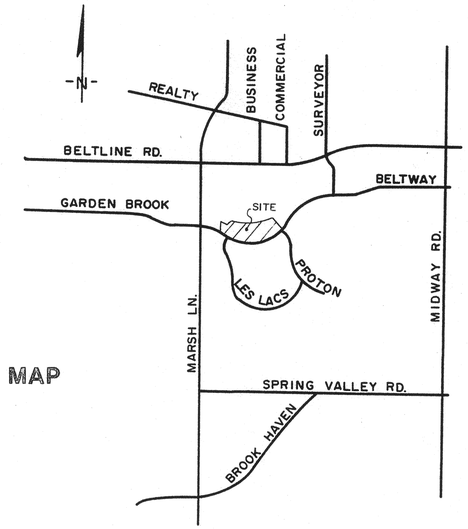
FINAL PLAT & ENGINEERING PLANS
FOR
ADDISON TOWN CENTER SUBDIVISION
ADDISON, TEXAS

SHEET INDEX

JUNE 15, 1993

LOCATION MAP



OWNER:
GRAND LAND, LTD.
8800 N. CENTRAL EXPWY, STE 330
DALLAS, TEXAS 75231
(214) 750-6528

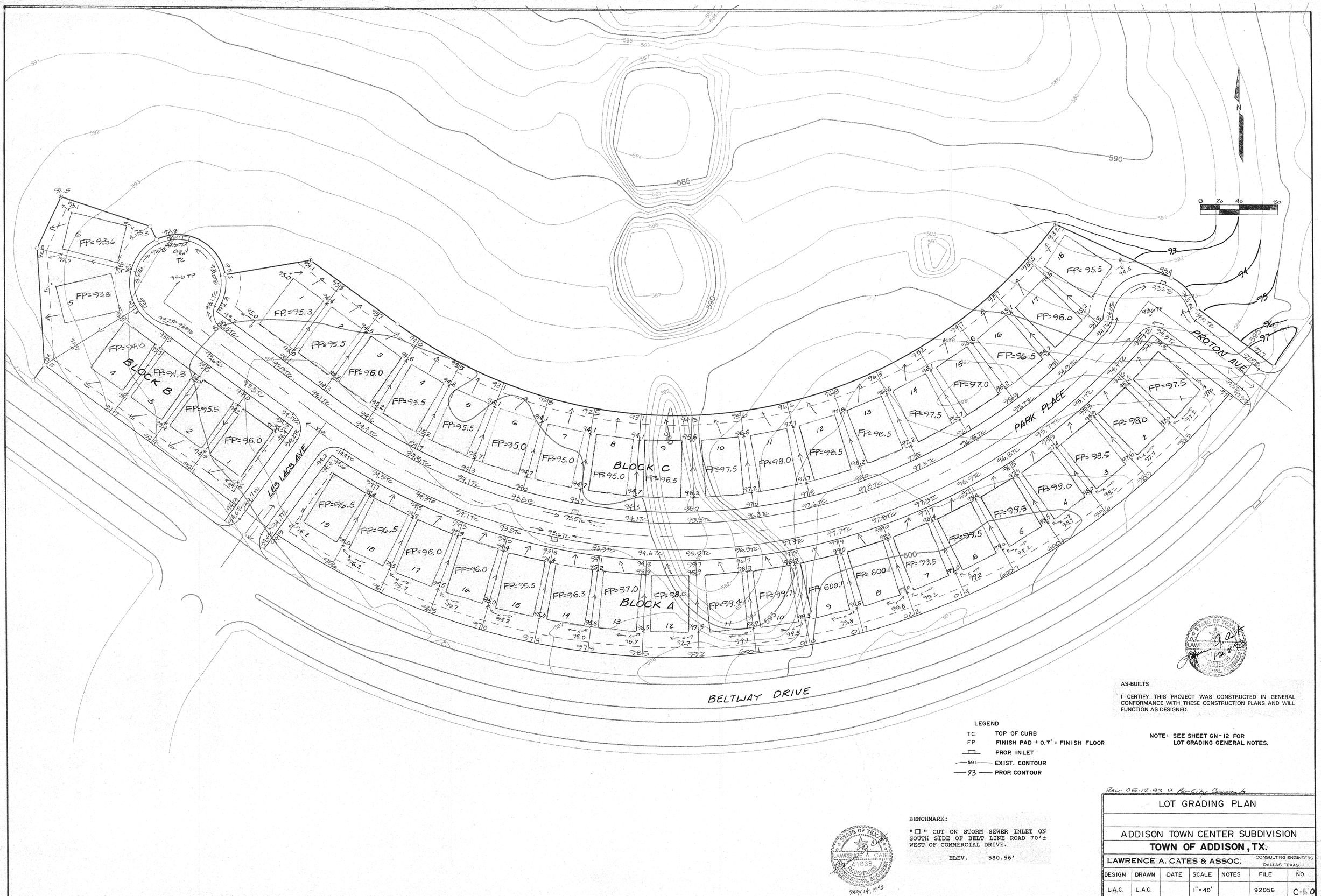
ENGINEER:
LAWRENCE A. CATES & ASSOCIATES, INC.
14200 MIDWAY ROAD, SUITE 122
DALLAS, TEXAS 75244
(214) 385-2272

STATE OF TEXAS
LAWRENCE A. CATES
4838
REGISTERED PROFESSIONAL ENGINEER

AS-BUILTS

I CERTIFY THIS PROJECT WAS CONSTRUCTED IN GENERAL CONFORMANCE WITH THESE CONSTRUCTION PLANS AND WILL FUNCTION AS DESIGNED.

ADDISON TOWN CENTER SUBDIVISION



AS-BUILTS

I CERTIFY THIS PROJECT WAS CONSTRUCTED IN GENERAL CONFORMANCE WITH THESE CONSTRUCTION PLANS AND WILL FUNCTION AS DESIGNED.

LEGEND

TC	TOP OF CURB
FP	FINISH PAD + 0.7' = FINISH FLOOR
	PROP. INLET
591	EXIST. CONTOUR
93	PROP. CONTOUR

NOTE: SEE SHEET GN-12 FOR LOT GRADING GENERAL NOTES.

BENCHMARK:

"□" CUT ON STORM SEWER INLET ON SOUTH SIDE OF BELT LINE ROAD 70'± WEST OF COMMERCIAL DRIVE.

ELEV. 580.56'

STATE OF TEXAS — LAWRENCE A. CATES — 41835 — REGISTERED PROFESSIONAL ENGINEER — May 14, 1993

Rev. 05.12.93 v Per City Comments

LOT GRADING PLAN

ADDISON TOWN CENTER SUBDIVISION

TOWN OF ADDISON, TX.

LAWRENCE A. CATES & ASSOC. CONSULTING ENGINEERS DALLAS, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
L.A.C.	L.A.C.		1"=40'		92056	C-1.0

STABILIZED CONSTRUCTION ACCESS

A STABILIZED CONSTRUCTION ENTRANCE APPLIES TO POINTS OF CONSTRUCTION INGRESS AND EGRESS WHERE SEDIMENT MAY BE TRACKED OR FLOW OFF THE CONSTRUCTION SITE.

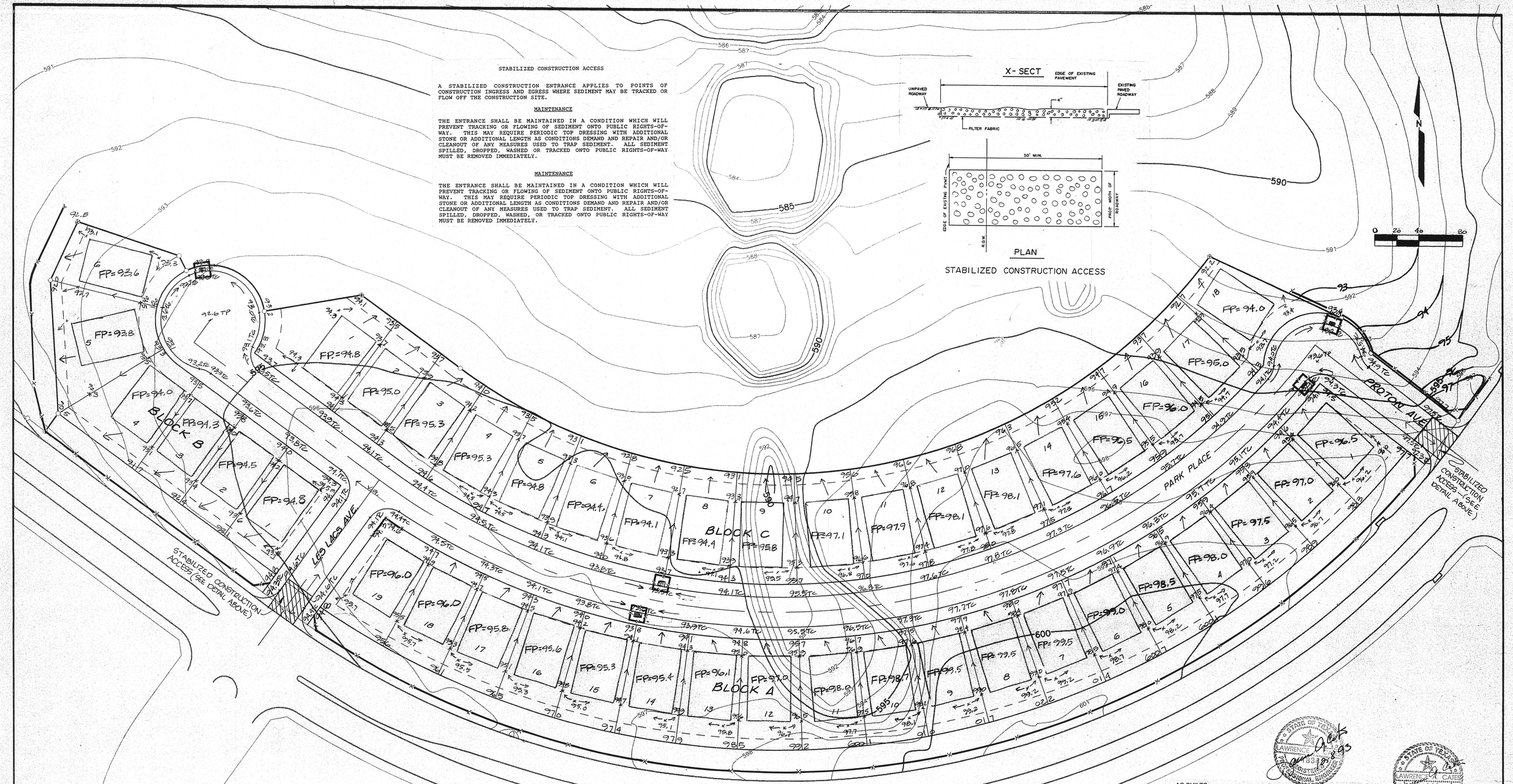
MAINTENANCE

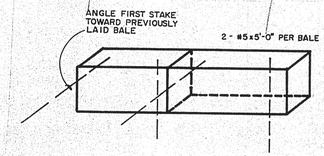
THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.

MAINTENANCE

THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.

STABILIZED CONSTRUCTION ACCESS





HAY BALE PLACEMENT FOR EROSION CONTROL
N.T.S.

NOTES: 1. HAY BALES TO BE PLACED 4" INTO GROUND.
2. WHEN SILT DEPTHS ARE 6" THE SILT SHALL BE REMOVED.

—— X —— DENOTES HAY BALES

CONSTRUCTION SEQUENCE

1. OBTAIN GRADING PERMIT.
2. INSTALL ALL EROSION CONTROL MEASURES AND DEVICES BEFORE CLEARING SITE IF POSSIBLE.
3. CLEAR SITE.
4. INSTALL ANY REMAINING CONTROL MEASURES AND DEVICES THAT COULD NOT BE INSTALLED PRIOR TO SITE CLEARING.
5. GRADE SITE.
6. INSTALL ALL UNDERGROUND UTILITIES.
   A. INSTALL HAY BALES AROUND CATCH BASINS AND INLETS.
7. INSTALL PAVEMENT.
8. SEED ALL AREAS OUTSIDE CONSTRUCTION LIMITS - SEWER OUTFALL AND WATER LINE RIGHT OF WAYS, CUT/FILL SLOPES WITHIN THIRTY (30) WORKING DAYS AFTER GRADING WORK HAS BEEN COMPLETED AND UTILITY LINES HAVE BEEN ACCEPTED BY THE CITY
9. INSPECT AND MAINTAIN ALL EROSION CONTROL MEASURES AND DEVICES AFTER EACH RAIN AND FOR THE DURATION OF CONSTRUCTION.
10. CONTRACTOR TO PROVIDE ADDITIONAL EROSION CONTROL AS NEEDED AND REQUESTED BY THE CITY OR ENGINEER IF PROPOSED EROSION CONTROL IS INSUFFICIENT.

NOTE:

1. ALL AREAS DISTURBED DURING CONSTRUCTION OUTSIDE THE LIMITS OF THE PROJECT SHALL BE RESTORED AND HYDROMULCHED WITH BERMUDA.
2. ALL SPOILS SHALL BE USED ONSITE OR REMOVED FROM ADDISON AND PROPERLY DISPOSED OF.

BENCHMARK:

"□" CUT ON STORM SEWER INLET ON SOUTH SIDE OF BELT LINE ROAD 70'± WEST OF COMMERCIAL DRIVE.

ELEV. 580.56'

NOTE: SEE LOT GRADING PLAN, SHT. C-10 FOR CORRECT ELEVATIONS AS BUILT.

AS-BUILTS

I CERTIFY THIS PROJECT WAS CONSTRUCTED IN GENERAL CONFORMANCE WITH THESE CONSTRUCTION PLANS AND WILL FUNCTION AS DESIGNED.

STATE OF TEXAS — LAWRENCE A. CATES — 41838 — REGISTERED PROFESSIONAL ENGINEER — 5/18/93

STATE OF TEXAS — LAWRENCE A. CATES — 41838 — REGISTERED PROFESSIONAL ENGINEER — May 18, 1993

LEGEND

TC	TOP OF CURB
FP	FINISH PAD + 0.7' = FINISH FLOOR
	PROP. INLET
591	EXIST. CONTOUR
93	PROP. CONTOUR

NOTE: SEE SHEET GN-12 FOR LOT GRADING GENERAL NOTES.

REV. 05-12-93 ~ ADDED STAB. ACCESS

EROSION CONTROL PLAN

ADDISON TOWN CENTER SUBDIVISION

TOWN OF ADDISON, TX.

LAWRENCE A. CATES & ASSOC. CIVIL ENGINEERING DALLAS, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
L.A.C.	L.A.C.		1"=40'		92056	C-11

STA. 7+97.83 - END LN. A
CONST. STD. C.O.
℄ 8" = 587.95

REMOVE EX. PLUG. CONNECT TO EX. 8" WATER

NOTE: CONTRACTOR TO CONTACT TOWN OF ADDISON PUBLIC WORKS DEPT. 48 hrs. PRIOR TO BEGINNING CONSTRUCTION. CONTACT BRUCE ELLIS OR JOHN BAUMGARTNER, P.E. AT (214) 450-2886

CAUTION:
CONTRACTOR TO CONTACT THE FOLLOWING UTILITY COMPANIES 48 hrs. PRIOR TO CONSTRUCTION
T.U. ELECTRIC BARRY ANDERSON (214) 888-1311
G.T.E. CABLE LOCATE 1-800-344-8377
L.S.G. LINE LOCATE (214) 487-3800
S.W.B.T. DIAL "0" ASK OPERATOR FOR ENTERPRISE 9800

LEGEND
- EXIST. SANI. SWR. W/ MANHOLE
- PROP. " " "
- EX. WATER LINE W/ VALVE.
- PROP. " " " "
- PROP FIRE HYDRANT W/ VALVE
- EX. STORM SEWER
- PROP. " "
- EX STORM SWR. TO BE REMOVED
- UTILITY/ IRRIGATION CONDUIT

STA. 6+08.33 - END LN. B
CONST. STD. C.O.
℄ 8" = 588.40

INSTALL: 4-8"x45° VERT. BENDS

INSTALL: 2-8"x45° BENDS

INSTALL 8" WATER

INSTALL: 2-8"x45° BENDS

INSTALL: 1-8"x6" TEE, 1-6" G.V., 1-6"x90° BEND, 1-F.H.

INSTALL: 1-8"x8" TEE, 1-8" G.V.

INSTALL: 1-12"x8" TAPPING SLEEVE & VALVE

INSTALL: 1-8"x6" TEE, 1-6" G.V., 1-6"x90° BEND, 1-F.H.

INSTALL: 1-12"x8" TAPPING SLEEVE & VALVE

STA. 1+34.33 - LN. A
REMOVE EX. PLUG & CONST. 4'Ø DIA M.H.
℄ 8" = 589.80

STA. 4+15.35 - LN A
CONST. 4'Ø M.H.
℄ 8" = 585.64
P.I. # = 32°31'18" Rt.

STA. 0+00 - LN B = 2+40.33 LN A - CONST. 4'Ø M.H.
℄ 8" = 584.77
P.I. # = 89°53'03" Rt.

STA. 4+35 - LN B
CONST. 4'Ø M.H.
℄ 8" = 587.42
P.I. # = 15°23'55" LT.

STA. 1+75 - LN B
CONST. 4'Ø M.H.
℄ 8" = 585.64
P.I. # = 31°32'24" LT

8" SS LINE A

8" SS LINE B

10' SANIT. SWR. EASMT.

EX. 18" RCP

EX. 36" RCP

EX. 21" RCP

EX. 24" RCP

EX. 27"x33" BOX CULVERT

EX. 12" W

EX. 8" SS

EX. M.H.

EX. F.H.

BLOCK A

BLOCK B

BLOCK C

80' R.O.W.

LES LACS AVE.

PROTON AVE.

BELTWAY DRIVE

20' GREENBELT DEDICATION

EX. 7'x3' BOX CULVERT

EX. 24" RCP

EX. M.H.

TYPICAL SERVICE LOCATIONS (N.T.S.)
- EX. F.H.
- 1" WATER SERVICE
- 4" SEWER SERVICE
- 8" SS
- 8" W

BENCHMARK:
"□" CUT ON STORM SEWER INLET ON SOUTH SIDE OF BELT LINE ROAD 70'± WEST OF COMMERCIAL DRIVE.
ELEV. 580.56'

NOTE: SEE SHT. GN-12 FOR WATER & SANITARY SEWER GENERAL NOTES

STA. 1+97.83 CONST
STA. 2+40.33 CONST
STA. 4+15.35 CONST
STA. 6+08.33 CONST

Prop. Grnd. @ ℄ of San. Sew. Pipe

Ex. Grnd. @ ℄ of San. Sew. Pipe

Prop. 8" Waterline Dist. ℄ of Sewer

Prop. 8" San. Sew.

8" @ 0.70% LINE "A"

8" @ 0.50% LINE "A"

8" @ 0.92% LINE "A"

Ex. 8" San. Sew.

PROP. 8" WATER CONC. ENC. 10 L.F. E.W.

663.5 L.F. TRENCH SAFETY REQUIRED

595
590
585
580
575

E.G. = 592.55
E.G. = 592.34
E.G. = 592.07
E.G. = 592.17
E.G. = 592.00

LINE A

AS-BUILTS
I CERTIFY THIS PROJECT WAS CONSTRUCTED IN GENERAL CONFORMANCE WITH THESE CONSTRUCTION PLANS AND WILL FUNCTION AS DESIGNED.

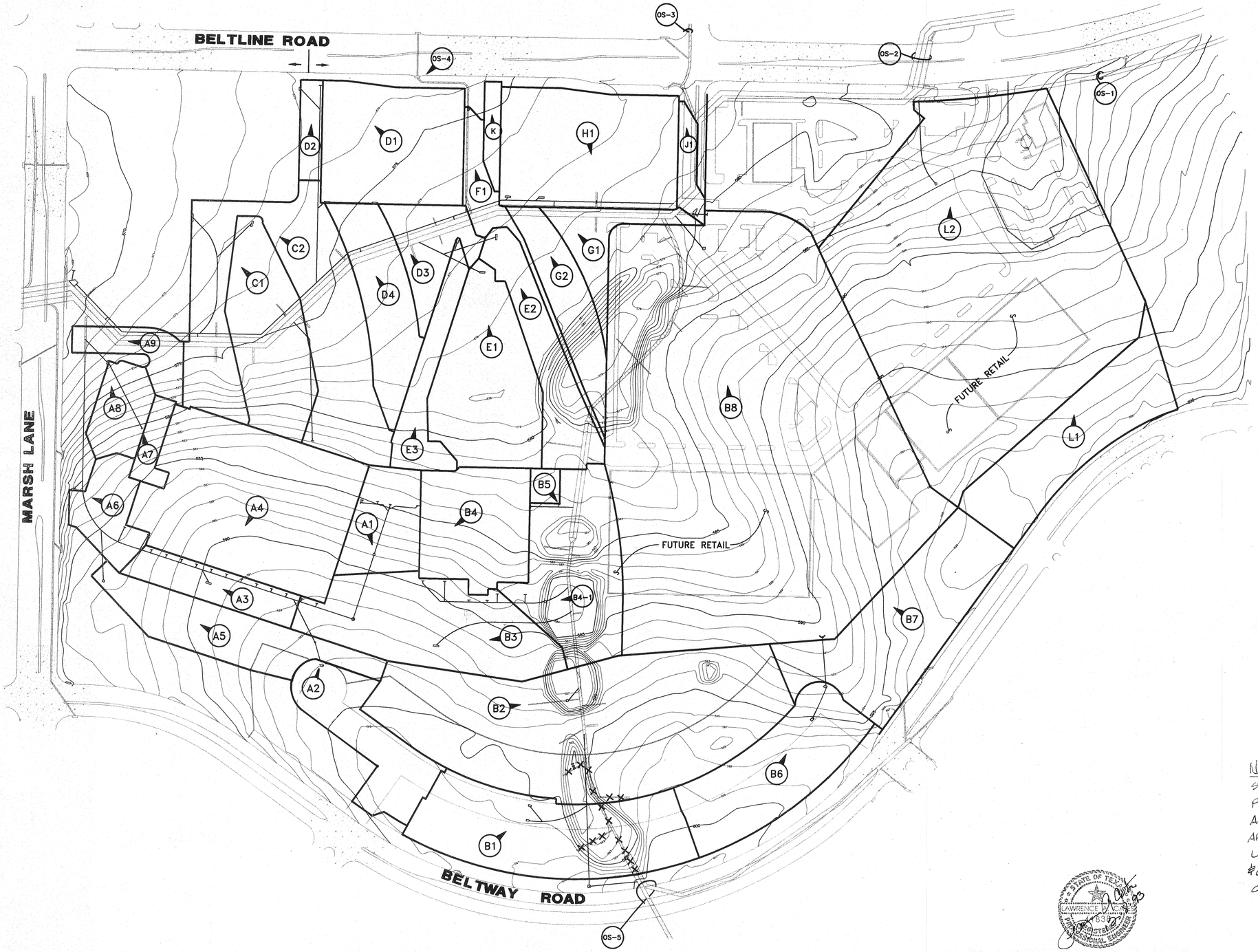
May 14, 1993

2 REV. 10/29/93 PER AS-BUILT NOTES
1 REV. 10/12/93 ADD'NL GND. ℄ S.S. LN A PER CITY COMMENT
REV. 5-19-93: REV. ELEV. IN A & ADD WATER PROFILE
REV. 8-17-93: REV. GRADE IN A & ADD LN B

WATER & SEWER PLAN
SANI. SWR. LN. A PROFILE
ADDISON TOWN CENTER SUBDIVISION
TOWN OF ADDISON, TX.

LAWRENCE A. CATES & ASSOC. CONSULTING ENGINEERS DALLAS, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
L.A.C.	L.A.C.	4/1/93	H: 1"=40' V: 1"=6'		92056	C-3



DRAINAGE SUMMARY

AREA	ACRES	C	I100	Q100		REMARKS
A1	0.68	0.9	8.74	5.35	5.35	INC. ROOF DRAIN–BLDG. A
A2	0.87	0.7	8.74	5.32	10.67	FROM RES. SUBD.
A3	0.56	0.9	8.74	4.40	15.07	TO 10' C.I.
A4	2.69	0.9	8.74	21.13	36.20	KMART ROOF DRAINAGE
A5	1.18	0.4	7.70	3.60	39.80	PARK AREA
A6	0.49	0.9	8.74	3.85	43.65	TO 10' C.I.
A7	0.15	0.9	8.74	1.61	1.61	GARDEN SHOP DRAINAGE
A8	0.44	0.9	8.74	3.46	48.72	TO 6' C.I.
A9	0.36	0.9	8.74	2.83	2.83	TO MARSH LANE
B1	1.96	0.7	8.74	11.99	11.99	FROM SUBD. TO 54"
B2	4.45	0.45	7.70	15.4	15.4	PARK AREA
B3	1.46	0.9	8.74	11.48	11.48	TO 14' C.I.
B4	1.24	0.9	8.74	9.75	9.75	WINN–DIXIE ROOF DRAIN
B4–1	1.84	0.9	8.74	14.75	24.22	6' GRATE INLET
B5	0.10	0.9	8.74	0.79	0.79	BLDG. B ROOF DRAIN
B6	1.44	0.7	8.74	8.81	8.81	FROM SUBD.
B7	1.93	0.4	7.70	5.94	5.94	FUTURE PARK
B8	11.51	0.9	8.74	90.54	98.48	FUTURE PH. II (58.5 cfs. PH. 1)
C1	1.22	0.9	8.74	9.60	9.60	TO 10' C.I.
C2	2.64	0.9	8.74	20.80	30.40	TO 14' C.I.
D1	1.66	0.9	8.74	13.06	13.06	FUTURE LOT 1, BLK D
D2	0.21	0.9	8.74	1.57	14.63	TO 6' C.I.
D3	0.61	0.9	8.74	4.80	4.80	TO 10' C.I.
D4	0.93	0.9	8.74	7.31	26.74	
E1	1.58	0.9	8.74	12.43	12.43	TO 10' C.I.
E2	0.87	0.9	8.74	6.84	6.84	TO 10' C.I.
E3	0.60	0.9	8.74	4.72	11.56	TO 10' C.I.
F1	0.51	0.9	8.74	4.01	4.01	TO 6' C.I.
G1	0.40	0.9	8.74	3.15	3.15	TO 6' C.I.
G2	0.75	0.9	8.74	5.90	5.90	TO 6' C.I.
H1	2.00	0.9	8.74	15.73	15.73	FUTURE LOT 2
J1	0.18	0.9	8.74	1.42	1.42	TO EXIST. INLET
K	0.12	0.9	8.74	0.94	0.94	TO BELT LINE ROAD
L1	1.47	0.45	7.70	5.09	5.09	FUTURE PARK
L2	7.85	0.9	8.74	61.75	66.84	FUTURE RETAIL
OS–1	175.00	0.60	6.8	07.14	07.14	FROM 96" RCP
OS–2	414.00	0.80	4.8	1590	1590	FROM AREA N. OF BELT LINE
OS–3	40.98	0.80	7.7	284	284	54"(BUSINESS DR.)
OS–4	01.14	0.90	8.7	9	9	WINN–DIXIE ROOF DRAIN
OS–5	62.00	0.52	7.6	246	245	4' GRATE INLET

N

0 50' 100' 200'

NOTE: THE AS-BUILT STAMP ON THIS SHEET PERTAINS TO THE SUBDIVISION AREA ONLY. OTHER AREAS AREAS ARE OUTSIDE THE LIMITS OF THIS PROJECT & CURRENTLY UNDER CONSTRUCTION.

REV. 5-11-93; REV. BA. A2 & "C" FOR P.A.'s A2, B1, & B6

STATE OF TEXAS — LAWRENCE A. CATES — 1838 — REGISTERED PROFESSIONAL ENGINEER — 04.14.93

AS-BUILTS

I CERTIFY THIS PROJECT WAS CONSTRUCTED IN GENERAL CONFORMANCE WITH THESE CONSTRUCTION PLANS AND WILL FUNCTION AS DESIGNED.

STATE OF TEXAS — LAWRENCE A. CATES — 1838 — REGISTERED PROFESSIONAL ENGINEER — 04.14.93

DRAINAGE AREA MAP

KMART No. 4885

ADDISON TOWN CENTER

TOWN OF ADDISON, TEXAS

LAWRENCE A. CATES & ASSOC. — CONSULTING ENGINEERS DALLAS, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
LAC	LAC	4-1-93	1"=100'	D.P.	91012 DRNGAREA	C-4

LEGEND

PROP. STORM SWR.
PROP. WATER
PROP. SANI. SWR. W/ MANHOLE
EX. RCP TO BE REMOVED
EX. RCP

℄ STORM SEWER CURVE DATA
CURVE 1 Δ = 53°48'37"
R = 67.00'
L = 62.92'

Moved Inlet Location 10' East After Verifying Location of Ex. 18" RCP

CONST. STD. 8' CURB INLET ~ CONN. TO EX. 18" RCP TOP: 592.67, FL 588.67 (EX. 18")

Q100 = 5.9 cfs

592.61

582.67

PAV. STA. 2+64.19 CONST. STD. B CURB INLET TOP = 593.37, FE 589.57

PAV. STA. 2+81.73 CONST. 1 - STD. 8' CURB INLET TOP = 593.45 FE = 589.45

STA. 0+00 BEGIN LN. D-1 CONNECT TO EX. 54" RCP FE = 577.61 (VERIFY)

STA. 0+19 LAT. D-1.2 END 18" RCP @ FRONT OF CURB & INLET FE 589.45

STA. 1+17 LAT D1.1 = 0+00 LAT. D1.2 18"X18" WYE CONN.

STA. 1+37.25 LAT. D-1.1 18"X45° BEND

STA. 1+54.75 LAT. D-1.1 END 18" RCP @ FRONT OF INLET - FE 589.67

STA. 1+83.95 LN. D-1 = 0+00 LAT. D-1.1 PC. 54" x 18" WYE CONNECT

STA. 3+06.00 LN. D-1 CONST. TYPE B MANHOLE, FE = 585.85

STA. 4+10.00 LN. D-1 CONNECT TO EX. 2-7'x3' BOX CULVERTS CONST. JUNCTION BOX USING EX. BOX CULVERTS SEE DETAIL SHT, C-6 FE = 589.46 (VERIFY)

CONST. STD. 5' CURB INLET TOP = 593.48 FE = 589.48

PAV. STA. 7+18.69 CONST. STD. 5' CURB INLET TOP: 593.83 FE = 589.83

STA. 0+80.00 LN. D-2 CONST. TY. B HDWL. FOR 18" RCP FE = 588.50

STA. 0+97.50 LN. D-2 CONN 18" RCP TO REAR OF INLET FE = 589.48

STA. 1+57.50 LN D-2 END 18" RCP @ SIDE OF INLET ~ FE = 589.93

Q100 = 8.8 CFS

Remove & Salvage Ex. RCP As Shown

Remove Ex. 2-7'x3' Box Culverts As Shown

15' DRNG. ESMT.

7.5'

20' GREENBELT DEDICATION

Ex. 7'x3' Box Culvert

Prop 54" CI. III RCP LN. D-1

Prop 54" CI. III RCP LAT. D-1.2

Ex. 18" W

Ex. 8" S.S.

Ex. 12" W

Ex. 8" S.S.

Ex. 24" RCP

Ex. 18" RCP

Ex. 36" RCP

Ex. 21" RCP

8" S.S. LN. A

8" S.S. LN. B

Ex. M.H.

Ex. F.H.

80' R.O.W.

PARK PLACE

PROTON AVE.

LES LACS AVE.

BELTWAY DRIVE

BLOCK B

BLOCK C

BLOCK A

AS-BUILTS

I CERTIFY THIS PROJECT WAS CONSTRUCTED IN GENERAL CONFORMANCE WITH THESE CONSTRUCTION PLANS AND WILL FUNCTION AS DESIGNED.

BENCHMARK:
"□" CUT ON STORM SEWER INLET ON SOUTH SIDE OF BELT LINE ROAD 70'± WEST OF COMMERCIAL DRIVE.
ELEV. 580.56'

NOTE: SEE SHT. GN-12 FOR STORM SEWER GENERAL NOTES

LAT. D-1.1

135 L.F. TRENCH SAFETY REQUIRED

18" RCP Qmax = 120.0 cfs A = 18.7 sf R/4 = 0.52 V = 6.4 ft/sec SF = 0.003 ft/ft Qc = 120.0 cfs

18" on 11.42%

LAT. D-1.2

132 L.F. TRENCH SAFETY REQ'D

18" on 0.75%

CHORD LAT. D-1.1 = 143.95 LN. D-1

LINE D-1

107 L.F. TRENCH SAFETY REQUIRED

54" on 4.97%

54" on 2.15%

54" on 0.75%

Ex 54" on 2.00%

54" RCP Qmax = 257.0 cfs A = 15.9 sf R/4 = 1.00 V = 16.2 ft/sec SF = 0.007 ft/ft Qc = 170.3 cfs

54" RCP Qmax = 246.0 cfs A = 15.9 sf R/4 = 1.00 V = 15.5 ft/sec SF = 0.006 ft/ft Qc = 170.3 cfs

54" RCP Qmax = 247.0 cfs A = 15.9 sf R/4 = 1.00 V = 15.5 ft/sec SF = 0.006 ft/ft Qc = 288.3 cfs

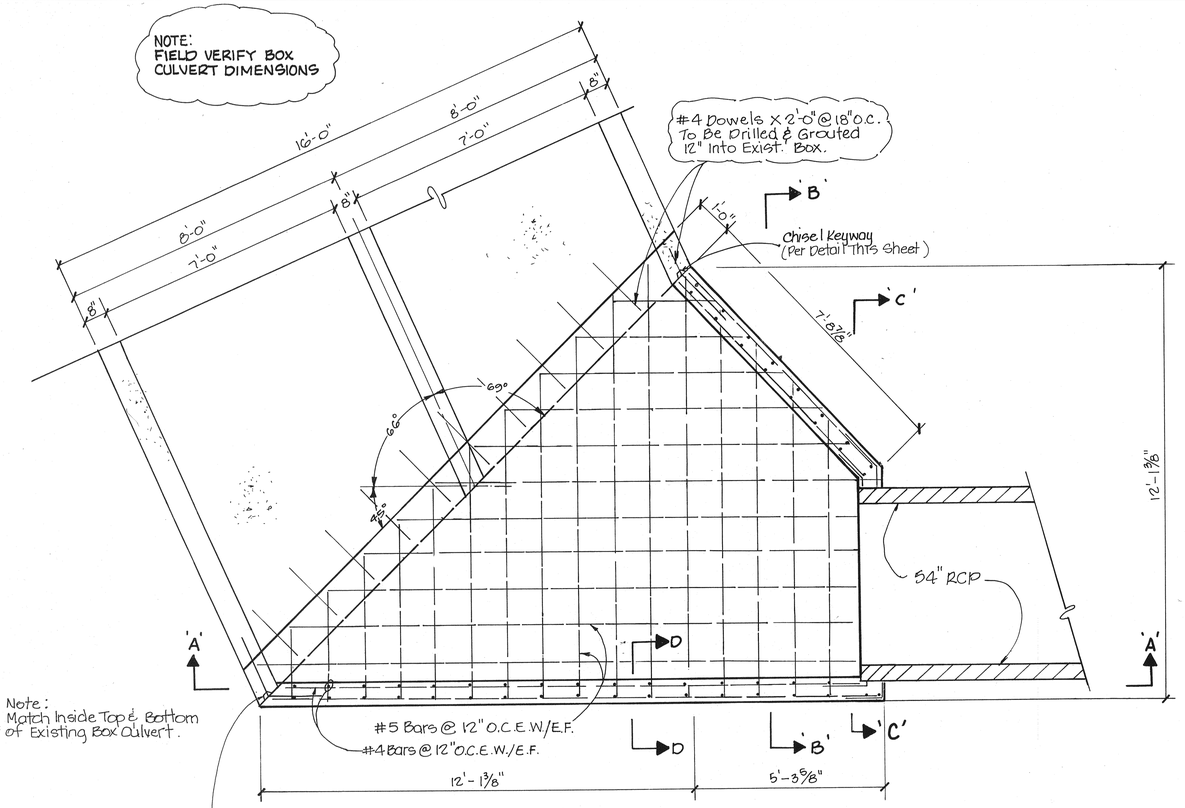
LINE D-2

18" RCP Qmax = 8.8 cfs A = 1.8 sf R/4 = 0.38 V = 5.0 ft/sec SF = 0.002 ft/ft Qc = 8.8 cfs

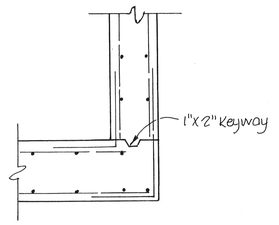
8" on 1.80%

STORM SEWER PLAN & PROFILE						
LINES D-1, D-2, D-3 & D-1.1						
ADDISON TOWN CENTER SUBDIVISION						
TOWN OF ADDISON, TX.						
LAWRENCE A. CATES & ASSOC. CONSULTING ENGINEERS DALLAS, TEXAS						
DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
L.A.C.	L.A.C.	4/1/93	H: 1"=40' V: 1"=6'		92056	C-5

NOTE:
FIELD VERIFY BOX
CULVERT DIMENSIONS



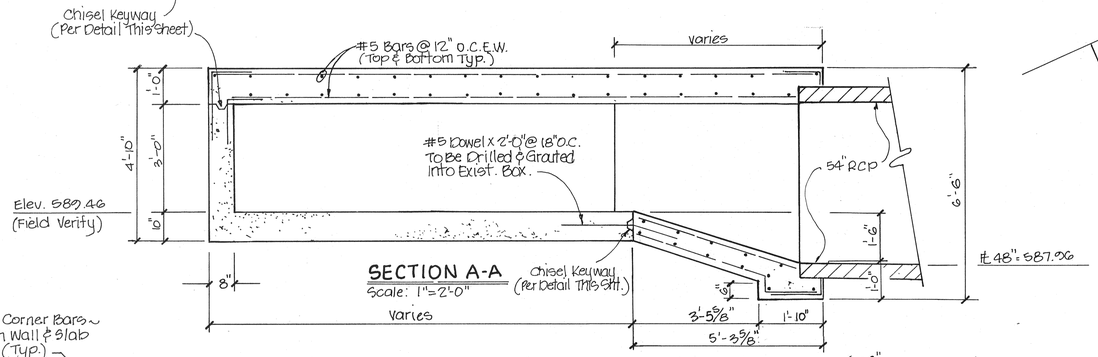
PLAN
Scale: 1"=2'-0"



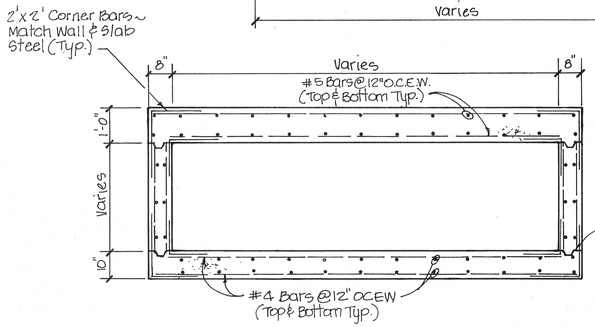
TYPICAL KEYWAY DETAIL
Scale: 1"=1'-0"

GENERAL NOTES

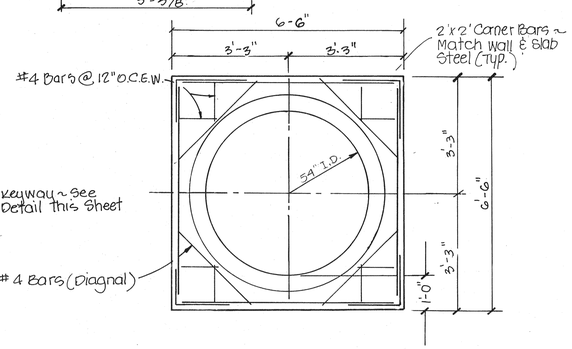
1. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF f'c = 3000 PSI AT 28 DAYS.
2. REINFORCING STEEL Fy = 40 KSI.
3. BAR LAPS SHALL BE 30" DIAMETERS.
4. EXPOSED EDGES AND CORNERS TO BE CHAMFERED 3/4".



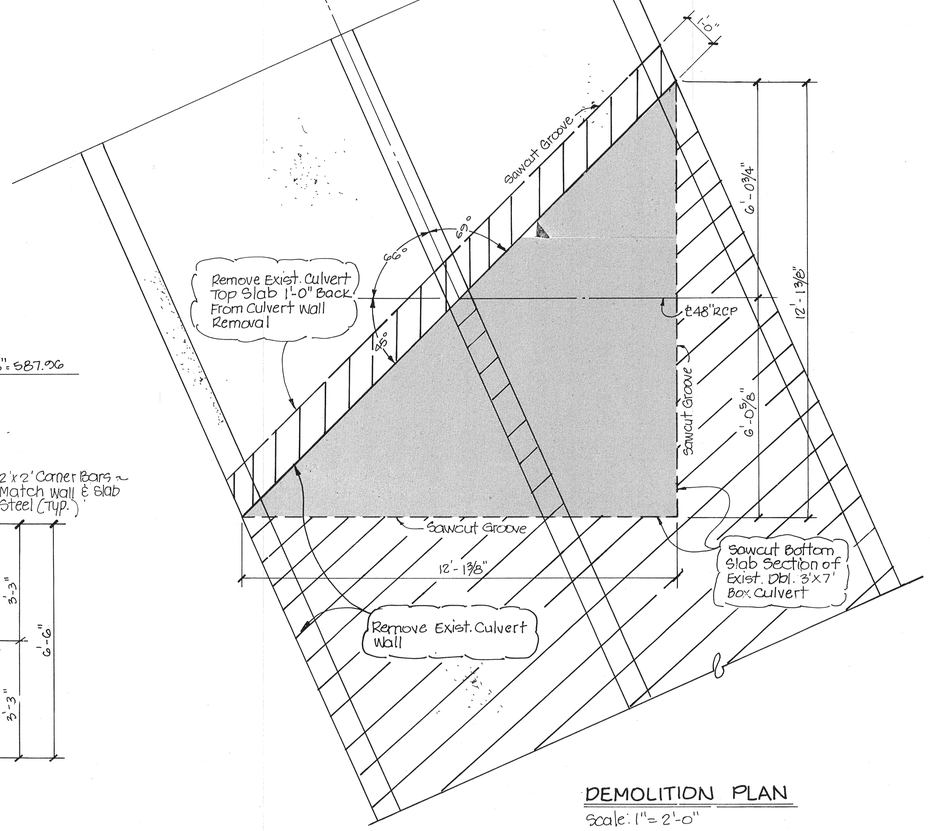
SECTION A-A
Scale: 1"=2'-0"



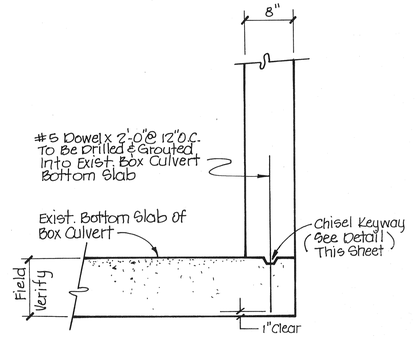
SECTION B-B
Scale: 1"=2'-0"



SECTION C-C
NTS



DEMOLITION PLAN
Scale: 1"=2'-0"



SECTION D-D
Scale: 1"=1'-0"

Concrete Slab To Remain
Concrete Removal

AS-BUILTS

I CERTIFY THIS PROJECT WAS CONSTRUCTED IN GENERAL CONFORMANCE WITH THESE CONSTRUCTION PLANS AND WILL FUNCTION AS DESIGNED.

54" RCP JUNCTION BOX DETAILS						
Les Lacs Avenue & Proton Avenue Profiles						
ADDISON TOWN CENTER SUBDIVISION						
TOWN OF ADDISON, TEXAS						
LAWRENCE A. CATES & ASSOC. CONSULTING ENGINEERS DALLAS, TEXAS						
DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
LAC	LAC		NOTED			C-6

92056

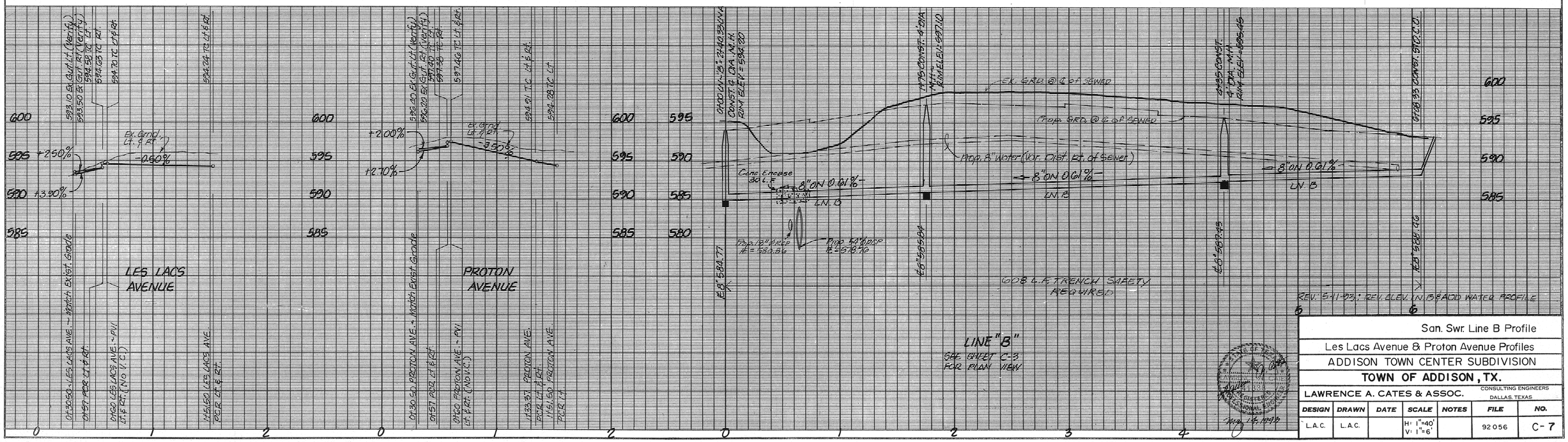
AS-BUILTS

I CERTIFY THIS PROJECT WAS CONSTRUCTED IN GENERAL CONFORMANCE WITH THESE CONSTRUCTION PLANS AND WILL FUNCTION AS DESIGNED.

BENCHMARK:

"□ " CUT ON STORM SEWER INLET ON SOUTH SIDE OF BELT LINE ROAD 70'± WEST OF COMMERCIAL DRIVE.

ELEV. 580.56'



San. Swr. Line B Profile	
Les Lacs Avenue & Proton Avenue Profiles	
ADDISON TOWN CENTER SUBDIVISION	
TOWN OF ADDISON, TX.	
LAWRENCE A. CATES & ASSOC.	CONSULTING ENGINEERS DALLAS, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
L.A.C.	L.A.C.		H: 1"=40' V: 1"=6'		92056	C-7


NOTE: CONTRACTOR SHALL PROVIDE FOR BARRIER FREE RAMP (▼)
Moved Inlet Location 10' East After Verifying Location of Ex. 18" RCP
Const. 90 L.F. of 5' Conc. Sidewalk (Ref. Sht. SD-10)
CONST. 1-STD 8' CURB INLET TOP=592.07 FL=588.07
0+00.00 PARK PLACE = 1+85.00 LES LACS AVE. P.C. DANA LN.
2+64.14 ℄ PARK PLACE CONST. 1-STD. 8' CURB INLET TOP=593.57 FL 589.57
2+81.73 ℄ PARK PLACE CONST 1-STD. 8' CURB INLET TOP=593.45 FL=589.45
℄ CURVE DATA Δ= 88° 57' 01" R= 615.00' L= 954.77'
INSIDE FACE OF 6' HIGH MASONRY SCREENING WALL ON ℄ (REF. SHT. SD-8)
9+54.77 PARK PLACE= 1+85.00 PROTON AVE
CONST. 1-STD 5' CURB INLET TOP=593.48 FL=589.48
Const. 150 L.F. 5' Conc. Sidewalk (Ref. Sht. SD-10)
9+18.69 ℄ PARK PLACE CONST. STD. 5' CURB INLET TOP=593.93 FL=589.93
CONST. 250 L.F. 5' CONC. SIDEWALK (REF. SHT. SD-10)
CONST. 1,145 L.F. 5' CONC. SIDEWALK (REF. SHT. SD-10)
INSIDE FACE OF 6' HIGH MASONRY SCREENING ON ℄ (REF. SHT. SD-8)
Full Depth Sawcut & Remove 67 L.F. Ex. Conc. Curb & Gutter Match Ex. Grades
Full Depth Sawcut & Remove Ex. Conc. Curb & Gutter Match Ex. Grades
0+00 LES LACS AVE. @ ℄ INTERSECT W/ BELTWAY DR.
0+00 PROTON AVE. @ ℄ INTERSECT W/ BELTWAY DR.
20' GREENBELT DEDICATION
80' R.O.W.
PARK PLACE
BELTWAY DRIVE
LES LACS AVE.
PROTON AVE.
BLOCK A
BLOCK B
BLOCK C
Δ = BARRIER FREE RAMP (REF. SHT. SD-2)
BENCHMARK: "□" CUT ON STORM SEWER INLET ON SOUTH SIDE OF BELT LINE ROAD 70'± WEST OF COMMERCIAL DRIVE. ELEV. 580.56'
NOTE: SEE SHT. GN-12 FOR PAVING GENERAL NOTES
NOTE: Sidewalk Shall Meander In Conformance W/ Master Park Plan
AS-BUILTS
I CERTIFY THIS PROJECT WAS CONSTRUCTED IN GENERAL CONFORMANCE WITH THESE CONSTRUCTION PLANS AND WILL FUNCTION AS DESIGNED.
EX. GROUND RT.
EX. GROUND LT.
PROP. T.C. LT. & RT.
Prop. 54" RCP
100' V.C.
75' V.C. LT.
75' V.C. RT.
200' V.C.
10.50%
-0.80%
+2.09% LT.
+2.09%
1.48% RT.
-0.30%
600
595
590
Rev. 10/29/93 Per As-Built Notes
Rev. 06-10-93 Per City Comments
PAVING PLAN & PROFILE
PARK PLACE
ADDISON TOWN CENTER SUBDIVISION
TOWN OF ADDISON, TX.
LAWRENCE A. CATES & ASSOC. CONSULTING ENGINEERS DALLAS, TEXAS
DESIGN L.A.C.
DRAWN L.A.C.
DATE 4/1/93
SCALE H: 1"=40' V: 1"=6'
FILE 92056
NO. C-8

GENERAL NOTES – WATER

1. ALL WORK AND MATERIAL SHALL BE IN ACCORDANCE WITH THE TOWN OF ADDISON STANDARD SPECIFICATIONS AND GENERAL DESIGN STANDARDS.
2. ALL 8" PIPE SHALL BE INSTALLED WITH MINIMUM 42" COVER OVER TOP OF PIPE, AND 10" OR LARGER PIPE WITH 48" COVER OVER TOP OF PIPE.
3. ALL CONNECTIONS TO EXISTING SYSTEMS SHALL BE MADE UNDER PRESSURE UNLESS DRY CONNECTION WILL NOT CAUSE ANYONE TO BE WITHOUT WATER.
4. ALL PIPE 6" IN DIAMETER AND LARGER USED IN DISTRIBUTION SYSTEM SHALL BE RATED FOR A MINIMUM OF 150 PSI, SHALL DISPLAY THE APPROPRIATE AWWA SPECIFICATION STAMP, SHALL DISPLAY THE NATIONAL SANITATION FOUNDATION (NSF) STAMP, SHALL CONFORM TO THE TEXAS STATE BOARD OF FIRE INSURANCE REQUIREMENTS, AND SHALL BE PVC AS APPROVED.
5. PVC PIPE SHALL MEET THE REQUIREMENTS OF AWWA C–900 "STANDARD FOR PVC PRESSURE PIPE" PRESSURE CLASSES OF 150 PSI MINIMUM. PIPE SHALL BE FURNISHED IN 20 FOOT LAYING LENGTHS. THE EMBEDMENT FOR PVC PIPE SHALL BE A CLASS 4 EMBEDMENT. THE EMBEDMENT CONSISTS OF A CRADLE OF SAND A MINIMUM OF 6" BELOW THE PIPE AND THEN BROUGHT UP TO A POINT 12" ABOVE THE PIPE.
6. THE COMPLETED LINE SHALL BE STERILIZED BEFORE BEING APPROVED FOR SERVICE. TEXAS STATE DEPARTMENT OF HEALTH APPROVED BACTERIOLOGICAL TESTS SHALL BE RECEIVED PRIOR TO ACCEPTANCE OF THE LINE OR PLACING LINE IN OPERATION. SAMPLES SHALL BE TAKEN IN THE PRESENCE OF THE DIRECTOR OF UTILITIES OF HIS DESIGNEE.
7. THE CONTRACTOR SHALL FURNISH AND/OR INSTALL ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY FOR TESTING (NO PAY ITEM).
8. FIRE HYDRANTS TO BE TOWN OF ADDISON APPROVED (MUELLER CENTURION MODEL).
9. FIRE HYDRANTS SHALL BE PAINTED AS PER TOWN OF ADDISON STANDARDS AND SPECIFICATIONS AND LOCATED IN A PROTECTED AREA WITH 6" CURB OR BOLLARDS.
10. STEAMER NOZZLES ON FIRE HYDRANTS SHALL BE 18" ABOVE THE TOP OF THE CURB ON FINISHED GRADE, AND SHALL FACE THE CENTER OF THE FIRE LANE OR STREET. FIRE HYDRANTS SHALL USUALLY BE LOCATED FOUR (4) FEET, BUT NOT LESS THAN TWO (2) FEET NOR MORE THAN SIX (6) FEET, BEHIND THE CURB.
11. THE LOCATION OF ALL UTILITIES INDICATED ON THE PLANS ARE TAKEN FROM EXISTING PUBLIC RECORDS. THE EXACT LOCATION AND ELEVATION OF ALL PUBLIC UTILITIES MUST BE DETERMINED BY THE CONTRACTOR. IT SHALL BE THE DUTY OF THE CONTRACTOR TO ASCERTAIN WHETHER ANY ADDITIONAL FACILITIES OTHER THAN THOSE SHOWN ON THE PLAN MAY BE PRESENT.
12. CONTRACTOR SHALL PROTECT ALL PUBLIC UTILITIES IN THE CONSTRUCTION OF THIS PROJECT. ALL MANHOLES, CLEANOUTS, VALVE BOXES, FIRE HYDRANTS, ETC. MUST BE ADJUSTED TO PROPER LINE AND GRADE BY THE UTILITY CONTRACTOR AFTER PLACEMENT OF PAVING.
13. UTILITY CONTRACTOR SHALL BE RESPONSIBLE FOR PAVING OF INLET BLOCKOUTS, VARIABLE HEIGHT CURBS, AND INLET THROATS.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRENCH SAFETY REQUIREMENTS IN ACCORDANCE WITH TOWN STANDARDS, TEXAS STATE LAW, AND OSHA STANDARDS. CONTRACTOR TO PROVIDE TOWN WITH TRENCH SAFETY PLANS.
15. CONTRACTOR SHALL PROVIDE A MINIMUM CLEARANCE OF 12 INCHES BETWEEN WATER AND STORM SEWER INLETS.
16. UTILITY CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING DESIGN ENGINEER WITH ONE SET OF "AS–BUILT" DRAWINGS UPON COMPLETION OF PROJECT. AS–BUILT DRAWINGS SHALL GIVE HORIZONTAL TIES TO ALL FIRE HYDRANTS, SEWER SERVICES AND OTHER KEY SUBTERRANEAN UTILITY IMPROVEMENTS. AS–BUILT DRAWINGS SHALL BE SUBMITTED PRIOR TO ACCEPTANCE OF SUBDIVISION BY THE TOWN OF ADDISON AND BEFORE FINAL PAYMENT IS MADE TO THE CONTRACTOR.
17. GROUND ELEVATIONS SHOULD BE AT OR NEAR PROPOSED SUBGRADE ELEVATIONS IN STREET RIGHTS–OF–WAY PRIOR TO CONSTRUCTION OF ALL UTILITY IMPROVEMENTS. THE UTILITY CONTRACTOR SHALL BE RESPONSIBLE FOR RETURNING ALL GRADES WITHIN 0.2 FEET OF ESTABLISHED GRADES AFTER CONSTRUCTION OF ALL UTILITIES. DESIGN ENGINEER SHALL VERIFY GRADES PRIOR TO MOBILIZATION OF PAVING CONTRACTOR. ANY REVERIFICATION OF GRADES BY THE DESIGN ENGINEER SHALL BE THE UTILITY CONTRACTOR'S EXPENSE AND WILL BE PAID DIRECTLY TO THE DESIGN ENGINEER BY THE UTILITY CONTRACTOR. FAILURE TO MAKE PAYMENT SHALL RESULT IN THE ENGINEER DEDUCTING THE AMOUNT FROM UTILITY CONTRACTOR'S CONTRACT AT AN HOURLY RATE ESTABLISHED BY THE DESIGN ENGINEER.
18. DESIGN ENGINEER TO PROVIDE ONE SET OF CONSTRUCTION STAKES FOR THOSE IMPROVEMENTS. ANY RESTAKING SHALL BE AT THE CONTRACTOR'S EXPENSE AND WILL BE PAID DIRECTLY TO THE ENGINEER BY THE UTILITY CONTRACTOR. FAILURE TO MAKE PAYMENT SHALL RESULT IN THE ENGINEER DEDUCTING THE AMOUNT FROM THE UTILITY CONTRACTOR'S CONTRACT AT AN HOURLY RATE ESTABLISHED BY THE DESIGN ENGINEER.
19. BEDDING AND BACKFILL SHALL BE CONSIDERED ON SUBSIDIARY TO THE PAY ITEM FOR PIPE AND SHALL NOT BE PAID FOR DIRECTLY.
20. ALL BARRICADES, WARNING SIGNS, LIGHTS, DEVICES, ETC. FOR THE GUIDANCE AND PROTECTION OF TRAFFIC AND PEDESTRIANS MUST CONFORM TO THE INSTALLATION SHOWING THE 1980 TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AS CURRENTLY AMENDED, TEXAS STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION AND SHALL BE INCIDENTAL TO THE COST OF CONSTRUCTION (NO PAY ITEM).
21. UNDER NO CIRCUMSTANCES SHALL THE UTILITY CONTRACTOR PLACE UTILITY TRENCH SPOIL WITHIN THE 100 YEAR FLOODPLAIN OR DESIGNED DRAINAGE EASEMENT AS SHOWN ON THE FINAL PLAT FOR THIS ADDITION.
22. UTILITY CONTRACTOR SHALL BE RESPONSIBLE FOR CLOSING ALL OPEN TRENCHES AT THE END OF EACH WORKING DAY.
23. WHEN INSTALLING WATER MAINS AT SANITARY SEWER CROSSINGS, NO JOINT OF WATER MAIN SHALL BE LOCATED WITHIN NINE (9) FEET OR THE SEWER CROSSING.

GENERAL NOTES – SANITARY SEWER

1. ALL WORK AND MATERIAL SHALL BE IN ACCORDANCE WITH THE TOWN OF ADDISON STANDARD SPECIFICATIONS AND GENERAL DESIGN STANDARDS.
2. ALL SANITARY SEWER PIPE UTILIZED SHALL BE PVC PIPE TYPE SDR–35.
3. SEWER LATERALS SHALL BE EXTENDED TO RIGHT–OF–WAY LINES AND SHALL EXTEND ABOVE THE GROUND PER DETAILS.
4. PIPE AND FITTINGS SHALL BE EXTRA STRENGTH PIPE CONFORMING TO ASTM C700.
5. MANHOLES SHALL BE CONSTRUCTED OF CAST–IN–PLACE 3000 PSI CONCRETE AND SHALL BE 4' INSIDE DIAMETER.
6. CONSTRUCTION WILL BEING AT DOWNSTREAM END OF PROJECT AN CONTINUE UPSTREAM WITH BELLS FACING UPSTREAM. CONSTRUCTION OF BRANCH MAIN WILL NOT BEGIN BEFORE MAIN IS CONSTRUCTED TO BRANCH POINT. NOT MORE THAN 300 FEET OF TRENCH SHALL BE OPENED IN ADVANCE OF PIPE INSTALLATION.
7. THE ENTIRE SEWER SYSTEM SHALL BE FLUSHED AS DIRECTED BY THE DIRECTOR OF UTILITIES.
8. THE CONTRACTOR SHALL FURNISH ADEQUATE PERSONNEL AND EQUIPMENT REQUIRED TO PERFORM TESTS (NO PAY ITEM).
9. UPON COMPLETION OF PVC SANITARY SEWER PIPE INSTALLATION, AND AFTER 30 DAYS, THE CONTRACTOR SHALL PULL A MANDREL THROUGH THE PIPE TO TEST FOR A MAXIMUM OF 5% DEFLECTION (NO PAY ITEM).
10. THE CONTRACTOR WILL BE REQUIRED TO RETAIN A QUALIFIED COMPANY TO PERFORM A VIDEO INSPECTION OF THE SEWER MAINS IN THE SUBDIVISION AT THE CONTRACTOR'S EXPENSE. PRIOR TO VIDEO INSPECTION SEWER MAINS WILL BE COMPLETELY FLUSHED. THE TOWN WILL MAKE THE FINAL DETERMINATION IF REPAIRS ARE REQUIRED AND THAT DECISION WILL BE FINAL. THE FINAL SET OF TAPES AND LOGS WILL BE GIVEN TO THE INSPECTOR OF THE CONSTRUCTION (NO PAY ITEM).
11. THE LOCATION OF ALL UTILITIES INDICATED ON THE PLANS ARE TAKEN FROM EXISTING PUBLIC RECORDS. THE EXACT LOCATION AD ELEVATION OF ALL PUBLIC UTILITIES MUST BE DETERMINED BY THE CONTRACTOR. IT SHALL BE THE DUTY OF THE CONTRACTOR TO ASCERTAIN WHETHER ANY ADDITIONAL FACILITIES OTHER THAN THOSE SHOWN ON THE PLAN MAY BE PRESENT.
12. CONTRACTOR SHALL PROTECT ALL PUBLIC UTILITIES IN THE CONSTRUCTION OF THIS PROJECT. ALL MANHOLES, CLEANOUTS, VALVE BOXES, FIRE HYDRANTS, ETC. MUST BE ADJUSTED TO PROPER LINE AND GRADE BY THE UTILITY CONTRACTOR AFTER PLACEMENT OF PAVING.
13. UTILITY CONTRACTOR SHALL BE RESPONSIBLE FOR PAVING OF INLET BLOCKOUTS, VARIABLE HEIGHT CURBS, AND INLET THROATS.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRENCH SAFETY REQUIREMENTS IN ACCORDANCE WITH TOWN STANDARDS, TEXAS STATE LAW, AND OSHA STANDARDS. CONTRACTOR TO PROVIDE TOWN AND ENGINEER WITH TRENCH SAFETY PLANS PRIOR TO MOBILIZATION.
15. UTILITY CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING DESIGN ENGINEER WITH ONE SET OF "AS–BUILT" DRAWINGS UPON COMPLETION OF PROJECT. AS–BUILT DRAWINGS SHALL GIVE HORIZONTAL TIES TO ALL FIRE HYDRANTS, SEWER SERVICES AN OTHER KEY SUBTERRANEAN UTILITY IMPROVEMENTS. AS–BUILT DRAWINGS SHALL BE SUBMITTED PRIOR TO ACCEPTANCE OF SUBDIVISION BY THE TOWN OF ADDISON AND BEFORE FINAL PAYMENT IS MADE TO THE CONTRACTOR.
16. GROUND ELEVATIONS SHOULD BE AT OR NEAR PROPOSED SUBGRADE ELEVATIONS IN STREET RIGHTS–OF–WAY PRIOR TO CONSTRUCTION OF ALL UTILITY IMPROVEMENTS. THE UTILITY CONTRACTOR SHALL BE RESPONSIBLE FOR RETURNING ALL GRADES WITHIN 0.2 FEET OF ESTABLISHED GRADES AFTER CONSTRUCTION OF ALL UTILITIES. DESIGN ENGINEER SHALL VERIFY GRADES PRIOR TO MOBILIZATION OF PAVING CONTRACTOR. ANY REVERIFICATION OF GRADES BY THE DESIGN ENGINEER SHALL BE AT THE UTILITY CONTRACTOR'S EXPENSE AND WILL BE PAID DIRECTLY TO THE DESIGN ENGINEER BY THE UTILITY CONTRACTOR. FAILURE TO MAKE PAYMENT SHALL RESULT IN THE ENGINEER DEDUCTING THE AMOUNT FROM UTILITY CONTRACTOR'S CONTRACT AT AN HOURLY RATE ESTABLISHED BY THE DESIGN ENGINEER.
17. DESIGN ENGINEER TO PROVIDE ONE SET OF CONSTRUCTION STAKES FOR THOSE IMPROVEMENTS. ANY RESTAKING SHALL BE AT THE CONTRACTOR'S EXPENSE AND WILL BE PAID DIRECTLY TO THE ENGINEER BY THE UTILITY CONTRACTOR. FAILURE TO MAKE PAYMENT SHALL RESULT IN THE ENGINEER DEDUCTING THE AMOUNT FROM THE UTILITY CONTRACTOR'S CONTRACT AT AN HOURLY RATE ESTABLISHED BY THE DESIGN ENGINEER.
18. BEDDING AND BACKFILL SHALL BE CONSIDERED ON SUBSIDIARY TO THE PAY ITEM FOR PIPE AND SHALL NOT BE PAID FOR DIRECTLY.
19. ALL BARRICADES, WARNING SIGNS, LIGHTS, DEVICES, ETC. FOR THE GUIDANCE AND PROTECTION OF TRAFFIC AND PEDESTRIANS MUST CONFORM TO THE INSTALLATION SHOWING THE 1980 TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AS CURRENTLY AMENDED, TEXAS STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION AND SHALL BE INCIDENTAL TO THE COST OF CONSTRUCTION (NO PAY ITEM).
20. UTILITY CONTRACTOR SHALL BE RESPONSIBLE FOR CLOSING ALL OPEN TRENCHES AT THE END OF EACH WORKING DAY.
21. WHEN INSTALLING WATER MAINS AT SANITARY SEWER CROSSINGS, NO JOINT OF WATER MAIN SHALL BE LOCATED WITHIN NINE (9) FEET OF THE SANITARY CROSSING.

GENERAL NOTES – DRAINAGE

1. ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TOWN OF ADDISON STANDARD SPECIFICATIONS AND GENERAL DESIGN STANDARDS.
2. ALL STORM SEWER PIPE SHALL BE CLASS III RCP, ASTM C76.
3. ALL DITCHES SHALL BE TAMPED AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.
4. SEE WATER AND SANITARY SEWER PLAN AND PAVING PLAN/PROFILE FOR ADDITIONAL INFORMATION RELATED TO PAVING, DRAINAGE AND OTHER UTILITY CONSTRUCTION.
5. THE LOCATION OF EXISTING UTILITIES INDICATED ON THESE PLANS ARE TAKEN FROM PUBLIC RECORDS. THE EXACT LOCATION AND ELEVATION OF ALL PUBLIC UTILITIES SHALL BE DETERMINED BY THE CONTRACTOR TO ASCERTAIN WHETHER ANY ADDITIONAL FACILITIES OTHER THAN THOSE SHOWN IN THESE PLANS MAY BE PRESENT.
6. ALL CONCRETE USED IN THE CONSTRUCTION OF STORM SEWER MANHOLES, INLETS, ETC. SHALL HAVE A MINIMUM OF 3,600 PSI AT 28 DAYS. (5.5 SACK MIX)
7. NO UTILITY TRENCHES SHALL BE LEFT OPEN OVER NIGHT DURING THE CONSTRUCTION OF ALL UNDERGROUND DRAINAGE FACILITIES.
8. ALL BARRICADES, WARNING SIGNS, LIGHTS, ETC. FOR THE GUIDANCE AND PROTECTION OF TRAFFIC AND PEDESTRIANS MUST CONFORM TO THE INSTALLATION SHOWN IN THE 1980 TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AS CURRENTLY AMENDED, TEXAS STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION, AND SHALL BE INCIDENTAL TO THE COST OF CONSTRUCTION (NO PAY ITEM).
9. ALL CAST IRON CASTINGS SHALL CONFORM TO ASTM A 48, CLASS 30, GRAY CAST IRON.
10. CONSTRUCTION SHALL BEGIN AT DOWNSTREAM END OF PROJECT AND CONTINUE UPSTREAM WITH PIPE GROOVES FACING UPSTREAM. PIPE SHALL BE LAID ON UNDISTURBED SOIL OR GRANULAR MATERIAL UNLESS OTHERWISE SPECIFIED ON APPROVED CONSTRUCTION DRAWINGS. NO MORE THAN 1/2 OF THE TONGUE LENGTH SHALL BE EXPOSED BEFORE JOINT MATERIAL IS APPLIED.
11. UTILITY CONTRACTOR SHALL BE RESPONSIBLE FOR PAVING OF INLET BLOCKOUTS, VARIABLE HEIGHT CURBS, AND INLET THROATS. (NO PAY ITEM).
12. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRENCH SAFETY REQUIREMENTS IN ACCORDANCE WITH TOWN STANDARDS, TEXAS STATE LAW AND OSHA STANDARDS. CONTRACTOR TO PROVIDE TOWN WITH TRENCH SAFETY PLANS.
13. CONTRACTOR SHALL PROVIDE A MINIMUM CLEARANCE OF 12 INCHES BETWEEN WATER AND STORM SEWER INLETS.
14. UTILITY CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING DESIGN ENGINEER WITH ONE SET OF "AS–BUILT" DRAWINGS UPON COMPLETION OF PROJECT. AS–BUILT DRAWINGS SHALL GIVE HORIZONTAL TIES TO ALL FIRE HYDRANTS, SEWER SERVICES AND OTHER KEY SUBTERRANEAN UTILITY IMPROVEMENTS. AS–BUILT DRAWINGS SHALL BE SUBMITTED PRIOR TO ACCEPTANCE OF SUBDIVISION BY THE TOWN OF ADDISON AND BEFORE FINAL PAYMENT IS MADE TO THE CONTRACTOR.
15. GROUND ELEVATIONS SHOULD BE AT OR NEAR PROPOSED SUBGRADE ELEVATIONS IN STREET RIGHTS–OF–WAY PRIOR TO CONSTRUCTION OF ALL UTILITY IMPROVEMENTS. THE UTILITY CONTRACTOR SHALL BE RESPONSIBLE FOR RETURNING ALL GRADES WITHIN 0.2 FEET OF ESTABLISHED GRADES AFTER CONSTRUCTION OF ALL UTILITIES. DESIGN ENGINEER SHALL VERIFY GRADES PRIOR TO MOBILIZATION OF PAVING CONTRACTOR. ANY REVERIFICATION OF GRADES BY THE DESIGN ENGINEER SHALL BE AT THE UTILITY CONTRACTORS EXPENSE AND WILL BE PAID DIRECTLY TO THE DESIGN ENGINEER BY THE UTILITY CONTRACTOR. FAILURE TO MAKE PAYMENT SHALL RESULT IN THE DESIGN ENGINEER DEDUCTING THE AMOUNT FROM UTILITY CONTRACTOR'S CONTRACT AT AN HOURLY RATE ESTABLISHED BY THE DESIGN ENGINEER.
16. DESIGN ENGINEER TO PROVIDE ONE SET OF CONSTRUCTION STAKES FOR THESE IMPROVEMENTS. ANY RESTAKING SHALL BE AT THE CONTRACTOR'S EXPENSE AND WILL BE PAID DIRECTLY TO THE ENGINEER BY THE UTILITY CONTRACTOR. FAILURE TO MAKE PAYMENT SHALL RESULT IN THE ENGINEER DEDUCTING THE AMOUNT FROM THE UTILITY CONTRACTOR'S CONTRACT AT AN HOURLY RATE ESTABLISHED BY THE DESIGN ENGINEER.
17. BEDDING AND BACKFILL SHALL BE CONSIDERED ON SUBSIDIARY TO THE PAY ITEM FOR PIPE AND SHALL NOT BE PAID FOR DIRECTLY.

GENERAL NOTES – PAVING

1. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE "STANDARD SPECIFICATIONS FOR PUBIC WORKS CONSTRUCTION" PUBLISHED BY THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS – LATEST EDITION AND THE LATEST TOWN OF ADDISON CONSTRUCTION STANDARDS AND SPECIFICATIONS FOR ROADS, STREETS, STRUCTURES AND UTILITIES. ALL TESTING WILL BE PERFORMED BY A CERTIFIED TECHNICIAN IN THE PRESENCE OF A TOWN INSPECTOR.
2. RESIDENTIAL STREETS SHALL BE CONSTRUCTED OF REINFORCED CONCRETE HAVING A MINIMUM THICKNESS OF SIX INCHES WITH MONOLITHIC CURB AND GUTTERS. THE MINIMUM WIDTH OF RESIDENTIAL STREETS SHALL BE 27 FEET MEASURED FROM BACK OF CURBS.
3. WHEN REQUESTED, THE PAVING CONTRACTOR SHALL PROVIDE THE TOWN ENGINEER WITH A CONCRETE MIX DESIGN, PREPARED BY AN APPROVED INDEPENDENT TESTING LABORATORY.
4. STEEL REINFORCING BARS SHALL BE NEW BILLET STEEL GRADE 60 OR GRADE 40, CONFORMING TO ASTM A615. BARS THAT REQUIRE BENDING SHALL BE GRADE 40. ALL REINFORCING BARS SHALL BE THE DEFORMED TYPE.
5. CONCRETE SHALL NOT BE POURED WHEN THE TEMPERATURE IS BELOW 40 DEGREES F. AND FALLING. CONCRETE MAY BE POURED WHEN THE TEMPERATURE IS ABOVE 35 DEGREES F. AND RISING. SALT OR OTHER CHEMICAL ADDITIVES SHALL NOT BE ADDED TO CONCRETE TO PREVENT FREEZING. THE PAVING CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ANY CONCRETE THAT FREEZES DURING CURING.
6. IMMEDIATELY UPON UNINTENDED STOPPAGE OF POURING OPERATION, A STANDARD BULKHEAD SHALL BE INSTALLED AT RIGHT ANGLES TO THE CENTERLINE OF PAVEMENT.
7. JOINT SEALING MATERIAL SHALL BE PLACED IN SAWED AND OTHER JOINTS AS REQUIRED.
8. PAVEMENT SHALL BE FINISHED WIT A BELT FINISH OR AS DIRECTED BY THE TOWN ENGINEER. AFTER FINISHING IS COMPLETE AND THE CONCRETE IS STILL WORKABLE, THE GUTTER SURFACE SHALL BE TESTED FOR TRUENESS WITH AN APPROVED 10 FOOT STEEL STRAIGHT EDGE BY THE CONTRACTOR. THE MAXIMUM ORDINATE MEASUREMENT SHALL BE 1/16 INCH.
9. CURBS SHALL BE BACKFILLED FORM 3 TO 7 DAYS AFTER POURING CONCRETE OR AS DIRECTED BY THE TOWN ENGINEER.
10. ALL SUB–GRADE IS TO BE COMPACTED TO A MINIMUM F 95% OF STANDARD PROCTOR AT +/–2% OF OPTIMUM MOISTURE AND LIME STABILIZED ACCORDING TO THE FOLLOWING TABLE:

PLASTICITY INDEX	% LIME REQUIRED
+25	6
21 – 25	5
15 – 20	4
14 OR LESS	0

11. TESTING OF MATERIALS REQUIRED FOR THE CONSTRUCTION OF THE SPECIFIED STREET IMPROVEMENTS SHALL BE PERFORMED BY AN APPROVED AGENCY FOR TESTING MATERIALS IN THE PRESENCE OF A TOWN INSPECTOR. THE NOMINATION OF THE TESTING LABORATORY AND THE PAYMENT OF SUCH TESTING SERVICES SHALL BE MADE BY THE CONTRACTOR. THE ENGINEER SHALL APPROVE THE LABORATORY NOMINATED TO DO THE TESTING OF MATERIALS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SHOW BY STANDARD TESTING PROCEDURES THAT THE WORK CONSTRUCTED DOES MEET THE REQUIREMENTS OF THE SPECIFICATIONS.
12. THE CONTRACTOR SHALL FURNISH A MAINTENANCE BOND TO THE TOWN TO RUN ONE (1) YEAR FROM THE DATE OF ACCEPTANCE OF IMPROVEMENTS BY THE TOWN.
13. ALL DIMENSIONS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED.
14. THE CONCRETE SHALL BE A MINIMUM OF 5.5 SACK CEMENT WITH COMPRESSIVE STRENGTH OF 3600 PSI AT 28 DAYS. SLUMP SHALL BE A 3" +/–1/2" WITH MECHANICAL FINISHING, OR 4" +/_1/2" IF BY HAND FINISHING. AIR CONTENT SHALL BE 5% +/–1%. WEIGHT/C.F. WITH A YIELD OF 27.0 +/–0.2. CONCRETE MAXIMUM TEMPERATURE OF 99 . ALL TESTING WILL BE PERFORMED BY A CERTIFIED TECHNICIAN IN THE PRESENCE OF A TOWN INSPECTOR. THE FOLLOWING TESTS ARE TO BE PERFORMED FOR EACH 100 YARDS OF CONCRETE OR PORTION THEREOF, PLACED ON ANY GIVEN DAY:
    1. STRENGTH TEST, MOLD THREE (3) BEAMS TO BE TESTED AT 7 DAY, 14 DAY AND 28 DAY.
    2. SLUMP
    3. AIR CONTENT
    4. WEIGHT AND YIELD
    5. TEMPERATURE

    EXPANSION JOINT: NO MORE THAN 400' APART. PLACED AT THE BEGINNING AND END OF EACH DAY'S RUN OR AT COLD JOINT AND AT THE CURB RETURNS.
    DOWEL: FOR 6" PAVEMENT 3/4" DOWEL. FOR 8" PAVEMENT 1" DOWEL.
    REINFORCEMENT: #3 BARS @ 24" OC BOTH WAYS WITH A MINIMUM OF 75% TIED.
15. A CONSTRUCTION JOINT SHALL BE USED IN ALL BLOCK OUTS OR LANE PAVEMENT. THE RE–BARS SHALL EXTEND PAST THE EDGE OF THE PAVEMENT 18".
16. BARRIER–FREE CURBS SHALL BE CONSTRUCTED AT ALL STREET INTERSECTIONS. SEE SHEET SD–10.
17. CHAIRS APPROVED BY THE ENGINEER SHALL BE USED TO SUPPORT REINFORCING STEEL AND SHALL BE PLACED AT THE INTERSECTION OF LONGITUDAL AND TRANSVERSE BARS AT 4'–0" SPACING.
18. PAVEMENT LAYOUT WILL NECESSITATE THAT ALL CONSTRUCTION AND WARPING JOINTS COINCIDE WITH LANE LINES. THRU–LANE CONSTRUCTION WILL BE CONTINUOUS WITH ALL LEFT TURN LANES AND TRANSITIONS TO BE POURED AS FILL–INS SUBJECT TO APPROVAL BY THE ENGINEER.

GENERAL NOTES – LOT GRADING

1. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH PROVISIONS OUTLINED IN F.H.A. DATA SHEET 79G AND SPECIFICATIONS PREPARED BY REED ENGINEERING GROUP, REED PROJECT NO. 1357, DATED FEBRUARY, 1993.
2. ALL SELECT FILL SHOULD CONTAIN NO DELETERIOUS MATERIAL AND SHOULD BE COMPACTED TO A DRY DENSITY OF AT LEAST 95 PERCENT STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D 698) AT OR WITHIN THREE PERCENTAGE POINTS OF THE MATERIAL'S OPTIMUM MOISTURE CONTENT.
3. ALL CLAY SOILS USED AS FILL SHOULD BE COMPACTED TO A DRY DENSITY OF AT LEAST 93 PERCENT OF STANDARD PROCTOR AND NOT EXCEEDING 98 PERCENT. THE COMPACTED MOISTURE CONTENT OF THE CLAYS DURING PLACEMENT SHOULD BE A LEAST OPTIMUM AND NOT EXCEEDING 4 PERCENTAGE POINTS ABOVE OPTIMUM.
4. LIMESTONE OR OTHER ROCK–LIKE MATERIALS USED AS FILL SHOULD BE COMPACTED TO AT LEAST 95 PERCENT OF STANDARD PROCTOR MAXIMUM DRY DENSITY. NO INDIVIDUAL ROCK PIECES LARGER THAN ABOUT 6 INCHES IN DIAMETER SHOULD BE USED IN FILL. ADDITIONALLY, NO ROCK FILL SHOULD BE USED WITHIN 1 FOOT BELOW THE BOTTOM OF FLOOR SLABS.
5. COMPACTION SHOULD BE ACCOMPLISHED BY PLACING THE FILL IN ABOUT 6 INCH TO 8 INCH THICK LOOSE LIFTS AND COMPACTING EACH LIFT TO AT LEAST THE SPECIFIED MINIMUM DRY DENSITY. FIELD DENSITY TESTS SHOULD BE PERFORMED ON EACH LIFT AS NECESSARY TO EVALUATE FOR ADEQUATE COMPACTION.
6. THE UPPER ONE (1) FOOT IN BUILDING PAD AREAS WHICH CONTAIN FILL SOILS SHALL BE REMOVED AND THE EXPOSED SURFACE SCARIFIED TO A DEPTH OF AT LEAST SIX (6) INCHES AND RECOMPACTED TO AT LEAST 93 PERCENT STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D 698) AND NOT MORE THAN 98 PERCENT AT OR ABOVE OPTIMUM. THE EXPOSED SURFACE SHALL BE PROOFROLLED WITH HEAVY EQUIPMENT AND FURTHER TESTED B PROBING AS NECESSARY. AFTER RECOMPACTION, PROOFROLLING AND TESTING THE EXPOSED SURFACE, ANY WEEK OR HIGHLY ORGANIC SOILS NOTED SHALL BE REMOVED. UPON COMPLETION OF THE ABOVE PROOFROLLING AND TESTING, THE SOILS PREVIOUSLY REMOVED COULD BE REPLACED PROVIDED THEY ARE FREE OF NY DELETERIOUS MATERIALS AND COMPACTED TO AT LEAST 98 PERCENT STANDARD PROCTOR AT OR ABOVE OPTIMUM.
7. ALL EXISTING FILL AREAS SHOULD BE PROOFROLLED WITH HEAVY EQUIPMENT. ANY UNSUITABLE MATERIALS THUS EXPOSED SHOULD BE REMOVED AND REPLACED WITH WELL–COMPACTED MATERIALS DESCRIBED IN NOTES NUMBERED 2–5.
8. FRONT YARDS TO BE "DISHED OUT" FOR UTILITY SPOIL.
9. ALL BOULDERS ENCOUNTERED DURING HE EXCAVATION PHASE OF THIS PROJECT, IF ANY, SHALL BE REMOVED AND PLACED TO ANY AREA DESIGNATED BY THE OWNER, DESIGN ENGINEER OR ITS REPRESENTATIVE. BOULDERS WILL NOT BE PLACED IN TOWN OF ADDISON.
10. THE EXCAVATION WITHIN STREET RIGHTS–OF–WAY SHALL BE CUT/FILLED TO PLUS OR MINUS 0.1 FEET OF DESIGN GRADE.
11. DESIGN ENGINEER SHALL PROVIDE ONE SET OF GRADE STAKES. ANY RESTAKING SHALL BE AT THE CONTRACTOR'S EXPENSE.
12. AFTER THE PAVING PHASE HAS BEEN COMPLETED, THE EXCAVATION CONTRACTOR SHALL MOVE BACK ONSITE AND "FINAL BENCH" ALL LOTS OR THOSE LOTS IDENTIFIED BY THE OWNER, DESIGN ENGINEER OR ITS REPRESENTATIVE. ALL PADS SHALL BE PLUS OR MINUS 0.25 FEET OF DESIGN GRADE.

GENERAL NOTES

A. PRIOR TO FINAL ACCEPTANCE BY THE TOWN OF ADDISON:
    1. A TEXAS REGISTERED PROFESSIONAL ENGINEER SHALL CERTIFY THAT THE PORTION OF THE PROJECT BEING DEDICATED TO ADDISON WAS CONSTRUCTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS APPROVED BY THE TOWN OF ADDISON.
    2. A FIVE (5) FOOT SIDEWALK SHALL BE INSTALLED ALONG BELTWAY DRIVE AS SHOWN. FIVE (5) FOOT SIDEWALK TO BE RECONSTRUCTED WITH DECEL LANES AS SHOWN ON SHEETS C–15 AND C–16.
    3. A ONE (1) YEAR MAINTENANCE BOND IS REQUIRED FOR THE CITY'S PORTION OF THE INFASTRUCTURE.
    4. CONTRACTOR SHALL DEMONSTRATE THAT THE WATER AND SANITARY SEWER SYSTEMS MEET THE PROPER PRESSURE, BACTERIA AND MANDREL TESTS. IN ADDITION, THE OWNER SHALL PROVIDE A VHS FORMAT VIDEO TAPE OF THE SANITARY SEWER.

B. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL CONTACT THE UTILITY COMPANIES TO LOCATE EXISTING FACILITIES. THESE INCLUDE, BUT MAY NOT BE LIMITED TO, THE FOLLOWING:
    1. TOWN OF ADDISON
    2. LONE STAR GAS
    3. SOUTHWESTERN BELL
    4. STORER CABLE
    5. PLANNED CABLE SYSTEMS
    6. TU ELECTRIC

C. PRIOR TO BEGINNING CONSTRUCTION, THE OWNER OR HIS AUTHORIZED REPRESENTATIVE SHALL CONVENE A PRE–CONSTRUCITON CONFERENCE BETWEEN THE TOWN OF ADDISON, CONSULTING ENGINEER, CONTRACTOR(S), UTILITY COMPANIES AND ANY OTHER AFFECTED PARTIES. NOTIFY BRUCE ELLIS (450–2847) AT LEAST 48 HOURS PRIOR TO THE TIME OF THE CONFERENCE AND 48 HOURS PRIOR TO BEGINNING OF CONSTRUCTION.

D. ANY EXISTING PAVEMENT, CURB(S) AND/OR SIDEWALKS DAMAGED OR REMOVED WILL BE REPAIRED BY THE CONTRACTOR AT THEIR EXPENSE.

E. LOT PINS SHALL BE IN PLACE DURING CONSTRUCTION AND PRIOR TO FINAL ACCEPTANCE. CONCRETE MONUMENTS SHALL BE PLACED ON ALL BOUNDARY CORNERS, BLOCK CORNERS, CURVE POINTS AND ANGLE POINTS IN PUBLIC RIGHT–OF–WAY. CONCRETE MONUMENTS SHALL BE SIX (6) INCHES IN DIAMETER AND TWENTY–FOUR (24) INCHES LONG. A COPPER PIN ONE–FOURTH INCH IN DIAMETER EMBEDDED AT LEAST THREE (3) INCHES IN THE MONUMENT AT THE EXACT INTERSECTION POINT OF THE MONUMENT. THE MONUMENTS SHALL BE SET AT SUCH AN ELEVATION THAT AFTER CONSTRUCTION, THE TOP OF THE MONUMENT WILL NOT BE LESS THAN TWELVE (12) INCHES BELOW THE GROUND SURFACE.

F. THE CONTRACTOR SHALL STAMP A 2–INCH "S" IN THE CURB AT THE LOCATION OF THE SEWER SERVICE LINE.

G. AT INTERSECTIONS THAT HAVE VALLEY DRAINAGE, THE CROWN OF THE INTERSECTION STREETS WILL CULMINATE IN A DISTANCE OF FORTY (40) FEET FROM THE INTERSECTING CURB LINE UNLESS OTHERWISE NOTED.

H. TEMPORARY OR PERMANENT STREET BARRICADES SHALL REMAIN AT ALL POINTS OF INGRESS AND EGRESS TO PREVENT PUBLIC USE UNTIL SUCH STREET RECEIVED FINAL ACCEPTANCE.

I. CONTRACTOR SHALL OBTAIN A RIGHT–OF–WAY PERMIT BY THE TOWN OF ADDISON FOR WORKING WITHIN THE PUBLIC RIGHT–OF–WAY EASEMENTS.

J. DURING CONSTRUCTION, THE OWNER SHALL PROVIDE A QUALIFIED GEOTECHNICAL LAB TO PERFORM MATERIALS TESTING DURING THE CONSTRUCTION, AT THE REQUEST OF THE TOWN OF ADDISON.

K. THE CONTRACTOR SHALL SUBMIT MATERIAL SHEETS TO THE TOWN OF ADDISON FOR APPROVAL PRIOR TO INCORPORATING MATERIALS INTO THE JOB.

LAWRENCE A. CATES
41838

AS-BUILTS

I CERTIFY THIS PROJECT WAS CONSTRUCTED IN GENERAL CONFORMANCE WITH THESE CONSTRUCTION PLANS AND WILL FUNCTION AS DESIGNED.

LAWRENCE A. CATES
41838

May 14, 1993

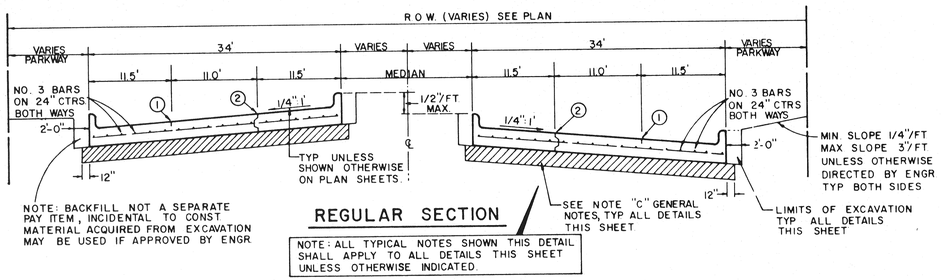
REV. 05–12–93 PER CITY COMMENTS

GENERAL NOTES

ADDISON TOWN CENTER
SUBDIVISION
TOWN OF ADDISON, TEXAS

LAWRENCE A. CATES & ASSOC.
CONSULTING ENGINEERS
DALLAS, TEXAS

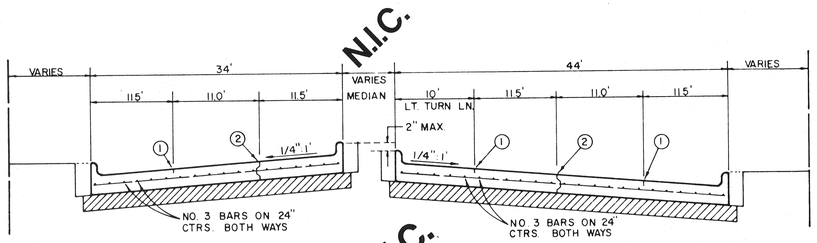
DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
LAC	LAC	5/01/93		D.P.	93056 GENNOTES.DWG	GN-12



REGULAR SECTION

NOTE: ALL TYPICAL NOTES SHOWN THIS DETAIL SHALL APPLY TO ALL DETAILS THIS SHEET UNLESS OTHERWISE INDICATED.

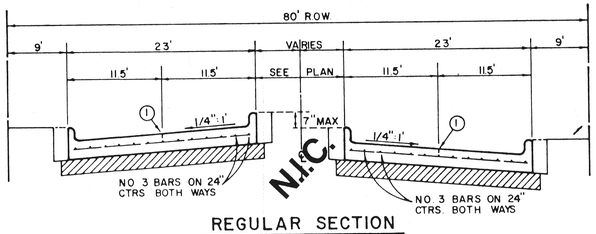
N.I.C.



N.I.C.

LEFT TURN SECTION

MAJOR ARTERIAL



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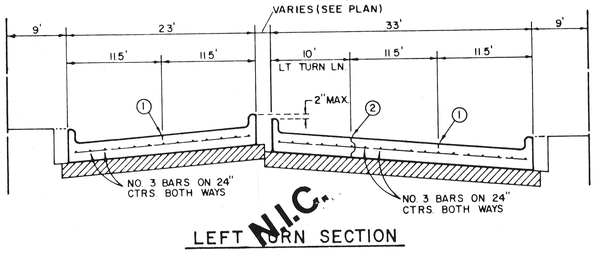
REGULAR SECTION



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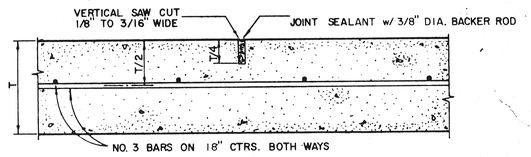
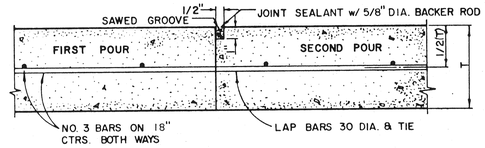
LEFT TURN SECTION

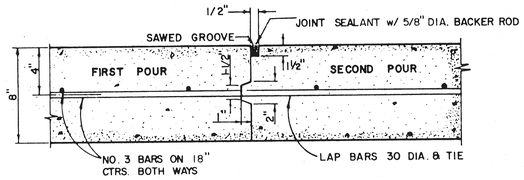
MINOR ARTERIAL



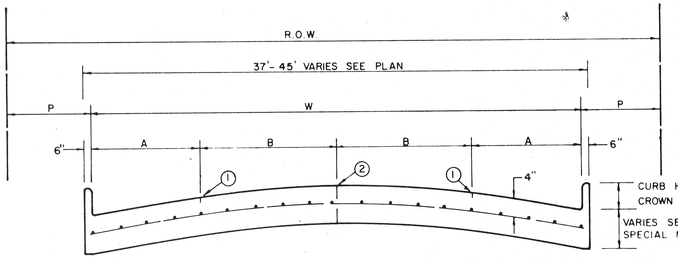
SAWED DUMMY JOINT



CONSTRUCTION JOINT FOR 6 INCH PAVEMENT



CONSTRUCTION JOINT FOR 8 INCH PAVEMENT



FOUR MOVING LANES OR TWO MOVING LANES/TWO PARKING LANES

STREET TYPE	STREET WIDTH (W)	A	B	ROW WIDTH	P
COLLECTOR	36'	8'	10'	60'	11.5'
COLLECTOR	40'	8' OR 11	10' OR 12	60'	9.5'
COLLECTOR	44'	11'	11'	65'	10.0'

* FULL WIDTH PAVEMENT OF 36' WIDTH STREETS IS ALLOWED WHERE APPROVED BY THE ENGINEER

N.I.C.

COLLECTOR STREET

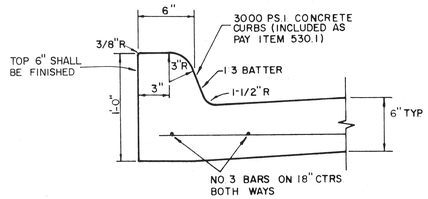
REINFORCED CONCRETE PAVEMENT

ALL REINFORCING BARS SHALL BE NO.3 TRANSVERSE BARS TO BE SPACED ON 1'-6" CENTERS, LONGITUDINAL BARS TO BE SPACED ON 1'-6" EXCEPT WHERE NOTED.
UNDIVIDED STREETS - PROVIDE 4" DBL. - REF YELLOW ℄ BUTTON P-117-Y PATTERNS TO BE ESTABLISHED BY ENGINEER SEE DETAIL SHEET

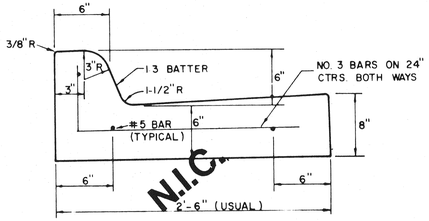
① SAWED LONGITUDINAL DUMMY JOINT

② CONSTRUCTION JOINT (FULL WIDTH PVM'T IS ALLOWED WHERE APPROVED BY ENGINEER.

③ FINISH SHALL BE TRANSVERSE WITH TRAFFIC LANES AND SHALL BE STEEL TINED BROOM FINISH.

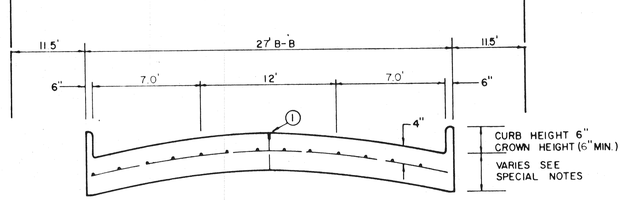


STANDARD CURB



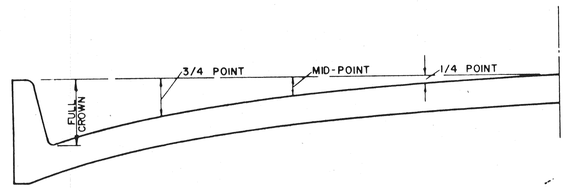
N.I.C.

SEPARATE CURB AND GUTTER



ONE MOVING LANE / TWO PARKING LANES

LOCAL STREET



ROADWAY WIDTH (W)	TOTAL CROWN HEIGHT	3/4 POINT	MID-POINT	1/4 POINT
26'	6"	3 - 3/8"	1 - 1/2"	3/8"
36'	6"	3 - 3/8"	1 - 1/2"	3/8"
44'	6"	3 - 3/8"	1 - 1/2"	3/8"
48'	6"	3 - 3/8"	1 - 1/2"	3/8"

TABLE OF CROWN HEIGHTS AND ORDINATES FOR VARIOUS PARABOLIC SECTIONS

GENERAL NOTES

A. GENERAL
PAVEMENT THICKNESS FOR STREETS SHALL BE AS SPECIFIED BELOW IN SPECIAL NOTES.

STANDARD SPECIFICATIONS

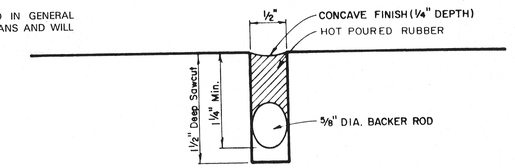
B. REINFORCED CONCRETE PAVEMENTS
1. ALL CURBS SHALL BE PLACED INTEGRAL WITH PAVEMENT
2. CURBS SHALL MEET THE SAME COMPRESSIVE STRENGTH AS SPECIFIED FOR THE CONCRETE PAVEMENT.
3. DETAIL AND ARRANGEMENT OF JOINTS, ALL TYPES, SHALL BE AS SHOWN ON THE STANDARD CONSTRUCTION DETAILS, OR AS APPROVED BY ENGINEER.
4. BAR LAPS SHALL BE 30 DIAMETERS.

C. BAR CHAIRS OR AN APPROVED SUPPORTING DEVICE SHALL BE FURNISHED.

STATE OF TEXAS — LAWRENCE D. CATES — 41836 — REGISTERED PROFESSIONAL ENGINEER — 9-8-93

AS-BUILTS

I CERTIFY THIS PROJECT WAS CONSTRUCTED IN GENERAL CONFORMANCE WITH THESE CONSTRUCTION PLANS AND WILL FUNCTION AS DESIGNED.



TYPICAL JOINT DETAIL

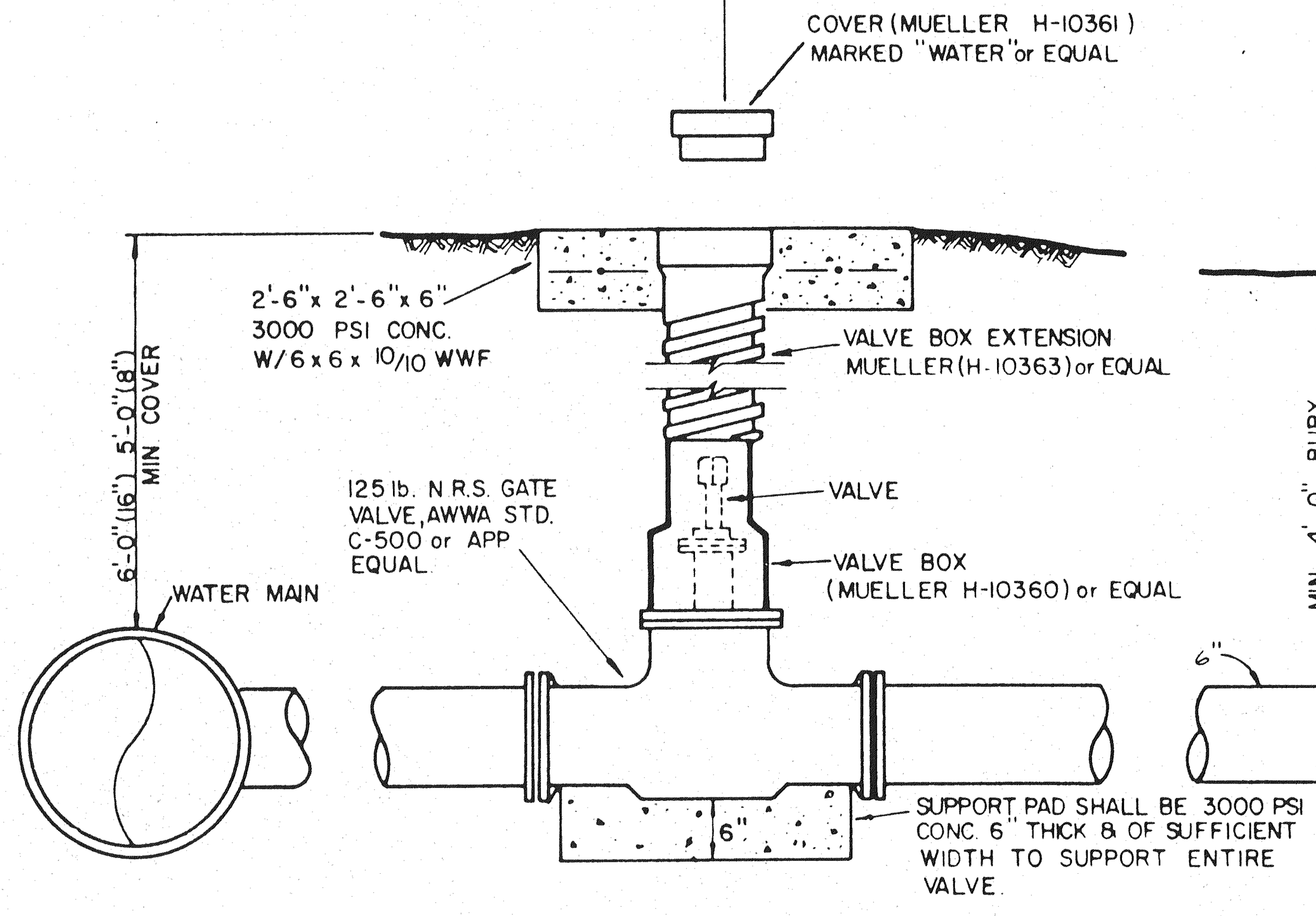
STATE OF TEXAS — LAWRENCE D. CATES — 41836 — REGISTERED PROFESSIONAL ENGINEER — May 14, 1993

TOWN OF ADDISON, TEXAS
DEPARTMENT OF ENGINEERING

STANDARD CONSTRUCTION DETAILS PAVING

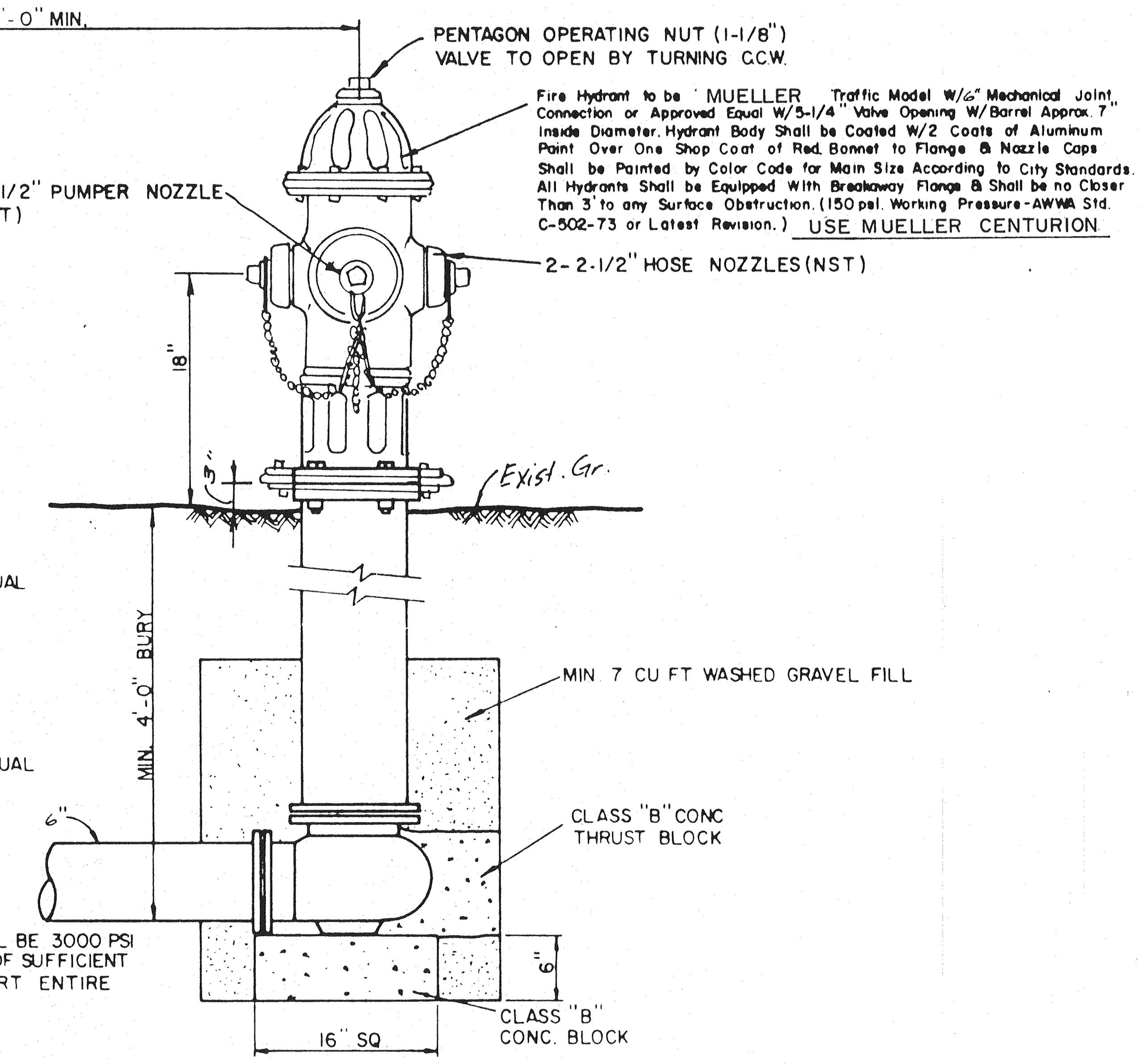
STREET CROWNS & JOINTS

Designed -	Drawn -	Date -	Job No. -
Approved -	Checked -	Scale -	Sheet SD-1



VALVE BOX DETAIL

(SEE PLANS FOR "MAIN SIZE")

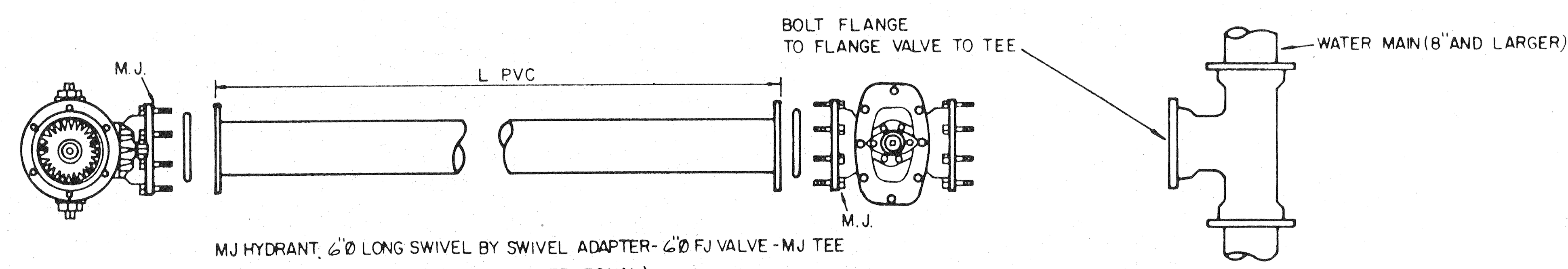


FIRE HYDRANT INSTALLATION

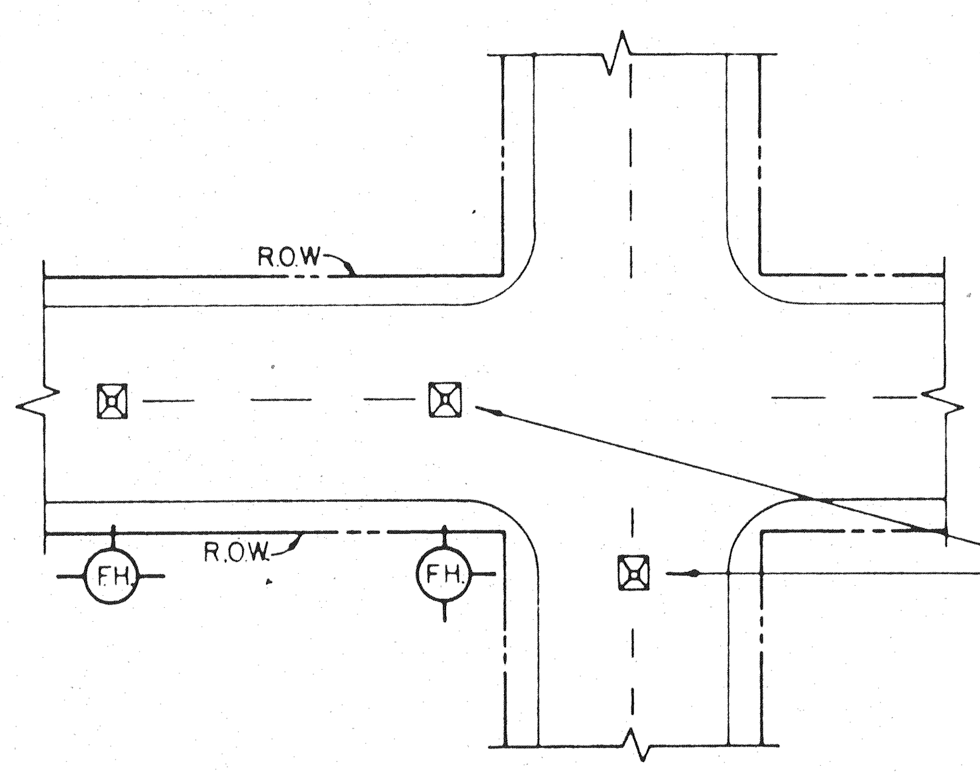
(INCLUDES 6" VALVE)
No Scale

GATE VALVES AND VALVE BOXES.

1. GATE VALVES SHALL BE IRON BODY, BRONZE OR BRASS MOUNTED, NON-RISING STEM, PARALLEL SEAT TYPE. VALVES SHALL BE OF EQUAL OR GREATER PRESSURE CLASS THAN THE PIPING IN WHICH THEY ARE TO BE INSTALLED.
2. VALVE BOXES SHALL BE CAST IRON AND SHALL BE OF SUFFICIENT LENGTH AND DIAMETER TO OPERATE ALL VALVES BURIED IN THE GROUND. COVERS SHALL BE MARKED "WATER." THE BOXES SHALL REST ON THE VALVE AND BE ADJUSTED SO THAT THE COVER MAY BE SET FLUSH WITH THE FINISHED GRADE.

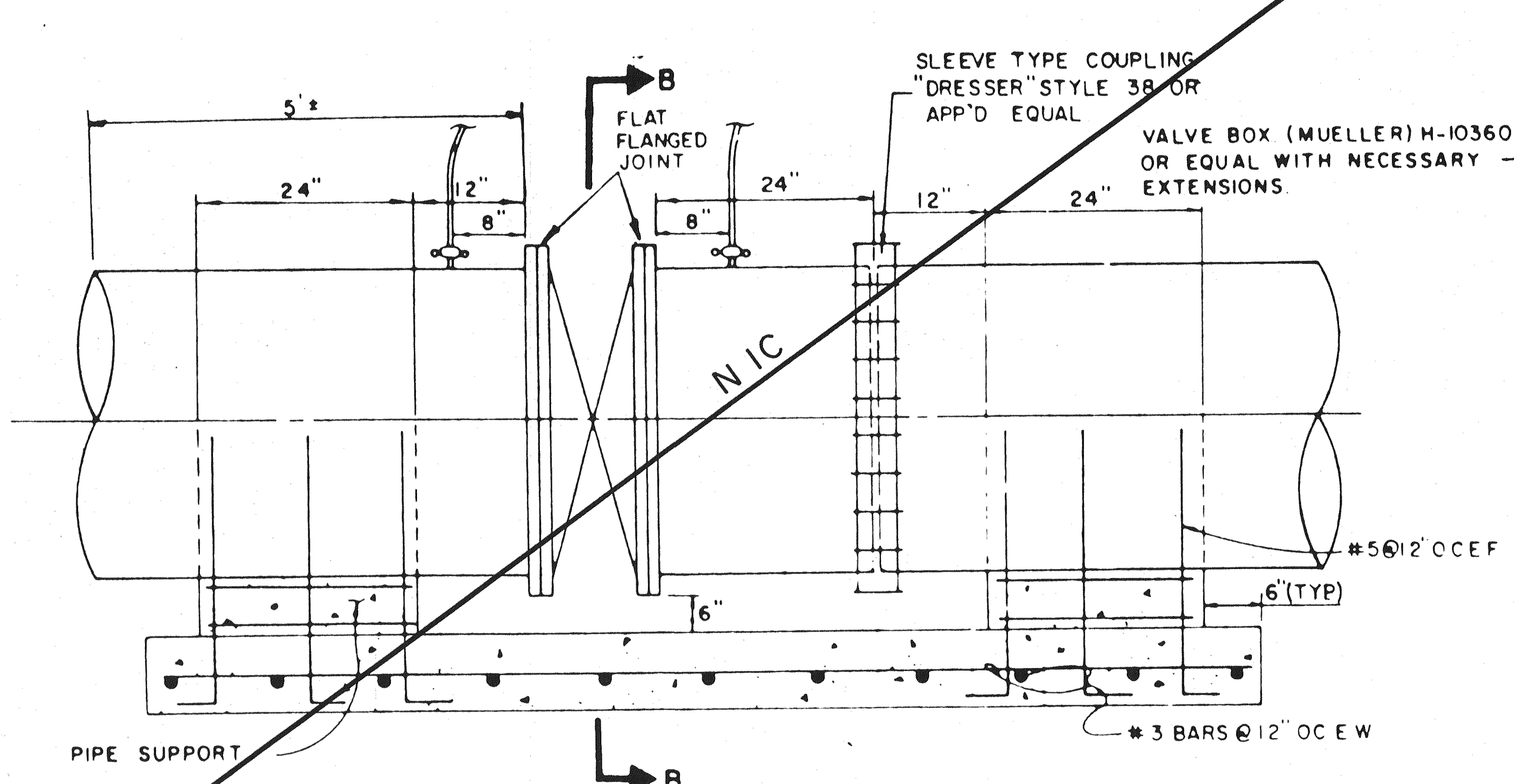


TYPICAL FIRE HYDRANT INSTALLATION

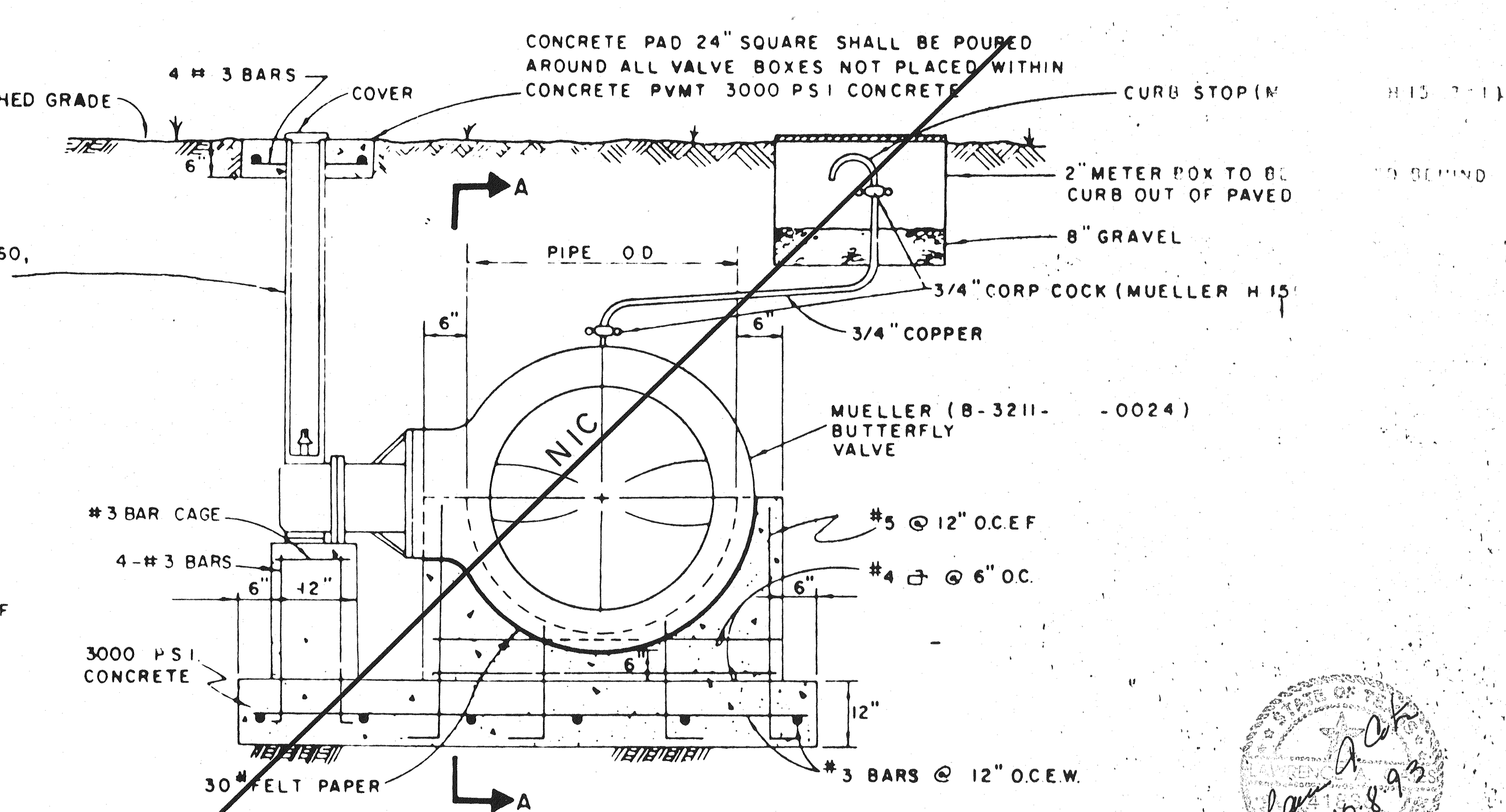


A BLUE STIMSONITE FIRE-LITE REFLECTOR (OR APPROVED EQUAL) TO BE PLACED IN THE CENTER OF STREET OPPOSITE FIRE HYDRANTS. THE INSTALLATION OF THIS REFLECTOR SHALL BE AS PRESCRIBED BY THE MANUFACTURER.

TYPICAL FIRE HYDRANT REFLECTOR INSTALLATION

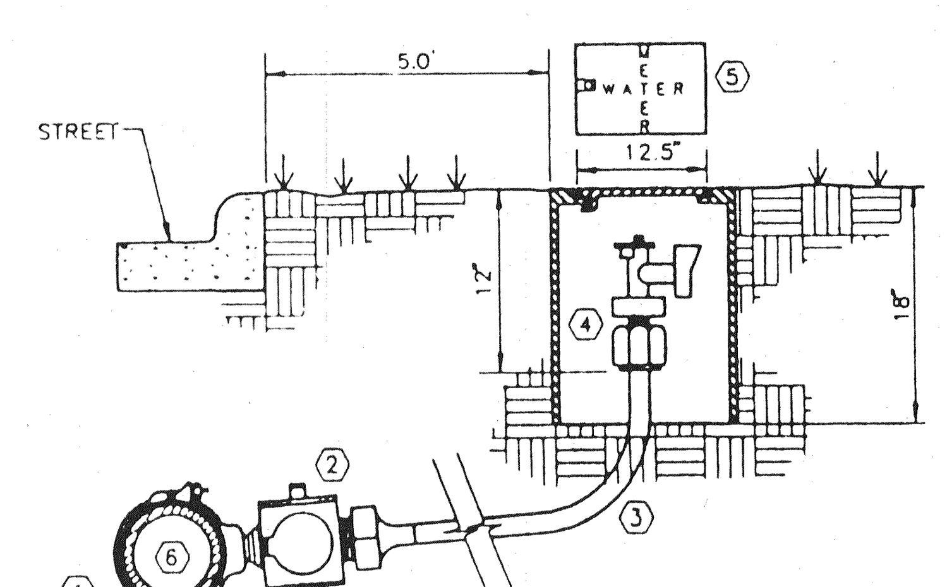


SECTION A-A



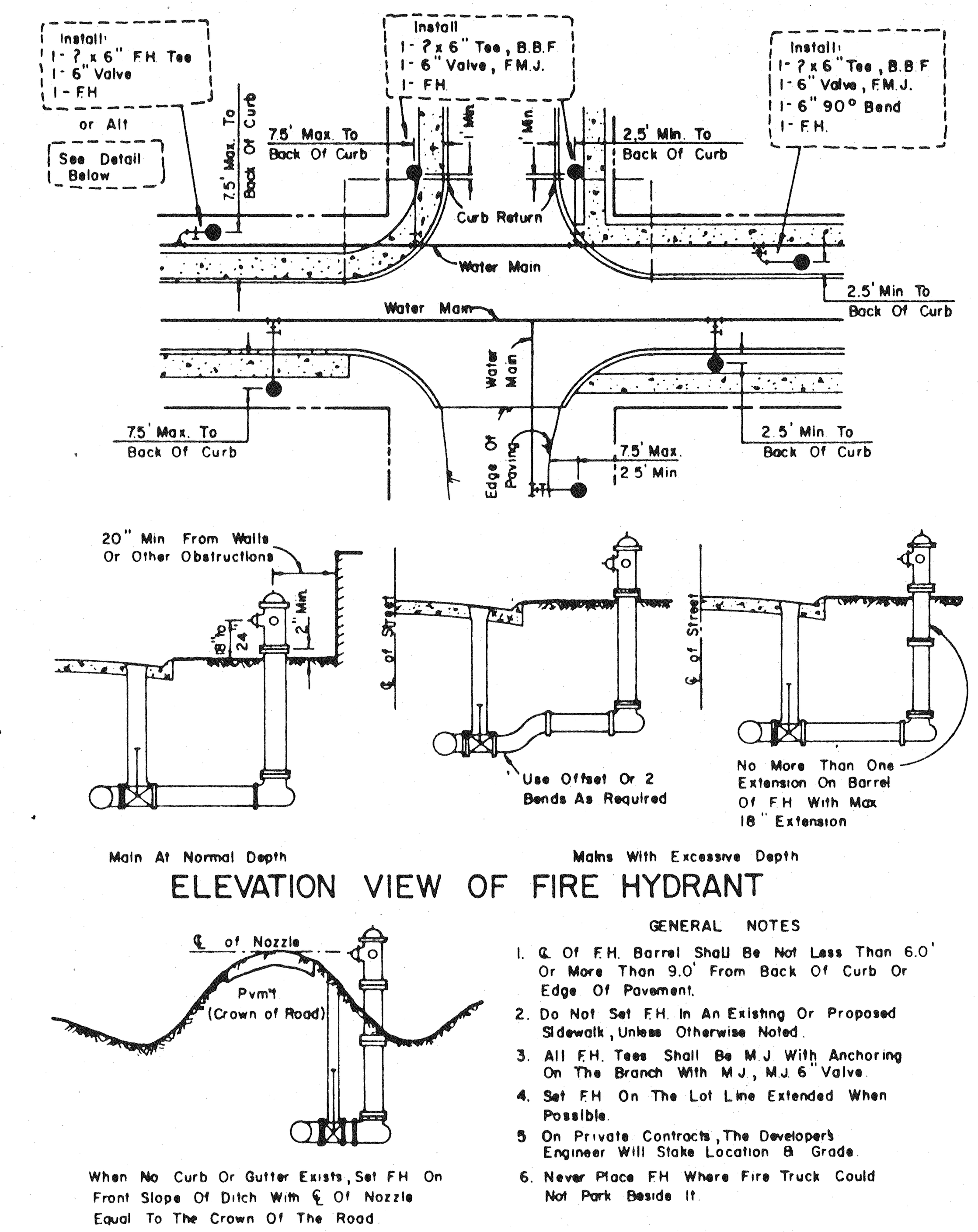
SECTION B-B

BUTTERFLY VALVE DETAIL



1. DOUBLE STRAP BRONZE SADDLE W/CCW THREADS. MUELLER.
2. CORPORATION STOP W/CCW THREADS. MUELLER H-15008 COMPRESSION OR H-15000 FLARED.
3. 3/4" TYPE "K" SOFT COPPER W/NO SPLICES
4. ANGLE STOP W/LOCK WING, MUELLER H-14258 COMPRESSION OR H-14255 FLARED.
5. WATER METER BOX (RECTANGULAR SHAPE ONLY) CONCRETE OR METAL SHELL CONSTRUCTION
6. WATER MAIN PVC AWWA C900 SDR 14/18 INTEGRAL WALL BELL

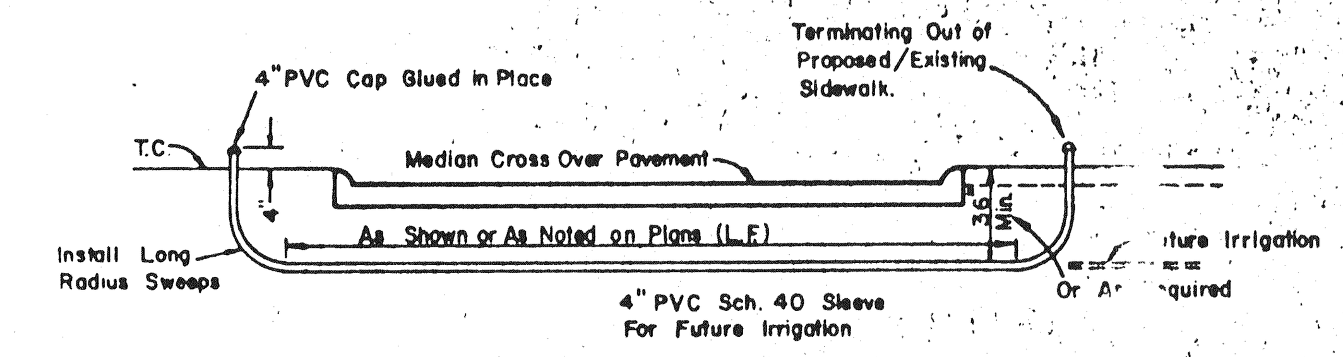
TYPICAL WATER SERVICE DETAIL



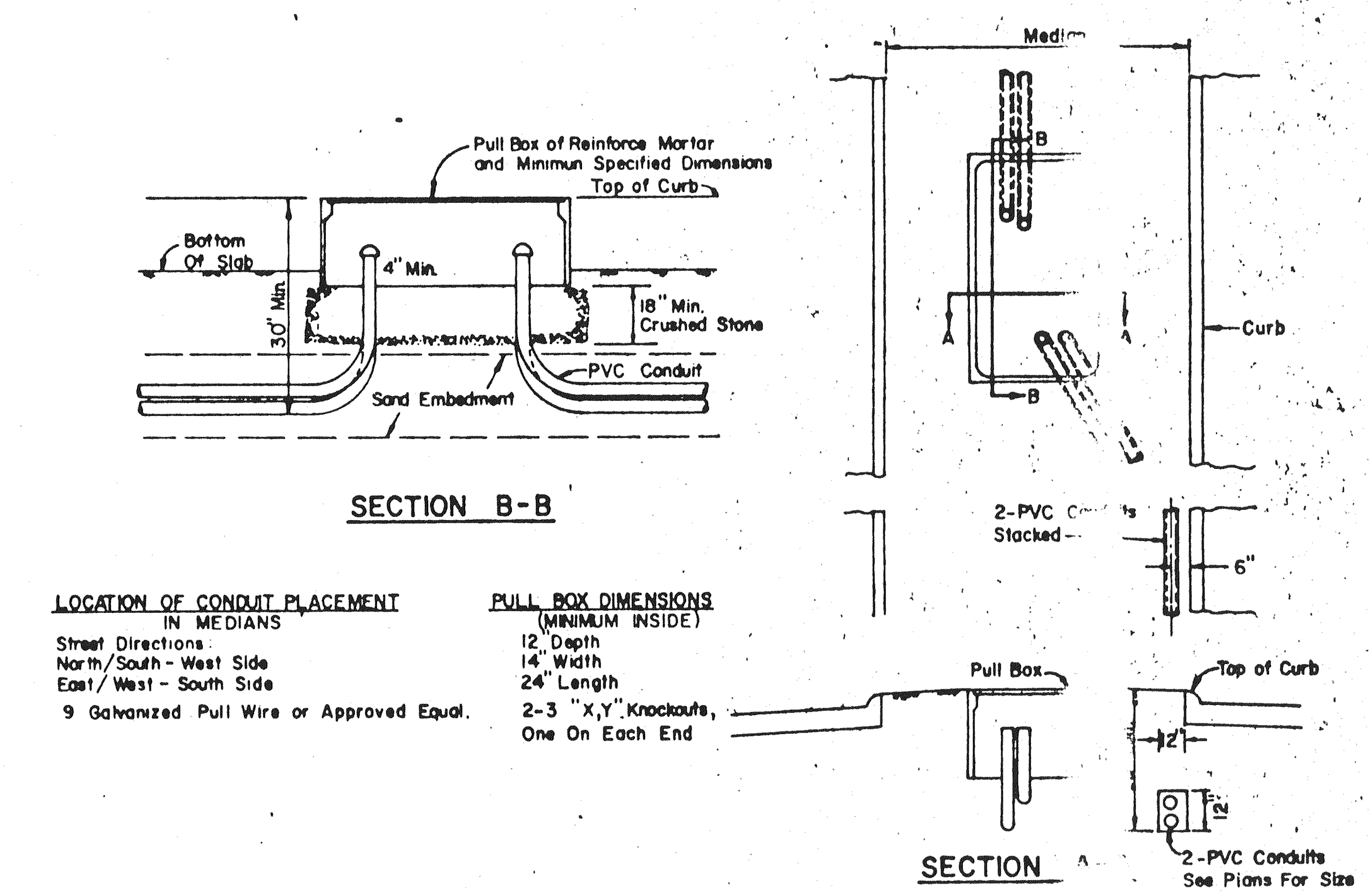
ELEVATION VIEW OF FIRE HYDRANT

GENERAL NOTES

1. ℄ Of F.H. Barrel Shall Be Not Less Than 6.0' Or More Than 9.0' From Back Of Curb Or Edge Of Pavement.
2. Do Not Set F.H. In An Existing Or Proposed Sidewalk, Unless Otherwise Noted.
3. All F.H. Tees Shall Be M.J. With Anchoring On The Branch With M.J., M.J. 6" Valve.
4. Set F.H. On The Lot Line Extended When Possible.
5. On Private Contracts, The Developer's Engineer Will Stake Location & Grade.
6. Never Place F.H. Where Fire Truck Could Not Park Beside It.



PVC SLEEVE FOR FUTURE IRRIGATION



SECTION B-B

SECTION A

LOCATION OF CONDUIT PLACEMENT IN MEDIANS
Street Directions
North/South - West Side
East/West - South Side
9 Galvanized Pull Wire or Approved Equal.

PULL BOX DIMENSIONS (MINIMUM INSIDE)
12" Depth
14" Width
24" Length
2-3" "X,Y" Knockouts, One On Each End

PULL BOX & CONDUIT DETAIL

AS-BUILTS

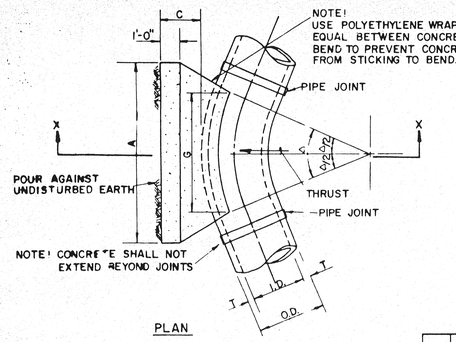
I CERTIFY THIS PROJECT WAS CONSTRUCTED IN GENERAL CONFORMANCE WITH THESE CONSTRUCTION PLANS AND WILL FUNCTION AS DESIGNED.

TOWN OF ADDISON, TEXAS
DEPARTMENT OF ENGINEERING

STANDARD CONSTRUCTION DETAILS
WATER

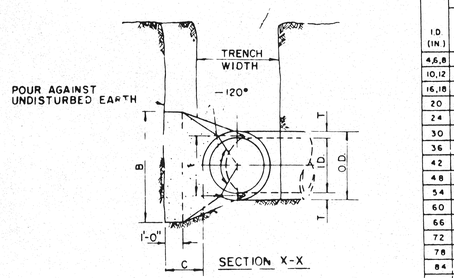
FIRE HYDRANTS, PULL BOXES AND VALVES

Designed -	Drawn -	Date -	Job No. -
Approved -	Checked -	Scale -	Sheet SD-10



PLAN

I.D. (IN.)	T IN.	C 11.25° FT.	C 22.50°+ FT.	E FT.
4,6,8	0.4	1.5	1.5	0.9
10,12	0.5	1.5	1.5	1.2
16,18	0.6	1.5	1.5	1.6
20	0.7	1.5	1.5	1.8
24	0.9	1.5	1.5	2.1
30	2.9	1.5	1.9	2.6
36	4.5	1.5	2.3	3.3
42	5.0	1.8	2.6	3.8
48	5.5	2.0	3.0	4.3
54	6.0	2.3	3.4	4.8
60	6.5	2.5	3.8	5.3
66	6.8	2.8	4.1	5.7
72	7.5	3.0	4.5	6.3
78	7.5	3.3	4.9	6.7
84	8.0	3.5	5.3	7.2
90	8.5	3.8	5.6	7.7
96	9.0	4.0	6.0	8.2



I.D. (IN.)	G FT.	THRUST TONS	Δ = 11.25° EARTH A FT.	EARTH B FT.	EARTH VOL. C.Y.	ROCK A FT.	ROCK B FT.	ROCK VOL. C.Y.
4,6,8	0.4	1.0	1.0	1.0	0.1	1.0	1.0	0.1
10,12	0.6	2.2	1.5	1.5	0.1	1.0	1.5	0.1
16,18	0.8	5.0	2.0	2.5	0.3	1.5	2.0	0.2
20	0.9	6.2	2.0	3.5	0.4	1.5	3.0	0.3
24	1.1	8.9	3.0	3.0	0.5	1.5	3.0	0.3
30	1.4	10.4	3.0	3.5	0.6	2.0	3.5	0.4
36	1.7	15.0	3.5	4.5	0.9	2.0	4.0	0.5
42	1.9	20.4	4.5	5.0	1.3	2.5	5.0	0.8
48	2.2	26.6	4.5	6.0	2.0	2.5	6.0	1.1
54	2.5	33.7	6.0	6.0	3.0	3.0	6.0	1.4
60	2.7	41.6	6.0	7.0	3.8	3.0	7.0	1.8
66	3.0	50.3	6.5	8.0	5.1	3.5	8.0	2.7
72	3.3	59.9	7.5	8.0	6.3	4.0	8.0	6.3
78	3.6	70.2	8.0	9.0	8.1	4.0	9.0	3.9
84	3.8	81.5	8.5	10.0	10.3	4.5	10.0	5.3
90	4.1	93.5	9.5	10.0	12.2	5.0	10.0	6.3
96	4.4	106.4	10.0	11.0	15.0	5.0	11.0	7.4

I.D (IN.)	G FT.	THRUST TONS	Δ = 22.50° EARTH A FT.	EARTH B FT.	EARTH VOL. C.Y.	ROCK A FT.	ROCK B FT.	ROCK VOL. C.Y.
4,6,8	0.8	2.0	1.5	1.5	0.1	1.0	1.0	0.1
10,12	1.1	4.4	2.0	2.5	0.3	1.5	1.5	0.1
16,18	1.6	9.9	3.0	3.5	0.6	2.0	2.5	0.3
20	1.8	12.3	3.5	3.5	0.7	2.0	3.5	0.4
24	2.2	17.7	4.0	4.5	1.0	3.0	3.0	0.5
30	2.7	20.7	5.0	4.5	1.5	3.0	4.0	0.8
36	3.3	29.8	5.5	5.5	2.3	4.0	4.0	1.3
42	3.8	40.5	7.0	6.0	3.9	4.5	5.0	2.1
48	4.4	52.9	8.0	7.0	5.7	4.8	6.0	2.8
54	5.0	66.2	9.0	8.0	8.0	6.0	6.0	4.1
60	5.5	82.7	9.5	9.0	10.6	6.0	7.0	5.3
66	6.0	100.1	10.5	10.0	14.1	6.5	8.0	7.2
72	6.6	119.1	11.0	11.0	17.6	7.5	8.0	9.1
78	7.1	139.8	12.0	12.0	22.5	8.0	9.0	11.7
84	7.6	162.1	13.0	12.5	27.2	8.5	10.0	14.8
90	8.2	186.1	14.0	13.5	33.7	9.5	10.0	17.7
96	8.7	211.7	15.0	14.5	41.2	10.0	11.0	21.8

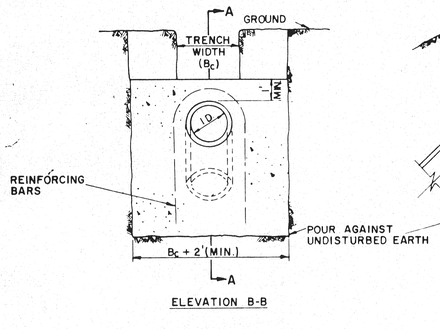
I.D (IN.)	G FT.	THRUST TONS	Δ = 30° EARTH A FT.	EARTH B FT.	EARTH VOL. C.Y.	ROCK A FT.	ROCK B FT.	ROCK VOL. C.Y.
4,6,8	1.0	2.6	2.0	1.5	0.2	1.0	1.5	0.1
10,12	1.5	5.9	2.5	2.5	0.3	2.0	1.5	0.2
16,18	2.2	13.2	3.5	4.0	0.8	2.5	3.0	0.8
20	2.4	16.3	4.5	4.0	1.0	3.0	3.0	0.5
24	2.9	23.4	6.0	4.0	1.4	3.5	3.5	0.7
30	3.6	27.5	5.5	5.0	1.9	3.5	4.0	0.9
36	4.4	39.5	7.0	6.0	3.4	4.5	4.5	1.6
42	5.1	53.8	8.0	7.0	5.1	5.5	5.0	2.5
48	5.8	70.3	9.0	8.0	7.4	6.0	6.0	3.7
54	6.5	89.0	10.0	9.0	10.3	7.0	6.5	5.3
60	7.3	110.0	11.0	10.0	13.9	7.5	7.5	7.3
66	8.0	132.9	12.5	11.0	18.9	8.5	8.0	9.6
72	8.7	158.2	13.5	12.0	24.0	9.0	9.0	12.3
78	9.4	185.6	14.5	13.0	30.0	10.0	9.5	15.6
84	10.1	215.3	15.5	14.0	37.1	10.5	10.5	19.5
90	10.9	247.1	16.5	15.0	45.0	11.5	11.0	23.9
96	11.6	281.2	18.0	16.0	55.5	12.5	11.5	28.9

I.D (IN.)	G FT.	THRUST TONS	Δ = 45° EARTH A FT.	EARTH B FT.	EARTH VOL. C.Y.	ROCK A FT.	ROCK B FT.	ROCK VOL. C.Y.
4,6,8	1.5	3.9	2.0	2.0	0.2	1.5	1.5	0.1
10,12	2.2	8.7	3.5	2.5	0.5	2.0	2.5	0.3
16,18	3.2	19.5	4.5	4.5	1.2	3.0	3.5	0.6
20	3.6	24.1	5.5	4.5	1.5	3.5	3.5	0.7
24	4.3	34.6	8.0	4.5	2.3	4.5	4.0	1.1
30	5.4	40.6	8.5	5.0	3.2	5.5	4.0	1.6
36	6.5	58.5	10.0	6.0	5.3	6.5	4.5	2.6
42	7.5	79.6	11.5	7.0	8.1	8.0	5.0	4.2
48	8.6	104.0	13.0	8.0	11.9	9.0	6.0	6.3
54	9.7	131.5	15.0	9.0	17.1	10.5	6.5	8.9
60	10.7	162.4	16.5	10.0	23.1	11.0	7.5	12.0
66	11.8	196.5	18.0	11.0	30.1	12.0	8.5	16.2
72	12.9	233.9	19.5	12.0	38.6	14.0	8.5	20.7
78	13.9	274.5	21.5	13.0	49.8	14.5	9.5	25.9
84	15.0	318.4	23.0	14.0	61.2	15.9	10.5	32.6
90	16.1	365.3	24.5	15.0	74.5	17.5	10.5	39.6
96	17.1	415.6	26.0	16.0	89.5	18.0	11.5	48.5

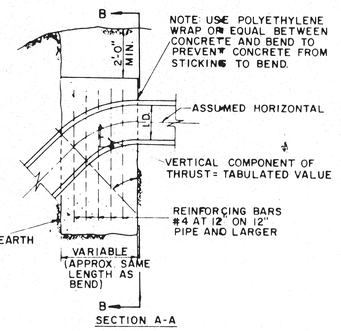
I.D (IN.)	G FT.	THRUST TONS	Δ = 67.50° EARTH A FT.	EARTH B FT.	EARTH VOL. C.Y.	ROCK A FT.	ROCK B FT.	ROCK VOL. C.Y.
4,6,8	2.1	5.6	3.0	2.0	0.3	2.0	1.5	0.2
10,12	3.1	12.6	5.5	2.5	0.8	3.5	2.0	0.4
16,18	4.7	28.3	7.5	4.0	1.9	5.0	3.0	0.9
20	5.2	34.9	9.0	4.0	2.3	5.5	3.5	1.2
24	6.2	50.3	11.5	4.5	3.5	6.5	4.0	1.6
30	7.8	58.9	12.0	5.0	4.8	7.5	4.0	2.2
36	9.4	84.9	14.5	6.0	8.2	9.5	4.5	3.8
42	10.9	115.5	17.0	7.0	12.8	11.0	5.5	6.3
48	12.5	150.9	19.0	8.0	18.4	13.0	6.0	9.2
54	14.0	191.0	21.5	9.0	26.0	15.0	6.5	12.9
60	15.6	235.8	24.0	10.0	35.8	16.0	7.5	17.6
66	17.1	285.3	26.0	11.0	46.0	18.0	8.0	23.0
72	18.7	339.5	28.5	12.0	57.8	19.0	9.0	28.4
78	20.2	398.5	31.0	13.0	75.7	21.0	9.5	37.4
84	21.8	462.1	33.5	14.0	94.7	22.0	10.5	46.5
90	23.3	530.5	35.5	15.0	114.4	24.5	11.0	58.2
96	24.9	603.6	38.0	16.0	138.9	25.5	12.0	70.0

I.D (IN.)	G FT.	THRUST TONS	Δ = 90° EARTH A FT.	EARTH B FT.	EARTH VOL. C.Y.	ROCK A FT.	ROCK B FT.	ROCK VOL. C.Y.
4,6,8	2.7	7.1	5.0	1.5	0.4	2.0	2.0	0.2
10,12	4.0	16.0	6.5	2.5	1.0	3.0	2.5	0.5
16,18	6.0	36.0	9.0	4.0	2.4	4.0	4.0	1.0
20	6.6	44.4	10.0	4.5	3.1	6.0	4.0	1.5
24	7.9	64.0	14.5	4.5	5.0	8.0	4.0	2.1
30	9.9	75.0	15.0	5.0	6.7	10.0	4.0	3.3
36	11.9	108.0	18.0	6.0	11.4	12.0	4.5	5.3
42	13.9	147.0	21.0	7.0	17.8	14.0	5.5	8.7
48	15.9	192.0	24.0	8.0	26.2	16.0	6.0	12.4
54	17.9	243.0	27.0	9.0	36.9	18.0	7.0	18.1
60	19.9	299.8	30.0	10.0	50.3	20.0	7.5	24.0
66	21.8	362.8	33.0	11.0	66.2	22.0	8.5	32.5
72	23.8	431.8	36.0	12.0	85.6	24.0	9.0	41.0
78	25.7	506.7	39.0	13.0	108.2	26.0	10.0	53.2
84	27.7	587.7	42.0	14.0	134.4	28.0	10.5	64.8
90	29.0	674.6	45.0	15.0	164.9	30.0	11.5	81.2
96	31.6	767.5	48.0	16.0	199.0	32.0	12.0	95.1

HORIZONTAL BEND THRUST BLOCK



ELEVATION B-B



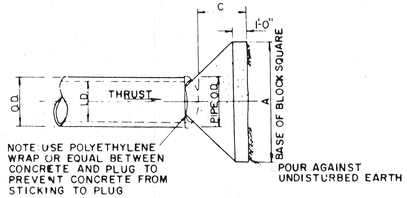
SECTION A-A

Δ→	11.25° THRUST TONS	11.25° VOL C.Y	22.50° THRUST TONS	22.50° VOL C.Y	30° THRUST TONS	30° VOL C.Y	45° THRUST TONS	45° VOL C.Y	67.50° THRUST TONS	67.50° VOL C.Y	90° THRUST TONS	90° VOL C.Y	←Δ I.D (IN.)
4,6,8	1.0	0.5	2.0	1.0	2.5	1.3	3.6	1.8	4.6	2.3	5.0	2.5	4,6,8
10,12	2.2	1.1	4.3	2.2	5.7	2.8	8.0	4.0	10.5	5.2	11.3	5.7	10,12
16,18	5.0	2.5	9.7	4.9	12.7	6.4	18.0	9.0	23.5	11.8	25.5	12.7	16,18
20	6.1	3.1	12.0	6.0	15.7	7.9	22.2	11.1	29.2	14.5	31.4	15.7	20
24	8.2	4.4	17.3	8.7	22.6	11.3	32.0	16.0	41.8	20.9	45.2	22.6	24
30	10.5	5.2	20.3	10.1	26.5	13.3	37.5	18.8	49.0	24.5	53.1	26.5	30
36	14.6	7.5	29.2	14.6	38.2	19.1	54.0	27.0	70.5	35.3	76.4	38.2	36
42	20.3	10.1	39.8	19.9	52.0	26.0	73.5	36.7	96.0	48.0	104.0	52.0	42
48	26.5	13.2	51.9	26.0	67.9	33.9	96.0	48.0	126.0	62.7	136.0	67.9	48
54	33.5	16.8	65.7	32.9	85.9	42.9	122.0	60.7	159.0	79.4	172.0	85.9	54
60	41.4	20.7	81.2	40.6	106.0	53.0	150.0	75.0	196.0	98.0	212.0	106.0	60
66	50.1	25.0	98.2	49.1	128.0	64.2	182.0	90.7	237.0	119.0	257.0	128.0	66
72	59.6	29.8	117.0	58.4	153.0	76.3	216.0	108.0	282.0	141.0	305.0	153.0	72
78	69.9	35.0	137.0	68.6	179.0	90.0	254.0	127.0	331.0	166.0	358.0	179.0	78
84	81.1	40.5	159.0	79.5	208.0	104.0	294.0	147.0	384.0	192.0	416.0	208.0	84
90	93.1	46.5	183.0	91.3	239.0	119.0	337.0	169.0	441.0	221.0	477.0	239.0	90
96	106.0	53.0	208.0	104.0	272.0	136.0	384.0	192.0	502.0	251.0	543.0	272.0	96

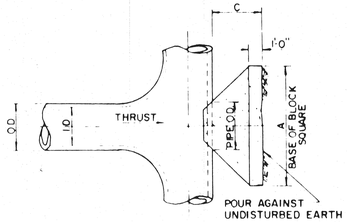
GENERAL NOTES- FOR ALL THRUST BLOCKS

1. All Calculations Are Based On Internal Pressure Of 200 P.S.I. For 24" I.D. Pipe And Smaller And 150 P.S.I. On 30" I.D. And Larger.
2. Volumes Of Vertical Bend Thrust Blocks Are Net Volumes Of Concrete To Be Furnished. The Corresponding Weight Of The Concrete (Class F) Is Equal To Or Greater Than The Vertical Component Of Thrust On The Vertical Bend.
3. Wall Thickness (T) Assumed Here For Estimating Purposes Only.
4. Concrete For Blocking Shall Be Class B Concrete
5. Dimensions May Be Varied As Required By Field Conditions Where And As Directed By The Engineer. The Volume Of Concrete Blocking Shall Not Be Less Than Shown Here.

VERTICAL BEND THRUST BLOCK



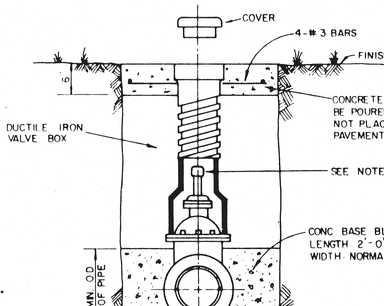
PLAN OF PLUG THRUST BLOCK



PLAN OF TEE THRUST BLOCK

I.D (IN.)	THRUST TONS	C FT.	EARTH A FT.	EARTH VOL C.Y	ROCK A FT.	ROCK VOL C.Y
4,6,8	5.1	1.5	2.5	0.3	2.0	0.2
10,12	11.3	1.5	3.5	0.6	2.5	0.3
16,18	25.5	2.0	5.5	1.6	4.0	0.9
20	31.5	2.0	6.0	1.7	4.0	0.9
24	45.2	2.5	7.0	3.1	5.0	1.7
30	53.0	3.0	7.5	4.1	5.5	2.4
36	76.3	4.0	9.0	7.3	6.5	4.2
42	104.0	4.5	10.5	11.0	7.5	6.2
48	136.0	5.0	12.0	15.6	8.5	8.7
54	172.0	5.5	13.5	21.4	9.5	11.9
60	212.0	6.0	15.0	28.4	10.5	15.7
66	257.0	6.5	16.5	36.8	11.5	20.5
72	305.0	7.5	17.5	47.2	12.5	27.2
78	358.0	8.0	19.0	58.9	13.5	33.7
84	416.0	8.5	20.5	72.3	14.5	41.2
90	477.0	9.0	22.0	86.7	15.5	49.2
96	543.0	9.5	23.5	104.8	16.5	61.0

PLUG & TEE THRUST BLOCK



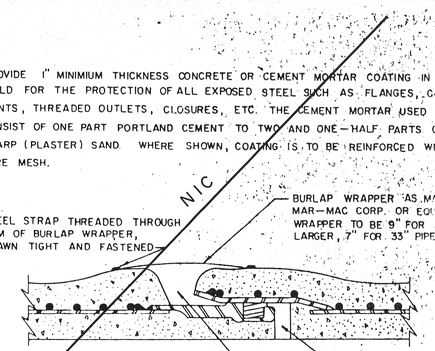
NOTE:

1. GATE VALVES SHALL BE IN ACCORDANCE WITH AWWA STANDARD C-509-80 OR LATEST THEREOF ALL VALVES SHALL BE "MUELLER" OR APPROVED EQUAL.
2. A PERMANENTLY ATTACHED VALVE EXTENSION STEM SHALL BE REQUIRED FOR ANY VALVE THATS OPERATING NUT IS LOCATED IN EXCESS OF 4 FEET BELOW THE TOP OF VALVE BOX. THIS EXTENSION SHALL BE OF SUFFICIENT LENGTH TO INSURE THAT ITS TOP IS WITHIN 4' OF VALVE BOX LID. MANUFACTURED VALVE STACK DUCTILE IRON PIPE TO BE USED FOR EXTENSION GREATER THAN 4'-0. BELL END OF STACK TO BE FITTED OVER VALVE. VALVE AND VALVE STACK IS TO BE POLY WRAPED.
3. VALVES SHALL BE OF DUCTILE IRON W/RUBBER ENCAPSULATED DISK. BODY BOLTS SHALL BE STAINLESS STEEL OF SAME SIZE ON EACH VALVE.

TYPICAL VALVE SETTING AND BOX

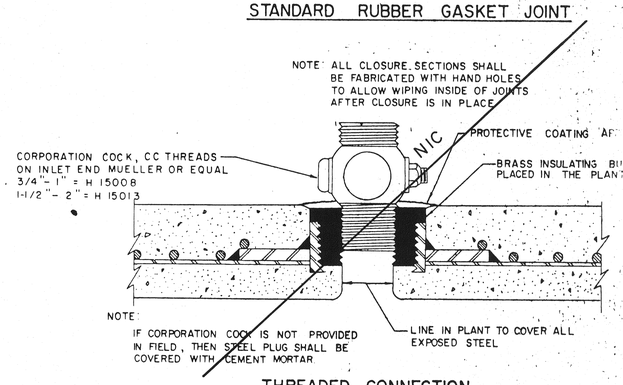
NOTE:

PROVIDE 1" MINIMUM THICKNESS CONCRETE OR CEMENT MORTAR COATING IN THE FIELD FOR THE PROTECTION OF ALL EXPOSED STEEL SUCH AS FLANGES, CAULKED JOINTS, THREADED OUTLETS, CLOSURES, ETC. THE CEMENT MORTAR USED SHALL CONSIST OF ONE PART PORTLAND CEMENT TO TWO AND ONE-HALF PARTS OF FINE, SHARP (PLASTER) SAND. WHERE SHOWN, COATING IS TO BE REINFORCED WITH WIRE MESH.

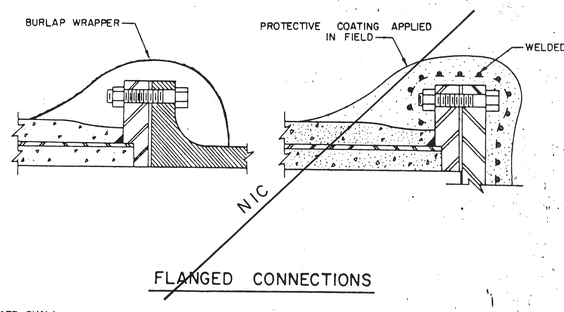


STANDARD RUBBER GASKET JOINT

NOTE: ALL CLOSURE SECTIONS SHALL BE FABRICATED WITH HAND HOLES TO ALLOW WIPING INSIDE OF JOINTS AFTER CLOSURE IS IN PLACE.



THREADED CONNECTION



FLANGED CONNECTIONS

REINFORCED CONCRETE CYLINDER PIPE DETAILS

AS-BUILTS

I CERTIFY THIS PROJECT WAS CONSTRUCTED IN GENERAL CONFORMANCE WITH THESE CONSTRUCTION PLANS AND WILL FUNCTION AS DESIGNED.

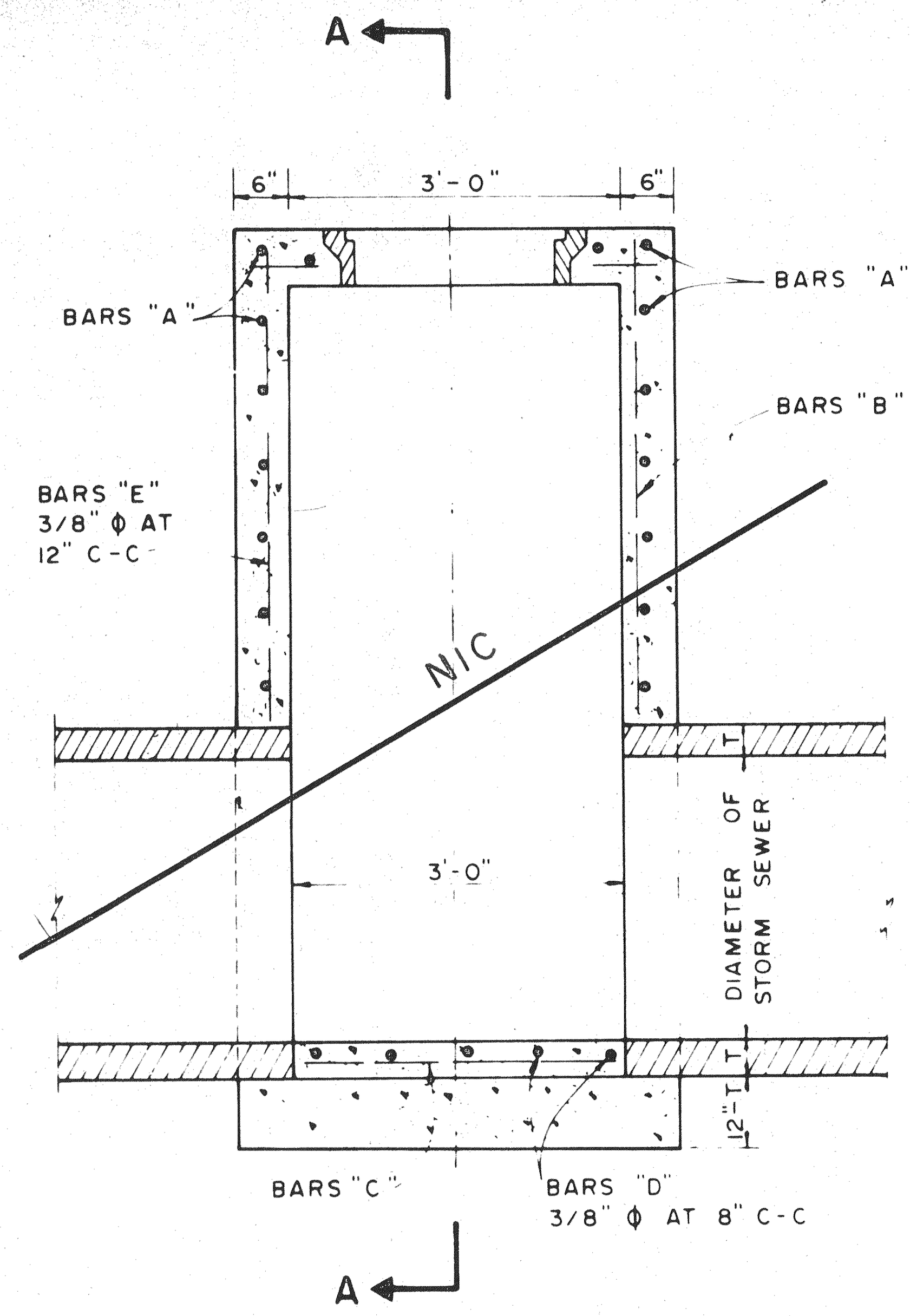
TOWN OF ADDISON, TEXAS
DEPARTMENT OF ENGINEERING

STANDARD CONSTRUCTION DETAILS WATER

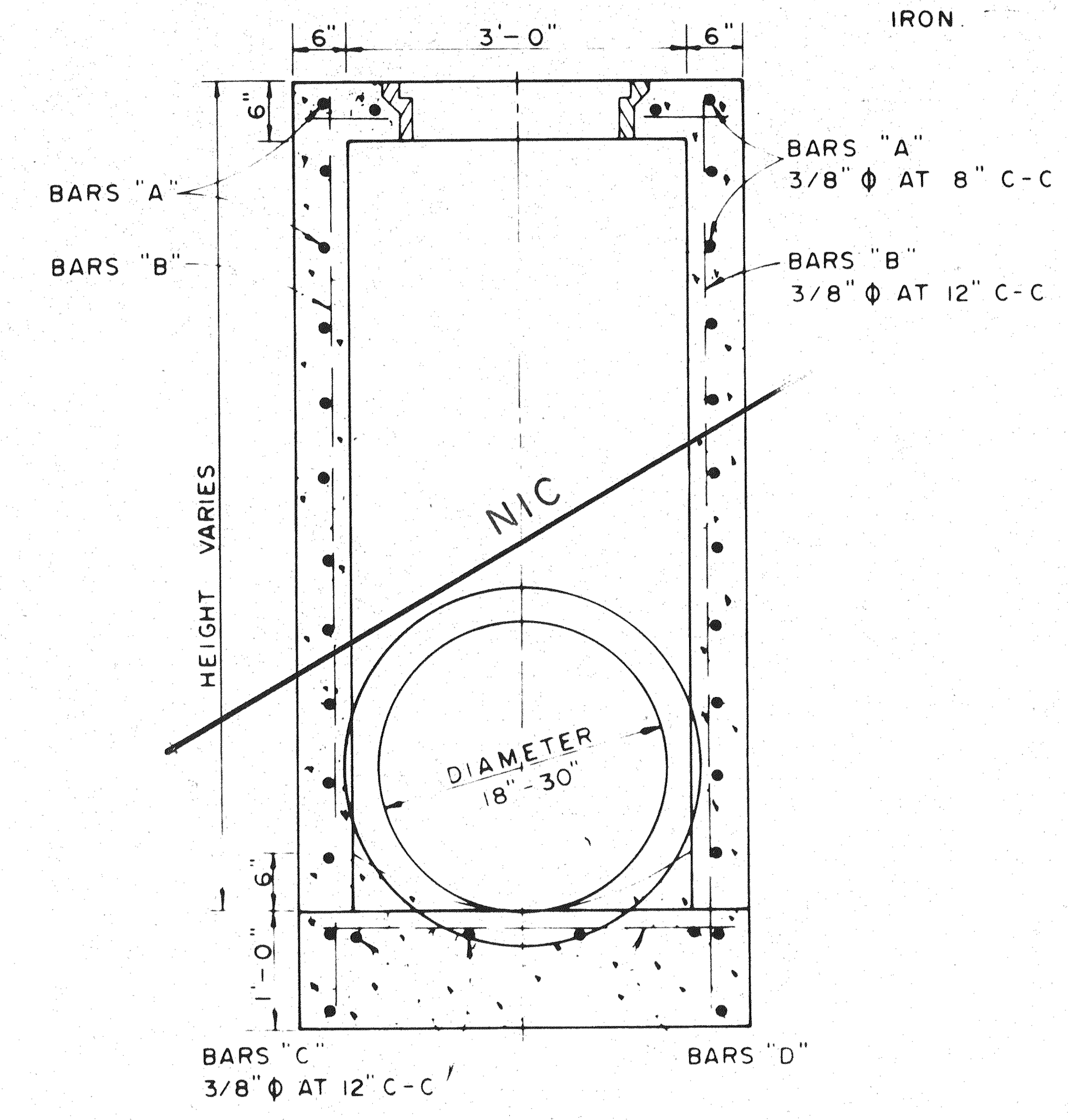
THRUST BLOCKS

Designed -	Drawn -	Date -	Job No. -
Approved -	Checked -	Scale -	Sheet SD-11

NOTE: FRAME AND COVER SHALL BE BASS & HAYS PATTERN NO. 380-24 OR EQUAL AND SHALL BE OF GRAY CAST IRON CONFORMING TO A.S.T.M. SPEC. A-48 FOR CLASS 30 CAST IRON.



ELEVATION

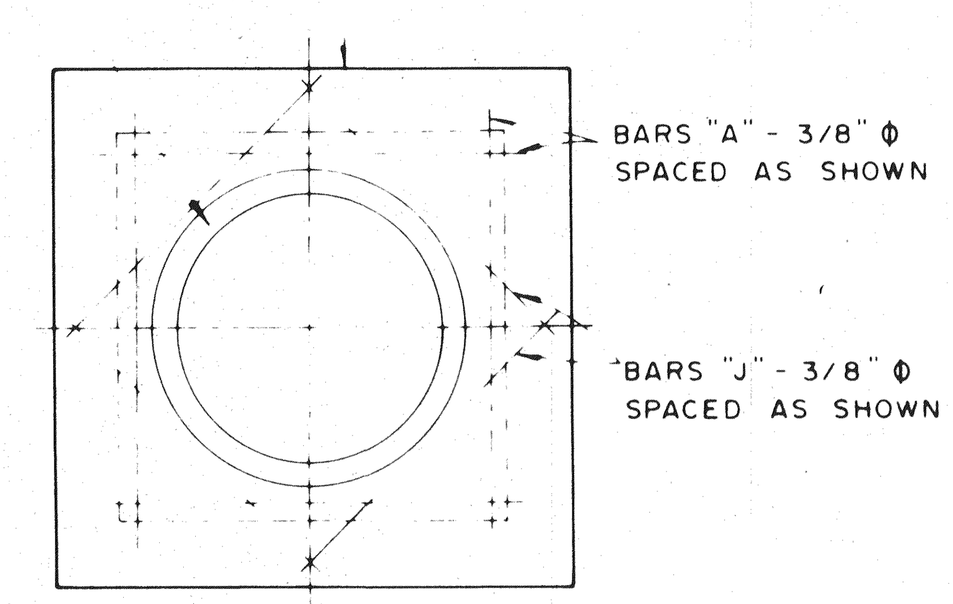


SECTION A-A

TYPE A STORM SEWER MANHOLE

(FOR PIPE 18" TO 30" IN DIAMETER)

PROVIDE 3/4" PREMOLDED EXPANSION JOINT BETWEEN MANHOLE AND CONCRETE PAVEMENT AND SEAL WITH HOT POURED RUBBER

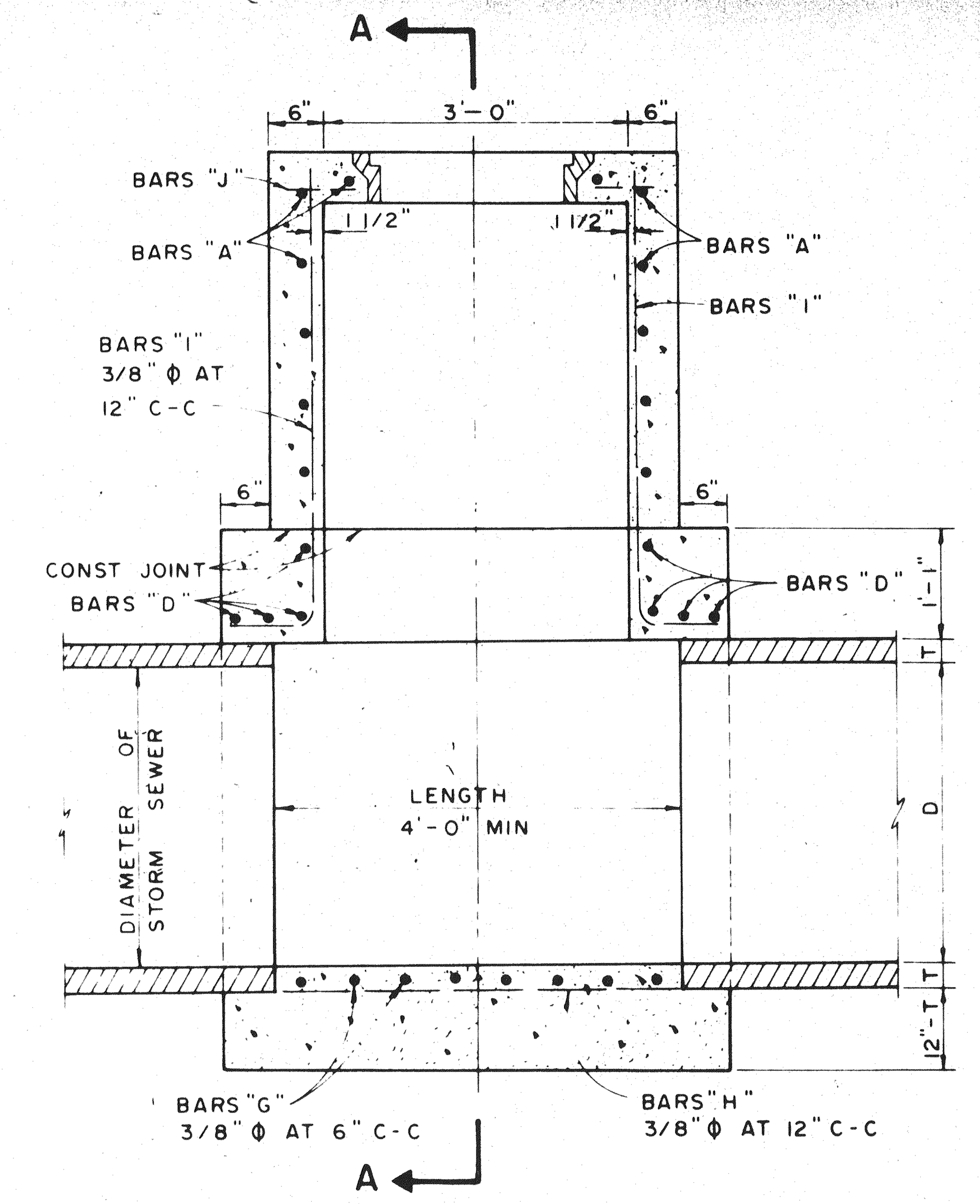


TOP PLAN

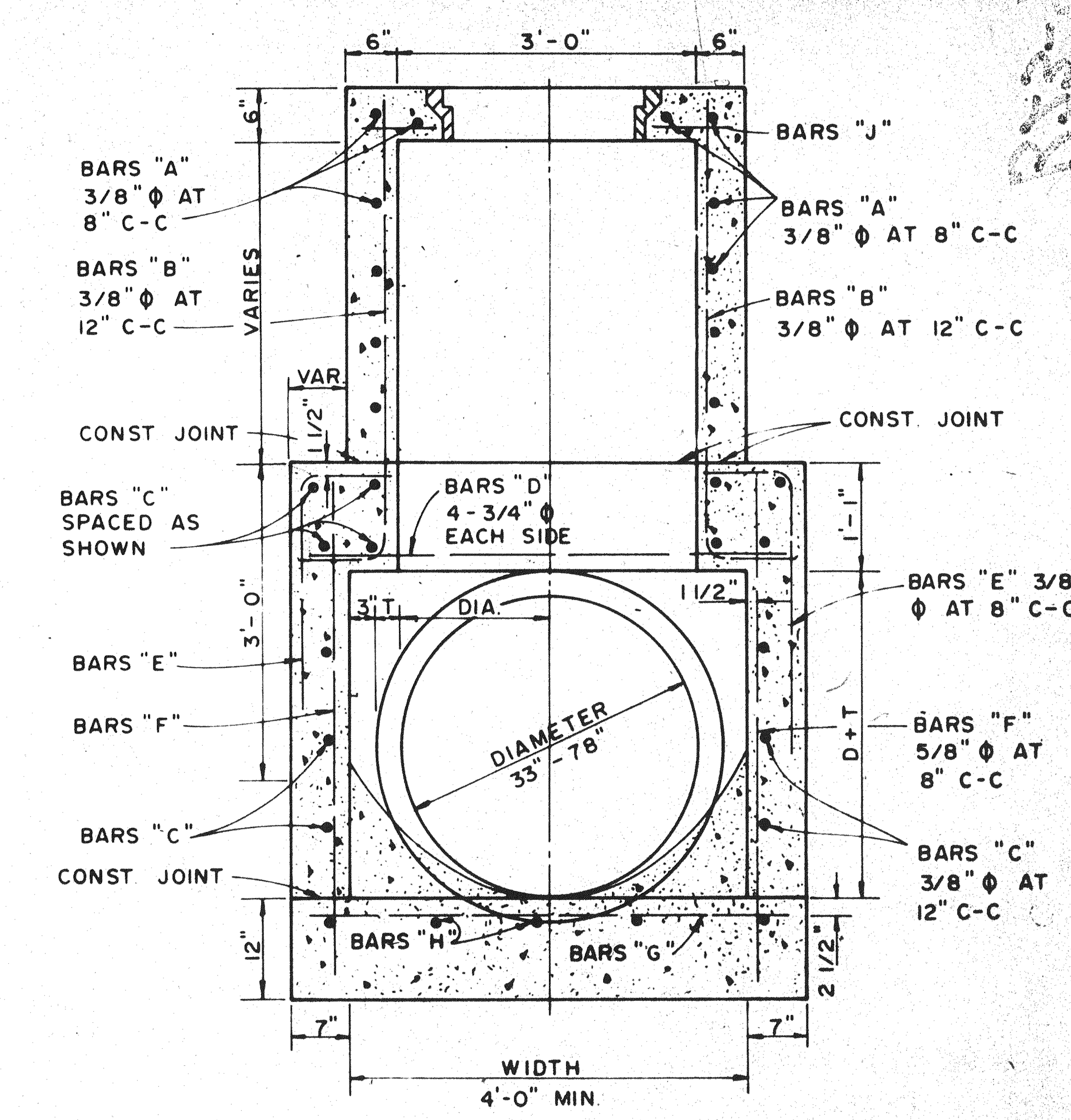
TYPE A & TYPE B

STORM SEWER MANHOLE

NOTE: MAXIMUM PIPE SIZE TO BE USED 78"



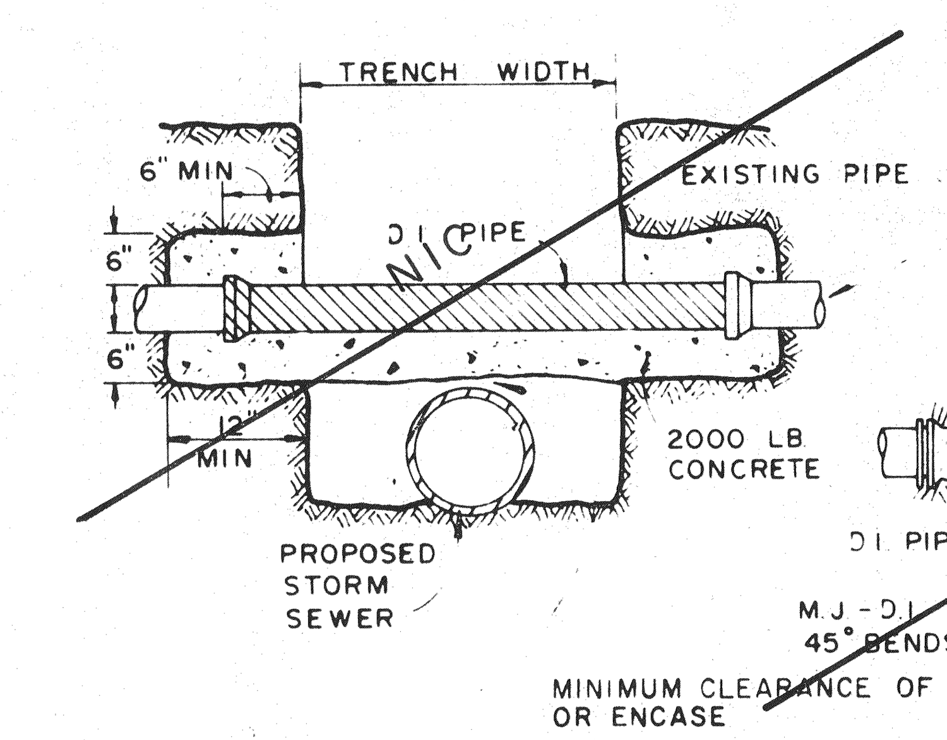
ELEVATION



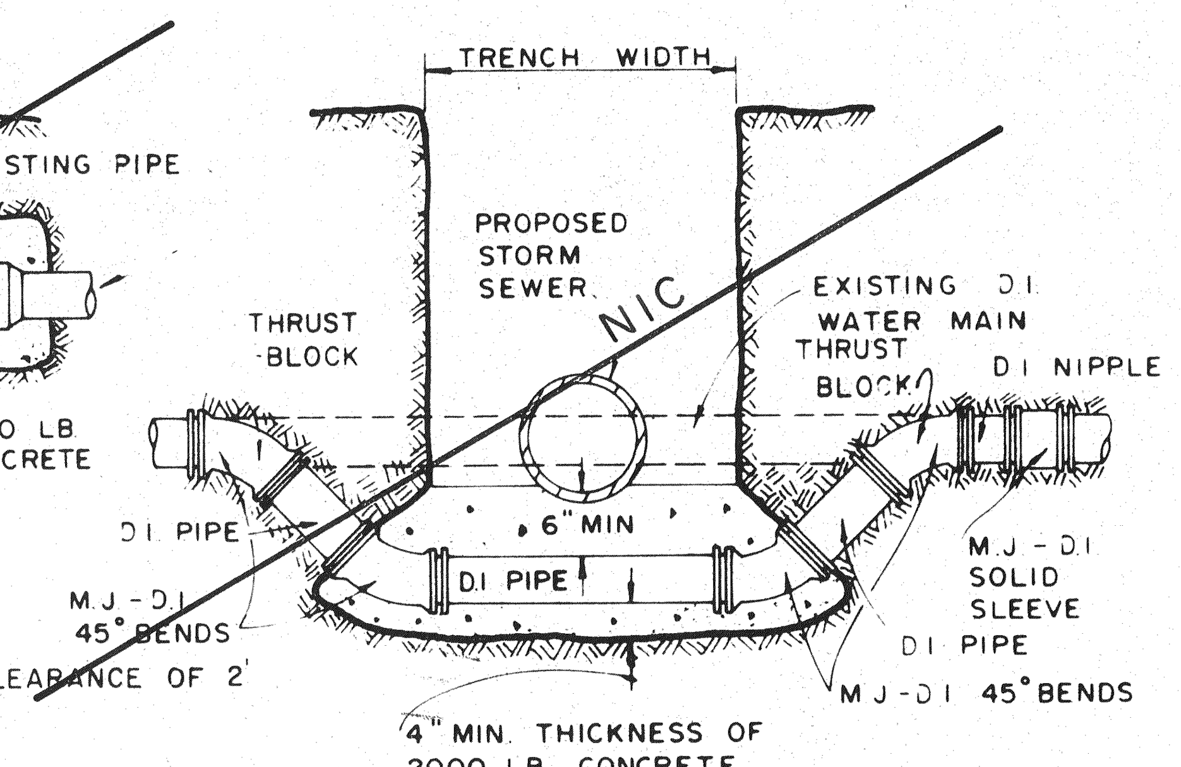
SECTION A-A

TYPE B STORM SEWER MANHOLE

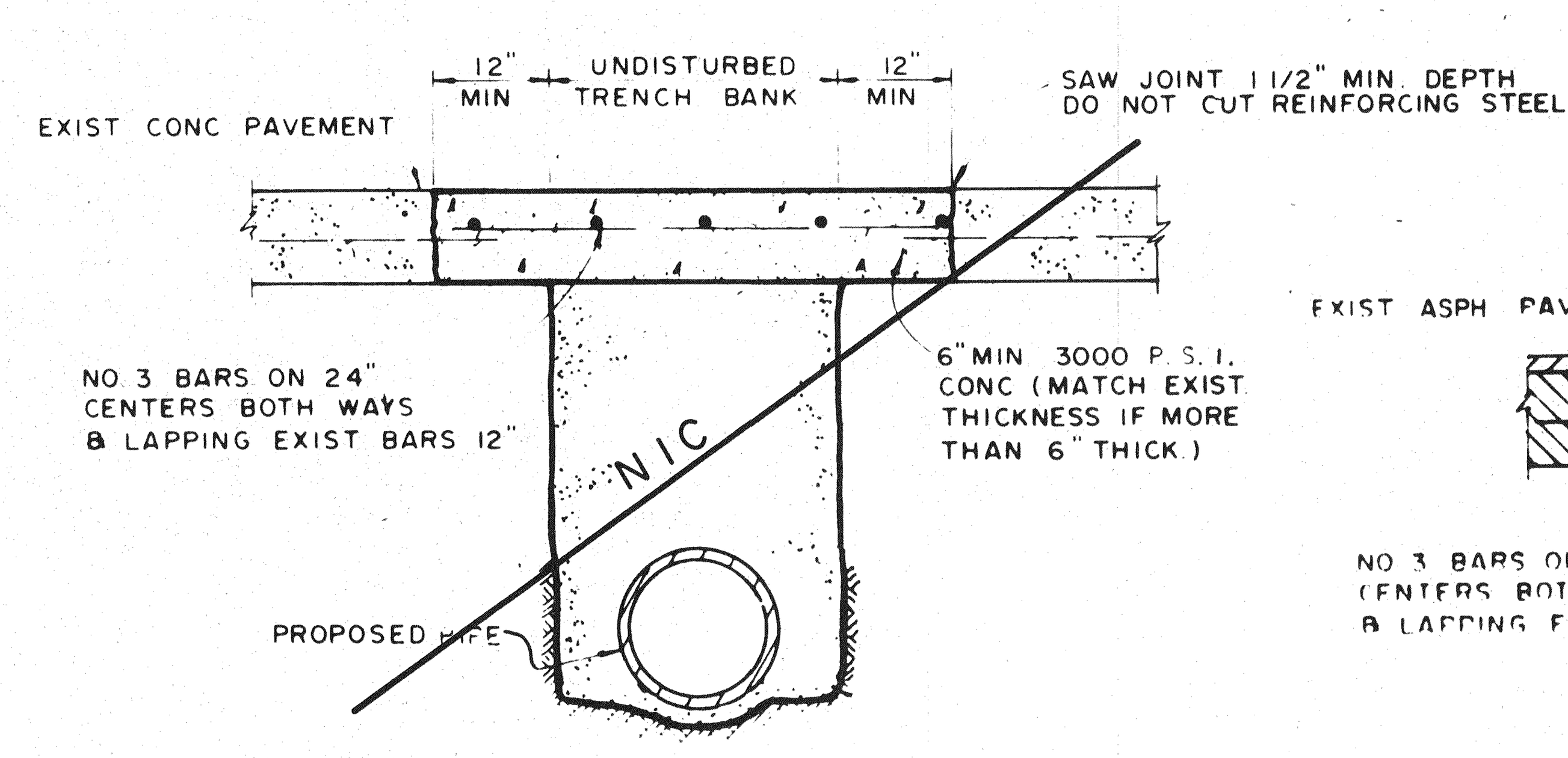
(FOR PIPE 33" TO 78" IN DIAMETER)



DETAIL OF
UTILITY SUPPORT

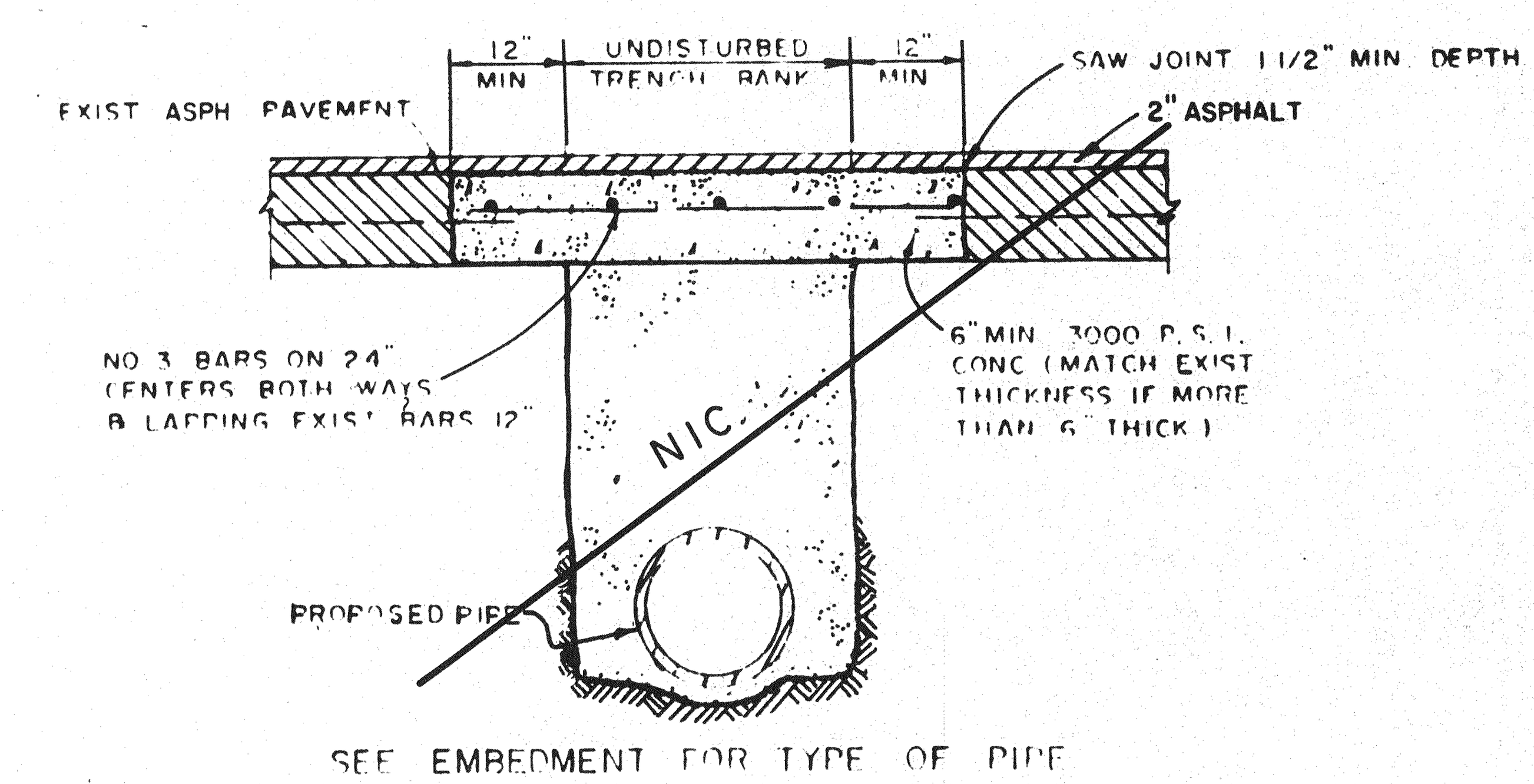


DETAIL FOR
WATER MAIN LOWERING



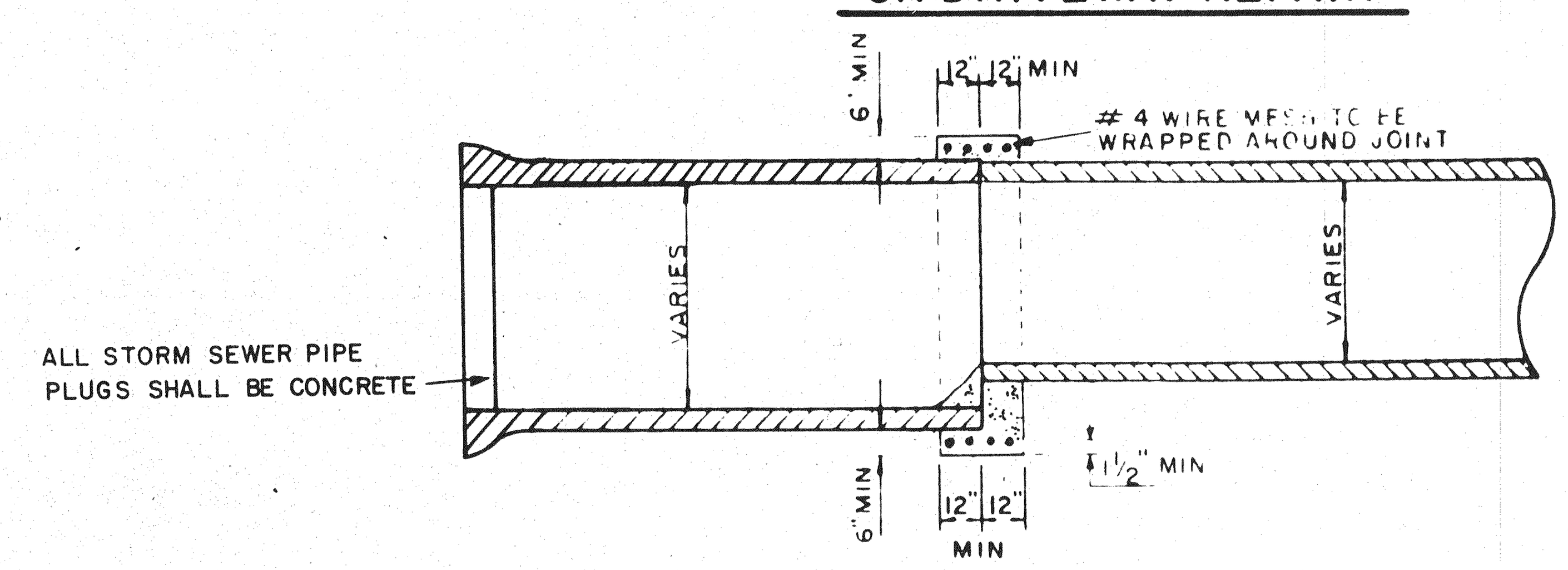
SEE EMBEDMENT FOR TYPE OF PIPE

CONCRETE STREET
OR DRIVEWAY REPAIR

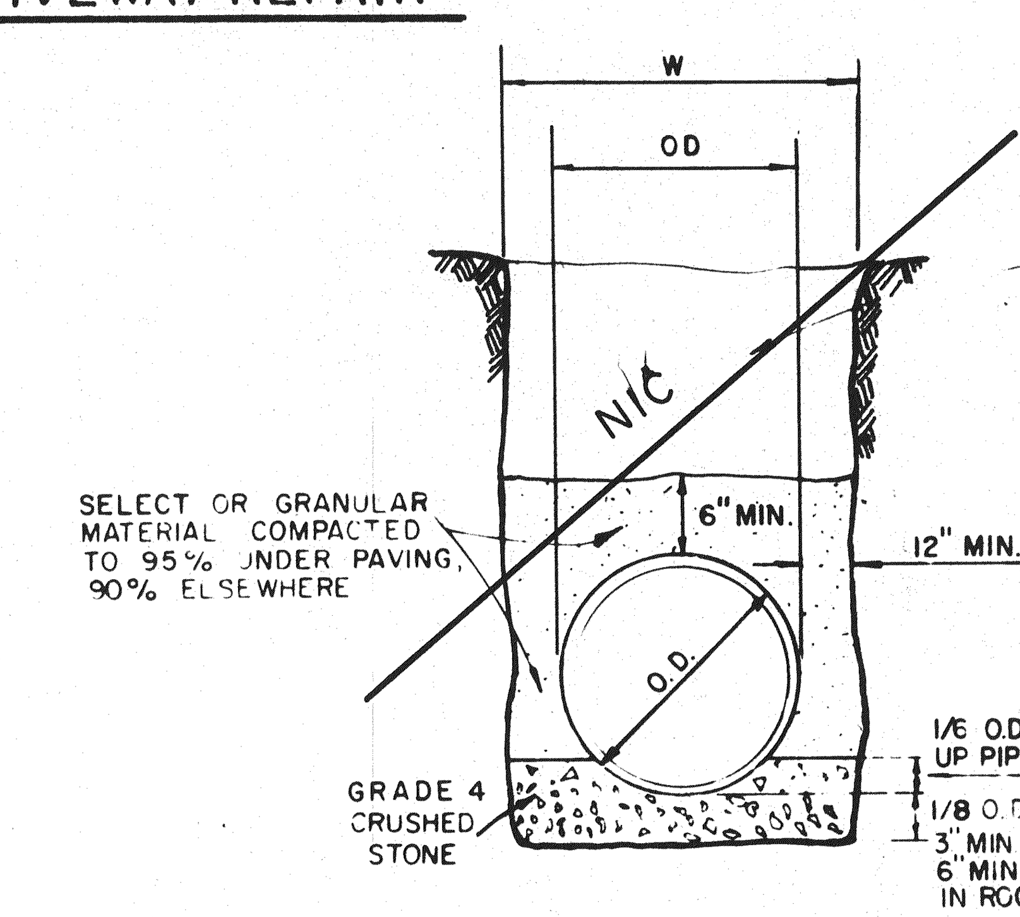


SEE EMBEDMENT FOR TYPE OF PIPE

ASPHALT STREET
OR DRIVEWAY REPAIR

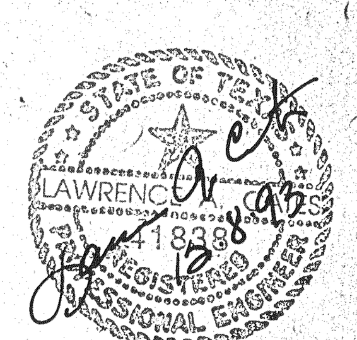


DETAIL OF CONCRETE COLLAR
FOR PIPE CONNECTIONS



STORM SEWER PIPE BEDDING DETAIL

DEPTH OF TRENCH BELOW PIPE:
3" MIN. FOR 27" PIPE & SMALLER
4" MIN. FOR 30" TO 60" PIPE
6" MIN. FOR 66" PIPE & LARGER



AS-BUILTS:

I CERTIFY THIS PROJECT WAS CONSTRUCTED IN GENERAL CONFORMANCE WITH THESE CONSTRUCTION PLANS AND WILL FUNCTION AS DESIGNED.

NO	REVISION	BY	DATE

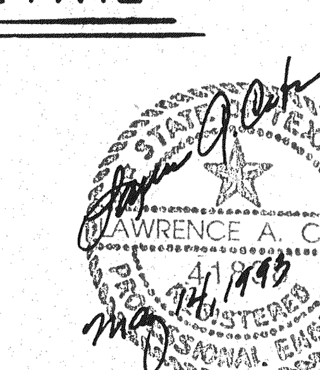
TOWN OF ADDISON
DEPARTMENT OF ENGINEERING

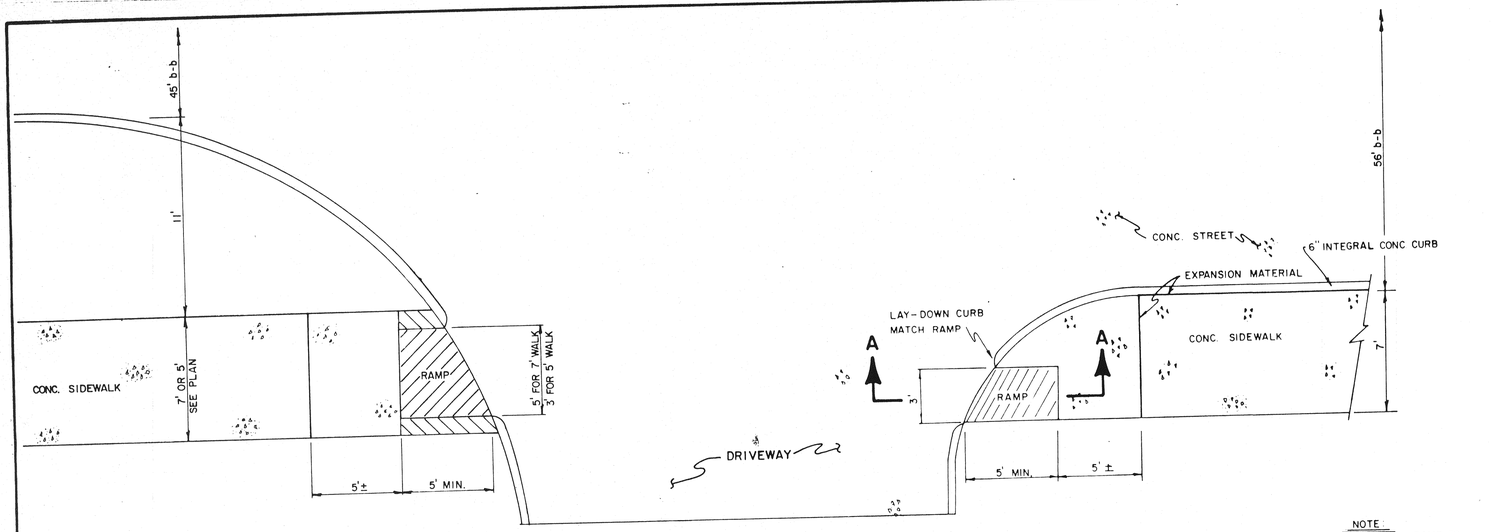
STANDARD CONSTRUCTION DETAILS
STORM DRAINAGE

MANHOLES & STORM SEWER

DATE:

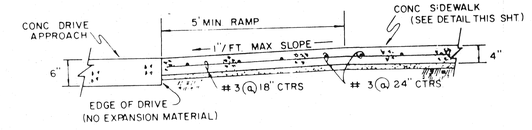
SHEET SD-12



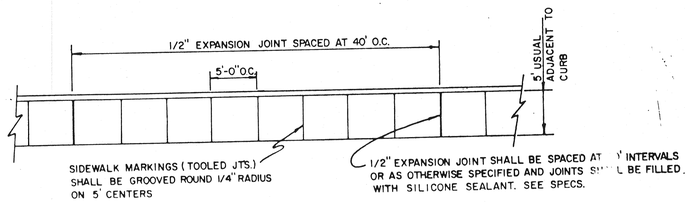


NOTE:
MODIFY RAMP TO FIT DIFFERENT RADIUS

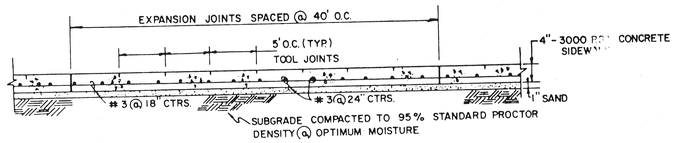
PLAN



SECTION A-A



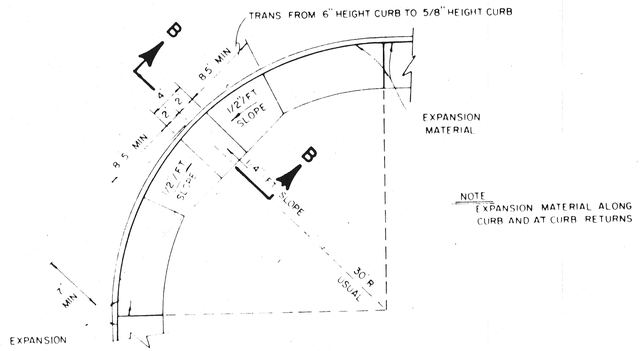
PLAN



SIDE ELEVATION

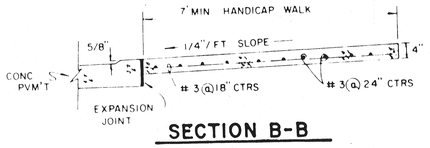
BARRIER-FREE RAMP DETAIL WITH WALK ADJACENT TO CURB

BARRIER FREE RAMP DETAIL WITH WALK SEPARATE FROM CURB



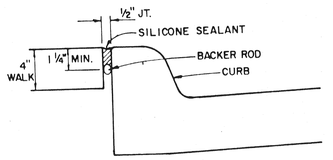
NOTE
EXPANSION MATERIAL ALONG CURB AND AT CURB RETURNS

PLAN

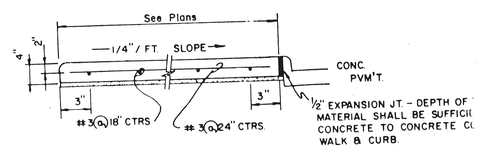


SECTION B-B

HANDICAP ROLL-DOWN CURB DETAIL



EXPANSION JOINT DETAIL



SECTION

CONCRETE SIDEWALK DETAIL

GENERAL NOTES

1. Reinforced concrete sidewalk shall be 5 or 7 feet wide, a minimum of four (4) inches thick and shall be 3000 psi at 28 days (5 sack mix). Unless noted otherwise.
2. Chamfer all exposed edges of concrete (1/4) inch.
3. All bar dimensions are given as center to center of bars and are located as shown.
4. All reinforcing steel shall be No. 3 on 18 inch centers logitudinally, 24 inch centers transversely and shall conform to the requirements of ASTM A-615, Grade 60.
5. 1" thick min. fine, washed sand cushion shall be free from organic materials or clays and shall be used for grade adjustment.
6. Subgrade shall be compacted to a density not less than 95% at optimum moisture.
7. Tooled joints (contraction joints) shall be on five (5) foot centers and shall be round one-fourth (1/4) inch radius.
8. A one-half (1/2) inch expansion joint shall be placed every eight (8) tooled joints, and where works abut old work, or where new work is constructed adjacent to other concrete, a one-half inch expansion joint shall be used where sidewalk is adjacent to curb, the expansion joint shall be made of pre-molded bituminous expansion joint filler or redwood with silicone sealant. See Specs.
9. Sidewalks shall be finished by lightly brooming surface transversely to direction of main traffic or where adjacent sidewalks differ from this standard, new sidewalks shall conform to adjacent sidewalk (e.g. exposed aggregate).
10. Cross slope walk one-fourth (1/4) inch per foot towards curb or as shown on the drawings to provide drainage.

AS-BUILTS

I CERTIFY THIS PROJECT WAS CONSTRUCTED IN GENERAL CONFORMANCE WITH THESE CONSTRUCTION PLANS AND WILL FUNCTION AS DESIGNED.

STATE OF TEXAS — LAWRENCE A. CATES — 41838 — REGISTERED PROFESSIONAL ENGINEER — 12-8-93

STATE OF TEXAS — LAWRENCE A. CATES — 41838 — REGISTERED PROFESSIONAL ENGINEER — Aug. 14, 1995

NO	REVISION	BY	DATE

TOWN OF ADDISON, TEXAS
DEPARTMENT OF ENGINEERING

STANDARD CONSTRUCTION DETAILS
PAVING

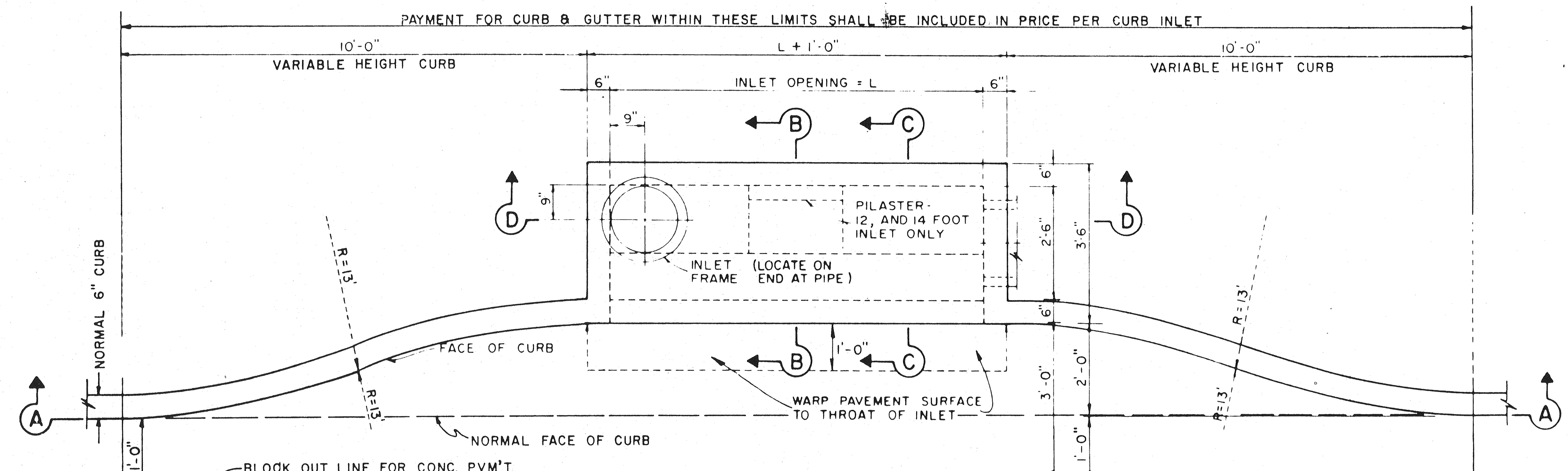
SIDEWALKS & RAMPS

APPROVED

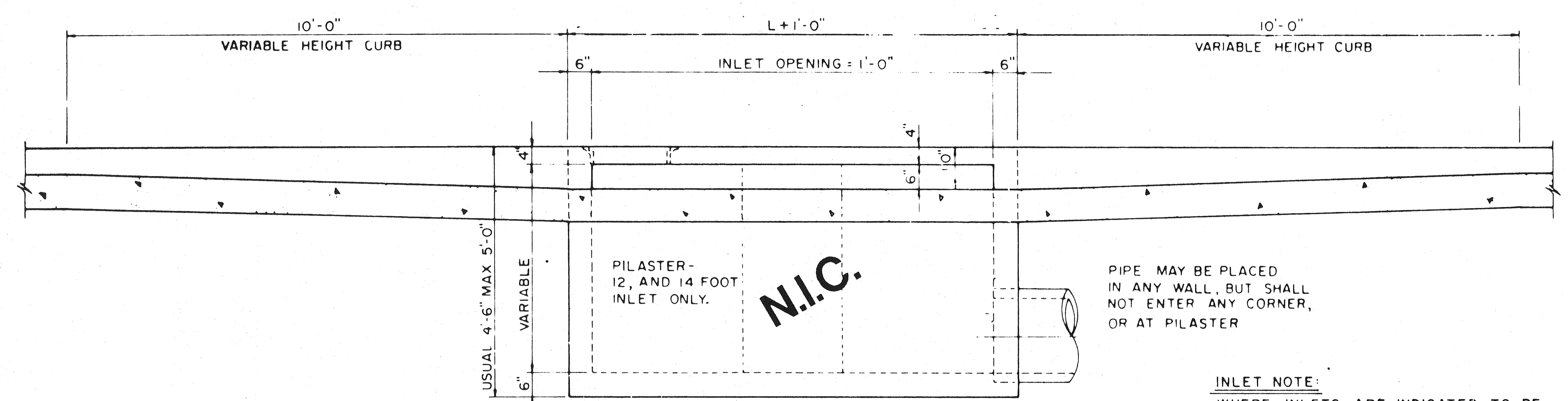
DATE

SHEET SD-2

90025-3



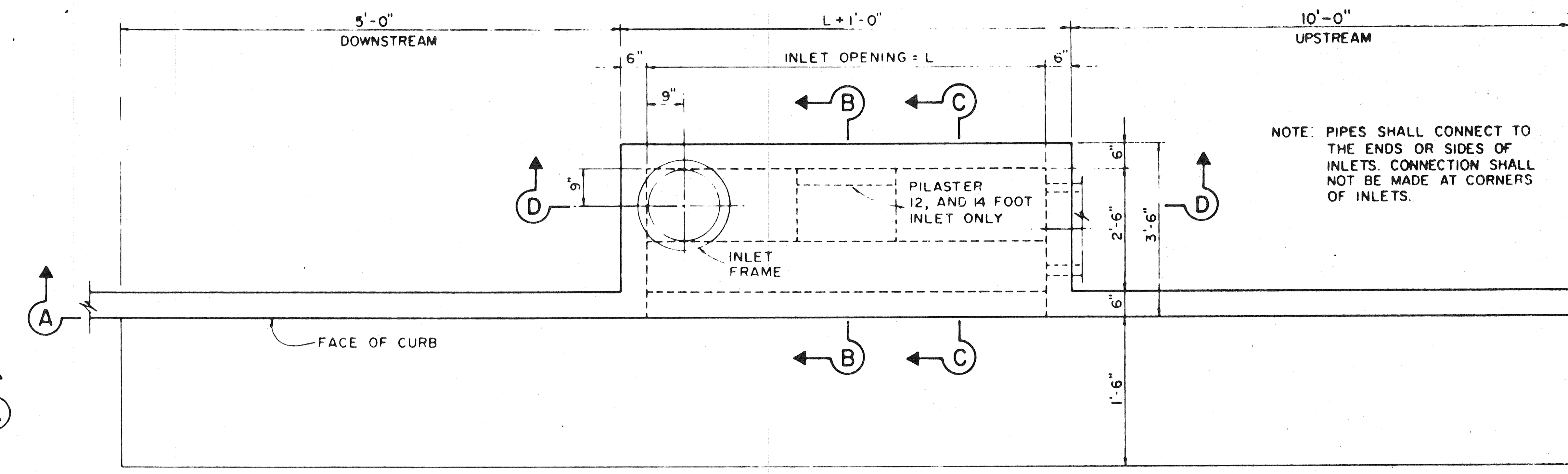
PLAN - RECESSED INLET



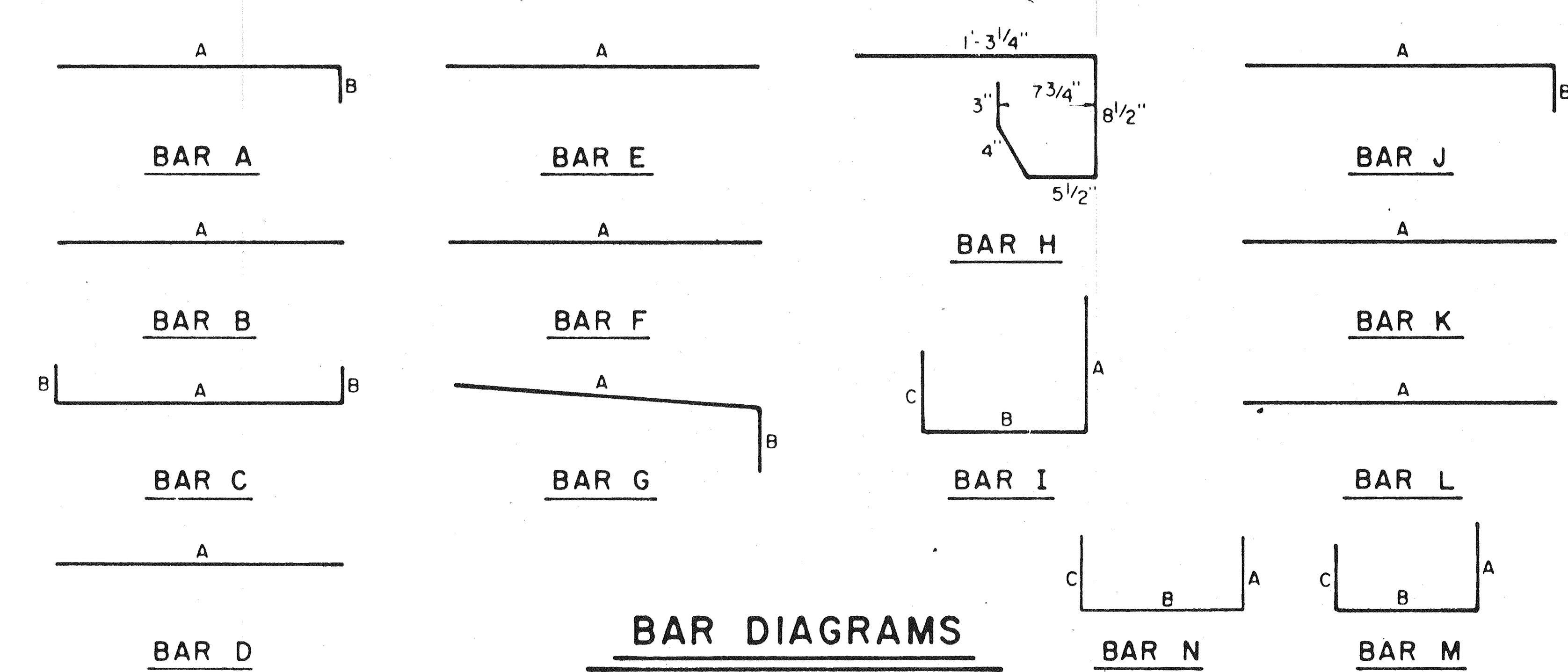
INLET NOTE:
WHERE INLETS ARE INDICATED TO BE MODIFIED, REFER TO PLAN/PROFILE SHEETS FOR ELEV. DIFFERENT SIZES ON MODIFICATIONS. ALL OTHER ITEMS SHALL REMAIN AS SHOWN ON THIS STANDARD DETAIL SHEET

SECTION A-A-RECESSED AND STANDARD INLETS

4, 6, 8, 10, 12, AND 14 FOOT INLETS



PLAN - STANDARD INLET



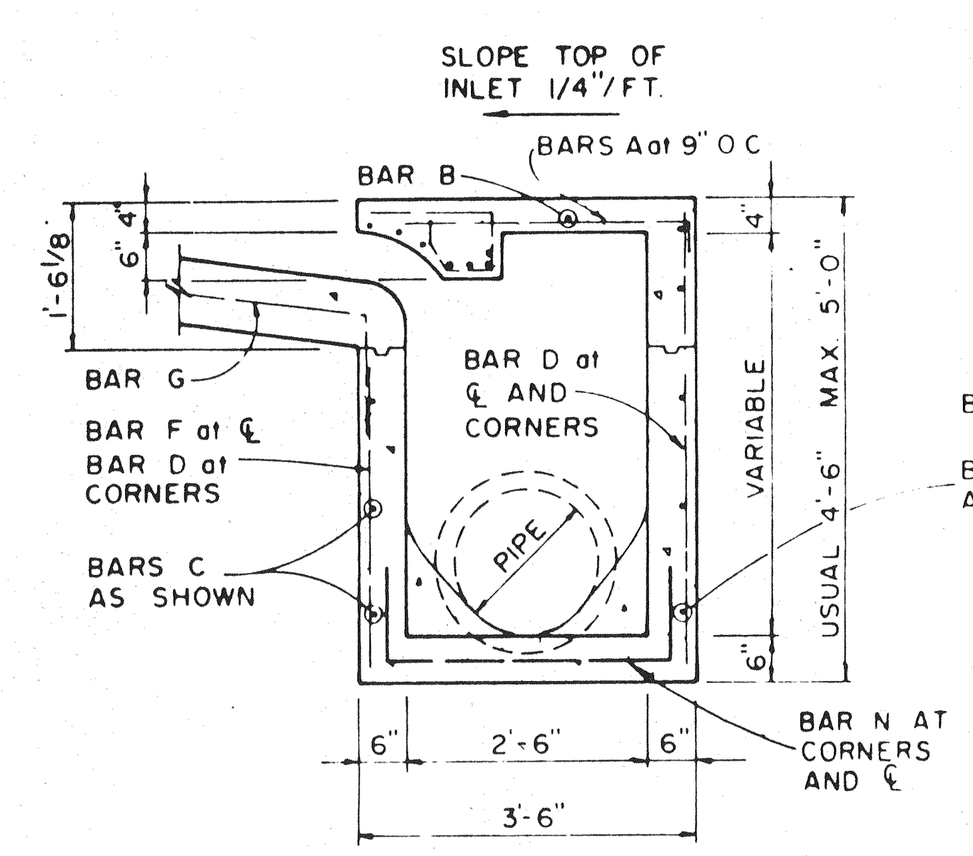
BAR DIAGRAMS

REINFORCING STEEL SCHEDULE

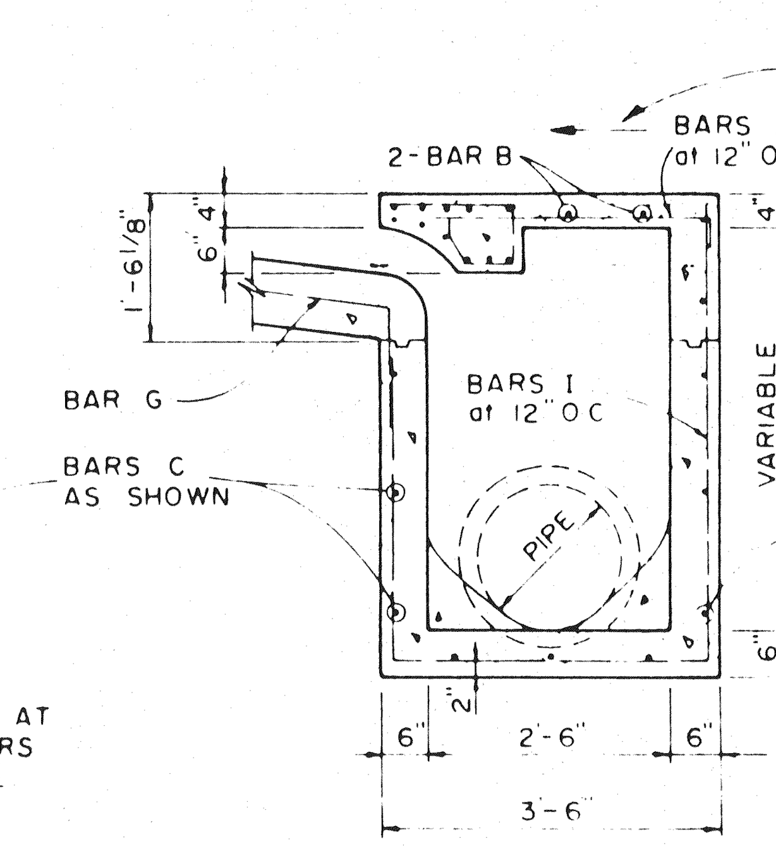
DIMENSIONS SHOWN ARE FOR MAXIMUM SIZE INLETS

INLET LENGTH	BAR TYPE	BAR DIA. (1/8 IN.)	NO. REQ'D	BAR DIMENSIONS A	B	C
4	A	3	6	3'-2"	0'-3"	-
	B	3	1	2'-10"	-	-
	C	4	15	4'-8"	0'-6"	-
	D	4	5	4'-8"	-	-
	F	4	1	3'-2"	-	-
	G	3	5	2'-0"	1'-3"	-
	H	3	4	*	*	*
	N	3	3	3'-2"	3'-2"	3'-2"
6	A	3	9	3'-2"	0'-3"	-
	B	3	1	4'-10"	-	-
	C	4	15	6'-8"	0'-6"	-
	D	4	5	4'-8"	-	-
	F	4	1	3'-2"	-	-
	G	3	5	2'-0"	1'-3"	-
	H	3	6	*	*	*
	N	3	3	3'-2"	3'-2"	3'-2"
8	A	3	12	3'-2"	0'-3"	-
	B	3	1	6'-10"	-	-
	C	4	15	8'-8"	0'-6"	-
	D	4	5	4'-8"	-	-
	F	4	1	3'-2"	-	-
	G	3	5	2'-0"	1'-3"	-
	H	3	8	*	*	*
	N	3	3	3'-2"	3'-2"	3'-2"
10	A	3	10	3'-2"	0'-3"	-
	B	3	2	8'-10"	-	-
	C	4	16	10'-8"	0'-6"	-
	D	4	4	4'-8"	-	-
	E	5	6	10'-8"	-	-
	G	3	5	2'-0"	1'-3"	-
	H	3	15	*	*	*
	I	4	8	4'-8	3'-2"	3'-2"
	L	4	5	4'-3"		-
12	A	3	12	3'-2"	0'-3"	-
	B	3	2	10'-10"	-	-
	C	4	16	12'-8"	0'-6"	-
	D	4	4	4'-8"	-	-
	E	5	6	12'-8"	-	-
	G	3	5	2'-0"	1'-3"	-
	H	3	18	*	*	*
	I	4	10	4'-8"	3'-2"	3'-2"
	J	5	9	3'-2"	1'-3"	-
	K	4	5	2'-3"	-	-
	L	4	5	4'-3"	-	-
	M	5	9	4'-3"	3'-2"	3'-9"
14	A	3	14	3'-2"	0'-3"	-
	B	3	2	10'-10"	-	-
	C	4	16	14'-8"	0'-6"	-
	D	4	4	4'-8"	-	-
	E	5	6	14'-8"	-	-
	G	3	5	2'-0"	1'-3"	-
	H	3	21	*	*	*
	I	4	12	4'-8"	3'-2"	3'-2"
	J	5	9	3'-2"	1'-3"	-
	K	4	5	2'-3"	-	-
	L	4	5	4'-3"	-	-
	M	5	9	4'-3"	3'-2"	3'-9"

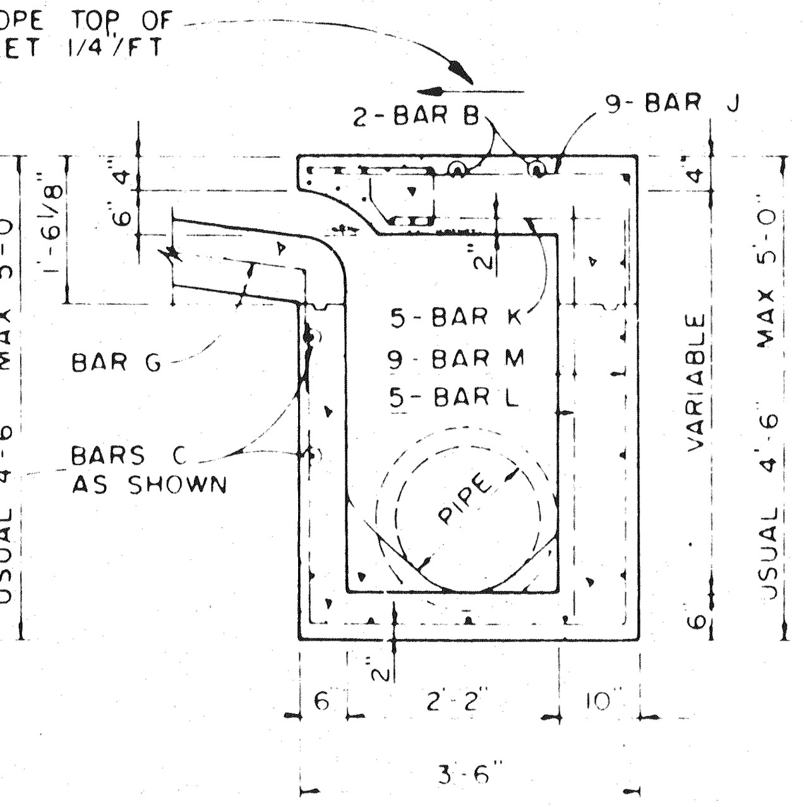
* SEE DIAGRAM FOR DIMENSIONS



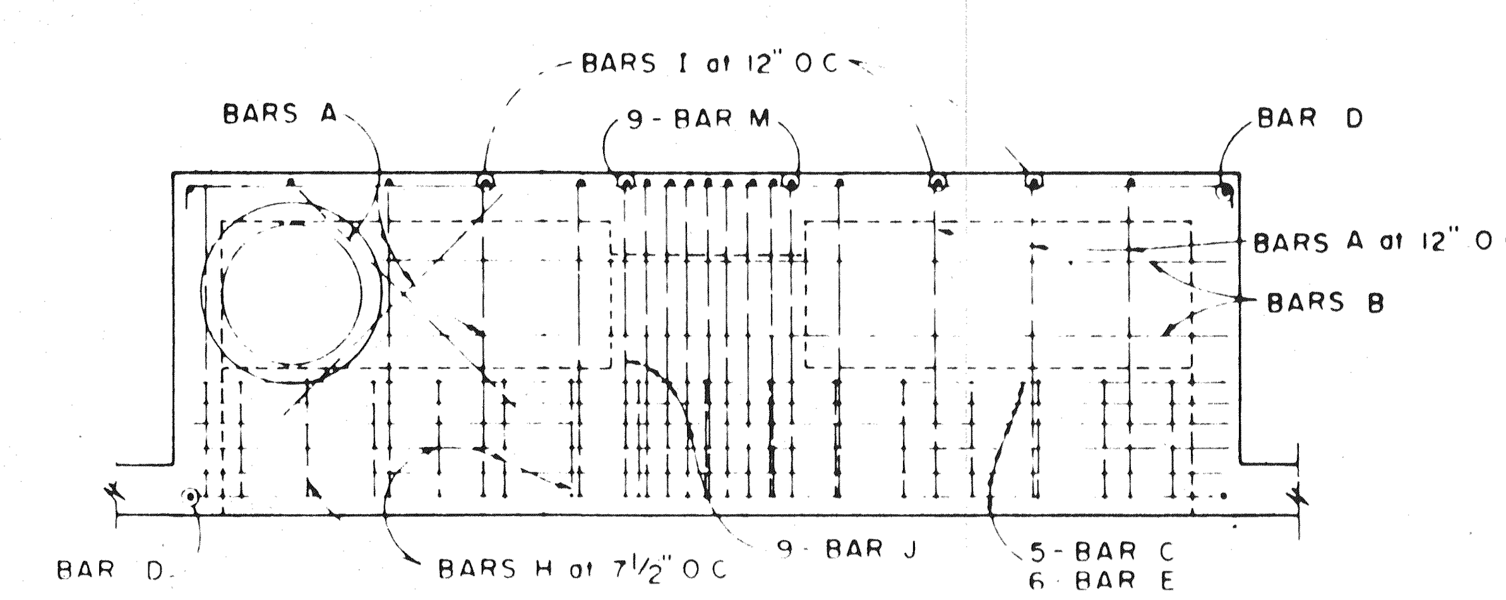
SECTION B-B



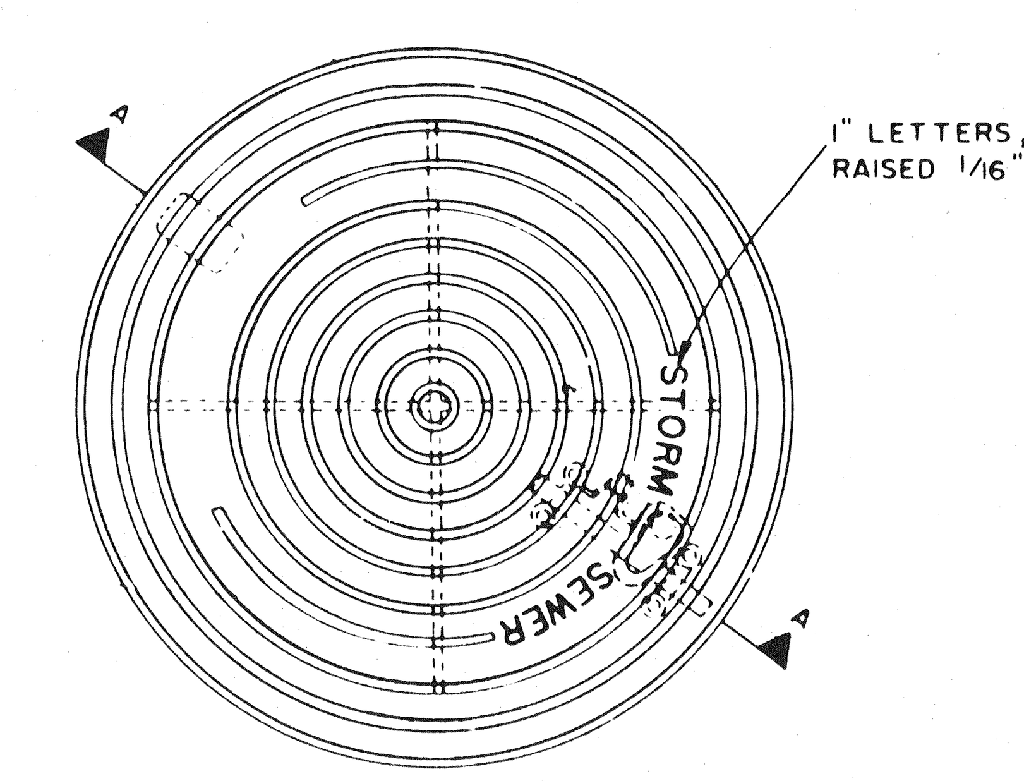
SECTION C-C



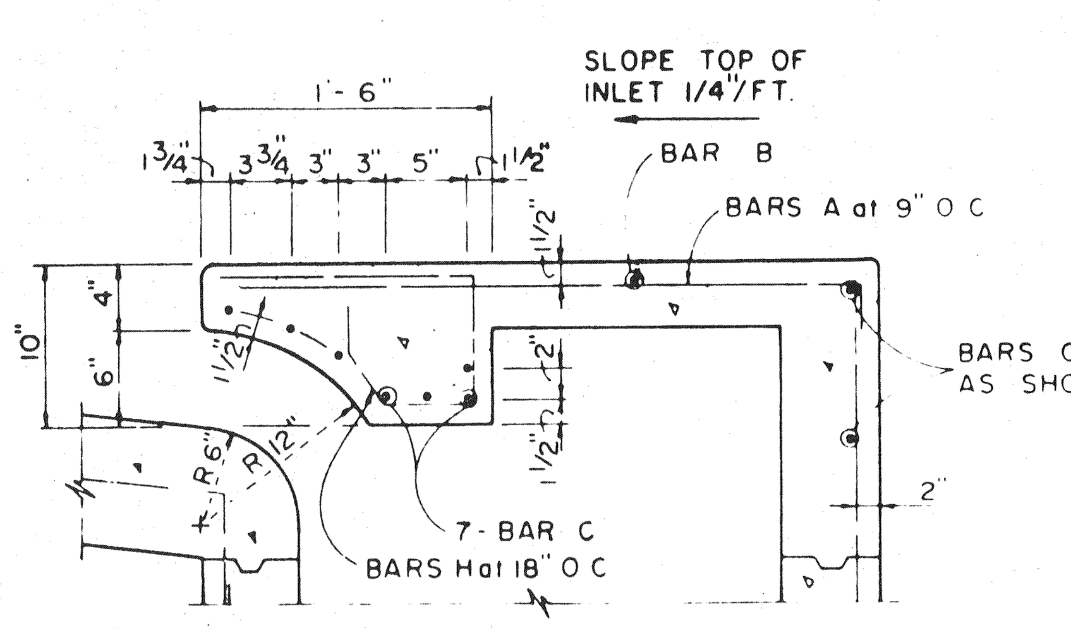
SECTION B-B



PLAN

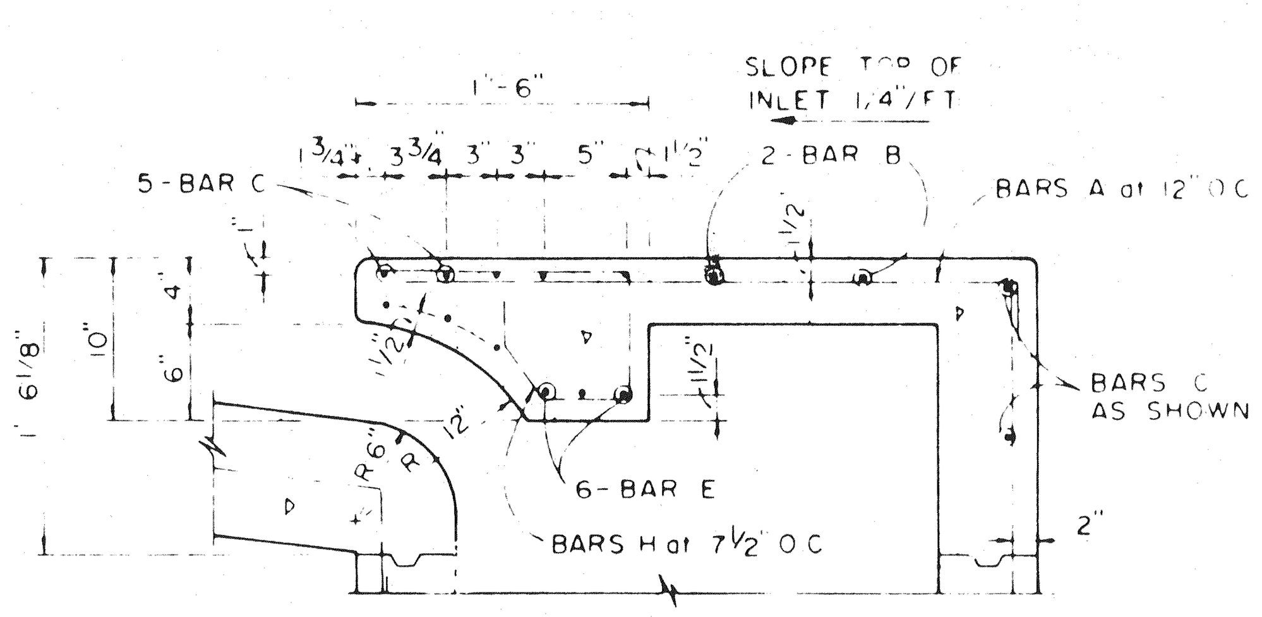


PLAN OF FRAME

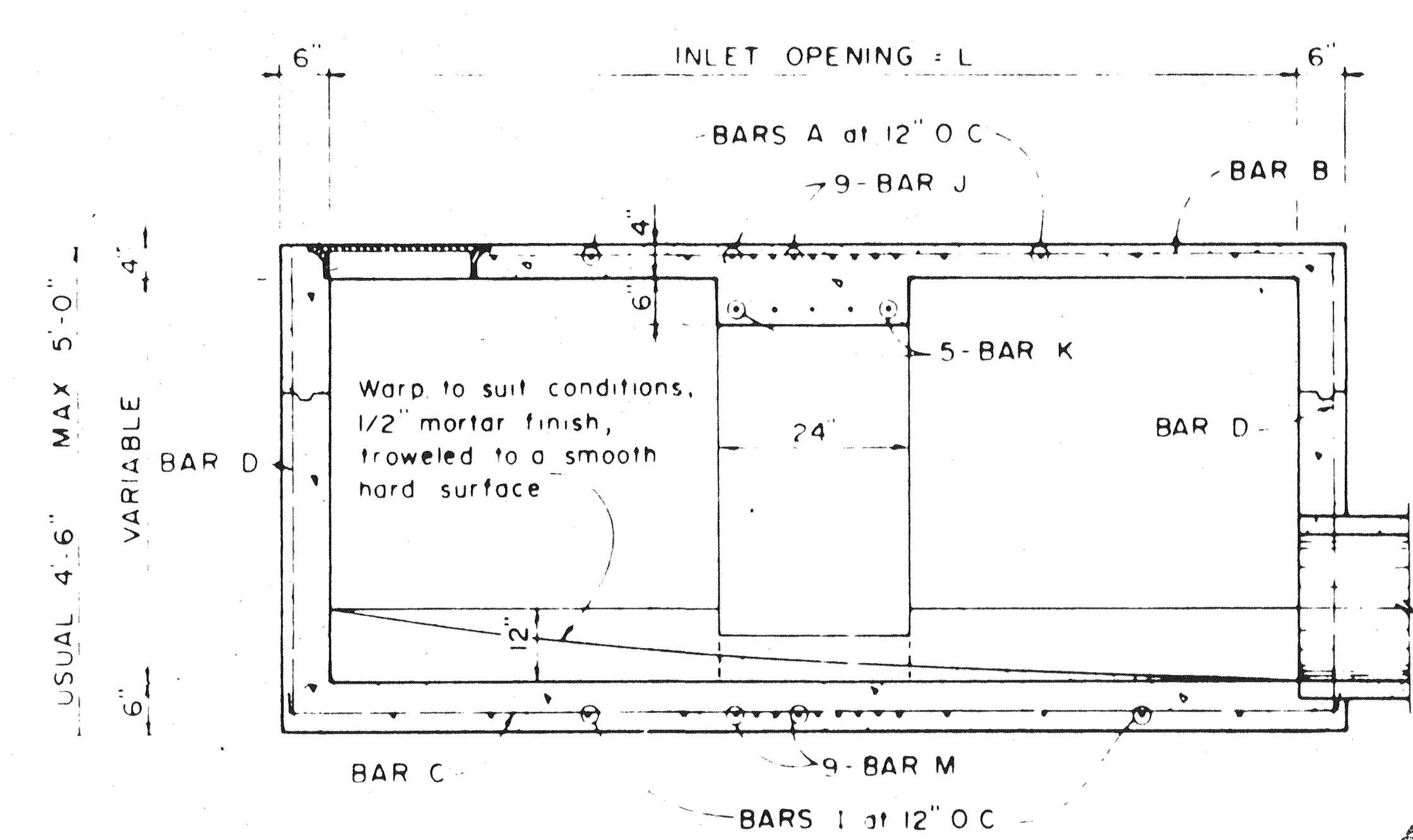


SECTION C-C

4, 6, AND 8 FOOT INLETS

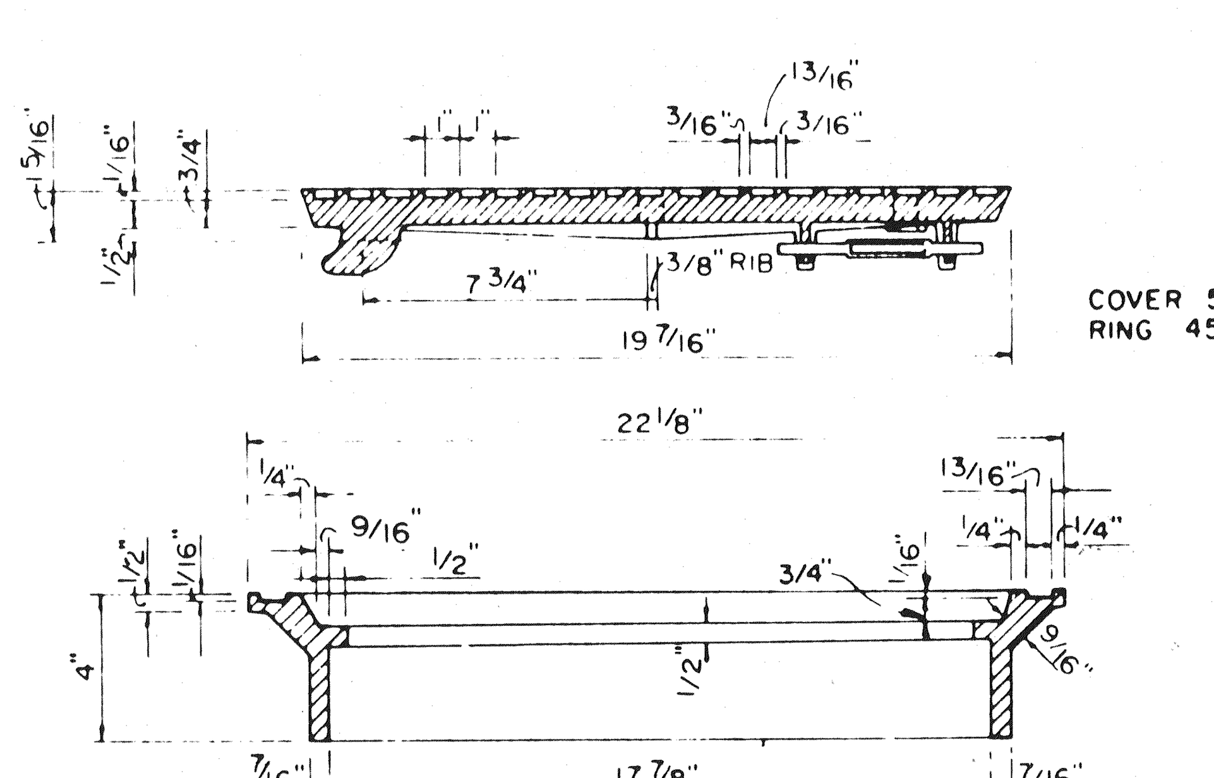


SECTION C-C



SECTION D-D
FOR 12' & 14' ONLY

10, 12, AND 14 FOOT INLETS



SECTION OF FRAME AND COVER

INLET FRAME AND COVER

AS-BUILTS

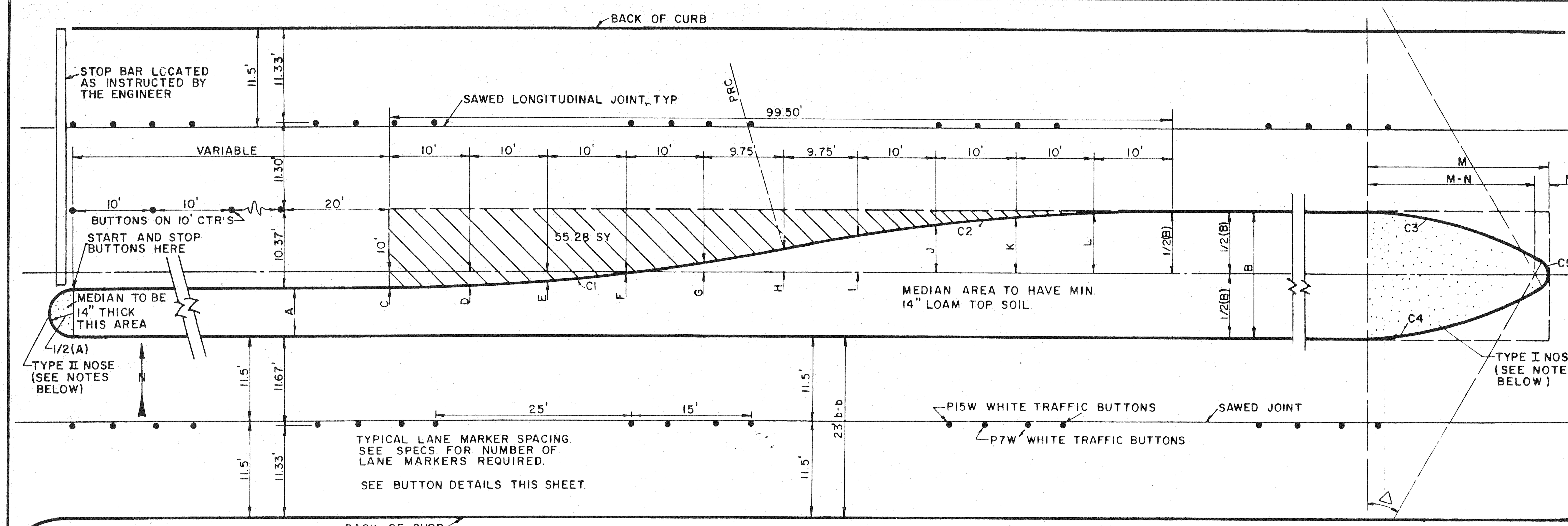
I CERTIFY THIS PROJECT WAS CONSTRUCTED IN GENERAL CONFORMANCE WITH THESE CONSTRUCTION PLANS AND WILL FUNCTION AS DESIGNED.

TOWN OF ADDISON, TEXAS
DEPARTMENT OF ENGINEERING

STANDARD CONSTRUCTION DETAILS
STORM DRAINAGE

CURB INLETS

Designed -	Drawn -	Date -	Job No. -
Approved -	Checked -	Scale -	Sheet SD-3



LEFT TURN LANE

(AS APPLICABLE)

NOTES:
1) FOR 2' ≤ A ≤ 7' USE TYPE II NOSE
2) FOR 7' ≤ A ≤ 14' USE TYPE I NOSE
3) FOR 12' ≤ B ≤ 24' USE TYPE I NOSE

MEDIAN DIMENSION CHART

B	C	D	E	F	G	H	I	J	K	L	M	N
12'	4.00'S	3.80'S	3.20'S	2.19'S	0.78'S	1.00'N	2.78'N	4.19'N	5.20'N	5.80'N	22.56'	1.00'
13'	3.50'S	3.30'S	2.70'S	1.69'S	0.28'S	1.50'N	3.28'N	4.69'N	5.70'N	6.30'N	23.56'	1.00'
14'	3.00'S	2.80'S	2.20'S	1.19'S	0.22'N	2.00'N	3.78'N	5.19'N	6.20'N	6.80'N	22.68'	2.50'
15'	2.50'S	2.30'S	1.70'S	0.69'S	0.72'N	2.50'N	4.28'N	5.69'N	6.70'N	7.30'N	23.71'	2.50'
16'	2.00'S	1.80'S	1.20'S	0.19'S	1.22'N	3.00'N	4.78'N	6.19'N	7.20'N	7.80'N	23.46'	3.50'
17'	1.50'S	1.30'S	0.70'S	0.31'N	1.72'N	3.50'N	5.28'N	6.69'N	7.70'N	8.30'N	24.48'	3.50'
18'	1.00'S	0.80'S	0.20'S	0.81'N	2.22'N	4.00'N	5.78'N	7.19'N	8.20'N	8.80'N	25.44'	3.50'
19'	0.50'S	0.30'S	0.30'N	1.31'N	2.72'N	4.50'N	6.28'N	7.69'N	8.70'N	9.30'N	26.34'	3.50'
20'	0.00'	0.20'N	0.80'N	1.81'N	3.22'N	5.00'N	6.78'N	8.19'N	9.20'N	9.80'N	26.72'	4.00'
21'	0.50'N	0.70'N	1.30'N	2.31'N	3.72'N	5.50'N	7.28'N	8.69'N	9.70'N	10.30'N	27.57'	4.00'
22'	1.00'N	1.20'N	1.80'N	2.81'N	4.22'N	6.00'N	7.78'N	9.19'N	10.20'N	10.80'N	28.39'	4.00'
23'	1.50'N	1.70'N	2.30'N	3.31'N	4.72'N	6.50'N	8.28'N	9.69'N	10.70'N	11.30'N	29.17'	4.00'
24'	2.00'N	2.30'N	2.80'N	3.81'N	5.22'N	7.00'N	8.78'N	10.19'N	11.20'N	11.80'N	29.92'	4.00'

N = NORTH OF CENTERLINE
S = SOUTH OF CENTERLINE

CURVE DATA C3 & C4 FOR 7' ≤ A ≤ 14'

A	△	R	T	L	M	N
7'	18°22'52"	50'	8.09'	16.04'	16.45'	1.00'
8'	20°09'11"		8.89'	17.59'	17.88'	1.00'
9'	21°47'12"		9.62'	19.01'	19.19'	1.00'
10'	23°18'41"		10.31'	20.34	20.39'	1.00'
11'	24°44'50"		10.97'	21.60'	21.51'	1.00'
12'	26°06'32"		11.59'	22.78'	22.56'	1.00'
13'	27°24'27"		12.19'	23.92	23.56'	1.00'
14'	25°08'28"		11.15'	21.94'	22.68'	2.50'

CURVE DATA C1 C2

△ = 11°28'40"
R = 250'
T = 25.13'
L = 50.08'

CURVE DATA C3 & C4 FOR 12' ≤ B ≤ 24'

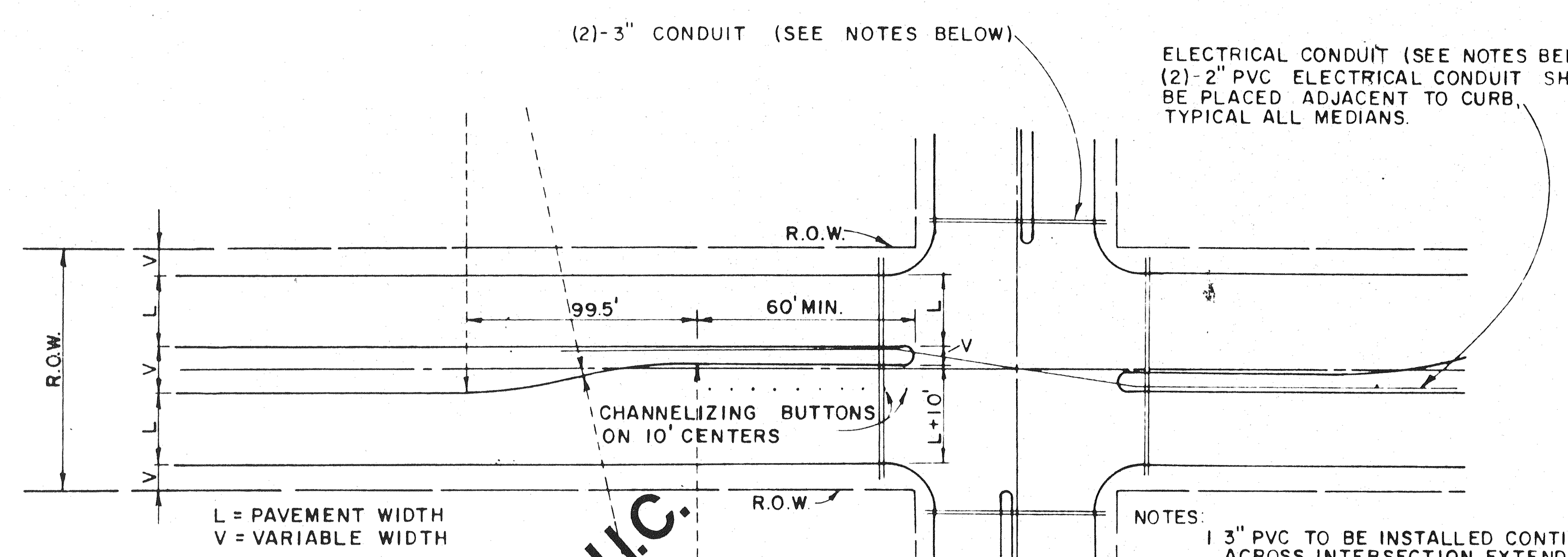
B	△	R	T	L
12'	26°06'32"	50.00'	11.59'	22.78'
13'	27°24'27"		12.19'	23.92'
14'	25°08'28"		11.15'	21.94'
15'	26°31'32"		11.79'	23.15'
16'	25°24'53"		11.27'	22.18'
17'	26°48'51"		11.92'	23.40'
18'	28°08'58"		12.54'	24.57'
19'	29°25'43"		13.13'	25.68'
20'	29°35'30"		13.21'	25.82'
21'	30°49'46"		13.79'	26.90'
22'	32°01'26"		14.35'	27.95'
23'	33°10'48"		14.90'	28.96'
24'	34°18'05"		15.43'	29.93'

CURVE DATA C5 FOR 12' ≤ B ≤ 24'

B	△	R	T	L
12'	127°47'32"	1.00'	2.04'	2.23'
13'	125°12'46"	1.00'	1.93'	2.19'
14'	129°43'08"	2.50'	5.33'	5.66'
15'	126°57'31"	2.50'	5.01'	5.54'
16'	129°09'33"	3.50'	7.36'	7.89'
17'	126°21'44"	3.50'	6.92'	7.72'
18'	123°41'38"	3.50'	6.54'	7.56'
19'	120°52'03"	3.50'	6.17'	7.38'
20'	120°48'56"	4.00'	7.04'	8.43'
21'	118°21'08"	4.00'	6.70'	8.26'
22'	115°57'07"	4.00'	6.40'	8.10'
23'	113°38'22"	4.00'	6.12'	7.93'
24'	111°23'48"	4.00'	5.86'	7.78'

CURVE DATA C5 FOR 7' ≤ A ≤ 14'

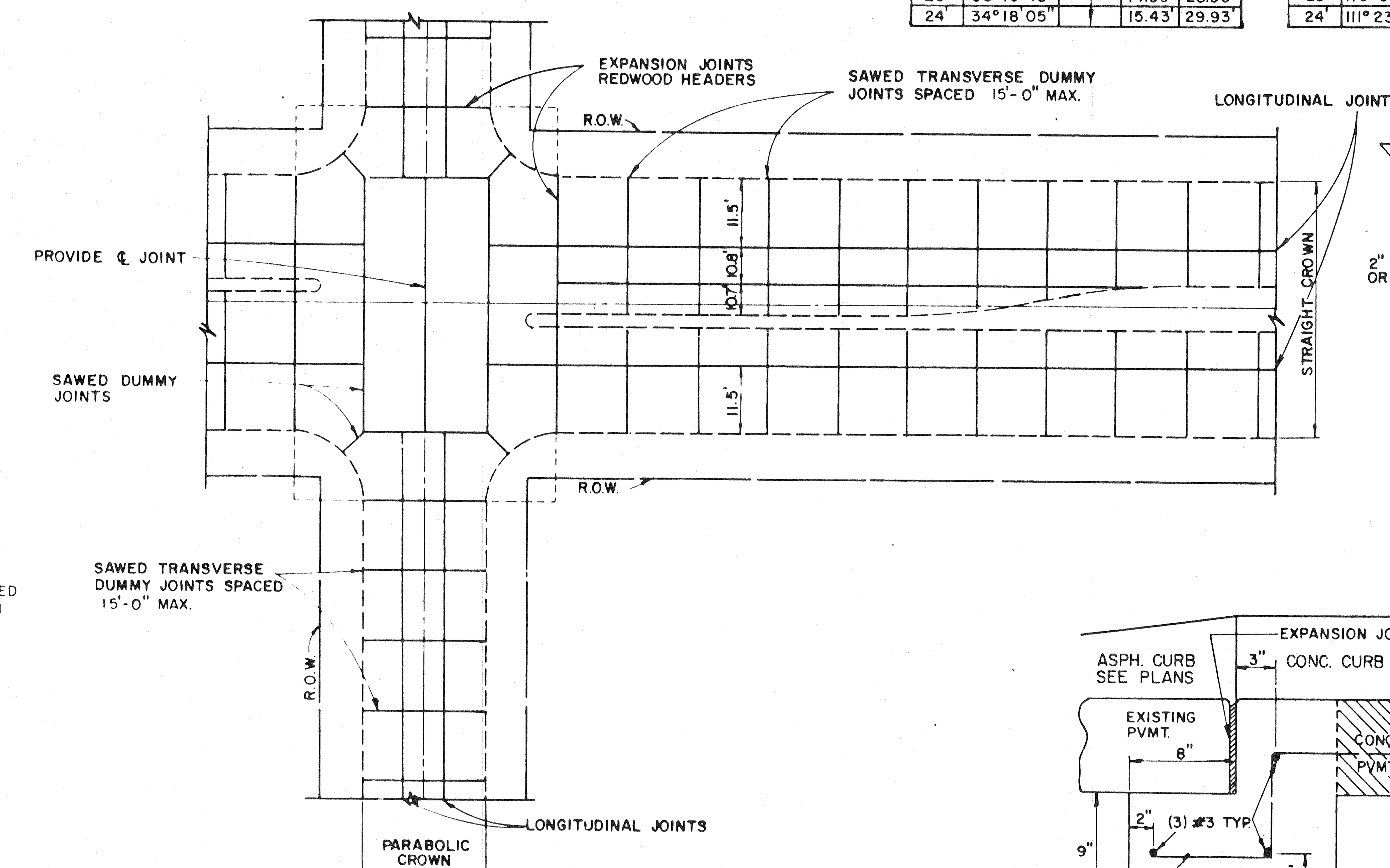
A	△	R	T	L
7'	143°14'15"	1.00'	3.01'	2.50'
8'	139°41'38"	1.00'	2.72'	2.44'
9'	136°25'35"	1.00'	2.50'	2.38'
10'	133°22'38"	1.00'	2.32'	2.33'
11'	130°30'20"	1.00'	2.17'	2.28'
12'	127°47'32"	1.00'	2.04'	2.23'
13'	125°12'46"	1.00'	1.93'	2.19'
14'	129°43'08"	2.50'	5.33'	5.66'



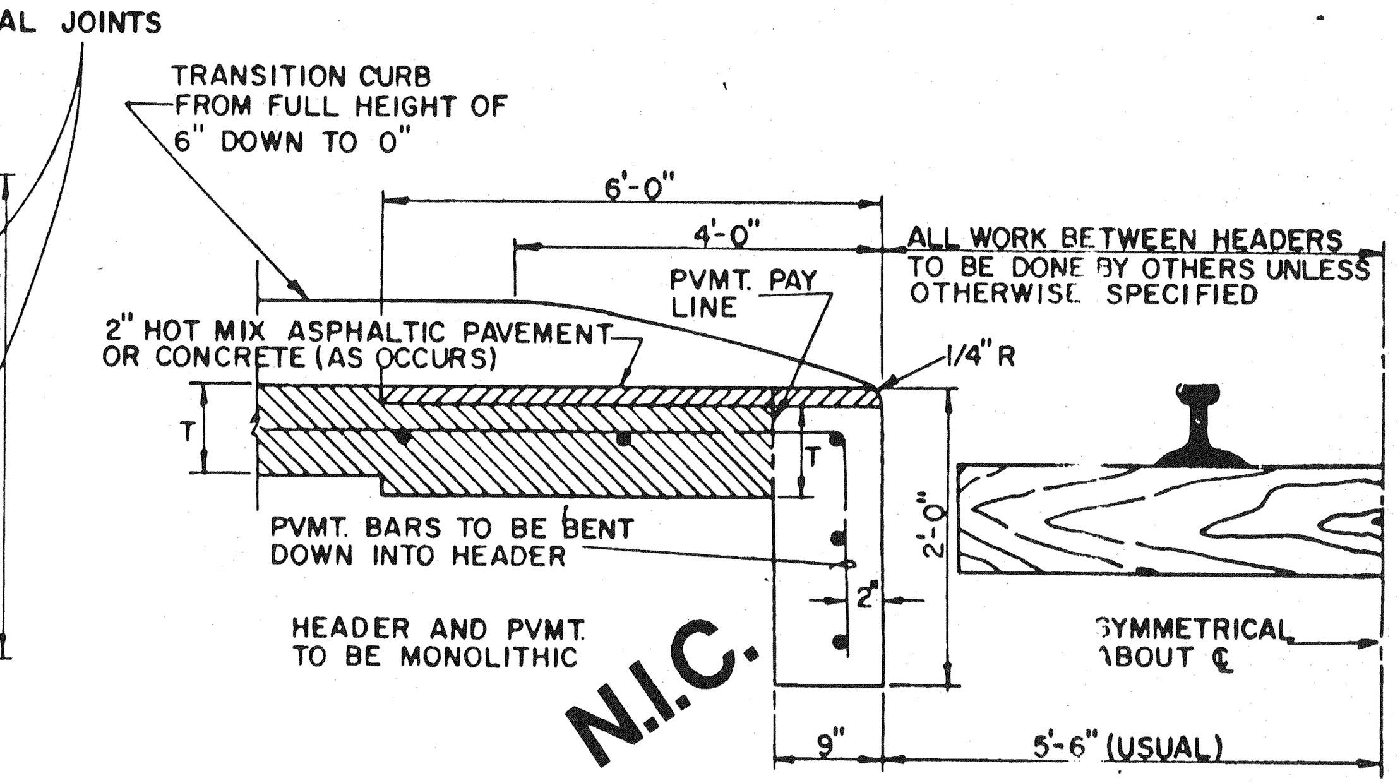
CONDUIT

FOR EXACT LOCATIONS, THIS PROJECT-SEE PLANS

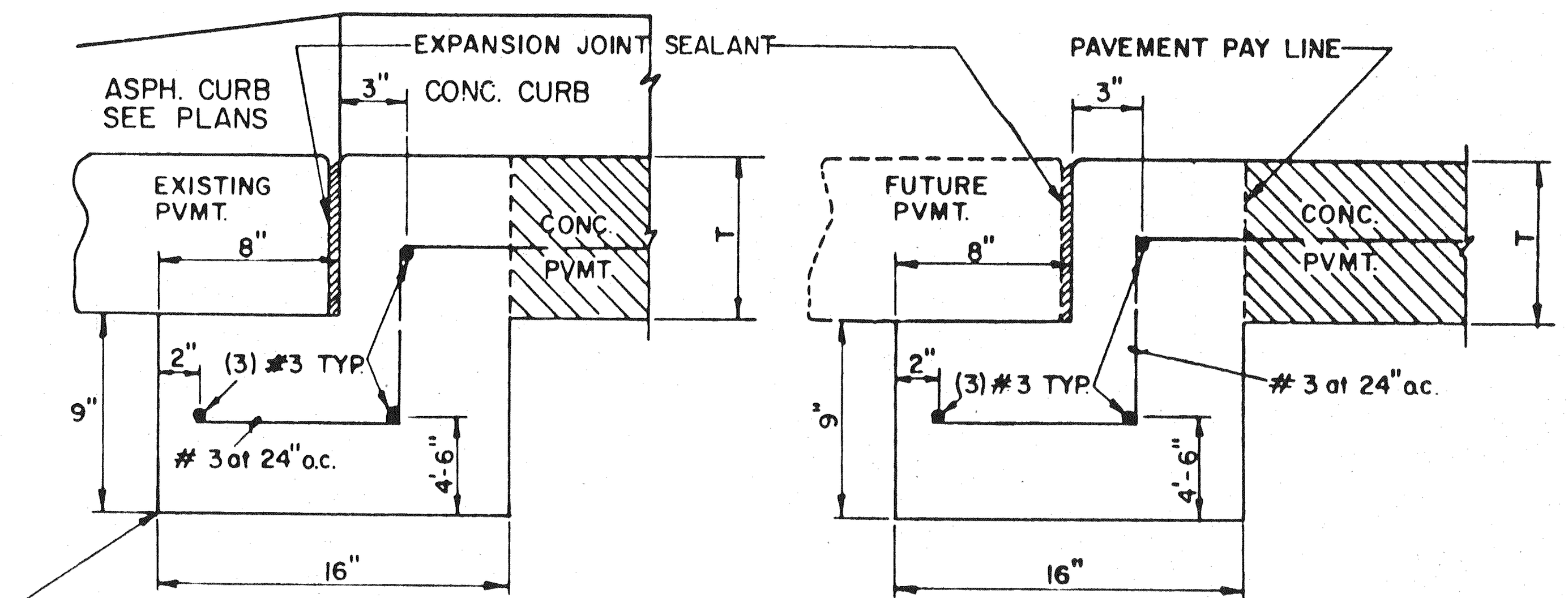
NOTES:
1. 3" PVC TO BE INSTALLED CONTINUOUS ACROSS INTERSECTION, EXTENDING TO 2' BEHIND CURBS, TERMINATING IN PULL BOX
2. RED MARKER TAPE IS TO BE INSTALLED ON THE ENDS OF THE CONDUIT.
3. THE EXACT LOCATIONS WHERE THE CONDUIT CROSSES UNDER THE PAVING ARE TO BE CHISELED WITH AN "X" AND PAINTED WITH RED PAINT, ON THE CURB OR PAVING.
4. A NYLON CORD SHALL BE PLACED IN ALL CONDUIT UNDER PAVEMENT. THIS CORD SHALL EXTEND A MINIMUM OF 1' FROM THE END OF THE CONDUIT.



SPACING DIAGRAM FOR TRANSVERSE JOINTS

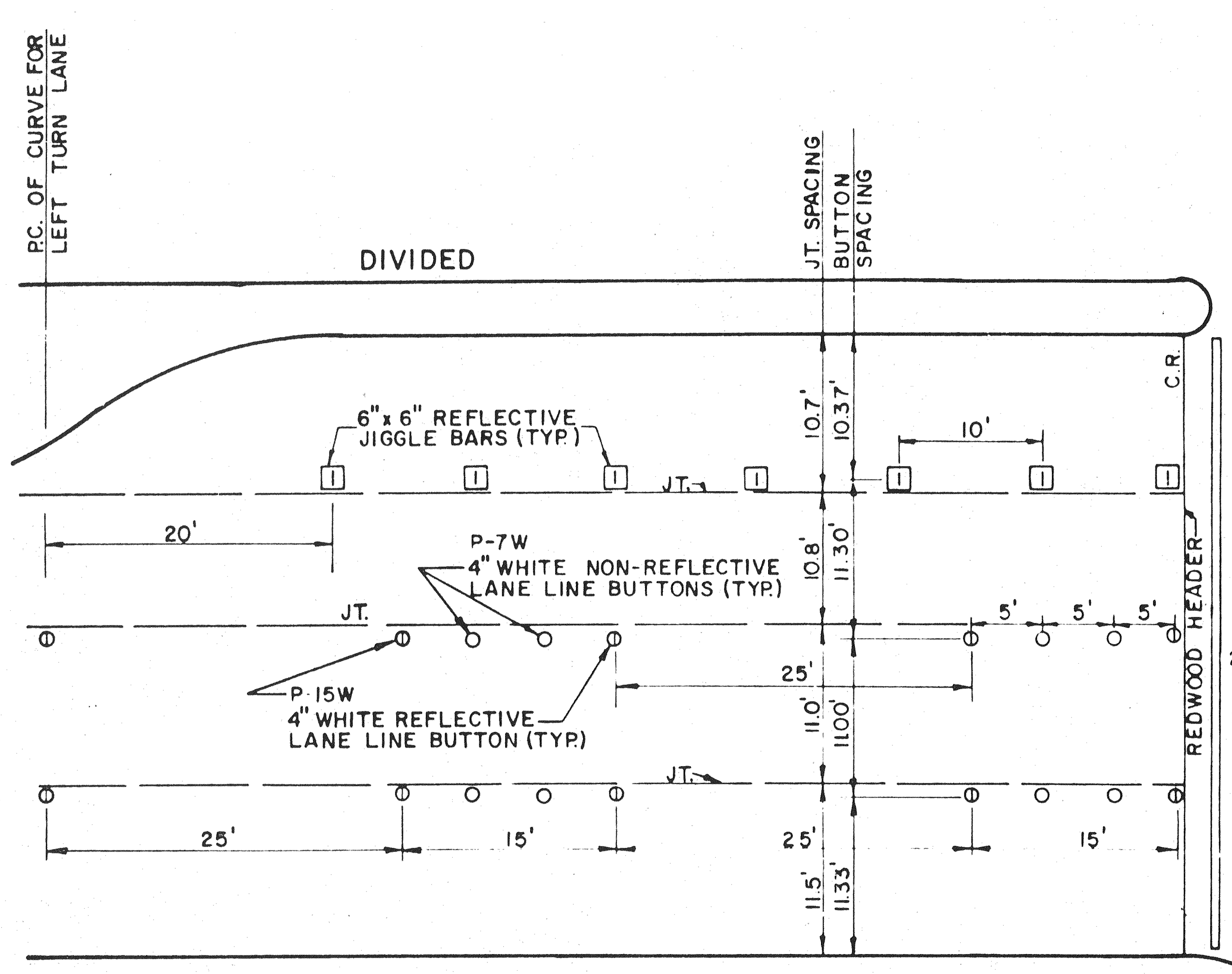


RAIL HEADER



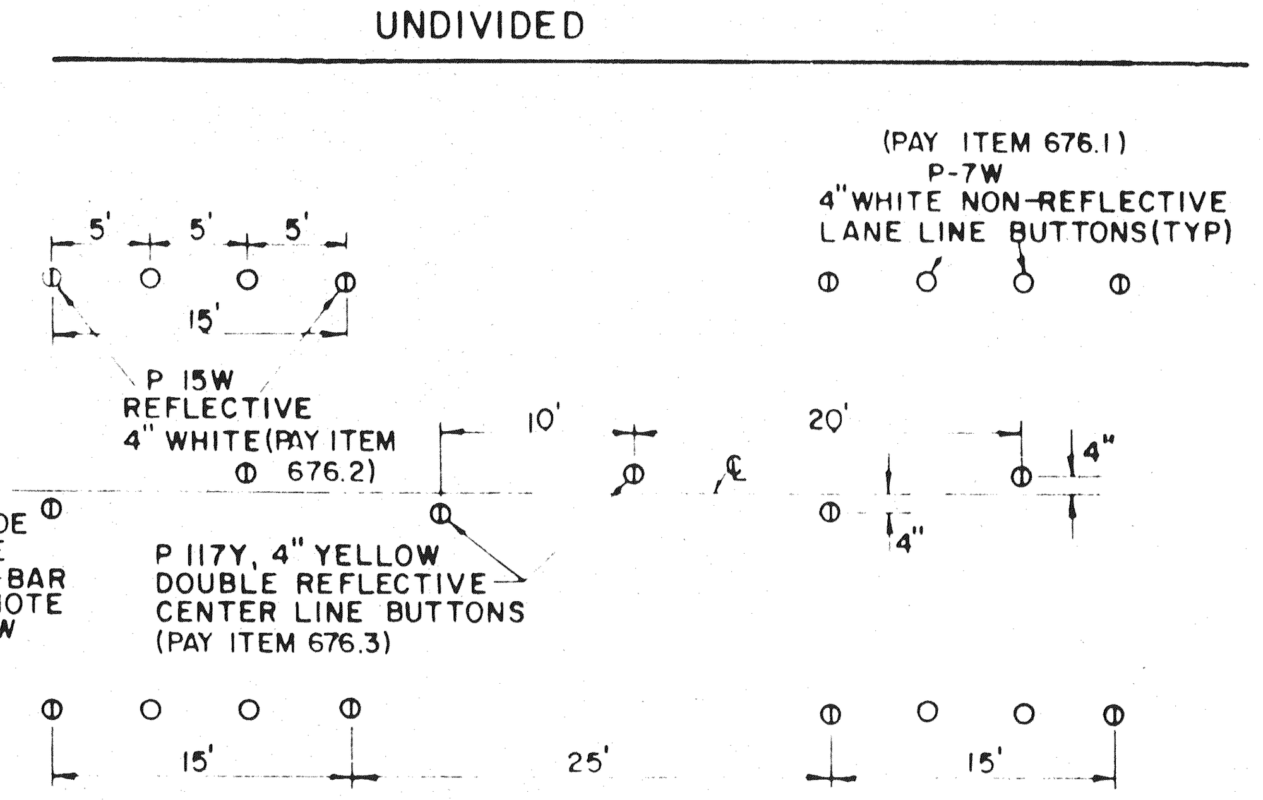
PAVEMENT BARS TO BE BENT DOWN INTO HEADER. HEADER AND PAVEMENT TO BE MONOLITHIC.

STREET HEADER



STANDARD BUTTON LAYOUT
APPROACH TO DIVIDED ROADWAY INTERSECTION

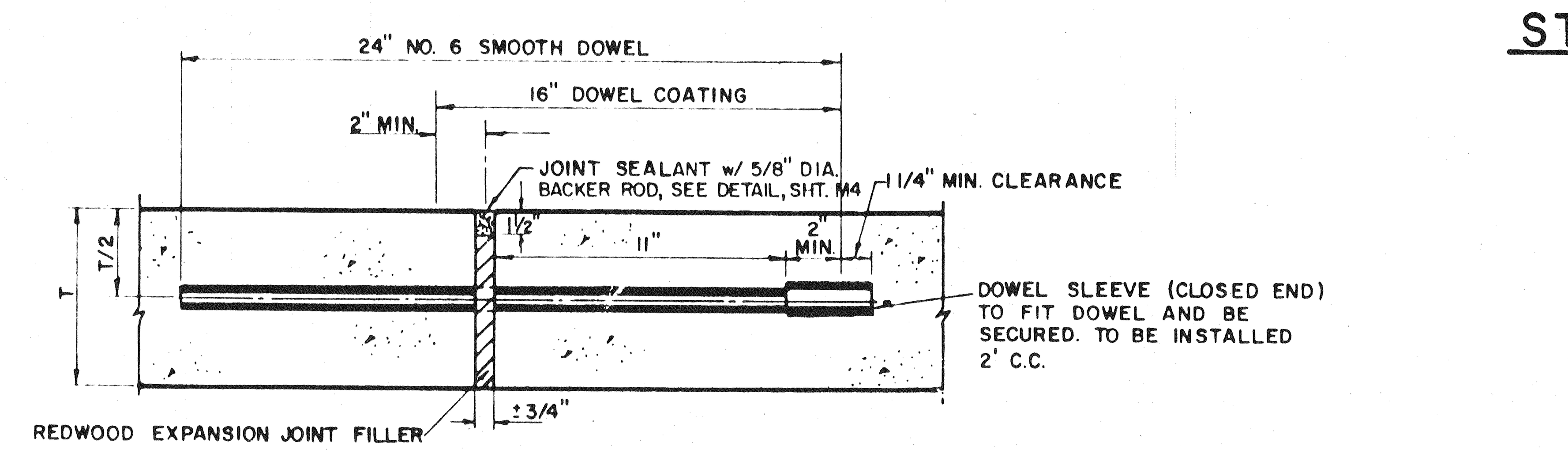
NOTE: STOP-BAR TO BE STAMARK 3M BRAND NO. N360



STANDARD BUTTON LAYOUT
TWO WAY UNDIVIDED ROADWAY w/ DOUBLE YELLOW CENTER LINE

NOTE: BUTTONS TO BE INSTALLED OFF OF JOINTS, WITH MACHINE IMPLEMENTED 2 PART COMPONENT EPOXY

BUTTON DETAILS



TRANSVERSE EXPANSION JOINT

(SPACED 600 FT. MAXIMUM; LOCATE AT INTERSECTIONS)

NOTE: DOWELS AND REINFORCING BARS SHALL BE SUPPORTED BY AN APPROVED DEVICE.

AS-BUILTS

I CERTIFY THIS PROJECT WAS CONSTRUCTED IN GENERAL CONFORMANCE WITH THESE CONSTRUCTION PLANS AND WILL FUNCTION AS DESIGNED.

TOWN OF ADDISON, TEXAS
DEPARTMENT OF ENGINEERING

STANDARD CONSTRUCTION DETAILS
PAVING

TURN LANES & JOINTS

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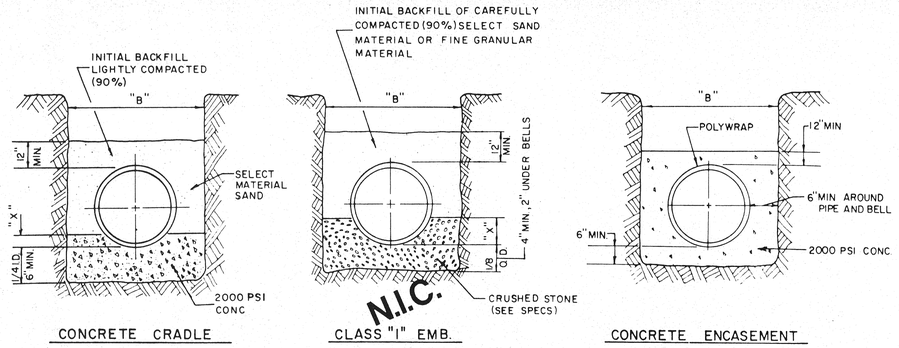
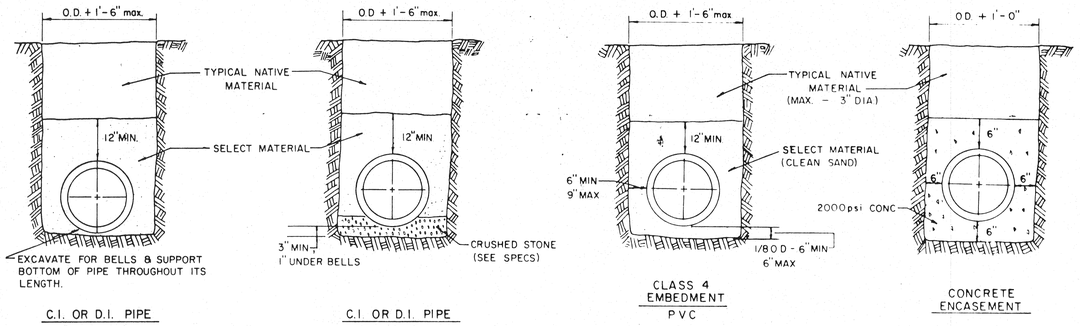


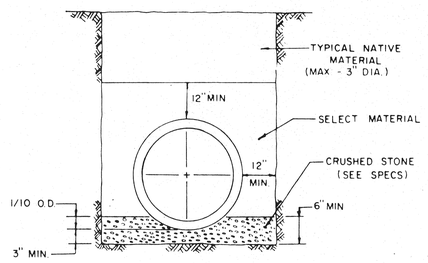
EMBEDMENT DETAILS FOR RCCP WATERLINE

TABLE OF QUANTITIES OF MATERIALS IN CUBIC YARDS PER 100 LINEAR FEET

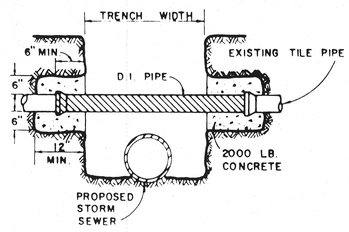
INSIDE DIAMETER OF PIPE	APPROX. OUTSIDE DIAMETER OF PIPE	"X" IS A MINIMUM DEPTH	"B" TRENCH WIDTH FOR COMPUTATION OF QUANTITIES	CONCRETE FOR EMBEDMENT	CONCRETE FOR ENCASEMENT	CRUSHED STONE FOR CL."I" EMBEDMENT
N.I.C. - REINFORCED CONCRETE CYLINDER PIPE						
14"	17.25"	2.53"	34"	6.91	16.07	5.16
16"	19.38"	2.84"	36"	7.50	17.76	5.64
18"	21.78"	3.19"	38"	8.11	19.52	6.16
24"	27.75"	4.06"	44"	9.97	2490	9.28



EMBEDMENT DETAILS FOR WATER MAIN

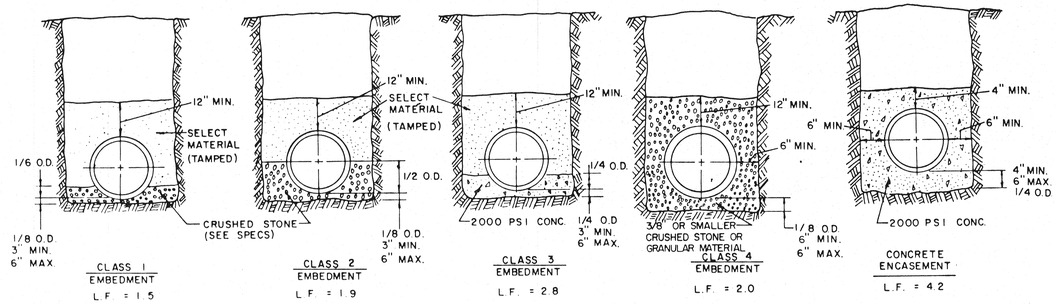


EMBEDMENT DETAIL FOR STORM SEWER



DETAIL OF UTILITY SUPPORT

TYPICAL NATIVE MATERIAL COMPACTED TO:
95% OPTIMUM MOISTURE 0 TO ±3% UNDER PAVEMENT
95% OPTIMUM MOISTURE 0 TO ±3% OUTSIDE CURB LINES
JETTING IS NOT ALLOWED
BACKFILL TO BE COMPACTED IN 6"± LIFTS



P.V.C. PIPE ONLY
SDR 35 (GREEN PIPE)

EMBEDMENT DETAILS FOR SANITARY SEWER

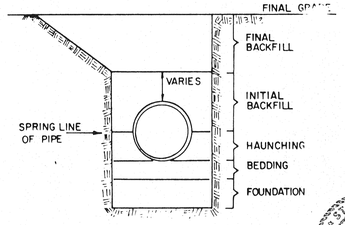
TABLE OF QUANTITIES OF 2000 PSI CONCRETE, GRAVEL OR CRUSHED STONE IN CUBIC YARDS PER 100 LINEAR FEET FOR EACH CLASS EMBEDMENT

TABLE OF QUANTITIES PER 100 LINEAR FEET REINFORCED CONCRETE PIPE

SIZE OF PIPE IN INCHES I.D.	O.D. OF PIPE IN INCHES	TRENCH WIDTH IN INCHES	TRENCH WIDTH IN FEET	CLASS 1 EMBEDMENT CRUSHED STONE	CLASS 2 EMBEDMENT CRUSHED STONE	CLASS 3 EMBEDMENT CONCRETE	CONCRETE ENCASEMENT
12	16.00	32	2.67	4.1	6.5	4.8	15.8
15	19.50	36	3.00	4.8	7.8	6.4	19.2
18	23.00	39	3.25	5.7	9.2	8.2	21.2
21	26.50	43	3.58	6.9	11.0	10.2	24.9
24	30.00	46	3.83	8.3	13.1	12.4	28.7
27	33.50	51	4.25	10.3	16.1	14.4	32.8
30	37.00	57	4.75	12.7	20.1	17.0	34.8
33	40.50	62	5.17	15.1	23.8	19.3	39.2
36	44.00	67	5.58	18.0	28.6	22.1	43.8

TABLE OF QUANTITIES PER 100 LINEAR FEET-PVC PIPE (IN CUBIC YARDS)

SIZE OF PIPE IN INCHES	O.D. OF PIPE IN INCHES	TRENCH WIDTH IN INCHES	TRENCH WIDTH IN FEET	CLASS 4 EMBEDMENT CRUSHED STONE	CONCRETE ENCASEMENT
6	6.28	24	2.00	8.0	11.7
8	8.16	24	2.00	8.7	12.4
10	10.20	26	2.18	10.2	14.2
12	12.24	28	2.35	11.7	15.9
16	15.30	31	2.61	14.0	18.8
24		36	3.0		
30		42	3.5		



EMBEDMENT ZONES

AS-BUILTS

I CERTIFY THIS PROJECT WAS CONSTRUCTED IN GENERAL CONFORMANCE WITH THESE CONSTRUCTION PLANS AND WILL FUNCTION AS DESIGNED.

LAWRENCE A. CATES 41838 REGISTERED PROFESSIONAL ENGINEER
May 14, 1993

LAWRENCE A. CATES 41838 REGISTERED PROFESSIONAL ENGINEER
May 14, 1993

TOWN OF ADDISON, TEXAS
DEPARTMENT OF ENGINEERING

STANDARD CONSTRUCTION DETAILS

EMBEDMENT DETAILS

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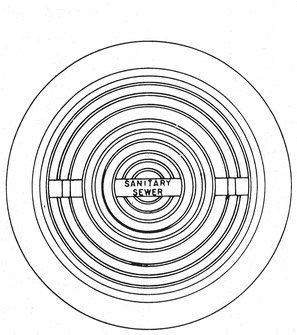
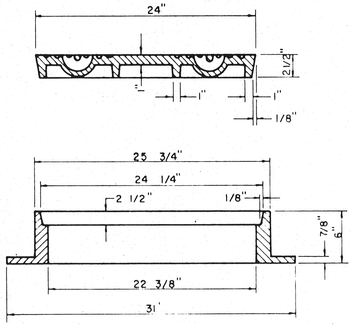
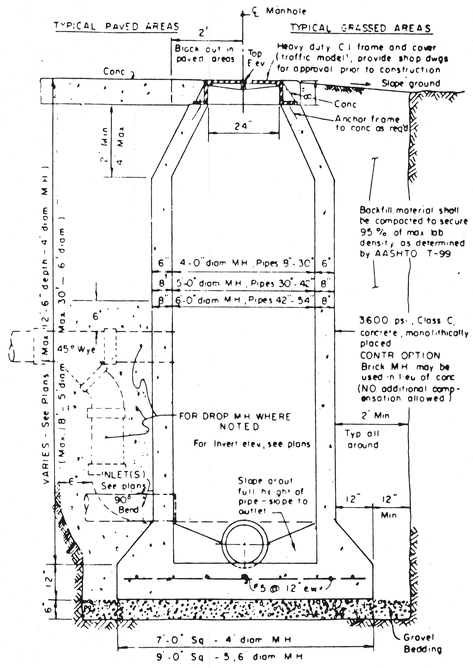
FISCO 203564



APPROX.
WEIGHT
RING AND COVER
385 LBS.

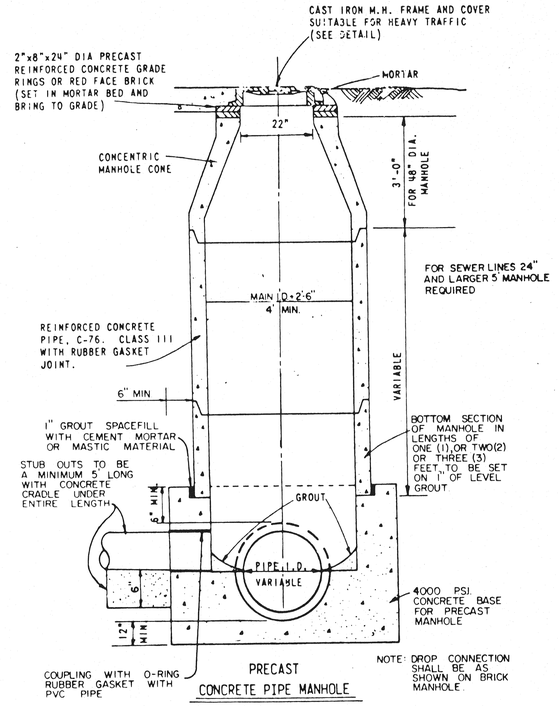


CAST IRON GRATE AND FRAME DETAIL

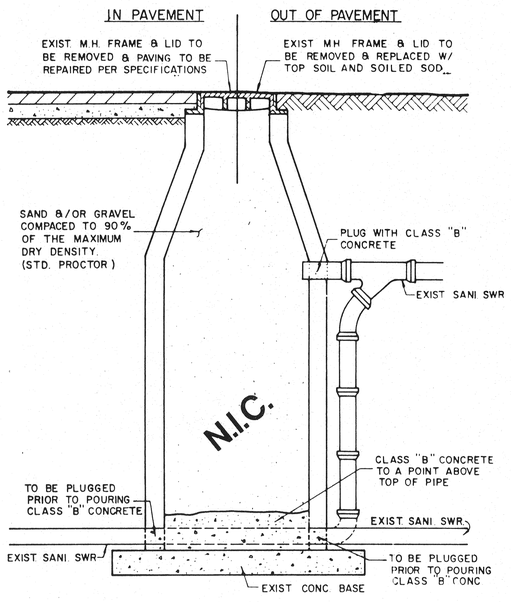


CAST IN PLACE MANHOLE

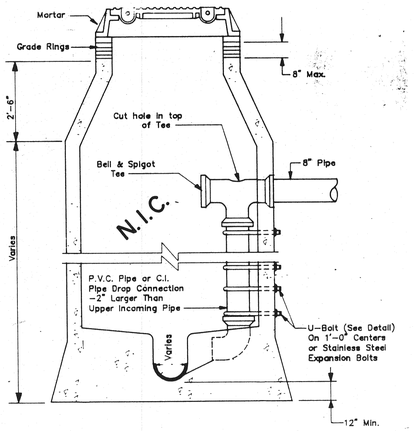
WHERE DROP M.H. IS REQUIRED, USE INSIDE DROP CONNECTION AS PER TOWN OF ADDISON STANDARDS.



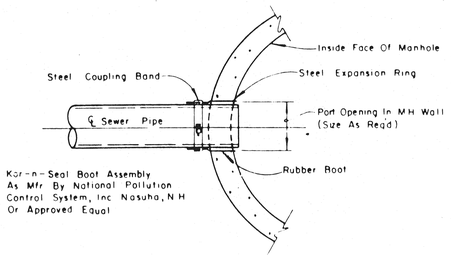
PRECAST MANHOLE

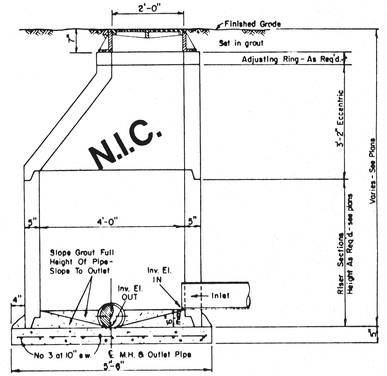


ABANDONMENT OF EXISTING MANHOLE IN AND OUT OF PAVEMENT



DROP CONNECTIONS FOR SANITARY SEWER MANHOLES





ECCENTRIC MANHOLE DETAIL

NOTE
Contractor To Install Kor-n-Seal Boot Assembly Per Mfr. Recommendations In A Neat And Workman-Like Manner

TYPICAL SEWER CONNECTION AT MANHOLE

CLASS B Conc. - 2000psi at 28 days (Compressive)

AS-BUILTS

I CERTIFY THIS PROJECT WAS CONSTRUCTED IN GENERAL CONFORMANCE WITH THESE CONSTRUCTION PLANS AND WILL FUNCTION AS DESIGNED.

STATE OF TEXAS
LAWRENCE A. CAIL
41838
REGISTERED
PROFESSIONAL ENGINEER
May 14, 1993

TOWN OF ADDISON, TEXAS
DEPARTMENT OF ENGINEERING

STANDARD CONSTRUCTION DETAILS SANITARY SEWER

MANHOLES AND CONNECTIONS

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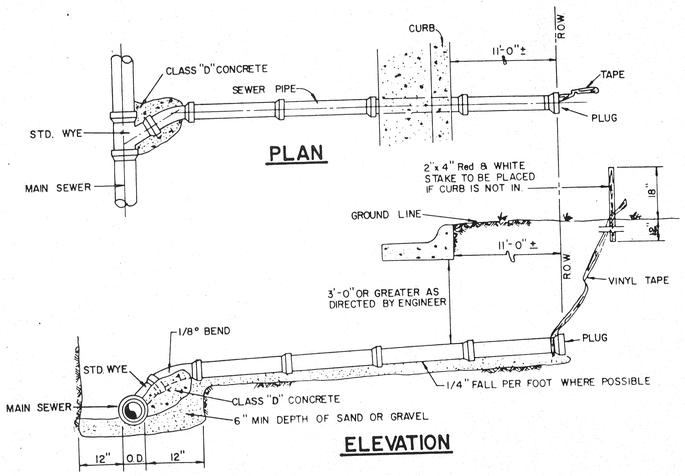
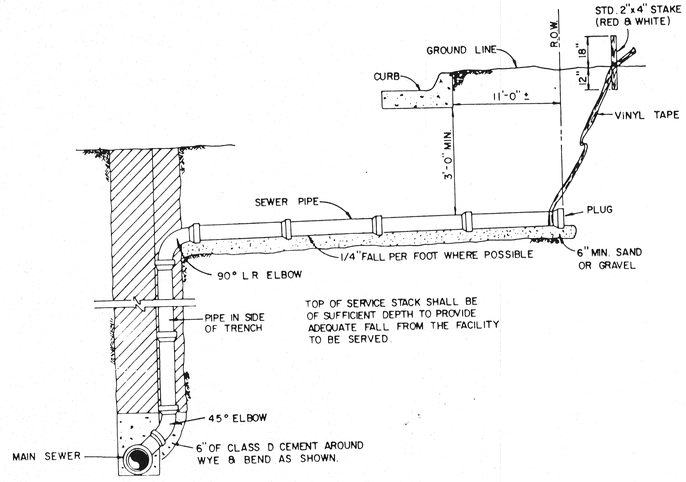
Approved -	Checked -	Scale -	Sheet SD-6

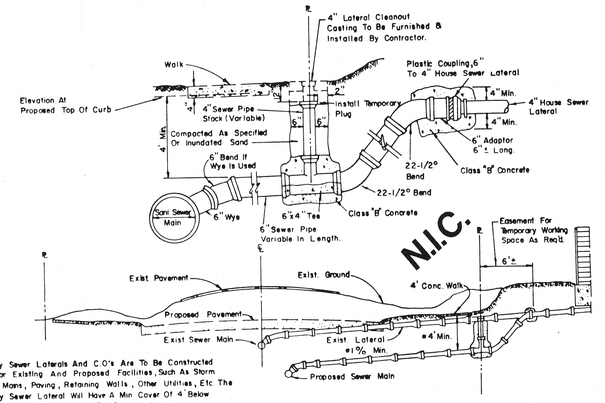
FISCO 305304



SANITARY SEWER SERVICE CONNECTION



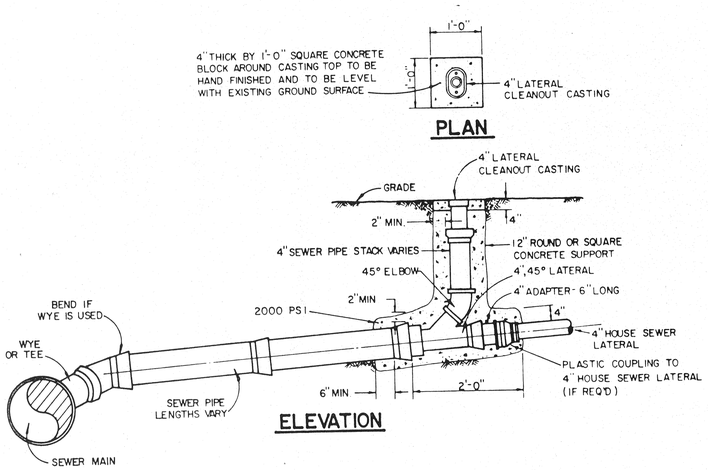
SANITARY SEWER DEEP SERVICE CONNECTION



Sanitary Sewer Laterals And C.O's Are To Be Constructed To Clear Existing And Proposed Facilities, Such As Storm Sewer Mains, Paving, Retaining Walls, Other Utilities, Etc. The Sanitary Sewer Lateral Will Have A Min Cover Of 4' Below The Proposed Curb Grade At The Property Line.

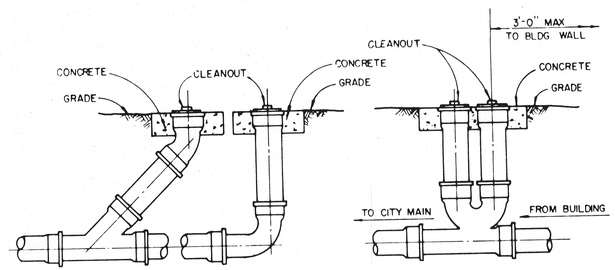
SANITARY SEWER LATERAL REPLACEMENT

NOTE:
Cleanout To Be Installed On Property Line Except As Required To Avoid Conflict With Existing Or Proposed Facilities In Which Case The Location Shall Be Determined By The Engineer.



ALL PVC SANITARY SEWER PIPE TO BE SDR 35 WITH INTEGRAL BELL.
IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD LOCATE HORIZONTALLY EACH 4" SERVICE IN RELATION TO THE SANITARY SEWER STATIONING.

FIELD TIES ARE TO BE INCLUDED AND RECORDED ON ALUMINIZED SANITARY SEWER TAPE. THIS TAPE, GREEN OR RED IN COLOR IS TO BE ATTCHED TO THE 4" SERVICE AT THE ROW LINE AND BROUGHT TO THE SURFACE TO BE USED AS A PERMANENT MARKER



TYPICAL CLEANOUTS

STATE OF TEXAS
LAWRENCE A. CATES
41838
REGISTERED PROFESSIONAL ENGINEER
12-8-93

AS-BUILTS

I CERTIFY THIS PROJECT WAS CONSTRUCTED IN GENERAL CONFORMANCE WITH THESE CONSTRUCTION PLANS AND WILL FUNCTION AS DESIGNED.

STATE OF TEXAS
LAWRENCE A. CATES
41838
REGISTERED PROFESSIONAL ENGINEER
May 14, 1993

TOWN OF ADDISON, TEXAS
DEPARTMENT OF ENGINEERING

STANDARD CONSTRUCTION DETAILS SANITARY SEWER

LATERALS AND CLEANOUTS

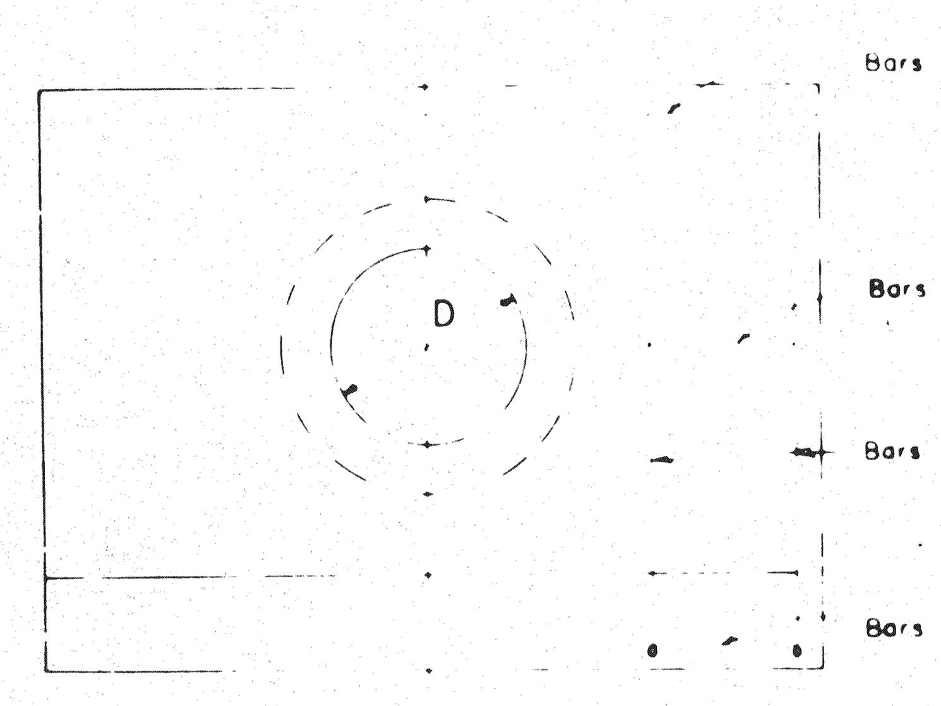
Designed -	Drawn -	Date -	Job No. -
Approved -	Checked -	Scale -	Sheet SD-7

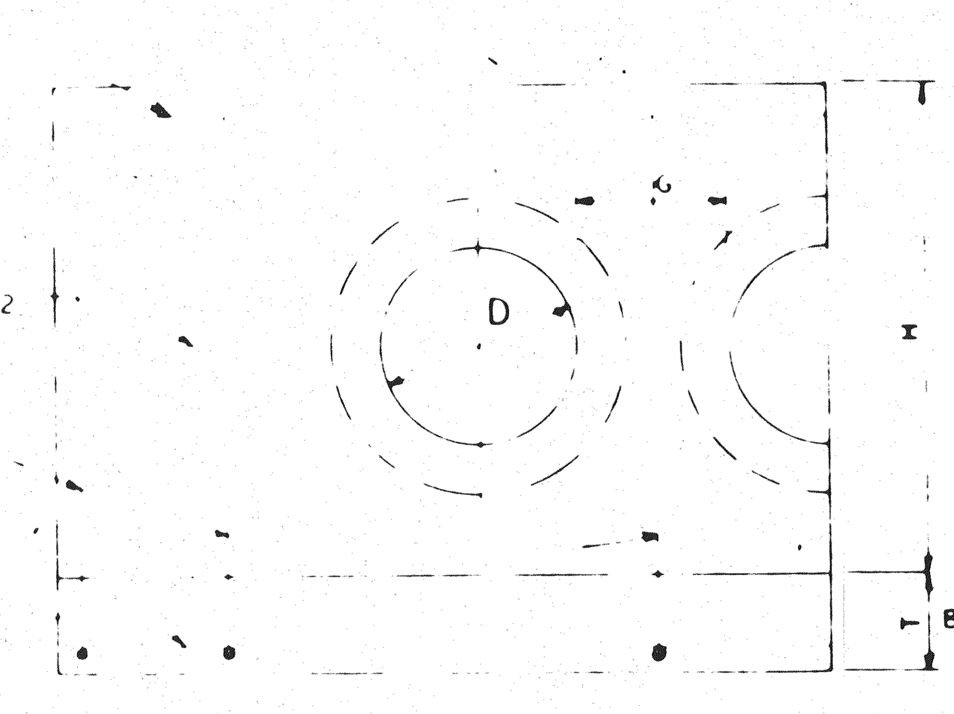
TABLE OF DIMENSIONS AND QUANTITIES FOR TWO TYPE A HEADWALLS

NO. OF PIPES	DIAM OF PIPES	G	K	T	E	H	W	BARS A1 4-3/8"φ Lgth	BARS A1 Wt	BARS A2 3/8"φ@18"± N°	BARS A2 Lgth	BARS A2 Wt	BARS E 4-5/8"φ Lgth	BARS E Wt	BARS F1 @12"± N°	BARS F1 Size	BARS F1 Lgth	BARS F1 Wt	BARS F2 @12"± N°	BARS F2 Size	BARS F2 Lgth	BARS F2 Wt	TOTAL QUANTITIES STEEL LBS	TOTAL QUANTITIES CONC C Y
1	12"	–	12"	9"	1'-9"	2'-6"	7'-0"	6'-8"	10	8	2'-6"	8	6'-8"	28	12	½"φ	2'-11"	23	12	½"φ	3'-8"	29	98	1.48
2	"	10"	"	"	"	"	8'-10"	8'-6"	13	"	"	"	8'-6"	35	14	"	"	27	14	"	"	34	117	1.81
3	"	"	"	"	"	"	10'-8"	10'-4"	16	"	"	"	10'-4"	43	16	"	"	31	16	"	"	39	137	2.15
4	"	"	"	"	"	"	12'-6"	12'-2"	18	"	"	"	12'-2"	51	18	"	"	35	18	"	"	44	156	2.48
1	15"	–	12"	9"	1'-9"	2'-9"	8'-3"	7'-11"	12	8	3'-0"	9	7'-11"	33	12	½"φ	3'-2"	25	12	½"φ	3'-11"	31	110	1.82
2	"	1'-0"	"	"	"	"	10'-6"	10'-2"	15	"	"	"	10'-2"	42	14	"	"	30	14	"	"	37	133	2.24
3	"	"	"	"	"	"	12'-9"	12'-5"	19	"	"	"	12'-5"	52	16	"	"	34	16	"	"	42	156	2.66
4	"	"	"	"	"	"	15'-0"	14'-8"	22	"	"	"	14'-8"	61	18	"	"	38	18	"	"	47	177	3.09
1	18"	–	12"	9"	1'-9"	3'-0"	9'-6"	9'-2"	14	8	3'-6"	11	9'-2"	38	20	½"φ	3'-5"	46	20	½"φ	4'-2"	56	165	2.19
2	"	1'-2"	"	"	"	"	12'-2"	11'-10"	18	"	"	"	11'-10"	49	22	"	"	50	22	"	"	61	189	2.70
3	"	"	"	"	"	"	14'-10"	14'-6"	22	"	"	"	14'-6"	60	24	"	"	55	24	"	"	67	215	3.21
4	"	"	"	"	"	"	17'-6"	17'-2"	26	"	"	"	17'-2"	72	26	"	"	59	26	"	"	72	240	3.73
1	24"	–	12"	9"	2'-0"	3'-6"	12'-0"	11'-8"	18	8	4'-6"	14	11'-8"	49	24	½"φ	3'-11"	63	24	½"φ	4'-11"	79	223	3.17
2	"	1'-5"	"	"	"	"	15'-5"	15'-1"	23	"	"	"	15'-1"	63	26	"	"	68	26	"	"	85	253	3.89
3	"	"	"	"	"	"	18'-10"	18'-6"	28	"	"	"	18'-6"	77	28	"	"	73	28	"	"	92	284	4.62
4	"	"	"	"	"	"	22'-3"	21'-11"	33	"	"	"	21'-11"	91	30	"	"	79	30	"	"	99	316	5.35
1	30"	–	12"	9"	2'-3"	4'-0"	14'-6"	14'-2"	21	16	5'-6"	33	14'-2"	59	28	½"φ	4'-5"	83	28	½"φ	5'-8"	106	302	4.31
2	"	1'-8"	"	"	"	"	18'-8"	18'-4"	28	"	"	"	18'-4"	76	32	"	"	94	32	"	"	121	352	5.28
3	"	"	"	"	"	"	22'-10"	22'-6"	34	"	"	"	22'-6"	94	36	"	"	106	36	"	"	136	406	6.26
4	"	"	"	"	"	"	27'-0"	26'-8"	40	"	"	"	26'-8"	111	40	"	"	118	40	"	"	152	454	7.24
1	36"	–	12"	12"	2'-6"	4'-6"	17'-0"	16'-8"	25	16	6'-6"	39	16'-8"	70	32	½"φ	5'-2"	111	32	½"φ	6'-8"	143	388	6.40
2	"	1'-11"	"	"	"	"	21'-11"	21'-7"	32	"	"	"	21'-7	90	36	"	"	124	36	"	"	160	445	7.89
3	"	"	"	"	"	"	26'-10"	26'-6"	40	"	"	"	26'-6"	111	40	"	"	138	40	"	"	178	506	9.37
4	"	"	"	"	"	"	31'-9"	31'-5"	47	"	"	"	31'-5"	131	44	"	"	152	44	"	"	196	565	10.85
1	42"	–	12"	12"	2'-9"	5'-0"	19'-6"	19'-2"	29	16	7'-6"	45	19'-2"	80	36	½"φ	5'-8"	136	36	½"φ	7'-5"	178	468	8.10
2	"	2'-2"	"	"	"	"	25'-2"	24'-10"	37	"	"	"	24'-10"	104	40	"	"	152	40	"	"	198	536	9.96
3	"	"	"	"	"	"	30'-10"	30'-6"	46	"	"	"	30'-6"	127	44	"	"	167	44	"	"	218	603	11.80
4	"	"	"	"	"	"	36'-6"	36'-2"	54	"	"	"	36'-2"	151	48	"	"	182	48	"	"	238	670	13.68
1	48"	–	15"	12"	3'-0"	5'-9"	23'-0"	22'-8"	34	24	8'-9"	79	22'-8"	95	40	⅝"φ	6'-5"	268	40	⅝"φ	8'-5"	351	827	10.74
2	"	2'-5"	"	"	"	"	29'-5"	29'-1"	44	"	"	"	29'-1"	121	44	"	"	295	44	"	"	386	925	13.08
3	"	"	"	"	"	"	35'-10"	35'-6"	53	"	"	"	35'-6"	148	48	"	"	321	48	"	"	422	1023	15.43
4	"	"	"	"	"	"	42'-3"	41'-11"	64	"	"	"	41'-11"	179	52	"	"	348	52	"	"	457	1127	17.77
1	54"	–	15"	12"	3'-3"	6'-3"	25'-6"	25'-2"	38	24	9'-9"	88	25'-2"	105	44	⅝"φ	6'-11"	318	44	⅝"φ	9'-2"	421	970	12.87
2	"	2'-10"	"	"	"	"	32'-10"	32'-6"	49	"	"	"	32'-6"	136	50	"	"	361	50	"	"	478	1112	15.77
3	"	"	"	"	"	"	40'-2"	39'-10"	60	"	"	"	39'-10"	166	56	"	"	404	56	"	"	536	1254	18.66
4	"	"	"	"	"	"	47'-6"	47'-2"	72	"	"	"	47'-2"	201	62	"	"	447	62	"	"	593	1401	21.55
1	60"	–	15"	12"	3'-6"	6'-9"	28'-0"	27'-8"	42	24	10'-9"	97	27'-8"	115	48	⅝"φ	7'-5"	371	48	⅝"φ	9'-11"	497	1122	15.20
2	"	3'-0"	"	"	"	"	36'-0"	35'-8"	54	"	"	"	35'-8"	149	54	"	"	418	54	"	"	559	1277	18.55
3	"	"	"	"	"	"	44'-0"	43'-8"	67	"	"	"	43'-8"	186	60	"	"	464	60	"	"	621	1435	21.89
4	"	"	"	"	"	"	52'-0"	51'-8"	79	"	"	"	51'-8"	220	66	"	"	511	66	"	"	683	1590	25.24
1	66"	–	15"	12"	3'-9"	7'-3"	30'-6"	30'-2"	45	32	11'-9"	141	30'-2"	126	52	⅝"φ	7'-11"	430	52	⅝"φ	10'-8"	579	1321	17.72
2	"	3'-1"	"	"	"	"	39'-1"	38'-9"	58	"	"	"	38'-9"	162	58	"	"	479	58	"	"	645	1485	21.49
3	"	"	"	"	"	"	47'-8"	47'-4"	72	"	"	"	47'-4"	202	64	"	"	529	64	"	"	712	1656	25.27
4	"	"	"	"	"	"	56'-3"	55'-11"	85	"	"	"	55'-11"	237	70	"	"	578	70	"	"	779	1820	29.05
1	72"	–	15"	12"	4'-0"	7'-9"	33'-0"	32'-8"	49	32	12'-9"	153	32'-8"	136	56	⅝"φ	8'-5"	492	56	⅝"φ	11'-5"	667	1497	20.42
2	"	3'-2"	"	"	"	"	42'-2"	41'-10"	64	"	"	"	41'-10"	179	62	"	"	544	62	"	"	738	1678	24.66
3	"	"	"	"	"	"	51'-4"	51'-0"	78	"	"	"	51'-0"	217	68	"	"	597	68	"	"	810	1855	28.89
4	"	"	"	"	"	"	60'-6"	60'-2"	91	"	"	"	60'-2"	255	74	"	"	650	74	"	"	881	2030	33.12

TABLE OF DIMENSIONS AND QUANTITIES FOR TWO T[illegible] HEADWALLS

NO OF PIPES	DIAM OF PIPES	G	K	X	H	Y	W	BARS A1–Ax ½"φ@12"± N°	A1–Ax Av Lgth	A1–Ax Wt	BARS B ⅜"φ@18"± N°	B Lgth	B Wt	BARS B1–Bx ⅜"φ@18"± N°	B1–Bx Av Lgth	B1–Bx Wt	C=2'-0" ½"φ@12"± N°	C Wt	BARS D1–Dx ⅜"φ@12"± N°	D1–Dx Av Lgth	D1–Dx Wt	BAR[illegible] 8-⅝"φ Lgth	Wt	BARS F N°	F Size	F Lgth	F Wt	BARS G 4-⅜"φ Lgth	G Wt	BARS S 12-½"φ Lgth	S Wt	BARS V1–Vx ½"φ@12"± N°	V1–Vx Av Lgth	V1–Vx Wt	BARS W 4-⅝"φ Lgth	W Wt	QUA[illegible] STEEL LBS	CONC. C.Y.
1	12"	–	12"	2'-4"	2'-0"	1'-0"	2'-4"	2	2'-8"	4	6	2'-6"	6	–	–	–	4	5	–	–	–	2'-0"	17	8	½"φ	2'-2"	12	2'-8"	4	8"	5	4	2'-11"	8	1'-8"	7	68	.52
2	"	10"	"	4'-2"	"	"	4'-2"	"	4'-6"	6	8	"	8	–	–	–	"	"	–	–	–	3'-10"	32	12	"	"	17	4'-6"	7	"	"	"	"	"	"	"	95	.82
3	"	"	"	6'-0"	"	"	6'-0"	"	6'-4"	8	10	"	9	–	–	–	"	"	–	–	–	5'-8"	47	16	"	"	23	6'-4"	10	"	"	"	"	"	"	"	122	1.11
4	"	"	"	7'-10"	"	"	7'-10"	"	8'-2"	11	12	"	11	–	–	–	"	"	–	–	–	7'-6"	63	20	"	"	29	8'-2"	12	"	"	"	"	"	"	"	151	1.40
1	15"	–	12"	2'-7½"	2'-3"	1'-6"	3'-2½"	4	3'-0"	8	6	3'-0"	7	4	1'-10"	3	8	11	–	–	–	2'-3"	19	8	½"φ	2'-5"	13	3'-7"	5	1'-3"	10	8	3'-0"	16	2'-3"	9	101	.75
2	"	1'-0"	"	4'-10½"	"	"	5'-5½"	"	5'-3"	14	8	"	9	"	"	"	"	"	–	–	–	4'-6"	38	12	"	"	19	5'-10"	9	"	"	"	"	"	"	"	138	1.16
3	"	"	"	7'-1½"	"	"	7'-8½"	"	7'-6"	20	10	"	11	"	"	"	"	"	–	–	–	6'-9"	56	16	"	"	26	8'-1"	12	"	"	"	"	"	"	"	174	1.57
4	"	"	"	9'-4½"	"	"	9'-11½"	"	9'-9"	26	14	"	16	"	"	"	"	"	–	–	–	9'-0"	75	20	"	"	32	10'-4"	16	"	"	"	"	"	"	"	214	1.98
1	18"	–	12"	2'-11"	2'-6"	2'-0"	4'-0⅞"	4	3'-10"	10	6	3'-6"	8	4	1'-10"	3	8	11	4	1'-0"	2	2'-7"	22	8	½"φ	2'-8"	14	4'-5"	7	1'-10"	15	12	3'-2"	25	2'-11"	12	129	1.00
2	"	1'-2"	"	5'-7"	"	"	6'-8⅞"	"	6'-6"	17	8	"	11	"	"	"	"	"	"	"	"	5'-3"	44	12	"	"	21	7'-1"	11	"	"	"	"	"	"	"	172	1.55
3	"	"	"	8'-3"	"	"	9'-4⅞"	"	9'-2"	25	12	"	16	"	"	"	"	"	"	"	"	7'-11"	66	16	"	"	29	9'-9"	15	"	"	"	"	"	"	"	219	2.11
4	"	"	"	10'-11"	"	"	12'-0⅞"	"	11'-10"	32	16	"	21	"	"	"	"	"	"	"	"	10'-7"	88	20	"	"	42	12'-5"	19	"	"	"	"	"	"	"	264	2.65
1	24"	–	12"	3'-6"	3'-0"	3'-0"	5'-9¾"	6	5'-0"	20	6	4'-6"	10	4	1'-10"	3	8	11	4	1'-0"	2	3'-2"	26	8	½"φ	3'-2"	17	6'-2"	9	3'-0"	24	16	3'-5"	37	4'-2"	17	176	1.62
2	"	1'-5"	"	6'-11"	"	"	9'-2¾"	"	8'-5"	34	10	"	17	"	"	"	"	"	"	"	"	6'-7"	55	12	"	"	25	9'-7"	14	"	"	"	"	"	"	"	239	2.46
3	"	"	"	10'-4"	"	"	12'-7¾"	"	11'-10"	47	16	"	27	"	"	"	"	"	"	"	"	9'-10"	82	16	"	"	34	13'-0"	20	"	"	"	"	"	"	"	304	3.32
4	"	"	"	13'-9"	"	"	16'-0¾"	"	15'-3"	61	20	"	34	"	"	"	"	"	"	"	"	13'-5"	112	20	"	"	42	16'-5"	25	"	"	"	"	"	"	"	368	4.18
1	30"	–	12"	4'-1"	3'-6"	4'-0"	7'-6⅝"	8	6'-2"	33	6	5'-6"	12	8	3'-1"	9	12	16	8	2'-2"	7	3'-9"	31	8	½"φ	3'-8"	20	7'-11"	12	4'-2"	33	20	3'-8"	49	5'-5"	23	245	2.34
2	"	1'-8"	"	8'-3"	"	"	11'-8⅝"	"	10'-4"	55	12	"	25	"	"	"	"	"	"	"	"	7'-11"	66	16	"	"	39	12'-1"	18	"	"	"	"	"	"	"	340	3.58
3	"	"	"	12'-5"	"	"	15'-10⅝"	"	14'-6"	77	18	"	37	"	"	"	"	"	"	"	"	12'-1"	101	24	"	"	59	16'-3"	24	"	"	"	"	"	"	"	435	4.80
4	"	"	"	16'-7"	"	"	20'-0⅝"	"	18'-8"	100	24	"	50	"	"	"	"	"	"	"	"	16'-3"	136	32	"	"	78	20'-5"	31	"	"	"	"	"	"	"	532	6.04
1	36	–	12"	4'-8"	4'-0"	5'-0"	9'-3½"	10	7'-4"	49	8	6'-6"	20	8	3'-1"	9	12	16	8	2'-2"	7	4'-4"	36	8	½"φ	4'-2"	22	9'-8"	15	5'-4"	43	24	3'-11"	63	6'-8"	28	308	3.23
2	"	1'-11"	"	9'-7"	"	"	14'-2½"	"	12'-3"	82	14	"	34	"	"	"	"	"	"	"	"	9'-9"	77	16	"	"	45	14'-7"	22	"	"	"	"	"	"	"	426	4.89
3	"	"	"	14'-6"	"	"	19'-1½"	"	17'-2"	115	20	"	49	"	"	"	"	"	"	"	"	14'-2"	118	24	"	"	67	19'-6"	29	"	"	"	"	"	"	"	544	6.55
4	"	"	"	19'-5"	"	"	24'-0½"	"	22'-1"	147	28	"	68	"	"	"	"	"	"	"	"	19'-1"	159	32	"	"	89	24'-5"	37	"	"	"	"	"	"	"	666	8.22
1	42"	–	12"	5'-3"	4'-6"	6'-0"	11'-0¼"	12	8'-6"	68	8	7'-6"	23	12	4'-5"	20	16	21	12	3'-3"	15	4'-11"	41	8	½"φ	4'-8"	25	11'-5"	17	6'-5"	51	28	4'-2"	78	7'-11"	33	392	4.23
2	"	2'-2"	"	10'-11"	"	"	16'-8¼"	"	14'-2"	114	16	"	45	"	"	"	"	"	"	"	"	10'-7"	88	16	"	"	50	17'-1"	26	"	"	"	"	"	"	"	541	6.40
3	"	"	"	16'-7"	"	"	22'-4¼"	"	19'-10"	159	24	"	68	"	"	"	"	"	"	"	"	16'-3"	136	24	"	"	75	22'-9"	34	"	"	"	"	"	"	"	690	8.56
4	"	"	"	22'-3"	"	"	28'-0¼"	"	25'-6"	204	32	"	90	"	"	"	"	"	"	"	"	21'-11"	183	32	"	"	100	28'-5"	43	"	"	"	"	"	"	"	838	10.74
1	48"	–	15"	5'-10"	5'-3"	7'-0"	12'-9⅛"	14	9'-8"	90	10	8'-6"	32	12	4'-5"	20	16	21	12	3'-4"	15	5'-6"	46	8	⅝"φ	5'-5"	45	13'-2"	20	7'-7"	61	32	4'-5"	94	9'-3"	39	483	5.43
2	"	2'-5"	"	12'-3"	"	"	19'-2⅛"	"	16'-1"	150	18	"	58	"	"	"	"	"	"	"	"	11'-11"	99	16	"	"	90	19'-7"	29	"	"	"	"	"	"	"	676	8.25
3	"	"	"	18'-8"	"	"	25'-7⅛"	"	22'-6"	210	26	"	83	"	"	"	"	"	"	"	"	18'-4"	153	24	"	"	136	26'-0"	39	"	"	"	"	"	"	"	871	11.07
4	"	"	"	25'-1"	"	"	32'-0⅛"	"	28'-11"	270	36	"	115	"	"	"	"	"	"	"	"	24'-9"	207	32	"	"	181	32'-5"	49	"	"	"	"	"	"	"	1072	13.89
1	54"	–	15"	6'-5"	5'-9"	8'-0"	14'-6"	16	10'-10"	116	10	9'-6"	36	12	4'-5"	20	20	27	16	4'-5"	27	6'-1"	51	8	⅝"φ	5'-11"	49	14'-10"	22	8'-9"	70	40	4'-8"	125	10'-5"	43	586	6.71
2	"	2'-0"	"	13'-9"	"	"	21'-10"	"	18'-2"	194	20	"	71	"	"	"	"	"	"	"	"	13'-5"	112	20	"	"	123	22'-2"	33	"	"	"	"	"	"	"	845	10.28
3	"	"	"	21'-1"	"	"	29'-2"	"	25'-6"	273	30	"	107	"	"	"	"	"	"	"	"	20'-9"	173	32	"	"	198	29'-6"	44	"	"	"	"	"	"	"	1107	13.84
4	"	"	"	28'-5"	"	"	36'-6"	"	32'-10"	351	40	"	143	"	"	"	"	"	"	"	"	28'-1"	234	44	"	"	272	36'-10"	55	"	"	"	"	"	"	"	1367	17.42
1	60"	–	15"	7'-0"	6'-3"	9'-0"	16'-2⅞"	18	12'-0"	144	10	10'-6"	39	16	5'-9"	35	20	27	16	4'-5"	27	6'-8"	56	8	⅝"φ	6'-5"	54	16'-7"	25	9'-11"	80	44	4'-11"	145	11'-8"	49	681	8.11
2	"	3'-0"	"	15'-0"	"	"	24'-2⅞"	"	20'-0"	240	22	"	87	"	"	"	"	"	"	"	"	14'-8"	122	20	"	"	134	25'-7"	38	"	"	"	"	"	"	"	984	12.34
3	"	"	"	23'-0"	"	"	32'-2⅞"	"	28'-0"	337	32	"	126	"	"	"	"	"	"	"	"	22'-8"	189	32	"	"	214	32'-7"	49	"	"	"	"	"	"	"	1278	16.57
4	"	"	"	31'-0"	"	"	40'-2⅞"	"	36'-5"	438	44	"	174	"	"	"	"	"	"	"	"	30'-8"	256	44	"	"	295	41'-6"	62	"	"	"	"	"	"	"	1588	20.82
1	66"	–	15"	7'-7"	6'-9"	10'-0"	17'-11¾"	20	13'-2"	176	12	11'-6"	52	16	5'-9"	35	24	32	20	5'-7"	42	7'-3"	60	8	⅝"φ	6'-11"	58	18'-4"	28	11'-1"	89	48	5'-2"	166	13'-0"	54	792	9.65
2	"	3'-1"	"	16'-2"	"	"	26'-6¾"	"	21'-9"	291	24	"	104	"	"	"	"	"	"	"	"	15'-10"	132	20	"	"	144	26'-11"	40	"	"	"	"	"	"	"	1129	14.54
3	"	"	"	24'-9"	"	"	35'-1¾"	"	30'-4"	405	34	"	147	"	"	"	"	"	"	"	"	24'-5"	204	32	"	"	231	35'-6"	53	"	"	"	"	"	"	"	1458	19.42
4	"	"	"	33'-4"	"	"	43'-8¾"	"	39'-8"	530	46	"	199	"	"	"	"	"	"	"	"	33'-0"	275	44	"	"	318	45'-0"	68	"	"	"	"	"	"	"	1808	24.31
1	72"	–	15"	8'-2"	7'-3"	11'-0"	19'-8[illegible]		14'-4"	211	12	12'-6"	56	16	5'-9"	35	24	32	20	5'-7"	42	7'-10"	65	8	⅝"φ	7'-5"	62	20'-1"	30	12'-3"	98	52	5'-5"	188	14'-3"	59	878	11.32
2	"	3'-2"	"	17'-4"	"	"	20'-10[illegible]		23'-6"	345	24	"	113	"	"	"	"	"	"	"	"	17'-0"	142	20	"	"	155	29'-3"	44	"	"	"	"	"	"	"	1253	16.91
3	"	"	"	26'-6"	"	"	38'-0[illegible]		32'-10"	482	38	"	179	"	"	"	"	"	"	"	"	26'-2"	218	32	"	"	248	38'-5"	58	"	"	"	"	"	"	"	1639	22.52
4	"	"	"	35'-8"	"	"	47'-2[illegible]		43'-0"	632	50	"	235	"	"	"	"	"	"	"	"	35'-4"	295	44	"	"	341	48'-6"	73	"	"	"	"	"	"	"	2030	28.11


ELEVATION TYPE A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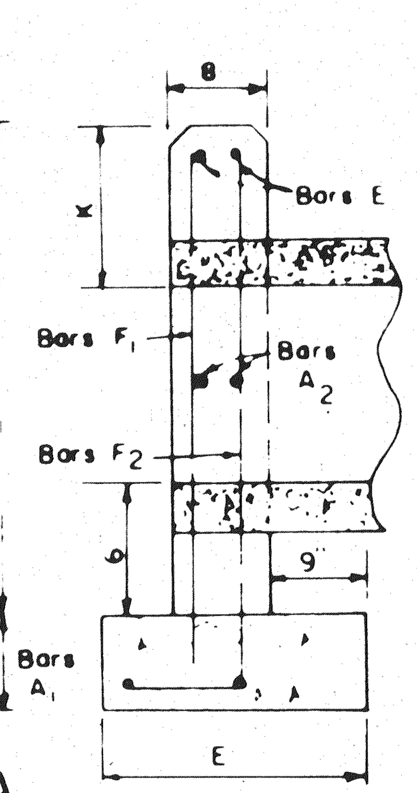
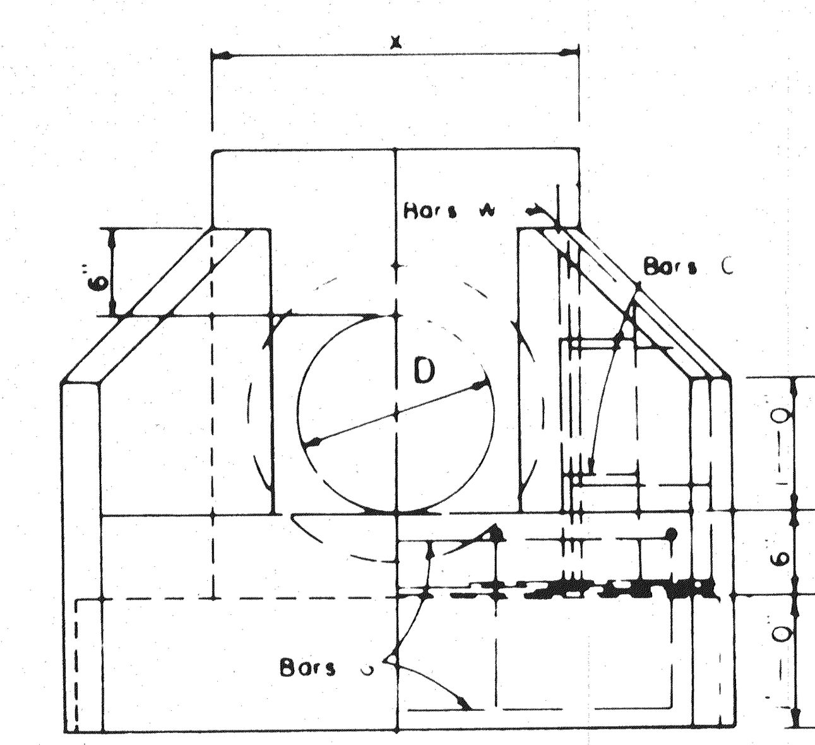
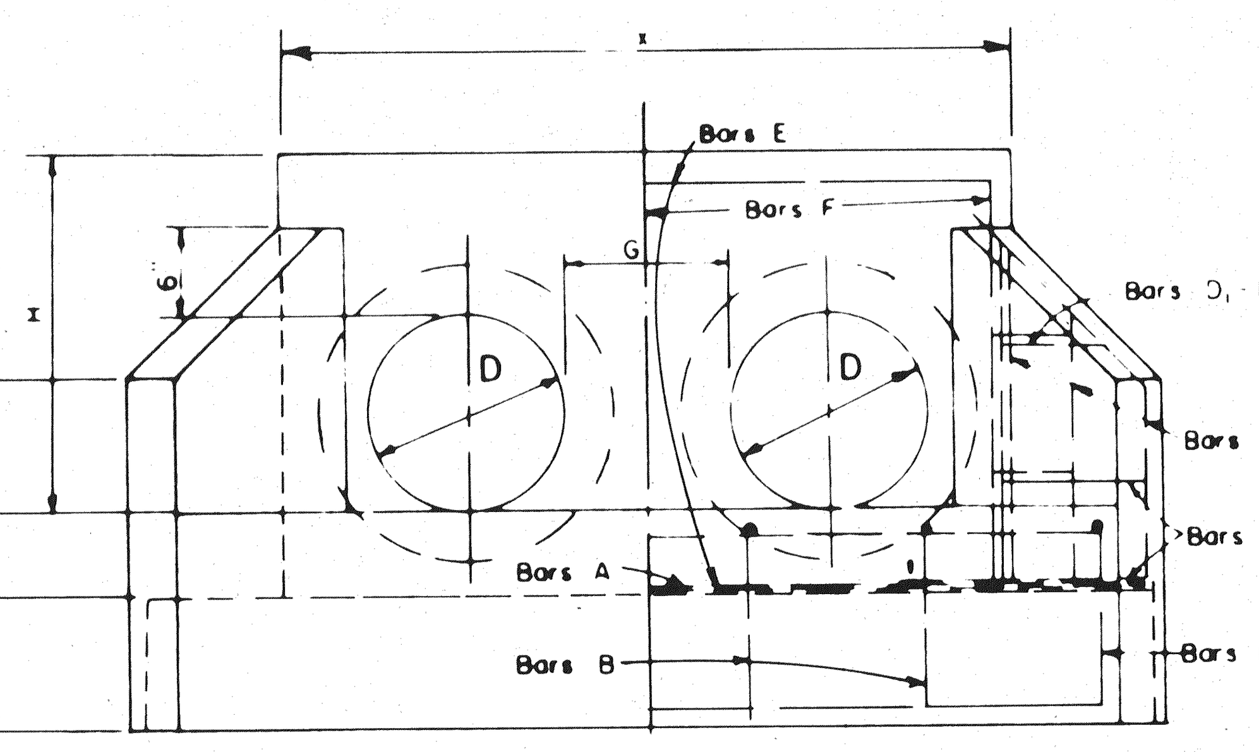
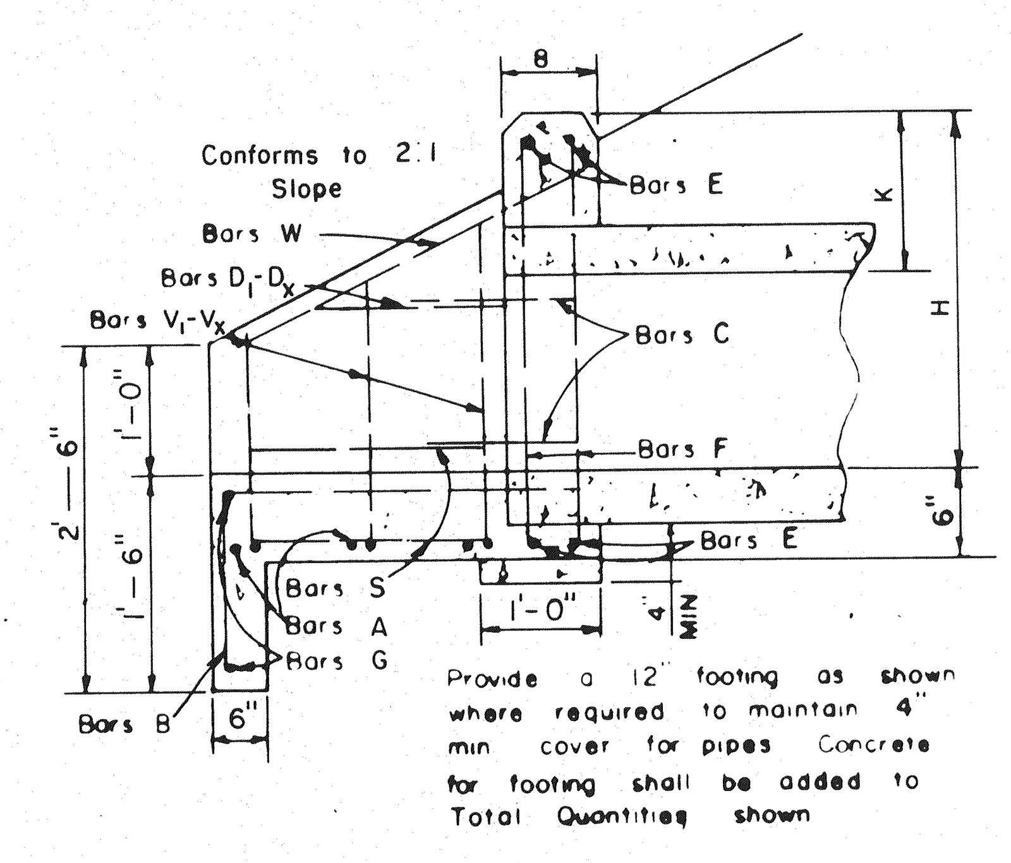
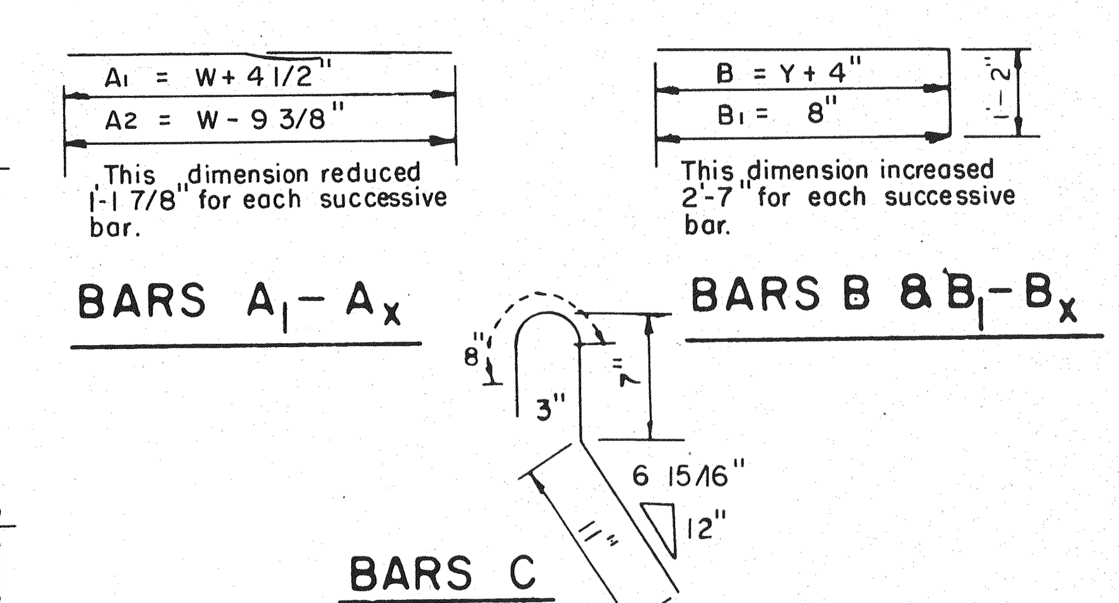

℄ SECTION


ELEVATION TYPE B


ELEVATION MULTIPLE TYPE B


TYPICAL WING ELEVATION

Provide a 12" footing as shown where required to maintain 4" min cover for pipes. Concrete for footing shall be added to Total Quantities shown.



BARS A1 – Ax

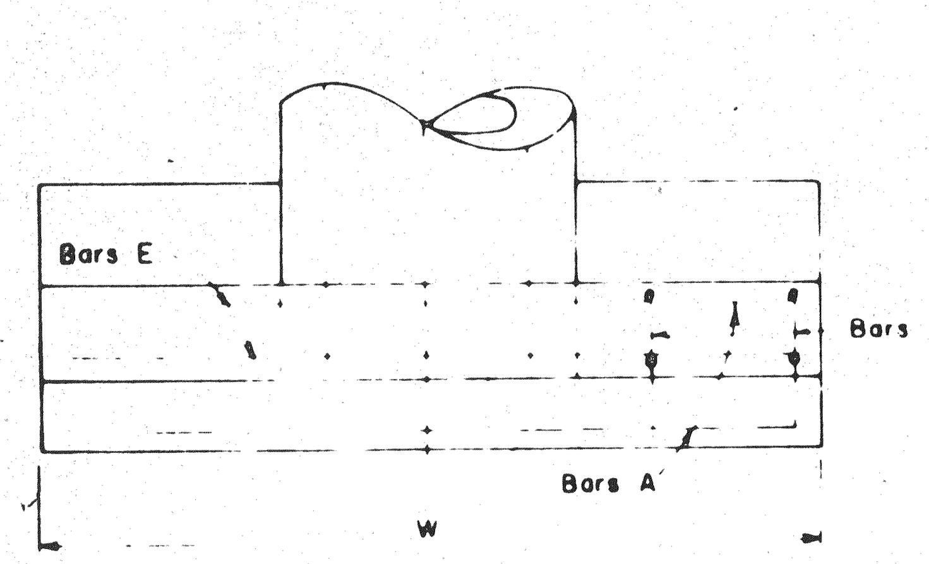
BARS B & B1 – Bx

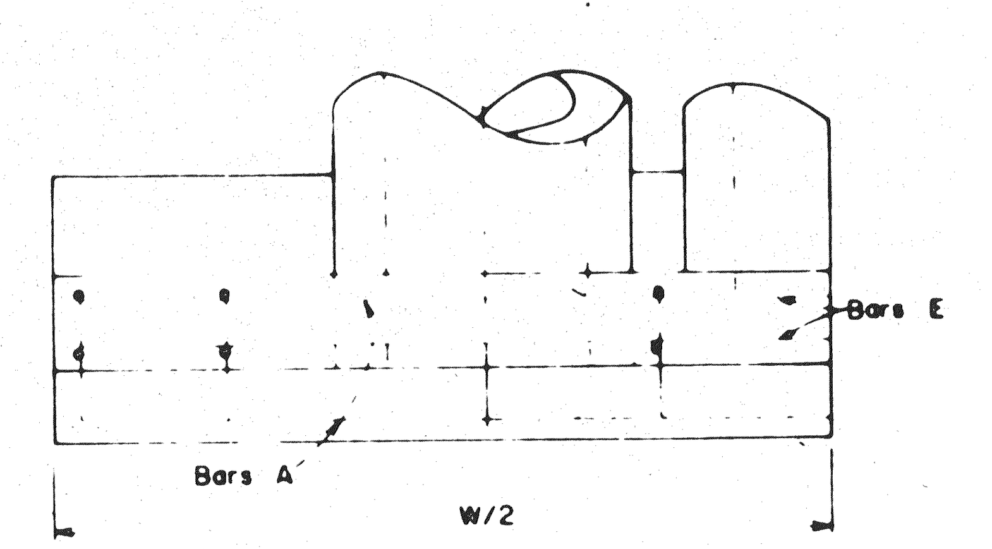
BARS C

GENERAL NOTES

All concrete shall be class A. All exposed corners shall be chamfered 3/4".

Reinforcing steel shall be placed with the center of the outside layer of bars 2" from the surface of the concrete. Total Quantities include one 20" diameter lap for all bars over 40'-0" in length.


PLAN TYPE A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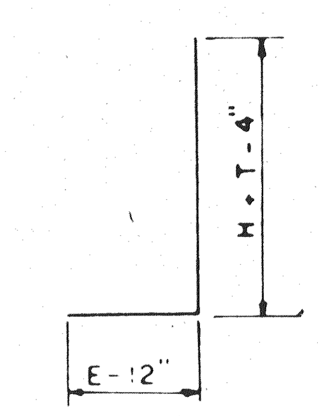
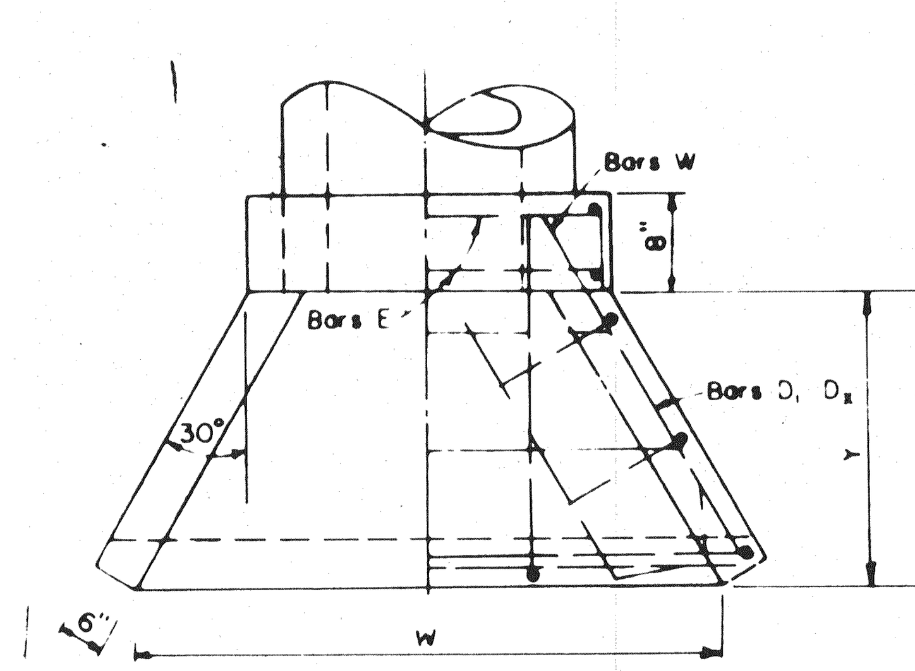

BARS F2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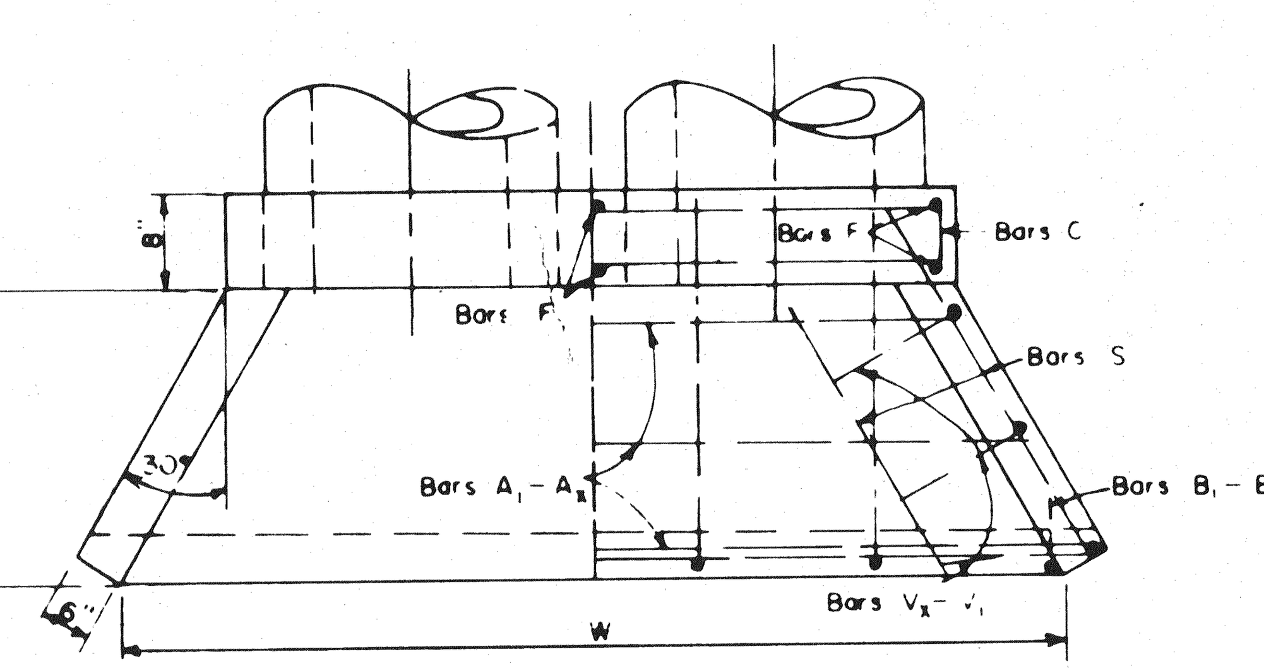
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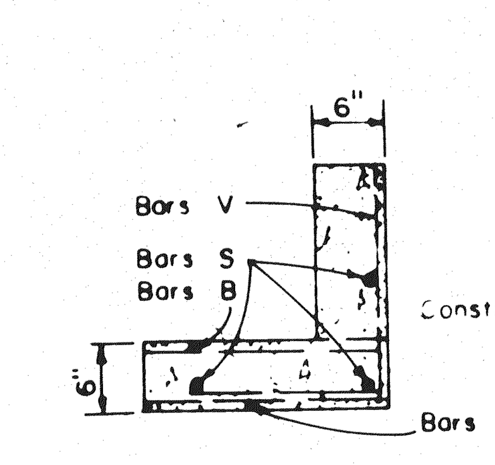
SECTION A-A

AS-BUILTS

I CERTIFY THIS PROJECT WAS CONSTRUCTED IN GENERAL CONFORMANCE WITH THESE CONSTRUCTION PLANS AND WILL FUNCTION AS DESIGNED.

Construction: May 14, 1993

CONCRETE HEADWALLS FOR PIPE CULVERTS

12 to 72 INCHES IN DIAMETER CH-11

Designed by
Drawn by
Checked by H J V

Sheet of

SD-9