STATE HIGHWAY CROSSINGS

All State Highway crossings shall conform to The Texas State Department of Highways and Public Transportation Utility Accommodation Policy Manual Special Specifications', and the following requirements:

All excavations within the Right-of-Way and not under surfacing shall be Backfilled by Tamping in 6 in. (15.2 cm.) horizontal layers. All surplus material shall be removed from the Right-of-Way and the excavation finish shall be flush with the surrounding natural ground.

Where sodding is disturbed by excavation or backfilling operations, such areas shall be replaced by Mulch Sodding on all slopes of 2% or less. All slopes over 2% shall be replaced by Block sodding.

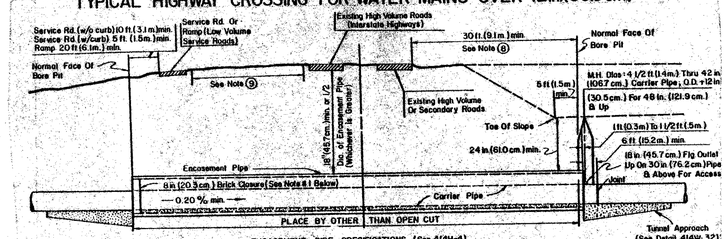
Highway crossings of water and sewer lines under surfaced roads or under surfaced crossroads within the Right-of-Way may be placed by Boring or Tunneling. Jacking may be used only when approved by the State Highway Department.

Highway crossings for all sewer lines and water lines 12 in. (50.5 cm.) and under will require an encasement pipe at least 2 in. (5.1 cm.) greater than the largest outside diameter of the carrier pipe. The diameter of the encasement pipe for water lines over 12 in. (30.5 cm.) will be determined by the Design Engineer. Encasement pipes will be of Corrugated Metal Pipe, Sectional Liner Pipe, or Reinforced Concrete to suit conditions of crossing. The encasement pipe will be on a minimum of 0.20% slope. Encasements for water lines over 12 in. (30.5 cm.) shall be plugged with concrete, with a manhole for entrance. Encasement pipes for water lines 12 in. (30.5 cm.) and under will be plugged with a clay core to prevent the entrance of excessive ground water, but which will allow water to leak out in case of a pressure leak in the carrier pipe. Where conditions are favorable, a drain will lead out of the encasement pipe to a free outfall. For all sewer lines, voids between encasement and carrier pipe will be filled with 1:7 Grout with 5% to 40% Air Entrainment. Regardless of the method used in installing the encasement pipe, it will be installed with even bearing throughout its length, and all voids between the pipe and the earth or rock shall be filled with Grout. Timber supports shall not be used. Trench excavation and Boring Pits shall not be carried closer than 30 ft. (9.1 m.) from the edge of the nearest through traffic lane of High Volume Roadways and Frontage Roads; open trenching and boring pits shall not be closer than 10 ft. (3.0 m.) from the edge of pavement or 5 ft. (1.5 m.) from the face of curb. The carrier pipe will be the kind and class designed to carry the water or sewage. No explosives shall be used within Limits of Highway without written permission of the Texas Highway Department.

ENC. PIPE I.D.	2 FLNG. LINER H-20-L.L.		4 FLNG. LINER H-20-L.L.		CORRUGATED METAL		COUPLING BAND		R.C. CULVERT PIPE			
											For Open-Cut	
	Gauge	Max.Cov.	Gauge	Max.Cov.	Gauge	Max.Cov.	Min.Width	Gauge			Maximum Cover	
in.(cm)	Ga.(mm)	Ft.(M)	Ga.(mm)	Ft.(M)	Ga.(mm)	Ft.(M)	in.(cm)	Ga.(mm)	Class	Wall	Ft.(M) Embedment Class "C"	Class "B" Class "A"
12" (30.5)	12 (2.7)	ALL FILL HEIGHTS	12 (2.7)	ALL FILL HEIGHTS	16 (1.5)	ALL FILL HEIGHTS	7" (17.8)	16 (1.5)	III	B	11' (3.4)	18' (5.5) ALL FILL HEIGHTS
15" (38.1)	12 (2.7)	ALL FILL HEIGHTS	12 (2.7)	ALL FILL HEIGHTS	16 (1.5)	ALL FILL HEIGHTS	7" (17.8)	16 (1.5)	III	B	11' (3.4)	18' (5.5) ALL FILL HEIGHTS
18" (45.7)	12 (2.7)	ALL FILL HEIGHTS	12 (2.7)	ALL FILL HEIGHTS	16 (1.5)	ALL FILL HEIGHTS	7" (17.8)	16 (1.5)	III	B	12' (3.7)	19' (5.8) ALL FILL HEIGHTS
21" (53.3)	12 (2.7)	ALL FILL HEIGHTS	12 (2.7)	ALL FILL HEIGHTS	16 (1.5)	ALL FILL HEIGHTS	7" (17.8)	16 (1.5)	III	B	12' (3.7)	19' (5.8) ALL FILL HEIGHTS
24" (61.0)	12 (2.7)	ALL FILL HEIGHTS	12 (2.7)	ALL FILL HEIGHTS	16 (1.5)	ALL FILL HEIGHTS	7" (17.8)	16 (1.5)	III	B	13' (4.0)	20' (6.1) ALL FILL HEIGHTS
27" (68.6)	12 (2.7)	ALL FILL HEIGHTS	12 (2.7)	ALL FILL HEIGHTS	16 (1.5)	ALL FILL HEIGHTS	7" (17.8)	16 (1.5)	III	B	13' (4.0)	20' (6.1) ALL FILL HEIGHTS
30" (76.2)	12 (2.7)	ALL FILL HEIGHTS	12 (2.7)	ALL FILL HEIGHTS	16 (1.5)	ALL FILL HEIGHTS	7" (17.8)	16 (1.5)	III	B	14' (4.3)	21' (6.4) ALL FILL HEIGHTS
36" (91.4)	12 (2.7)	ALL FILL HEIGHTS	12 (2.7)	ALL FILL HEIGHTS	16 (1.5)	ALL FILL HEIGHTS	12" (30.5)	16 (1.9)	III	B	11' (3.4)	15' (4.6) 31' (9.5)
42" (106.7)	12 (2.7)	ALL FILL HEIGHTS	12 (2.7)	ALL FILL HEIGHTS	16 (1.9)	ALL FILL HEIGHTS	12" (30.5)	14 (1.9)	III	B	12' (3.7)	16' (4.9) 31' (9.5)
48" (121.9)	12 (2.7)	ALL FILL HEIGHTS	12 (2.7)	ALL FILL HEIGHTS	16 (1.9)	ALL FILL HEIGHTS	12" (30.5)	14 (1.9)	III	B	12' (3.7)	17' (5.2) 31' (9.5)
54" (137.2)	12 (2.7)	ALL FILL HEIGHTS	12 (2.7)	ALL FILL HEIGHTS	16 (1.5)	ALL FILL HEIGHTS	24" (61.0)	12 (2.7)	III	B	12' (3.7)	17' (5.2) 31' (9.5)
60" (152.4)	12 (2.7)	ALL FILL HEIGHTS	12 (2.7)	ALL FILL HEIGHTS	16 (1.5)	ALL FILL HEIGHTS	24" (61.0)	12 (2.7)	III	B	12' (3.7)	17' (5.2) 31' (9.5)
66" (167.6)	12 (2.7)	ALL FILL HEIGHTS	12 (2.7)	ALL FILL HEIGHTS	16 (1.5)	ALL FILL HEIGHTS	24" (61.0)	12 (2.7)	III	B	13' (4.0)	17' (5.2) 31' (9.5)
72" (182.9)	12 (2.7)	ALL FILL HEIGHTS	12 (2.7)	ALL FILL HEIGHTS	14 (2.0)	ALL FILL HEIGHTS	24" (61.0)	12 (2.7)	III	B	13' (4.0)	17' (5.2) 30' (9.1)
78" (198.1)	12 (2.7)	ALL FILL HEIGHTS	12 (2.7)	ALL FILL HEIGHTS	12 (2.7)	ALL FILL HEIGHTS	24" (61.0)	12 (2.7)	III	B	13' (4.0)	17' (5.2) 30' (9.1)
84" (213.4)	12 (2.7)	ALL FILL HEIGHTS	12 (2.7)	ALL FILL HEIGHTS	12 (2.7)	ALL FILL HEIGHTS	24" (61.0)	12 (2.7)	III	B	13' (4.0)	18' (5.5) 30' (9.1)
90" (228.6)	10 (3.4)	ALL FILL HEIGHTS	10 (3.4)	ALL FILL HEIGHTS					III	B	13' (4.0)	18' (5.5) 30' (9.1)
96" (243.8)	10 (3.4)	ALL FILL HEIGHTS	10 (3.4)	ALL FILL HEIGHTS					III	B	13' (4.0)	18' (5.5) 30' (9.1)
102" (259.1)	10 (3.4)	ALL FILL HEIGHTS	10 (3.4)	ALL FILL HEIGHTS					III	B	13' (4.0)	18' (5.5) 30' (9.1)
108" (274.3)	10 (3.4)	ALL FILL HEIGHTS	10 (3.4)	ALL FILL HEIGHTS					III	B	13' (4.0)	18' (5.5) 30' (9.1)
114" (289.6)	8 (4.2)	ALL FILL HEIGHTS	8 (4.2)	ALL FILL HEIGHTS								
120" (304.8)	8 (4.2)	ALL FILL HEIGHTS	8 (4.2)	ALL FILL HEIGHTS								
126" (320.0)	8 (4.2)	ALL FILL HEIGHTS	8 (4.2)	ALL FILL HEIGHTS								
132" (335.3)	8 (4.2)	ALL FILL HEIGHTS	8 (4.2)	ALL FILL HEIGHTS								
138" (350.5)	8 (4.2) 7 (4.6)	15'(4.6) 70'(21.3)	5 (5.3) 3 (6.1)	15'(4.6) 40'(12.2)								
	ALT."B"				ALT."C"				ALT."A"			

Note: 16 Ga. (1.5) Corr. 24" (61.0cm) & Under, 14 Ga. (1.9) Corr. 30" (76.2cm) & Over

TYPICAL HIGHWAY CROSSING FOR WATER MAINS OVER 12 in. (30.5 cm.)



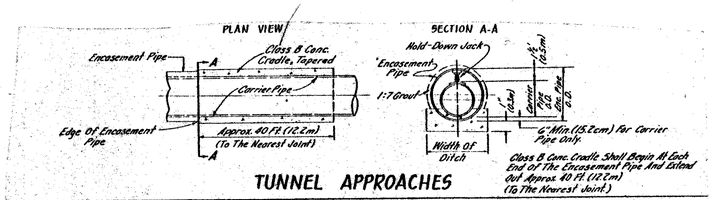
ENCASEMENT PIPE SPECIFICATIONS (See 414H-4)

Alt. 'A' ___" R.C. Culv. Pipe, Class ___, Wall ___, A.S.T.M., C-76
Alt. 'B' ___" 2-Flange Circular Liner Plate, ___ Gauge, Galv., or 4-Flange Circular Liner Plate, ___ Gauge, Galv., With Bituminious Coating Per Item 2.12.19
Alt. 'C' ___" Corrugated Metal Pipe, ___ Gauge, Galv., With Bituminious Coating Per Item 2.12.19

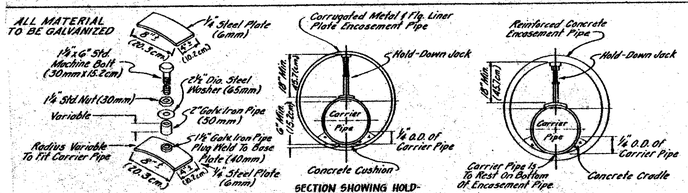
GENERAL NOTES

1. Const. an 8 in. (20.3 cm.) thick brick closure with 1 1/2 in. (3.8 cm.) thick coat of mortar on the outside, at the end of Enc. pipe opposite the manhole. (When manhole is not required, low end of Enc. pipe shall be plugged with clay.)
2. In tunnel sections, voids between earth or rock & Enc. pipe shall be filled with 1:7 Grout including 5% to 40% air entrainment by pressure injection.
3. Carrier pipe shall be supported on a continous 6 in. (15.2 cm.) thick 2,000 psi (13,789.5 kpa) conc. cradle, in corrugated Enc. pipe only.
4. Risers shall be a minimum of two hold-down jacks per joint. See detail on 414W-32.
5. On R.C. Enc. pipe placed by open cut see 414H-4 for type of embedment.
6. Construct tapered concrete tunnel approach at each end of Enc. pipe. See detail on 414W-32.
7. When standard pipe is made up inside large Enc. pipe, the carrier pipe shall be laid to grade on a class 'B' concrete embedment which shall extend to the 1/4 point of the diameter of the carrier pipe. When mechanical joint pipe is used as a carrier pipe in large encasement pipe, precast concrete blocks may be placed back of each bell. Each block will have minimum dimensions of 9 in. (22.9 cm.) in length by 0.866 D in breadth (where D is the external diameter of the carrier pipe) with a sufficient thickness to clear the bells from the Enc. pipe and to bring the carrier pipe to grade.
8. Where circumstances necessita the excavation of a bore pit or trench closer to the edge of pavment than set forth on this sheet, guard fence or other approved protective devices will be installed for the protection of the traveling public.
9. If separation is wider than required safety distances and if side slopes will allow, inspection of bore pits may be allowed (with SDHPT approval) with access to pits by means other than main traffic lanes.

TUNNEL APPROACHES



HOLD-DOWN JACKS



No	Revision	By	Date

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

CROSSTOWN WATER LINE

ENCASEMENT DETAILS

GINN, INC.
Consulting Engineers : Dallas, Texas

Designed – MP	Drawn – GAP	Date – NOVEMBER, 1984	Job No. – 216
Approved – HWG	Checked – GF	Scale –	Sheet 17 OF 20