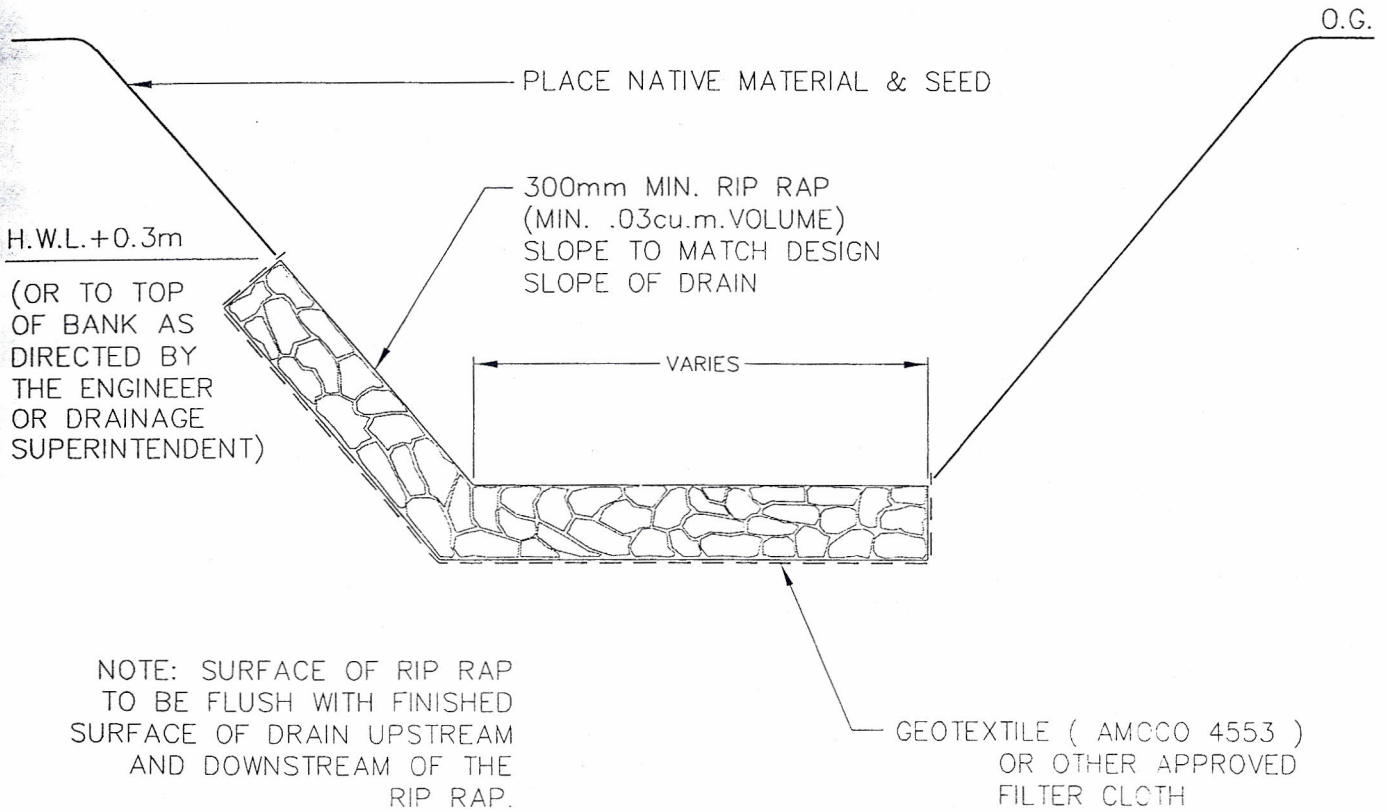


**Appendix D
Detail Drawings**



NOTE: SURFACE OF RIP RAP TO BE FLUSH WITH FINISHED SURFACE OF DRAIN UPSTREAM AND DOWNSTREAM OF THE RIP RAP.

DATED: SEPT/03

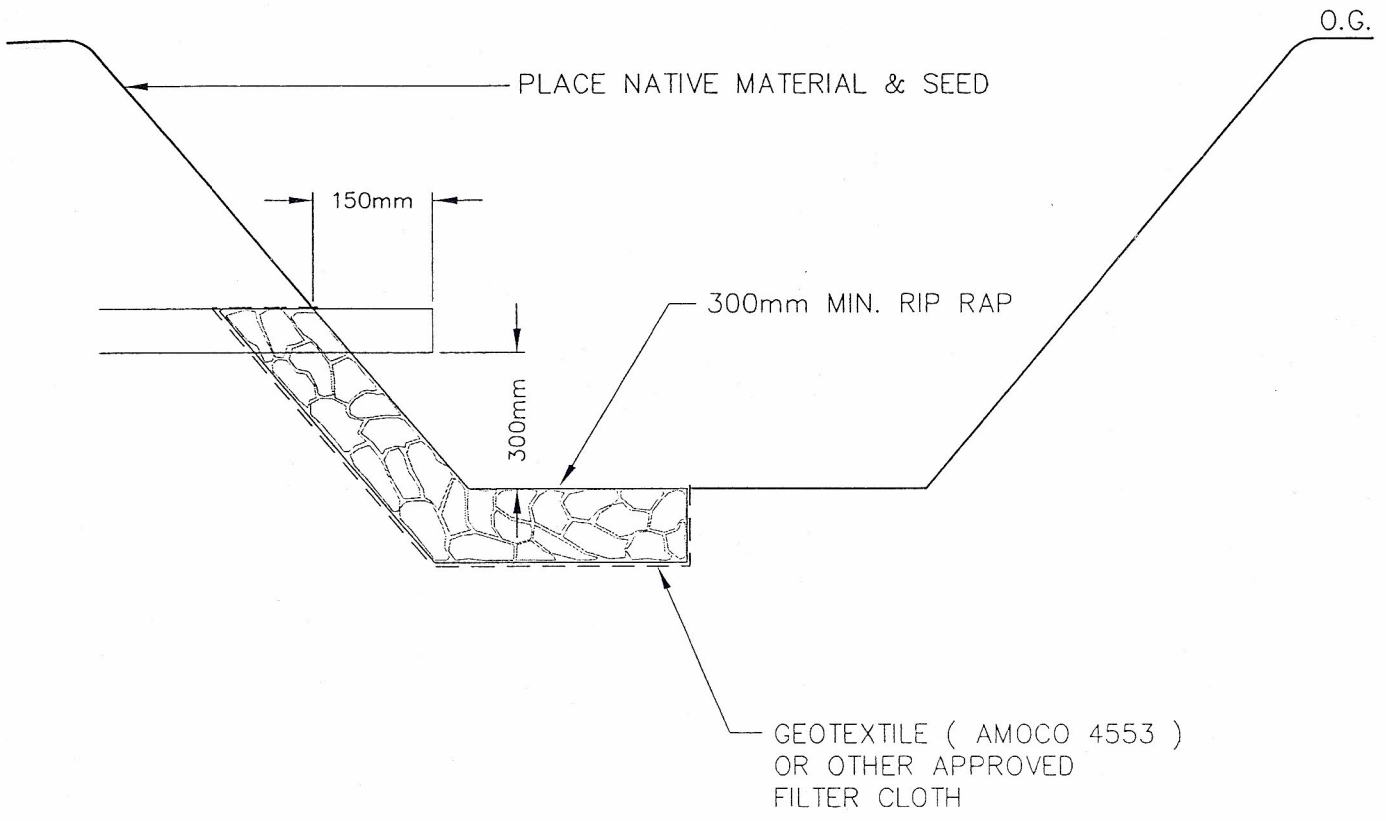


SCALE
HORIZONTAL N.T.S.
VERTICAL N.T.S.

TYPICAL MUNICIPAL DRAIN DETAILS

RIP RAP
BANK PROTECTION

PROJECT NO.
STD.DWG.No. 1



NOTES:

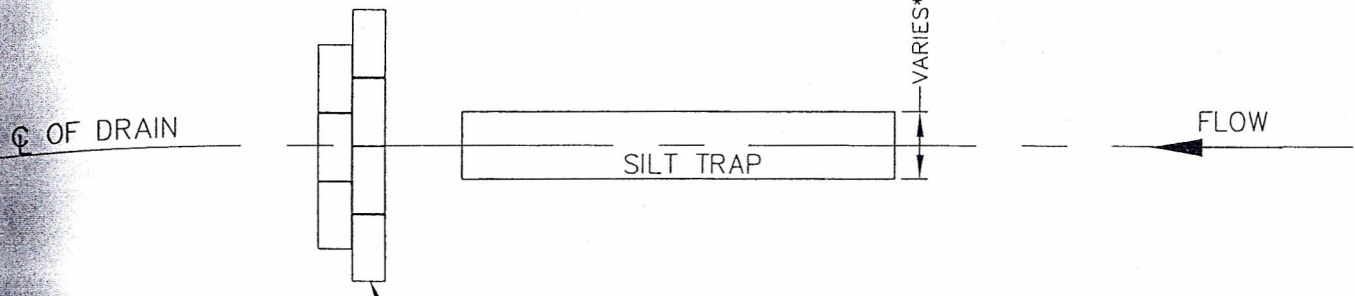
1. OUTLET TO BE CONTINUOUS C.S.P. AND A MIN. LENGTH OF 4.0m.
2. RIP RAP TO BE PLACED AS REQUIRED TO PREVENT EROSION. THE SURFACE TO BE FLUSH WITH THE STREAM BED AND BANK.
3. THE CONNECTION BETWEEN THE C.S.P. AND THE FIELD TILE IS TO BE ENCASED IN CONCRETE.
4. A RODENT GRATE IS TO BE INSTALLED AT THE END OF THE C.S.P. OUTLET.

DATED: SEPT/03

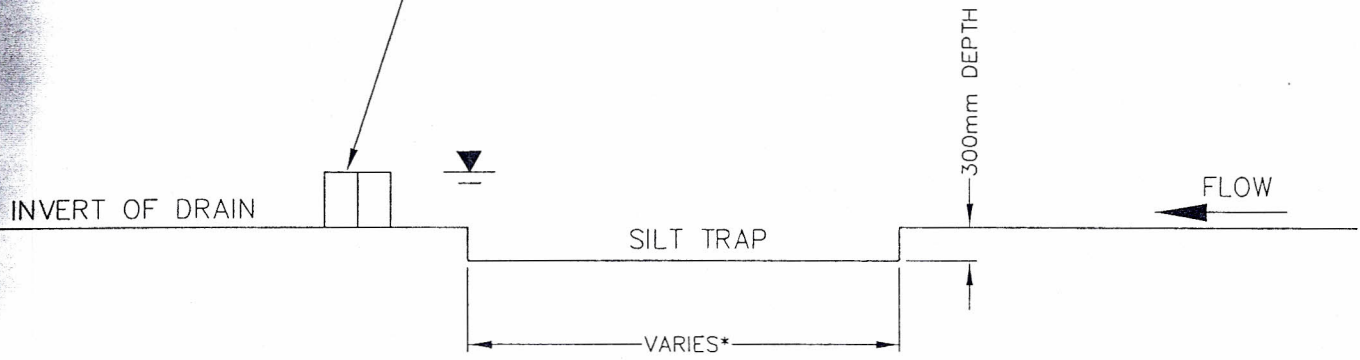


SCALE HORIZONTAL N.T.S. VERTICAL N.T.S.	TYPICAL MUNICIPAL DRAIN DETAILS	PROJECT NO.
	STANDARD TILE OUTLET	STD.DWG.No. 2

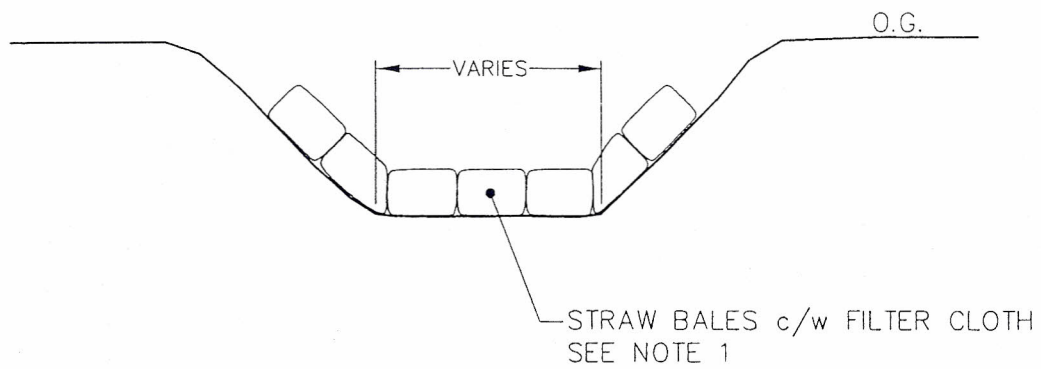
TOP OF BANK O.G.



NOTE 1: STRAW BALES c/w FILTER CLOTH ANCHORED w/1200mmL. STAKES



* AS DIRECTED BY ENGINEER OR DRAINAGE SUPERINTENDENT



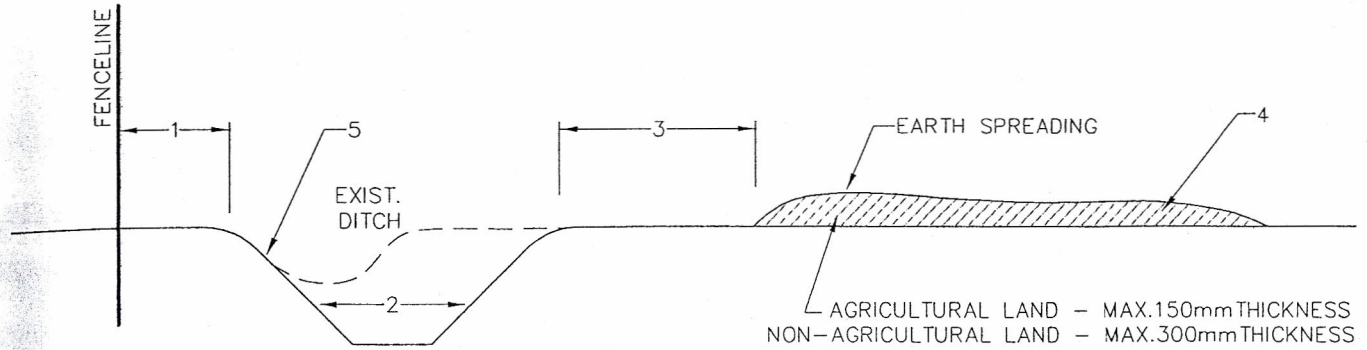
DATED: SEPT/03



SCALE
HORIZONTAL
N.T.S.
VERTICAL
N.T.S.

TYPICAL MUNICIPAL DRAIN DETAILS
SEDIMENT TRAP
W/ STRAW BALES

PROJECT NO.
STD.DWG.No.
3



NOTES:

1. NO EXCAVATION WITHIN 1 METRE (3 FEET) OF EXISTING FENCELINE.
2. SIDE SLOPES AND CHANNEL DIMENSIONS AS PER PROFILE DRAWING.
3. NO SPOIL OR SPREADING WITHIN 3 METRES (10 FEET) OF TOP OF BANK.
4. SPOIL THICKNESS, WIDTH, DRAINAGE OPENINGS AND SPREADING LOCATION TO BE AS PER SPECIAL PROVISIONS.
5. WHERE ONE-SIDED CONSTRUCTION IS SPECIFIED, THE EXISTING GRASSED SLOPE SHALL BE PRESERVED.

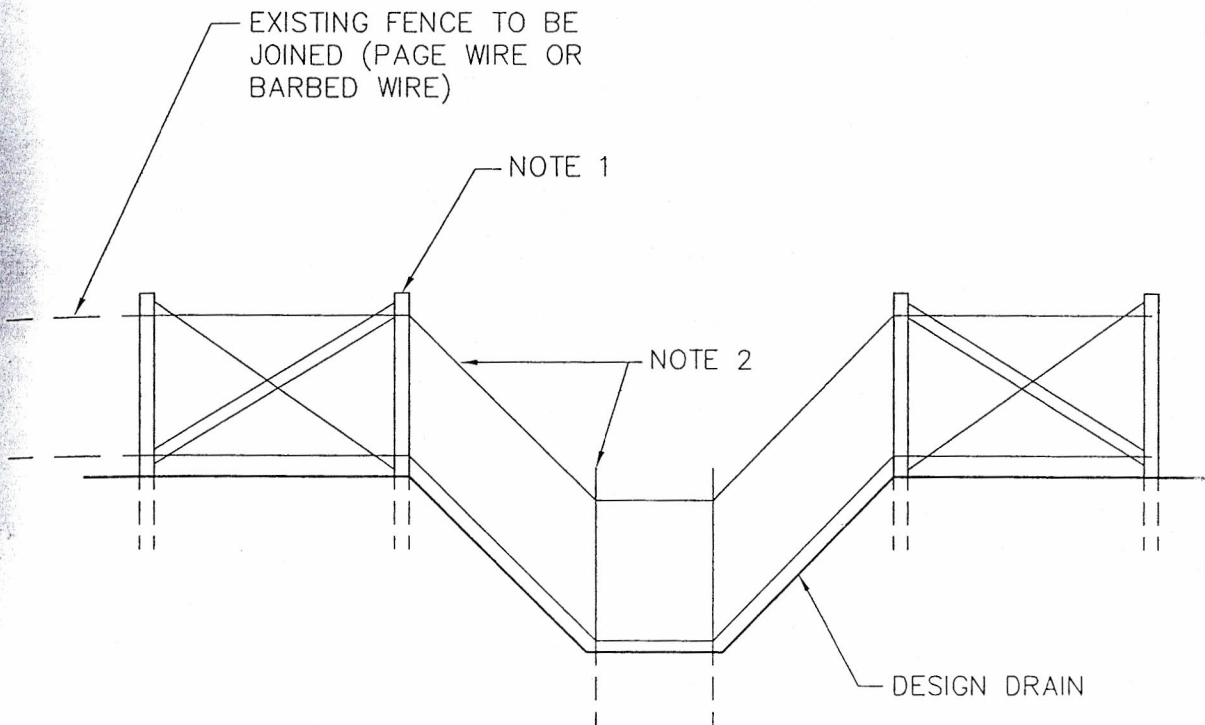
DATED: SEPT/03



SCALE
HORIZONTAL
N.T.S.
VERTICAL
N.T.S.

TYPICAL MUNICIPAL DRAIN DETAILS
OPEN CHANNEL SYSTEMS
EARTH CUT CHANNEL

PROJECT NO.
STD.DWG.No.
4



NOTES:

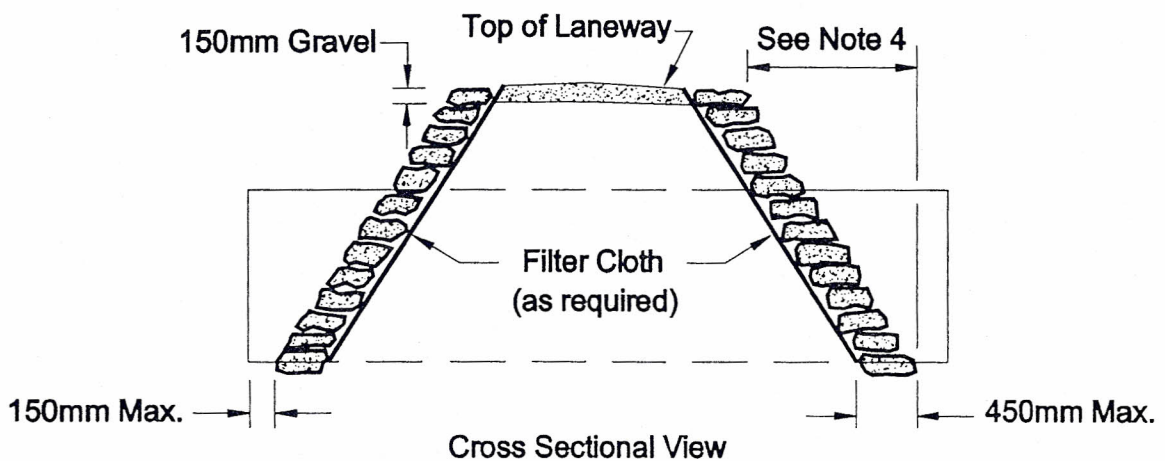
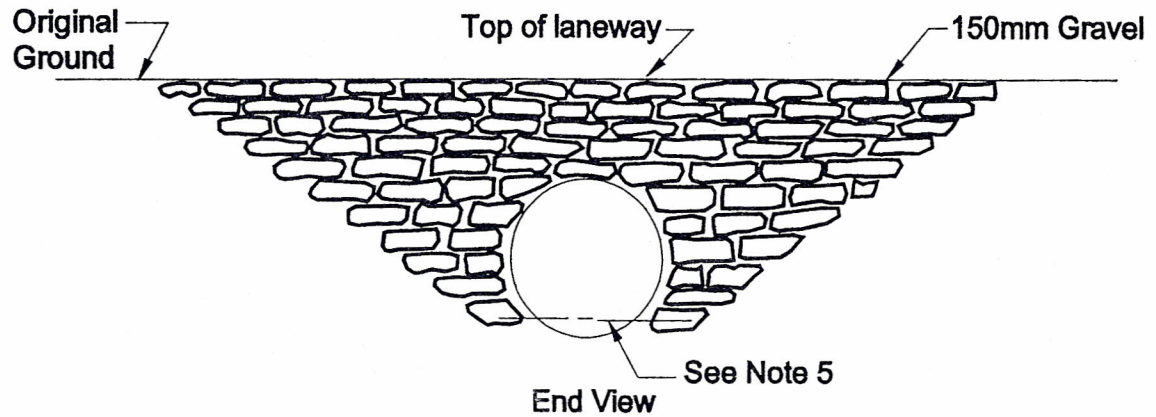
1. REFER TO OPSD DWG. No. 901.01 FOR BRACE PANEL DETAIL.
2. T-RAILS SHALL BE NEW STEEL, MINIMUM LENGTH 2.4m (8 FEET).
3. CROSS-FENCE WIRE SHALL BE HEAVY GAUGE BARBED WIRE, MINIMUM 6 STRANDS AT EVEN SPACING.

DATED: SEPT/03



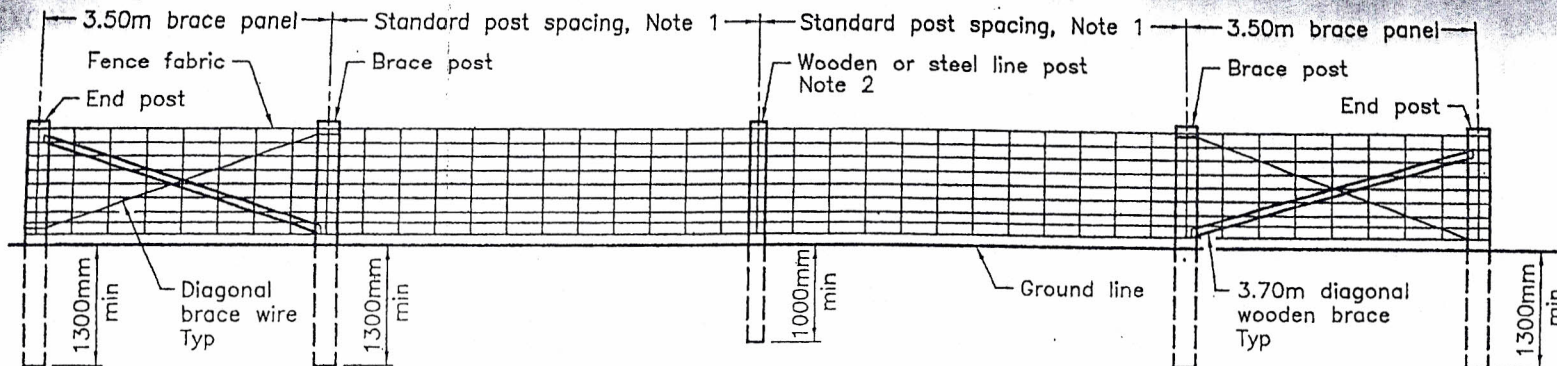
SCALE	TYPICAL MUNICIPAL DRAIN DETAILS	PROJECT NO.
HORIZONTAL N.T.S.		STD.DWG.No.
VERTICAL N.T.S.	CROSS FENCE	5

INSTALLATION OF CULVERTS FARM CROSSINGS

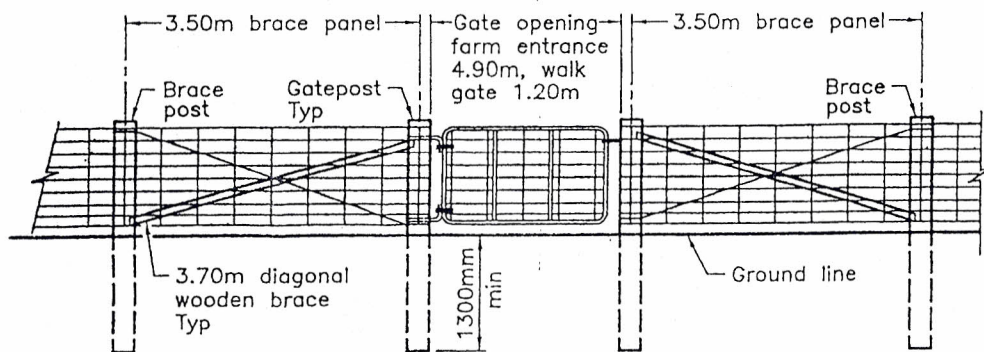


Note:

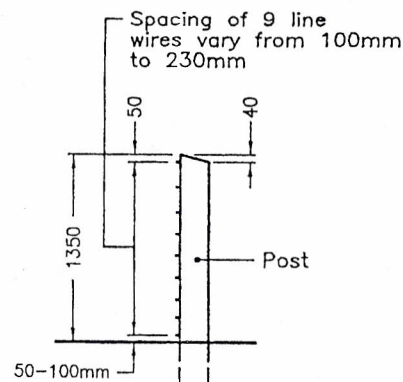
- 1- If a coupler is required four (4) 18mm \varnothing bolts with adequate size washers shall be used to secure the coupler to the pipes. These bolts shall be placed 180° apart.
- 2- Backfill material can be native material except if muck. In such a case, contractor shall import suitable backfill material.
- 3- Rip-Rap shall consist of quarried rock.
- 4- For ditch depths of 2m maximum, the sloping distance shall be 600mm.
For ditch depths of 2m plus, the sloping distance shall be 1m.
- 5- Pipe to be placed below ditch bottom.
150mm. Maximum for pipes of 600mm \varnothing to 1200mm \varnothing .
300mm. Maximum for pipes of 1300mm \varnothing and greater.
- 6- This standards applies to both round and pipe-arch culverts.
- 7- Pipe supplier's specifications shall apply to all culverts greater than 2000mm in diameter.



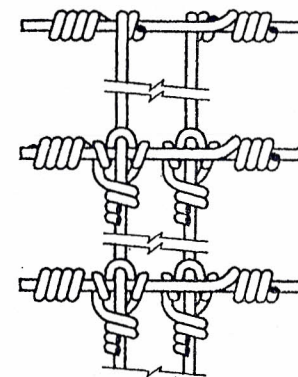
**HIGHWAY FENCE
IN EARTH, SHALE, LOOSE ROCK, OR FRIABLE ROCK**



GATE DETAIL




WIRE SPACING DETAIL

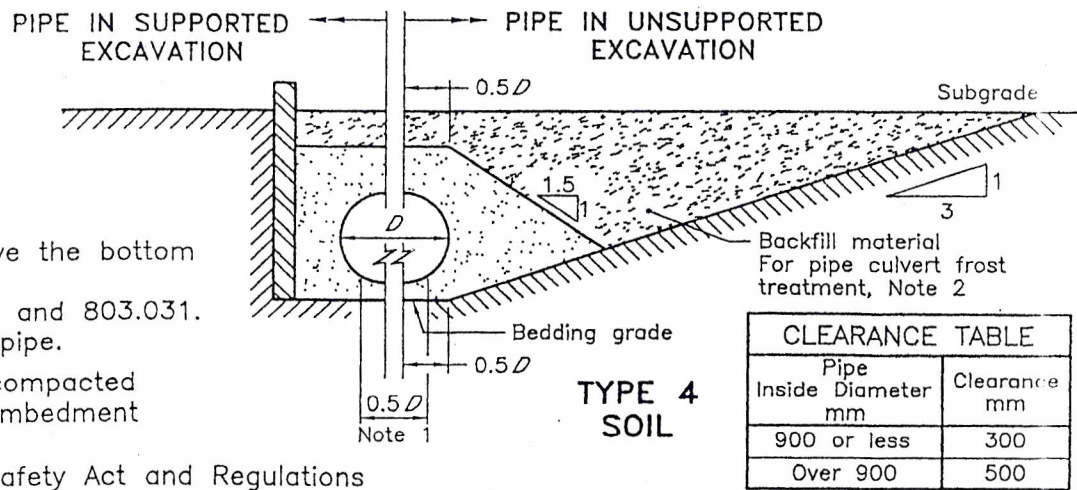
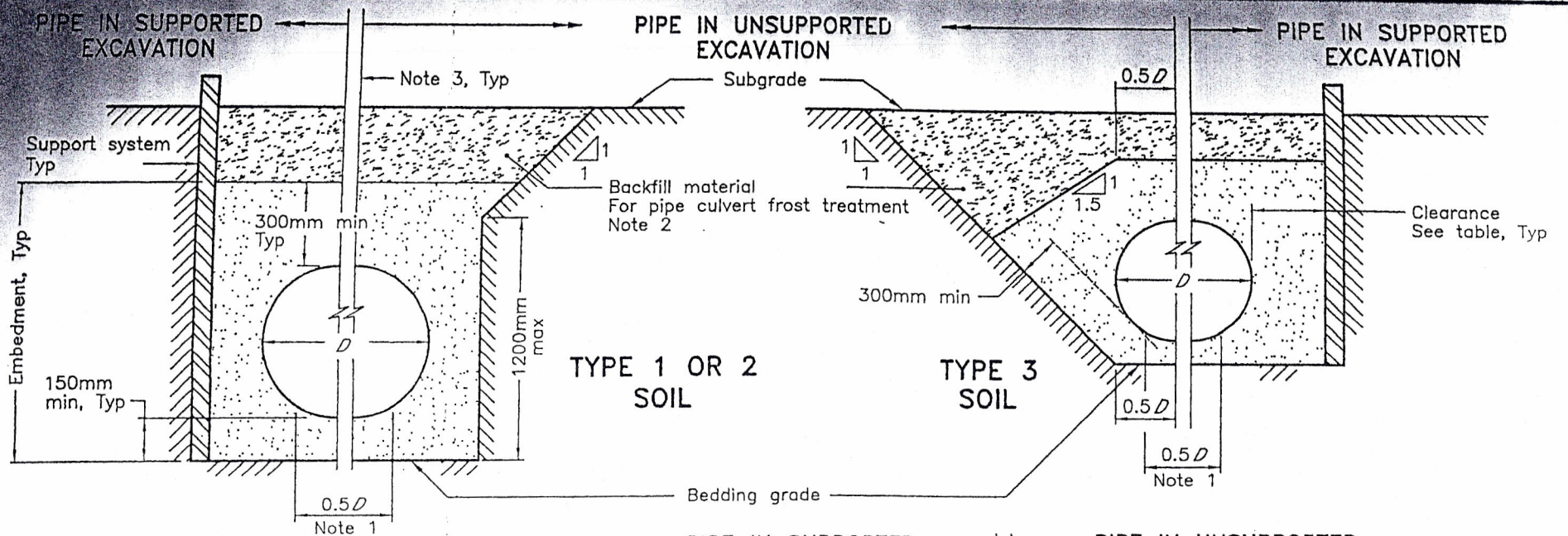


SPlicing DETAIL

NOTES:

- 1 Standard post spacing shall be 6.0m for wooden post to wooden post and 5.0m for steel post to steel or wooden post.
- 2 Ratio of steel posts to wooden posts shall be 3:1.
- A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING		Nov 2008	Rev 2
FENCE, HIGHWAY IN EARTH, SHALE, LOOSE ROCK, OR FRIABLE ROCK INSTALLATION			
OPSD 971.101			



LEGEND:
 D - Inside diameter

- NOTES:**
- 1 The pipe bed shall be compacted and shaped to receive the bottom of the pipe.
 - 2 Pipe culvert frost treatment according to OPSD-803.030 and 803.031.
 - 3 Condition of trench is symmetrical about centreline of pipe.
- A Granular material placed in the haunch area shall be compacted prior to placing and compacting the remainder of the embedment material.
- B Soil types as defined in the Occupational Health and Safety Act and Regulations for Construction Projects.
- C All dimensions are in metres unless otherwise shown.

CLEARANCE TABLE	
Pipe Inside Diameter mm	Clearance mm
900 or less	300
Over 900	500

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2005	Rev 1	
FLEXIBLE PIPE EMBEDMENT AND BACKFILL EARTH EXCAVATION	-----		
OPSD - 802.010			