North Dakota Department of Transportation

Grant Levi, P.E.
Director

Jack Dalrymple
Governor

November 5, 2015

ADDENDUM 2 – JOB 11

TO: All prospective bidders on project NH-1-021(016)103, Job No. 11, scheduled for the November 13, 2015 bid opening.

The following plan revisions shall be made:

Plan Revisions:
See attached summary from Kyle J. Comer, PE; Civil Science, dated November 5, 2015 for an explanation.

This addendum is to be incorporated into the bidder's proposal for this project.

For CAL J. GENDREAU – CONSTRUCTION SERVICES ENGINEER
80:dch
Enclosure

608 East Boulevard Avenue • Bismarck, North Dakota 58505-0700
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CIVIL SCIENCE
ENGINEERS - SURVEYORS - PLANNERS - SCIENTISTS

222 Airport Road
Williston, ND 58801
Telephone: 701-774-8200
Facsimile: 701-774-8201

November 5, 2015

ADDENDUM 2
Job No. 11

TO: All prospective bidders and suppliers on Project NH-1-021(016)103, PCN 17717, Job Number 11 for November 13, 2015 bid opening.

Revisions for NH-1-021(016)103:

Remove and Replace Plan Sheets:

- Section 2 Sheet 1-2
- Section 6 Sheet 1
- Section 20 Sheets 1, 7

Insert Plan Sheets:

- Section 11 Sheet 1-8

Changes within the enclosed sheets include:

Section 2

Sheets 1-2:

- Table of Contents was modified to include Section 11 Mass Diagram and Earthwork Tables

Section 6

Sheet 1:

- Note 203-P01 Specification Section revised to Section 203.04.E.4

Section 11

Sheet 1:

- Mass Diagram included.

Sheets 2-8:

- Earthwork Summary tables included.

Section 20

Sheet 1:

- Changed the Removal and Backfill Detail bedding depth from 6” to 2’ for Pipe extensions and added Cattle Pass Backfill Detail.

Sheet 7:

- Sheet reference changed from Section 20 Sheet 7 to Section 20 Sheet 8.

This addendum is to be incorporated in Bidder's proposal for this project.

Sincerely,

Kyle J. Comer, P.E., Project Manager,
Civil Science
222 Airport Road
Williston, ND 58801
(801) 367-4256 (Cell)
kcomer@civilscience.com

Enclosures: Revised Plan Sheets: NH-1-021(016)103
Cc: Justin J. Schlosser, NDDOT DTR

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LIST OF SPECIAL PROVISIONS

SP #	Description
SP 0003(14)	Temporary Erosion and Sediment Best Management Practices
SP 0004(14)	Federal Migratory Bird Treaty Act
SP 0202(14)	Temporary Stream Diversions
SP 5069(14)	Permits and Environmental Considerations

NOTES

Revised	11/4/2015	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	NH-1-021(016)103	6	1

100-P01 WEEKLY PLANNING/REPORTING MEETING: Organize a weekly meeting to coordinate efforts between subcontractors, utilities, local authorities, and others.

Send a Project Manager or Project Superintendent to conduct the weekly reporting/planning meeting. Prepare minutes for each meeting and make the appropriate distribution of the minutes. Have the minutes approved by the Engineer before distribution.

Provide a written schedule of the next week's work and a tentative schedule of the following week. Include a discussion of problems encountered during the current week; also include information of interest to local authorities, subcontractors, and utilities.

Invite interested agencies to the meeting. Include the following agencies and any other agencies that are necessary:

A. North Dakota Department of Transportation
B. Local Government Agencies
C. Police department
D. Fire department
E. Ambulance service
F. West River Telecom
G. Mor-Gran-Sou Electric Cooperative
H. Gas Company
I. City of Flasher sewer and water departments
J. Missouri West Water System
K. Subcontractors
L. Chamber of Commerce
M. FHWA

107-700 HAUL ROADS: The Engineer will not designate paved roads off the state system as haul roads.

107-710 HAUL ROADS: Before submitting a proposal, contact the appropriate State, County, Township, or City officials to determine if there are any roadways that will be designated as "no haul routes".

203-010 SHRINKAGE: 25 percent additional volume is included for shrinkage in earth embankment.

203-385 AVERAGE HAUL: No average haul has been computed for this project.

203-P01 COMPACTION AND DENSITY CONTROL: The sliver grading shall be constructed as Type C Embankment, Section 203.04.E.4.

411-P01 TEMPORARY ASPHALT WEDGES: Place temporary asphalt wedges at milled locations and bridge ends. Create a smooth transition before allowing traffic onto the milled section.

Include the cost of the installation, maintenance and removal in the contract unit price of “Milling Pavement Surface.”

430-P01 SUPERPAVE FAA 42: The hot bituminous pavement for the overlay shall be paver laid in two lifts. Tight blading operations are to be performed before the overlay is applied. 50 tons / lane mile has been included in the estimate. The tight blading shall be performed in a single motor grader pass. This pass will tight blade mix across the driving lane. The material shall then be compacted with a pneumatic roller prior to the overlay. The quantity used for the tight blading work will be paid at Contract Unit Prices for “Tack Coat”, “Superpave FAA 42”, and “PG-58-28 Asphalt Cement”.

704-200 PRECAST CONCRETE MEDIAN BARRIERS – STATE FURNISHED: Obtain 33 barriers from the Bismarck yard. Return barriers to the Bismarck yard.

Some 4 inch x 4 inch boards are available at the return location. Provide any additional 4 inch x 4 inch boards necessary to stack barriers. The boards will become property of the Department. Include the cost for boards in the contract unit price for "Precast Concrete Median Barrier - State Furnished".

704-255 TRAFFIC CONTROL FOR SHOULDER DROP-OFF: If the shoulder and adjacent driving lane are not even at the end of the day, the following criteria will apply:

Place the following sign assembly at the locations listed below.

Sign Assembly: Sign No. W8-9a-48 "Shoulder Drop Off" and supplemental plate Sign No. W20-52-54 to identify the distance.

Locations:

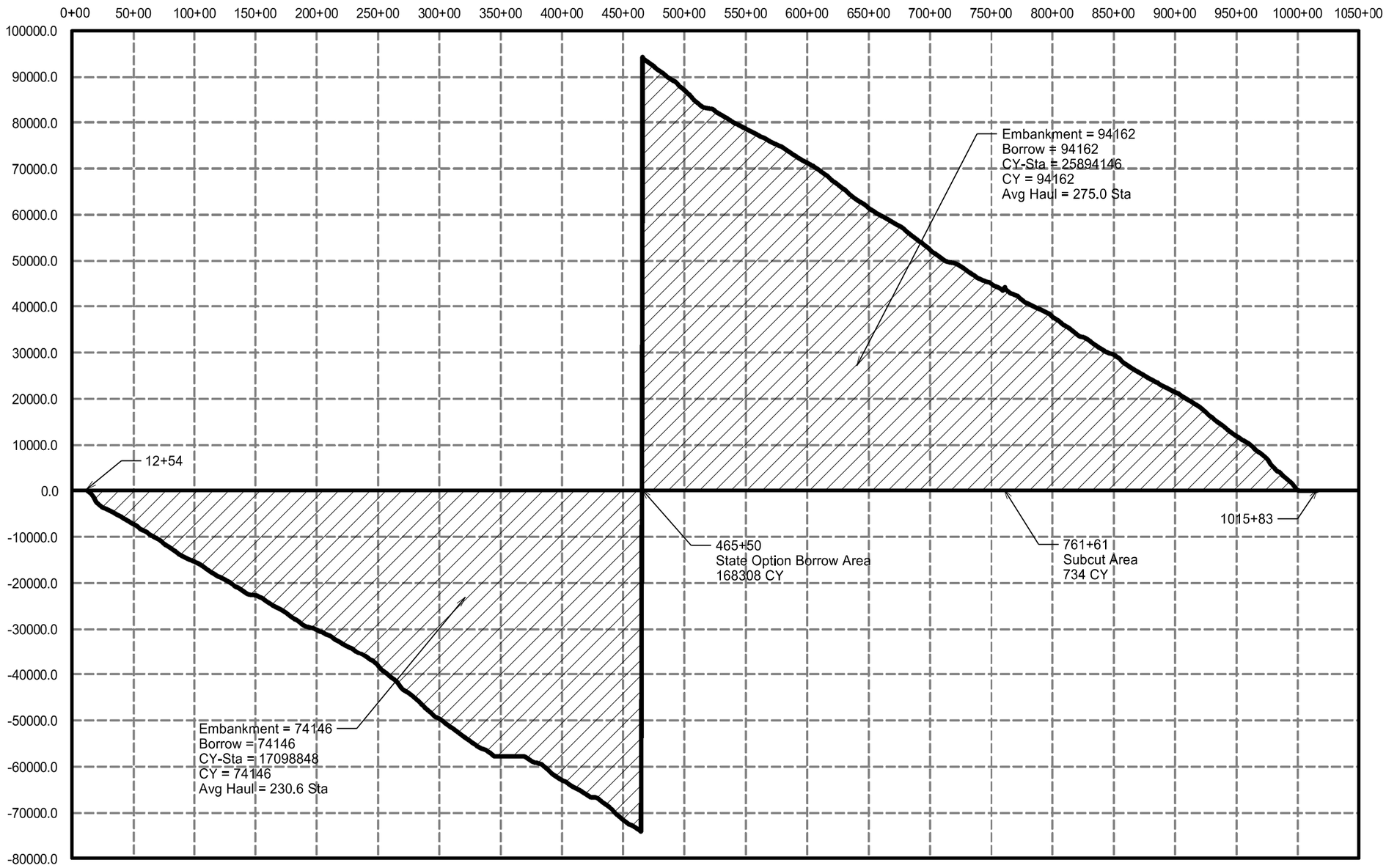
A. In advance of the drop off;
B. Spaced at each mile from the advance sign; and
C. At major intersections (CMC routes, state and US highways, and Interstate Ramps). If the difference in elevation between the shoulder and the driving lane is 2" or greater, construct a slough on the driving lane that is 4:1 or flatter.

If the difference in elevation between the shoulder and driving lane is less than 2", no slough is required.

Sign assemblies will be measured and paid for according to Section 704 "Temporary Traffic Control" of the Standard Specifications.

This document was originally issued and sealed by Kyle J. Comer, Registration Number PE-7537, on 11/04/2015 and the original document is stored at the North Dakota Department of Transportation.

Sheet Added 11/04/15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-021(016)103	11	1



Project Earthwork Summary	
Embankment	169041
Department Optioned Borrow	168308
Common Excavation - Subcut	734
Cubic Yard-Station	42992994
Cubic Yards	169041
Average Haul (Station)	254.3

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Mass Diagram

ND 21, Jct ND 31 E to Jct ND 6

Sheet Added 11/04/15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-021(016)103	11	2

Earthwork Summary				
Station	End Area (SF)	Volume (CY)		
	Fill	Fill*	Excavation (Other)	Mass Ordinate
12+54	30.0	0.0		0
13+00	33.4	70.2		-70
14+00	44.7	187.3		-257
15+00	26.4	170.5		-428
16+00	78.6	252.0		-680
17+00	77.4	374.3		-1054
18+00	73.2	361.3		-1416
19+00	146.2	526.2		-1942
20+00	62.7	501.0		-2443
21+00	53.0	277.5		-2720
22+00	45.5	236.2		-2956
23+00	53.0	236.1		-3193
24+00	41.8	227.4		-3420
25+00	42.1	201.2		-3621
26+00	6.2	115.7		-3737
27+00	26.4	78.0		-3815
28+00	29.5	134.0		-3949
29+00	25.7	132.3		-4081
30+00	23.7	118.4		-4200
31+00	27.4	122.5		-4322
32+00	28.9	135.0		-4457
33+00	30.8	143.1		-4600
34+00	30.7	147.3		-4748
35+00	34.9	157.3		-4905
36+00	31.9	160.3		-5065
37+00	28.1	144.0		-5209
38+00	25.8	129.2		-5338
39+00	27.0	126.5		-5465
40+00	32.1	141.6		-5606
41+00	35.3	161.5		-5768
42+00	42.6	186.7		-5955
43+00	31.0	176.5		-6131
44+00	32.1	151.4		-6282
45+00	25.2	137.5		-6420
46+00	38.0	151.7		-6572
47+00	34.2	173.2		-6745
48+00	37.5	171.9		-6917
49+00	30.8	163.6		-7080
50+00	27.7	140.1		-7221
51+00	28.5	134.7		-7355
52+00	28.4	136.3		-7492
53+00	39.5	162.8		-7654
54+00	46.7	206.8		-7861
55+00	67.4	273.8		-8135
56+00	21.2	212.5		-8348
57+00	26.7	114.7		-8462
58+00	28.7	132.7		-8595
59+00	25.8	130.5		-8725
60+00	30.9	135.9		-8861
61+00	21.5	125.7		-8987
62+00	59.8	195.1		-9182
63+00	34.4	225.9		-9408
64+00	42.0	183.2		-9591
65+00	29.2	170.7		-9762
66+00	24.0	127.5		-9890
67+00	37.0	146.3		-10036
68+00	30.2	161.1		-10197

Earthwork Summary				
Station	End Area (SF)	Volume (CY)		
	Fill	Fill*	Excavation (Other)	Mass Ordinate
69+00	21.6	124.3		-10321
70+00	28.8	120.8		-10442
71+00	28.1	136.4		-10578
72+00	35.4	152.3		-10731
73+00	47.0	197.5		-10928
74+00	47.1	225.7		-11154
75+00	62.1	261.9		-11416
76+00	36.7	236.8		-11653
77+00	33.5	168.3		-11821
78+00	32.6	158.6		-11980
79+00	31.0	152.5		-12132
80+00	42.0	174.9		-12307
81+00	41.1	199.3		-12506
82+00	36.0	185.0		-12691
83+00	39.4	180.9		-12872
84+00	36.0	180.9		-13053
85+00	34.0	167.8		-13221
86+00	68.1	244.9		-13466
87+00	30.9	237.4		-13703
88+00	30.3	146.6		-13850
89+00	32.3	150.0		-14000
90+00	32.0	154.1		-14154
91+00	30.7	150.3		-14304
92+00	25.5	134.7		-14439
93+00	26.5	124.7		-14564
94+00	29.2	133.5		-14697
95+00	27.6	136.1		-14833
96+00	21.5	117.6		-14951
97+00	19.8	99.0		-15050
98+00	24.4	106.1		-15156
99+00	21.6	110.4		-15266
100+00	28.4	120.0		-15386
101+00	36.3	155.3		-15541
102+00	6.6	102.9		-15644
103+00	36.0	102.1		-15746
104+00	31.8	162.4		-15909
105+00	35.9	162.2		-16071
106+00	35.7	171.6		-16243
107+00	37.9	176.5		-16419
108+00	37.4	180.7		-16600
109+00	45.1	197.8		-16798
110+00	45.6	217.4		-17015
111+00	31.4	184.6		-17200
112+00	37.5	165.2		-17365
113+00	41.5	189.4		-17554
114+00	34.8	183.1		-17738
115+00	30.9	157.5		-17895
116+00	29.9	145.7		-18041
117+00	40.5	168.8		-18210
118+00	33.4	177.3		-18387
119+00	42.5	182.0		-18569
120+00	6.9	118.4		-18687
121+00	27.0	81.3		-18769
122+00	26.2	127.7		-18896
123+00	34.7	146.1		-19042
124+00	27.1	148.3		-19191
125+00	27.5	130.9		-19322

Earthwork Summary				
Station	End Area (SF)	Volume (CY)		
	Fill	Fill*	Excavation (Other)	Mass Ordinate
126+00	34.8	149.4		-19471
127+00	29.2	153.5		-19624
128+00	28.5	138.4		-19763
129+00	35.3	153.1		-19916
130+00	37.1	173.7		-20090
131+00	37.7	179.5		-20269
132+00	36.2	177.2		-20446
133+00	40.2	183.1		-20629
134+00	43.3	200.2		-20830
135+00	6.5	119.4		-20949
136+00	35.3	100.1		-21049
137+00	31.2	159.4		-21209
138+00	37.4	164.6		-21373
139+00	44.4	196.3		-21569
140+00	31.4	181.9		-21751
141+00	42.2	176.5		-21928
142+00	39.8	196.5		-22124
143+00	32.9	174.3		-22299
144+00	30.5	152.0		-22451
145+00	8.5	93.5		-22544
146+00	13.5	52.8		-22597
147+00	11.1	58.9		-22656
147+84	0.0	22.3		-22678
148+00	Bridge Deck Overlay			-22678
149+00	Bridge Deck Overlay			-22678
149+04	Bridge Deck Overlay			-22678
150+00	10.2	23.5		-22702
151+00	9.0	46.0		-22748
152+00	33.7	102.3		-22850
153+00	33.9	162.1		-23012
154+00	29.0	150.9		-23163
155+00	6.8	85.8		-23249
156+00	42.9	119.1		-23368
157+00	45.9	213.0		-23581
158+00	39.9	205.8		-23787
159+00	44.3	202.0		-23989
160+00	34.7	189.6		-24178

Notes:
1. No excavation is anticipated for this project except for the subcut as shown on Section 20 Sheet 9.
2. Removal of existing base is incidental to the placing of the Aggregate Base Course CL 5.

* 25% additional volume is included for shrinkage in earth embankment

This document was originally issued and sealed by Kyle J. Comer Registration Number PE- 7537, on 11/04/2015and the original document is stored at the North Dakota Department of Transportation

Earthwork Values

ND 21, Jct ND 31 E to Jct ND 6

Sheet Added 11/04/15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-021(016)103	11	3

Earthwork Summary				
Station	End Area (SF)	Volume (CY)		
	Fill	Fill*	Excavation (Other)	Mass Ordinate
161+00	29.8	154.7		-24333
162+00	35.6	156.8		-24490
163+00	34.3	167.6		-24657
164+00	41.1	180.7		-24838
165+00	29.9	170.2		-25008
166+00	30.6	145.2		-25153
167+00	26.3	136.5		-25290
168+00	21.3	114.2		-25404
169+00	32.7	129.6		-25534
170+00	25.2	138.9		-25673
171+00	32.5	138.3		-25811
172+00	30.2	150.2		-25961
173+00	41.0	170.6		-26132
174+00	33.5	178.5		-26310
175+00	34.3	162.4		-26473
176+00	47.0	194.8		-26668
177+00	43.0	215.7		-26883
178+00	45.1	211.3		-27095
179+00	37.9	199.0		-27294
180+00	40.7	188.4		-27482
181+00	43.6	202.0		-27684
182+00	32.1	181.5		-27866
183+00	15.4	114.0		-27980
184+00	41.0	135.2		-28115
185+00	36.9	186.8		-28302
186+00	40.7	186.2		-28488
187+00	55.7	231.3		-28719
188+00	40.6	231.0		-28950
189+00	36.1	183.9		-29134
190+00	30.5	159.7		-29294
191+00	30.5	146.3		-29440
192+00	6.5	88.7		-29529
193+00	18.0	58.8		-29587
194+00	19.1	89.1		-29676
195+00	16.4	85.3		-29762
196+00	6.2	54.1		-29816
197+00	6.4	30.0		-29846
198+00	29.0	84.9		-29931
199+00	26.4	133.0		-30064
200+00	15.3	100.1		-30164
201+00	52.3	162.2		-30326
202+00	23.9	182.7		-30509
203+00	14.5	91.9		-30601
204+00	6.1	49.3		-30650
205+00	34.4	97.2		-30747
206+00	33.8	163.5		-30911
207+00	35.6	166.3		-31077
208+00	21.9	137.9		-31215
209+00	20.1	100.7		-31315
210+00	20.6	97.4		-31413
211+00	23.2	105.1		-31518
212+00	39.1	149.7		-31668
213+00	45.7	203.6		-31871
214+00	44.9	217.5		-32089
215+00	38.9	201.1		-32290
216+00	30.2	165.7		-32455
217+00	23.0	127.6		-32583

Earthwork Summary				
Station	End Area (SF)	Volume (CY)		
	Fill	Fill*	Excavation (Other)	Mass Ordinate
218+00	28.9	124.5		-32707
219+00	35.4	154.2		-32862
220+00	36.6	172.7		-33034
221+00	39.5	182.4		-33217
222+00	27.1	159.6		-33376
223+00	33.9	146.3		-33523
224+00	33.0	160.5		-33683
225+00	23.3	135.0		-33818
226+00	30.6	129.2		-33947
227+00	26.4	136.8		-34084
228+00	14.7	98.5		-34183
229+00	25.2	95.6		-34278
230+00	65.0	216.4		-34495
231+00	31.2	230.8		-34725
232+00	49.5	193.6		-34919
233+00	38.5	211.0		-35130
234+00	22.8	146.9		-35277
235+00	13.1	86.0		-35363
236+00	21.0	81.8		-35445
237+00	27.5	116.3		-35561
238+00	28.6	134.4		-35696
239+00	43.6	173.1		-35869
240+00	35.5	189.8		-36058
241+00	32.3	162.6		-36221
242+00	50.7	198.9		-36420
243+00	41.4	220.9		-36641
244+00	36.4	186.6		-36827
245+00	6.0	101.6		-36929
246+00	53.8	143.4		-37072
247+00	49.5	247.8		-37320
248+00	38.4	210.9		-37531
249+00	59.1	233.8		-37765
250+00	60.4	286.5		-38051
251+00	72.2	318.1		-38369
252+00	60.1	317.5		-38687
253+00	62.8	294.9		-38982
254+00	36.3	237.7		-39219
255+00	33.7	167.8		-39387
256+00	45.8	190.6		-39578
257+00	41.7	209.8		-39788
258+00	53.2	227.7		-40016
259+00	48.2	243.2		-40259
260+00	46.2	226.4		-40485
261+00	45.0	218.7		-40704
262+00	30.9	181.9		-40886
263+00	44.2	180.0		-41066
264+00	40.0	201.9		-41268
265+00	51.2	218.8		-41486
266+00	71.1	293.5		-41780
267+00	77.5	356.6		-42136
268+00	81.2	380.8		-42517
269+00	72.8	369.5		-42887
270+00	57.0	311.5		-43198
271+00	38.0	227.8		-43426
272+00	27.4	156.8		-43583
273+00	34.0	147.3		-43730
274+00	21.7	133.5		-43864

Earthwork Summary				
Station	End Area (SF)	Volume (CY)		
	Fill	Fill*	Excavation (Other)	Mass Ordinate
275+00	46.2	162.7		-44026
276+00	50.9	232.8		-44259
277+00	28.8	191.0		-44450
278+00	51.0	191.2		-44641
279+00	48.7	239.2		-44881
280+00	50.0	236.9		-45118
281+00	47.8	234.6		-45352
282+00	47.0	227.2		-45579
283+00	46.9	225.1		-45804
284+00	62.4	262.0		-46066
285+00	61.1	296.2		-46363
286+00	49.5	265.4		-46628
287+00	48.1	234.2		-46862
288+00	66.4	274.6		-47137
289+00	52.0	284.0		-47421
290+00	39.2	218.8		-47640
291+00	40.5	191.2		-47831
292+00	53.1	224.6		-48056
293+00	54.4	258.0		-48314
294+00	48.7	247.4		-48561
295+00	62.6	266.9		-48828
296+00	46.8	262.4		-49090
297+00	34.0	193.9		-49284
298+00	3.0	88.8		-49373
299+00	32.8	85.8		-49459
300+00	41.4	177.8		-49637
301+00	34.8	182.7		-49819
302+00	30.7	157.2		-49976
303+00	46.4	185.0		-50161
304+00	55.9	245.5		-50407
305+00	44.0	239.6		-50647
306+00	37.4	195.2		-50842
307+00	34.3	172.0		-51014
308+00	51.4	205.5		-51219
309+00	36.8	211.4		-51431
310+00	25.7	149.8		-51580
311+00	39.4	156.0		-51736

Notes:
1. No excavation is anticipated for this project except for the subcut as shown on Section 20 Sheet 9.
2. Removal of existing base is incidental to the placing of the Aggregate Base Course CL 5.

* 25% additional volume is included for shrinkage in earth embankment

This document was originally issued and sealed by Kyle J. Comer Registration Number PE- 7537, on 11/04/2015and the original document is stored at the North Dakota Department of Transportation

Earthwork Values

ND 21, Jct ND 31 E to Jct ND 6

Sheet Added 11/04/15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-021(016)103	11	4

Earthwork Summary				
Station	End Area (SF)	Volume (CY)		
	Fill	Fill*	Excavation (Other)	Mass Ordinate
312+00	46.8	206.8		-51943
313+00	42.5	214.3		-52158
314+00	32.9	180.9		-52338
315+00	40.9	177.1		-52516
316+00	50.0	218.0		-52734
317+00	38.5	212.1		-52946
318+00	39.7	187.5		-53133
319+00	46.7	207.2		-53340
320+00	38.7	204.7		-53545
321+00	36.7	180.7		-53726
322+00	47.2	201.1		-53927
323+00	33.0	192.2		-54119
324+00	28.0	146.3		-54265
325+00	51.2	190.0		-54455
326+00	43.4	226.9		-54682
327+00	37.8	194.6		-54877
328+00	27.7	156.9		-55034
329+00	43.4	170.5		-55204
330+00	47.2	217.3		-55422
331+00	35.1	197.4		-55619
332+00	29.5	154.9		-55774
333+00	36.1	157.3		-55931
334+00	26.0	148.9		-56080
335+00	18.6	106.8		-56187
336+00	16.9	84.9		-56272
337+00	17.9	83.4		-56355
338+00	16.5	82.5		-56438
339+00	61.6	187.4		-56625
340+00	28.3	215.6		-56841
341+00	36.9	156.3		-56997
342+00	35.1	172.8		-57170
343+00	52.7	210.6		-57380
344+00	61.0	272.6		-57653
345+00	12.4	176.0		-57829
345+15	0.0	4.5		-57833
346+00	Full Width Overlay			-57833
347+00	Full Width Overlay			-57833
348+00	Full Width Overlay			-57833
349+00	Full Width Overlay			-57833
350+00	Full Width Overlay			-57833
351+00	Full Width Overlay			-57833
352+00	Full Width Overlay			-57833
353+00	Full Width Overlay			-57833
354+00	Full Width Overlay			-57833
355+00	Full Width Overlay			-57833
356+00	Full Width Overlay			-57833
357+00	Full Width Overlay			-57833
358+00	Full Width Overlay			-57833
359+00	Full Width Overlay			-57833
360+00	Full Width Overlay			-57833
361+00	Full Width Overlay			-57833
362+00	Full Width Overlay			-57833
363+00	Full Width Overlay			-57833
364+00	Full Width Overlay			-57833
365+00	Full Width Overlay			-57833
366+00	Full Width Overlay			-57833
367+00	Full Width Overlay			-57833

Earthwork Summary				
Station	End Area (SF)	Volume (CY)		
	Fill	Fill*	Excavation (Other)	Mass Ordinate
368+00	Full Width Overlay			-57833
369+00	Full Width Overlay			-57833
369+15	Full Width Overlay			-57833
370+00	39.7	80.9		-57914
371+00	36.4	182.4		-58097
372+00	35.0	171.1		-58268
373+00	35.8	169.8		-58437
374+00	41.5	185.5		-58623
375+00	38.5	192.0		-58815
376+00	18.3	136.3		-58951
377+00	34.0	125.5		-59077
378+00	19.5	128.4		-59205
378+31	0.0	14.5		-59220
379+00	Bridge Deck Overlay			-59220
379+30	Bridge Deck Overlay			-59220
380+00	19.7	33.1		-59253
381+00	19.9	95.0		-59348
382+00	23.2	103.3		-59451
383+00	7.5	73.5		-59525
384+00	51.1	140.5		-59665
385+00	50.8	244.5		-59910
386+00	49.4	240.4		-60150
387+00	38.4	210.7		-60361
388+00	48.3	208.0		-60569
389+00	61.9	264.3		-60833
390+00	51.6	272.1		-61105
391+00	52.4	249.3		-61354
392+00	50.8	247.5		-61602
393+00	31.5	197.4		-61799
394+00	40.7	173.1		-61972
395+00	35.8	183.6		-62156
396+00	37.1	174.9		-62331
397+00	37.5	179.0		-62510
398+00	31.5	165.6		-62675
399+00	37.1	164.5		-62840
400+00	29.3	159.2		-62999
401+00	27.6	136.5		-63136
402+00	11.2	93.1		-63229
403+00	32.1	103.9		-63333
404+00	42.9	180.0		-63513
405+00	49.7	222.2		-63735
406+00	38.1	210.7		-63946
407+00	35.1	175.6		-64121
408+00	34.8	167.7		-64289
409+00	30.1	155.6		-64445
410+00	31.2	147.0		-64592
411+00	28.3	142.7		-64734
412+00	27.3	133.3		-64867
413+00	26.0	127.9		-64995
414+00	28.6	131.0		-65126
415+00	29.9	140.3		-65267
416+00	39.4	166.0		-65433
417+00	36.7	182.4		-65615
418+00	37.3	177.3		-65792
419+00	33.5	169.6		-65962
420+00	38.2	171.8		-66134
421+00	34.4	174.0		-66308

Earthwork Summary				
Station	End Area (SF)	Volume (CY)		
	Fill	Fill*	Excavation (Other)	Mass Ordinate
422+00	28.3	150.2		-66458
423+00	55.0	199.8		-66658
423+60	0.0	79.2		-66737
424+00	Full Width Overlay			-66737
425+00	Full Width Overlay			-66737
426+00	Full Width Overlay			-66737
427+00	Full Width Overlay			-66737
427+30	Full Width Overlay			-66737
428+00	34.9	58.6		-66796
429+00	23.6	140.3		-66936
430+00	44.9	164.1		-67100
431+00	48.0	222.8		-67323
432+00	51.9	239.6		-67562
433+00	38.2	216.0		-67778
434+00	43.7	196.3		-67975
435+00	40.3	201.3		-68176
436+00	25.4	157.4		-68333
437+00	44.8	168.2		-68502
438+00	42.0	208.2		-68710
439+00	41.8	201.1		-68911
440+00	42.3	201.8		-69113
441+00	47.0	214.3		-69327
442+00	62.9	263.6		-69590
443+00	59.4	293.3		-69884
444+00	57.8	281.1		-70165
445+00	47.2	251.8		-70417
446+00	49.0	230.8		-70648
447+00	41.0	216.0		-70864
448+00	46.3	209.4		-71073
449+00	46.1	221.6		-71294
450+00	59.1	252.3		-71547
451+00	35.5	226.9		-71774
452+00	44.6	192.2		-71966
453+00	41.7	207.1		-72173
454+00	40.0	196.0		-72369
455+00	44.5	202.6		-72572
456+00	4.6	117.7		-72689

Notes:
1. No excavation is anticipated for this project except for the subcut as shown on Section 20 Sheet 9.
2. Removal of existing base is incidental to the placing of the Aggregate Base Course CL 5.

* 25% additional volume is included for shrinkage in earth embankment

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Earthwork Values

ND 21, Jct ND 31 E to Jct ND 6

Sheet Added 11/04/15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-021(016)103	11	5

Earthwork Summary				
Station	End Area (SF)	Volume (CY)		
	Fill	Fill*	Excavation (Other)	Mass Ordinate
457+00	26.2	73.9		-72763
458+00	33.4	143.0		-72906
459+00	28.4	148.2		-73054
460+00	41.1	166.5		-73221
461+00	36.5	186.1		-73407
462+00	38.1	178.9		-73586
463+00	35.0	175.2		-73761
464+00	42.8	186.4		-73948
465+00	39.9	198.3		-74146
466+50			168308**	94162
466+00	28.5	164.1		93998
467+00	42.2	169.6		93828
468+00	36.7	189.2		93639
469+00	40.3	184.5		93455
470+00	40.6	194.0		93261
471+00	37.2	186.6		93074
472+00	43.4	193.3		92881
473+00	37.6	194.4		92686
474+00	32.8	168.8		92518
475+00	47.7	193.0		92325
476+00	62.8	265.0		92060
477+00	46.7	262.5		91797
478+00	47.0	224.6		91572
479+00	28.6	181.2		91391
480+00	32.9	147.3		91244
481+00	46.0	189.2		91055
482+00	34.3	192.6		90862
483+00	40.8	180.1		90682
484+00	50.8	219.8		90462
485+00	51.4	245.1		90217
486+00	52.5	249.1		89968
487+00	27.5	191.8		89776
488+00	33.0	145.2		89631
489+00	38.2	170.8		89460
490+00	34.2	173.6		89287
491+00	34.6	165.0		89122
492+00	19.8	130.5		88991
493+00	40.8	145.3		88846
494+00	56.6	233.5		88612
495+00	75.4	316.6		88296
496+00	53.5	309.3		87986
497+00	47.7	242.7		87744
498+00	36.9	202.8		87541
499+00	45.1	196.6		87344
500+00	47.0	220.9		87123
501+00	65.0	268.6		86855
502+00	50.7	277.5		86577
503+00	46.7	233.5		86344
504+00	46.0	222.3		86121
505+00	63.1	261.8		85860
506+00	71.3	322.4		85537
507+00	61.6	318.8		85219
508+00	67.8	310.4		84908
509+00	39.6	257.6		84651
510+00	36.9	183.4		84467
511+00	53.9	217.6		84249
512+00	46.4	240.4		84009

Earthwork Summary				
Station	End Area (SF)	Volume (CY)		
	Fill	Fill*	Excavation (Other)	Mass Ordinate
513+00	45.4	220.2		83789
514+00	38.4	201.0		83588
515+00	37.4	181.6		83406
516+00	12.4	119.4		83287
517+00	13.9	63.0		83224
518+00	13.6	65.7		83158
519+00	8.2	52.2		83106
520+00	7.5	37.6		83068
521+00	6.9	34.4		83034
522+00	6.9	33.1		83001
523+00	15.7	54.2		82947
524+00	50.5	158.7		82788
525+00	50.3	241.6		82546
526+00	42.5	222.4		82324
527+00	29.0	171.4		82152
528+00	35.7	155.3		81997
529+00	32.3	163.2		81834
530+00	30.4	150.3		81684
531+00	31.9	149.4		81534
532+00	35.1	160.6		81374
533+00	33.9	165.4		81208
534+00	18.1	124.7		81084
535+00	46.7	155.3		80928
536+00	37.5	201.8		80726
537+00	29.3	160.0		80566
538+00	37.7	160.6		80406
539+00	38.2	182.0		80224
540+00	35.7	177.2		80047
541+00	38.6	178.3		79868
542+00	6.4	108.0		79760
543+00	31.1	89.9		79670
544+00	30.7	148.1		79522
545+00	29.0	143.0		79379
546+00	33.3	149.4		79230
547+00	29.4	150.5		79080
548+00	25.6	132.0		78948
549+00	28.3	129.3		78818
550+00	27.7	134.3		78684
551+00	31.9	142.9		78541
552+00	27.2	141.8		78399
553+00	26.6	129.0		78270
554+00	28.9	132.9		78137
555+00	29.4	139.7		77998
556+00	27.8	137.0		77861
557+00	27.9	133.4		77727
558+00	29.5	137.6		77590
559+00	32.1	147.7		77442
560+00	34.8	160.4		77282
561+00	29.5	154.3		77127
562+00	30.2	143.3		76984
563+00	24.6	131.5		76853
564+00	11.1	85.7		76767
565+00	28.7	95.4		76671
566+00	33.3	148.7		76523
567+00	32.6	158.0		76365
568+00	34.8	161.6		76203
569+00	33.2	163.0		76040

Earthwork Summary				
Station	End Area (SF)	Volume (CY)		
	Fill	Fill*	Excavation (Other)	Mass Ordinate
570+00	34.7	162.8		75877
571+00	22.3	136.8		75741
572+00	30.5	126.7		75614
573+00	28.9	142.5		75471
574+00	16.5	108.9		75362
575+00	23.4	95.6		75267
576+00	30.3	128.6		75138
577+00	36.5	160.0		74978
578+00	6.4	102.8		74875
579+00	29.1	85.1		74790
580+00	37.5	159.6		74631
581+00	38.8	182.8		74448
582+00	40.4	189.8		74258
583+00	37.6	186.9		74071
584+00	37.3	179.6		73891
585+00	37.7	180.0		73712
586+00	31.7	166.4		73545
587+00	43.5	180.3		73365
588+00	41.1	202.9		73162
589+00	27.7	165.0		72997
590+00	31.3	141.6		72855
591+00	37.9	165.9		72689
592+00	50.0	210.7		72479
593+00	29.9	191.6		72287
594+00	30.0	143.6		72144
595+00	33.7	152.6		71991
596+00	38.6	173.2		71818
597+00	27.7	158.8		71659
598+00	25.7	127.9		71531
599+00	24.1	119.4		71412
600+00	30.4	130.7		71281
601+00	32.4	150.5		71130
602+00	31.4	153.0		70977
603+00	44.9	183.0		70795
604+00	6.2	122.5		70672
605+00	43.1	118.2		70554
606+00	43.6	207.8		70346

Notes:
1. No excavation is anticipated for this project except for the subcut as shown on Section 20 Sheet 9.
2. Removal of existing base is incidental to the placing of the Aggregate Base Course CL 5.

* 25% additional volume is included for shrinkage in earth embankment.
** Excavtion at 466+50 is for the State Option Borrow Area.

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Earthwork Values

ND 21, Jct ND 31 E to Jct ND 6

Sheet Added 11/04/15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-021(016)103	11	6

Earthwork Summary				
Station	End Area (SF)	Volume (CY)		
	Fill	Fill*	Excavation (Other)	Mass Ordinate
607+00	40.6	201.8		70144
608+00	23.8	154.3		69990
609+00	42.7	159.3		69831
610+00	37.4	192.1		69639
611+00	47.2	203.0		69436
612+00	38.0	204.4		69231
613+00	39.2	185.1		69046
614+00	44.0	199.5		68846
615+00	32.8	184.3		68662
616+00	33.5	159.1		68503
617+00	53.4	208.4		68295
618+00	48.8	245.1		68050
619+00	65.6	274.4		67775
620+00	49.5	276.1		67499
621+00	39.4	213.3		67286
622+00	36.4	181.9		67104
623+00	33.1	166.8		66937
624+00	43.6	184.0		66753
625+00	55.4	237.4		66516
626+00	38.1	224.3		66291
627+00	42.9	194.4		66097
628+00	42.8	205.5		65891
629+00	42.0	203.2		65688
630+00	32.2	177.8		65510
631+00	41.5	176.6		65334
632+00	52.4	225.2		65109
633+00	58.0	264.9		64844
634+00	58.7	279.9		64564
635+00	46.2	251.6		64312
636+00	44.9	218.6		64094
637+00	43.7	212.6		63881
638+00	43.4	208.9		63672
639+00	35.3	188.6		63484
640+00	39.7	179.8		63304
641+00	41.0	193.5		63110
642+00	33.4	178.3		62932
643+00	29.5	150.7		62781
644+00	28.4	138.8		62642
645+00	38.1	159.4		62483
646+00	30.5	164.5		62318
647+00	41.5	172.8		62146
648+00	49.5	218.2		61927
649+00	55.1	250.9		61677
650+00	43.5	236.6		61440
651+00	39.9	200.1		61240
652+00	36.8	184.0		61056
653+00	27.8	155.0		60901
654+00	31.4	141.9		60759
655+00	40.2	171.6		60587
656+00	41.7	196.4		60391
657+00	36.3	187.0		60204
658+00	14.0	120.5		60083
659+00	43.2	137.0		59946
660+00	35.5	188.7		59758
661+00	14.9	120.8		59637
662+00	29.6	106.7		59530
663+00	33.4	151.1		59379

Earthwork Summary				
Station	End Area (SF)	Volume (CY)		
	Fill	Fill*	Excavation (Other)	Mass Ordinate
664+00	29.2	150.1		59229
665+00	32.9	148.9		59080
666+00	35.5	164.0		58916
667+00	31.6	160.9		58755
668+00	34.4	158.3		58597
669+00	33.6	163.2		58434
670+00	31.0	154.9		58279
671+00	32.0	150.9		58128
672+00	33.4	156.7		57971
673+00	36.3	167.0		57804
674+00	22.6	141.1		57663
675+00	28.3	122.0		57541
676+00	28.5	136.3		57405
677+00	36.6	156.2		57249
678+00	43.3	191.6		57057
679+00	60.3	248.4		56809
680+00	52.9	271.5		56537
681+00	43.3	230.8		56306
682+00	44.1	209.6		56097
683+00	44.0	211.3		55886
684+00	48.2	221.1		55664
685+00	41.9	216.1		55448
686+00	42.2	201.9		55246
687+00	40.5	198.5		55048
688+00	38.1	188.6		54859
689+00	42.7	193.8		54665
690+00	43.8	207.6		54458
691+00	58.6	245.8		54212
692+00	3.6	149.2		54063
693+00	36.1	95.1		53968
694+00	60.2	231.1		53737
695+00	47.2	257.8		53479
696+00	41.5	212.7		53266
697+00	37.7	189.9		53076
698+00	51.1	213.0		52863
699+00	50.3	243.2		52620
700+00	61.3	267.7		52352
701+00	46.5	258.7		52094
702+00	58.8	252.7		51841
703+00	6.5	156.7		51684
704+00	47.4	129.3		51555
705+00	39.7	208.9		51346
706+00	41.5	194.7		51151
707+00	34.8	183.0		50968
708+00	40.5	180.6		50788
709+00	46.2	207.9		50580
710+00	39.8	206.4		50373
711+00	43.5	200.0		50173
712+00	30.1	176.6		49997
713+00	21.5	123.6		49873
714+00	24.6	110.4		49763
715+00	12.7	89.3		49673
716+00	10.5	55.6		49618
717+00	9.1	47.2		49571
718+00	7.0	38.8		49532
719+00	7.8	35.7		49496
720+00	13.8	52.0		49444

Earthwork Summary				
Station	End Area (SF)	Volume (CY)		
	Fill	Fill*	Excavation (Other)	Mass Ordinate
721+00	35.2	117.6		49327
722+00	8.9	105.8		49221
723+00	43.0	124.5		49096
724+00	38.8	196.4		48900
725+00	29.5	163.9		48736
726+00	37.5	160.8		48575
727+00	36.7	178.1		48397
728+00	39.3	182.4		48215
729+00	45.8	204.3		48010
730+00	37.8	200.5		47810
731+00	40.4	187.5		47622
732+00	35.0	180.8		47441
733+00	39.1	177.7		47264
734+00	35.9	180.0		47084
735+00	35.9	172.3		46911
736+00	23.8	143.2		46768
737+00	61.1	203.6		46565
738+00	30.6	219.9		46345
739+00	34.7	156.7		46188
740+00	14.2	117.4		46071
741+00	33.1	113.5		45957
742+00	23.9	136.8		45820
743+00	31.1	132.0		45688
744+00	5.9	88.8		45600
745+00	28.8	83.3		45516
746+00	22.8	123.9		45392
747+00	6.1	69.2		45323
748+00	5.7	28.1		45295
749+00	46.0	123.9		45171
750+00	33.4	190.6		44981
751+00	43.2	183.8		44797
752+00	33.6	184.3		44613
753+00	19.6	127.8		44485
754+00	22.6	101.2		44384
755+00	28.3	122.0		44262
756+00	24.7	127.1		44134
757+00	22.7	113.7		44021

Notes:
1. No excavation is anticipated for this project except for the subcut as shown on Section 20 Sheet 9.
2. Removal of existing base is incidental to the placing of the Aggregate Base Course CL 5.

* 25% additional volume is included for shrinkage in earth embankment

This document was originally issued and sealed by Kyle J. Comer Registration Number PE- 7537, on 11/04/2015and the original document is stored at the North Dakota Department of Transportation

Earthwork Values

ND 21, Jct ND 31 E to Jct ND 6

Sheet Added 11/04/15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-021(016)103	11	7

Earthwork Summary				
Station	End Area (SF)	Volume (CY)		
	Fill	Fill*	Excavation (Other)	Mass Ordinate
758+00	46.9	167.0		43854
759+00	36.7	200.7		43653
760+00	37.3	177.7		43475
761+61			734**	44209
761+00	45.1	197.7		44012
762+00	43.8	213.2		43798
763+00	58.6	245.6		43553
764+00	35.5	225.8		43327
765+00	56.8	221.5		43106
766+00	31.2	211.1		42894
767+00	13.6	107.5		42787
768+00	19.6	79.6		42707
769+00	26.5	110.6		42597
770+00	27.7	130.2		42467
771+00	7.2	83.8		42383
772+00	38.0	108.5		42274
773+00	66.5	250.8		42023
774+00	49.0	277.2		41746
775+00	41.6	217.4		41529
776+00	42.0	200.6		41328
777+00	54.3	231.0		41097
778+00	29.8	201.7		40896
779+00	21.8	123.6		40772
780+00	23.3	108.1		40664
781+00	21.9	108.4		40556
782+00	30.2	124.9		40431
783+00	26.9	136.8		40294
784+00	28.4	132.5		40161
785+00	33.0	147.2		40014
786+00	28.1	146.4		39868
787+00	21.6	119.0		39749
788+00	22.2	105.1		39644
789+00	21.5	105.0		39539
790+00	24.3	110.0		39429
791+00	30.8	132.2		39296
792+00	29.1	143.7		39153
793+00	25.2	130.5		39022
794+00	32.8	139.4		38883
795+00	24.2	136.7		38746
796+00	27.0	122.7		38623
797+00	12.9	95.6		38528
798+00	43.2	134.5		38393
799+00	75.5	284.8		38109
800+00	44.1	287.0		37822
801+00	38.9	199.2		37622
802+00	32.8	171.9		37450
803+00	38.4	170.8		37280
804+00	30.2	164.5		37115
805+00	39.5	167.2		36948
806+00	41.8	195.3		36753
807+00	53.6	229.0		36524
808+00	52.1	253.7		36270
809+00	36.3	212.1		36058
810+00	31.2	161.8		35896
811+00	28.4	142.8		35753
812+00	29.2	138.2		35615
813+00	35.3	154.8		35460

Earthwork Summary				
Station	End Area (SF)	Volume (CY)		
	Fill	Fill*	Excavation (Other)	Mass Ordinate
814+00	37.1	173.6		35287
815+00	46.1	199.5		35087
816+00	45.1	218.8		34869
817+00	45.2	216.8		34652
818+00	45.1	216.7		34435
819+00	46.8	220.4		34215
820+00	42.6	214.4		34000
821+00	45.0	210.1		33790
822+00	35.4	192.9		33597
823+00	15.6	122.4		33475
824+00	7.5	55.3		33420
825+00	6.8	34.3		33385
826+00	31.7	92.5		33293
827+00	25.4	137.1		33156
828+00	33.5	141.5		33014
829+00	37.6	170.8		32843
830+00	39.6	185.4		32658
831+00	44.3	201.3		32457
832+00	42.3	207.8		32249
833+00	49.8	221.0		32028
834+00	33.0	198.7		31829
835+00	33.6	159.8		31670
836+00	40.5	177.8		31492
837+00	41.0	195.5		31296
838+00	32.5	176.4		31120
839+00	32.2	155.3		30964
840+00	30.8	151.2		30813
841+00	35.9	160.0		30653
842+00	34.3	168.4		30485
843+00	39.8	177.7		30307
844+00	26.9	160.0		30147
845+00	22.6	118.9		30028
846+00	23.9	111.7		29917
847+00	20.6	106.7		29810
848+00	6.3	64.4		29745
849+00	14.6	50.2		29695
850+00	33.8	116.3		29579
851+00	35.4	166.1		29413
852+00	41.0	183.3		29230
853+00	42.2	199.4		29030
854+00	23.8	158.2		28872
855+00	51.4	180.3		28692
856+00	81.4	318.5		28373
857+00	48.7	312.2		28061
858+00	45.1	225.3		27836
859+00	34.9	192.1		27644
860+00	36.1	170.4		27473
861+00	35.2	171.1		27302
862+00	42.3	186.0		27116
863+00	32.2	178.7		26937
864+00	40.7	174.9		26762
865+00	28.7	166.5		26596
866+00	36.4	156.2		26440
867+00	37.3	176.9		26263
868+00	31.4	164.8		26098
869+00	30.5	148.6		25949
870+00	29.1	143.2		25806

Earthwork Summary				
Station	End Area (SF)	Volume (CY)		
	Fill	Fill*	Excavation (Other)	Mass Ordinate
871+00	29.2	139.8		25666
872+00	40.8	167.9		25498
873+00	28.4	166.2		25332
874+00	30.0	140.3		25192
875+00	34.4	154.6		25037
876+00	33.4	162.7		24875
877+00	37.2	169.4		24705
878+00	35.1	173.4		24532
879+00	33.3	164.1		24368
880+00	24.3	138.1		24230
881+00	24.4	116.7		24113
882+00	32.1	135.7		23977
883+00	31.9	153.6		23824
884+00	38.4	168.5		23655
885+00	9.1	113.9		23541
886+00	33.1	101.4		23440
887+00	52.6	205.7		23234
888+00	26.7	190.3		23044
889+00	27.3	129.6		22914
890+00	27.6	131.7		22783
891+00	34.8	149.7		22633
892+00	24.6	142.4		22491
893+00	25.4	119.8		22371
894+00	26.5	124.4		22246
895+00	29.6	134.5		22112
896+00	33.8	152.0		21960
897+00	29.5	151.8		21808
898+00	29.9	142.4		21666
899+00	20.8	121.7		21544
900+00	26.5	113.4		21431
901+00	32.6	141.8		21289
902+00	5.7	92.0		21197
903+00	39.7	109.0		21088
904+00	45.0	203.2		20885
905+00	41.8	208.2		20676
906+00	40.4	197.1		20479
907+00	26.2	159.8		20319

Notes:
1. No excavation is anticipated for this project except for the subcut as shown on Section 20 Sheet 9.
2. Removal of existing base is incidental to the placing of the Aggregate Base Course CL 5.

* 25% additional volume is included for shrinkage in earth embankment
** Excavation is for subcut area from Sta. 760+11 to 761+11. Refer to Section 20 Sheet 9.

This document was originally issued and sealed by Kyle J. Comer Registration Number PE- 7537, on 11/04/2015and the original document is stored at the North Dakota Department of Transportation

Earthwork Values

ND 21, Jct ND 31 E to Jct ND 6

Sheet Added 11/04/15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-021(016)103	11	8

Earthwork Summary				
Station	End Area (SF)	Volume (CY)		
	Fill	Fill*	Excavation (Other)	Mass Ordinate
908+00	31.1	137.4		20182
909+00	39.6	169.5		20013
910+00	33.0	174.2		19838
911+00	28.4	147.3		19691
912+00	29.9	140.0		19551
913+00	30.6	145.3		19406
914+00	37.5	163.5		19242
915+00	44.1	195.9		19046
916+00	26.7	169.9		18876
917+00	31.9	140.6		18736
918+00	34.6	159.6		18576
919+00	39.8	178.4		18398
920+00	34.8	178.9		18219
921+00	46.8	195.7		18023
922+00	48.2	228.1		17795
923+00	52.3	241.3		17554
924+00	42.0	226.4		17327
925+00	54.1	230.7		17097
926+00	50.8	251.8		16845
927+00	54.5	252.7		16592
928+00	48.7	247.5		16345
929+00	44.0	222.4		16122
930+00	8.2	125.2		15997
931+00	76.1	202.3		15795
932+00	52.0	307.4		15487
933+00	37.5	214.7		15273
934+00	47.1	202.9		15070
935+00	41.3	212.1		14858
936+00	31.9	175.7		14682
937+00	37.5	166.6		14515
938+00	39.2	184.1		14331
939+00	42.1	195.0		14136
940+00	40.6	198.5		13938
941+00	51.1	220.0		13718
942+00	53.1	250.0		13468
943+00	43.0	230.7		13237
944+00	45.5	212.4		13024
945+00	39.1	203.0		12822
946+00	40.9	191.8		12630
947+00	45.2	206.7		12423
948+00	34.3	190.8		12232
949+00	37.1	171.1		12061
950+00	33.3	169.0		11892
951+00	31.1	154.7		11737
952+00	33.5	155.0		11582
953+00	40.7	177.9		11404
954+00	59.5	240.4		11164
955+00	6.4	158.0		11006
956+00	36.3	102.4		10904
957+00	36.7	175.3		10728
958+00	30.2	160.7		10568
959+00	28.7	141.4		10426
960+00	37.3	158.5		10268
961+00	47.4	203.3		10064
962+00	37.2	203.0		9862
963+00	57.1	226.4		9635
964+00	61.4	284.3		9351

Earthwork Summary				
Station	End Area (SF)	Volume (CY)		
	Fill	Fill*	Excavation (Other)	Mass Ordinate
965+00	51.7	271.2		9080
966+00	53.0	251.1		8829
967+00	38.5	219.5		8609
968+00	36.0	178.6		8430
969+00	33.1	165.8		8265
970+00	39.3	173.9		8091
971+00	48.6	211.0		7880
972+00	41.6	216.5		7663
973+00	49.5	218.7		7444
974+00	47.2	232.0		7212
975+00	57.7	251.5		6961
976+00	68.0	301.6		6659
977+00	123.0	458.3		6201
978+00	62.0	443.9		5757
979+00	55.8	282.7		5474
980+00	63.6	286.5		5188
981+00	54.6	283.7		4904
982+00	61.9	279.7		4625
983+00	63.6	301.1		4323
984+00	7.4	170.4		4153
985+00	19.0	63.4		4090
986+00	76.2	228.4		3861
987+00	60.6	328.1		3533
988+00	48.0	260.6		3273
989+00	43.1	218.6		3054
990+00	51.6	227.2		2827
991+00	43.9	229.2		2597
992+00	42.8	208.0		2389
993+00	52.5	228.6		2161
994+00	47.9	241.0		1920
995+00	49.1	232.8		1687
996+00	63.3	269.8		1417
997+00	81.2	346.8		1071
998+00	71.8	367.0		704
999+00	57.5	310.1		393
1000+00	43.8	243.2		150
1001+00	13.4	137.4		13
1001+40	0.0	12.9		0
1002+00	Full Width Overlay			0
1003+00	Full Width Overlay			0
1004+00	Full Width Overlay			0
1005+00	Full Width Overlay			0
1006+00	Full Width Overlay			0
1007+00	Full Width Overlay			0
1008+00	Full Width Overlay			0
1009+00	Full Width Overlay			0
1010+00	Full Width Overlay			0
1011+00	Full Width Overlay			0
1012+00	Full Width Overlay			0
1013+00	Full Width Overlay			0
1014+00	Full Width Overlay			0
1015+00	Full Width Overlay			0
1015+83	Full Width Overlay			0

Notes:
1. No excavation is anticipated for this project except for the subcut as shown on Section 20 Sheet 9.
2. Removal of existing base is incidental to the placing of the Aggregate Base Course CL 5.

* 25% additional volume is included for shrinkage in earth embankment

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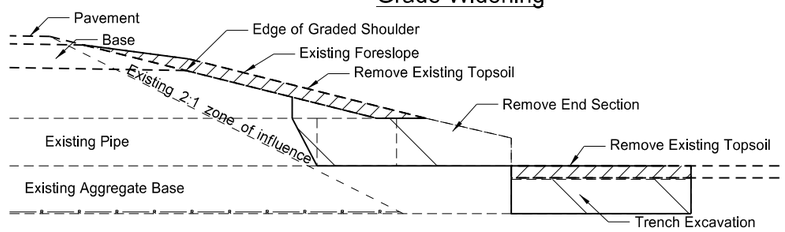
Earthwork Values

ND 21, Jct ND 31 E to Jct ND 6

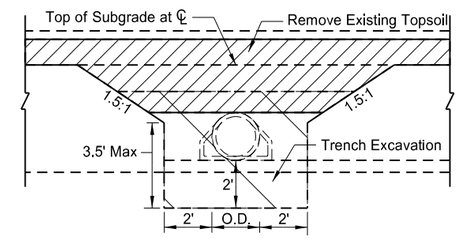
Revised 11/04/2015	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-021(016)103	20	1

Grade Widening



Removal Section

Cross Section View

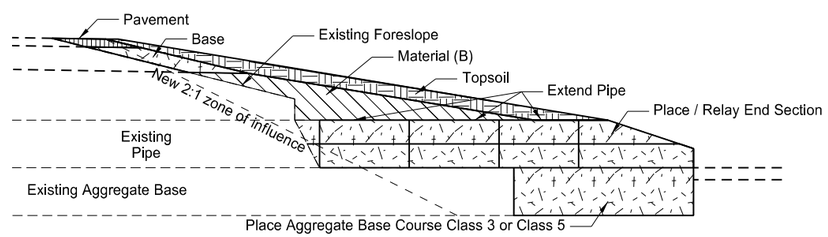


Removal Detail

Side View

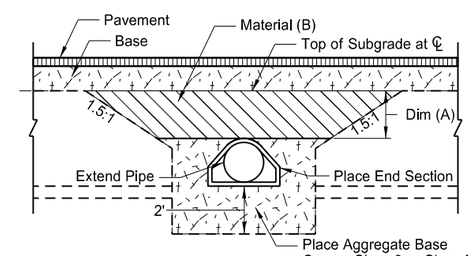
Pay Items
1) Pipe*
2) Remove & Relay Pipe - All Types & Sizes (when required)
3) Remove & Reset End Section or new End Section
4) Borrow Excavation (Compaction Control Type C) or Common Excavation-Type C
5) Topsoil
6) Seeding
7) Mulching

*Included in Pipe Pay Item
1) Pipe
2) Trench excavation
3) Aggregate Base Course Class 3 or Class 5



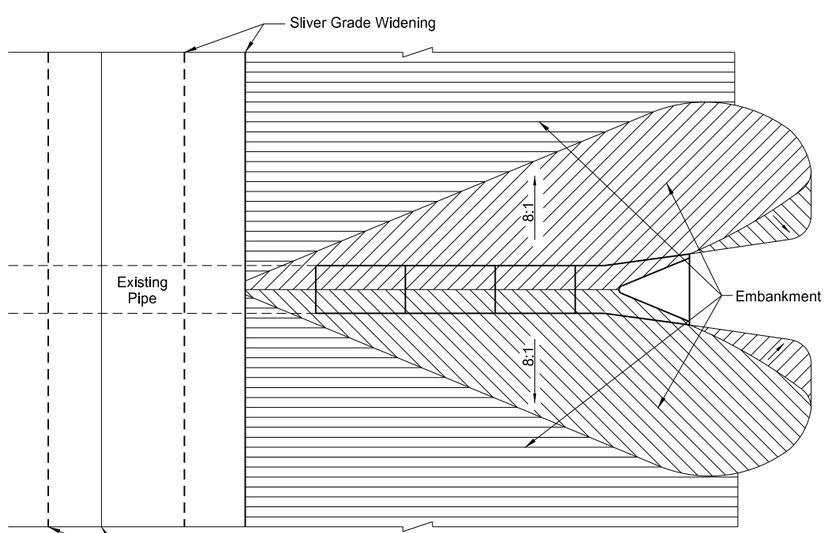
Proposed Section

Cross Section View



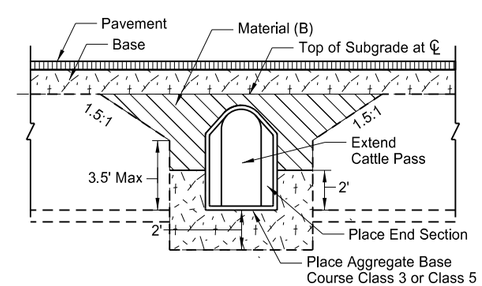
Backfill Detail

Side View (Topsoil not shown)



Proposed Section

Plan View



Cattle Pass Backfill Detail

Side View (Topsoil not shown)

Pipe Materials	Dim (A)<=4 Feet Material (B)	Dim (A)>4 Feet Material (B)
Concrete	Embank or Aggr	Embank or Aggr
Metal	Embank or Aggr	Embank or Aggr

NOTES:
1. Embankment may be either Borrow Excavation (Compaction Control - Type C) or Common Excavation - Type C.

2. Aggregate may be either Class 3 or Class 5 Aggregate Base Course.

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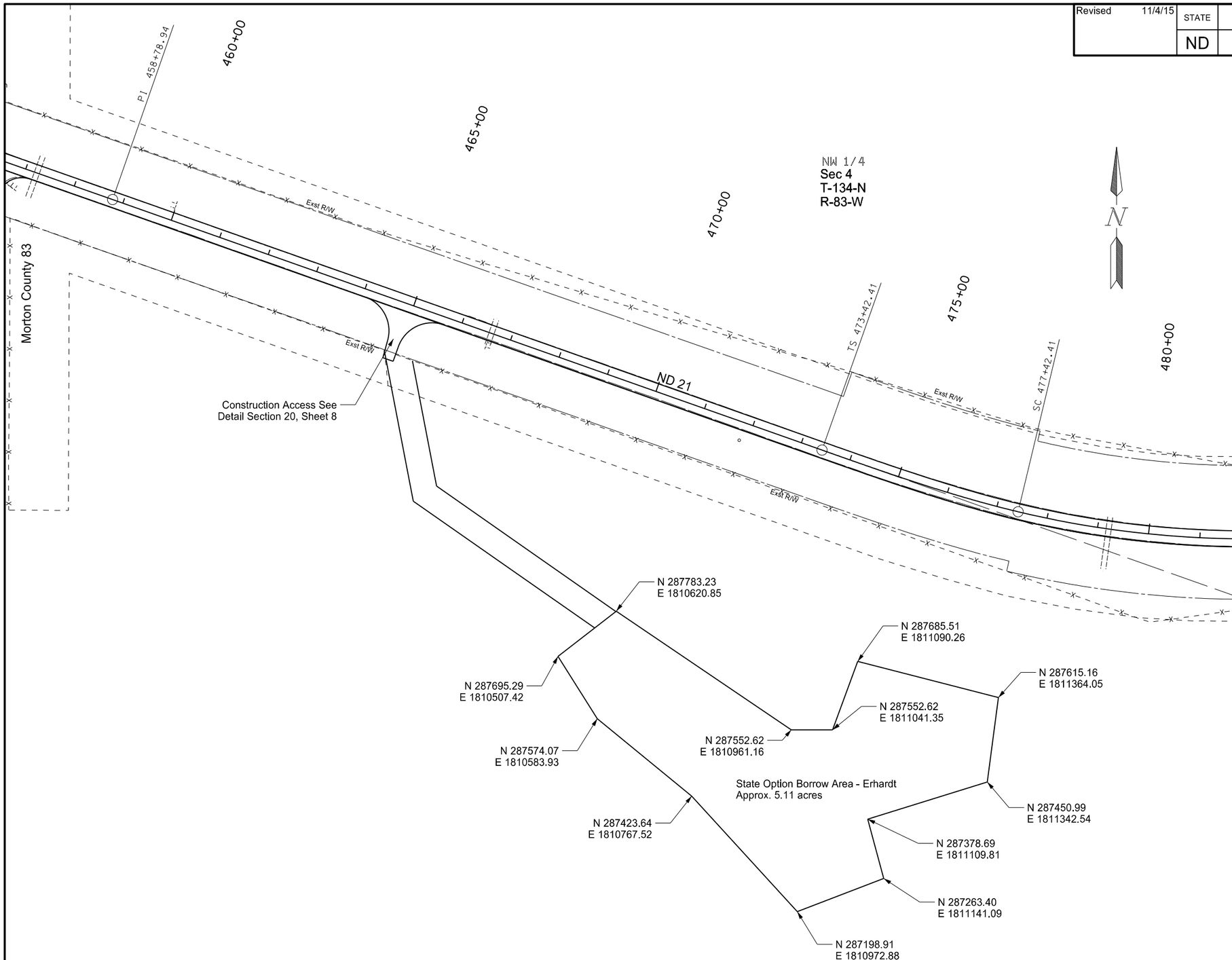
Mainline ℄ Pipe Extension Detail

ND 21, Jct ND 31 E to Jct ND 6

Revised 11/4/15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-02(016)103	20	7



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State Option Borrow Area

ND 21, Jct ND 31 to Jct ND 6