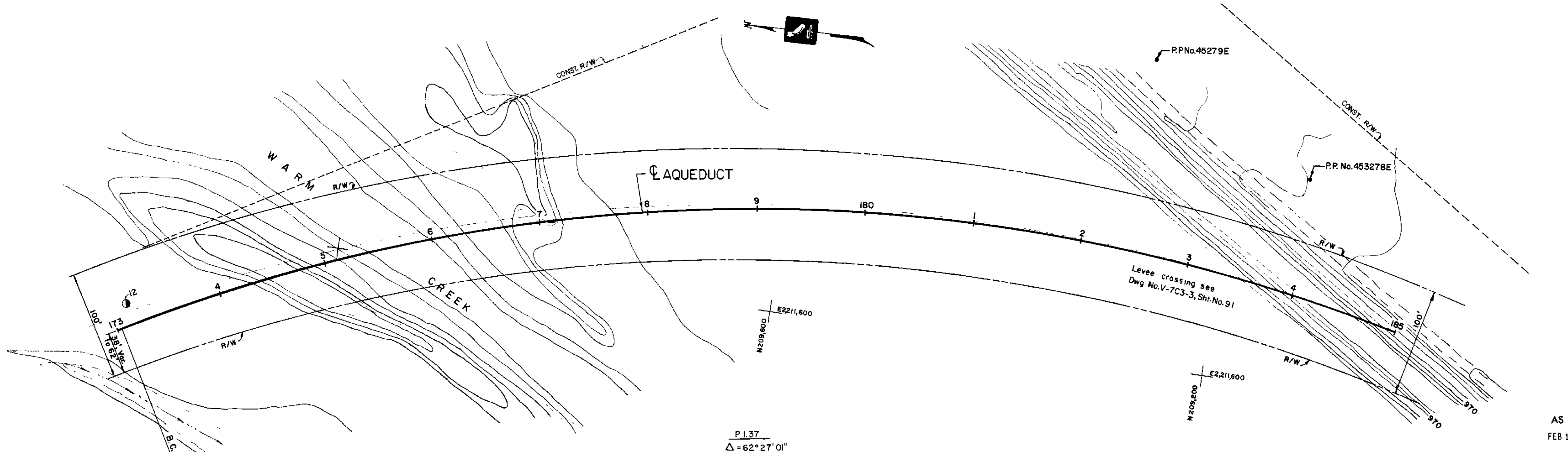
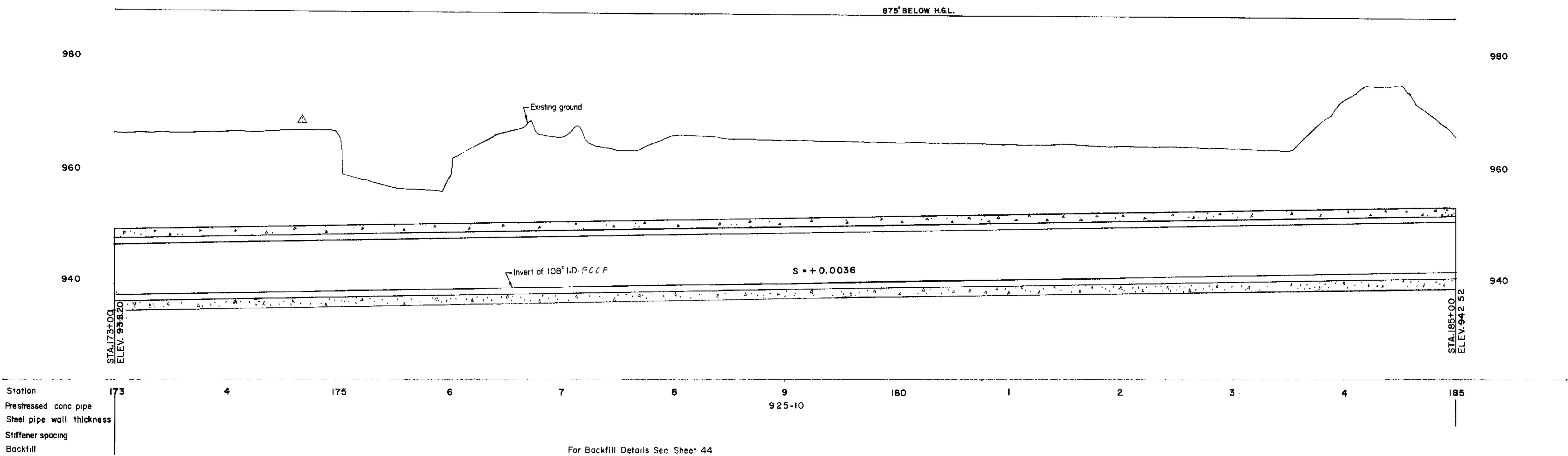




NOTE: For encasement dimensions & reinforcement details see Dwg. No. V-7P4-1, sheet No. 44

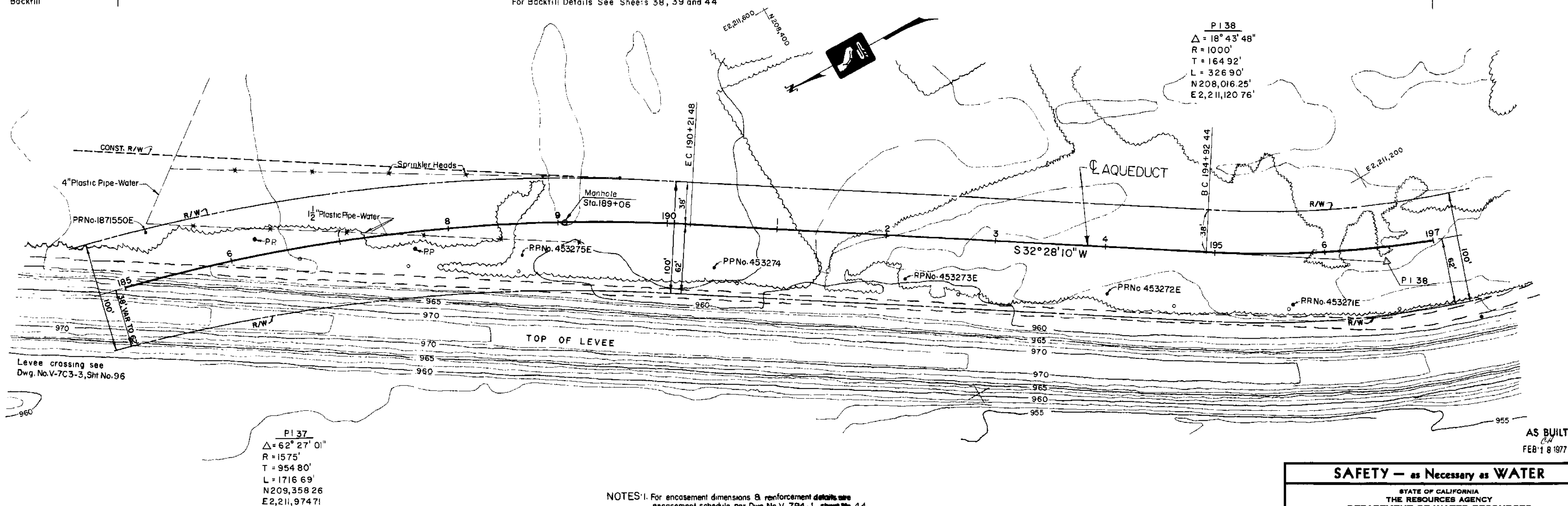
P 1.37
 $\Delta = 62^{\circ} 27' 01''$
 $R = 1575'$
 $T = 954.80'$
 $L = 1716.69'$
 $N = 209,358.26$
 $E = 2,211,974.71$

AS BUILT
CH
FEB 18 1977

SHEET NO. 11
DRAWING NO. V-7F1-7

REVIEWED—STAFF ENGINEERING, BR.		REVIEWED BY DESIGN		DESIGNED	
BY		DATE		DATE	
J. G. Weikel		T. R.		D. M. Smith	
DESIGNED		DRAWN		CHECKED	
J. G. Weikel		T. R.		D. M. Smith	
DATE		DATE		DATE	

SAFETY — as Necessary as WATER	
STATE OF CALIFORNIA THE RESOURCES AGENCY DEPARTMENT OF WATER RESOURCES DIVISION OF DESIGN AND CONSTRUCTION	
STATE WATER FACILITIES CALIFORNIA AQUEDUCT SANTA ANA DIVISION SANTA ANA VALLEY PIPELINE MILL STREET TO SUGARLOAF MOUNTAIN PLAN AND PROFILE STATION 173+00 TO STATION 185+00	
SUBMITTED: <i>Smith</i>	APPROVED: <i>J. A. Wineand</i>
CHIEF DESIGN SECTION REG. C.E. NO. 8477	DATE: APR 27 1970
APPROVAL RECOMMENDED	
CHIEF, DIST. DIVISION REG. C.E. NO. 1161	
APPROVAL RECOMMENDED	
CHIEF, DIST. DIVISION REG. C.E. NO. 1161	
DRAWING NO. V-7F1-7	SHEET NO. 11



AS BUILT
CH
FEB 18 1977

NOTES: 1. For encasement dimensions & reinforcement details, see encasement schedule per Dwg. No. V-7P4-J, sheet No. 44
2. Provide shored trench between Sta. 186+15 and Sta. 186+35 and between Sta. 187+55 and Sta. 187+75.

LEGEND

PP = Power Pole or Telephone Pole

CONTOUR INTERVAL = 1'

1" = 40' 40 0 40 80 120 160
SCALE OF FEET

REVIEWED—STAFF
ENGINEERING. BR

REVIEWED BY DESIGN

	Lm	DCE
--	----	-----

SUBMITTED: C & J

APPROVED: DATE: APR 27 1970

CHIEF DESIGN SECTION, REG. C E NO. 3677

Laurel

APPROVAL RECOMMENDED BY
Ronald S. Wilke

A. W. Williams

APPROVAL RECOMMENDED:

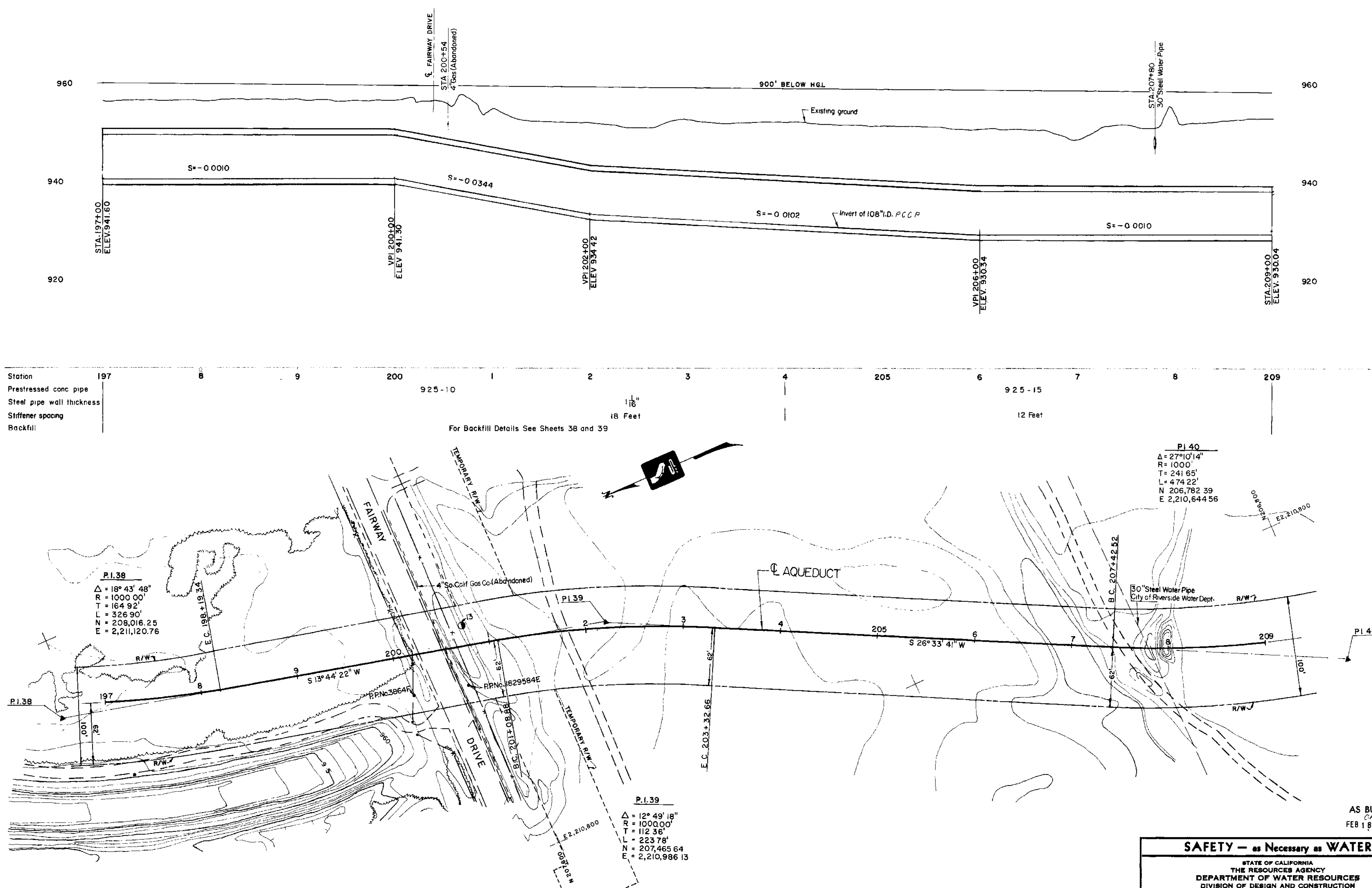
DRAWING NO.	SHEET NO.
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2019年12月10日

V-7FI-8	12
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SHEET No 12	DRAWING No V-7FI-8
----------------	-----------------------

SPEC. NO. 70-16



Station	197	8	9	200	925-10	1	2	3	4	205	6	925-15	7	8	209
Prestressed conc pipe															
Steel pipe wall thickness															
Stiffener spacing															
Backfill															

LEGEND
P.P. = Power Pole or Telephone Pole

FOR FAIRWAY DRIVE DETOUR DETAILS SEE
DWG. NO. V-7M2-1, SHEET NO. 83

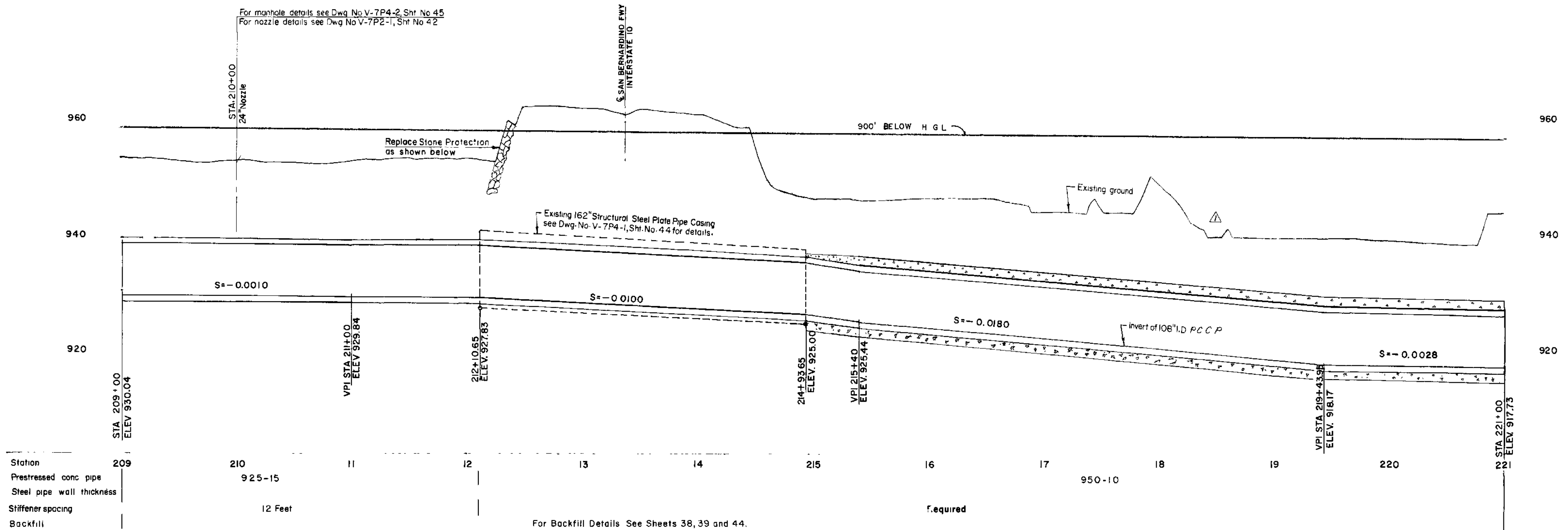
CONTOUR INTERVAL = 1'
1" = 40'
SCALE OF FEET

REVIEWED—STAFF ENGINEERING, B.R.	1 4/2/73	REVISED BY DESIGN	6/22 4/77
DESIGNED J.G. Weikel	DRAWN T.R.	CHECKED David Smith	APPROVED J. G. Wineland
DATE		DATE	

SUBMITTED CHIEF DESIGN SECTION APPROVAL RECOMMENDED CHIEF DESIGNER	APPROVED DATE: APR 27 1970 CHIEF DESIGNER
DRAWING NO. V-7F1-9	SHEET NO. 13

SAFETY — as Necessary as WATER	
STATE OF CALIFORNIA THE RESOURCES AGENCY DEPARTMENT OF WATER RESOURCES DIVISION OF DESIGN AND CONSTRUCTION	
STATE WATER FACILITIES CALIFORNIA AQUEDUCT SANTA ANA DIVISION MILL STREET TO SUGARLOAF MOUNTAIN PLAN AND PROFILE STATION 197+00 TO STATION 209+00	
SUBMITTED: 6/22/73 APPROVED: J. G. Wineland DATE: APR 27 1970	
DESIGNED: J.G. Weikel DRAWN: T.R. CHECKED: David Smith APPROVED: J. G. Wineland	
DRAFTING: J. G. Wineland DATE: 6/22/73	

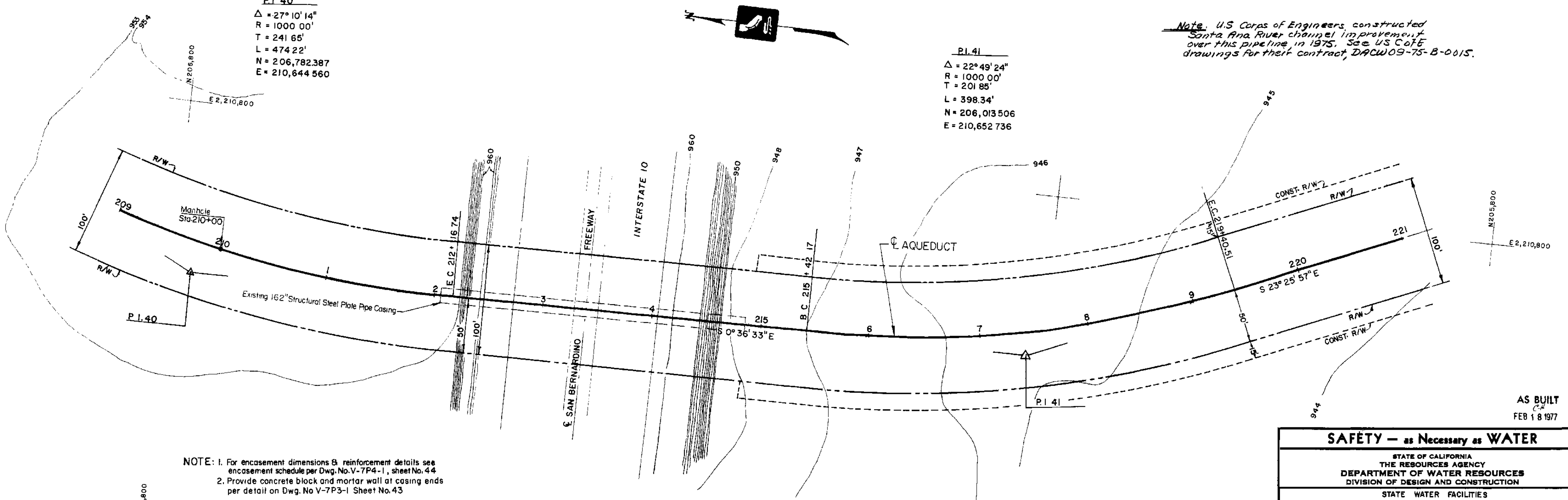
For manhole details see Dwg. No. V-7P4-2, Sht. No. 45
For nozzle details see Dwg. No. V-7P2-1, Sht. No. 42



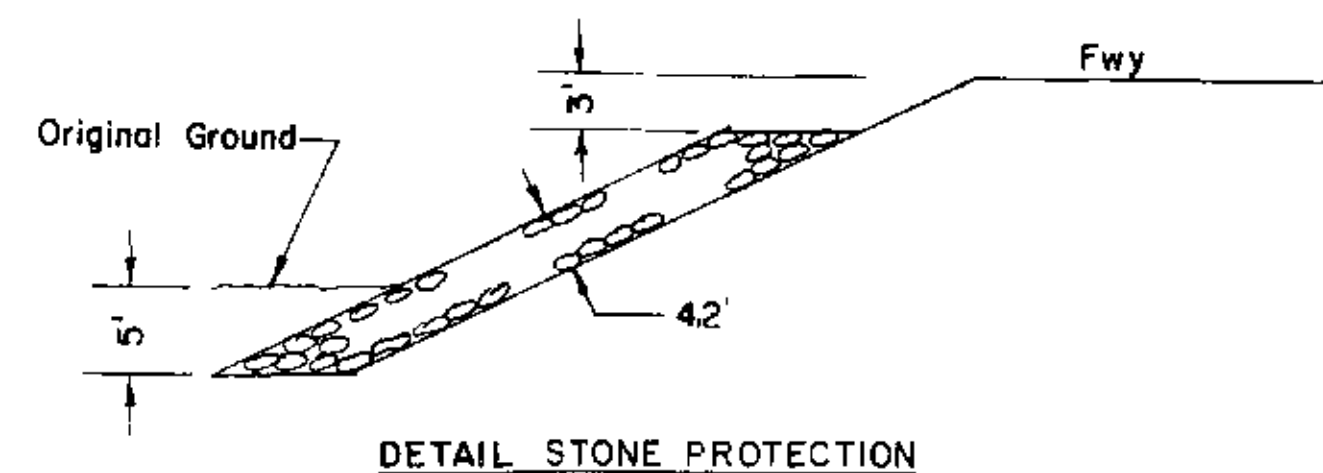
P.I. 40
 $\Delta = 27^\circ 10' 14''$
 $R = 1000.00'$
 $T = 241.65'$
 $L = 474.22'$
 $N = 206,782.387$
 $E = 210,644.560$

P.I. 41
 $\Delta = 22^\circ 49' 24''$
 $R = 1000.00'$
 $T = 201.85'$
 $L = 398.34'$
 $N = 206,013.506$
 $E = 210,652.736$

Note: U.S. Corps of Engineers constructed Santa Ana River channel improvement over this pipeline in 1975. See US CofE drawings for their contract, DACW09-75-B-0015.



NOTE: 1. For encasement dimensions & reinforcement details see encasement schedule per Dwg. No. V-7P4-1, sheet No. 44
2. Provide concrete block and mortar wall at casing ends per detail on Dwg. No. V-7P3-1 Sheet No. 43



CONTOUR INTERVAL = 1'
1" = 40'
SCALE OF FEET

AS BUILT
FEB 18 1977

SAFETY — as Necessary as WATER

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF DESIGN AND CONSTRUCTION

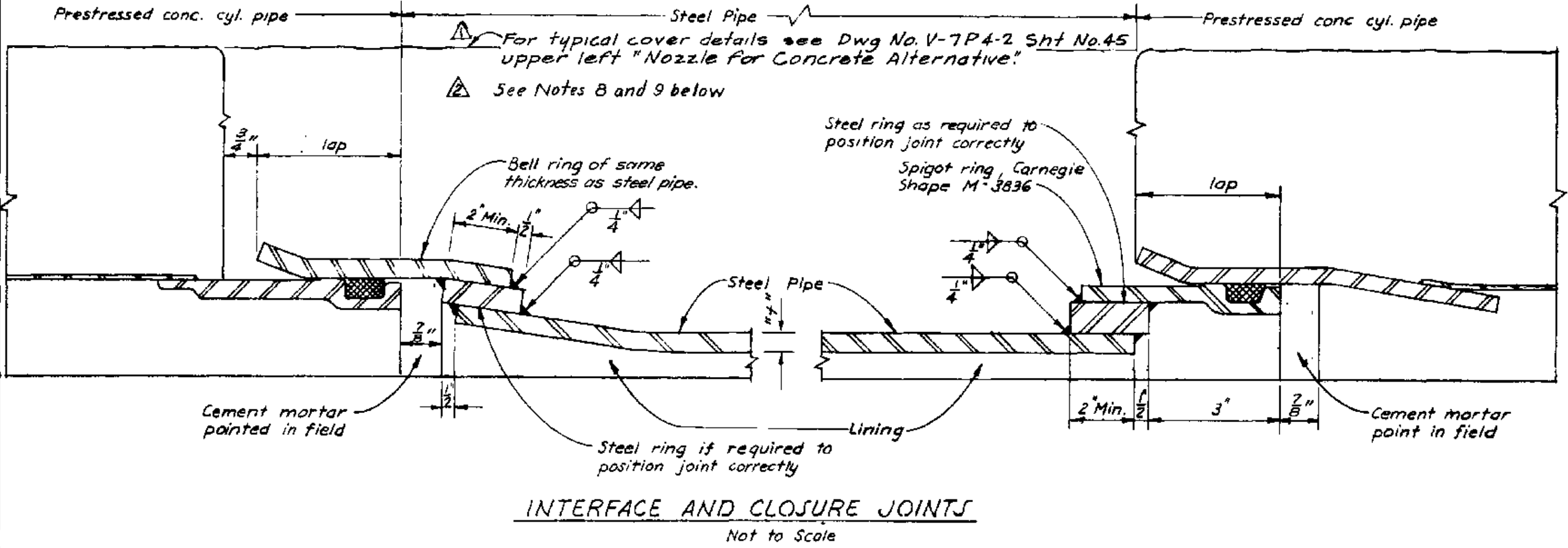
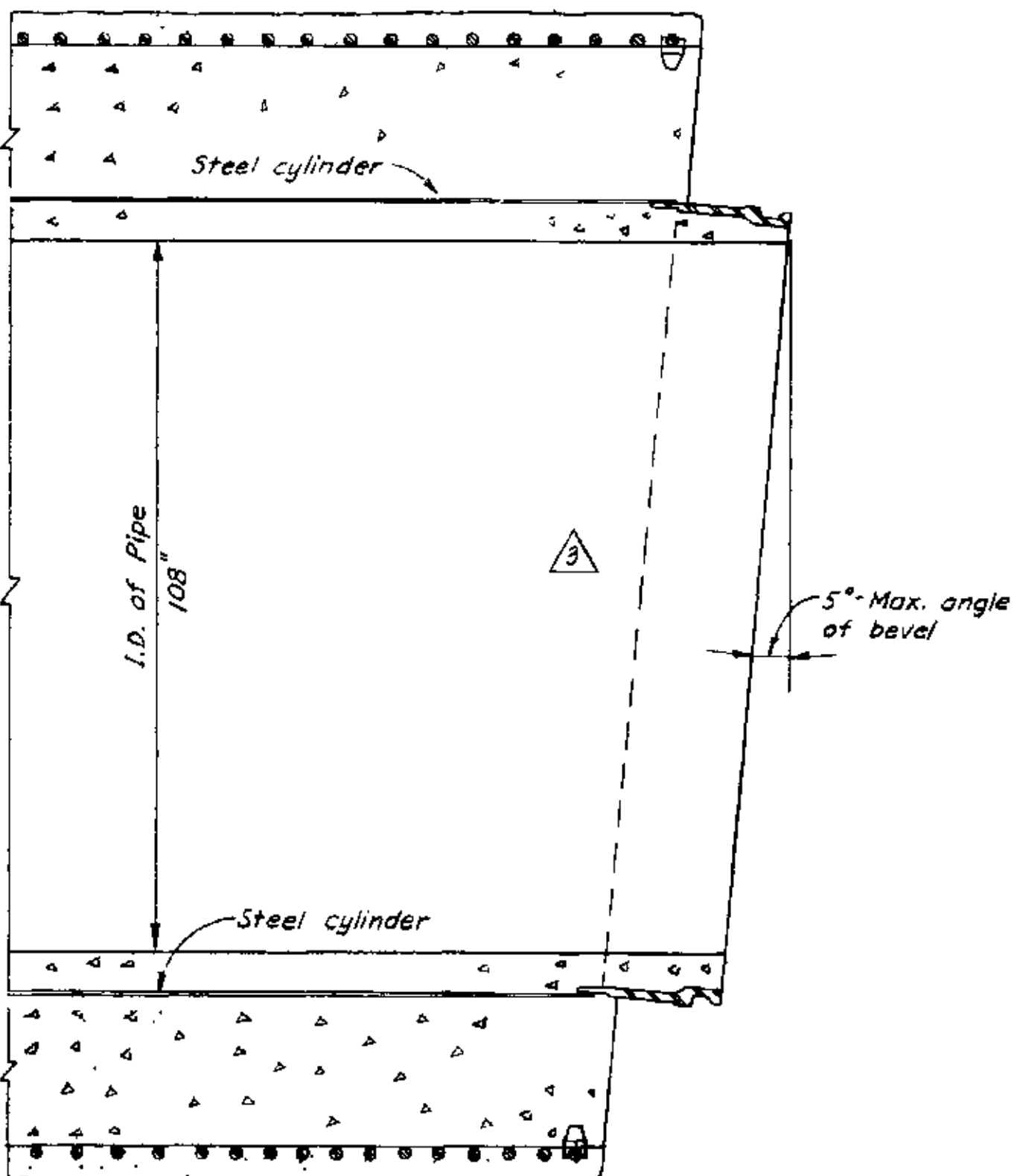
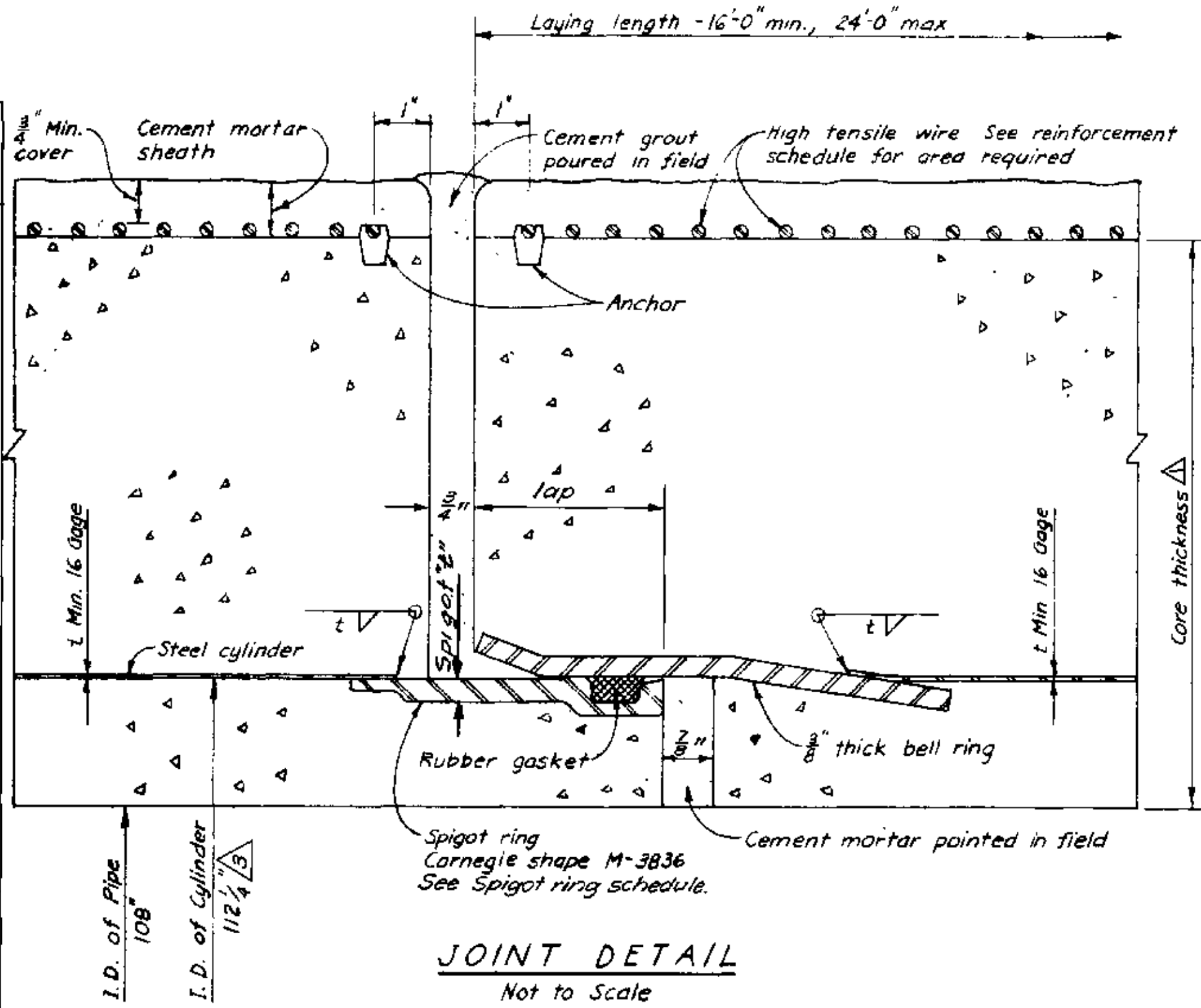
STATE WATER FACILITIES
CALIFORNIA AQUEDUCT
SANTA ANA DIVISION
SANTA ANA VALLEY PIPELINE
MILL STREET TO SUGARLOAF MOUNTAIN
PLAN AND PROFILE
STATION 209+00 TO STATION 221+00

REVIEWED—STAFF ENGINEERING, BR.	DESIGNED J.G. Weikel	DRAWN T.R.	CHECKED David M. H. [Signature]	REVIEWED [Signature]	SUBMITTED [Signature]	APPROVED [Signature]	DATE APR 27 1970
REVISIONS				APPROVAL RECOMMENDED			
REV. DATE DESCRIPTION				SUB. APP'D			
1. 10/1/75 Changed Existing Ground Profile				[Signature]			
BY DATE				CHIEF, DESIGN BRANCH, DISTRICT REG. C.E. NO. 7195			
DATE				APPROVAL RECOMMENDED			
DATE				CHIEF, DESIGN BRANCH, DISTRICT REG. C.E. NO. 7287			
DATE				DRAWING NO. V-7FI-10			
DATE				SHEET NO. 14			

SHEET NO. 14
DRAWING NO. V-7FI-10

PRESTRESSED CONCRETE CYLINDER PIPE SCHEDULE

Core Thickness	Pipe Class	Min. conc. strength at wrap, psi	Conc. strength at 28 days psi	Total Area of Class II Wire, in. ² /ft.								Spigot ring schedule																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
				One Layer Wrap				Two Layer Wrap																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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- NOTES:**
- The numbers under pipe class symbol designate design head and cover. Example: 200-10 = 200' head and 10' cover.
 - Center to center spacing of high tensile wire to be not less than two wire diameters nor more than 1 1/2 inches.
 - All welding to conform to the applicable provisions of the latest edition of the A.S.M.E. Boiler and Pressure Vessel Code, Section VIII, Unfired Pressure Vessel.
 - For encasement details and station limits See Dwg. V-7P4-1, Sht. No. 44.
 - Steel plate specials required for pipe with outlets. See Dwg. V-7P4-2, Sht. No. 42 and Dwg. V-7P2-5, Sht. No. 46.
 - All cylinders to be 16 Gage.
 - See plan and profile drawings for pipe wall thickness, for steel plate specials.

- Notes (Continued):**
- For steel plate pipe specials with shop applied cement mortar coating, fill joint recesses with cement grout.
 - For steel plate pipe specials with field applied cement mortar coating, apply commercial quality Bond Breaker to exposed concrete surfaces of adjacent pipe section, and to any encasement concrete cover thereon, as approved by the engineer.

REVIEWED-STAFF ENGINEERING, BR.	3 12/2/75 1/18/76 8/22/76	REVIEWED BY DESIGN Added notes 8 and 9 Revised Pipe Schedule and added cover detail for Closure Joint	6/25 8/26 8/26	MD SM APPD
BY DATE	J. G. Weikel	DRAWN J. G. Weikel	CHECKED David M. M. M.	REVIEWED J. G. Weikel

SAFETY — as Necessary as WATER	
STATE OF CALIFORNIA THE RESOURCES AGENCY DEPARTMENT OF WATER RESOURCES DIVISION OF DESIGN AND CONSTRUCTION	
STATE WATER FACILITIES CALIFORNIA AQUEDUCT SANTA ANA DIVISION	
SANTA ANA VALLEY PIPELINE MILL STREET TO SUGARLOAF MOUNTAIN PRESTRESSED CONCRETE CYLINDER PIPE DETAILS	
SUBMITTED: G. M. M. M.	APPROVED: DATE: APR 8 1976
APPROVAL RECOMMENDED: J. G. Weikel	APPROVED: J. G. Weikel
DRAWING NO. V-7PI-1	SHEET NO. 41

SHEET NO.	DRAWING NO.
41	V-7PI-1

Diagram illustrating the stiffener ring assembly. The diagram shows a cross-section of a pipe with a stiffener ring. The stiffener ring is composed of two vertical plates, each 8" high. The spacing between the stiffener rings is indicated as 4' 0". The diagram also shows the stiffener ring being welded to the pipe, with a note: "See Plan and Profile drawings". The pipe is labeled "LD Pipe".

Diagram illustrating the spacing of stiffener rings on a rectangular structure. The structure is shown in plan and profile views. The plan view shows a rectangle with a total width of 40'-0" and a central section of 36'-0". The profile view shows the structure with stiffener rings. The specifications for the stiffener rings are:

- 109" I.D. Steel Pipe with mortar lining or
- 108" I.D. Steel Pipe with coal tar lining.
- Stiffener rings

Spacing as shown on Plan and Profile drawings

The diagram illustrates a rubber gasket joint between two pipes. Key components and dimensions include:

- Expanded bell**: The upper pipe fitting.
- 2 3/4" Rubber gasket**: The sealing element.
- Carnegie shape spigot ring M 3836**: The ring supporting the gasket.
- Normal closure (4" Min., 5" Max)**: The distance from the pipe centerline to the gasket.
- 2 1/4"**: The distance from the pipe centerline to the spigot ring.
- 1"**: The distance from the pipe centerline to the bell.
- I.D. Pipe**: Inside Diameter of the pipe.

[illegible]

DOUBLE "V" BUTT JOINT

△
4

At these locations use ANSI
forged steel welding neck
flange, flat face _____

△ TWO PLATE THICKNESS
DOUBLE "V" BUTT JOINT

Diagram illustrating the assembly of a coupling. The assembly consists of a Bolt, Follower, Middle ring, and Rubber gasket. The dimensions shown are 1'-0" for the main length, 1'-0" for the coupling end, and I.D. for the inner diameter. A note indicates to prepare ends for coupling in the limit shown.

See Note 7 for location

SLEEVE TYPE COUPLING

[illegible]

Δ 12" AND 24" NOZZLE DETAIL
Not to Scale

24-INCH O.D. NOZZLE $t_n = \frac{1}{2}$ " $Z = 12$ "					24-INCH O.D. NOZZLE DATA $t_n = \frac{1}{2}$ " $Z = 12$ " Δ				
STATION	HEAD FEET	FLANGE ANCHOR	"L" INCHES	"V" INCHES	STATION	HEAD FEET	FLANGE ANCHOR	"L" INCHES	"V" INCHES
120+35	815	300	24	1.000					
139+50	815	300	24	1.000	171+06	925	300	36	1.000
151+50*	815	300	42	1.000	224+50	650	300	24	0.750
154+50	815	300	36	1.000	354+24	650	300	24	0.750
189+00	825	300	30	1.0625	370+00	700	300	24	0.8125
210+00	925	300	24	1.0625	470+00	725	300	24	0.8125
226+35*	950	300	34.5	1.0625					
226+44*	950	300	34.5	1.0625					
235+25	925	300	24	1.0625					
241+98	950	300	24	1.0625	4-INCH O.D. NOZZLE DATA $t_n = \frac{1}{2}$ " $Z = 4$ " Δ				
258+44	950	300	24	1.0625	STATION	HEAD FEET	FLANGE ANCHOR	"L" INCHES	"V" INCHES
276+14	925	300	24	1.000	120+32.46	300	300	16	1.000
288+24	875	300	24	1.000	120+37.33	300	300	16	1.000
294+31	100	300	48 Δ	0.8125	253+97	925	300	36	1.0625
299+24	725	300	24	0.8125	273+03	900	300	36	1.000
300+64	725	300	24	0.8125	306+17	700	300	48	0.8125
316+10#	700	300	42	0.8125	313+97	675	300	36	0.8125
317+36	700	300	24	0.8125	424+93.66	725	300	48	0.8125
347+76	625	300	36	0.6875	424+98.32	725	300	48	0.8125
384+54	725	300	24	0.8125					
401+06	725	300	36	0.8125					
424+96	725	300	48	0.8125					
430+60*	800	300	42	0.875					
430+65	800	300	42 Δ	0.875					
434+06	725	300	36 Δ	0.8125	NOTES:				
452+25	650	300	24	0.750	1. Unless otherwise noted nozzle t_n 's to be located at top of pipe.				
470+20	175	50	48	0.375	2. * Indicates nozzle t_n 's to be at right spring line				
					3. # Indicates nozzle t_n 's to be at L-F spring line				

ANSI forged steel slip-on flange F & D flat face

Note: For bl... see det...

O.D. of nozzle
see Table

Drill on welding on 24

Reinforcing collar
1/2 Mortar lining

100 ID Pipe

T

8" NOZZLE DETAIL
PASSHOLE
Not to Scale

Technical drawing showing a cross-section of a nozzle connection detail. The drawing includes the following annotations and dimensions:

- OD of Nozzle**: see Table
- ANSI forged steel slip-on flange, F&D flat face**
- Drill and tap before welding see note for 2 1/2" nozzle**
- Note:** For blind flange see detail this sheet
- Reinforcing Collar**
- 1/2" Mortar lining**
- 10g "D Pipe**
- Dimensions:**
 - t_n (Nozzle thickness)
 - $14t_n$ (Flange thickness)
 - t (Pipe wall thickness)
 - $t_n = 1"$
 - $2 1/2"$ (Nozzle diameter)
 - $1/2"$ (Mortar lining thickness)
 - $1/4"$ (Gap between nozzle and pipe)
 - $1/2"$ (Gap between flange and pipe)

4" NOZZLE DETAIL
For Construction Purposes
Not to Scale

Holes for machine bolt with nut

1'-0"

1'-0"

Plug valve

handle

handle

B

BLIND FLANGE
Not to Scale

SECTION B-B
Not to Scale

SECTION C-C
Not to Scale

NOTES

1. For steel pipe plate thickness see Plan and Profile drawings.
2. All steel plates used for pipes to conform to ASTM A572 specifications. All steel plates used for stiffener rings to conform to ASTM A441 specifications.
3. For corrosion protection details see Dwg. Nos. V-7J1-1, V-7J1-2, V-7J1-3, V-7J1-4, V-7J1-5, V-7J1-6 and V-7J1-7.
4. For coating and lining details see Dwg. Nos. V-7J1-4 and V-7J1-5.
5. Steel pipe with lining applied shall have a net internal diameter of 108 inches.
6. For location of nozzles see Plan and Profile drawings.
7. Sleeve-type couplings to be provided within 3 ft. of both ends of concrete encasements and casing pipes on steel pipe only.
8. A stiffener ring shall be positioned 2 ft. from each end of pipe section containing stiffener rings.
9. Stiffener ring shall be fabricated in not more than six segments. The outside radius of ring segment may be made the same as the inside radius. The least depth of the stiffener shall not be less than the normal depth shown on the drawing.
10. Blind flanges for nozzles under 12 inches do not require handles and plug valve.
11. See drawing V-7J2-2, sht 62 for machining details of welding neck flanges.

AS BUILT
Ctd
FEB 18 1977

Inside Dia. of Pipe	Max. Deflection per section Δ/n	Min. Length of section along ∇
108" I.D. 109" L.D.	7°-30'	4'-6"
24" O.D.	15°-0'	2'-0"

Diagram illustrating the bracing and blocking details for a circular structure. The structure is shown in cross-section, with a central vertical axis and a horizontal axis. The following components are labeled:

- Wood Blocking as required
- 4"x4" Douglas Fir (Typ.)
- 2'x6"x1' Wood Blocks
- 6"
- 1/2"

NOTES:

1. Stulling to be placed 1/2" diameter 1/2 inches; exc
2. Temporary bracing st

STULLING DETAIL
UNSTIFFENED PIPE

- NOTES: 1. Stulling to be placed 12" C.C. Max
2. Temporary bracing shall elongate the vertical diameter 1 1/2 inches except for concrete encasement where the pipe shall be maintained circular.
3. Maximum out of roundness after backfill completion and stull removal shall not exceed 4 inches difference between maximum diameter and minimum diameter.

REVIEWED—STAFF
ENGINEERING, BR

BY _____
DATE _____

REV. DATE		DESIGN		12/21/75 GWT		M.G.	
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	BY	DATE	BY
1-19-70	Changed Nozzle Lengths						
11-21-70	Added Note 11, & changed flame type						
11-25-70	Changed Nozzle Length of Ste. 430 + 65						
7-3-70	Changed Flame Class in Nozzle Table						
6-22-70	Revised nozzle table & weld details						
REV.	DATE	DESCRIPTION					
S.V. Serafica	S.V. Serafica	Handwritten initials	Handwritten initials				

DE

SUBMITTED: *smr Gould*

CHIEF, DESIGN SECTION, REG. CE. NO. 9477

APPROVAL RECOMMENDED:

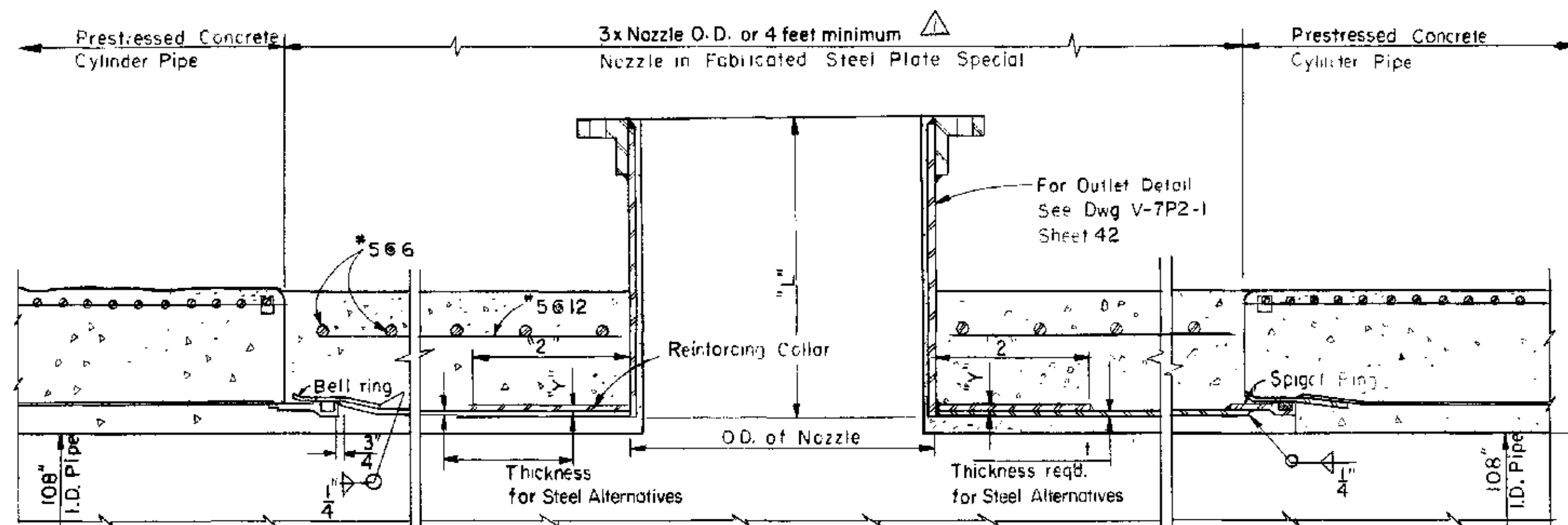
Franklin J. Wilson

CHIEF, DIST. BRANCH, 30 DIVISION, REG. CE. NO. 7192

APPROVAL RECOMMENDED:

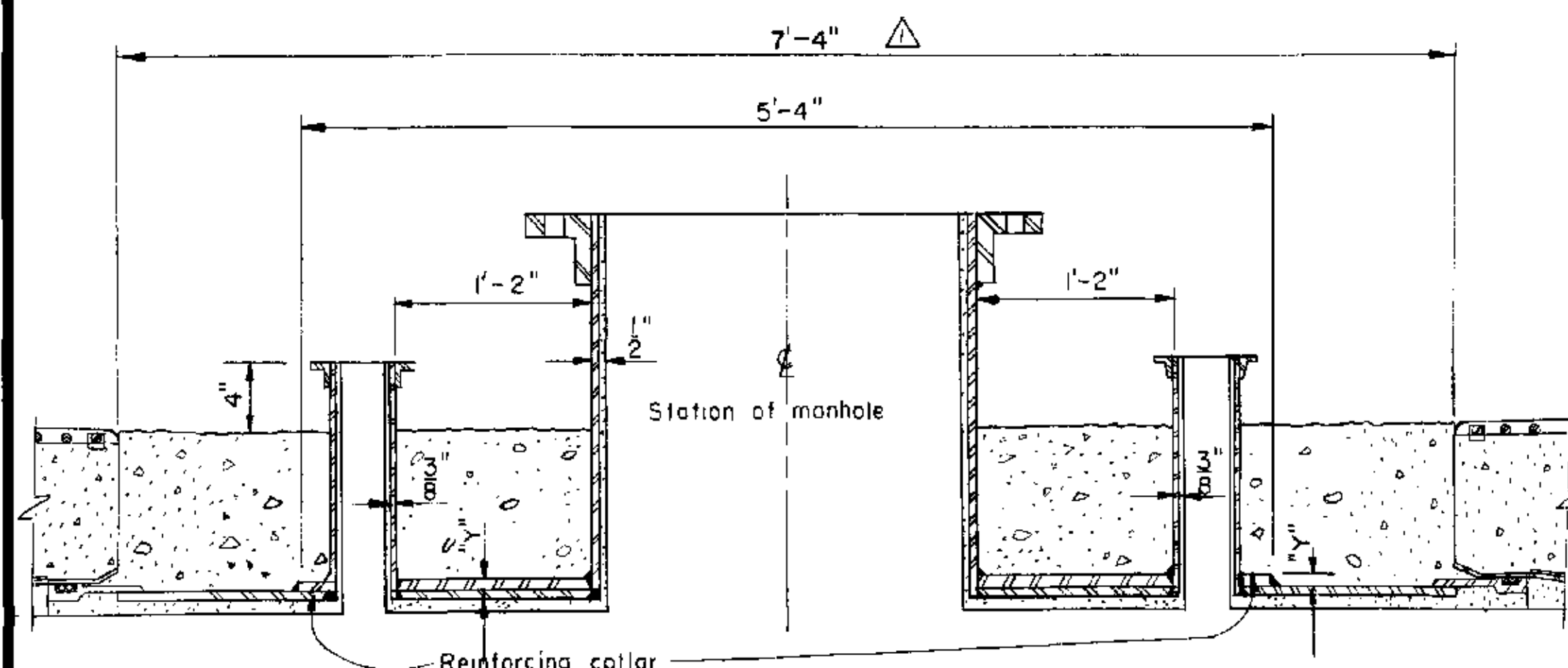
22 Dooey

APPROVED:		DATE: APR 27 1970
<i>J. C. Winkler</i>		
CHIEF, DESIGN BRANCH, D&C, REG. C.E. NO. 7887		
DRAWING NO.	SHEET NO.	
V-7P2-1	42	

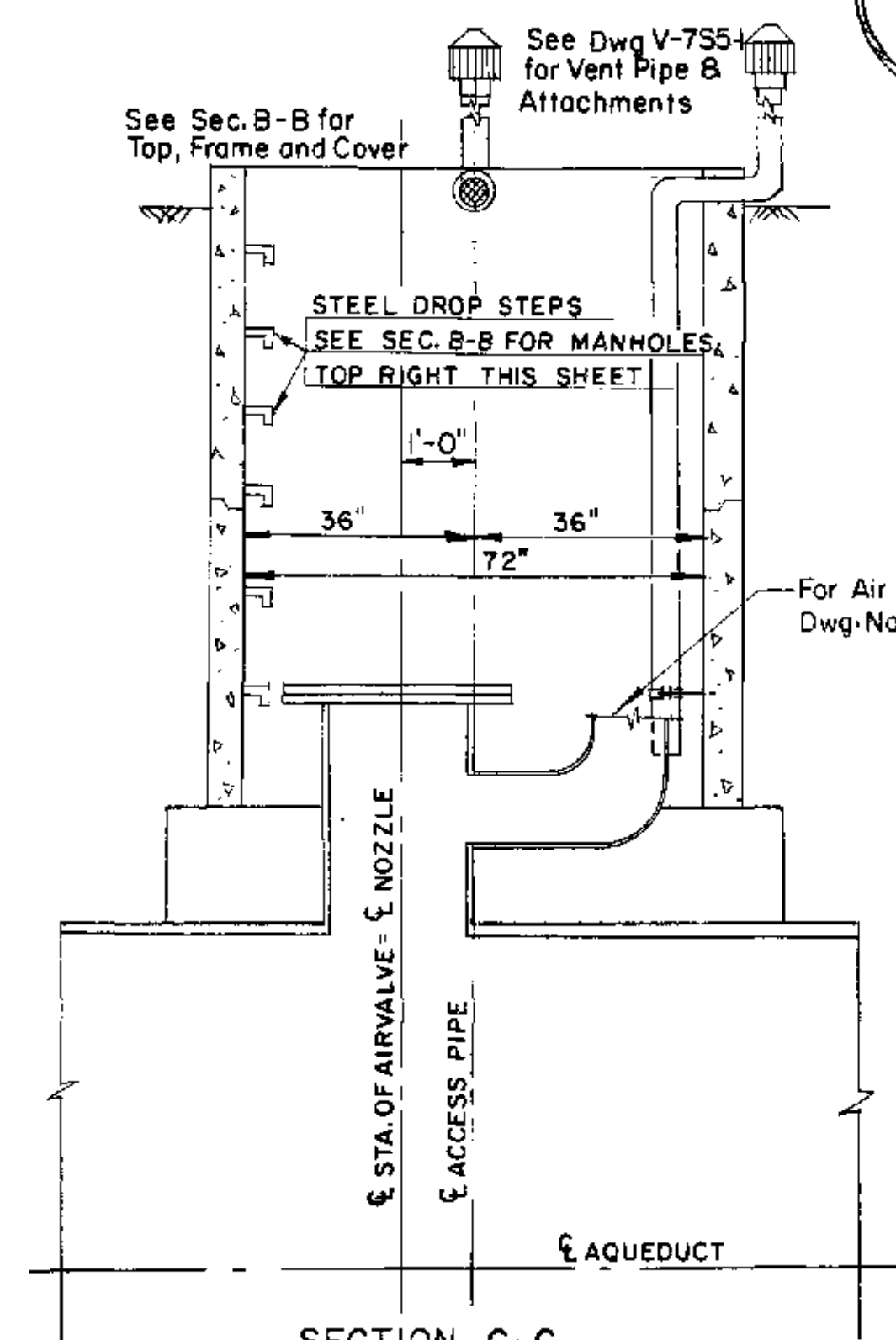


Notes:
For nozzle detail and dimensions, See Dwg. V-7P2-1, Sheet 42

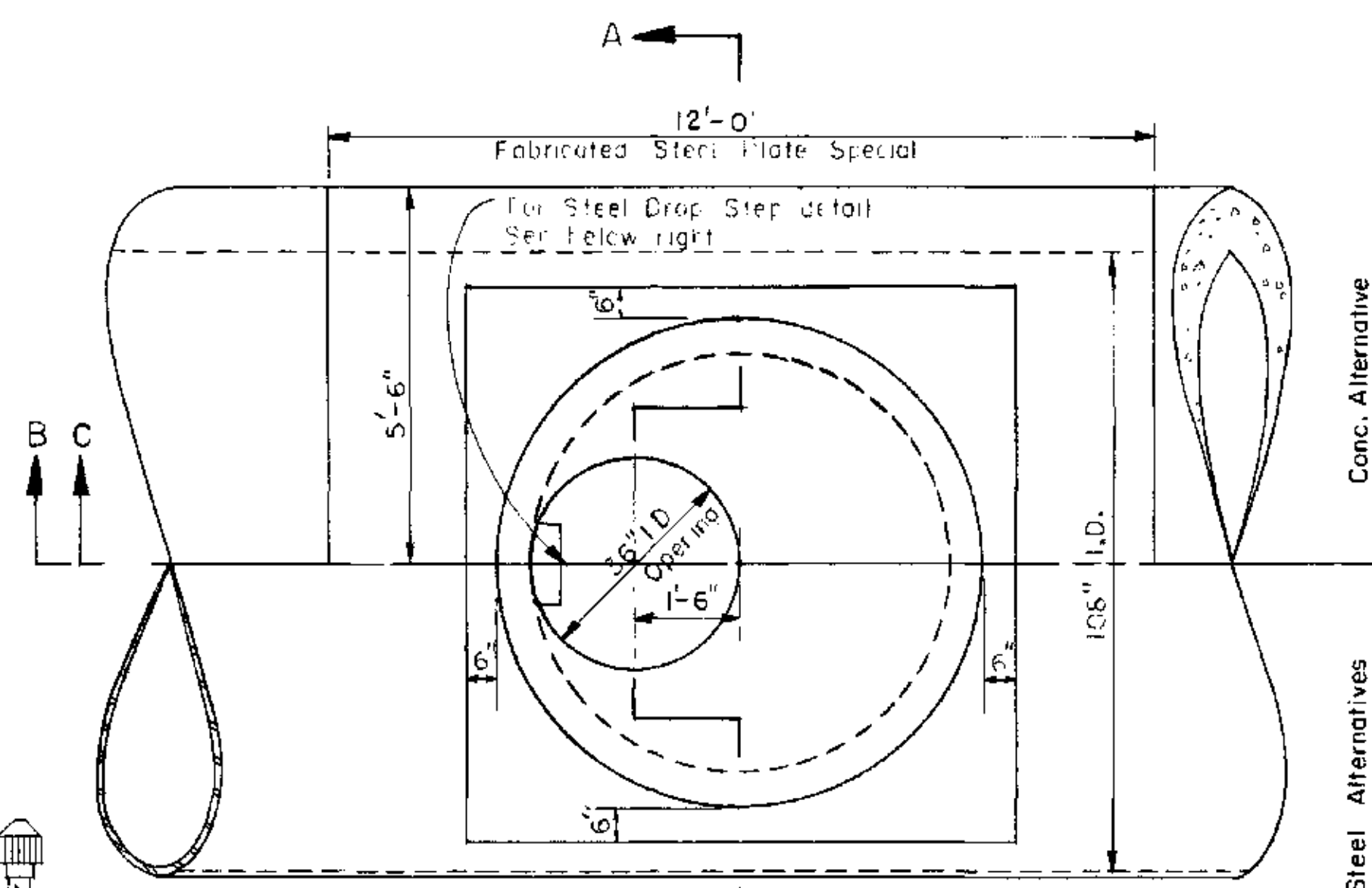
NOZZLE FOR CONC. ALTERNATIVE
Not to Scale



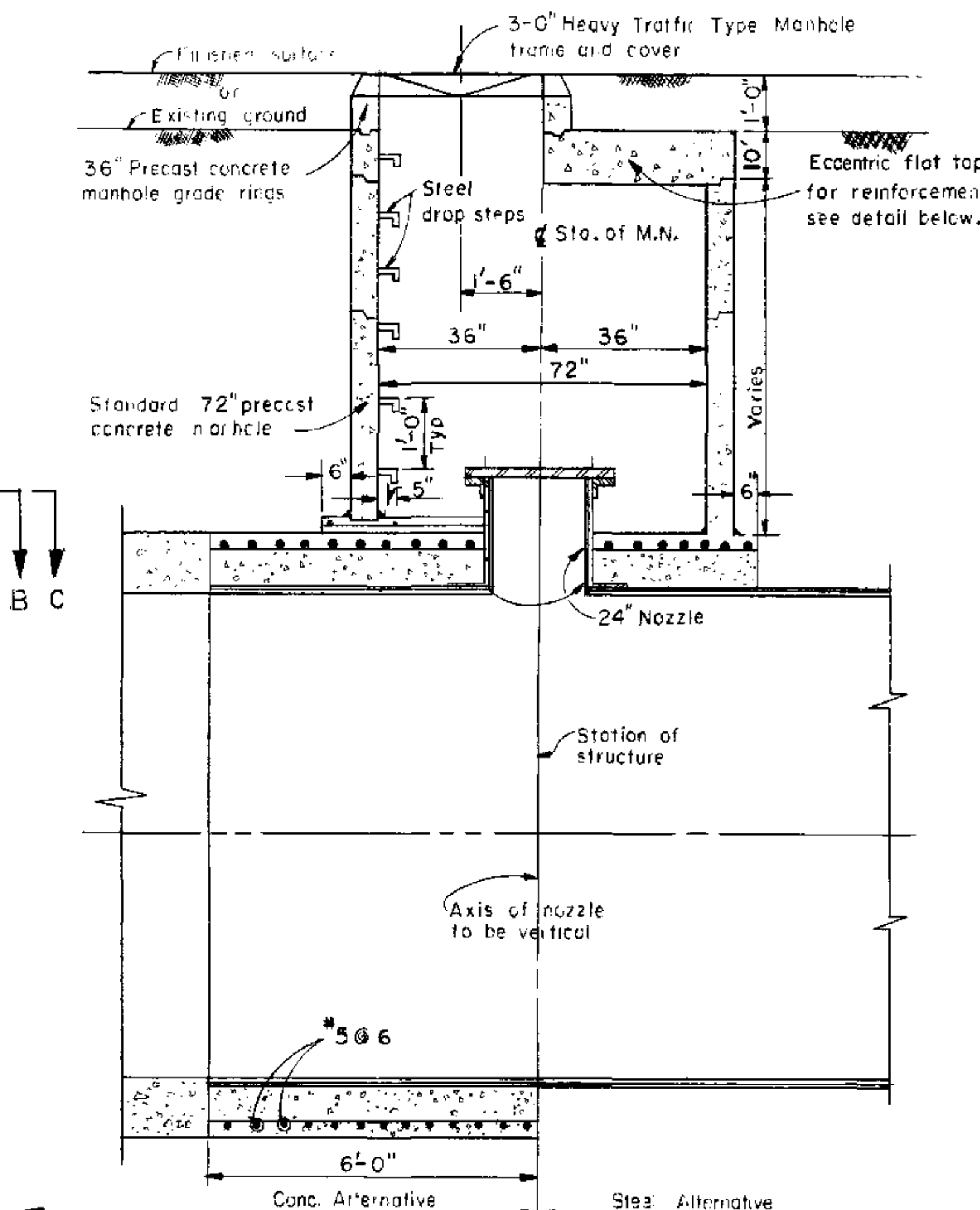
DETAIL OF 4" NOZZLES ADJACENT TO MANHOLES
AT STA. 120+35 & STA. 424+96
Not to scale



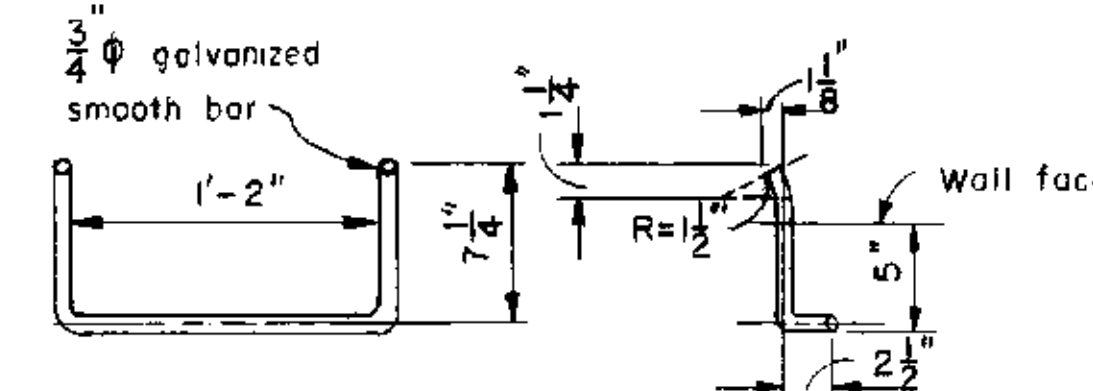
SECTION C-C
FOR AIR VALVES
Scale: $\frac{1}{2}'' = 1'-0''$



MANHOLE STRUCTURE
PLAN
Scale: $\frac{1}{2}'' = 1'-0''$



SECTION B-B
FOR MANHOLES
Scale: $\frac{1}{2}'' = 1'-0''$

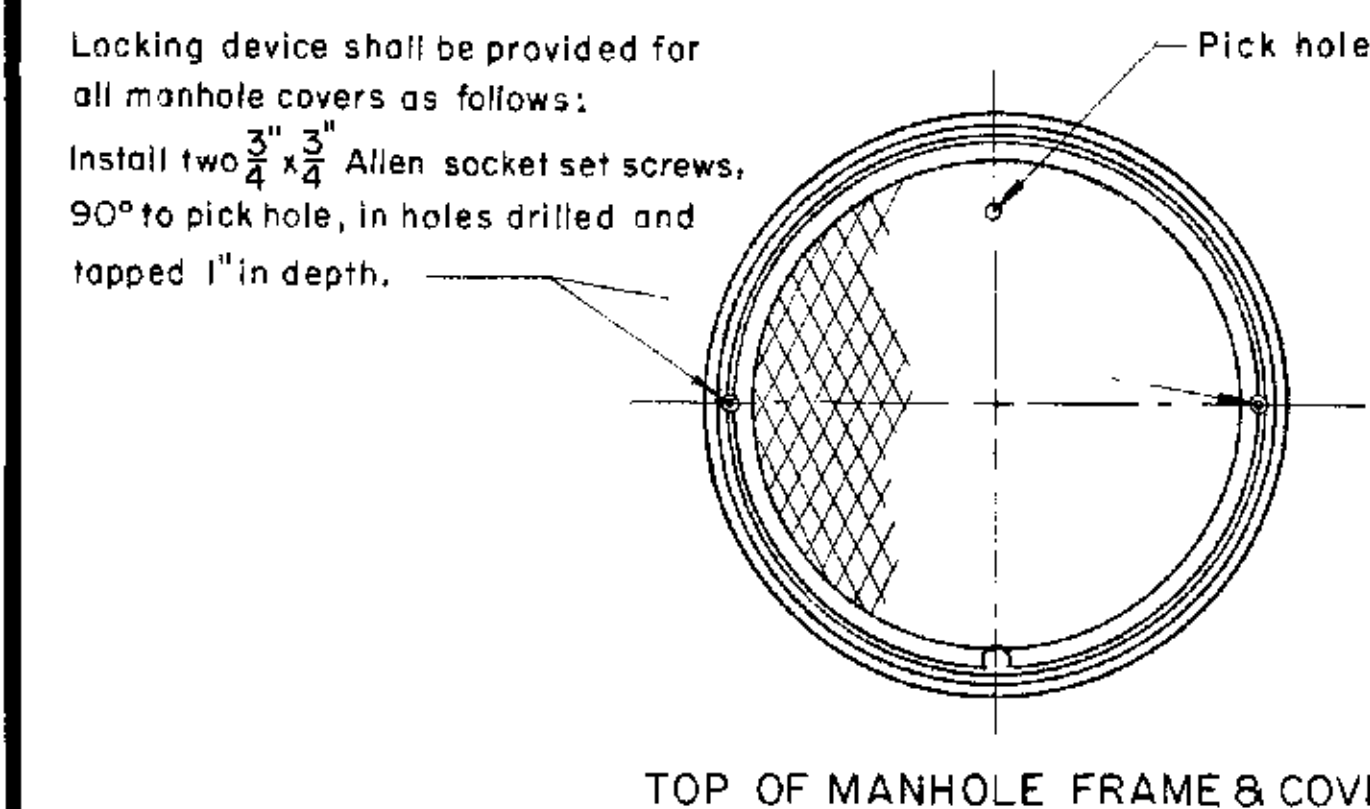


STEEL DROP STEP DETAIL
Scale: $\frac{1}{2}'' = 1'-0''$

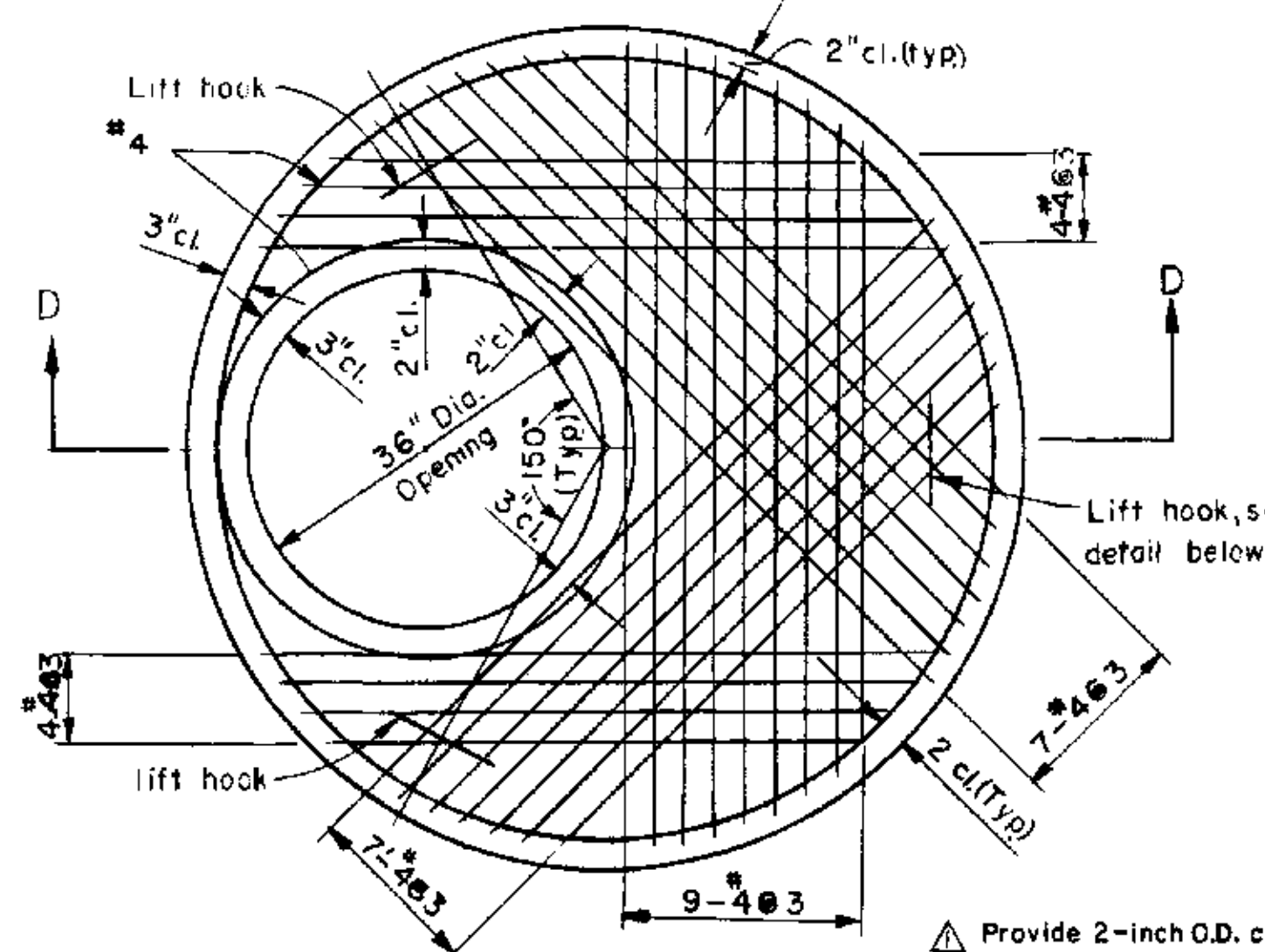
NOTE

For location of pipe encasements see plan and profile drawings also see encasements drawing No. V-7P4-1, sheet No. 44.

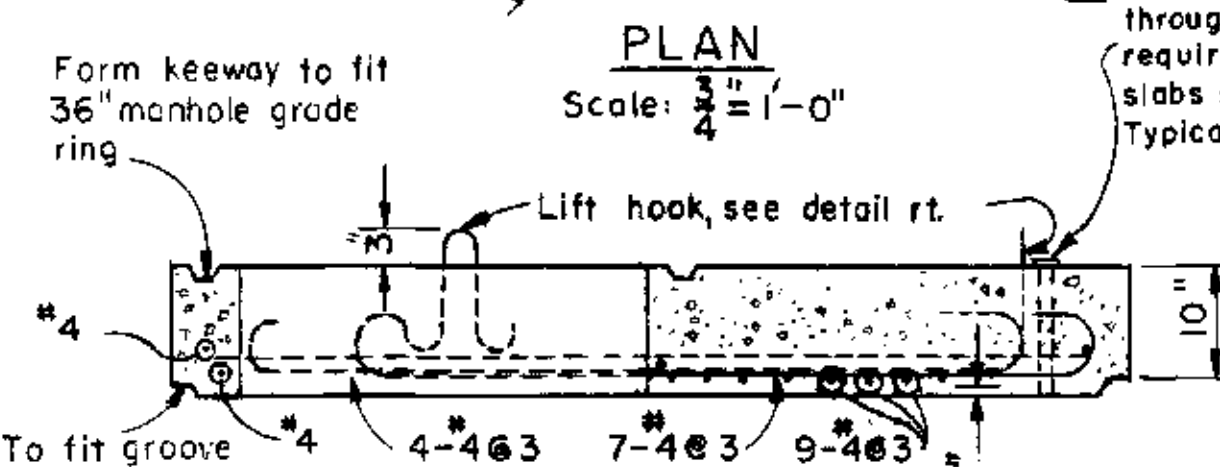
AS BUILT
FEB 18 1977



TOP OF MANHOLE FRAME & COVER

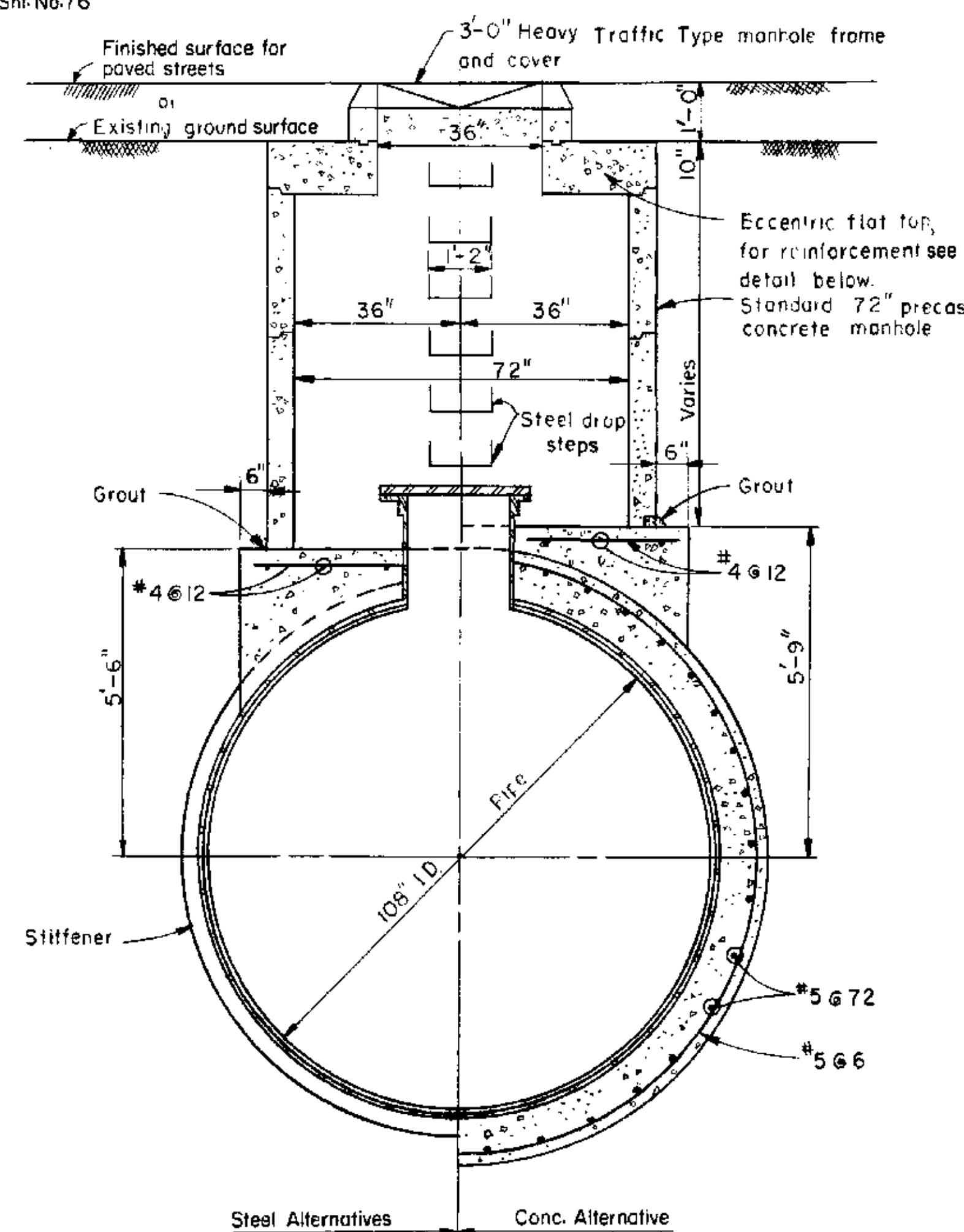


PLAN
Scale: $\frac{1}{4}'' = 1'-0''$

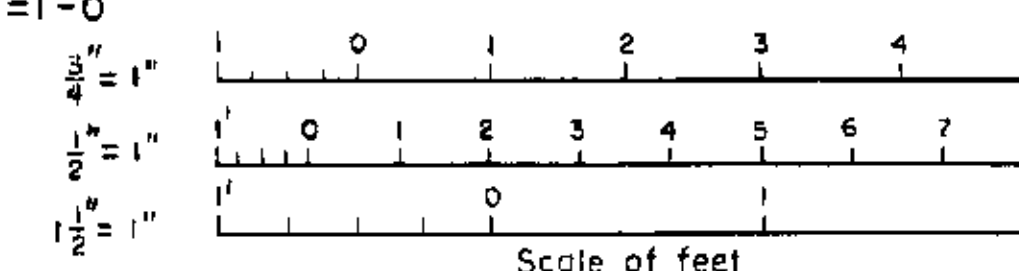


SECTION D-D
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LIFT-HOOK DETAIL
No Scale

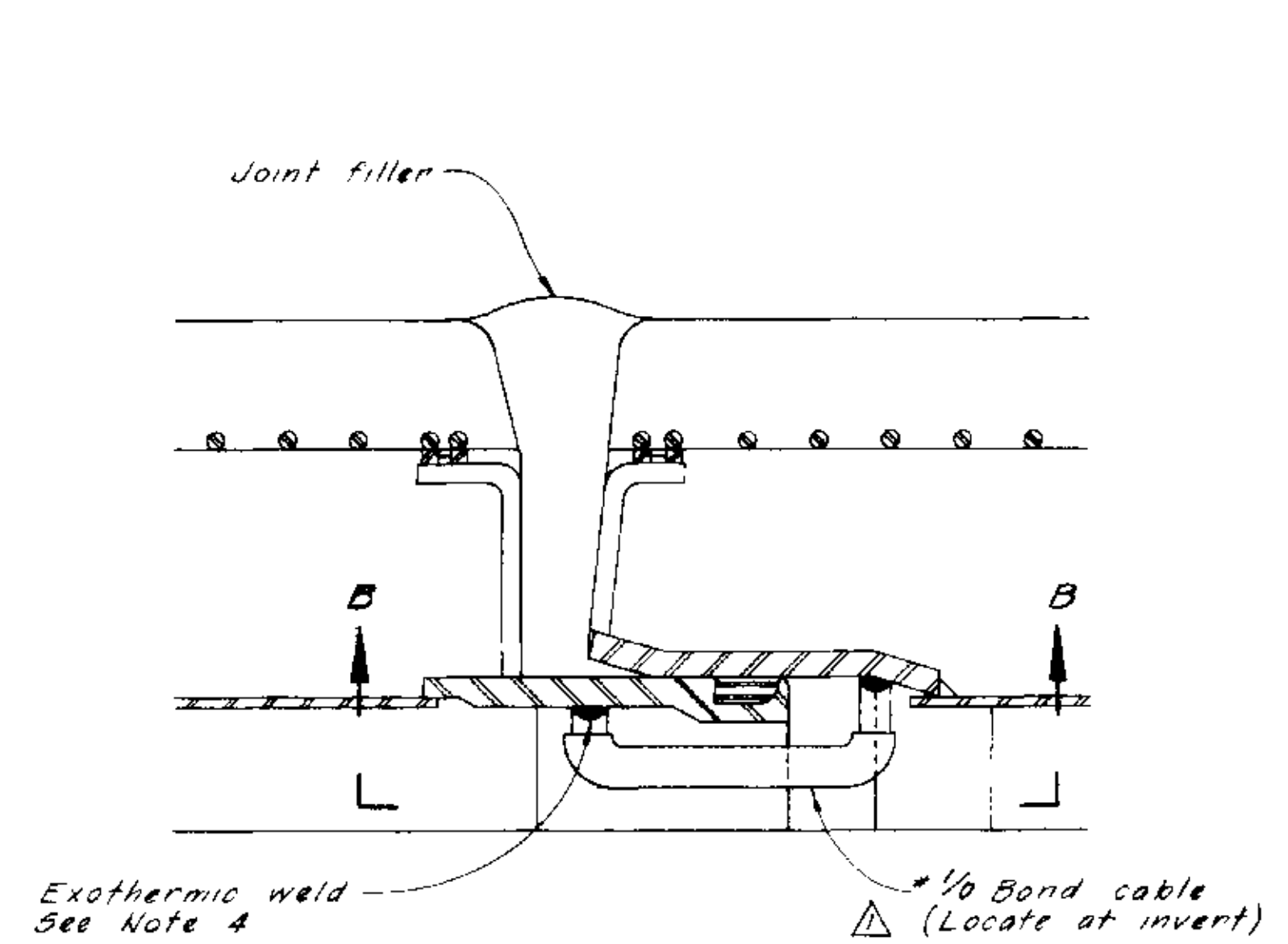


MANHOLE STRUCTURE
SECTION A-A
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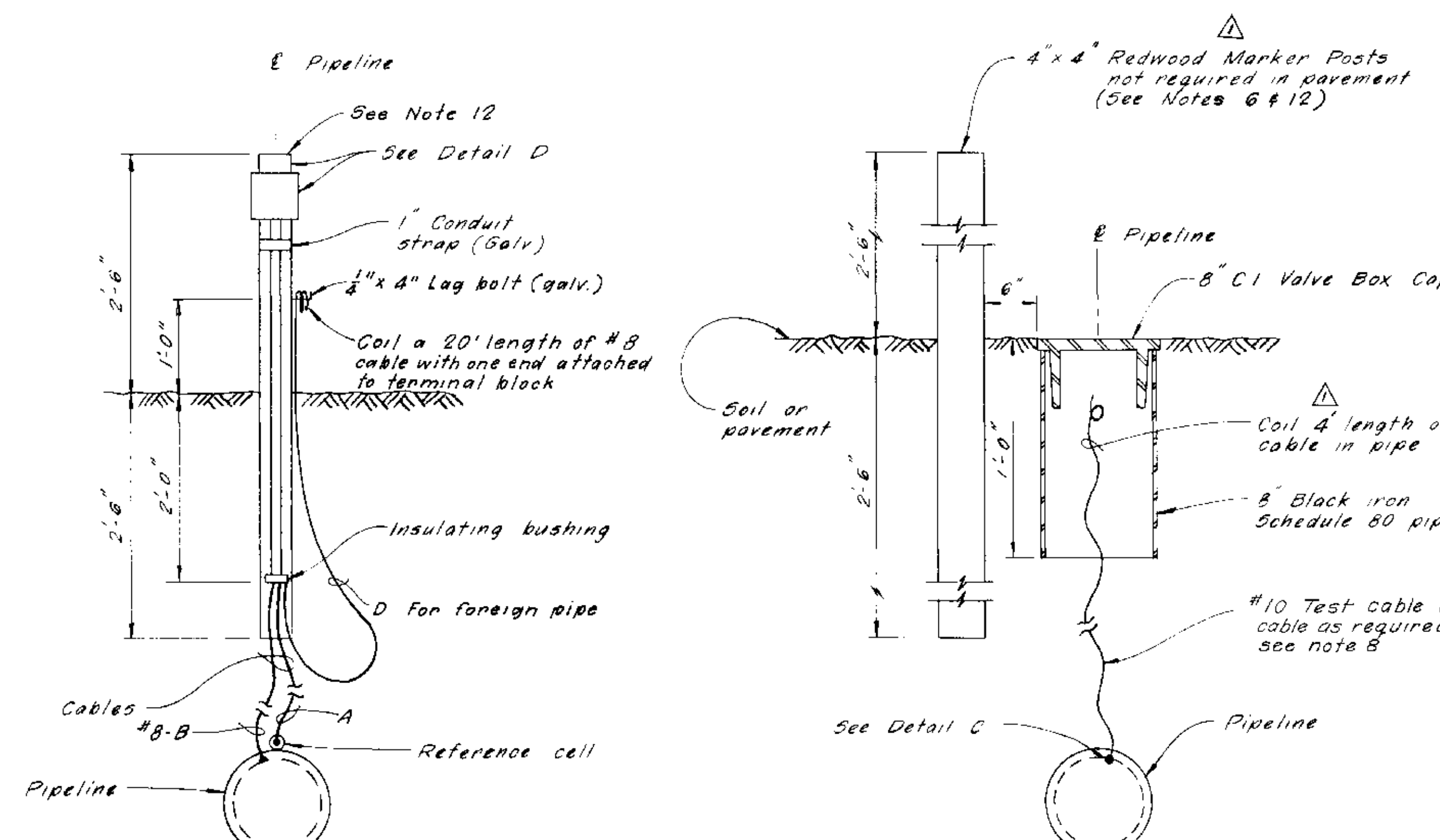


REVIEWED—STAFF ENGINEERING, BR.	2/17/77	6/22/77	Added 2 inch pipe sleeves on Sec. D-D and Changed Length Req'd for steel specials w/ nozzles	6/22/77	MA
BY: J.G. Weiher	DATE: 6/22/77	DRAWN: W. Powers	CHECKED: David K. K. K.	REVIEWED: J. A. Wineland	

SAFETY — as Necessary as WATER	
STATE OF CALIFORNIA THE RESOURCES AGENCY DEPARTMENT OF WATER RESOURCES DIVISION OF DESIGN AND CONSTRUCTION	
STATE WATER FACILITIES CALIFORNIA AQUEDUCT SANTA ANA DIVISION SANTA ANA VALLEY PIPELINE MILL STREET TO SUGARLOAF MOUNTAIN MANHOLES AND ACCESS FACILITIES DETAILS	
SUBMITTED: 6/22/77	APPROVED: J. A. Wineland
CHIEF, DESIGN SECTION, SO. DIST. REG. CE. NO. 4377	DATE: APR 27 1977
APPROVAL RECOMMENDED: J. A. Wineland	CHIEF, DESIGN BRANCH, S.O. DIST. REG. CE. NO. 4377
SCALE: AS SHOWN IN THE DRAWING	DRAWING NO. V-7P4-2
APPROVAL RECOMMENDED: J. A. Wineland	SHEET NO. 45
DISTRICT ENGINEER, SO. DIST. REG. CE. NO. 4300	

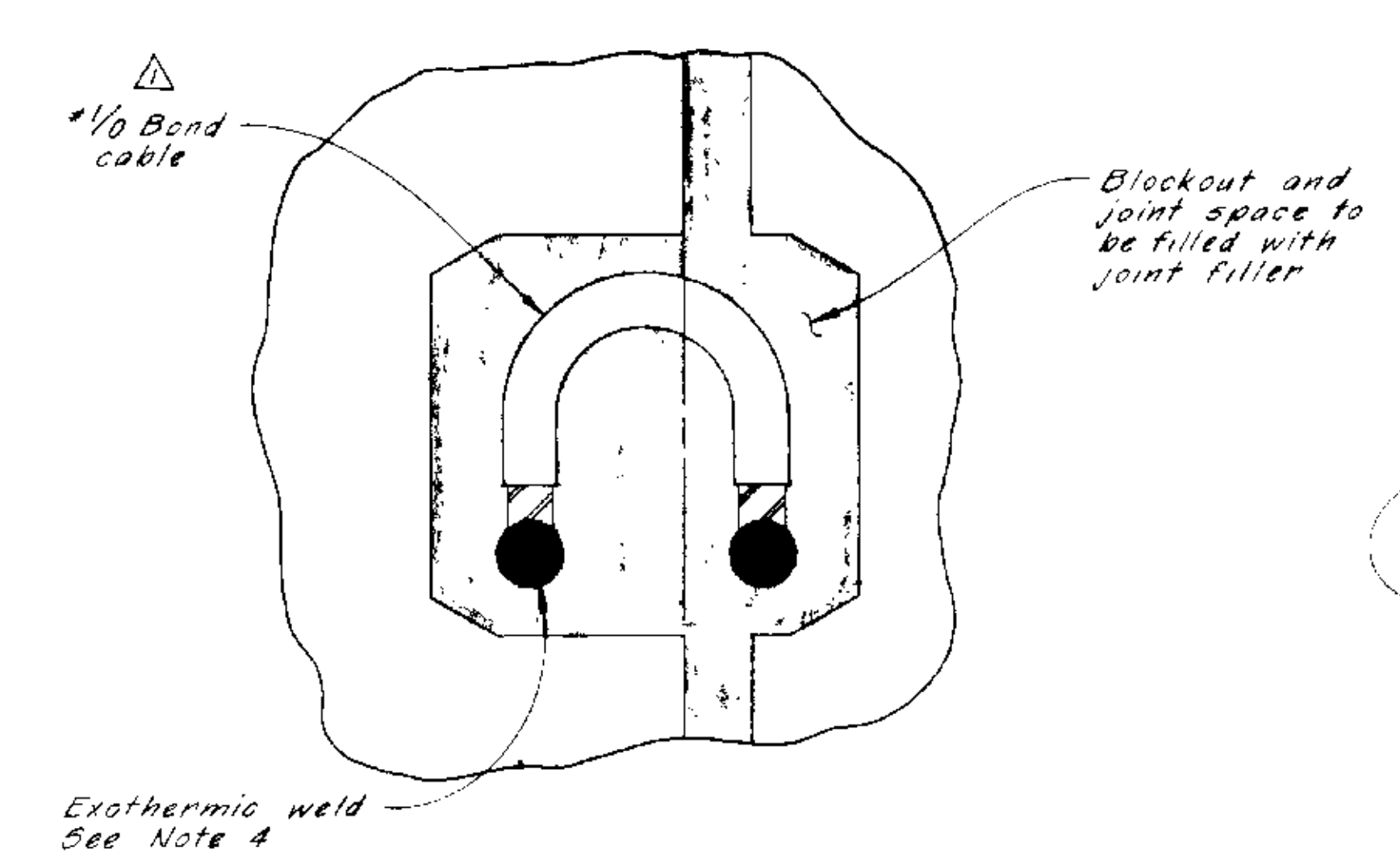


DETAIL A
TYPICAL JOINT BOND DETAIL
(See Note 3)

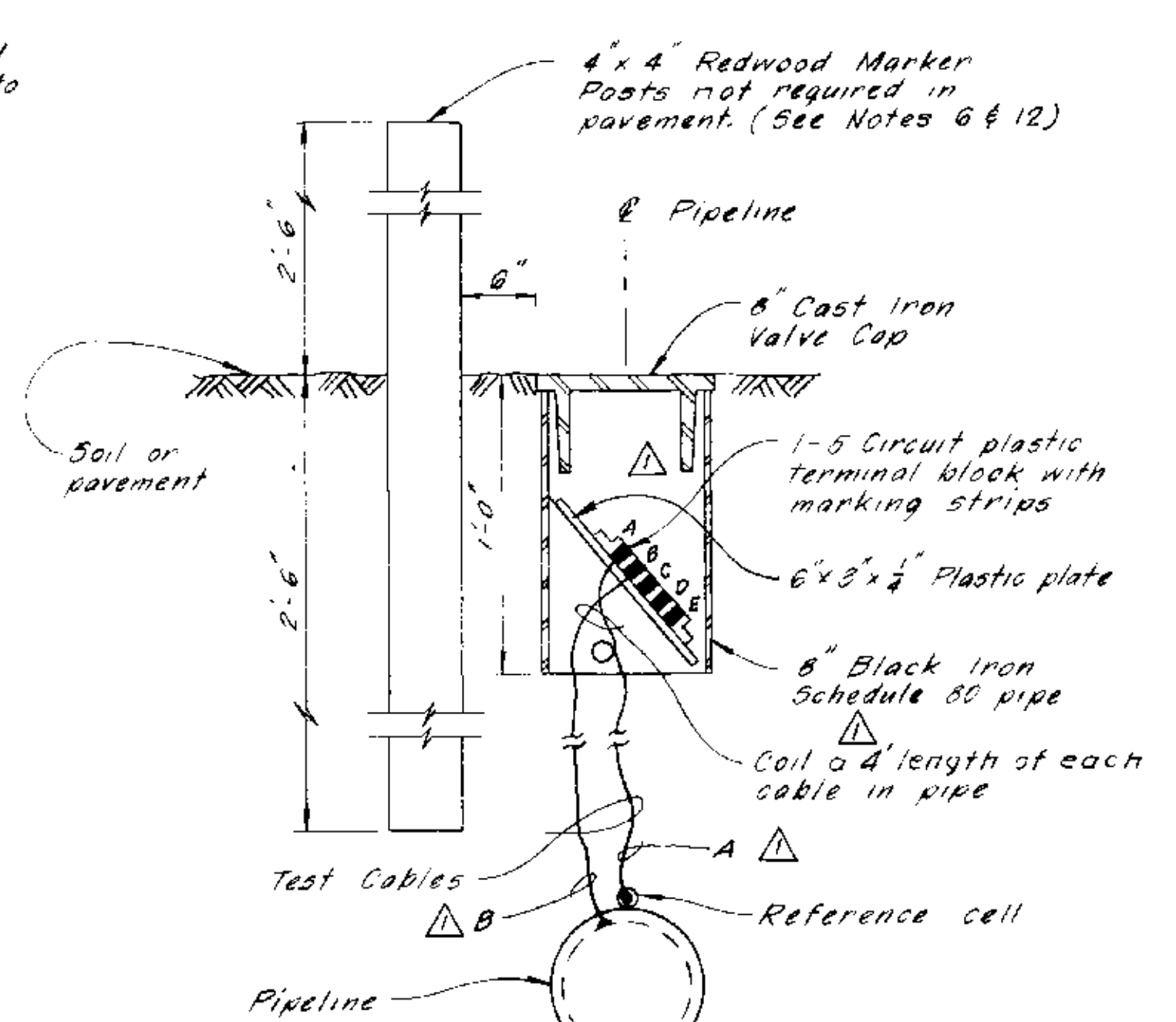


TYPE 1
See Detail 6

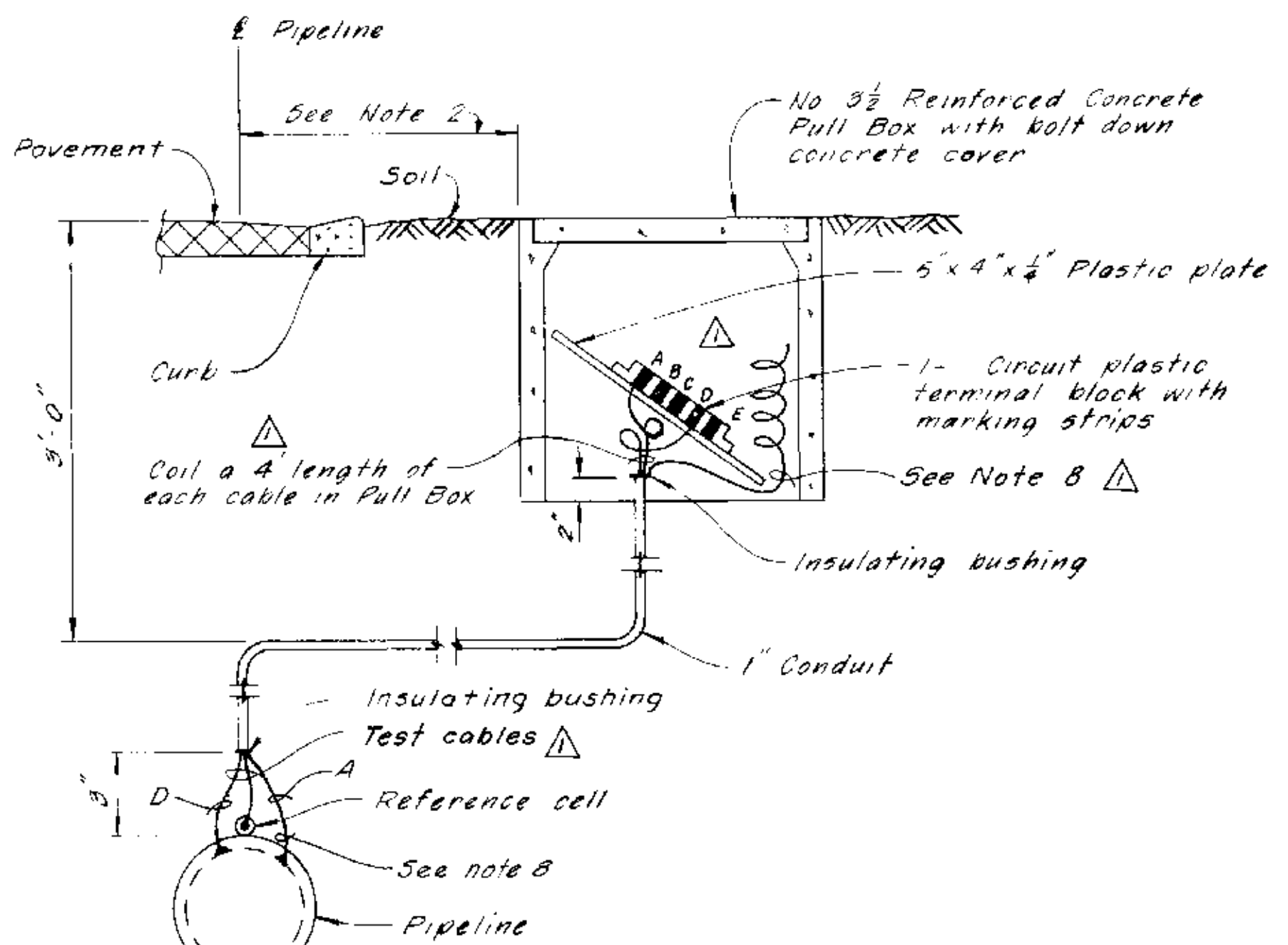
TYPE 2



VIEW B-B

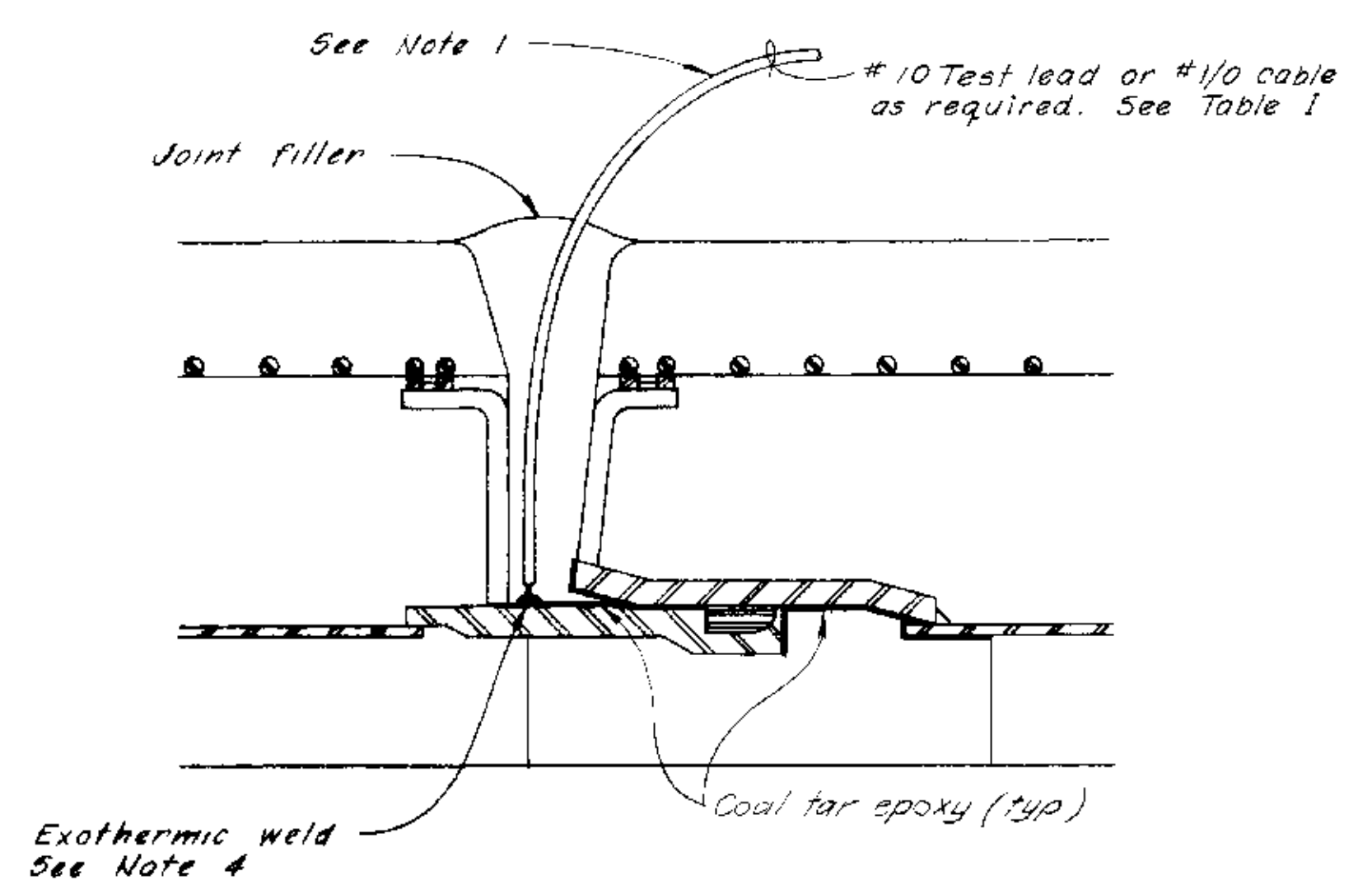


TYPE 3
See Detail 6

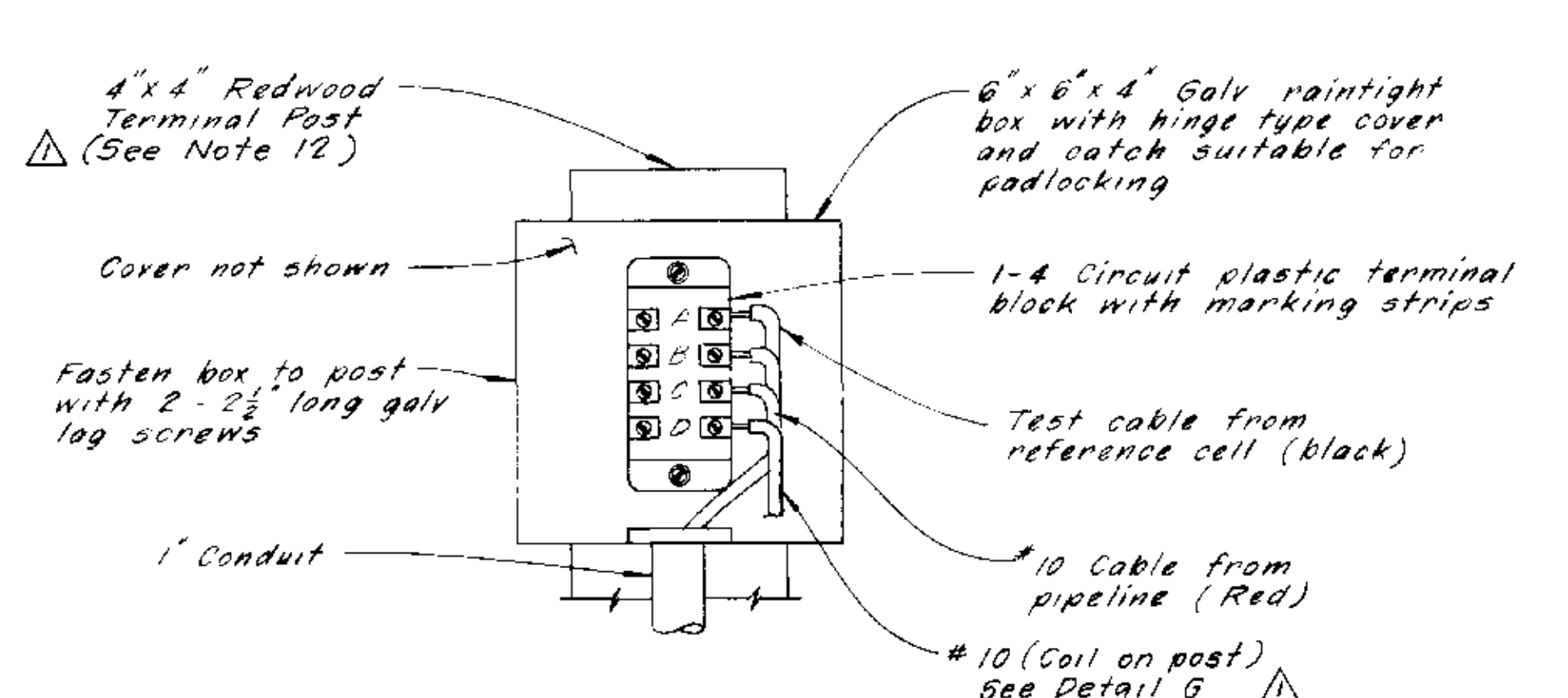


TYPE 4
See Detail 6

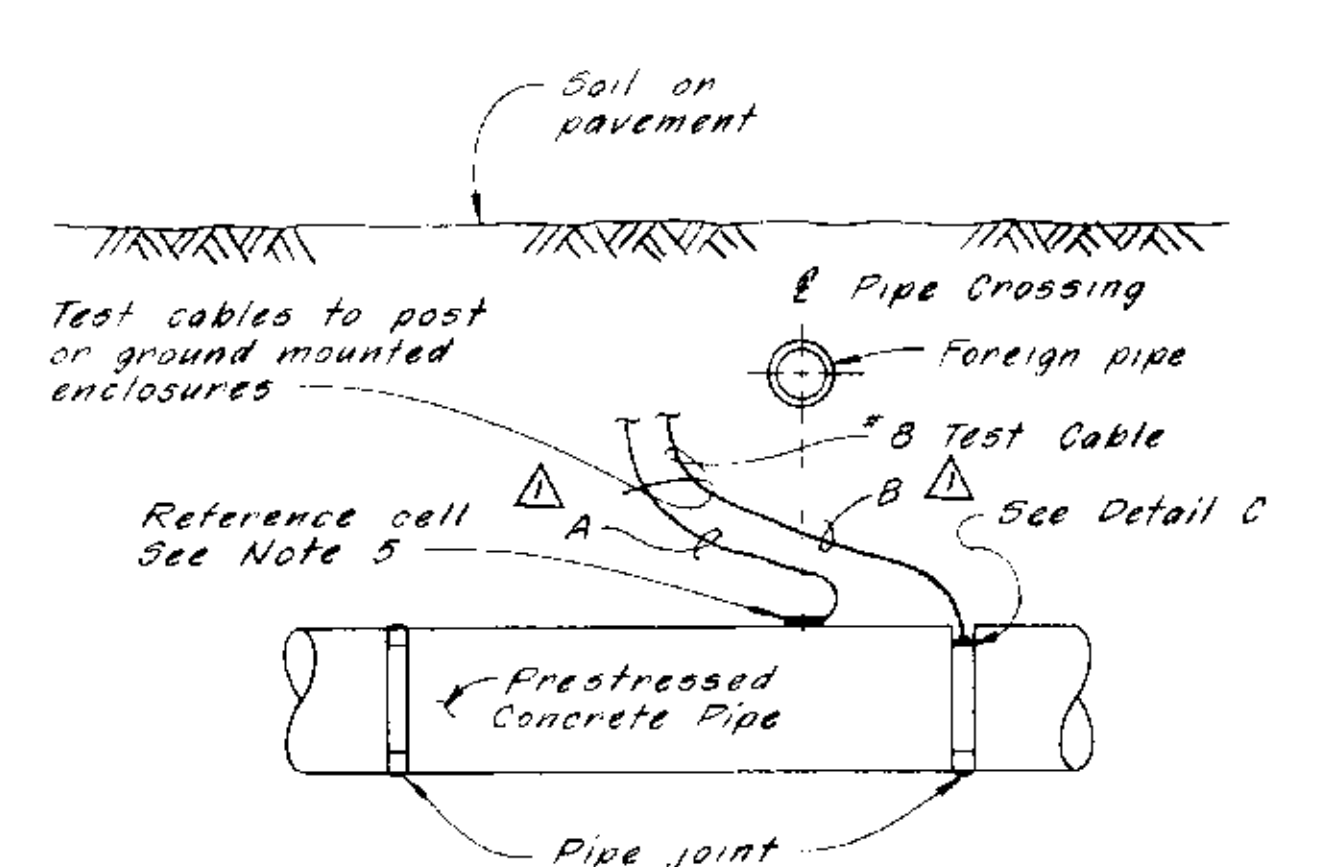
TYPICAL CORROSION TEST STATIONS
(See Table 1
(See Notes 1 thru 6)



DETAIL C
TYPICAL CABLE CONNECTIONS



DETAIL D
CORROSION TEST STATION TERMINAL BOX



DETAIL G
FOREIGN PIPE CROSSING
(TYPICAL INSTALLATION DETAILS)
(See Notes 5 & 10)

TABLE 1 LOCATION OF CORROSION TEST STATIONS			
STATION	TYPE	STATION	TYPE
103 + 69	5***on 7***	264 + 29	3 ***
106 + 00	2 ***	267 + 00	3 ***
108 + 00	5 ***	275 + 80	F-4 ***
110 + 35	F-4	282 + 34	F-3 ***
118 + 80	2 *	286 + 50	2 ***
120 + 30	2 *	287 + 50	5 ***
125 + 30	2 *	289 + 93	F-3 ***
126 + 30	2 *	299 + 52	F-3 ***
127 + 82	F-1 ***	304 + 25	F-4 ***
132 + 92	F-1 ***	316 + 83	F-4 ***
134 + 46	F-1 ***	340 + 00	2 ***
137 + 67	F-3	342 + 00	5 ***
139 + 67	F-3 ***	357 + 04	F-1 ***
152 + 65	3 ***	363 + 25	F-1 ***
153 + 70	4 ***	367 + 22	F-1 ***
158 + 00	5 ***	384 + 54	F-4 ***
160 + 00	2 ***	398 + 47	F-4 ***
165 + 70	3 ***	400 + 00	5 ***
186 + 00	3 ***	401 + 00	2 ***
200 + 54	F-1 ***	423 + 23	F-1 ***
207 + 80	F-5 ***	426 + 50	4 ***
212 + 10	3 ***		
227 + 40	3 ***	440 + 32	4 ***
230 + 50	2 ***	450 + 00	2 ***
248 + 62	F-1 ***	451 + 00	5 ***
260 + 45	F-5 ***		

* - Connect test cable at first pipe joint from end of casing pipe. (See Detail C, Dwg. V-7J1-3, Sheet 69)
** - Location of redwood marker post
*** - Location of #1/2 cathode cables for future rectifiers at these stations only. (See Note 8)
**** - See Note 7
F - Indicates foreign pipe crossing (See Detail G)
(Reference cells shall be installed at these locations)
⊗ - No reference cell installed.

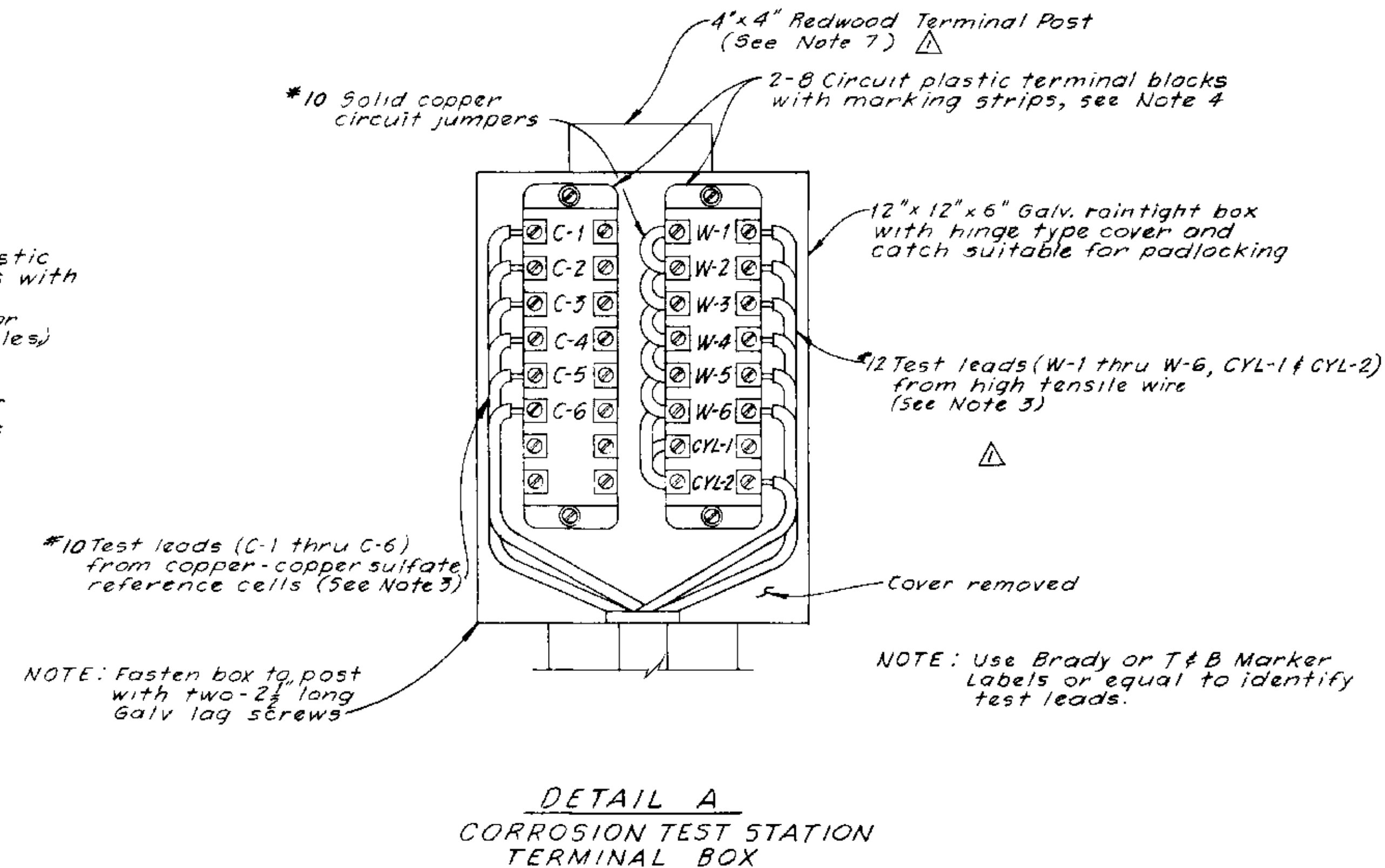
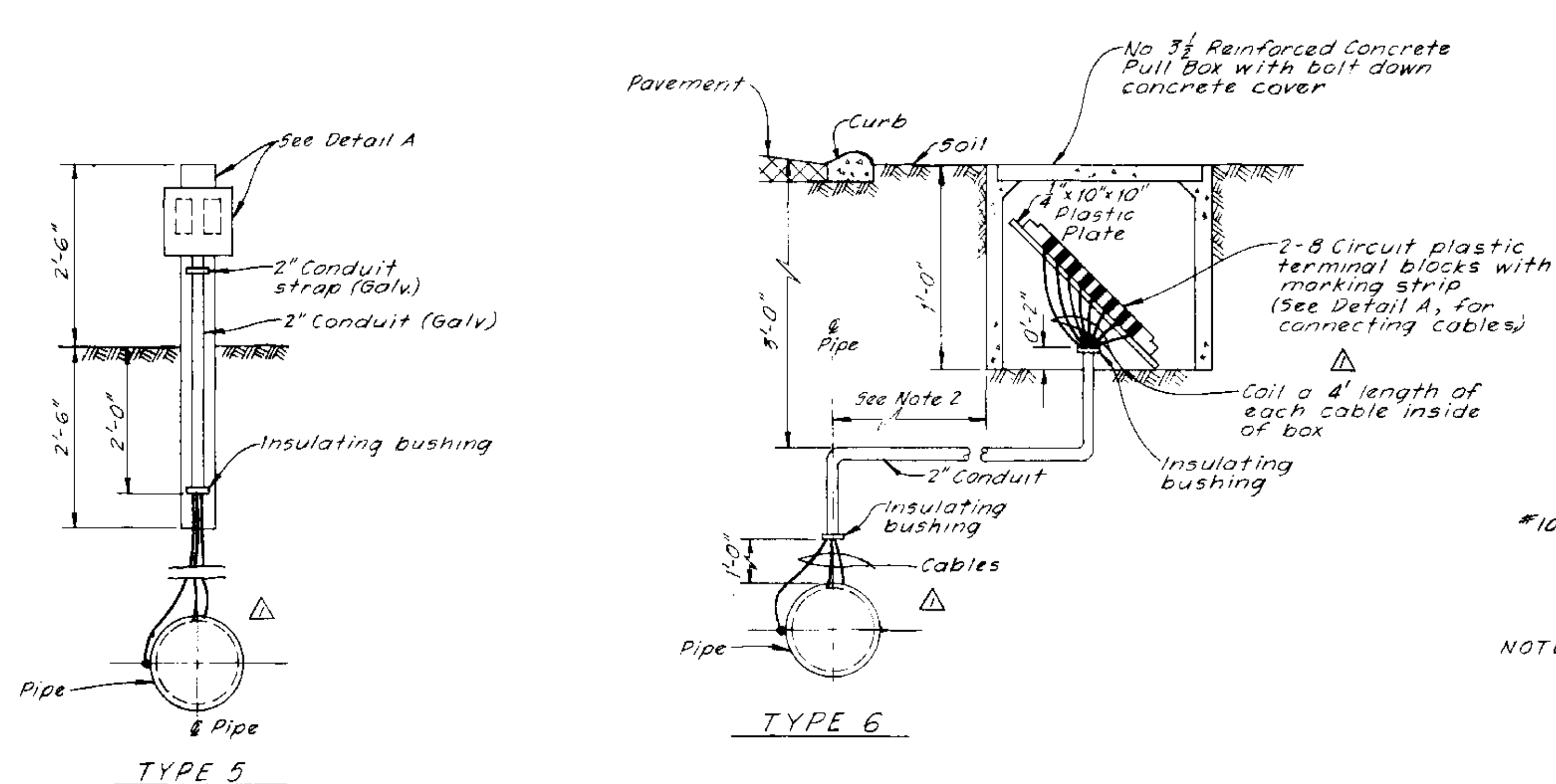
NOTES

- Leave slack in cables and test leads near pipe to avoid damage to connections
- Exact location of posts and ground mounted enclosures will be determined by the Engineer.
- All rubber gasket joints shall be bonded.
- Cover all exposed surfaces of copper conductor and exothermic weld with coal tar epoxy prior to filling joint.
- Locate a single reference cell next to surface of prestressed concrete pipe between the foreign pipe crossing and the prestressed concrete pipe. (See Detail G for reference cell installation.)
- Redwood marker posts will be required at locations noted on Table 1.
- Install insulating couplings as required. (See Note 5, Dwg. V-7J1-3, sheet 69.)
- Install a #1/2 Cathode cable to the prestressed concrete pipe for a future rectifier connection. Terminate a coil of cable 4 feet long inside of terminal enclosure and seal end of cable. (See Detail C)
- Use Brady or T & B marker labels for all leads where leads are color coded, color code tape may be used
- At foreign pipe crossing with one or more foreign pipes, install one reference cell between each gas or product line (2" or larger) and Department pipe. Reference cells are not required at foreign waterline crossings. See "Detail G". Reference cells shall be furnished by the Department and installed by the contractor.
- Overcoat prestressed concrete pipe between Sta. 274+00 to Sta. 278+00 with material as specified (nearest full pipe length).
- All posts shall be stenciled with 2" letters showing stationing.

NOT TO SCALE

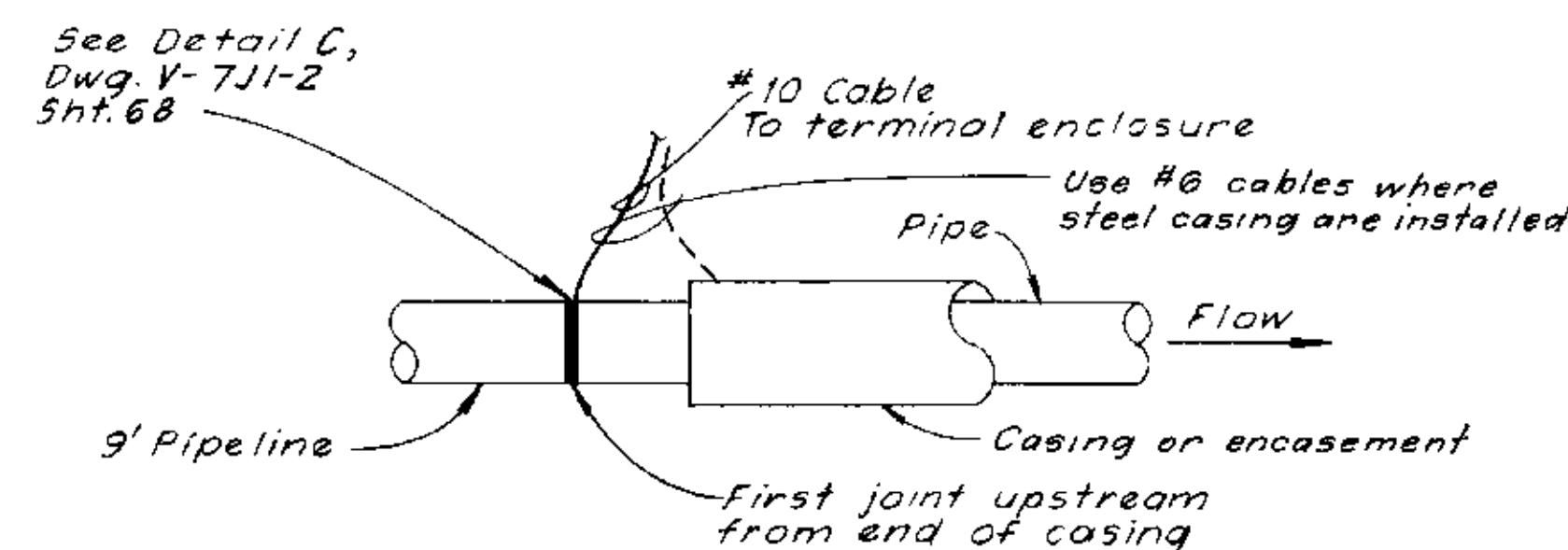
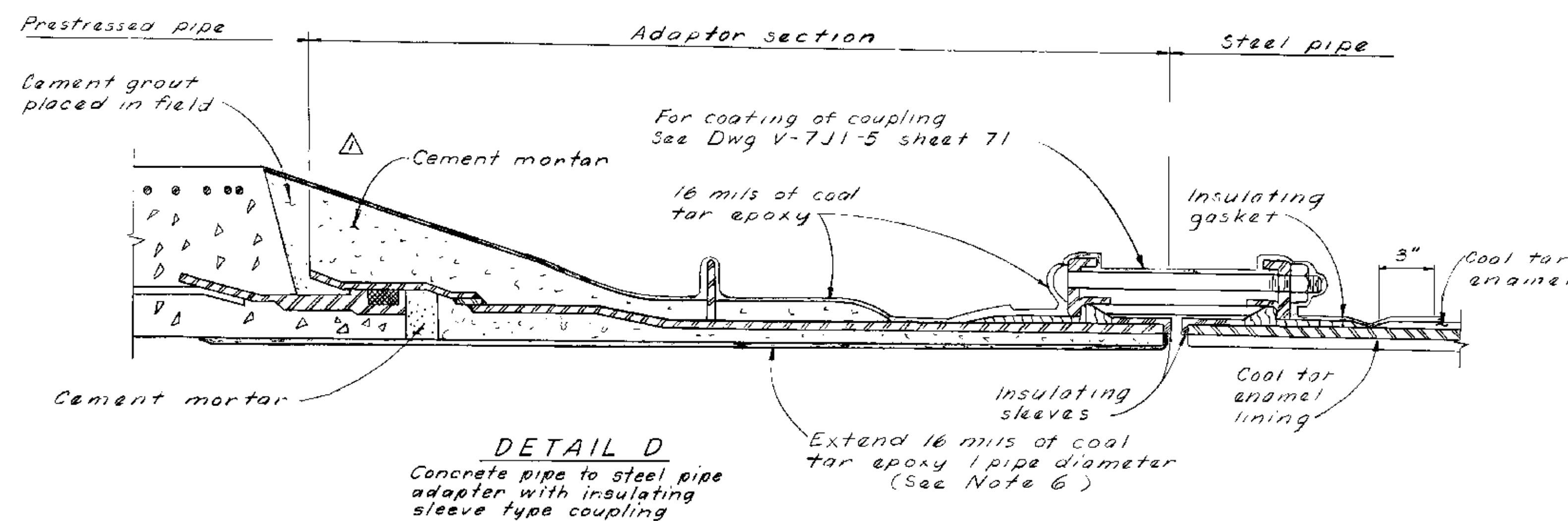
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STATE OF CALIFORNIA THE RESOURCES AGENCY DEPARTMENT OF WATER RESOURCES DIVISION OF DESIGN AND CONSTRUCTION	
STATE WATER FACILITIES CALIFORNIA AQUEDUCT SANTA ANA DIVISION SANTA ANA VALLEY PIPELINE MILL STREET TO SUGARLOAF MOUNTAIN PRESTRESSED CONCRETE CYLINDER PIPE CORROSION CONTROL DETAILS	
DESIGNED W. Peterson	DRAWN R. Lee
CHECKED W. S. Marwell	REVIEWED D. H. Meyer
SUB. APPD.	
APPROVAL RECOMMENDED:	
DRAWING NO. V-7J1-2	
SHEET NO. 68	



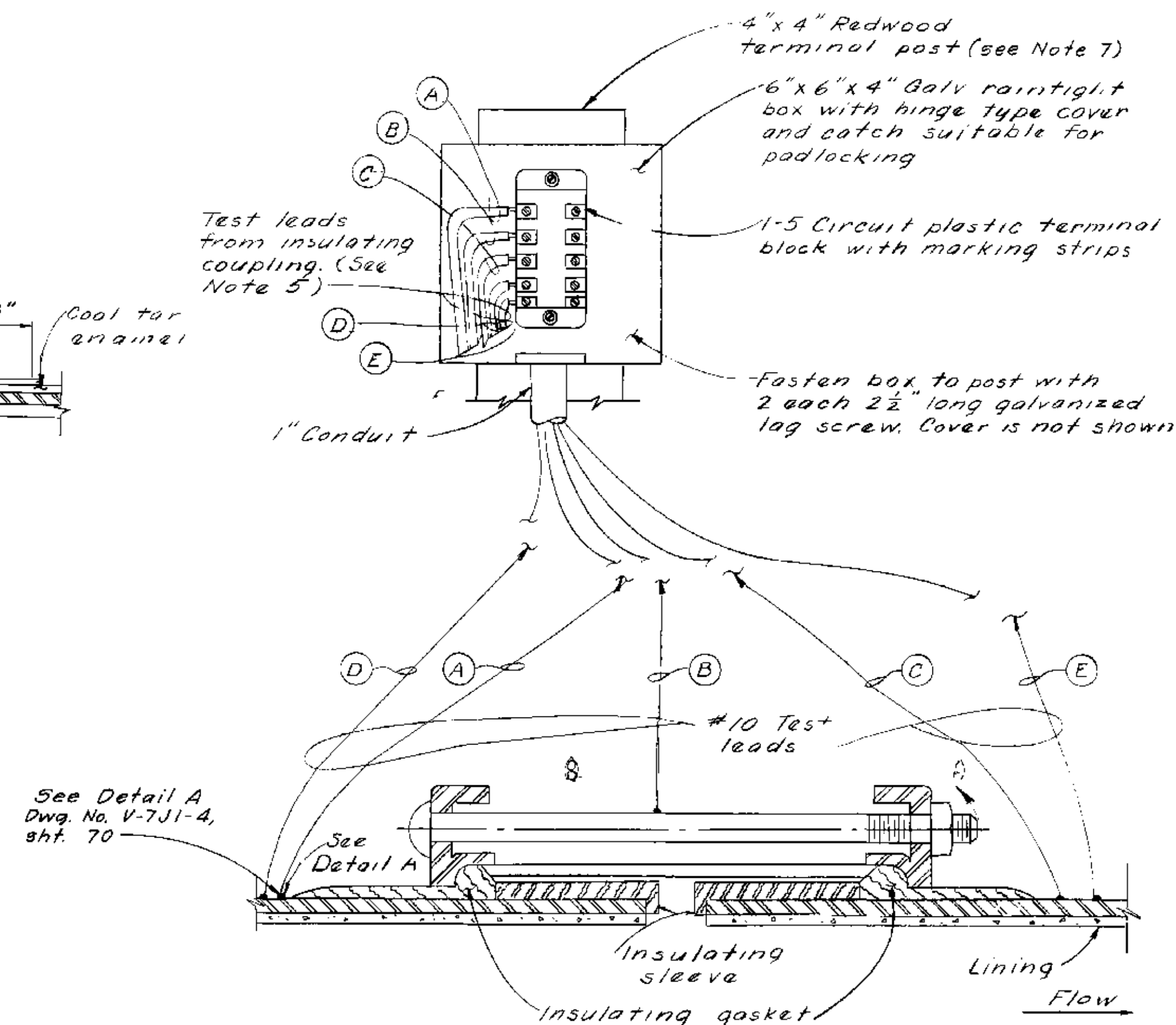
TYPICAL CORROSION TEST STATIONS

See Table I, Dwg. V-7J1-2 Sht. 68
And Dwg. V-7J1-1 Sht. 67 Section C-C



DETAIL C

TYPICAL CABLE CONNECTION TO PIPELINE AT END OF CASING PIPING OR ENCASEMENT (See Table I, Dwg. V-7J1-2 Sht. 68)



TYPICAL BURIED INSULATED SLEEVE TYPE COUPLING
(See Note 5)

Corrosion Test Station
Type 7

NOTES

- 1 Leave slack in cable near pipe to avoid damage to connections. All cables shall be continuous without joint or splices.
- 2 Exact location of terminal posts and ground mounted enclosures will be determined by the Engineer.
- 3 The number of prestressed wire test leads and reference cell test leads will depend on length of pipe sections and size of high tensile wire wrap. See Dwg. V-7J1-1, Sht. 67
- 4 The plastic terminal blocks shall have box type terminals with wire range from #22 AWG to #8 AWG and a minimum rating of 25 amperes at 300 volts.
- 5 Insulating couplings are required at all prestressed concrete pipe to steel pipe connections.
- 6 The overcoating with coal tar epoxy over mortar lining for adaptor section is not required when steel pipe is mortar lined.
- 7 All posts shall be stenciled with 2" letter showing stationing

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NOT TO SCALE

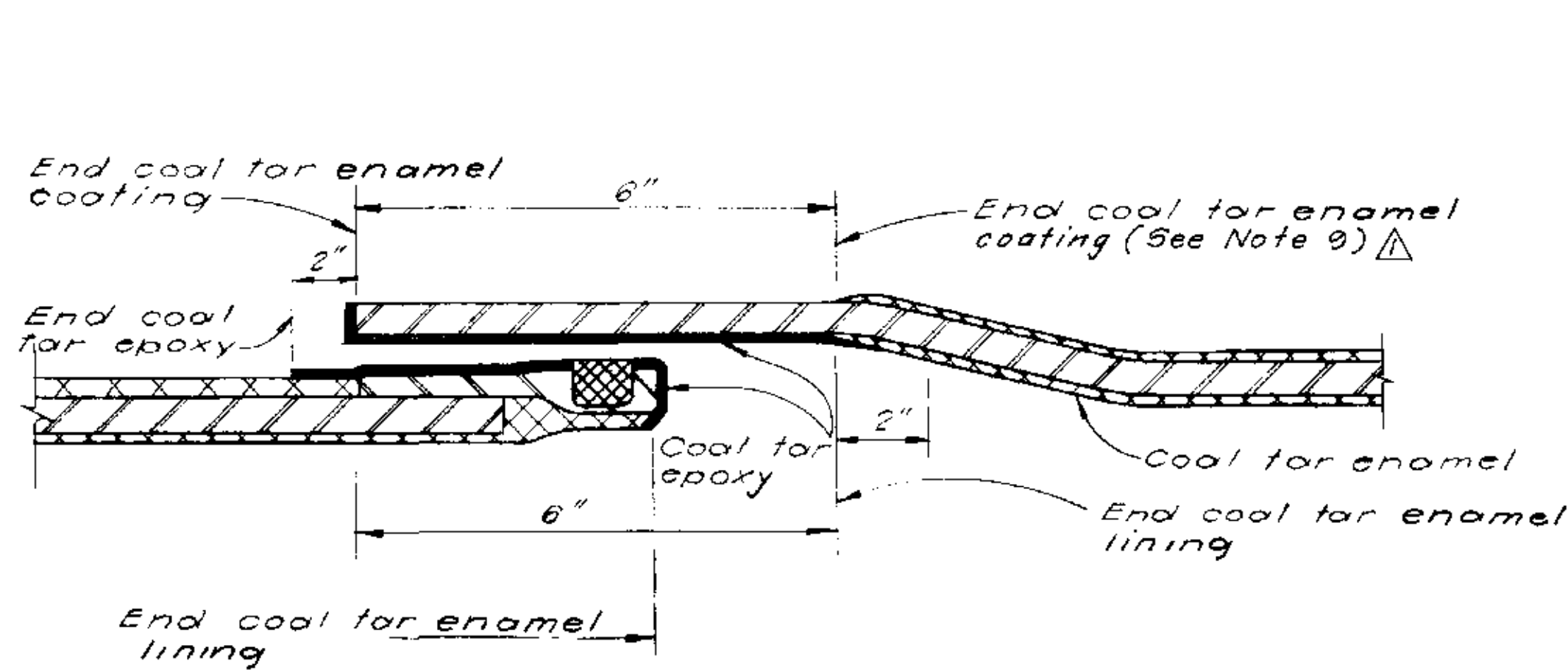
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SANTA ANA VALLEY PIPELINE
MILL STREET TO SUGARLOAF MOUNTAIN
PRESTRESSED CONCRETE CYLINDER PIPE
CORROSION CONTROL DETAILS

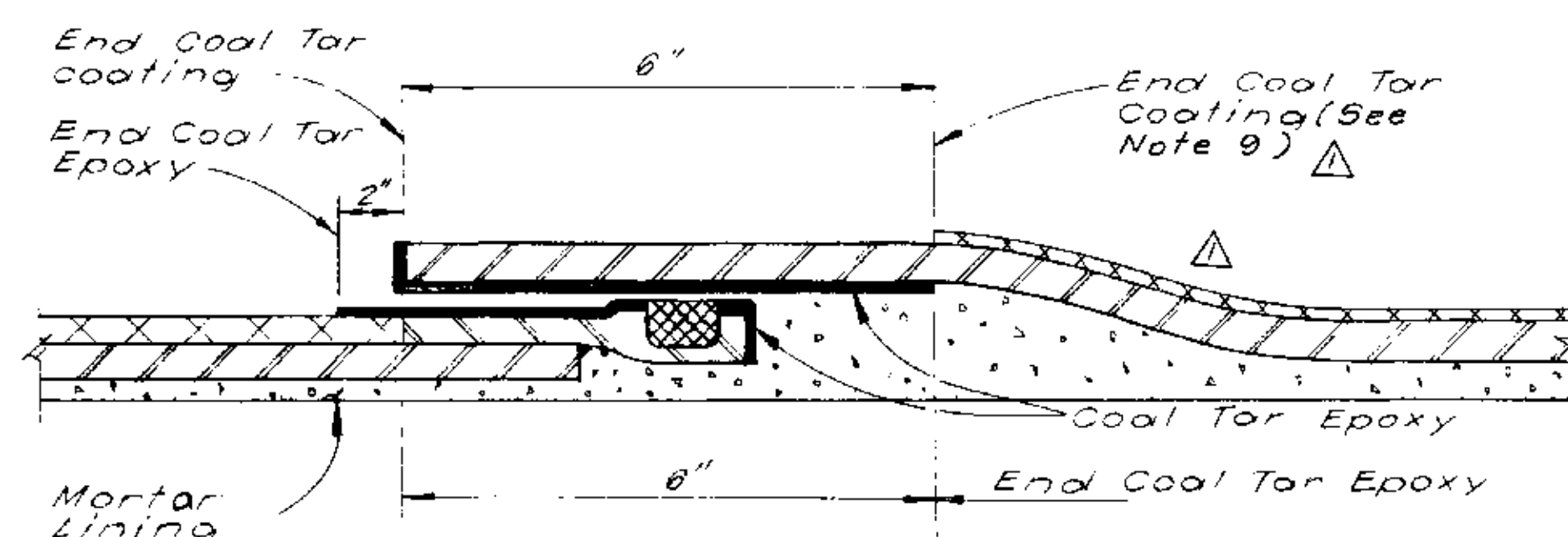
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1	6/22/77	Addendum No 1 - Revised notes and data	674	8/20/77
REV	DATE	DESCRIPTION	SUB.	APP'D
DESIGNED		DRAWN	CHECKED	REVIEWED
H. Peterson		J. Sharits	W. S. Maxwell	O. Uhlmeier

SUBMITTED: *[Signature]*
APPROVED: *[Signature]*
APPROVAL RECOMMENDED:
CHIEF CIVIL ENGINEER, DIV. OF WATER RESOURCES
DATE: APR 27 1977

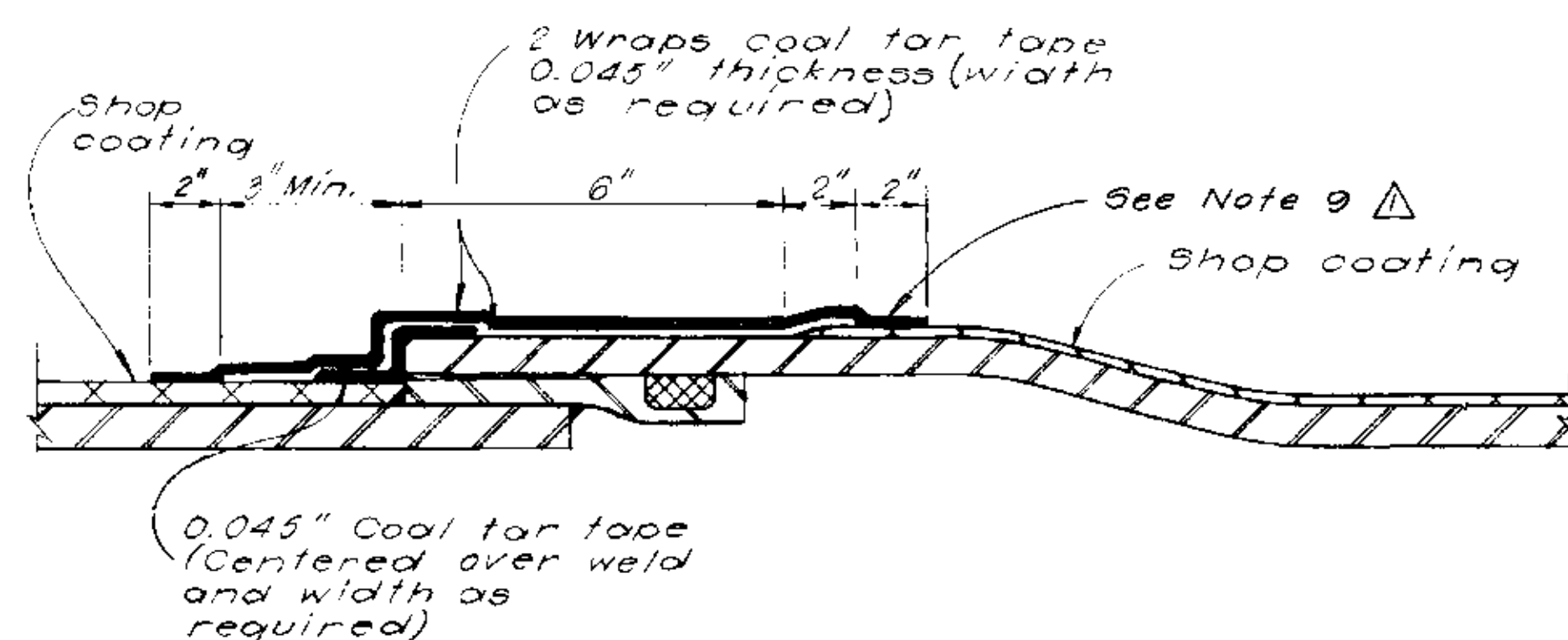
DRAWING NO.
V-7J1-3
SHEET NO.
69



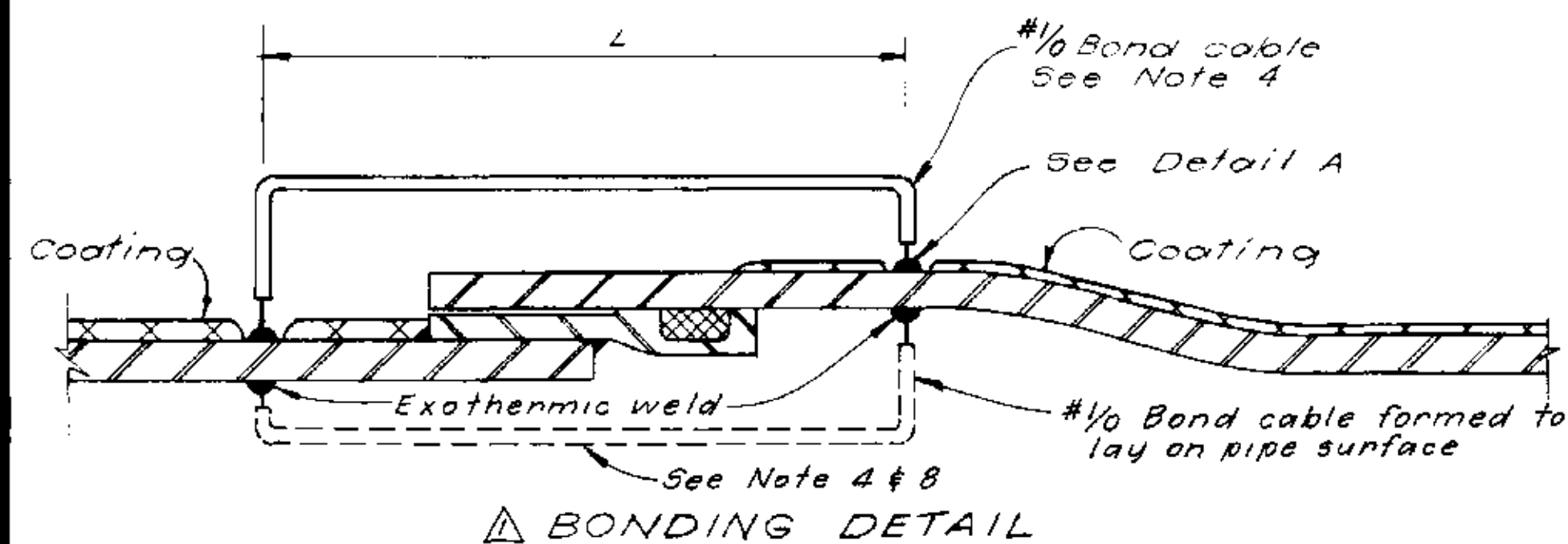
SHOP APPLIED LINING AND COATING DETAILS FOR COAL TAR ENAMEL LINING



COATING DETAILS FOR CEMENT MORTAR LINING

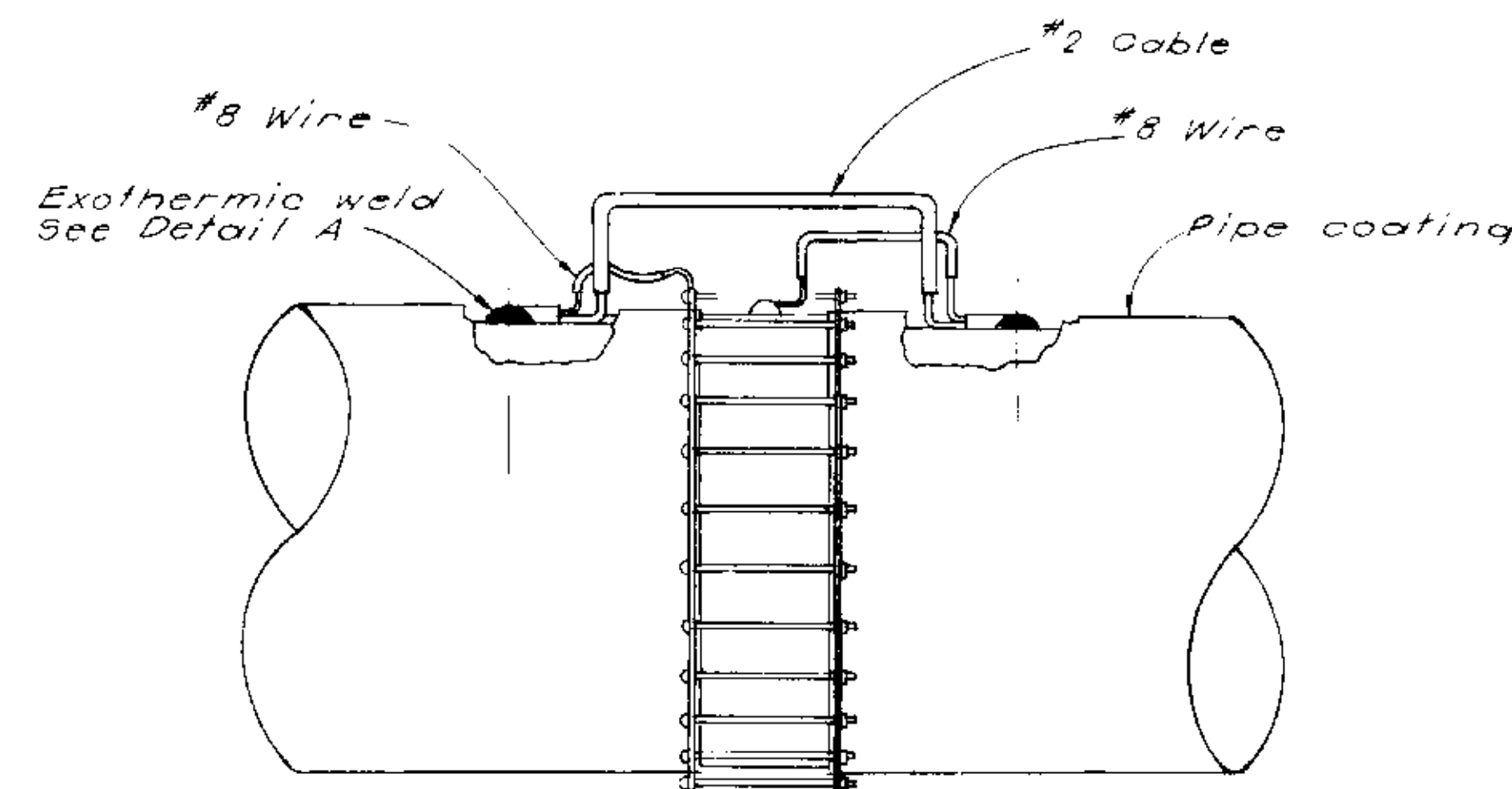


FIELD COATING DETAIL

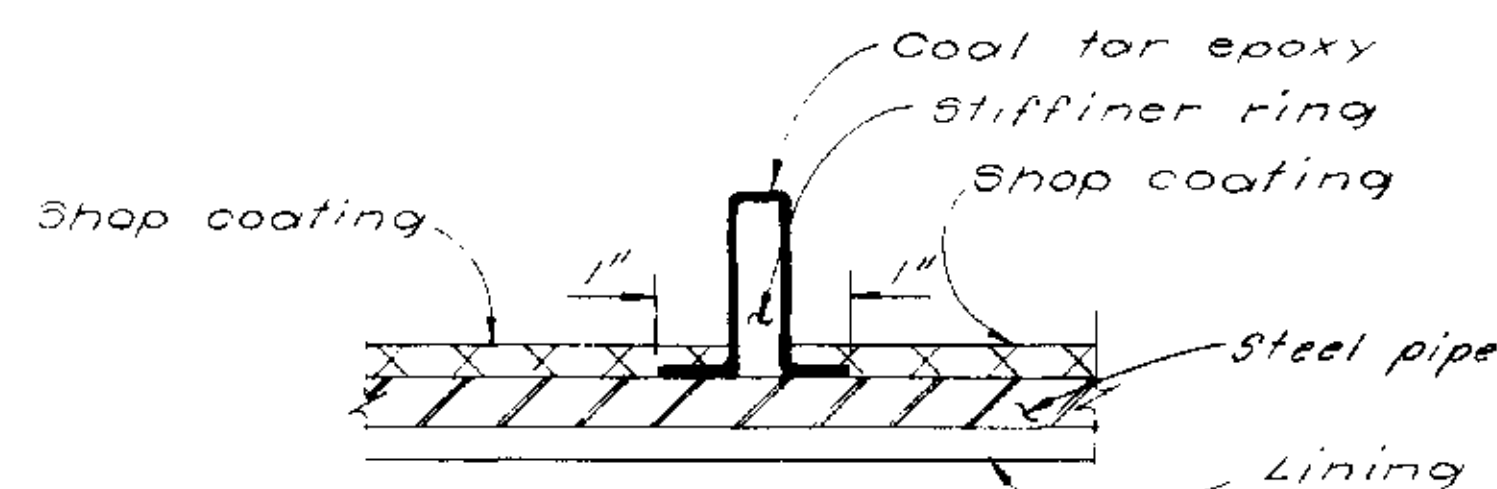


TYPICAL RUBBER GASKET JOINT COATING LINING & BONDING DETAILS

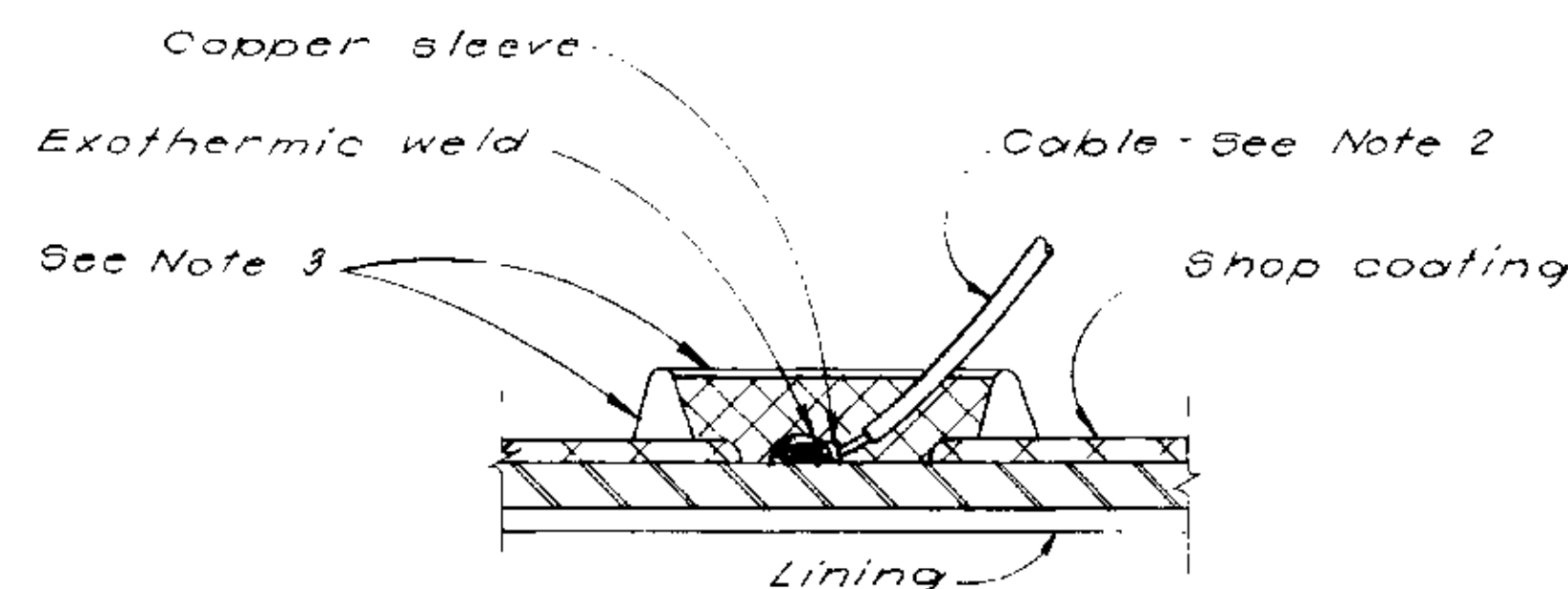
See Notes 1 thru 9



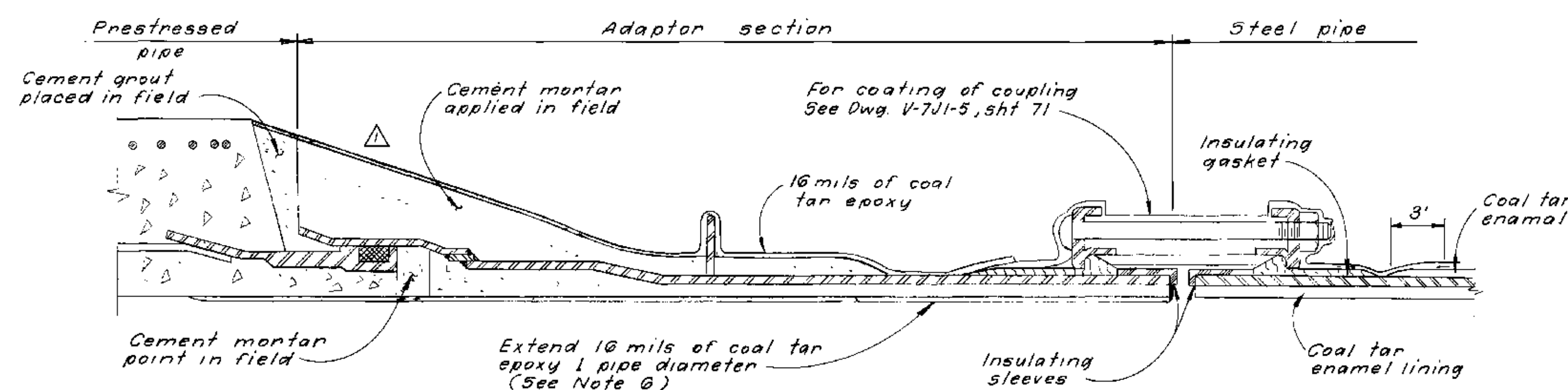
TYPICAL SLEEVE TYPE COUPLING BONDING DETAIL



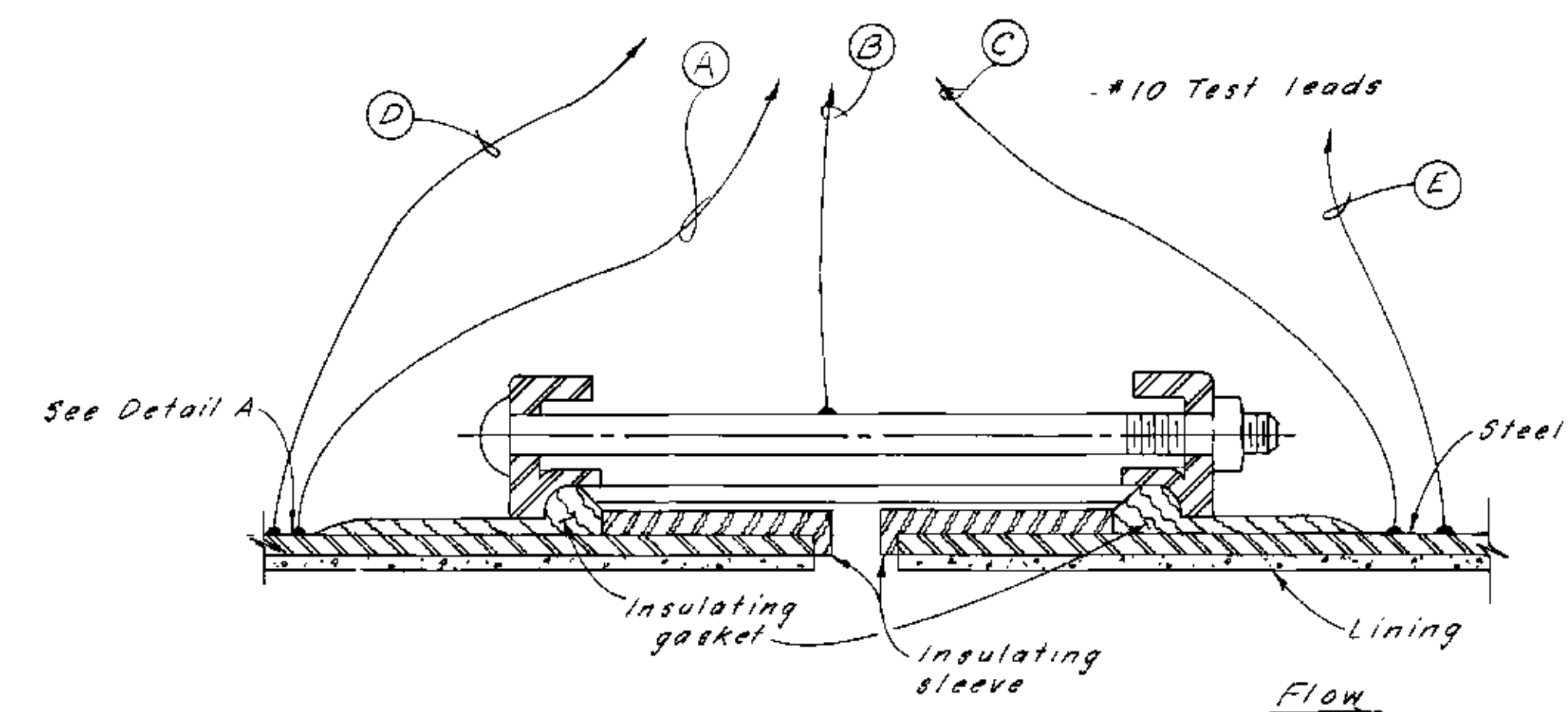
TYPICAL STIFFENER RING COATING DETAILS



DETAIL A
TYPICAL CABLE TO PIPE CONNECTION



DETAIL B
(TYP) PRESTRESSED CONCRETE PIPE TO STEEL PIPE ADAPTER WITH INSULATING SLEEVE TYPE COUPLING



TYPICAL BURIED INSULATED SLEEVE TYPE COUPLING

(See Note 5)

DETAIL C

NOTES

1. All rubber gasket joints and sleeve type couplings shall be bonded, except insulated sleeve type couplings.
2. Bond wires and cables shall be continuous in length without splices.
3. Build up mold around connection with putty and fill with coal tar epoxy to cover all exposed copper and steel areas.
4. Length of bond cable shall be 6" longer than distance between exothermic welds. Maximum length of bond cable shall be 18".
5. Insulating couplings are required at all prestressed concrete pipe to steel pipe connections.
6. The overcoating with coal tar epoxy over metal lining for adapter section is not required when steel pipe is mortar lined.
7. Use Brady or T & B marker labels or equal to identify all test leads.
8. Install bond cable on interior of pipeline at invert on all pipe installed in casings. Cover all exposed copper, steel area, and cable with coal tar enamel, hand applied, 1/4" minimum.
9. Within all casings a mortar shield is required over the coal tar enamel coating. Extend the exterior coal tar enamel coating and mortar shield to end of each pipe bell within casings. Coal tar tape is not required for pipe joints within casings.

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Not to Scale

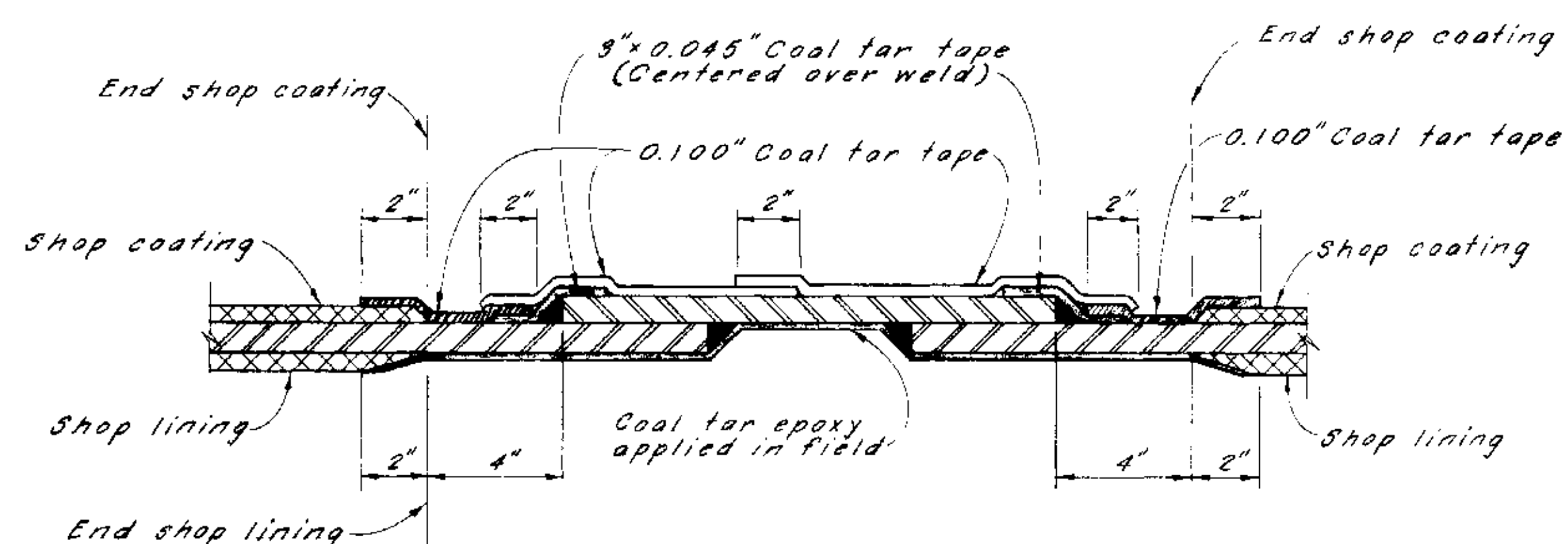
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DIVISION OF DESIGN AND CONSTRUCTION

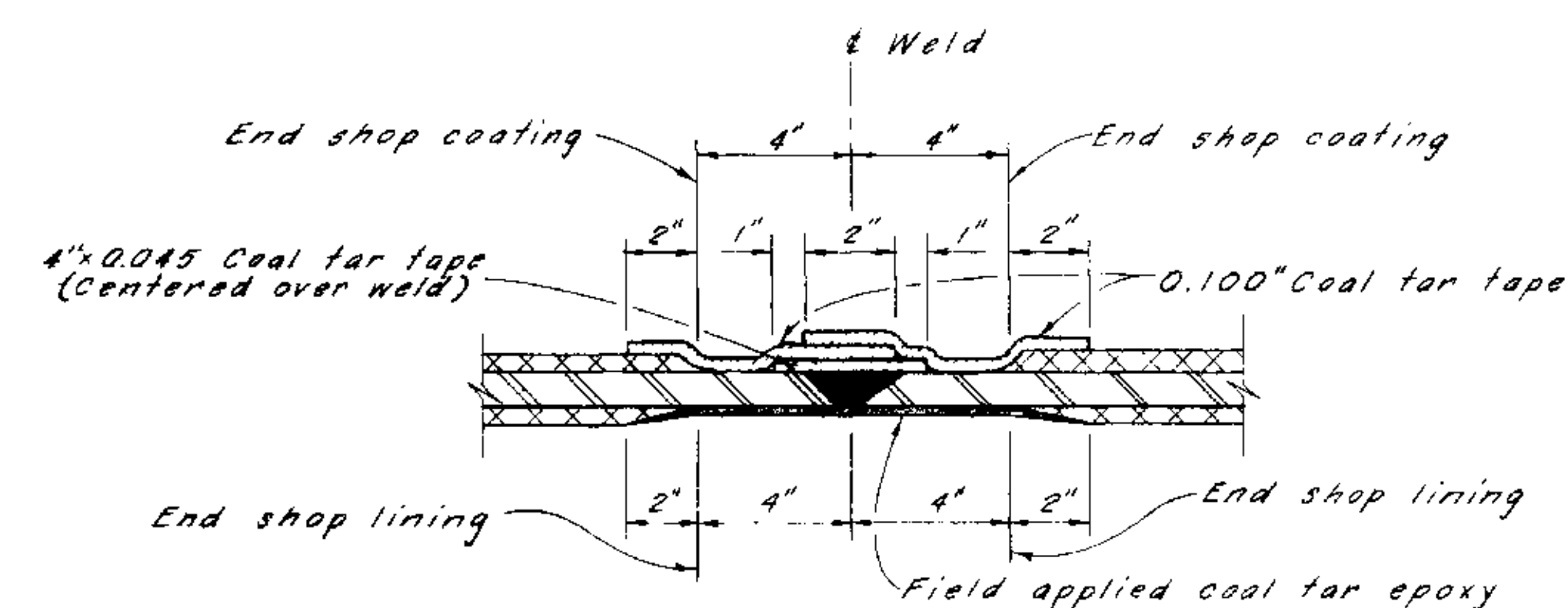
STATE WATER FACILITIES
CALIFORNIA AQUEDUCT
SANTA ANA DIVISION
SANTA ANA VALLEY PIPELINE
MILL STREET TO SUGARLOAF MOUNTAIN
STEEL PIPE

CORROSION CONTROL DETAILS

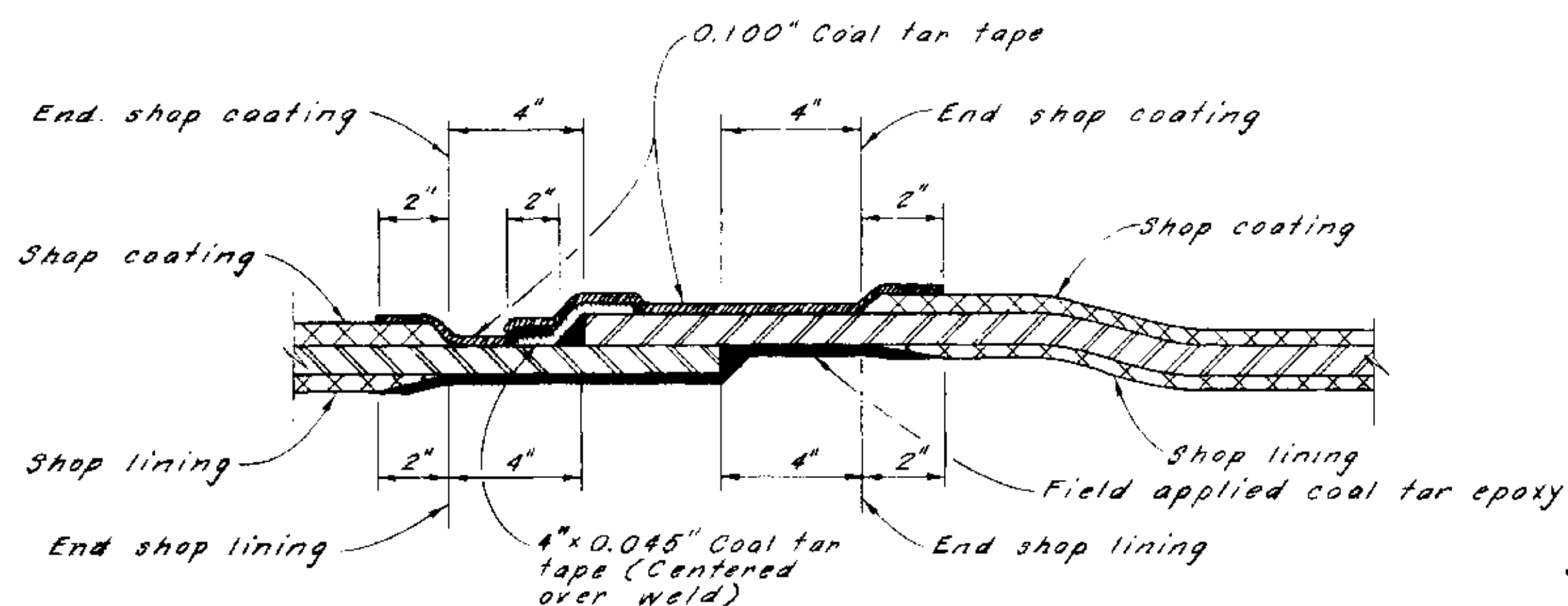
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1	6/22/76	Addendum No 1 - Revised notes				APPROVED:			
REV.	DATE	DESCRIPTION	CHECKED	REVIEWED	APPROVED	SHEET DESIGNER: W.S. MAXWELL, S.E., LICENSE NO. 10385			
DESIGNED	W. Peterson	DRAWN	S. Sacco	CHECKED	W.S. Maxwell	REVIEWED	D. Whitney	APPROVAL RECOMMENDED	
								DRAWING NO.	SHEET NO.
								V-7J1-4	70



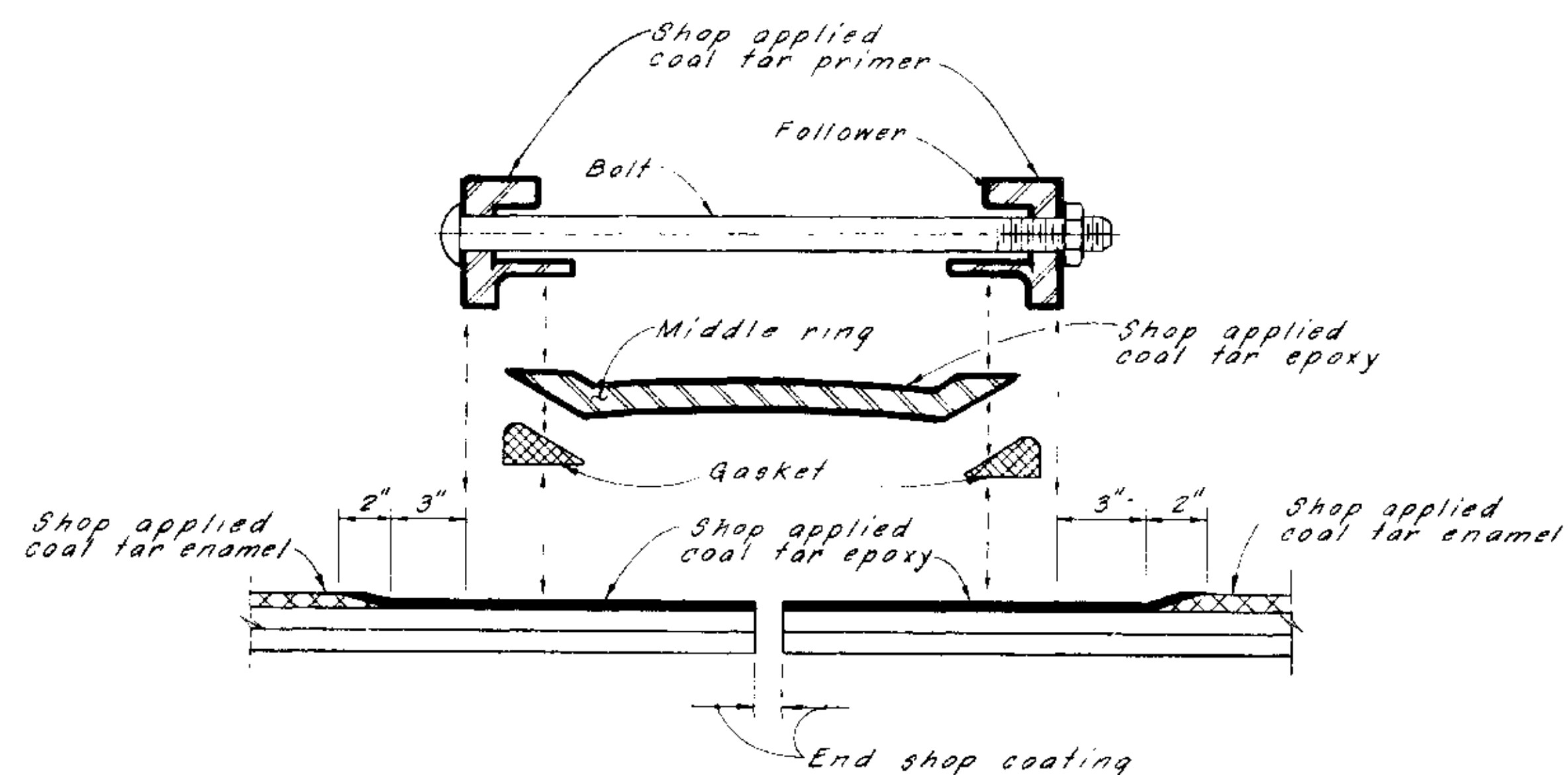
TYPICAL BUTT STRAP FIELD JOINT
COATING AND LINING DETAIL



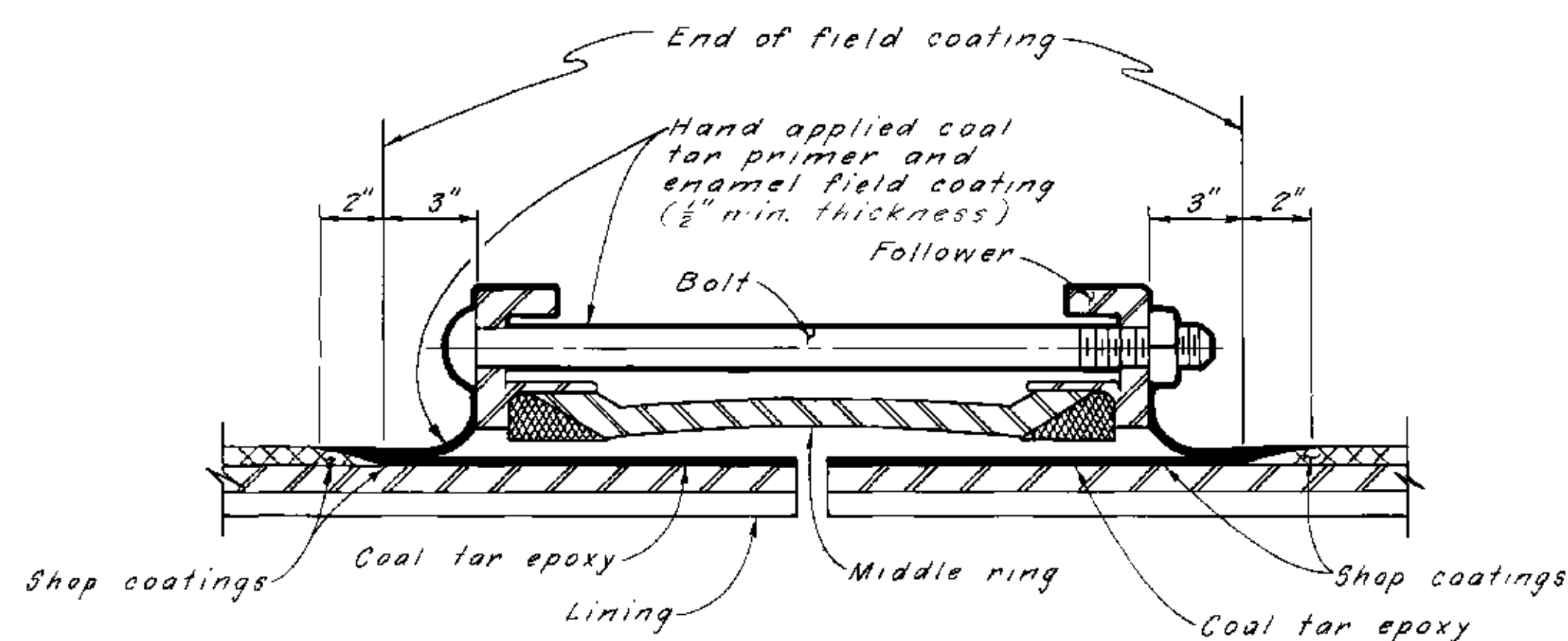
TYPICAL BUTT WELDED FIELD JOINT
LINING AND COATING DETAIL



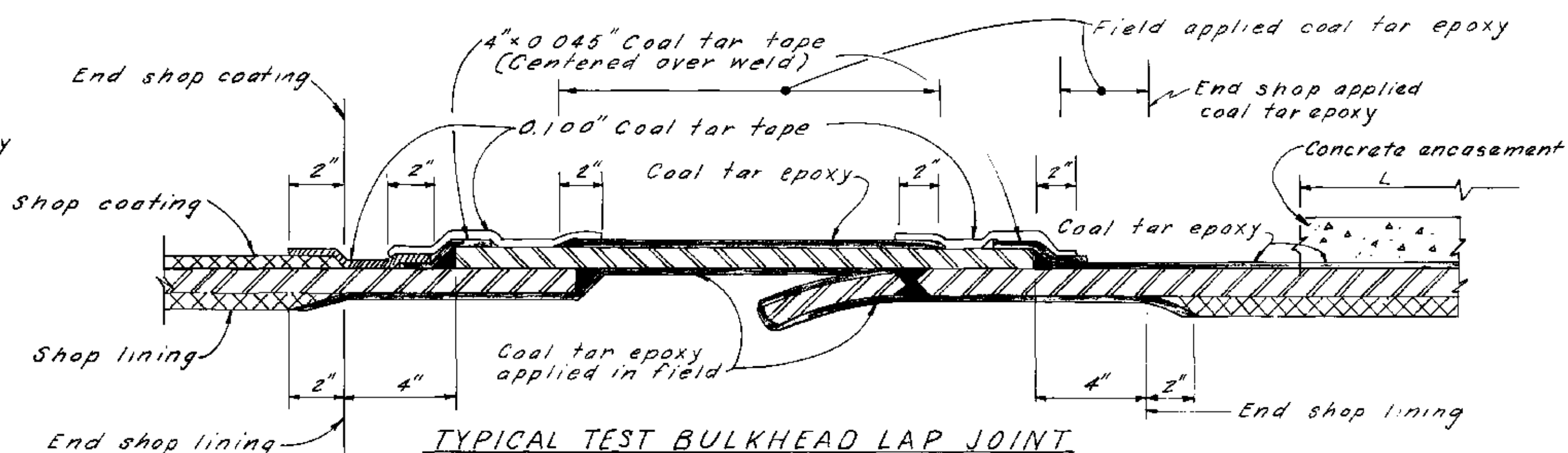
TYPICAL LAP-WELDED FIELD JOINT
COATING DETAIL



TYPICAL SHOP COATING DETAILS FOR BURIED
SLEEVE TYPE COUPLING & PIPE ENDS
(ALL ALTERNATES)



TYPICAL FIELD COATING DETAILS
FOR BURIED SLEEVE TYPE COUPLING
(ALL ALTERNATES)



TYPICAL TEST BULKHEAD LAP JOINT
FIELD COATING DETAIL

(See Note 1)

NOTE

1. Apply 16 mils. of coal tar epoxy after all welding, cutting and testing of Bulkhead. Testing has been completed.

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SANTA ANA VALLEY PIPELINE
MILL STREET TO SUGARLOAF MOUNTAIN
STEEL PIPE

CORROSION CONTROL DETAILS

SUBMITTED: *[Signature]*
APPROVED: *[Signature]*
APPROVAL RECOMMENDED: *[Signature]*
CHIEF CIVIL ENGINEER, DIVISION OF DESIGN AND CONSTRUCTION

APPROVED: *[Signature]*
DATE: APR 27 1977
DRAWING NO. **V-7J1-5**
SHEET NO. **71**

REV.	DATE	DESCRIPTION	SUB.	APPD.
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				W. S. Maxwell
				REVIEWED
				O. Uhlmer

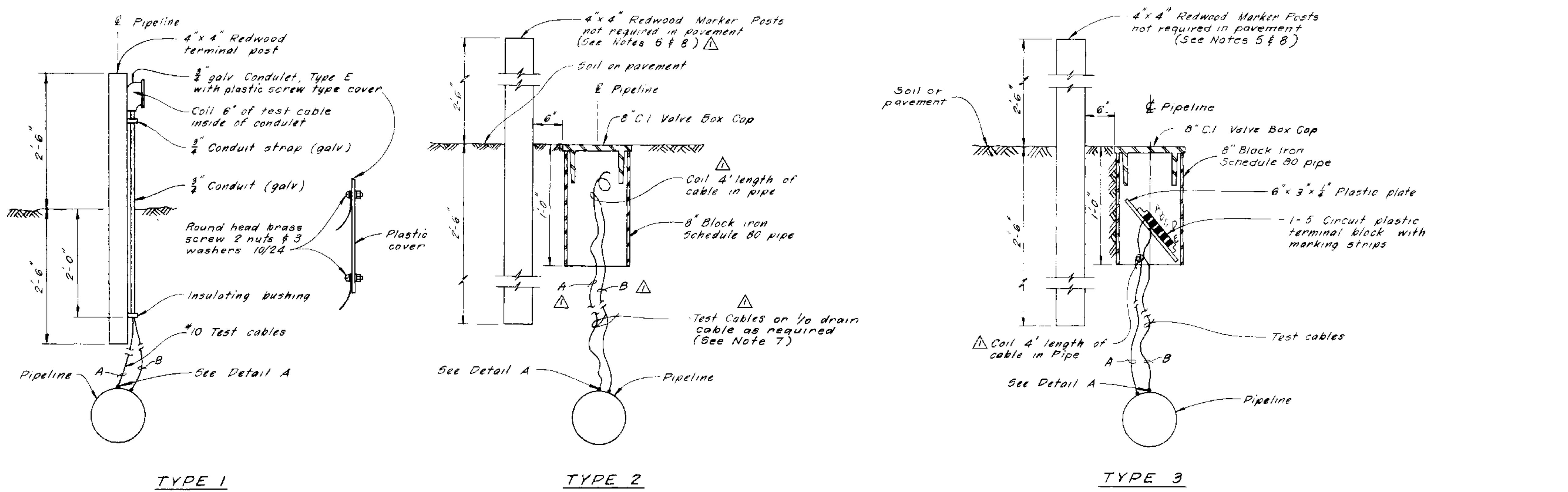


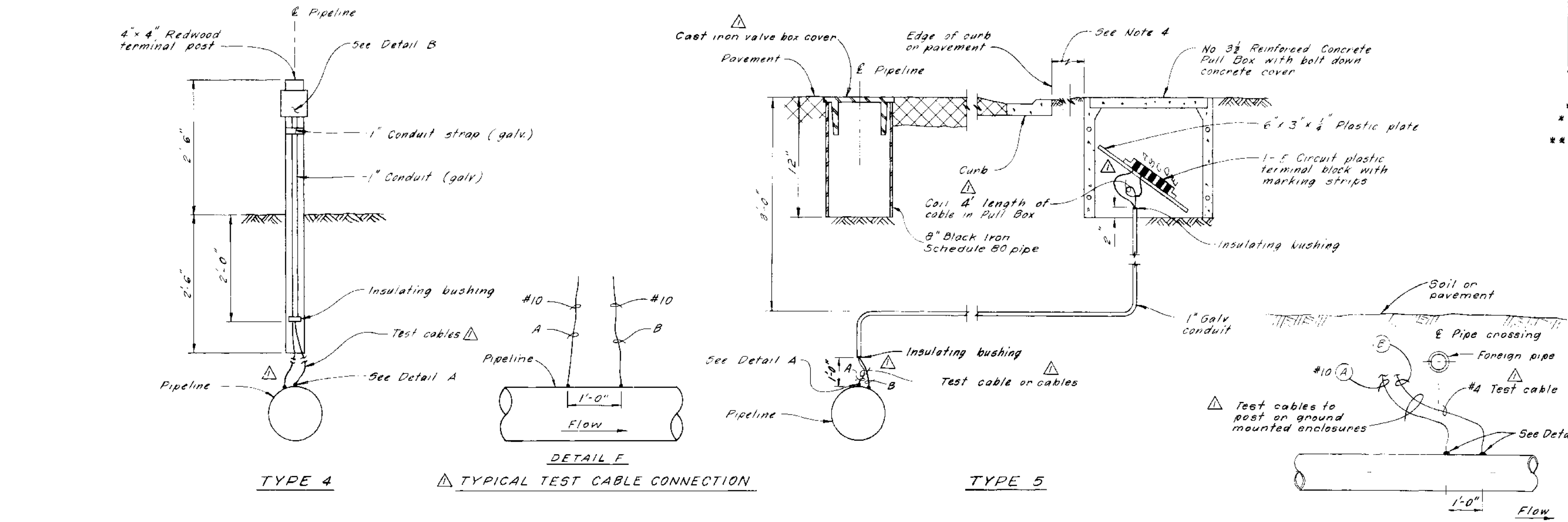
TABLE I
LOCATION OF CORROSION TEST STATION

STATION	TYPE	STATION	TYPE
103 + 69	1**or4***	264 + 29	4**
106 + 00	2***	267 + 00	4**
108 + 00		275 + 80	F-5**
110 + 35	F-5	282 + 34	F-4**
118 + 80	3*	286 + 50	2***
120 + 30	3*	287 + 50	1**
125 + 30	3*	289 + 93	F-4**
126 + 30	3*	299 + 52	F-4**
127 + 82	F-4**	304 + 25	F-5**
132 + 92	F-4**	315 + 83	F-5**
134 + 46	F-4**	340 + 00	2**
137 + 67	F-3	342 + 00	1**
139 + 67	F-3**	357 + 04	F-4**
152 + 65	4**	363 + 25	F-4**
153 + 70	5**	367 + 22	F-4**
158 + 00		384 + 54	F-5**
160 + 00	2***	398 + 47	F-5**
165 + 70	4**	400 + 00	
186 + 00	4**	401 + 00	2***
200 + 54	F-4**	423 + 23	F-4**
207 + 80	F-4**	426 + 50	4**
212 + 10	4**		
227 + 40	4**	440 + 32	5**
230 + 50	2***	450 + 00	2***
248 + 82	F-4**	451 + 00	1**
260 + 45	F-4**		

* - Connect test cable to steel pipeline 2 feet from end of casing (see Detail D)
 ** - Location of redwood marker post
 *** - Location of #1/2 cathode cables at these stations only (see Note 7)
 **** - Insulated coupling as required (see Note 6)
 F - Indicates foreign pipe crossing

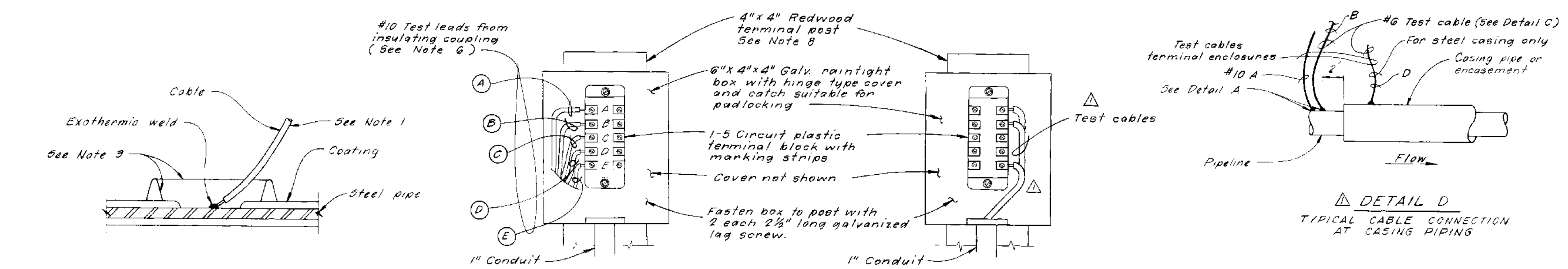
NOTES

- 1 Leave slack in cables and test leads near pipe to avoid damage to connections. All test cables and leads shall be continuous in length without splices.
- 2 Locate Corrosion Test Stations over top of pipeline unless otherwise shown.
- 3 Build up mold around connection with putty and fill with coat for epoxy resin to cover all exposed copper and steel areas.
- 4 Exact location of terminal enclosures will be determined by the Engineer.
- 5 Redwood marker posts will be required at locations noted on Table I.
- 6 Install insulating couplings as required (See Eng. V-7J1-3, sheet 69 and Detail B this sheet. Label each test lead as shown).
- 7 Install #1/2 cathode drain cables to the steel pipe for future rectifier connections (See Detail A).
- 8 All post shall be stenciled with 2" letters showing stationing.



TYPICAL CORROSION TEST STATIONS

See Table I



DETAIL E
FOREIGN PIPE CROSSING
TYPICAL INSTALLATION DETAIL

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This drawing is not to scale

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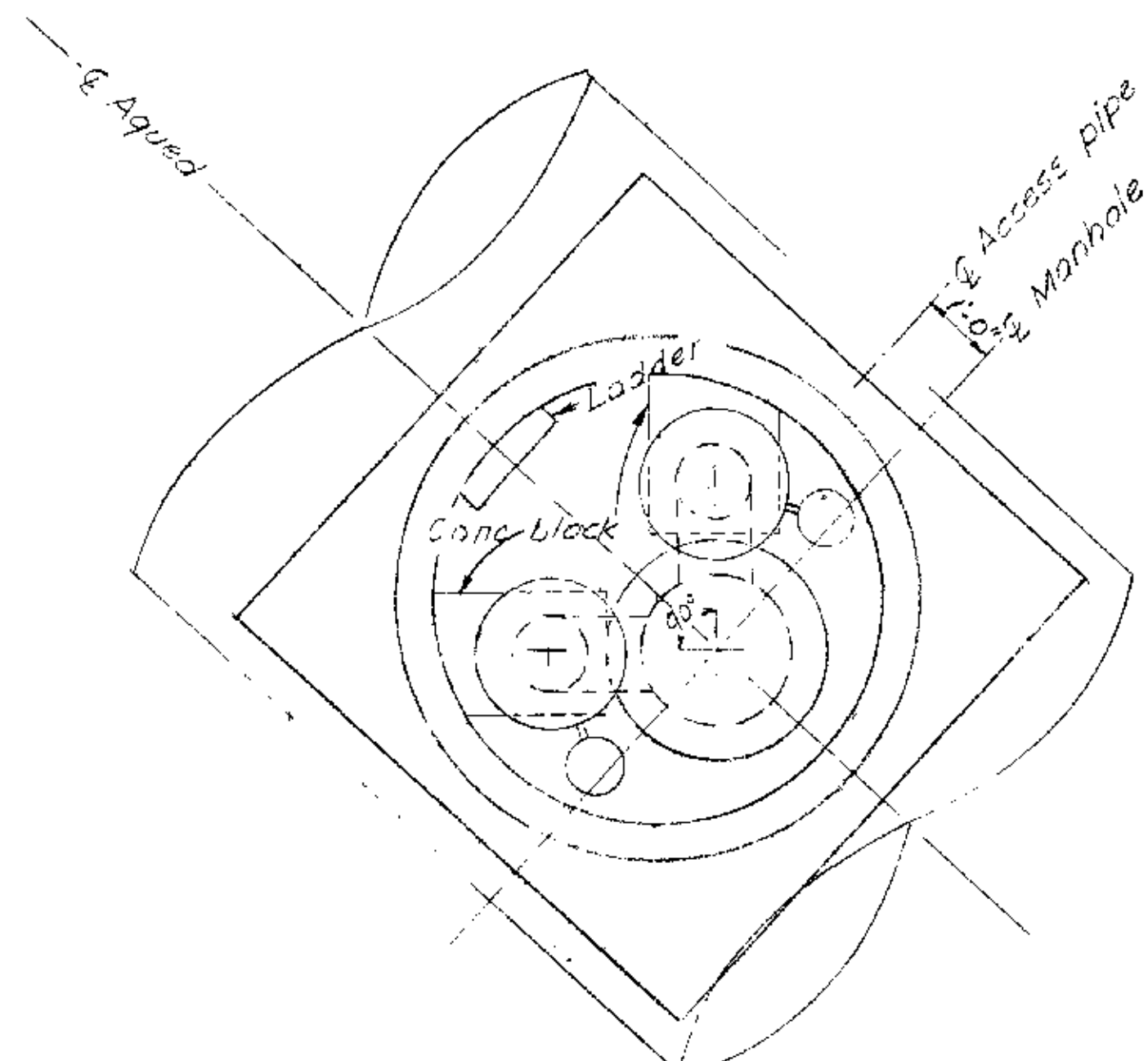
STATE OF CALIFORNIA
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DIVISION OF DESIGN AND CONSTRUCTION

STATE WATER FACILITIES
CALIFORNIA AQUEDUCT
SANTA ANA DIVISION
SANTA ANA VALLEY PIPELINE
MILL STREET TO SUGARLOAF MOUNTAIN
STEEL PIPE

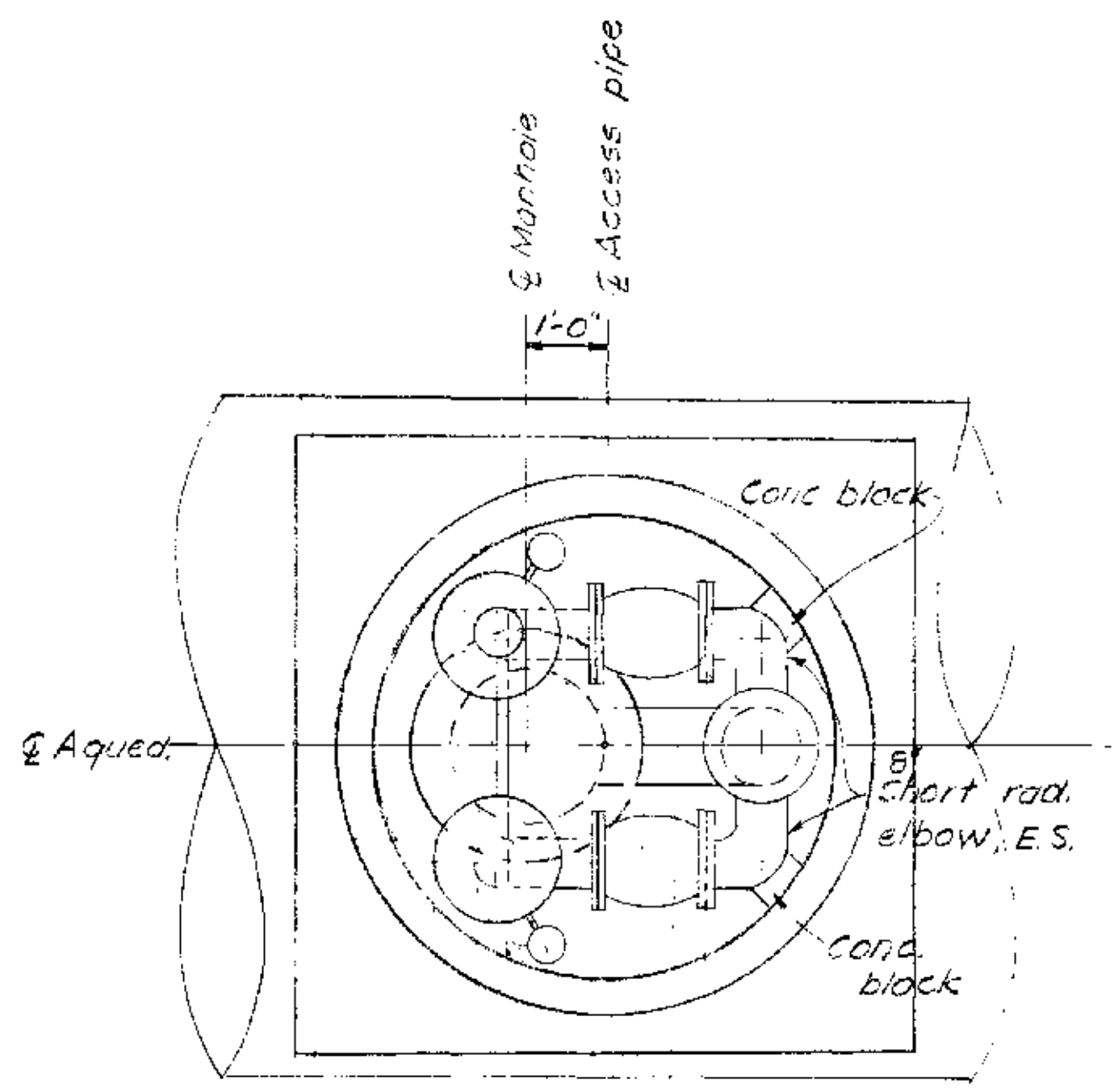
CORROSION CONTROL DETAILS

2	10/1/75	REVIEWED BY DESIGN	670	
1	6/22/70	Addendum No 1 - Added details and revisions	54	J.W.
REV.	DATE	DESCRIPTION	SUB.	APPD.
DESIGNED	1/1/70	DRAWN	C. Lee	CHECKED
			W. Peterson	REVIEWED
			O. Whlmeyer	

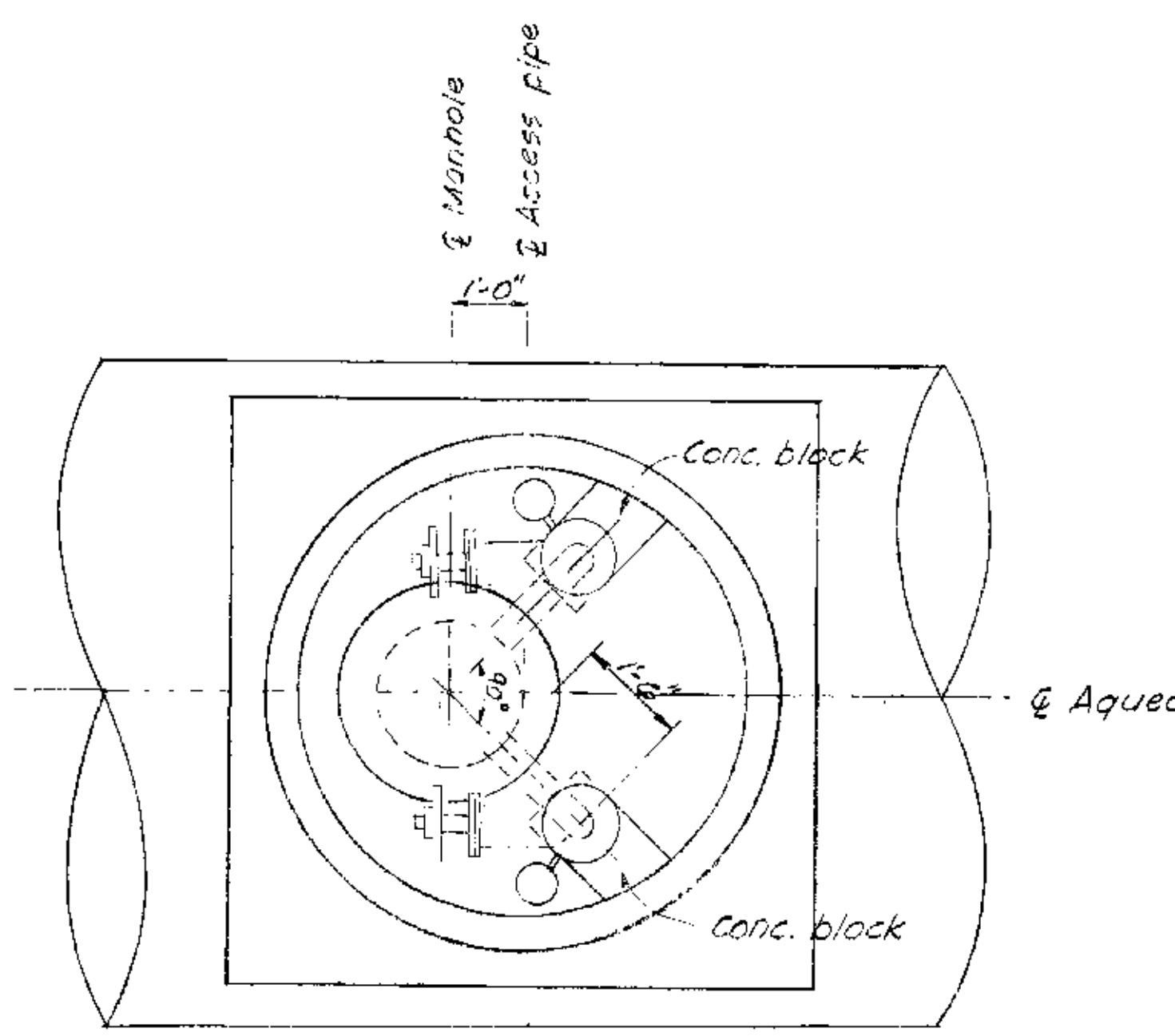
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APPROVAL RECOMMENDED:	DRAWING NO.	SHEET NO.
	V-7J1-6	72



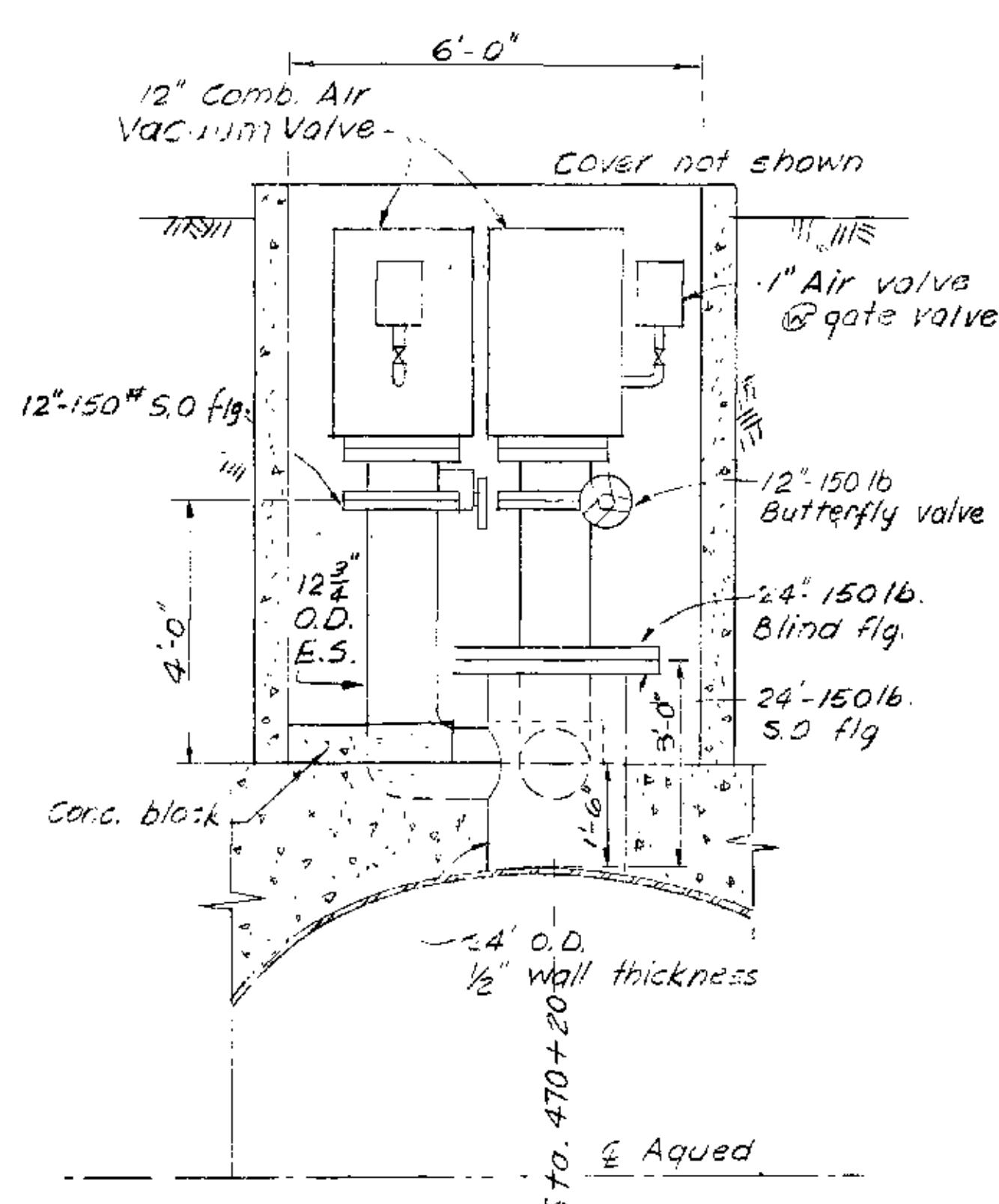
PLAN



PLAN

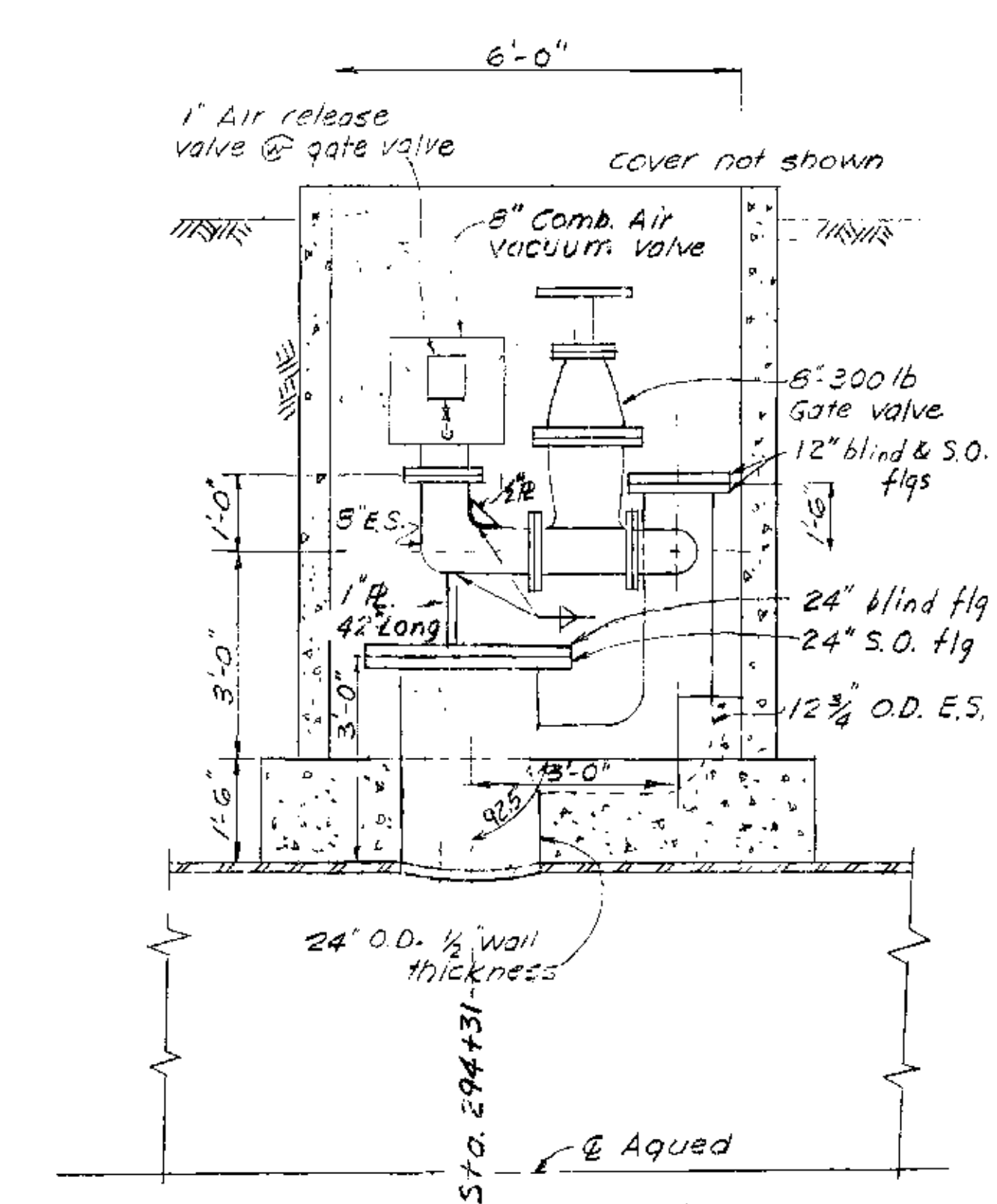


PLAN



ELEVATION

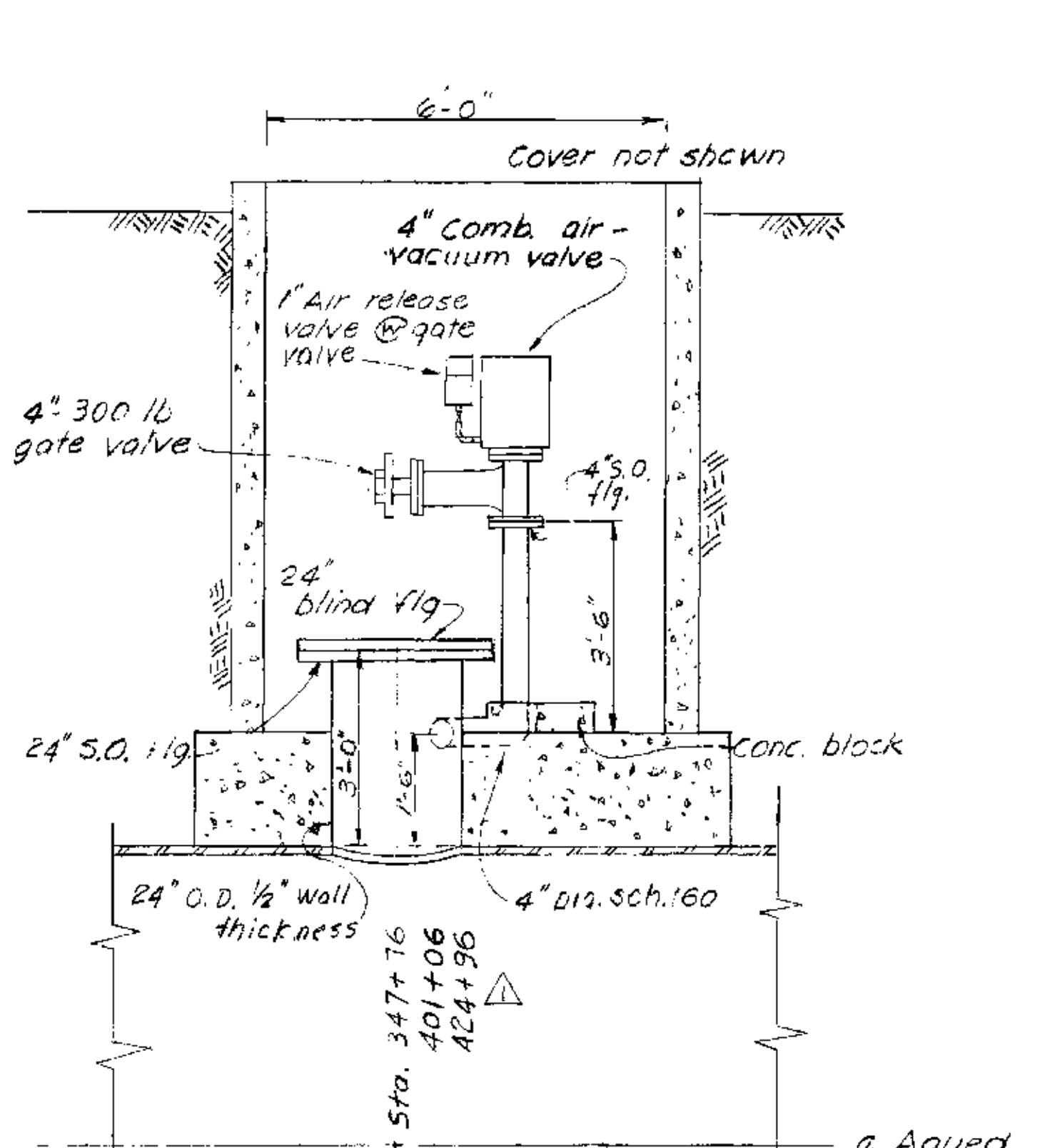
12" AIR-VACUUM VALVE



ELEVATION

8" AIR-VACUUM VALVE

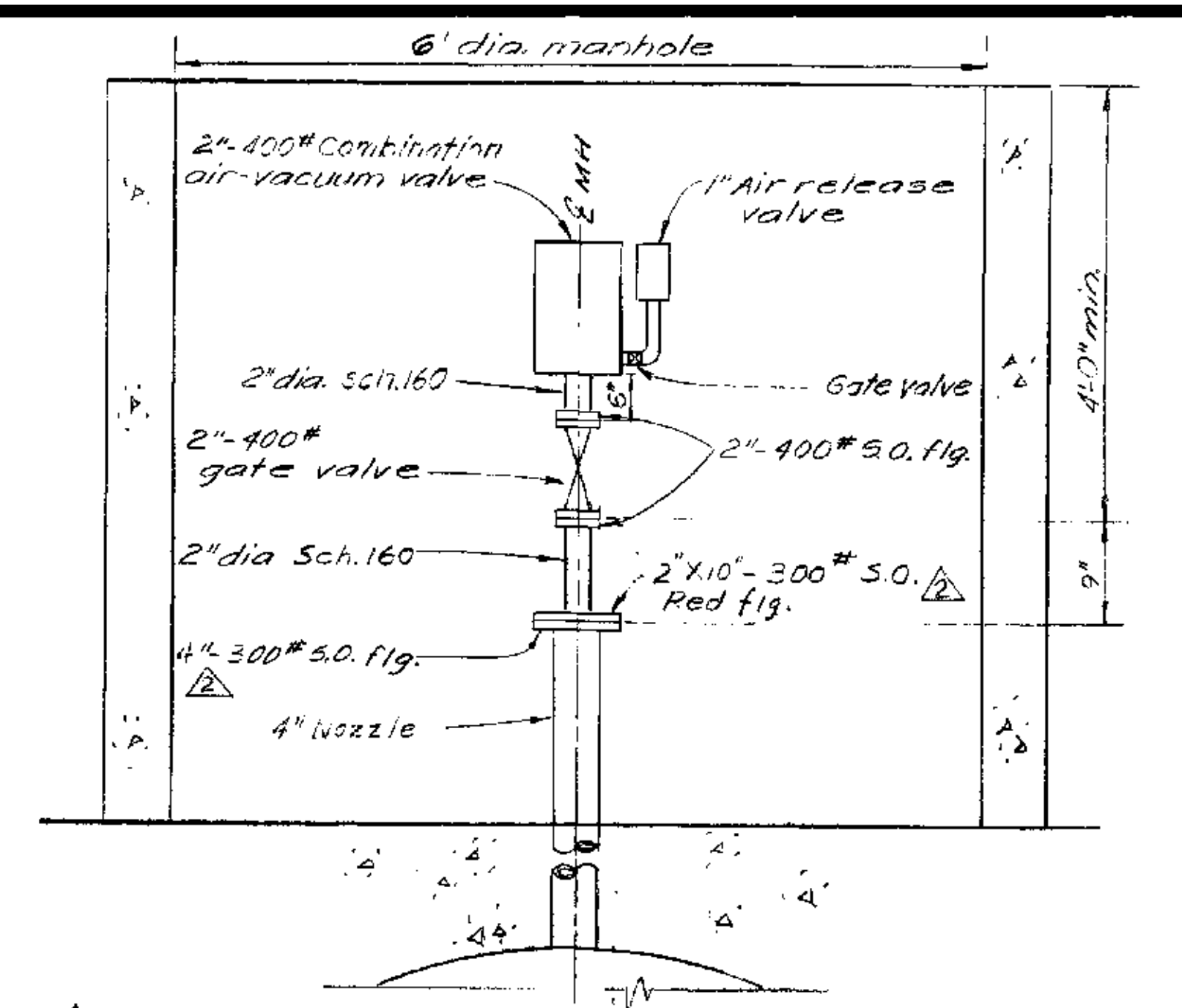
Note: All 8" valves and flanges shall be 300 lbs rating



ELEVATION

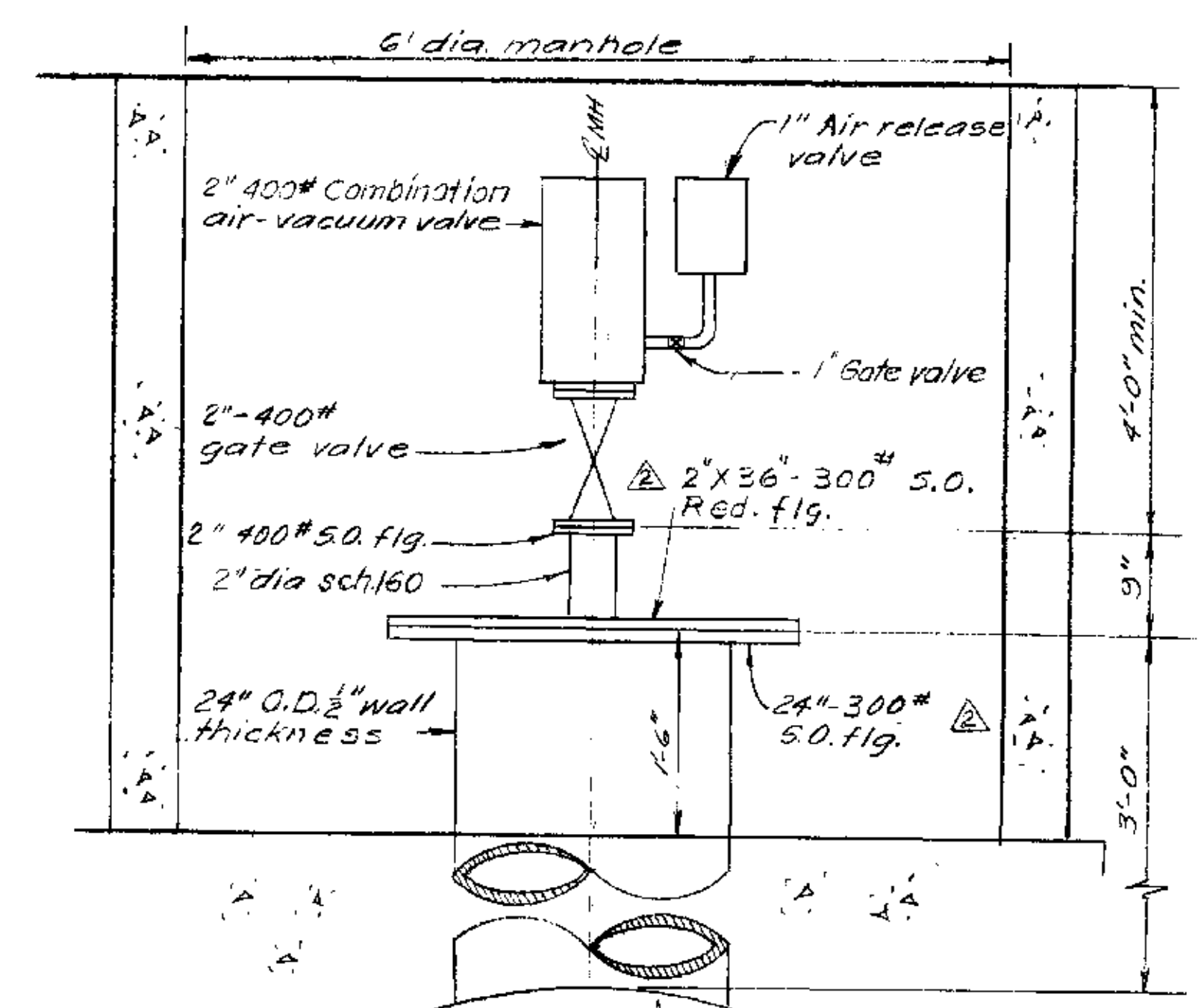
4" AIR-VACUUM VALVE

Note: All 4" valves and flanges shall be 300 lbs rating



TYPICAL 2" COMBINATION AIR VACUUM VALVE INSTALLATION
STA. 253+97, 270+03, 305+17 & 313+97

ELEVATION



TYPICAL 2" COMBINATION AIR VACUUM VALVE INSTALLATION
STA. 154+56, 189+06

ELEVATION

- NOTES
1. For details of std. pipe nozzle, see Dwg. K-6P2-1, sht. 42.
 2. For details of access pipe and concrete, see Dwg. K-7P4-2, sht. 45.
 3. For location of pipe encasement and manholes, see plan and profile dwgs.
 4. Valve flanges shall match the mating flanges.
 5. All flanges shall be flat face.

Not. to scale

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