HMA Resurfacing/Cold-in-Place Recycling
NHSX-930-0(024)--3H-08

BOONE COUNTY

LETTING DATE 11-15-2022

INDEX OF SHEETS	
No.	DESCRIPTION
A Sheets	**Title Sheets**
* A.1	Title Sheet/Location Map
* A.2 - 3	Field Exam Questions
* A.4	Design Criteria
* A.5 - 8	Project Concept
B Sheets	**Typical Cross Sections and Details**
B.1 - 5	Typical Cross Sections and Details
D Sheets	**Mainline Plan and Profile Sheets**
* D.1 - 8	Plan Sheets US 30/IA 930
J Sheets	**Traffic Control and Staging Sheets**
J.1	Traffic Control Plan
	* Color Plan Sheets

IOWA DOT

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

BOONE COUNTY

HMA Resurfacing/Cold-in-Place Recycling

US 30 to the Story Co. Line

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

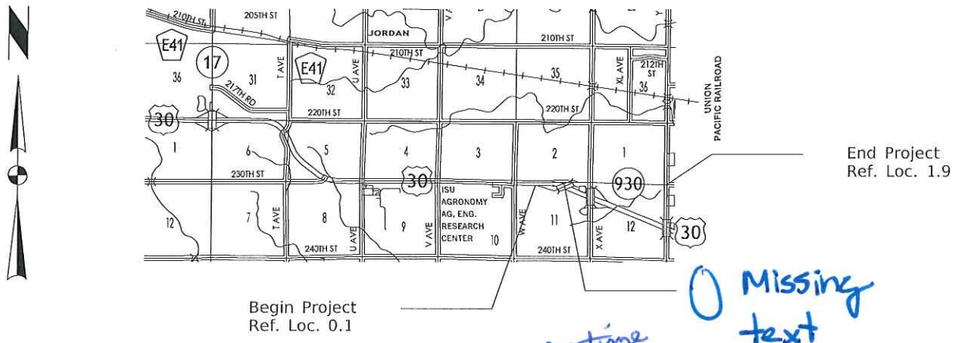
Value Engineering Saves. Refer to Article 1105.14 of the Specifications.

IOWA ONE CALL
1-800-292-8989 | 811
www.iowaonecall.com

REVISIONS

TOTAL 22
PROJECT IDENTIFICATION NUMBER
22-08-930-010
PROJECT NUMBER
NHSX-930-0(024)--3H-08
R.O.W. PROJECT NUMBER

- Transition to US 30 PCC from normal crown to tipped north.
- Add mill to PCC at E. end where 4-lane begins.
- Add painted arrows (Ramp C x2 wb), (@ new PCC x2 wb) (x2 Eb @ full 4-lane)
- Shoulder Rock Touch up @ Ramp C.



0 Missing text

- Talk w/ Gary about 2 lane Daytime Time Restrictions

CIP flyover Ramp @ full width no tapers

6/14/2023
Attendees
Matt Vais
Scott Nixon
Ben Adey

D7 PLAN – Date: 9/6/2022

INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	Allison Smyth	Primary Signature Block

PRELIMINARY PLANS

Subject to change by final design.

D2 PLAN – Date: 5–16–2022

FILE NO.	ENGLISH	DESIGN TEAM Smyth\Adey\Vais	BOONE COUNTY	PROJECT NUMBER NHSX-930-0(024)--3H-08	SHEET NUMBER A.1

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FIELD EXAM CHECKLIST

1 - Duration of project?

3 months

2 - Speed Limit

55 mph

3 - Speed Limit during construction

55 mph

4 - Is sight distance a problem?

No

5 - Patching quantities-full depth, partial depth, and surface.

Full Depth, Jefferson RCE

6 - Does patching need to be done in the project area or do the construction limits need to be extended? Who will provide locations of patches by milepost?

Jefferson RCE

7 - Are rumble strips going to be placed with this project or a separate project?

Centerline and Edge line rumble strips will be included in the 55 mph speed zone. From the west end of the project east to 1,900 ft. west of the Story Co. line.

8 - Leveling and strengthening locations and lengths (i.e. station to station).

No

9 - Areas of haul-outs.

N/A

10 - Any survey needed? (culvert extensions, safety dikes,right turn lanes,horizontal curves, ext..)

No → [illegible] RCE Survey

11 - Do any of the utilities need to be relocated (power/telephone poles) either permanently or temporarily for construction?

No

12 - Names and addresses of affected utility companies.

Sean Passick → None should be affected

13 - Locations of entrances to be reshaped.

N/A

14 - Are there existing drainage problems?

No

FIELD EXAM CHECKLIST

15 - Note any special features not shown on plan.

No

16 - Note condition of existing culverts.

Boone Maintenance

17 - Names of affected special events.

Boone and Story County events list from Gary Kretlow → 2023 Events

18 - Locations of mailboxes to be relocated to a minimum of 8' from the pavement edge.

N/A

19 - Number and location of EF joints.

2 on Ramp B

20 - Disposition of bridge handrail and guardrail, including posts.

Guardrail will be brought up to current standard on Ramp B.

21 - Inventory of existing guardrail.

Boone Maintenance?

22 - Remove & Reinstall Signs - District Maintenance or by the Contractor?

N/A

23 - Longitudinal joint repair locations (station to station).

N/A

24 - Locations and quantities of engineering fabric to be placed over random cracks.

N/A

25 - Tabulation of adjustment of fixtures.

N/A

26 - Clearing and grubbing quantities - by unit or by area?

N/A

27 - Resurfacing Projects - is District Survey able to preserve Section Corners & Points? If "no", then add these items under Construction Survey.

D1 Survey

FIELD EXAM CHECKLIST

Contractor furnish borrow? (Yes) / (No)

No

Full depth patches to be PCC? (Yes) / (No)

RCE

Full depth PCC patches to be doweled? (Yes) / (No)

RCE

Soils to determine and provide tabulation of subdrains? (Yes) / (No)

Ben Adey

Pollution Prevention Plan required? (Yes) / (No)

Field Office? (Yes) / (No)

No

Construction Survey and or Point Preservation by DOT or Contractor? See Dist. 1 Surveyor for this (DOT) / (Contractor).

D1 Survey.

Survey by Office of Design? (Yes) / (No)

Pavement markings for turn lanes as determined by the District? (Yes) / (No)

N/A

Any RWIS or Traffic Recorder Sites within project limits? (Yes) / (No)

Roadway Design Speed (mph) = 60

Design Manual Section 1C-1
Last Updated: 04-29-19

Design Criteria for High Speed Roadways

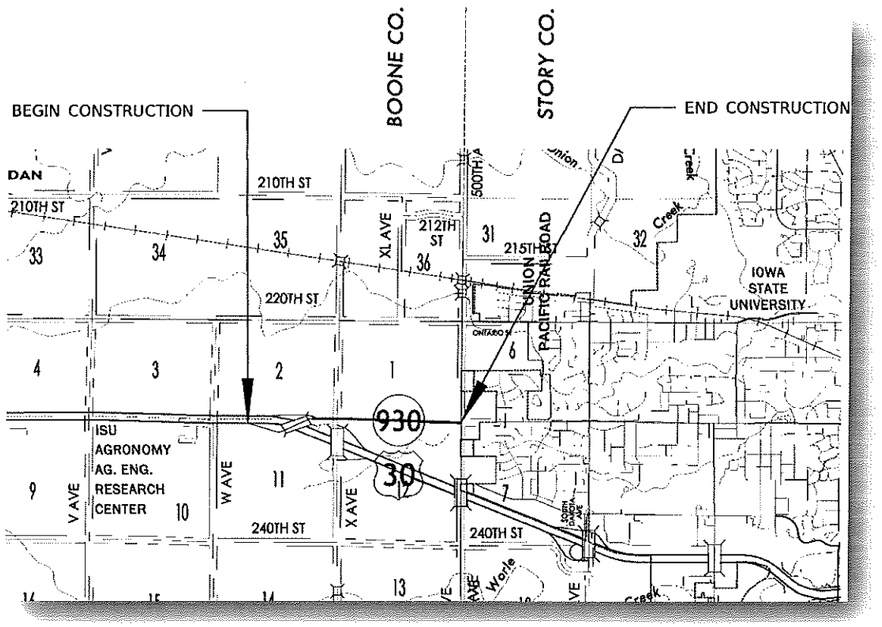
Design Element			Preferred Criteria Design Speed, mph						Acceptable Criteria Design Speed, mph						Project Values
			50	55	60	65	70	75	50	55	60	65	70	75	
Stopping sight distance (ft) (Refer to Section 6D-1)			425	495	570	645	730	820	425	495	570	645	730	820	570
Minimum horizontal curve radius (ft) (Refer to Sections 2A-2 and 2A-3)	Method 5 superelevation and side friction distribution	e_{max} = 6%	833	1060	1330	1660	2040	2500	833	1060	1330	1660	2040	2500	N/A
		e_{max} = 8%	--	--	--	--	--	--	758	960	1200	1480	1810	2210	N/A
Minimum vertical curve length (ft) (Refer to Section 2B-1)			150	165	180	195	210	225	150	165	180	195	210	225	N/A
Minimum rate of vertical curvature (K) (Refer to Section 2B-1)	crest vertical curves		84	114	151	193	247	312	84	114	151	193	247	312	N/A
	sag vertical curves	roadways without fixed-source lighting	96	115	136	157	181	206	96	115	136	157	181	206	N/A
		roadways with fixed-source lighting	96	115	136	157	181	206	54	66	78	91	106	121	N/A
Minimum gradient (%)	(Refer to Section 2B-1)		0.5						0.3% with a curb, 0.0% without a curb						N/A
Maximum gradient (%)	(Refer to Section 2B-1)	Urban roadways	4		3				7	6	6	--	--	--	N/A
		Rural roadways							5	5	4	4	4	4	N/A
		Interstates							5	5	4	4	4	4	N/A
Clear zone			See "Preferred Clear Zone" table in Section 8A-2						See "Acceptable Clear Zone" table in Section 8A-2						32

IOWA DOT
GETTING YOU THERE

TO OFFICE: District 1
ATTENTION: Tony Gustafson
FROM: Allison Smyth
OFFICE: District 1
SUBJECT: FY 2023 3R Concept Statement – **FINAL**

DATE: April 18, 2022
COUNTY: Boone
PROJ. NO.: NHSX-930-0(024)—3H-08
PIN: 22-08-930-010
FOLDER: D0Submittal

PROJECT LOCATION: On IA 930 from US 30 to the Story County Line



PROJECT DATA:
ROUTE: IA 930
LENGTH: 1.3 Miles
PLANNING CLASSIFICATION: Access Route
MAINTENANCE SERVICE LEVEL: C
NHS ROUTE: No
TRAFFIC: 2023: 6,400 ADT with 4% trucks
2043: 10,800 ADT with 4 % trucks

PURPOSE AND NEED:
The pavement along this route has reached the end of its useful life and requires rehabilitation.

FEASIBLE ALTERNATIVES: **
1. $1,107,000 3-inch HMA Resurfacing with 3-inch Milling (20-year design)
2. $1,249,000 3-inch Milling, 3-inch Cold-in-Place Recycling, and 3-inch HMA Resurfacing (20-year design)
3. $5,302,000 9-inch PCC & 12" Modified Subbase Reconstruction (40-year design)

See attached detailed cost estimate.

Concept Cost Estimate.pdf

**Requires review by pavement determination group.

RECOMMENDATIONS:
Alternative 2 is the preferred alternative in order to achieve a durable, cost-effective rehabilitation with the ability to maintain traffic during construction.

The typical cross section for IA 930 on this project will be 48-foot-wide paving and 10-foot-wide granular shoulders at the west end of the project, transitioning to 24-foot-wide pavement to the east. Ramps B and C will have 24-foot-wide paving with 10-foot-wide granular shoulders on the outside, and 6-foot-wide granular shoulders on the inside. The Ramp B bridge and approaches will be gapped (approximately 620ft). The existing foreslopes will be used as constructed.

Longitudinal subdrains will be added along the length of the project.

Centerline rumble strips and edge line rumble stripes will be included within the 55-mph speed zone, which is located from the west end of the project east to 1,900 feet west of the Story County line.

FUNDS PROGRAMMED:
This project will be funded with FY 2023 3R funds.

FILE NO.	ENGLISH	DESIGN TEAM		COUNTY	PROJECT NUMBER	SHEET NUMBER A.5	

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PROJECT IMPACTS:

Designed by: District 1

Design Impact	Assistance Requested (Y/N)	Remarks
ADA:	N	
Agreements/Notification Letters:	Y	Notification letter for the city of Ames
Bridges and Structures:	N	
Consultant:	N	
Contracts:	N	
Design/Methods:	N	
Location and Environment:	N	
Maintenance: (Boone)	Y	Culvert Review
Project Management:	N	
Railroad:	N	
RCE: (Jefferson)	N	
Right of Way:	N	
Soils:	N	
Survey/Photogrammetry:	N	
Systems Planning:	N	
Traffic and Safety:	N	
Utilities:	N	
Other:	N	

Cc:

C. Purcell	M. J. Kennerly	K. D. Nicholson	S. J. Megivern
M. A. Swenson	J. Hart	J. S. Nelson	B. Walls
K. Brink	D. L. Newell	K. Olson	S. Majors
J. W. Laaser-Webb	W. A. Sorenson	D. E. Sprengeler	D. A. Popp
E. C. Wright	M. E. Ross	A. A. Welch	B. Ellis
D. R. Claman	M. Nop	J. Hoskins	E. Engle
C. Brakke	S. Nielsen	M. Hobbs	C. C. Poole
J. Garton	M. Donovan	V. Brewer	B. E. Azeltine
J. Harris	J. Bartholomew	B. D. Hofer	A. Poole
E. D. Gansen	S. J. Gent	S. Anderson	D. Stokes
B. Adey	K. K. Patel	S. Godbold	W. W. Musgrove
H. Bibiano	N. Cuva	A. Smyth	M. Ortiz-Pagan
D. L. Maifield	J. Vortherms	C. Davis	S. Nixon

Boone County NHSX-930-0(024)—3H-08 April 18, 2020

CONCEPT ANALYSIS & SUPPORTING DATA:

Necessary supporting data may be linked in the analysis to ProjectWise.

PAVEMENT:

Existing Conditions:

Link to Concept Tool Results:

22-08-830-010-V2.html

Pavement History:

See attached PMIS sheets.

PMIS Section Report (93031000 0C

PMIS Data:

See attached PMIS sheets.

Pavement Design & dTIMS Recommendation:

dTIMS recommends cold in place recycling in 2027.

Subdrains:

Subdrains will be included with this project to bring the subdrain coverage up to 100%.

Patching/Curb Repairs:

Not included in this project.

ADA/Sidewalk/Trails:

No pedestrian facilities exist within the limits of the project. No new pedestrian facilities are anticipated with this project.

SAFETY:

3R Design Criteria:

Acceptable Values for 3R Roadway Features						Project Values
DESIGN ELEMENT	FREEWAY	NON-FREEWAY				
Regulatory Speed (mph)	65/55	55	45	35	25	**55**
Minimum Vertical Curve (mph)	65/55	35	25	15	5	**NA**
Maximum Horizontal Curve (degrees)	3	6	8	14	28	**NA**
Maximum Gradient	3%	6%	7%	10%	13%	**1.8%**
Lane Width (feet)	12	12	11	11	11	**12**
Parking Lane Width (feet)	--	--	8	8	8	**NA**
Shoulder Width (feet)	10/6	6	4	4	2	**10 (gran)**
Foreslopes	3:1	3:1	3:1	--	--	
Transverse Slopes	6:1	6:1	6:1	--	--	
Horizontal Clearance (feet)						**32**
Bridge Width	Approach Lanes + Shoulder Width			Approach Lanes + Offset		**NA**
Vertical Clearance - Over NHS (feet)	16.5	16.5	16.5	16.5	16.5	**NA**
Vertical Clearance - Over Local (feet)	14.5	14.5	14.5	14.5	14.5	**NA**

Crash Analysis:
See attached ICAT quick report with 5-year crash history summary.

ICAT Reports.pdf

Key Findings:

- From 2017 to 2021, the project area had 29 crashes.
- None were fatal crashes.
- 21 crashes were property damage only.
- 4 crashes were animal related.
- 13 crashes were intersection related. See attached collision diagrams.
- 3 crashes were related to winter conditions.

Intersection Analysis:
No right or left turn lanes will be included with this project.

No radius improvements will be included with this project.

Boone County will be invited to pave the unpaved side road approach at X Avenue at County cost with this project.

Railroads:
No railroad crossings are present within the limits of this project.

Boone County NHSX-930-0(024)—3H-08 April 18, 2020

STRUCTURES and DRAINAGE:

Bridges:
Ramp B has structure number 0819.6R930 over US 30. It is a 400'-0 x 40'Continuous welded girder bridge constructed in 1972 and overlaid in 2012. No bridge work will be included with this project.

Culverts/Pipes:
Three culverts are located within the limits of the project—one marked deficient in the Collector application. Pipe separation is suspected and will be repaired with this project.

Guardrail:
Guardrail at the bridge on Ramp B has the outdated symmetrical connection to the bridge and will be brought to current standards with this project.

Drainage District:
None identified with this project.

PROJECT IMPACTS:

Environmental:
No Clearing and Grubbing needs have been identified.

TSMO/Traffic Control:
IA 930 will remain open to traffic during construction. Traffic will be maintained via pilot cars and flaggers.

ROW:
No ROW acquisitions are anticipated with this project.

Agreements/Notification Letters:
A notification letter is needed for the city of Ames.

Project Coordination:
None.

FEASIBLE ALTERNATIVES & RECOMMENDATION:

FEASIBLE ALTERNATIVES: **

1. $1,107,000 3-inch HMA Resurfacing with 3-inch Milling (20-year design)
2. $1,249,000 3-inch Milling, 3-inch Cold-in-Place Recycling, and 3-inch HMA Resurfacing (20-year design)
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See attached detailed cost estimate.

**Requires review by pavement determination group.

RECOMMENDATIONS:

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Longitudinal subdrains will be added along the length of the project.

Centerline rumble strips and edge line rumble stripes will be included within the 55-mph speed zone, which is located from the west end of the project east to 1,900 feet west of the Story County line.

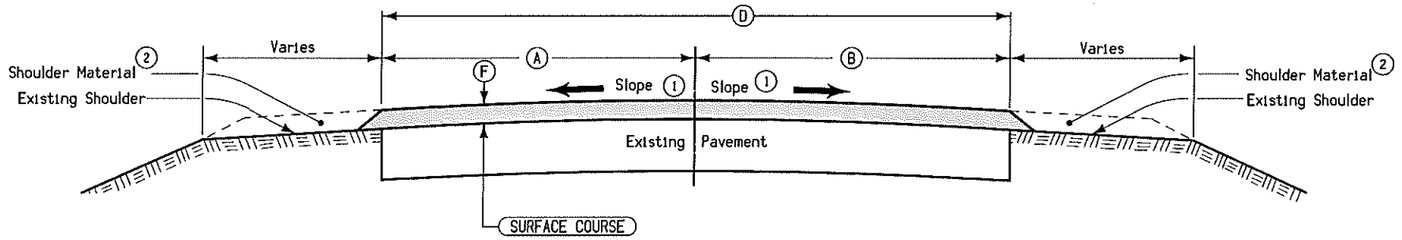
FUNDS PROGRAMMED:

This project will be funded with FY 2023 3R funds.

Development Schedule:

D00 Pre-Design Concept	4-15-2022
D02 Design Field Exam	5-16-2021
D07 Final Pave Plans	9-6-2022
L02 Letting- Paving and Incidentals	11-15-2022

2610
10-02-01



DESIGN RATES	
ITEM	RATE
Surface Course	145 lbs./cu. ft.
Tack Coat	0.05 gal./sq. yd.

TABLE OF DESIGN QUANTITIES Per Location

LOCATION			(F)	(D)	TACK COAT	ASPHALT BINDER	HOT MIX ASPHALT
ROAD IDENTIFICATION	STATION TO STATION		Inches	Feet	Gallons (3)	Tons	Tons
IA 930	3576+91	6394+78 (A)	2	24	477	31	523
IA 930	6394+78	6398+40	2	(B)	120	16	262
IA 930	6398+40	6418+00	2	48	523	69	1143
IA 930	6418+00	6419+50	2	(C)	34	5	74
IA 930	6419+50	6419+80	2	(D)	5	1	12
IA 930	6419+80	6421+60	2	(E)	29	4	64
IA 930	6421+60	6458+30	2	24	489	64	1074

(A) Equation: Sta. 3590+75.36 = Sta. 6390+75
(B) Width varies from 71.3' to 48'
(C) Width varies from 48' to 33'
(D) Width varies from 33' to 32'
(E) Width varies from 32' to 26'

Notes:

(1) 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.

(2) Shoulder material as specified elsewhere in these plans; refer to typical 7134 and 7135 for "Type 'B' Granular Surfaced Shoulders" and Typical 7136 for "Type 'A' Granular Surfaced Shoulders."

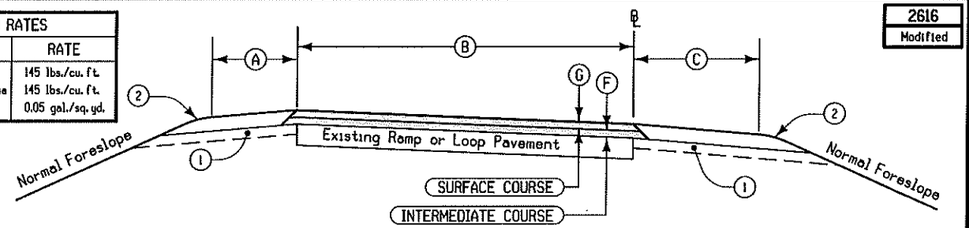
(3) Estimate is based on one application.

(4) Refer to sheet L.11 for additional information.

TYPICAL CROSS SECTION HOT MIX ASPHALT RESURFACING SINGLE COURSE

DESIGN RATES	
ITEM	RATE
Surface Course	145 lbs./cu. ft.
Intermediate Course	145 lbs./cu. ft.
Tack Coat	0.05 gal./sq. yd.

2616
Modified



TYPICAL CROSS SECTION HMA RESURFACING RAMP or LOOP

INTERCHANGE	STATION TO STATION		RAMP/ LOOP IDENT.	DENSITY 94%	95%	96%	(A) Feet	(B) Feet	(C) Feet	(G) Inches	(F) Inches
US 30 & IA 930	2566+75	2583+45	Ramp B		X		6.0	24.0	10.0	2.0	2.0
US 30 & IA 930	2583+45	2585+58	Ramp B		X		6.0	28.0	10.0	2.0	2.0
US 30 & IA 930	2591+60	2593+65	Ramp B		X		6.0	28.0	10.0	2.0	2.0
US 30 & IA 930	2593+65	2596+25	Ramp B		X		6.0	24.0	10.0	2.0	2.0

Normal section shown may be appropriately modified at areas specifically designated by the engineer, such as intersections or superelevated curves.

Section view is in the direction of traffic.

Refer to other drawings for details of shoulder design and construction.

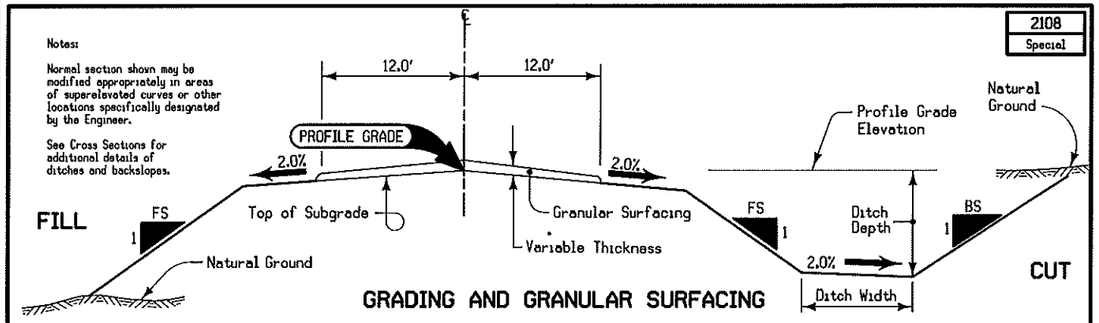
(1) Existing Granular Shoulder
(2) Shoulder Material, refer to Typical 7135
(3) Refer to sheet L.11 for additional information.

2108
Special

Notes:

Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

See Cross Sections for additional details of ditches and backslopes.



GRADING AND GRANULAR SURFACING

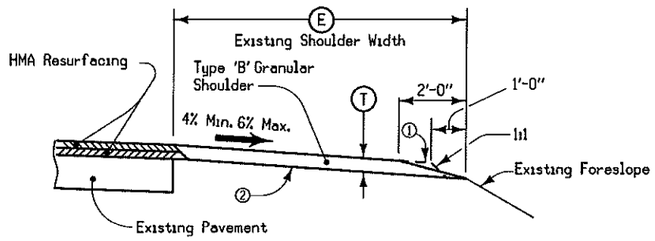
Granular Surfacing shall be placed as follows:

Stage 1 (Grading) Design application rate is ____ tons per mile.

Stage 2 (Paving) Design application rate is ____ tons per mile.

LOCATION			SLOPES	
ROAD IDENTIFICATION	STATION TO STATION		FS	BS
Temporary Detour Road, refer to Sheet J.11 for details.			4	---

7135
10-02-01



Notes:

Quantities have been determined on the basis of a design weight of 140 lbs. per cubic foot.

(1) Place and compact material to the dashed lines; then blade and shape to foreslope that portion above the solid line in the outer 2' and roll with loaded truck tire.

(2) 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.

(3) Tons per side per station.

LOCATION				TONS	(T)	(E)
ROAD IDENTIFICATION	STATION TO STATION		SIDE	(3)	Inches	Feet
US 30/IA 930 Interch. Rmp B	2566+75	2583+45	Lt.	16	4	6.0
US 30/IA 930 Interch. Rmp B	2566+75	2583+45	Rt.	27	4	10.0
US 30/IA 930 Interch. Rmp B	2583+45	2585+58	Lt.	13	4	5.0
US 30/IA 930 Interch. Rmp B	2583+45	2585+58	Rt.	19	4	7.0
US 30/IA 930 Interch. Rmp B	2591+60	2593+65	Lt.	13	4	5.0
US 30/IA 930 Interch. Rmp B	2591+60	2593+65	Rt.	19	4	7.0
US 30/IA 930 Interch. Rmp B	2593+65	2596+25	Lt.	16	4	6.0
US 30/IA 930 Interch. Rmp B	2593+65	2596+25	Rt.	27	4	10.0
IA 930	3576+91	6458+30	Lt.	16	2	10.0
IA 930	3576+91	6394+78	Rt.	9	2	6.0
IA 930	6394+78	6458+30	Rt.	16	2	10.0

TYPICAL SECTION FOR TYPE 'B' GRANULAR SHOULDER

ADJACENT TO HOT MIX ASPHALT RESURFACING

This Sheet For Information Only

ENGLISH	IOWA DOT	DESIGN TEAM Gustafson\Mackey\Tibodeau	BOONE/STORY COUNTY	PROJECT NUMBER NHSX-30-4(75)--3H-08	SHEET NUMBER B.2

7:23:43 AM 5/17/2010 gmackey W:\Projects\0803002008\DistrictDesign\08030075b01.sht

FILE NO.	ENGLISH	DESIGN TEAM Smyth\Adey\Vais	BOONE COUNTY	PROJECT NUMBER NHSX-930-0(024)--3H-08	SHEET NUMBER B.1

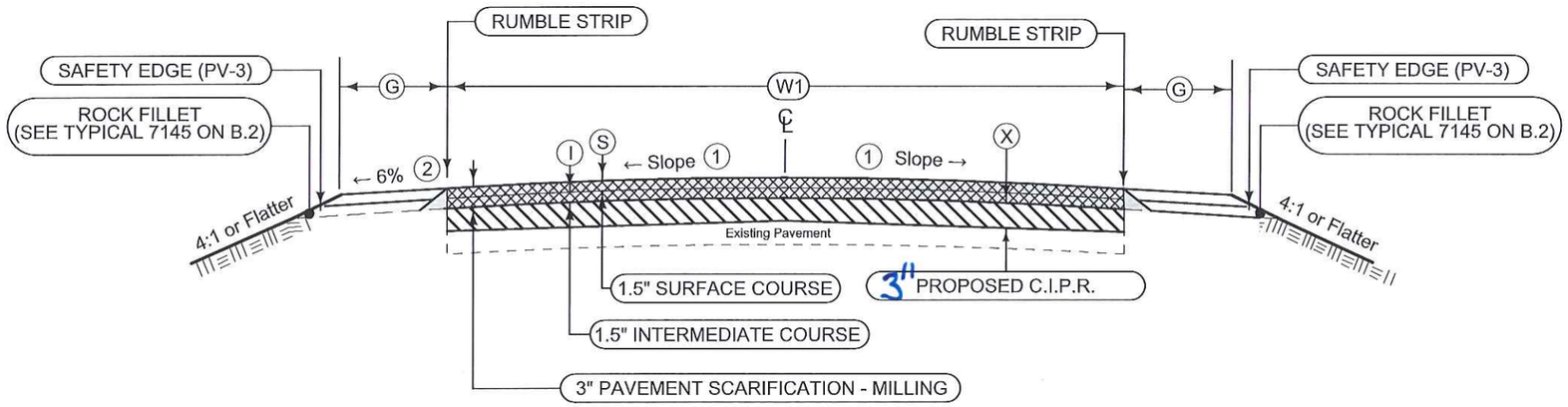
9:14:00 AM 5/19/2022 mvais pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\0893001022\DistrictDesign\08930024_B1.dgn

2602-B
MODIFIED

PAVEMENT SCARIFICATION = Stage 1 (2" Milling)

C.I.R. (Cold In-Place Recycling) = Stage 2 (3" CIPR depth)

HMA RESURFACING = Stage 3 (2" HMA resurfacing)



DESIGN RATES

ITEM	RATE
Surface Course	147 lbs./cu. ft.
Binder Rate estimate	6% of S + I tons
Stabilizing Agent	0.0011 tons/Sq.Yd./Inch

Notes:

1. Match finished slope to 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.

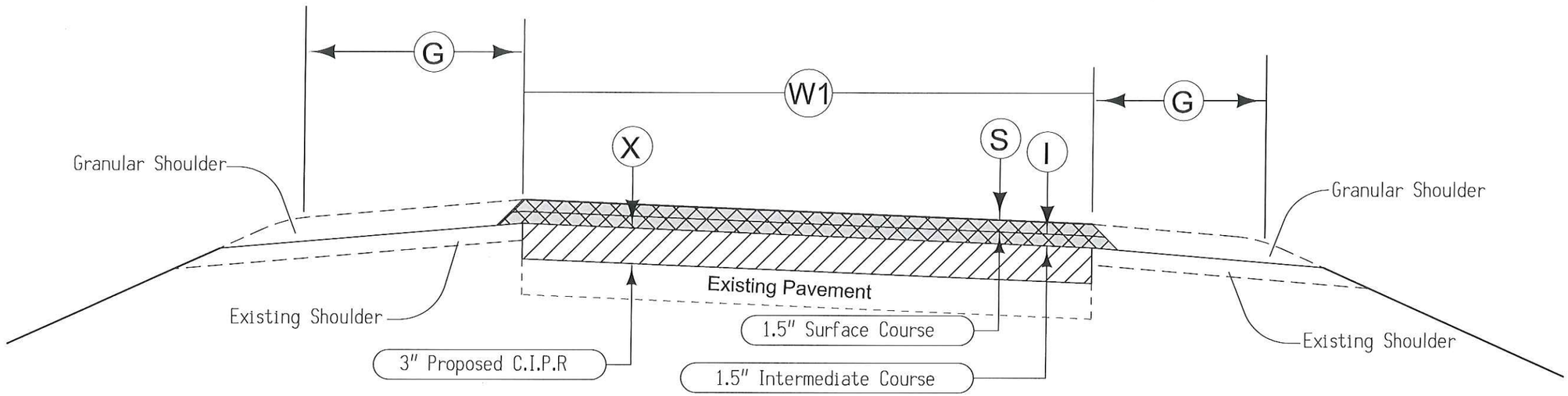
2. A 6% shoulder slope is proposed to better match the existing shoulder slope and to better establish a stable granular shoulder. A rock fillet should be utilized adjacent to the shoulder to finish the edge.

LOCATION			HMA Resurfacing				Cold In-place Recycling			
ROAD IDENTIFICATION	STATION TO STATION		(S) Inches	(I) Inches	(W1) Feet	(G) Feet	(W1) Feet	(X) Inches	CIR SY	Stabilizing Agent Tons
IA 930	6394+78.	6398+40.	1.5	1.5	59.7	10	59.7	3	2401.27	7.9
IA 930	6398+40.	6418+00.	1.5	1.5	48	10	48	3	10453.33	34.5
IA 930	6418+00.	6419+50.	1.5	1.5	40.5	10	40.5	3	675.00	2.2
IA 930	6419+50.	6419+80.	1.5	1.5	32.5	10	32.5	3	108.33	0.4
IA 930	6419+80.	6421+60.	1.5	1.5	29	10	29	3	580.00	1.9
IA 930	6421+60.	6458+30.	1.5	1.5	24	10	24	3	9786.67	32.3
						Totals			**24004.60**	**79.2**

No CIP in Tapers

TYPICAL CROSS SECTION
PROPOSED: PAVEMENT SCARIFICATION,
COLD IN-PLACE RECYCLING
and HMA RESURFACING
IA 930

2616
10-15-13



TYPICAL CROSS SECTION
HMA RESURFACING
RAMP or LOOP

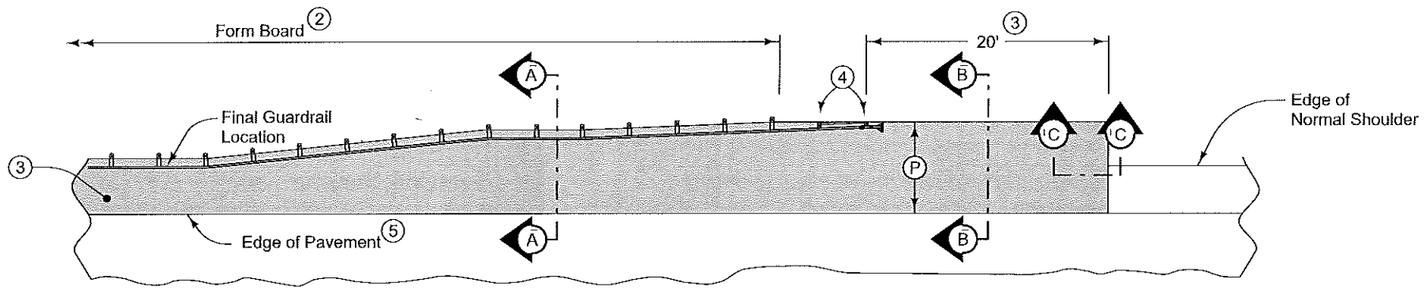
Section view is in the direction of traffic.

Refer to other drawings for details of shoulder design and construction.

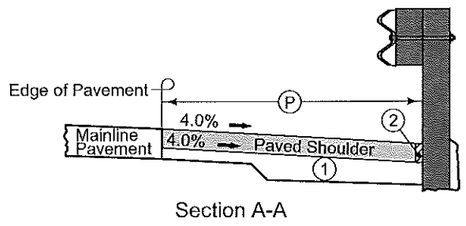
1 Refer to shoulder typicals

EB ramp

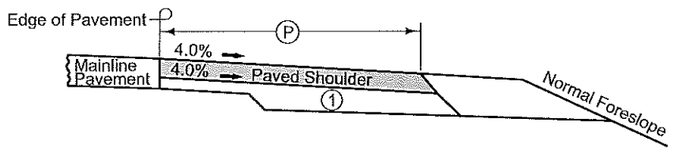
LOCATION			HMA Resurfacing					Cold In-place Recycling			
ROAD IDENTIFICATION	STATION TO STATION		(S) Inches	(I) Inches	(W1) Feet	(G) Feet	(G) Feet	(W1) Feet	(X) Inches	CIR SY	Stabilizing Agent Tons
Ramp B	2566+75.	2583+45.	1.5	1.5	24	10	6	24	3	4453.33	14.7
Ramp B	2583+45.	2585+58.	1.5	1.5	28	10	6	28	3	662.67	2.2
Ramp B	2591+60.	2593+65.	1.5	1.5	28	10	6	28	3	637.78	2.1
Ramp B	2593+65.	2596+25.	1.5	1.5	24	10	6	24	3	693.33	2.3
Ramp C	3576+91.	3590+75.36	1.5	1.5	24	10	6	24	3	3691.63	12.2
Ramp C EQ: 3590+75.36=6390+75	6390+75.	6394+81.3	1.5	1.5	24	10	6	24	3	1083.47	3.6
							Totals			11222.20	37.0



PLAN VIEW

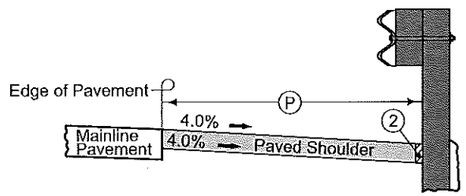


Section A-A

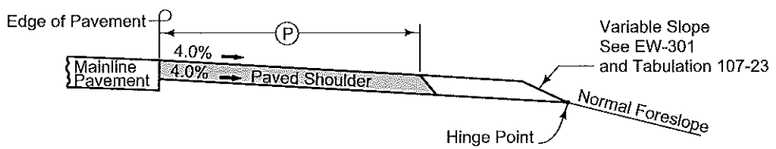


Section B-B

NEW CONSTRUCTION



Section A-A



Section B-B

EXISTING SHOULDER

DESIGNER INFO

7156
04-18-17

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

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

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

Refer to Tabulation 112-9 for shoulder quantities.

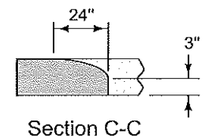
① For subgrade treatment, refer to other details in the plan.

② PCC option only: When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown. Refer to note 4 for final 2 posts.

③ Continue paved shoulder to existing paved shoulder or 20 feet beyond the center of the first post.

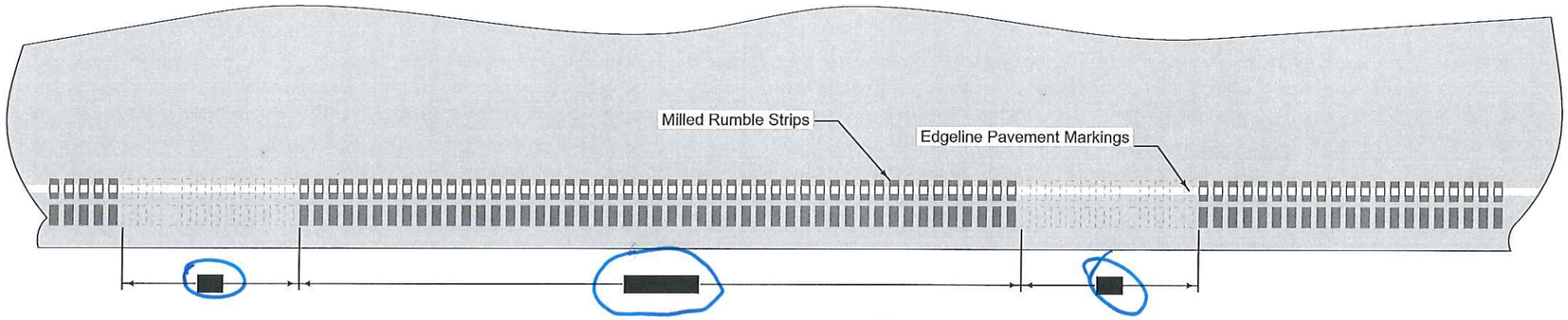
④ Shoulder may be notched for final 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.

⑤ 'KT-1 joint for PCC shoulder.
'B' joint for HMA shoulder.



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

PAVED SHOULDER AT GUARDRAIL

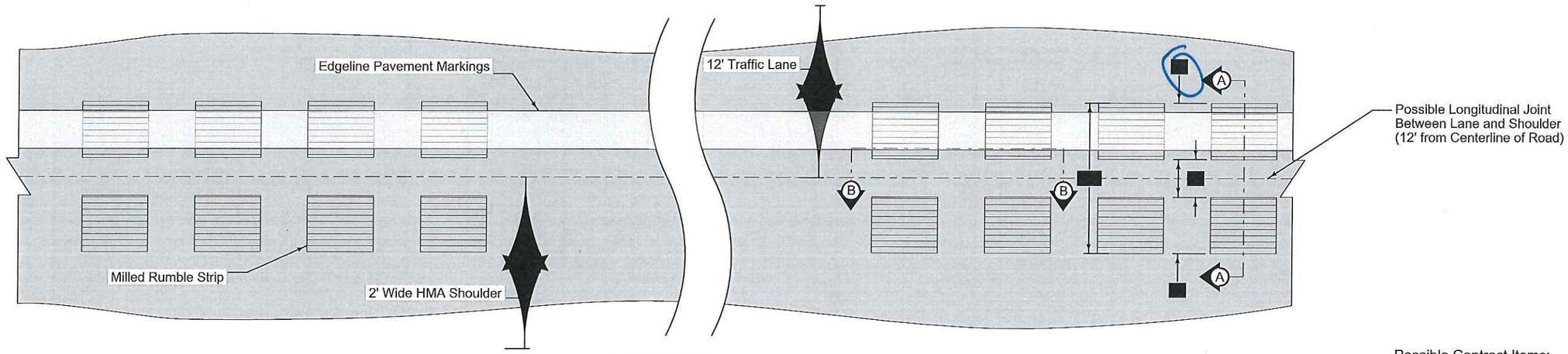


GAP DETAILS ②

Typ. Dim.

① Center 4 inch gap over theoretical longitudial joint.

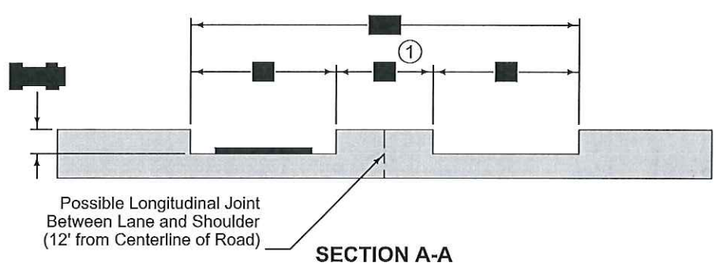
② For additional Gap details at Intersections and Bridges see Standard Road Plan PV-12



PLAN (HMA)

Possible Contract Items:
Milled Shoulder Rumble Strips, HMA Surface

Possible Tabulation:
112-10



SECTION A-A

SECTION B-B

MODIFIED STANDARD ROAD PLAN

REVISION
Dist. 1 | 02 / 2017

PV-13

SHEET 1 of 1

REVISIONS: Converted version dated 4-19-16 to use for painted edge line milled rumble strips on 2' wide HMA shouders.

MILLED EDGELINE RUMBLE STRIPS

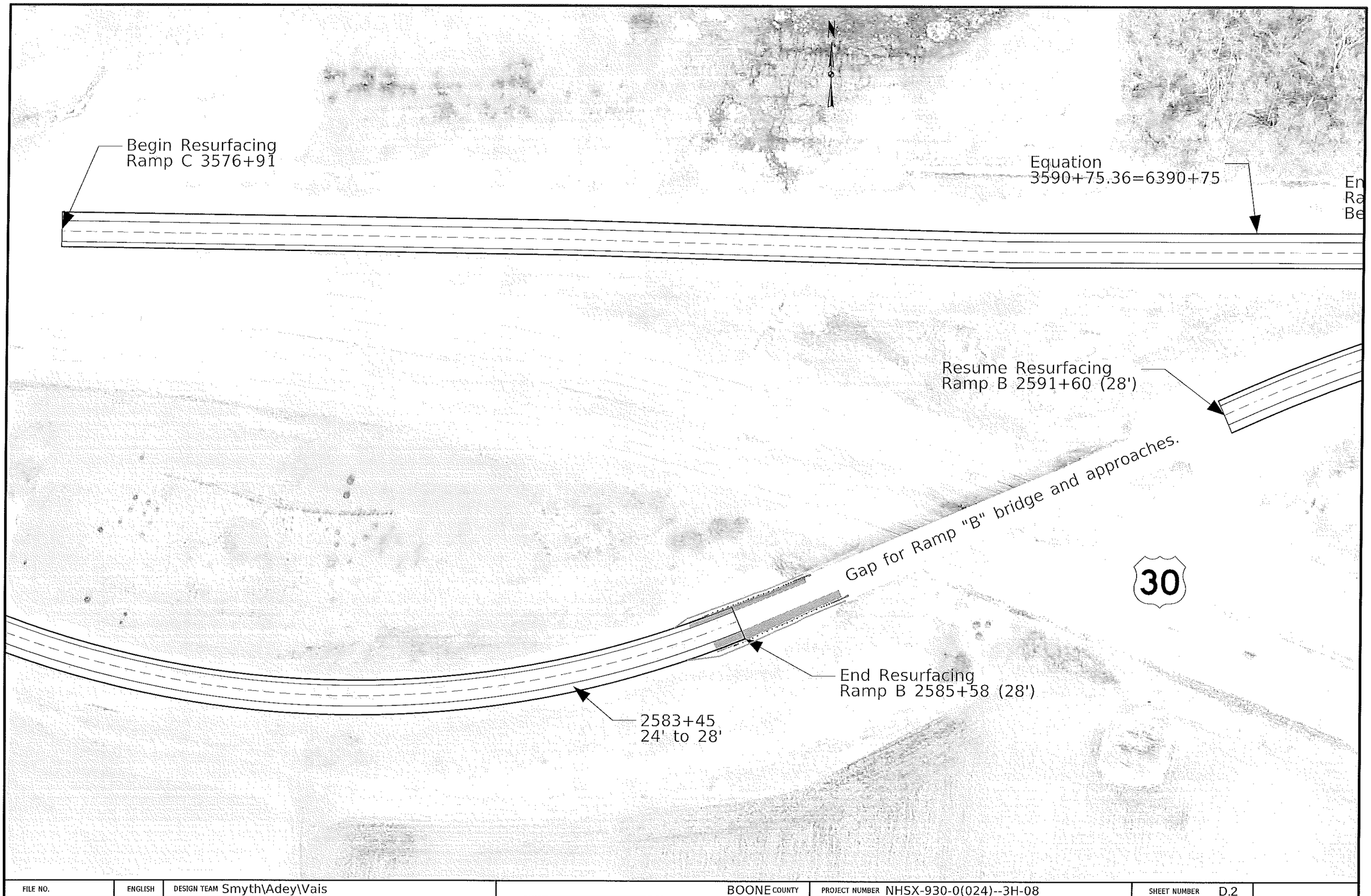
FILE NO.	ENGLISH	DESIGN TEAM Smyth\Adey\Vais	BOONE COUNTY	PROJECT NUMBER NHSX-930-0(024)--3H-08	SHEET NUMBER B.5

9:14:46 AM 5/19/2022 mvais pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\0893001022\DistrictDesign\08930024_B1.dgn

Check Long. Shld joint for Edge line rumbles

FILE NO.	ENGLISH	DESIGN TEAM Smyth\Adey\Vais	BOONE COUNTY	PROJECT NUMBER NHSX-930-0(024)--3H-08	SHEET NUMBER D.1	

6:32:22 AM 6/14/2022 mvais pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\0893001022\DistrictDesign\08930024_D1.dgn



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6:32:25 AM 6/14/2022 mvais pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\0893001022\DistrictDesign\08930024_D1.dgn

Equation
3590+75.36=6390+75

End Resurfacing
Ramp C 6394+78
Begin IA 930 Resurfacing

930

2596+25 (24')
End Ramp B Resurfacing
Begin IA 930 Resurfacing

Resume Resurfacing
Ramp B 2591+60 (28')

2593+65
28' to 24'

or Ramp "B" bridge and approaches.

30

esurfacing
B 2585+58 (28')

FILE NO.	ENGLISH	DESIGN TEAM Smyth\Adey\Vais	BOONE COUNTY	PROJECT NUMBER NHSX-930-0(024)--3H-08	SHEET NUMBER D.3	

6:32:28 AM 6/14/2022 mvais pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\0893001022\DistrictDesign\08930024_D1.dgn

FILE NO.	ENGLISH	DESIGN TEAM Smyth\Adey\Vais	BOONE COUNTY	PROJECT NUMBER NHSX-930-0(024)--3H-08	SHEET NUMBER D.4

6:32:30 AM 6/14/2022 mvais pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\0893001022\DistrictDesign\08930024_D1.dgn

FILE NO.	ENGLISH	DESIGN TEAM Smyth\Adey\Vais	BOONE COUNTY	PROJECT NUMBER NHSX-930-0(024)--3H-08	SHEET NUMBER D.5

6:32:32 AM 6/14/2022 mvais pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\0893001022\DistrictDesign\08930024_D1.dgn

FILE NO.	ENGLISH	DESIGN TEAM Smyth\Adey\Vais	BOONE COUNTY	PROJECT NUMBER NHSX-930-0(024)--3H-08	SHEET NUMBER D.6	

6:32:34 AM 6/14/2022 mvais pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\0893001022\DistrictDesign\08930024_D1.dgn

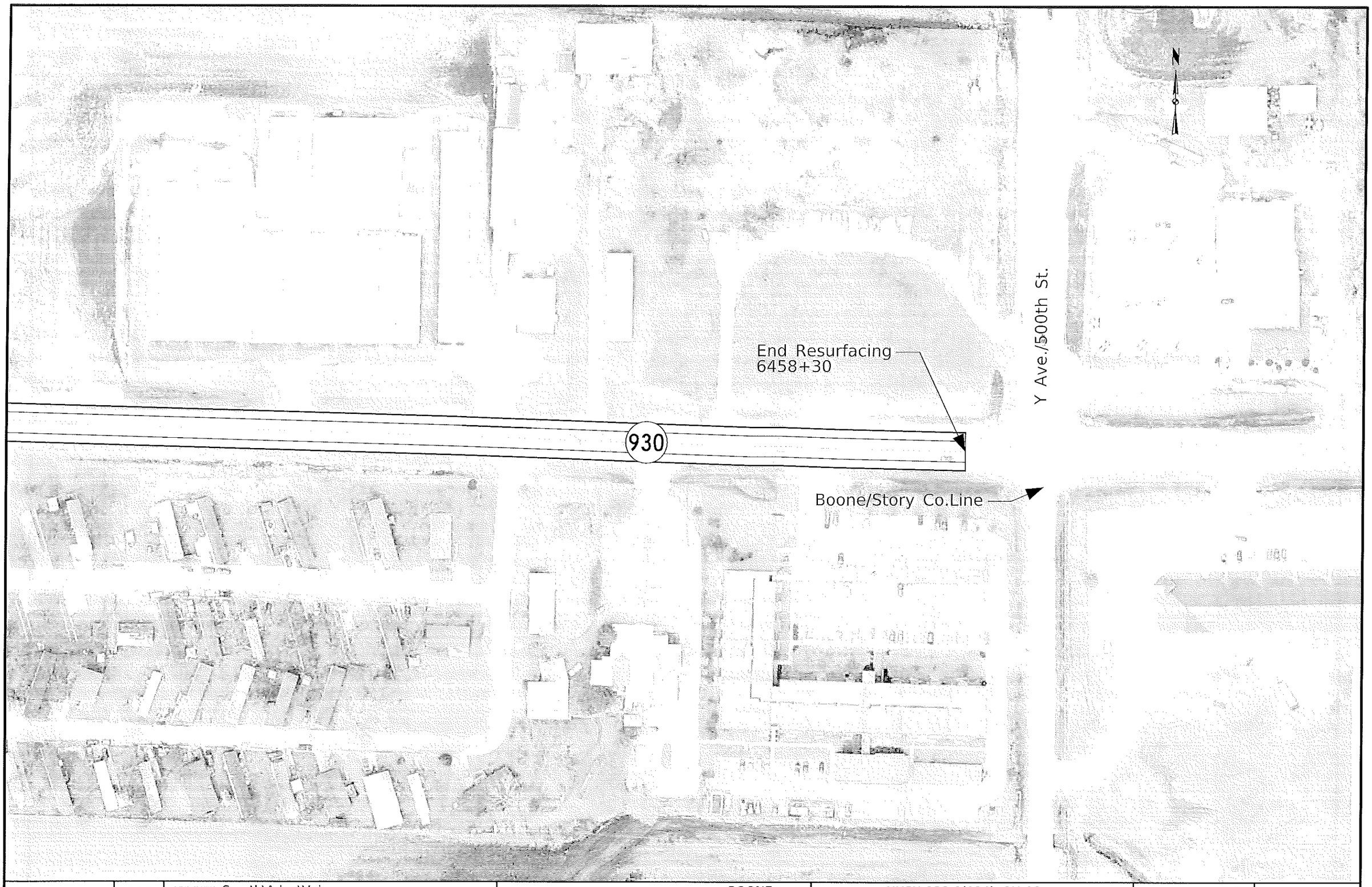
N

Start of 55 mph zone
Continuing west

930

FILE NO.	ENGLISH	DESIGN TEAM Smyth\Adey\Vais	BOONE COUNTY	PROJECT NUMBER NHSX-930-0(024)--3H-08	SHEET NUMBER D.7	

6:32:36 AM 6/14/2022 mvais pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\0893001022\DistrictDesign\08930024_D1.dgn



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108-23A
08-01-08

TRAFFIC CONTROL PLAN

IA 930 will remain open to traffic during construction. Traffic will be maintained via pilot cars and flaggers.

No Const. during ISU Events

108-25
10-21-14

Short term Ramp closures?

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
			None Anticipated									

102-15
08-01-08

TABULATION OF SPECIAL EVENTS

Event	Location	Date
Easter Bunny Train	Boone	04/09/22
Ogden Fun Days	Ogden	6/24 & 6/25/2022
Pufferbilly Days	Boone	8/5/2022-8/7/2022
Farm Progree Show	Boone	8/30/2022-9/1/2022
Madrid Labor Day Celebration	Madrid	9/2/2022-9/5/2022
IMCA Super Nationals	Boone	9/5/2022-9/10/2022
Iowa State vs SE Missouri	Ames	09/03/22
Iowa State vs Ohio	Ames	09/17/22
Iowa State vs Baylor	Ames	09/24/22
Iowa State vs Kansas St	Ames	10/08/22
Iowa State vs Oklahoma (Thursday Night)	Ames	10/27/22
Iowa State vs West Virginia	Ames	11/05/22
Iowa State vs Texas Tech	Ames	11/19/22
Iowa FFA Leadership Conference	Ames	4-10 to 4-12 2022
Iowa State Graduation	Ames	May 12th & 14th 2022
Special Olympics Summer Games	Ames-ISU Campus	5-19 to 5-21 2022
2022 Odyssey of the Mind World Finals	Ames	5-25 to 5-28 2022
State Games of America	Ames	7/9-10, 7/22-24, 7/27-7/31
Farm Progress Show	Central Iowa Expo-Boone	8-30 9-1 2022

2023 Events