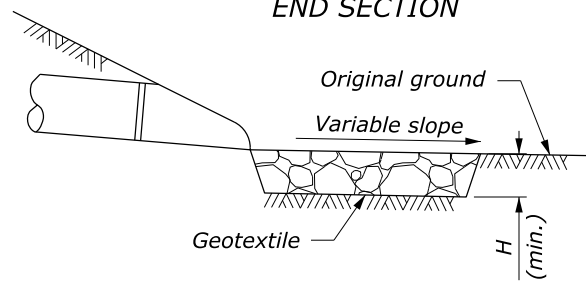
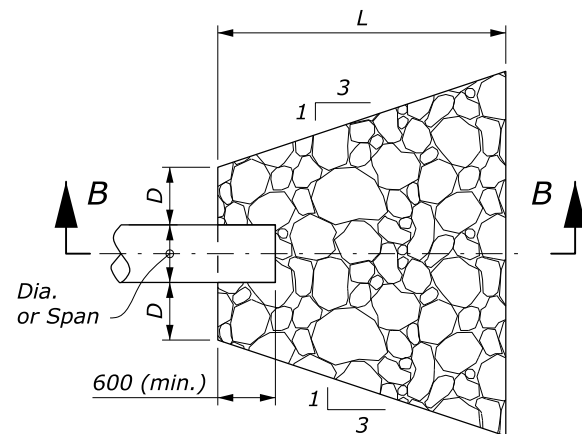


PLAN VIEW

CULVERT WITH STANDARD END SECTION

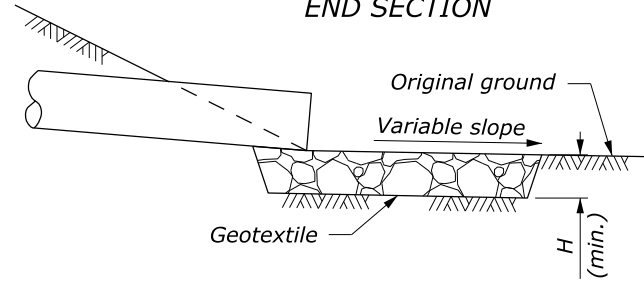


SECTION A-A



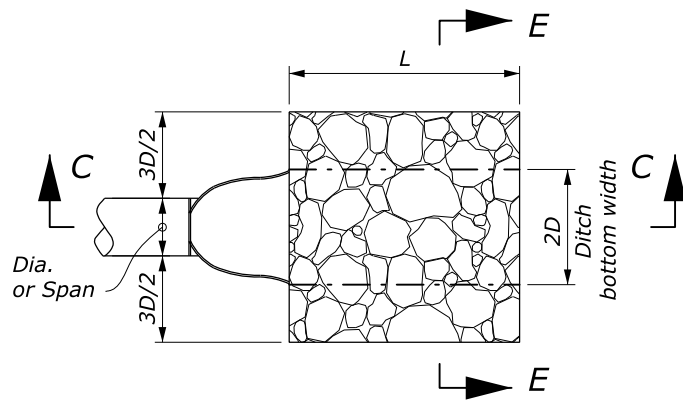
PLAN VIEW

CULVERT WITHOUT STANDARD END SECTION



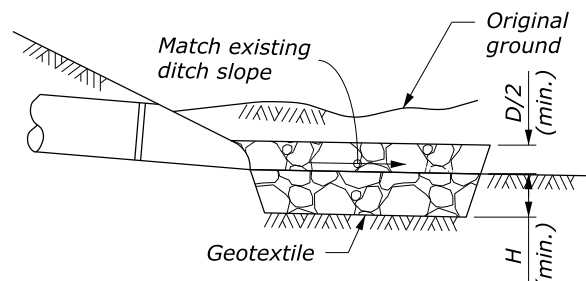
SECTION B-B

PROTECTIVE APRON AT CULVERT OUTLET WITHOUT DITCH

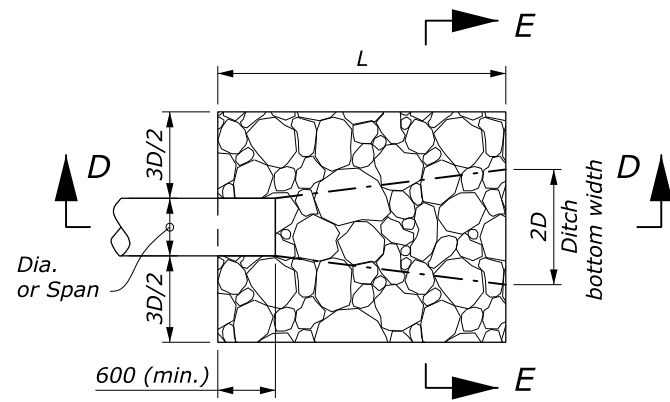


PLAN VIEW

CULVERT WITH STANDARD END SECTION

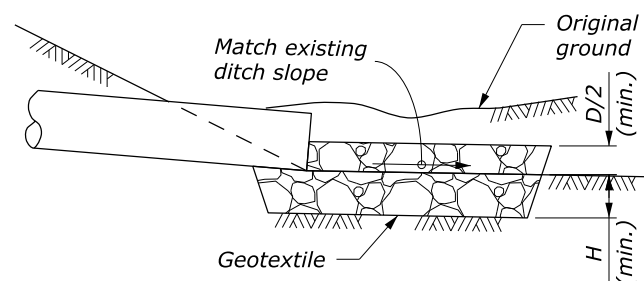


SECTION C-C



PLAN VIEW

CULVERT WITHOUT STANDARD END SECTION



SECTION D-D

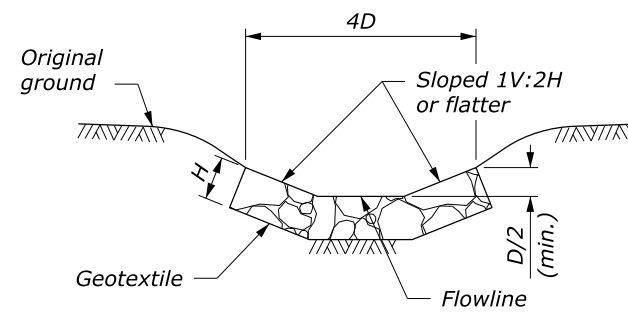
PROTECTIVE APRON AT CULVERT OUTLET WITH DITCH

**OUTLET WITHOUT DITCH
PROTECTIVE APRON DIMENSIONS AND QUANTITIES
FOR INFORMATION ONLY**

	CULVERT SIZE D (mm)	RIPRAP CLASS	APRON LENGTH L (mm)	APRON DEPTH H (mm)	ESTIMATED RIPRAP QUANTITY (m3)	ESTIMATED GEOTEXTILE QUANTITY (m2)
WITH END SECTION	300	2	1200	460	0.7	4
	450	2	1800	460	1.6	7
	600	2	2400	460	2.9	11
	750	3	3750	610	8.0	22
	900	3	4500	610	11.5	30
	1050	4	6300	760	25.1	51
WITHOUT END SECTION	300	2	1800	460	1.2	6
	450	2	2400	460	2.4	9
	600	2	3000	460	3.9	14
	750	3	4350	610	9.8	26
	900	3	5100	610	13.7	34
	1050	4	6900	760	28.6	57
1200	4	7800	760	36.8	70	

**OUTLET WITH DITCH
PROTECTIVE APRON DIMENSIONS AND QUANTITIES
FOR INFORMATION ONLY**

	CULVERT SIZE D (mm)	RIPRAP CLASS	APRON LENGTH L (mm)	APRON DEPTH H (mm)	ESTIMATED RIPRAP QUANTITY (m3)	ESTIMATED GEOTEXTILE QUANTITY (m2)
WITH END SECTION	300	2	1200	460	0.7	4
	450	2	1800	460	1.5	7
	600	2	2400	460	2.6	10
	750	3	3750	610	6.9	19
	900	3	4500	610	9.9	26
	1050	4	6300	760	20.1	42
WITHOUT END SECTION	300	2	1800	460	1.0	5
	450	2	2400	460	2.0	8
	600	2	3000	460	3.3	12
	750	3	4350	610	8.0	22
	900	3	5100	610	11.2	29
	1050	4	6900	760	22.0	46
1200	4	7800	760	28.5	57	



SECTION E-E

NOTE:

1. Use for aprons serving culverts with slopes less than 10%.
2. Furnish separation and stabilization geotextile.
3. Do not measure riprap placement excavation for payment.
4. Dimensions without units are millimeters.

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

METRIC DETAIL

**PLACED RIPRAP AT
CULVERT OUTLETS**

DETAIL APPROVED FOR USE --/----
REVISED: 8/2016

DETAIL
MW251-1