HMA RESURFACING/
HOT-IN-PLACE RECYCLING
STP-149-1(84)--2C-54

KEOKUK Co.

LETTING DATE
04-16-2019

REVISIONS

TOTAL
41
PROJECT IDENTIFICATION NUMBER
17-54-149-010
PROJECT NUMBER
STP-149-1(84)--2C-54
R.O.W. PROJECT NUMBER

IOWA DOT

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

KEOKUK COUNTY

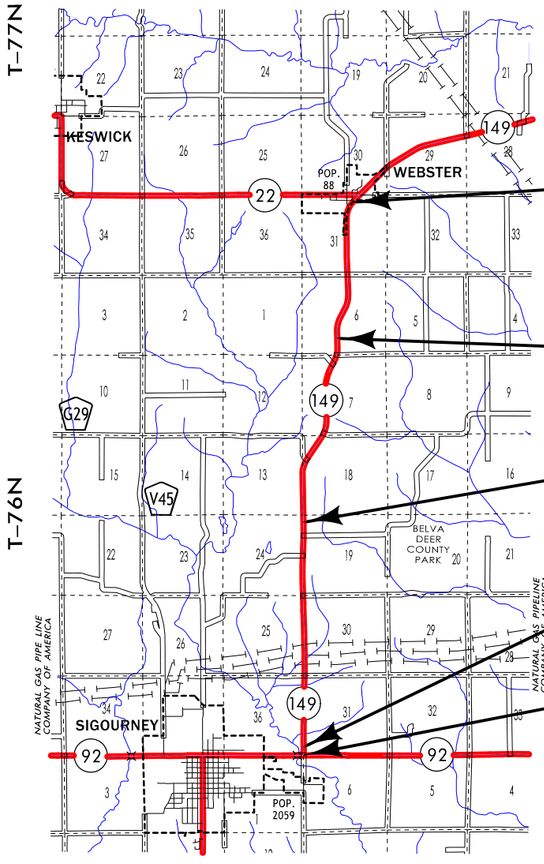
HMA RESURFACING/HOT-IN-PLACE RECYCLING

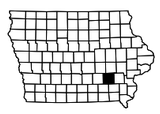
IA 92 TO IA 22 IN WEBSTER

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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





LOCATION MAP SCALE
0 1 2 3
Miles

STA. 375+00.00
END HMA HOT-IN-PLACE RECYCLING & RESURFACING
END PROJECT
REF. LOC. 41.89

EQUATION:
STA. 278+13.53 (BACK)
= STA. 278+38.91 (AHEAD)

EQUATION:
STA. 154+01.62 (BACK)
= STA. 154+00.35 (AHEAD)

STA. 12+00.00
BEGIN HMA HOT-IN-PLACE RECYCLING & RESURFACING

STA. 1+36.90
BEGIN PROJECT
REF. LOC. 34.80

IOWA ONE CALL
1-800-292-8989 | 811
www.iowaonecall.com
Know what's below. Call before you dig.

A Sheets		**Title Sheets**
A.1		Title & Location Map Sheet
* A.2 - 3		Strip Map Sheets
B Sheets		**Typical Cross Sections and Details**
B.1 - 2		Typical Cross Sections and Details
C Sheets		**Quantities and General Information**
C.1		Project Description
C.1		Estimated Project Quantities
C.2		Estimate Reference Information
C.3		Standard Road Plans & Index of Tabulations
C.4 - 12		Tabulations
CS Sheets		**Soils Tabulations**
CS.1		Soils Tabulations
J Sheets		**Traffic Control and Staging Sheets**
J.1		Traffic Control Plan & 511 Travel Restrictions
Q Sheets		**Soils Sheets**
Q.1		Slide Repair Detail - IA 149
R Sheets		**Erosion Control Sheets**
RC.1		Estimated Project Quantities
RC.1 - 2		Estimate Reference Information
RC.2		Standard Road Plans & Index of Tabulations
RC.3 - 4		Pollution Prevention Plan
RC.4 - 6		General Notes & Tabulations
* RR.1		Erosion Control Legend & Symbol Information Sheet
* RR.2 - 14		Drainage Basin Maps
* RU.1 - 2		Detail Sheets

* Color Plan Sheets

DESIGN DATA RURAL

2019 AADT	1,100	V.P.D.
2039 AADT	1,100	V.P.D.
2039 DHV	120	V.P.H.
TRUCKS	6	%
Total Design ESALs	189,800	

INDEX OF SEALS

SHEET NO.	NAME	TYPE
A.1	Jonathan W. Bahr	Primary Signature Block
CS.1	Mark A. Dell	Geotechnical Design
RC.1	Seana K. Godbold	Roadside Design

ROADWAY DESIGN

LICENSED PROFESSIONAL ENGINEER — Jonathan W. Bahr 24699 — IOWA

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.

Jonathan Bahr — 02-04-2019
Signature — Date

Jonathan W. Bahr
Printed or Typed Name

My license renewal date is December 31, 2019

Pages or sheets covered by this seal:
A.1-3, B.1-2, C.1-12, J.1

FILE NO.	ENGLISH	DESIGN TEAM HOLST \ BAHR \ CAMPBELL	KEOKUK COUNTY	PROJECT NUMBER STP-149-1(84)--2C-54	SHEET NUMBER A.1

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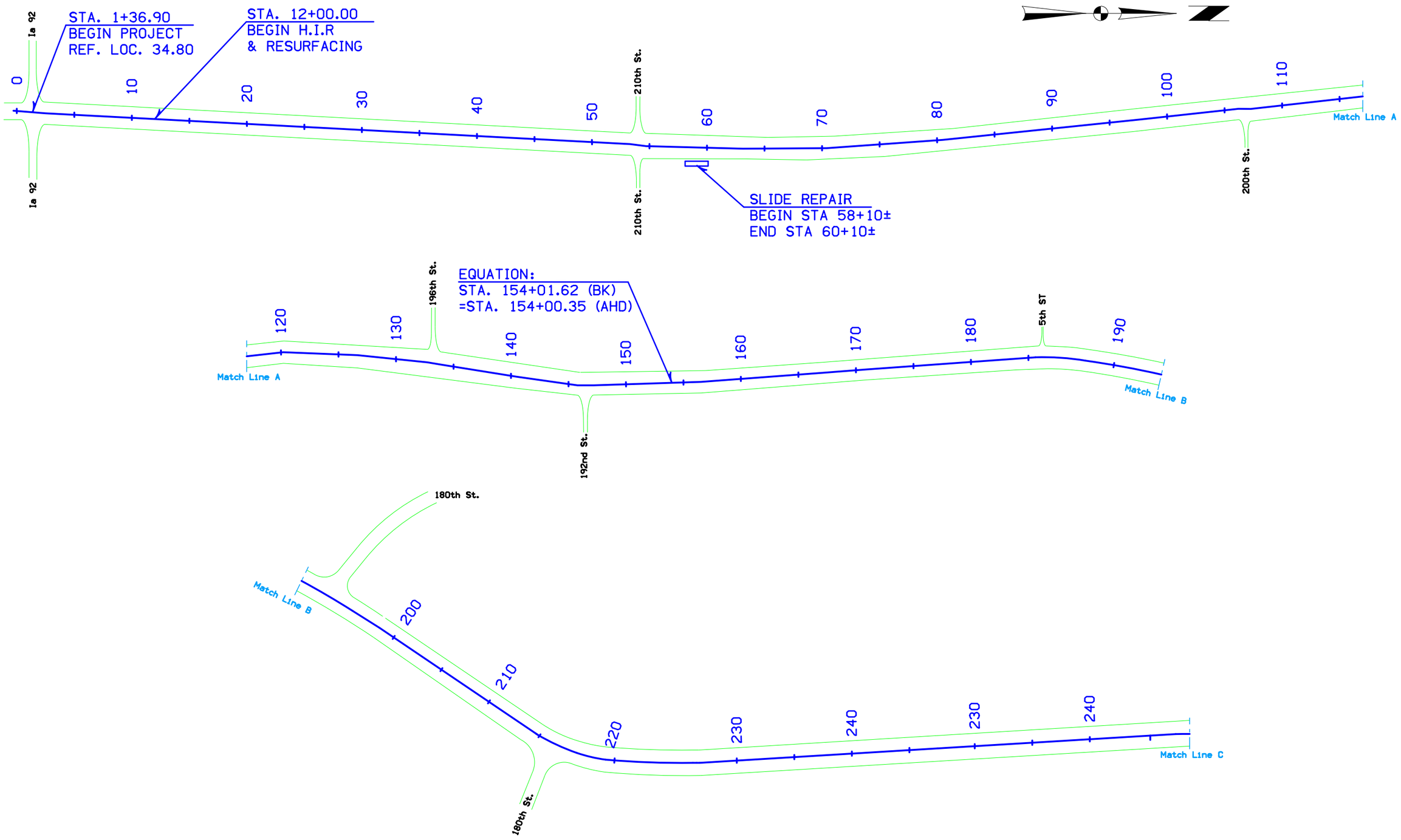

Do Not Scale

STRIP MAP
IA 149
KEOKUK COUNTY
SHEET 1 of 2

FILE NO.	ENGLISH	DESIGN TEAM HOLST \ BAHR \ CAMPBELL	KEOKUK COUNTY	PROJECT NUMBER STP-149-1(84)--2C-54	SHEET NUMBER A.2

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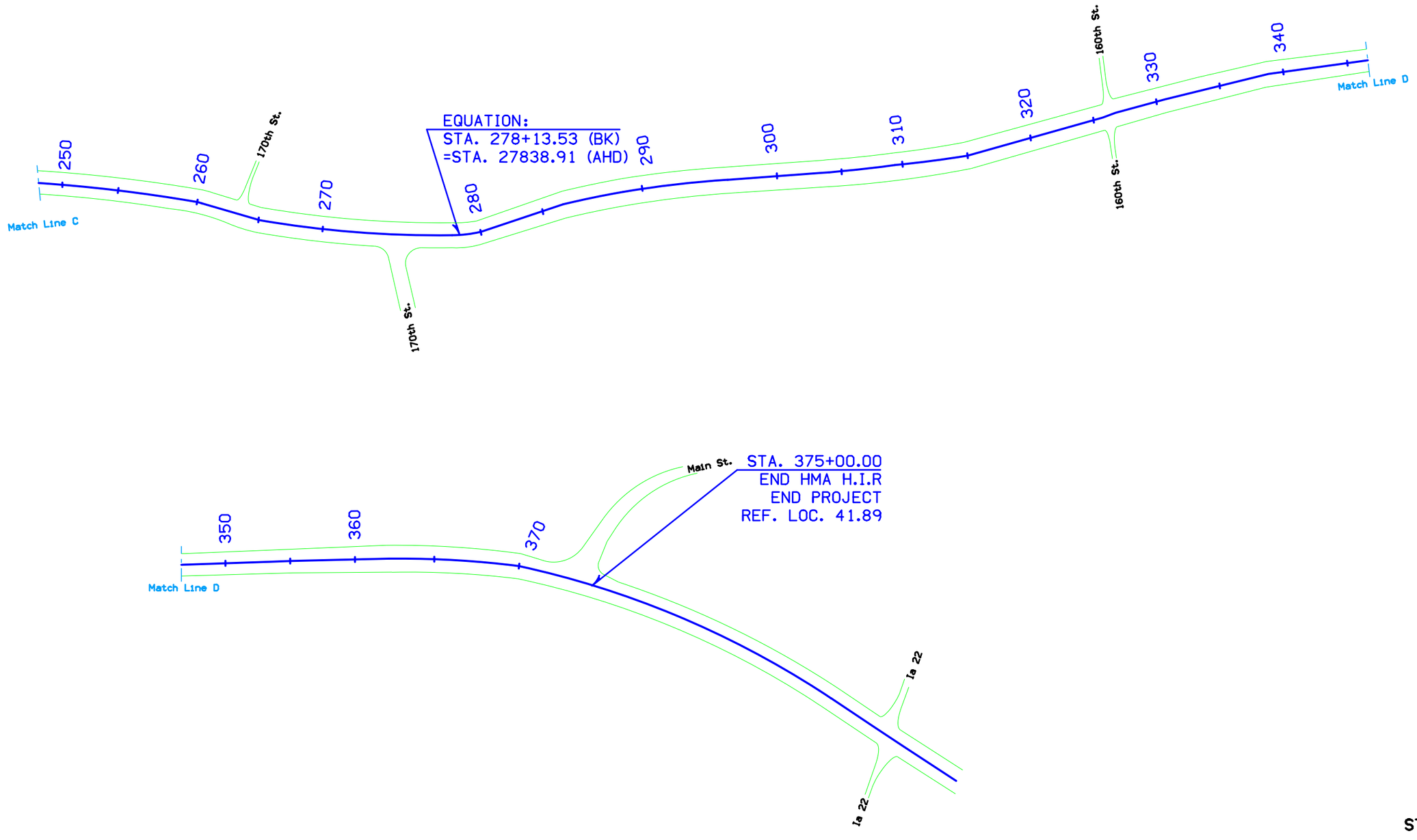

Do Not Scale

STRIP MAP
IA 149
KEOKUK COUNTY
SHEET 2 of 2

FILE NO.	ENGLISH	DESIGN TEAM HOLST \ BAHR \ CAMPBELL	KEOKUK COUNTY	PROJECT NUMBER STP-149-1(84)--2C-54	SHEET NUMBER A.3

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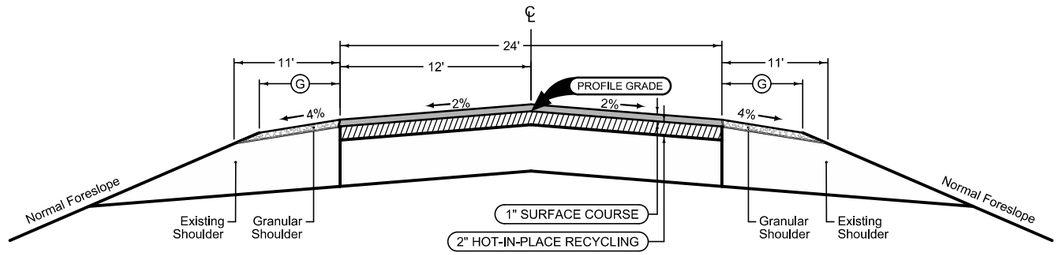
Granular Shoulder with Tapered Fillet

STATION TO STATION		2_G_ Modified Ⓖ Feet
12+00.00	154+01.62*	8.0
154+00.35*	278+13.53**	8.0
278+38.91**	375+00.00	8.0

Refer to Typ. 7135-M



STATION TO STATION		2H_ Modified
12+00.00	154+01.62*	
154+00.35*	278+13.53**	
278+38.91**	375+00.00	

*Sta 154+01.62 (BK) = Sta 154+00.35 (AHD)
**Sta 278+13.53 (BK) = Sta 278+38.91 (AHD)

Granular Shoulder with Tapered Fillet

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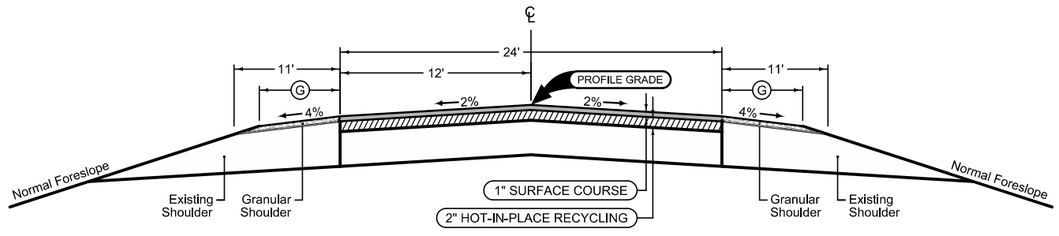
12+00.00	154+01.62*	8.0
154+00.35*	278+13.53**	8.0
278+38.91**	375+00.00	8.0

Refer to Typ. 7135-M



Notes:

Section may be modified as directed by the Engineer in areas of special shaping and through intersections.

See Tab 100-25 for pavement quantities.

See Tab 112-9 for shoulder quantities.

See Tab 102-16 for HMA Runouts at Side Roads.

IA 149 HMA RESURFACING

FILE NO.	ENGLISH	DESIGN TEAM HOLST \ BAHR \ CAMPBELL	KEOKUK COUNTY	PROJECT NUMBER STP-149-1(84)--2C-54	SHEET NUMBER B.1

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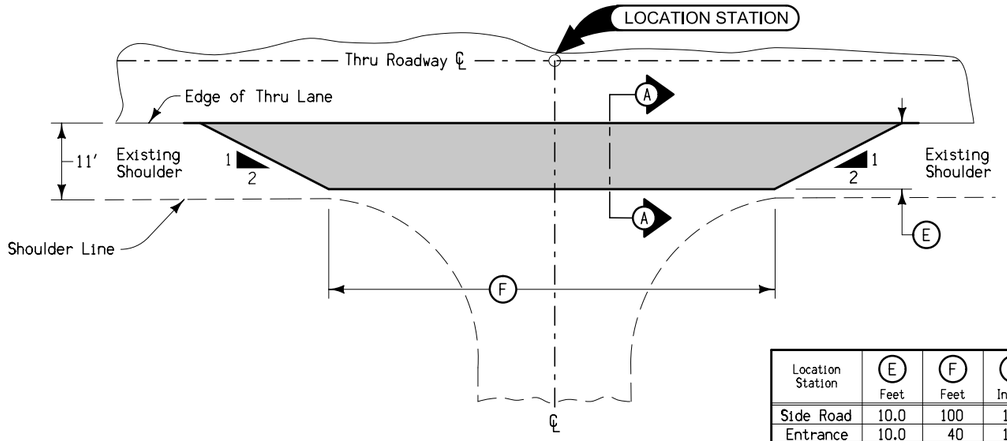
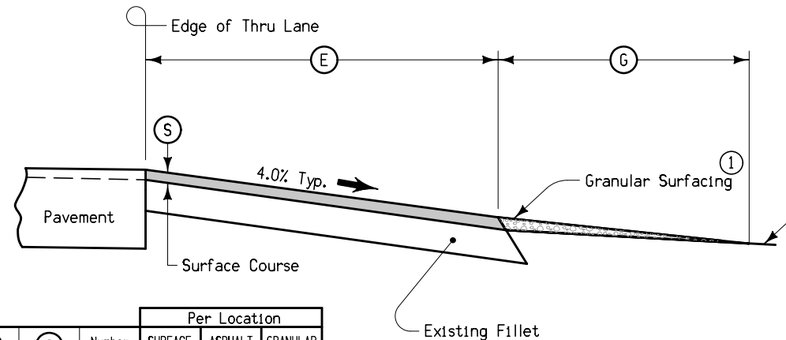
7148-M
10-21-14



PLAN



SECTION A-A

Location Station	E Feet	F Feet	S Inches	G Feet	Number of Each	Per Location: SURFACE COURSE Tons	Per Location: ASPHALT BINDER Tons	Per Location: GRANULAR SURFACE Tons
Side Road	10.0	100	1.0	10	9	7.4	0.5	3.6
Entrance	10.0	40	1.0	10	19	3.7	0.3	1.8

Cleaning of existing surface prior to resurfacing of fillet may be required by the Engineer and is incidental to other work on the project.

HMA quantities for fillets are included in tabulation 100-25.

(1) Granular material for fillets is payed for separately.

RESURFACING OF PAVED FILLETS AT SIDE ROADS AND ENTRANCES

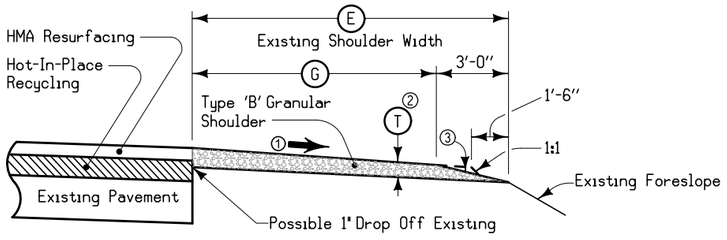
7135-M
10-15-13

Notes:

(1) Minimum allowable slope is 4.0%. Desirable slope is 4.0%. Section may be modified as directed by the engineer through areas of special shaping.

(2) Place additional shoulder material to correct for the degraded cross slope and the low existing shoulder due to edge rutting. Thickness is approximate.

(3) Place and compact material to the dashed lines; then blade and shape to foreslope that portion above the solid line in the outer 3' and roll with loaded truck tire.



LOCATION: ROAD IDENTIFICATION	LOCATION: STATION TO STATION		LOCATION: SIDE	T (2) Inches	E Feet	G Feet	REMARKS
Ia. 149	1+36.90	12+00.00	Both	1.0	11.0	3.0	
"	12+00.00	154+01.62*	Both	2.0	11.0	8.0	
"	154+00.35*	278+13.53**	Both	2.0	11.0	8.0	
"	278+38.91**	375+00.00	Both	2.0	11.0	8.0	

*Sta 154+01.62 (BK) = Sta 154+01.62 (AHD)
**Sta 278+13.53 (BK) = Sta 278+38.91 (AHD)

TYPICAL SECTION FOR TYPE 'B' GRANULAR SHOULDER

100-1D
10-18-05

PROJECT DESCRIPTION

This project involves HMA Hot-In-Place Recycling followed by a high performance lift of HMA Resurfacing along with Type "B" granular shoulders. Patching and pipe repairs are also included with this project.

100-1A
07-15-97

ESTIMATED PROJECT QUANTITIES
(1 DIVISION PROJECT)

Item No.	Item Code	Item	Unit	Total	As Built Qty.
1	2101-0850001	CLEARING AND GRUBBING	ACRE	1.8	
2	2101-0850002	CLEARING AND GRUBBING	UNIT	503	
3	2102-2625000	EMBANKMENT-IN-PLACE	CY	25.0	
4	2102-2710090	EXCAVATION, CLASS 10, WASTE	CY	740.0	
5	2121-7425020	GRANULAR SHOULDERS, TYPE B	TON	7,883.9	
6	2125-2225050	RESHAPING DITCHES	STA	0.64	
7	2212-5070310	PATCHES, FULL-DEPTH REPAIR	SY	165.6	
8	2212-5070330	PATCHES BY COUNT (REPAIR)	EACH	283	
9	2214-5145150	PAVEMENT SCARIFICATION	SY	400.0	
10	2303-1033503	HOT MIX ASPHALT STANDARD TRAFFIC, SURFACE COURSE, 1/2 IN. MI X, FRICTION L-3	TON	5,742.30	
11	2303-1258347	ASPHALT BINDER, PG 58-34E+, EXTREMELY HIGH TRAFFIC, 90% ELAS TIC RECOVERY	TON	456.80	
12	2315-8275025	SURFACING, DRIVEWAY, CLASS A CRUSHED STONE	TON	64.3	
13	2416-0101036	REMOVE AND REINSTALL CONCRETE PIPE APRONS LESS THAN OR EQUAL TO 36 IN.	EACH	6	
14	2416-0101136	REMOVE AND REINSTALL CONCRETE PIPE APRONS GREATER THAN 36 IN .	EACH	2	
15	2416-1541036	REMOVE AND REINSTALL RIGID PIPE CULVERT LESS THAN OR EQUAL T O 36 IN.	LF	24	
16	2416-1541136	REMOVE AND REINSTALL RIGID PIPE CULVERT GREATER THAN 36 IN.	LF	16	
17	2507-2638620	MACADAM STONE SLOPE PROTECTION	SY	911.0	
18	2507-3250005	ENGINEERING FABRIC	SY	1,756.1	
19	2507-8029000	EROSION STONE	TON	1,608.7	
20	2526-8285000	CONSTRUCTION SURVEY	LS	1.00	
21	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	STA	1,016.50	
22	2528-8445110	TRAFFIC CONTROL	LS	1.00	
23	2528-8445113	FLAGGERS	EACH	See Proposal	
24	2528-8445115	PILOT CARS	EACH	See Proposal	
25	2529-2242320	CT JOINT	EACH	2	
26	2529-5070110	PATCHES, FULL-DEPTH FINISH, BY AREA	SY	164.1	
27	2529-5070120	PATCHES, FULL-DEPTH FINISH, BY COUNT	EACH	16	
28	2532-5200001	PAVEMENT SURFACE REPAIR (GRINDING LIMESTONE)	SY	164.1	
29	2533-4980005	MOBILIZATION	LS	1.00	
30	2548-0000310	MILLED CENTERLINE RUMBLE STRIPS, HMA SURFACE	STA	362.8	
31	2590-0000020	PROJECT MANAGEMENT	LS	1.00	
32	2599-9999018	('SQUARE YARDS' ITEM) HOT IN-PLACE RECYCLING	SY	96,735.7	
33	2599-9999020	('TONS' ITEM) ASPHALT REJUVENATING AGENT	TON	141.4	

SEE RC SHEETS FOR ADDITIONAL BID ITEMS AND QUANTITIES.

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
1	2101-0850001	**CLEARING AND GRUBBING**
2	2101-0850002	**CLEARING AND GRUBBING**
		Refer to Tab. 110-17 on C Sheets.
		Tree clearing date restrictions per Iowa DOT Specification 2101.01A are not required for this project.
-	-	-
3	2102-2625000	**EMBANKMENT-IN-PLACE**
		Refer to Tab. 100-23 on C Sheets.
-	-	-
4	2102-2710090	**EXCAVATION, CLASS 10, WASTE**
		Refer to Tab. 103-12 on CS Sheets.
-	-	-
5	2121-7425020	**GRANULAR SHOULDERS, TYPE B**
		Refer to Tab. 112-9 on C Sheets.
-	-	-
6	2125-2225050	**RESHAPING DITCHES**
		Refer to Tab. 3R-CULV.
-	-	-
7	2212-5070310	**PATCHES, FULL-DEPTH REPAIR**
8	2212-5070330	**PATCHES BY COUNT (REPAIR)**
		Refer to Tab. 102-6C on C Sheets.
		Patching items include a 15% increase over Tab. 102-6C totals for field adjustments.
-	-	-
9	2214-5145150	**PAVEMENT SCARIFICATION**
		Refer to Tab 102-16 in C-Sheets.
-	-	-
10	2303-1033503	**HOT MIX ASPHALT STANDARD TRAFFIC, SURFACE COURSE, 1/2 IN. MI X, FRICTION L-3**
11	2303-1258347	**ASPHALT BINDER, PG 58-34E+, EXTREMELY HIGH TRAFFIC, 90% ELAS TIC RECOVERY**
		Refer to Tab. 100-25 on C Sheets. Items include an added 5% for irregularities
	2303-1258347	**ASPHALT BINDER, PG 58-34E+, EXTREMELY HIGH TRAFFIC, 90% ELAS TIC RECOVERY**
		Binder shall meet 90% recovery when tested at 64C.
-	-	-
12	2315-8275025	**SURFACING, DRIVEWAY, CLASS A CRUSHED STONE**
		Applied at Sideroad and Entrance Fillets. See B-Sheets for additional information.
		Includes 31.7 tons at 9 sideroads and 32.6 tons at 19 entrances.
-	-	-
13	2416-0101036	**REMOVE AND REINSTALL CONCRETE PIPE APRONS LESS THAN OR EQUAL TO 36 IN.**
14	2416-0101136	**REMOVE AND REINSTALL CONCRETE PIPE APRONS GREATER THAN 36 IN .**
15	2416-1541036	**REMOVE AND REINSTALL RIGID PIPE CULVERT LESS THAN OR EQUAL T O 36 IN.**
16	2416-1541136	**REMOVE AND REINSTALL RIGID PIPE CULVERT GREATER THAN 36 IN.**
		Refer to Tab. 3R-CULV.
-	-	-
17	2507-2638620	**MACADAM STONE SLOPE PROTECTION**
		Refer to Tab. 103-12 on CS Sheet.
-	-	-
18	2507-3250005	**ENGINEERING FABRIC**
		Refer to Tab. 100-23 on C Sheets and Tab. 103-23 on CS Sheet.
		Use material specified for embankment erosion control according to Article 4196.01, B, 3.
		Material will be measured in sq. yds. of actual area covered.
-	-	-
19	2507-8029000	**EROSION STONE**
		Refer to Tab. 100-23 on C Sheets and Tab. 103-12 on CS Sheet.
-	-	-
20	2526-8285000	**CONSTRUCTION SURVEY**
		All monuments that are within the paved surface of the roadway (centerline, section corners, property corners)
		will be referenced before construction, and reestablished after construction, by the District Land Surveyor.
		The Contractor will be responsible for referencing and reestablishing all other monuments - including but not
		limited to right of way, section corners, property corners, benchmarks, etc. - that are outside of the
		paved highway surface.
		Any centerline points (PC,PI, PT, POT, etc.) and their references that were found by the District
		Land Surveyor, may be made available to the Contractor, per their request. Roadway geometric alignments
		will not be provided.
		Record drawings of prior projects may be found at:
		http://www.mydotdocs.iowadot.gov/CollectionDetails.aspx?Appld=HIGHWAY+PLANS&Colld=HIGHWAY+PLANS&DisplayType=R
		All other survey necessary for construction of the project, as provided by
		Section 2526 Construction Survey will be required by the Contractor.
-	-	-
21	2527-9263109	**PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED**
		Refer to Tab 108-22 in C Sheets for locations and amounts.
-	-	-
22	2528-8445110	**TRAFFIC CONTROL**
		- -
-	-	-
23	2528-8445113	**FLAGGERS**

100-4A
10-29-02

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
		- -
-	-	-
24	2528-8445115	**PILOT CARS**
		- -
-	-	-
25	2529-2242320	**CT JOINT**
26	2529-5070110	**PATCHES, FULL-DEPTH FINISH, BY AREA**
27	2529-5070120	**PATCHES, FULL-DEPTH FINISH, BY COUNT**
		Refer to Tab. 102-6C on C Sheets.
		Patching items include a 15% increase over Tab. 102-6C totals for field adjustments.
-	-	-
28	2532-5200001	**PAVEMENT SURFACE REPAIR (GRINDING LIMESTONE)**
		Grinding occurs over 100% of the surface area of Full Depth Finish PCC Patches identified on tabulation 102-6C.
		Patching items include a 15% increase for field adjustments.
-	-	-
29	2533-4980005	**MOBILIZATION**
		- -
-	-	-
30	2548-0000310	**MILLED CENTERLINE RUMBLE STRIPS, HMA SURFACE**
		Refer to Tab. 112-10 on C Sheets.
-	-	-
31	2590-0000020	**PROJECT MANAGEMENT**
		Refer to Supplemental Specification SS-15008.
-	-	-
32	2599-9999018	**('SQUARE YARDS' ITEM) HOT IN-PLACE RECYCLING**
33	2599-9999020	**('TONS' ITEM) ASPHALT REJUVENATING AGENT**
		Refer to Tab. 100-25 on C Sheets.
-	-	-

111-25
10-18-11

INDEX OF TABULATIONS

Tabulation	Tabulation Title	Sheet No.
C Sheets		
100-1A	ESTIMATED PROJECT QUANTITIES (1 DIVISION PROJECT)	C.1
100-1D	PROJECT DESCRIPTION	C.1
100-4A	ESTIMATE REFERENCE INFORMATION	C.2 - C.2
100-23	ROCK EROSION CONTROL	C.5
100-25	HMA PAVEMENT	C.6
102-5	EXISTING PAVEMENT	C.4
102-6C	FULL-DEPTH PATCHES	C.7 - C.10
102-16	NOTCHES AND RUNOUTS FOR RESURFACING	C.11
105-4	STANDARD ROAD PLANS	C.3
108-22	PAVEMENT MARKING LINE TYPES	C.12
110-17	CLEARING AND GRUBBING	C.4
111-25	INDEX OF TABULATIONS	C.3
112-9	SHOULDERS	C.10
112-10	MILLED RUMBLE STRIPS	C.11
3R-CULV	DRAINAGE STRUCTURE REPAIR WORK	C.11

262-6
10-18-05

UTILITIES
(NOT A POINT 25 PROJECT)

This is NOT a POINT 25 project and is not subject to the provisions of IAC 761-115.25.

281-1
10-18-16

SECTION 404 PERMIT AND CONDITIONS

Construct this project according to the requirements of U.S. Army Corps of Engineers Nationwide, Permit No. 3.
A copy of this permit is available from the Iowa DOT website (http://www.envpermits.iowadot.gov/). The U.S. Army Corps of Engineers reserves the right to visit the site without prior notice.

105-4
10-18-11

STANDARD ROAD PLANS

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

Number	Date	Title
EC-301	10-18-16	Rock Erosion Control (REC)
PM-110	10-16-18	Line Types
PR-103	10-21-14	Full Depth PCC Patch with Dowels
PR-202	10-21-14	Notches for Resurfacing (with or without Runout)
PV-13	10-17-17	Milled Centerline Rumble Strips
SI-881	10-17-17	Special Signs for Workzones
TC-1	04-16-13	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-202	04-21-15	Work Within 15 ft of Traveled Way
TC-213	04-17-12	Lane Closure with Flaggers
TC-214	10-17-17	Lane Closure with Flaggers for use with Pilot Car
TC-233	10-17-17	Pavement Marking Operations Two-Lane
TC-282	04-19-11	Uneven Lanes

EXISTING PAVEMENT

No.	Location					Year	Type	Project Number	Surface		Base		Subbase		Removal		Coarse Aggregate			Reinforcement	Remarks
	County	Route	Dir. of Travel	Begin Ref. Loc. Sign	End Ref. Loc. Sign				Type	Depth IN	Type	Depth IN	Type	Depth IN	Type	Depth IN	Source	Type	Durability Class	Type	
1	Keokuk	Ia 149	NB/SB	34.8	35	1968		F-92-8(2)--20-54	PCC	9							Ollie	C. Lst.	2		24' Width
2	Keokuk	Ia 149	NB/SB	35	36.73	1992	A	STP-149-1(45)--2C-54	ACC	1.5							Durham	C. Lst.			24' Width
							B	STP-149-1(45)--2C-54	Binder	1.5											
							B	STP-149-1(45)--2C-54			TBB	8									
																		C. Lst.			24' Width
3	Keokuk	Ia 149	NB/SB	36.73	41.97	1992	A	F-149-1(44)--20-54	ACC	1.5							Keswick				
							B	F-149-1(44)--20-54	Binder	1.5											
							B	F-149-1(44)--20-54			TBB	8									

CLEARING AND GRUBBING

Location		Work and Material Type	Trees, Stumps, and Logs and Down Timber Material Diameters													All Other Materials		Estimated Quantities			Remarks
Station to Station or Ref. Loc. Sign to Ref. Loc. Sign or Description	Direction of Travel		3"-6"	>6"-9"	>9"-12"	>12"-15"	>15"-18"	>18"-24"	>24"-30"	>30"-36"	>36"-42"	>42"-48"	>48"-60"	>60"-72"	>72"	Length FT	Width FT	Units	Area Acres	Herbicide Application Each	
17+00	NB	Trees - Clearing and Grubbing					1											14.0			
24+60	NB	Trees - Clearing and Grubbing							1									29.0			
25+00 TO 28+35	NB	Trees - Clearing and Grubbing														335.0	30.0		0.2		
29+25 to 33+90	NB	Trees - Clearing and Grubbing														465.0	20.0		0.2		
41+50 TO 43+70	NB	Trees - Clearing and Grubbing														220.0	20.0		0.1		
44+60 to 45+00	NB	Trees - Clearing and Grubbing														40.0	20.0		0.0		
47+00 to 52+90	NB	Trees - Clearing and Grubbing														490.0	10.0		0.1		
44+60 to 51+00	SB	Trees - Clearing and Grubbing														640.0	20.0		0.3		
297+20	NB	Brush - Clearing														70.0	20.0		0.0		
307+90	NB	Trees - Clearing and Grubbing			1													7.0			Cedar Trees
309+22	NB	Trees - Clearing and Grubbing			1													7.0			Cedar Trees
309+50	NB	Trees - Clearing and Grubbing		2														8.0			Cedar Trees
309+83	NB	Trees - Clearing and Grubbing	1															2.0			Cedar Trees
311+05	NB	Trees - Clearing and Grubbing	1															2.0			Cedar Trees
311+80	NB	Trees - Clearing and Grubbing			1													7.0			Cedar Trees
312+10	NB	Trees - Clearing and Grubbing					6											81.0			Cedar Trees
313+38	NB	Trees - Clearing and Grubbing						1										22.0			Cedar Trees
313+80	NB	Trees - Clearing and Grubbing					1											14.0			Cedar Trees
314+30	NB	Trees - Clearing and Grubbing					1											14.0			Cedar Trees
322+98	NB	Trees - Clearing and Grubbing					2											27.0			Cedar Trees
325+00	SB	Trees - Clearing						1										8.0		1	
314+70 to 310+30	SB	Trees - Clearing and Grubbing														440.0	10.0		0.1		
270+29	SB	Trees - Clearing and Grubbing							1									29.0			
269+75	SB	Trees - Clearing and Grubbing								1								50.0			
260+80	SB	Trees - Clearing and Grubbing							1									29.0			
259+75	SB	Trees - Clearing and Grubbing								2								100.0			
256+09	SB	Trees - Clearing and Grubbing						2										44.0			
50+70 to 44+55	SB	Trees - Clearing and Grubbing														615.0	50.0		0.7		
33+35	SB	Trees - Clearing and Grubbing				1												9.0			
TOTAL																		**503.0**	**1.8**	**1**	**(1)**

(1) See RC-Sheets for Herbicide Application bid item quantity (tab 100-1A) and reference information (tab 100-4A).

ROCK EROSION CONTROL

Refer to EC-301 and Detail 570-8

Location						Rock Erosion Control (REC)					Material Bid Quantities			
Road Identification	Begin Station	End Station	Side	(L)	(W)	Type 1 Rock Ditch Check	Type 2 Rock Ditch	Type 3 Rock Flume	Type 4 Rock Splash Basin	Type 5 Rock Slope Protection	Eng. Fabric	Class E Revetment	Erosion Stone	Remarks
			Lt./Rt.	FT	FT						SY	TON	TON	
Ia 149	64+15.00	64+75.00	Rt	60	8		x				53.3		57.6	
Ia 149	65+50.00	66+95.00	Rt.	145	8		x				128.9		139.2	
Ia 149	65+00.00		Lt.	4	4				x		1.8		1.9	pipe apr. 100-22
Ia 149	65+38.00		Lt.	4	4				x		1.8		1.9	pipe apr. 100-22
Ia 149	66+40.00		Lt.	4	4				x		1.8		1.9	24"pipe apr.100-22
Ia 149	75+00.00		Rt	30	8		x				26.7		28.8	
Ia 149	110+75.00		Rt	10	5				x		5.6		6.0	See Note 3
														Place 5 CY Cl. 13
														Exc.to fill eroded
														ground, and cap
														w/ 2' erosion stone
Ia 149	123+75.00		Rt	10	5				x		5.6		6.0	See Note 3
														Place 5 CY Cl. 13
														Exc.to fill eroded
														ground, and cap
														w/ 2' erosion stone
Ia 149	135+50.00		Lt.	20	8				x		17.8		19.2	See 3R Culv tab
Ia 149	152+73.00		Lt.	10	8				x		8.9		9.6	See 3R Culv tab
Ia 149	152+73.00		Lt.	10	8		x				8.9		9.6	
Ia 149	160+15.00		Lt.	60	8		x				53.3		57.6	
Ia 149	175+00.00		Rt	30	8		x				26.7		28.8	See 3R Culv tab
Ia 149	180+00.00		Rt	25	8		x				22.2		24.0	See 3R Culv tab
Ia 149	285+00.00		Lt	16	8		x				14.2		15.4	See 3R Culv tab
Ia 149	297+20.00		Rt	45	8				x		40.0		43.2	See Note 1,2
														Place 5 CY Cl. 13
														Exc.to fill eroded
														ground, and cap
														w/ 2' erosion stone
Ia 149	323+00.00		Rt.	50	8				x		44.4		48.0	See Note 1,2
														Place 5 CY Cl. 13
														Exc.to fill eroded
														ground, and cap
														w/ 2' erosion stone
Ia 149	325+00.00		Lt.	10	5				x		5.6		6.0	See Note 2,3
														Place 5 CY Cl. 13
														Exc.to fill eroded
														ground, and cap
														w/ 2' erosion stone
Ia 149	331+07.00		Rt	30	8		x				26.7		28.8	
Ia 149	331+07.00		Rt.	170	8		x				151.1		163.2	
										TOTALS	**645.1**		**696.7**	**25 CY Emb.-in-Place**

Note 1: Place grout on exterior of Concrete Tile Receptor / Access. This materials and labor for this will be considerated incidental to erosion stone.

Note 2: 297+20, 323+00, 325+00 The work needed on the exist. tile receptors are at the holes in the side of receptor that were cut out for the exist. tile connection. The earth around the exist. tile receptor needs to be excavated and replaced / compacted. They also need to be staightened and back filled. Also see Note 1

Note 3: UAC the existing half pipe outlet. Erosion / scour was occurring at end of half pipe.

HMA PAVEMENT

Calculations assume a surface course unit weight (lbs/cf) of 147 , an intermediate course unit weight (lbs/cf) of 147.0

Location				Dimensions										Bid Items							
									Thickness				HMA Pvmnt, 1/2" Mix, L-3		Asphalt Binder						
													Surface	Interm.	Surface	Interm.					
Sheet ID	Type of Work	Station to Station		Mainline Width	Total	Length	Mainline Area	Total	Surf.	Interm.	HIR	Pvmnt Scarify	Standard Traffic	Standard Traffic	PG 58-34E	PG 58-34S	HIR	Asphalt Rejuvenating Agent	Scarification	Remarks
				FT	FT	FT	SY	SY	IN	IN	IN	IN	TONS	TONS	TONS	TONS	SY	TONS	SY	
N/A	Patching	1+36.9	12+00.0			1063.1														
B.1	HIR	12+00.0	154+01.6	24.0		14201.6	37871.0		1.0		2.0		2087.7		167		37871.0	55.3		
		Equation: Sta. 154+01.62 (BK) = Sta. 154+00.35 (AHD)																		
B.1	HIR	154+00.4	278+13.5	24.0		12413.2	33101.8		1.0		2.0		1824.8		146		33101.8	48.4		
		Equation: Sta. 278+13.53 (BK) = Sta. 278+38.91 (AHD)																		
B.1	HIR	278+38.9	375+00.0	24.0		9661.1	25762.9		1.0		2.0		1420.2		114		25762.9	37.6		
B.2 (Fillet)	Side Road			24.0	10.0	10.0	26.7	11.1	1.0				66.2		4					Total for 9 Side Roads
B.2 (Fillet)	Entrance			20.0	10.0	10.0	22.2	11.1	1.0				69.9		4					Total for 19 Entrances
Subtotals													**5468.8**		**435**					
+5% for Irregularities													**273.5**		**22**					
Total													**5742.3**		**457**		**96735.7**	**141.4**		

FULL-DEPTH PATCHES

Possible Standards: PR-101, PR-102, PR-103, PR-104, PR-105 and PR-140.

Location				Dimension			PCC Patches													
Count	Station	Reference Location Sign	Lane	Length	Width	Patch Thickness	With Dowels	Without Dowels	C R C	Ramp with Dowels	HMA Patches	Composite HMA	Subbase Patches	Subbase Patch w/ 'EF' Joint	Patch Subdrain	'CD' Joints	'CT' Joints	'EF' Joints	Anchor Lugs Removal	Remarks
							PR-103	PR-102	PR-104	PR-105			PR-140	PR-101	PR-101 or PR-140			PR-101		
			L, R, or B	FT	FT	IN	SY	SY	SY	SY	SY	TON	SY	SY	No.	No.	No.	No.	No.	
	FULL DEPTH PATCHES - FINISH																			
1	2+92		LT	8.0	12.0	9.0	10.7													
1	2+92		RT	8.0	12.0	9.0	10.7													
1	5+85		LT	6.0	12.0	9.0	8.0													
1	5+85		RT	6.0	12.0	9.0	8.0													
1	10+47		LT	8.0	12.0	9.0	10.7													
1	10+47		RT	8.0	12.0	9.0	10.7													
1	10+66		RT	6.0	12.0	9.0	8.0													
1	11+24		LT	6.0	6.0	9.0	4.0													
1	11+55		LT	6.0	12.0	9.0	8.0													
1	11+55		RT	6.0	12.0	9.0	8.0													
1	11+75		LT	6.0	6.0	9.0	4.0													
1	11+75		RT	6.0	6.0	9.0	4.0													
1	12+00		LT	18.0	12.0	9.0	24.0										1			
1	12+00		RT	18.0	12.0	9.0	24.0										1			
14	**TOTAL FINISH**						**142.7**										**2**			
	FULL DEPTH PATCHES - REPAIR																			
1	13+40		LT	2.0	12.0	11.0					2.7									
1	13+40		RT	2.0	12.0	11.0					2.7									
1	13+78		LT	2.0	12.0	11.0					2.7									
1	13+78		RT	2.0	12.0	11.0					2.7									
1	13+98		LT	2.0	12.0	11.0					2.7									
1	13+98		RT	2.0	12.0	11.0					2.7									
1	14+28		LT	2.0	12.0	11.0					2.7									
1	14+28		RT	2.0	12.0	11.0					2.7									
1	14+83		LT	2.0	12.0	11.0					2.7									
1	14+83		RT	2.0	12.0	11.0					2.7									
1	15+85		LT	2.0	12.0	11.0					2.7									
1	15+85		RT	2.0	12.0	11.0					2.7									
1	16+88		LT	2.0	12.0	11.0					2.7									
1	16+88		RT	2.0	12.0	11.0					2.7									
1	17+31		LT	2.0	12.0	11.0					2.7									
1	17+31		RT	2.0	12.0	11.0					2.7									
1	17+50		LT	2.0	12.0	11.0					2.7									
1	17+70		RT	2.0	12.0	11.0					2.7									
1	18+36		LT	2.0	12.0	11.0					2.7									
1	18+36		RT	2.0	12.0	11.0					2.7									
1	19+10		RT	2.0	12.0	11.0					2.7									
1	19+75		LT	2.0	12.0	11.0					2.7									
1	19+75		RT	2.0	12.0	11.0					2.7									
1	21+04		LT	2.0	12.0	11.0					2.7									
1	21+04		RT	2.0	12.0	11.0					2.7									
1	21+66		LT	2.0	12.0	11.0					2.7									
1	21+66		RT	2.0	12.0	11.0					2.7									
1	22+29		LT	2.0	12.0	11.0					2.7									
1	22+29		RT	2.0	12.0	11.0					2.7									
1	22+89		LT	2.0	12.0	11.0					2.7									
1	22+89		RT	2.0	12.0	11.0					2.7									
1	23+97		LT	2.0	12.0	11.0					2.7									
1	23+97		RT	2.0	12.0	11.0					2.7									
1	25+46		LT	2.0	12.0	11.0					2.7									
1	25+46		RT	2.0	12.0	11.0					2.7									
1	26+14		LT	2.0	12.0	11.0					2.7									
1	26+52		LT	2.0	12.0	11.0					2.7									
1	26+52		RT	2.0	12.0	11.0					2.7									
1	26+72		LT	2.0	12.0	11.0					2.7									
1	26+72		RT	2.0	12.0	11.0					2.7									
1	27+68		LT	2.0	12.0	11.0					2.7									
1	27+68		RT	2.0	12.0	11.0					2.7									
1	28+64		LT	2.0	12.0	11.0					2.7									
1	28+64		RT	2.0	12.0	11.0					2.7									
1	28+97		LT	2.0	12.0	11.0					2.7									
1	29+00		RT	2.0	12.0	11.0					2.7									
1	29+32		LT	2.0	12.0	11.0					2.7									
1	29+32		RT	2.0	12.0	11.0					2.7									
1	29+95		LT	2.0	12.0	11.0					2.7									
1	29+95		RT	2.0	12.0	11.0					2.7									
1	31+33		LT	2.0	12.0	11.0					2.7									
1	31+33		RT	2.0	12.0	11.0					2.7									
1	31+79		RT	2.0	12.0	11.0					2.7									
1	31+79		LT	2.0	12.0	11.0					2.7									
1	32+04		LT	2.0	12.0	11.0					2.7									
1	32+04		RT	2.0	12.0	11.0					2.7									
1	32+85		LT	2.0	12.0	11.0					2.7									
1	32+85		RT	2.0	12.0	11.0					2.7									

FULL-DEPTH PATCHES

Possible Standards: PR-101, PR-102, PR-103, PR-104, PR-105 and PR-140.

Location				Dimension			PCC Patches													
Count	Station	Reference Location Sign	Lane	Length	Width	Patch Thickness	With Dowels	Without Dowels	C R C	Ramp with Dowels	HMA Patches	Composite HMA	Subbase Patches	Subbase Patch w/ 'EF' Joint	Patch Subdrain	'CD' Joints	'CT' Joints	'EF' Joints	Anchor Lugs Removal	Remarks
							PR-103	PR-102	PR-104	PR-105			PR-140	PR-101	PR-101 or PR-140			PR-101		
			L, R, or B	FT	FT	IN	SY	SY	SY	SY	SY	TON	SY	SY	No.	No.	No.	No.	No.	
1	33+31		LT	2.0	12.0	11.0					2.7									
1	33+31		RT	2.0	12.0	11.0					2.7									
1	33+93		LT	2.0	12.0	11.0					2.7									
1	33+93		RT	2.0	12.0	11.0					2.7									
1	34+50		LT	2.0	12.0	11.0					2.7									
1	34+50		RT	2.0	12.0	11.0					2.7									
1	36+18		LT	2.0	12.0	11.0					2.7									
1	36+18		RT	2.0	12.0	11.0					2.7									
1	37+16		LT	2.0	12.0	11.0					2.7									
1	37+16		RT	2.0	12.0	11.0					2.7									
1	38+29		LT	2.0	12.0	11.0					2.7									
1	38+29		RT	2.0	12.0	11.0					2.7									
1	38+55		LT	2.0	12.0	11.0					2.7									
1	38+55		RT	2.0	12.0	11.0					2.7									
1	39+12		LT	2.0	12.0	11.0					2.7									
1	39+12		RT	2.0	12.0	11.0					2.7									
1	40+28		LT	2.0	12.0	11.0					2.7									
1	40+28		RT	2.0	12.0	11.0					2.7									
1	40+97		LT	2.0	12.0	11.0					2.7									
1	40+97		RT	2.0	12.0	11.0					2.7									
1	41+28		LT	2.0	12.0	11.0					2.7									
1	41+32		LT	2.0	12.0	11.0					2.7									
1	41+32		RT	2.0	12.0	11.0					2.7									
1	42+47		LT	2.0	12.0	11.0					2.7									
1	42+47		RT	2.0	12.0	11.0					2.7									
1	43+27		LT	2.0	12.0	11.0					2.7									
1	43+27		RT	2.0	12.0	11.0					2.7									
1	43+95		LT	2.0	12.0	11.0					2.7									
1	43+95		RT	2.0	12.0	11.0					2.7									
1	44+00		RT	2.0	12.0	11.0					2.7									
1	44+32		LT	2.0	12.0	11.0					2.7									
1	44+32		RT	2.0	12.0	11.0					2.7									
1	45+07		LT	2.0	12.0	11.0					2.7									
1	45+07		RT	2.0	12.0	11.0					2.7									
1	45+80		LT	2.0	12.0	11.0					2.7									
1	45+80		RT	2.0	12.0	11.0					2.7									
1	46+42		LT	2.0	12.0	11.0					2.7									
1	46+42		RT	2.0	12.0	11.0					2.7									
1	47+66		LT	2.0	12.0	11.0					2.7									
1	47+66		RT	2.0	12.0	11.0					2.7									
1	48+57		LT	2.0	12.0	11.0					2.7									
1	48+57		RT	2.0	12.0	11.0					2.7									
1	49+54		LT	2.0	12.0	11.0					2.7									
1	49+54		RT	2.0	12.0	11.0					2.7									
1	50+00		LT	2.0	12.0	11.0					2.7									
1	50+00		RT	2.0	12.0	11.0					2.7									
1	50+34		LT	2.0	12.0	11.0					2.7									
1	50+34		RT	2.0	12.0	11.0					2.7									
1	52+97		LT	2.0	12.0	11.0					2.7									
1	52+97		RT	2.0	12.0	11.0					2.7									
1	54+56		LT	2.0	12.0	11.0					2.7									
1	54+56		RT	2.0	12.0	11.0					2.7									
1	59+00		LT	2.0	12.0	11.0					2.7									
1	59+00		RT	2.0	12.0	11.0					2.7									
1	61+47		LT	2.0	12.0	11.0					2.7									
1	61+47		RT	2.0	12.0	11.0					2.7									
1	66+59		RT	2.0	12.0	11.0					2.7									
1	68+88		LT	2.0	12.0	11.0					2.7									
1	68+88		RT	2.0	12.0	11.0					2.7									
1	69+62		LT	2.0	12.0	11.0					2.7									
1	69+62		RT	2.0	12.0	11.0					2.7									
1	71+43		LT	2.0	12.0	11.0					2.7									
1	71+43		RT	2.0	12.0	11.0					2.7									
1	75+71		LT	2.0	12.0	11.0					2.7									
1	75+71		RT	2.0	12.0	11.0					2.7									
1	76+41		LT	2.0	12.0	11.0					2.7									
1	76+41		RT	2.0	12.0	11.0					2.7									
1	76+97		LT	2.0	12.0	11.0					2.7									
1	76+97		RT	2.0	12.0	11.0					2.7									
1	81+07		LT	2.0	12.0	11.0					2.7									
1	81+07		RT	2.0	12.0	11.0					2.7									
1	99+34		LT	2.0	12.0	11.0					2.7									
1	104+74		LT	2.0	12.0	11.0					2.7									
1	104+74		RT	2.0	12.0	11.0					2.7									
1	106+30		LT	2.0	12.0	11.0					2.7									
1	106+30		RT	2.0	12.0	11.0					2.7									
1	107+32		LT	2.0	12.0	11.0					2.7									
1	107+32		RT	2.0	12.0	11.0					2.7									
1	107+71		LT	2.0	12.0	11.0					2.7									

FULL-DEPTH PATCHES

Possible Standards: PR-101, PR-102, PR-103, PR-104, PR-105 and PR-140.

Location				Dimension			PCC Patches													
Count	Station	Reference Location Sign	Lane	Length	Width	Patch Thickness	With Dowels	Without Dowels	C R C	Ramp with Dowels	HMA Patches	Composite HMA	Subbase Patches	Subbase Patch w/ 'EF' Joint	Patch Subdrain	'CD' Joints	'CT' Joints	'EF' Joints	Anchor Lugs Removal	Remarks
							PR-103	PR-102	PR-104	PR-105			PR-140	PR-101	PR-101 or PR-140			PR-101		
			L, R, or B	FT	FT	IN	SY	SY	SY	SY	SY	TON	SY	SY	No.	No.	No.	No.	No.	
1	107+71		RT	2.0	12.0	11.0					2.7									
1	109+07		LT	2.0	12.0	11.0					2.7									
1	109+07		RT	2.0	12.0	11.0					2.7									
1	110+39		LT	2.0	12.0	11.0					2.7									
1	110+39		RT	2.0	12.0	11.0					2.7									
1	111+62		LT	2.0	12.0	11.0					2.7									
1	111+62		RT	2.0	12.0	11.0					2.7									
1	113+29		LT	2.0	12.0	11.0					2.7									
1	113+29		RT	2.0	12.0	11.0					2.7									
1	114+28		LT	2.0	12.0	11.0					2.7									
1	114+28		RT	2.0	12.0	11.0					2.7									
1	114+78		LT	2.0	12.0	11.0					2.7									
1	114+78		RT	2.0	12.0	11.0					2.7									
1	119+59		LT	2.0	12.0	11.0					2.7									
1	119+59		RT	2.0	12.0	11.0					2.7									
1	121+50		LT	2.0	12.0	11.0					2.7									
1	121+50		RT	2.0	12.0	11.0					2.7									
1	122+04		LT	2.0	12.0	11.0					2.7									
1	122+04		RT	2.0	12.0	11.0					2.7									
1	124+94		LT	2.0	12.0	11.0					2.7									
1	124+94		RT	2.0	12.0	11.0					2.7									
1	125+71		LT	2.0	12.0	11.0					2.7									
1	125+71		RT	2.0	12.0	11.0					2.7									
1	126+30		LT	2.0	12.0	11.0					2.7									
1	126+30		RT	2.0	12.0	11.0					2.7									
1	127+65		LT	2.0	12.0	11.0					2.7									
1	127+65		RT	2.0	12.0	11.0					2.7									
1	136+06		LT	2.0	12.0	11.0					2.7									
1	136+06		RT	2.0	12.0	11.0					2.7									
1	137+41		LT	2.0	12.0	11.0					2.7									
1	137+41		RT	2.0	12.0	11.0					2.7									
1	138+64		LT	2.0	12.0	11.0					2.7									
1	138+64		RT	2.0	12.0	11.0					2.7									
1	139+82		LT	2.0	12.0	11.0					2.7									
1	139+82		RT	2.0	12.0	11.0					2.7									
1	140+40		LT	2.0	12.0	11.0					2.7									
1	140+40		RT	2.0	12.0	11.0					2.7									
1	142+61		LT	2.0	12.0	11.0					2.7									
1	142+61		RT	2.0	12.0	11.0					2.7									
1	143+75		LT	2.0	12.0	11.0					2.7									
1	143+75		RT	2.0	12.0	11.0					2.7									
1	148+89		LT	2.0	12.0	11.0					2.7									
1	148+89		RT	2.0	12.0	11.0					2.7									
1	159+78		LT	2.0	12.0	11.0					2.7									
1	159+78		RT	2.0	12.0	11.0					2.7									
1	160+78		LT	2.0	12.0	11.0					2.7									
1	160+78		RT	2.0	12.0	11.0					2.7									
1	167+75		LT	2.0	12.0	11.0					2.7									
1	167+75		RT	2.0	12.0	11.0					2.7									
1	179+68		LT	2.0	12.0	11.0					2.7									
1	179+68		RT	2.0	12.0	11.0					2.7									
1	187+55		RT	2.0	12.0	11.0					2.7									
1	187+59		LT	2.0	12.0	11.0					2.7									
1	201+55		LT	2.0	12.0	11.0					2.7									
1	201+55		RT	2.0	12.0	11.0					2.7									
1	209+11		LT	2.0	12.0	11.0					2.7									
1	209+11		RT	2.0	12.0	11.0					2.7									
1	210+83		LT	2.0	12.0	11.0					2.7									
1	211+31		LT	2.0	12.0	11.0					2.7									
1	211+31		RT	2.0	12.0	11.0					2.7									
1	211+58		LT	2.0	12.0	11.0					2.7									
1	211+58		RT	2.0	12.0	11.0					2.7									
1	212+11		RT	2.0	12.0	11.0					2.7									
1	213+20		LT	2.0	12.0	11.0					2.7									
1	213+20		RT	2.0	12.0	11.0					2.7									
1	213+34		LT	2.0	12.0	11.0					2.7									
1	214+60		LT	2.0	12.0	11.0					2.7									
1	214+60		RT	2.0	12.0	11.0					2.7									
1	215+86		LT	2.0	12.0	11.0					2.7									
1	215+86		RT	2.0	12.0	11.0					2.7									
1	219+40		LT	2.0	12.0	11.0					2.7									
1	219+40		RT	2.0	12.0	11.0					2.7									
1	219+90		RT	2.0	12.0	11.0					2.7									
1	222+10		LT	2.0	12.0	11.0					2.7									
1	222+10		RT	2.0	12.0	11.0					2.7									
1	223+77		LT	2.0	12.0	11.0					2.7									
1	223+77		RT	2.0	12.0	11.0					2.7									
1	226+64		LT	2.0	12.0	11.0					2.7									
1	226+40		RT	2.0	12.0	11.0					2.7									

FULL-DEPTH PATCHES

Possible Standards: PR-101, PR-102, PR-103, PR-104, PR-105 and PR-140.

Location				Dimension			PCC Patches												
Count	Station	Reference Location Sign	Lane	Length	Width	Patch Thickness	With Dowels	Without Dowels	C R C	Ramp with Dowels	HMA Patches	Composite HMA	Subbase Patches	Subbase Patch w/ 'EF' Joint	Patch Subdrain	'CD' Joints	'CT' Joints	'EF' Joints	Anchor Lugs Removal	Remarks
							PR-103	PR-102	PR-104	PR-105			PR-140	PR-101	PR-101 or PR-140			PR-101		
			L, R, or B	FT	FT	IN	SY	SY	SY	SY	SY	TON	SY	SY	No.	No.	No.	No.	No.	
1	230+28		LT	2.0	12.0	11.0					2.7									
1	230+28		RT	2.0	12.0	11.0					2.7									
1	231+84		LT	2.0	12.0	11.0					2.7									
1	231+84		RT	2.0	12.0	11.0					2.7									
1	242+50		LT	2.0	12.0	11.0					2.7									
1	242+50		RT	2.0	12.0	11.0					2.7									
1	242+65		LT	2.0	12.0	11.0					2.7									
1	242+65		RT	2.0	12.0	11.0					2.7									
1	245+45		LT	2.0	12.0	11.0					2.7									
1	246+80		LT	2.0	12.0	11.0					2.7									
1	252+30		LT	2.0	12.0	11.0					2.7									
1	252+30		RT	2.0	12.0	11.0					2.7									
1	256+20		LT	2.0	12.0	11.0					2.7									
1	256+20		RT	2.0	12.0	11.0					2.7									
1	273+80		LT	2.0	12.0	11.0					2.7									
1	273+80		RT	2.0	12.0	11.0					2.7									
1	275+40		LT	2.0	12.0	11.0					2.7									
1	275+40		RT	2.0	12.0	11.0					2.7									
1	281+40		LT	2.0	12.0	11.0					2.7									
1	281+40		RT	2.0	12.0	11.0					2.7									
1	283+95		LT	2.0	12.0	11.0					2.7									
1	283+95		RT	2.0	12.0	11.0					2.7									
1	301+30		RT	2.0	12.0	11.0					2.7									
1	314+25		LT	2.0	12.0	11.0					2.7									
1	314+25		RT	2.0	12.0	11.0					2.7									
1	327+20		LT	2.0	12.0	11.0					2.7									
1	327+55		LT	2.0	12.0	11.0					2.7									
1	327+55		RT	2.0	12.0	11.0					2.7									
1	375+08		LT	2.0	12.0	11.0					2.7									
1	375+08		RT	2.0	12.0	11.0					2.7									
246	**TOTAL REPAIR**										**144.0**									

SHOULDERS

(1) Lane(s) to which the shoulder is adjacent.
(2) Bid Item
(3) Applies only for Paved Shoulders constructed on project with existing granular shoulders.
(4) Does not include shrink.

Calculations assume a HMA unit weight (lbs/cf) of 0, a Special Backfill unit weight (lbs/cf) of 140, and a Granular Shoulder unit weight (lbs/cf) of 140.

Location					Quantities															
Road Identification	(1) Direction Of Traffic	Station to Station		Side	(P) Width	(G) Width	(L) Length	(3) Class 13 Excavation	Hot Mix Asphalt		Binder	Paved Shoulder	Reinforced Paved Shoulder	Special Backfill				Modified Subbase	Granular Shoulder		Earth Shoulder Construction Alternates			Remarks
														HMA Alternate		PCC Alternate					(2) STA	HMA	PCC	
					FT	FT	FT	CY (2)	TON	TON/STA	TONS	SY (2)	SY (2)	TON (2)	TON/STA	TON (2)	TON/STA	CY (2)	TON (2)	TON/STA		(4) CY	(4) CY	
IA 149	NB	1+36.90	12+00.00	RT		3.0	1063.1												49.9	4.7				
IA 149	NB	12+00.00	154+01.62	RT		8.0	14201.6												1322.2	9.3				
		Equation: Sta. 154+01.62 (BK) = Sta. 154+00.35 (AHD)																						
IA 149	NB	154+00.35	278+13.53	RT		8.0	12413.2												1155.7	9.3				
		Equation: Sta. 278+13.53 (BK) = Sta. 278+31.91 (AHD)																						
IA 149	NB	278+31.91	375+00.00	RT		8.0	9668.1												900.1	9.3				
IA 149	SB	1+36.90	12+00.00	LT		3.0	1063.1												49.9	4.7				
IA 149	SB	12+00.00	154+01.62	LT		8.0	14201.6												1322.2	9.3				
		Equation: Sta. 154+01.62 (BK) = Sta. 154+00.35 (AHD)																						
IA 149	SB	154+00.35	278+13.53	LT		8.0	12413.2												1155.7	9.3				
		Equation: Sta. 278+13.53 (BK) = Sta. 278+31.91 (AHD)																						
IA 149	SB	278+31.91	375+00.00	LT		8.0	9668.1												900.1	9.3				
Subtotal:																			6855.6					
+15% for irregularities																			1028.3					
Total:																			**7883.9**					

112-10
MODIFIED

MILLED RUMBLE STRIPS

See PV-12 and PV-13.

* Calculated at 18" width for Shoulder.

Location											
Road Identification	Station to Station		Shoulder Pavement Type	Rumble Strip Type (Centerline, Rt or Lt Shoulder)	Length PCC	Length HMA	Fog Seal* (Milled Rumble Strip) Shoulder	Effective Shoulder Width PCC Paved	Effective Shoulder Width HMA Paved	Effective Shoulder Width Granular\ Earth	Remarks
					STA	STA	GAL	FT	FT	FT	
IA 149	12+00.00	154+01.62									
				Centerline		142.0					
	Equation: Sta. 154+01.62 (BK) = Sta. 154+00.35 (AHD)										
	154+00.35	278+13.53		Centerline		124.1					
	Equation: Sta. 278+13.53 (BK) = Sta. 278+38.91 (AHD)										
	278+38.91	375+00.00		Centerline		96.6					
					TOTAL	**362.8**					

102-16
10-21-14

NOTCHES AND RUNOUTS FOR RESURFACING

Refer to PR-201 and PR-202.

(1) Bid item. Applies only to Types 'N1' and 'N3' on PR-202. Refer to 100-25 for remaining values.

Location Station	Type of Notch or Runout	(S)	(I)	(DI)	(L)	(M)	Pavement (1) Scarification	Remarks
		IN	IN	IN	FT	IN	SY	
12+00.00	Type 'N1'	1.0		--	50.0	1.0	133.3	*Hot-In-Place Recycle - B.O.P
375+00.00	Type 'N1'	1.0		--	50.0	1.0	133.3	*Hot-In-Place Recycle - E.O.P
106+62.00 37' Rt	Type 'N1'	1.0		--	25.0	1.0	66.7	*Hot-In-Place Recycle - 180th St
371+84.00 37' Lt	Type 'N1'	1.0		--	25.0	1.0	66.7	*Hot-In-Place Recycle - Main St
TOTAL							400.0	

3R-CULV
Special

DRAINAGE STRUCTURE REPAIR WORK

* Not a bid item
(1) UNCL = Unclassified Pipe CMP = Corrugated Metal Pipe RCP = Reinforced Concrete Pipe LCP = Arch or Elliptical Low Clearance Pipe SARC = Steel Arch Pipe

No.	Location	Size	Kind Of Pipe (1)	Length New Const. Lin. Ft. Lt.	Length New Const. Lin. Ft. Rt.	Connected Pipe Joint* (DR-121, DR-122) Type	New Apron Each Lt.	New Apron Each Rt.	Flow Line Elevations Lt.	Flow Line Elevations Rt.	Remove and Reinstall Pipe Culvert Linear Feet Left Side ≤ 36"	Remove and Reinstall Pipe Culvert Linear Feet Left Side >36"	Remove and Reinstall Pipe Culvert Linear Feet Right Side ≤ 36"	Remove and Reinstall Pipe Culvert Linear Feet Right Side >36"	Remove and Reinstall Apron Each Left Side ≤ 36"	Remove and Reinstall Apron Each Left Side >36"	Remove and Reinstall Apron Each Right Side ≤ 36"	Remove and Reinstall Apron Each Right Side >36"	Class 20 Excavation CY Lt.	Class 20 Excavation CY Rt.	Embankment In-Place CY Lt.	Embankment In-Place CY Rt.	Reshaping Ditch STA Lt.	Reshaping Ditch STA Rt.	Remarks
		IN		Lt.	Rt.	Type	Lt.	Rt.	Lt.	Rt.	≤ 36"	>36"	≤ 36"	>36"	≤ 36"	>36"	≤ 36"	>36"	CY	CY	CY	CY	STA	STA	
1	135+50.0	42	RCP									8		8		1		1							West side separation 1 apron and 1 section pipe, east side separation 1 apron and 1 sect of pipe
2	152+73.0	30	RCP								8				1										West side separation 1 apron and 1 section of pipe
3	168+87.0	30	RCP								8				1										West side separation 1 apron and 1 section pipe
4	175+00.0	30	RCP								8				1		1								West side separation 1 apron and 1 sect pipe, east side separation 1 apron
5	180+00.0	30	RCP														1								East side separation 1 apron
6	233+07.0	30	RCP														1								East side separation 1 apron
7	75+00.0																							0.08	East side culvert to fence 8' X 60'
8	110+60.0																							0.08	East side culvert to fence 8' X 60'
9	160+15.0																						0.08		West side culvert to fence 8' X 60'
10	233+07.0																							0.08	East side culvert to fence 8' X 60'
11	256+90.0																						0.08		West side culvert to fence 8' X 70'
12	285+00.0																						0.08		West side culvert to fence 8' X 40'
13	331+37.0																							0.08	East side culvert to fence 8' X 40'
14	367+77.0																						0.08		West side culvert to west tube 8' X 120'
									Subtotals		24	8		8	3	1	3	1					**0.32**	0.32	
									TOTALS		**≤ 36"**	**24**			**≤ 36"**	**6**									
											>36"	**16**			**>36"**	**2**							**0.64**		

PAVEMENT MARKING LINE TYPES

See PM-110

*BCY4 - Place on the same side of the roadway to match existing markings near the project.
**NPY4 - For estimating purposes only. No Passing Zone Lines will be located in the field.
***MNY4 - Factor of 1.00 as value includes number of 4-inch passes to cover median nose area.

BCY4: Broken Centerline (Yellow) @ 0.25 DCY4: Double Centerline (Yellow) @ 2.00 NPY4: No Passing Zone Line (Yellow) @ 1.25 BLW4: Broken Lane Line (White) @ 0.25 ELW4: Edge Line Right (White) @ 1.00
ELY4: Edge Line Left (Yellow) @ 1.00

Location								Length by Line Type (Unfactored)													Remarks
Road ID	Station to Station		Dir. of Travel	Marking Type	Side			BCY4*	DCY4	NPY4**	BLW4	ELW4	ELY4								
					L	C	R	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	
IA 149	1+36.90	7+18.90	SB	Waterborne/Solvent Paint		X		5.82		5.82											
	7+18.90	31+11.90	BOTH	Waterborne/Solvent Paint		X		23.93													
	31+11.90	37+87.90	NB	Waterborne/Solvent Paint		X		6.76		6.76											
	37+87.90	42+82.90	BOTH	Waterborne/Solvent Paint		X			4.95												
	42+82.90	46+90.90	SB	Waterborne/Solvent Paint		X		4.08		4.08											
	46+90.90	72+45.90	BOTH	Waterborne/Solvent Paint		X		25.55													
	72+45.90	79+98.90	NB	Waterborne/Solvent Paint		X		7.53		7.53											
	79+98.90	85+17.90	BOTH	Waterborne/Solvent Paint		X			5.19												
	85+17.90	94+35.90	SB	Waterborne/Solvent Paint		X		9.18		9.18											
	94+35.90	154+01.62	BOTH	Waterborne/Solvent Paint		X		59.66													
Equation: Sta. 154+01.62(BK) = Sta. 154+00.35(AHD)																					
	154+00.35	181+10.63	BOTH	Waterborne/Solvent Paint		X		27.10													
	181+10.63	188+36.63	NB	Waterborne/Solvent Paint		X		7.26		7.26											
	188+36.63	190+16.63	BOTH	Waterborne/Solvent Paint		X			1.80												
	190+16.63	195+01.63	SB	Waterborne/Solvent Paint		X		4.85		4.85											
	195+01.63	210+96.63	BOTH	Waterborne/Solvent Paint		X		15.95													
	210+96.63	216+83.63	NB	Waterborne/Solvent Paint		X		5.87		5.87											
	216+83.63	218+23.63	BOTH	Waterborne/Solvent Paint		X			1.40												
	218+23.63	222+61.63	SB	Waterborne/Solvent Paint		X		4.38		4.38											
	222+61.63	258+97.63	BOTH	Waterborne/Solvent Paint		X		36.36													
	258+97.63	266+92.63	NB	Waterborne/Solvent Paint		X		7.95		7.95											
	266+92.63	269+21.63	BOTH	Waterborne/Solvent Paint		X			2.29												
	269+21.63	273+00.63	SB	Waterborne/Solvent Paint		X		3.79		3.79											
	273+00.63	278+13.53	BOTH	Waterborne/Solvent Paint		X		5.13													
Equation: Sta. 278+13.53(BK) = Sta. 278+38.91(AHD)																					
	278+38.91	280+56.01	BOTH	Waterborne/Solvent Paint		X		2.17													
	280+56.01	287+71.01	NB	Waterborne/Solvent Paint		X		7.15		7.15											
	287+71.01	289+97.01	BOTH	Waterborne/Solvent Paint		X			2.26												
	289+97.01	296+22.01	SB	Waterborne/Solvent Paint		X		6.25		6.25											
	296+22.01	298+56.01	BOTH	Waterborne/Solvent Paint		X		2.34													
	298+56.01	302+93.01	NB	Waterborne/Solvent Paint		X		4.37		4.37											
	302+93.01	305+76.01	BOTH	Waterborne/Solvent Paint		X			2.83												
	305+76.01	312+61.01	SB	Waterborne/Solvent Paint		X		6.85		6.85											
	312+61.01	359+10.01	BOTH	Waterborne/Solvent Paint		X		46.49													
	359+10.01	364+76.01	NB	Waterborne/Solvent Paint		X		5.66		5.66											
	364+76.01	375+00.00	BOTH	Waterborne/Solvent Paint		X			10.24												
	1+36.90	154+01.52	BOTH	Waterborne/Solvent Paint	X		X					305.30									
Equation: Sta. 154+01.62(BK) = Sta. 154+00.35(AHD)																					
	154+00.35	278+13.53	BOTH	Waterborne/Solvent Paint	X		X					248.26									
Equation: Sta. 278+13.53(BK) = Sta. 278+38.91(AHD)																					
	278+38.91	375+00.00	BOTH	Waterborne/Solvent Paint	X		X					193.22									
				Factored Total: Waterborne/Solvent Paint				85.61	61.92	122.19	-	746.78	-	-	-	-	-	-	-	-	-	
				Bid Quantity: Painted Pavement Markings, Waterborne or Solvent-Based							**1016.50**											

SLIDE REPAIR

Site No.	Location		Side	Boulders Cl. 12 Exc.	Class 10			Class "E" Revetment	Engineering Fabric	Erosion Stone	Gra. Material Blankets & Subdrain	Macadam Stone	Top Soil		Remarks
	Begin Sta.	End Sta.			Contractor Provided	Excavation & Waste	Roadway & Borrow						Furnish & Spread	Strip, Slavage & Spread	
				CY	CY	CY	CY	Tons	SY	Tons	Tons	SY	CY	CY	
1	58+10.00	60+10.00	Rt.			740			1111	912		911			

GEOTECHNICAL 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.

LICENSED PROFESSIONAL ENGINEER
Mark A. Dell
21208
IOWA

Mark A Dell 12/12/18
Signature Date

Mark A. Dell
Printed or Typed Name

My license renewal date is December 31, 20

Pages or sheets covered by this seal: CS.1, Q.1

108-23A
08-01-08

TRAFFIC CONTROL PLAN

Thru traffic will be maintained at all times.

The Contractor shall coordinate with the Engineer for verification of the schedule of the Amish school located at 18669, Hwy. 149.
Lauren Giarmo, District 5 Iowa DOT RCE – Mount Pleasant, Phone: 319-385-2211, Cell: 319-217-9733

Special Events - Keokuk County Fair
July 15-20, 2019

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
			No Restrictions Anticipated									

Slide Repair - IA 149, MP 35.95

From approximate Station 58+10 to Station 60+10 on the east side of IA 149, bench and rebuild the backslope to a 3:1 slope using Erosion Stone underlain by Engineering Fabric.

The Contractor shall exercise caution so as to avoid slope repair activities causing any instability of the existing utility pole.

The repair shall start at the toe of the existing backslope and then extend up-slope to the existing ridge.

Benches shall extend a minimum of 6 feet into the undisturbed backslope.

Benching is recommended to progress at maximum 50-foot increments.

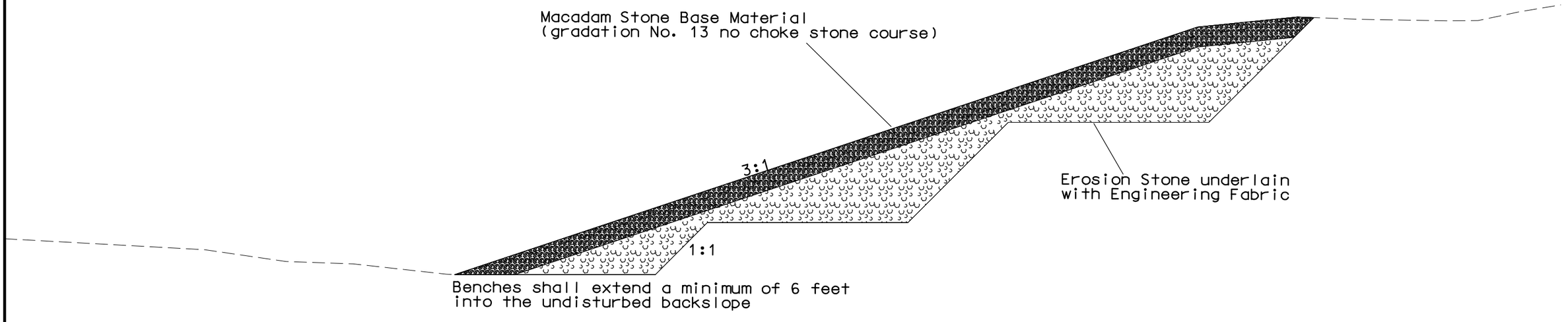
Backfilling shall occur immediately after cutting the benches and placing the Engineering Fabric.

The Erosion Stone shall be capped with a 1-foot thick layer of Macadam Stone Base Material.

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

Clean and reshape the roadside ditch to allow for proper drainage.

Typical not to scale



FILE NO.	ENGLISH	DESIGN TEAM MEGIVERN\DELL\MOYLE	KEOKUK COUNTY	PROJECT NUMBER STP-149-1(84)--2C-54	SHEET NUMBER Q.1

7:29:20 AM 1/9/2019 gmoyle pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5414901017\Soils\54149084_q1.sht

100-1A
07-15-97

ESTIMATED PROJECT QUANTITIES
(1 DIVISION PROJECT)

Item No.	Item Code	Item	Unit	Total	As Built Qty.
1	2601-2640350	SPECIAL DITCH CONTROL, WOOD EXCELSIOR MAT	SQ	44.0	
2	2601-2643110	WATERING FOR SOD, SPECIAL DITCH CONTROL, OR SLOPE PROTECTION	MGAL	8.80	
3	2601-2643300	MOBILIZATION FOR WATERING	EACH	3	
4	2601-2643412	TURF REINFORCEMENT MAT, TYPE 2	SQ	62.0	
5	2601-2700020	TRANSITION MAT	SF	428	
6	2601-3000201	HERBICIDE APPLICATION, CUT STUMP	EACH	1	
7	2602-0000030	SILT FENCE FOR DITCH CHECKS	LF	200.0	
8	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS	LF	200.0	
9	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK	LF	200.0	
10	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.	LF	6,180.0	
11	2602-0000350	REMOVAL OF PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE	LF	6,180.0	
12	2602-0010010	MOBILIZATIONS, EROSION CONTROL	EACH	1	
13	2602-0010020	MOBILIZATIONS, EMERGENCY EROSION CONTROL	EACH	1	

100-4A
10-29-02

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
1	**2601-2640350**	**SPECIAL DITCH CONTROL, WOOD EXCELSIOR MAT**
		Refer to Tab. 100-22 for locations. Refer to Standard Road Plan EC-101.

		Prepare seedbed according to Article 2601.03, B, 4 of the Standard Specifications. Install Wood Excelsior Mat according to Article 2601.03, H, 2, of the Standard Specifications. Seed according to Article 2601.03, H, 2, of the Standard Specifications. Refer to Table 2601.03-8 for seed mixture.
-	-	-
2	**2601-2643110**	**WATERING FOR SOD, SPECIAL DITCH CONTROL, OR SLOPE PROTECTION**
		Estimate for watering Special Ditch Control is based on a total of four waterings at a rate of 50 gallons per square.
-	-	-
3	**2601-2643300**	**MOBILIZATION FOR WATERING**
		Included for 3 waterings of Special Ditch Control and Special Slope Protection areas.
-	-	-
4	**2601-2643412**	**TURF REINFORCEMENT MAT, TYPE 2**
		Refer to Tab. 100-22 on RC Sheets. Refer to Standard Road Plan EC-104.
-	-	-
5	**2601-2700020**	**TRANSITION MAT**
		Refer to Tab. 100-9 on RC Sheets. Refer to Standard Road Plan EC-105.
-	-	-

ROADWAY DESIGN

STATE OF IOWA
Seana K. Godbold
LANDSCAPE ARCHITECT
NO. 508
PROFESSIONAL LANDSCAPE ARCHITECT

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

Signature — Date: 1/24/2019

Seana K. Godbold
Printed or Typed Name

My license renewal date is December 31, 20__

Pages or sheets covered by this seal: RC.1-5 RR.1-14 RU.1-2

FILE NO.	ENGLISH	DESIGN TEAM GODBOLD\BULTMAN\VAN WAUS	KEOKUK COUNTY	PROJECT NUMBER STP-149-1(84)--2C-54	SHEET NUMBER RC.1

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
6	**2601-3000201**	**HERBICIDE APPLICATION, CUT STUMP**
		Coordinate with “Clearing and Grubbing” (Item Code 2101-0850002).
		Refer to 110-17 located in the C sheets.
		Furnish and apply herbicide to cut stumps of cleared trees.
		Includes locating stumps, furnishing and applying herbicide and related activities with no extra compensation allowed.
		TREATMENT No. 1: (0nly for use on stumps that will be treated with herbicide immediately after cutting and temperatures are above freezing).
		Cut stumps to less than 2 inches prior to herbicide application and brush away sawdust from the cut surface. Within 5 minutes of the stump cut, apply triclopyr herbicide. Leave stumps without any additional cutting or grinding for 6 weeks after herbicide treatment to allow time for the herbicide to translocate.
		Use a water-based triethylamine or quaternary ammonium salt formulation of triclopyr herbicide, labeled for use in and around standing water. Mix the herbicide at 3 pounds per gallon acid equivalent (ae) of triclopyr (for example, for products containing 3 pounds per gallon ae of triclopyr, apply undiluted.) Apply the herbicide according to label directions for cut surface treatments, using a brush or directed spray, wetting the outer 2 inches of sapwood and the cambium (the tissue just inside of the bark,) including the entire circumference and any torn bark areas. It is not necessary to treat the bark on the sides of the stump or exposed roots.
		Apply the herbicide mixture according to label directions for cut stump treatment to the outer 2 inches of the cut surface, wetting the sapwood and cambium (the tissue just inside of the bark layer) around the entire circumference, also wetting the sides of the stump to ground line and any exposed roots.
		Cautions: This herbicide is volatile and may cause off-target damage if used when temperatures exceed 85 degrees F. during the three days following application. It is a violation of federal law to apply this herbicide to areas with standing or flowing water. If soil is saturated or there is standing water in the spray area, do not use this treatment.
		Preapproved products:
		Triclopyr herbicide in a water-based formulation:
		Garlon 3A
		NuFarm Tahoe 3A
		Ecotriclopyr
		Vastlan (4 pound per gallon ae)
		Triclopyr herbicide in an oil-soluble formulation:
		Garlon 4 Ultra
		NuFarm Tahoe 4E
		Triclopyr 4EC
		Pathfinder II (Ready-to-use)
		Custom blended pre-mixes must be approved by the Engineer
		Oil carrier
		Bark Oil Blue LT
		Diluent Blue
		Proprietary oil contained in Pathfinder II
		Dye
		Hi-Light Blue
		Red River Marking Dye
		Dye contained in Diluent Blue, Bark
-	-	-
7	**2602-0000030**	**SILT FENCE FOR DITCH CHECKS**
		Refer to Standard Road Plan EC-201.
		Included to address erosion encountered during construction. Verify the specific locations with the Engineer prior to beginning placement.
-	-	-
8	**2602-0000071**	**REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS**
		Removal is 100% of placement.
-	-	-
9	**2602-0000101**	**MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK**
		Maintenance is 100% of placement.
-	-	-

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
10	**2602-0000320**	**PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.**
		Refer to Tab. 100-19 for locations. Refer to Standard Road Plan EC-204.
		Item is included for temporary perimeter sediment control, inlet protection, and water velocity reduction on slopes or ditches at locations to be determined during construction.
		Verify specific locations with the Engineer prior to beginning placement.
		Use Perimeter and Slope Sediment Control Devices fabricated using wood excelsior.
		Refer to Sheets RU.1 and RU.2 for Perimeter and Slope Sediment Control Device Layout for both Type A and Type B.
-	-	-
11	**2602-0000350**	**REMOVAL OF PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE**
		Removal is 100% of placement. Refer to Tab. 100-19 for locations.
-	-	-
12	**2602-0010010**	**MOBILIZATIONS, EROSION CONTROL**
		- -
-	-	-
13	**2602-0010020**	**MOBILIZATIONS, EMERGENCY EROSION CONTROL**
		- -
-	-	-

STANDARD ROAD PLANS

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

Number	Date	Title
EC-101	04-19-16	Wood Excelsior Mat for Ditch Protection
EC-104	04-17-18	Turf Reinforced Mat (TRM)
EC-105	04-17-18	Transition Mat
EC-201	10-16-18	Silt Fence
EC-204	04-18-17	Perimeter and Slope Sediment Control Devices
EC-502	04-21-15	Seeding in Rural Areas

INDEX OF TABULATIONS

POLLUTION PREVENTION PLAN

This project is regulated by the requirements of the Iowa Department of Natural Resources (DNR) National Pollutant Discharge Elimination System (NPDES) General Permit No. 2 OR an Iowa Department of Natural Resources (DNR) National Pollutant Discharge Elimination System (NPDES) individual storm water permit. The Contractor shall carry out the terms and conditions of this permit and the Pollution Prevention Plan (PPP).

This Base PPP includes information on Roles and Responsibilities, Project Site Description, Controls, Maintenance Procedures, Inspection Requirements, Non-Storm Water Controls, Potential Sources of Off Right-of-Way Pollution, and Definitions. This plan references other documents rather than repeating the information contained in the documents. A copy of this Base Pollution Prevention Plan, amended as needed per plan revisions or by contract modification, will be readily available for review.

All contractors shall conduct their operations in a manner that controls pollutants, minimizes erosion, and prevents sediments from entering waters of the state and leaving the highway right-of-way. The prime contractor shall be responsible for compliance and implementation of the PPP for their entire contract. This responsibility shall be further shared with subcontractors whose work is a source of potential pollution as defined in this PPP.

I. ROLES AND RESPONSIBILITES

A. Designer:
1. Prepares Base PPP included in the project plan.
2. Prepares Notice of Intent (NOI) submitted to Iowa DNR.
3. Is signature authority on the Base PPP.

B. Contractor:
1. Signs a co-permittee certification statement adhering to the requirements of the NPDES permit and this PPP. All co-permittees are legally required under the Clean Water Act and the Iowa Administrative Code to ensure compliance with the terms and conditions of this PPP.
2. Designates a Water Pollution Control Manager (WPCM), who has the duties and responsibilities as defined in Section 2602 of the Standard Specifications.
3. Submits an Erosion Control Implementation Plan (ECIP) and ECIP updates according to Section 2602 of the Standard Specifications.
4. Installs and maintains appropriate controls. This work may be subcontracted.
5. Supervises and implements good housekeeping practices.
6. Conducts joint required inspections of the site with inspection staff. When Contractor is not mobilized on site, Contractor may delegate this responsibility to a trained or certified subcontractor. Contracting Authority also may waive joint inspection requirement during winter shutdown. In both circumstances, WPCM (or trained or certified delegate from the Contractor) is still responsible to review and sign inspection reports.
7. Complies with training and certification requirements of Section 2602 of the Standard Specifications.

C. Subcontractors:
1. Sign a co-permittee certification statement adhering to the requirements of the NPDES permit and this PPP if responsible for sediment or erosion controls or involved in land disturbing activities. All co-permittees are legally required under the Clean Water Act and the Iowa Administrative Code to ensure compliance with the terms and conditions of this PPP.
2. Implement good housekeeping practices.

D. RCE/Project Engineer:
1. Is Project Storm Water Manager.
2. On projects where DOT is the Contracting Authority, is current with erosion control training or certification.
3. Takes actions necessary to ensure compliance with storm water requirements including, where appropriate, issuing stop work orders, and directing additional inspections at construction project sites that are experiencing problems with achieving permit compliance.
4. Orders the taking of measures to cease, correct, prevent, or minimize the consequences of non-compliance with the storm water requirements of the Applicable Permit.
5. Supervises all work necessary to meet storm water requirements at the Project, including work performed by contractors and subcontractors.
6. Requires employees, contractors, and subcontractors to take appropriate responsive action to comply with storm water requirements, including requiring any such person to cease or correct a violation of storm water requirements, and to order or recommend such other actions as necessary to meet storm water requirements.
7. Is familiar with the Project PPP and storm water site map.
8. On projects where DOT is Contracting Authority, is responsible for monitoring inspection reports on a monthly basis, to determine whether deficiencies identified in inspection reports were adequately and timely addressed, and if not, has the authority and responsibility to direct immediate actions to correct the deficiencies.
9. Is the point of contact for the Project for regulatory officials, Inspector, contractors, and subcontractors regarding storm water requirements.
10. Is signature authority on Notice of Discontinuation.

E. Inspector:
1. Updates PPP whenever there is a change in design, construction, operation, or maintenance which has a significant effect on the discharge of pollutants from the project.
2. Maintains an up-to-date record that identifies contractors and subcontractors as co-permittees.
3. Makes these plans available to the DNR upon their request.
4. Conducts joint required inspections of the site with the contractor/subcontractor.
5. Completes an inspection report after each inspection.
6. Is signature authority on storm water inspection reports.

II. PROJECT SITE DESCRIPTION

A. This Pollution Prevention Plan (PPP) is for the construction of a HMA resurfacing project on IA 149 from IA 92 to IA 22 ending in the town of Webster.

B. This PPP covers approximately 128.91 acres with an estimated 20.53 acres being disturbed. The portion of the PPP covered by this contract has 20.53 acres disturbed.

C. The PPP is located in an area of Otley-Ladoga soil association. The estimated weighted average runoff coefficient number for this PPP after completion will be 0.33.

D. Storm Water Site Map is located in the R sheets. Proposed slopes are shown in cross sections, details, or standard road plans. Supplemental information is located in the Tabulations in the C or CE sheets.

E. The base storm water site map is amended by contract modifications and progress payments (fieldbook entries) of completed erosion control work. Also, due to project phasing, erosion and sediment controls shown on project plans may not be installed until needed, based on site conditions. For example, silt fence ditch checks will typically not be installed until the ditch has been installed. Installed locations may also be modified from tabulation locations by field staff. Installed locations will be documented by fieldbook entries.

F. Runoff from this work will flow into Bridge Creek.

110-12
04-16-19

POLLUTION PREVENTION PLAN

III. CONTROLS

A. The Contractor’s ECIP specified in Article 2602.03 of the Standard Specifications for accomplishment of storm water controls should clearly describe the intended sequence of major activities, and for each activity define the control measure and the timing during the construction process that the measure will be implemented.

B. Preserve vegetation in areas not needed for construction.

C. Sections 2601 and 2602 of the Standard Specifications define requirements to implement erosion and sediment control measures. Actual quantities used and installed locations may vary from the Base PPP and amendment of the plan will be documented via fieldbook entries or by contract modification. Additional erosion and sediment control items may be required as determined by the inspector and/or contractor during storm water monitoring inspections. If the work involved is not applicable to any contract items, the work will be paid for according to Article 1109.03 paragraph B of the Standard Specifications.

1. EROSION AND SEDIMENT CONTROLS

a. Stabilization Practices
1) Site plans will ensure that existing vegetation or natural buffers are preserved where attainable and disturbed portions of the site will be stabilized.
2) Initialize stabilization of disturbed areas immediately after clearing, grading, excavating, or other earth disturbing activities have:
a) Permanently ceased on any portion of the site, or
b) Temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days.
3) Staged permanent and/or temporary stabilizing seeding and mulching shall be completed as the disturbed areas are completed. Incomplete areas shall be stabilized according to paragraph III, C, 1, a, 2, b above.
4) Permanent and Temporary Stabilization practices to be used for this project are located in the storm water site map (when included), Estimated Project Quantities (100-0A, 100-1A, or 100-1C), and Estimate Reference Information (100-4A) located in the C sheets. Typical drawings detailing construction of the practices to be used on this project are referenced in the Standard Road Plans Tabulation (105-4) in the C sheets.
5) Preservation of existing vegetation within right-of-way or easements will act as vegetative buffer strips.
6) Preservation of topsoil: Bid items to be used for this project are located in the Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located in the C sheets. Additional information may be found in the Tabulations in the C or T Tabulation sheets, or is referenced in Section 2105 of the Standard Specifications.

b. Structural Practices
1) Structural practices will be implemented to divert flows from exposed soils and detain or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Additionally, structural practices may include: silt basins that provide 3600 cubic feet of storage per acre drained or equivalent sediment controls, outlet structures that withdraw water from surface when discharging basins, and controls to direct storm water to vegetated areas.
2) Structural practices to be used for this project are located in the storm water site map (when included), Estimated Project Quantities (100-0A, 100-1A, or 100-1C), and Estimate Reference Information (100-4A) located in the C sheets, as well as all other item specific Tabulations. Typical drawings detailing construction of the devices to be used on this project can be found on the B sheets or are referenced in the Standard Road Plans Tabulation (105-4) located in the C sheets.

c. Storm Water Management
1) Measures shall be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. This may include velocity dissipation devices at discharge locations and along length of outfall channel as necessary to provide a non-erosion velocity flow from structure to water course. If included with this project, these items are located in the storm water site map (when included) and Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located in the C sheets, as well as all other item specific Tabulations. Typical drawings detailing construction of the practices to be used on this project are referenced in the Standard Road Plans Tabulation. The installation of these devices may be subject to Section 404 of the Clean Water Act.

2. OTHER CONTROLS

a. Contractor disposal of unused construction materials and construction material wastes shall comply with applicable state and local waste disposal, sanitary sewer, or septic system regulations. In the event of a conflict with other governmental laws, rules and regulations, the more restrictive laws, rules or regulations shall apply.
1) Vehicle Entrances and Exits - Construct and maintain entrances and exits to prevent tracking of sediments onto roadways.
2) Material Delivery, Storage and Use - Implement practices to prevent discharge of construction materials during delivery, storage, and use.
3) Stockpile Management - Install controls to reduce or eliminate pollution of storm water from stockpiles of soil and paving.
4) Waste Disposal - Do not discharge any materials, including building materials, into waters of the state, except as authorized by a Section 404 permit.
5) Spill Prevention and Control - Implement chemical spill and leak prevention and response procedures to contain and clean-up spills and prevent material discharges to the storm drain system and waters of the state.
6) Concrete Residuals and Washout Wastes - Waste shall not be discharged to a surface water and is not allowed to adversely affect a water of the state. Designate temporary concrete washout facilities for rinsing out concrete trucks. Provide directions to truck drivers where designated washout facilities are located. Designated washout areas should be located at least 50 feet away from storm drains, streams or other water bodies. Care should be taken to ensure these facilities do not overflow during storm events.
7) Concrete Grooving/Grinding Slurry – Do not discharge slurry to a waterbody or storm drain. Slurry may be applied on foreslopes or removed from the project.
8) Vehicle and Equipment Storage and Maintenance Areas - Perform on site fueling and maintenance in accordance with all environment laws such as proper storage of onsite fuels and proper disposal of used engine oil or other fluids on site. Employ washing practices that prevent contamination of surface and ground water from wash water. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge.
9) Litter Management - Ensure employees properly dispose of litter. Minimize exposure of trash if exposure to precipitation or storm water would result in a discharge of pollutants.
10) Dewatering – Properly treat water to remove suspended sediment before it re-enters a waterbody or discharges off-site. Measures are also to be taken to prevent scour erosion at dewatering discharge point.

3. APPROVED STATE OR LOCAL PLANS
During the course of this construction, it is possible that situations will arise where unknown materials will be encountered. When such situations are encountered, they will be handled according to all federal, state, and local regulations in effect at the time.

IV. MAINTENANCE PROCEDURES

The Contractor is required to maintain all temporary erosion and sediment control measures in proper working order, including cleaning, repairing, or replacing them throughout the contract period. This shall begin when the features have lost 50% of their capacity.

110-12
04-16-19

POLLUTION PREVENTION PLAN

V. INSPECTION REQUIREMENTS
A. Inspections shall be made jointly by the Contractor and the Contracting Authority at least once every seven calendar days. Storm water monitoring inspections will include:
1. Date of the inspection.
2. Summary of the scope of the inspection.
3. Name and qualifications of the personnel making the inspection.
5. Review of erosion and sediment control measures within disturbed areas for the effectiveness in preventing impacts to receiving waters.
6. Major observations related to the implementation of the PPP.
7. Identification of corrective actions required to maintain or modify erosion and sediment control measures.
B. Include storm water monitoring inspection reports in the Amended PPP. Incorporate any additional erosion and sediment control measures determined as a result of the inspection. Immediately begin corrective actions on all deficiencies found within 3 calendar days of the inspection and complete within 7 calendar days following the inspection. If it is determined that making the corrections less than 72 hours after the inspection is impracticable, it should be documented why it is impracticable and indicate an estimated date by which the corrections will be made.

VI. NON-STORM WATER DISCHARGES
This includes subsurface drains (i.e. longitudinal and standard subdrains) and slope drains. The velocity of the discharge from these features may be controlled by the use of headwalls or blocks, Class A stone, erosion stone or other appropriate materials. This also includes uncontaminated groundwater from dewatering operations, which will be controlled as discussed in Section III of the PPP.

VII. POTENTIAL SOURCES OF OFF RIGHT-OF-WAY (ROW) POLLUTION
Silts, sediment, and other forms of pollution may be transported onto highway right-of-way (ROW) as a result of a storm event. Potential sources of pollution located outside highway ROW are beyond the control of this PPP. Pollution within highway ROW will be conveyed and controlled per this PPP.

VIII. DEFINITIONS
A. Base PPP - Initial Pollution Prevention Plan.
B. Amended PPP - May include Plan Revisions or Contract Modifications for new items, storm water monitoring inspection reports, and fieldbook entries made by the inspector.
C. IDR - Inspector's Daily Report – this contains the inspector's daily diary and bid item postings.
D. Controls - Methods, practices, or measures to minimize or prevent erosion, control sedimentation, control storm water, or minimize contaminants from other types of waste or materials. Also called Best Management Practices (BMPs).
E. Signature Authority - Representative authorized to sign various storm water documents.

CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature

Seana K. Godbold
Print Name

281-3
10-17-17

STORM WATER BEST MANAGEMENT PRACTICES

Storm water storage volumes were not calculated for this project. The following best management practices are used in place of storm water detention:
Undisturbed foreslopes and ditches will act as vegetated buffers.
Silt fence is placed downstream of disturbed areas in ditches where drainage leaves the ROW and at roadway culverts.

232-3A
04-16-19

EROSION CONTROL (RURAL SEEDING)

Following the completion of work in a disturbed area and according to the seeding dates in Section 2601 of the Standard Specifications, place seed, fertilizer, and mulch on the disturbed area lying 8 feet adjacent to shoulder and median as follows:

Place seed and fertilize according to the requirements of Article 2601.03,C,3 and Section 4169 of the Standard Specifications.

Place mulch according to the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

Preparing the seedbed, furnishing and applying seed, fertilizer, and mulch are all incidental to mobilization and will not be paid for separately.

232-10
04-18-17

EMERALD ASH BORER

Any living, dead, cut or fallen material of the ash (Fraxinus spp.) including trees, nursery stock, logs, firewood, stumps, roots, branches, and composted or uncomposted ash chips can be freely moved within the yellow areas of the most recent Federal EAB Quarantine & Authorized Transit.

https://www.aphis.usda.gov/plant_health/plant_pest_info/emerald_ash_b/downloads/eab_quarantine_map.pdf.

Obtain appropriate Compliance Agreements from USDA APHIS PPQ prior to moving any of the above listed ash articles to areas outside the yellow zone on the map.

For questions, concerns, and general assistance, contact:

USDA APHIS PPQ, Iowa office, 515-414-3295

Or

Iowa Department of Agriculture & Land Stewardship
515-725-1470
Entomology@IowaAgriculture.gov

100-09
04-17-18

TRANSITION MAT

Refer to EC-105

Location Station	Side	Length LF	Width LF	Area SF	Remarks
65+38.00	Lt	38	6	228	See 100-22 Pipe to pipe
67+86.00	Lt	20	6	120	24" oulet
69+20.00	Lt	20	4	80	8" outlet
Total				**428**	

100-19
04-19-16

PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE

Possible Standards: EC-204

Location			Length of Installation			Remarks
Begin Station	End Station	Side	9 inch Dia	12 inch Dia	20 inch Dia	
			LF	LF	LF	
2+40.00	2+40.00	Lt.			240.0	
16+30.00	16+30.00	Lt.			240.0	
31+00.00	31+00.00	Lt.			240.0	
48+50.00	48+50.00	Lt.			240.0	
64+60.00	64+60.00	Lt.			240.0	
75+05.00	75+05.00	Rt.			140.0	
99+90.00	99+90.00	Rt.			140.0	
111+25.00	111+25.00	Rt.			140.0	
120+10.00	120+10.00	Rt.			140.0	
123+60.00	123+60.00	Rt.			140.0	
135+50.00	135+50.00	Lt.			140.0	
153+00.00	153+00.00	Rt.			140.0	
160+00.00	160+00.00	Lt.			140.0	
169+90.00	169+90.00	Lt.			240.0	
171+80.00	171+80.00	Lt.			140.0	
174+95.00	174+95.00	Lt.			140.0	
180+40.00	180+40.00	Rt.			140.0	
198+80.00	198+80.00	Rt.			40.0	
206+50.00	206+50.00	Rt.			40.0	
212+00.00	212+00.00	Lt.			240.0	
226+20.00	226+20.00	Rt.			140.0	
233+10.00	233+10.00	Rt.			140.0	
257+20.00	257+20.00	Lt.			240.0	
271+30.00	271+30.00	Lt.			40.0	
275+20.00	275+20.00	Lt.			240.0	
285+00.00	285+00.00	Lt.			140.0	
298+10.00	298+10.00	Lt.			140.0	
303+80.00	303+80.00	Lt.			240.0	
322+10.00	322+10.00	Lt.			240.0	
325+20.00	325+20.00	Lt.			240.0	
331+50.00	331+50.00	Lt.			240.0	
339+60.00	339+60.00	Lt.			140.0	
344+20.00	344+20.00	Lt.			140.0	
350+30.00	350+30.00	Lt.			140.0	
355+30.00	355+30.00	Lt.			140.0	
367+50.00	367+50.00	Lt.			140.0	
371+00.00	371+00.00	Lt.			140.0	
Total					**6180.0**	

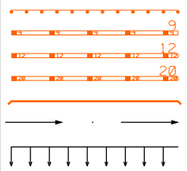
100-22
04-21-15

ROLLED EROSION CONTROL

Refer to EC-101, EC-103 and EC-104

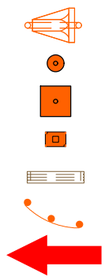
Location				(L)	(W)	Turf Reinforcement Mat (TRM) (EC-104)				Slope Protection (EC-103)	Special Ditch Control (EC-101)	Remarks
Road Identification	Begin Station	End Station	Side			Type 1	Type 2	Type 3	Type 4			
				FT	FT	Squares	Squares	Squares	Squares	Squares	Squares	
Ia 149	75+00.00	75+00.00	Rt.	24	20						5	
Ia 149	110+60.00	110+60.00	Rt.	24	20						5	
Ia 149	160+15.00	160+15.00	Lt.	24	20						5	
Ia 149	233+07.00	233+07.00	Rt.	24	20						5	
Ia 149	256+90.00	256+90.00	Lt.	28	20						6	
Ia 149	285+00.00	285+00.00	Lt.	16	20						4	
Ia 149	331+37.00	331+37.00	Rt.	16	20						4	
Ia 149	367+77.00	367+77.00	Lt.	48	20						10	
Ia 149, MP 36.03	65+00.00	65+38.00	Lt.	38	6		2					Also see Tab 100-9
Ia 149, MP 36.03+	66+40.00	69+20.00	Lt.	300	20		60					Also see Tab 100-9 and 100-23
Total							**62**				**44**	

LINE STYLE LEGEND OF EROSION CONTROL SHEETS



Silt Fence
Perimeter and Slope Sediment Control Device (9")
Perimeter and Slope Sediment Control Device (12")
Perimeter and Slope Sediment Control Device (20")
Open-Throat Curb Intake Sediment Filter
Concentrated Flow
Sheet Flow

CELL LEGEND OF EROSION CONTROL SHEETS



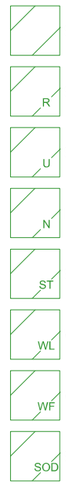
Temporary Sediment Control basin
Erosion Control for Circular Intake or Manhole Well
Erosion Control for Rectangular Intake or Manhole Well
Grate Intake Sediment Filter Bag
Silt Basin
Silt Fence Tail
Stormwater Drainage Basin Discharge Point

PLAN VIEW COLOR LEGEND OF EROSION CONTROL 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	STP-149-1(84)--2C-54
Black	(Ø)	Permanent Erosion Control Features	
Blaze Orange	(222)	Temporary Erosion Control Features	

SHADING	Design Color No.		Transparency
Citron	(234)	Mulching, All Types	50%
Light Brown	(238)	Special Ditch Control, Wood Excelsior Mat	Ø%

PATTERN LEGEND OF EROSION CONTROL SHEETS



Seeding and Fertilizing
Seeding and Fertilizing (Rural)
Seeding and Fertilizing (Urban)
Native Grass Seeding
Salt Tolerant Seeding
Wetland Grass Seeding
Wildflower Seeding
Sodding

Turf Reinforcement Mat Type 1
Turf Reinforcement Mat Type 2
Turf Reinforcement Mat Type 3
Turf Reinforcement Mat Type 4
Slope Protection, Wood Excelsior Mat
Transition Mat
Rock Features, Permanent
Rock Features, Temporary

EROSION CONTROL LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES R)

FILE NO.	ENGLISH	DESIGN TEAM **GODBOLD \ VAN WAUS \ BULTMAN**	**KEOKUK** COUNTY	PROJECT NUMBER **STP-149-1(84)--2C-54**	SHEET NUMBER **RR.1**

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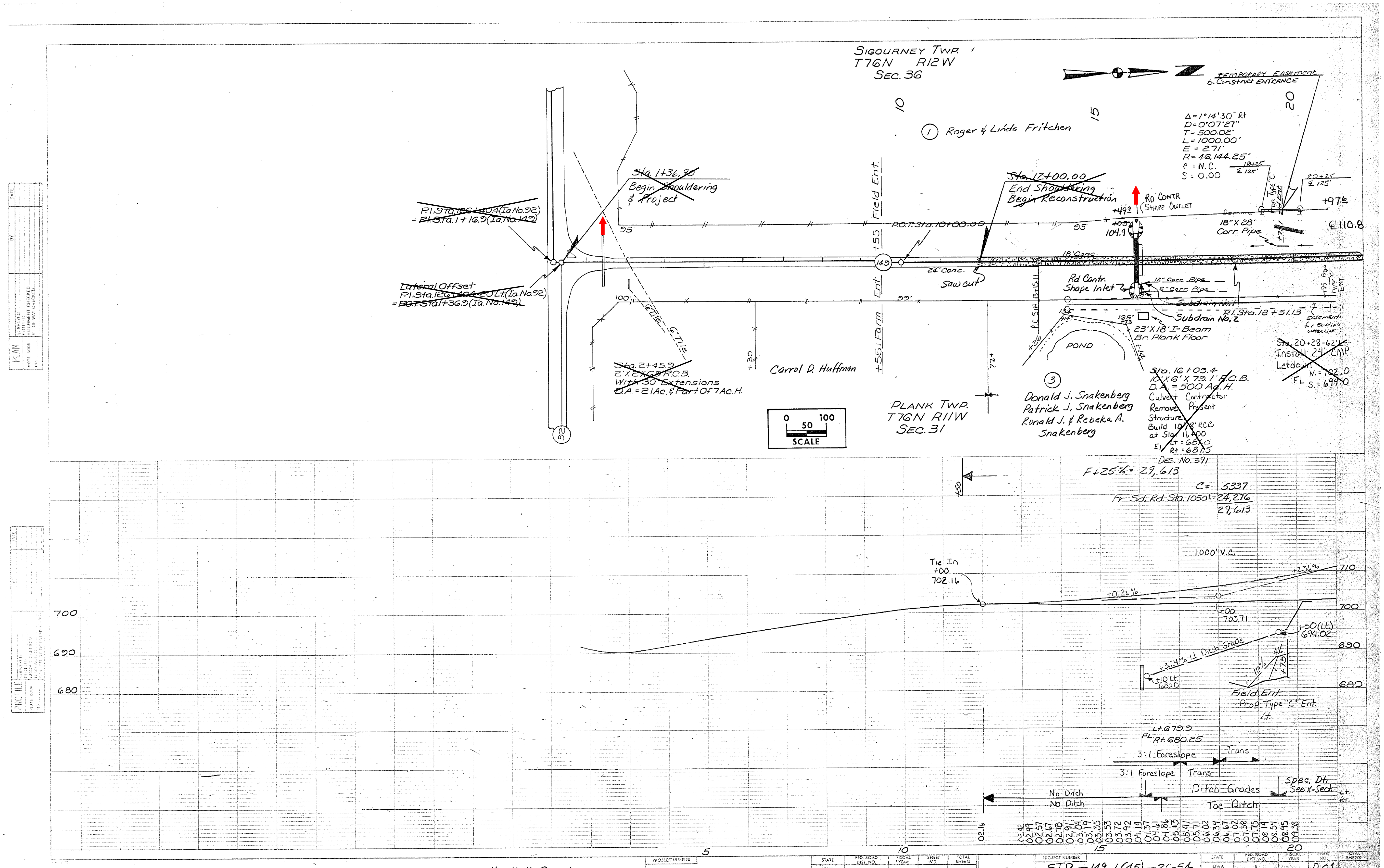

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For Information Only

FILE NO.	ENGLISH	DESIGN TEAM GODBOLD \ VAN WAUS \ BULTMAN	KEOKUK COUNTY	PROJECT NUMBER STP-149-1(84)--2C-54	SHEET NUMBER RR.2

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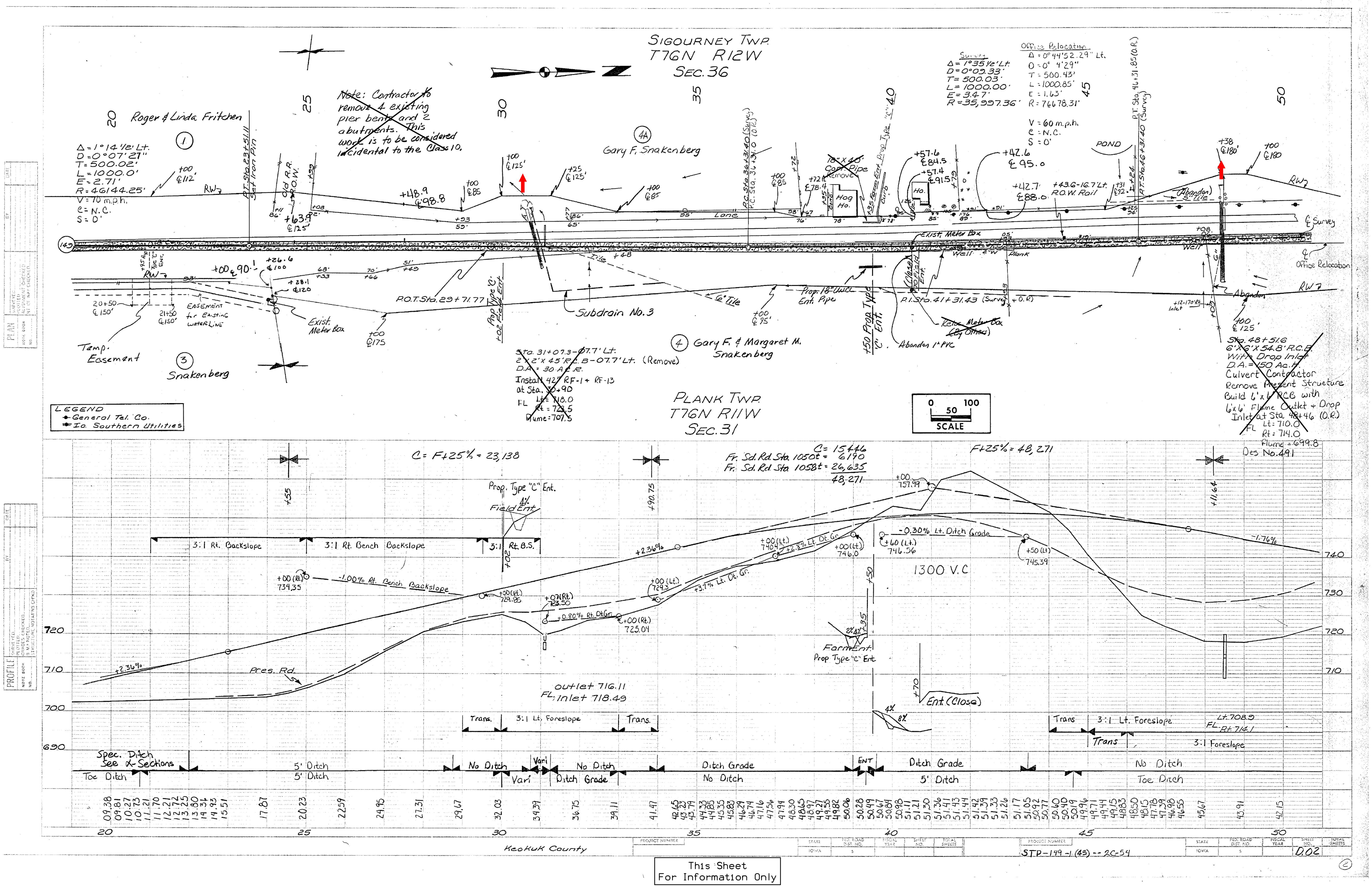

FILE NO.	ENGLISH	DESIGN TEAM GODBOLD \ VAN WAUS \ BULTMAN	KEOKUK COUNTY	PROJECT NUMBER STP-149-1(84)--2C-54	SHEET NUMBER RR.3

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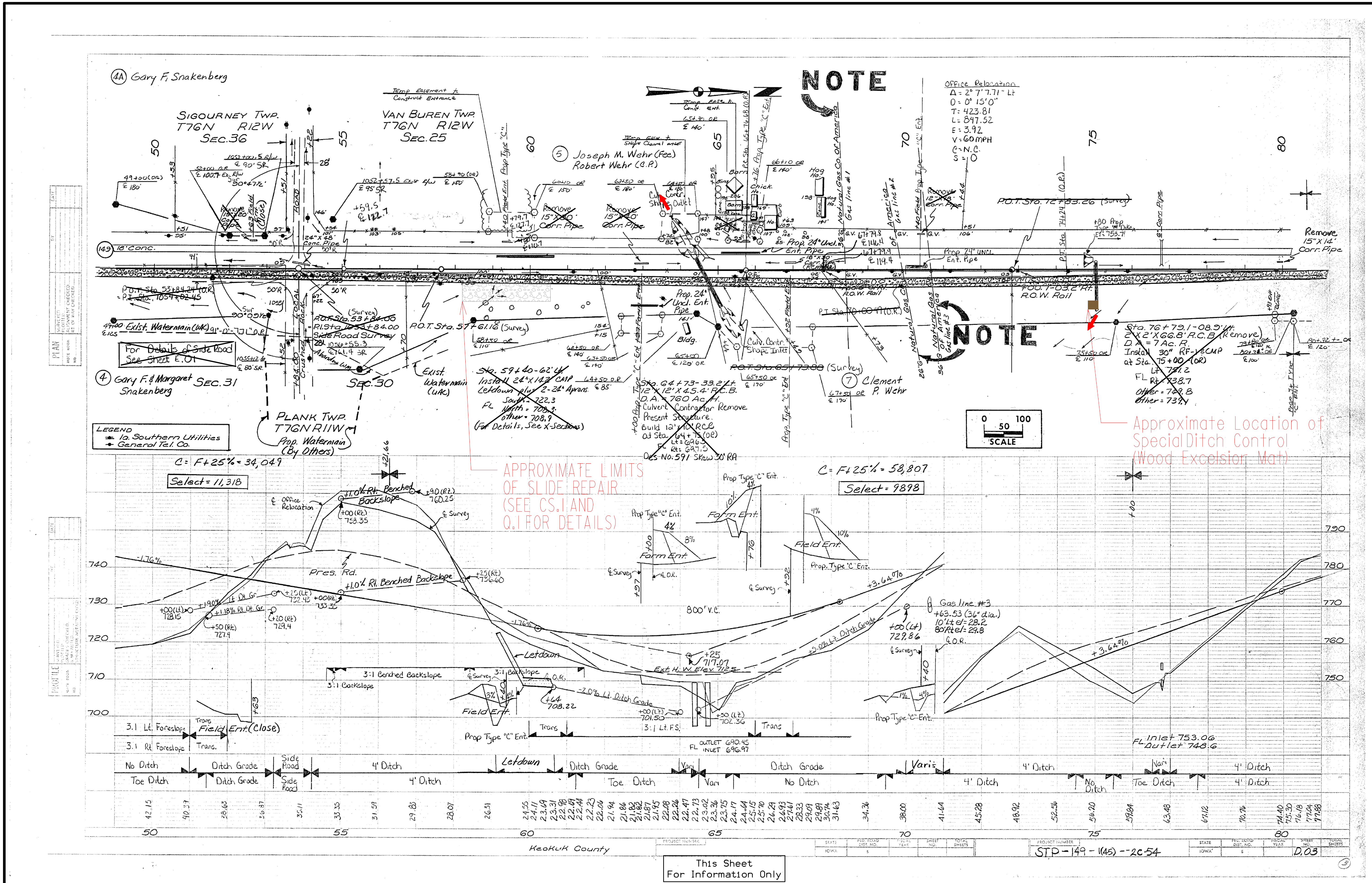

FILE NO.	ENGLISH	DESIGN TEAM GODBOLD \ VAN WAUS \ BULTMAN	KEOKUK COUNTY	PROJECT NUMBER STP-149-1(84)--2C-54	SHEET NUMBER RR.4

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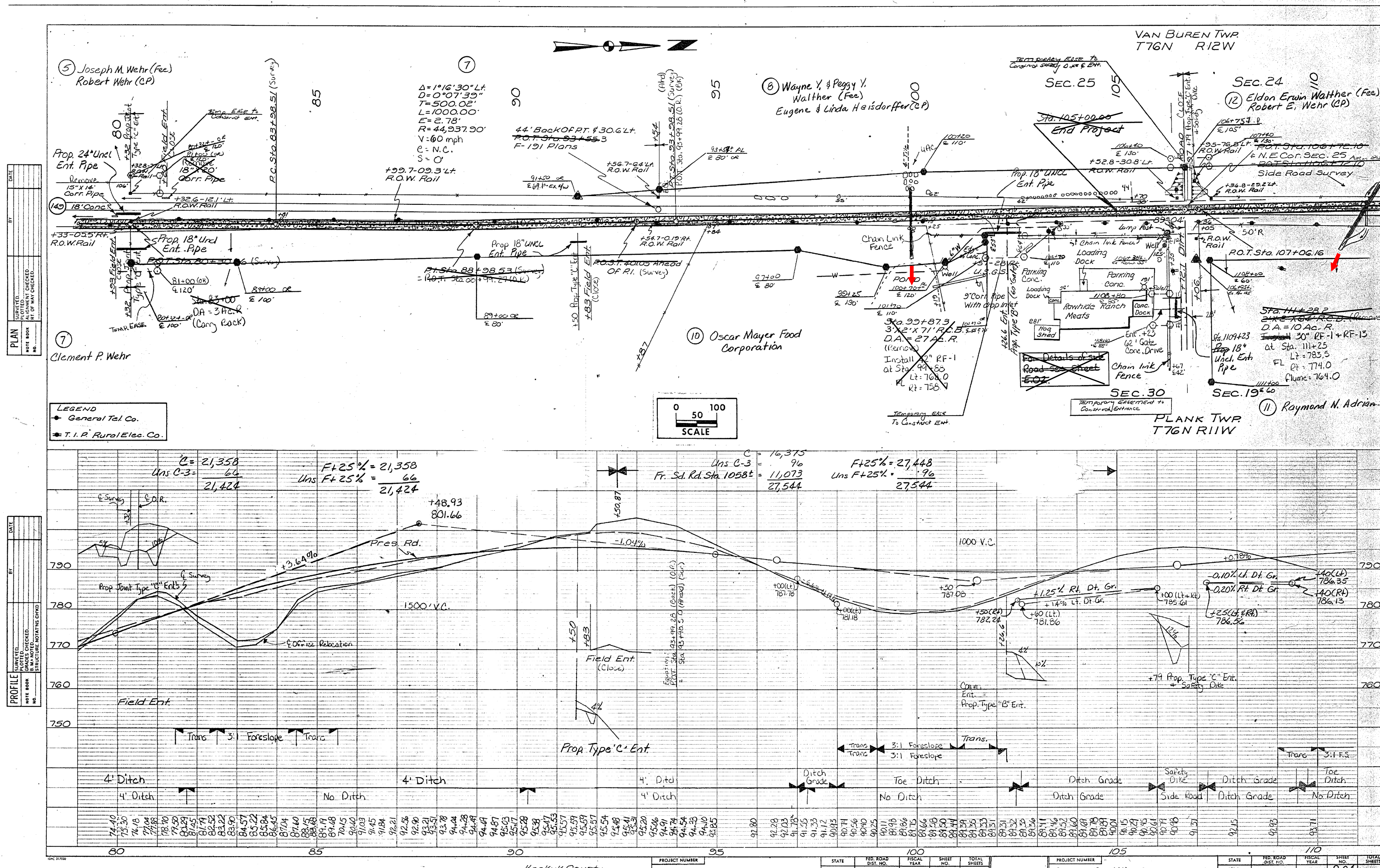

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For Information Only

FILE NO.	ENGLISH	DESIGN TEAM GODBOLD \ VAN WAUS \ BULTMAN	KEOKUK COUNTY	PROJECT NUMBER STP-149-1(84)--2C-54	SHEET NUMBER RR.5

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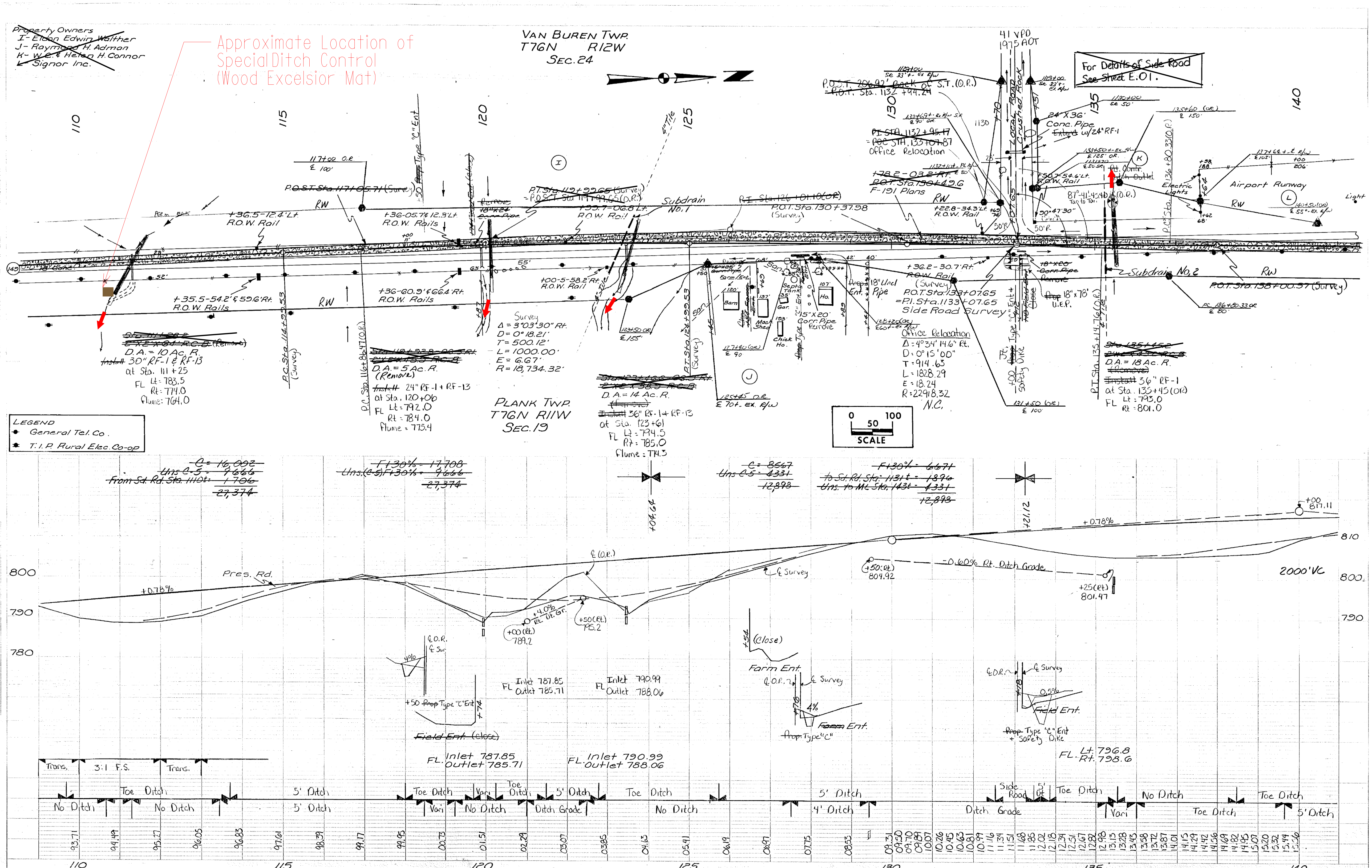

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For Information Only

FILE NO.	ENGLISH	DESIGN TEAM GODBOLD \ VAN WAUS \ BULTMAN	KEOKUK COUNTY	PROJECT NUMBER STP-149-1(84)--2C-54	SHEET NUMBER RR.6

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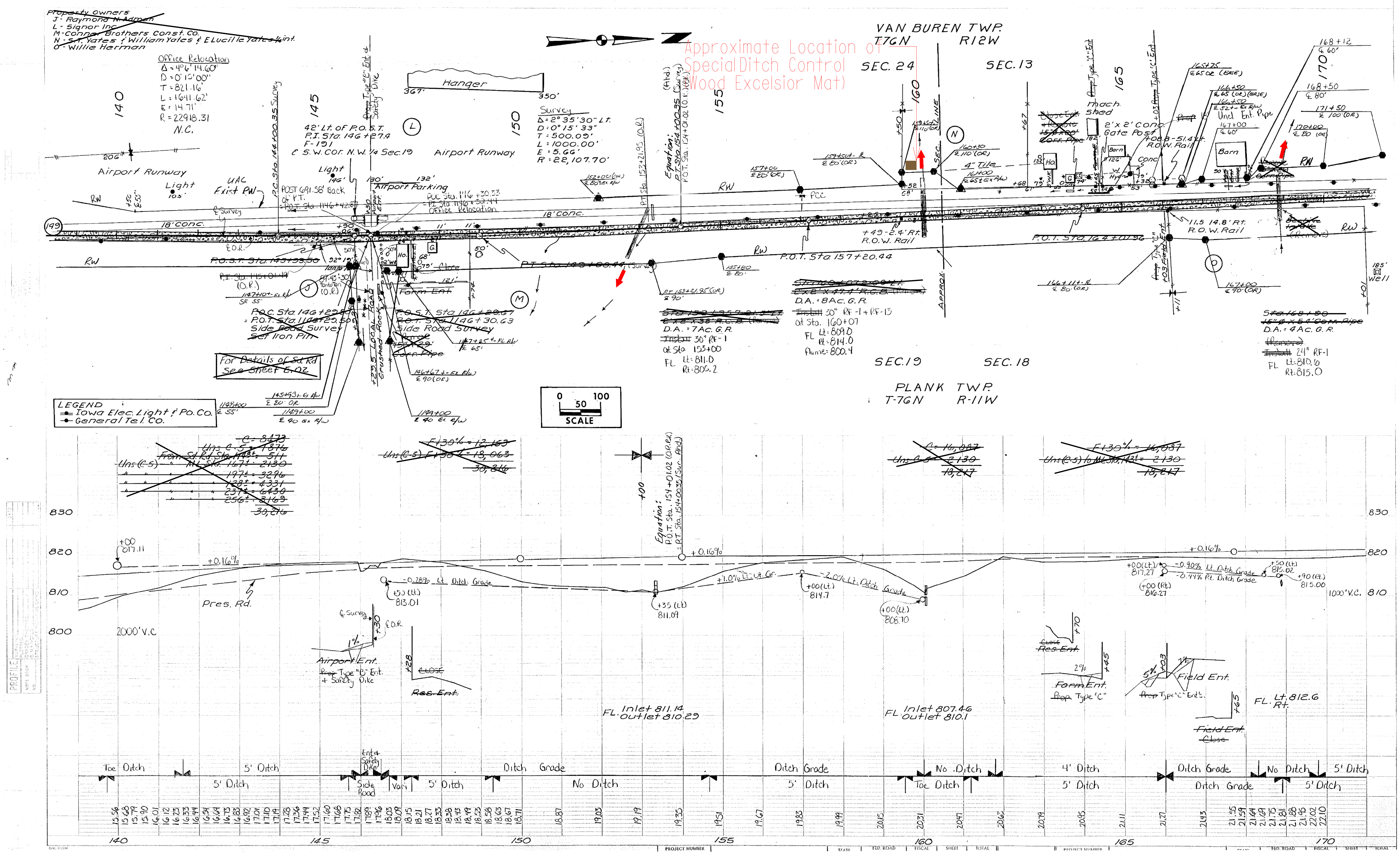

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For Information Only

FILE NO.	ENGLISH	DESIGN TEAM GODBOLD \ VAN WAUS \ BULTMAN	KEOKUK COUNTY	PROJECT NUMBER STP-149-1(84)--2C-54	SHEET NUMBER RR.7

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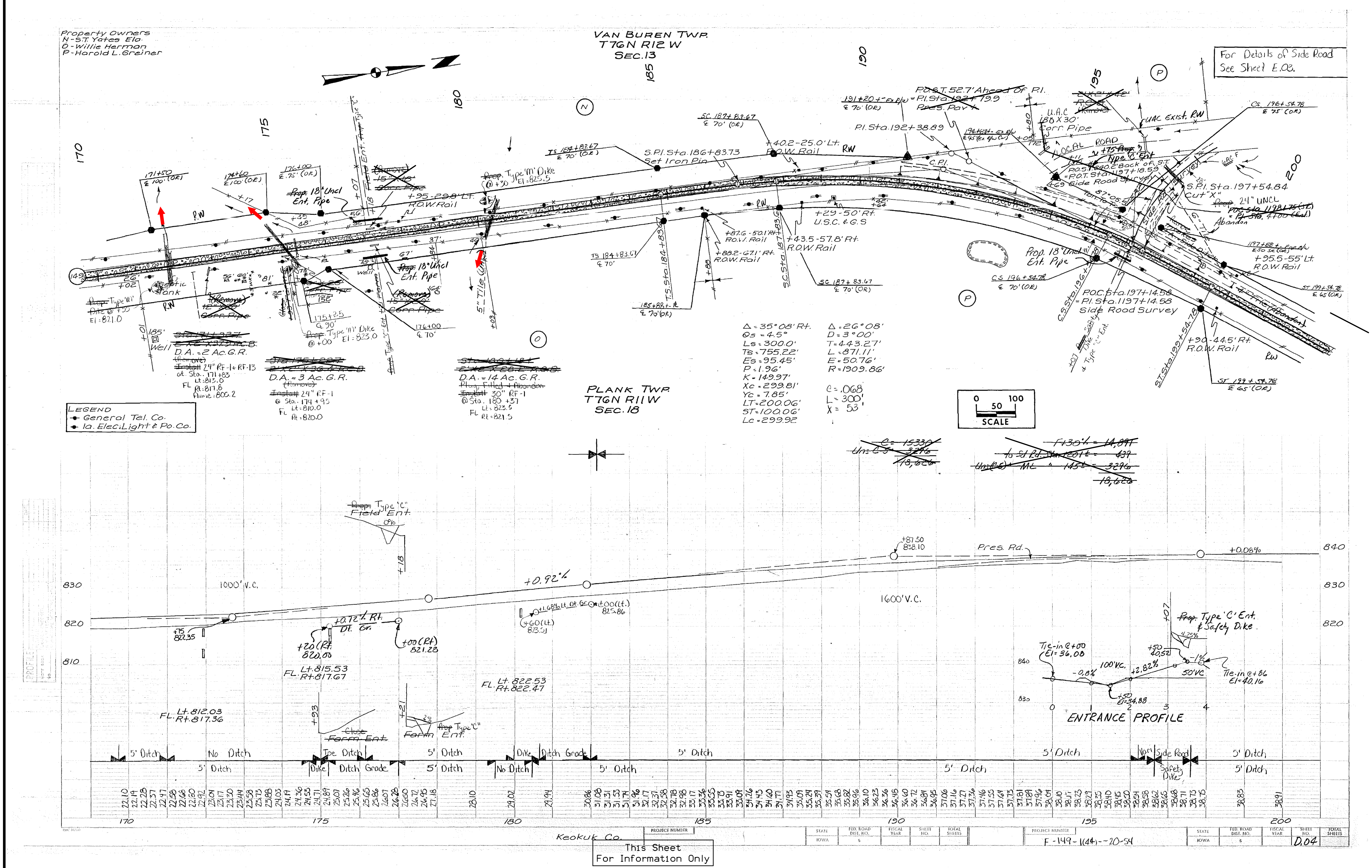

FILE NO.	ENGLISH	DESIGN TEAM GODBOLD \ VAN WAUS \ BULTMAN	KEOKUK COUNTY	PROJECT NUMBER STP-149-1(84)--2C-54	SHEET NUMBER RR.8

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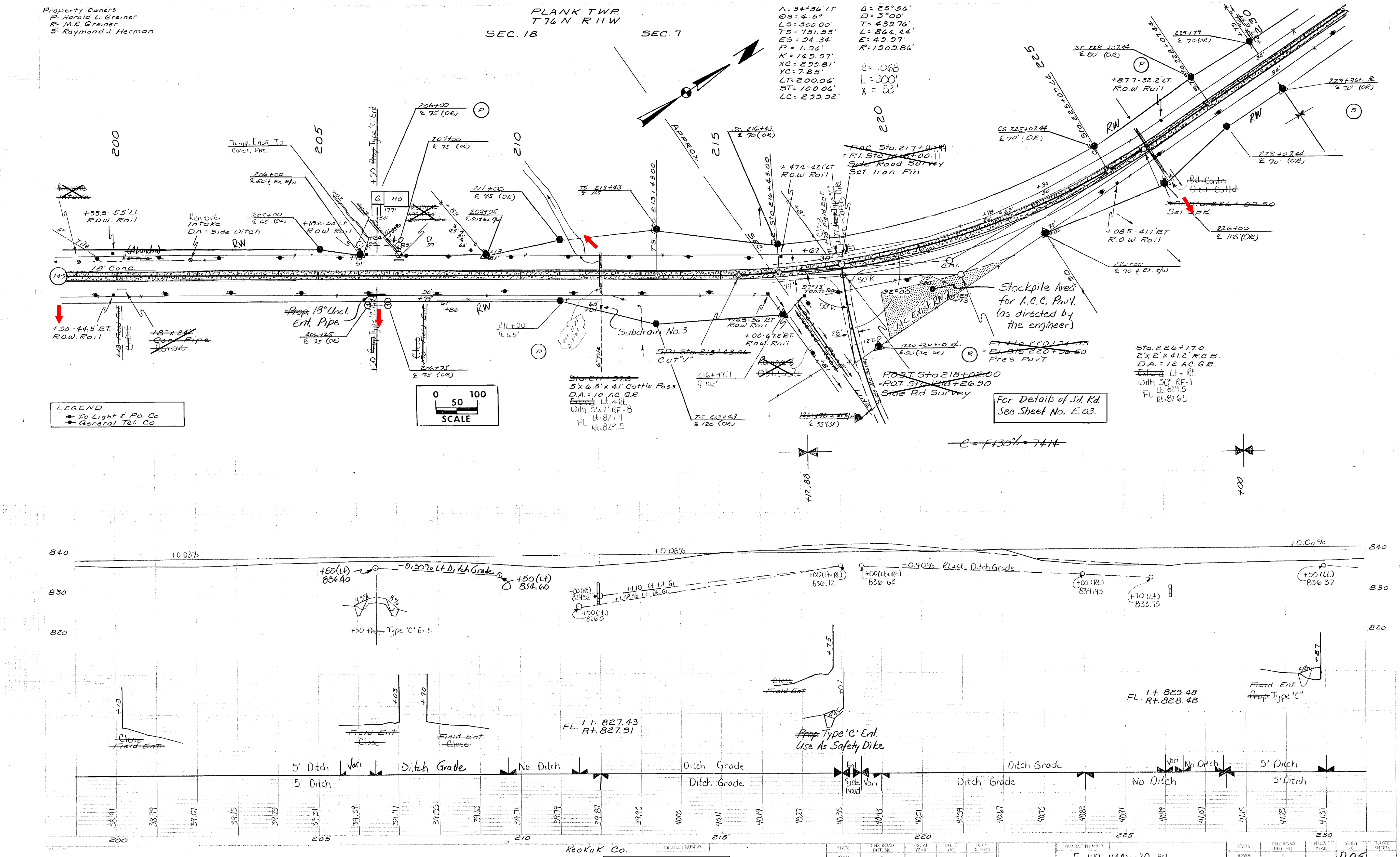

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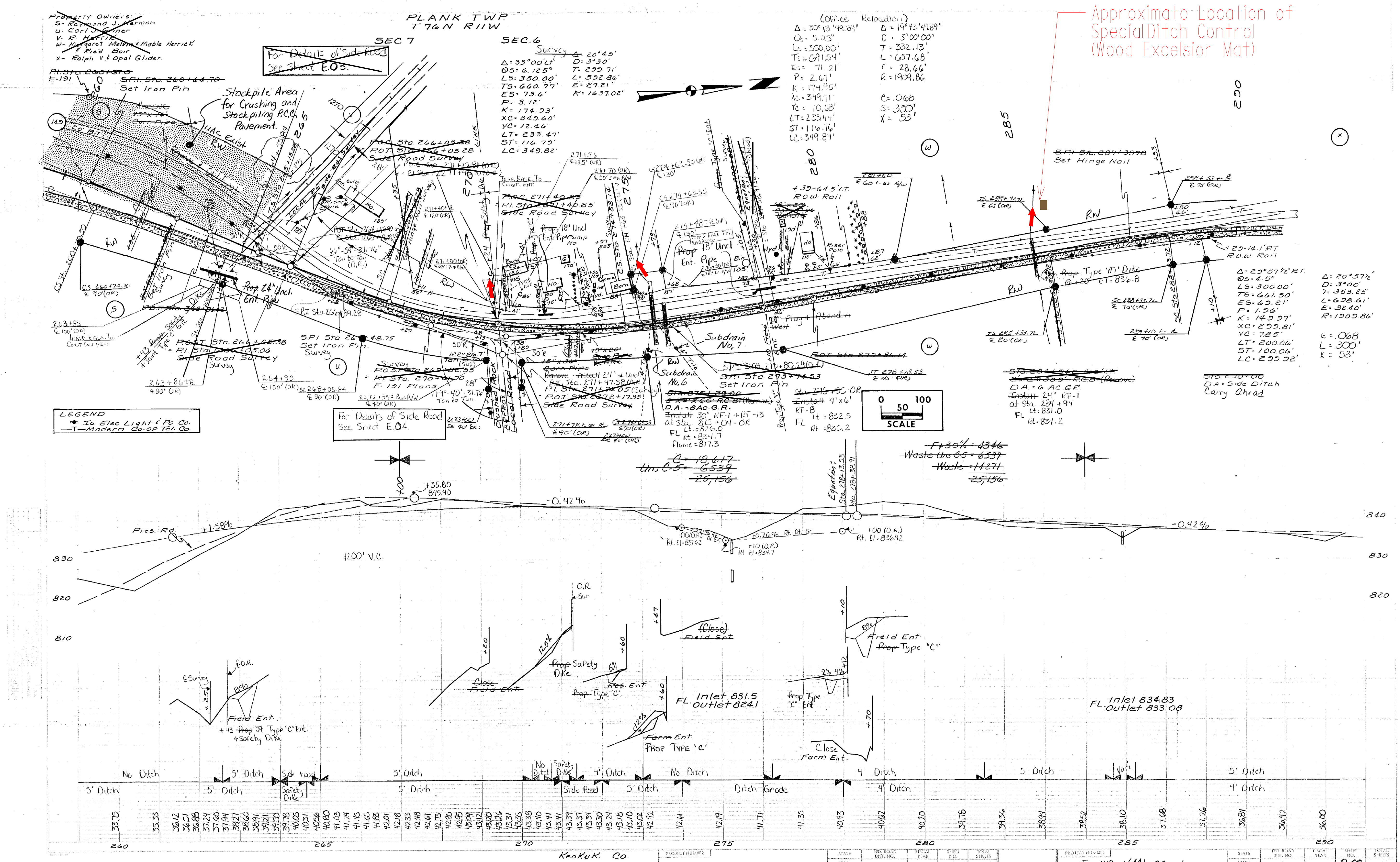
For Information Only

FILE NO.	ENGLISH	DESIGN TEAM GODBOLD \ VAN WAUS \ BULTMAN	KEOKUK COUNTY	PROJECT NUMBER STP-149-1(84)--2C-54	SHEET NUMBER RR.9



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For Information Only

FILE NO.	ENGLISH	DESIGN TEAM GODBOLD \ VAN WAUS \ BULTMAN	KEOKUK COUNTY	PROJECT NUMBER STP-149-1(84)--2C-54	SHEET NUMBER RR.10

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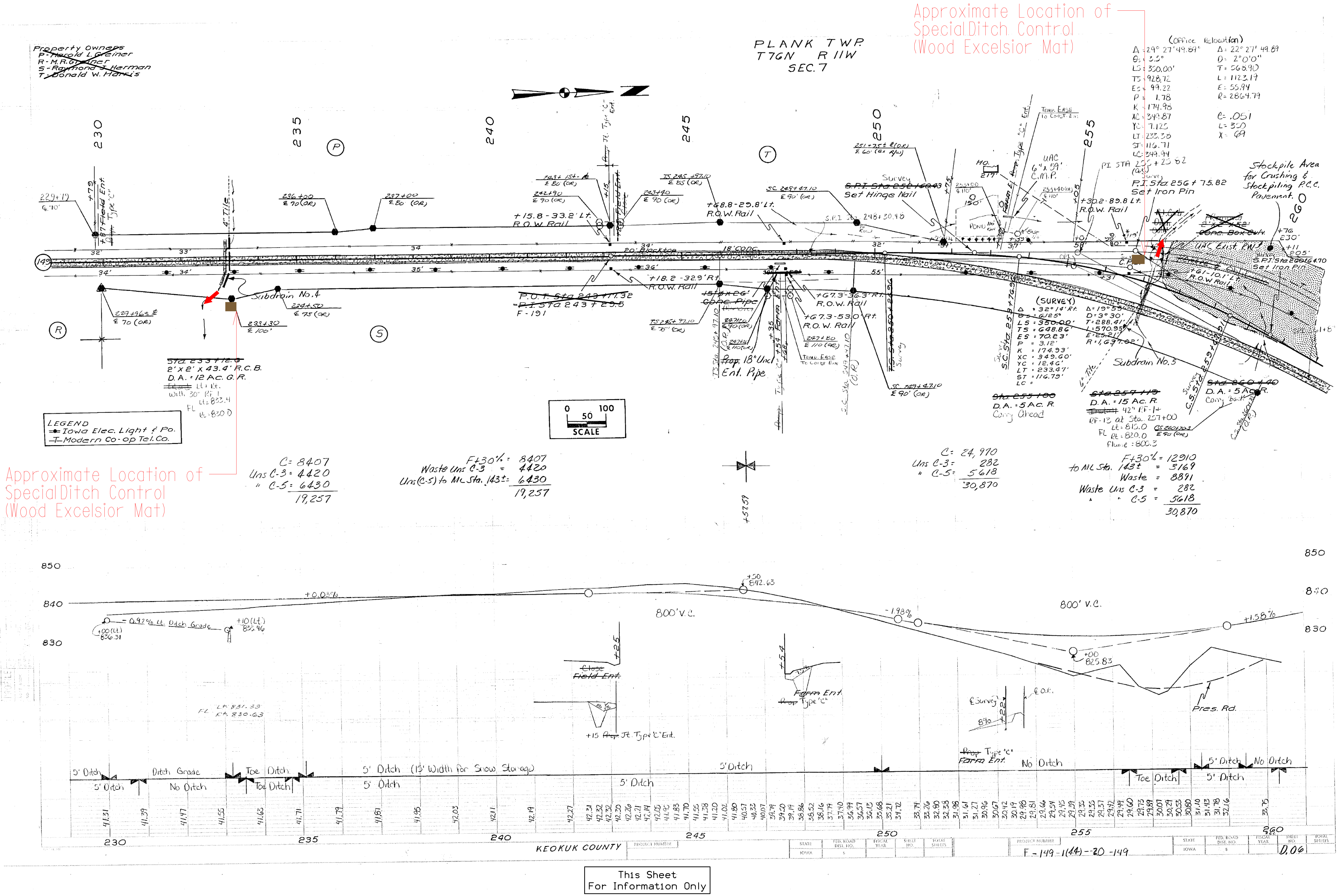

FILE NO.	ENGLISH	DESIGN TEAM GODBOLD \ VAN WAUS \ BULTMAN	KEOKUK COUNTY	PROJECT NUMBER STP-149-1(84)--2C-54	SHEET NUMBER RR.11

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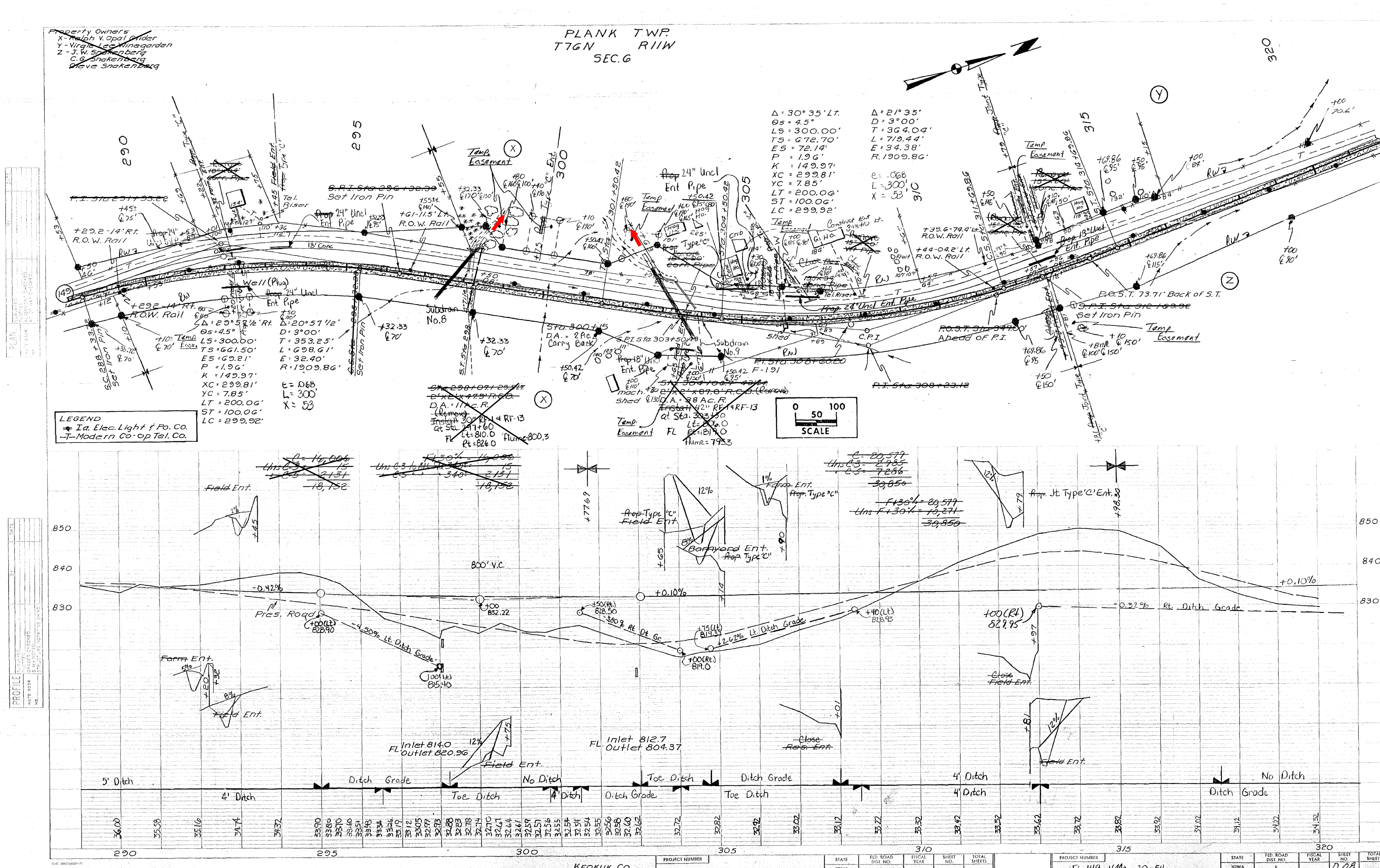

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For Information Only

FILE NO.	ENGLISH	DESIGN TEAM GODBOLD \ VAN WAUS \ BULTMAN	KEOKUK COUNTY	PROJECT NUMBER STP-149-1(84)--2C-54	SHEET NUMBER RR.12

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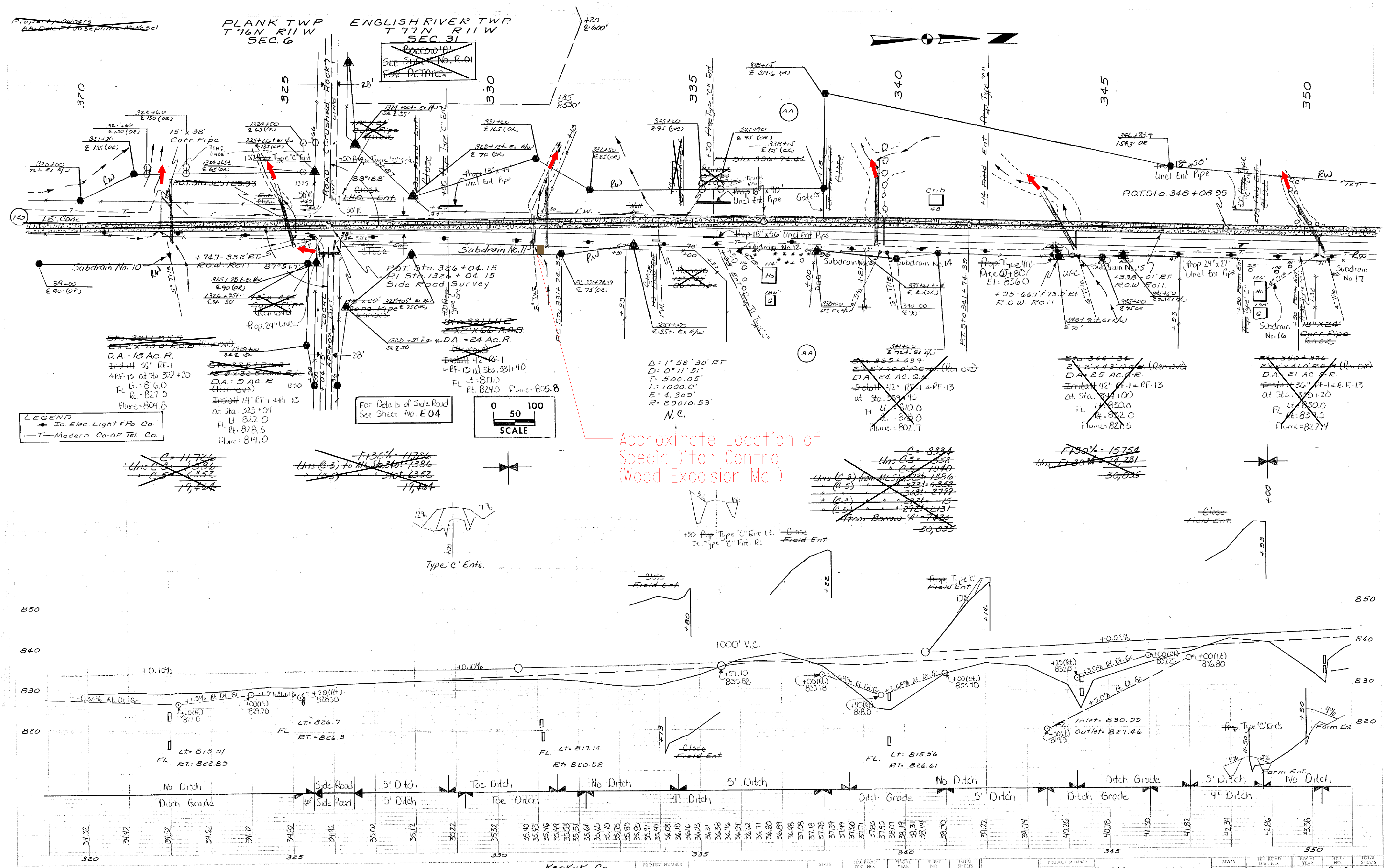

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For Information Only

FILE NO.	ENGLISH	DESIGN TEAM GODBOLD \ VAN WAUS \ BULTMAN	KEOKUK COUNTY	PROJECT NUMBER STP-149-1(84)--2C-54	SHEET NUMBER RR.13

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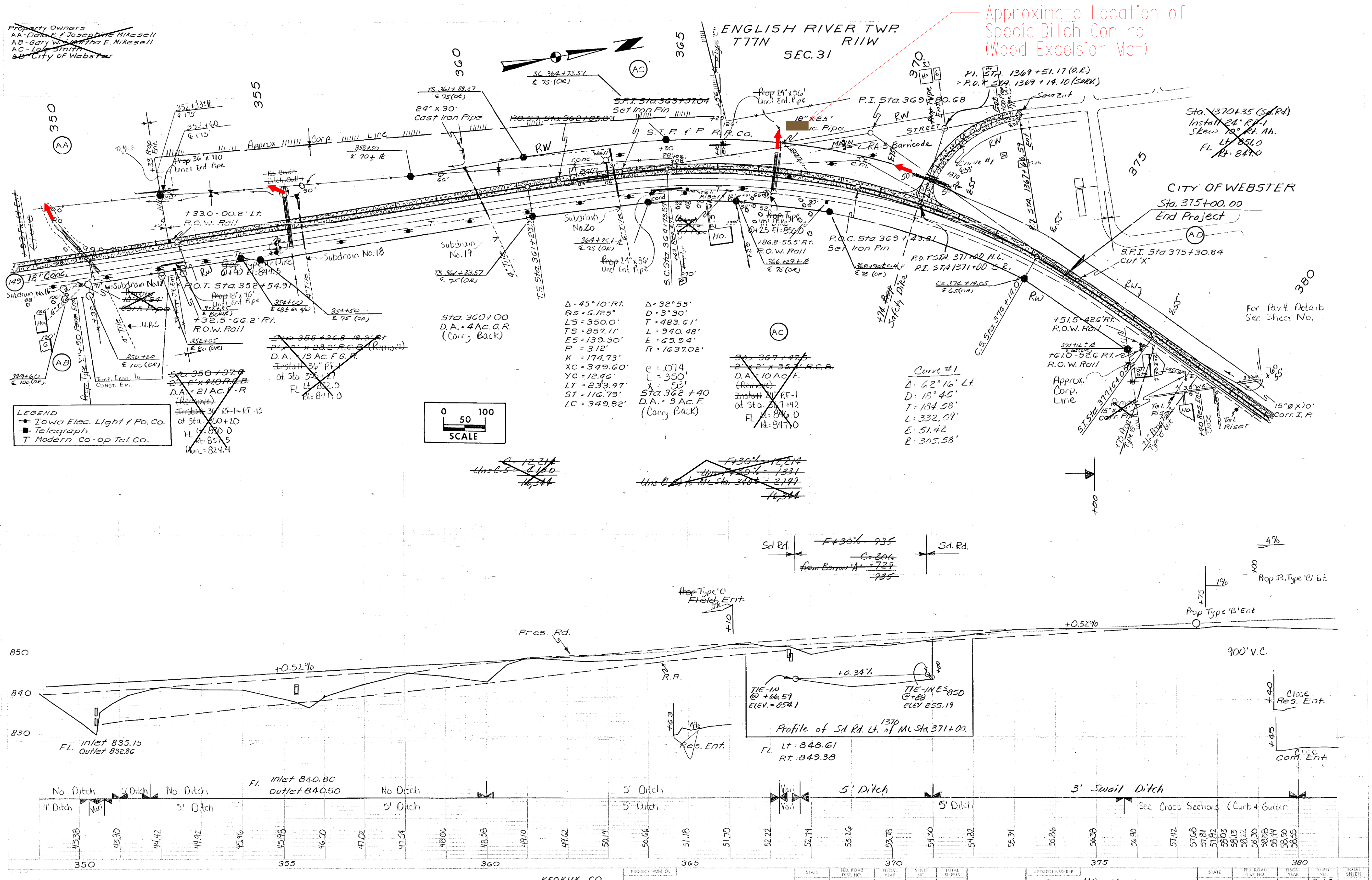

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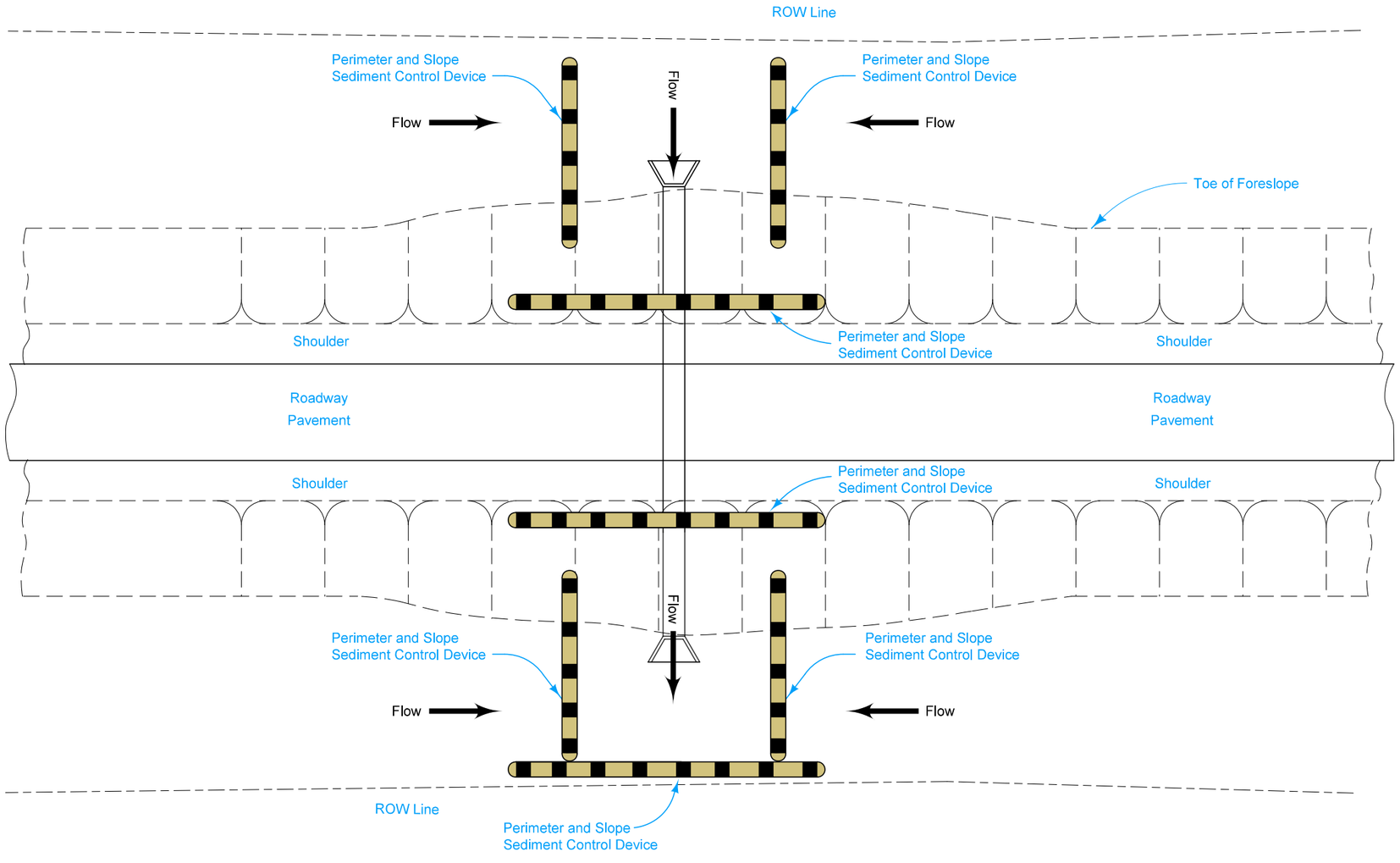
For Information Only

FILE NO.	ENGLISH	DESIGN TEAM GODBOLD \ VAN WAUS \ BULTMAN	KEOKUK COUNTY	PROJECT NUMBER STP-149-1(84)--2C-54	SHEET NUMBER RR.14

1:42:16 PM 1/14/2019 jbultma pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5414901017\Roadside\54149084_R01_R13.sht

See Standard Road Plan EC-204 for installation details.

Estimated total length of perimeter and slope sediment control device is 140 linear feet per culvert.



Contract Items:
Perimeter and Slope Sediment Control Device

Tabulation:
100-19

TYPE A

SHOULDER WIDENING WITH EXPOSED SOIL
(Non-Continuous Flow Culvert)

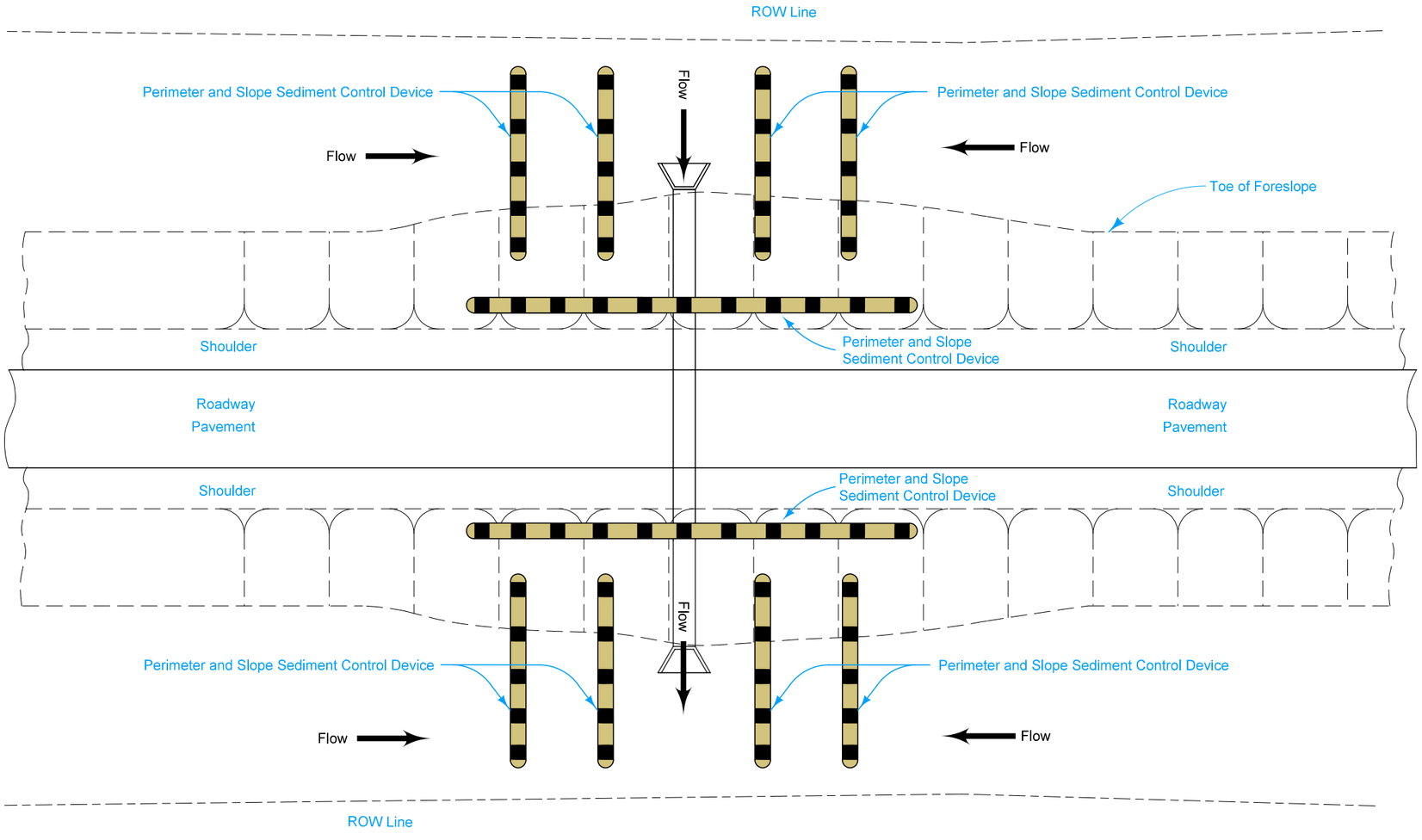
TEMPORARY SEDIMENT CONTROL DETAIL
(1 OF 2)

FILE NO.	ENGLISH	DESIGN TEAM	GODBOLD / BULTMAN / VAN WAUS	KEOKUK	COUNTY	PROJECT NUMBER	STP-149-1(84)--2C-54	SHEET NUMBER	RU.1

2:33:23 PM 1/14/2019 jbultma pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5414901017\Roadside\54149084_RU01.dgn

See Standard Road Plan EC-204 for installation details.

Estimated total length of perimeter slope and sediment control device is 240 linear feet per culvert.



Contract Items:
Perimeter and Slope Sediment Control Device

Tabulation:
100-19

TYPE B

SHOULDER WIDENING WITH EXPOSED SOIL
(Continuous Flow Culvert)

TEMPORARY SEDIMENT CONTROL DETAIL
(2 OF 2)

FILE NO.	ENGLISH	DESIGN TEAM	GODBOLD / BULTMAN / VAN WAUS	KEOKUK	COUNTY	PROJECT NUMBER	STP-149-1(84)--2C-54	SHEET NUMBER	RU.2

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