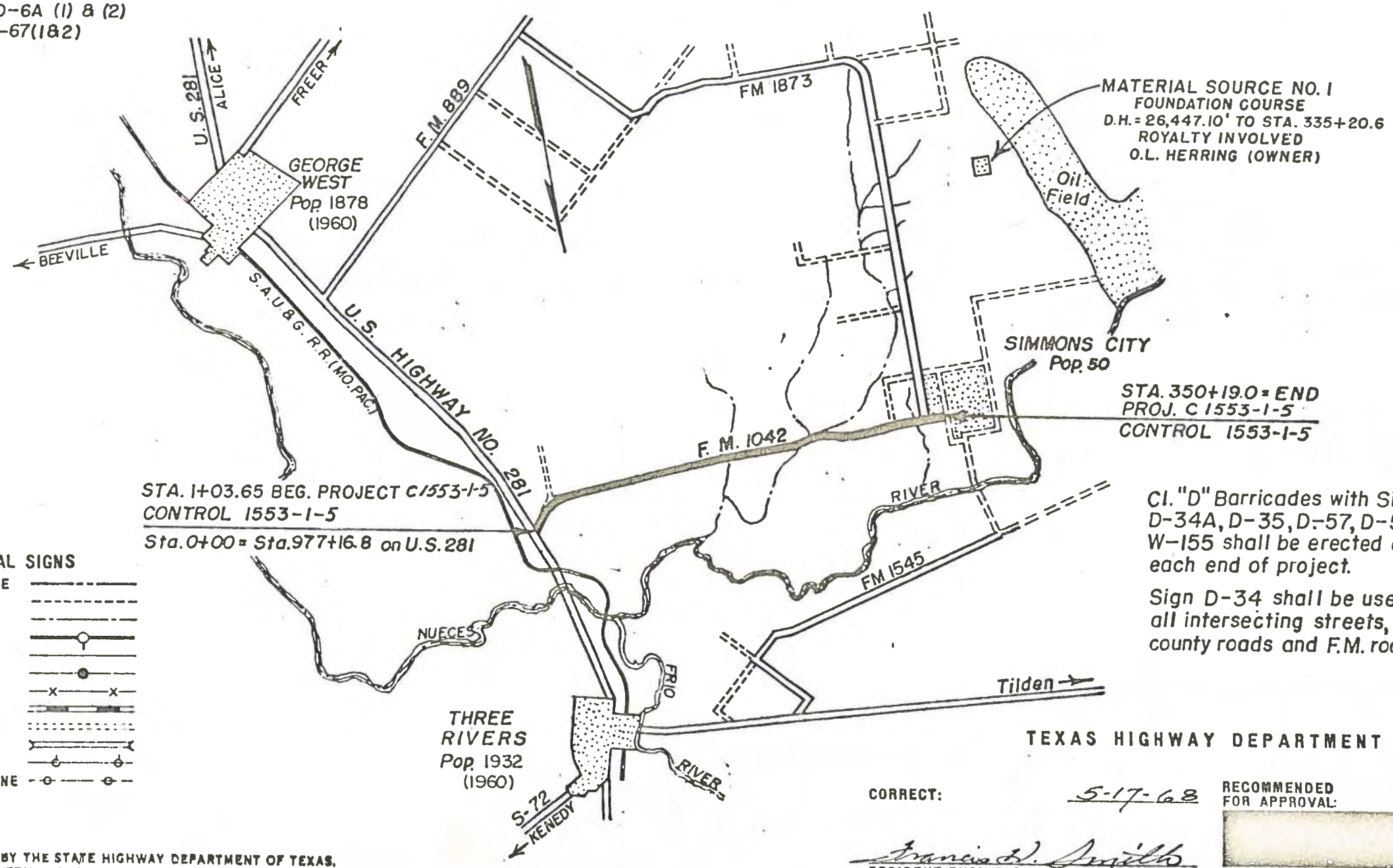
FED. RD DIV NO.	STATE	PROJECT NO			SHEET NO.
6	TEXAS	C1553-1-5			1
STATE DIST. NO.	COUNTY	CONT	SECT.	JOB	HIGHWAY NO.
16	LIVE OAK	1553	1	5	F.M. 1042

TEXAS HIGHWAY DEPARTMENT
LIVE OAK COUNTY
F. M. HIGHWAY NO. 1042
FROM U.S. HWY. 281, 3 MI. SO. OF THREE RIVERS, WEST TO SIMMONS CITY
STATE PROJECT NO. C1553-1-5
PLANS OF PROPOSED
GRADING, STRUCTURES, BASE AND SURFACING

NET LENGTH = 34,915.35 FT. = 6.612 MILES (ROADWAY)

FINAL PLANS

INDEX OF SHEETS



Cl. "D" Barricades with Signs D-34A, D-35, D-57, D-59 & W-155 shall be erected at each end of project.

Sign D-34 shall be use at all intersecting streets, county roads and F.M. roads.

NO EQUATIONS
NO EXCEPTIONS
NO R.R. GRADE CROSSINGS

CONVENTIONAL SIGNS

STATE OR NATIONAL LINE
CITY OR VILLAGE LINE
COUNTY LINE
BASE OR SURVEY LINE
RIGHT OF WAY LINE
RIGHT OF WAY MARKERS
FENCE LINE
RAILROAD
TRAVELLED WAY
CULVERT OR BRIDGE
POWER LINE
TELEGRAPH OR TELEPHONE

SPECIFICATIONS ADOPTED BY THE STATE HIGHWAY DEPARTMENT OF TEXAS, JAN. 2, 1962, SHALL GOVERN ON THIS PROJECT.

SCALE: 0 1 2 — 1" = 2 MILES

TEXAS HIGHWAY DEPARTMENT

CORRECT: 5-17-68
Francis D. Smith
RESIDENT ENGINEER

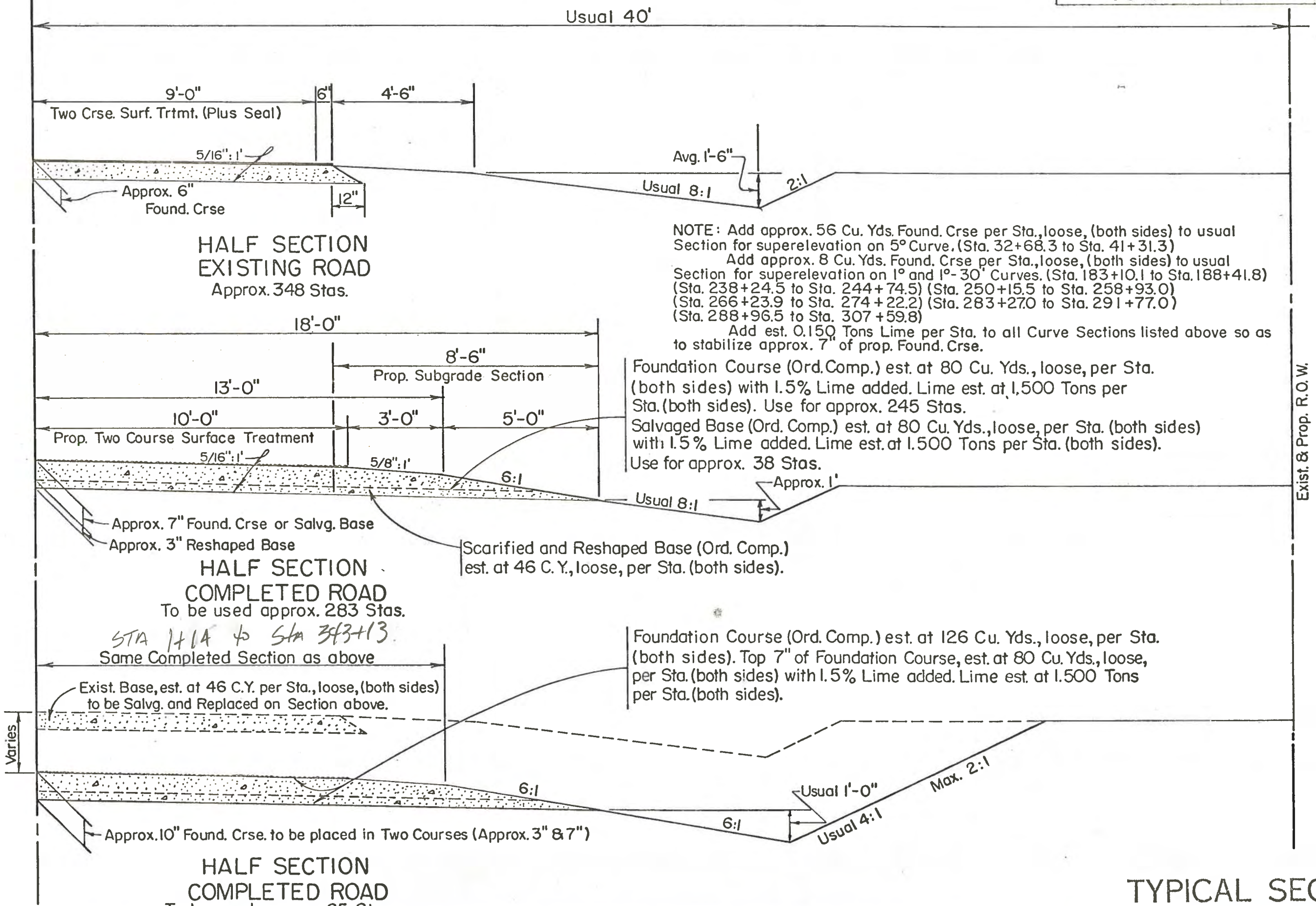
RECOMMENDED FOR APPROVAL:

RECOMMENDED FOR APPROVAL: 5-29-68
Travis R. Long
DISTRICT ENGINEER

APPROVED: 6-12-68
H. L. Arno
ENGINEER SECONDARY ROADS

F. R. DIV. 6	TEXAS	C1553-1-5	SHEET 2
LIVE OAK	COUNTY	F.M. HWY. 1042	CONT. 1553-1-5

2



NOTE: Add approx. 56 Cu. Yds. Found. Crse per Sta., loose, (both sides) to usual Section for superelevation on 5° Curve. (Sta. 32+68.3 to Sta. 41+31.3)

Add approx. 8 Cu. Yds. Found. Crse per Sta., loose, (both sides) to usual Section for superelevation on 1° and 1°-30' Curves. (Sta. 183+10.1 to Sta. 188+41.8) (Sta. 238+24.5 to Sta. 244+74.5) (Sta. 250+15.5 to Sta. 258+93.0) (Sta. 266+23.9 to Sta. 274+22.2) (Sta. 283+27.0 to Sta. 291+77.0) (Sta. 288+96.5 to Sta. 307+59.8)

Add est. 0.150 Tons Lime per Sta. to all Curve Sections listed above so as to stabilize approx. 7" of prop. Found. Crse.

Foundation Course (Ord. Comp.) est. at 80 Cu. Yds., loose, per Sta. (both sides) with 1.5% Lime added. Lime est. at 1.500 Tons per Sta. (both sides). Use for approx. 245 Stas.

Salvaged Base (Ord. Comp.) est. at 80 Cu. Yds., loose, per Sta. (both sides) with 1.5% Lime added. Lime est. at 1.500 Tons per Sta. (both sides). Use for approx. 38 Stas.

Scarified and Reshaped Base (Ord. Comp.) est. at 46 C.Y., loose, per Sta. (both sides).

Foundation Course (Ord. Comp.) est. at 126 Cu. Yds., loose, per Sta. (both sides). Top 7" of Foundation Course, est. at 80 Cu. Yds., loose, per Sta. (both sides) with 1.5% Lime added. Lime est. at 1.500 Tons per Sta. (both sides).

TYPICAL SECTIONS

CULVERT SUMMARY

STATION	SIZE (Exist.	DESCRIPTION	DESIGN EXIST.	DESIGN PROP.	PROPOSED WORK	Unclass. Struct. Excav. (Culvt.) C.Y.	REINFORCED CONC. PIPE (CLASS III) 18 In. L.F.	24 In. L.F.	30 In. L.F.	36 In. L.F.	Class A Concrete (HDWL) C.Y.	Reinf. Steel Lb.	Class B Concrete Riprap C.Y.
1+312	1-18"x 61.0'	R.C. Pipe	CH-11-B	CH-11-B	Ext. 8' DS. - Repl. Hdwl.	1	8				0.50	65	
20+40	2-24"x 36.8'	R.C. Pipes	*CRH-16	"	Replace Headwalls	1					2.50	239	
44+65	3-24"x 37.1	"	"	"	Replace Headwalls	3					3.38	304	
56+30	1-18"x 37.4'	R.C. Pipe	"	"	Replace Headwalls	1					1.00	129	
80+00	2-24"x 37.5'	R.C. Pipes	"	"	Ext. 12' US. & DS. - Repl. Hdwls.	12		48			2.50	239	
86+50	1-18" x 37.5'	R.C. Pipe	"	"	Ext. 12' US. & DS. - Repl. Hdwls.	2	24				1.00	129	
94+30	1-18" x 37.3'	"	"	"	Ext. 8' US. & DS. - Repl. Hdwls.	3	16				1.00	129	
106+70	1-18" x 37.2'	"	"	"	Ext. 4' US. & DS. - Repl. Hdwls.	2	8				1.00	129	
145+04	3-18" x 37.0'	R.C. Pipes	CRH-16	CH-11-B	Ext. 4' US. & DS. - Repl. Hdwls.	3	24				2.11	219	
162+20	4-24"x 37.5'	"	"	"	Ext. 4' US. & DS. - Repl. Hdwls.	8		32			4.26	368	
184+00	3-24"x 36.5'	"	"	"	Ext. 4' US. & DS. - Repl. Hdwls.	3		24			3.38	304	
200+80	1-24"x 37.1'	R.C. Pipe	"	"	Ext. 8' US. & DS. - Repl. Hdwls.	3		16			1.64	176	
205+70	1-18" x 37.3'	"	"	"	Ext. 4' DS. - Replace Headwalls	1	4				1.00	129	
222+30	2-24"x 37.2'	R.C. Pipes	"	CH-11-B US. CRH-16 DS.	Ext. 4' DS. - Replace Headwalls	1		8			1.25	120	2.7
226+60	3-30"x 37.1'	"	"	CH-11-B US. CRH-16 DS.	Ext. 4' DS. - Replace Headwalls	3			12		2.46	218	4.6
245+60	4-24"x 37.3'	"	"	CH-11-B	Replace Headwalls	4					4.26	368	
260+72	4-30"x 36.8'	"	"	"	Replace Headwalls	5					6.19	532	
274+50	2-18"x 36.9'	"	"	"	Ext. 4' US. & DS. - Repl. Hdwls.	2	16				1.55	172	
292+85	2-18"x 37.2'	"	"	"	Replace Headwalls	1					1.55	172	
306+70	2-18"x 37.3'	"	"	"	Ext. 4' US. & DS. - Repl. Hdwls.	2	16				1.55	172	
318+60	2-18"x 37.3'	"	"	"	Ext. 4' US. & DS. - Repl. Hdwls.	2	16				1.55	172	
327+53	2-36"x 37.0'	"	"	"	Ext. 4' US. & DS. - Repl. Hdwls.	12				16	4.95	426	
335+93	1-36"x 45.5'	R.C. Pipe	"	"	Ext. 4' DS. - Replace Headwalls	3				4	3.29	308	
TOTALS						77	132	128	12	20	53.87	5219.	~~7.3~~ 4.92

*CRH-16 = 6" thickness cement stabilized caliche headwall with no reinforcement.

STRUCTURE SUMMARY

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ESTIMATE SUMMARY

ALT.	ITEM-CODE ITEM NO.	DESC. CODE	S.P. NO.	DESCRIPTION	UNIT	TOTAL EST.	TOTAL FINAL
	102	001		CLEAR AND GRUB	AC	7.35	7.35
	152	001		RD GR WORK (ORD COMP)	STA	349.15	349.15
	154	003		SCRAP WORK (ORD COMP)	YH	1,155.	1,606.5
	200	001		STRIP	CY	5,000.	2,461.
	204	001		SPRINK	MG	3,917.	1.
	210	001		ROLL (FLAT WHEEL)	HR	113.	1.
	211	001	001	ROLL (TAMP)	HR	381.	1.
	213	001	001	ROLL (LIGHT PNEUM TIRE)	HR	692.	1.
	215	001	001	ROLL (GRID)	HR	175.	1.
	246	001		FND CRSE (ORD COMP)	CY	29,398.	29,460.
	246	005		ADDL QTR MI HAUL	CY	935,361.	936,030.
	250	001		SCAR AND RESHAP BASE CRSE (ORD COMP)	STA	284.15	284.15
	252	003		SALV AND REPL BASE (ORD COMP)	CY	2,990.	3,495.
	262	003		LIME (TY A OR B)	TON	607.	540.5
	322	039		AGGR (TY PB GR 3)	CY	924.	922.
	322	041		AGGR (TY PB GR 5)	CY	561.	561.
	322	210		ASPH (AC-5)	GAL	35,333.	35,210.
	400	001		UNCL STR EXCAV (CULV)	CY	77.	77.
	421	065	030	CL A CONC (HDWL)	CY	53.87	53.87
	432	003		RIPRAP (CONC) (CL B)	CY	7.3	4.92
	440	001	002	REINF STL	LB	5,219.	5,219.
	464	003	015	R C PIPE (CL III) (18 IN)	LF	132.	132.
	464	005	015	R C PIPE (CL III) (24 IN)	LF	128.	128.
	464	007	015	R C PIPE (CL III) (30 IN)	LF	12.	12.
	464	009	015	R C PIPE (CL III) (36 IN)	LF	20.	20.
	7303	001	002	DELIN TY I (IND HOUSED)	EA	57.	57.
	7303	002	002	DELIN TY III (IND HOUSED)	EA	92.	92.
1	7324	004		DELIN AND MIPOST MARK POST (8 FT)	EA	85.	84.
				ALTERNATE 1-A			
	7430	004		TIM DELIN POST (8 FT)	EA	85.	
				WORK TO BE DONE BY STATE FORCES			
				EROSION CONTROL		LUMP SUM	

Lump Sum Price (Supplemental Agreement)

QUANTITY SUMMARY

SPECIFICATION DATA

Foundation Course (Caliche) With Lime

Grading requirements:

Retained on 4" screen	____ %
Retained on 3 1/2" screen	____ %
Retained on 3" screen	0-5 %
Retained on 2 1/2" screen	____ %
Retained on 2" screen	____ %
Retained on 40 Mesh Sieve	30-80 %

The material passing the 40 mesh sieve shall be known as "Soil Binder", and shall meet the following requirements:

The liquid limit shall not exceed 55
The plasticity index shall not exceed 15
The linear shrinkage shall not exceed ____

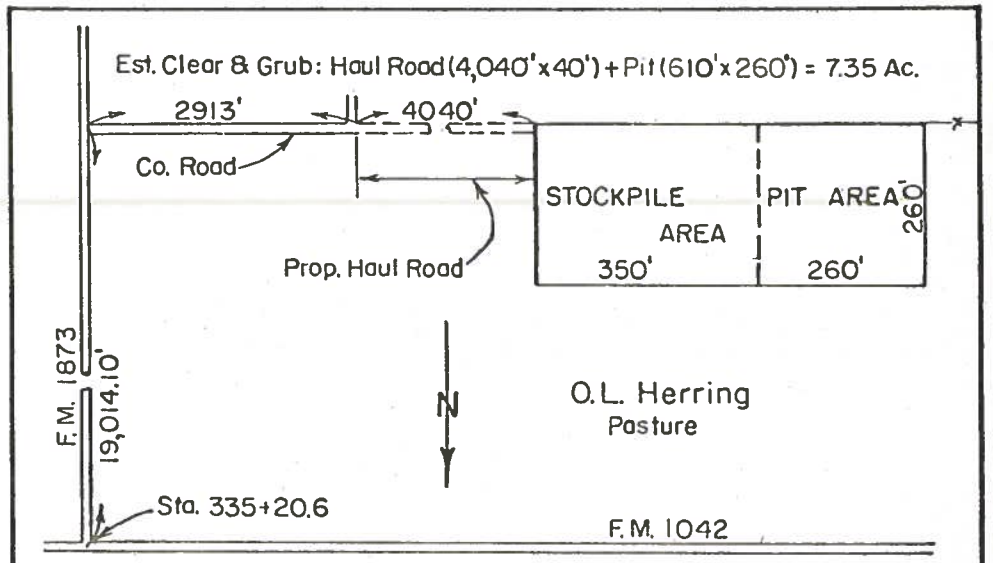
SPECIFICATION DATA

Two Course Surface Treatment

Item	Application First	Application Second
Asphalt, Type	AC-5	AC-5
Asphalt, Rate (gal/sy)	0.25	0.20
Aggregate, Type	PB	PB
Aggregate, Grade	3	5
Aggregate, Rate (cy/sy)	1:85	1:140
Rolling 210 (Hrs./2500 S.Y.)	0.25	0.75
Rolling 213 (Hrs./1250 S.Y.)	0.50	0.50

Surface Treatment Area 78,516* Sq. Yds.

*Includes Intersections



LAYOUT OF PROP. PIT AREA - MATERIAL SOURCE 1

LOCAL MATERIAL DATA

OWNER	MATERIAL	LOCATION	QUANT. C.Y.	ADDL. QTR. MI. HAUL C.Y.	CLEAR. & GRUB. AC.	STRIP. C.Y.	ROYALTY PER C.Y.
O.L. Herring	Foundation Course	26,447.10' Lt. Sta. 335+20.6	~~29,398~~ 29,460	~~935,361~~ 936,030	7.35	~~5,000~~ 2,461	0.06

BASIS OF ESTIMATE

ITEM	DESCRIPTION	ESTIMATED RATE	FINAL RATE	EST. QUANT.	FINAL QUANT.	UNIT
154	Scraper Work	1.0 Y.H. / 7.5 C.Y. Excav. With 8 C.Y. Scraper	1.0 Y.H./7.5 C.Y. EXCAV. WITH 8 C.Y. SCRAPER	1155	1,606.5	Y H
204	Sprink. (Rd Gr Work)	1 MG / Station	0.3 MG/Sta.	350	105.	MG
204	Sprink. (Found. Crse. & Salvg. Base)	75 Gal. / Cu. Yd.	28 Gal./Cu. Yd.	2430	1,045.6	MG
204	Sprink. (Reshap. Base Crse.)	4 MG / Station	1.44 MG/Sta.	1137	503.65	MG
210	Rolling (Found. Crse. & Salvg. Base)	400 C.Y. / Hour	701 C.Y./Hr.	81	47.	Hr.
211	Rolling (Rd Gr Work)	5 Sta. / Hour	5 Sta./Hr.	70	70.	Hr.
211	Rolling (Found. Crse. & Salvg. Base)	150 C.Y. / Hour	407 C.Y./Hr.	216	81.	Hr.
211	Rolling (Reshap. Base Crse.)	3 Sta. / Hour	6.3 Sta./Hr.	95	45.	Hr.
213	Rolling (Rd Gr Work)	5 Sta. / Hour	5.3 Sta./Hr.	70	66.	Hr.
213	Rolling (Found. Crse. & Salvg. Base)	70 C.Y. / Hour	134.5 C.Y./Hr.	463	245.	Hr.
213	Rolling (Reshap. Base Crse.)	3 Sta. / Hour	2 Sta./Hr.	95	144.	Hr.
215	Rolling (Reshap. Bse & Salvg. Base)	0.5 Hr./Sta.	0.44 Hr./Sta.	175	155.	Hr.
246	Foundation Course	80 C.Y. / Station	80 C.Y./Sta.	29398*	29,460.	C.Y.
262	Lime (1.5%) (Found. Crse & Salv. Bse)	37.5 Lb./C.Y. Base	37.5 Lb./C.Y./Base	607	540.5	Ton

*Includes Intersections

The highway shall be kept open to traffic at all times. The sequence of operations shall be approved by the Engineer prior to beginning of construction.

Quantity of "Scraper Work" shown is estimated quantity. The limits and exact amount of scraper work shall be determined by the Engineer.

The Contractor shall use a mechanical road mixing machine of an approved type for mixing Foundation Course material with lime on this project. After mixing, the material shall be bladed into windrows prior to laying and compaction.

It is intended that the Foundation Course material shall be placed and surfaced in increments of length to preclude the necessity of reworking the lime stabilized base after curing has been completed. In the event that circumstances (other than those due to the Contractor's negligence) are such as to require reworking the lime stabilized base, additional lime, in slurry form, shall be added and mixed with the base as directed by the Engineer. Additional lime required will be paid for at the unit price bid.

Curves shall be superelevated and widened as follows:

DEG. OF CURVE	WIDENING (FT.)	S.E. FT./FT.	TRANSITION FOR SUPERELEVATION	TRANS. FOR WIDENING
1°	0	.020	150' (100' outside & 50' inside P.C. & P.T.)	
2°	0	.030	150' (100' outside & 50' inside P.C. & P.T.)	
5°	0	.060	150' (100' outside & 50' inside P.C. & P.T.)	

NOTE: 3/4 of full Super at P.C. and P.T.

Work of removing existing Riprap Hdwls from pipe culverts to be extended shall be considered as Subsidiary Work Ip Items, "Reinf. Conc. Pipe."

In those instances where fixed features require the governing slopes indicated herein may be varied from between the limits and to the extent determined by the engineer.

Concrete structures shall receive a Type 3 surface finish. If membrane curing is used for curing concrete structures, only Type 1 curing compound will be permitted.

All Foundation Course material shall be removed from the pit and placed in a stockpile at the pit site. The stockpile shall be a minimum of 10 feet in height and constructed in successive layers not to exceed 2 feet in height. After the stockpile has been completed as specified (containing the quantity required) the Contractor may proceed with loading from the stockpile for delivery to the road.

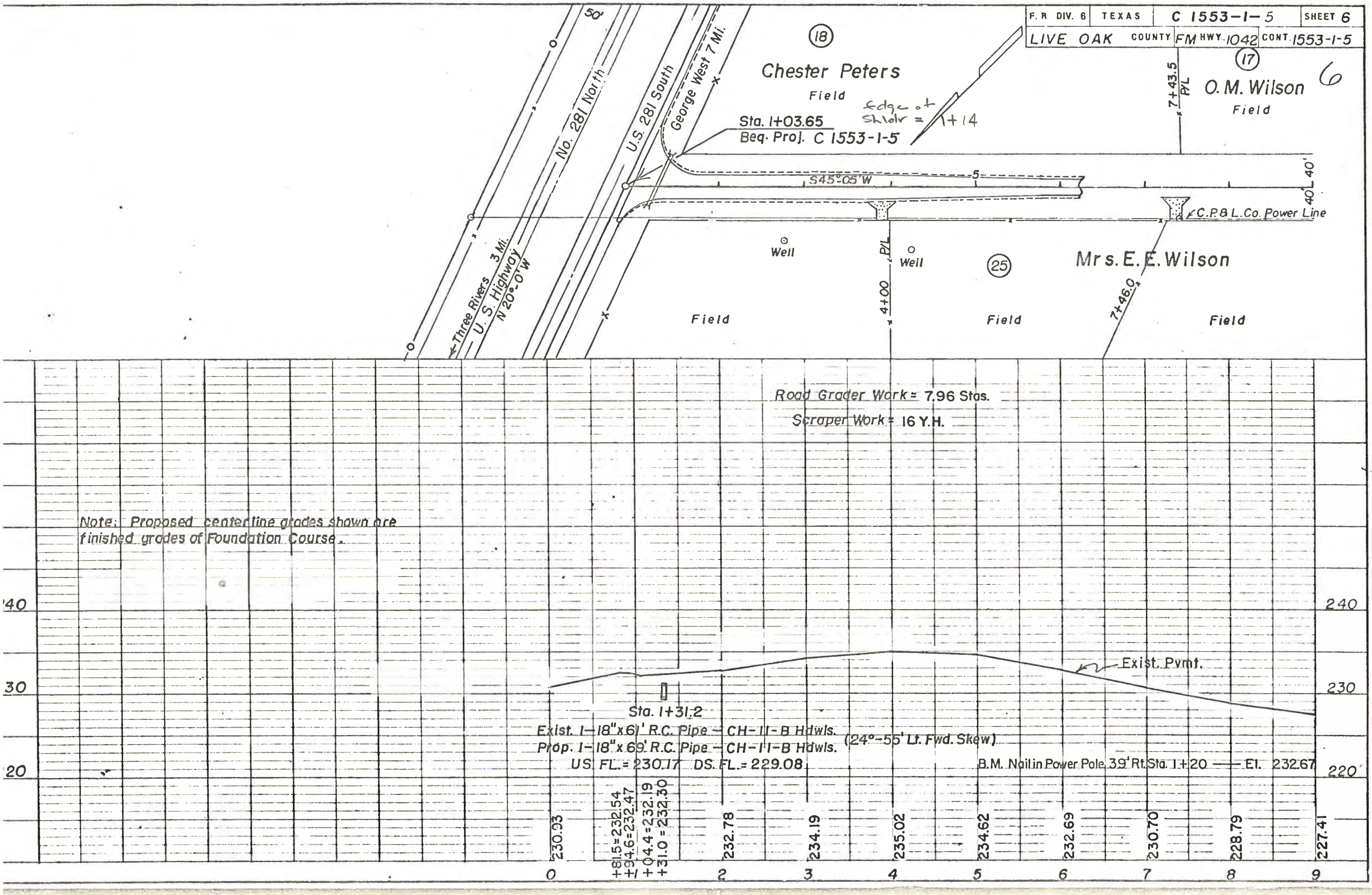
Foundation Course material may be processed on the road by Item 211, "Rolling," for which payment will be made.

All vehicles shall have the same capacity hauling Foundation Course material and Aggregate for surfacing to a given location on the project. All loads will be struck or leveled off as directed by the Engineer.

GENERAL NOTES
AND
SPECIFICATION DATA

F. R. DIV. 6	TEXAS	C 1553-1-5	SHEET 6
LIVE OAK COUNTY	FM HWY. 1042	CONT. 1553-1-5	

6



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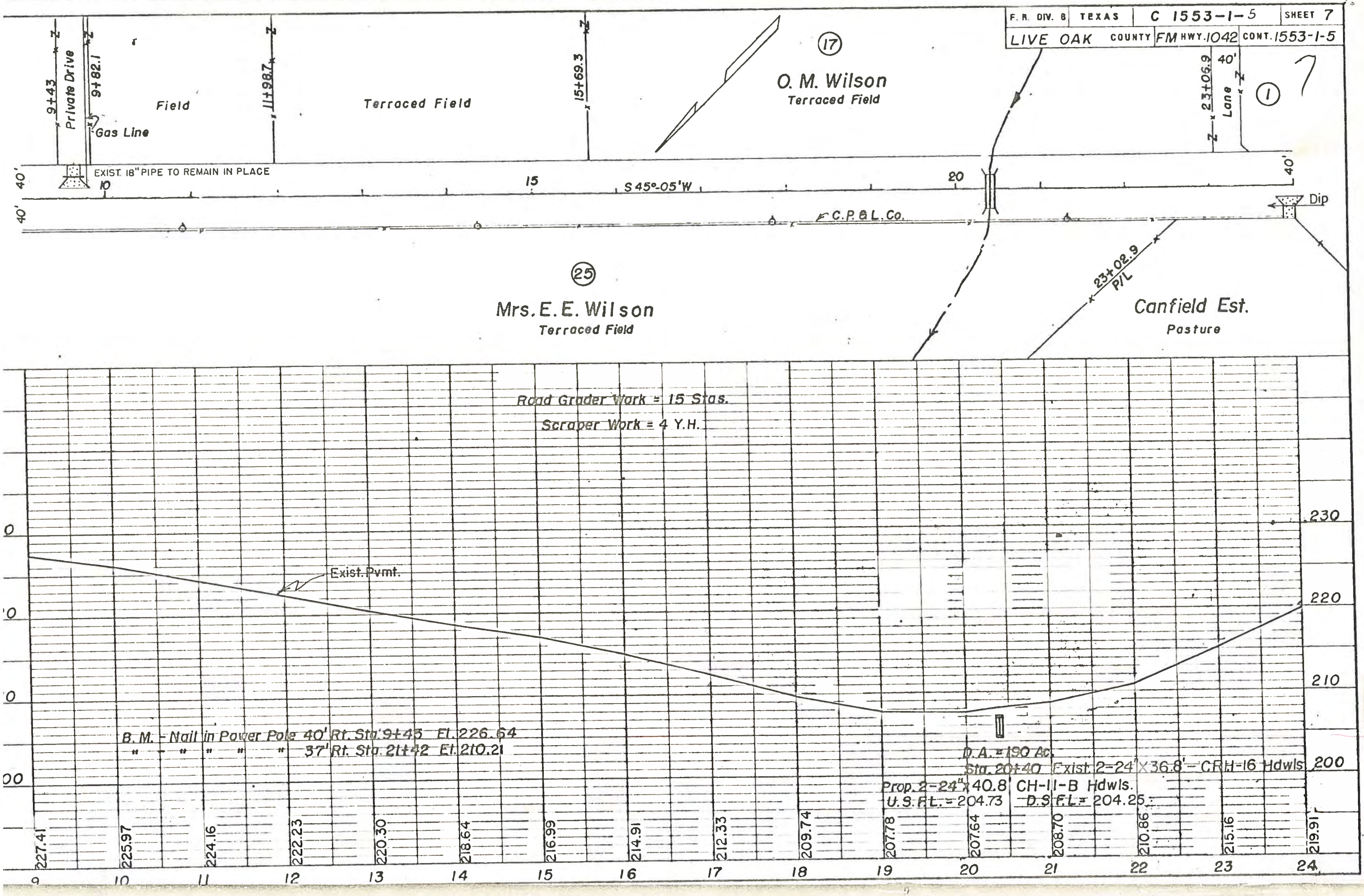
LIVE OAK COUNTY	FM HWY. 1042	CONT. 1553-1-5	



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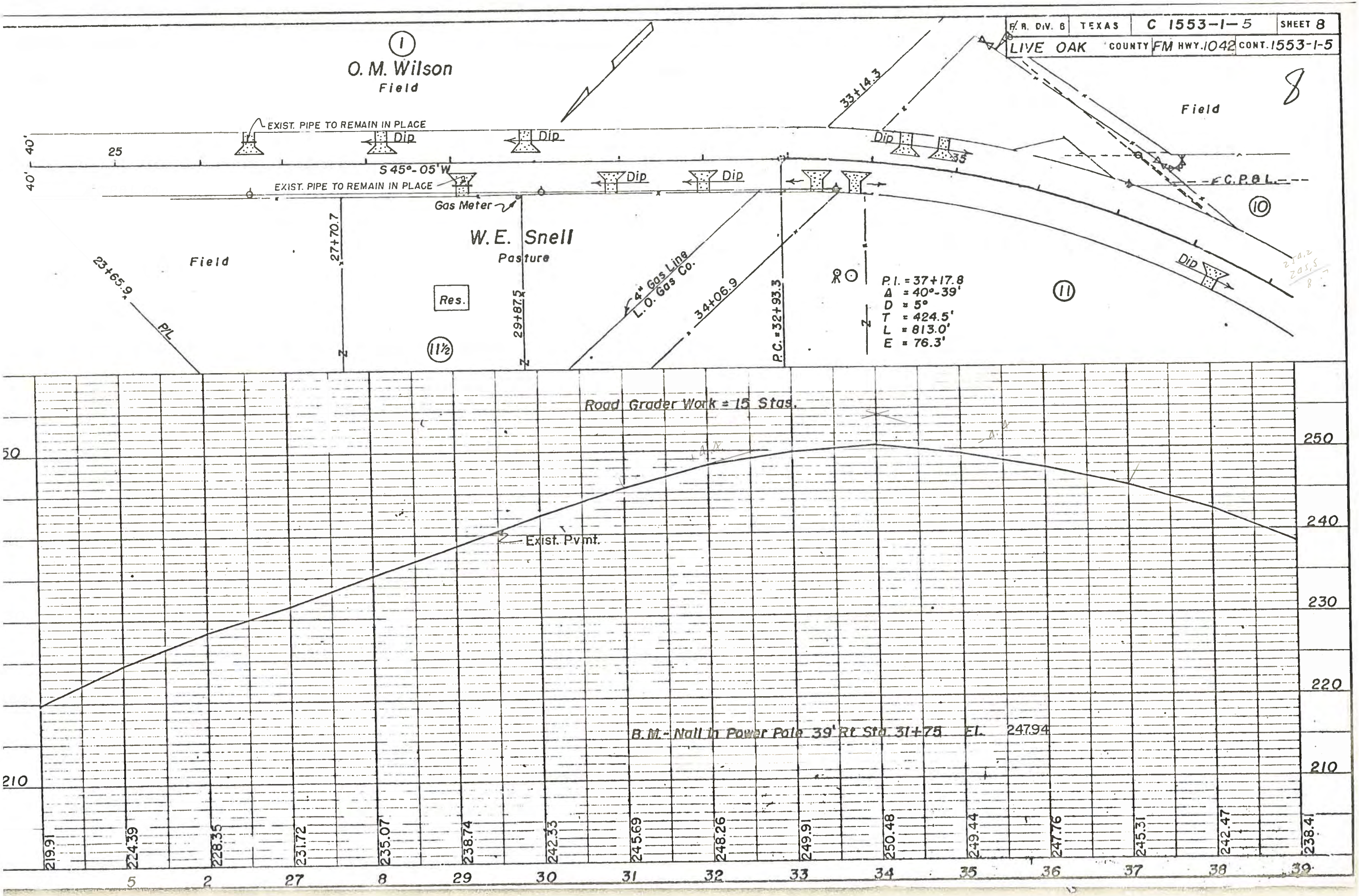
LIVE OAK COUNTY	FM HWY. 1042	CONT. 1553-1-5	

8



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LIVE OAK COUNTY	FM HWY. 1042	CONT. 1553-1-5	

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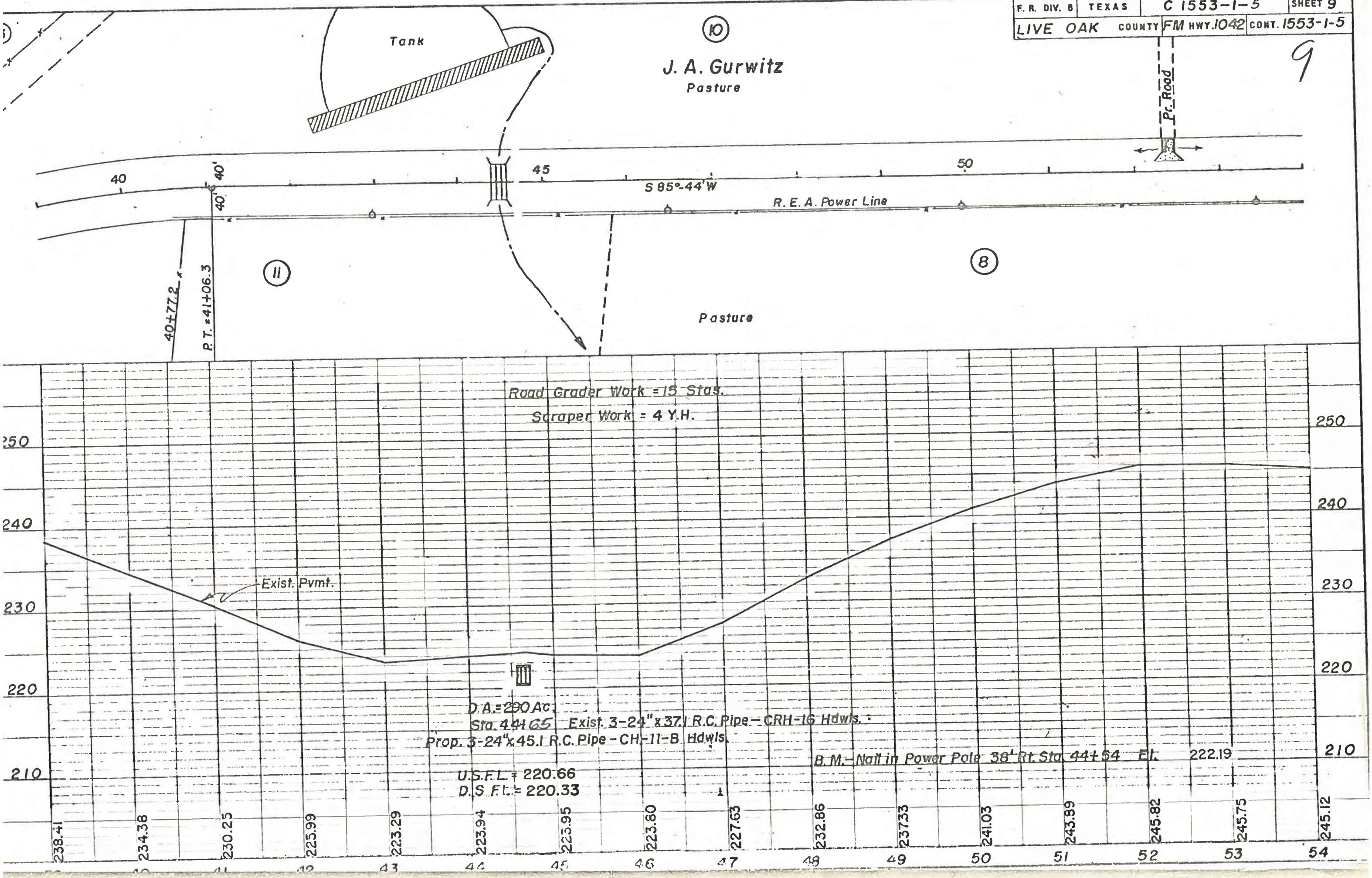

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LIVE OAK COUNTY	FM HWY. 1042	CONT. 1553-1-5	

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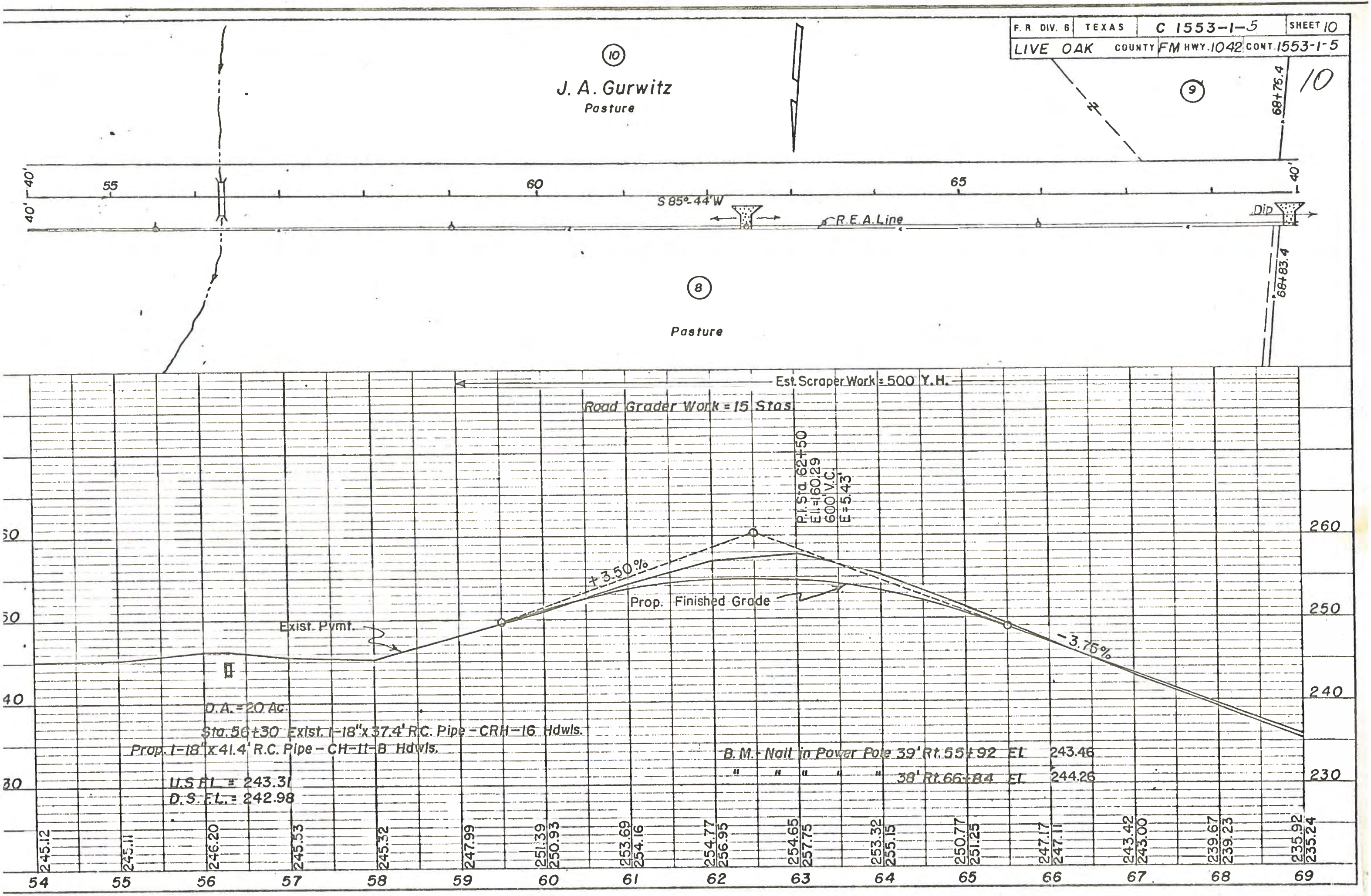

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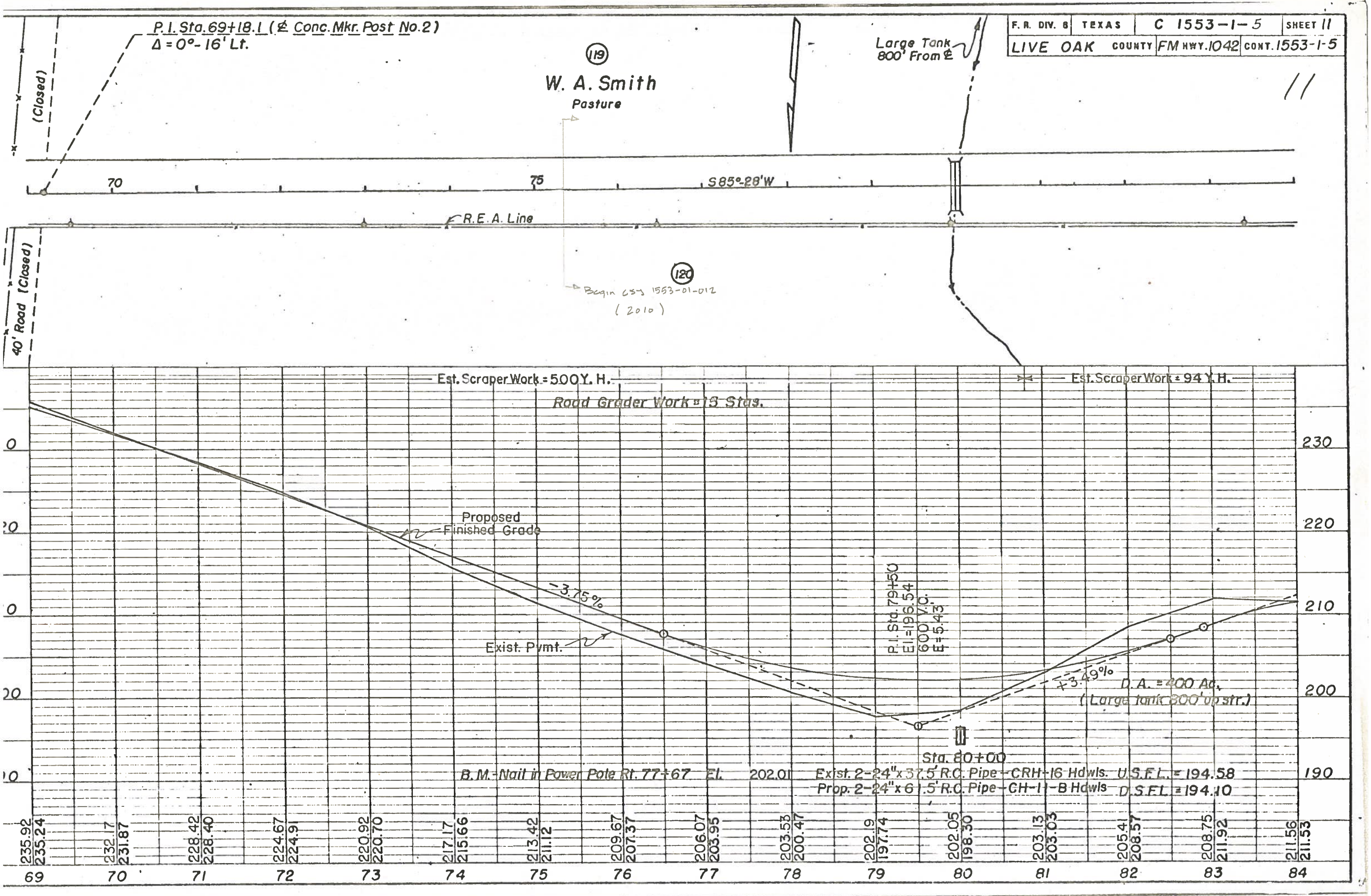
LIVE OAK COUNTY	FM HWY. 1042	CONT. 1553-1-5	



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LIVE OAK	COUNTY	FM HWY. 1042	CONT. 1553-1-5

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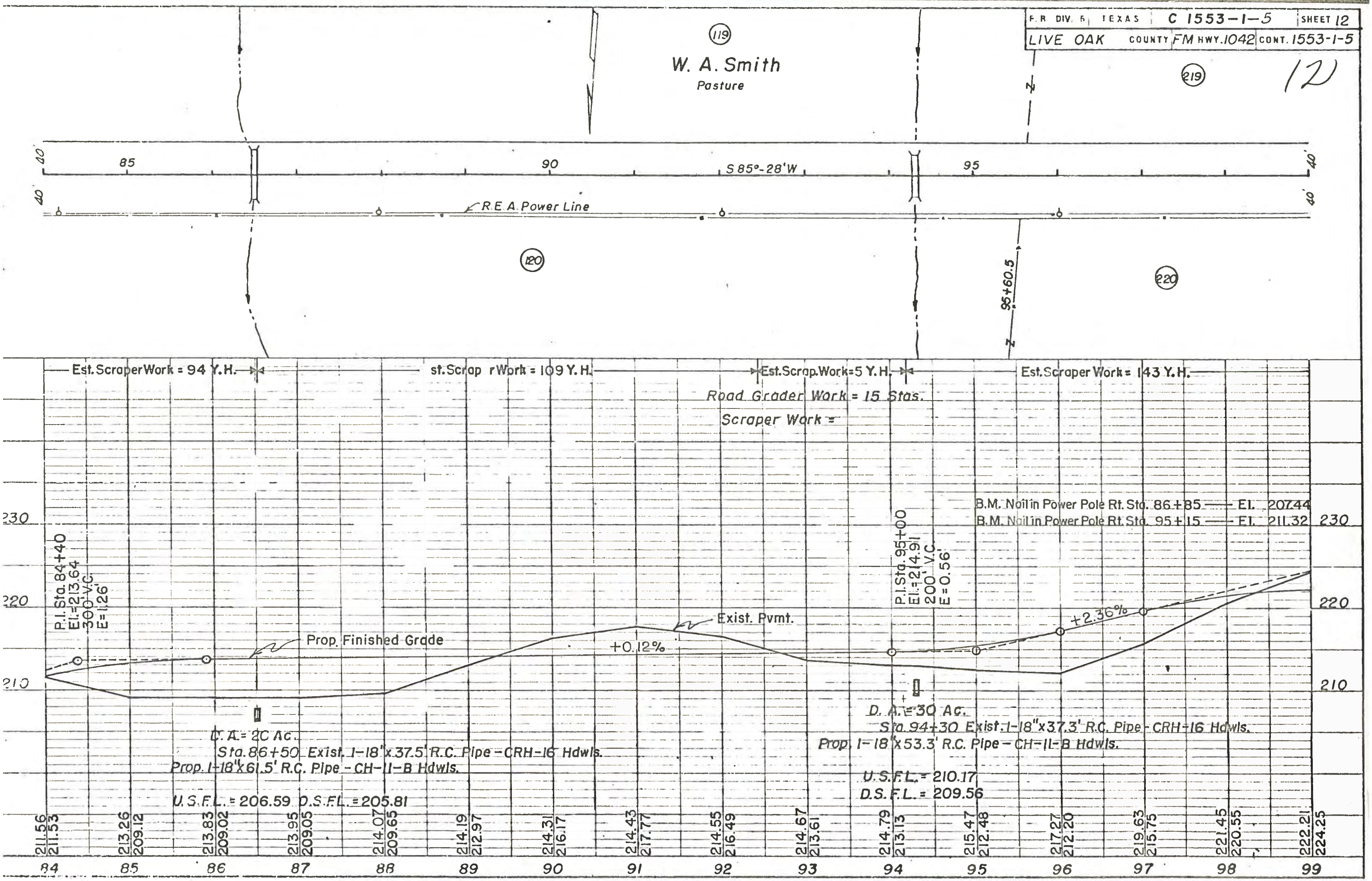

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LIVE OAK COUNTY	FM HWY. 1042	CONT. 1553-1-5	

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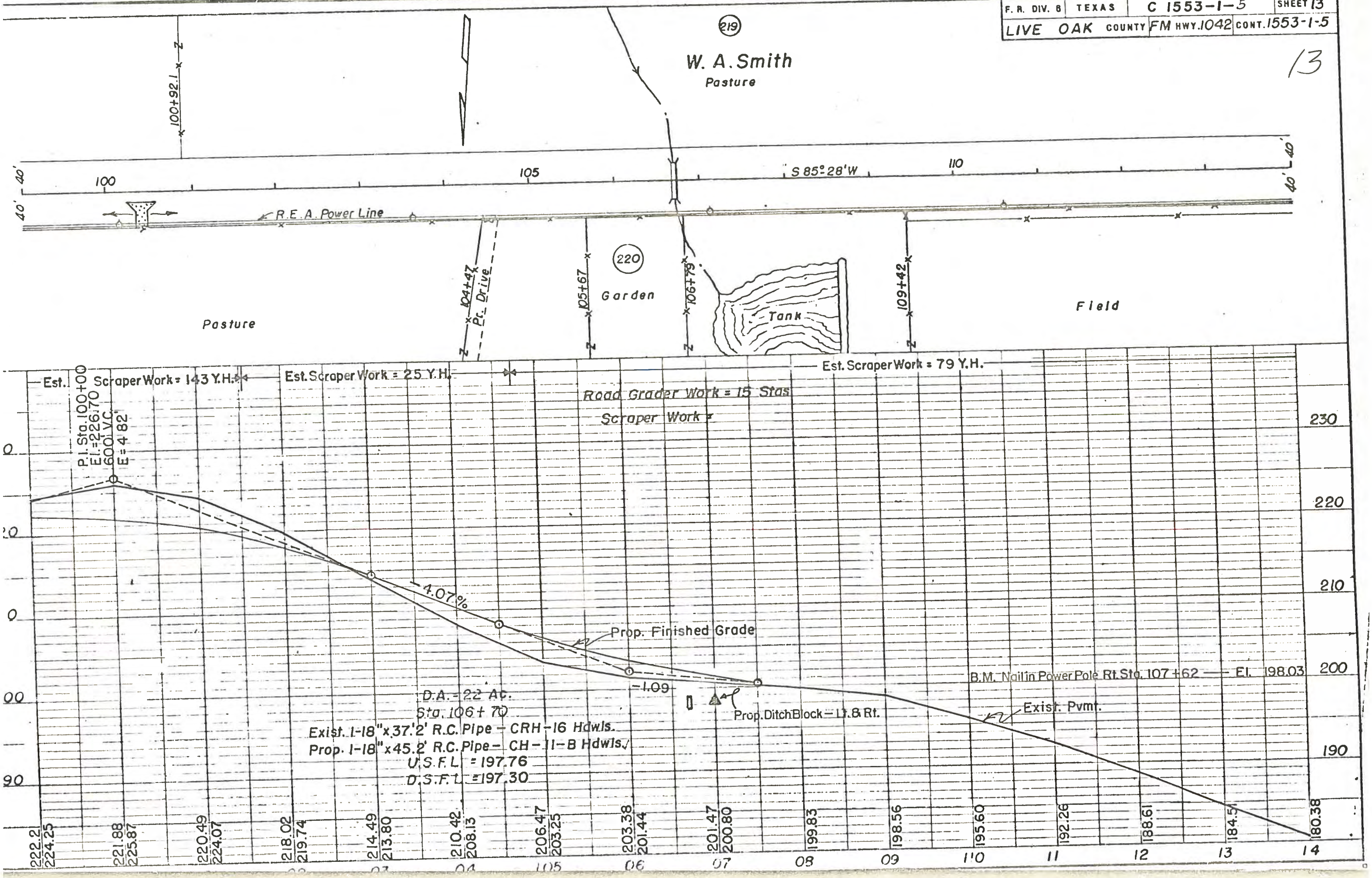

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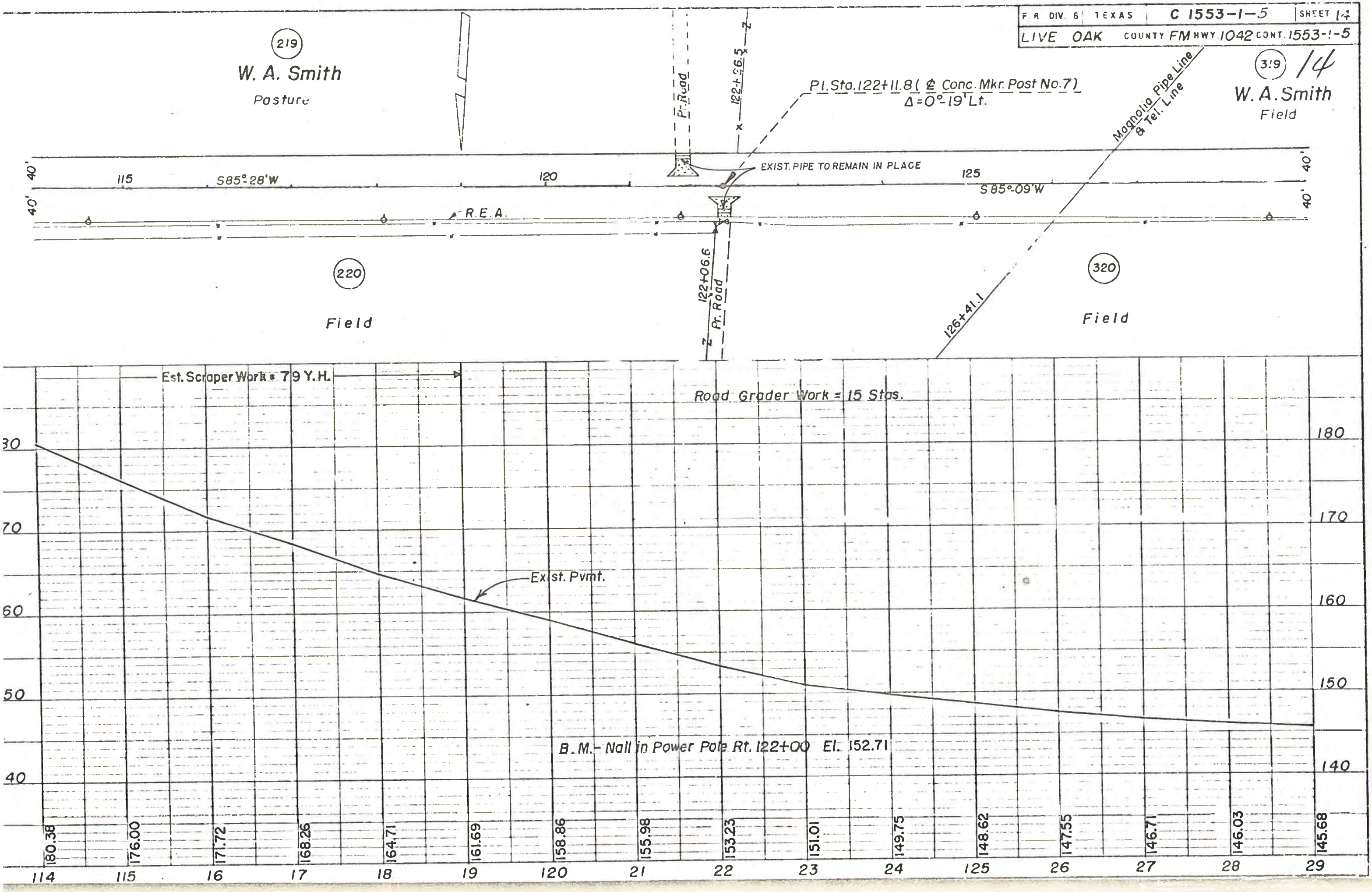
LIVE OAK	COUNTY	FM HWY 1042	CONT. 1553-1-5



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LIVE OAK	COUNTY	FM HWY. 1042	CONT. 1553-1-5

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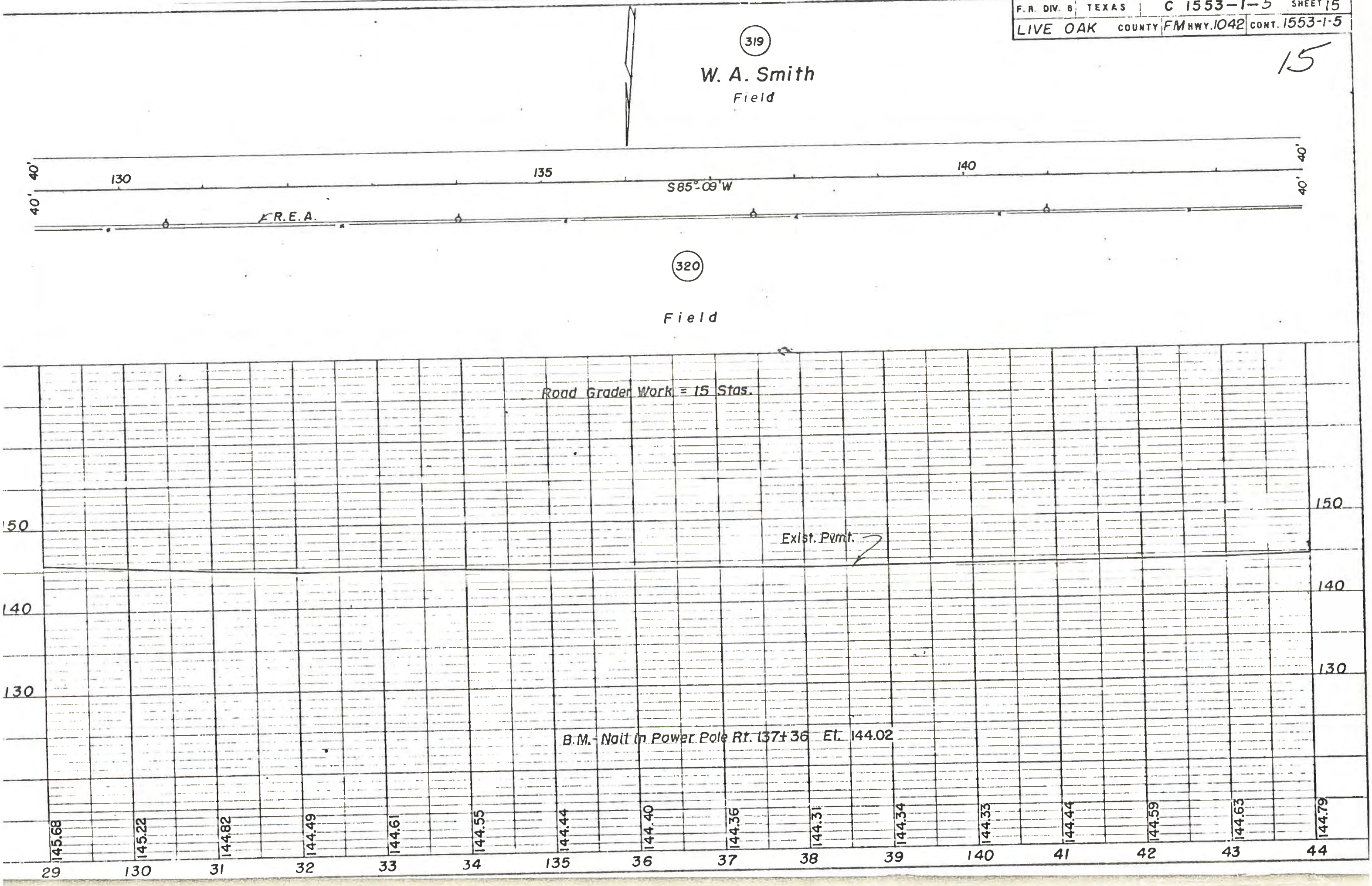

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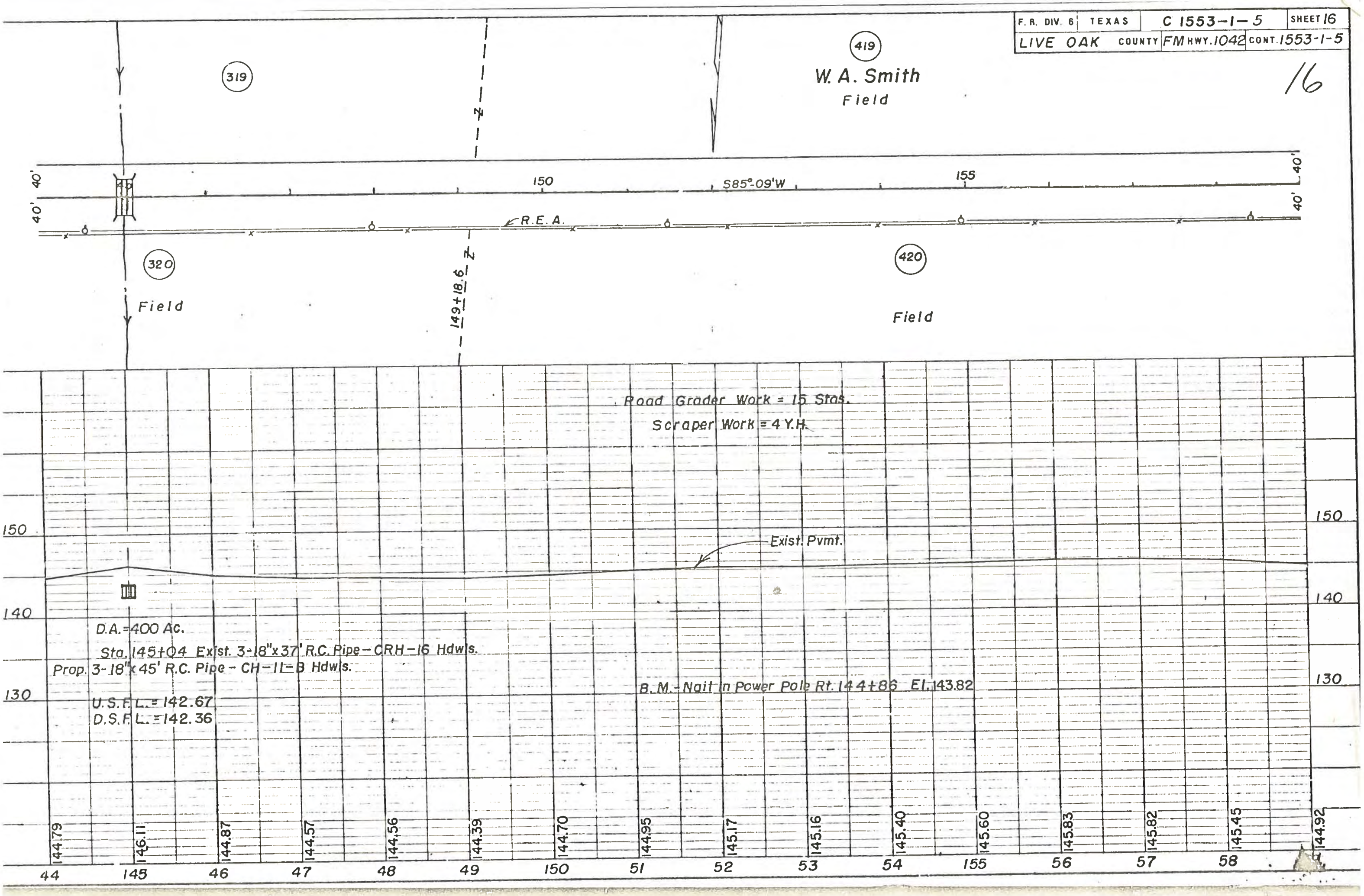
LIVE OAK COUNTY		FM HWY. 1042	CONT. 1553-1-5

16



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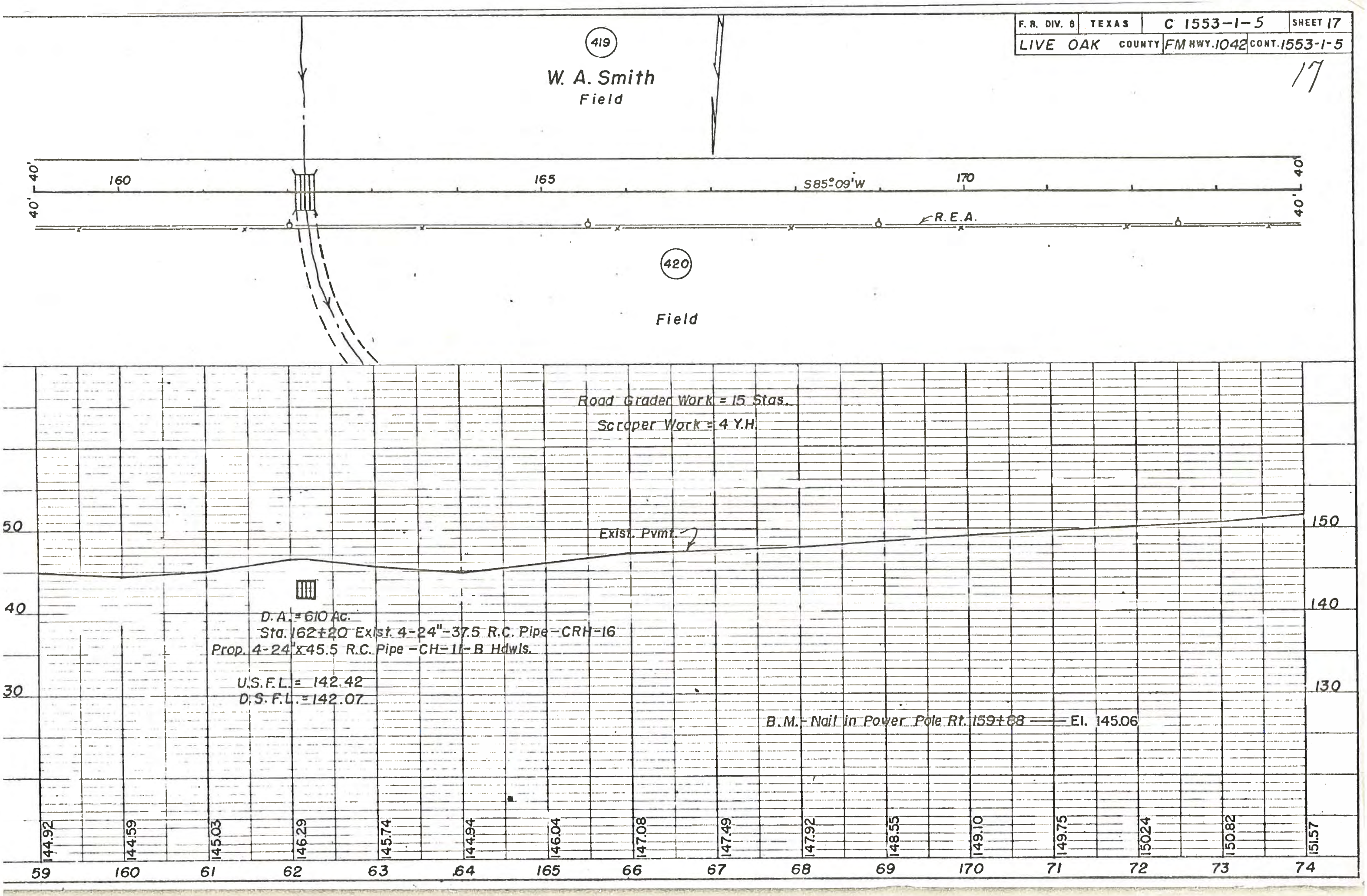
LIVE OAK	COUNTY	FM HWY. 1042	CONT. 1553-1-5

17



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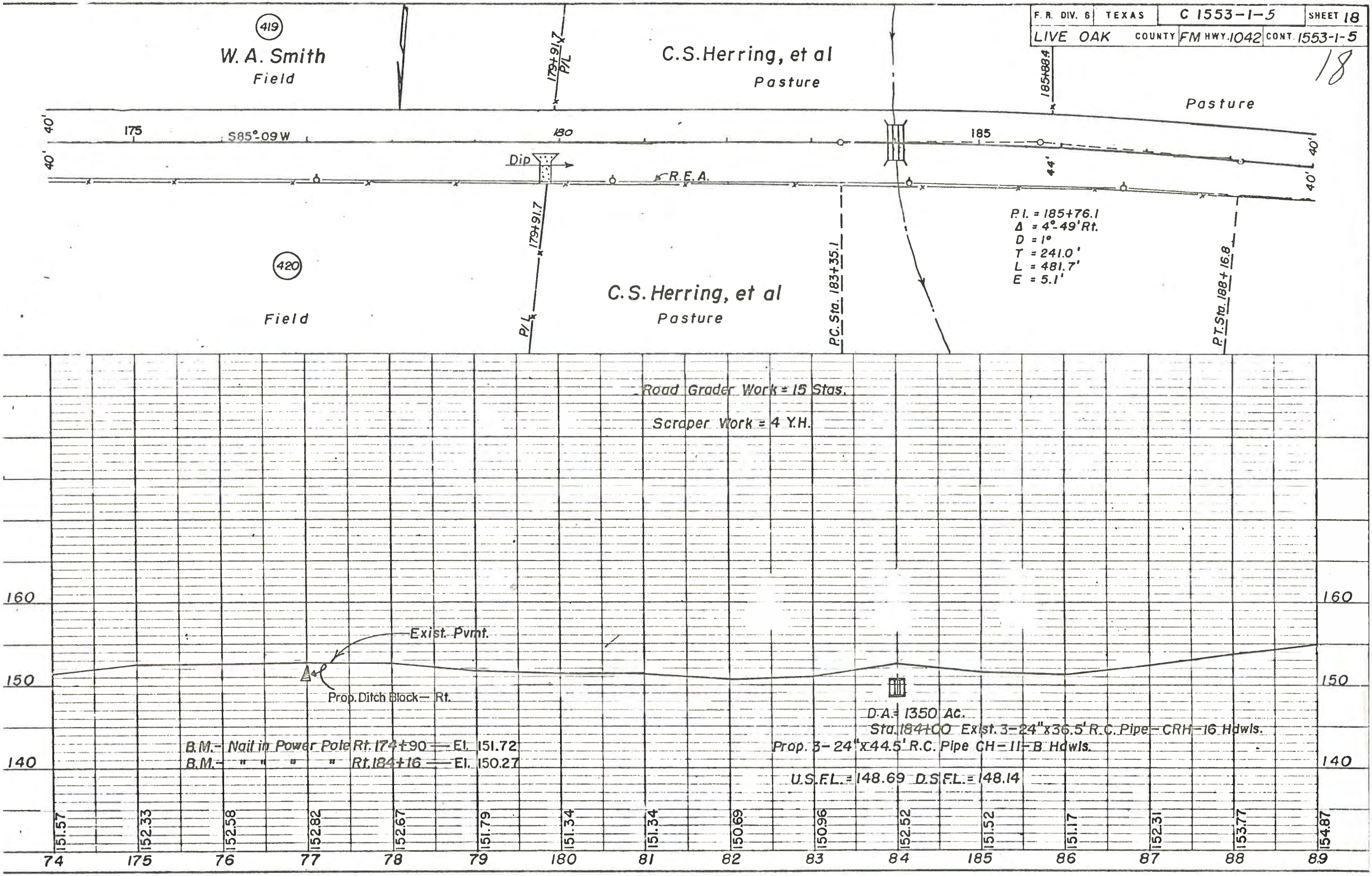
LIVE OAK	COUNTY	FM HWY. 1042	CONT. 1553-1-5

18



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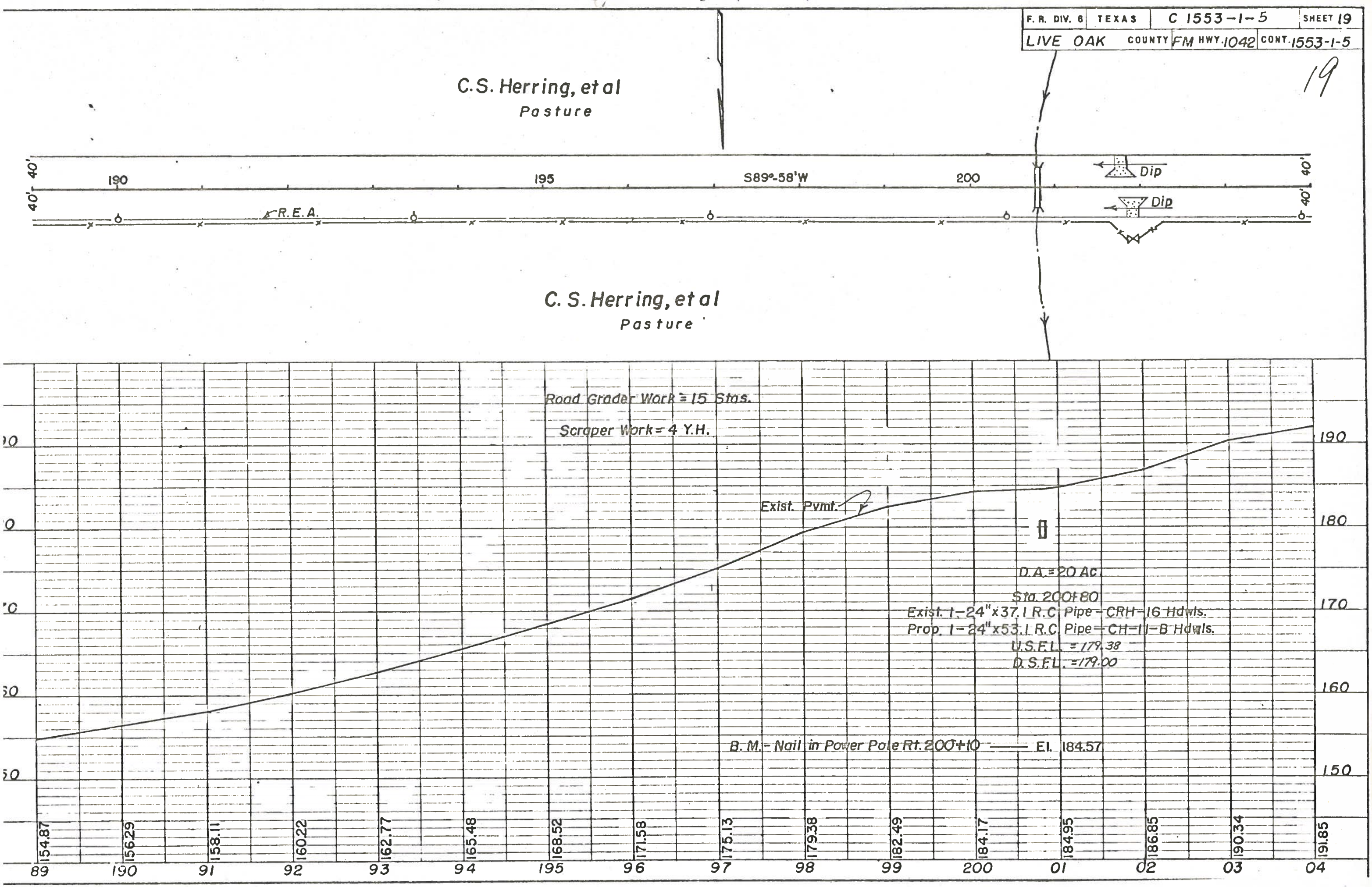
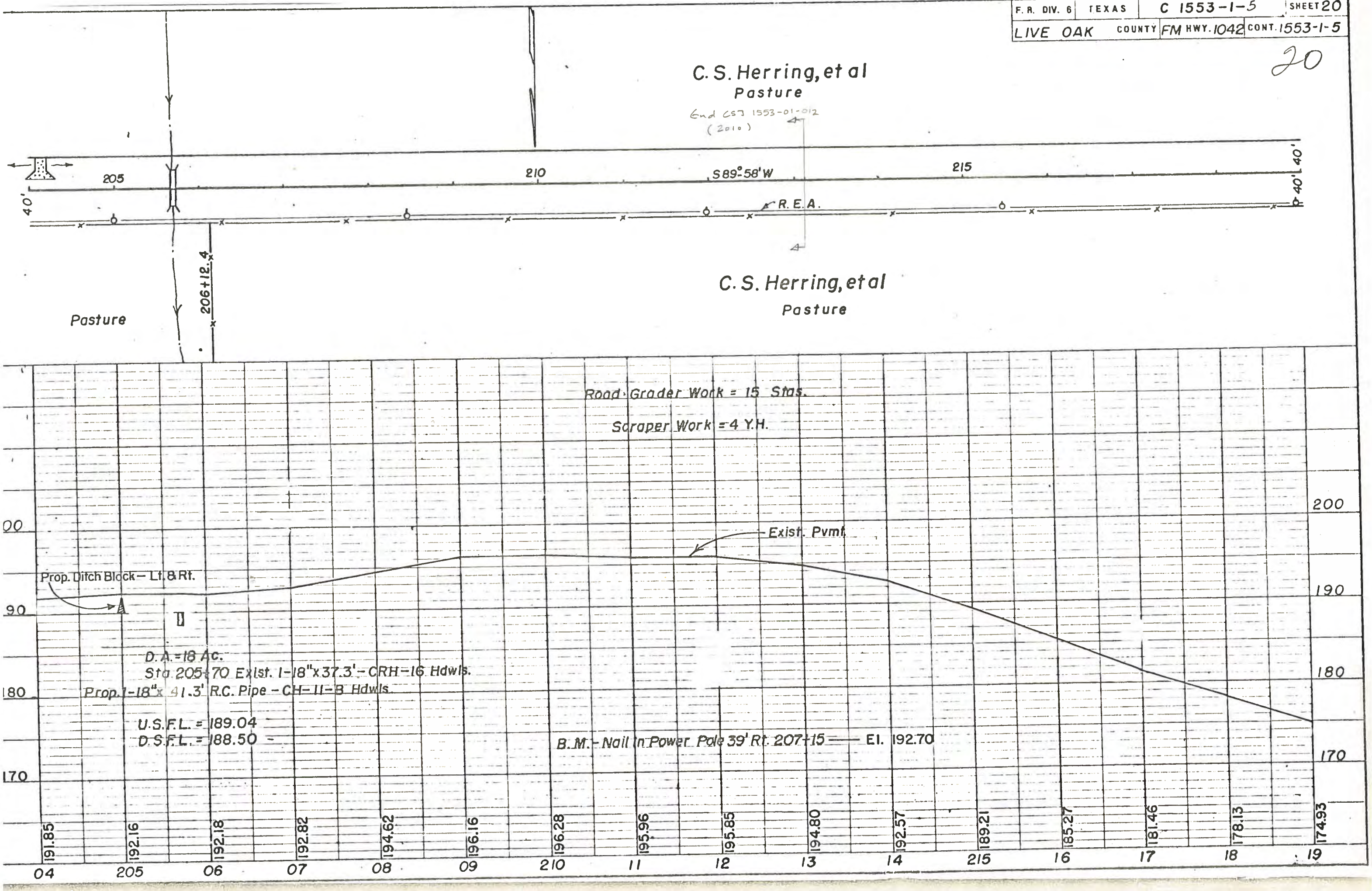
LIVE OAK	COUNTY	FM HWY. 1042	CONT. 1553-1-5

19



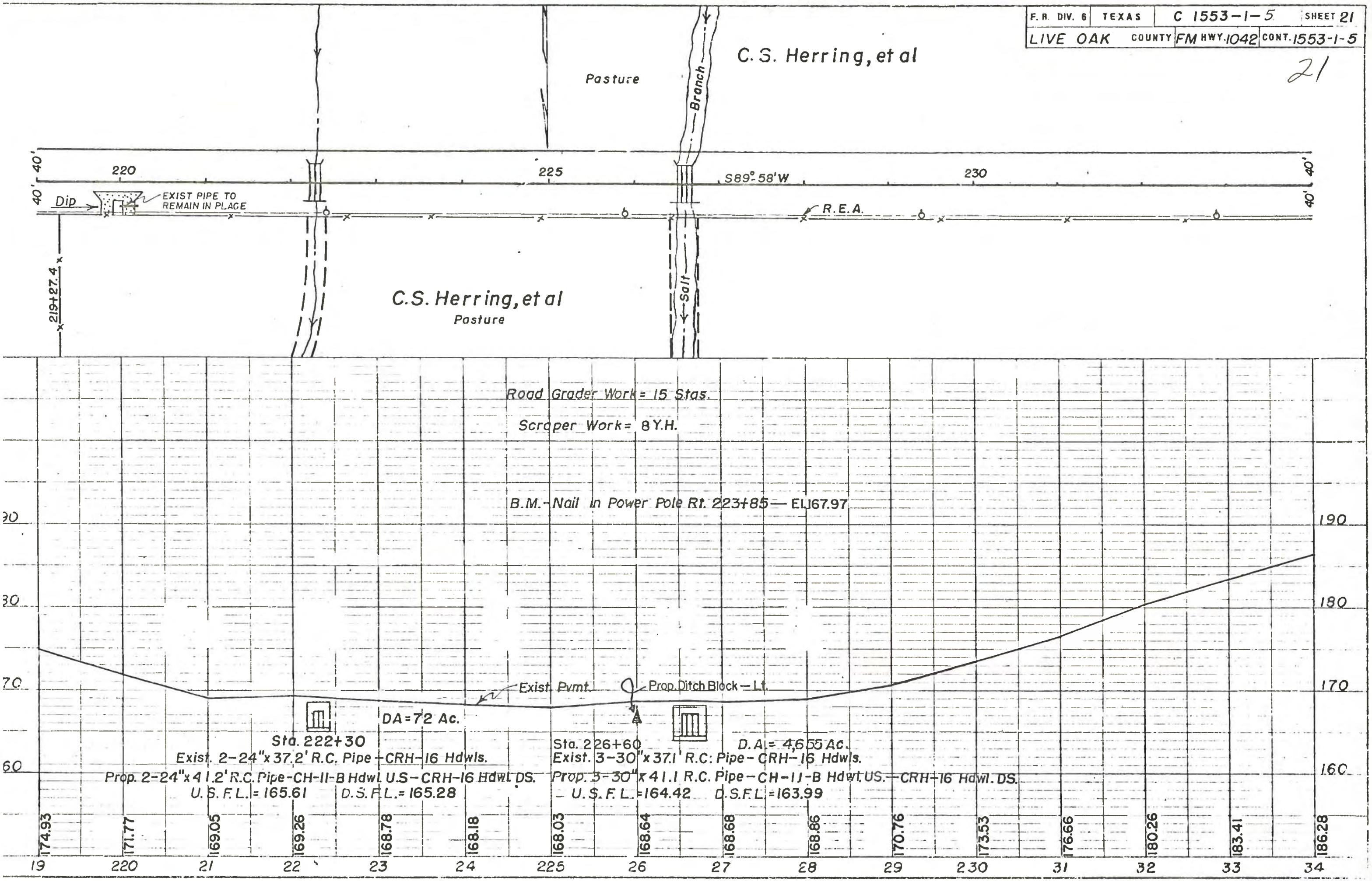
F. R. DIV. 6	TEXAS	C 1553-1-5	SHEET 20
LIVE OAK	COUNTY	FM HWY. 1042	CONT. 1553-1-5

20



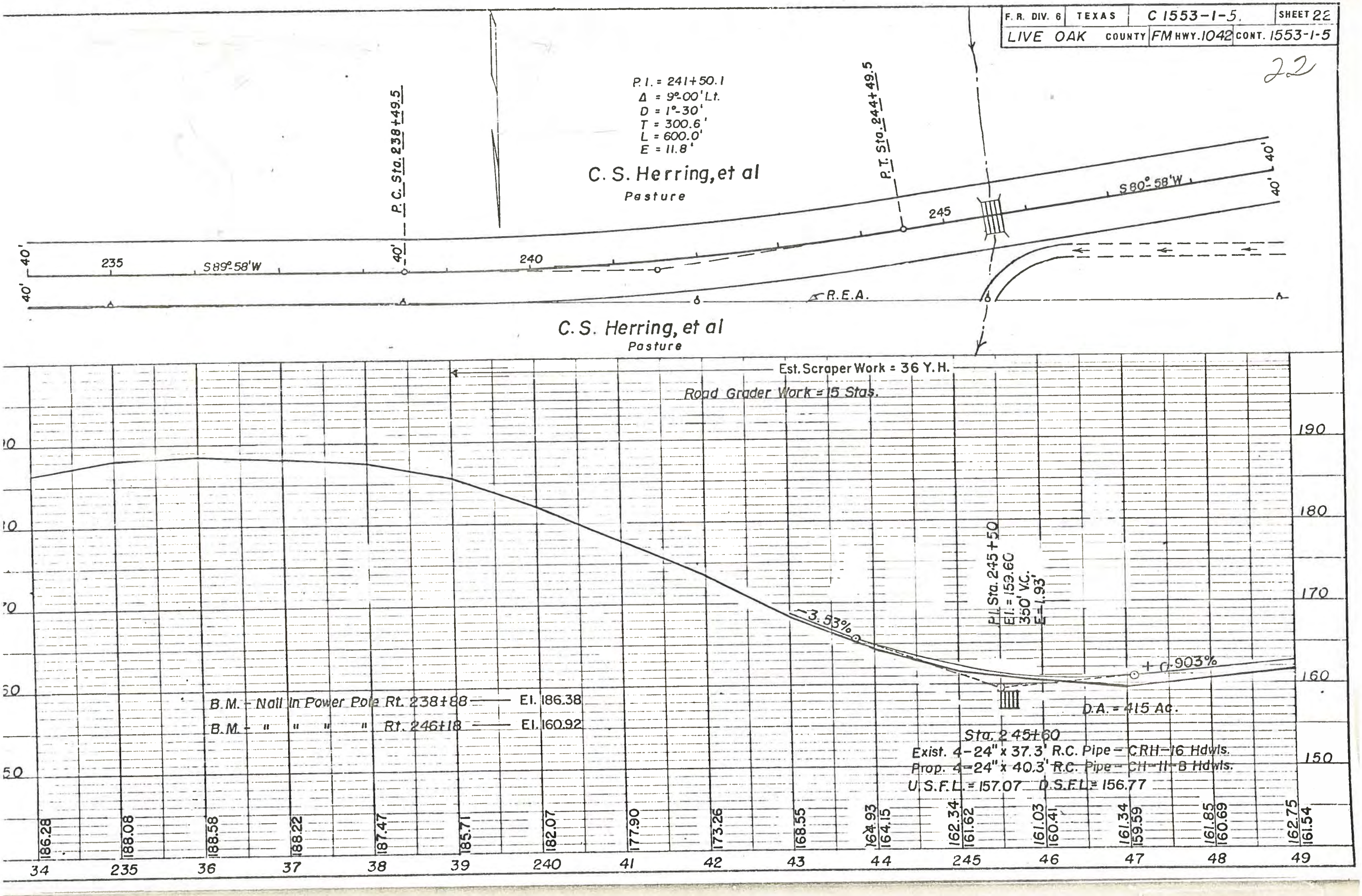
F. R. DIV. 6	TEXAS	C 1553-1-5	SHEET 21
LIVE OAK COUNTY	FM HWY. 1042	CONT. 1553-1-5	

21



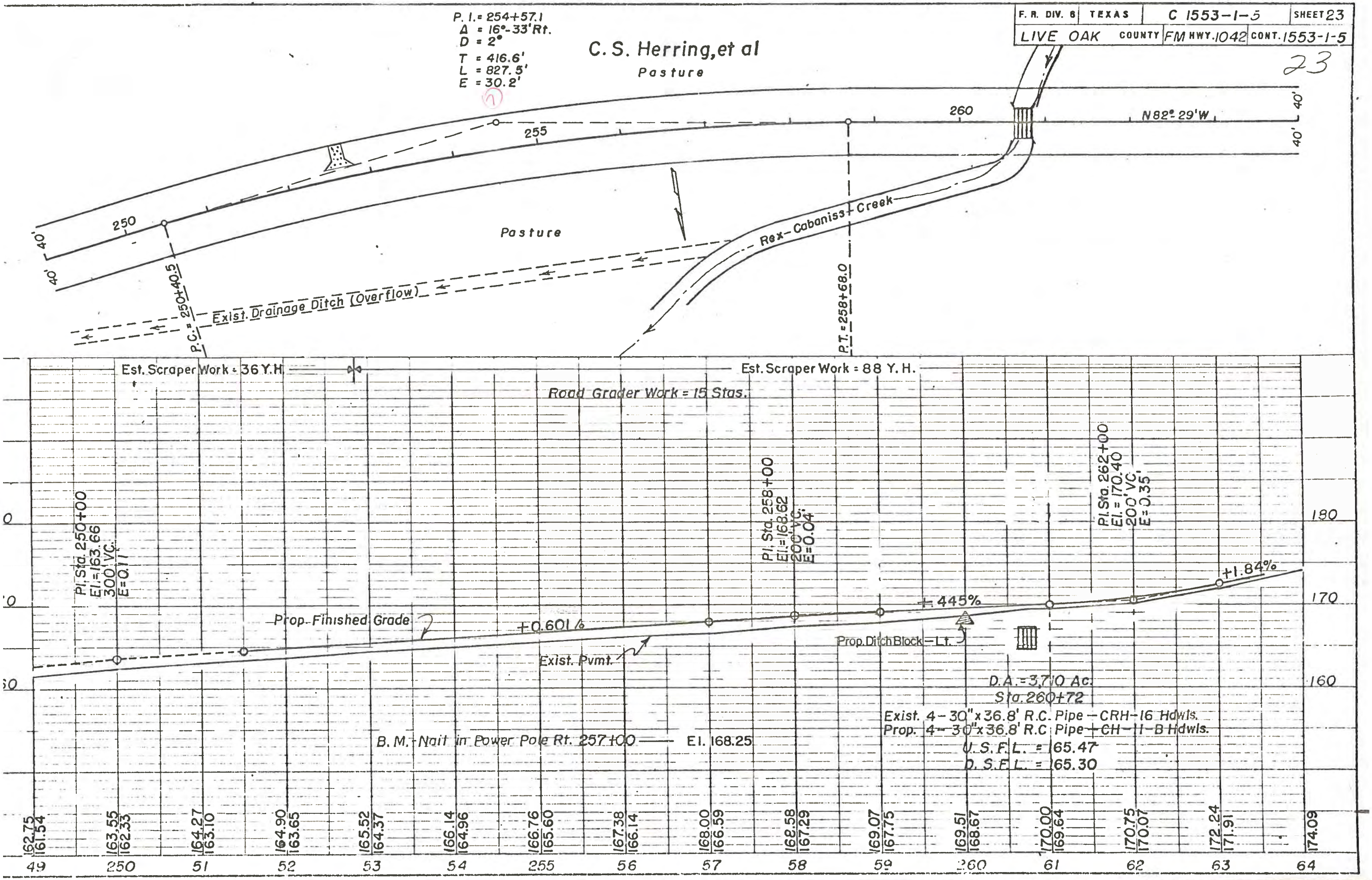
F. R. DIV. 6	TEXAS	C 1553-1-5.	SHEET 22
LIVE OAK COUNTY	FM HWY. 1042	CONT. 1553-1-5	

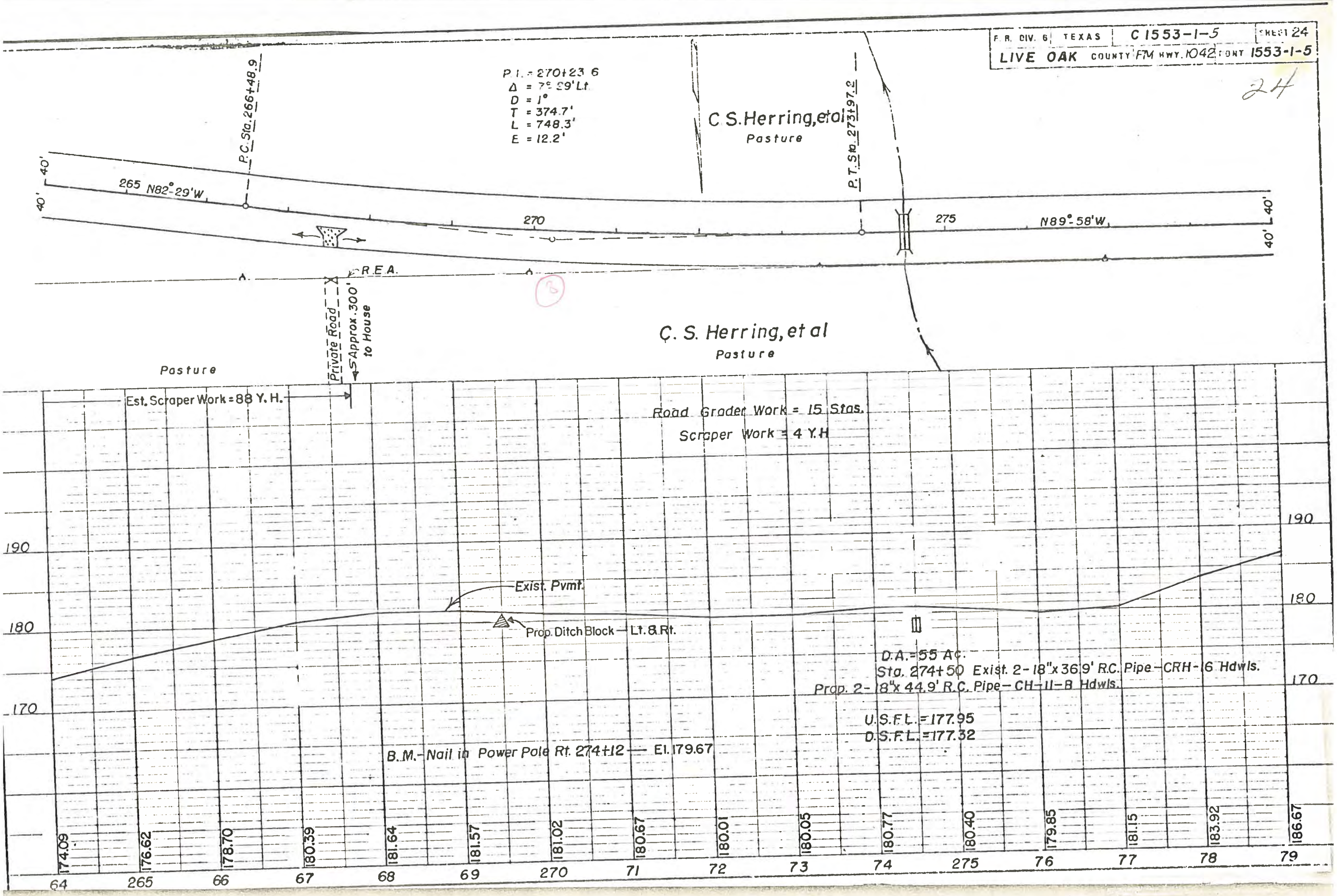
22



F. R. DIV. 6	TEXAS	C 1553-1-5	SHEET 23
LIVE OAK COUNTY	FM HWY. 1042	CONT. 1553-1-5	

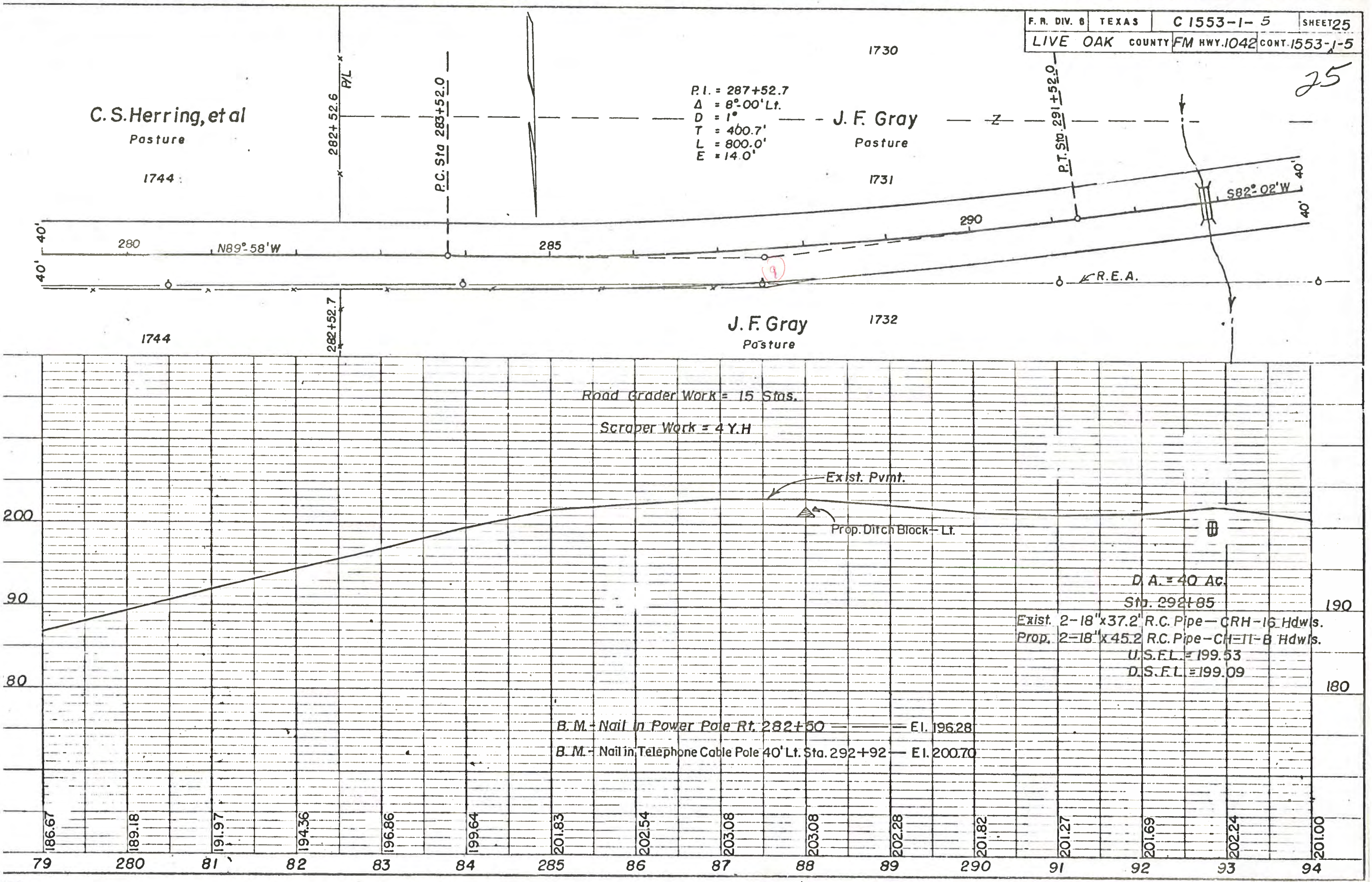
23




F. R. DIV. 6 TEXAS C 1553-1-5 SHEET 24
LIVE OAK COUNTY FM HWY. 1042 CONT 1553-1-5
24
P.I. = 270+23.6
Δ = 7° 29' Lt.
D = 1°
T = 374.7'
L = 748.3'
E = 12.2'
P.C. Sta. 266+48.9
P.T. Sta. 273+97.2
C.S. Herring, et al
Pasture
40'
265 N82°-29'W
270
275
N89°-58'W
R.E.A.
Private Road
Approx. 300' to House
C. S. Herring, et al
Pasture
Pasture
Est. Scraper Work = 88 Y. H.
Road Grader Work = 15 Stas.
Scraper Work = 4 Y.H
190
180
170
Exist. Pvmt.
Prop. Ditch Block — Lt. & Rt.
D.A. = 55 Ac.
Sta. 274+50 Exist. 2-18"x 36.9' R.C. Pipe-CRH-16 Hdwls.
Prop. 2-18"x 44.9' R.C. Pipe-CH-11-B Hdwls.
U.S.F.L. = 177.95
D.S.F.L. = 177.32
B.M.-Nail in Power Pole Rt. 274+12 — El. 179.67
174.09
176.62
178.70
180.39
181.64
181.57
181.02
180.67
180.01
180.05
180.77
180.40
179.85
181.15
183.92
186.67
64
265
66
67
68
69
270
71
72
73
74
275
76
77
78
79

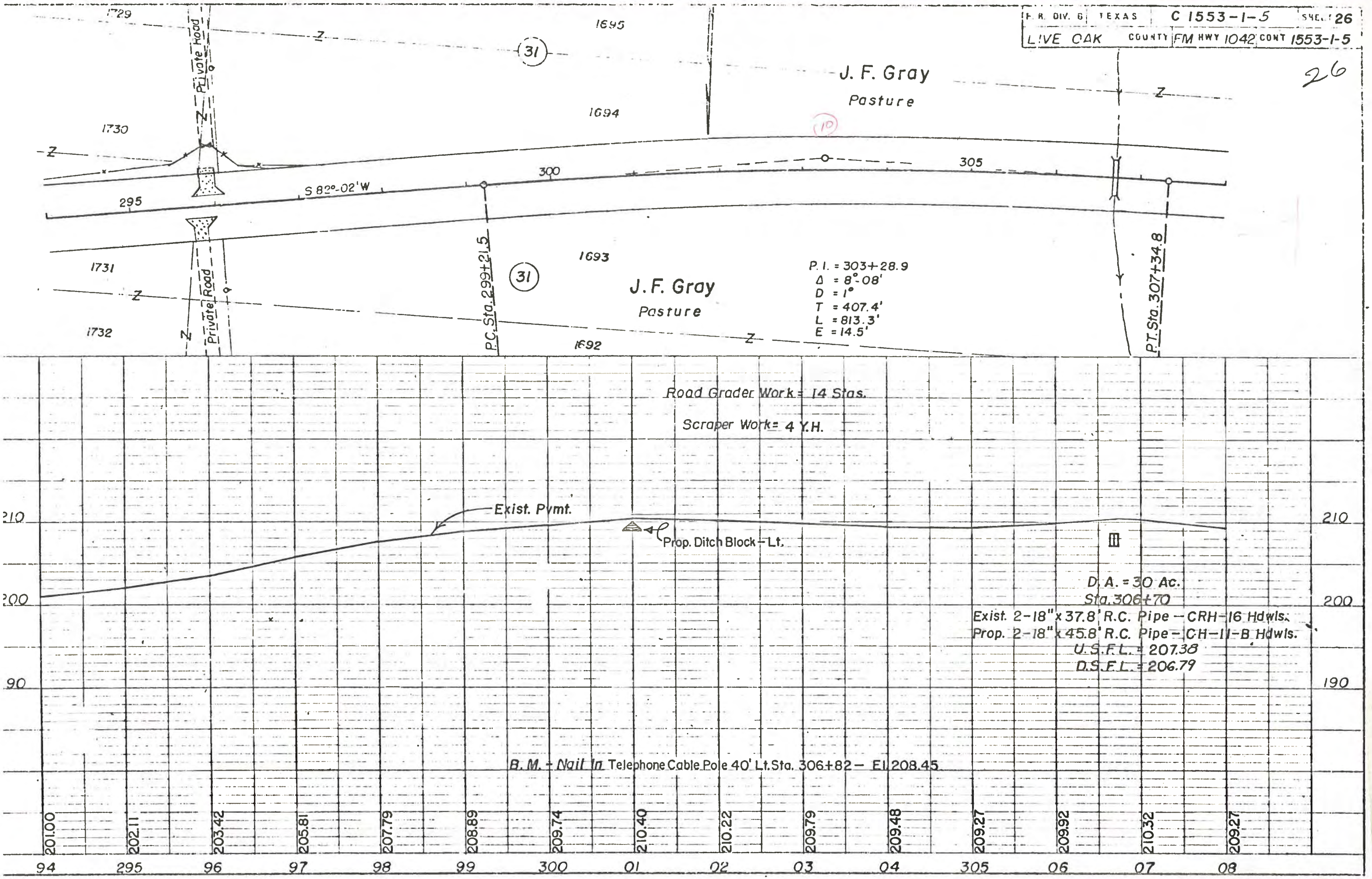
F. R. DIV. 6	TEXAS	C 1553-1-5	SHEET 25
LIVE OAK COUNTY	FM HWY. 1042	CONT. 1553-1-5	

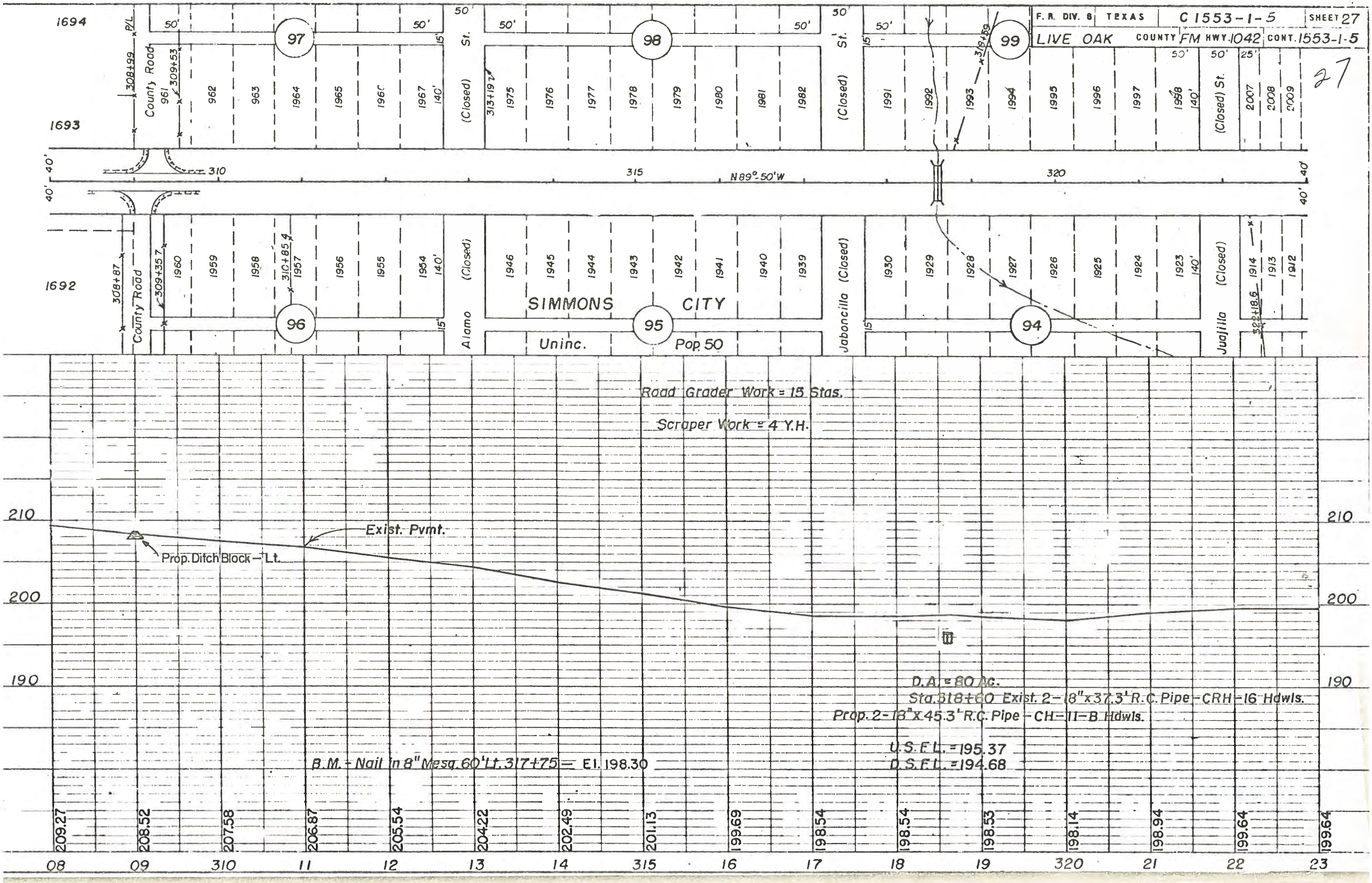
25

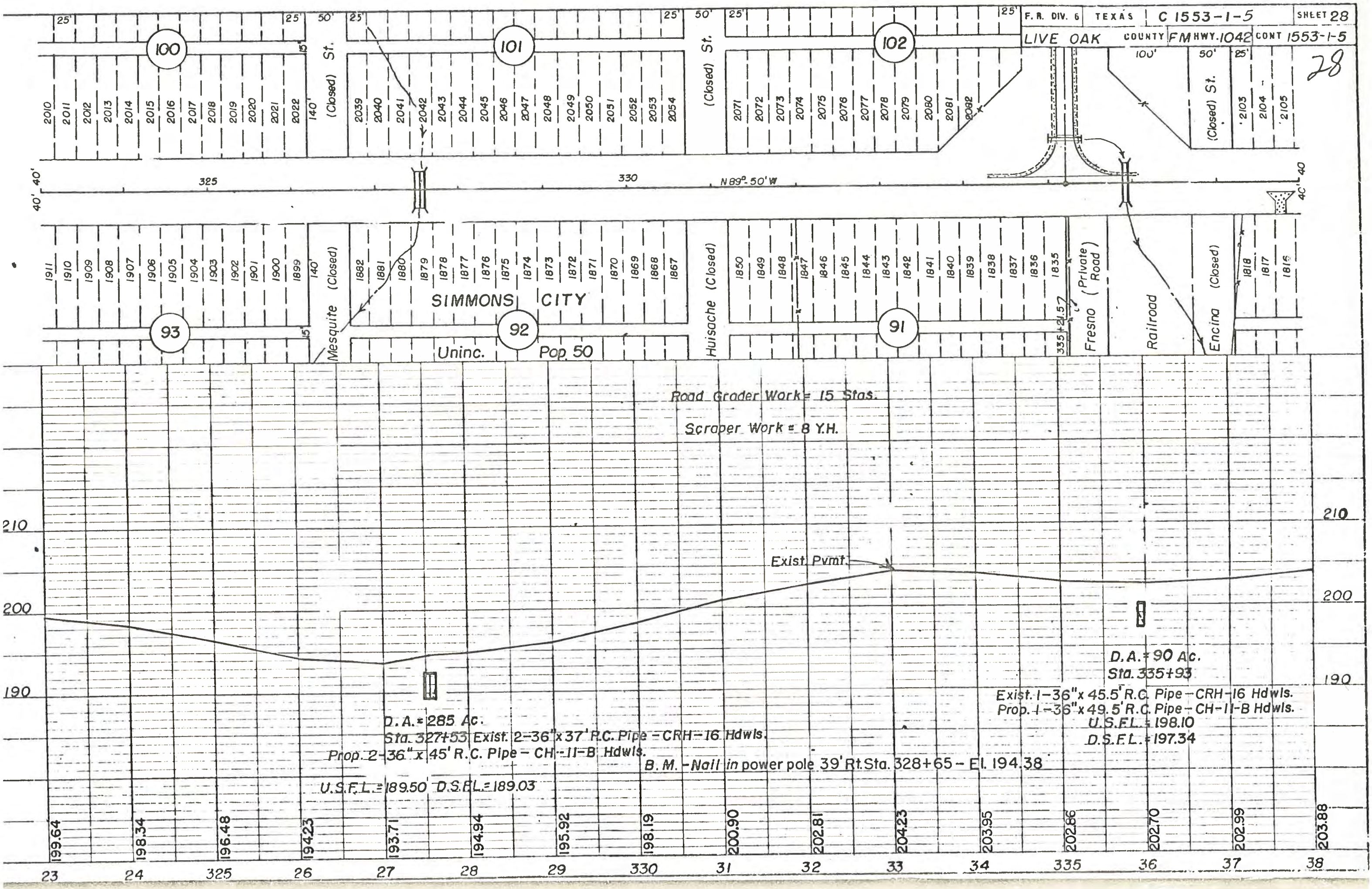


F. R. DIV. 6 TEXAS C 1553-1-5 SHEET 26
LIVE OAK COUNTY FM HWY 1042 CONT 1553-1-5

26



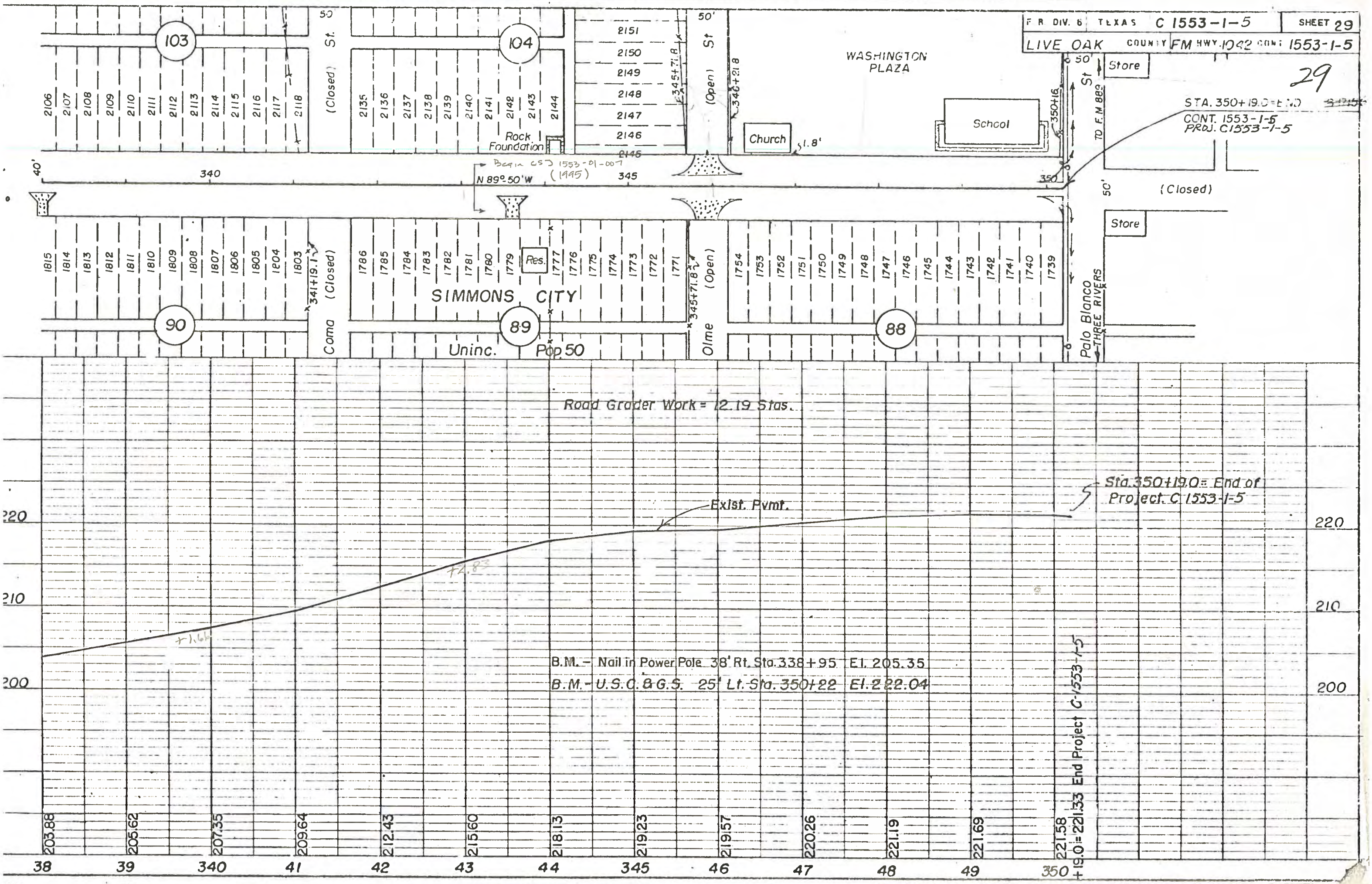

F. R. DIV. 8 TEXAS C 1553-1-5 SHEET 27
LIVE OAK COUNTY FM HWY. 1042 CONT. 1553-1-5
27
1694
1693
1692
P/L
County Road
308+99
309+53
308+87
309+35.7
310+85.4
313+19.2
319+60
97
98
99
96
95
94
SIMMONS CITY
Uninc. Pop. 50
Alamo (Closed)
Jaboncilla (Closed)
Juajilla (Closed)
(Closed) St.
N 89°-50' W
310
315
320
Road Grader Work = 15 Stas.
Scraper Work = 4 Y.H.
Exist. Pvmt.
Prop. Ditch Block — Lt.
D.A. = 80 Ac.
Sta. 318+60 Exist. 2-18" x 37.3' R.C. Pipe - CRH - 16 Hdwls.
Prop. 2-18" x 45.3' R.C. Pipe - CH - 11 - B Hdwls.
U.S.F.L. = 195.37
D.S.F.L. = 194.68
B.M. - Nail in 8" Mesq. 60' Lt. 317+75 = El. 198.30
210
200
190
209.27
208.52
207.58
206.87
205.54
204.22
202.49
201.13
199.69
198.54
198.54
198.53
198.14
198.94
199.64
199.64
08
09
310
11
12
13
14
315
16
17
18
19
320
21
22
23


F. R. DIV. 6
TEXAS
C 1553-1-5
SHEET 28
LIVE OAK
COUNTY
FM HWY. 1042
CONT 1553-1-5
28
100
101
102
93
92
91
(Closed) St.
Mesquite (Closed)
Huisache (Closed)
Fresno (Private Road)
Railroad
Encina (Closed)
SIMMONS CITY
Uninc.
Pop. 50
N 89°-50' W
Road Grader Work = 15 Stas.
Scraper Work = 8 Y.H.
Exist. Pvmt.
D.A. = 285 Ac.
Sta. 327+53 Exist. 2-36" x 37' R.C. Pipe - CRH-16 Hdwls.
Prop. 2-36" x 45' R.C. Pipe - CH-11-B Hdwls.
U.S.F.L. = 189.50 D.S.F.L. = 189.03
B.M. - Nail in power pole 39' Rt. Sta. 328+65 - El. 194.38
D.A. = 90 Ac.
Sta. 335+93
Exist. 1-36" x 45.5' R.C. Pipe - CRH-16 Hdwls.
Prop. 1-36" x 49.5' R.C. Pipe - CH-11-B Hdwls.
U.S.F.L. = 198.10
D.S.F.L. = 197.34
210
200
190
199.64
198.34
196.48
194.23
193.71
194.94
195.92
198.19
200.90
202.81
204.23
203.95
202.86
202.70
202.99
203.88
23
24
325
26
27
28
29
330
31
32
33
34
335
36
37
38

F R DIV. 6 TEXAS C 1553-1-5 SHEET 29

LIVE OAK COUNTY FM HWY. 1042 CONT. 1553-1-5

29



1+03.65 Beg. Project

(46) 1+03.65 – 5+67.7
4.6405 x 80 = 371 C.Y.
Jct. U.S. 281 Widening = 124
Radius at U.S. 281 (2) 32
Total = 527 C.Y.
Haul = 527 x 45 = 23,715 C.Y.

(45) 5+67.7 – 18+87.7
13.200 x 80 = 1056 C.Y.
Private Drives = 24
Total = 1080 C.Y.
Haul = 1080 x 44 = 47,520 C.Y.

(44) 18+87.7 – 32+07.7
13.200 x 80 = 1056 C.Y.
Private Drives = 72
Total = 1128 C.Y.
Haul = 1128 x 43 = 48,504 C.Y.

(43) 32+07.7 – 45+27.7
0.606 x 80 = 48 C.Y.
8.630 x 136 (Curve) = 1174
3.964 x 80 = 317
Private Drives = 72
Total = 1611 C.Y.
Haul = 1611 x 42 = 67,662 C.Y.

(42) 45+27.7 – 58+47.7
0.423 x 80 = 34 C.Y.
Private Drive = 12
Total = 46 C.Y.
Haul = 46 x 41 = 1,886 C.Y.

(41) 58+47.7 – 71+67.7
12.177 x 46 (First Crse) = 560 C.Y.
12.177 x 80 (Top Crse) = 974
Private Drives = 24
Total = 1558 C.Y.
Haul = 1558 x 40 = 62,320 C.Y.

Sta. 45+70 — Salv. Base from Sta. 59+50 to 83+50 used within these limits for Top Crse. — Sta. 59+50

(40) 71+67.7 – 84+87.7
13.200 x 46 (First Crse) = 607 C.Y.
13.200 x 80 (Top Crse) = 1056
Total = 1663 C.Y.
Haul = 1663 x 39 = 64,857 C.Y.

(39) 84+87.7 – 98+07.7
13.200 x 46 (First Crse) = 607 C.Y.
13.200 x 80 (Top Crse) = 1056
Total = 1663 C.Y.
Haul = 1663 x 38 = 63,194 C.Y.

(38) 98+07.7 – 111+27.7
9.423 x 46 (First Crse) = 433 C.Y.
9.423 x 80 (Top Crse) = 754
Private Drive = 12
Total = 1199 C.Y.
Haul = 1199 x 37 = 44,363 C.Y.

(37) 111+27.7 – 124+47.7
3.177 x 80 = 254 C.Y.
Private Drive = 24
Total = 278 C.Y.
Haul = 278 x 36 = 10,008 C.Y.

(36) 124+47.7 – 137+67.7
13.200 x 80 = 1056 C.Y.
Haul = 1056 x 35 = 36,960 C.Y.

(35) 137+67.7 – 150+87.7
13.200 x 80 = 1056 C.Y.
Haul = 1056 x 34 = 35,904 C.Y.

Found. Crse used for both Courses within these limits. — Sta. 107+50 — Salv. Base from Sta. 83+50 to 107+50 used within these limits for Top Crse. — Sta. 121+30

(34) 150+87.7 – 164+07.7
13.200 x 80 = 1056 C.Y.
Haul = 1056 x 33 = 34,848 C.Y.

(33) 164+07.7 – 177+27.7
13.200 x 80 = 1056 C.Y.
Haul = 1056 x 32 = 33,792 C.Y.

(32) 177+27.7 – 190+47.7
5.824 x 80 = 466 C.Y.
5.317 x 88 (Curve) = 468
2.059 x 80 = 165
Private Drive = 12
Total = 1111 C.Y.
Haul = 1111 x 31 = 34,441 C.Y.

(31) 190+47.7 – 203+67.7
13.200 x 80 = 1056 C.Y.
Private Drive = 24
Total = 1080 C.Y.
Haul = 1080 x 30 = 32,400 C.Y.

(30) 203+67.7 – 216+87.7
13.200 x 80 = 1056 C.Y.
Private Drive = 12
Total = 1068 C.Y.
Haul = 1068 x 29 = 30,972 C.Y.

(29) 216+87.7 – 230+07.7
13.200 x 80 = 1056 C.Y.
Private Drive = 24
Total = 1080 C.Y.
Haul = 1080 x 28 = 30,240 C.Y.

(28) 230+07.7 – 243+27.7
4.143 x 80 = 331 C.Y.
Haul = 331 x 27 = 8,937 C.Y.

(27) 243+27.7 – 256+47.7
12.477 x 46 (First Crse) = 574 C.Y.
6.155 x 80 (Top Crse) = 492
6.322 x 88 (Top Crse)(Crve) = 556 C.Y.
Private Drive = 12
Total = 1634 C.Y.
Haul = 1634 x 26 = 42,484 C.Y.

(26) 256+47.7 – 269+67.7
4.523 x 46 (First Crse) = 208 C.Y.
2.453 x 88 (Top Crse)(Crve) = 216
7.309 x 80 (Top Crse) = 585
3.438 x 88 (Top Crse)(Crve) = 303
Private Drive = 12
Total = 1324 C.Y.
Haul = 1324 x 25 = 33,100 C.Y.

(25) 269+67.7 – 282+87.7
4.545 x 88 (Curve) = 400 C.Y.
8.655 x 80 = 692
Total = 1092 C.Y.
Haul = 1092 x 24 = 26,208 C.Y.

(24) 282+87.7 – 296+07.7
0.393 x 80 = 31 C.Y.
8.500 x 88 (Curve) = 748
4.307 x 80 = 345
Private Drive = 24
Total = 1148 C.Y.
Haul = 1148 x 23 = 26,404 C.Y.

(23) 296+07.7 – 309+27.7
2.888 x 80 = 231 C.Y.
8.633 x 88 (Curve) = 760 C.Y.
1.679 x 80 = 134
Co. Road Approaches = 36
Total = 1161 C.Y.
Haul = 1161 x 22 = 25,542 C.Y.

Sta. 234+22 — Salv. Bse from Sta. 244+00 to 261+00 used within these limits for Top Crse — Fnd Crse used for both Courses within these limits — Sta. 244+00 — Sta. 261+00

D. H. = 26,447.10'

MATERIAL SOURCE NO. 1 (See Layout, Sheet No. 5)
FOUNDATION COURSE
O. L. Herring, Owner

(22) 309+27.7 – 322+47.7
13.200 x 80 = 1056 C.Y.
Haul = 1056 x 21 = 22,176 C.Y.

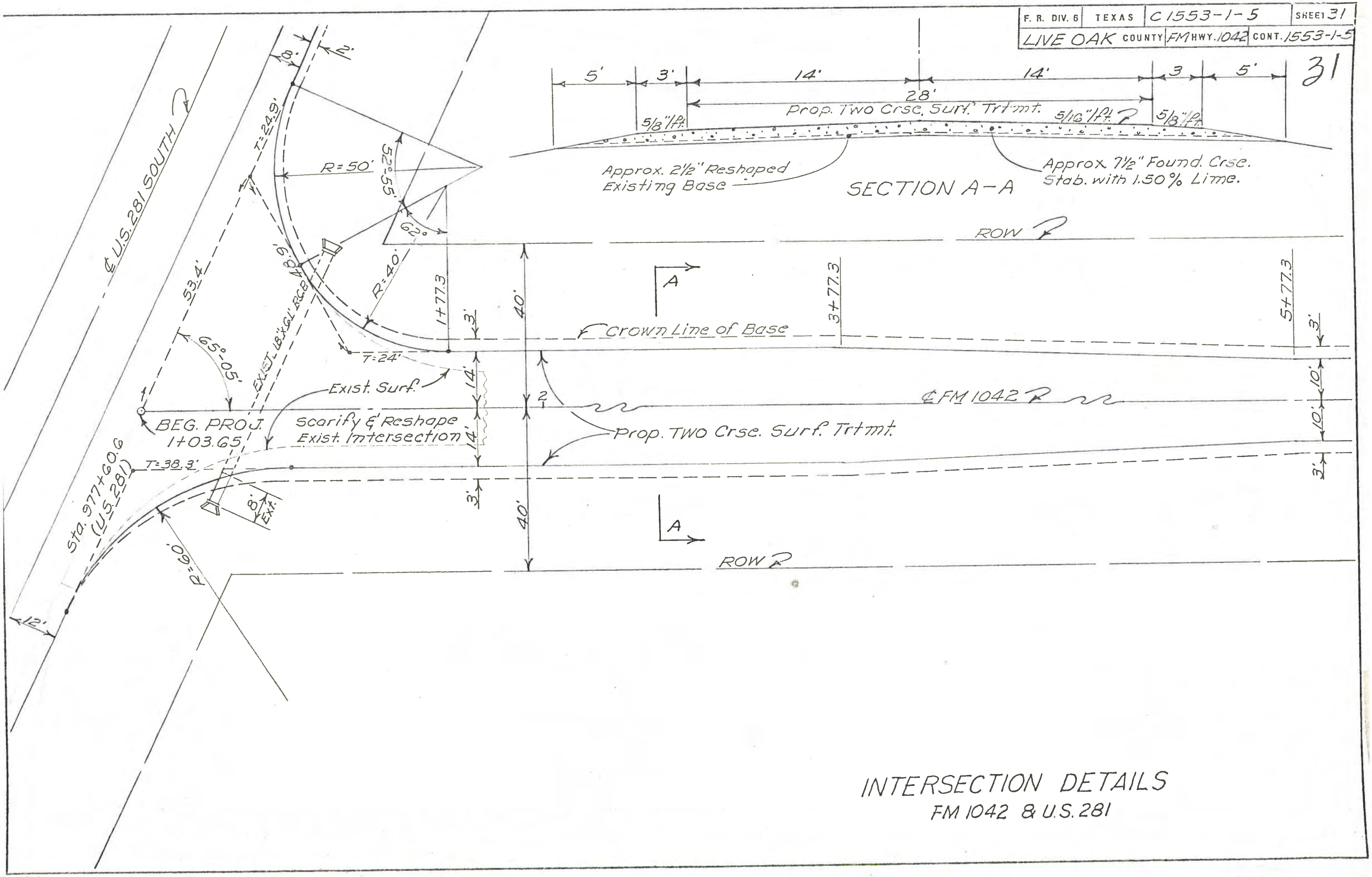
(21) 322+47.7 – 335+20.6
12.729 x 80 = 1018 C.Y.
Haul = 1018 x 20 = 20,360 C.Y.

(21) 335+20.6 – 347+93.5
12.729 x 80 = 1018 C.Y.
F. M. 1873 Approach = 24
Street Approaches = 36
Private Drives = 36
Total = 1114 C.Y.
Haul = 1114 x 20 = 22,280 C.Y.

(22) 347+93.5 – 350+19.0 End. Project
2.255 x 80 = 180 C.Y.
End Proj. Approach = 24
Total = 204 C.Y.
Haul = 204 x 21 = 4,284 C.Y.

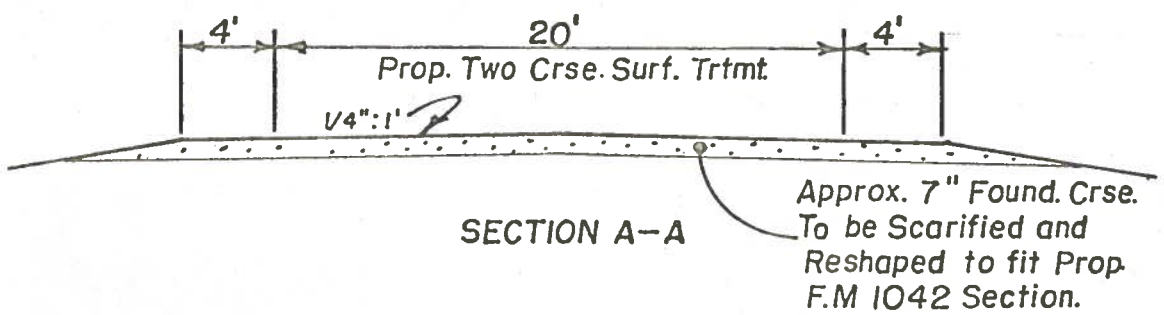
HAUL DIAGRAM
FOUNDATION COURSE

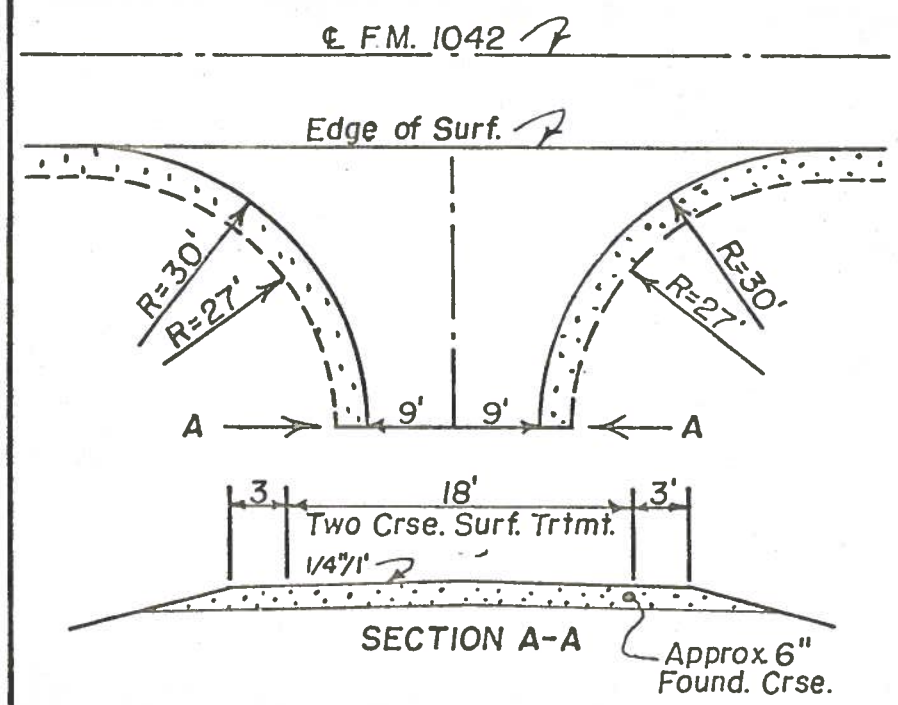
31



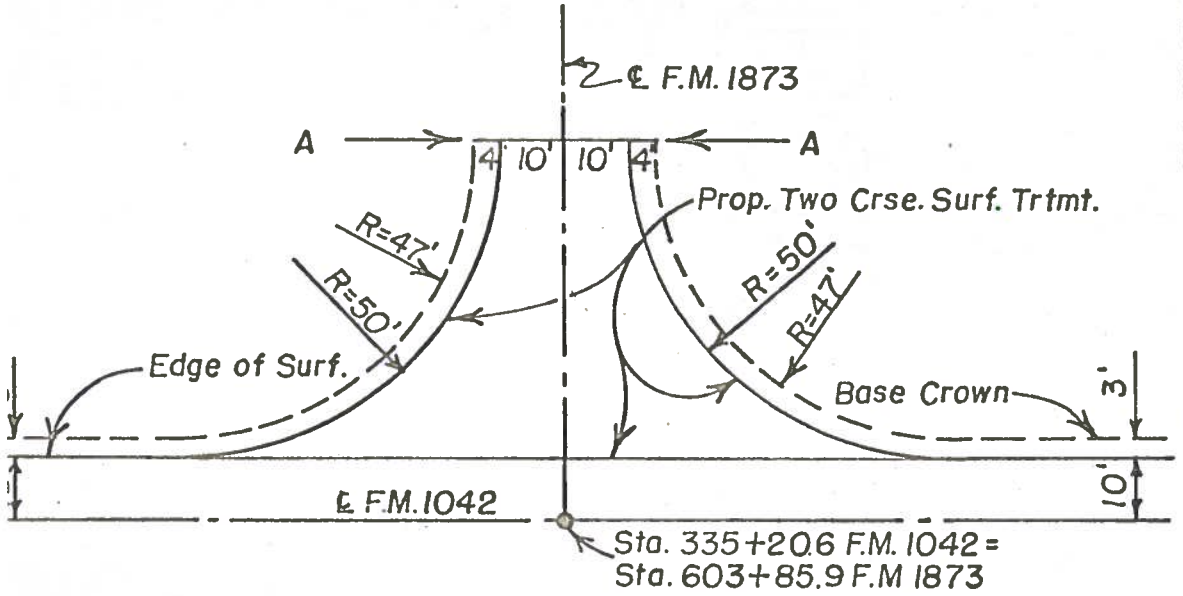
INTERSECTION DETAILS
FM 1042 & U.S. 281

32

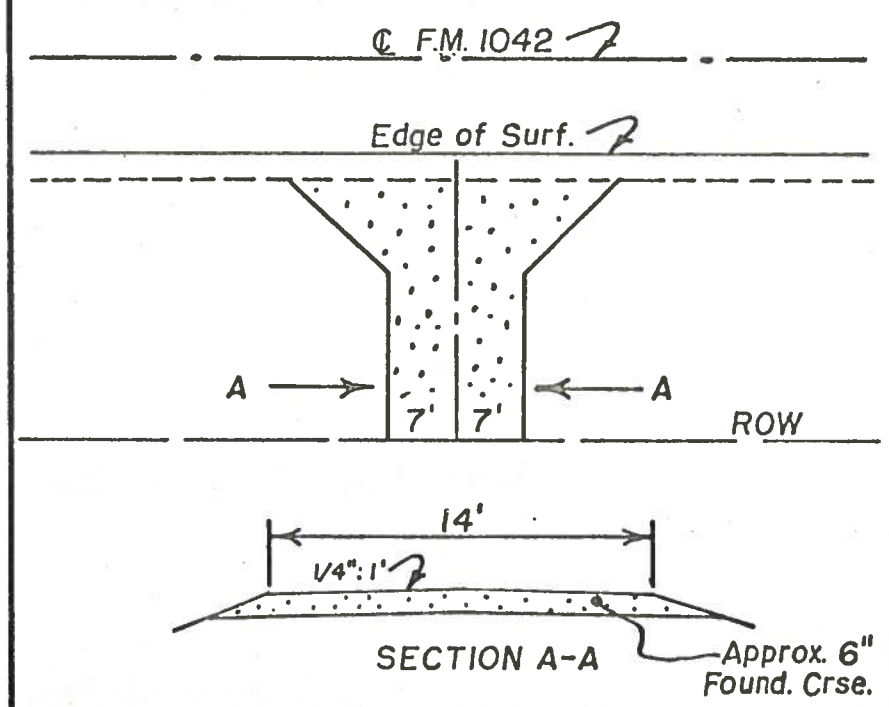




CITY STREETS & COUNTY ROADS



JUNCTION F.M. 1873



PRIVATE DRIVES

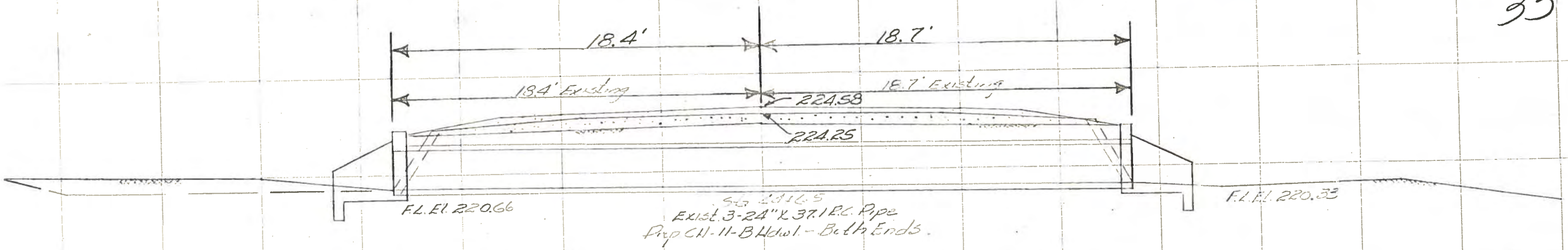
STATION	LT.	RT.	DRIVES	CO. ROADS	FOUND. CRSE. C.Y	TWO CRSE. SURFACE TRTMT. S.Y.
JUNCTION U.S. 281 & WIDENING					*156	*503
3+90		✓	✓		12	
7+90		✓	✓		12	
9+60	✓		✓		12	
23+95		✓	✓		12	
26+59	✓		✓		12	
28+18	✓		✓		12	
29+13		✓	✓		12	
29+89	✓		✓		12	
30+91		✓	✓		12	
32+00		✓	✓		12	
33+80		✓	✓		12	
34+38	✓		✓		12	
34+80	✓		✓		12	
38+35		✓	✓		12	
52+42	✓		✓		12	
62+47		✓	✓		12	
68+92		✓	✓		12	
100+42		✓	✓		12	
121+76	✓		✓		12	
179+83		✓	✓		12	
201+78	✓		✓		12	
201+92		✓	✓		12	
204+14	✓		✓		12	
219+84		✓	✓		12	
220+10		✓	✓		12	
252+65	✓		✓		12	
267+50		✓	✓		12	
295+87		✓	✓		12	
295+95	✓		✓		12	
309+16		✓		✓	18	
309+24	✓			✓	18	
335+25	✓	JUNCT. F.M 1873			24	175
337+76		✓	✓		12	
338+00		✓	✓		12	
122+15		✓	✓		12	
343+52		✓	✓		12	
346+00	✓	✓		STREET	36	206
350+19	✓	✓	END PROJ.		*12	*42
TOTALS					660	926

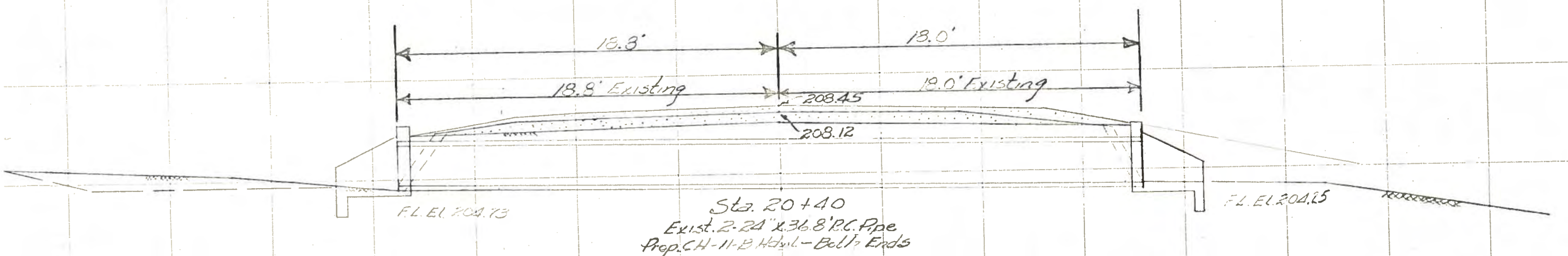
*Additional to Reg. Rdwy. Quant.

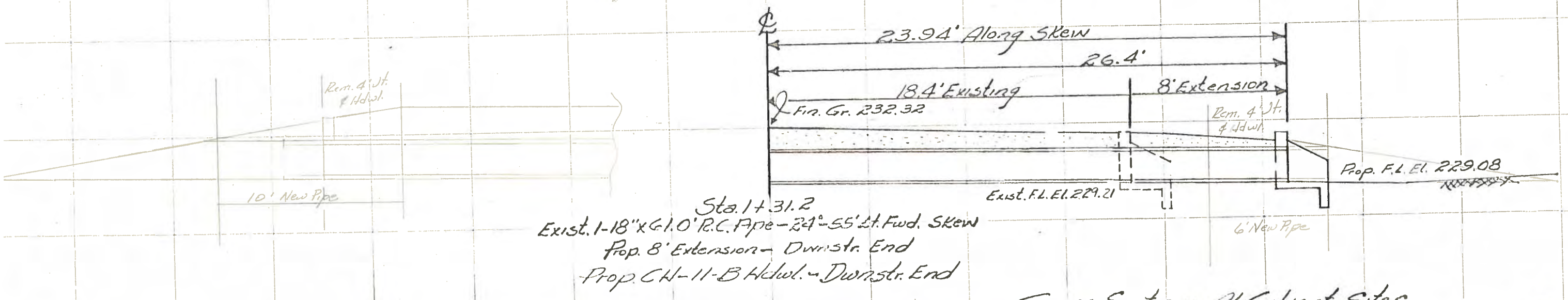
ROADWAY DETAILS

F.R. DIV. 6	TEXAS	C1553-1-5	Sheet 33
LIVE OAK	COUNTY	FM HWY 1042	CONT. 1553-1-5

33



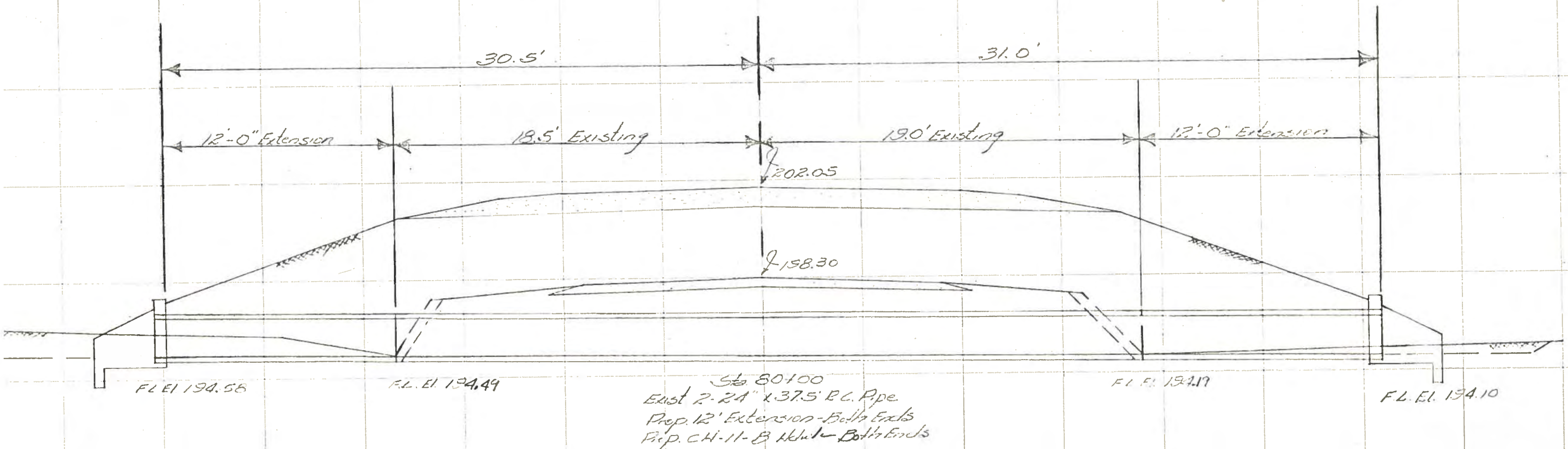


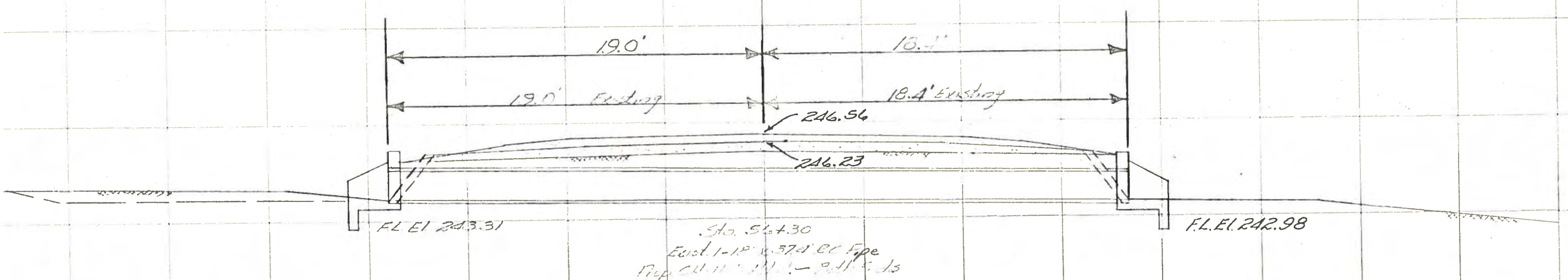


Cross Sections At Culvert Sites

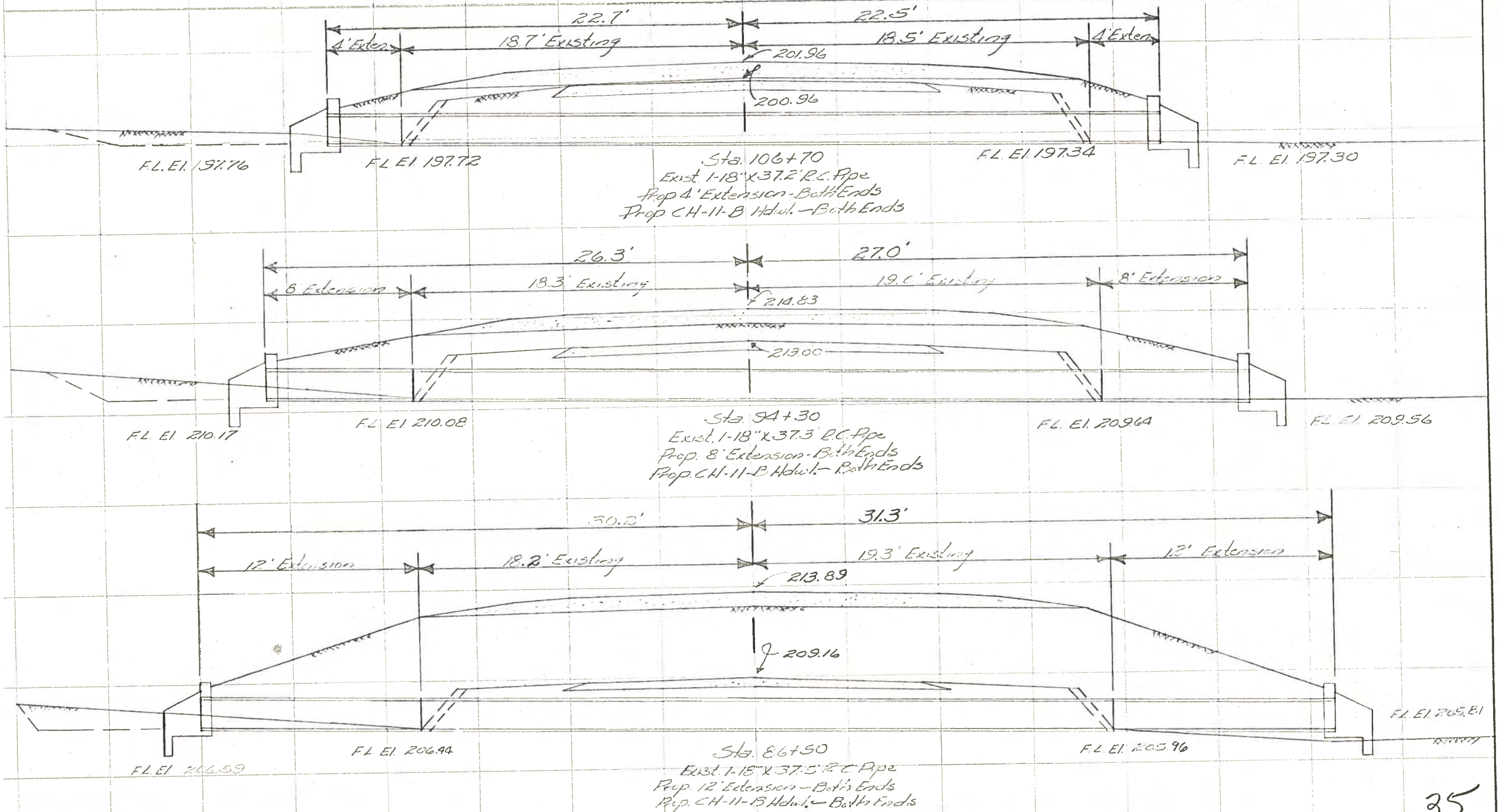
F.R. DIV. 6	TEXAS	C 1553-1-5	Sheet 34
LIVE OAK	COUNTY	FM HWY. 1042	CONT. 1553-1-5

34





Cross Sections At Culvert Sites



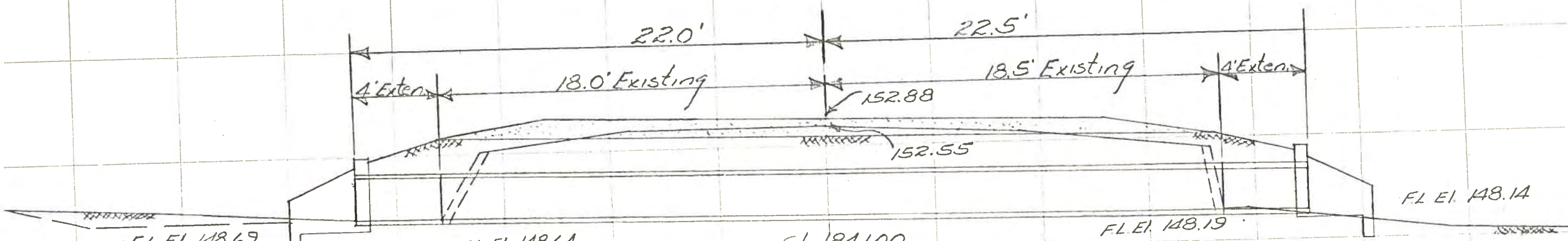
35

Cross Sections At Culvert Sites

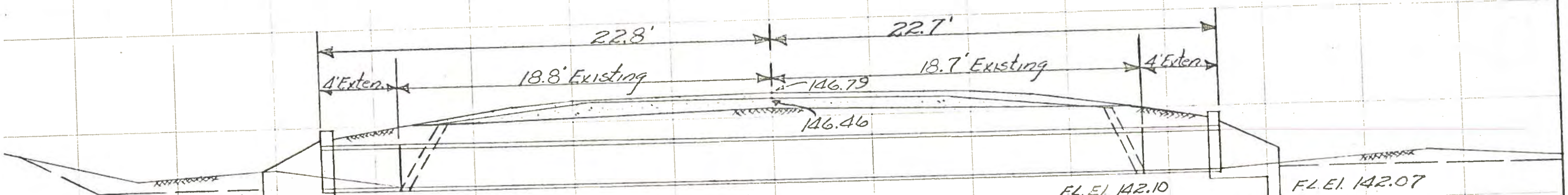
FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.				SHEET NO.
6	TEXAS	C 1553-1-5				35
STATE DIST. NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
16	LIVE OAK		1553	1	5	FM1042

F.R. DIV. 6	TEXAS	C 1553-1-5	Sheet 36
LIVE OAK COUNTY		FM HWY 1042	CONT. 1553-1-5

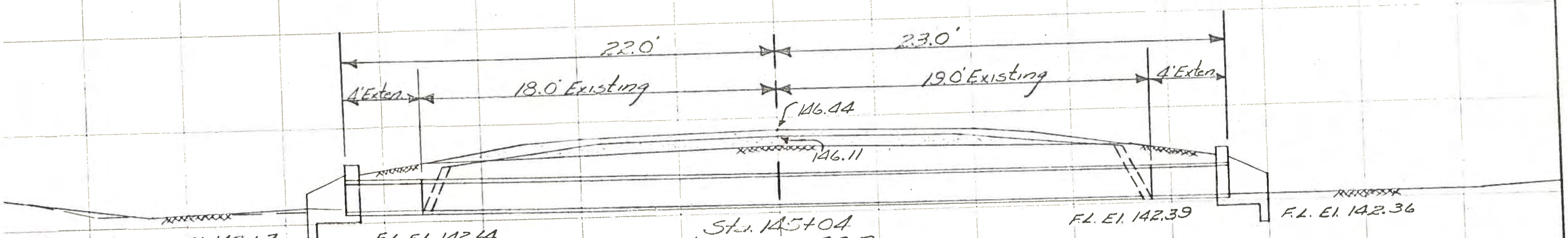
36



Sta. 184+00
Exist. 3-24" x 36.5' R.C. Pipe
Prop. 4' Extension - Both Ends
Prop. CH-11-B Hdwl. — Both Ends



Sta. 162+20
Exist. 4-24" x 37.5' R.C. Pipe
Prop. 4' Extension - Both Ends
Prop. CH-11-B Hdwl. — Both Ends

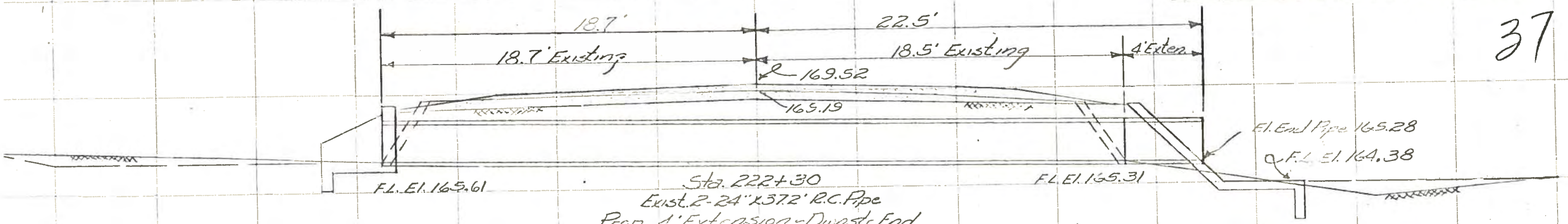


Sta. 145+04
Exist. 3-18" x 37' R.C. Pipe
Prop. 4' Extension - Both Ends
Prop. CH-11-B Hdwl. — Both Ends

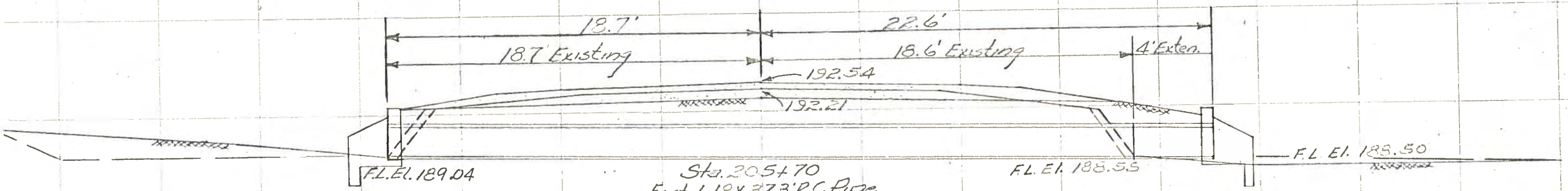
Cross Sections At Culvert Sites

F.R. DIV. 6	TEXAS	C 1553-1-5	Sheet 37
LIVE OAK	COUNTY	FM HWY 1042	CONT. 1553-1-5

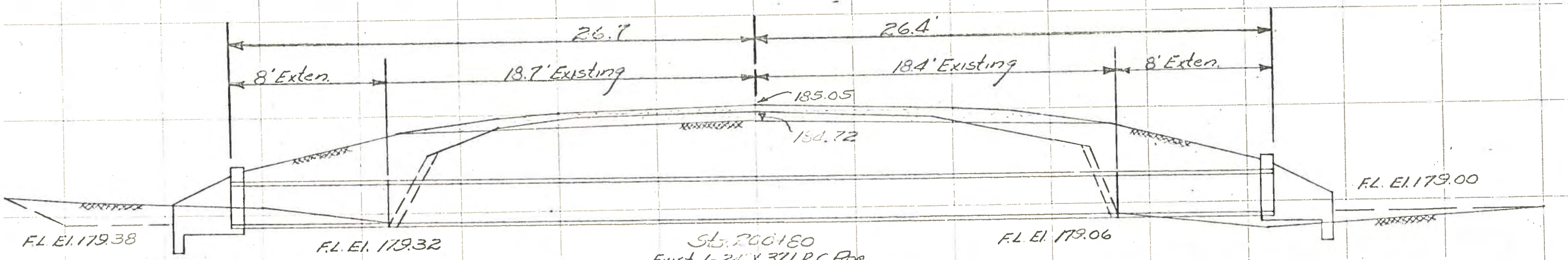
37



Sta. 222+30
Exist. 2-24" x 37.2' R.C. Pipe
Prop. 4' Extension - Dwnstr. End
Prop. CH-11-B Hdwl. Upstr. End - CRH-16(Mod) Dwnstr. End



Sta. 205+70
Exist. 1-18 x 37.3' R.C. Pipe
Prop. 4' Extension - Dwnstr. End
Prop. CH-11-B Hdwl. - Both Ends

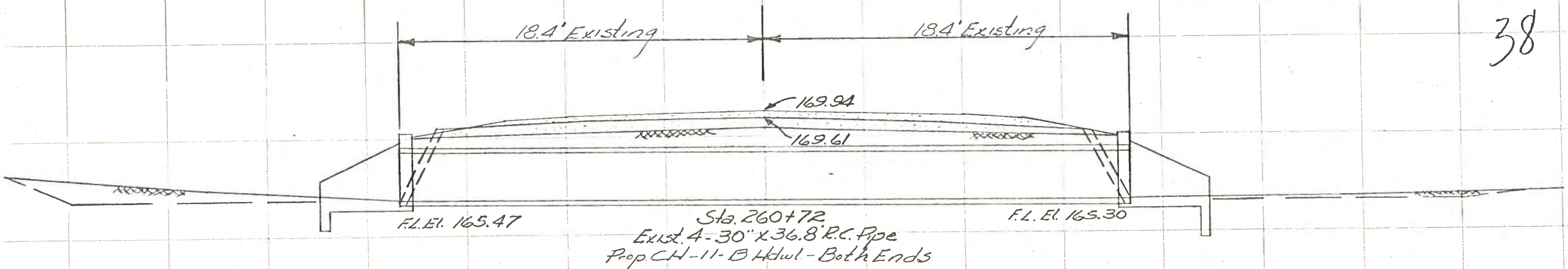


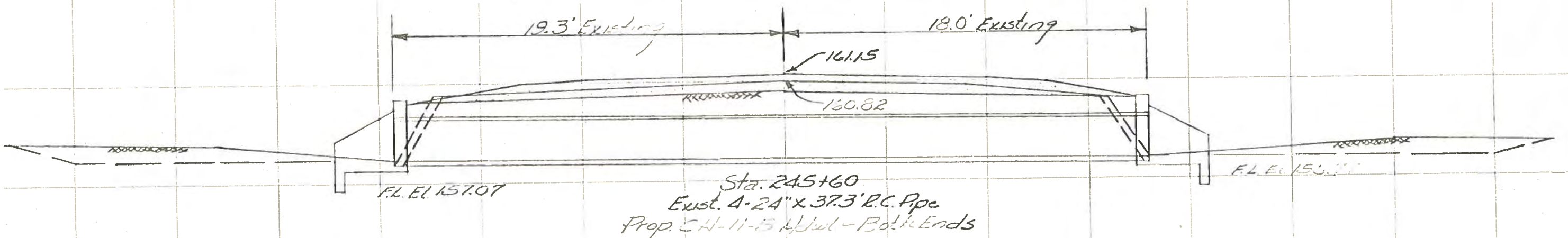
Sta. 200+80
Exist. 1-24" x 37.1 R.C. Pipe
Prop. 8' Extension - Both Ends
Prop. CH-11-B Hdwls. - Both Ends

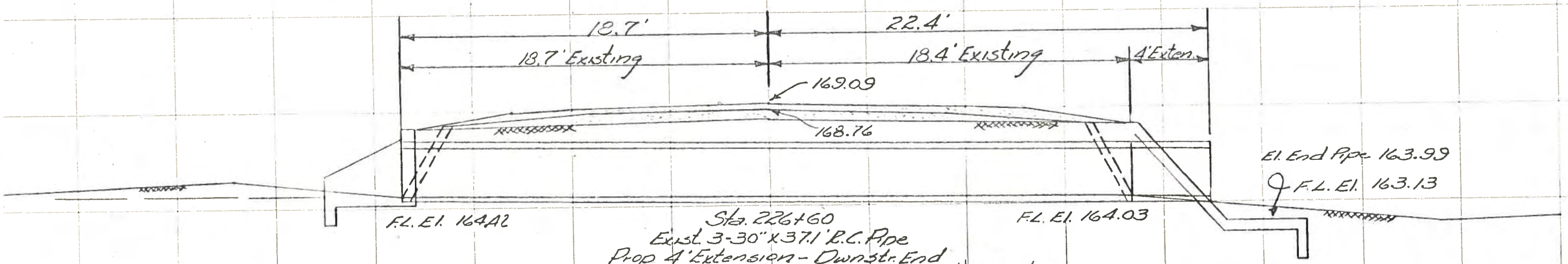
Cross Sections At Culvert Sites

F.R. DIV. 6	TEXAS	C 1553-1-5	Sheet 38
LIVE OAK COUNTY		FMHWY1042	CONT. 1553-1-5

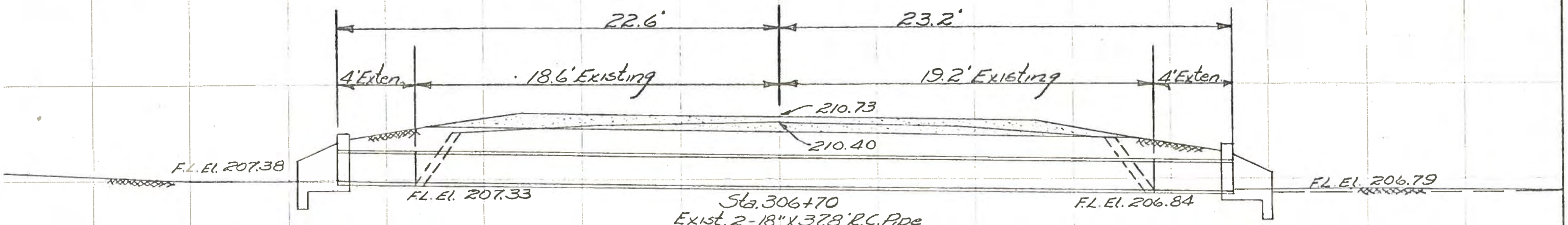
38



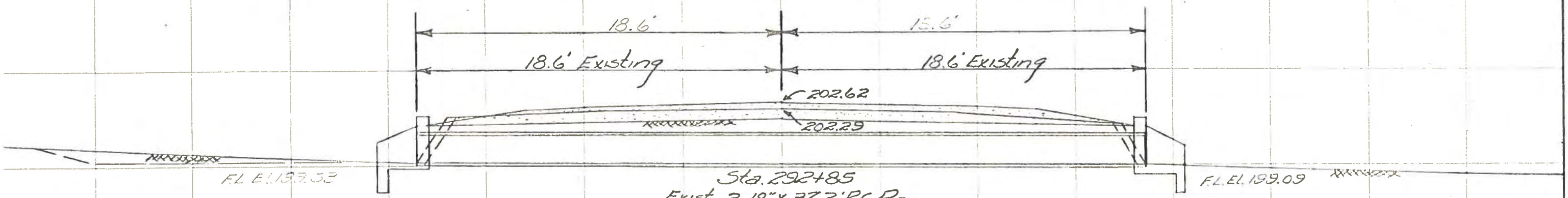




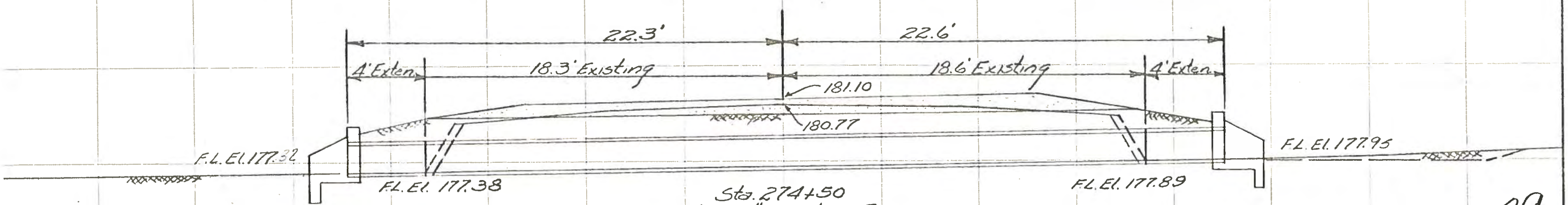
Cross Sections At Culvert Sites



Sta. 306+70
Exist. 2-18" x 37.8' R.C. Pipe
Prop. 4' Extension - Both Ends
Prop. CH-11-B Hdwl. - Both Ends



Sta. 292+85
Exist. 2-18" x 37.2' R.C. Pipe
Prop. CH-11-B Hdwl. -- Both Ends



Sta. 274+50
Exist. 2-18" x 36.9' R.C. Pipe
Prop. 4' Extension - Both Ends
Prop. CH-11-B Hdwl. - Both Ends

Cross Sections At Culvert Sites

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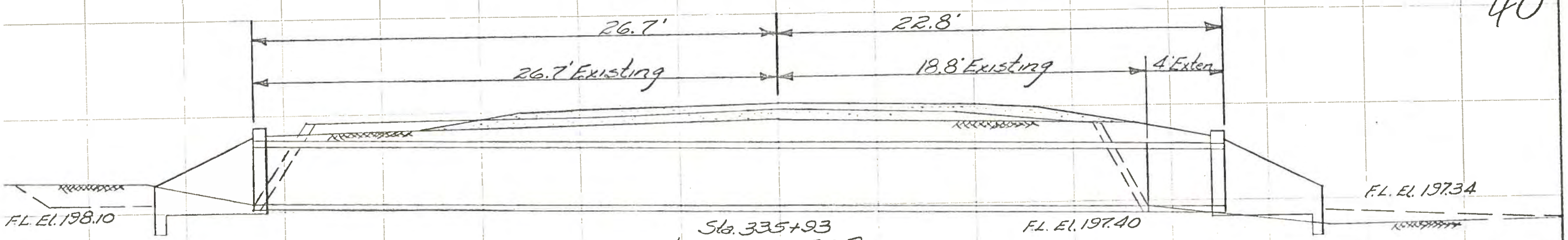
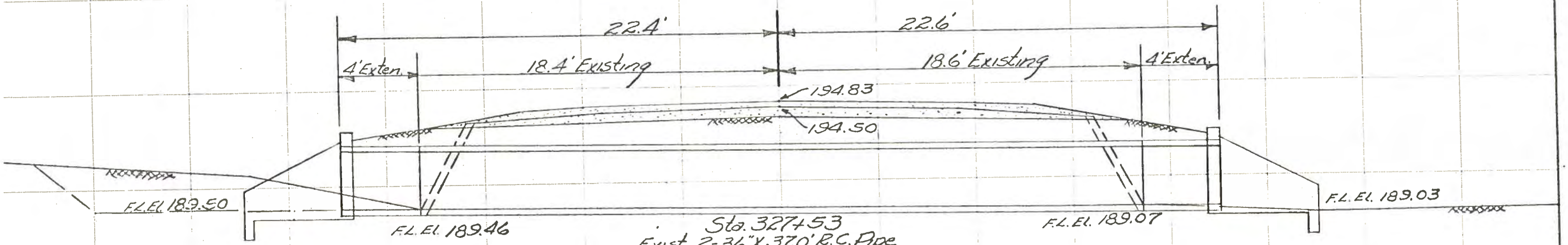
FED. RD. DIV. NO.	STATE	FEDERAL PROJECT NO.			SHEET NO.
6	TEXAS	C 1553-1-5			39
STATE DIST. NO.	COUNTY	CONT.	SECT	JOB	HIGHWAY NO.
16	LIVE OAK	1553	1	5	FM1042

F.R. DIV. 6	TEXAS	C 1553-1-5	Sheet 40
LIVE OAK COUNTY		FMHWY1042	CONT. 1553-1-5

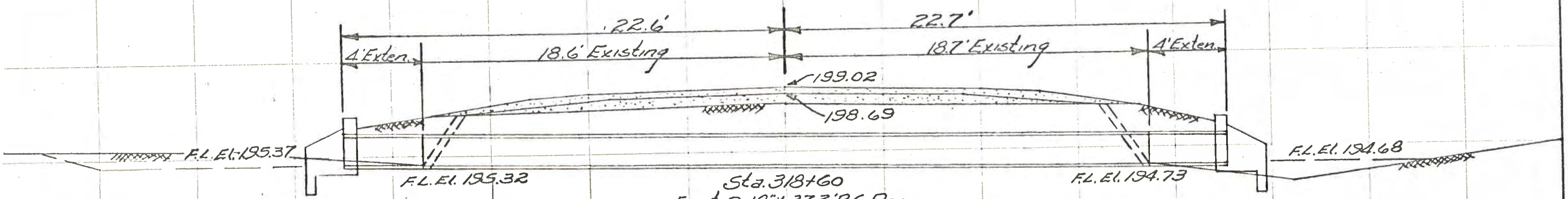
40



Sta. 335+93
Exist. 1-36"x45.5' R.C. Pipe
Prop. 4' Extension - Dwnstr. End
Prop. CH-11-B Hdwl. - Both Ends



Sta. 327+53
Exist. 2-36"x37.0' R.C. Pipe
Prop. 4' Extension - Both Ends
Prop. CH-11-B Hdwl. - Both Ends



Sta. 318+60
Exist. 2-18"x37.3' R.C. Pipe
Prop. 4' Extension - Both Ends
Prop. CH-11-B Hdwl. - Both Ends

Cross Sections At Culvert Sites

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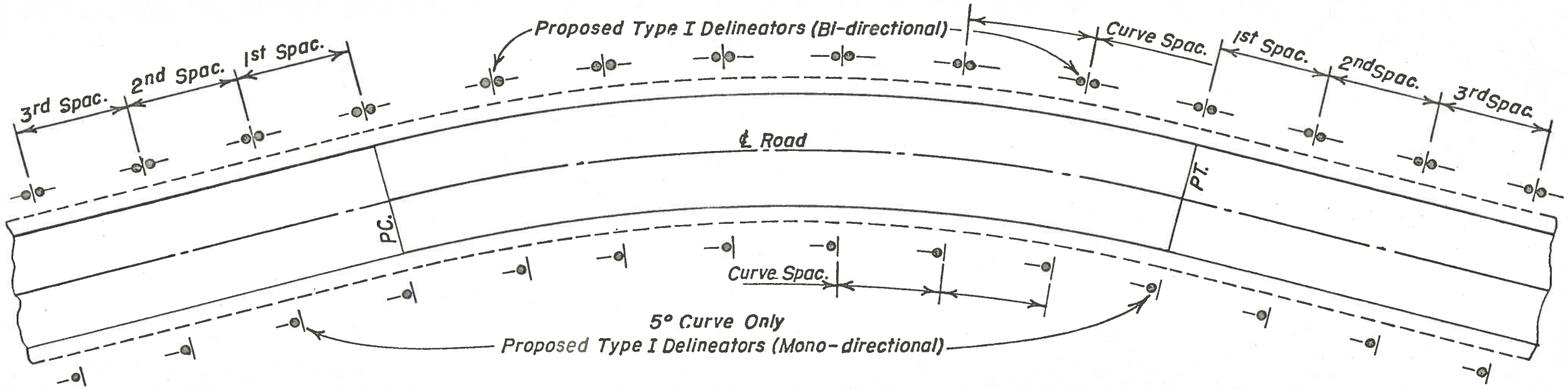
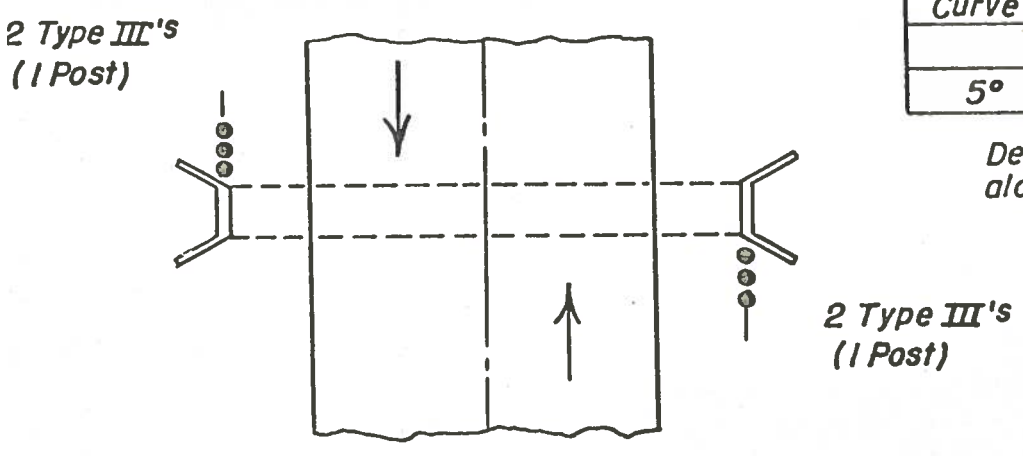


DELINEATORS ON CURVES

Degree of Curve	Spacing on Curve (Ft.)	Spacing in Advance & Beyond Curve (Ft.)		
		1st Spac.	2nd Spac.	3rd Spac.
5°	66	119	198	200

Degree of Curve and spacing shown is along centerline of road.



CLEARANCE MARKERS AT CULVERTS

LOCATIONS, TYPES & ESTIMATED QUANTITIES

STATION	DESCRIPTION	DELINEATORS			DELIN. POSTS (8')
		TY. I	TY. III		
23 Culverts 27+72.3–46+27.3	4 per Culvert 5° Curve	57	92		46 39
	TOTALS	57	92		85

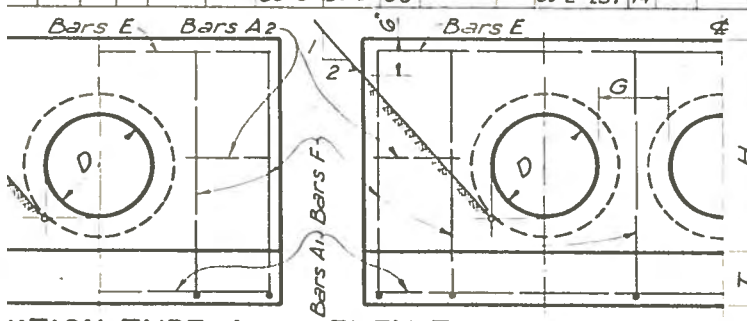
DELINEATOR LAYOUT

TABLE OF DIMENSIONS AND QUANTITIES FOR TWO TYPE A HEADWALLS

NO. OF PIPES	DIAM. OF PIPES	TABLE OF DIMENSIONS G	K	T	E	H	W	REINF. STEEL FOR TWO HEADWALLS: BARS A1 4 ~ #3 Lgth	Wt	BARS A2 #3 @ 18" ± No	Lgth	Wt	BARS E 4 ~ #5 Lgth	Wt	BARS F1 @ 12" ± No	Size	Lgth	Wt	BARS F2 @ 12" ± No	Size	Lgth	Wt	TOTAL QUANTITIES STEEL LBS.	CONC. C.Y.
2"	~	12"	9"	1'-9"	2'-6"	7'-0"		6'-8"	10	8	2'-6"	8	6'-8"	28	12	#4	2'-11"	23	12	#4	3'-8"	29	98	1.48
"	10"	"	"	"	"	8'-10"		8'-6"	13	"	"	"	8'-6"	35	14	"	"	27	14	"	"	34	117	1.81
"	"	"	"	"	"	10'-8"		10'-4"	16	"	"	"	10'-4"	43	16	"	"	31	16	"	"	39	137	2.15
"	"	"	"	"	"	12'-6"		12'-2"	18	"	"	"	12'-2"	51	18	"	"	35	18	"	"	44	156	2.48
5"	~	12"	9"	1'-9"	2'-9"	8'-3"		7'-11"	12	8	3'-0"	9	7'-11"	33	12	#4	3'-2"	25	12	#4	3'-11"	31	110	1.82
"	1'-0"	"	"	"	"	10'-6"		10'-2"	15	"	"	"	10'-2"	42	14	"	"	30	14	"	"	37	133	2.24
"	"	"	"	"	"	12'-9"		12'-5"	19	"	"	"	12'-5"	52	16	"	"	34	16	"	"	42	156	2.66
"	"	"	"	"	"	15'-0"		14'-8"	22	"	"	"	14'-8"	61	18	"	"	38	18	"	"	47	177	3.09
8"	~	12"	9"	1'-9"	3'-0"	9'-6"		9'-2"	14	8	3'-6"	11	9'-2"	38	20	#4	3'-5"	46	20	#4	4'-2"	56	165	2.19
"	1'-2"	"	"	"	"	12'-2"		11'-10"	18	"	"	"	11'-10"	49	22	"	"	50	22	"	"	61	189	2.70
"	"	"	"	"	"	14'-10"		14'-6"	22	"	"	"	14'-6"	60	24	"	"	55	24	"	"	67	215	3.21
"	"	"	"	"	"	17'-6"		17'-2"	26	"	"	"	17'-2"	72	26	"	"	59	26	"	"	72	240	3.73
24"	~	12"	9"	2'-0"	3'-6"	12'-0"		11'-8"	18	8	4'-6"	14	11'-8"	49	24	#4	3'-11"	63	24	#4	4'-11"	79	223	3.17
"	1'-5"	"	"	"	"	15'-5"		15'-1"	23	"	"	"	15'-1"	63	26	"	"	68	26	"	"	85	253	3.89
"	"	"	"	"	"	18'-10"		18'-6"	28	"	"	"	18'-6"	77	28	"	"	73	28	"	"	92	284	4.62
"	"	"	"	"	"	22'-3"		21'-11"	33	"	"	"	21'-11"	91	30	"	"	79	30	"	"	99	316	5.35
30"	~	12"	9"	2'-3"	4'-0"	14'-6"		14'-2"	21	16	5'-6"	33	14'-2"	59	28	#4	4'-5"	83	28	#4	5'-8"	106	302	4.31
"	1'-8"	"	"	"	"	18'-8"		18'-4"	28	"	"	"	18'-4"	76	32	"	"	94	32	"	"	121	352	5.28
"	"	"	"	"	"	22'-10"		22'-6"	34	"	"	"	22'-6"	94	36	"	"	106	36	"	"	136	403	6.26
"	"	"	"	"	"	27'-0"		26'-8"	40	"	"	"	26'-8"	111	40	"	"	118	40	"	"	152	454	7.24
36"	~	12"	12"	2'-6"	4'-6"	17'-0"		16'-8"	25	16	6'-6"	39	16'-8"	70	32	#4	5'-2"	111	32	#4	6'-8"	143	388	6.40
"	1'-11"	"	"	"	"	21'-11"		21'-7"	32	"	"	"	21'-7"	90	36	"	"	124	36	"	"	160	445	7.89
"	"	"	"	"	"	26'-10"		26'-6"	40	"	"	"	26'-6"	111	40	"	"	138	40	"	"	178	506	9.37
"	"	"	"	"	"	31'-9"		31'-5"	47	"	"	"	31'-5"	131	44	"	"	152	44	"	"	196	565	10.85
42"	~	12"	12"	2'-9"	5'-0"	19'-6"		19'-2"	29	16	7'-6"	45	19'-2"	80	36	#4	5'-8"	136	36	#4	7'-5"	178	468	8.10
"	2'-2"	"	"	"	"	25'-2"		24'-10"	37	"	"	"	24'-10"	104	40	"	"	152	40	"	"	198	536	9.96
"	"	"	"	"	"	30'-10"		30'-6"	46	"	"	"	30'-6"	127	44	"	"	167	44	"	"	218	603	11.80
"	"	"	"	"	"	36'-6"		36'-2"	54	"	"	"	36'-2"	151	48	"	"	182	48	"	"	238	670	13.68
48"	~	15"	12"	3'-0"	5'-9"	23'-0"		22'-8"	34	24	8'-9"	79	22'-8"	95	40	#5	6'-5"	268	40	#5	8'-5"	351	827	10.74
"	2'-5"	"	"	"	"	29'-5"		29'-1"	44	"	"	"	29'-1"	121	44	"	"	295	44	"	"	386	925	13.08
"	"	"	"	"	"	35'-10"		35'-6"	53	"	"	"	35'-6"	148	48	"	"	321	48	"	"	422	1023	15.43
"	"	"	"	"	"	42'-3"		41'-11"	63	"	"	"	41'-11"	175	52	"	"	348	52	"	"	457	1122	17.77
54"	~	15"	12"	3'-3"	6'-3"	25'-6"		25'-2"	38	24	9'-9"	88	25'-2"	105	44	#5	6'-11"	318	44	#5	9'-2"	421	970	12.87
"	2'-10"	"	"	"	"	32'-10"		32'-6"	49	"	"	"	32'-6"	136	50	"	"	361	50	"	"	478	1112	15.77
"	"	"	"	"	"	40'-2"		39'-10"	60	"	"	"	39'-10"	166	56	"	"	404	56	"	"	536	1254	18.66
"	"	"	"	"	"	47'-6"		47'-2"	71	"	"	"	47'-2"	197	62	"	"	447	62	"	"	593	1396	21.55
60"	~	15"	12"	3'-6"	6'-9"	28'-0"		27'-8"	42	24	10'-9"	97	27'-8"	115	48	#5	7'-5"	371	48	#5	9'-11"	497	1122	15.20
"	3'-0"	"	"	"	"	36'-0"		35'-8"	54	"	"	"	35'-8"	149	54	"	"	418	54	"	"	559	1277	18.55
"	"	"	"	"	"	44'-0"		43'-8"	66	"	"	"	43'-8"	182	60	"	"	464	60	"	"	621	1430	21.89
"	"	"	"	"	"	52'-0"		51'-8"	78	"	"	"	51'-8"	216	66	"	"	511	66	"	"	683	1585	25.24
66"	~	15"	12"	3'-9"	7'-3"	30'-6"		30'-2"	45	32	11'-9"	141	30'-2"	126	52	#5	7'-11"	430	52	#5	10'-8"	579	1321	17.72
"	3'-1"	"	"	"	"	39'-1"		38'-9"	58	"	"	"	38'-9"	162	58	"	"	479	58	"	"	645	1485	21.49
"	"	"	"	"	"	47'-8"		47'-4"	78	"	"	"	47'-4"	198	64	"	"	529	64	"	"	712	1651	25.27
"	"	"	"	"	"	56'-3"		55'-11"	84	"	"	"	55'-11"	233	70	"	"	578	70	"	"	779	1815	29.05
72"	~	15"	12"	4'-0"	7'-9"	33'-0"		32'-8"	49	32	12'-9"	153	32'-8"	136	56	#5	8'-5"	492	56	#5	11'-5"	667	1497	20.42
"	3'-2"	"	"	"	"	42'-2"		41'-10"	63	"	"	"	41'-10"	175	62	"	"	544	62	"	"	738	1673	24.66
"	"	"	"	"	"	51'-4"		51'-0"	77	"	"	"	51'-0"	213	68	"	"	597	68	"	"	810	1850	28.89
"	"	"	"	"	"	60'-6"		60'-2"	90	"	"	"	60'-2"	251	74	"	"	650	74	"	"	881	2025	33.12

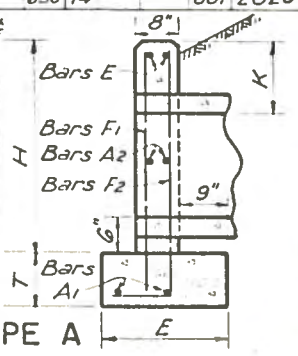
TABLE OF DIMENSIONS AND QUANTITIES FOR TWO TYPE B HEADWALLS

NO. OF PIPES	DIAM. OF PIPES	TABLE OF DIMENSIONS G	K	X	H	Y	W	REINFORCING STEEL AND QUANTITIES FOR TWO HEADWALLS: BARS A1-Ax #4 @ 12" ± No	Av Lgth	Wt	BARS B #3 @ 18" ± No	Lgth	Wt	BARS B1-Bx #3 @ 18" ± No	Av Lgth	Wt	C=2'-0" #4 @ 12" ± No	Wt	BARS D1-Dx #3 @ 12" ± No	Av Lgth	Wt	BARS E 8 ~ #5 Lgth	Wt	BARS F No	Size	Lgth	Wt	BARS G 4 ~ #3 Lgth	Wt	BARS S 12 ~ #4 Lgth	Wt	BARS V1-Vx #4 @ 12" ± No	Av Lgth	Wt	BARS W 4 ~ #5 Lgth	Wt	*TOTAL QUANTITIES 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	#4	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	"	"	"	"	8	"	"	95	82
3	"	"	"	6'-0"	"	"	6'-0"	"	6'-4"	8	10	"	9	~	~	~	"	"	~	~	~	5'-8"	47	16	"	"	23	6'-4"	10	"	"	"	"	"	"	"	122	111
4	"	"	"	7'-10"	"	"	7'-10"	"	8'-2"	11	12	"	11	~	~	~	"	"	~	~	~	7'-6"	63	20	"	"	29	8'-2"	12	"	"	"	"	"	"	"	151	140
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	#4	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	116
3	"	"	"	7'-1½"	"	"	7'-8½"	"	7'-6"	20	10	"	11	"	"	"	"	"	~	~		6'-9"	56	16	"	"	26	8'-1"	12	"	"	"	"	"	"	"	174	157
4	"	"	"	9'-4½"	"	"	9'-11½"	"	9'-9"	26	14	"	16	"	"	"	"	"	~	~		9'-0"	75	20	"	"	32	10'-4"	16	"	"	"	"	"	"	"	214	198
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	#4	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	"	"	36	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	#4	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	#4	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'-10⅜"	"	14'-6"	77	18	"	37	"	"	"	"	"	"	"	"	12'-1"	101	24	"	"	59	16'-3"	24	"	"	"	"	"	"	"	435	4.80
4	"	"	"	16'-7"	"	"	20'-0⅜"	"	18'-8"	100	21	"	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	#4	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'-3"	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	#4	4'-8"	25	11'-5"	17	6'-5"	51	28	4'-2"	78	1'-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	#5	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	#5	5'-11"	43	14'-10"	22	8'-9"	70	40	4'-8"	125	10'-5"	43	586	6.71
2	"	2'-10"	"	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	#5	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	40'-8"	61	"	"	"	"	"	"	"	1587	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	#5	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	44'-2"	67	"	"	"	"	"	"	"	1807	24.31
1	72"	~	15"	8'-2"	7'-3"	11'-0"	19'-8⅝"	22	14'-4"	211	12	12'-6"	56	16	5'-9"	35	24	32	20	5'-7"	42	7'-10"	65	8	#5	7'-5"	62	20'-1"	30	12'-3"	98	52	5'-5"	188	14'-3"	59	878	11.32
2	"	3'-2"	"	17'-4"	"	"	28'-10⅝"	"	23'-6"	345	24	"	113	"	"	"	"	"	"	"	"	17'-0"	142	20	"	"	155	29'-3"	44	"	"	"	"	"	"	"	1253	16.91
3	"	"	"	26'-6"	"	"	38'-0⅝"	"	32'-10"	482	38	"	179	"	"	"	"	"	"	"	"	26'-2"	218	32	"	"	248	38'-5"	58	"	"	"	"	"	"	"	1639	22.52
4	"	"	"	35'-8"	"	"	47'-2⅝"	"	41'-10"	615	50	"	235	"	"	"	"	"	"	"	"	35'-4"	295	44	"	"	341	47'-8"	7[illegible]	"	"	"	"	"	"	"	2017	28.11

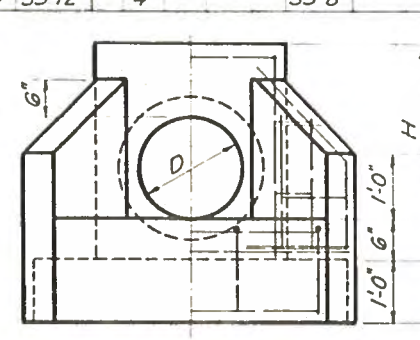


VATION TYPE A

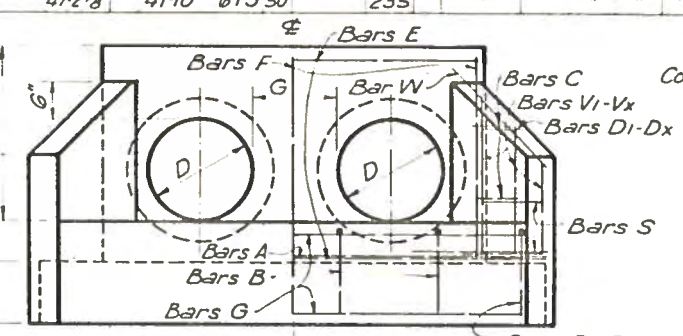
ELEVATION MULTIPLE TYPE A



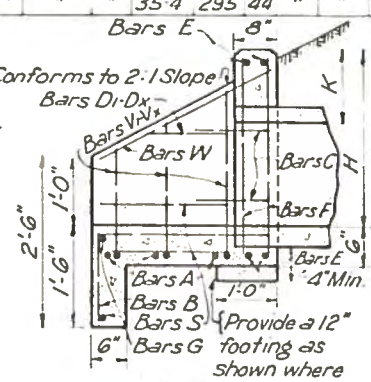
℄ SECTION



ELEVATION TYPE B



ELEVATION MULTIPLE TYPE B



TYPICAL WING ELEVATION

$A_1 = W + 4\frac{1}{2}"$
$A_2 = W - 9\frac{3}{8}"$

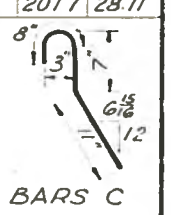
This dimension reduced 1'-1⅛" for each successive bar

BARS A1-Ax

$B = Y + 4"$
$B_1 = 8"$

This dimension increased 2'-7" for each successive bar

BARS B & B1-Bx

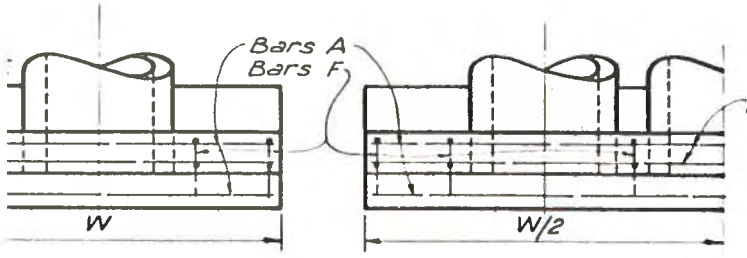


BARS C

GENERAL NOTES:-

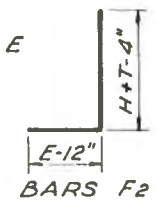
All concrete shall be Class A. All exposed corners shall be chamfered ¾".

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 60'-0" in length.

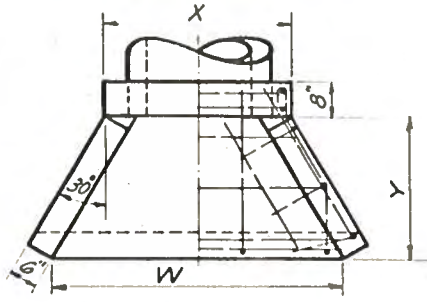


LAN TYPE A

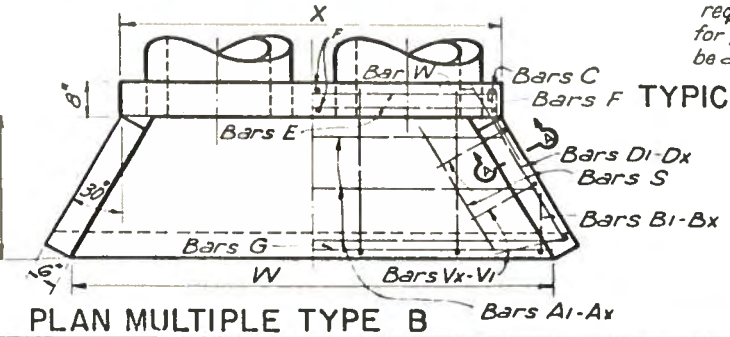
PLAN MULTIPLE TYPE A



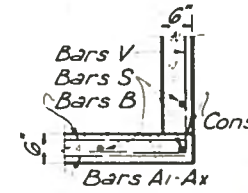
BARS F2



PLAN TYPE B



PLAN MULTIPLE TYPE B



SEC. A-A

TEXAS HIGHWAY DEPARTMENT

CONCRETE HEADWALLS FOR PIPE CULVERTS

12 TO 72 INCHES IN DIAMETER

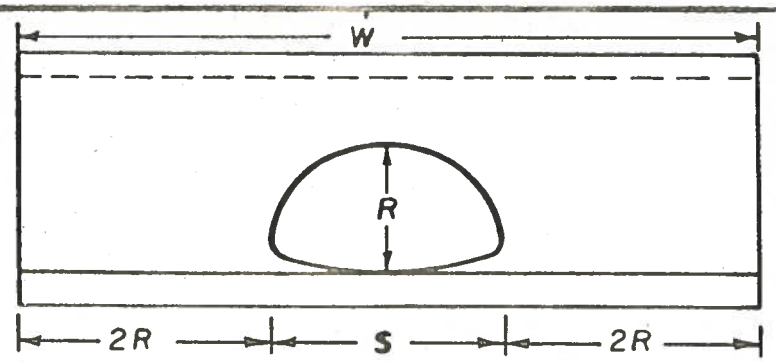
CH-II

42

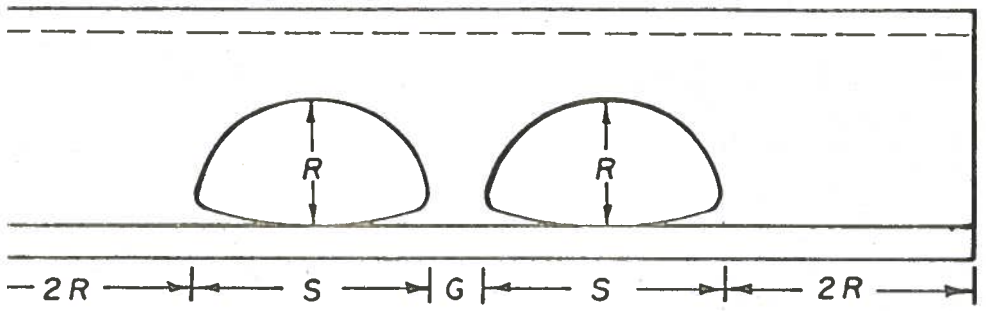
DN THD	DRAWING	DATE	STATE				
CK DN THD	Original	Feb 1940	TEXAS	C 1533-7-5			42
DW MDA	Revised	Quant.					
CK DW KM							
TR OCK							
CK TR MDA			16	LIVE OAK	150	1	5	1042

Rev. Jan 59

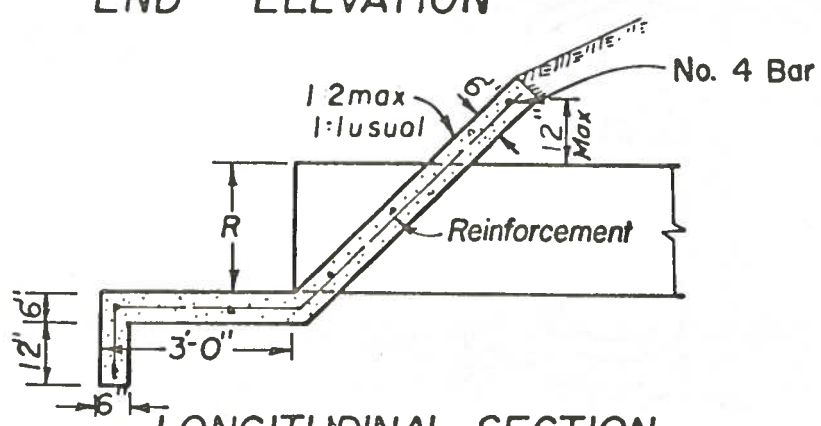
Concrete Quantities increase slightly for metal pipe installations



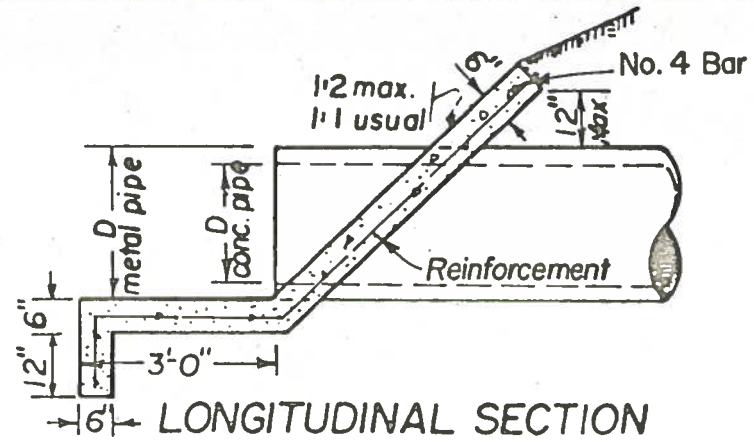
SINGLE C.G.M. PIPE ARCH CULVERT



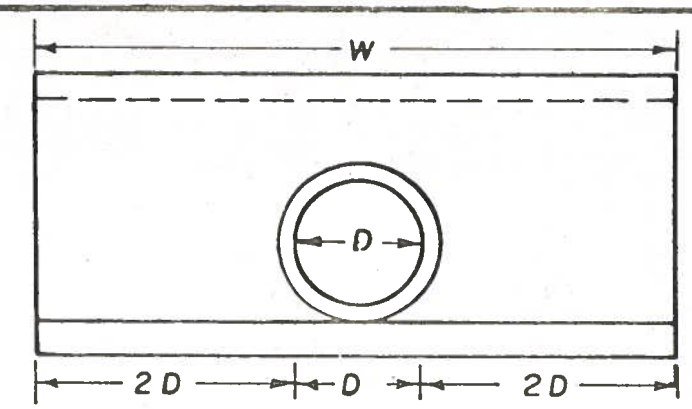
MULTIPLE C.G.M. PIPE ARCH CULVERT
END ELEVATION



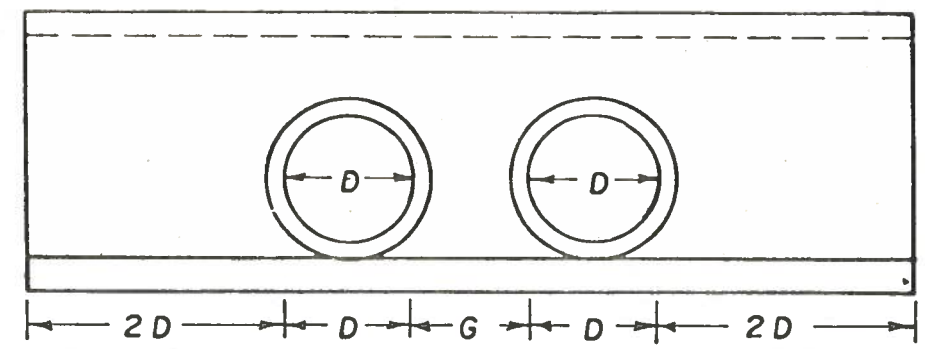
LONGITUDINAL SECTION



LONGITUDINAL SECTION



SINGLE CIRCULAR PIPE CULVERT



MULTIPLE CIRCULAR PIPE CULVERT
END ELEVATION

DIMENSIONS AND QUANTITIES FOR CIRCULAR PIPE CULVERTS

DIAM OF PIPE	SINGLE			PER ADDITIONAL PIPE			
	CL. "B" CONCRETE RIPRAP		"W"	CL. "B" CONCRETE RIPRAP		D + G	
	C.G.M. PIPE Cu. Yds.	CONC. PIPE Cu. Yds.	(5D)	C.G.M. PIPE Cu. Yds.	CONC. PIPE Cu. Yds.	C.G.M. PIPE	CONC. PIPE
18"	2.20	2.30	7'-6"	0.59	0.72	2'-3"	2'-8"
24"	3.15	3.32	10'-0"	0.80	0.97	2'-11"	3'-5"
30"	4.21	4.46	12'-6"	1.02	1.22	3'-7"	4'-2"
36"	5.38	5.72	15'-0"	1.26	1.50	4'-3"	4'-11"
42"	6.67	7.12	17'-6"	1.51	1.80	4'-11"	5'-8"
48	8.06	8.63	20'-0"	1.78	2.09	5'-7"	6'-5"
54"	9.57	10.27	22'-6"	2.14	2.50	6'-5"	7'-4"
60"	11.18	12.03	25'-0"	2.41	2.83	7'-6"	8'-0"

DIMENSIONS & QUANTITIES FOR C.G.M.P. ARCH CULVERTS

DESIGN SIZE	APPR ARCH DIMENSIONS Span "S"	Rise "R"	SINGLE Cl "B" Conc Riprap Cu. Yds.	"W" (S+4R)	PER ADD'L ARCH Cl "B" Conc. Riprap Cu. Yds	S+G
1	18"	11"	1.36	5'-2"	0.63	2'-6"
2	22"	13"	1.67	6'-2"	0.71	2'-10"
3	30"	17"	2.31	8'-2"	0.91	3'-6"
4	37"	21"	2.98	10'-1"	1.10	4'-2"
5	44"	25"	3.71	12'-0"	1.33	4'-11"
6	52"	30"	4.68	14'-4"	1.61	5'-9"
7	58"	36"	5.86	16'-10"	1.87	6'-5"
8	65"	40"	6.77	18'-9"	2.19	7'-4"
9	72"	44"	7.75	20'-8"	2.45	8'-0"

GENERAL NOTES

Materials and construction of Headwalls shall be in accordance with Standard Item 432 "Riprap".

Headwalls will be measured and paid for by the cubic yard of material in place.

Quantities shown hereon are for two headwalls.

Quantities and dimensions shown hereon may be varied by the Engineer to suit local conditions.

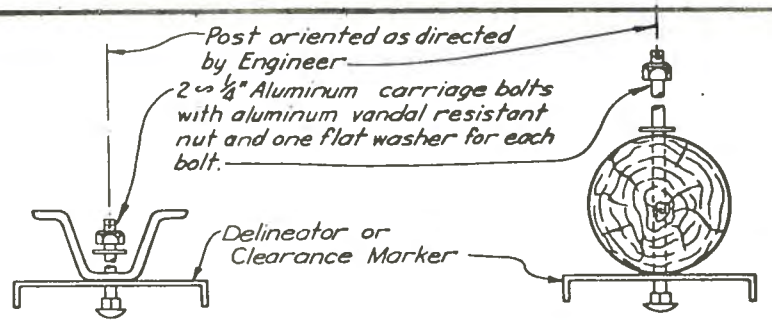
CLASS "B" CONCRETE RIPRAP HEADWALLS FOR PIPE CULVERTS

CRH-16-68

43

ORIGINAL MARCH, 1958
REVISED FEB, 1968

F.R. DIV. 6	TEXAS	C 1553-1-5	SHEET 43
LIVE OAK	COUNTY	F.M. HWY 1042	CONT 1553-1-5

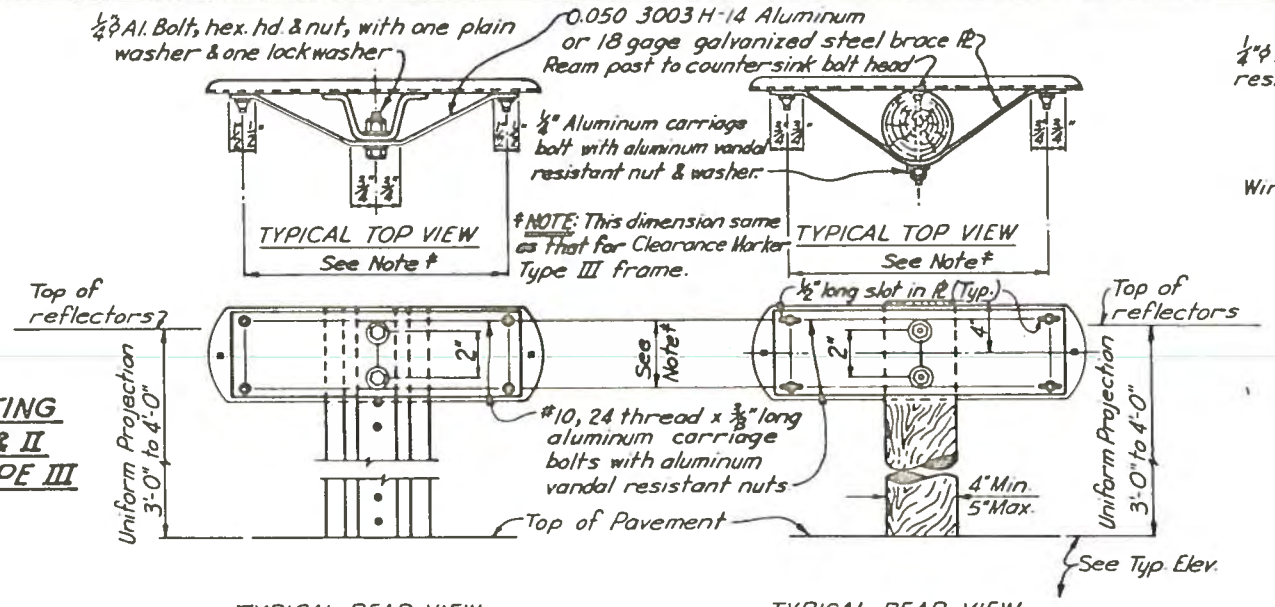


WINGED CHANNEL

TYPICAL PLAN VIEW OF MONODIRECTIONAL MOUNTING DELINEATORS – TYPES I & II CLEARANCE MARKER-TYPE III

TIMBER POST

TYPICAL PLAN VIEW OF MONODIRECTIONAL MOUNTING DELINEATORS – TYPES I & II CLEARANCE MARKER-TYPE III



TYPICAL REAR VIEW
WINGED CHANNEL

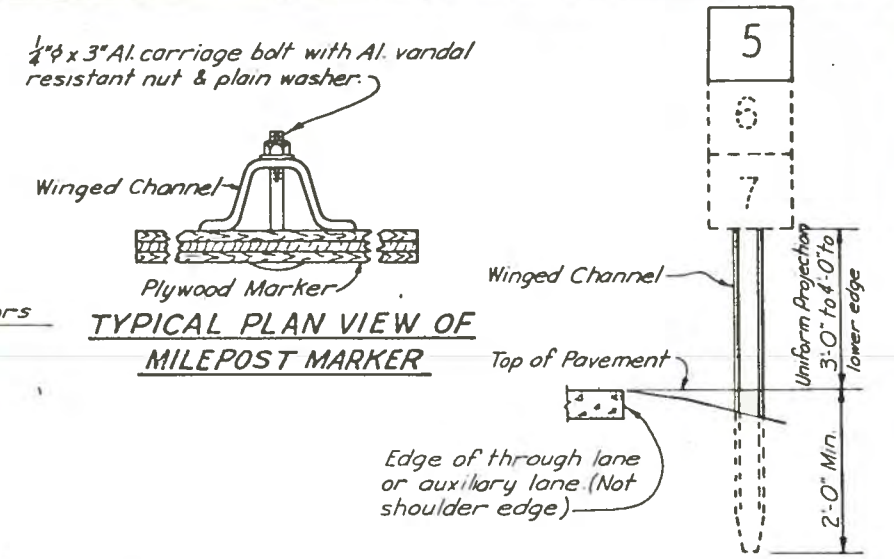
TYPICAL HAZARD MARKER TYPE IV

(Independently Housed Units)

TYPICAL REAR VIEW
TIMBER POST

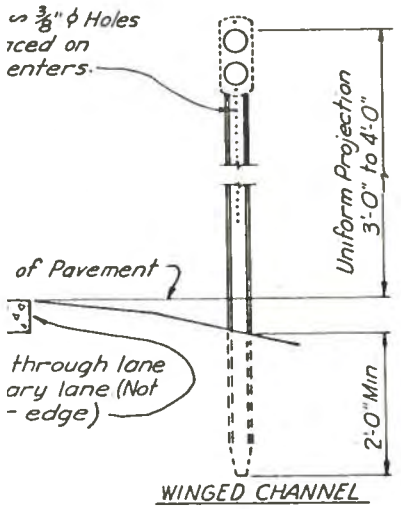
TYPICAL HAZARD MARKER TYPE IV

(Independently Housed Units)



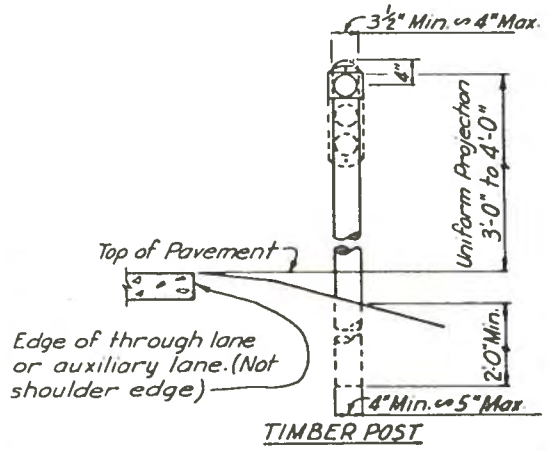
TYPICAL PLAN VIEW OF MILEPOST MARKER

TYPICAL ELEVATION OF MILEPOST MARKER



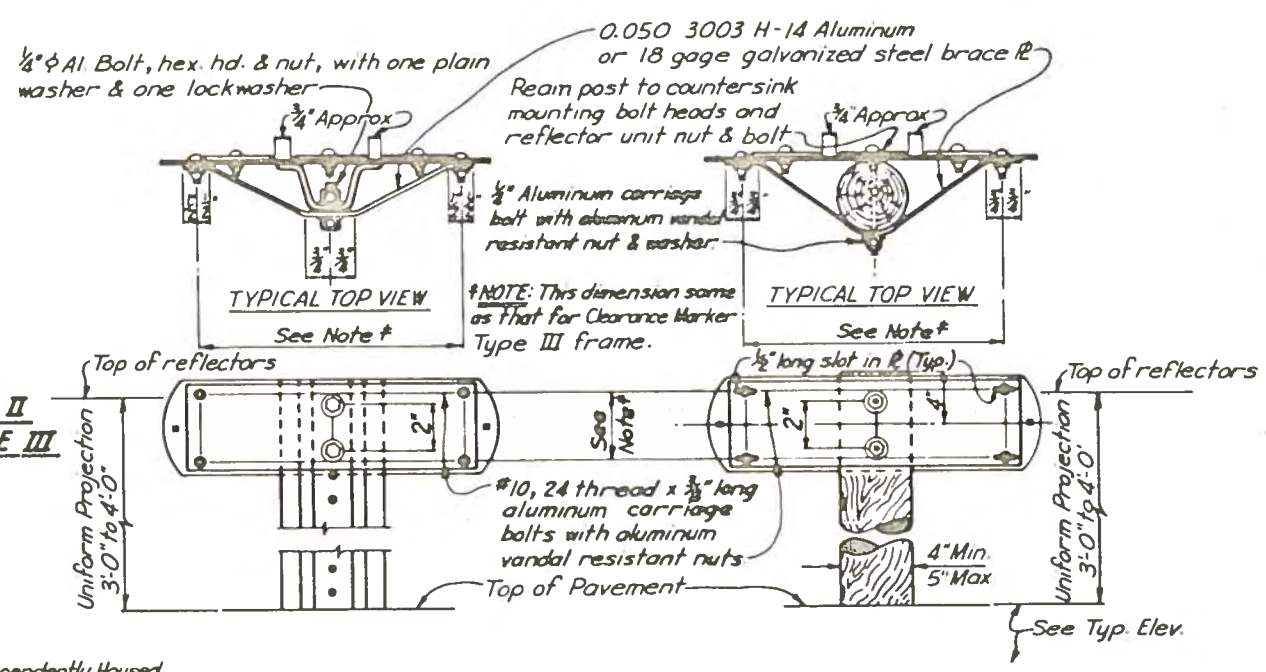
WINGED CHANNEL

TYPICAL ELEVATION OF MOUNTING DELINEATORS - TYPES I & II CLEARANCE MARKER - TYPE III



TIMBER POST

TYPICAL ELEVATION OF MOUNTING DELINEATORS - TYPES I & II CLEARANCE MARKER - TYPE III



TYPICAL REAR VIEW
WINGED CHANNEL

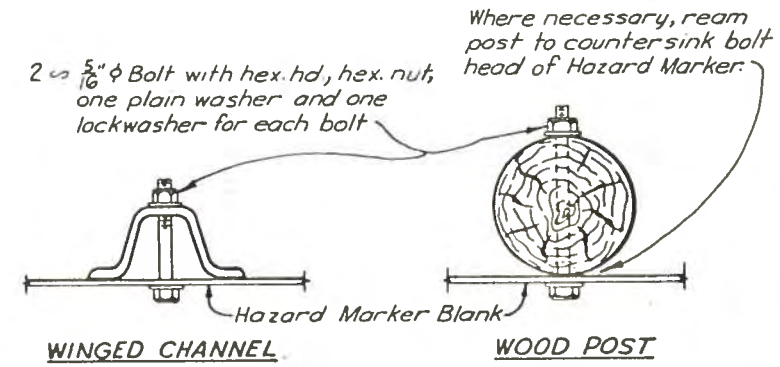
TYPICAL HAZARD MARKER TYPE IV

(Center Mount Units)

TYPICAL REAR VIEW
TIMBER POST

TYPICAL HAZARD MARKER TYPE IV

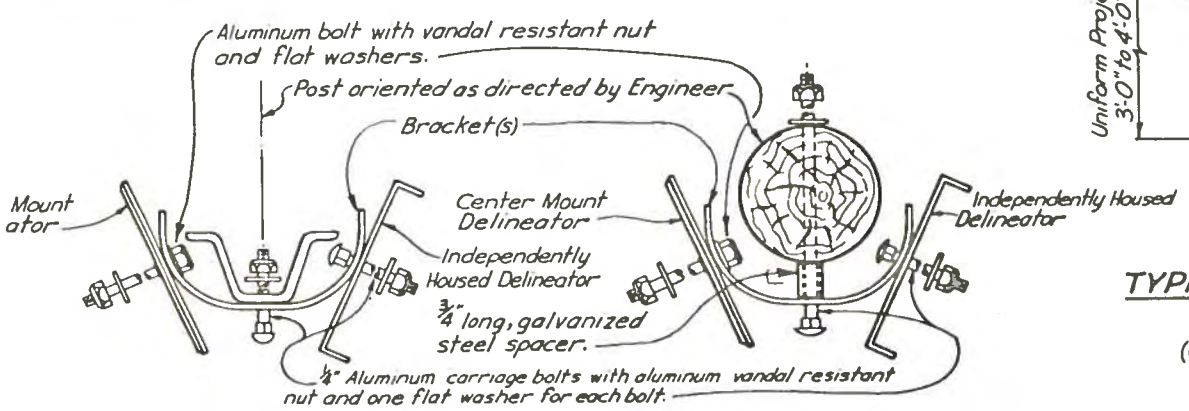
(Center Mount Units)



WINGED CHANNEL

WOOD POST

TYPICAL PLAN VIEWS HAZARD MARKERS-TYPE V



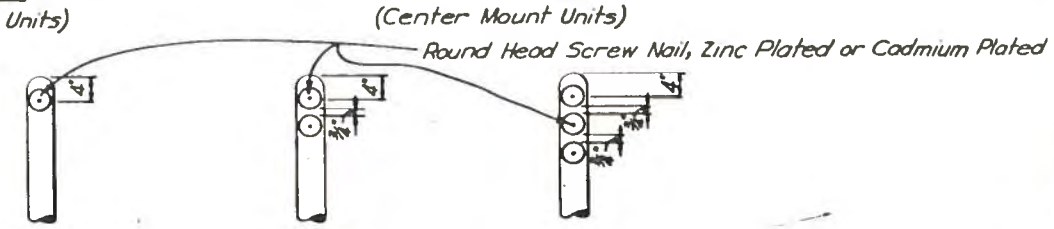
WINGED CHANNEL

TYPICAL PLAN VIEW OF BIDIRECTIONAL MOUNTING DELINEATORS - TYPES I & II ONLY

TIMBER POST

TYPICAL PLAN VIEW OF BIDIRECTIONAL MOUNTING DELINEATORS - TYPES I & II ONLY

(Depicting Independently Housed or Center Mount Units)



TYPICAL CENTER MOUNT UNIT TIMBER POST INSTALLATION DELINEATORS-TYPES I & II CLEARANCE MARKER-TYPE III

GENERAL NOTES:

LOCATION of Delineators, Types I & II, and Milepost Markers: facing on-coming traffic, two feet from edge of shoulder or two feet from face of unmountable curb or in line with guard fence where guard fence is used.

LOCATION of Clearance Markers, Type III, and Hazard Markers, Types IV and V, to be at points designated on plan sheets.

HARDWARE shall be galvanized steel, stainless steel or aluminum; except as noted.

POSTS for supporting reflector units shall be in accordance with the applicable specification Items for delineator posts.

Sheet 1 of 2

TEXAS HIGHWAY DEPARTMENT

STANDARD ROADSIDE SIGN MOUNTING DETAILS FOR DELINEATORS, CLEARANCE MARKERS, HAZARD MARKERS, & MILEPOST MARKERS

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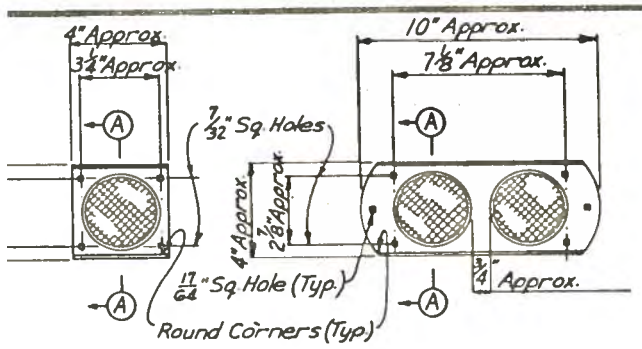
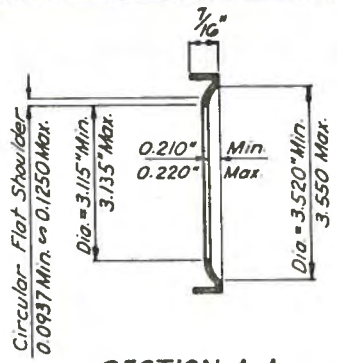
ORIGINAL DRAWING DATE Jan. 1967	STATE DISTRICT	FEDERAL REGION	PROJECT	SHEET
DN: C.H. CK: - REVISIONS	16		C 1553-1-5	44
DW: J.K. CK: -	COUNTY	CONTROL	SECTION	JOB	HIGHWAY
	LIVE OAK	1553	1	5	1042

11A

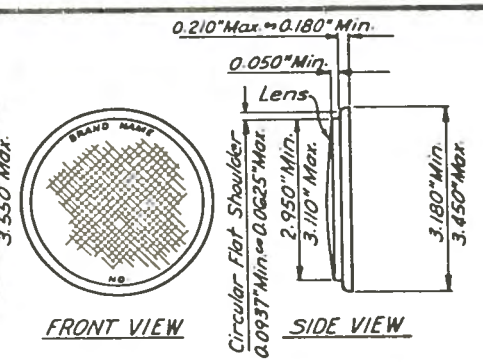


VEATOR-TYPE I
White Reflector Unit

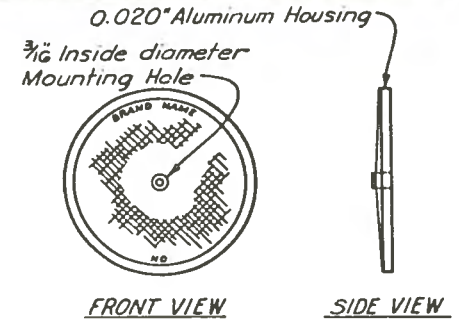
DELINEATOR-TYPE II
Double Yellow Reflector Units



SECTION A-A

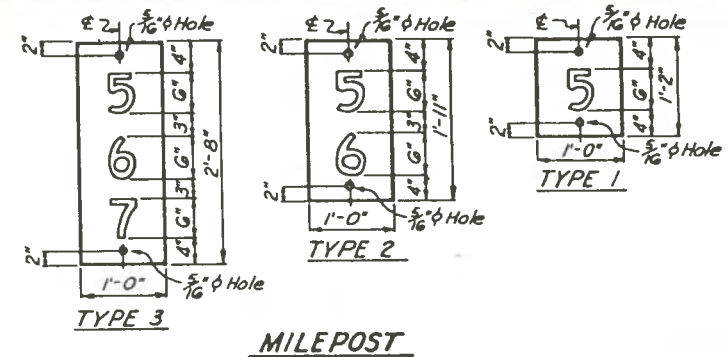


INDEPENDENTLY HOUSED UNIT



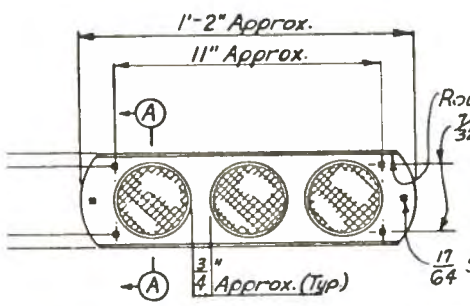
CENTER MOUNT UNIT

REFLECTOR UNITS

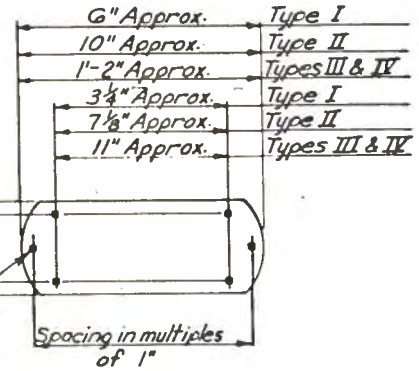


MILEPOST MARKER DETAILS

MILEPOST numerals shall be 6" Series D white reflective with Interstate Green reflective background, made with green transparent ink on a white flat surface reflective sheeting, using the reverse screen process. Milepost marker blanks shall be ⅝" Type A, High Density plywood.

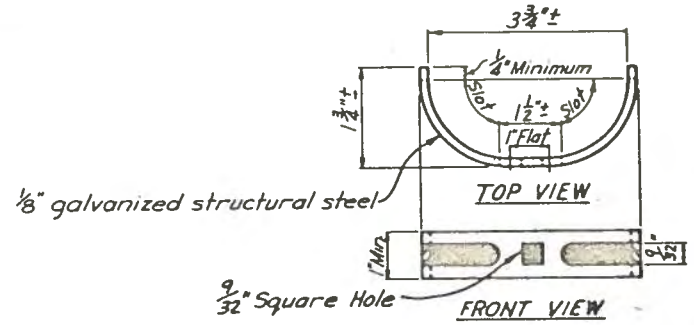


CLEARANCE MARKER-TYPE III
& HAZARD MARKER—TYPE IV
Triple Yellow Reflector Units

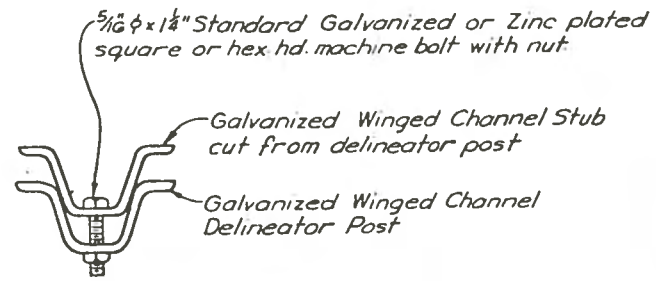


BACK PLATE

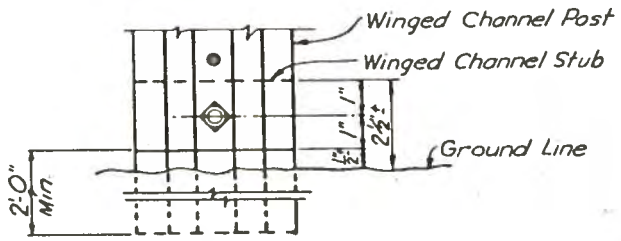
ACRYLIC PLASTIC REFLECTOR UNIT MARKERS
(Independently Housed)



BIDIRECTIONAL BRACKET
FOR DELINEATORS – TYPES I & II ONLY
(Obtainable from the Texas Highway Department)

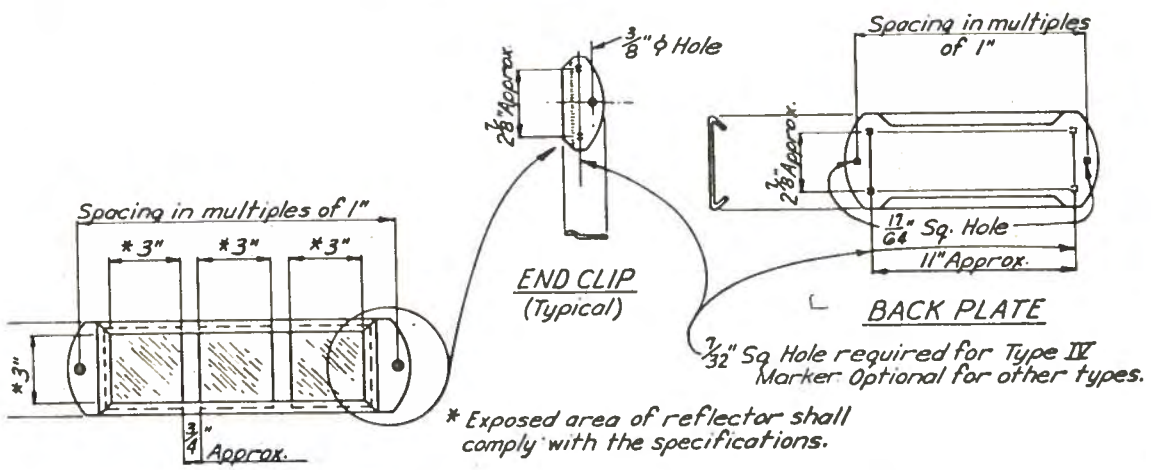


PLAN VIEW



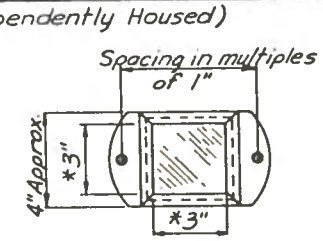
PART ELEVATION

BREAK AWAY CHANNEL POST
(Where specified on plans)

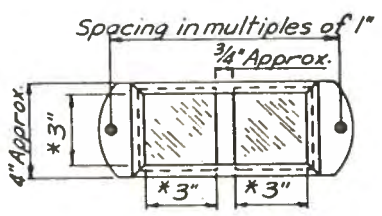


ARANCE MARKER-TYPE III & HAZARD MARKER-TYPE IV
Triple Yellow Reflector Units

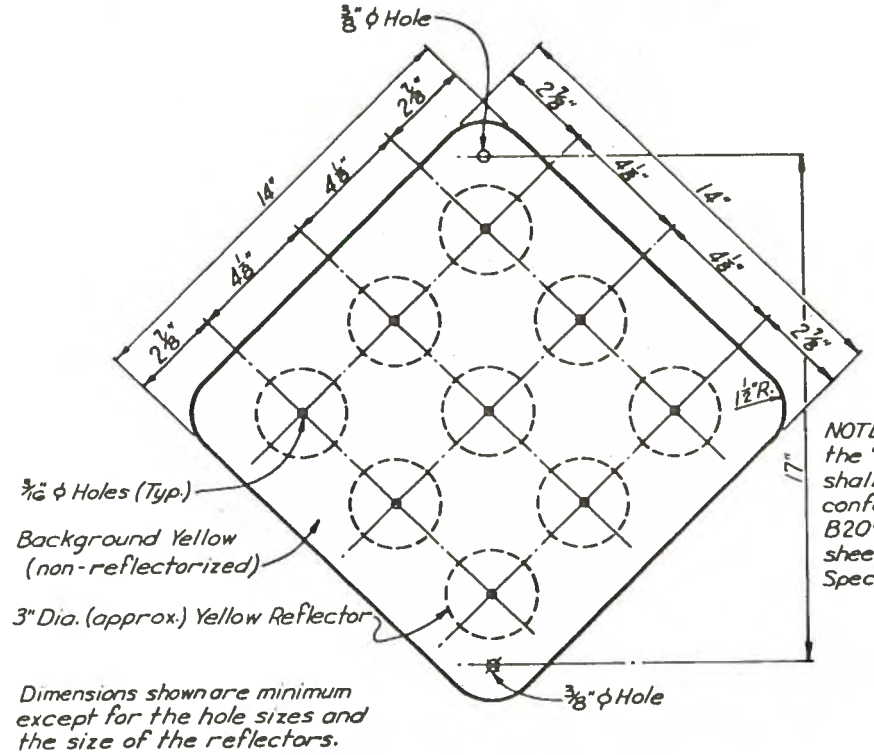
NCAPSULATED REFLECTIVE SHEETING MARKERS
(Illustrative only ⇔ see specifications for limitations)



DELINEATOR-TYPE I
Single White Reflector Unit



DELINEATOR-TYPE II
Double Yellow Reflector Units



Dimensions shown are minimum except for the hole sizes and the size of the reflectors.

NOTE: With Center Mount Reflector Units, the "Type V" Hazard Marker blank shall be 0.125" thick sheet aluminum conforming with A.S.T.M. Specification B209 alloy 6061-T6, or 12 guage sheet steel conforming with A.S.T.M. Specification A-415.

HAZARD MARKER-TYPE V

GENERAL NOTES: See sheet 1 of 2.

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Sheet 2 of 2

TEXAS HIGHWAY DEPARTMENT

STANDARD ROADSIDE SIGN MOUNTING DETAILS FOR DELINEATORS, CLEARANCE MARKERS, HAZARD MARKERS, & MILEPOST MARKERS

SMD-6A

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ORIGINAL DRAWING DATE Jan., 1967	STATE DISTRICT	FEDERAL DESIGN	HIGHWAY AND PROJECT	SHEET
DN - C.H. REVISIONS			C1553-1-5	45
CK -	COUNTY		CONTROL SECTION JOB	
DW - J.K.	LIVE OAK		1553 1 5	5092/11
CK -				