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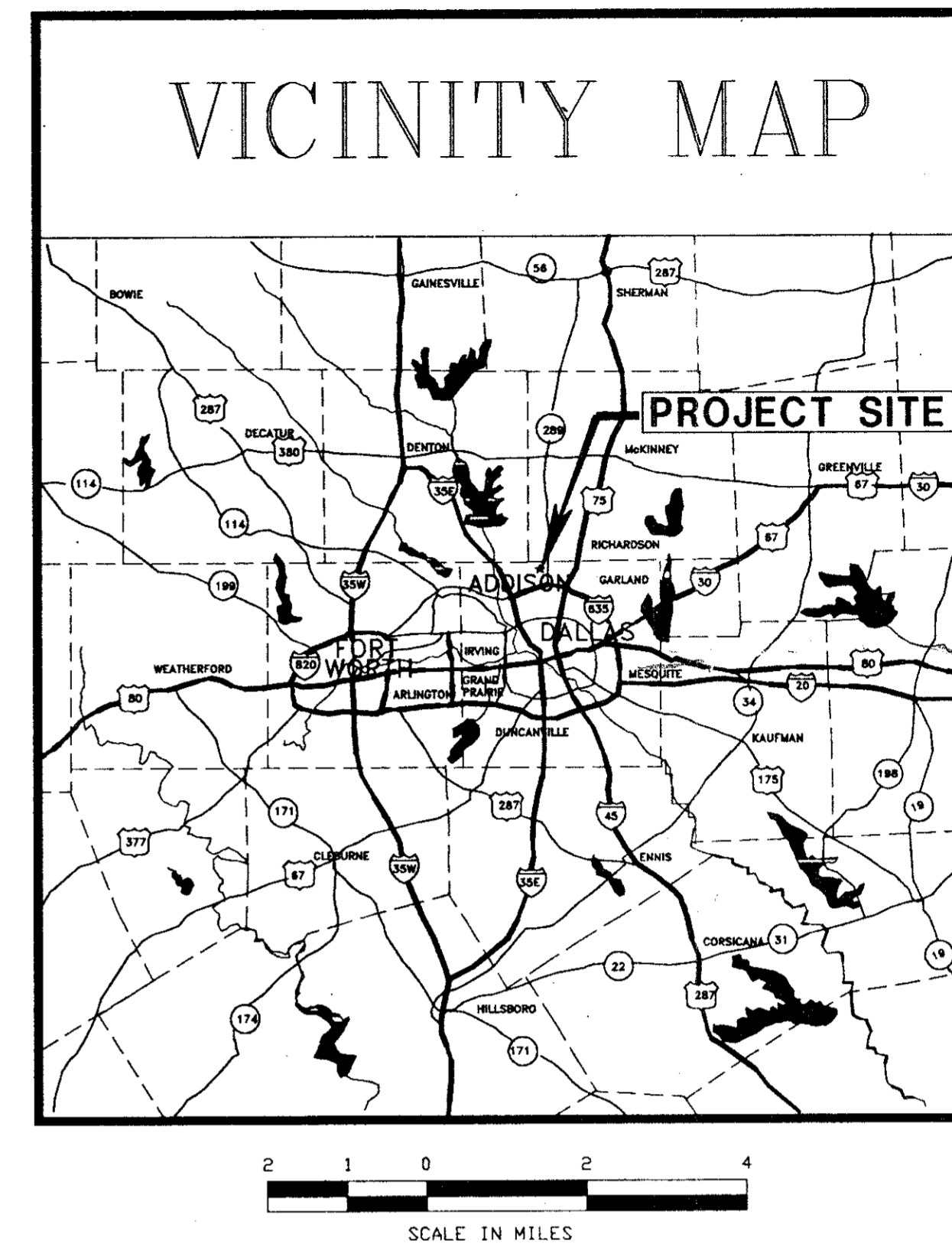


DALLAS COUNTY  
STATE OF TEXAS

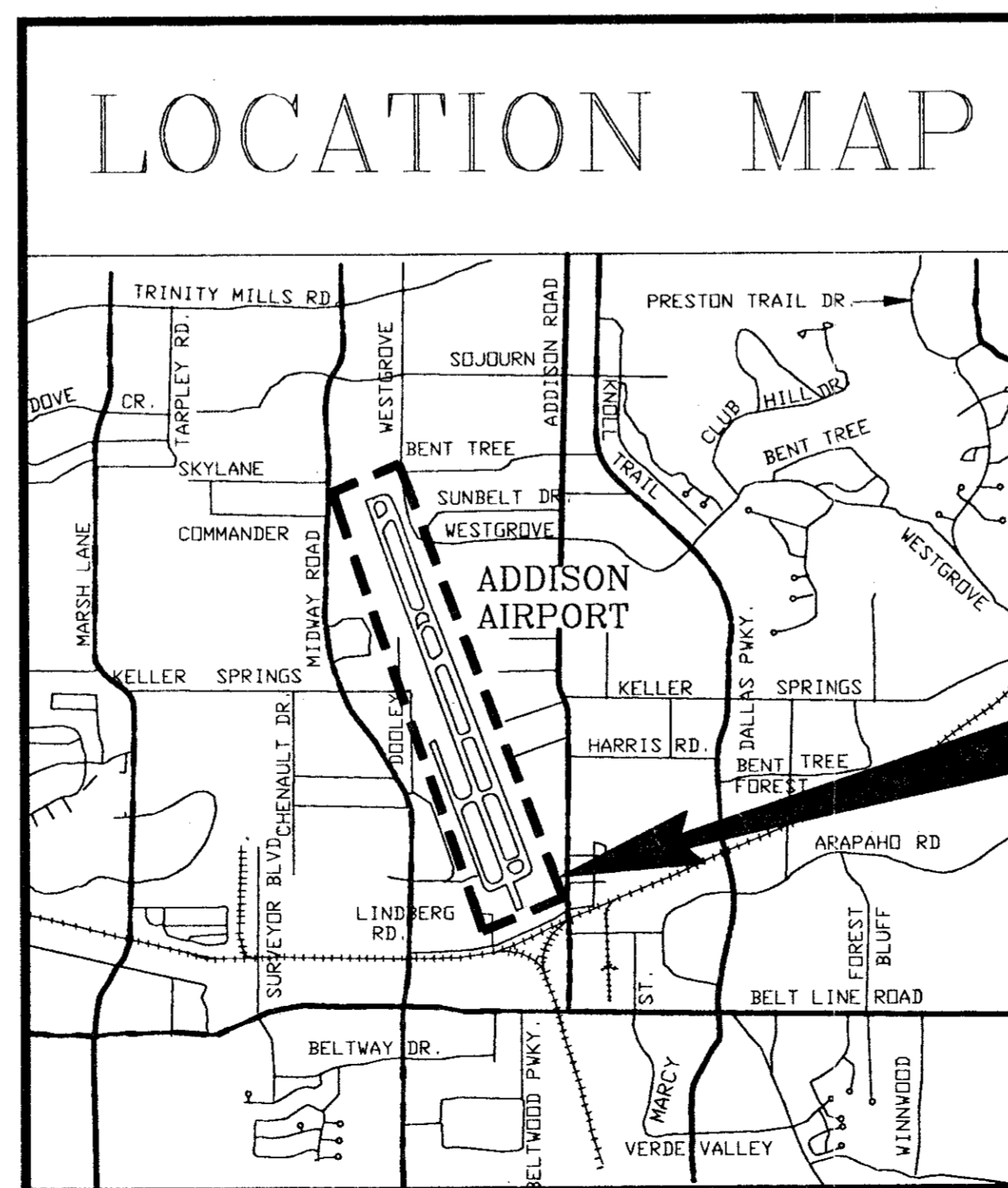
# DRAINAGE IMPROVEMENTS

## ADDISON AIRPORT

BID NUMBER 91 - 19  
A.I.P. PROJECT NO. 3-48-0063-03-91  
SEPTEMBER 1991



Greiner, Inc.  
FORT WORTH, TEXAS  
ENGINEERS ARCHITECTS PLANNERS



**PROPOSED IMPROVEMENTS**

TYPE OF CONSTRUCTION: DRAINAGE, SURFACE GRADING AND PAVEMENT PATCHING.

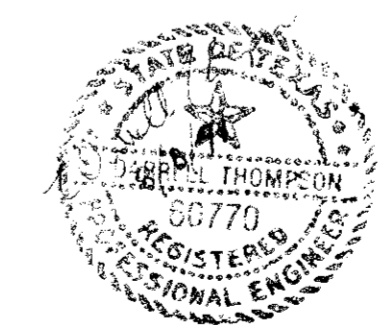
REVISIONS		
DATE	DESCRIPTION	BY

RECOMMENDED FOR APPROVAL *Robert C. Greiner*  
DESIGN ENGINEER

DATE 8-8-91  
RECOMMENDED FOR APPROVAL *John P. Ewing*  
PROJECT ENGINEER

DATE 8/8/91  
APPROVED *John P. Ewing*  
CITY ENGINEER

DATE 3/13/91



**AS BUILT**  
JUL 30 1992



ITEM NUMBER	ITEM DESCRIPTION	UNITS	BID QUANTITY			CHANGE ORDERS	FINAL QUANTITY $\Delta$			REMARKS
			TOTAL	A.I.P.	NON A.I.P.		TOTAL	A.I.P.	NON A.I.P.	
GP-70-II.1	THIRD PARTY INSURANCE	L.S.	1		1					ALL FINAL QUANTITIES INCLUDED IN C.O.# 2
P-152-4.1	UNCLASSIFIED EXCAVATION	C.Y.	715	715			715	715		
P-152-4.7	EMBANKMENT	C.Y.	2935	2935			2935	2935		
P-152-4.8	SURFACE GRADING	S.Y.	15,091	15,091			17,060	17,060		
P-620-5.1	RELOCATE R/W & THRES. MARKING & LIGHTS	L.S.	1	1		CHANGE ORDER NO. 1 2-3-92	1	1		COST INCREASE
F-162-5.1	CHAIN LINK FENCE 6' FAB. W/3 STRAND B.W.	L.F.	59	59			59	59		
D-701-5.1(A)	24" R.C.P.	L.F.	2256	2256			2346	2346		
D-701-5.1(B)	30" R.C.P.	L.F.	2241	2241			2184	2184		
D-701-5.1(C)	36" R.C.P.	L.F.	1109	1109			1066	1066		
D-701-5.1(D)	42" R.C.P.	L.F.	2981	2981			2894	2894		
D-701-5.1(E)	48" R.C.P.	L.F.	387	387			403.5	403.5		
D-701-5.1(F)	54" R.C.P.	L.F.	1560	1560			1538	1538		
D-701-5.1(G)	60" R.C.P.	L.F.	710	710			612	612		
D-701-5.1(H)	66" R.C.P.	L.F.	1325	1325			1135	1135		
D-701-5.1(I)	72" R.C.P.	L.F.	60	60			60	60		
D-751-5.1(A)	GRATE INLETS (TYPE H)	EA.	33	33			35	35		
D-751-5.1(B)	GRATE INLET RISER (TYPE H)	EA.	1	1			1	1		
D-751-5.1(C)	GRATE INLET RISER (TYPE H) w/ M.H. BOT. (TYPE M)	EA.	2	2			2	2		
D-751-5.1(D)	GRATE INLET RISER (TYPE H)w/M.H.BOT.(TYPE M)(MOD)	EA.	$\Delta 5 \cancel{2}$	$\Delta 5 \cancel{2}$			5	5		
D-751-5.1(E)	GRATE INLET (TYPE H)(MOD.)	EA.	$\Delta 0 \cancel{2}$	$\Delta 0 \cancel{2}$			0	0		
D-751-5.1(F)	MANHOLES (TYPE M)	EA.	6	6			5	5		
D-751-5.1(G)	MANHOLE (TYPE M MOD.)	EA.	2	2			2	2		
D-751-5.1(H)	JUNCTION BOX (TYPE M)(MODIFIED)	EA.	1	1			1	1		
D-752-5.1(A)	48" HEADWALL (TYPE A)	EA.	1	1			1	1		
D-752-5.1(B)	54" HEADWALL (TYPE A)	EA.	1	1			1	1		
D-752-5.1(C)	72" HEADWALL (TYPE A)	EA.	1	1			1	1		
D-752-5.1(D)	DBL. 7' X 6' CONC. BOX CULVERT	L.F.	250	250			247	247		
D-752-5.1(E)	DBL. 7' X 5' CONC. BOX CULVERT	L.F.	251	251			258	258		
D-752-5.1(F)	BOX CULVERT WINGWALLS	EA.	2	2			2	2		
T-901-5.1	SEEDING	M.S.F.	208	208			836	836		
S - 1 (A)	REMOVE AND REPLACE EXIST. ASPHLT. PAVMT.	S.Y.	1684	1684			1490	1490		
S - 1 (B)	REMOVE AND REPLACE EXIST. CONC. PAVMT.	S.Y.	340	340			534	534		
S - 2(A)	REM. OF EXIST. DRAINAGE STRUCTS.	E.A.	10	10			16	16		
S - 2(B)	REM. OF EXIST. DRAINAGE PIPES	L.F.	1487	1487			1476	1476		
S - 3	TRENCH SAFTEY	L.F.	8426	8426			9935	9935		
S - 4	MOBILIZATION	L.S.	1	1			1	1		
S - 5	MODIFY TYPE "H" INLET GRATES	EA.	N/A	N/A		CHANGE ORDER NO. 2 (FINAL) 4-24-92	25	25		
S - 6	SURFACE GRADING FOR INLETS S-43 AND S-23	L.S.	N/A	N/A		CHANGE ORDER NO. 2 (FINAL) 4-24-92	1	1		

## CONTRACTOR'S SAFETY AND SECURITY REQUIREMENTS

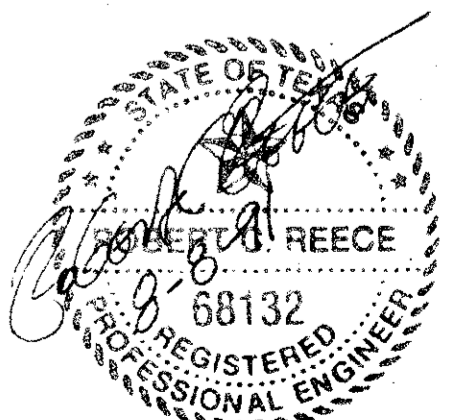
### SAFETY

### SECURITY

- The contractor shall acquaint his supervisors of the airport activity and operations that are inherent of this active airport and shall conduct his construction activities to conform to all routine and emergency air traffic requirements and guidelines on safety specified in Special Provisions of the contract documents.
  - All contractor vehicles that are authorized to operate on the airport outside of the designated construction areas are limited to haul routes as specified on the plans. In the active Aircraft Operations Area (AOA) shall display in full view above the vehicle a 3' x 3' or larger, orange and white checkerboard flag, each checkerboard color being 1' square and escorted under the control of the contractor mobile (two-way) radio operator on the job at all times. The mobile operator shall be in constant contact with ATCT group control. Any vehicle operating in the active AOA during the hours of darkness should be equipped with a flashing amber (yellow) dome type light, mounted on top of the vehicle and of such intensity to conform to local codes for maintenance and emergency vehicles.
  - All contractor vehicles that are required to cross active runways and instrument of approach clear zones shall do so under the direct control of a flagman who is in direct (two-way) radio communication with the ground controller of the Air Traffic Control Tower, on ground control frequency. The flagman and radio operator shall be trained and instructed by Airport Management in the regulations governing operations on the AOA. The flagman and radio operator shall remain with his vehicle at all times. Contractor shall furnish flagmen equipped with two-way radios as well as furnishing a two-way to be utilized by the Engineer. All aircraft traffic on runways, taxiways and aprons shall have priority over contractor's traffic.
  - No runway, taxiway, apron or airport roadway shall be closed without written approval of the Airport transmitted by the Engineer to enable necessary "Notices to Airmen" (NOTAM) or advisories to airport services or tenants. A minimum of 48 hours notice of requested closing shall be directed to the Engineer, who will coordinate the request with the owner.
  - Any construction activity within 250' of an active runway edge or 40' from an active taxiway edge or open excavations in excess of 4" inches deep within the above areas, will require closure of the affected runway or taxiway, unless otherwise approved by the owner. Closure requires the same provisions as paragraph four above. See phasing notes sheet 4 for additional closure requirements.
  - Stockpiled material should be constrained in a manner to prevent movement resulting from aircraft jet blast or wind conditions in excess at 10 knots.
  - Open trenches, excavations and stockpiled material located in the AOA shall be prominently marked with flags and lighted by approved light units during hours of restricted visibility and darkness.
  - Debris, waste and loose material capable of causing damage to aircraft landing gears, propellers or being ingested in jet engines shall not be allowed on active aircraft movement areas. If these materials are observed to be on active aircraft movement areas, they will be removed immediately and or continuously during construction. Contractor is required to maintain on site a power sweeper with vacuum abilities to maintain the area debris free. This requirement is of the utmost importance. Any damage to aircraft as a result of non-compliance will be the sole responsibility of the contractor.
  - The Engineer will arrange with the owner for inspection prior to opening for aircraft use any runway or taxiway that has been closed for work, on or adjacent thereto, or that has been used for a crossing point or haul by the Contractor.
  - The Contractor's Security Officer (C.S.O.) will be responsible for all safety precautions. Prior to the commencement of the work the C.S.O. shall provide the Engineer an outline of a proposed accident and fire protection plan for all work contemplated under the contract and conduct at least one safety meeting each month for each shift and require the attendance of all supervisors at such meetings. Copies of the minutes of safety meetings shall be kept on file in the contractor's field office and available upon demand by the Engineer.
- General Intent: It is intended that the contractor shall comply with all requirements of the airport security plan and with the security requirements specified herein. The contractor shall designate to the Engineer in writing, the name of his "Contractor Security Officer" (C.S.O.). The C.S.O. shall represent the contractor on the security requirements for the contract.
  - Contractor Personnel Security Orientation: The Contractor Security Officer shall be responsible for briefing all contractor personnel on these requirements and, from time to time, and other security provisions adopted by the owner. All new contractor employees shall be briefed on these requirements prior to working in the construction area. The Contractor Personnel Security Officer shall be required to attend the preconstruction meeting before the project begins.
  - Access to the Site: Contractor's access to the site shall be as shown on plans. No other access points shall be allowed unless approved by the Engineer. All contractor traffic authorized to enter the site shall be experienced in the route or guide by contractor personnel. The contractor shall be responsible for traffic control to and from the various construction areas on the site, and for the operations of the access gate to the site. A contractor's flagman or traffic control person shall monitor and coordinate all contractor traffic at the access gate with Security. The contractor shall not permit any unauthorized construction personnel or traffic on the site. The contractor is responsible for immediate clean up of any debris deposited along the access route as a result of his construction traffic. Direction signing at the access gate and along the delivery route to the storage area, plant site or work site shall be as directed by the Engineer.
  - Materials Delivery to the Site: All Contractor's material orders for delivery to the work site will use as a delivery address, the street name assigned to the access point at the contractor's storage site at the airport.
  - Construction Area Limits: The limits of construction, material storage areas, plant site, equipment storage area, parking area and other areas defined as required for the contractor's exclusive use during construction shall be marked by the contractor. The contractor shall erect and maintain around the perimeter of these areas suitable fencing, marking and or warning devices visible for day/night use. Temporary barricades, flagging and flashing warning lights will be required at critical access points. Type of marking and warning devices shall be approved by the owner, through the Engineer.
  - Identification Personnel: All employees of contractor or subcontractors requiring access to the construction site are required to be supplied with identification badges, identifiable hard hats, and other identification approved by the Engineer, to be worn at all times while within the area.
  - Identification Vehicles: The contractor, through the Contractor Security Officer, shall establish and maintain a list of contractor and subcontractor vehicles authorized to operate on the site and shall issue a permit to each vehicle to be made available upon demand by the Engineer. Vehicles delivering materials to the contractor site shall pick up a temporary pass at the access gate and surrender same upon leaving the gate. Vehicle permits shall be assigned in a manner to assure positive identification at all times. In lieu of issuing individual vehicle permits the C.S.O. can require each vehicle to display a large company sign on both sides of vehicle and advise Security and Operations through the Engineer, with a current list of companies authorized to enter and conduct work on the airport. Contractor employee personal vehicles shall be restricted to the Contractor's storage area and are not allowed on the airfield at any time.

AS BUILT

JUL 30 1992



DESIGN: R.C.R.  
DRAWN: M.J.G.  
CHECKED: D.W.P.

A.I.P. NO.: 3-48-0063-03-91  
S.P. NO.:  
JOB NO.: Y8024.22

DATE	REVISIONS	BY	AUTH
7-24-92	CHANGE ORDER No. 2	MJA	REG
8-30-92	ADDENDUM No. 1	MJA	REG

**Greiner**  
Greiner, Inc.  
Fort Worth, Texas  
Engineers, Architects  
and Planners



# ADDISON AIRPORT

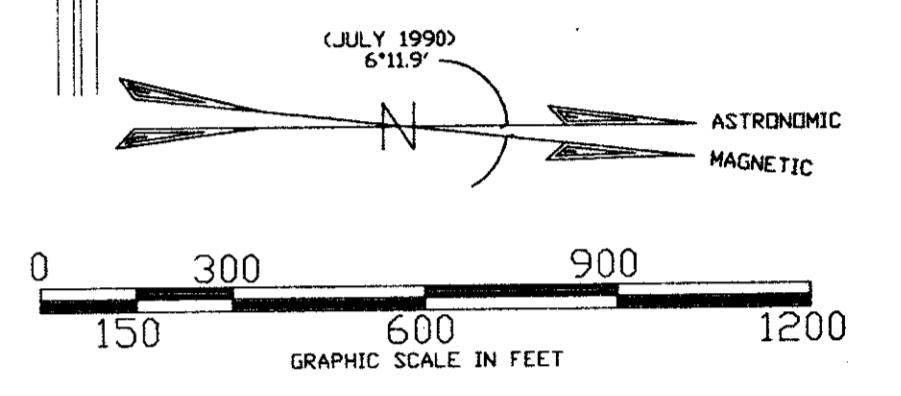
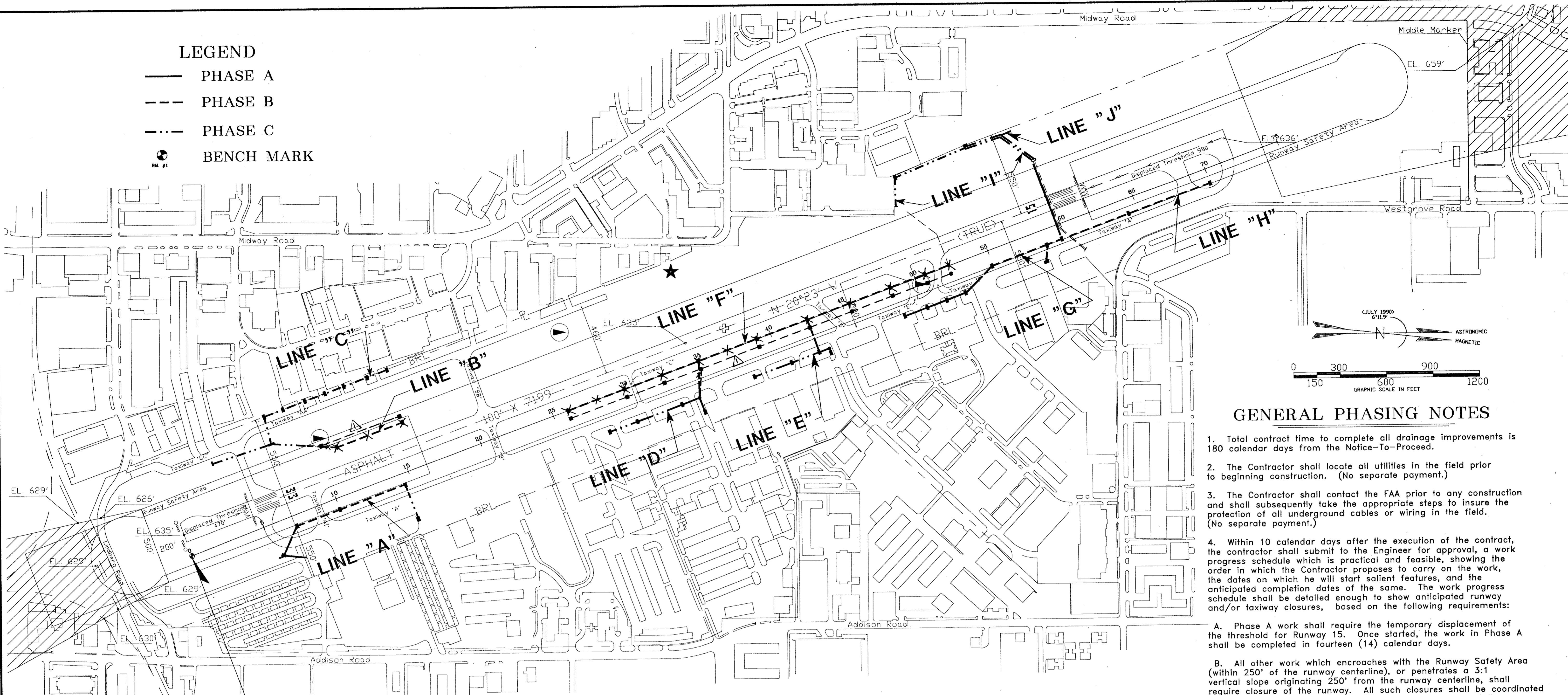
**DRAINAGE IMPROVEMENTS**  
SUMMARY OF QUANTITIES  
AND CONTRACTOR'S SAFETY AND SECURITY REQUIREMENTS

SHEET  
3

DATE: SEPT 1991

**LEGEND**

- PHASE A
- - - PHASE B
- · - · PHASE C
- ⊙ BENCH MARK



**GENERAL PHASING NOTES**

1. Total contract time to complete all drainage improvements is 180 calendar days from the Notice-To-Proceed.
2. The Contractor shall locate all utilities in the field prior to beginning construction. (No separate payment.)
3. The Contractor shall contact the FAA prior to any construction and shall subsequently take the appropriate steps to insure the protection of all underground cables or wiring in the field. (No separate payment.)
4. Within 10 calendar days after the execution of the contract, the contractor shall submit to the Engineer for approval, a work progress schedule which is practical and feasible, showing the order in which the Contractor proposes to carry on the work, the dates on which he will start salient features, and the anticipated completion dates of the same. The work progress schedule shall be detailed enough to show anticipated runway and/or taxiway closures, based on the following requirements:
  - A. Phase A work shall require the temporary displacement of the threshold for Runway 15. Once started, the work in Phase A shall be completed in fourteen (14) calendar days.
  - B. All other work which encroaches with the Runway Safety Area (within 250' of the runway centerline), or penetrates a 3:1 vertical slope originating 250' from the runway centerline, shall require closure of the runway. All such closures shall be coordinated with the airport through the Engineer for the issuance of the proper NOTAM's. Runway closures shall only be permitted between the hours of 10 p.m. and 6 a.m. See Safety Note 4 on Sheet 3.
  - C. All work which encroaches within the Taxiway Safety Area (within 40' of the taxiway centerline) shall require closure of that portion of the taxiway and shall be coordinated with the Airport through the Engineer for the issuance of the proper NOTAM's. No more than one (1) crossfield taxiway shall be closed during any one daytime period. No more than one (1) taxiway into an apron area shall be closed at any one time. Closures of crossfield and apron taxiways shall be coordinated with the Engineer on a case-by-case basis.
  - D. All trenches within the runway safety area, except those included in Phase A work, shall be backfilled nightly to the required densities, and all stockpiled or excavated material within the Runway Safety Area shall be removed daily to the acceptance of the Airport through the Engineer prior to re-opening the runway.
  - E. Access to all hangar and apron areas shall be maintained during daytime hours.
  - 5. Drainage is to be maintained by the Contractor at all times. (No separate payment.)
  - 6. Barricades shall be low level timber with flashers. See Detail Sheet No. 15. Barricades shall be placed at the discretion of the Engineer to indicate a closed taxiway or other hazardous condition adjacent to aircraft travel path. No separate payment will be made for this item.
  - 7. See Special Provisions in the Contract Specifications for additional requirements during construction.

**PHASE A**

- The Work of Phase A shall include the following:
1. Temporarily displace Runway 15 threshold 1220 feet southeast. This shall include removal of existing runway numeral, threshold and touchdown zone (TDZ) markings and placement of temporary runway numeral and threshold markings (See Detail Sheet 15), and temporary outboard threshold lights. Place barricades across the runway 500' from construction zone as shown on plans.
  2. Construct 500 l.f. 66" RCP as shown on plans.
  3. Replace runway pavement, see Detail Sheet No. 15
  4. Remove temporary displaced threshold markings, lights and replace original runway numeral, threshold and TDZ markings. Remove barricades.
  5. After inspection and acceptance by the Engineer, re-open runway.

**PHASE B**

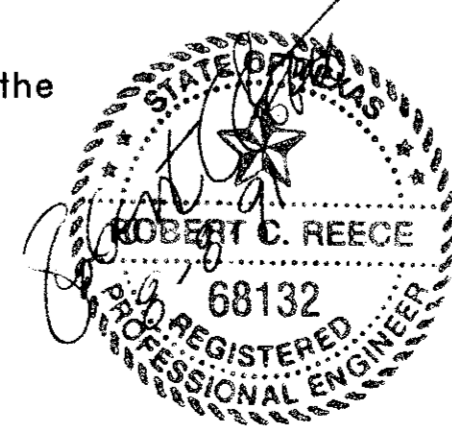
- The Work of Phase B is within the Runway Safety Area, and therefore shall require closure of the runway. The runway shall only be closed between the hours of 10 p.m. and 6 a.m.
- Phase B work shall include:
1. Set up barricades across taxiways where the work is to progress that night.
  2. Construct drainage improvements as outlined on plans.
  3. Backfill all open trenches to required densities, and remove all stockpiled or excavated material, and equipment from the runway safety area prior to 6 a.m. daily.
  4. Construct pavement patch where required and remove barricades. No more than one (1) taxiway in the Phase B work area may remain closed (unpaved) during any given daytime period.
  5. After inspection and acceptance by the Engineer, re-open the runway by 6 a.m. daily.

**PHASE C**

- The Work of Phase C is outside the Runway Safety Area, and may progress at the Contractor's option and as approved by the Engineer. All taxiway closings shall be coordinated through the Engineer. No more than one (1) taxiway into an apron area may be closed at a time.
- Phase C work shall include:
1. Set up barricades where deemed necessary by the Engineer for that construction area.
  2. Construct drainage improvements as outlined on plans.
  3. Backfill all trenches to required densities, and remove all stockpiled or excavated materials.
  4. Construct pavement patch where required.
  5. After inspection and acceptance by the Engineer, re-open the taxiway.

B.M.  
FOR EXACT LOCATION  
SEE PLAN & PROFILE (LINE A)  
SHEET NO. 5

**AS BUILT**  
JUL 30 1992



DESIGN: F.C.R.	A.I.P. NO. 3-48-0063-03-91		
DRAWN: M.J.C.	S.P. NO.		
CHECKED: D.W.P.	JOB NO. Y8024.22		
SCALE: 1" = 300'	Date	Revisions	By

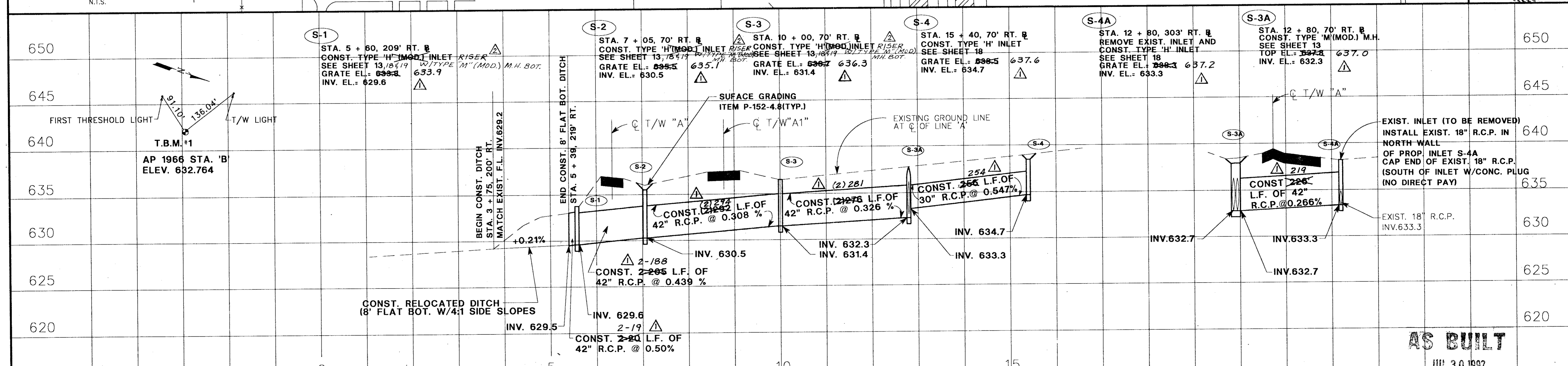
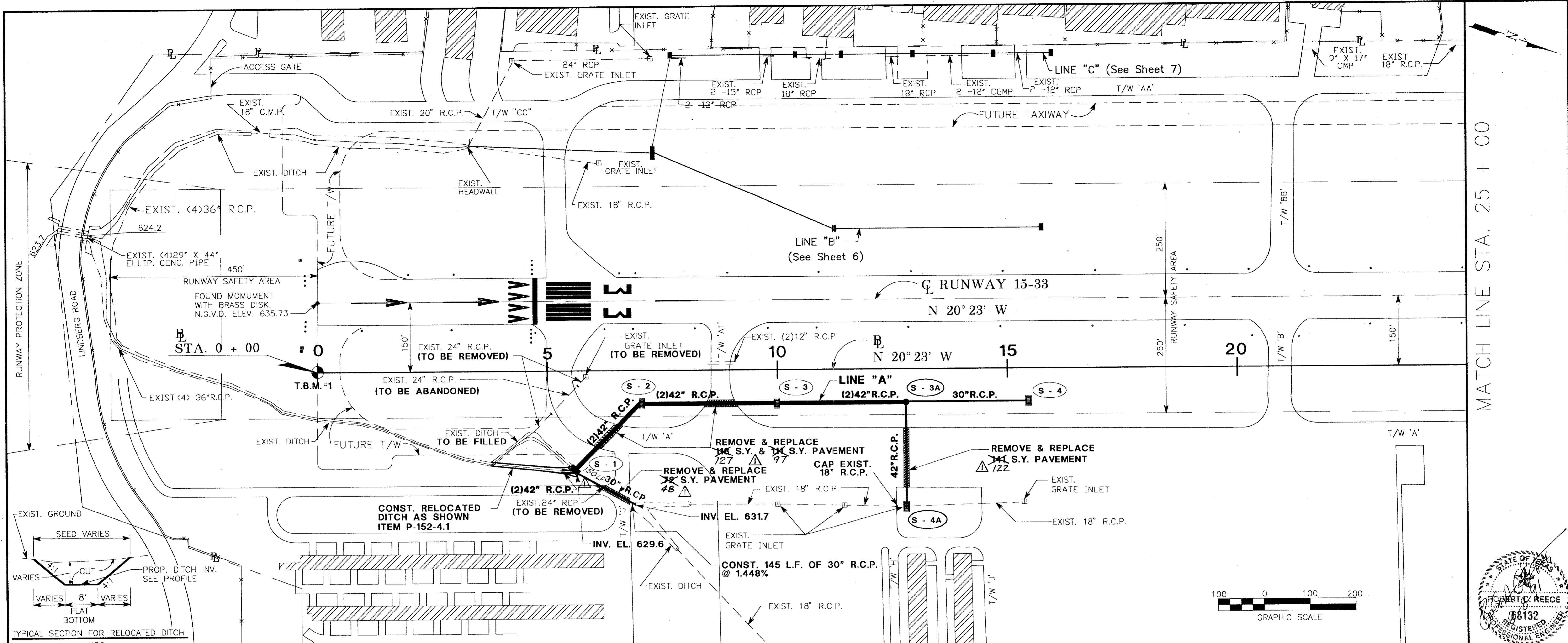
**Greiner**  
Greiner, Inc.  
Fort Worth, Texas

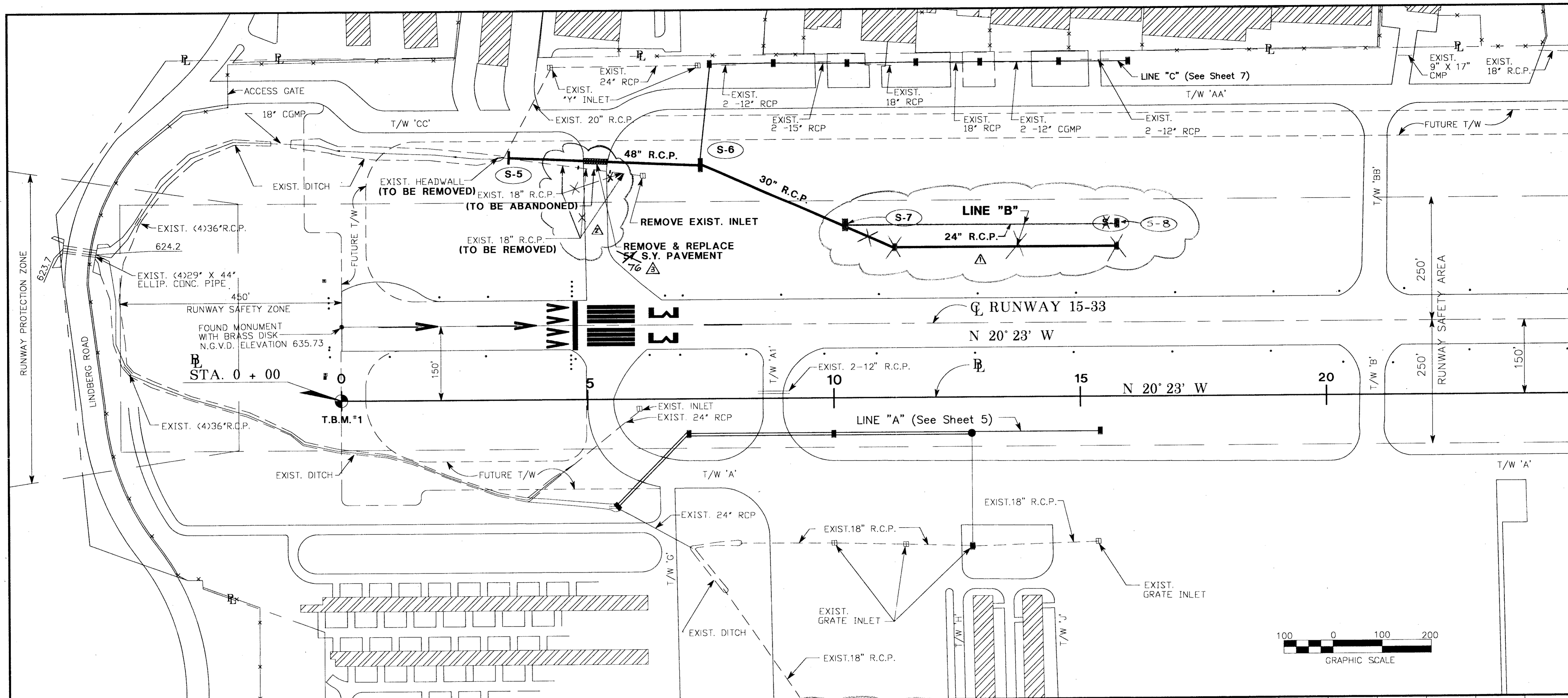
Engineers, Architects  
and Planners



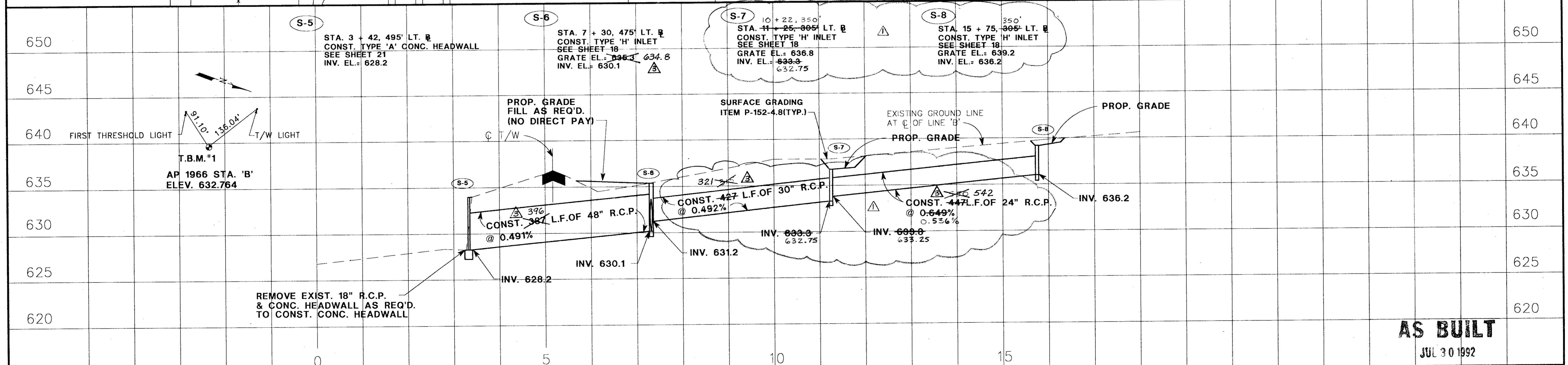
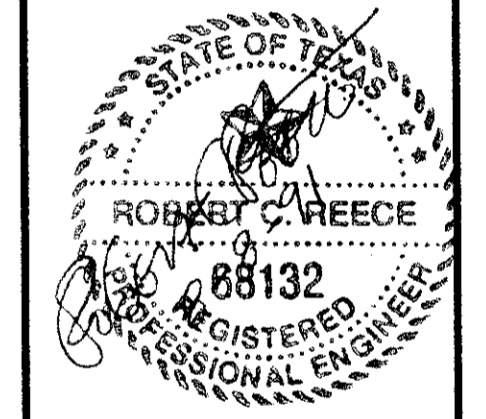
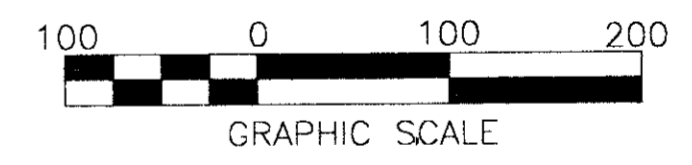
**ADDISON AIRPORT**

**DRAINAGE IMPROVEMENTS  
PHASING PLAN**





MATCH LINE STA. 25 + 00



**AS BUILT**  
JUL 30 1992

DESIGN: R.C.R.	A.L.P. NO: 3-48-0063-03-91	2-3-92	MOVE LINE 'B' FROM CENTERLINE OF RUNWAY 15-33	J.R.H.
DRAWN: M.J.G.	S.P. NO:	6-30-91	FIELD CHANGE	J.R.H.
CHECKED: D.W.P.	JOB NO: Y8024.22	7-30-92	AS BUILT	J.R.H.
SCALE: 1" = 100' HORIZ. 1" = 5' VERT.	Date	Revisions	By	

**Greiner**  
Greiner, Inc.  
Fort Worth, Texas

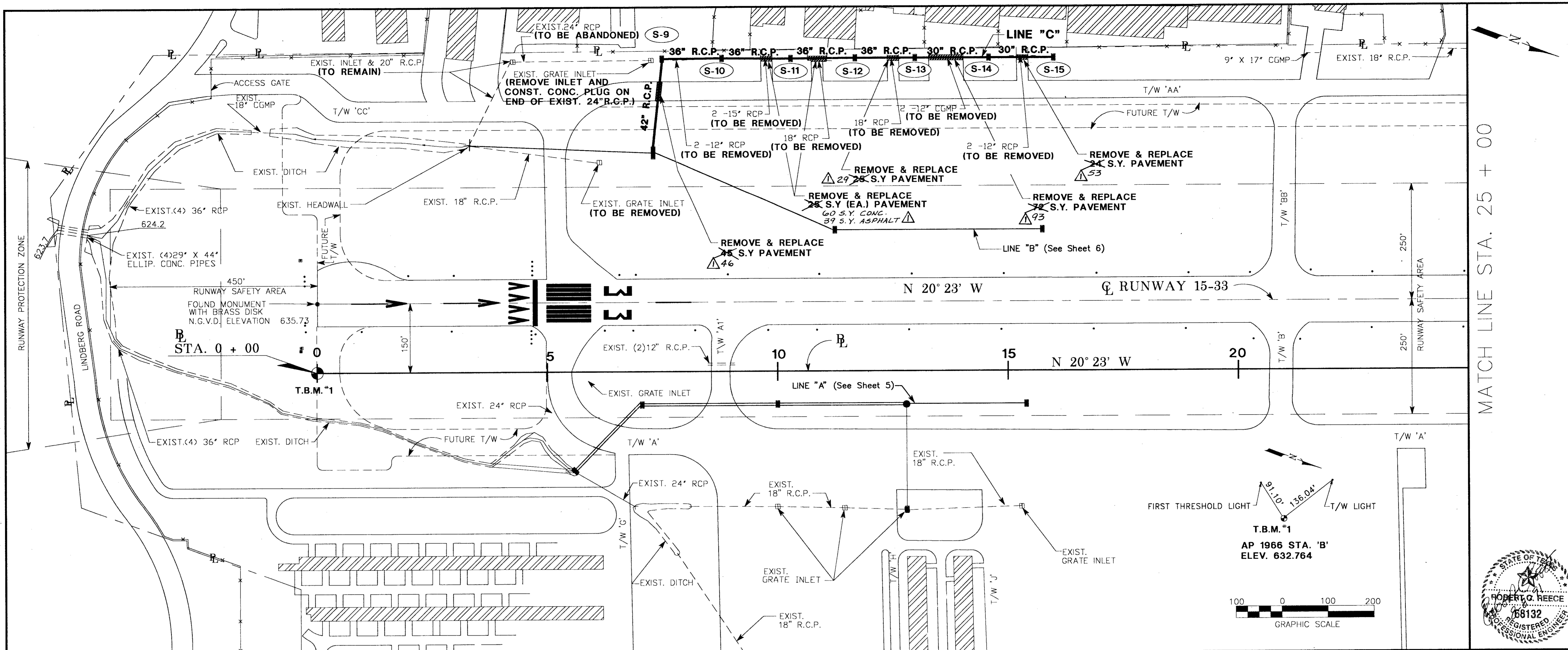
Engineers, Architects  
and Planners



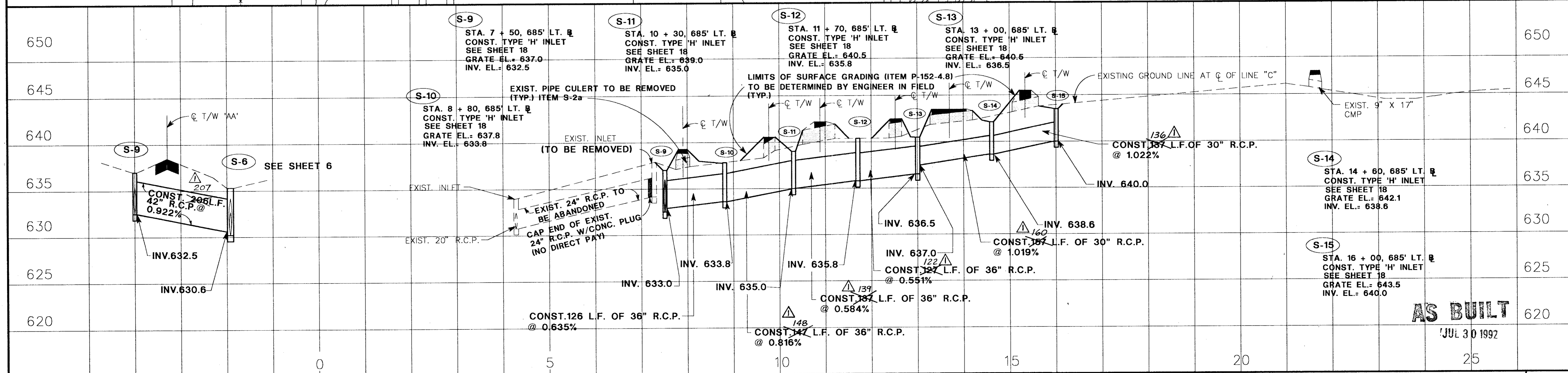
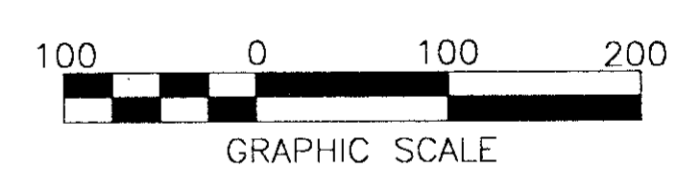
# ADDISON AIRPORT

DRAINAGE IMPROVEMENTS  
DRAINAGE LINE "B"  
DRAINAGE PLAN AND PROFILES-STA.7+30 TO STA.15+75

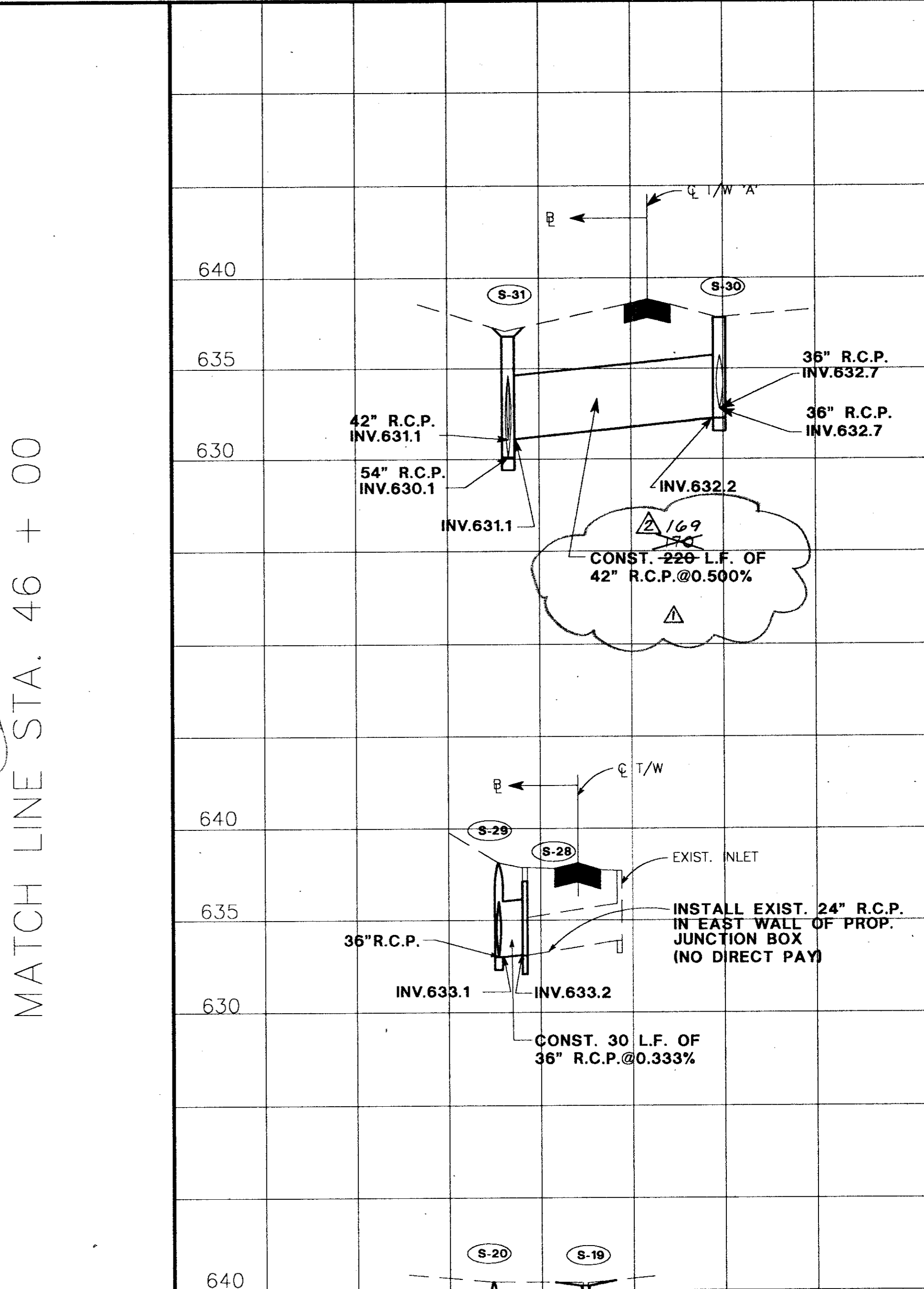
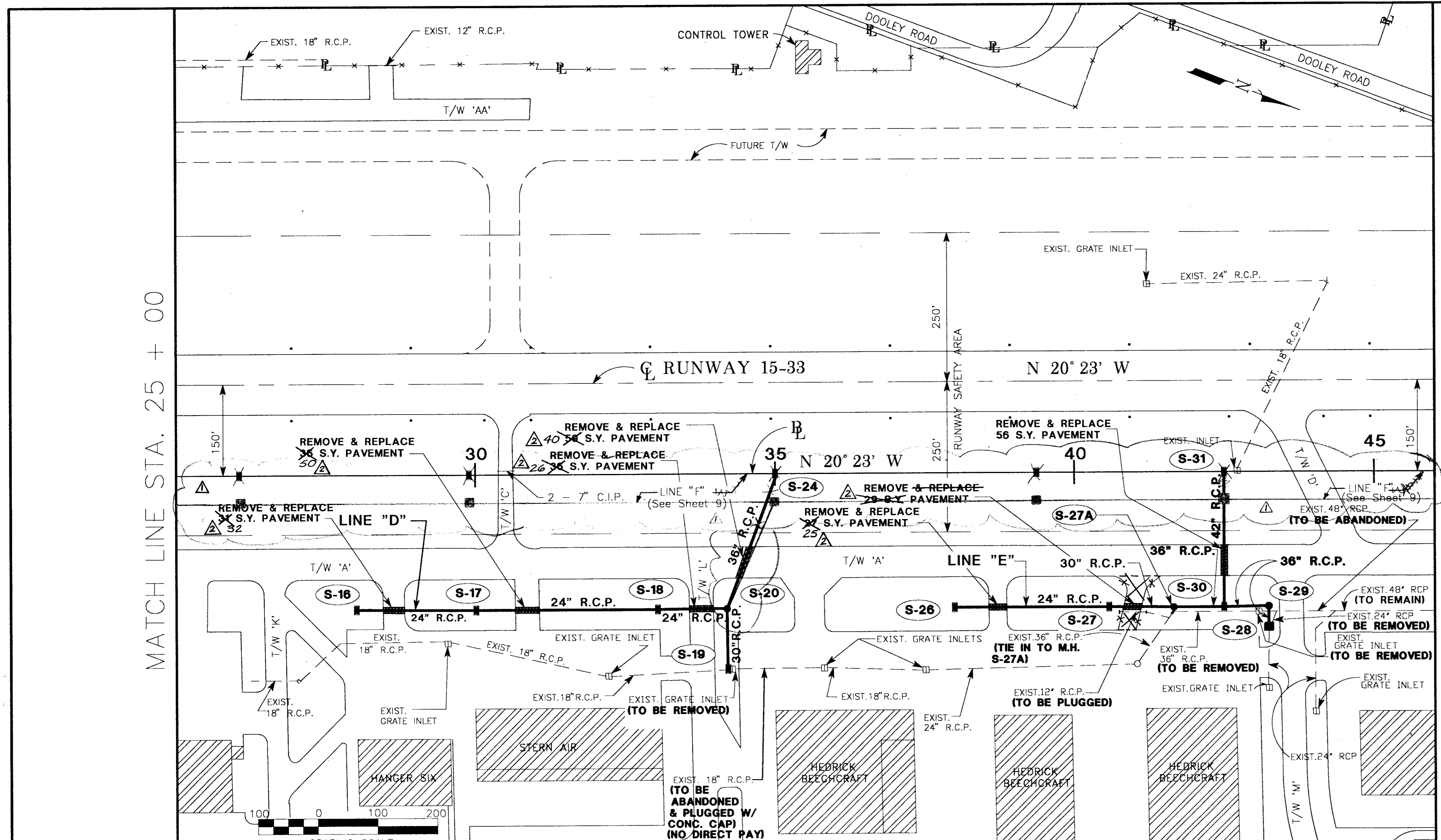
SHEET 6  
DATE: SEPT. 1991



MATCH LINE STA. 25 + 00



**AS BUILT**  
JUL 30 1992



<b>S-16</b> STA. 28 + 00, 225' RT. R. CONST. TYPE 'H' INLET SEE SHEET 18 GRATE EL.: 640.0 INV. EL.: 638.0	<b>S-17</b> STA. 30 + 00, 225' RT. R. CONST. TYPE 'H' INLET SEE SHEET 18 GRATE EL.: 640.1 INV. EL.: 637.4	<b>S-18</b> STA. 33 + 00, 225' RT. R. CONST. TYPE 'H' INLET SEE SHEET 18 GRATE EL.: 639.8 INV. EL.: 636.1	<b>S-19</b> STA. 34 + 20, 328' RT. R. REMOVE EXIST. INLET & CONST. TYPE 'H' INLET SEE SHEET 18 GRATE EL.: 639.7 INV. EL.: 635.4	<b>S-20</b> STA. 34 + 20, 225' RT. R. CONST. TYPE 'M' MANHOLE SEE SHEET 20 TOP EL.: 640.9 INV. EL.: 634.5	<b>S-24</b> SEE SHEET 9	<b>S-26</b> STA. 38 + 00, 225' RT. R. CONST. TYPE 'H' INLET SEE SHEET 18 GRATE EL.: 639.5 INV. EL.: 636.2	<b>S-27A</b> STA. 41 + 65, 225' RT. R. REMOVE EXIST. 36\"/>
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<b>S-28</b> STA. 43 + 25, 260' RT. R. REMOVE EXIST. INLET & CONST. TYPE 'M' MANHOLE/JUNCTION BOX SEE SHEET 20 (NO RISER) GRATE EL.: 638.5 INV. EL.: 633.2	<b>S-29</b> STA. 43 + 25, 225' RT. R. CONST. TYPE 'M' MANHOLE SEE SHEET 20 TOP EL.: 638.2 INV. EL.: 633.1	<b>S-30</b> STA. 42 + 50, 225' RT. R. CONST. TYPE 'H' INLET SEE SHEET 18 GRATE EL.: 637.8 INV. EL.: 632.2	<b>S-31</b> SEE SHEET 9
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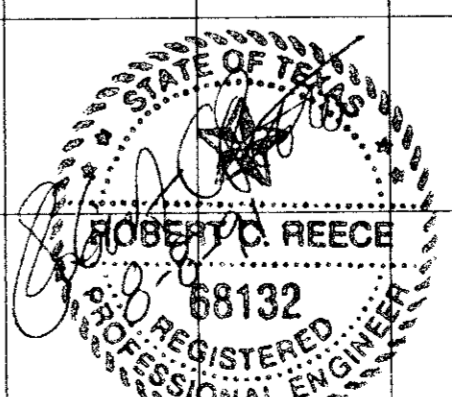
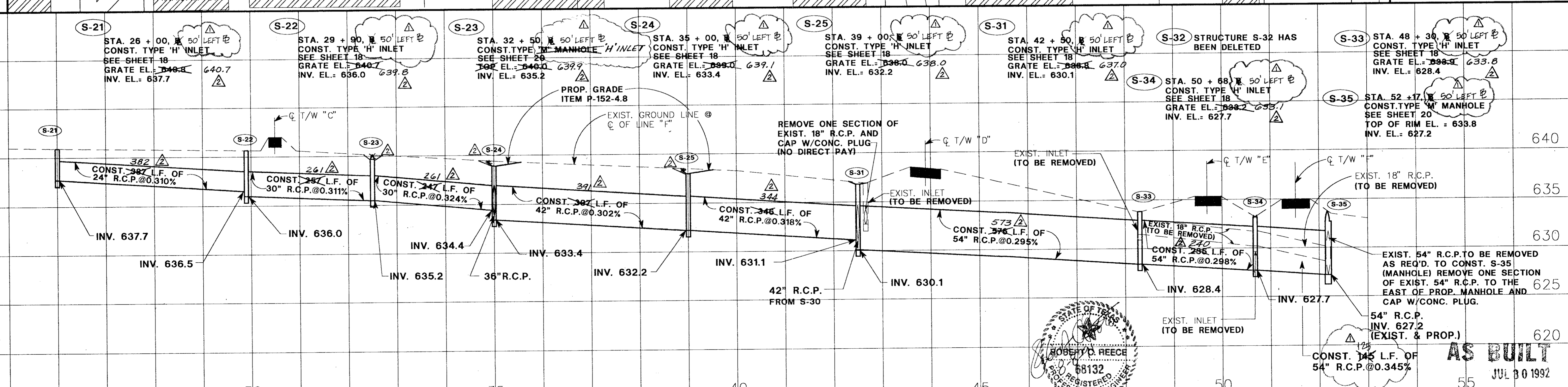
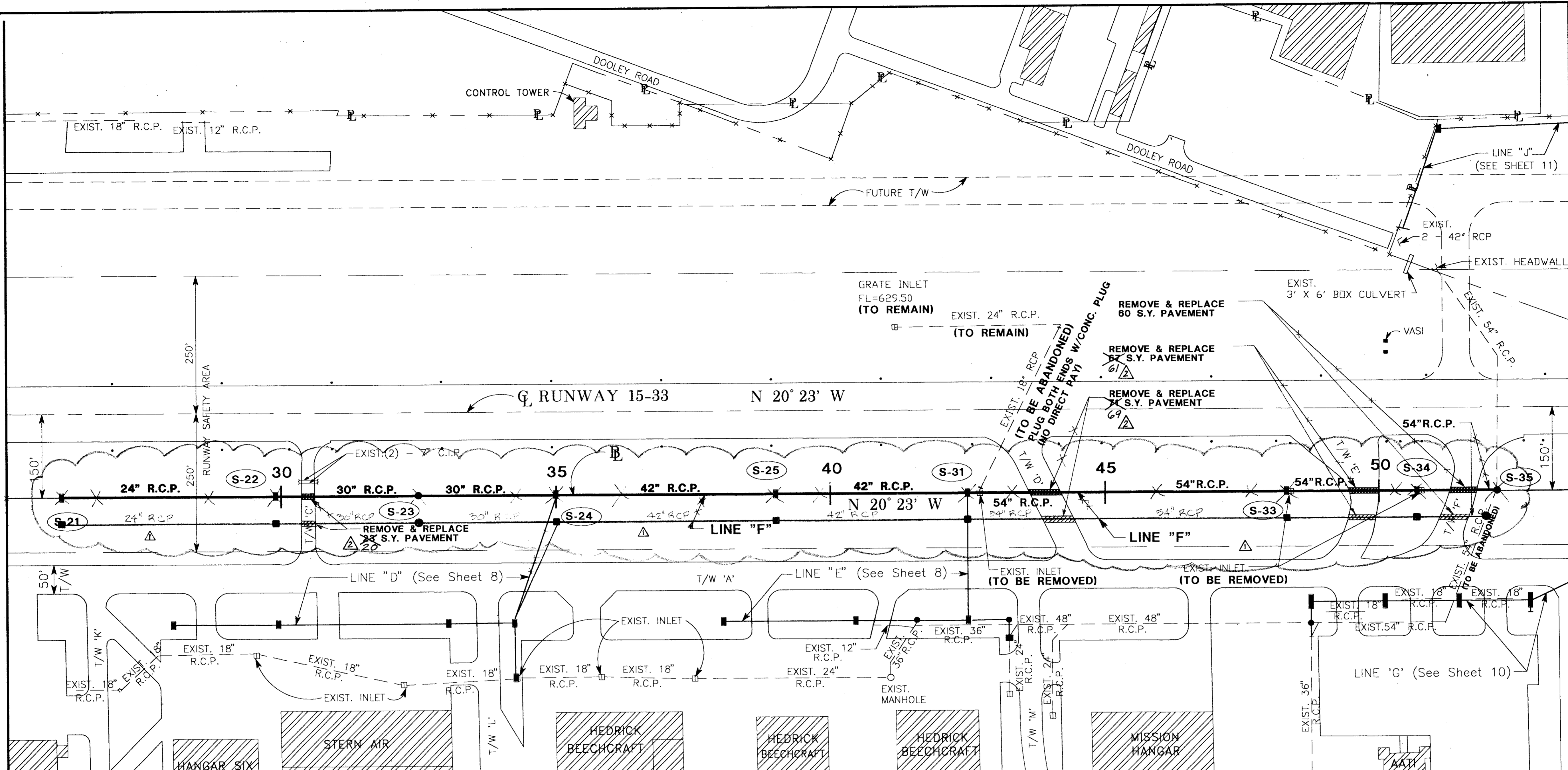
**AS BUILT**

JUL 30 1992



MATCH LINE STA. 25 + 00

STA. 53 + 50



AS BUILT  
JUL 30 1992

DESIGN: R.C.P.	A.I.P. NO. 3-48-0063-03-91	2-9-92	Move lines 'D' and 'E' to 200' from centerline of runway 15-33	MJS
DRAWN: M.J.C.	S.P. NO.	7-30-92	CHANGED S-23 TO GRATE INLET	JRH
CHECKED: D.W.P.	JOB NO. Y8024.22	Date	AS BUILT	
SCALE: 1" = 100' HORIZ. 1" = 5' VERT.		Revisions		By

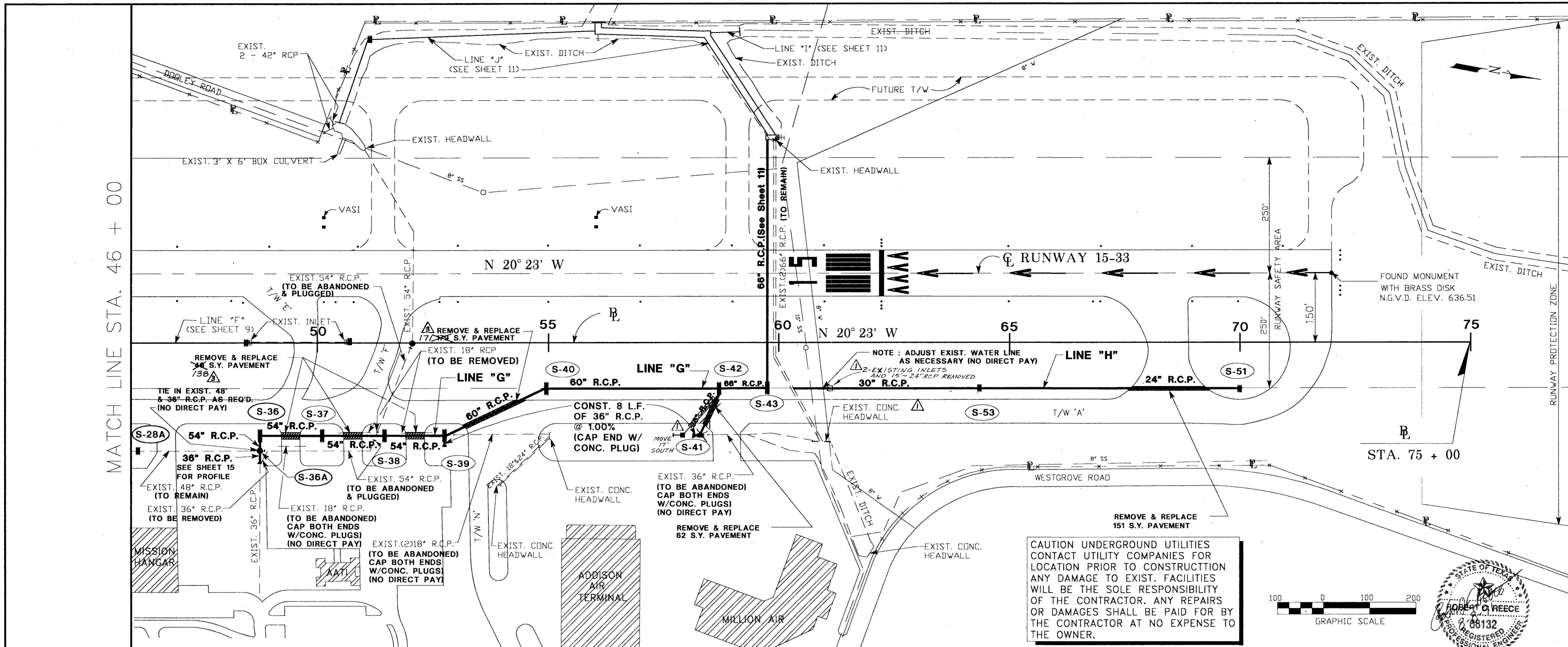
**Greiner**  
Greiner, Inc.  
Fort Worth, Texas  
Engineers, Architects  
and Planners



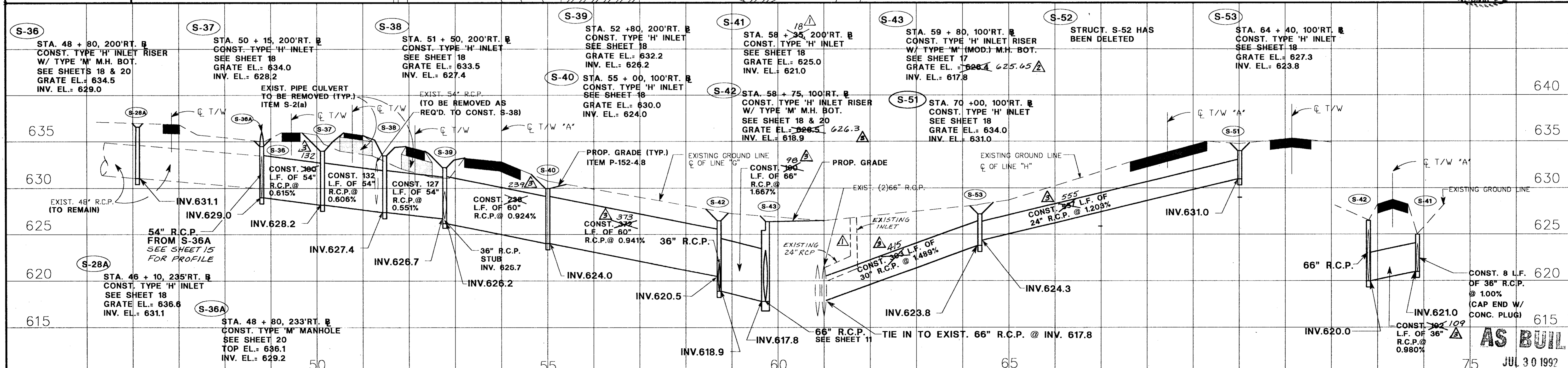
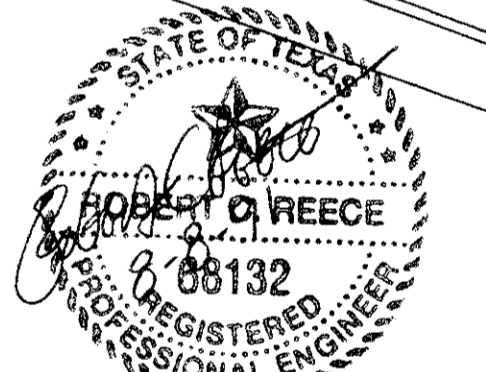
**ADDISON AIRPORT**

**DRAINAGE IMPROVEMENTS**  
**DRAINAGE LINE "F"**  
DRAINAGE PLAN AND PROFILES-STA.26+00 TO STA.52+17

SHEET  
9  
DATE: SEPT.1991



CAUTION UNDERGROUND UTILITIES CONTACT UTILITY COMPANIES FOR LOCATION PRIOR TO CONSTRUCTION ANY DAMAGE TO EXIST. FACILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. ANY REPAIRS OR DAMAGES SHALL BE PAID FOR BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER.



DESIGN: R.C.P.	A.I.P. NO. 3-48-0063-03-91	7-30-92 AS BUILT	JRH
DRAWN: M.J.C.	S.P. NO.	6-1-92 LOWERED S-43 CHANGE ORDER #2	JRH
CHECKED: D.W.P.	JOB NO. Y8024.22	2-3-92 FIELD CHANGE	JRH
SCALE: 1" = 100' HORIZ. 1" = 5' VERT.		Date Revisions	By

**Greiner**  
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Fort Worth, Texas

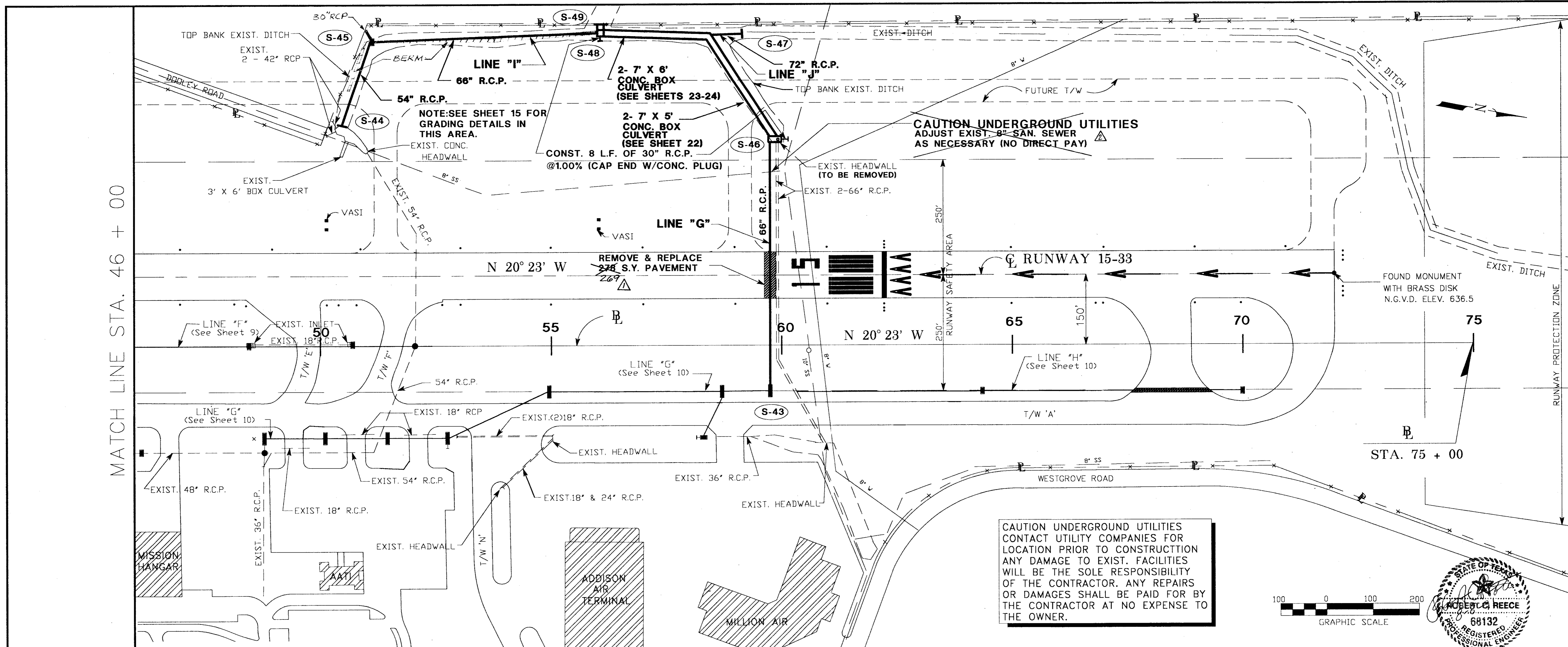
Engineers, Architects  
and Planners



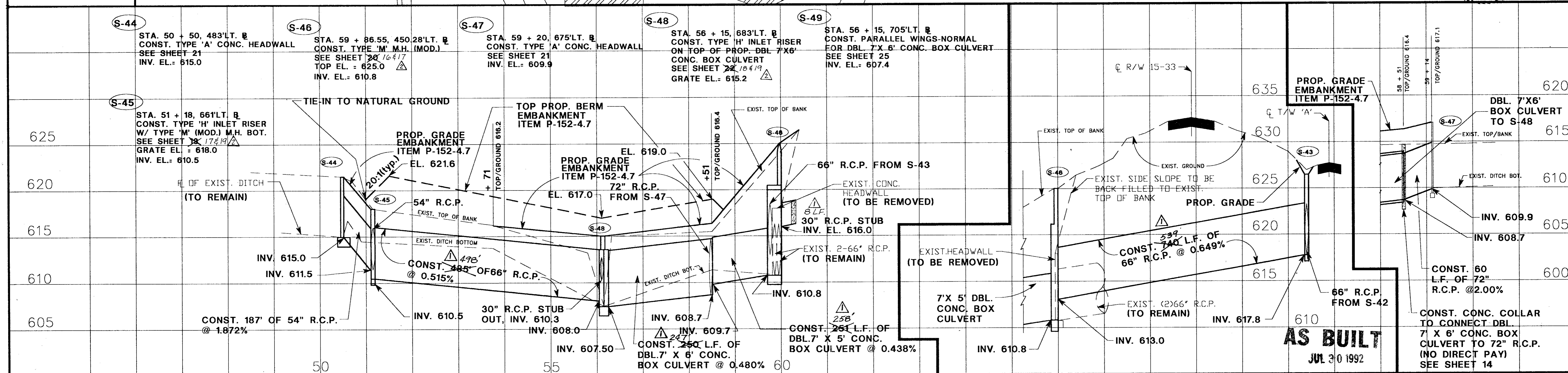
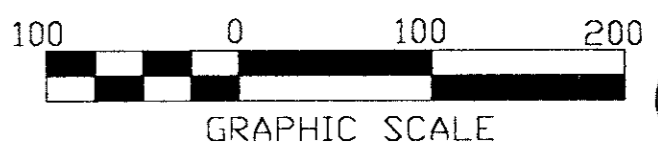
# ADDISON AIRPORT

DRAINAGE IMPROVEMENTS  
DRAINAGE LINE "G" AND "H"  
DRAINAGE PLAN AND PROFILES-STA.46+10 TO STA.70+00

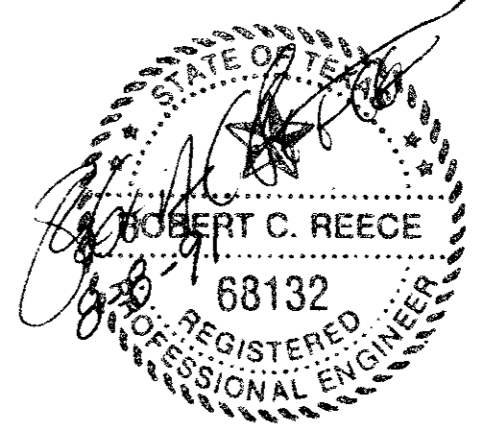
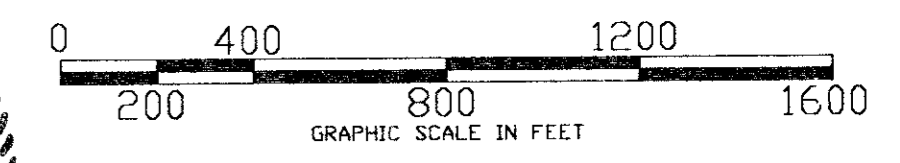
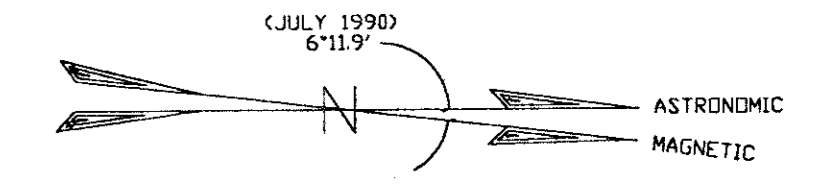
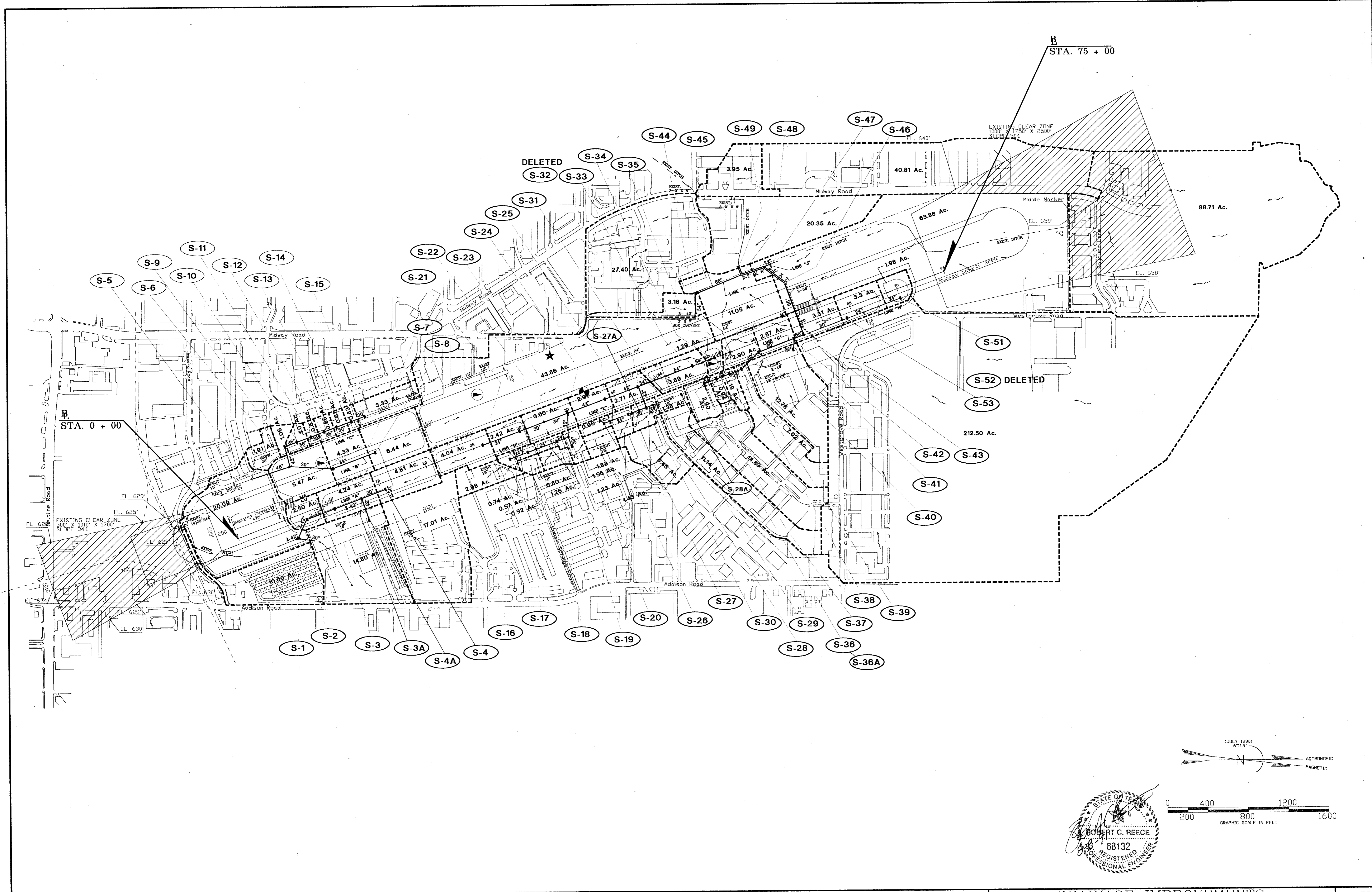
SHEET 10  
DATE: SEPT. 1991



CAUTION UNDERGROUND UTILITIES  
CONTACT UTILITY COMPANIES FOR  
LOCATION PRIOR TO CONSTRUCTION  
ANY DAMAGE TO EXIST. FACILITIES  
WILL BE THE SOLE RESPONSIBILITY  
OF THE CONTRACTOR. ANY REPAIRS  
OR DAMAGES SHALL BE PAID FOR BY  
THE CONTRACTOR AT NO EXPENSE TO  
THE OWNER.



**AS BUILT**  
JUL 30 1992



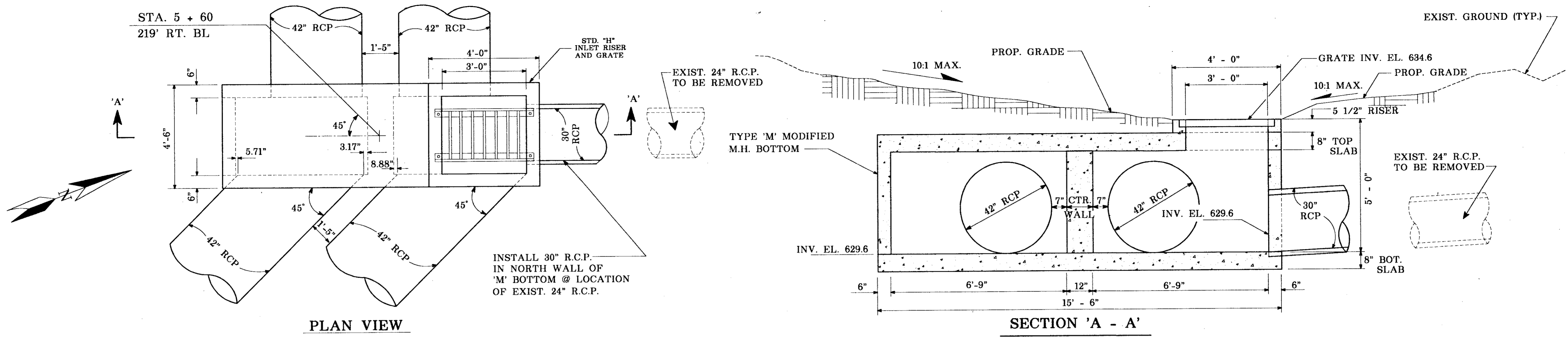
DESIGN: R.C.R.	A.I.P. NO. 3-48-0063-03-91	Date	Revisions	By
DRAWN: M.J.G.	S.P. NO.			
CHECKED: D.W.P.	JOB NO. Y8024.22			
SCALE: 1" = 400'				

**Greiner** Engineers, Architects and Planners  
 Greiner, Inc.  
 Fort Worth, Texas



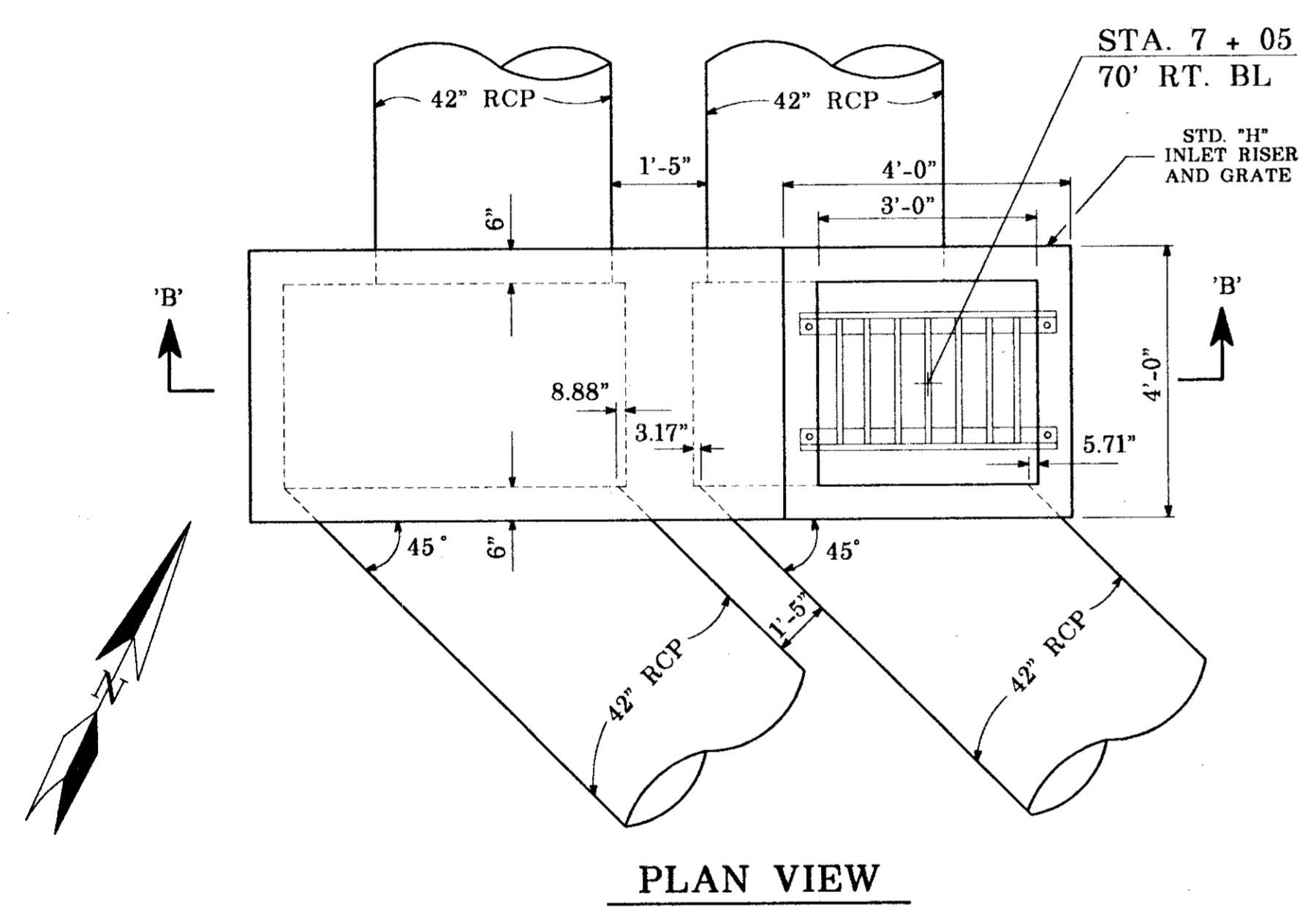
# ADDISON AIRPORT

## DRAINAGE IMPROVEMENTS DRAINAGE AREA MAP



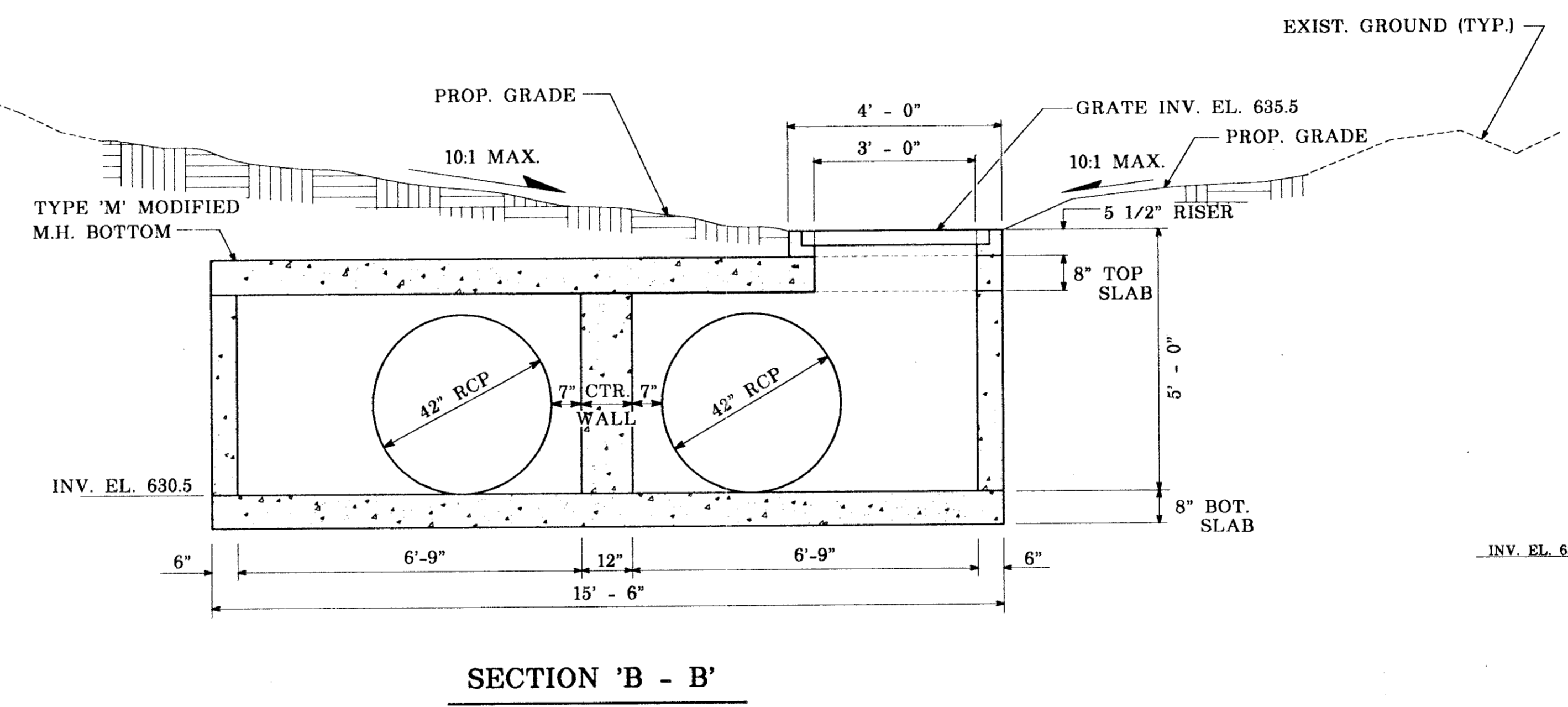
STRUCTURE S-1 DETAILS (TYPE 'H' INLET W/ TYPE 'M' MOD. M. H. BOT.)

N.T.S.

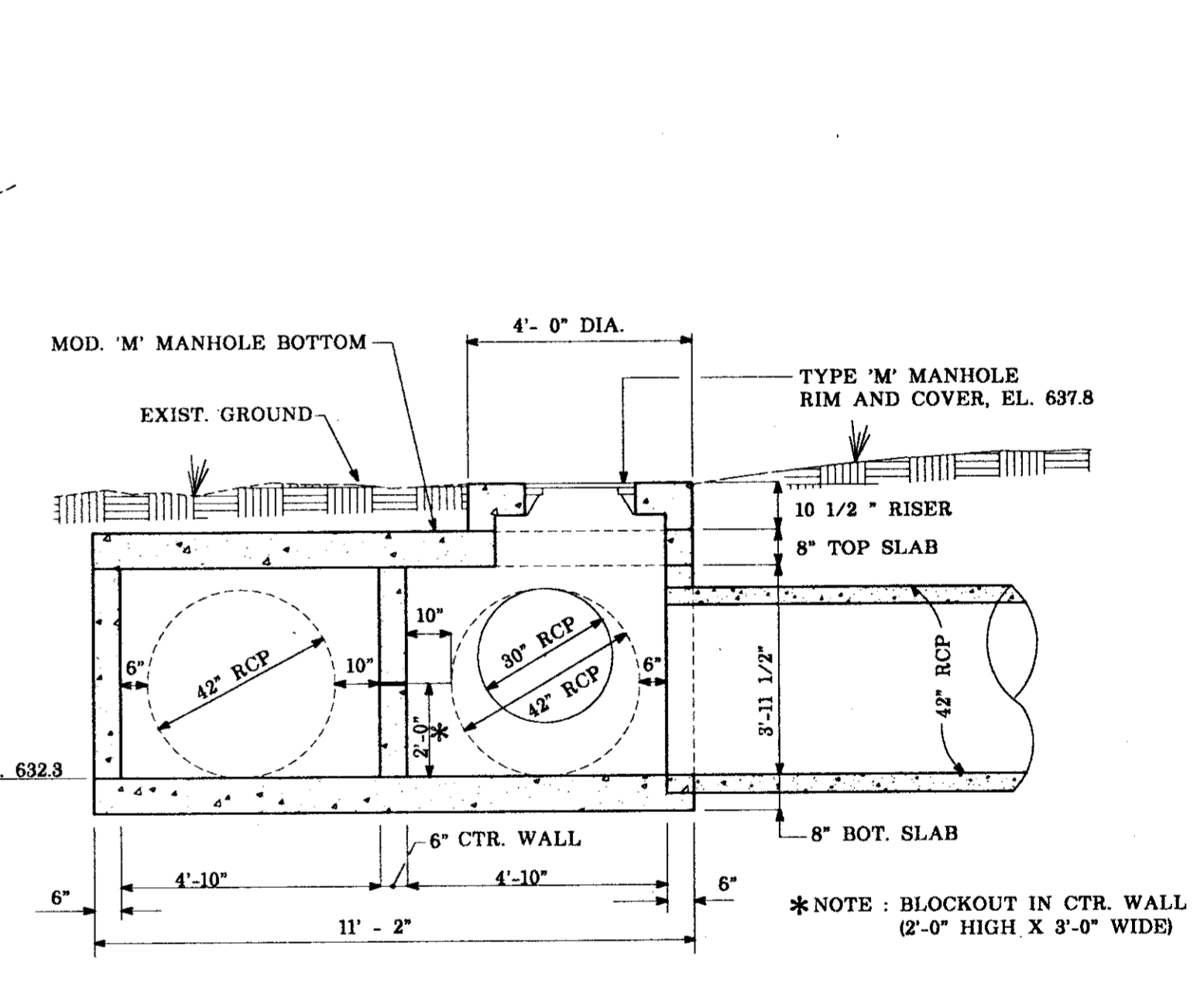


STRUCTURE S-2 DETAILS (TYPE 'H' INLET W/ TYPE 'M' MOD. M. H. BOT.)

N.T.S.

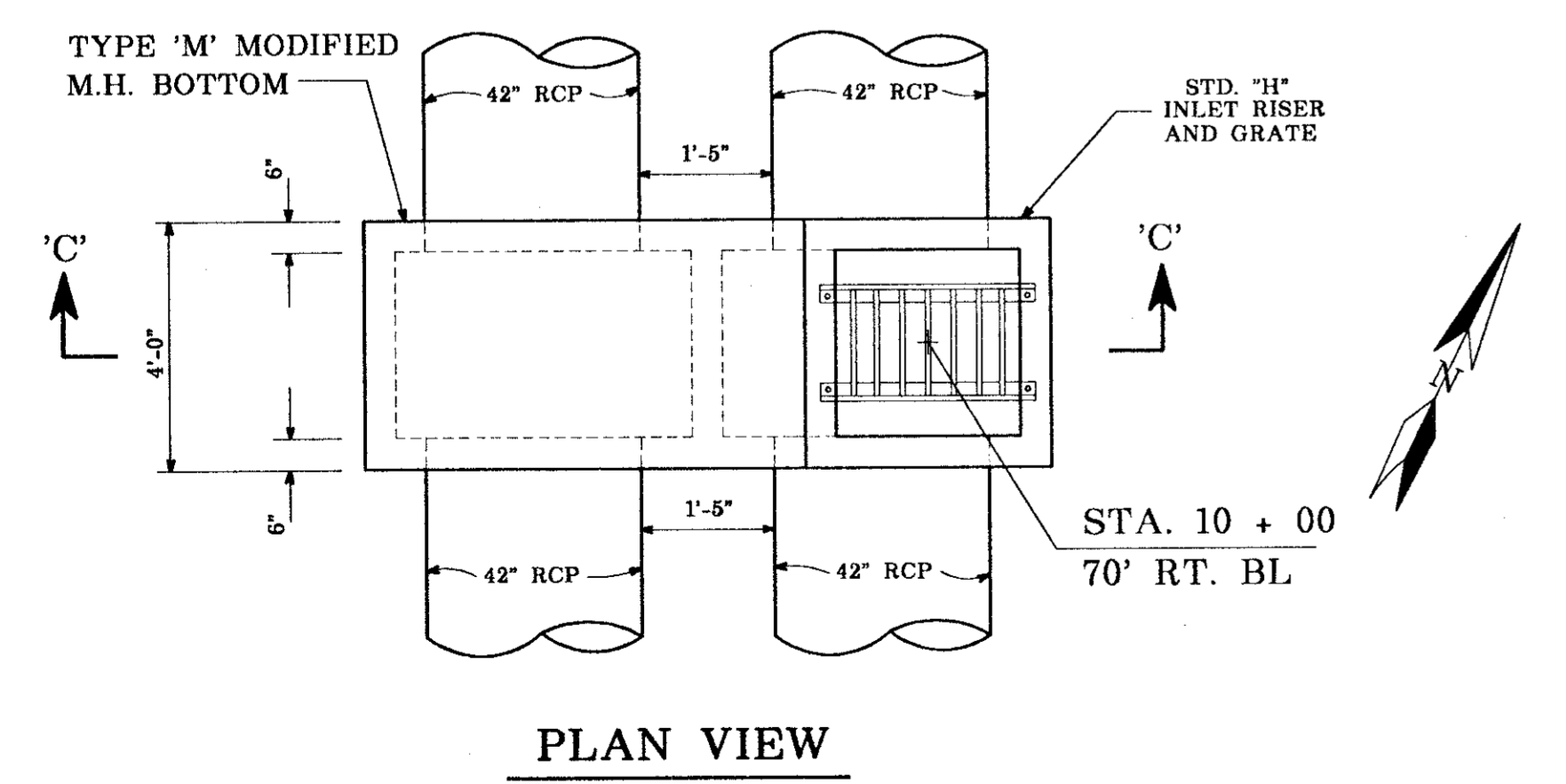


SECTION 'B - B'



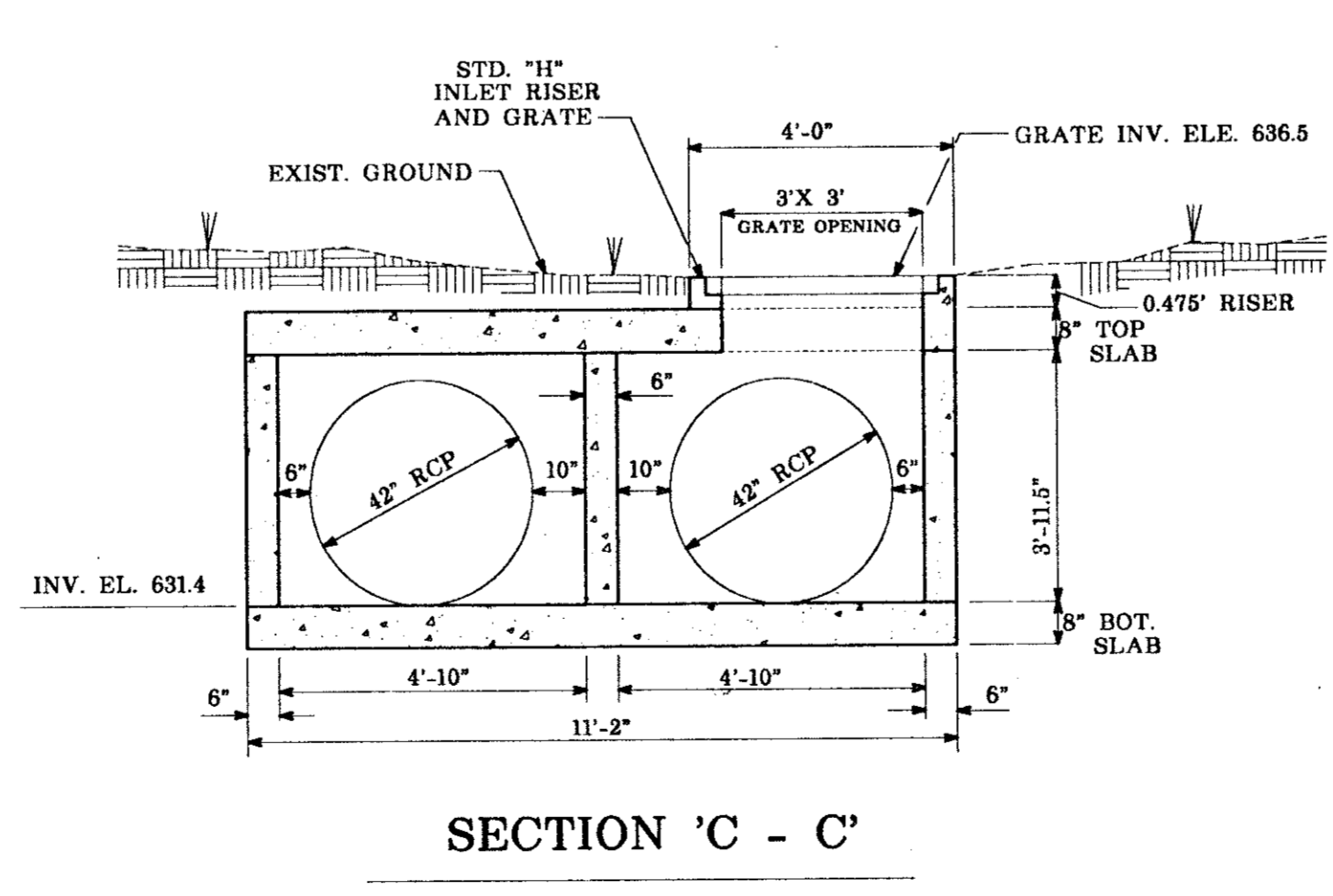
SECTION 'D - D'

N.T.S.

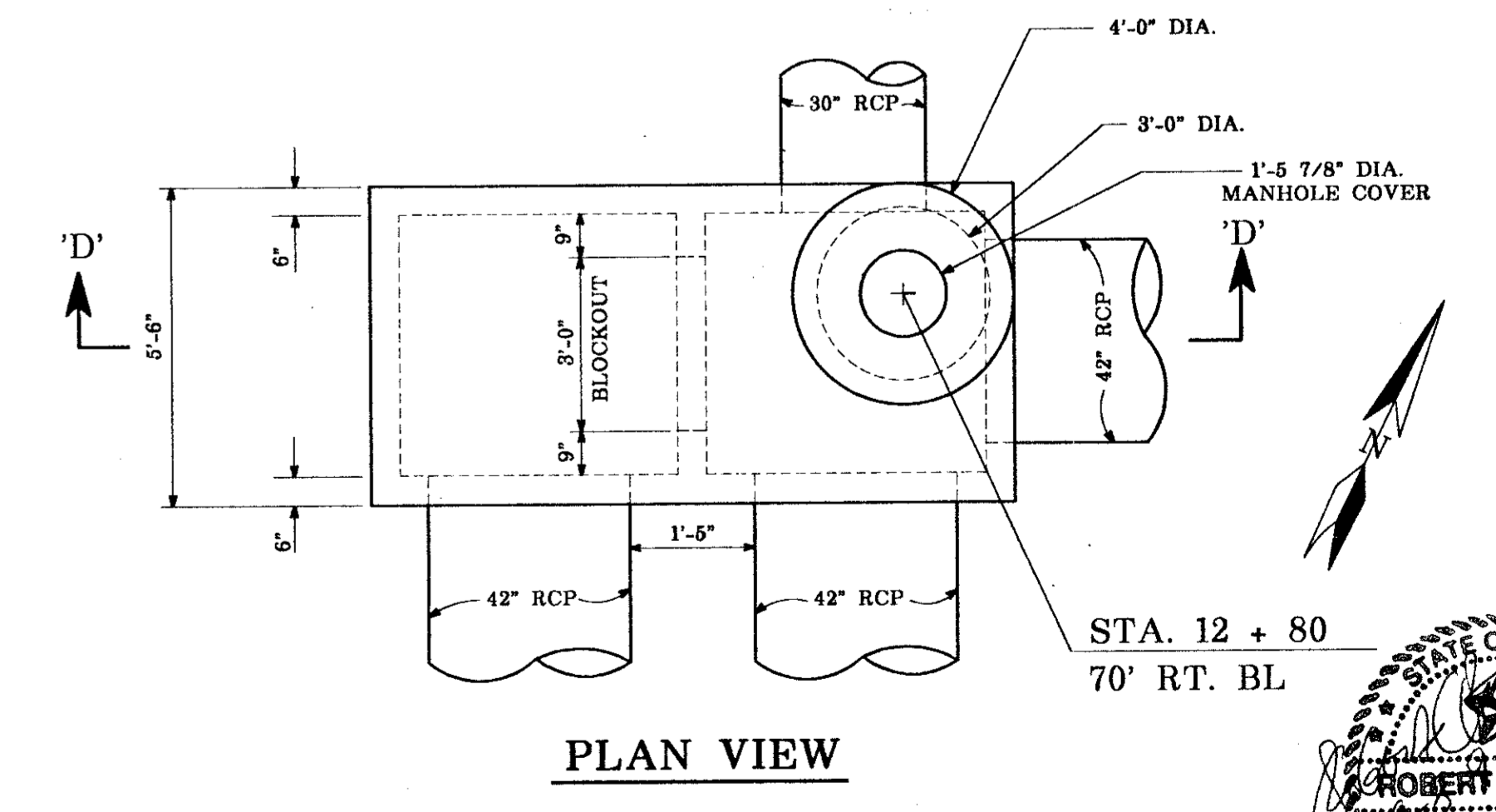


STRUCTURE S-3 DETAILS (TYPE 'H' INLET W/ TYPE 'M' MOD. M. H. BOT.)

N.T.S.



SECTION 'C - C'



STRUCTURE S-3A DETAIL (TYPE 'M' MODIFIED M.H.)

N.T.S.

DESIGN: R.C.R.	A.I.P. NO: 3-48-0063-03-91	Date	Revisions	By
DRAWN: M.J.C.	S.P. NO:			
CHECKED: D.W.P.	JOB NO: Y8024.22			
SCALE: AS NOTED				

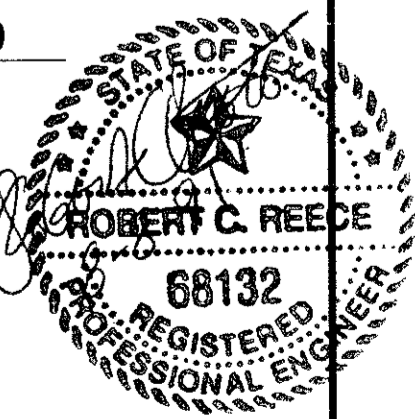
**Greiner**  
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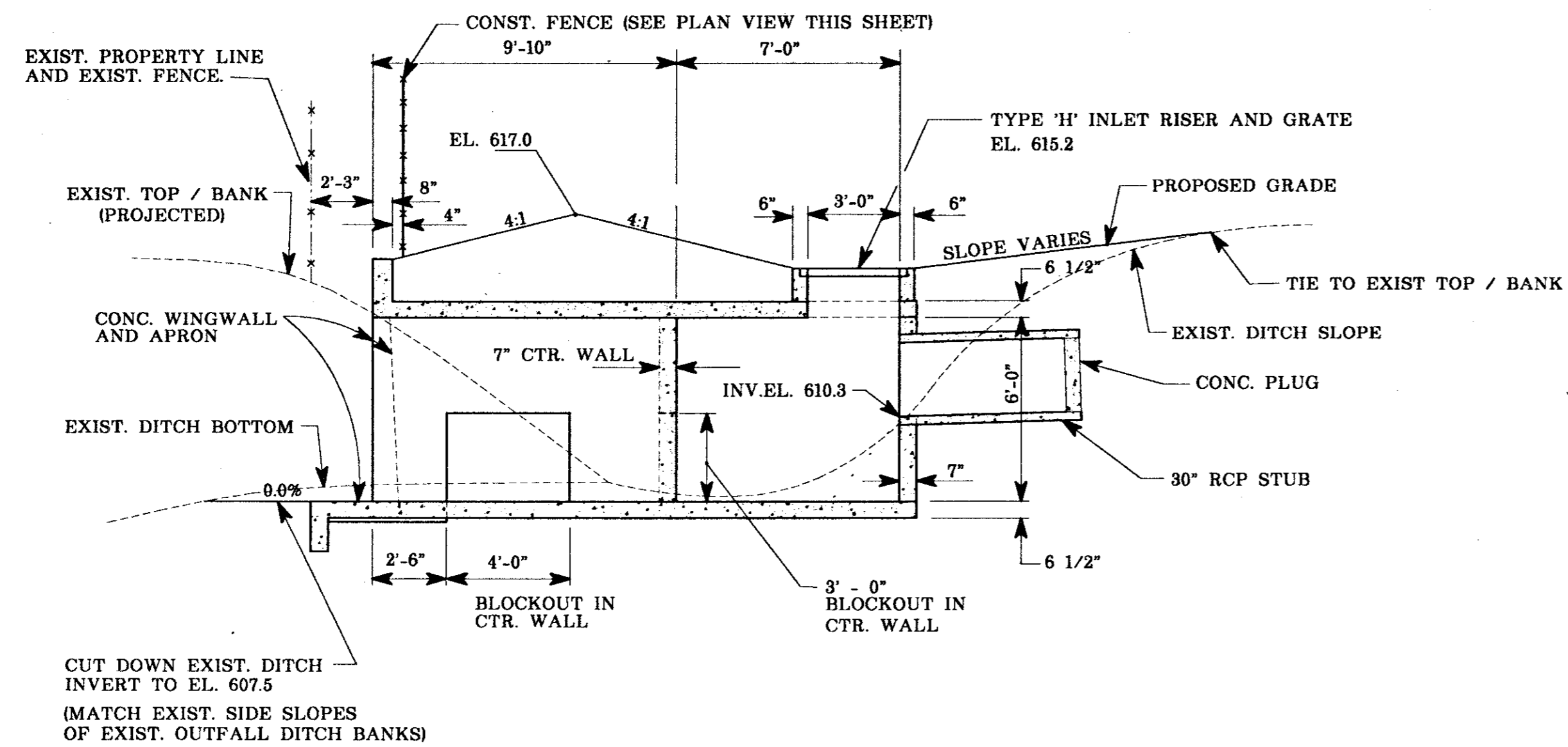
Engineers, Architects  
and Planners



**ADDISON AIRPORT**

**DRAINAGE IMPROVEMENTS**  
DRAINAGE STRUCTURES S-1, S-2, S-3 AND S-3A

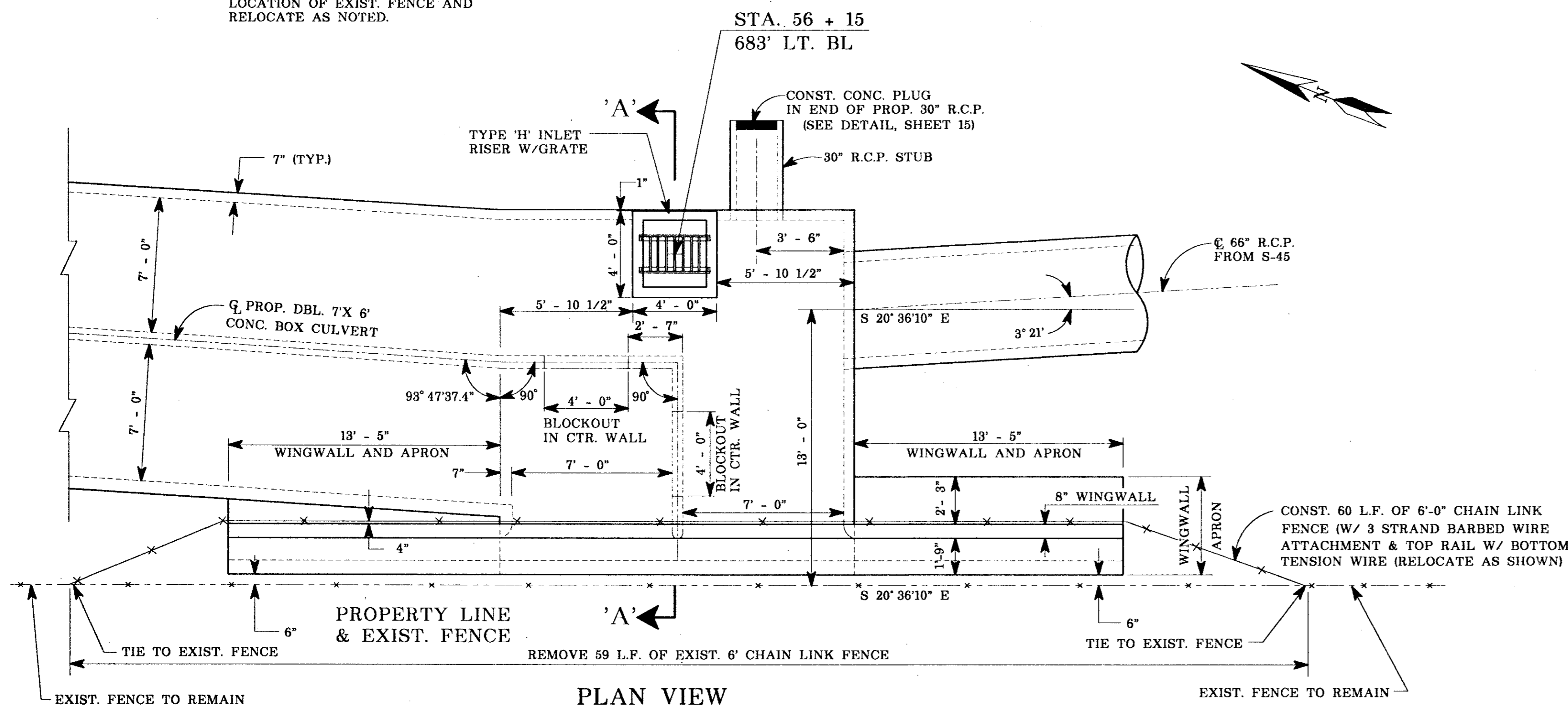




SECTION 'A - A'  
SCALE: 1" = 4'-0"

NOTES

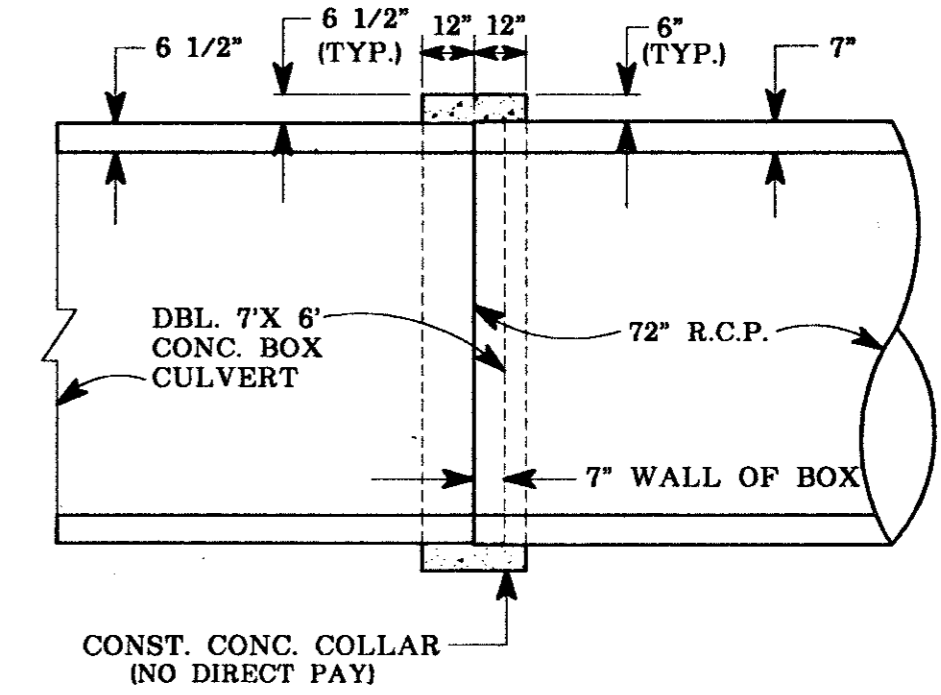
- 1) CONTRACTOR SHALL FIELD VERIFY PRECISE LOCATION OF EXIST. PROPERTY LINE PRIOR TO CONSTRUCTION OF BOX CULVERT AND WINGWALLS.
- 2) CONTRACTOR SHALL FIELD VERIFY LOCATION OF EXIST. FENCE AND RELOCATE AS NOTED.



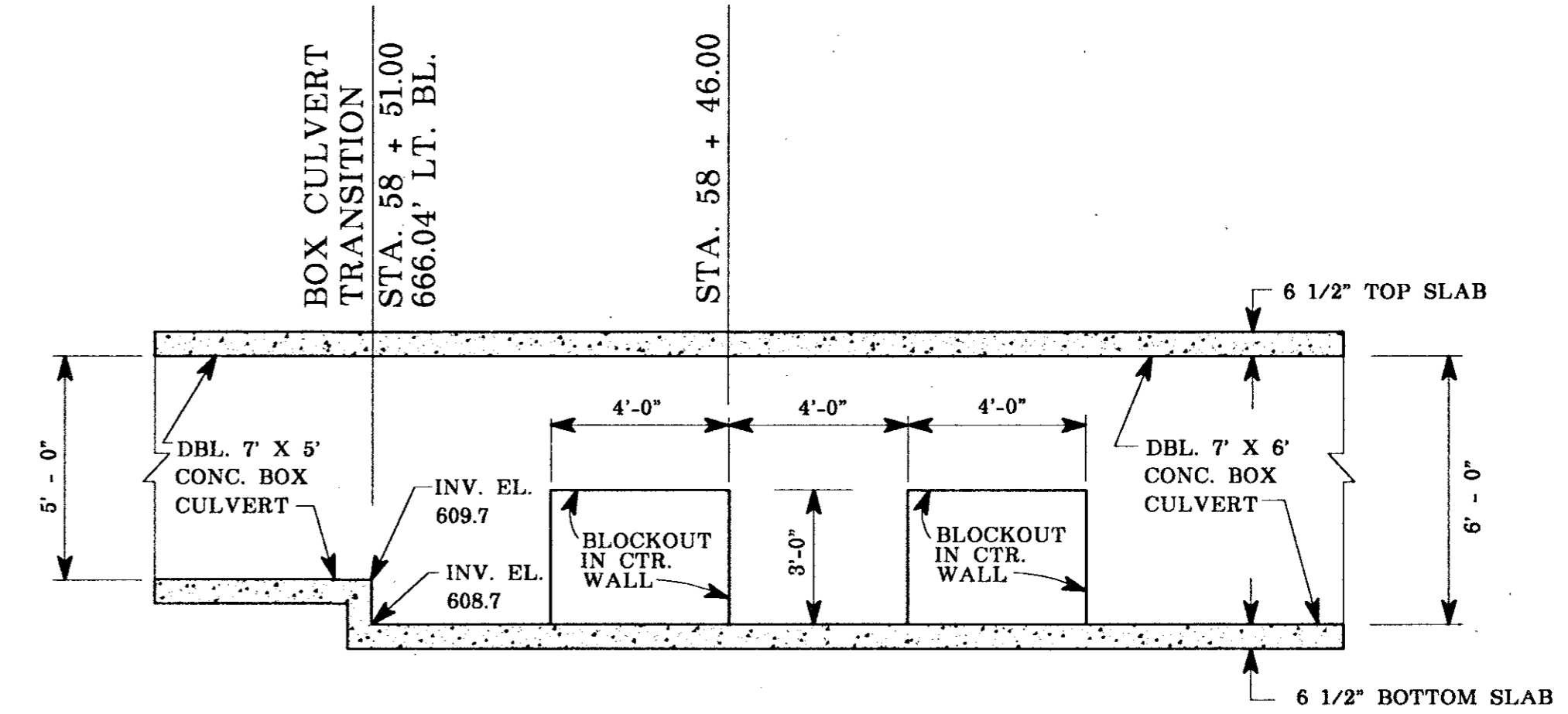
STRUCTURE S - 48 DETAILS ( TYPE 'H' INLET RISER )

N.T.S.

NOTE: ALL STRUCTURAL CONCRETE SHALL MEET P-610 SPECIFICATIONS (FOR ALL DRAINAGE AND MISC. STRUCTURES)

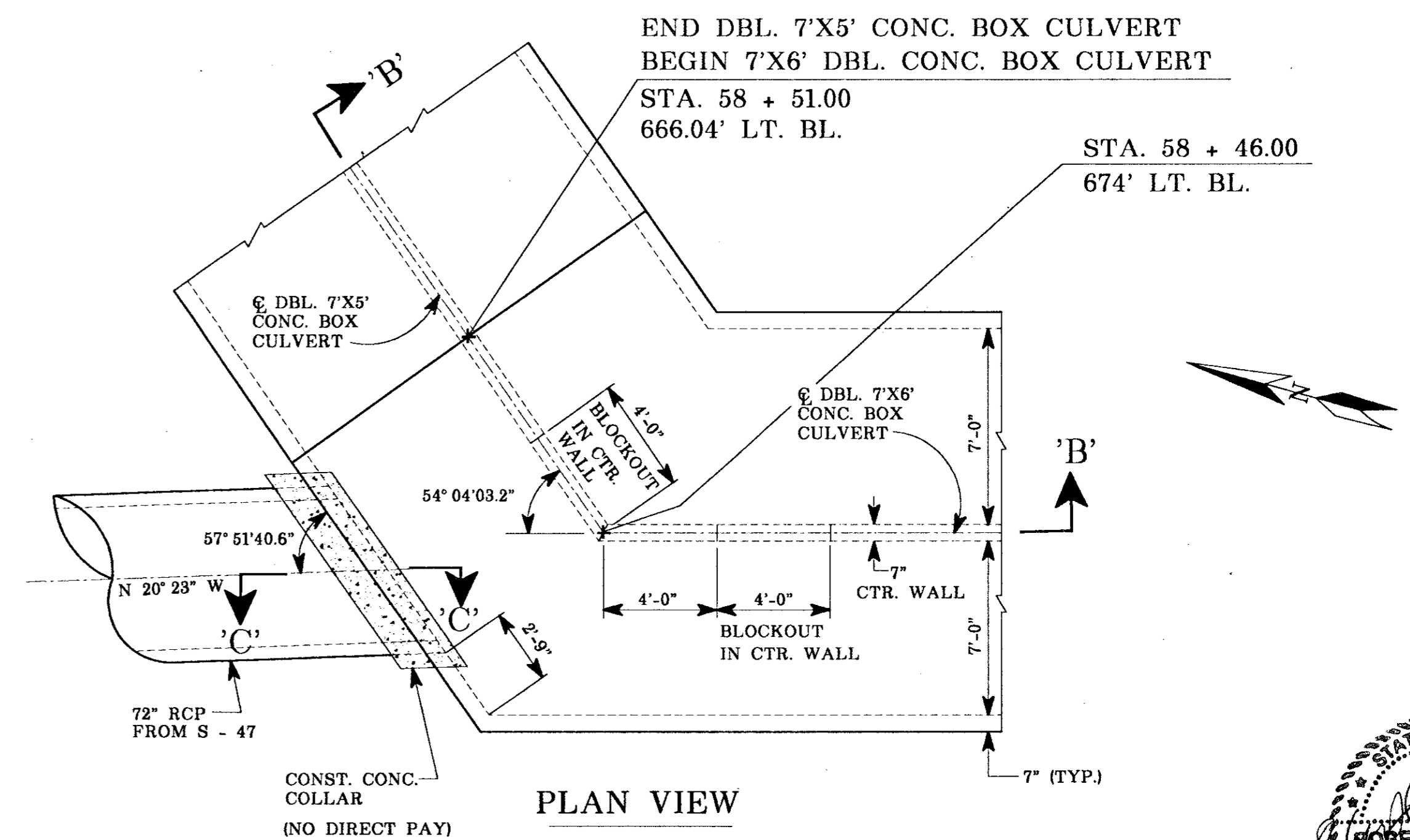


SECTION "C - C"  
N.T.S.



SECTION "B - B"

N.T.S.



PLAN VIEW

BOX CULVERT DETAILS AT JUNCTION W/ 72" RCP

N.T.S.

DESIGN: R.C.R.	A.I.P. NO: 3-48-0063-03-91	Date	Revisions	By
DRAWN: M.J.G.	S.P. NO:			
CHECKED: D.W.P.	JOB NO: Y8024.22			
SCALE: AS NOTED				

**Greiner**  
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Fort Worth, Texas

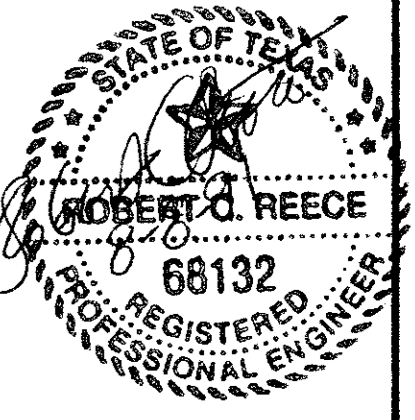
Engineers, Architects  
and Planners

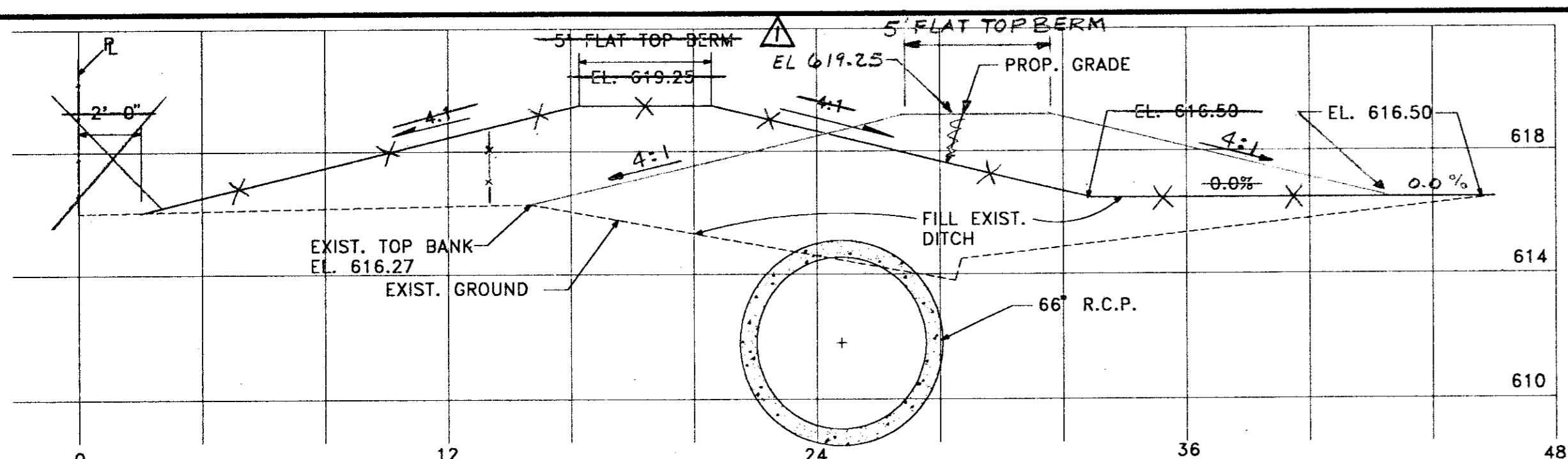


ADDISON AIRPORT

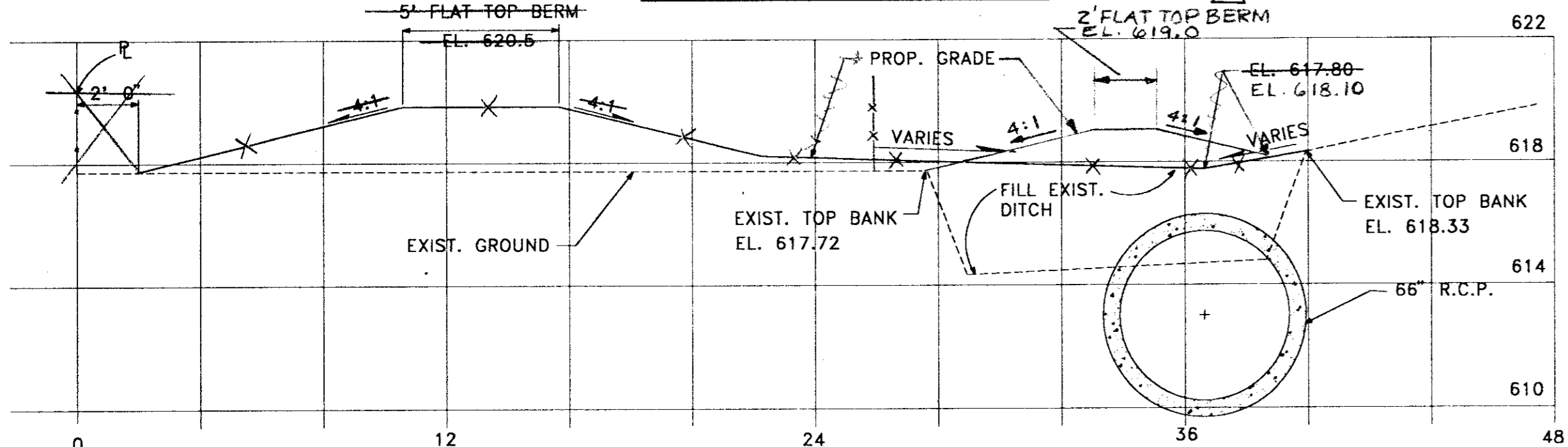
DRAINAGE IMPROVEMENTS  
DRAINAGE STRUCTURES S-36A, S-48 AND S-49

SHEET  
14  
DATE: SEPT. 1991

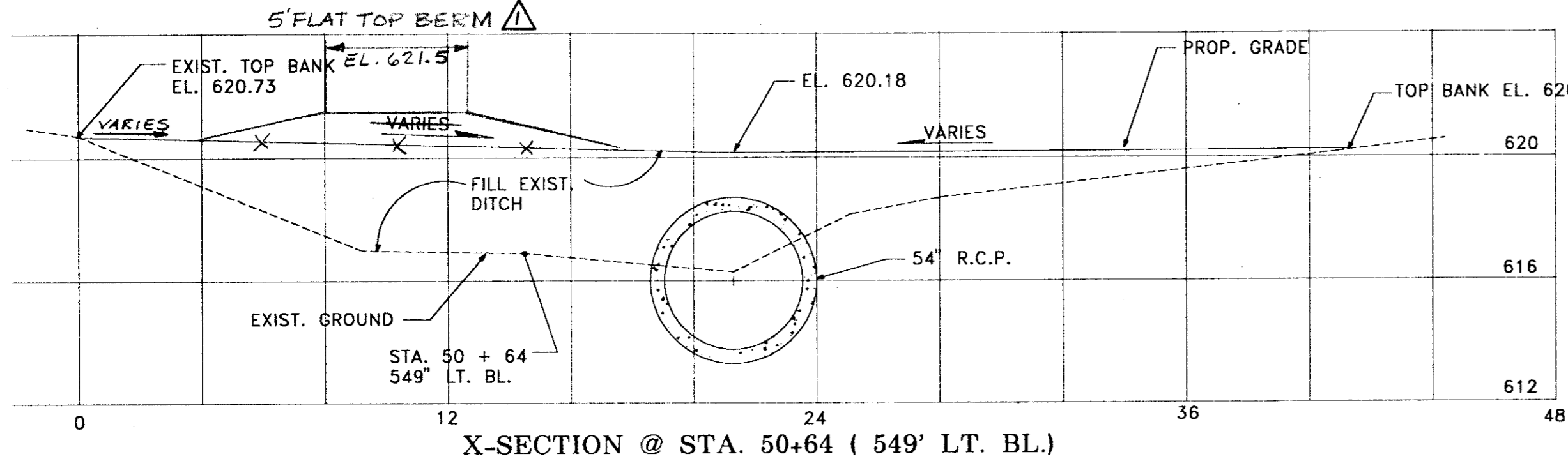




X-SECTION @ STA. 53+86



X-SECTION @ STA. 51+59

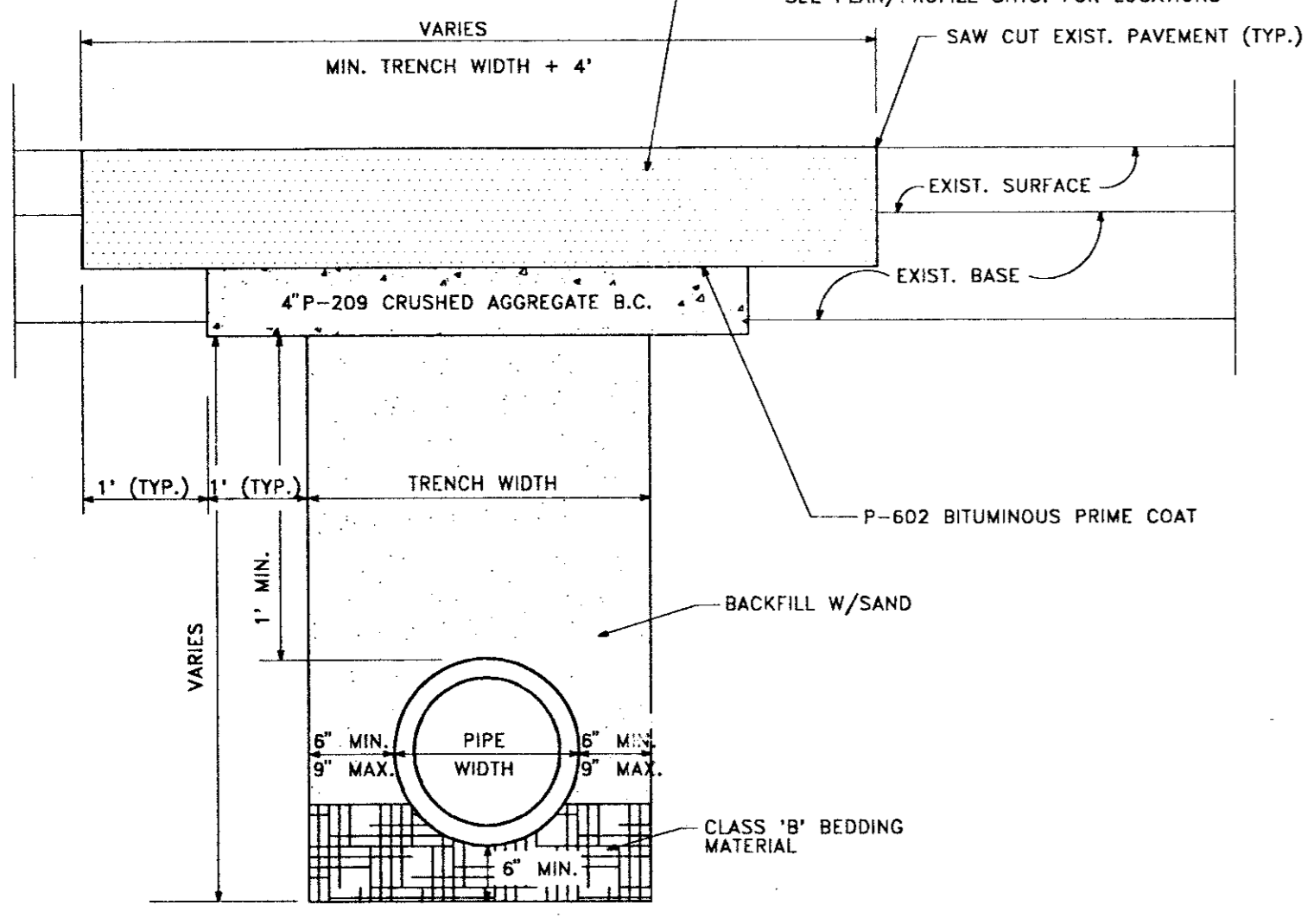


X-SECTION @ STA. 50+64 ( 549' LT. BL.)

X-SECTIONS LINE "I"

SCALE: 1" = 4'-0" HORIZ.  
1" = 4'-0" VERT.

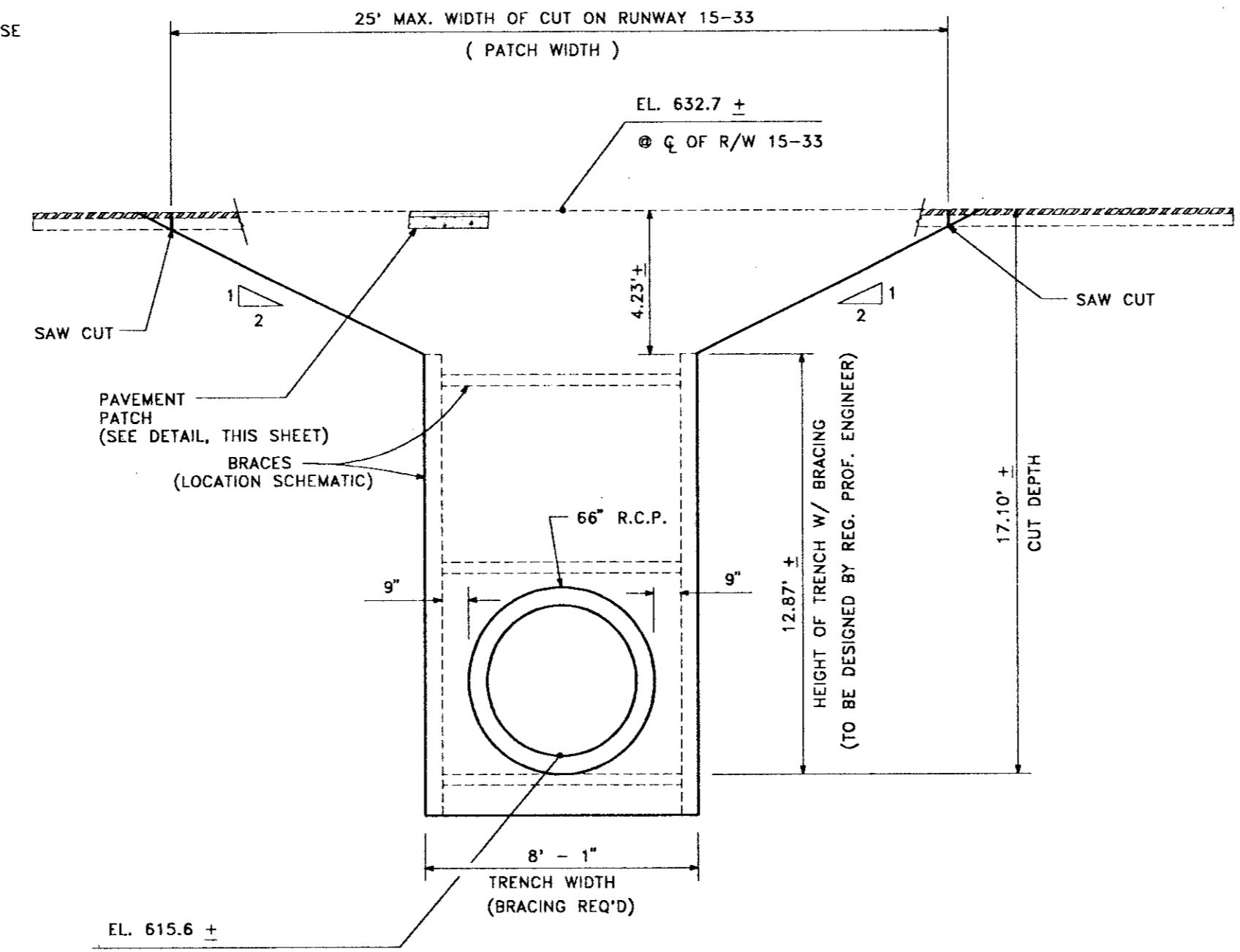
4" TEXAS SDHPT 340, TYPE D BITUMINOUS SURFACE COURSE AND  
5" TEXAS SDHPT 340, TYPE B BITUMINOUS BASE COURSE  
OR  
7" P-501 P.C.C. PAVEMENT  
SEE PLAN/PROFILE SHTS. FOR LOCATIONS



PAVEMENT REPLACEMENT DETAIL

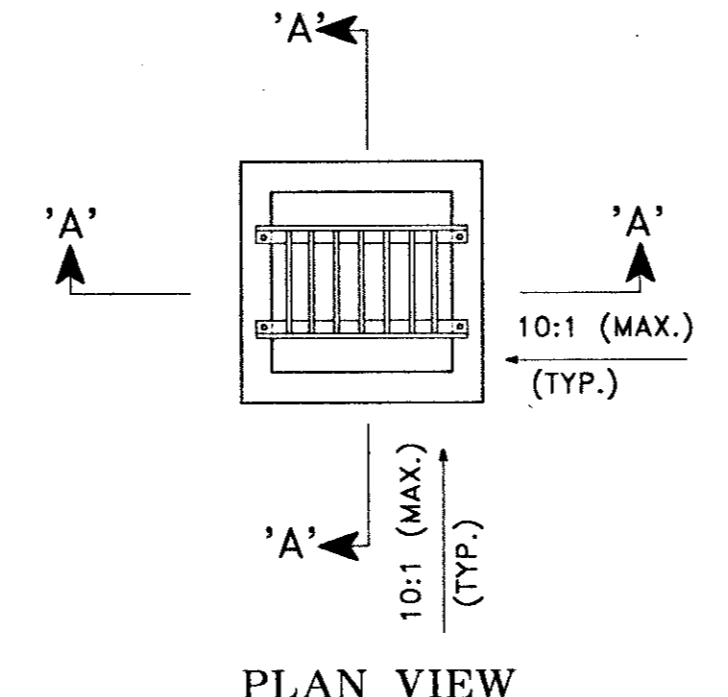
- NOTES: ① ALL EXIST. MARKINGS SHALL BE REPLACED UPON COMPLETION OF PAVING OPERATIONS (NO DIRECT PAY)  
② COST FOR EARTHWORK (EXCAVATION) ASSOCIATED WITH PIPE TRENCH SHALL BE INCIDENTAL TO THE PRICE OF THE PIPE.

AS PER SPECIFICATION D-701-3.2A RIGID PIPE, THE BEDDING MATERIAL EXTENDS FROM 6" BELOW THE BOTTOM OF THE PIPE UP AROUND THE PIPE TO A HEIGHT NOT LESS THAN 30% OF THE PIPE'S VERTICAL OUTSIDE DIAMETER.

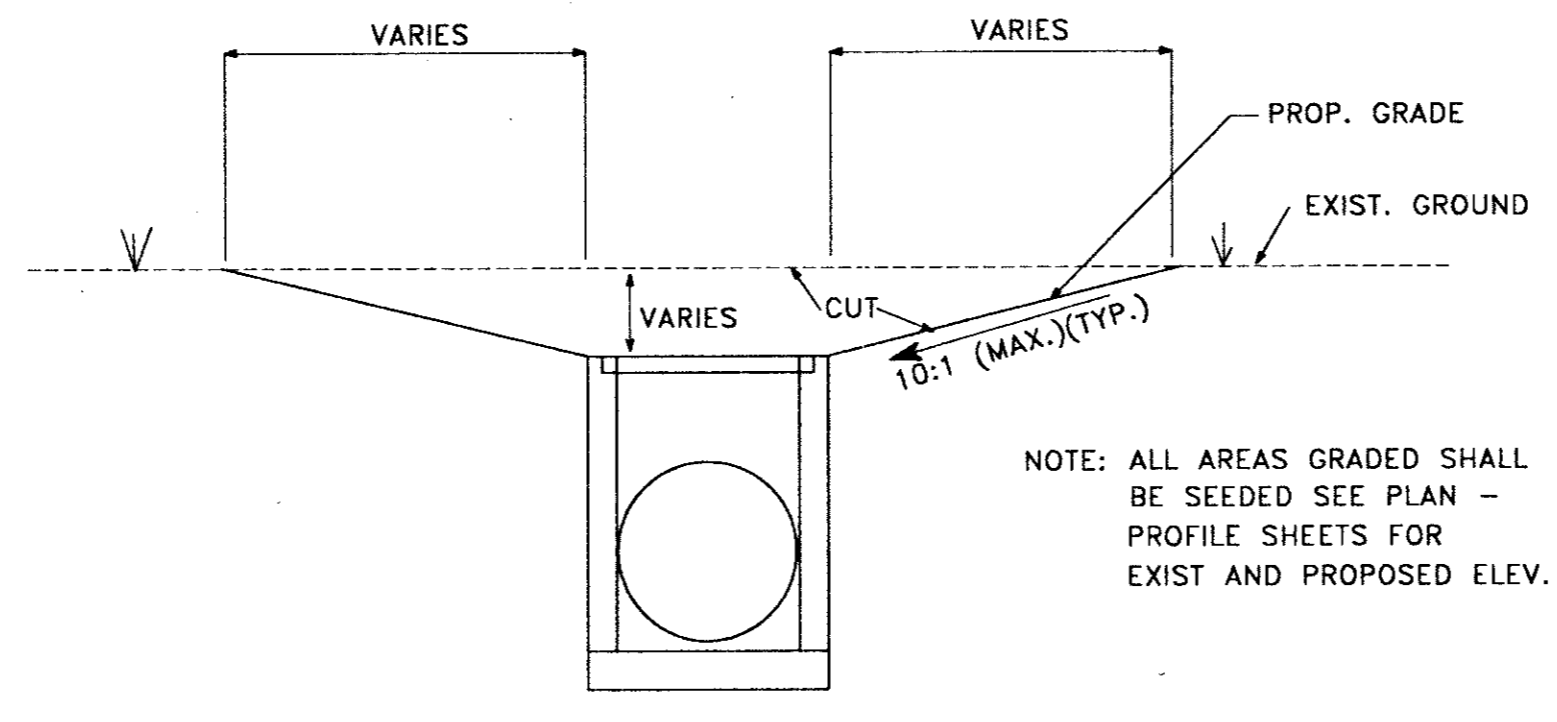


TRENCH SAFETY DETAIL

NOTE: SHORING, SHEETING, AND/OR BRACING OF TRENCH WALLS FOR TRENCHES DEEPER THAN 5' SHALL BE SIZED AND SPACED IN ACCORDANCE WITH TABLE P - 2 OF THE OSHA EXCAVATING OPERATIONS MANUAL ( FOR ALL CATAGORIES OF EARTH, 10 - 15 FOOT DEEP) (COST OF BRACING INCIDENTAL TO PRICE FOR PIPE)



PLAN VIEW

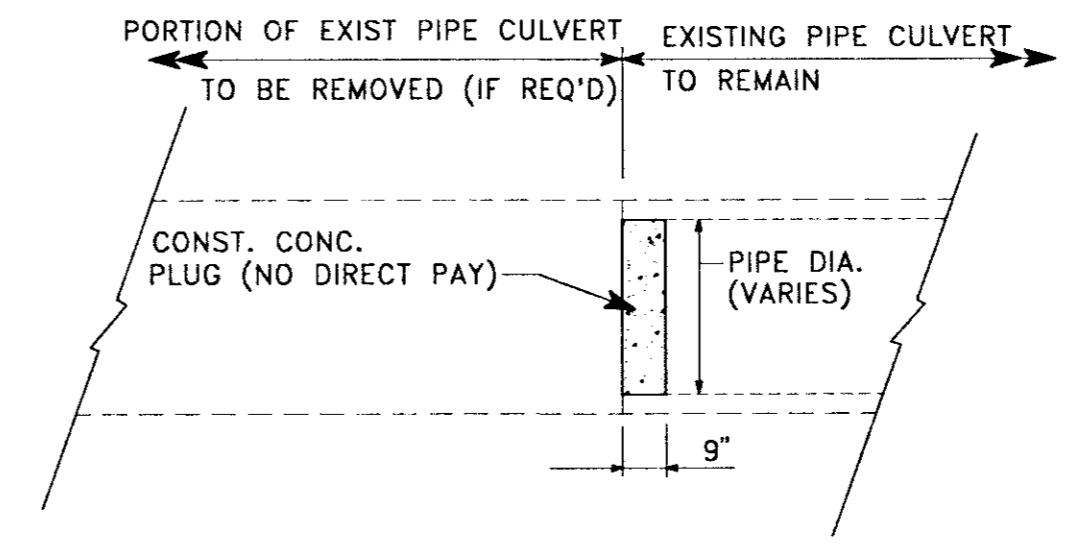
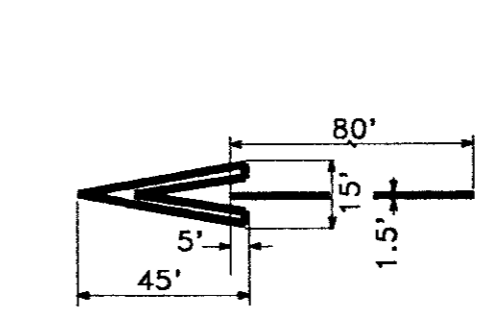


SECTION 'A - A'

TYPICAL INLET GRADING DETAILS

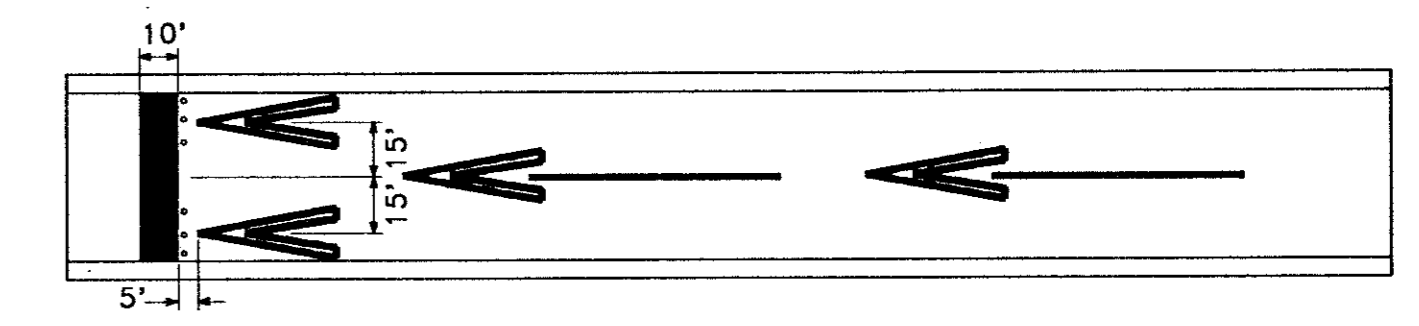
N.T.S.

NOTE: ALL AREAS GRADED SHALL BE SEEDED SEE PLAN - PROFILE SHEETS FOR EXIST AND PROPOSED ELEV.



CONCRETE PLUG DETAIL

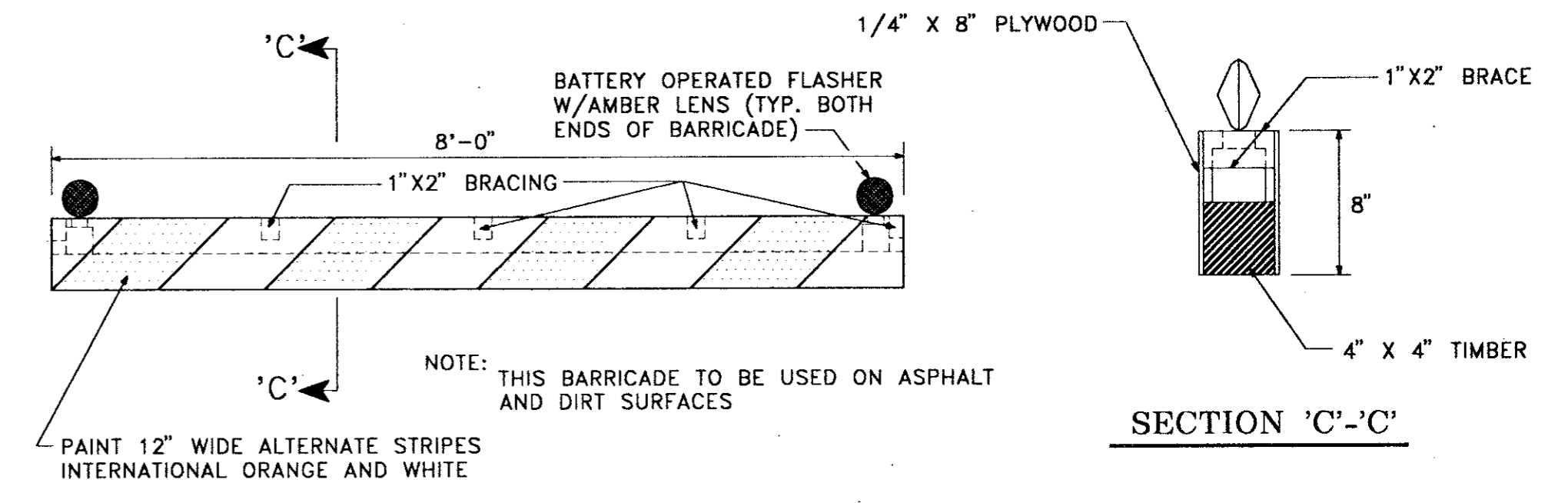
N.T.S.



RELOCATED THRESHOLD MARKINGS

N.T.S.

- NOTES:  
1. ALL MARKINGS IN THE RELOCATED AREA ARE YELLOW EXCEPT THE THRESHOLD BAR WHICH IS WHITE. USE 1/2 NORMAL APPLICATION RATE. EXISTING RUNWAY STRIPE WILL BE REMOVED BEFORE DISPLACED THRESHOLD MARKINGS ARE PLACED. PRIOR TO OPENING NEW RUNWAY REMOVE ALL TEMPORARY MARKINGS BY WATER OF SAND BLASTING.  
2. SIX TEMPORARY BATTERY OPERATED STEADY BURNING LIGHTS WILL BE PLACED AT DUSK AT DISPLACED THRESHOLD LOCATION. LENSES WILL BE GREEN ON ONE SIDE (APPROACH END) AND RED ON THE OTHER (DEPARTURE DIRECTION)  
3. REMOVING EXISTING RUNWAY STRIPE, PLACING THRESHOLD MARKINGS, TEMPORARY LIGHTS AND REMOVING TEMPORARY MARKINGS AND REPLACING ORIGINAL THRESHOLD MARKINGS SHALL BE PAID UNDER ITEM S-4.



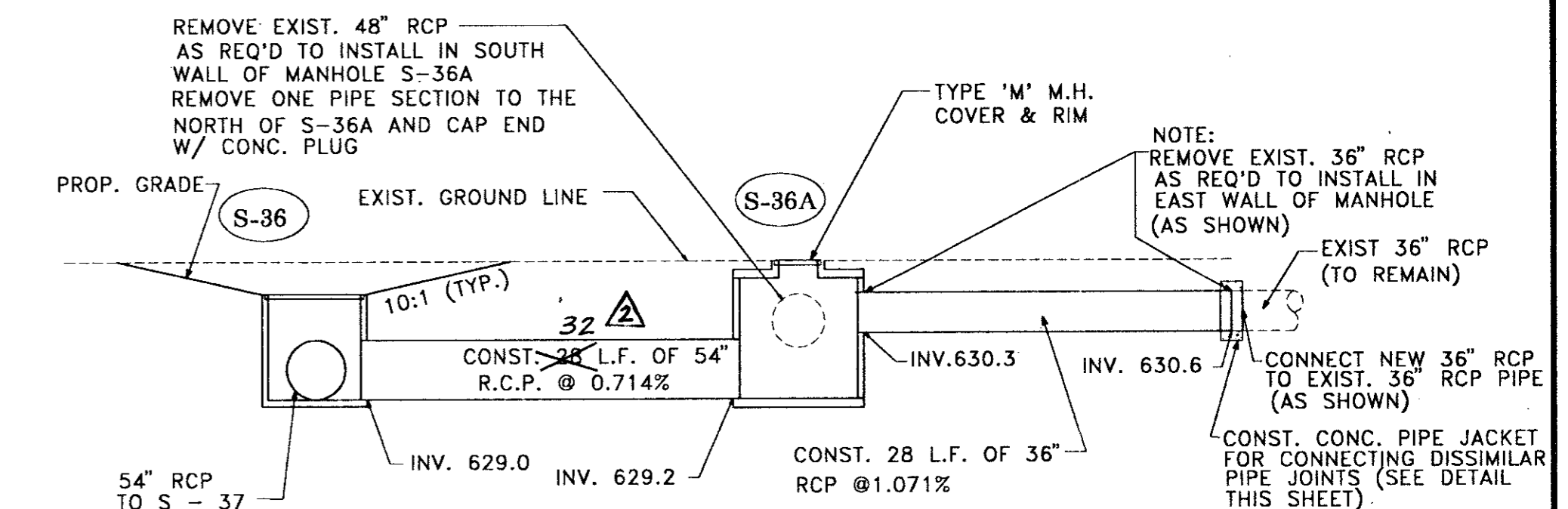
SECTION 'C'-C'

ELEVATION

TIMBER BARRICADE (TYPE "A")

N.T.S.

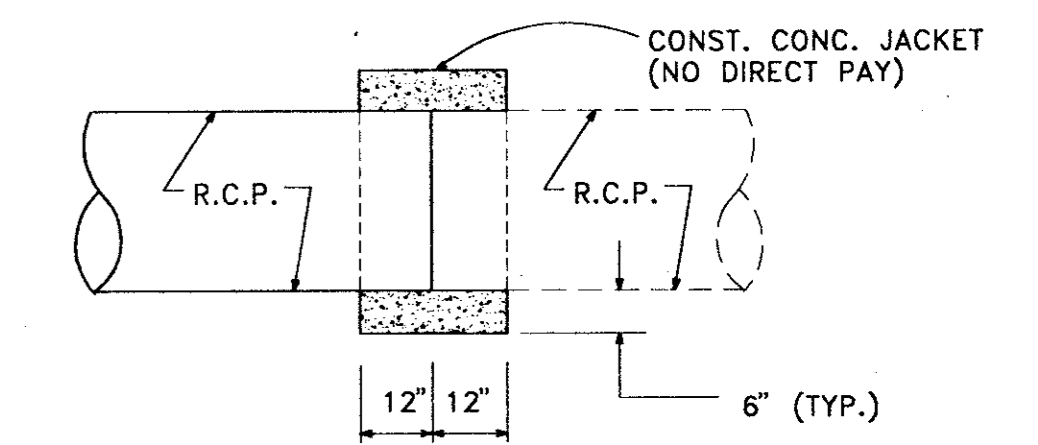
NOTE: THIS BARRICADE TO BE USED ON ASPHALT AND DIRT SURFACES  
PAINT 12" WIDE ALTERNATE STRIPES INTERNATIONAL ORANGE AND WHITE



STRUCTURE SECTION - S-36 TO S-36A

N.T.S.

REMOVE EXIST. 48" RCP AS REQ'D TO INSTALL IN SOUTH WALL OF MANHOLE S-36A  
REMOVE ONE PIPE SECTION TO THE NORTH OF S-36A AND CAP END W/ CONC. PLUG  
NOTE: REMOVE EXIST. 36" RCP AS REQ'D TO INSTALL IN EAST WALL OF MANHOLE (AS SHOWN)  
EXIST 36" RCP (TO REMAIN)  
CONNECT NEW 36" RCP TO EXIST. 36" RCP PIPE (AS SHOWN)  
CONST. CONC. PIPE JACKET FOR CONNECTING DISSIMILAR PIPE JOINTS (SEE DETAIL THIS SHEET)

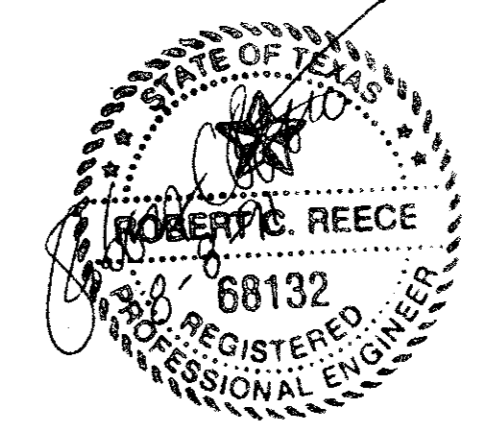


CONC. JACKET DETAIL

N.T.S.

AS BUILT

JUL 30 1992



DESIGN: R.C.R.	A.I.P. NO.: 3-48-0063-03-91	8-30-91	APPENDIX NO. 1	JRH
DRAWN: M.J.G.	S.P. NO.:	7-30-92	AS BUILT	JRH
CHECKED: D.W.P.	JOB NO.: Y8024.22	8-30-92	REVISED X-SECTIONS	JRH
SCALE: AS NOTED		Date	Revisions	By

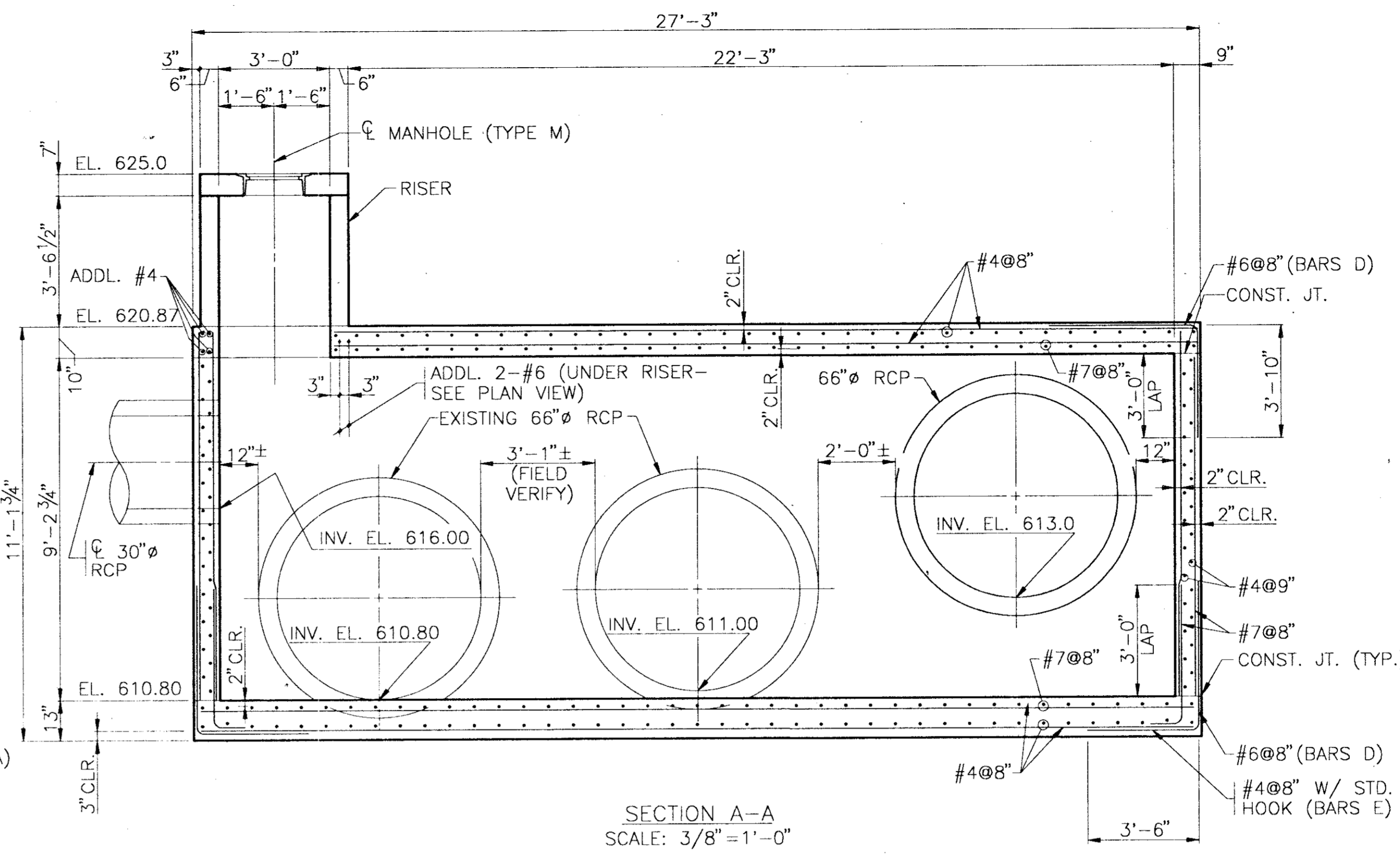
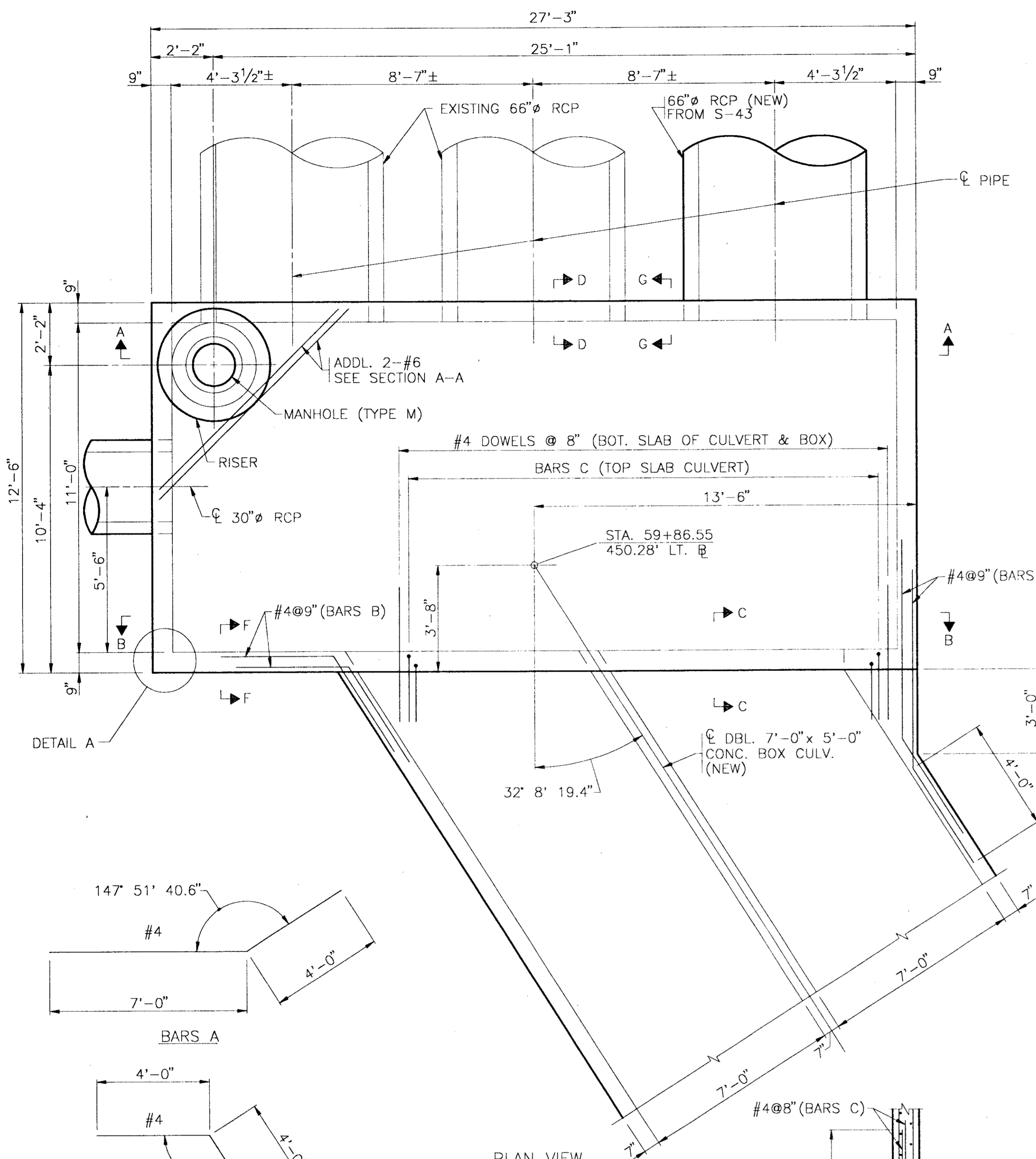
**Greiner**  
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Fort Worth, Texas

Engineers, Architects  
and Planners

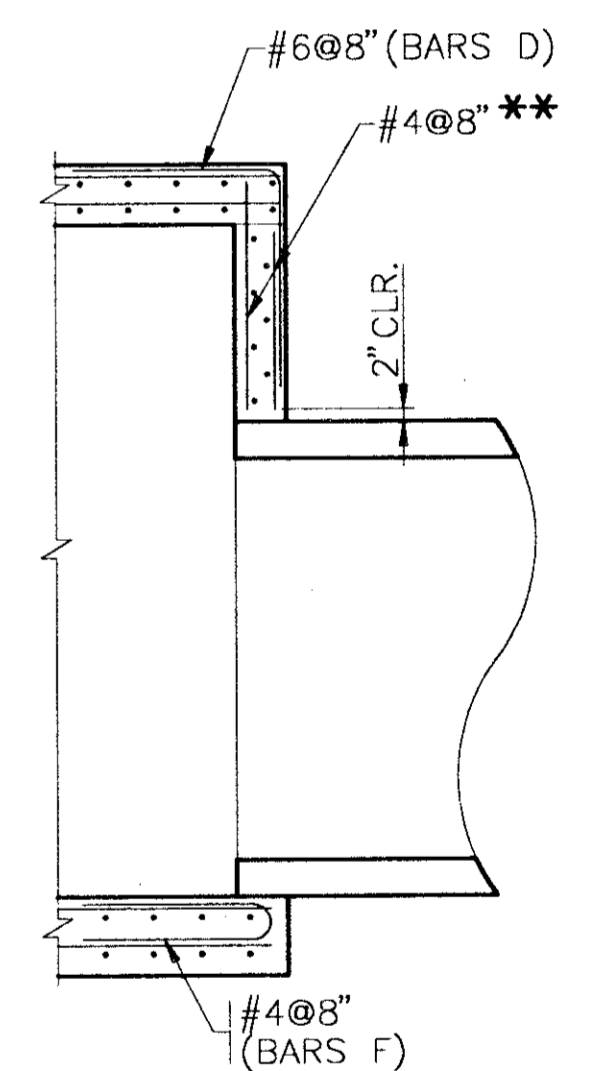
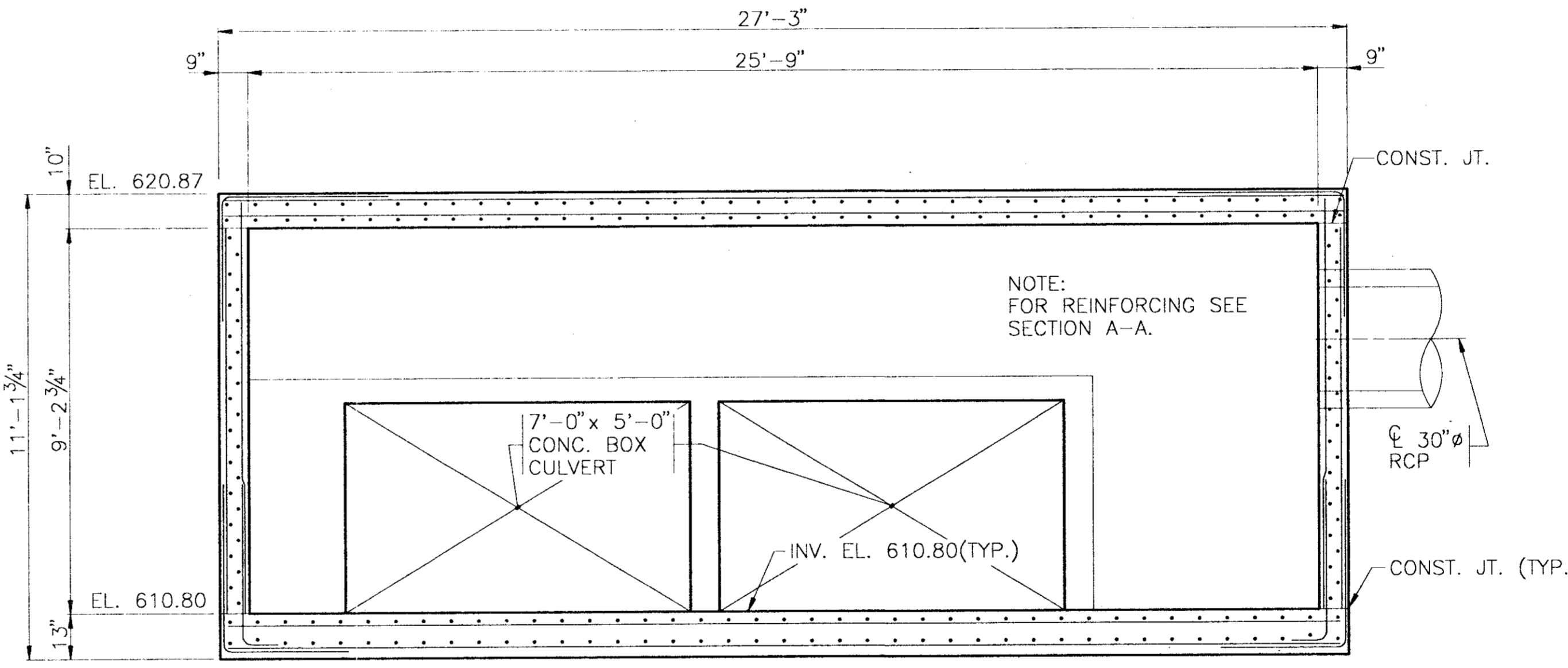
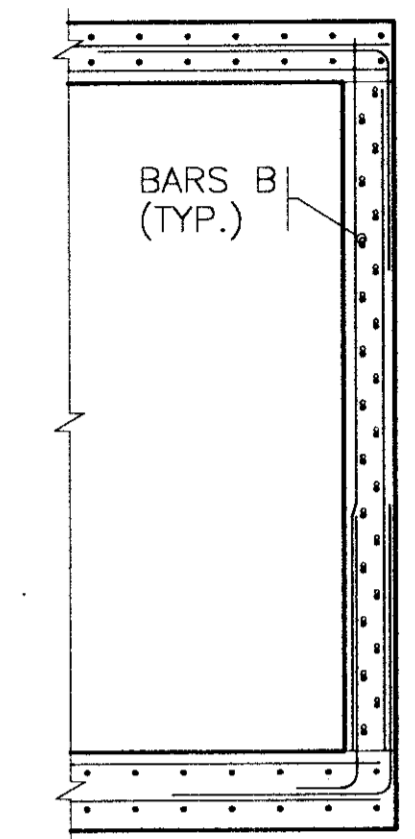
**ADDISON AIRPORT**

**DRAINAGE IMPROVEMENTS**  
MISCELLANEOUS DETAILS

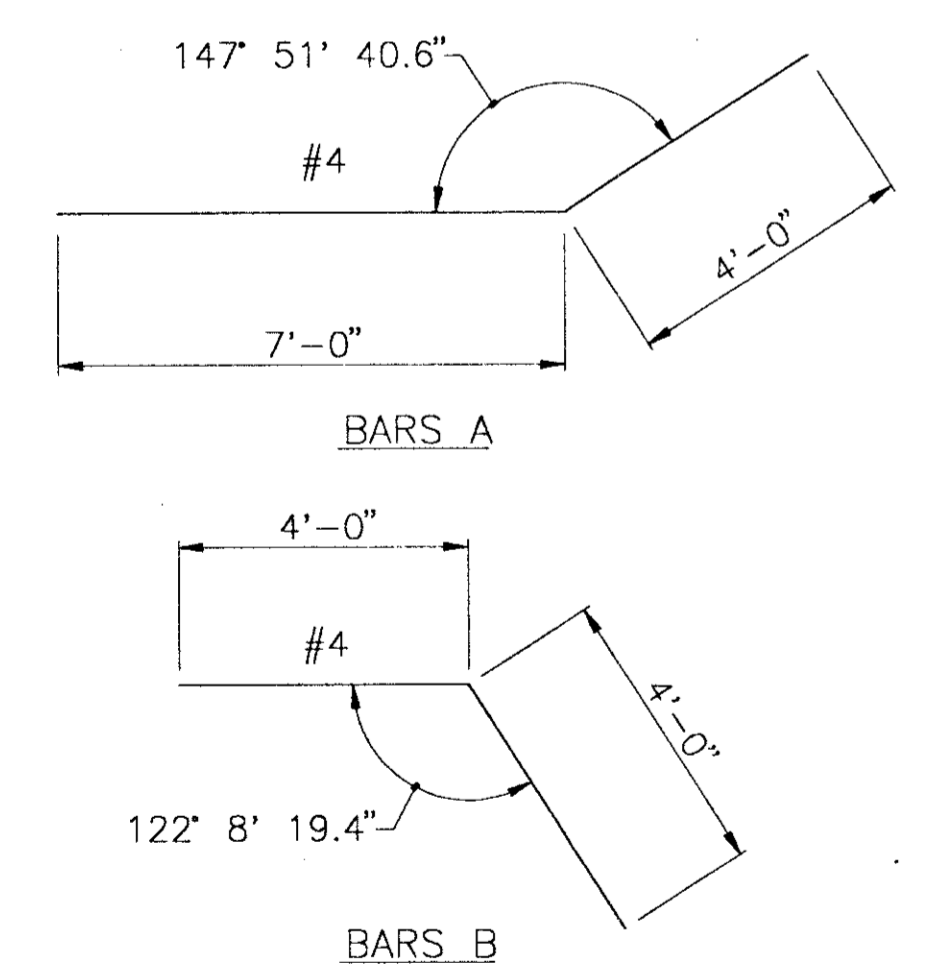
SHEET 15  
DATE: SEPT. 1992



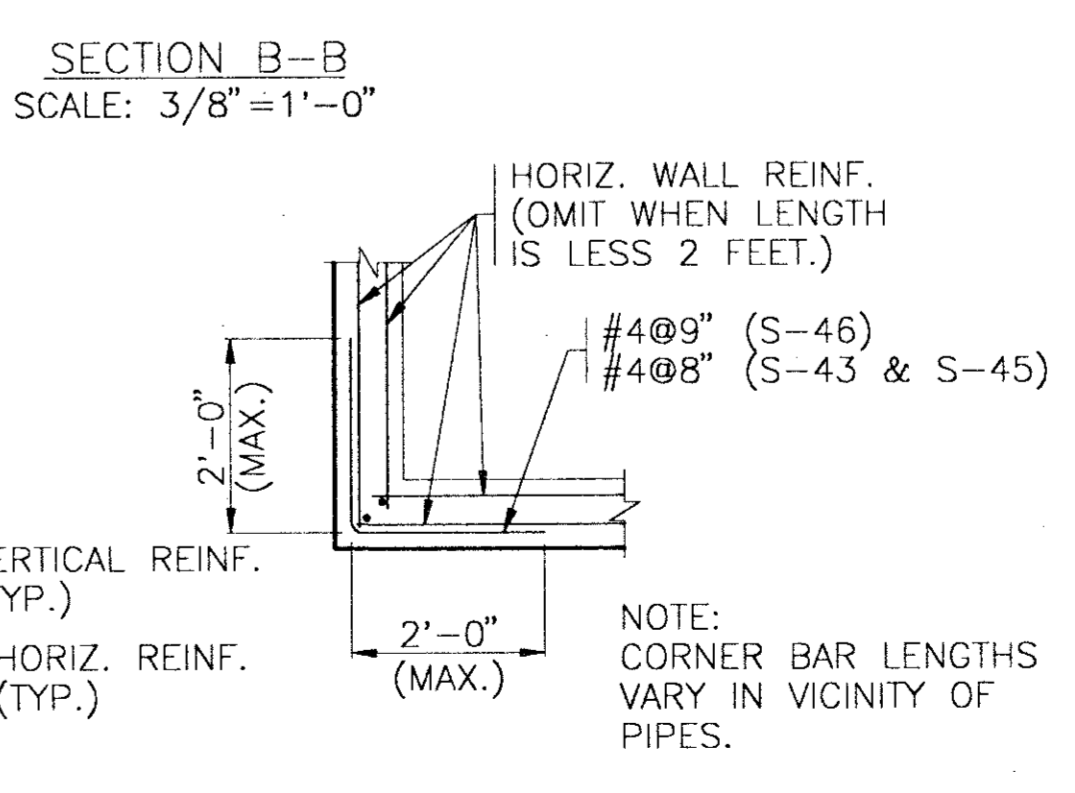
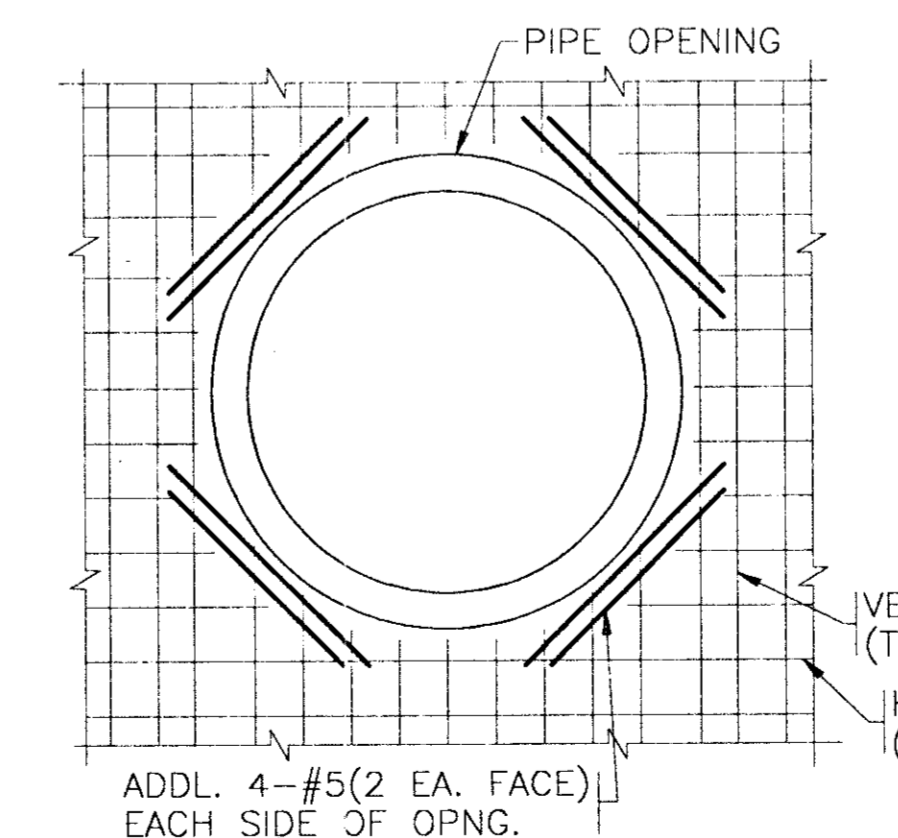
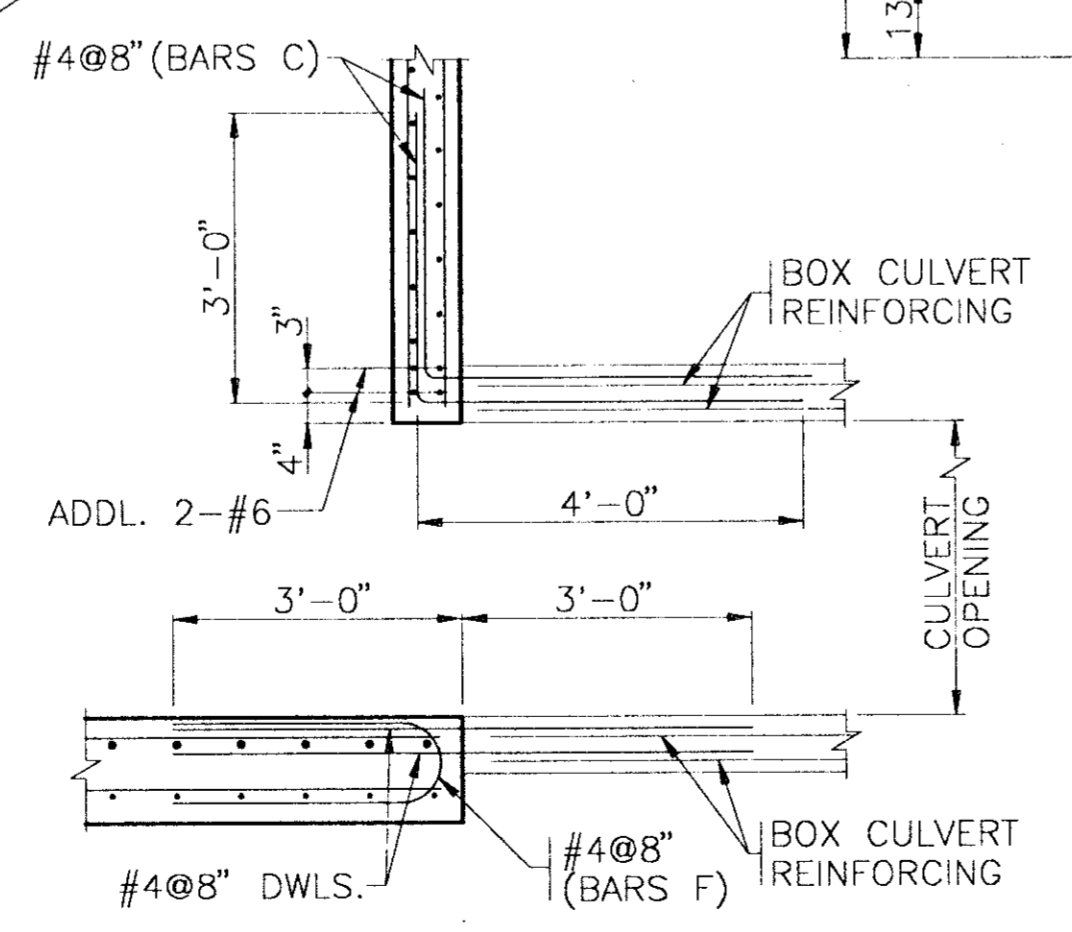
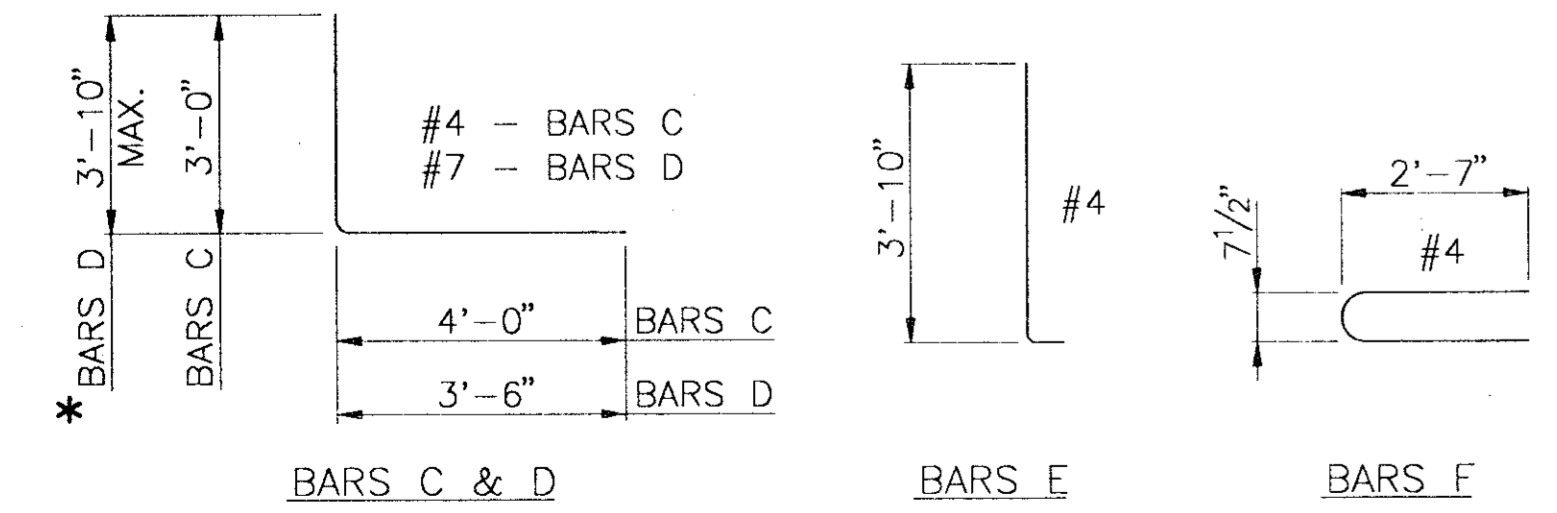
NOTE: FOR DETAILS NOT SHOWN SEE "SECTION A-A".



\*\* VARIES IN VICINITY OF PIPE ONLY, OTHERWISE USE WALL REINF. DESIGNATED IN SECTION A-A.



JUNCTION BOX S-46  
SCALE: 3/8" = 1'-0"



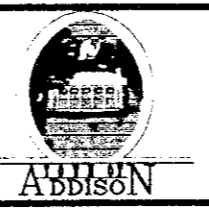
NOTE: FOR NOTES SEE SHEET 17



DESIGN: R.C.R.	A.L.P. NO: 3-48-0063-03-91	Date	Revisions	By
DRAWN: M.J.C.	S.P. NO:			
CHECKED: D.W.P.	JOB NO: Y8024.22			
SCALE: 1" = 3/8"				

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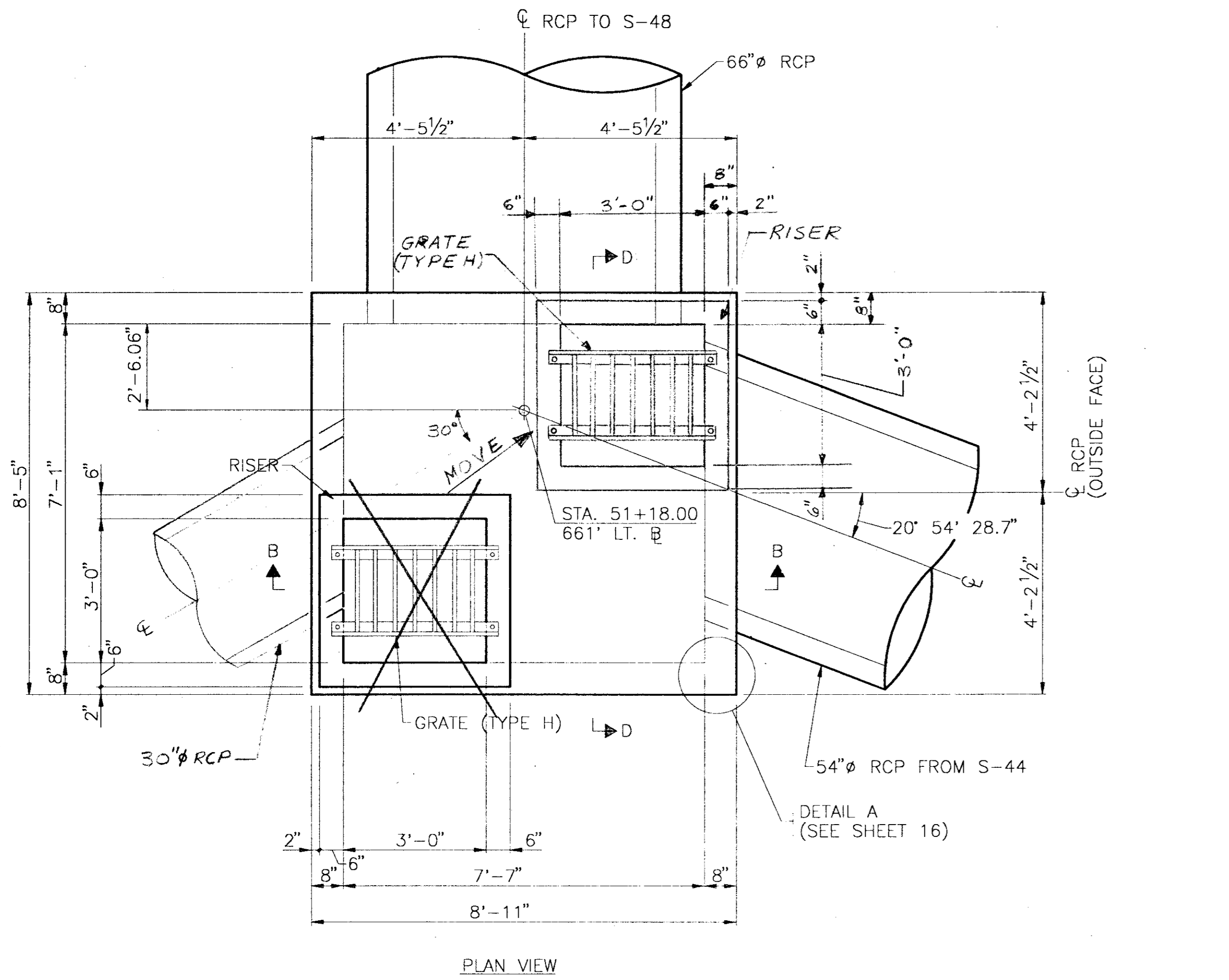


**ADDISON AIRPORT**

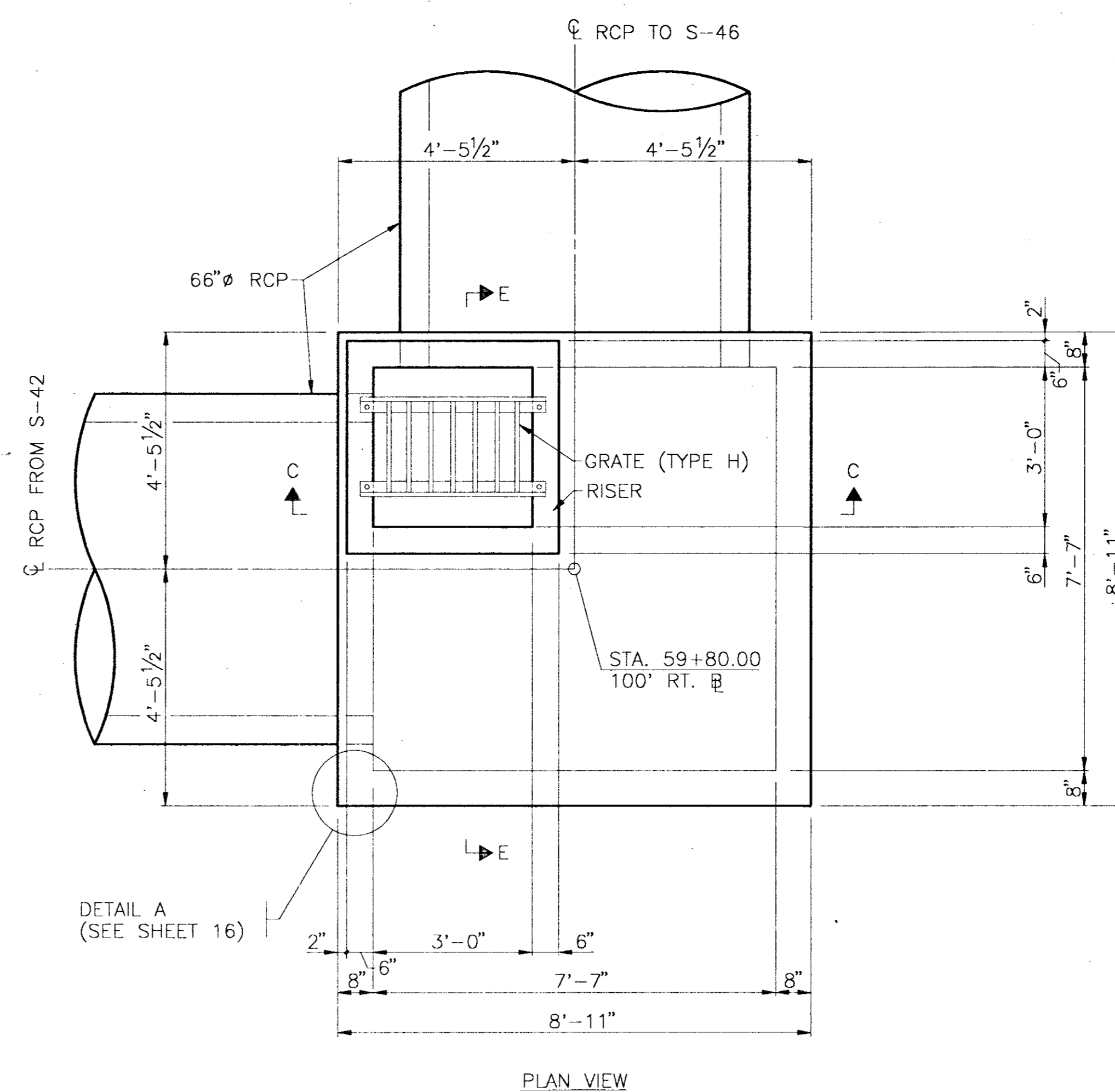
**DRAINAGE IMPROVEMENTS**  
DRAINAGE STRUCTURE DETAILS - STRUCTURE S-46

SHEET  
16  
DATE: SEPT. 1981

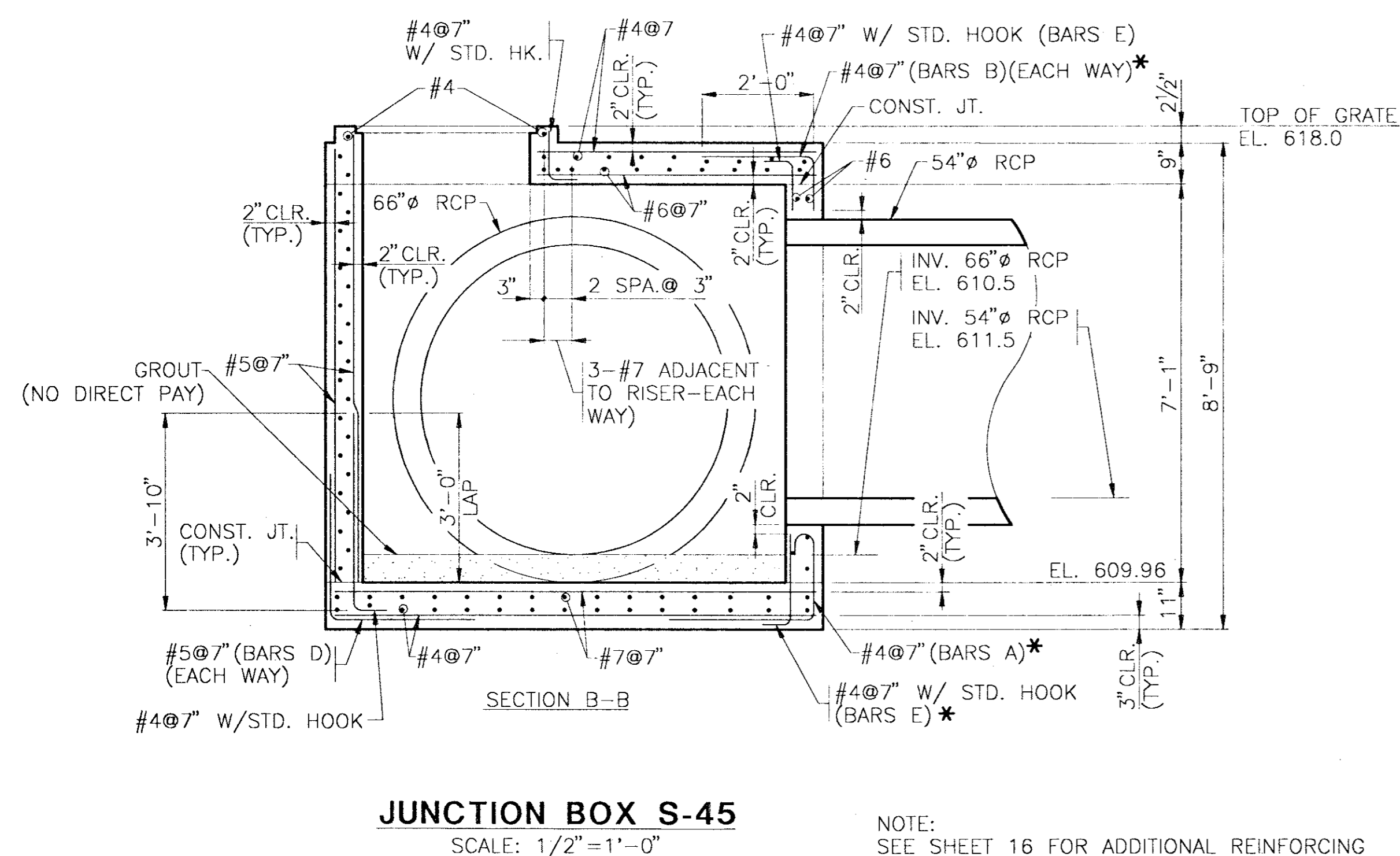




PLAN VIEW



PLAN VIEW

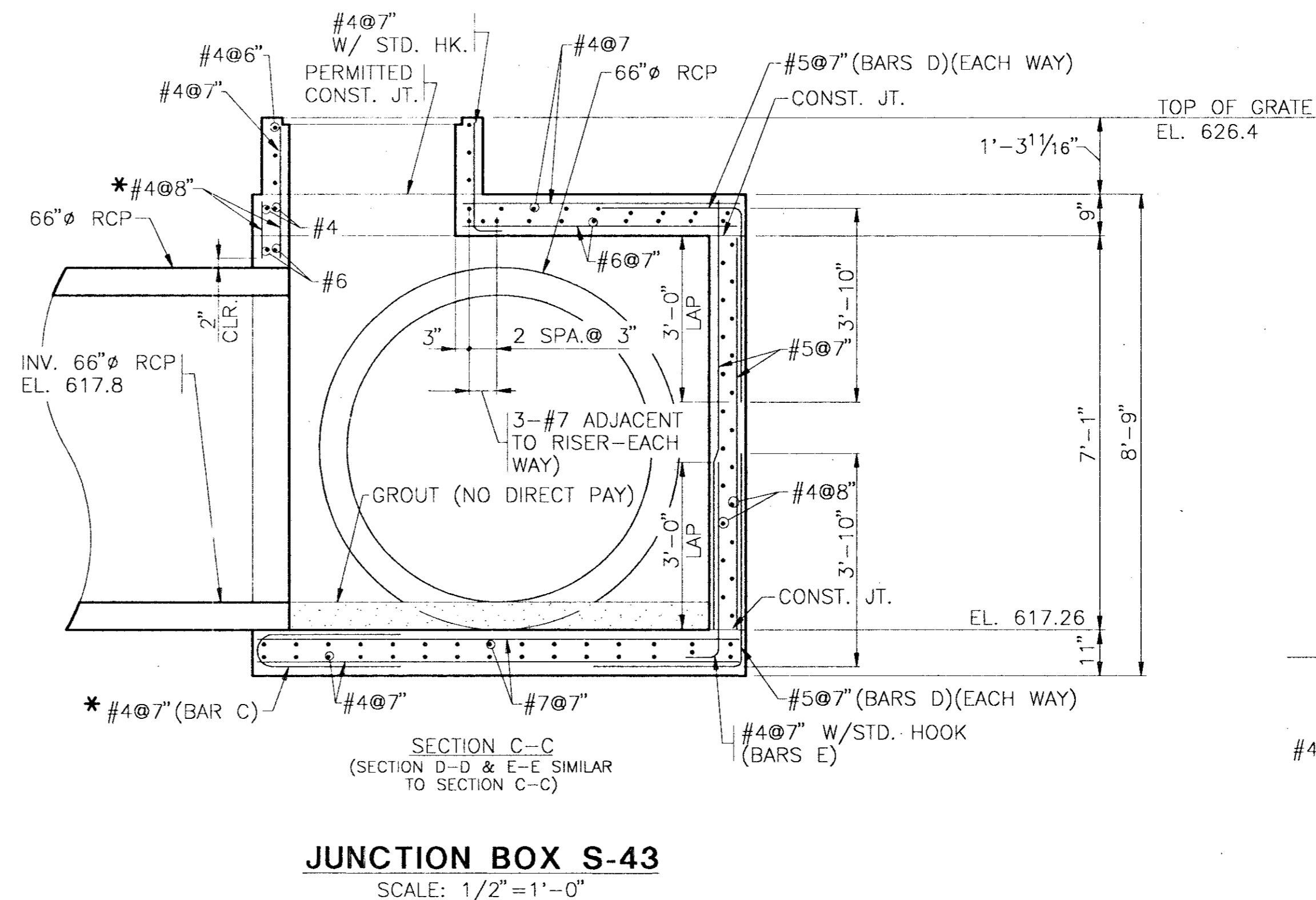


JUNCTION BOX S-45

SCALE: 1/2"=1'-0"

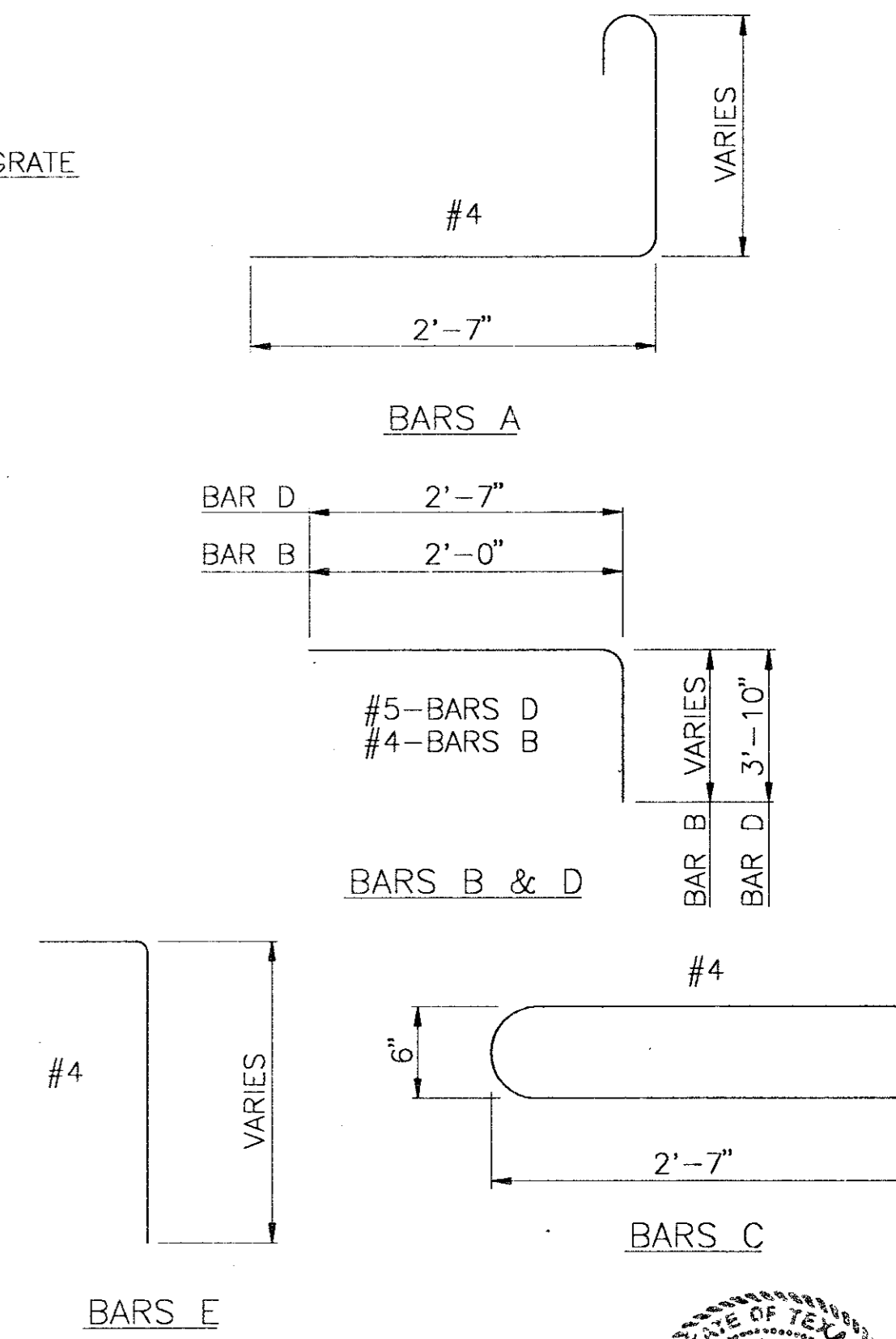
NOTE:  
SEE SHEET 16 FOR ADDITIONAL REINFORCING  
AROUND PIPE.

\* BARS OCCUR ADJACENT TO PIPES ONLY, OTHERWISE  
USE DESIGNATED WALL REINFORCING.



JUNCTION BOX S-46

SCALE: 1/2"=1'-0"



BARS E

N.T.S.

**NOTES**  
DESIGN DATA:  
ASSUMED LIVE LOAD = HS20-44  
DESIGN FILL = VARIES  
CONCRETE:  $f'_c = 3500$  PSI  
REINFORCING STEEL: ASTM A615 (GRADE 60)  
 $f_s = 24000$  PSI  
BAR DIMENSIONS SHOWN ARE OUT TO OUT. STANDARD  
CRSI HOOK DETAILS SHALL APPLY EXCEPT AS NOTED.

DESIGN SPECIFICATIONS:  
AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES", 1990 ED.  
WITH ADDENDA AND TEXAS STATE DEPARTMENT OF HIGHWAYS AND  
PUBLIC TRANS. "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF  
HIGHWAYS, STREETS AND BRIDGES", 1982 ED.

COMPUTED FOUNDATIONS LOAD (DEAD + LIVE)  
= 1200 LBS. PER SQ. FT. (S-43, S-45)  
= 1250 LBS. PER SQ. FT. (S-46)

GROUND LINE ASSUMED AT TOP OF GRATE OR MANHOLE

ALL DIMENSIONS WITH THE "±" SYMBOL SHALL BE FIELD VERIFIED  
BY THE CONTRACTOR PRIOR TO FABRICATION/CONSTRUCTION OF THE  
AFFECTED COMPONENT OF THE STRUCTURE.

BACKFILLING SHALL NOT OCCUR UNTIL THE ENTIRE JUNCTION BOX IS  
IN PLACE AND CURED AND ALL ADJOINING STRUCTURES HAVE BEEN  
ATTACHED AND CURED.

ALL PIPES AND BOX CULVERT SHALL BE FULLY SUPPORTED BY THEIR  
FOUNDATIONS.

FOR MANHOLE (TYPE M) REINF. AND DETAILS SEE STANDARD "MANHOLE  
TYPE M (JUNCTION BOX WITH ACCESS) MH-M".

FOR GRATE (TYPE H) DETAILS SEE STANDARD "SLOPING INLET TYPE S  
AND HORIZONTAL INLET TYPE H, IL-S IL-H".

THE OPENING IN JUNCTION BOX (S-46) FOR THE BOX CULVERT SHALL  
BE FULLY SUPPORTED UNTIL THE ENTIRE BOX CULVERT OR THE ADJACENT  
50 FEET OF BOX CULVERT IS IN PLACE AND CURED.

DESIGN: <b>R.C.P.</b>	A.I.P. NO: 3-48-0063-03-91	<table border="1"> <tr><td>Date</td></tr> <tr><td>Revisions</td></tr> <tr><td>By</td></tr> </table>	Date	Revisions	By
Date					
Revisions					
By					
DRAWN: <b>M.J.C.</b>	S.P. NO:				
CHECKED: <b>D.W.P.</b>	JOB NO: Y8024.22				
SCALE: AS NOTED					

**Greiner**  
Greiner, Inc.  
Fort Worth, Texas

Engineers, Architects  
and Planners

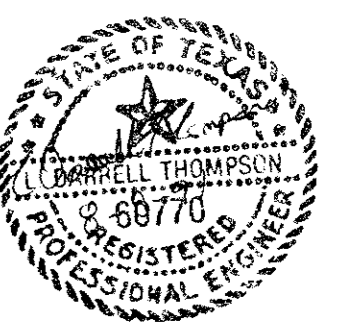


**ADDISON AIRPORT**

**DRAINAGE IMPROVEMENTS**

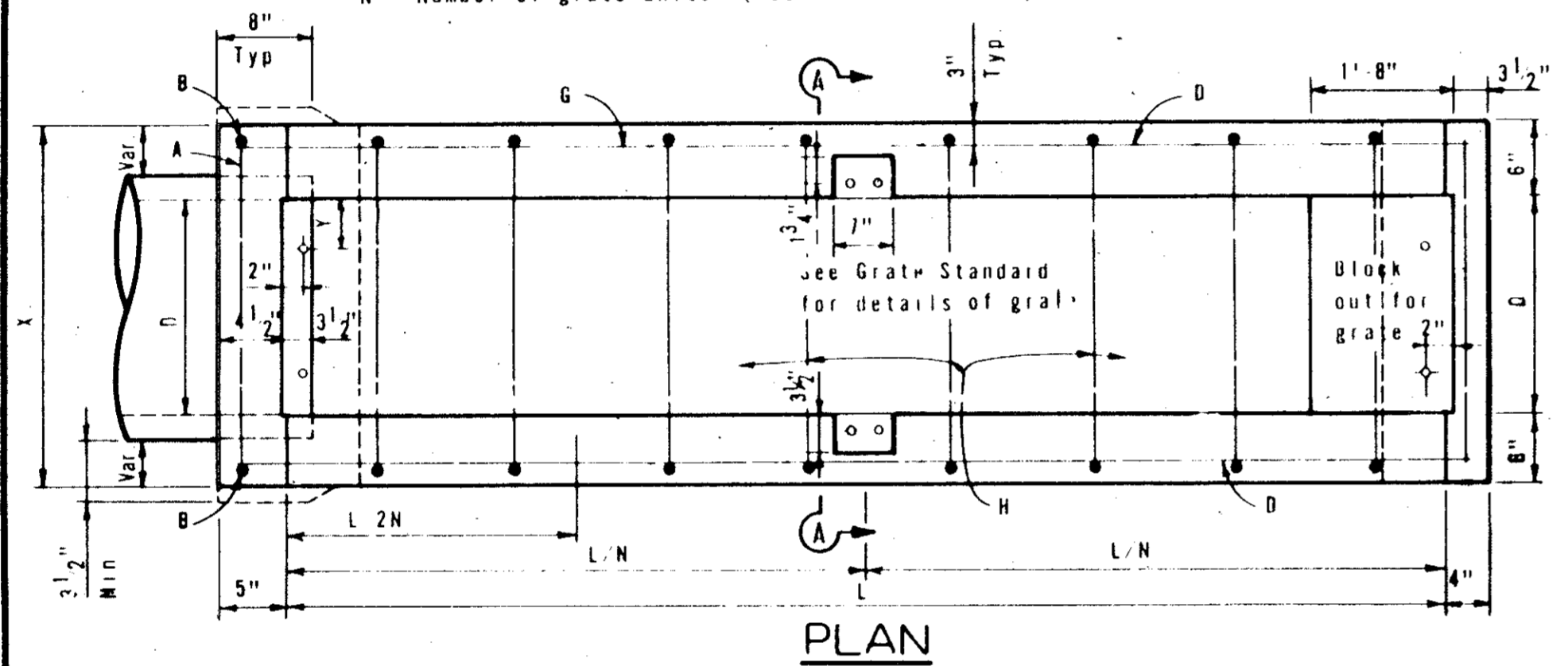
DRAINAGE STRUCTURE DETAILS - STRUCTURES S-43 & S-45

SHEET  
17  
DATE: SEPT. 1992

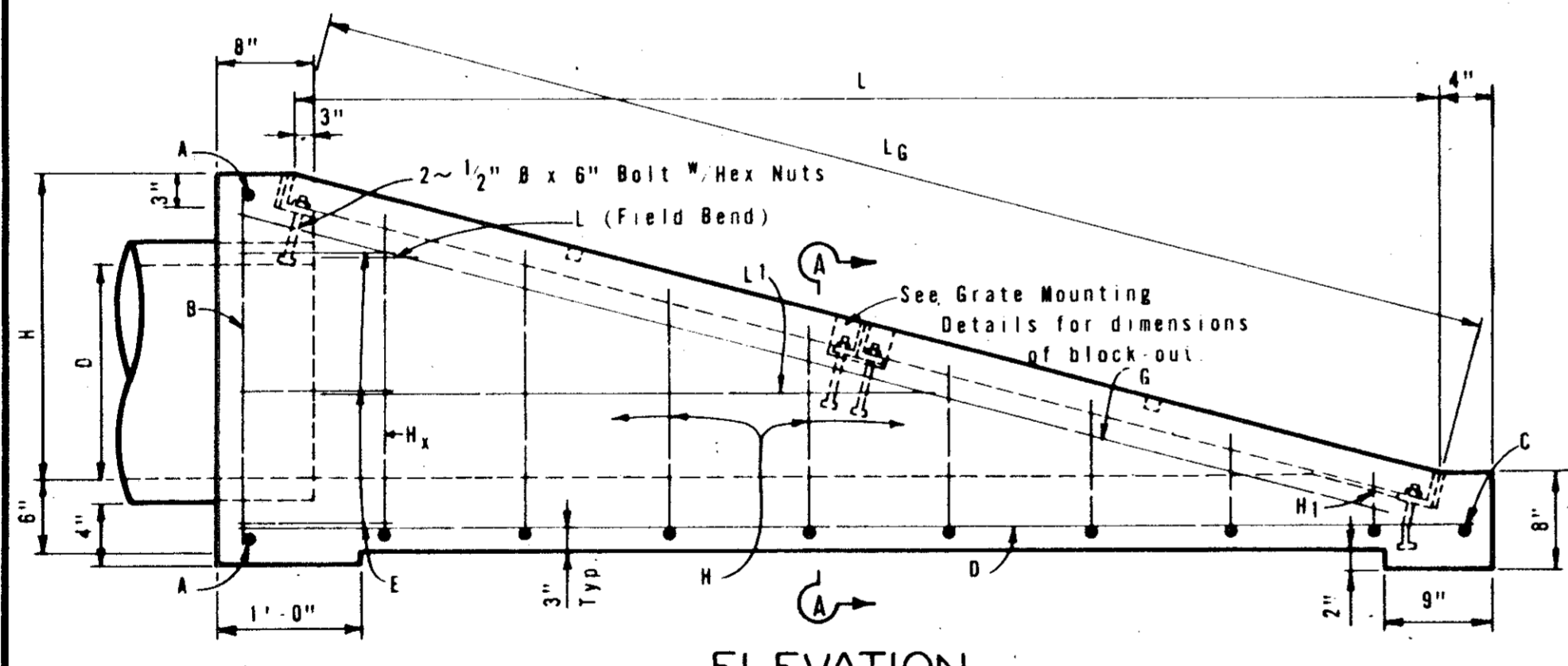


SLOPE	Y	N	DIA. OF PIPE = D	BILL OF REINFORCING STEEL FOR SLOPING INLET																				TOTAL QUANT.																																		
				TABLE OF DIMENSIONS			BARS A					BARS B					BARS C					BARS D					BARS E					BARS G					BARS H AV					BARS L					BARS L <sub>1</sub> AV					STEEL	CONC.					
				X	H	L	NO	SIZE	SPA	LGTH	WT.	NO	SIZE	SPA	LGTH	WT.	NO	SIZE	SPA	LGTH	WT.	NO	SIZE	SPA	LGTH	WT.	NO	SIZE	SPA	LGTH	WT.	NO	SIZE	SPA	LGTH	WT.	NO	SIZE	SPA	LGTH	WT.	LBS	C.Y.															
6:1	4 1/2"	2	18"	2'-6"	2'-1 1/2"	12'-9"	2	#4	~	2'-3"	3	2	#4	~	2'-5"	3	1	#4	~	2'-3"	2	3	#4	12"	±	13'-3"	27	6	#4	12"	±	2'-6"	10	2	#4	~	13'-5"	18	12	#4	12"	±	4'-5"	35	2	#4	12"	±	2'-0"	3	2	#4	12"	±	6'-10"	9	110	1.1
6:1	5"	2	24"	3'-0"	2'-8"	16'-0"	2	#4	~	2'-10"	4	2	#4	~	3'-0"	4	1	#4	~	2'-9"	2	4	#4	12"	±	16'-6"	44	8	#4	12"	±	2'-6"	13	2	#4	~	16'-9"	22	15	#4	12"	±	5'-6"	55	2	#4	12"	±	2'-0"	3	2	#4	12"	±	9'-10"	13	160	1.7
6:1	5 1/2"	3	30"	3'-6"	3'-2 1/2"	19'-3"	2	#4	~	3'-5"	5	2	#4	~	3'-9"	5	1	#4	~	3'-3"	2	4	#4	12"	±	19'-9"	53	8	#4	12"	±	2'-6"	13	2	#4	~	20'-0"	27	19	#4	12"	±	6'-6"	83	2	#4	12"	±	2'-0"	3	4	#4	12"	±	10'-1"	27	218	2.4
6:1	6"	3	36"	4'-0"	3'-9"	22'-6"	2	#4	~	4'-0"	5	2	#4	~	4'-2"	5	1	#4	~	3'-9"	3	5	#4	12"	±	23'-0"	77	10	#4	12"	±	2'-6"	17	2	#4	~	23'-3"	31	22	#4	12"	±	7'-7"	111	2	#4	12"	±	2'-0"	3	6	#4	12"	±	13'-9"	55	307	3.3
6:1	6 1/2"	3	42"	4'-6"	4'-3 1/2"	25'-9"	2	#4	~	4'-7"	6	2	#4	~	4'-9"	6	1	#4	~	4'-3"	3	5	#4	12"	±	26'-3"	88	10	#4	12"	±	2'-6"	17	2	#4	~	26'-8"	36	25	#4	12"	±	8'-7"	143	2	#4	12"	±	2'-0"	3	6	#4	12"	±	13'-10"	55	357	4.4
6:1	4 1/2"	4	48"	5'-0"	4'-10"	29'-0"	2	#4	~	5'-2"	7	2	#4	~	5'-4"	7	1	#4	~	4'-9"	3	6	#4	12"	±	29'-6"	118	12	#4	12"	±	2'-6"	20	2	#4	~	29'-10"	40	29	#4	12"	±	9'-7"	186	2	#4	12"	±	2'-0"	3	8	#4	12"	±	14'-5"	77	461	5.7

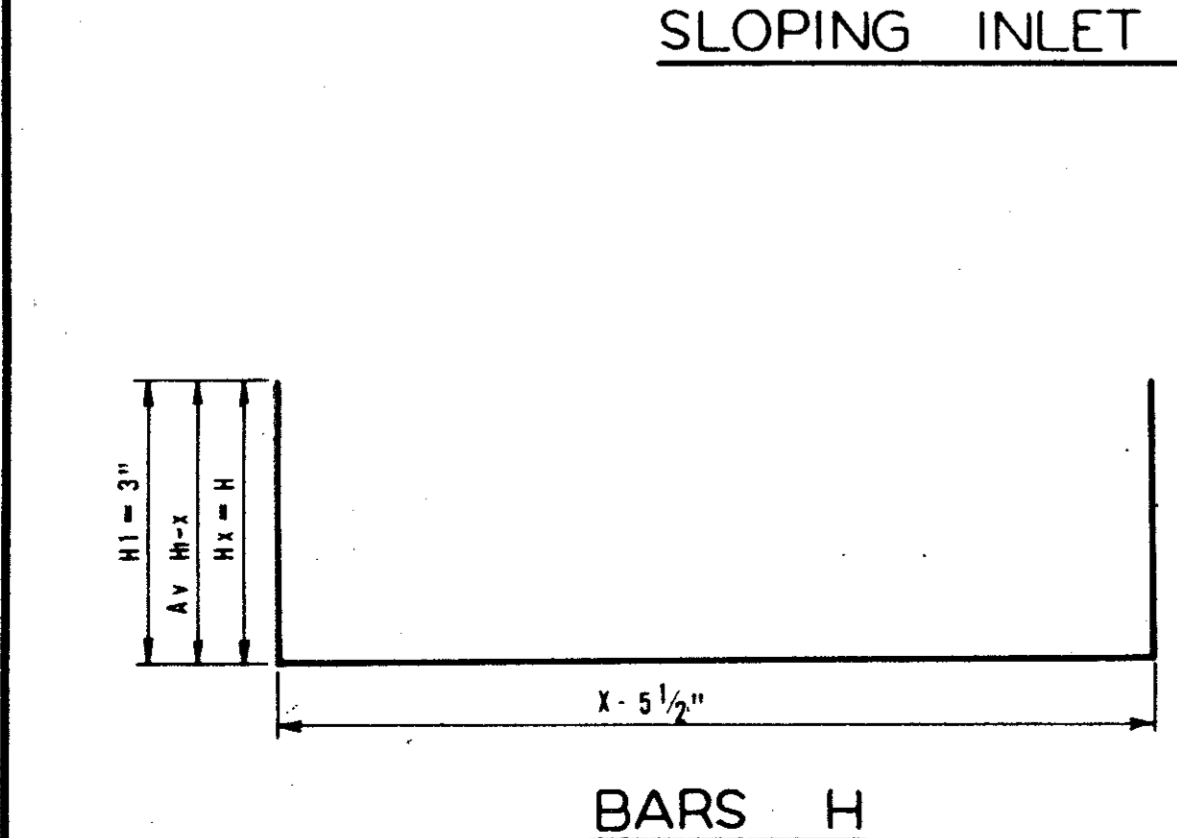
Note For pipe sizes of 21", 27", and 33" use inlets for pipe sizes 24", 30", and 36" respectively.  
 N = Number of grate units (See Grate Standard)



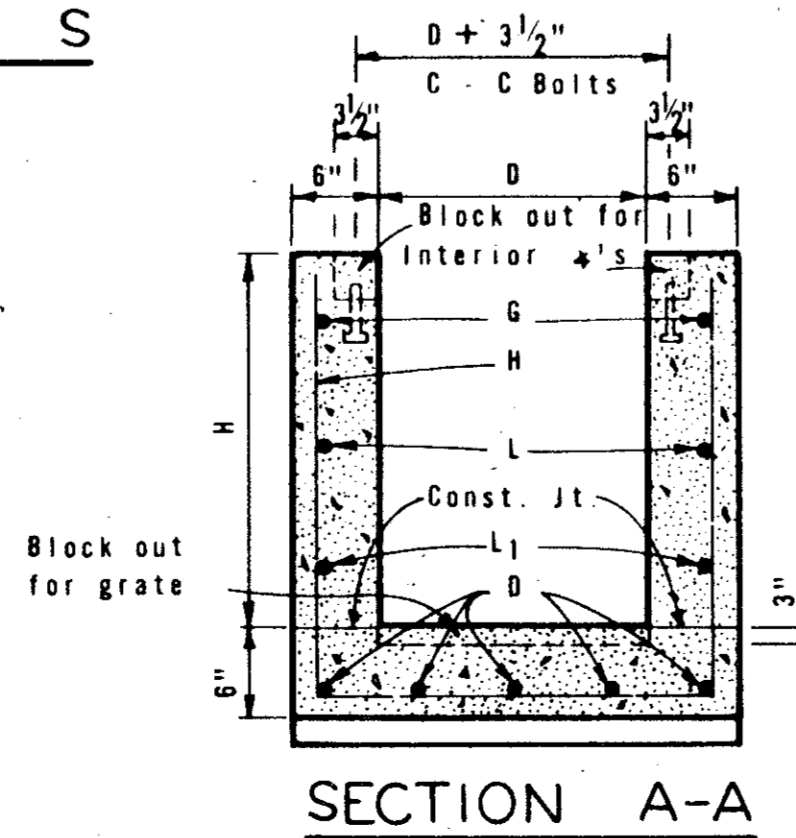
PLAN



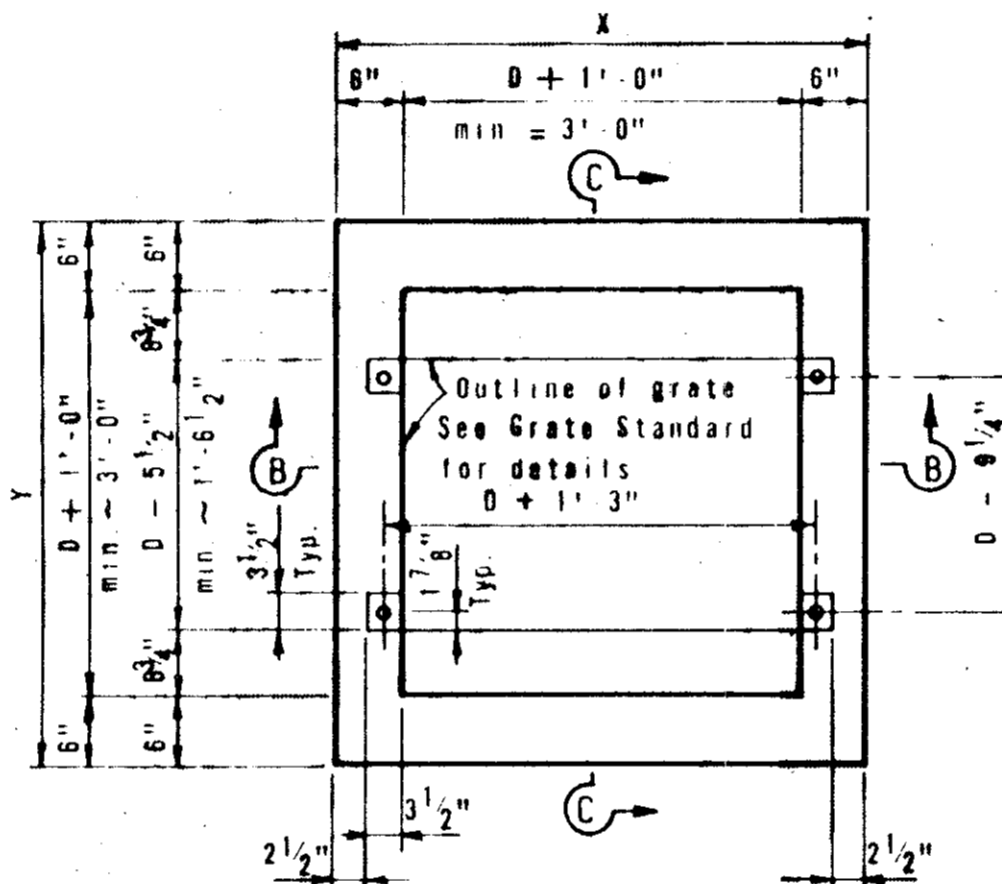
ELEVATION  
SLOPING INLET TYPE S



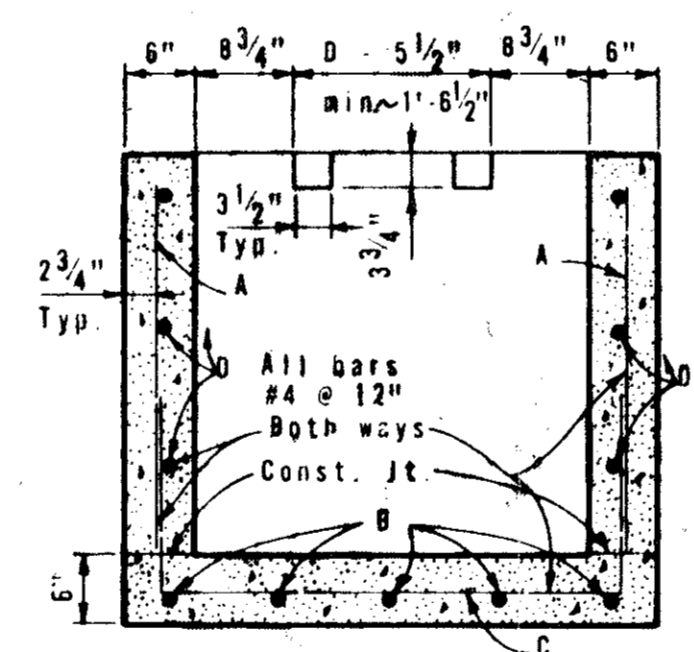
BARS H



SECTION A-A

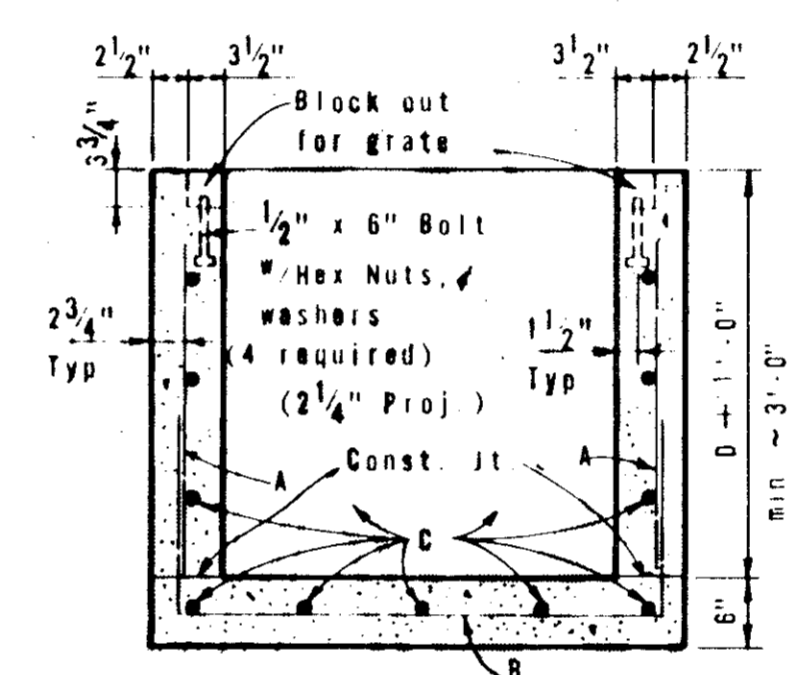


PLAN

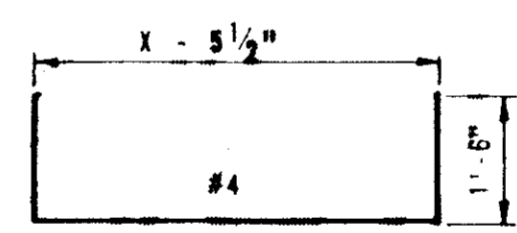


SECTION C-C

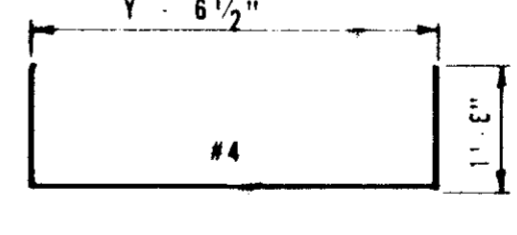
HORIZONTAL INLET TYPE H



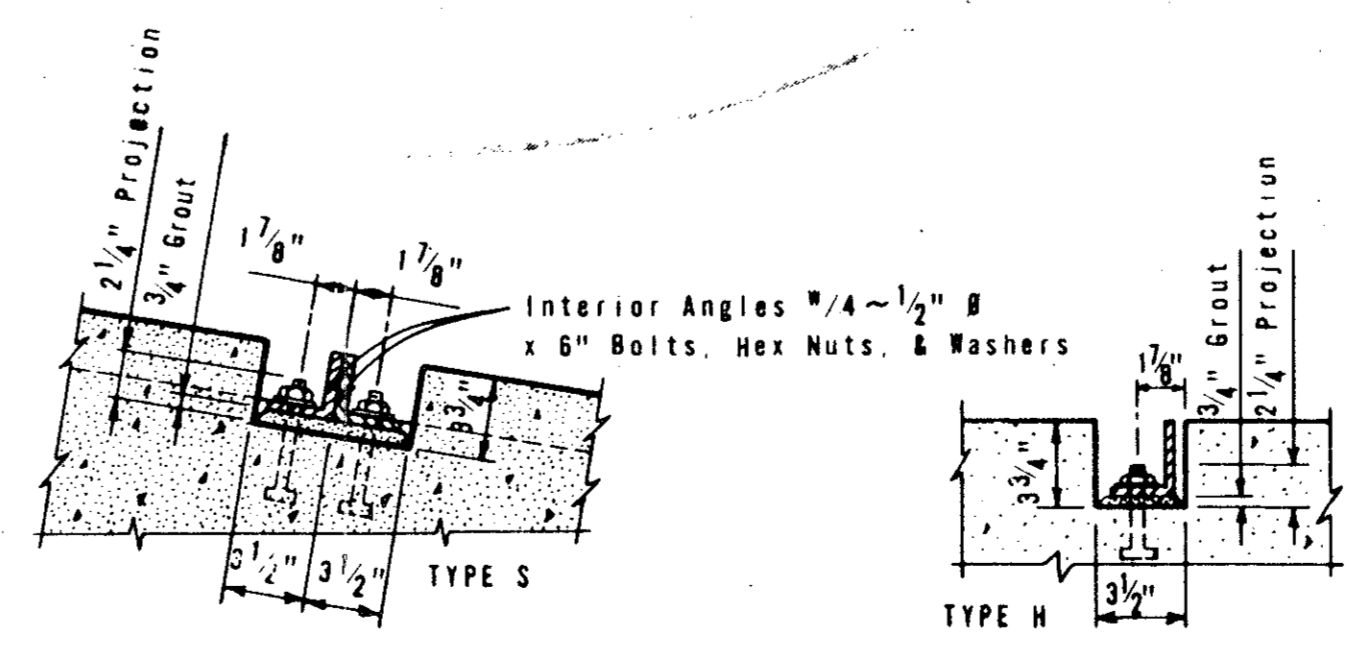
SECTION B-B



BARS B



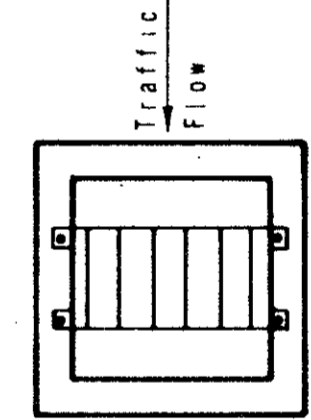
BARS C



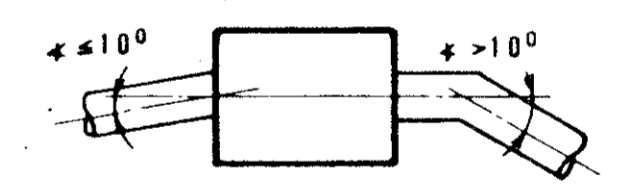
GRATE MOUNTING DETAILS

GENERAL NOTES

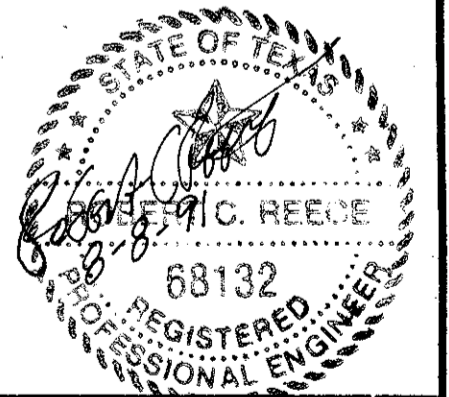
Quantities shown hereon are for the Contractor's information only. Unless otherwise shown in the plans, payment will be made for each inlet of the type specified. Exposed edges shall be chamfered 3/4". Alternate design drawings bearing the seal of a registered professional engineer will be acceptable for precast construction of inlets. Shop drawings may not be required. The contractor may with the approval of the Engineer furnish inlets of equivalent structural design. In areas of conflict between reinforcing steel, blockouts, pipes, anchor bolts or other reinforcing steel, the reinforcement shall be bent or adjusted to clear as directed by the Engineer. If possible, horizontal grate inlet should be oriented such that both traffic and ditch water approach parallel to bars on grate. If this is not possible, orientation should favor traffic flow.



Connecting pipes should enter within 10° of normal to inlet wall. If necessary, pipe elbow or curved approach alignment should be used to stay within this limit.



The pipe diameter, "D", to be used in determining horizontal dimensions of Type "H" inlet, shall be the largest pipe entering or exiting the inlet which would control that particular wall dimension. For vertical dimension, use largest "D" or "1'-0\"/>

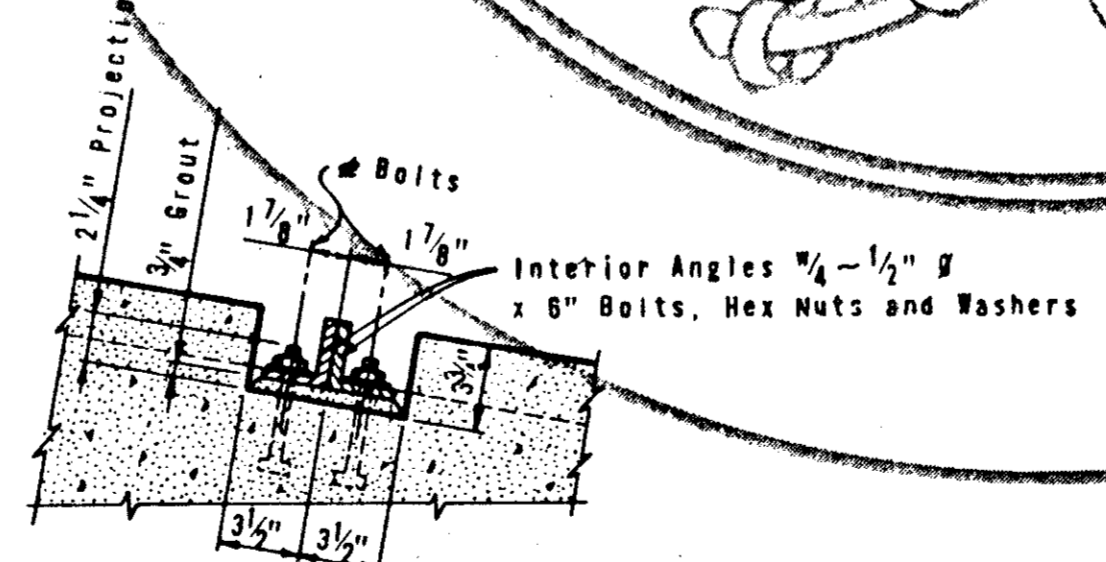
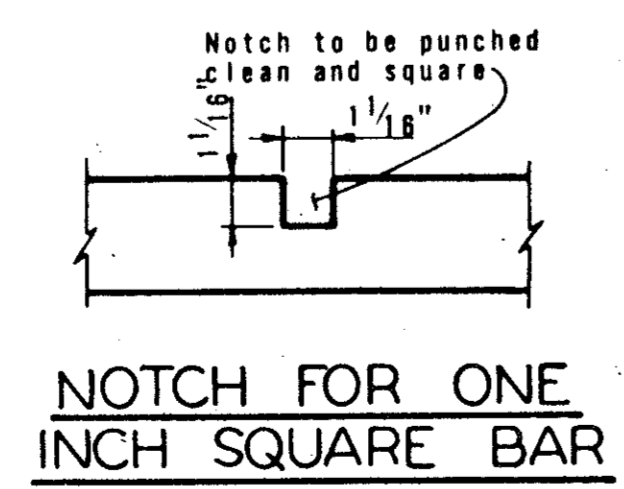
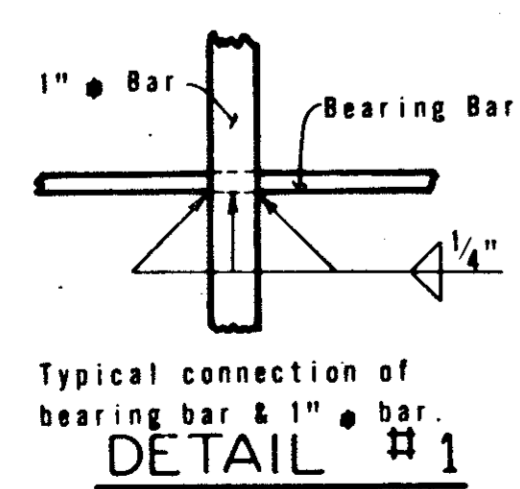
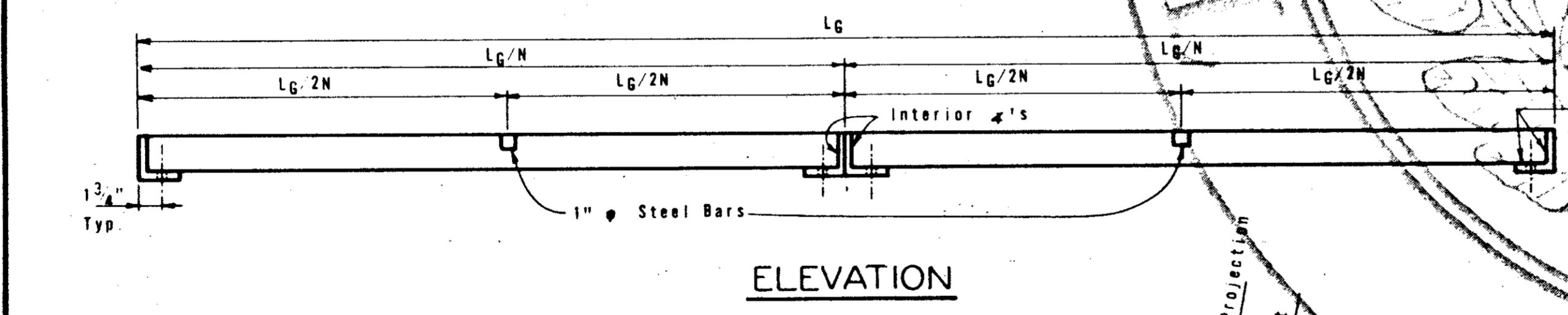
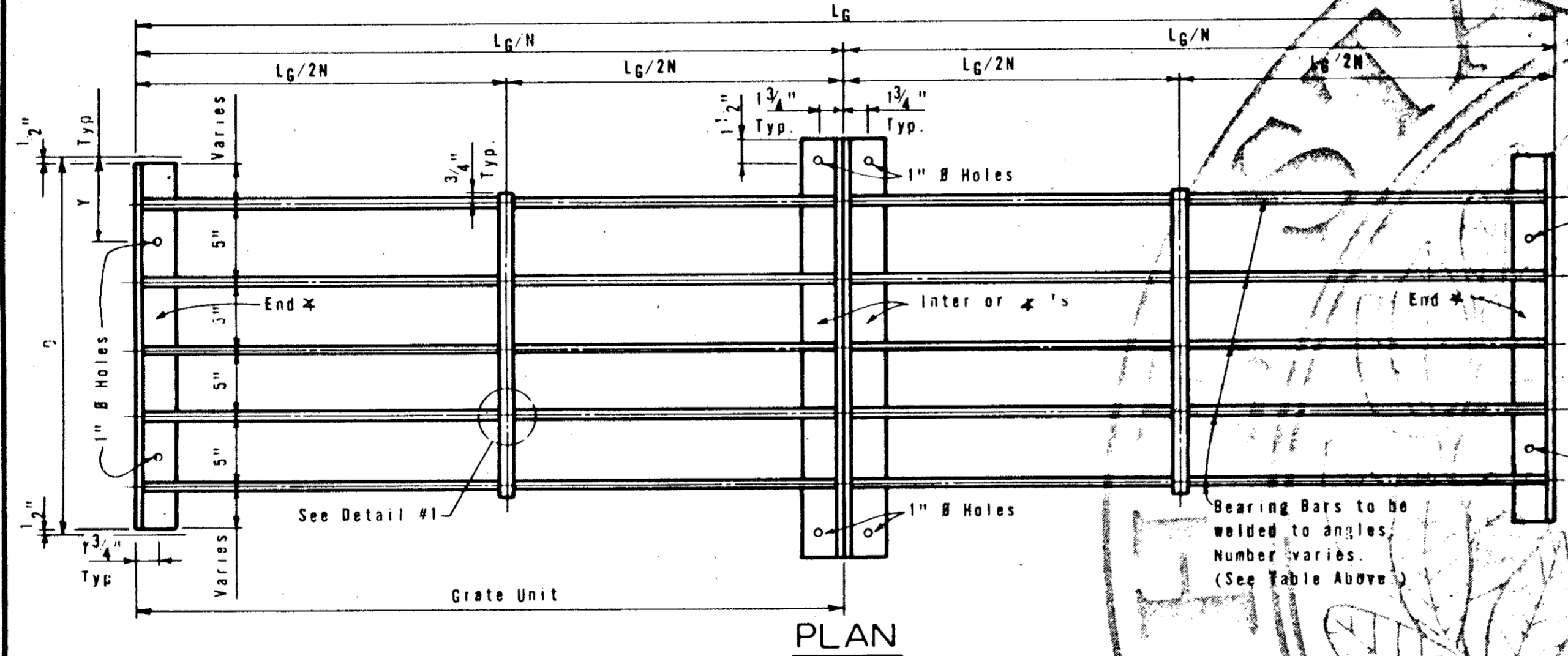


STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION  
 SLOPING INLET TYPE S AND HORIZONTAL INLET TYPE H  
 IL-S IL-H

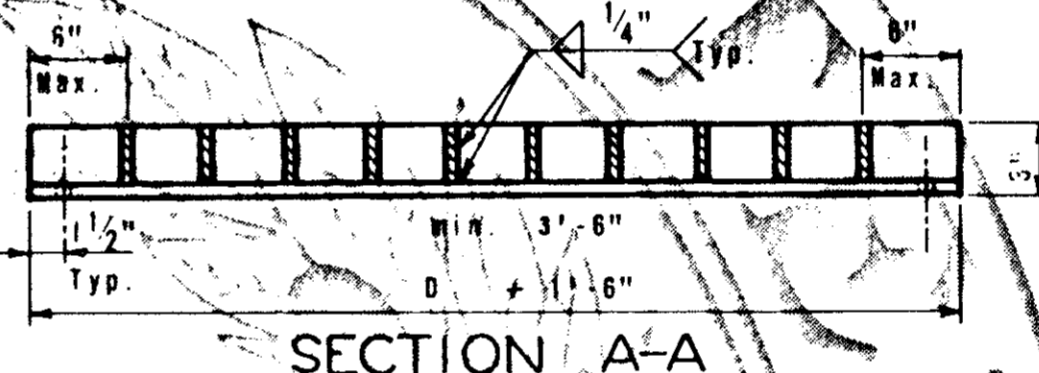
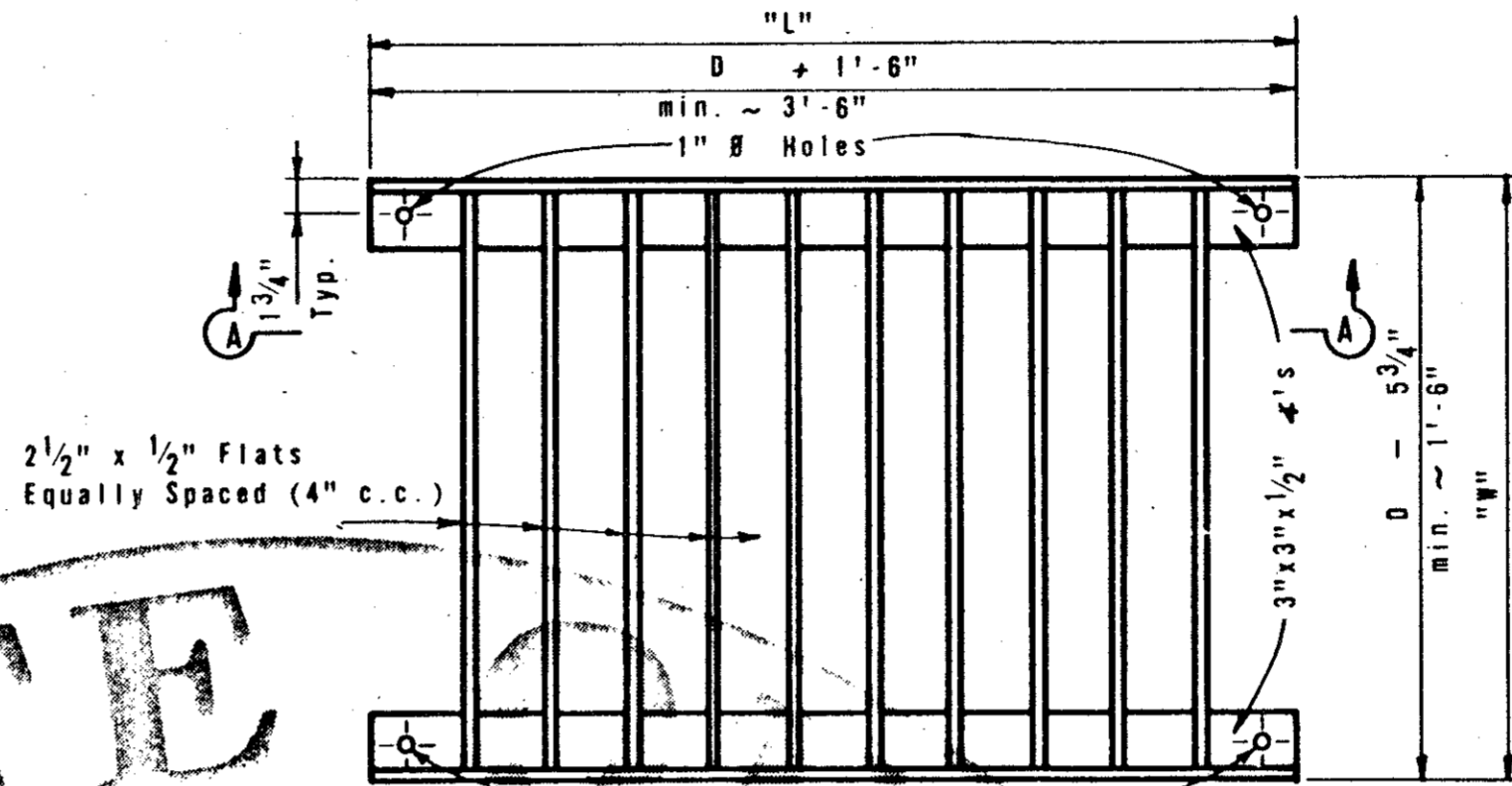
ORIGINAL DRAWING DATE: DEC. 1977	STATE FEDERAL DISTRICT REGION	FEDERAL AID PROJECT	SHEET
DN: ADC	REVISIONS	6	18
CK: THD	Rev. 8-86 Gen. Notes		
DW: MGB	COUNTY	CONTROL SECTION	JOB
CK: THD			ROADWAY

SLOPE	Y	DIAM. OF PIPE = D	GRATE QUANTITIES FOR SLOPING INLET														TOTAL WEIGHT LBS.			
			TOTAL	BEARING BARS @ 5" C.C.				INTERIOR ANGLES				END ANGLES				1" # BARS				
				NO	SIZE	Lg/N	WT.	NO	SIZE	LGTH	WT.	NO	SIZE	LGTH	WT.	NO		LGTH	WT.	
6:1	4 1/2"	18"	2	2	8	2 1/2" x 1/2"	6'-5 3/8"	220	2	3" x 3" x 1/2"	2'-0 1/2"	38	2	3" x 3" x 1/2"	1'-5"	27	2	1'-4 1/2"	9	295
6:1	5"	24"	2	2	10	2 1/2" x 1/2"	8'-1 3/8"	345	2	3" x 3" x 1/2"	2'-6 1/2"	40	2	3" x 3" x 1/2"	1'-11"	36	2	1'-9 1/2"	12	441
6:1	5 1/2"	30"	3	3	18	2 1/2" x 1/2"	6'-6 3/8"	498	4	3" x 3" x 1/2"	3'-0 1/2"	114	2	3" x 3" x 1/2"	2'-5"	45	3	2'-2 1/2"	23	680
6:1	6"	36"	3	3	21	2 1/2" x 1/2"	7'-7 1/4"	679	4	3" x 3" x 1/2"	3'-6 1/2"	133	2	3" x 3" x 1/2"	2'-11"	53	3	2'-7 1/2"	27	892
6:1	6 1/2"	42"	3	3	24	2 1/2" x 1/2"	8'-8 5/8"	889	4	3" x 3" x 1/2"	4'-0 1/2"	152	2	3" x 3" x 1/2"	3'-5"	64	3	3'-0 1/2"	31	1,136
6:1	4 1/2"	48"	4	4	40	2 1/2" x 1/2"	7'-4 1/8"	1,249	6	3" x 3" x 1/2"	4'-6 1/2"	256	2	3" x 3" x 1/2"	3'-11"	74	4	3'-10 1/2"	53	1,632

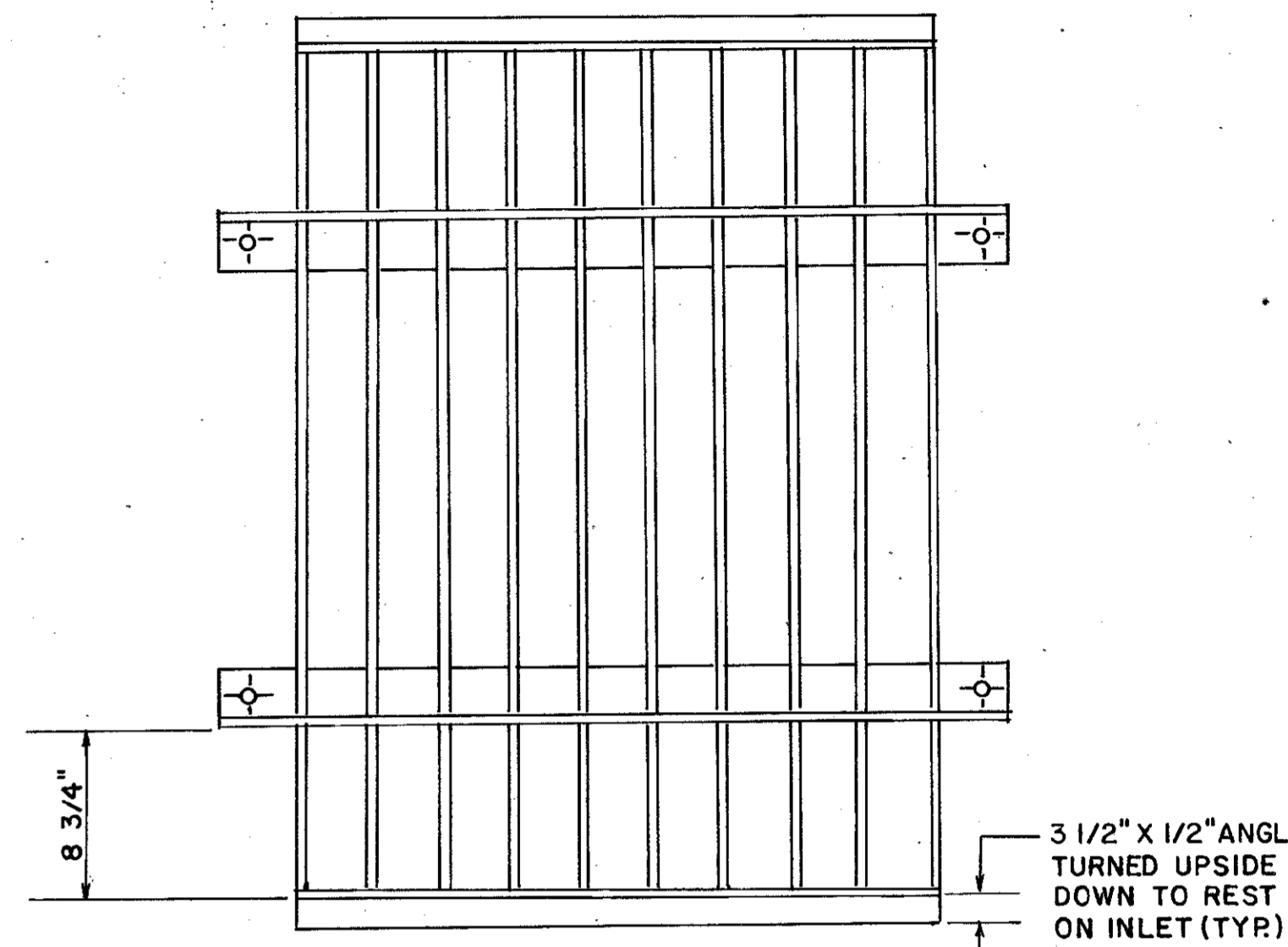
N = Number of grate units.  
 For pipe diameters of 21", 27", and 33" use grates for pipe diameters of 24", 30" and 36", respectively.



GRATE DETAILS FOR SLOPING INLET TYPE S



GRATE DETAILS FOR HORIZONTAL INLET TYPE H



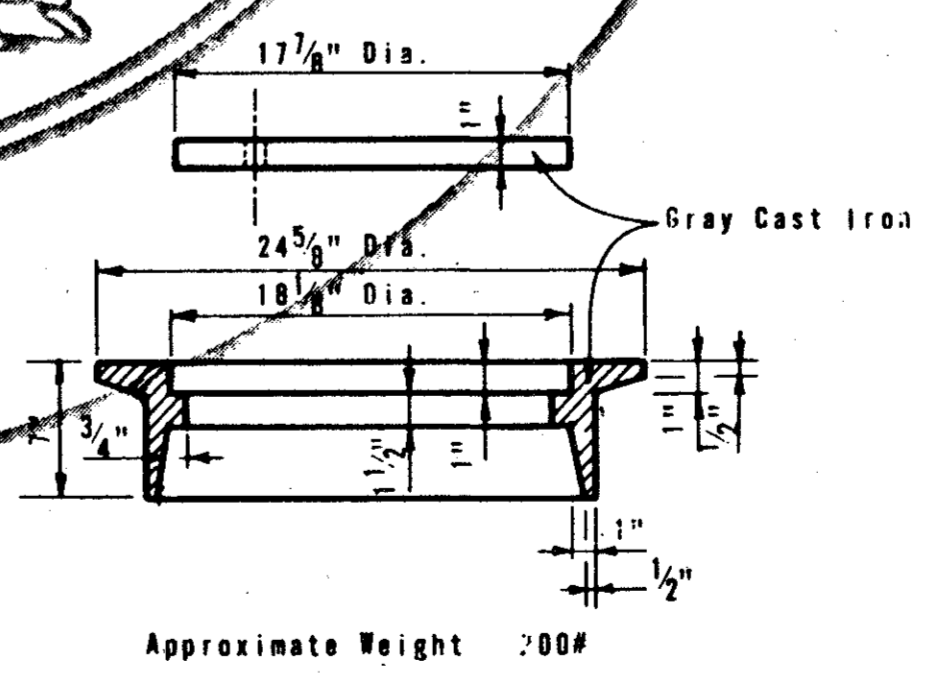
GRATE DETAILS FOR HORIZONTAL INLET TYPE H (MOD)

NOTE: MODIFICATION APPLIES TO GRATES WITHIN RUNWAY AND TAXIWAY SAFETY AREAS PER CHANGE ORDER NO.2. (6-1-92)

GENERAL NOTES

Structural Steel for grates shall conform to the requirements of ASTM Designation A-36 or AISI Designation #1010 - #1020.

Rings and covers of slightly different dimensions but approximately the same weight may be substituted if approved by the Engineer.



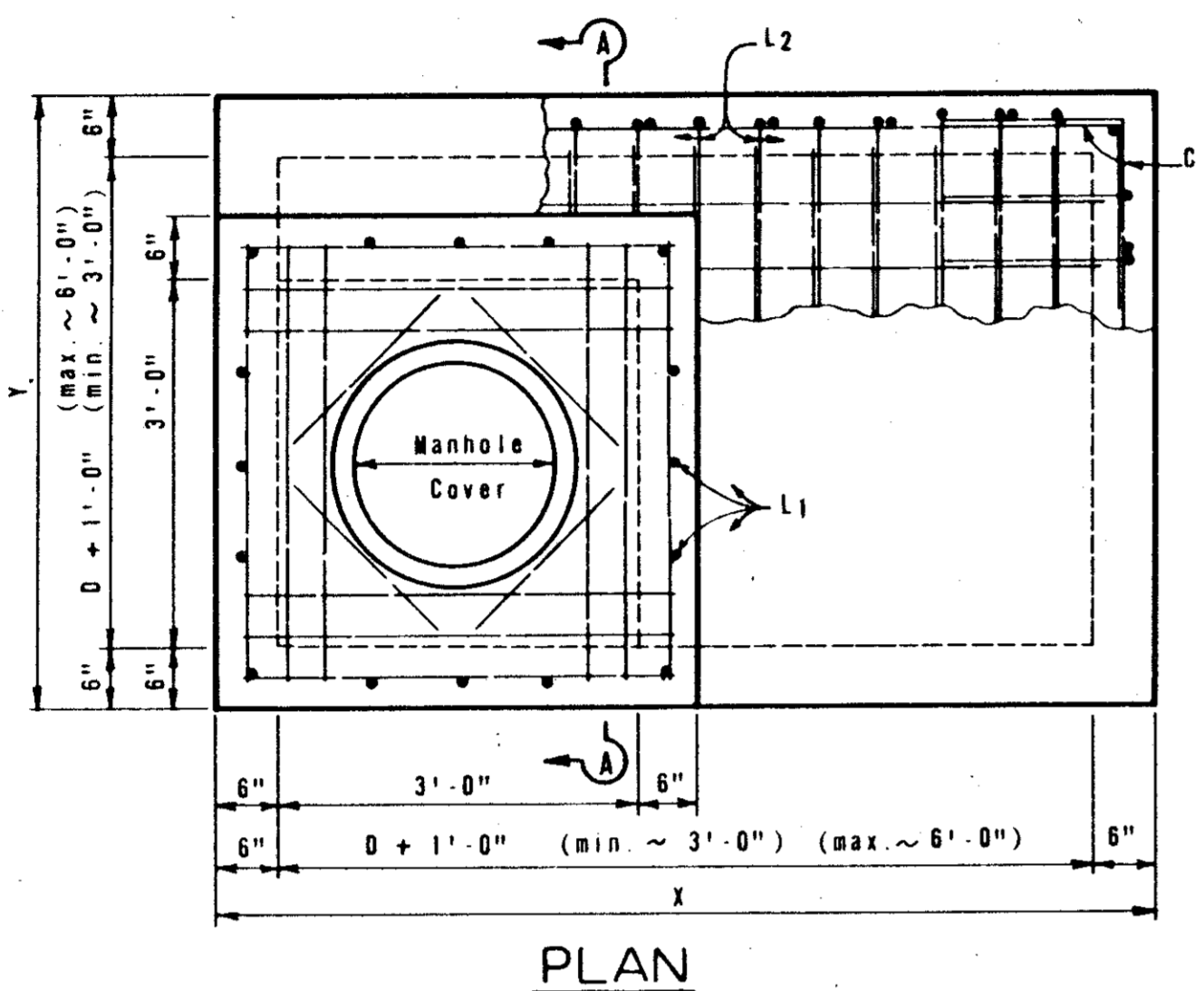
RING AND COVER DETAILS TYPE C



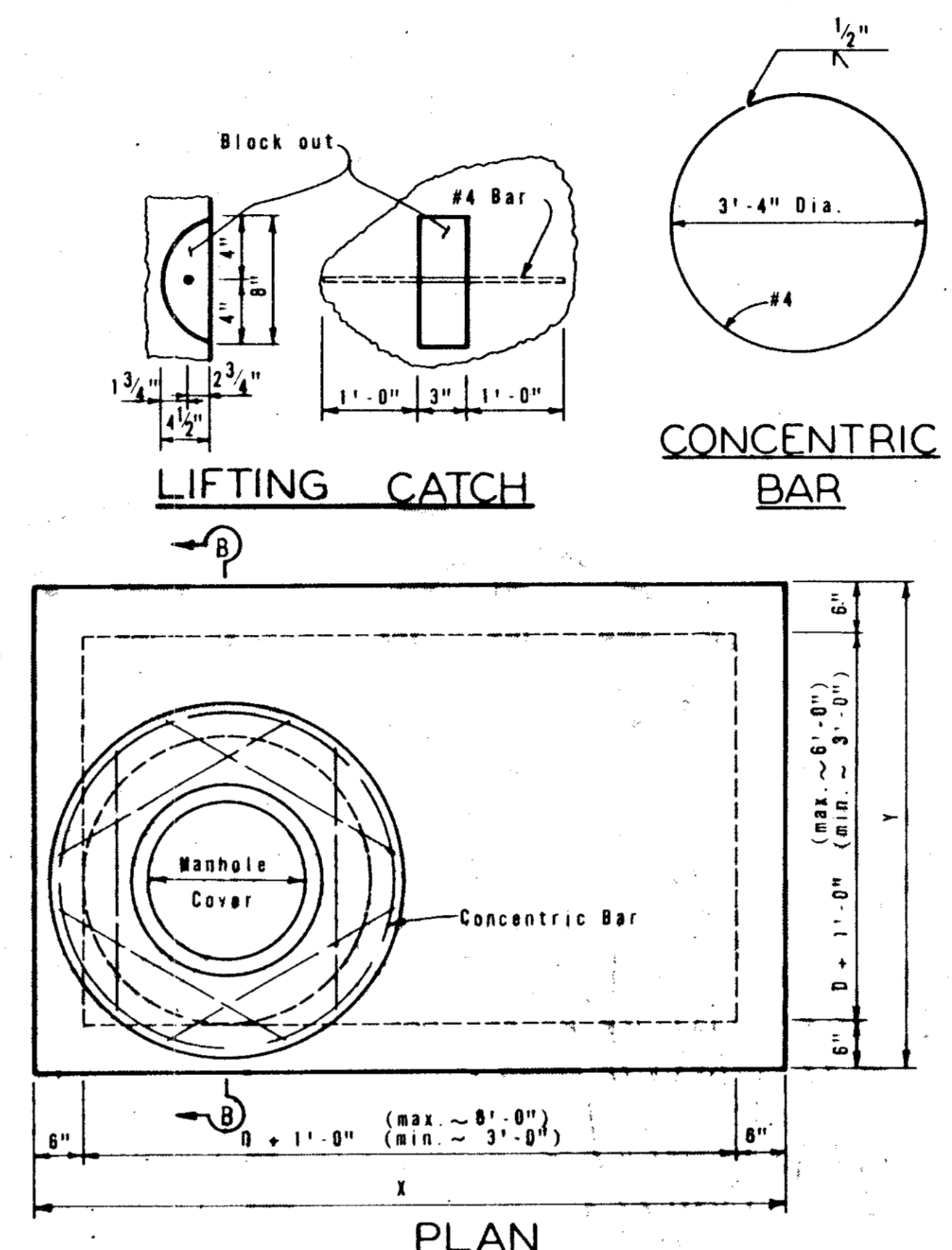
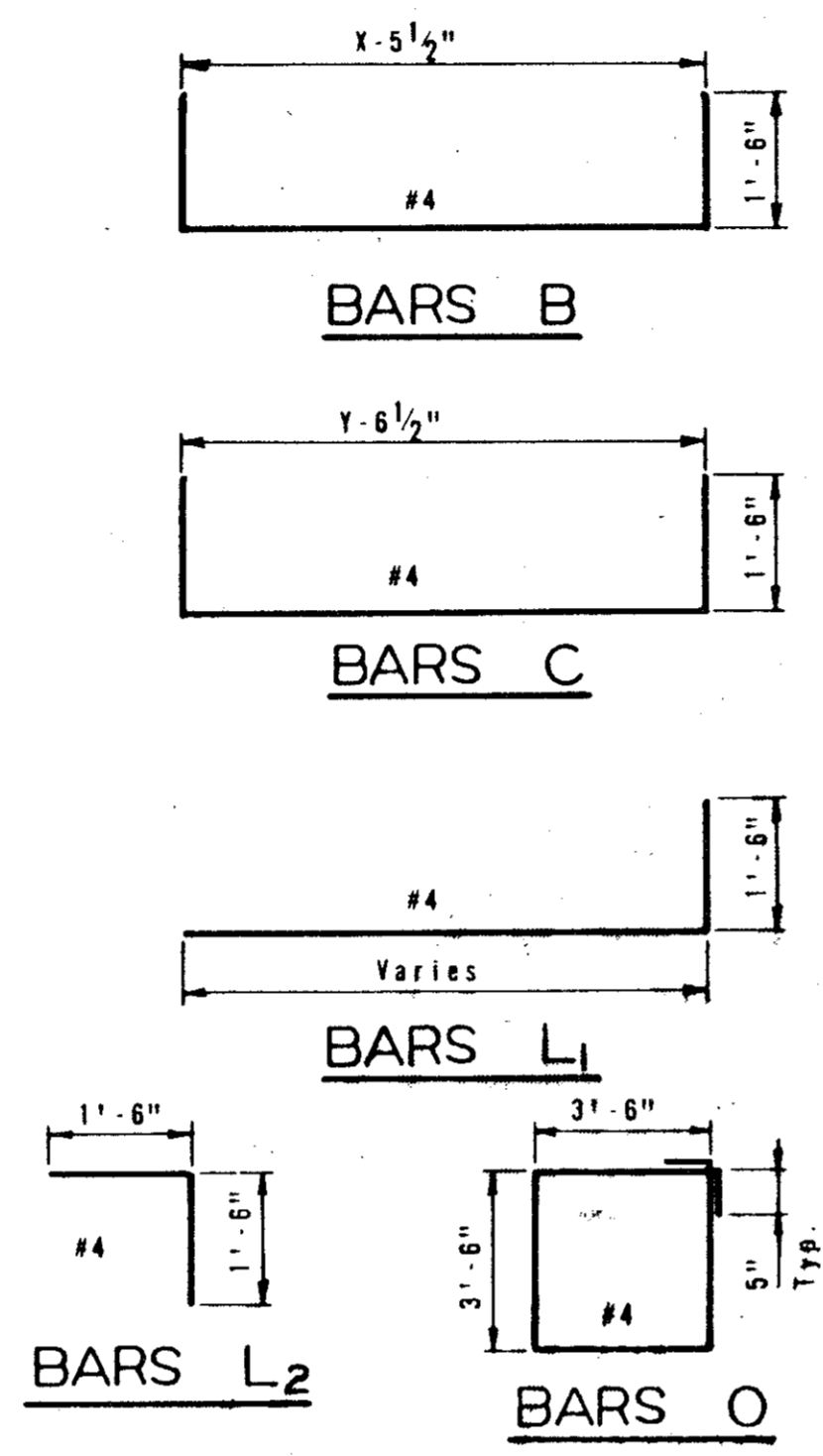
STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION  
 GRATE (TYPE S),  
 GRATE (TYPE H),  
 RING & COVER (TYPE C)  
 ILG-S ILG-H RC-C

ORIGINAL DRAWING DATE: DEC. 1977	STATE DISTRICT: 6	FEDERAL AID PROJECT:	SHEET: 19
DR.: ADC	REVISIONS:	COUNTY:	JOB:
CR.: THD		SECTION:	
DW.: MGB			
CR.: YHD			

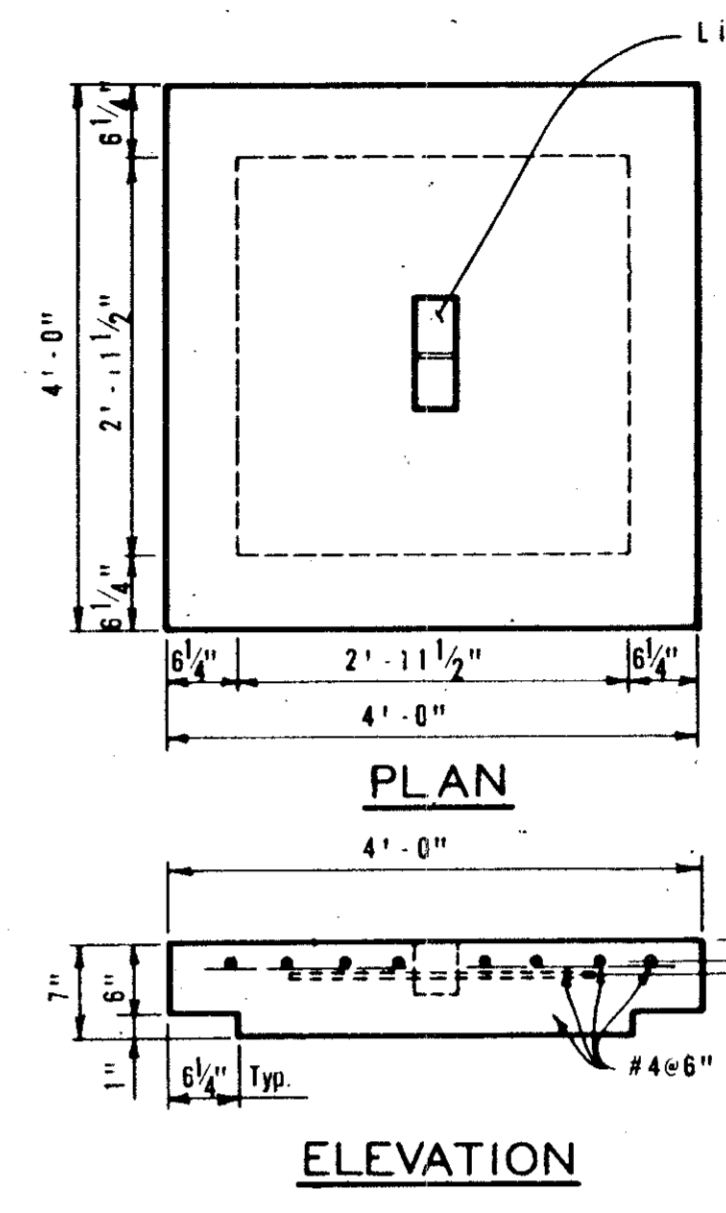
Note: Riser, either cast-in-place or concrete pipe, may be located in any corner.



PLAN

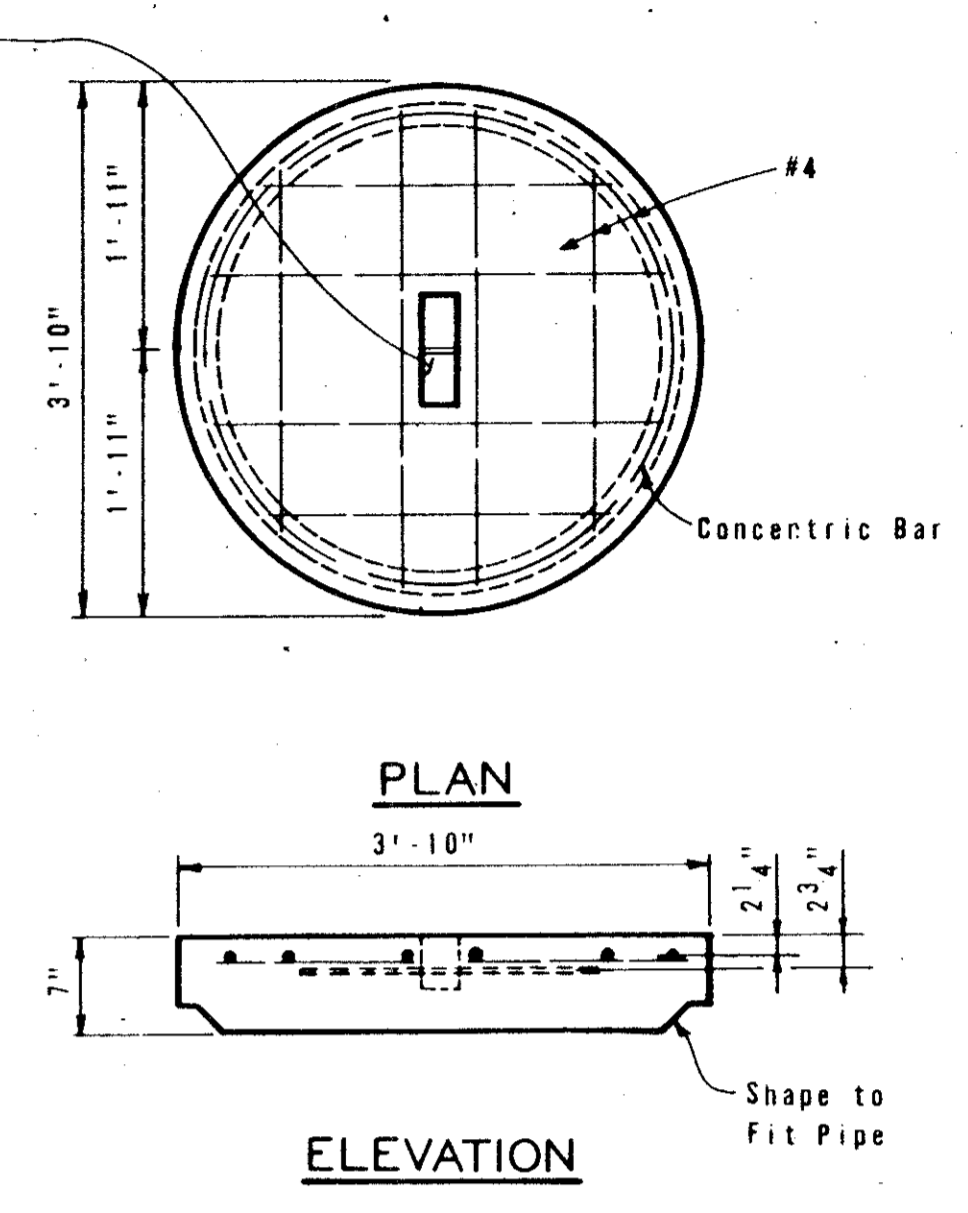


PLAN



ELEVATION

CAST-IN-PLACE RISER COVER



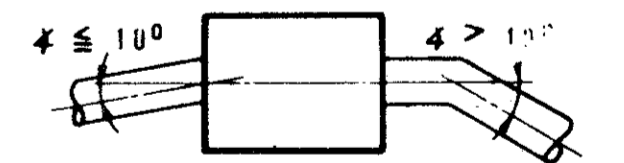
ELEVATION

CONCRETE PIPE RISER COVER

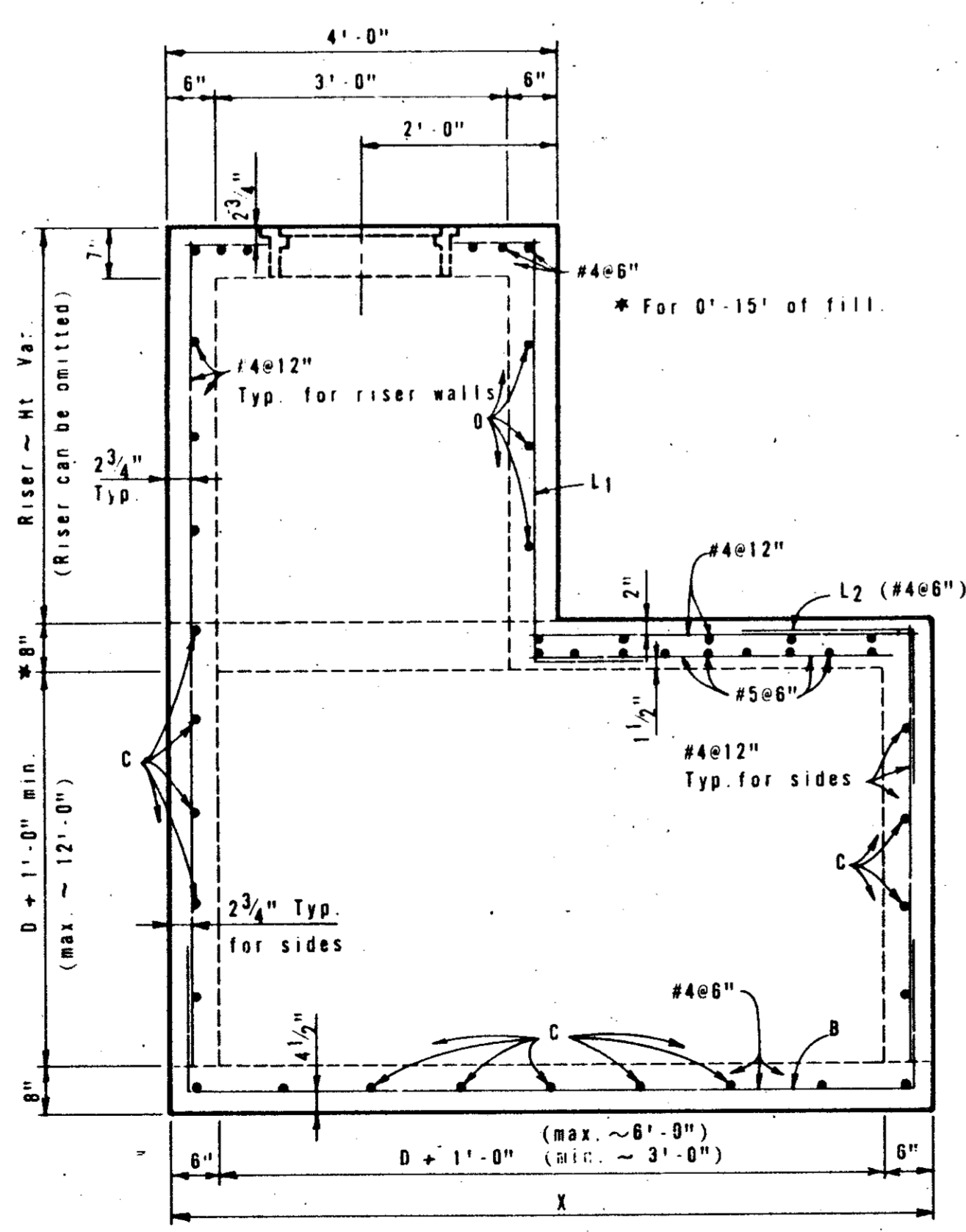
OPTIONAL PRECAST CONCRETE LIFT-OFF COVERS

GENERAL NOTES

Unless otherwise shown in the plans, joints shall be made for each Manhole of the Type M.  
 Exposed edges shall be chamfered 3/4".  
 Alternate design drawings bearing the seal of a registered professional engineer will be acceptable for precast construction of manholes. Shop drawings will not be required.  
 The contractor may with the approval of the Engineer furnish manholes of equivalent structural design.  
 In areas of conflict between reinforcing steel, block-outs, pipes, anchor bolts or other reinforcing steel, the reinforcement shall be bent or adjusted to clear as directed by the Engineer.  
 The riser may be constructed of reinforced concrete or shown or of Reinforced Concrete Pipe, Class III, in accordance with ASTM Designation C-76. If pipe is used, joints shall conform to the Item "Reinforced Concrete Pipe Joints", Precast Concrete Lift Off Cover may be substituted for "Ring and Cover".  
 Connecting pipes should enter within 1 1/2" of ground to inlet wall if necessary, pipe above or curved approach alignment should be used to stay within this limit.

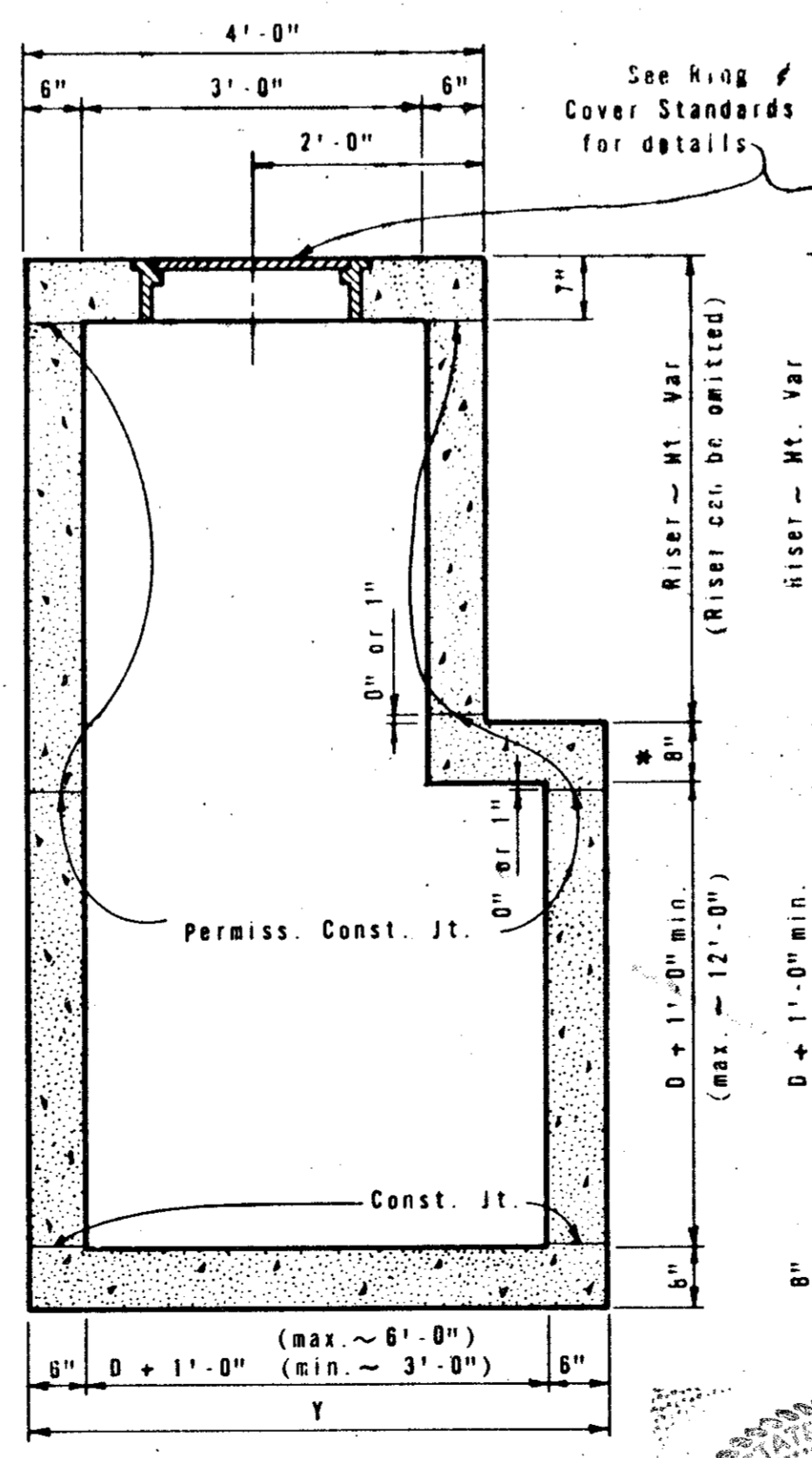


Pipes may enter any or all walls. The maximum size of pipe that can be accommodated is 60". More than one pipe may enter a side, subject to the maximum box dimensions shown. The clear distance between adjacent pipes should be 9" minimum.

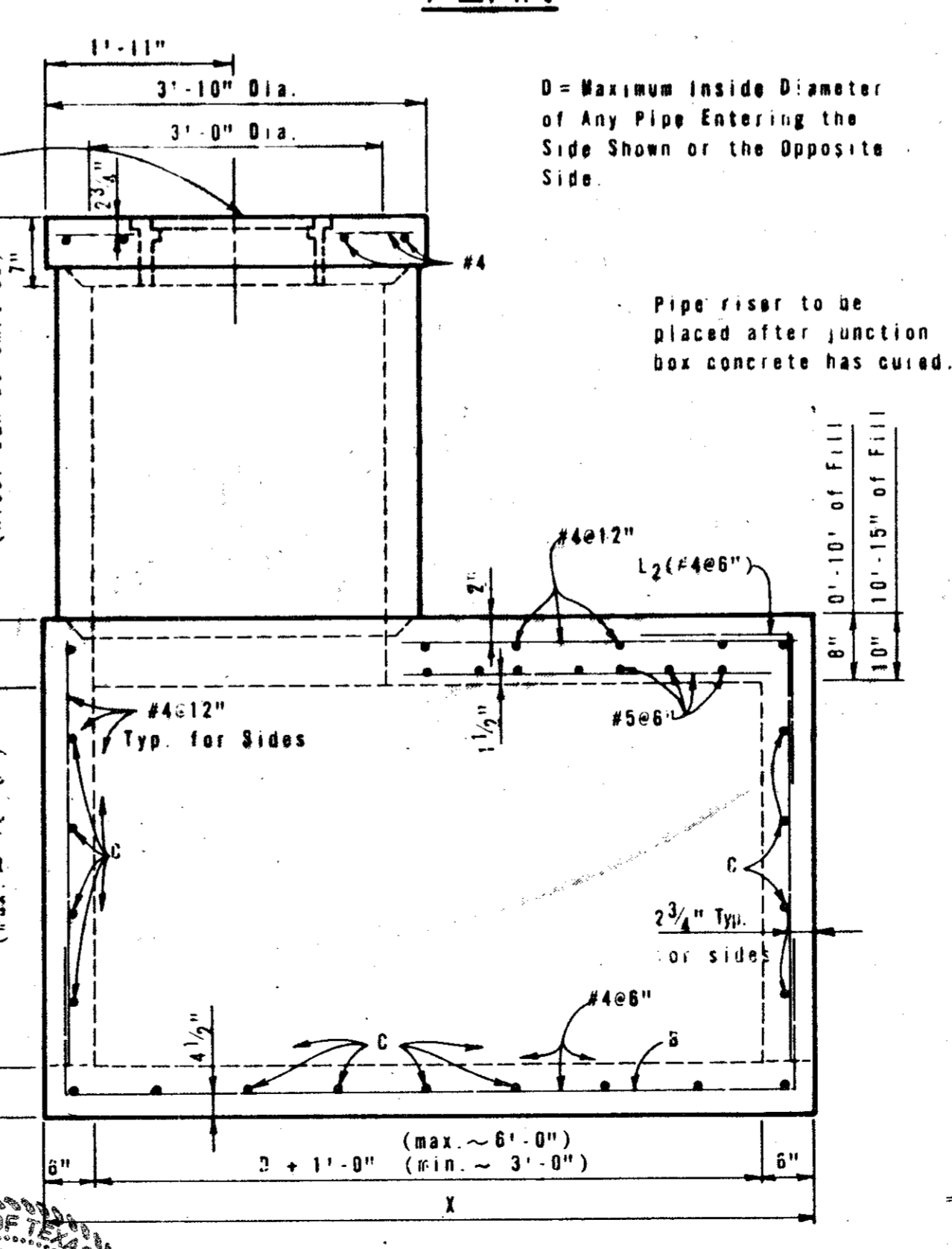


ELEVATION

MANHOLE WITH CAST-IN-PLACE RISER

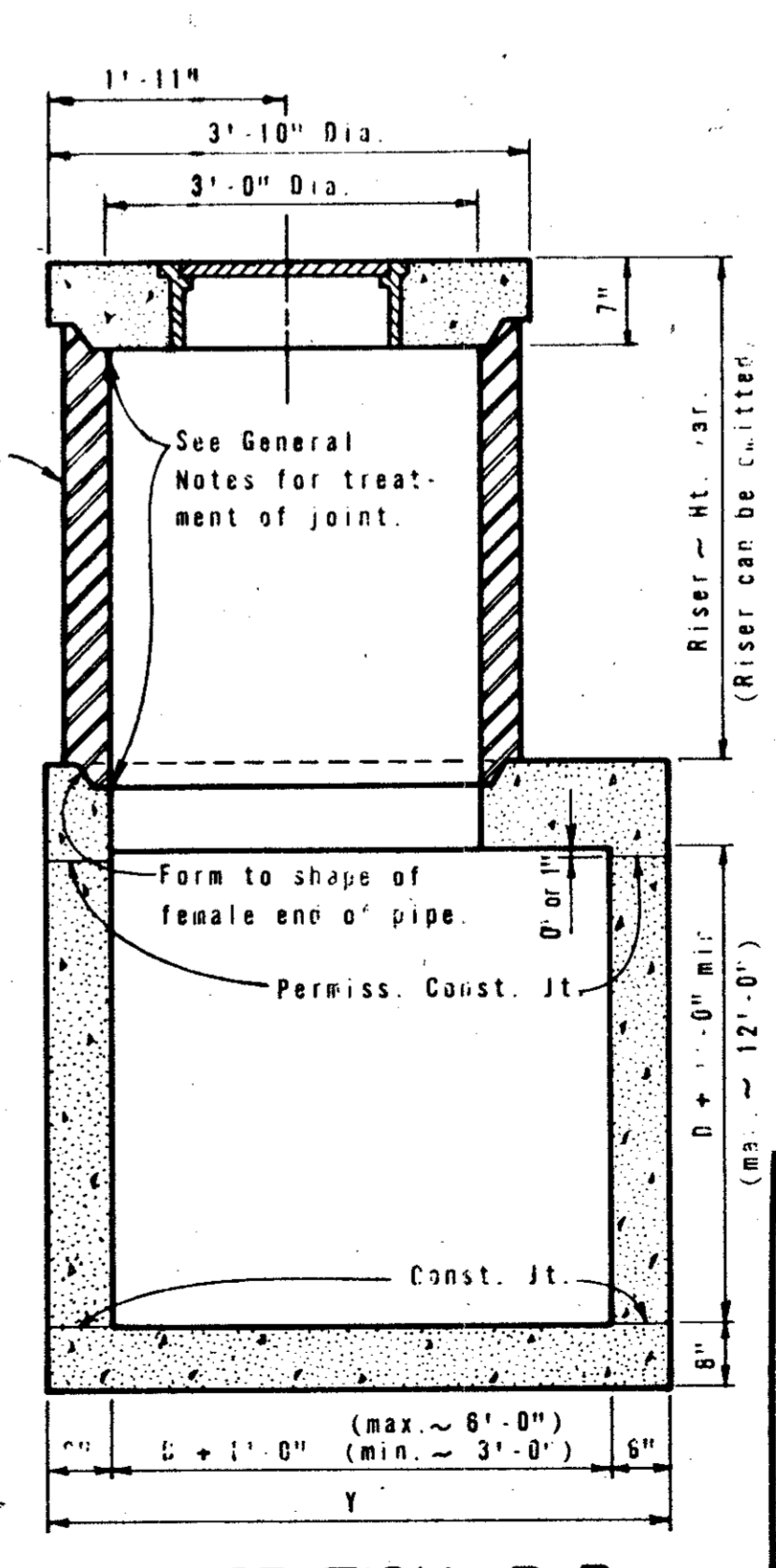


SECTION A-A

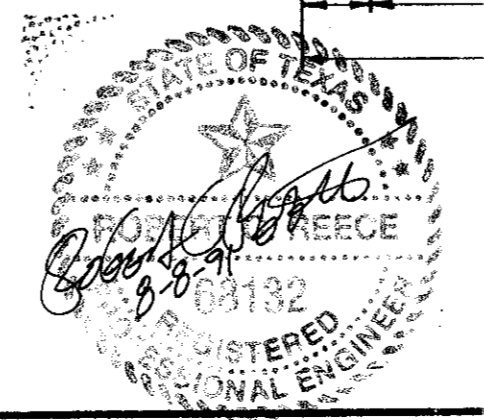


ELEVATION

OPTIONAL MANHOLE WITH PIPE RISER



SECTION B-B



STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION  
 MANHOLE TYPE M  
 (JUNCTION BOX WITH ACCESS)

MH-M

ORIGINAL DRAWING DATE DEC. 1977	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
DN: ADC	6			20
CK: THD				
Rev. 8-86 Gen. Notes	COUNTY	CONTROL SECTION	JOB	DATE
DN: MGS				
CK: THD				

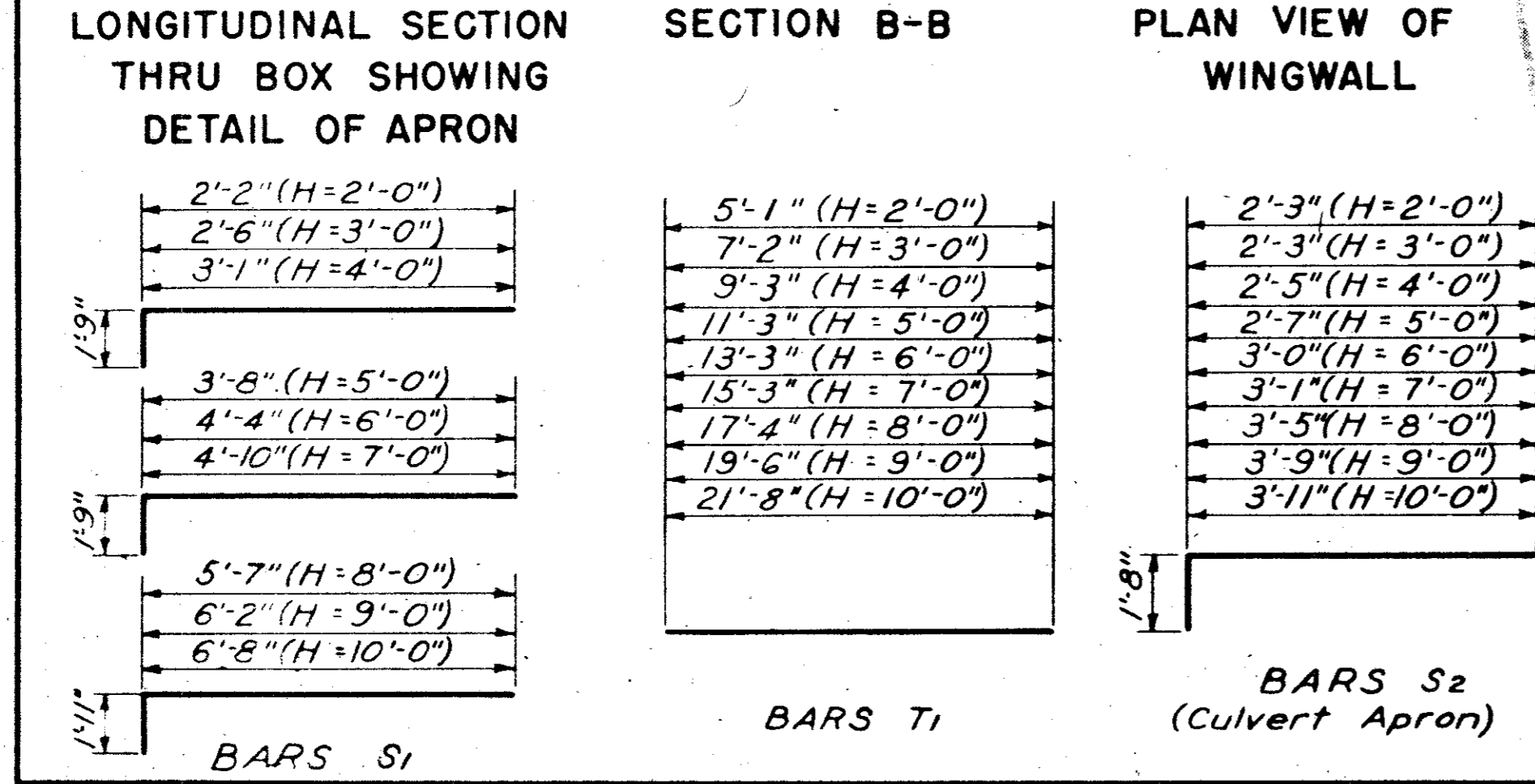
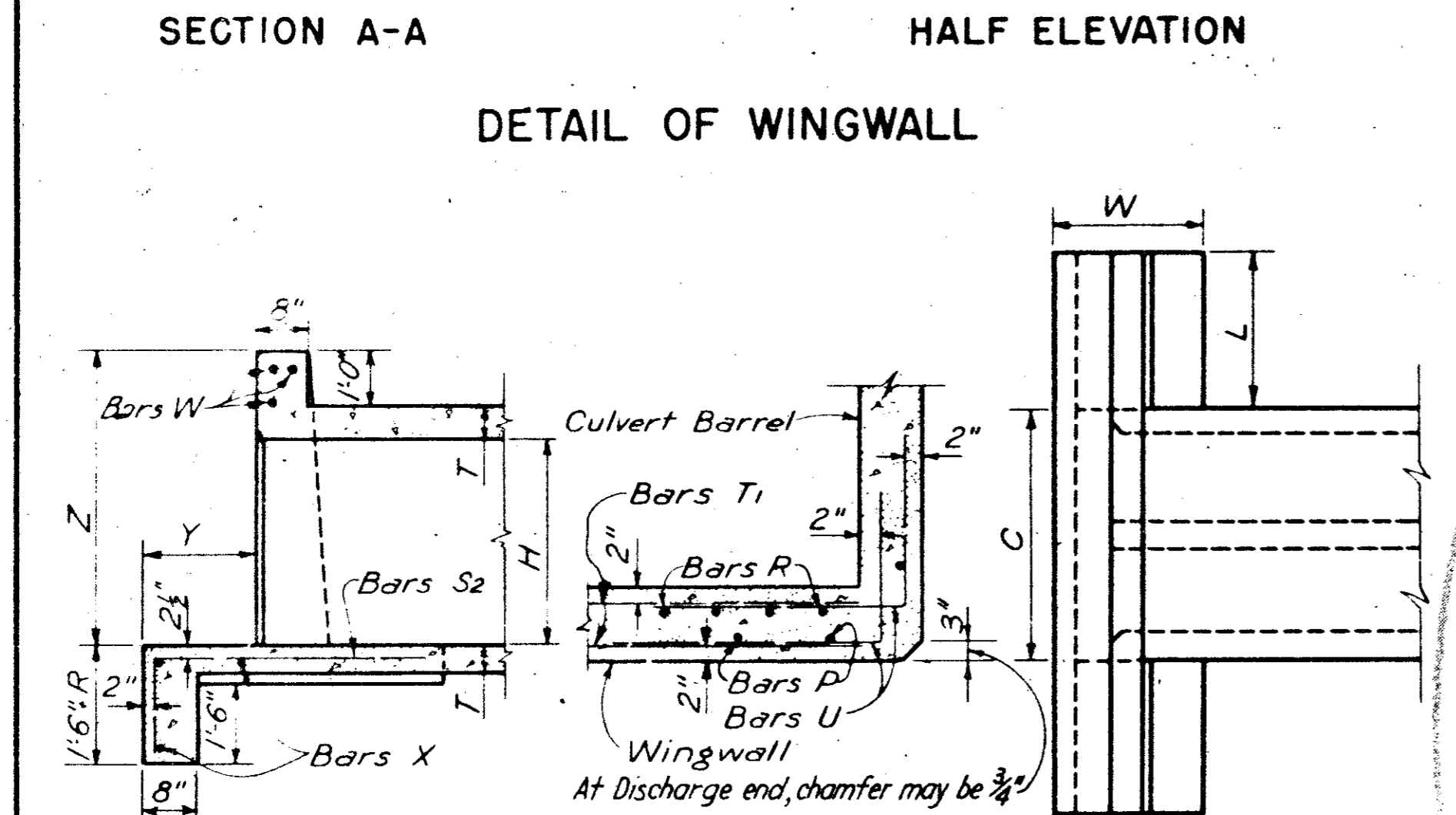
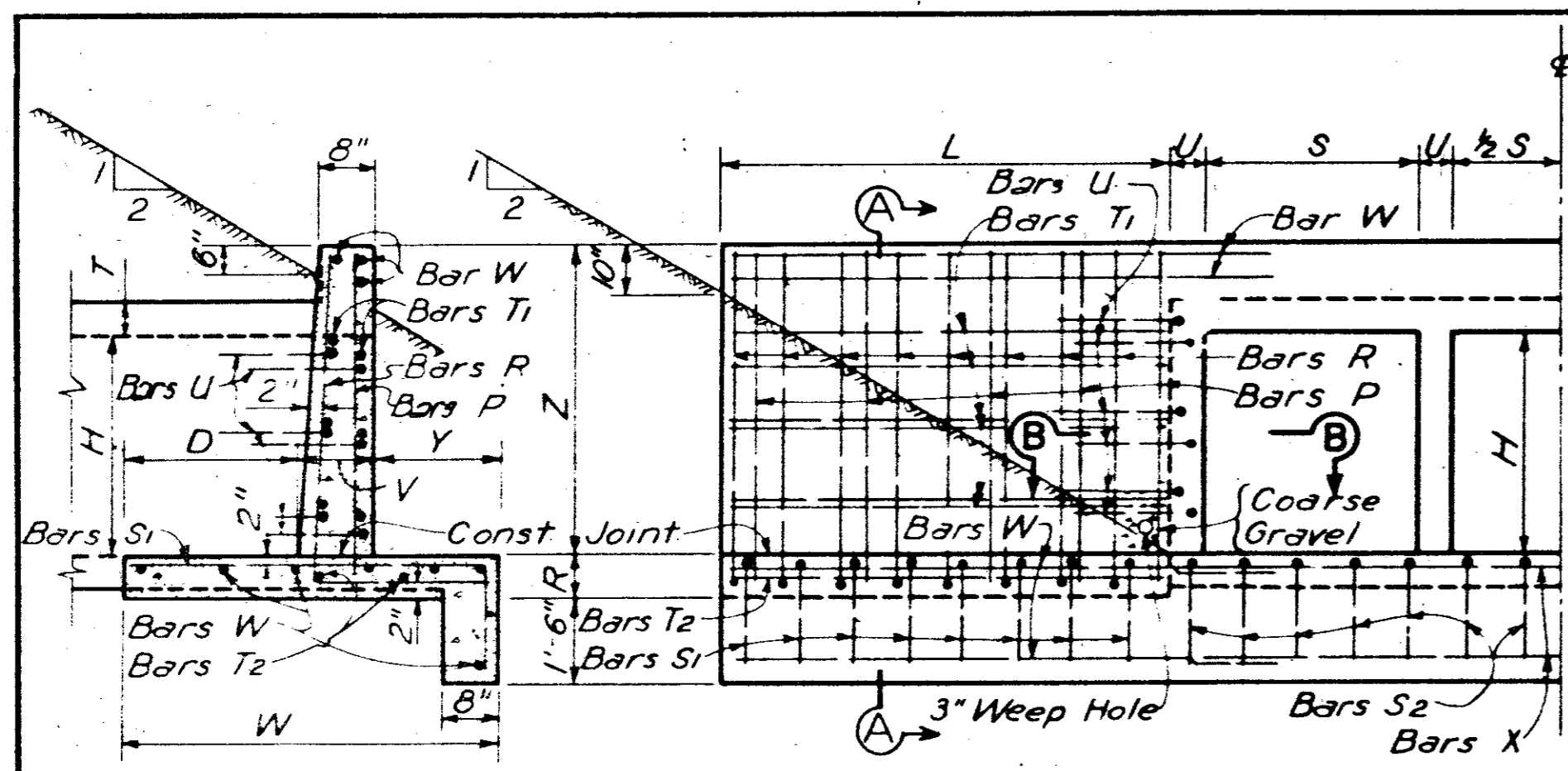












**REINFORCING FOR 2 CULVERT APRONS**

**BARS X-#4 @ 12" ±**

NUMBER OF SPANS	NUMBER OF SPANS						CULVERT SIZE	SLAB	TABLE OF DIMENSIONS												TOTAL QUANTITIES (FOR 4 WINGS AND 2 APRONS)																													
	2	3	4	5	6	6			WING	APRON						NUMBER OF SPANS						2		3		4		5		6																				
WT.	WT.	WT.	WT.	WT.	WT.	S	H	T	Z	L	R	W	V	D	Y	C	CONC.	REIN.	C	CONC.	REIN.	C	CONC.	REIN.	C	CONC.	REIN.	C	CONC.	REIN.	C	CONC.	REIN.	C	CONC.	REIN.														
31	45	60	75	90	3 1/2"	24	63	36	94	46	120	58	152	68	178	5	2	6	3	6	5	4	7	2	6	8	10	1	0	11	6	17	0	22	6	28	0	33	6	5	11	592	5.75	637	6.38	678	7.01	725	7.65	766

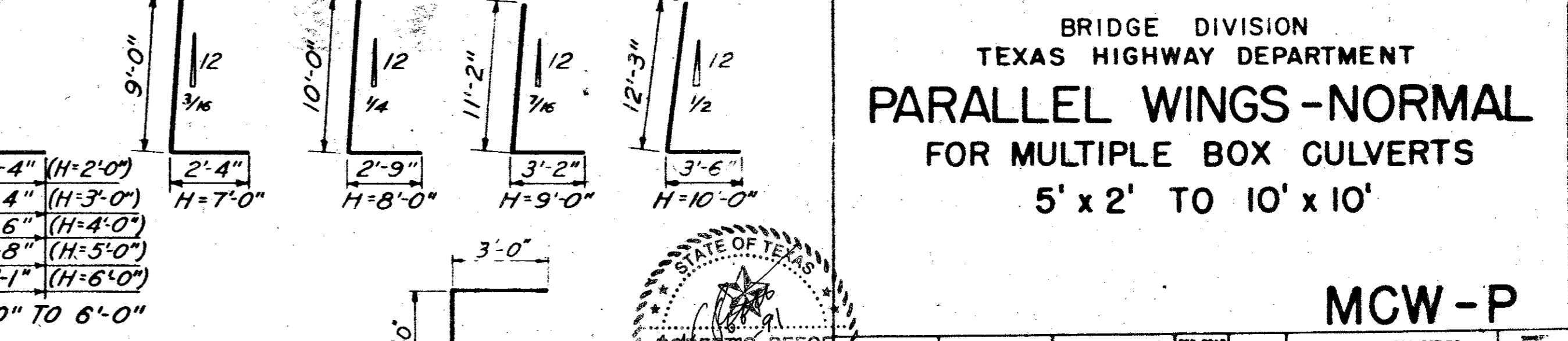
**TABLE OF REINFORCING STEEL FOR 4 WINGWALLS**

WING SIZE	BARS R		BARS S1		#4 BARS T1 @ 12"		#4 BARS T2 @ 12"		BARS U		#4 BARS P @ 18"		#4 BARS W @ 12"		TOTAL WEIGHT														
	H	L	NO.	SIZE	SP.	LGTH	WT.	NO.	SIZE	SP.	LGTH	WT.	NO.	SIZE		SP.	LGTH	WT.	NO.	SIZE	SP.	LGTH	WT.	NO.	SIZE	SP.	LGTH	WT.	
2'-0"	5'-4"	24	#4	12"	5'-1"	81	24	#4	12"	3'-11"	63	16	5'-1"	54	8	5'-0"	27	16	#5	18"	6'-0"	100	20	3'-9"	50	28	6'-7"	123	498

**REINFORCING FOR 2 CULVERT APRONS**

**BARS S2 - #4 @ 12" ±**

NUMBER OF SPANS	NUMBER OF SPANS						CULVERT SIZE	SLAB	TABLE OF DIMENSIONS												TOTAL QUANTITIES (FOR 4 WINGS AND 2 APRONS)																													
	2	3	4	5	6	6			WING	APRON						NUMBER OF SPANS						2		3		4		5		6																				
WT.	WT.	WT.	WT.	WT.	WT.	S	H	T	Z	L	R	W	V	D	Y	C	CONC.	REIN.	C	CONC.	REIN.	C	CONC.	REIN.	C	CONC.	REIN.	C	CONC.	REIN.	C	CONC.	REIN.																	
41	61	81	102	122	3 1/2"	32	84	48	126	62	162	78	204	92	241	7	3	6	4	6	7	5	7	2	6	8	10	1	0	11	6	17	0	22	6	28	0	33	6	5	11	914	8.92	976	9.79	1032	10.66	1095	11.53	1152



**BRIDGE DIVISION TEXAS HIGHWAY DEPARTMENT PARALLEL WINGS-NORMAL FOR MULTIPLE BOX CULVERTS 5' x 2' TO 10' x 10'**

**MCW-P**

NO BARS X (Lgth = Dim. "C")

2 Bars when H = 2', 3' & 4'

3 Bars when H = 5', 6' & 7'

4 Bars when H = 8', 9' & 10'

**GENERAL NOTES:**

All dimensions relating to reinforcing steel are to centers of bars. Provide Weep holes for H = 5'-0" and greater. The bottom slab of the barrel, wing footings and toewalls shall be placed in one continuous operation.

Chamfer all exposed corners 3/4" unless specified otherwise.

DRAWING NO. 68132

DATE: Nov 1962

STATE: TEXAS

COUNTY: [Blank]

Report No. 91-340 LOG OF BORING BORING NO. B-1  
PROJECT: Addison Airport LOCATION: Addison, Texas  
CLIENT: Greiner, Inc.

DATE: 7-2-91 TYPE: Auger CASED TO: GROUND ELEVATION:  
WATER INFORMATION: No water encountered while drilling.

DEPTH IN FEET	SYMBOL	STANDARD PENETRATION BLOW/FT	HAND PEN IN	DESCRIPTION OF STRATUM	Moisture	Density	200	LL	PL	Classification
1				Brownish-black clay with white calcareous nodules		101	64	38		CR
4.5				Tan calcareous clay						
4.5				Tan limestone						
10				Boring terminated at 10'						

SOUTHWESTERN LABORATORIES

Report No. 91-340 LOG OF BORING BORING NO. B-2  
PROJECT: Addison Airport LOCATION: Addison, Texas  
CLIENT: Greiner, Inc.

DATE: 7-2-91 TYPE: Auger CASED TO: GROUND ELEVATION:  
WATER INFORMATION: No water encountered while drilling.

DEPTH IN FEET	SYMBOL	STANDARD PENETRATION BLOW/FT	HAND PEN IN	DESCRIPTION OF STRATUM	Moisture	Density	200	LL	PL	Classification
1				3" IMAC surface						
1				7.5" Cement treated base						
22				Tan calcareous clay				41	23	GL
7				Tan limestone						
7				Boring terminated at 7'						

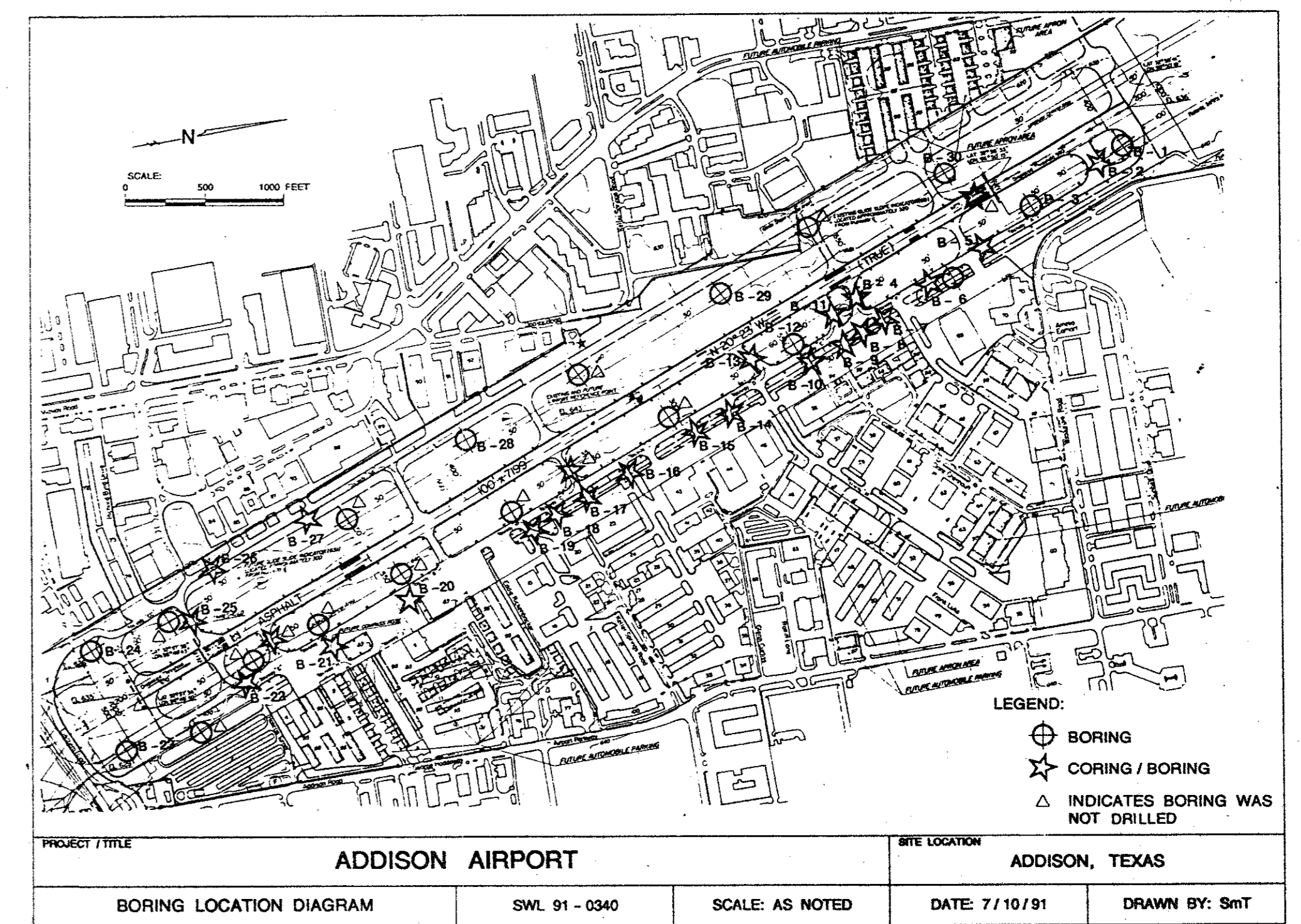
SOUTHWESTERN LABORATORIES

Report No. 91-340 LOG OF BORING BORING NO. B-3  
PROJECT: Addison Airport LOCATION: Addison, Texas  
CLIENT: Greiner, Inc.

DATE: 7-2-91 TYPE: Auger CASED TO: GROUND ELEVATION:  
WATER INFORMATION: No water encountered while drilling.

DEPTH IN FEET	SYMBOL	STANDARD PENETRATION BLOW/FT	HAND PEN IN	DESCRIPTION OF STRATUM	Moisture	Density	200	LL	PL	Classification
1				Brownish-black clay						
5				Brownish tan calcareous clay						
5				Tan calcareous clay						
10				Tan limestone						
10				Boring terminated at 10'						

SOUTHWESTERN LABORATORIES



Report No. 91-340 LOG OF BORING BORING NO. B-4  
PROJECT: Addison Airport LOCATION: Addison, Texas  
CLIENT: Greiner, Inc.

DATE: 7-2-91 TYPE: Auger CASED TO: GROUND ELEVATION:  
WATER INFORMATION: No water encountered while drilling.

DEPTH IN FEET	SYMBOL	STANDARD PENETRATION BLOW/FT	HAND PEN IN	DESCRIPTION OF STRATUM	Moisture	Density	200	LL	PL	Classification
1				5.6" Portland Cement Concrete						
2.0				6" Red-sandy clay w/gravel (Base)		85	53	64	23	CL
1				Brownish-black clay						
2				Tan calcareous clay becoming white near 5'						
5				Boring terminated at 5'						

SOUTHWESTERN LABORATORIES

Report No. 91-340 LOG OF BORING BORING NO. B-5  
PROJECT: Addison Airport LOCATION: Addison, Texas  
CLIENT: Greiner, Inc.

DATE: 7-2-91 TYPE: Auger CASED TO: GROUND ELEVATION:  
WATER INFORMATION: No water encountered while drilling.

DEPTH IN FEET	SYMBOL	STANDARD PENETRATION BLOW/FT	HAND PEN IN	DESCRIPTION OF STRATUM	Moisture	Density	200	LL	PL	Classification
1				9.4" IMAC Surface						
1				3" cement treated base						
24				Brown clay fill with limestone fragments		99	55	40	23	CR
2				Brownish-black clay w/sand						
14				Tan limestone						
14				Boring terminated at 10'						

SOUTHWESTERN LABORATORIES

Report No. 91-340 LOG OF BORING BORING NO. B-6  
PROJECT: Addison Airport LOCATION: Addison, Texas  
CLIENT: Greiner, Inc.

DATE: 7-2-91 TYPE: Auger CASED TO: GROUND ELEVATION:  
WATER INFORMATION: No water encountered while drilling.

DEPTH IN FEET	SYMBOL	STANDARD PENETRATION BLOW/FT	HAND PEN IN	DESCRIPTION OF STRATUM	Moisture	Density	200	LL	PL	Classification
1				8.4" IMAC						
1.5				6.2" Cement treated base						
1				Tan clay						
2				Gray limestone						
5				Boring terminated at 5'						

SOUTHWESTERN LABORATORIES

Report No. 91-340 LOG OF BORING BORING NO. B-7  
PROJECT: Addison Airport LOCATION: Addison, Texas  
CLIENT: Greiner, Inc.

DATE: 7-2-91 TYPE: Auger CASED TO: GROUND ELEVATION:  
WATER INFORMATION: No water encountered while drilling.

DEPTH IN FEET	SYMBOL	STANDARD PENETRATION BLOW/FT	HAND PEN IN	DESCRIPTION OF STRATUM	Moisture	Density	200	LL	PL	Classification
1				7" Portland Cement Concrete						
1				Brown clay with limestone fragments (Base)		32	84	73	45	CL
1				Brownish-black clay						
2				Tan clayey limestone						
4				Gray limestone						
5				Boring terminated at 5'						

SOUTHWESTERN LABORATORIES

Report No. 91-340 LOG OF BORING BORING NO. B-8  
PROJECT: Addison Airport LOCATION: Addison, Texas  
CLIENT: Greiner, Inc.

DATE: 7-2-91 TYPE: Auger CASED TO: GROUND ELEVATION:  
WATER INFORMATION: No water encountered while drilling.

DEPTH IN FEET	SYMBOL	STANDARD PENETRATION BLOW/FT	HAND PEN IN	DESCRIPTION OF STRATUM	Moisture	Density	200	LL	PL	Classification
1				7.2" Portland Cement Concrete						
1				Brownish-black fill with limestone fragments (Line Treated)						
1				Tannish-gray limestone						
4				Boring terminated at 4'						

SOUTHWESTERN LABORATORIES

DESIGN: R.C.R.  
DRAWN: M.J.C.  
CHECKED: D.W.P.  
SCALE: AS NOTED

A.I.P. NO: 3-48-0063-03-91  
S.P. NO: Y8024.22  
JOB NO: Y8024.22

Date Revisions By

**Greiner**  
Greiner, Inc.  
Fort Worth, Texas

Engineers, Architects  
and Planners



**ADDISON AIRPORT**

**DRAINAGE IMPROVEMENTS**  
**BORING LOGS**

SHEET  
26

DATE: SEPT, 1991



Report No. 91-340  
PROJECT: Addison Airport  
CLIENT: Greiner, Inc.

BORING NO. 8-19  
LOCATION: Addison, Texas

DATE: 7-2-91

TYPE: Auger  
CASED TO: GROUND ELEVATION

WATER INFORMATION: No water encountered while drilling.

LEGEND:  
 ■ SAMPLE  
 X STANDARD PENETRATION  
 ▼ WATER

DEPTH IN FEET	SYMBOL	DESCRIPTION OF STRATUM	Moisture	Density	200	LL	P	Classification
0		4.7" IMAC						
0.5		6" Poorly graded gravel w/clayey sand	3	8.1	27	11	27	GP-GC
1.0		Tan sandy clay	22	102	92.3	40	23	CL
2.0		Brownish-black clay						
4.0		Tan limestone						
8.0		Boring terminated at 8'						

SOUTHWESTERN LABORATORIES

Report No. 91-340  
PROJECT: Addison Airport  
CLIENT: Greiner, Inc.

BORING NO. 8-20  
LOCATION: Addison, Texas

DATE: 7-2-91

TYPE: Auger  
CASED TO: GROUND ELEVATION

WATER INFORMATION: No water encountered while drilling.

LEGEND:  
 ■ SAMPLE  
 X STANDARD PENETRATION  
 ▼ WATER

DEPTH IN FEET	SYMBOL	DESCRIPTION OF STRATUM	Moisture	Density	200	LL	P	Classification
0		5.8" Portland Cement Concrete						
0.5		1" Tan-brown sand						
1.0		Brownish-black clay Limestone fragments (F111)	31					64.42 CR
2.0		Black clay						
3.0		Tan clay						
4.0		Tan limestone						
6.0		Gray limestone						
7.0		Boring terminated at 7'						

SOUTHWESTERN LABORATORIES

Report No. 91-340  
PROJECT: Addison Airport  
CLIENT: Greiner, Inc.

BORING NO. 8-21  
LOCATION: Addison, Texas

DATE: 7-2-91

TYPE: Auger  
CASED TO: GROUND ELEVATION

WATER INFORMATION: No water encountered while drilling.

LEGEND:  
 ■ SAMPLE  
 X STANDARD PENETRATION  
 ▼ WATER

DEPTH IN FEET	SYMBOL	DESCRIPTION OF STRATUM	Moisture	Density	200	LL	P	Classification
0		6.1" IMAC						
0.5		4.6" Cement treated base						
1.0		Brown clay						
3.0		Tan limestone						
5.0		Boring terminated at 5'						

SOUTHWESTERN LABORATORIES

Report No. 91-340  
PROJECT: Addison Airport  
CLIENT: Greiner, Inc.

BORING NO. 8-22  
LOCATION: Addison, Texas

DATE: 7-5-91

TYPE: Auger  
CASED TO: GROUND ELEVATION

WATER INFORMATION: No water encountered while drilling.

LEGEND:  
 ■ SAMPLE  
 X STANDARD PENETRATION  
 ▼ WATER

DEPTH IN FEET	SYMBOL	DESCRIPTION OF STRATUM	Moisture	Density	200	LL	P	Classification
0		7.5" IMAC						
0.5		6" Brown clayey gravel w/sand (Base)	11					36.3 31 18 GC
1.0		4.5" Dark brown clay with limestone fragments						
4.0		Brownish-tan clay						
7.0		Tan limestone						
10.0		Tan calcareous clay						
10.0		Boring terminated at 10'						

SOUTHWESTERN LABORATORIES

Report No. 91-340  
PROJECT: Addison Airport  
CLIENT: Greiner, Inc.

BORING NO. 8-23  
LOCATION: Addison, Texas

DATE: 7-5-91

TYPE: Auger  
CASED TO: GROUND ELEVATION

WATER INFORMATION: No water encountered while drilling.

LEGEND:  
 ■ SAMPLE  
 X STANDARD PENETRATION  
 ▼ WATER

DEPTH IN FEET	SYMBOL	DESCRIPTION OF STRATUM	Moisture	Density	200	LL	P	Classification
0		4.0 Brown clay						
3.5			26	90	70	44		CR
4.0		Tan limestone						
10.0		Gray limestone						
10.0		Boring terminated at 10'						

SOUTHWESTERN LABORATORIES

Report No. 91-340  
PROJECT: Addison Airport  
CLIENT: Greiner, Inc.

BORING NO. 8-24  
LOCATION: Addison, Texas

DATE: 7-5-91

TYPE: Auger  
CASED TO: GROUND ELEVATION

WATER INFORMATION: Water encountered during drilling at 5.5', dropped to 5.0' after 15 minutes

LEGEND:  
 ■ SAMPLE  
 X STANDARD PENETRATION  
 ▼ WATER

DEPTH IN FEET	SYMBOL	DESCRIPTION OF STRATUM	Moisture	Density	200	LL	P	Classification
0		4.25 Black clay w/sand	27	39	36	2		CR
3.0		Tan calcareous clay with embedded gravel						CL
10.0		Boring terminated at 10'						

SOUTHWESTERN LABORATORIES

Report No. 91-340  
PROJECT: Addison Airport  
CLIENT: Greiner, Inc.

BORING NO. 8-25  
LOCATION: Addison, Texas

DATE: 7-5-91

TYPE: Auger  
CASED TO: GROUND ELEVATION

WATER INFORMATION: No water encountered while drilling.

LEGEND:  
 ■ SAMPLE  
 X STANDARD PENETRATION  
 ▼ WATER

DEPTH IN FEET	SYMBOL	DESCRIPTION OF STRATUM	Moisture	Density	200	LL	P	Classification
0		2" IMAC						
0.5		6" Reddish-brown clayey gravel w/sand (Base)	6					16.1 30 13 GC
1.0		Brownish-black clay						
5.5		Tan calcareous clay						
10.0		Boring terminated at 10'						

SOUTHWESTERN LABORATORIES

Report No. 91-340  
PROJECT: Addison Airport  
CLIENT: Greiner, Inc.

BORING NO. 8-26  
LOCATION: Addison, Texas

DATE: 7-5-91

TYPE: Auger  
CASED TO: GROUND ELEVATION

WATER INFORMATION: No water encountered while drilling.

LEGEND:  
 ■ SAMPLE  
 X STANDARD PENETRATION  
 ▼ WATER

DEPTH IN FEET	SYMBOL	DESCRIPTION OF STRATUM	Moisture	Density	200	LL	P	Classification
0		2" IMAC						
3.0		6" Reddish-brown lean sandy clay (Base)	18					36.1 40 23 CL
3.5		Black clay						
5.5		Tan limestone						
7.0		Boring terminated at 7'						

SOUTHWESTERN LABORATORIES

Report No. 91-340  
PROJECT: Addison Airport  
CLIENT: Greiner, Inc.

BORING NO. 8-27  
LOCATION: Addison, Texas

DATE: 7-5-91

TYPE: Auger  
CASED TO: GROUND ELEVATION

WATER INFORMATION: No water encountered while drilling.

LEGEND:  
 ■ SAMPLE  
 X STANDARD PENETRATION  
 ▼ WATER

DEPTH IN FEET	SYMBOL	DESCRIPTION OF STRATUM	Moisture	Density	200	LL	P	Classification
0		1.5" IMAC						
0.5		6" Brown clayey sand with gravel base	9					15.3 29 11 SC
3.5		Brown clay with calcareous nodules grading to a black clay						
3.0		Tan limestone						
10.0		Gray limestone						
10.0		Boring terminated at 10'						

SOUTHWESTERN LABORATORIES

Report No. 91-340  
PROJECT: Addison Airport  
CLIENT: Greiner, Inc.

BORING NO. 8-28  
LOCATION: Addison, Texas

DATE: 7-2-91

TYPE: Auger  
CASED TO: GROUND ELEVATION

WATER INFORMATION: No water encountered while drilling.

LEGEND:  
 ■ SAMPLE  
 X STANDARD PENETRATION  
 ▼ WATER

DEPTH IN FEET	SYMBOL	DESCRIPTION OF STRATUM	Moisture	Density	200	LL	P	Classification
0		Brownish-black clay						
3.0			25	91	94	50	35	CR
3.0		Tan limestone						
10.0		Gray limestone						
10.0		Boring terminated at 10'						

SOUTHWESTERN LABORATORIES

Report No. 91-340  
PROJECT: Addison Airport  
CLIENT: Greiner, Inc.

BORING NO. 29  
LOCATION: Addison, Texas

DATE: 7-2-91

TYPE: Auger  
CASED TO: GROUND ELEVATION

WATER INFORMATION: No water encountered while drilling.

LEGEND:  
 ■ SAMPLE  
 X STANDARD PENETRATION  
 ▼ WATER

DEPTH IN FEET	SYMBOL	DESCRIPTION OF STRATUM	Moisture	Density	200	LL	P	Classification
0		Brownish-black clay						
4.5			26	90	94	38		CR
3.5		Tan calcareous clay						
10.0		Boring terminated at 10'						

SOUTHWESTERN LABORATORIES

Report No. 91-340  
PROJECT: Addison Airport  
CLIENT: Greiner, Inc.

BORING NO. 8-30  
LOCATION: Addison, Texas

DATE: 7-2-91

TYPE: Auger  
CASED TO: GROUND ELEVATION

WATER INFORMATION: No water encountered while drilling.

LEGEND:  
 ■ SAMPLE  
 X STANDARD PENETRATION  
 ▼ WATER

DEPTH IN FEET	SYMBOL	DESCRIPTION OF STRATUM	Moisture	Density	200	LL	P	Classification
0		Tan clay w/limestone fragments (F111)						
3.5								
4.5		Mottled tan-brown clay						
3.0								
10.0		Boring terminated at 10'						

SOUTHWESTERN LABORATORIES

DESIGN: R.C.R.  
 DRAWN: M.J.C.  
 CHECKED: D.W.P.  
 SCALE: AS NOTED

A.L.P. NO: 3-48-0063-03-91  
 S.P. NO:  
 JOB NO: YB024.22

Date: \_\_\_\_\_ Revisions: \_\_\_\_\_ By: \_\_\_\_\_

**Greiner**  
 Greiner, Inc.  
 Fort Worth, Texas

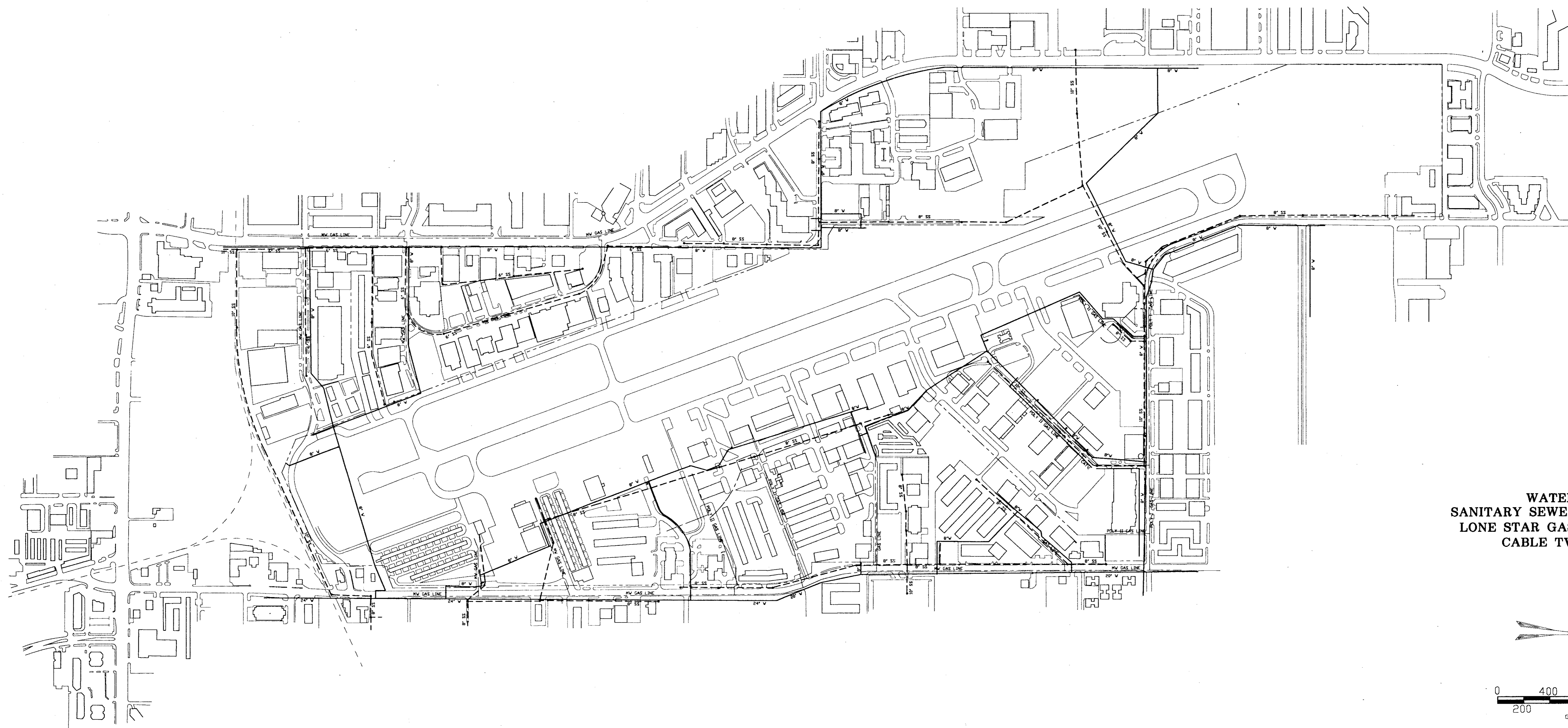
Engineers, Architects  
 and Planners



**ADDISON AIRPORT**

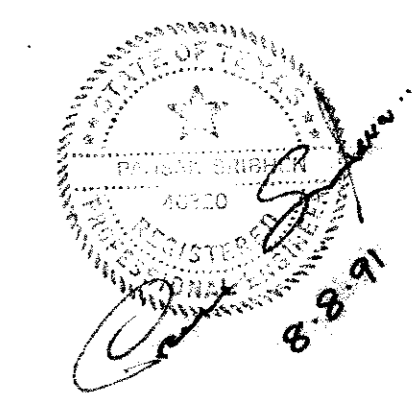
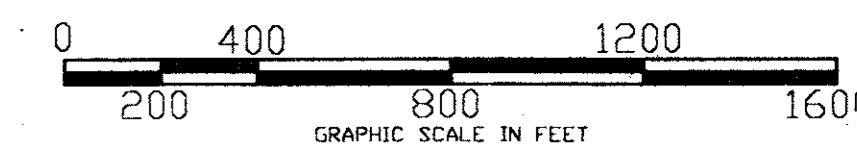
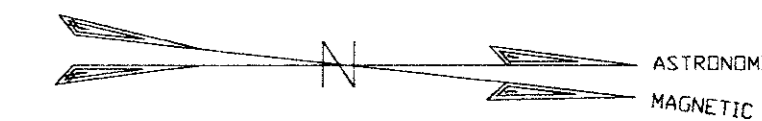
DRAINAGE IMPROVEMENTS  
**BORING LOGS**

SHEET 28  
 DATE: SEPT. 1991



**LEGEND**

- WATER LINES ————
- SANITARY SEWER LINES - - - -
- LONE STAR GAS LINES - - - -
- CABLE TV LINES ······



DESIGN: <b>R.C.R.</b>	A.I.P. NO.: <b>3-48-0063-03-91</b>			
DRAWN: <b>M.J.C.</b>	S.P. NO.:			
CHECKED: <b>D.W.P.</b>	JOB NO.: <b>Y8024.22</b>	Date	Revisions	By
SCALE: <b>AS NOTED</b>				

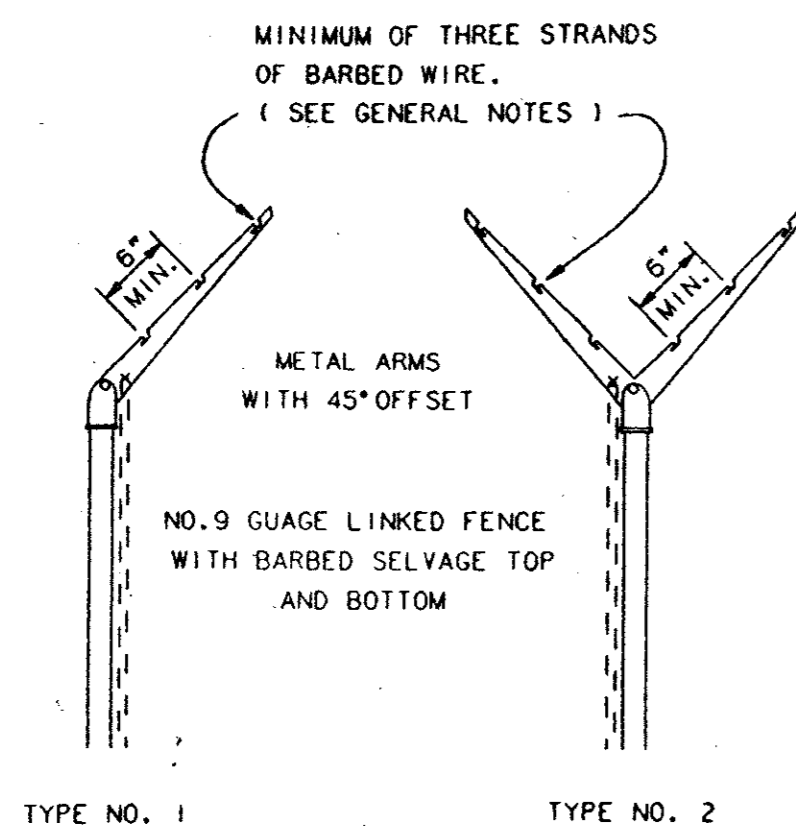
**Greiner**  
Greiner, Inc.  
Fort Worth, Texas

Engineers, Architects  
and Planners



**ADDISON AIRPORT**

**DRAINAGE IMPROVEMENTS  
UTILITY PLAN**



FENCE POST SHALL BE SET BACK SO BARBED WIRE DOES NOT EXTEND OVER PROPERTY LINES. TYPE NO. 1 ARMS SHALL BE INSTALLED ON SIDE AWAY FROM AIRPORT PROPERTY OR AIRCRAFT OPERATIONS AREA.

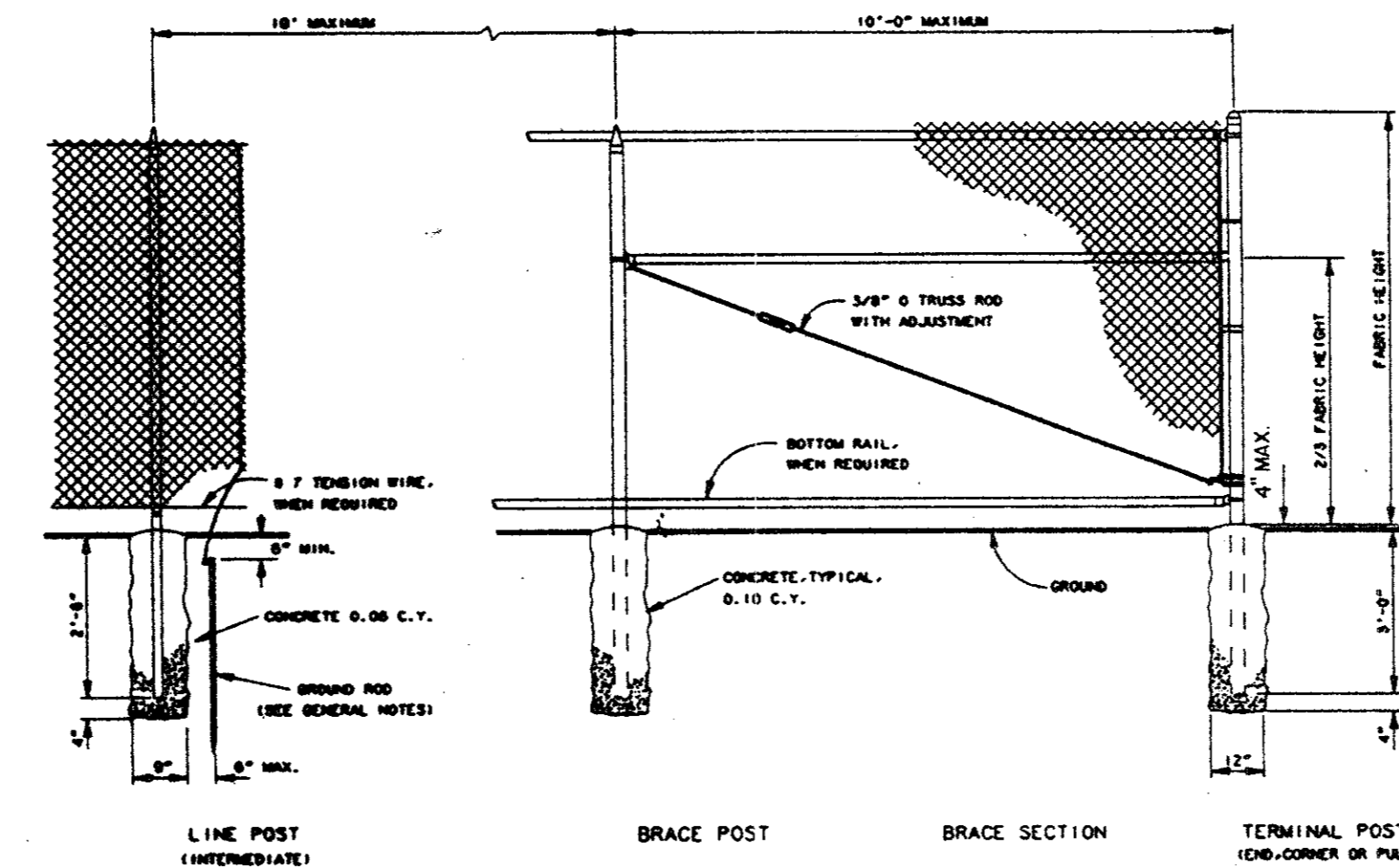
**BARBED WIRE EXTENSION ARMS**

CHAIN LINK FENCE MEMBERS DIMENSIONS & WEIGHTS (FED. SPEC. RR-F-00191)					
DESCRIPTION	SECTION	STEEL FRAME		ALUMINUM FRAME *	
		OUTSIDE DIMENSIONS (INCHES)	WEIGHT (LBS./FT.)	OUTSIDE DIMENSIONS (INCHES)	WEIGHT (LBS./FT.)
CORNER, BRACE, END, & PULL POSTS	○	2.375	3.65	2.375	1.253
FABRIC HEIGHTS 6' & LESS	□	2.00	3.65	2.50	1.253
FABRIC HEIGHTS OVER 6'	○	2.875	5.79	2.875	2.00
ALL HEIGHTS	□	2.50	5.70	3.00	2.00
	ROLL FORM	3.5 x 3.5	5.10		
GATE POSTS	○	2.875	5.79	2.875	2.00
GATE LEAF WIDTH 6' AND LESS	□	2.50	5.70	3.00	2.00
	ROLL FORM	3.5 x 3.5	5.10		
GATE LEAF WIDTH OVER 6' THRU 13'	○	4.00	9.10	4.00	3.00
GATE LEAF WIDTH OVER 13' THRU 18'	○	6.625	18.97	6.625	7.00
GATE LEAF WIDTH OVER 18'	○	8.625	24.70	8.625	10.50
LINE POSTS	○	1.90	2.72	1.90	0.94
FABRIC HEIGHTS 6' & LESS	○	2.375	3.65	2.375	1.25
FABRIC HEIGHTS 6' & LESS	H	1.875x1.625 x0.113	2.70	1.875x1.625 x0.113	0.91
FABRIC HEIGHTS OVER 6'	H	2.25x1.95 x0.143	4.10	2.25x1.95 x0.143	1.25
RAIL & BRACES	○	1.660	1.806	1.660	0.786
	ROLL FORM	1.625x1.250	1.35		

**NOTES - CLASS E FENCE**

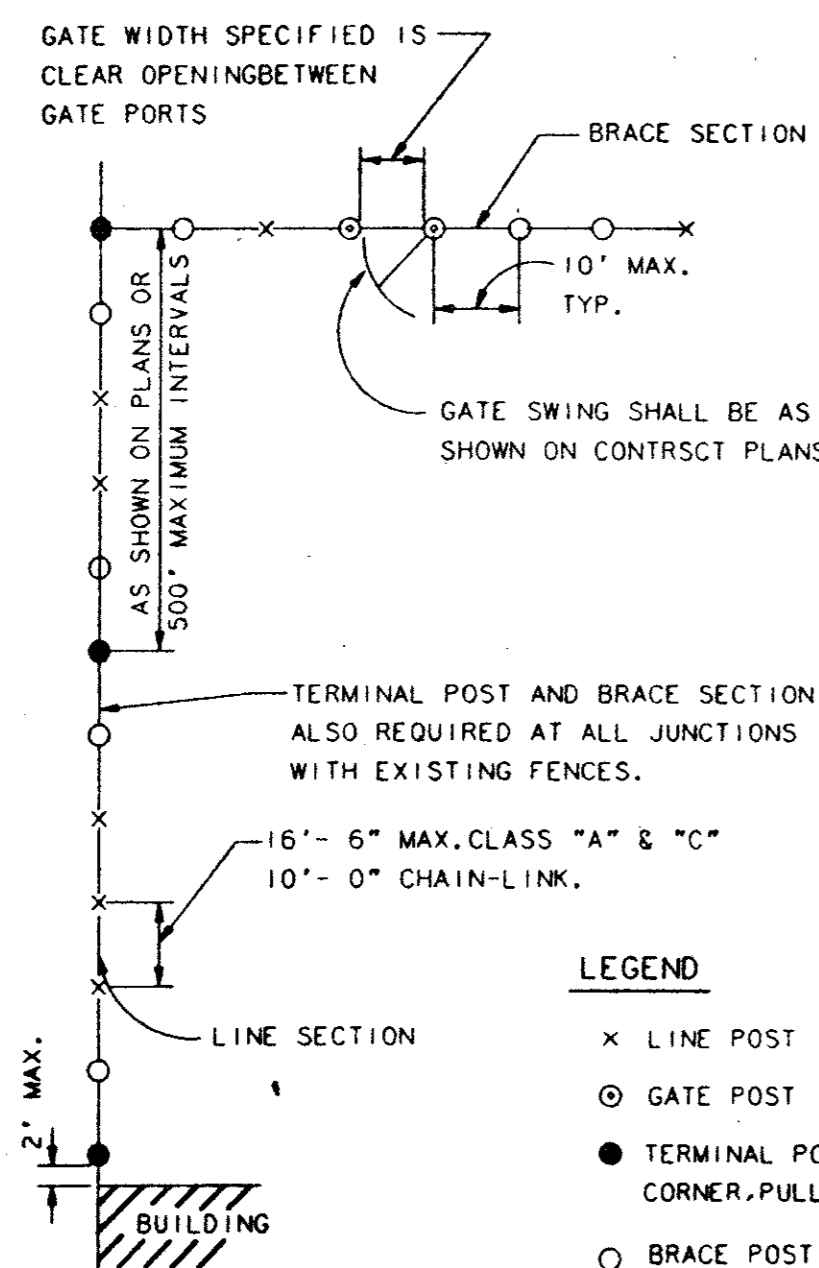
- FABRIC: 2"x2" NO. 9 GAUGE WIRE MESH PER ASTM A392-CLASS 11 (GALVANIZED) ASTM A991 (ALUMINUM COATED) ASTM B112-ALLOY 6061-T54 (ALUMINUM COATED) FED. SPEC. RR-F-191/1 (POLYVINYL-CHLORIDE COATED) UNLESS OTHERWISE SPECIFIED ON CONTRACT PLANS.
- SELVAGE, RAILS & TENSION WIRES: FENCES 60" AND UNDER IN TERMINAL AREAS SHALL HAVE KNOCKLE SELVAGE AND RAILS TOP AND BOTTOM. HAZARDOUS AND SECURITY AREAS TO BE FENCED SHALL HAVE BARBED SELVAGE TOP AND BOTTOM WITHOUT RAILS. WHEN RAILS ARE OMITTED, NO. 7 GAUGE STEEL OR NO. 8 GAUGE ALUMINUM TENSION WIRES SHALL BE PROVIDED. IF RAILS AND BARBED SELVAGE ARE SPECIFIED THE BARBS SHALL EXTEND 1" ABOVE THE TOP RAIL.
- POSTS: SEE TABLE AT LEFT.
- FABRIC FASTENERS: MINIMUM 3/16"x3/4" STRETCHER BAR BANNED TO TERMINAL POSTS OR INTEGRAL FABRIC FITTINGS ON TERMINAL POSTS. USE NO. 6 WIRE CLIPS FOR LINE POSTS AND NO. 9 WIRE CLIPS FOR BRACES, RAILS, AND TENSION WIRES. ALL FASTENERS SPACED 14" MAX. VERTICALLY, 24" MAX. HORIZONTALLY.
- COATINGS: ZINC COATINGS ON POSTS, RAILS, GATE FRAMES AND STEEL FITTINGS SHALL AVERAGE 2.0 OZ./SQ. FT. PER ASTM A123. NO INDIVIDUAL SPECIMEN SHALL HAVE LESS THAN 1.8 OZ./SQ. FT. IF OTHER TYPES OF COATINGS ARE FURNISHED, THEY SHALL MEET THE APPROPRIATE ASTM OR FEDERAL SPECIFICATION IN NOTE 1.
- FENCE HEIGHT: THE FABRIC HEIGHT IS THE NORMAL FENCE HEIGHT.

**CHAIN LINK FENCE, CLASS E, FAA SPEC. F-162**

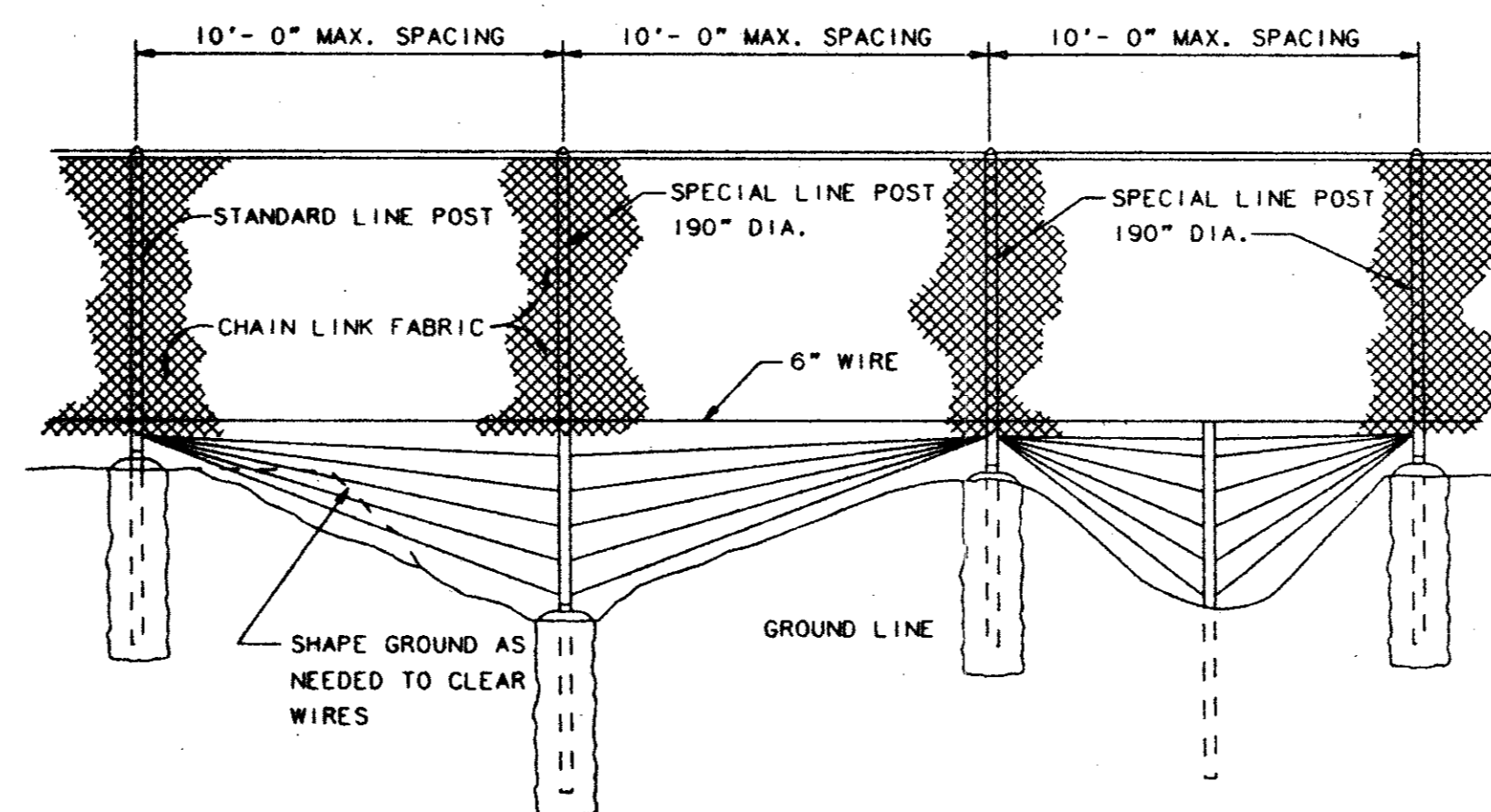


**GENERAL NOTES**

- DIMENSIONS:** ALL DIMENSIONS, SIZES, GAUGES, WEIGHTS OR THICKNESSES SHOWN ARE THE MINIMUM ACCEPTABLE, UNLESS OTHERWISE INDICATED.
- SPECIFICATIONS:** THE FEDERAL SPECIFICATIONS SHOWN SHALL BE INTERPRETED TO MEAN THE LATEST ISSUE OR AMENDMENT OF SUCH SPECIFICATION IN EFFECT OF THE DATE OF PLAN APPROVAL. FAA SPECIFICATIONS SHOWN ARE FROM THE FEDERAL AVIATION ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS. MATERIALS AND CONSTRUCTION METHODS NOT DETAILED HEREON, SHALL BE IN ACCORDANCE WITH THE FAA SPECIFICATIONS LIST UNLESS OTHERWISE NOTED ON THE CONTRACT PLANS.
- MEASUREMENTS:** FENCES ARE MEASURED IN PLACE, FROM OUTSIDE TO OUTSIDE OF END CORNER OR GATE POST. MEASUREMENT DOES NOT INCLUDE GATE OPENINGS. GATES ARE MEASURED IN UNITS FOR EACH TYPE AND SIZE INSTALLED.
- FABRIC INSTALLATION:** WIRE OR FABRIC ON BOUNDARY AND SECURITY FENCES SHALL BE ON THE SIDE OF POSTS AWAY FROM AIRPORT PROPERTY. FENCES BETWEEN TERMINAL BUILDINGS AND APRONS, OR ADJACENT TO SIDEWALKS, SHALL HAVE FABRIC ON THE BUILDING OR SIDEWALK SIDE OF POSTS. ALL OTHER BUILDING AREA FENCES SHALL HAVE FABRIC ON SIDE OF POSTS AWAY FROM BUILDINGS OR INSTALLATION BEING FENCED, UNLESS OTHERWISE NOTED.
- BARBED WIRE:** BARBED WIRE SHALL BE ZINC COATED, MEETING ASTM A121, CLASS 3, OR ALUMINUM COATED MEETING ASTM A585, CLASS 11, AS APPROPRIATE. WIRE SHALL BE TWO STRAND TWISTED NO. 12-1/2 ASW GAUGE STEEL, WITH FOUR POINT BARBS, NO. 14 ASW GAUGE MINIMUM 1/2 MINIMUM LENGTH, SPACED ON APPROXIMATE 5" CENTERS.
- CONCRETE:** CONCRETE SHALL BE OF A COMMERCIAL GRADE WITH A MINIMUM 28 DAY STRENGTH OF 2500 P.S.I. FOOTING TOPS SHALL BE 1" MINIMUM ABOVE GROUND AT THE POST, AND TROWEL FINISHED TO SLOPE AWAY FROM THE POST.



**TYPICAL FENCE LAYOUT**  
ALL CLASSES



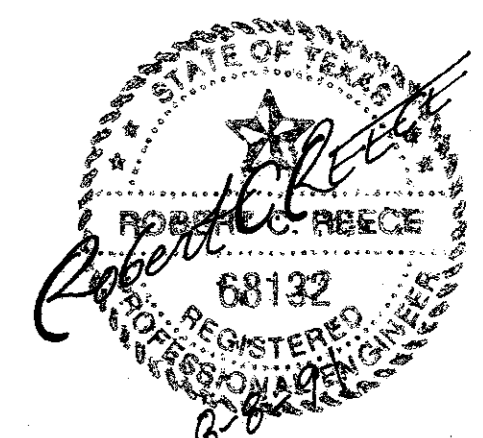
**Greiner**  
Greiner, Inc  
Fort Worth, Texas

Engineers, Architects  
and Planners



**ADDISON AIRPORT**

**DRAINAGE IMPROVEMENTS  
FENCING DETAILS**



Date	Revisions	By