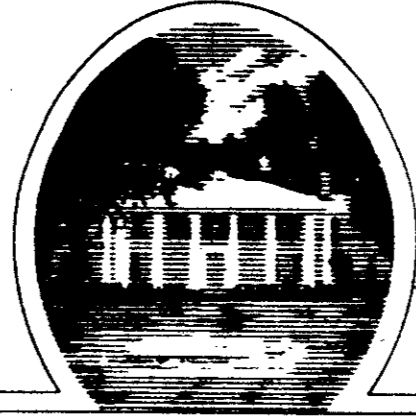


# 6 MG CELESTIAL ROAD GROUND STORAGE TANK



TOWN OF  
**ADDISON**  
DALLAS COUNTY, TEXAS

CONSTRUCTION PLANS FOR

**SHEET INDEX**

SHEET NO.	TITLE
1	SITE PLAN
2	PLAN AND SECTIONS
3	MISCELLANEOUS TANK DETAILS
4	MISCELLANEOUS TANK DETAILS
5	MISCELLANEOUS TANK DETAILS
6	BOX CULVERT PROFILE
7	TYPE "A" HEADWALL DETAILS
8	TYPE "B" HEADWALL DETAILS

**MAYOR:**  
JERRY REDDING

**CITY MANAGER:**  
RON WHITEHEAD

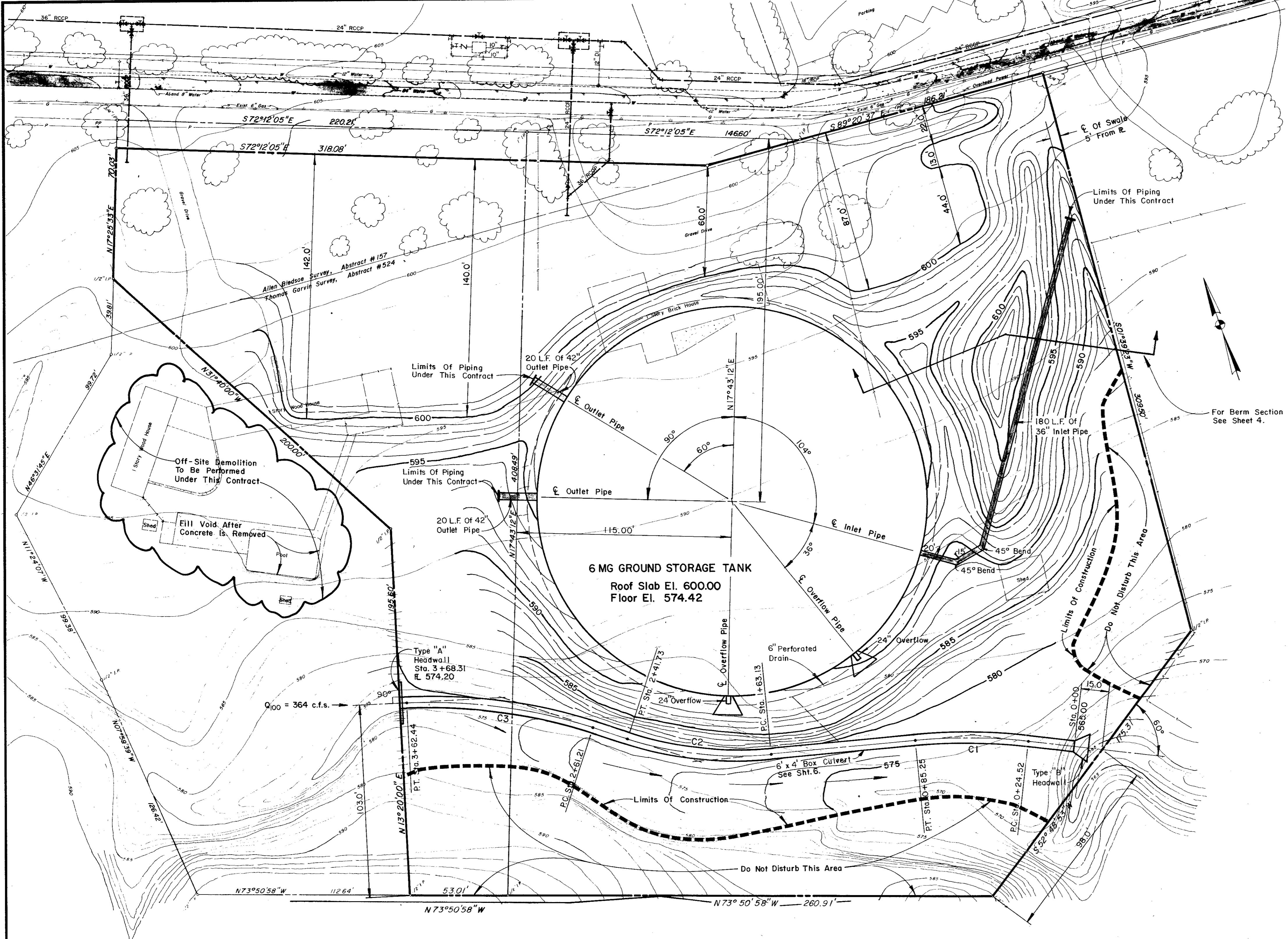
**COUNCIL MEMBERS:**  
STEWART BEATTY  
GREG COLE  
BARRY FINKELSTEIN  
RICHARD RODER  
LYNN SPRULL

PROJECT LOCATION

Approved by: \_\_\_\_\_ Date: \_\_\_\_\_  
Jerry Redding, Mayor of Addison



**GINN, INC.**  
Consulting Engineers Dallas, Texas



**LEGEND**

- Existing Water Line
- Proposed Water Line
- Existing Contour Line
- Proposed Contour Line
- Limits Of Construction
- Property Line
- Existing Fence
- Existing Structure
- Existing Tree
- Proposed Box Culvert
- Existing Valve
- Plugged End

**GENERAL NOTES**

1. Contractor shall demolish existing structures on-site and on the adjacent property as directed by Engineer and Section 02227 of the Specifications.
2. ★ Denotes items, dimensions, and forming techniques that may be changed per qualified tank manufacturer.
3. Contractor shall restrict construction to between 7:00 AM and 6:00 PM Monday thru Friday, 8:00 AM and 6:00 PM Saturday, unless otherwise approved by the Engineer. No work will be allowed on Sunday.
4. The Contractor shall plan his work sequence in a manner that will cause the minimum interference with traffic during construction operation. Access to facilities must be maintained at all times throughout the duration of the construction.
5. Prior to the start of construction, it is the responsibility of the Contractor to determine the location of all utilities, whether or not shown on the plans. The Contractor shall also become familiar with any proposed adjustments to be made by the utility owners and extend full cooperation. Under no circumstances will a claim for extras, due to delay caused by various utility companies, be allowed.
6. Any costs resulting from Contractor damages to utilities shall be the responsibility of the Contractor.
7. The Contractor shall notify the Engineer prior to any construction of drainage facilities and paving.
8. All elevations are based on U.S.C. and G. Datum; USC and G. Bench Mark #E-921 is a bronze disc in the vertical wall of the Old Addison School Building (Magic Time Machine Restaurant), elevation 650.61 feet. New bench marks have been established along the project (shown on site plan sheet). The Contractor shall establish new bench marks as needed or before removal of the existing markers.
9. Prior to start of any excavation, Contractor shall have laid out (horizontally and vertically) all components of the project and have received approval from the Engineer before proceeding. The Contractor shall be responsible for all alignment and elevation control. The Contractor shall provide the Engineer a "cut sheet" prior to beginning any excavation or embankment, indicating all "cuts and fills" as required on the project.
10. Engineer and Town of Addison Landscape Department shall establish limits of construction.
11. Contractor is responsible for the site grading and placement of all fills and embankments as shown. The maximum slope allowed for embankments is 3:1. The fill and embankment shall be placed according to the specifications.

**Drainage Criteria**

$Q_{100} = C I_{100} A$ , Rational Method  
 Where  $Q_{100}$  = 100 Year Storm  
 C = Runoff Coefficient, 0.9  
 $I_{100}$  = Intensity Of 100 Year Storm, Tech Paper #40  
 A = Drainage Area  
 $Q = (0.9)(11.6)(34.9) = 364$  c.f.s.

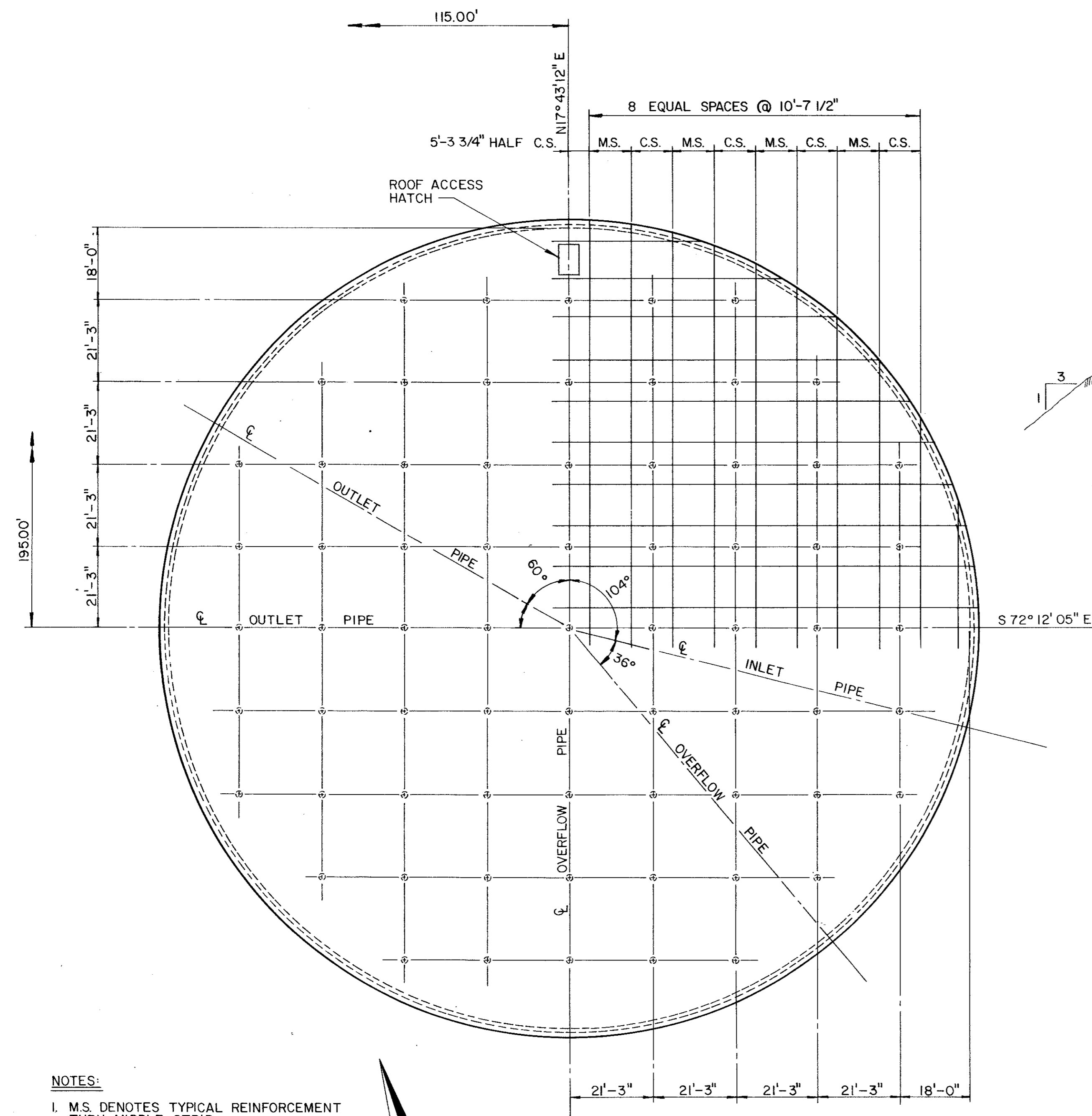
**6'x4' Box Culvert Curve Data**

C1	$\Delta = 12^{\circ} 00' 00''$ R = 290.00' L = 60.73' T = 30.48'
C2	$\Delta = 22^{\circ} 31' 06''$ R = 200.00' L = 78.60' T = 39.82'
C3	$\Delta = 20^{\circ} 00' 00''$ R = 290.00' L = 101.23' T = 51.13'

**Benchmarks:**  
 TBM #1 "□" Set on N.E. corner concrete water valve vault located 70' ± north of N.W. property corner. ELEV. 608.44  
 TBM #2 "□" Set on front porch of church at 5555 Celestial Road. ELEV. 577.95

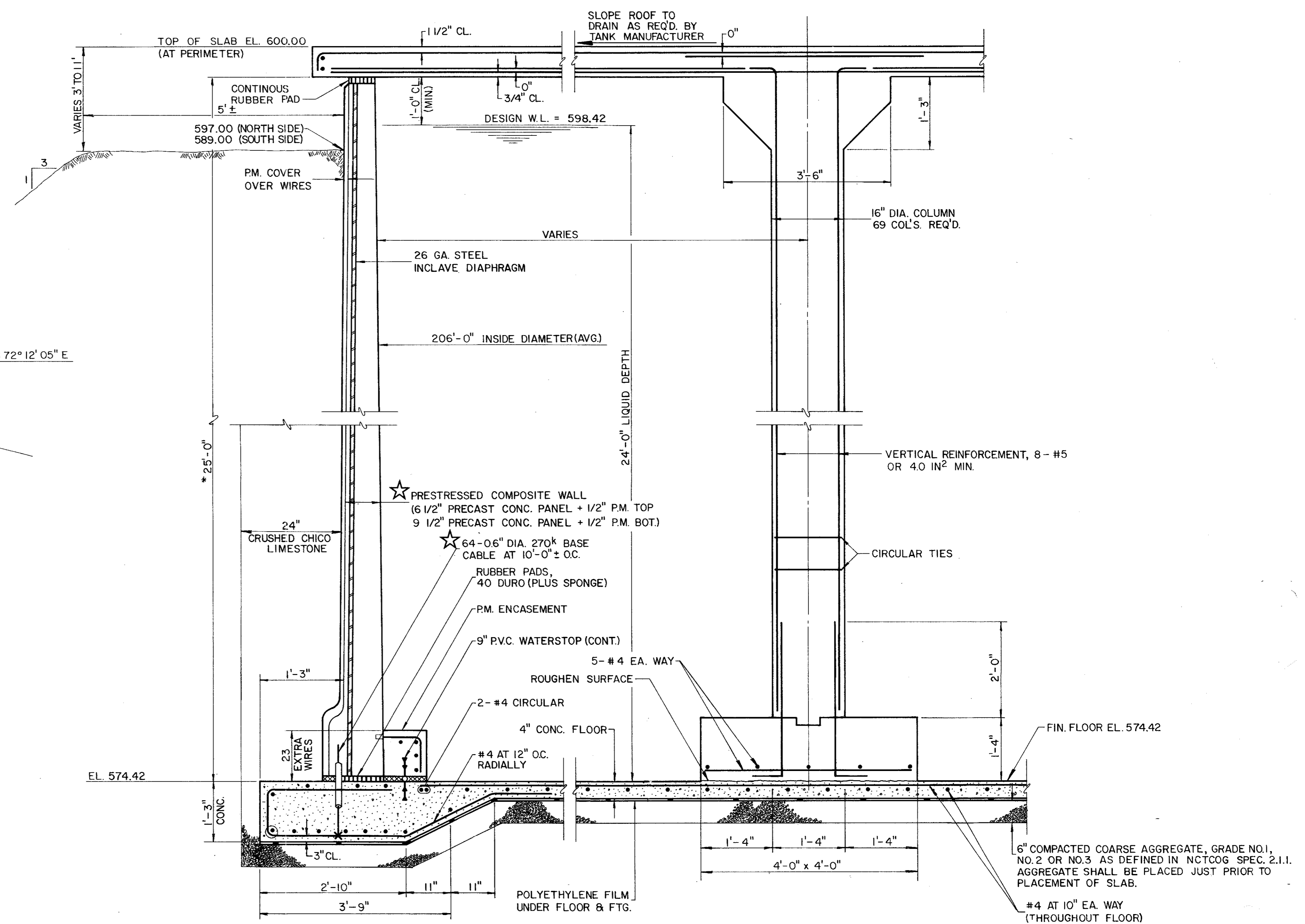


No.	Revision	By	Date
TOWN OF ADDISON DALLAS COUNTY, TEXAS			
<b>6 MG CELESTIAL ROAD STORAGE TANK</b>			
<b>SITE PLAN</b>			
<b>GINN, INC.</b> Consulting Engineers Dallas, Texas			
Designed - RCH	Drawn - ALA	Date - FEB. 1986	Job No. - 215
Approved - HWG	Checked - GF	Scale - 1" = 30'	Sheet 1 of 8



**NOTES:**  
 1. M.S. DENOTES TYPICAL REINFORCEMENT THRU MIDDLE STRIP.  
 2. C.S. DENOTES TYPICAL REINFORCEMENT THRU COLUMN STRIP.

★ **ROOF PLAN**  
 N.T.S.

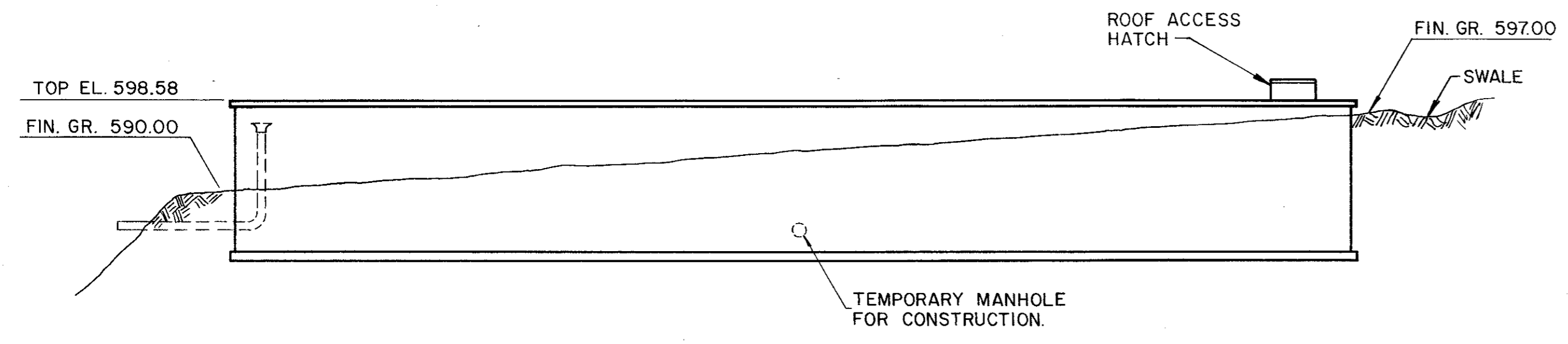


★ **SECTION THRU COLUMN STRIP**  
 N.T.S.

NOTE: MAXIMUM SOIL PRESSURE = 10,000 P.S.F.

\* HORIZONTAL PRESTRESSING WIRES AT 150,000 P.S.I. INITIAL AND 120,000 P.S.I. DESIGN STRESS WITH 61 WIRES/FT. AT BOTTOM TO 14 WIRES/FT. AT 6'-0" FROM TOP OF WALL AND 14 WIRES/FT. TO TOP OF WALL.  
 WIRE DIAMETER BEFORE PRESTRESSING = 0.192"  
 DIE DIAMETER = 0.164"

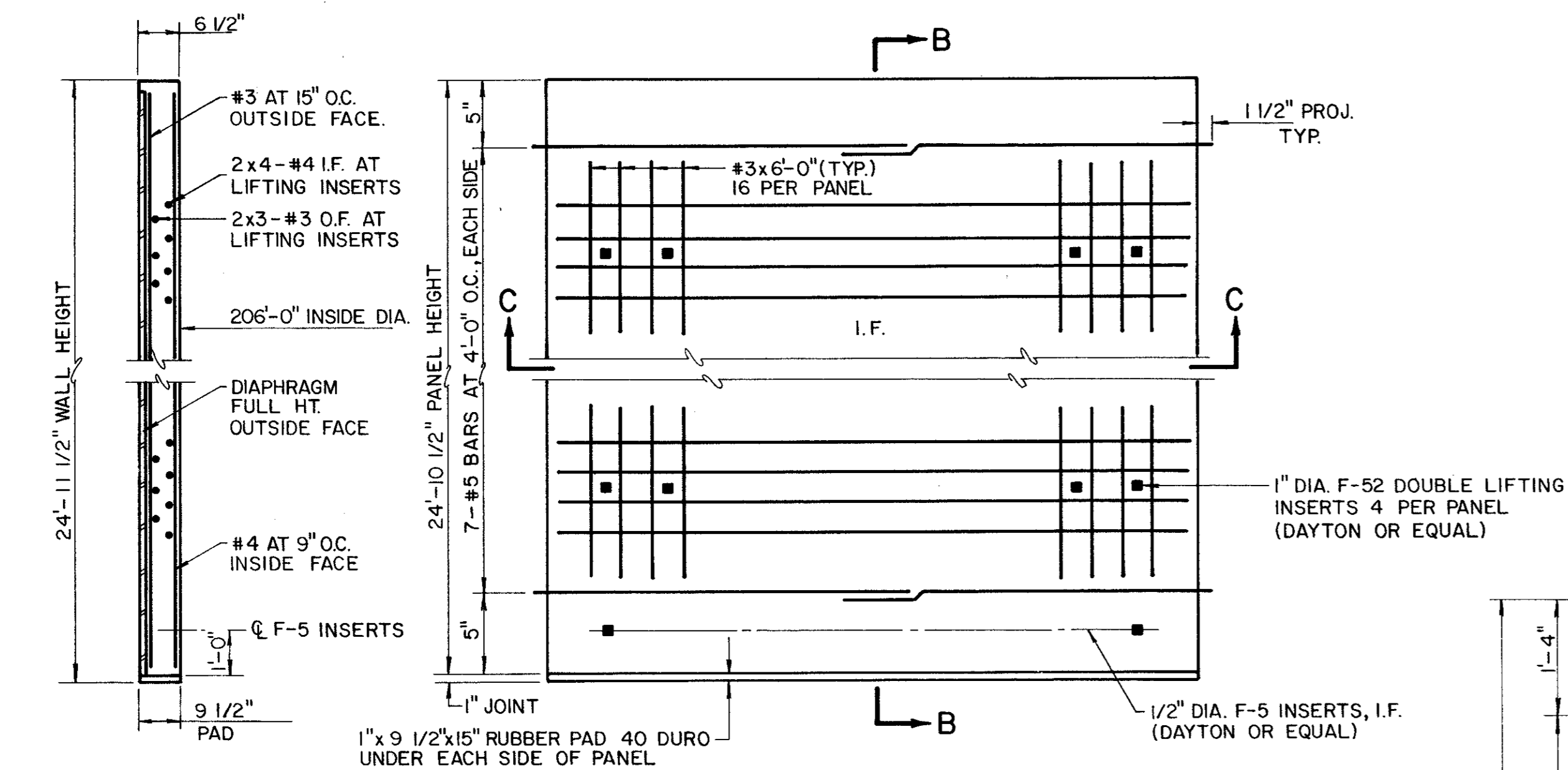
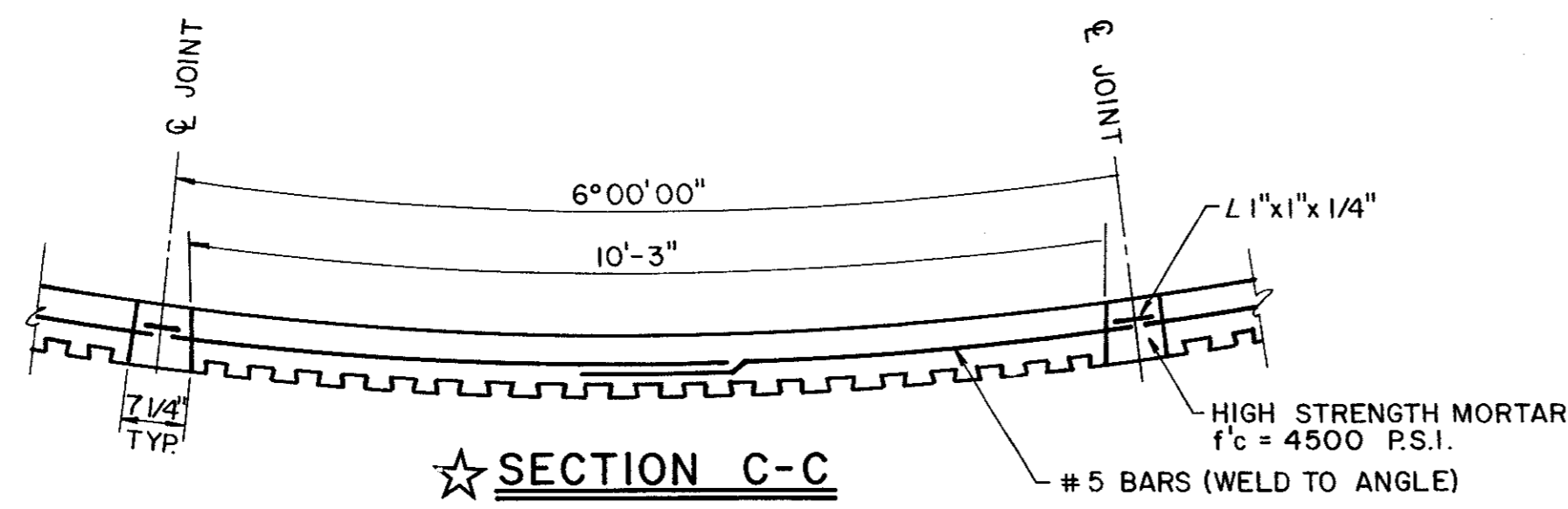
- NOTES:**
- P.M. = PNEUMATIC MORTAR
  - MINIMUM 28 DAY CONCRETE CYLINDER STRENGTHS:  
 FLOOR, FOOTING & COLUMN FOOTING 3000 P.S.I.  
 ROOF SLAB 4000 P.S.I.  
 COLUMN CONCRETE 4000 P.S.I.  
 WALL CONCRETE 4500 P.S.I.  
 PNEUMATIC MORTAR 4500 P.S.I.
  - ROOF LIVE LOAD = 100 P.S.F.
  - REINFORCING STEEL SHALL CONFORM TO ASTM A-615 GR-60.



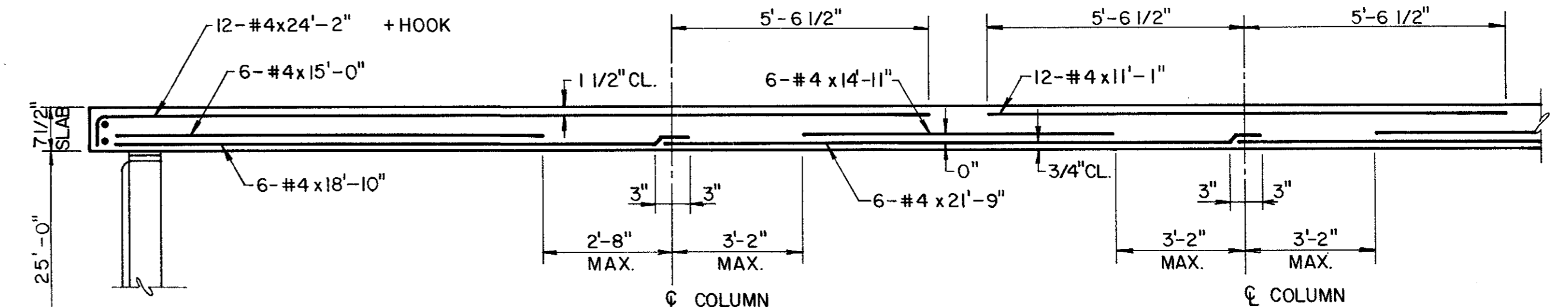
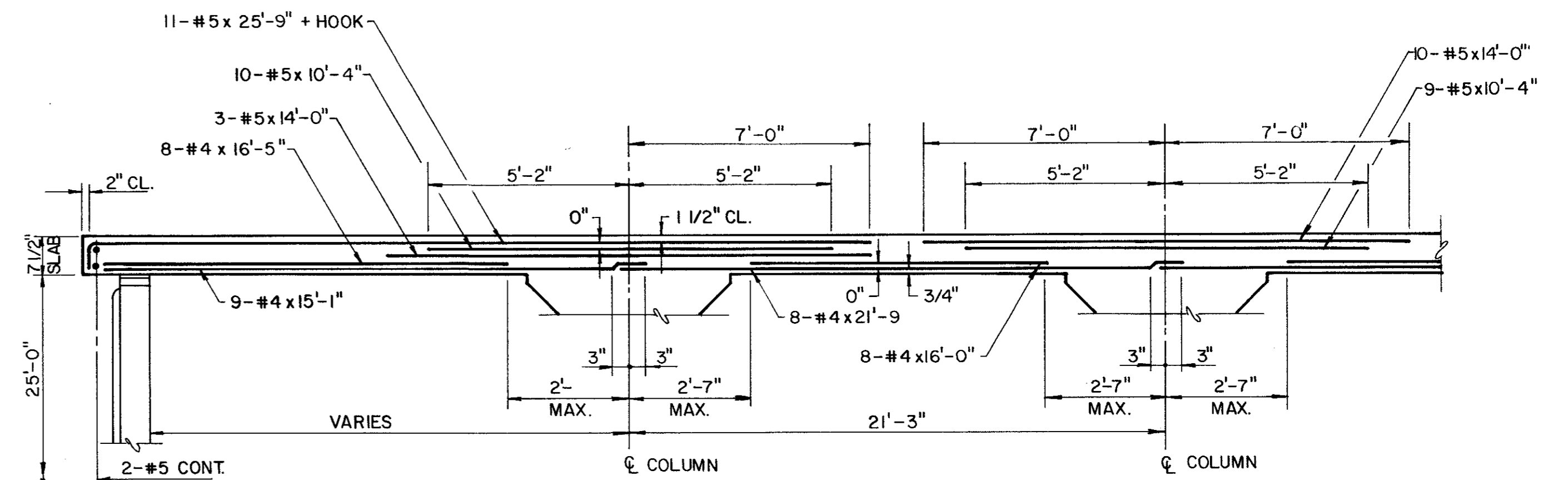
**ELEVATION (LOOKING WEST)**  
 N.T.S.



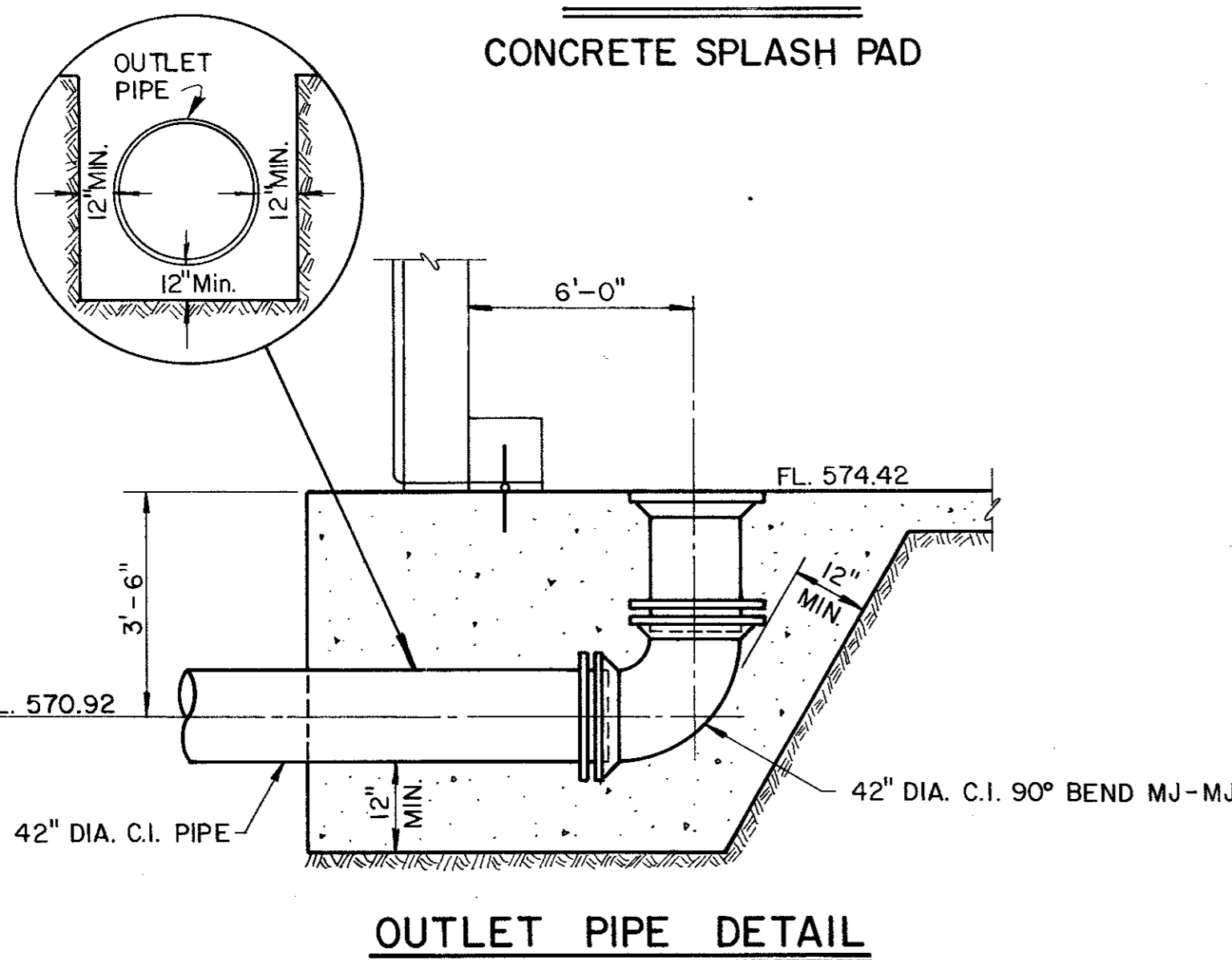
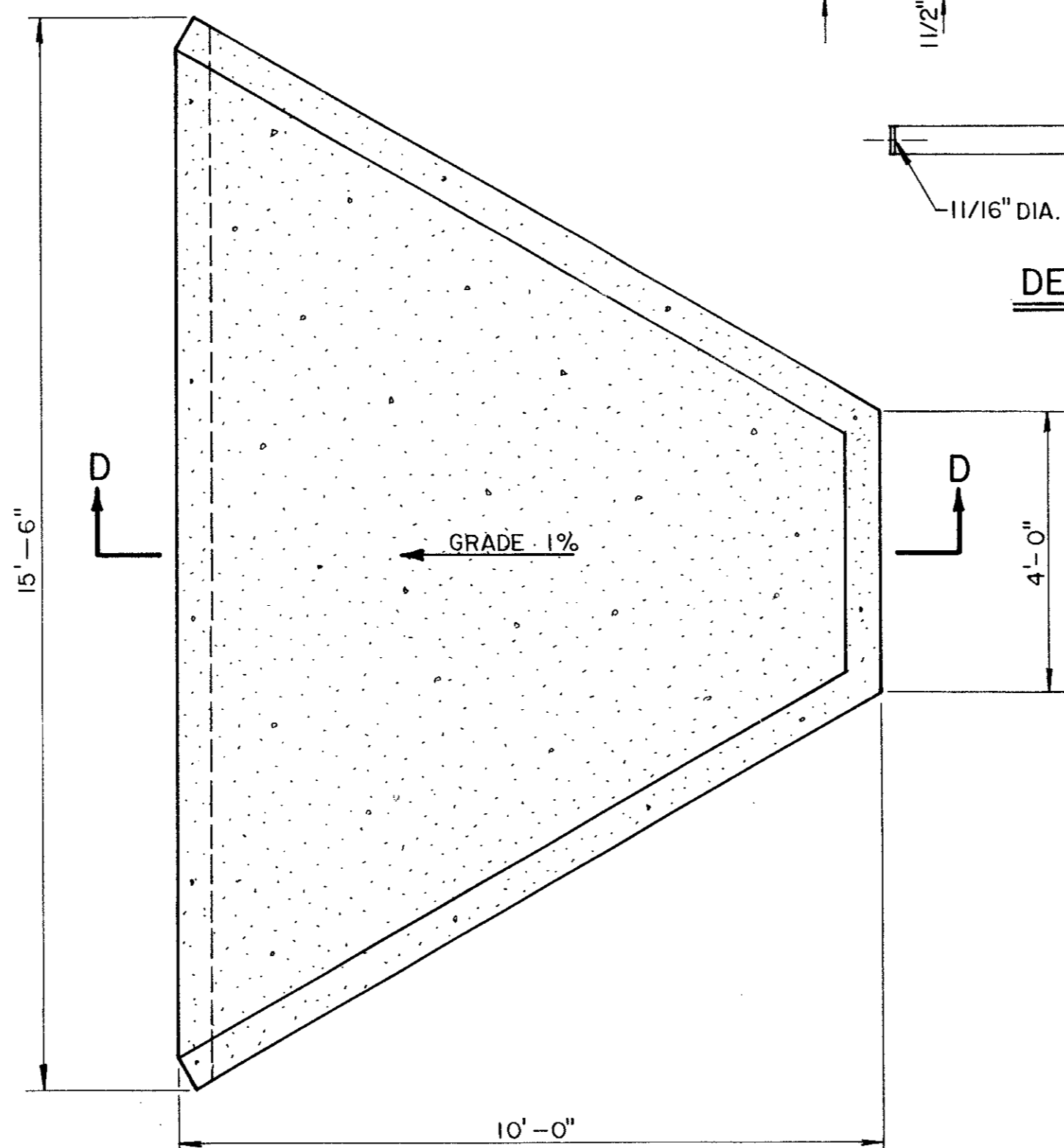
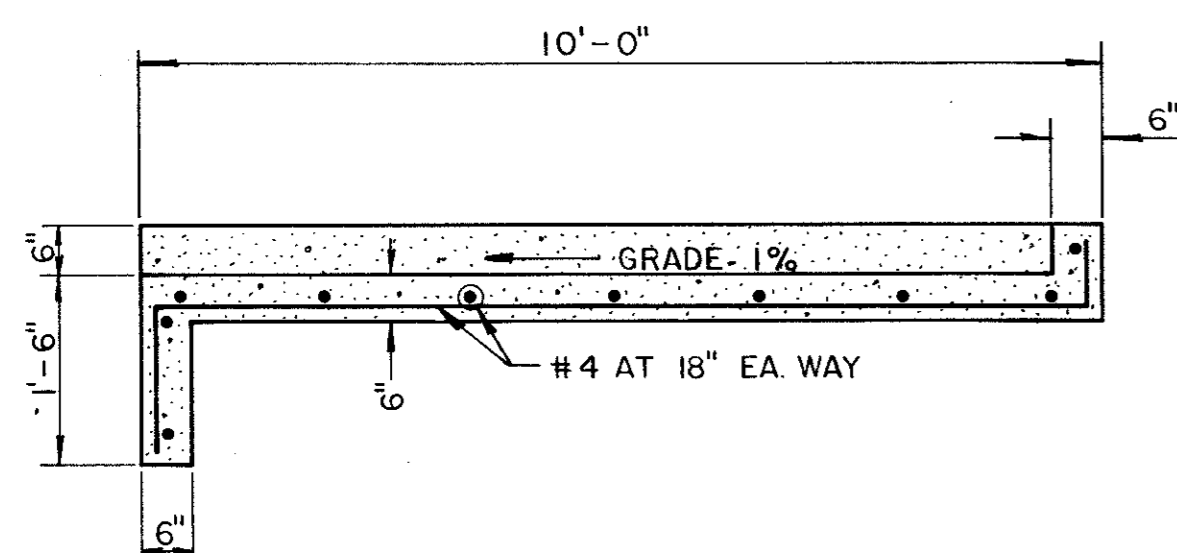
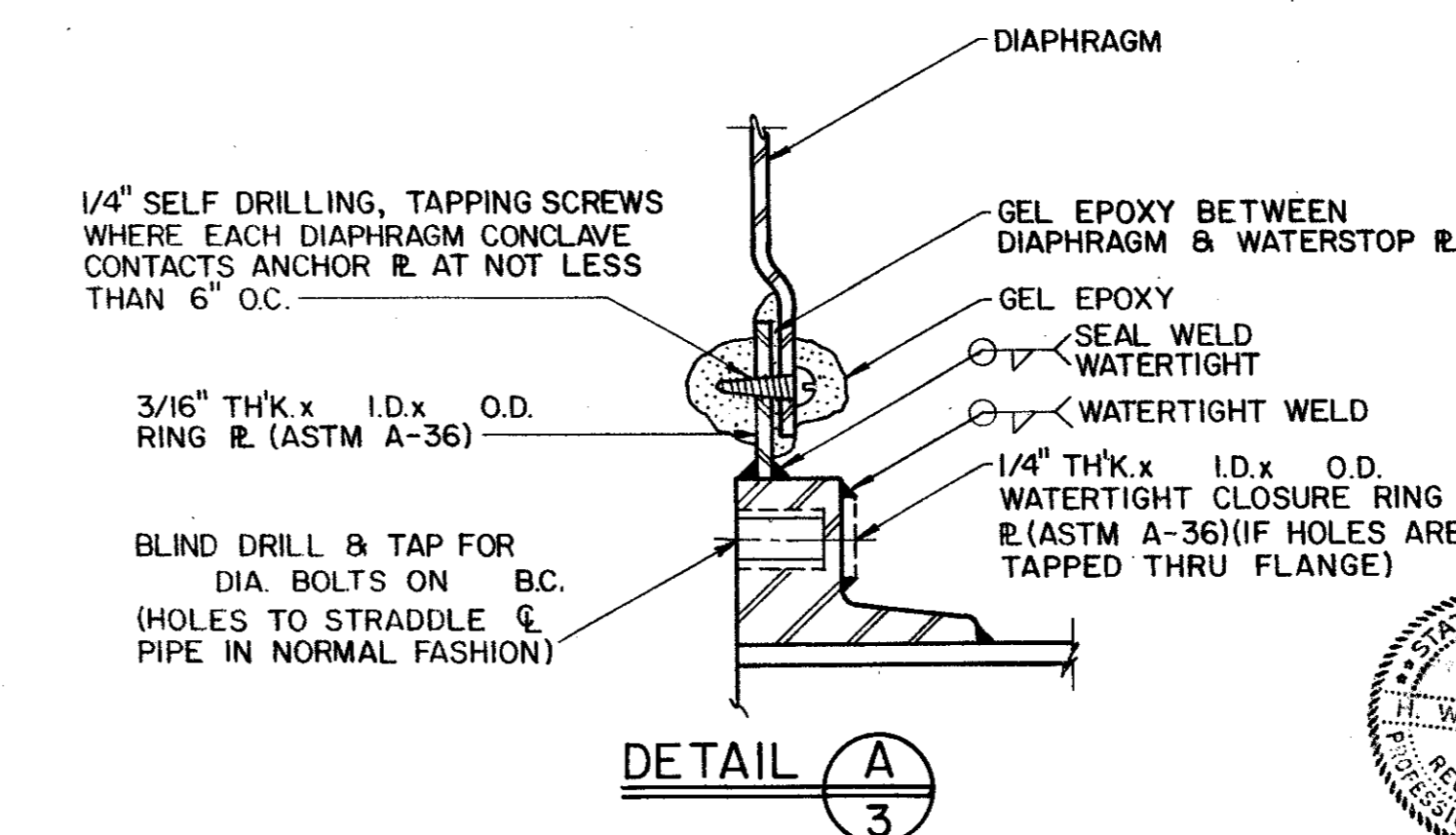
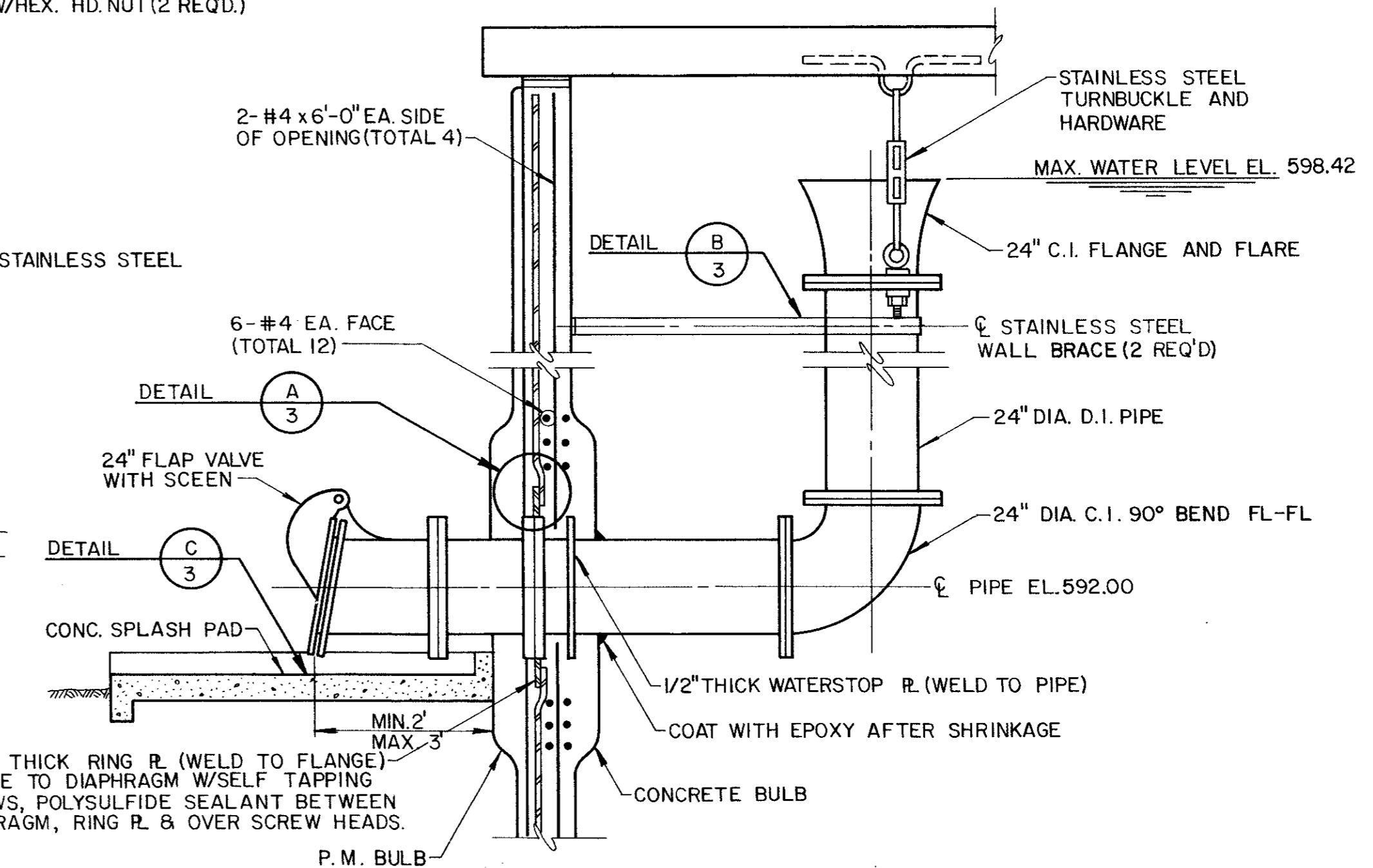
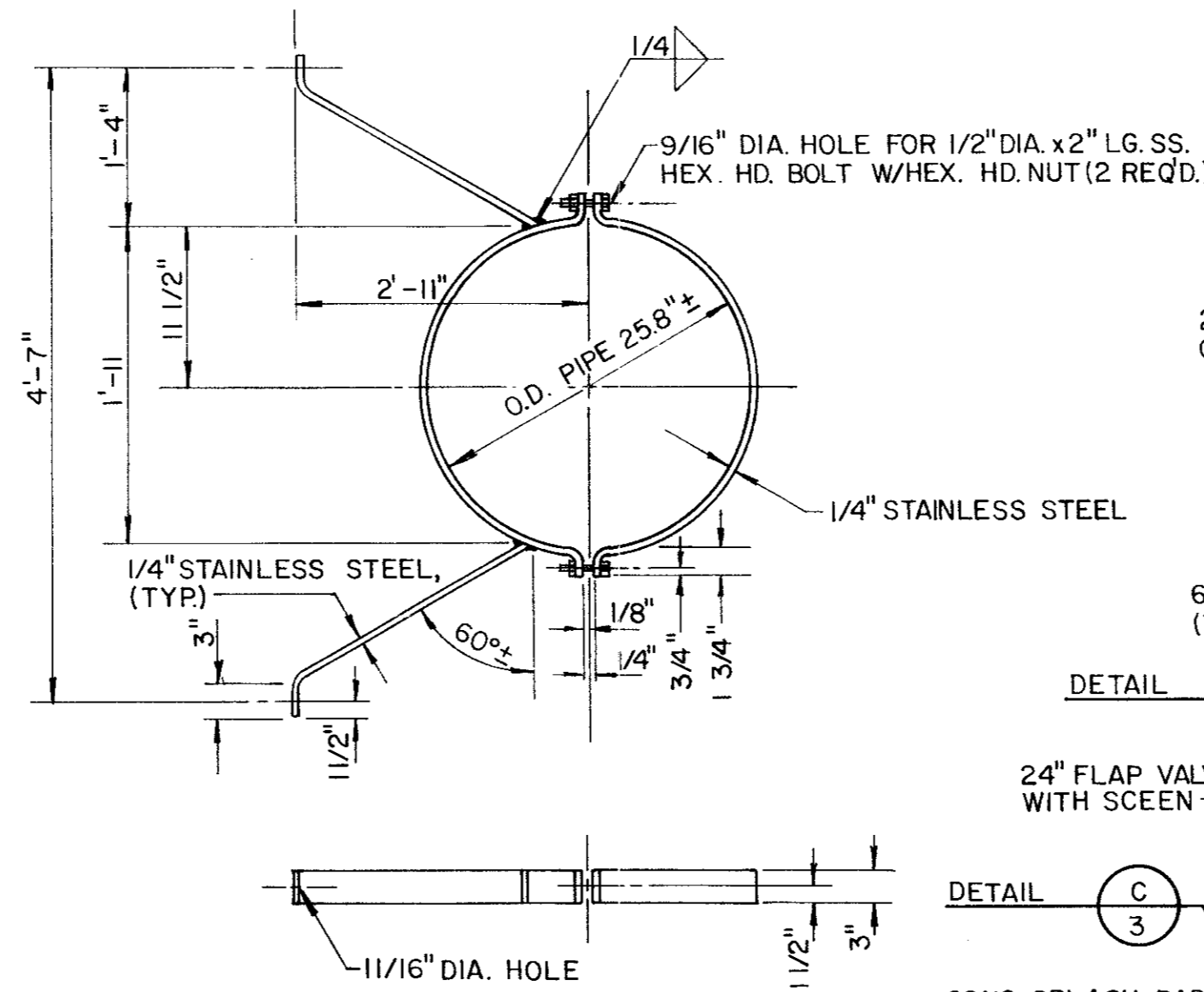
No.	Revision	By	Date
TOWN OF ADDISON DALLAS COUNTY, TEXAS			
<b>6 MG CELESTIAL ROAD STORAGE TANK</b>			
<b>PLAN AND SECTIONS</b>			
<b>GINN, INC.</b> Consulting Engineers Dallas, Texas			
Designed - RCH	Drawn - ALA	Date - FEB., 1986	Job No. - 215
Approved - HWG	Checked - GF	Scale - AS SHOWN	Sheet 2 of 8



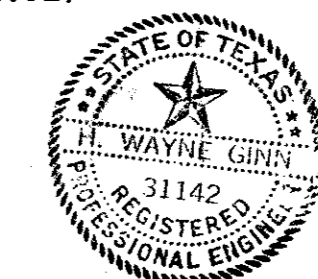
★ **PANEL ELEVATION**  
★ (60 REQ'D.)

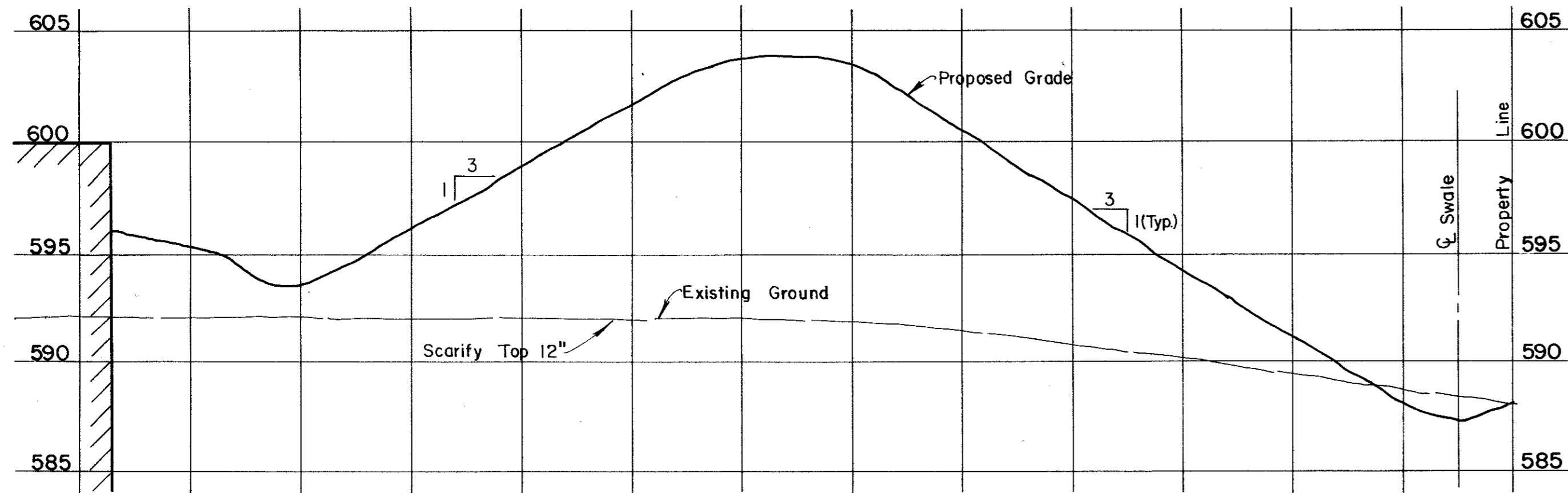


★ **REINFORCEMENT THRU MIDDLE STRIP**  
REINFORCEMENT SHOWN IN ONE DIRECTION ONLY FOR CLARITY



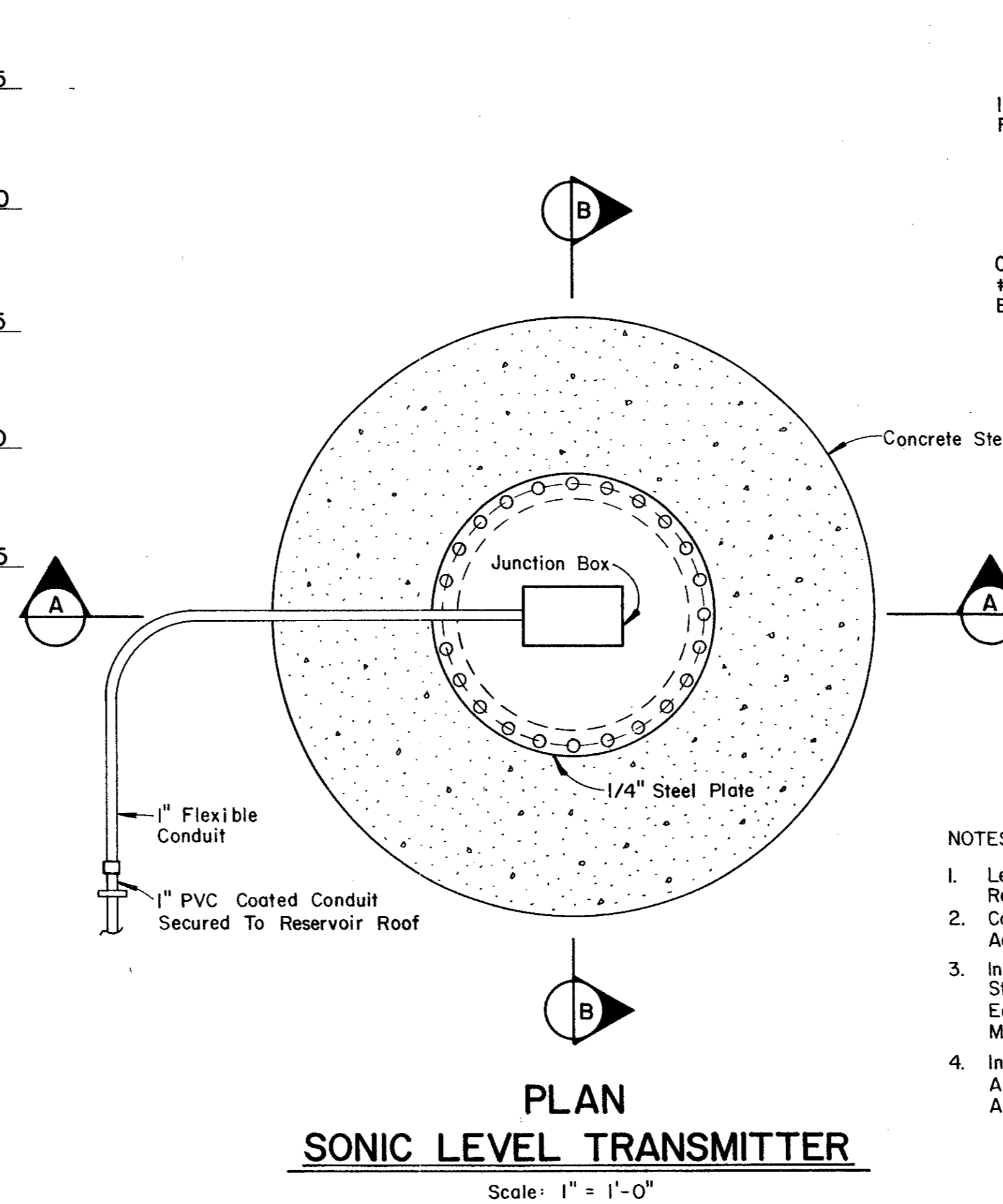
No.	Revision	By	Date
TOWN OF ADDISON DALLAS COUNTY, TEXAS			
<b>6 MG CELESTIAL ROAD STORAGE TANK</b>			
<b>MISCELLANEOUS TANK DETAILS</b>			
GINN, INC. Consulting Engineers Dallas, Texas			
Designed - RCH	Drawn - ALA	Date - FEB. 1986	Job No. - 215
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**BERM SECTION**

Scale: H: 1" = 10'  
V: 1" = 5'

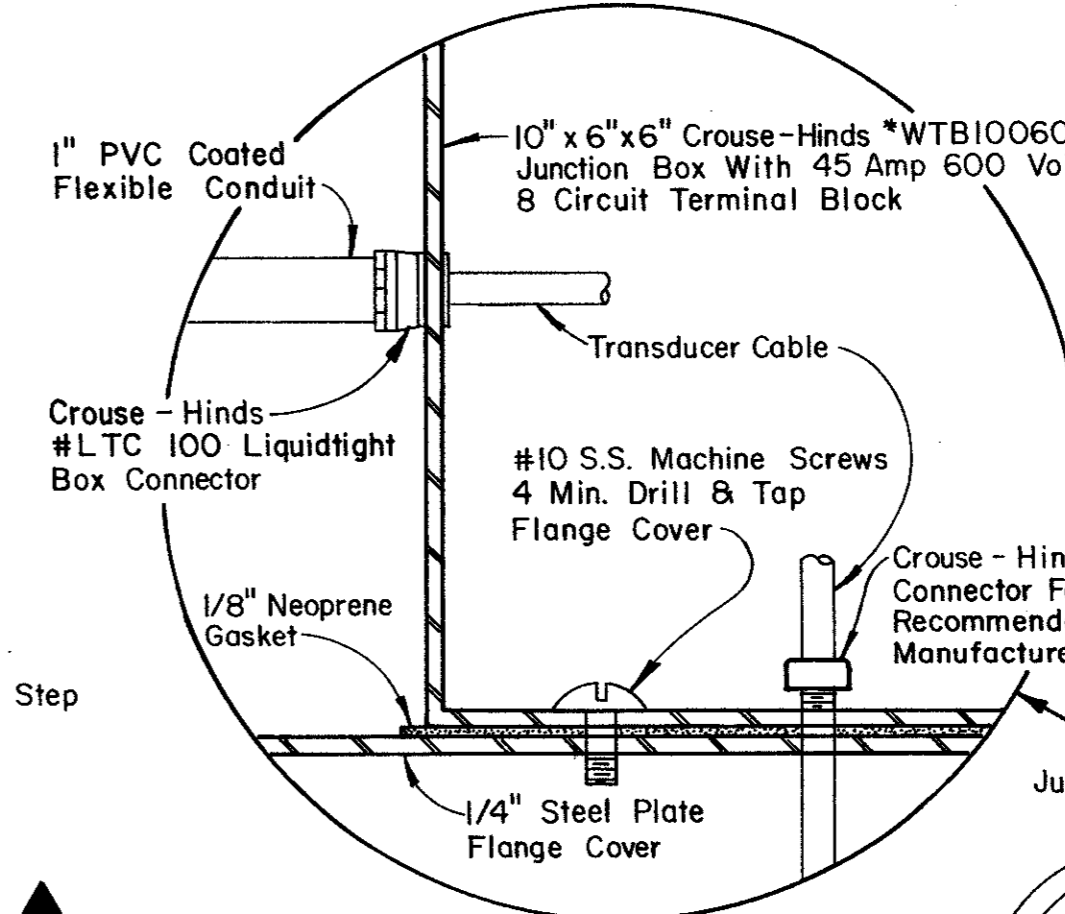


**PLAN SONIC LEVEL TRANSMITTER**

Scale: 1" = 1'-0"

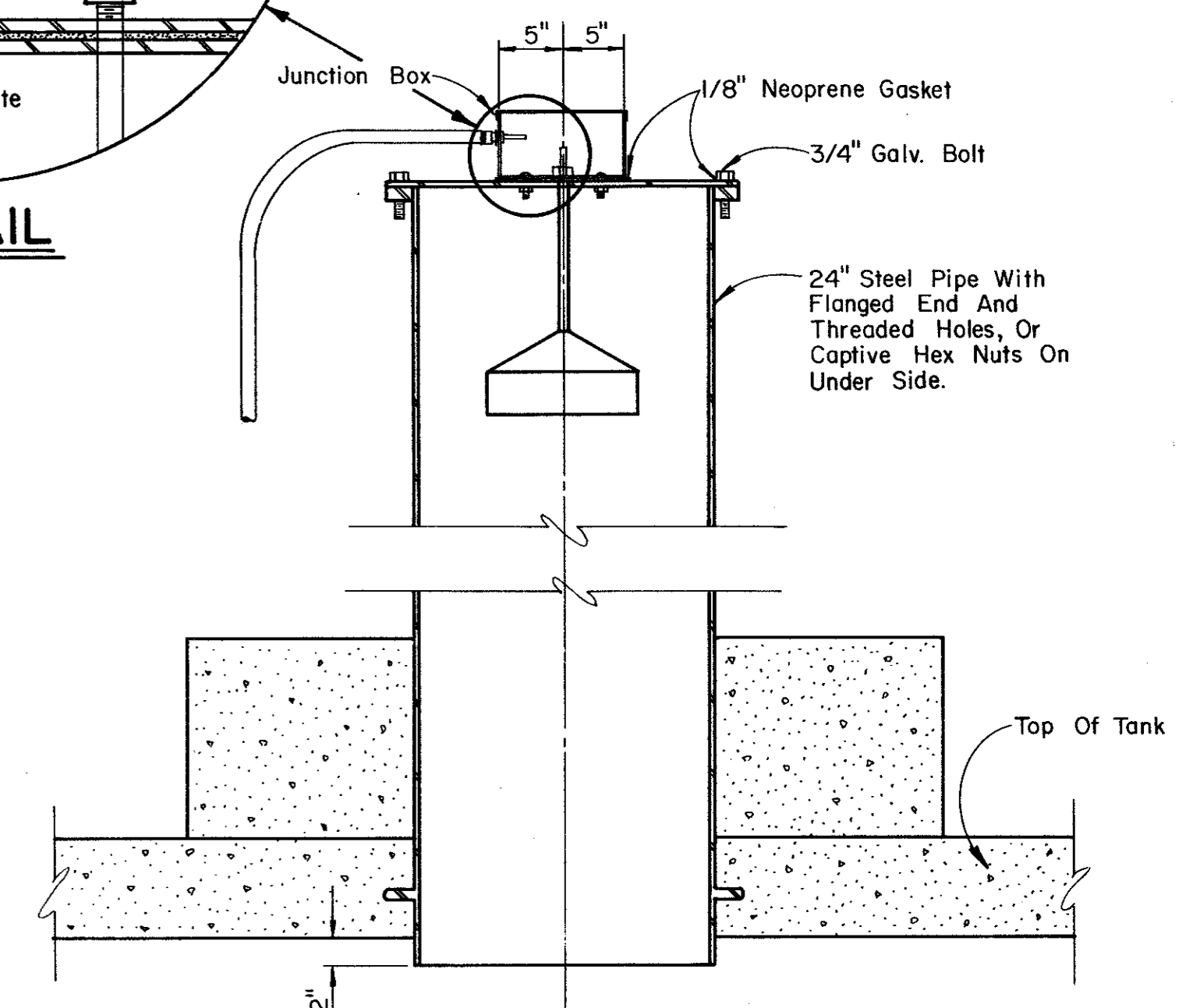
**NOTES:**

1. Leave Slack In Flexible Conduit For Removal Of Cover Plate.
2. Coil Excess Cable In Box For Future Adjustments.
3. Installation Of 24" Steel Pipe And Step Will Be By Reservoir Contractor. Equipment Will Be Installed By Meter Vault Contractor.
4. Install Transducer On A Radius Line A Minimum Of 90° From The Inlet And Overflow.



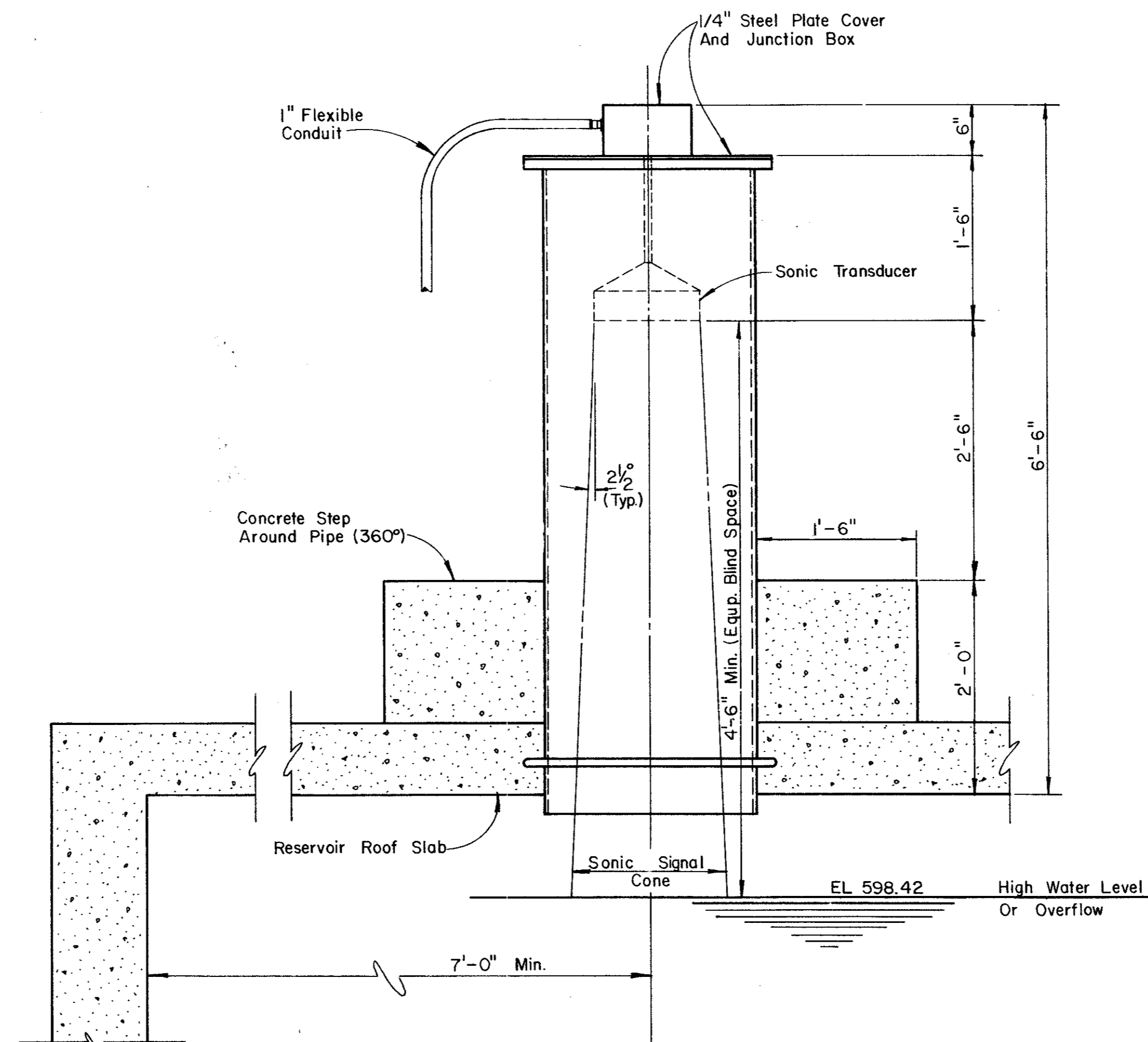
**DETAIL**

N.T.S.



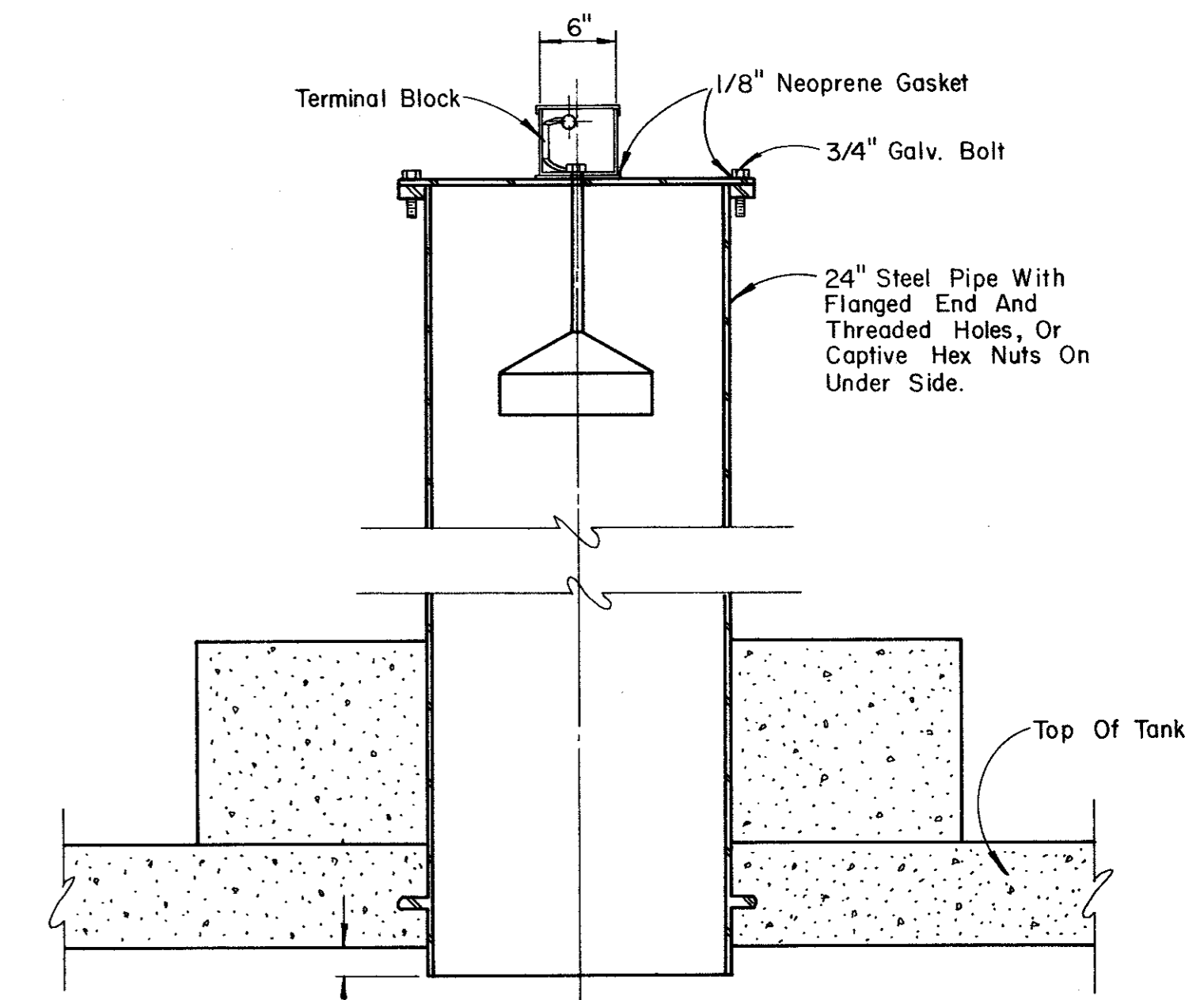
**SECTION A-A**

Scale: 1" = 1'-0"



**ELEVATION**

Scale: 1" = 1'-0"

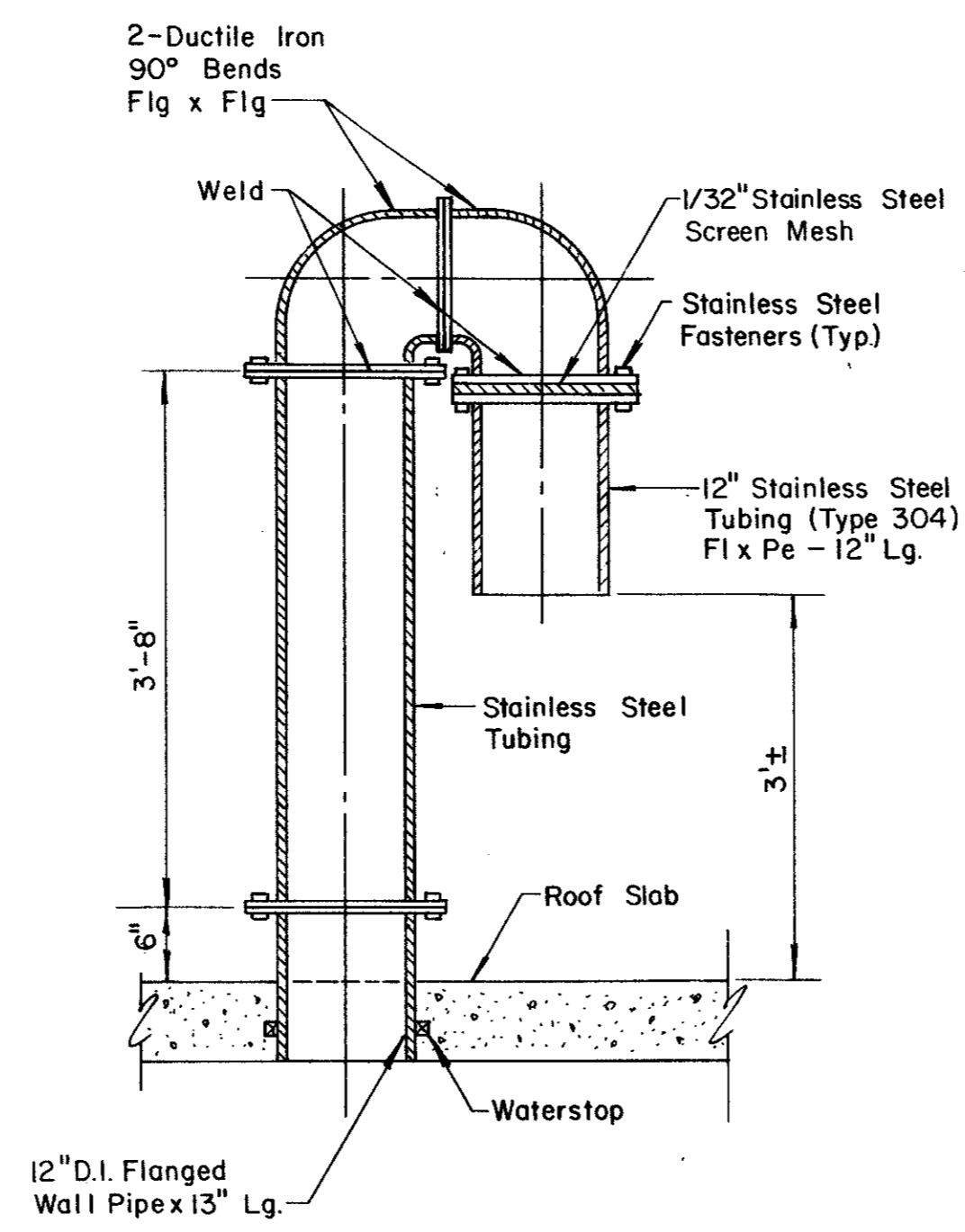


**SECTION B-B**

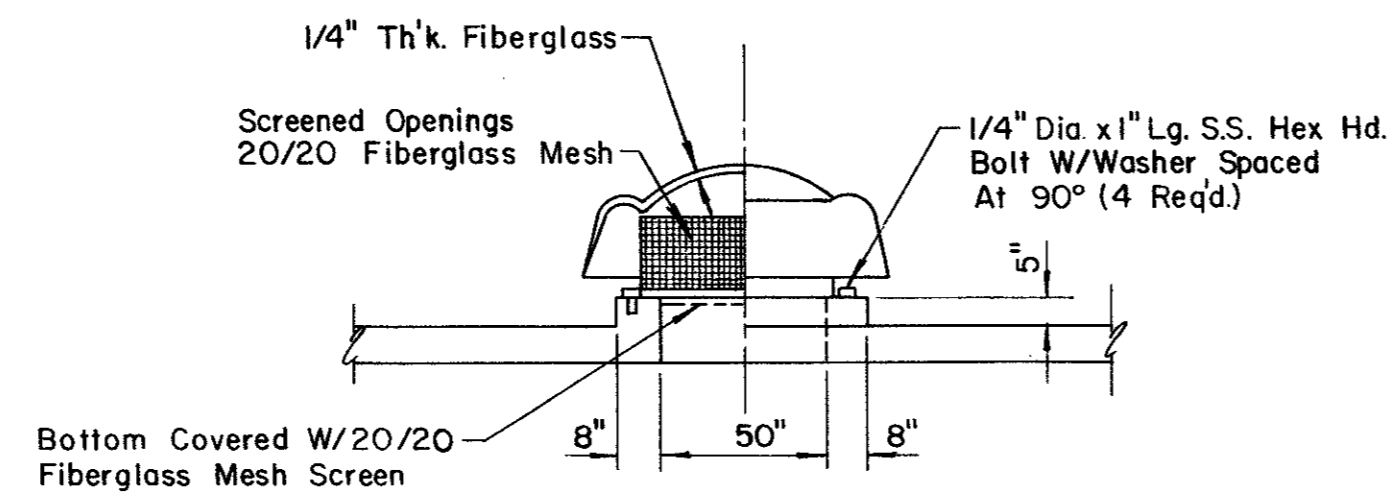
Scale: 1" = 1'-0"



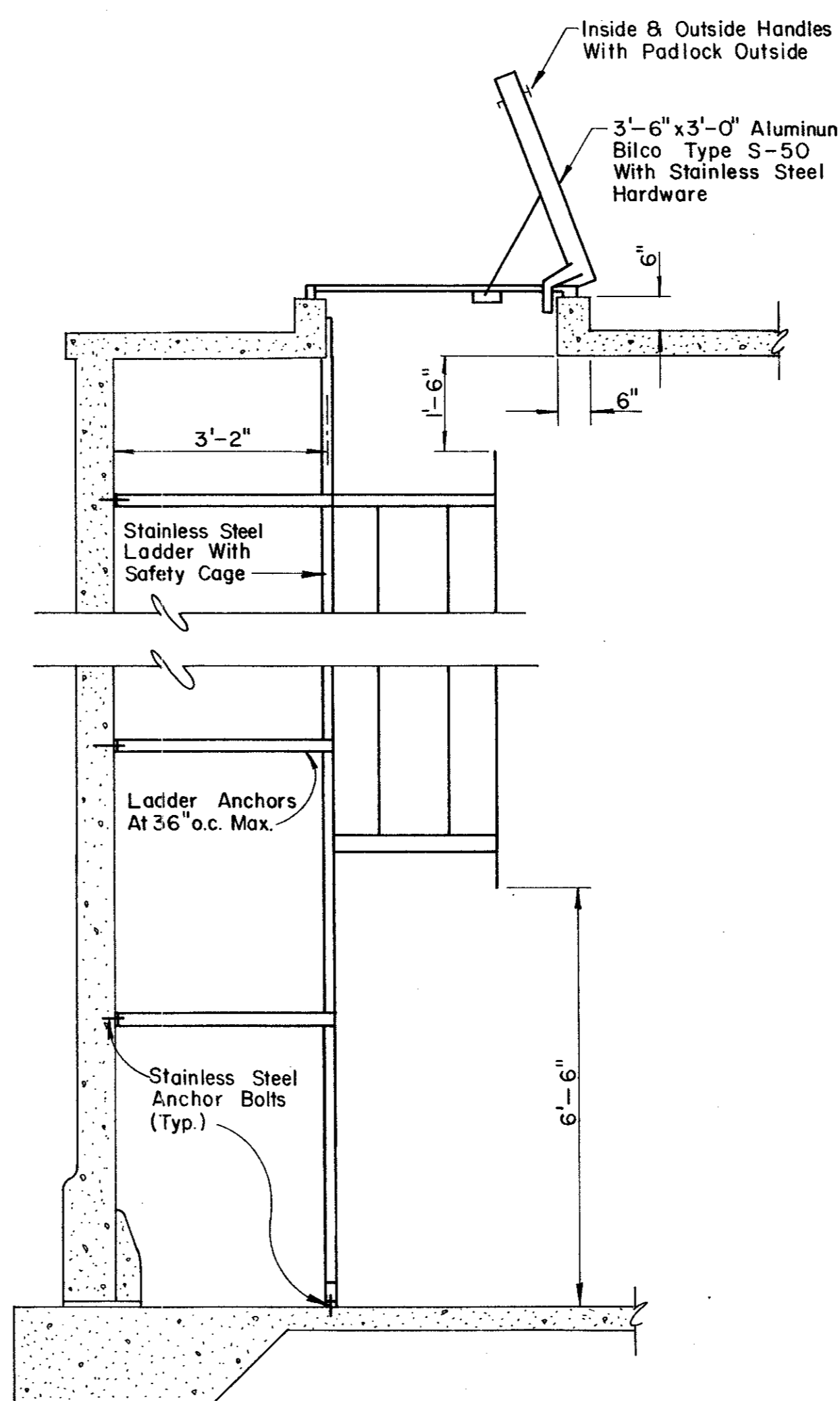
No.	Revision	By	Date
TOWN OF ADDISON DALLAS COUNTY, TEXAS			
<b>6 MG CELESTIAL ROAD STORAGE TANK</b>			
<b>MISCELLANEOUS TANK DETAILS</b>			
<b>GINN, INC.</b>			
Consulting Engineers Dallas, Texas			
Designed - RCH	Drawn - ALA	Date - FEB. 1986	Job No. - 215
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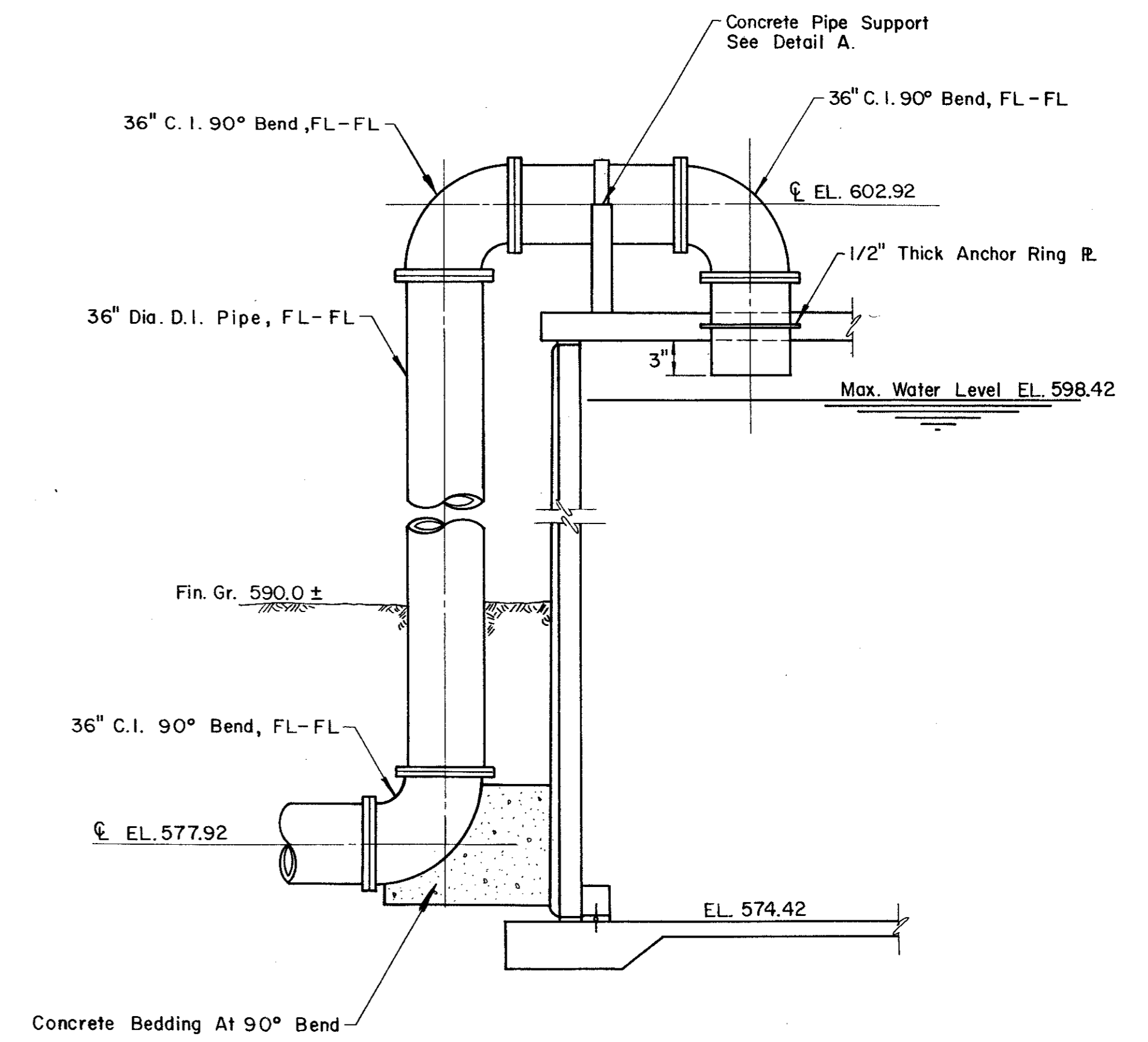
**ROOF VENT ALTERNATIVE I**



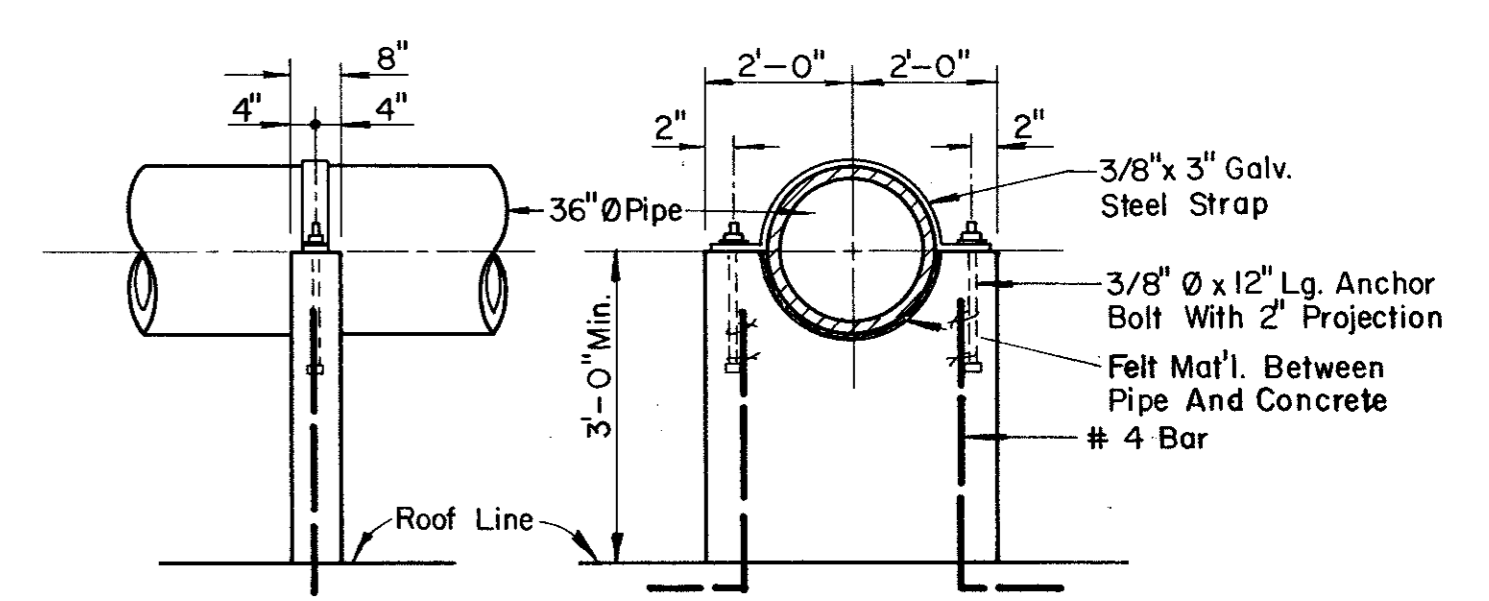
**ROOF VENT ALTERNATIVE II**



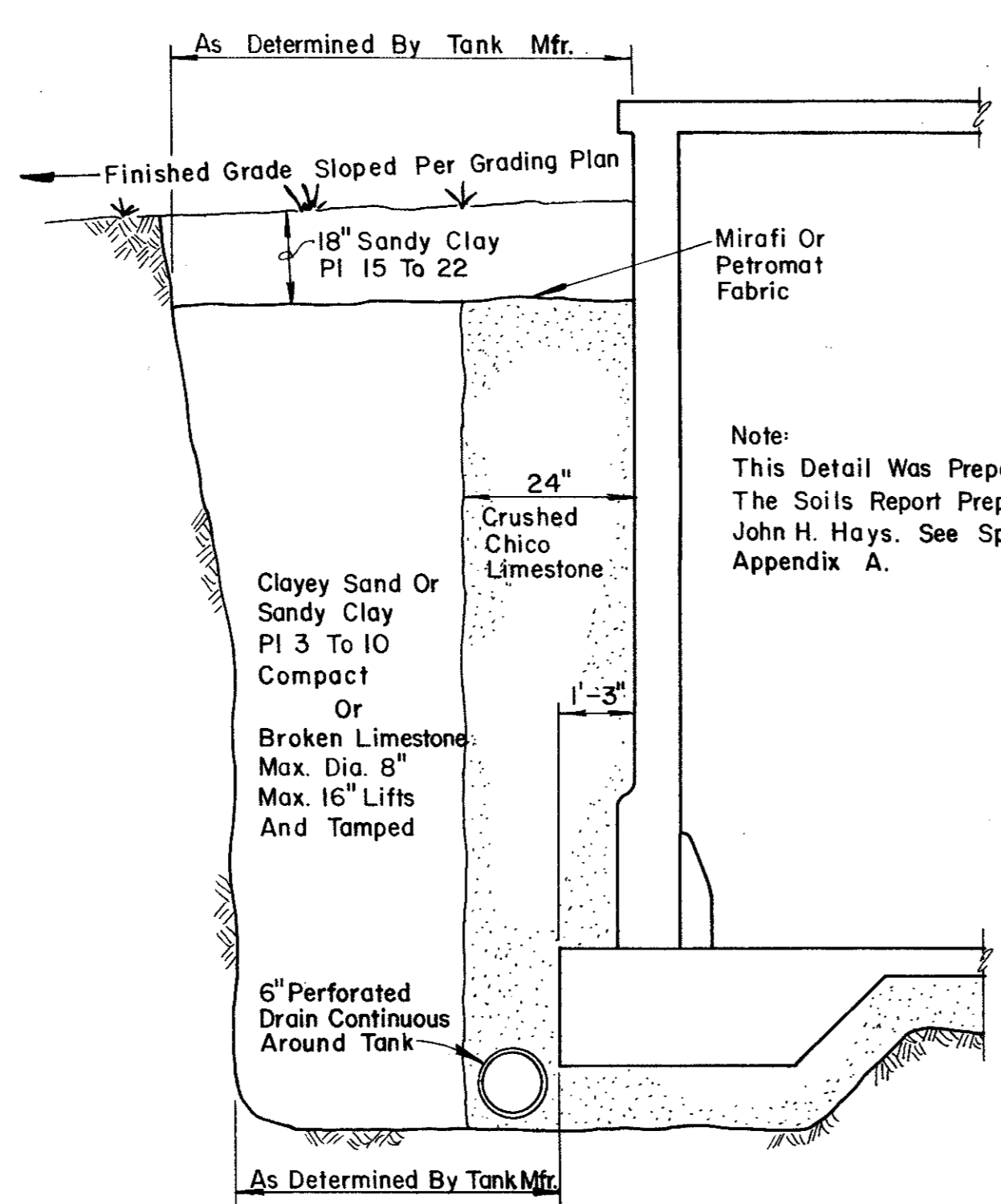
**ACCESS LADDER AND HATCH DETAIL**



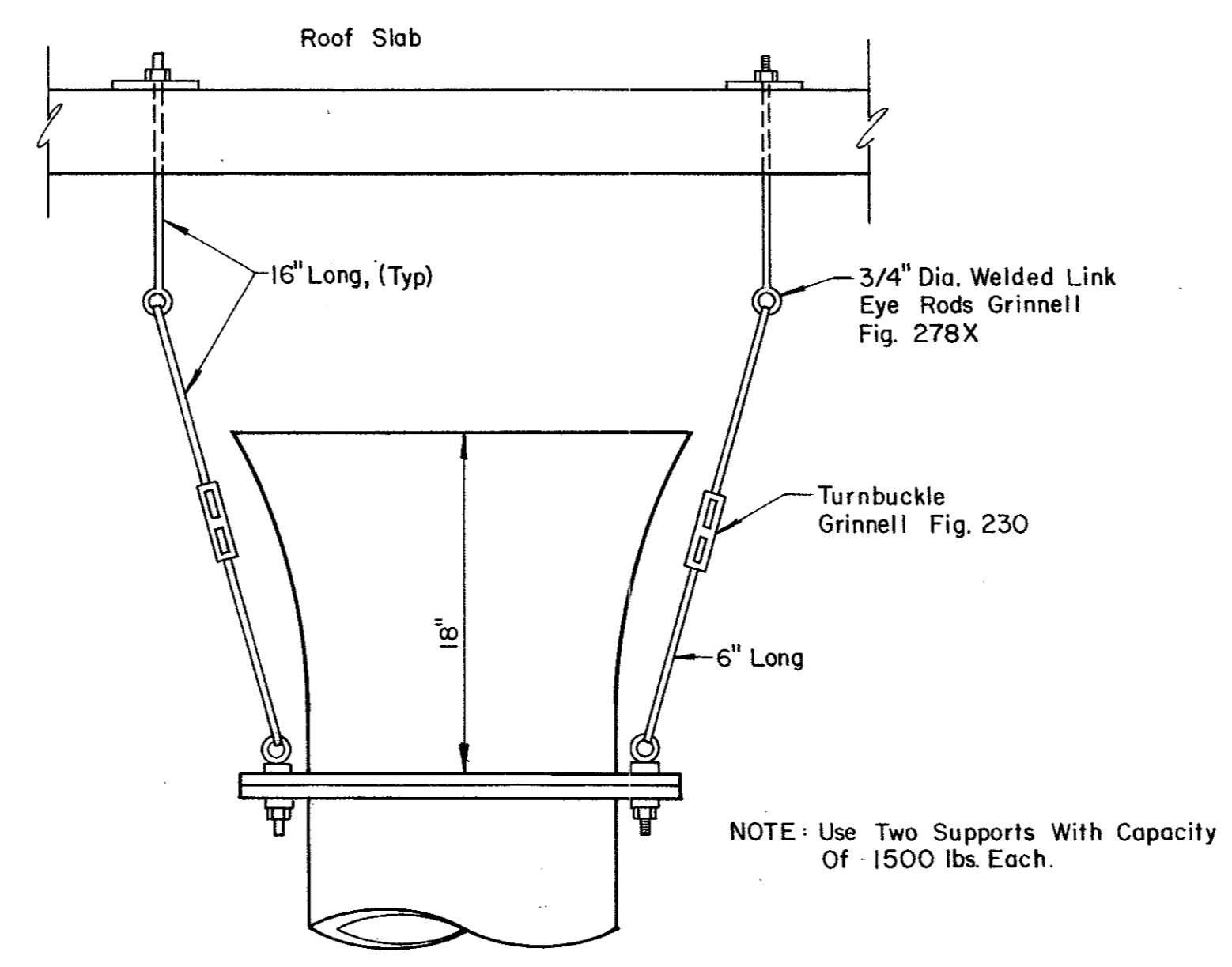
**INLET PIPE**



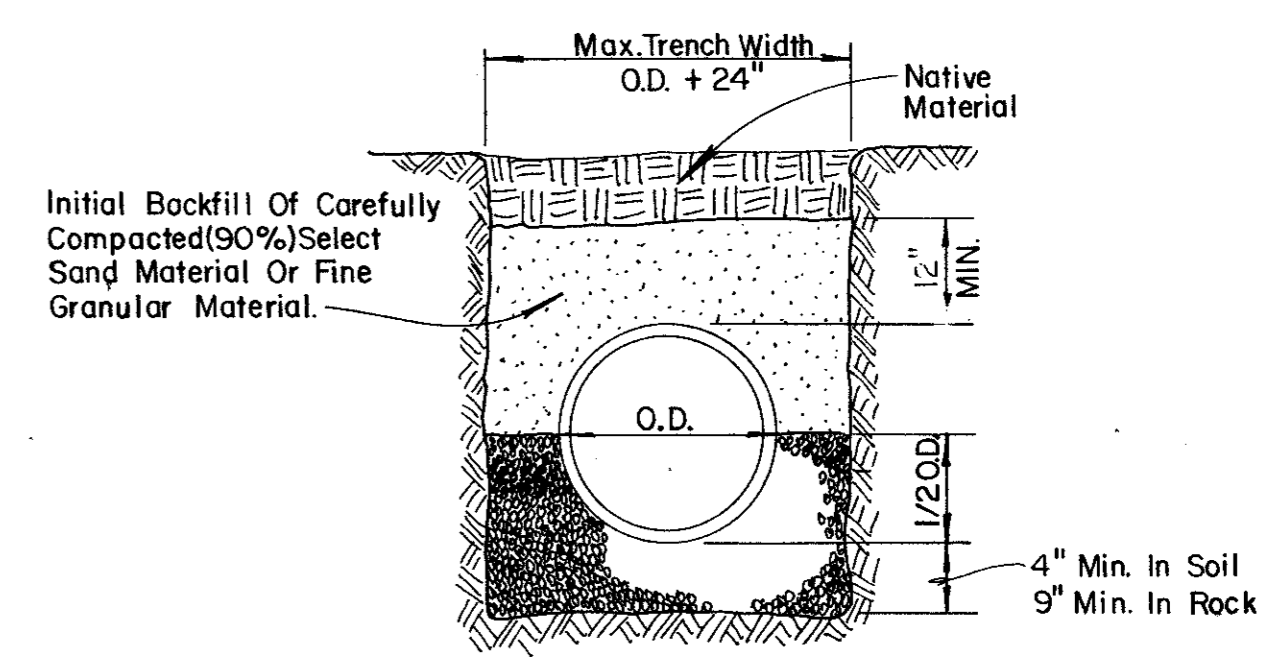
**DETAIL A**



**TANK BACKFILL DETAIL**



**PIPE SUPPORT**



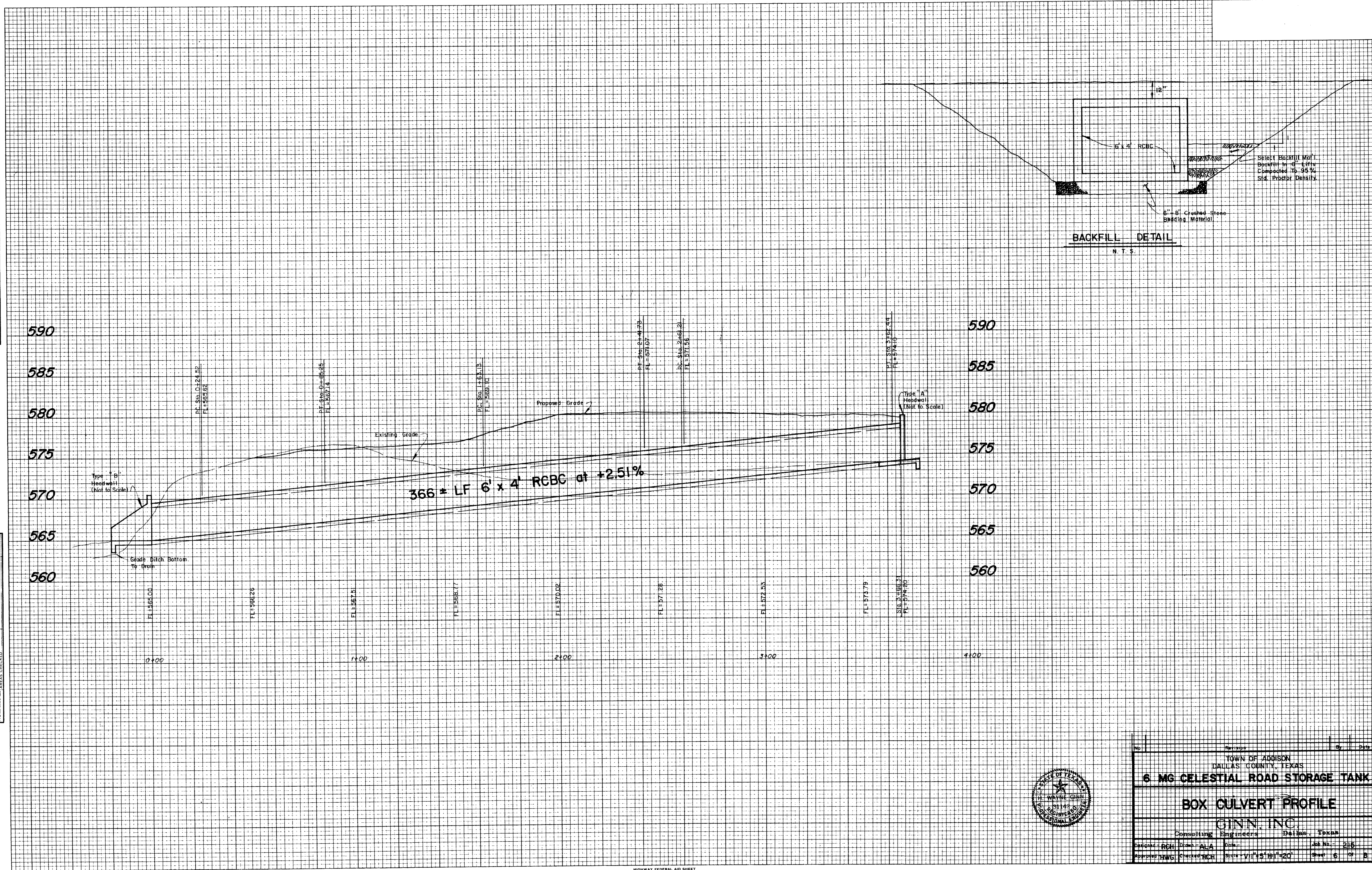
**EMBEDMENT DETAIL FOR WATERLINES**



No.	Revision	By	Date
TOWN OF ADDISON DALLAS COUNTY, TEXAS			
<b>6 MG CELESTIAL ROAD STORAGE TANK</b>			
<b>MISCELLANEOUS TANK DETAILS</b>			
<b>GINN, INC.</b> Consulting Engineers Dallas, Texas			
Designed - RCH	Drawn - ALA	Date - FEB. 1986	Job No. - 215
Approved - HWG	Checked - GF	Scale - NOT TO SCALE	Sheet 5 of 8

FINAL SURVEY BY DATE  
 SURVEYED BY DATE  
 PLOTTED BY DATE  
 NOTE BOOK NO. AREAS CHECKED

ORIGINAL SURVEY BY DATE  
 SURVEYED BY DATE  
 PLOTTED BY DATE  
 NOTE BOOK NO. AREAS CHECKED



No.	Revisions	By	Date
TOWN OF ADDISON DALLAS COUNTY, TEXAS			
<b>6 MG CELESTIAL ROAD STORAGE TANK</b>			
<b>BOX CULVERT PROFILE</b>			
<b>GINN, INC.</b>			
Consulting Engineers Dallas, Texas			
Designed - RCH	Drawn - ALA	Date -	Job No. - 215
Approved - HWG	Checked - RCH	Scale - 1/4" = 1'-0"	Sheet 6 of 8

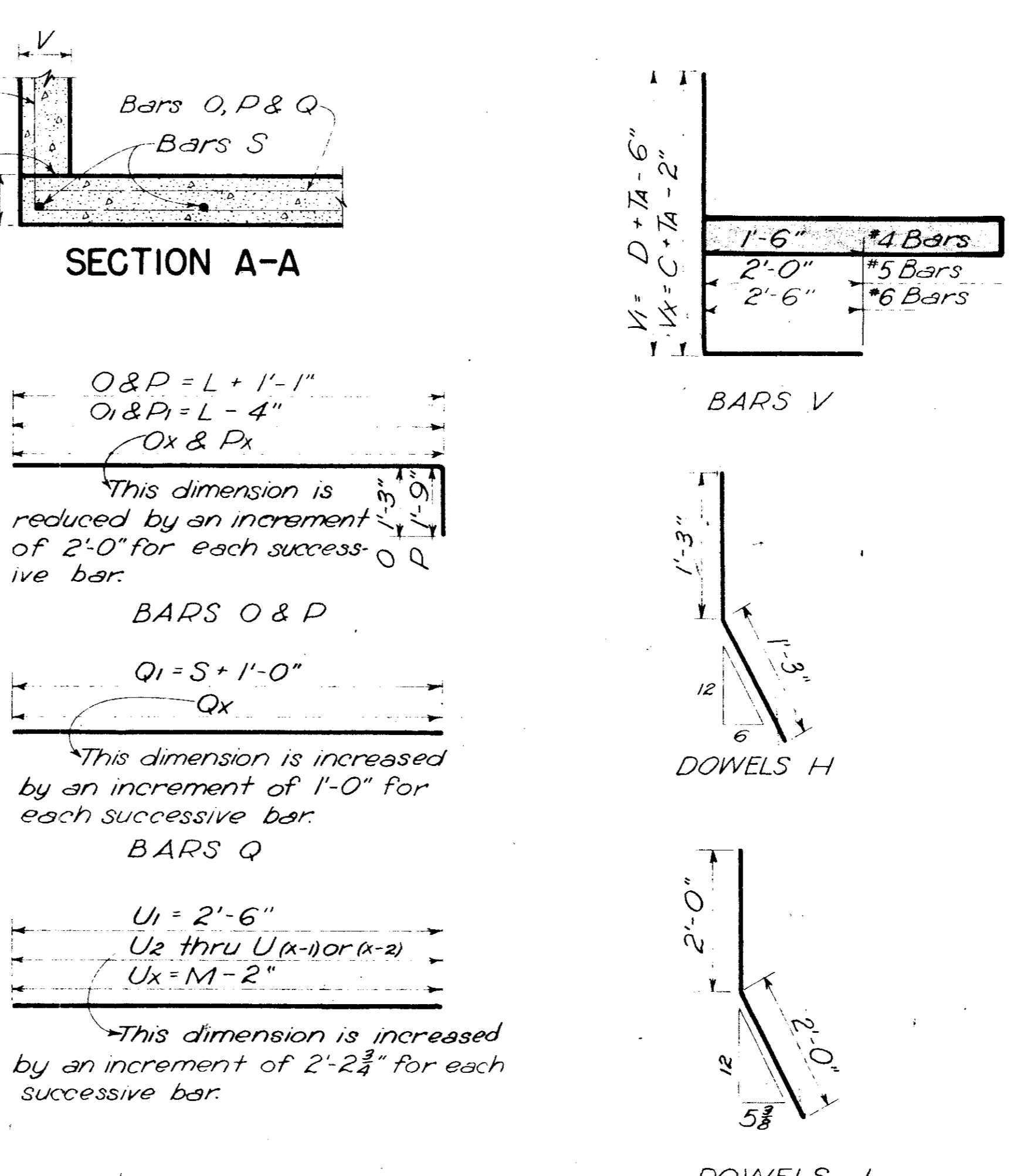
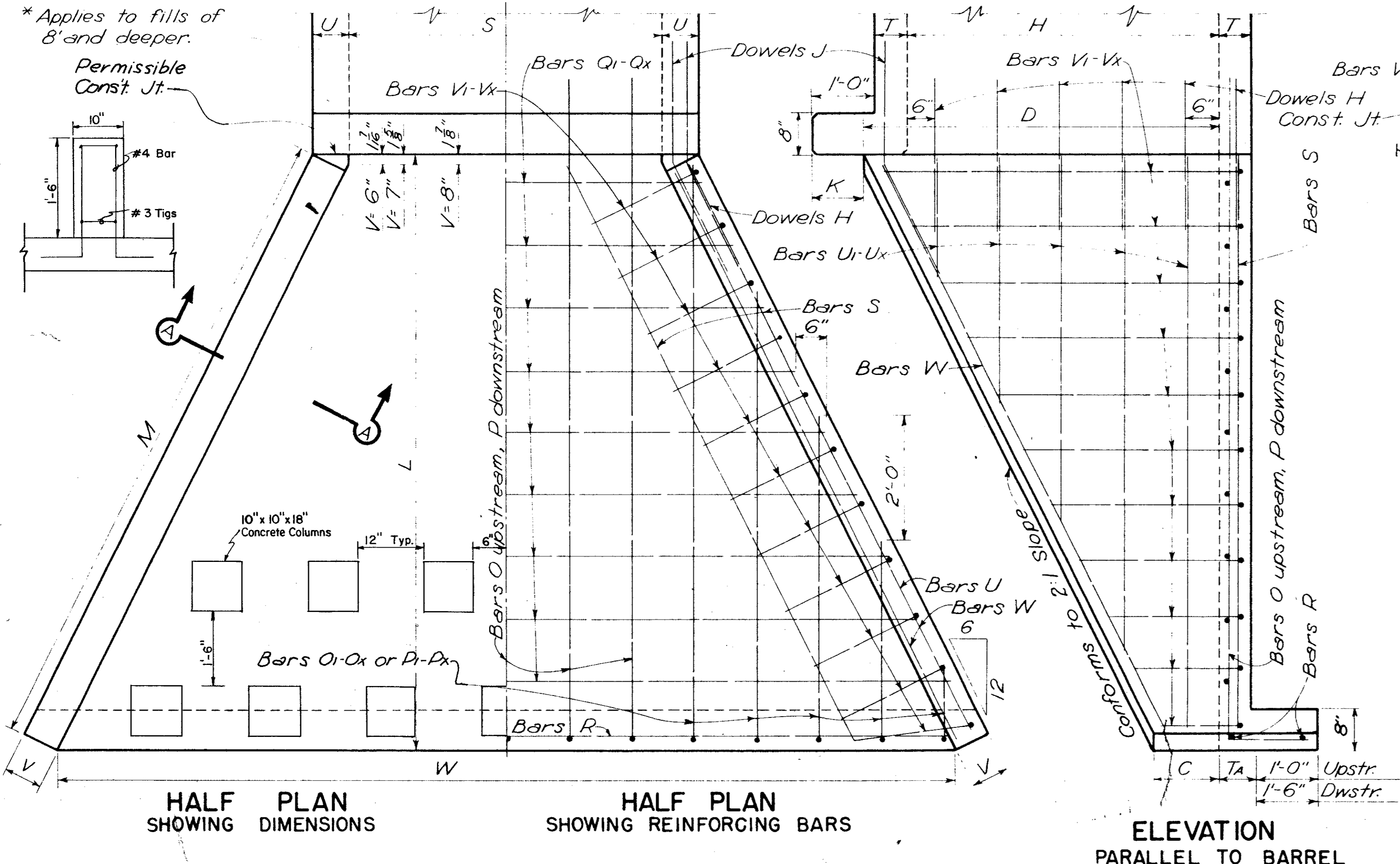
CULVERT SIZE	SLAB DEPTH	MAX WING	WING HEIGHT	WING LENGTH	TOTAL QUANT. 4 WING WALLS CONC. REINF.	TABLE OF DIMENSIONS					TABLE OF REINFORCING STEEL FOR 4 WING WALLS																														
						R	W	V	D	Y	Z	L	NO.	SIZE	SPAC.	LENGTH	WEIGHT	NO.	SIZE	SPAC.	LENGTH	WEIGHT	NO.	SIZE	SPAC.	LENGTH	WEIGHT	NO.	SIZE	SPAC.	LENGTH	WEIGHT	NO.	SIZE	SPAC.	LENGTH	WEIGHT	TOTAL WEIGHT			
3'x3'	6"	14"	3'-6"	5'-3"	4.10	558	6 1/2"	2'-6"	8"	10"	1'-0"	3'-6"	5'-3"	24	#4	12"	5'-1"	81	24	#4	12"	3'-11"	63	16	5'-0"	53	8	5'-0"	27	10	#5	18"	6'-0"	100	20	3'-9"	50	28	8'-9"	164	538
3'x3'	6"	14"	4'-6"	6'-9"	6.11	818	7"	2'-10"	8"	1'-2"	1'-0"	4'-6"	6'-9"	32	#4	11"	6'-1"	130	32	#4	11"	4'-3"	91	24	6'-6"	104	8	6'-6"	35	24	#5	18"	6'-0"	170	24	4'-9"	76	28	14'-3"	210	796
4'x2'	6"	12"	3'-6"	5'-3"	4.21	564	6 1/2"	2'-6"	8"	10"	1'-0"	5'-6"	8'-3"	60	#4	7"	7'-3"	291	60	#4	7"	4'-10"	194	32	8'-0"	171	8	8'-0"	43	32	#5	18"	6'-0"	200	28	5'-9"	108	32	13'-3"	283	1290
4'x3'	6"	12"	4'-6"	6'-9"	6.23	824	7"	2'-10"	8"	1'-2"	1'-0"	6'-8"	9'-9"	56	#5	8 1/2"	8'-5"	492	60	#5	8"	5'-3"	339	32	9'-6"	203	12	9'-6"	76	32	#5	18"	6'-0"	200	32	6'-9"	144	36	15'-9"	379	1833
4'x4'	6"	12"	5'-6"	8'-3"	8.25	1322	7"	3'-5"	8"	1'-7"	1'-2"	7'-6"	11'-3"	80	#5	7"	9'-10"	820	80	#5	7"	6'-1"	507	40	11'-0"	294	12	11'-0"	88	40	#5	18"	6'-0"	260	36	7'-9"	186	36	17'-3"	415	2560
5'x2'	6"	8"	3'-6"	5'-3"	4.33	569	7"	2'-6"	8"	10"	1'-0"	8'-6 1/2"	12'-10"	112	#5	5 1/2"	11'-4"	1324	104	#5	6"	6'-7"	174	48	12'-7"	403	12	12'-7"	107	48	#5	18"	6'-0"	300	40	8'-9"	234	40	18'-11"	505	3581
5'x3'	6"	8"	4'-6"	6'-9"	6.34	829	7"	2'-10"	8"	1'-2"	1'-0"	9'-6 1/2"	14'-4"	108	#6	6 1/2"	12'-9"	2068	116	#6	6"	7'-4"	1277	48	14'-1"	452	16	14'-1"	150	48	#5	18"	6'-0"	300	44	9'-9"	287	44	20'-6"	603	5137
5'x4'	6"	8"	5'-6"	8'-3"	8.87	1328	7"	3'-5"	8"	1'-7"	1'-2"	10'-7"	15'-10"	140	#6	5 1/2"	14'-4"	3013	140	#6	5 1/2"	7'-11"	1665	56	15'-7"	583	16	15'-7"	167	56	#5	18"	6'-0"	300	48	10'-10"	347	44	22'-0"	647	6772
5'x5'	6"	8"	6'-6"	9'-9"	11.86	1876	7"	4'-0"	8"	2'-0"	1'-4"	11'-7"	17'-4"	168	#6	5"	15'-9"	3974	168	#6	5"	8'-7"	2165	64	17'-1"	730	16	17'-1"	183	64	#5	18"	6'-0"	401	52	11'-10"	411	48	23'-6"	751	8618
6'x4'	6"	8"	5'-6"	8'-3"	8.90	1334	7"	3'-5"	8"	1'-7"	1'-2"	7'-6"	11'-3"	80	#5	7"	9'-10"	820	80	#5	7"	6'-1"	507	40	11'-0"	294	12	11'-0"	88	40	#5	18"	6'-0"	260	36	7'-9"	186	36	17'-3"	415	2560
6'x5'	6"	8"	6'-6"	9'-9"	11.99	1883	7"	4'-0"	8"	2'-0"	1'-4"	8'-6 1/2"	12'-10"	112	#5	5 1/2"	11'-4"	1324	104	#5	6"	6'-7"	174	48	12'-7"	403	12	12'-7"	107	48	#5	18"	6'-0"	300	40	8'-9"	234	40	18'-11"	505	3581
6'x6'	6"	8"	7'-6"	11'-3"	15.56	2616	7"	4'-8"	8"	2'-3"	1'-9"	9'-6 1/2"	14'-4"	108	#6	6 1/2"	12'-9"	2068	116	#6	6"	7'-4"	1277	48	14'-1"	452	16	14'-1"	150	48	#5	18"	6'-0"	300	44	9'-9"	287	44	20'-6"	603	5137
7'x3'	6 1/2"	8"	4'-6 1/2"	6'-10"	6.68	841	7"	2'-10"	8"	1'-2"	1'-0"	7'-6"	11'-3"	80	#5	7"	9'-10"	820	80	#5	7"	6'-1"	507	40	11'-0"	294	12	11'-0"	88	40	#5	18"	6'-0"	260	36	7'-9"	186	36	17'-3"	415	2560
7'x4'	6 1/2"	8"	5'-6 1/2"	8'-4"	9.24	1341	7"	3'-5"	8"	1'-7"	1'-2"	8'-6 1/2"	12'-10"	112	#5	5 1/2"	11'-4"	1324	104	#5	6"	6'-7"	174	48	12'-7"	403	12	12'-7"	107	48	#5	18"	6'-0"	300	40	8'-9"	234	40	18'-11"	505	3581
7'x5'	6 1/2"	8"	6'-6 1/2"	9'-10"	12.27	1890	7"	4'-0"	8"	2'-0"	1'-4"	9'-6 1/2"	14'-4"	108	#6	6 1/2"	12'-9"	2068	116	#6	6"	7'-4"	1277	48	14'-1"	452	16	14'-1"	150	48	#5	18"	6'-0"	300	44	9'-9"	287	44	20'-6"	603	5137
7'x6'	6 1/2"	8"	7'-6 1/2"	11'-4"	15.89	2624	7"	4'-8"	8"	2'-3"	1'-9"	10'-7"	15'-10"	140	#6	5 1/2"	14'-4"	3013	140	#6	5 1/2"	7'-11"	1665	56	15'-7"	583	16	15'-7"	167	56	#5	18"	6'-0"	300	48	10'-10"	347	44	22'-0"	647	6772
7'x7'	6 1/2"	8"	8'-6 1/2"	12'-10"	21.55	3650	8"	5'-2"	9 1/2"	2'-6 1/2"	1'-10"	11'-7"	17'-4"	168	#6	5"	15'-9"	3974	168	#6	5"	8'-7"	2165	64	17'-1"	730	16	17'-1"	183	64	#5	18"	6'-0"	401	52	11'-10"	411	48	23'-6"	751	8618
8'x4'	6 1/2"	4"	5'-6 1/2"	8'-4"	9.36	1341	7"	3'-5"	8"	1'-7"	1'-2"	7'-6"	11'-3"	80	#5	7"	9'-10"	820	80	#5	7"	6'-1"	507	40	11'-0"	294	12	11'-0"	88	40	#5	18"	6'-0"	260	36	7'-9"	186	36	17'-3"	415	2560
8'x5'	6 1/2"	4"	6'-6 1/2"	9'-10"	12.40	1897	7"	4'-0"	8"	2'-0"	1'-4"	8'-6 1/2"	12'-10"	112	#5	5 1/2"	11'-4"	1324	104	#5	6"	6'-7"	174	48	12'-7"	403	12	12'-7"	107	48	#5	18"	6'-0"	300	40	8'-9"	234	40	18'-11"	505	3581
8'x6'	6 1/2"	4"	7'-6 1/2"	11'-4"	16.03	2632	7"	4'-8"	8"	2'-3"	1'-9"	9'-6 1/2"	14'-4"	108	#6	6 1/2"	12'-9"	2068	116	#6	6"	7'-4"	1277	48	14'-1"	452	16	14'-1"	150	48	#5	18"	6'-0"	300	44	9'-9"	287	44	20'-6"	603	5137
8'x7'	6 1/2"	4"	8'-6 1/2"	12'-10"	21.70	3659	8"	5'-2"	9 1/2"	2'-6 1/2"	1'-10"	10'-7"	15'-10"	140	#6	5 1/2"	14'-4"	3013	140	#6	5 1/2"	7'-11"	1665	56	15'-7"	583	16	15'-7"	167	56	#5	18"	6'-0"	300	48	10'-10"	347	44	22'-0"	647	6772
8'x8'	6 1/2"	4"	9'-6 1/2"	14'-4"	28.49	5222	9"	5'-9"	10 1/2"	2'-8 1/2"	2'-2"	11'-7"	17'-4"	168	#6	5"	15'-9"	3974	168	#6	5"	8'-7"	2165	64	17'-1"	730	16	17'-1"	183	64	#5	18"	6'-0"	401	52	11'-10"	411	48	23'-6"	751	8618
8'x4'	7"	6"	5'-7"	8'-4"	9.41	1347	7"	3'-5"	8"	1'-7"	1'-2"	7'-6"	11'-3"	80	#5	7"	9'-10"	820	80	#5	7"	6'-1"	507	40	11'-0"	294	12	11'-0"	88	40	#5	18"	6'-0"	260	36	7'-9"	186	36	17'-3"	415	2560
8'x5'	7"	6"	6'-7"	9'-10"	12.46	1897	7"	4'-0"	8"	2'-0"	1'-4"	8'-6 1/2"	12'-10"	112	#5	5 1/2"	11'-4"	1324	104	#5	6"	6'-7"	174	48	12'-7"	403	12	12'-7"	107	48	#5	18"	6'-0"	300	40	8'-9"	234	40	18'-11"	505	3581
8'x6'	7"	6"	7'-7"	11'-4"	16.11	2632	7"	4'-8"	8"	2'-3"	1'-9"	9'-6 1/2"	14'-4"	108	#6	6 1/2"	12'-9"	2068	116	#6	6"	7'-4"	1277	48	14'-1"	452	16	14'-1"	150	48	#5	18"	6'-0"	300	44	9'-9"	287	44	20'-6"	603	5137
8'x7'	7"	6"	8'-7"	12'-10"	21.79	3659	8"	5'-2"	9 1/2"	2'-6 1/2"	1'-10"	10'-7"	15'-10"	140	#6	5 1/2"	14'-4"	3013	140	#6	5 1/2"	7'-11"	1665	56	15'-7"	583	16	15'-7"	167	56	#5	18"	6'-0"	300	48	10'-10"	347	44	22'-0"	647	6772
8'x8'	7"	6"	9'-7"	14'-4"	28.60	5222	9"	5'-9"	10 1/2"	2'-8 1/2"	2'-2"	11'-7"	17'-4"	168	#6	5"	15'-9"	3974	168	#6	5"	8'-7"	2165	64	17'-1"	730	16	17'-1"	183	64	#5	18"	6'-0"	401	52	11'-10"	411	48	23'-6"	751	8618
9'x4'	7 1/2"	8"	5'-6 1/2"	8'-5"	9.54	1347	7"	3'-5"	8"	1'-7"	1'-2"	7'-6"	11'-3"	80	#5	7"	9'-10"	820	80	#5	7"	6'-1"	507	40	11'-0"	294	12	11'-0"	88	40	#5	18"	6'-0"	260	36	7'-9"	186	36	17'-3"	415	2560
9'x5'	7 1/2"	8"	6'-6 1/2"	9'-11"	12.61	1897	7"	4'-0"	8"	2'-0"	1'-4"	8'-6 1/2"	12'-10"	112	#5	5 1/2"	11'-4"	1324	104	#5	6"	6'-7"	174	48	12'-7"	403	12	12'-7"	107	48	#5	18"	6'-0"	300	40	8'-9"	234	40	18'-11"	505	3581
9'x6'	7 1/2"	8"	7'-6 1/2"	11'-5"	16.30	2632	7"	4'-8"	8"	2'-3"	1'-9"	9'-6 1/2"	14'-4"	108	#6	6 1/2"	12'-9"	2068	116	#6	6"	7'-4"	1277	48	14'-1"	452	16	14'-1"	150	48	#5	18"	6'-0"	300	44	9'-9"	287	44	20'-6"	603	5137
9'x7'	7 1/2"	8"	8'-6 1/2"	12'-11"	22.02	3659	8"	5'-2"	9 1/2"	2'-6 1/2"	1'-10"	10'-7"	15'-10"	140	#6	5 1/2"	14'-4"	3013	140	#6	5 1/2"	7'-11"	1665	56	15'-7"	583	16	15'-7"	167	56	#5	18"	6'-0"	300	48	10'-10"	347	44	22'-0"	647	6772
9'x8'	7 1/2"	8"	9'-6 1/2"	14'-6"	28.88	5222	9"	5'-9"	10 1/2"	2'-8 1/2"	2'-2"	11'-7"	17'-4"	168	#6	5"	15'-9"	3974	168	#6	5"	8'-7"	2165	64	17'-1"	730	16	17'-1"	183	64	#5	18"	6'-0"	401	52	11'-10"	411	48	23'-6"	751	8618
9'x5'	7"	6"	6'-7"	9'-10"	12.59	1904	7"	4'-0"	8"	2'-0"	1'-4"	8'-6 1/2"	12'-10"	112	#5	5 1/2"	11'-4"	1324	104	#5	6"	6'-7"	174	48	12'-7"	403	12	12'-7"	107	48	#5	18"	6'-0"	300	40	8'-9"	234	40	18'-11"	505	3581
9'x6'	7"	6"	7'-7"	11'-4"	16.26	2640	7"	4'-8"	8"	2'-3"	1'-9"	9'-6 1/2"	14'-4"	108	#6	6 1/2"	12'-9"	2068	116	#6	6"	7'-4"	1277	48	14'-1"	452	16	14'-1"	150	48	#5	18"	6'-0"	300	44	9'-9"	287	44	20'-6"	603	5137
9'x7'	7"	6"	8'-7"	12'-10"	21.95	3668	8"	5'-2"	9 1/2"	2'-6 1/2"	1'-10"	10'-7"	15'-10"	140	#6	5 1/2"	14'-4"	3013	140	#6	5 1/2"	7'-11"	1665	56	15'-7"	583	16	15'-7"	167	56	#5	18"	6'-0"	300	48	10'-10"	347	44	22'-0"	647	6772
9'x8'	7"	6"	9'-7"	14'-4"	28.78	5232	9"	5'-9"	10 1/2"	2'-8 1/2"																															



PLAN  
 DATE  
 BY  
 CHECKED  
 NO.

PROFILE  
 DATE  
 BY  
 CHECKED  
 NO.

CULVERT SIZE	TABLE OF DIMENSIONS										TOTAL QUANTITIES		TABLE OF REINFORCING STEEL FOR 2 WINGS																		CULVERT SIZE																		
	S	H	L	M	V	W	C	D	TA	MAX FILL			Conc Cu Yds	Steel Lbs	Bars H-#4		Bars J-#6		Bars O #4 @ 12"		Bars O1-Ox #4 @ 12"		Bars P #4 @ 12"		Bars P1-Px #4 @ 12"		Bars Q1-Qx #4 @ 12"		Bars R 4-#4			Bars S 8-#4		Bars U #4		Bars V1-Vx				8 Bars W									
										-1'	6"	8"			No	Wt	No	Wt	No	Lgth	Wt	No	Av Lgth	Wt	No	Lgth	Wt	No	Av Lgth	Wt		No	Lgth	Wt	No	Lgth	Wt	No	Lgth	Wt	No	Size	Spac	Av Lgth	Wt	Size	Lgth	Wt	S
3 x 2	5'-6"	3'-8"	6"	6'-5 1/2"	1'-0"	2'-8"	6"	-	-	10"	1.73	241	12	20	8	48	3	5'-11"	12	4	3'-6"	9	3	6'-5"	13	4	4'-0"	11	6	5'-0"	20	6	6'-6"	17	3	5"	18	8	3'-1"	16	16	#4	12"	3'-6"	37	#4	3'-9"	20	3 x 2



GENERAL NOTES:  
 All concrete shall be Class A.  
 Dimensions relating to reinforcing steel are to centers of bars.  
 Steel cover to be 2" from center of outside layer of steel to face of concrete.  
 Chamfer exposed corners 3/4" except as otherwise noted.



TEXAS HIGHWAY DEPARTMENT  
**TYPE "B"**  
**HEADWALL DETAILS**  
 FWN

DN: RMM	DRAWING: ORIGINAL	DATE: April, 1943	FED. ROAD DIST. NO.:	STATE: TEXAS	FEDERAL AID PROJECT NO.:
CR. DN: VWH	REV. JUN. 1942				
CR. DN: A.B.L.	REV. JAN. 1939				
TR: A.B.P.	REV. NOV. 1961				
CR. TO: RMM	REV. NOV. 1967				