LETTING DATE
Nov. 17, 2026

HMA RESURFACING WITH MILLING
NHSX-218-4(049)--3H-52

JOHNSON COUNTY

IOWA DOT

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM
JOHNSON COUNTY
HMA RESURFACING WITH MILLING

1 mi S of Riverside Dr to S of I-80

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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

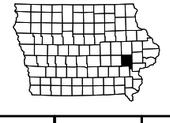
IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com
811 Know what's below. Call before you dig.

REVISIONS

	TOTAL
	142
PROJECT IDENTIFICATION NUMBER	
26-52-218-010	
PROJECT NUMBER	
NHSX-218-4(049)--3H-52	
R.O.W. PROJECT NUMBER	
-	

INDEX OF SHEETS

No.	DESCRIPTION
A Sheets	**Title Sheets**
A.1	Title Sheet
A.2	Location Map Sheet
B Sheets	**Typical Cross Sections and Details**
B.1 - 6	Typical Cross Sections and Details
C Sheets	**Quantities and General Information**
C.1 - 4	Roadway Estimated Quantities and Est. Reference Notes
C.5 - 8	Bridge Estimated Quantities and Est. Reference Notes
C.9	Project Description
C.10	Index of Tabulations
C.11	Standard Road Plans
C.12 - 39	Tabulations
C.40	General Notes
D Sheets	**Mainline Plan and Profile Sheets**
D.1	Plan & Profile Legend & Symbol Information Sheet
D.2 - 7	ML_218 Plan Sheets
E Sheets	**Side Road Plan and Profile Sheets**
E.1 - 12	Ramps_218
J Sheets	**Traffic Control**
J.1	Traffic Control Plan
J.2	Staging Notes Stage
J.3 - 5	Traffic Control Tabulations
J.6 - 26	Staging Plan Sheets
J.27 - 29	Overnight Ramp Detour details
J.100 - 102	Detour Sheets
U Sheets	**Detail Sheets**
U.1 - 27	Asbuilt Plan Sheets
V Sheets	**Bridge and Culvert Situation Plans**
V.1 - 12	Paving Notch Details



DESIGN DATA RURAL

2027	AADT	27,600	V.P.D.
2047	AADT	38,600	V.P.D.
20 –	DHV	--	V.P.H.
TRUCKS		16	%
Total Design ESALs		20,700,000	

INDEX OF SEALS

SHEET NO.	NAME	TYPE
A.1 - U.27	Mark K. Harle	Roadway Design
V.1 - V.12	David R. Evans	Structural Design

ROADWAY DESIGN

LICENSED PROFESSIONAL ENGINEER
Mark K. Harle
19943
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.

Signature — Date: 8-31-2026

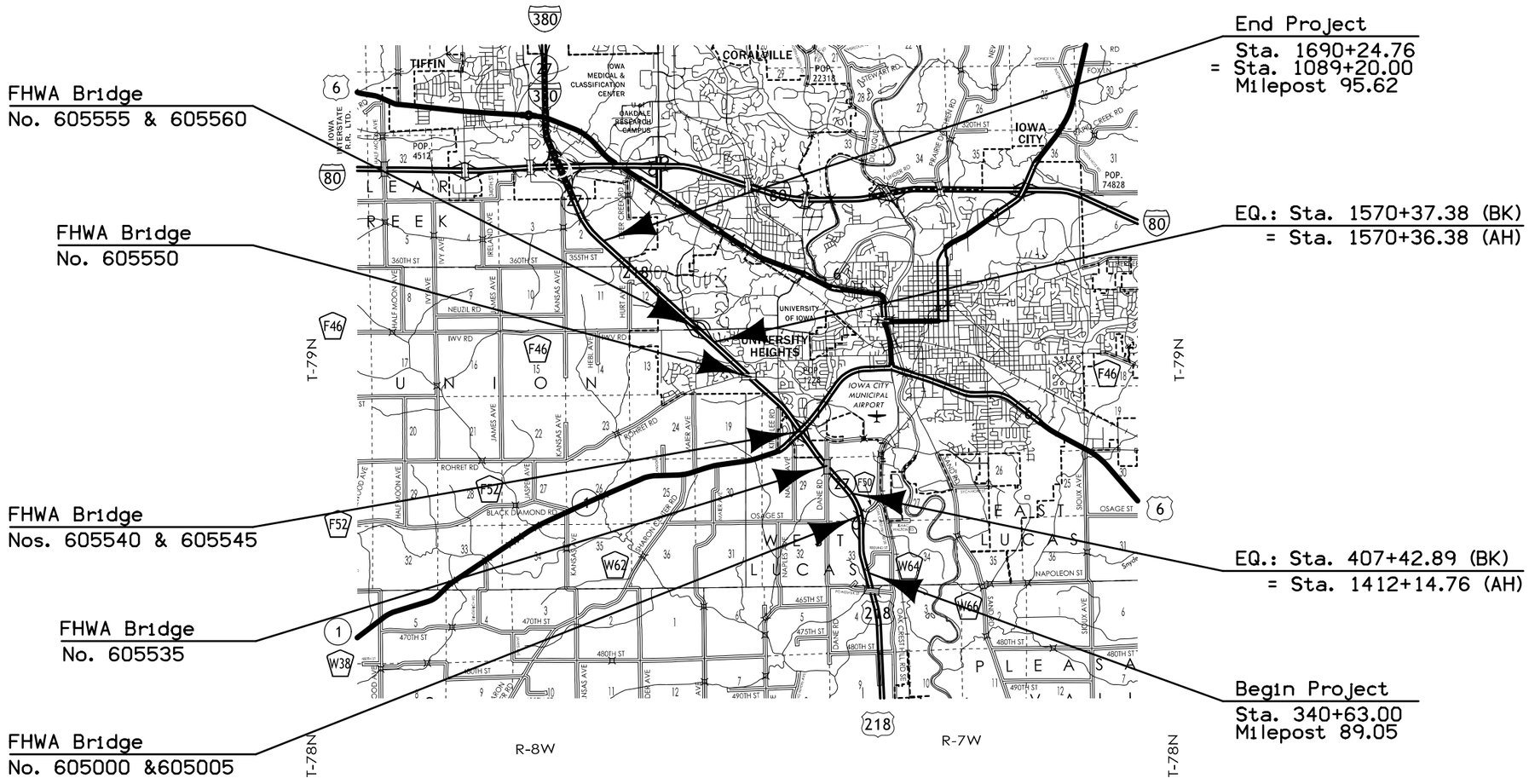
Mark K. Harle
Printed or Typed Name

My license renewal date is December 31, 2027

Pages or sheets covered by this seal: All A, B, C, D, E, J, and U sheets

FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER A.1	

10:24:26 PM 8/31/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_A_52218049.dgn



LOCATION MAP SCALE
0 1 2 3
Miles

FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER A.2

10:24:29 PM 8/31/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_A_52218049.dgn

HMA RESURFACING

GRANULAR SHOULDER

NOTES:

TYPICAL WIDTH SHOWN. REFER TO TABULATION 100-25 AND 112-09 FOR WIDTH CHANGES AND AREA CALCULATIONS.

② REFER TO TABULATION 100-25 FOR PAVEMENT SCARIFICATION QUANTITIES.

Combination Shoulder

3R_Shldr_C_Milling_ 04-19-11			
STATION TO STATION		(P) Feet	(G) Feet
Northbound			
340+63.00	373+82.09	4.0	2.0
382+92.50	407+42.89 BK	4.0	2.0
1412+14.76 AH	1570+37.38 BK	4.0	2.0
1570+36.38 AH	1580+02.72	4.0	2.0
1592+68.83	1690+21.03	4.0	2.0
Southbound			
340+63.00	374+29.00	4.0	2.0
383+50.71	407+42.89 BK	4.0	2.0
1412+14.76 AH	1570+37.38 BK	4.0	2.0
1570+36.38 AH	1582+46.49	4.0	2.0
1592+68.83	1690+21.03	4.0	2.0

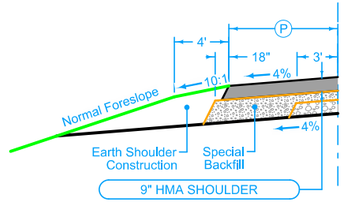
Aux. Lane Resurface

3R_MillingOverlay_ MODIFIED				
STATION TO STATION		(AL) Feet	(P) Feet	Pavement Scarification SY
Northbound				
358+25.00	364+85.00	0.0 - 44.0	6.0	②
389+26.32	401+00.00	36.0 - 0.0	6.0	②
1449+25.00	1455+85.00	0.0 - 44.0	6.0	②
1479+26.32	1482+00.00	39.0 - 0.0	6.0	②
1564+45.98	1571+05.98	0.0 - 44.0	6.0	②
1596+22.29	1607+95.97	40.0 - 0.0	6.0	②
Southbound				
348+00.00	359+51.58	0.0 - 38.0	6.0	②
371+85.00	376+53.47	72.7 - 47.0	6.0	②
1445+50.00	1457+00.00	0.0 - 39.0	6.0	②
1480+15.00	1473+55.00	44.0 - 0.0	6.0	②
1565+45.99 (AH)	1574+45.99	0.0 - 40.0	6.0	②
1602+35.98	1608+95.98	44.0 - 0.0	6.0	②

Paved Shoulder at Guardrail

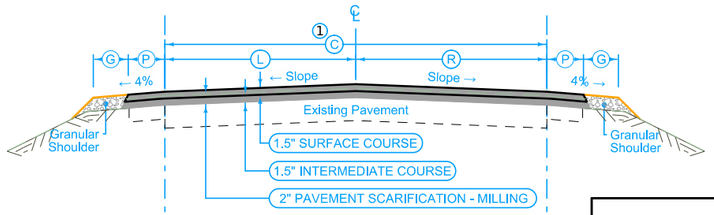
PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at mainline spacing
HMA Shoulder Jointing:
Longitudinal joint: B

2_P_Guard_ MODIFIED		
STATION TO STATION		(P) Feet
Northbound		
374+49.29	376+88.49	VAR.
1582+07.92	1583+68.49	VAR.
Southbound		
380+43.89	382+85.93	VAR.
1589+59.45	1591+17.57	VAR.

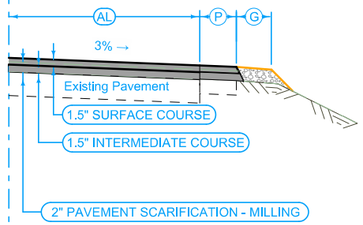


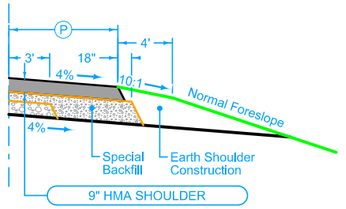
Match LIne

Match LIne



3R_MillingOverlay_ 04-19-11					
STATION TO STATION		(C) Feet	(L) Feet	(R) Feet	Pavement Scarification SY
Northbound					
340+63.00	376+88.49	24.0	12.0	12.0	②
380+71.36	407+42.89 BK	24.0	12.0	12.0	②
1412+14.76 AH	1570+37.38 BK	24.0	12.0	12.0	②
1570+36.38 AH	1583+68.49	24.0	12.0	12.0	②
1588+66.82	1690+21.03	24.0	12.0	12.0	②
Southbound					
340+63.00	376+52.81	24.0	12.0	12.0	②
380+44.89	407+42.89 BK	24.0	12.0	12.0	②
1412+14.76 AH	1570+37.38 BK	24.0	12.0	12.0	②
1570+36.38 AH	1584+71.12	24.0	12.0	12.0	②
1589+59.45	1690+21.03	24.0	12.0	12.0	②





Combination Shoulder

3R_Shldr_C_Milling_ 04-19-11			
STATION TO STATION		(P) Feet	(G) Feet
Northbound			
340+63.00	373+91.47	6.0	4.0
380+71.36	407+42.89 BK	6.0	4.0
1412+14.76 AH	1570+37.38 BK	6.0	4.0
1570+36.38 AH	1580+40.55	6.0	4.0
1588+66.82	1633+44.22	6.0	4.0
1635+74.7	1690+21.03	6.0	4.0
Southbound			
340+63.00	376+52.81	6.0	4.0
383+01.20	407+42.89 BK	6.0	4.0
1412+14.76 AH	1570+37.38 BK	6.0	4.0
1570+36.38 AH	1584+71.12	6.0	4.0
1592+12.12	1690+21.03	6.0	4.0

Paved Shoulder at Guardrail

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at mainline spacing
HMA Shoulder Jointing:
Longitudinal joint: B

2_P_Guard_ MODIFIED		
STATION TO STATION		(P)[1] Feet
Northbound		
373+91.47	376+88.49	VAR.
1580+40.55	1583+68.49	VAR.
1633+44.22	1635+74.70	VAR.
Southbound		
380+44.89	383+01.20	VAR.
1589+59.45	1592+12.12	VAR.

HMA RESURFACING

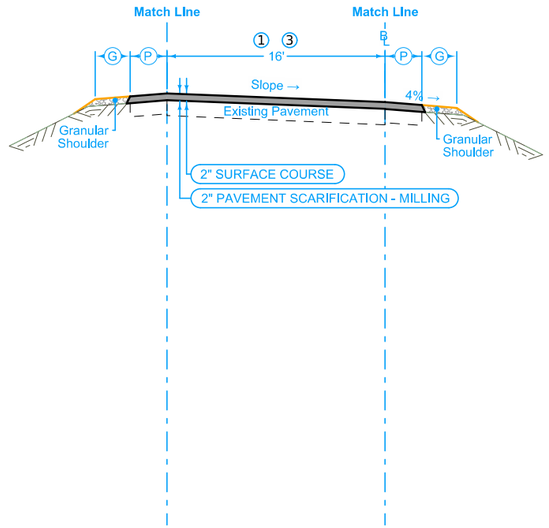
GRANULAR SHOULDER

NOTES:

1. TYPICAL WIDTH SHOWN. REFER TO TABULATION 100-25 FOR WIDTH CHANGES AND AREA CALCULATIONS.
2. REFER TO TABULATION 100-25 FOR PAVEMENT SCARIFICATION QUANTITIES.
3. WIDTH OF RAMP A (LOOP) AT RIVERSIDE DR. INTERCHANGE IS 18 FT.

Combination Shoulder

3R_Shldr_C_Milling_ 04-19-11				
RAMP	STATION TO STATION		(P) Feet	(G) Feet
RIVERSIDE				
A	1564+34.70	1571+85.00	6.0	1.0
B	2564+85.00	2582+38.79	6.0	1.0
C	3559+51.63	3572+85.30	6.0	1.0
D	4578+83.44	4588+68.39	6.0	1.0
IA HWY 1				
A	1567+52.60	1580+57.75	6.0	1.0
B	2555+85.00	2569+14.19	6.0	1.0
C	3556+76.60	3567+57.71	6.0	1.0
D	4568+86.82	4579+40.00	6.0	1.0
MELROSE				
A	5591+01.96	1602+74.69	6.0	1.0
B	6571+10.00	6582+49.27	6.0	1.0
C	7576+94.52	7591+66.01	6.0	1.0
D	8581+86.08	8596+45.00	6.0	1.0

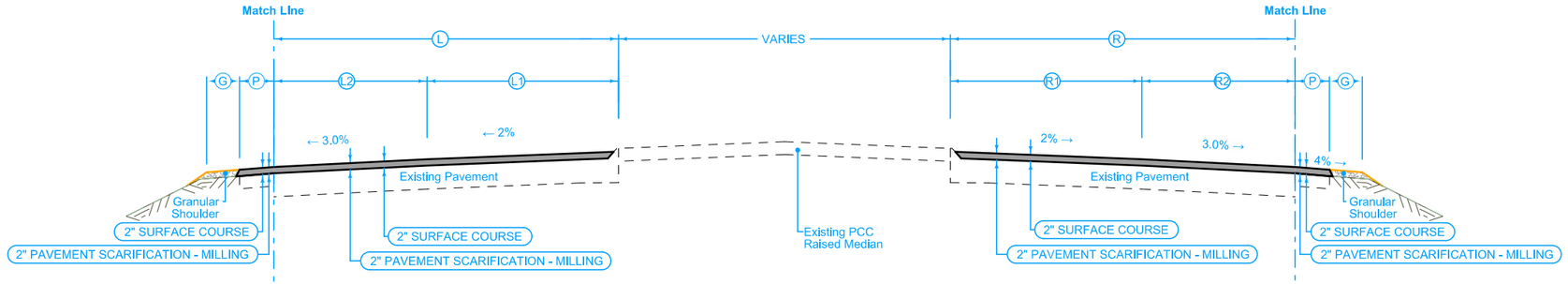


Ramp Resurface

3R_MillingOverlay_ MODIFIED			
RAMP	STATION TO STATION		Pavement Scarification SY
RIVERSIDE			
A	1564+34.70	1571+85.00	(2)
B	2564+85.00	2582+38.79	(2)
C	3559+51.63	3572+85.30	(2)
D	4578+83.44	4588+68.39	(2)
IA HWY 1			
A	1567+52.60	1580+57.75	(2)
B	2555+85.00	2569+14.19	(2)
C	3556+76.60	3567+57.71	(2)
D	4568+86.82	4579+40.00	(2)
MELROSE			
A	5591+01.96	1602+74.69	(2)
B	6571+10.00	6582+49.27	(2)
C	7576+94.52	7591+66.01	(2)
D	8581+86.08	8596+45.00	(2)

Combination Shoulder

3R_Shldr_C_Milling_ 04-19-11				
RAMP	STATION TO STATION		(P) Feet	(G) Feet
RIVERSIDE				
A	1564+34.70	1571+85.00	6.0	1.0
B	2564+85.00	2582+38.79	6.0	1.0
C	3559+51.63	3572+85.30	6.0	1.0
D	4578+83.44	4588+68.39	6.0	1.0
IA HWY 1				
A	1567+52.60	1580+57.75	6.0	1.0
B	2555+85.00	2569+14.19	6.0	1.0
C	3556+76.60	3567+57.71	6.0	1.0
D	4568+86.82	4579+40.00	6.0	1.0
MELROSE				
A	5591+01.96	1602+74.69	6.0	1.0
B	6571+10.00	6582+49.27	6.0	1.0
C	7576+94.52	7591+66.01	6.0	1.0
D	8581+86.08	8596+45.00	6.0	1.0



Combination Shoulder

3R_Shldr_C_Milling_ 04-19-11			
STATION TO STATION --	--	(P) Feet	(G) Feet
1360+75.96	1396+35.37	6.0	4.0

3R_MillingOverlay_ MODIFIED									
STATION TO STATION		(L1) Feet	(L2) Feet	(L) Feet	(R1) Feet	(R2) Feet	(R) Feet	Pavement Scarification SY
Riverside Dr. (Old Hwy. 218)									
1360+75.96	1393+08.37	16.5-14.5	0-12	VAR.	16.5-14.5	0-12	VAR.	(2)
1393+08.37	1396+36.25	14.5	12	26.5	14.5	12	26.5	(2)

Combination Shoulder

3R_Shldr_C_Milling_ 04-19-11			
STATION TO STATION		(P) Feet	(G) Feet
1360+75.96	1396+35.37	6.0	4.0

NOTES:

(1) REFER TO GRANULAR FILLET DETAIL (TYP 7145).

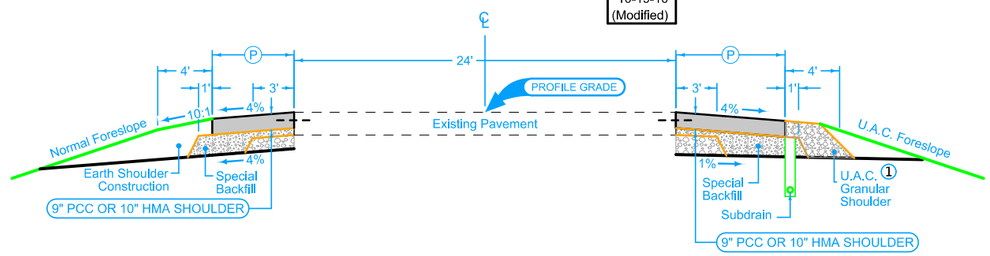
Paved Shoulder Alternates

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 17' spacing
HMA Shoulder Jointing:
Longitudinal joint: B

4_P_ALT_
04-21-20

Direction of Travel	BEGIN STATION	END STATION	(P) Feet
NB Median	373+82.09	377+38.58	6.0
NB Median	380+21.15	382+92.50	6.0
NB Median	1580+58.72	1584+18.49	6.0
NB Median	1588+16.76	1590+92.54	6.0
SB Median	374+29.00	377+02.81	6.0
SB Median	379+93.54	383+50.71	6.0
SB Median	1582+46.49	1585+21.21	6.0
SB Median	1589+09.45	1592+68.83	6.0

2E_
10-19-10
(Modified)



DETOUR PAVEMENT FOR STRENGTHENING SHOULDERS (REFER TO STAGING PLANS)

Paved Shoulder Alternates

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 17' spacing
HMA Shoulder Jointing:
Longitudinal joint: B

4_P_ALT_
04-21-20

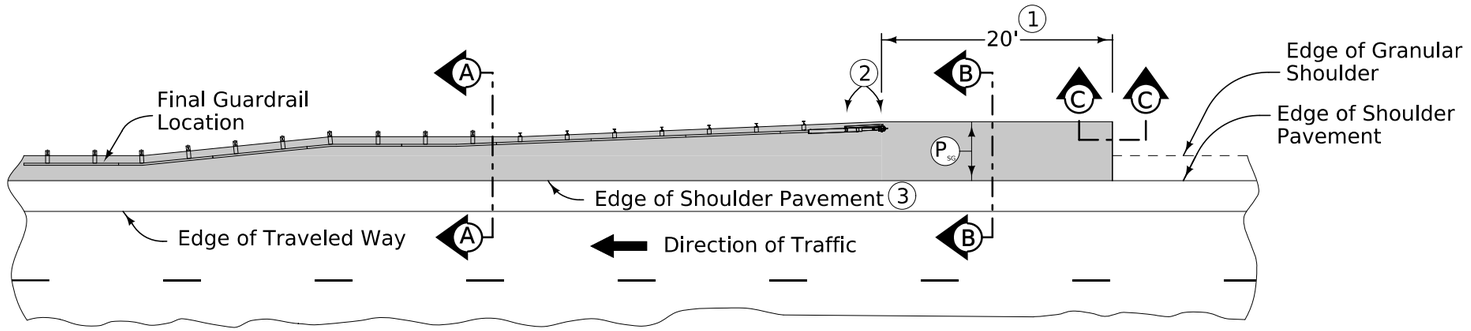
Direction of Travel	BEGIN STATION	END STATION	(P) Feet
NB Right	372+32.00	376+88.79	6.0
NB Right	380+70.93	384+42.51	6.0
NB Right	1579+06.88	1583+67.35	6.0
NB Right	1588+66.82	1592+42.18	6.0
SB Right	380+43.89	385+02.71	6.0
SB Right	1580+96.08	1584+70.39	6.0
SB Right	1589+59.45	1594+21.52	6.0

7157
MODIFIED

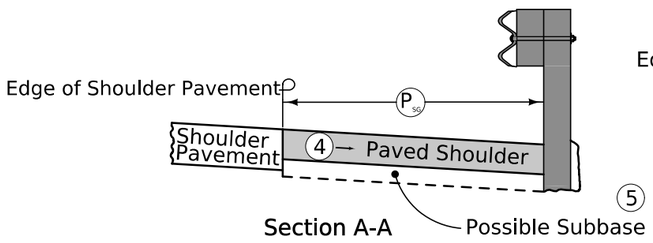
9" HMA Paved Shoulder at guardrail.

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.

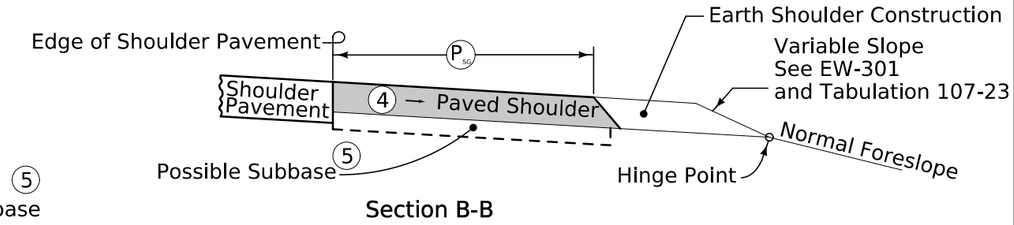
Refer to Tabulation 112-9 for shoulder quantities.



PLAN VIEW



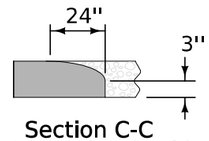
Section A-A



Section B-B

EXISTING SHOULDER

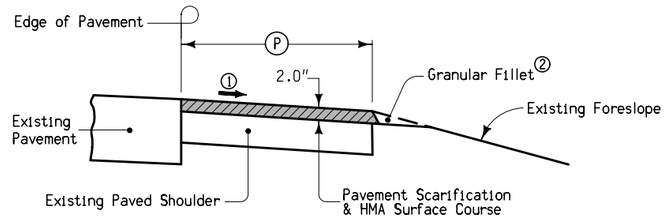
1. Continue paved shoulder 20 feet beyond the center of the first post.
2. Shoulder may be notched for first 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.
3. 'B' (per PV-101) joint for HMA shoulder.
4. Match shoulder slope.
5. Refer to other details in the plan.



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

PAVED SHOULDER AT GUARDRAIL
(ADJACENT TO PARTIAL WIDTH PAVED SHOULDER)

7152
MODIFIED



Notes:

① Slope at 4% for normal section. Refer to Standard Road Plans for requirements through superelevated curves.

② Refer to Typ. 7145.

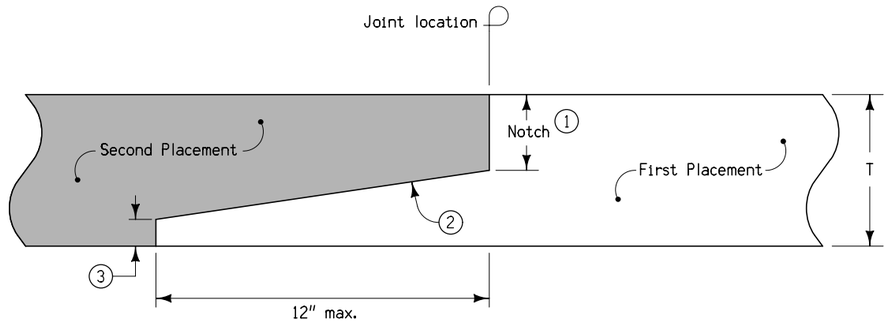
③ This detail applies to all paved shoulders at bridge approaches that are not included in Typical ML-2. Refer to U sheets for locations.

= HMA Resurfacing

= Pavement Scarification

TYPICAL SECTION HMA SHOULDER RESURFACING WITH MILLING

7315
10-20-09



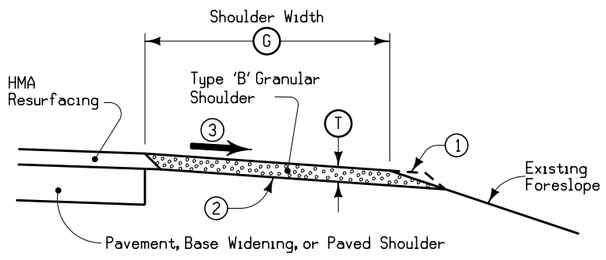
Notes:

① Notch: Min = nominal maximum aggregate size + ¼". Max = T/2.

② 12:1 Slope

③ Optional step at toe of slope: Max = 1".

LONGITUDINAL HMA NOTCHED WEDGE JOINT T = 2" OR GREATER



① Place and compact material to the dashed lines; then blade and shape to existing foreslope that portion above the solid line. Finished slope shall be 6:1 or as flat as conditions allow. MODIFIED

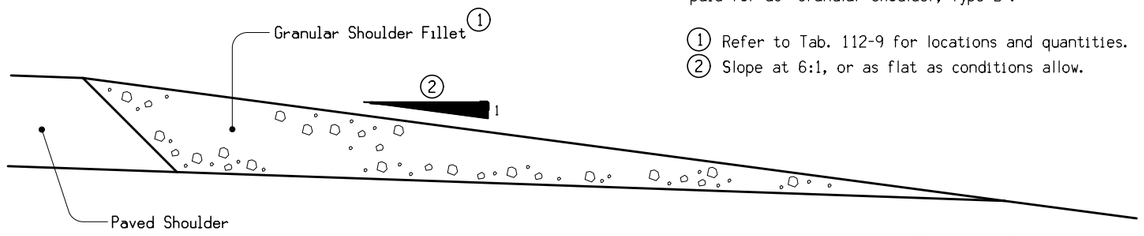
② Existing shoulder surface to be shaped to a uniform cross slope prior to placing granular shoulder material. Shape to ensure the thickness of the granular shoulder material (T) is not less than the thickness of the resurfacing.

③ Slope at 4% for normal section. Refer to Standard Road Plans for requirements through superelevated curves.

④ Refer to Tab. 112-9 for locations and dimensions.

TYPICAL SECTION ④ FOR TYPE 'B' GRANULAR SHOULDER

7145
MODIFIED



Notes:

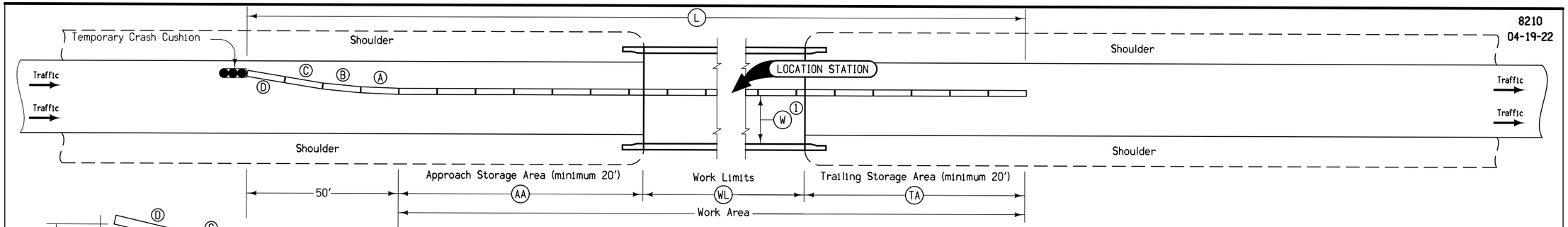
This typical illustrates the construction requirements for a granular fillet at the edge of a full-width paved shoulder.

The granular fillet will be measured and paid for as "Granular Shoulder, Type B".

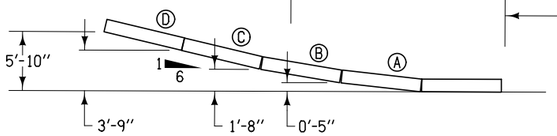
① Refer to Tab. 112-9 for locations and quantities.

② Slope at 6:1, or as flat as conditions allow.

GRANULAR SHOULDER FILLET



8210
04-19-22



BARRIER OFFSETS FOR FLARE SECTIONS

Station	Side	AA	WL	TA	L	Anchored	W (1)	Remarks
		Feet	Feet	Feet	Feet	X	Ft-Inches	
Stage 2								
378+76.60	Med.	21.0	383.0	21.0	475.0	X	14'-0	Stage 2 NB
1586+29.78	Med.	25.8	498.4	25.8	600.0	X	14'-0	Stage 2 NB
378+47.81	Med.	23.0	391.5	23.0	487.5	X	14'-0	Stage 2 SB
1587+23.16	Med.	24.6	488.3	24.6	587.5	X	14'-0	Stage 2 SB
Stage 3								
378+76.60	Out.	21.0	383.0	21.0	475.0	X	18'-0	Stage 3 NB
1586+29.78	Out.	25.8	498.4	25.8	600.0	X	18'-0	Stage 3 NB
378+47.81	Out.	23.0	391.5	23.0	487.5	X	18'-0	Stage 3 SB
1587+23.16	Out.	24.6	488.3	24.6	587.5	X	18'-0	Stage 3 SB

(1) Where (W) is less than 15'-6", install restricted width signing as per Standard Road Plan TC-81.

TEMPORARY CONCRETE BARRIER LAYOUT for One-Way Traffic

FILE NO.	ENGLISH	DESIGN TEAM **HARLE / HOLUB**	**JOHNSON** COUNTY	PROJECT NUMBER **NHSX-218-4(049)--3H-52**	SHEET NUMBER **B.6**	

12:50:18 PM 8/31/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_B_52218049.dgn

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Division 1 : Iowa DOT Roadway Items
Division 2 : Johnson County - Agreement #2026-C-107
Division 3 : MB-218-6(505)90--77-52

Item no.	Item Code	Item	Unit	Quantities				Estimate Reference Notes
				Estimated				
				Division 1	Division 2	Division 3	Total	
1	2102-0425070	SPECIAL BACKFILL	TON	1,193.6			1,193.6	Refer to Tabulation 102-9 and Typical on Sheet B.3. Item is used as part of detour pavement for strengthening shoulders.
2	2102-2625000	EMBANKMENT-IN-PLACE	CY	457.9			457.9	Provide borrow material according to Section 2102 of the Standard Specifications. Refer to Tabulation 107-23 . Material shall be provided by the Contractor. The top 6" of embankment shall be topsoil.
3	2102-2713090	EXCAVATION, CLASS 13, WASTE	CY	1,402.2			1,402.2	Refer to Tabulation 102-9. Item is to be used for construction of shoulder strengthening and new paved shoulders at guardrail. Quantity includes removal of existing paved shoulders. All material shall become property of the contractor and disposed from the project site.
4	2121-7425020	GRANULAR SHOULDERS, TYPE B	TON	9,873			9,873	Refer to Typical 7145 and Tabulation 112-9.
5	2122-5500090	PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 9 IN.	SY	1,543.6			1,543.6	Refer to Tabulation 112-09.
6	2123-7450000	SHOULDER CONSTRUCTION, EARTH	STA	47.39			47.39	Item is for construction of earth shoulders adjacent to median shoulder strengthening and paved shoulder at guardrail. Requires 94.8 cu. yds. for Earth Shoulder Fill. Quantities for guardrail grading are included in Embankment In-Place quantity. Requires a minimum of 6 inches of topsoil. Place according to Article 2105.03,B of the Standard Specifications.
7	2212-0475095	CLEANING AND PREPARATION OF BASE	MILE	16.9			16.9	This bid item includes: 4.1 miles of ramps 6.4 miles of NB lanes of four lane roadway 6.4 miles of SB lanes of four lane roadway 16.9 miles total
8	2212-5070310	PATCHES, FULL-DEPTH REPAIR	SY	1,848.4			1,848.4	Refer to Tabulation 102-6C.

Item no.	Item Code	Item	Unit	Quantities				Estimate Reference Notes
				Estimated				
				Division 1	Division 2	Division 3	Total	
9	2212-5070330	PATCHES BY COUNT (REPAIR)	EACH	149			149	
10	2212-5075001	HOT MIX ASPHALT SURFACE PATCHES	TON	80			80	Item is for repair of the scarified surface
11	2214-5145150	PAVEMENT SCARIFICATION, NOMINAL THICKNESS	SY	344,156.9	573.6		344,730.5	Refer to Tabulation 100-25 and 102-16. Division 2 quantity is for resurfacing existing paved fillet.
12	2301-0690203	BRIDGE APPROACH, BR-203	SY	793.6		680.7	1,474.3	Refer to Tabulation 112-06. Division 3 Quantity is for northbound bridge approaches.
13	2301-0690204	BRIDGE APPROACH, BR-204	SY	843.2		843.2	1,686.4	Refer to Tabulation 112-06. Division 3 is for northbound bridge approaches.
14	2303-0003380	HOT MIX ASPHALT MIXTURE THIN LIFT SURFACE COURSE, 3/8 IN. MIX	TON	25,219.5			25,219.5	Refer to Tabulation 100-25.
15	2303-1052500	HOT MIX ASPHALT VERY HIGH TRAFFIC, INTERMEDIATE COURSE 1/2 IN. MIX	TON	24,406			24,406	
16	2303-1053502	HOT MIX ASPHALT VERY HIGH TRAFFIC, SURFACE COURSE, 1/2 IN. MIX, FRICTION L-2	TON	8,243.4	66.7		8,310.1	
17	2303-1258285	ASPHALT BINDER, PG 58-28V, VERY HIGH TRAFFIC	TON	1,958.96	4		1,962.96	
18	2303-1264347	ASPHALT BINDER, PG 64-34E+, EXTREMELY HIGH TRAFFIC, 90% ELASTIC RECOVERY	TON	1,513.18			1,513.18	
19	2303-6911000	HOT MIX ASPHALT PAVEMENT SAMPLES	LS	1			1	
20	2303-7000610	PAYMENT ADJUSTMENT INCENTIVE/DISINCENTIVE FOR HMA MIXTURE LABORATORY VOIDS (FORMULA - BY PAY FACTOR)	EACH	27,253.1			27,253.1	
21	2303-7000620	PAYMENT ADJUSTMENT INCENTIVE/DISINCENTIVE FOR HMA MIXTURE FIELD VOIDS (FORMULA - BY PAY FACTOR)	EACH	27,253.1			27,253.1	
22	2304-0100000	DETOUR PAVEMENT	SY	3,658.4			3,658.4	Refer to Typical on Sheet B.3. Refer to Tab. 112-9. Item is for strengthening of shoulders.

Item no.	Item Code	Item	Unit	Quantities				Estimate Reference Notes
				Estimated				
				Division 1	Division 2	Division 3	Total	
23	2317-7000120	PAYMENT ADJUSTMENT INCENTIVE/DISINCENTIVE FOR HMA PAVEMENT SMOOTHNESS (BY SCHEDULE)	EACH	58,915			58,915	
24	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL	LF	2,013			2,013	Refer to Tabulation 110-07A.
25	2505-4008130	REMOVAL OF CABLE GUARDRAIL	LF	3,375			3,375	Refer to Tabulation 110-07B.
26	2505-4008300	STEEL BEAM GUARDRAIL	LF	1,750			1,750	Refer to Tabulations 108-08A and 108-08C.
27	2505-4008410	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-201	EACH	8			8	Refer to Tabulation 108-08A.
28	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	8			8	
29	2505-4021020	STEEL BEAM GUARDRAIL END ANCHOR, W-BEAM	EACH	1			1	Refer to Tabulation 108-08C.
30	2505-4021720	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-205	EACH	9			9	Refer to Tabulation 108-08A and 108-08C.
31	2505-6000111	HIGH TENSION CABLE GUARDRAIL	LF	2,280			2,280	Refer to Tabulation 108-9A.
32	2505-6000121	HIGH TENSION CABLE GUARDRAIL, END ANCHOR	EACH	8			8	
33	2510-6745850	REMOVAL OF PAVEMENT	SY	4,275.1			4,275.1	Refer to Tabulation 110-1 and 102-5.
34	2526-8285040	CONSTRUCTION SURVEY, LOCATION SURVEY	LS	1			1	
35	2527-9263137	PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED	EACH	32			32	Refer to Tabulation 108-29.
36	2527-9263155	PRE-CUT SYMBOLS AND LEGENDS, PREFORMED THERMOPLASTIC MARKING MATERIAL	EACH	12			12	
37	2527-9263181	PAVEMENT MARKINGS REMOVED	STA	385.95			385.95	Refer to Tabulation 108-22.
38	2527-9263190	SYMBOLS AND LEGENDS REMOVED	EACH	32			32	Refer to Tabulation 108-29.
39	2527-9263209	PAINTED PAVEMENT MARKINGS, WATERBORNE OR SOLVENT-BASED	STA	8,064.6			8,064.6	Refer to Tabulation 108-22.
40	2527-9270112	GROOVES CUT FOR PAVEMENT MARKINGS	STA	2,178.6			2,178.6	
41	2527-9270120	GROOVES CUT FOR SYMBOLS AND LEGENDS	EACH	12			12	Refer to Tabulation 108-29.
42	2528-2518000	SAFETY CLOSURE	EACH	1			1	For closure of SB US 218 exit ramp at Riverside Dr.
43	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE	LF	4,300			4,300	Refer to Tabulation 108-33. All temporary barrier rail shall be nominal 12'-6 long concrete units.

Item no.	Item Code	Item	Unit	Quantities				Estimate Reference Notes
				Estimated				
				Division 1	Division 2	Division 3	Total	
44	2528-8445110	TRAFFIC CONTROL	LS	1			1	Refer to Traffic Control Plan on Sheet J.1
45	2528-9290050	PORTABLE DYNAMIC MESSAGE SIGN (PDMS)	CDAY	0			0	See Proposal. Item is for use during closure of US 218 SB and Riverside Dr. exit ramp closure. Refer to TC-417.
46	2529-2242304	CD JOINT ASSEMBLY	EACH	24			24	Refer to Tabulation 102-6C.
47	2529-2242320	CT JOINT	EACH	14			14	
48	2533-4980005	MOBILIZATION	LS	1			1	- -
49	2548-0000110	ASPHALT EMULSION FOR FOG SEAL (SHOULDER RUMBLE STRIPS)	GAL	1,494.4			1,494.4	Refer to Tabulation 112-10.
50	2548-0000170	MILLED SHOULDER SINUSOIDAL RUMBLE STRIPS, HMA SURFACE	STA	1,379.52			1,379.52	
51	2551-0000110	TEMP CRASH CUSHION	EACH	8			8	Refer to Tabulation 108-30.
52	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.	LF	2,350			2,350	Refer to Tabulation 100-19. The tabulation includes estimated locations for placement of "Perimeter and Slope Sediment Control Device, 20 in. dia." to address erosion to be encountered during construction. Verify the specific locations with the Engineer prior to beginning placement. Bid item includes 25% additional quantity for field adjustments and replacements.
53	2602-0000351	REMOVAL OF PERIMETER AND SLOPE OR DITCH CHECK SEDIMENT CONTROL DEVICE	LF	3,730			3,730	Refer to Tabulation 100-19.
54	2602-0000370	DITCH CHECK SEDIMENT CONTROL DEVICE, 20 IN. DIA.	LF	1,380			1,380	Refer to Tab. 100-19. The tabulation includes estimated locations for placement of "Ditch Check Sediment Control Device, 20 in. dia." to address erosion to be encountered during construction. Verify the specific locations with the Engineer prior to beginning placement. Bid item includes 25% additional quantity for field adjustments and replacements.

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Design No. 0827-JOHNSON : Design No. 0827-JOHNSON MB-218-6(505)90--77-52

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Design No. 0827-JOHNSON	
1	2426-6772016	CONCRETE REPAIR	SF	84.1	The area of structural concrete repair for the edge of deck is estimated. The engineer may direct the Contractor to repair the edge of deck as necessary to eliminate deck deterioration at the ends of the bridge. Structural concrete repair on the deck may be deleted by the engineer if deemed unnecessary.
2	2426-6772120	BRIDGE REPAIR	LS	1	Includes the repair of backwalls, cleaning existing curbs and rails, and furnishing and placing concrete sealer.
3	2499-0800000	PAVING NOTCH REPLACEMENT	LF	84.1	Includes 5.9 cu yd of structural concrete Class C 1,346 lbs of epoxy-coated reinforcing steel, excavation, removing and disposing of the existing paving notch and concrete removed to form the shear keyways, drilling holes for dowel bars, and polymer grout material.

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Design No. 0927-JOHNSON : Design No. 0927-JOHNSON MB-218-6(505)90--77-52

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Design No. 0927-JOHNSON	
1	2426-6772016	CONCRETE REPAIR	SF	116.7	The area of Structural Concrete Repair for the abutment backwall is estimated. The Engineer may direct the Contractor to repair the abutment backwall as necessary to eliminate concrete deterioration at the ends of the bridge. Structural Concrete Repair on the backwall may be deleted by the Engineer if deemed unnecessary.
2	2426-6772120	BRIDGE REPAIR	LS	1	Includes the repair of the backwalls, cleaning existing curbs and rails, and furnishing and placing concrete sealer.
3	2499-0800000	PAVING NOTCH REPLACEMENT	LF	116.7	Includes 8.2 cu yd of structural concrete Class C, 1868 lbs of epoxy-coated reinforcing steel, 135 lbs of stainless reinforcing steel, excavation, removing and disposing of the existing paving notch and concrete removed to form the shear keyways, drilling holes for dowel bars, and polymer grout material.

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Item no.	Item Code	Item	Unit	Quantities Estimated Design No. 1027-JOHNSON	Estimate Reference Notes
1	2426-6772016	CONCRETE REPAIR	SF	93.8	The area of structural concrete repair for the edge of deck is estimated. The engineer may direct the Contractor to repair the edge of deck as necessary to eliminate deck deterioration at the ends of the bridge. Structural concrete repair on the deck may be deleted by the engineer if deemed unnecessary.
2	2426-6772120	BRIDGE REPAIR	LS	1	Includes the repair of the backwalls, cleaning existing curbs and rails, and furnishing and placing concrete sealer.
3	2499-0800000	PAVING NOTCH REPLACEMENT	LF	93.8	Includes 6.6 cu yd of structural concrete Class C, 1501 lbs of epoxy-coated reinforcing steel, excavation, removing and disposing of the existing paving notch and concrete removed to form the shear keyways, drilling holes for dowel bars, and polymer grout material.

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Design No. 1127-JOHNSON : Design No. 1127-JOHNSON

Item no.	Item Code	Item	Unit	Quantities Estimated Design No. 1127-JOHNSON	Estimate Reference Notes
1	2426-6772016	CONCRETE REPAIR	SF	116.7	The area of structural concrete repair for the edge of abutment backwall is estimated. The engineer may direct the Contractor to repair the abutment backwall as necessary to eliminate concrete deterioration at the ends of the bridge. Structural concrete repair on the backwall may be deleted by the engineer if deemed unnecessary.
2	2426-6772120	BRIDGE REPAIR	LS	1	Includes the repair of the backwalls, cleaning existing curbs and rails, and furnishing and placing concrete sealer.
3	2499-0800000	PAVING NOTCH REPLACEMENT	LF	116.7	Includes 8.2 cu yd of structural concrete Class C, 1868 lbs. of epoxy-coated reinforcing steel, 135 lbs. of stainless reinforcing steel, excavation, removing and disposing of the existing paving notch and concrete removed to form the shear keyways, drilling holes for dowel bars, and polymer grout material.

100_01D
8/15/22

PROJECT DESCRIPTION

This project is located on US 218 in Johnson County from 1.0 mile south of Riverside Dr. to south of I-80.

The work includes full-depth patching, abutment repair (paving notches), bridge approach pavement, HMA resurfacing, HMA paved shoulders, granular shoulders, steel-beam guardrail, high-tension cable guardrail, milled shoulder rumble strips, and painted pavement markings.

MB-218-6(505)90--77-52 is for the paving notches and bridge approach pavement in the northbound lanes.

All other work, including the paving notches and bridge approach pavement in the southbound lanes, is included in NHSX-218-4(049)--3H-52.

Aeronautical study 2026-ACE-3675-OE concerning this project was issued 8/26/26. This study was terminated due to the project resulting in no changes to the permanent structure, but construction equipment used on the project will require a new study.

User.name@iowadot.us

111_25
10/20/26

INDEX OF TABULATIONS

Line No.	Tabulation	Tabulation Title	Sheet No.
1.0	100_01D	PROJECT DESCRIPTION	C.9
2.0	100_19	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE	C.19
3.0	100_25	HMA PAVEMENT	C.21
4.0	100_27	PROPOSED POSTED SPEED LIMIT	C.12
5.0	102_05	EXISTING PAVEMENT	C.13
6.0	102_05A	EXISTING HMA PAVEMENT FOR RECYCLING	C.14
7.0	102_06C	FULL-DEPTH PATCHES	C.15
8.0	102_16	NOTCHES AND RUNOUTS FOR RESURFACING	C.25
9.0	105_04	STANDARD ROAD PLANS	C.11
10.0	107_23	GRADING FOR GUARDRAIL INSTALLATIONS	C.18
11.0	108_08A	STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION	C.26
12.0	108_08C	STEEL BEAM GUARDRAIL FOR SIDE OBSTACLE (ONE-WAY PROTECTION)	C.27
13.0	108_09A	HIGH TENSION CABLE GUARDRAIL	C.28
14.0	108_22	PAVEMENT MARKING LINE TYPES	C.34
15.0	108_29	PAVEMENT MARKING SYMBOLS AND LEGENDS	C.38
16.0	108_30	CRASH CUSHIONS	C.40
17.0	108_33	TEMPORARY BARRIER RAIL	C.39
18.0	110_01	REMOVAL OF PAVEMENT	C.41
19.0	110_07A	REMOVAL OF STEEL BEAM GUARDRAIL	C.42
20.0	110_07B	REMOVAL OF CABLE GUARDRAIL	C.43
21.0	111_25	INDEX OF TABULATIONS	C.10
22.0	112_06	BRIDGE APPROACH SECTION	C.20
23.0	112_09	SHOULDERS	C.29
24.0	112_10	MILLED RUMBLE STRIPS	C.33

STANDARDS

The following Standards apply to construction work on this project.

Number	Date	Title
BA-200	10-20-26	Steel Beam Guardrail Components
BA-201	10-18-22	Steel Beam Guardrail Barrier Transition Section (MASH TL-3)
BA-202	10-20-26	Steel Beam Guardrail Bolted End Anchor
BA-203	10-15-19	Steel Beam Guardrail W-Beam End Anchor
BA-205	10-17-23	Steel Beam Guardrail Tangent End Terminal (MASH TL-3)
BA-250	10-20-26	Steel Beam Guardrail Installation at Concrete Barrier or Bridge End Post (MASH TL-3)
BA-252	10-21-25	Steel Beam Guardrail Installation at Side Object (One-Way Protection)
BA-351	10-19-21	High Tension Cable Guardrail
BA-401	04-20-21	Temporary Barrier Rail (Precast Concrete)
BA-500	04-20-21	Temporary Crash Cushions Sand Barrel
BR-101	10-20-26	Bridge Approach Section (General Details)
BR-203	10-20-26	Double Reinforced 12in Approach
BR-204	10-20-26	Double Reinforced 12in Approach with Variable Depth Paving Notch
BR-211	04-21-26	Bridge Approach (Abutting PCC or Composite Pavement)
DR-306	10-17-23	Precast Concrete Headwall for Subdrain Outlets
EC-204	10-19-21	Perimeter, Slope and Ditch Check Sediment Control Devices
EW-301	10-20-26	Guardrail Grading
EW-302	10-20-15	Special Shaping for High Tension Cable Guardrail at Median Obstacles
PM-110	10-15-24	Line Types
PM-111	04-21-20	Symbols and Legends
PM-310	04-15-25	Entrance and Exit Ramps
PR-103	10-21-25	Full Depth PCC Patch with Dowels
PV-101	10-20-26	Joints
PV-12	10-20-26	Milled Shoulder Rumble Strips
PV-302	04-15-25	Superelevation Details Four Lane Roadway Depressed Median
SI-173	04-19-16	Object Markers
SI-211	10-18-22	Object Marker and Delineator Placement with Guardrail
SI-881	10-20-26	Special Signs for Workzones
SI-882	10-18-16	Special Signs for Restricted Width Traffic Control Zones
TC-1	10-15-19	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-81	04-18-23	Restricted Width Signing (Less Than 15.5 Feet)
TC-402	04-18-23	Work Within 15 ft of Traveled Way
TC-417	04-21-20	Ramp Closure
TC-418	04-18-23	Lane Closure on Divided Highway
TC-419	04-18-23	Lane Closure on Undivided Highway
TC-421	10-21-25	Lane Closure with TBR
TC-482	04-19-22	Uneven Lanes

PROPOSED POSTED SPEED LIMIT

Line No.	Roadway Identification	Station From	Station To	Proposed Posted Speed	Remarks
1.0	US 218	340+63.00	407+42.89	over 45	65 MPH (A)
2.0	US 218	1412+14.76	1570+37.38	over 45	65 MPH (A)(B)
3.0	US 218	1570+36.38	1690+21.03	over 45	65 MPH (B)

(A): Equation: Sta. 407+42.89 BK = Sta. 1412+14.76 AH
(B): Equation: Sta. 150+37.38 BK = Sta. 1570+36.38 AH

EXISTING PAVEMENT

County	Route	Direction of Travel	Begin Ref. Location Sign	End Ref. Location Sign	Year	Type	Project Number	Surface Type	Surface Depth (IN)	Base Type	Base Depth (IN)	Subbase Type	Subbase Depth (IN)	Removal Type	Removal Depth (IN)	Coarse Aggregate Source	Coarse Aggregate Type	Course Aggregate Durability Class	Reinforcement Type	Remarks
	218		89.05	90.08	2009		NHSX-218-4(35)--3H-52	HMA	1.5	HMA	1.5					KLEIN	C.LST.			
	218		89.05	90.08	1983		F-518-4(21)--20-52	PCC	9.0	CTB	4.0					CONKLIN	C.LST.	I		
	218		90.08	96.98	2009		NHSX-218-4(35)--3H-52	HMA	1.5	HMA	1.5					KLEIN	C.LST.			
	218		90.08	96.98	1983		F-518-4(12)--20-52	PCC	9.0	CTB	4.0					CONKLIN	C.LST.	I		
	218		89.05	90.08	2009		NHSX-218-4(35)--3H-52	HMA	1.5	HMA	1.5					KLEIN	C.LST.			
	218		89.05	90.08	1983		F-518-4(21)--20-52	PCC	9.0	CTB	4.0					CONKLIN	C.LST.	I		
	218		90.08	95.6	2009		NHSX-218-4(35)--3H-52	HMA	1.5	HMA	1.5					KLEIN	C.LST.			
	218		90.08	95.6	1983		F-518-4(12)--20-52	PCC	9.0	CTB	4.0					CONKLIN	C.LST.	I		

EXISTING HMA PAVEMENT FOR RECYCLING

For informational purposes only. When designed RAP is specified, process the RAP to control the uniformity of the final mixture.

Route No.	Location	Year Placed	Layer	Thickness	Asphalt Binder Grade	Asphalt Binder Content	Description	Quality Type	Size	Content	% of -4 that is Type 2	% of +4 that is Type 2	% of +4 that is Type 3	% of +4 that is Type 4	% Crushed	% Limestone
218	Riverside Dr. to I-80	2009	Surface	1.5	PG64-28	5.0	HMA 30MIL L-2	A	0.5		6.6	23.1	23.1	65.1	90.0	
218	Riverside Dr. to I-80	2009	Intermediate	1.5	PG64-28	5.0	HMA 30MIL	A	0.5					7.4	100.0	

FULL-DEPTH PATCHES

Line No.	Count	Station	Reference Location Sign	Direction of Travel	Side	Length (FT)	Width (FT)	Patch Thickness (IN)	Patch Repair or Finish	PCC Patch Type	PCC Patch Quantity (SY)	HMA Patches (SY)	Composite HMA (TON)	Subbase Patches (PR-140) (SY)	Subbase Patch with 'EF' Joint (PR-101) (SY)	Patch Subdrain PR-101 or PR-140 (No.)	'CD' Joints (No.)	'CT' Joints (No.)	'EF' Joints PR-101 (No.)	Anchor Lugs Removal (No.)	Remarks
1.0			Northbound																		
2.0	1		89.85	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
3.0	1		89.851	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
4.0	1		89.9	NB	Left	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
5.0	1		89.96	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
6.0	1		90.03	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
7.0	1		90.11	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
8.0	1		90.13	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
9.0	1		90.16	NB	Left	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
10.0	1		90.17	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
11.0	1		90.18	NB	Left	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
12.0	1		90.19	NB	Left	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
13.0	1		90.24	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
14.0	1		90.245	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
15.0	1		90.247	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
16.0	1		90.268	NB	Right	8.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	10.7										
17.0	1		90.274	NB	Right	8.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	10.7										
18.0	1		90.278	NB	Right	8.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	10.7										
19.0	1		90.319	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
20.0	1		90.46	NB	Right	8.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	10.7										
21.0	1		90.517	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
22.0	1		90.52	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
23.0	1		90.6	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
24.0	1		90.64	NB	Right	14.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	18.7						1	1			
25.0	1		90.658	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
26.0	1		90.66	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
27.0	1		90.692	NB	Left	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
28.0	1		90.705	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
29.0	1		90.711	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
30.0	1		90.713	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
31.0	1		90.94	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
32.0	1		90.958	NB	Right	8.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	10.7										
33.0	1		90.96	NB	Left	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
34.0	1		90.97	NB	Left	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
35.0	1		91.1	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
36.0	1		91.16	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
37.0	1		91.24	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
38.0	1		91.28	NB	Right	8.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	10.7										
39.0	1		91.31	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
40.0	1		91.35	NB	Right	8.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	10.7										
41.0	1		91.37	NB	Right	8.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	10.7										
42.0	1		91.47	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
43.0	1		91.48	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
44.0	1		91.49	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
45.0	1		91.53	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
46.0	1		91.55	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
47.0	1		91.67	NB	Left	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
48.0	1		91.68	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
49.0	1		91.71	NB	Left	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
50.0	1		91.72	NB	Left	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
51.0	1		91.723	NB	Left	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
52.0	1		91.73	NB	Left	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
53.0	1		91.732	NB	Left	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
54.0	1		91.77	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
55.0	1		91.79	NB	Right	8.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	10.7										
56.0	1		91.793	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
57.0	1		91.84	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										

FULL-DEPTH PATCHES

Line No.	Count	Station	Reference Location Sign	Direction of Travel	Side	Length (FT)	Width (FT)	Patch Thickness (IN)	Patch Repair or Finish	PCC Patch Type	PCC Patch Quantity (SY)	HMA Patches (SY)	Composite HMA (TON)	Subbase Patches (PR-140) (SY)	Subbase Patch with 'EF' Joint (PR-101) (SY)	Patch Subdrain PR-101 or PR-140 (No.)	'CD' Joints (No.)	'CT' Joints (No.)	'EF' Joints PR-101 (No.)	Anchor Lugs Removal (No.)	Remarks
58.0	1		91.93	NB	Left	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
59.0	1		91.99	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
60.0	1		92.02	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
61.0	1		92.31	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
62.0	1		92.34	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
63.0	1		92.342	NB	Left	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
64.0	1		92.62	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
65.0	1		92.625	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
66.0	1		92.632	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
67.0	1		92.692	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
68.0	1		92.703	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
69.0	1		92.705	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
70.0	1		92.715	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
71.0	1		92.8	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
72.0	1		92.82	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
73.0	1		92.85	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
74.0	1		92.89	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
75.0	1		92.91	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
76.0	1		92.94	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
77.0	1		92.99	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
78.0	1		93.02	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
79.0	1		93.05	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
80.0	1		93.1	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
81.0	1		93.135	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
82.0	1		93.145	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
83.0	1		93.18	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
84.0	1		93.3	NB	Right	8.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	10.7										
85.0	1		93.32	NB	Right	12.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	16.0						1	1			
86.0	1		93.37	NB	Right	10.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	13.3						1	1			
87.0	1		93.371	NB	Left	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
88.0	1		93.38	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
89.0	1		93.397	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
90.0	1		93.4	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
91.0	1		93.455	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
92.0	1		93.47	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
93.0	1		93.499	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
94.0	1		93.52	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
95.0	1		93.55	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
96.0	1		93.58	NB	Right	8.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	10.7										
97.0	1		93.6	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
98.0	1		93.72	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
99.0	1		93.77	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
100.0	1		93.83	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
101.0	1		93.86	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
102.0	1		94.57	NB	Right	14.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	18.7						1	1			
103.0	1		94.599	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
104.0	1		94.75	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
105.0	1		94.81	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
106.0	1		94.849	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
107.0	1		94.851	NB	Left	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
108.0	1		94.9	NB	Left	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
109.0	1		94.957	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
110.0	1		94.98	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
111.0	1		95.06	NB	Left	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
112.0	1		95.1	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
113.0	1		95.18	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
114.0	1		95.19	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										

FULL-DEPTH PATCHES

Line No.	Count	Station	Reference Location Sign	Direction of Travel	Side	Length (FT)	Width (FT)	Patch Thickness (IN)	Patch Repair or Finish	PCC Patch Type	PCC Patch Quantity (SY)	HMA Patches (SY)	Composite HMA (TON)	Subbase Patches (PR-140) (SY)	Subbase Patch with 'EF' Joint (PR-101) (SY)	Patch Subdrain PR-101 or PR-140 (No.)	'CD' Joints (No.)	'CT' Joints (No.)	'EF' Joints PR-101 (No.)	Anchor Lugs Removal (No.)	Remarks
115.0	1		95.21	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
116.0	1		95.28	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
117.0	1		95.3	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
118.0	1		95.38	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
119.0	1		95.4	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
120.0	1		95.45	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
121.0	1		95.51	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
122.0	1		95.52	NB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
123.0																					
124.0			Southbound																		
125.0	1		89.7	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
126.0	1		89.85	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
127.0	1		89.9	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
128.0	1		90.35	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
129.0	1		90.4	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
130.0	1		90.85	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
131.0	1		90.9	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
132.0	1		91.28	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
133.0	1		91.29	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
134.0	1		91.52	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
135.0	1		91.6	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
136.0	1		91.74	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
137.0	1		91.85	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
138.0	1		92.08	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
139.0	1		92.22	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
140.0	1		92.46	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
141.0	1		92.48	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
142.0	1		93.2	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
143.0	1		93.32	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
144.0	1		93.42	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
145.0	1		93.46	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
146.0	1		93.5	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
147.0	1		93.58	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
148.0	1		93.58	SB	Left	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
149.0	1		93.73	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
150.0	1		93.76	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
151.0	1		93.8	SB	Right	6.0	12.0	12.0	Repair	PCC With Dowels (PR-103)	8.0										
152.0	1	371+75.00		SB	Aux.	400.0	30.0	12.0	Repair	PCC With Dowels (PR-103)	600.0						20	10			Stage 2
Total:	**149**										**1848.4**						**24**	**14**			

Quantities:

PATCHES, FULL-DEPTH REPAIR = 1,248.4 SY
PATCHES BY COUNT (REPAIR) = 151 EA
CD JOINT ASSEMBLY = 4 EA
CT JOINT = 4 EA

GRADING FOR GUARDRAIL INSTALLATIONS

Refer to EW-301.

(1) Lane(s) to which the installation is adjacent.

Direction of Traffic (1)	Station	Side	Foreslope at Guardrail	X1 (FT)	Y1 (FT)	X2 (FT)	Y2 (FT)	X3 (FT)	Y3 (FT)	X4 (FT)	Y4 (FT)	Z (FT)	Excavation Class 10 (CY)	Embankment-in-Place (CY)	Remarks
NB	377+56.36	Right	2.5:1	295.8	5.0					345.9	7.0	47.0		89.5	
NB	377+42.14	Median	4:1	63.6	5.0	112.5	8.3	224.8	8.3	272.9	10.3	58.2		27.1	
SB	379+78.30	Right	2.5:1	251.9	5.0					302.9	7.0	47.0		82.1	
SB	379+90.34	Median	4:1	63.6	5.0	113.0	8.3	224.8	8.3	275.6	10.3	58.2		27.4	
NB	1584+22.68	Right	2.5:1	305.3	5.0					362.1	7.0	47.0		93.3	
NB	1584+65.13	Median	4:1	100.7	5.0	150.9	8.3	189.7	8.3	236.8	10.3	58.2		21.3	
SB	1589+05.26	Right	2.5:1	242.9	5.0					286.9	7.0	47.0		78.2	
SB	1588+60.81	Median	4:1	100.7	5.0	150.6	8.3	189.7	8.3	236.8	10.3	58.2		21.4	
NB	1634+94.00	Right	4:1	73.2	7.0					129.7	9.0	54.0		15.5	Approach End
NB	1634+94.00	Right	4:1	60.7	7.0							47.0		2.1	Trailing End
Total:														**457.9**	

PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE

Possible Standards: EC-204

Line No.	Station From	Station To	Side	Sediment Control Device Type	Diameter Size	Length (LF)	Remarks
1.0	373+45.00	377+55.00	Right	Perimeter and Slope	20 inch	410.00	
2.0	+.00						
3.0	372+60.00	372+60.00	Median	Ditch Check	20 inch	50.00	
4.0	373+80.00	373+80.00	Median	Ditch Check	20 inch	50.00	
5.0	375+00.00	375+00.00	Median	Ditch Check	20 inch	50.00	
6.0	376+20.00	376+20.00	Median	Ditch Check	20 inch	50.00	
7.0	377+40.00	377+40.00	Median	Ditch Check	20 inch	50.00	
8.0	+.00						
9.0	379+75.00	383+55.00	Right	Perimeter and Slope	20 inch	380.00	
10.0	+.00						
11.0	379+90.00	379+90.00	Median	Ditch Check	20 inch	50.00	
12.0	381+10.00	381+10.00	Median	Ditch Check	20 inch	50.00	
13.0	382+30.00	382+30.00	Median	Ditch Check	20 inch	50.00	
14.0	383+50.00	383+50.00	Median	Ditch Check	20 inch	50.00	
15.0	384+70.00	384+70.00	Median	Ditch Check	20 inch	50.00	
16.0	+.00						
17.0	1579+90.00	1584+20.00	Right	Perimeter and Slope	20 inch	430.00	
18.0	+.00						
19.0	1579+85.00	1579+85.00	Median	Ditch Check	20 inch	50.00	
20.0	1581+05.00	1581+05.00	Median	Ditch Check	20 inch	50.00	
21.0	1582+25.00	1582+25.00	Median	Ditch Check	20 inch	50.00	
22.0	1583+45.00	1583+45.00	Median	Ditch Check	20 inch	50.00	
23.0	1584+65.00	1584+65.00	Median	Ditch Check	20 inch	50.00	
24.0	+.00						
25.0	1589+05.00	1592+65.00	Right	Perimeter and Slope	20 inch	360.00	
26.0	+.00						
27.0	1588+60.00	1588+60.00	Median	Ditch Check	20 inch	50.00	
28.0	1589+25.00	1589+25.00	Median	Ditch Check	20 inch	50.00	
29.0	1589+90.00	1589+90.00	Median	Ditch Check	20 inch	50.00	
30.0	1590+55.00	1590+55.00	Median	Ditch Check	20 inch	50.00	
31.0	1591+20.00	1591+20.00	Median	Ditch Check	20 inch	50.00	
32.0	1591+85.00	1591+85.00	Median	Ditch Check	20 inch	50.00	
33.0	1592+50.00	1592+50.00	Median	Ditch Check	20 inch	50.00	
34.0	+.00						
35.0	1633+10.00	1636+10.00	Right	Perimeter and Slope	20 inch	300.00	
36.0	+.00						
37.0	+.00		Right	Perimeter and Slope	20 inch	470.00	Perimeter and Slope 25% Discretionary
38.0	+.00						
39.0	+.00		Median	Ditch Check	20 inch	280.00	Ditch Check 25% Discretionary
Total:						**3730**	

QUANTITIES:
PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA. = 2,350 LF
DITCH CHECK SEDIMENT CONTROL DEVICE, 20 IN. DIA. = 1,380 LF
REMOVAL OF PERIMETER AND SLOPE OR DITCH CHECK SEDIMENT CONTROL DEVICE = 3,730 LF

BRIDGE APPROACH SECTION

Refer to the BR Series.

* Not a bid item
** Verify layout of bridge approach does not conflict with guardrail posts.

Bridge Station	End	Skew Ahead Left (Degrees)	Skew Ahead Right (Degrees)	(T) Thickness (IN)	Pay Length (FT)	Right Edge Offset (FT) **	Left Edge Offset (FT) **	Non-Reinf. Area (SY)	Single-Reinf. Area (SY)	Double-Reinf. Area (SY)	SRP Approach	SRP Abutment Type	SRP Abutting Pavement	Perforated * 4" Subdrain (LF)	Subdrain * Outlet (STA)	Subdrain * Outlet Side	Porous * Backfill (CY)	Modified * Subbase (TON)	Polymer * Grid (SY)	Special * Backfill (TON)	Remarks
378+76.60	S		19.6	12.0	72.7	67.6	44	79.6	53.0	69.4	BR-203	Movable	BR-211	24.0	376+98.49	Right	0.7	207.300	219.3		Stage 2 - Northbound
378+76.60	N		16.6	12.0	72.4	67.6	44	79.6	53.0	40.6	BR-203	Movable	BR-211	24.0	380+61.36	Right	0.7	185.900	196.7		Stage 2 - Northbound
378+47.81	S		19.8	12.0	77.0	44	78.7	118.1	75.1	79.0	BR-203	Movable	BR-211	37.0	377+61.81	Left	1.0	273.600	289.5		Stage 2 - Southbound (-) Note 4
378+47.81	N		16.8	12.0	71.2	44	67.6	77.7	51.8	65.8	BR-203	Movable	BR-211	24.0	380+34.89	Left	0.7	200.300	211.9		Stage 2 - Southbound (-)
1586+29.78	S	46.7		12.0	90.0	67.6	44	78.6	52.4	72.1	BR-204	Fixed	BR-211	24.0	1583+78.49	Right	0.7	260.500	220.5		Stage 2 - Northbound
1586+29.78	N	46.7		12.0	85.8	67.6	44	78.6	52.4	126.5	BR-204	Fixed	BR-211	24.0	1588+56.82	Right	0.7	330.300	279.6		Stage 2 - Northbound
1587+23.16	S	46.7		12.0	85.8	44	67.6	78.6	52.4	126.5	BR-204	Fixed	BR-211	24.0	1584+81.12	Left	0.7	330.300	279.6		Stage 2 - Southbound (-)
1587+23.16	N	46.7		12.0	90.0	44	67.6	78.6	52.4	72.1	BR-204	Fixed	BR-211	24.0	1589+49.45	Left	0.7	260.500	220.5		Stage 2 - Southbound (-)
378+76.60	S		19.6	12.0	72.7	44	24.4	65.8	43.8	40.6	BR-203	Movable	BR-211	20.0	376+98.49	Median	0.6	156.500	165.6		Stage 3 - Northbound
378+76.60	N		16.6	12.0	72.4	44	24.4	62.4	41.6	51.3	BR-203	Movable	BR-211	20.0	380+61.36	Median	0.6	170.300	180.2		Stage 3 - Northbound
378+47.81	S		19.8	12.0	77.0	24.4	44	66.5	43.2	67.5	BR-203	Movable	BR-211	20.0	377+61.81	Median	0.6	182.900	193.5		Stage 3 - Southbound (-)
378+47.81	N		16.8	12.0	71.2	24.4	44	64.8	43.2	40.9	BR-203	Movable	BR-211	20.0	380+34.89	Median	0.6	155.200	164.2		Stage 3 - Southbound (-)
1586+29.78	S	46.7		12.0	90.0	44	24.4	65.3	43.5	109.7	BR-204	Fixed	BR-211	20.0	1583+78.49	Median	0.6	284.700	241.0		Stage 3 - Northbound
1586+29.78	N	46.7		12.0	85.8	44	24.4	65.3	43.5	55.3	BR-204	Fixed	BR-211	20.0	1588+56.82	Median	0.6	213.700	180.9		Stage 3 - Northbound
1587+23.16	S	46.7		12.0	85.8	24.4	44	65.3	43.5	55.3	BR-204	Fixed	BR-211	20.0	1584+81.12	Median	0.6	213.700	180.9		Stage 3 - Southbound (-)
1587+23.16	N	46.7		12.0	90.0	24.4	44	65.3	43.5	109.7	BR-204	Fixed	BR-211	20.0	1589+49.45	Median	0.6	284.700	241.0		Stage 3 - Southbound (-)
Total:								**1190.1**	**788.3**	**1182.3**											

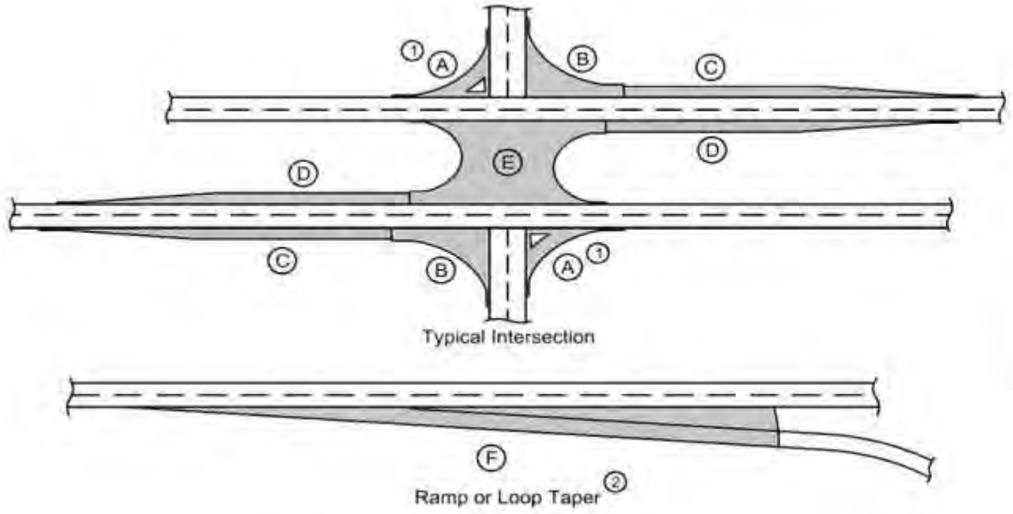
Quantities:

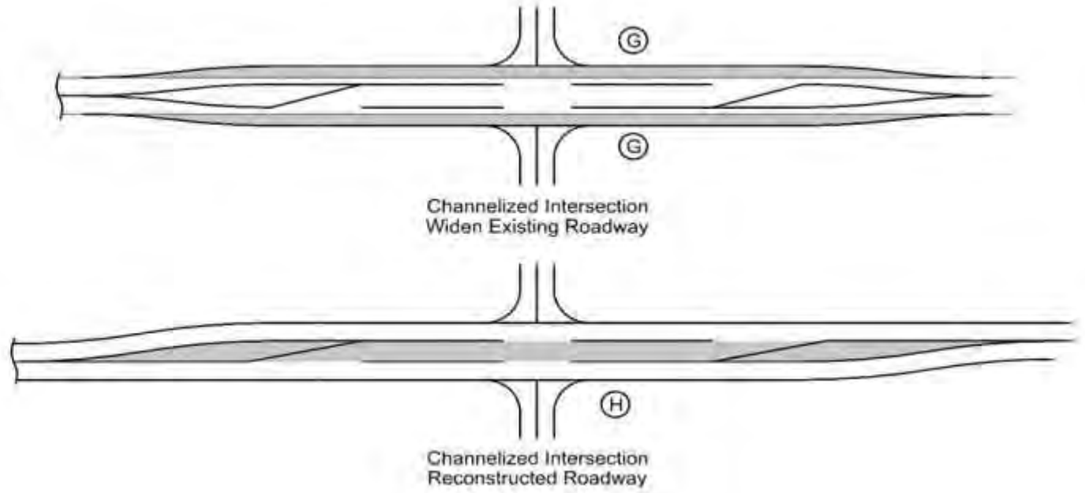
BRIDGE APPROACH, BR-203 = 1,474.3 SY
NB = 680.7 SY (Division 3)
SB = 793.6 SY
BRIDGE APPROACH, BR-204 = 1,686.4 SY
NB = 843.2 SY (Division 3)
SB = 843.2 SY

Remarks:

1. All offsets are measured from the centerline alignment. The (-) symbol indicates that offsets are left of centerline alignment (southbound approaches). Left/Right are oriented looking up-station in this tabulation. For southbound approaches, "Left" refers to the outside edge of the approach. For northbound approaches, "Right" refers to the outside edge of the approach.
2. Pay lengths are measured along centerline of pavement (+/- 44 ft. from centerline alignment).
3. The Riverside Dr. approaches are in a section of curved alignment. Lengths are measured along the curve.
4. The left edge of the South Approach at Riverside Dr. is on a 15:1 taper. Offset varies from -76.50 ft. at bridge to -80.90 at south end of approach. The average offset of -78.7 is indicated in Line 3.
5. Northbound Bridge Approach quantities are included in Division 3 - MB-218-6(505)90--77-52

HMA PAVEMENT

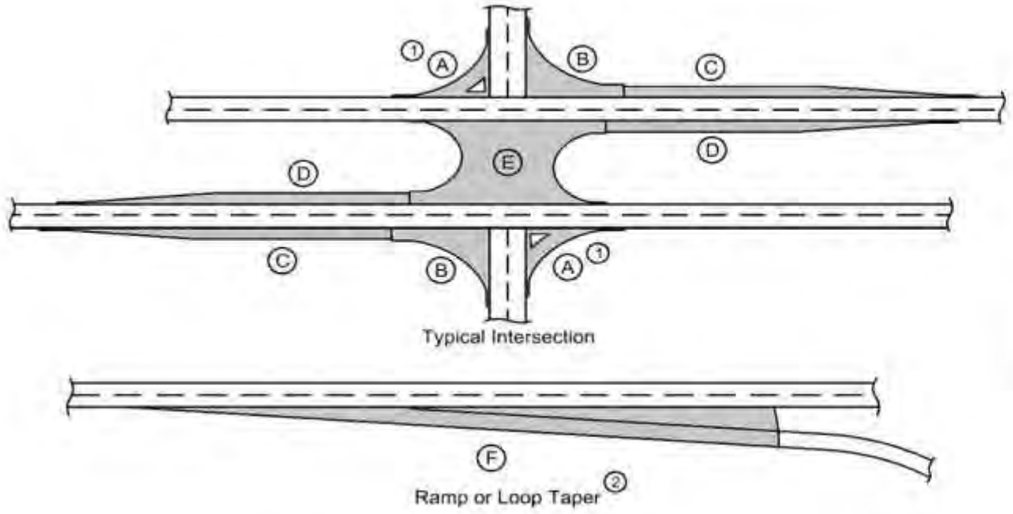


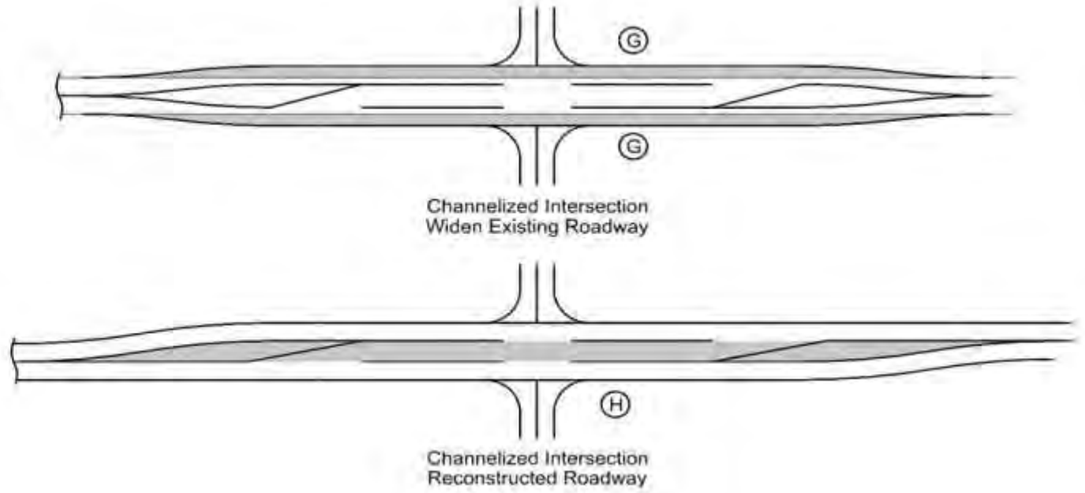


(1) Does not include raised island area or curb. Refer to tabulation 112-4 for quantities.
(2) Refer to PV-410, PV-411, PV-412, and PV-414.
(3) Quantity includes Pavement Header.

Road Identification	Direction of Travel	Station From	Station To	Width (FT)	Length (FT)	Area (SY)	Area A(1) (SY)(3)	Area B (SY)(3)	Area C (SY)(3)	Area D (SY)(3)	Area E(2) (SY)(3)	Area F (SY)(3)	Area G (SY)(3)	Area H (SY)(3)	HMA Pavement Surface (TONS)	HMA Pavement Surface (SY)	HMA Hi-Pro Surface (TONS)	HMA Pavement Intermediate (TONS)	HMA Pavement Intermediate (SY)	Binder Surface (TONS)	Binder Hi-Pro (TONS)	Binder Intermediate (TONS)	Binder Base (TONS)	Special Backfill (TONS)	Modified Subbase (CY)	Granular Subbase (SY)	Pavement Scarification (SY)	Remarks
US 218	NB	340+63.00	364+85.00	34.0	2422.00	9149.78						1615.84				10765.62	938.627	908.349	10765.62		56.318	54.501					10765.62	
US 218	NB	364+85.00	373+82.00	34.0	897.00	3388.67										3388.67	295.450	285.919	3388.67		17.727	17.155					3388.67	
US 218	NB	373+82.00	376+88.49	36.0	306.49	1225.96										1225.96	106.888	103.440	1225.96		6.413	6.206					1225.96	
US 218	NB	380+71.36	382+92.50	36.0	221.14	884.56										884.56	77.123	74.635	884.56		4.627	4.478					884.56	
US 218	NB	382+92.50	388+74.08	34.0	581.58	2197.08										2197.08	191.558	185.379	2197.08		11.493	11.123					2197.08	
US 218	NB	388+74.08	407+42.89	34.0	1868.81	7059.95						1841.78				8901.73	776.120	751.083	8901.73		46.567	45.065					8901.73	(A)
US 218	NB	1412+14.76	1455+85.00	34.0	4370.24	16509.80						1615.93				18125.73	1580.337	1529.358	18125.73		94.820	91.761					18125.73	(A)
US 218	NB	1455+85.00	1479+34.70	34.0	2349.70	8876.64										8876.64	773.932	748.966	8876.64		46.436	44.938					8876.64	
US 218	NB	1479+34.70	1570+37.38	34.0	9102.68	34387.90						1656.92				36044.82	3142.658	3041.282	36044.82		188.559	182.477					36044.82	(B)
US 218	NB	1570+36.38	1571+05.98	34.0	69.60	262.93						1615.93				1878.86	163.813	158.529	1878.86		9.829	9.512					1878.87	(B)
US 218	NB	1571+05.98	1580+58.72	34.0	952.74	3599.24										3599.24	313.809	303.686	3599.24		18.829	18.221					3599.24	
US 218	NB	1580+58.72	1583+68.49	36.0	309.77	1239.08										1239.08	108.032	104.547	1239.08		6.482	6.273					1239.08	
US 218	NB	1588+66.82	1590+92.54	36.0	225.72	902.88										902.88	78.720	76.180	902.88		4.723	4.571					902.88	
US 218	NB	1590+92.54	1596+40.10	34.0	547.56	2068.56										2068.56	180.353	174.535	2068.56		10.821	10.472					2068.56	
US 218	NB	1596+40.10	1679+70.00	34.0	8329.90	31468.51						1625.14				33093.65	2885.353	2792.277	33093.65		173.121	167.537					33093.66	
US 218	NB	1679+70.00	1690+21.03	40.0	1051.03	4671.24										4671.24	407.274	394.136	4671.24		24.436	23.648					4671.24	(C)
US 218	SB	340+63.00	359+56.10	34.0	1893.10	7151.71						1622.00				8773.71	764.958	740.282	8773.71		45.897	44.417					8773.71	
US 218	SB	359+56.10	371+85.00	34.0	1228.90	4642.51										4642.51	404.769	391.712	4642.51		24.286	23.503					4642.51	
US 218	SB	371+85.00	374+29.00	34.0	244.00	921.78						1692.49				2614.27	227.932	220.579	2614.27		13.676	13.235					2614.27	
US 218	SB	374+29.00	376+52.81	36.0	223.81	895.24										895.24	78.054	75.536	895.24		4.683	4.532					895.24	

HMA PAVEMENT

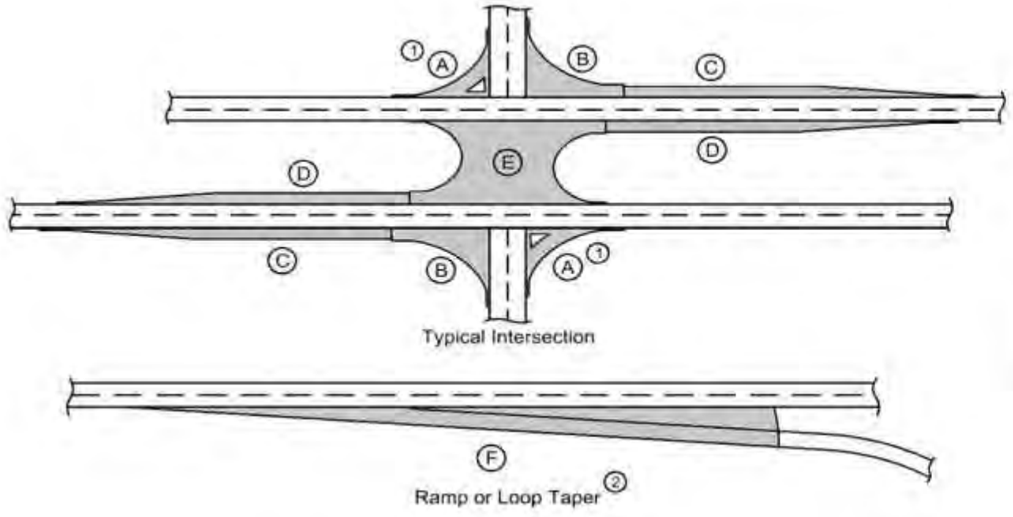




(1) Does not include raised island area or curb. Refer to tabulation 112-4 for quantities.
(2) Refer to PV-410, PV-411, PV-412, and PV-414.
(3) Quantity includes Pavement Header.

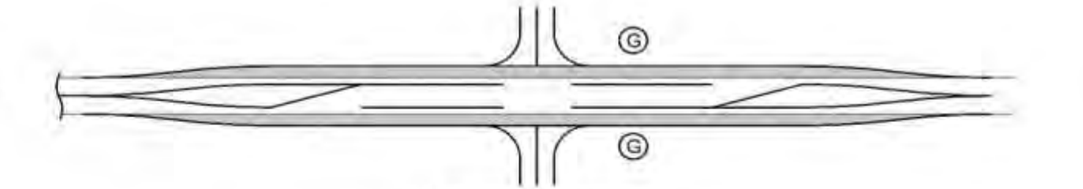
Road Identification	Direction of Travel	Station From	Station To	Width (FT)	Length (FT)	Area (SY)	Area A(1) (SY)(3)	Area B (SY)(3)	Area C (SY)(3)	Area D (SY)(3)	Area E(2) (SY)(3)	Area F (SY)(3)	Area G (SY)(3)	Area H (SY)(3)	HMA Pavement Surface (TONS)	HMA Pavement Surface (SY)	HMA Hi-Pro Surface (TONS)	HMA Pavement Intermediate (TONS)	HMA Pavement Intermediate (SY)	Binder Surface (TONS)	Binder Hi-Pro (TONS)	Binder Intermediate (TONS)	Binder Base (TONS)	Special Backfill (TONS)	Modified Subbase (CY)	Granular Subbase (SY)	Pavement Scarification (SY)	Remarks
US 218	SB	380+44.89	383+50.71	36.0	305.82	1223.28										1223.28	106.655	103.214	1223.28		6.399	6.193					1223.28	
US 218	SB	383+50.71	407+42.89	34.0	2392.18	9037.12										9037.12	787.924	762.507	9037.12		47.275	45.750					9037.12	(A)
US 218	SB	1412+14.76	1457+00.00	34.0	4485.24	16944.24						1591.76				18536.00	1616.108	1563.975	18536.00		96.966	93.838					18536.00	(A)
US 218	SB	1457+00.00	1480+15.00	34.0	2315.00	8745.56										8745.56	762.504	737.907	8745.56		45.750	44.274					8745.56	
US 218	SB	1480+15.00	1570+37.38	34.0	9022.38	34084.55						1614.89				35699.44	3112.545	3012.140	35699.44		186.753	180.728					35699.44	(B)
US 218	SB	1570+36.38	1576+94.83	34.0	658.45	2487.48						1584.80				4072.28	355.052	343.599	4072.28		21.303	20.616					4072.28	(B)
US 218	SB	1576+94.83	1582+46.49	34.0	551.66	2084.05										2084.05	181.703	175.842	2084.05		10.902	10.551					2084.05	
US 218	SB	1582+46.49	1584+71.12	36.0	224.63	898.52										898.52	78.340	75.813	898.52		4.700	4.549					898.52	
US 218	SB	1589+59.45	1592+68.83	36.0	309.38	1237.52										1237.52	107.896	104.416	1237.52		6.474	6.265					1237.52	
US 218	SB	1592+68.83	1602+35.98	34.0	967.15	3653.68										3653.68	318.555	308.279	3653.68		19.113	18.497					3653.68	
US 218	SB	1602+35.98	1679+70.00	34.0	7734.02	29217.41						1615.93				30833.34	2688.282	2601.563	30833.34		161.297	156.094					30833.34	
US 218	SB	1679+70.00	1690+21.03	40.0	1051.03	4671.24										4671.24	407.274	394.136	4671.24		24.436	23.648					4671.24	(C)
Riverside Ramp B	NB	2564+85.00	2582+38.79	25.0	1753.79	4871.64									566.328	4871.64			4871.64	33.980	33.980						4871.64	
Riverside Ramp D	NB	4578+83.44	4588+68.39	25.0	984.95	2735.97									318.057	2735.97			2735.97	19.083	19.083						2735.97	
Riverside Loop A	SB	1564+34.70	1571+85.00	27.0	750.30	2250.90									261.667	2250.90			2250.90	15.700	15.700						2250.90	
Riverside Ramp C	SB	3559+51.63	3572+85.30	25.0	1333.67	3704.64									430.664	3704.64			3704.64	25.840	25.840						3704.64	
IA 1 Ramp B	NB	2555+85.00	2569+14.19	25.0	1329.19	3692.19				373.33					472.617	4065.52			4065.52	28.357	28.357						4065.53	
IA 1 Ramp D	NB	4568+86.82	4579+40.00	25.0	1053.18	2925.50									340.089	2925.50			2925.50	20.405	20.405						2925.50	
IA 1 Ramp A	SB	1567+52.60	1580+15.00	25.0	1262.40	3506.67			599.11	339.53					516.767	4445.31			4445.31	31.006	31.006						4445.31	
IA 1 Ramp C	SB	3556+96.38	3567+57.71	25.0	1061.33	2948.14	69.16								350.761	3017.30			3017.30	21.046	21.046						3017.29	

HMA PAVEMENT

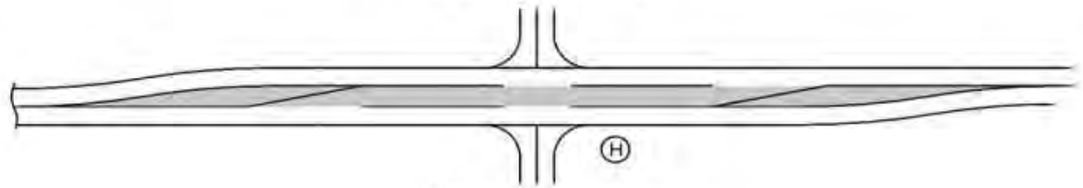


Typical Intersection

Ramp or Loop Taper



Channelized Intersection
Widen Existing Roadway



Channelized Intersection
Reconstructed Roadway

(1) Does not include raised island area or curb. Refer to tabulation 112-4 for quantities.
(2) Refer to PV-410, PV-411, PV-412, and PV-414.
(3) Quantity includes Pavement Header.

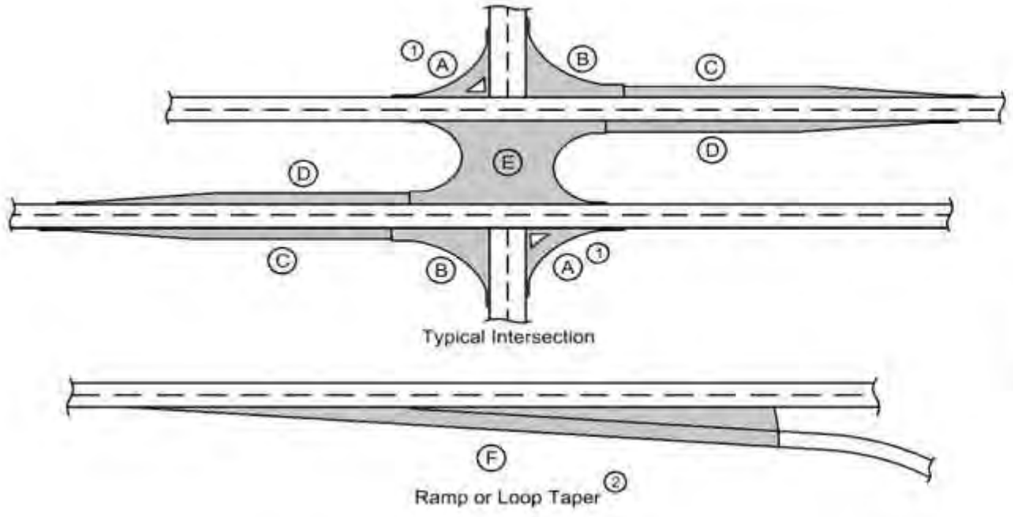
Road Identification	Direction of Travel	Station From	Station To	Width (FT)	Length (FT)	Area (SY)	Area A(1) (SY)(3)	Area B (SY)(3)	Area C (SY)(3)	Area D (SY)(3)	Area E(2) (SY)(3)	Area F (SY)(3)	Area G (SY)(3)	Area H (SY)(3)	HMA Pavement Surface (TONS)	HMA Pavement Surface (SY)	HMA Hi-Pro Surface (TONS)	HMA Pavement Intermediate (TONS)	HMA Pavement Intermediate (SY)	Binder Surface (TONS)	Binder Hi-Pro (TONS)	Binder Intermediate (TONS)	Binder Base (TONS)	Special Backfill (TONS)	Modified Subbase (CY)	Granular Subbase (SY)	Pavement Scarification (SY)	Remarks
Melrose Ramp B	NB	6571+10.00	6582+49.27	25.0	1139.27	3164.64	397.50								414.099	3562.14			3562.14	24.846	24.846						3562.14	
Melrose Ramp D	NB	8581+86.08	8596+45.00	25.0	1458.92	4052.56	60.96	80.13							487.512	4193.65			4193.65	29.251	29.251						4193.64	
Melrose Ramp A	SB	5591+01.96	5602+40.00	25.0	1138.04	3161.22	446.06								419.346	3607.28			3607.28	25.161	25.161						3607.28	
Melrose Ramp C	SB	7576+94.52	7591+66.31	25.0	1471.79	4088.31	56.18	64.84							489.335	4209.33			4209.33	29.360	29.360						4209.33	
Riverside Dr	NB	1360+75.96	1376+50.26	22.5	1574.30	3935.75									457.531	3935.75			3935.75	27.452	27.452						3935.75	
Riverside Dr	NB	1376+50.26	1380+83.16	22.5	432.90	1082.25						420.00			174.637	1502.25			1502.25	10.478	10.478						1502.25	
Riverside Dr	NB	1380+83.16	1393+08.37	32.5	1225.21	4424.37	573.58								581.012	4997.95			4997.95	34.861	34.861						4997.95	Area A is Div. 2
Riverside Dr	SB	1360+75.96	1367+82.19	22.5	706.23	1765.58									205.249	1765.58			1765.58	12.315	12.315						1765.58	
Riverside Dr	SB	1367+82.19	1374+44.11	22.5	661.92	1654.80						865.49			292.984	2520.29			2520.29	17.579	17.579						2520.29	
Riverside Dr	SB	1374+44.11	1393+08.37	32.5	1864.26	6732.05				446.67	229.27				861.179	7407.99			7407.99	51.671	51.671						7407.98	
Riverside Dr	Both	1393+08.37	1396+35.37	65.0	327.00	2361.67									274.544	2361.67			2361.67	16.473	16.473						2361.67	
US 218	Both													13774.10		13774.10	1200.929	1162.190	13774.10		72.056	69.731					5% Irregularities
Ramps														2179.46	253.362	2179.46			2179.46	15.202	15.202						5% Irregularities
Riverside Dr.	NB													1224.57	142.356	1224.57			1224.57	8.541	8.541						5% Irregularities
Total:															**8310.096**		**25219.527**	**24405.991**		**498.607**	**2011.774**	**1464.359**				**343562.74**	

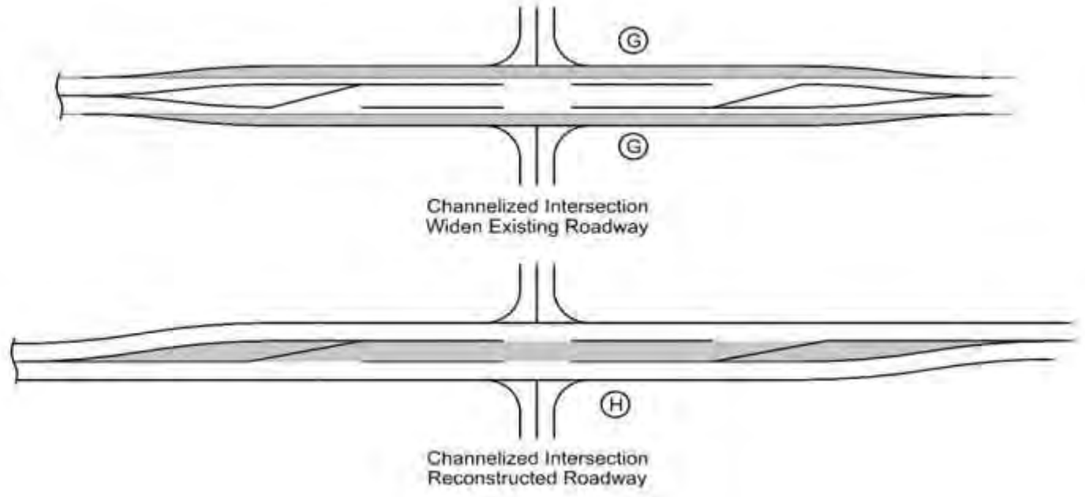
REMARKS:
(A): Equation: Sta. 407+42.89 BK = Sta. 1412+14.76 AH
(B): Equation: Sta. 150+37.38 BK = Sta. 1570+36.38 AH
(C): Resurfacing width includes transverse runout on existing paved crossover

TOTAL QUANTITIES:

ASPHALT BINDER, PG 58-28V, VERY HIGH TRAFFIC = 1,962.97 TONS
HOT MIX ASPHALT VERY HIGH TRAFFIC, INTERMEDIATE COURSE 1/2 IN. MIX = 24,406 TONS

HMA PAVEMENT





(1) Does not include raised island area or curb. Refer to tabulation 112-4 for quantities.
(2) Refer to PV-410, PV-411, PV-412, and PV-414.
(3) Quantity includes Pavement Header.

Road Identification	Direction of Travel	Station From	Station To	Width (FT)	Length (FT)	Area (SY)	Area A(1) (SY)(3)	Area B (SY)(3)	Area C (SY)(3)	Area D (SY)(3)	Area E(2) (SY)(3)	Area F (SY)(3)	Area G (SY)(3)	Area H (SY)(3)	HMA Pavement Surface (TONS)	HMA Pavement Surface (SY)	HMA Hi-Pro Surface (TONS)	HMA Pavement Intermediate (TONS)	HMA Pavement Intermediate (SY)	Binder Surface (TONS)	Binder Hi-Pro (TONS)	Binder Intermediate (TONS)	Binder Base (TONS)	Special Backfill (TONS)	Modified Subbase (CY)	Granular Subbase (SY)	Pavement Scarification (SY)	Remarks
HOT MIX ASPHALT VERY HIGH TRAFFIC, SURFACE COURSE, 1/2 IN. MIX, FRICTION L-2 = 8,310.1 TONS																												
ASPHALT BINDER, PG 58-34E+, EXTREMELY HIGH TRAFFIC, 90% ELASTIC RECOVERY = 1,513.18 TONS																												
HOT MIX ASPHALT MIXTURE THIN LIFT SURFACE COURSE, 3/8 IN. MIX = 25,219.5 TONS																												
PAVEMENT SCARIFICATION, NOMINAL THICKNESS = 343,562.7 SY																												
DIV. 2 INCLUDES:																												
ASPHALT BINDER, PG 58-28V, VERY HIGH TRAFFIC = 4.00 TONS																												
HOT MIX ASPHALT VERY HIGH TRAFFIC, SURFACE COURSE, 1/2 IN. MIX, FRICTION L-2 = 66.7 TONS																												
PAVEMENT SCARIFICATION, NOMINAL THICKNESS = 573.6 SY																												

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.

Line No.	Station	Type of Notch or Runout	S (IN)	I (IN)	DI (IN)	L (FT)	M (IN)	Pavement Scarification (SY) (1)	Remarks
1.0	340+63.00	Type N5	1.5	1.5		150.0	2.0		BOP NB
2.0	376+88.49	Type N5	1.5	1.5		150.0	2.0		Bridge 605000 S. Approach
3.0	380+71.15	Type N5	1.5	1.5		150.0	2.0		Bridge 605000 N. Approach
4.0	1583+68.49	Type N5	1.5	1.5		150.0	2.0		Bridge 605555 S. Approach
5.0	1588+66.82	Type N5	1.5	1.5		150.0	2.0		Bridge 605555 N. Approach
6.0	1690+21.03	Type N5	1.5	1.5		150.0	2.0		EOP NB
7.0	+.00								
8.0	1679+70.00	Type N3	1.5	1.5		30.0	2.0	583.9	Transverse Runout at Existing NB Crossover
9.0	+.00								
10.0	+.00								
11.0	340+63.00	Type N5	1.5	1.5		150.0	2.0		BOP SB
12.0	376+52.54	Type N5	1.5	1.5		150.0	2.0		Bridge 605005 S. Approach
13.0	380+43.89	Type N5	1.5	1.5		150.0	2.0		Bridge 605005 N. Approach
14.0	1584+71.12	Type N5	1.5	1.5		150.0	2.0		Bridge 605560 S. Approach
15.0	1589+59.45	Type N5	1.5	1.5		150.0	2.0		Bridge 605560 N. Approach
16.0	1690+21.03	Type N5	1.5	1.5		150.0	2.0		EOP SB
17.0	+.00								
18.0	1679+70.00	Type N3	1.5	1.5		30.0	2.0	583.9	Transverse Runout at Existing SB Crossover
19.0	+.00								
20.0	2564+85.00	Type N5	1.5	1.5		150.0	2.0		Riverside Ramp B
21.0	2582+38.79	Type N2	2.0			100.0	2.0		Riverside Ramp B
22.0	4578+83.44	Type N5	1.5	1.5		150.0	2.0		Riverside Ramp D
23.0	4588+68.39	Type N2	2.0			100.0	2.0		Riverside Ramp D
24.0	1571+85.00	Type N5	1.5	1.5		150.0	2.0		Riverside Loop A
25.0	3559+51.63	Type N5	1.5	1.5		150.0	2.0		Riverside Ramp C
26.0	+.00								
27.0	2555+85.00	Type N5	1.5	1.5		150.0	2.0		IA 1 Ramp B
28.0	2569+14.19	Type N2	2.0			100.0	2.0		IA 1 Ramp B
29.0	4568+86.82	Type N2	2.0			100.0	2.0		IA 1 Ramp D
30.0	4579+40.00	Type N5	1.5	1.5		150.0	2.0		IA 1 Ramp D
31.0	1567+52.60	Type N2	2.0			100.0	2.0		IA 1 Ramp A
32.0	1580+15.00	Type N5	1.5	1.5		150.0	2.0		IA 1 Ramp A
33.0	3556+96.38	Type N5	1.5	1.5		150.0	2.0		IA 1 Ramp C
34.0	3567+57.51	Type N2	2.0			100.0	2.0		IA 1 Ramp C
35.0	+.00								
36.0	6571+10.00	Type N5	1.5	1.5		150.0	2.0		Melrose Ramp B
37.0	6582+49.27	Type N2	2.0			100.0	2.0		Melrose Ramp B
38.0	8581+86.08	Type N5	1.5	1.5		150.0	2.0		Melrose Ramp D
39.0	8596+45.00	Type N2	2.0			100.0	2.0		Melrose Ramp D
40.0	5591+01.96	Type N2	2.0			100.0	2.0		Melrose Ramp A
41.0	5602+40.00	Type N5	1.5	1.5		150.0	2.0		Melrose Ramp A
42.0	7576+94.52	Type N5	1.5	1.5		150.0	2.0		Melrose Ramp C
43.0	7591+66.31	Type N2	2.0			100.0	2.0		Melrose Ramp C
44.0	+.00								
45.0	1396+36.25	Type N2	2.0			100.0	2.0		Riverside Dr
Total:								**1167.8**	

STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION

Possible Standards: BA-200, BA-201, BA-202, BA-205, BA-206, BA-209, BA-210, BA-211, BA-221, BA-225, BA-250, BA-260, LS-625, LS-626, LS-630, LS-635, SI-172, SI-173 and SI-211.

(1) Lane(s) to which the obstacle is adjacent.
(2) Not a bid item. Incidental to guardrail installation.

Line No.	Direction of Travel (1)	Side	Station	Offset (FT)	Barrier Transition Section	Barrier Transition Section (EA)	End Terminal	End Terminal Count (EA)	VT1 (LF)	VF (LF)	VT2 (LF)	ET (LF)	BA-211 Station	BA-211 (Type)	SI-211 (Type) (2)	Delineator SI-172 Type 1 (EA) (2)	Object Marker Type 2 (EA) (2)	Object Marker Type 3 Lt (EA)(2)	Object Marker Type 3 Rt (EA)(2)	Bolted End Anchor BA-202 (Type)	Bolted End Anchor BA-202 (EA)	Post Adapter BA-210 (EA)	Steel Beam Guardrail BA-200 (LF)	Remarks
1.0	NB	Outside	377+56.36	66.0	BA-201	1	BA-205	1	303.125			47.70			3				1	C			262.5	
2.0	NB	Median	377+42.14	26.0	BA-201	1	BA-205	1	65.625	50.00	112.50	47.70			3			1		C			187.5	
3.0	SB	Outside	379+78.30	66.0	BA-201	1	BA-205	1	253.125			47.70			3				1	C			212.5	
4.0	SB	Median	379+90.34	26.0	BA-201	1	BA-205	1	65.625	50.00	112.50	47.70			3			1		C			187.5	
6.0	NB	Outside	1584+22.68	66.0	BA-201	1	BA-205	1	315.625			47.70			3				1	C			275.0	
7.0	NB	Median	1584+65.13	26.0	BA-201	1	BA-205	1	103.125	50.00	37.50	47.70			3			1		C			150.0	
8.0	SB	Outside	1589+05.26	66.0	BA-201	1	BA-205	1	240.625			47.70			3				1	C			200.0	
9.0	SB	Median	1588+60.81	26.0	BA-201	1	BA-205	1	103.125	50.00	37.50	47.70			3			1		C			150.0	
Total:						**8**		**8**															**1625**	

Quantities:

STEEL BEAM GUARDRAIL = 1,625 LF
STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-201 = 8 EA
STEEL BEAM GUARDRAIL END ANCHOR, BOLTED = 8 EA
STEEL BEAM GUARDRAIL FLARED END TERMINAL, BA-206 = 8 EA

STEEL BEAM GUARDRAIL FOR SIDE OBSTACLE (ONE-WAY PROTECTION)

1. Lane(s) to which the obstacle is adjacent.

Line No.	Item No.	Lane (1)	Side	Station	OL (FT)	DO (FT)	ET (LF)	VT2A (LF)	VFA (LF)	VT1A (LF)	VT1T (LF)	EA (LF)	BA-211 Station	BA-211 (Type)	SI-211 (Type)	SI-172 Type 1 White (EA)	SI-173 Type 2 OM2-2 (EA)	SI-173 Type 3 OM3-L (EA)	SI-173 Type 3 OM3-R (EA)	Steel Beam Guardrail BA-200 (LF)	W-Beam End Anchor BA-203 (EA)	Standard End Terminal (Type)	Standard End Terminal Count (EA)	Post Adapter BA-210 (EA)	Remarks
1.0		NB	Right	1634+94.00	12.0	12.0	47.67			81.25	50.00	9.38			6					125.00	1	BA-205	1		

Quantities:

STEEL BEAM GUARDRAIL = 125 LF
STEEL BEAM GUARDRAIL END ANCHOR, W-BEAM = 1 EA
STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-205 = 1 EA

HIGH TENSION CABLE GUARDRAIL

Refer to BA-351.

1. Lane(s) to which the installation is adjacent.

Line No.	Item No.	Lane (1)	Station	Side	Offset DO (FT)	Approach CA (FT)	Obstacle CO (FT)	Trailing CT (FT)	Protection Length (CA+CO+CT) (FT)	End Anchor (EA)	Remarks
1.0	1	NB	1429+55.53	Median	16.0	200.0	50.0		250.0	1	Dane Rd.
2.0	2	SB	1434+55.53	Median	16.0	200.0	50.0		250.0	1	Dane Rd.
3.0	3	NB	1465+63.17	Median	16.0	200.0	130.0		330.0	1	IA 1
4.0	4	SB	1470+93.17	Median	16.0	200.0	130.0		330.0	1	IA 1
5.0	5	NB	1526+43.40	Median	16.0	200.0	140.0		340.0	1	Rohret Rd.
6.0	6	SB	1531+83.40	Median	16.0	200.0	140.0		340.0	1	Rohret Rd.
7.0	7	NB	1632+90.00	Median	16.0	200.0	20.0		220.0	1	Sign Truss
8.0	8	SB	1637+10.00	Median	16.0	200.0	20.0		220.0	1	Sign Truss
Total:									**2280**	**8**	

Quantities:

HIGH TENSION CABLE GUARDRAIL = 2,280 LF
HIGH TENSION CABLE GUARDRAIL, END ANCHOR = 8 EA.

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.
(7) Paved shoulder thickness specified in Remarks.
(8) Subbase type specified in Remarks.

Roadway Identification	Direction of Travel (1)	Station From	Station To	Side	P Width (FT)	P SG Width (2) (FT)	G Width (FT)	L Length (FT)	Class 13 Excavation (CY)(3)(4)	HMA (TON)	HMA (TON/STA)	Binder (TONS)	Paved Shoulder (3) (SY)	Shoulder at Grdrail (5)(7)	Reinforced Paved Shoulder(3) (SY)	Special Backfill HMA Alt.(3) (TON)	Pavement Scarification (SY)	Polymer Grid (SY)	Subbase (3) (8) (CY)	Granular Shoulder (3) (TON)	Granular Shoulder (TON/STA)	Shoulder Const. Alt (3) (STA)	Remarks
US 218 NB - Right Shoulder																							
US 218	NB	340+63.00	364+85.00	Right	6		4	2422.00												225.997	9.331		
US 218	NB	364+85.00	373+91.47	Right	6		4	906.47												84.583	9.331		
US 218	NB	373+91.47	374+11.47	Right		7.5		20.00	4.2	8.445	42.225	0.507		16.7								0.20	
US 218	NB	374+11.47	374+60.52	Right		7.5 to 5.6		49.05	8.9	18.063	36.825	1.084		35.7								0.49	
US 218	NB	374+60.52	376+88.49	Right		5.6		227.97	35.5	71.811	31.500	4.309		141.8								2.28	
US 218	NB	380+71.36	388+74.08	Right	6		4	802.72												74.902	9.331		
US 218	NB	388+74.08	407+42.89	Right	6		4	1868.81												174.379	9.331		(A)
US 218	NB	1412+14.76	1455+85.00	Right	6		4	4370.24												407.787	9.331		(A)
US 218	NB	1455+85.00	1479+34.70	Right	6		4	2349.70												219.251	9.331		
US 218	NB	1479+34.70	1570+37.38	Right	6		4	9102.68												849.371	9.331		(B)
US 218	NB	1570+36.38	1571+05.98	Right	6		4	69.60												6.494	9.331		(B)
US 218	NB	1571+05.98	1580+40.55	Right	6		4	934.57												87.205	9.331		
US 218	NB	1580+40.55	1580+60.55	Right		7.5		20.00	4.2	8.445	42.225	0.507		16.7								0.20	
US 218	NB	1580+60.55	1581+17.43	Right		7.5 to 5.6		56.88	10.3	20.946	36.825	1.257		41.4								0.57	
US 218	NB	1581+17.43	1583+68.49	Right		5.6		251.06	39.1	79.084	31.500	4.745		156.2								2.51	
US 218	NB	1588+66.82	1596+40.10	Right	6		4	773.28												72.155	9.331		
US 218	NB	1596+40.10	1633+44.22	Right	6		4	3704.12												345.631	9.331		
US 218	NB	1633+44.22	1633+64.22	Right		15		20.00	8.3	16.875	84.375	1.012		33.3								0.20	(C)
US 218	NB	1633+64.22	1634+21.19	Right		15 to 13		56.97	22.2	44.864	78.750	2.692		88.6								0.57	(C)
US 218	NB	1634+21.19	1635+74.70	Right		13		153.51	55.4	112.254	73.125	6.735		221.7								1.54	(C)
US 218	NB	1635+74.70	1690+21.03	Right	6		4	5446.33												508.197	9.331		
US 218 NB - Median Shoulder																							
US 218	NB	340+63.00	373+82.09	Median	4		2	3319.09												154.968	4.669		
US 218	NB	374+49.29	374+69.29	Median		6.9		20.00	3.8	7.755	38.775	0.465		15.3								0.20	
US 218	NB	374+69.29	375+17.38	Median		6.9 to 4.9		48.09	7.9	15.942	33.150	0.957		31.5								0.48	
US 218	NB	374+69.29	376+29.60	Median		4.9		160.31	21.8	44.125	27.525	2.648		87.3								1.60	
US 218	NB	376+29.60	376+79.53	Median		4.9 to 1.6		49.93	4.5	9.137	18.300	0.548		18.0								0.50	
US 218	NB	376+79.53	376+88.49	Median		1.6		8.96	0.4	0.806	9.000	0.048		1.6								0.09	
US 218	NB	382+92.50	407+42.89	Median	4		2	2450.39												114.409	4.669		(A)
US 218	NB	1412+14.76	1570+37.38	Median	4		2	15822.62												738.758	4.669		(A)
US 218	NB	1570+36.38	1580+02.72	Median	4		2	966.34												45.118	4.669		(A)
US 218	NB	1582+07.92	1582+27.92	Median		6.9		20.00	3.8	7.755	38.775	0.465		15.3								0.20	
US 218	NB	1582+27.92	1582+78.84	Median		6.9 to 4.9		50.92	8.3	16.880	33.150	1.013		33.4								0.51	
US 218	NB	1582+78.84	1583+14.54	Median		4.9		35.70	4.9	9.826	27.525	0.590		19.4								0.36	
US 218	NB	1583+14.54	1583+64.00	Median		4.9 to 1.6		49.46	4.5	9.051	18.300	0.543		17.9								0.49	
US 218	NB	1583+64.00	1583+68.49	Median		1.6		4.49	0.2	0.404	9.000	0.024		0.8								0.04	
US 218	NB	1590+92.54	1679+70.00	Median	4		2	8877.46												414.489	4.669		(A)

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.
(7) Paved shoulder thickness specified in Remarks.
(8) Subbase type specified in Remarks.

Roadway Identification	Direction of Travel (1)	Station From	Station To	Side	P Width (FT)	P SG Width (2) (FT)	G Width (FT)	L Length (FT)	Class 13 Excavation (CY)(3)(4)	HMA (TON)	HMA (TON/ STA)	Binder (TONS)	Paved Shoulder (3) (SY)	Shoulder at Grdrail (5)(7)	Reinforced Paved Shoulder(3) (SY)	Special Backfill HMA Alt.(3) (TON)	Pavement Scarification (SY)	Polymer Grid (SY)	Subbase (3) (8) (CY)	Granular Shoulder (3) (TON)	Granular Shoulder (TON/STA)	Shoulder Const. Alt (3) (STA)	Remarks
US 218 SB - Right Shoulder																							
US 218	SB	340+63.00	359+56.10	Right	6		4	1893.10												176.645	9.331		
US 218	SB	359+56.10	371+85.00	Right	6		4	1228.90												114.669	9.331		
US 218	SB	371+85.00	376+52.81	Right	6		4	467.81												43.651	9.331		
US 218	SB	380+44.89	382+30.23	Right		5.6		185.34	28.8	58.382	31.500	3.503		115.3								1.85	
US 218	SB	382+30.23	382+81.20	Right		5.6 to 7.6		50.97	9.3	18.923	37.125	1.135		37.4								0.51	
US 218	SB	382+81.20	383+01.20	Right		7.6		20.00	4.2	8.550	42.750	0.513		16.9								0.20	
US 218	SB	383+01.20	407+42.89	Right	6		4	2441.69												227.834	9.331		(A)
US 218	SB	1412+14.76	1457+00.00	Right	6		4	4485.24												418.518	9.331		(A)
US 218	SB	1457+00.00	1480+15.00	Right	6		4	2315.00												216.013	9.331		
US 218	SB	1480+15.00	1570+37.38	Right	6		4	9022.38												841.878	9.331		(B)
US 218	SB	1570+36.38	1576+94.83	Right	6		4	658.45												61.440	9.331		(B)
US 218	SB	1576+94.83	1584+71.12	Right	6		4	776.29												72.436	9.331		(B)
US 218	SB	1589+59.45	1591+48.15	Right		5.6		188.70	29.4	59.440	31.500	3.566		117.4								1.89	
US 218	SB	1591+48.15	1591+92.12	Right		5.6 to 7.6		43.97	8.1	16.324	37.125	0.979		32.2								0.44	
US 218	SB	1591+92.12	1592+12.12	Right		7.6		20.00	4.2	8.550	42.750	0.513		16.9								0.20	
US 218	SB	1592+12.12	1602+35.98	Right	6		4	1023.86												95.536	9.331		(B)
US 218	SB	1602+35.98	1690+21.03	Right	6		4	8785.05												819.733	9.331		(B)
US 218 SB - Median Shoulder																							
US 218	SB	340+63.00	374+29.00	Median	4		2	3366.00												157.159	4.669		
US 218	SB	380+44.89	380+53.92	Median		1.6		9.03	0.4	0.813	9.000	0.049		1.6								0.09	
US 218	SB	380+53.92	381+04.10	Median		1.6 to 4.9		50.18	4.5	9.183	18.300	0.551		18.1								0.50	
US 218	SB	381+04.10	382+12.83	Median		4.9		108.73	14.8	29.928	27.525	1.796		59.2								1.09	
US 218	SB	382+12.83	382+65.93	Median		4.9 to 6.9		53.10	8.7	17.603	33.150	1.056		34.8								0.53	
US 218	SB	382+65.93	382+85.93	Median		6.9		20.00	3.8	7.755	38.775	0.465		15.3								0.20	
US 218	SB	383+50.71	407+42.89	Median	4		2	2392.18												111.691	4.669		(A)
US 218	SB	1412+14.76	1570+37.38	Median	4		2	15822.62												738.758	4.669		(A)(B)
US 218	SB	1570+36.38	1582+46.49	Median	4		2	1210.11												56.500	4.669		(B)
US 218	SB	1589+59.45	1589+61.54	Median		1.6		2.09	0.1	0.188	9.000	0.011		0.4								0.02	
US 218	SB	1589+61.54	1590+11.45	Median		1.6 to 4.9		49.91	4.5	9.134	18.300	0.548		18.0								0.50	
US 218	SB	1590+11.45	1590+50.50	Median		4.9		39.05	5.3	10.749	27.525	0.645		21.3								0.39	
US 218	SB	1590+50.50	1590+97.57	Median		4.9 to 6.9		47.07	7.7	15.604	33.150	0.936		30.9								0.47	
US 218	SB	1590+97.57	1591+17.57	Median		6.9		20.00	3.8	7.755	38.775	0.465		15.3								0.20	
US 218	SB	1592+68.83	1679+70.00	Median	4		2	8701.17												406.258	4.669		(B)
Ramps - Right Shoulder																							
Riverside Ramp B	NB	2564+85.00	2582+30.00	Right	6		1	1745.00												20.399	1.169		
Riverside Ramp D	NB	4578+23.61	4588+50.00	Right	6		1	1026.39												11.998	1.169		

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.
(7) Paved shoulder thickness specified in Remarks.
(8) Subbase type specified in Remarks.

Roadway Identification	Direction of Travel (1)	Station From	Station To	Side	P Width (FT)	P SG Width (2) (FT)	G Width (FT)	L Length (FT)	Class 13 Excavation (CY)(3)(4)	HMA (TON)	HMA (TON/ STA)	Binder (TONS)	Paved Shoulder (3) (SY)	Shoulder at Grdrail (5)(7)	Reinforced Paved Shoulder(3) (SY)	Special Backfill HMA Alt.(3) (TON)	Pavement Scarification (SY)	Polymer Grid (SY)	Subbase (3) (8) (CY)	Granular Shoulder (3) (TON)	Granular Shoulder (TON/STA)	Shoulder Const. Alt (3) (STA)	Remarks
Riverside Loop A	SB	1564+34.70	1571+85.00	Right	6		1	750.30												8.771	1.169		
Riverside Ramp C	SB	3559+51.63	3572+85.30	Right	6		1	1333.67												15.591	1.169		
IA 1 Ramp B	NB	2555+85.00	2569+20.00	Right	6		1	1335.00												15.606	1.169		
IA 1 Ramp D	NB	4568+70.00	4579+28.00	Right	6		1	1058.00												12.368	1.169		
IA 1 Ramp A	SB	1567+50.00	1580+15.00	Right	6		1	1265.00												14.788	1.169		
IA 1 Ramp C	SB	3557+22.00	3567+60.00	Right	6		1	1038.00												12.134	1.169		
Melrose Ramp B	NB	6571+10.00	6582+50.00	Right	6		1	1140.00												13.327	1.169		
Melrose Ramp D	NB	8581+80.00	8596+28.00	Right	6		1	1448.00												16.927	1.169		
Melrose Ramp A	SB	5591+00.00	5602+40.00	Right	6		1	1140.00												13.327	1.169		
Melrose Ramp C	SB	7577+22.00	7591+60.00	Right	6		1	1438.00												16.810	1.169		
Ramps - Left Shoulder																							
Riverside Ramp B	NB	2564+85.00	2582+30.00	Right	3		0.5	1745.00												10.138	0.581		
Riverside Ramp D	NB	4578+23.61	4588+50.00	Right	3		0.5	1026.39												5.963	0.581		
Riverside Loop A	SB	1564+34.70	1571+85.00	Right	3		0.5	750.30												4.359	0.581		
Riverside Ramp C	SB	3559+51.63	3572+85.30	Right	3		0.5	1333.67												7.749	0.581		
IA 1 Ramp B	NB	2555+85.00	2569+20.00	Right	3		0.5	1335.00												7.756	0.581		
IA 1 Ramp D	NB	4568+70.00	4579+28.00	Right	3		0.5	1058.00												6.147	0.581		
IA 1 Ramp A	SB	1567+50.00	1580+15.00	Right	3		0.5	1265.00												7.350	0.581		
IA 1 Ramp C	SB	3557+22.00	3567+60.00	Right	3		0.5	1038.00												6.031	0.581		
Melrose Ramp B	NB	6571+10.00	6582+50.00	Right	6		0.5	1140.00												6.623	0.581		
Melrose Ramp D	NB	8581+80.00	8596+28.00	Right	6		0.5	1448.00												8.413	0.581		
Melrose Ramp A	SB	5591+00.00	5602+40.00	Right	6		0.5	1140.00												6.623	0.581		
Melrose Ramp C	SB	7577+22.00	7591+60.00	Right	6		0.5	1438.00												8.355	0.581		
Riverside Dr																							
Riverside Dr	NB	1360+75.96	1396+36.25	Right	4		6	3560.29												249.220	7.000		
Riverside Dr	NB	1360+75.96	1396+36.25	Left	4		6	3560.29												249.220	7.000		
Stage 1 Shldr. Str. (Detour Pavement)																							
US 218	NB	373+82.09	377+38.58	Median	6			356.49	66.0	133.684	37.500	8.021	237.7			77.537						3.56	
US 218	NB	380+21.15	382+92.50	Median	6			271.35	50.3	101.756	37.500	6.105	180.9			59.019						2.71	
US 218	NB	1580+58.72	1584+18.49	Median	6			359.77	66.6	134.914	37.500	8.095	239.8			78.250						3.60	
US 218	NB	1588+16.76	1590+92.54	Median	6			275.78	51.1	103.417	37.500	6.205	183.9			59.982						2.76	
US 218	SB	374+29.00	377+02.81	Median	6			273.81	50.7	102.679	37.500	6.161	182.5			59.554						2.74	
US 218	SB	379+93.54	383+50.71	Median	6			357.17	66.1	133.939	37.500	8.036	238.1			77.684						3.57	
US 218	SB	1582+46.49	1585+21.12	Median	6			274.63	50.9	102.986	37.500	6.179	183.1			59.732						2.75	
US 218	SB	1589+09.45	1592+68.83	Median	6			359.38	66.6	134.767	37.500	8.086	239.6			78.165						3.59	
Stage 2 Shldr. Str. (Detour Pavement)																							

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.
(7) Paved shoulder thickness specified in Remarks.
(8) Subbase type specified in Remarks.

Roadway Identification	Direction of Travel (1)	Station From	Station To	Side	P Width (FT)	P SG Width (2) (FT)	G Width (FT)	L Length (FT)	Class 13 Excavation (CY)(3)(4)	HMA (TON)	HMA (TON/STA)	Binder (TONS)	Paved Shoulder (3) (SY)	Shoulder at Grdrail (5)(7)	Reinforced Paved Shoulder(3) (SY)	Special Backfill HMA Alt.(3) (TON)	Pavement Scarification (SY)	Polymer Grid (SY)	Subbase (3) (8) (CY)	Granular Shoulder (3) (TON)	Granular Shoulder (TON/STA)	Shoulder Const. Alt (3) (STA)	Remarks
US 218	NB	372+32.00	376+88.79	Right	6		1	456.79	84.6	171.296	37.500	10.278	304.5			99.352				5.340	1.169		
US 218	NB	380+70.93	384+42.51	Right	6		1	371.58	68.8	139.343	37.500	8.361	247.7			80.819				4.344	1.169		
US 218	NB	1579+06.88	1583+67.35	Right	6		1	460.47	85.3	172.676	37.500	10.361	307.0			100.152				5.383	1.169		
US 218	NB	1588+66.82	1592+42.18	Right	6		1	375.36	69.5	140.760	37.500	8.446	250.2			81.641				4.388	1.169		
US 218	SB	380+43.89	385+02.71	Right	6		1	458.82	85.0	172.057	37.500	10.323	305.9			99.793				5.364	1.169		
US 218	SB	1580+96.08	1584+70.39	Right	6		1	374.31	69.3	140.366	37.500	8.422	249.5			81.412				4.376	1.169		
US 218	SB	1589+59.45	1594+21.52	Right	6		1	462.07	85.6	173.276	37.500	10.397	308.0			100.500				5.402	1.169		
Total:									**1402.2**				**3658.4**	**1543.6**		**1193.592**				**9873.003**		**47.39**	

Quantities:
SPECIAL BACKFILL = 1,193.6 TONS
GRANULAR SHOULDERS, TYPE B = 9,873.0 TONS
EXCAVATION, CLASS 13, WASTE = 1,402.2 TONS
PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 9 IN. = 1,543.6 SY
DETOUR PAVMENT = 3,658.4 SY
EARTH SHOULDER CONSTRUCTION = 47.39

Remarks:

(A): Equation: Sta. 407+42.89 BK = Sta. 1412+14.76 AH
(B): Equation: Sta. 150+37.38 BK = Sta. 1570+36.38 AH
(C): Class 13 excavation includes removal of existing 6 ft. wide paved shoulders.

D. With the exception of Shoulder Strengthening, widths in column "P Width "ft."" are existing widths and provided for information only. Refer to tabulation 100-25 for quantities for resurfacing existing shoulders.

E. Stage 1 and 2 shoulder strengthening shall remain in place, with the exception of the portion of the shoulder strengthening placed in Stage 1, which overlaps the area of new approach pavement. Refer to Tabulation 110-01 for removal limits and quantities.

F. The paved shoulder at bridge guardrail is to be built adjacent to Stage 1 and 2 shoulder strengthening. To calculate the overall width of the shoulder, add the width of the 6 ft. wide shoulder strengthening to the widths in the "P SG" column.

G. Column titled "Shoulder Const. Alt (3) (STA)" to be used for tabulating earth shoulder finishing, which is required adjacent to guardrail paved shoulder, and Stage 1 (median) shoulder strengthening.

RUMBLE STRIPS

* Calculated at 18" width for Shoulder.
** For use with penetrating Engineered Fog Seal. Calculated at 2" wider than rumble strips.

Line No.	Road Identification	Station From	Station To	Surface Type	Rumble Strip Lane	Rumble Strip Type	Fog Seal Type	L (IN)	PCC Length (STA)	HMA Length (STA)	Fog Seal* Shoulder (GAL)	Fog Seal (SY)**	Effective Shoulder Width PCC (FT)	Effective Shoulder Width HMA (FT)	Effective Shoulder Width Granular\Earth (FT)	Remarks
	US 218 Northbound															
1.0	US 218	340+63.00	407+42.89	HMA	Right Shoulder	Milled Sinusoidal Shoulder Rumble Strips (HMA only)	Asphalt Emulsion	12"		66.80	72.4	1113.3		6.0	4.0	(A)
5.0	US 218	1412+14.76	1570+37.38	HMA	Right Shoulder	Milled Sinusoidal Shoulder Rumble Strips (HMA only)	Asphalt Emulsion	12"		158.23	171.4	2637.2		6.0	4.0	(A)(B)
6.0	US 218	1570+36.38	1690+21.03	HMA	Right Shoulder	Milled Sinusoidal Shoulder Rumble Strips (HMA only)	Asphalt Emulsion	12"		119.85	129.8	1997.5		6.0	4.0	(B)
7.0																
8.0	US 218	340+63.00	407+42.89	HMA	Left Shoulder	Milled Sinusoidal Shoulder Rumble Strips (HMA only)	Asphalt Emulsion	12"		66.80	72.4	1113.3		4.0	2.0	(A)
9.0	US 218	1412+14.76	1570+37.38	HMA	Left Shoulder	Milled Sinusoidal Shoulder Rumble Strips (HMA only)	Asphalt Emulsion	12"		158.23	171.4	2637.2		4.0	2.0	(A)(B)
10.0	US 218	1570+36.38	1690+21.03	HMA	Left Shoulder	Milled Sinusoidal Shoulder Rumble Strips (HMA only)	Asphalt Emulsion	12"		119.85	129.8	1997.5		4.0	2.0	(B)
11.0																
12.0	US 218 Southbound															
13.0	US 218	340+63.00	407+42.89	HMA	Right Shoulder	Milled Sinusoidal Shoulder Rumble Strips (HMA only)	Asphalt Emulsion	12"		66.80	72.4	1113.3		6.0	4.0	(A)
14.0	US 218	1412+14.76	1570+37.38	HMA	Right Shoulder	Milled Sinusoidal Shoulder Rumble Strips (HMA only)	Asphalt Emulsion	12"		158.23	171.4	2637.2		6.0	4.0	(A)(B)
15.0	US 218	1570+36.38	1690+21.03	HMA	Right Shoulder	Milled Sinusoidal Shoulder Rumble Strips (HMA only)	Asphalt Emulsion	12"		119.85	129.8	1997.5		6.0	4.0	(B)
16.0																
17.0	US 218	340+63.00	407+42.89	HMA	Left Shoulder	Milled Sinusoidal Shoulder Rumble Strips (HMA only)	Asphalt Emulsion	12"		66.80	72.4	1113.3		4.0	2.0	(A)
18.0	US 218	1412+14.76	1570+37.38	HMA	Left Shoulder	Milled Sinusoidal Shoulder Rumble Strips (HMA only)	Asphalt Emulsion	12"		158.23	171.4	2637.2		4.0	2.0	(A)(B)
19.0	US 218	1570+36.38	1690+21.03	HMA	Left Shoulder	Milled Sinusoidal Shoulder Rumble Strips (HMA only)	Asphalt Emulsion	12"		119.85	129.8	1997.5		4.0	2.0	(B)
Total:										**1379.52**	**1494.4**					

Quantities:

MILLED SHOULDER SINUSOIDAL RUMBLE STRIPS, HMA SURFACE = 1,379.5 STA.
ASPHALT EMULSION FOR FOG SEAL (SHOULDER RUMBLE STRIPS) = 1,494.4 GAL

Remarks:

(A): Equation: Sta. 407+42.89 BK = Sta. 1412+14.76 AH
(B): Equation: Sta. 150+37.38 BK = Sta. 1570+36.38 AH

PAVEMENT MARKING LINE TYPES

Line factors based on 6-inch wide continuous line.
*BCY4 - Place on the same side of the roadway to match existing markings near the project.
**NPY4 - Estimating purposes only. No Passing Zone Lines will be located in the field.
***MNY6 - Factor of 1.00 includes number of 6-inch passes to cover median nose area.

BCY4: Broken Centerline (Yellow) @ 0.17 | BCY6: Broken Centerline (Yellow) @ 0.25 | BLC6: Broken Line Contrast (White/Black) @ 0.50 | BLW4: Broken Lane Line (White) @ 0.17 | BLW6: Broken Lane Line (White) @ 0.25
CBW6: Crosswalk Bar (White) @ 10.00 | CHW8: Channelizing Line (White) @ 1.33 | CHW10: Channelizing Line (White) @ 1.67 | CHY8: Channelizing Line (Yellow) @ 1.33 | CHY10: Channelizing Line (Yellow) @ 1.67
CLW6: Crosswalk Line (White) @ 2.00 | DCY4: Double Centerline (Yellow) @ 1.34 | DCY6: Double Centerline (Yellow) @ 2.00 | DDY4: Double Dotted Line (Yellow) @ 0.44 | DDY6: Double Dotted Line (Yellow) @ 0.67
DLW4: Dotted Line (White) @ 0.22 | DLW6: Dotted Line (White) @ 0.33 | DLY4: Dotted Line (Yellow) @ 0.22 | DLY6: Dotted Line (Yellow) @ 0.33 | ELW4: Edge Line Right (White) @ 0.67
ELW6: Edge Line Right (White) @ 1.00 | ELY4: Edge Line Left (Yellow) @ 0.67 | ELY6: Edge Line Left (Yellow) @ 1.00 | LDW8: Lane Drop (White) @ 0.33 | LDW10: Lane Drop (White) @ 0.42
MNY6: Median Nose (Yellow) @ 1.00 | NPY4: No Passing Zone Line (Yellow) @ 0.84 | NPY6: No Passing Zone Line (Yellow) @ 1.25 | RLW4: Ramp Edge Line Right (White) @ 0.67 | RLW6: Ramp Edge Line Right (White) @ 1.00
RLY4: Ramp Edge Line Left (Yellow) @ 0.67 | RLY6: Ramp Edge Line Left (Yellow) @ 1.00 | SLW2: Stop Line (White) @ 4.00 | SLW4: Solid Lane Line (White) @ 0.67 | SLW6: Solid Lane Line (White) @ 1.00
SPW4: Sloped Curb 4" (White) @ 2.16 | SPW6: Sloped Curb 6" (White) @ 2.28 | SPY4: Sloped Curb 4" (Yellow) @ 2.16 | SPY6: Sloped Curb 6" (Yellow) @ 2.28 | STW6: Standard Curb 6" (Yellow) @ 2.03
STY6: Standard Curb 6" (Yellow) @ 2.03 | YLW2: Yield Line (White) @ 1.15

Line No.	Road ID	Station From	Station To	Lane	Marking Type	Left	Center	Right	Groove Marking Needed?	Groove Qty. (STA)	BLW6 Factored (STA)	CHW10 Factored (STA)	DCY6 Factored (STA)	DLW6 Factored (STA)	ELW6 Factored (STA)	ELY6 Factored (STA)	RLW6 Factored (STA)	RLY6 Factored (STA)	SLW2 Factored (STA)	SLW6 Factored (STA)	Remarks
1.0	Stage 2																				
2.0	US 218 NB	323+85.00	340+45.00	Both	Removal of Paint		X		No		4.15										Northbound Stage 2
3.0	US 218 NB	331+35.00	356+50.00	Both	Waterborne/Solvent Paint		X		No						25.15						Northbound Stage 2
4.0	US 218 NB	362+50.00	373+83.75	Both	Waterborne/Solvent Paint		X		No						21.45						Northbound Stage 2
5.0	US 218 NB	373+83.75	383+95.00	Both	Waterborne/Solvent Paint	X	X		No						10.11	10.11					Northbound Stage 2
6.0	US 218 NB	383+95.00	380+92.00	Both	Waterborne/Solvent Paint	X			No							3.03					Northbound Stage 2
7.0	US 218 NB	380+92.00	382+92.00	Both	Waterborne/Solvent Paint	X	X		No						2.00	2.00					Northbound Stage 2
8.0																					
9.0	US 218 NB	1542+72.00	1559+22.00	Both	Removal of Paint		X		No		4.15										Northbound Stage 2
10.0	US 218 NB	1550+22.00	1564+40.00	Both	Waterborne/Solvent Paint		X		No						14.18						Northbound Stage 2
11.0	US 218 NB	1570+25.00	1580+59.00	Both	Waterborne/Solvent Paint		X		No						10.34						Northbound Stage 2
12.0	US 218 NB	1580+59.00	1583+42.00	Both	Waterborne/Solvent Paint	X	X		No						2.83	2.83					Northbound Stage 2
13.0	US 218 NB	1583+42.00	1588+92.00	Both	Waterborne/Solvent Paint	X			No							5.50					Northbound Stage 2
14.0	US 218 NB	1588+92.00	1590+92.00	Both	Waterborne/Solvent Paint	X			No						2.00	2.00					Northbound Stage 2
15.0																					
16.0	US 218 SB	374+29.00	376+29.00	Both	Waterborne/Solvent Paint	X	X		No						2.00	2.00					Southbound Stage 2
17.0	US 218 SB	376+29.00	380+66.00	Both	Waterborne/Solvent Paint	X			No							4.37					Southbound Stage 2
18.0	US 218 SB	380+66.00	383+51.00	Both	Waterborne/Solvent Paint	X	X		No						2.85	2.85					Southbound Stage 2
19.0	US 218 SB	383+51.00	407+42.89	Both	Waterborne/Solvent Paint		X		No						23.92						Southbound Stage 2
20.0	US 218 SB	1412+14.76	1412+34.00	Both	Waterborne/Solvent Paint		X		No						0.19						Southbound Stage 2
21.0	US 218 SB	398+51.00	407+42.89	Both	Removal of Paint		X		No		2.23										Southbound Stage 2
22.0	US 218 SB	1412+14.76	1419+85.00	Both	Removal of Paint		X		No		1.93										Southbound Stage 2
23.0																					
24.0	US 218 SB	1582+47.00	1584+47.00	Both	Waterborne/Solvent Paint	X	X		No						2.00	2.00					Southbound Stage 2
25.0	US 218 SB	1584+47.00	1589+84.00	Both	Waterborne/Solvent Paint	X			No						5.37						Southbound Stage 2
26.0	US 218 SB	1589+84.00	1592+68.00	Both	Waterborne/Solvent Paint	X	X		No						2.84	2.84					Southbound Stage 2
27.0	US 218 SB	1592+68.00	1603+80.00	Both	Waterborne/Solvent Paint		X		No						11.12						Southbound Stage 2
28.0	US 218 SB	1609+00.00	1623+15.00	Both	Waterborne/Solvent Paint		X		No						14.15						Southbound Stage 2
29.0	US 218 SB	1614+00.00	1630+65.00	Both	Removal of Paint		X		No		4.16										Southbound Stage 2
30.0																					
31.0	Stage 2 Temp Removals				Removal of Paint				No						152.50	39.53					After Stage 2 Complete
32.0																					
33.0	Stage 3																				
34.0	US 218 NB	331+37.00	372+32.00	Both	Waterborne/Solvent Paint		X		No							40.95					Northbound Stage 3
35.0	US 218 NB	372+32.00	376+67.00	Both	Waterborne/Solvent Paint		X	X	No						4.35	4.35					Northbound Stage 3
36.0	US 218 NB	376+67.00	380+95.00	Both	Waterborne/Solvent Paint			X	No						4.28						Northbound Stage 3
37.0	US 218 NB	380+95.00	384+45.00	Both	Waterborne/Solvent Paint		X	X	No						3.50	3.50					Northbound Stage 3
38.0																					
39.0	US 218 NB	1550+25.00	1579+07.00	Both	Waterborne/Solvent Paint		X		No							28.82					Northbound Stage 3
40.0	US 218 NB	1579+07.00	1583+42.00	Both	Waterborne/Solvent Paint		X	X	No						4.35	4.35					Northbound Stage 3

PAVEMENT MARKING LINE TYPES

Line factors based on 6-inch wide continuous line.
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**NPY4 - Estimating purposes only. No Passing Zone Lines will be located in the field.
***MNY6 - Factor of 1.00 includes number of 6-inch passes to cover median nose area.

BCY4: Broken Centerline (Yellow) @ 0.17 | BCY6: Broken Centerline (Yellow) @ 0.25 | BLC6: Broken Line Contrast (White/Black) @ 0.50 | BLW4: Broken Lane Line (White) @ 0.17 | BLW6: Broken Lane Line (White) @ 0.25
CBW6: Crosswalk Bar (White) @ 10.00 | CHW8: Channelizing Line (White) @ 1.33 | CHW10: Channelizing Line (White) @ 1.67 | CHY8: Channelizing Line (Yellow) @ 1.33 | CHY10: Channelizing Line (Yellow) @ 1.67
CLW6: Crosswalk Line (White) @ 2.00 | DCY4: Double Centerline (Yellow) @ 1.34 | DCY6: Double Centerline (Yellow) @ 2.00 | DDY4: Double Dotted Line (Yellow) @ 0.44 | DDY6: Double Dotted Line (Yellow) @ 0.67
DLW4: Dotted Line (White) @ 0.22 | DLW6: Dotted Line (White) @ 0.33 | DLY4: Dotted Line (Yellow) @ 0.22 | DLY6: Dotted Line (Yellow) @ 0.33 | ELW4: Edge Line Right (White) @ 0.67
ELW6: Edge Line Right (White) @ 1.00 | ELY4: Edge Line Left (Yellow) @ 0.67 | ELY6: Edge Line Left (Yellow) @ 1.00 | LDW8: Lane Drop (White) @ 0.33 | LDW10: Lane Drop (White) @ 0.42
MNY6: Median Nose (Yellow) @ 1.00 | NPY4: No Passing Zone Line (Yellow) @ 0.84 | NPY6: No Passing Zone Line (Yellow) @ 1.25 | RLW4: Ramp Edge Line Right (White) @ 0.67 | RLW6: Ramp Edge Line Right (White) @ 1.00
RLY4: Ramp Edge Line Left (Yellow) @ 0.67 | RLY6: Ramp Edge Line Left (Yellow) @ 1.00 | SLW2: Stop Line (White) @ 4.00 | SLW4: Solid Lane Line (White) @ 0.67 | SLW6: Solid Lane Line (White) @ 1.00
SPW4: Sloped Curb 4" (White) @ 2.16 | SPW6: Sloped Curb 6" (White) @ 2.28 | SPY4: Sloped Curb 4" (Yellow) @ 2.16 | SPY6: Sloped Curb 6" (Yellow) @ 2.28 | STW6: Standard Curb 6" (Yellow) @ 2.03
STY6: Standard Curb 6" (Yellow) @ 2.03 | YLW2: Yield Line (White) @ 1.15

Line No.	Road ID	Station From	Station To	Lane	Marking Type	Left	Center	Right	Groove Marking Needed?	Groove Qty. (STA)	BLW6 Factored (STA)	CHW10 Factored (STA)	DCY6 Factored (STA)	DLW6 Factored (STA)	ELW6 Factored (STA)	ELY6 Factored (STA)	RLW6 Factored (STA)	RLY6 Factored (STA)	SLW2 Factored (STA)	SLW6 Factored (STA)	Remarks
41.0	US 218 NB	1583+42.00	1588+94.00	Both	Waterborne/Solvent Paint			X	No						5.52						Northbound Stage 3
42.0	US 218 NB	1588+94.00	1592+44.00	Both	Waterborne/Solvent Paint		X	X	No						3.50	3.50					Northbound Stage 3
43.0																					
44.0	US 218 SB	375+80.00	376+44.00	Right	Removal of Paint			X	No			2.14									Southbound Stage 3
45.0	US 218 SB	372+83.00	376+29.00	Both	Waterborne/Solvent Paint		X	X	No						3.46	3.46					Southbound Stage 3
46.0	US 218 SB	375+82.00	378+47.00	Both	Waterborne/Solvent Paint			X	No					0.87	2.65						Southbound Stage 3
47.0	US 218 SB	378+47.00	380+68.00	Both	Waterborne/Solvent Paint			X	No						2.24						Southbound Stage 3
48.0	US 218 SB	380+68.00	385+02.00	Both	Waterborne/Solvent Paint		X	X	No						4.34	4.34					Southbound Stage 3
49.0	US 218 SB	385+02.00	407+42.89	Both	Waterborne/Solvent Paint		X		No							22.41					
50.0	US 218 SB	1412+14.76	1412+34.00	Both	Waterborne/Solvent Paint		X		No							0.19					
51.0																					
52.0	US 218 SB	1580+96.00	1584+46.00	Both	Waterborne/Solvent Paint		X	X	No						3.50	3.50					Southbound Stage 3
53.0	US 218 SB	1584+46.00	1589+86.00	Both	Waterborne/Solvent Paint			X	No						5.40						Southbound Stage 3
54.0	US 218 SB	1589+86.00	1594+21.00	Both	Waterborne/Solvent Paint		X	X	No						4.35	4.35					Southbound Stage 3
55.0	US 218 SB	1594+21.00	1623+17.00	Both	Waterborne/Solvent Paint		X		No							28.96					Southbound Stage 3
56.0																					
57.0	Stage 3 Temp Removals				Removal of Paint										51.44	123.72					Stage 3 Complete
58.0																					
59.0	Temporary																				
60.0	Mainline				Waterborne/Solvent Paint	X	X	X	No		456.38	456.71		16.57	1494.45	1825.68	330.96				3 Applications
61.0	Ramps				Waterborne/Solvent Paint	X		X	No		16.48	30.86		1.51	113.20	129.28	305.44	289.36	6.24	15.90	2 Applications
62.0																					
63.0	Final																				
64.0	Northbound																				
65.0	US 218	340+63.00	358+25.00	NB	Waterborne/Solvent Paint	X	X	X	Yes	39.65	4.41				17.62	17.62					
66.0	US 218	358+25.00	360+66.06	NB	Waterborne/Solvent Paint	X	X	X	Yes	6.22	0.60			0.80		2.41	2.41				
67.0	US 218	360+66.06	364+85.00	NB	Waterborne/Solvent Paint	X	X	X	Yes	23.42	1.05	13.99				4.19	4.19				
68.0	US 218	364+85.00	388+74.08	NB	Waterborne/Solvent Paint	X	X	X	Yes	53.84	5.97				23.89	23.98					
69.0	US 218	388+74.08	392+99.71	NB	Waterborne/Solvent Paint	X	X	X	Yes	23.81	1.06	14.23				4.26	4.26				
70.0	US 218	392+99.71	401+00.00	NB	Waterborne/Solvent Paint	X	X	X	Yes	18.00	2.00					8.00	8.00				
71.0	US 218	401+00.00	407+42.89	NB	Waterborne/Solvent Paint	X	X	X	Yes	14.47	1.61				6.43	6.43					
72.0	US 218	1412+14.76	1449+25.00	NB	Waterborne/Solvent Paint	X	X	X	Yes	83.48	9.28				37.10	37.10					
73.0	US 218	1449+25.00	1451+65.00	NB	Waterborne/Solvent Paint	X	X	X	Yes	6.19	0.60			0.79		2.40	2.40				
74.0	US 218	1451+65.00	1455+85.00	NB	Waterborne/Solvent Paint	X	X	X	Yes	23.48	1.05	14.03				4.20	4.20				
75.0	US 218	1455+85.00	1479+34.70	NB	Waterborne/Solvent Paint	X	X	X	Yes	52.88	5.88				23.50	23.50					
76.0	US 218	1479+34.70	1482+99.68	NB	Waterborne/Solvent Paint	X	X	X	Yes	20.40	0.91	12.19				3.65	3.65				
77.0	US 218	1482+99.68	1491+00.00	NB	Waterborne/Solvent Paint	X	X	X	Yes	18.00	2.00					8.00	8.00				
78.0	US 218	1491+00.00	1564+46.98	NB	Waterborne/Solvent Paint	X	X	X	Yes	165.31	18.37				73.47	73.47					
79.0	US 218	1564+46.98	1568+88.10	NB	Waterborne/Solvent Paint	X	X	X	Yes	11.38	1.10			1.46		4.41	4.41				
80.0	US 218	1568+88.10	1570+37.38	NB	Waterborne/Solvent Paint	X	X	X	Yes	8.33	0.37	4.98				1.49	1.49				

PAVEMENT MARKING LINE TYPES

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BCY4: Broken Centerline (Yellow) @ 0.17
BCY6: Broken Centerline (Yellow) @ 0.25
BLC6: Broken Line Contrast (White/Black) @ 0.50
BLW4: Broken Lane Line (White) @ 0.17
BLW6: Broken Lane Line (White) @ 0.25
CBW6: Crosswalk Bar (White) @ 10.00
CHW8: Channelizing Line (White) @ 1.33
CHW10: Channelizing Line (White) @ 1.67
CHY8: Channelizing Line (Yellow) @ 1.33
CHY10: Channelizing Line (Yellow) @ 1.67
CLW6: Crosswalk Line (White) @ 2.00
DCY4: Double Centerline (Yellow) @ 1.34
DCY6: Double Centerline (Yellow) @ 2.00
DDY4: Double Dotted Line (Yellow) @ 0.44
DDY6: Double Dotted Line (Yellow) @ 0.67
DLW4: Dotted Line (White) @ 0.22
DLW6: Dotted Line (White) @ 0.33
DLY4: Dotted Line (Yellow) @ 0.22
DLY6: Dotted Line (Yellow) @ 0.33
ELW4: Edge Line Right (White) @ 0.67
ELW6: Edge Line Right (White) @ 1.00
ELY4: Edge Line Left (Yellow) @ 0.67
ELY6: Edge Line Left (Yellow) @ 1.00
LDW8: Lane Drop (White) @ 0.33
LDW10: Lane Drop (White) @ 0.42
MNY6: Median Nose (Yellow) @ 1.00
NPY4: No Passing Zone Line (Yellow) @ 0.84
NPY6: No Passing Zone Line (Yellow) @ 1.25
RLW4: Ramp Edge Line Right (White) @ 0.67
RLW6: Ramp Edge Line Right (White) @ 1.00
RLY4: Ramp Edge Line Left (Yellow) @ 0.67
RLY6: Ramp Edge Line Left (Yellow) @ 1.00
SLW2: Stop Line (White) @ 4.00
SLW4: Solid Lane Line (White) @ 0.67
SLW6: Solid Lane Line (White) @ 1.00
SPW4: Sloped Curb 4" (White) @ 2.16
SPW6: Sloped Curb 6" (White) @ 2.28
SPY4: Sloped Curb 4" (Yellow) @ 2.16
SPY6: Sloped Curb 6" (Yellow) @ 2.28
STW6: Standard Curb 6" (Yellow) @ 2.03
STY6: Standard Curb 6" (Yellow) @ 2.03
YLW2: Yield Line (White) @ 1.15

Line No.	Road ID	Station From	Station To	Lane	Marking Type	Left	Center	Right	Groove Marking Needed?	Groove Qty. (STA)	BLW6 Factored (STA)	CHW10 Factored (STA)	DCY6 Factored (STA)	DLW6 Factored (STA)	ELW6 Factored (STA)	ELY6 Factored (STA)	RLW6 Factored (STA)	RLY6 Factored (STA)	SLW2 Factored (STA)	SLW6 Factored (STA)	Remarks
81.0	US 218	1570+36.38	1571+05.98	NB	Waterborne/Solvent Paint	X	X	X	Yes	3.91	0.17	2.34				0.70	0.70				
82.0	US 218	1571+05.98	1596+40.10	NB	Waterborne/Solvent Paint	X	X	X	Yes	57.01	6.33				25.34	25.34					
83.0	US 218	1596+40.10	1599+95.73	NB	Waterborne/Solvent Paint	X	X	X	Yes	19.90	0.89	11.89				3.56	3.56				
84.0	US 218	1599+95.73	1607+95.97	NB	Waterborne/Solvent Paint	X	X	X	Yes	18.00	2.00					8.00	8.00				
85.0	US 218	1607+95.97	1690+21.03	NB	Waterborne/Solvent Paint	X	X	X	Yes	185.06	20.56				82.25	82.25					
86.0																					
87.0	Southbound																				
88.0	US 218	340+63.00	348+00.50	SB	Waterborne/Solvent Paint	X	X	X	Yes	16.60	1.84				7.38	7.38					
89.0	US 218	348+00.50	356+00.32	SB	Waterborne/Solvent Paint	X	X	X	Yes	18.00	2.00					8.00	8.00				
90.0	US 218	356+00.32	359+56.10	SB	Waterborne/Solvent Paint	X	X	X	Yes	19.90	0.89	11.89				3.56	3.56				
91.0	US 218	359+56.10	371+85.00	SB	Waterborne/Solvent Paint	X	X	X	Yes	27.59	3.07				12.26	12.26					
92.0	US 218	371+85.00	376+44.31	SB	Waterborne/Solvent Paint	X	X	X	Yes	25.66	1.15	15.33				4.59	4.59				
93.0	US 218	376+44.31	379+15.00	SB	Waterborne/Solvent Paint	X	X	X	Yes	6.99	0.68			0.89		2.71	2.71				
94.0	US 218	379+15.00	407+42.89	SB	Waterborne/Solvent Paint	X	X	X	Yes	63.63	7.07				28.28	28.28					
95.0	US 218	1412+14.76	1445+50.00	SB	Waterborne/Solvent Paint	X	X	X	Yes	75.04	8.34				33.35	33.35					
96.0	US 218	1445+50.00	1453+50.00	SB	Waterborne/Solvent Paint	X	X	X	Yes	18.00	2.00					8.00	8.00				
97.0	US 218	1453+50.00	1457+00.00	SB	Waterborne/Solvent Paint	X	X	X	Yes	19.57	0.88	11.69				3.50	3.50				
98.0	US 218	1457+00.00	1480+15.00	SB	Waterborne/Solvent Paint	X	X	X	Yes	52.09	5.79				23.15	23.15					
99.0	US 218	1480+15.00	1484+35.00	SB	Waterborne/Solvent Paint	X	X	X	Yes	23.48	1.05	14.03				4.20	4.20				
100.0	US 218	1484+35.00	1486+75.00	SB	Waterborne/Solvent Paint	X	X	X	Yes	6.19	0.60			0.79		2.40	2.40				
101.0	US 218	1486+75.00	1565+46.99	SB	Waterborne/Solvent Paint	X	X	X	Yes	177.12	19.68				78.72	78.72					
102.0	US 218	1565+46.99	1570+37.38	SB	Waterborne/Solvent Paint	X	X	X	Yes	11.03	1.23					4.90	4.90				
103.0	US 218	1570+36.38	1573+46.15	SB	Waterborne/Solvent Paint	X	X	X	Yes	6.98	0.78					3.10	3.10				
104.0	US 218	1573+46.15	1576+94.83	SB	Waterborne/Solvent Paint	X	X	X	Yes	19.51	0.87	11.66				3.49	3.49				
105.0	US 218	1576+94.83	1602+35.98	SB	Waterborne/Solvent Paint	X	X	X	Yes	57.17	6.35				25.41	25.41					
106.0	US 218	1602+35.98	1606+54.94	SB	Waterborne/Solvent Paint	X	X	X	Yes	23.42	1.05	13.99				4.19	4.19				
107.0	US 218	1606+54.94	1608+95.98	SB	Waterborne/Solvent Paint	X	X	X	Yes	6.22	0.60			0.80		2.41	2.41				
108.0	US 218	1608+95.98	1690+21.03	SB	Waterborne/Solvent Paint	X	X	X	Yes	182.81	20.31				81.25	81.25					
109.0																					
110.0	Ramps																				
111.0	Riverside Ramp B	2564+85.00	2582+38.79	NB	Waterborne/Solvent Paint	X		X	Yes	35.08							17.54	17.54			
112.0	Riverside Ramp D	4578+83.44	4588+68.39	NB	Waterborne/Solvent Paint	X		X	Yes	19.70							9.85	9.85			
113.0	Riverside Loop A	1564+34.70	1571+85.00	SB	Waterborne/Solvent Paint	X		X	Yes	15.00							7.50	7.50			
114.0	Riverside Ramp C	3559+51.63	3572+85.30	SB	Waterborne/Solvent Paint	X		X	Yes	26.68							13.34	13.34			
115.0					Waterborne/Solvent Paint				Yes												
116.0	IA 1 Ramp B	2555+85.00	2569+14.19	NB	Waterborne/Solvent Paint	X		X	Yes	37.80							17.54	17.54	1.12	1.60	
117.0	IA 1 Ramp D	4568+86.82	4579+40.00	NB	Waterborne/Solvent Paint	X		X	Yes	19.70							9.85	9.85			
118.0	IA 1 Ramp A	1567+52.60	1580+15.00	SB	Waterborne/Solvent Paint	X		X	Yes	21.60							7.50	7.50	2.00	4.60	
119.0	IA 1 Ramp C	3556+96.38	3567+57.71	SB	Waterborne/Solvent Paint	X		X	Yes	26.68							13.34	13.34			
120.0									Yes												

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BCY4: Broken Centerline (Yellow) @ 0.17
BCY6: Broken Centerline (Yellow) @ 0.25
BLC6: Broken Line Contrast (White/Black) @ 0.50
BLW4: Broken Lane Line (White) @ 0.17
BLW6: Broken Lane Line (White) @ 0.25
CBW6: Crosswalk Bar (White) @ 10.00
CHW8: Channelizing Line (White) @ 1.33
CHW10: Channelizing Line (White) @ 1.67
CHY8: Channelizing Line (Yellow) @ 1.33
CHY10: Channelizing Line (Yellow) @ 1.67
CLW6: Crosswalk Line (White) @ 2.00
DCY4: Double Centerline (Yellow) @ 1.34
DCY6: Double Centerline (Yellow) @ 2.00
DDY4: Double Dotted Line (Yellow) @ 0.44
DDY6: Double Dotted Line (Yellow) @ 0.67
DLW4: Dotted Line (White) @ 0.22
DLW6: Dotted Line (White) @ 0.33
DLY4: Dotted Line (Yellow) @ 0.22
DLY6: Dotted Line (Yellow) @ 0.33
ELW4: Edge Line Right (White) @ 0.67
ELW6: Edge Line Right (White) @ 1.00
ELY4: Edge Line Left (Yellow) @ 0.67
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LDW8: Lane Drop (White) @ 0.33
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NPY4: No Passing Zone Line (Yellow) @ 0.84
NPY6: No Passing Zone Line (Yellow) @ 1.25
RLW4: Ramp Edge Line Right (White) @ 0.67
RLW6: Ramp Edge Line Right (White) @ 1.00
RLY4: Ramp Edge Line Left (Yellow) @ 0.67
RLY6: Ramp Edge Line Left (Yellow) @ 1.00
SLW2: Stop Line (White) @ 4.00
SLW4: Solid Lane Line (White) @ 0.67
SLW6: Solid Lane Line (White) @ 1.00
SPW4: Sloped Curb 4" (White) @ 2.16
SPW6: Sloped Curb 6" (White) @ 2.28
SPY4: Sloped Curb 4" (Yellow) @ 2.16
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STW6: Standard Curb 6" (Yellow) @ 2.03
STY6: Standard Curb 6" (Yellow) @ 2.03
YLW2: Yield Line (White) @ 1.15

Line No.	Road ID	Station From	Station To	Lane	Marking Type	Left	Center	Right	Groove Marking Needed?	Groove Qty. (STA)	BLW6 Factored (STA)	CHW10 Factored (STA)	DCY6 Factored (STA)	DLW6 Factored (STA)	ELW6 Factored (STA)	ELY6 Factored (STA)	RLW6 Factored (STA)	RLY6 Factored (STA)	SLW2 Factored (STA)	SLW6 Factored (STA)	Remarks
121.0	Melrose Ramp B	6571+10.00	6582+49.27	NB	Waterborne/Solvent Paint	X		X	Yes	35.08							17.54	17.54			
122.0	Melrose Ramp D	8581+86.08	8596+45.00	NB	Waterborne/Solvent Paint	X		X	Yes	19.70							9.85	9.85			
123.0	Melrose Ramp A	5591+01.96	5602+40.00	SB	Waterborne/Solvent Paint	X		X	Yes	15.00							7.50	7.50			
124.0	Melrose Ramp C	7576+94.52	7591+66.31	SB	Waterborne/Solvent Paint	X		X	Yes	26.68							13.34	13.34			
125.0																					
126.0	Riverside Dr.	1360+75.96	1373+72.11	Both	Waterborne/Solvent Paint	X	X	X	Yes	51.84					25.92	25.92					
127.0	Riverside Dr.	1373+72.11	1376+05.11	Both	Waterborne/Solvent Paint	X	X	X	Yes	17.68	0.58	7.78			2.33	4.66	2.33				
128.0	Riverside Dr.	1376+05.11	1376+26.55	Both	Waterborne/Solvent Paint	X	X	X	Yes	1.66	0.05	0.70		0.07		0.42	0.42				
129.0	Riverside Dr.	1376+26.55	1378+34.11	Both	Waterborne/Solvent Paint	X	X	X	Yes	16.48	0.52	6.95		0.69		4.16	4.16				
130.0	Riverside Dr.	1378+34.11	1379+47.00	Both	Waterborne/Solvent Paint	X	X	X	Yes	4.80	0.28				1.13	2.26	1.13				
131.0	Riverside Dr.	1379+47.00	1388+17.76	Both	Waterborne/Solvent Paint	X	X	X	Yes	39.20	4.36				17.42	17.42					
132.0	Riverside Dr.	1388+17.76	1389+93.00	Both	Waterborne/Solvent Paint	X	X	X	Yes	9.63	0.88				3.50	3.50				1.75	
133.0	Riverside Dr.	1389+93.00	1393+08.37	Both	Waterborne/Solvent Paint	X	X	X	Yes	14.17	1.57				6.30	6.30					
134.0	Riverside Dr.	1393+08.37	1396+35.37	Both	Waterborne/Solvent Paint	X	X	X	Yes	14.72	1.64		6.54		6.54						
Total:										**2178.62**	**671.8**	**657.38**	**6.54**	**25.24**	**2658.07**	**3064.87**	**899.45**	**434.05**	**9.36**	**23.85**	

Quantities:

PAVEMENT MARKINGS REMOVED = 385.95 STA.
GROOVES CUT FOR PAVEMENT MARKINGS = 2,178.6 STA.
PAINTED PAVEMENT MARKINGS, WATERBORNE OR SOLVENT-BASED = 8,064.6 STA.
(5886.0 STA. TEMPORARY, 2,178.6 STA. PERMANENT)

Remarks:

(A): Equation: Sta. 407+42.89 BK = Sta. 1412+14.76 AH
(B): Equation: Sta. 150+37.38 BK = Sta. 1570+36.38 AH

PAVEMENT MARKING SYMBOLS AND LEGENDS

Refer to PM-111

Line No.	Roadway Identification	Station	Side	Pavement Symbol	Quantity (EA)	Groove Marking Needed?	Remarks
1.0	US 218	308+85.00	Right	RLRW	1	No	Stage 2 Temporary Marking NB
2.0	US 218	309+85.00	Right	RLRW	1	No	Stage 2 Temporary Marking NB
3.0	US 218	318+85.00	Right	RLRW	1	No	Stage 2 Temporary Marking NB
4.0	US 218	319+85.00	Right	RLRW	1	No	Stage 2 Temporary Marking NB
5.0	US 218	1527+70.00	Right	RLRW	1	No	Stage 2 Temporary Marking NB
6.0	US 218	1528+70.00	Right	RLRW	1	No	Stage 2 Temporary Marking NB
7.0	US 218	1537+70.00	Right	RLRW	1	No	Stage 2 Temporary Marking NB
8.0	US 218	1538+70.00	Right	RLRW	1	No	Stage 2 Temporary Marking NB
9.0	US 218	1423+85.00	Right	RLRW	1	No	Stage 2 Temporary Marking SB
10.0	US 218	1424+85.00	Right	RLRW	1	No	Stage 2 Temporary Marking SB
11.0	US 218	1433+85.00	Right	RLRW	1	No	Stage 2 Temporary Marking SB
12.0	US 218	1434+85.00	Right	RLRW	1	No	Stage 2 Temporary Marking SB
13.0	US 218	1634+65.00	Right	RLRW	1	No	Stage 2 Temporary Marking SB
14.0	US 218	1635+65.00	Right	RLRW	1	No	Stage 2 Temporary Marking SB
15.0	US 218	1644+65.00	Right	RLRW	1	No	Stage 2 Temporary Marking SB
16.0	US 218	1645+65.00	Right	RLRW	1	No	Stage 2 Temporary Marking SB
17.0	US 218	308+85.00	Left	LLRW	1	No	Stage 3 Temporary Marking NB
18.0	US 218	309+85.00	Left	LLRW	1	No	Stage 3 Temporary Marking NB
19.0	US 218	318+85.00	Left	LLRW	1	No	Stage 3 Temporary Marking NB
20.0	US 218	319+85.00	Left	LLRW	1	No	Stage 3 Temporary Marking NB
21.0	US 218	1527+70.00	Right	LLRW	1	No	Stage 3 Temporary Marking NB
22.0	US 218	1528+70.00	Right	LLRW	1	No	Stage 3 Temporary Marking NB
23.0	US 218	1537+70.00	Right	LLRW	1	No	Stage 3 Temporary Marking NB
24.0	US 218	1538+70.00	Right	LLRW	1	No	Stage 3 Temporary Marking NB
25.0	US 218	1423+85.00	Right	LLRW	1	No	Stage 3 Temporary Marking SB
26.0	US 218	1424+85.00	Right	LLRW	1	No	Stage 3 Temporary Marking SB
27.0	US 218	1433+85.00	Right	LLRW	1	No	Stage 3 Temporary Marking SB
28.0	US 218	1434+85.00	Right	LLRW	1	No	Stage 3 Temporary Marking SB
29.0	US 218	1634+65.00	Right	LLRW	1	No	Stage 3 Temporary Marking SB
30.0	US 218	1635+65.00	Right	LLRW	1	No	Stage 3 Temporary Marking SB
31.0	US 218	1644+65.00	Right	LLRW	1	No	Stage 3 Temporary Marking SB
32.0	US 218	1645+65.00	Right	LLRW	1	No	Stage 3 Temporary Marking SB
33.0	IA 1 Ramp A	1567+92.00	Left	LTAW	1	Yes	Final - Thermoplastic
34.0	IA 1 Ramp A	1567+92.00	Left	CSLW	1	Yes	Final - Thermoplastic
35.0	IA 1 Ramp A	1567+92.00	Right	RTAW	1	Yes	Final - Thermoplastic
36.0	IA 1 Ramp A	1568+82.00	Left	ONLW	1	Yes	Final - Thermoplastic
37.0	IA 1 Ramp A	1568+82.00	Right	ONLW	1	Yes	Final - Thermoplastic
37.0	IA 1 Ramp A	1568+82.00	Left	ONLW	1	Yes	Final - Thermoplastic
39.0	IA 1 Ramp A	1569+82.00	Left	LTAW	1	Yes	Final - Thermoplastic
40.0	IA 1 Ramp A	1569+82.00	Left	CSLW	1	Yes	Final - Thermoplastic
41.0	IA 1 Ramp A	1569+82.00	Right	RTAW	1	Yes	Final - Thermoplastic
42.0	Riverside Dr.	1388+42.46	Left	LTAW	1	Yes	Final - Thermoplastic
43.0	Riverside Dr.	1388+79.76	Left	ONLW	1	Yes	Final - Thermoplastic
44.0	Riverside Dr.	1389+17.26	Left	LTAW	1	Yes	Final - Thermoplastic
Total:					**44**		

Quantities:

PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED = 32 EA.
SYMBOLS AND LEGENDS REMOVED = 32 EA.
GROOVES CUT FOR SYMBOLS AND LEGENDS = 12 EA.
PRE-CUT SYMBOLS AND LEGENDS, PREFORMED THERMOPLASTIC MARKING MATERIAL = 12 EA.

TEMPORARY BARRIER RAIL

Possible Standard: BA-401 Possible Detail: 560-7

* Not a bid item. Anchorage requirements are based on TBR locations shown in the plans. TBR alignments that vary from what is shown in the plans may result in additional TBR sections requiring anchorage.

Line No.	No.	Station From	Station To	Length (FT)	Barrier Rail Type	Anchored*	Modular Glare Screen System	Remarks
1.0	1	376+18.00	380+93.00	475.0	Concrete BA-401	Yes	No	Stage 2 - Northbound
2.0	2	1587+92.50	1588+92.50	600.0	Concrete BA-401	Yes	No	Stage 2 - Northbound
3.0	3	376+29.50	381+17.00	487.5	Concrete BA-401	Yes	No	Stage 2 - Southbound
4.0	4	1584+46.60	1590+34.10	587.5	Concrete BA-401	Yes	No	Stage 2 - Southbound
5.0	5	376+18.00	380+93.00	475.0	Concrete BA-401	Yes	No	Stage 3 - Northbound
6.0	6	1587+92.50	1588+92.50	600.0	Concrete BA-401	Yes	No	Stage 3 - Northbound
7.0	7	376+29.50	381+17.00	487.5	Concrete BA-401	Yes	No	Stage 3 - Southbound
8.0	8	1584+46.60	1590+34.10	587.5	Concrete BA-401	Yes	No	Stage 3 - Southbound
Total:				**4300**				

Quantities

TEMPORARY BARRIER RAIL, CONCRETE = 4,300 LF

CRASH CUSHIONS

* Bid Item
1. Lane(s) to which the installation is adjacent.
2. Complete this section when using the Temporary Crash Cushion bid item and Earthwork is needed for Sand Barrel placement. Refer to BA-500.

Line No.	Lane	Station	Side	Obstacle Width (FT)	Crash Cushion Type	Crash Cushion Quantity	V (FT) (2)	W (FT) (2)	X (FT) (2)	Y (FT) (2)	Z (FT) (2)	Excavation Class 10* (CY)	Embankment in Place* (CY)	Obstacle Description	Remarks
1.0	NB	376+18.00	Right	2.0	Temporary	1								Temporary Barrier Rail	Stage 2
2.0	NB	1587+92.50	Right	2.0	Temporary	1								Temporary Barrier Rail	Stage 2
3.0	SB	381+17.00	Right	2.0	Temporary	1								Temporary Barrier Rail	Stage 2
4.0	SB	1590+34.10	Right	2.0	Temporary	1								Temporary Barrier Rail	Stage 2
5.0	NB	376+18.00	Left	2.0	Temporary	1								Temporary Barrier Rail	Stage 3
6.0	NB	1587+92.50	Left	2.0	Temporary	1								Temporary Barrier Rail	Stage 3
7.0	SB	381+17.00	Left	2.0	Temporary	1								Temporary Barrier Rail	Stage 3
8.0	SB	1590+34.10	Left	2.0	Temporary	1								Temporary Barrier Rail	Stage 3
Total:						**8**									

Quantities:

TEMP CRASH CUSHION = 8 EA.

REMOVAL OF PAVEMENT

Refer to Tabulation 102-5.

* Not a bid item.

Line No.	Station From	Station To	Side	Pavement Type	Area (SY)	Saw Cut* (LF)	Remarks
1.0							Stage 2 - NB Approaches
2.0	376+88.49	377+60.45	Right	COM	175.9	116.0	Bridge 605000 S. Approach
3.0	379+99.34	380+71.36	Right	COM	176.0	116.0	Bridge 605000 N. Approach
4.0	1583+68.49	1584+58.52	Right	COM	220.1	134.0	Bridge 605555 S. Approach
5.0	1587+81.04	1588+66.82	Right	COM	209.7	129.8	Bridge 605555 N. Approach
6.0							
7.0							Stage 2 - SB Approaches
8.0	376+51.81	377+29.52	Right	COM	293.6	145.0	Bridge 605005 S. Approach
9.0	379+73.00	380+44.89	Right	COM	175.7	115.2	Bridge 605005 N. Approach
10.0	1584+71.12	1585+56.90	Right	COM	209.7	129.8	Bridge 605560 S. Approach
11.0	1588+69.42	1589+59.45	Right	COM	220.1	134.0	Bridge 605560 N. Approach
12.0							
13.0							Stage 3 - Rem. Stg. 1 Shoulder Str.
14.0	374+49.29	377+38.49		HMA	192.8	289.2	Bridge 605000 S. Approach
15.0	380+21.15	380+71.15		HMA	33.3	50.0	Bridge 605000 N. Approach
16.0	1582+07.92	1584+18.49		HMA	140.4	210.6	Bridge 605555 S. Approach
17.0	1588+16.82	1588+66.82		HMA	33.3	50.0	Bridge 605555 N. Approach
18.0	376+52.54	377+02.54		HMA	33.3	50.0	Bridge 605005 S. Approach
19.0	379+93.87	382+85.93		HMA	194.7	292.1	Bridge 605005 N. Approach
20.0	1584+71.12	1585+21.12		HMA	33.3	50.0	Bridge 605560 S. Approach
21.0	1589+09.45	1591+17.57		HMA	138.7	208.1	Bridge 605560 N. Approach
22.0							
23.0							Stage 3 - NB Approaches
24.0	376+88.49	377+60.45		COM	143.9	36.0	Bridge 605000 S. Approach
25.0	379+99.34	380+71.36		COM	144.0	36.0	Bridge 605000 N. Approach
26.0	1583+68.49	1584+58.52		COM	180.1	36.0	Bridge 605555 S. Approach
27.0	1587+81.04	1588+66.82		COM	171.6	36.0	Bridge 605555 N. Approach
28.0							
29.0							Stage 3 - SB Approaches
30.0	376+51.81	377+29.52		COM	155.4	36.0	Bridge 605005 S. Approach
31.0	379+73.00	380+44.89		COM	143.8	36.0	Bridge 605005 N. Approach
32.0	1584+71.12	1585+56.90		COM	171.6	36.0	Bridge 605560 S. Approach
33.0	1588+69.42	1589+59.45		COM	180.1	36.0	Bridge 605560 N. Approach
34.0							
35.0							Rem. Stage 2 Shoulder Str.
36.0	373+91.47	376+88.79	Right	HMA	132.1		Bridge 605000 S. Approach
37.0	1580+40.55	1583+67.35	Right	HMA	145.2		Bridge 605555 S. Approach
38.0	380+43.89	383+01.20	Right	HMA	114.4		Bridge 605005 S. Approach
39.0	1589+59.45	1592+12.12	Right	HMA	112.3		Bridge 605560 S. Approach
Total:					**4275.1**		

REMOVAL OF STEEL BEAM GUARDRAIL

(1) Lane(s) to which the installation is adjacent.
(2) Includes length of End Terminals and End Anchors.

Line No.	No.	Direction of Traffic (1)	Station From	Station To	Side	Removal of Guardrail (2) (LF)
1.0	1	NB	375+19.36	377+56.36	Right	237.0
2.0	2	NB	375+02.14	377+42.14	Median	240.0
3.0	3	SB	379+78.30	382+15.30	Right	237.0
4.0	4	SB	379+90.34	382+30.34	Median	240.0
5.0						
6.0	5	NB	1581+85.68	1584+22.68	Right	237.0
7.0	6	NB	1582+25.13	1584+65.13	Median	240.0
8.0	7	SB	1589+05.26	1591+42.26	Right	237.0
9.0	8	SB	1588+60.81	1591+00.81	Median	240.0
10.0						
11.0	9	NB	1634+00.00	1635+05.00	Right	105.0
Total:						**2013**

Quantities:

REMOVAL OF STEEL BEAM GUARDRAIL = 2,013 LF

REMOVAL OF CABLE GUARDRAIL

* Not a bid item
(1) Lane(s) to which the installation is adjacent.

Line No.	No.	Direction of Traffic (1)	Station From	Station To	Side	Cable Type	Cable Remove (LF)	Post Footings Concrete Remove* (Yes/No)	End Terminal Remove* (No.)	Remarks
1.0	1	NB	1429+00.00	1432+50.00	Median		350.00	Yes	2	Dane Rd.
2.0	2	SB	1431+25.00	1434+75.00	Median		350.00	Yes	2	Dane Rd.
3.0	3	NB	1465+00.00	1469+25.00	Median		425.00	Yes	2	IA 1
4.0	4	SB	1467+25.00	1471+50.00	Median		425.00	Yes	2	IA 1
5.0	5	NB	1526+00.00	1530+00.00	Median		400.00	Yes	2	Rohret Rd.
6.0	6	SB	1528+00.00	1532+00.00	Median		400.00	Yes	2	Rohret Rd.
7.0	7	SB	1548+50.00	1551+25.00	Right		275.00	Yes	2	DMS
8.0	8	NB	1631+50.00	1635+00.00	Median		350.00	Yes	2	DMS Truss
9.0	9	SB	1634+50.00	1638+50.00	Median		400.00	Yes	2	DMS Truss
Total:							**3375**			

Quantities:

REMOVAL OF CABLE GUARDRAIL = 3,375 LF

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.

262_06
9/28/22

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.

SURVEY SYMBOLS

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

UTILITY LEGEND

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.		
Green	(2)		Existing Topographic Features and Labels
Blue	(1)		Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)		Existing Utilities
SHADING	**Design Color No.**		**Transparency**
Pink, Dark	(13)		Temporary Pavement Shading — 50%
Yellow	(4)		Proposed Pavement Shading — 50%
Orange	(6)		Proposed Granular Shading — 50%
Orange	(70)		Proposed Shoulder Granular Shading — 50%
Yellow	(68)		Proposed Shoulder Paved Full Depth Shading — 50%
Yellow	(132)		Proposed Shoulder Paved Partial Depth Shading — 50%
Brown, Light	(236)		Grading Shading — 50%
Orange, Light	(134)		Proposed Granular Entrance Shading — 50%
Yellow	(220)		Proposed Paved Entrance Shading — 50%
Tan	(8)		Proposed Sidewalk Shading — 50%
Blue, Light	(230)		Proposed Sidewalk Landing Shading — 50%
Pink	(11)		Proposed Sidewalk Ramp Shading — 50%
Red	(3)		Proposed Structure Shading — 50%
Red	(3)		Delineates Restricted Areas — 0%

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

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

RIGHT-OF-WAY LEGEND

- Proposed Right-of-Way Symbol
- Proposed Right-of-Way Line
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary) Symbol
- Easement (Temporary) Line
- Easement
- C/A Access Control
- Property Line Symbol
- Property Line

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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

FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER D.1

4:35:07 PM 8/31/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_Legend_52218049.dgn

STA 340+63.00 (ML218)
BEGIN PROJECT

340+00

345+00

PI 347+26.53

350+00

355+00

360+00

365+00

TS 368+11.36

218

TS 341+33.26

SC 343+33.26

CS 351+17.04

ST 353+17.04

SPIRAL DATA
SCS PI STA 342+66.60
Δ = 14°45'24.00" (RT)
Θ = 01°30'00.00"
Ls = 200.00'
Ts = 200.00'
Es = 32.33'
P = 0.44
K = 100.00
Xc = 199.99'
Yc = 1.75'
LT = 133.34'
ST = 66.67'
LC = 199.99'

Δ = 11°45'24.00" (RT)
T = 393.27'
L = 783.78'
R = 3819.72'
E = 20.19'
e = ___
L = ___
x = ___

STA 340+63.00 (ML218)
BEGIN PROJECT

0 100
FEET

TS 368+11.36

SC 370+11.36

370+00

STA 376+52.54 (ML218)
STOP HMA RESURFACING
BEGIN REPLACE BRIDGE APPROACH

375+00

380+00

STA 380+43.89 (ML218)
STOP REPLACE BRIDGE APPROACH
RESUME HMA RESURFACING

385+00

390+00

395+00

Δ = 38°41'00.03" (LT)
T = 1608.93'
L = 3094.68'
R = 4583.68'
E = 274.18'
e = ___
L = ___
x = ___

218

STA 376+88.49 (ML218)
STOP HMA RESURFACING
BEGIN REPLACE BRIDGE APPROACH -
MB-218-6(505)90--77-52

STA 380+71.15 (ML218)
STOP REPLACE BRIDGE APPROACH
RESUME HMA RESURFACING -
NHSX-218-4(049)--3H-52

0 100
FEET

FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER D.2

4:35:25 PM 8/31/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_D_52218049_Z10.dgn

Δ = 38°41'00.03" (LT)
T = 1608.93'
L = 3094.68'
R = 4583.68'
E = 274.18'
e = ___
L = ___
x = ___

400+00

CS 401+06.04

ST 403+06.04

405+00

EQUATION:
STA 1412+14.76(AH) =
STA 407+42.89(BK)

1415+00

1420+00

1425+00

1430+00

218

PC 1432+36.64

Δ = 06°31'00.00" (RT)
T = 652.42'
L = 1303.43'
R = 11460.00'
E = 18.56'
e = ___
L = ___
x = ___

0 100
FEET

1435+00

PI 1438+89.06

1440+00

1445+00

1450+00

1455+00

1460+00

218

PC 1432+36.64

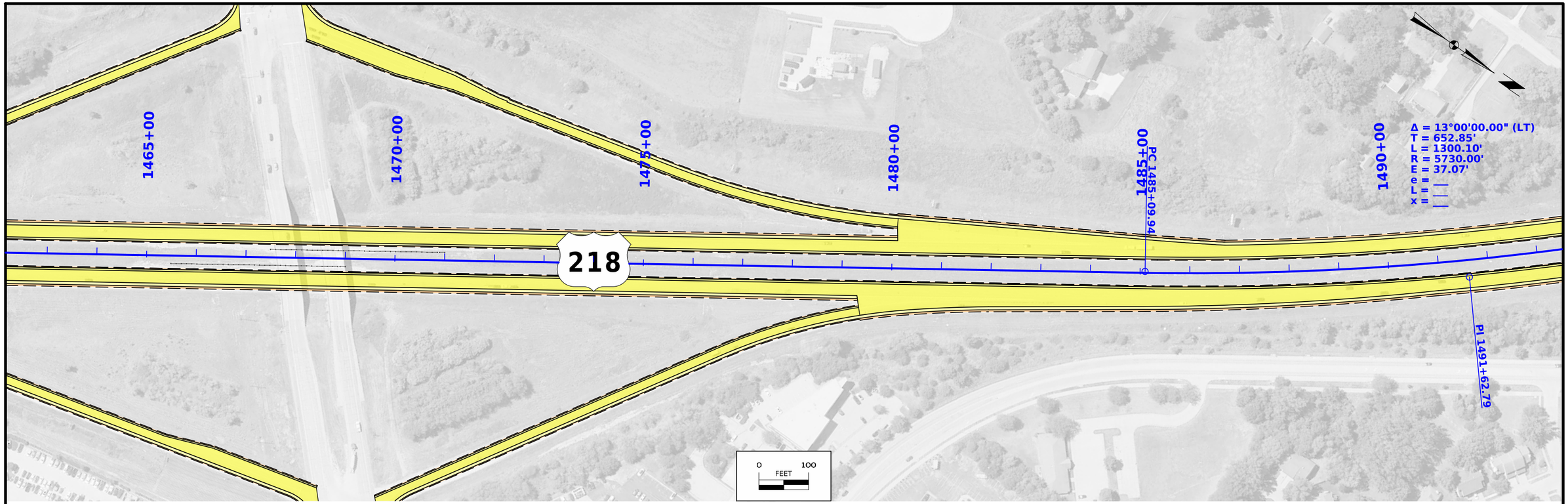
Δ = 06°31'00.00" (RT)
T = 652.42'
L = 1303.43'
R = 11460.00'
E = 18.56'
e = ___
L = ___
x = ___

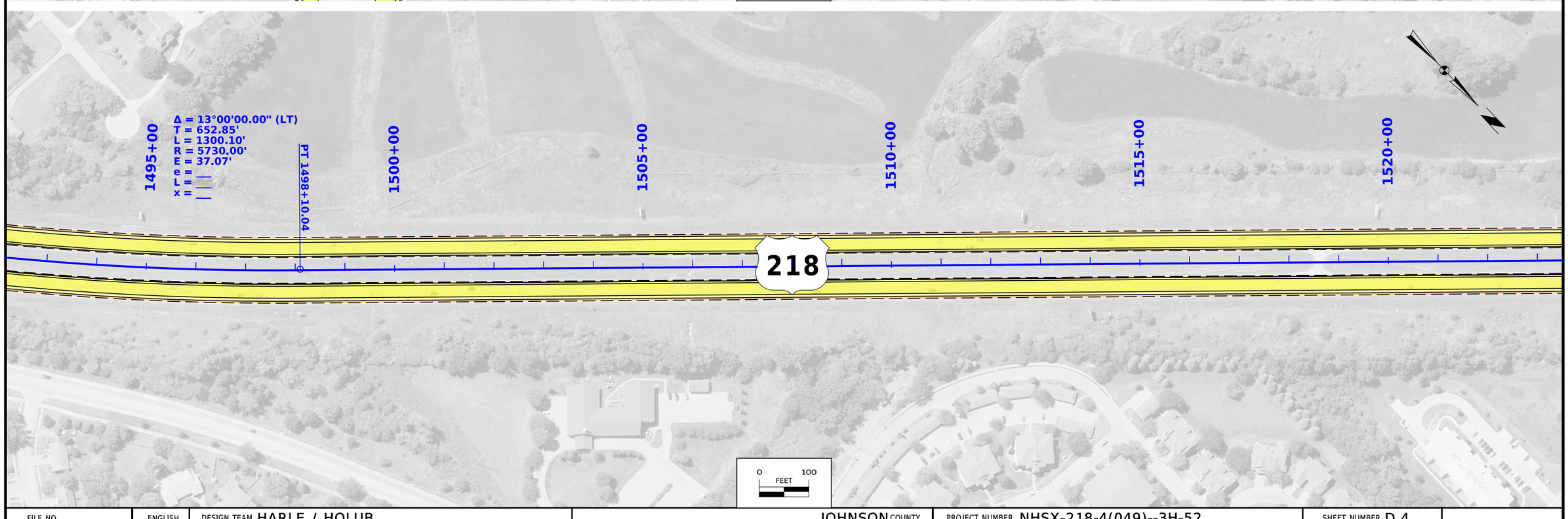
PT 1445+40.07

0 100
FEET

FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER D.3	

4:36:23 PM 8/31/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_D_52218049_Z10.dgn





FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER D.4

4:36:46 PM 8/31/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_D_52218049_Z10.dgn

1525+00
1530+00
PI 1531+68.97
1535+00
1540+00
1545+00
1550+00
218
PC 1527+31.44
PT 1536+06.50
Δ = 00°35'00.00" (RT)
T = 437.54'
L = 875.06'
R = 85950.00'
E = 1.11'
e = ___
L = ___
x = ___
0 100 FEET
EQUATION:
STA 1570+36.38(AH) =
STA 1570+37.38(BK)
1555+00
1560+00
1565+00
1570+00
1575+00
1580+00
218
0 100 FEET

FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER D.5

4:37:33 PM 8/31/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_D_52218049_Z10.dgn

1585+00
1590+00
1595+00
1600+00
1605+00
1610+00

STA 1584+71.12 (ML218)
STOP HMA RESURFACING
RESUME REPLACE BRIDGE APPROACH

STA 1589+59.45 (ML218)
END REPLACE BRIDGE APPROACH
RESUME HMA RESURFACING

218

STA 1583+68.49 (ML218)
STOP HMA RESURFACING
RESUME REPLACE BRIDGE APPROACH -
MB-218-6(505)90--77-52

STA 1588+66.82 (ML218)
STOP REPLACE BRIDGE APPROACH
RESUME HMA RESURFACING -
NHSX-218-4(049)--3H-52

0 100
FEET

1615+00
1620+00
1625+00
1630+00
1635+00
1640+00

218

0 100
FEET

FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER D.6

4:38:23 PM 8/31/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_D_52218049_Z10.dgn

1645+00
1650+00
1655+00
1660+00
EQUATION:
STA 1661+91.90(AH)
STA 1661+95.63(BK)
1665+00
1670+00
218
0 100
FEET
1675+00
1680+00
1685+00
1690+00
STA 1690+21.03 (ML218)
END PROJECT
1695+00
EQUATION:
STA 1698+60.00(AH)
STA 1698+53.03(BK)
=
1700+00
218
STA 1690+21.03 (ML218)
END PROJECT
PC 1698+52.76
Δ = 23°44'52.81" (RT)
T = 1204.70'
L = 2374.80'
R = 5729.58'
E = 125.28'
e = ___
L = ___
x = ___
0 100
FEET

FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER D.7	

4:39:13 PM 8/31/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_D_52218049_Z10.dgn

365+00

TS 368+11.36

370+00

218

PI 2566+54.64

2565+00

2570+00

2575+00

PC 2564+85.00

STA 2564+85.00 (RPBRIVERSIDE)
STOP HMA RESURFACING - ML218
BEGIN HMA RESURFACING - RAMP
(2" MILL AND FILL)

PT 2568+23.88

PC 2577+65.23

Δ = 06°46'39.35" (RT)
T = 169.64'
L = 338.88'
R = 2864.79'
E = 5.02'
e = ___
L = ___
x = ___

Δ = 48°15'45.20" (RT)
T = 342.23'
L = 643.50'
R = 763.94'
E = 73.15'
e = ___
L = ___
x = ___

0 FEET 50

US 218 & RIVERSIDE DR.
RAMP B

PI 1581+07.96

1375+00

2580+00

PI 1374+44.11

1380+00

PC 1380+60.25

1385+00

RIVERSIDE DR

PCC 2584+08.73

Δ = 48°15'45.20" (RT)
T = 342.23'
L = 643.50'
R = 763.94'
E = 73.15'
e = ___
L = ___
x = ___

STA 2582+38.79 (RPBRIVERSIDE)
END HMA RESURFACING - RAMP
BEGIN HMA RESURFACING - SR_RIVERSIDE

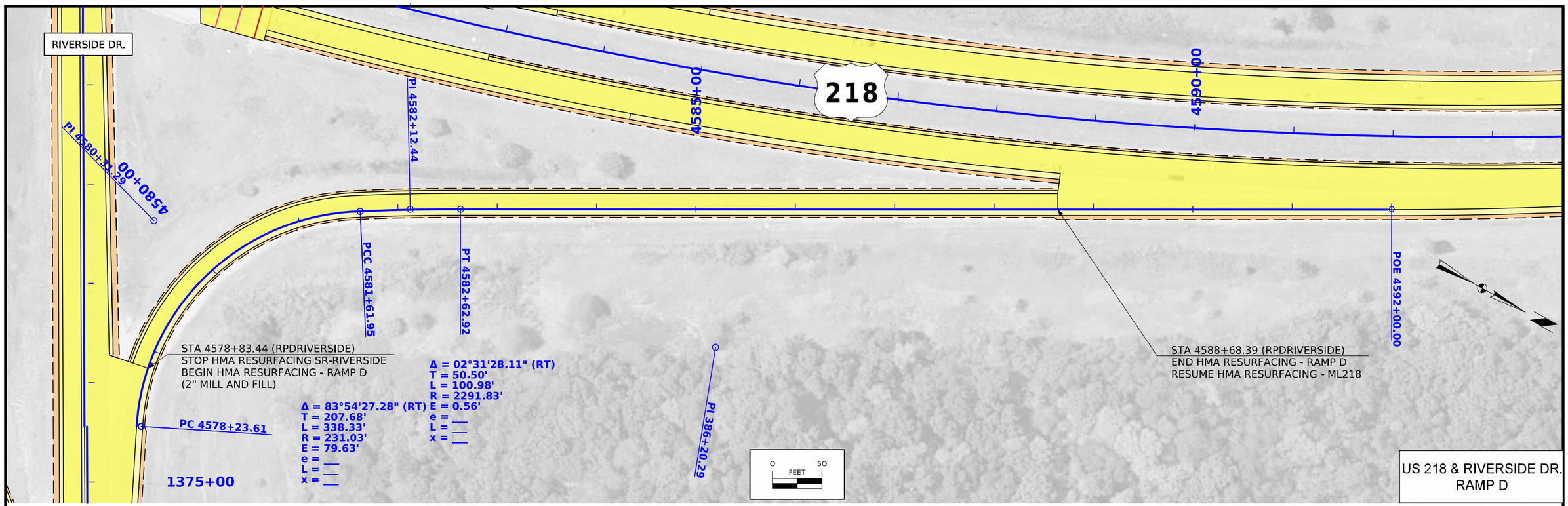
PI 1386+98.00

0 FEET 50

US 218 & RIVERSIDE DR.
RAMP B

FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER E.1	

4:43:37 PM 8/31/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_E_52218049_Z10.dgn



FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER E.2	

4:44:20 PM 8/31/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_E_52218049_Z10.dgn

Δ = 03°45'39.61" (LT)
T = 75.25'
L = 150.44'
R = 2291.83'
E = 1.23'
e = ___
L = ___
x = ___

Δ = 30°26'15.00" (LT)
T = 311.74'
L = 608.75'
R = 1145.92'
E = 41.65'
e = ___
L = ___
x = ___

PC 3551+00.00

POB 3551+00.00

PI 3567+45.25

PCC 3558+50.44

3560+00

STA 3559+51.63 (RPCRIVERSIDE)
STOP HMA RESURFACING - ML218
BEGIN HMA RESURFACING RAMP C
(2" MILL AND FILL)

3560+00

218

PT 3564+62.18

PT 3564+59.19

3565+00

PC 3567+75.67

Δ = 41°30'15.10" (RT)
T = 296.04'
L = 565.97'
R = 781.31'
E = 54.21'
e = ___
L = ___
x = ___

PI 3570+71.72

3570+00

0 50 FEET

US 218 & RIVERSIDE DR.
RAMP C

STA 3572+85.30 (RPCRIVERSIDE)
END HMA RESURFACING RAMP C

PCC 3572+41.64

PI 1563+96.89

POB 1563+43.09

PC 1563+43.09

PCC 1564+50.37

PC 1360+75.96

1565+00

PI 1364+63.87

1365+00

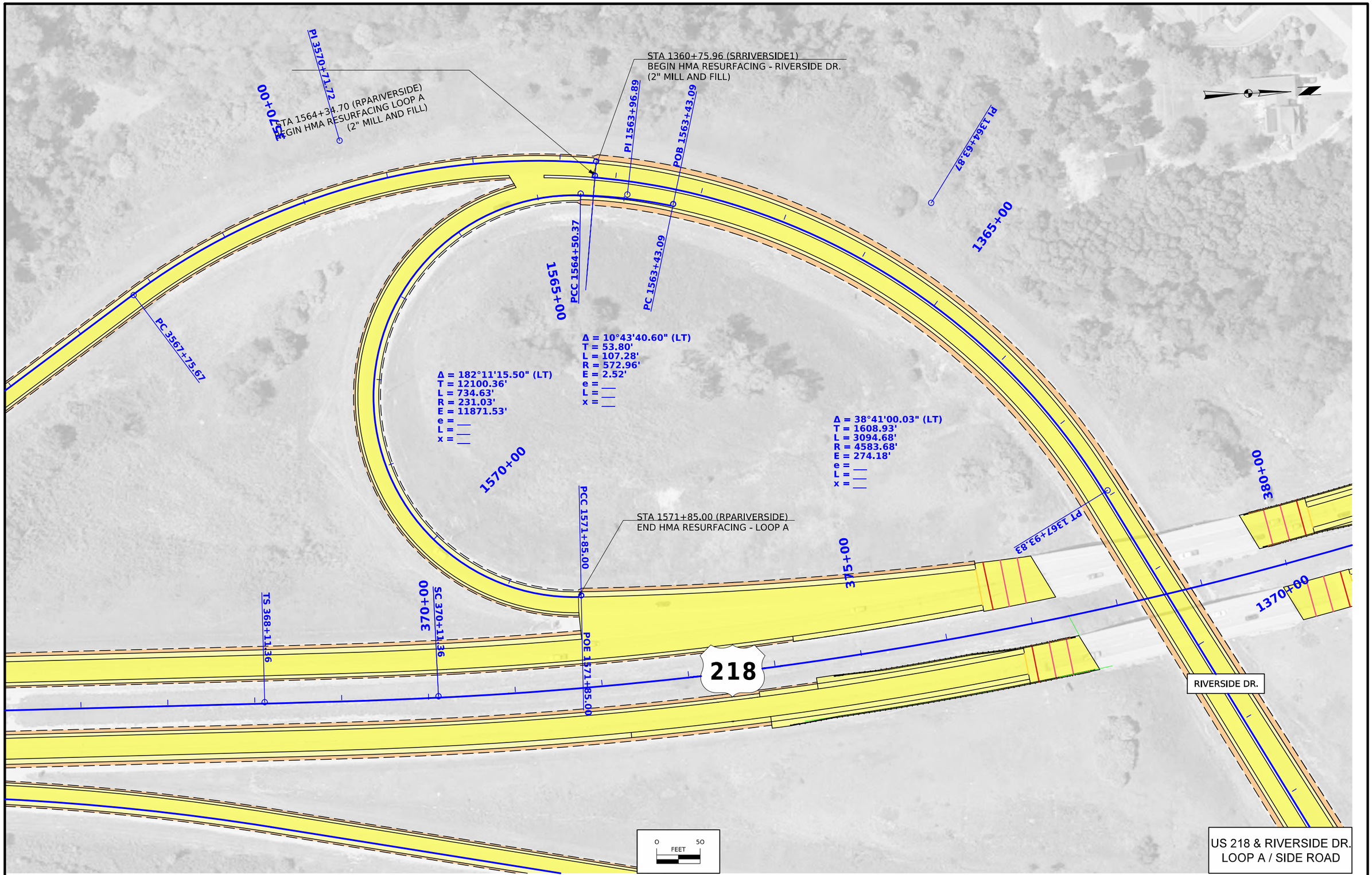
3853+00

0 50 FEET

US 218 & RIVERSIDE DR.
RAMP C

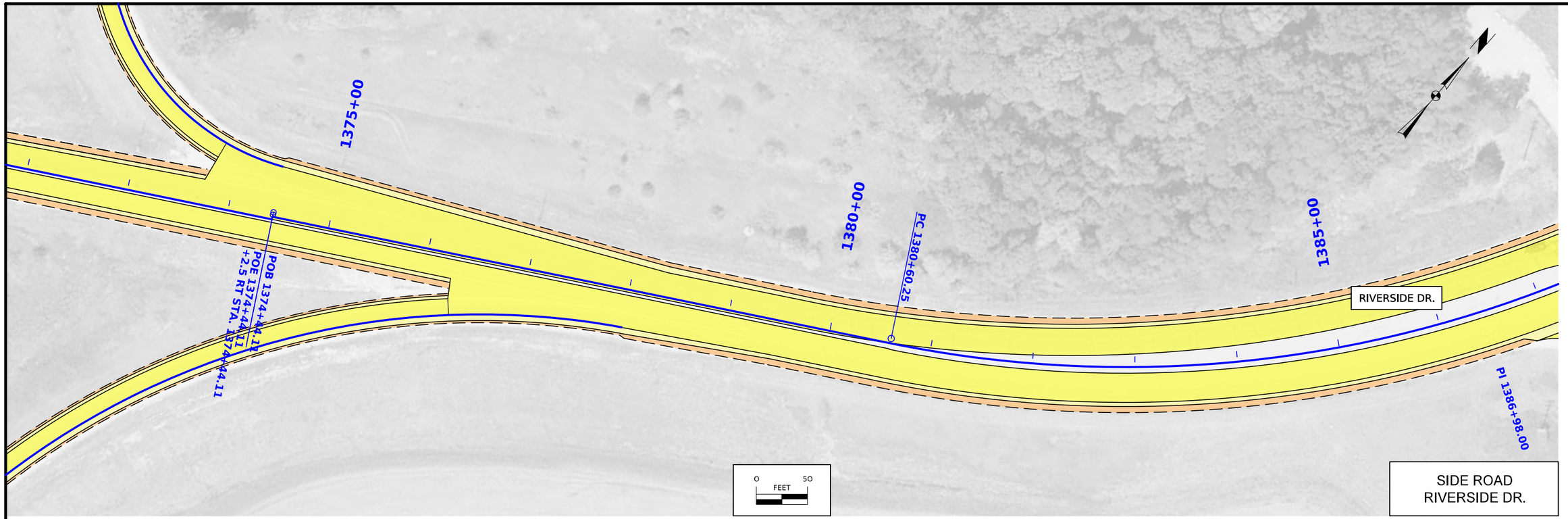
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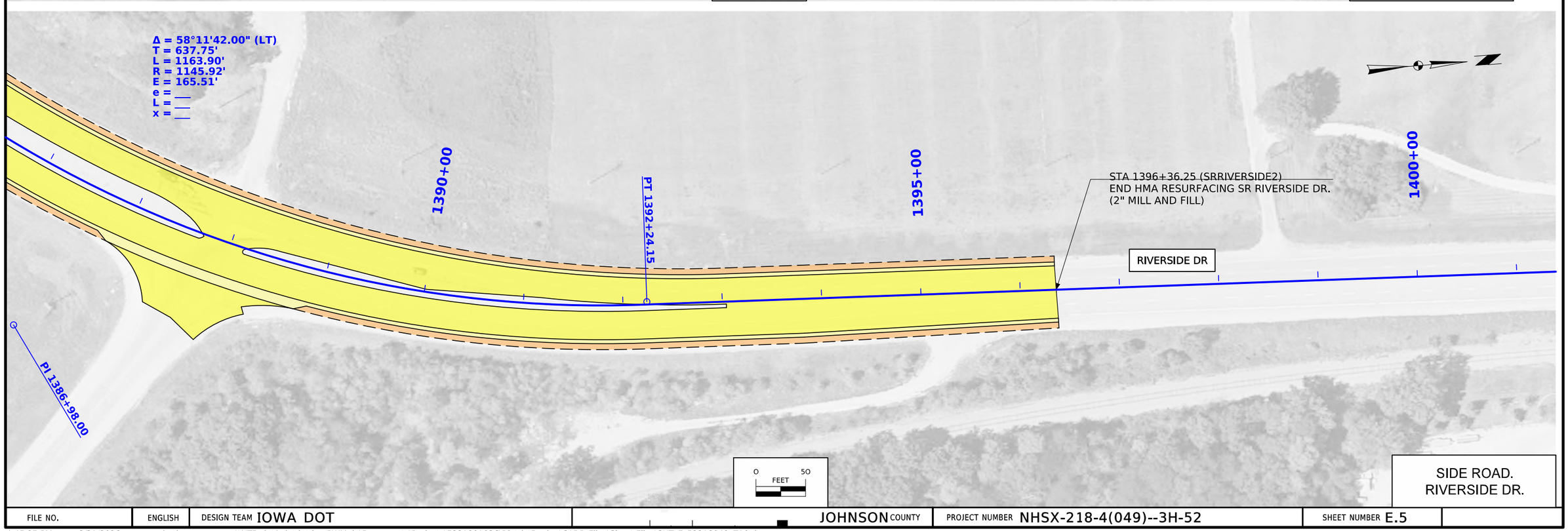
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FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER E.4

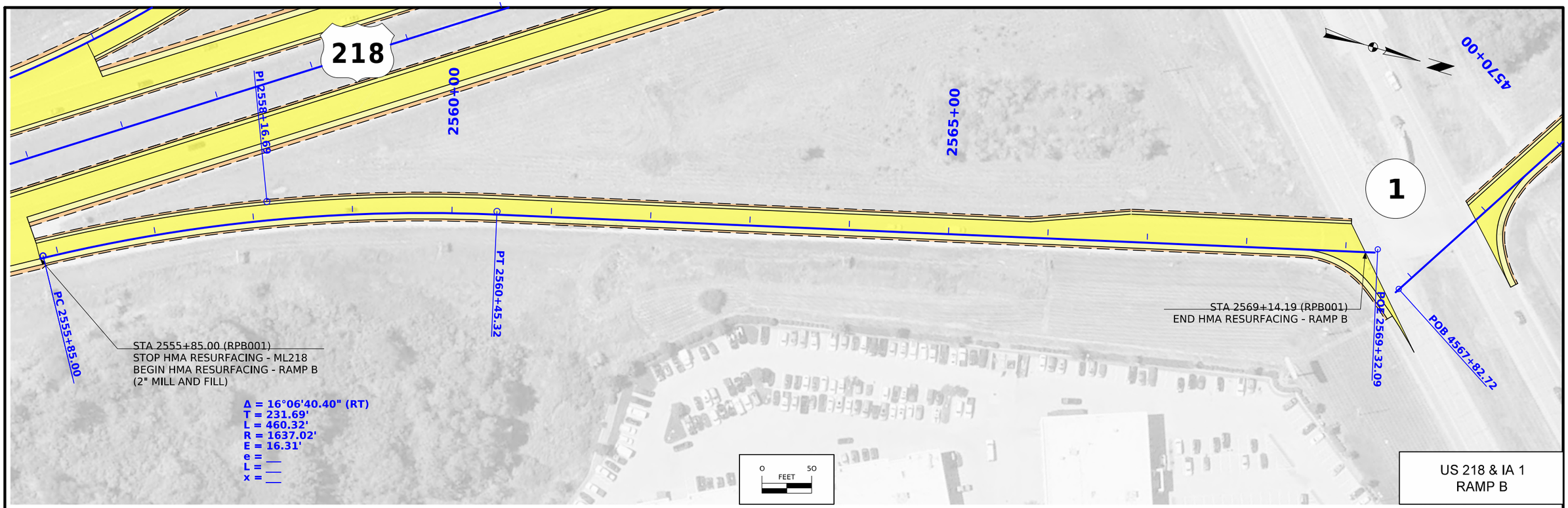
4:45:13 PM 8/31/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_E_52218049_Z10.dgn





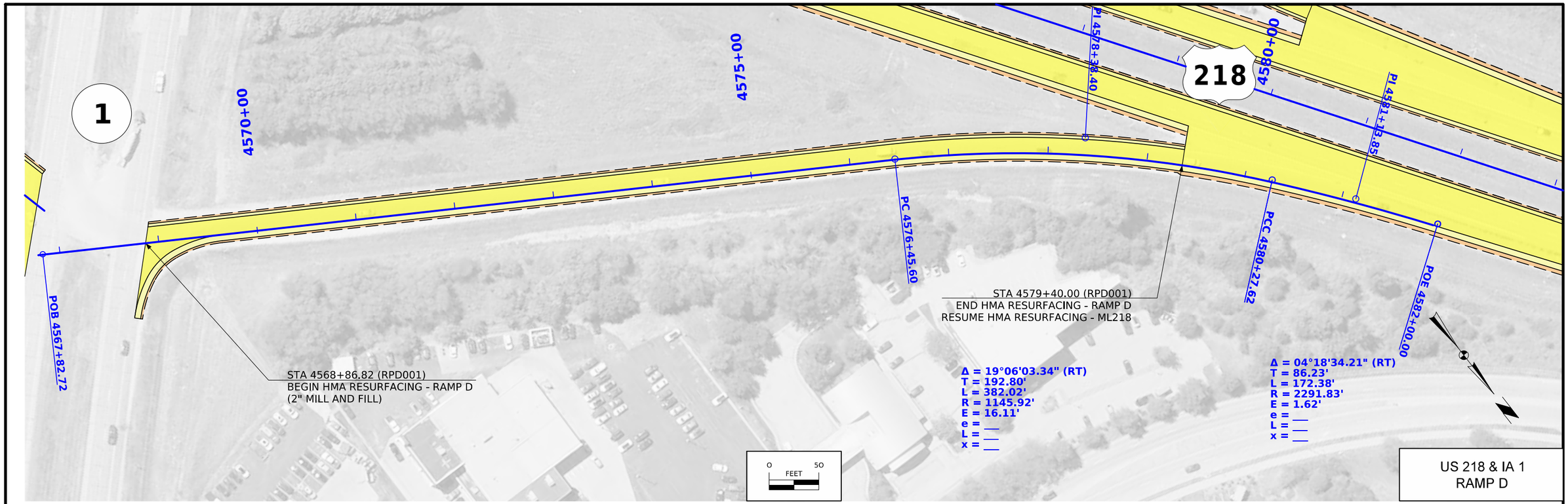
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4:45:25 PM 8/31/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_E_52218049_Z10.dgn



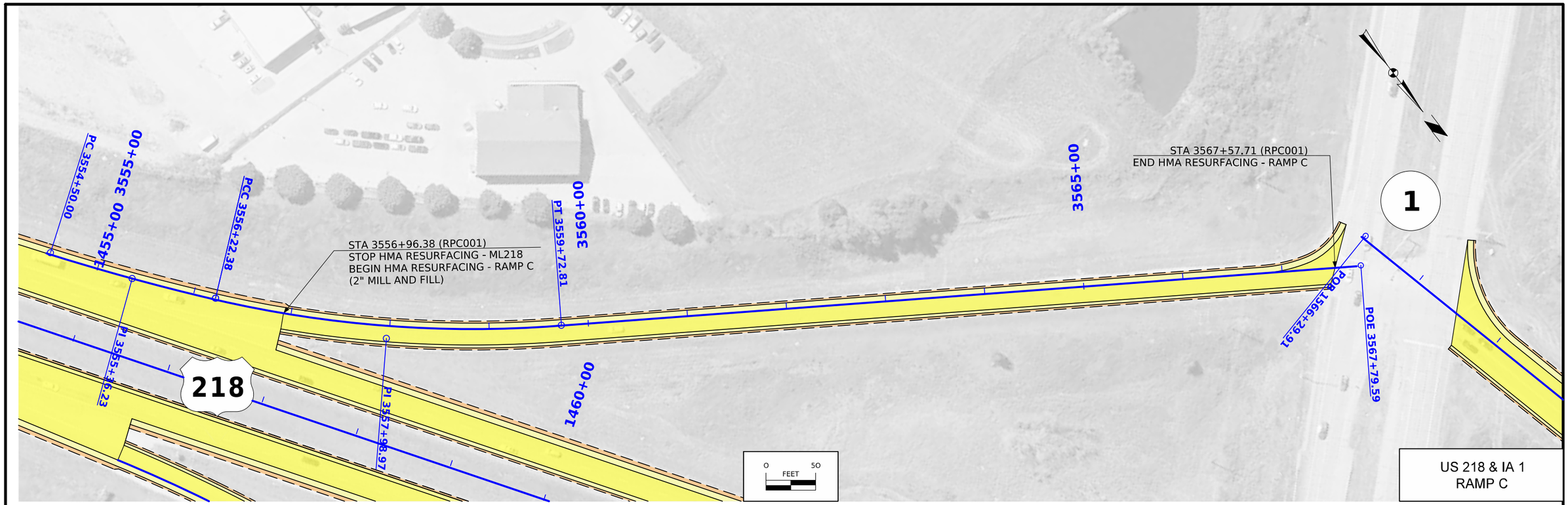
FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER E.6	

4:45:54 PM 8/31/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_E_52218049_Z10.dgn



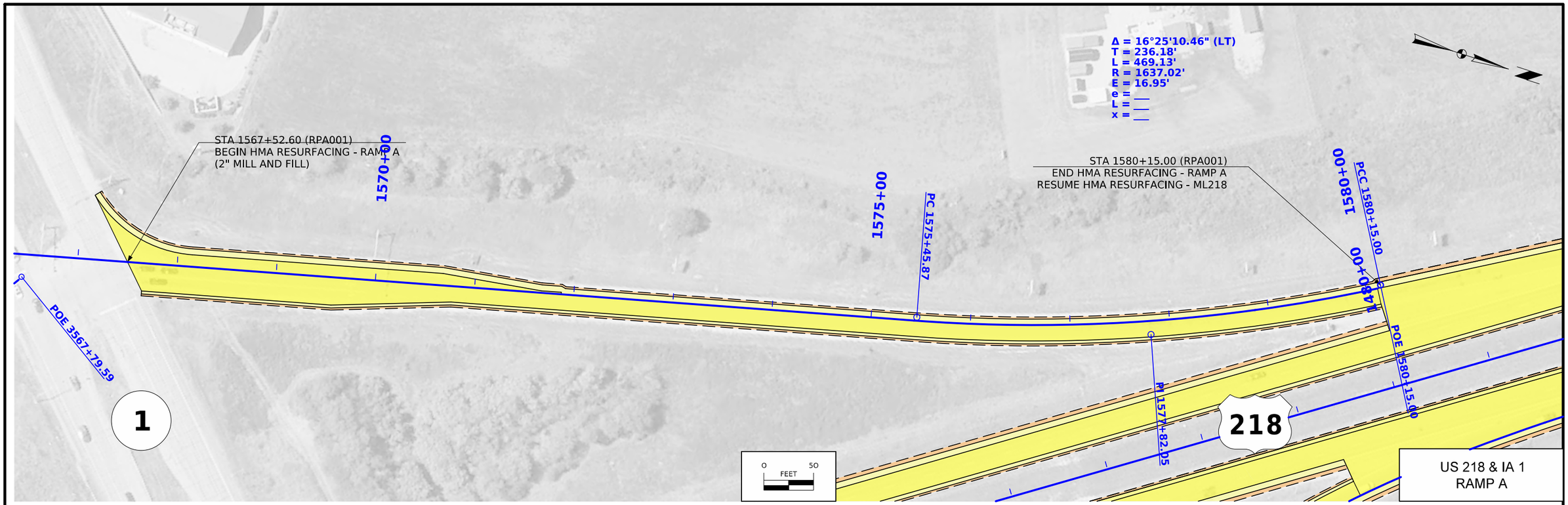
FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER E.7	

4:46:31 PM 8/31/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_E_52218049_Z10.dgn



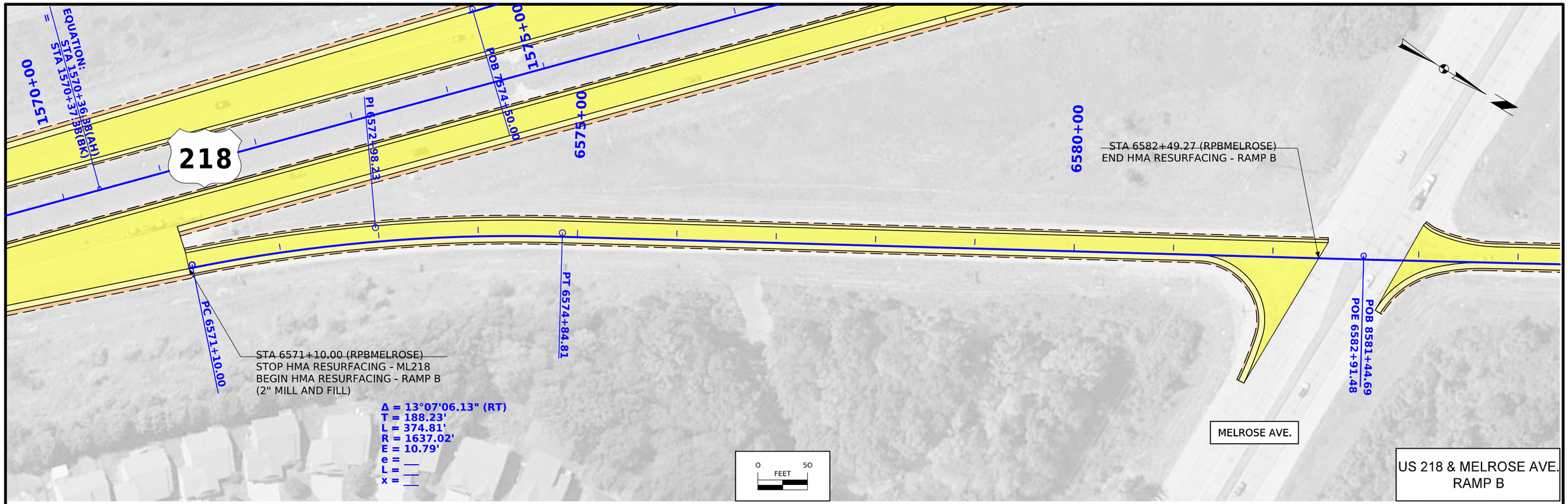
FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER E.8	

4:46:55 PM 8/31/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_E_52218049_Z10.dgn



FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER E.9	

4:47:16 PM 8/31/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_E_52218049_Z10.dgn



FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER E.10	

4:47:34 PM 8/31/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_E_52218049_Z10.dgn

MELROSE AVE.

218

POB 8581+44.69
POE 6582+91.48

STA 8581+86.08 (RPDMELROSE)
BEGIN HMA RESURFACING - RAMP D

Δ = 47°00'49.75" (LT)
T = 249.21'
L = 470.14'
R = 572.96'
E = 51.85'
e = ___
L = ___
x = ___

PC 8583+94.69

8585+00

8590+00

PT 8588+64.83

PC 8592+30.45

PI 8594+83.01

8595+00

1595+00

Δ = 24°51'30.26" (RT)
T = 252.56'
L = 497.17'
R = 1145.92'
E = 27.50'
e = ___
L = ___
x = ___

PI 8586+43.90

0 50 FEET

US 218 & MELROSE AVE.
RAMP D

1600+00

PI 8598+13.85

PT 5600+05.92

1605+00

1610+00

218

PCC 8597+27.62

PCC 8599+00.00

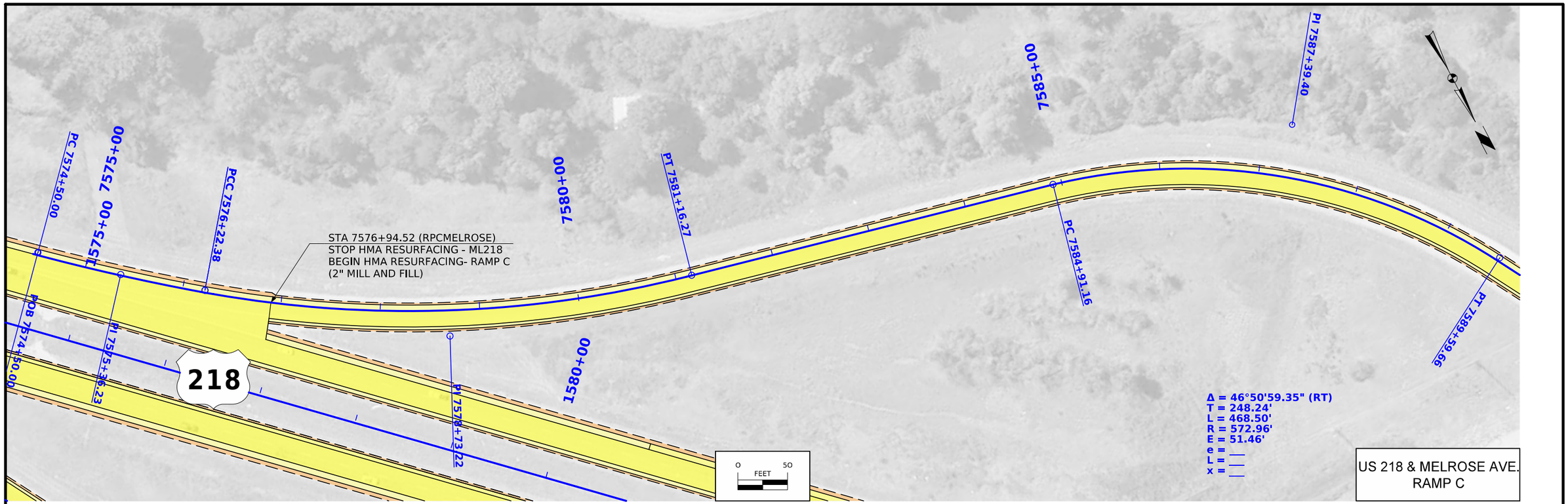
STA 8596+45.00 (RPDMELROSE)
END HMA RESURFACING - RAMP D
RESUME HMA RESURFACING - ML218

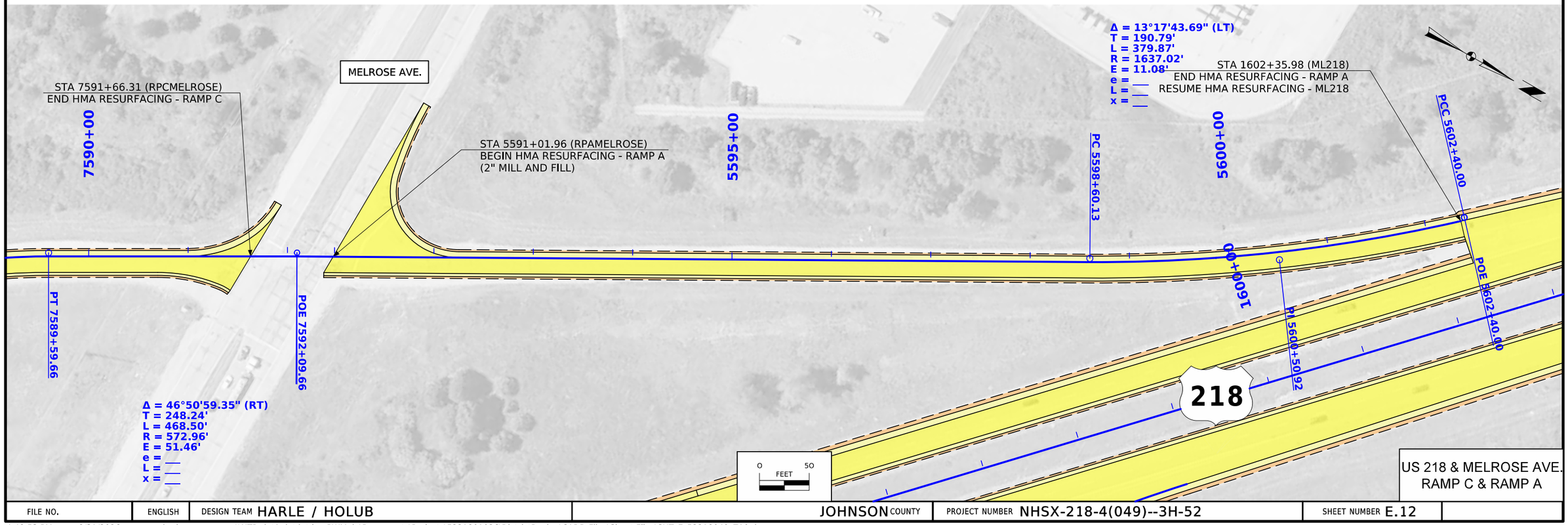
0 50 FEET

US 218 & MELROSE AVE.
RAMP D

FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER E.11

4:48:10 PM 8/31/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_E_52218049_Z10.dgn





FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER E.12	

4:48:53 PM 8/31/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_E_52218049_Z10.dgn

108_23A
8/15/22

TRAFFIC CONTROL PLAN

1. US 218 mainline and Riverside Dr. mainline shall be kept open to through traffic.

2. NIGHT WORK REQUIRED
   Mainline lane closures will only be permitted from 7:00 pm to 6:00 AM seven days a week.
   Traffic control devices shall not be placed prior to 7:00 PM or remain in the traveled way after 6:00 AM.
   Mainline lanes closures outside these hours will not be permitted.

3. Lane closures using TC-421 will be allowed for Bridge Approach construction. Refer to staging notes and staging sheets J.6 to J.26 for additional details.

4. Lane closures using TC-418 will be allowed for full-depth patching and HMA resurfacing work.

5. Lane closures shall be removed immediately, once work has been completed.

6. Ramp closures using TC-417 will be permitted for Loop A at the Riverside Dr. interchange during Stage 2 of the southbound bridge approach work at US 218 over Riverside Dr.
   Ramp closures using TC-252 (entrance ramp) and TC-417 (exit ramp) will be permitted overnight from 7:00 PM to 6:00 AM the following day, beginning 7:00 PM Sunday until 6:00 AM Friday for resurfacing work at all ramps.

7. No more than one ramp may be closed at a time.

8. Traffic control devices for ramp closures shall not be placed prior to 7:00 PM or remain in the traveled way after 6:00 AM.

9. The contractor shall be responsible to provide detour signing according to Sheets J.27-J.29 and sheets J.100-J.102.
   Detour signing shall be removed once the detour is no longer in use.

10. The contractor shall give the engineer and Johnsson County Emergency Services a 72-hour notice to any ramp closure.

11. Unless otherwise approved by the Engineer, lane closures are prohibited on the day of a University of Iowa home football game.

User.name@iowadot.us

STAGING NOTES

Staging Details:

Stage 1:
Work to be accomplished in this stage includes placement of shoulder strengthening of northbound and southbound inside shoulders at the Riverside Dr. and Melrose Ave. interchanges.

Traffic shall be maintained during this stage using TC-419. Lane closures for this stage shall be limited to night work. Refer to Traffic Control Plan for hours.

Stage 2:
Work to be accomplished during this stage includes removal and reconstruction of northbound and southbound bridge approaches in the outside lanes at the Riverside Dr. and Melrose Ave. interchanges.

US 218 traffic shall be maintained during this stage using TC-421. Closure of the southbound exit ramp at Riverside Dr. is required during this stage. Traffic shall be detoured using the detour on sheet J.100.

Stage 3:
Work to be accomplished during this stage includes removal and reconstruction of northbound and southbound bridge approaches in the inside lanes at the Riverside Dr. and Melrose Ave. interchanges.

US 218 traffic shall be maintained during this stage using TC-421. The southbound exit ramp at Riverside Dr. shall be reopened during this stage.

Remaining work:

Remaining work to be accomplished, including full depth patching, pavement scarification, HMA resurfacing, HMA paved shoulders, guardrail, rumble strips, and pavement markings, shall be done as noted in the Traffic Control Plan on Sheet J.1.

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
NHSN-218-3(093)--2R-92	Landscaping

TRAFFIC CONTROL CLOSURE TABLE(S)

* This is to only be used in conjunction with Tabulation 108-23A.
"X" area indicates times that lane closures are not allowed.

Roadway Name	Day	12:00 AM	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00 PM	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30
US 218	Sunday													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X										
US 218	Monday													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X										
US 218	Tuesday													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X										
US 218	Wednesday													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X										
US 218	Thursday													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X										
US 218	Friday													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X										
US 218	Saturday													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X										

511 TRAVEL RESTRICTIONS

Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No. or Structure ID or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
							None					
US 218	NB	Johnson	1.6 miles south of junction Iowa 1	County Road F50/Oak Crest Hill Road	Traffic Control Device	5289.8R218	Horizontal	40'	13'	N/A		FHWA #605000
US 218	SB	Johnson	1.6 miles south of junction Iowa 1	County Road F50/Oak Crest Hill Road	Traffic Control Device	5289.8L218	Horizontal	40'	13'	N/A		FHWA #605005
							None					
US 218	NB	Johnson	2.3 miles north of junction Iowa 1	Melrose Avenue	Traffic Control Device	5293.7R218	Horizontal	40'	13'	N/A		FHWA #605555
US 218	SB	Johnson	2.3 miles north of junction Iowa 1	Melrose Avenue	Traffic Control Device	5293.7L218	Horizontal	40'	13'	N/A		FHWA #605560
							None					

CROSS SECTION VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Med	(237)	Future Proposed Pavement Shading

CROSS SECTION VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

	Pavement Removal		Proposed Granular Shoulder
	Proposed Granular Subbase		Temporary Shoulder
	Proposed Special Backfill		Existing Shoulder Strengthening
	Temporary Barrier Rail		Permanent Barrier Rail
			Channelizing Device

PLAN VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Magenta	(5)	Pavement Marking Call Outs
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Yellow	(4)	Pavement Markings, Yellow
Off White	(254)	Pavement Markings, White
Violet	(15)	Temporary barrier rail, Unpinned
Flush Orange	(228)	Temporary barrier rail, Pinned

SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Orange	(6)	Proposed Granular Surface Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Pink, Dark	(13)	Temporary Pavement Shading
Brown, Light	(236)	Proposed Grading Limits Shading
Cyan	(7)	Proposed MSE or CIP Wall Shading
Red	(3)	Proposed Bridge Shading and Sign Trusses
Black w/Gray, Light Fill	(0,48)	Previously Constructed Structure

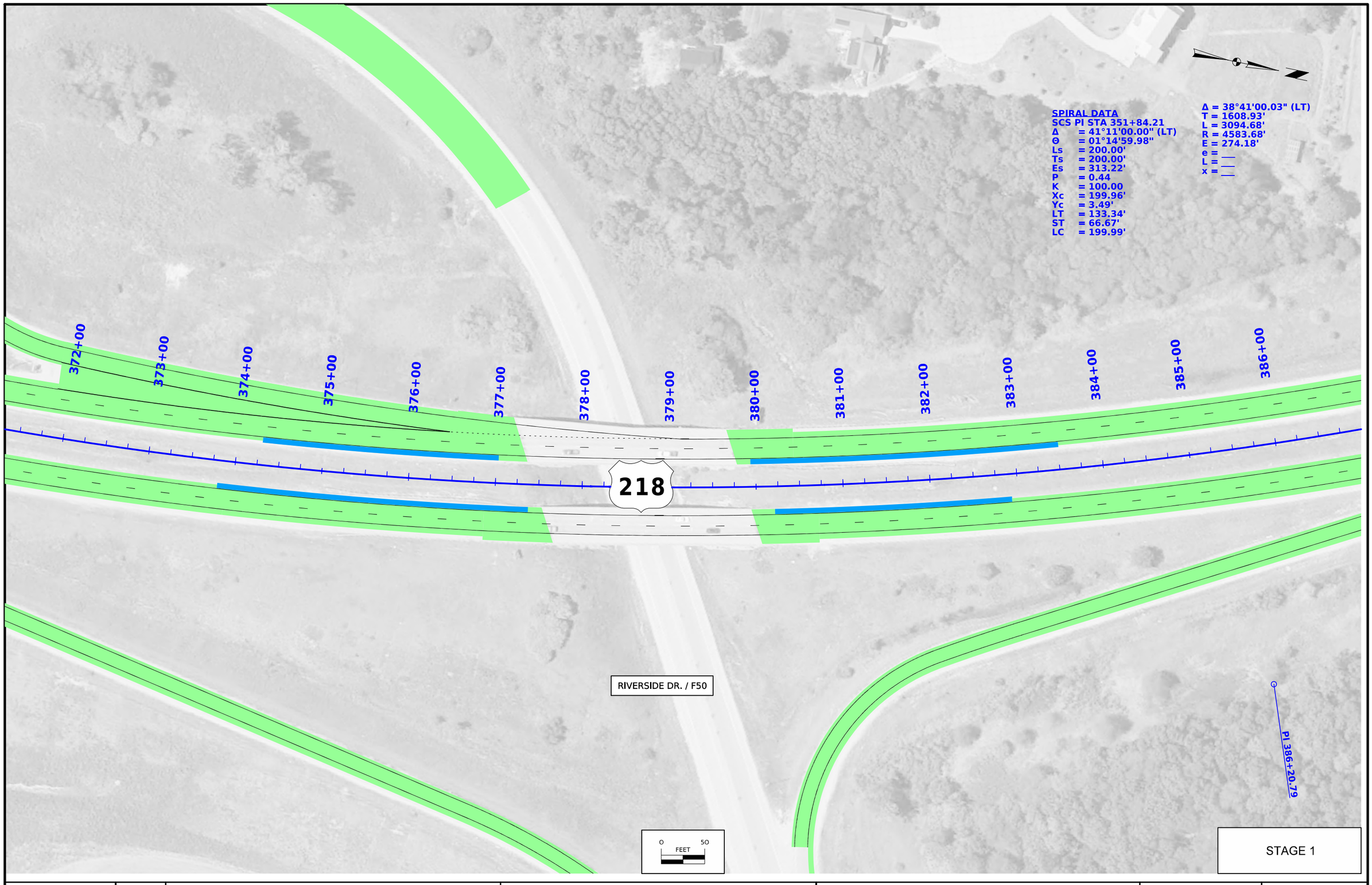
PLAN VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

	Channelizing Device		Crash Cushion (Temp or Perm)
	Drum		Traffic Signal
	Temporary Lane Separator		Flagger
	Tubular Marker		Temporary Floodlighting
	Channelizer Marker		Traffic Sign
	Concrete Barrier Marker		Type III Barricade
	Delineator		Type A Warning Light
	Temporary Barrier Rail		Direction of Traffic
	Pavement Removal		Safety Closure
	Sand Barrel Layout	1	Lane Identification

NOTE: Device spacing according to Standard Road Plans unless specifically dimensioned.

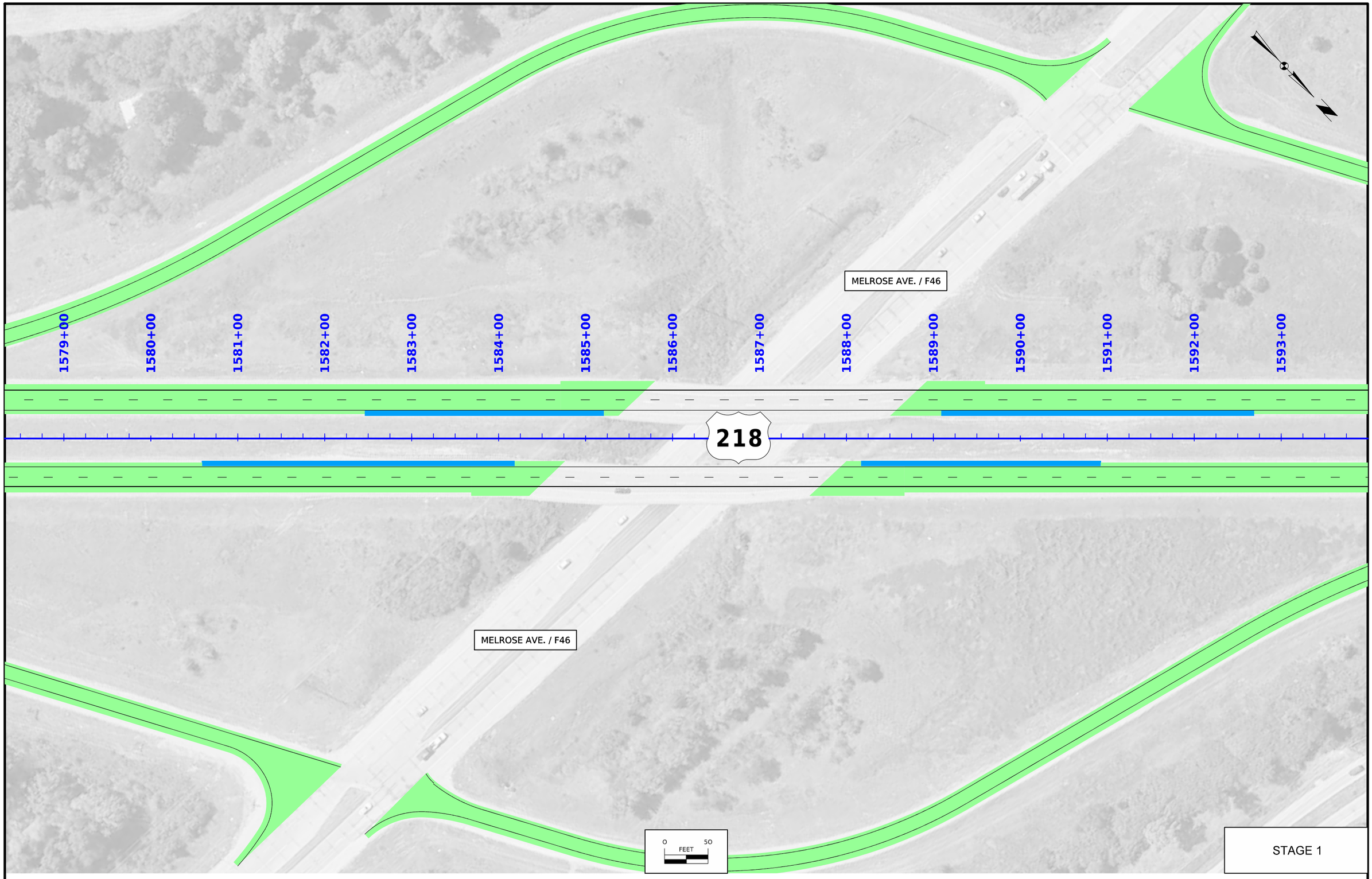
TRAFFIC CONTROL AND STAGING LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES J)



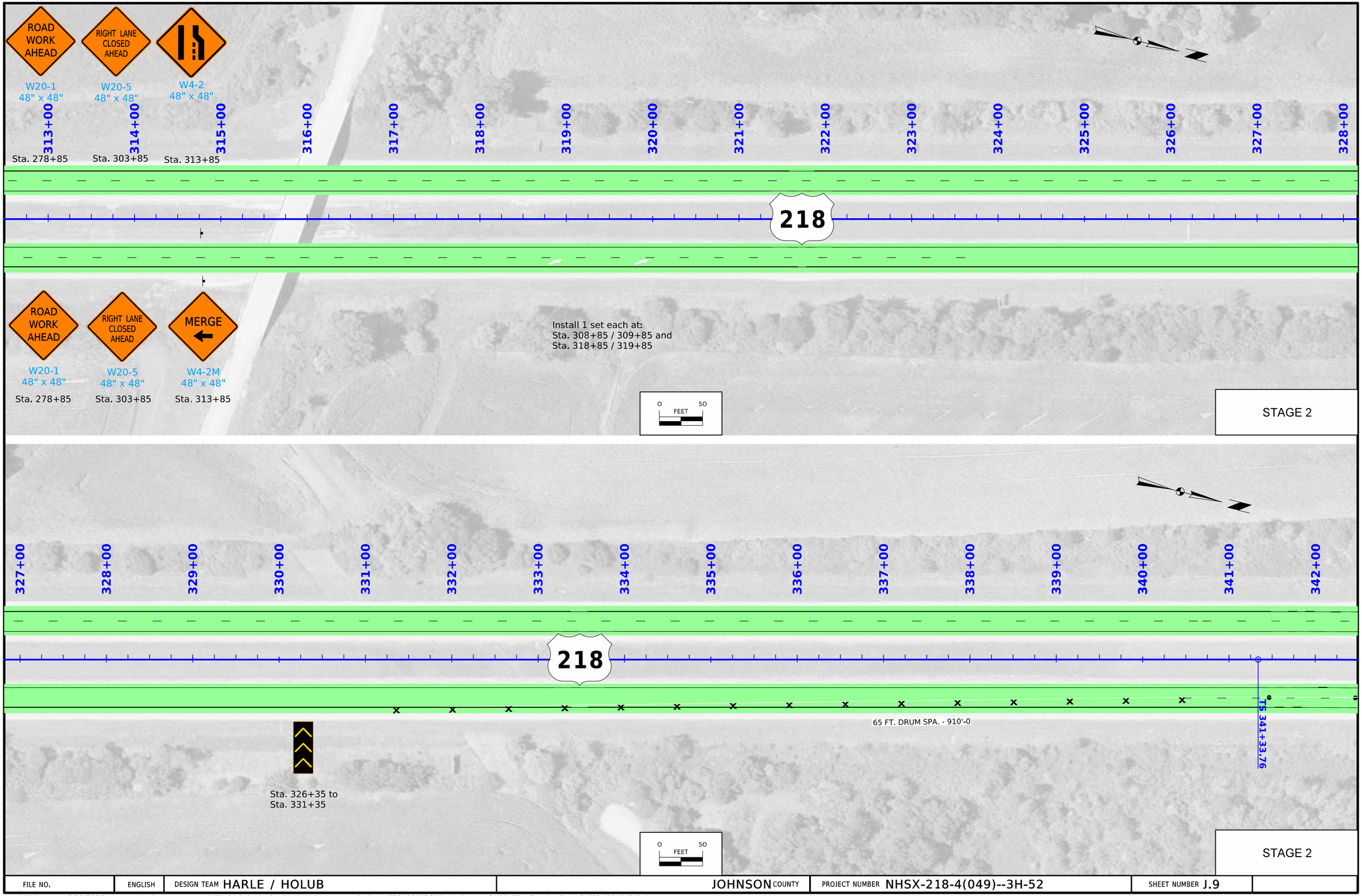
FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER J.7	

4:39:52 PM 8/28/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Staging\Stage1_52218049_Z10.dgn



FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER J.8	

4:40:02 PM 8/28/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Staging\Stage1_52218049_Z10.dgn



FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER J.9	

4:40:18 PM 8/28/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Staging\Stage2_52218049_Z10.dgn

342+00
343+00
344+00
345+00
346+00
347+00
PI 347+27.03
348+00
349+00
350+00
351+00
352+00
353+00
354+00
355+00
356+00

218

100 FT. CHANNELIZER SPA.

TS 341+33.76
SC 343+33.76
CS 351+17.54
ST 353+17.54

SPIRAL DATA
SCS PI STA 342+67.10
Δ = 14°45'24.00" (RT)
Θ = 01°30'00.00"
Ls = 200.00'
Ts = 200.00'
Es = 32.33'
P = 0.44
K = 100.00
Xc = 199.99'
Yc = 1.75'
LT = 133.34'
ST = 66.67'
LC = 199.99'

Δ = 11°45'24.00" (RT)
T = 393.27'
L = 783.78'
R = 3819.72'
E = 20.19'
e = ___
L = ___
x = ___

0 50 FEET

STAGE 2

END ROAD WORK
G20-2A
48" x 24"
STA. 366+75

REFER TO SHEET J.100 FOR DETOUR SIGNING

356+00
357+00
358+00
359+00
360+00
361+00
362+00
363+00
364+00
365+00
366+00
367+00
368+00
369+00
370+00
371+00

TS 368+11.86
SC 370+11.86

5 DEVICE

218

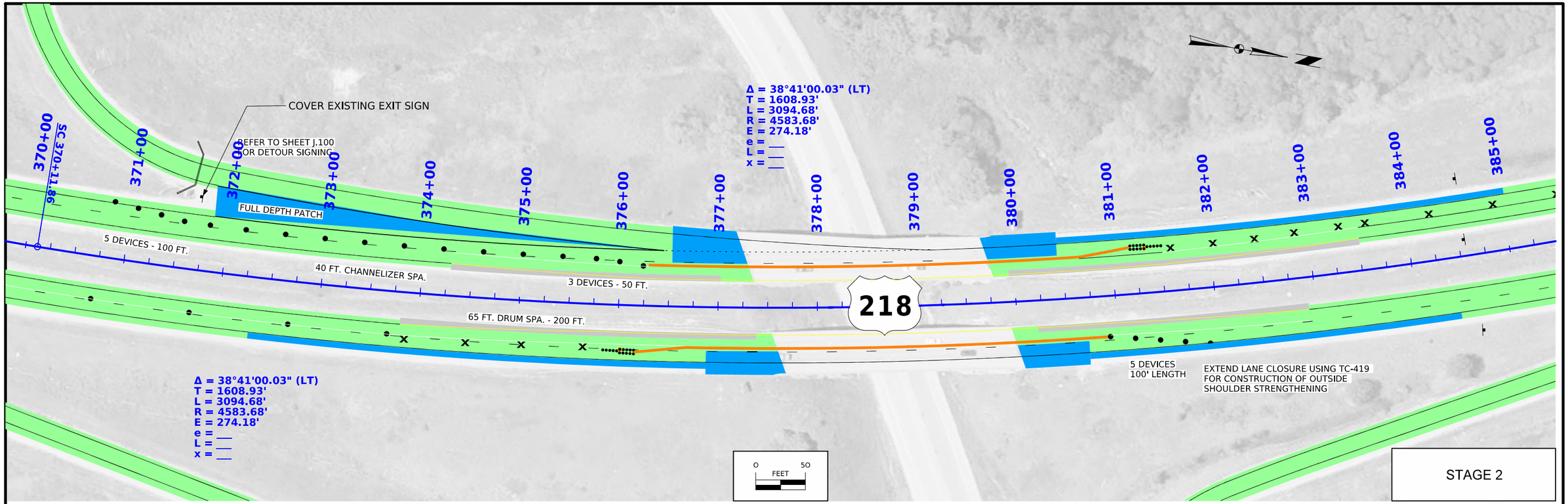
40 FT. CHANNELIZER SPA.
40 FT. CHANNELIZER SPA.
100 FT. CHANNELIZER SPA.
5 DRUMS - 80 FT.
40 FT. CHANNELIZER SPA.

0 50 FEET

STAGE 2

FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER J.10	

4:40:33 PM 8/28/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Staging\Stage2_52218049_Z10.dgn



FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER J.11

6:02:23 PM 8/28/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Staging\Stage2_52218049_Z10.dgn

Δ = 38°41'00.03" (LT)
T = 1608.93'
L = 3094.68'
R = 4583.68'
E = 274.18'
e = ___
L = ___
x = ___

399+00 400+00 401+00 402+00 403+00 404+00 405+00 406+00 407+00 1413+00 1414+00 1415+00 1416+00 1417+00 1418+00

CS 401+06.15

ST 403+06.15

EQUATION:
STA 1412+14.76(AH)
STA 407+43.39(BK)

STA. 1412+35 TO
STA. 1417+35

218

0 50 FEET

STAGE 2

INSTALL ONE SET EACH AT:
STA. 1423+85 / 1424+85 AND
STA. 1433+85 / 1434+85

1418+00 1419+00 1420+00 1421+00 1422+00 1423+00 1424+00 1425+00 1426+00 1427+00 1428+00 1429+00 1430+00 1431+00 1432+00 1433+00

MERGE
W4-2M
48" x 48"

RIGHT LANE CLOSED AHEAD
W20-5
48" x 48"

ROAD WORK AHEAD
W20-1
48" x 48"

STA 1429+85

STA 1434+85

STA 1459+85

218

PC 1432+36.64

W4-2
48" x 48"

0 50 FEET

STAGE 2

FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER J.12	

4:40:56 PM 8/28/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Staging\Stage2_52218049_Z10.dgn

1520+00 1521+00 1522+00 1523+00 1524+00 1525+00 1526+00 1527+00 1528+00 1529+00 1530+00 1531+00 PI 1531+68.97 1532+00 1533+00 1534+00 1535+00

218

PC 1527+48.11

Sta. 1527+70

Sta. 1528+70

Δ = 00°33'40.00" (RT)
T = 420.87'
L = 841.73'
R = 85950.00'
E = 1.03'
e = ___
L = ___
x = ___

ROAD WORK AHEAD
W20-1
48" x 48"
Sta. 1497+70

RIGHT LANE CLOSED AHEAD
W20-5
48" x 48"
Sta. 1522+70

W4-2
48" x 48"
Sta. 1532+70

MERGE
W4-2M
48" x 48"
Sta. 1532+70

0 50 FEET

STAGE 2

1534+00 1535+00 1536+00 1537+00 1538+00 1539+00 1540+00 1541+00 1542+00 1543+00 1544+00 1545+00 1546+00 1547+00 1548+00 1549+00

218

PT 1535+89.84

Δ = 00°33'40.00" (RT)
T = 420.87'
L = 841.73'
R = 85950.00'
E = 1.03'
e = ___
L = ___
x = ___

Sta. 1537+70

Sta. 1538+70

Sta. 1545+20 to
Sta. 1550+20

0 50 FEET

STAGE 2

FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER J.13	

4:41:10 PM 8/28/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Staging\Stage2_52218049_Z10.dgn

1549+00 1550+00 1551+00 1552+00 1553+00 1554+00 1555+00 1556+00 1557+00 1558+00 1559+00 1560+00 1561+00 1562+00 1563+00

218

100 FT. CHANNELIZER SPA.

65 FT. DRUM SPA. - 910 FT.

0 50 FEET

STAGE 2

EQUATION:
STA 1570+37.38(BK) = STA 1570+93.38(AH)

1563+00 1564+00 1565+00 1566+00 1567+00 1568+00 1569+00 1570+00 1571+00 1572+00 1573+00 1574+00 1575+00 1576+00 1577+00 1578+00

218

40 FT. CHANNELIZER SPA.

100 FT. CHANNELIZER SPA.

40 FT. CHANNELIZER SPA.

40 FT. DRUM SPA.

0 50 FEET

STAGE 2

FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER J.14

4:41:36 PM 8/28/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Staging\Stage2_52218049_Z10.dgn

EXTEND LANE CLOSURE USING TC-419
FOR CONSTRUCTION OF OUTSIDE
SHOULDER STRENGTHENING

END
ROAD WORK

G20-2A
48" x 24"

MELROSE AVE. / F46

1577+00 1578+00 1579+00 1580+00 1581+00 1582+00 1583+00 1584+00 1585+00 1586+00 1587+00 1588+00 1589+00 1590+00 1591+00 1592+00

5 DEVICES - 100 FT.

65 FT. DRUM SPA. - 200 FT.

218

65 FT. DRUM SPA. - 200 FT.

5 DEVICES - 100 FT.

EXTEND LANE CLOSURE USING TC-419
FOR CONSTRUCTION OF OUTSIDE
SHOULDER STRENGTHENING

MELROSE AVE. / F46

0 50
FEET

STAGE 2

40 FT. DRUM SPA.

1592+00 1593+00 1594+00 1595+00 1596+00 1597+00 1598+00 1599+00 1600+00 1601+00 1602+00 1603+00 1604+00 1605+00 1606+00

65 FT. DRUM SPA. - 200 FT.

100 FT. CHANNELIZER SPA.

218

40 FT. CHANNELIZER SPA.

END
ROAD WORK

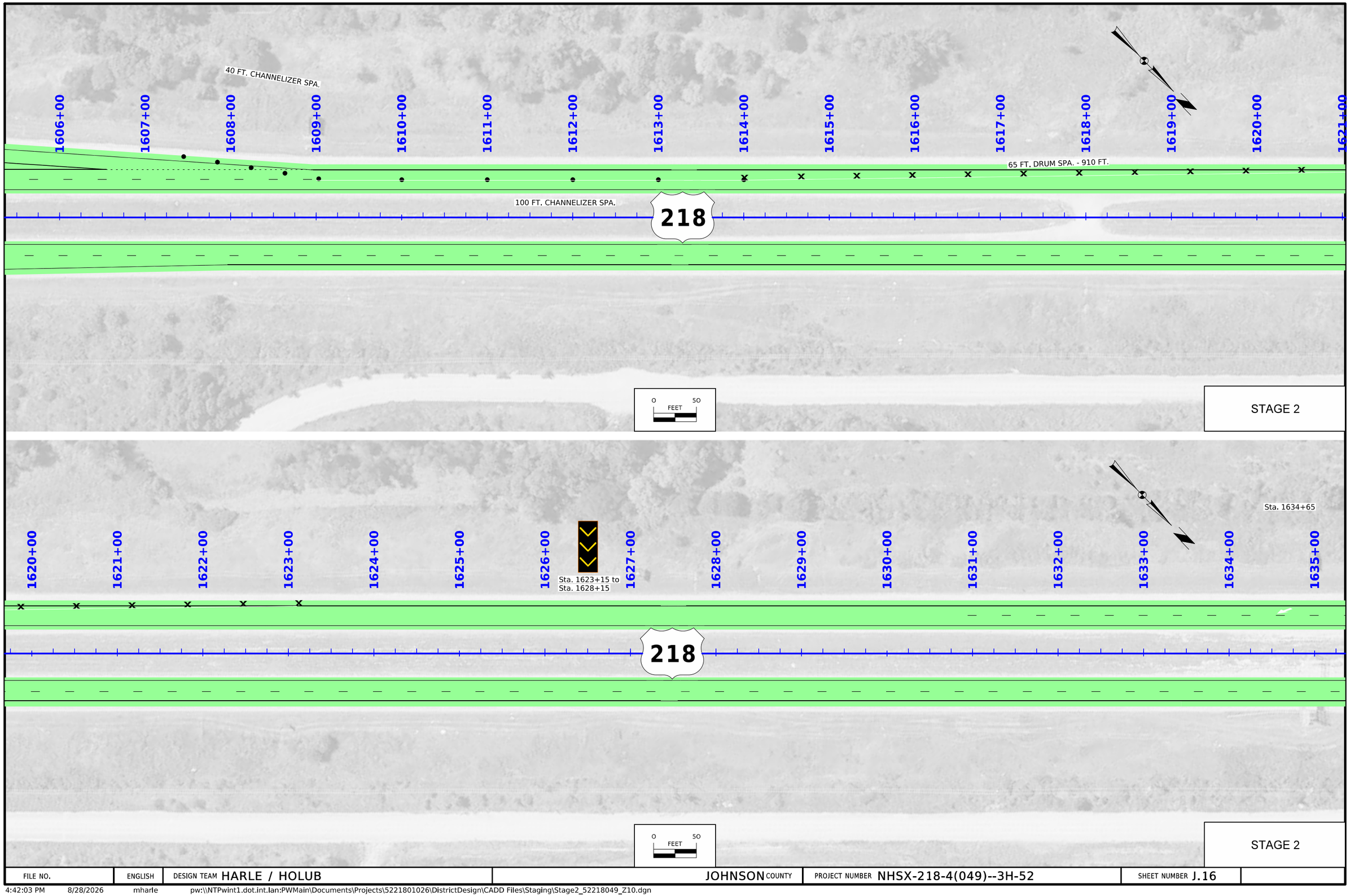
G20-2A
48" x 24"

0 50
FEET

STAGE 2

FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER J.15

4:41:50 PM 8/28/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Staging\Stage2_52218049_Z10.dgn



FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER J.16	

4:42:03 PM 8/28/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Staging\Stage2_52218049_Z10.dgn

Sta. 1634+65

Sta. 1635+65

MERGE

W4-2M
48" x 48"
Sta. 1640+65

1635+00 1636+00 1637+00 1638+00 1639+00 1640+00 1641+00 1642+00 1643+00 1644+00 1645+00 1646+00 1647+00 1648+00 1649+00

218

W4-2
48" x 48"
Sta. 1640+65

0 50
FEET

STAGE 2

EQUATION:
STA 1661+91.90(AH) =
STA 1661+95.63(BK)

1649+00 1650+00 1651+00 1652+00 1653+00 1654+00 1655+00 1656+00 1657+00 1658+00 1659+00 1660+00 1661+00 1662+00 1663+00

RIGHT LANE CLOSED AHEAD

W20-5
48" x 48"
Sta. 1650+65u

ROAD WORK AHEAD

W20-1
48" x 48"
Sta. 1675+65

218

RIGHT LANE CLOSED AHEAD

W20-5
48" x 48"
Sta. 1650+65

ROAD WORK AHEAD

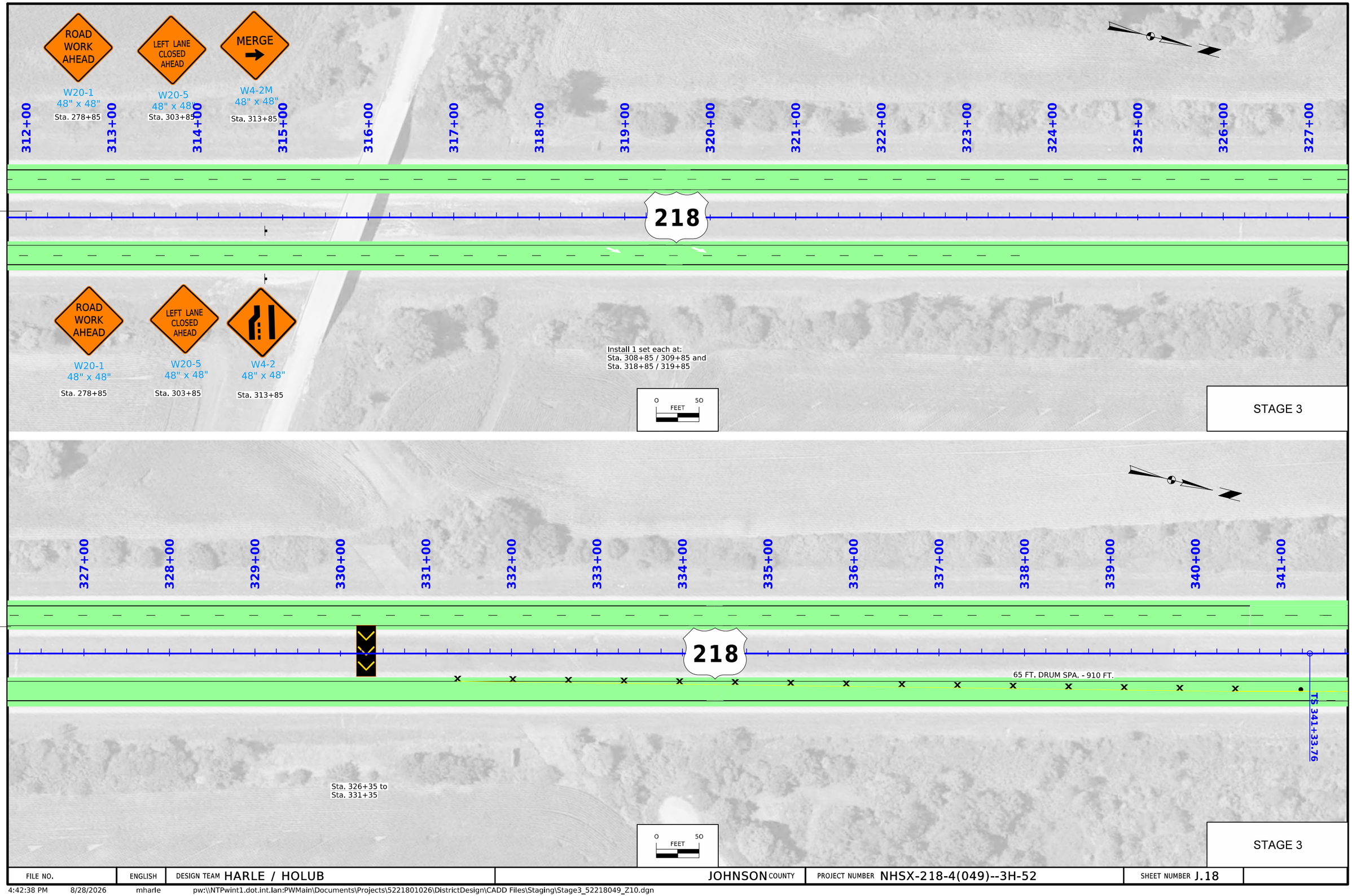
W20-1
48" x 48"
Sta. 1675+65

0 50
FEET

STAGE 2

FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER J.17	

4:42:19 PM 8/28/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Staging\Stage2_52218049_Z10.dgn



FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER J.18	

4:42:38 PM 8/28/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Staging\Stage3_52218049_Z10.dgn

341+00 342+00 343+00 344+00 345+00 346+00 347+00 348+00 349+00 350+00 351+00 352+00 353+00 354+00 355+00 356+00

PI 347+27.03

218

100 FT. CHANNELIZER SPA.

TS 341+33.76

SC 343+33.76

CS 351+17.54

ST 353+17.54

SPIRAL DATA
SCS PI STA 342+67.10
Δ = 14°45'24.00" (RT)
Θ = 01°30'00.00"
Ls = 200.00'
Ts = 200.00'
Es = 32.33'
P = 0.44
K = 100.00
Xc = 199.99'
Yc = 1.75'
LT = 133.34'
ST = 66.67'
LC = 199.99'

Δ = 11°45'24.00" (RT)
T = 393.27'
L = 783.78'
R = 3819.72'
E = 20.19'
e = ___
L = ___
x = ___

0 50 FEET

STAGE 3

355+00 356+00 357+00 358+00 359+00 360+00 361+00 362+00 363+00 364+00 365+00 366+00 367+00 368+00 369+00 370+00

TS 368+11.86

SC 370+11.86

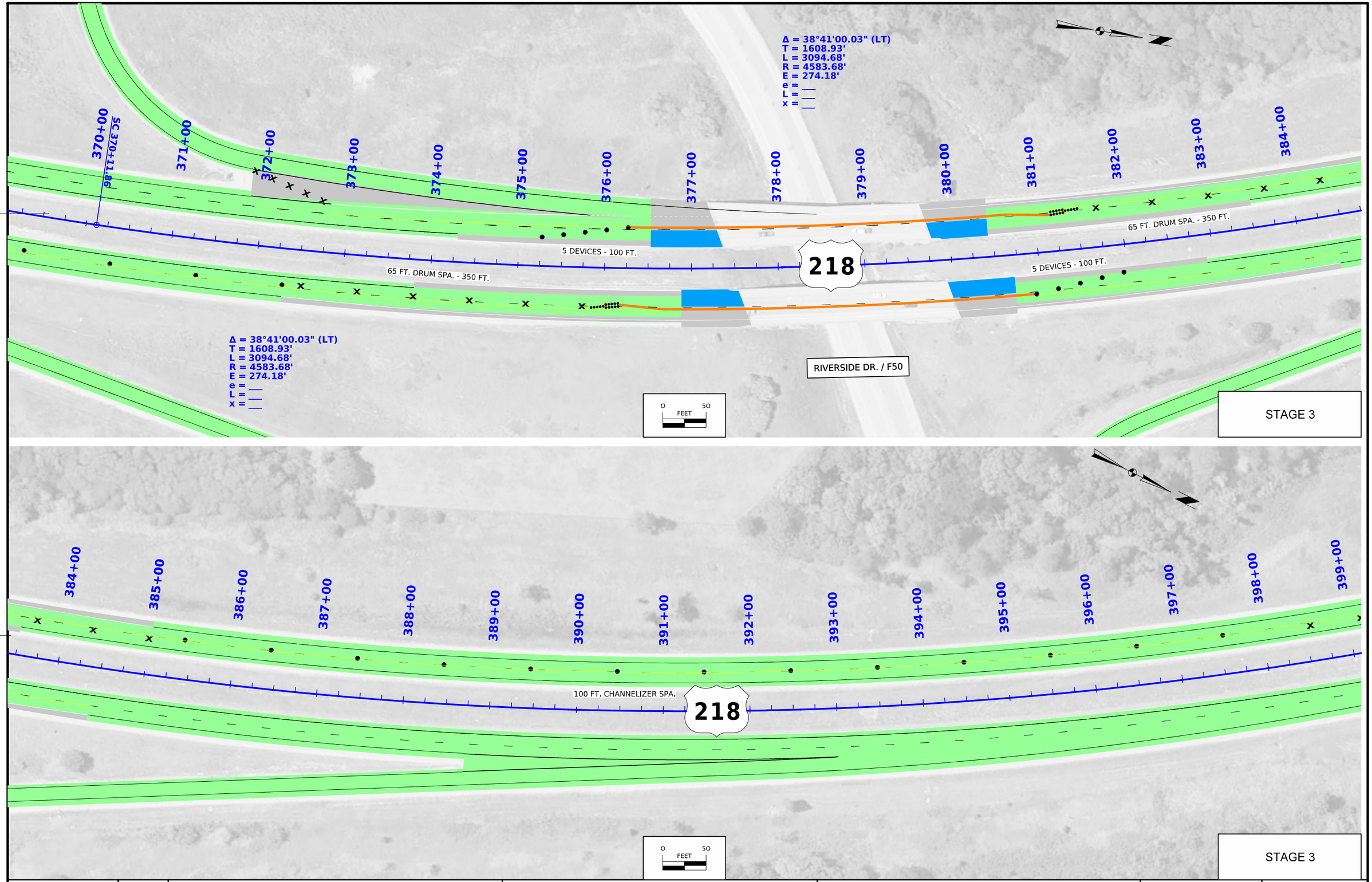
218

0 50 FEET

STAGE 3

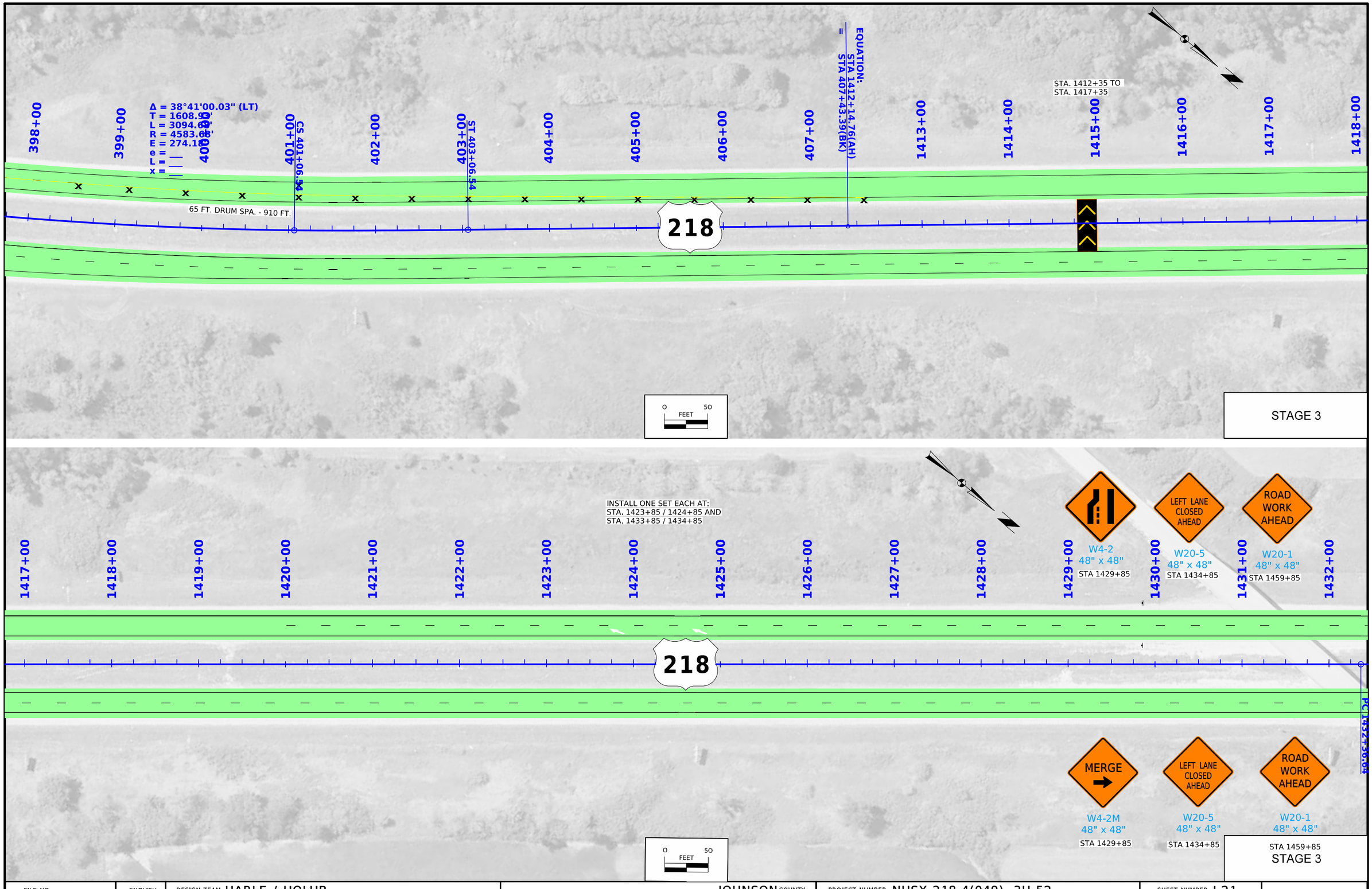
FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER J.19

4:42:48 PM 8/28/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Staging\Stage3_52218049_Z10.dgn



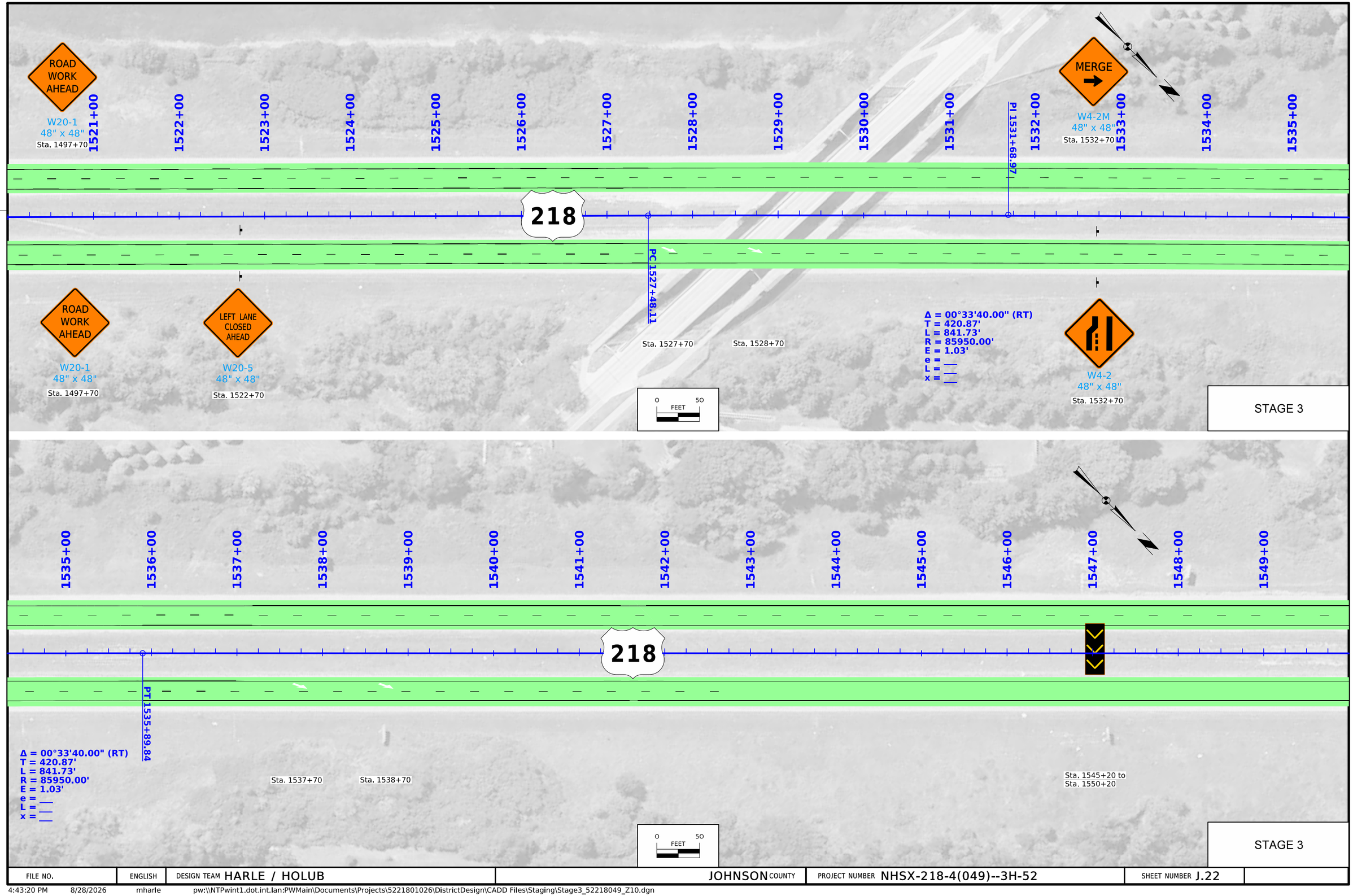
FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER J.20	

4:42:58 PM 8/28/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Staging\Stage3_52218049_Z10.dgn



FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER J.21	

4:43:09 PM 8/28/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Staging\Stage3_52218049_Z10.dgn



FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER J.22	

4:43:20 PM 8/28/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Staging\Stage3_52218049_Z10.dgn

1549+00 1550+00 1551+00 1552+00 1553+00 1554+00 1555+00 1556+00 1557+00 1558+00 1559+00 1560+00 1561+00 1562+00 1563+00 1564+00

218

65 FT. DRUM SPA. - 910 FT.

0 50 FEET

STAGE 3

EQUATION:
STA 1570+36.38(AH) =
STA 1570+37.38(BK)

1563+00 1564+00 1565+00 1566+00 1567+00 1568+00 1569+00 1570+00 1571+00 1572+00 1573+00 1574+00 1575+00 1576+00 1577+00 1578+00

218

100 FT. CHANNELIZER SPA.

0 50 FEET

STAGE 3

FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER J.23	

4:43:30 PM 8/28/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Staging\Stage3_52218049_Z10.dgn

END
ROAD WORK

G20-2A
48" x 24"

MELROSE AVE. / F46

1578+00 1579+00 1580+00 1581+00 1582+00 1583+00 1584+00 1585+00 1586+00 1587+00 1588+00 1589+00 1590+00 1591+00 1592+00

5 DEVICES - 100 FT.

65 FT. DRUM SPA. - 350 FT.

218

65 FT. DRUM SPA. - 350 FT.

5 DEVICES - 100 FT.

MELROSE AVE. / F46

0 50
FEET

STAGE 3

1592+00 1593+00 1594+00 1595+00 1596+00 1597+00 1598+00 1599+00 1600+00 1601+00 1602+00 1603+00 1604+00 1605+00 1606+00 1607+00

65 FT. DRUM SPA. - 350 FT.

218

END
ROAD WORK

G20-2A
48" x 24"

0 50
FEET

STAGE 3

FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER J.24

4:43:41 PM 8/28/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Staging\Stage3_52218049_Z10.dgn

1606+00 1607+00 1608+00 1609+00 1610+00 1611+00 1612+00 1613+00 1614+00 1615+00 1616+00 1617+00 1618+00 1619+00 1620+00 1621+00

100 FT. CHANNELIZER SPA.

65 FT. DRUM SPA. - 910 FT.

218

0 50 FEET

STAGE 3

1621+00 1622+00 1623+00 1624+00 1625+00 1626+00 1627+00 1628+00 1629+00 1630+00 1631+00 1632+00 1633+00 1634+00 1635+00

Sta. 1634+65 Sta. 1635+65

218

0 50 FEET

STAGE 3

FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER J.25	

4:43:52 PM 8/28/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Staging\Stage3_52218049_Z10.dgn

Sta. 1634+65 Sta. 1635+65

1635+00 1636+00 1637+00 1638+00 1639+00 1640+00 1641+00 1642+00 1643+00 1644+00 1645+00 1646+00 1647+00 1648+00 1649+00 1650+00

W4-2
48" x 48"
Sta. 1640+65

Sta. 1644+65 Sta. 1645+65

218

MERGE

W4-2M
48" x 48"
Sta. 1640+65

0 50 FEET

STAGE 3

LEFT LANE CLOSED AHEAD

W20-5
48" x 48"
Sta. 1650+65

ROAD WORK AHEAD

W20-1
48" x 48"
Sta. 1675+65

1649+00 1650+00 1651+00 1652+00 1653+00 1654+00 1655+00 1656+00 1657+00 1658+00 1659+00 1660+00 1661+00 1662+00 1663+00 1664+00

EQUATION:
STA 1661+91.90(AH)
=
STA 1661+95.63(BK)

218

LEFT LANE CLOSED AHEAD

W20-5
48" x 48"
Sta. 1650+65

ROAD WORK AHEAD

W20-1
48" x 48"
Sta. 1675+65

0 50 FEET

STAGE 3

FILE NO.	ENGLISH	DESIGN TEAM HARLE / HOLUB	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER J.26	

4:44:03 PM 8/28/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Staging\Stage3_52218049_Z10.dgn

FOR USE DURING CLOSURE OF THE US 218 EXIT RAMPS AT IA 1

A — ROAD WORK AHEAD — W20-1, 48" x 48"

B — EXIT CLOSED — E5-2a, 48" x 36"

C — DETOUR M4-8 24" x 12" / 1 / M1-5 21" x 15" / M6-3 21" x 15"

D — DETOUR M4-8 24" x 12" / 1 / M1-5 21" x 15" / M5-2R 21" x 15"

E — DETOUR M4-8 24" x 12" / 1 / M1-5 21" x 15" / M6-2R 21" x 15"

F — DETOUR M4-8 24" x 12" / 1 / M1-5 21" x 15" / M6-1 21" x 15"

G — END DETOUR, M4-8a 24" x 18"

H — ROAD CLOSED, R11-2, 48" x 30"

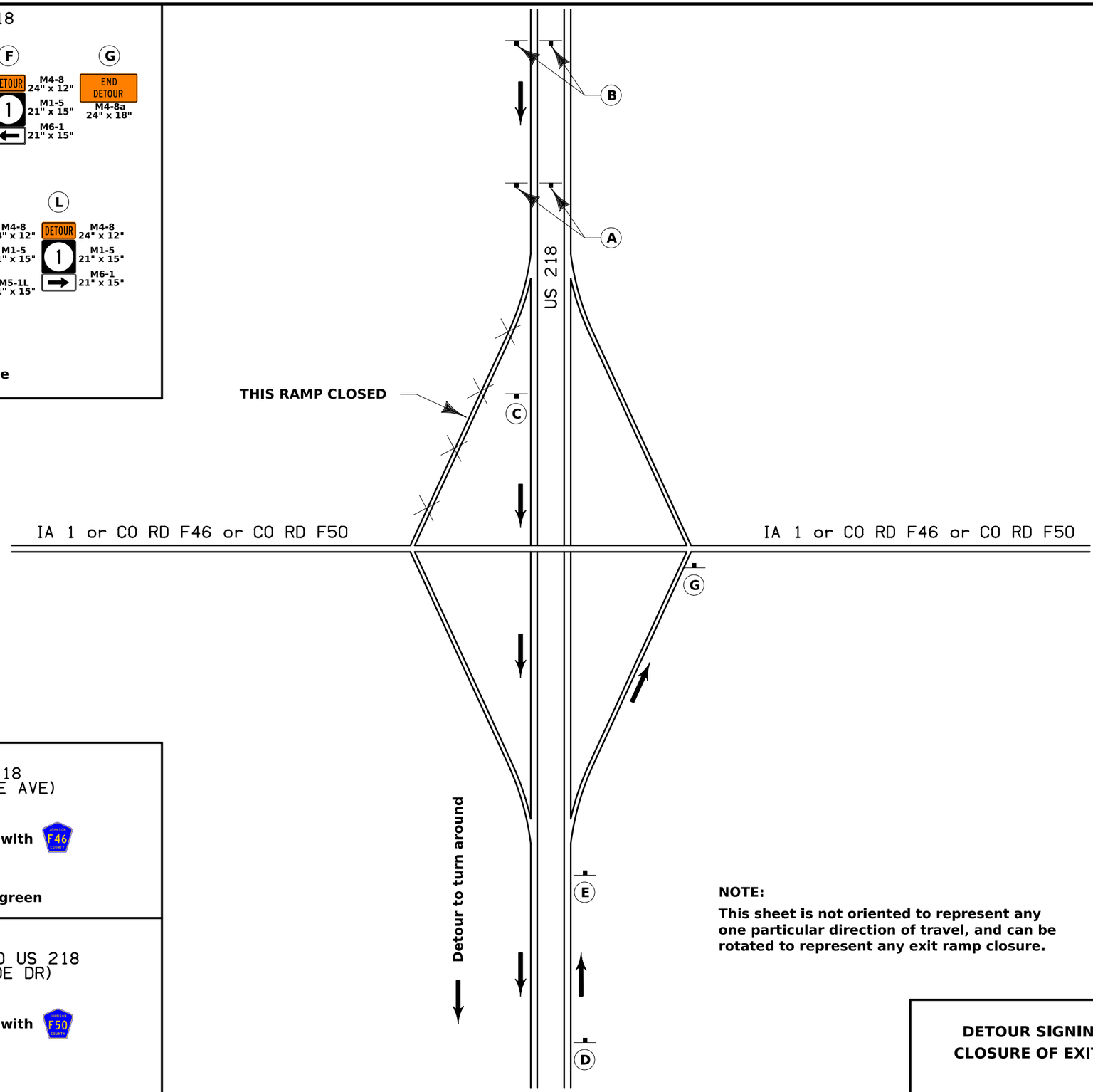
I — W20-1 48" x 48" ROAD WORK AHEAD / ON RAMP, W13-4 36" x 36" OR RAMP WORK AHEAD, W20-1A 48" x 48"

J — DETOUR M4-8 24" x 12" / 1 / M1-5 21" x 15" / M5-1R 21" x 15"

K — DETOUR M4-8 24" x 12" / 1 / M1-5 21" x 15" / M5-1L 21" x 15"

L — DETOUR M4-8 24" x 12" / 1 / M1-5 21" x 15" / M6-1 21" x 15"

The southbound turn around is Exit 85 Hills
The northbound turn around is Exit 93 Melrose



FOR USE DURING CLOSURE OF THE US 218 EXIT RAMPS AT COUNTY ROAD F46 (MELROSE AVE)

Use the signs in the legend above but replace 1 with F46

The southbound turn around is Exit 91 Iowa 1
The northbound turn around is Exit 2 Forevergreen

FOR USE DURING CLOSURE OF THE NORTHBOUND US 218 EXIT RAMP AT COUNTY ROAD F50 (RIVERSIDE DR)

Use the signs in the legend above but replace 1 with F50

The northbound turn around is Exit 91 Iowa 1

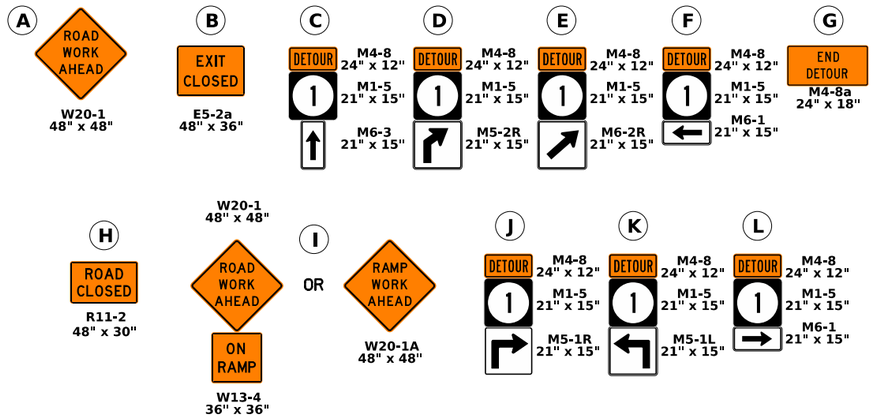
NOTE:
This sheet is not oriented to represent any one particular direction of travel, and can be rotated to represent any exit ramp closure.

DETOUR SIGNING FOR CLOSURE OF EXIT RAMP

FILE NO.	ENGLISH	DESIGN TEAM **HARLE / HOLUB**	**JOHNSON** COUNTY	PROJECT NUMBER **NHSX-218-4(049)--3H-52**	SHEET NUMBER **J.27**

4:44:57 PM 8/28/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Detour\52218049j01.dgn

FOR USE DURING CLOSURE OF THE US 218 ENTRANCE RAMPS AT IA 1



The southbound turn around is Exit 93 Melrose
The northbound turn around is Exit 85 Hills

FOR USE DURING CLOSURE OF THE US 218 ENTRANCE RAMPS AT COUNTY ROAD F46 (MELROSE AVE)

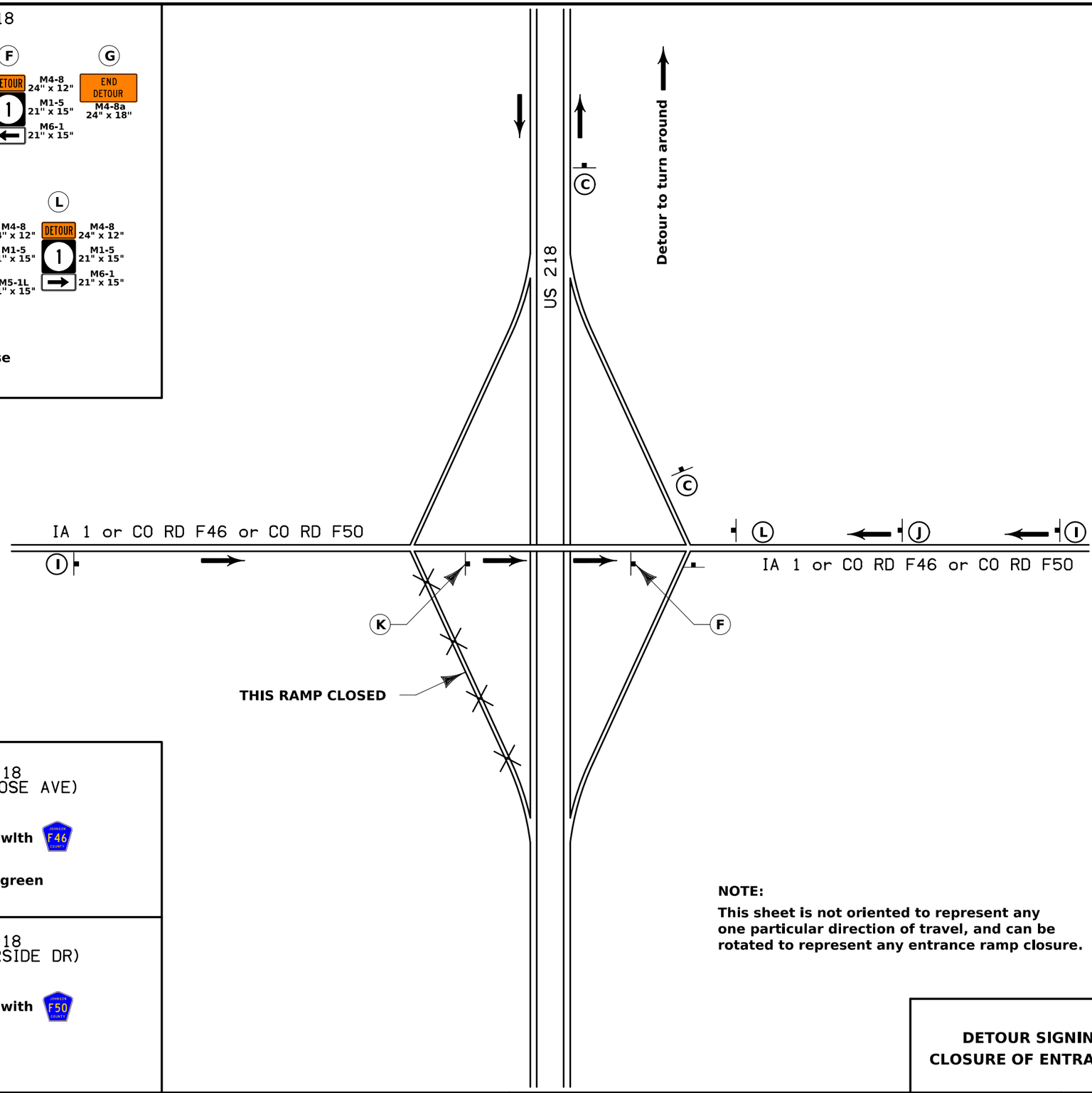
Use the signs in the legend above but replace 1 **with** F46

The southbound turn around is Exit 2 Forevergreen
The northbound turn around is Exit 91 Iowa 1

FOR USE DURING CLOSURE OF THE US 218 ENTRANCE RAMPS AT COUNTY ROAD F50 (RIVERSIDE DR)

Use the signs in the legend above but replace 1 **with** F50

The southbound turn around is Exit 91 Iowa 1
The northbound turn around is Exit 85 Hills



NOTE:

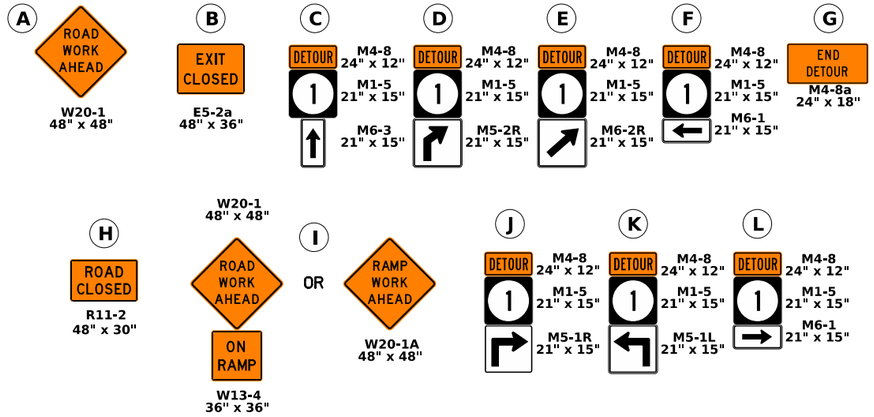
This sheet is not oriented to represent any one particular direction of travel, and can be rotated to represent any entrance ramp closure.

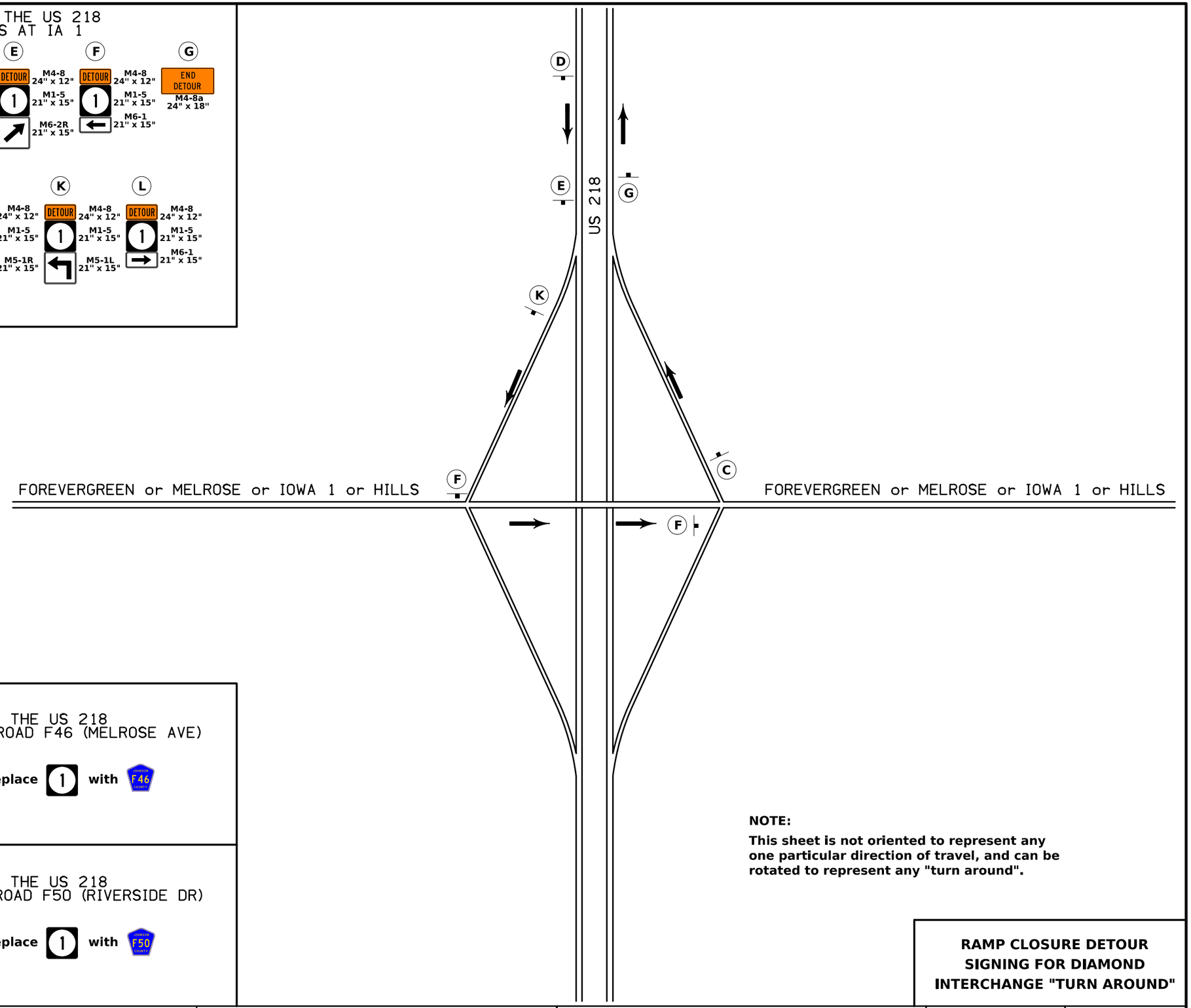
DETOUR SIGNING FOR CLOSURE OF ENTRANCE RAMP

FILE NO.	ENGLISH	DESIGN TEAM **HARLE / HOLUB**	**JOHNSON** COUNTY	PROJECT NUMBER **NHSX-218-4(049)--3H-52**	SHEET NUMBER **J.28**

4:44:58 PM 8/28/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Detour\52218049j01.dgn

FOR USE DURING CLOSURE OF THE US 218 EXIT AND ENTRANCE RAMPS AT IA 1





FOR USE DURING CLOSURE OF THE US 218 EXIT AND ENTRANCE RAMPS AT COUNTY ROAD F46 (MELROSE AVE)

Use the signs in the legend above but replace 1 **with** F46

FOR USE DURING CLOSURE OF THE US 218 EXIT AND ENTRANCE RAMPS AT COUNTY ROAD F50 (RIVERSIDE DR)

Use the signs in the legend above but replace 1 **with** F50

NOTE:

This sheet is not oriented to represent any one particular direction of travel, and can be rotated to represent any "turn around".

RAMP CLOSURE DETOUR SIGNING FOR DIAMOND INTERCHANGE "TURN AROUND"

FILE NO.	ENGLISH	DESIGN TEAM **HARLE / HOLUB**	**JOHNSON** COUNTY	PROJECT NUMBER **NHSX-218-4(049)--3H-52**	SHEET NUMBER **J.29**

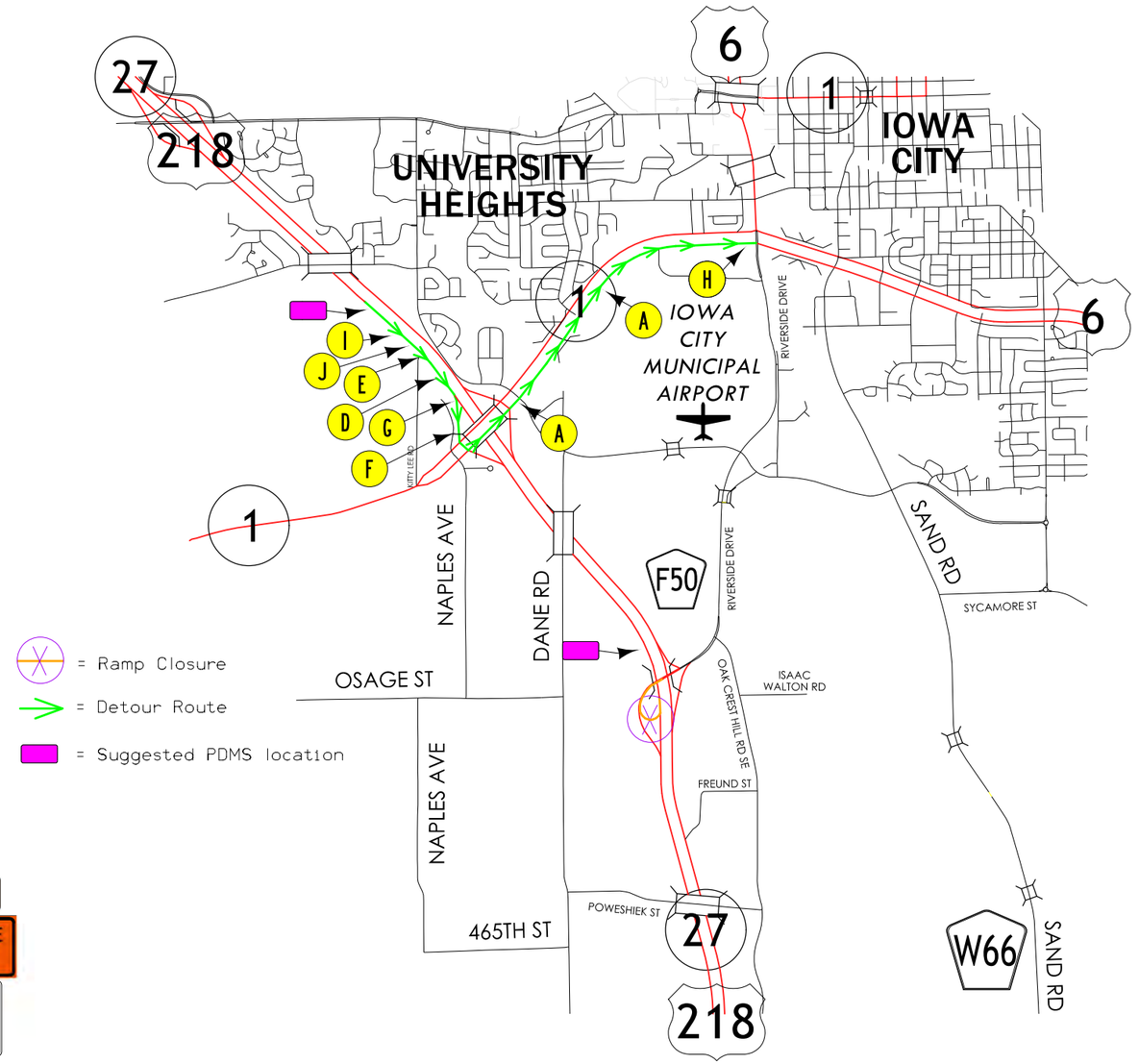
4:44:58 PM 8/28/2026 mharle pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Detour\52218049j01.dgn

IOWA DOT
ROAD DETOUR

US 218 Detour Route
NHSX-218-4(049)--3H-52
Iowa City, IA
Johnson County

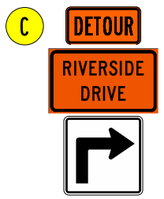
Southbound US 218 Exit Ramp to Riverside Drive Closed

TABULATION OF DETOUR SIGNS				TABULATION OF DETOUR SIGNS			
SIGN TYPE	MUTCD #	STOCK #	SIZE	SIGN TYPE	MUTCD #	STOCK #	SIZE
EAST	M3-2C	N/A	30X18		M6-1	N/A	30X18
WEST	M3-4	N/A	30X18		M5-1	N/A	30X21
END	M4-8B	N/A	30X18		M5-1B	N/A	30X21
DETOUR	M4-8	N/A	30X18		M6-2	N/A	30X21
30	M1-4B	N/A	36X36		M5-2	N/A	30X21
TO	N/A	N/A	24X12	DETOUR AHEAD	W20-2	N/A	48X48



A


B

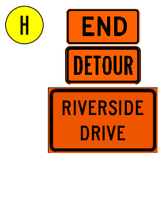

C


D


E


F


G


H


I

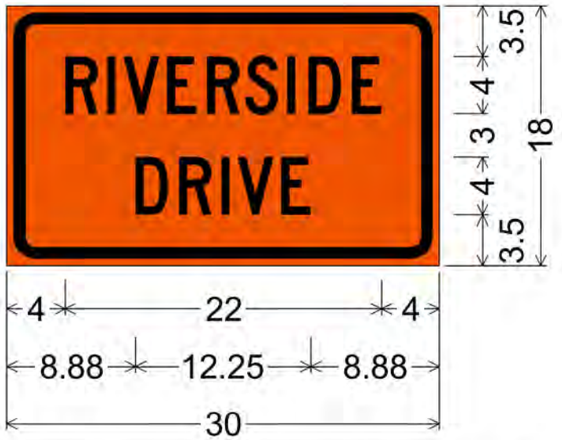

J


* NOTE 1: The contractor is responsible for installing, maintaining, and removing all detour signing.

* NOTE 2: The quantity of detour signs and the locations provided are for guidance. If field conditions (i.e. grade, existing signs, etc.) require a modification, additional signs, or safety concerns arise, please contact the project inspector and the appropriate accommodations will be made.

* NOTE 3: PDMS's placed 3 calendar days prior to ramp closure per Standard Road Plan TC-417.

* NOTE 4: Fabrication details are included in additional plan sheets for specific sign messaging.

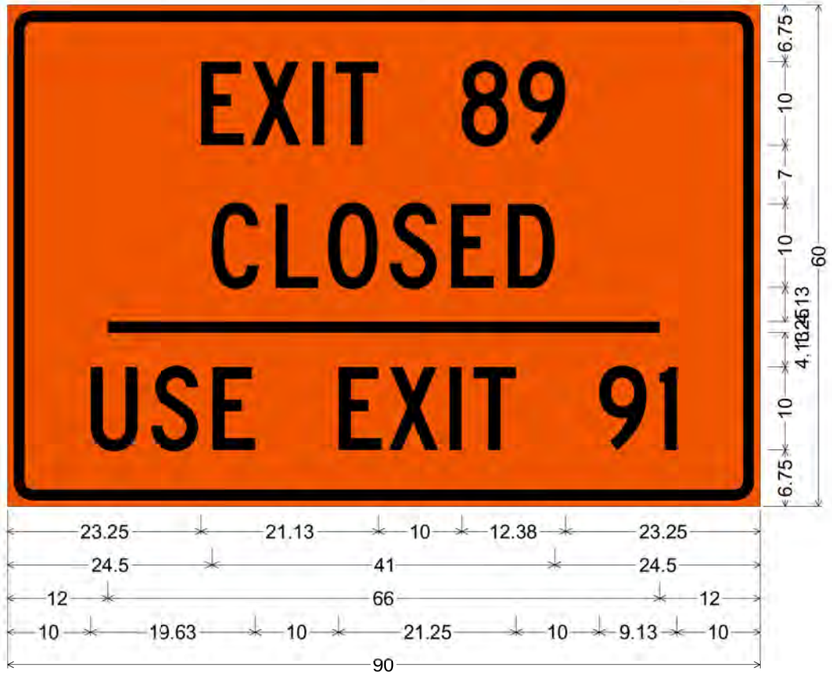


2.00" Radius, 0.75" Border, 0.50" Indent, Black on Orange;
"RIVERSIDE", C 2K;
"DRIVE", C 2K;
Table of widths and spaces

4.00	R 2.25	0.75	I 0.50	0.50	V 2.50	0.63	E 2.00	0.75	R 2.13	0.50	S 2.25	0.75	I 0.50	0.88	D 2.25	0.75	E 2.13	4.00

8.88	D 2.25	0.88	R 2.25	0.63	I 0.50	0.63	V 2.50	0.50	E 2.00	9.00

Southbound US 218/IA 27 sign



3.00" Radius, 1.25" Border, 0.75" Indent, Black on Orange;
"EXIT 89", C 2K; "CLOSED", C 2K; "USE EXIT 91", C 2K;
Table of widths and spaces

23.25	E 5.00	1.00	X 5.88	1.38	I 1.38	1.38	T 5.13	10.00	8 5.63	1.13	9 5.63	23.25

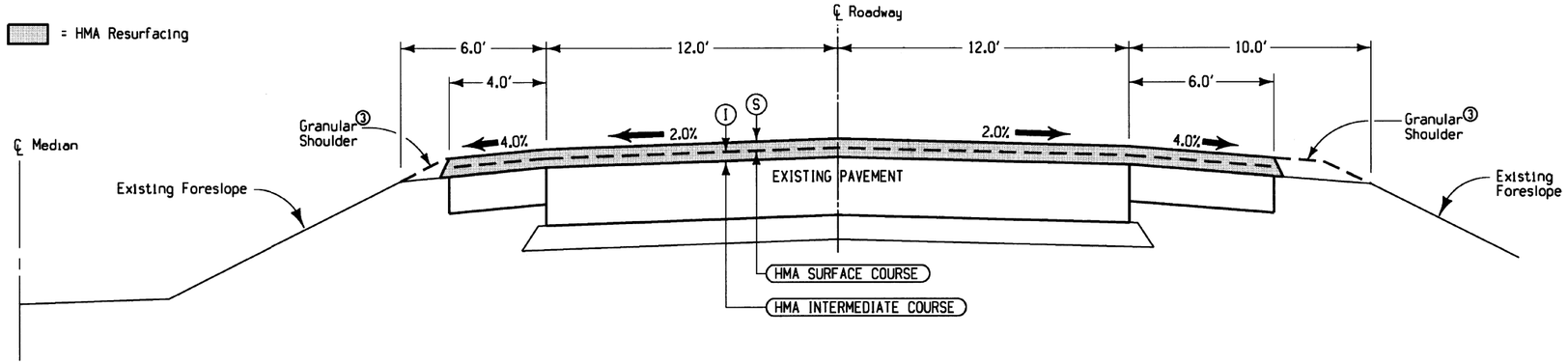
24.50	C 5.63	2.00	L 5.13	1.13	O 5.88	1.50	S 5.63	1.75	E 5.00	1.75	D 5.63	24.50

12.00	66.00	12.00

10.00	U 5.50	1.75	S 5.63	1.63	E 5.13	10.00	E 5.13	0.88	X 5.88	1.38	I 1.50	1.38	T 5.00

10.00	9 5.63	1.50	I 2.13	10.00

ML-1



Notes:

① Normal section shown. May be appropriately modified for areas specifically designated by the engineer such as intersections or superelevated curves.

② Tack Coat estimated for 2 applications. Not a bid item.

③ Refer to Typ. 7135.

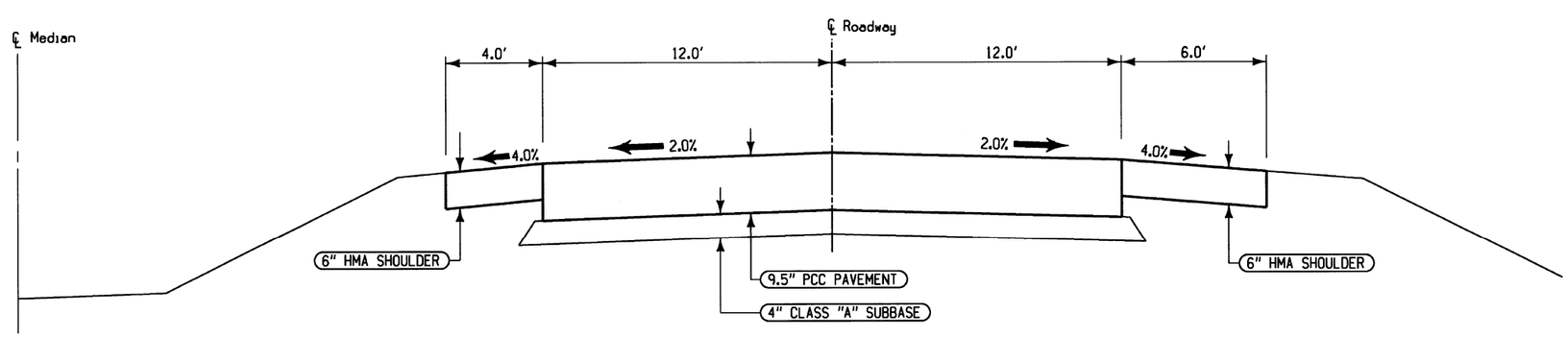
DESIGN RATES	
ITEM	RATE
Surface Course	155 lbs./cu. ft.
Intermediate Course	150 lbs./cu. ft.
Tack Coat	0.05 gal./sq. yd.

TABLE OF DESIGN QUANTITIES Per Station

LOCATION			Ⓢ	①	TACK COAT	ASPHALT BINDER	HOT MIX ASPHALT (Tons)	
ROAD ID	STATION TO STATION		Inches	Inches	Gallons ②	Tons	SURFACE	INTERMEDIATE
US 218 NBL	338+80	407+42.89 (Bk)	1.5	1.5	37.78	3.89	32.94	31.88
US 218 NBL	1412+14.76 (Ah)	1728+54.90 (Bk)	1.5	1.5	37.78	3.89	32.94	31.88
US 218 NBL	1127+44.85 (Ah)	1157+50	1.5	1.5	37.78	3.89	32.94	31.88
US 218 SBL	338+80	407+42.89 (Bk)	1.5	1.5	37.78	3.89	32.94	31.88
US 218 SBL	1412+14.76 (Ah)	1728+54.90 (Bk)	1.5	1.5	37.78	3.89	32.94	31.88
US 218 SBL	1127+44.85 (Ah)	1157+50	1.5	1.5	37.78	3.89	32.94	31.88

PROPOSED CROSS SECTION
HMA RESURFACING

EXIST-1



EXISTING CROSS SECTION
M.P. 89.05 TO M.P. 97.00

FOR REFERENCE ONLY
NOT FOR CONSTRUCTION

ENGLISH	IOWA DOT	DESIGN TEAM Abulssa/Storey/Holub	Johnson COUNTY	PROJECT NUMBER NHSX-218-4(35)--3H-52 ?	SHEET NUMBER B.1	2 / 26

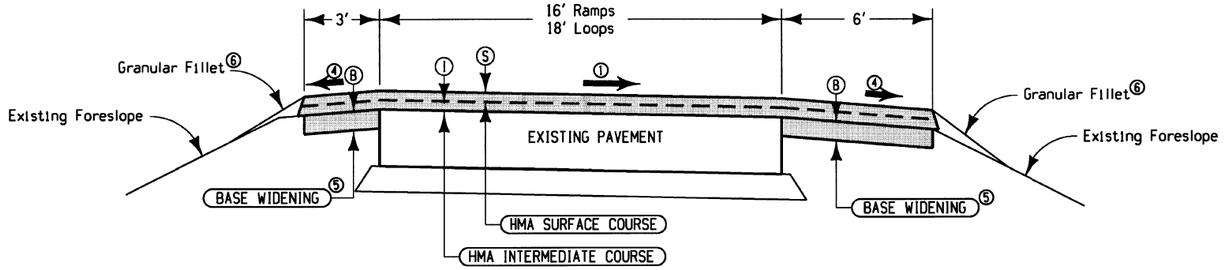
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FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER U.1	

6:47:37 AM 3/5/2026 rholub pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_U_52218049.dgn

RAMP-1

= HMA Resurfacing



Notes:

① Finished slope shall match existing pavement. Section may be modified as directed by the Engineer through areas of special shaping.

② Tack Coat estimated for 2 applications. Not a bid item.

③ 95% minimum density for intermediate and surface course.

④ Refer to Typ. 2019.

⑤ Refer to Typ. 7151-A.

⑥ Place a 3' wide granular fillet along outside edge of paved shoulder. Refer tp Typ. 7151.

DESIGN RATES	
ITEM	RATE
Surface Course	155 lbs./cu. ft.
Intermediate Course	150 lbs./cu. ft.
Base Widening	150 lbs./cu. ft.
Tack Coat	0.05 gal./sq. yd.

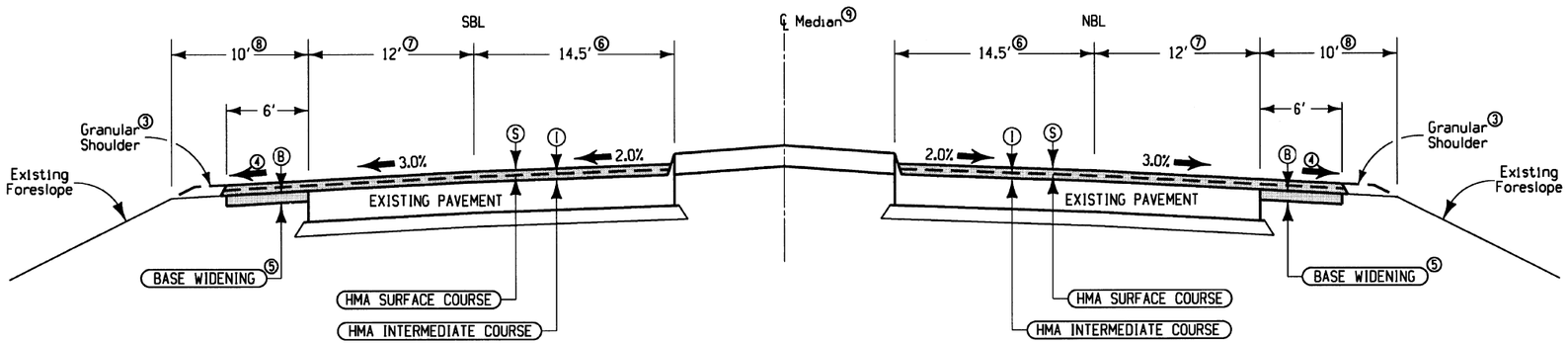
TABLE OF DESIGN QUANTITIES Per Station

LOCATION			Ⓢ	Ⓘ	TACK COAT	ASPHALT BINDER	HOT MIX ASPHALT (Tons)	
ROAD ID	STATION TO STATION		Inches	Inches	Gallons ②	Tons	SURFACE	INTERMEDIATE
Riverside Dr. Loop A	1564+50 (℄)	1571+85.00	1.5	1.5	29.91	3.08	26.08	25.24
Riverside Dr. Ramp B	2564+85.00	2582+30 (℄)	1.5	1.5	27.79	2.86	24.22	23.44
Riverside Dr. Ramp C	3559+50.44	3573+41.64	1.5	1.5	27.79	2.86	24.22	23.44
Riverside Dr. Ramp D	4578+23.61	4588+50 (℄)	1.5	1.5	27.79	2.86	24.22	23.44
Iowa 1 Ramp A	1567+50 (℄)	1580+15.00	1.5	1.5	27.79	2.86	24.22	23.44
Iowa 1 Ramp B	2555+85.00	2569+20 (℄)	1.5	1.5	27.79	2.86	24.22	23.44
Iowa 1 Ramp C	3557+22 (℄)	3567+60 (℄)	1.5	1.5	27.79	2.86	24.22	23.44
Iowa 1 Ramp D	4568+70 (℄)	4579+28 (℄)	1.5	1.5	27.79	2.86	24.22	23.44
Melrose Ave. Ramp A	5591+00 (℄)	5602+40.00	1.5	1.5	27.79	2.86	24.22	23.44
Melrose Ave. Ramp B	6571+10.00	6582+50 (℄)	1.5	1.5	27.79	2.86	24.22	23.44
Melrose Ave. Ramp C	7577+22 (℄)	7591+60 (℄)	1.5	1.5	27.79	2.86	24.22	23.44
Melrose Ave. Ramp D	8581+80 (℄)	8596+28 (℄)	1.5	1.5	27.79	2.86	24.22	23.44
I-80 Ramp S-E	5142+42.68	5163+06.04	1.5	1.5	27.79	2.86	24.22	23.44
I-80 Ramp W-S	3148+23 (℄)	3174+14.58	1.5	1.5	27.79	2.86	24.22	23.44

TYPICAL CROSS SECTION HMA RESURFACING RAMPS AND LOOPS

RSD-1

= HMA Resurfacing



Notes:

① Normal section shown. May be appropriately modified for areas specifically designated by the engineer such as intersections or superelevated curves.

② Tack Coat estimated for 2 applications. Not a bid item.

③ Refer to Typ. 7135.

④ Refer to Typ. 2012 or 2019.

⑤ Refer to Typ. 7151-A.

⑥ 16.5' from Sta. 1360+75.96 to Sta. 1367+82.19 (SBL). 16.5' from Sta. 1361+71.28 to Sta. 1376+50.26 (NBL).

⑦ 0.0' from Sta. 1360+75.96 to Sta. 1367+82.19 (SBL). Transitions from 0' to 12' from Sta. 1367+82.19 to Sta. 1374+44.11 (SBL). 0.0' from Sta. 1360+75.96 to Sta. 1376+50.26 (NBL). Transitions from 0' to 12' from Sta. 1376+50.26 to Sta. 1380+83.16 (NBL).

⑧ 6.0' from Sta. 1360+75.96 to Sta. 1380+60.25 right side. 6.0' from Sta. 1360+75.96 to

⑨ Median ends at Sta. 1393+08

DESIGN RATES	
ITEM	RATE
Surface Course	155 lbs./cu. ft.
Intermediate Course	150 lbs./cu. ft.
Base Widening	150 lbs./cu. ft.
Tack Coat	0.05 gal./sq. yd.

TABLE OF DESIGN QUANTITIES Per Station

LOCATION			Ⓢ	Ⓘ	TACK COAT	ASPHALT BINDER	HOT MIX ASPHALT (Tons)	
ROAD ID	STATION TO STATION		Inches	Inches	Gallons ②	Tons	SURFACE	INTERMEDIATE
Riverside Drive	1360+75.96	1393+08.37	1.5	1.5	VARI	VARI	VARI	VARI
Riverside Drive	1393+08.37	1396+35.37	1.5	1.5	VARI	VARI	VARI	VARI

FOR REFERENCE ONLY
NOT FOR CONSTRUCTION

PROPOSED CROSS SECTION HMA RESURFACING

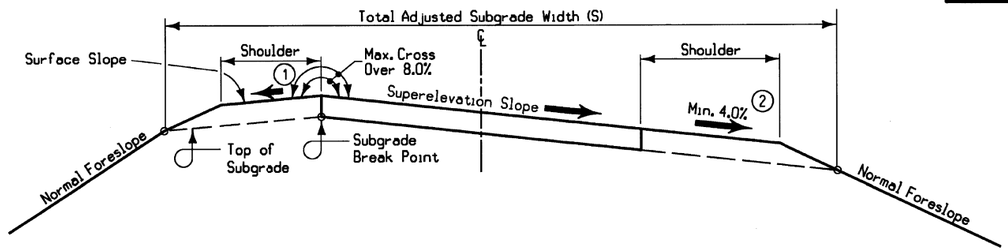
ENGLISH	IOWA DOT	DESIGN TEAM Abulssa/Storey/Holub	Johnson COUNTY	PROJECT NUMBER NHSX-218-4(35)--3H-52	SHEET NUMBER B.2	3 / 26

19-FEB-2009 09:14 rholub w:\Projects\5221801009\DistrictDesign\52218035b1.sht

FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER U.2

6:47:52 AM 3/5/2026 rholub pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_U_52218049.dgn

2012
MODIFIED



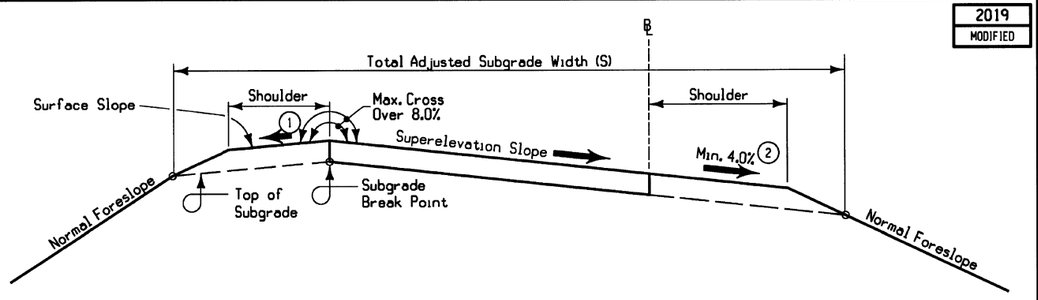
Notes:

(1) High Side: The shoulder slope shall be maintained at the normal rate of 4.0% unless this slope produces a grade break with adjacent pavement of more than 8.0%. The shoulder slope shall then be determined by a 8.0% break with adjacent pavement.

(2) Low Side: The shoulder slope shall be maintained at normal rate of 4.0% unless the adjacent pavement slope is steeper, in which case the shoulder will slope at the same slope as adjacent pavement.

TYPICAL CROSS SECTION SUPERELEVATION FOR MAINLINE ROADWAYS

2019
MODIFIED



Notes:

(1) High Side: The shoulder slope shall be maintained at the normal rate of 4.0% unless this slope produces a grade break with adjacent pavement of more than 8.0%. The shoulder slope shall then be determined by a 8.0% break with adjacent pavement.

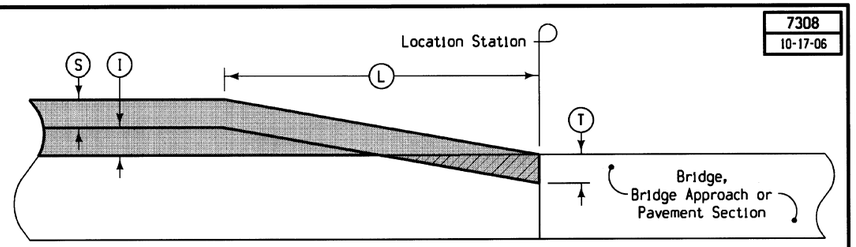
(2) Low Side: The shoulder slope shall be maintained at normal rate of 4.0% unless the adjacent pavement slope is steeper, in which case the shoulder will slope at the same slope as adjacent pavement.

TYPICAL CROSS SECTION SUPERELEVATION FOR RAMPS

7308
10-17-06

Posted Speed Limit (mph)	Runout Ratio (ft per inch)
45 or More	50
20 to 45	25
Under 20	10 *

* Based on turning maneuvers at side roads and intersections.

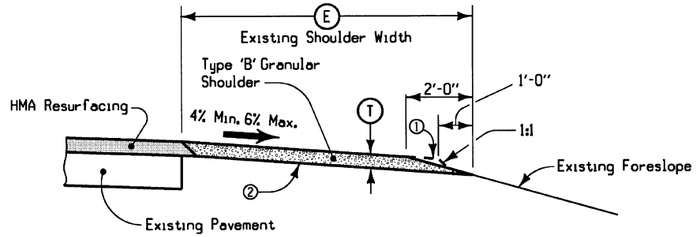


Location Station	(L) Feet	(S) Inches	(I) Inches	(T) Inches	Remarks
Northbound Mainline					
338+80	150	1.5	1.5	1.5	ML @ BOP
377+60 (±)	150	1.5	1.5	1.5	ML @ Riverside Dr.
379+99 (±)	150	1.5	1.5	1.5	ML @ Riverside Dr.
1584+59 (±)	150	1.5	1.5	1.5	ML @ Melrose Ave.
1587+81 (±)	150	1.5	1.5	1.5	ML @ Melrose Ave.
1157+50	150	1.5	1.5	1.5	ML near EOP
Southbound Mainline					
338+80	150	1.5	1.5	1.5	ML @ BOP
377+30 (±)	150	1.5	1.5	1.5	ML @ Riverside Dr.
379+73 (±)	150	1.5	1.5	1.5	ML @ Riverside Dr.
1585+57 (±)	150	1.5	1.5	1.5	ML @ Melrose Ave.
1588+69 (±)	150	1.5	1.5	1.5	ML @ Melrose Ave.
1157+50	150	1.5	1.5	1.5	ML near EOP
Ramps					
1567+50 (±)	150	1.5	1.5	1.5	Iowa 1 Ramp A
2569+20 (±)	150	1.5	1.5	1.5	Iowa 1 Ramp B
3567+60 (±)	150	1.5	1.5	1.5	Iowa 1 Ramp C
4568+70 (±)	150	1.5	1.5	1.5	Iowa 1 Ramp D
5591+00 (±)	150	1.5	1.5	1.5	Melrose Ave. Ramp A
6582+50 (±)	150	1.5	1.5	1.5	Melrose Ave. Ramp B
7591+60 (±)	150	1.5	1.5	1.5	Melrose Ave. Ramp C
8581+80 (±)	150	1.5	1.5	1.5	Melrose Ave. Ramp D
5163+06.04	150	1.5	1.5	1.5	I-80 Ramp S-E
3174+14.58	150	1.5	1.5	1.5	I-80 Ramp W-S
Riverside Drive					
1396+35.37	150	1.5	1.5	1.5	Riverside Dr. (48')
1388+00.17 Rt. 150'	150	1.5	1.5	1.5	Oak Crest Hill Rd.

(S) Surface Course
(I) Intermediate Course
(T) Milling

SURFACE NOTCH INTERMEDIATE RUNOUT FOR DOUBLE COURSE RESURFACING

7135
10-02-01



LOCATION				TONS	(T)	(E)
ROAD IDENTIFICATION	STATION TO STATION		SIDE	(3)	Inches	Feet
US 218 NBL	338+80	407+42.89 (Bk)	Out	9.4	3.0	5.0
US 218 NBL	1412+14.76 (Ah)	1728+54.90 (Bk)	Out	9.4	3.0	5.0
US 218 NBL	1127+44.85 (Ah)	1157+50	Out	9.4	3.0	5.0
US 218 NBL	338+80	407+42.89 (Bk)	Med	4.7	3.0	3.0
US 218 NBL	1412+14.76 (Ah)	1728+54.90 (Bk)	Med	4.7	3.0	3.0
US 218 NBL	1127+44.85 (Ah)	1157+50	Med	4.7	3.0	3.0
US 218 SBL	338+80	407+42.89 (Bk)	Out	9.4	3.0	5.0
US 218 SBL	1412+14.76 (Ah)	1728+54.90 (Bk)	Out	9.4	3.0	5.0
US 218 SBL	1127+44.85 (Ah)	1157+50	Out	9.4	3.0	5.0
US 218 SBL	338+80	407+42.89 (Bk)	Med	4.7	3.0	3.0
US 218 SBL	1412+14.76 (Ah)	1728+54.90 (Bk)	Med	4.7	3.0	3.0
US 218 SBL	1127+44.85 (Ah)	1157+50	Med	4.7	3.0	3.0
Riverside Drive	1380+60.25	1396+35.37	Rt	9.4	3.0	5.0
Riverside Drive	1377+74.11	1396+35.37	Lt	9.4	3.0	5.0

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.

TYPICAL SECTION FOR TYPE 'B' GRANULAR SHOULDER

ADJACENT TO HOT MIX ASPHALT RESURFACING

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NOT FOR CONSTRUCTION

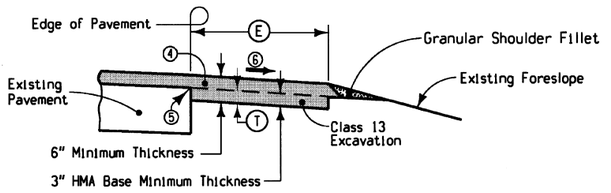
ENGLISH	IOWA DOT	DESIGN TEAM Abulssa/Storey/Holub	Johnson COUNTY	PROJECT NUMBER NHSX-218-4(35)--3H-52		SHEET NUMBER B.3	4 / 26

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FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER U.3

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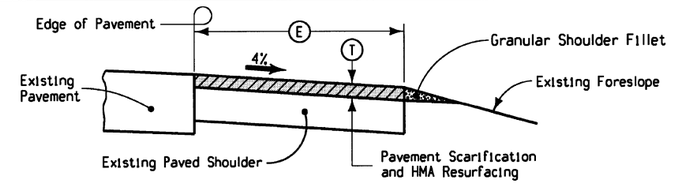


① Per side per station.
② Bid Items.
③ For HMA base only.
④ HMA and tack coat quantities above the HMA base are included with mainline quantities.
⑤ Provide a vertical edge. Incidental to Class 13 Excavation.
⑥ Refer to Typ. 2012 or 2019.
⑦ Refer to Typ. 7135 for Granular Shoulder.

TYPICAL SECTION RETROFIT PAVED SHOULDER

Location				Ⓔ	Ⓣ	Quantities ①②			
Road Identification	Station To Station		Side	Feet	Inches	Class 13 Excavation, Widening Cu. Yds.	HMA Base Widening Tons	Asphalt Binder ③ Tons	Granular Shoulder Tons
Riverside Dr. Loop A	1564+50 (℄)	1571+85.00	Rt	6.0	3.0	5.56	11.25	0.68	3.5
Riverside Dr. Loop A	1564+50 (℄)	1571+85.00	Lt	3.0	3.0	2.78	5.63	0.34	3.5
Riverside Dr. Ramp B	2564+85.00	2582+30 (℄)	Rt	6.0	3.0	5.56	11.25	0.68	3.5
Riverside Dr. Ramp B	2564+85.00	2582+30 (℄)	Lt	3.0	3.0	2.78	5.63	0.34	3.5
Riverside Dr. Ramp C	3559+50.44	3573+41.64	Rt	6.0	3.0	5.56	11.25	0.68	3.5
Riverside Dr. Ramp C	3559+50.44	3573+41.64	Lt	3.0	3.0	2.78	5.63	0.34	3.5
Riverside Dr. Ramp D	4578+23.61	4588+50 (℄)	Rt	6.0	3.0	5.56	11.25	0.68	3.5
Riverside Dr. Ramp D	4578+23.61	4588+50 (℄)	Lt	3.0	3.0	2.78	5.63	0.34	3.5
Iowa 1 Ramp A	1567+50 (℄)	1580+15.11	Rt	6.0	3.0	5.56	11.25	0.68	3.5
Iowa 1 Ramp A	1567+50 (℄)	1580+15.11	Lt	3.0	3.0	2.78	5.63	0.34	3.5
Iowa 1 Ramp B	2555+85.00	2569+20 (℄)	Rt	6.0	3.0	5.56	11.25	0.68	3.5
Iowa 1 Ramp B	2555+85.00	2569+20 (℄)	Lt	3.0	3.0	2.78	5.63	0.34	3.5
Iowa 1 Ramp C	3557+22 (℄)	3567+60 (℄)	Rt	6.0	3.0	5.56	11.25	0.68	3.5
Iowa 1 Ramp C	3557+22 (℄)	3567+60 (℄)	Lt	3.0	3.0	2.78	5.63	0.34	3.5
Iowa 1 Ramp D	4568+70 (℄)	4579+28 (℄)	Rt	6.0	3.0	5.56	11.25	0.68	3.5
Iowa 1 Ramp D	4568+70 (℄)	4579+28 (℄)	Lt	3.0	3.0	2.78	5.63	0.34	3.5
Melrose Ave. Ramp A	5591+00 (℄)	5602+40.00	Rt	6.0	3.0	5.56	11.25	0.68	3.5
Melrose Ave. Ramp A	5591+00 (℄)	5602+40.00	Lt	3.0	3.0	2.78	5.63	0.34	3.5
Melrose Ave. Ramp B	6571+10.00	6582+50 (℄)	Rt	6.0	3.0	5.56	11.25	0.68	3.5
Melrose Ave. Ramp B	6571+10.00	6582+50 (℄)	Lt	3.0	3.0	2.78	5.63	0.34	3.5
Melrose Ave. Ramp C	7577+22 (℄)	7591+60 (℄)	Rt	6.0	3.0	5.56	11.25	0.68	3.5
Melrose Ave. Ramp C	7577+22 (℄)	7591+60 (℄)	Lt	3.0	3.0	2.78	5.63	0.34	3.5
Melrose Ave. Ramp D	8581+80 (℄)	8596+28 (℄)	Rt	6.0	3.0	5.56	11.25	0.68	3.5
Melrose Ave. Ramp D	8581+80 (℄)	8596+28 (℄)	Lt	3.0	3.0	2.78	5.63	0.34	3.5
I-80 Ramp S-E	5142+42.68	5163+06.04	Lt	3.0	3.0	2.78	5.63	0.34	3.5
I-80 Ramp W-S	3148+23 (℄)	3174+14.58	Lt	3.0	3.0	2.78	5.63	0.34	3.5
Riverside Drive	1360+75.96	1393+08.37	Rt	6.0	3.0	5.56	11.25	0.68	3.5 ⑦
Riverside Drive	1360+75.96	1393+08.37	Lt	6.0	3.0	5.56	11.25	0.68	3.5 ⑦
Riverside Drive	1393+08.37	1396+35.37	Rt	6.0	3.0	5.56	11.25	0.68	⑦
Riverside Drive	1393+08.37	1396+35.37	Lt	6.0	3.0	5.56	11.25	0.68	⑦

7151-B
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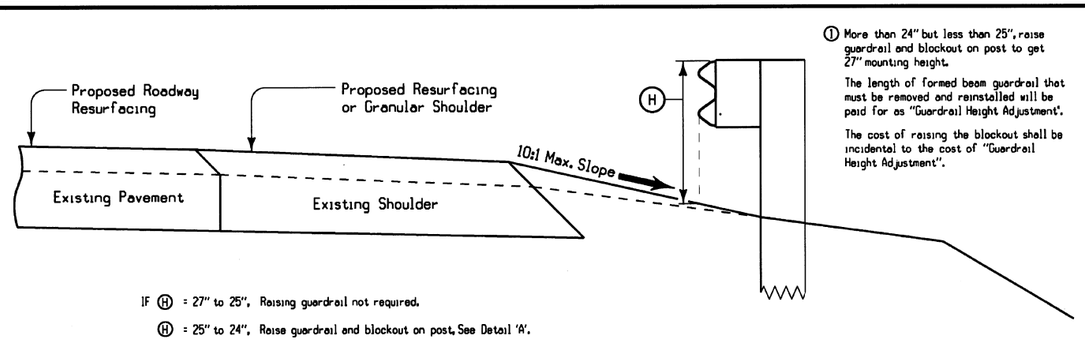


① Per station.
② Not a Bid Item.

DESIGN RATES	
ITEM	RATE
Base Course	150 lbs./cu. ft.
Tack Coat	0.05 gal./sq. yd.

TYPICAL SECTION PAVED SHOULDER RESURFACING WITH MILLING

Location			Ⓔ	Ⓣ	Quantities ①				
Station To Station		Side	Feet	Inches	Pavement Scarification SY	HMA Surface Mix Tons	Asphalt Binder Tons	Tack Coat ② Gallons	Granular Shoulder Tons
Southbound									
1157+50	1161+00 (℄)	Out	6.0	1.5	66.67	5.82	0.35	3.33	2.0
1157+50	1161+80 (℄)	Med	6.0	1.5	66.67	5.82	0.35	3.33	2.0

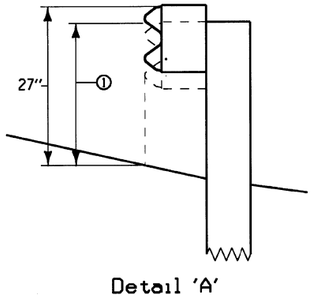


IF Ⓗ = 27" to 25", Raising guardrail not required.
Ⓗ = 25" to 24", Raise guardrail and blockout on post. See Detail 'A'.
Ⓗ = 24" or less, Post must be raised. See Detail 'B'.

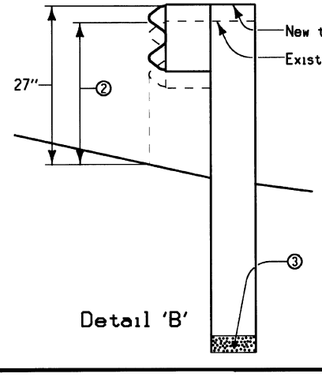
① More than 24" but less than 25", raise guardrail and blockout on post to get 27" mounting height.

The length of formed beam guardrail that must be removed and reinstalled will be paid for as "Guardrail Height Adjustment".

The cost of raising the blockout shall be incidental to the cost of "Guardrail Height Adjustment".



Detail 'A'



Detail 'B'

8206
10-29-02

② Less than 24" raise guardrail spacer block and post to get 27" mounting height.

The length of formed beam guardrail that must be removed and reinstalled, and the cost for raising guardrail posts as shown in Detail 'B' shall be paid for as "Guardrail Height Adjustment".

③ Remove post, fill hole with sand and drive post to grade or raise post by using approved pressure injected filler material.

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RAISING BEAM GUARDRAIL

ENGLISH	IOWA DOT	DESIGN TEAM Abulssa/Storey/Holub	Johnson COUNTY	PROJECT NUMBER NHSX-218-4(35)--3H-52 ?	SHEET NUMBER B.4	5 / 26

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FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER U.4

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WEST LUCAS TWP.
T79N R6W

SEC. 33 SEC. 28

~~For details of Ramp Taper Geometrics, Refer to Sheets No.~~
For details of Ramp Taper Geometrics, Refer to Sheet No. 32 thru 41

P.T. STA. 3573+41.64 =
16.50' Lt. P.C. STA. 1360+75.96 (Off. Reloc.)

Curve C-3

RAMP "C"

16.50'

16.50'

3.0' Back to Back

Curve 218-1

P.O.T. STA. 1369+31.10 (Off. Reloc.) =
P.O.C. STA. 378+62.35 (Off. Reloc.)

24.0'

64.0'

24.0'

P.C. STA. 3557+00.00 =
74.00' Lt. P.O.T. STA. 357+00.00 (Off. Reloc.)

16.0'

Curve C-2

Curve C-1

900' TAPER 50:1 RATIO

499.45'

35° 20' 39.7"

P.O.T. STA. 360+07.66 (Off. Reloc.)

P.O.T. STA. 360+59.14 (Off. Reloc.)

175.07

10° 35' 29.1"

660' TAPER 15:1 RATIO

X-AXIS OF COORDINATE SYSTEM

60° 00' 00.0"

P.O.T. STA. 1370+45.03 (Off. Reloc.) =
P.O.S.T. STA. 379+12.50 (Off. Reloc.)

ORIGIN OF COORDINATE SYSTEM
P.I. STA. 386+33.62 (Off. Reloc.) =
P.I. STA. 386+28.26 (Survey)

P.O.T. STA. 1374+44.11 (Off. Reloc.) Ahead =
2.50' Lt. P.O.T. STA. 1374+44.11 (Off. Reloc.) Back

49° 24' 29.9"

P.O.T. STA. 1374+95.78 (Off. Reloc.)

POINT "M" DETAIL SHEET 550-1
P.C. STA. 2564+85.00 =
100.00' Rt. P.O.T. STA. 364+85.00 (Off. Reloc.)

Curve B-1

16.0'

RAMP "B"

Curve B-2

CIRCULAR CURVE SYSTEM

PART 1 | 101-10 | 2-8-80

NO.	Δ	D	T	L	E	R	SUPERELEVATION e	s	m	x
B-1	6° 46' 39.4"	2° 00'	169.64	338.88	5.02	2864.79	.065	135	58.50	60
B-2	48° 15' 45.2"	7° 30'	342.23	643.50	73.15	763.94	.080	143	57.30	48
C-1	3° 45' 39.9"	2° 30'	75.25	150.44	1.24	2291.83	--	--	--	--
C-2	30° 26' 15.0"	5° 00'	311.74	608.75	41.65	1145.92	.080	162	64.80	54
C-3	41° 30' 15.1"	7° 20'	296.04	565.97	54.21	781.31	.080	143	57.30	48
218-1	53° 50' 24.6"	7° 30'	387.91	717.87	92.84	763.94	.080	143	57.30	48

NO	P.C. STATION	P.C. COORDINATES	P.I. STATION	P.I. COORDINATES		P.T. STATION	P.T. COORDINATES	
B-1	2564+85.00	-2148.62	-100.00	2566+54.64	-1979.36	-111.28	2568+23.88	-1812.61	-142.47
B-2	2577+65.23	-887.3[illegible]	-315.49	2581+07.46	-550.90	-378.40	2584+08.73	-373.89	-671.30
C-1	3557+00.00	-2933.62	74.00	3557+75.25	-2858.39	75.51	3558+50.44	-2783.42	81.98
C-2	3558+50.44	-2783.42	81.94	3561+62.18	-2472.82	108.61	3564+59.19	-2218.53	288.95
C-3	3567+75.67	-1960.3[illegible]	472.02	3570+71.71	-1718.9[illegible]	643.28	3573+[illegible]41.64	-1424.57	611.51
218-1	1360+75.96	-1426.3[illegible]	595.11	1364+63.86	-1040.68	553.49	1367+93.83	-846.72	217.55

0 50 100
SCALE

GEOMETRIC PLAN

PROPOSED INTERCHANGE
OF
FREEWAY ROUTE 518
WITH
RELOCATED U.S. ROUTE 218

P.T. STA. 2584+08.73 =
37.44' Rt. P.O.T. STA. 1378+00.00 (Off. Reloc.)

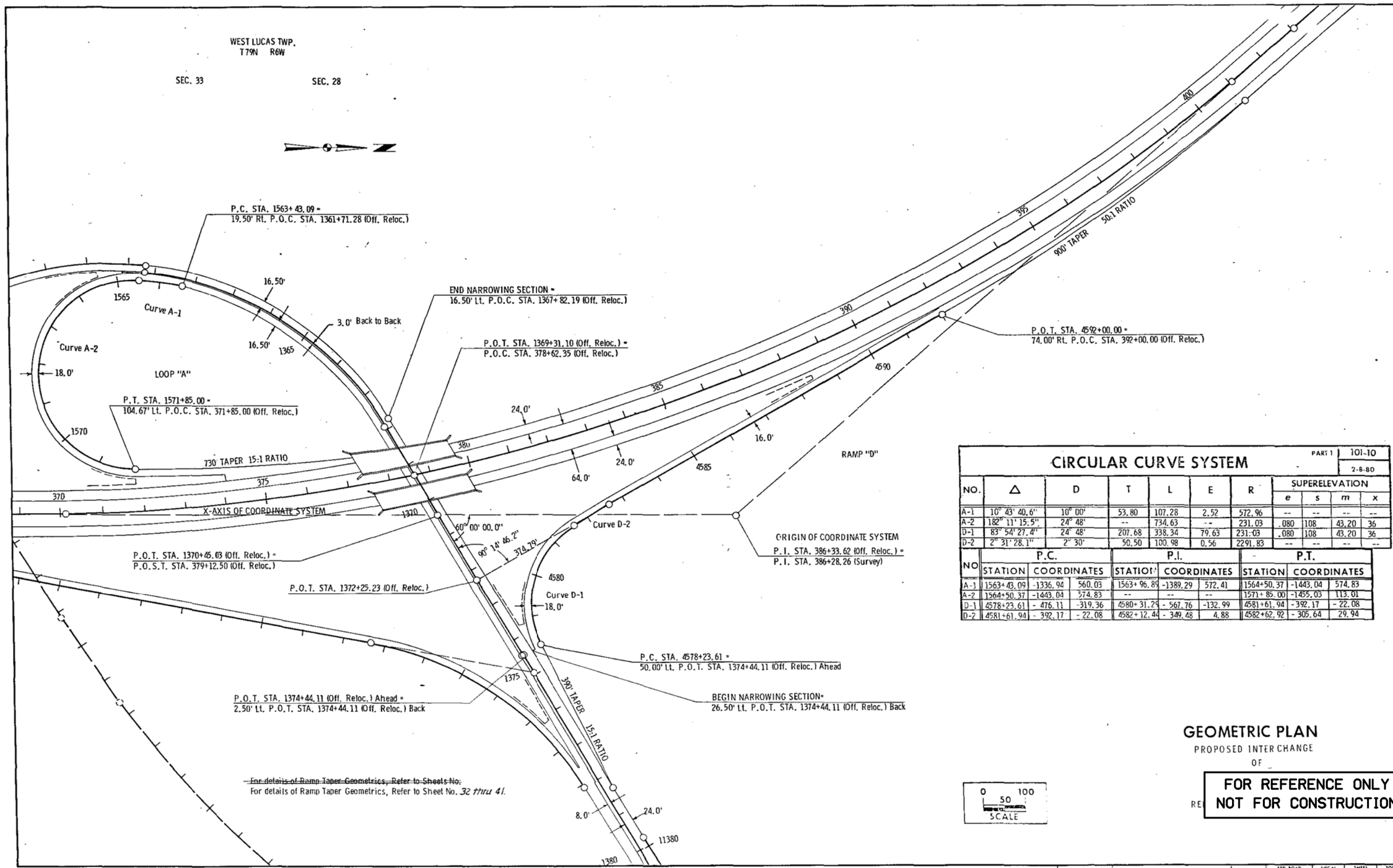
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JOHNSON COUNTY

PROJECT NUMBER	STATE	FED ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
F-518-4(21)--20-52	IOWA	1		18	62

FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER U.5

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CIRCULAR CURVE SYSTEM

PART 1 — 101-10 — 2-8-80

NO.	Δ	D	T	L	E	R	SUPERELEVATION e	s	m	x
A-1	10° 43' 40.6"	10° 00'	53.80	107.28	2.52	572.96	--	--	--	--
A-2	182° 11' 15.5"	24° 48'	--	734.63	--	231.03	.080	108	43.20	36
D-1	83° 54' 27.4"	24° 48'	207.68	338.34	79.63	231.03	.080	108	43.20	36
D-2	2° 31' 28.1"	2° 30'	50.50	100.98	0.56	2291.83	--	--	--	--

NO	P.C. STATION	P.C. COORDINATES		P.I. STATION	P.I. COORDINATES		P.T. STATION	P.T. COORDINATES	
A-1	1563+43.09	-1336.94	560.03	1563+96.89	-1389.29	572.41	1564+50.37	-1443.04	574.83
A-2	1564+50.37	-1443.04	574.83	--	--	--	1571+85.00	-1455.03	113.01
D-1	4578+23.61	- 476.11	-319.36	4580+31.29	- 567.76	-132.99	4581+61.94	- 392.17	- 22.08
D-2	4581+61.94	- 392.17	- 22.08	4582+12.44	- 349.48	4.88	4582+62.92	- 305.64	29.94

GEOMETRIC PLAN

PROPOSED INTERCHANGE

OF

RE

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0 50 100
SCALE

JOHNSON COUNTY

PROJECT NUMBER	STATE	FED ROAD DIST NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
F-518-4(21)--20-52	IOWA	5		12	62

FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER U.6

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CROWN VETCH

RW & CA

Prop 3'x5' R.C.B.

℄ 155'

1365

Fill Drain to Elev. 700.0

℄ 350'

Temporary Easement

℄ 110' +85

RW & CA

180' Rt +55 RW & CA

Ramp "A"

P.O.T. Sta. 1363+81.10 (218)
P.O.C. Sta. 1363+62.35 (OR. ML)

Prop. 24" C.M.P.

Prop. 36" RF-1

CROWN VETCH

Prop. 24" RF-1 & C.M.P.

310

385

℄ 518

1370

STA 380+90 LT.
24" C.M.P.
F.L. WEST 705.3
EAST 732.5

Sta. 1569+60
D.A. = 45 Ac. R
Install 48" RFI=
FL. Lt. 700.0
FL. Rt. 701.0
Skew 22° Lt.

RW & CA

℄ 102'

RAMP "A"

0 50 100
SCALE

N

℄ 140'

℄ 180'

RW & CA

385

390

℄ - 518

4585

Prop. 24" RF-1

Prop. 36" RF-1

4580

Type "M" Dike
Elev. 698.5

PC Sta 457+23.61
+50.2' Lt. POT. Sta 1374+44.11
(Ahead)

PT Sta 459+62.24

PC Sta 459+62.32

℄ 127'

15:1 Ratio
330' Taper

E Ramp "D"

CROWN VETCH

RW & CA

4590

Sta. 458+23-65' Rt
D.A. = 6 Ac.
~~Install~~ 24" C.M.P.
FL. North - 712.0
FL. South - 698.6
Skew - 90°

Type "M" Dike
Elev. 715.0

POT. Sta. 459+20.00
= 740.0 Rt POC. Sta. 459+00.00

℄ 200'

N

RAMP "D"

~~C = 12,057~~
~~Uns. C-5 = 200~~
~~Fr. Sta. 387+ = 60,942~~
~~72,209~~

~~T = F 30% = 12,001~~
~~Uns. F 30% = 208~~
72,209

~~C = 37,423~~
~~Uns. C-5 = 1,000~~
~~38,423~~

~~T = F 30% = 5939~~
~~Uns. F 30% = 1,000~~
~~6 Mi. Stg. 38+ = 31,484~~
38,423

PROFILE

730
720

+50.37
722.55

+0.83%

200' V.C.

+1.26%

+75
728.52

+0.67%

+85
729.93

400' V.C.

+00
729.70

Transition
Transition
Transition
3:1 Rt. Foreslope
3:1 Lt. Foreslope
4:1 Rt. Trans. Foreslope

Silt Fence
5' Ditch
Special Ditch See X-Sections
No Ditch
Toe Ditch
Special Ditch See X-Sections

Lt.
Rt.

1365

22.55 22.96 23.18 23.40 23.64 23.90 24.17 24.45 24.74 25.05 25.37 25.71 26.00 26.37 26.64 26.90 27.19 27.46 27.72 27.98 28.23 28.46 28.69 28.91 29.12 29.32 29.51 29.69 29.86 29.93

+50.37 — +85

3:1 Rt. Backslopes

3:1 Rt. Backslopes

+00
743.51

+05.08
744.87

+0.63%

750
740
730
720
710

Transition
4:1 Rt. Foreslope
Transition

420' V.C.

+5.13%

+52.79
695.27

150' V.C.

+35
696.54

+1.545%

Special Ditch See Cross Sections

3' Ditch
Toe Ditch
5' Ditch

Lt.
Rt.

9.27 9.64 9.96 21 9.96 93 9.98 87 10.00 82 10.05 50 10.93 16.36 21.79 27.22 32.37 32.64 34.94 35.16 36.31 37.39 38.40 39.34 40.21 41.01 41.73 42.39 42.97 43.49 43.93 44.30 44.60 44.83 44.87

+52.79 — +10.00

4580 4585 4590

Revised 11-21-83

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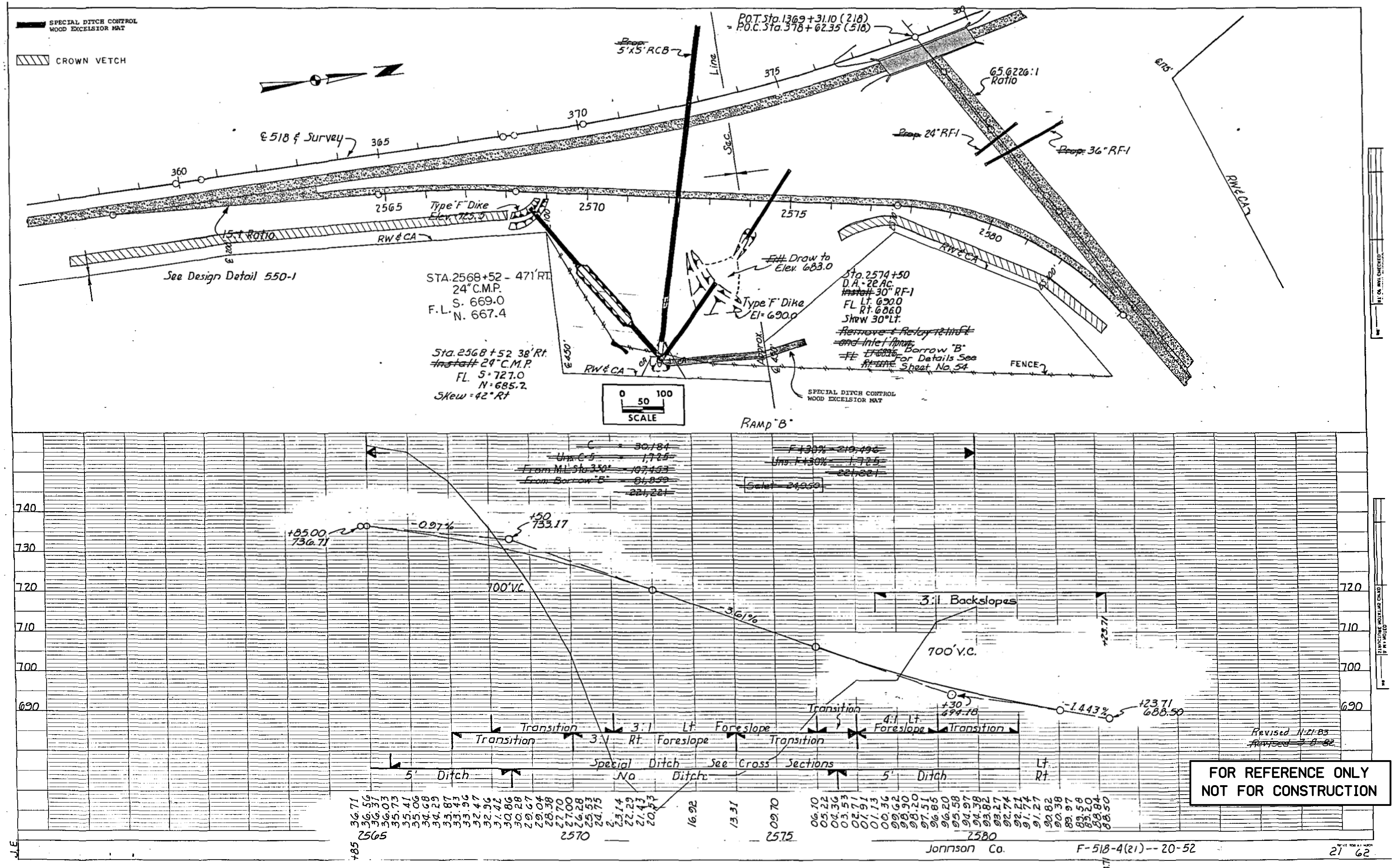
Johnson COUNTY

PROJECT NUMBER F-518-4(21)--20-52

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5		20	62

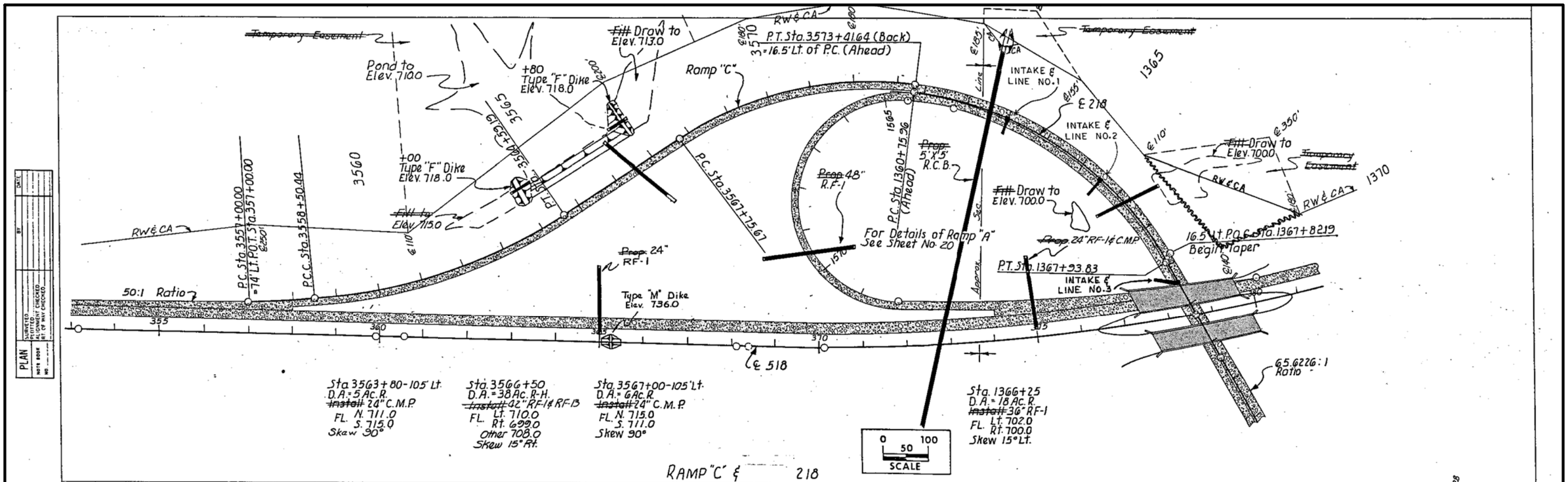
FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER U.7

6:49:06 AM 3/5/2026 rholub pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_U_52218049.dgn



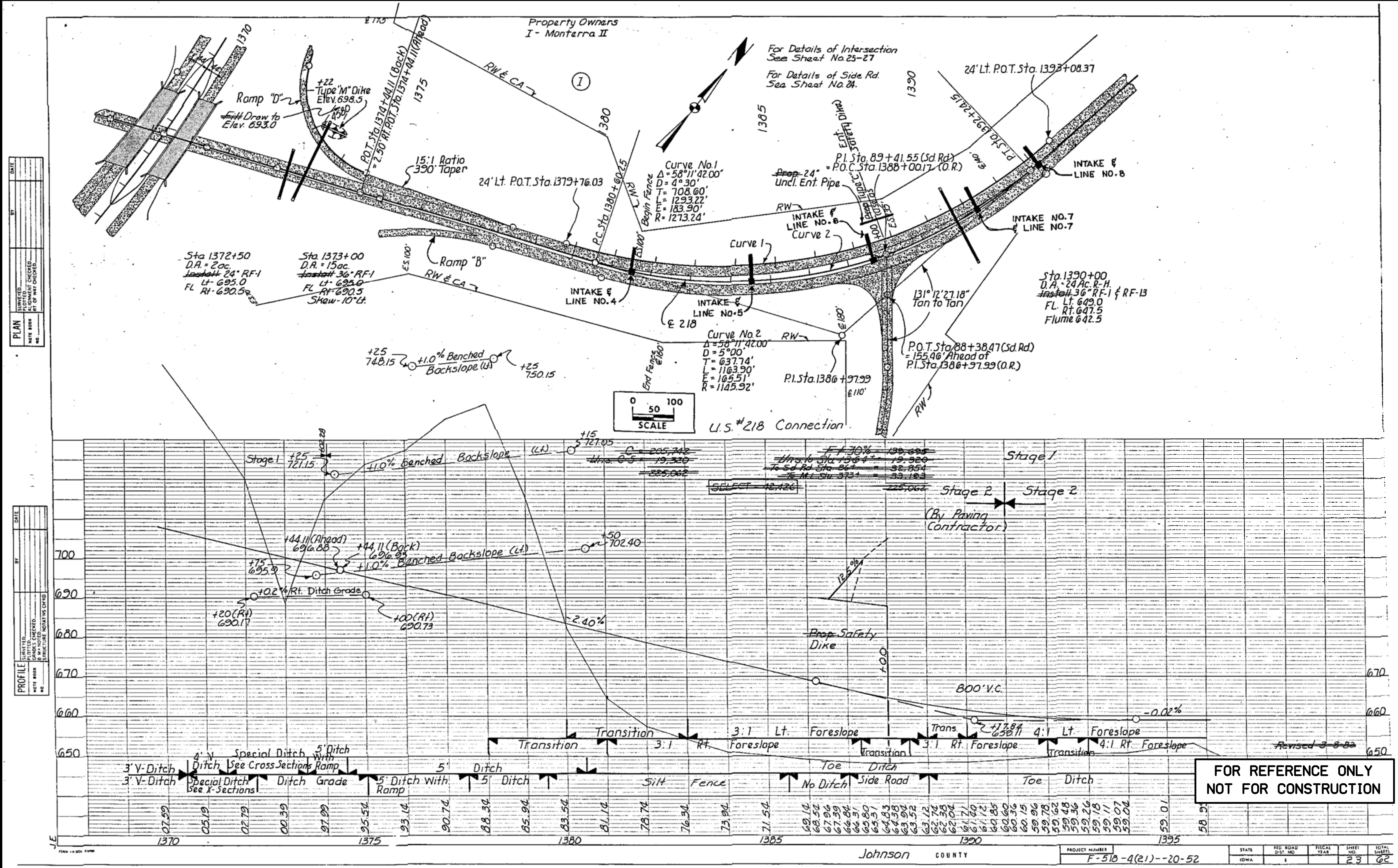
FILE NO.	ENGLISH	DESIGN TEAM **IOWA DOT**	**JOHNSON** COUNTY	PROJECT NUMBER **NHSX-218-4(049)--3H-52**	SHEET NUMBER **U.8**

6:49:18 AM 3/5/2026 rholub pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_U_52218049.dgn



FILE NO.	ENGLISH	DESIGN TEAM **IOWA DOT**	**JOHNSON** COUNTY	PROJECT NUMBER **NHSX-218-4(049)--3H-52**	SHEET NUMBER **U.9**

6:49:29 AM 3/5/2026 rholub pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_U_52218049.dgn



FOR REFERENCE ONLY
NOT FOR CONSTRUCTION

FILE NO. | ENGLISH | DESIGN TEAM **IOWA DOT** | **JOHNSON** COUNTY | PROJECT NUMBER **NHSX-218-4(049)--3H-52** | SHEET NUMBER **U.10**

6:49:40 AM 3/5/2026 rholub pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_U_52218049.dgn

Property Owners
I- Monterra II

ALL FIELD FENCE SHOWN ON THE PLAN SHEET WITHIN THE STATE'S R.O.W. HAS BEEN REMOVED

TWP. T79N R6W SEC. 28

1395 1400

Sta. 1404+19.80 = P.O.T. Sta. 6404+19.80 End Construction

P.O.T. Sta. 6402+22.42 (Sun) = P.O.T. Sta. 402+22.42 (Powers Survey) = 14.9' Lt. P.T. Sta. 2402+22.42

~~Prop.~~ 36' of 18" Uncl. Ent. Pipe Culvert

6398+59.5-130' Lt. R.O.W. Rail

6401+00-129' Lt. R.O.W. Rail

6403+29-65' Lt. R.O.W. Rail

6404+29-60' Lt. R.O.W. Rail

18"X 58' Corr. Pipe

Light

Light

RW

2400 C R I & P R R.

2395

Removed Obliterated (by Paving Contr.)

Sta. 1397+60 C.A. = Side Ditch

P.T. Sta. 2402+22.42

Sta. 1399+14.9 6'X4'X167' R.C.B. & 6'X7'X36' Arch Culv. D.A. = 172 Ac. H. (Used as Constructed)

P.O.T. Sta. 6404+31.83

LEGEND
—T— N.W. Bell Tel. Co.
—•— Ia. Ill. Gas & Elec. Co.

0 50 100 SCALE

Sta. 80+00.00 (Ahead) = Sta. 2380+00.00 (Back) Begin Construction

Δ = 34°34'33.36"
D = 7°30'
T = 237.77'
L = 461.01'
E = 36.14'
R = 763.94'
e = .080
S = 25.0
M = 60'

P.O.T. Sta. 88+38.47 (Sd. Rd.) = 155.46' Ahead of P.I. Sta. 1386+97.99 (O.R.)

P.I. Sta. 1386+97.99 (O.R.)

P.O.T. Sta. 89+07.66 (Sd. Rd.) = 32' Rt. P.O.C. Sta. 1387+88.69 (O.R.)

P.I. Sta. 89+41.55 (Sd. Rd.) = P.O.C. Sta. 1388+00.17 (O.R.)

Prop. Type "C" Ent. (Use as Safety Dike)

~~Prop.~~ 36" RF-1 & RF-13

Lane

P.C. Sta. 81+96.32

2385+95-65' Lt. R.O.W. Rail

Use Sow Cut

Crib

SPECIAL DITCH CONTROL WOOD EXCELSIOR MAT

2387+79-32' Lt. R.O.W. Rail

2387+85-65' Lt. R.O.W. Rail

2390+85-65.47' Lt. R.O.W. Rail

Sta. 2389+12.2 3'X2'X38' R.C.B. D.A. = 28 Ac. R.H. (Removed)

Sta. 2380+00 3'X2'X41.6' R.C.B. D.A. = 48 Ac. H-R-F. (Removed Existing Hdwls) ~~Replace~~ 36" RF-1 Lt. 643.0 FL. Rt. 642.5

P.I. Sta. 84+34.13

15"X20' C.M.P. (U.A.C.)

+70 Ent. (U.A.C.)

Tel. Ped

24"X48" V.I.T. Pipe

Removed Obliterated (By Paving Contr.)

Stage 1

C = 3029
Pavt. = 1030
4059

F + 30% = 1363
Pavt. F = 541
To Sd. Rd. Sta. 83± (Stage 2) = 1666
Waste Pavt. = 489
4,059

(By Paving Contr.)

Stage 2

Stage 1

~~Fr. Ramp "B" = 32,854~~
~~32,854~~
~~F + 30% = 32,854~~

Stage 2

C = 640
Pavt. = 726
Fr. Borrow "B" = 1913
Fr. Sta. 1399± (Stage 2) = 1666
4945
F + 30% = 4219
Pavt. F = 200
Waste Pavt. = 526
4945

(By Paving Contr.)

Stage 2

(By Paving Contr.)

Stage 1

PROFILE

6% Ent.

~~Prop.~~ Type "C" Ent.

+66

+19.8 658.83

-0.02%

660

650

4:1 Lt. Foreslope

4:1 Rt. Foreslope

Transition

FL. Lt. 640.1 Rt. 639.9

5'

Toe Ditch | Ditch | Toe Ditch | Special Ditch See Cross Sections | Lt. Rt.

59.01 58.99 58.97 58.95 58.93 58.91 58.89 58.87 58.85 58.83

1395 1400

+00 Tie in 648.71

400' V.C.

-0.30%

+4.10%

+00 648.11

400' V.C.

-0.48%

+00 668.61

+07.66 667.61

670

660

650

48.71 48.67 48.70 48.79 48.96 49.20 49.50 49.86 50.31 50.82 51.40 52.04 52.76 53.55 54.40 55.31 56.31

60.41 61.40 62.32 63.16 63.94 64.64 65.27 65.85 66.32 66.74 67.08 67.35 67.56 67.69 67.74 67.74 67.65

80 85

No Ditch | Silt Dike | Silt Ditch | No Ditch | No Ditch | Lt. Rt.

Revised 3-8-82

FOR REFERENCE ONLY NOT FOR CONSTRUCTION

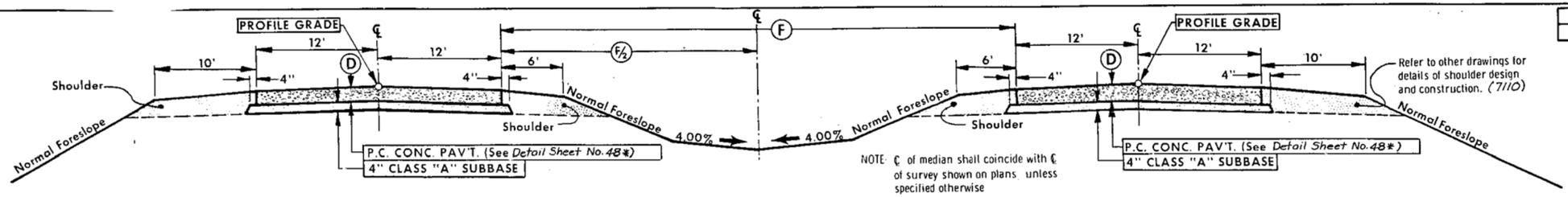
Johnson COUNTY

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
F-518-4(21)--20-52	IOWA	6		24	62

FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER U.11

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5206
11-12-71

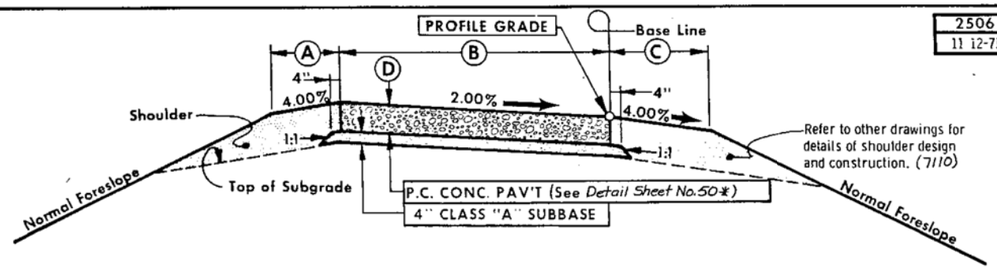


NOTE
Normal section shown may be appropriately modified for areas specifically designated by the Engineer, such as intersections or superelevated curves.
* Requires skewed "CD" joints and class 2 aggregate.

TYPICAL CROSS SECTIONS FOR PAVING PROPOSED HIGHWAY IMPROVEMENT

ROAD IDENT.	STATION TO STATION		D	F	SHLDR. TYPE
518	180+00.00	393+36.00	9½"	64'	Stab. (7110)

2506
11 12-71

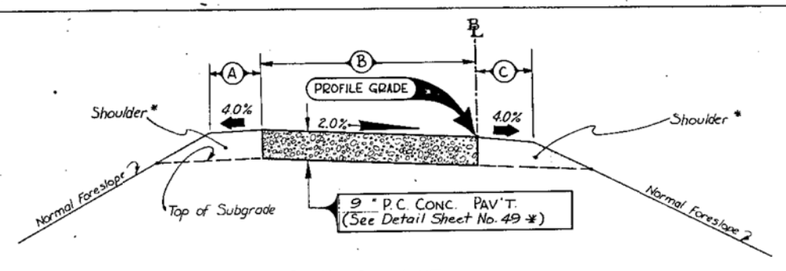


TYPICAL CROSS SECTION PROPOSED RAMP PAVING

INTERCHANGE	RAMP	A	B	C	D	SHLDR. TYPE
518/218	"A"	4.0'	18.0'	6.0'	9"	Stab. (7110)
518/218	"B" & "C"	4.0'	16.0'	6.0'	9"	Stab. (7110)

NOTE:
For modification of roadway cross section through superelevated curves, refer to Tabulation of Superelevated Curves and appropriate Standard Road Plans (Section view is in direction of traffic)
* Requires skewed "CD" joints and class 2 aggregate.

2502
7-20-66



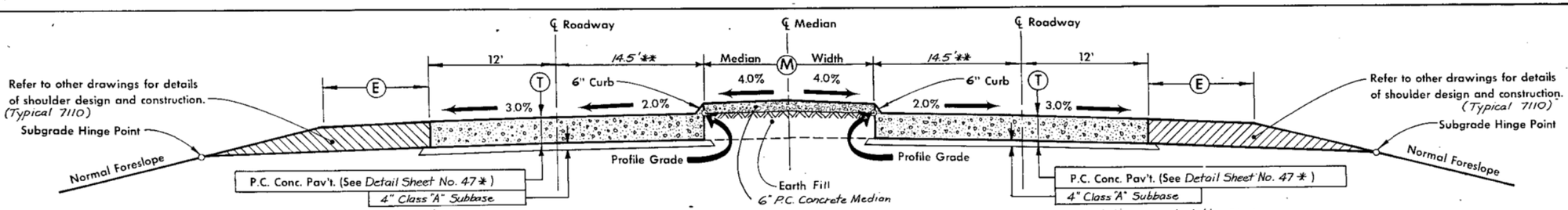
RAMP PAVEMENT
TYPICAL CROSS SECTION

INTERCHANGE	RAMP	(A)	(B)	(C)
518/218	"D"	4.0'	16.0'	6.0'

* Refer to other drawings for details of shoulder design and construction. (7110)

NOTE:
Normal section shown may be appropriately modified at areas specifically designated by the engineer, such as intersections or superelevated curves.
(Section view is in direction of Traffic)
* Requires skewed "CD" joints and class 2 aggregate.

3207
10-26-79



NOTE: Normal section shown may be appropriately modified for areas specifically designated by the engineer such as intersections or superelevated curves.
* Requires skewed "CD" joints and class 2 aggregate.
** 16.5' from station 1360+75.96 to station 1367+82.19 (S.B.L.).
16.5' from station 1361+71.28 to station 1376+50.26 (N.B.L.).
Varis from station 1367+82.19 to station 1374+44.11 (S.B.L.).
Varis from station 1376+50.26 to station 1380+83.16 (N.B.L.).

LOCATION			(T)	(M)	(E)	SHOULDER TYPE
IDENT.	STATION TO STATION					
New 218**	1360+75.96	1393+08.37	9"	Vari.	10.0'(3)	Stab. (7110)
New 218	1393+08.37	1396+35.37	9"	(1)	10.0'	Stab. (7110)
New 218	1396+35.37	1404+19.80	9"	(2)	10.0'	Stab. (7110)

(1) Median ends at station 1393+08.37. Pavement width (4 lanes) varis from 54.55 ft. to 48.0 ft.
(2) Pavement width is 48.0' with no median.
(3) 6.0' from station 1360+75.96 to station 1380+60.25 right
6.0' from station 1360+75.96 to station 1377+74.11 left

FOR REFERENCE ONLY
NOT FOR CONSTRUCTION

TYPICAL CROSS SECTION PROPOSED HIGHWAY IMPROVEMENT

Johnson COUNTY

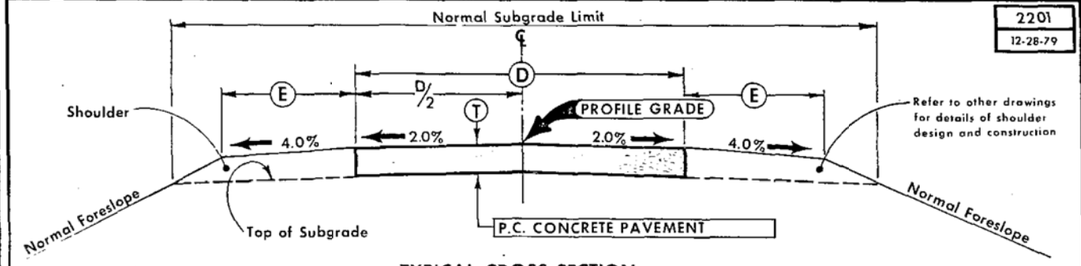
PROJECT NO. F-518-4(21)--20-52

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA			2A	62

FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER U.12

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2201
12-28-79



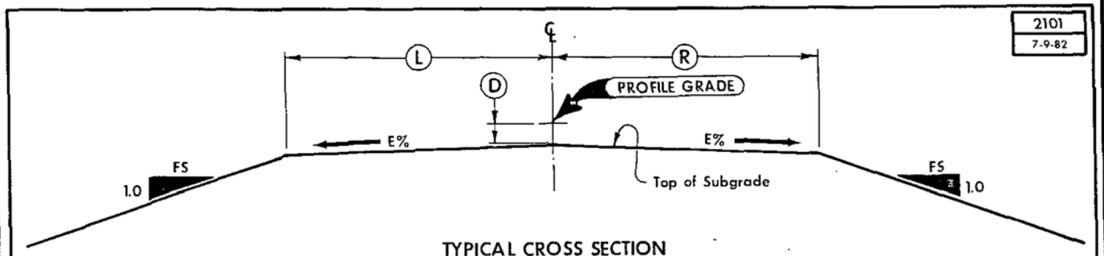
TYPICAL CROSS SECTION
PROPOSED HIGHWAY IMPROVEMENT

NOTE:
Normal sections shown may be appropriately modified for areas specifically designated by the engineer such as intersections or superelevated curves.

ROAD IDENT	STATION TO STATION		(D)	(T)	(E)	SHOULDER TYPE
Old 218 **	80+00.00	89+07.66	24"	9"	10.0'	Stab. (7110)

** Requires skewed "CD" joints. See detail sheet no. 48. Requires class 2 aggregate.

2101
7-9-82



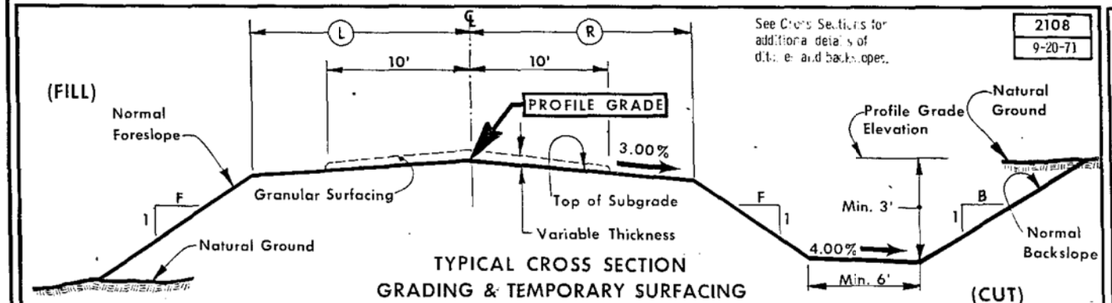
TYPICAL CROSS SECTION
GRADING

Note:
Normal sections shown may be modified appropriately in areas of superelevation curves or other locations specifically designated by the engineer.

LOCATION			(L)	(R)	(D)	FS	E%
Road Ident.	Station To Station						
Old 218	80+00.00	86+00.00	27.0'	27.0'	9"	6	2.0

Note:
See appropriate Typical Sections in this plan for details of ditches and backslopes.

2108
9-20-71



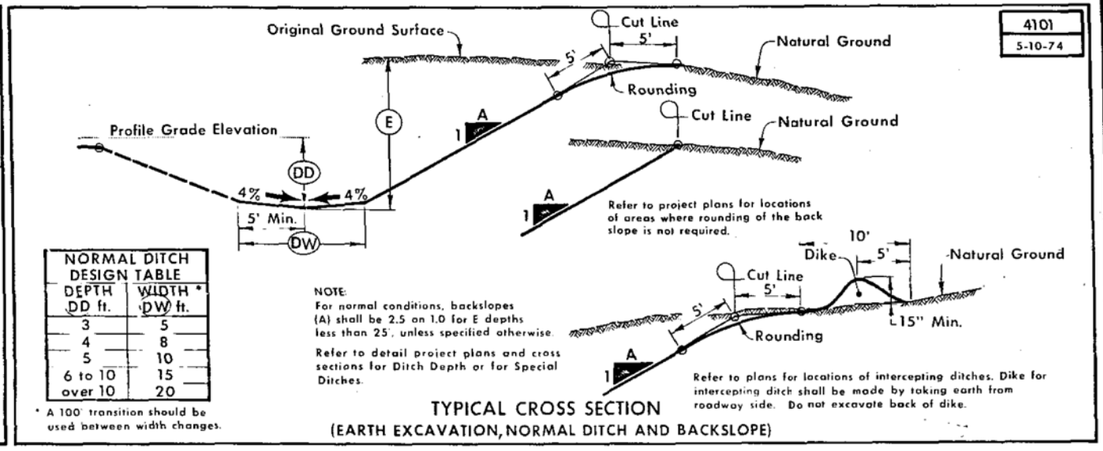
TYPICAL CROSS SECTION
GRADING & TEMPORARY SURFACING

Temp. Surfacing is prepared as follows:
~~Stage Construction Design applicable to pave~~
Stage Paving Design applicable to pave 400 ft. wide.

LOCATION			DIMENSIONS		SLOPES	
ROAD IDENT	STATION TO STATION		L	R	F	B
Local Road	4582+00.00	4327+73.18	17.0'	17.0'	3	2
Local Road	5314+00.51	5316+00.00	14.0'	14.0'	3	2

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

4101
5-10-74



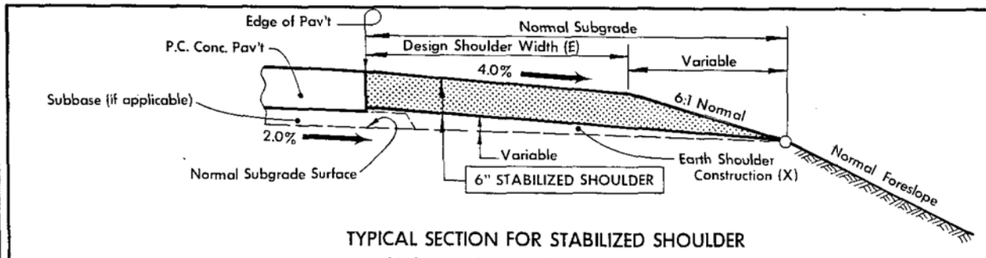
NORMAL DITCH DESIGN TABLE	
DEPTH DD ft.	WIDTH * DW ft.
3	5
4	8
5	10
6 to 10	15
over 10	20

* A 100' transition should be used between width changes.

NOTE:
For normal conditions, backslopes (A) shall be 2.5 on 1.0 for E depths less than 25', unless specified otherwise.
Refer to detail project plans and cross sections for Ditch Depth or for Special Ditches.

TYPICAL CROSS SECTION
(EARTH EXCAVATION, NORMAL DITCH AND BACKSLOPE)

7110
4-18-80



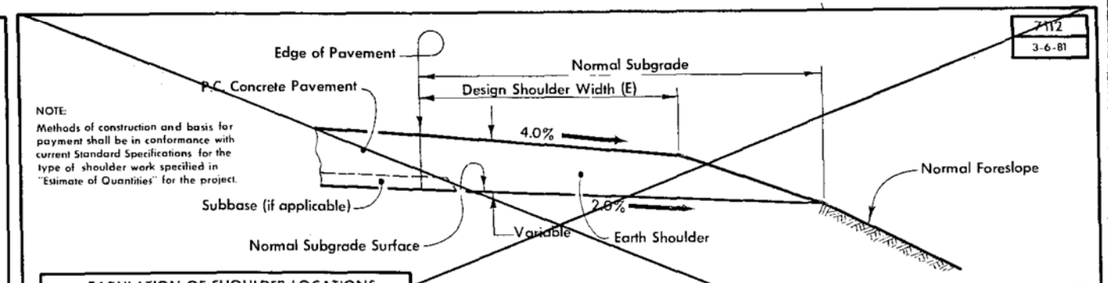
TYPICAL SECTION FOR STABILIZED SHOULDER
(Adjacent To P.C. Concrete Pavement)

NOTE:
Earth Shoulder Construction requires approximately (X) cubic yards of excavation (including 60 % for shrinkage) per station.

TABULATION OF SHOULDER LOCATIONS					
ROAD IDENT	STATION TO STATION		E	SIDE	(X)
518	180+00.00	393+36.00	10.0'	Outside	45.2
518	180+00.00	393+36.00	6.0'	Inside	37.0
Interchange 218/518	(Ramps "A", "B", & "C")		6.0'	Outside	30.8
Interchange 218/518	(Ramps "A", "B", & "C")		4.0'	Inside	27.2
Interchange 218/518	(Ramp "D")		6.0'	Outside	9.3
Interchange 218/518	(Ramp "D")		4.0'	Inside	8.4
Old 218	80+00.00	89+07.66	10.0'	Outside	9.3
New 218	1360+75.96	1404+19.80	10.0'(1)	Outside	38.8(2)

(1) 6.0' from station 1360+75.96 to station 1380+60.25 right side. 6.0' from station 1360+75.96 to station 1377+74.11 left side.
(2) (X) = 30.8 for 6.0' shoulders.
See Standard Road Plan RH-37A for construction requirements.

7112
3-6-81



NOTE:
Methods of construction and basis for payment shall be in conformance with current Standard Specifications for the type of shoulder work specified in "Estimate of Quantities" for the project.

TABULATION OF SHOULDER LOCATIONS		
STATION TO STATION	E	SIDE

TYPICAL SECTION EARTH SHOULDER
ADJACENT TO P.C. CONCRETE PAVEMENT

DESIGN QUANTITY RATE

FOR REFERENCE ONLY
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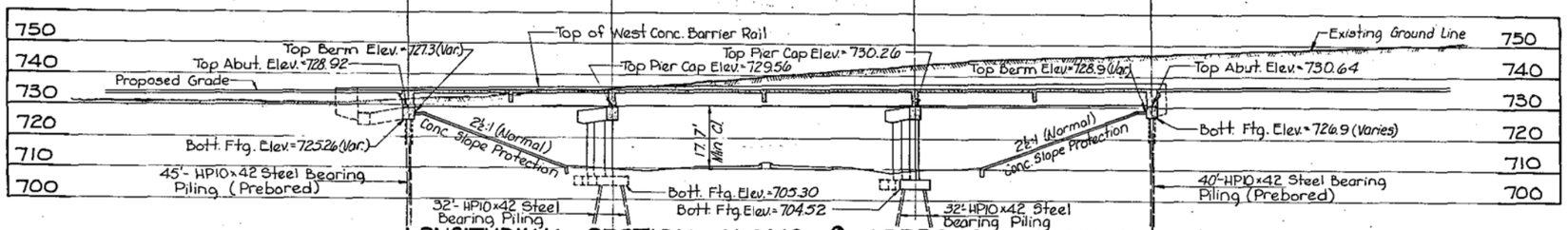
Johnson COUNTY

PROJECT NUMBER F-518-4(21)--20-52

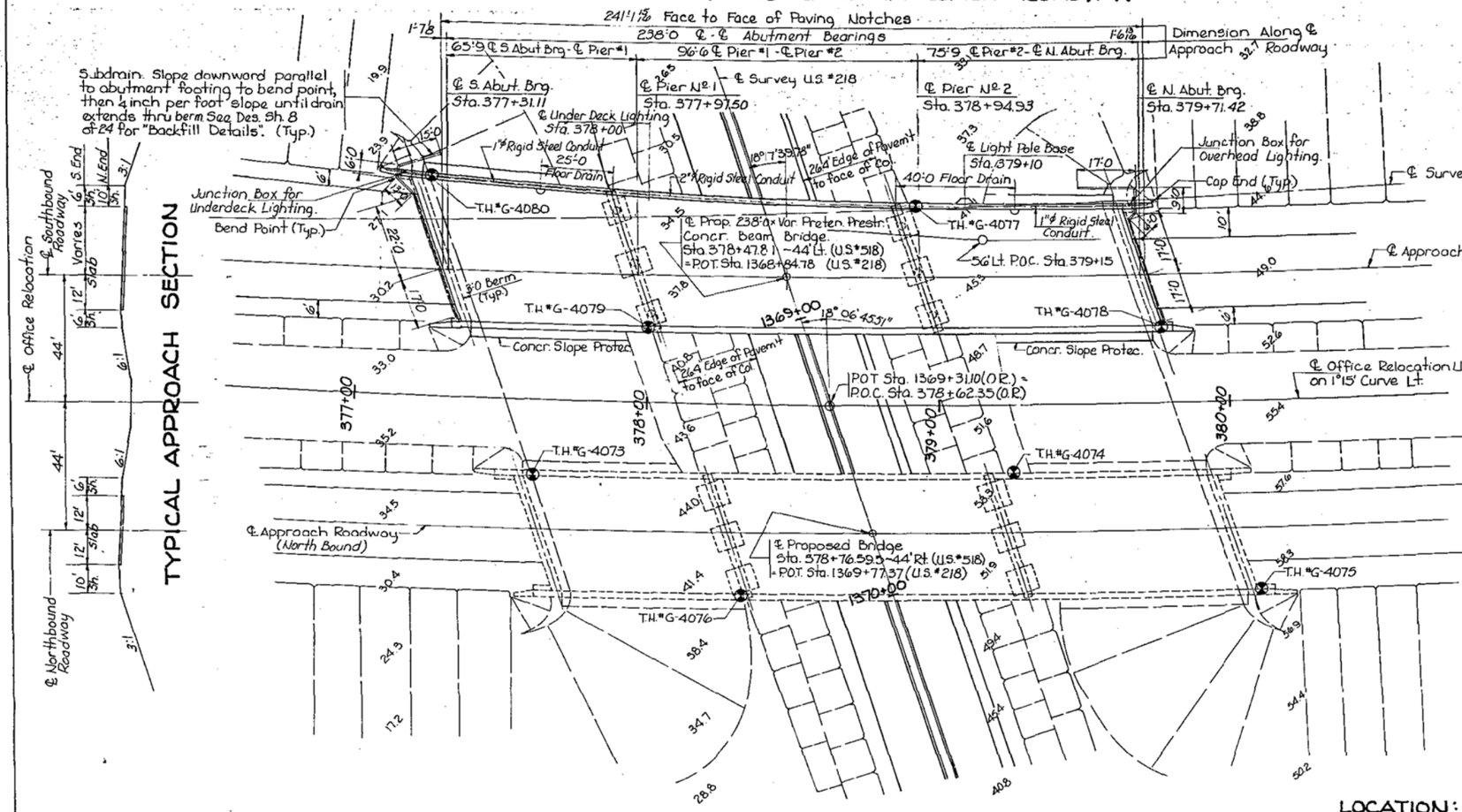
STATE	FED. ROAD DIST. NO.	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
IOWA	5		28	62

Bench Mark: No. 139, Sta. 378+85 ~ 302' Lt., Set R.R. Spk. in South Side of 24"ø Oak — Elev. = 713.77

℄ S. Abut. Brg. Elev. = 734.32 | ℄ Pier Nº 1 Elev. = 734.80 | ℄ Pier Nº 2 Elev. = 735.50 | ℄ N. Abut. Brg. Elev. = 736.05



LONGITUDINAL SECTION ALONG ℄ APPROACH ROADWAY



TYPICAL APPROACH SECTION

SITUATION PLAN
Scale: 1" = 20'-0

V.C. = 800'
M.O. = 1.489
-0.76 9%
+0.72%
P.I. Sta. 373+00
Elev. = 732.00

PROPOSED GRADE U.S. Nº 518

P.I. Sta. 1365+00
Elev. = 719.59
-2.40%

PROPOSED GRADE U.S. Nº 218

℄ U.S. #518 CURVE DATA

P.I. Sta. 386+33.62 Office Relocation

Δ = 41°11'	Δ = 38°41'
Ds = 1°15'	D = 1°15'
Ls = 200'	T = 1608.92'
TS = 1822.26'	L = 3094.67'
Es = 313.22	E = 274.18'
P = 0.364'	R = 4583.68
K = 100.00'	e = 0.045%
Xc = 199.99'	
Yc = 1.454'	
LT = 133.34'	
ST = 66.67'	
LC = 200.00'	

For Reference Only

TRAFFIC COUNT: 6976 V.P.D. (2002)

LOCATION:
U.S. #518 over U.S. #218
T. 79N R. 6W
Section 28
West Lucas Twp.
Johnson County

Design For 18°17'39.78" Skew (P.A.) 1°15' Curve
238'-0 x VARIABLE PRETENSIONED PRESTRESSED CONCRETE
65'-9 & 75'-9 End Spa
SITUATIO
Station: 378+47.81

FOR REFERENCE ONLY
NOT FOR CONSTRUCTION

JOHNSON COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
Design Sheet No.: ... Of ... File No.: 26197 Design No.: 1080

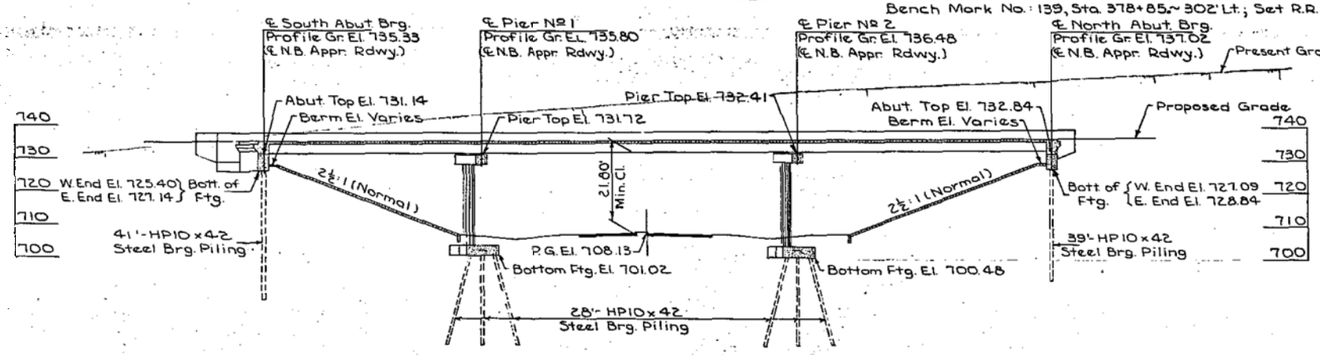
DESIGNED BY R.M. | TRACED BY | DETAILED BY | CHECKED BY | JOHNSON COUNTY

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
F-518-4(21)--20-52	IOWA	6		43	62

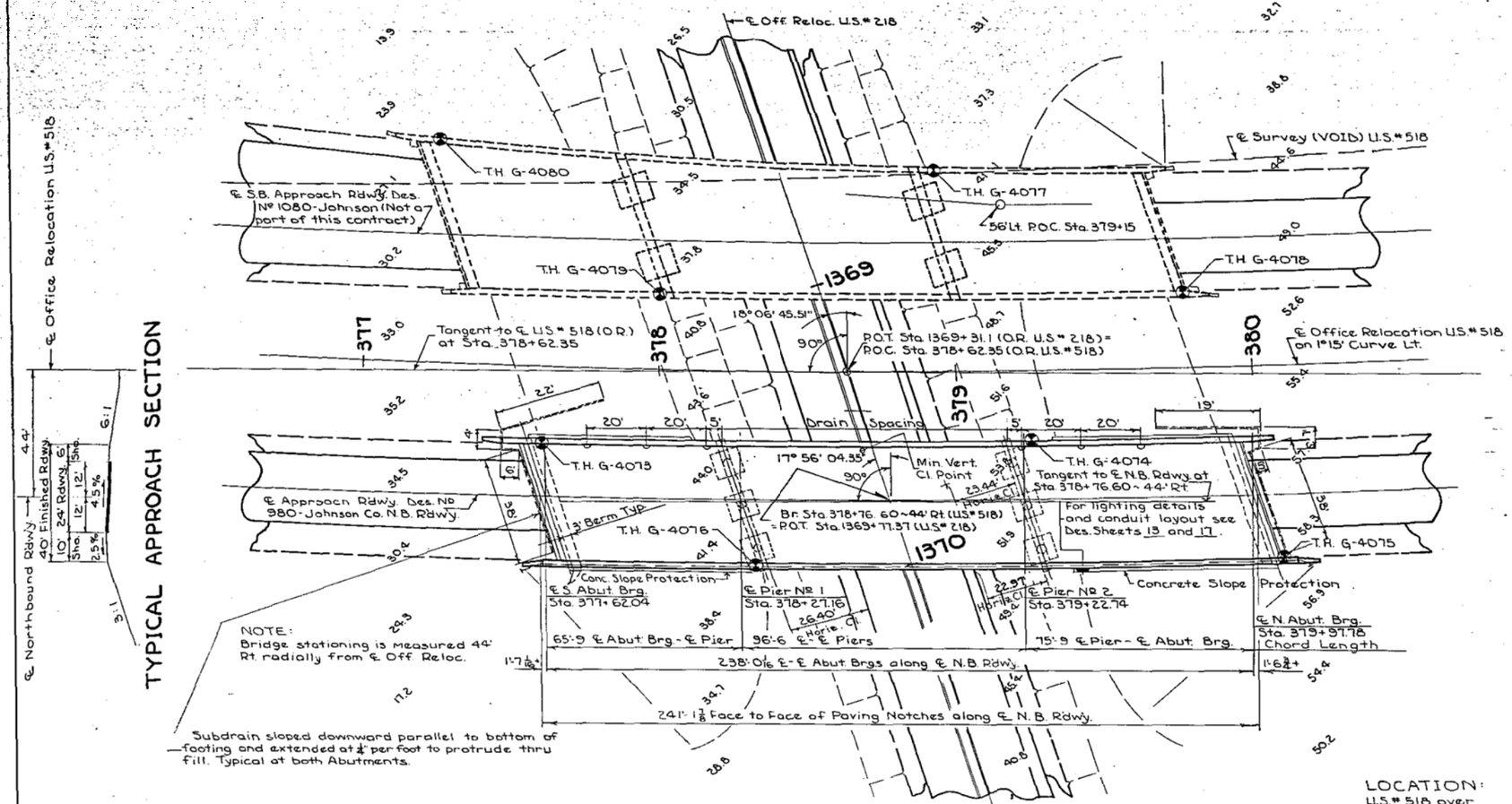
FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER U.14

6:50:28 AM 3/5/2026 rholub pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_U_52218049.dgn

Bench Mark No.: 139, Sta. 378+85, ~302' Lt.; Set R.R. Spk. in South Side of 24"ϕ Oak---Elev. 713.77



LONGITUDINAL SECTION ALONG ℄ APPROACH ROADWAY NORTHBOUND BRIDGE



TYPICAL APPROACH SECTION

NOTE:
Bridge stationing is measured 44' Rt. radially from ℄ Off. Reloc.

Subdrain sloped downward parallel to bottom of footing and extended at ¼" per foot to protrude thru fill. Typical at both Abutments.

SITUATION PLAN

TRAFFIC COUNT: 6976 V.P.D. (2002)

LOCATION:
U.S.# 518 over
U.S.# 218
T-79N R-6W
Section 28
West Lucas Twp.
Johnson County

V.C. = 800'
M.O. = 1.489
-0.769%
+0.72%
P.I. Sta. 373+00
Elev. = 732.00

PROPOSED GRADE
U.S. No 518

P.I. Sta. 1365+00
Elev. = 719.59
-2.40%

PROPOSED GRADE
U.S. No 218

℄ U.S.#518 CURVE DATA (O.R.)

P.I. Sta. 386+33.62

Δs =	41°11'	Δ =	38°41'
Θs =	1°15'	D =	1°15'
Ls =	2.00'	T =	1608.92'
TS =	1822.26'	L =	3094.67'
Es =	313.22'	E =	274.18'
P =	0.364'	R =	4583.66'
K =	100.00'	℄ =	0.045½'
XC =	199.99'	S =	289'
YC =	1.454'		
LT =	138.34'		
ST =	66.67'		
LC =	200.00'		

For Reference Only

Design for 17° 56' 04.35" Skew on a 1°15' Lt. Horiz. Curve
238' x 40' PRETENSIONED PRESTRESSED CONCRE
65'-9 & 75'-9 End Spa
SITUA
378+76.60 ~
Station: 1369+77.37 ℄ U.S. 218 &

FOR REFERENCE ONLY
NOT FOR CONSTRUCTION

JOHNSON COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION
Design Sheet No.: 1 Of 20 File No.: 26197 Design No.: 980

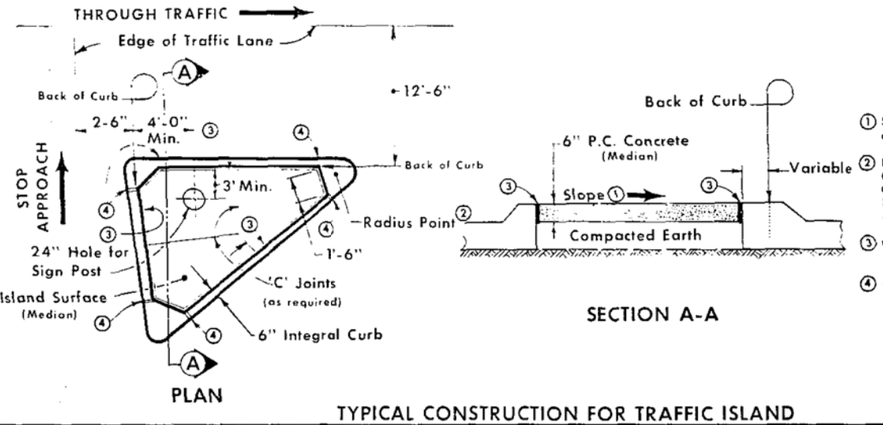
DESIGNED BY: [illegible]
DETAILED BY: HM
TRACED BY:
CHECKED BY: M. Teale
Section Leader: William A. Lundquist
JOHNSON COUNTY

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
FN-518-4(21)--21-52	IOWA	5		46	62

FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER U.15

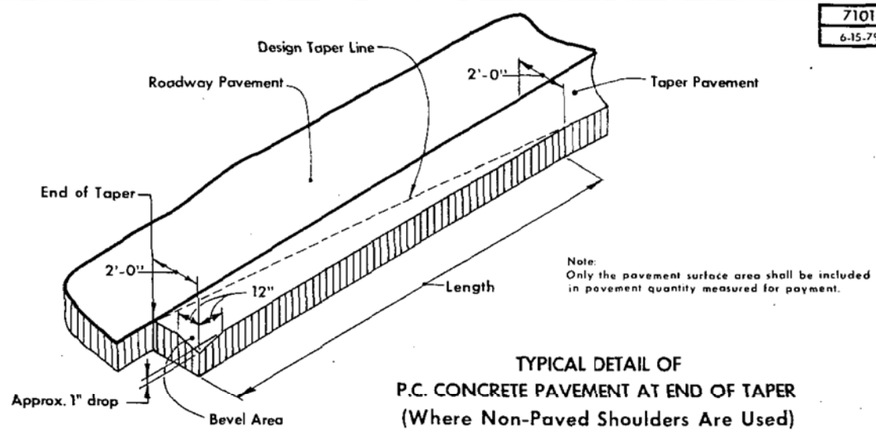
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6111
11-21-75



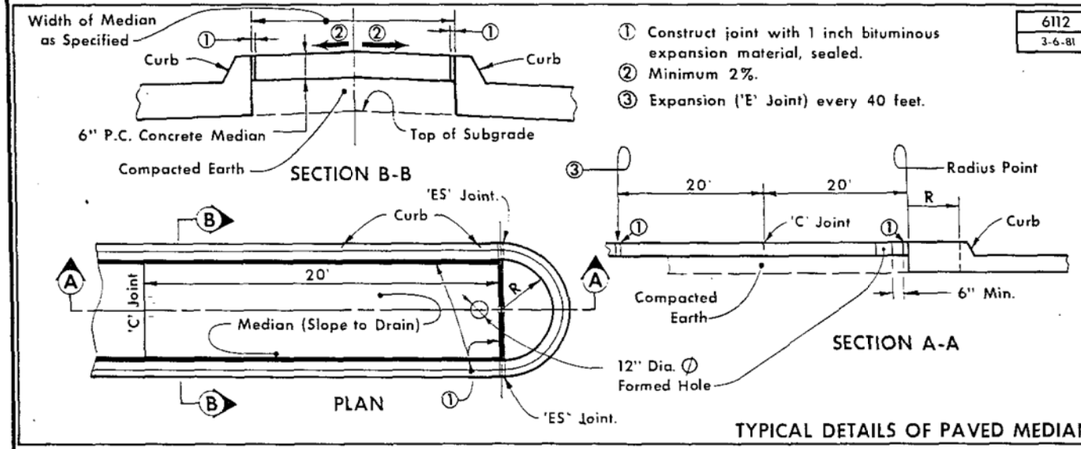
TYPICAL CONSTRUCTION FOR TRAFFIC ISLAND

7101
6-15-79



TYPICAL DETAIL OF
P.C. CONCRETE PAVEMENT AT END OF TAPER
(Where Non-Paved Shoulders Are Used)

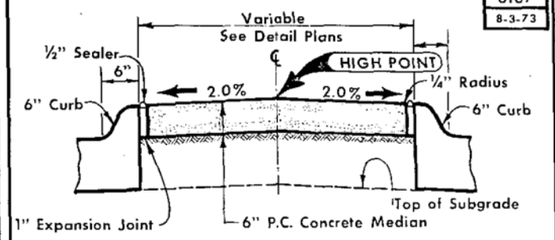
6112
3-6-81



① Construct joint with 1 inch bituminous expansion material, sealed.
② Minimum 2%.
③ Expansion ('E' Joint) every 40 feet.

TYPICAL DETAILS OF PAVED MEDIAN

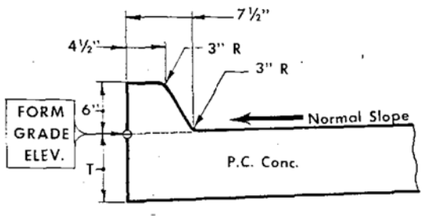
6107
8-3-73



DETAILS OF TYPICAL PAVED MEDIAN

Note:
This section is typical only, and may be appropriately modified in areas specifically designated by the engineer. Material for filling median from subgrade to bottom of concrete, is included in "Estimate of Quantities".

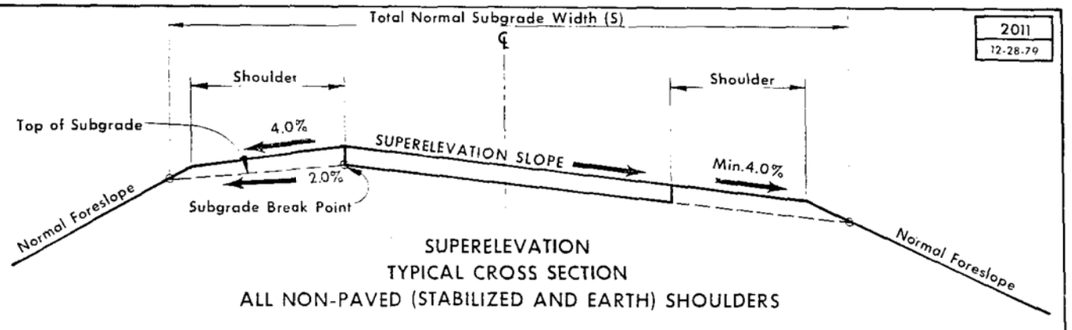
6101
6-1-73



T Is the thickness specified for pavement

DETAILS OF 6" INTEGRAL CURB

2011
12-28-79



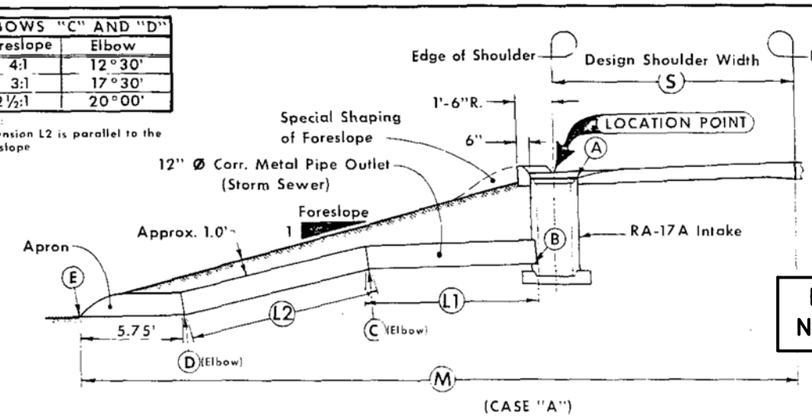
SUPERELEVATION
TYPICAL CROSS SECTION
ALL NON-PAVED (STABILIZED AND EARTH) SHOULDERS

Normal subgrade width shall be used. High Side shoulder shall be constant slope at 4.0%. Low Side shoulder shall be same slope as superelevation slope (Min. 4.0%).

ELBOWS "C" AND "D"	
Foreslope	Elbow
4:1	12°30'
3:1	17°30'
2½:1	20°00'

Note:
Dimension L2 is parallel to the Foreslope

1405
3-21-75



Note:
Flow Line "A" Elevation is 0.1 below Shoulder Elevation
Flow Line "B" Elevation is 3.71 below Flow Line "A"
All joints in corrugated metal pipe made with connecting bands shall be installed with an approved asphaltic sealer to ensure a water tight joint.
For Flow Line Elevations C, D and E

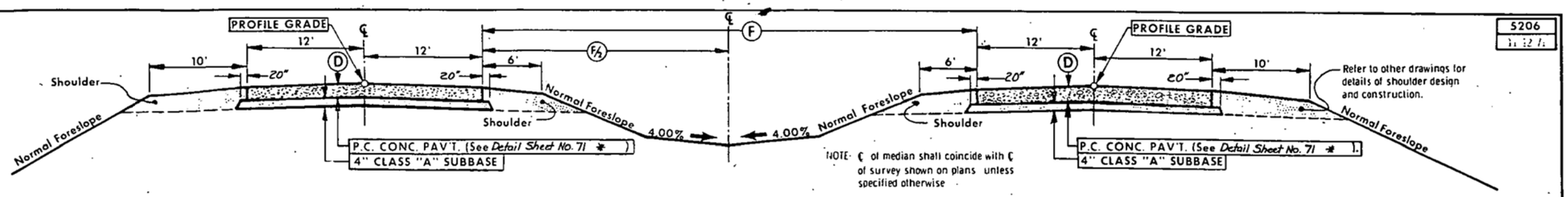
(CASE "A")
TYPICAL SECTION BRIDGE END DRAIN

FOR REFERENCE ONLY
NOT FOR CONSTRUCTION

Johnson COUNTY

PROJECT NUMBER E-SIR-A(93)--3H-52

5206



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

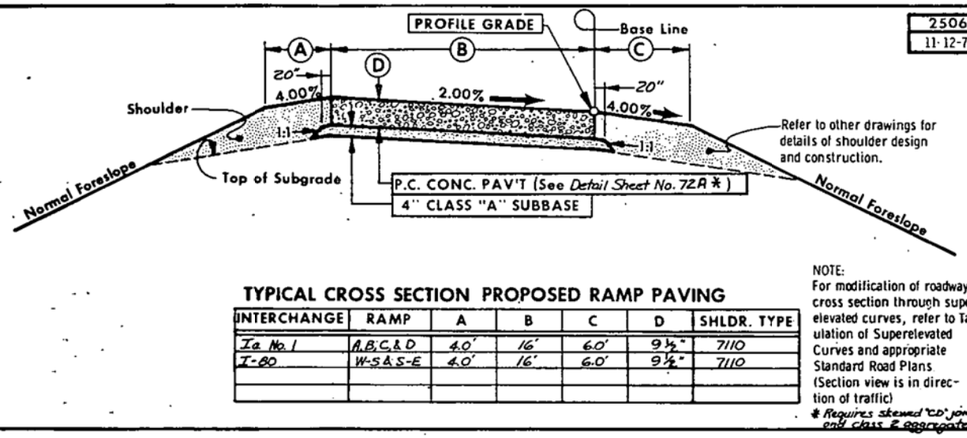
** Equations: Sta. 407+42.89 (Back) = Sta. 1412+14.76 (Ahead)
Sta. 1661+95.65 (Back) = Sta. 1661+91.90 (Ahead)
Sta. 1698+56.76 (Back) = Sta. 1698+00.00 (Ahead)
Sta. 1728+54.90 (Back) = Sta. 1127+44.85 (Ahead)

* Requires skewed "D" joints and class 2 aggregate. Use 1.5% crown slope from sta. 1136+00 to sta. 1156+00. Transition crown from 2.0% to 1.5% in 15ft.

TYPICAL CROSS SECTIONS FOR PAVING PROPOSED HIGHWAY IMPROVEMENT

ROAD IDENT.	STATION TO STATION		D	F	SHLDR. TYPE
# 518	393+36.00 **	1712+00.00	9½"	64'	7110
# 518	1712+00.00	1722+00.00	9½"	Vari	7110
# 518	1722+00.00 **	1156+00.00	9½"	60'	7110

2506
11-12-71



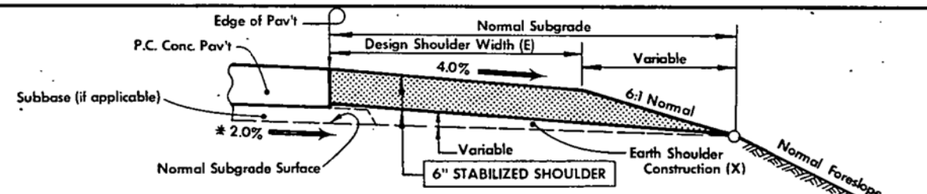
TYPICAL CROSS SECTION PROPOSED RAMP PAVING

INTERCHANGE	RAMP	A	B	C	D	SHLDR. TYPE
Ia No. 1	A,B,C,& D	4.0'	16'	6.0'	9½"	7110
I-80	W-S & S-E	4.0'	16'	6.0'	9½"	7110

* Requires skewed "D" joints and class 2 aggregate.

NOTE:
For modification of roadway cross section through superelevated curves, refer to Tabulation of Superelevated Curves and appropriate Standard Road Plans (Section view is in direction of traffic)

7110
4-18-80



TYPICAL SECTION FOR STABILIZED SHOULDER
(Adjacent To P.C. Concrete Pavement)

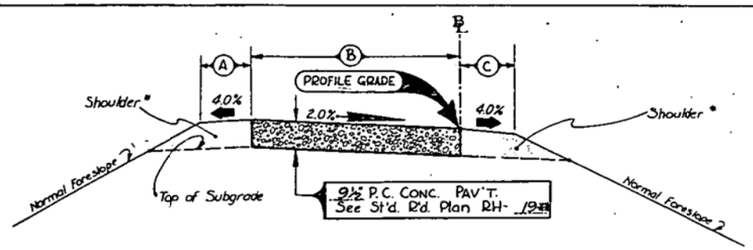
NOTE:
Earth Shoulder Construction requires approximately (X) cubic yards of excavation (including 60 % for shrinkage) per station.
* 1.5% from sta. 1136+00 to sta. 1156+00.

TABULATION OF SHOULDER LOCATIONS

ROAD IDENT.	STATION TO STATION		E	SIDE	(X)
# 518	393+36.00	1156+00.00	10.0'	Outside	43.0
# 518	393+36.00	1156+00.00	6.0'	Median	33.7
Ia. 1 Interchange	Ramps A,B,C, & D		6.0'	Outside	33.7
Ia. 1 Interchange	Ramps A,B,C, & D		4.0'	Inside	29.7
F-46 Interchange	Ramps A,B,C, & D		6.0'	Outside	9.1
F-46 Interchange	Ramps A,B,C, & D		4.0'	Inside	8.4
I-80 Interchange	Ramps W-S & S-E		6.0'	Outside	33.7
I-80 Interchange	Ramps -W-S & S-E		4.0'	Inside	29.7

See Standard Road Plan RH-37A * for construction requirements.

2502
7-20-66



RAMP PAVEMENT TYPICAL CROSS SECTION

INTERCHANGE	RAMP	A	B	C
Co. Rd. F-46	A,B,C,& D	4.0'	16'	6.0'

* Refer to other drawings for details of shoulder design and construction. (7110)

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

(Section view is in direction of Traffic)
** Requires class 2 aggregate.

FOR REFERENCE ONLY
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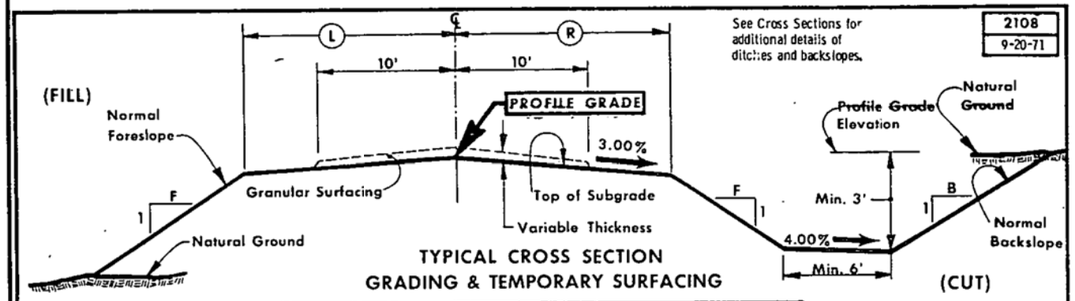
Johnson COUNTY

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
F-518-4(12)--20-52	IOWA	5		2A	72

FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER U.17

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2108
9-20-71



See Cross Sections for additional details of ditches and backslopes.

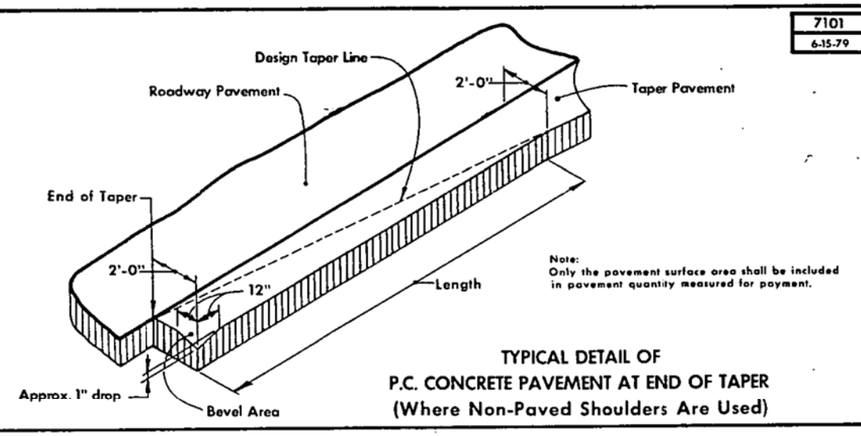
TYPICAL CROSS SECTION GRADING & TEMPORARY SURFACING

LOCATION			DIMENSIONS		SLOPES	
ROAD IDENT	STATION TO STATION		L	R	F	B
Local Road	2157+89.37	2166+00.00	18'	18'	3	2.5
Local Road	1559+49.11	1560+75.00	14'	14'	3	2.0

Gran. Surfacing shall be placed as follows:
~~Stage 1 (Grading) Design application rate is _____ tons per mile.~~
Stage 2 (Paving) Design application rate is 400 tons per mile.

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

7101
6-15-79



Note:
Only the pavement surface area shall be included in pavement quantity measured for payment.

TYPICAL DETAIL OF P.C. CONCRETE PAVEMENT AT END OF TAPER (Where Non-Paved Shoulders Are Used)

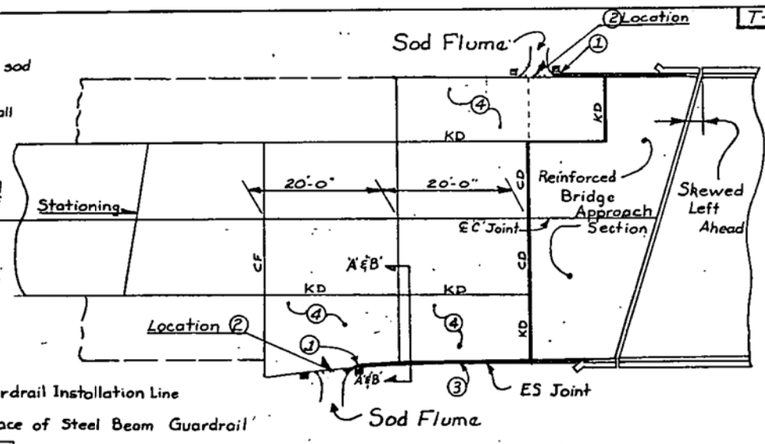
T-2

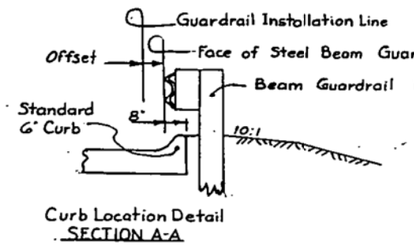
① • Build 6" Curb to Edge of sod flume.

② = The location of flume shall be between first two Guardrail posts spaced 6.25' apart.

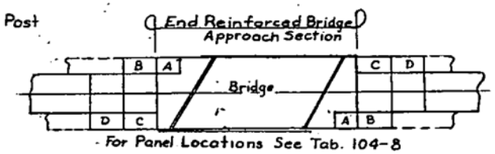
③ • The location of the guardrail determines the location of the curb. The back of the curb is located 8" back of the face of guardrail.

④ = Proposed Shoulder Panel. Paved shoulder panels will be constructed similar to paved shoulders.

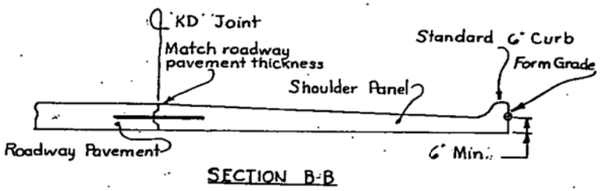




Curb Location Detail
SECTION A-A



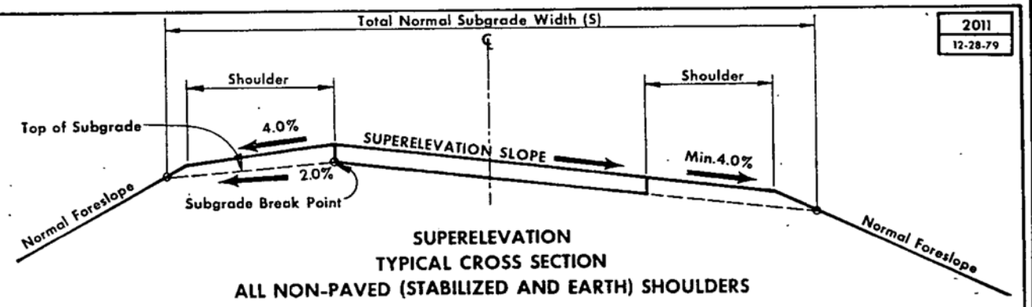
For Panel Locations See Tab. 104-8
PANEL LOCATIONS



SECTION B-B

BRIDGE END DRAIN DETAILS

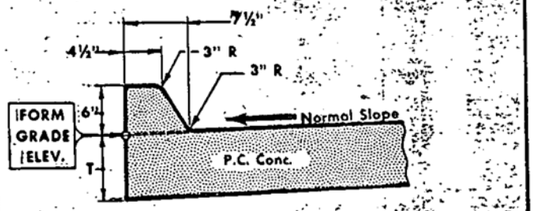
2011
12-28-79



SUPERELEVATION TYPICAL CROSS SECTION ALL NON-PAVED (STABILIZED AND EARTH) SHOULDERS

Normal subgrade width shall be used. High Side: shoulder shall be constant slope at 4.0%. Low Side: shoulder shall be same slope as superelevation slope (Min. 4.0%).

6101
6-1-73



T is the thickness specified for pavement

DETAILS OF 6" INTEGRAL CURB

FOR REFERENCE ONLY
NOT FOR CONSTRUCTION

Johnson COUNTY

PROJECT NUMBER	STATE	FED ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
F-518-4(12)--20-52	IOWA	6		28	72

WEST LUCAS TWP.
T-79N R-6W
SEC. 20

NOTE
For Details of Ramp Terminal Intersection Geometrics Refer to Sheets No ~~31-36~~ 31 thru 36
For Details of Ramp Taper Geometrics Refer to Standard Road Plan Sheets No. ~~3375A~~ 6465

P. I. STA. 1566+29.91 =
P. O. T. STA. 79+00.00

P. I. STA. 3567+79.59 =
P. O. T. STA. 79+30.00

RAMP C

RAMP A

RAMP B

RAMP D

P. C. STA. 3554+[illegible]
74.00' LT. P. O. T. STA. 1454+[illegible]
POINT G (550-2B)

P. T. STA. 1580+15.00 =
100.00' LT. P. O. T. STA. 1480+15.00
POINT M (550-1)

CURVE C-1
CURVE C-2
CURVE A-1
CURVE B-1
CURVE D-1
CURVE D-2

60° TAPER 15:1 RATIO

76° 26' 23.1"
60° 20' 59.3"
80° 35' To Tan.
22° 58' 36.9"
20° 14' 00.7"
19° 56' 59.3"
50° 40' 28.5" Tan. to Curve
76° 03' 28.9" Tan. to Curve
24° 33' 23.0"

24' Skewed Begin Taper
24' Skewed End Taper
16'

P. O. T. STA. 1467+83.57 =
P. O. S. T. STA. 84+21.20
Origin of Coordinate System

X-AXIS OF COORDINATE SYSTEM @ 518

P. I. STA. 2569+32.09 =
P. O. C. STA. 89+25.00

P. I. STA. 4567+82.72 =
P. O. C. STA. 89+70.00

P. O. T. STA. 1480+59.31
P. O. T. STA. 1480+93.27

P. C. STA. 2555+35.00
100.00' RT. P. O. T. STA. 1455+35.00
POINT M (550-1)

P. T. STA. 4582+00.00 =
74.00' RT. P. O. T. STA. 1482+00.00
POINT G (550-2B)

NO.	e	S	M	X
A-1	.080	180'	54'	60'
B-1	.080	180'	54'	60'
C-1	See Detail 550-2			
C-2	.073	159'	48'	60'
D-1	.073	159'	48'	60'
D-2	See Detail 550-2			

CIRCULAR CURVE SYSTEM 101-10

NO.	P. C. STATION	P. C. COORDINATES		P. I. STATION	P. I. COORDINATES		P. T. STATION	P. T. COORDINATES		Δ	D	T	L	E	R
A-1	1575+45.87	774.16	197.39	1577+82.06	-995.77	115.71	1580+15.00	1231.43	100.00	16° 25' 10.0"	3° 30'	236.18	469.13	16.95	1637.02
B-1	2555+35.00	-1196.37	-100.00	2558+16.84	-967.24	-115.42	2560+41.22	-749.24	-194.47	16° 07' 18.6"	3° 30'	231.84	460.32	16.34	1637.02
C-1	3554+56.00	-1333.00	74.00	3555+36.23	-1247.36	75.72	3556+21.35	-1161.52	83.92	4° 18' 34.2"	2° 30'	86.23	172.38	1.62	2291.83
C-2	3556+22.35	-1161.52	83.92	3557+96.98	-985.72	100.71	3559+[illegible]	-823.14	169.65	17° 31' 17.9"	5° 00'	176.60	350.43	13.53	1145.92
D-1	4576+45.60	677.09	-[illegible]	4578+36.40	1052.45	102.25	4580+[illegible]	1244.38	-83.92	19° 06' 04.0"	5° 00'	192.80	382.02	16.11	1145.92
D-2	4580+27.62	1244.38	-83.92	4581+13.65	1330.22	-75.72	4582+00.00	1416.43	-74.00	4° 18' 34.2"	2° 30'	86.23	172.38	1.62	2291.83

GEOMETRIC PLAN
PROPOSED INTERCHANGE
FR[illegible]
IOWA ROUTE #1

FOR REFERENCE ONLY
NOT FOR CONSTRUCTION

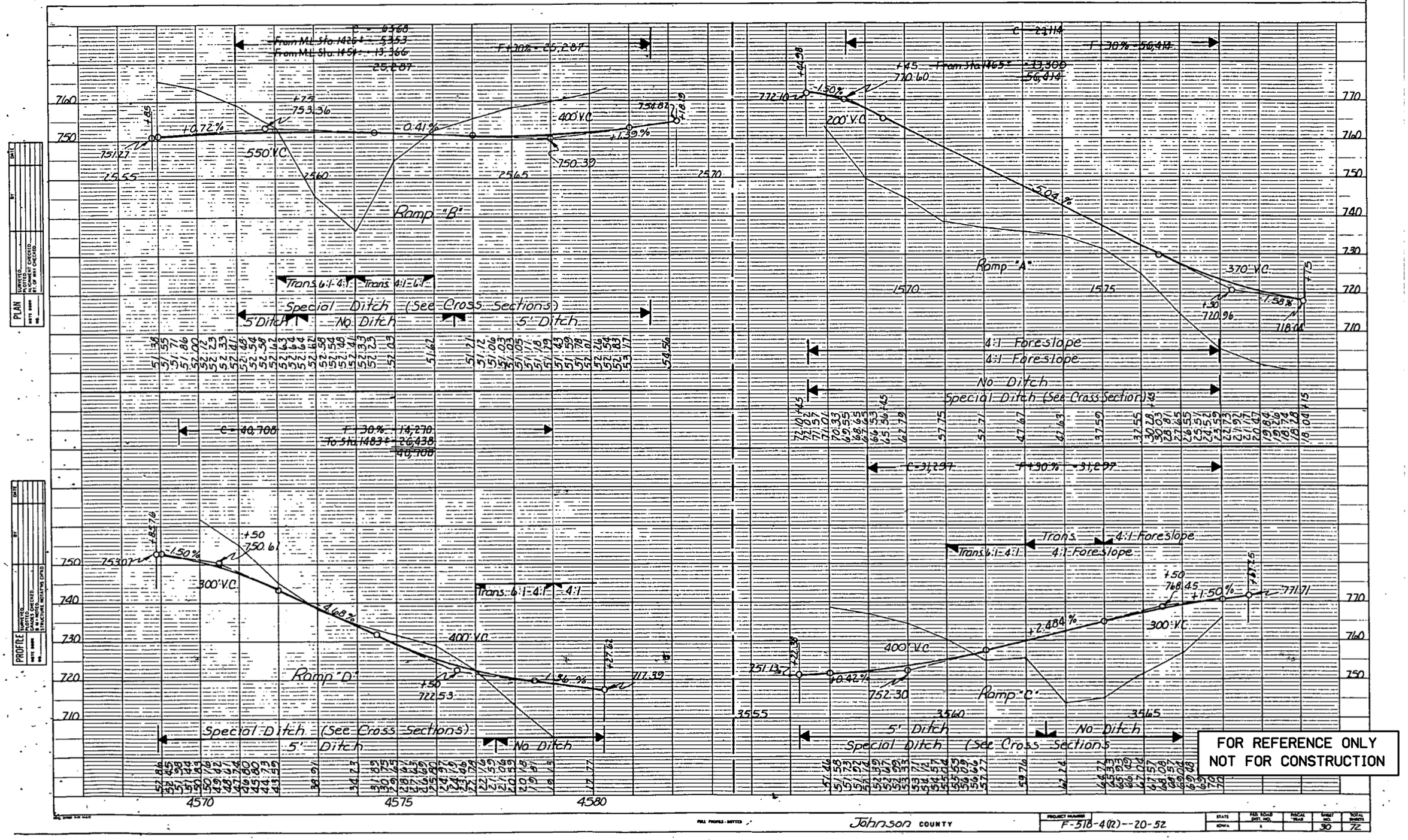
0 50 100
SCALE

JOHNSON COUNTY

PROJECT NUMBER	STATE	FED ROAD DIST NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
F-518-4(2)--20-52	IOWA	6		28	72

FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER U.19

6:51:27 AM 3/5/2026 rholub pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\DistrictDesign\CADD Files\Sheet Files\SHT_U_52218049.dgn



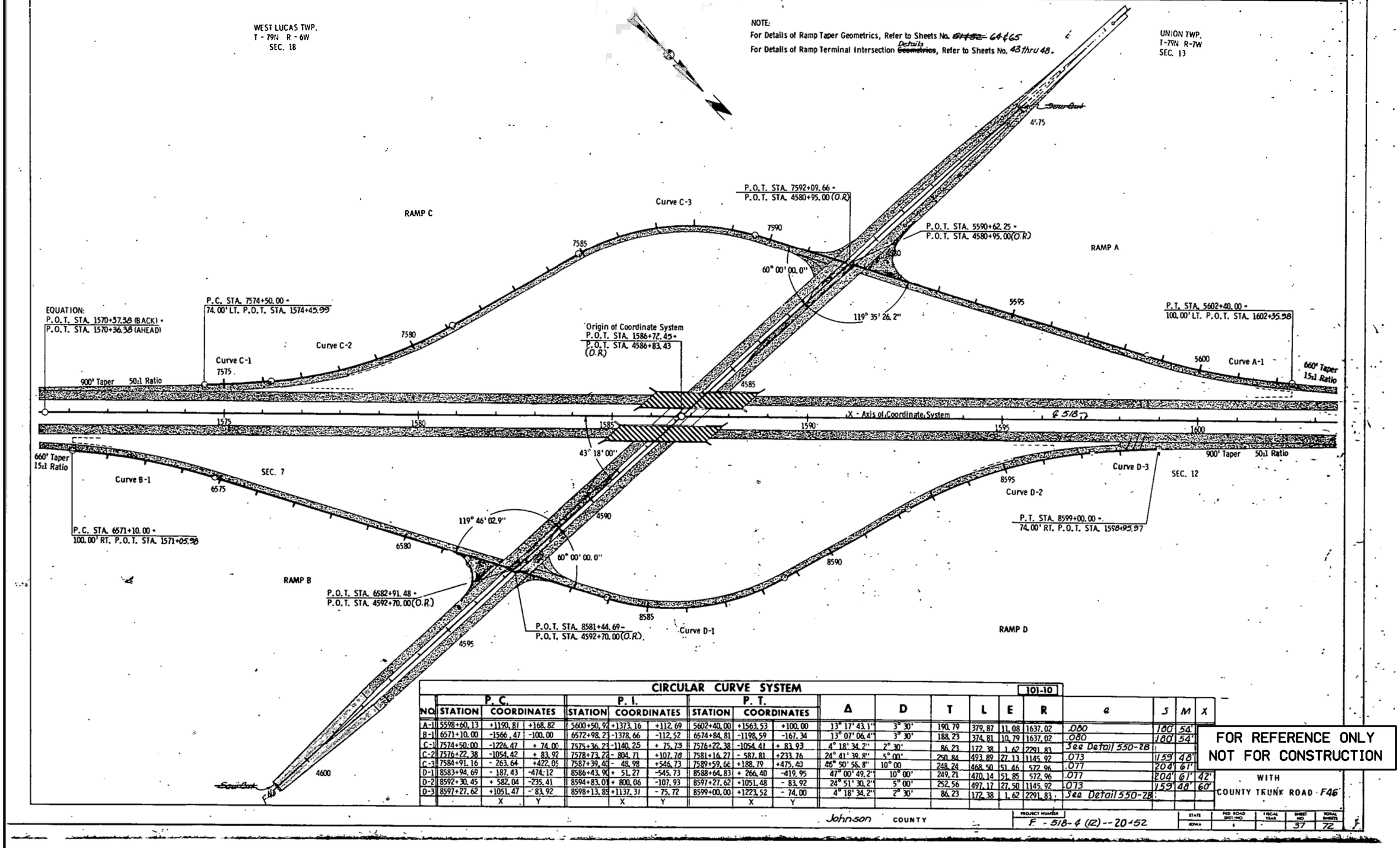
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WEST LUCAS TWP.
T - 79N R - 6W
SEC. 18

NOTE:
For Details of Ramp Taper Geometrics, Refer to Sheets No. ~~51-52~~ 64 & 65
For Details of Ramp Terminal Intersection ~~Geometrics~~ Details, Refer to Sheets No. 43 thru 48.

UNION TWP.
T-79N R-7W
SEC. 13



CIRCULAR CURVE SYSTEM

101-10

NO.	P.C. STATION	P.C. COORDINATES X	P.C. COORDINATES Y	P.I. STATION	P.I. COORDINATES X	P.I. COORDINATES Y	P.T. STATION	P.T. COORDINATES X	P.T. COORDINATES Y	Δ	D	T	L	E	R	e	S	M	X
A-1	5598+60.13	+1190.81	+168.82	5600+50.92	+1373.16	+112.69	5602+40.00	+1563.53	+100.00	13° 17' 43.1"	3° 30'	190.79	379.87	11.08	1637.02	.080	100'	54'	
B-1	6571+10.00	-1566.47	-100.00	6572+98.23	-1378.66	-112.52	6574+84.81	-1198.59	-167.34	13° 07' 06.4"	3° 30'	188.23	374.81	10.79	1637.02	.080	100'	54'	
C-1	7574+50.00	-1226.47	+ 74.00	7575+36.23	-1140.25	+ 75.79	7576+22.38	-1054.41	+ 83.93	4° 18' 34.2"	2° 30'	86.23	172.38	1.62	2291.83	See Detail 550-28			
C-2	7576+22.38	-1054.42	+ 83.92	7578+73.23	- 804.71	+107.76	7581+16.27	- 587.81	+233.76	24° 41' 39.8"	5° 00'	250.84	493.89	27.13	1145.92	.073	159'	48'	
C-3	7584+91.16	- 263.64	+422.05	7587+39.40	- 48.98	+546.73	7589+59.66	+188.79	+475.40	46° 50' 56.8"	10° 00'	248.24	468.50	51.46	572.96	.077	204'	61'	
D-1	8583+94.69	- 187.43	-474.12	8586+43.90	+ 51.27	-545.73	8588+64.83	+ 266.40	-419.95	47° 00' 49.2"	10° 00'	249.21	470.14	51.85	572.96	.077	204'	61'	42'
D-2	8592+30.45	+ 582.04	-235.41	8594+83.01	+ 800.06	-107.93	8597+27.62	+1051.48	- 83.92	24° 51' 30.2"	5° 00'	252.56	497.17	27.50	1145.92	.073	159'	48'	60'
D-3	8597+27.62	+1051.47	- 83.92	8598+13.89	+1137.31	- 75.72	8599+00.00	+1223.52	- 74.00	4° 18' 34.2"	2° 30'	86.23	172.38	1.62	2291.83	See Detail 550-28			

FOR REFERENCE ONLY
NOT FOR CONSTRUCTION

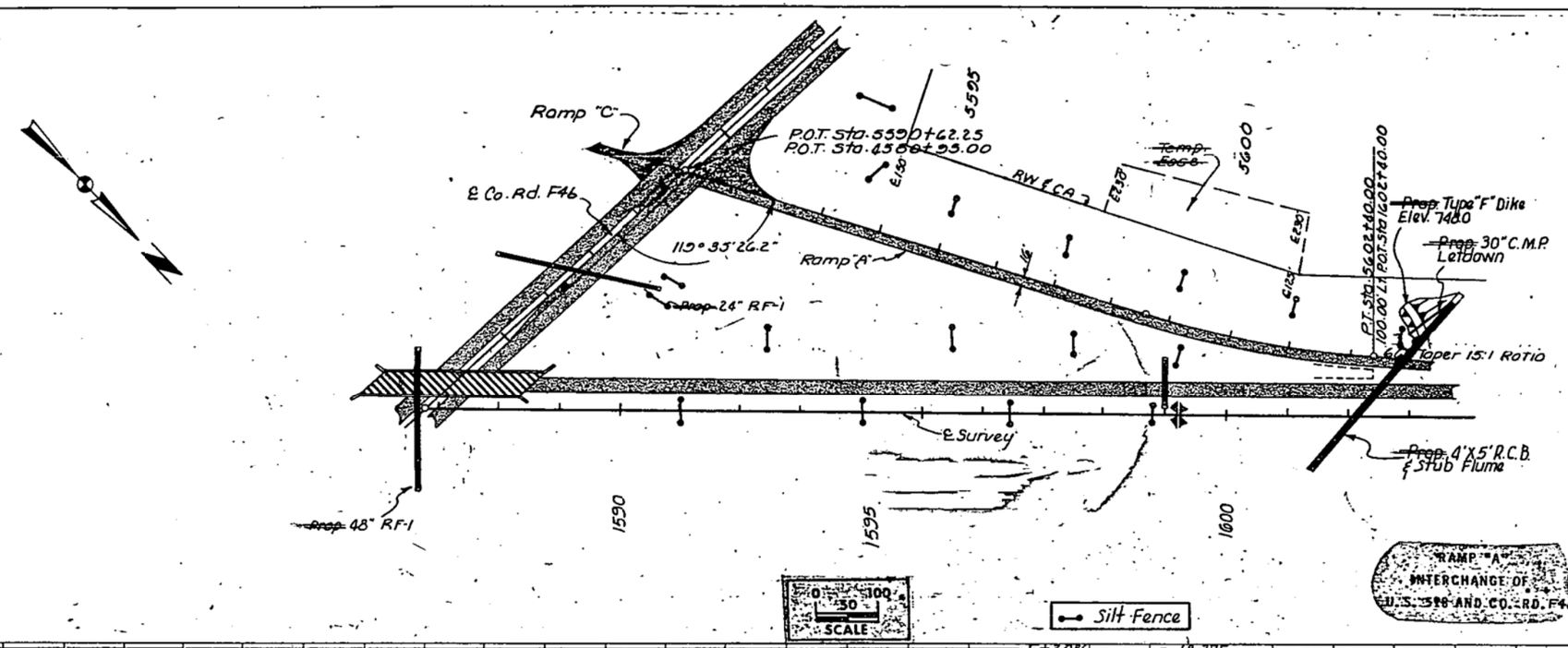
WITH
COUNTY TRUNK ROAD F46

Johnson COUNTY

PROJECT NUMBER	STATE	FED ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
F - 518-4 (12)--20-52	IOWA	7		37	72

FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER U.21

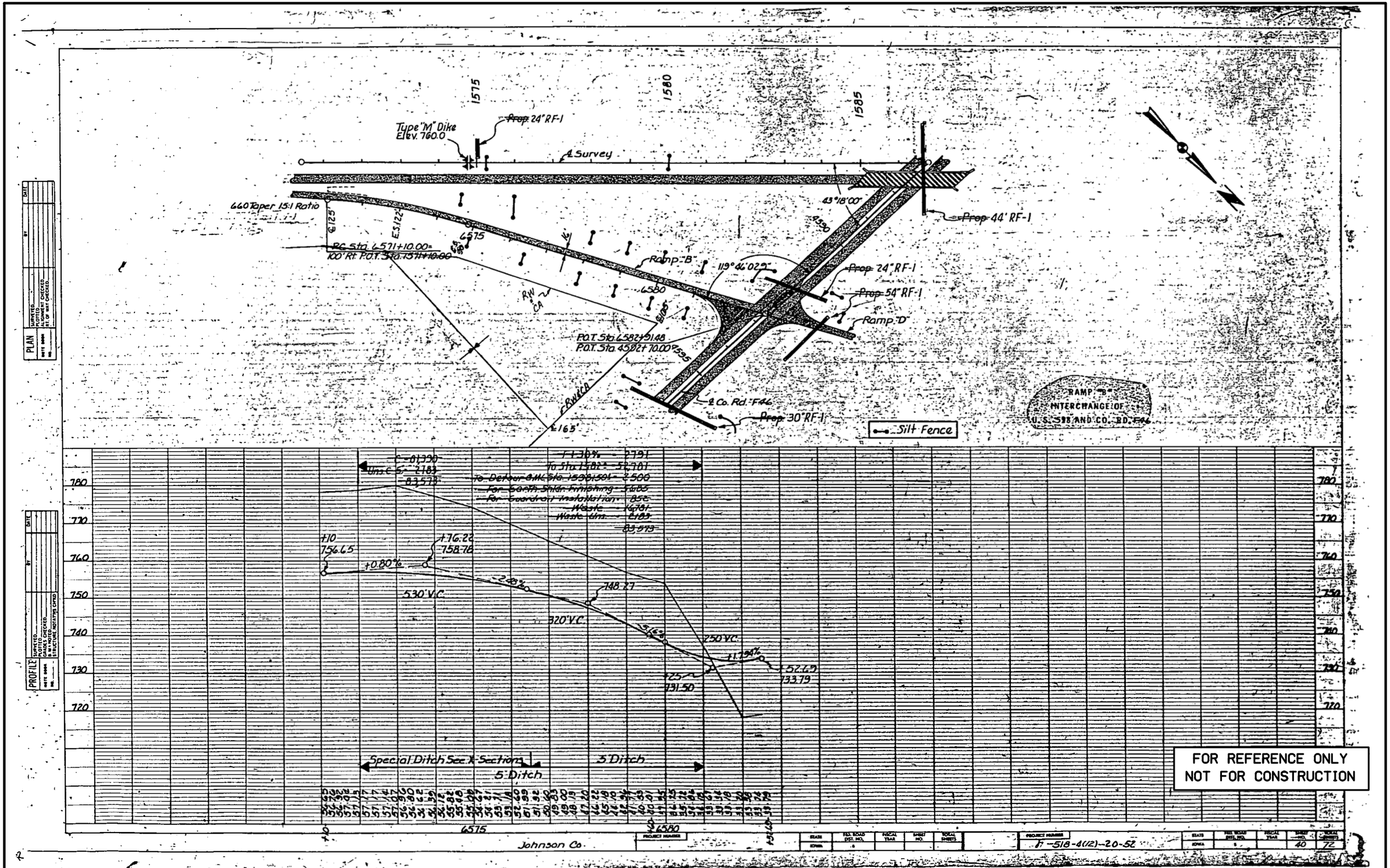
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NOT FOR CONSTRUCTION

FILE NO.	ENGLISH	DESIGN TEAM **IOWA DOT**	**JOHNSON** COUNTY	PROJECT NUMBER **NHSX-218-4(049)--3H-52**	SHEET NUMBER **U.22**

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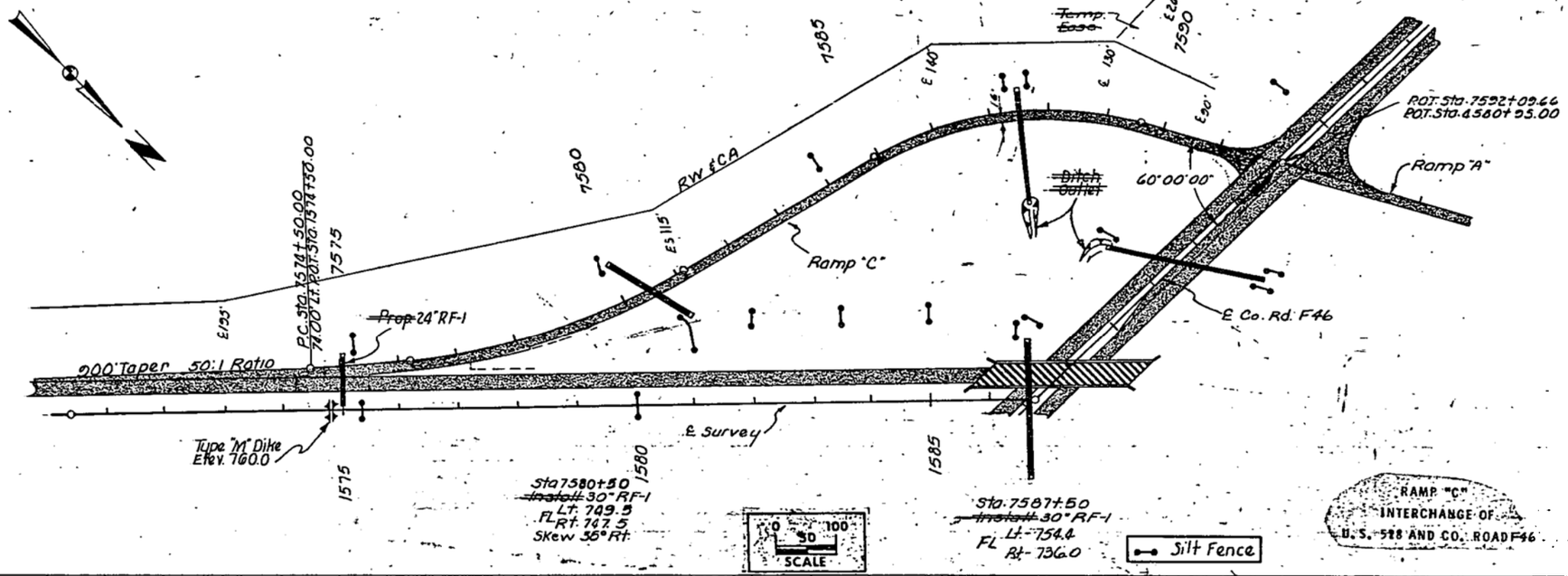


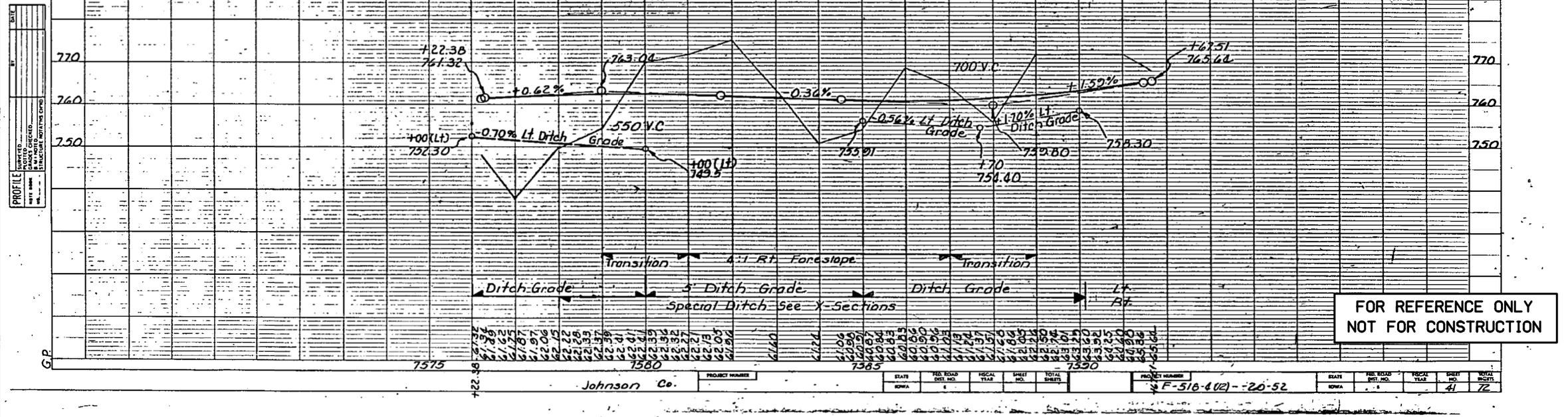
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PLAN — SURVEYED … DRAWN … ALIGNMENT CHECKED … QUANTITIES CHECKED … BY … DATE … NOTE BOOK … NO. … SHEET NO. … OF … SHEETS CHECKED

PROFILE — SURVEYED … DRAWN … CHECKED … BY … DATE … NOTE BOOK … NO. … SHEET NO. … OF … SHEETS CHECKED … STRUCTURE (SPLITTING OPTION)





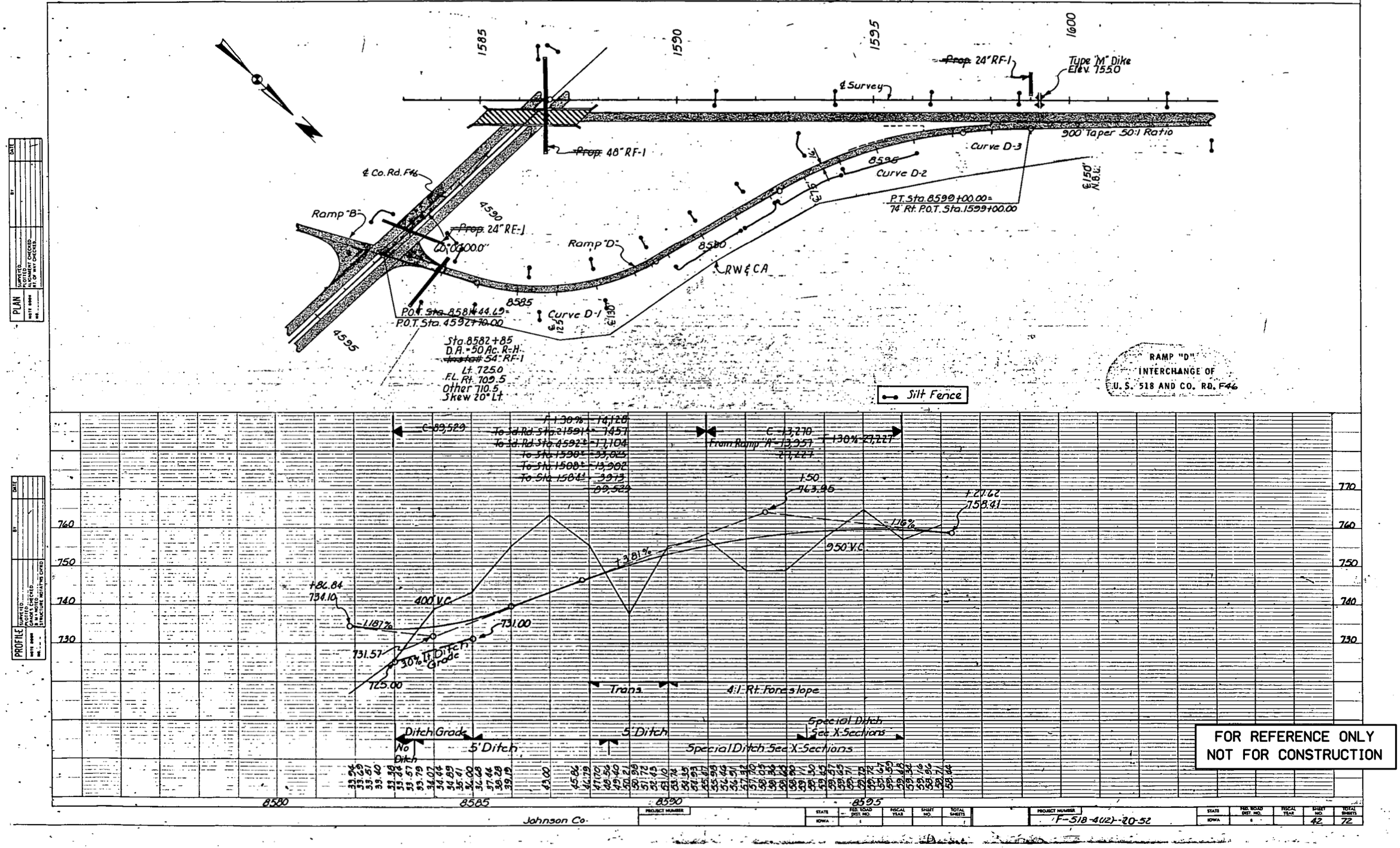
FOR REFERENCE ONLY
NOT FOR CONSTRUCTION

GP

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	6			
PROJECT NUMBER F-518-4(12)--20-52	IOWA	6		41	72

FILE NO.	ENGLISH	DESIGN TEAM **IOWA DOT**	**JOHNSON** COUNTY	PROJECT NUMBER **NHSX-218-4(049)--3H-52**	SHEET NUMBER **U.24**

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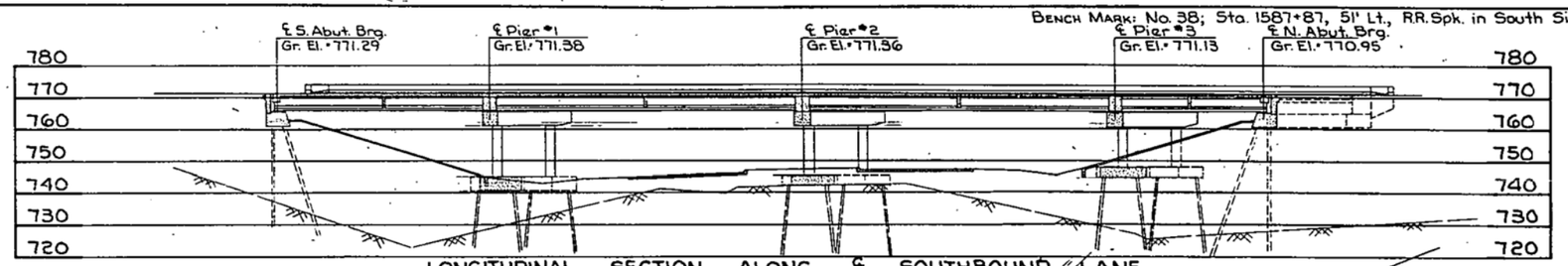


FOR REFERENCE ONLY
NOT FOR CONSTRUCTION

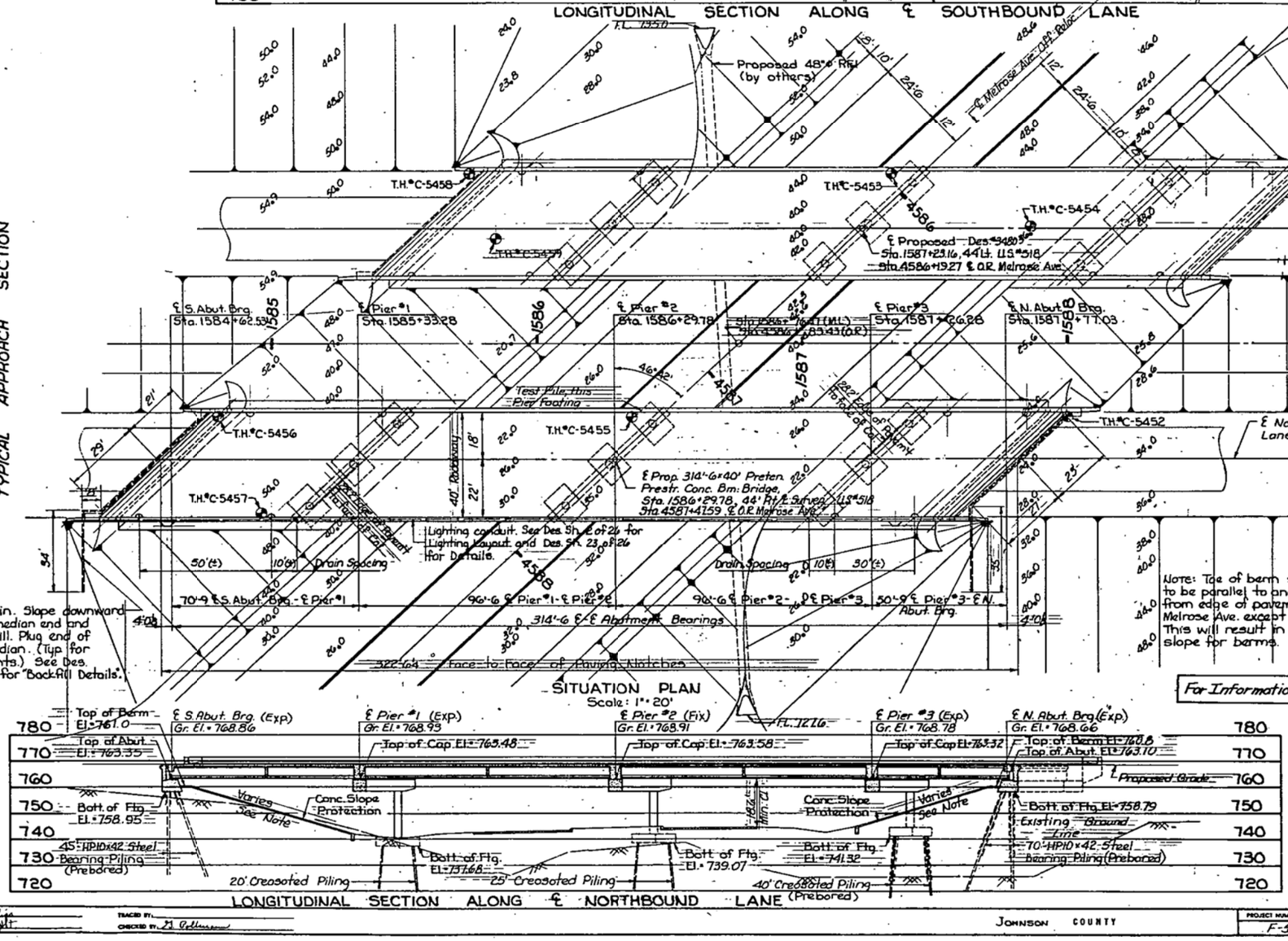
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BENCH MARK: No. 38; Sta. 1587+87, 51' Lt., RR Spk. in South Side Tel. Pole, Elev. = 738.02.

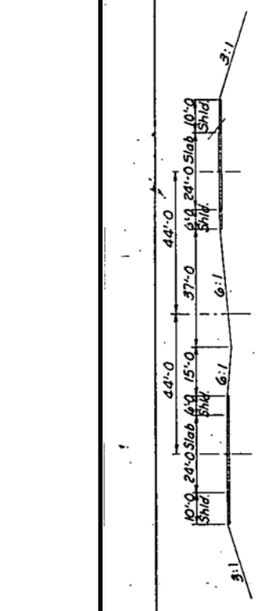


LONGITUDINAL SECTION ALONG ℄ SOUTHBOUND LANE



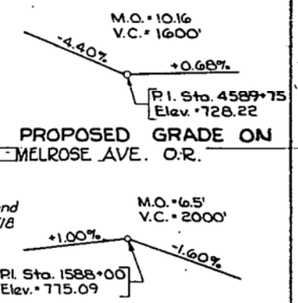
SITUATION PLAN
Scale: 1" = 20'

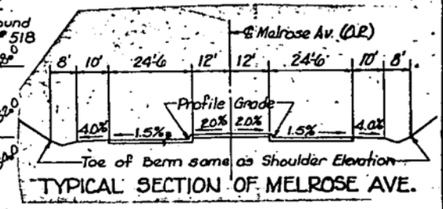
LONGITUDINAL SECTION ALONG ℄ NORTHBOUND LANE



TYPICAL APPROACH SECTION







TYPICAL SECTION OF MELROSE AVE.

NOTE: Subdrain. Slope downward ¼" per ft from median end and extend thru fill. Plug end of drain near median. (Typ. for both abutments.) See Des. Sh. 5 & 7 of 26 for Backfill Details.

NOTE: Toe of berm slope is to be parallel to and 18 feet from edge of pavement for Melrose Ave. except as shown. This will result in a varying slope for berms.

TRAFFIC COUNT: 5,800 V.P.D. (1989)

LOCATION:
U.S. #518 over Melrose Ave. (Off. Reloc)
Section 7
T-79 N R-6 W
West Lucas Twp.
Johnson County

For Information Only

Design For 46°42' Skew (L.A.)
314'-6"x40' PRETENSIONED PRESTRESSED CONCRETE BE
70'-9 & 50'-9 End Spans

SITUATION
Sta. 1586+29.78, Rt 44' ℄ Survey U.S. #518
Sta. 4587+47.59 ℄ O.R. Melrose Ave

December, 1981

JOHNSON COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION

Design Sheet No.: 3 Of 26 File No.: 23079 Design No.: 2580

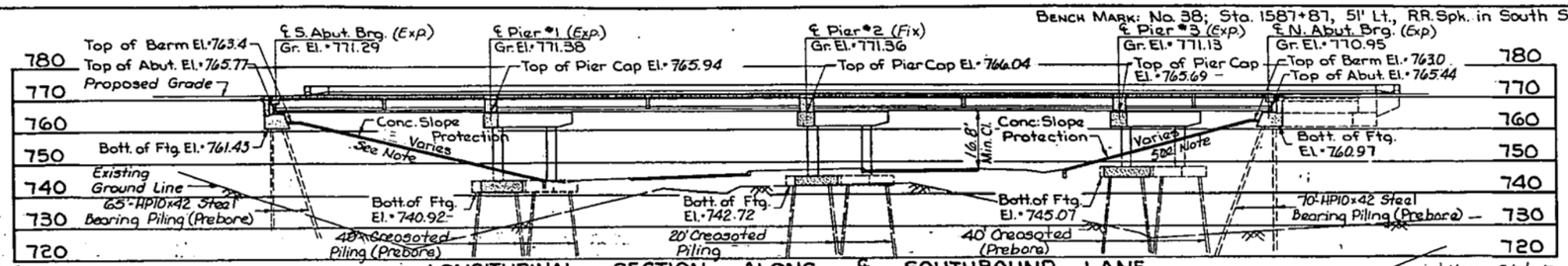
FOR REFERENCE ONLY
NOT FOR CONSTRUCTION

DESIGNED BY: J. Phillips
DETAILED BY: D. A. Wright
TRACED BY:
CHECKED BY: D. Gellerman

JOHNSON COUNTY

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
F-518-4(12)--20-52	IOWA	8		61	72

BENCH MARK: No. 38; Sta. 1587+87, 51' Lt., RR Spk. in South Side Tel. Pole, Elev. = 738.02.



LONGITUDINAL SECTION ALONG ℄ SOUTHBOUND LANE

NOTE: Toe of berm slope is to be parallel to and 18 feet from edge of pavement for Melrose Ave. except as shown. This will result in a varying slope for the berms.

N

NOTE: Subdrain. Slope downward 4" per ft. from median end and extend thru fill. Plug end of drain near median. (Typ. for both abutments). See Des. Sh. 5 & 7 of 26 for "Backfill Details".
M.O. = 10.16
V.C. = 1600'

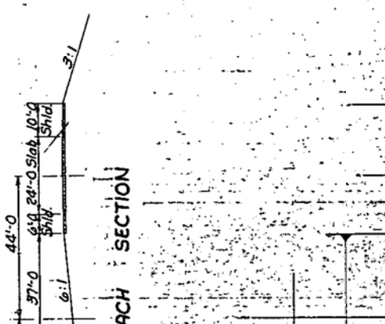
-4.40%
+0.68%
P.I. Sta. 4589+75
Elev. = 728.22

PROPOSED GRADE ON MELROSE AVE. O.R.

M.O. = 3.9'
V.C. = 1200'

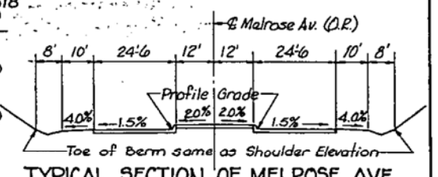
+1.00%
-1.60%
P.I. Sta. 1588+00
Elev. = 775.09

PROPOSED GRADE ON SOUTHBOUND LANE U.S. #518



SITUATION PLAN
Scale: 1" = 20'

LONGITUDINAL SECTION ALONG ℄ NORTHBOUND LANE



TYPICAL SECTION OF MELROSE AVE.

TRAFFIC COUNT: 5,800 V.P.D. (1989)

LOCATION:
U.S. #518 over Melrose Ave. (Off. Reloc.)
Section 7
T-79 N R-6 W
West Lucas Twp.
Johnson County

For Information Only

Design For 46°42' Skew (L.A.)
304'-6" x 40' PRETENSIONED PRESTRESSED CONCRETE
65'-9 & 45'-9 End Spa
SITUAT
Sta. 1587+23.16, Lt. 44
Sta. 4586+19.27 ℄ O.R. Melrose Ave.
JOHNSON COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
Design Sheet No.: 9 Of 26 File No.: 23099 Design No.: 3480

FOR REFERENCE ONLY
NOT FOR CONSTRUCTION

DESIGNED BY: E. Wiersma
DETAILED BY: D.A. Wright
TRACED BY:
CHECKED BY: H. Petersen

JOHNSON COUNTY

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
F-518-4(12)--20-52	IOWA	6		62	72

FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)--3H-52	SHEET NUMBER U.27

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ESTIMATED BRIDGE REPAIR QUANTITIES

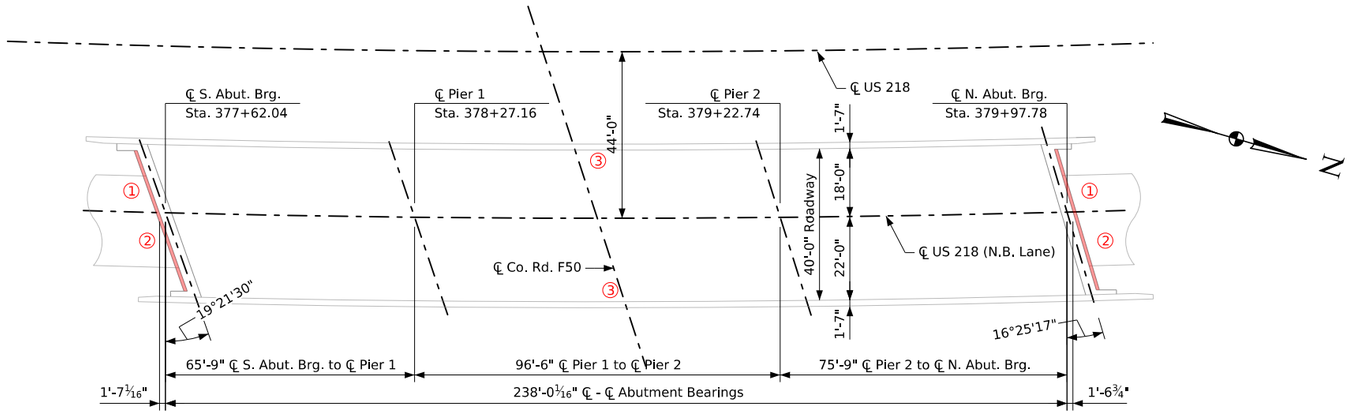
ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL
1	2426-6772016	CONCRETE REPAIR	SF	84.1
2	2426-6772120	BRIDGE REPAIR	LS	1
3	2499-0800000	PAVING NOTCH REPLACEMENT	LF	84.1

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	ITEM DESCRIPTION
1	2426-6772016	CONCRETE REPAIR The area of structural concrete repair for the edge of deck is estimated. The engineer may direct the Contractor to repair the edge of deck as necessary to eliminate deck deterioration at the ends of the bridge. Structural concrete repair on the deck may be deleted by the engineer if deemed unnecessary.
2	2426-6772120	BRIDGE REPAIR Includes cleaning existing curbs and rails, and furnishing and placing concrete sealer.
3	2499-0800000	PAVING NOTCH REPLACEMENT Includes 5.9 cu yd of structural concrete Class C, 1346 lbs of epoxy-coated reinforcing steel, excavation, removing and disposing of the existing paving notch and concrete removed to form the shear keyways, drilling holes for dowel bars, and polymer grout material.

Repairs shall consist of:

① Remove and replace paving notch at both abutments.
② Repair edge of deck.
③ Clean and seal concrete barrier rails.



Situation Plan

General Notes:

This design provides for repairs to the existing 238'-0" x 40'-0" pretensioned prestressed concrete beam bridge on US 218 (N.B.) over Co Rd. F50, located 1.6 miles south of the IA 1 junction. Electronic copies of the original design plans will be made available to the Contractor as part of the E-Files included with the contract documents.

All dimensions and details shown on these plans pertain to new construction and shall be verified in the field by the contractor before starting construction. Dimensions shown on these plans are based on plans (Original Design No. 980).

Faint lines on plans indicate existing portions of the bridge.

Utility companies whose facilities are shown on the plans, or known to be within the construction limits, shall be notified by the contractor prior to the start of construction.

All reinforcing bars and bars noted as dowels supplied for this structure shall be deformed reinforcement unless otherwise noted or shown.

Structural Design

LICENSED PROFESSIONAL ENGINEER — David R. Evans 18670 — 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.

Signature — Date: 07/16/2026

David R. Evans
Printed or Typed Name

My license renewal date is December 31, 2027

Pages or sheets covered by this seal: Sheets V.1-V.3

Design History at this Site
(Includes this Design)

Des. No.	Type of Work
980	Original Design
0827	Bridge Paving Notch Repair

Location

U.S. 218 (N.B.) Over Co Rd F50
T-79N R-06W
Section 28
West Lucas Township
Johnson County
FHWA No. 605000
Bridge Maint. No. 5289.8R218
Latitude 41.614283°
Longitude -91.550356°

Roadway Quantities shown elsewhere in these plans.

Design For Repair to a 17° 56' 04.35" Skew on a 1°15' Lt. Horiz Curve

238'-0" x 40'-0" Pretensioned Prestressed Concrete Beam Bridge

65'-9" & 75'-9" End Spans — 96'-6" Interior Span

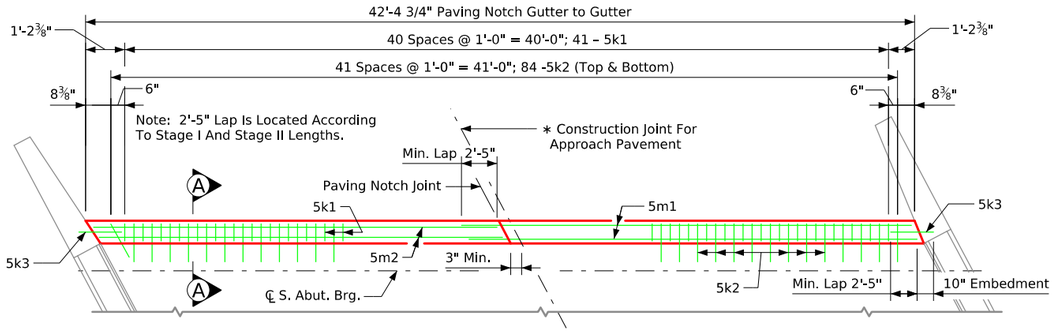
General Notes, Qty's & Situation Plan

STA. 378+76.60 (US 218 (NB)) — Turn-in Date: September 2026

JOHNSON County

IOWA DEPARTMENT OF TRANSPORTATION

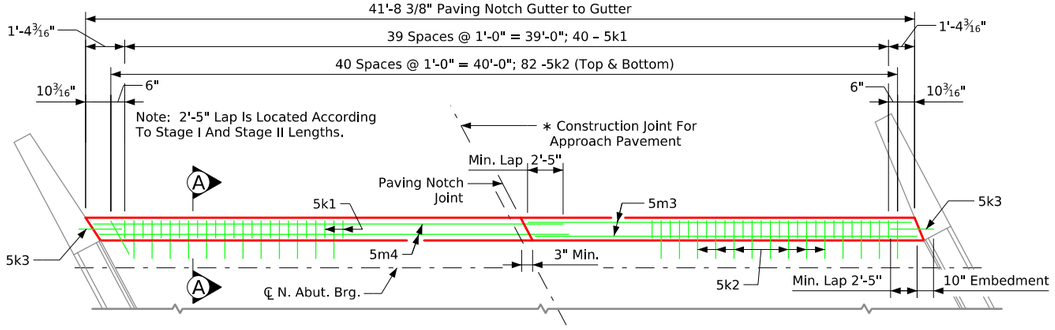
Design No. 0827 — Design Sheet No. 1 of 3 — FHWA No. 605000



Part Plan View At South Abutment (19°22'00" Skew)

Note: 5k3 bars shall be set as dowels embedding 10 inches minimum into the existing bridge wingwalls and extending a minimum of 2'-5" into the new paving notch replacement.

Note: New Paving Notch Replacement shall extend from bridge wingwall to bridge wingwall.

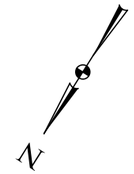


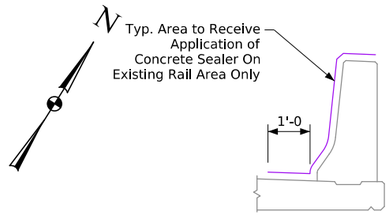
Part Plan View At North Abutment (16°25'11" Skew)

Note: 5k3 bars shall be set as dowels embedding 10 inches minimum into the existing bridge wingwalls and extending a minimum of 2'-5" into the new paving notch replacement.

Note: New Paving Notch Replacement shall extend from bridge wingwall to bridge wingwall.

∗ Construction joint for notch repair to extend a minimum of 3 inches past construction joint for pavement. Provide 2'-5" minimum lap for reinforcement.

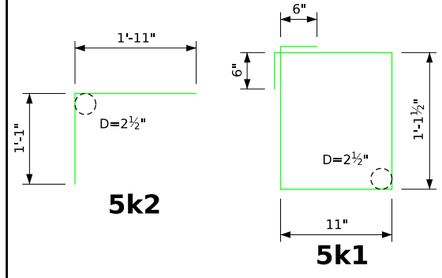




Detail of Concrete Sealer Area

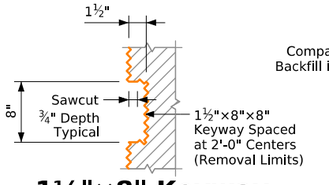
Note: 5k2 bars at 1'-0" centers are to be placed at the top & bottom of the paving notch. The 5k1 bars at 1'-0" centers are centered between the 5k2 bars.

Bent Bar Details

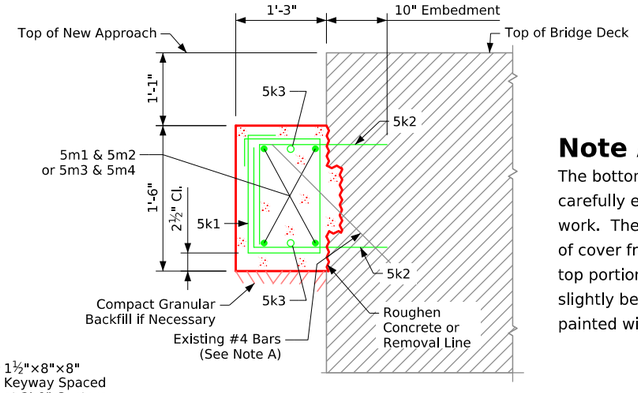


Note: All reinforcing is to be epoxy coated.

Note: All dimensions are out to out. D=Pin diameter



1½"×8" Keyway Detail



Part Section A-A Typical

Note: Dowels shall be placed to miss any existing reinforcing steel exposed during removals.

Note A:

The bottom portion of the existing #4 bars shall be carefully exposed and incorporated into new work. The bar shall be cut off to provide 2 inches of cover from the top of the new paving notch. The top portion of the bar shall be cut off flush or slightly below the concrete surface and the ends painted with 2 coats of zinc rich paint.

Paving Notch Replacement Notes:

The Paving Notch Replacement is to be Class "C" structural concrete.
Minimum clear distance from face of concrete to near reinforcing bar is to be 2", unless otherwise noted or shown.

The bid item "PAVING NOTCH REPLACEMENT" linear feet, shall include all costs of labor and materials associated with excavation, removing, and disposing of the existing paving notch, granular backfill and compaction as needed, and installing the new paving notch. This work shall include, cutting of the existing #4 bars, removing the concrete for the shear keyways, drilling the holes for the deformed dowels, and constructing the new notch to the dimensions shown. The paving notch replacement is estimated to require 0.07 cubic yards of structural concrete and 16.0 pounds of epoxy-coated reinforcing steel.

Removals shall be in accordance with Section 2401, of the Standard Specifications.
These bridge plans label all reinforcing steel with English notation (5a1 is ⅝ inch diameter bar). English reinforcing steel received in the field may display the following "Bar Designation". The "Bar Designation" is the stamped impression on the reinforcing bars, and is equivalent to the bar diameter in millimeters.

English size	3	4	5	6	7	8	9	10	11
Bar designation	10	13	16	19	22	25	29	32	36

Dowel Setting Note:

The deformed 5k2 & 5k3 bars shall be set as dowels in drilled holes. Holes are to be 10" deep. Polymer grout system shall be used to install the deformed dowel bars in accordance with Article 2301.03,E, of the Standard Specifications and the Grout Manufacturer's recommendations.

Concrete Sealer Note:

The top and interior faces of the existing concrete railing are to be cleaned and sealed in accordance with Article 2403.03, P, of the Standard Specifications. If new sections of rail are constructed, the new sections shall not be sealed. All costs associated with cleaning and sealing of the concrete rails shall be include in the unit price bid Item "BRIDGE REPAIR".

Note:
Use "BR-203" Approach Pavement Standard for Movable Abutment.

Specifications:
Design:
AASHTO Series of 2002
Construction:
Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, Series 2023, plus applicable General Supplemental Specifications, Developmental Specifications, Supplemental Specifications and Special Provisions shall apply to construction work on this project.

Design Stresses:
Design stresses for the following materials are in accordance with the AASHTO Standard Specifications for Highway Bridges, Series of 2002.
Reinforcing steel in accordance with Section 8, Grade 60.
Concrete in accordance with Section 8, f'c = 4.0 KSI.

Design For Repair to a 17° 56' 04.35" Skew on a 1°15' Lt. Horiz Curve

238'-0" x 40'-0" Pretensioned Prestressed Concrete Beam Bridge

65'-9" & 75'-9" End Spans — 96'-6" Interior Span

Paving Notch Replacement

STA. 378+76.60 (US 218 (NB)) — Turn-in Date: September 2026

JOHNSON County

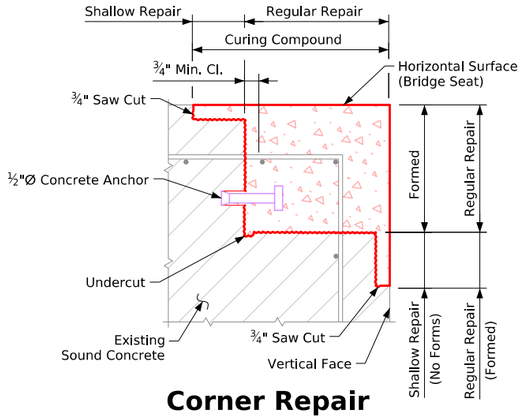
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0827 — Design Sheet No. 2 of 3 — FHWA No. 605000

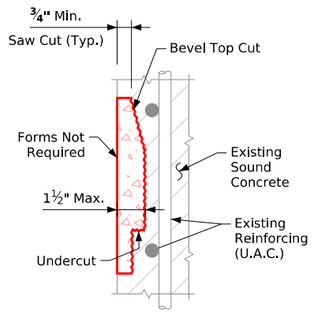
FILE NO. 32879	ENGLISH	DESIGN TEAM RYS / DHK /TWE	Paving Notch Replacement	Standard Sheet 1068 (Modified)	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)–3H-52	SHEET NUMBER V.2	

Revised 07-2019: Changed Bent Ends (Hook Leg) of 5k1 Bar to 6" (Was 4½"). Changed All References of "Slab" to "Deck". Miscellaneous Bridges.dgn - 1068 - This Sheet Re-Issued 11-2023. Sheet Format Update.

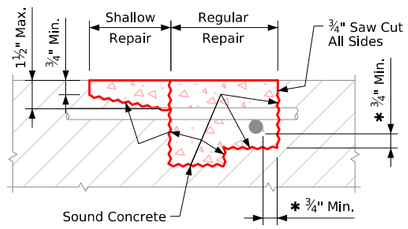
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Corner Repair

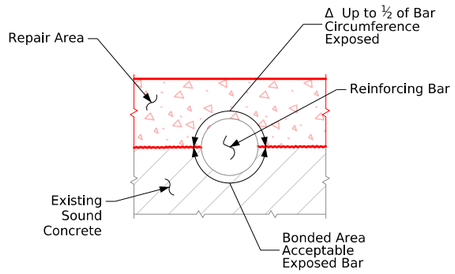


Shallow Repair Vertical Face

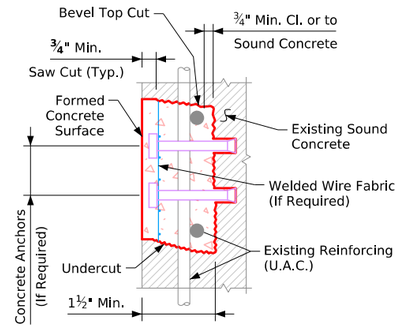


Repair Definition

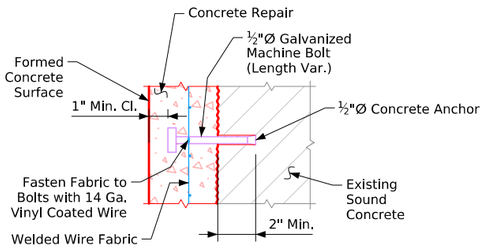
✱ Indicates Clearance for an Un-Bonded Rebar.



Δ If more than ½ of the rebar is exposed it shall be treated as an un-bonded rebar.

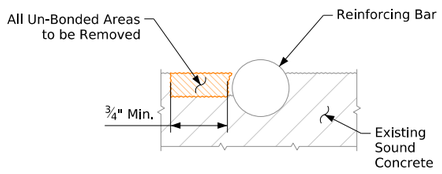


Regular Repair Vertical Face



Anchor Detail

For Spacing and Use of Concrete Anchors and WWF See the Repair Notes.



Concrete Removal Adjacent to Reinforcing

Note:
The areas of repair are roughly estimated between shallow repair and regular repair. The limits of shallow and regular depths shall be determined in the field.

Repair Notes:

The spalled and hollow areas of this bridge as noted and shown in these plans shall be repaired as follows:

- All the costs of equipment and materials required to repair the spalled and hollow areas of this bridge shall be included in the price bid for "CONCRETE REPAIR".
- The price bid for "CONCRETE REPAIR" shall include the cost of all concrete anchors and welded wire fabric required by the plans.
- The Engineer shall determine and outline by visual and audible inspection the actual areas of the concrete repairs. The Contractor shall be paid for the actual amount of repairs made on a square foot basis based on the price bid per square foot.
- All existing reinforcing bars that are exposed by the concrete removal shall be cleaned and carefully incorporated into the new work, except badly deteriorated existing reinforcing which shall be replaced as directed by the Engineer.
- The concrete anchors required shall have a minimum pull out of 5,000 lbs based on 4,000 psi concrete. An anchor meeting the requirements of Iowa D.O.T. Materials I.M. 453.09 and the pull out load above is required. The anchors shall be galvanized and shall be installed according to recommendations of the Manufacturer. The cost of furnishing and installing the concrete anchors shall be included in the price bid for "CONCRETE REPAIR".
- The welded wire fabric shall be ASTM A185 and galvanized as per ASTM A-641. The WWF wires shall be spaced 3x3 or 4x4 and the wires shall have a nominal area of 0.014 to 0.029 square inch inclusive, example "WWF 3x3 - W1.4xW2.9".

Where reinforcement has been exposed and clearance around the periphery of the existing bar is provided, no supplemental reinforcing is required, except where existing reinforcement density and pattern are such that individual open spaces between bars are of 1.5 square feet or larger. For this condition ½"Ø concrete anchors and welded wire fabric shall be installed at the rate of one concrete anchor with WWF per each 1.5 square feet of area within each open space.

Repairing the structural concrete shall be in accordance with Section 2426 of the Standard Specifications.

In addition to the Specification 2426, the following requirements of the patching material are necessary for the concrete repairs:

When Class O concrete is used, scrub a cement-sand-water grout of creamy consistency onto patch surface, including edges. Grout shall consist of two parts Type I or Type I/II Portland cement and one part sand mixed with water. Mix grout by mechanical means. Place patch material before grout dries. If grout dries before placement of patch material, clean patch area again by sandblasting and air and then reapply grout.

Thoroughly trowel patching material into patch edges to ensure a good bond and seal. Ensure that all saw cuts extending beyond the patch area are filled with patching material to prevent water from getting around or under the patch.

Match profile of patches to the existing deck grade and cross slope. Texture the surface of patches to match the adjacent deck surface.

Prior to final acceptance, the patch shall be level with the adjacent pavement and have a smooth riding surface.

Concrete Placement Quantities

Mark	Type	Units	Quantity
	Shallow Repair	Sq. Ft.	84.1
		Total (Sq. Ft.)	84.1

Estimated Concrete Repair Quantities

Description	Units	Amount
Concrete Repair	Sq. Ft.	84.1

Design For Repair to a 17° 56' 04.35" Skew on a 1°15' Lt. Horiz Curve

238'-0" x 40'-0" Pretensioned Prestressed Concrete Beam Bridge

65'-9" & 75'-9" End Spans — 96'-6" Interior Span

Concrete Repairs

STA. 378+76.60 (US 218 (NB)) — Turn-in Date: September 2026

JOHNSON County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0827 — Design Sheet No. 3 of 3 — FHWA No. 605000

Revised 10-2014 - Deleted All References to Grout. Section 2426 Covers this Requirement and Doesn't Need to be Stated on the Plans.
RepairRetrofitBridges.dgn - 1045 - This Sheet Redrawn 09-27-1990.
RepairRetrofitBridges.dgn - 1045 - This Sheet Re-Issued 07-2023.

FILE NO. 32879	ENGLISH	DESIGN TEAM RYS / DHK /TWE	Concrete Repairs	Standard Sheet 1045	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)–3H-52	SHEET NUMBER V.3	

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ESTIMATED BRIDGE REPAIR QUANTITIES

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL
1	2426-6772016	CONCRETE REPAIR	SF	116.7
2	2426-6772120	BRIDGE REPAIR	LS	1
3	2499-0800000	PAVING NOTCH REPLACEMENT	LF	116.7

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	ITEM DESCRIPTION
1	2426-6772016	CONCRETE REPAIR The area of Structural Concrete Repair for the abutment backwall is estimated. The Engineer may direct the Contractor to repair the abutment backwall as necessary to eliminate concrete deterioration at the ends of the bridge. Structural Concrete Repair on the backwall may be deleted by the Engineer if deemed unnecessary.
2	2426-6772120	BRIDGE REPAIR Includes cleaning existing curbs and rails, and furnishing and placing concrete sealer.
3	2499-0800000	PAVING NOTCH REPLACEMENT Includes 8.2 cu yd of structural concrete Class C, 1868 lbs of epoxy-coated reinforcing steel, 135 lbs of stainless reinforcing steel, excavation, removing and disposing of the existing paving notch and concrete removed to form the shear keyways, drilling holes for dowel bars, and polymer grout material.

General Notes:

This design provides for repairs to the existing 314'-6" x 40'-0" pretensioned prestressed concrete beam bridge on US 218 (N.B.) over Melrose Ave, located 2.3 miles north of the IA 1 junction. Electronic copies of the original design plans will be made available to the Contractor as part of the E-Files included with the contract documents.

All dimensions and details shown on these plans pertain to new construction and shall be verified in the field by the contractor before starting construction. Dimensions shown on these plans are based on plans (Original Design No. 2580).

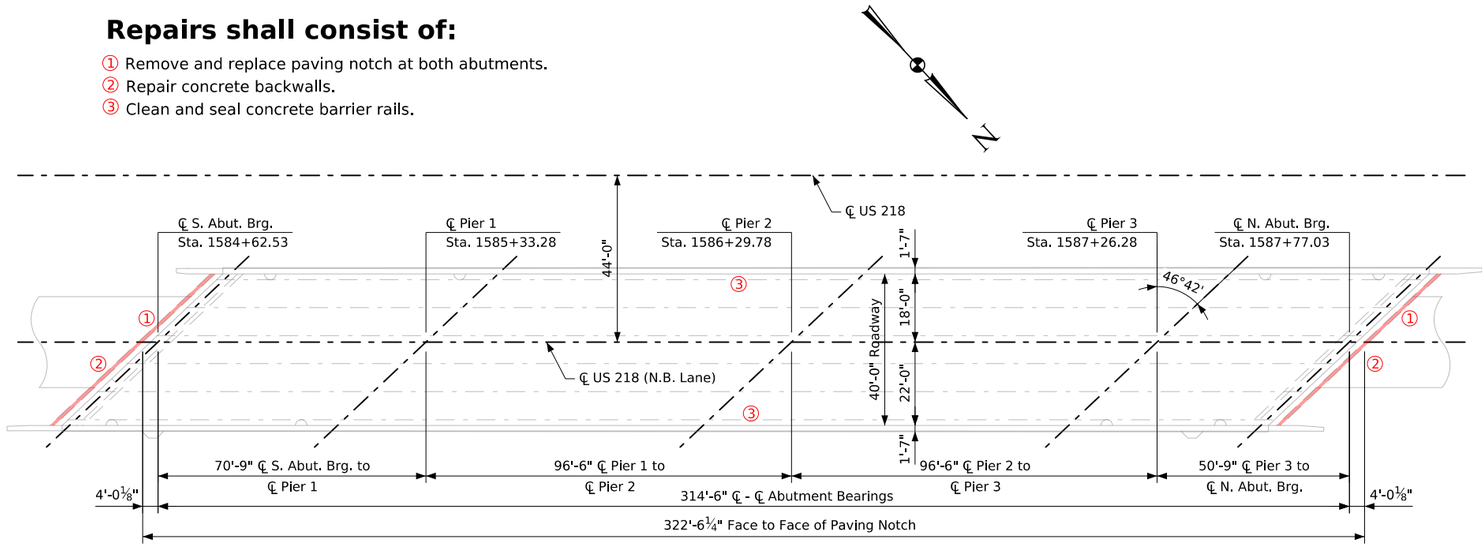
Faint lines on plans indicate existing portions of the bridge.

Utility companies whose facilities are shown on the plans, or known to be within the construction limits, shall be notified by the contractor prior to the start of construction.

All reinforcing bars and bars noted as dowels supplied for this structure shall be deformed reinforcement unless otherwise noted or shown.

Repairs shall consist of:

① Remove and replace paving notch at both abutments.
② Repair concrete backwalls.
③ Clean and seal concrete barrier rails.



Situation Plan

Structural 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
David R. Evans
18670
IOWA

Signature David R. Evans 07/16/2026
Date

Printed or Typed Name

My license renewal date is December 31, 2027

Pages or sheets covered by this seal: Sheets V.4-V.6

Design History at this Site

(Includes this Design)

Des. No.	Type of Work
2580	Original Design
0927	Bridge Paving Notch Repair

Location

U.S. 218 (N.B.) Over Melrose Ave
T-79N R-06W
Section 7
West Lucas Township
Johnson County
FHWA No. 605555
Bridge Maint. No. 5293.7R218
Latitude 41.656828°
Longitude -91.597278°

Roadway Quantities shown elsewhere in these plans.

Design For Repair to a 46°42' Skew (L.A.)

314'-6" x 40'-0" Pretensioned Prestressed Concrete Beam Bridge

70'-9" & 50'-9" End Spans — 2 -96'-6" Interior Spans

General Notes, Qty's & Situation Plan

STA. 1586+29.78 (US 218 (NB)) — Turn-in Date: September 2026

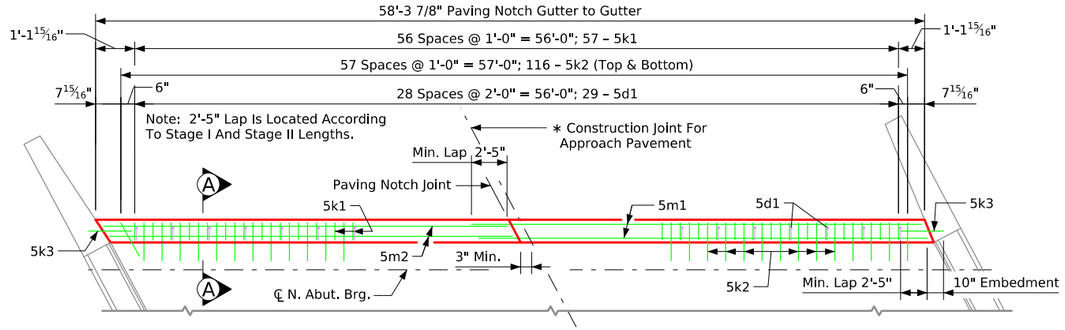
JOHNSON County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0927 — Design Sheet No. 1 of 3 — FHWA No. 605555

FILE NO. 32879	ENGLISH	DESIGN TEAM RYS / DHK /TWE	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)–3H-52	SHEET NUMBER V.4

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Part Plan View At Abutment (46°42' Skew)

(North abutment Shown, South Abutment Similar)

Note: 5k3 bars shall be set as dowels embedding 10 inches minimum into the existing bridge wingwalls and extending a minimum of 2'-5" into the new paving notch replacement.

Note: New Paving Notch Replacement shall extend from bridge wingwall to bridge wingwall.

∗ Construction joint for notch repair to extend a minimum of 3 inches past construction joint for pavement. Provide 2'-5" minimum lap for reinforcement.



Paving Notch Replacement Notes:

The Paving Notch Replacement is to be Class "C" structural concrete.
Minimum clear distance from face of concrete to near reinforcing bar is to be 2", unless otherwise noted or shown.

The bid item "PAVING NOTCH REPLACEMENT" linear feet, shall include all costs of labor and materials associated with excavation, removing, and disposing of the existing paving notch, granular backfill and compaction as needed, and installing the new paving notch. This work shall include, cutting of the existing #5 bars, removing the concrete for the shear keyways, drilling the holes for the deformed dowels, and constructing the new notch to the dimensions shown. The paving notch replacement is estimated to require 0.07 cubic yards of structural concrete, 16.0 pounds of epoxy-coated reinforcing steel, and 1.2 pounds of Stainless steel reinforcing steel per linear foot.

Removals shall be in accordance with Section 2401, of the Standard Specifications.

These bridge plans label all reinforcing steel with English notation (5a1 is $\frac{5}{8}$ inch diameter bar). English reinforcing steel received in the field may display the following "Bar Designation". The "Bar Designation" is the stamped impression on the reinforcing bars, and is equivalent to the bar diameter in millimeters.

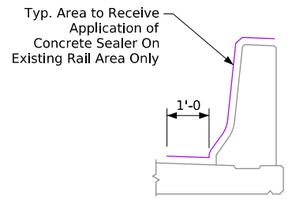
English size	3	4	5	6	7	8	9	10	11
Bar designation	10	13	16	19	22	25	29	32	36

Dowel Setting Note:

The deformed 5k2 & 5k3 bars shall be set as dowels in drilled holes. Holes are to be 10" deep. Polymer grout system shall be used to install the deformed dowel bars in accordance with Article 2301.03,E, of the Standard Specifications and the Grout Manufacturer's recommendations.

Concrete Sealer Note:

The top and interior faces of the existing concrete railing are to be cleaned and sealed in accordance with Article 2403.03, P, of the Standard Specifications. If new sections of rail are constructed, the new sections shall not be sealed. All costs associated with cleaning and sealing of the concrete rails shall be include in the unit price bid Item "BRIDGE REPAIR".



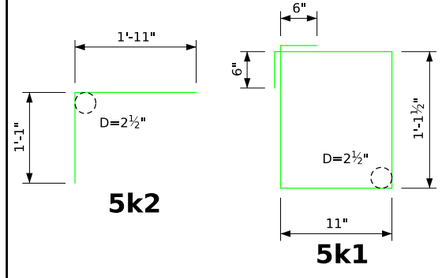
Detail of Concrete Sealer Area

Note:
Use "BR-204" Approach Pavement Standard for Fixed Abutment.

Specifications:
Design:
AASHTO Series of 2002
Construction:
Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, Series 2023, plus applicable General Supplemental Specifications, Developmental Specifications, Supplemental Specifications and Special Provisions shall apply to construction work on this project.

Design Stresses:
Design stresses for the following materials are in accordance with the AASHTO Standard Specifications for Highway Bridges, Series of 2002.
Reinforcing steel in accordance with Section 8, Grade 60.
Concrete in accordance with Section 8, f'c = 4.0 KSI.

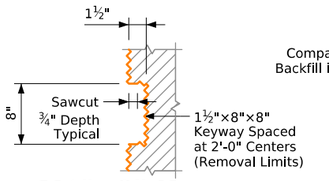
Bent Bar Details



Note: All reinforcing is to be epoxy coated.

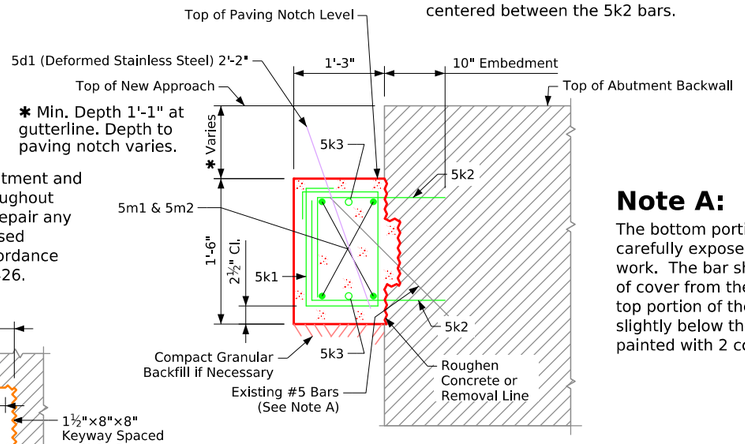
Note: All dimensions are out to out. D=Pin diameter

Protect the abutment and deck edge throughout construction. Repair any Contractor-caused damage in accordance with Section 2426.



1½"×8" Keyway Detail

Note: 5k2 bars at 1'-0" centers are to be placed at the top & bottom of the paving notch. The 5k1 bars at 1'-0" centers are centered between the 5k2 bars.



Part Section A-A Typical

Note: Dowels shall be placed to miss any existing reinforcing steel exposed during removals.

Note A:

The bottom portion of the existing #5 bars shall be carefully exposed and incorporated into new work. The bar shall be cut off to provide 2 inches of cover from the top of the new paving notch. The top portion of the bar shall be cut off flush or slightly below the concrete surface and the ends painted with 2 coats of zinc rich paint.

Design For Repair to a 46°42' Skew (L.A.)

314'-6" x 40'-0" Pretensioned Prestressed Concrete Beam Bridge

70'-9" & 50'-9" End Spans — 2 -96'-6" Interior Spans

Paving Notch Replacement

STA. 1586+29.78 (US 218 (NB)) — Turn-in Date: September 2026

JOHNSON County

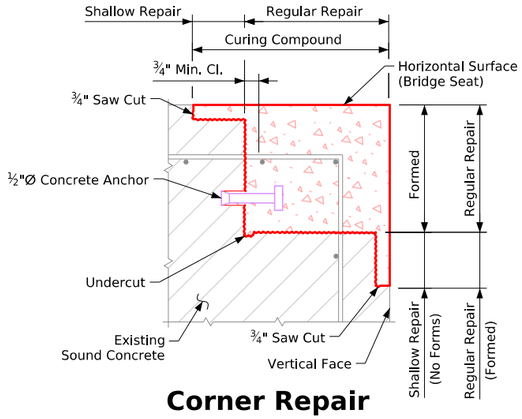
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0927 — Design Sheet No. 2 of 3 — FHWA No. 605555

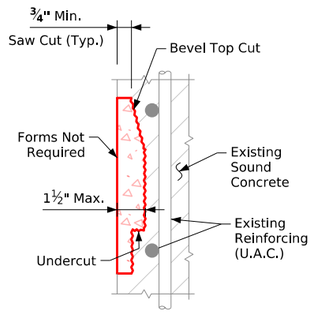
Revised 07-2019: Changed Bent Ends (Hook Leg) of 5k1 Bar to 6" (Was 4½"). Changed All References of "Slab" to "Deck". MiscellaneousBridges.dgn - 1068 - This Sheet Re-Issued 11-2023. Sheet Format Update.

FILE NO. 32879	ENGLISH	DESIGN TEAM RYS / DHK /TWE	Paving Notch Replacement	Standard Sheet 1068 (Modified)	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)–3H-52	SHEET NUMBER V.5	

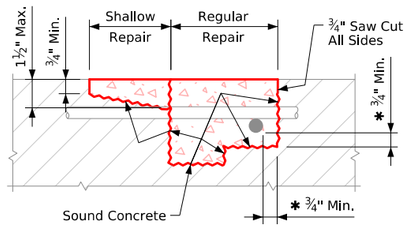
7:28:06 AM 7/15/2026 tellio2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\Bridge\(049)_HMA Resurfacing\SHT_5221801026_DOT_0927_Z06.dgn



Corner Repair

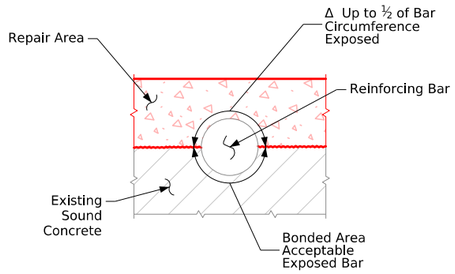


Shallow Repair Vertical Face

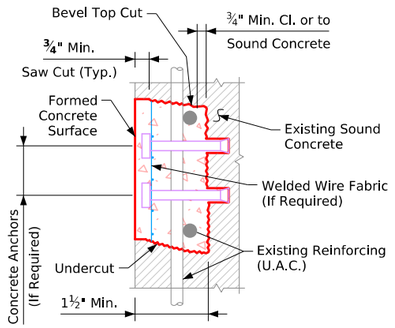


Repair Definition

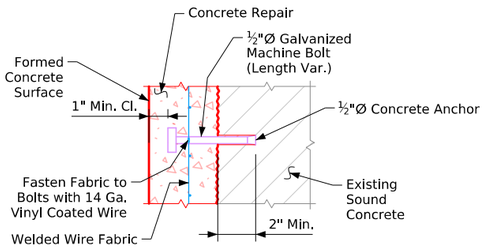
✱ Indicates Clearance for an Un-Bonded Rebar.



Δ If more than ½ of the rebar is exposed it shall be treated as an un-bonded rebar.

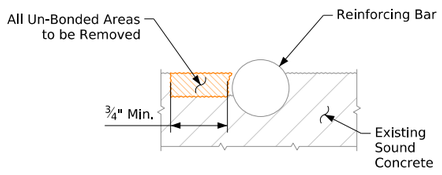


Regular Repair Vertical Face



Anchor Detail

For Spacing and Use of Concrete Anchors and WWF See the Repair Notes.



Concrete Removal Adjacent to Reinforcing

Note:
The areas of repair are roughly estimated between shallow repair and regular repair. The limits of shallow and regular depths shall be determined in the field.

Repair Notes:

The spalled and hollow areas of this bridge as noted and shown in these plans shall be repaired as follows:

- All the costs of equipment and materials required to repair the spalled and hollow areas of this bridge shall be included in the price bid for "CONCRETE REPAIR".
- The price bid for "CONCRETE REPAIR" shall include the cost of all concrete anchors and welded wire fabric required by the plans.
- The Engineer shall determine and outline by visual and audible inspection the actual areas of the concrete repairs. The Contractor shall be paid for the actual amount of repairs made on a square foot basis based on the price bid per square foot.
- All existing reinforcing bars that are exposed by the concrete removal shall be cleaned and carefully incorporated into the new work, except badly deteriorated existing reinforcing which shall be replaced as directed by the Engineer.
- The concrete anchors required shall have a minimum pull out of 5,000 lbs based on 4,000 psi concrete. An anchor meeting the requirements of Iowa D.O.T. Materials I.M. 453.09 and the pull out load above is required. The anchors shall be galvanized and shall be installed according to recommendations of the Manufacturer. The cost of furnishing and installing the concrete anchors shall be included in the price bid for "CONCRETE REPAIR".
- The welded wire fabric shall be ASTM A185 and galvanized as per ASTM A-641. The WWF wires shall be spaced 3x3 or 4x4 and the wires shall have a nominal area of 0.014 to 0.029 square inch inclusive, example "WWF 3x3 - W1.4xW2.9".

Where reinforcement has been exposed and clearance around the periphery of the existing bar is provided, no supplemental reinforcing is required, except where existing reinforcement density and pattern are such that individual open spaces between bars are of 1.5 square feet or larger. For this condition ½"Ø concrete anchors and welded wire fabric shall be installed at the rate of one concrete anchor with WWF per each 1.5 square feet of area within each open space.

Repairing the structural concrete shall be in accordance with Section 2426 of the Standard Specifications.

In addition to the Specification 2426, the following requirements of the patching material are necessary for the concrete repairs:

When Class O concrete is used, scrub a cement-sand-water grout of creamy consistency onto patch surface, including edges. Grout shall consist of two parts Type I or Type I/II Portland cement and one part sand mixed with water. Mix grout by mechanical means. Place patch material before grout dries. If grout dries before placement of patch material, clean patch area again by sandblasting and air and then reapply grout.

Thoroughly trowel patching material into patch edges to ensure a good bond and seal. Ensure that all saw cuts extending beyond the patch area are filled with patching material to prevent water from getting around or under the patch.

Match profile of patches to the existing deck grade and cross slope. Texture the surface of patches to match the adjacent deck surface.

Prior to final acceptance, the patch shall be level with the adjacent pavement and have a smooth riding surface.

Concrete Placement Quantities

Mark	Type	Units	Quantity
	Shallow Repair	Sq. Ft.	116.7
		Total (Sq. Ft.)	116.7

Estimated Concrete Repair Quantities

Description	Units	Amount
Concrete Repair	Sq. Ft.	116.7

Design For Repair to a 46°42' Skew (L.A.)

314'-6" x 40'-0" Pretensioned Prestressed Concrete Beam Bridge

70'-9" & 50'-9" End Spans — 2 -96'-6" Interior Spans

Concrete Repairs

STA. 1586+29.78 (US 218 (NB))

Turn-in Date: September 2026

JOHNSON County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0927 — Design Sheet No. 3 of 3 — FHWA No. 605555

Revised 10-2014 - Deleted All References to Grout. Section 2426 Covers this Requirement and Doesn't Need to be Stated on the Plans.
RepairRetrofitBridges.dgn - 1045 - This Sheet Redrawn 09-27-1990.
RepairRetrofitBridges.dgn - 1045 - This Sheet Re-Issued 07-2023.

ESTIMATED BRIDGE REPAIR QUANTITIES

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL
1	2426-6772016	CONCRETE REPAIR	SF	93.8
2	2426-6772120	BRIDGE REPAIR	LS	1
3	2499-0800000	PAVING NOTCH REPLACEMENT	LF	93.8

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	ITEM DESCRIPTION
1	2426-6772016	CONCRETE REPAIR The area of structural concrete repair for the edge of deck is estimated. The engineer may direct the Contractor to repair the edge of deck as necessary to eliminate deck deterioration at the ends of the bridge. Structural concrete repair on the deck may be deleted by the engineer if deemed unnecessary.
2	2426-6772120	BRIDGE REPAIR Includes cleaning existing curbs and rails, and furnishing and placing concrete sealer.
3	2499-0800000	PAVING NOTCH REPLACEMENT Includes 6.6 cu yd of structural concrete Class C, 1501 lbs of epoxy-coated reinforcing steel, excavation, removing and disposing of the existing paving notch and concrete removed to form the shear keyways, drilling holes for dowel bars, and polymer grout material.

General Notes:

This design provides for repairs to the existing 238'-0" x 40'-0" pretensioned prestressed concrete beam bridge on U.S. 218 (SB) over F50 (Oak Crest Hill Rd), located 1.6 miles south of the IA 1 junction. Electronic copies of the original design plans will be made available to the Contractor as part of the E-Files included with the contract documents.

All dimensions and details shown on these plans pertain to new construction and shall be verified in the field by the contractor before starting construction. Dimensions shown on these plans are based on plans (Original Design No. 1080).

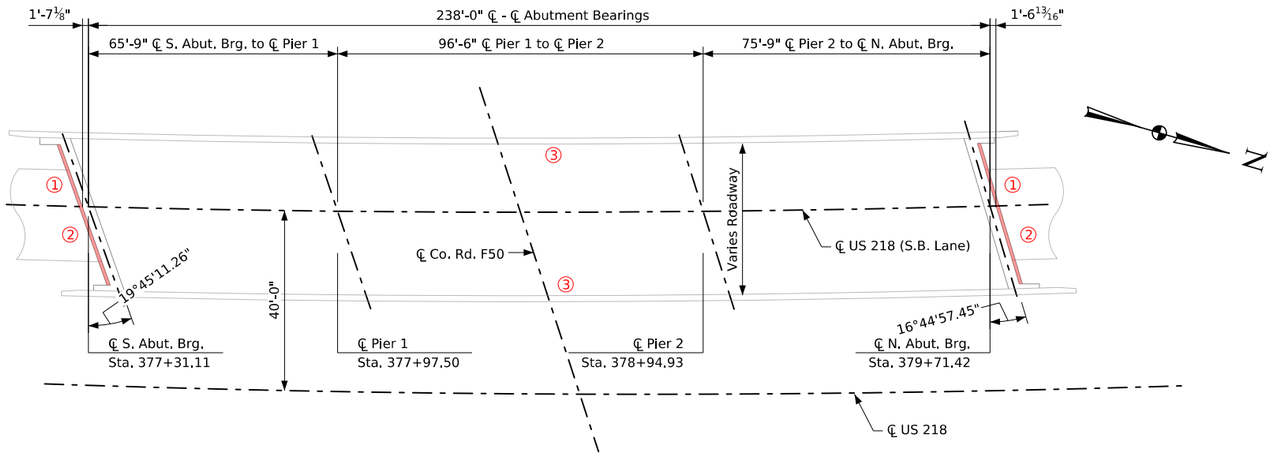
Faint lines on plans indicate existing portions of the bridge.

Utility companies whose facilities are shown on the plans, or known to be within the construction limits, shall be notified by the contractor prior to the start of construction.

All reinforcing bars and bars noted as dowels supplied for this structure shall be deformed reinforcement unless otherwise noted or shown.

Repairs shall consist of:

① Remove and replace paving notch at both abutments.
② Repair edge of deck.
③ Clean and seal concrete barrier rails.



Situation Plan

Structural 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 — David R. Evans 18670 — IOWA

Signature — 07/16/2026 Date

David R. Evans
Printed or Typed Name

My license renewal date is December 31, 2027

Pages or sheets covered by this seal: Sheets V.7-V.9

Design History at this Site
(Includes this Design)

Des. No.	Type of Work
1080	Original Design
1027	Bridge Paving Notch Repair

Location

U.S. 218 (SB) over F50 (Oak Crest Hill Rd)
T-79N R-06W
Section 28
West Lucas Township
Johnson County
FHWA No. 605005
Bridge Maint. No. 5289.8L218
Latitude 41.614892°
Longitude -91.550832°

Roadway Quantities shown elsewhere in these plans.

Design For Repair to a 18° 17' 39.78" Skew (RA) 1°15' Lt. Horiz Curve

238'-0 x Variable Pretensioned Prestressed Concrete Beam Bridge

65'-9" & 75'-9" End Spans — 96'-6" Interior Span

General Notes, Qty's & Situation Plan

STA. 378+47.81 (US 218 (SB)) — Turn-in Date: Sept. 2026

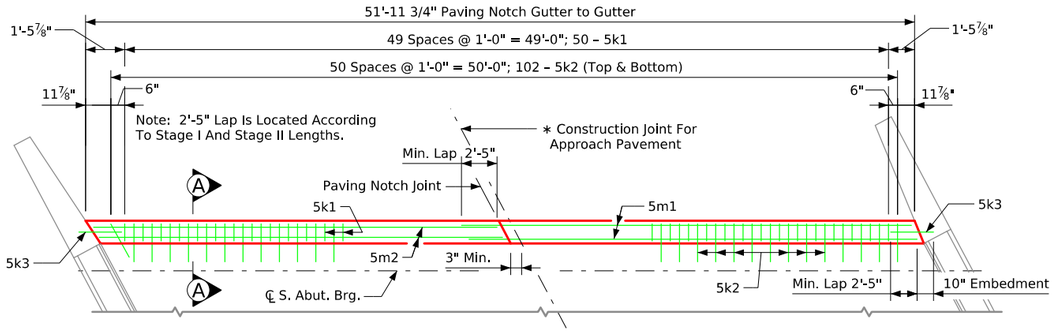
JOHNSON County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 1027 — Design Sheet No. 1 of 3 — FHWA No. 605005

FILE NO. 32879 | ENGLISH | DESIGN TEAM RYS / DHK /TWE | JOHNSON COUNTY | PROJECT NUMBER NHSX-218-4(049)—3H-52 | SHEET NUMBER V.7

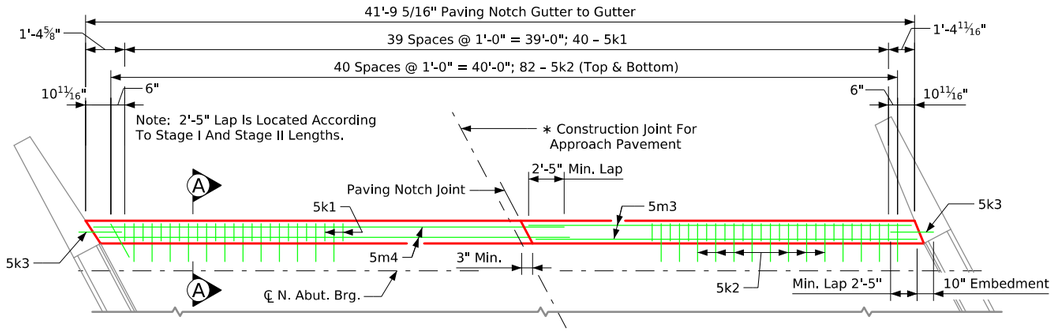
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Part Plan View At South Abutment (19°45'11.3" Skew)

Note: 5k3 bars shall be set as dowels embedding 10 inches minimum into the existing bridge wingwalls and extending a minimum of 2'-5" into the new paving notch replacement.

Note: New Paving Notch Replacement shall extend from bridge wingwall to bridge wingwall.

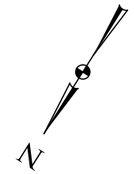


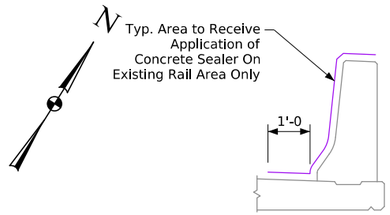
Part Plan View At North Abutment (16°44'57.45" Skew)

Note: 5k3 bars shall be set as dowels embedding 10 inches minimum into the existing bridge wingwalls and extending a minimum of 2'-5" into the new paving notch replacement.

Note: New Paving Notch Replacement shall extend from bridge wingwall to bridge wingwall.

∗ Construction joint for notch repair to extend a minimum of 3 inches past construction joint for pavement. Provide 2'-5" minimum lap for reinforcement.

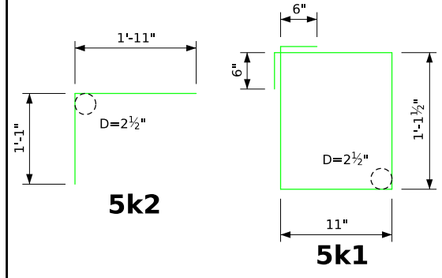




Detail of Concrete Sealer Area

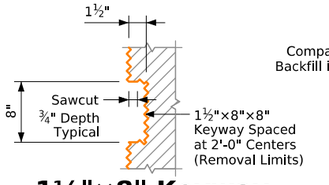
Note: 5k2 bars at 1'-0" centers are to be placed at the top & bottom of the paving notch. The 5k1 bars at 1'-0" centers are centered between the 5k2 bars.

Bent Bar Details

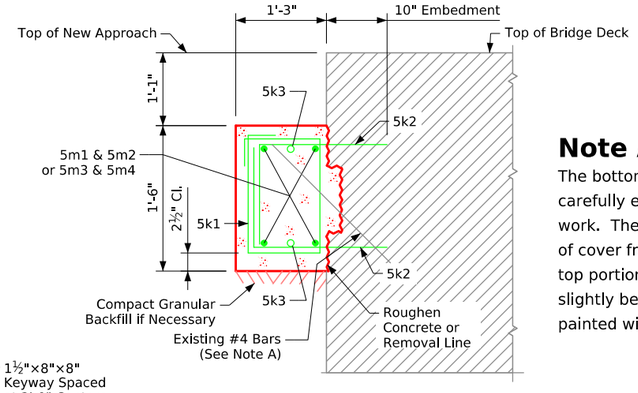


Note: All reinforcing is to be epoxy coated.

Note: All dimensions are out to out. D=Pin diameter



1½"×8" Keyway Detail



Part Section A-A Typical

Note: Dowels shall be placed to miss any existing reinforcing steel exposed during removals.

Note A:

The bottom portion of the existing #4 bars shall be carefully exposed and incorporated into new work. The bar shall be cut off to provide 2 inches of cover from the top of the new paving notch. The top portion of the bar shall be cut off flush or slightly below the concrete surface and the ends painted with 2 coats of zinc rich paint.

Paving Notch Replacement Notes:

The Paving Notch Replacement is to be Class "C" structural concrete.
Minimum clear distance from face of concrete to near reinforcing bar is to be 2", unless otherwise noted or shown.

The bid item "PAVING NOTCH REPLACEMENT" linear feet, shall include all costs of labor and materials associated with excavation, removing, and disposing of the existing paving notch, granular backfill and compaction as needed, and installing the new paving notch. This work shall include, cutting of the existing #4 bars, removing the concrete for the shear keyways, rilling the holes for the deformed dowels, and constructing the new notch to the dimensions shown. The paving notch replacement is estimated to require 0.07 cubic yards of structural concrete and 16.0 pounds of epoxy-coated reinforcing steel.

Removals shall be in accordance with Section 2401, of the Standard Specifications.
These bridge plans label all reinforcing steel with English notation (5a1 is ⅝ inch diameter bar). English reinforcing steel received in the field may display the following "Bar Designation". The "Bar Designation" is the stamped impression on the reinforcing bars, and is equivalent to the bar diameter in millimeters.

English size	3	4	5	6	7	8	9	10	11
Bar designation	10	13	16	19	22	25	29	32	36

Dowel Setting Note:

The deformed 5k2 & 5k3 bars shall be set as dowels in drilled holes. Holes are to be 10" deep. Polymer grout system shall be used to install the deformed dowel bars in accordance with Article 2301.03,E, of the Standard Specifications and the Grout Manufacturer's recommendations.

Concrete Sealer Note:

The top and interior faces of the existing concrete railing are to be cleaned and sealed in accordance with Article 2403.03, P, of the Standard Specifications. If new sections of rail are constructed, the new sections shall not be sealed. All costs associated with cleaning and sealing of the concrete rails shall be include in the unit price bid Item "BRIDGE REPAIR".

Note:
Use "BR-203" Approach Pavement Standard for Movable Abutment.

Specifications:
Design:
AASHTO Series of 2002
Construction:
Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, Series 2023, plus applicable General Supplemental Specifications, Developmental Specifications, Supplemental Specifications and Special Provisions shall apply to construction work on this project.

Design Stresses:
Design stresses for the following materials are in accordance with the AASHTO Standard Specifications for Highway Bridges, Series of 2002.
Reinforcing steel in accordance with Section 8, Grade 60.
Concrete in accordance with Section 8, f'c = 4.0 KSI.

Design For Repair to a 18° 17' 39.78" Skew (RA) 1°15' Lt. Horiz Curve

238'-0 x Variable Pretensioned Prestressed Concrete Beam Bridge

65'-9" & 75'-9" End Spans — 96'-6" Interior Span

Paving Notch Replacement

STA. 378+47.81 (US 218 (SB)) — Turn-in Date: Sept. 2026

JOHNSON County

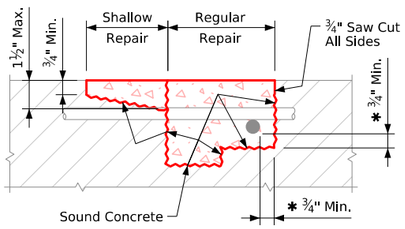
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 1027 — Design Sheet No. 2 of 3 — FHWA No. 605005

Revised 07-2019: Changed Bent Ends (Hook Leg) of 5k1 Bar to 6" (Was 4½"). Changed All References of "Slab" to "Deck". MiscellaneousBridges.dgn - 1068 - This Sheet Re-Issued 11-2023. Sheet Format Update.

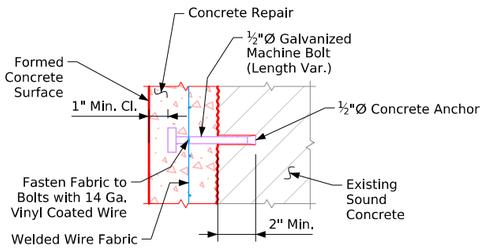
FILE NO. 32879	ENGLISH	DESIGN TEAM RYS / DHK /TWE	Paving Notch Replacement	Standard Sheet 1068 (Modified)	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)—3H-52	SHEET NUMBER V.8	

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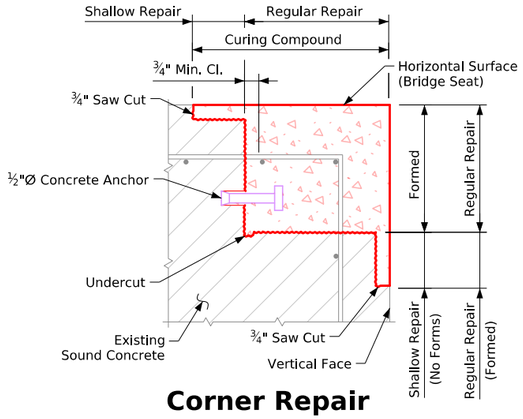
Repair Definition

✱ Indicates Clearance for an Un-Bonded Rebar.

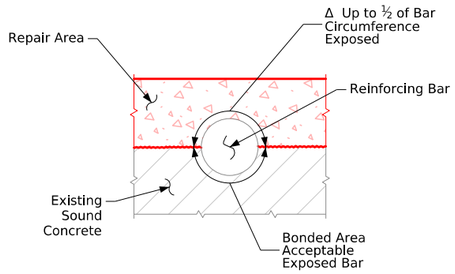


Anchor Detail

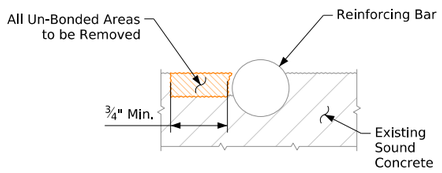
For Spacing and Use of Concrete Anchors and WWF See the Repair Notes.



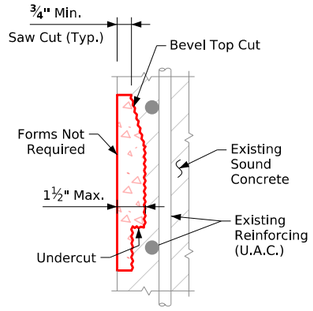
Corner Repair



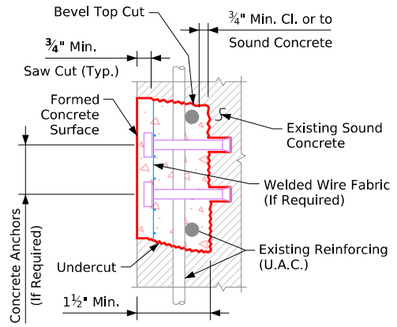
Δ If more than ½ of the rebar is exposed it shall be treated as an un-bonded rebar.



Concrete Removal Adjacent to Reinforcing



Shallow Repair Vertical Face



Regular Repair Vertical Face

Note:
The areas of repair are roughly estimated between shallow repair and regular repair. The limits of shallow and regular depths shall be determined in the field.

Repair Notes:

The spalled and hollow areas of this bridge as noted and shown in these plans shall be repaired as follows:

- All the costs of equipment and materials required to repair the spalled and hollow areas of this bridge shall be included in the price bid for "CONCRETE REPAIR".
- The price bid for "CONCRETE REPAIR" shall include the cost of all concrete anchors and welded wire fabric required by the plans.
- The Engineer shall determine and outline by visual and audible inspection the actual areas of the concrete repairs. The Contractor shall be paid for the actual amount of repairs made on a square foot basis based on the price bid per square foot.
- All existing reinforcing bars that are exposed by the concrete removal shall be cleaned and carefully incorporated into the new work, except badly deteriorated existing reinforcing which shall be replaced as directed by the Engineer.
- The concrete anchors required shall have a minimum pull out of 5,000 lbs based on 4,000 psi concrete. An anchor meeting the requirements of Iowa D.O.T. Materials I.M. 453.09 and the pull out load above is required. The anchors shall be galvanized and shall be installed according to recommendations of the Manufacturer. The cost of furnishing and installing the concrete anchors shall be included in the price bid for "CONCRETE REPAIR".
- The welded wire fabric shall be ASTM A185 and galvanized as per ASTM A-641. The WWF wires shall be spaced 3x3 or 4x4 and the wires shall have a nominal area of 0.014 to 0.029 square inch inclusive, example "WWF 3x3 - W1.4xW2.9".

Where reinforcement has been exposed and clearance around the periphery of the existing bar is provided, no supplemental reinforcing is required, except where existing reinforcement density and pattern are such that individual open spaces between bars are of 1.5 square feet or larger. For this condition ½"Ø concrete anchors and welded wire fabric shall be installed at the rate of one concrete anchor with WWF per each 1.5 square feet of area within each open space.

Repairing the structural concrete shall be in accordance with Section 2426 of the Standard Specifications.

In addition to the Specification 2426, the following requirements of the patching material are necessary for the concrete repairs:

When Class O concrete is used, scrub a cement-sand-water grout of creamy consistency onto patch surface, including edges. Grout shall consist of two parts Type I or Type I/II Portland cement and one part sand mixed with water. Mix grout by mechanical means. Place patch material before grout dries. If grout dries before placement of patch material, clean patch area again by sandblasting and air and then reapply grout.

Thoroughly trowel patching material into patch edges to ensure a good bond and seal. Ensure that all saw cuts extending beyond the patch area are filled with patching material to prevent water from getting around or under the patch.

Match profile of patches to the existing deck grade and cross slope. Texture the surface of patches to match the adjacent deck surface.

Prior to final acceptance, the patch shall be level with the adjacent pavement and have a smooth riding surface.

Concrete Placement Quantities

Mark	Type	Units	Quantity
	Shallow Repair	Sq. Ft.	93.8
		Total (Sq. Ft.)	93.8

Estimated Concrete Repair Quantities

Description	Units	Amount
Concrete Repair	Sq. Ft.	93.8

Design For Repair to a 18° 17' 39.78" Skew (RA) 1°15' Lt. Horiz Curve

238'-0 x Variable Pretensioned Prestressed Concrete Beam Bridge

65'-9" & 75'-9" End Spans — 96'-6" Interior Span

Concrete Repairs

STA. 378+47.81 (US 218 (SB)) — Turn-in Date: Sept. 2026

JOHNSON County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 1027 — Design Sheet No. 3 of 3 — FHWA No. 605005

Revised 10-2014 - Deleted All References to Grout. Section 2426 Covers this Requirement and Doesn't Need to be Stated on the Plans.
RepairRetrofitBridges.dgn - 1045 - This Sheet Redrawn 09-27-1990.
RepairRetrofitBridges.dgn - 1045 - This Sheet Re-Issued 07-2023.

ESTIMATED BRIDGE REPAIR QUANTITIES

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL
1	2426-6772016	CONCRETE REPAIR	SF	116.7
2	2426-6772120	BRIDGE REPAIR	LS	1
3	2499-0800000	PAVING NOTCH REPLACEMENT	LF	116.7

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	ITEM DESCRIPTION
1	2426-6772016	CONCRETE REPAIR The area of structural concrete repair for the abutment backwall is estimated. The engineer may direct the Contractor to repair the abutment backwall as necessary to eliminate concrete deterioration at the ends of the bridge. Structural concrete repair on the backwall may be deleted by the engineer if deemed unnecessary.
2	2426-6772120	BRIDGE REPAIR Includes cleaning existing curbs and rails, and furnishing and placing concrete sealer.
3	2499-0800000	PAVING NOTCH REPLACEMENT Includes 8.2 cu yd of structural concrete Class C, 1868 lbs of epoxy-coated reinforcing steel, 135 lbs of stainless reinforcing steel, excavation, removing and disposing of the existing paving notch and concrete removed to form the shear keyways, drilling holes for dowel bars, and polymer grout material.

General Notes:

This design provides for repairs to the existing 304'-6" x 40'-0" pretensioned prestressed concrete beam bridge on US 218 (S.B.) over Melrose Ave, located 2.3 miles north of the IA 1 junction. Electronic copies of the original design plans will be made available to the Contractor as part of the E-Files included with the contract documents.

All dimensions and details shown on these plans pertain to new construction and shall be verified in the field by the contractor before starting construction. Dimensions shown on these plans are based on plans (Original Design No. 3480).

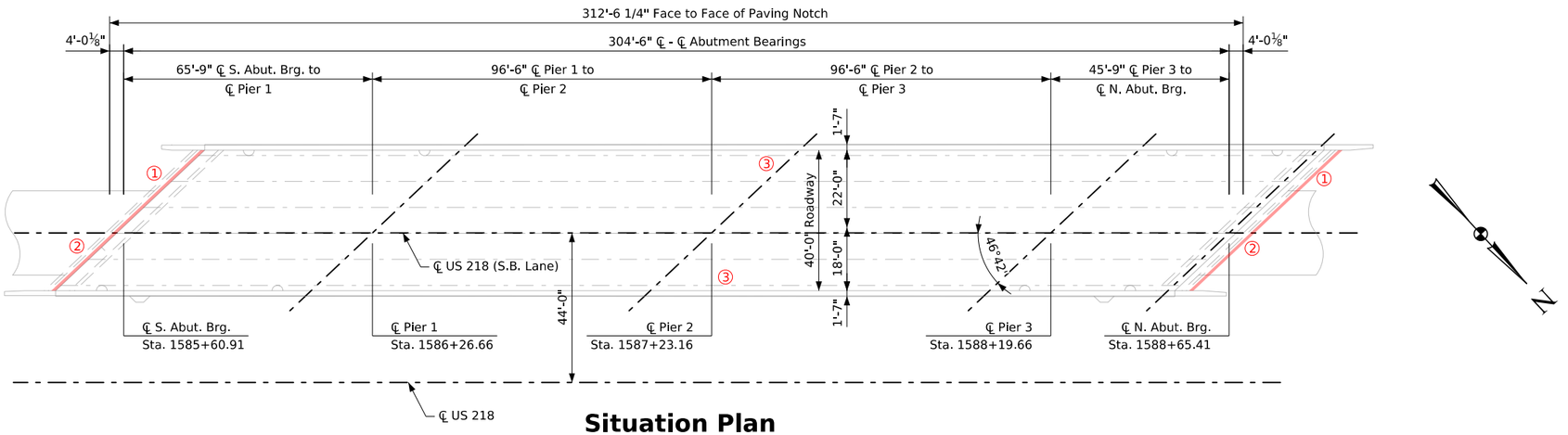
Faint lines on plans indicate existing portions of the bridge.

Utility companies whose facilities are shown on the plans, or known to be within the construction limits, shall be notified by the contractor prior to the start of construction.

All reinforcing bars and bars noted as dowels supplied for this structure shall be deformed reinforcement unless otherwise noted or shown.

Repairs shall consist of:

① Remove and replace paving notch at both abutments.
② Repair concrete backwalls.
③ Clean and seal concrete barrier rails.



Situation Plan

Structural Design

LICENSED PROFESSIONAL ENGINEER
David R. Evans
18670
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.

Signature — Date: 07/16/2026

David R. Evans
Printed or Typed Name

My license renewal date is December 31, 2027

Pages or sheets covered by this seal: Sheets V.10-V.12

Design History at this Site
(Includes this Design)

Des. No.	Type of Work
3480	Original Design
1127	Bridge Paving Notch Repair

Location

U.S. 218 (SB) Over Melrose Ave
T-79N R-06W
Section 7
West Lucas Township
Johnson County
FHWA No. 605560
Bridge Maint. No. 5293.7L218
Latitude 41.657329°
Longitude -91.598446°

Roadway Quantities shown elsewhere in these plans.

Design For Repair to a 46°42' Skew (L.A.)

304'-6" x 40'-0" Pretensioned Prestressed Concrete Beam Bridge

65'-9" & 45'-9" End Spans — 2 -96'-6" Interior Spans

General Notes, Qty's & Situation Plan

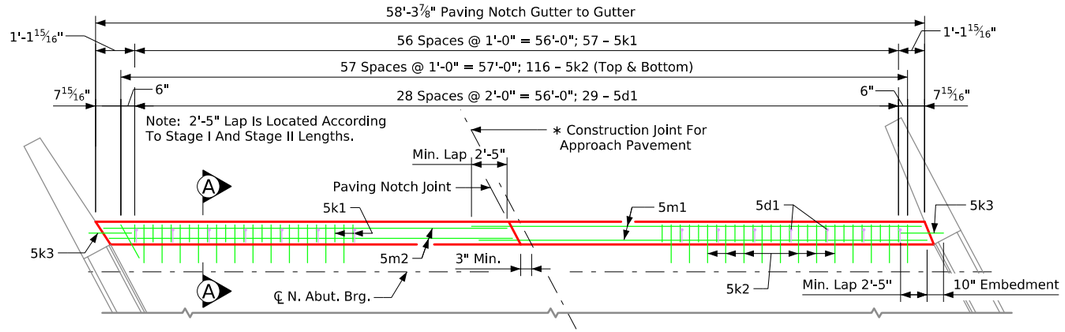
STA. 1587+23.16 (US 218 (SB)) — Turn-in Date: Sept. 2026

JOHNSON County
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 1127 — Design Sheet No. 1 of 3 — FHWA No. 605560

FILE NO. 32879	ENGLISH	DESIGN TEAM RYS / DHK /TWE	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)—3H-52	SHEET NUMBER V.10

7:28:18 AM 7/15/2026 tellio2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\5221801026\Bridge\(049)_HMA Resurfacing\SHT_5221801026_DOT_1127_Z06.dgn



Part Plan View At Abutment (46°42' Skew)

(North Abutment Shown, South Abutment Similar)

Note: 5k3 bars shall be set as dowels embedding 10 inches minimum into the existing bridge wingwalls and extending a minimum of 2'-5" into the new paving notch replacement.

Note: New Paving Notch Replacement shall extend from bridge wingwall to bridge wingwall.

∗ Construction joint for notch repair to extend a minimum of 3 inches past construction joint for pavement. Provide 2'-5" minimum lap for reinforcement.



Paving Notch Replacement Notes:

The Paving Notch Replacement is to be Class "C" structural concrete.
Minimum clear distance from face of concrete to near reinforcing bar is to be 2", unless otherwise noted or shown.

The bid item "PAVING NOTCH REPLACEMENT" linear feet, shall include all costs of labor and materials associated with excavation, removing, and disposing of the existing paving notch, granular backfill and compaction as needed, and installing the new paving notch. This work shall include, cutting of the existing #5 bars, removing the concrete for the shear keyways, drilling the holes for the deformed dowels, and constructing the new notch to the dimensions shown. The paving notch replacement is estimated to require 0.07 cubic yards of structural concrete, 16.0 pounds of epoxy-coated reinforcing steel, and 1.2 pounds of Stainless steel reinforcing steel per linear foot.

Removals shall be in accordance with Section 2401, of the Standard Specifications.

These bridge plans label all reinforcing steel with English notation (5a1 is ⅝ inch diameter bar). English reinforcing steel received in the field may display the following "Bar Designation". The "Bar Designation" is the stamped impression on the reinforcing bars, and is equivalent to the bar diameter in millimeters.

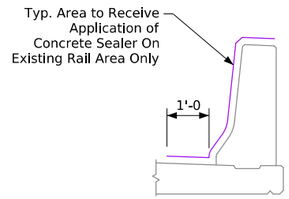
English size	3	4	5	6	7	8	9	10	11
Bar designation	10	13	16	19	22	25	29	32	36

Dowel Setting Note:

The deformed 5k2 & 5k3 bars shall be set as dowels in drilled holes. Holes are to be 10" deep. Polymer grout system shall be used to install the deformed dowel bars in accordance with Article 2301.03,E, of the Standard Specifications and the Grout Manufacturer's recommendations.

Concrete Sealer Note:

The top and interior faces of the existing concrete railing are to be cleaned and sealed in accordance with Article 2403.03, P, of the Standard Specifications. If new sections of rail are constructed, the new sections shall not be sealed. All costs associated with cleaning and sealing of the concrete rails shall be include in the unit price bid Item "BRIDGE REPAIR".



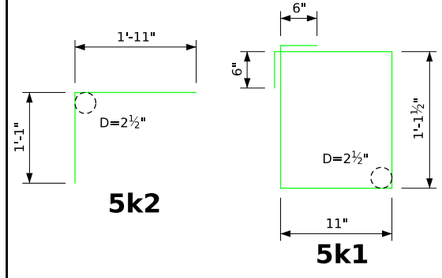
Detail of Concrete Sealer Area

Note:
Use "BR-204" Approach Pavement Standard for Fixed Abutment.

Specifications:
Design:
AASHTO Series of 2002
Construction:
Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, Series 2023, plus applicable General Supplemental Specifications, Developmental Specifications, Supplemental Specifications and Special Provisions shall apply to construction work on this project.

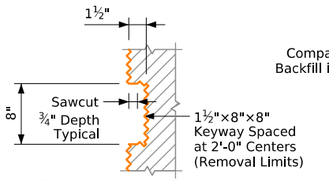
Design Stresses:
Design stresses for the following materials are in accordance with the AASHTO Standard Specifications for Highway Bridges, Series of 2002.
Reinforcing steel in accordance with Section 8, Grade 60.
Concrete in accordance with Section 8, f'c = 4.0 KSI.

Bent Bar Details



Note: All reinforcing is to be epoxy coated.

Note: All dimensions are out to out. D=Pin diameter



1½"×8" Keyway Detail

Note: 5k2 bars at 1'-0" centers are to be placed at the top & bottom of the paving notch. The 5k1 bars at 1'-0" centers are centered between the 5k2 bars.

Part Section A-A Typical

Note: Dowels shall be placed to miss any existing reinforcing steel exposed during removals.

Note A:

The bottom portion of the existing #5 bars shall be carefully exposed and incorporated into new work. The bar shall be cut off to provide 2 inches of cover from the top of the new paving notch. The top portion of the bar shall be cut off flush or slightly below the concrete surface and the ends painted with 2 coats of zinc rich paint.

Design For Repair to a 46°42' Skew (L.A.)

304'-6" x 40'-0" Pretensioned Prestressed Concrete Beam Bridge

65'-9" & 45'-9" End Spans — 2 -96'-6" Interior Spans

Paving Notch Replacement

STA. 1587+23.16 (US 218 (SB)) — Turn-in Date: Sept. 2026

JOHNSON County

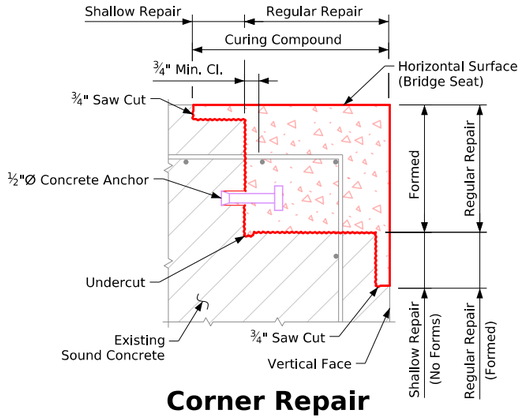
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 1127 — Design Sheet No. 2 of 3 — FHWA No. 605560

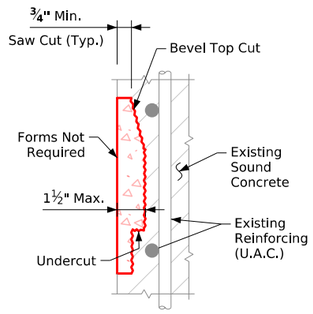
Revised 07-2019: Changed Bent Ends (Hook Leg) of 5k1 Bar to 6" (Was 4½"). Changed All References of "Slab" to "Deck". Changed Miscellaneous Bridges.dgn - 1068 - This Sheet Re-Issued 11-2023. Sheet Format Update.

FILE NO. 32879	ENGLISH	DESIGN TEAM RYS / DHK /TWE	Paving Notch Replacement	Standard Sheet 1068 (Modified)	JOHNSON COUNTY	PROJECT NUMBER NHSX-218-4(049)–3H-52	SHEET NUMBER V.11	

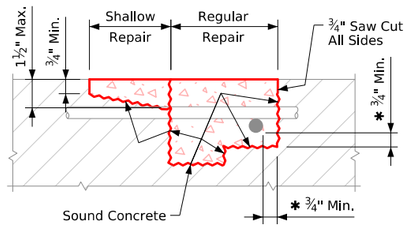
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Corner Repair

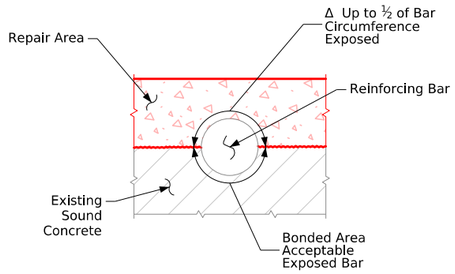


Shallow Repair Vertical Face

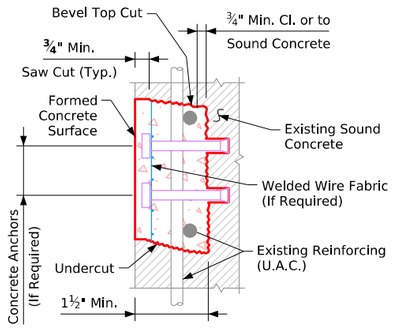


Repair Definition

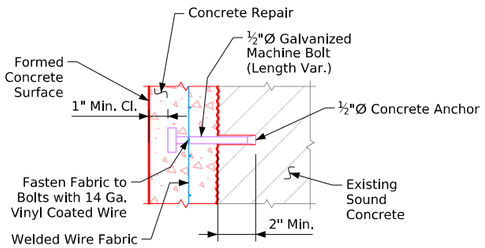
✱ Indicates Clearance for an Un-Bonded Rebar.



Δ If more than ½ of the rebar is exposed it shall be treated as an un-bonded rebar.

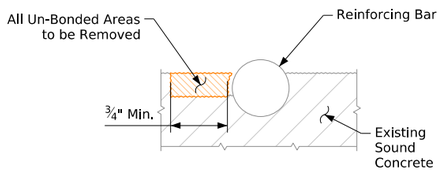


Regular Repair Vertical Face



Anchor Detail

For Spacing and Use of Concrete Anchors and WWF See the Repair Notes.



Concrete Removal Adjacent to Reinforcing

Repair Notes:

The spalled and hollow areas of this bridge as noted and shown in these plans shall be repaired as follows:

- All the costs of equipment and materials required to repair the spalled and hollow areas of this bridge shall be included in the price bid for "CONCRETE REPAIR".
- The price bid for "CONCRETE REPAIR" shall include the cost of all concrete anchors and welded wire fabric required by the plans.
- The Engineer shall determine and outline by visual and audible inspection the actual areas of the concrete repairs. The Contractor shall be paid for the actual amount of repairs made on a square foot basis based on the price bid per square foot.
- All existing reinforcing bars that are exposed by the concrete removal shall be cleaned and carefully incorporated into the new work, except badly deteriorated existing reinforcing which shall be replaced as directed by the Engineer.
- The concrete anchors required shall have a minimum pull out of 5,000 lbs based on 4,000 psi concrete. An anchor meeting the requirements of Iowa D.O.T. Materials I.M. 453.09 and the pull out load above is required. The anchors shall be galvanized and shall be installed according to recommendations of the Manufacturer. The cost of furnishing and installing the concrete anchors shall be included in the price bid for "CONCRETE REPAIR".
- The welded wire fabric shall be ASTM A185 and galvanized as per ASTM A-641. The WWF wires shall be spaced 3x3 or 4x4 and the wires shall have a nominal area of 0.014 to 0.029 square inch inclusive, example "WWF 3x3 - W1.4xW2.9".

Where reinforcement has been exposed and clearance around the periphery of the existing bar is provided, no supplemental reinforcing is required, except where existing reinforcement density and pattern are such that individual open spaces between bars are of 1.5 square feet or larger. For this condition ½"Ø concrete anchors and welded wire fabric shall be installed at the rate of one concrete anchor with WWF per each 1.5 square feet of area within each open space.

Repairing the structural concrete shall be in accordance with Section 2426 of the Standard Specifications.

In addition to the Specification 2426, the following requirements of the patching material are necessary for the concrete repairs:

When Class O concrete is used, scrub a cement-sand-water grout of creamy consistency onto patch surface, including edges. Grout shall consist of two parts Type I or Type I/II Portland cement and one part sand mixed with water. Mix grout by mechanical means. Place patch material before grout dries. If grout dries before placement of patch material, clean patch area again by sandblasting and air and then reapply grout.

Thoroughly trowel patching material into patch edges to ensure a good bond and seal. Ensure that all saw cuts extending beyond the patch area are filled with patching material to prevent water from getting around or under the patch.

Match profile of patches to the existing deck grade and cross slope. Texture the surface of patches to match the adjacent deck surface.

Prior to final acceptance, the patch shall be level with the adjacent pavement and have a smooth riding surface.

Note:
The areas of repair are roughly estimated between shallow repair and regular repair. The limits of shallow and regular depths shall be determined in the field.

Concrete Placement Quantities

Mark	Type	Units	Quantity
	Shallow Repair	Sq. Ft.	116.7
		Total (Sq. Ft.)	116.7

Estimated Concrete Repair Quantities

Description	Units	Amount
Concrete Repair	Sq. Ft.	116.7

Design For Repair to a 46°42' Skew (L.A.)

304'-6" x 40'-0" Pretensioned Prestressed Concrete Beam Bridge

65'-9" & 45'-9" End Spans — 2 -96'-6" Interior Spans

Concrete Repairs

STA. 1587+23.16 (US 218 (SB))

Turn-in Date: Sept. 2026

JOHNSON County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 1127 — Design Sheet No. 3 of 3 — FHWA No. 605560

Revised 10-2014 - Deleted All References to Grout. Section 2426 Covers this Requirement and Doesn't Need to be Stated on the Plans.
RepairRetrofitBridges.dgn - 1045 - This Sheet Redrawn 09-27-1990.
RepairRetrofitBridges.dgn - 1045 - This Sheet Re-Issued 07-2023.