

PLANS OF PROPOSED IMPROVEMENT ON THE
PRIMARY ROAD SYSTEM
CALHOUN COUNTY
HMA Resurfacing with Milling
1.3 mi N of US 20 north 1 mile

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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



DESIGN DATA RURAL				
2024	AADT	2980	V.P.D.	
20	- AADT	-	V.P.D.	
20	- DHV	-	V.P.H.	
TRUCKS		27	%	
Total				
Design ESALs		-		

INDEX OF SEALS			
SHEET NO.	NAME	TYPE	BID QUANTITY SHEETS
A.1	Kyle Schrock	Primary Signature Block	C.1
RC.1	Rachel Harris	Landscape Design	RC.2

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.

4-30-2026

Signature

Kyle T. Schrock

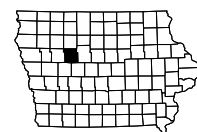
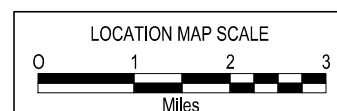
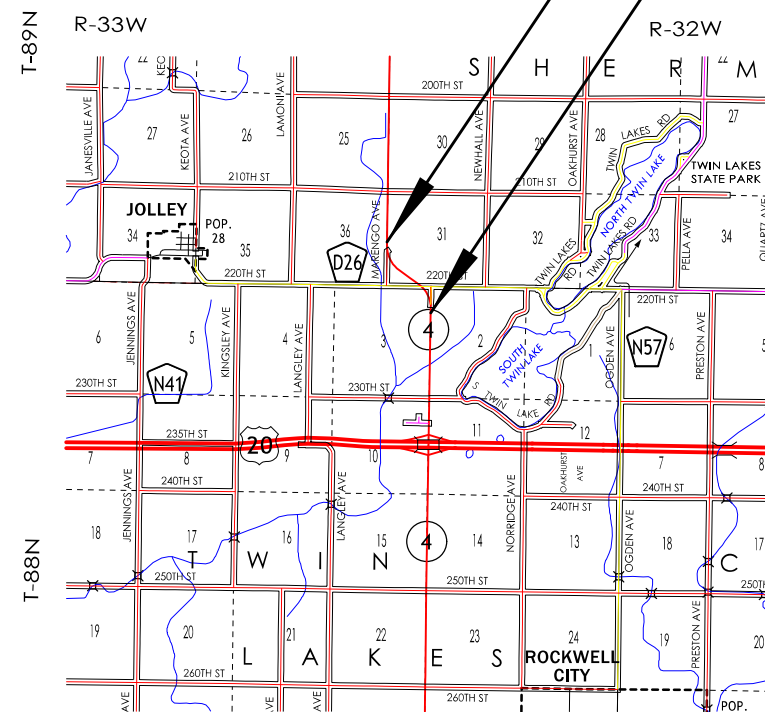
Printed or Typed Name

My license renewal date is December 31, 2027

Pages or sheets covered by this seal: A.1-2, B.1, C.1-5, D.1-2, J.1, U.1-4

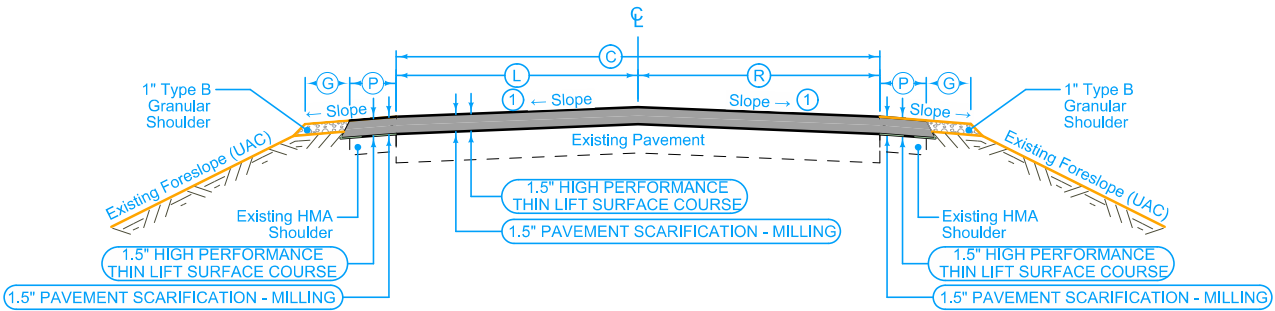
BEGIN CONSTRUCTION
Sta. 1348+75
M.P. 68.53

END CONSTRUCTION
Sta. 1401+50
M.P. 69.53



Combination Shoulder

3R_Shldr_C_Overlay_ 04-19-11			
STATION TO STATION		<div><div></div><div>P</div></div> <div>Feet</div>	<div><div></div><div>G</div></div> <div>Feet</div>
1348+75	1401+50	4	4



3R_MillingOverlay_ MODIFIED				
STATION TO STATION		<div><div></div><div>C</div></div> <div>Feet</div>	<div><div></div><div>L</div></div> <div>Feet</div>	<div><div></div><div>R</div></div> <div>Feet</div>
1348+75	1401+50	24	12	12

Combination Shoulder

3R_Shldr_C_Overlay_ 04-19-11			
STATION TO STATION		<div><div></div><div>P</div></div> <div>Feet</div>	<div><div></div><div>G</div></div> <div>Feet</div>
1348+75	1401+50	4	4

① Match finished slope to existing pavement. Maximum allowable slope is 3.0%, minimum allowable slope 2.0%. Section may be modified as directed by the Engineer in areas of special shaping.

IA 4 Mainline and Shoulders HMA Resurfacing with Milling

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Roadway Items : Roadway Items

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway Items	
1	2121-7425020	GRANULAR SHOULDERS, TYPE B	TON	237.645	Refer to Typical on B sheets and Tab. 112-9 on C sheets.
2	2212-0475095	CLEANING AND PREPARATION OF BASE	MILE	1	
3	2212-5070310	PATCHES, FULL-DEPTH REPAIR	SY	163.6	Refer to Tab. 102-6C on C sheets.
4	2212-5070330	PATCHES BY COUNT (REPAIR)	EACH	11	Refer to Tab. 102-6C on C sheets.
5	2214-5145150	PAVEMENT SCARIFICATION, NOMINAL THICKNESS	SY	18,755.6	Refer to Typical on B sheets and Tab. 100-25 on C-sheets.
6	2214-7450050	BLADING AND SHAPING SHOULDER MATERIAL	STA	102	
7	2303-0003380	HOT MIX ASPHALT MIXTURE THIN LIFT SURFACE COURSE, 3/8 IN. MIX	TON	1,661.625	Refer to Typical on B-sheets and Tab. 100-25 on C-sheets.
8	2303-1264347	ASPHALT BINDER, PG 64-34E+, EXTREMELY HIGH TRAFFIC, 90% ELASTIC RECOVERY	TON	132.93	Refer to Tab. 100-25 on C-sheets and Typical on B-sheets.
9	2303-6911000	HOT MIX ASPHALT PAVEMENT SAMPLES	LS	1	
10	2317-7000120	PAYMENT ADJUSTMENT INCENTIVE/DISINCENTIVE FOR HMA PAVEMENT SMOOTHNESS (BY SCHEDULE)	EACH	3,376	
11	2526-8285040	CONSTRUCTION SURVEY, LOCATION SURVEY	LS	1	
12	2527-9263209	PAINTED PAVEMENT MARKINGS, WATERBORNE OR SOLVENT-BASED	STA	628.68	Refer to Tab. 108-22 on C sheets.
13	2527-9270112	GROOVES CUT FOR PAVEMENT MARKINGS	STA	105.5	
14	2528-2518000	SAFETY CLOSURE	EACH	4	Refer to Tab. 108-13A on C sheets.
15	2528-8445110	TRAFFIC CONTROL	LS	1	Refer to Traffic Control Plan on J sheets.
16	2528-8445113	FLAGGERS	EACH	0	See Proposal.
17	2528-8445115	PILOT CARS	EACH	0	See Proposal.
18	2533-4980005	MOBILIZATION	LS	1	--
19	2548-0000100	MILLED SHOULDER RUMBLE STRIPS, HMA SURFACE	STA	95.28	Refer to Tab. 112-10 on C-sheets. Continue shoulder rumble strips through Marshall Ave and Marengo Ave.
20	2548-0000110	ASPHALT EMULSION FOR FOG SEAL (SHOULDER RUMBLE STRIPS)	GAL	103.6	Refer to Tab. 112-10 on C-sheets.
21	2548-0000310	MILLED CENTERLINE RUMBLE STRIPS, HMA SURFACE	STA	52.75	Refer to Tab. 112-10 on C-sheets. Continue centerline rumble strips through all side roads.
22	2548-0000315	ENGINEERED EMULSION FOR FOG SEAL (CENTERLINE RUMBLE STRIPS)	GAL	78.5	Refer to Tab. 112-10 on C Sheets.

		100-1D 10-18-05
<p align="center">PROJECT DESCRIPTION</p> <p>This project is a mill and overlay on IA 4 in Calhoun County near Jolley.</p>		

<div> <div>111-25</div> <div>10-18-11</div> </div>		
<div>INDEX OF TABULATIONS</div>		
Tabulation	Tabulation Title	Sheet No.
C Sheets		
100-1D	PROJECT DESCRIPTION	C.2
100-25	HMA PAVEMENT	C.3
100-27	PROPOSED POSTED SPEED LIMIT	C.2
102-5	EXISTING PAVEMENT	C.2
102-6C	FULL-DEPTH PATCHES	C.3
102-16	NOTCHES AND RUNOUTS FOR RESURFACING	C.2
105-4dd	STANDARD ROAD PLANS	C.2
108-13A	SAFETY CLOSURES	C.2
108-22	PAVEMENT MARKING LINE TYPES	C.5
111-25	INDEX OF TABULATIONS	C.2
112-9	SHOULDERS	C.4
112-10	MILLED RUMBLE STRIPS	C.4

<div style="text-align: right;"> 100-27 04-17-18 </div>						
PROPOSED POSTED SPEED LIMIT						
Road Identification	Begin Station	End Station	Proposed Posted Speed Limit			Remarks
			35 or less	40 - 45	over 45	
IA 4 NB Traffic	1348+75	1401+50			X	Beginning to End of Project. (55 MPH)
IA 4 SB Traffic	1348+75	1401+50			X	Beginning to End of Project. (55 MPH)

[illegible]

		262-6 10-18-05
<p align="center">UTILITIES</p> <p align="center">(NOT A POINT 25 PROJECT)</p>		
<p>This is NOT a POINT 25 project and is not subject to the provisions of IAC 761-115.25.</p>		

EXISTING PAVEMENT																					102 04-18-
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	Type	Depth	Type	Depth	Type	Depth	Source	Type	Durability Class	Type	
	13	IA-4	1	63.66	72.05	2023	M	MP-004-3(709)49--76-13													HMA crack filling
	13	IA-4	1	63.66	72.05	2021	M	MP-004-3(708)49--76-13													HMA crack filling
	13	IA-4	1	63.66	72.05	2017	M	MP-000-3(722)0--76-00													HMA Crack Filling
	13	IA-4	1	63.66	72.05	2013	W	STP-004-3(31)--2C-13	HMA	1.5	HMA	1.5	HMA	5							
	13	IA-4	1	63.66	72.05	2013		STP-004-3(31)--2C-13	HMA	1.5	HMA	1.5			MIL	1					
	13	IA-4	1	63.66	72.05	1984		FR-4-3(7)--2G-13	BAC	1.5	BAC	1.5									
	13	IA-4	1	63.66	72.05	1947		F-10(7)	PC8	8								FT. DODGE MINE CORRECTIONVILLE	C.LST. GRAVEL	2	

NOTCHES AND RUNOUTS FOR RESURFACING								102-16 10-21-14
(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 Scarification (1)	Remarks
		IN	IN	IN	FT	IN	SY	
IA 4								
1348+75	Type 'N2'	1.5						Beginning of Project
1401+50	Type 'N2'	1.5						End of Project

			108-13A 08-01-08
SAFETY CLOSURES			
Refer to Section 2528 of the Standard Specifications			
Station	Closure Type		Remarks
	Road Qty.	Hazard Qty.	
1355+50	1		S end of Marshall Ave
1362+75	1		N end of Marshall Ave
1381+85	1		S end of Marengo Ave
1393+50	1		N end of Marengo Ave
Total	4		

FILE NO.	ENGLISH	DESIGN TEAM Schrock\Dudley	CALHOUN COUNTY	PROJECT NUMBER STPN-004-3(038)--2J-13	SHEET NUMBER C.2
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102-6C
04-18-17

FULL-DEPTH PATCHES

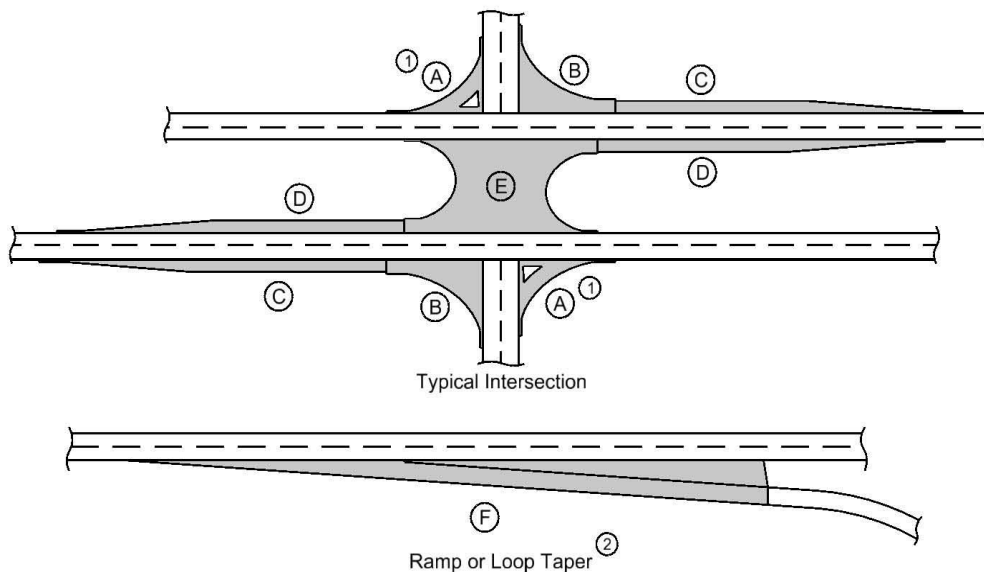
Possible Standards: PR-101, PR-102, PR-103, PR-104, PR-105, and PR-140.

Location				Dimension			PCC Patches				HMA Patches	Composite HMA	Subbase Patches	Subbase Patch w/ 'EF' Joint	Patch Subdrain	'CD' Joints	'CT' Joints	'EF' Joints	Anchor Lugs Removal	Remarks
Count	Station	Reference Location Sign	Lane	Length	Width	Patch Thickness	With Dowels	Without Dowels	C R C	Ramp with Dowels										
							PR-103	PR-102	PR-104	PR-105										
			L, R, or B	FT	FT	IN	SY	SY	SY	SY	SY	TON	SY	SY	PR-101 or PR-140 No.	No.	No.	PR-101 No.	No.	
1	1355+10		L	8.0	16.0	13.0	14.2													
1	1374+90		L	12.0	16.0	13.0	21.3													
1	1375+36		L	8.0	16.0	13.0	14.2													
1	1381+50		R	8.0	16.0	13.0	14.2													
1	1382+97		L	8.0	16.0	13.0	14.2													
2	1389+03		B	8.0	16.0	13.0	28.4													
1	1391+27		R	8.0	16.0	13.0	14.2													
2	1397+98		B	8.0	16.0	13.0	28.4													
1	1401+74		L	8.0	16.0	13.0	14.2													
11							163.6													
	Note:	Existing pavement is variable thickness. Minimum Patch Thickness is 13". Refer to U sheets for existing wedge course thickness. 16' width equals lane plus shoulder.																		

100-25

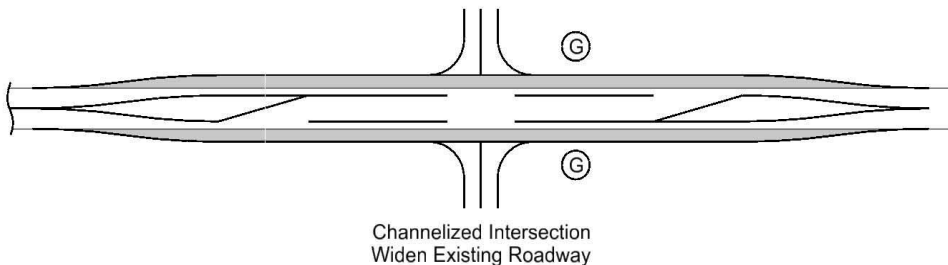
04-21-15

HMA PAVEMENT

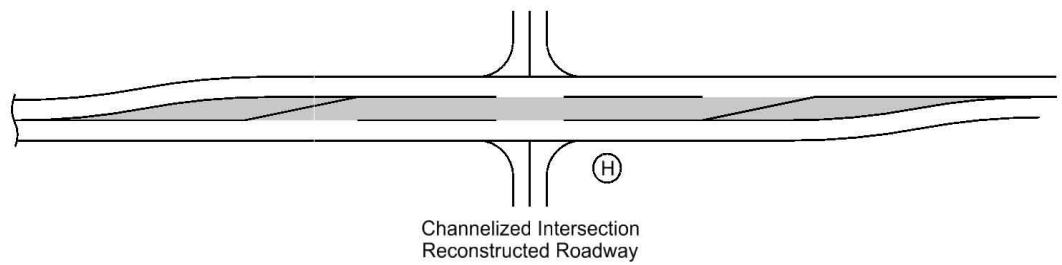


Typical Intersection

Ramp or Loop Taper



Channelized Intersection
Widen Existing Roadway



Channelized Intersection
Reconstructed Roadway

Does not include raised island area or curb. Refer to tabulation 112-4 for quantities.

Refer to PV-410, PV-411, PV-412, and PV-414.

Quantity includes Pavement Header.

Calculations assume a surface course unit weight (lbs/cf) of 150, an intermediate course unit weight (lbs/cf) of 0, a base course unit weight (lbs/cf) of 0, and a special backfill unit weight (lbs/cf) of 140.

Location				Mainline			Area								Bid Items												Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
Road Identification	Direction of Travel	Station to Station		Width	Length	Area	A	B	C	D	E	F	G	H	Hot Mix Asphalt Pavement						Binder			Special Backfill	Modified Subbase	Granular Subbase		Pavement Scarification																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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112-9
10-20-20

SHOULDERS

1

Lane(s) to which the shoulder is adjacent.

2

See Typ. 7156, 7157, or 7158.

3

Bid Item.

4

Applies only for Paved Shoulders constructed on project with existing granular shoulders.

5

Bid Item. Typ. 7156, 7157, or 7158.

6

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																	Remarks					
Road Identification	1 Direction Of Traffic	Station to Station		Side	<div>P</div>	<div>P_{SG}</div>	<div>G</div>	<div>L</div>	Class 13 ⁴	Hot Mix Asphalt		Binder	Paved Shoulder	" Paved Shoulder at Guardrail	Reinforced Paved Shoulder	Special Backfill				Subbase	Granular Shoulder		Earth Shoulder Construction Alternates				
					Width	Width	Width	Length	Excavation								HMA Alternate		PCC Alternate						STA ³	HMA	PCC
					FT	FT 2	FT	FT	CY 3	TON	TON/STA	TONS	SY 3	SY 5	SY 3	TON 3	TON/STA	TON 3	TON/STA	CY 3	TON 3		TON/STA	CY 6		CY 6	
IA 4	NB	1348+75.00	1354+45.00	RT			4.0	570.0													13.287	2.331					
	NB	1355+85.00	1365+20.00	RT			4.0	935.0													21.795	2.331					
	NB	1366+30.00	1401+50.00	RT			4.0	3520.0													82.051	2.331					
	SB	1348+75.00	1366+20.00	LT			4.0	1745.0													40.676	2.331					
	SB	1367+25.00	1401+50.00	LT			4.0	3425.0													79.837	2.331					
							Total	10195.0												Total	237.645						
								</																			

112-10
10-20-20

MILLED RUMBLE STRIPS

See PV-12 and PV-13

* Calculated at 18" width for Shoulder.

Location						Installation Length		Fog Seal* (Milled Rumble Strip)	Effective Shoulder Width			Remarks
Road Identification	Station to Station		Shoulder Pavement Type	Rumble Strip Type (Centerline, Rt or Lt Shoulder)	<div>L</div> IN	PCC	HMA		PCC Paved	HMA Paved	Granular\Earth	
						STA	STA		FT	FT	FT	
IA 4	1348+75.00	1401+50.00	HMA	Centerline			52.75	78.5				
	1348+75.00	1352+27.00	HMA	Right Shoulder	12"		3.52	3.9				
	1354+57.00	1364+51.00	HMA	Right Shoulder	12"		9.94	10.8				
	1367+31.00	1370+83.00	HMA	Right Shoulder	12"		3.52	3.9				
	1373+13.00	1401+50.00	HMA	Right Shoulder	12"		28.37	30.8				
	1348+75.00	1365+32.00	HMA	Left Shoulder	12"		16.57	18.0				
	1368+14.00	1401+50.00	HMA	Left Shoulder	12"		33.36	36.2				
				Totals		PCC	HMA	Fog Seal				
				HMA Shoulders			95.28	103.6				
				PCC Shoulders		0.00						
				PCC or HMA Shoulders		0.00	0.00	0.0				
				HMA Centerlines			52.75	78.5				
				PCC Centerlines		0.00						
				PCC or HMA Centerlines		0.00	0.00					

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.

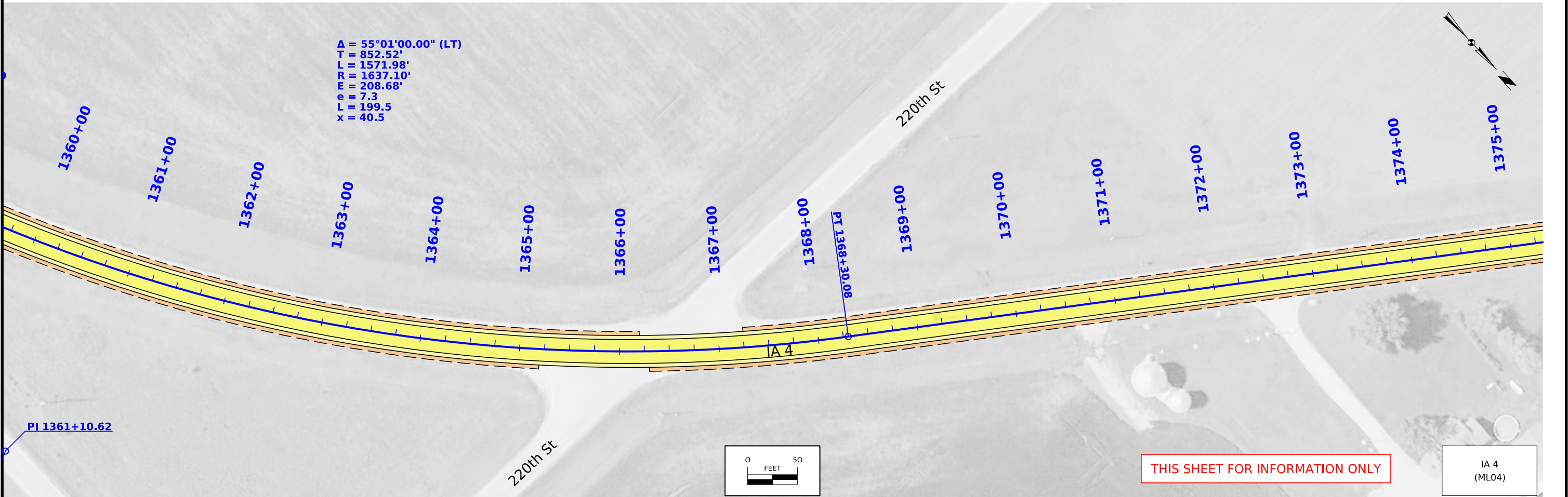
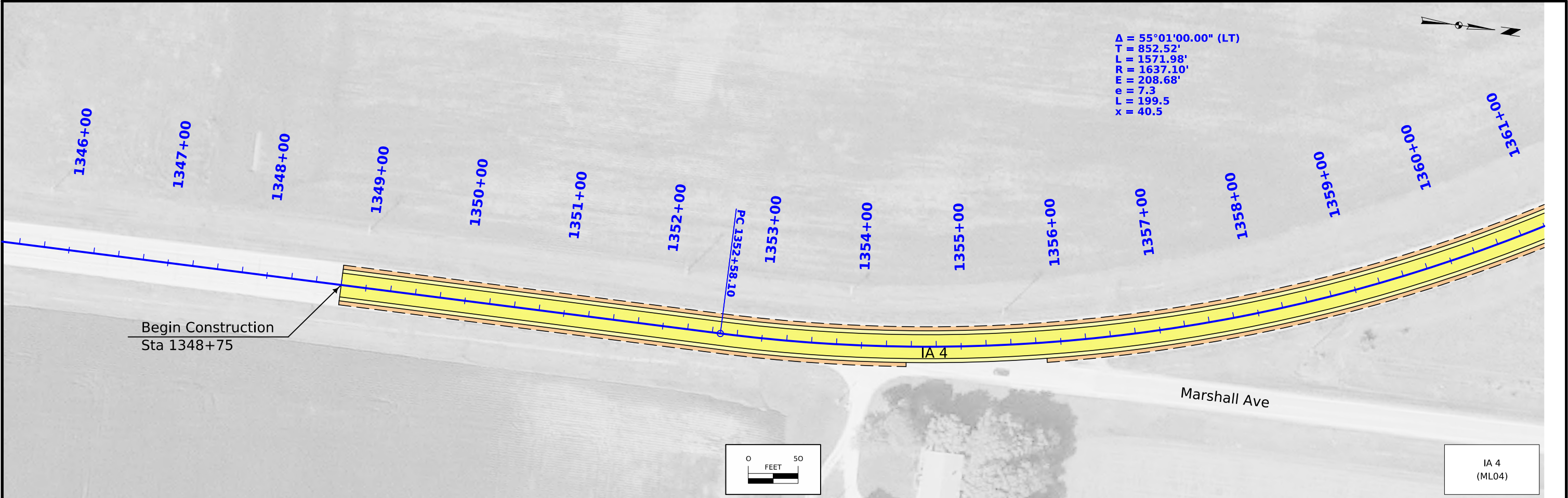
DCY6: Double Centerline (Yellow) @ 2.00	ELW6: Edge Line Right (White) @ 1.00	DLW6: Dotted Line (White) @ 0.33
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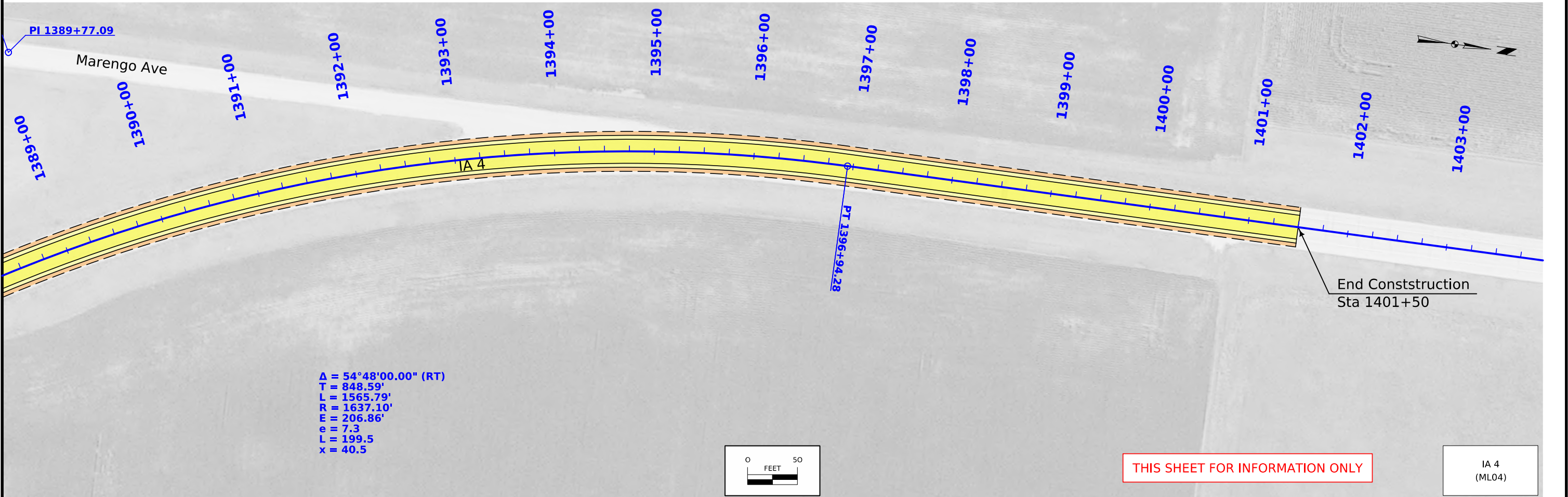
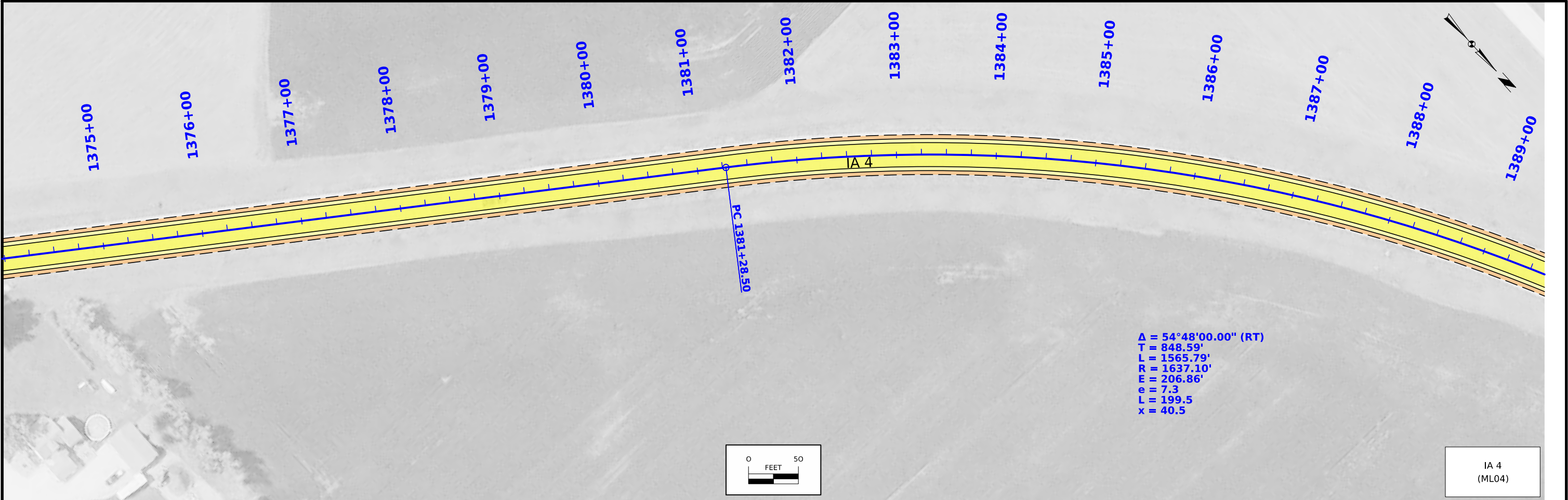
One Line will be located at one foot.

ELW6: Edge Line Right (White) @ 1.00	DLW6: Dotted Line (White) @ 0.33
--------------------------------------	----------------------------------

DLW6: Dotted Line (White) @ 0.33

Location								Length by Line Type (Unfactored)															Remarks
Road ID	Station to Station		Dir. of Travel	Marking Type	Side			DCY6	ELW6	DLW6	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	
					L	C	R																
IA 4	1348+75.00	1401+50.00	BOTH	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED		X		52.75															
	1348+75.00	1365+20.00	NB	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED			X		16.45														
	1365+20.00	1366+30.00	NB	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED			X			1.10													
	1366+30.00	1401+50.00	NB	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED			X		35.20														
	1348+75.00	1366+20.00	SB	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	X				17.45														
	1366+20.00	1367+25.00	SB	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	X					1.05													
	1367+25.00	1401+50.00	SB	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	X				34.25														
				Factored Total: PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED				105.50	103.35	0.71	-	-	-	-	-	-	-	-	-	-	-	-	-
				Bid Quantity: 2527-9263209 - PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED							209.56												





108-23A
08-01-08

TRAFFIC CONTROL PLAN

IA-4 and 220th St to remain open to traffic for duration of project.

Marshall Ave and Marengo Ave to be closed for the duration of the project.
- Access to field entrances on Marshall and Marengo Ave shall be maintained.

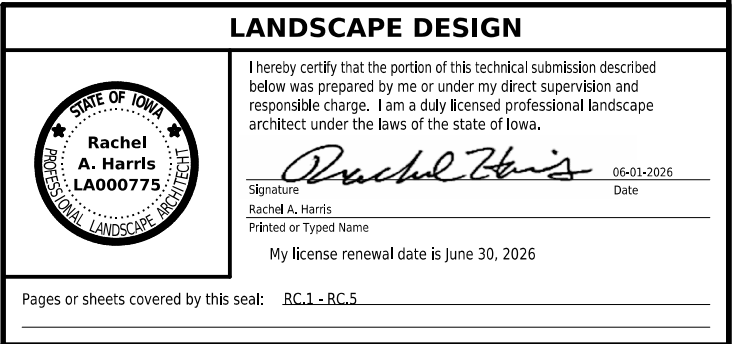
111-01
04-17-12

COORDINATED OPERATIONS

Other work in progress during the same period of time will include the construction of the projects listed. Coordinate operations with those of other contractors working within the same area.

Project	Type of Work
None	

511 TRAVEL RESTRICTIONS													108-25 10-21-14
Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks	
IA 4	Both	Calhoun	IA 4 1.3 Miles north of US 20 North 1 mile		Traffic Control Device		Horizontal	NA	12'	11'	NA	(1)	
			(1) Restriction is during milling and paving operations.										



Signature Rachel Harris Date 06-01-2026

My license renewal date is June 30, 2026

Pages or sheets covered by this seal: BC.1 - BC.5

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Roadside : Roadside Items

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadside	
1	2602-0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.	LF	1,000	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.
2	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.	LF	1,000	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.
3	2602-0000351	REMOVAL OF PERIMETER AND SLOPE OR DITCH CHECK SEDIMENT CONTROL DEVICE	LF	2,000	

232_03A
9/28/22

EROSION CONTROL (RURAL SEEDING)

Area to be seeded is estimated to be less than 1 acre. If the contractor determines the area exceeds 2 acres, notify the Engineer. Approved quantity in excess of 2 acres will be paid for as extra work according to Article 1109.03,B of the Standard Specifications.

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.

281_03
11/9/23

STORM WATER BEST MANAGEMENT PRACTICES

When the following best management practices are used, they are intended to account for disturbed areas where storage volume cannot be provided: Perimeter and Slope Sediment Control Devices and Seeding.

INDEX OF TABULATIONS			111_25 4/21/26
Tabulation	Tabulation Title	Sheet No.	
111_25	INDEX OF TABULATIONS	RC.4	
105_04	STANDARD ROAD PLANS	RC.5	

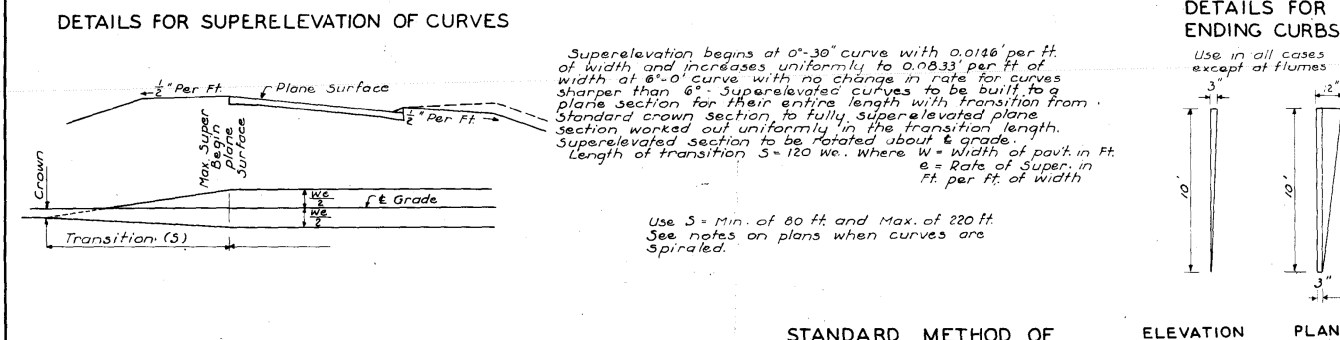
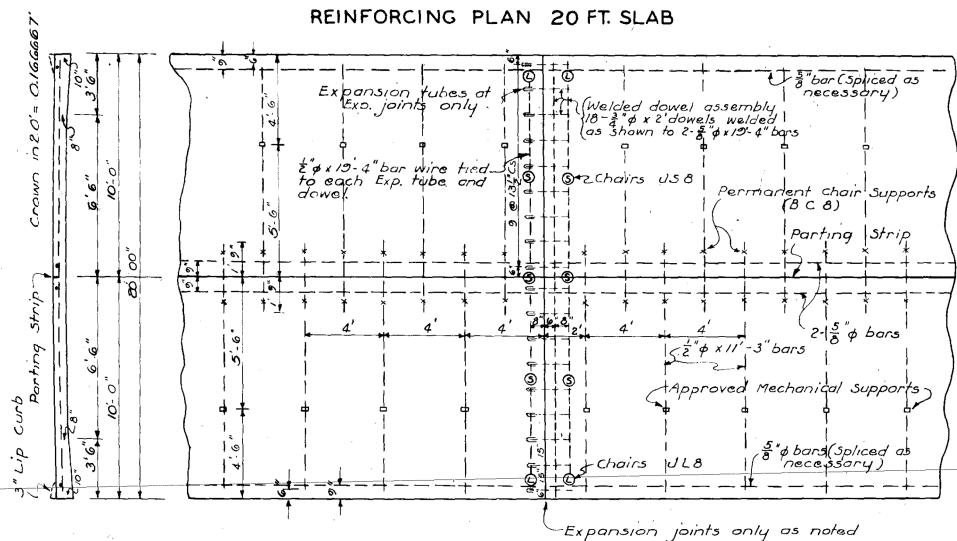
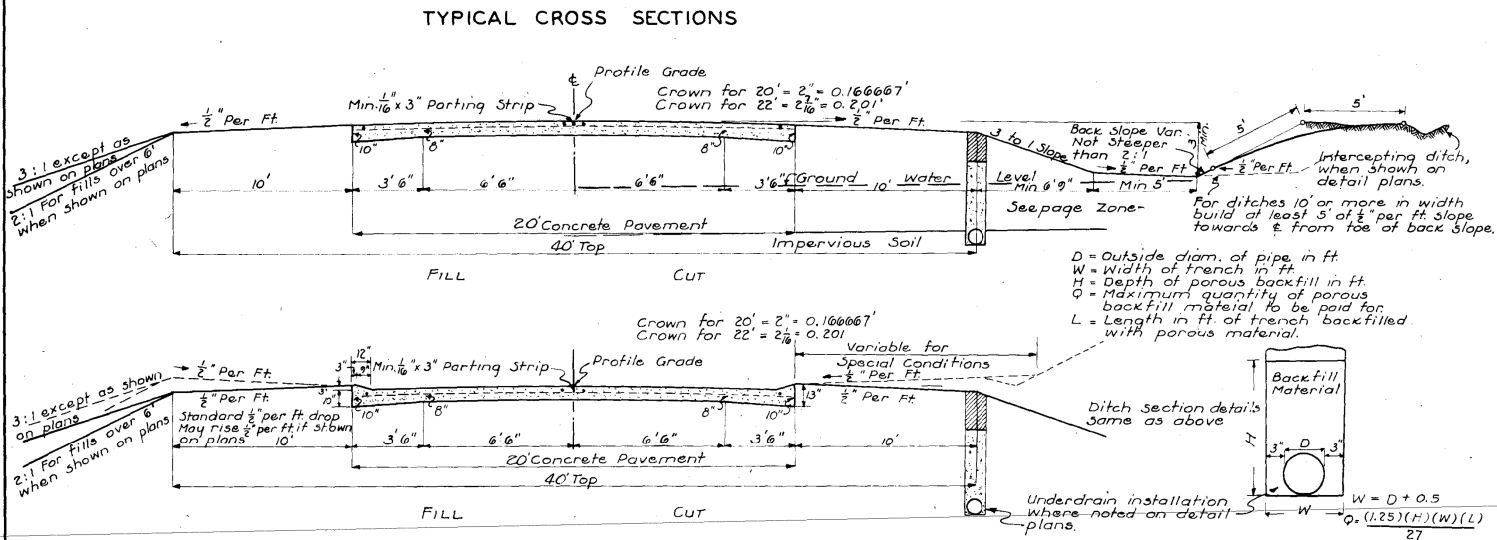
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STANDARDS

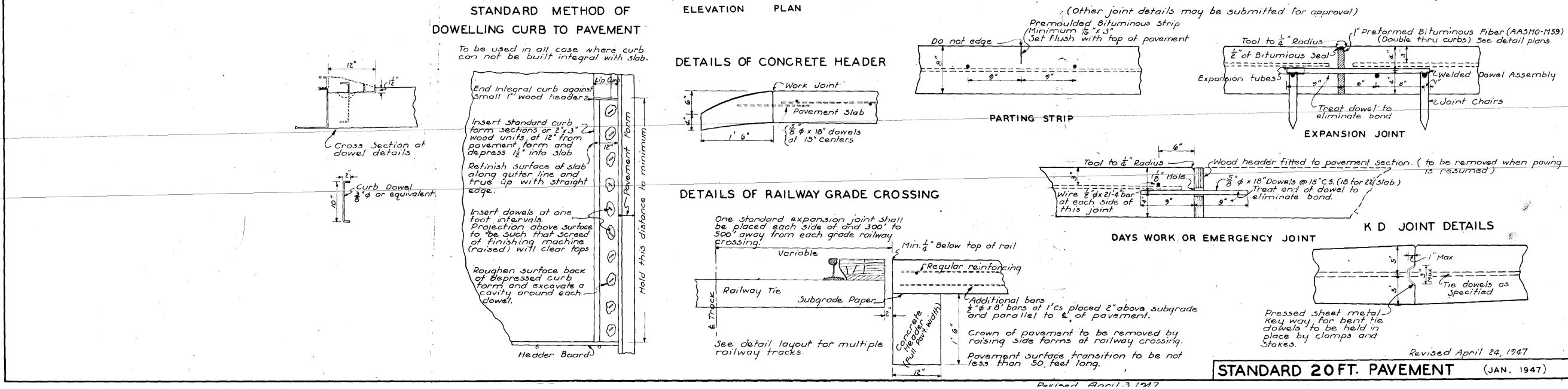
The following Standards apply to construction work on this project.

Number	Date	Title
EC-204	10-19-21	Perimeter, Slope and Ditch Check Sediment Control Devices
EC-502	04-21-15	Seeding in Rural Areas

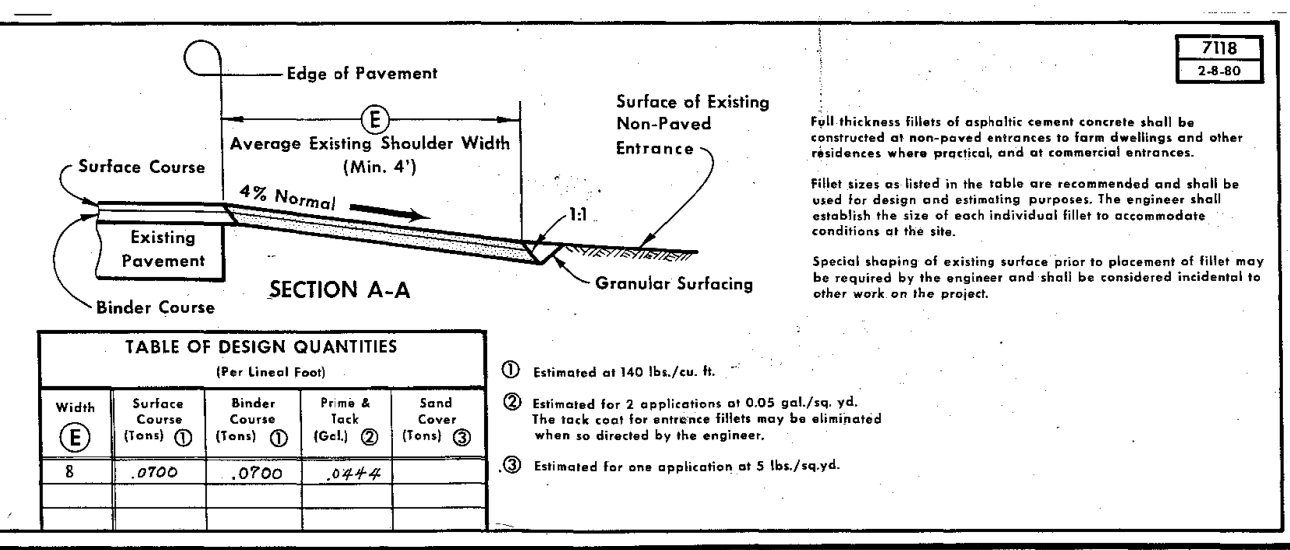
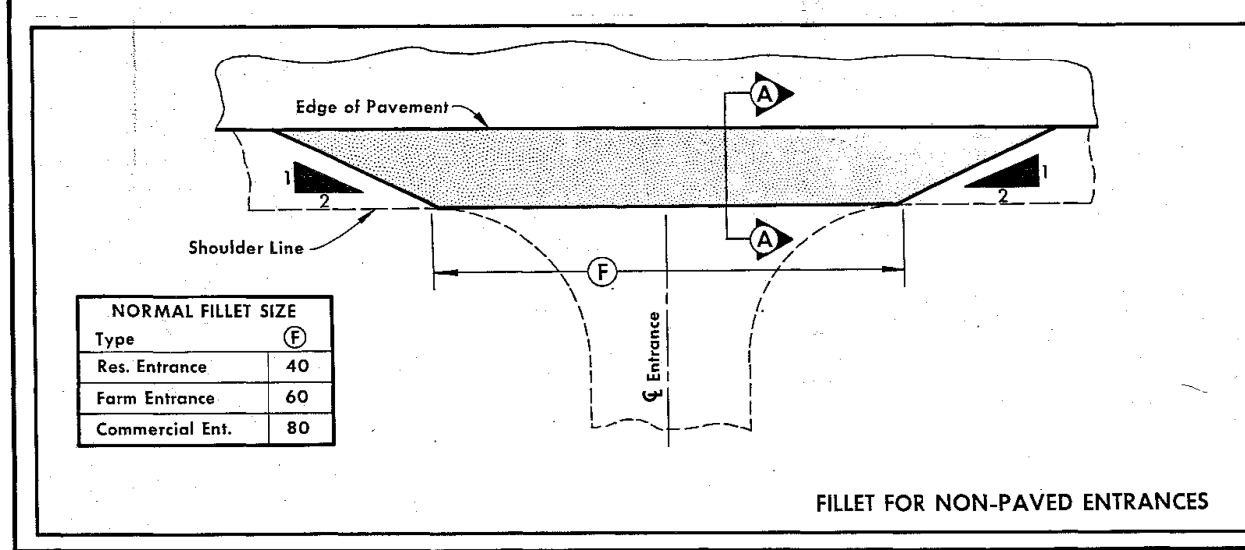
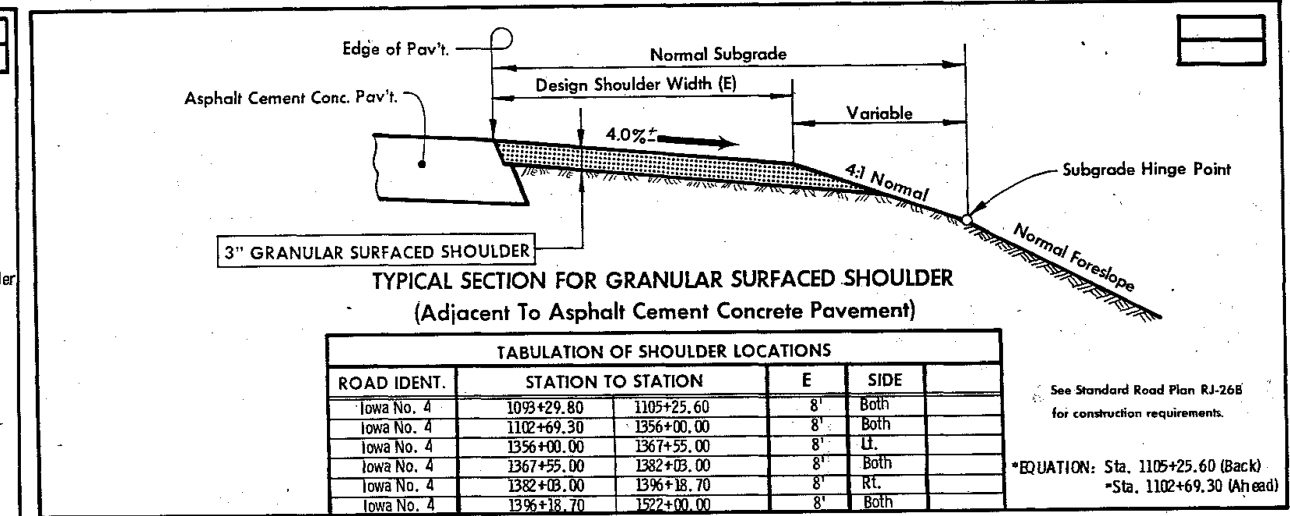
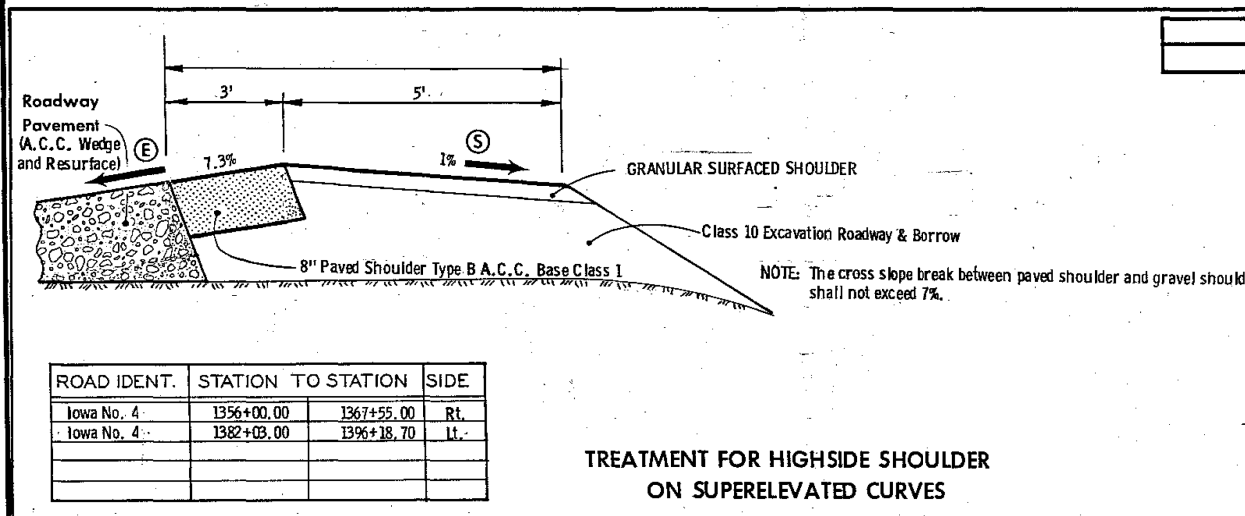
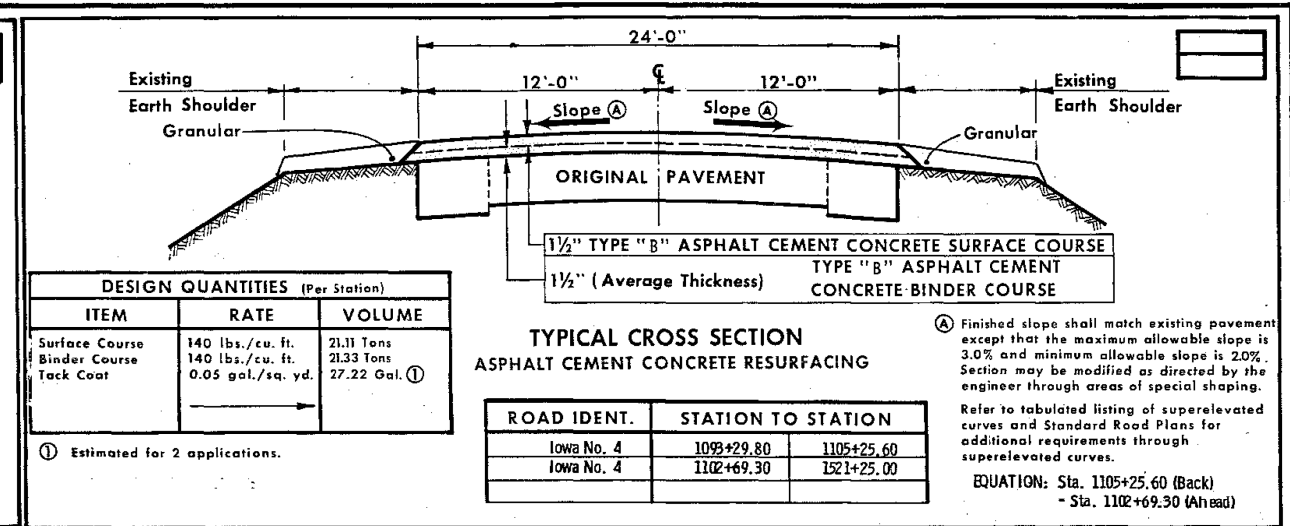
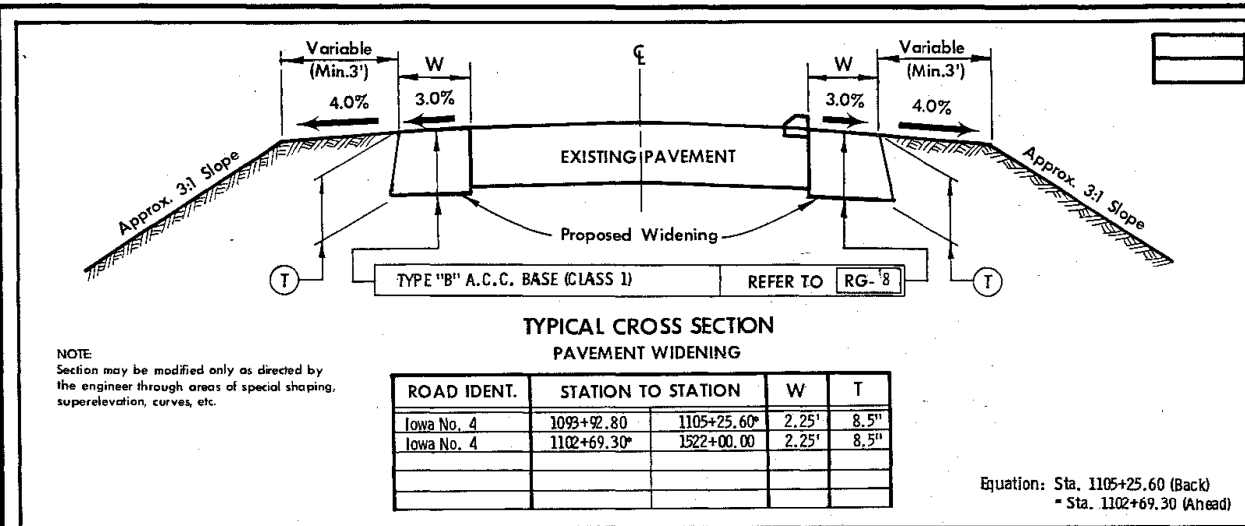
FED. ROAD DIST. NO.	STATE	F. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	IOWA	10 (7)		34	74



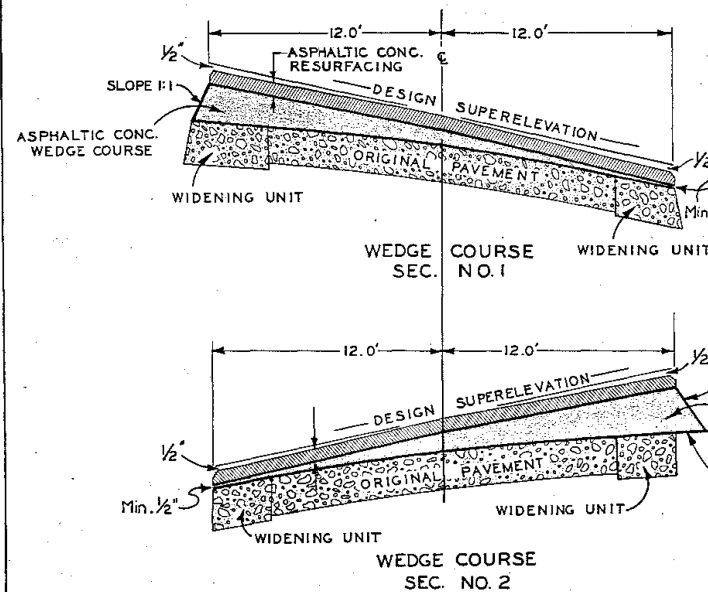
- General Requirements.**
- 1- See details for special bridge approach slab and intersection areas.
 - 2- See plans for location of expansion joints.
 - 3- All pavement reinforcing to be held rigidly in correct position. See note No. 9
 - 4- Longitudinal 5/8" bars to be placed with top of bar 3" below finished pavement surface.
 - 5- Transverse 5/8" bars to be placed under longitudinal bars and be wire tied to longitudinals.
 - 6- All splice laps of bars to be minimum of 2 ft. and be securely wired.
 - 7- Supports for bars to include side form brackets in addition to chairs and mechanical supports shown.
 - 8- The entire dowel assembly and joint material for expansion joints to be installed on the subgrade before placing concrete. The joint dowels to be parallel to the pavement surface and at right angles to the plane of the joint.
 - 9- Other methods for supporting pavement reinforcing may be submitted for approval.



FOR INFORMATION ONLY



FOR INFORMATION ONLY

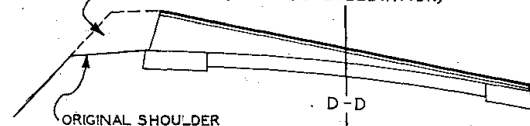


TYPICAL CROSS SECTIONS
SUPERELEVATED

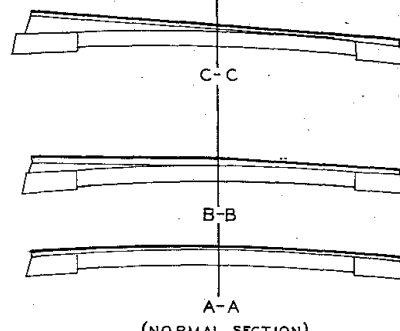
EXTRA WIDTH WIDENING
VARIES UNIFORMLY THROUGH
LENGTH OF TRANSITION

SURFACE OF WIDENING
UNIT ON SUPERELEVATED
CURVES SHALL BE
CONSTRUCTED TANGENT
TO SURFACE OF
EXISTING PAVEMENT

EARTH SHOULDER FILL**



** NOTE
Where intersecting road or
entrance is located on high
side of superelevated curve,
any necessary "earth shoulder
fill" or approach roadway fill
shall be constructed through
this area at the direction
of the engineer after placing
wedge course and prior to
placement of surface course
and entrance fillet.
Refer to appropriate other St'd.
Road Plan for details of wedge
type fillet for entrances.



TYPICAL SECTIONS
THROUGH TRANSITION AREA

GENERAL NOTES ON WEDGE COURSES

Wedge courses as detailed hereon and as indicated in the tabular listing for superelevated curves shall be constructed to attain proper superlevation. Section 1 is considered typical when widening units of sufficient width to accommodate wedge have been previously constructed. See listing 101-8.

Section 2 is considered typical when existing pavement has not been widened sufficiently to accommodate design wedge course.

Exact section for various curves may vary slightly from those indicated hereon, but methods of construction shall be similar. Exact requirements for each curve (location, quantities of materials, etc.) shall be listed in the tabulation of superelevated curves.

The base widening unit shall be omitted where the total thickness of wedge course and surface mat is 12 inches or greater along the high side of the curve.

Shoulder surface beneath wedge shall be broomed and tack coated as directed by the Engineer.

FOR CLIMBING LANES

On the high side of superelevated curves, the surface of climbing lane pavement shall be maintained at the same slope as the adjacent traffic lane until the superlevation reaches 4.0%. When the traffic lane pavement slope is greater than 4.0% the climbing lane slope will remain constant at 4.0%.

On low side of superelevated curves the surface of climbing lane pavement shall slope the same as the adjacent lane of pavement.

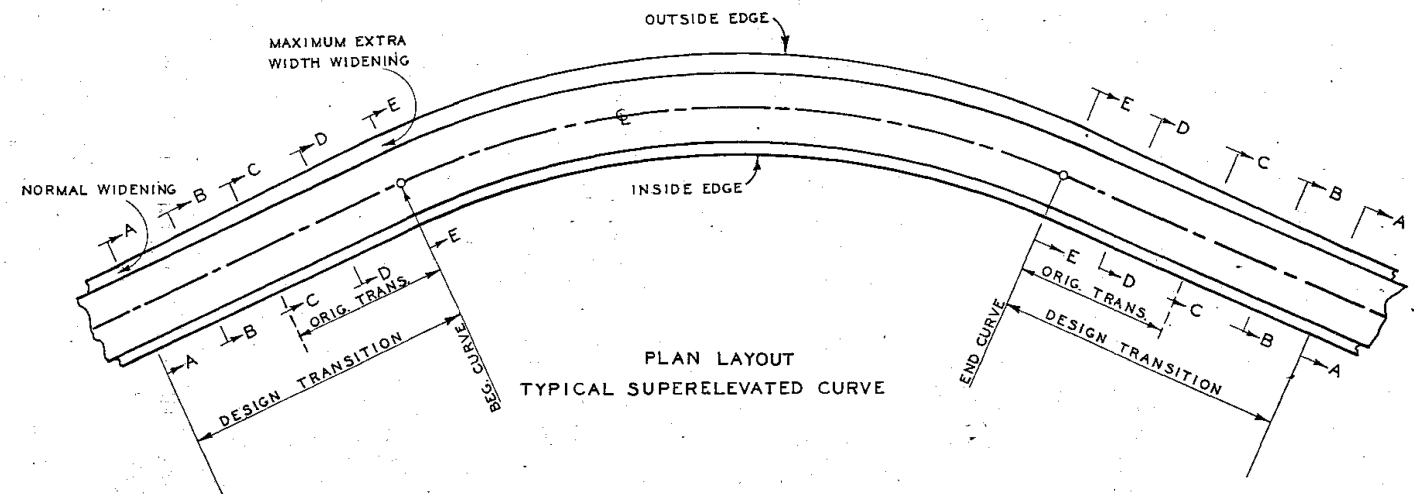
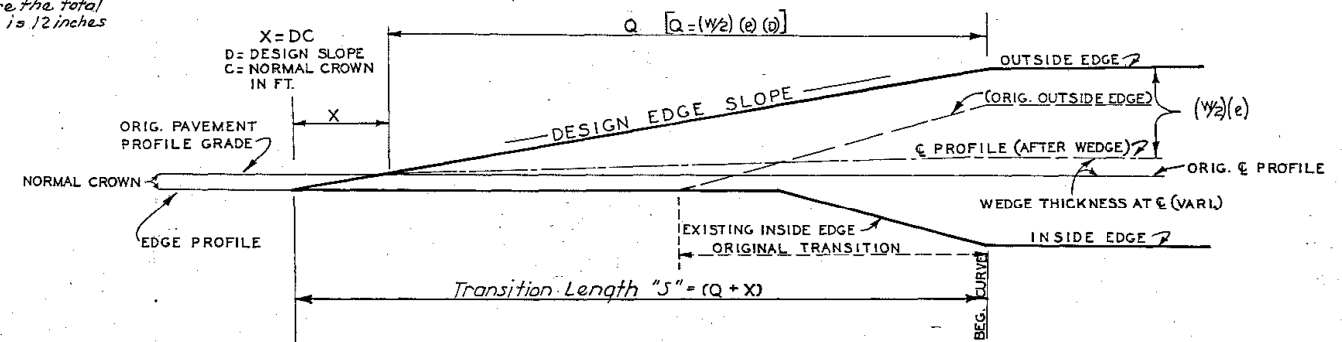
EARTH SHOULDERS

On high side of roadway, see detail on Sheet No. 2.

On low side of roadway the shoulder shall slope at the same rate as the pavement when the pavement slope exceeds 4.0%.

DIMENSION X			
CROWN	V=50 1:200	V=60 1:225	V=70 1:250
.15'	30	33.8	37.5
.18'	36	40.5	45
.21'	42	47.3	52.5
.24'	48	54.0	60

- Design Edge Slope ratio is the difference in slopes between outside edge of curve and profile at Q (after wedge).
- e is the rate of superlevation in ft. per ft.
- Interpolate to find super (e) for degrees of curve not listed. Use formula to determine transition.
- Tables and other information indicated on this sheet are based on normal pavement width of 24 ft. Appropriate adjustments should be made if any other pavement width is used.



PLAN LAYOUT
TYPICAL SUPERELEVATED CURVE

CURVE	SLOPE 1:200		SLOPE 1:225		SLOPE 1:250	
	e	Q	e	Q	e	Q
0°30'	N	—	.015	139.5	.015	145
0°45'	.015	114	.022	139.5	.029	145
1°00'	.021	114	.029	139.5	.036	145
1°30'	.030	114	.040	139.5	.053	145
2°00'	.038	114	.051	139.5	.065	195
2°30'	.046	114	.060	159.5	.073	215
3°00'	.053	124	.067	179.5	.078	235
3°30'	.058	134	.073	199.5	.080	235
4°00'	.063	154	.077	209.5		
5°00'	.071	174	.080	219.5		
6°00'	.077	184				
7°00'	.079	194				
8°00'	.080	194				

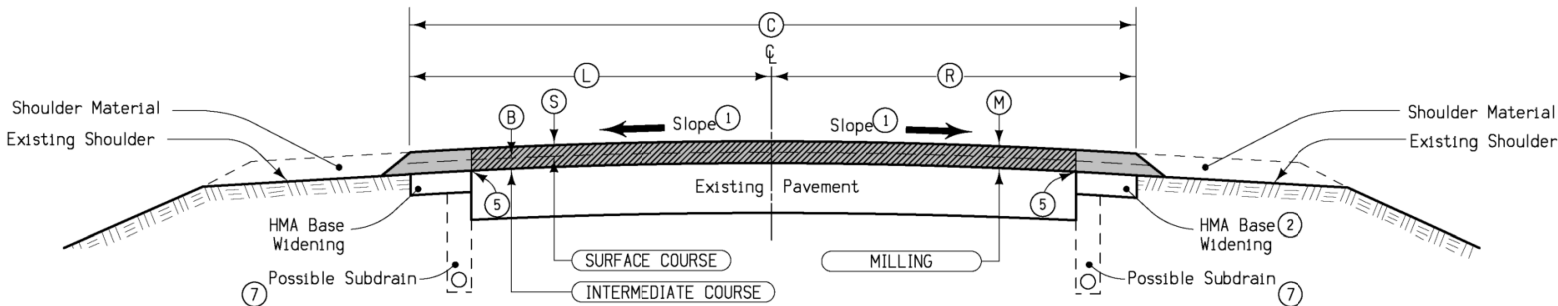
SUPERELEVATION DETAILS
FOR STAGE IMPROVEMENT

Calhoun COUNTY PROJECT NUMBER FR-4-3(17)--29-13

STATE IOWA FED. ROAD DIST. NO. 5 FISCAL YEAR SHEET NO. 6 TOTAL SHEETS 11

FOR INFORMATION ONLY

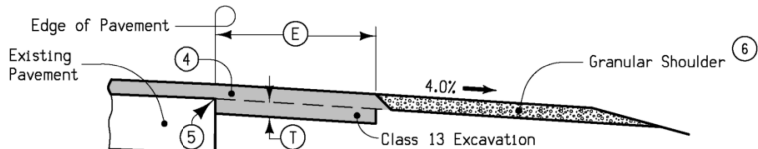
Design Rates	
Item	Rate
Surface Course	147 lbs./cu. ft.
Intermediate Course	147 lbs./cu. ft.
Milling	145 lbs./cu. ft.
Tack Coat	0.05 gal./sq. yd.



- Finished slope shall match existing pavement except that the maximum allowable slope is 3.0%, minimum allowable slope is 2.0%. Section may be modified as directed by the Engineer through areas of special shaping. Refer to tabulation listing of superelevated curves and Standard Road Plans for additional requirements through superelevated curves.
- Base Widening quantities are not included with Resurfacing quantities, see Typical 7151 on this sheet.
- Tack Coat estimated for 2 applications.
- Width includes 24-ft. wide mainline pavement.
- Provide a vertical edge. Incidental to Class 13 Excavation.
- Per station
- Refer to Standard Road Plan RF-19C for details of sub-drain installation.

TYPICAL CROSS SECTION
HMA RESURFACING WITH BASE WIDENING
AND HMA MILLING

Location								Resurfacing Quantities (2) Per Station						Remarks
Road Identification	Station To Station		(M)	(S)	(B)	(L)	(R)	(C)	Tack Coat (3)	Asphalt Binder	Hot Mix Asphalt (Tons)		Milling	
			Inches	Inches	Inches	Feet	Feet	Feet	Gallons	Tons	Surface	Intermediate	Tons	
IA 4	1093+92.8	1269+94.71	1.0	1.5	1.5	16	16	32	35.56	3.56	29.51	29.74	14.50	
IA 4	1269+94.71	1272+54.16	3.0	1.5	1.5	16	12	28	31.12	3.10	25.78	25.90	43.50	
IA 4	1272+54.16	1274+51.01	3.0	1.5	1.5	10	12	22	24.44	2.43	20.21	20.21	39.88	
IA 4	1274+51.01	1274+77.25	3.0	1.5	1.5	10	16	26	28.89	2.89	23.94	24.06	39.88	
IA 4	1274+77.25	1280+44.84	3.0	1.5	1.5	16	16	32	35.56	3.56	29.51	29.74	43.50	
IA 4	1280+44.84	1280+77.65	3.0	1.5	1.5	16	12	28	31.12	3.10	25.78	25.90	43.50	
IA 4	1280+77.65	1283+09.91	3.0	1.5	1.5	10	12	22	24.44	2.43	20.21	20.21	39.88	
IA 4	1283+09.91	1284+99.5	3.0	1.5	1.5	10	16	26	28.89	2.89	23.94	24.06	39.88	
IA 4	1284+99.5	1532+54.74	1.0	1.5	1.5	16	16	32	35.56	3.56	29.51	29.74	14.50	
IA 4	1532+54.74	1535+10	1.0	1.5	1.5	12	16	28	31.12	3.10	25.78	25.90	14.50	
IA 4	1535+10	1538+14.6	1.0	1.5	1.5	16	16	32	35.56	3.56	29.51	29.74	14.50	
IA 4	98+76.82	15+00	3.0	2.0	2.0	16	16	32	35.56	4.73	39.31	39.54	43.50	

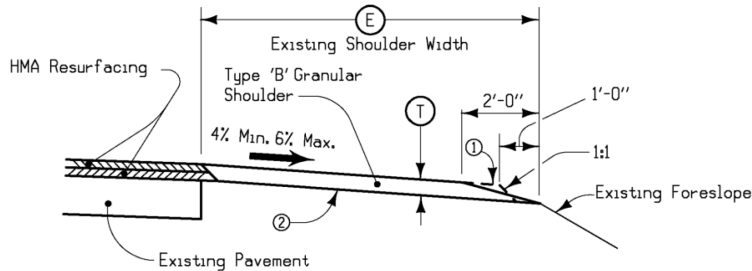


TYPICAL SECTION
RETROFIT PAVED SHOULDER

Location					Quantities (1) (2)		
Road Identification	Station To Station		Side	(E)	(T)	Class 13 Excavation, Widening Cu. Yds.	Asphalt Binder (3)
				Feet	Inches	HMA Base Widening Tons	Tons
IA 4	1094+01.00 (105' Lt.)	1097+90.80	L	4	5.0	6.17	12.08
IA 4	1094+11.40 (120' Rt.)	1097+90.80	R	4	5.0	6.17	12.08
IA 4	1097+90.80	1269+94.71	B	4	4.0	4.94	9.67
IA 4	1269+94.71	1272+54.16	L	4	4.0	4.94	9.67
IA 4	1274+51.01	1274+77.25	R	4	4.0	4.94	9.67
IA 4	1274+77.25	1280+44.84	B	4	4.0	4.94	9.67
IA 4	1280+44.84	1280+77.65	L	4	4.0	4.94	9.67
IA 4	1283+09.91	1284+99.50	R	4	4.0	4.94	9.67
IA 4	1284+99.50	1366+37.2 *	B	4	4.0	4.94	9.67
IA 4	1366+37.2 *	1529+15.4	B	4	4.0	4.94	9.67
IA 4	1529+15.4	1529+60.72	L	4	4.0	4.94	9.67
IA 4	1529+15.4	1530+46 (20' Rt.)	R	4	5.0	6.17	12.08
IA 4	1529+60.72	1531+09.50 (95' Lt.)	L	2	5.0	3.09	6.04
IA 4	1530+46 (20' Rt.)	1531+14 (148' Rt.)	R	4	5.0	6.17	12.08
IA 4	1531+45.20 (95' Rt.)	1532+97.73	R	4	5.0	6.17	12.08
IA 4	1531+46.50 (84.5' Rt.)	1535+10	L	2	5.0	3.09	6.04
IA 4	1532+97.73	1535+10	R	4	4.0	4.94	9.67
IA 4	1535+10	1538+14.60	B	4	4.0	4.94	9.67
IA 4	98+76.82	15+00	B	4	4.0	4.94	9.67

* Includes paved shoulders around to the end of returns or minimum 50' from edgeline at county road D26.

- Per side per station.
- Bid Items.
- For HMA base only.
- HMA and tack coat quantities above the HMA base are included with mainline quantities.
- Provide a vertical edge. Incidental to Class 13 Excavation.
- Refer to Typical 7135 on this sheet for Granular Shoulder details.



- Notes:
- Quantities have been determined on the basis of a design weight of 140 lbs. per cubic foot.
- Place and compact material to the dashed line; then blade and shape to foreslope that portion above the solid line in the outer 2' and roll with loaded truck tire.
 - Existing shoulder surface to be shaped to a uniform cross slope prior to placing granular shoulder material. Shape to ensure the thickness of the granular shoulder material is not less than the thickness of the resurfacing. Shaping shall be paid for in accordance with Section 2121 of the Standard Specifications.
 - Tons per side per station.

TYPICAL SECTION
FOR TYPE 'B'
GRANULAR SHOULDER
ADJACENT TO HOT MIX ASPHALT
RESURFACING

LOCATION					TONS	(T)	(E)
ROAD IDENTIFICATION	STATION TO STATION		SIDE	(3)	Inches	Feet	Feet
IA 4	1094+01.00 (105' Lt.)	1097+90.80	L	7.25	3.0	4.0	
IA 4	1094+11.40 (120' Rt.)	1097+90.80	R	7.25	3.0	4.0	
IA 4	1097+90.80	1269+94.71	B	7.25	3.0	4.0	
IA 4	1269+94.71	1272+54.16	L	7.25	3.0	4.0	
IA 4	1274+51.01	1274+77.25	R	7.25	3.0	4.0	
IA 4	1274+77.25	1280+44.84	B	7.25	3.0	4.0	
IA 4	1280+44.84	1280+77.65	L	7.25	3.0	4.0	
IA 4	1283+09.91	1284+99.50	R	7.25	3.0	4.0	
IA 4	1284+99.50	1366+37.2	B	7.25	3.0	4.0	
IA 4	1366+37.2	1529+15.4	B	7.25	3.0	4.0	
IA 4	1529+15.4	1529+60.72	L	7.25	3.0	4.0	
IA 4	1529+15.4	1530+46 (20' Rt.)	R	7.25	3.0	4.0	
IA 4	1529+60.72	1531+09.50 (95' Lt.)	L	3.63	3.0	2.0	
IA 4	1530+46 (20' Rt.)	1531+14 (148' Rt.)	R	7.25	3.0	4.0	
IA 4	1531+45.20 (95' Rt.)	1532+97.73	R	7.25	3.0	4.0	
IA 4	1531+46.50 (84.5' Rt.)	1535+10	L	3.63	3.0	2.0	
IA 4	1532+97.73	1535+10	R	7.25	3.0	4.0	
IA 4	1535+10	1538+14.60	B	7.25	3.0	4.0	
IA 4	98+76.82	15+00	B	4.83	4.0	2.0	

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