

WARREN/MARION CO.
 HMA RESURFACING/
 COLD-IN-PLACE RECYCLING
 NHSX-092-5(63)--3H-91
 LETTING DATE
 11-20-2018



Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

WARREN/MARION COUNTY
 HMA RESURFACING/COLD-IN-PLACE RECYCLING

N St in Indianola to the W Jct Ia. 5

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.14 of the Specifications.



REVISIONS

TOTAL

94

PROJECT IDENTIFICATION NUMBER

17-91-092-010

PROJECT NUMBER

NHSX-092-5(63)--3H-91

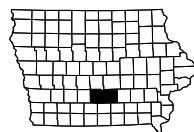
R.O.W. PROJECT NUMBER

NHSN-092-5(64)--2R-91

INDEX OF SHEETS

No.	DESCRIPTION
A Sheets	Title Sheets
A.1	Title Sheet
A.2	Location Map Sheet
B Sheets	Typical Cross Sections and Details
* B.1 - 9	Typical Cross Sections and Details
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
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G Sheets	Survey Sheets
G.1	Survey Information
G.2 - 3	Control Point Map & Horizontal & Vertical Control
H Sheets	Right-of-Way Sheets
H.1	Ia. 92
J Sheets	Traffic Control and Staging Sheets
J.1	Traffic Control Plan
Q Sheets	Soils Sheets
* Q.1	Soils Legend & Symbol Information Sheet
* Q.2	Soils Sheets Ia 92
U Sheets	As-Built Plan Sheets
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W Sheets	Mainline Cross Sections
W.1	Cross Section Location Map - 180th Ave. Intesection
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W.120 - 124	180th Ave. Intesection - S.E. Quadrant
W.130 - 132	180th Ave. Intesection - N.E. Quadrant
W.140 - 142	180th Ave. Intesection - N.W. Quadrant
W.200 - 201	5x4 RCB Sta - 418+44.04
W.300 - 305	5x5 RCB Sta - 421+78.23
W.400 - 408	Slide Repair
	* Color Plan Sheets

Refer to Sheet A.2 for Location Map



WARREN CO. DESIGN DATA RURAL			
2017	AADT	3600	V.P.D.
2037	AADT	4000	V.P.D.
20--	DHV	--	V.P.H.
	TRUCKS	9	%
Total	Design ESALs	751,900	

MARION CO. DESIGN DATA RURAL			
2017	AADT	1900	V.P.D.
2037	AADT	2100	V.P.D.
20--	DHV	--	V.P.H.
	TRUCKS	20	%
Total	Design ESALs	839,500	

INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	Jason M. Holst	Primary Signature Block

PRELIMINARY PLANS

Subject to change by final design.

D5 PLAN - Date: April 27, 2018

STA. 464+82.50
 BEGIN PROJECT
 REF. LOC. 129.87

STA. 522+36.00
 STA. 10+24.40
 STA. 44+87.50
 STA. 141+00.00

Segment 1
 Segment 2
 Segment 3
 Segment 4
 Segment 5
 Segment 6

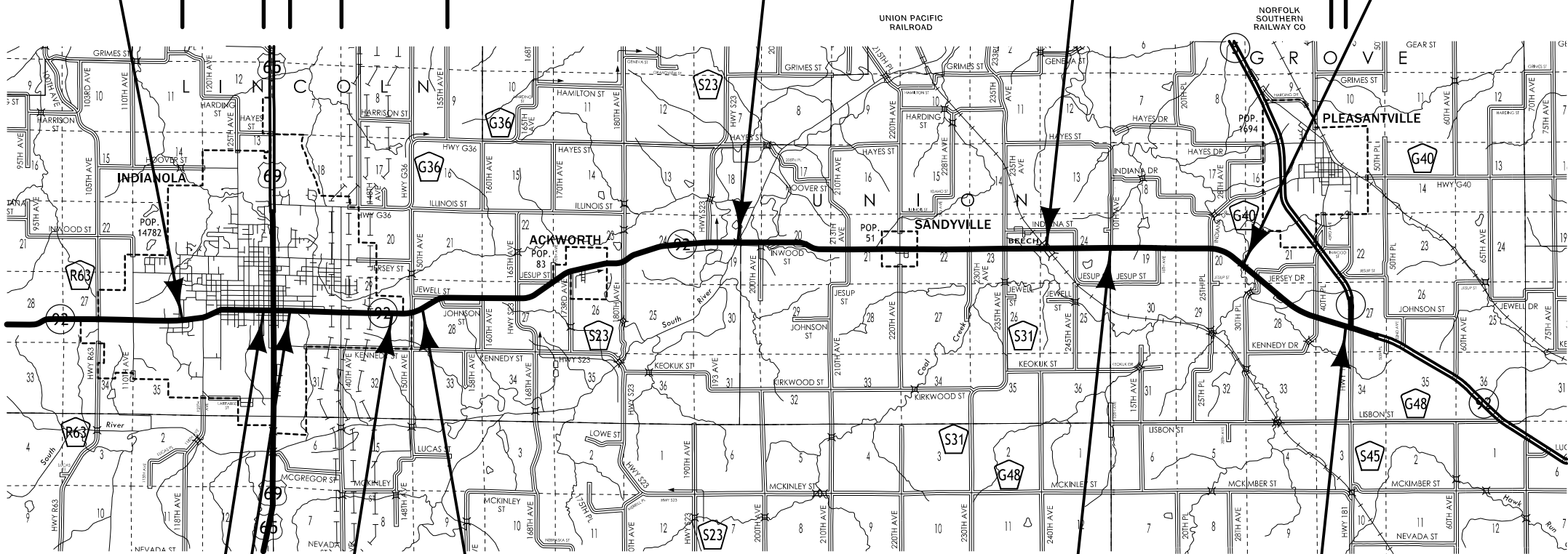
FHWA # 51141
 STA. 366+11.50

FRA # 605707D
 STA. 600+41.35

FHWA # 355221
 STA. 104+89.00

T-76N

T-75N



R-24W

R-23W

R-22W

R-21W

STA. 522+36.00 (Back) =
 STA. 1522+36.00 (Ahead)

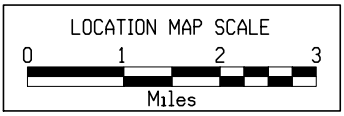
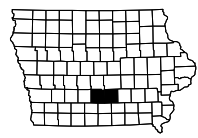
STA. 1531+51.00 (Back) =
 STA. 10+24.40 (Ahead)

STA. 10117+50.00 O.R. (Back) =
 STA. 117+75.87 SUR. (Ahead)

PI STA. 10080+89.93 O.R.
 = PI STA. 80+89.93 SUR.

STA. 648+34.50 (Back) =
 STA. 0+00 (Ahead)

STA. 187+50.00
 END PROJECT
 REF. LOC. 146.74



LOCATION MAP

Curbed Shoulder Area

Shoulder Jointing:
Longitudinal joint: B

3R_Curb_Section_Special				
STATION TO STATION		(P) Feet	(G) Feet	REMARKS
464+82.50	522+00.00	4.5	2.0	Segment 1 (Warren Co.)
10+24.40 **	44+87.50	9.0	1.5	Segment 3 (Warren Co.)

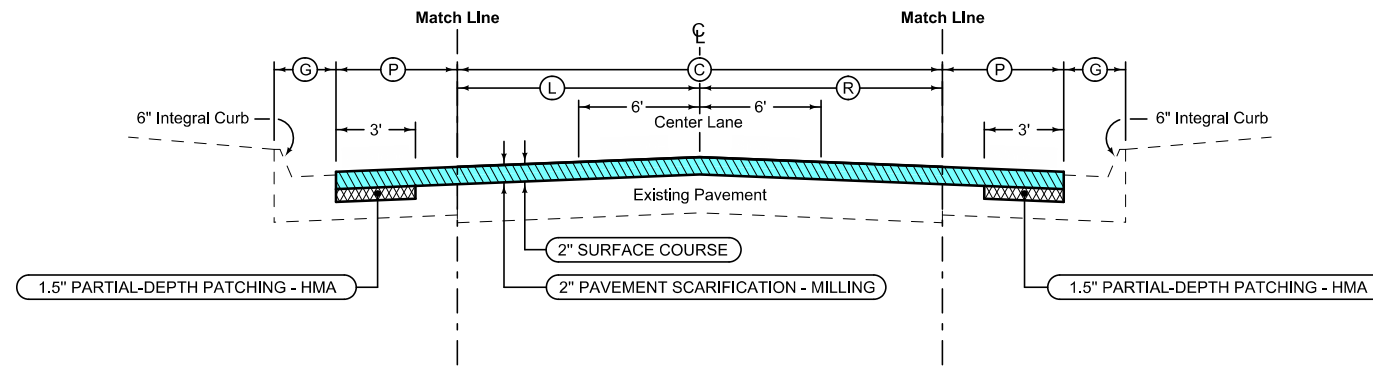


TABLE OF QUANTITIES (Actual per Location)								
DIVISION 1								
STATION TO STATION		(C) Feet	(L) Feet	(R) Feet	ASPHALT CEMENT Tons	HMA RESURFACING SURFACE Tons	SCARIFICATION Tons	REMARKS
464+82.50	522+00.00	24.0	12.0	12.0	138.7	2311.3	2122.6	Segment 1 (Warren Co.)
10+24.40 **	44+87.50	24.0	12.0	12.0	106.9	1781.8	1636.3	Segment 3 (Warren Co.)

** Equation: Sta. 1531+51.00 (Back) = Sta. 10+24.40 (Ahead)

DESIGN RATES	
ITEM	RATE
Surface Course	147 lbs/cu ft
Asphalt Binder	6% per Ton
Scarification	135 lbs/cu ft

See Tab 102-11 for Partial-Depth Patch quantities.

Curbed Shoulder Area

Shoulder Jointing:
Longitudinal joint: B

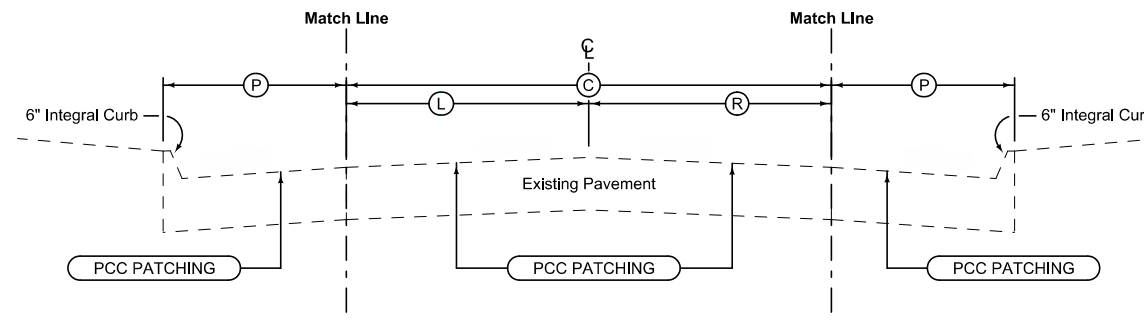
3R_Curb_Section_Special				
STATION TO STATION		(P) Feet	(G) Feet	REMARKS
464+82.50	522+00.00	4.5	2.0	Segment 1 (Warren Co.)
10+24.40 **	44+87.50	9.0	1.5	Segment 3 (Warren Co.)

IA. 92 MILLING / RESURFACING / PATCHING

Curbed Shoulder

Shoulder Jointing:
Longitudinal joint: B

2_C_Modified				
STATION TO STATION		(P) Feet		REMARKS
522+00.00	522+36.00 *	6.5 - 8.3		Segment 2 (Warren Co.)
1522+36.00 *	1522+90.00	8.3 - 10.5		Segment 2 (Warren Co.)
1522+90.00	1531+51.00 **	10.5		Segment 2 (Warren Co.)



3R_Existing_Pave_Special					
STATION TO STATION		(C) Feet	(L) Feet	(R) Feet	REMARKS
522+00.00	522+36.00 *	24.0	12.0	12.0	Segment 2 (Warren Co.)
1522+36.00 *	1522+90.00	24.0	12.0	12.0	Segment 2 (Warren Co.)
1522+90.00	1531+51.00 **	24.0	12.0	12.0	Segment 2 (Warren Co.)

* Equation: Sta. 522+36.00 (Back) = Sta. 1522+36.00 (Ahead)
** Equation: Sta. 1531+51.00 (Back) = Sta. 10+24.40 (Ahead)

See Tab 102-11 for Partial-Depth Patch quantities.

Curbed Shoulder

Shoulder Jointing:
Longitudinal joint: B

2_C_Modified				
STATION TO STATION		(P) Feet		REMARKS
522+00.00	522+36.00 *	6.5 - 8.3		Segment 2 (Warren Co.)
1522+36.00 *	1522+90.00	8.3 - 10.5		Segment 2 (Warren Co.)
1522+90.00	1531+51.00 **	10.5		Segment 2 (Warren Co.)

IA. 92 PATCHING

Paved Shoulder with Curb (UAC)

Shoulder Jointing:
Longitudinal joint: B

3R_Shldr_Paved_Modified			
STATION TO STATION	(P) Feet	REMARKS	
44+87.50	46+12.50	10.5' - 13.0'	Segment 4 (Warren Co.)
46+12.50	57+55.00	13.0'	Segment 4 (Warren Co.)
57+55.00	63+00.00	13.0' - 0' ***	Segment 4 (Warren Co.)

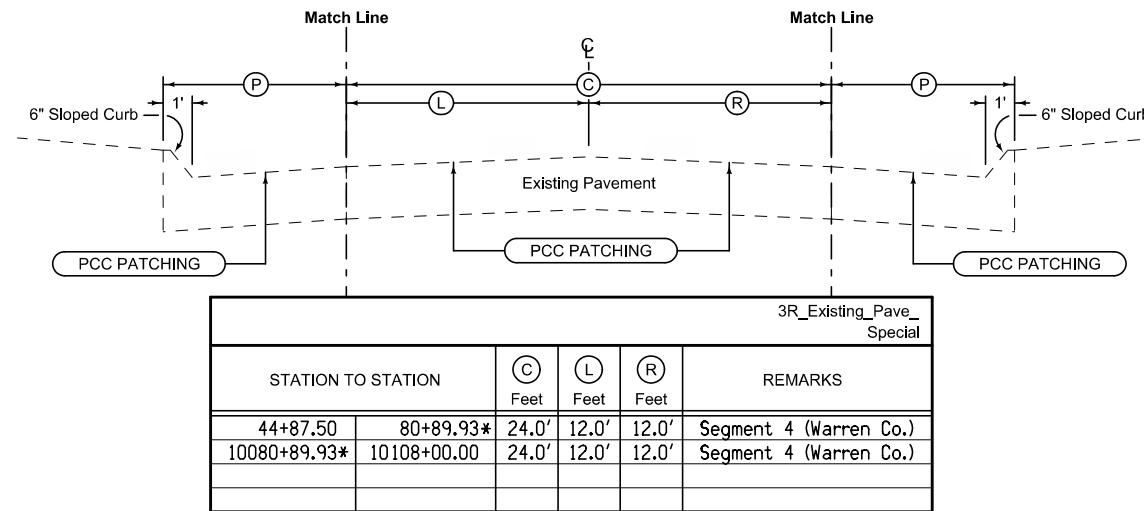
*** Curb Drop from 6" to 0" from Sta. 62+95.00 to Sta. 63+00.00, respectively

Paved Shoulder with Curb (UAC)

Shoulder Jointing:
Longitudinal joint: B

3R_Shldr_Paved_Modified			
STATION TO STATION	(P) Feet	REMARKS	
44+87.50	46+12.50	10.5' - 13.0'	Segment 4 (Warren Co.)
46+12.50	57+55.00	13.0' ***	Segment 4 (Warren Co.)

*** Curb Drop from 6" to 0" from Sta. 57+50.00 to Sta. 57+55.00, respectively



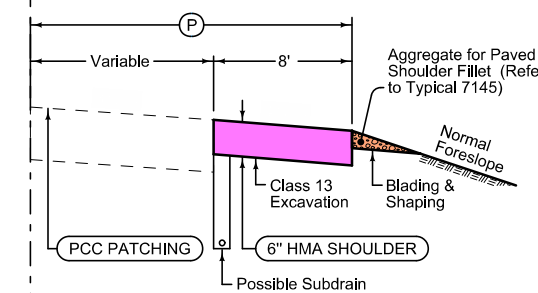
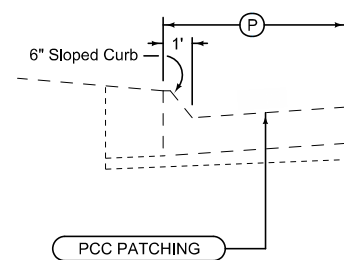
3R_Existing_Pave_Special					
STATION TO STATION	(C) Feet	(L) Feet	(R) Feet	REMARKS	
44+87.50	80+89.93*	24.0'	12.0'	12.0'	Segment 4 (Warren Co.)
10080+89.93*	10108+00.00	24.0'	12.0'	12.0'	Segment 4 (Warren Co.)

* Equation: Sta. 80+89.93 (Back) = Sta. 10080+89.93 (Ahead)

Paved Shoulder with Curb

Shoulder Jointing:
Longitudinal joint: B

3R_Shldr_Paved_Modified			
STATION TO STATION	(P) Feet	REMARKS	
63+00.00	70+50.00	8.0	Segment 4 (Warren Co.)
76+00.00	80+88.00	8.0	Segment 4 (Warren Co.)



Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

TABLE OF RIGHT SHOULDER QUANTITIES (Actual per Location)						
STATION TO STATION	(P) Feet	SHOULDERS			REMARKS	
		HMA PAVED Sq. Yds.	CLASS 13 Cu. Yds.	GRANULAR Tons		
57+55.00	63+00.00	21.0-8.0	484.44	80.74	9.5	(1)

(1) Segment 4 (Warren County)

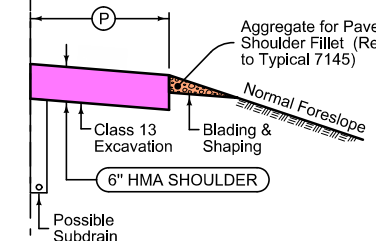
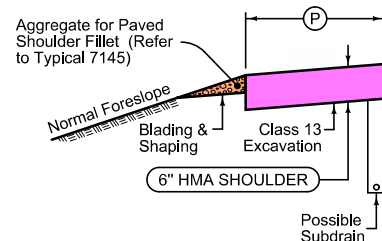
Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

TABLE OF LEFT SHOULDER QUANTITIES (Actual per Location)						
STATION TO STATION	(P) Feet	SHOULDERS			REMARKS	
		HMA PAVED Sq. Yds.	CLASS 13 Cu. Yds.	GRANULAR Tons		
70+50.00	76+00.00	8.0	488.89	81.48	9.6	(1)
80+88.00	80+89.93*	8.0	1.72	0.29	0.1	(1)
10080+89.93*	10108+00.00	8.0	2408.95	401.49	47.4	(1)

(1) Segment 4 (Warren County)

* Equation: Sta. 80+89.93 (Back) = Sta. 10080+89.93 (Ahead)



Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

TABLE OF RIGHT SHOULDER QUANTITIES (Actual per Location)						
STATION TO STATION	(P) Feet	SHOULDERS			REMARKS	
		HMA PAVED Sq. Yds.	CLASS 13 Cu. Yds.	GRANULAR Tons		
63+00.00*	108+00.00	8.0	4000.00	666.67	78.8	(1)

(1) Segment 4 (Warren County)

* Equation: Sta. 80+89.93 (Back) = Sta. 10080+89.93 (Ahead)

- DIVISION 1 - MAINLINE PATCHING QUANTITIES
- DIVISION 1 - GRANULAR SHOULDER FILLET QUANTITIES
- DIVISION 2 - PAVED SHOULDER QUANTITIES

See Tab 102-11 for Partial-Depth Patch quantities.

See Tab 112-9 for shoulder quantities.

See Tab 104-9 for subdrain quantities.

DESIGN RATES	
ITEM	RATE
HMA Base	145 lbs/cu ft
Asphalt Binder	6% per Ton
Granular	140 lbs/cu ft

IA. 92 PATCHING / PAVED SHOULDER AREAS

Combination Shoulder with Widening

Shoulder Jointing:
Longitudinal joint: B

TABLE OF LEFT SHOULDER QUANTITIES (Actual per Location)										REMARKS
STATION TO STATION	LBW	P	G	ASPHALT CEMENT	HMA RESURFACING		SHOULDERS			
	Feet	Feet	Feet	Tons	SURFACE Tons	INTERMEDIATE Tons	HMA BASE Tons	GRANULAR Tons		
141+00.00	181+00.00	4.0	4.0	4.0	23.07	149.30	206.21	29.00	560	(1)
186+00.00	362+21.50	4.0	4.0	4.0	170.62	657.71	908.43	1277.56	2467	(1)
369+91.50	560+75.00	4.0	4.0	4.0	184.78	712.28	983.80	1383.55	2672	(1)
563+25.00	597+50.00	4.0	4.0	4.0	33.16	127.84	176.57	248.31	480	(1)
602+50.00	648+34.50*	4.0	4.0	4.0	44.39	171.11	236.34	332.38	642	(1)
0+00.00*	15+00.00	4.0	4.0	4.0	14.52	55.99	77.33	108.75	210	(1)
16+00.00	26+75.00	4.0	4.0	4.0	10.41	40.12	55.42	77.94	151	(1)
31+75.00	179+00.00	4.0	4.0	4.0	142.58	549.60	759.11	1067.56	2062	(2)

Note: Refer to Typical 7151-X for shoulder details.

- (1) Segment 5 in Warren County.
- (2) Segment 5 in Marion County.

① Estimated for two applications.

Combination Shoulder with Widening

Shoulder Jointing:
Longitudinal joint: B

TABLE OF RIGHT SHOULDER QUANTITIES (Actual per Location)										REMARKS
STATION TO STATION	LBW	P	G	ASPHALT CEMENT	HMA RESURFACING		SHOULDERS			
	Feet	Feet	Feet	Tons	SURFACE Tons	INTERMEDIATE Tons	HMA BASE Tons	GRANULAR Tons		
141+00.00	362+21.50	4.0	4.0	4.0	214.19	825.67	1140.41	1603.81	3097	(1)
369+91.50	600+11.50	4.0	4.0	4.0	222.89	859.20	1186.73	1668.95	3222	(1)
600+71.50	648+34.50*	4.0	4.0	4.0	46.12	177.78	245.54	345.32	667	(1)
0+00.00*	179+00.00	4.0	4.0	4.0	173.32	668.10	922.79	1297.75	2506	(2)

Note: Refer to Typical 7151-X for shoulder details.

- (1) Segment 5 in Warren County.
- (2) Segment 5 in Marion County.

① Estimated for two applications.

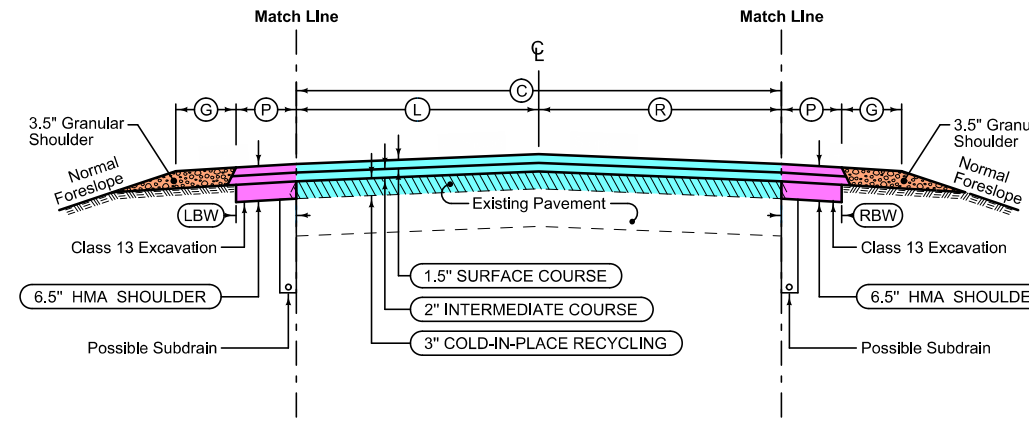


TABLE OF MAINLINE QUANTITIES (Actual per Location)

STATION TO STATION	C	L	R	ASPHALT CEMENT	HMA RESURFACING		COLD-IN-PLACE RECYCLING		REMARKS	
	Feet	Feet	Feet	Tons	SURFACE Tons	INTERMEDIATE Tons	ASPHALT PAV'T Sq. Yds.	FOAMED ASPHALT Tons		
141+00.00	362+21.50	24.0	12.0	12.0	682.89	4877.79	6503.72	58990.67	194.67	Segment 5 (Warren Co.)
369+91.50	597+50.00	24.0	12.0	12.0	702.55	5018.25	6691.00	60689.33	200.27	Segment 5 (Warren Co.)
602+50.00	648+34.50*	24.0	12.0	12.0	141.52	1010.88	1347.84	12225.33	40.34	Segment 5 (Warren Co.)
0+00.00*	179+00.00	24.0	12.0	12.0	552.57	3946.95	5262.60	47733.33	157.52	Segment 5 (Marion Co.)

* Equation: Sta. 648+34.50 (Back) Warren County =
Sta. 0+00.00 (Ahead) Marion County

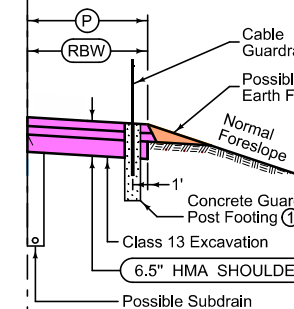
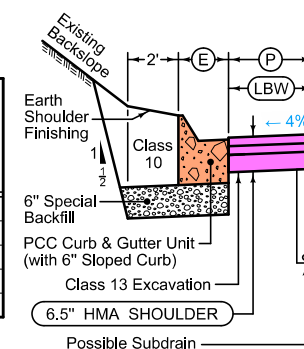
PCC Curb & Gutter Unit with Widening

Shoulder Jointing:
Longitudinal joint: B

TABLE OF LEFT SHOULDER QUANTITIES (Actual per Location)										REMARKS
STATION TO STATION	LBW	E	P	ASPHALT CEMENT	HMA RESURFACING		SHOULDERS			
	Feet	Feet	Feet	Tons	SURFACE Tons	INTERMEDIATE Tons	HMA BASE Tons	PCC C&G Sq. Yds.		
181+00.00	186+00.00	5.5	2.0	5.5	6.53	25.26	33.69	49.84	111.11	(1)
560+75.00	563+25.00	5.5	2.0	5.5	3.26	12.63	16.84	24.92	55.55	(1)
15+00.00	16+00.00	5.5	2.0	5.5	1.31	5.05	6.74	9.97	22.22	(2)
26+75.00	31+75.00	5.5	2.0	5.5	6.53	25.26	33.69	49.84	111.11	(2)

Note: Locations along hilltop in no ditch areas. Refer to Typical 6134-X.

- (1) Segment 5 in Warren County.
- (2) Segment 5 in Marion County.



Shoulder Jointing:
Longitudinal joint: B

TABLE OF RIGHT SHOULDER QUANTITIES (Actual per Location)										REMARKS
STATION TO STATION	LBW	P	ASPHALT CEMENT	HMA RESURFACING		SHOULDERS				
	Feet	Feet	Tons	SURFACE Tons	INTERMEDIATE Tons	HMA BASE Tons	EARTH FILL Cu. Yds.			
417+60.00	420+00.00	8.0	8.0	4.60	17.78	24.13	34.80	1.80	(1)	
420+70.00	423+50.00	8.0	8.0	5.37	20.74	28.15	40.60	2.10	(1)	

① Refer to Typical 7137-X for additional information.

- (1) Segment 5 in Warren County.

DESIGN RATES	
ITEM	RATE
Surface Course	147 lbs/cu ft
Intermediate Course	147 lbs/cu ft
HMA Base	145 lbs/cu ft
Asphalt Binder	6% per Ton
Foamed Asphalt	0.0011 Tons/sq yd/in
Scarification	135 lbs/cu ft
Granular	140 lbs/cu ft

- DIVISION 1 - MAINLINE QUANTITIES
- DIVISION 1 - GRANULAR SHOULDER OR C&G QUANTITIES
- DIVISION 2 - PAVED SHOULDER QUANTITIES

See Tab 112-9 for shoulder and curb & gutter quantities.

See Tab 104-9 for subdrain quantities.

IA. 92 CIP RECYCLING / RESURFACING / WITH RETROFIT PAVED SHOULDERS

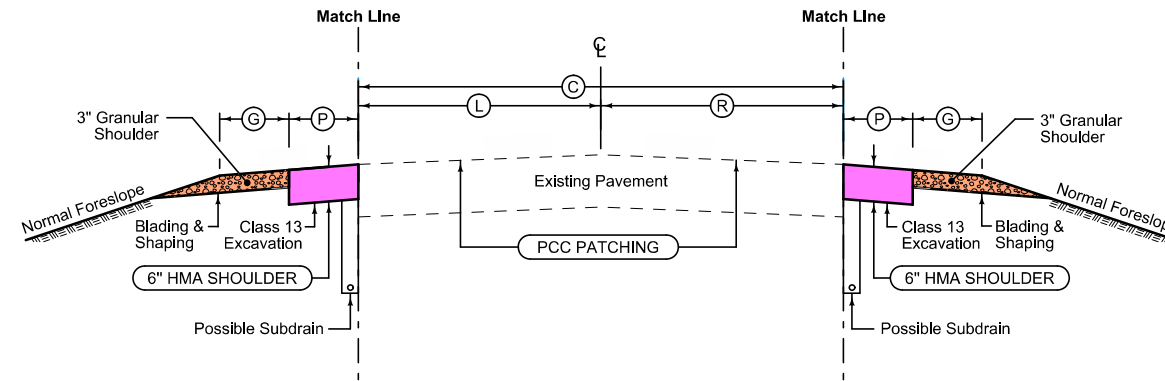
Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

TABLE OF LEFT SHOULDER QUANTITIES (Actual per Location)						
STATION TO STATION	P Feet	G Feet	SHOULDERS		REMARKS	
			HMA PAVED Sq. Yds.	GRANULAR Tons		
10108+00.00	10117+50.00*	4.0	4.0	422.22	124	Segment 4 (Warren Co.)
117+75.87*	141+00.00	4.0	4.0	1032.95	302	Segment 4 (Warren Co.)
597+50.00**	602+50.00**	4.0	4.0	222.22	65	Segment 5 (Warren Co.)

* Equation: Sta. 10117+50.00 (Back) = Sta. 117+75.87 (Ahead)

** Place shoulder as shown except in areas where Paved Shoulder for Guardrail is required as detailed on Typical 7156-X.



3R_Existing_Pave_Special					
STATION TO STATION	C Feet	L Feet	R Feet	REMARKS	
10108+00.00	10117+50.00*	24.0	12.0	12.0	Segment 4 (Warren Co.)
117+75.87*	141+00.00	24.0	12.0	12.0	Segment 4 (Warren Co.)
597+50.00	602+50.00	24.0	12.0	12.0	Segment 5 (Warren Co.)
179+00.00	187+50.00	24.0	12.0	12.0	Segment 6 (Marion Co.)

* Equation: Sta. 10117+50.00 (Back) = Sta. 117+75.87 (Ahead)

Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

TABLE OF LEFT SHOULDER QUANTITIES (Actual per Location)						
STATION TO STATION	P Feet	G Feet	SHOULDERS		REMARKS	
			HMA PAVED Sq. Yds.	GRANULAR Tons		
10108+00.00	10117+50.00*	4.0	4.0	422.22	124	Segment 4 (Warren Co.)
117+75.87*	141+00.00	4.0	4.0	1032.95	302	Segment 4 (Warren Co.)
597+50.00**	602+50.00**	4.0	4.0	222.22	65	Segment 5 (Warren Co.)

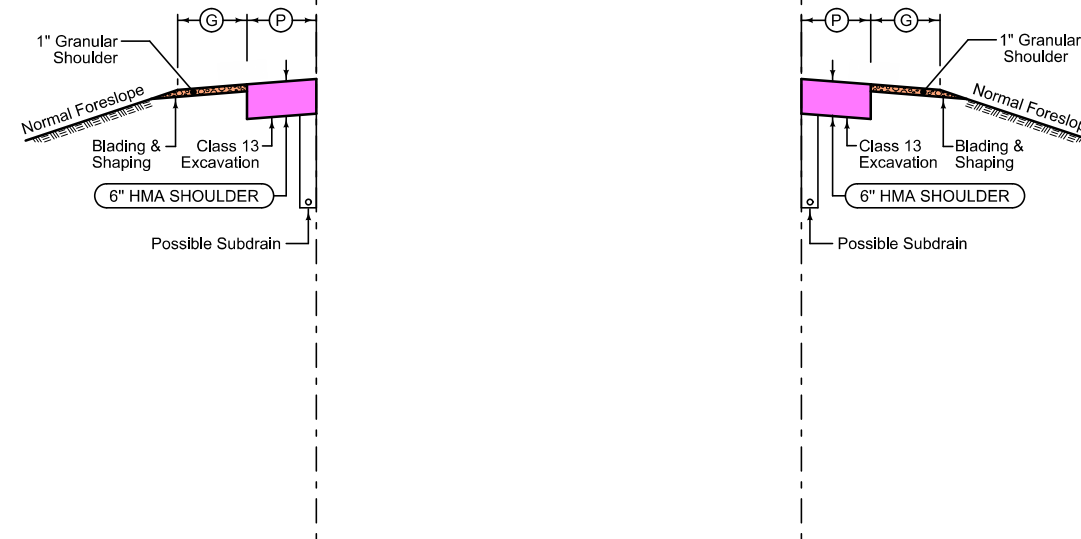
* Equation: Sta. 10117+50.00 (Back) = Sta. 117+75.87 (Ahead)

** Place shoulder as shown except in areas where Paved Shoulder for Guardrail is required as detailed on Typical 7156-X.

Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

TABLE OF LEFT SHOULDER QUANTITIES (Actual per Location)						
STATION TO STATION	P Feet	G Feet	SHOULDERS		REMARKS	
			HMA PAVED Sq. Yds.	GRANULAR Tons		
179+00.00	187+50.00	4.0	4.0	377.78	34	Segment 6 (Marion Co.)



Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

TABLE OF RIGHT SHOULDER QUANTITIES (Actual per Location)						
STATION TO STATION	P Feet	G Feet	SHOULDERS		REMARKS	
			HMA PAVED Sq. Yds.	GRANULAR Tons		
179+00.00	187+50.00	4.0	4.0	377.78	34	Segment 6 (Marion Co.)

- DIVISION 1 - MAINLINE PATCHING QUANTITIES
- DIVISION 1 - GRANULAR SHOULDER QUANTITIES
- DIVISION 2 - PAVED SHOULDER QUANTITIES

See Tab 102-11 for Partial-Depth Patch quantities.

See Tab 112-9 for shoulder quantities.

See Tab 104-9 for subdrain quantities.

DESIGN RATES	
ITEM	RATE
HMA Base	145 lbs/cu ft
Asphalt Binder	6% per Ton
Granular	140 lbs/cu ft

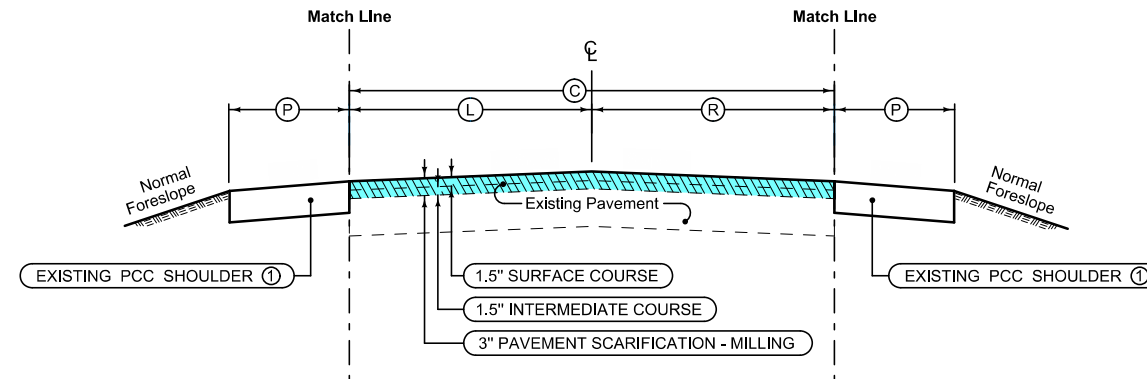
IA. 92 PATCHING / RETROFIT HMA SHOULDERS

Existing PCC Shoulder

Shoulder Jointing:
Longitudinal joint: B

3R_Shldr_Paved_ Modified			
STATION TO STATION	(P) Feet	REMARKS	
362+21.50	369+91.50	8.0	Segment 5 (Warren Co.)

① PCC shoulder to be used-as-constructed.



Existing PCC Shoulder

Shoulder Jointing:
Longitudinal joint: B

3R_Shldr_Paved_ Modified			
STATION TO STATION	(P) Feet	REMARKS	
362+21.50	369+91.50	8.0	Segment 5 (Warren Co.)

① PCC shoulder to be used-as-constructed.

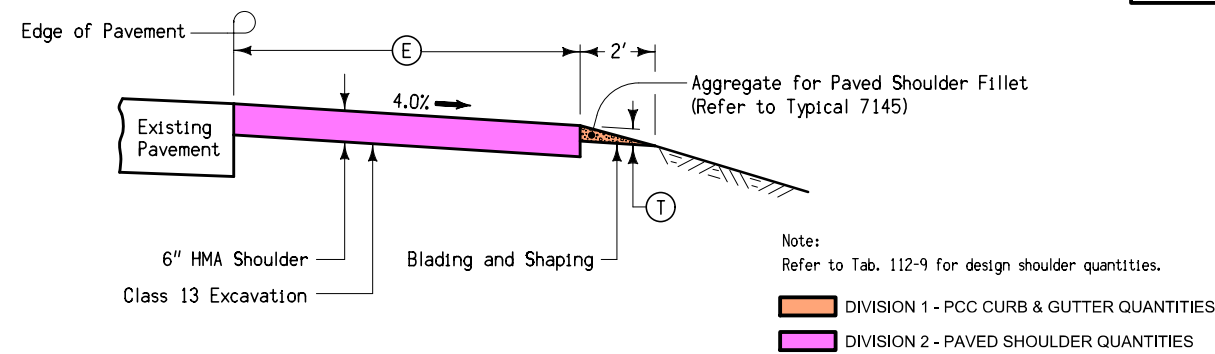
TABLE OF QUANTITIES (Actual per Location)									
DIVISION 1									
STATION TO STATION	(C) Feet	(L) Feet	(R) Feet	ASPHALT CEMENT Tons	HMA RESURFACING			REMARKS	
					SURFACE Tons	INTERMEDIATE Tons	SCARIFICATION Tons		
362+21.50	369+91.50	24.0	12.0	12.0	20.37	169.78	169.78	311.85	Segment 5 (Warren Co.)

DESIGN RATES	
ITEM	RATE
Surface Course	147 lbs/cu ft
Intermediate Course	147 lbs/cu ft
Asphalt Binder	6% per Ton
Scarification	135 lbs/cu ft

■ DIVISION 1 - MAINLINE QUANTITIES

IA. 92 MILLING / RESURFACING

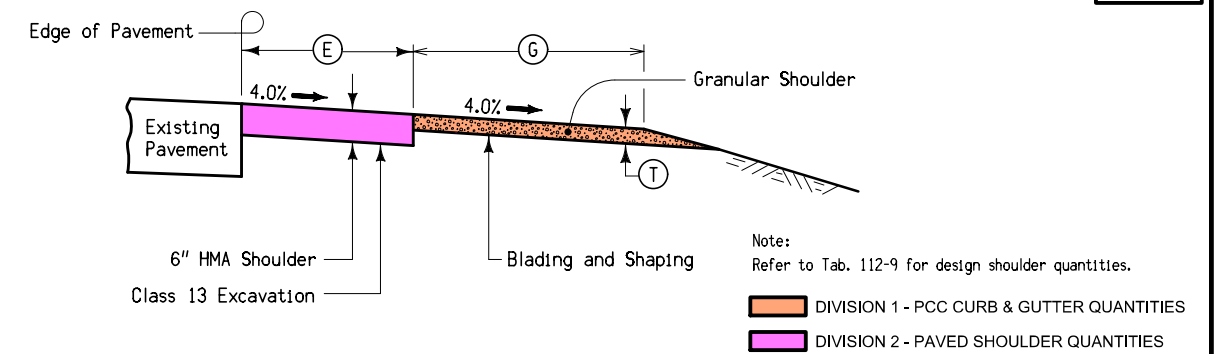
7152-X
Modified



**TYPICAL SECTION
RETROFIT HOT MIX ASPHALT PAVED SHOULDER**

Location			(E) Feet	(T) Inches	Remarks	
Road Identification	Station to Station	Side				
Ia. 92	57+55.00	63+00.00	Right	8.0	3.0	Segment 4 (Warren Co.)
Ia. 92	70+50.00	76+00.00	Left	8.0	3.0	Segment 4 (Warren Co.)
Ia. 92	80+88.00	108+00.00	Left	8.0	3.0	Segment 4 (Warren Co.)
Ia. 92	63+00.00	108+00.00	Right	8.0	3.0	Segment 4 (Warren Co.)

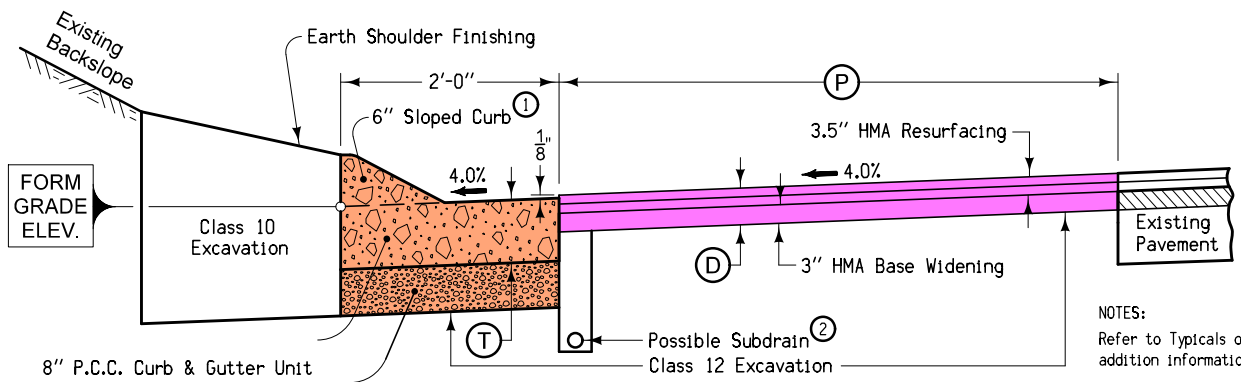
7152-Y
Modified



**TYPICAL SECTION
RETROFIT HOT MIX ASPHALT PAVED SHOULDER**

Location				(E) Feet	(G) Feet	(T) Inches	Remarks
Road Identification	Station to Station	Side					
Ia. 92	108+00.00	141+00.00	Left	4.0	4.0	3.0	Segment 4 (Warren Co.)
Ia. 92	108+00.00	141+00.00	Right	4.0	4.0	3.0	Segment 4 (Warren Co.)
Ia. 92	179+00.00	187+50.00	Left	4.0	4.0	3.0	Segment 6 (Marion Co.)
Ia. 92	179+00.00	187+50.00	Right	4.0	4.0	1.0	Segment 6 (Marion Co.)

6134-X
Modified



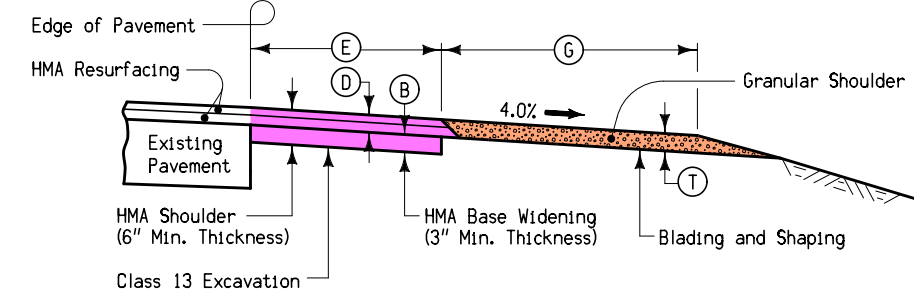
PCC CURB & GUTTER UNIT WITH SLOPED CURB AND HMA PAVED SHOULDER

DIVISION 1 - PCC CURB & GUTTER QUANTITIES
DIVISION 2 - PAVED SHOULDER QUANTITIES

NOTES:
Refer to Typical on Sheet B.3 for addition information.
Refer to Tab. 112-9 for design shoulder quantities.
① Refer to PV-102 for curb details.
② Refer to Tab. 104-9 per location.

Location			Ⓟ	Ⓣ	ⓓ	Remarks
Road Identification	Station to Station	Side	Feet	Inches	Inches	
Ia. 92	181+00.00 186+00.00	Left	5.5	8.0	6.5	Segment 5 (Warren Co.) Place along hilltop in no ditch area.
Ia. 92	560+75.00 563+25.00	Left	5.5	8.0	6.5	Segment 5 (Warren Co.) Place along hilltop in no ditch area.
Ia. 92	15+00.00 16+00.00	Left	5.5	8.0	6.5	Segment 5 (Marion Co.) Place along hilltop in no ditch area.
Ia. 92	26+75.00 31+75.00	Left	5.5	8.0	6.5	Segment 5 (Marion Co.) Place along hilltop in no ditch area.

7151-X
Modified



TYPICAL SECTION RETROFIT PAVED SHOULDER

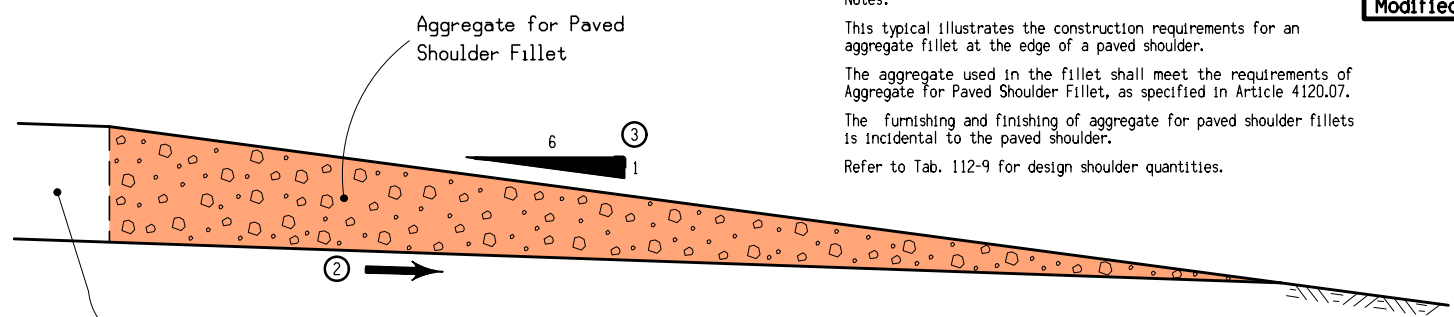
DIVISION 1 - GRANULAR SHOULDER QUANTITIES
DIVISION 2 - PAVED SHOULDER QUANTITIES

NOTES:
Refer to Typical on Sheet B.3 for addition information.
Refer to Tab. 112-9 for design shoulder quantities.

* Equation: Sta. 648+34.50 (Back) Warren County = Sta. 0+00.00 (Ahead) Marion County

Location			ⓔ	ⓖ	ⓑ	ⓓ	Ⓣ	Remarks
Road Identification	Station To Station	Side	Feet	Feet	Inches	Inches	Inches	
Ia. 92	141+00.00 600+11.50	Left	4.0	4.0	3.0	3.5	3.5	Segment 5 (Warren Co.)
Ia. 92	141+00.00 417+60.00	Right	4.0	4.0	3.0	3.5	3.5	Segment 5 (Warren Co.)
Ia. 92	420+00.00 420+70.00	Right	4.0	4.0	3.0	3.5	3.5	Segment 5 (Warren Co.)
Ia. 92	423+50.00 600+11.50	Right	4.0	4.0	3.0	3.5	3.5	Segment 5 (Warren Co.)
Ia. 92	600+71.50 648+34.50 *	Left	4.0	4.0	3.0	3.5	3.5	Segment 5 (Warren Co.)
Ia. 92	600+71.50 648+34.50 *	Right	4.0	4.0	3.0	3.5	3.5	Segment 5 (Warren Co.)
Ia. 92	0+00.00* 179+00.00	Left	4.0	4.0	3.0	3.5	3.5	Segment 5 (Marion Co.)
Ia. 92	0+00.00* 179+00.00	Right	4.0	4.0	3.0	3.5	3.5	Segment 5 (Marion Co.)

7145-X
Modified



AGGREGATE FOR PAVED SHOULDER FILLET

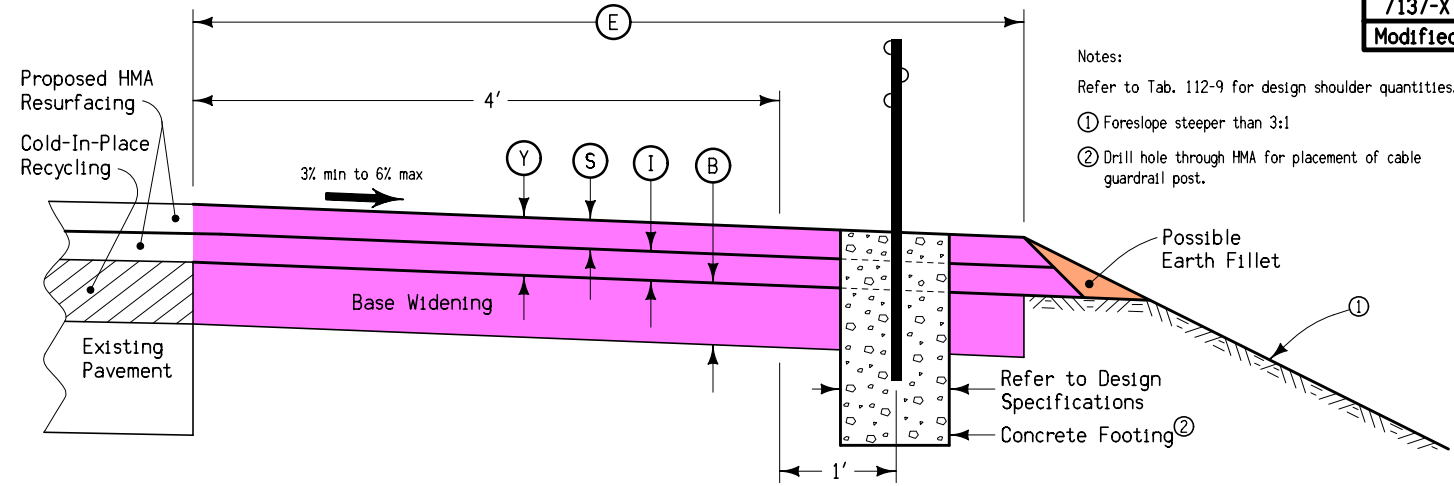
DIVISION 1 - GRANULAR SHOULDER QUANTITIES

Notes:
This typical illustrates the construction requirements for an aggregate fillet at the edge of a paved shoulder.
The aggregate used in the fillet shall meet the requirements of Aggregate for Paved Shoulder Fillet, as specified in Article 4120.07.
The furnishing and finishing of aggregate for paved shoulder fillets is incidental to the paved shoulder.
Refer to Tab. 112-9 for design shoulder quantities.

① Not a bid item. Quantities are per station per side.
② Match slope of under side of shoulder pavement.
③ 6:1 Slope minimum

LOCATION			QUANTITIES ①		REMARKS
ROAD IDENTIFICATION	STATION TO STATION		SIDE	AGGREGATE FOR PAVED SHOULDER FILLET	
				Tons	
Ia. 92	57+55.00	63+00.00	Right	0.95	Segment 4 (Warren Co.)
Ia. 92	70+50.00	76+00.00	Left	0.95	Segment 4 (Warren Co.)
Ia. 92	80+88.00	108+00.00	Left	0.95	Segment 4 (Warren Co.)
Ia. 92	63+00.00	108+00.00	Right	0.95	Segment 4 (Warren Co.)

7137-X
Modified

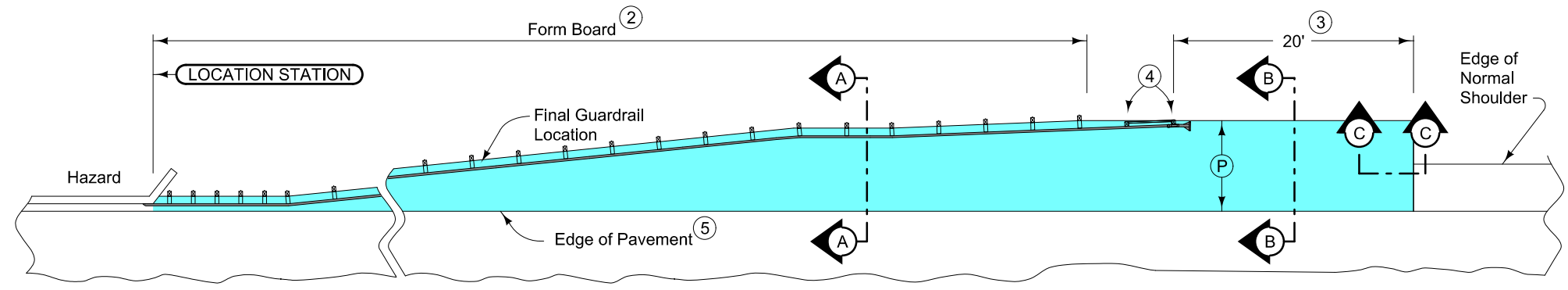


HMA SHOULDER RESURFACING

DIVISION 1 - EARTH SHOULDER FILLET QUANTITIES
DIVISION 2 - PAVED SHOULDER QUANTITIES

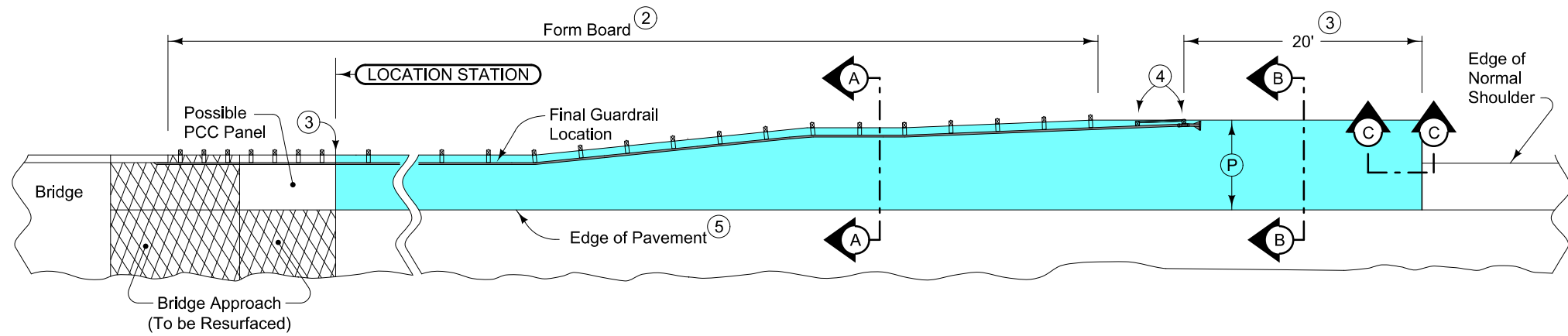
Notes:
Refer to Tab. 112-9 for design shoulder quantities.
① Foreslope steeper than 3:1
② Drill hole through HMA for placement of cable guardrail post.

LOCATION			Ⓨ	ⓔ	Ⓢ	Ⓦ	ⓑ	REMARKS
Road Identification	Station to Station	Side	Inches	Feet	Inches	Inches	Inches	
Ia. 92	417+60.00 420+00.00	Right	3.5	8.0	1.5	2.0	3.0	Segment 5 (Warren Co.)
Ia. 92	420+70.00 423+50.00	Right	3.5	8.0	1.5	2.0	3.0	Segment 5 (Warren Co.)



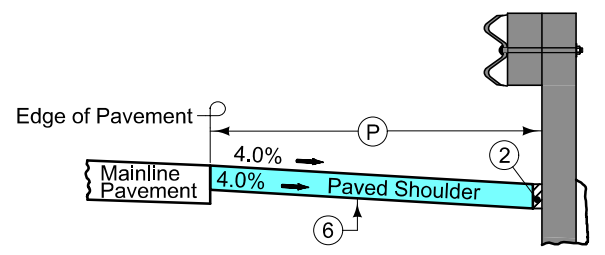
PLAN VIEW (CASE 1)

Case 1 is in an area with no Pavement Scarification or HMA Resurfacing.

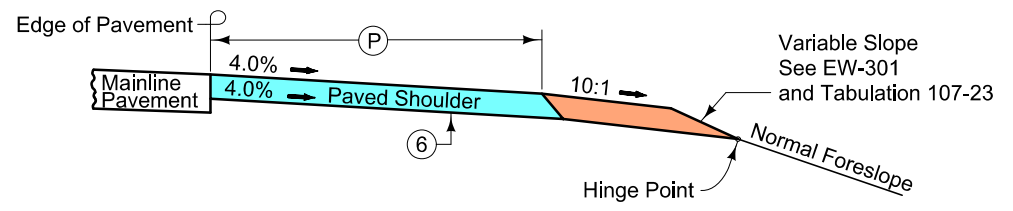


PLAN VIEW (CASE 2)

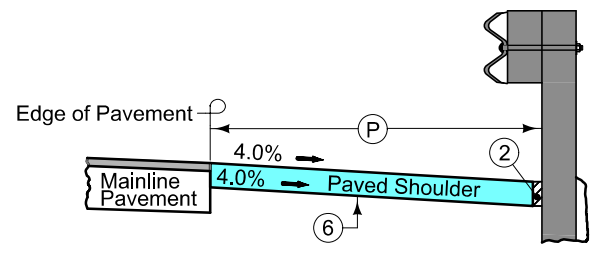
Case 2 is in an area with Cold-In-Place Recycling and HMA Resurfacing.



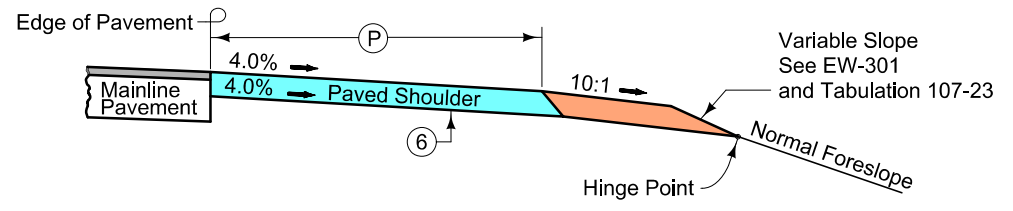
Section A-A (Case 1)



Section B-B (Case 1)

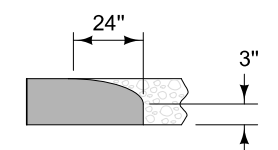


Section A-A (Case 2)



Section B-B (Case 2)

EXISTING SHOULDER



Section C-C
Roll down at granular shoulder or earth.

DIVISION 1 - MAINLINE PAVED SHOULDER QUANTITIES
 DIVISION 1 - GRANULAR OR EARTH SHOULDER QUANTITIES

Location Station			Case	P Feet	Remarks
Road Ident.	Station	Side			
Ia. 92	599+91.85	Left	1	8.0	Segment 5 (Warren Co.)
Ia. 92	600+13.25	Right	1	8.0	Segment 5 (Warren Co.)
Ia. 92	600+69.60	Left	1	8.0	Segment 5 (Warren Co.)
Ia. 92	600+90.10	Right	1	8.0	Segment 5 (Warren Co.)
Ia. 92	104+02.50	Left	2	8.0	Segment 5 (Marion Co.)
Ia. 92	104+02.50	Right	2	8.0	Segment 5 (Marion Co.)
Ia. 92	105+75.50	Left	2	8.0	Segment 5 (Marion Co.)
Ia. 92	105+75.50	Right	2	8.0	Segment 5 (Marion Co.)

PAVED SHOULDER AT GUARDRAIL

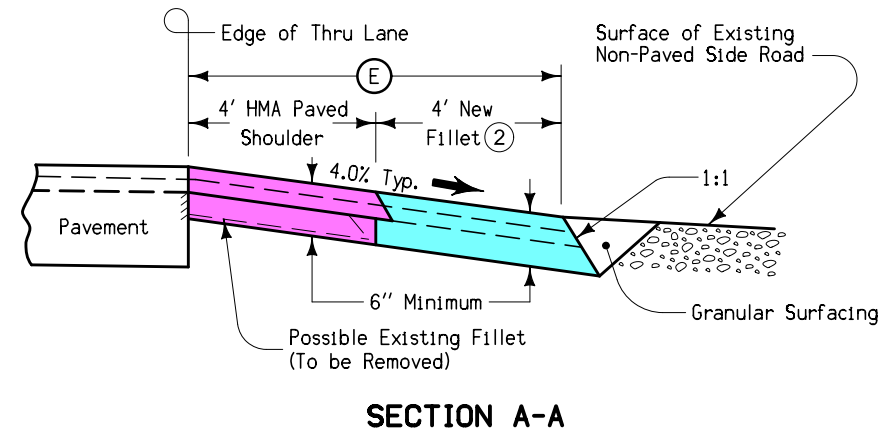
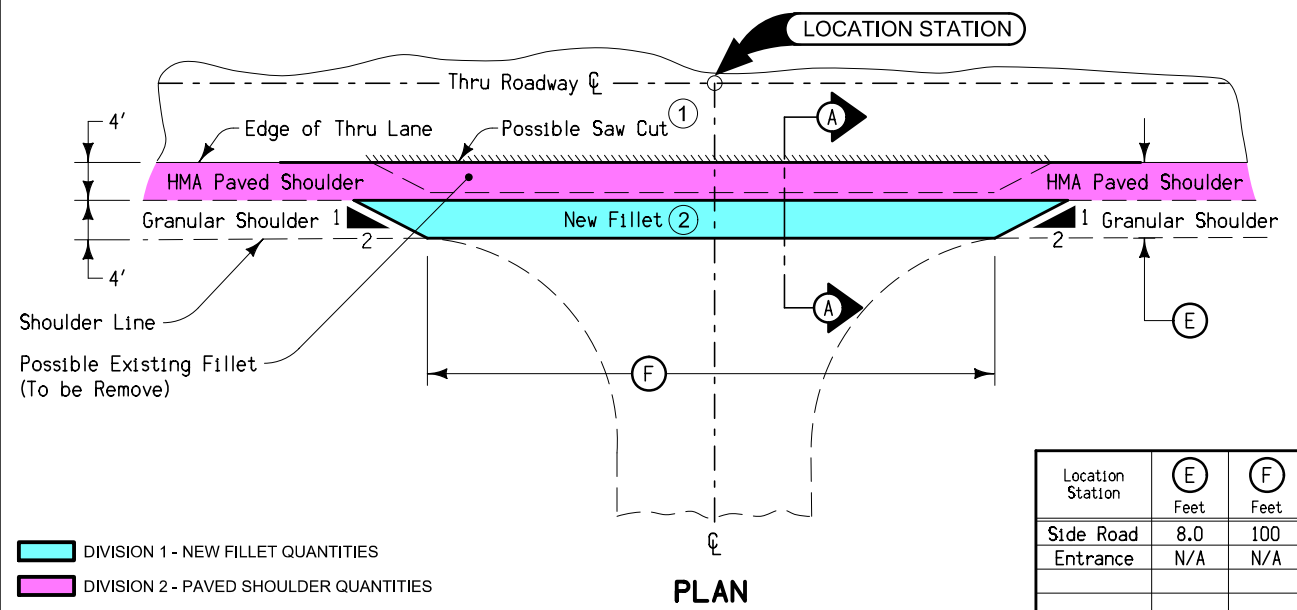
9" HMA Paved Shoulder at guardrail. 8" PCC may be substituted with the following jointing layout:

Match mainline pavement joint spacing. When mainline pavement is 8" or greater in thickness, place additional transverse 'C' joints in shoulder at mid-panel of the mainline pavement. Place longitudinal 'C' joint at P/2 from edge of mainline pavement when P is greater than 10' wide. Terminate longitudinal joint at transverse joint less than 10' in length.

Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal and reinstallation of guardrail will be allowed with no additional payment.

Refer to Tabulation 112-9 for shoulder quantities.

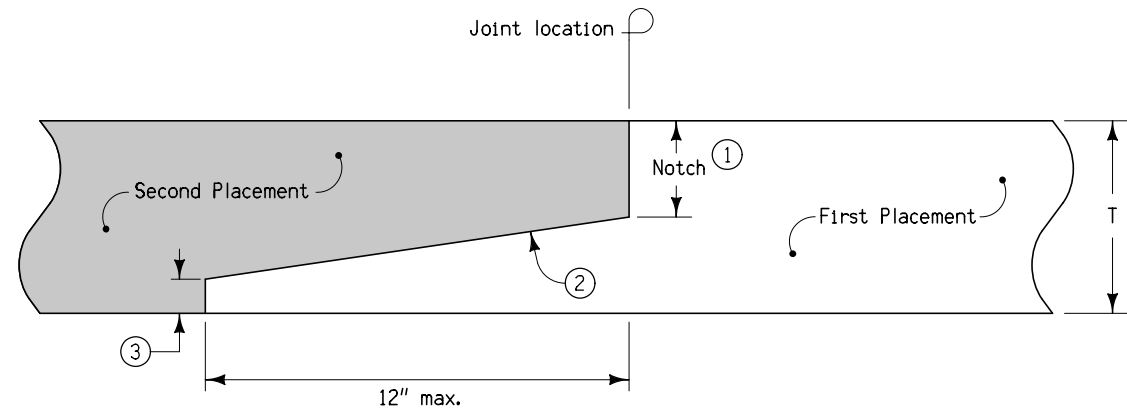
- ① For subgrade treatment, refer to other details in the plan.
- ② PCC option only: When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown. Refer to note 4 for final 2 posts.
- ③ Continue paved shoulder to existing paved shoulder or 20 feet beyond the center of the first post.
- ④ Shoulder may be notched for final 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.
- ⑤ 'KT-1 joint for PCC shoulder. 'B' joint for HMA shoulder.
- ⑥ Blade and shape existing shoulder material to accommodate the placement of the paved shoulder as detailed.



- Special shaping of existing surface prior to placement of fillet may be required by the Engineer and is incidental to other work on the project.
- Quantities included with mainline quantities.
- ① Saw cut required for removal of existing fillets at non-paved side roads and entrances.
 - ② No new fillet required at entrances. 4' HMA paved shoulder to be placed through entrances.

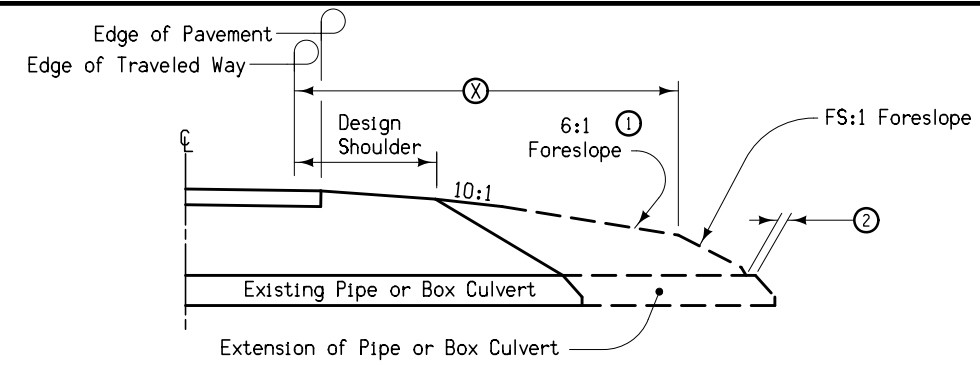
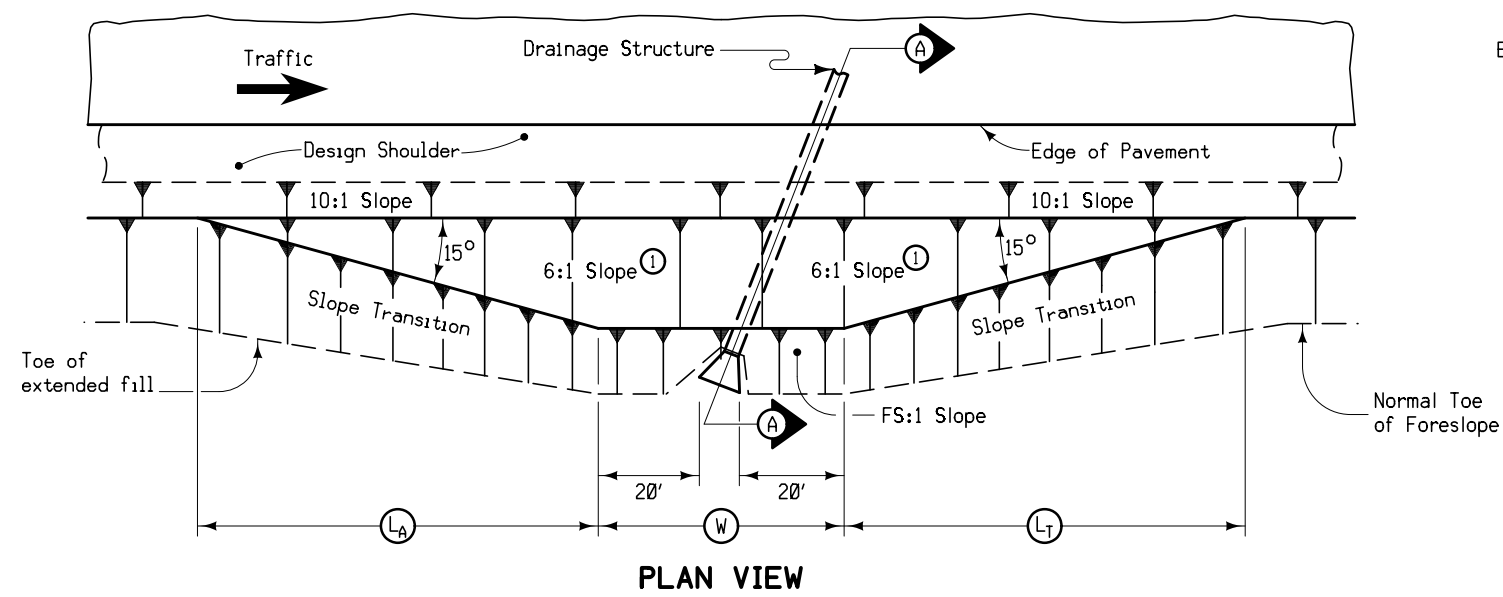
REMOVAL OF EXISTING FILLETS AND FILLETS FOR NON-PAVED SIDE ROADS

7315
10-20-09



- Notes:
- ① Notch: Min = nominal maximum aggregate size + 1/4". Max = T/2.
 - ② 12:1 Slope
 - ③ Optional step at toe of slope: Max = 1".

**LONGITUDINAL HMA NOTCHED WEDGE JOINT
T = 2" OR GREATER**



At locations where an extended or newly constructed drainage structure extends beyond the normal foreslope cover, flatten as indicated so as to cover the structure. Minimum earth cover is 6 inches.

- ① Slope may be flatter than 6:1.
- ② 6 inch minimum for pipe installations or to top of headwall on RCB.
- ③ At \bar{C} of road.
- Ⓜ = Pipe or RCB opening width plus 20 feet each side.

STRUCTURE LOCATION		Ⓜ	L _A	L _T	X	FS
STATION ③	SIDE	Feet	Feet	Feet	Feet	
418+44.04	LT.	48.02	22.29	72.51	26	3.0
421+78.23	LT.	44.78	62.21	62.34	26	3.0

BARNROOF FORESLOPE AT SKEWED DRAINAGE STRUCTURE

SURVEY SYMBOLS

- BL Topo Breakline
- C Centerline BL of Road (ML or SR)
- CUL Culvert
- D Centerline Draw or Stream (Down)
- DU Centerline Draw or Stream (Up)
- EG Edge of Gravel Road
- EP Edge of Paved Roads (ML or SR)
- FO - FO1D Fiber Optic Co. 1 - Quality D
- SNP Unpaved Shoulder
- W - WL1D Water Line Co. 1 - Quality D
- PC Curve Point
- PT Curve Point
- WC Wild Card (Misc. Field Shot)
- SIGN Sl Sign
- PPA Power Pole Co. 1
- REF Reference Tie Point
- TDC Tree Deciduous
- PLG Location of General Photo
- GR Ground Shot
- PRO Profile Shot
- SHR Shrub
- PIP Pipe Culvert
- SOP Size of Pipe or Culvert
- FENO FENO Monument

UTILITY LEGEND

- PPA MidAmerican
- FO - Centurylink - Quality D
- W - Warren Water District - Quality D

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)	Existing Utilities
SHADING		
	Design Color No.	
Yellow	(4)	Highlight for Critical Notes or Features
Red	(3)	Delineates Restricted Areas
Lavender	(9)	Temporary Pavement Shading
Gray, Light	(48)	Proposed Pavement Shading
Gray, Med	(80)	Proposed Granular Shading
Gray, Dark	(112)	Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)	Grading Shading
Tan	(8)	Proposed Sidewalk Shading
Blue, Light	(230)	Proposed Sidewalk Landing Shading
Pink	(11)	Proposed Sidewalk Ramp Shading

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Ground Line Profile
Blue	(1)	Proposed Profile and Annotation
Magenta	(5)	Existing Utilities
Blue, Light	(230)	Proposed Ditch Grades, Left
Black	(0)	Proposed Ditch Grades, Median
Rust	(14)	Proposed Ditch Grades, Right

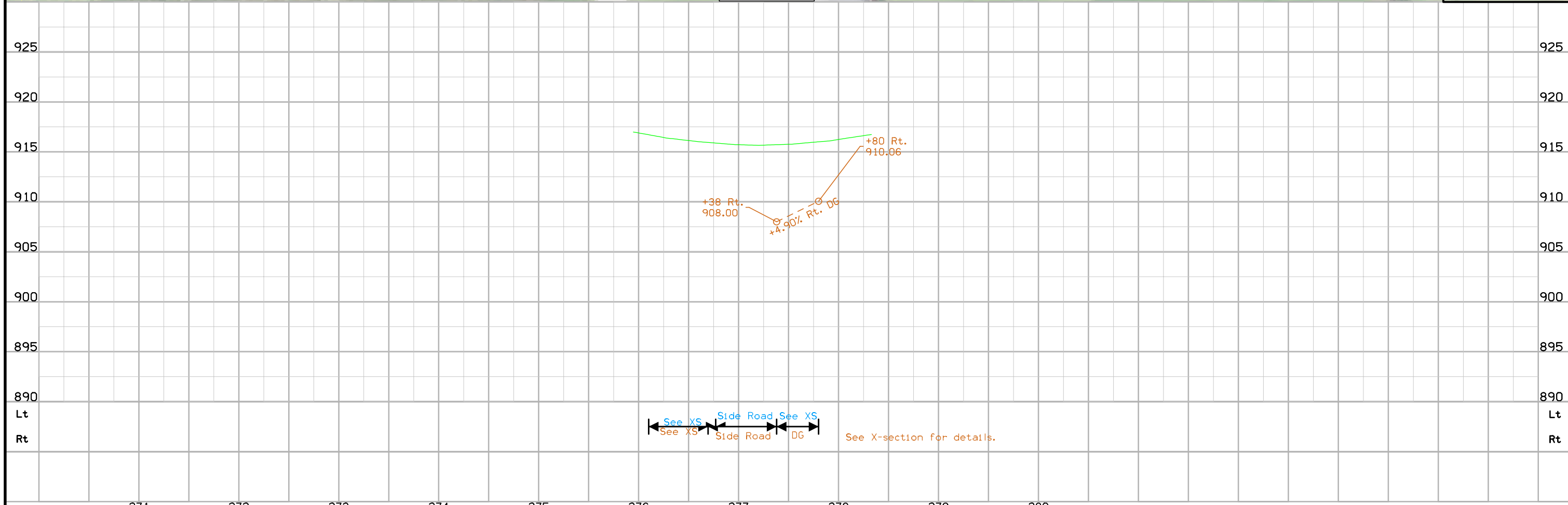
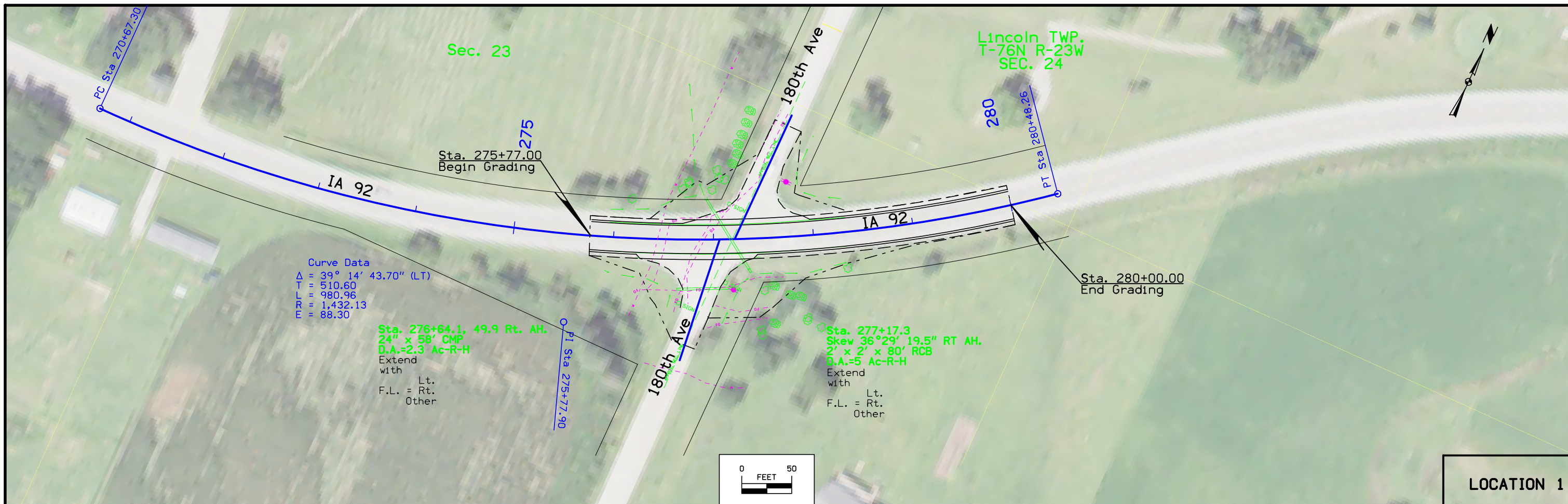
- Reference Point
- Station
- Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- Pavement Removal
- Clearing & Grubbing Area

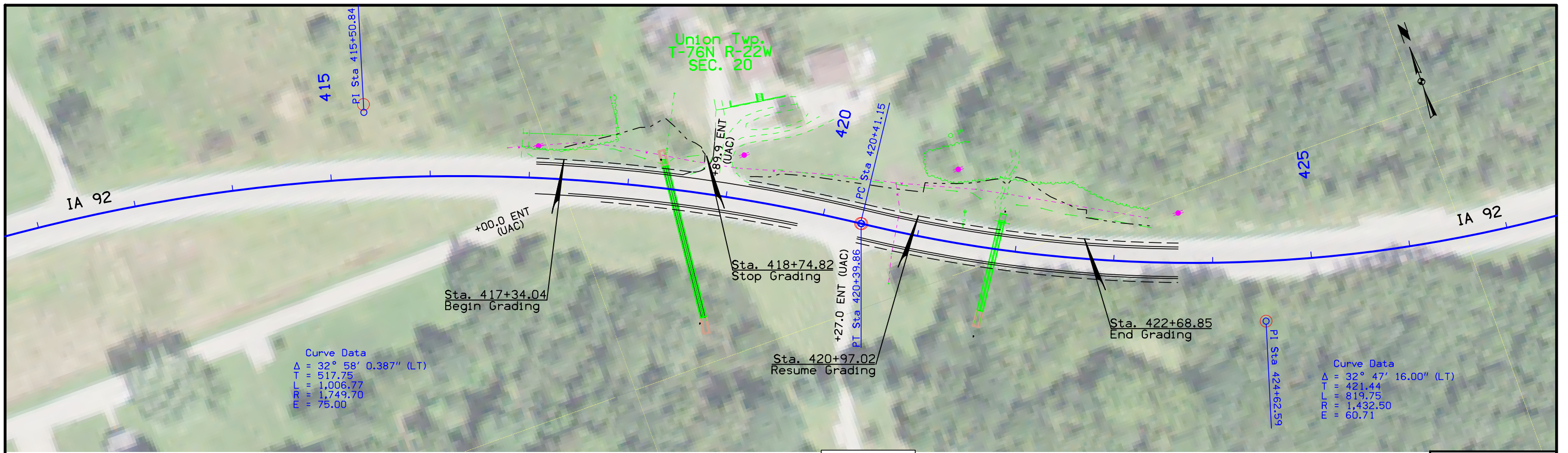
RIGHT-OF-WAY LEGEND

- Proposed Right-of-Way
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary)
- Easement
- Access Control
- Property Line

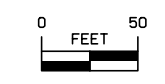
PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES D, E, F, & K)



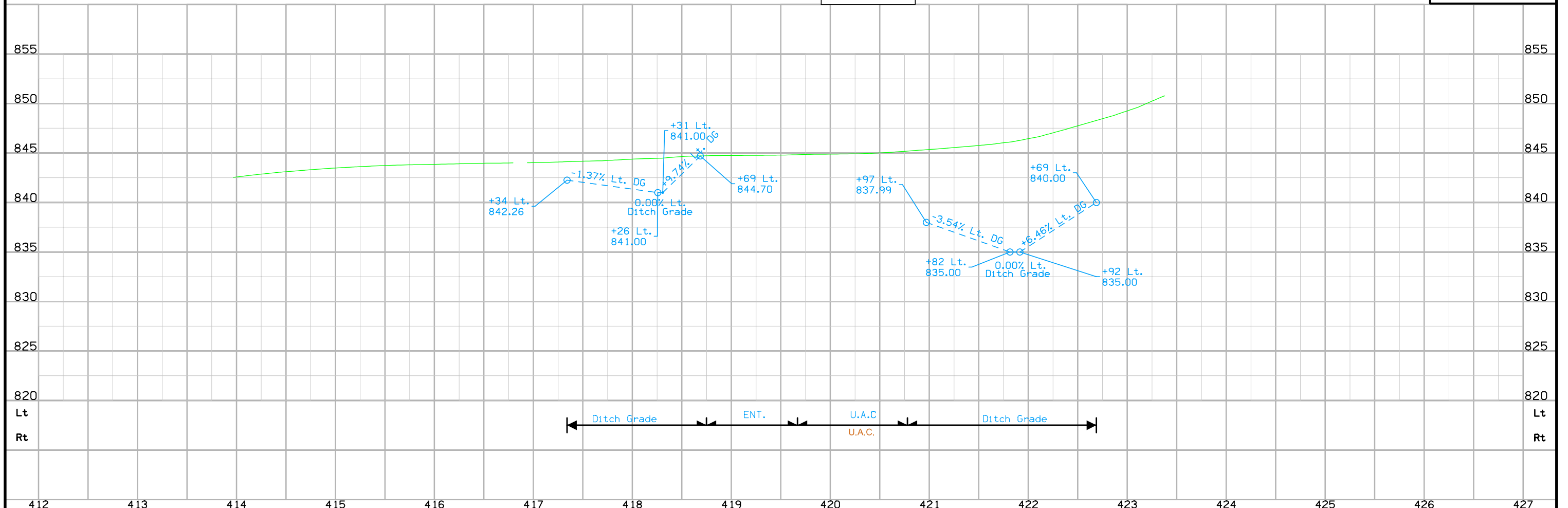


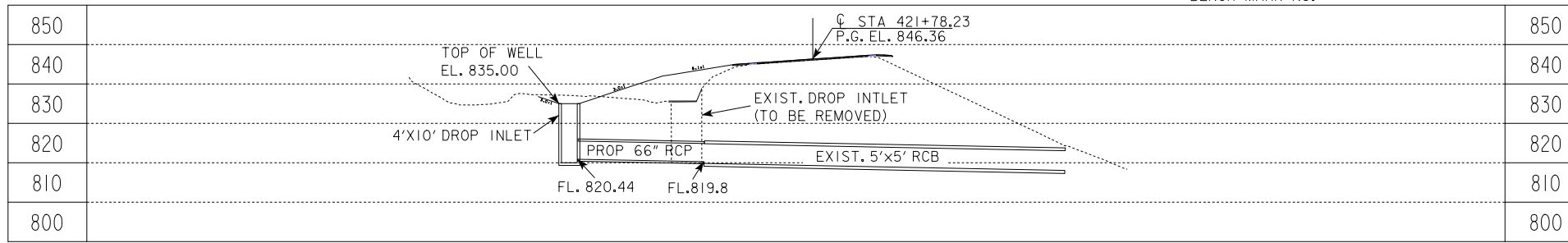
Sta. 418+44.04
 5' x 4' x 157' RCB
 DA=20 AC - V.H.
 Extend with
 Lt. U.A.C
 F.L. = Rt. U.A.C



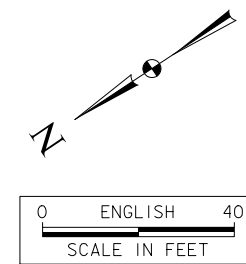
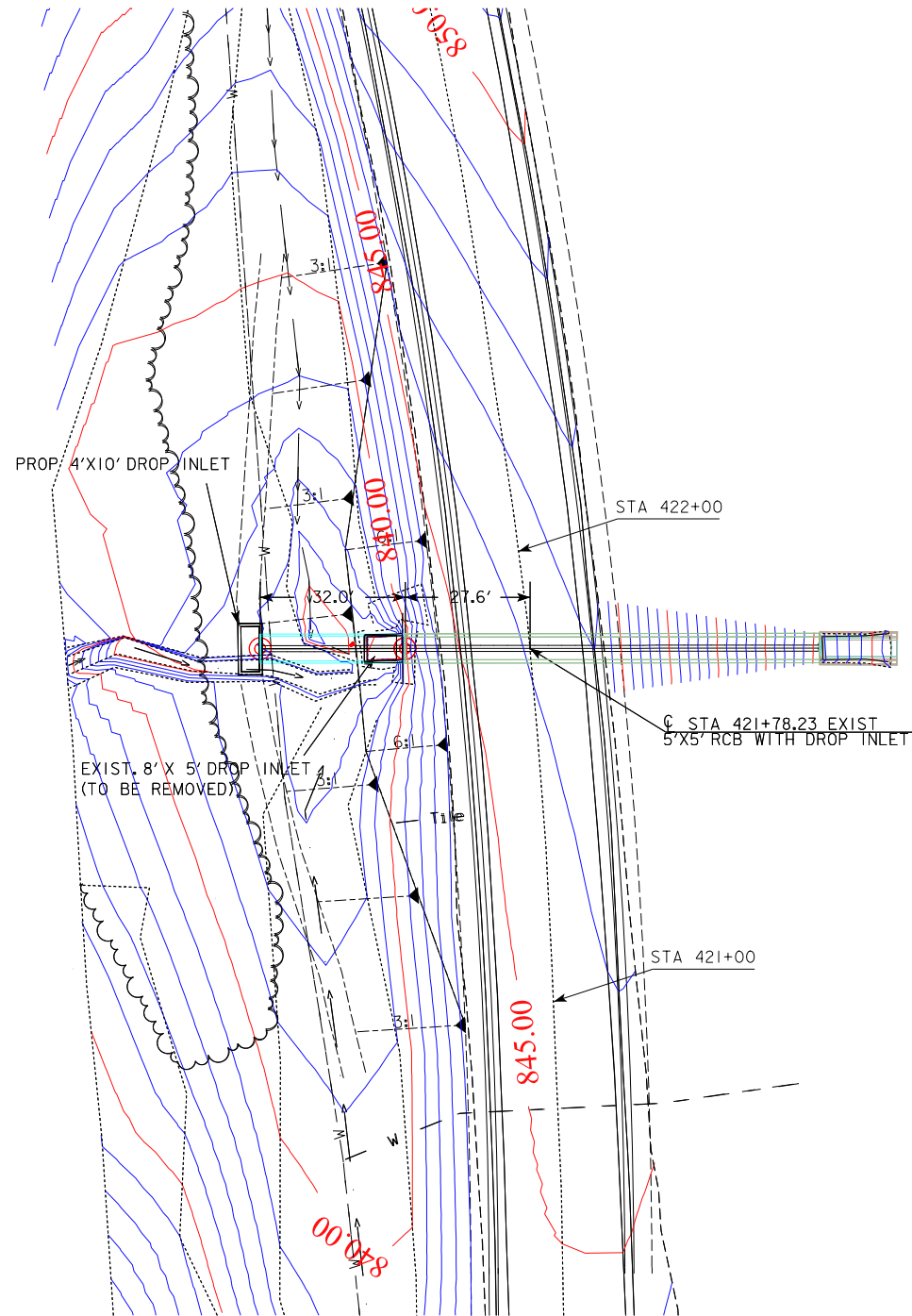
Sta. 421+78.23
 5' x 5' x 92' RCB
 WITH 5' X 8' DROP INLET
 DA=78 AC - V.H.
 Extend with
 Lt. U.A.C
 F.L. = Rt. U.A.C

Location 2





LONGITUDINAL SECTION ALONG ϕ CULVERT



HYDRAULIC DATA
 DRAINAGE AREA = 78 ACRES
 $Q_{50} = 206$ CFS

UTILITIES LEGEND:
 W - NOT PROVIDED

LOCATION
 T-76N R-22W
 SECTION 20
 UNION TOWNSHIP
 WARREN COUNTY
 LATITUDE 41.371370°
 LONGITUDE -93.410584°

DESIGN FOR 0° SKEW
 66" RCP EXTENSION WITH
 4' X 10' DROP INLET
 SITUATION PLAN
 STATION 421+78
 WARREN COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 2 OF 2 FILE NO. 31622 DESIGN NO. 119

SITUATION PLAN

Survey Information

Warren County
Project # NHSN-092-5(63)—2R-91
Culvert Repair Intersection IA Hwy 92
& 180th Ave @ Ackworth
Sap-909.1
PIN 17-91-092-010

General Information

Measurement units for this survey are US survey feet. This survey is for culvert repair @ intersection IA Hwy 92 & 180th Ave just east of Ackworth in Warren County. Project datum and control information is provided by Design Survey Office.

Vertical Control

Vertical datum for this survey is NAVD88 (Computed using Geoid12B) Ellipsoidal Height GRS80 was computed at project Pts. Feno11 and Feno12 by conducting a six hour static session.

Horizontal Control

The project coordinate system for this survey is Iowa RCS Zone 8 (U.S. Survey Feet). This survey control is relative to IARTN reference stations. IARTN Reference Station coordinates are relative to the National Reference Station network datum: NAD83 (2011) for Epoch 2010.00. Coordinates were determined by conducting a six hour static observation at Pts. Feno11 and Feno12.

Alignment Information

IA Hwy 92

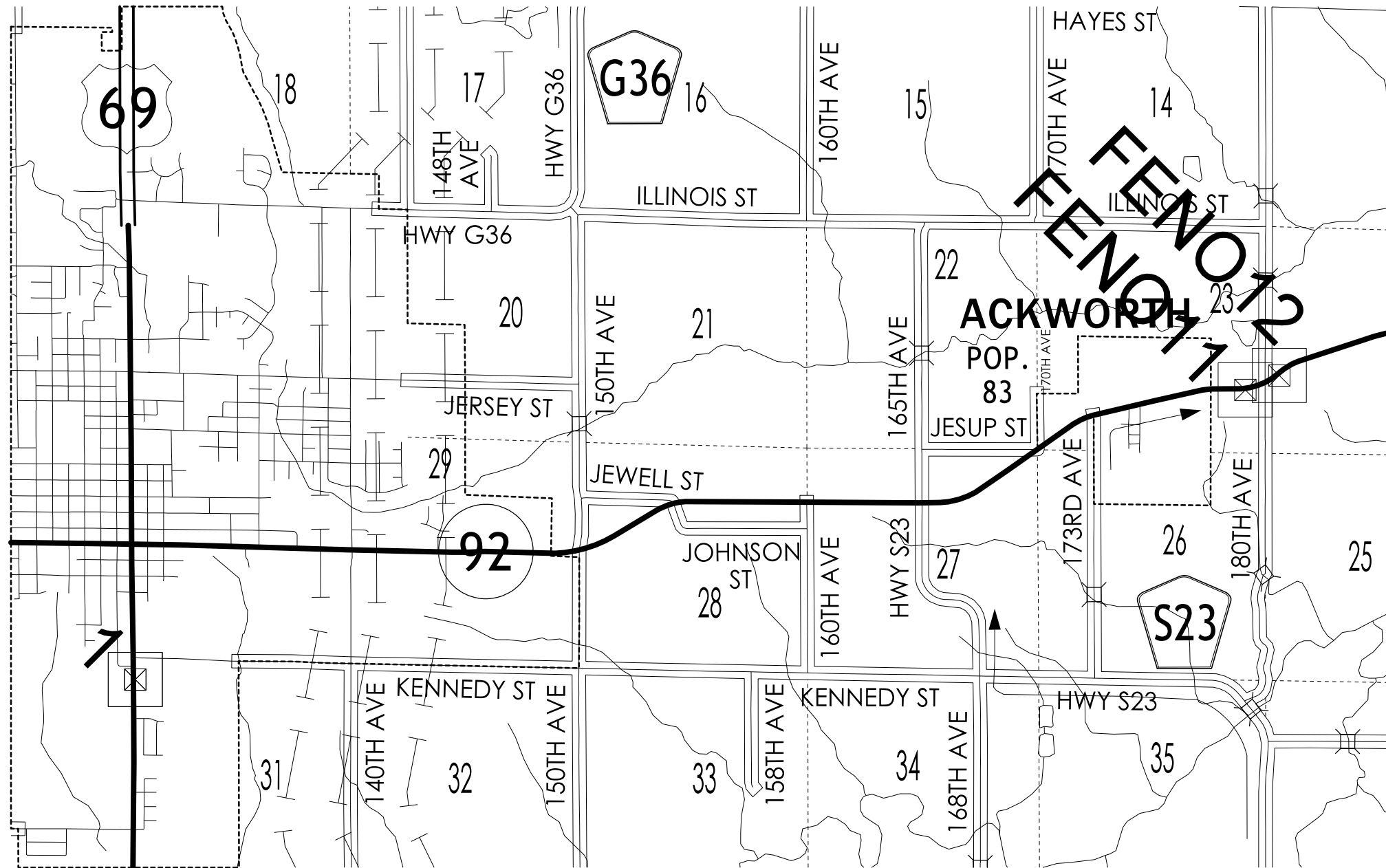
The alignment for this survey is a retrace of As-built Plans Project # 335. Survey stationing was equated to the plan at PI Sta. 275+77.9, and was run back and ahead with no equation throughout the survey.

Survey stationing relates to as built plan stationing as follows:

CP Sta. 275+77.9 This Survey
= PI Sta. 275+77.9 As-built Plans Project # 335

CONTROL POINT VICINITY MAP

This map is a guide to the vicinity of the primary project control points
 Primary control is for use with RTK base stations and for RTN validation.
 Future surveys will use primary project control to establish temporary control as needed for construction or other surveying applications.



HORIZ. DATUM: NAD83(2011) EPOCH 2013.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 8

Coordinate listing from next sheet will be used with 1aRTN for monument recovery. No other reference ties are given.

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

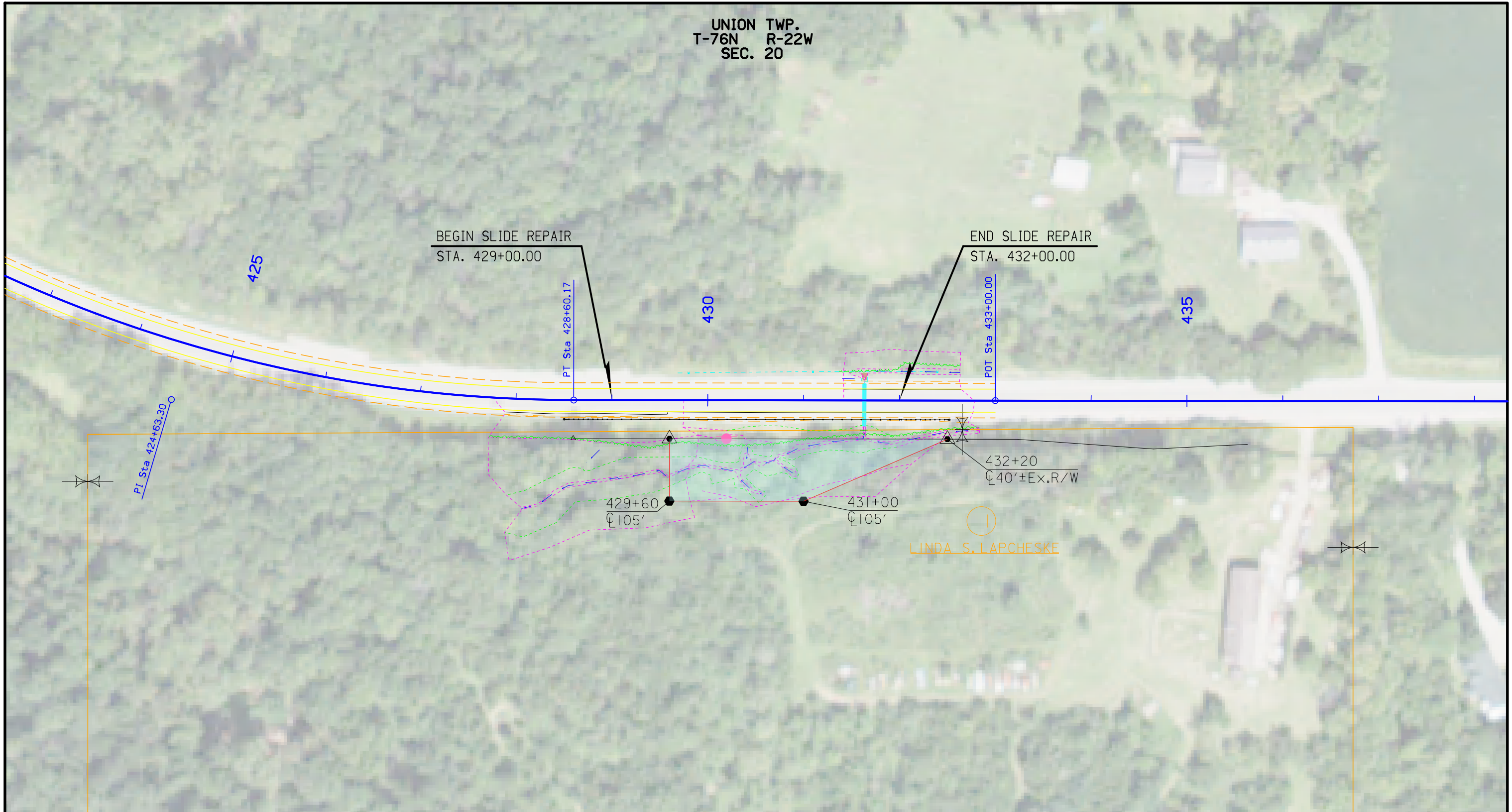
HORIZ. DATUM: NAD83(2011) EPOCH 2013.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 8

Point Name	Northing	Easting	Elevation	Feature	Description
1	7400682.091	18543556.735	957.813	FENO	FD FENO_99' S FROM S COR ENT TO GRAVE YARD_158' SE POWER POLE_111' SW WATER HYDRANT_111' NE POWER POLE
FENO11	7407432.279	18569428.602	928.117	FENO	SET FENO MONU_33' S OF IA HWY 92_21' W OF END FENCE POST_54' E OF BRACE POLE_79' SE POWER POLE
FENO12	7407769.745	18570220.200	927.812	FENO	SET FENO MONU_43' SE OF IA HWY 92_76' SW OF CONC MONU_19' NE OF CONC MONU_91' SE POWER POLE

UNION TWP.
T-76N R-22W
SEC. 20



REVISED 01-03-18 PAR 1

Right of Way Design Information
THIS SHEET INCLUDED
FOR INFORMATION ONLY

ROW Team: LARSON /GROAT
ROW #: NHSN-092-5(66)--2R-91
Plan Date: 10-16-17

Color Legend:
Property Lines
Temporary Easement
Permanent Acquisition

RIGHT-OF-WAY PREVIOUSLY SUBMITTED
FROM PROJECT NHSN-092-5(65)--2R-91



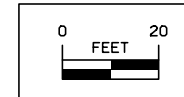
THIS SHEET FOR ROW INFORMATION ONLY

Right of Way Design Information

ROW Team: IDOT/FOTH/
ROW #: NHSN-092-5(64)--2R-91
Plan Date: 5/26/2017

Color Legend:

- Existing ROW
- Property Lines
- Temporary Easement





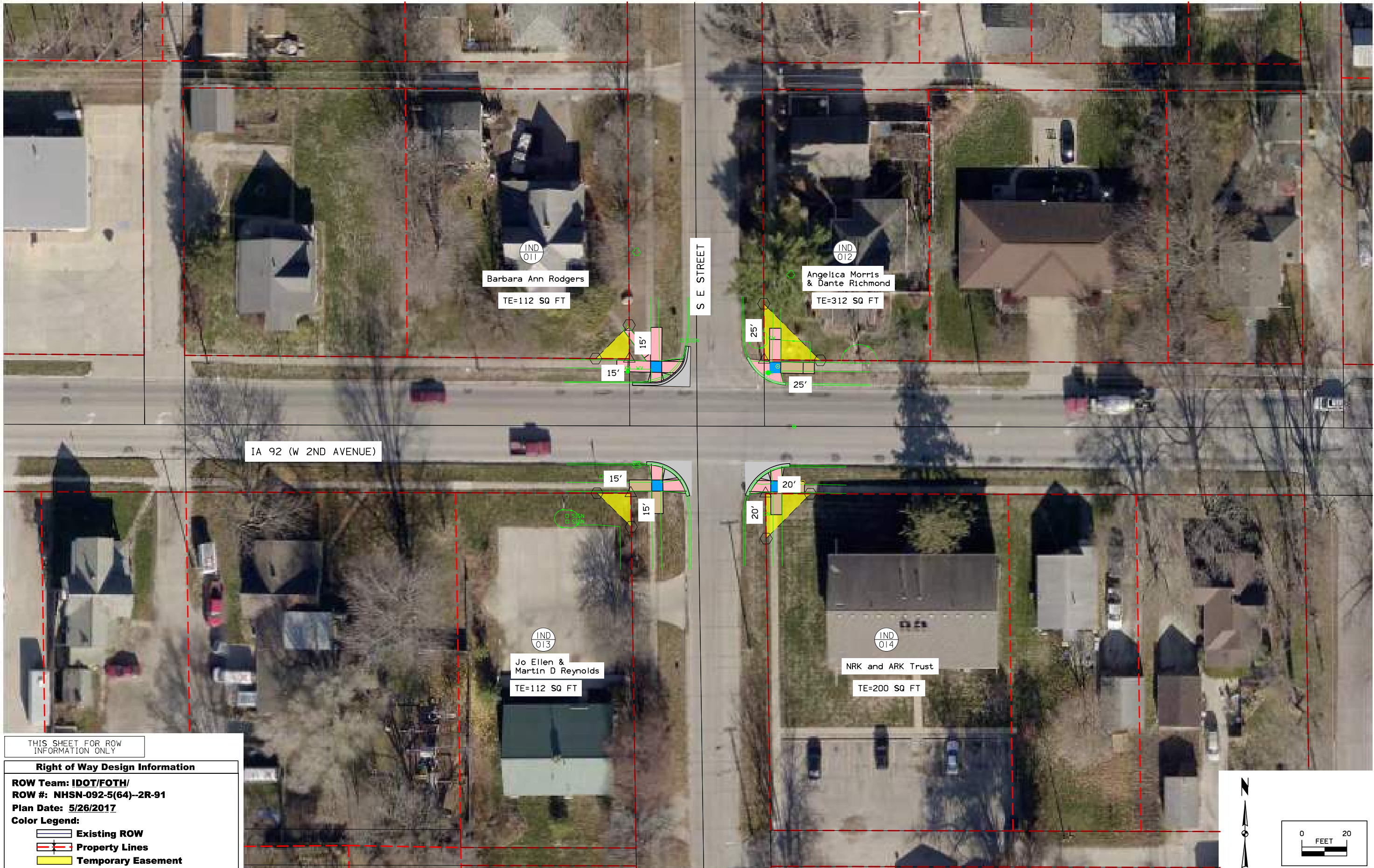
THIS SHEET FOR ROW INFORMATION ONLY

Right of Way Design Information

ROW Team: IDOT/FOTH/
 ROW #: NHSN-092-5(64)-2R-91
 Plan Date: 5/26/2017

Color Legend:

- Existing ROW
- Property Lines
- Temporary Easement



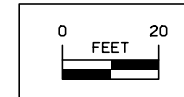
THIS SHEET FOR ROW INFORMATION ONLY

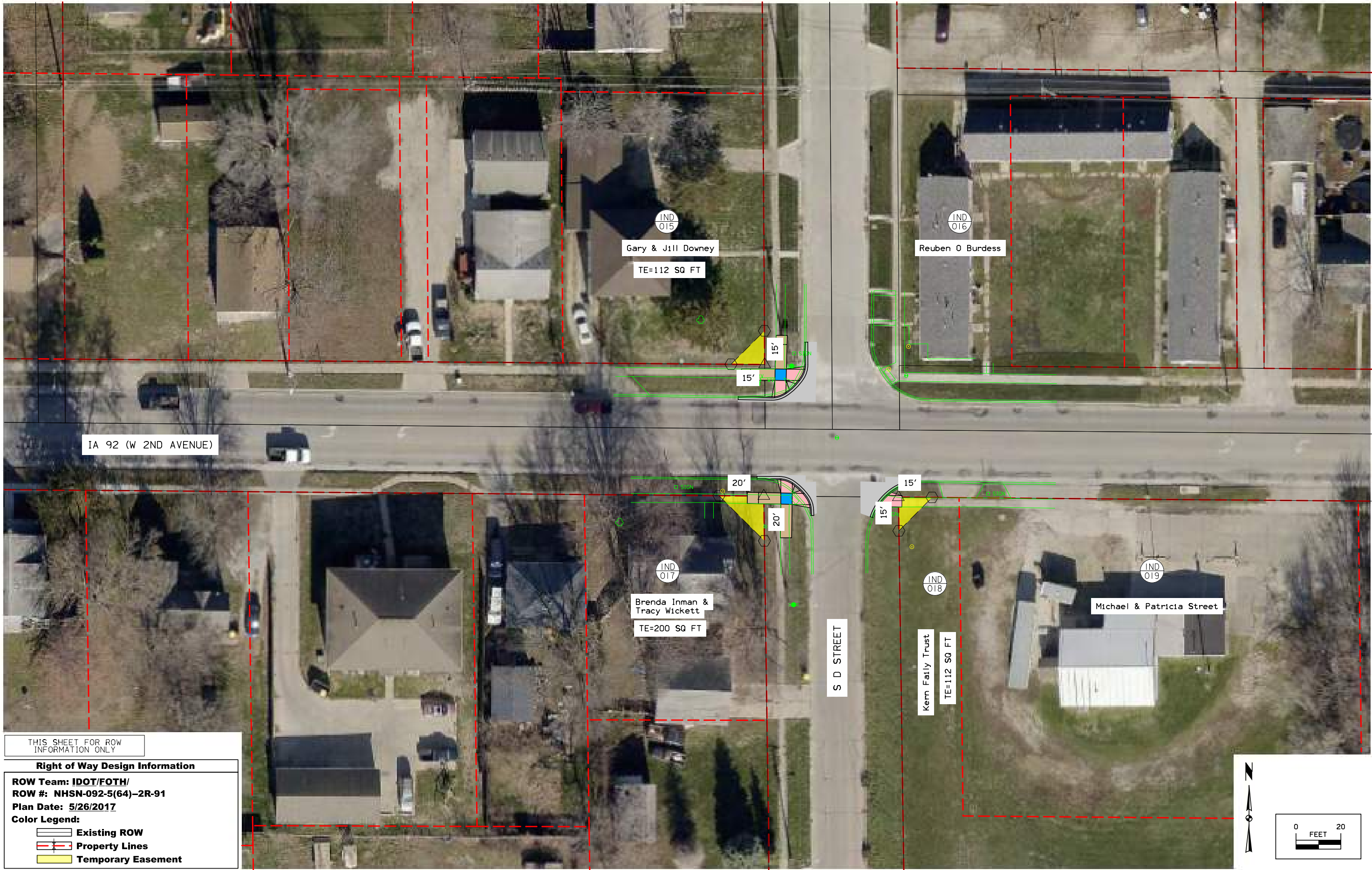
Right of Way Design Information

ROW Team: IDOT/FOTH/
 ROW #: NHSN-092-5(64)--2R-91
 Plan Date: 5/26/2017

Color Legend:

- Existing ROW
- Property Lines
- Temporary Easement





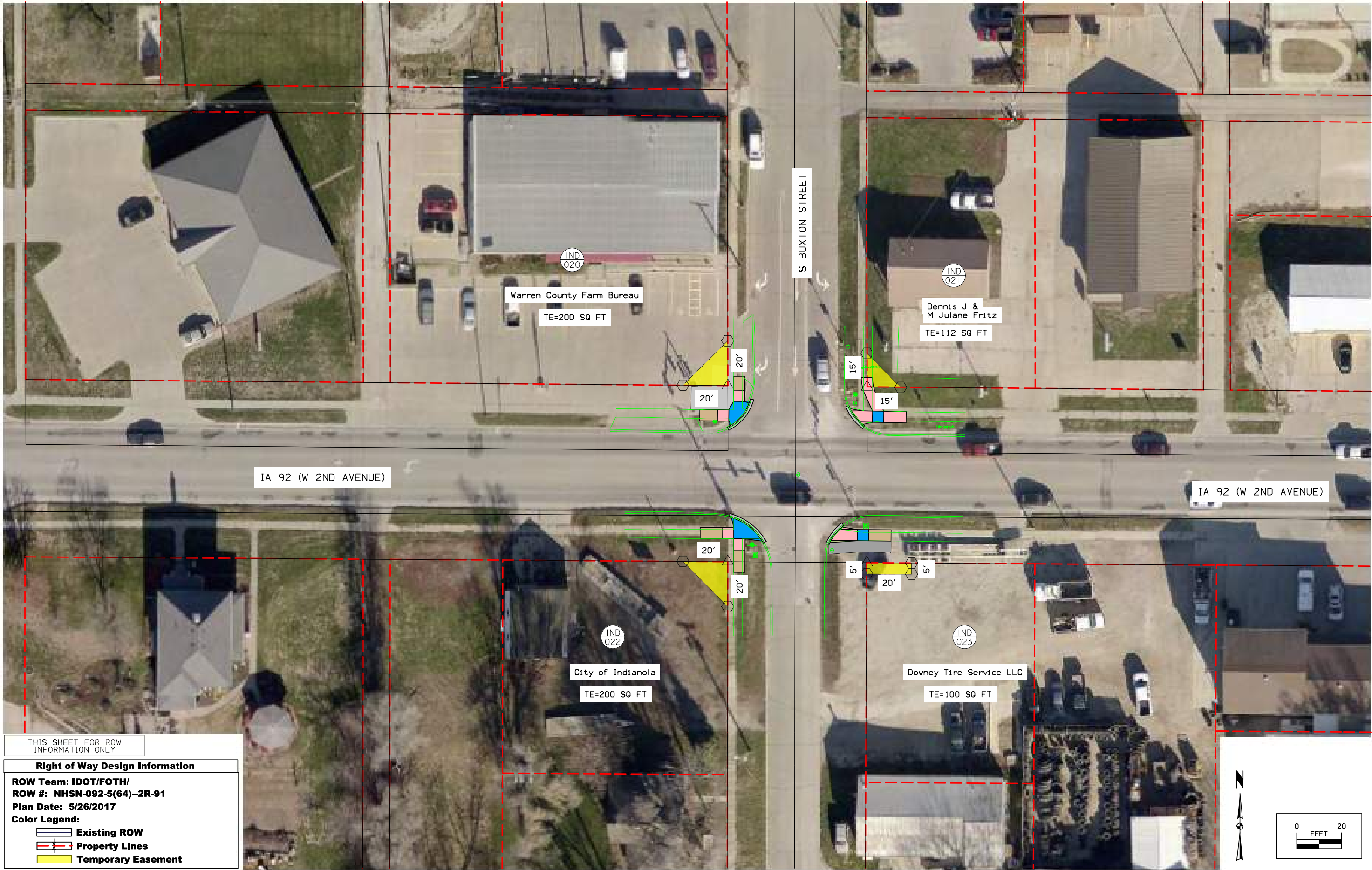
THIS SHEET FOR ROW INFORMATION ONLY

Right of Way Design Information

ROW Team: IDOT/FOTH/
 ROW #: NHSN-092-5(64)-2R-91
 Plan Date: 5/26/2017

Color Legend:

- Existing ROW
- Property Lines
- Temporary Easement



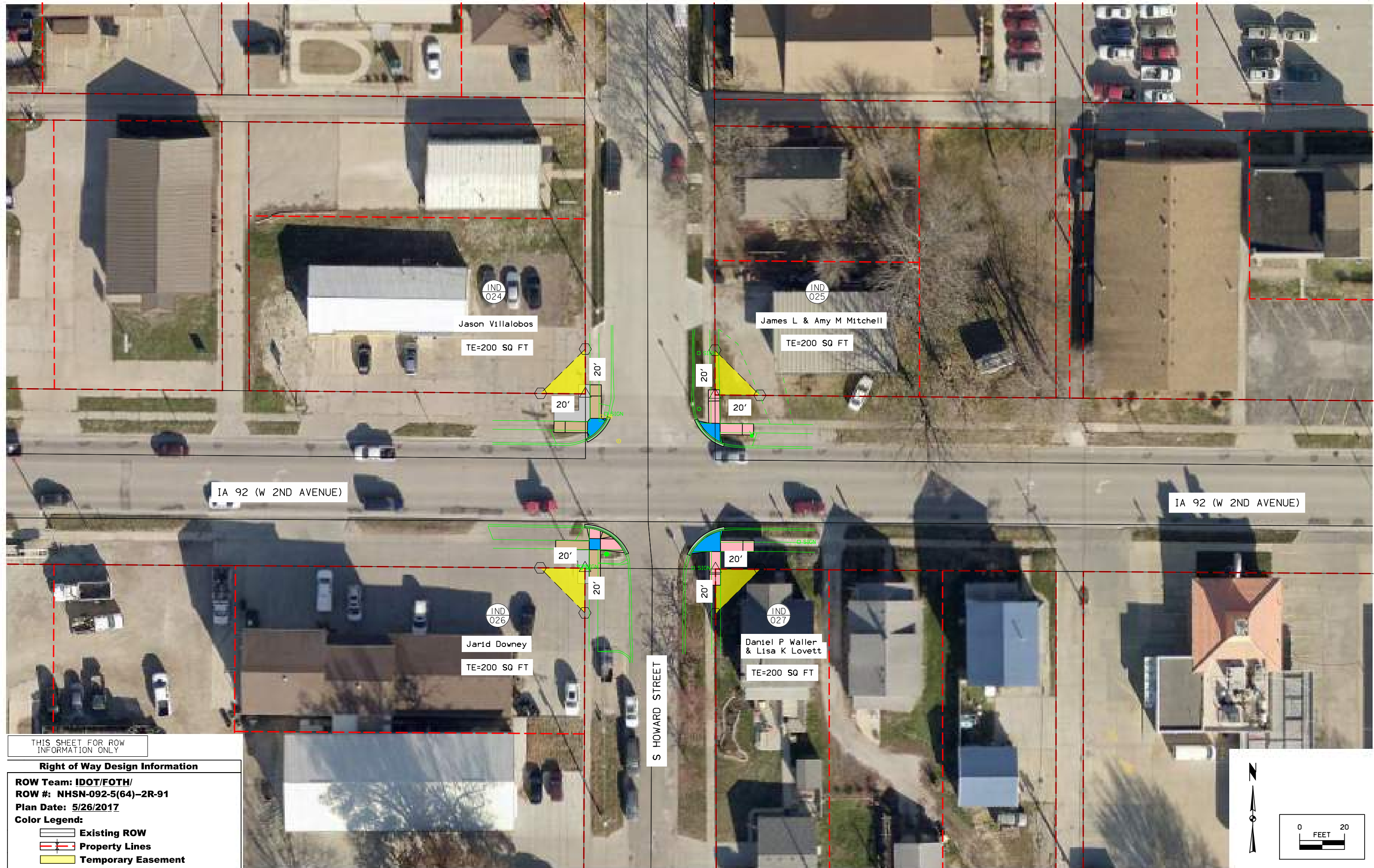
THIS SHEET FOR ROW
INFORMATION ONLY

Right of Way Design Information

**ROW Team: IDOT/FOTH/
ROW #: NHSN-092-5(64)--2R-91
Plan Date: 5/26/2017**

Color Legend:

- Existing ROW
- Property Lines
- Temporary Easement



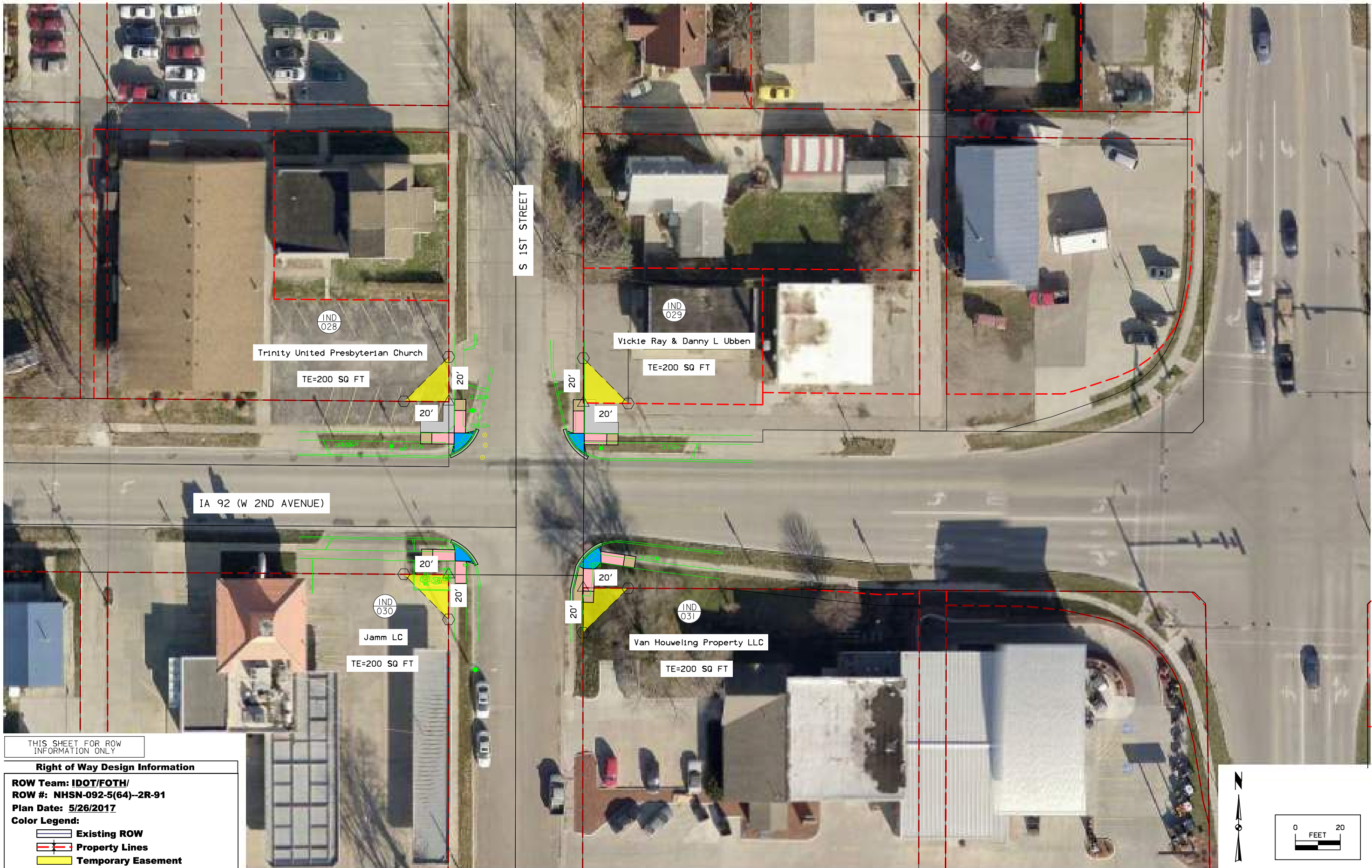
THIS SHEET FOR ROW
INFORMATION ONLY

Right of Way Design Information

ROW Team: IDOT/FOTH/
ROW #: NHSN-092-5(64)-2R-91
Plan Date: 5/26/2017

Color Legend:

- Existing ROW
- Property Lines
- Temporary Easement



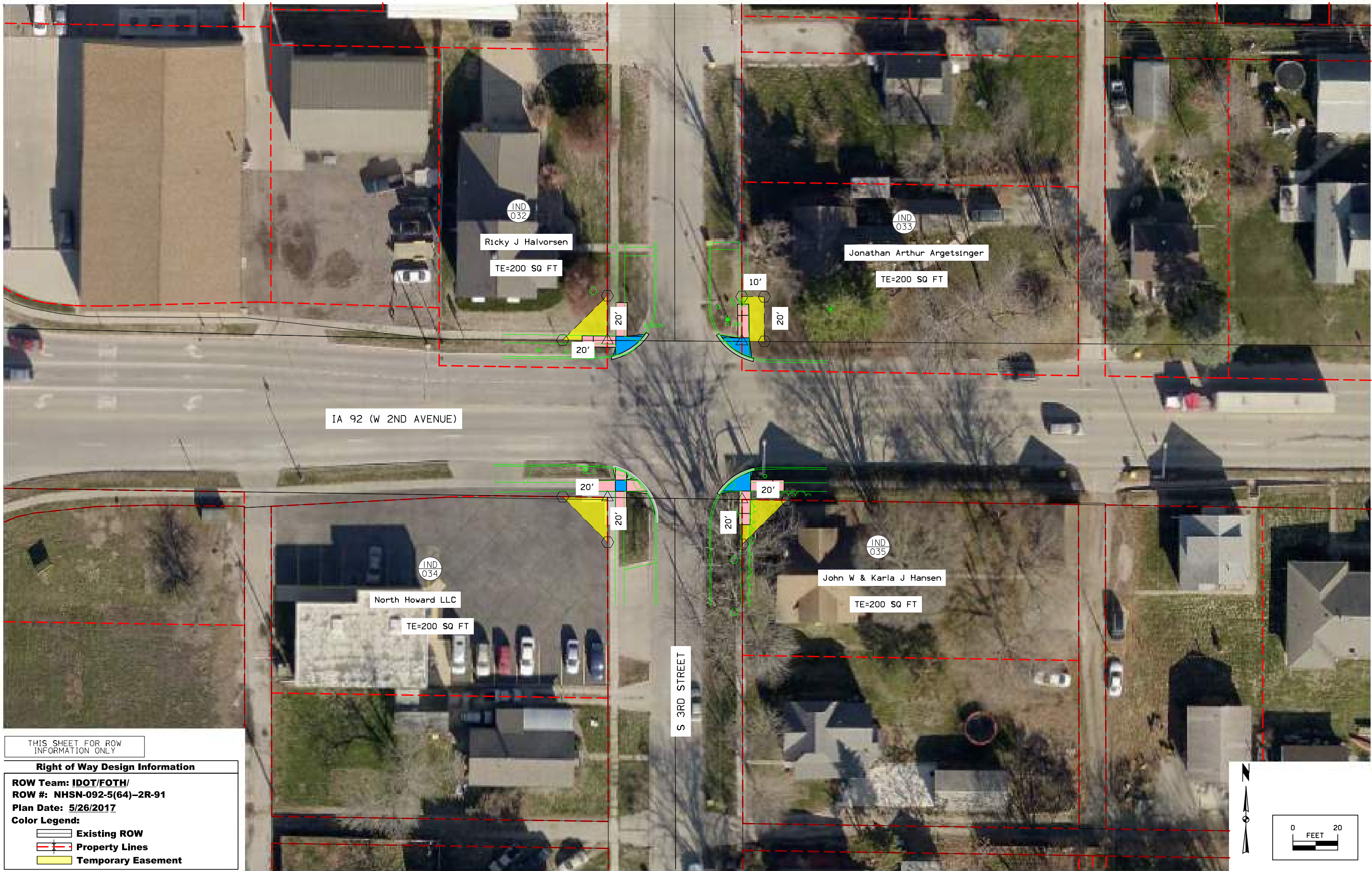
THIS SHEET FOR ROW
INFORMATION ONLY

Right of Way Design Information

**ROW Team: IDOT/FOTH/
ROW #: NHSN-092-5(64)--2R-91
Plan Date: 5/26/2017**

Color Legend:

- Existing ROW
- Property Lines
- Temporary Easement



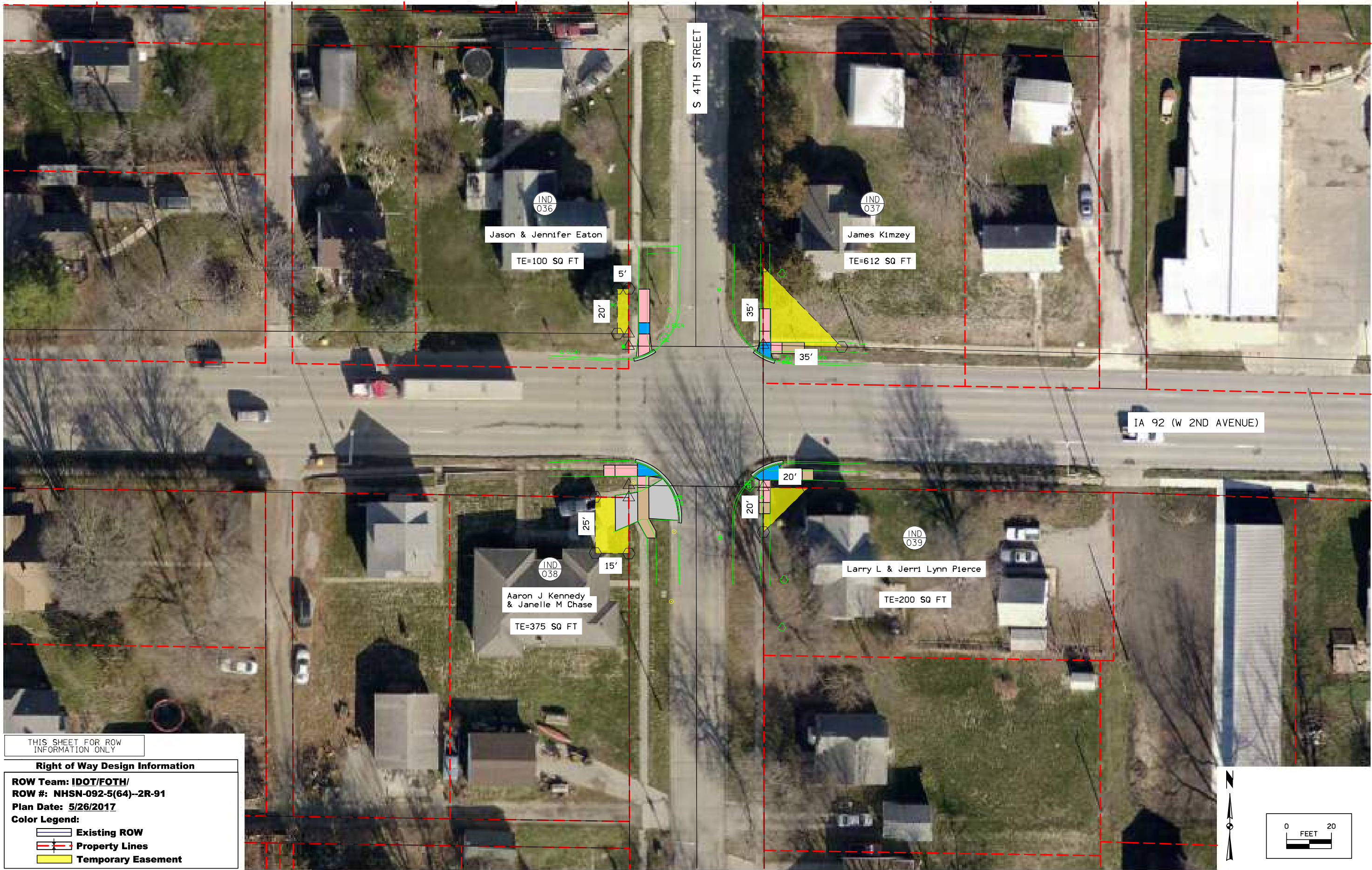
THIS SHEET FOR ROW INFORMATION ONLY

Right of Way Design Information

ROW Team: IDOT/FOTH/
 ROW #: NHSN-092-5(64)-2R-91
 Plan Date: 5/26/2017

Color Legend:

- Existing ROW
- Property Lines
- Temporary Easement



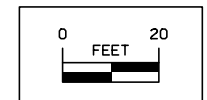
THIS SHEET FOR ROW
INFORMATION ONLY

Right of Way Design Information

**ROW Team: IDOT/FOTH/
ROW #: NHSN-092-5(64)--2R-91
Plan Date: 5/26/2017**

Color Legend:

- Existing ROW
- Property Lines
- Temporary Easement





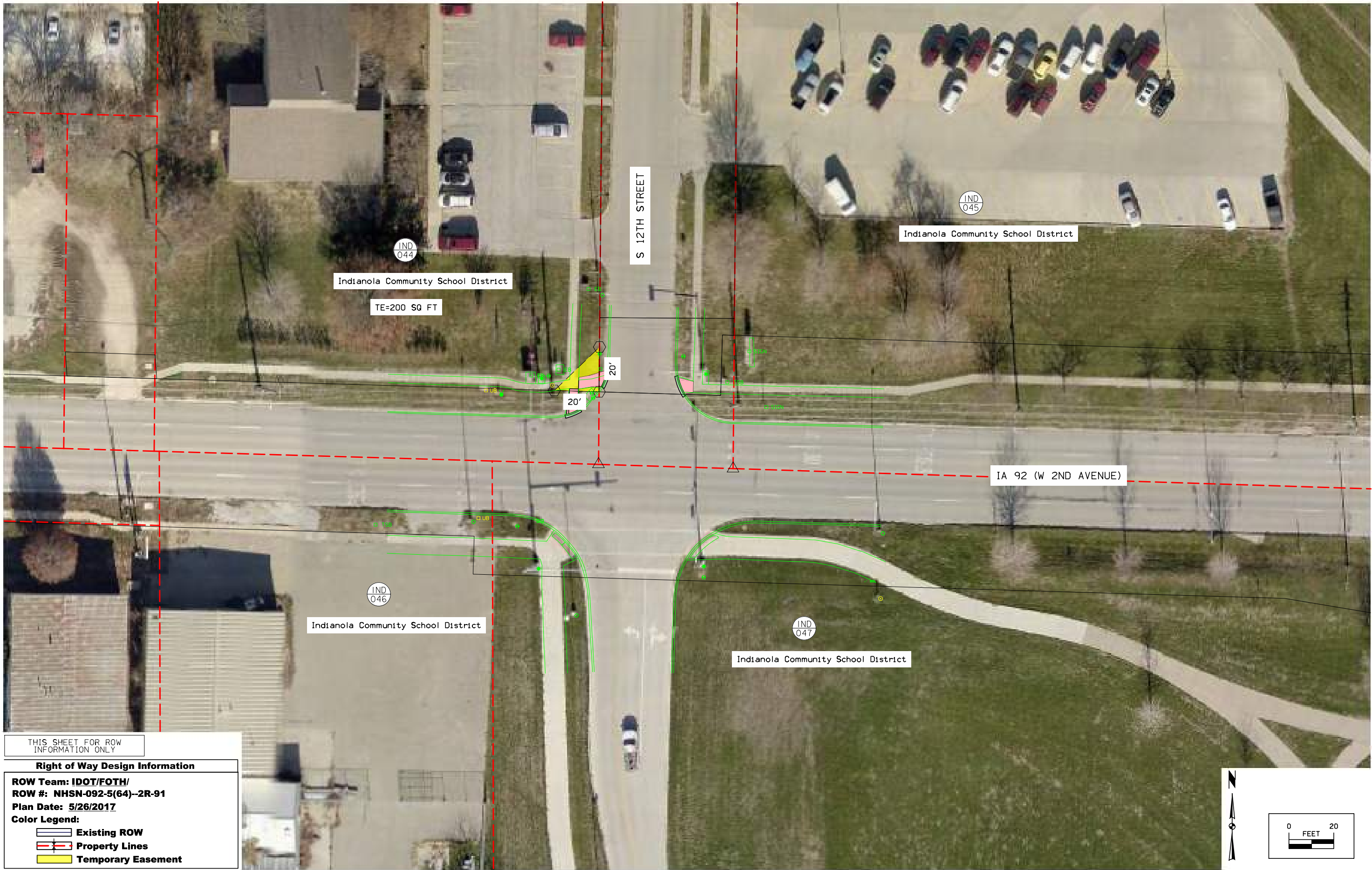
THIS SHEET FOR ROW
INFORMATION ONLY

Right of Way Design Information

ROW Team: IDOT/FOTH/
ROW #: NHSN-092-5(64)-2R-91
Plan Date: 5/26/2017

Color Legend:

- Existing ROW
- Property Lines
- Temporary Easement



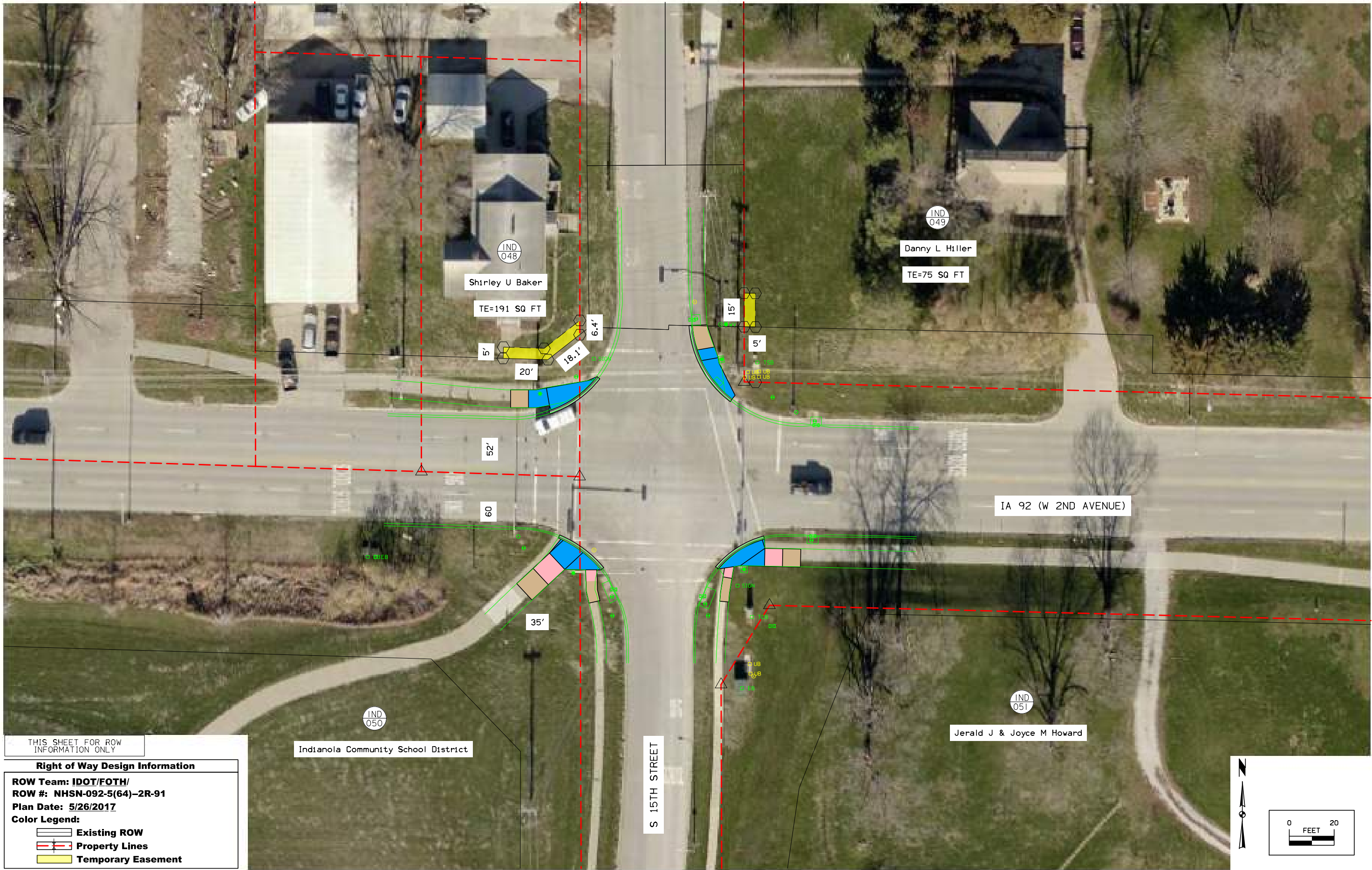
THIS SHEET FOR ROW
INFORMATION ONLY

Right of Way Design Information

**ROW Team: IDOT/FOTH/
ROW #: NHSN-092-5(64)--2R-91
Plan Date: 5/26/2017**

Color Legend:

- Existing ROW
- Property Lines
- Temporary Easement



THIS SHEET FOR ROW
INFORMATION ONLY

Right of Way Design Information

ROW Team: IDOT/FOTH/
ROW #: NHSN-092-5(64)-2R-91
Plan Date: 5/26/2017

Color Legend:

- Existing ROW
- Property Lines
- Temporary Easement

108-23A
08-01-08

TRAFFIC CONTROL PLAN

Thru traffic will be maintained at all times.
Access to all properties will be maintained at all times.

108-25
10-21-14

511 TRAVEL RESTRICTIONS

Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
IA 092	EB/WB	Warren	N St in Indianola to W Jct IA 5	No Restriction Anticipated.								

SURVEY SYMBOLS

UTILITY LEGEND

PLAN VIEW COLOR LEGEND OF SOILS SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Purple (Halo)	(15)	Backslope Drains
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
SHADING	Design Color No.	
Brown, Light	(236)	Core Out

PROFILE VIEW COLOR LEGEND OF SOILS SHEETS

LINEWORK	Design Color No.	
Blue	(1)	Proposed Alignment, Stationing, and Alignment Annotation
Green	(2)	Existing Ground Line Profile
Green, Med	(227)	Topsoil
Green, Med	(227)	Slope Dressing Only
Orange	(6)	Loam
Brown, Dark	(238)	Class 10
Brown, Med	(237)	Sand
Red	(3)	Unsuitable A
Pink, Dark	(13)	Unsuitable B
Pink	(11)	Unsuitable C
Red	(3)	Shale
Red	(3)	Waste
Gray, Light	(48)	Broken and Weathered Rock
Gray, Med	(80)	Rock
Gray, V.Dark	(128)	Boulders

PATTERN AND SYMBOL LEGEND OF SOILS SHEETS

Symbol	Description	Date(s) Drilled
	Drill	
	Dig/Core	
	Water	
	Dry	
	Sample	
	Plugged	
	Moisture	
	Shelby	
	Blow Count	
	Dens. Core	
	Treatment	
	Sand Blanket	
	Soil Remediation Area	
	Select Soil	
	Select Sand	
	Slope Dressing Only	
	Broken and Weathered Rock	
	Rock	
	Sandstone	
	Unsuitable A	
	Unsuitable B	
	Unsuitable C	
	Sandy Soil	
	Boulders	
	Shale	

	Reference Point
	Station
	Survey Line
	Section Corner
	Ground Line Intercept
	Saw Cut
	Guardrail
	Clearing & Grubbing Area
	Pavement Removal

RIGHT-OF-WAY LEGEND	
	Proposed Right-of-Way
	Existing and Proposed Right-of-Way
	Easement and Existing Right-of-Way
	Borrow
	Easement (Temporary)
	Easement
	Excess
	A/C Access Control

NOTE: Sounding and test boring data shown in the plans were accumulated for designing and estimating purposes. Their appearance on the plans does not constitute a guarantee that conditions other than those indicated will be encountered. Details and notes shown elsewhere shall be used for roadway and structure construction.

SOILS LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES Q & R)

Site 1
 Slide Repair/Ditch Regrade
 IA 92, Station 429+70 to Station 431+90

Reshape/regrade the existing roadside ditch on the right from Station 429+70 to Station 431+90. The new ditch will then be armored with a 2-foot thick layer of Class E Revetment underlain with Engineering Fabric.

Complete the slide repair from about Station 430+20 to Station 430+60 by benching and rebuilding the right foreslope to an approximate 3:1 slope using suitable cohesive embankment.

Benches shall extend a minimum of 5 feet into the undisturbed foreslope.

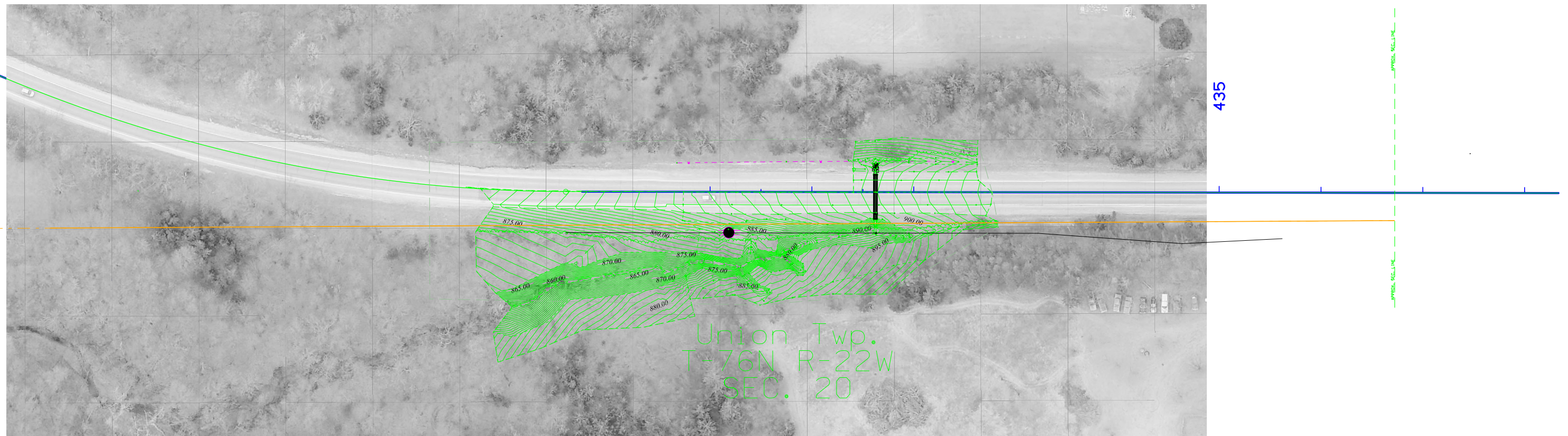
Extend the existing culvert at Station 431+62.48. See Structure Plan Sheet for details.

The top 12 inches of excavated material shall be considered "topsoil" and should be stripped, stockpiled, and reused to topsoil the site.

Some amount of Clearing and Grubbing will be necessary to complete the proposed project.

The existing power pole located near Station 430+20 will need to be relocated, either temporarily or permanently, to complete the slide repair.

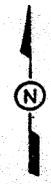
Actual limits of the slide repair will depend on the conditions at the time of construction.



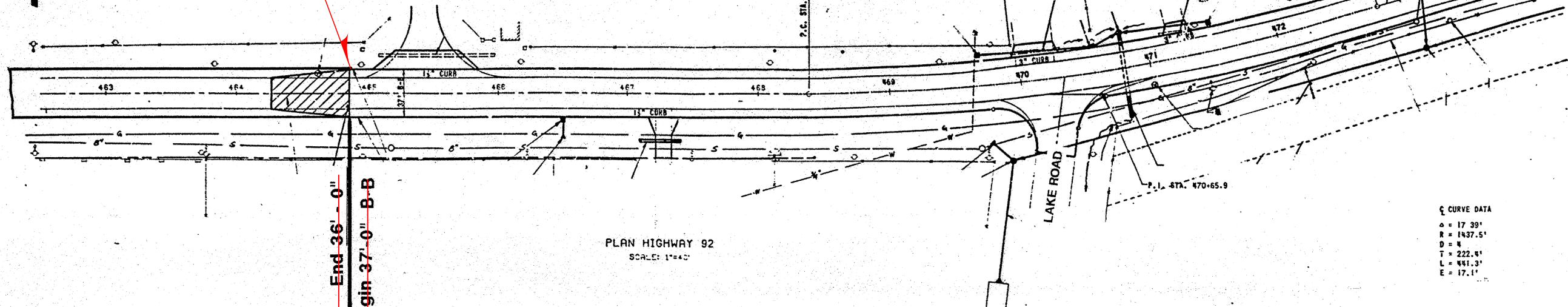
Union Twp.
 T-76N R-22W
 SEC. 20

Quantities	
Class 10 Excavation & Borrow	372 CY
Class 10 Excavation & Waste	201 CY
Class E Revetment	710 Tons
Engineering Fabric	930 SY
Clearing and Grubbing	0.35 Acres

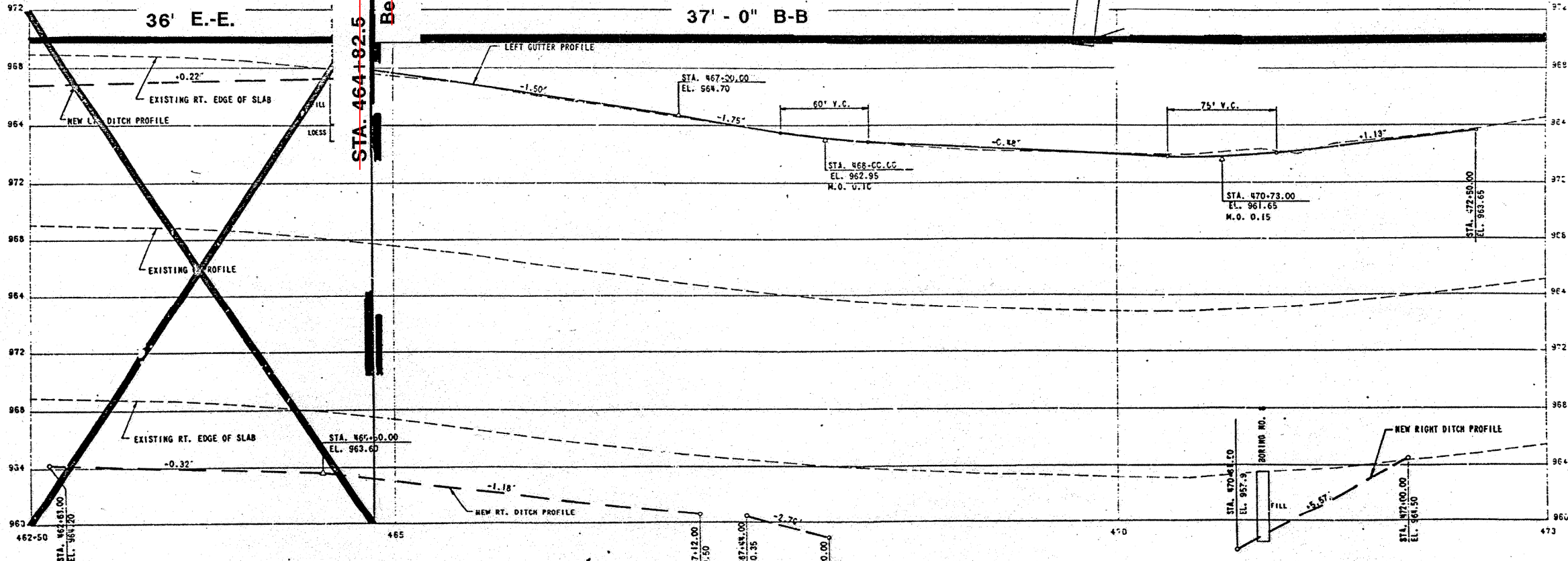
DRAWN BY _____ DATE _____
 CHECKED BY _____ DATE _____
 DETAILED BY _____ DATE _____
 DESIGNED BY _____ DATE _____
 PLOTTED BY _____ DATE _____



Station 464+82.5
Begin Project



C CURVE DATA
 Δ = 17.39°
 R = 1437.5'
 D = 4'
 T = 222.4'
 L = 441.3'
 E = 17.1'



This Sheet
For Information Only

PROFILE
 SCALE: HORIZONTAL 1"=40'
 VERTICAL 1"=8'

NO.	DATE	REVISIONS

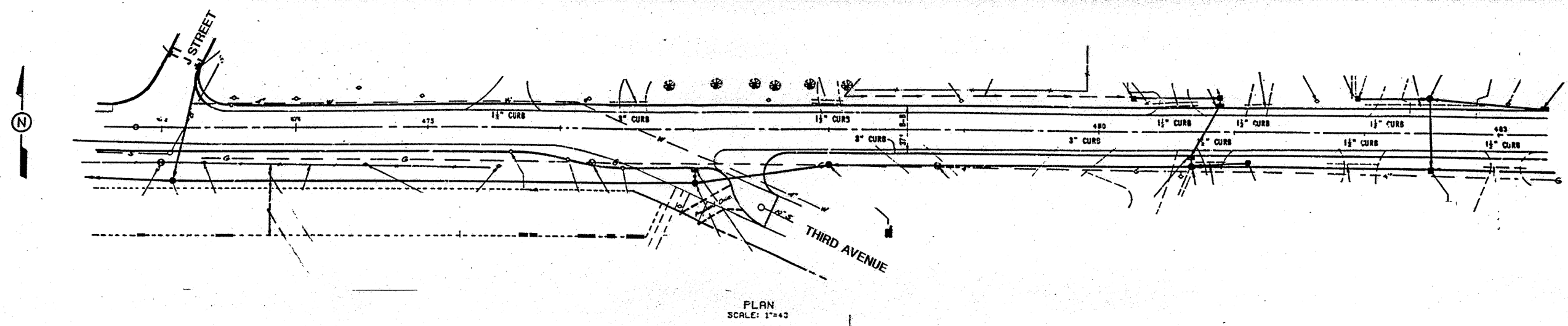
IOWA HIGHWAY 92 WIDENING
 PHASE II
 CITY OF INDIANOLA, IOWA

PAVING
 PLAN & PROFILE
 STA 462+50 TO 473

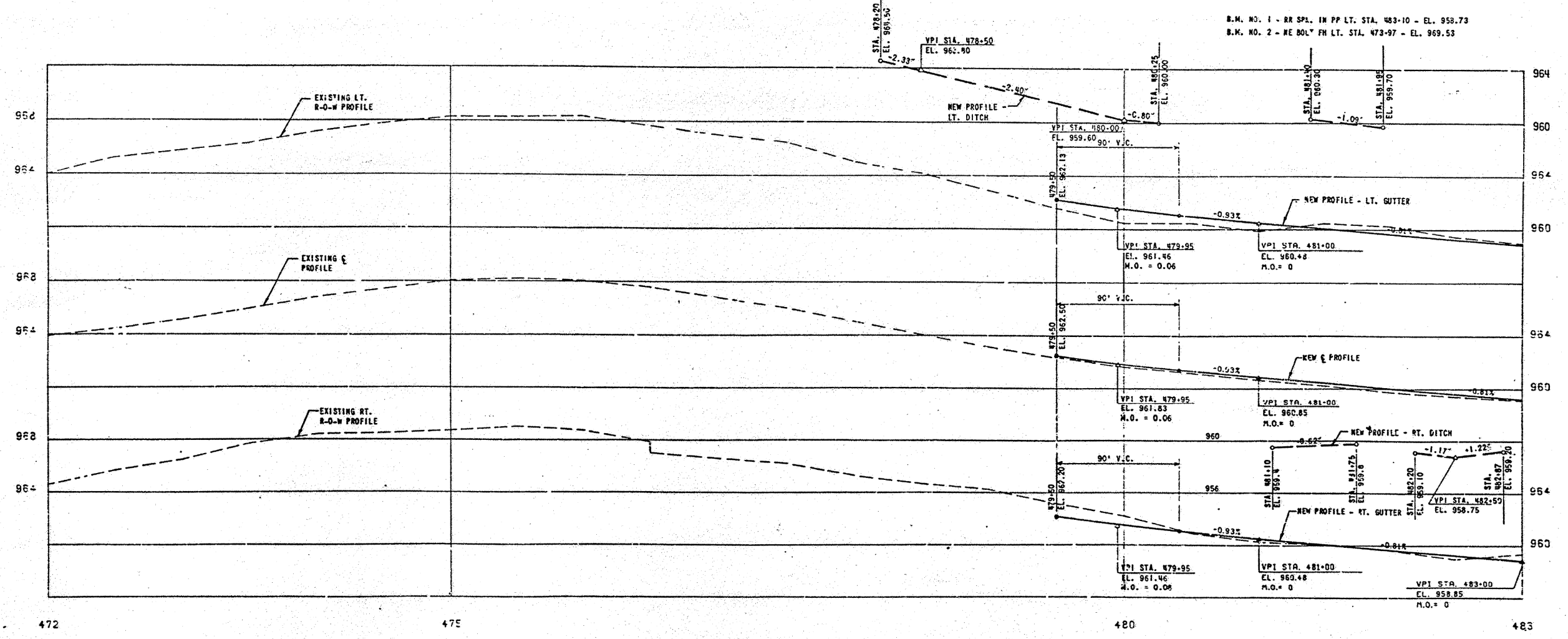
Warren Co. STPN-92-5(42)-2J-91

D.04

DESIGNED	BY	DATE
PLOTTED	BY	DATE
DESIGNED	BY	DATE
PLOTTED	BY	DATE
DESIGNED	BY	DATE
PLOTTED	BY	DATE
DESIGNED	BY	DATE
PLOTTED	BY	DATE
DESIGNED	BY	DATE
PLOTTED	BY	DATE
DESIGNED	BY	DATE
PLOTTED	BY	DATE



PLAN
SCALE: 1"=43'



B.M. NO. 1 - RR SPI. IN PP LT. STA. 483+10 - EL. 958.73
B.M. NO. 2 - NE BOLDY FH LT. STA. 473+97 - EL. 969.53

This Sheet
For Information Only

PROFILE
SCALE: HORIZONTAL 1"=40'
VERTICAL 1"=4'

NO.	DATE	REVISIONS

IOWA HIGHWAY 92 WIDENING
PHASE II
CITY OF INDIANOLA, IOWA

PAVING
PLAN & PROFILE
STA 472 TO STA 483

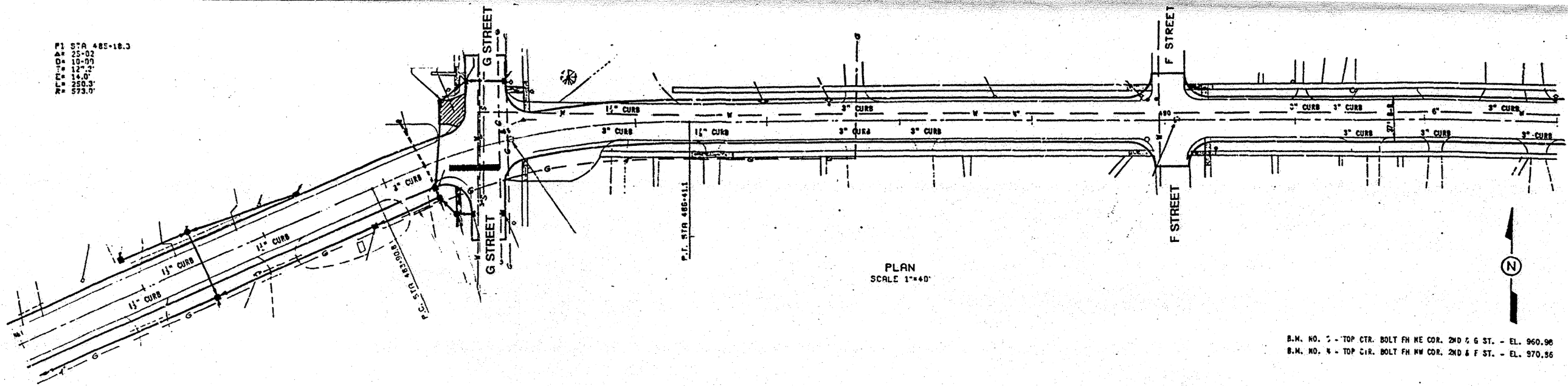
PROJECT NO.	
SHEET	

Warren Co. ~~STPN-92-5(42)--2J-91~~

D.05

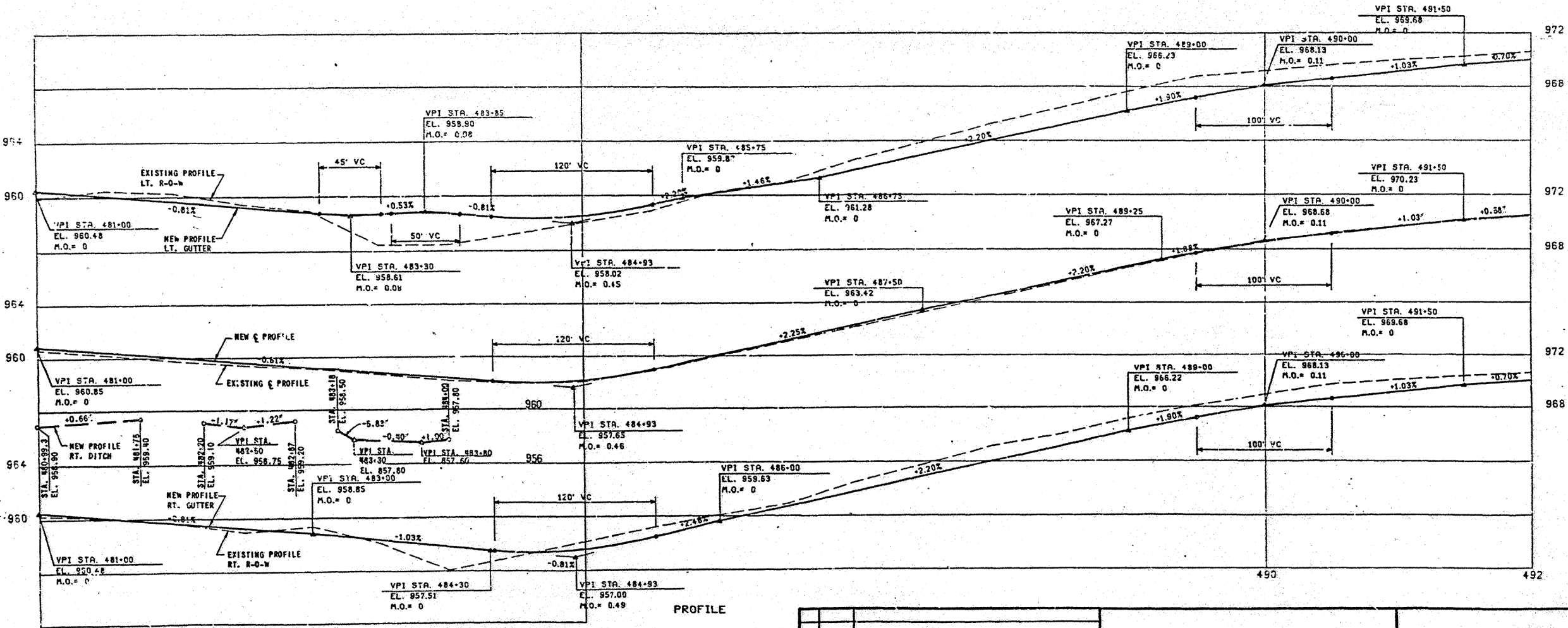
DESIGNED BY	DATE
Detailed	
CHECKED BY	DATE
DATE	
BY	
DATE	
BY	
DATE	
BY	
DATE	
BY	
DATE	
BY	
DATE	
BY	
DATE	
BY	
DATE	
BY	
DATE	
BY	
DATE	

P1 STA 485+18.3
 A1 05-02
 D1 10-03
 E1 12-03
 F1 01-04
 G1 05-04
 H1 08-04
 I1 12-04



PLAN
SCALE 1"=40'

B.M. NO. 3 - TOP CTR. BOLT FH NE COR. 2ND & G ST. - EL. 960.96
 B.M. NO. 4 - TOP CTR. BOLT FH NW COR. 2ND & F ST. - EL. 970.36



PROFILE

485
 SCALE: HORIZONTAL 1"=40'
 VERTICAL 1"=4'

This Sheet
For Information Only

NO.	DATE	REVISIONS

IOWA HIGHWAY 92 WIDENING
 PHASE II
 CITY OF INDIANOLA, IOWA

PAVING
 PLAN & PROFILE
 STA 481 TO 492

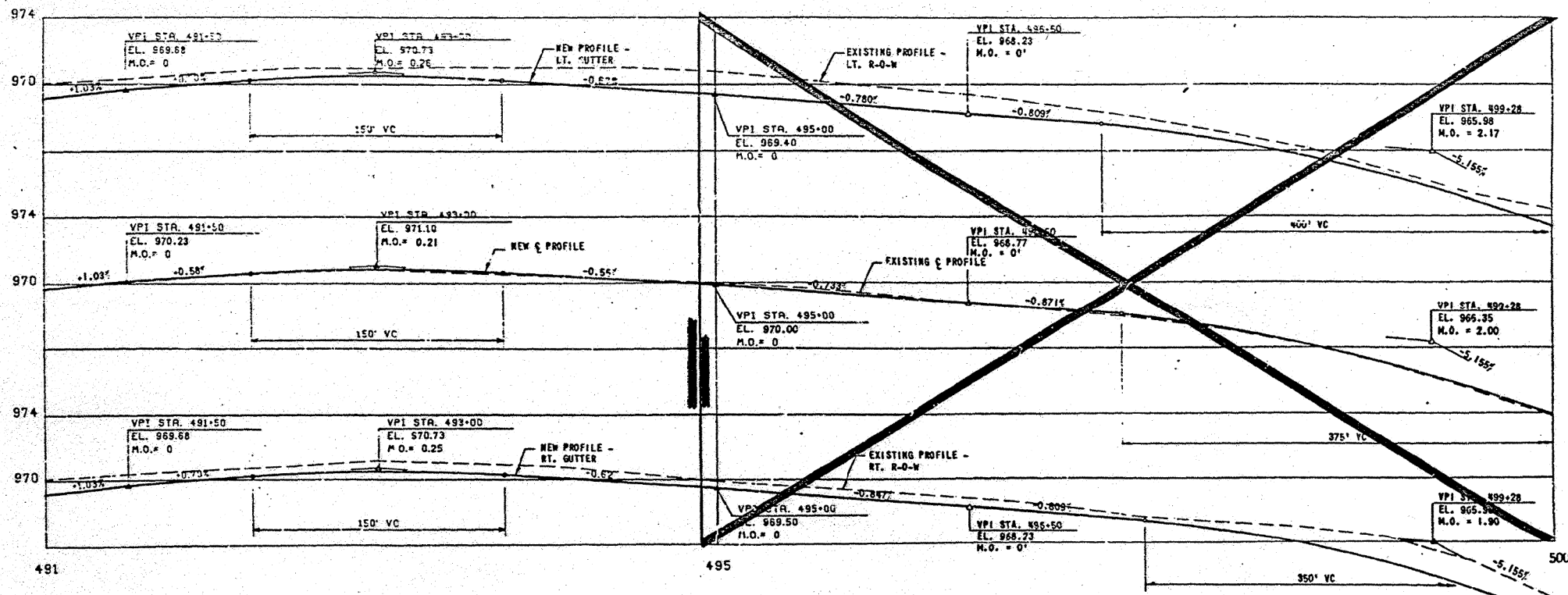
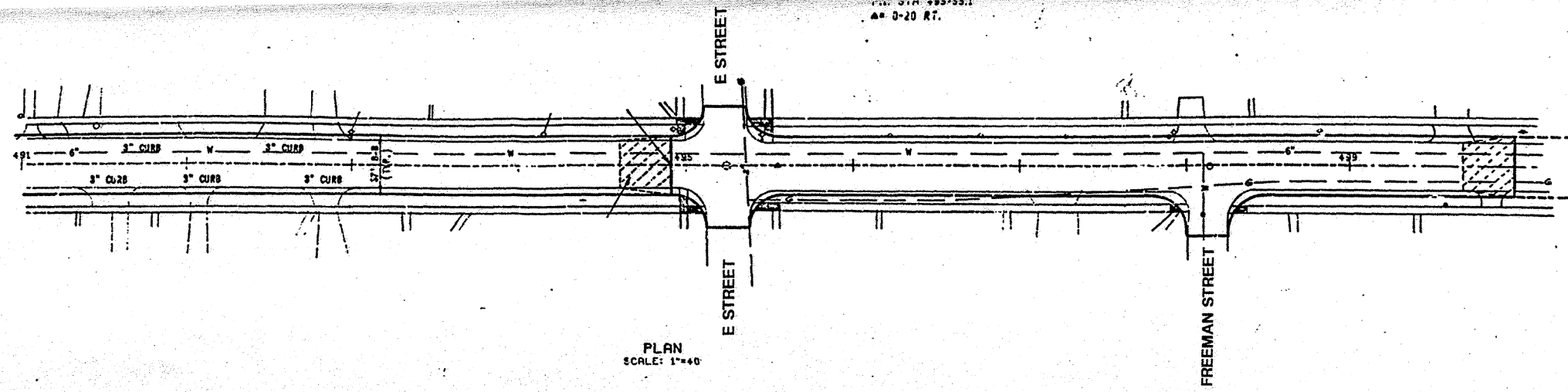
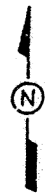
PROJECT NO. _____ SHEET _____

Warren Co. **STPN-92-5(42)-2J-91**

D-06

APPROVED	DATE
BY	
CHECKED	DATE
BY	
DESIGNED	DATE
BY	
PLOTTED	DATE
BY	

This Sheet
For Information Only



B.M. NO. 5 - TOP CTR. B< FN HW COR. 2ND & E ST. - EL. 973.16

NO.	DATE	REVISIONS

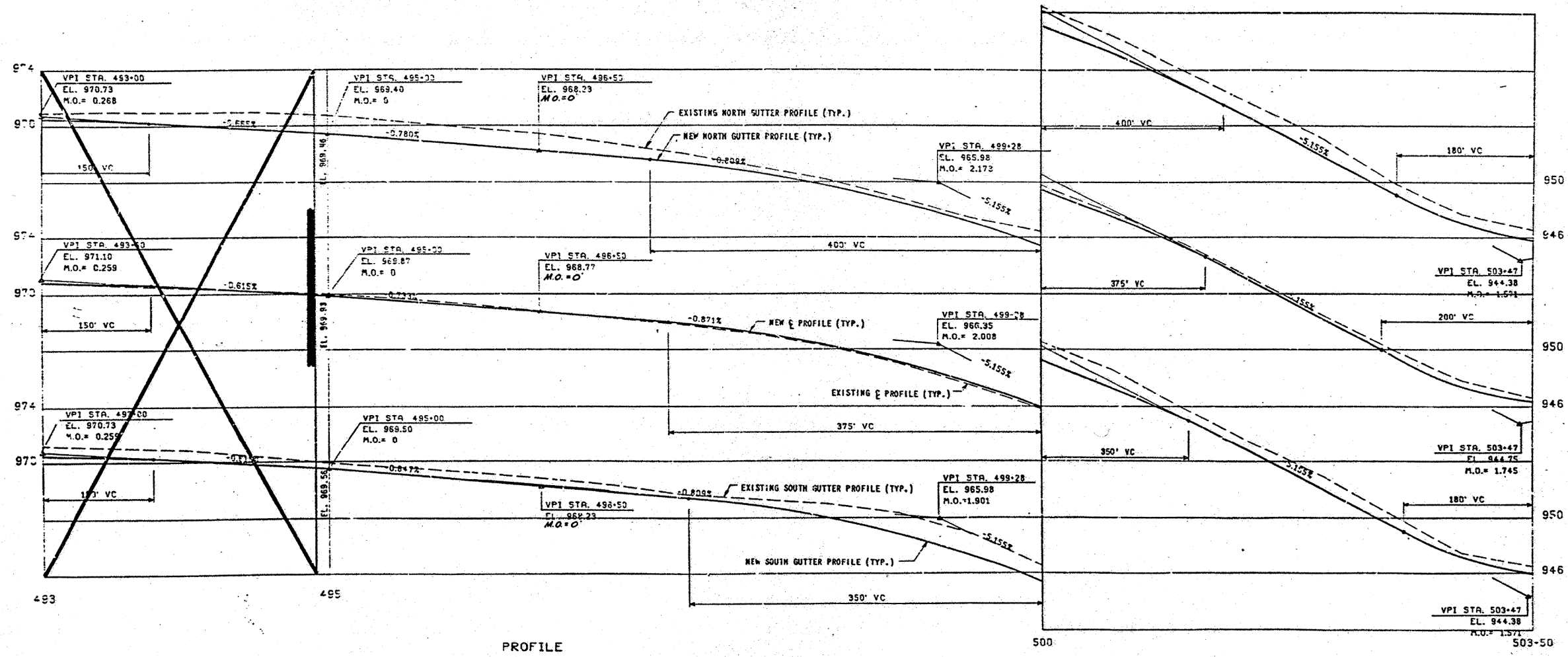
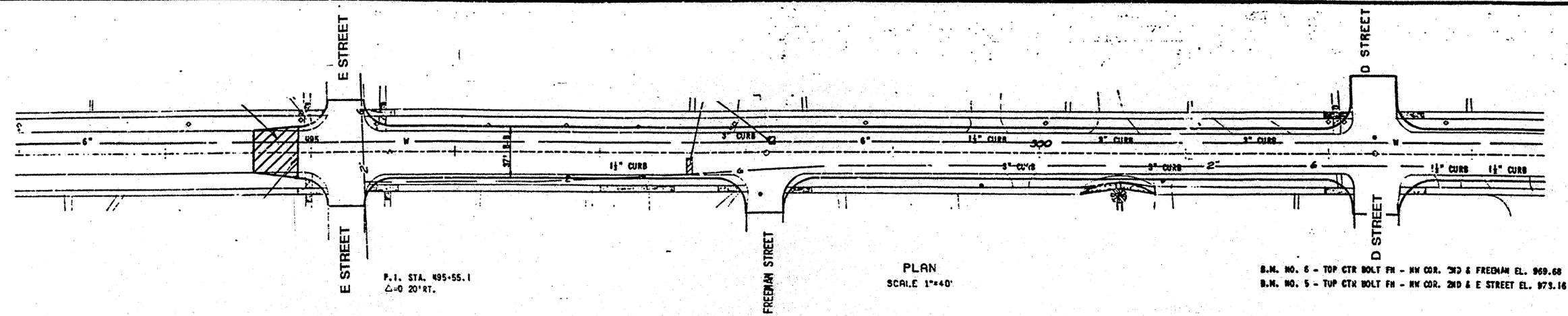
IOWA HIGHWAY 92 WIDENING
PHASE 11
CITY OF INDIANOLA, IOWA

PAVING
PLAN & PROFILE
STA 491 TO STA 500

Warren Co. ~~STPN-92-5(42)-2J-91~~

D.07

DESIGNED BY <i>AW</i>	DATE
CHECKED BY <i>AW</i>	DATE
DETAILED BY <i>AW</i>	DATE
PLOTTED BY <i>AW</i>	DATE



PROFILE
SCALE: HORIZONTAL 1"=40'
VERTICAL 1"=4'

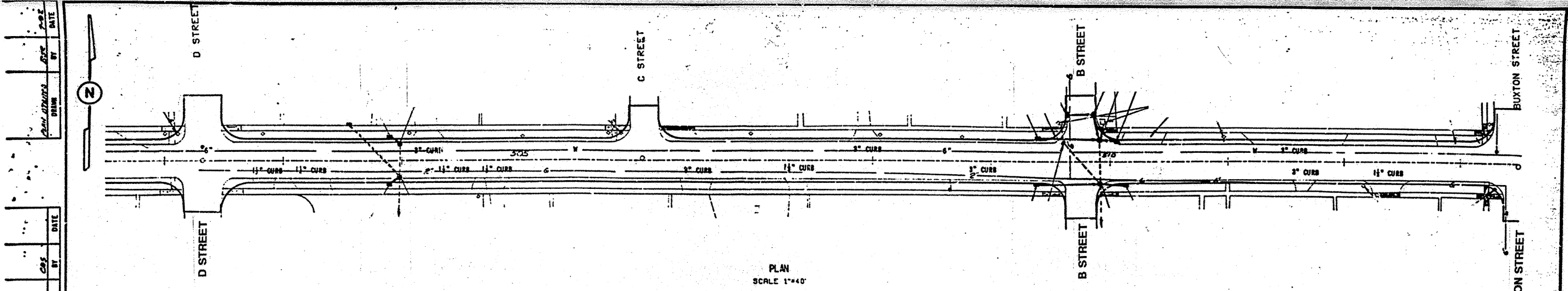
This Sheet For Information Only

NO.	DATE	REVISIONS

IOWA HIGHWAY 92 WIDENING
PHASE 1
CITY OF INDIANOLA, IOWA

PAVING
PLAN & PROFILE
STA 493 TO STA 503+50

Warren Co. STPN-92-5(42)--2J-91 D-08



PLAN
SCALE 1"=40'

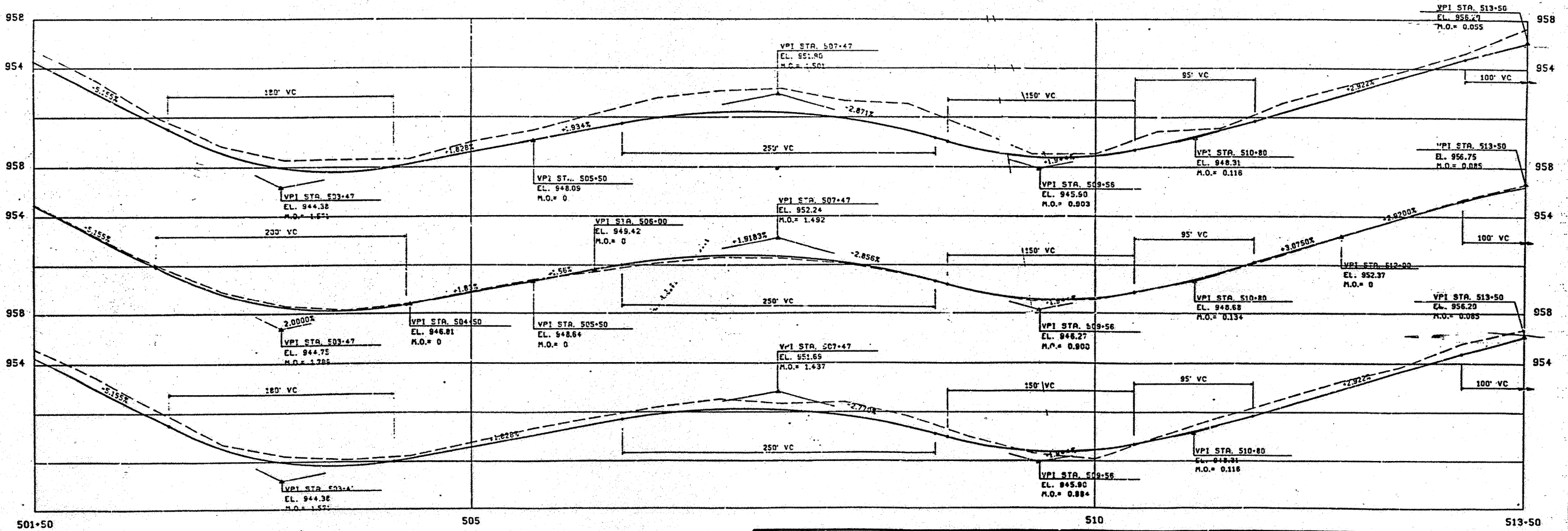
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 S.N. NO. 9 - SPIKE PP 4V COR 2ND & C ST. - EL. 949.57
 S.N. NO. 8 - TOP CRT BOLT FH - NW COR. 2ND & C ST. - EL. 951.49
 S.N. NO. 7 - TOP CRT BOLT FH - NW COR. 2ND & D ST. - EL. 955.39

DATE	BY	CHK
DATE	BY	CHK
DATE	BY	CHK

DATE	BY	CHK
DATE	BY	CHK

DATE	BY	CHK
DATE	BY	CHK

DATE	BY	CHK
DATE	BY	CHK



PROFILE
SCALE: HORIZONTAL 1"=40'
VERTICAL 1"=4'

This Sheet
For Information Only

NO.	DATE	REVISIONS

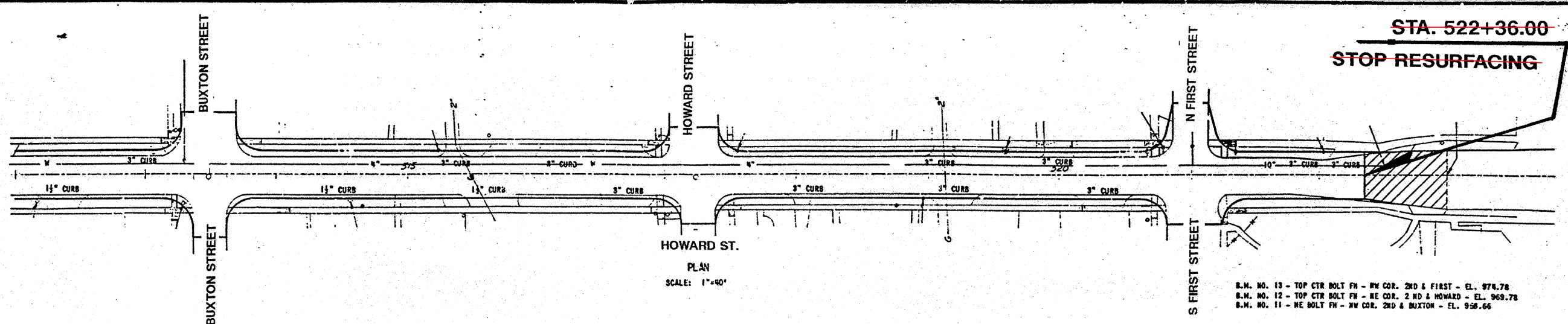
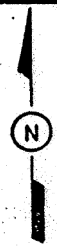
IOWA HIGHWAY 92 WIDENING
PHASE 1
CITY OF INDIANOLA, IOWA

PAVING
PLAN & PROFILE
STA 501+50 TO STA 513+50

Warren Co. STPN-92-5(42)-2J-91

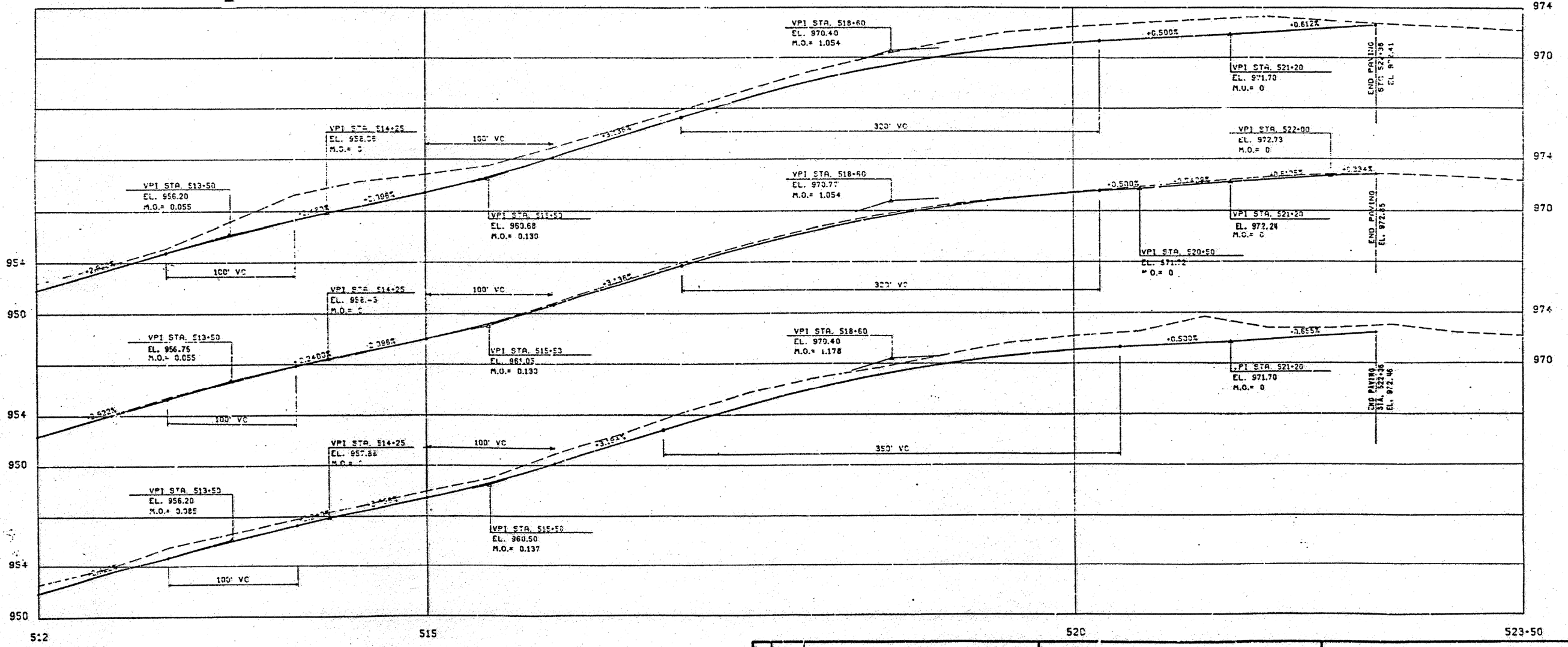
D-09

DATE	BY	DATE	BY	DATE	BY	DATE	BY
DESIGNED	BY	DATE	BY	DATE	BY	DATE	BY
DRAWN	BY	DATE	BY	DATE	BY	DATE	BY
CHECKED	BY	DATE	BY	DATE	BY	DATE	BY



HOWARD ST.
PLAN
SCALE: 1"=40'

S.M. NO. 13 - TOP CTR BOLT FH - NW COR. 2ND & FIRST - EL. 974.78
 S.M. NO. 12 - TOP CTR BOLT FH - NE COR. 2ND & HOWARD - EL. 969.78
 S.M. NO. 11 - NE BOLT FH - NW COR. 2ND & BUXTON - EL. 958.66



This Sheet
For Information Only

PROFILE
SCALE: 1"=40' HORIZ.
1"=4' VERT.

NO.	DATE	REVISIONS

IOWA HIGHWAY 92 WIDENING
PHASE 1
CITY OF INDIANOLA, IOWA

PAVING
PLAN AND PROFILE
STA. 512+00 TO STA. 523+50

Warren Co. STPN-92-5(42)--2J-91 D-10

LINCOLN TWP.
T 76N R 24W

SEC. 25 SEC. 30

CITY OF INDIANOLA

~~STA. 522+36.00~~
~~STOP RESURFACING~~
(See Sheet No. D.10)

~~STA. 10+24.40~~
~~RESUME RESURFACING~~
(See Sheet No. D.12)

EQUATION:
Sta 522+36.00 (BK)
= Sta 1522+36.00 (AH)

EQUATION:
Sta 1531+51.00 (BK)
= Sta 10+24.40 (AH)

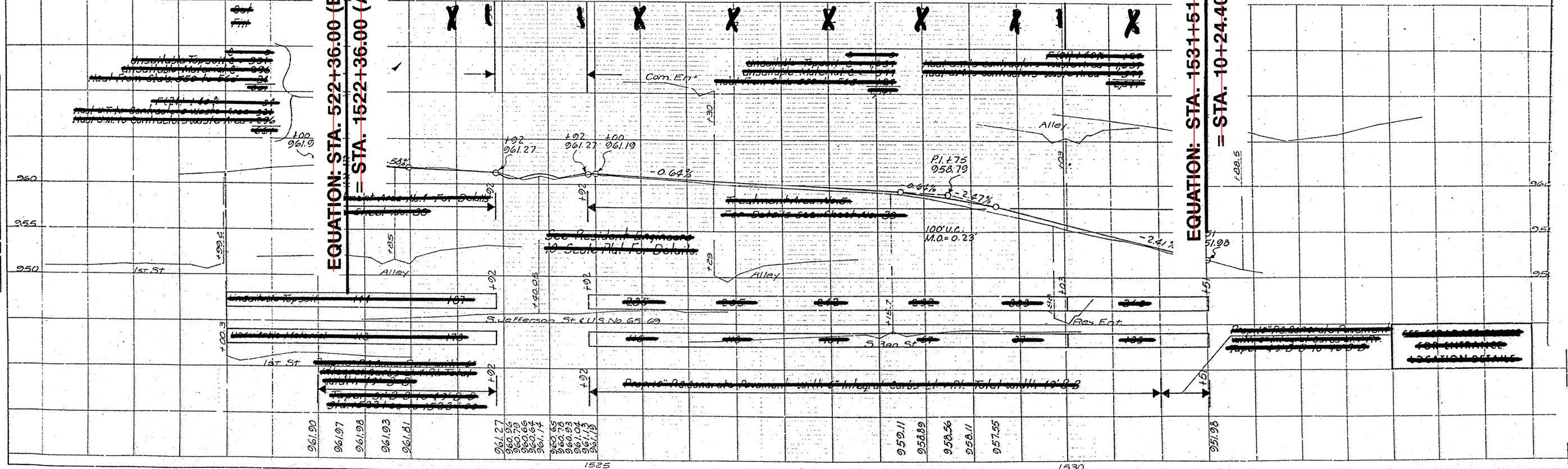
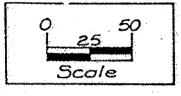
EQUATION: STA. 522+36.00 (Back)
= STA. 1522+36.00 (Ahead)

EQUATION: STA. 1531+51.00 (Back)
= STA. 10+24.40 (Ahead)

PRINTED
DATE BOOK
NO. OF SHEETS CHECKED
BY WHAT CHECKED
DATE CHECKED

PRINTED
DATE BOOK
NO. OF SHEETS CHECKED
BY WHAT CHECKED
DATE CHECKED

LEGEND
N.W. Bell Tel. Co.
Municipal Light & Power Co.



This Sheet
For Information Only

Warren Co. ~~STPN-92-5(42)-2J-91~~

D.11

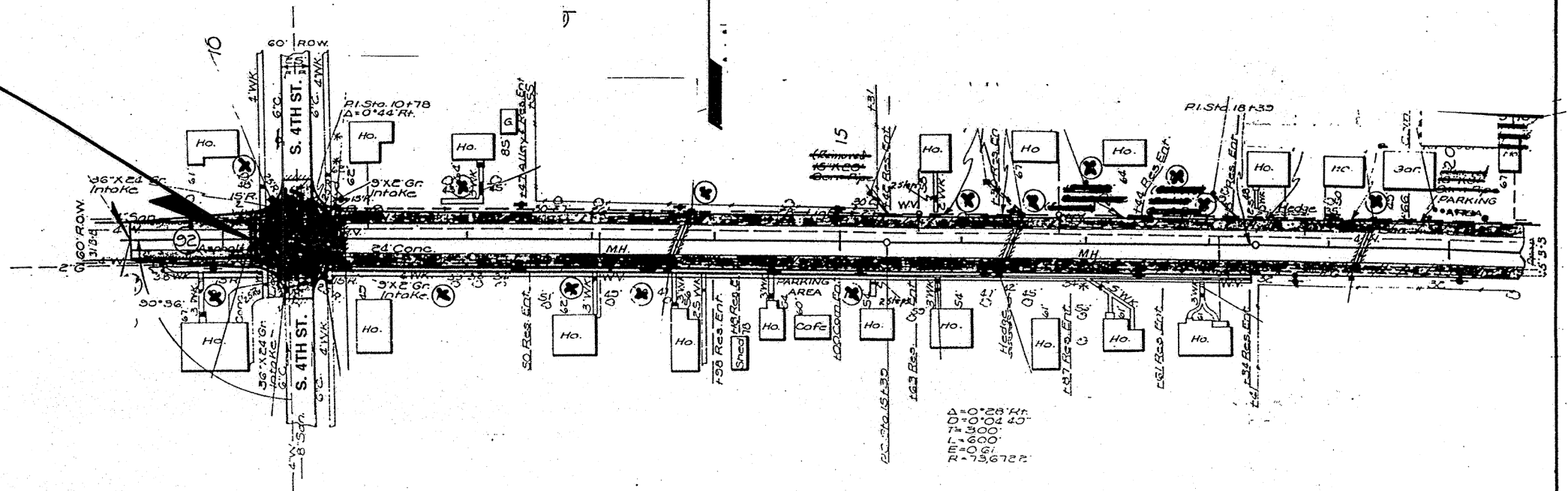
ESTABLISHED WIDTH OF
RIGHT OF WAY FT.

WASHINGTON TWP
T76N R23W
SEC 30

CITY OF INDIANOLA

NO.	DATE	BY	CHKD.	SCALE	SHEET	TOTAL
5						

STA. 10+24.40
RESUME RESURFACING

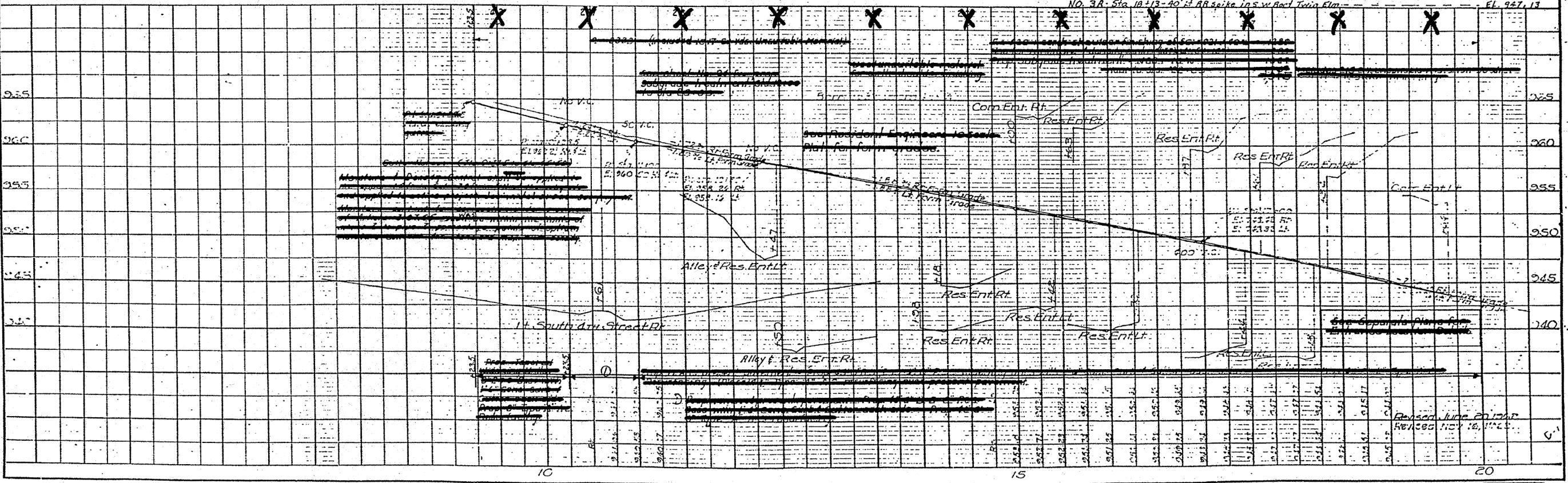


$\Delta = 0^{\circ}28'44''$
 $D = 0^{\circ}04'40''$
 $T = 300'$
 $L = 600'$
 $E = 0.61$
 $R = 736722'$

45' - 0" B.-B.

BENCH MARKS:
 No. 2 Sta 10+47.00 Lt. Set 2. Nails in S. Side Pa. Ave. EL 964.55
 No. 3 Sta 11+24.22 Rt. Set 2. Nails in N. Side Pa. Ave. EL 949.43
 No. 3A Sta 10+13.40 Rt. RR spike in S. v. Post Twin Elm. EL 947.13

Scale 1" = 50'



This Sheet
For Information Only

PLATE 3—PLAN-PROFILE G. P. R. & R. E. STANDARD
No. 111 ARCHITECTURE MADE AND PRINTED IN U. S. A.
EURENE SHEETSON CO., CHICAGO

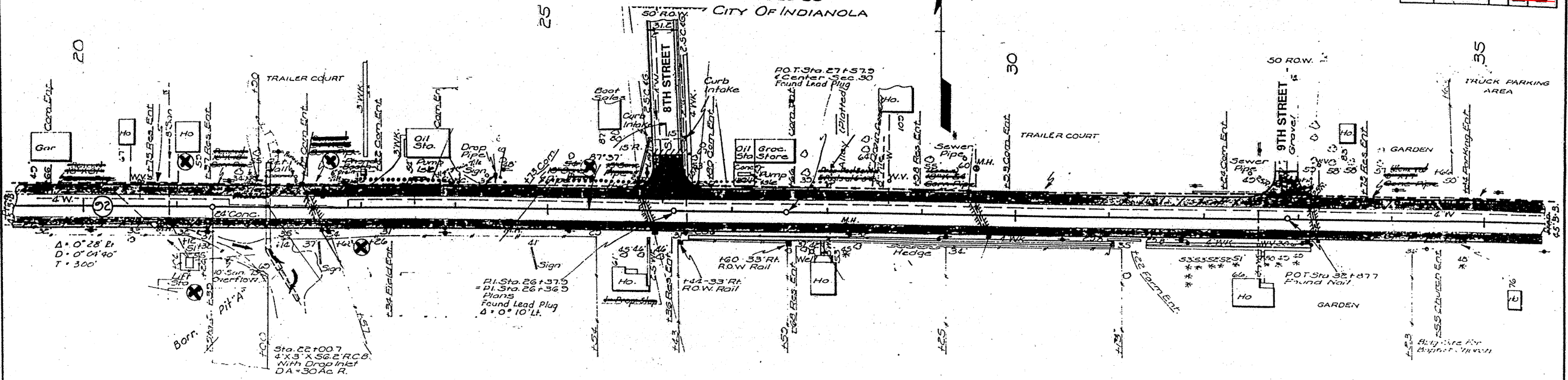
Warren Co. **STPN-92-5(42)-2J-91**

D-12

ESTABLISHED WIDTH OF RIGHT OF WAY FT.

WASHINGTON TWP
T76N R23W
SEC. 30
CITY OF INDIANOLA

NO.	DATE	BY	REVISION
1			



SCALE 1"=50'

45' - 0" B.-B.

BENCH MARKS:
 Datum No. 4B - Sta. 22+00.7 - 40.5' L.T.H.C.B.M. in North Hdwl. of 4x3 R.C.B. ----- EL. 940.63
 No. 4 - Sta. 22+00.7 - 22.4' L.T. Bolt in N. Hdwl. of 4x3 R.C.B. ----- EL. 947.69
 = B.M. 4 - Old Parking Signs ----- EL. 946.65
 No. 5 - Sta. 26+60 - 53' L.T. Set 2 Nails in S.E. Side Chinese Eirr. ----- EL. 946.65
 No. 6 - Sta. 32+52 - 124' L.T. Set 6 Nails in S. Side transformer Pole. ----- EL. 955.12

LEGEND
 • N.W. Bell Tel. Co.
 • Indianola Municipal Utilities Co.

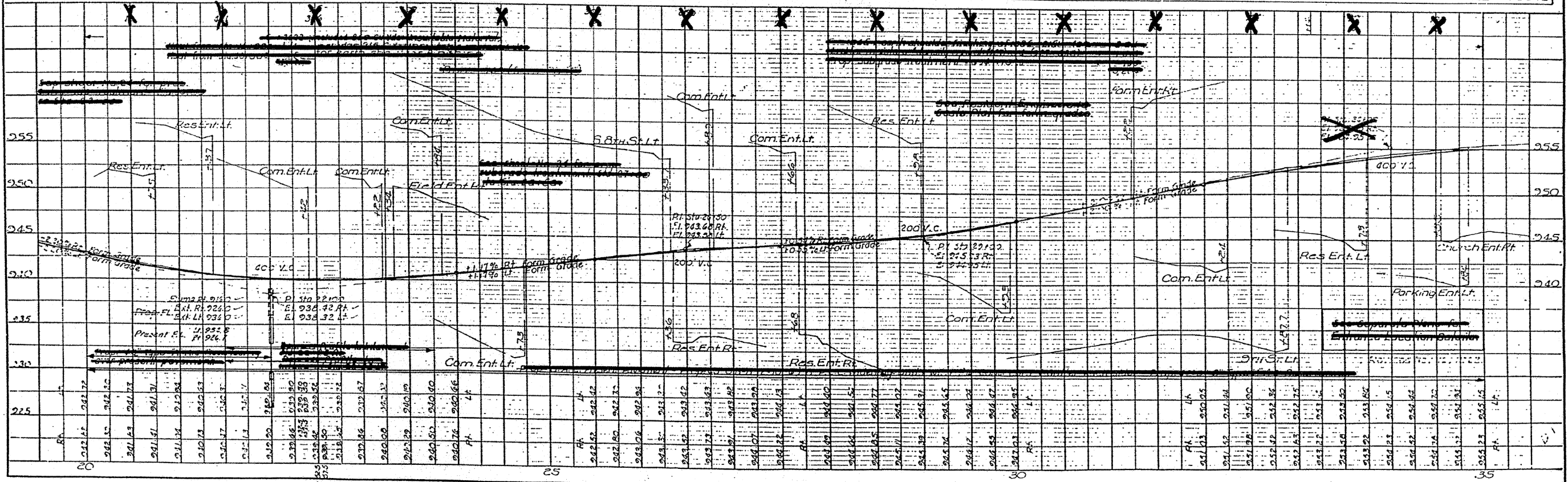


PLATE 1 - PLAN PROOF
NO. 111 APPROVED
DUBOIS IN

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For Information Only

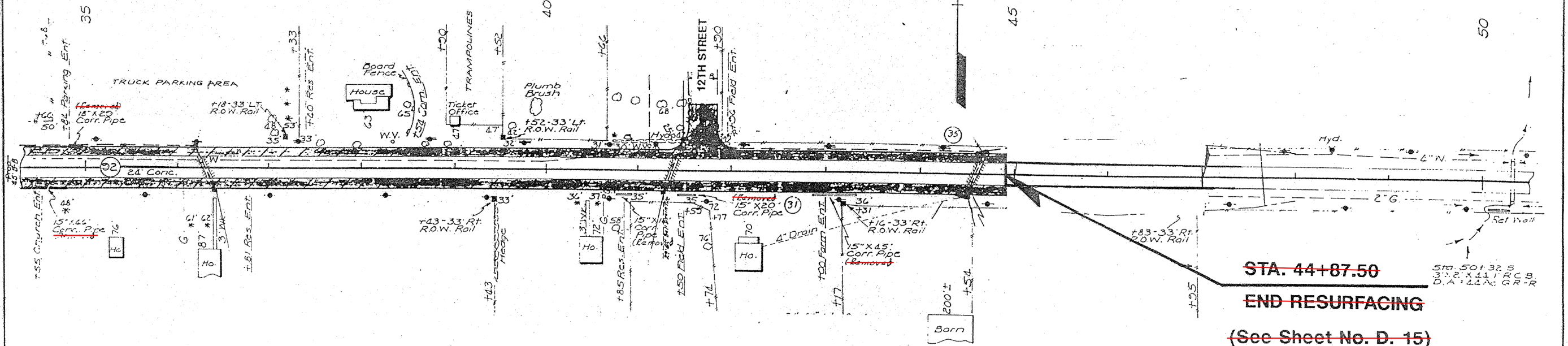
Warren Co. STPN-92-5(42)-2J-91

D-13

RIGHT OF WAY FT.

WASHINGTON TWP.
T76N R23W
Sec.30
CITY OF INDIANOLA

PER. ROAD DIST. NO.	DATE	BY	CHK. BY	FR. YEAR	SHEET NO.	TOTAL SHEETS
5	10/21				11	11



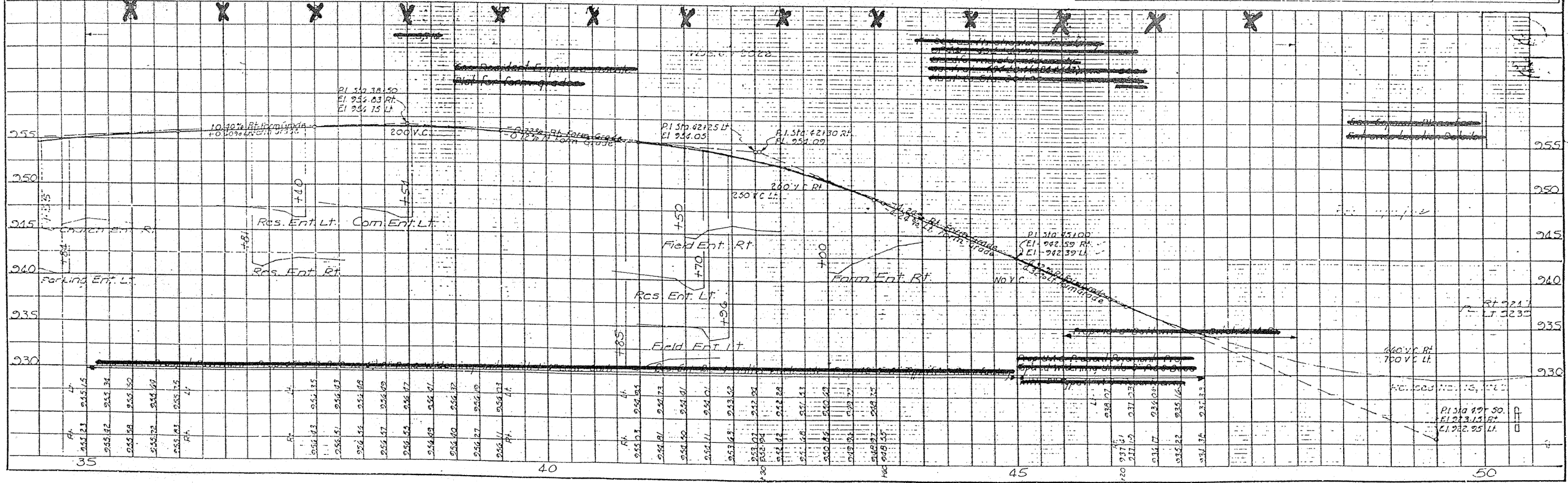
~~STA. 44+87.50~~
~~END RESURFACING~~
 (See Sheet No. D. 15)

45' - 0" B.-B.

SCALE 1" = 50'

BENCH MARK
 No. 75 Sta. 41+27.48' Lt. Set 2 Nails in 3" Root 24" Hard Maple EL 956.69

LEGEND
 * N.W. Bell Tel. Co.
 * Indianapolis Municipal Utilities Co.

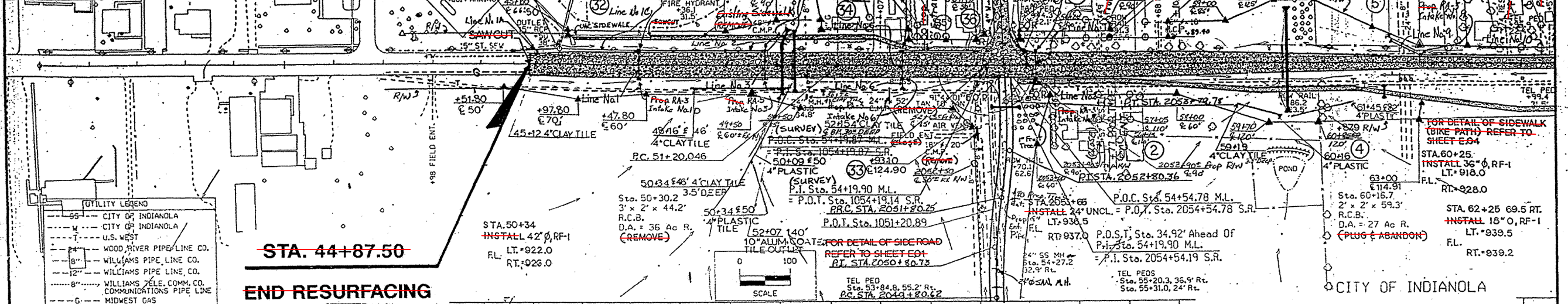


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 For Information Only

Warren Co. ~~STPN 92-5(42)-2J-91~~

D.14

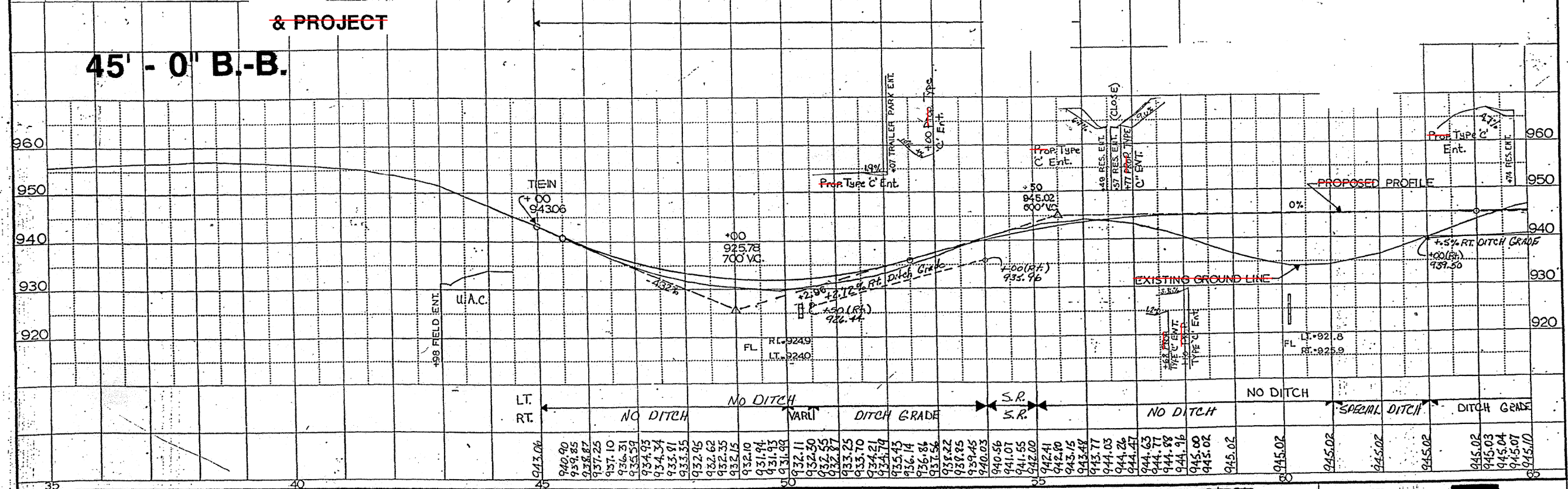
- PROPERTY OWNERS**
- Danny L. Hiller & Jane A. Summers
 - C.K. Bierma & Mary Bierma
 - Downing Construction, Inc.
 - Max McCord Estate
 - Karla Roy Beard & Jerry D. Beard & George S. Piffer
 - Indianola School District
 - Helen McCord & Max McCord Estate
 - Joan D. Holt & Orrie J. Koehlmoos
 - Judy A. Watson & Midwest Parks Ltd.
 - Harold V. Heisey & Elinor J. Heisey
 - Shirley U. Baker



- UTILITY LEGEND**
- CITY OF INDIANOLA
 - CITY OF INDIANOLA
 - U.S. WEST
 - WOOD RIVER PIPE LINE CO.
 - WILLIAMS PIPE LINE CO.
 - WILLIAMS PIPE LINE CO.
 - WILLIAMS TELE. COMM. CO.
 - COMMUNICATIONS PIPE LINE
 - MIDWEST GAS

STA. 44+87.50
END RESURFACING & PROJECT

45' - 0" B.-B.



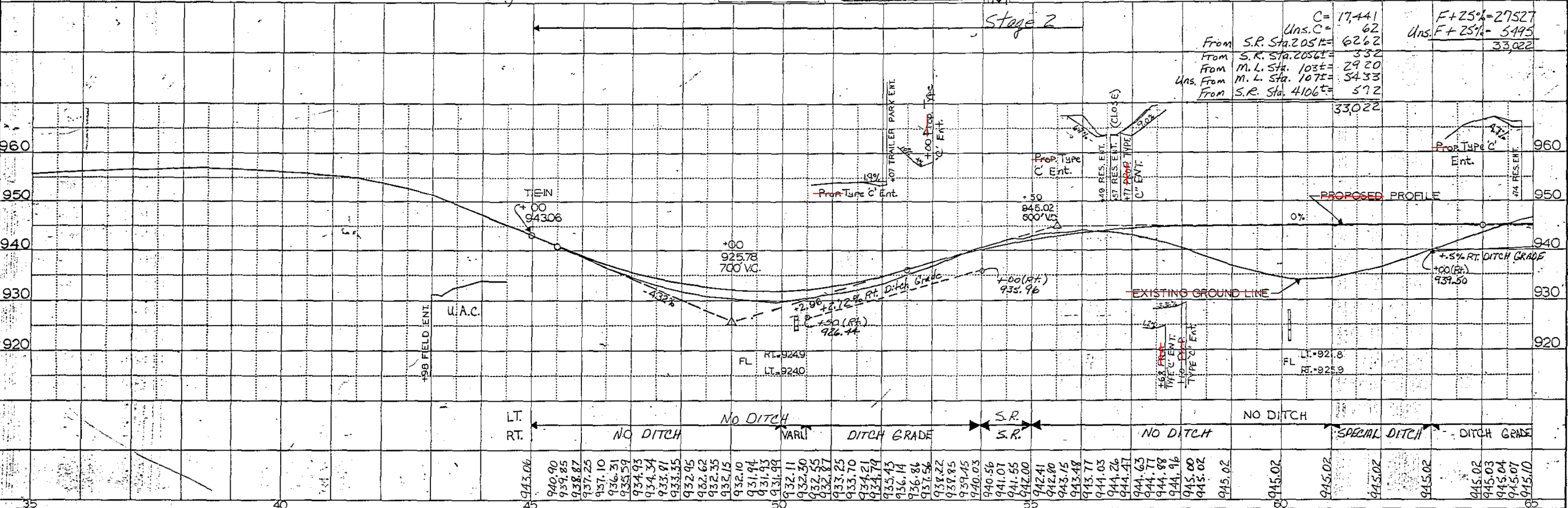
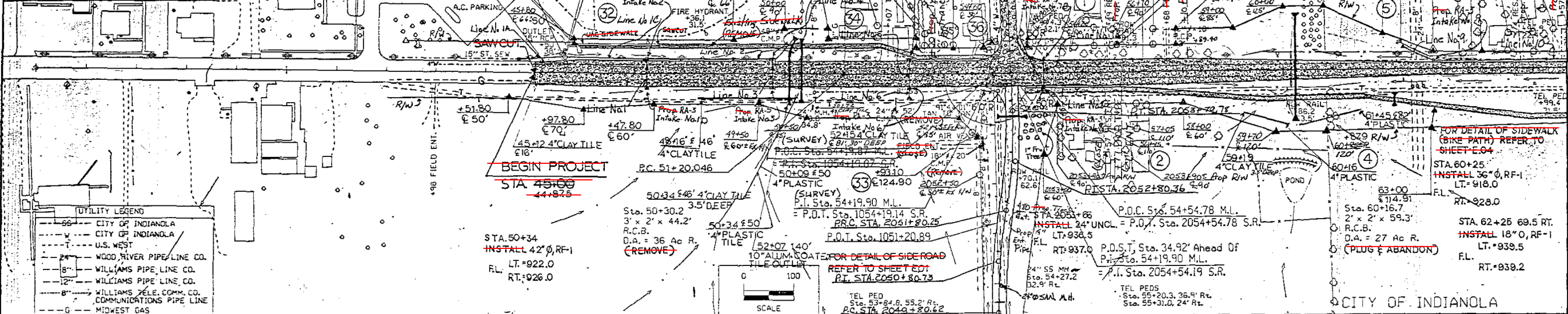
ROAD DESIGN	CADD	PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	WARREN	COUNTY	PROJECT NUMBER	SHEET NUMBER
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This Sheet For Information Only

Warren Co. ~~STPN-92-5(42)-2J-91~~

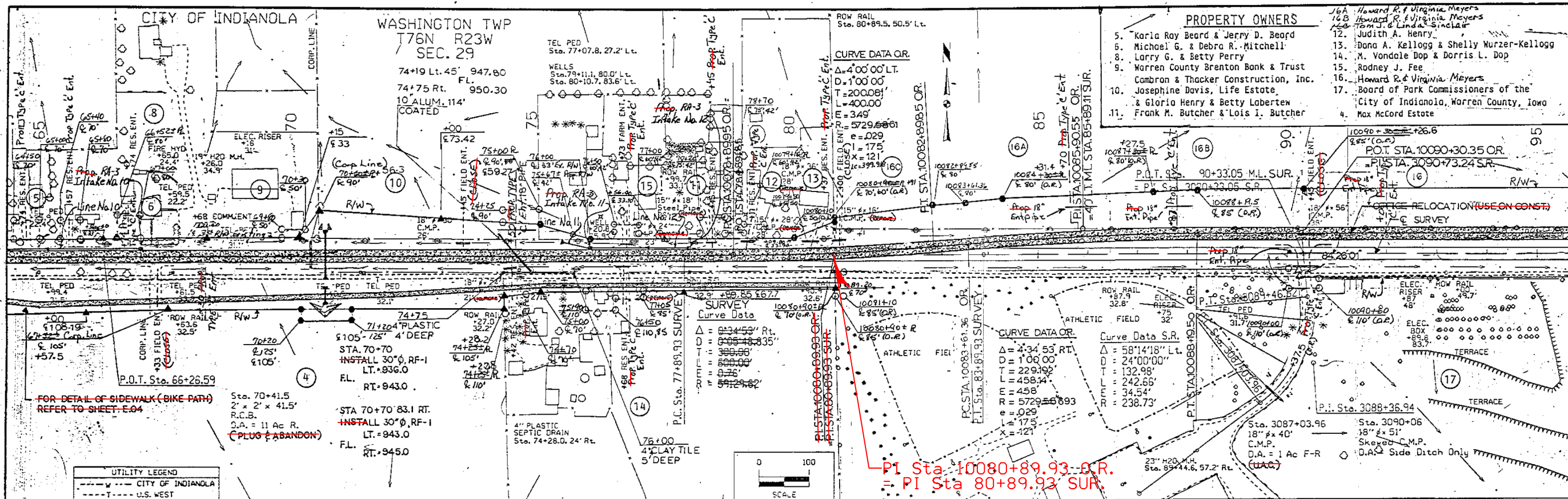
D-15

- PROPERTY OWNERS**
- Danny L. Hiller & Jane A. Summers
 - C.K. Bierma & Mary Bierma
 - Downing Construction, Inc.
 - Max McCord Estate
 - Karla Ray Beard & Jerry D. Beard & George S. Piffer
 - Indiana School District
 - Heien McCord & Max McCord Estate
 - Joan D. Holt & Orrie J. Koehlmoos & Judy A. Watson & Midwest Parks Ltd.
 - Harold V. Heisey & Elinor J. Heisey
 - Shirley U. Baker



ROAD DESIGN	CADD	PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	WARREN	COUNTY	PROJECT NUMBER	NHSX-092-5(63)-24-91
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This Sheet For Information Only



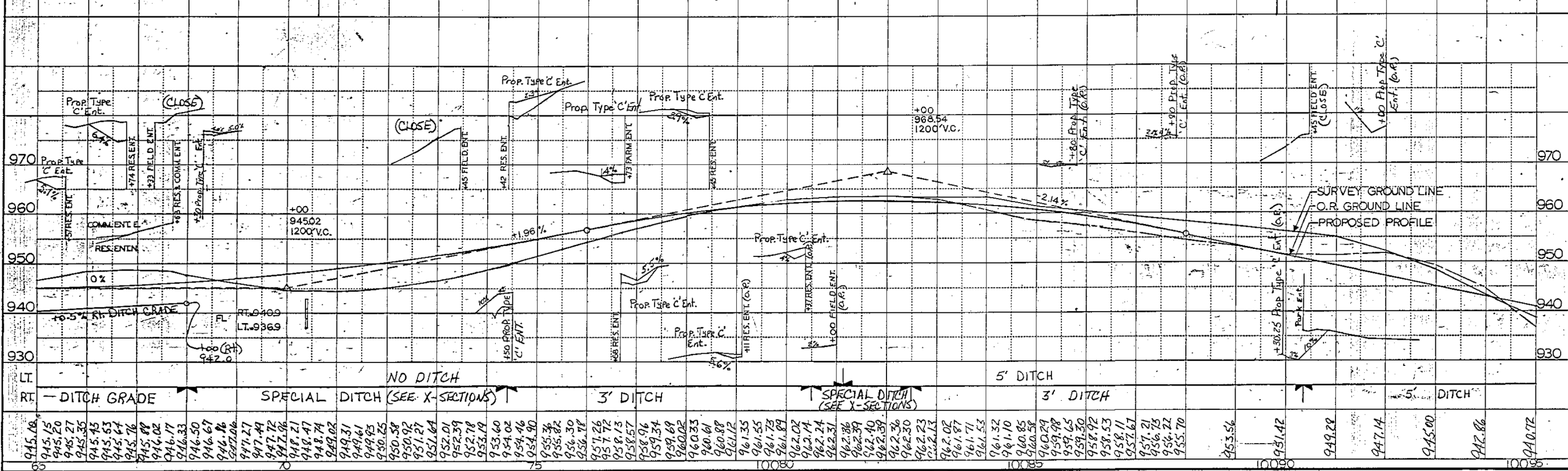
PROPERTY OWNERS

5. Karla Ray Beard & Jerry D. Beard
6. Michael G. & Debra R. Mitchell
8. Larry G. & Betty Perry
9. Warren County Brenton Bank & Trust
Cambron & Thacker Construction, Inc.
10. Josephine Davis, Life Estate
& Gloria Henry & Betty Labertew
11. Frank M. Butcher & Lois I. Butcher
- 16A. Howard R. & Virginia Meyers
- 16B. Howard R. & Virginia Meyers
& Tom J. & Linda A. Sinclair
12. Judith A. Henry
13. Dana A. Kellogg & Shelly Wurzer-Kellogg
14. M. Vondale Dop & Dorris L. Dop
15. Rodney J. Fee
16. Howard R. & Virginia Meyers
17. Board of Park Commissioners of the
City of Indianola, Warren County, Iowa
4. Max McCord Estate

UTILITY LEGEND

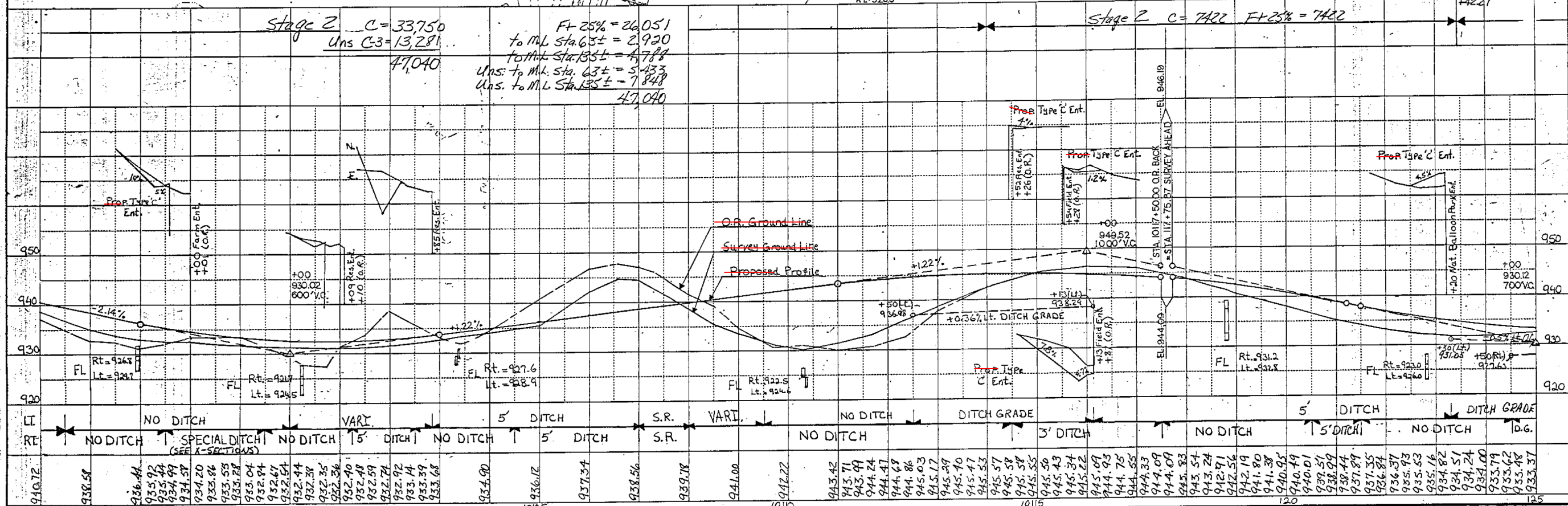
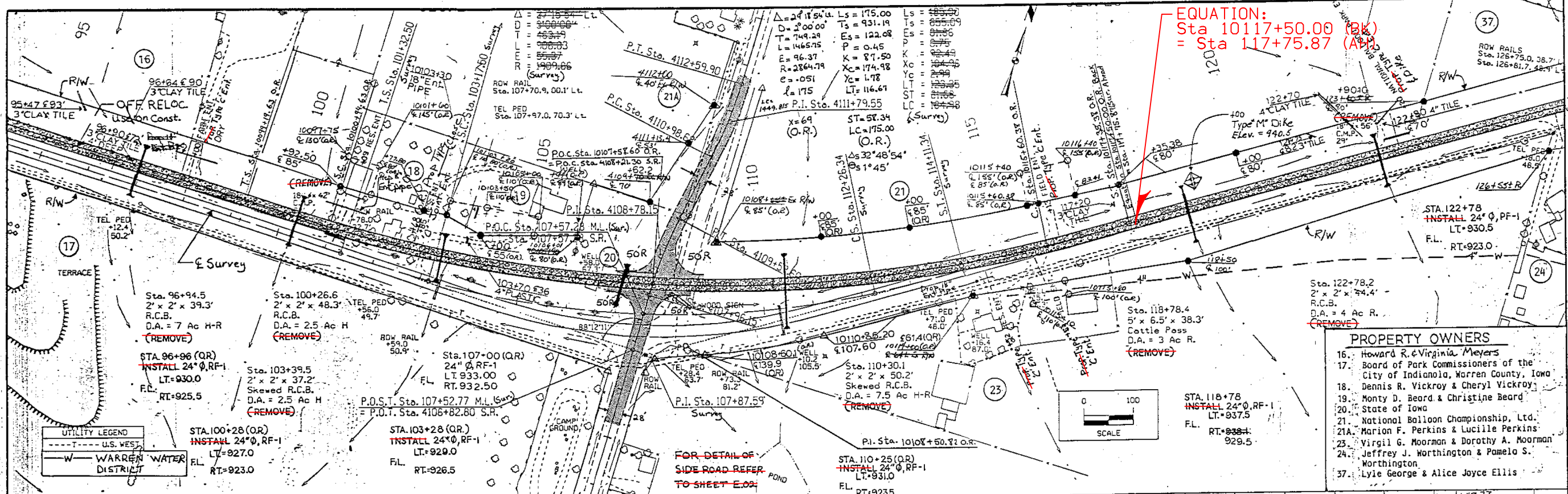
- CITY OF INDIANOLA
- U.S. WEST

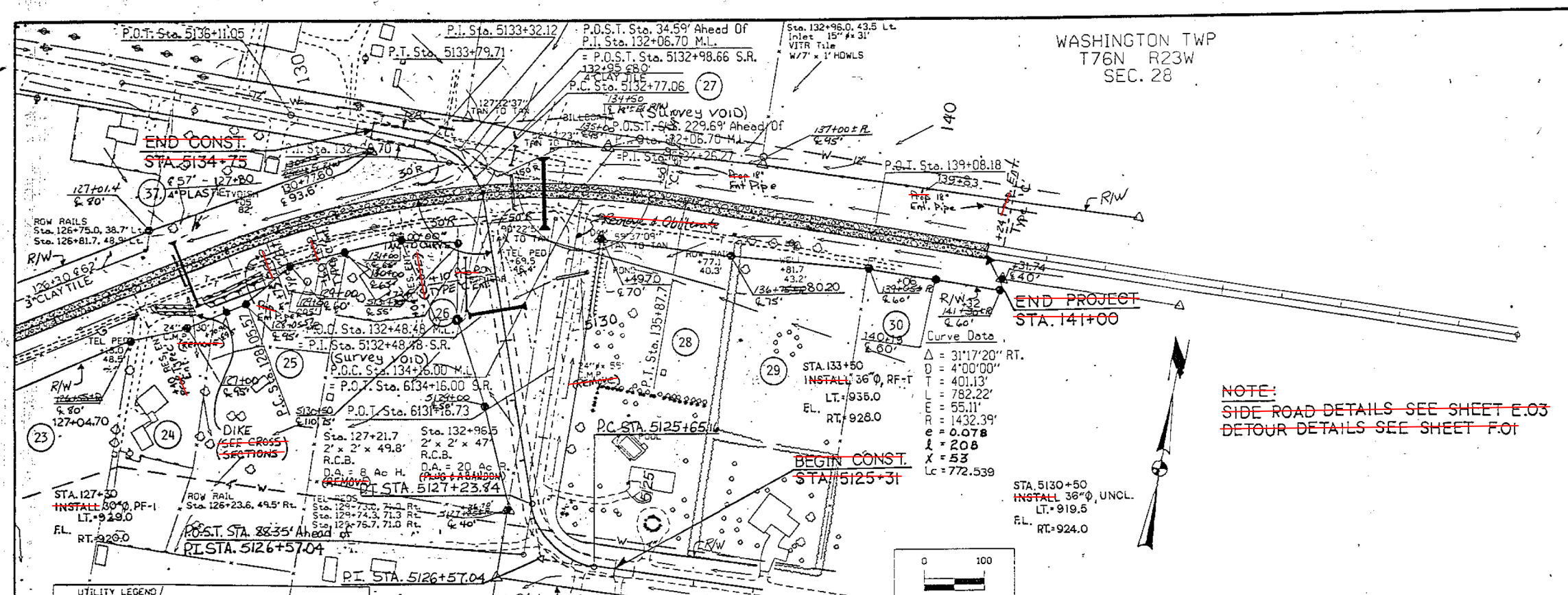
Stage 2 C=11,324 F+25=11,324



ROAD DESIGN • CAOD • PRODUCED STATE OF IOWA FHWA REGION 7 FISCAL YEAR WARREN COUNTY PROJECT NUMBER HES-92-5(27)-2H-91

This Sheet For Information Only





PROPERTY OWNERS

23. Virgil G. Moorman & Dorothy A. Moorman
24. Jeffrey J. Worthington & Pamela S. Worthington
25. Connie J. Hancock
26. Robert L. & Maxine R. Jones
27. Harold V. & Elinor Heisey
28. Charles D. & Nancy A. Furnald
29. James M. & Shirley A. McNutt
30. Judy L. Mitchell
37. Lyle George & Alice Joyce Ellis

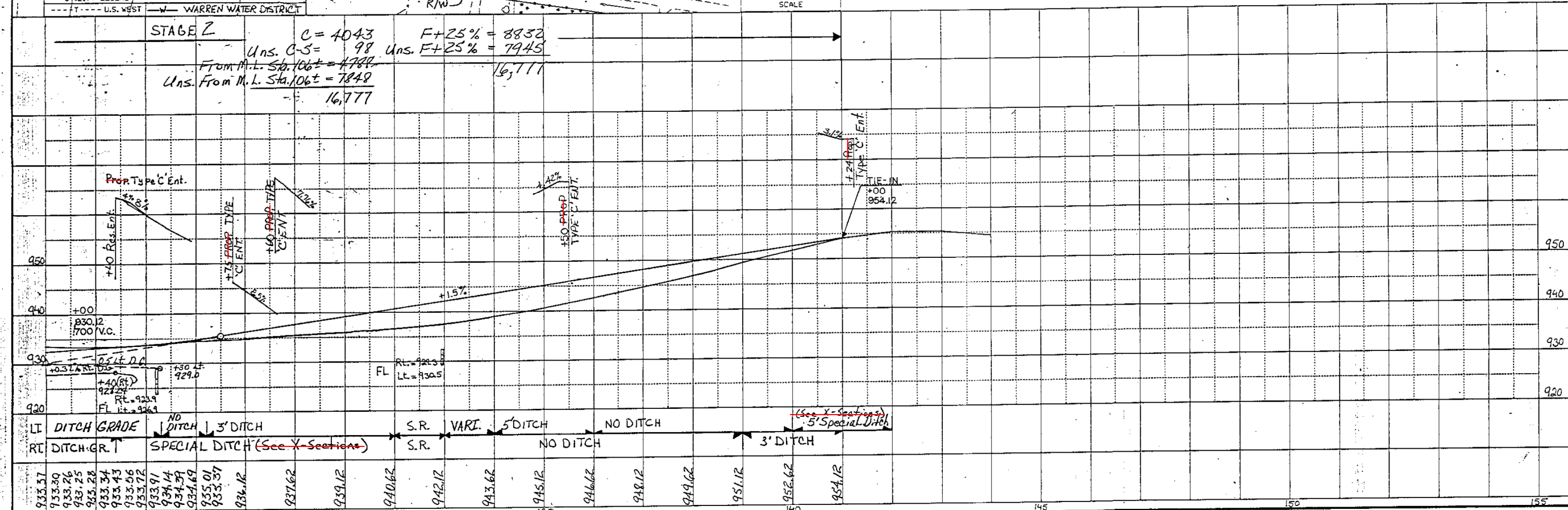
NOTE:
 SIDE ROAD DETAILS SEE SHEET E.03
 DETOUR DETAILS SEE SHEET F.01

UTILITY LEGEND

---	U.S. WEST
---	WARREN WATER DISTRICT

STAGE Z

$C = 4043$ $F+25\% = 8830$
 $Uns. C-5 = 98$ $Uns. F+25\% = 7945$
 From M.L. Sta. 106+ = 7849
 $Uns. From M.L. Sta. 106+ = 7849$
 16,777

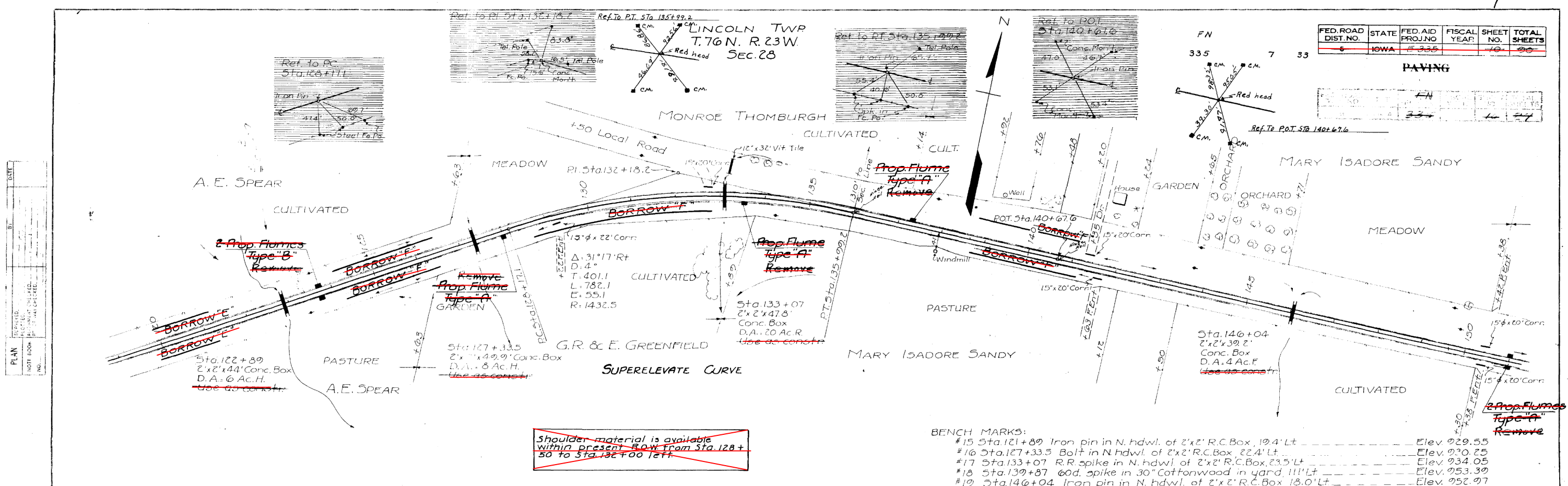


ROAD DESIGN • CADD • PRODUCED STATE OF IOWA FHWA REGION 7 FISCAL YEAR WARREN COUNTY PROJECT NUMBER ~~HES-92-5(27)-2H-91~~

This Sheet
For Information Only

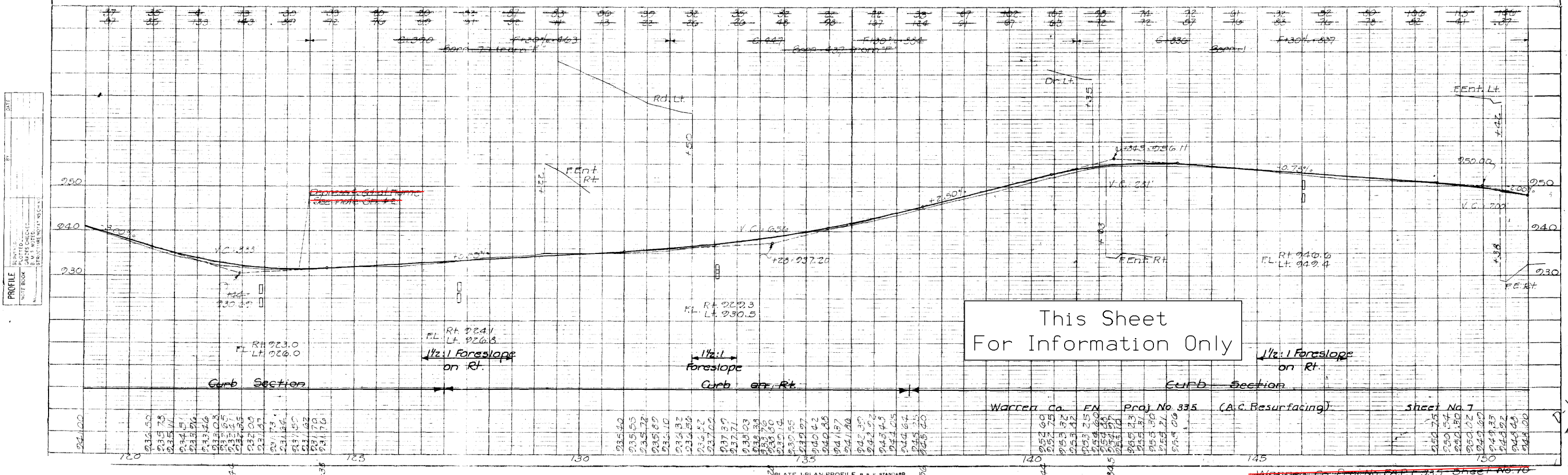
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	IOWA	E-335		17	30

PAVING



Shoulder material is available within present ROW from Sta. 128+50 to Sta. 132+00 left.

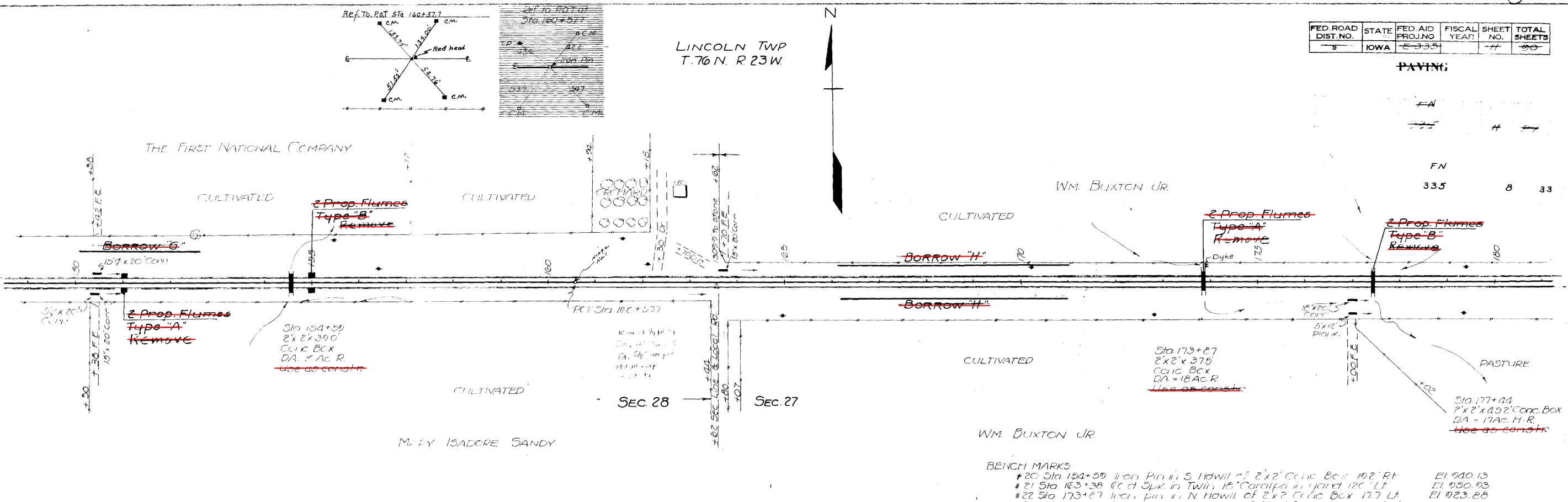
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For Information Only



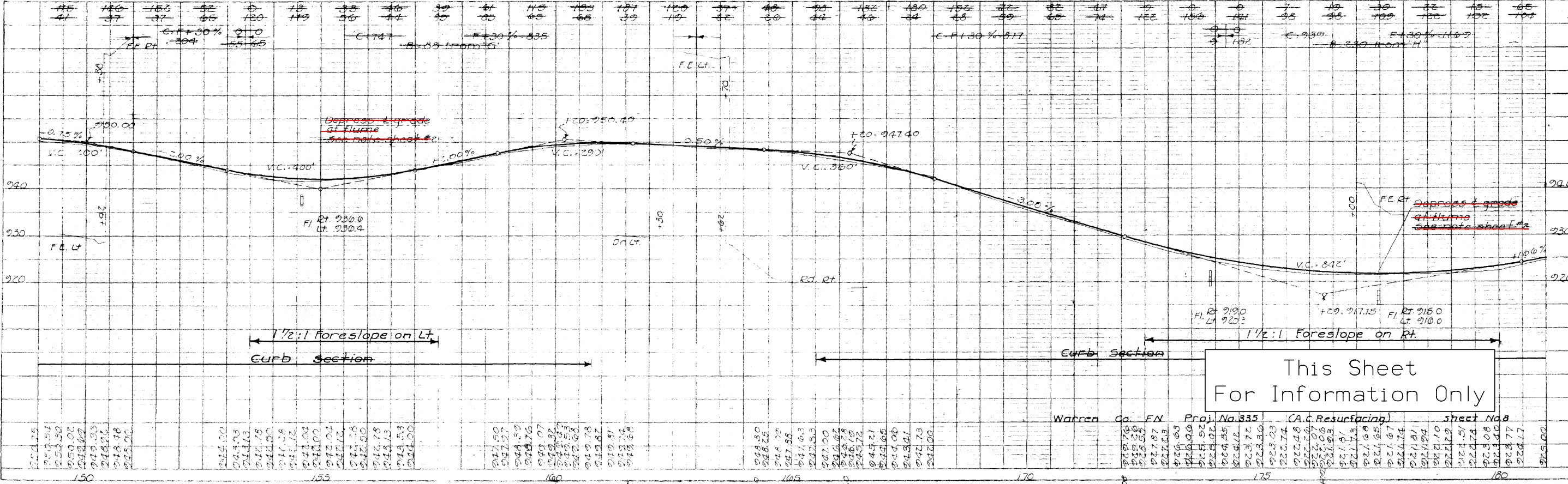
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	IOWA	335		11	30

LINCOLN TWP
T. 76 N. R. 23 W.

PAVING



- BENCH MARKS
- #20 Sta 154+50 Iron Pin in S Hdwl of 2'x2' Conc. Box 192' Rt. El 940.13
 - #21 Sta 163+38 C.C. Spk. in Twin 16" Corralpa in yard 120' Lt. El 950.93
 - #22 Sta 173+87 Iron Pin in N Hdwl of 2'x2' Conc. Box 177' Lt. El 923.88
 - #23 Sta 177+44 R.R. Spk. in N Hdwl of 2'x2' Conc. Box 222' Lt. El 919.51

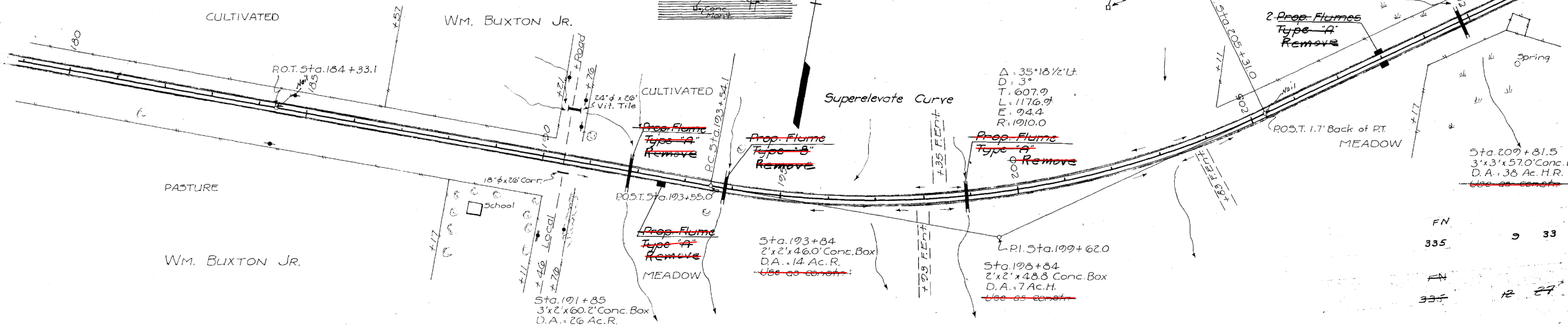
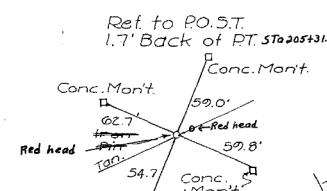
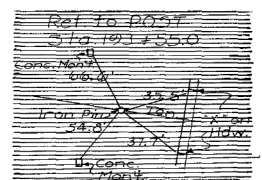
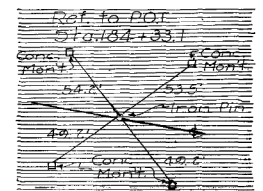
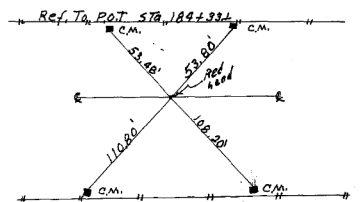


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For Information Only

Warren Co. FN Proj. No. 335 (A.C. Resurfacing) sheet No. 8

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	IOWA	2245		12	20

LINCOLN TWP.
T. 76N. R. 23W.
SEC. 27.

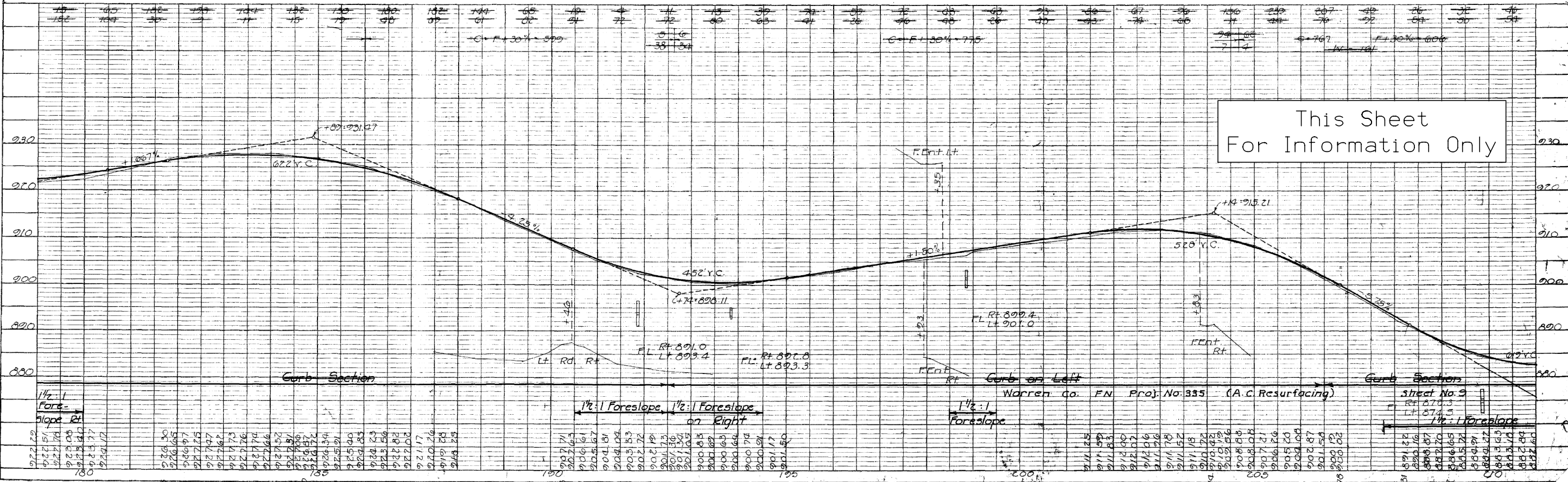


Shoulder material is available within present R.O.W. from Sta. 192+50 to Sta. 203+00 Right.

- BENCH MARKS:
- #24 Sta. 190+33 "X" in W. hdwl. of 24" cir. culv. under road North 107' Lt. --- Elev. 904.20
 - #25 Sta. 193+84 Iron pin in N. hdwl. of 2'x2' R.C. Box 22.3' Lt. --- Elev. 896.93
 - #26 Sta. 193+83 Iron pin in N. hdwl. of 2'x2' R.C. Box 22.4' Lt. --- Elev. 904.53
 - #27 Sta. 209+81.5 R.R. spike in N. hdwl. of 3'x3' R.C. Box 21.3' Lt. --- Elev. 879.46

PLAN	DATE
NO.	
BY	
DATE	
BY	
DATE	

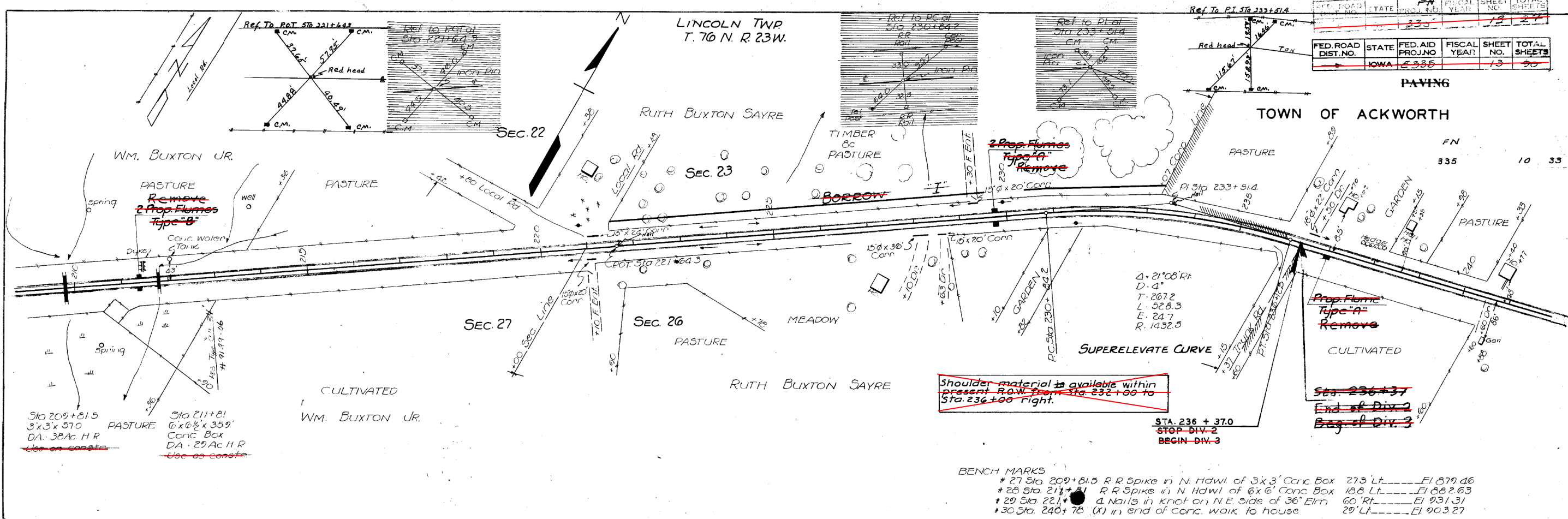
PROFILE	DATE
NO.	
BY	
DATE	
BY	
DATE	



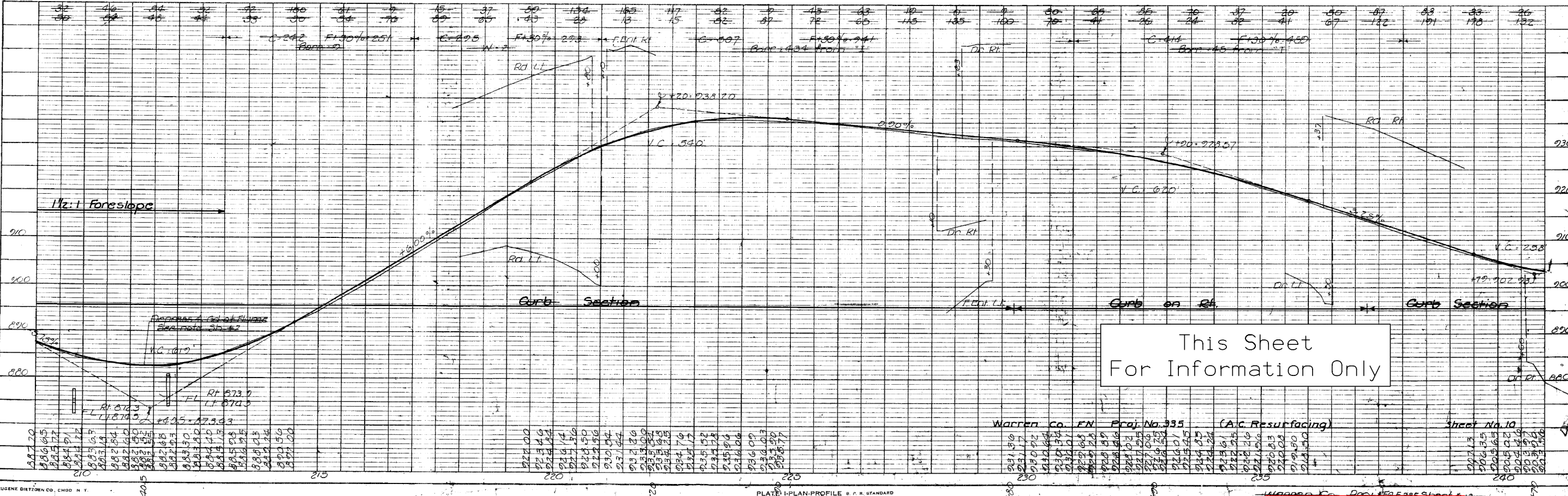
This Sheet For Information Only

EUGENE DIEBOLD CO. CHGO. N. I. PLATE I-PLAN-PROFILE B P.R. STANDARD

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
335	IOWA	335		13	30



BENCH MARKS
 # 27 Sta. 209+81.5 R.R. Spike in N Hdwl of 3x3' Conc. Box 273 Lt. ----- El. 879.46
 # 28 Sta. 211+81 R.R. Spike in N Hdwl of 6x6' Conc. Box 188 Lt. ----- El. 882.63
 # 29 Sta. 221+44 4 Nails in knot on N.E. Side of 36" Elm 60' Rt. ----- El. 931.31
 # 30 Sta. 240+78 (X) in end of conc. walk to house 29' Lt. ----- El. 903.27



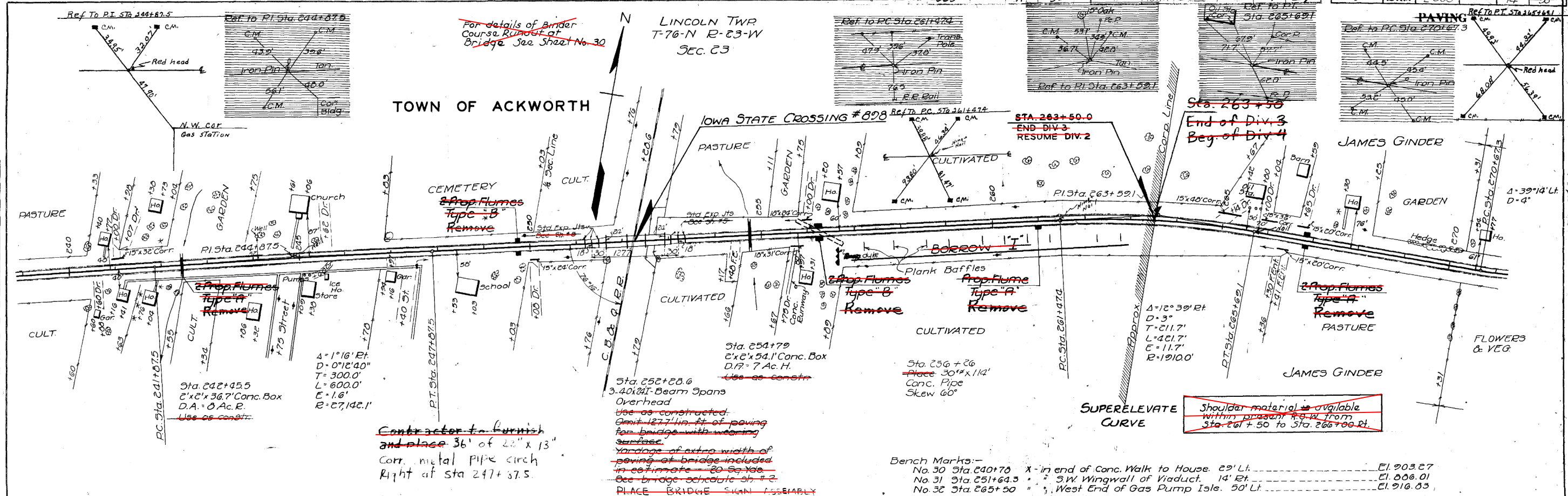
This Sheet For Information Only

Station	Area	Volume
200	1.15	1.15
205	1.15	2.30
210	1.15	3.45
215	1.15	4.60
220	1.15	5.75
225	1.15	6.90
230	1.15	8.05
235	1.15	9.20
240	1.15	10.35

DATE	BY

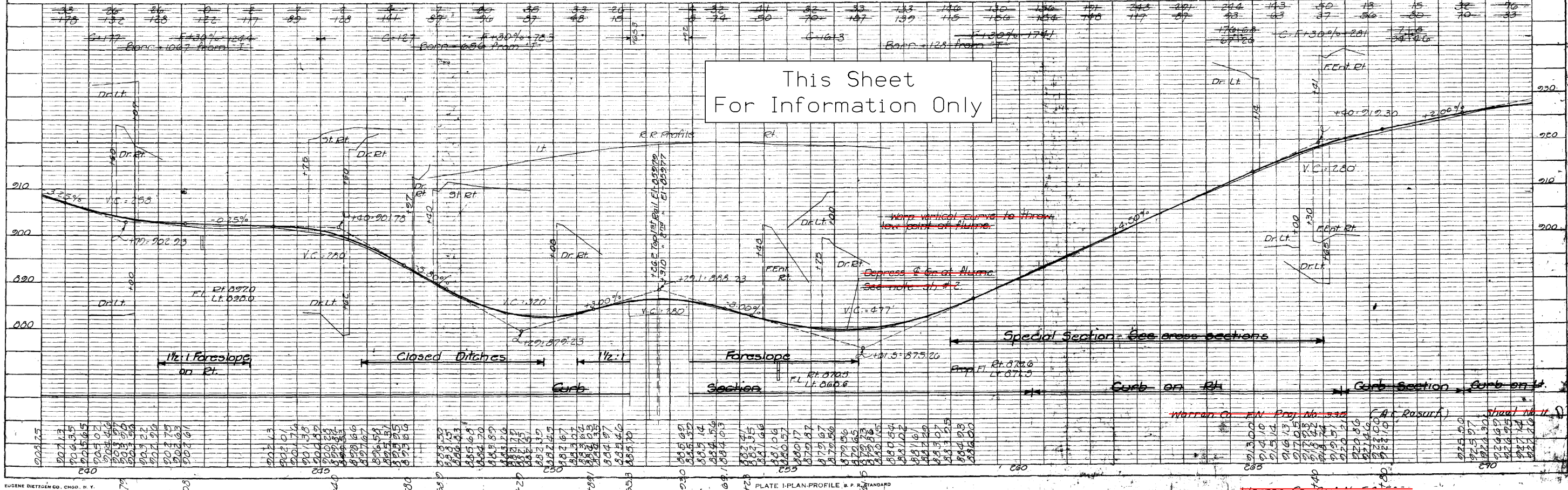
DATE	BY

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	IOWA	2006		21	30



PLAN	DATE
DATE	
BY	
CHECKED	
NOTED	
NO.	

PROFILE	DATE
DATE	
BY	
CHECKED	
NOTED	
NO.	



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	IOWA	E-336		12	30

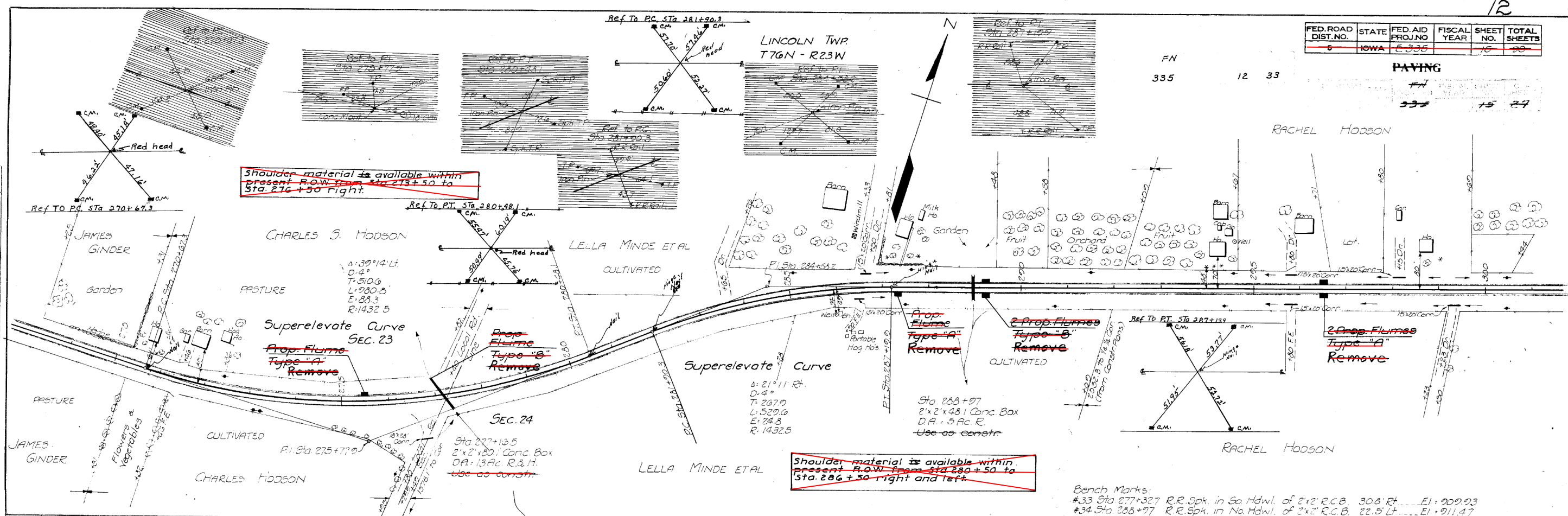
FN
335 12 33

PAVING

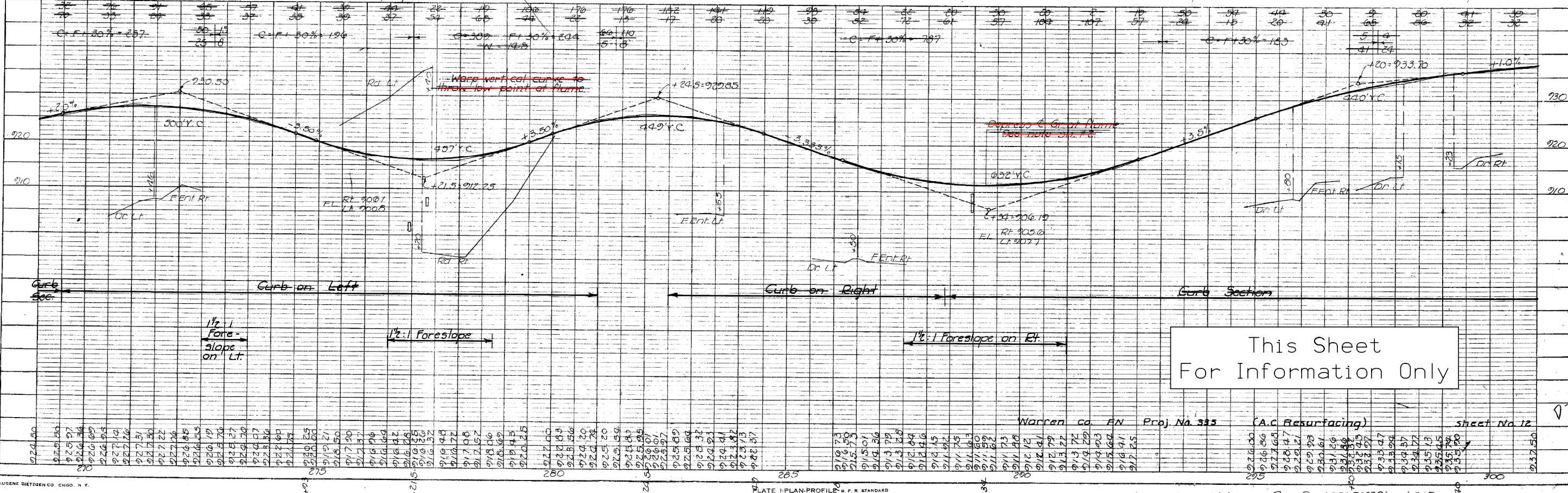
335 12 33

DATE: _____ BY: _____
 SURVEYED, PLOTTED, AND CHECKED BY: _____
 NOTE BOOK NO. _____ REF. OF WAY CHECKED: _____
 PLAN NO. _____

DATE: _____ BY: _____
 SURVEYED, PLOTTED, AND CHECKED BY: _____
 NOTE BOOK NO. _____ STRUCTURE NOTATION: _____
 PROFILE NO. _____



Bench Marks:
 #33 Sta 277+327 R.R. Spk. in So Hdwl. of 2x2' R.C.B. 308 Rt. ... EL: 909.93
 #34 Sta 288+97 R.R. Spk. in No Hdwl. of 2x2' R.C.B. 22.5 Lt. ... EL: 911.47



This Sheet For Information Only

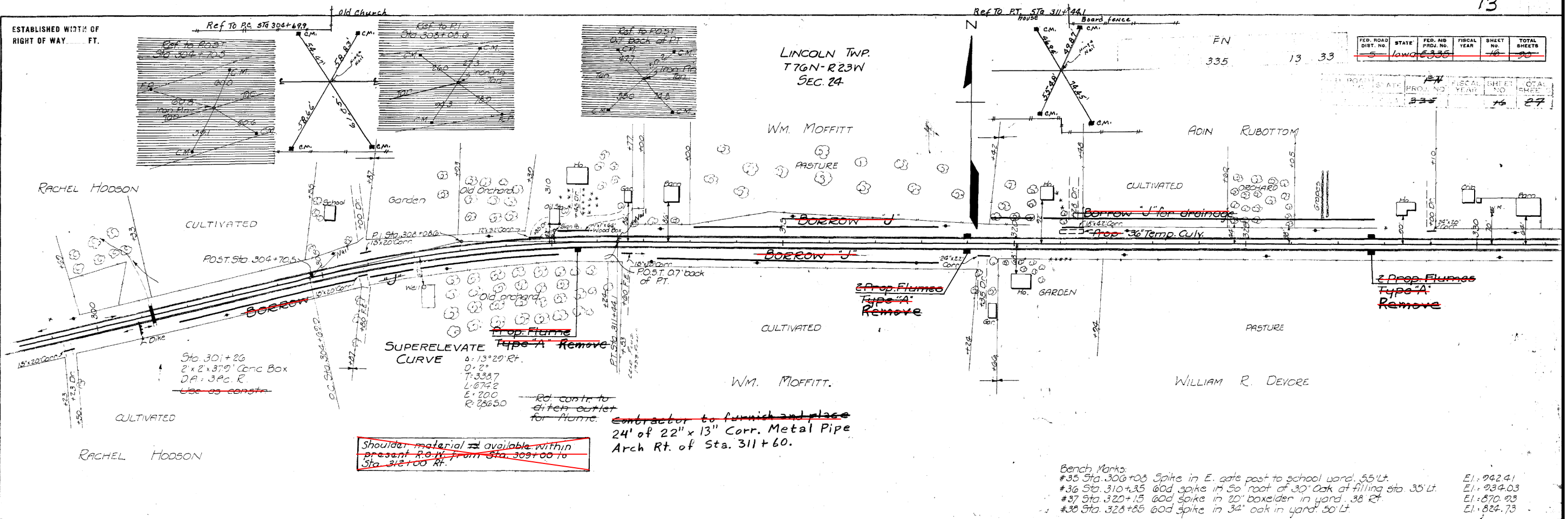
Warren Co. FN Proj. No. 335 (A.C. Resurfacing) sheet No. 12

Warren Co. Proj. #A05335 Sheet #15
 Warren Co. FN Proj. No. 335 File: Warren_Sheet_No.15

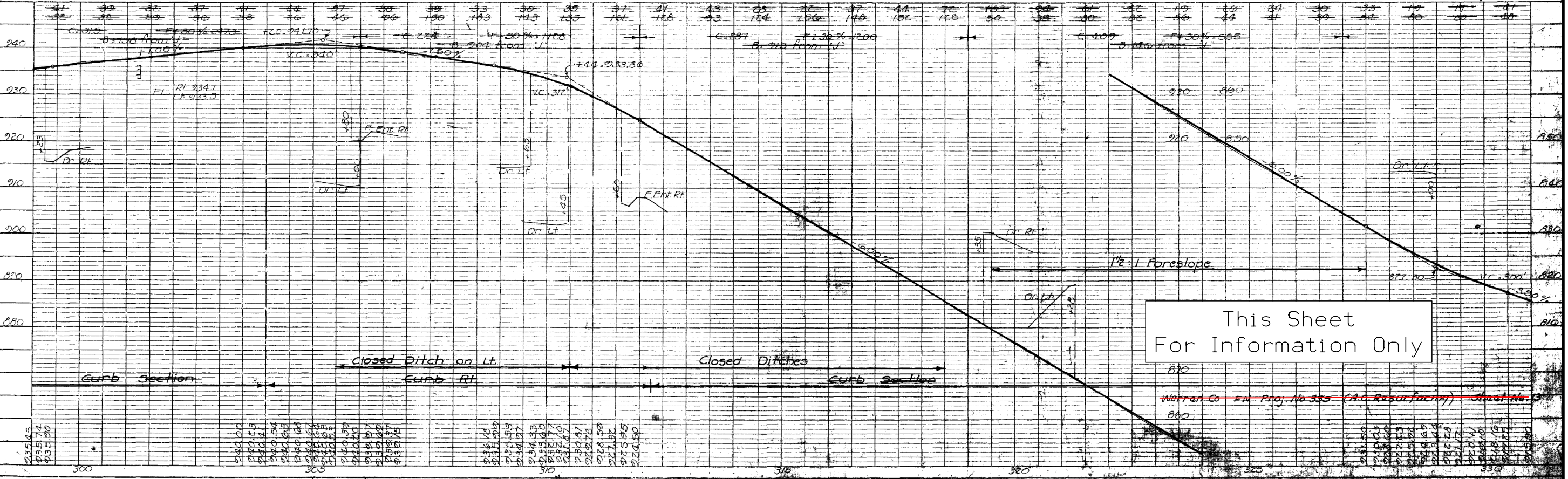
ESTABLISHED WIDTH OF RIGHT OF WAY FT.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	Low	335		16	30

LINCOLN TWP. T76N-R23W SEC. 24

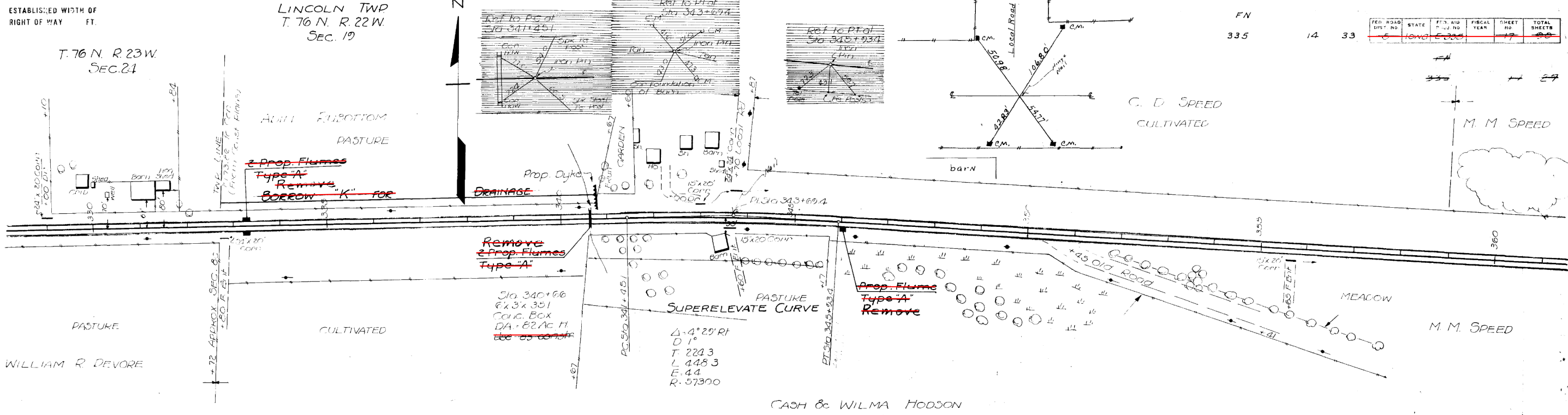


Bench Marks:
 #35 Sta. 300+03 Spike in E. gate post to school yard. 55' Lt. El: 922.41
 #36 Sta. 310+35 60d spike in 50' root of 30' Oak at filling sta. 35' Lt. El: 934.03
 #37 Sta. 320+15 60d spike in 20' boxelder in yard. 38 Rt. El: 870.93
 #38 Sta. 328+85 60d spike in 34' oak in yard. 50' Lt. El: 824.73



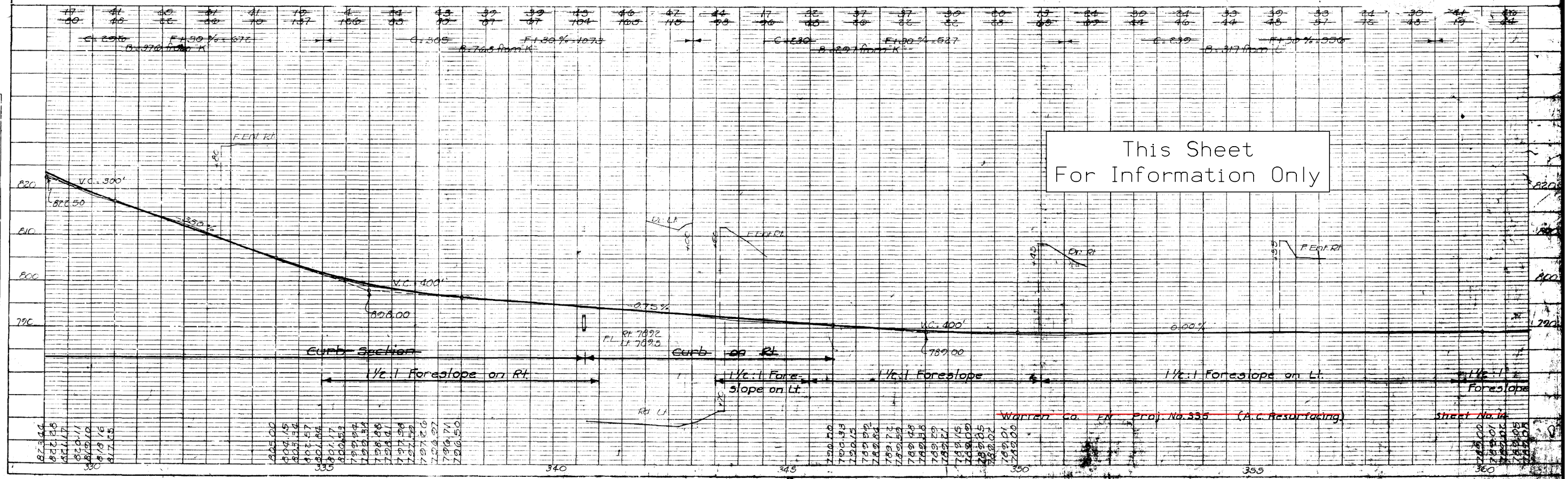
DATE	
BY	
PLANNED	
NOTED	
NO.	

DATE	
BY	
PROFILING	
NO.	



Shoulder material is available within present R.O.W. from Sta 345+00 to Sta 349+30 and from Sta 345+00 to Sta 349+00 left

BENCH MARKS
#39 Sta 340+66 Iron pin in N.W. corner of 4x3' Con. Box 173' Lt. E.L. 794.37



This Sheet For Information Only

Warren Co. EN Proj. No. 335 (A.C. Resurfacing)

Sheet No. 14

DATE	
DESIGNED BY	
PLOTTED BY	
ALIGNMENT CHECKED BY	
RIGHT OF WAY CHECKED BY	
NOTE BOOK NO.	

DATE	
DESIGNED BY	
PLOTTED BY	
GRADES CHECKED BY	
STRUCTURE NOTATION CHECKED BY	
NOTE BOOK NO.	

ESTABLISHED WIDTH OF RIGHT OF WAY FT.

LINCOLN TWP. T.76 N. R.22 W.

UNION TWP. T.76 N. R.22 W.

FN 335 15 33

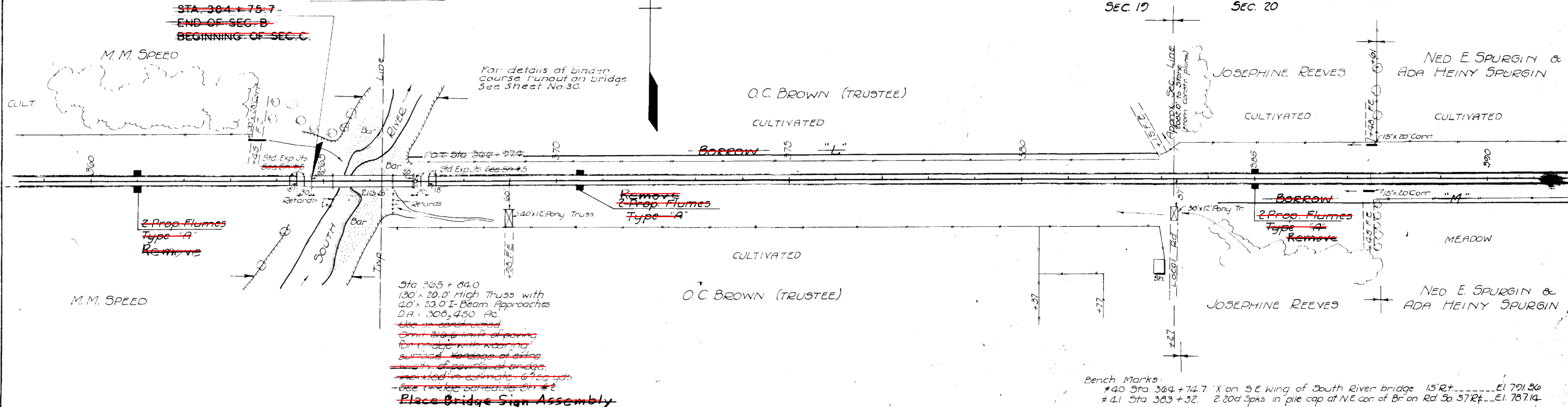
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
335	IA	0305	03	15	33

DATE: _____ BY: _____

PLAN: DRAWN BY: _____

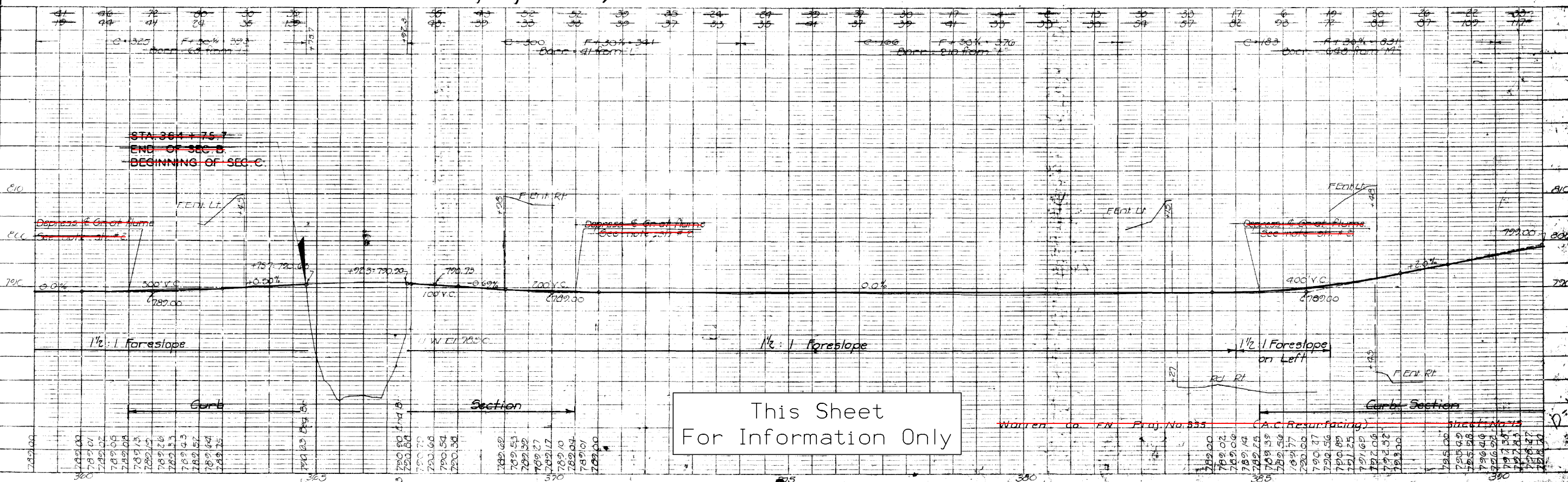
NOTED BY: _____

NO. _____



Sta 365 + 84.0
 130' x 20.0' High Truss with
 20' x 20.0' I-Beam Approaches
 DA: 308,450 AC
 Use as constructed
 Omit all limits of paving
 for bridge with wearing
 surface. Vantage of bridge
 width of paving of bridge
 marked in estimate. 6/20/03
 See the log schedule on #2
Place Bridge Sign Assembly

Bench Marks:
 #40 Sta 364 + 74.7 'X' on S.E. wing of South River bridge 15' R+ El. 791.36
 #41 Sta 383 + 32. 2.20d Spks. in pile cap at N.E. cor. of Br on Rd 50 57 R+ El. 787.14



DATE: _____ BY: _____

PROFILE: DRAWN BY: _____

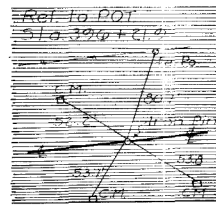
NOTED BY: _____

NO. _____

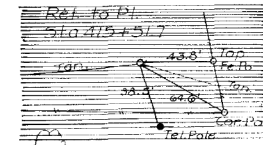
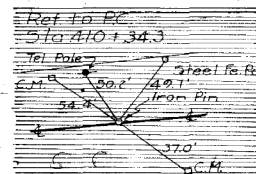
This Sheet For Information Only

Warren Co. FN Proj. No. 335 (A.C. Resurfacing) Sheet No. 15

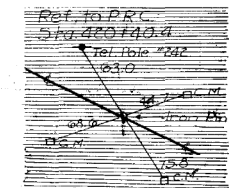
ESTABLISHED WIDTH OF
RIGHT OF WAY FT.



UNION TWP Ref. To PC Sta 410+34.3
T.76N. R.22W.
SEC. 20



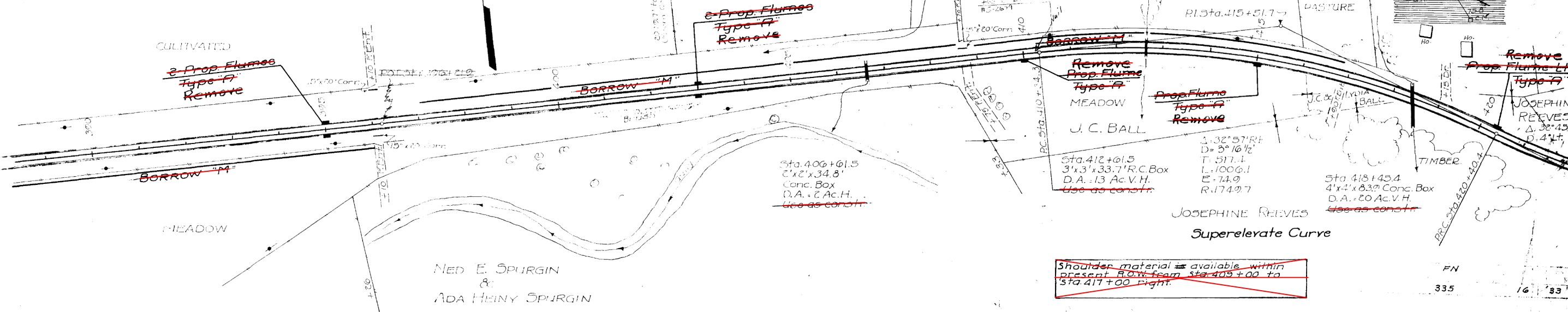
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	IA	335		19	90



NED E. SPURGIN &
ADA HEINY SPURGIN

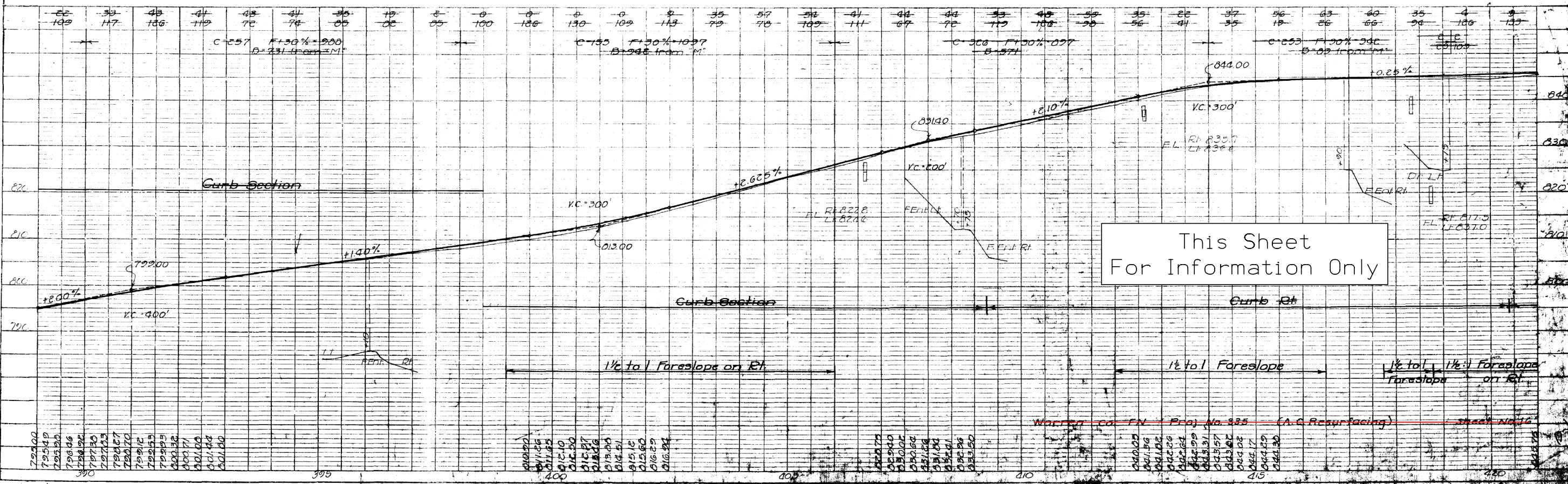
J.C. BALL
J.C. & LYDIA BALL

JOSEPHINE REEVES
D. 32'45"
D. 4'11"



~~Shoulder material is available within present R.O.W. from Sta. 405+00 to Sta. 417+00 right.~~

BENCH MARKS:
#42 Sta. 405+60 60d. spike in N.E. side of 15" Oak 45' RT. ----- Elev. 821.21
#43 Sta. 412+61.5 "X" on No. Hdwl. of 3'x3' R.C.B. 114' LT. ----- Elev. 841.32
#44 Sta. 418+36.3 Iron pin in No. Hdwl. of 4'x4' R.C.B. 22.7' LT. ----- Elev. 842.77



This Sheet
For Information Only

~~Written for FN - Proj. No. 335 (A.C. Resurfacing) - sheet No. 19~~

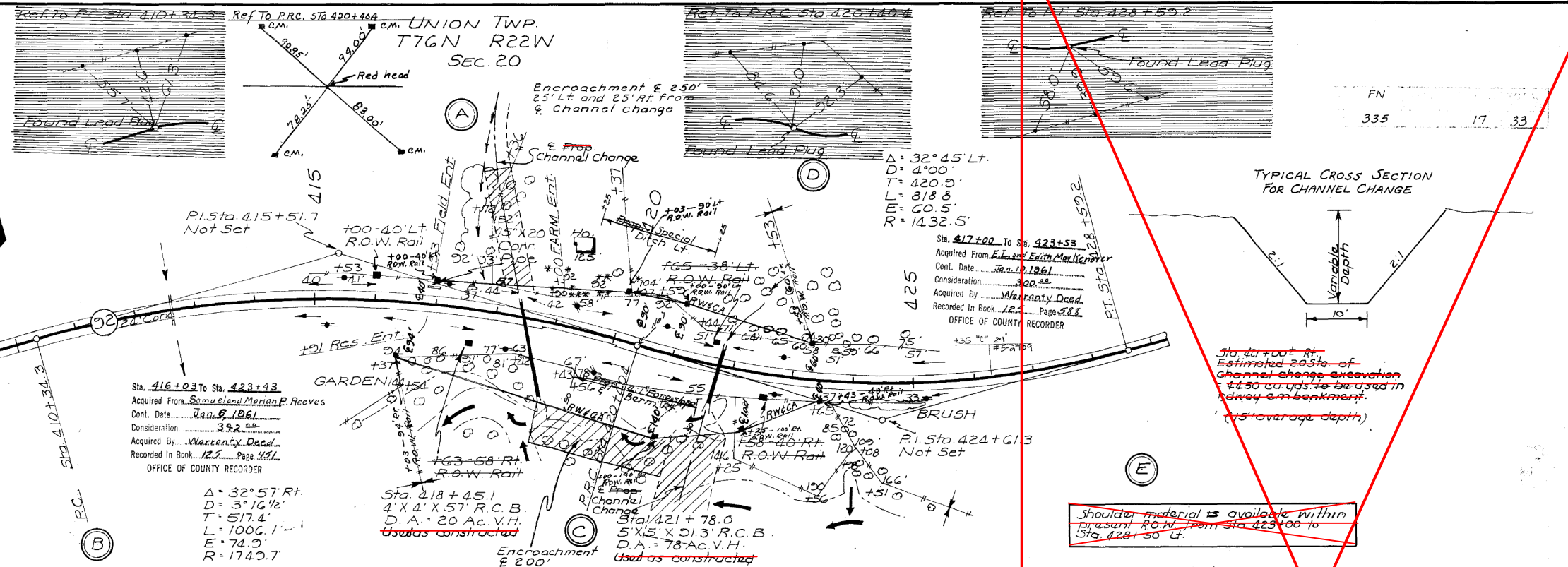
Property Owners:
A- Everett L. Kenoyer
B- S.O. Reeves
C- S.O. & W.E. Reeves
D- M.E. Reeves
E- J. Reeves

Contractor may use heavy equipment during hauling operations across present pavement. Contractor will be allowed a fifty (50) foot maximum crossing over present pavement and will replace present pavement at his own expense upon completion of hauling operations.

Sta. 418+00+ Lt.
Estimated 20 Sta. of channel change excavation - 780 cu. yds. Use 680 cu. yds. in roadway embankment and 100 cu. yds. for filling old channel (5' average depth).
Rd. cont. to be used broken cone from old pavement and any additional available broken cone in area distribute evenly in bottom of channel as directed by the engineer in charge of construction.

Shoulder material is available within present R.O.W. from Sta. 409+00 to Sta. 417+00 Rt.

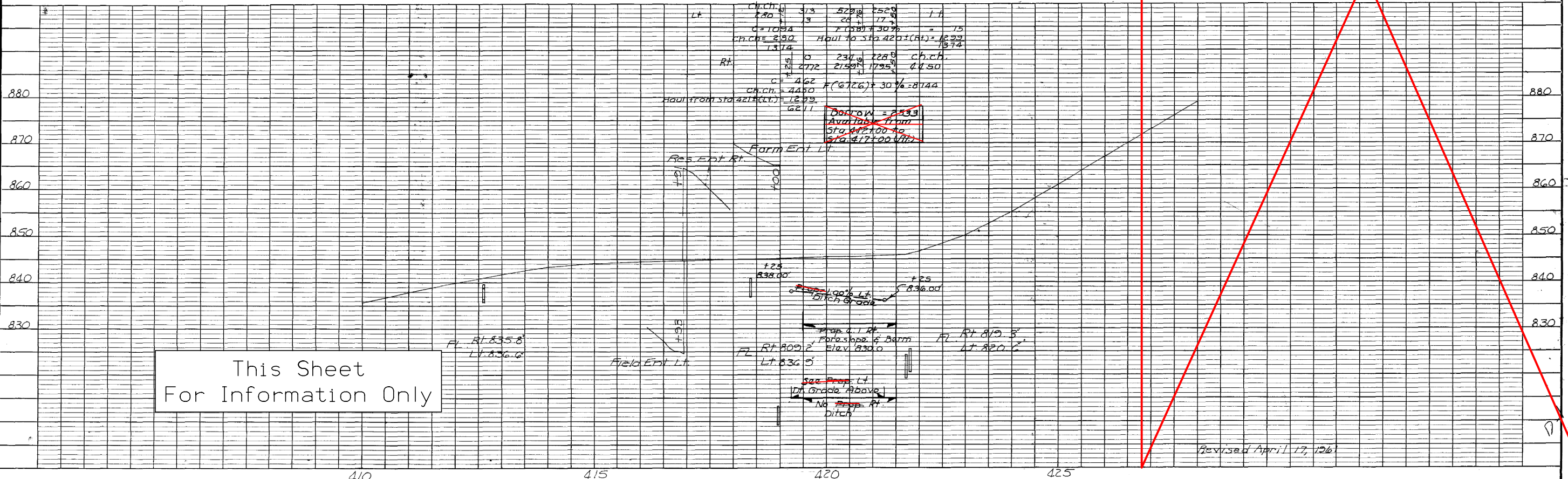
Shoulder material is available within present R.O.W. from Sta. 423+00 to Sta. 428+50 Lt.



BENCH MARKS:

No. 43	Sta. 412+61-17' Lt.	(X) on N. Hdwl. 3'x3' R.C.B.	EL. 841.32'
No. 44	Sta. 418+36-23' Lt.	Iron Pin in N. Hdwl. 4'x4' R.C.B.	EL. 842.77'
No. 45	Sta. 421+81-27' Lt.	Iron Pin in N. Hdwl. 5'x5' R.C.B.	EL. 840.12'

LEGEND:
• N.W. Bell Tel. Co.
• Ia. Power & Light Co.

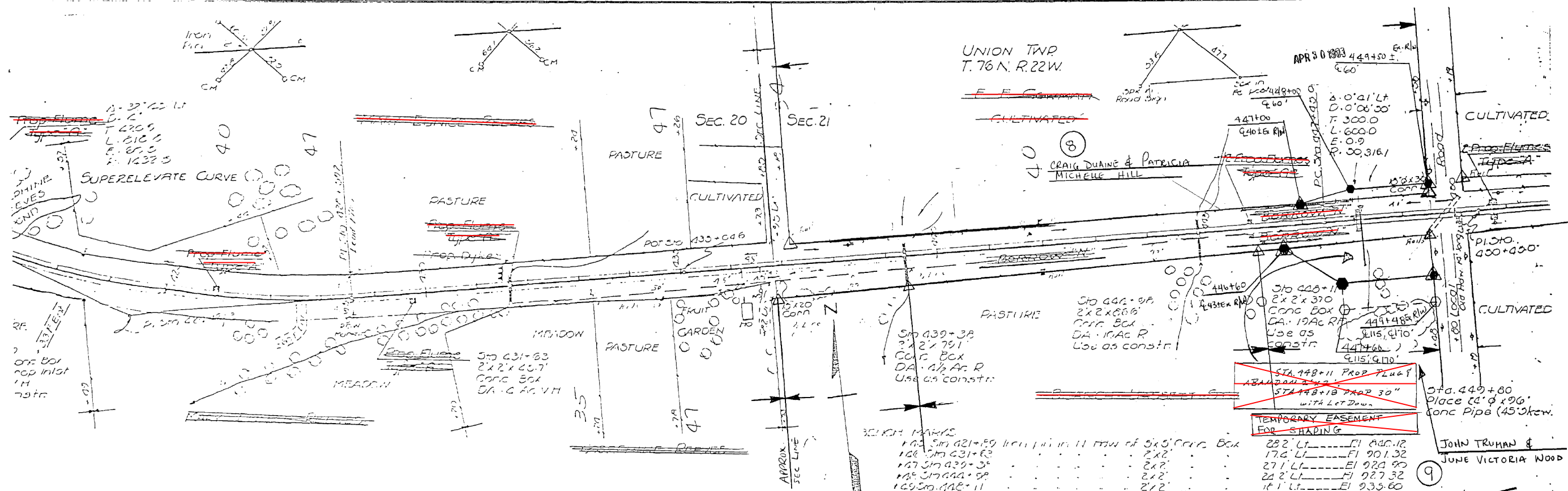


This Sheet For Information Only

Revised April 17, 1961

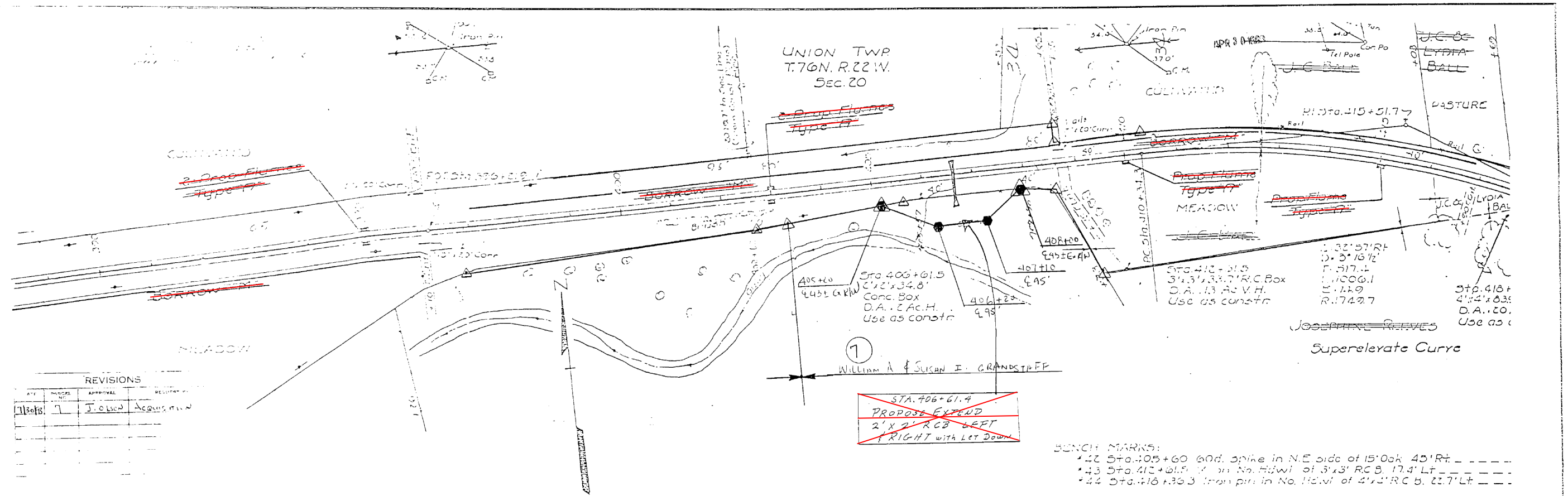
PLATE 1 - PLAN PROFILE O. P. R. & E. STANDARD
NO. 131 REPRODUCED FROM AND PRINTED IN U. S. A.
RUSSELL METZGER CO. CHICAGO

Warren Co. FN Proj. No. 335 (A.e. Resurfacing) Sheet No. 17



11	10	9	8	7	6	5	4	3	2	1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
11	10	9	8	7	6	5	4	3	2	1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
11	10	9	8	7	6	5	4	3	2	1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

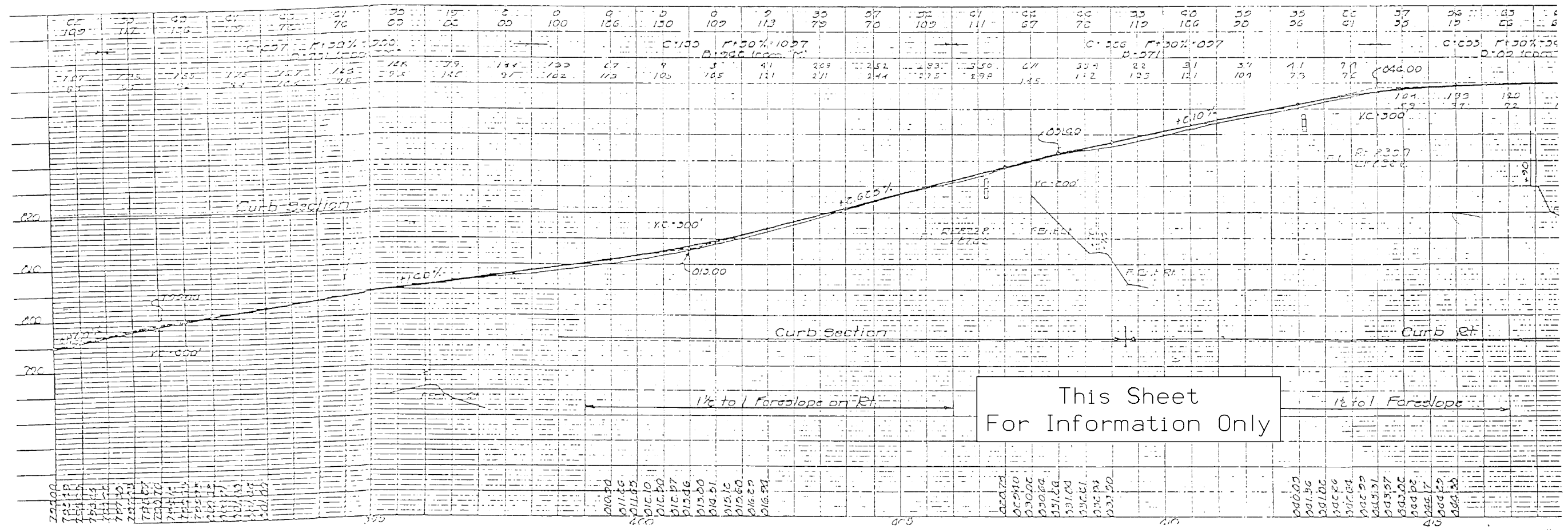
This Sheet
For Information Only



REVISIONS

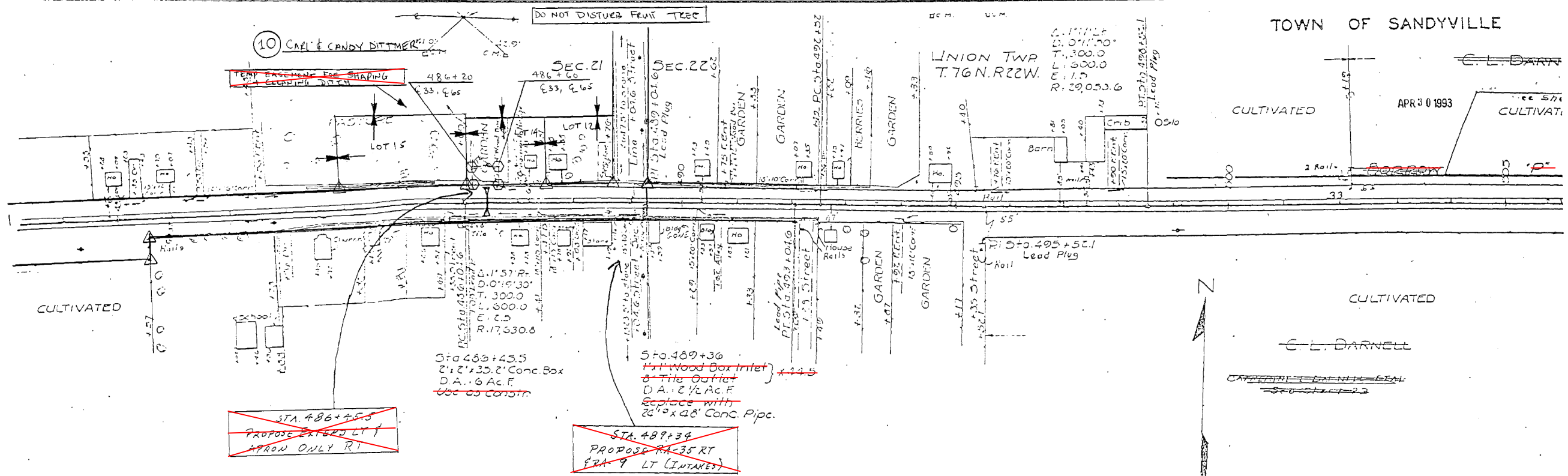
REV.	DATE	APPROVAL	DESCRIPTION
1	11/26/13	J. O'Brien	Acquisition

BENCH MARKS:
 *22 Sta. 405+60 60d. spike in N.E. side of 15' Oak 45' Rt.
 *43 Sta. 412+01.5 1' in No. H.W.I. of 3'x3' R.C.B. 17.4' Lt.
 *44 Sta. 416+36.3 Iron pin in No. H.W.I. of 4'x4' R.C.B. 22.7' Lt.



STATE OF IOWA FHWV REGION 7 FISCAL YEAR WARREN CO. COUNTY PROJECT NUMBER **NHS-92-5(35)-19-91** SHEET NUMBER **D-02**

TOWN OF SANDYVILLE



~~TEMP. BASEMENT FOR SHADING~~
~~PROPOSE EXTEND LT 1~~
~~APRON ONLY RT~~

~~STA. 486+45.5~~
~~PROPOSE EXTEND LT 1~~
~~APRON ONLY RT~~

Sta. 489+36
1" x 1" Wood Box Intert
to the Outlet
D.A. 1/2 AC.F.
Replace with
24" x 48" Conc. Pipe.

~~STA. 489+34~~
~~PROPOSE RA-35 RT~~
~~GRA-9 LT (INTAKES)~~

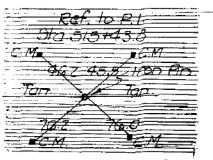
BMENCH MARKS:
+53 Sta. 488+69 'X' on NE. cor. of conc. platform in Sandyville 29' Rt.
+54 Sta. 509+72 'X' on So. side of 2' x 2' R.C.B. 20.0' Rt.

30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100																														
100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200

This Sheet
For Information Only

ESTABLISHED WIDTH OF RIGHT OF WAY FT.

Ref to P.I. Sta 515+43.8



UNION TWP. T76N-R22W SEC. 22

F.N. 335 21 33

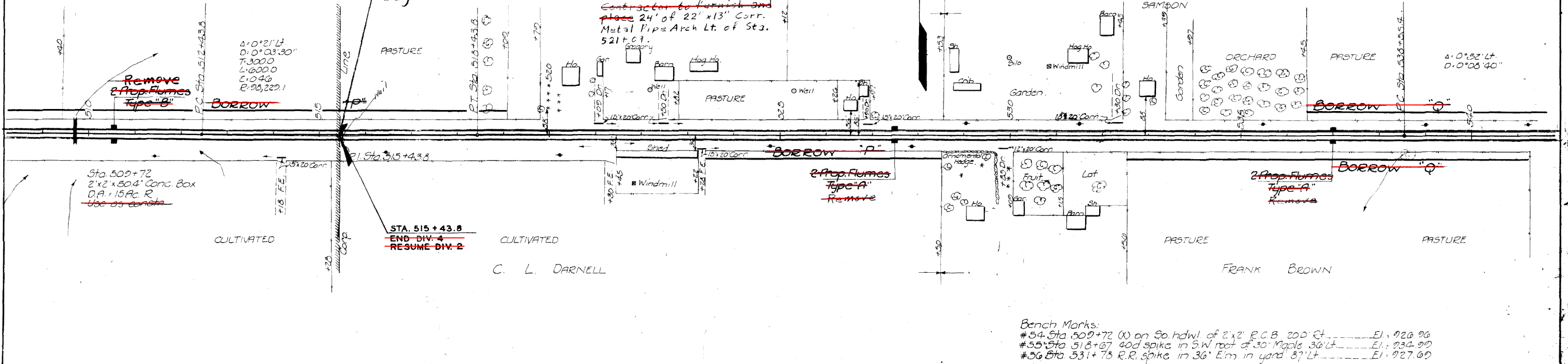
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	INDIANA	5335	2000	21	33

TOWN OF SANDYVILLE

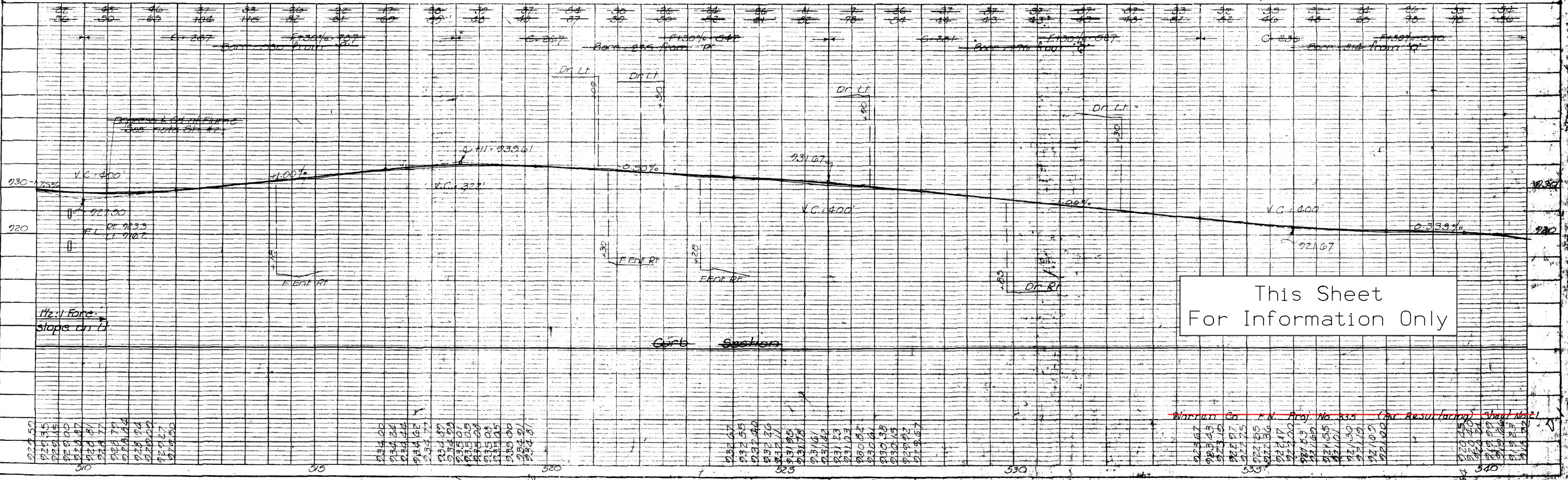
Sta. 515+43.8
End of Div. 5
Beg of Div. 6

C. L. DARNELL
Contractor to furnish and place 24' of 22" x 13" Corr. Metal Pipe Arch Lt. of Sts. 521+01.

ADA E. SANDY SAMSON



Bench Marks:
 #54 Sta 509+72 (W) on So. hdwl. of 2'x2' R.C.B. 200 Ft. El. 926.96
 #55 Sta 518+67 40d spike in S.W. roof of 30' Maple 36' Lt. El. 934.99
 #56 Sta 531+73 R.R. spike in 36' Elm in yard 87' Lt. El. 927.00



This Sheet For Information Only

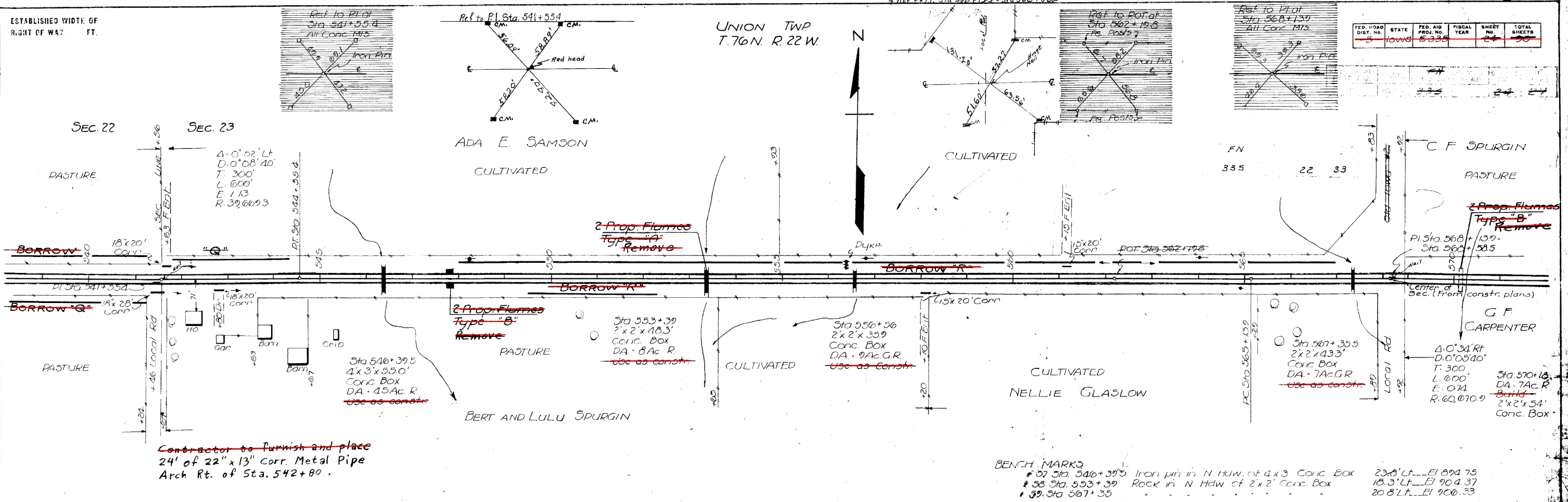
WARREN/MARION COUNTY PROJECT NUMBER NHSX-092-5(63)--3H-91 SHEET NUMBER U.31

FILE NO. ENGLISH DESIGN TEAM Holst \ Maach \ Campbell

ESTABLISHED WIDTH OF RIGHT OF WAY FT.

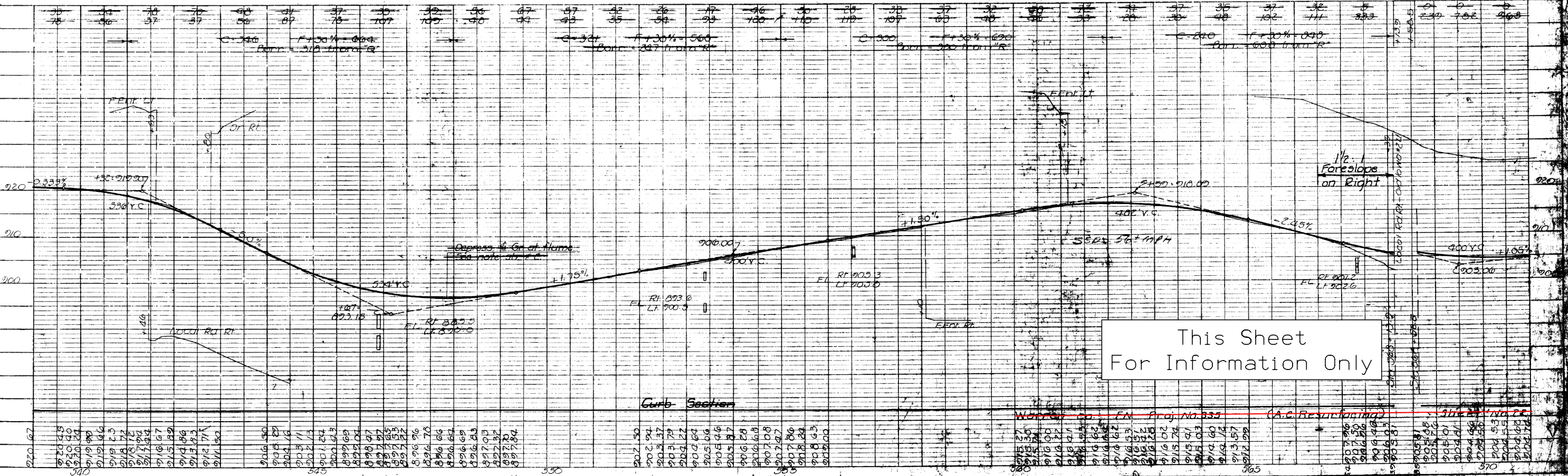
UNION TWP T.76N. R.22W

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1000	IND	5335		24	30



Contractor to furnish and place 24' of 22" x 13" corr. Metal Pipe Arch Rt. of Sta. 542+80.

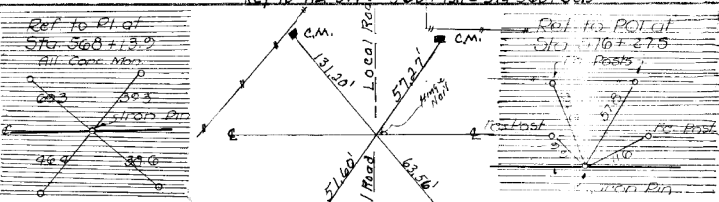
BENCH MARKS
 # 57 Sta. 546+39.5 Iron pin in N Hd. of 4x3 Conc. Box 23.8' Lt. El 904.75
 # 58 Sta. 553+39 Rock in N Hd. of 2x2 Conc. Box 18.3' Lt. El 904.37
 # 59 Sta. 567+35 20.8' Lt. El 906.33



This Sheet For Information Only

WARREN/MARION COUNTY PROJECT NUMBER NHSX-092-5(63)--3H-91 SHEET NUMBER U.32

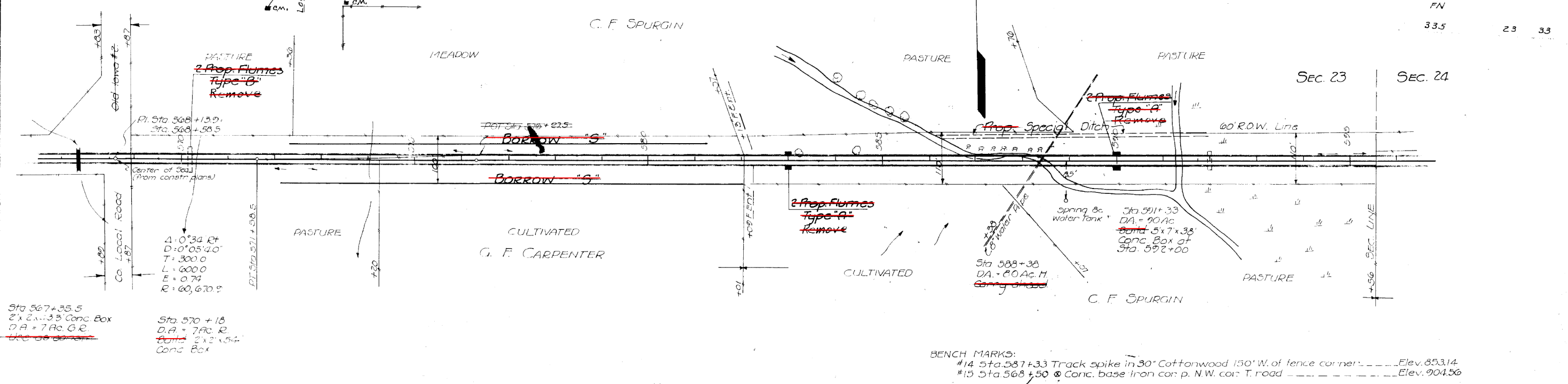
ESTABLISHED WIDTH OF RIGHT OF WAY FT



UNION TWP
T. 76 N. R. 22 W.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	IND	635		23	33

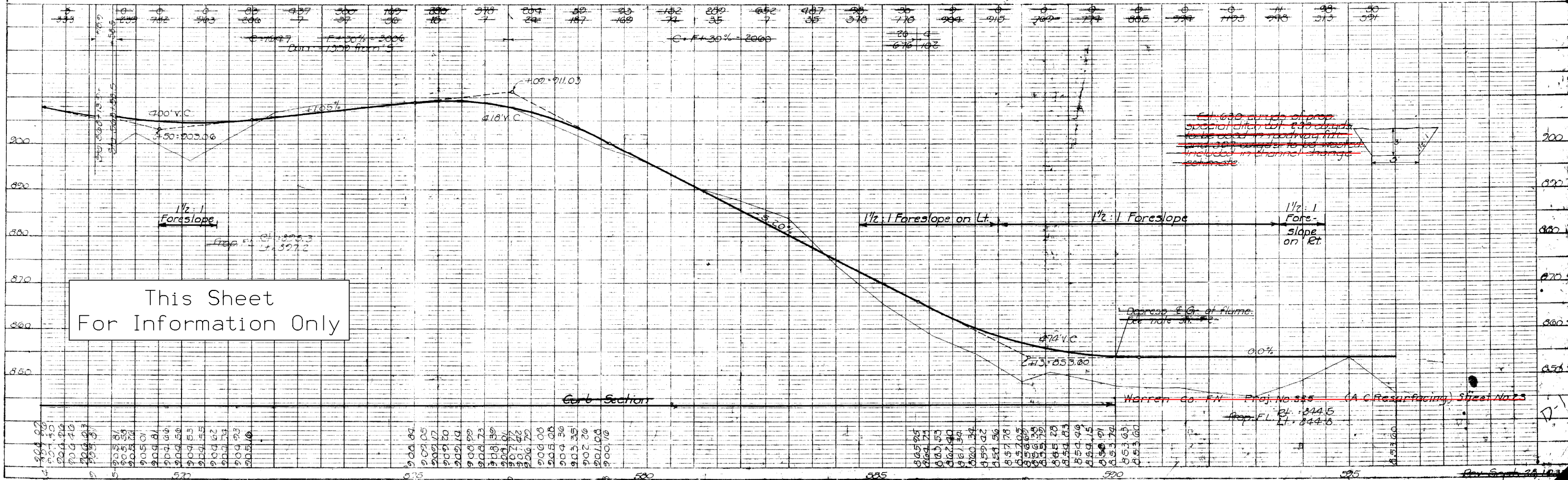
FN
33.5 23 33



Sta 567+35.5
2 x 2 x 33 Conc. Box
D.A. = 7 Ac. G.R.

Sta 570+18
D.A. = 7 Ac. R.
2 x 2 x 54 Conc. Box

BENCH MARKS:
#14 Sta. 587+33 Track spike in 30" Cottonwood 150' W. of fence corner ----- Elev. 853.14
#15 Sta 568+50 Conc. base iron cor. p. N.W. cor. T. road ----- Elev. 904.56



This Sheet
For Information Only

EUGENE DISTRICT CO., CHGO. N. 4/17/2018
PLATE 1-PLAN PROFILE
Warren Co. Proj. No. 335 (A.C. Resurfacing) Sheet No. 23
Prop. F.L. El. 844.6

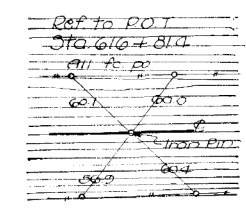
ESTABLISHED WIDTH OF RIGHT OF WAY FT.

For details of runouts at underpass Sta. 600+41.35. See sheet No. 30.

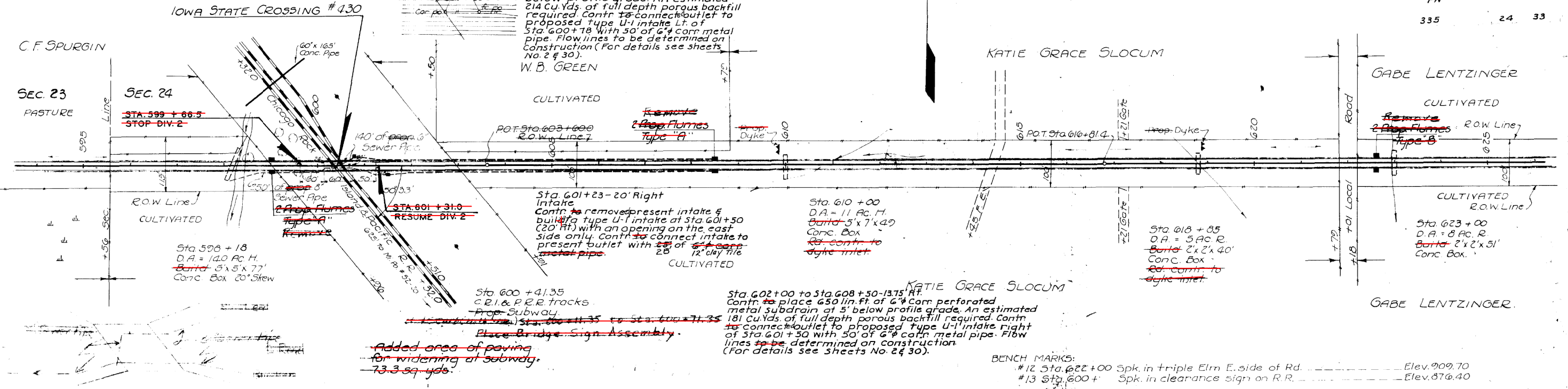
Contractor to remove well on Lt. and approx 1' of wall on Rt. and turn ditch directly into tile.

Sta. 600+78-18.3' left Intake Contractor to remove present intake & build type U-1 intake at Sta. 600+78 (18.3' Lt.) with an opening on the east side only.

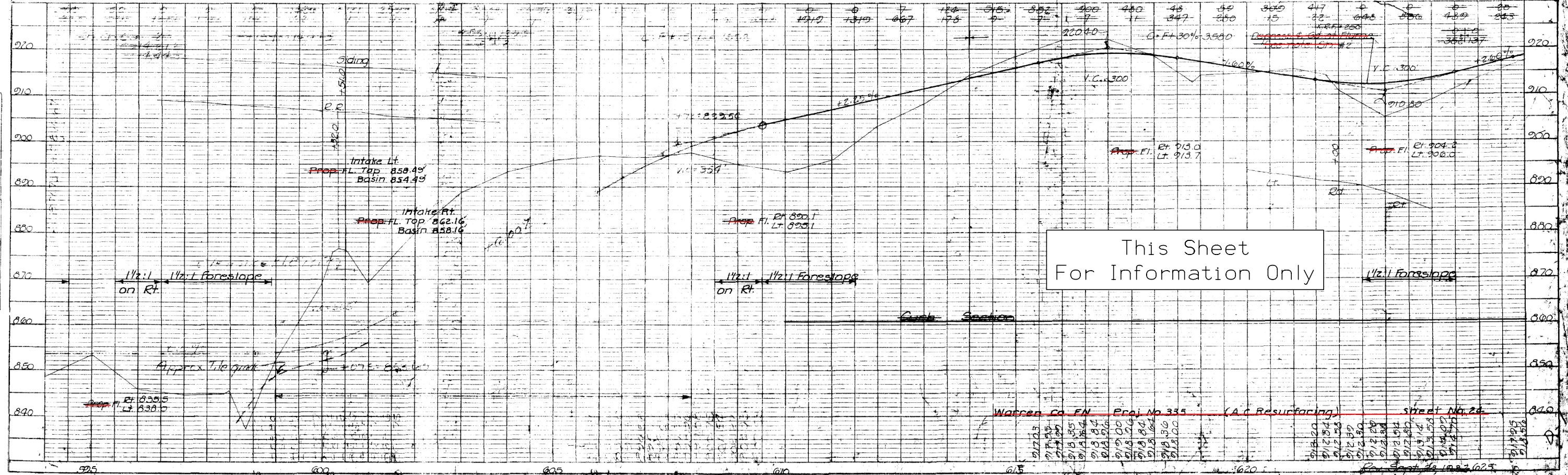
UNION TWP. T. 76 N. R. 22 W. SEC. 24



FYD ROAD DIST NO.	STATE	FED AID PROJ NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	Iowa	335		24	33

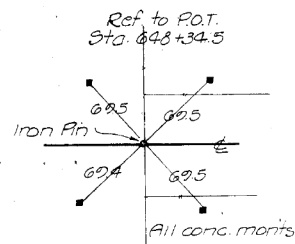


BENCH MARKS:
 #12 Sta. 622+00 Spk. in triple Elm E. side of Rd. Elev. 909.70
 #13 Sta. 600+ Spk. in clearance sign on R.R. Elev. 876.40



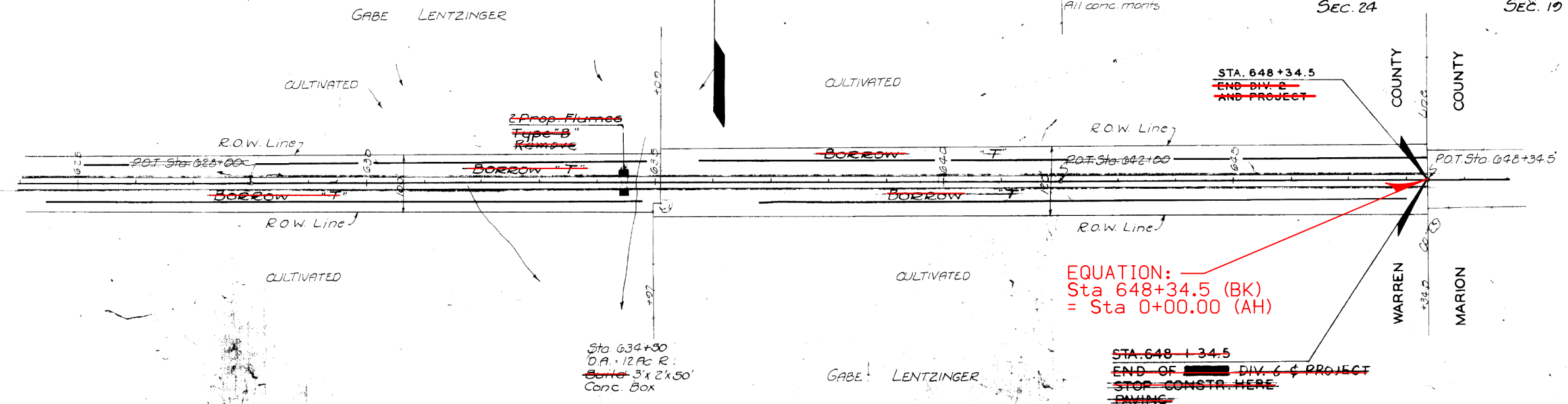
This Sheet For Information Only

ESTABLISHED WIDTH OF RIGHT OF WAY FT.



SEC. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	IOWA	5305		27	90

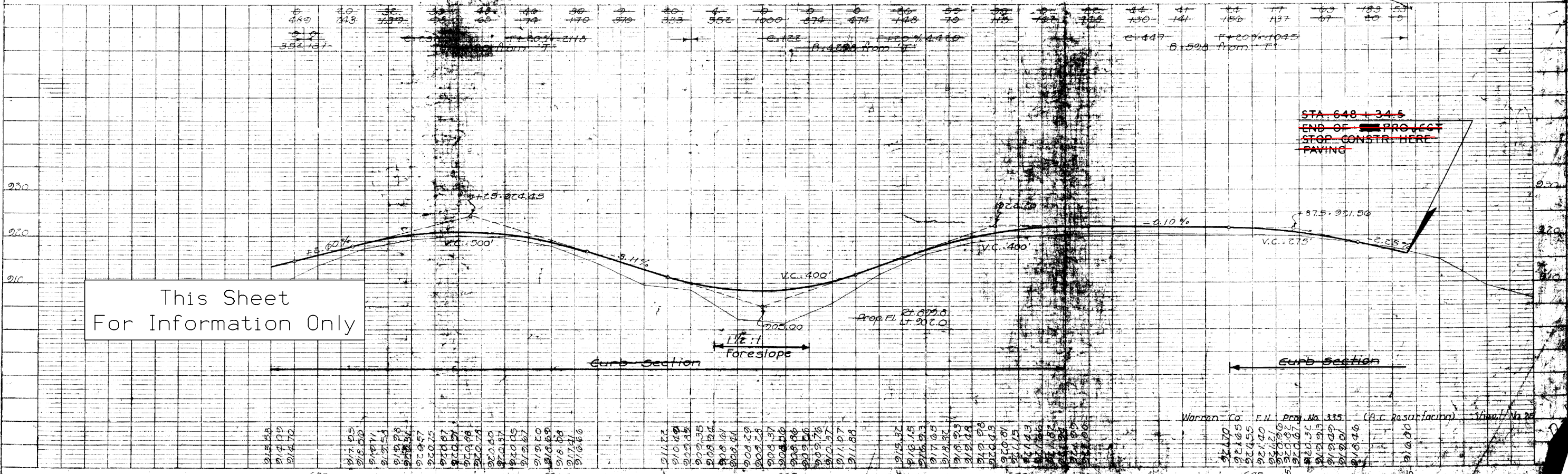
UNION TWP T76N - R22W SEC. 24
 PLEASANT GROVE TWP T76N - R21W SEC. 19



EQUATION:
 Sta 648+34.5 (BK)
 = Sta 0+00.00 (AH)

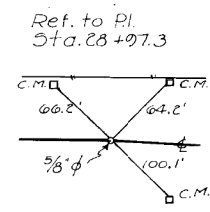
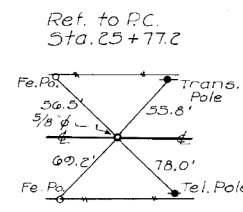
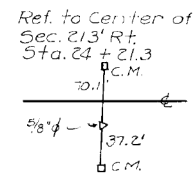
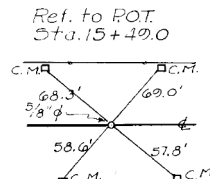
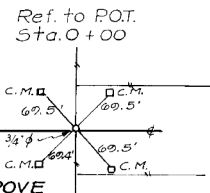
~~STA. 648+34.5~~
~~END OF DIV. 6 & PROJECT~~
~~STOP CONSTR. HERE~~
~~PAVING~~

BENCH MARK:
 All Sta. 635+00 Spk. in 24' Elm 700' W. Co. Line in N. & S. fence Elev. 901.64



~~STA. 648+34.5~~
~~END OF PROJECT~~
~~STOP CONSTR. HERE~~
~~PAVING~~

ESTABLISHED WIDTH OF RIGHT OF WAY FT.



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1090	IOWA	E3350		7	34

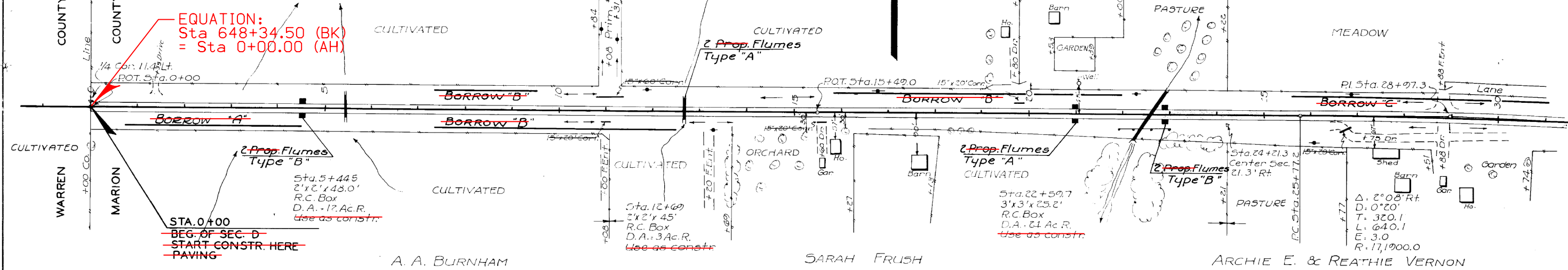
UNION TWP PLEASANT GROVE T.76N.R.22W TWP SEC.24 T.76N.R.21W. SEC.19

JAMES E. FOSHIER JR.

THOS. COURTNEY

ARCHIE E. & REATHIE

EQUATION: Sta 648+34.50 (BK) = Sta 0+00.00 (AH)



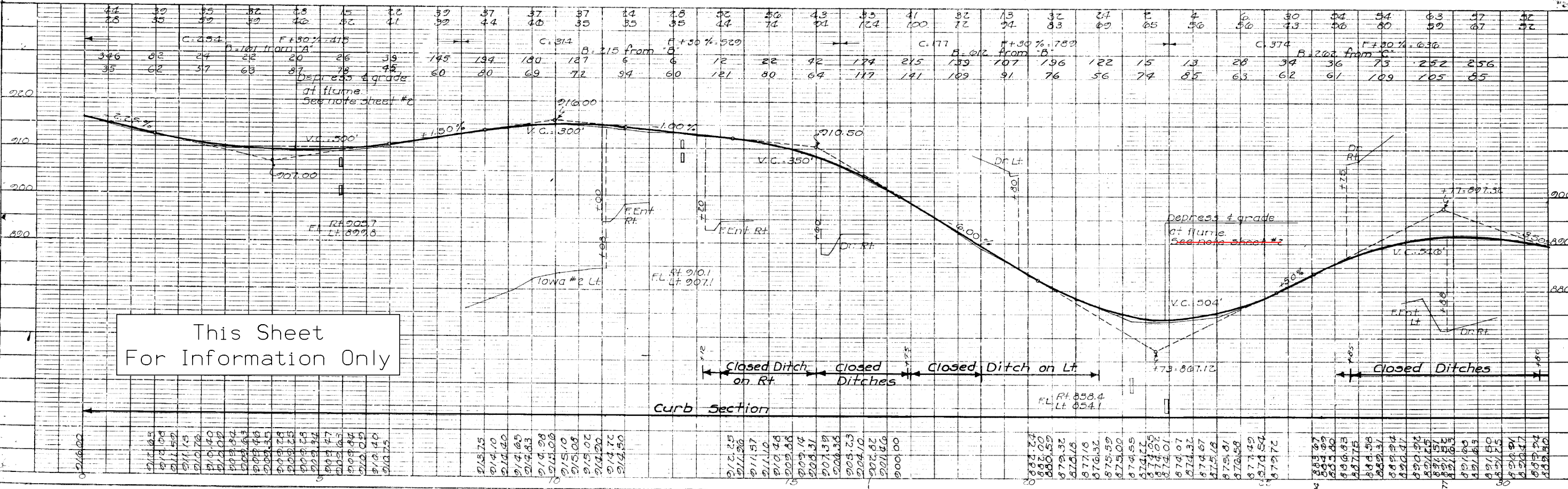
A. A. BURNHAM

SARAH FRUSH

ARCHIE E. & REATHIE VERNON

BENCH MARKS:

- Datum R.R. spike in W. side 30' Elm ----- Elev. 901.64
- #1 Sta. 0+00 R.R. spike in N.W. side of twin 15' Box Elder 65' Rt. ----- Elev. 918.73
- #2 Sta. 5+44.5 I.H.C. B.M. in S. hdw. of 2'x2' R.C. Box 19.2' Rt. ----- Elev. 909.55
- #3 Sta. 12+59.0 I.H.C. B.M. in S. hdw. of 2'x2' R.C. Box 19.2' Rt. ----- Elev. 913.85
- #4 Sta. 22+85 R.R. spike in roof of 15' Oak 100' Lt. ----- Elev. 867.02

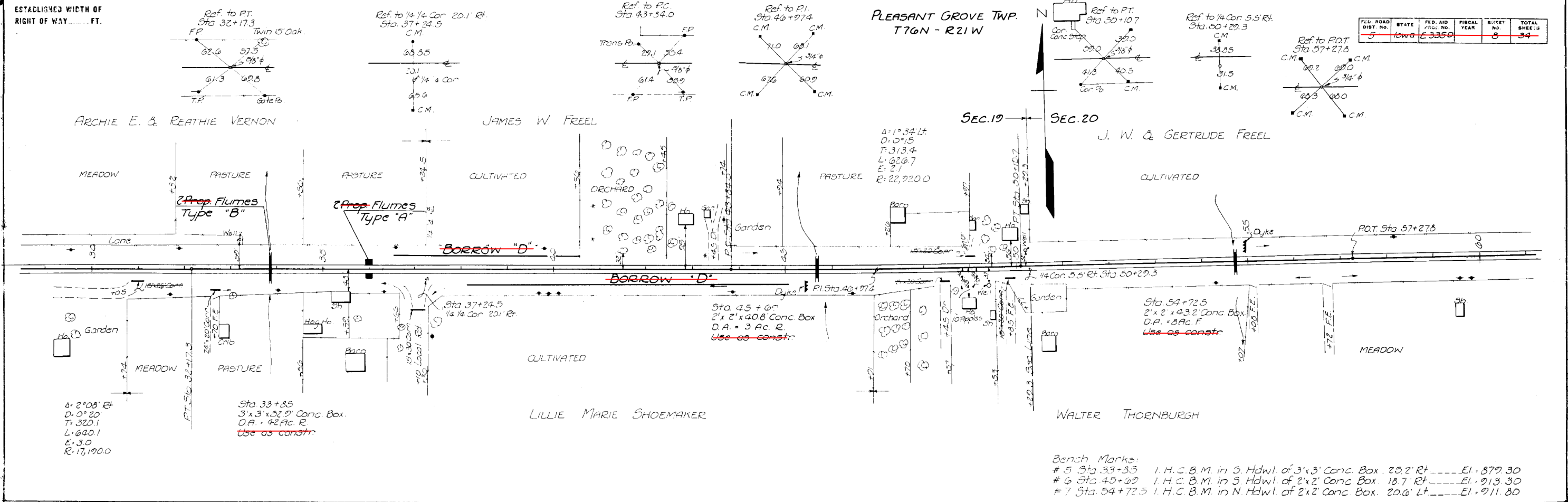


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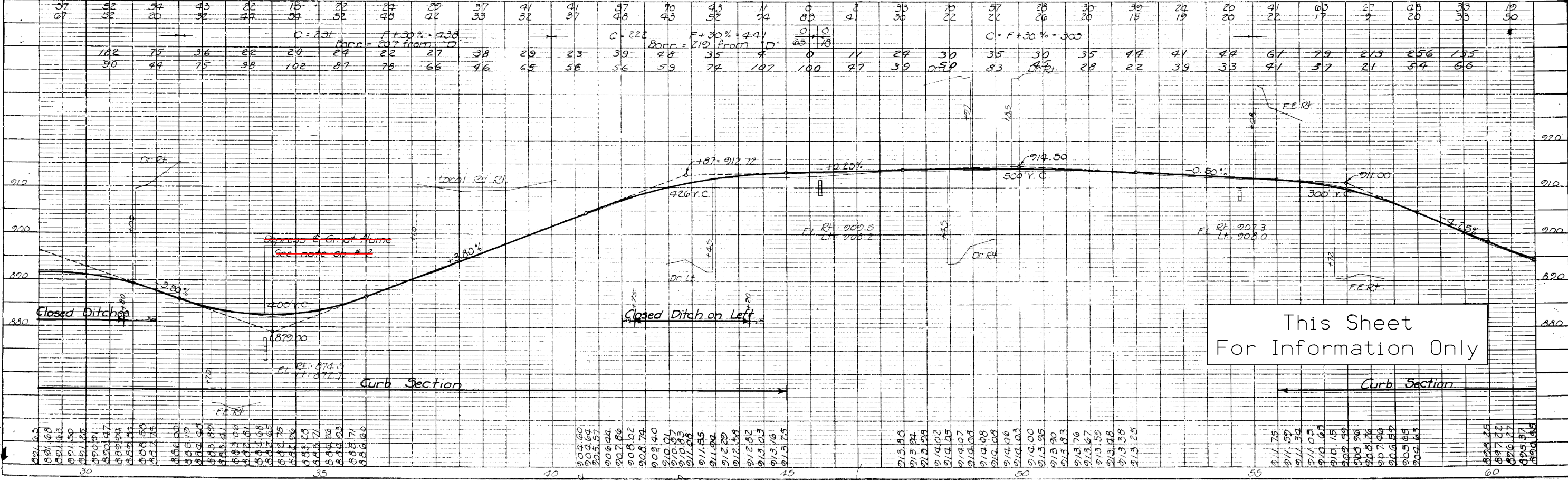
ESTABLISHED WIDTH OF RIGHT OF WAY FT.

PLEASANT GROVE TWP.
T76N - R21W

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	Iowa	E-3350		8	34



Bench Marks:
 # 5 Sta. 33+35 I.H.C.B.M. in S. Hdwl. of 3'x3' Conc. Box. 25.2' Rt. El. 879.30
 # 6 Sta. 45+00 I.H.C.B.M. in S. Hdwl. of 2'x2' Conc. Box. 18.7' Rt. El. 913.30
 # 7 Sta. 54+72.5 I.H.C.B.M. in N. Hdwl. of 2'x2' Conc. Box. 20.6' Lt. El. 911.80



This Sheet
For Information Only

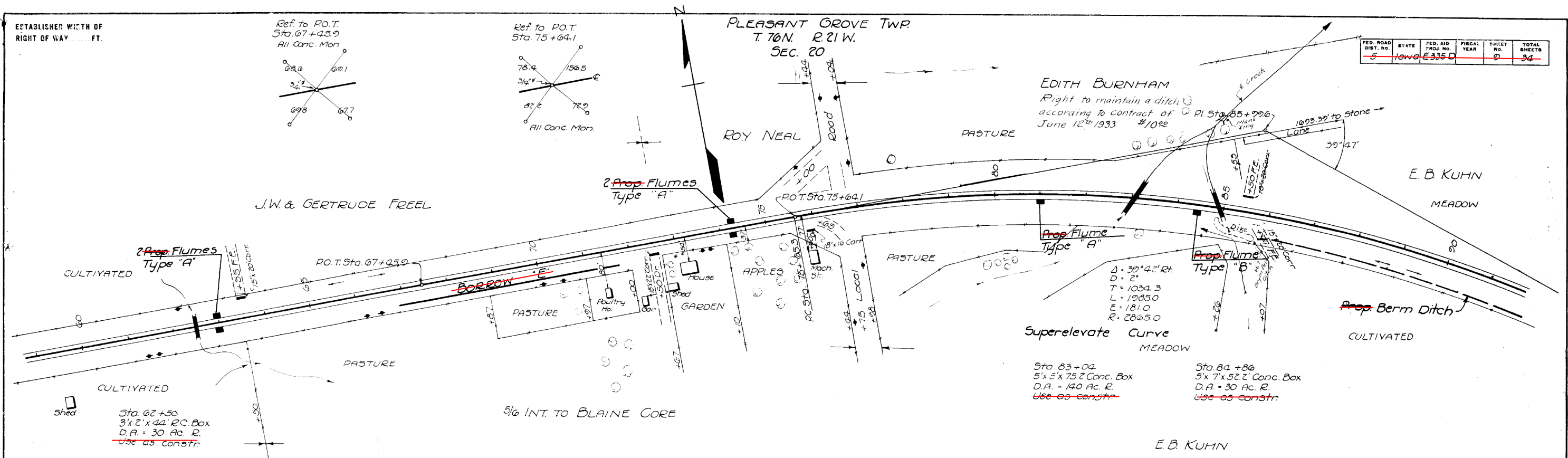
880	890	900	910	920
-----	-----	-----	-----	-----

ESTABLISHED WIDTH OF RIGHT OF WAY FT.

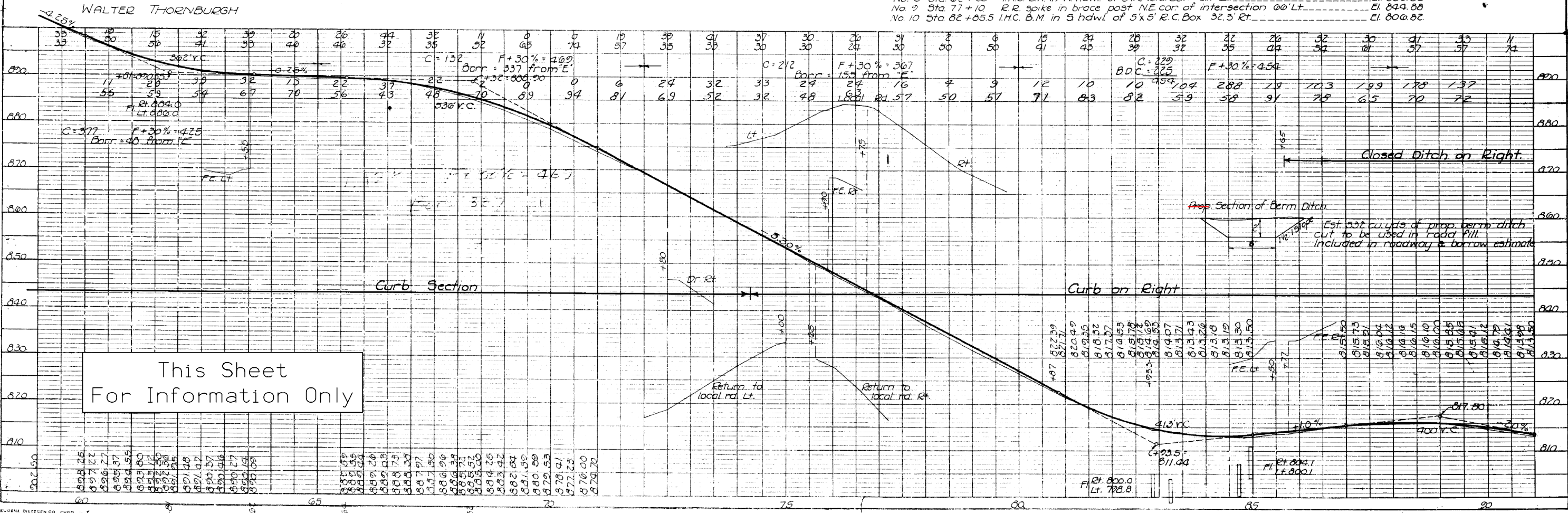
Ref. to P.O.T. Sta. 67+45.9
All Conc. Man.

Ref. to P.O.T. Sta. 75+64.1
All Conc. Man.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	Iowa	E3350		9	34



Bench Marks:
No. 6 Sta. 62+50 I.H.C. B.M. in N. hdwl. of 3'x2' R.C. Box 211' Lt. El. 889.82
No. 7 Sta. 77+10 R.R. spike in brace post N.E. cor. of intersection 66' Lt. El. 844.88
No. 10 Sta. 82+65.5 I.H.C. B.M. in S. hdwl. of 5'x5' R.C. Box 32.5 Rt. El. 800.82

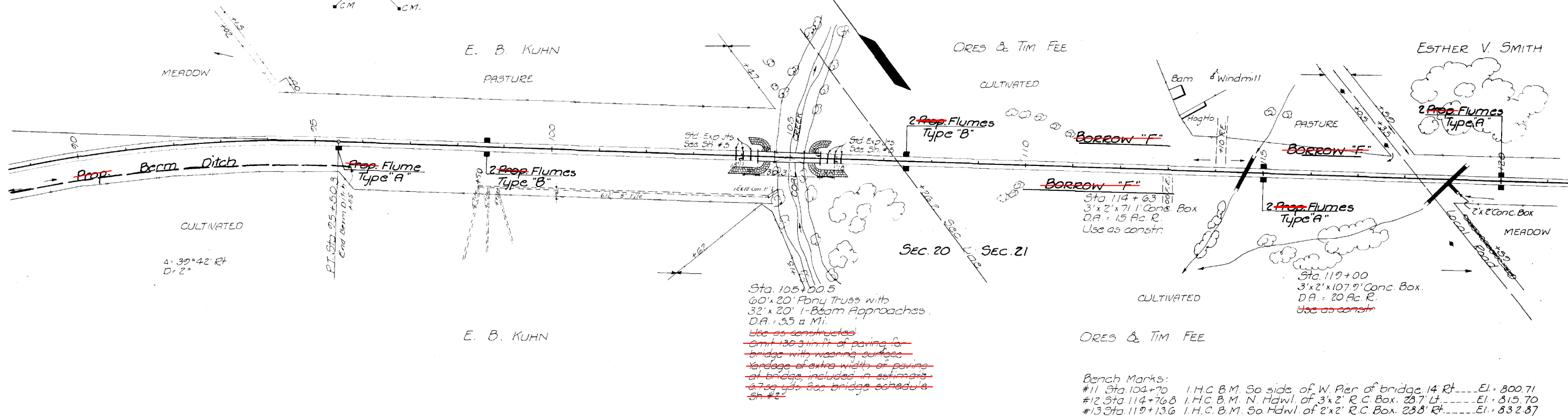


This Sheet For Information Only

ESTABLISHED WIDTH OF RIGHT OF WAY ... FT.

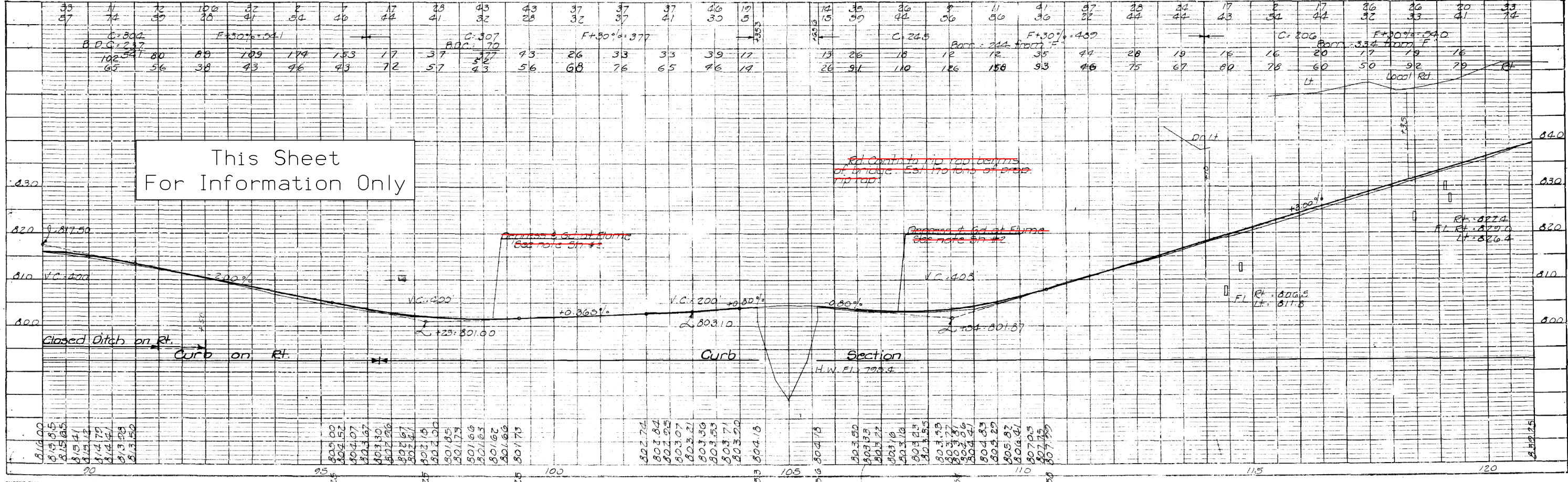
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SCALE YEAR	SHEET NO.	TOTAL SHEETS
5	IND	E-3350		10	34

PLEASANT GROVE TWP.
T76N-R21W



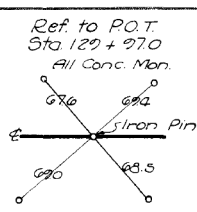
Sta. 105+00.5
60' x 20' Pony Truss with
32' x 20' I-Beam Approaches.
D.A. = 3.5 Ac. R.
Use as constructed
~~omit 130.31m ft. of paving to~~
~~bridge with wearing surfaces~~
~~and edge of extra width of paving~~
~~of bridge included in estimate~~
~~67.55 lbs. See bridge schedule~~
~~sh. #2~~

Bench Marks:
#11 Sta 104+70 I.H.C. B.M. So side of W. Pier of bridge 14 Rt. El. = 800.71
#12 Sta 114+76.8 I.H.C. B.M. N. Hdwl. of 3' x 2' R.C. Box. 23.7 Lt. El. = 815.70
#13 Sta 119+13.6 I.H.C. B.M. So Hdwl. of 2' x 2' R.C. Box. 23.8 Rt. El. = 832.87

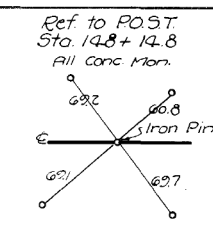
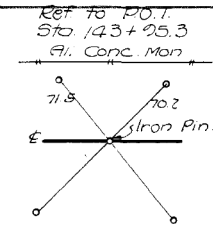


EUGENE DISTRICT 4 CO. CHD. N.Y. I-PLAN PROFILE & STANDARD

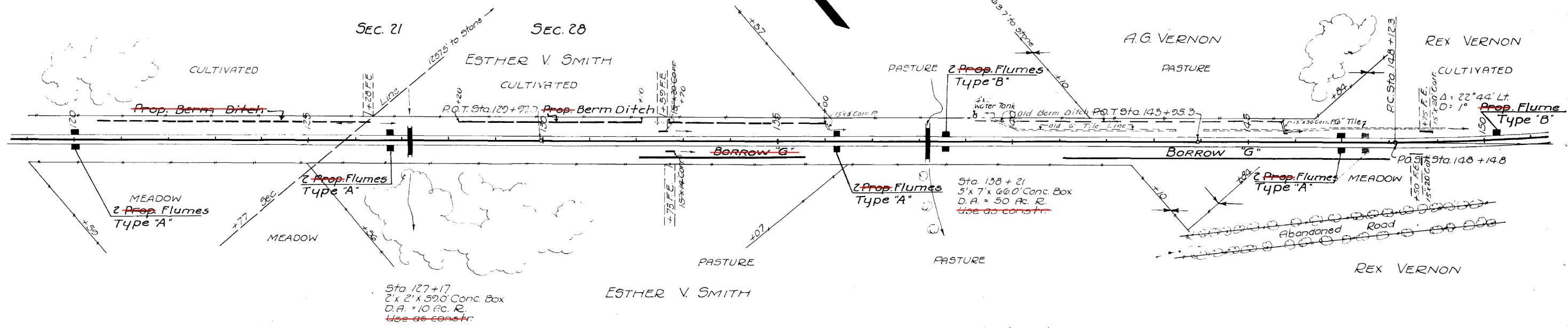
ESTABLISHED WIDTH OF RIGHT OF WAY ... FT.



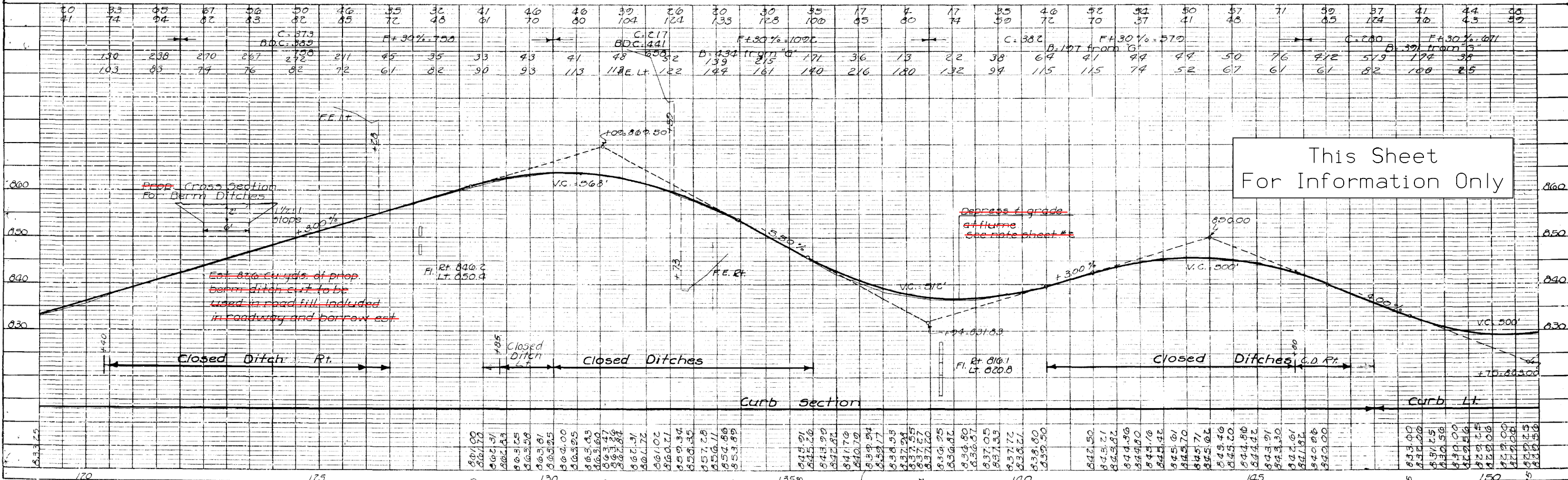
PLEASANT GROVE TWP
T. 70N. R. 21W.



FED. ROAD DIST. NO.	STATE	FED. A.C. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	Iowa	E3350		11	34



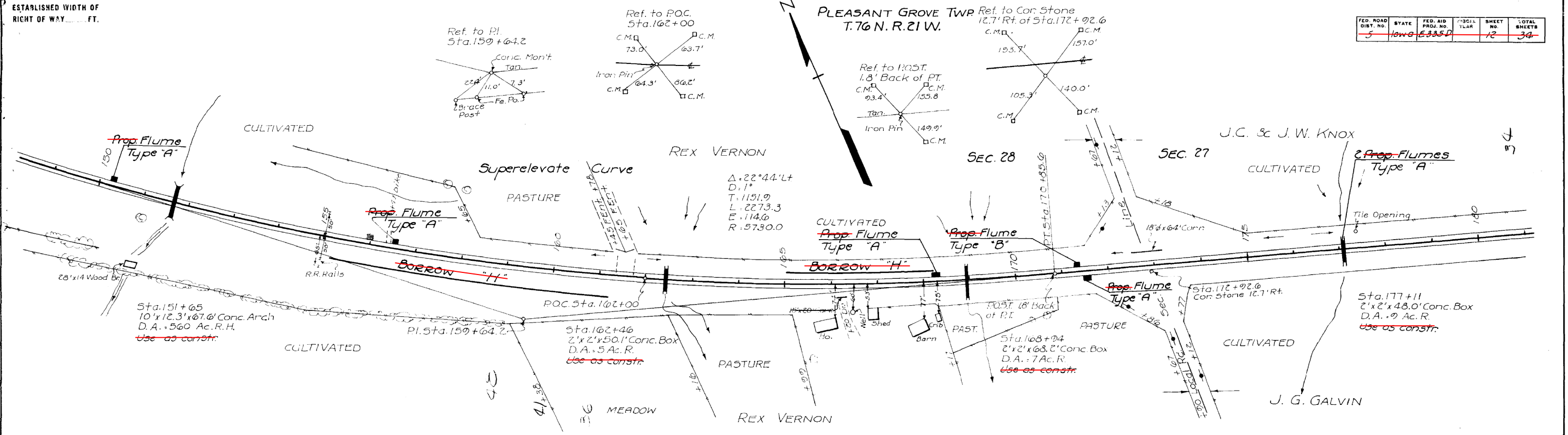
Bench Marks:
#13 Sta. 119+13.6 I.H.C. B.M. in Shdwl. of 2' x 2' R.C. Box 28.8' Lt. ----- El. 832.87
#14 Sta. 127+17 I.H.C. B.M. in Nhdwl. of 2' x 2' R.C. Box 25.3' Lt. ----- El. 854.25
#15 Sta. 138+21 I.H.C. B.M. in Nhdwl. of 3' x 7' R.C. Box 28.2' Lt. ----- El. 829.67



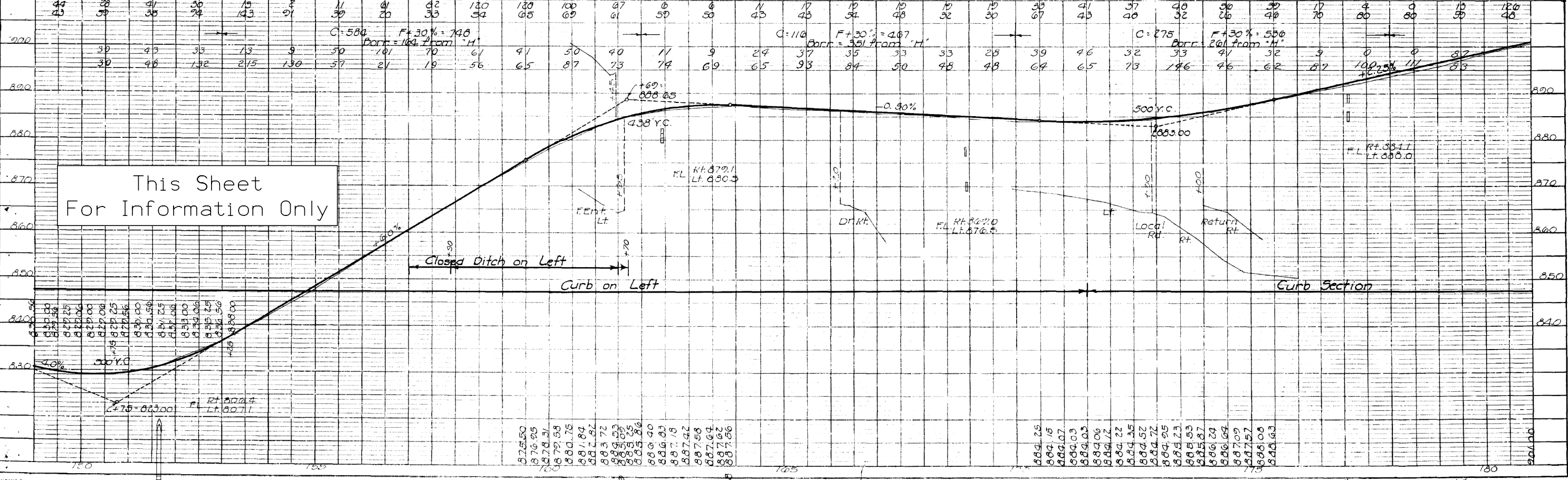
This Sheet For Information Only

ESTABLISHED WIRTH OF RIGHT OF WAY _____ FT.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	Iowa	E335D		12	34



- BENCH MARKS:**
- #16 Sta. 151+65 I.H.C. B.M. in No. hdwl. of 10'x12' R.C. Box 33.8' Lt. Elev. 821.59
 - #17 Sta. 162+46 I.H.C. B.M. in No. hdwl. of 2'x2' R.C. Box 23.5' Lt. Elev. 884.29
 - #18 Sta. 168+94 I.H.C. B.M. in No. hdwl. of 2'x2' R.C. Box 30.4' Lt. Elev. 880.36
 - #19 Sta. 177+11 I.H.C. B.M. in No. hdwl. of 2'x2' R.C. Box 18.2' Lt. Elev. 891.88



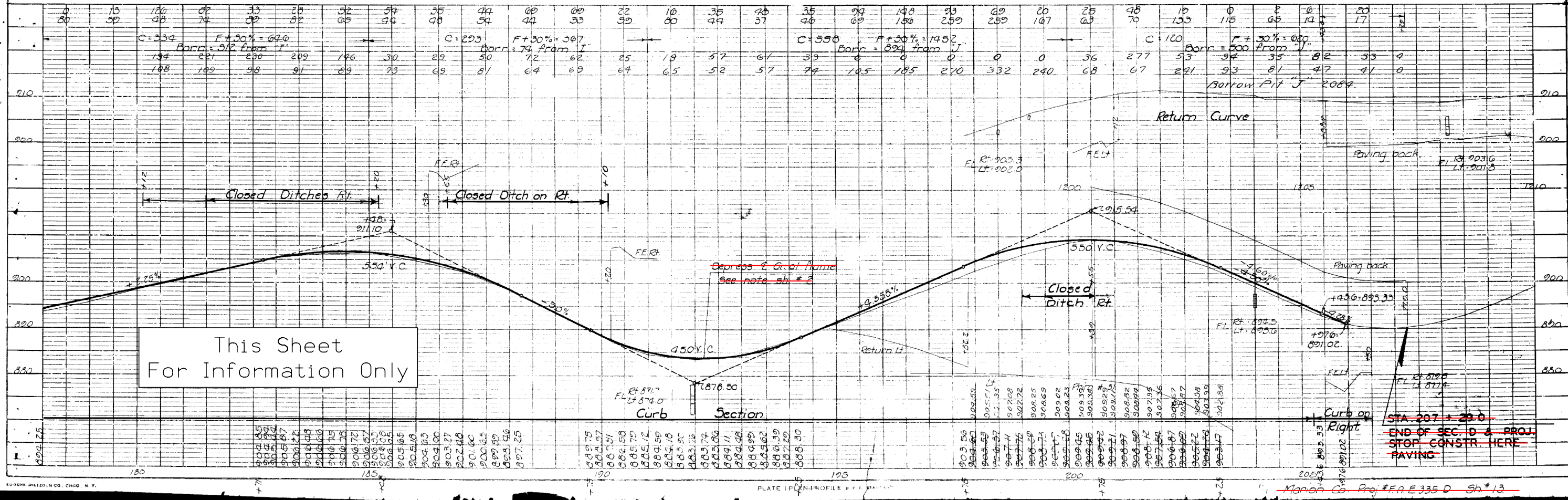
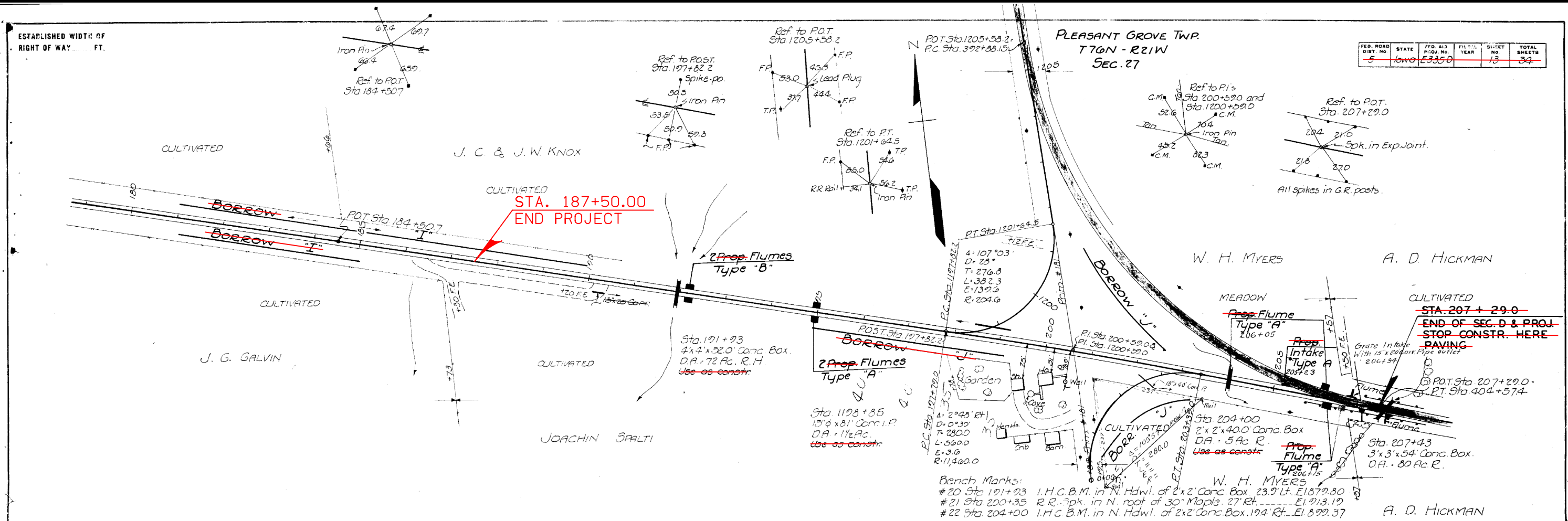
EUGENE DIEBOLD CO. CHGO. ILL. PLATE EPLAN PROFILE 8 x 11 STANDARD

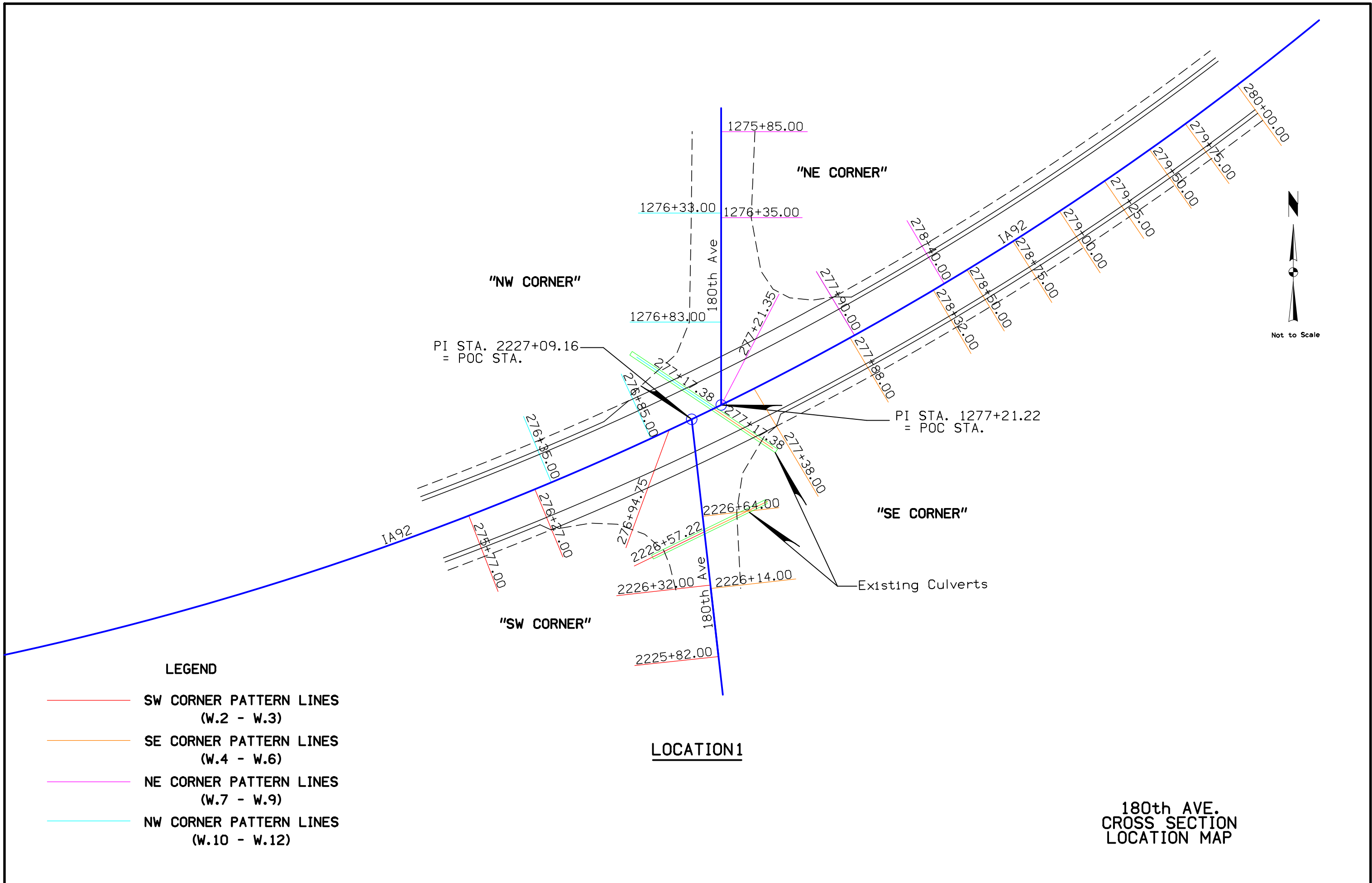
Marion Co. Proj. #A-E335D Sheet #12

ESTABLISHED WIDTH OF RIGHT OF WAY FT.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FILE YEAR	SHEET NO.	TOTAL SHEETS
5	Iowa	E3350		13	34

PLEASANT GROVE TWP.
T76N - R21W
SEC. 27





PI STA. 2227+09.16
= POC STA.

PI STA. 1277+21.22
= POC STA.

Existing Culverts

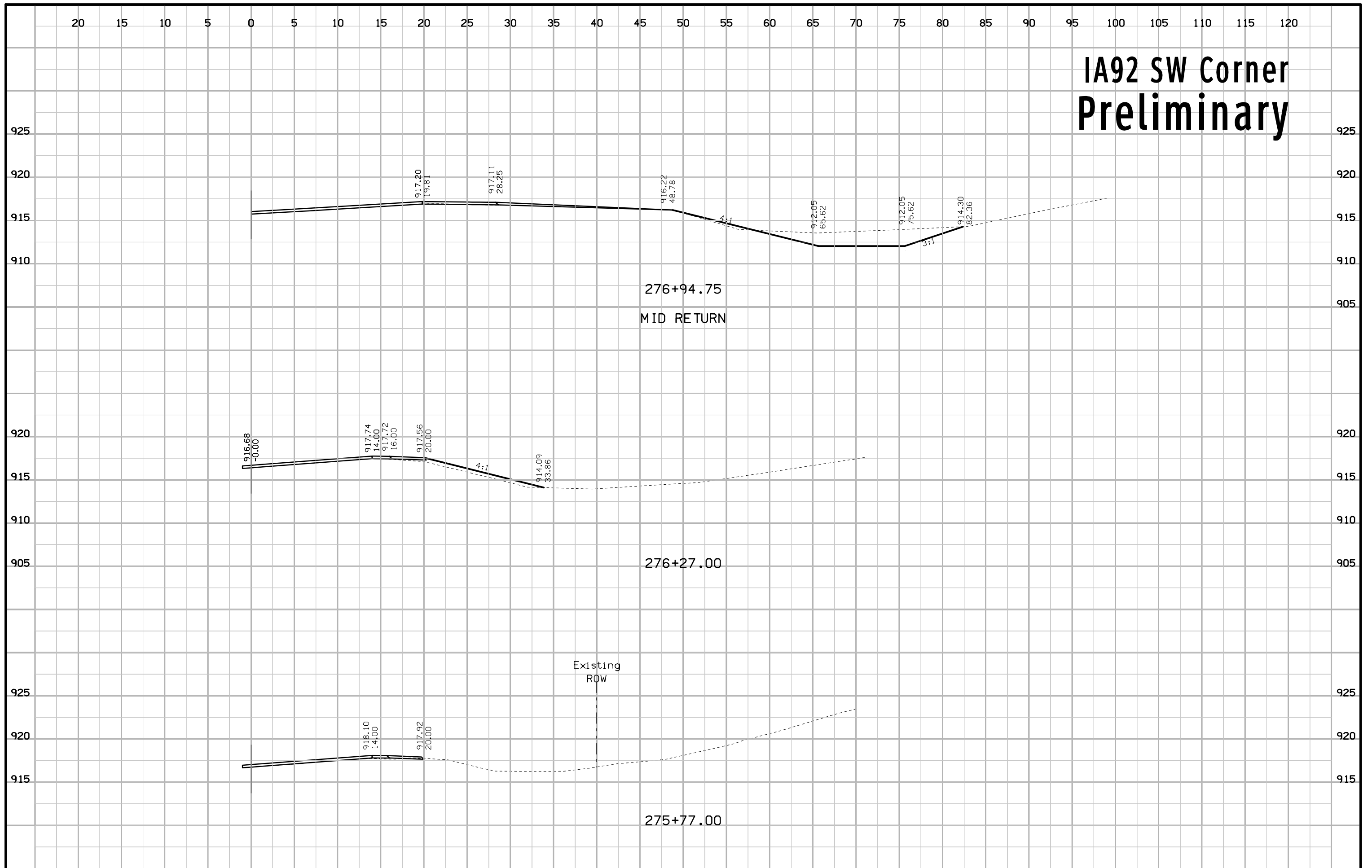
LEGEND

- SW CORNER PATTERN LINES (W.2 - W.3)
- SE CORNER PATTERN LINES (W.4 - W.6)
- NE CORNER PATTERN LINES (W.7 - W.9)
- NW CORNER PATTERN LINES (W.10 - W.12)

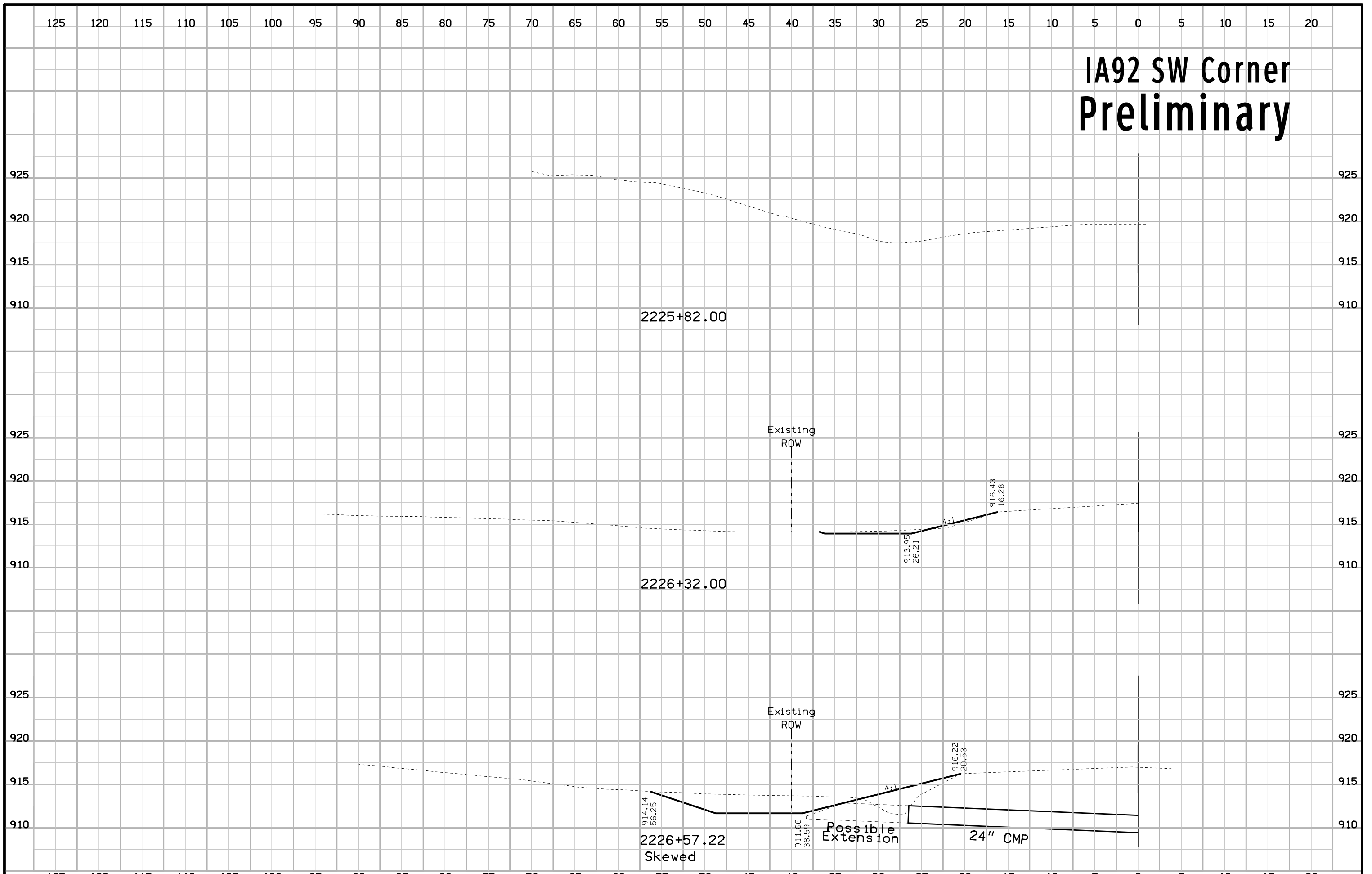
LOCATION1

**180th AVE.
CROSS SECTION
LOCATION MAP**

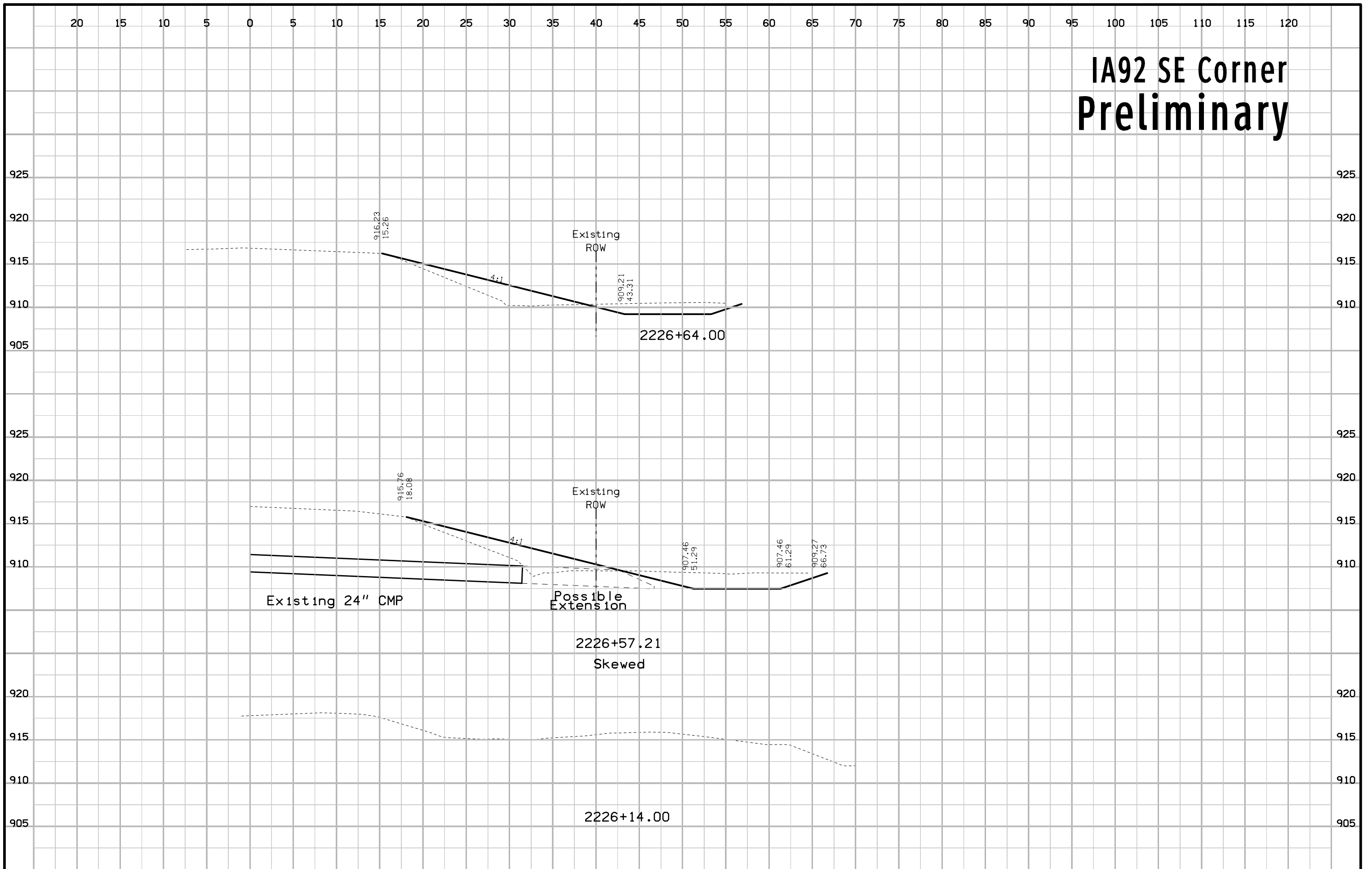
IA92 SW Corner Preliminary



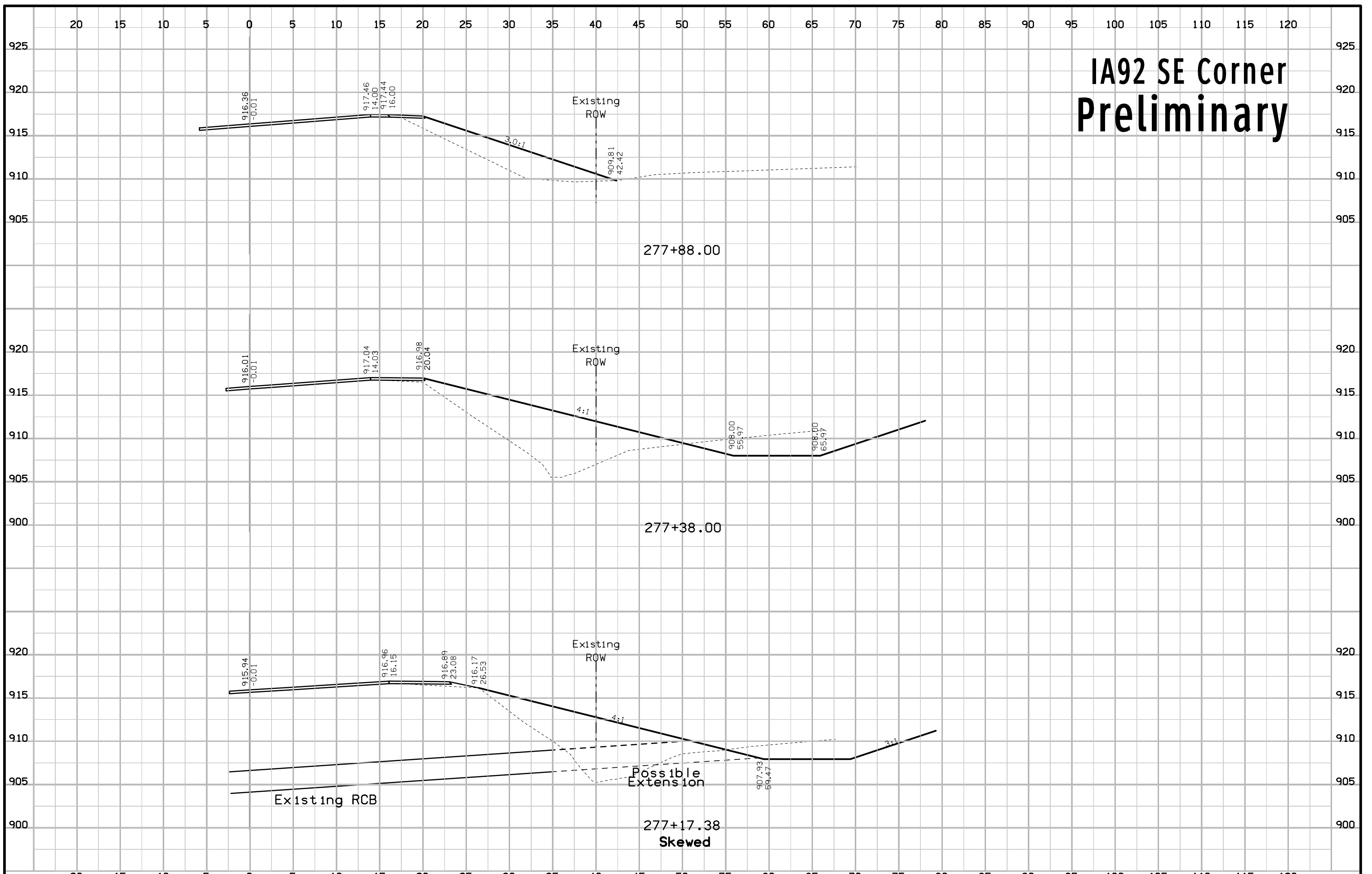
IA92 SW Corner Preliminary



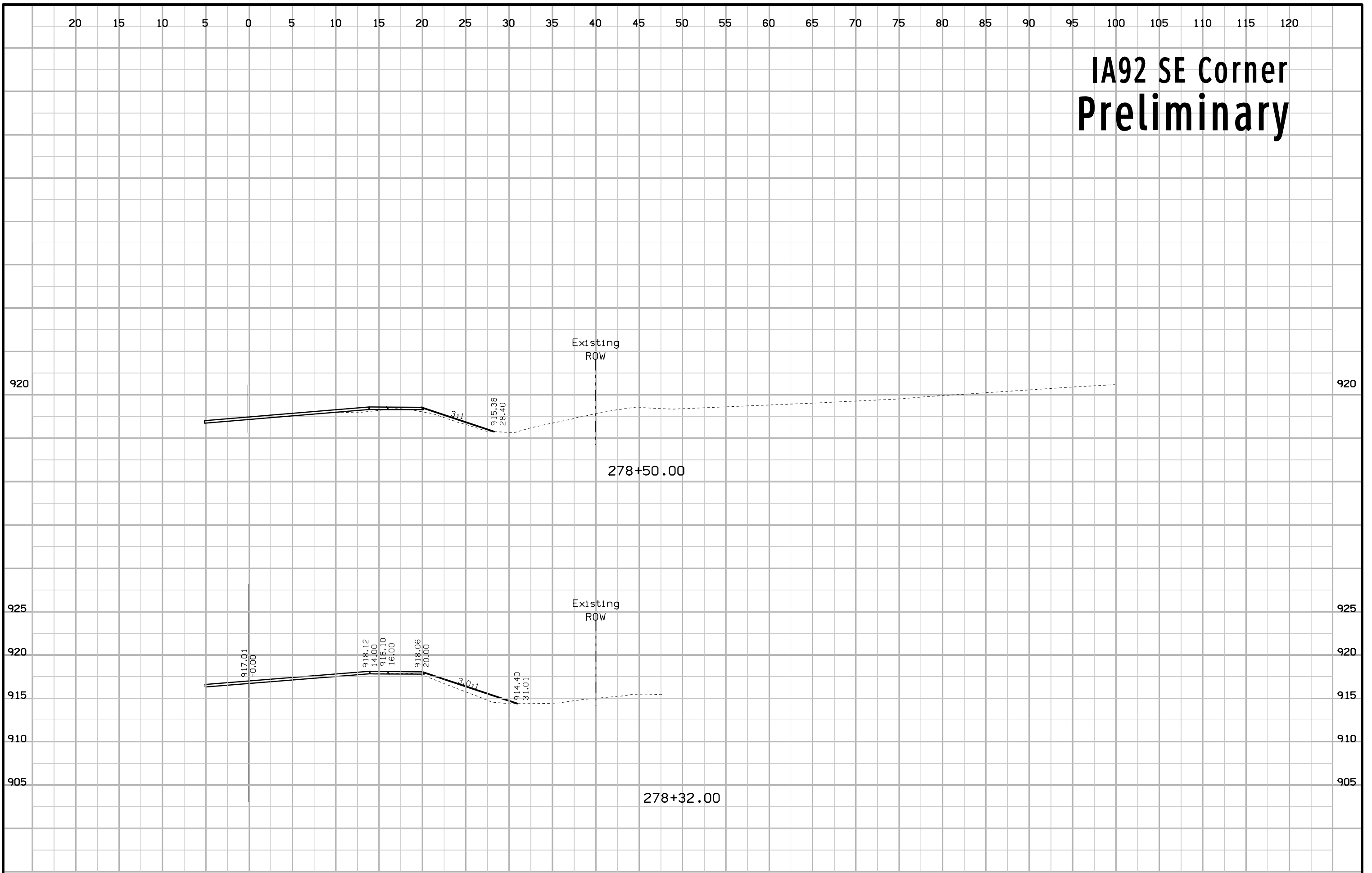
IA92 SE Corner Preliminary



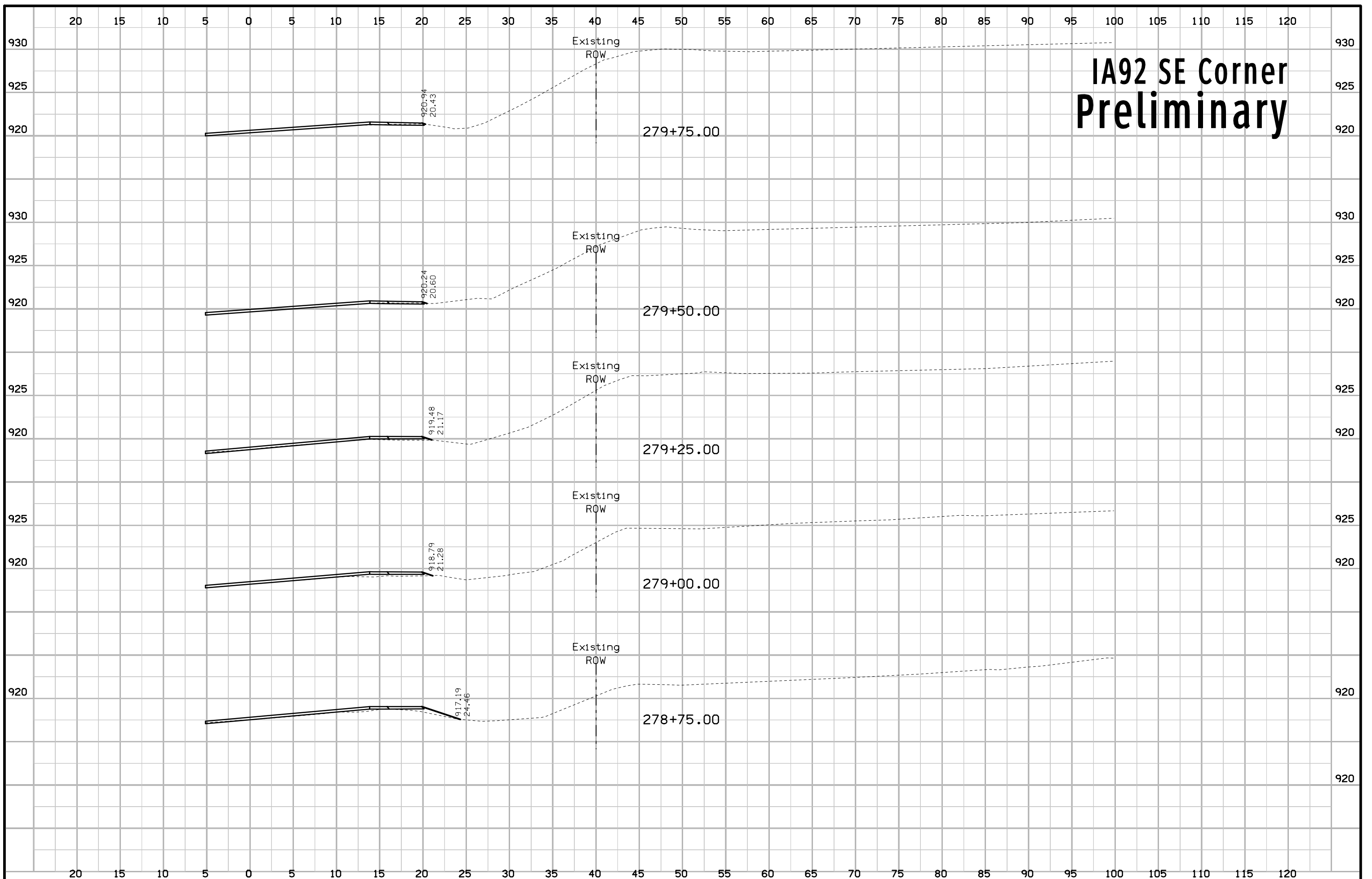
IA92 SE Corner Preliminary



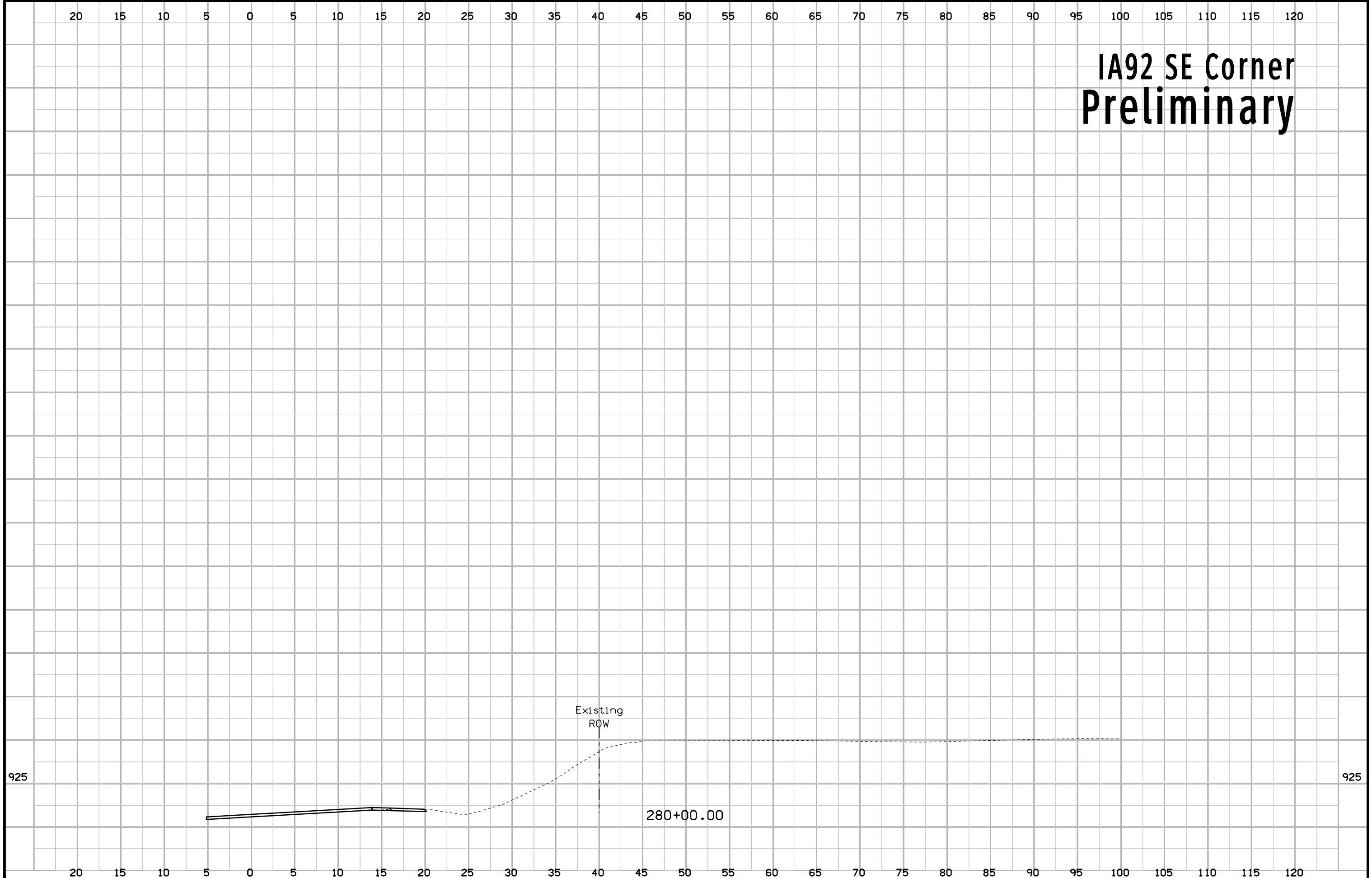
IA92 SE Corner Preliminary



IA92 SE Corner Preliminary

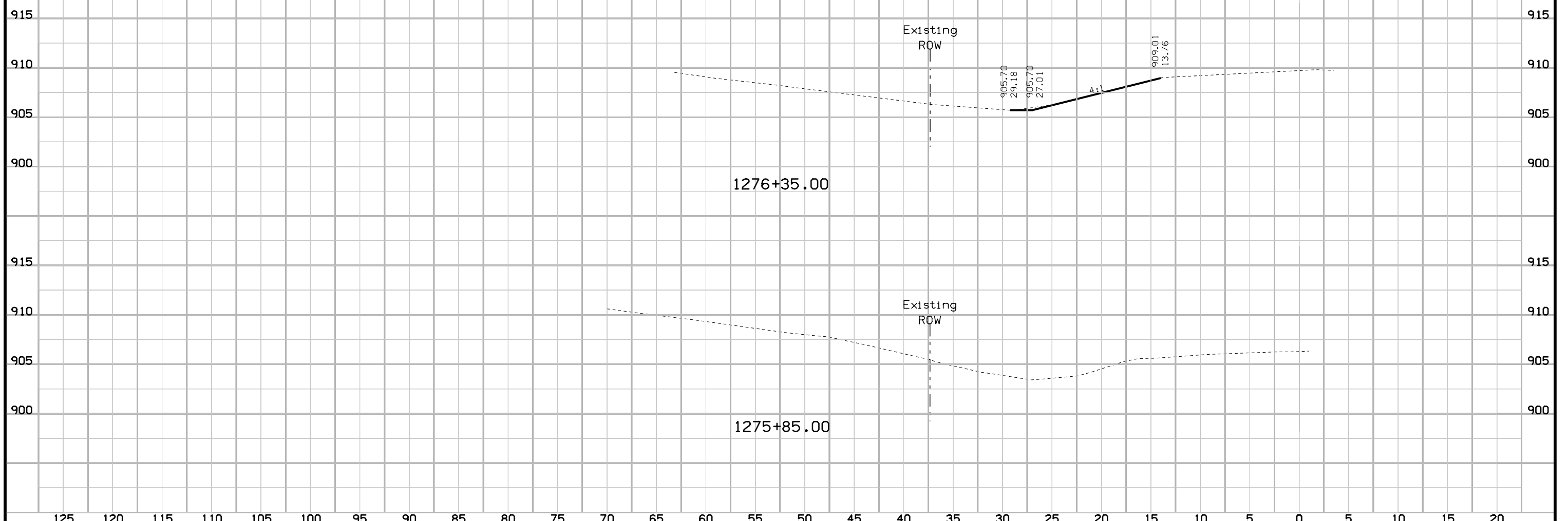


IA92 SE Corner Preliminary

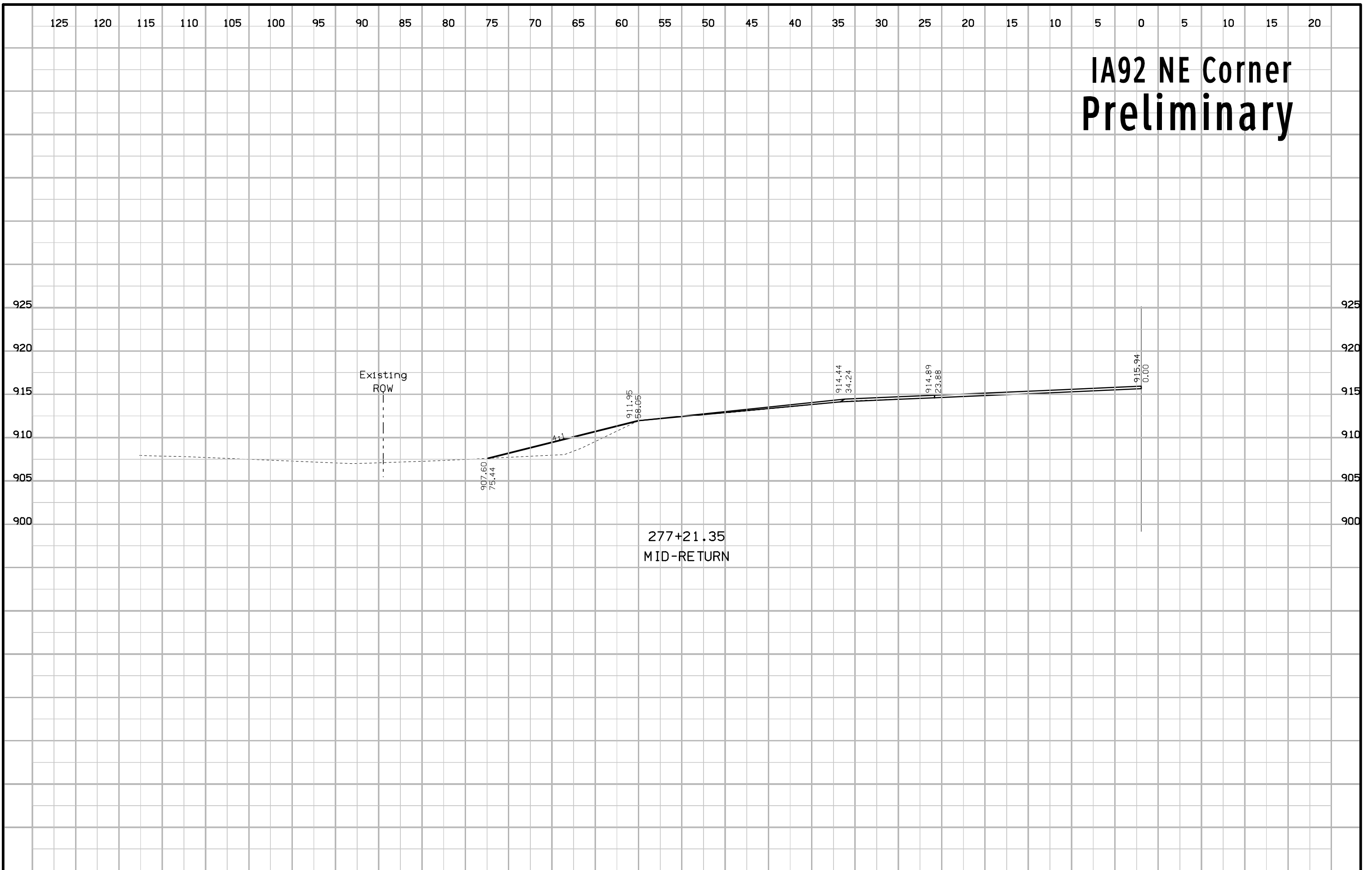


125 120 115 110 105 100 95 90 85 80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20

IA92 NE Corner Preliminary

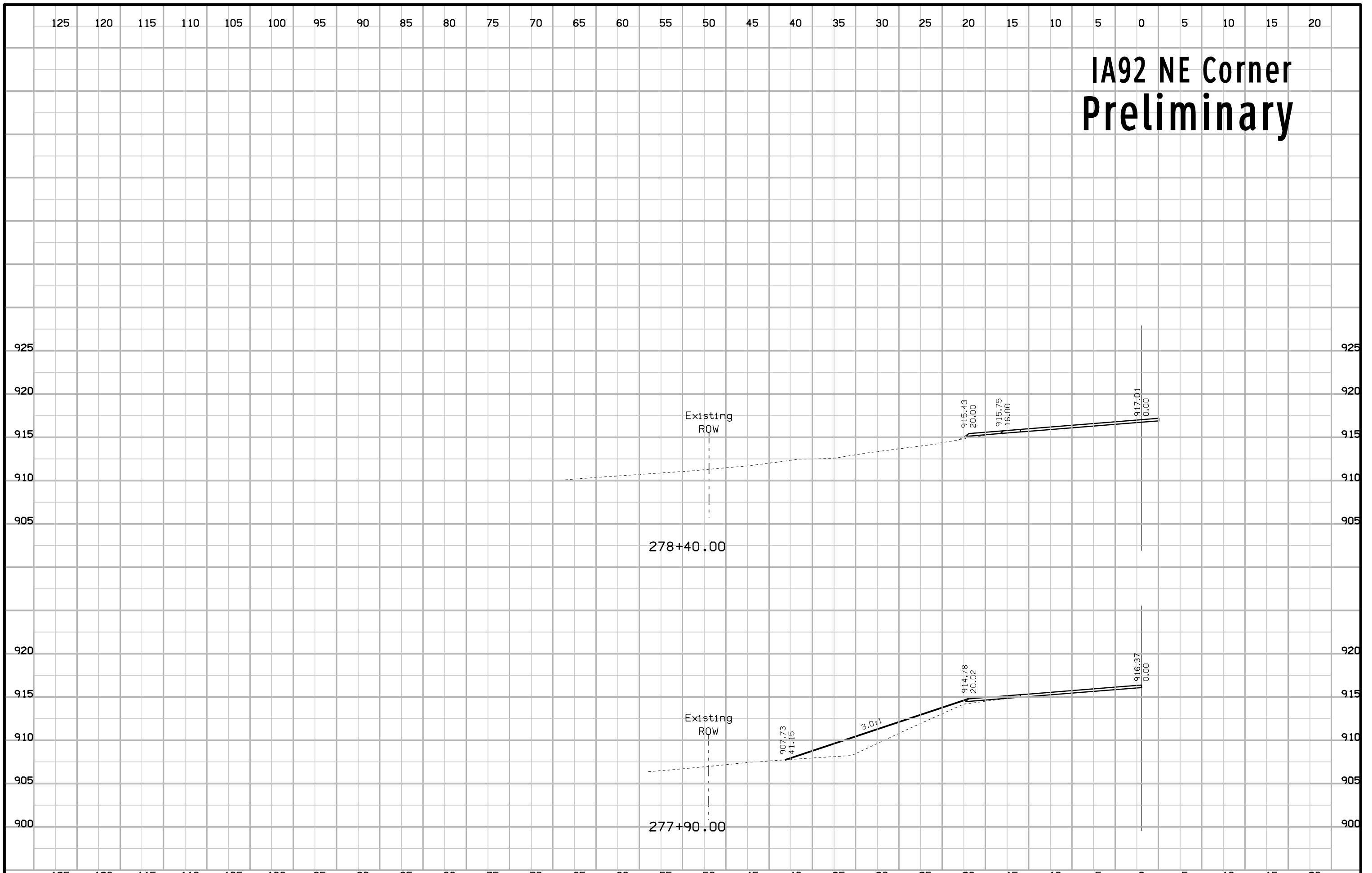


IA92 NE Corner Preliminary



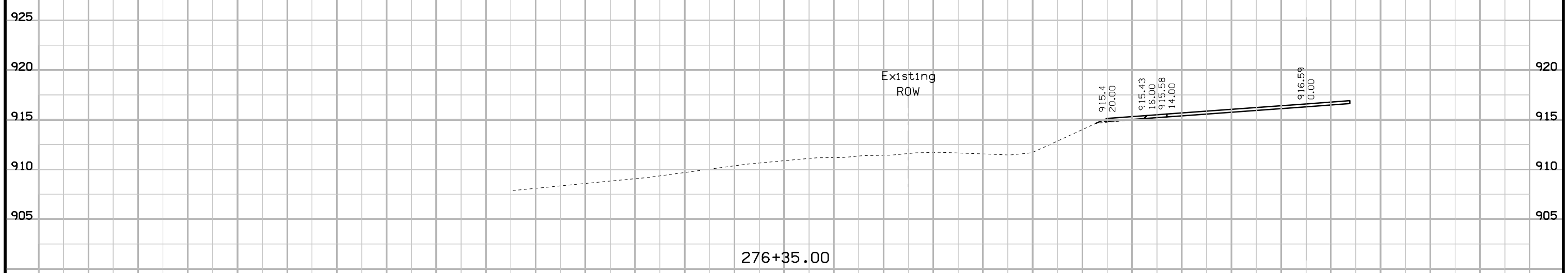
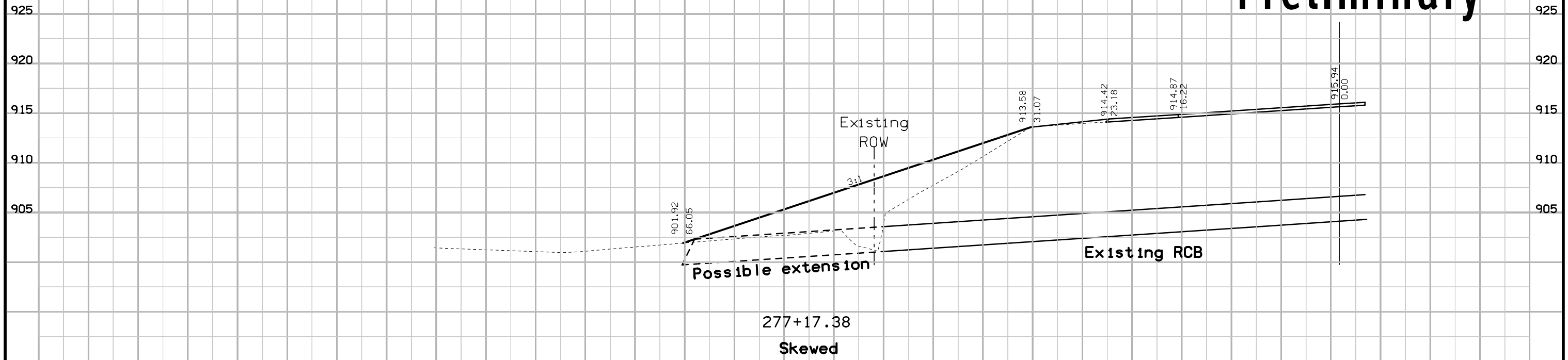
277+21.35
MID-RETURN

IA92 NE Corner Preliminary



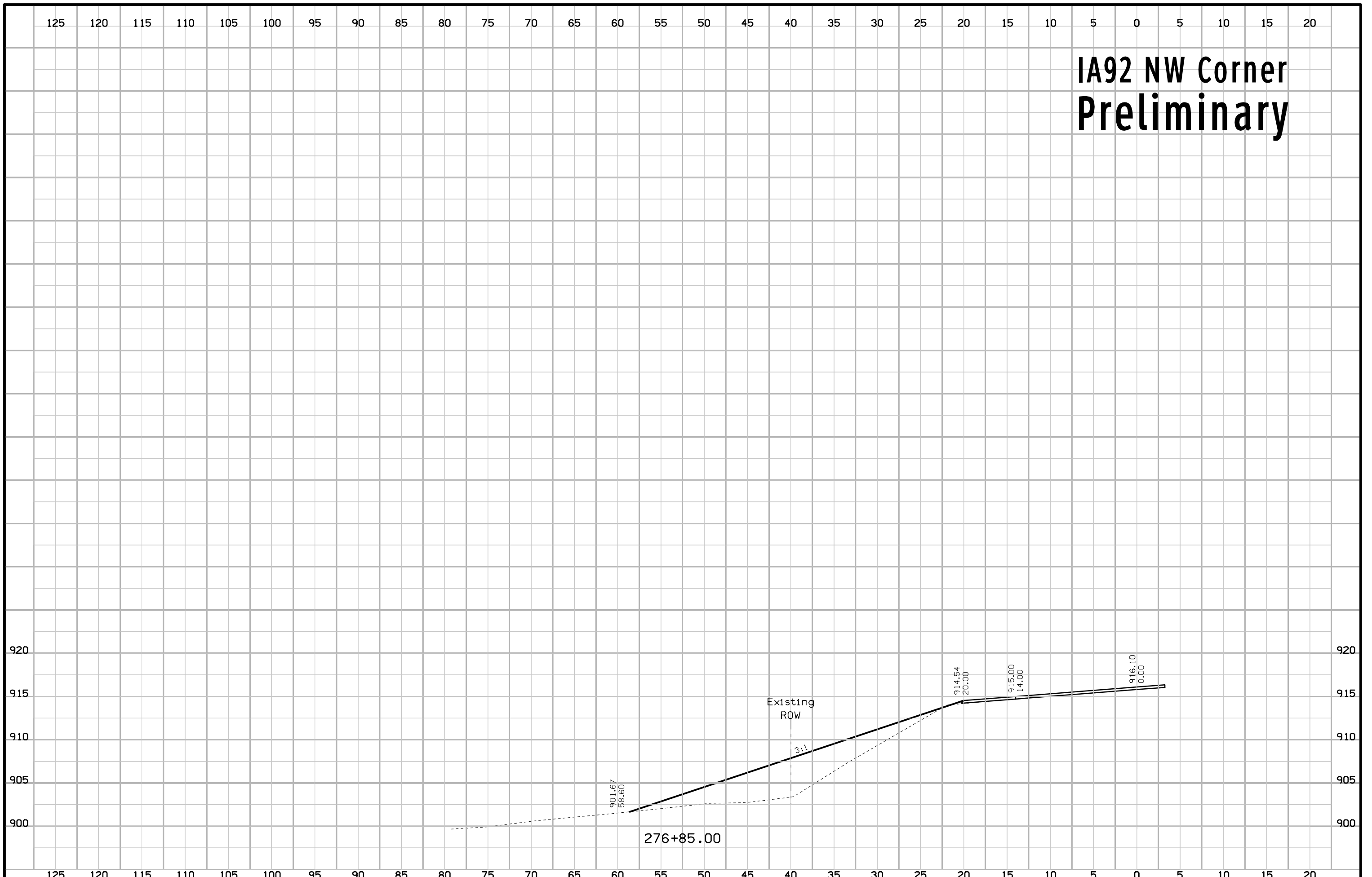
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IA92_NW Corner Preliminary

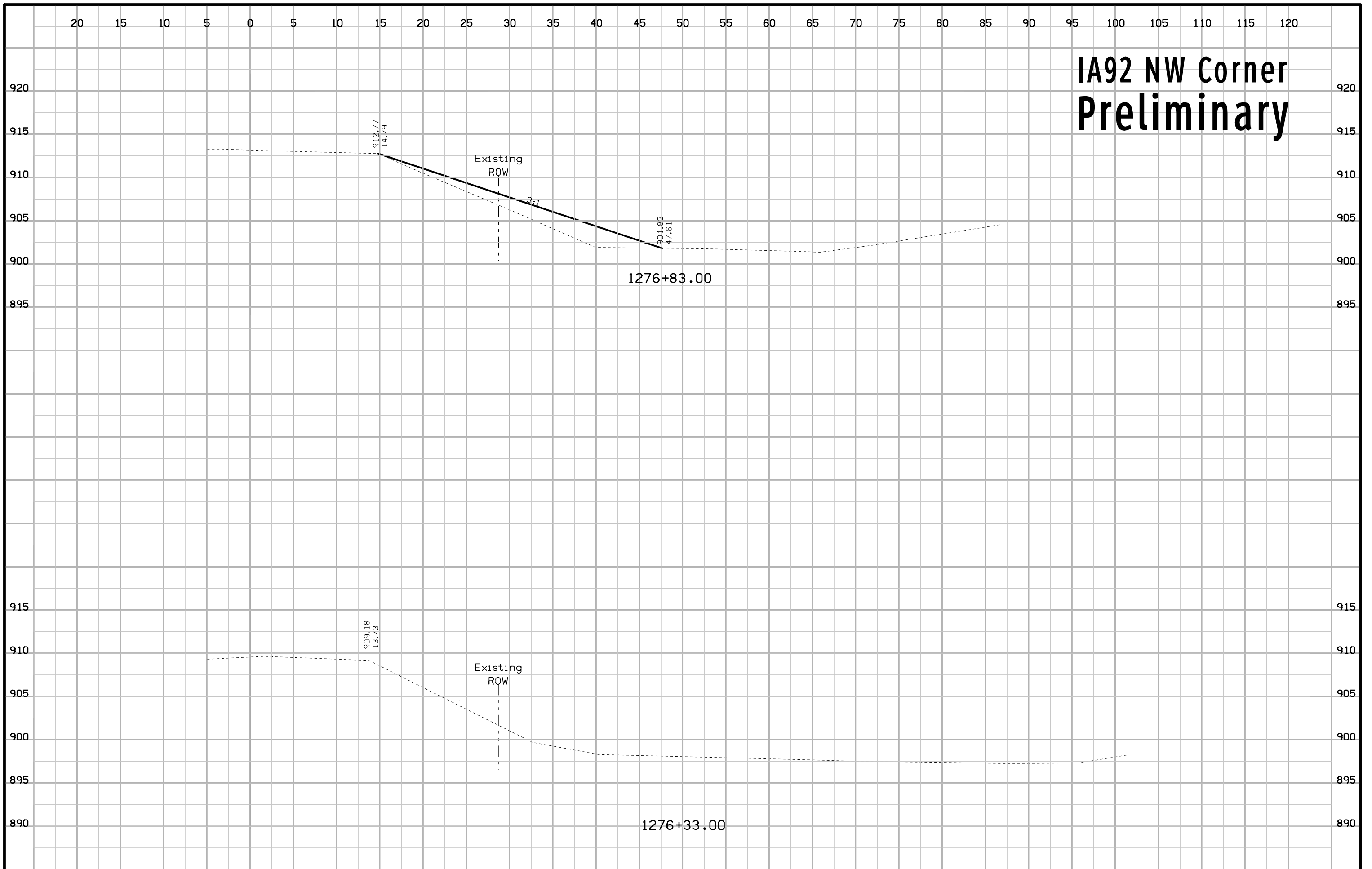


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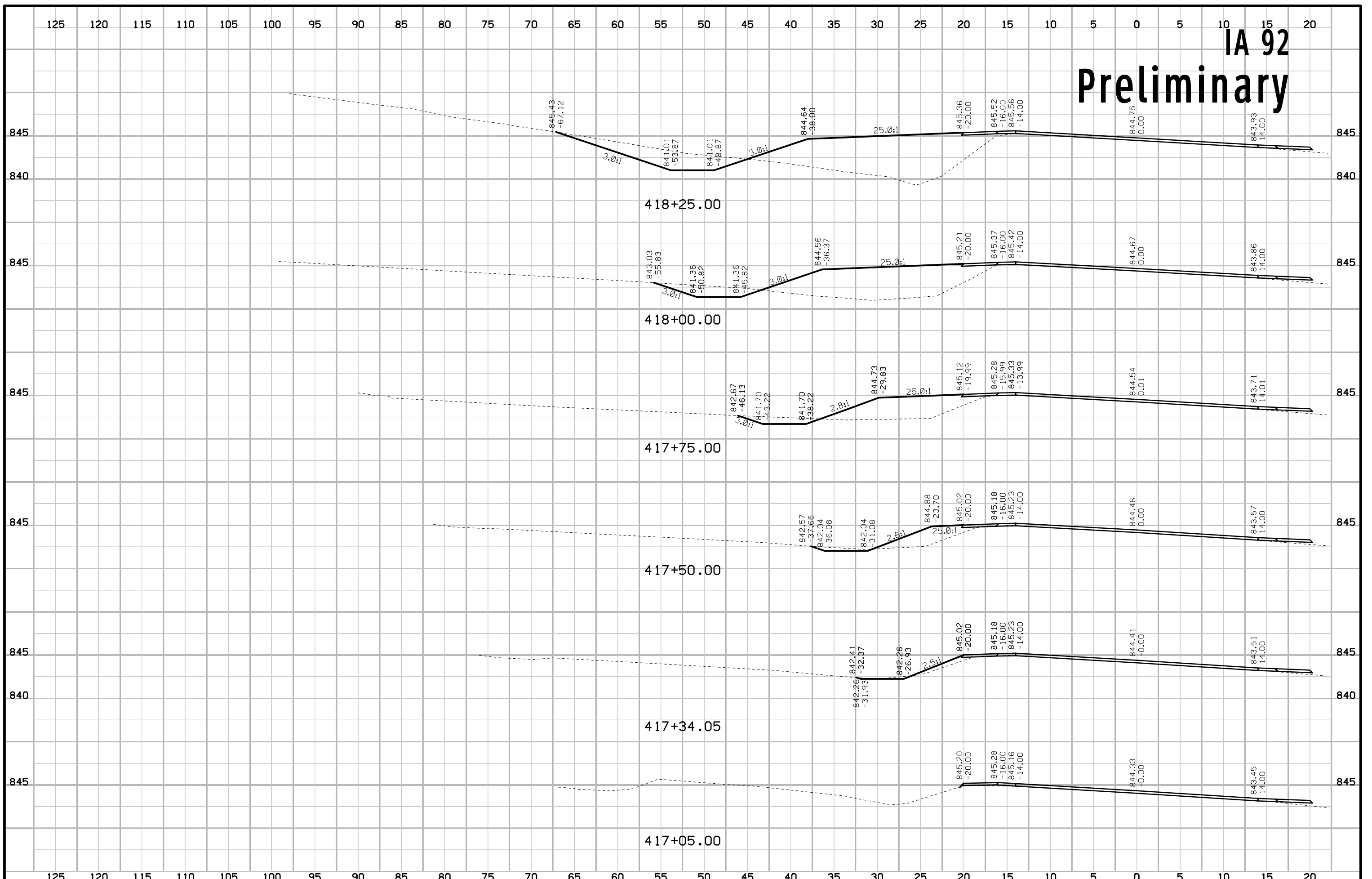
IA92 NW Corner Preliminary



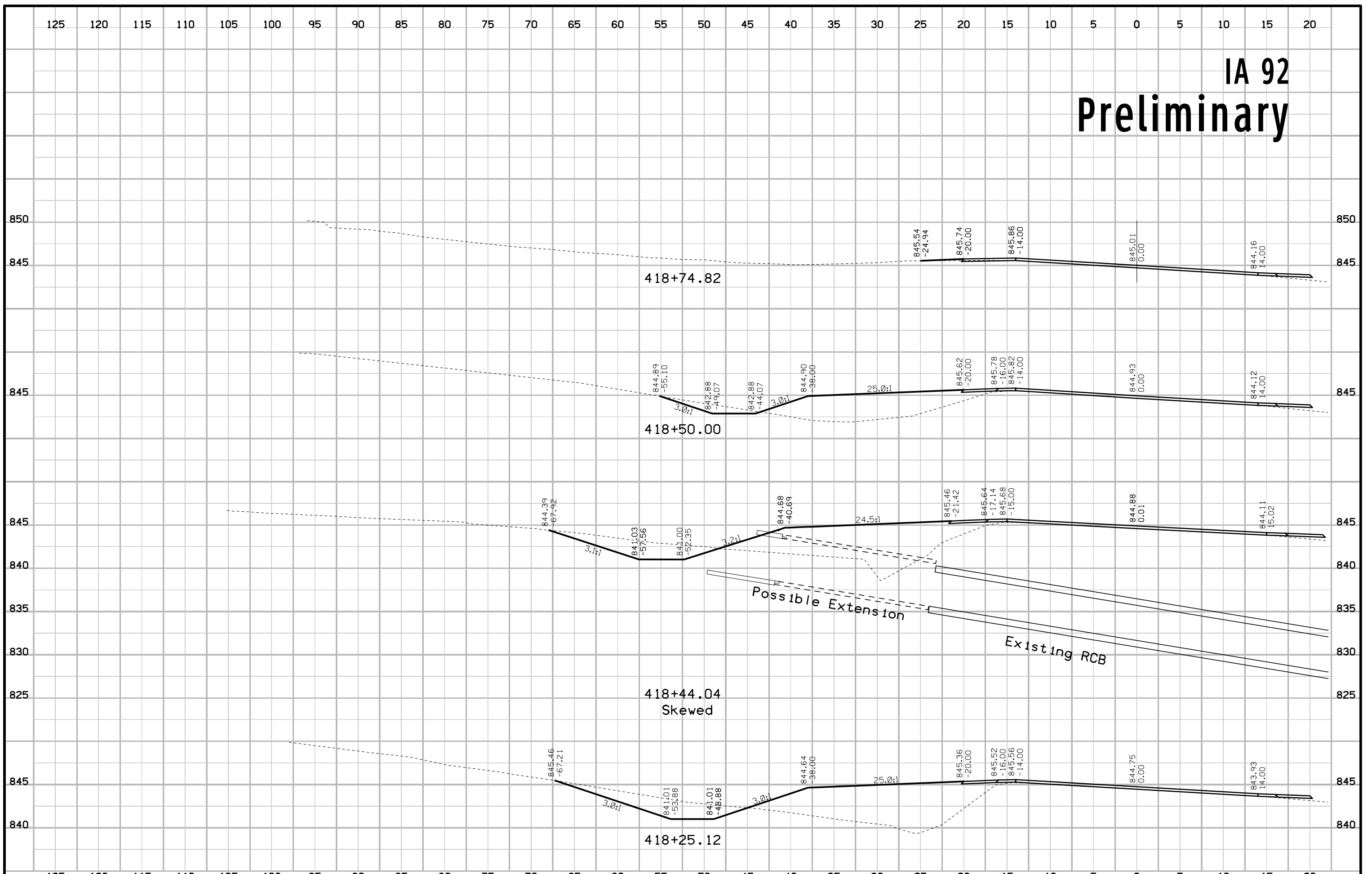
IA92 NW Corner Preliminary



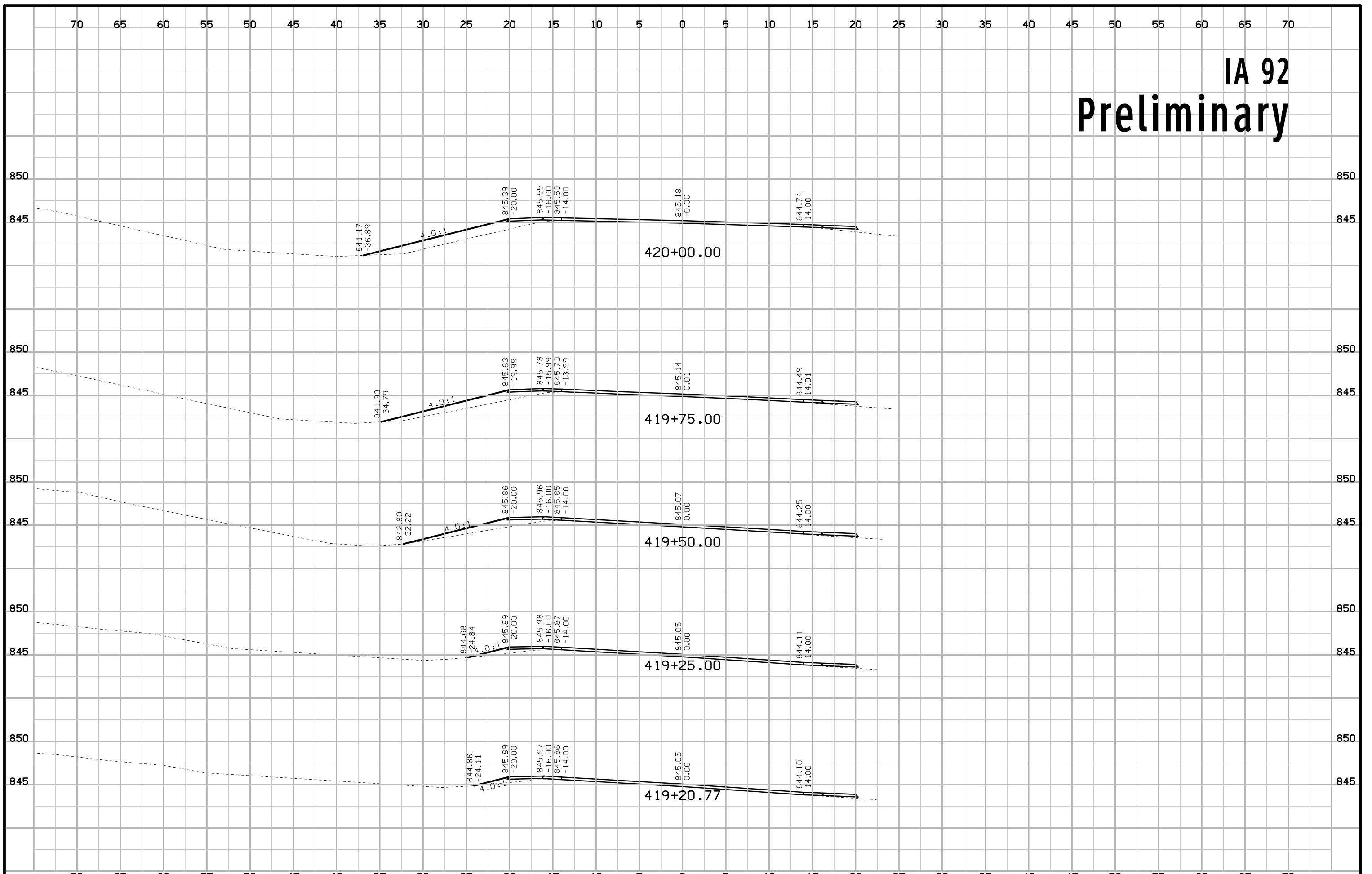
IA 92 Preliminary



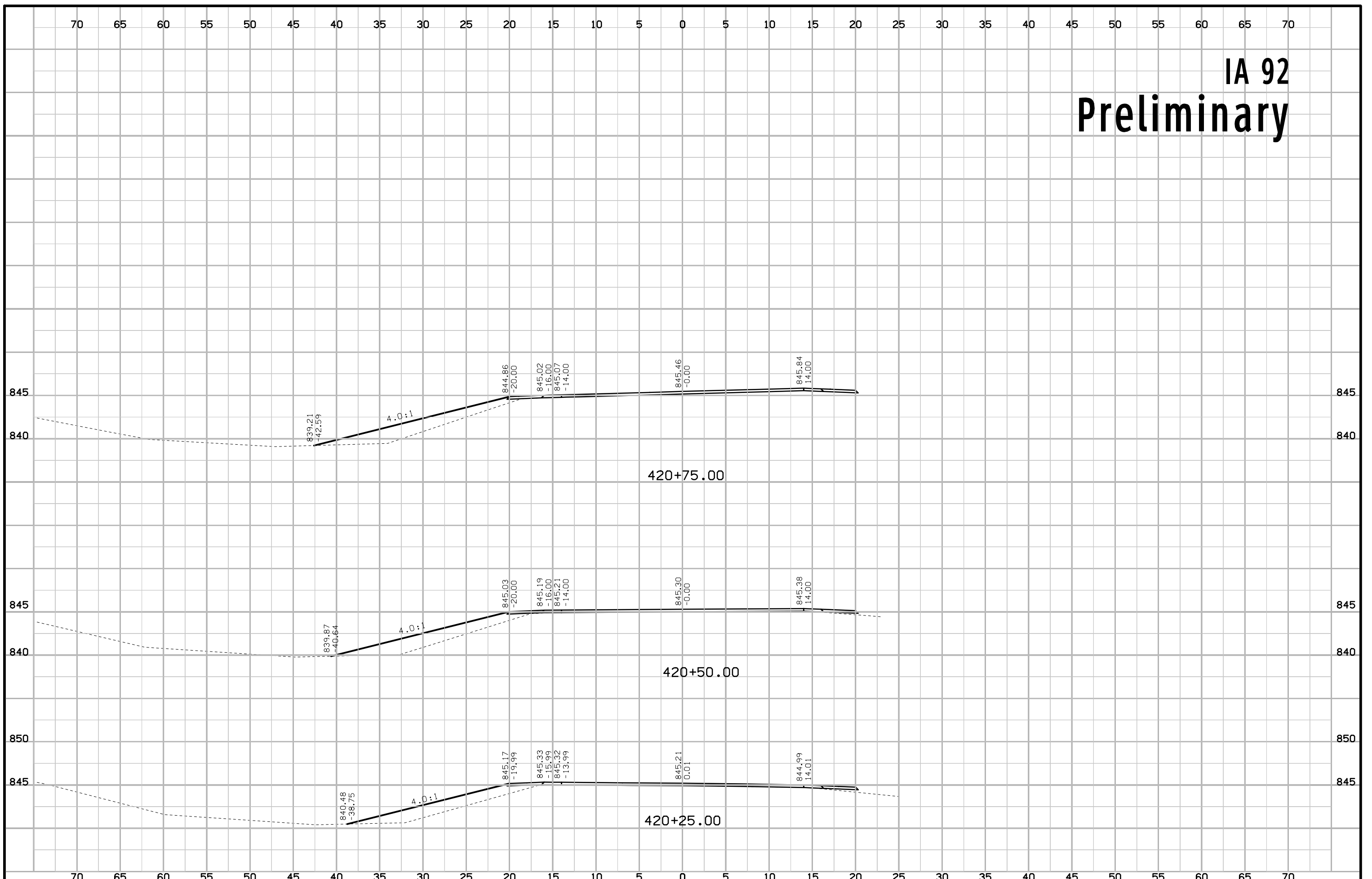
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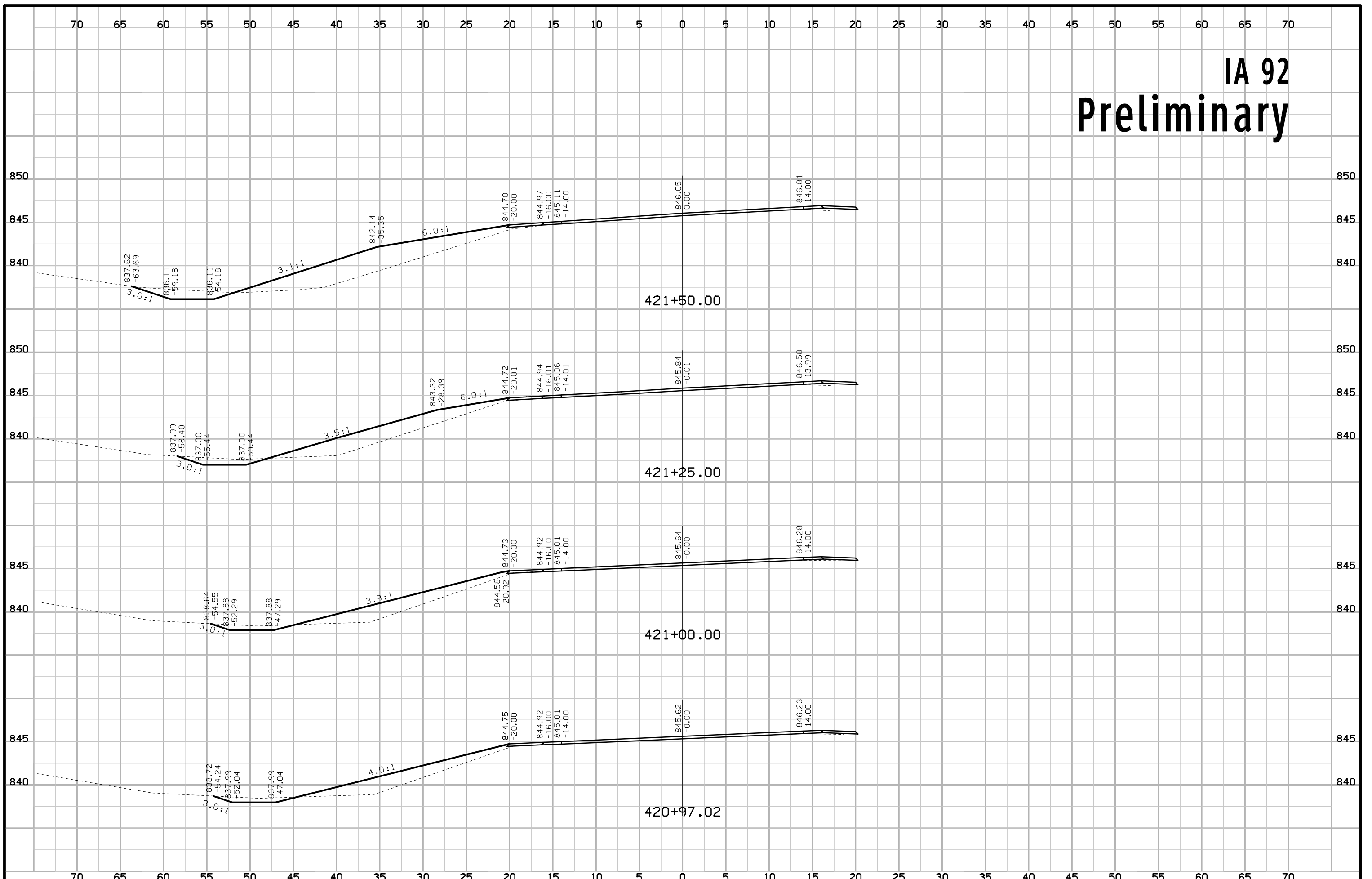
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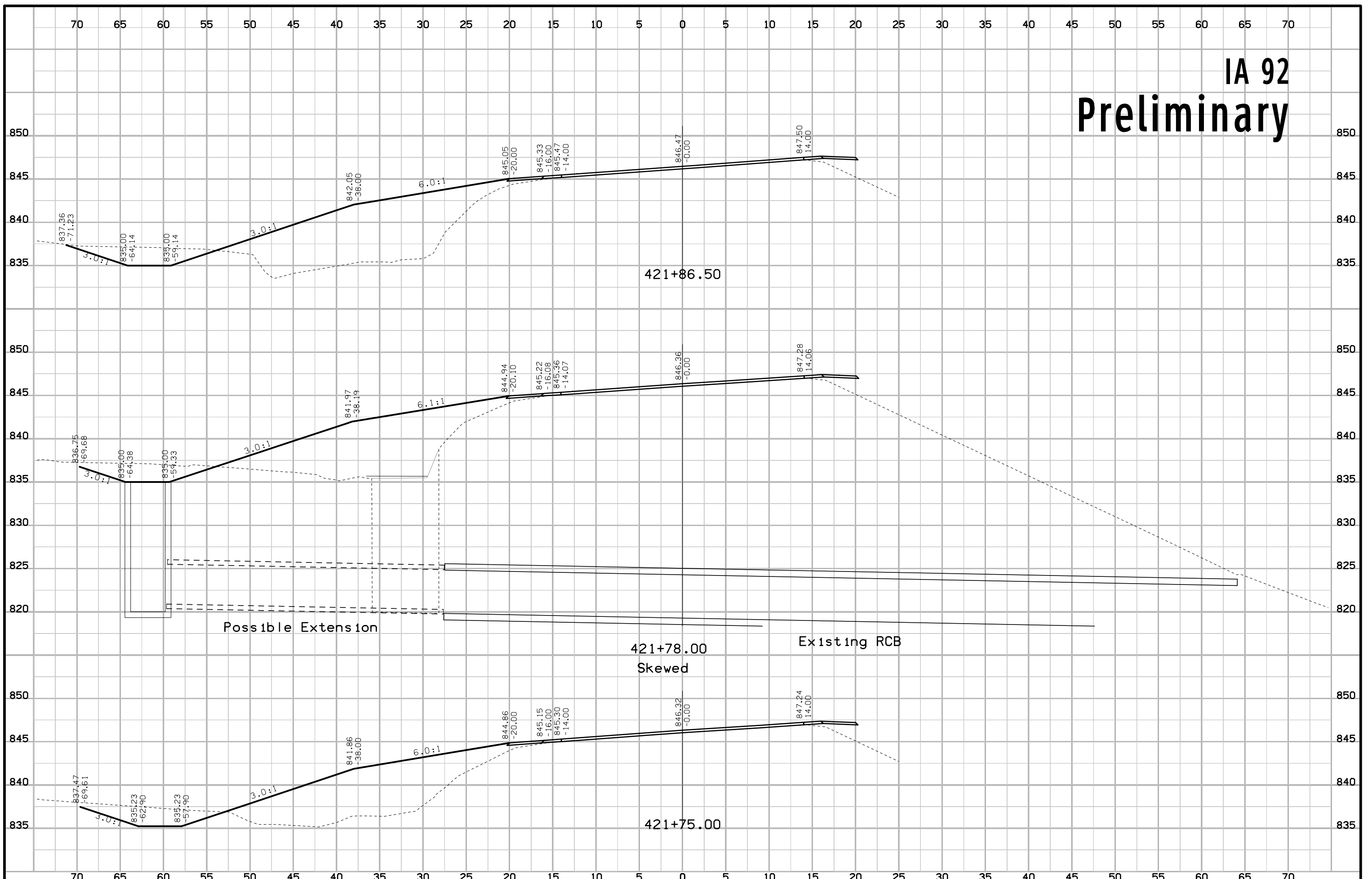
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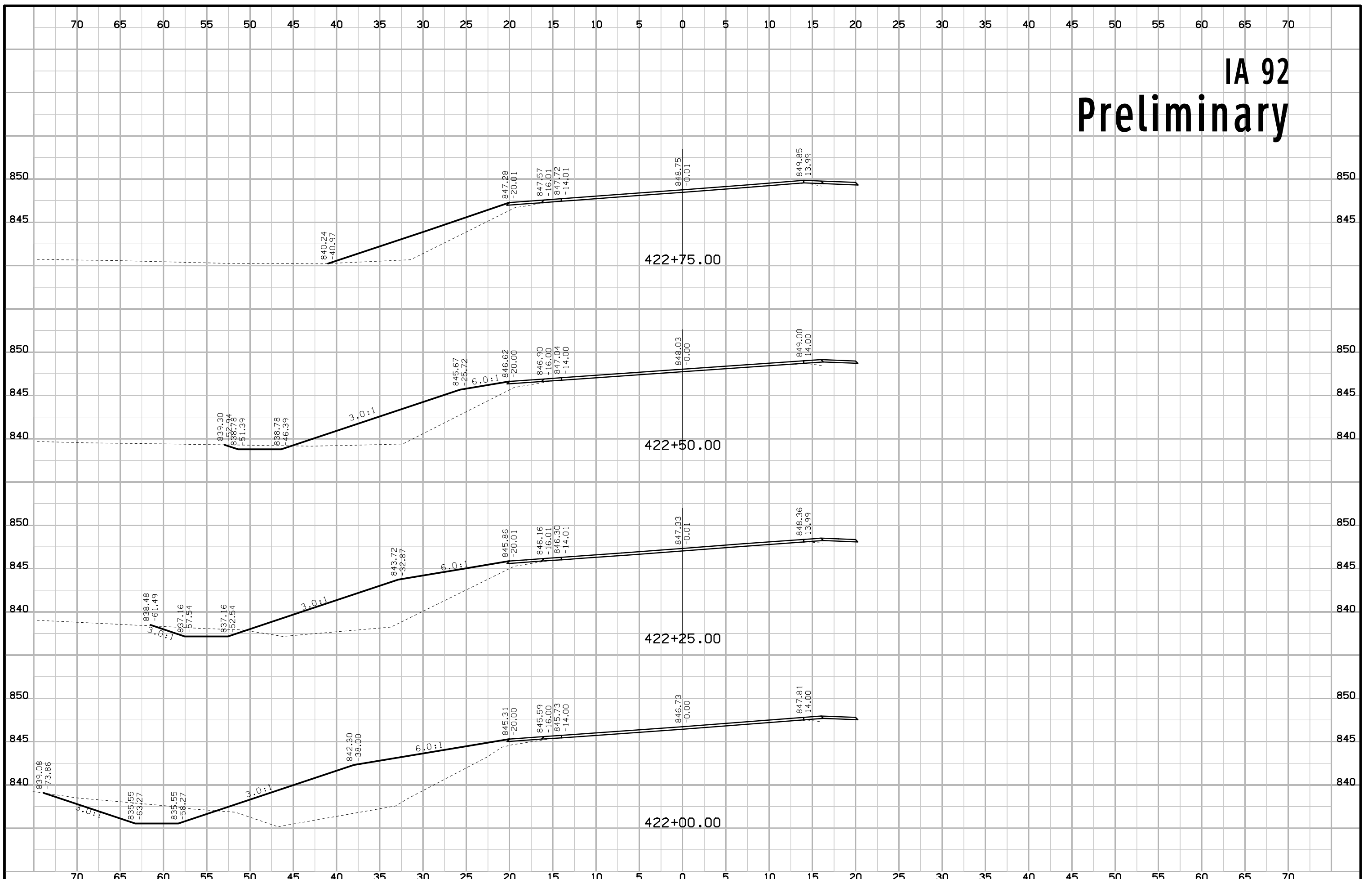
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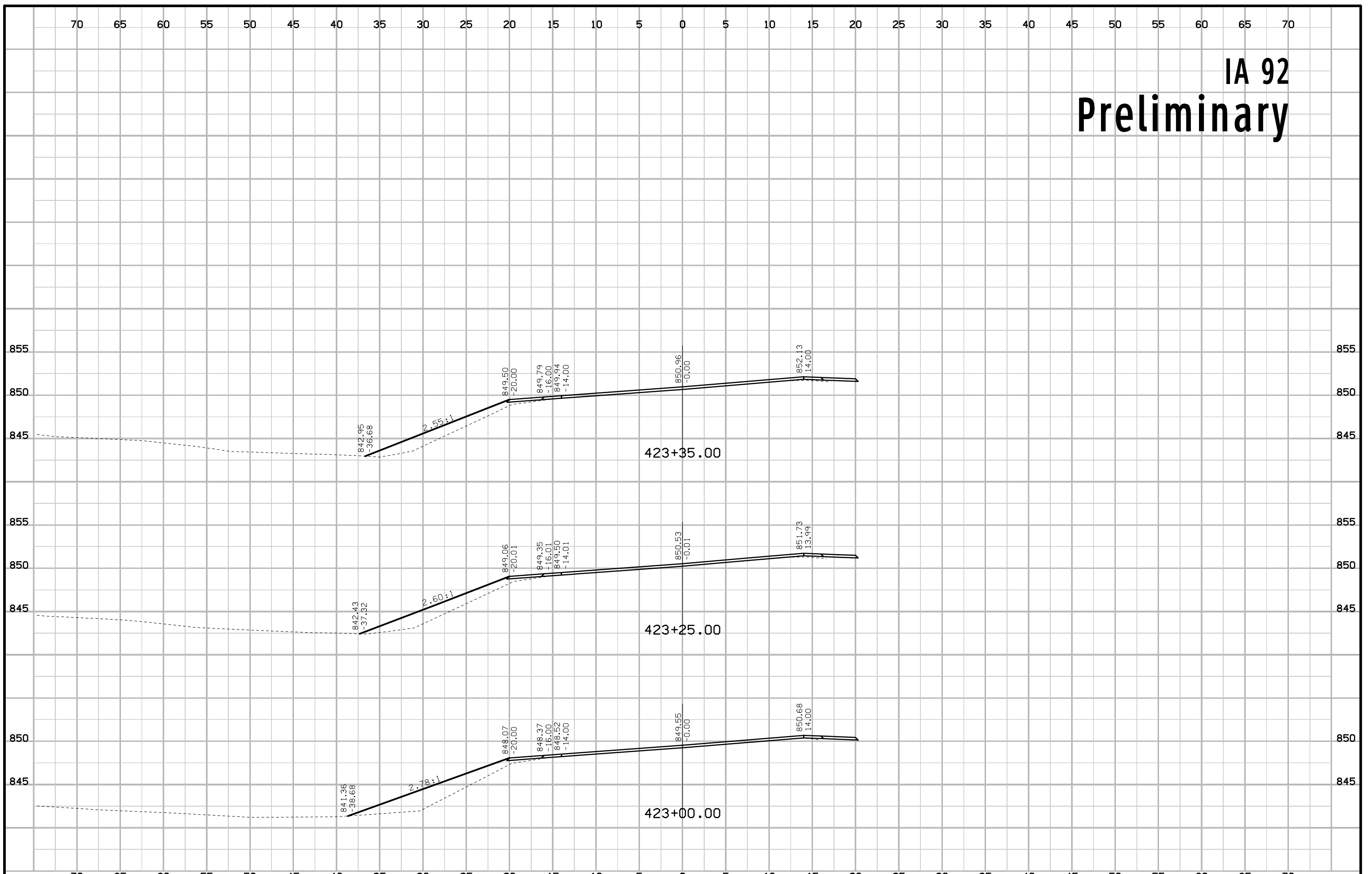
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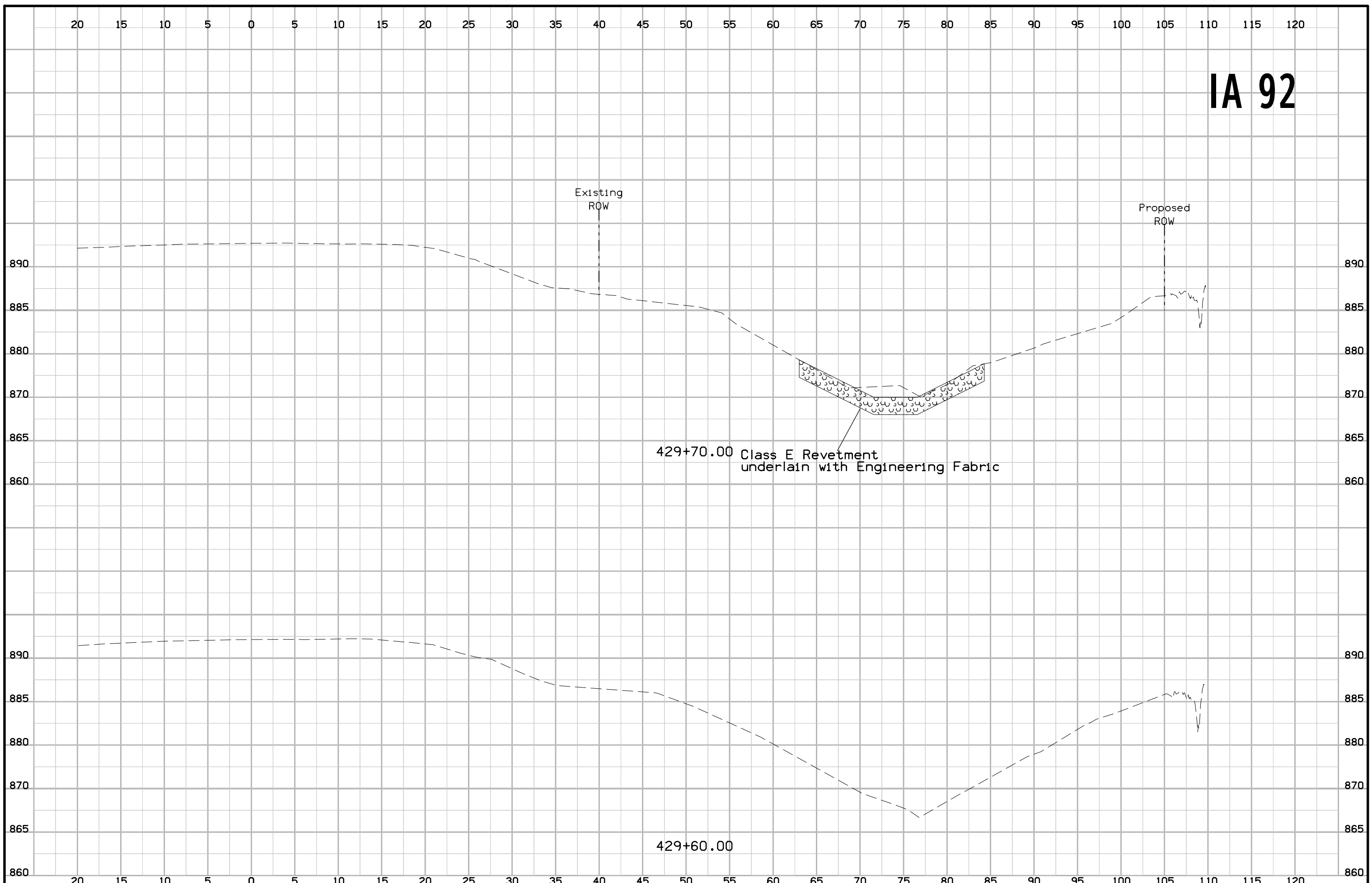
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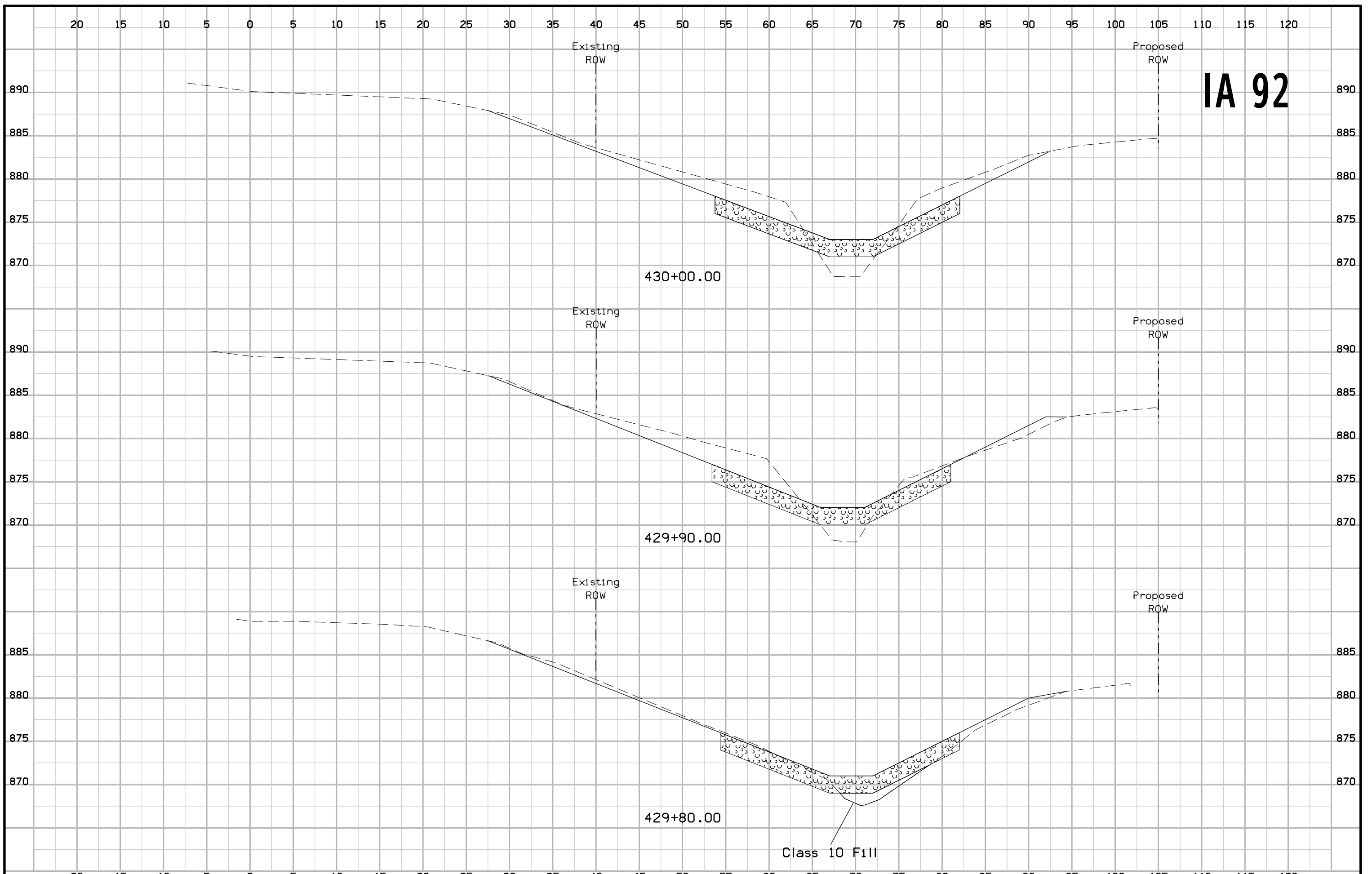
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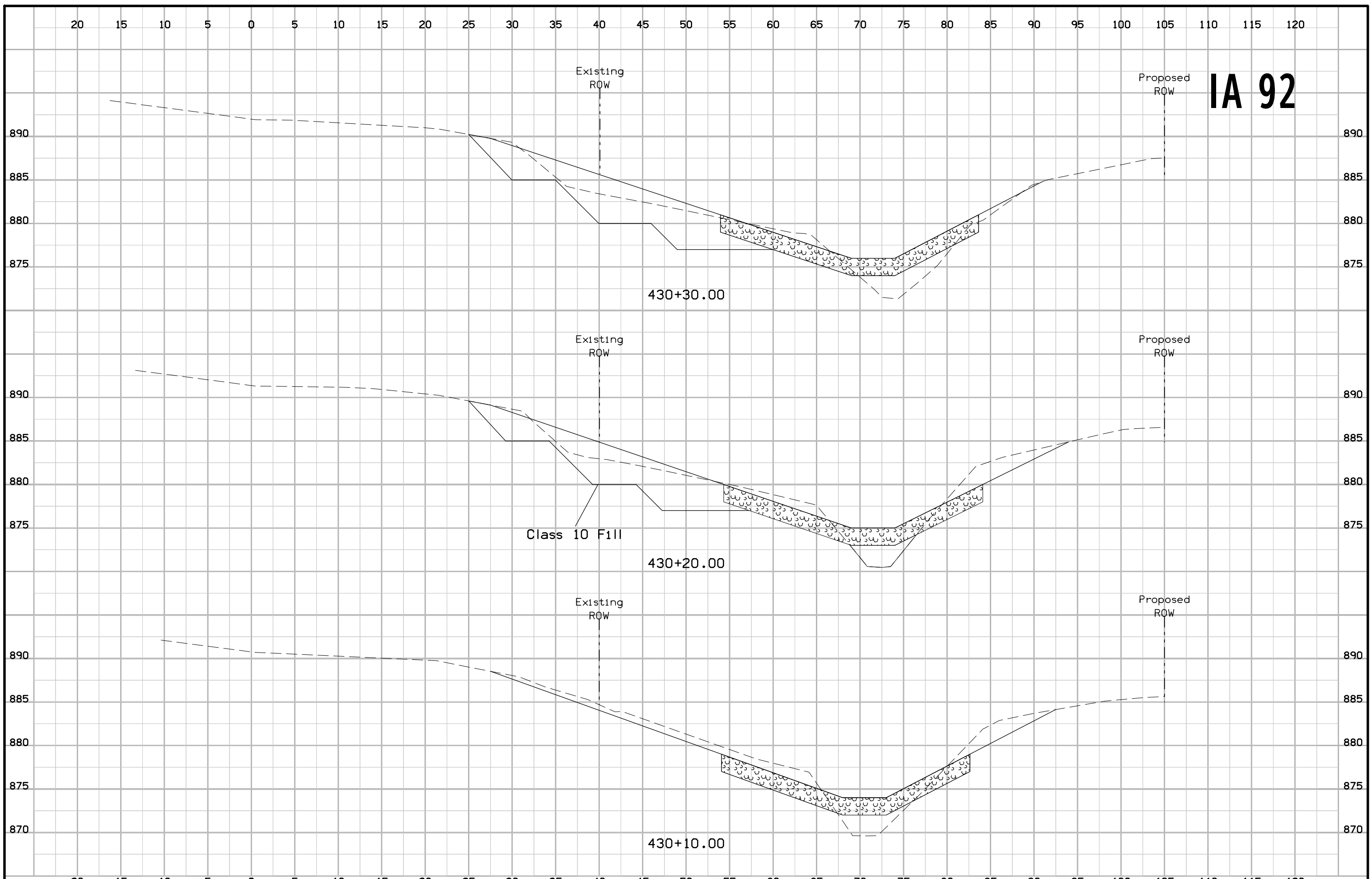
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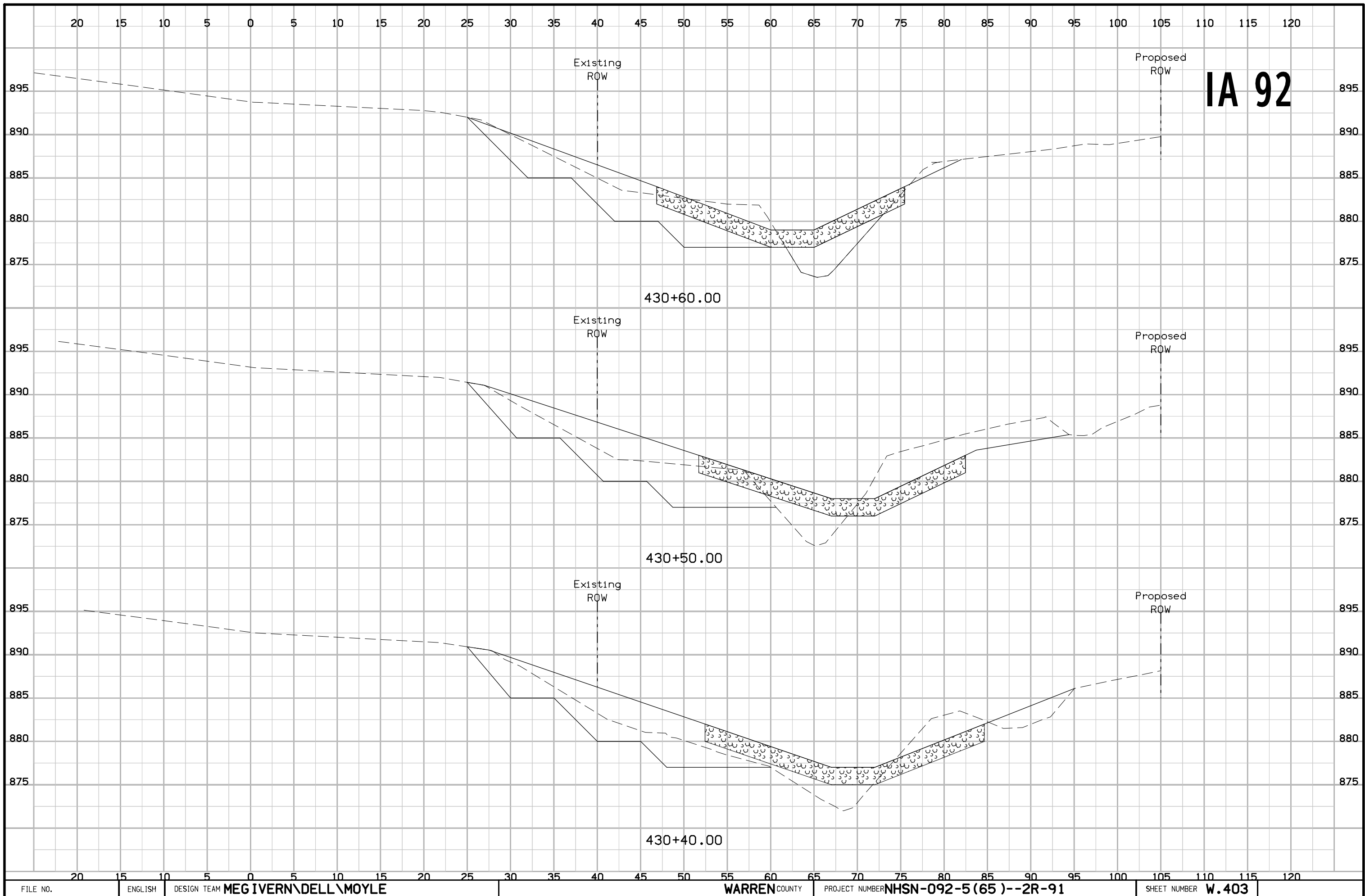


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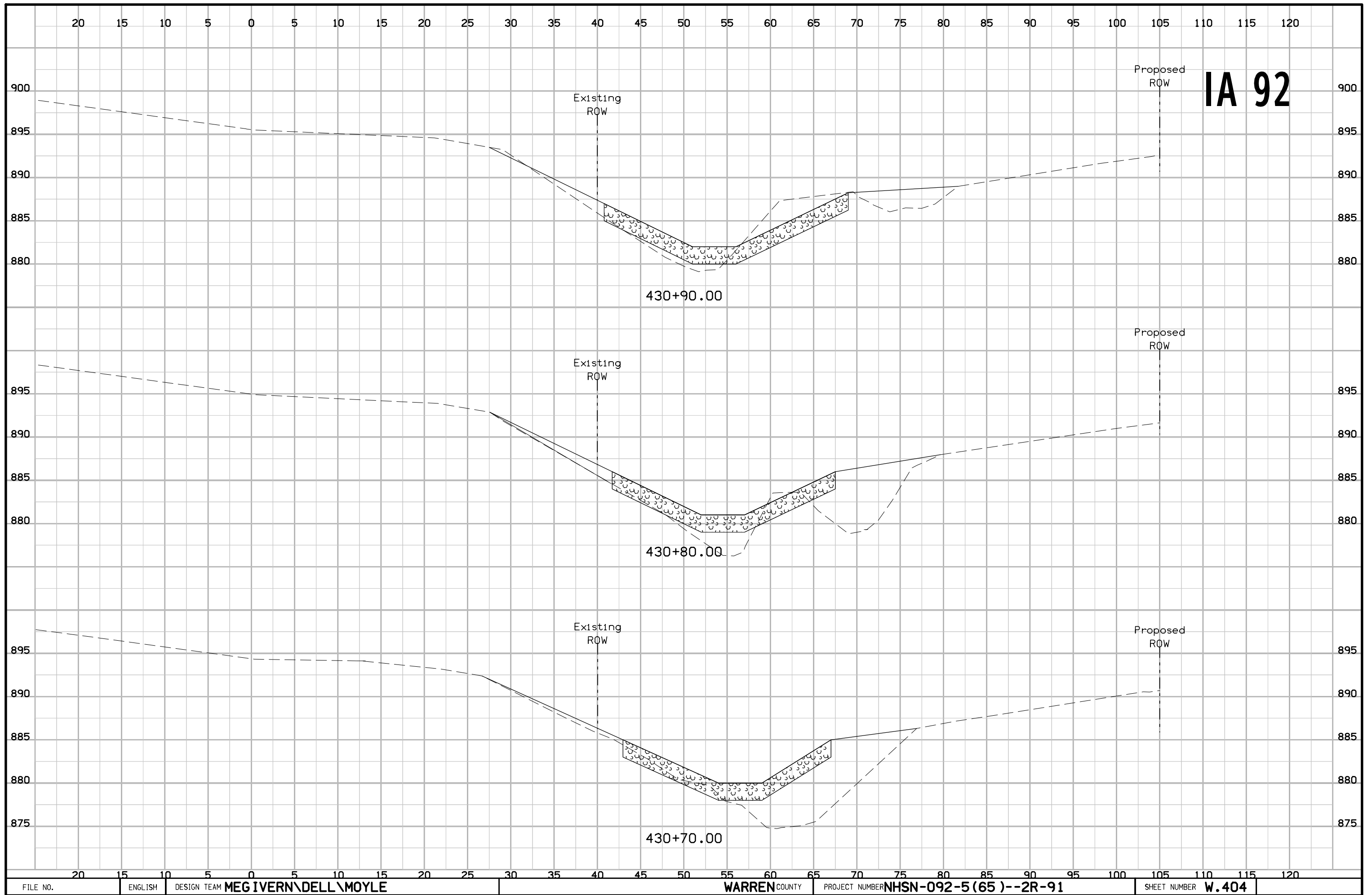


IA 92





IA 92



IA 92

Existing ROW

Proposed ROW

430+90.00

Existing ROW

Proposed ROW

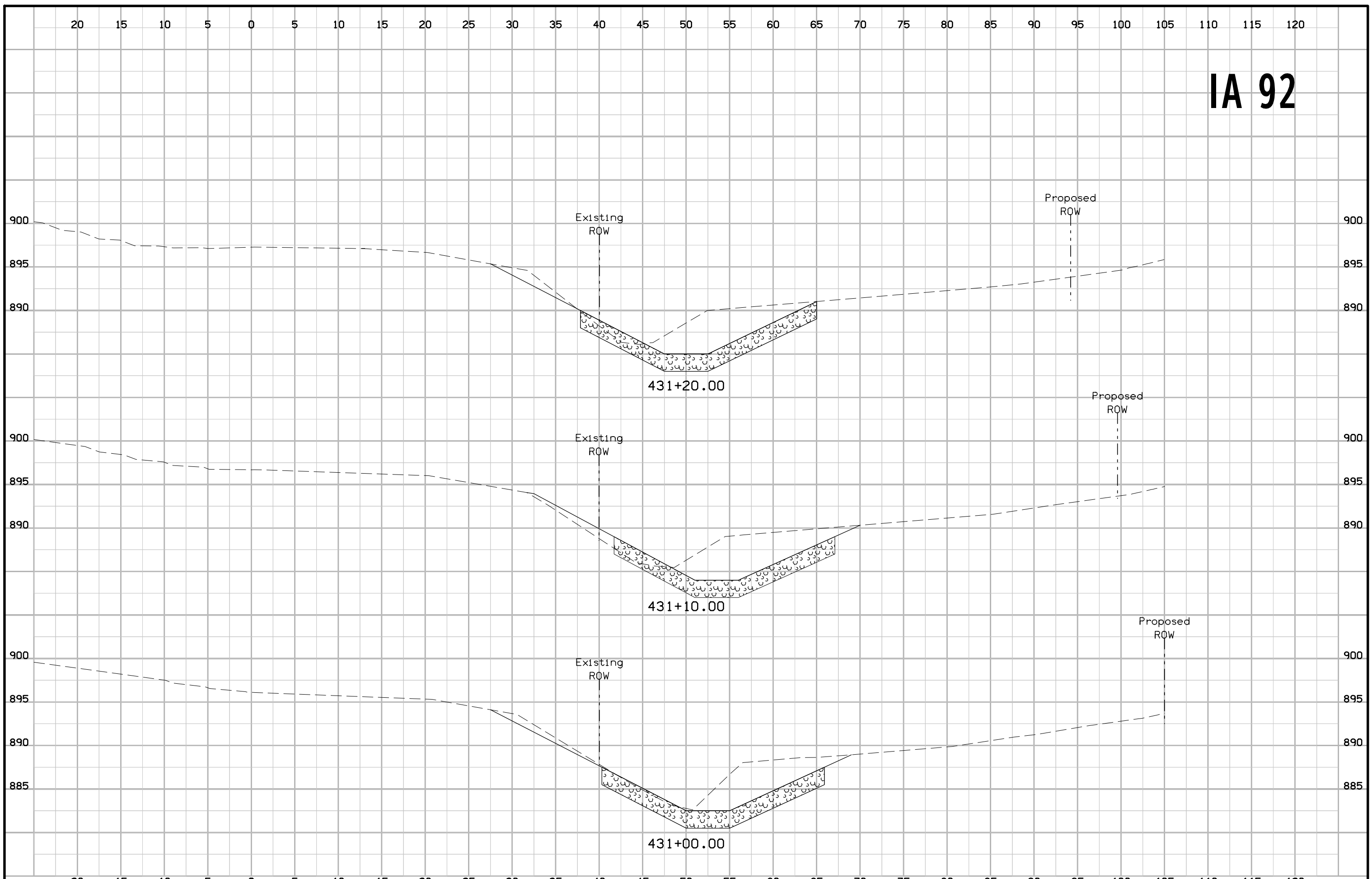
430+80.00

Existing ROW

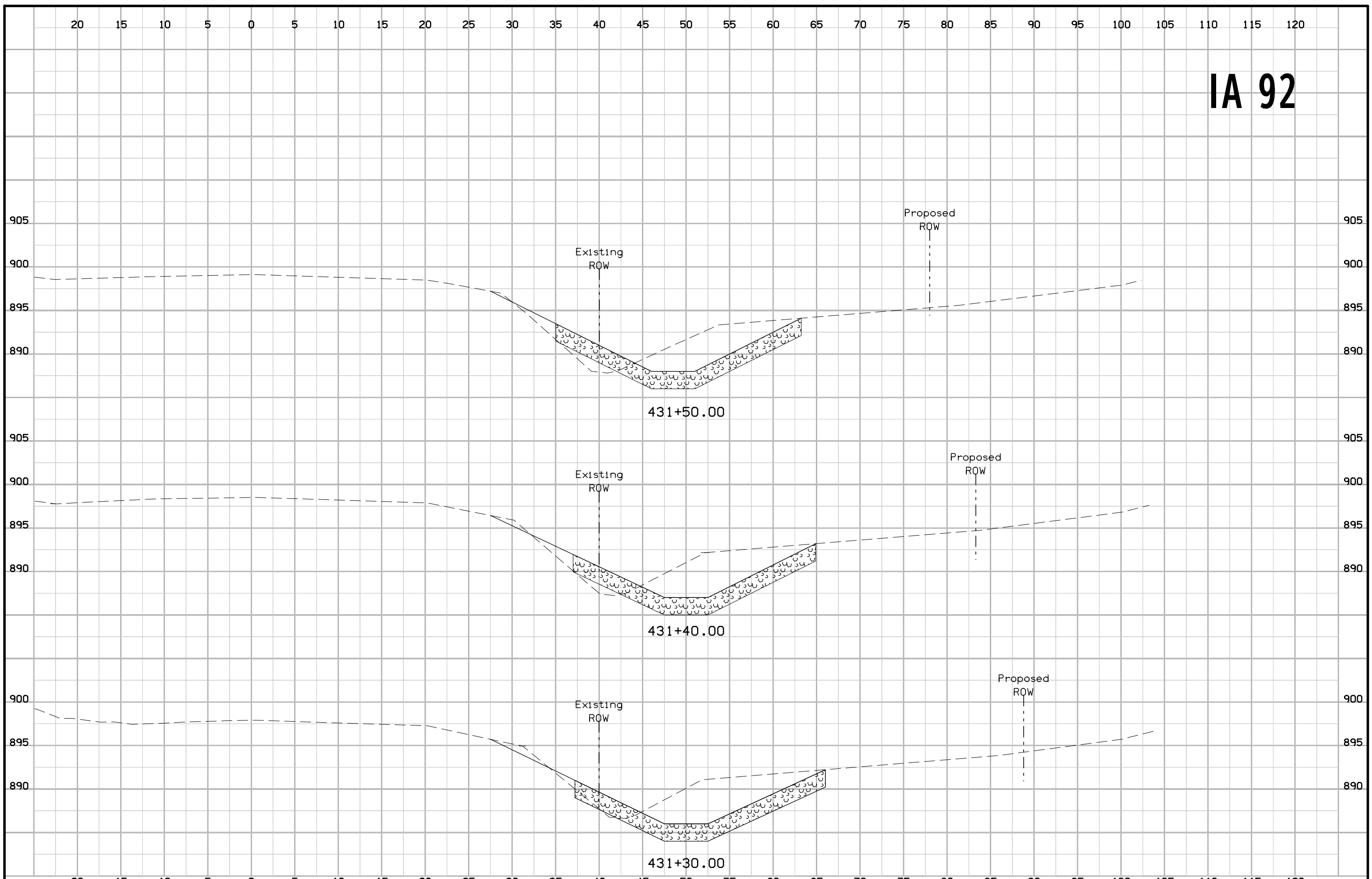
Proposed ROW

430+70.00

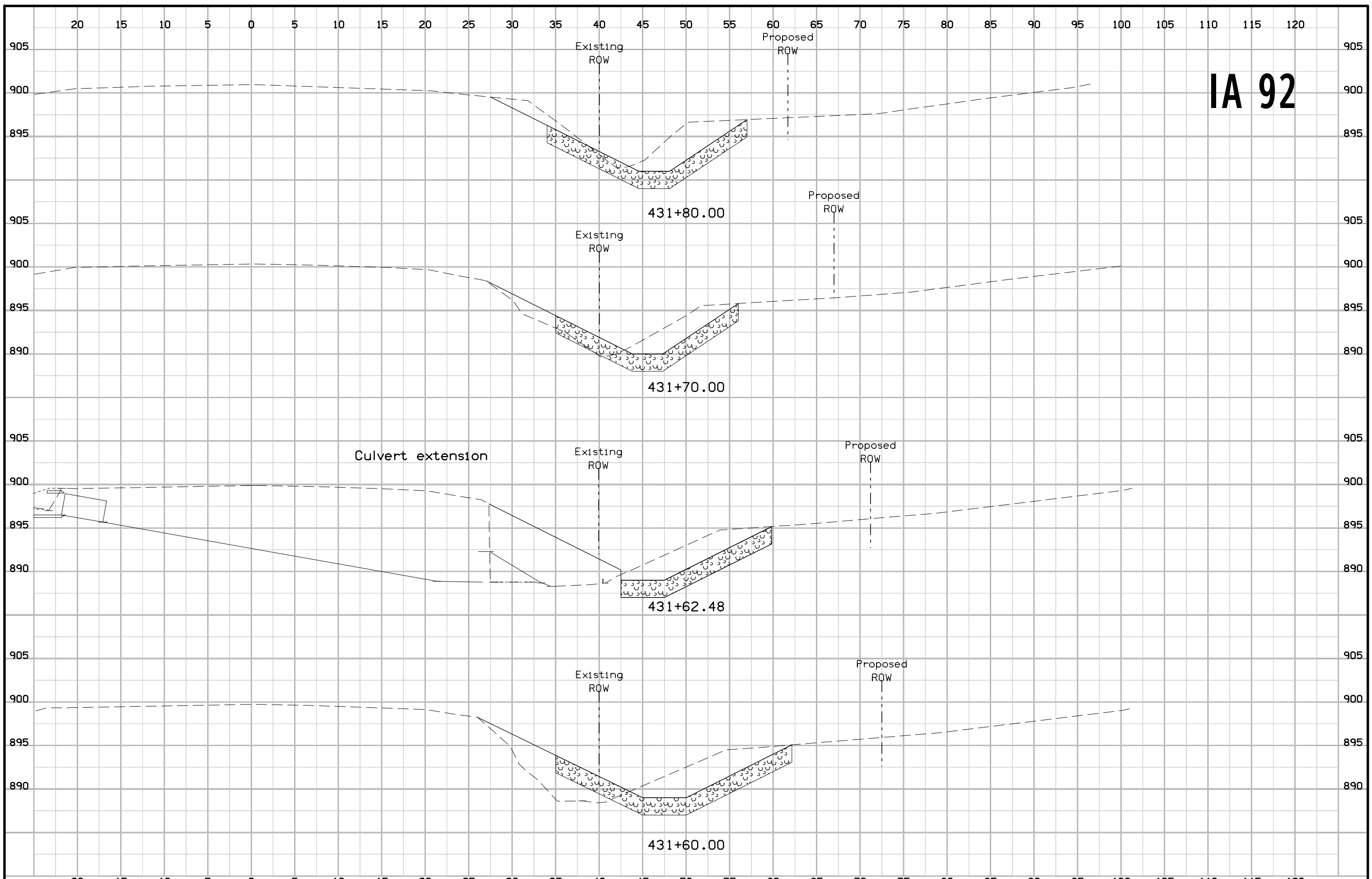
IA 92



IA 92



IA 92



IA 92

