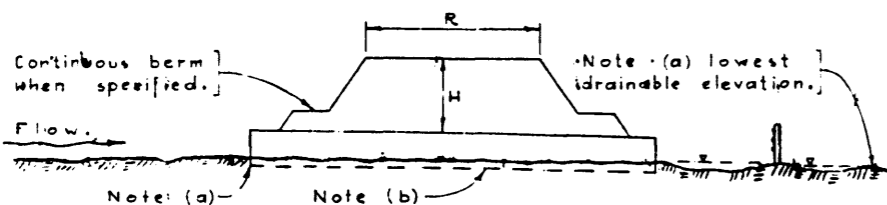
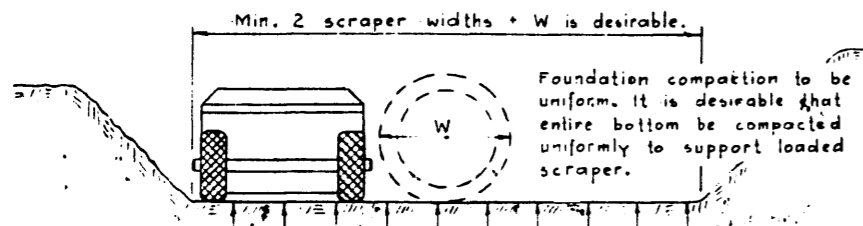


STAGE ① GRADES

- a) In general the invert elevation at the upstream end to be placed at or below the lowest drainable elevation.
- b) In general the slope of the culvert shall be not less than 1/2 %.
- c) In general camber will not be required, but may where H exceeds 1/2 R, and relative settlement exceeding 1/2 the total drop in the pipe is anticipated.



STAGE ② FOUNDATION EXCAVATION



When compaction of clay to the grade established is not possible, it shall be replaced by granular material; in general a depth of two feet is a maximum. For extensive soft areas additional camber and allowance for settlement must be made.

STAGE ③ BEDDING

After assembly is approved - hand place and tamp granular bedding up to 1/4-point in 6" layers on both sides simultaneously.

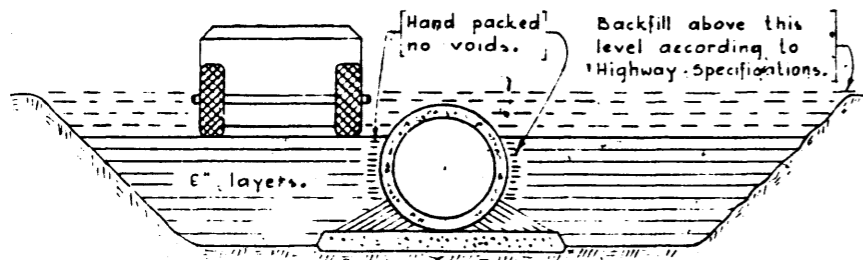
Begin laying pipe at the downstream end with the groove end facing upstream. Clean and apply grout or gaskets prior to tightening joints.

Only clay shall be used here for length 2x D from ends of pipe. (See stage 7.)

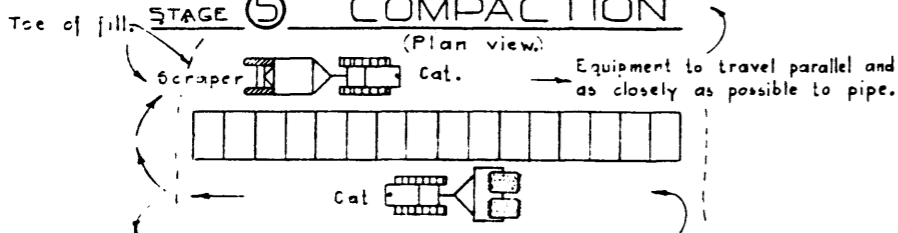
Stock pile granular material in windrows for hand placing.

Pipe to be laid on granular bed of 8" min. thickness x 2 D wide, bladed to grade.

STAGE ④ BACKFILLING



STAGE ⑤ COMPACTION



PRECAST CONCRETE PIPE DATA

(Round and equivalent Sizes.)

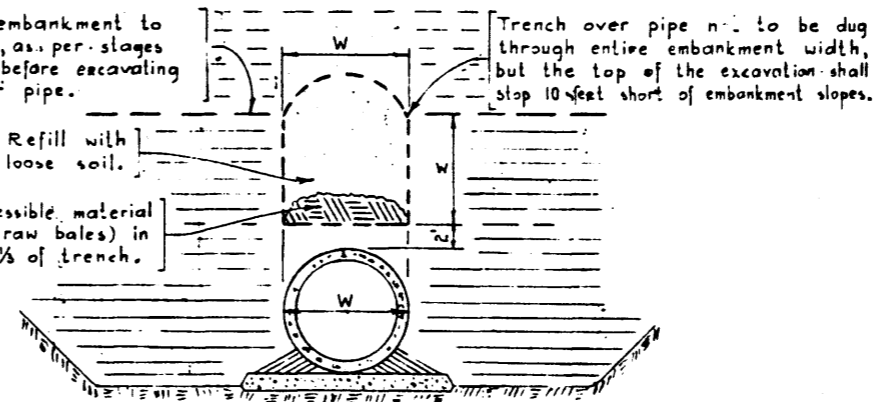
ROUND					ELLIPTICAL				SPECIAL SECTION				FLARED END		
Lifting hole at balance point.		Tongue Groove			High head type.		Low head type.								
Dia.-D	t (in.)	Approx. Wt./ft.	Mfg. Length.	Lifting bolt Min. Dia.	Dim. A	Dim. B	Approx. Wt./ft.	Mfg. Length.	Dim. B	Dim. A	Approx. Wt./ft.	Mfg. Length.	Dia.-D	Len. L-L	Approx. Wt./section
36	4	530	4' or 6'	3"									36"	8'-1 1/2'	4,100
48	5	850	4' or 6'	1"	60"	38"	1,000	4'					48"	8'-2'	6,400
60	6	1,290	4' or 6'	1 1/2"	76"	48"	1,480	5'					60"	8'-3'	8,700
72	7	1,840	4' or 6'	1 3/4"	91"	58"	2,040	4'	72"	72"	1,760	6'-0"	72"	8'-3'	12,900
84				1 3/4"	106"	68"	2,660	5'	72"	78"	1,840	6'-0"			
96				2"	121"	77"	3,420	5'		84"	1,910	6'-0"			
108															
120				2"	151"	97"	4,930	3'-8"							

STAGE ⑥ IMPERFECT-TRENCH METHOD (When specified.)

Final grade of embankment.

Construct embankment to this grade, as per stages 1, 2, 3, 4, 5, before excavating trench over pipe.

Highly compressible material (such as straw bales) in lower 1/4 to 1/2 of trench.

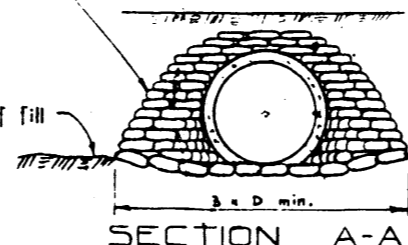


STAGE ⑦ RIP-RAP

(Handlaid.) 1/4" galv. tie rod grouted in place. At least one required each end.

Surface of embankment to be warped in to meet edges of pipe, as indicated.

Lay stones on slope to give 'shingled' effect.



Outlet end Rip-Rap to have smooth curve effect. The base of the curve is to be 1'-0" below invert elevation.

Stones shall weigh not less than 50 lbs. At least 50% shall have a volume greater than 1 cu. ft.

* Light weight aggregate.

A.S.T.M. STRENGTH FOR PRECAST CONCRETE PIPE

(Class type shall be stamped on each section.)

STD. HWY. EMBANKMENT	INSTALLATION
Ht. of cover (feet.)	Size Range Available. A.S.T.M. Strength Class.
2 to 10	12" to 120" II
10 to 15	12" to 120" III
15 to 20	12" to 72" IV
20 to 30	12" to 48" V

IMPERFECT TRENCH	INSTALLATION
Ht. of cover (feet.)	Size Range Available. A.S.T.M. Strength Class.
25 to 35	12" to 120" II
35 to 50	12" to 120" III
50 to 60	12" to 72" IV
60 to 85	12" to 48" V

GENERAL NOTES

- This drawing to be used in conjunction with the written specification for the installation of Precast Concrete Pipe.
- For installations designated as underpasses the width of the sloped area - Rip-Rap shown shall be reduced by 50% and granular material a minimum of 8" thick, shall be used in place of apron Rip-Rap.
- The clear spacing between pipes in multiple installations in general shall be greater than one clear scraper width.
- Bagged concrete Rip-Rap may be placed, with approval, in lieu of handlaid Rip-Rap if proper stones are not economically available.

March, 1962.

INSTALLATION PROCEDURE FOR PRECAST CONCRETE PIPE



GOVERNMENT OF THE PROVINCE OF ALBERTA
DEPARTMENT OF HIGHWAYS
BRIDGE BRANCH, EDMONTON

FILE NO. 23 HWY. NO. N.T.S. DWS. NO. 5-773
LOCATION SCALE SHEET OF

NO.	DATE	DESCRIPTION	BY

DESIGNED BY R.P. Parrish, February, 1962
 DETAILED BY B.W.S. March 5, 1962
 CHECKED BY E.J.S. March, 1962

APPROVED: *[Signature]*
CHIEF BRIDGE ENGINEER