



STA. 1513+75.00  
END CONSTRUCTION  
Ref. Loc. 53.7

PLANS OF PROPOSED IMPROVEMENT ON THE

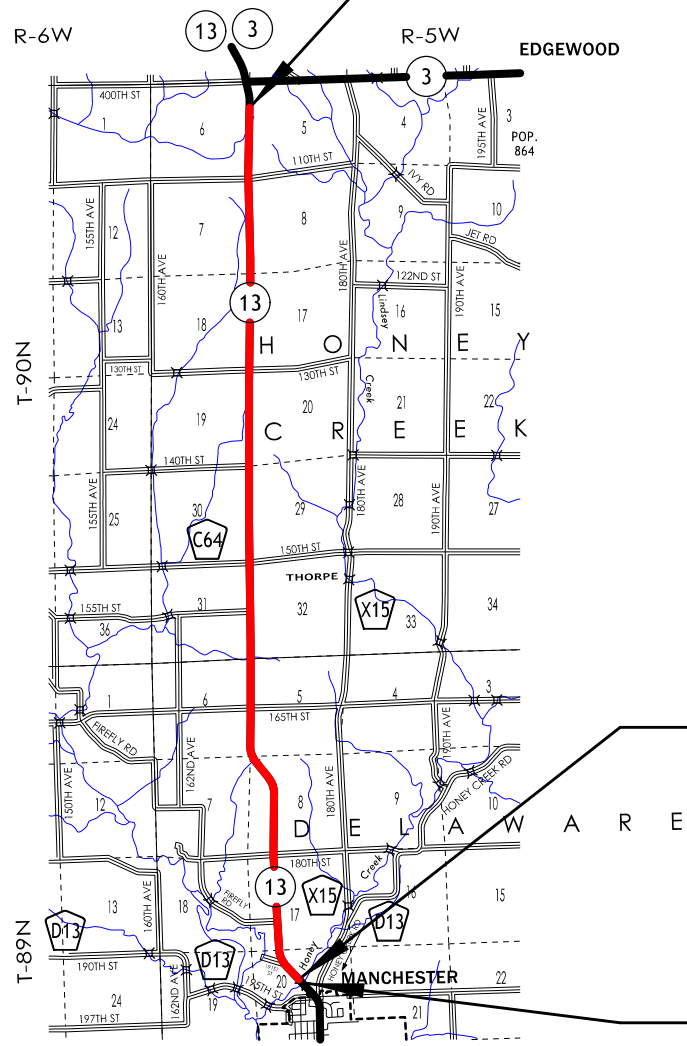
# PRIMARY ROAD SYSTEM DELAWARE COUNTY

Clearing and Grubbing  
Honey Creek 0.2 mi N of Co Rd D13 to S Jct IA 3

SCALES: As Noted

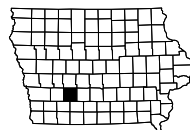
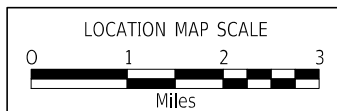
Refer to the Proposal Form for list of applicable specifications.

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



STA. 1025+61.75  
BEGIN CONSTRUCTION  
Ref. Loc. 44.0

FHWA # 23721



REVISIONS

TOTAL	..
PROJECT IDENTIFICATION NUMBER	18-28-013-010
PROJECT NUMBER	NHSN-013-2(048)--2R-28
R.O.W. PROJECT NUMBER	NHSN-013-2(043)--2R-28

### INDEX OF SHEETS

No.	DESCRIPTION
<b>A Sheets</b>	<b>Title Sheets</b>
A.1	Title Sheet
<b>C Sheets</b>	<b>Quantities and General Information</b>
C.1	Estimated Project Quantities and Reference Notes
C.2	Standard Road Plans
C.2	Tabulations
<b>D Sheets</b>	<b>Mainline Plan and Profile Sheets</b>
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2 - 18	IA 13
<b>G Sheets</b>	<b>Survey Sheets</b>
G.1 - 6	Reference Ties and Bench Marks
G.7 - 8	Horizontal Control
<b>H Sheets</b>	<b>Right-of-Way Sheets</b>
H.1 - 32	IA 13
HE.1	Firefly Rd
HE.2	180th St
HE.3	165th St
HE.4	155th St
HE.5	C-64
HE.6	140th St
HE.7	130th St
HE.8	110th St
<b>J Sheets</b>	<b>Traffic Control and Staging Sheets</b>
J.1	Traffic Control Plan
<b>R Sheets</b>	<b>Erosion Control Sheets</b>
RC.1 - 4	Est. Quantities, PPP, General Notes and Tabulations
* RR.1 - 18	Erosion Control Plan Sheets
	* Color Plan Sheets

### ROADWAY DESIGN



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature: Jason R. Strum Date: 09-01-2023  
Printed or Typed Name: Jason R. Strum  
My license renewal date is December 31, 2023

Pages or sheets covered by this seal: A.1, C.1-C.2, D.1-D.18, G.7-G8, X

### INDEX OF SEALS

SHEET NO.	NAME	TYPE	BID QUANTITY SHEETS
A.1	Jason Strum	Primary Signature Block	C.1
RC.1	Rachel Harris	Landscape Design	RC.2

# ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Roadway Items : Roadway Items

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway Items	
1	2101-0850001	CLEARING AND GRUBBING	ACRE	6.3	Refer to D Sheets for details. Do not grub area "AB" shown on sheet D.6. All material generated as a result of Clearing and Grubbing shall become the property of the contractor and must be disposed off site. Includes 13,432 LF of fence removal. Refer to Tab 100-8 for details.
2	2528-8445110	TRAFFIC CONTROL	LS	1	Refer to J sheets.
3	2528-8445113	FLAGGERS	EACH	0	See Proposal.
4	2533-4980005	MOBILIZATION	LS	1	--

**REMOVAL OF FENCE**

Removal of Field Fence is incidental to Clearing and Grubbing.

Location				Type	Length	Remarks
From		To				
Station	Offset	Station	Offset			
1085+50.00	51' Lt	1086+53.00	50' Lt	Field	121.0	
1090+16.00	42' Lt	1098+27.00	47' Lt	Field	811.0	
1099+84.00	45' Lt	1105+81.00	46' Lt	Field	599.0	
1099+88.00	45' Rt	1107+75.00	48' Rt	Field	784.0	
1113+36.00	50' Rt	1118+46.00	51' Rt	Field	510.0	
1119+65.00	50' Rt	1123+83.00	53' Rt	Field	418.0	
1143+59.00	62' Lt	1148+03.00	86' Lt	Field	490.0	
1148+54.00	89' Lt	1157+18.00	95' Lt	Field	971.0	
1277+03.00	74' Lt	1281+64.00	41' Lt	Field	493.0	
1311+28.00	60' Lt	1311+75.00	60' Lt	Field	65.0	
1312+92.00	60' Lt	1316+46.00	85' Lt	Field	383.0	
1317+11.00	92' Lt	1323+87.00	44' Lt	Field	718.0	
1329+46.00	67' Lt	1343+13.00	61' Lt	Field	1385.0	
11367+17.00	33' Lt	11369+12.00	35' Lt	Field	196.0	130th St
1370+07.00	63' Lt	1372+47.00	60' Lt	Field	240.0	
1372+72.00	60' Lt	1376+06.00	36' Lt	Field	336.0	
1380+36.00	51' Lt	1389+90.00	50' Lt	Field	954.0	
1391+68.00	51' Lt	1398+91.00	62' Lt	Field	769.0	
1400+58.00	63' Lt	1403+35.00	63' Lt	Field	277.0	
1404+45.00	63' Lt	1409+49.00	61' Lt	Field	504.0	
1409+86.00	60' Lt	1417+20.00	62' Lt	Field	734.0	
1418+03.00	62' Lt	1420+67.00	62' Lt	Field	264.0	
1421+21.00	62' Lt	1422+75.00	62' Lt	Field	154.0	
1423+59.00	61' Lt	1425+59.00	59' Lt	Field	200.0	
1440+34.00	48' Rt	1442+66.00	49' Rt	Field	232.0	
1445+13.00	48' Rt	1449+24.00	49' Rt	Field	411.0	
1452+34.00	60' Lt	1455+77.00	62' Lt	Field	343.0	
1456+70.00	61' Lt	1457+40.00	61' Lt	Field	70.0	
<b>Total</b>					<b>13432.0</b>	

**STANDARD ROAD PLANS**

The following Standard Road Plans apply to construction work on this project.

Number	Date	Title
TC-1	10-15-19	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-202	04-18-23	Work within 15 ft of Traveled Way
TC-213	04-18-23	Lane Closure with Flaggers
TC-251	04-18-23	Temporary Road Closure

**UTILITIES  
(POINT 25 PROJECT)**

262-5  
10-18-05

This is a POINT 25 project and is subject to the provisions of IAC 761-115.25.

### SURVEY SYMBOLS

- Interstate Highway Symbol
- U.S. Highway Symbol
- Iowa Highway Symbol
- County Road Highway Symbol
- Evergreen Tree
- Deciduous Tree
- Fruit Tree
- Shrub (Bushes)
- Timber
- Hedge
- Stump
- Swamp
- Rock Outcrop
- Broken Concrete
- Revetment (Rip Rap)
- Cemetery
- Grave
- Cave
- Sink Hole
- Board Fence
- Chain Link or Security Fence
- Wire Fence
- Terrace
- Earth Dam or Dike (Existing)
- Tile Outlet
- Edge of Water
- Existing Drainage
- Right of Way Rail or Lot Corner
- Concrete Monument
- Well
- Windmill
- Beehive Intake
- Existing Intake
- Existing Utility Access (Manhole)
- Fire Hydrant
- Water Hydrant (Rural)
- Septic Tank
- Cistern
- L.P. Gas Tank (No Footing)
- Underground Storage Tank
- Latrine
- Satellite TV Dish
- Water Hook Up
- Radio Tower
- Tower Anchor
- Guardrail (Beam or Cable)
- Guard Post (one or two)
- Guard Post (over two)
- Filler Pipe
- Gas Valve
- Water Valve
- Speed Limit Sign
- Mile Marker Post
- Sign
- Traffic Signal Control Box
- Rail Road Signal Control Box
- Telephone Switch Box
- Electric Box

### UTILITY LEGEND

- E1 Iowa DOT  
Doug Lickteig  
(319)-443-2370  
douglas.lickteig@iowadot.us
- E2 Alliant Energy  
Mick Bennett  
(319)-786-2005  
lmickbennett@alliantenergy.com
- F02 Iowa Communications Network  
Tim Flickinger  
(515)-725-4699  
timothy.flickinger@icn.state.us
- G Black Hills  
Brian McWilliams  
(563)-927-1017  
brian.mcwilliams@blackhillscorp.com
- T1 Windstream Communications  
Stephen Kness  
(319)-790-7678  
stephen.kness@windstream.com
- W Iowa Regional Water  
Matt Mahler  
(641)-792-7011  
mmahler@irua.net
- CIPCO  
Adam Clymer  
(319)-734-4323  
adam.clymer@cipco.net
- ITC  
Chad Levy  
(319)-297-6765  
clevi@itctransco.com
- Maquoketa Valley REC  
Nic Schulte  
(319)-462-3542  
nschulte@mvec.com
- Mediacom  
Dewey Callan or Craig Eggert  
(319)-493-8319 / (563)-419-5160  
dcallan@mediacomcc.com / ceggert@mediancomcc.com

### 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.	
Lavender	(9)		Temporary Pavement Shading
Yellow	(4)		Proposed Pavement Shading
Orange	(6)		Proposed Granular Shading
Orange	(70)		Proposed Shoulder Granular Shading
Yellow	(68)		Proposed Shoulder Paved Full Depth Shading
Yellow	(132)		Proposed Shoulder Paved Partial Depth Shading
Gray, Dark	(112)		Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)		Grading Shading
Orange, Light	(134)		Proposed Granular Entrance Shading
Yellow	(220)		Proposed Paved Entrance Shading
Tan	(8)		Proposed Sidewalk Shading
Blue, Light	(230)		Proposed Sidewalk Landing Shading
Pink	(11)		Proposed Sidewalk Ramp Shading
Green, Light	(225)		Existing Pavement Shading
Red	(3)		Proposed Structure Shading
Red	(3)		Delineates Restricted Areas

### PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

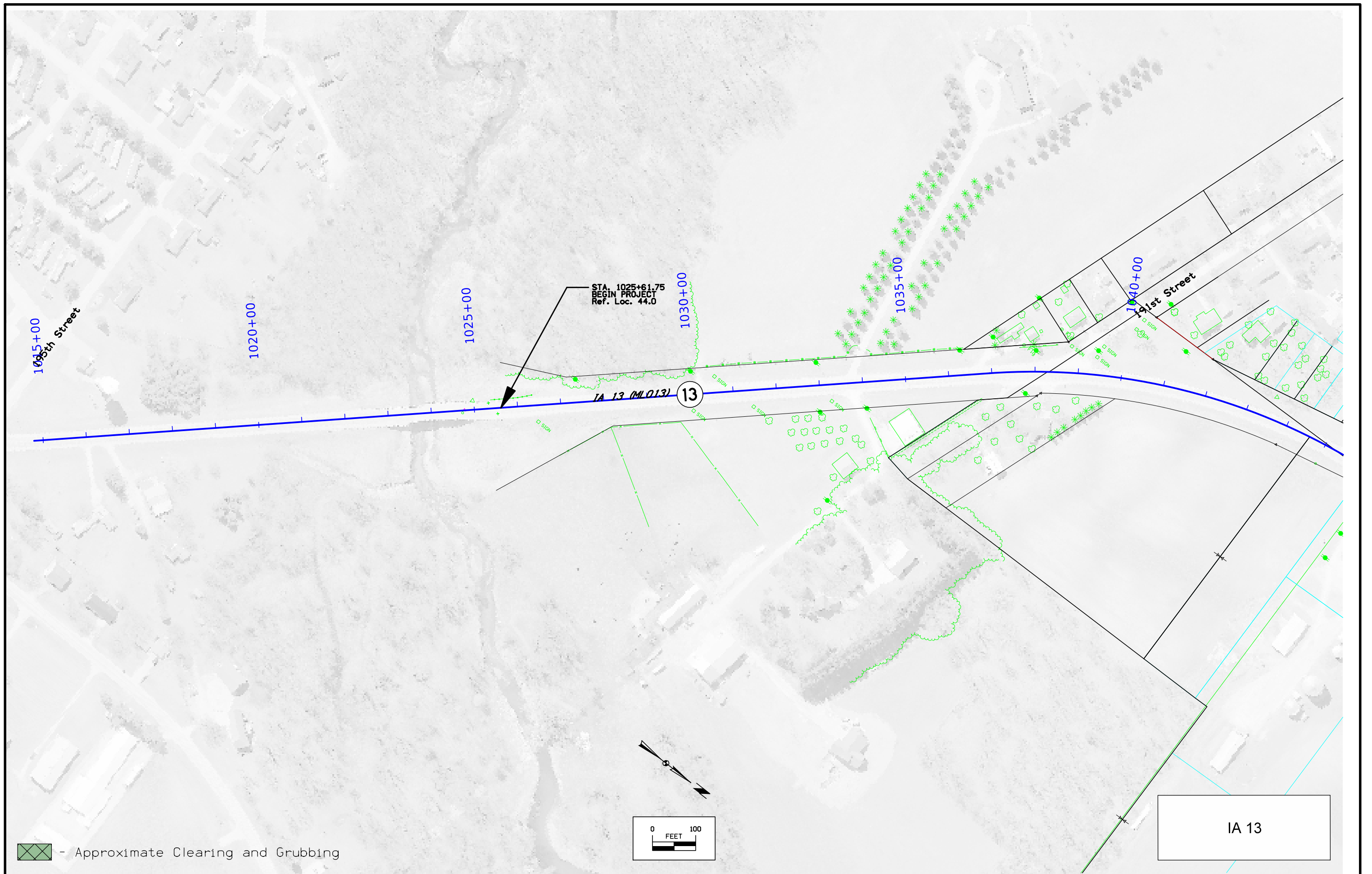
LINEWORK		Design Color No.	
Green	(10)		Existing Ground Line Profile
Blue	(1)		Proposed Profile and Annotation
Magenta	(5)		Existing Utilities
Blue, Light	(230)		Proposed Ditch Grades, Left
Black	(0)		Proposed Ditch Grades, Median
Rust	(14)		Proposed Ditch Grades, Right

- 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

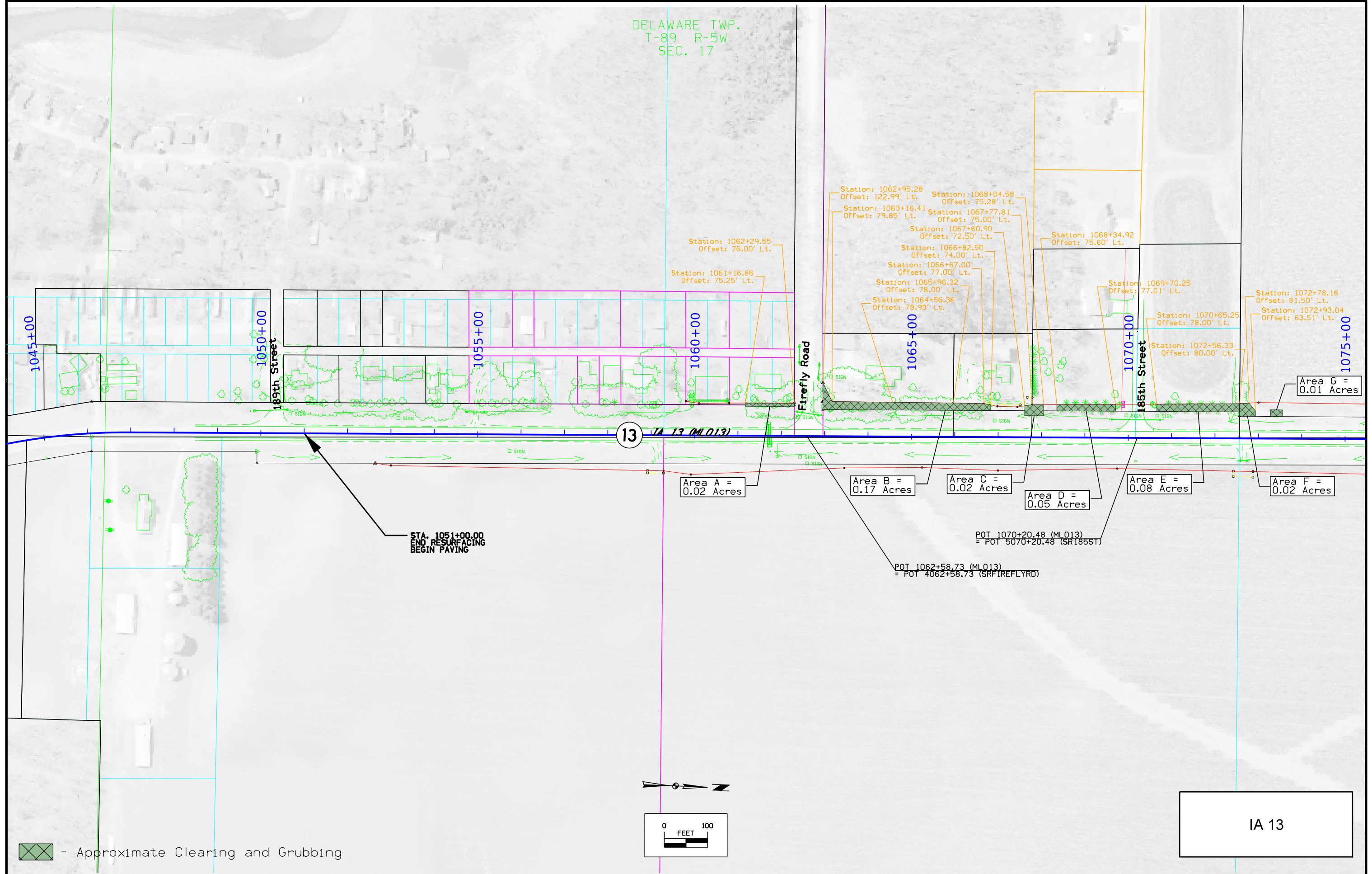
- ### RIGHT-OF-WAY LEGEND
- Proposed Right-of-Way
  - Existing Right of Way
  - Existing and Proposed Right-of-Way
  - Easement and Existing Right-of-Way
  - Easement (Temporary)
  - Easement
  - Access Control
  - Property Line

## PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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



DELAWARE TWP.  
T-89 R-5W  
SEC. 17



13

Area A =  
0.02 Acres

Area B =  
0.17 Acres

Area C =  
0.02 Acres

Area D =  
0.05 Acres

Area E =  
0.08 Acres

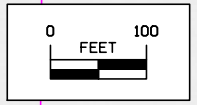
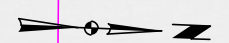
Area F =  
0.02 Acres

Area G =  
0.01 Acres

STA. 1051+00.00  
END RESURFACING  
BEGIN PAVING

POT 1070+20.48 (ML013)  
= POT 5070+20.48 (SR185ST)

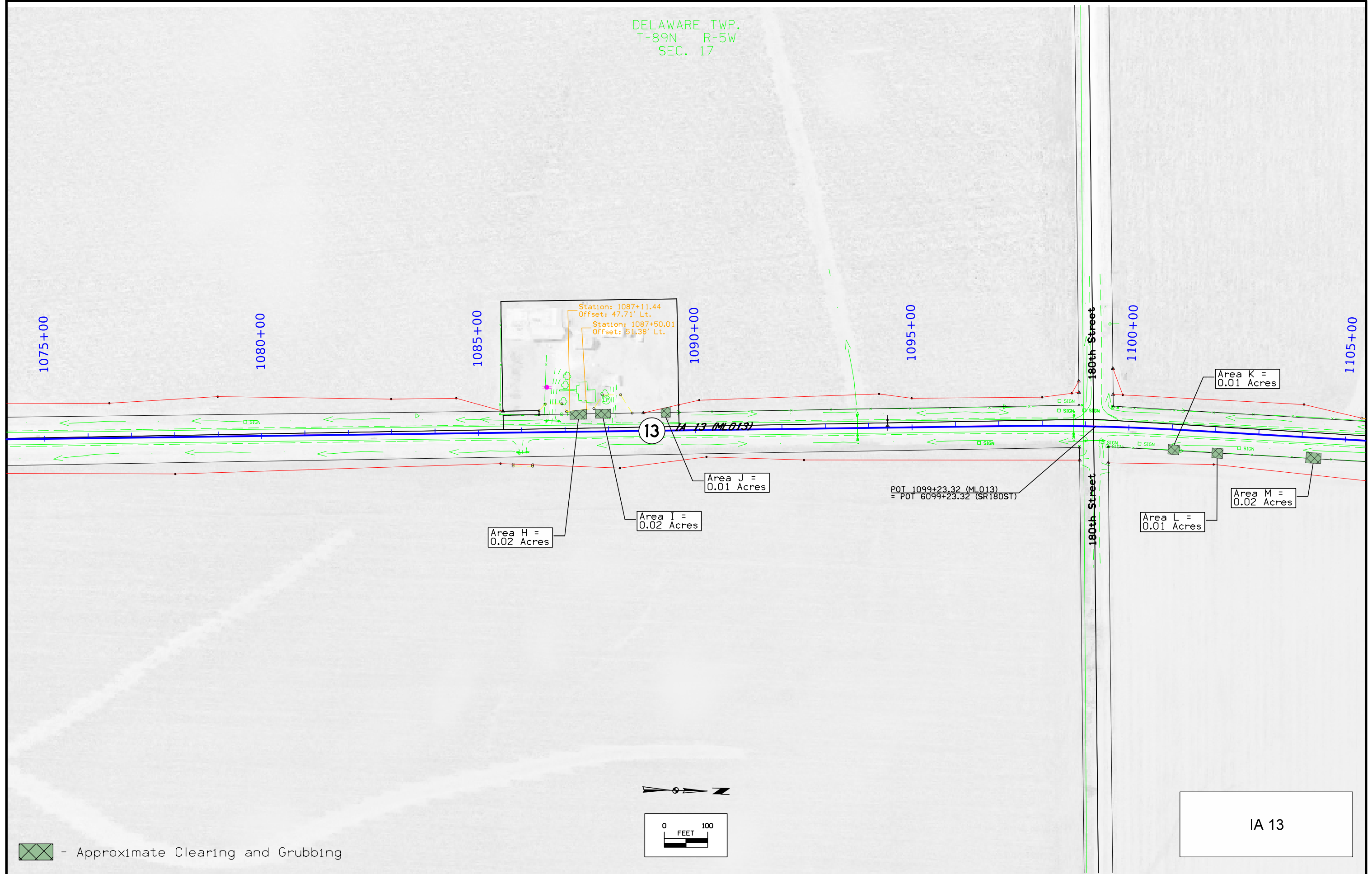
POT 1062+58.73 (ML013)  
= POT 4062+58.73 (SRFIREFLYRD)




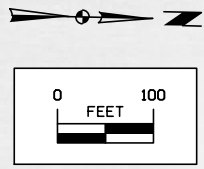
- Approximate Clearing and Grubbing

IA 13

DELAWARE TWP.  
T-89N R-5W  
SEC. 17

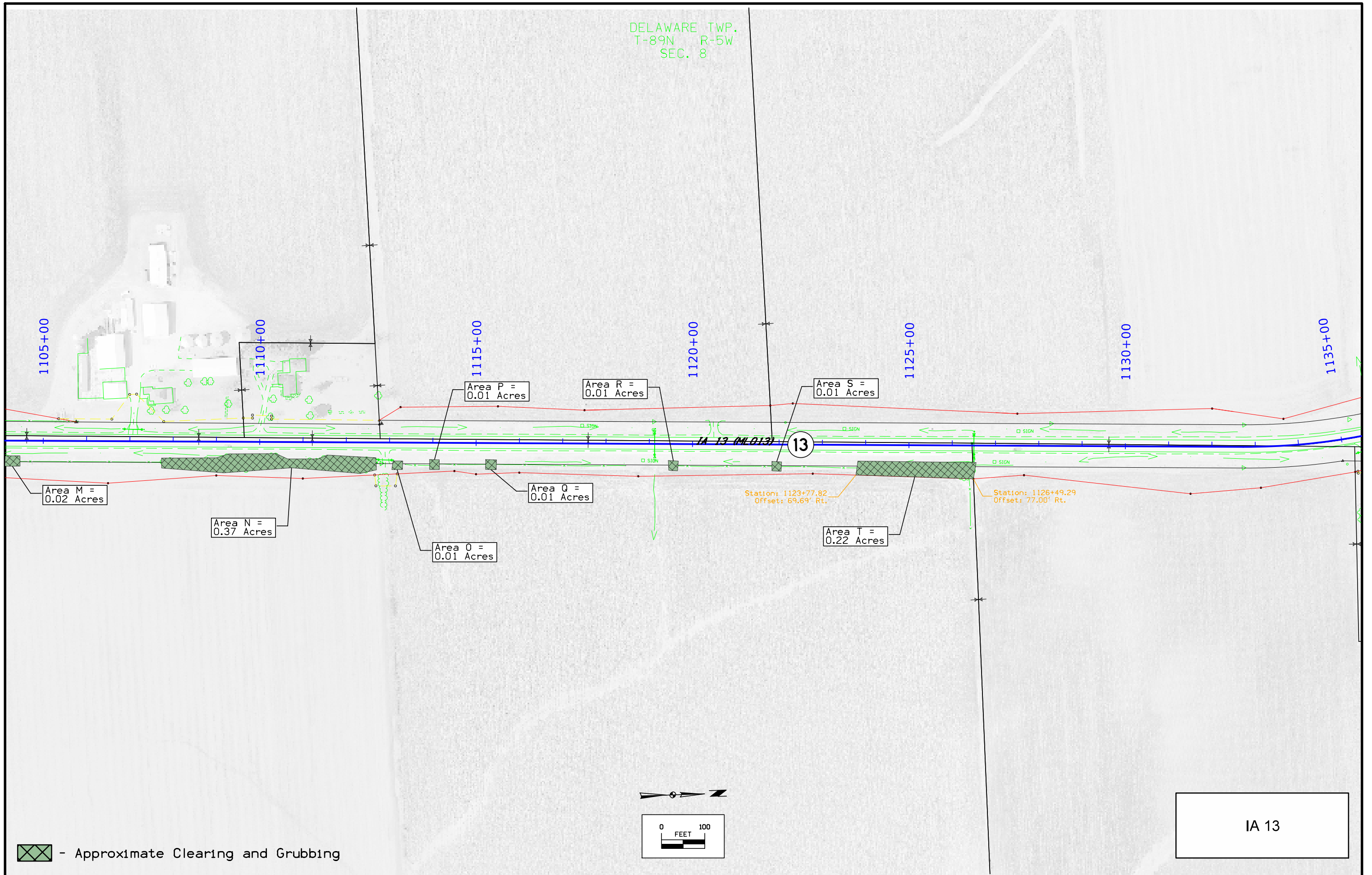


 - Approximate Clearing and Grubbing



IA 13

DELAWARE TWP.  
T-89N R-5W  
SEC. 8

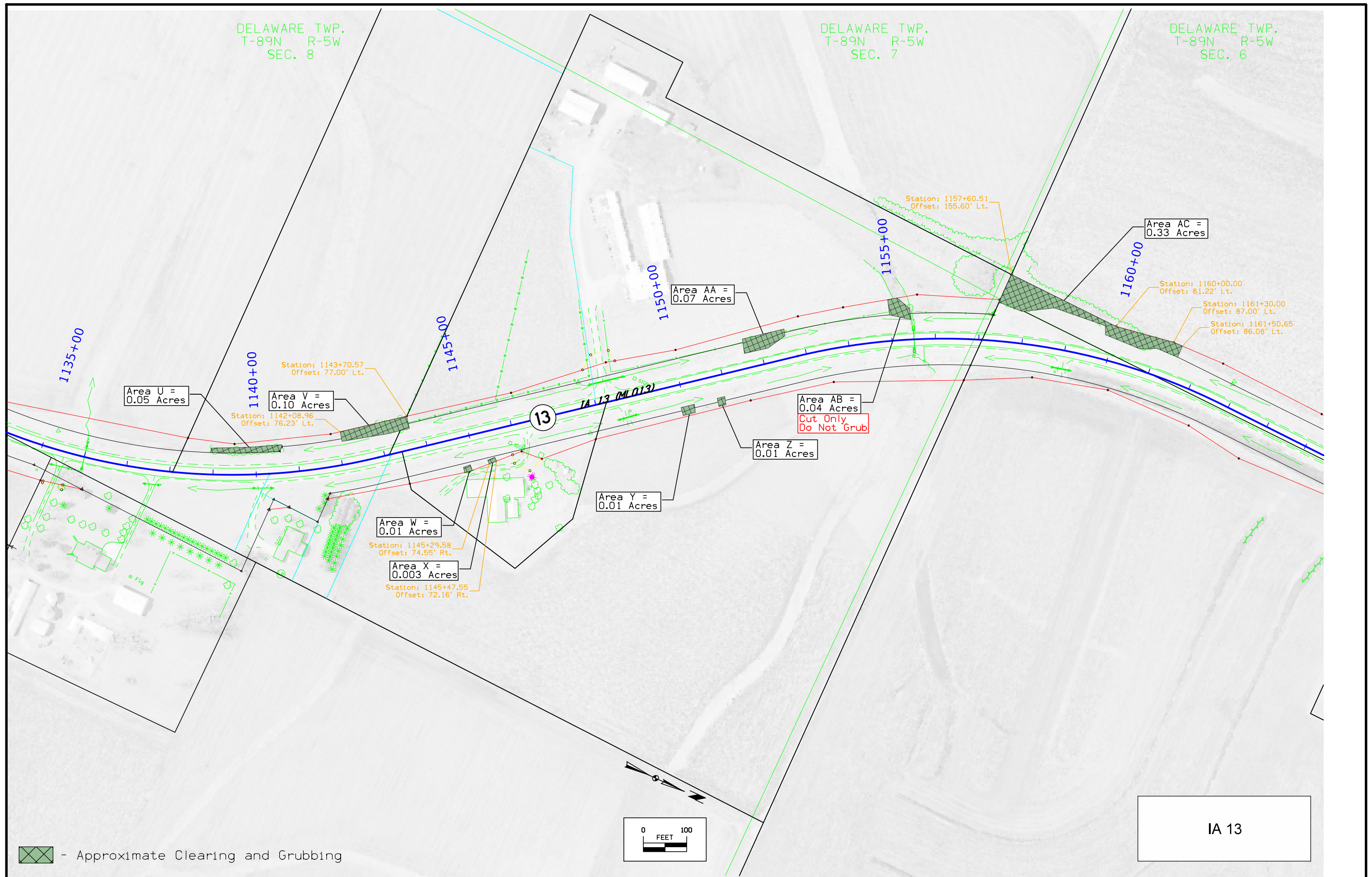




DELAWARE TWP.  
T-89N R-5W  
SEC. 8

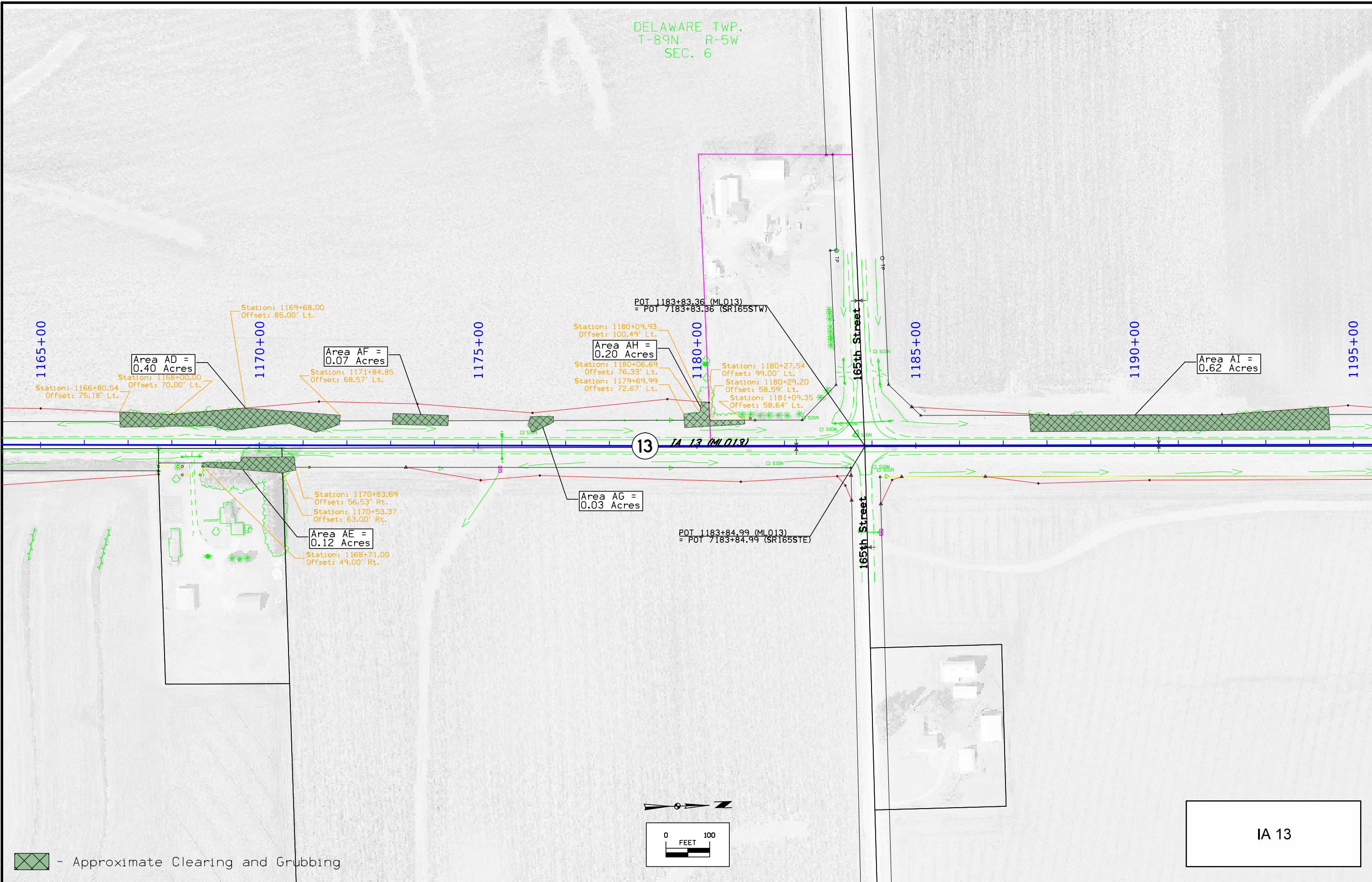
DELAWARE TWP.  
T-89N R-5W  
SEC. 7

DELAWARE TWP.  
T-89N R-5W  
SEC. 6



IA 13

DELAWARE TWP.  
T-89N R-5W  
SEC. 6



DELAWARE TWP.  
T-89N R-5W  
SEC. 6

HONEY CREEK TWP.  
T-90N R-5W  
SEC. 31




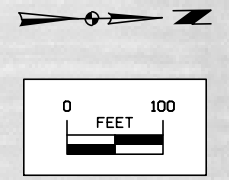
- Approximate Clearing and Grubbing

IA 13

HONEY CREEK TWP.  
T-90N R-5W  
SEC. 31



 - Approximate Clearing and Grubbing



IA 13

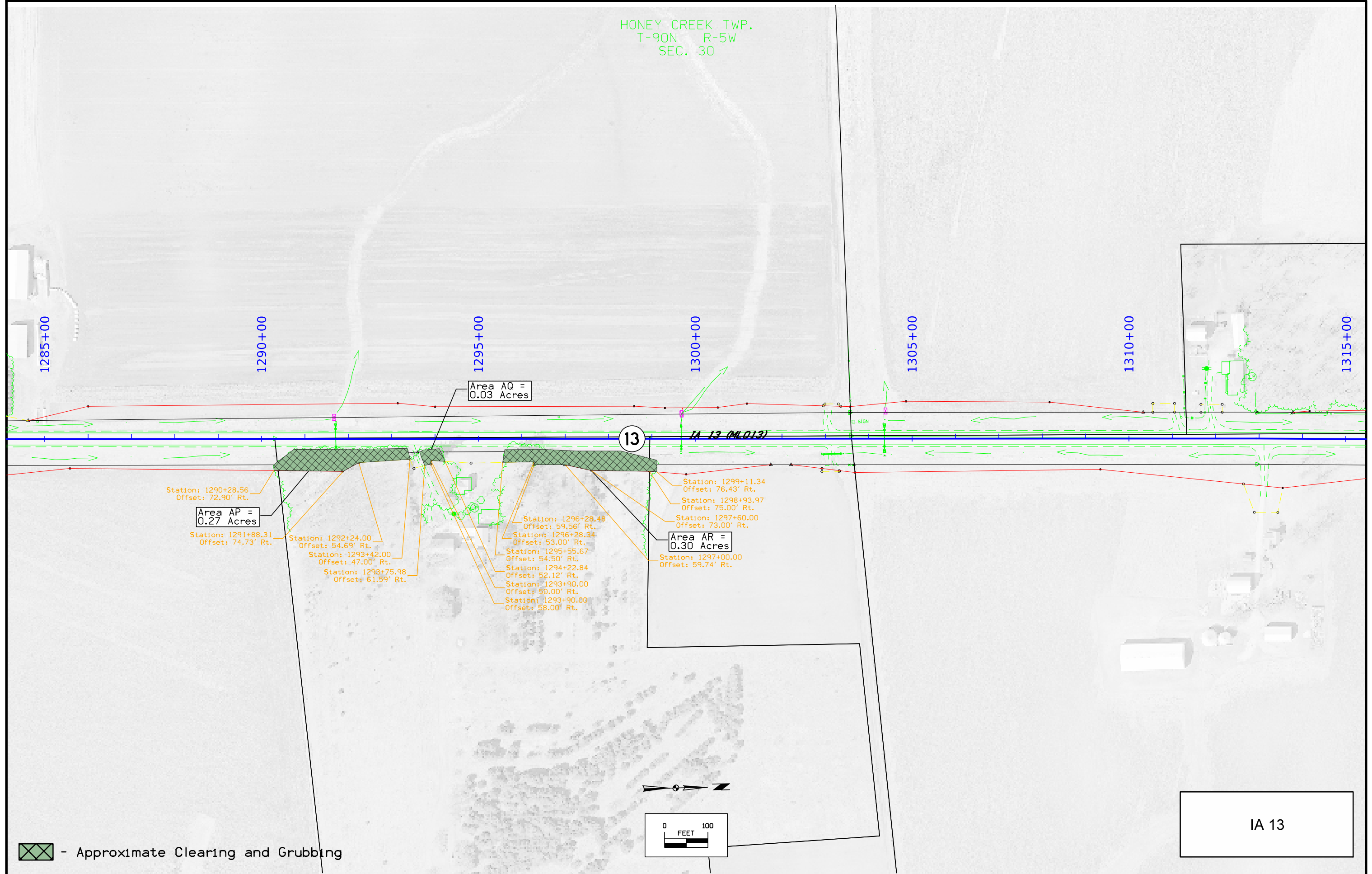
HONEY CREEK TWP.  
T-90N R-5W  
SEC. 31

HONEY CREEK TWP.  
T-90N R-5W  
SEC. 30



IA 13

HONEY CREEK TWP.  
T-90N R-5W  
SEC. 30



- Approximate Clearing and Grubbing

HONEY CREEK TWP.  
T-90N R-5W  
SEC. 19

Station: 1316+46.15  
Offset: 128.87' Lt.  
**Area AS =  
0.02 Acres**  
Station: 1316+35.38  
Offset: 108.51' Lt.  
**1315+00**

POT 1316+79.88 (ML013)  
= POT 10316+79.88 (SR140ST)

**1320+00**

**1325+00**

Station: 1328+87.40  
Offset: 52.07' Lt.  
**Area AT =  
0.02 Acres**

**1330+00**

Station: 1329+64.00  
Offset: 72.12' Lt.

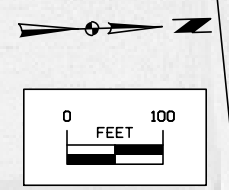
**1335+00**

**1340+00**

**1345+00**

**13** IA 13 (ML013)

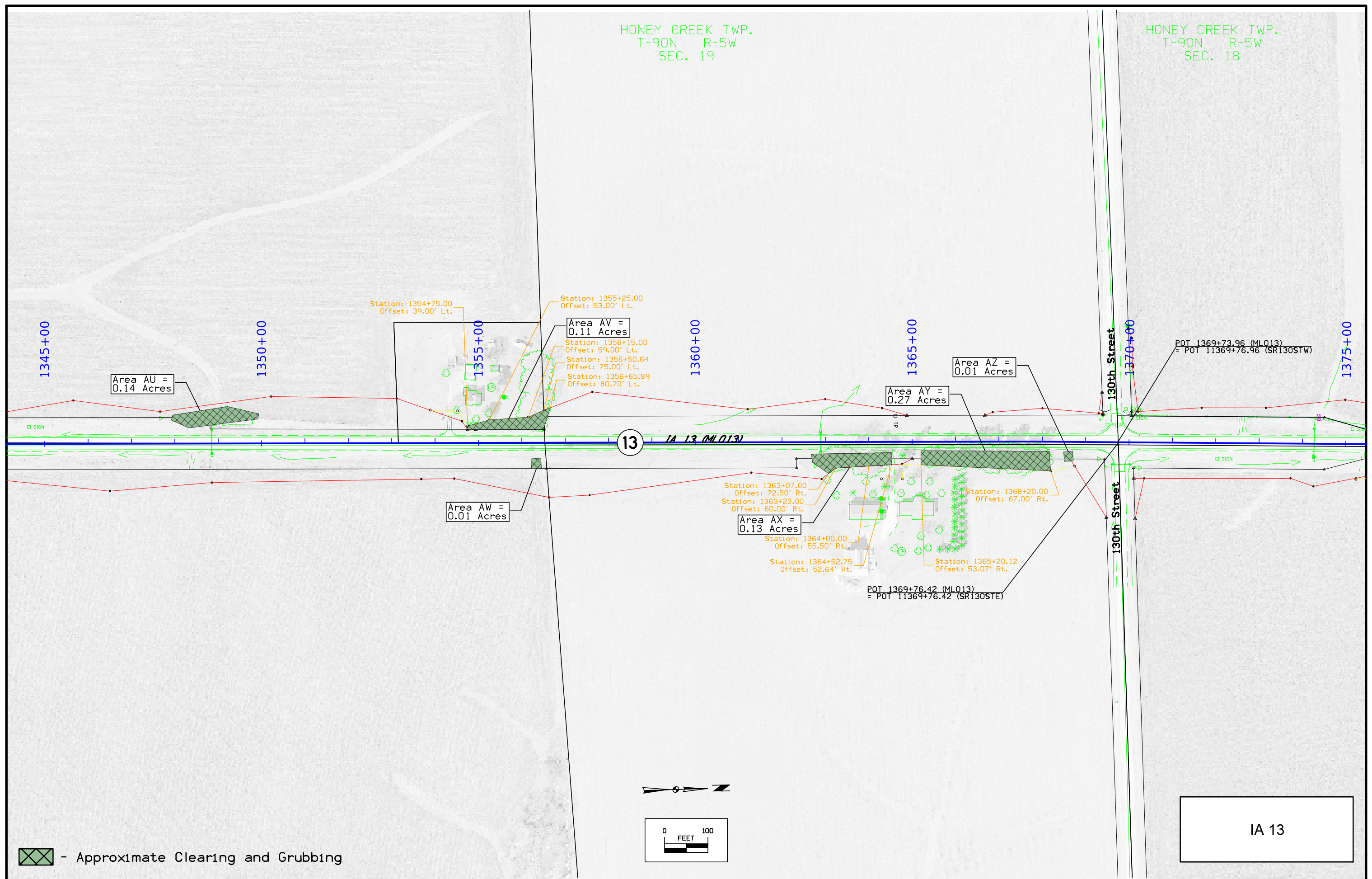
 - Approximate Clearing and Grubbing



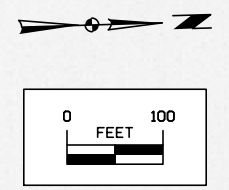
IA 13

HONEY CREEK TWP.  
T-90N R-5W  
SEC. 19

HONEY CREEK TWP.  
T-90N R-5W  
SEC. 18



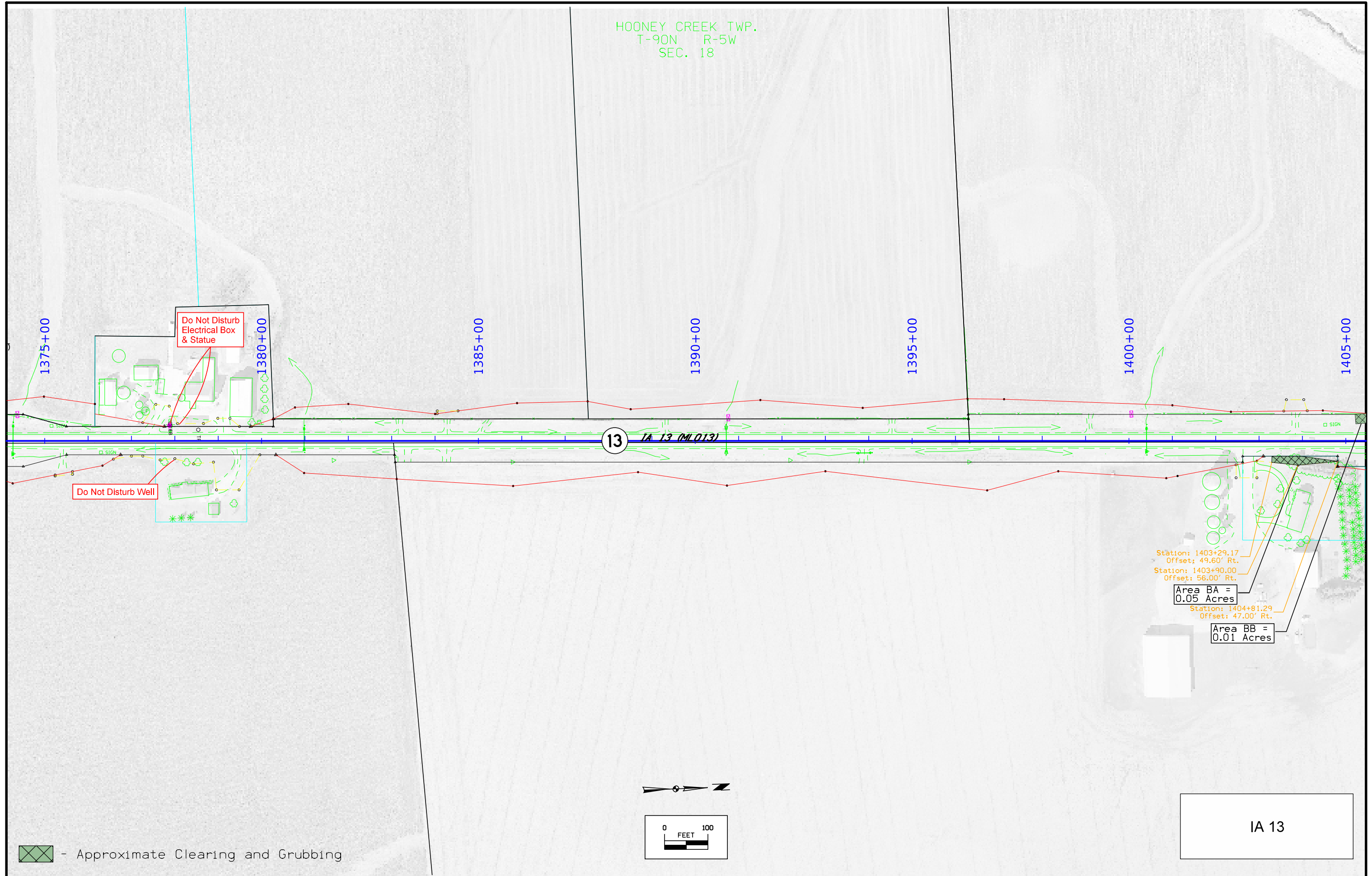
▨ - Approximate Clearing and Grubbing




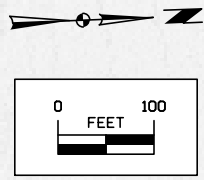
IA 13



HOONEY CREEK TWP.  
T-90N R-5W  
SEC. 18

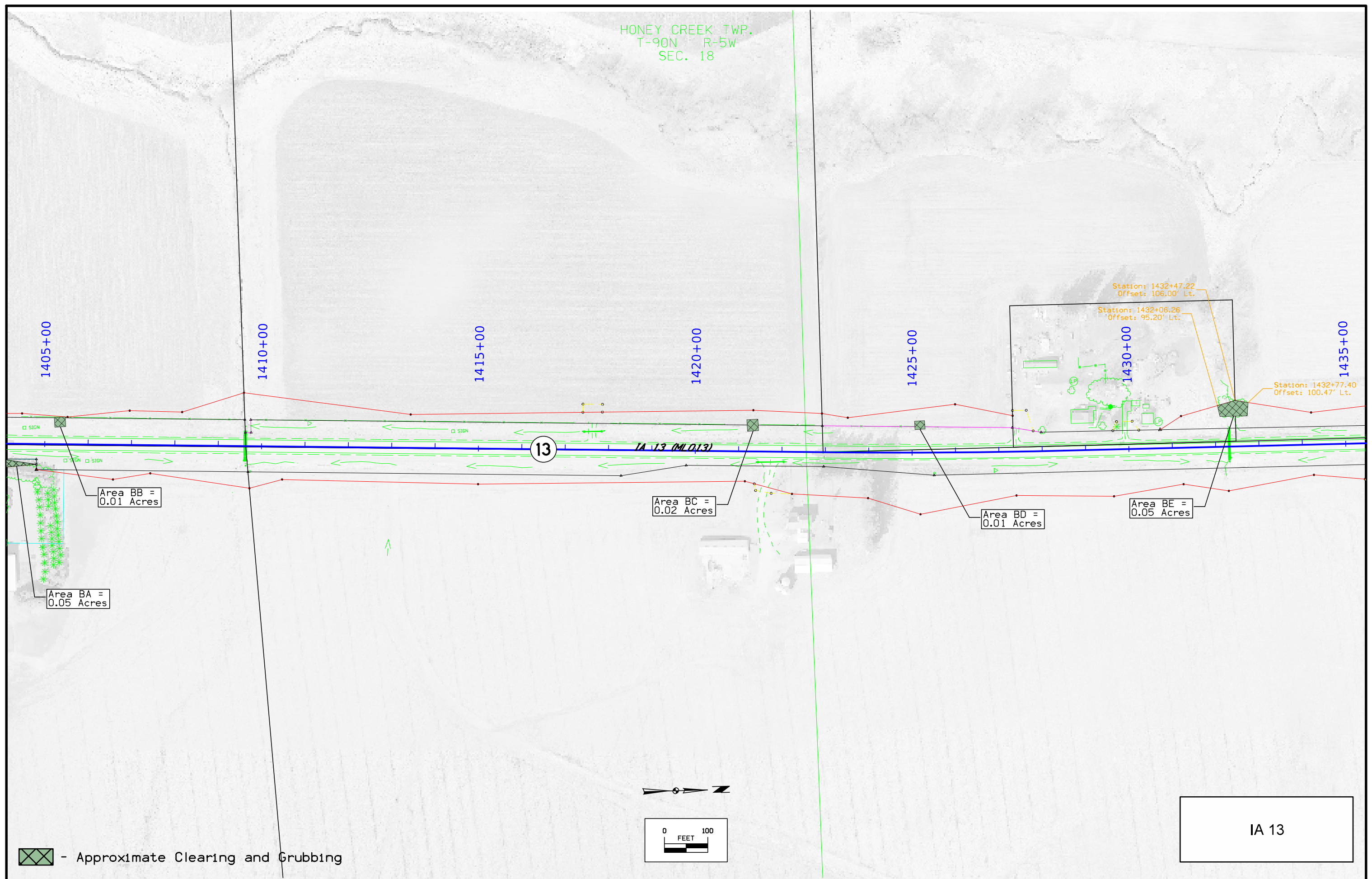


 - Approximate Clearing and Grubbing

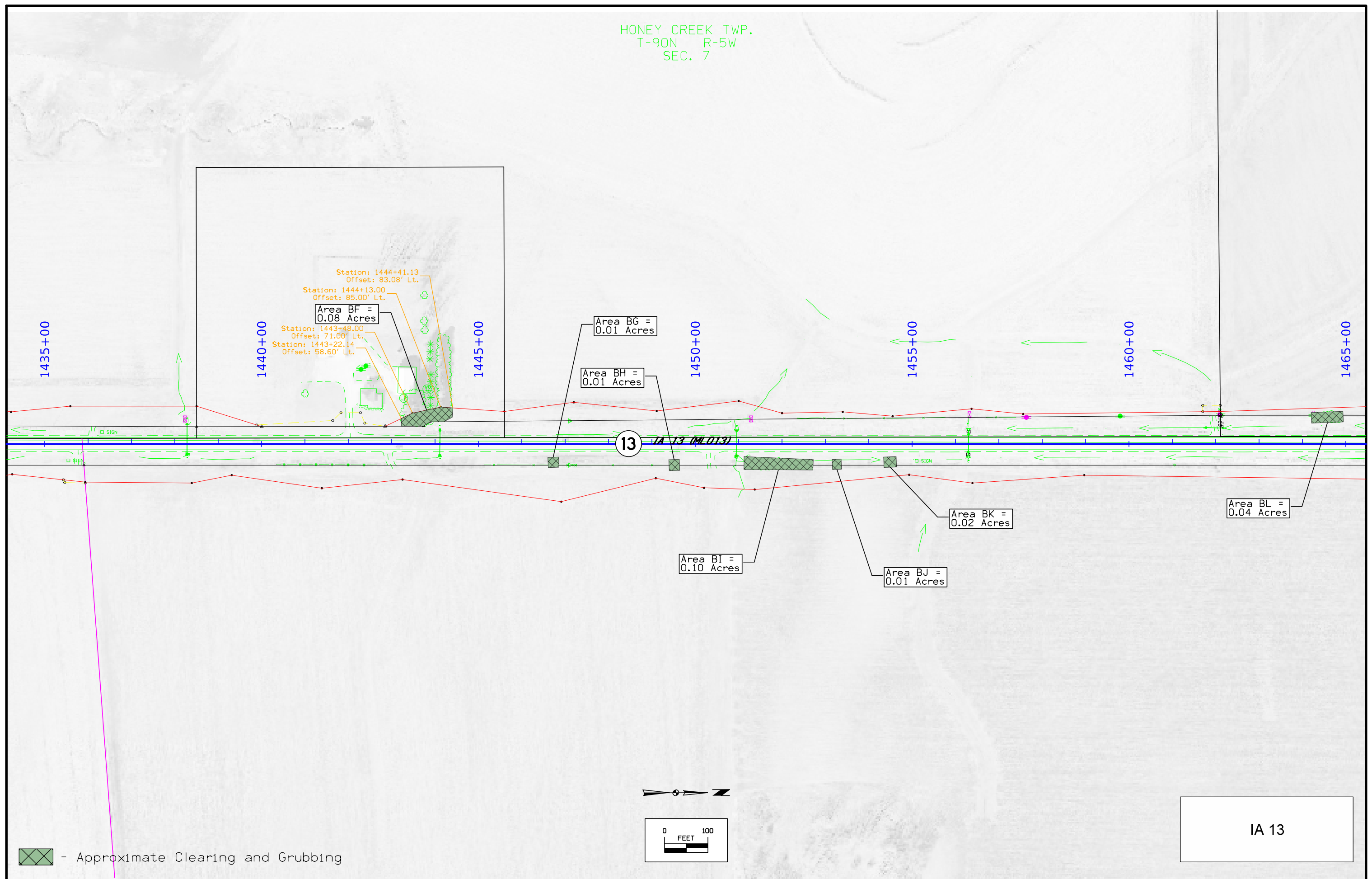


IA 13

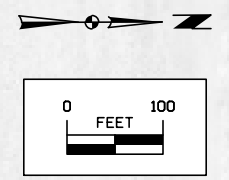
HONEY CREEK TWP.  
T-90N R-5W  
SEC. 18



HONEY CREEK TWP.  
T-90N R-5W  
SEC. 7



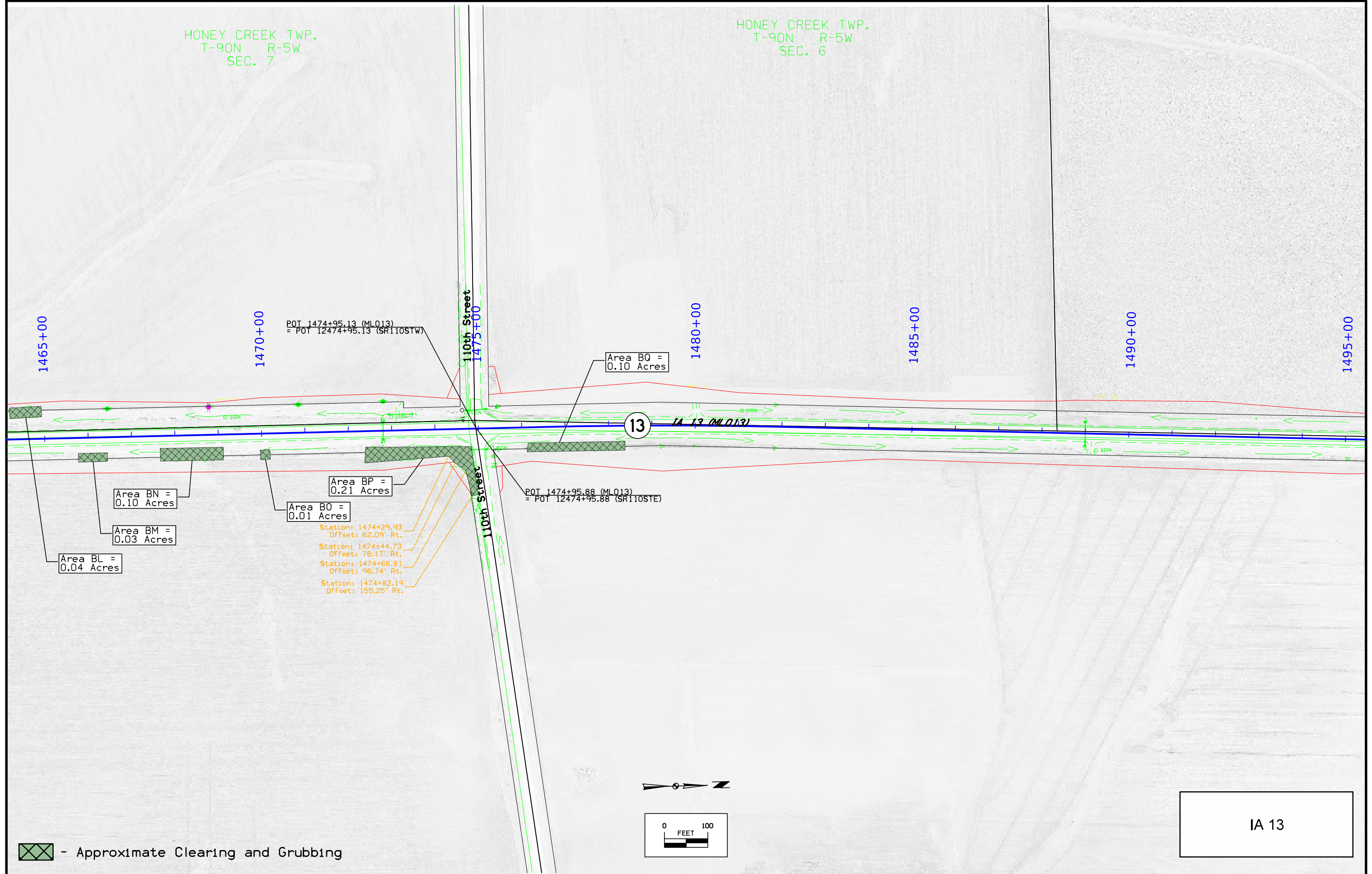
Approximate Clearing and Grubbing



IA 13

HONEY CREEK TWP.  
T-90N R-5W  
SEC. 7

HONEY CREEK TWP.  
T-90N R-5W  
SEC. 6




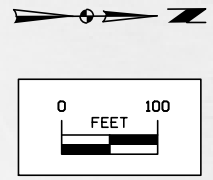
 - Approximate Clearing and Grubbing

IA 13

HONEY CREEK TWP.  
T-90N R-5W  
SEC. 6



 - Approximate Clearing and Grubbing



IA 13

## Survey Information

Delaware County  
 NHSX-013-2(42)--3H-28  
 PIN 18-28-013-010  
 IA 13 – Partial Survey of IA 13 0.5 Miles N of Honey Creek to 0.2 Miles S of Junction IA 3  
 Approx. 9 Miles  
 SAP 0953.0

### General Information

Measurement units for this survey are US survey feet. Project datum and control was established using IARTN. This is a partial survey of IA 13. Starting 0.5 Miles north of Honey Creek and ending 0.2 Miles south of Junction IA 3

### Vertical Control

Vertical datum for this survey is relative to NAVD88. Geoid 12B was used in this survey. Iowa RTN was used to establish 16 control points surrounding the perimeter of the project. CP101-CP116 were then calibrated from CP100. Additional benchmarks were placed throughout the project using RTK GPS.

BM #518 EL= 1018.714' this survey 1983 AB Plan Sheet 16 of 97 EL=1018.75'  
 BM #530 EL=1069.312' this survey 1983 AB Plan Sheet 16 of 97 EL=1069.57'  
 BM #535 EL= 1093.007' this survey 1983 AB Plan Sheet 16 of 97 EL=1093.27'  
 BM #542 EL= 1102.501' this survey 1983 AB Plan Sheet 16 of 97 EL=1102.75'  
 BM #543 EL= 1110.365' this survey 1983 AB Plan Sheet 16 of 97 EL=1110.71'  
 BM #544 EL= 1107.384' this survey 1983 AB Plan Sheet 16 of 97 EL=1107.57'

### Horizontal Control

The project coordinate system for this survey is IaRCS Zone 3(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. We establish 16 control points surrounding the perimeter of the project limits, observing each for 180 epochs. CP101-CP116 were then calibrated from CP100. Additional control points were placed throughout the project using GNSS Base-Rover setup relative to CP100.

The Combined Scale Factor may be used for total station stakeout and location to survey in the State Plane Coordinate system.

### Alignment Information

The horizontal alignment for this survey is a retrace of As-Built Plans No. P-236Abc-24390948. Survey stationing was equated to the plan PC at STA 152+79.40 at point #4228, Found Cut "X" in Pavement, and run back and ahead without equation throughout the end of the survey. The alignment from STA 514+72.75 forward throughout the end of the survey is a retrace of As-Built Plans No. F-13-2(13)—20-28.

Survey stationing relates to as-built plan stationing as follows:

PT Sta. 14+79.40 Project No. P-236Abc-24390948  
 Survey POT Sta. 14+79.40

PC Sta 152+79.40 Project No. P-236Abc-24390948  
 Survey PC STA 152+79.40

PI STA 367+77.10 Project No. P-236Abc-24390948  
 Survey PI STA 367+77.40

PC STA 423+86.60 Project No. P-236Abc-24390948  
 Survey PC STA 423+86.90

PC STA 476+65.00 Project No. P-236Abc-24390948  
 Survey PC STA 476+65.30

TS STA 616+83.75 Project No. F-13-2(13)—20-28  
 Survey TS STA 514+72.75

CS STA 621+42.02 Project No. F-13-2(13)—20-28  
 Survey CS STA 521+60.25

POT STA 628+44.99 Project No. F-13-2(13)—20-28  
 Survey POT STA 528+64.19

### Point Numbers Used

Control Points 100-117, 120-158  
 Bench Points 500-536,538-551  
 Topo 4000-33435,37000-38355,40000-40469

Point Numbers available for future surveys  
 1-99,118,119,159-499,537,552-999,1037-1999,2034-2999,3027-3999,  
 33436-36999,38356-39999,40470-100000

### Date(s) of Survey

Begin Date 10/28/2019  
 End Date 4/30/2020

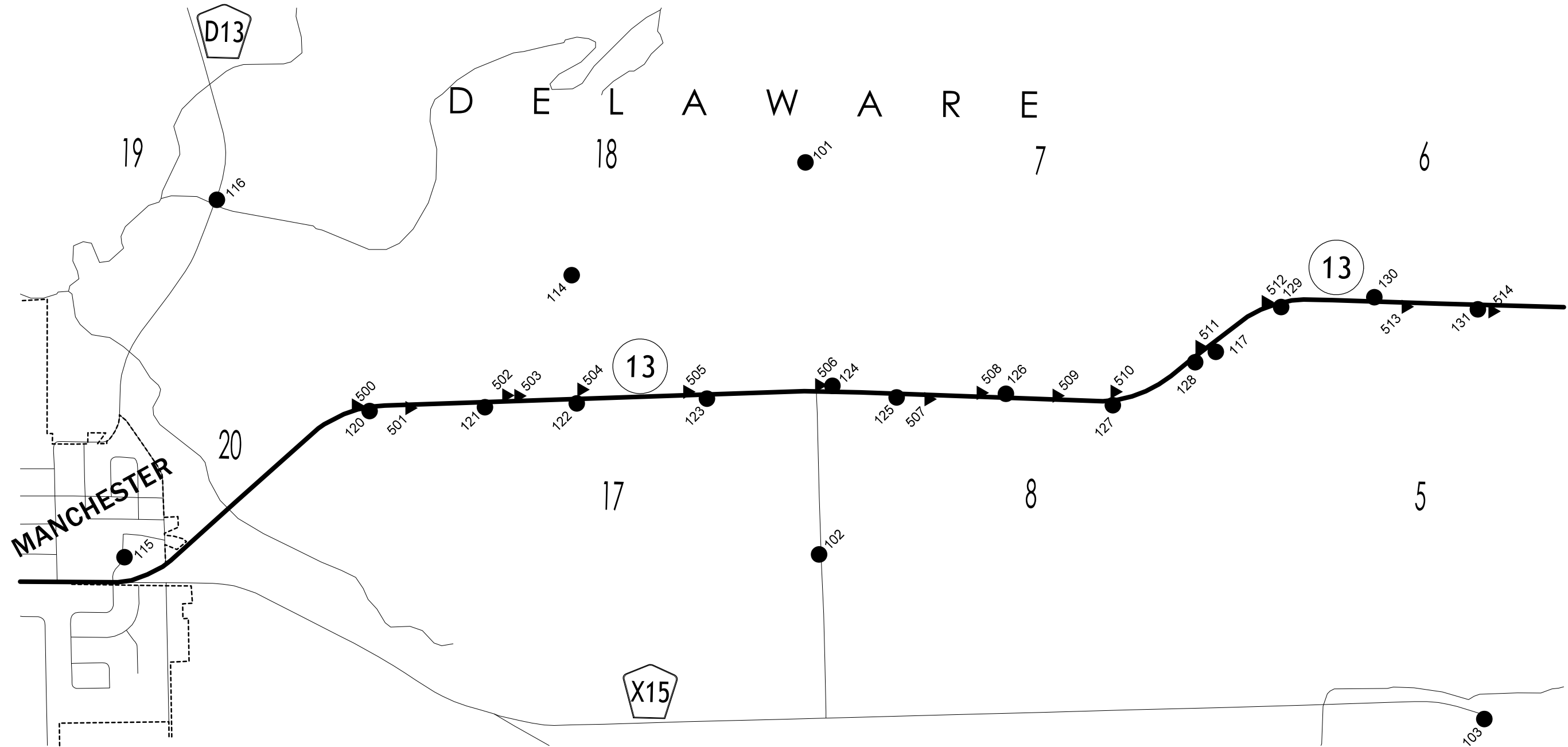
### Party Personnel

Jeremy Leemon	Survey Project Manager
Chris Ries	Assistant Survey Project Manager
CJ Beckman	Instrument
Scott Jones	Instrument
Jacob Powers	Instrument

Survey Feature table lafea1/22/2015.doc  
 Trimble IowaDOT19.1.fxl file  
 CADD Feature Table and Cell files IDOTsurvey\_smd

### 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 2010.00

VERT. DATUM: NAVD88

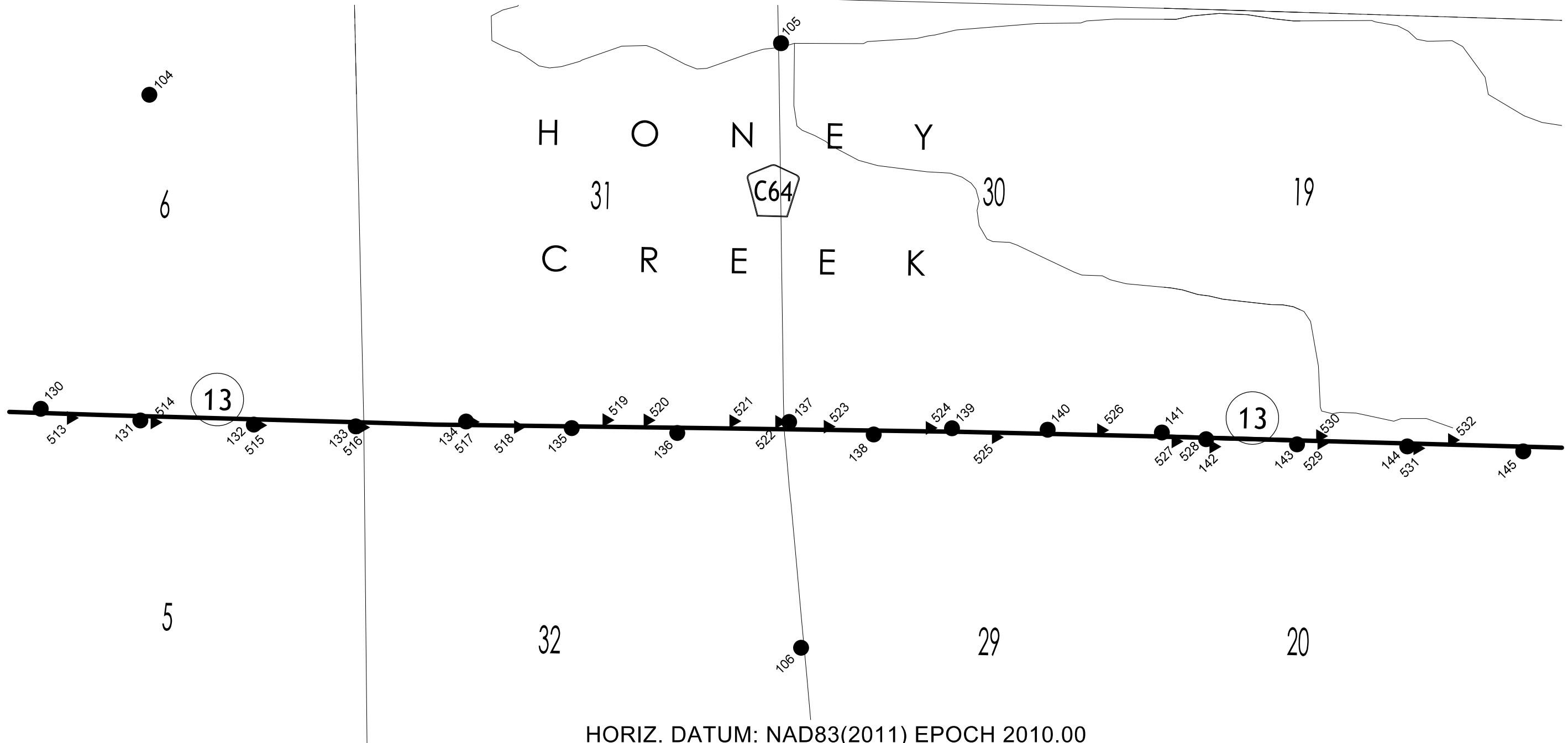
1a. Regional Coordinate System Zone 3

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



### 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 2010.00

VERT. DATUM: NAVD88

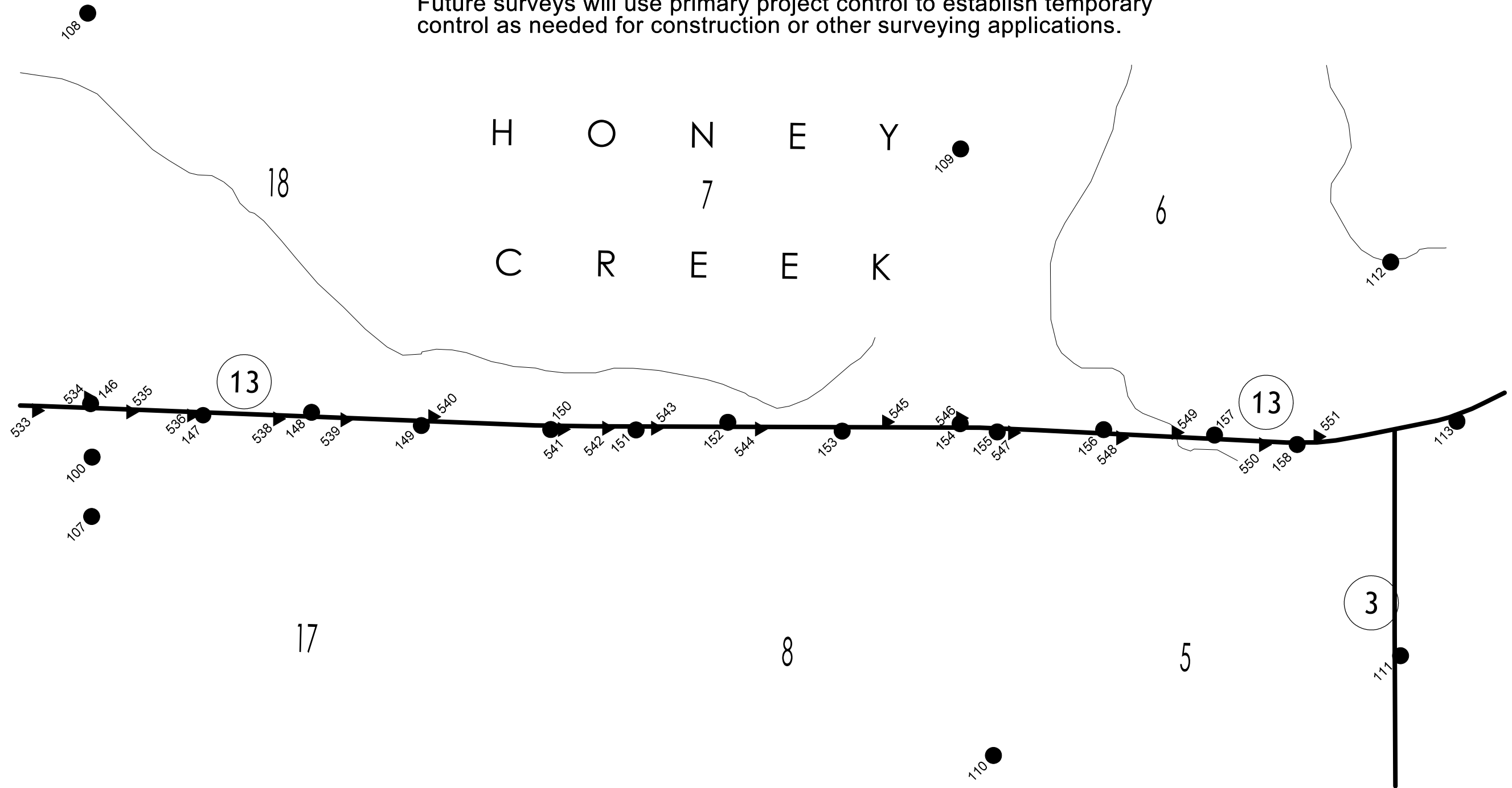
Ia. Regional Coordinate System Zone 3

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



### 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 2010.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 3

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 2010.00

VERT. DATUM: NAVD88

## Ia. Regional Coordinate System Zone 3

Point Name	Northing	Easting	Elev.	Fea. Code	Description										
100	9156609.88	13428109.73	1113.52	CP	SET REBAR 6 IN DEEP 24 FT SOUTH OF 130TH ST CL 599 FT EAST OF IA 13 CL	136	9144692.05	13427297.85	1038.75	CP	SET REBAR 6 IN DEEP 67 FT EAST OF CL SOUTH SIDE OF FIELD ENT				
101	9129808.81	13425361.63	965.32	CP	SET REBAR 6 IN DEEP 38 FT SOUTH OF 180TH ST CL 120 FT WEST OF CULVERT	137	9146097.64	13427159.21	1055.44	CP	FD REBAR 6 IN DEEP 90 FT WEST OF CL 60 FT NORTH OF 150TH ST CL				
102	9129972.80	13430107.40	973.24	CP	FD REBAR 6 IN DEEP 26 FT SOUTH OF 180TH ST CL NEAR CORNER POST	138	9147160.26	13427317.49	1077.17	CP	SET REBAR 6 IN DEEP 54 FT EAST OF CL				
103	9138025.75	13432098.74	1004.52	CP	SET REBAR 6 IN DEEP 50 FT SE OF 180TH AVE CL 38 FT SOUTH OF 165TH ST CL	139	9148144.45	13427239.17	1066.63	CP	SET REBAR 6 IN DEEP 40 FT WEST OF CL 24 FT NORTH OF PP				
104	9138059.37	13423046.27	1014.03	CP	SET REBAR 6 IN DEEP 55 FT NORTH OF 165TH CL 93 FT WEST OF 162ND AVE CL	140	9149346.52	13427256.49	1051.70	CP	SET REBAR 6 IN DEEP 50 FT WEST OF CL 130 FT SOUTH OF PP				
105	9145995.39	13422398.91	999.64	CP	SET REBAR 6 IN DEEP 26 FT NORTH OF 150TH ST 20 FT WEST OF TRIP BOX CUL	141	9150780.92	13427291.81	1064.30	CP	SET REBAR 6 IN DEEP 49 FT WEST OF CL 74 FT SOUTH OF RES ENT				
106	9146247.69	13429998.35	1057.44	CP	SET REBAR 6 IN DEEP 44 FT SOUTH OF 150TH ST AT CORNER POST	142	9151337.12	13427376.73	1064.43	CP	SET REBAR 6 IN DEEP 21 FT EAST OF CL AT 140TH ST INTERSECTION				
107	9156605.01	13428834.84	1108.73	CP	SET REBAR 6 IN DEEP 30 FT SOUTH OF 130TH ST CL AT FENCE	143	9152479.63	13427441.53	1086.44	CP	SET REBAR 6 IN DEEP 53 FT EAST OF CL 180 FT NORTH OF FARM ENT				
108	9156557.81	13422695.84	1079.62	CP	FD REBAR 6 IN DEEP 30 FT SOUTH OF 130TH ST 100 FT WEST OF TREE	144	9153864.57	13427467.49	1092.56	CP	SET REBAR 6 IN DEEP 38 FT EAST OF CL NORTH SIDE OF FIELD ENT				
109	9167201.34	13424352.04	1161.98	CP	FD REBAR 6 IN DEEP 20 FT NORTH OF 110TH ST 530 FT WEST OF FARM ENT	145	9155321.18	13427529.19	1145.65	CP	SET REBAR 6 IN DEEP 58 FT EAST OF CL NORTH SIDE OF FENCE				
110	9167602.09	13431749.77	1095.75	CP	FD REBAR 6 IN DEEP 24 FT SOUTH OF 110TH ST WEST SIDE OF FIELD ENT	146	9156592.29	13427457.94	1107.17	CP	SET REBAR 6 IN DEEP 52 FT WEST OF CL 40 FT SOUTH OF 130TH ST CL				
111	9172565.41	13430532.79	1142.69	CP	FD REBAR 6 IN DEEP 63 FT NORTH OF IA 3 CL 45 FT SW OF 398TH CL	147	9157963.77	13427599.85	1105.72	CP	FD REBAR 6 IN DEEP 36 FT EAST OF CL 63 FT SOUTH OF PP				
112	9172446.34	13425731.62	1135.93	CP	FD REBAR 6 IN DEEP 40 FT SOUTH OF 400TH ST 45 FT EAST OF CULVERT	148	9159286.59	13427564.38	1104.43	CP	FD REBAR 6 IN DEEP 51 FT WEST OF CL 31 FT SOUTH OF PP				
113	9173253.97	13427674.30	1171.00	CP	FD REBAR 6 IN DEEP 77 FT NE OF CL 13 FT SE OF BILLBOARD	149	9160625.43	13427725.48	1076.09	CP	SET REBAR 6 IN DEEP 58 FT EAST OF CL 10 FT NORTH OF PIPE				
114	9126978.75	13426726.67	961.96	CP	SET REBAR 6 IN DEEP 42 SOUTH OF 185TH ST ACROSS FORM HOUSE #16939	150	9162203.10	13427774.44	1131.86	CP	SET REBAR 6 IN DEEP 47 FT EAST OF CL 140 FT SOUTH OF PP				
115	9121566.03	13430140.63	953.12	CP	FD REBAR 6 IN DEEP W CAP 4 FEET BEHIND CURB NORTH OF WINDSOR DR	151	9163243.30	13427778.90	1112.35	CP	SET REBAR 6 IN DEEP 44 FT EAST OF CL NORTH SIDE OF FIELD ENT				
116	9122683.94	13425814.54	943.05	CP	FD MAG NAIL NW COR OF BRIDGE 195TH ST	152	9164363.14	13427685.82	1127.42	CP	CUT X ON ROW RAIL 53 FT WEST OF CL 17 FT SOUTH OF PP				
117	9134714.93	13427604.45	1037.31	CP	SET REBAR 6 IN DEEP W/ ALUM. CAP 32 FT EAST OF CL NORTH OF FIELD ENT	153	9165757.49	13427793.10	1111.73	CP	SET REBAR 6 IN DEEP 49 FT EAST OF CL 100 FT SOUTH OF FIELD ENT				
120	9124532.64	13428371.06	951.85	CP	SET REBAR 6 IN DEEP 48 FT EAST OF CL	154	9167195.05	13427702.90	1142.33	CP	SET REBAR 6 IN DEEP 47 FT WEST OF CL 44 FT NORTH OF 110 ST CL				
121	9125928.89	13428325.25	953.30	CP	SET REBAR 6 IN DEEP 62 FT EAST OF CL 15 FT SOUTH OF FIELD ENT	155	9167648.42	13427803.78	1160.74	CP	SET REBAR 6 IN DEEP 47 FT EAST OF CL 24 FT NORTH OF PP				
122	9127040.58	13428279.03	953.24	CP	SET REBAR 6 IN DEEP 54 FT EAST OF CL AT 185TH ST	156	9168946.09	13427776.34	1147.54	CP	SET REBAR 6 IN DEEP 43 FT WEST OF CL				
123	9128616.20	13428220.96	984.65	CP	SET REBAR 6 IN DEEP 48 FT EAST OF CL SOUTH SIDE OF FIELD ENT	157	9170297.74	13427841.49	1148.83	CP	SET REBAR 6 IN DEEP 45 FT WEST OF CL				
124	9129993.81	13428086.94	990.79	CP	FD REBAR 6 IN DEEP 45 FT WEST OF CL 47 FT NORTH OF 180TH ST	158	9171305.63	13427956.13	1165.63	CP	SET REBAR 6 IN DEEP 22 FT EAST OF CL 85 FT NORTH OF PIPE				
125	9130911.52	13428206.35	1018.27	CP	SET REBAR 6 IN DEEP 42 FT EAST OF CL 105 FT SOUTH OF RES ENT										
126	9132234.92	13428163.03	1014.19	CP	SET REBAR 6 IN DEEP 51 FT WEST OF CL 23 FT NORTH OF PP										
127	9133529.21	13428301.41	1029.12	CP	SET REBAR 6 IN DEEP 58 FT EAST OF CL 50 FT SOUTH OF FARM ENT										
128	9134525.69	13427780.45	1043.43	CP	SET REBAR 6 IN DEEP 52 FT EAST OF CL 12 FT SE OF FARM ENT										
129	9135566.27	13427113.17	1018.46	CP	SET REBAR 6 IN DEEP 53 FT EAST OF CL SOUTH SIDE OF FIELD ENT										
130	9136694.59	13426993.96	1059.95	CP	SET REBAR 6 IN DEEP 50 FT WEST OF CL 120 FT NORTH OF SIGN										
131	9138002.20	13427135.72	1058.79	CP	SET REBAR 6 IN DEEP 50 FT EAST OF CL 43 FT SOUTH OF 165TH ST CL										
132	9139371.31	13427192.45	1026.19	CP	SET REBAR 6 IN DEEP 67 FT EAST OF CL 14 FT SOUTH OF FIELD ENT										
133	9140721.13	13427224.26	1015.91	CP	SET REBAR 6 IN DEEP 59 FT EAST OF CL NW OF PP										
134	9142038.67	13427154.53	1019.07	CP	CUT X ON ROW RAIL 41 FT WEST OF CL										
135	9143366.41	13427236.14	1023.65	CP	SET REBAR 6 IN DEEP 23 FT EAST OF CL AT 155TH ST INTERSECTION										

# HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

## Ia. Regional Coordinate System Zone 3

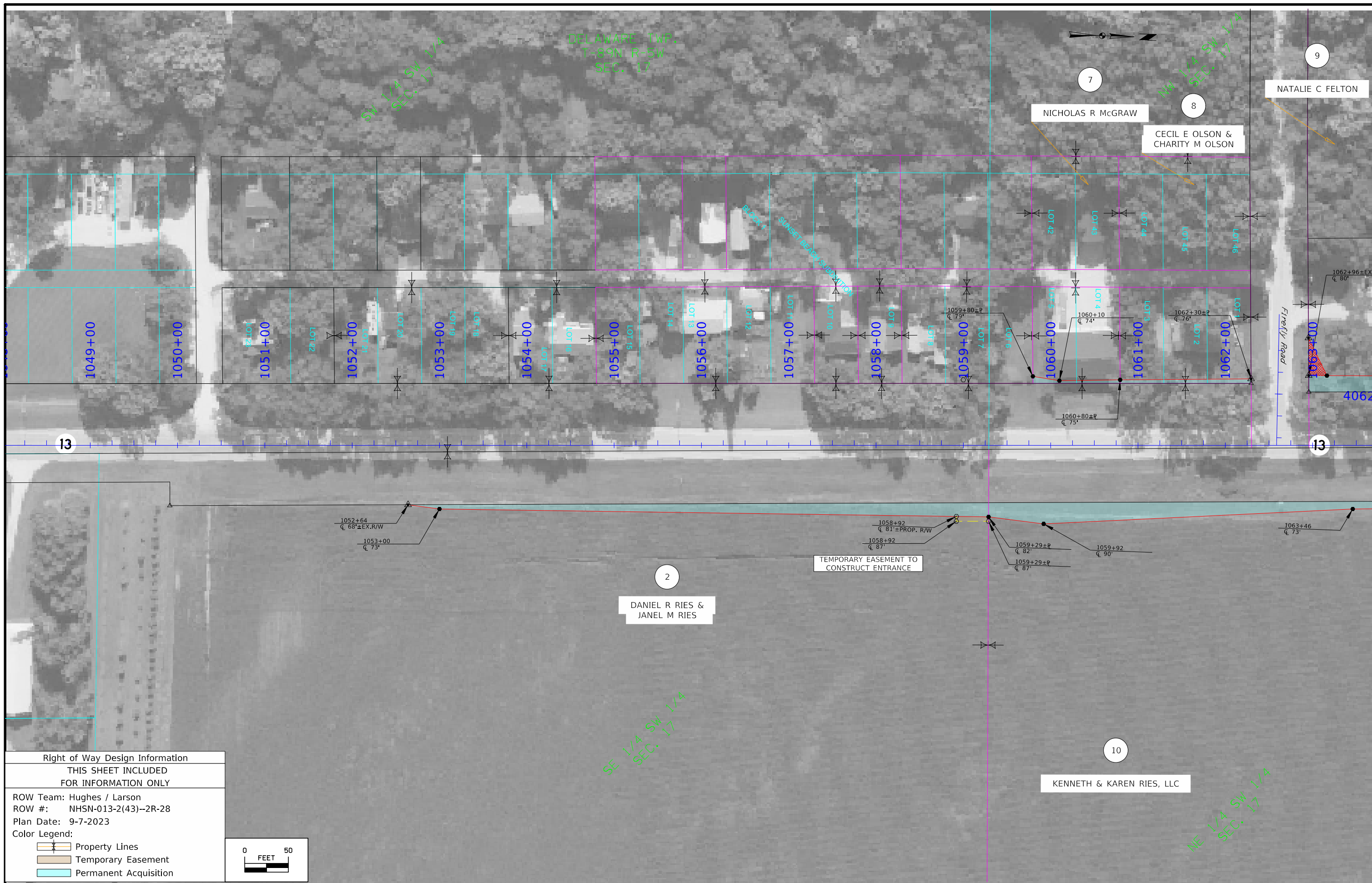
500	9124367.87	13428304.94	953.41	BM	SET RR SPK E SIDE PP 50 FT WEST OF CL	536	9157819.84	13427602.50	1105.61	BM	SET RR SPK W SIDE PP 45 FT EAST OF CL
501	9125015.63	13428335.26	956.41	BM	CUT X ON ROW RAIL 42 FT EAST OF CL 50 FT NORTH OF FIREFLY RD	538	9158871.98	13427643.70	1092.79	BM	SET RR SPK W SIDE PP 45 EAST OF CL 146 FT NORTH OF PIPE
502	9126252.25	13428205.88	952.15	BM	FD BARN SPIKE 46 FT WEST OF CL 33 FT SOUTH OF FIREFLY RD	539	9159694.28	13427655.07	1093.66	BM	FD IHC BM ON INHDWL EAST SIDE
503	9126333.77	13428188.76	954.23	BM	CUT X ON ROW RAIL 60 FT WEST OF CL	540	9160764.89	13427618.51	1075.62	BM	SET RR SPK E SIDE PP 54 FT WEST OF CL 146 NORTH OF PIPE
504	9127073.13	13428145.74	956.48	BM	CUT A SQUARE ON SOUTH CORNER FAWN TRAIL SIGN	541	9162343.30	13427772.27	1121.83	BM	SET RR SPK W SIDE PP 42 FT EAST OF CL 45 FT SOUTH OF ENT
505	9128378.46	13428138.74	980.67	BM	SET RR SPK E SIDE PP 42 FT WEST OF CL	542	9162884.26	13427758.79	1102.50	BM	FD IHC BM ON IN HDWL
506	9129981.76	13428086.45	991.42	BM	SET RR SPK E SIDE PP 45 FT WEST OF CL 35 FT NORTH OF 180TH ST	543	9163480.59	13427758.23	1110.37	BM	FD IHC BM ON IN HDWL
507	9131298.93	13428227.31	1013.60	BM	CUT X ON ROW RAIL 48 FT EAST OF CL SOUTH SIDE OF FIELD ENT	544	9164747.64	13427767.74	1107.38	BM	FD IHC BM ON IN HDWL 60 FT NORTH OF FIELD ENT
508	9131931.03	13428151.38	1008.81	BM	SET RR SPK SE SIDE PP 51 FT WEST OF CL	545	9166298.36	13427681.72	1116.18	BM	FD RR SPK E SIDE PP 65 FT WEST OF CL
509	9132848.53	13428185.66	1020.72	BM	FD RR SPK E SIDE PP 51 FT WEST OF CL	546	9167199.65	13427699.85	1143.95	BM	CUT X ON ROW RAIL 50 FT WEST OF CL 50 FT NORTH OF 110TH ST CL
510	9133536.88	13428198.69	1025.00	BM	SET RR SPK E SIDE PP 42 FT WEST OF CL	547	9167834.12	13427813.87	1155.36	BM	CUT X ON ROW RAIL 49 FT EAST OF CL 9 FT SOUTH OF PP
511	9134578.81	13427595.87	1038.06	BM	CUT X ON ROW RAIL 59 FT WEST OF CL 57 FT SE OF FARM ENT	548	9169153.50	13427875.31	1151.51	BM	SET RR SPK W SIDE PP 46 FT EAST OF CL 185 FT SOUTH OF FIELD ENT
512	9135381.15	13427053.04	1013.40	BM	CUT X ON ROW RAIL 60 FT WEST OF CL NEAR CORNER POST	549	9169829.91	13427809.79	1146.65	BM	CUT X ON ROW RAIL 53 FT WEST OF CL 31 FT SOUTH OF PIPE
513	9137074.28	13427109.24	1060.21	BM	SET RR SPK W SIDE PP 52 FT EAST OF CL 200 FT NORTH OF FIELD ENT	550	9170893.14	13427958.47	1161.97	BM	SET RR SPK W SIDE PP 43 FT EAST OF CL 30 FT NORTH OF FIELD ENT
514	9138093.51	13427158.50	1058.74	BM	CUT X ON ROW RAIL 70 EAST OF CL 45 FT NORTH OF 165TH ST CL	551	9171558.18	13427859.82	1166.25	BM	SET RR SPK E SIDE PP 68 FT WEST OF CL
515	9139403.13	13427194.82	1025.92	BM	SET RR SPK W SIDE PP 68 FT EAST OF CL 18 FT NORTH OF FIELD ENT						
516	9140716.19	13427232.57	1017.22	BM	FD RR SPKW SIDE PP 68 FT EAST OF CL						
517	9142038.67	13427154.53	1019.07	BM	CUT X ON ROW RAIL 41 FT WEST OF CL						
518	9142692.99	13427222.81	1018.71	BM	FD IHC BM ON INHDWL EAST SIDE						
519	9143804.03	13427136.15	1034.70	BM	SET RR SPK E SIDE PP 83 FT WEST OF CL 115 FT NORTH OF PIPE						
520	9144319.69	13427139.48	1040.88	BM	FD RR SPK E SIDE PP 86 FT WEST OF CL 175 FT NORTH OF PIPE						
521	9145397.75	13427149.63	1049.69	BM	FD RR SPK E SIDE PP 91 FT WEST OF CL 175 FT NORTH OF RES ENT						
522	9145972.96	13427158.95	1055.54	BM	SET RR SPK E SIDE PP 89 FT WEST OF CL 64 FT SOUTH OF 150 ST CL						
523	9146583.33	13427219.26	1063.36	BM	FD RR SPK E SIDE PP 37 FT WEST OF CL AT FARM ENT						
524	9147863.97	13427235.09	1071.92	BM	SET RR SPK E SIDE PP 38 FT WEST OF CL 55 FT SOUTH OF FARM ENT						
525	9148696.26	13427351.26	1057.73	BM	CUT X ON ROW RAIL 60 FT EAST OF CL AT CORNER OF CROPPFIELD						
526	9150017.75	13427262.76	1048.97	BM	CUT X ON ROW RAIL 60 FT WEST OF CL 52 FT NORTH OF FIELD ENT						
527	9150953.48	13427403.68	1077.07	BM	CUT X ON ROW RAIL 59 FT EAST OF CL 18 FT SOUTH OF FARM ENT						
528	9151347.00	13427415.94	1065.73	BM	CUT X ON ROW RAIL 60 FT EAST OF CL AT 140TH ST INTERSECTION						
529	9152770.85	13427336.24	1066.14	BM	SET RR SPK E SIDE PP 61 FT WEST OF CL 20 FT SOUTH OF PIPE						
530	9152786.49	13427424.88	1069.31	BM	FD IHC BM ON INHDWL EAST SIDE						
531	9153991.57	13427491.43	1096.47	BM	CUT X ON ROW RAIL 59 FT EAST OF CL 135 FT NORTH OF FIELD ENT						
532	9154427.31	13427386.57	1105.55	BM	SET RR SPK E SIDE PP 59 FT WEST OF CL 118 SOUTH OF PIPE						
533	9155933.32	13427543.17	1112.71	BM	SET RR SPK W SIDE PP 58 FT EAST OF CL 10 FT SOUTH OF PIPE						
534	9156600.53	13427447.03	1109.06	BM	CUT X ON ROW RAIL 63 FT WEST OF CL 30 FT SOUTH OF 130TH ST CL						
535	9157081.97	13427558.75	1093.01	BM	FD IHC BM ON INHDWL EAST SIDE						

**ALIGNMENT COORDINATES**

Name	Location	Point on Tangent			Begin Spiral			Begin Curve			Simple Curve PI or Master PI of SCS			End Curve			End Spiral		
		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates	
			Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)
IA 13		1014+79.07	9122161.68	13430151.38				1036+94.90	9123809.30	13428669.74	1042+16.87	9124197.43	13428320.72	1046+96.01	9124719.11	13428303.21			
								1097+14.62	9129734.90	13428134.87	1099+18.13	9129938.29	13428128.04	1101+21.47	9130141.65	13428135.66			
								1132+72.27	9133290.24	13428253.64	1138+00.77	9133818.37	13428273.43	1142+84.88	9134232.81	13427945.47			
								1152+79.16	9135012.50	13427328.48	1158+03.74	9135423.85	13427002.96	1162+84.86	9135948.15	13427020.07			
											1179+39.12	9137601.53	13427074.03						
											1219+09.12	9141569.85	13427189.49						
											1282+83.12	9147943.29	13427274.06						
											1312+93.12	9150952.46	13427344.54						
											1367+77.12	9156434.15	13427503.58						
								1423+24.57	9161977.37	13427720.15	1425+87.49	9162240.09	13427730.41	1428+50.35	9162503.01	13427731.47			
								1476+65.00	9167317.62	13427750.71	1479+25.05	9167577.66	13427751.75	1481+85.01	9167837.39	13427764.58			
		1514+72.45	9171120.83	13427926.82															
SRFIREFLYRD		4061+08.69	9126279.04	13428100.76															
		4062+58.73	9126280.94	13428250.79															
SR185ST		5066+99.59	9127033.44	13427904.47															
		5070+20.48	9127042.27	13428225.24															
SR180ST		6095+72.02	9129934.14	13427780.54															
											6098+38.35	9129943.80	13428046.70						
											6100+17.33	9129943.28	13428225.68						
		6101+58.79	9129949.61	13428367.00															
SR165STW		7179+58.43	9138040.44	13426662.04															
		7183+83.36	9138045.58	13427086.95															
SR165STE		7183+84.99	9138047.21	13427086.99															
		7186+98.20	9138045.18	13427400.20															
SR155ST		8433+67.64	9143362.12	13426876.00															
		8237+04.98	9143365.55	13427213.32															
SRC64W		9260+35.06	9146029.04	13426907.22															
		9263+76.70	9146037.04	13427248.77															
SRC64E		9263+76.23	9146036.56	13427248.76															
		9266+40.63	9146060.18	13427512.10															
SR140ST		10313+62.41	9151338.10	13427038.29															
		10316+79.88	9151339.06	13427355.76															
SR130STW		11367+06.96	9156631.25	13427244.27															
		11369+73.96	9156630.85	13427511.27															
SR130STE		11369+76.42	9156633.30	13427511.36															
		11372+21.94	9156632.81	13427756.88															
SR110STW		12471+61.33	9167150.24	13427416.24															
		12474+95.13	9167147.74	13427750.03															
SR110STE		12474+95.88	9167148.50	13427750.03															
		12477+21.06	9167171.75	13427974.01															

### SPIRAL OR CIRCULAR CURVE DATA

Name	Location	ΔSCS	Horizontal Alignment Data												Remarks					
			Spiral Data						Curve Data											
			θS	Ls	Ts	Es	Xc	Yc	L.T.	S.T.	ΔC	T	L	R		E				
IA 13	1042+16.87																			
	1099+18.13																			
	1138+00.77																			
	1158+03.74																			
	1425+87.49																			
	1479+25.05																			



DELAWARE TWP.  
T-89N R-5W  
SEC. 17

SW 1/4 SW 1/4  
SEC. 17

NW 1/4 SW 1/4  
SEC. 17

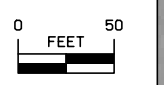
SE 1/4 SW 1/4  
SEC. 17

NE 1/4 SW 1/4  
SEC. 17

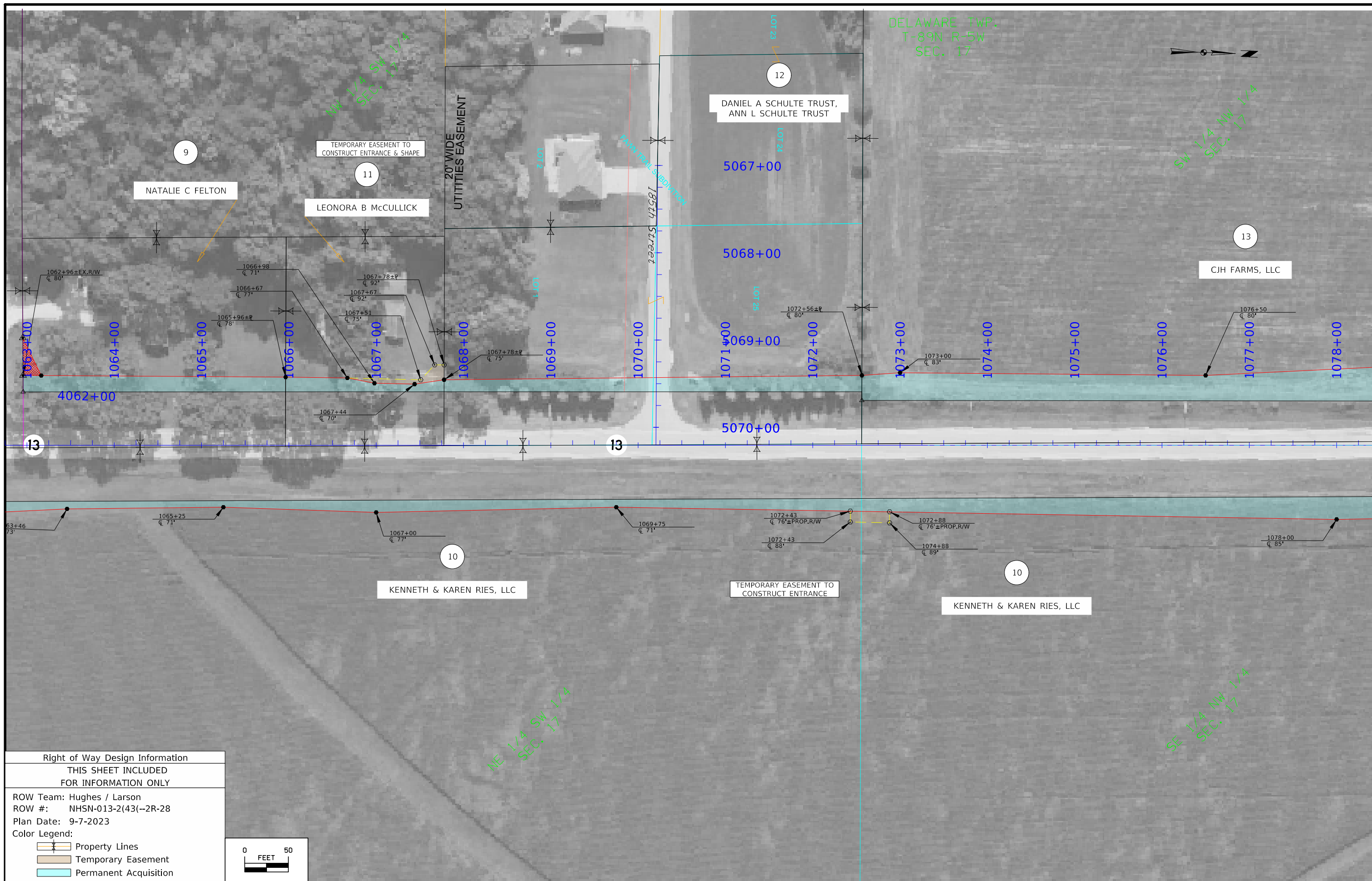
Right of Way Design Information  
THIS SHEET INCLUDED  
FOR INFORMATION ONLY

ROW Team: Hughes / Larson  
ROW #: NHSN-013-2(43)--2R-28  
Plan Date: 9-7-2023

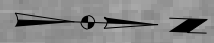
Color Legend:  
 Property Lines  
 Temporary Easement  
 Permanent Acquisition



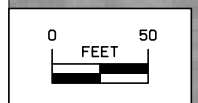
FILE NO.	ENGLISH	DESIGN TEAM	STRUM / PRINDLE / McNAMARA	DELAWARE COUNTY	PROJECT NUMBER	NHSN-013-2(048)--2R-28	SHEET NUMBER	H.1
----------	---------	-------------	----------------------------	-----------------	----------------	------------------------	--------------	-----



DELAWARE TWP.  
T-89N R-5W  
SEC. 17



Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team: Hughes / Larson	
ROW #: NHSN-013-2(43)--2R-28	
Plan Date: 9-7-2023	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition



FILE NO.	ENGLISH	DESIGN TEAM	STRUM / PRINDLE / McNAMARA	DELAWARE COUNTY	PROJECT NUMBER	NHSN-013-2(048)--2R-28	SHEET NUMBER	H.2
----------	---------	-------------	----------------------------	-----------------	----------------	------------------------	--------------	-----

3:38:39 PM 9/11/2023 CHUGHES pw:\NTP\wint1.dot.int.lan:PWMain\Documents\Projects\2801301018\ROW\ROW\_28013043.dgn