

STATE COUNTY MAP

DESIGN DATA

Troffic CC 2410(050)			Average Da	ily	Est. 30th
Traffic SC-3410(059)		Passenger	Trucks	Total	Max. Hr.
Current Traffic	2017	155	25	180	18
Forecast Traffic	2037	170	30	200	20

Design Speed:
Minimum Sight Dist. for Stopping:

55 MPH 495 Feet **JOB #4**

STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	SC-3410(059)	22059	1	1

PEMBINA COUNTY, NORTH DAKOTA PLANS FOR FEDERAL AID PROJECT SC-3410(059)

PEMBINA COUNTY HIGHWAY 1 (CMC 3410)
MILLING, HOT MIX ASPHALT OVERLAY,
FIBER HMA ADDITIVE (OPTION 1),
SHOULDER PREPARATION & INCIDENTALS

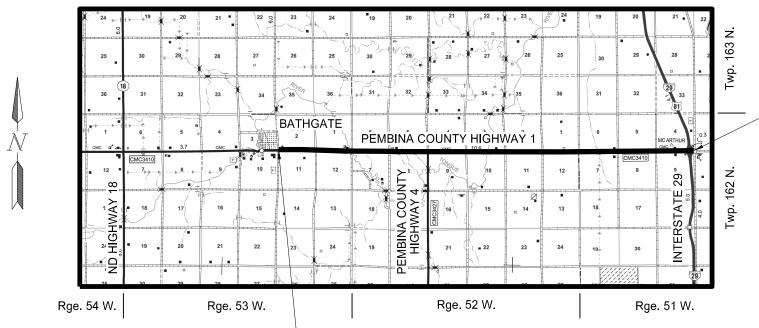
Project is located on Pembina County Highway 1 (CMC 3410), beginning at 148th Ave NE and ending at Interstate 29

GOVERNING SPECIFICATIONS

2014 Standard Specifications adopted by the North Dakota Department of Transportation and the Supplemental Specifications effective on the date the project is advertised.

PROJECT LENGTH

Project ~ SC-3410(059)	Gross Miles	Net Miles
Mill, HMA Overlay, Fiber HMA Additive (Option 1), & Shoulder Preparation	10.634	10.616
Total	10.634	10.616



BEGIN PROJECT SC-3410(059)

STA 226+10 = A Point Approximately 43 Feet East of the Northeast Corner of Sec. 10, Twp. 162 N., Rge. 53 W. (East Edge of Radii/Intersection)

PS&E Correction Made

August 2018

END PROJECT SC-3410(059)
STA 787+60 = A Point Approximately
228 Feet West of the Northeast Corner

of Sec. 9, Twp. 162 N., Rge. 51 W.

Surveyed & Designed Date July 2018

CERTIFICATION This document was originally LIEDERY CERTIEV THAT THESE DLANG

DESIGNER Ryan Sundberg, PE

DESIGNER

DESIGNER

DESIGNER

DESIGNER

DESIGNER

issued and sealed by
Jeffrey D. Daley
Registration Number
PE- 7865,
on 08/30/2018 and the original
document is stored at the
Pembina County
Auditor's Office.

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NORTH DAKOTA.

Jeffrey D. Daley /s/

DATE 08/30/2018

REGISTRATION NUMBER PE- 786

KKLJ

864 W 12th STREET GRAFTON, ND 58237-0229 (701) 352-1555, FAX (855) 288-8055

O KLJ 2018

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SC-3410(059)	2	1

PLAN SECTIONS

Section	Page(s)	Description
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10	1	Basis of Estimate
11	1	Pavement Markings
20	1	Subgrade Repair & Approach Details
30	1	Typical Sections
100	1	Traffic Control Devices List
100	2	Traffic Control Signing Layout

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D-101-10	NDDOT Utility Company and Organization Abbreviations
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D-704-14	Construction Sign Punching And Mounting Details
D-704-15	Road Closure Layouts
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D-764-22	Typical Grading At Bridge Ends With W-Beam Guardrail

SPECIAL PROVISIONS

Number	Description
SP 768(14)	Conditions of Contract Award

	STATE	PROJECT NO.	SECTION SHEET NO. NO.
	2.5" Mill, 3" Hot Mix Asph Shoulder Preparation, & I	SC-3410(05 alt Overlay, Fiber HMA Ac ncidentals	
Sta. 10+00 Sta. 10+00 Sta. 118+35 Sta. 485+93 Sta. 540+29 Sta. 643+00 Sta. 643+00	——————————————————————————————————————	Z E	
18 31 32 33 34 35 36 BRIDGE EXCEPTION STA 514+65 to STA 515-6 5 4 3 2 1	+65 6 5	29 33 81 + 4	
* 10 6 PEMBINA COUN CMC3410 10 6 PEMBINA COUN 11 12 7 8 9 10 11 12	7 8 CMC3410 8	91 5.0 6 14. (INTERSTATE 29. 74.) 14. Twp. 162 N.	A
Rge. 53 W. 18 17 18 17 18 17 18 17 18 17 18 17 18 17 18 18	Rge. 51 W.	22	
STA 226+10 = A Point Approximately STA 787+ 43 Feet East of the Northeast Corner 228 Feet	OJECT SC-3410(059) -60 = A Point Approximatel West of the Northwest Cor Twp. 162 N., Rge 51 W.	ly ner	This document was originally issued and sealed by Ryan Sundberg, Registration Number PE-10775, on 08/30/18 and the original document is stored at the Pembina County Auditor's Office.
30/2018 3:15:39 PM rvansundberg P:\County\ND\Pembina\6317113\CADD\Design\Plans\6317113 004SW 001.don		KLJ	C-3410(059) COUNTY, NORTH DAKOTA SCOPE OF WORK DRIVE BY PROJECT NO. 6317113 © KLJ 201

PLAN NOTES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SC-3410(059)	6	1

100-P01 **DIMENSIONS:** Thicknesses shown on the typical sections for surfacing are approximate. It is intended that the plan tonnage provided by the basis of estimate will be used uniformly throughout the project unless otherwise authorized by the Engineer.

411-P02

430-P01

430-P02

TEMPORARY ASPHALT WEDGES: Place temporary asphalt or milled material wedges at the milled taper locations to allow for the smooth passage of vehicles. Include all costs for labor, materials, and equipment to install and remove the wedges in the unit price bid for "MILLING PAVEMENT SURFACE".

105-P01 UTILITIES: No utility relocations or adjustments are planned. All utilities on the project need to be protected and remain in existing locations.

SUPERPAVE FAA 43: Patch pavement surface areas showing signs of failure as per the Subgrade Repair Detail (see Section 20, Sheet 1), prior to mainline milling operations. Clean, tack and fill existing irregularities in the roadway with hot mix asphalt and compact in a separate operation. Compact the patching course with a minimum of one self-propelled pneumatic roller which meets NDDOT Standard Specification 151.01 A.3. All hot mix asphalt and asphalt cement required for the patching course will be measured and paid for by the ton of "SUPERPAVE FAA 43" and "PG 58S-34 ASPHALT CEMENT". This will be considered full payment for performing this work. The Engineer will mark all areas for patching, prior to patching work being performed.

108-P01 CONSTRUCTION ACTIVITIES: Conduct work activities during daylight hours only and schedule construction activities to accommodate traffic before dark. Open both lanes during non-working hours and keep one lane open during working hours.

Place the Superpave FAA 43 in two equal lifts as shown in the plans. Exercise extreme care not to mark or

COMMON EXCAVATION-SUBCUT: The Engineer will determine the location and actual quantity of "COMMON EXCAVATION-SUBCUT" (see Subgrade Repair Detail on Section 20. Sheet 1).

tear the new driving surface and keep all loaded trucks off the newly placed hot mix asphalt. Repair any damage to the newly paved surface at the Contractor's expense. RAP material is not allowed in the pavement design.

Cut the existing asphalt leaving a vertical edge. Include the cost to cut a vertical edge in the price bid for "COMMON EXCAVATION-SUBCUT".

> FIBER HMA ADDITIVE (OPTION 1): Add an aramid fiber to the HMA mix during production. Aramid fiber will be mixed into the HMA per the manufacturers specifications. Aramid fibers must be treated to prevent them from becoming airborne during the mixing process, and the treatment must be soluble in the asphalt. Treated aramid fiber shall be continuously fed and mixed into the HMA per the dosage and mixing requirements of this specification. A certified QA/QC mixing technician shall perform continuous feeding of the treated aramid fibers into the asphalt during plant mixing operations for all of the Superpave FAA 43 quantities required for the project, and a certification report must be submitted upon project completion.

Delete the second paragraph of Standard Specification 203.04 C in its entirety.

Fiber Properties Measure Material Aramid Fiber (50% by weight) Filament Yarn / Monofilament Form Tensile Strength 400,000 (psi) 1.44 - 1.45 (g/cm^3) Specific Gravity Melting Temperature 800 (°F) Length 0.75 ± 0.05 (inch)

SHOULDER PREPARATION: Prior to paying, roll back existing material (earthen or aggregate) adjacent to the existing roadway asphalt shoulder (see Section 30, Sheet 1, Milling Typical Section). Material to be removed to a depth of approximately 3" below the milled surface, with the slope matching the milled roadway surface and daylight to the road inslope. Removed material will be stored on the existing roadway inslopes.

Provide the following information from the product supplier at least two weeks prior to asphalt production.

Place and compact milled material in this area, prior to paying.

1. Identify the mixing plant and type (Batch or Continuous Drum).

Pull back the removed material from the inslope, shape and blend the material from the inslope, placing over the slough of the millings. Contractor will broadcast seed the disturbed areas with a seed mixture meeting NDDOT Standard Specifications 251.

> 2. Material data sheet for the aramid fiber describing aramid fiber and treatment properties, including the type, weight, and flash point of treatment material.

Include all labor, material, and equipment required to perform this associated work in the bid item "SHOULDER PREPARATION".

> 3. A certified QA/QC mixing plan including procedures for continuously feeding and measuring the amount of aramid fiber into the asphalt. The fiber supplier must approve the QA/QC mixing plan and provide certification of the QA/QC mixing technician at the asphalt mixing plant who is responsible for continuous feeding of the fiber into the HMA. The continuous feeding can be accomplished by using either manual or machine operated equipment for the entire fiber mixing process.

AGGREGATE BASE COURSE CL 5: The location and actual quantity of "AGGREGATE BASE COURSE CL 5" for subgrade repair will be determined in the field by the Engineer (see Subgrade Repair and Approach Details on Section 20, Sheet 1).

> Aramid fiber must be stored in a dry environment, do not allow it to be in contact with moisture. The product dosage rate is estimated at 1.0 LBS/TON of mix. The Contractor will follow the manufacturers recommended process for mixing of the aramid fibers.

706 TONS of "AGGREGATE BASE COURSE CL 5" has been included in the plans for approach work, see Section 20, Sheet 1.

equal product, as approved by the Engineer.

Millings will be allowed as a substitute for "AGGREGATE BASE COURSE CL 5" on the approaches, with a maximum particle size of 1.5". Include all labor, material, and equipment require for hauling, spreading, and compacting this material in the price bid for "AGGREGATE BASE COURSE CL 5".

The aramid fiber will be "Ace Fiber by Surface Tech". "Forti-Fi by Forta", or an

411-P01

203-P01

230-P01

302-P01

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SC-3410(059) **PLAN NOTES**

MILLING PAVEMENT SURFACE: Mill the existing roadway surface (See Milling Typical Section in Section 30, Sheet 1). The intent of the milling is to remove the depressed cracking by milling 2.5" across each lane, and to also correct the cross slope, achieving a minimum 2.1% cross slope. The centerline and outside edge milling depths may vary, as determined by the Engineer in the field, to achieve the minimum 2.1% cross slope.

Payment for milling is based on the top widths shown on the typical sections. Sloughs, if present, will not be

measured for payment but will be incidental to the respective bid item for milling. If adjacent field drives,

driveways, or section drives are paved, the Contractor will carry the milling through the approaches, as

needed, to match mainline milling. This approach milling will be incidental to the bid item "MILLING

PAVEMENT SURFACE", and will not be quantified for additional payment.

The approach at the Pembina County Highway 1 and Pembina County Highway 4 intersection will be milled according to the detail on Section 20, Sheet 1. The approach at Pembina County Highway 1 and Pembina County Highway 4 will be paid for as "MILLING PAVEMENT SURFACE".

The Contractor will taper the 2.5" to 3.0" over a 25' span, at the start and end of project, plus at both ends of the bridge exception.

The milled material will remain the property of the Owner, Pembina County. "MILLING PAVEMENT SURFACE" includes all labor, material and equipment required to mill, haul, and stockpile the millings at the Pembina County Shop, located in Cavalier, ND.

10:43:17 AM 9/4/2018

ryan.sundberg

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PLAN NOTES

The final acceptance of the "FIBER HMA ADDITIVE" will include the following factors:

1. The Contractor will submit a QA/QC report which certifies the metering and continuous feeding of the aramid fiber was performed per the agreed to dosage rate in the mix design and all other requirements for this bid item by a certified technician, and that visual inspection was performed during the mixing process to certify no clumping of aramid fiber or treatment product occurred.

All costs associated with the furnishing of materials, equipment, labor, submittals, and reports will be included in the price bid for "FIBER HMA ADDITIVE".

704-P01 **CONSTRUCTION SIGNING:** Furnish the necessary signing as required by construction operations.

> The required traffic control signs and devices are included in the "Traffic Control Devices List" and will be measured and paid at the contract unit price for each device. Payment will not be made for additional devices required to accommodate construction operations.

704-P02 TRAFFIC CONTROL FOR MILLING & BITUMINOUS PAVEMENT: Provide traffic control consisting of a temporary lane closure, flagging, and a pilot car.

> Traffic control device quantities are based on the list below. Provide any additional devices at no additional cost to the Owner.

- 1. Standard D-704-15, layout A;
- 2. Standard D-704-20, layout G;
- Standard D-704-22, layout K; and
- 4. Standard D-704-26, layouts EE and GG.

Place flaggers at the following intersection when the lane closure spans across it:

1. Pembina County Highway 4 / Pembina County Highway 1

762-P01 SHORT-TERM PAVEMENT MARKING: The quantity for short-term striping is based on three applications (milled surface, base course payement lift, and wear course payement lift).

762-P02 EDGE LINE: 6-inch white edge lines have been provided to be used throughout the project length. Continue edge lines through private drives and break for intersections.

762-050 PAVEMENT MARKING: If the Engineer and Contractor agree, plan quantity will be used as the measurement for payment for pavement marking items.

> RESET W-BEAM GUARDRAIL: The existing guardrail located at the bridge exception will need to be adjusted for height. The bid item "RESET W-BEAM GUARDRAIL" includes all equipment, labor, materials, and work required to remove, adjust, and reinstall the guardrail to the proper height. The bid item does not include the length of guardrail included on the end terminal reset. Contractor and Engineer will measure the actual height and length needed for adjustment before any work is performed. Payment will be made on actual length of quardrail reset. Contractor to follow NDDOT standards for installation of reset quardrail.

> RESET W-BEAM GUARDRAIL END TERMINAL: The existing guardrail located at the bridge exception will need to be adjusted for height. The bid item "RESET W-BEAM GUARDRAIL END TERMINAL" includes all equipment, labor, materials, and work required to remove, adjust, and reinstall the guardrail end terminals to the proper height. A terminal consists of the outermost 50' of guardrail and end cap. Contractor and Engineer will measure the actual height of end terminals needed for adjustment before any work is performed. Payment will be made on actual number of quardrail end terminals reset. Contractor to follow NDDOT standards for installation of reset guardrail end terminals.

SECTION NO. SHEET NO. STATE PROJECT NO. ND 2 SC-3410(059) 6

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> > Auditor's Office.

SC-3410(059) PEMBINA COUNTY, NORTH DAKOTA



PLAN NOTES

764-P01

764-P02

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SC-3410(059)	8	1

ESTIMATE OF QUANTITIES

						COUNTY	DRIVES	
SPEC	CODE	DESCRIPTION	UNIT	PATCHING	MAINLINE	HIGHWAY 4	(38/25)*	TOTAL
103	0100	CONTRACT BOND	L SUM	-	1	-	- '	1
203	0138	COMMON EXCAVATION-SUBCUT	CY	1,592	-	-	-	1,592
216	0100	WATER	M GAL	40	106	-	-	146
230	0125	SHOULDER PREPARATION	MILE	-	21.232	-	-	21.232
302	0120	AGGREGATE BASE COURSE CL 5	TON	1,996	-	10	706	2,712
401	0050	TACK COAT	GAL	382	19,969	23	391	20,765
411	0105	MILLING PAVEMENT SURFACE	SY	-	143,252	210	-	143,462
430	0043	SUPERPAVE FAA 43	TON	1,062	25,946	23	454	27,485
430	1000	CORED SAMPLE	EA	-	235	-	-	235
430	5815	PG 58S-34 ASPHALT CEMENT	TON	64	1,557	1	27	1,649
702	0100	MOBILIZATION	L SUM	-	1	-	-	1
704	0100	FLAGGING	MHR	-	1,062	-	-	1,062
704	1000	TRAFFIC CONTROL SIGNS	UNIT	-	1,202	-	-	1,202
704	1067	TUBULAR MARKERS	EA	-	180	-	-	180
704	1185	PILOT CAR	HR	-	531	-	-	531
706	0550	BITUMINOUS LABORATORY	EA	-	1	-	-	1
706	0600	CONTRACTOR'S LABORATORY	EA	-	1	-	-	1
709	0151	GEOSYNTHETIC MATERIAL TYPE R1	SY	4,777	-	-	-	4,777
762	0430	SHORT TERM 4IN LINE-TYPE NR	LF	-	47,898	-	-	47,898
762	1104	PVMT MK PAINTED 4IN LINE	LF	-	15,966	-	-	15,966
762	1106	PVMT MK PAINTED 6IN LINE	LF	-	112,300	-	-	112,300
764	1050	RESET W-BEAM GUARDRAIL	LF	-	418	-	-	418
764	1059	RESET W-BEAM GUARDRAIL END TERMINAL	EA	-	4	-	-	4

^{*(}Section & Private Drives / Field Drives)

ESTIMATE OF QUANTITIES - OPTION 1

						COUNTY	DRIVES	
SPEC	CODE	DESCRIPTION	UNIT	PATCHING	MAINLINE	HIGHWAY 4	(38/25)*	TOTAL
430	0450	FIBER HMA ADDITIVE	LBS	1,062	25,946	23	454	27,485

SC-3410(059) PEMBINA COUNTY, NORTH DAKOTA ESTIMATE OF QUANTITIES PROJECT NO. 6317113

STATE	PROJECT NO.	SECTION NO.	SHEET NO.	
ND	SC-3410(059)	10	1	

BASIS OF ESTIMATE

PATCH	IING	MAINLINE			DRIVES			
(10.616 N	10.616 MILES) (10.616 MILES))	COUNTY	PRIVATE & FIELD			
QUANTITY PER MILE	WIDTH	QUANTITY PER MILE	WIDTH	HIGHWAY 4	SECTION DRIVES (18/20)*	DRIVES (25)		DESCRIPTION
150	-	-	-	-	-	-	CY	Common Excavation-Subcut
188	-	-	-	10	12	10	TON	Aggregate Base Course CL 5 (1.875 TON/CY)
4	-	10	-	-	-	-	M GAL	Water (20 Gal/Ton Aggregate Base Course CL 5 & 10 M Gal per mile for Dust Palliative)
-	-	13,494	23'	210	-	-	SY	Milling Pavement Surface (2.5"; 2.5556 SY/LF)
-	-	719	24.5'	-	3	2	GAL	Tack Coat - Base Course (0.05 Gal/SY)
36	-	1,162	24.75'	-	4	3	GAL	Tack Coat - Milled Surface (0.08 Gal/SY)
-	-	1,209	24.5'	-	4	3	TON	Superpave FAA 43 - Base Course (2.0 Tons/CY)
100	-	1,235	24'	23	4	3	TON	Superpave FAA 43 - Wearing Course (2.0 Tons/CY)
6	-	147	-	1	0.5	0.5	GAL	PG 58S-34 (6.0%)
-	-	2 Cores/2000'/Lane/Lift Plus 1 Full Depth/Mile	-	-	-	-	EA	Cored Sample
-	-	100	-	-	-	-	MHR	Flagging
-	-	50	-	-	-	-	HR	Pilot Car
450	-	-	-	-	-	-	SY	Geosynthetic Material Type R1

^{*} Private Drives / Section Drives

BASIS OF ESTIMATE - OPTION 1

PATCH	IING	6 MAINLINE DRIVES						
(10.616 N	/ILES)	(10.616 MILES))	COUNTY	PRIVATE &	FIELD		
QUANTITY PER MILE	WIDTH	QUANTITY PER MILE	WIDTH	HIGHWAY 4	SECTION DRIVES (18/20)*			DESCRIPTION
100	-	2,444	-	23	304	150	LBS	Fiber HMA Additive (Aramid Fiber Product @ 1.0 LBS/TON)

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SC-3410(059) PEMBINA COUNTY, NORTH DAKOTA



BASIS OF ESTIMATE

6317113

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SC-3410(059)	11	1

PAVEMENT MARKINGS

DESCRIPTION		UNIT	QUANTITY PER LOCATION
4" Yellow No Passing Zone (S	olid Line)		1
Sta. 509+26 to Sta. 515+63	RT	LF	637
Sta. 514+58 to Sta. 519+97	LT	LF	539
Sta. 783+47 to Sta. 791+09	RT	LF	762
Sta. 787+38 to Sta. 787+60	LT	LF	22
Subtotal (Yellow)		LF	1,960
4" Yellow Center Lines (10' Li	ne, 30' Ski	p)	
Sta. 226+10 to Sta. 514+58		LF	7,212
Sta. 515+63 to Sta. 787+38		LF	6,794
Subtotal (Yellow)		LF	14,006
Total (Yellow)		LF	15,966
6" White Edge Lines (Solid Li	ne)		
Sta. 226+10 to Sta. 787+60	LT & RT	LF	112,300
Total (White)		LF	112,300
Total Pavement Marking	Paint	LF	128,266

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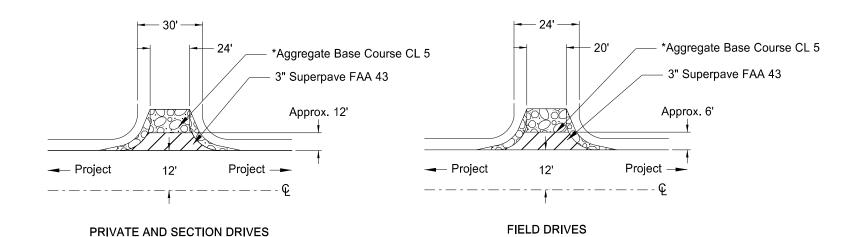
SC-3410(059) PEMBINA COUNTY, NORTH DAKOTA



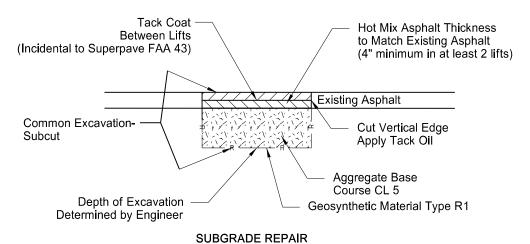
PAVEMENT MARKINGS

ROJECT NO. 6317113

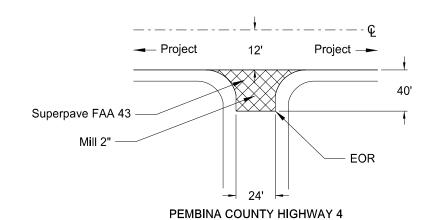
SHEET NO. SECTION NO. STATE PROJECT NO. ND 20 SC-3410(059) 1



- * Aggregate Base Course CL 5 has been provided to fill in around the drives. This material will be required when sloughs are steeper than 4:1.
- ** Contractor may elect to use the roadway millings in place of the Aggregate Base Course CL 5, See Plan Note 411-P01.



- 1) Subgrade Repair at depths of 1 foot or greater shall be excavated to the full width of the lane and tapered at a ratio of 20:1 on the ends.
- 2) Geosynthetic Material Type R1 may be eliminated in the field by the Engineer.
- 3) Subgrade Repair operation to be performed before milling opertation.



210 SY of "MILLING PAVEMENT SURFACE" has been provided for milling this approach.

23 TON of "SUPERPAVE FAA 43" has been provided for paving this approach.

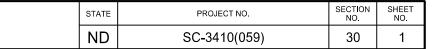
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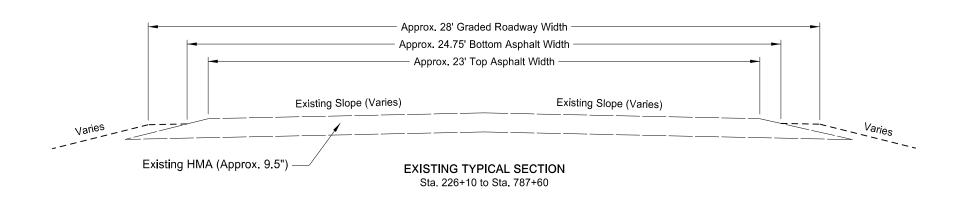
SC-3410(059) PEMBINA COUNTY, NORTH DAKOTA

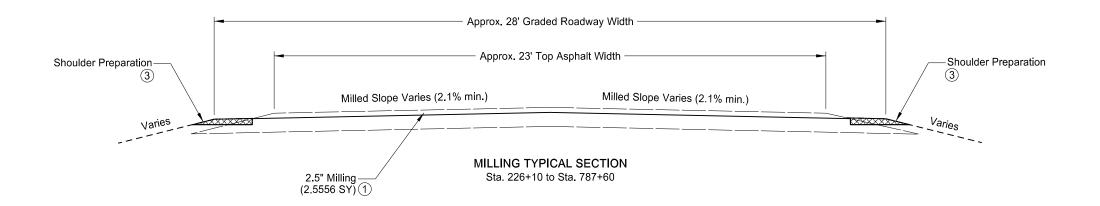


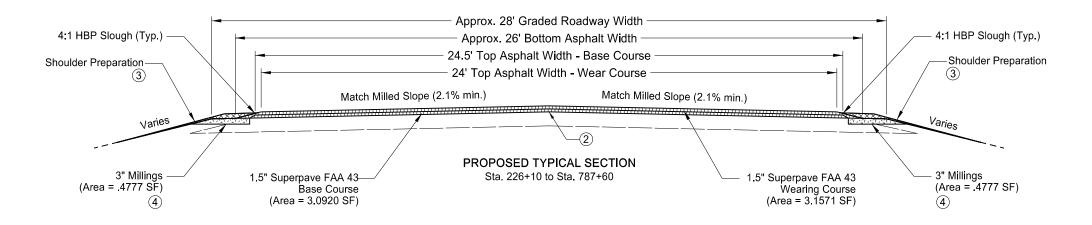
SUBGRADE REPAIR & APPROACH DETAILS

6317113 O KLJ 2018









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- ① See plan note 411-P01 on Section 6, Sheet 1.
- 2 Place base course & seam offset 6" from actual &
- ③ See plan note 230-P01 on Section 6, Sheet 1 for Shoulder Preparation information.
- 3" fill material used (Millings) is included in the price bid for Shoulder Preparation. Area shown is approximate and could vary based on Contractor operations for Shoulder Preparation.

SC-3410(059) PEMBINA COUNTY, NORTH DAKOTA



TYPICAL SECTIONS

WN. BY CHKE

JD 6317117

STATE	PROJECT NO.	NO.	NO.
ND	SC-3410(059)	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
D3-36	36"x6"	STREET NAME SIGN (Sign and installation only)		6	
G20-1-60	60"x24"	ROAD WORK NEXT MILES	4	34	13
G20-1b-60	60"x24"	WORK IN PROGRESS/ NO WORK IN PROGRESS (Sign and installation only)		26	_
G20-2-48 G20-4-36	48"x24" 36"x18"	END ROAD WORK PILOT CAR FOLLOW ME (Mounted to back of pilot car)	1	19 18	3
G20-4-30 G20-10-108	108"x48"	CONTRACTOR SIGN	<u>'</u>	64	
G20-50a-72	72"x36"	ROAD WORK NEXT MILES RT & LT ARROWS	1	37	37
G20-52a-72	72"x24"	ROAD WORK NEXT MILES RT or LT ARROW		30	
G20-55-96	96"x48"	SPEED LIMIT ENFORCED - MINIMUM FEE \$80 WHEN WORKERS PRESENT		59	
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)		10	
M1-4-24	24"x24"	U.S. ROUTE MARKER (Post and installation only)		10	
M1-5-24 M3-1-24	24"x24" 24"x12"	STATE ROUTE MARKER (Post and installation only) NORTH (Mounted on route marker post)	_	10 7	-
M3-2-24	24"x12"	EAST (Mounted on route marker post)		7	
M3-3-24	24"x12"	SOUTH (Mounted on route marker post)		7	
M3-4-24	24"x12"	WEST (Mounted on route marker post)		7	
M4-8-24	24"x12"	DETOUR (Mounted on route marker post)		7	
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT		15	
M4-10-48	48"x18"	DETOUR ARROW RIGHT or LEFT		23	
M5-1-21	21"x15"	ARROW AHD AND RT or LT(Mounted on route marker post)		7	-
M5-2-21 M6-1-21	21"x15" 21"x15"	ARROW AHD UP & RT or LT (Mounted on route marker post) ARROW RT or LT (Mounted on route marker post)		7	
M6-2-21	21"x15"	ARROW UP & RT or LT (Mounted on route marker post)		7	
M6-3-21	21"x15"	ARROW AHD (Mounted on route marker post)		7	
R1-1-48	48"x48"	STOP		32	
R1-1a-18	18"x18"	STOP and SLOW PADDLE Back to Back	5	5	25
R1-2-60	60"x60"	YIELD		29	
R2-1-48	48"x60"	SPEED LIMIT	1	39	39
R2-1a-24 R3-7-48	24"x18" 48"x48"	MINIMUM FEE \$80 (Mounted on Speed Limit post) LEFT or RIGHT LANE MUST TURN LEFT or RIGHT	4	10 35	40
R4-1-48	48"x60"	DO NOT PASS	4	39	156
R4-7-48	48"x60"	KEEP RIGHT SYMBOL		39	
R5-1-48	48"x48"	DO NOT ENTER		35	
R6-1-36	36"x12"	ONE WAY RIGHT or LEFT		13	
R7-1-12	12"x18"	NO PARKING		11	
R10-6-24	24"x36"	STOP HERE ON RED		16	
R11-2-48	48"x30"	ROAD CLOSED		28	
R11-2a-48 R11-3a-60	48"x30" 60"x30"	STREET CLOSED ROAD CLOSED MILES AHEAD LOCAL TRAFFIC ONLY		28 31	
R11-3c-60	60"x30"	STREET CLOSED MILES AHEAD LOCAL TRAFFIC ONLY		31	
R11-4a-60	60"x30"	STREET CLOSED TO THRU TRAFFIC		31	
W1-3-48	48"x48"	RIGHT or LEFT SHARP REVERSE CURVE ARROW		35	
W1-4-48	48"x48"	RIGHT or LEFT REVERSE CURVE ARROW		35	
W1-4b-48	48"x48"	DOUBLE RIGHT or LEFT REVERSE CURVE ARROW		35	
W1-6-48	48"x24"	LARGE ARROW		26	<u> </u>
W3-1-48 W3-3-48	48"x48" 48"x48"	STOP AHEAD SYMBOL SIGNAL AHEAD SYMBOL		35 35	-
W3-4-48	48"x48"	BE PREPARED TO STOP		35	
W3-5-48	48"x48"	SPEED REDUCTION AHEAD	2	35	70
W4-2-48	48"x48"	RIGHT or LEFT LANE TRANSITION SYMBOL		35	
W5-1-48	48"x48"	ROAD NARROWS		35	
W5-8-48	48"x48"	THRU TRAFFIC RIGHT LANE		35	
W5-9-48	48"x48"	ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW		35	
W6-3-48	48"x48"	TWO WAY TRAFFIC SYMBOL		35	
W8-1-48	48"x48"	BUMP	4	35	140
W8-3-48 W8-7-48	48"x48" 48"x48"	PAVEMENT ENDS LOOSE GRAVEL		35 35	-
W8-9a-48	48"x48"	SHOULDER DROP-OFF		35	
W8-11-48	48"x48"	UNEVEN LANES	2	35	70
W8-12-48	48"x48"	NO CENTER STRIPE		35	
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY	2	35	70
W8-54-48	48"x48"	TRUCKS ENTERING AHEAD or FT.		35	<u> </u>
W8-55-48	48"x48"	TRUCKS CROSSING AHEAD or FT.		35	-
W8-56-48 W9-3a-48	48"x48" 48"x48"	TRUCKS EXITING HIGHWAY CENTER LANE CLOSED SYMBOL		35 35	
W12-2-48	48"x48"	LOW CLEARANCE SYMBOL		35	
W13-1-24	24"x24"	MPH ADVISORY SPEED PLATE (Mounted on warning sign post)		11	
W13-4-48	48"x60"	RAMP ARROW		39	
W14-3-48	48"x36"	NO PASSING ZONE		23	
W20-1-48	48"x48"	ROAD WORK AHEAD or _FT or _ MILE	2	35	70
W20-2-48	48"x48"	DETOUR AHEAD or FT		35	
W20-3-48	48"x48"	ROAD or STREET CLOSED AHEAD or FT.		35	
W20-4-48 W20-5-48	48"x48" 48"x48"	ONE LANE ROAD AHEAD or FT. RIGHT or LEFT LANE CLOSED AHEAD or FT.		35 35	-
W20-5-48 W20-7a-48	48"x48"	FLAGGING SYMBOL	5	35 35	17
W20-7a-46 W20-7k-24	24"x18"	FEET (Mounted on warning sign post)		10	173
W20-8-48	48"x48"	STREET CLOSED		35	
W20-51-48	48"x48"	EQUIPMENT WORKING		35	
W20-52-54	54"x12"	NEXT MILES (Mounted on warning sign post)	4	12	48
W21-1a-48	48"x48"	WORKERS SYMBOL		35	
W21-2-48	48"x48"	FRESH OIL		35	
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or FT		35	

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
W21-5-48	48"x48"	SHOULDER WORK		35	
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED		35	
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or FT.		35	
W21-6a-48	48"x48"	SURVEY CREW AHEAD		35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or FT.		35	
W21-51-48	48"x48"	MATERIAL ON ROADWAY		35	
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK	2	35	70
	24"x24"	TAKE TURNS (6" D letters) (Mounted on stop sign post)		11	
		, , , , , , , , , , , , , , , , , , , ,			

SPECIAL SIG	SNS		

 SPEC & CODE
 704-1000
 TRAFFIC CONTROL SIGNS
 TOTAL UNITS

NOTE:
If additional signs are
required, units will be
calculated using the formula
from Section III-19.06 of the
Design Manual.
http://www.dot.nd.gov/

SPEC & UNIT QUANTITY DESCRIPTION CODE 704-0100 FLAGGING
704-1041 ATTENUATION DEVICE-TYPE B-55
704-1043 ATTENUATION DEVICE-TYPE B-65
704-1044 ATTENUATION DEVICE-TYPE B-70 MHR EACH EACH EACH 704-1050 TYPE I BARRICADES 704-1051 TYPE II BARRICADES EACH EACH 704-1052 TYPE III BARRICADES 704-1060 DELINEATOR DRUMS EACH EACH 704-1065 TRAFFIC CONES **704-1067 TUBULAR MARKERS** EACH EACH 704-1070 DELINEATOR 704-1072 FLEXIBLE DELINEATORS EACH EACH 704-1081 VERTICAL PANELS - BACK TO BACK EACH 704-1085 SEQUENCING ARROW PANEL - TYPE A EACH EACH EACH EACH EACH 704-1099 PILOT CAR
704-1500 OBLITERATION OF PVMT MK 531 HR 704-3501 PORTABLE PRECAST CONCRETE MED BARRIER
704-3510 PRECAST CONCRETE MED BARRIER - STATE FURNISHED LF EACH 762-0200 RAISED PAVEMENT MARKERS
762-0420 SHORT TERM 4IN LINE - TYPE R EACH 762-0420 SHORT TERM 4IN LINE - TYPE NR
772-2110 FLASHING BEACON - POST MOUNTED 47898 LF EACH

This document was originally issued and sealed by Ryan R. Sundberg, Registration Number PE-10775, on 8/30/18 and the original document is stored at the Pembina County Auditor's Office.

Traffic Control Devices List

