	D	ESIGN DATA			STATE	PROJECT NO.	PCN	SE	TION SHEET
Traffic		Average Daily			ND	HEN-5-012(053)034	4 2283	51	1 1
Current 2019	Pass: 3135	Trucks: 210	Total: 3345						
Forecast 2039	Pass: 4045	Trucks: 300	Total: 4345						
Clear Zone Distance	: 14 ft / 12ft	Design S Bridges	beed: 35 нг 63	DEPARTMENT OF TRANSPORTATION					
Sight Dist for No Pa	issing Zone: N/A	bhuges.	112-95		GOV	ERNING SPECIFICATION	S Date Published by the Nort	and Adopt Dakota	ed and a second se
Pavement Design Lit	fe 20 (years)			HEN-5-012(053)034			Department of 1		
Design Accumulated	One-way Flexible ES	SALs: 630,319		Bowman County		Standard Specifications	1/1/2	022	
				US 12 Widening, Lighting, Box Culvert Extension		Supplemental Specifications	NOI	NE	
					PROJEC H	<u>CT NUMBER \ DESCRIPTION</u> <u>I</u> HEN-5-012(053)034	<u>NET MILES</u> GRC 0.30	9 <u>SS MILE</u> 0.30	S
				BOWMAN BOWMAN BOWMAN BOWMAN BOWMAN BOWMAN BOWMAN BOWMAN BOWMAN BOWMAN BOWMAN BEGIN Project HEN-5-012(053)034 Sta 1300+444 RP 34.175	End Project HEN-5-012(0 Sta 1820+04 RP 34.470	053)034			
DESIGNER Jake Wilder DESIGNER Ben Bingham DESIGNER Durham Cleere DESIGNER Travis Farley		DIMDE WILLIAM MC KENZI NICHTIN SLOPE SLOPE	BURKE BOTTINEAU BOTTINEAU MC LEAN DUNN MERCER DUNN MERCER STARK MORTON ADAMS SIOUX	A VALLER LEMMA ENSON WALSH ENSON WALSH ENSON WALSH FORKS FOSTER BO STUTSMAN BARNES CASS OGAN LA MOURE RANSOM PRIMA CINTOR DICKEY SAGEN Y MAP	ND DEPARTI OFFICE OF F Kut J	MENT OF TRANSPORTATION PROJECT DEVELOPMENT Hoff, Kirk J. THOM 03/23/22	CIVIL SCI	PE-75 PE-75	SION TA ENGLA

design105

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Number	Decerin	SPECIAL PROVISIONS
PSP 20(22	) Permite	and Environmental Considerations
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SSP 10	E-Ticket	ling
SSP 2	Federal	Migratory Bird Treaty Act

		STATE	PROJECT NO.	SECTION NO.	SHEET NO.			
		ND	HEN-5-012(053)034	2	1			
LIST OF STANDARD DRAWINGS								
ny and Organization	Abbreviations							

Number	Description
D-101-1, 2, 3, 4	NDDOT Abbreviations
D-101-10	NDDOT Utility Company and Organization Abbreviations
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D-260-1	Erosion And Siltation Controls - Silt Fence
D-261-1	Erosion Control - Fiber Roll Placement Details
D-704-1	Attenuation Device
D-704-2	Traffic Control For Coring Of Hot Bituminous Pavement
D-704-4	Work Zone Business Sign Details
D-704-6	Construction Sign Details Project Funding Sign
D-704-7	Breakaway Systems For Construction Zone Signs - Perforat
D-704-8	Breakaway Systems For Construction Zone Signs - U-Chan
D-704-9	Construction Sign Details - Terminal And Guide Signs
D-704-12	Shoulder Closure Tapers
D-704-13	Barricade And Channelizing Device Details
D-704-14	Construction Sign Punching And Mounting Details
D-704-17	Sign Layout For One Lane Closure Two Lane Roadway
D-704-24	Shoulder Closures And Bridge Painting Layouts
D-704-26	Miscellaneous Sign Layouts
D-704-27	Mobile Operation (Pavement Marking)
D-704-50	Portable Sign Support Assembly
D-704-51	Portable Precast Concrete Median Barrier (Temporary Usag
D-706-1	Bituminous Laboratory
D-708-6	Erosion And Siltation Controls - Median Or Ditch Inlet Protect
D-714-22	Concrete Pipe, Cattle Pass, or Precast Concrete Box Culver
D-754-1	Pipe Or W-Shape Assembly Details
D-754-9	Letter and Arrow Details
D-754-10	Arrow Details for Lane Control and Arrow-Per-Lane Signs
D-754-23	Perforated Tube Assembly Details
D-754-24, 24A	Mounting Details Perforated Tube
D-754-26	Sign Punching, Stringer and Support Location Details Regul
D-754-47	Sign Punching, Stringer and Support Location Details For Va
D-754-85	Truck Inspection Roadside Site - Sign Details For Convention
D-762-1	Pavement Marking Message Details
D-762-4	Pavement Marking
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D-770-1	Concrete Foundations (Traffic Signals & Highway Lighting)
D-770-2	Feed Points (Roadway Lighting)
D-770-3	Pull Box Details
D-770-4	Lighting And Signal Details
D-770-5	Light Standard Details
	-

ated Tube nnel Post

ge)

ection ert Ties

latory, Warning and Guide Signs /ariable Length Signs ional Roadways

tion - (Center Left Turn Lane on Major Road)



## <u>NOTES</u>

- 100-P01 TIED PROJECT: This plan set and project includes adjacent work activities with tied project TAC-5-012(051)034, PCN 22673. See plans for specific project activities and limits.
- 100-P02 WORK SCHEDULE: No night work will be permitted. Limit all construction activities to the hours of 6:00 a.m. to 9:00 p.m., unless written permission is obtained from the Engineer. Provide a minimum of 14 days' notice to all property owners immediately adjacent to the work area and to any residential properties within 200 feet of the work area prior to beginning work. Include in the notice information notifying the owners of potentially increased noise levels.
- 100-P03 DYNAMIC SPEED DISPLAY SIGN (DSDS): The existing DSDS at Sta 1807+16 Lt, will be removed by the City of Bowman (owner), prior to project construction. Coordinate with the City of Bowman, a minimum of 14 days prior to construction, to ensure the associated buried power has been de-energized and abandoned prior to construction.

Contact: City of Bowman Street Superintendent at (701) 523-3309

- 105-P01 UTILITIES: No utility relocations or adjustments are planned. All utilities on the project need to be protected and remain in existing location.
- 105-P02 PAVEMENT SWEEPING: Sweep paved areas that were used by construction traffic before opening these areas to public traffic.

Sweep all newly constructed pavement no more than 24 hours before a scheduled final inspection.

- 107-P01 MAINTAINING TRAFFIC –DROP-OFFS: If, at the end of the work-day, drop-offs greater than 2 inches and less than 18 inches or slopes steeper than 4:1 exist between the edge of a traffic lane and the outside edge of the proposed roadway, perform one of the following actions:
  - Construct a traversable wedge in the area of the drop-off or steep slope; or
  - Close the lane adjacent to the drop-off or steep slope and provide 24-hour flagging or pilot car operations.

When constructing a wedge, construct a wedge composed of aggregate or earthen materials with a 4:1 or flatter slope along the entire length of the area. Compact materials using Type C compaction, as specified in 203.04 E.4, "Compaction Control Type C".

Install stackable vertical panels that meet the requirements of Section 704.03 H, "Stackable Vertical Panels", along the edge of the driving lane closest to the wedge.

The Engineer will measure stackable vertical panels as specified in Section 704.05,

The Engineer will not measure materia of materials, equipment, labor, and ind bid price for "AGGREGATE BASE CC

If a 4:1 or flatter wedge is not installed operations and associated traffic contained traffic contain

The requirements of Section 704.04 C to drop-offs created by milling or the p

107-P02 BUSINESS DRIVEWAYS: Maintain at approaches (Bronson's Marketplace a leave outs and construct approaches business and property owners a minin reconstruction. Notice must include C duration of construction activities, plan accesses. Any temporary widening or accommodate this work will not be pa bid for other items.

> The Contractor may eliminate leave of agreement with the affected private lat the written agreement to the Engineer Any costs associated with closing and alternate route will not be paid for sep other items.

108-100 WEEKLY PLANNING & REPORTING meeting is required.

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.				
	ND	HEN-5-012(053)034	6	1				
y f	y for panels as specified in Section 704.06,							
al cic DU	al used to construct the wedge. Include the cost cidentals required for this operation within the DURSE CL 5".							
d,∣ ro	provic I at no	le 24-hour flagging or pilot car additional cost to the Depart	ment.					
D, bla	"Traff ceme	ic Control for Uneven Paveme nt of hot mix asphalt.	ent" apj	oly				
t le and ha nu on nn `a	east o d Ace alf at a im of itracto ed ho ggreg for se	ne lane of traffic on business Hardware) during construction a time to maintain access. Not 14 days prior to approach or contact information, anticipa ours of work, and planned rest ate surfacing that is required eparately but will be included i	on. Use ify affe ated rictions to n the p	cted to rice				
nut inc ap ar	s and downe t leas proac ately	close approaches to traffic if a er(s) and tenant(s) is obtained t 14 day prior to closing any a ch and maintaining access via but will be included in the pric	a writte . Provid pproac an æ bid fo	en de ch. or				
βN	1EET	NG: A weekly planning and re	eportine	9				



108-P01	PUBLIC RELATIONS COORDINATION: Work directly with property owners and
	businesses affected by construction activities. The coordinator must have sufficient
	knowledge and authority to resolve property owner and business concerns regarding
	scheduling, maintaining access, and construction operations.

Advise the City Auditor, from the City of Bowman, PH: (701)-523-3309, of upcoming construction activities in regard to street closures and traffic detour routes so that city police, emergency services, schools, and other pertinent city agencies may be notified.

- 202-P01 REMOVAL OF PAVEMENT: Includes removing all bituminous pavement and concrete pavement surfacing as a singular common pay item. Plans have approximated the quantities of the respective materials as shown.
- 203-010 SHRINKAGE: 25% additional volume is included for shrinkage in earth embankment.
- 203-385 AVERAGE HAUL: No average haul has been computed for this project.
- 203-P01 COMMON EXCAVATION: At locations of widening, excavate to a depth to accommodate the proposed pavement and aggregate base and incorporate the removed material into the embankment. Include the cost to excavate, place, dry, and compact the material in the price bid for "COMMON EXCAVATION - TYPE A".
- 203-P02 APPROACH SLOPES: Conform to the requirements of Standard Drawing D-203-8 for the reconstructed approach embankment slopes.
- 203-P03 COMMON EXCAVATION: If the Engineer and Contractor agree, plan quantity will be used as the measurement for payment for "COMMON EXCAVATION - TYPE A".
- 251-P01 SEEDING CLASS III: Seed all disturbed areas within the project limits per Section 251.04; do not apply seed concurrently with hydraulic mulch. Provide Class III seed mixture as follows:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)	
Kentucky Bluegrass	Blue Angel	60.0	
Perennial Ryegrass	Fiesta 4	20.0	
Perennial Ryegrass	SR 4420	20.0	
Hard Fescue	Firefly	20.0	
Chewing Fescue	Longfellow II	40.0	
Creeping Red Fescue	SR 5250	40.0	
Total:		200.0	

# NOTES

- 430-P01 SUPERPAVE FAA 45: All materials. Tack Coat, Prime Coat, and Asphalt Superpave will be included in the cont
- 704-200 PRECAST CONCRETE MEDIAN BA barriers from NDDOT Belfield yard. Re

Install any missing markers on the bar markers in the contract unit price for " STATE FURNISHED".

.....

Some 4 inch x 4 inch boards are avail additional 4 inch x 4 inch boards nece property of the Department. Include th "PRECAST CONCRETE MEDIAN BA

704-255 TRAFFIC CONTROL FOR SHOULD driving lane are not even at the en

> Place the following sign assembly at t Sign Assembly: Sign No. W8-17-48 " No. W20-52P-54 to identify the distan Locations:

- In advance of the drop off;
- Spaced at each mile from the adva
- At major intersections (CMC rol Ramps).

If the difference in elevation betwee greater, construct a slough on the driv

If the difference in elevation between slough is required.

Sign assemblies will be measured an Traffic Control".

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.			
	ND	HEN-5-012(053)034	6	2			
ec t C tra	equipment, and labor required for installation of Cement associated with the placement of the tract unit price for "SUPERPAVE FAA 45".						
RF	RRIERS – STATE FURNISHED: Obtain 12 eturn barriers to NDDOT Belfield yard.						
rri¢ 'Pf	ers be RECA	efore traffic use. Include the co ST CONCRETE MEDIAN BA	ost of tl RRIER	ne L			
lat ess ne AR	able at the return location. Provide any ssary to stack barriers. The boards will become ne cost for boards in the contract unit price for RRIER-STATE FURNISHED".						
DE nd	R DF of th	ROP-OFF: If the shoulder an e day, the following criteria	d adja will ap	cent oply:			
the Sh Ice	he locations listed below. Shoulder Drop Off" and supplemental plate Sign ce.						
an ute	ance sign; and utes, state and US highways, and Interstate						
en vin	the g lane	shoulder and the driving lar e that is 4:1 or flatter.	ne is 2	." or			
th	the shoulder and driving lane is less than 2", no						
d paid for according to Section 704 "Temporary							
			ESC				
		RVLE SIO SIO SIO SIO SIO SIO SIO SIO SIO SIO	J. COMEI	APLENGINEEK			

SECTION SHEET

## NOTES

704-900 ATTENUATION DEVICE TYPE B: Install either of the following attenuation devices:

- The barrel type shown on standard D-704-01; or
- The liquid filled attenuation device described in this note.

Install liquid filled attenuation devices that are 2.5 feet wide.

Before installing devices, provide the Engineer a Certificate of Compliance stating that the devices meet NCHRP Report 350, MASH 2009, or MASH 2016, and a copy of an eligibility letter from FHWA.

Use devices rated for the MPH designation used in the item description. Install devices according to the manufacturer's specifications.

Liquid filled attenuators may not be deployed in any portion of the months of January, February, and December, nor before the 15th of March.

If liquid filled attenuation devices are deployed after the 15th of March or in any portion of the months of April, October or November, include calcium magnesium acetate or potassium acetate in the liquid filled barrier solution. Mix the anti-icing chemicals with water as recommended by the anti-icing chemical manufacturer to protect the barrier from freezing to a temperature of 0°F. Contact the Engineer and the NDDOT Environmental and Transportation Services Division in the case of a spill leaving the roadway. Dispose of the mixture inside the device as specified in Section 107.17, "Removed Material".

Provide a full replacement set of attenuators available to the project. If the replacement devices are installed, have a set of replacement devices available to the project within 3 calendar days.

Immediately replace any damaged pieces. The Department will reimburse the Contractor for damaged pieces based on the invoice price plus 10 percent. All other costs associated with installing and maintaining replacement pieces will be at no additional cost to the Department.

- TRAFFIC CONTROL FOR SHOULDER CLOSURE: Maintain two-way traffic at all 704-P01 times, unless otherwise approved by the Engineer. Reduce speed to 25 MPH where work is being performed. The Traffic Control Device List is based on the following Standard Drawings:
  - 1. D-704-12 Shoulder Closure Tapers
  - 2. D-704-17 Sign Layout for One Lane Closure Two Lane Roadway
  - 3. D-704-24 Shoulder Closures and Bridge Painting Layouts; Type U
  - 4. D-704-27 Mobile Operation (Pavement Marking)

Precast concrete median barriers have been quantified herein to protect drop-offs and steep slopes associated with the excavation and removal activities required for the extension of the existing box culvert.

- CONTROL SIGNS".
- bid for "DRIVEWAY CONCRETE 8IN REINFORCED".
- Dynamic Speed Display Sign by others.
- used as the measurement for payment for pavement marking items.

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704-P02 WORK ZONE BUSINESS SIGNS: Work zone business way finder signs have been provided and shown in Section 100 for local businesses. Any additional business signs needed throughout the construction of the project will be developed in accordance with Standard Drawing D-704-4. Relocate business way finder signs as needed as business accesses change. Exact sign location will be determined by the Engineer prior to installation. Include all costs for creating, installing, adjusting, and removing work zone business signs at end of project in the price bid for "TRAFFIC

750-P01 DRIVEWAY CONCRETE: Reinforce driveways with a No. 4 deformed reinforcing bar placed 24 inches on center both transversely and longitudinally. Include an 18-inch minimum lap at splice locations. Use chairs to support the bars at mid-depth of the slab and ensure a clearance of 3 inches to all side forms. Tie all existing joints and cold joints with a 12-inch-long No. 4 deformed reinforcing bar placed 24 inches on center. Saw all longitudinal and transverse joints. Include all costs for the labor, equipment, and material necessary to construct the reinforced driveways in the price

754-P01 SPECIAL ASSEMBLY A: Empty sign stringers are provided to accommodate future

762-050 PAVEMENT MARKING: If the Engineer and Contractor agree, plan guantity will be

770-P01 LIGHTING SYSTEM: Provide a fully functional street lighting system for each circuit shown in the plans. This includes, but is not limited to, the installation of the following features where applicable: light standards and foundation, installation hardware, luminaires, feed point and all conductor, conduit, junction boxes and appurtenances. Include all labor and equipment for installation within the bid price for "LIGHTING SYSTEM". All costs required to operate and maintain street lights to final acceptance of the street lighting system are included within the "LIGHTING SYSTEM" pay item.



## <u>NOTES</u>

770-P02 LED LUMINAIRE: Provide luminaires that meet the following:

Light Source	LED
Light Output	19,000 lm to 21,000 lm
Driver	500mA to 900mA
Wattage	155W to 170W
Color Temperature	3000K ±300K
Operating Temperature Range	-40°C to +40°C
Luminaire Housing	Die Cast Aluminum
Vibration Testing	ANSI/NEMA C136.31 Level 2, 3 G
Surge Suppression Rating	ANSI/IEEE C62.41 Cat C
Outdoor rating for housing, wiring, and drivers	ANSI C136.25 IP-65
Tool-less Access	Yes

Provide one of the luminaires listed or an approved equal:

Company	Catalog Number
American Electric Lighting	ATB2-80BLEDE85-MVOLT-R3-3K
Philips Lumec	RFL-215W96LED3K-G2-R3M-UNV
	RFL-215W96LED3K-G2-4-UNV

770-P03 BREAKAWAY LIGHT STANDARD: Design the light standard base with a minimum of 4 anchor bolts. Ensure the bases for the light standards are the breakaway transformer type. Galvanize the breakaway light standards and provide 6 ft truss style mast arms. Ensure the shaft length is 42 ft from the top of the foundation to the bottom of the luminaire for all light standards.

770-P04 RODENT SCREENS: Provide rodent protection using wire mesh with a maximum size opening of ¼ inch for all light standard installations. Place the wire mesh continuously around the anchor bolts to protect rodents from entering the base through the space between the concrete foundation and the lower plate of the light standard. Secure the mesh to the anchor bolts. Place the rodent screen the same day the light standard is installed. Include all costs for labor, equipment, and materials necessary to complete this work in the contract unit price bid for "LIGHTING SYSTEM".

770-P05 LIGHTING CONDUIT: Conduit must be bored or jacked underneath all approaches.



## **ENVIRONMENTAL NOTES**

ENVIRONMENTAL NOTES (EN): The North Dakota Department of Transportation and the Federal Highway Administration have made environmental commitments to secure approval of this project. The following environmental notes are requirements to comply with these commitments:

<u>EN-1</u> <u>TEMPORARY WETLAND IMPACT</u>: Temporary impact areas within wetlands and or other waters are incorporated into the plans for this project. Remove temporary fill placed and sedimentation in wetlands or other waters. Restore these wetlands to preconstruction contours.



### **Estimated Quantities**

SPEC	CODE	ITEM DESCRIPTION	UNIT	Mainline: Funding A
103	0100	CONTRACT BOND	L SUM	0.8
202	0105	REMOVAL OF STRUCTURE	L SUM	1
202	0136	REMOVAL OF PAVEMENT	TON	346
203	0101	COMMON EXCAVATION-TYPE A	CY	490
203	0109	TOPSOIL	CY	516
203	0140	BORROW-EXCAVATION	CY	220
210	0050	BOX CULVERT EXCAVATION	EA	1
210	0210	FOUNDATION FILL	CY	27
210	0405	FOUNDATION PREPARATION-BOX CULVERT	EA	1
216	0100	WATER	M GAL	64
251	0300	SEEDING CLASS III	ACRE	1.34
253	0201	HYDRAULIC MULCH	ACRE	2.26
256	0200	RIPRAP GRADE II	CY	19
261	0112	EIBER ROLLS 12IN	I F	276
261	0113	REMOVE FIBER ROLLS 12IN	 I F	159
302	0120	AGGREGATE BASE COURSE CL 5	TON	2782
411	0120	MILLING PAVEMENT SURFACE - 2 INCH	SY	807
430	0045	SUPERPANE FAA 45		027
430 430	1000		EA	13
430	2005		EA LE	19
606	2905			10
700	0905			
702	0100			0.0
704	0100	FLAGGING	MHR	260
704	1000		UNIT	644
704	1037	ATTENUATION DEVICE-TYPE B-35	EA	2
704	1052		EA	16
704	1060		EA	85
704	1067		EA	42
704	1500	OBLITERATION OF PAVEMENT MARKING	SF	1356
704	3510	PRECAST CONCRETE MED BARRIER-STATE FURNISHED	EA	12
706	0500	AGGREGATE LABORATORY	EA	0.8
706	0550	BITUMINOUS LABORATORY	EA	1
706	0600	CONTRACTOR'S LABORATORY	EA	1
709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	2546
709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	36
750	1021	DRIVEWAY CONCRETE 8IN REINFORCED	SY	165
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	11
754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	6
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	38
754	0592	RESET SIGN PANEL	EA	3
754	0593	RESET SIGN SUPPORT	EA	6
762	0103	PVMT MK PAINTED-MESSAGE	SF	96
762	1104	PVMT MK PAINTED 4IN LINE	LF	7271
762	1108	PVMT MK PAINTED 8IN LINE	LF	650
770	0001	LIGHTING SYSTEM	EA	1
900	1000	TEMPORARY STREAM DIVERSION	EA	1
930	8230	SHORING	EA	2

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-5-012(053)034	8	1
		•	
		TOTAL	
		IUIAL	
		0.8	
		1	
		346	
		490 516	
		220	
		27	
		1	
		64	
		1.34	
		2.26	
		19 276	
		159	
		2782	
		807	
		927	
		13	
		18	
		1	
		0.0 260	
		644	
		2	
		16	
		85	
		42	
		1356	
		12	
		U.8 1	
		1	
		2546	
		36	
		165	
		11	
		6	
		38	
		5 6	
		96	
		7271	
		650	
		1	
		1	
		2	

## **BASIS OF ESTIMATE**

		Stations
		Sta 1804+44 to Sta 1820+04
Material	Unit	Project Totals
Aggregate Base Course CL 5 @ 1.875 Ton/CY	Ton	2782
Superpave FAA 45 @ 2.00 Ton/CY**	Ton	927
Driveway Concrete 8IN Reinforced	SY	165

\*\* Asphalt Cement, Prime Coat, and Tack Coat are included in the unit cost of the HMA bid item.

Location	Excavation* (CY) A	Pvmt Removal from Excavation (CY) B	Common Excavation – Type A (CY) Pay Item C = A - B	Embankment (CY) D	Borrow – Excavation (CY) Pay Item E = D - C	Topsoil (CY) Pay Item F
US 12	808	318	490	710	220	516

\* Does not include any excavation required for the installation of the box culvert.

<u>Water</u> 25 MGal/Mile for Dust Palliative 20 Gal/Ton for Aggregates 10 Gal/CY for Embankment

Asphalt Asphalt Tack Coat @ 0.05 Gal/SY Asphalt Cement PG 58S-28 @ 6.0% of HMA Asphalt Prime Coat @ 0.35 Gal/SY

#### <u>Removals</u>

Bituminous Pavement @ 2.00 Ton/CY Concrete Pavement @ 2.00 Ton/CY Aggregate Base @ 1.875 Ton/CY

HMA Cored Samples										
Specification	Quantity (Dx2) (EA)	Quantity (1 per mile)								
Section	A	В	C	D						
430.04 I.2.b(1)	2	1	3	6	12	N/A				
430.04 I.2.b(3)					N/A	1				
				Total		13				





STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-5-012(053)034	20	1
of Fibe	HEN-5-012(053)034 er Roll 12IN has been included in the o er will measure the actual quantity requ	20 uantities f	or ∍ field.
- Const	ruct height of berm taller than the fibe	r roll	
s T	tabilized opsoil Berm	FESSIO EJ. COMEL E-7537 C2-C 4/2 H DAKO	APL ENGINEER
	Temporary Topsoil Berm and US 12 Bowman, ND	d Weir Det	ail



TATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-5-012(053)034	30	1
<b>-</b>			
	-		
		FSC	
	DPROM	10510	1/2
	KYLE	J. COMER	2/2
	ISIS KIN	20	GIN
	LUT DATE	1/1	ER/
	100	+12	A
	SRITH	DAKU	
	Existing Typical Secti	ons	
	US 12		
	Bowman, ND		



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-5-012(053)034	30	2
aveme	ent		
Ν	lotes:		
(1	) Match existing cross slope.		
(2	) 16.0' Lt from Sta 1804+44 to Sta 1	819+32.	
	Transition 16.0' Lt to 12.5' Lt from Sta 1819+32 to Sta 1820+04.		
	HUD PRO HUD PRO HUD KYLE PE HOATE	FESSIO J. COMEL 2-7537 2-0 4 / 2 1 DAKO	APLENGINEER
5	Proposed Typical Sec	tions	
	US 12 Bowman, ND		

![](_page_13_Figure_0.jpeg)

TATE		PROJECT NO.	SECTION NO.	SHEET NO.
١D		HEN-5-012(053)034	40	1
SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT Sta 1804+44 to Sta 1812+00 BITUMINOUS CONCRETE	113 115	TON TON TON
411	0114	MILLING PAVEMENT SURFACE - 2 INC Sta 1804+44 to Sta 1812+00	220 2 <u>H</u> 464	SY
<u>~~</u>				
R/W				
		PROF AU AU RYLE PE DATE NORTH	J. COME -7537 -2-0 -2-0 -2-0 -2-0 -2-0 -2-0 -2-0 -2-	APL ENGINEER
		Removals Sta 1802+40 to Sta 181	2+00	
		US 12 Bowman, ND		

![](_page_14_Figure_0.jpeg)

TATE	PROJECT NO.	SECTION NO.	SHEET NO.
١D	HEN-5-012(053)034	40	2
SPEC	CODE BID ITEM	QTY	UNIT
202	0136 REMOVAL OF PAVEMENT		
	Sta 1812+00 to Sta 1820+04 BITUMINOUS	118	TON
11	0114 MILLING PAVEMENT SURFACE - 2 IN Sta 1812+00 to Sta 1820+04	CH 343	SY
	ALL PROVINCE	FESSIC E-7537 22.0 4/2 H DAKO	APLENGINEER
	Removals		
	Sta 1812+00 to Sta 18	22+00	
	US 12 Bowman, ND		

										Wetlan	d Impac	t Table						
								USFWS E	asement							Wetland Mit	tigation	
					N	etland Impacts A	(cre(s)	lmp Acr	e(s)	Miti	gation Requ	ired	USACE/1	1990 Bank	11990	Bank	USFW	s
Wetland Number	Location	Wetland Type	Wetland Feature	USACE Juris dictional Wetlands <sup>1</sup>	Temp.	Perm. (Fill/Drain)	Perm. (Cut)	Temp.	Perm.	EO 11990	USACE	USFWS	Location	Acre(s)	Location	Acre(s)	Location	
1a	Sec.13, T131N, R102W	Ditch	Created	Y	0	0	0	0	0	N	N	N						
1b	Sec.12, T131N, R102W	Ditch	Created	Y	0.006	0.004	0	0	0	N	N	N						
			<u>.</u>	Totals	0.006	0.004	0	0	0		•		•			1		T

 Totals
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	mpact Su	mmary Tabl	e				
Perma Impact Su	nent Immary	Temporary Impacts and additional information					
Wetland Type	Total (Acres)	Wetland Type	Total (Acres/Lf)				
Natural/JD (Fill/Drain)	0.000	Temporary JD	0.006				
Natural/Non- JD (Fill/Drain)	0.000	Non-JD Temporary	0.000				
Artificial/JD (Fill/Drain)	0.004	Permanent JD > 0.10	0.000				
Artificial /Non-JD (Fill/Drain))	0.000	Permanent OW	0.000				
Total	0.004	Temporary OW	0.000				
JD Natural (Cut)	0.000						
JD Artificial (Cut)	0.000						
Non-JD Natural (Cut)	0.000						
Non-JD Artificial	0.000						
Total	0.000						

						STATE	PROJECT NO. SECTION NO.				SHEET NO.
						ND	HEN-	5-012(053)	)34	75	1
t l'able			w	etland Mi	tigation						_
ired	USACE/11	990 Bank	11990 B	ank	USFW	S Bank		Ons	ite		
USFWS	Location	Acre(s)	Location	Acre(s)	Location	Acre(s)	Mitigation Location; Ratio	Acre(s)	Constructed Site #	Constructo Size Acre(s)	ed
N											
N											
		Mitigat	ion Summary	Table							
		Location	Onsite Acre(s)	11990 Bank Acre(s)	USACE/119 90 Bank Acre(s)	USFWS Bank Acre(s)					
USACEOn	ly	-	0	$\times$	0	$\ge$					
EO 11990 O	nly	_ :	0	0	$\geq$	$\ge$					
USACE/119	90	-	0	$\searrow$	0	$\times$					
USFWS		-		$\sim$		0		_			
		Total	0	0	0	0			RON KYLE PE DATE NORTH	ESS/0, J. COMER -7537 2.0 4 / 2 DAKO	APLENGINEER
								Wetla	and Impacts		
								Во	US 12 wman, ND		

![](_page_16_Figure_0.jpeg)

TATE	PROJECT NO.	SECTION NO.	SHEET NO.
1D	HEN-5-012(053)034	75	2
N			
	PRO	ESSIO	K
	KYLE	J. COME	3/2
	ISIN PE	-7537	GIN
		0.0	EER
	10	4/2	A
	RTH	DAKO	/
	Wetland Impacts		
	Sta 1802+40 to Sta 181	2+00	
	US 12		
	Bowman, ND		

![](_page_17_Figure_0.jpeg)

TATE		PROJECT NO.	SECTION NO.	SHEET NO.
١D		HEN-5-012(053)034	76	1
EC	CODE	BID ITEM	QTY	UNIT
3	0201	HYDRAULIC MULCH Sta 1804+41 Ll to Sta 1810+31 Ll Sta 1810+61 Lt to Sta 1812+00 Lt TOT	0.48 0.09 AL 0.57	ACRE ACRE ACRE
1	0112	FIBER ROLLS 12IN Sta 1805+62 - 76' Lt to Sta 1805+62 - 85' Sta 1806+52 - 52' Lt to Sta 1806+73 - 99' Sta 1807+11 - 100' Lt to Sta 1807+18 - 48 Sta 1808+12 - 77' Lt to Sta 1808+12 - 86' Sta 1810+78 - 81' Lt TOT	Lt 9 Lt 57 Lt 56 Lt 9 14 TAL 145	LF LF LF LF LF
1	0113	REMOVE FIBER ROLLS 12 IN           Sta 1805+62 - 76' Lt to Sta 1805+62 - 85'           Sta 1806+52 - 52' Lt to Sta 1806+73 - 99'           Sta 1807+11 - 100' Lt to Sta 1807+18 - 48           Sta 1808+12 - 77' Lt to Sta 1808+12 - 86'           Sta 1810+78 - 81' Lt	Lt 9 Lt 57 'Lt 56 Lt 9 14 TAL 145	LF LF LF LF LF
<u>w</u>	-			
	-			
		PROT RESIDENT DATE NORTH	ESSIO J. COMEI -7537 -2-0 4 / 2 DAKO	APLENGINEER
		Temporary Erosion Co Sta 1802+40 to Sta 181 US 12 Bowman, ND	ntrol 2+00	

![](_page_18_Figure_0.jpeg)

STATE		PROJECT NO.		SEC	CTION NO.	SHEET NO.
ND		HEN-5-012(053)034		7	76	2
PEC	CODE	BID ITEM			QTY	UNIT
53	0201	HYDRAULIC MULCH				
		Sta 1812+00 Lt to Sta 1816+25 Lt			0.19	ACRE
		Sta 1816+59 Lt to Sta 1820+04 Lt			0.16	ACRE
			тот	AL	0.35	ACRE
51	0112	FIBER ROLLS 12IN				
		Sta 1816+79 - 73' Lt			14	LF
61	0113	REMOVE FIBER ROLLS 12 IN				
		Sta 1816+79 - 73' Lt			14	LF

![](_page_18_Picture_3.jpeg)

Temporary Erosion Control

Sta 1812+00 to Sta 1822+00

![](_page_19_Figure_0.jpeg)

STATE		PROJECT NO.		SEC N	TION 10.	SHEET NO.	
ND		HEN-5-012(053)034		77		1	
PEC	CODE	BID ITEM			QTY	UNIT	
51	0300	SEEDING CLASS III					
		Sta 1804+50 Lt to Sta 1810+30 Lt			0.48	ACRE	
		Sta 1810+61 Lt to Sta 1812+00 Lt			0.14	ACRE	
			TOT	AL	0.62	ACRE	
53	0201	HYDRAULIC MULCH					
		Sta 1804+50 Lt to Sta 1810+30 Lt			0.48	ACRE	
		Sta 1810+61 Lt to Sta 1812+00 Lt			0.14	ACRE	
			TOT	AL	0.62	ACRE	
61	0112	FIBER ROLLS 12IN					
		Sta 1806+66 - 72' Lt to Sta 1807+10	- 72'	Lt	89	LF	
		Sta 1810+78 - 81' Lt			14	LF	
			TOT	AL	103	LF	

\_\_\_\_

![](_page_19_Picture_6.jpeg)

Permanent Erosion Control

Sta 1802+40 to Sta 1812+00

![](_page_20_Figure_0.jpeg)

STATE		PROJECT NO.		SEC N	XTION √O.	SHEET NO.
ND		HEN-5-012(053)034		7	77	2
PEC	CODE	BID ITEM			QTY	UNIT
51	0300	SEEDING CLASS III				
-		Sta 1812+00 Lt to Sta 1816+25 Lt Sta 1816+59 Lt to Sta 1820+04 Lt	тот	AL	0.39 0.33 0.72	ACRE ACRE ACRE
53	0201	HYDRAULIC MULCH				
		Sta 1812+00 Lt to Sta 1816+25 Lt Sta 1816+59 Lt to Sta 1820+04 Lt	тот	AL	0.39 0.33 0.72	ACRE ACRE ACRE
61	0112	FIBER ROLLS 12IN				
		Sta 1816+79 - 73' Lt			14	LF

![](_page_20_Picture_3.jpeg)

Permanent Erosion Control

Sta 1812+00 to Sta 1822+00

			PRE	LIMINARY SURVEY COO US 12,	RDINATE AND CURVE Bowman	DATA -				state	Н	PROJECT NO. EN-5-012(053	6)034	SECT NC	ION SHEET ). NO. 1 1
	HORIZON	TAL ALIGNMEN	Т	CURVE	DATA	ι ι	JS PUBLIC LAN	D SURVEY [	DATA		SUR	VEY CONT	ROL P	OINTS	
PNT	STATION	NORTHING	EASTING	ARC DEF	INITION	CORNER	IRN	NORTHING	EASTING	PNT	NORTHING		ELEV	STATION	OFFSET
Hwy 12	(Chain: Ex_Hwy 12)					NW SEC COR	Sec 13 T-131-N R-102-V	V 199550.51	1236642.89	]	N	IONOMENT DESCR	AFTION .		
BEG	1802+40.26	199532.751	1236462.713			N 1/4 COR	Sec 13 T-131-N R-102-V	v 199462.33	1239277.87						
END	1856+97.52	199373.717	1241917.659			NE SEC COR	Sec 13 T-131-N R-102-V	V 199373.72	1241917.66	PRIMARY	(				
										GPS 10	199561.80	1236502.33	2952.38	Sta 1802	2+79 - 30' Lt
												5/8" F	Rebar		
										GPS 11	199353.06	1239237.23	2961.02	Sta 1830	)+19 - 99' Rt
										-		5/8" F	Rebar		
										-					
										SECOND	ARY				
										1					
										All co	ordinates and m	easurements	~/.	6 STORA	NAS-
										on this	s document deri	ved from	200	AT TH	Star In
										the Int	iemational Foot	αετιπιτίοη.	2	DAVID 1	EN 2
						Assumed	Coordinates			INI		ICH MARK	STE	1 5-2760	N
						All coordin	nates on this sheet are Bow	man			VD-88		I LE	ATE 3/14/2	1022 S
NOTES: S	heet 1 of 1				Date Survey Completed 09/03/2020	County gr	ound coordinates. derived from the NAD83(20	11)					10/0		スリ
						reference Combinat	frame; North Dakota South on Factor (cf) = 0.9998710	Zone		GEC	OID12B		NO	RTH DA	KOIN
										GEC GEC	UID18				

![](_page_22_Figure_0.jpeg)

STATE		PROJECT NO.	SECTION NO.	SHEET NO.
ND		HEN-5-012(053)034	90	1
PEC	CODE	BID ITEM	QTY	UNIT
02	0120	AGGREGATE BASE COURSE CL 5		
		Sta 1804+44 Lt to Sta 1812+00 Lt	1395	TON
		Sta 1810+46 Lt (Approach)	25	TON
		TO	TAL 1420	TON
30	0045	SUPERPAVE FAA 45		
		Sta 1804+44 Lt to Sta 1812+00 Lt	483	TON
09	0100	GEOSYNTHETIC MATERIAL TYPE G		
		Sta 1804+44 Lt to Sta 1812+00 Lt	1319	SY
50	1021	DRIVEWAY CONCRETE 8IN REINFORC	ED	
		Sta 1810+46 Lt	165	SY

![](_page_22_Picture_9.jpeg)

Paving Layout Sta 1802+40 to Sta 1812+00

![](_page_23_Figure_0.jpeg)

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TATE		PROJECT NO.	SECTION NO.	SHEET NO.
ND		HEN-5-012(053)034	90	2
PEC	CODE	BID ITEM	QTY	UNIT
2	0120	AGGREGATE BASE COURSE CL 5 Sta 1812+00 Lt to Sta 1820+04 Lt	1362	TON
60	0045	SUPERPAVE FAA 45 Sta 1812+00 Lt to Sta 1820+04 Lt	444	TON
9	0100	GEOSYNTHETIC MATERIAL TYPE G Sta 1812+00 Lt to Sta 1820+04 Lt	1227	SY
e Elec				
CO Tel Abr				
T <u>EL</u>				
		ALL PROF ALL PE SID ALL PE	ESS/0 J. COMER- 7537 2 DAKO	APL ENGINEER
		Paving Layout		
		Sta 1812+00 to Sta 182	2+00	
		US 12 Bowman, ND		

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT	UNITS PER AMOUNT	UNITS SUB TOTAL
E5-1-48	48"x48"	EXIT GORE		35	
G20-1-60	60"x24"	ROAD WORK NEXT		28	
G20-1b-60 G20-2-48	60"x24" 48"x24"	IND WORK IN PROGRESS (Sign and installation only)	2	18 26	52
G20-2-40	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)		18	52
G20-10-108	108"x48"	CONTRACTOR SIGN		70	
G20-50a-72	72"x36"	ROAD WORK NEXT MILES RT & LT ARROWS		43	
G20-52a-72	72"x24"			36	
G20-55-90	90 x40 48"x96"	PROJECT FUNDING SIGN	2	58	116
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	24"x24"	STATE ROUTE MARKER (Post and installation only)		10	
M3-1-24 M3-2-24	24"x12"	NOR I H (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 (INSIDE ARROW) RIGHT or LEFT (Mounted on barricade)		7	
M5-1-30	30"x21"	ADVANCE TURN ARROW RT or LT(Mounted on route marker post)		9	
M6-1-21	21"x15"	DIRECTIONAL ARROW RT or LT (Mounted on route marker post)		7	
M6-1-30	30"x21"	DIRECTIONAL ARROW RT or LT (Mounted on route marker post)		9	
M6-3-21	21"x15"	DIRECTIONAL ARROW UP (Mounted on route marker post)		7	
R1-1-48	48"X48" 60"x60"			32	
R1-2-00 R2-1-36	36"x48"	SPEED LIMIT (Portable only)		30	
R2-1-48	48"x60"	SPEED LIMIT	4	39	156
R2-1aP-24	24"x18"	MINIMUM FEE \$80 (Mounted on Speed Limit post)	2	10	20
R3-2-48	48"x48"	NO LEFT TURN		35	
R4-1-48	48"x60"			39	
R5-1-48	48"x48"	DO NOT ENTER		35	
R6-1-54	54"x18"	ONE WAY RIGHT or LEFT (Mounted on STOP or DO NOT ENTER post)		14	
R7-1-12	12"x18"	NO PARKING ANY TIME		11	
R10-6-24	24"x36"	STOP HERE ON RED		16	
R11-2-48	48"x30" 48"x30"	STREET CLOSED (Mounted on barricade)	2	12	24
R11-3a-60	60"x30"	ROAD CLOSED MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)		15	
R11-3c-60	60"x30"	STREET CLOSED MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)		15	
R11-4a-60	60"x30"	STREET CLOSED TO THRU TRAFFIC (Mounted on barricade)		15	
W1-3-48	48"x48"			35	
W1-4-48	40 x40 48"x48"	TWO I ANE REVERSE CURVE RIGHT or LEFT		35	
W1-6-48	48"x24"	ONE DIRECTION LARGE ARROW		26	
W3-1-48	48"x48"	STOP AHEAD		35	
W3-3-48	48"x48"	SIGNAL AHEAD		35	
W3-4-48	48"x48" 48"x48"	BE PREPARED TO STOP	2	35	70
W4-2-48	48"x48"	LANE ENDS RIGHT or LEFT		35	10
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	
W8-1-48	48"x48" 48"x48"			35	
W8-3-48	48"x48"	PAVEMENT ENDS		35	
W8-7-48	48"x48"	LOOSE GRAVEL		35	
W8-11-48	48"x48"	UNEVEN LANES		35	
W8-12-48	48"x48"			35	
W8-53-48	40 X40 48"x48"	TRUCKS ENTERING HIGHWAY		35	
W8-54-48	48"x48"	TRUCKS ENTERING AHEAD or FT or MILE		35	
W8-55-48	48"x48"	TRUCKS CROSSING AHEAD or FT or MILE		35	
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY		35	
W9-3a-48	48"x48" 48"v49"	ICENTER LANE CLOSED SYMBOL		35	
W13-1P-30	30"x30"	MPH ADVISORY SPEED PLAQUE (Mounted on warning sign post)		14	
W14-3-64	64"x48"	NO PASSING ZONE		28	
W16-2P-30	30"x24"	FEET PLAQUE (Mounted on warning sign post)		10	
W20-1-48	48"x48"		3	35	105
W20-2-48	48"x48"			35	
W20-4-48	40 X48" 48"x48"			35	
W20-5-48	48"x48"	RIGHT or CENTER or LEFT LANE CLOSED AHEAD or FT or MILE		35	
W20-7-48	48"x48"	FLAGGER	2	35	70
W20-8-18	18"x18"	STOP - SLOW PADDLE Back to Back	3	5	15
W20-52P-54	54"x12"	NEX1MILES (Mounted on warning sign post)		12	
W21-7-48	40 X48" 48"x48"	FRESH OIL		35	
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or FT or MILE		35	
W21-5-48	48"x48"	SHOULDER WORK		35	

			ST	ATE			PRO	ECT NO.	SECTION	SHEET
			N	ID		HE	EN-5-0	12(053)034	100	1
					UN	ITS	UNITS			
SIGN NUMBER	SIGN SIZE	DESCRIPTION	F	AMOUN	ED AMO	ER DUNT	SUB TOTAL			
W21-5a-48	48"x48"				3	35				
W21-50-48	48"x48" 48"x48"				3	35 35				
W21-50-48 W21-51-48	48"x48" 48"x48"	MATERIAL ON ROADWAY			3	85 85				
W21-52-48 W21-53-48	48"x48" 48"x48"	PAVEMENT BREAKS RUMBLE STRIPS AHEAD			3	85 85				
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK			3	35				
SPECIAL SIG	NS			1	1 1	5	15			
CONSIGN 2	36" X 18"	NEWBY'S ACE HARDWARE ARROW LEFT		1	1	5	15			
CONSIGN 3 CONSIGN 4	36" X 24" 36" X 24"	BRONSON'S MARKETPLACE & LIQUOR ARROW LEFT BRONSON'S MARKETPLACE & LIQUOR ARROW RIGHT		1	1	6	16 16			
								NOTE.		
								If additional sign	s are	
SPEC & COD								required, units w	ill be the formula	
704-1000	/ <b>E</b>	TRAFFIC CONTROL SIGNS TOTAL UNI	rs				760	from Section III-	8.06 of the	
								Design Manual. http://www.dot.ne	d.gov/	
SPEC &		DESCRIPTION						1	5	
CODE		C M		260	-					
704-0100	ATTENUA	ATION DEVICE-TYPE B-35	ACH	200	-					
704-1048 704-1050	TYPE I BA	LE RUMBLE STRIPS	CH CH		-					
704-1052 704-1060	TYPE III E	ARRICADES E/		16 85					FECO	
704-1065	TRAFFIC	CONES E/	CH	42				PRO	FESSIO,	Va
704-1067	DELINEA	TOR EA	CH	42	-			12/100		121
704-1072 704-1080	FLEXIBLE STACKAE	E DELINEATORS	ACH CH		-			HI AIL	E J. COMEN	121
704-1081	VERTICA	L PANELS - BACK TO BACK	CH		-			10/1	1 n C	E
704-1085	SEQUEN	CING ARROW PANEL - TYPE B	NCH					UL DATE	d.Co	
704-1087 704-1500	SEQUENO OBLITER/	CING ARROW PANEL - TYPE C EA	CH					x 5 1	1/2	12
704-3501	PORTABL	E PRECAST CONCRETE MED BARRIER	СН	12	-			12	TZ	
704-4011	PORTABL	E CHANGEABLE MESSAGE SIGN						RT	H DAKO	
762-0200	SHORT T	AVEMENT MARKERS EA	CH							
762-0430	SHORT T	ERM 4IN LINE - TYPE NR			-		Т	raffic Control Device	es List	
					1					
								US 12		
								Bowman ND		
								bowman, ND		
L	1				<u> </u>					

![](_page_25_Figure_0.jpeg)

![](_page_26_Figure_0.jpeg)

![](_page_27_Figure_0.jpeg)

![](_page_27_Figure_1.jpeg)

TATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-5-012(053)034	100	4
=			
	Traffic Control Temporary Business Sign US 12 Bowman, ND	ESS/O J. COMER -7537 2.0 4 2.0 4 2.0 4 2.0 4 2.0 4 2.0 5 7 5 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0	APL ENGINEER

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I

						STA	TE PROJECT NO. SECTIC NO.	)N SHEET NO.
						N	D HEN-5-012(053)034 100	) 5
					l l	ł		
SIGN NUMBER CONSIGN 1 (Left)	STATION(S):		3'-0"			AREA: 4.5 Sq.Ft.		
BORDER WIDTH         0.5" (inset 0")	1815+50 Řť							
CORNER RADIUS 1.5"								
BACKGROUND TYPE: IV Reflective		To I	FWBY'S	4 B				
COLOR: Blue LEGEND/BORDER TYPE: IV Reflective								
COLOR: White			HARIJWAK	₽				
SYMBOL X Y WID HT ANGLE								
		<sup>4</sup>		6.5				
		<del> -</del> 2.5"	29.3"	<u> </u>				
	PANEL STYLE: ND_TTC_Business.ssi					gs are to start of next letter		
N E W B Y ' S								
10.5 2.6 1.8 3.1 2 2.6 1.1 1.7 10.5								
A         C         E         H         A         K         D           4.2         2.6         2.5         1.5         2         2.3         2.7         2.4         2.2	W         A         R         E				27.5	В 2000		
							-	
SIGN NUMBER CONSIGN 2 (Right)	STATION(S):	L-r	3'-0"	~1		AREA: 4.5 Sq.Ft.		
BORDER WIDTH 0.5" (inset 0")	1817+25 Lt							
CORNER RADIUS         1.5"           MOUNTING         Ground				<b>†</b> °				
BACKGROUND TYPE: IV Reflective			CMD1 2					
LEGEND/BORDER TYPE: IV Reflective								
COLOR: White			ΠΑΚυψΑΓ					
SYMBOL         X         Y         WID         H1         ANGLE           ND_4IN_TYPE D         27.5         1.5         4         6         270			_					
			-					_
							PROFESS	10AV
	Dimensions are in inches,tenths	4.2"	29.3"	2.5"	Letter spacir	igs are to start of next letter	A KYLE L CON	AED M
	PANEL STYLE: ND_TTC_Business.ssi	ITION (X)			LENGTH SI	ZE SERIES	44 ,PE-7537	20
N         E         W         B         Y         '         S           10.5         2.6         1.8         3.1         2         2.6         1.1         1.7         10.5					15	4 B 2000	10 Keye 2.	Jor En
A C E H A R D	W A R E				27 5	4 B 2000	LE DATE	1 TE
4.2 2.6 2.5 1.5 2 2.3 2.7 2.4 2.2	2.8 2.7 2.4 1.5 4.2						14/4	1/
							RTH DAY	.01
							Traffic Control	
							Temporary Business Sign Detail	S
							119 12	
							Bowman, ND	

ST.

Station / RP	Sign No.	Assembly No.	Flat S For S IV SF	Sheet Signs XI SF	Sign 1st LF	Support 2nd LF	Length 3rd LF	4th LF	Vert Clear- ance FT	Support Size	Max Post Len LF	Sleeve 1st LF	e Length 2nd LF	3rd LF	4th LF	Sleeve Size	Anchor EA	Anchoi LF	- Anchor Size	Reset Sign Panel EA	Reset Sign Support EA	Break-Away EA	Comments	
1905+671+									E 0	2 x 2 12 co										1	2			
1000+07 LL									5.0	2 X Z 12 ya										1	3			
1807+16 Lt				5.0	10.7				8.0	2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga					
1808+20 Lt	SN 1		6.0		6.7				5.0	2 x 2 12 ga	8.7						1	4	2.25 x 2.25 12 ga					
1810+13 Lt		1							5.0	2 x 2 12 ga										1	1			
1811+45 Lt									5.0											1	2			
1816+06 Lt		1		5.2	7.7				5.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga					
Sub Total			6.0	10.2		Total	25.1										Total	12.0		3	6	0		
Grand Total			6.0	10.2		Total	25.1										Total	12	0	3	6	0		

![](_page_29_Picture_2.jpeg)

3/11/22 1:07:43PM Page 1 of 1

TATE	PROJECT NO.	SECTION NO.	SHEET NO.
N.D.	HEN-5-012(053)034	110	1

![](_page_30_Figure_0.jpeg)

STATE		PROJECT NO.		SEC N	TION IO.	SHEET NO.	
ND		HEN-5-012(053)034		1	10	2	
PEC	CODE	BID ITEM			QTY	UNIT	
04	1500	OBLITERATION OF PAVEMENT MAR	RIN	G			
		4" White Edge Line			450	SF	
		4" Yellow Double Barrier Line			316	SF	
		4" Yellow Skip Line			32	SF	
		1	TOT	AL	798	SF	
62	0103	PVMT MK PAINTED-MESSAGE					
		Left Turn Arrow (2)			32	SF	
		Right Turn Arrow (2)			32	SF	
		٦	TOT	AL	64	SF	
62	1104	PVMT MK PAINTED 4IN LINE					
		4" White Edge Line			1401	LF	
		4" Yellow Double Barrier Line			2036	LF	
		Ĩ	TOT	AL	3437	LF	
62	1108	PVMT MK PAINTED 8IN LINE					
		8" White Channel Line			300	LF	
		8" Yellow Chevron Crosshatch			100	LF	
		1	TOT	AL	400	LF	

- 4" White Edge Line

![](_page_30_Picture_9.jpeg)

Signing and Pavement Marking Layout

Sta 1802+40 to Sta 1812+00

![](_page_31_Figure_0.jpeg)

STATE		PROJECT NO.		SEC N	TION IO.	SHEET NO.
ND		HEN-5-012(053)034		1	10	3
PEC	CODE	BID ITEM			QTY	UNIT
04	1500	OBLITERATION OF PAVEMENT MAR	KING	G		
		4" White Edge Line			492	SF
		4" Yellow Skip Line			66	SF
		·	TOT	۹L	558	SF
52	0103	PVMT MK PAINTED-MESSAGE			32	SF
					-	0.
52	1104	PVMT MK PAINTED 4IN LINE				
		4" White Edge Line			1477	LF
		4" Yellow Double Barrier Line			2357	LF
		-	тот	۹L	3834	LF
52	1108	PVMT MK PAINTED 8IN LINE				
		8" White Channel Line			200	LF
		8" Yellow Chevron Crosshatch			50	LF
			ТОТ	۹L	250	LF

![](_page_31_Picture_3.jpeg)

Signing and Pavment Marking Layout

Sta 1812+00 to Sta 1822+00

![](_page_32_Figure_0.jpeg)

![](_page_32_Figure_1.jpeg)

TATE	PROJECT NO.	SECTION NO.	SHEET NO.
١D	HEN-5-012(053)034	110	4
	PROT	ESSIO	N
	KYLE	J. COME	2 m
	HS PE	-7537	IGIN
		2.0	
	10	4/Z	R
	RTH	DAKO	
	Signing		
	Sign Details		
	US 12 Bowman ND		
	Bowman, ND		

![](_page_33_Figure_0.jpeg)

![](_page_33_Figure_1.jpeg)

Special Assembly A (Perforated Tube) Sta 1807+16 Lt

TATE	PROJECT NO.	SECTION NO.	SHEET NO.
١D	HEN-5-012(053)034	110	5
		FESSI	
	4D PRO		142
	KYLE P	J. COMEI	r E
	CO Key	12.0	
	LE DATE	4/2	5
	NORT	DAKO	A
		Unit	
	Special Assembly De	tails	
	US 12 Bowman, ND		

![](_page_34_Figure_0.jpeg)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-5-012(053)034	140	1

Legend	
¤	Existing Light Standard
— E —	Existing Street Lighting Conductor
۲	Foundation
$\otimes$	Pull Box
	Lighting Conduit and Conductors
Ŷ	Light Standard
$\overset{\otimes}{\diamond}$	Double Light Standard
C # - #	Circuit Number - Fixture Number
П	Feed Point

Notes: 1. Existing and proposed conduit and conductor locations as shown are schematic.

![](_page_34_Picture_8.jpeg)

Lighting System Sta 1802+40 to Sta 1812+00

![](_page_35_Figure_0.jpeg)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-5-012(053)034	140	2

Legend	
¤	Existing Light Standard
— Е —	Existing Street Lighting Conductor
۲	Foundation
$\otimes$	Pull Box
	Lighting Conduit and Conductors
*	Light Standard
⊗	Double Light Standard
C # - #	Circuit Number - Fixture Number
Д	Feed Point

Notes: 1. Existing and proposed conduit and conductor locations as shown are schematic.

![](_page_35_Picture_6.jpeg)

Lighting System

Sta 1812+00 to Sta 1822+00

5

![](_page_36_Figure_1.jpeg)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-5-012(053)034	140	3
	- Phase Conductor (Black)		
	Phase Conductor (Red)		
	- Ground Conductor (Green)		
	Circuit Number and Fixture Number		
)	LED Luminaire		
)			
$\overline{\ }$			
	Light Standard		
	1		
	Pull Box		
	$\backslash$		
	Feed Point		
/			
	PRO	ESSIO	A
Туре	A KM F	J COME	m
RHW RHW	Lo PE	-7537	NG
THW	U DATE	2.0	
	a 2 1-	4/2,	27/
	PORTH	DAKO	A
	Liahtina Svstem		
	Lighting Schematic	2	
	Bowman, ND		

s

Lighting Quantities						Pay Item			
Pull Box	l Feed Point - Type II - Pad Mounted	Concrete Foundation - Highway Lighting	2" Dia Rigid Conduit	Underground Conductor No. 6 - Type RHW	Underground Conductor No. 6 - Type THW	LED Luminaire	Light Standard 6 FT Truss Mast Arm 42 FT Height Breakaway Transformer Base	Double Light Standard 6 FT Truss Mast Arm 42 FT Height Breakaway Transformer Base	Lighting System
⊢a	⊨a	⊢∟a	LF			⊢a	⊢a	⊢a	⊢a
2	1	6	2126	4214	2156	7	5	1	1

	Conduit and Cable Runs						
Light Std	Light Std Station from		it Runs	Cable Runs			
No.	Station to	LF	Dia	LF	Туре		
C2-1 & C2-2	1808+06 Lt	460	2"	928	(2) No. 6 RHW		
C2-3	1812+66 Lt	460		468	(1) No. 6 THW		
C2-3	1812+66 Lt	460	2"	928	(2) No. 6 RHW		
C2-4	1817+26 Lt	460	Z	468	(1) No. 6 THW		
C2-4	1817+26 Lt	44	2"	98	(2) No. 6 RHW		
РВ	1817+70 Lt	44	2	54	(1) No. 6 THW		
PB	1817+70 Lt	<i>c</i> 9	2"	148	(2) No. 6 RHW		
РВ	1817+70 Rt	00		80	(1) No. 6 THW		
PB	1817+70 Rt	ED	<b>7</b> "	122	(2) No. 6 RHW		
FP1	1817+70 Rt	55	2	69	(1) No. 6 THW		
C1-1	1810+36 Rt	460	2"	928	(2) No. 6 RHW		
C1-2	1814+96 Rt	400	2	468	(1) No. 6 THW		
C1-2	1814+96 Rt	274	2"	558	(2) No. 6 RHW		
PB	1817+70 Rt	274	+ 2	284	(1) No. 6 THW		
PB	1817+70 Rt	100	2"	382	(2) No. 6 RHW		
C1-3	1819+56 Rt	100	2	196	(1) No. 6 THW		
PB	1817+70 Rt	53	2"	122	(2) No. 6 RHW		
FP1	1817+70 Rt	55	2	69	(1) No. 6 THW		

LIGHTING FOUNDATION TABLE						
Footing Depth	Footing Depth					
"D"	"D"					
24" and 30" Dia	36" and 42" Dia					
(Ft)	(Ft)					
Light Standard						
6	5					
	FOUNDATION TABLE Footing Depth "D" 24" and 30" Dia (Ft) ight Standard 6					

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEN-5-012(053)034	140	4

![](_page_37_Picture_6.jpeg)

Lighting System

Lighting Schematic

![](_page_38_Figure_0.jpeg)

12-034.221-1

## NOTES

- 100 SCOPE OF WORK: Work at this site consists of extending a double barrel 9' x 5' precast concrete box culvert 14' at the inlet.
- 202 REMOVAL OF STRUCTURE: The existing structure is a double barrel 9' x 5' box culvert, 68'-0" long. Include all work required to remove the box culvert end section including cost to release existing post-tensioning in the contract unit price for "REMOVAL OF STRUCTURE".

Submit SFN 17987 Asbestos Notification of Demolition and Renovation to the North Dakota Department of Health 10 days before beginning removal of concrete.

- BOX CULVERT EXCAVATION: The excavated material removed for the installation of 210 the box culvert extension has not been included in the excavation values shown within the Basis of Estimate. Waste of any excess excavated material is the responsibility of the Contractor.
- 210 EXISTING RIPRAP: All related cost for the removal of buried existing riprap, encountered during excavation, is included in the bid price for "BOX CULVERT EXCAVATION"
- BURY RIPRAP: Cover riprap installed along channel bottom with up to 12" of topsoil to 210 match existing channel grades.
- PRECAST SECTION: The existing barrel sections are tied together with post-tensioning 606 strands. Tie the new and existing barrel sections together with post-tensioning strands or 1" tie bolts as shown on Standard Drawing D-714-22. If tie bolts are used, terminate and re-tension the existing post-tensioned strands with a force of 20 kips prior to extending the box culvert. Modify the existing box culvert end to completely contain the required anchor chuck and grout. Use a minimum of 6 - 0.5" diameter 270K strands for double box sections with one strand in each corner. Stress post-tensioning strands from opposite ends to a force of 20 kips. Use corrosion protected post-tensioning cables with their ends grouted. If tie bolts are used, place two ties per exterior wall at each joint located at third points of the wall clear height.

Payment for "DBL 9FT X 5FT PRECAST RCB END SECTION" includes the apron, cutoff wall, parapet and wingwalls. Attach the apron to the last barrel section, the wingwalls and the cutoff wall. Attach the wingwalls to the last barrel section. Provide a welded tie type system for the connections of the apron to the box and wingwalls. Connect the wingwalls to the last barrel section by the use of tie bolts, steel-bolted plates or other approved method so the inside corner surface is smooth.

Use ASTM A36 steel for bolts, plates, angles, and studs. Use heavy hex nuts meeting the requirements of ASTM A563 and washers meeting ASTM F436, Type 1. Provide welded pipe sleeves meeting the requirements of ASTM A53, Grade B. Galvanize hardware and structural steel according to Section 854.

Welders are to meet the requirements of Section 105.06 D. Galvanize field welds according to Section 854.02.

Cast holes at 3'-0" centers through the ap diameter reinforcing bars. Cast holes in th diameter reinforcing bars to attach the par the bars according to the manufacturer's adhesive specifically intended for concrete 806.02.

- 624 PEDESTRIAN RAILING LOADING: Desid concurrent factored 1.2-kip shear force an each base plate anchoring of the safety ra LRFD Bridge Design Specifications Secti project TAC-5-012(051)034, PCN 22673, dated 3/8/2022. Confirm configuration and loading values listed herein against actual submitted railing shop drawings, prior to casting of parapet.
- 930 be included in the bid item, "SHORING", with a quantity of 2 EA.

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.			
	ND	HEN-5-012(053)034	170	2			
oro ne raj rec e a	ron and into the cutoff wall to receive <sup>3</sup> ⁄ <sub>4</sub> " e last barrel section at 1'-0" centers for <sup>1</sup> ⁄ <sub>2</sub> " apet. Cast parapet against the section. Install ecommendations, with a high strength e anchorage, in accordance with Section						
gn nd aili on	gn the parapet to be capable of resisting a id 4.9-k-ft moment at the top of concrete at ailing. This loading is based on the AASHTO on 13.8.2 and the Safety Railing details of tied						

SHORING: Temporary shoring is required as shown on the plans for construction of the box culvert extension. The Contractor is responsible to design, construct, maintain, and remove temporary shoring. All labor, equipment and material needed for this work shall

![](_page_39_Picture_17.jpeg)

12-034.221-2