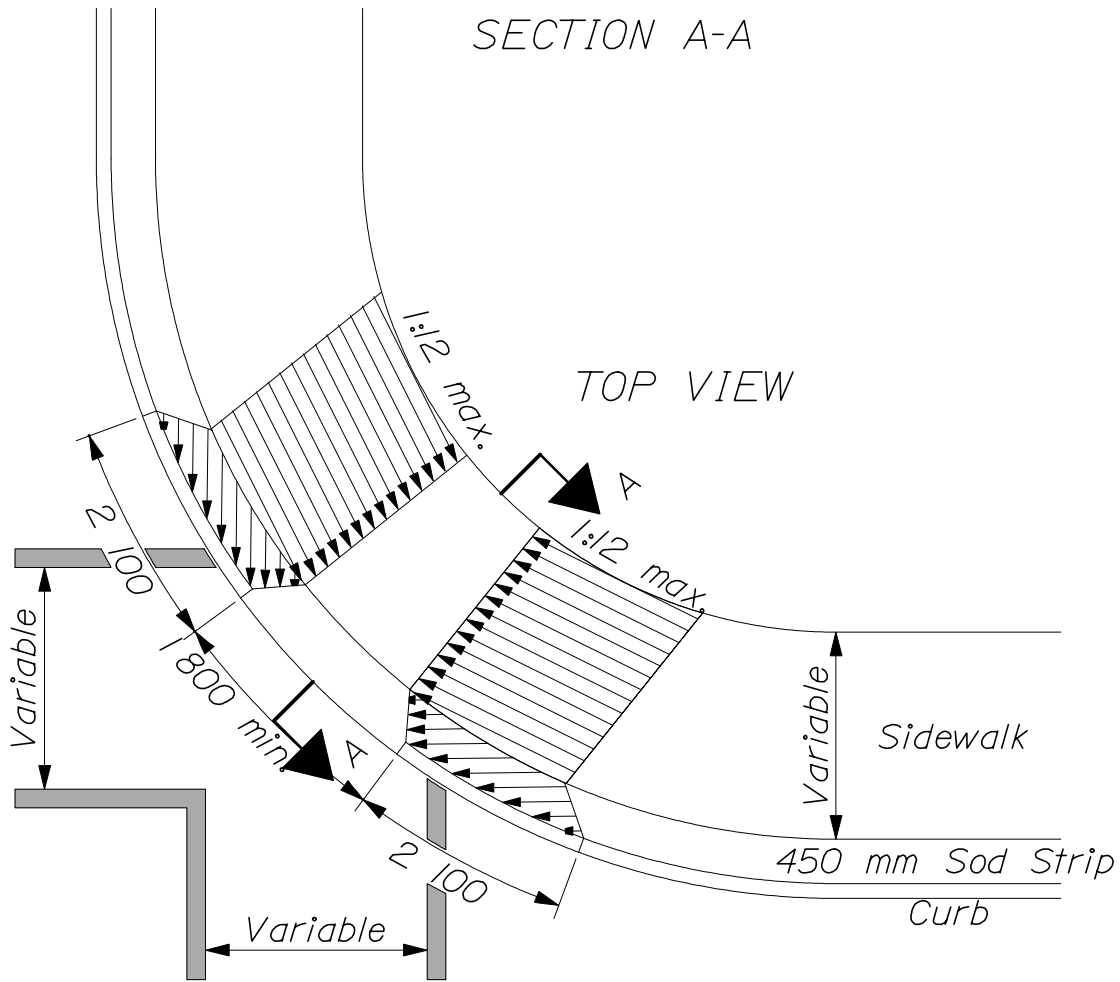
PEDESTRIAN RAMPS - OPTION 3
 801(14)



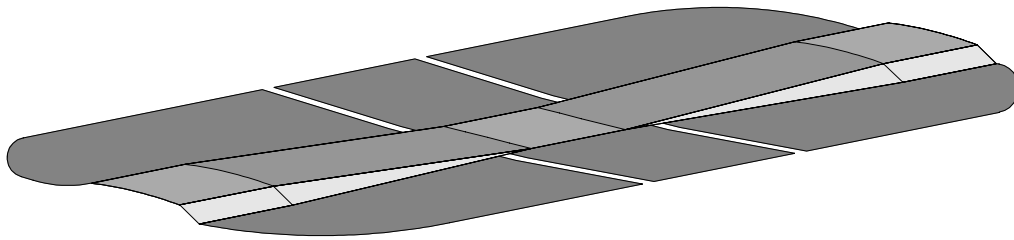
PERSPECTIVE VIEW
Not to scale



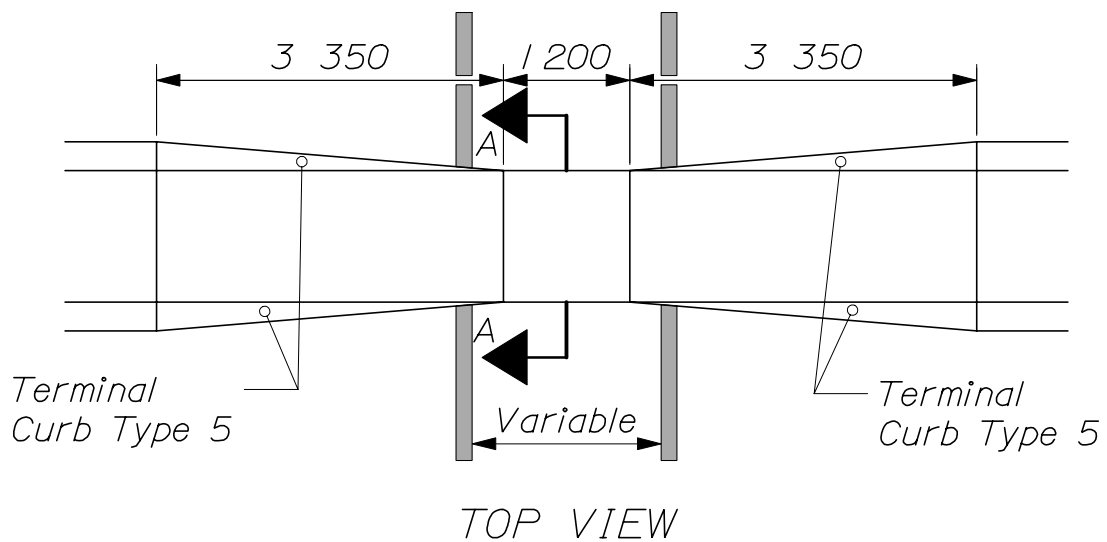
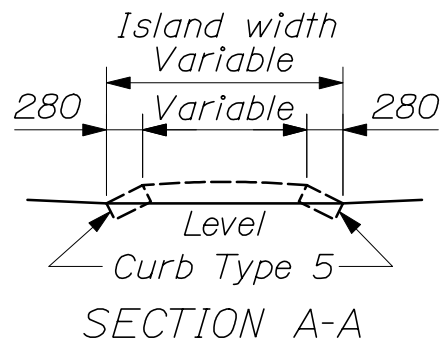
SECTION A-A



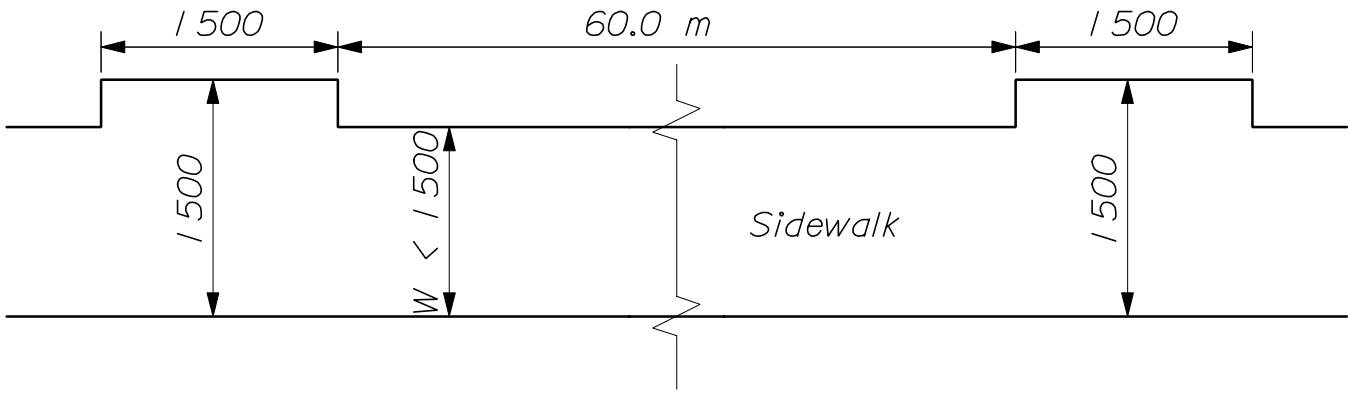
PEDESTRIAN RAMP WITH BERM
80K(15)



PERSPECTIVE VIEW
Not to scale

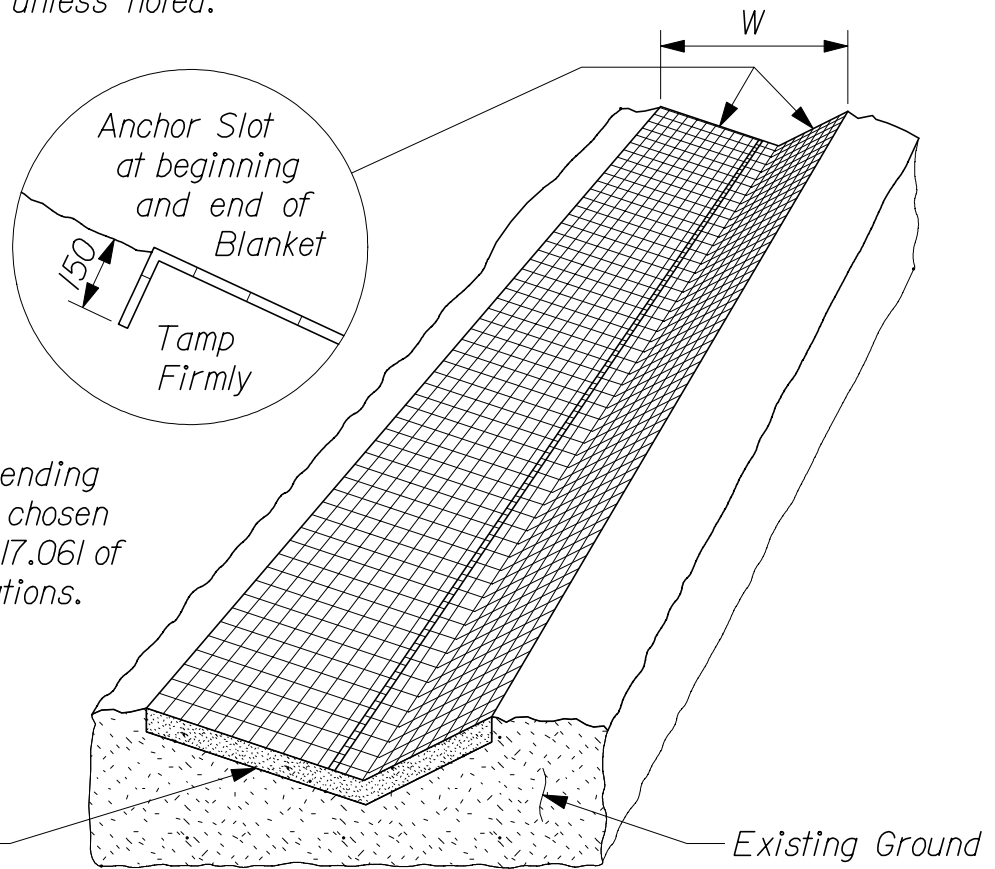


PEDESTRIAN RAMP
ISLAND - CURB TYPE 5
801(16)

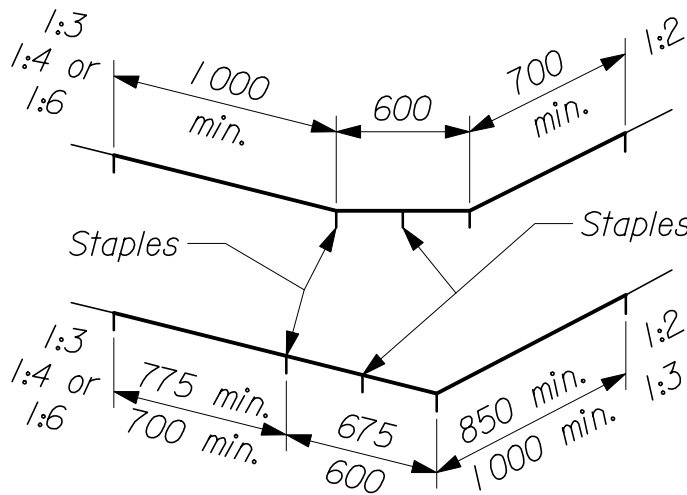


Sidewalks less than 1500 mm in width require a 1500 mm x 1500 mm passing area every 60.0 m.

Dimensions are in mm unless noted.

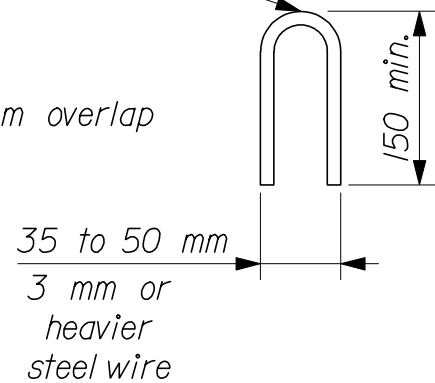


-- PERSPECTIVE VIEW --



-- STAPLE LOCATIONS --

Insert flush into ground



-- WIRE STAPLE --

NOTE:

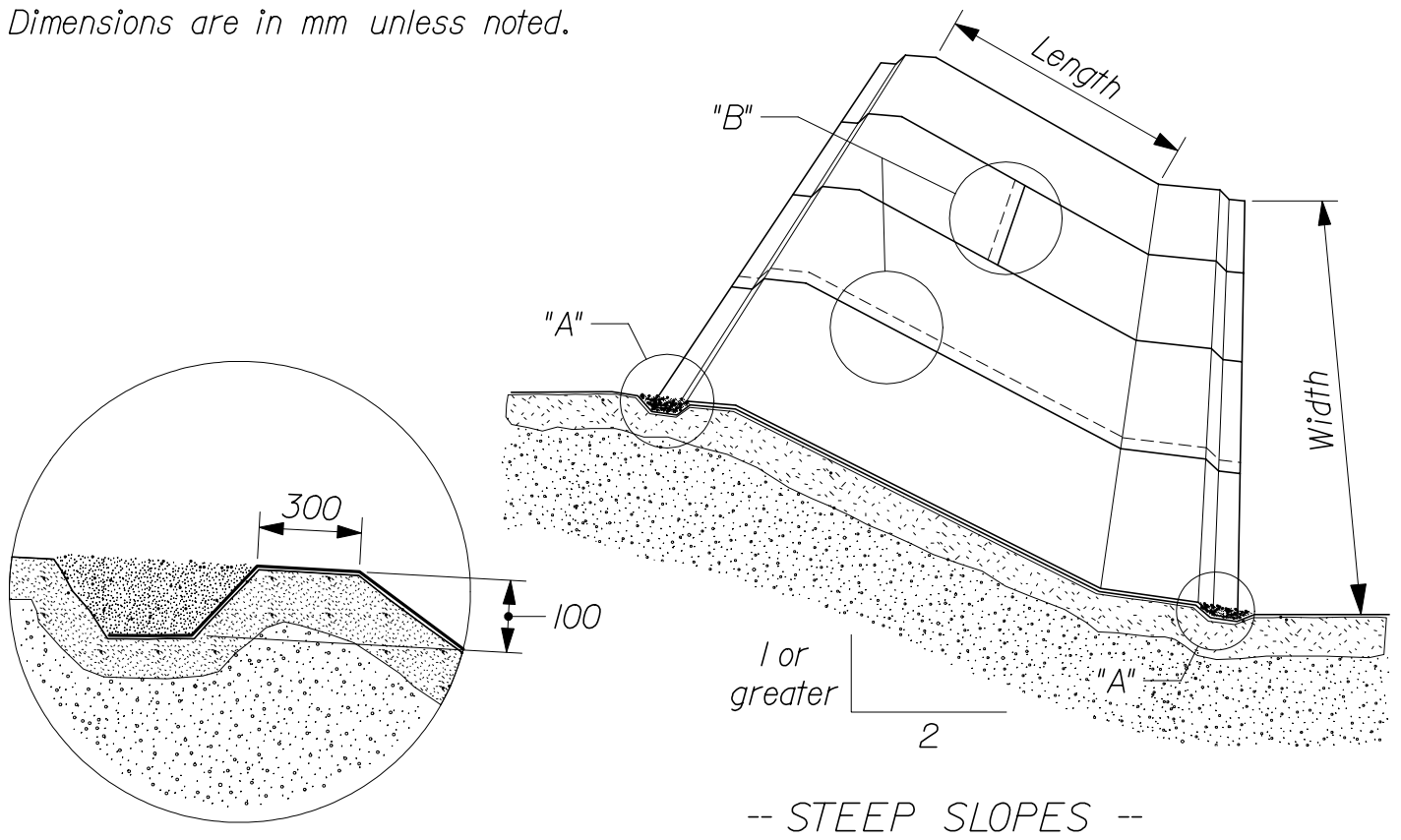
Staple spacing shall be at 900 mm C/C along blanket except at 100 mm overlap which shall be at 450 mm C/C or as directed by the manufacturer.

REF: Best Mngmt. Practices for Erosion and Sediment Control - Erosion Control Blankets

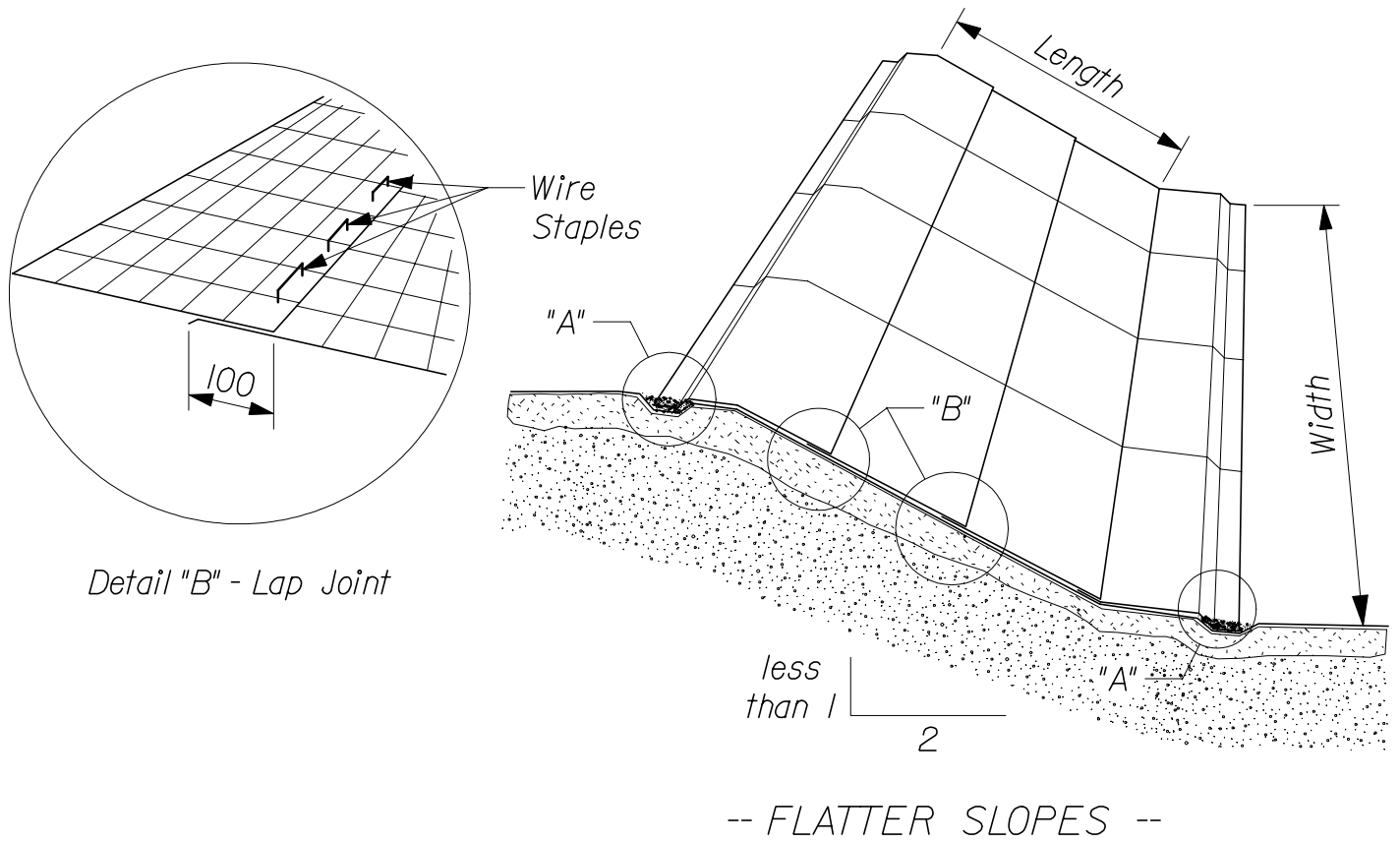
DITCH APPLICATIONS

802(01)

Dimensions are in mm unless noted.



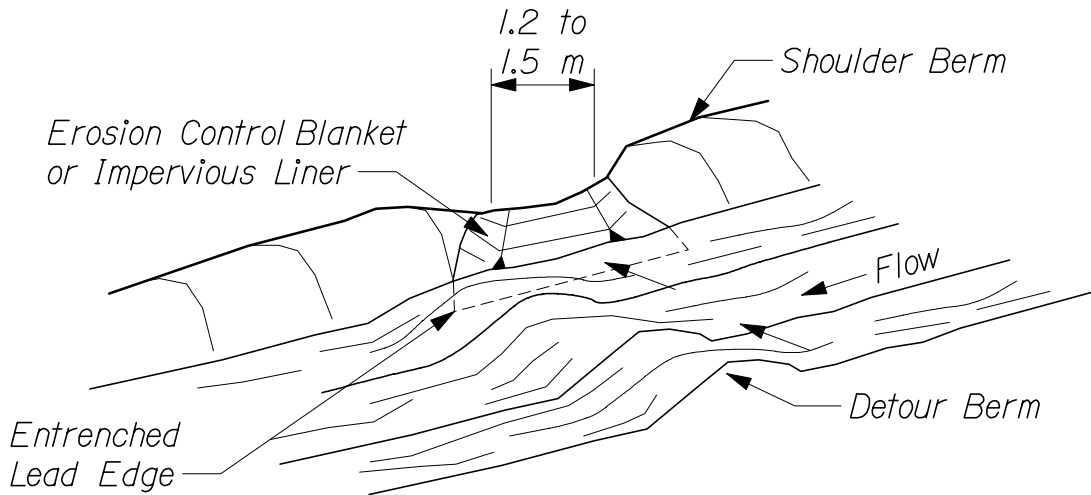
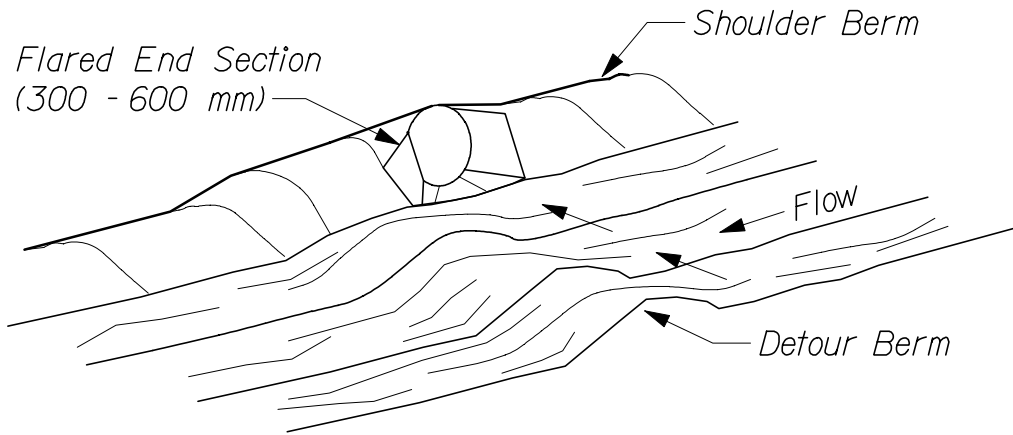
Detail "A" - Anchor Trench



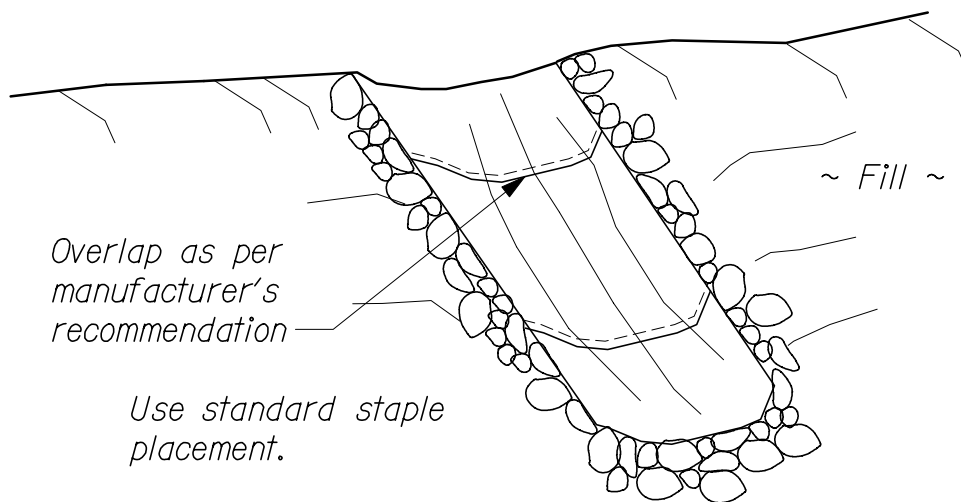
Detail "B" - Lap Joint

REF: Best Mngmt. Practices for Erosion and Sediment Control - Erosion Control Blankets

Dimensions are in mm unless noted.



-- SLOPE DRAIN INLETS --



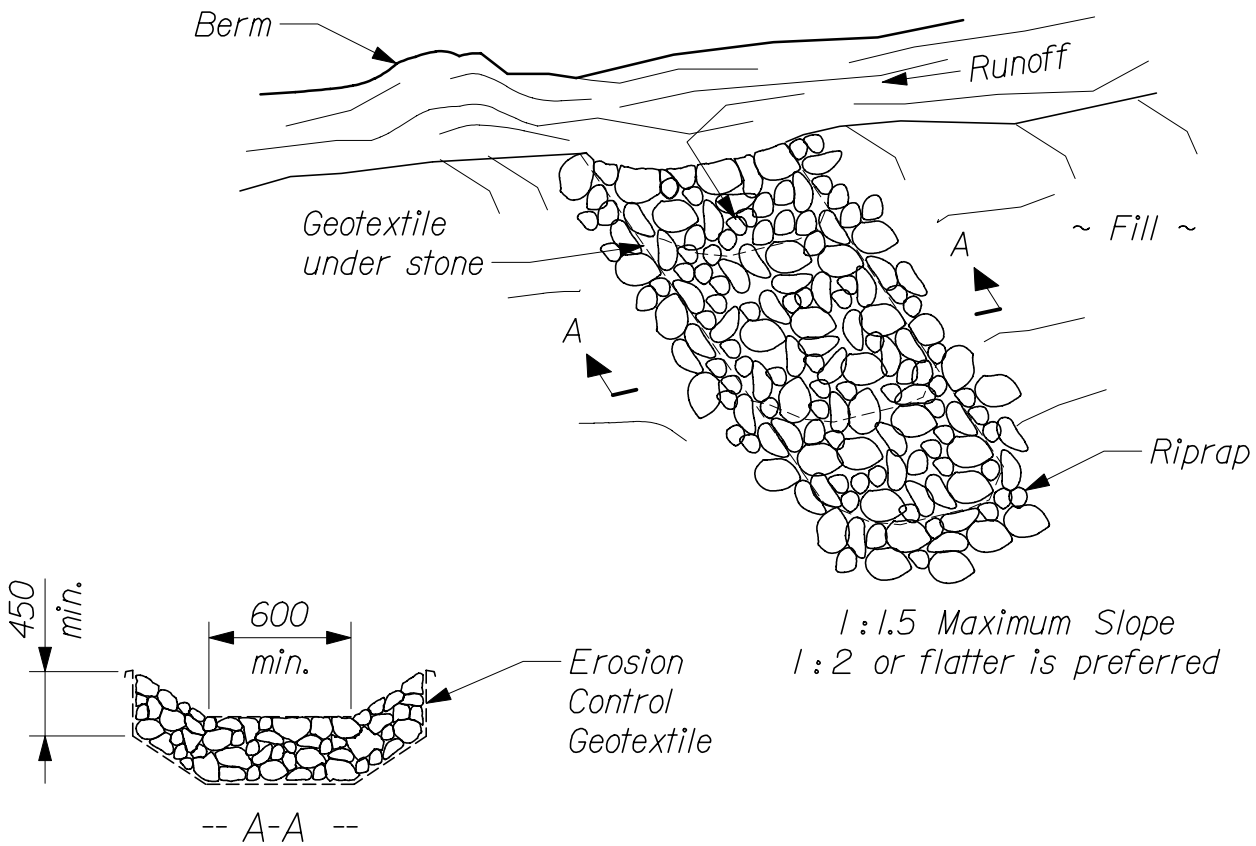
-- DITCH LINER: EROSION CONTROL BLANKET --
(or Impervious Liner)

REF: Best Mngmt. Practices for Erosion and Sediment Control - Temporary Slope Drains

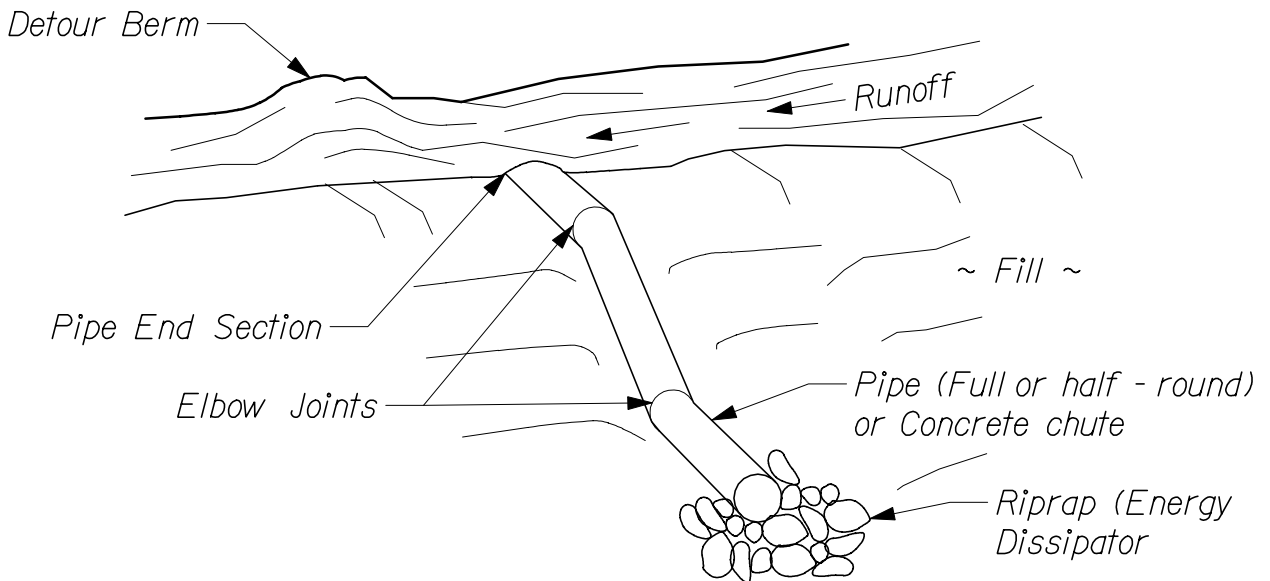
TEMPORARY SLOPE DRAINS

802(03)

Dimensions are in mm unless noted.



-- RIPRAP SLOPE DRAIN --



-- PIPE SLOPE DRAIN --

REF: Best Mngmt. Practices for Erosion and Sediment Control - Temporary Slope Drains

TEMPORARY SLOPE DRAINS

802(04)

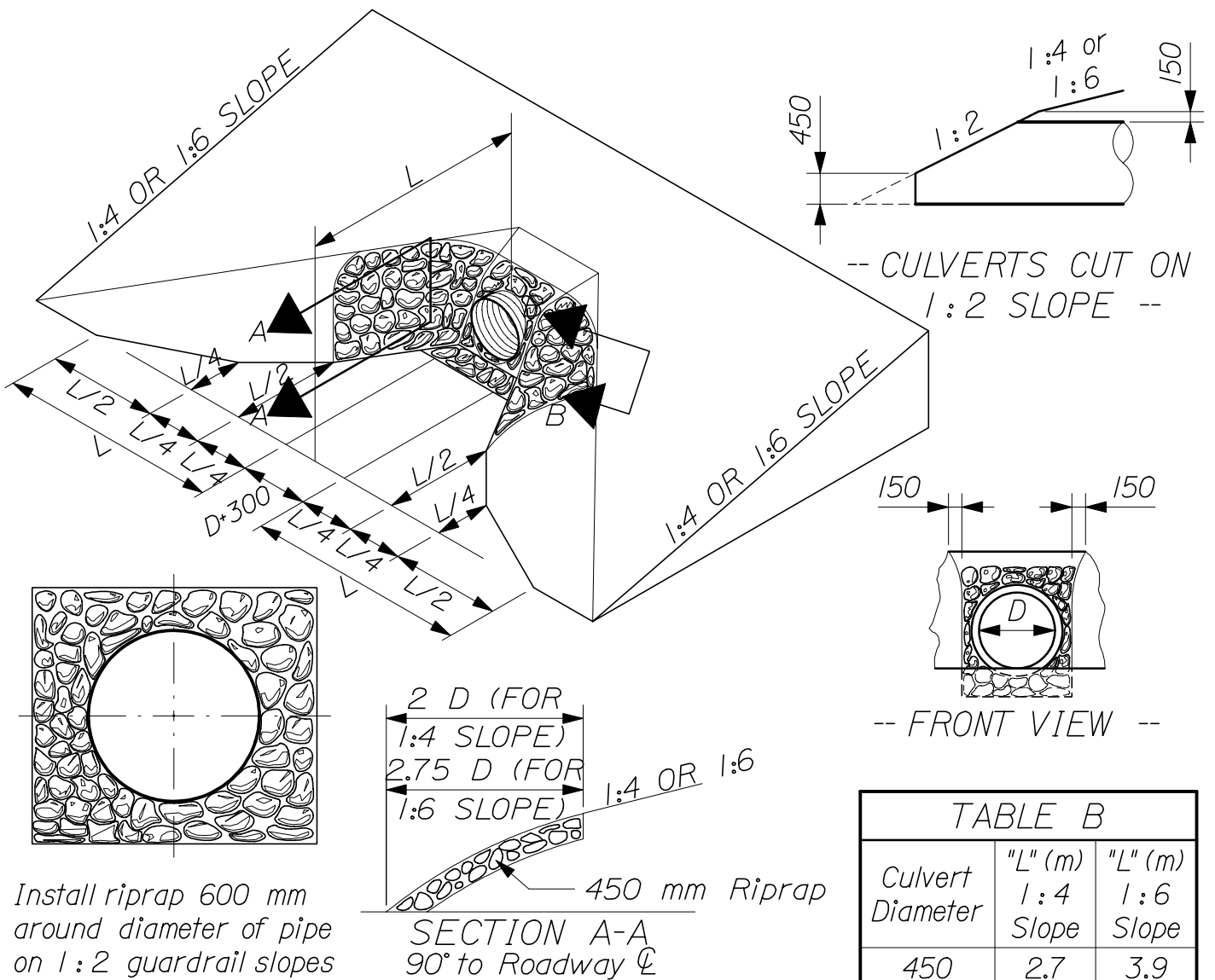
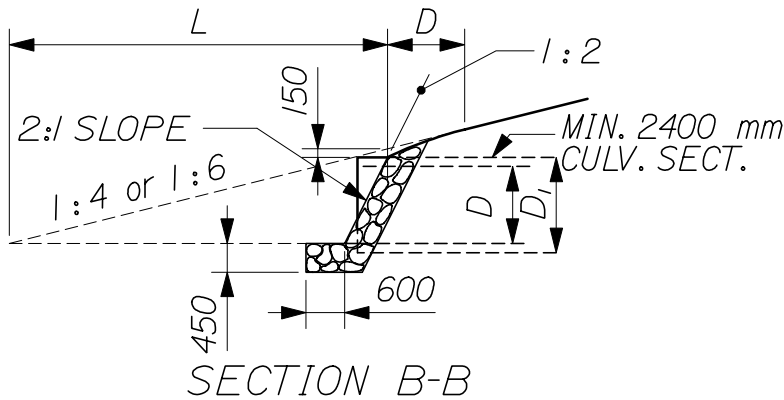


TABLE B

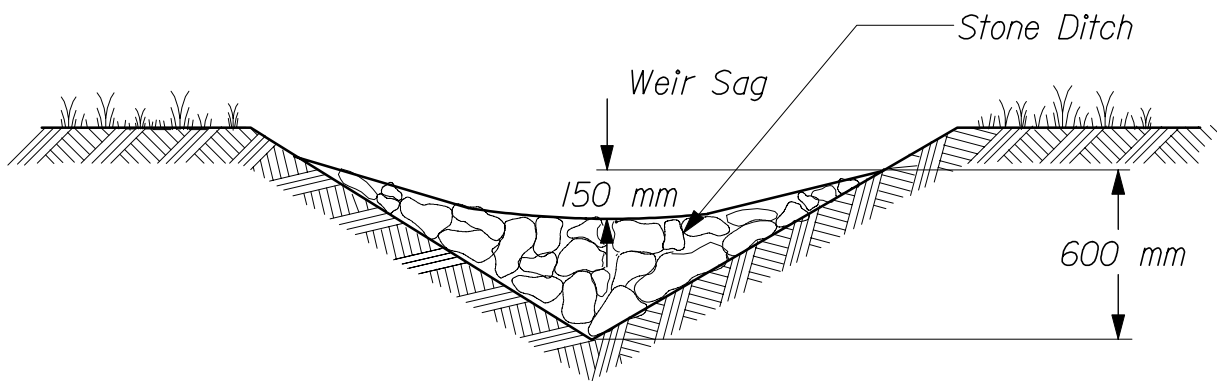
Culvert Diameter	"L" (m)	"L" (m)
	1:4 Slope	1:6 Slope
450	2.7	3.9
525	3.0	4.5
600	3.3	5.0
750	3.9	6.0
900	4.6	6.9
1050	5.2	7.8
1200	5.8	8.8
1350	6.7	9.8
1500	7.3	10.8
1650	7.9	11.8
1800	8.7	12.8
2100	9.9	14.7



Notes:

1. The dimensions shown are approximate and may be modified in the field by the Resident.
2. Riprap will be required on portions of the culvert end treatment of 1:1 and steeper. The remaining portion shall be loamed, seeded and hay mulched as directed.
3. Culverts installed on 1:2 slopes shall have riprap laid on a 1:2 slope around the inlet and outlet.

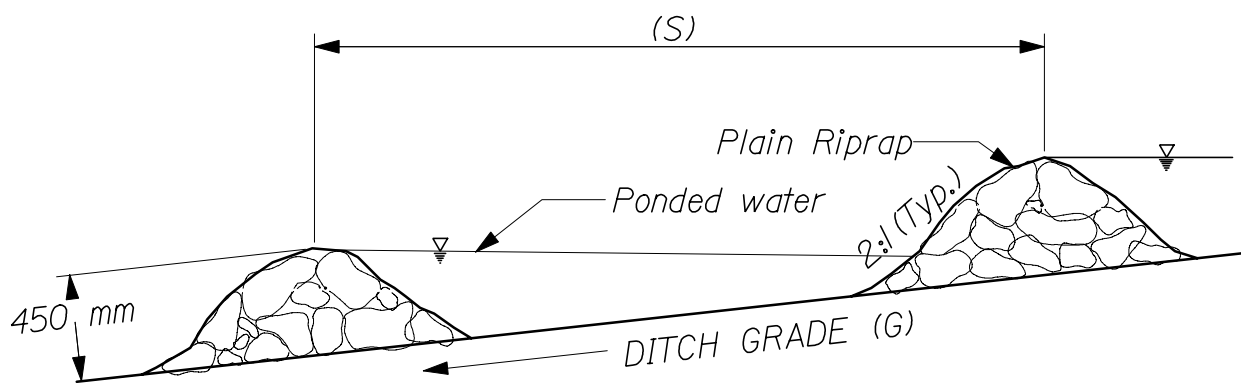
REF: Best Mngmt. Practices for Erosion and Sediment Control - Culvert Inlet / Outlet Prot.



CROSS SECTION

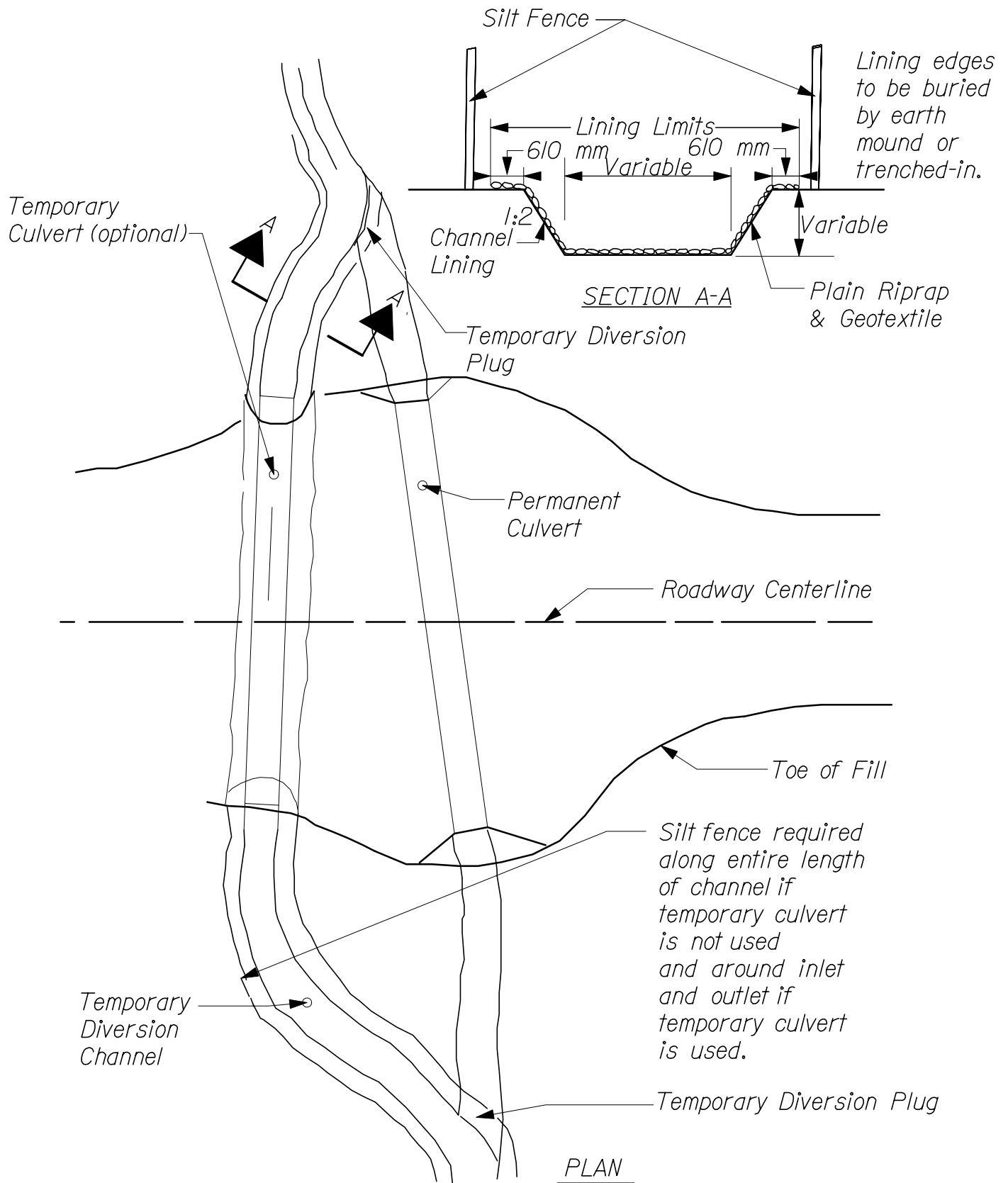
V DITCH

<u>DITCH SLOPE</u>	<u>PLACEMENT INTERVAL (S)</u>
< 3%	30 m
3.5 %	22.5 m
> 5%	15 m



PROFILE @ DITCH

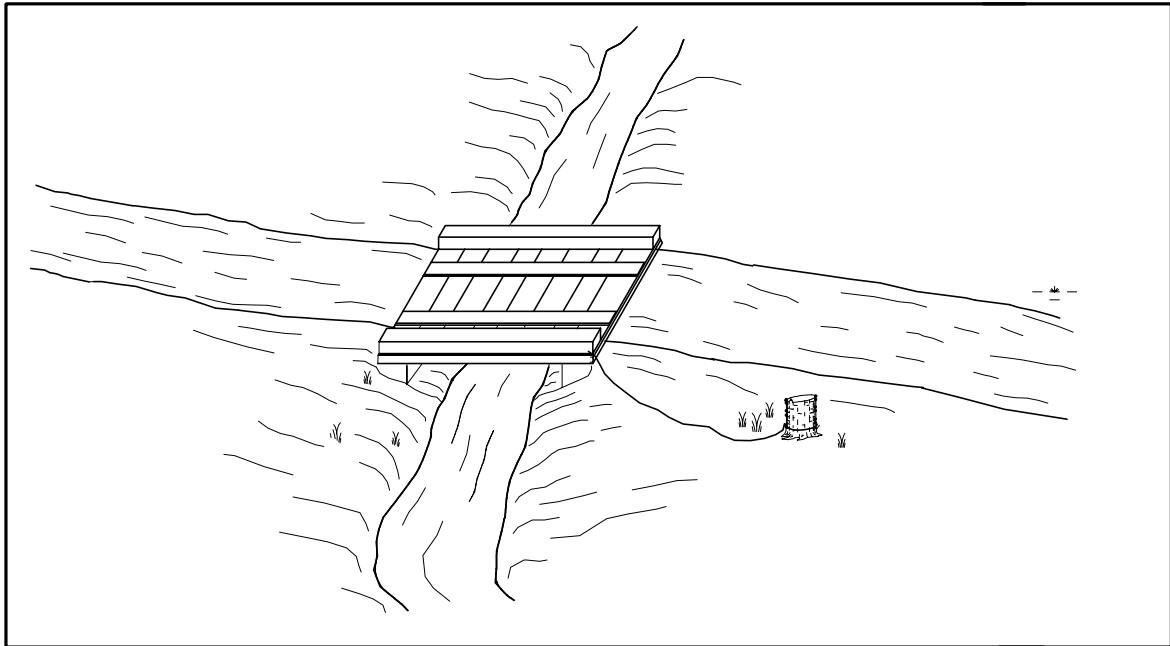
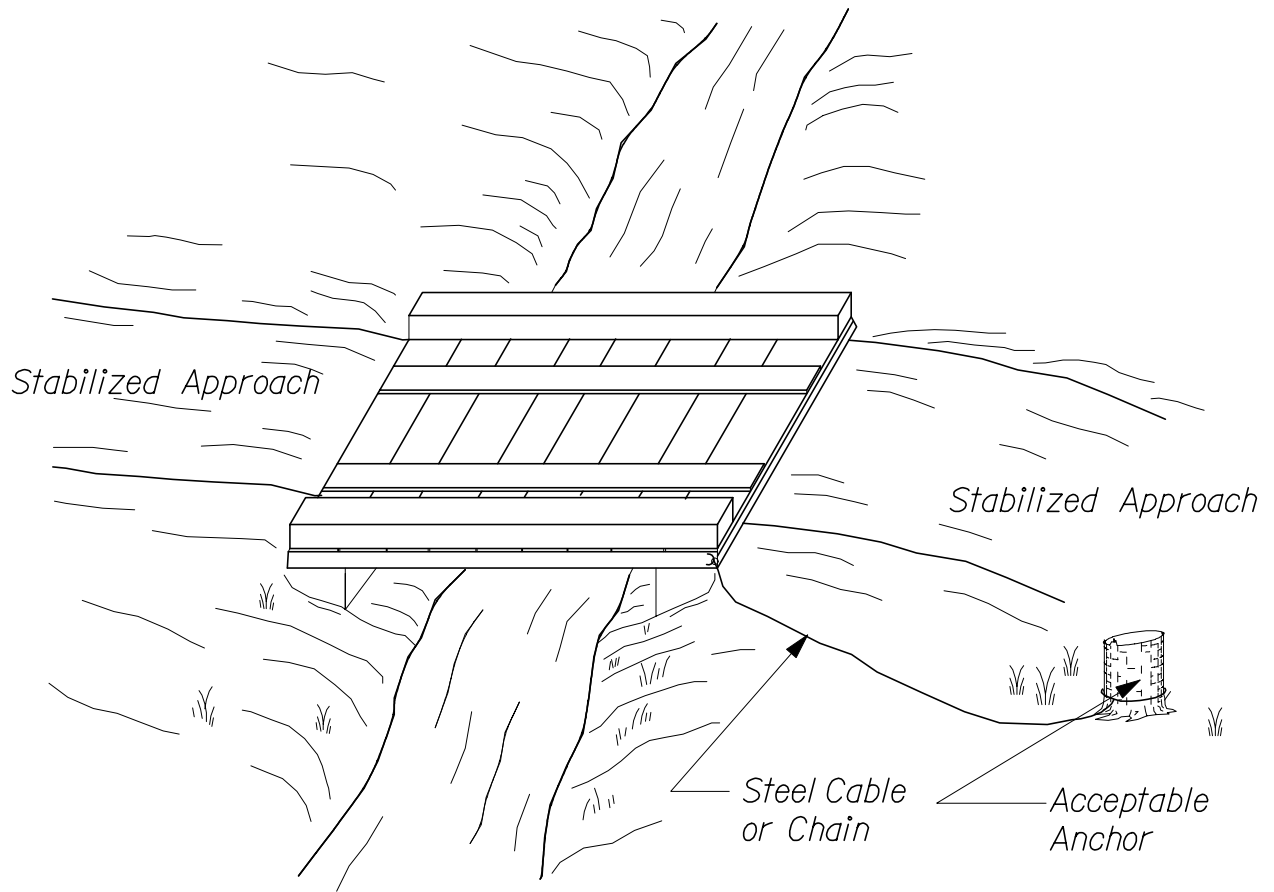
REF: Best Management Practice for Erosion and Sediment Control - Check Dam



REF: Best Management Practice for Erosion and Sediment Control -
Temporary Stream Diversion

TEMPORARY STREAM DIVERSION

802(07)



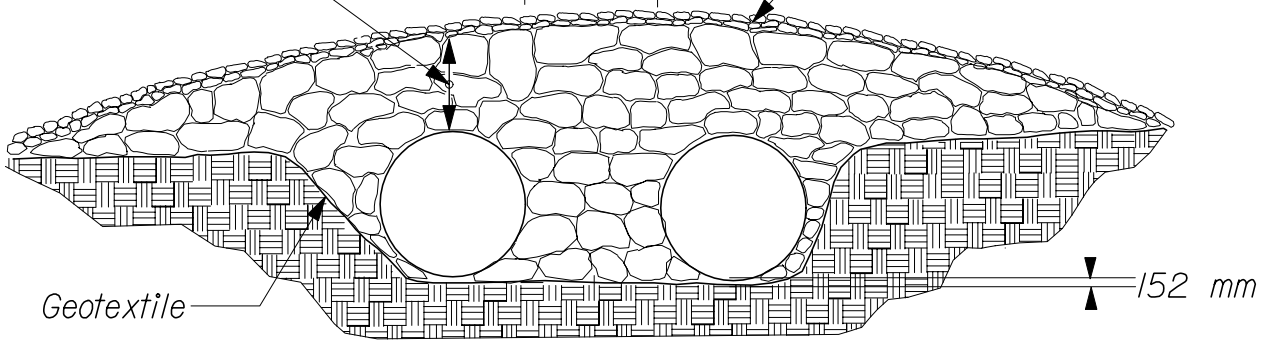
*REF: Best Management Practice for Erosion and Sediment Control -
Temporary Stream Crossing*

TEMPORARY BRIDGE
802(08)

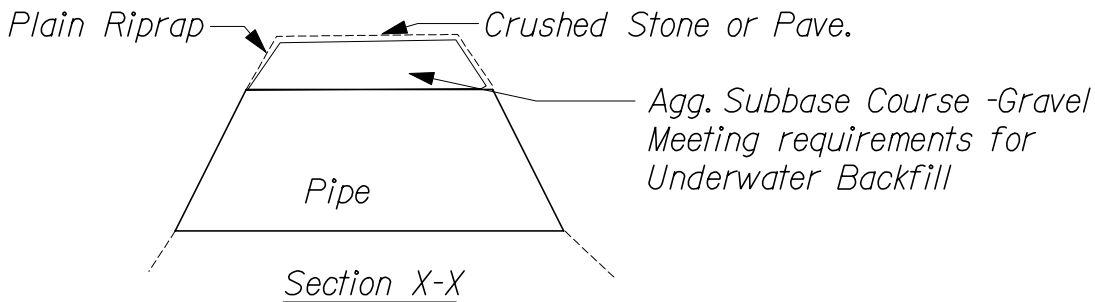
Diameter of pipe or 500 mm
Whichever is less

305 mm
min.

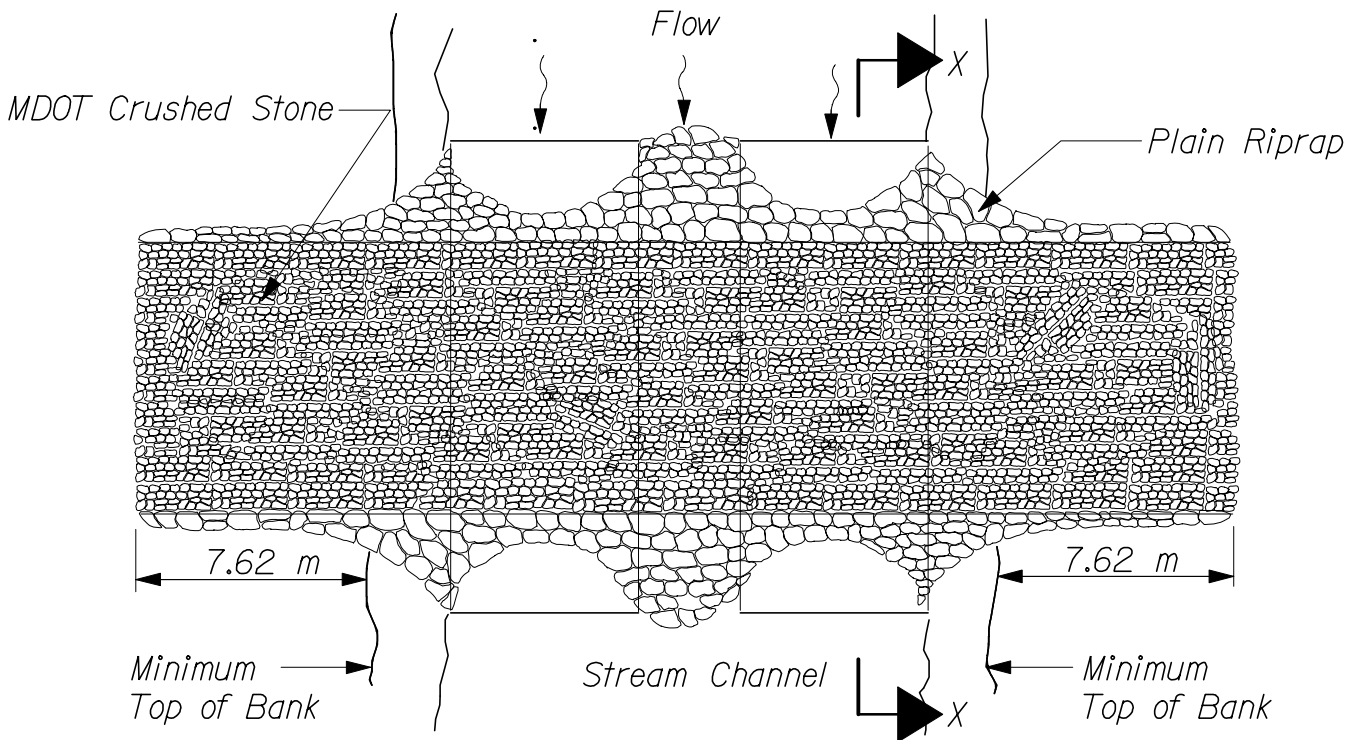
MDOT Crush Stone
20 mm to 200 mm



ELEVATION



Section X-X

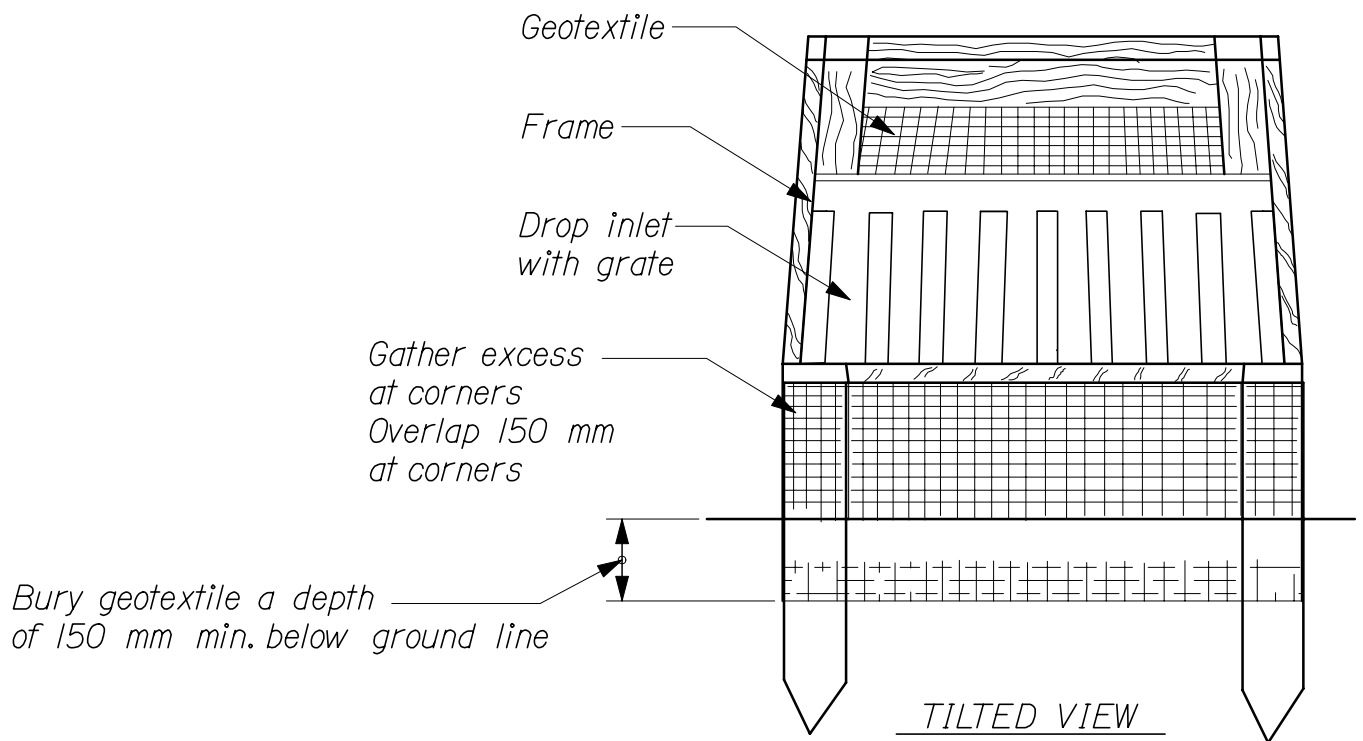
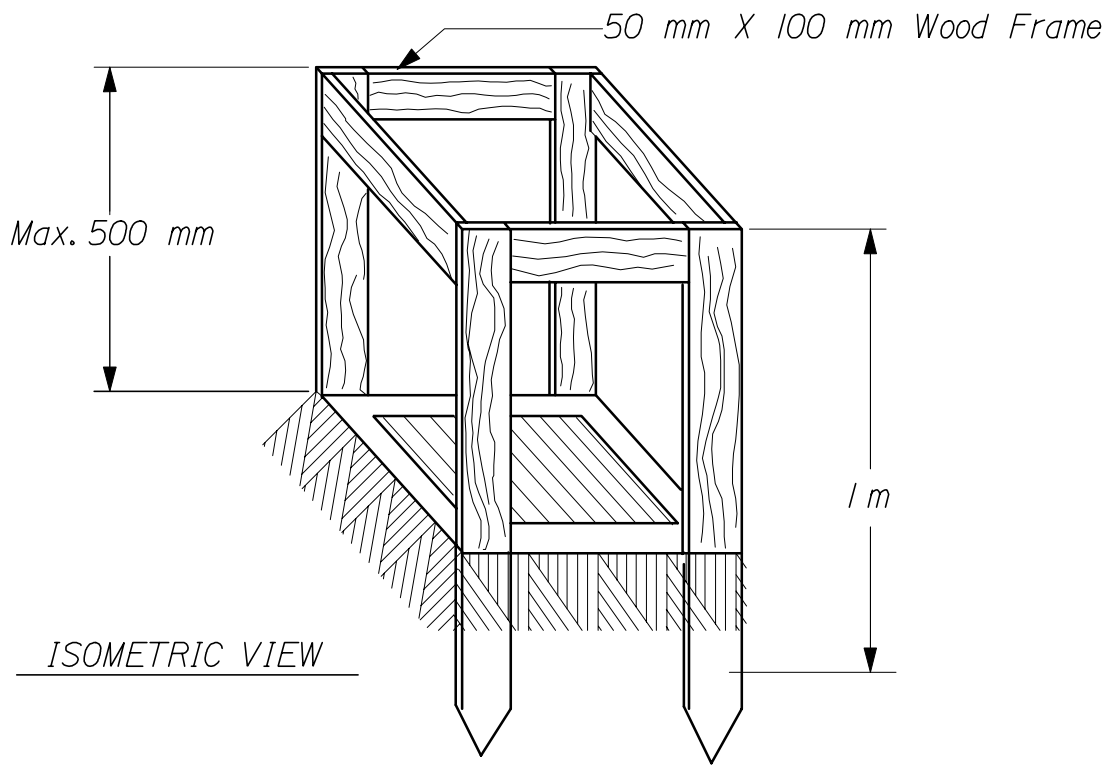


PLAN

REF: Best Management Practice for Erosion and Sediment Control -
Temporary Stream Crossing

TEMPORARY CULVERT

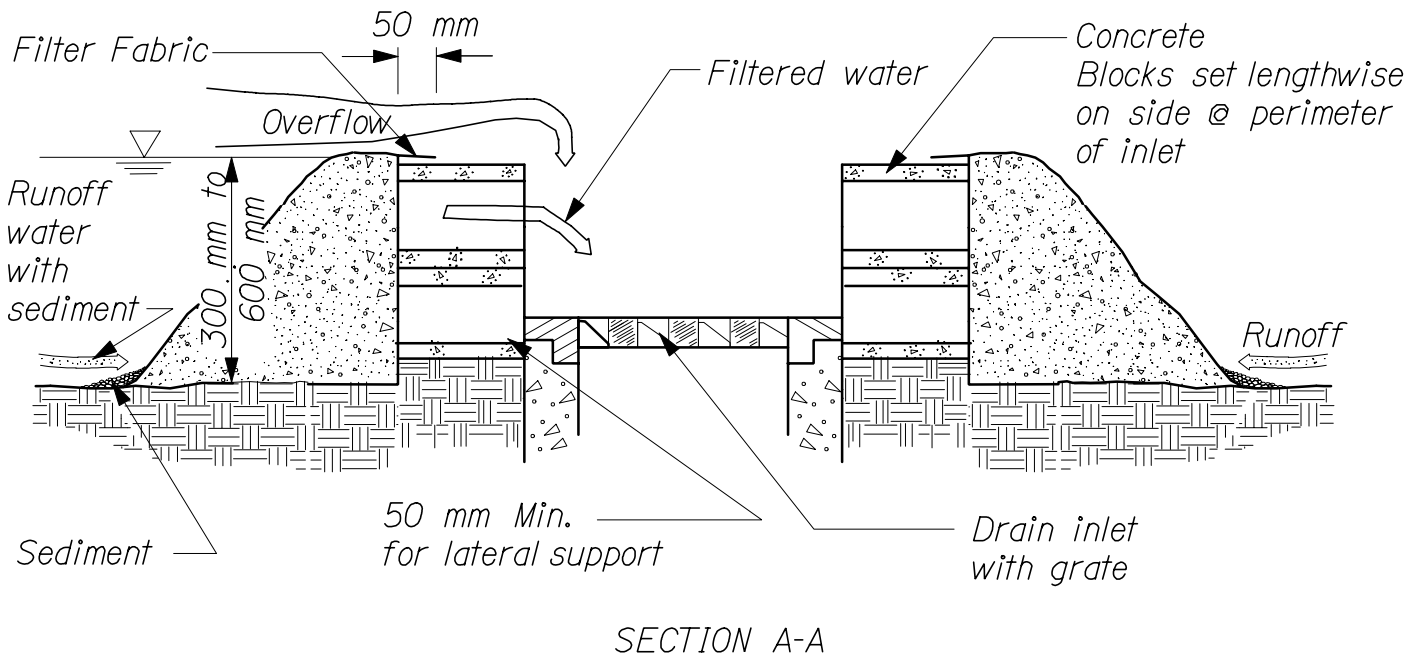
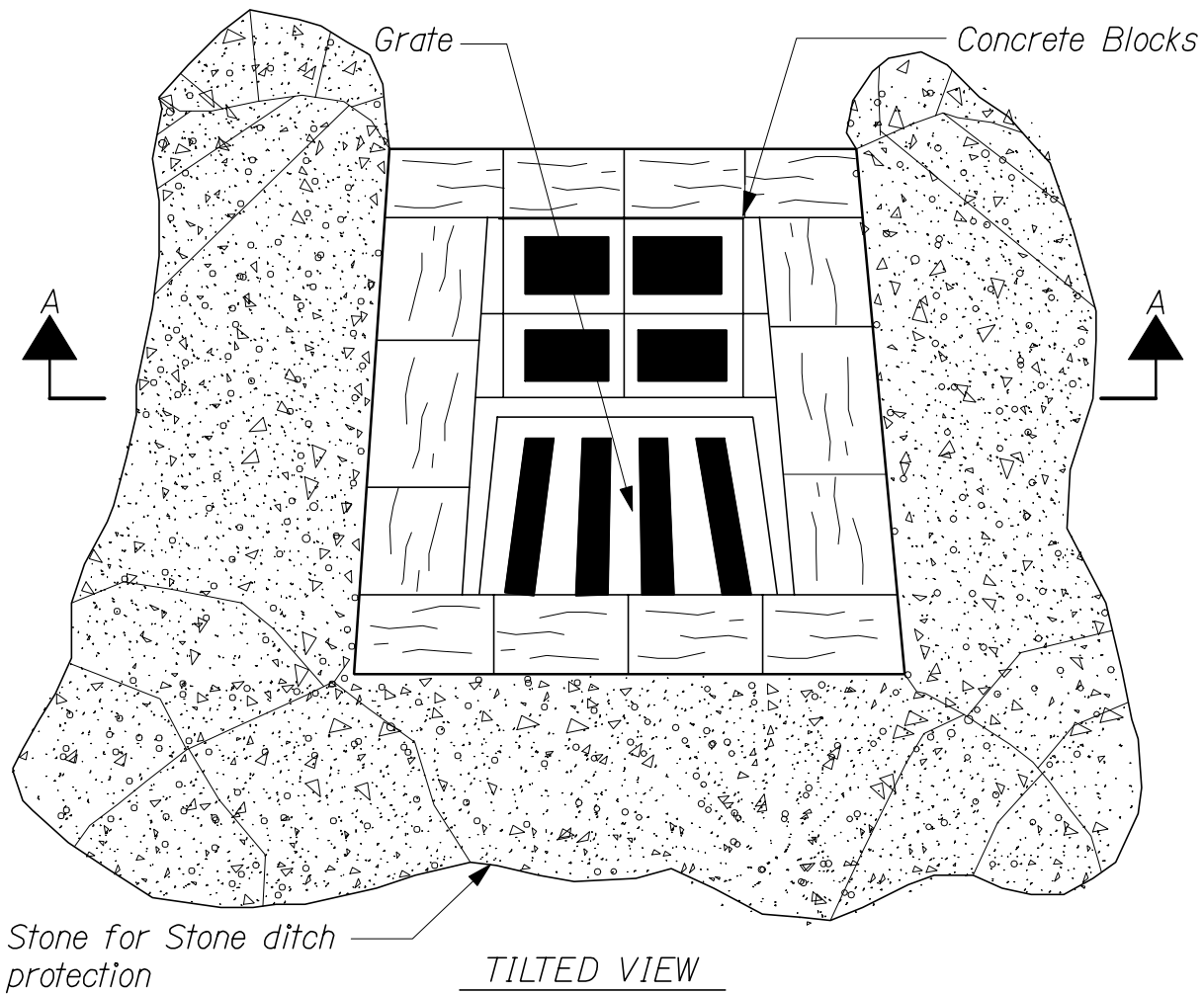
802(09)



Note: Use Silt Fence inlet protection in sump locations only.
Sheet flow less than 0.4 Ha Drainage Area
Not in paved areas or with Concentrated flows

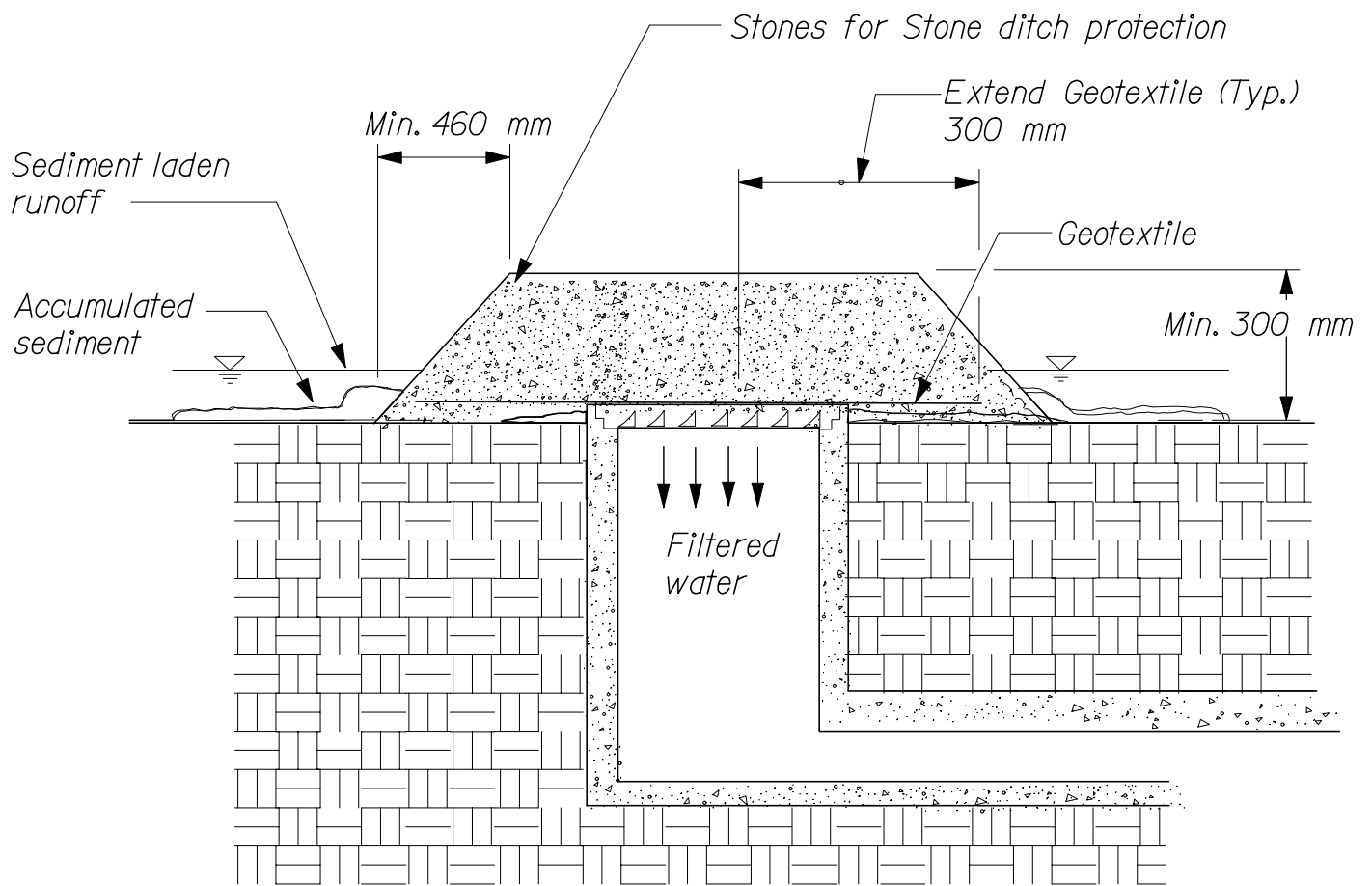
REF: Best Management Practice for Erosion and Sediment Control -
Storm Drain Inlet Protection

SILT FENCE CB/ INLET GRATE UNIT PROTECTION
802(10)



REF: Best Management Practice for Erosion and Sediment Control - Storm Drain Inlet Protection

**BLOCK AND STONE CB/ INLET
GRATE PROTECTION**
802(II)



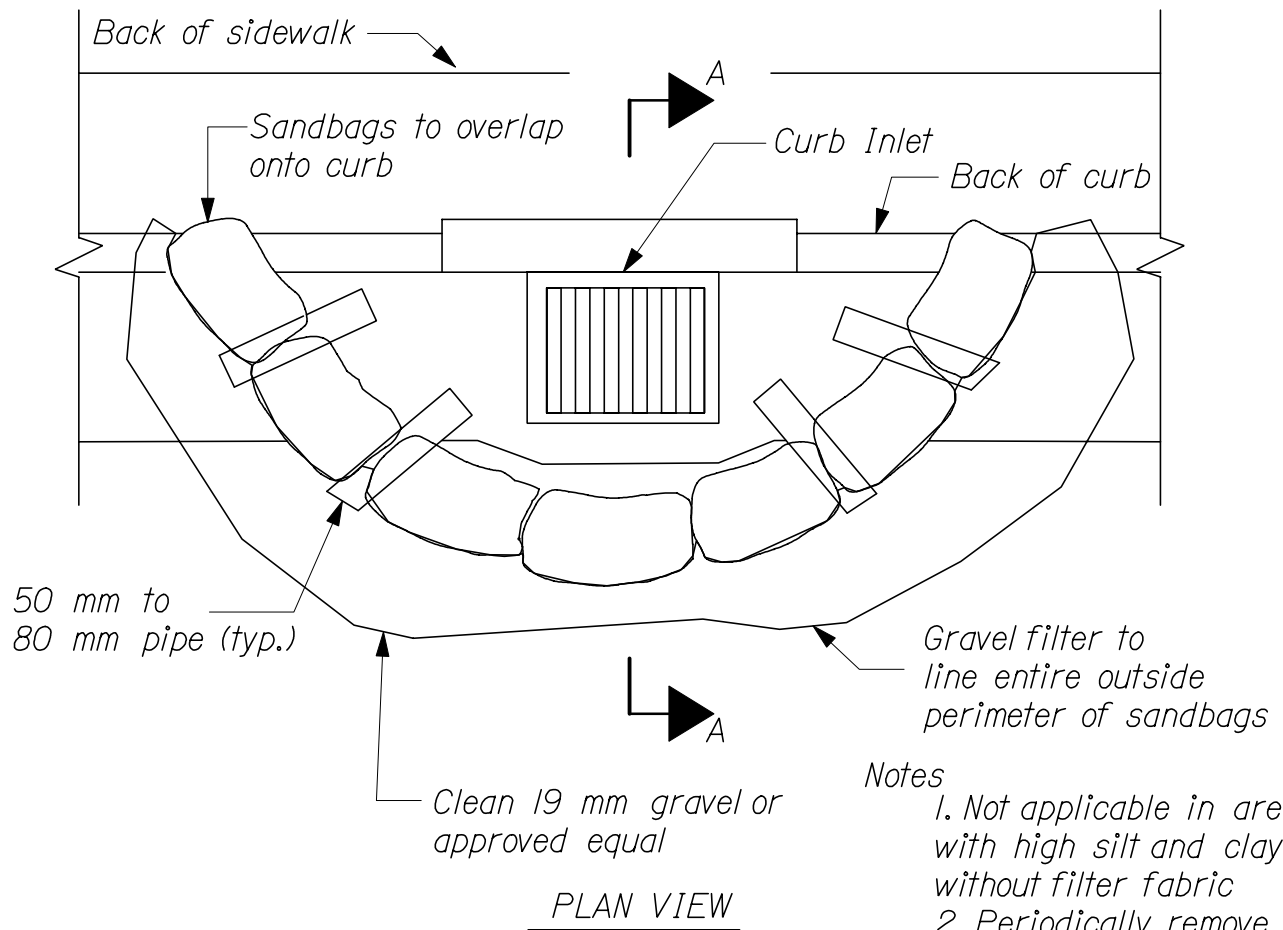
SECTION

Note: Use gravel and geotextile inlet protection only in sump locations where heavy concentrated flows are expected. Do not use where ponding around the structure might cause inconvenience or damage.

REF: Best Management Practice for Erosion and Sediment Control - Storm Drain Inlet Protection

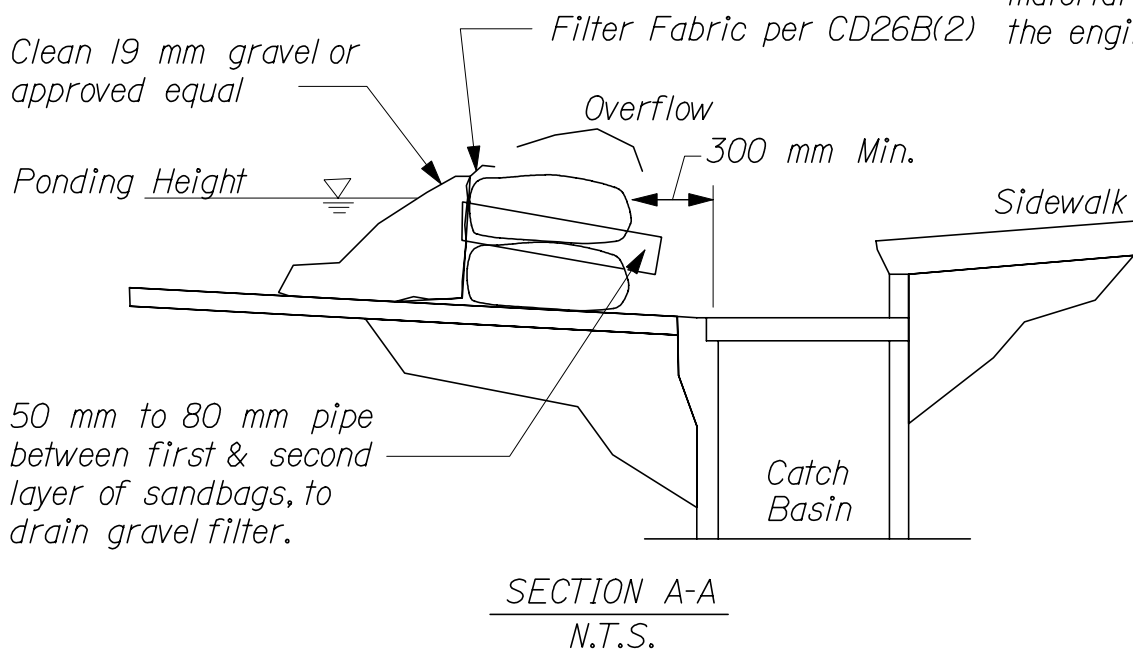
GRAVEL & GEOTEXTILE CB/ INLET GRATE UNIT PROTECTION

802(12)



Notes

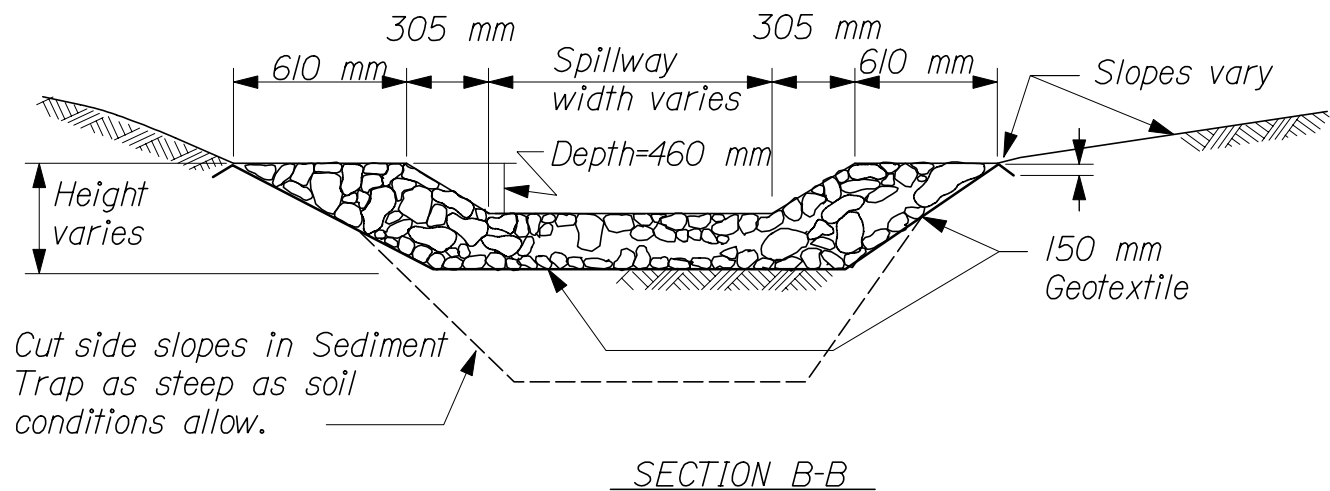
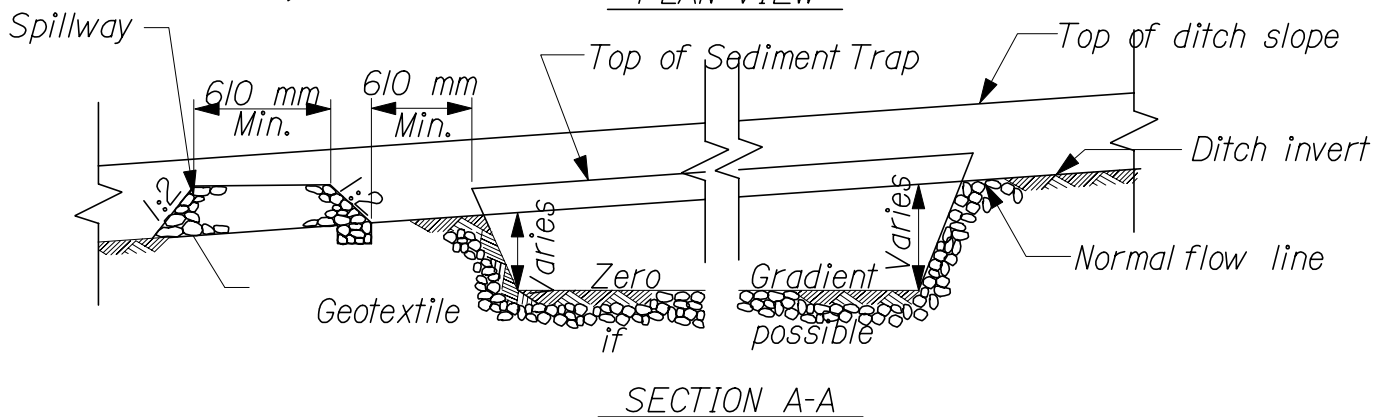
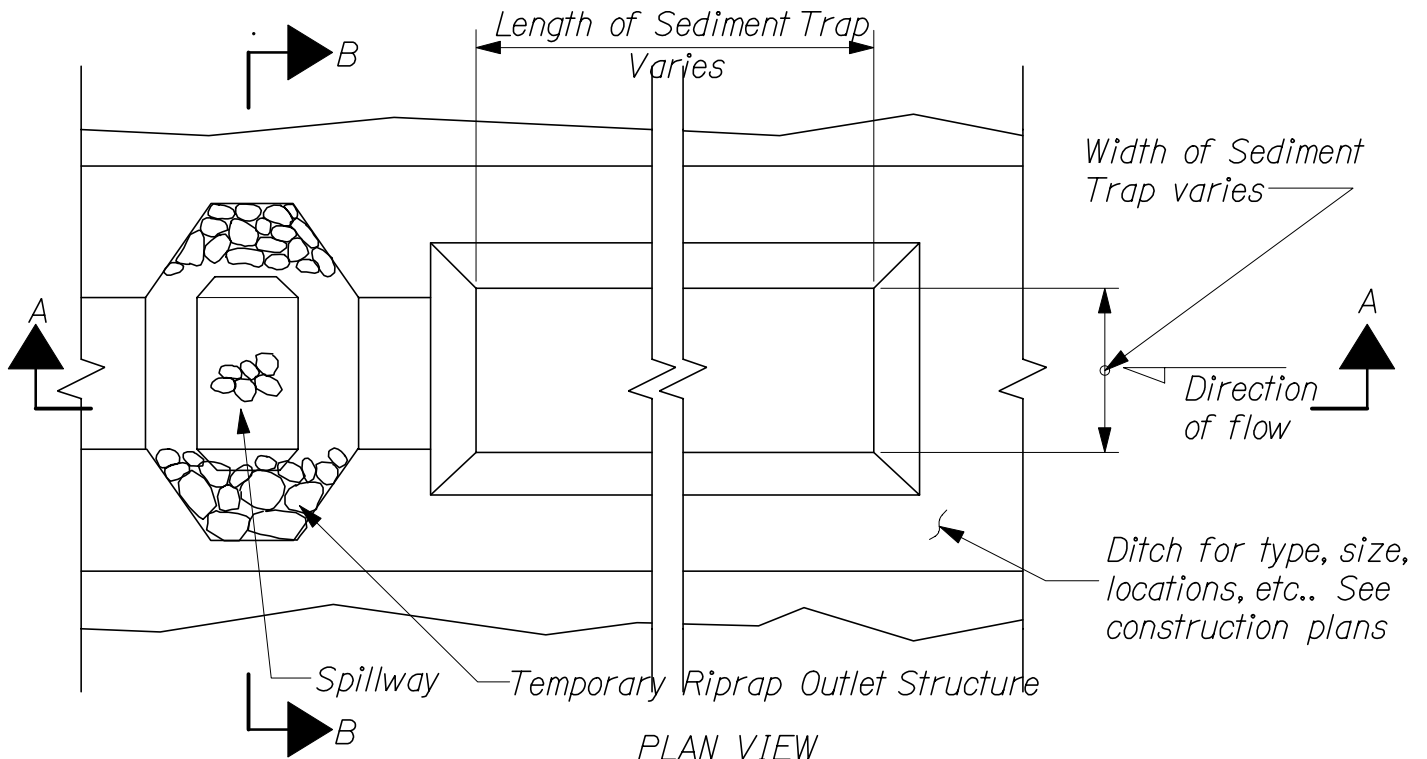
1. Not applicable in areas with high silt and clays without filter fabric
2. Periodically remove and replace gravel. Old gravel may be used as backfill material if approved by the engineer.



REF: Best Management Practice for Erosion and Sediment Control - Storm Drain Inlet Protection

STORM DRAIN INLET PROTECTION

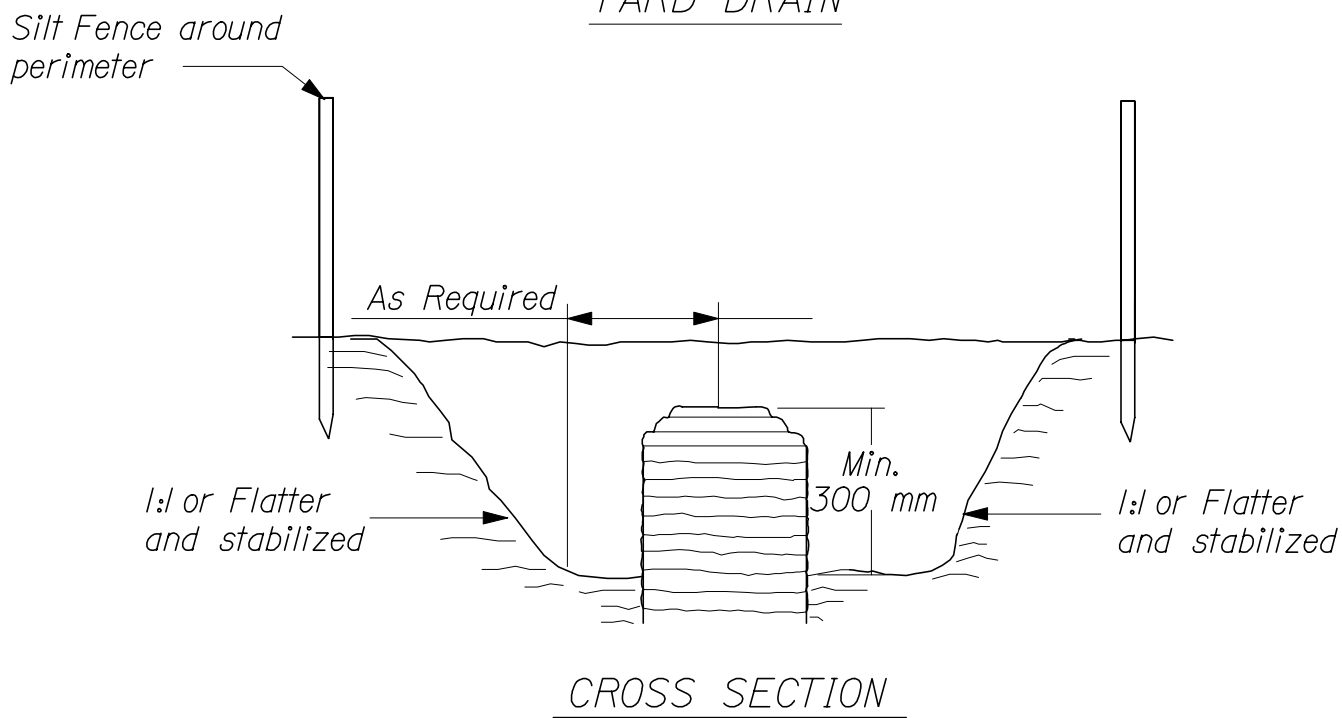
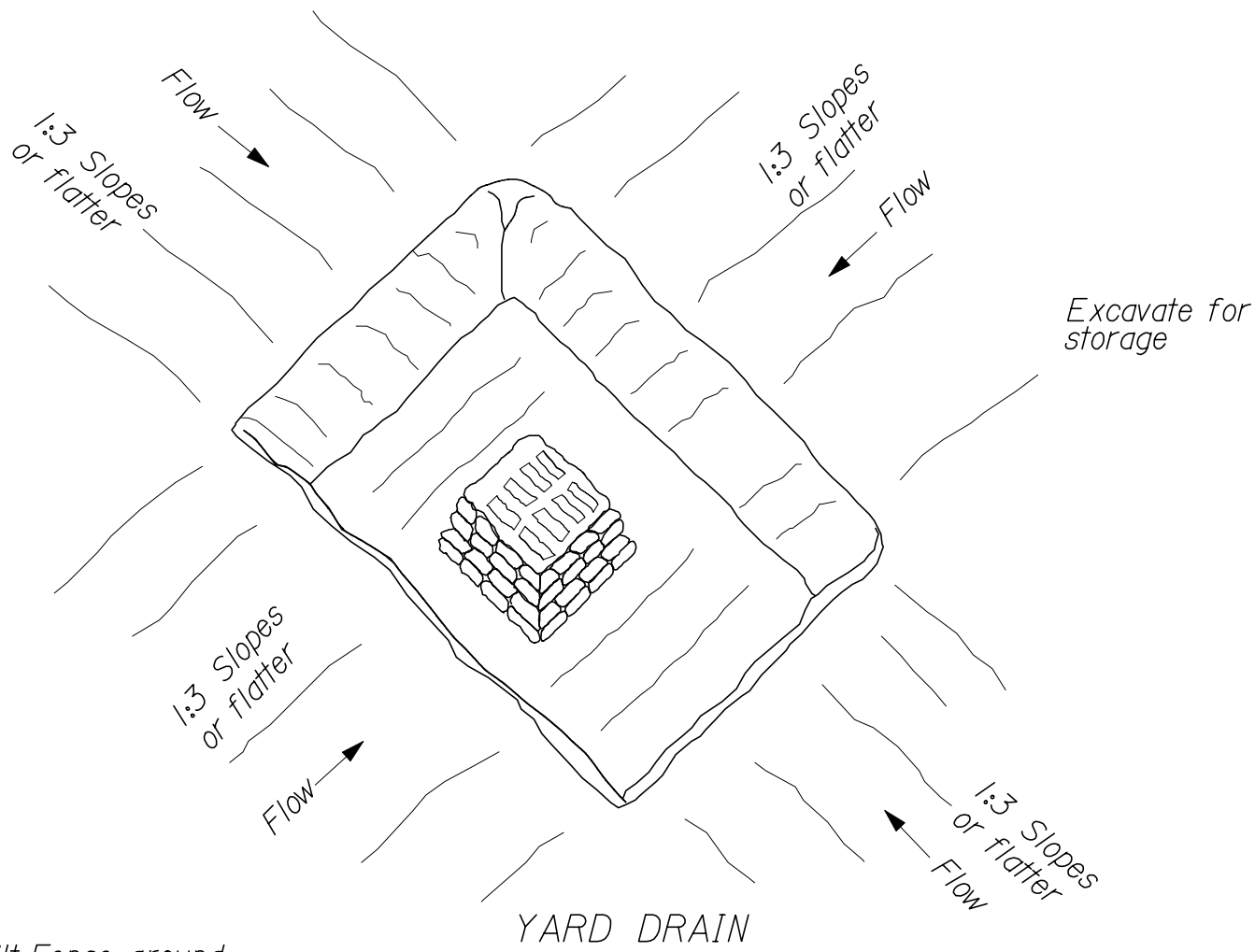
802(13)



REF: Best Management Practice for Erosion and Sediment Control - Sediment Traps

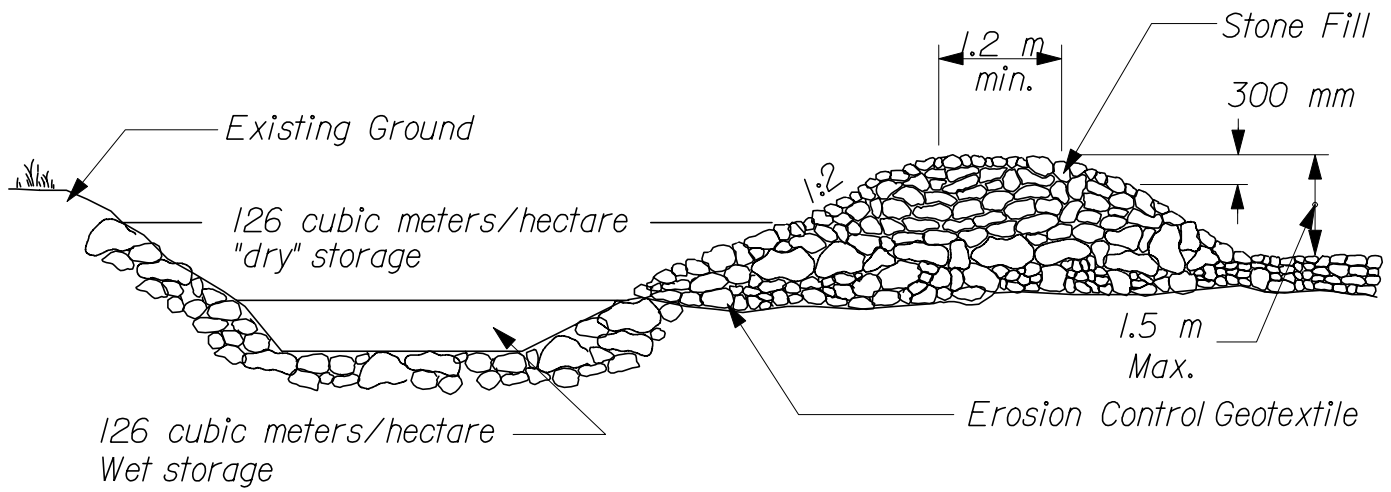
DITCH SEDIMENT TRAP

802(14)

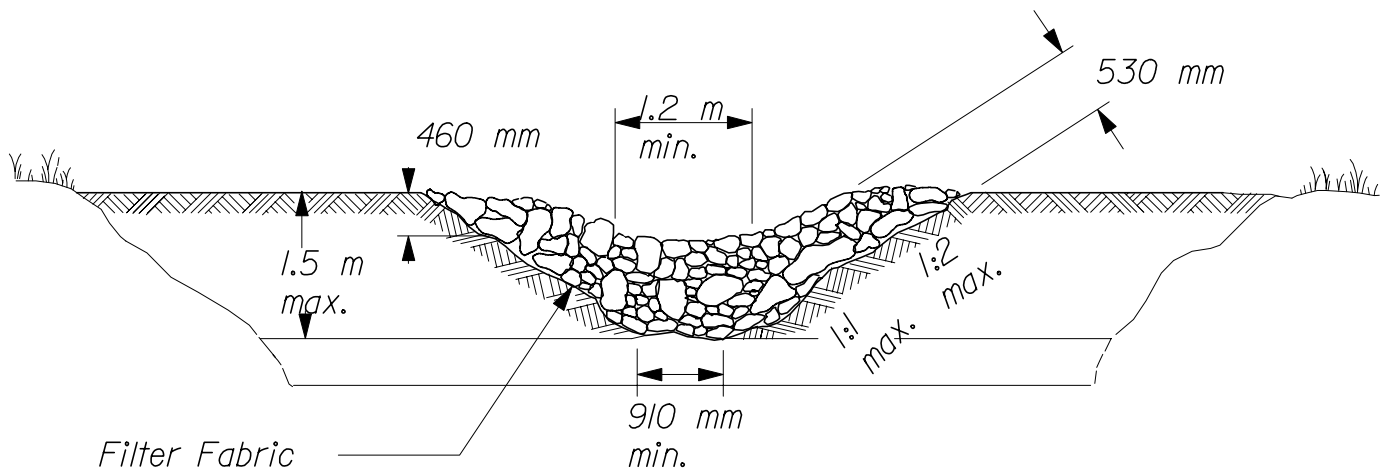


REF: Best Management Practice for Erosion and Sediment Control - Storm Drain Inlet Sediment Trap

STORM INLET SEDIMENT TRAP
802(15)



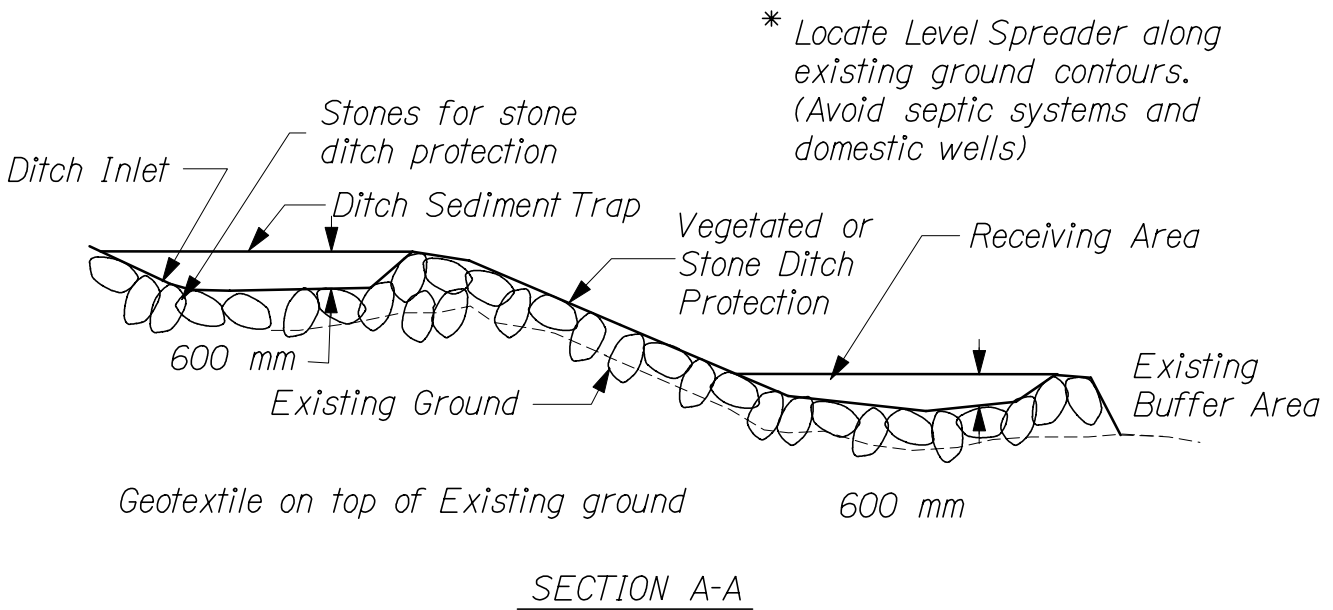
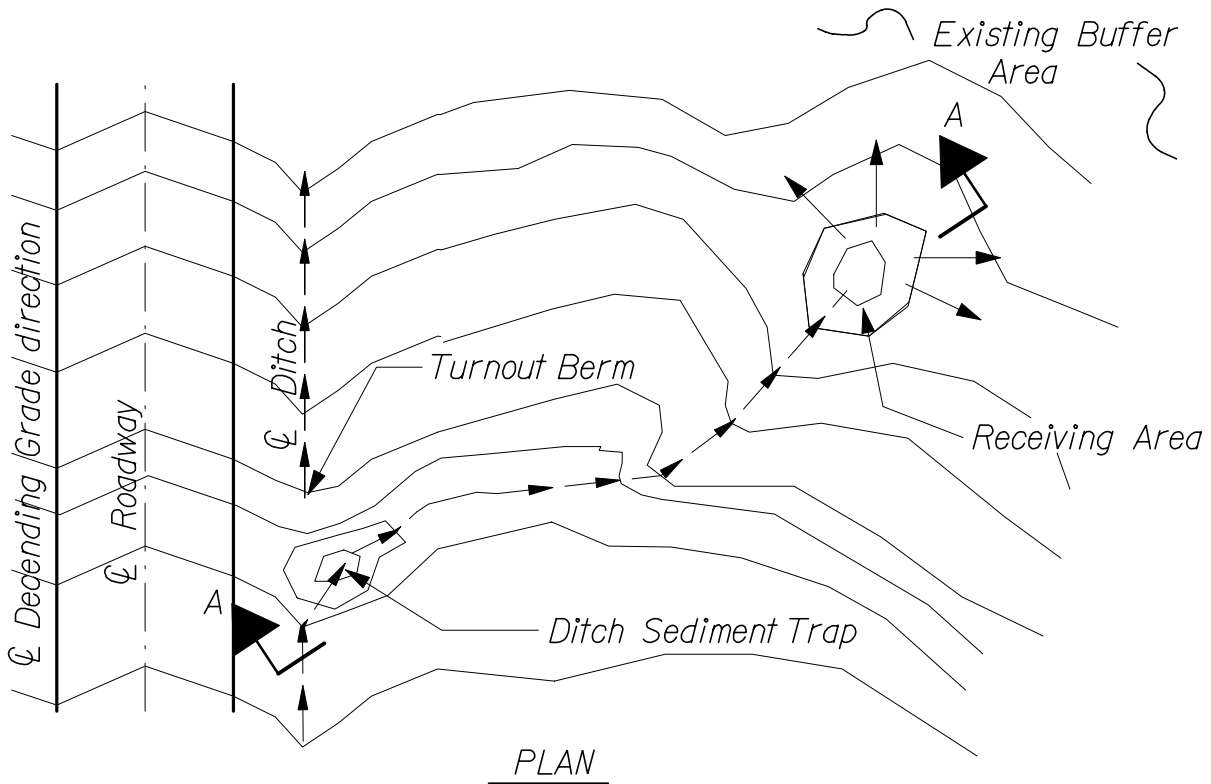
CROSS SECTION
(@ of Outlet)



OUTLET

REF: Best Management Practice for Erosion and Sediment Control - Sediment Traps

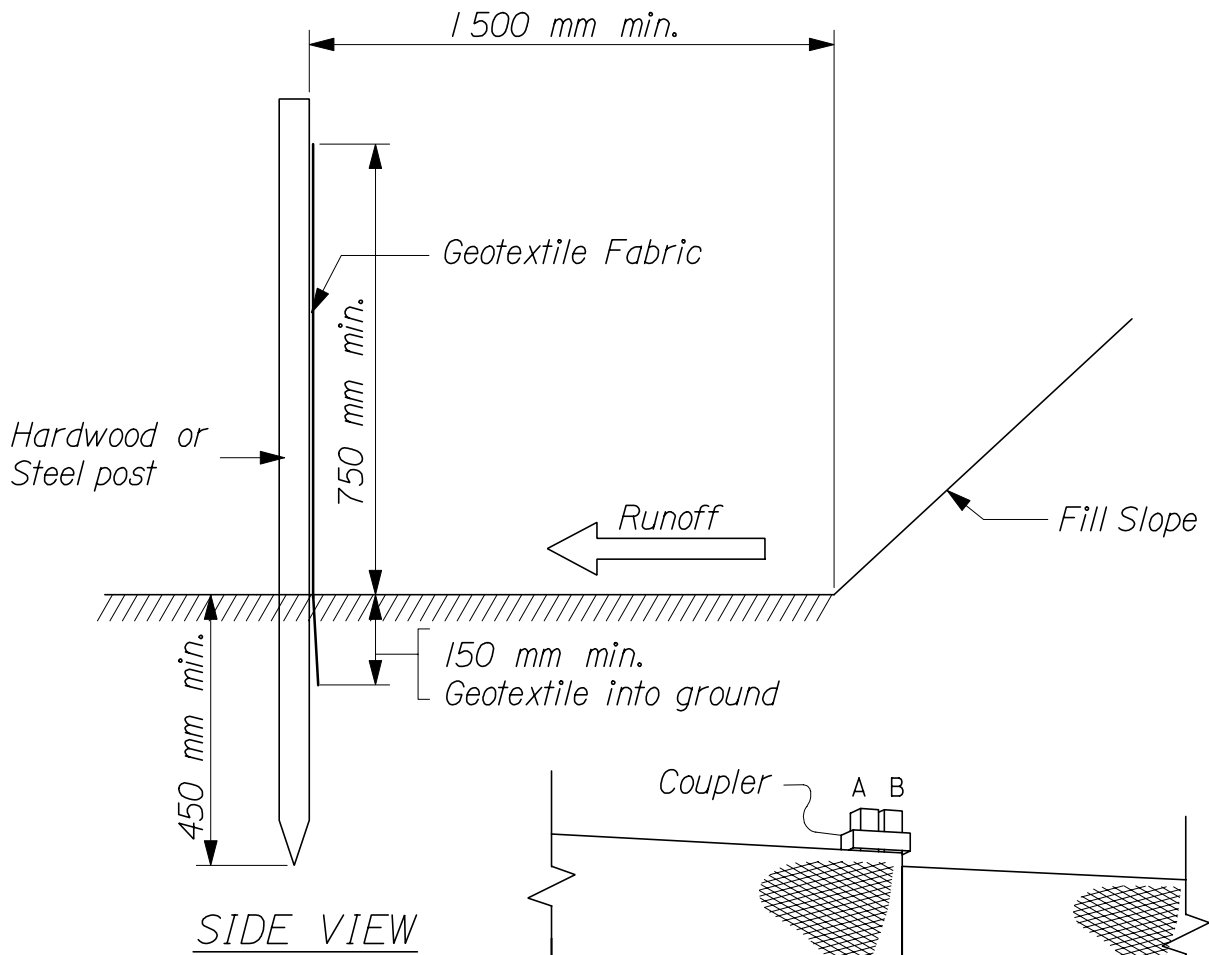
RIPRAP OUTLET SEDIMENT TRAP
802(16)



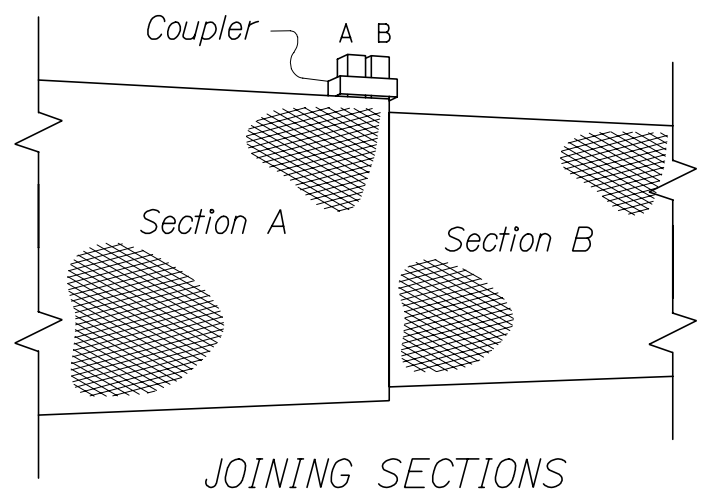
REF: Best Management Practice for Erosion and Sediment Control - Road Ditch Turnouts

ROAD DITCH TURNOUT

802(17)



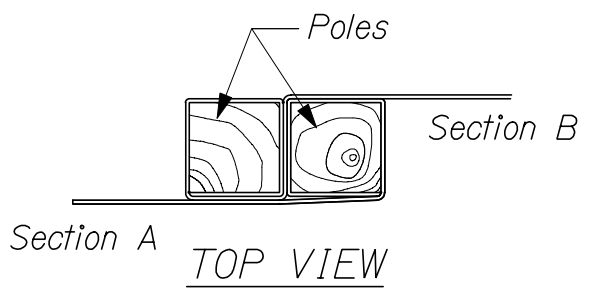
SIDE VIEW



JOINING SECTIONS

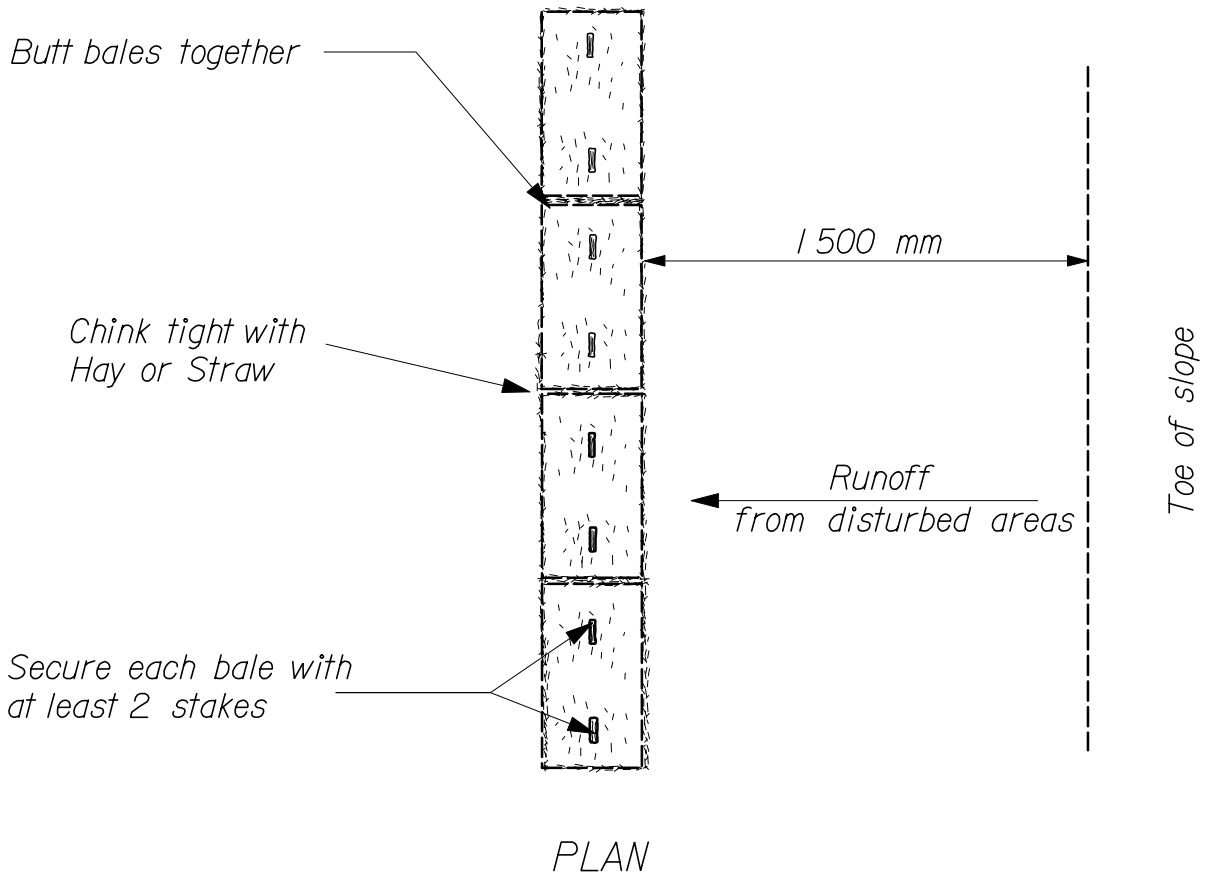
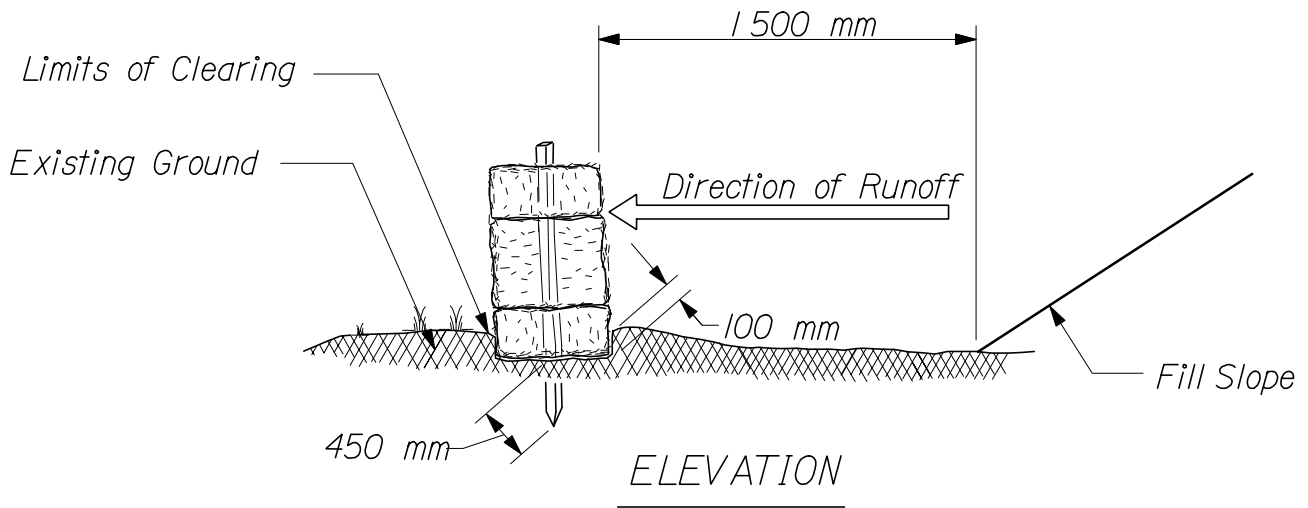
Posts may be wired together when joining sections

The coupler can be any acceptable device used to tie the poles together



TOP VIEW

REF: Best Management Practice for Erosion and Sediment Control - Level Spreader



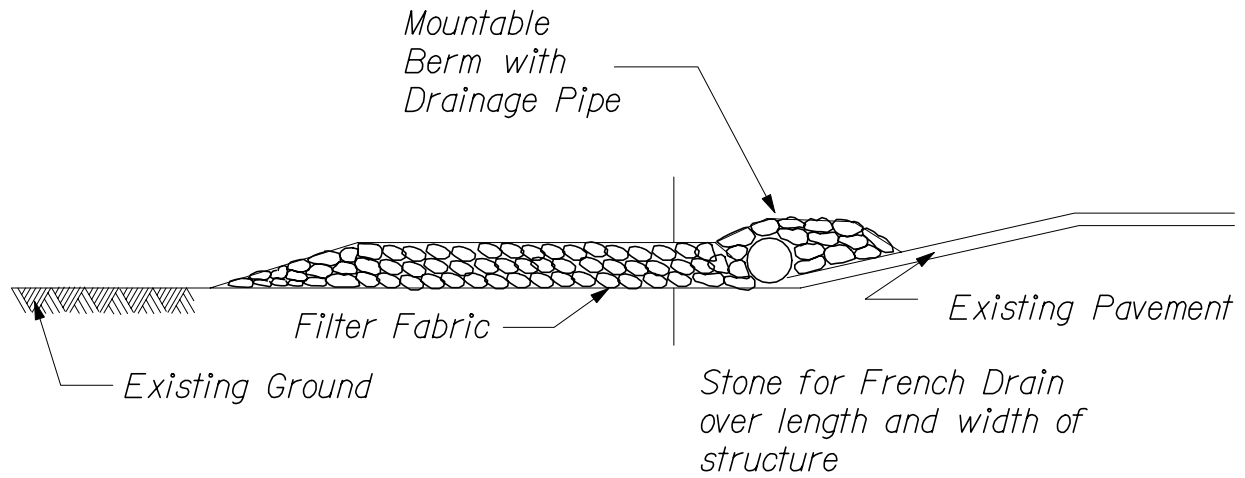
NOTE:

Use hay bales in drainage ditches only for low flow conditions and when specified on the Erosion Control Plans. Do not leave in ditches during winter months

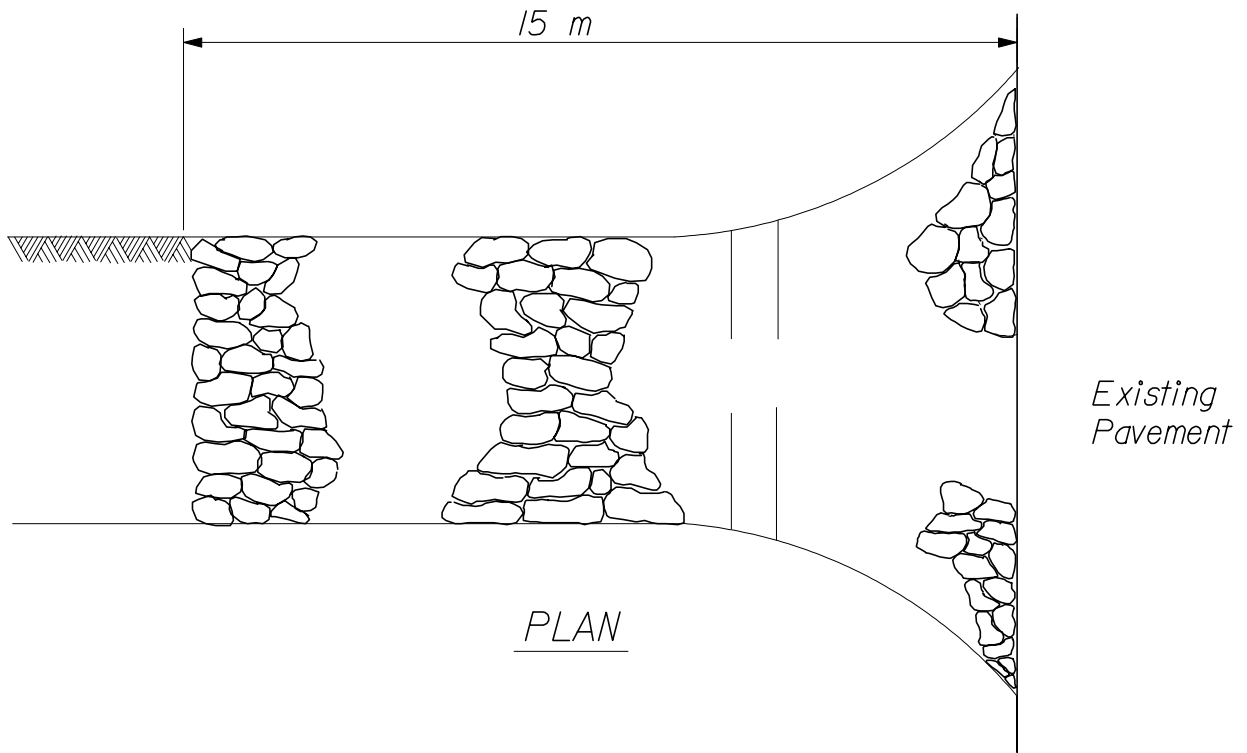
REF: Best Management Practice for Erosion and Sediment Control - Sediment Barriers

HAYBALE SEDIMENT BARRIER

802(19)



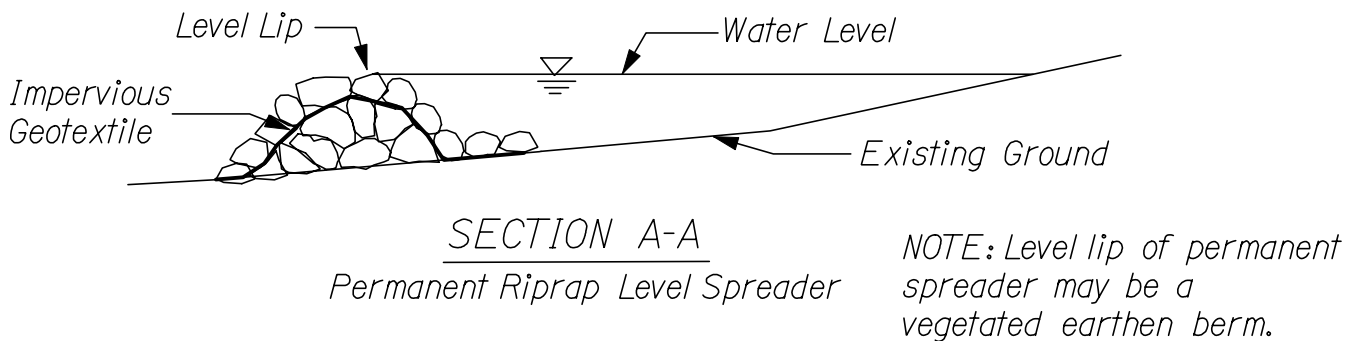
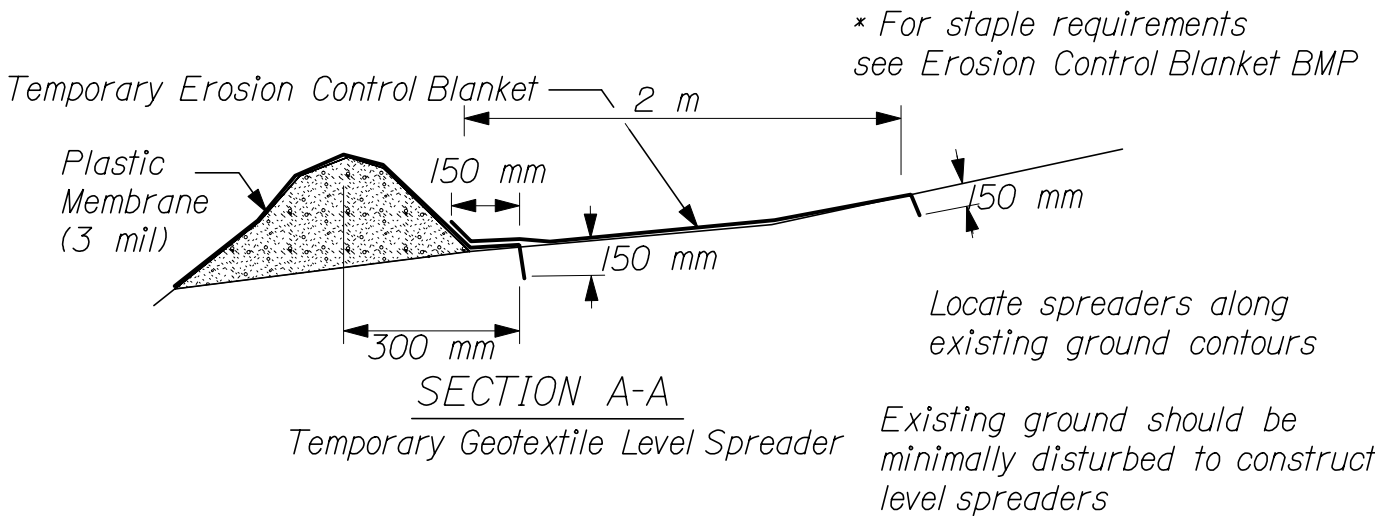
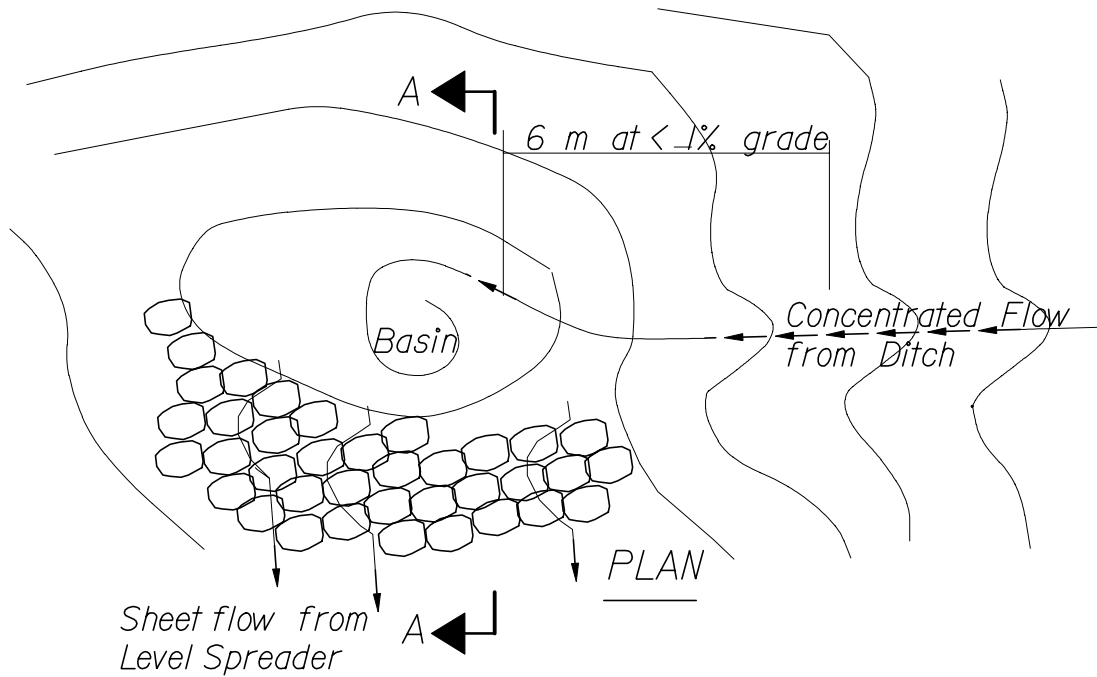
PROFILE



PLAN

REF: Best Management Practice for Erosion and Sediment Control - Stabilized Construction Entrance

STABILIZED CONSTRUCTION ENTRANCE
802(20)

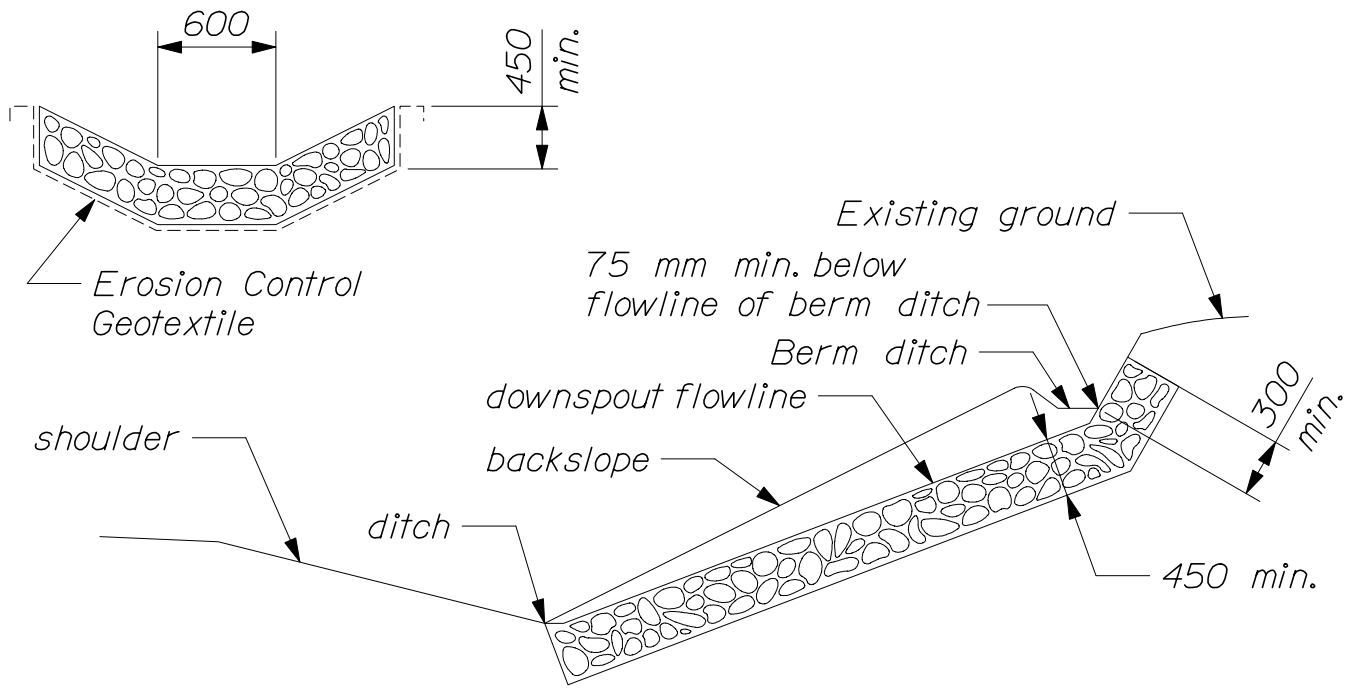


REF: Best Management Practice for Erosion and Sediment Control - Level Spreader

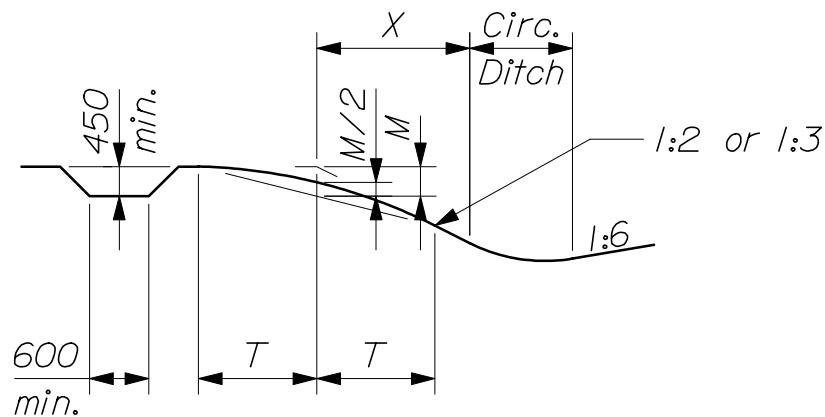
LEVEL SPREADER

802(21)

1:1.5 maximum slope
 1:2 or flatter is desirable



-- RIPRAP DOWNSPOUT --



-- BERM DITCH --

1. Construct berm ditch as shown on the plans or as directed by the Resident. Where a 1:2 slope is not practical use a 1:1.5 slope.
2. Where $X = 1500$ mm or less, $T = X$. Otherwise, $T = 1500$ mm. This formula may be modified by the Resident to avoid property damage and to save shade trees.
3. For all sections, the depth of ditch depends on local conditions.

RIPRAP DOWNSPOUTS AND BERM DITCHES

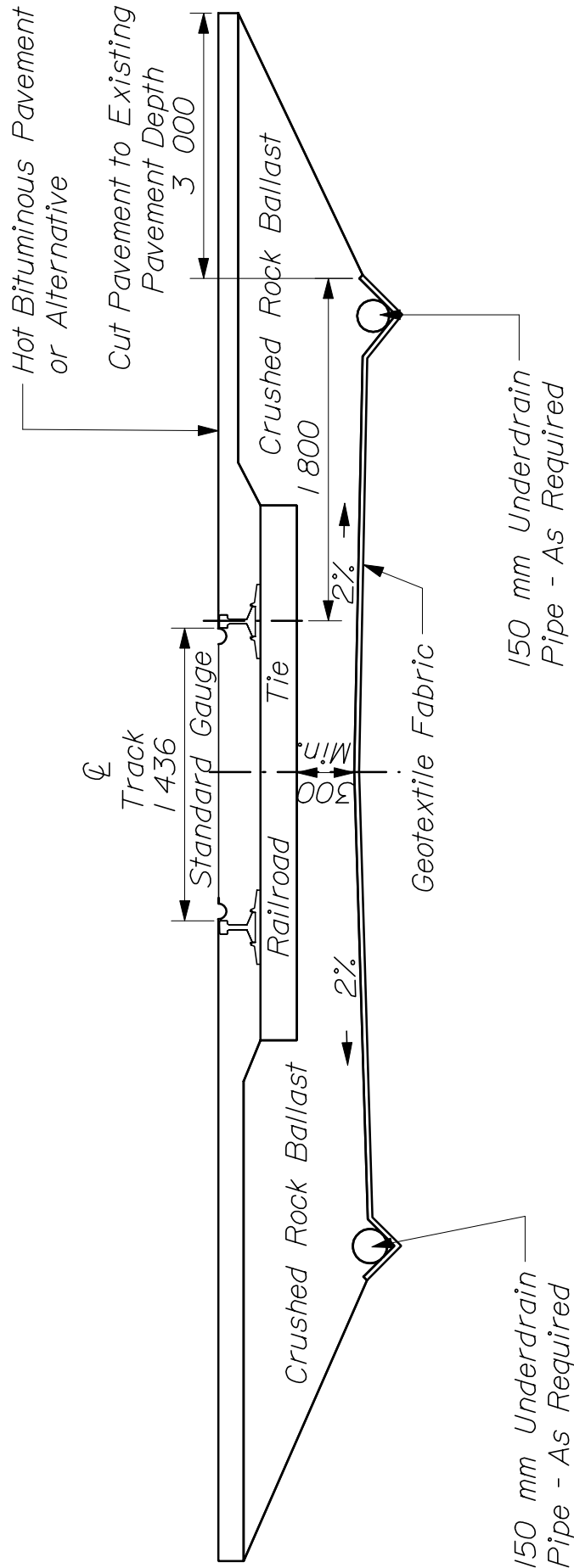
802(22)

Rail Road Crossing General Notes

- 1. The highway section over railroad crossings shall be designed with a minimum of 2 - 3 300 mm travel ways and 1800 mm shoulders (1200 mm shoulders may be authorized if field conditions warrant).*
- 2. Signal shall be located as follows with minimum distances of: 6430 mm from the edge of the travel way or 1250 mm from the edge of pavement*
- 3. Crossings shall be paved within 20 calendar days after completion of the crossing rehabilitation.*
- 4. Erosion control shall be provided where directed by the Resident Engineer per section 107.26 of the MDOT Standard Specifications, Revision of October 1995.*
- 5. Construction signs and traffic control devices shall be erected and maintained for the duration of the project per standard detail and Manual of Uniform Traffic Control Devices.*
- 6. Alternative crossing surfaces and procedures may be used with the approval of MDOT.*
- 7. Field work performed between December 15 and March 15 shall be approved in advance by the Resident Engineer.*
- 8. New 115 # prime welded rail shall be provided for crossing reconstruction. The minimum length of welded rail shall be 35.66 m or extend 10 m beyond each shoulder whichever is longer. The full depth excavation area shall extend 3 m beyond the welded rail and excavated to a minimum depth of 700 mm below the proposed rail elevation and sloped to drain.*
- 9. 7" x 9" x 9' ties shall be installed under the welded rail and shall be fully box anchored. Anchors are optional under the crossing surface.*
- 10. Where underdrain is required, the outlet shall be exposed and surrounded by stone. The outlet pipe shall meet Standard Specification 605.10*
- 11. Geotextiles provided for rail crossings shall be the following minimum weights: 8 oz./s. y. for non-woven fabrics and 6 oz./s.y. for woven fabrics. The minimum width through the crossing area shall be 5 m.*

RAIL ROAD CROSSING GENERAL NOTES

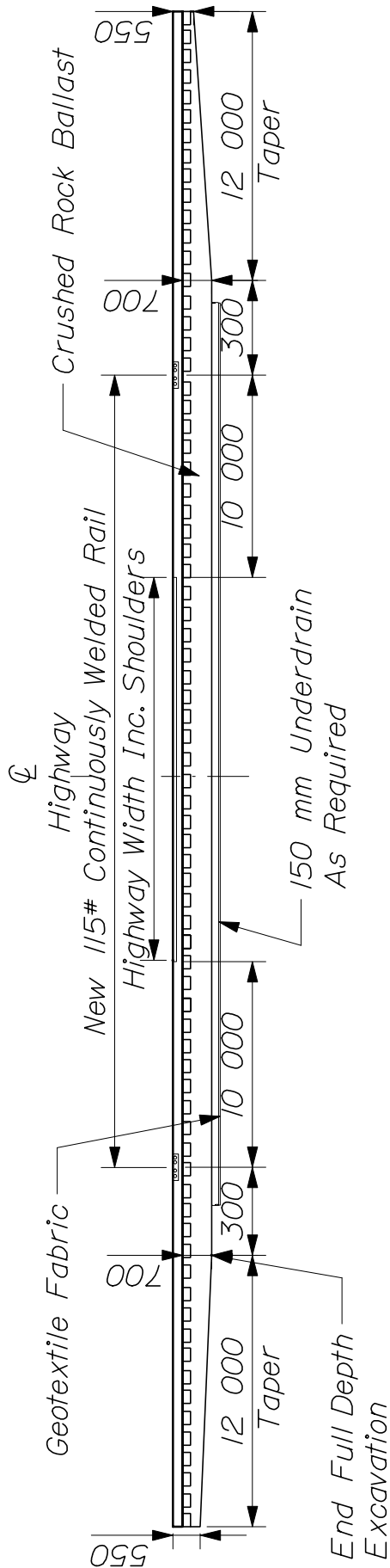
803(01)



STANDARD RAILROAD
 GRADE CROSSING DETAIL
 803(02)

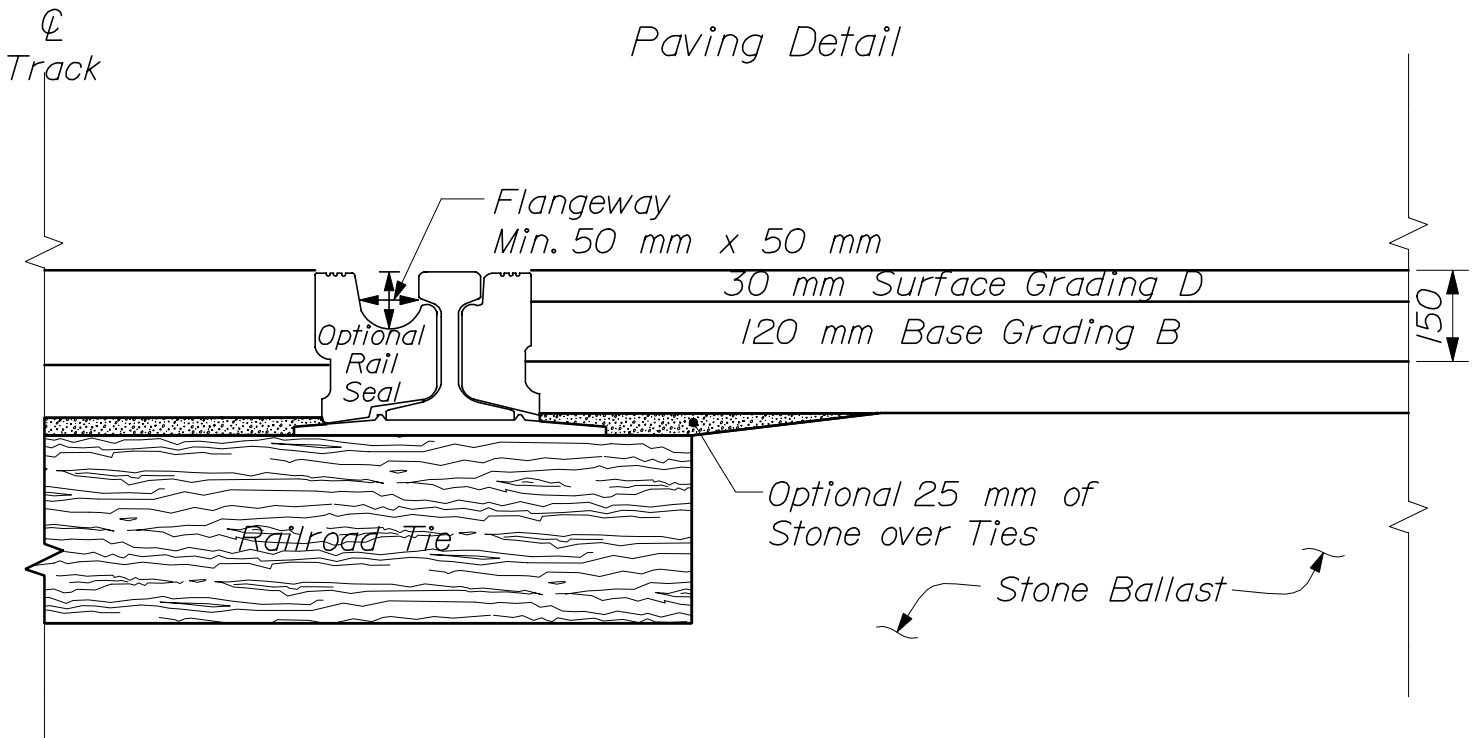
Railroad Section

Not to Scale



HIGHWAY SECTION
 RAILROAD GRADE CROSSING
 803(03)

Paving Detail



Rail Road Crossing General Notes

All hot bituminous pavement will conform to the following:

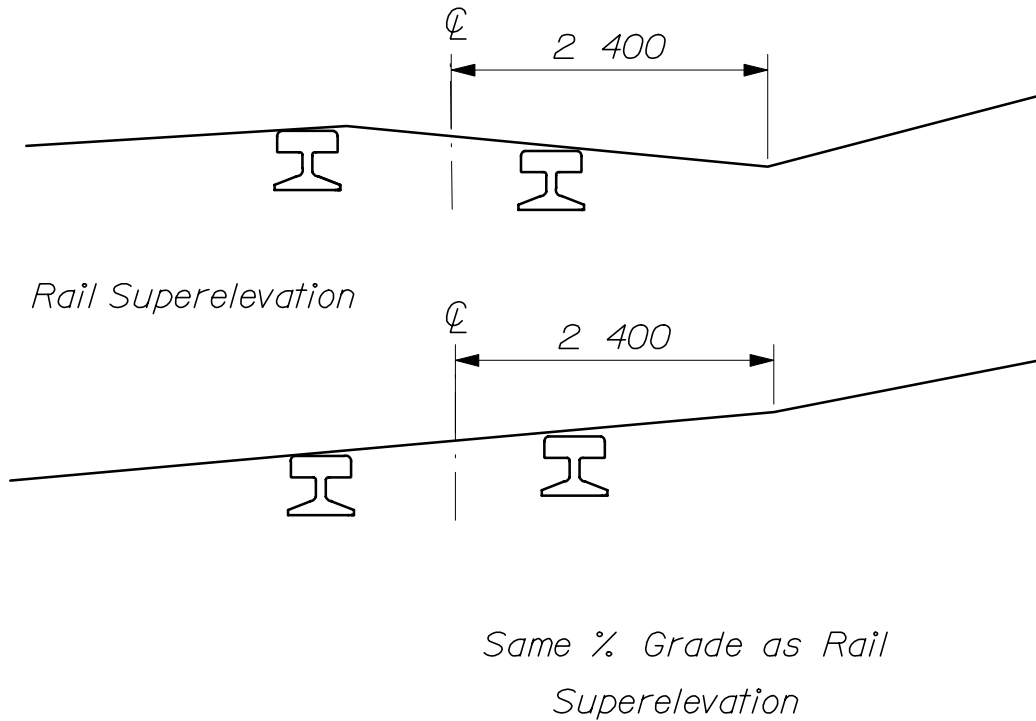
Special Provision Section 403 - Bituminous Pavement

Descrip. of Course	Grad. Design.	Item No.	Bit. Cont. % of Mix	Total Thick.	No. of Layers	Complementary Notes
<i>Railroad Planning (6" Pavement Depth)</i>						
Wearing	'D'	403.10	5.8 - 7.0	30 mm	1	1, 2
Binder	'B'	403.07	4.8 - 6.0	120 mm	2	1, 2

Complementary Notes

1. The bituminous binder material for the mixture shall be viscosity grade AC -10 or 20 asphalt cement.
2. The density requirements are waived.

RAIL ROAD CROSSING GRADING



Note:

The slope of the 2 400 mm shown, in no case, shall be above the plane of the rails either side of x per P.U.C. General Order # 2.

Key:

■ Flagger

■ Channelizing devices

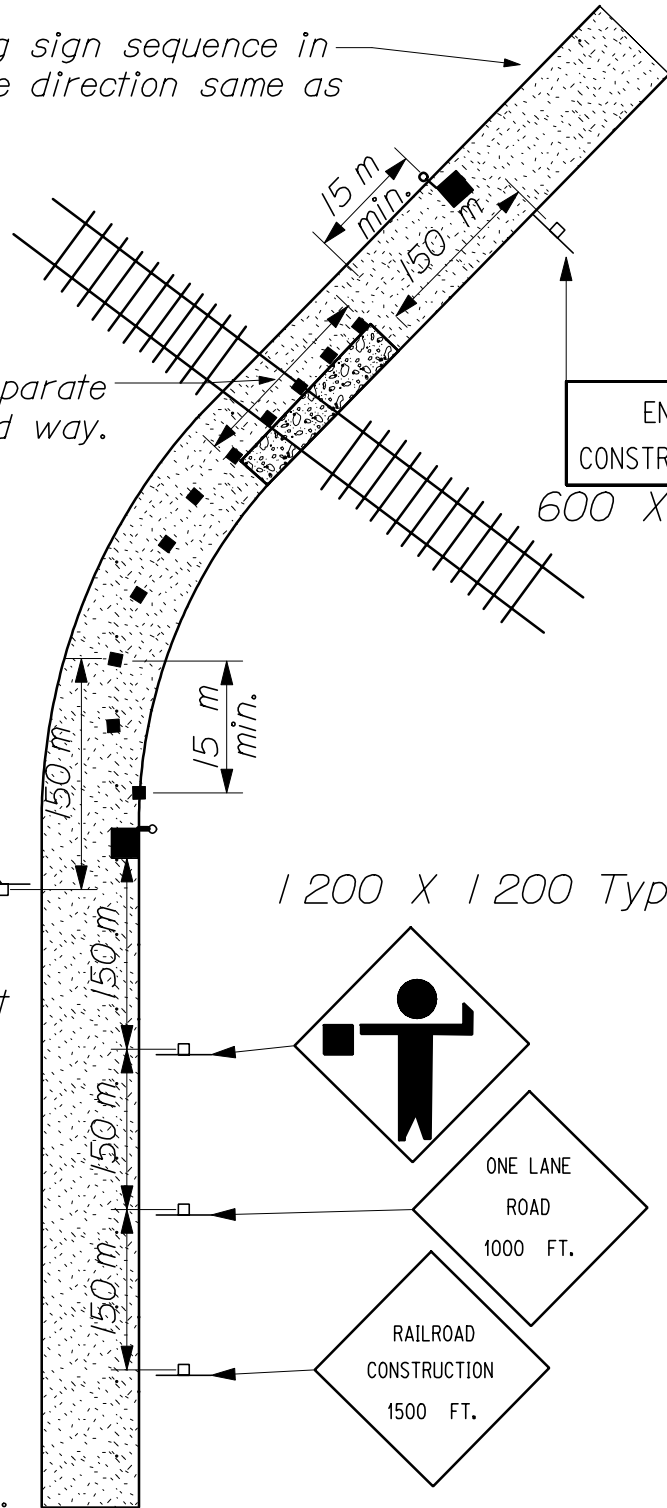
Warning sign sequence in opposite direction same as below.

Channelizing devices separate work area from traveled way.

600 X 1500

END
CONSTRUCTION

END
CONSTRUCTION
600 X 1500



NOTE :

1. Flood lights should be provided to mark flagger stations at night as needed.
2. If entire work area is visible from one station, a single flagger may be used.
3. Warning lights should be used to mark channelizing devices at night as needed.
4. Channelizing devices are to be extended to a point where they are visible to approaching traffic.

TYPICAL APPLICATIONS OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY. ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.

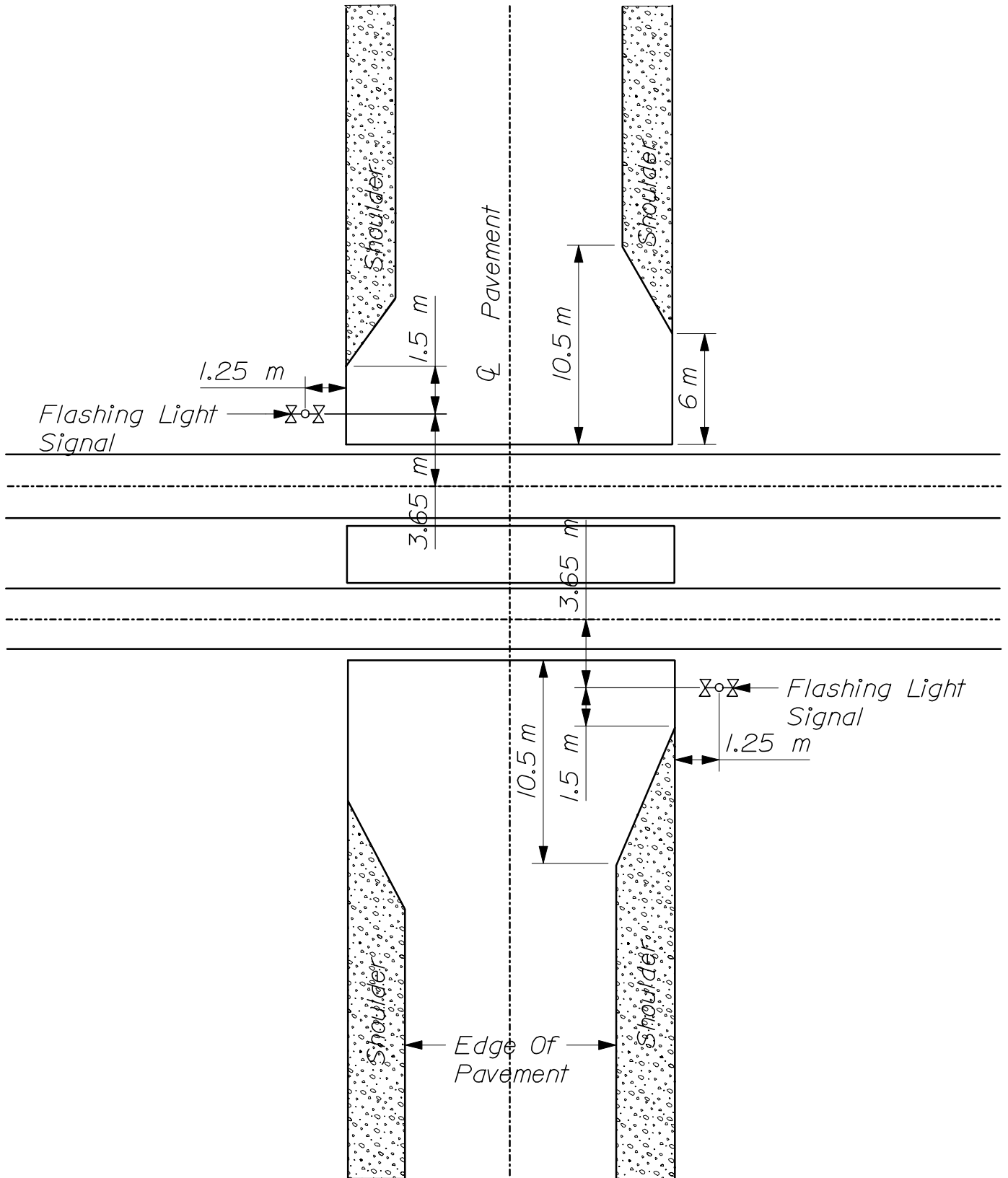
Suggested Min. Pavement Marking Placement Distance

<i>Use Highest Posted Speed (MPH)</i>	<i>Minimum Distance (Meters)</i>
<i>12.0 km</i>	<i>53.0 m</i>
<i>15.0 km</i>	<i>76.0 m</i>
<i>18.0 km</i>	<i>99.0 m</i>
<i>21.0 km</i>	<i>122.0 m</i>
<i>24.5 km</i>	<i>145.0 m</i>
<i>27.5 km</i>	<i>168.0 m</i>
<i>30.5 km</i>	<i>191.0 m</i>
<i>33.5 km</i>	<i>213.0 m</i>
<i>36.5 km</i>	<i>236.0 m</i>

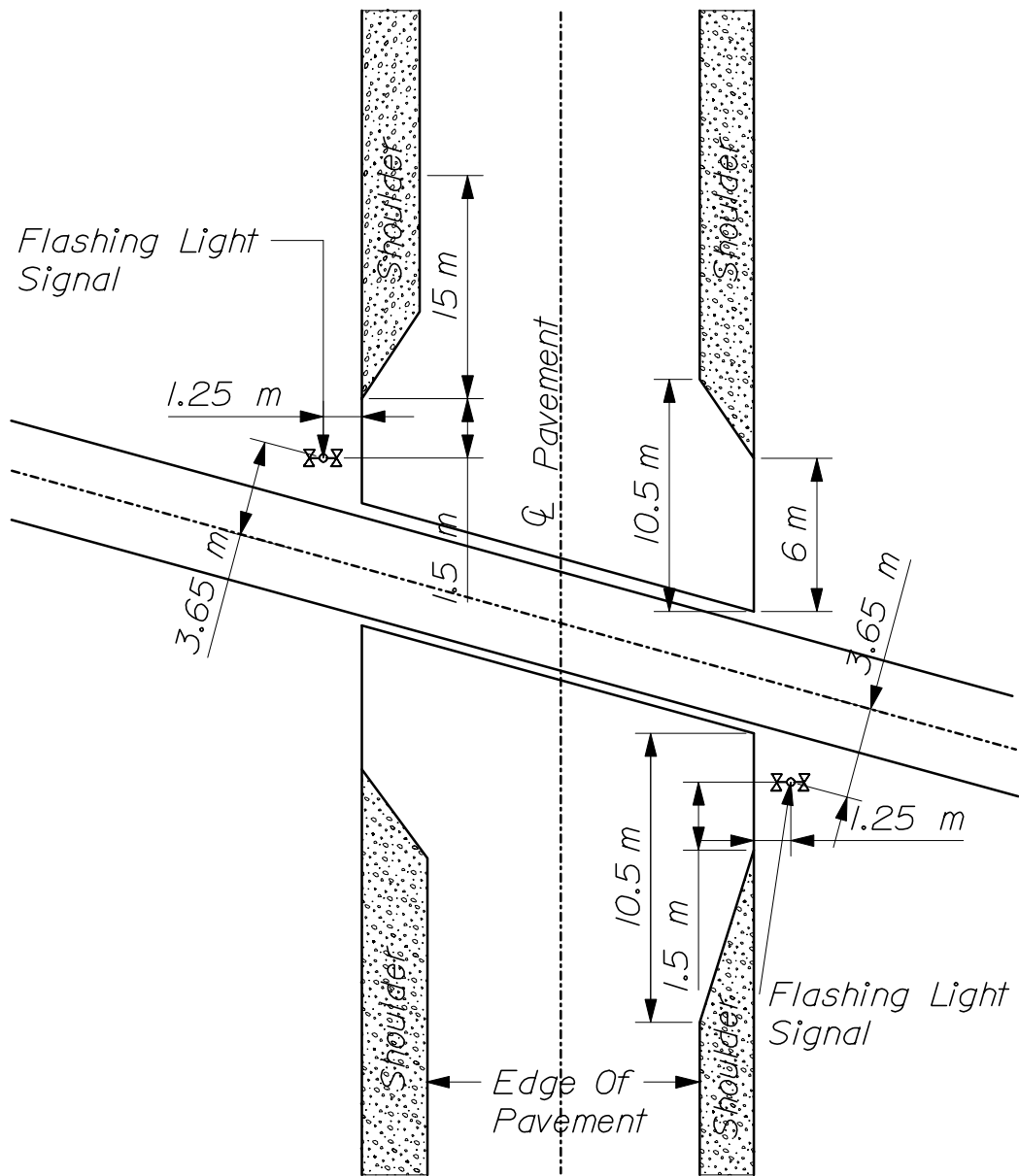
When used, a portion of the pavement marking symbol should be directly opposite the Advance Warning Sign (W 10-1). If needed, supplemental pavement marking symbol(s) may be placed between the Advance Warning Sign and the crossing, but should be at least 15 m from the Stop Line.

A three lane roadway should be marked with a centerline for two-lane approach operation on the approach to a crossing. On multi-lane roads the transverse bands should extend across all approach lanes, and individual RXR symbols should be used in each approach lane.

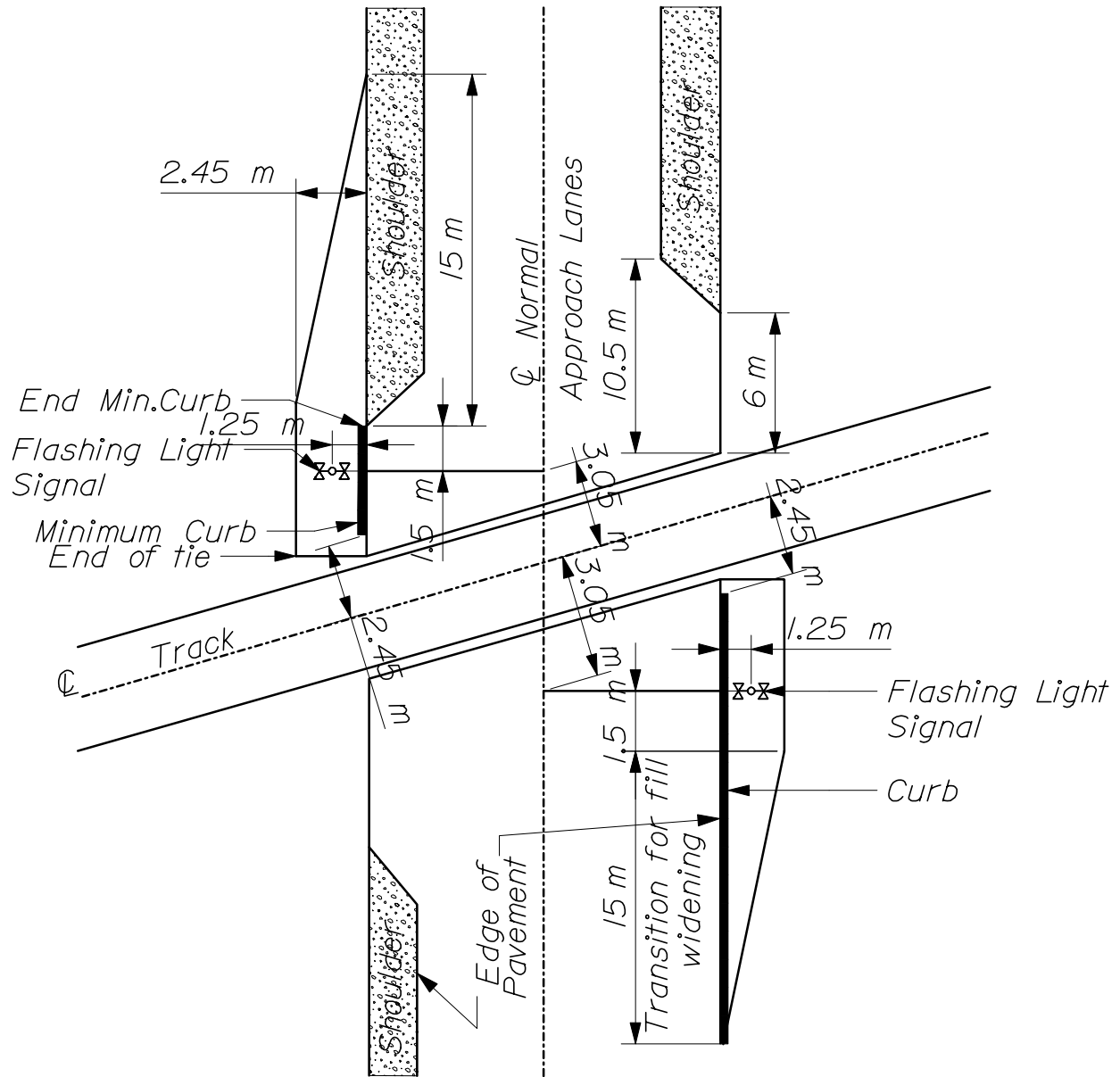
Refer to Standard Alphabet for Highway and Markings for RXR symbols details.



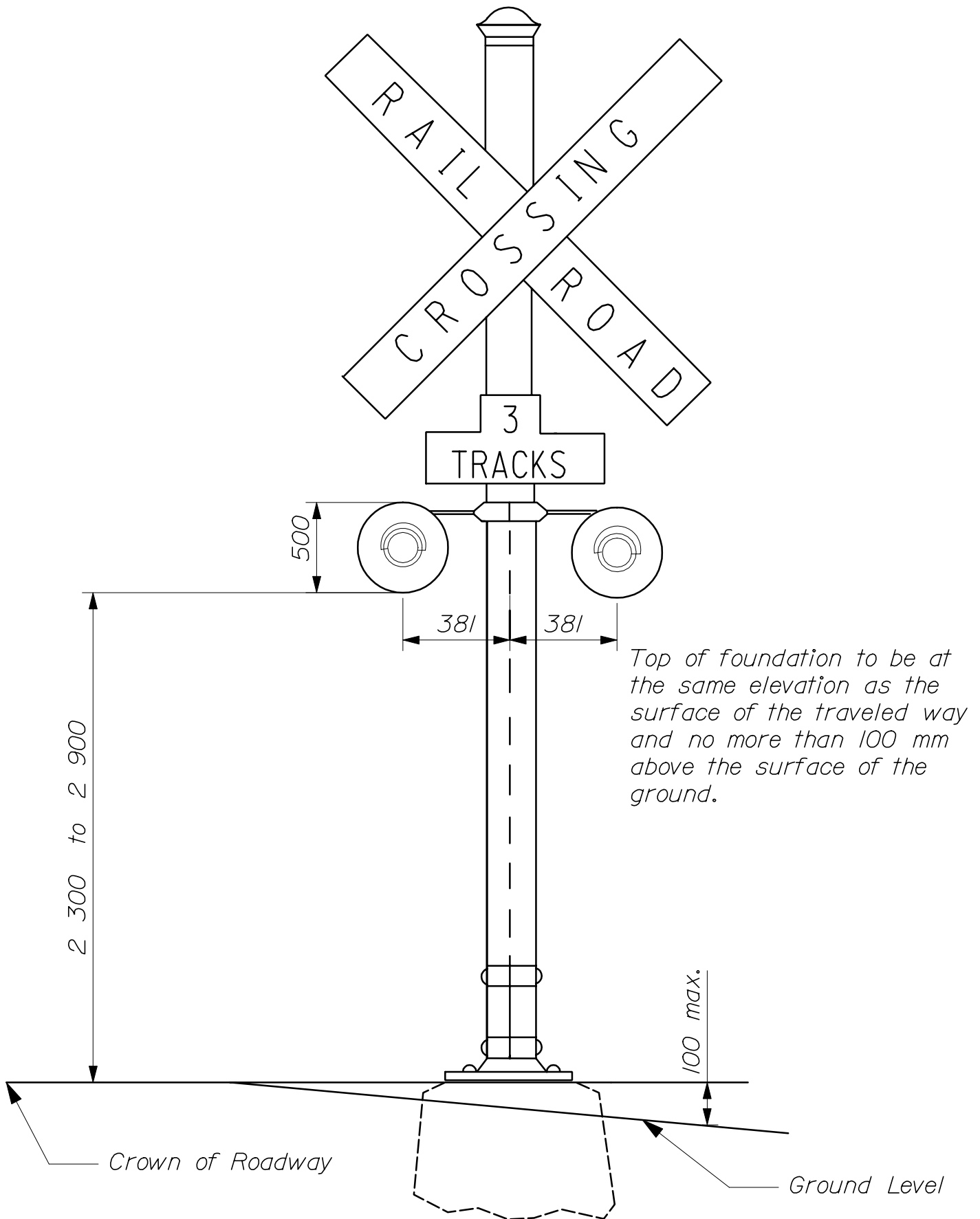
TYPICAL SIGNAL LOCATION AND PAVING PLAN FOR SQUARE CROSSING



TYPICAL SIGNAL AND GUARD RAIL LOCATIONS
FOR ACUTE ANGLE CROSSING

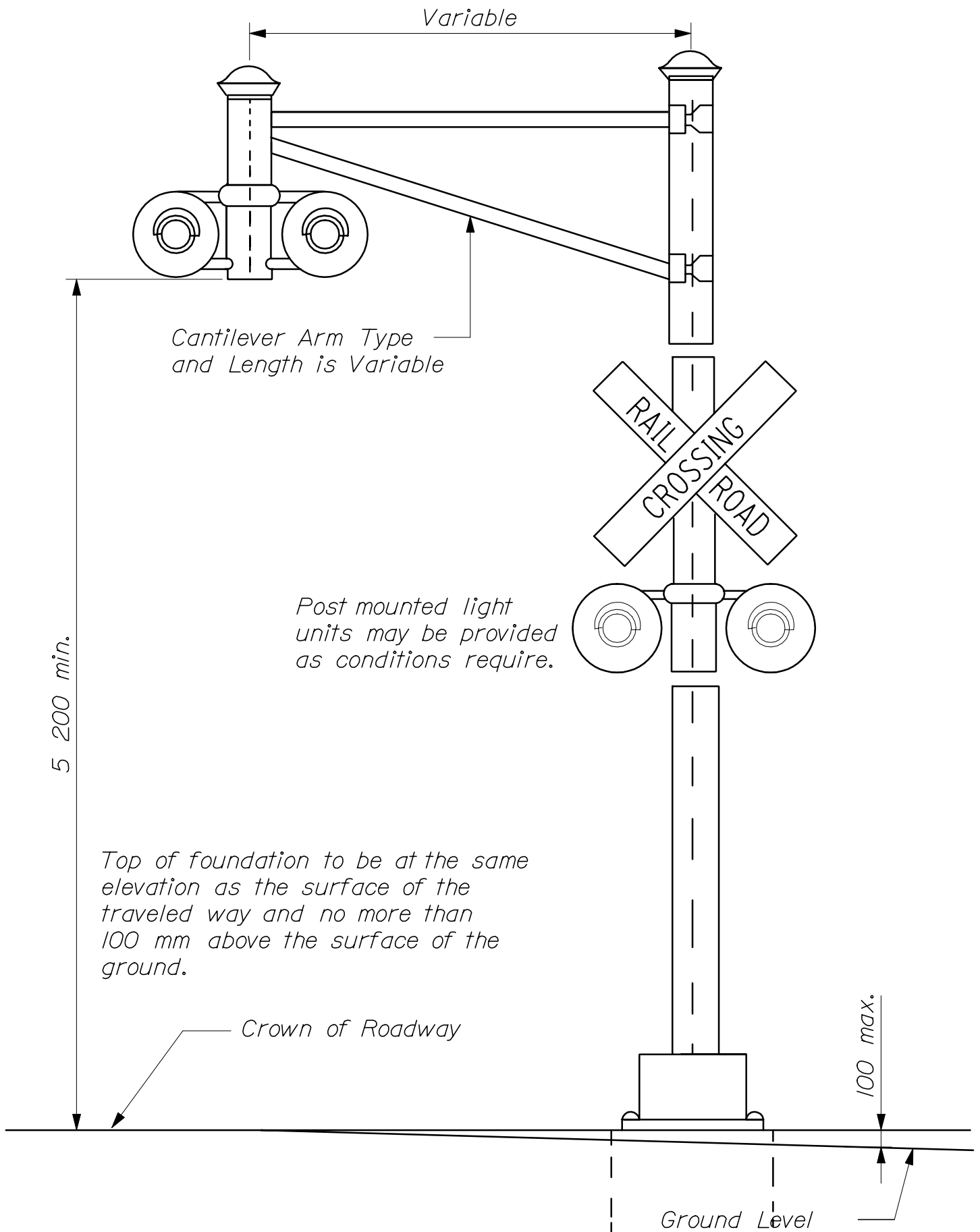


TYPICAL SIGNAL AND CURB LOCATIONS FOR
 OBTUSE ANGLE CROSSING
 803(10)



TYPICAL FLASHING LIGHT SIGNAL - POST MOUNTED.
 TYPICAL SHOULDER WITHOUT CURB

803(11)



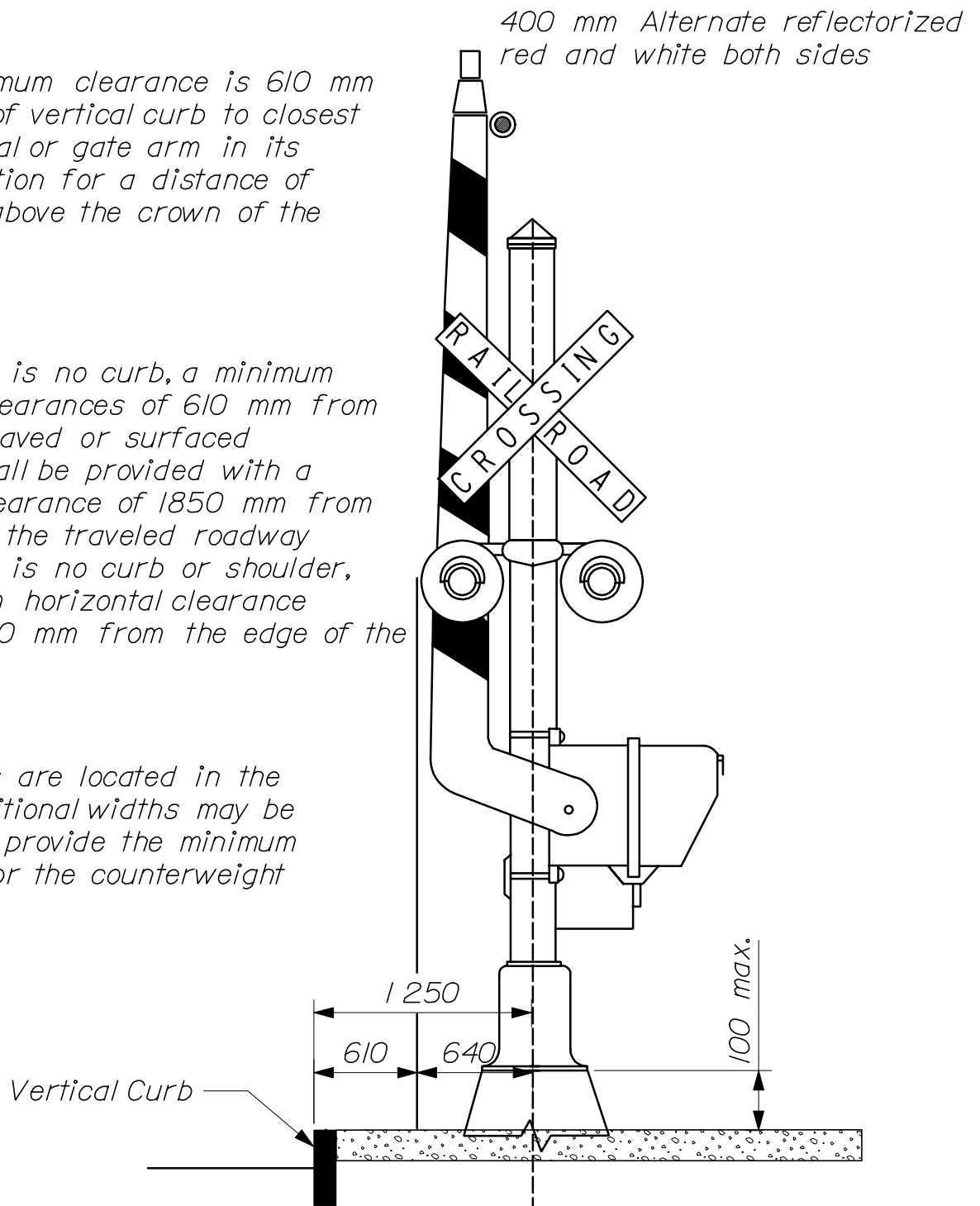
TYPICAL FLASHING LIGHT SIGNAL -
CANTILEVER SUPPORTED

803(12)

Typical minimum clearance is 610 mm from face of vertical curb to closest part of signal or gate arm in its upright position for a distance of 5200 mm above the crown of the roadway.

Where there is no curb, a minimum horizontal clearances of 610 mm from edge of a paved or surfaced shoulder shall be provided with a minimum clearance of 1850 mm from the edge of the traveled roadway where there is no curb or shoulder, the minimum horizontal clearance shall be 1850 mm from the edge of the roadway.

Where gates are located in the median, additional widths may be required to provide the minimum clearance for the counterweight supports.



TYPICAL CLEARANCES FOR FLASHING LIGHT SIGNALS AND AUTOMATIC GATES
TYPICAL CURB LOCATION