



North Dakota Department of Transportation

Grant Levi, P.E.
Director

Jack Dalrymple
Governor

August 29, 2016

ADDENDUM 1 – JOB 2

TO: All prospective bidders on project SOIB-7-804(054)312, Job No. 2 scheduled for the September 9, 2016 bid opening.

The following plan and request for proposal revisions shall be made:

Plan Revisions:

See attached summary from Mark Milstone, PE, Dowl, dated August 26, 2016 for an explanation.

Request for Proposal Revisions:

Remove and replace page 7, 8, and 12 thru 17 of 19 of the Proposal pages located at the beginning of the Request for Proposal, with the enclosed pages revised 8/29/2016.

Page 7 of 19:

Item 704 1000 TRAFFIC CONTROL SIGNS; quantity increased from 2,881 to 2,968 UNITS.

Page 8 of 19:

Item 704 1081 VERTICAL PANELS – BACK TO BACK; quantity increased from 36 to 122 EA.

Page 12 of 19:

Item 750 0911 TEMPORARY SAFETY FENCE; 551 LF was added.

Page 13 of 19:

Items have shifted due to added item.

Item 754 0206 STEEL GALV POSTS – TELESCOPING PERFORATED TUBE; quantity increased from 496 to 668 LF.

Item 754 0472 3 1/2IN STEEL GALV MULTI-DIRECT BREAKAWAY BASES; 15 EA was deleted.

Item 760 0003 RUMBLE STRIPS – CONCRETE CENTERLINE; 1 MILE was deleted.

Item 762 0430 SHORT TERM 4IN LINE – TYPE NR; quantity decreased from 70,627 to 59,149 LF.

Page 14.15.16 and 17 of 19:

Items have shifted.

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

Addendum 1

Job 2, September 9, 2016 Bid Opening

Page 2 of 2

Expedite bid files should be updated by downloading the addendum file from the Bid Express on-line bidding exchange at <http://www.bidx.com/> or the Department's web page (<http://www.dot.nd.gov>) and load it into the Expedite program.

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CAL J. GENDREAU – CONSTRUCTION SERVICES ENGINEER

80:dch

Enclosure

August 26, 2016

To: All prospective bidders on Project SOIB-7-804(054)312, scheduled for the September 9, 2016 bid opening.

The following plan revisions shall be made:

Remove and replace Section 2 sheet 1, Section 6 sheets 3-6, Section 8 sheets 1-2, Section 10 sheet 1, Section 20 sheet 9, Section 60 sheet 32, Section 80 sheet 8, and Section 100 sheets 1 & 15-32 with the enclosed sheets revised on 8/22/2016, 8/24/2016, & 8/25/2016. Add Section 10 sheet 2 and Section 100 sheets 33-35 with the enclosed sheets revised on 8/24/2016, 8/25/2016, & 8/26/2016.

Section	Sheet	Description of Change
2	1	Changed the Sheet numbers for Section 100 from 2-32 to 2-35.
6	3	Added Note 155-100 "Concrete Equipment". Revised Note 203-P01 "Common Excavation – Waste".
6	4	Revised sheet formatting due to addition of Note 155-100 "Concrete Equipment".
6	5	Added Note 704-P04 "Vertical Panels – Back to Back". Revised sheet formatting due to addition of Note 155-100 "Concrete Equipment".
6	6	Added Note 752-P02 "Temporary Safety Fence". Revised sheet formatting due to addition of Note 155-100 "Concrete Equipment" and Note 704-P04 "Vertical Panels – Back to Back".
8	1	Revised quantity of 704-1000 "Traffic Control Signs" from 2,881 UNITS to 2,968 UNITS. Revised quantity of 704-1081 "Vertical Panels – Back to Back" from 36 EA to 122 EA.
8	2	Added item 752-0911 "Temporary Safety Fence" 551 LF. Revised quantity of 754-0206 "Steel Galv Posts – Telescoping Perforated Tube" from 496 LF to 668 LF. Removed item 754-0472 "3 1/2IN Steel Galv Multi-direct Breakaway Bases" 15 EA. Removed item 760-0003 "Rumble Strips – Concrete Centerline" 1 MILE. Revised quantity of 762-0430 "Short Term 4IN Line – Type NR" from 70,627 LF to 59,149 LF.
10	1	Removed item "Rumble Strips – Concrete Centerline" 1 MILE from "Rumble Strips" table.
10	2	Added Sheet 2 to Section 10 with summary tables for Pavement Markings.
20	9	Revised "Longitudinal Joint Tie Bar" table by removing the "Shoulder" option. Added dowel size information to the sheet notes.
60	32	Revised Coal Waste area to avoid the limits of construction for ND 1804 Phase 2 (SOIB-7-804(058)304). Added dimensions to the Coal Waste area and Section A-A. Added Section B-B for Coal Waste Site perpendicular to the roadway. Added Notes 1, 2, & 3.

80	8	Revised Coal Waste Area from 575' x 150' to 580' x 114'. Added ND 1804 Phase 2 (SOIB-7-804(054)312) limits of construction. Added Note 1. Added 752-0911 "Temporary Safety Fence" 551 LF to Southern boundary of the Coal Waste Area and sheet quantities.
100	1	Added quantities for W1-6-48 in Phase 1. Revised quantities for W20-5-48 in Phase 1. Revised quantity of 704-1000 "Traffic Control Signs" from 2,881 UNITS to 2,968 UNITS. Revised quantity of 704-1081 "Vertical Panels – Back to Back" from 36 EA to 122 EA in Phase 1. Revised quantity of 762-0430 "Short Term 4IN Line – Type NR" from 1,700 LF to 3,422 LF in Phase 1 and 68,927 LF to 55,727 LF in Phase 2.
100	15-25	Revised legend to include "Highway Sign" and the symbol for a highway sign. Added "Highway Sign" symbols for signs in plan views. Revised the symbol used for "Stackable Vertical Panels" in the legend and plan views.
100	26	Revised the last sentence in Note 4 from "See note 107-P01, section 6" to "See note 107-P02, section 6". Revised legend to include "Highway Sign" and the symbol for a highway sign. Added "Highway Sign" symbols for signs in plan views. Revised the symbol used for "Stackable Vertical Panels" in the legend and plan views.
100	27-28	Revised legend to include "Highway Sign" and the symbol for a highway sign. Added "Highway Sign" symbols for signs in plan views. Revised the symbol used for "Stackable Vertical Panels" in the legend and plan views.
100	29	Revised typical sections for Phase 1 (2016) and Phase 2 (2016). Revised third note under "Work to be Performed in Phase 2 (2016)".
100	30	Removed "Tubular Marker" traffic control devices. Modified the taper start station from 16682+70 to 16679+00. Added "Stackable Vertical Panel" traffic control devices. Revised the work zone speed limit from 35 MPH to 30 MPH. Revised traffic control device spacing throughout.
100	31-32	Removed "Tubular Marker" traffic control devices. Changed "Delineator Drums" to "Stackable Vertical Panel" traffic control devices. Revised the work zone speed limit from 35 MPH to 30 MPH. Revised traffic control device spacing throughout.
100	33-35	Added layouts to show the traffic control plan for Phase 2 (2016) from Section 100, Sheet 29.

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

Sincerely,

DOWL

A handwritten signature in blue ink that reads "Mark Milstone". The signature is written in a cursive style with a blue ink color.

Mark Milstone, P.E.
Dickinson Office Manager
mmilstone@dowl.com

Attachment(s): SOIB-7-804(054)312 Addendum 1 Sheets

BID ITEMS

Project: SOIB-7-804(054)312 (PCN-20890)

Bidder must type or neatly print unit prices in numerals, make extensions for each item, and total. Do not carry unit prices further than three (3) decimal places.

Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$	000	\$\$\$\$	00
033	256	0200	RIPRAP GRADE II	CY	132.				
034	260	0200	SILT FENCE SUPPORTED	LF	10,971.				
035	260	0201	REMOVE SILT FENCE SUPPORTED	LF	10,971.				
036	261	0112	FIBER ROLLS 12IN	LF	26,063.				
037	261	0113	REMOVE FIBER ROLLS 12IN	LF	25,007.				
038	265	0100	STABILIZED CONSTRUCTION ACCESS	EA	1.				
039	265	0101	REMOVE STABILIZED CONSTRUCTION ACCESS	EA	1.				
040	302	0050	TRAFFIC SERVICE AGGREGATE	TON	6,969.				
041	302	0100	SALVAGED BASE COURSE	TON	100,331.				
042	430	0500	COMMERCIAL GRADE HOT MIX ASPHALT	TON	4,714.				
043	550	0310	10IN NON REINF CONCRETE PVMT CL AE-DOWELED	SY	117,871.				
044	602	1208	CONCRETE BRIDGE BARRIER	LF	80.				
045	702	0100	MOBILIZATION	L SUM	1.				
046	704	0100	FLAGGING	MHR	2,000.				
047	704	1000	TRAFFIC CONTROL SIGNS	UNIT	2,968.				
048	704	1035	ATTENUATION DEVICE-TYPE B-25	EA	6.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$	000	\$\$\$\$	00
049	704	1052	TYPE III BARRICADE	EA	20.				
050	704	1060	DELINEATOR DRUMS	EA	405.				
051	704	1067	TUBULAR MARKERS	EA	350.				
052	704	1080	STACKABLE VERTICAL PANELS	EA	350.				
053	704	1081	VERTICAL PANELS-BACK TO BACK	EA	122.				
054	704	1086	SEQUENCING ARROW PANEL-TYPE B	EA	1.				
055	704	1087	SEQUENCING ARROW PANEL-TYPE C	EA	1.				
056	704	3510	PRECAST CONCRETE MED BARRIER-STATE FURNISHED	EA	40.				
057	706	0500	AGGREGATE LABORATORY	EA	1.				
058	706	0600	CONTRACTOR'S LABORATORY	EA	1.				
059	708	1010	RIPRAP-GROUTED JOINT	SY	60.				
060	708	1540	INLET PROTECTION-SPECIAL	EA	88.				
061	708	1541	REMOVE INLET PROTECTION-SPECIAL	EA	89.				
062	709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	18,090.				
063	709	0151	GEOSYNTHETIC MATERIAL TYPE R1	SY	18,788.				
064	709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	1,231.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$	000	\$\$\$\$	00
113	722	6140	ADJUST GATE VALVE BOX	EA	11.				
114	722	6160	ADJUST INLET	EA	2.				
115	724	0314	GATE VALVE & BOX 12IN	EA	2.				
116	724	0420	HYDRANT-RELOCATE	EA	4.				
117	748	0140	CURB & GUTTER-TYPE I	LF	24,320.				
118	748	1000	VALLEY GUTTER 36IN	LF	248.				
119	750	0115	SIDEWALK CONCRETE 4IN	SY	45.				
120	750	1000	DRIVEWAY CONCRETE	SY	379.				
121	750	2115	DETECTABLE WARNING PANELS	SF	53.				
122	752	0110	FENCE BARBED WIRE 3 STRAND-STEEL POST	LF	10,159.				
123	752	0320	FENCE BARBED WIRE 4 STRAND-STEEL POST	LF	4,603.				
124	752	0600	FENCE CHAIN LINK	LF	581.				
125	752	0700	FENCE WOVEN WIRE	LF	1,173.				
126	752	0911	TEMPORARY SAFETY FENCE	LF	551.				
127	752	0995	FENCE TERMINAL-WOOD POSTS	EA	20.				
128	752	2100	VEHICLE GATE	EA	2.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$\$	000	\$\$\$\$\$	00
129	752	2120	REMOVE VEHICLE GATE	EA	1.				
130	752	3100	CORNER ASSEMBLY CHAIN LINK	EA	4.				
131	752	3120	CORNER ASSEMBLY WOVEN WIRE	EA	2.				
132	752	3140	CORNER ASSEMBLY BARBED WIRE	EA	42.				
133	752	4100	DOUBLE BRACE ASSEMBLY BARBED WIRE	EA	7.				
134	754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	253.				
135	754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	189.				
136	754	0150	DELINEATORS-TYPE A	EA	4.				
137	754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	668.				
138	754	0563	REFERENCE MARKER-TYPE C	EA	8.				
139	754	0592	RESET SIGN PANEL	EA	25.				
140	754	0805	OBJECT MARKERS - CULVERTS	EA	20.				
141	760	0005	RUMBLE STRIPS - ASPHALT SHOULDER	MILE	2.				
142	762	0430	SHORT TERM 4IN LINE-TYPE NR	LF	59,149.				
143	762	1280	PREFORMED THERMO PLASTIC PVMT MK MESSAGE	SF	1,764.				
144	762	1305	PREFORMED PATTERNED PVMT MK 4IN LINE-GROOVED	LF	72,312.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$	000	\$\$\$\$	00
145	762	1309	PREFORMED PATTERNED PVMT MK 8IN LINE-GROOVED	LF	6,587.				
146	762	1315	PREFORMED PATTERNED PVMT MK 12IN LINE-GROOVED	LF	420.				
147	762	1325	PREFORMED PATTERNED PVMT MK 24IN LINE-GROOVED	LF	134.				
148	764	0131	W-BEAM GUARDRAIL	LF	474.				
149	764	0145	W-BEAM GUARDRAIL END TERMINAL	EA	6.				
150	764	0151	REMOVE W-BEAM GUARDRAIL & POSTS	LF	116.				
151	764	2020	REMOVE 3-CABLE GUARDRAIL & POSTS	LF	263.				
152	764	2080	REMOVE BOX BEAM GUARDRAIL	LF	596.				
153	764	2081	REMOVE END TREATMENT & TRANSITION	EA	10.				
154	766	0100	MAILBOX-ALL TYPES	EA	26.				
155	770	0001	LIGHTING SYSTEM	EA	1.				
156	770	4560	REMOVE LIGHT STANDARD	EA	13.				
157	772	0001	TRAFFIC SIGNALS SYSTEM	EA	1.				
158	772	2810	TEMPORARY TRAFFIC SIGNALS	EA	4.				
159	772	3125	REMOVE TRAFFIC SIGNAL SYSTEM	EA	1.				
160	772	3180	REMOVE WOOD POLE	EA	4.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$	000	\$\$\$\$	00
161	900	1000	TEMPORARY STREAM DIVERSION	EA	1.				
162	910	0480	TRASH RACK	EA	2.				
163	920	1233	HEALTH AND SAFETY PLAN	L SUM	1.				
164	930	8230	SHORING	EA	4.				
165	930	9647	BARRIER END MODIFICATION	EA	4.				
166	980	0170	CATTLE GUARD RESET	EA	2.				
			SUBTOTAL						
ALTERNATE A									
167	210	0210	FOUNDATION FILL	CY	966.300				
168	210	0225	FOUNDATION FILL-TYPE 1	CY	874.500				
169	602	1131	CLASS AE-3 CONCRETE-BOX CULVERT	CY	810.400				
170	612	0114	REINFORCING STEEL-GRADE 60-BOX CULVERT	LBS	108,494.				
			SUBTOTAL ALTERNATE A						
ALTERNATE B									

BID ITEMS

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Bidder must type or neatly print unit prices in numerals, make extensions for each item, and total. Do not carry unit prices further than three (3) decimal places.

Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$\$	000	\$\$\$\$\$	00
171	210	0210	FOUNDATION FILL	CY	962.500				
172	210	0225	FOUNDATION FILL-TYPE 1	CY	888.800				
173	606	3112	DBL 11FT X 12FT PRECAST RCB CULVERT	LF	284.				
174	606	7112	DBL 11FT X 12FT PRECAST RCB END SECTION	EA	2.				
			SUBTOTAL ALTERNATE B						
OPTION 1									
175	714	4097	PIPE CONDUIT 15IN-STORM DRAIN	LF	990.				
176	714	4101	PIPE CONDUIT 18IN-STORM DRAIN	LF	847.				
177	714	4107	PIPE CONDUIT 24IN-STORM DRAIN	LF	610.				
178	714	4112	PIPE CONDUIT 30IN-STORM DRAIN	LF	108.				
179	714	4113	PIPE CONDUIT 30IN-APPROACH	LF	218.				
180	714	4116	PIPE CONDUIT 36IN-APPROACH	LF	33.				
			SUBTOTAL OPTION 1						
OPTION 2									

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8/22/2016	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-804(054)312	2	1

PLAN SECTIONS

Section	Page(s)	Description	Section	Page(s)	Description
1	1	Title Sheet	120	1 - 11	Pavement Marking
2	1 - 2	Table of Contents	130	1 - 5	Guardrail
4	1 - 2	Scope of Work	140	1 - 14	Lighting
6	1 - 7	Notes	150	1 - 6	Signals
6	8	Environmental Notes	170	1 - 15	Bridges and Box Culverts
8	1 - 3	Estimate of Quantities	200	1 - 171	Cross Sections - ND 1804
10	1 - 2	Basis of Estimate	200	172 - 173	Cross Sections - Approach 16523 - Left
11	1 - 11	Data Tables	200	174 - 176	Cross Sections - Approach 16601 - Left
20	1 - 17	General Details	200	177 - 178	Cross Sections - Approach 16623 - Right
30	1 - 3	Existing Typical Sections	200	179	Cross Sections - Approach 16634 - Right
30	4 - 11	Proposed Typical Sections	200	180 - 182	Cross Sections - Approach 16636 - Left
40	1 - 11	Removals	200	183 - 184	Cross Sections - Approach 16653 - Left
50	1	Culvert Hydraulic Data	200	185 - 186	Cross Sections - Approach 16690 - Right
50	2 - 14	Inlet and Manhole Summary	200	187	Cross Sections - Approach 16705 - Right
51	1 - 8	Allowable Pipe List			
55	1 - 33	Drainage Layouts			
55	34 - 57	Storm Drain Details			
60	1 - 31	Plan & Profile			
60	32	Coal Waste Site Plan			
75	1 - 9	Wetland Impacts			
76	1 - 12	Temporary Erosion Control			
77	1 - 12	Permanent Erosion Control			
80	1 - 8	Fence Layouts			
81	1 - 2	Survey Coordinate and Curve Data			
82	1 - 12	Survey Data Layouts			
90	1 - 12	Paving Layouts			
100	1	Traffic Control Device List			
100	2 - 35	Work Zone Traffic Control			
110	1 - 2	Sign Summary			
110	3 - 13	Signing			
110	14 - 20	Sign Details			

SPECIAL PROVISIONS

Number	Description
SP 0003(14)	Temporary Erosion and Sediment Best Management Practices
SP 0004(14)	Federal Migratory Bird Treaty Act
SP 285(14)	Railroad Requirements
SP 287(14)	Temporary Water Diversion
SP 290(14)	Contaminated Work Area
SP 294(14)	Traffic Signal System
SP 305(14)	Airport Coordination
SP 314(14)	Conditions of Contract Award
SP 5117(14)	Environmental Considerations

NOTES

Revised 8/25/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-804(054)312	6	3

107-P03 ABANDONED MINES: The Public Service Commission identified abandoned mines in the vicinity of the proposed roadway. The abandoned mine locations are based on historical records. Actual locations, and extents of potential underground facilities connected to these mines are unknown. Approximate entrance locations of the identified mines are noted on the Scope of Work in Section 4. Other abandoned mines may exist in the area. See abandoned mines memorandum dated April 20, 2016 for more information.

155-100 CONCRETE EQUIPMENT: Provide a NRMCA Certified plant for concrete used in Sections 550, "Concrete Pavement", 570 "Concrete Pavement Repair", 602 "Concrete Structures", and 622 "Pilings".

107-P04 AVOIDANCE AREAS: Provide written notification to the Engineer 10 days prior to any earth disturbing activity between station 16522+44.37 and 16525+50. The avoidance areas are shown in Section 60.

The Engineer will contact Jeani Borchert (PH: 701-328-4378) of the Environmental and Transportation Services Division at least 1 week prior to earth disturbing work within the stationing listed above.

202-P01 SAW BITUMINOUS SURFACING: Include the cost of the full depth vertical saw cuts adjacent to pavement removal areas, specified in Section 202.04 A "General", in the contract unit price for REMOVE AND SALVAGE BITUMINOUS SURFACING.

202-P02 REMOVE EXISTING FENCE: Install permanent fence prior to the removal of existing fence, to maintain closure of lands.

202-P03 REMOVE & RESET INLET: Remove inlet as per 202.04 E and reset inlet to proper grade as shown in the plans. Replace inlet if any damage to inlet box occurs during construction.

202-P04 REMOVAL OF RIPRAP – LOOSE ROCK: Remove concrete rubble or other non-hazardous construction materials encountered near the Little Muddy River Bridge as needed to perform the work specified in the plans. Dispose of the concrete rubble at a contractor furnished disposal site. If paint is found on the concrete, test it for lead. If lead is found, dispose of it in accordance with state and federal regulations.

Work within the avoidance areas is prohibited except as defined below. The following work within avoidance buffer zones will be allowed under coordination with the Engineer's Archaeologist and Tribal Traditional Cultural Specialist:

- Removal of existing ROW fence;
- Installation of temporary safety fence and permanent ROW fencing; and
- Locating an appropriate reroute and monitoring placement of the new fiber optic and telephone lines.

See section 40 for location of rubble. See supplemental data, Environmental Site Assessment, March 2016, Appendix C-4 for more discussion. Include the cost for removal of the concrete rubble disposed of in the contract unit price for "REMOVAL OF RIPRAP – LOOSE ROCK". The estimated quantity is based on an average depth of 5 feet of rubble to be removed. The actual volume of rubble may vary.

107-P05 CULTURAL RESOURCE CONSTRUCTION MONITORING: The Engineer will hire a North Dakota permitted archaeologist, along with a Tribal Traditional Cultural Specialist (TCS) from the NDDOT's consulting tribes list, to monitor earth disturbing activities between station 16522+44.37 and 16525+50 (see Environmental Notes EN-2 and EN-3 of Section 6 of the Plans for more information). The archaeologist will notify Jeani Borchert who the TCS is, prior to any field work.

202-P05 REMOVAL OF BITUMINOUS SURFACING: The "REMOVAL OF BITUMINOUS SURFACING" quantity includes only the asphalt surfacing. Salvaging of the base material is not included in this quantity. Salvage bituminous surfacing for use in "SALVAGED BASE COURSE".

203-010 SHRINKAGE: 20 percent additional volume is included for shrinkage in earth embankment.

The archaeological firm will provide an Archaeologist and a Tribal Traditional Cultural Specialist to

- Oversee removal and placement of permanent ROW fencing near cultural resource avoidance areas,
- Oversee placement of temporary avoidance fencing around the landforms that extend into the ROW of these avoidance areas,
- Monitor earthmoving construction activities within the existing and newly designed ditch bottom and backslope areas between stations 16508+50 and 16525+50 including areas near and within 300' on either side of the avoidance areas, and
- Assist in finding a route and monitoring placement of a rerouted fiber optic and telephone lines within the established ROW on the north and south sides of the highway in the vicinity of the avoidance areas.

203-P01 COMMON EXCAVATION - WASTE: Common Excavation - Waste consists of coal. Dispose of coal removed from the common excavation areas at the coal disposal site shown in Section 4, located off the Phase 1 project limits. Place a minimum of 2 feet of compacted soil (2' cover) and 6" of topsoil over the coal disposal site. Compact the cover material in accordance with section 203.04.E.4. Dispose of the excavated soil from the coal waste site at a contractor furnished waste site. Coordinate activities with the NDDOT and the Phase 2 contractor during construction. Include the costs for labor, materials, and equipment necessary for coal removal and disposal along with the 2 feet of cover material in the contract unit price for "COMMON EXCAVATION – WASTE". The engineer will measure Common Excavation – Waste by taking an initial measurement of the original ground, and then a second measurement after removing the coal material. The quantity of topsoil for the coal waste site is included in the quantities for "TOPSOIL". The quantity of excavation for the coal waste site is included in the quantities for "Common Excavation - Type A". Temporary stockpiling of topsoil, excavation, 2' cover, and coal shall be done entirely within the limits of the coal waste site area. All work to phase the coal waste area shall be included in the price bid for "Common Excavation – Waste".

The Archaeological firm will prepare weekly updates of monitoring when monitoring is longer than 1 week. The firm will also prepare a final report of monitoring findings delivered to NDDOT Cultural Resource Section.

107-P06 PALEONTOLOGICAL MONITORING: Notify the Engineer 10 days in advance of excavation beginning between stations 16527+00 and 16540+00. The Engineer will contact Bob Christensen (PH: 701-328-4539) of the Environmental and Transportation Services Division one week prior to any excavation within this station range. The Engineer will hire a North Dakota Geological Survey (NDGS) permitted paleontologist to monitor all earthwork cuts within this station range.

203-P02 EXCESS EXCAVATION: Dispose of Common Excavation – Type A not needed for embankment at a contractor furnished waste site. Include the cost for disposal in the contract unit price for "COMMON EXCAVATION-TYPE A".

This document was originally issued and sealed by Mark Milstone, Registration Number PE-8801, on 8/25/2016 and the original document is stored at the North Dakota Department of Transportation.

NOTES

Revised 8/25/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-804(054)312	6	4

203-P03 TOPSOIL: Scrape and set to one side all topsoil within the temporary construction easement, between stations 16548+99.29 RT and 16549+45.06 RT. Replace topsoil after easement work has been completed. If additional topsoil is needed, take it ONLY from a location on this property. Notify the property owner a minimum of 7 days in advance of the work to coordinate the location it will be taken from. Dispose of all rocks with a diameter 3 inches or greater following dirt work. Include the cost for topsoil handing and rock removal in accordance with this note in the contract unit price for "TOPSOIL".

203-P04 CONTRACTOR FURNISHED WASTE AREA: All waste areas are contractor furnished. The waste discussed in this note is excess excavation as noted in 203-P02. Dispose of coal waste in accordance with note 203-P01. The following land owner is interested in having excess excavation wasted on his property. A Class III Cultural Resources Investigation has been performed on this site for the areas within 250 feet from the centerline of the ND 1804. A report of the findings and any avoidance areas or monitoring requirements is available for review.

Mr. Don Eide
NE ¼ Sec 22, T154N, R100W

203-P05 DITCH BLOCKS: Include the cost for ditch blocks in the contract unit price for "COMMON EXCAVATION –TYPE A." See sheet 20-12 for more information.

251-P01 SEEDING: Use the following seed mix for all permanent seeding. Include the cost for Seeding in the contract unit price for "SEEDING CLASS III".

		Mix A	Mix B	
		PLS/Ac	PLS/Ac	
	Species	Variety		
Grasses	Blue Grama	Bad River	0.90	0.60
	Green Needlegrass	Lordom	2.70	3.15
	Sideoats Grama	Killdeer	3.60	1.35
	Western Wheatgrass	Rodan	6.00	6.00
	Canada Wildrye		2.00	2.93
	Little Bluestem	Badlands	2.40	0.60
	Slender Wheatgrass		1.50	2.25
	Switchgrass	Dacotah	0.53	0.26
Forbs	Black-eyed Susan		0.02	0.02
	Blue aster		0.11	0.11
	Purple prairieclover		0.29	0.29
	Stiff Sunflower		0.08	0.08
	Western Yarrow		0.01	0.01
	Wild bergamont		0.03	0.03
	Lewis Flax		0.29	0.29
	Prairie (Yellow) Coneflower		0.11	0.11
	Shell-leaf Penstemon		0.3	0.3

If any of the varieties are not available, contact the Environmental and Transportation Services (ETS) Section II for a replacement. Seed mix "A" must be planted between April 20th and June 15th. If seeding will not take place within this time frame, seed mix "B" may be used after November 1st, and before the ground freezes. Between June 15 and November 1st use a temporary crop cover of oats. Seed mix B will then be seeded directly into the crop cover after November 1st.

255-P01 ECB TYPE 1: Install the erosion control blanket from D-255-2 so that it extends up the foreslope and backslope of the ditch, a minimum of one foot, so that the edge of the blanket is not in the ditch bottom.

256-P01 RIPRAP-SALVAGED: Riprap is available for salvage from under the Stony Creek Bridge. Salvaged riprap incorporated into the project will meet the gradation requirements outlined in specification section 256.03C. Include the cost of salvaging riprap in the contract unit price for "RIPRAP GRADE I".

302-115 BASE COURSE: Trim base course as specified in Section 302.04 C.1, "Surface Tolerance Type C."

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430-P01 BOX CULVERT SETTLEMENT: Install temporary asphalt at finished grade over the box culvert to allow settlement of the box culvert before finished surfacing is installed. Keep the temporary asphalt in place for a minimum of 60 days, starting from the date that the temporary asphalt installation is complete. Once the 60 day period is complete, remove the temporary asphalt, perform necessary grading, and place final concrete surfacing.

Include the cost for the temporary asphalt in the contract unit price for "COMMERCIAL GRADE HOT MIX ASPHALT". Include the cost for removal of temporary asphalt in the contract unit price for "REMOVE & SALVAGE BITUMINOUS SURFACING".

550-001 CORRECTIVE ACTION: The Engineer will apply liquidated damages of \$1,500 for each trip required after the second profile for areas needing further corrective action.

550-P01 RIDE QUALITY: Construct all concrete surfaces to comply with "Tolerance in Surface and Ride Quality" (Section 550.04 M) for speeds greater than 45 MPH.

704-100 TRAFFIC CONTROL SUPERVISOR: Provide a Traffic Control Supervisor.

704-200 PRECAST CONCRETE MEDIAN BARRIERS – STATE FURNISHED: Obtain barriers from the US Highway 2 storage area near Reference Point 12. Return barriers to the same location.

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:

- In advance of the drop off;
- Spaced at each mile from the advance sign; and
- 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".

704-P01 STATE ROUTE MARKERS: Provide State Route Marker signs for temporary traffic control. State Route Markers may be either the old design or the new state outlined design; however, all Route Marker signs provided must be of the same type.

Upon project completion, the State Route Marker sign panels will become property of the State. Stockpile sign panels within the project limits. The Engineer will arrange to have the stockpiled panels removed from the project limits.

Include the cost of furnishing, installing, maintaining, stockpiling, and other incidentals in the contract unit price for "Traffic Control Signs".

704-P02 TRAFFIC CONTROL: Implement traffic control to allow for 2 way traffic at all times unless otherwise approved by the Engineer.

704-P03 TEMPORARY EMBANKMENT: Include the cost for additional embankment needed beyond the typical section, to maintain two way traffic at all times, in the contract unit price for "Common Excavation-Type A". No measurement will be made of the temporary embankment.

704-P04 VERTICAL PANELS – BACK TO BACK: In locations where Vertical Panels – Back to Back are to be installed in pavement, coring the pavement is incidental to the contract unit price for "VERTICAL PANELS – BACK TO BACK".

714-P01 PIPE CONC XXIN-STORM DRAIN: Complete the following work on the storm sewer in the contaminated area as defined in SP 290(14).

Install rubber gaskets that meet the following criteria, on all reinforced concrete pipe (RCP):

- Meeting the requirements of ASTM C 443,
- Solid gaskets of circular cross section.

Grout all tie bar penetrations through the pipe walls.

Before the RCP is placed in the trench, coat the exterior surface with a masonry waterproofing paint that is designed for the following:

- A minimum water pressure of 12 PSI when tested according to ASTM D 7088;
- Designed for below grade exterior foundation walls; and
- Resistant to gasoline and diesel fuels.

Prepare the surface and apply the paint according to the paint manufacturer's recommendations.

Conduct the following tests on the RCP.

- ASTM C1214M - Standard Test Method for Concrete Pipe Sewer Lines by Negative Air Pressure (Vacuum) Test Method (Metric).
- ASTM Designation C 361 Standard Specification for Reinforced Concrete Low-Head Pressure Pipe.

If tests fail, repair the leaks and retest the pipe until the tests are passed.

Include the cost for gaskets, grout, surface coating, and testing in the contract unit price "PIPE CONC XXIN-STORM DRAIN".

714-P02 STORM SEWER: The storm sewer pipe to be installed will either be constructed with Reinforced Concrete Pipe (RCP) or Pipe Conduit in accordance with SP 314(14). The section 55 plan and Profile sheets were prepared with the pay items of Pipe Conduit. If the project is constructed with RCP, the corresponding RCP pay item will be used in place of the pay item of pipe conduit.

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714-P03 PIPE CONDUIT - STORM DRAIN - VERTICAL ELBOWS: Install prefabricated vertical elbow sections in the storm drain conduits at the following locations as shown in the plans.

STATION	PIPE DIAMETER (Inches)	Vertical Deflection Angle
16658+23	18	11° 50' 00"
16665+58	18	8° 39' 00"
16668+05	18	11° 01' 00"
16669+12	18	13° 45' 00"
16670+54	18	14° 23' 00"
16674+00	18	15° 11' 00"
16678+00	18	16° 00' 00"
16687+25	18	13° 22' 00"

The prefabricated elbows will be measured for payment by the lineal foot of the length of pipe bend section installed.

Include all costs to furnish and install the prefabricated bend sections in the contract unit price for the corresponding size of "Pipe Conduit - Storm Drain."

722-100 INLETS AND MANHOLES: Inlets and manholes were designed with a minimum 4 foot riser height. Fill the bottom of each drainage structure with concrete, up to the lowest invert elevation.

722-P01 ABANDON STORM SEWER SYSTEM: Abandon portions of the storm sewer by covering the pipe penetrations in the storm sewer manholes with plywood and filling the bottom of the manhole with slurry to the crown of the pipe. Eight cubic yards of slurry is anticipated to abandon the storm sewer system. Use slurry that meets ASTM C 928 R1. Remove the manhole barrel to a minimum of 1 foot below the roadway base coarse and fill with embankment, compacted per subgrade specifications. Plug and abandon outlet pipes as called out in section 40. Remove end section of outlet pipe before plugging and bury plugged outlet to match adjacent grading. Include the cost for plywood, concrete slurry, plugging, removal of concrete barrel, and embankment in the contract unit price for "ABANDON STORM SEWER SYSTEM".

722-P02 MANHOLE CASTINGS: Use a floating manhole casting (D-722-5A) for all manhole castings within the concrete pavement. Use a standard manhole casting compliant with D-722-5 for all manholes outside of the concrete pavement.

748-P01 CURB & GUTTER – TYPE 1: Align all joints in the curb and gutter with the joint in the concrete pavement.

752-P01 FENCE BARBED WIRE 3 STRAND-STEEL POST: Install the 3 strand barbed wire fence in accordance with standard drawing D-752-1. Maintain the wire distance, shown in Standard Drawing D-752-1, from the top of the post to the top wire and from the ground to the bottom wire. Evenly space the third wire in between the top and bottom wires.

752-P02 TEMPORARY SAFETY FENCE: The bid item for the installation of TEMPORARY SAFETY FENCE includes removal.

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

764-P01 REMOVE BOX BEAM GUARDRAIL: Salvage and deliver the box beam rail to the NDDOT Williston District Maintenance yard; all other parts will be disposed as specified in Section 107.17. Coordinate delivery of salvaged materials with Rick Sigvaldsen at 701-774-2738. Include the cost for salvage and delivery in the contract unit price for "REMOVE BOX BEAM GUARDRAIL".

772-009 PADLOCKS: Obtain padlocks for feed points from the City of Williston.

772-P01 EMERGENCY VEHICLE PRE-EMPTION: Provide 3M Opticom Emergency Vehicle Pre-emption (EVP) equipment. Mount the confirmation light at the same location on the mast arm as the EVP detector.

772-P02 REMOVE TRAFFIC SIGNAL SYSTEM: Remove the Traffic Signal System and deliver to the City of Williston. Contact Neil Bakken, City of Williston, at (701)577-6368, 2 days before delivering the Traffic Signals System to the City of Williston Public Works Storage yard at 809 5th Street E.

772-P03 TEMPORARY TRAFFIC SIGNAL: Include all costs to use portable trailer mounted traffic signals during the signal replacement, in the contract unit price for "TEMPORARY TRAFFIC SIGNALS".

885-001 CAST IRON DETECTABLE WARNING PANELS: If cast iron detectable warning panels are used, provide cast iron panels with a minimum thickness of 0.2 inches.

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ESTIMATE OF QUANTITIES

Spec	Code	Description	Unit	Quantity
103	0100	CONTRACT BOND	L SUM	1
103	0200	ESCROW OF BID DOCUMENTATION	L SUM	1
107	0100	RAILWAY PROTECTION INSURANCE	L SUM	1
201	0300	CLEARING & GRUBBING	ACRE	41
202	0105	REMOVAL OF STRUCTURE	L SUM	1
202	0114	REMOVAL OF CONCRETE PAVEMENT	SY	30
202	0130	REMOVAL OF CURB & GUTTER	LF	7,323
202	0135	REMOVAL OF BITUMINOUS SURFACING	TON	39,995
202	0152	REMOVAL OF BRIDGE RAIL	L SUM	1
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	1,818
202	0210	REMOVAL OF MANHOLES	EA	2
202	0230	REMOVAL OF INLETS	EA	14
202	0231	REMOVE & RESET INLETS	EA	1
202	0288	EXCAVATION & DISPOSAL OF CONTAMINATED SOIL	CY	1100
202	0289	REMOVE APPROACH	EA	3
202	0312	REMOVE EXISTING FENCE	LF	16,348
202	0400	REMOVAL OF RIPRAP - LOOSE ROCK	CY	1,470
202	0812	DISPOSAL OF CONTAMINATED WATER	GAL	43,500
203	0101	COMMON EXCAVATION-TYPE A	CY	234,150
203	0109	TOPSOIL	CY	40,851
203	0113	COMMON EXCAVATION-WASTE	CY	22,629
203	0138	COMMON EXCAVATION-SUBCUT	CY	6,683
210	0050	BOX CULVERT EXCAVATION	EA	1
210	0212	FLOWABLE FILL	CY	75
210	0405	FOUNDATION PREPARATION-BOX CULVERT	EA	1
216	0100	WATER	M GAL	4,443
230	0165	SUBGRADE PREPARATION-TYPE A-12IN	STA	199
251	0300	SEEDING CLASS III	ACRE	48.34
251	2000	TEMPORARY COVER CROP	ACRE	46.73
253	0101	STRAW MULCH	ACRE	78.95
255	0101	ECB TYPE 1	SY	80,417
256	0100	RIPRAP GRADE I	CY	416
256	0200	RIPRAP GRADE II	CY	132
260	0200	SILT FENCE SUPPORTED	LF	10971
260	0201	REMOVE SILT FENCE SUPPORTED	LF	10971
261	0112	FIBER ROLLS 12IN	LF	26,063
261	0113	REMOVE FIBER ROLLS 12IN	LF	25,007
265	0100	STABILIZED CONSTRUCTION ACCESS	EA	1
265	0101	REMOVE STABILIZED CONSTRUCTION ACCESS	EA	1
302	0050	TRAFFIC SERVICE AGGREGATE	TON	6,969
302	0100	SALVAGED BASE COURSE	TON	100,331
430	0500	COMMERCIAL GRADE HOT MIX ASPHALT	TON	4,714
550	0310	10IN NON REINF CONCRETE PVMT CL AE-DOWELED	SY	117,871

Spec	Code	Description	Unit	Quantity
602	1208	CONCRETE BRIDGE BARRIER	LF	80
702	0100	MOBILIZATION	L SUM	1
704	0100	FLAGGING	MHR	2,000
704	1000	TRAFFIC CONTROL SIGNS	UNIT	2,968
704	1035	ATTENUATION DEVICE-TYPE B-25	EA	6
704	1052	TYPE III BARRICADE	EA	20
704	1060	DELINEATOR DRUMS	EA	405
704	1067	TUBULAR MARKERS	EA	350
704	1080	STACKABLE VERTICAL PANELS	EA	350
704	1081	VERTICAL PANELS-BACK TO BACK	EA	122
704	1086	SEQUENCING ARROW PANEL-TYPE B	EA	1
704	1087	SEQUENCING ARROW PANEL-TYPE C	EA	1
704	3510	PRECAST CONCRETE MED BARRIER-STATE FURNISHED	EA	40
706	0500	AGGREGATE LABORATORY	EA	1
706	0600	CONTRACTOR'S LABORATORY	EA	1
708	1010	RIPRAP-GROUTED JOINT	SY	60
708	1540	INLET PROTECTION-SPECIAL	EA	88
708	1541	REMOVE INLET PROTECTION-SPECIAL	EA	89
709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	18,090
709	0151	GEOSYNTHETIC MATERIAL TYPE R1	SY	18,788
709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	1,231
709	0161	GEOSYNTHETIC MATERIAL TYPE S1	SY	15,167
709	0162	GEOSYNTHETIC MATERIAL TYPE S2	SY	1,361
714	0115	PIPE CONC REINF 12IN CL III-STORM DRAIN	LF	16
714	0210	PIPE CONC REINF 15IN CL III-STORM DRAIN	LF	900
714	0315	PIPE CONC REINF 18IN CL III-STORM DRAIN	LF	61
714	0500	PIPE CONC REINF 24IN CL II-45DEG BEND	EA	3
714	0620	PIPE CONC REINF 24IN CL III-STORM DRAIN	LF	221
714	4097	PIPE CONDUIT 15IN-STORM DRAIN	LF	318
714	4099	PIPE CONDUIT 18IN-APPROACH	LF	188
714	4101	PIPE CONDUIT 18IN-STORM DRAIN	LF	682
714	4106	PIPE CONDUIT 24IN-APPROACH	LF	495
714	4107	PIPE CONDUIT 24IN-STORM DRAIN	LF	187
714	4112	PIPE CONDUIT 30IN-STORM DRAIN	LF	1,786
714	4115	PIPE CONDUIT 36IN	LF	88
714	4116	PIPE CONDUIT 36IN-APPROACH	LF	295
714	4117	PIPE CONDUIT 36IN-STORM DRAIN	LF	734
714	4120	PIPE CONDUIT 42IN	LF	170
714	4122	PIPE CONDUIT 42IN-APPROACH	LF	102
714	9200	CATTLE PASS CONC INTERMED SECTION	LF	150
714	9611	REMOVE & RELAY CONC CATTLE PASS END SECTION	EA	4
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES	EA	2
714	9680	PLUG PIPE-ALL TYPES & SIZES	EA	2

ESTIMATE OF QUANTITIES

Spec	Code	Description	Unit	Quantity
714	9685	TRENCH PLUG	EA	6
720	0110	RIGHT OF WAY MARKERS	EA	168
720	0125	ALIGNMENT MONUMENTS	EA	28
720	0130	IRON PIN R/W MONUMENTS	EA	149
720	0135	IRON PIN REFERENCE MONUMENTS	EA	19
722	0100	MANHOLE 48IN	EA	7
722	0107	MANHOLE 54IN	EA	6
722	0110	MANHOLE 60IN	EA	4
722	0115	MANHOLE 66IN	EA	1.00
722	0130	MANHOLE 84IN	EA	2
722	0315	MANHOLE CASTING	EA	2
722	1100	MANHOLE RISER 48IN	LF	50
722	1106	MANHOLE RISER 54IN	LF	11
722	1110	MANHOLE RISER 60IN	LF	39
722	1115	MANHOLE RISER 66IN	LF	6
722	1120	MANHOLE RISER 72IN	LF	4
722	1130	MANHOLE RISER 84IN	LF	15
722	2490	MANHOLE STORM CONNECTION	EA	1
722	3296	ABANDON STORM SEWER SYSTEM	LSUM	1
722	3510	INLET-TYPE 2	EA	101
722	3520	INLET-TYPE 2 DOUBLE	EA	5
722	3701	INLET SPECIAL-TYPE 2 48IN	EA	5
722	3761	INLET SPECIAL-TYPE 2 60IN	EA	2
722	3766	INLET SPECIAL-TYPE 2 72IN	EA	1
722	3910	INLET SLOTTED DRAIN 15IN	LF	315
722	4565	MEDIAN DRAIN PRECAST CONCRETE-TYPE A	EA	1
722	6140	ADJUST GATE VALVE BOX	EA	11
722	6160	ADJUST INLET	EA	2
724	0314	GATE VALVE & BOX 12IN	EA	2
724	0420	HYDRANT-RELOCATE	EA	4
748	0140	CURB & GUTTER-TYPE I	LF	24,320
748	1000	VALLEY GUTTER 36IN	LF	248
750	0115	SIDEWALK CONCRETE 4IN	SY	45
750	1000	DRIVEWAY CONCRETE	SY	379
750	2115	DETECTABLE WARNING PANELS	SF	53
752	0110	FENCE BARBED WIRE 3 STRAND-STEEL POST	LF	10,159
752	0320	FENCE BARBED WIRE 4 STRAND-STEEL POST	LF	4,603
752	0600	FENCE CHAIN LINK	LF	581
752	0700	FENCE WOVEN WIRE	LF	1,173
752	0911	TEMPORARY SAFETY FENCE	LF	551
752	0995	FENCE TERMINAL-WOOD POSTS	EA	20

Spec	Code	Description	Unit	Quantity
752	2100	VEHICLE GATE	EA	2
752	2120	REMOVE VEHICLE GATE	EA	1
752	3100	CORNER ASSEMBLY CHAIN LINK	EA	4
752	3120	CORNER ASSEMBLY WOVEN WIRE	EA	2
752	3140	CORNER ASSEMBLY BARBED WIRE	EA	42
752	4100	DOUBLE BRACE ASSEMBLY BARBED WIRE	EA	7
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	253
754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	189
754	0150	DELINEATORS-TYPE A	EA	4
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	668
754	0563	REFERENCE MARKER-TYPE C	EA	8
754	0592	RESET SIGN PANEL	EA	25
754	0805	OBJECT MARKERS - CULVERTS	EA	20
760	0005	RUMBLE STRIPS - ASPHALT SHOULDER	MILE	2
762	0430	SHORT TERM 4IN LINE-TYPE NR	LF	59,149
762	1280	PREFORMED THERMO PLASTIC PVTM MK MESSAGE	SF	1,764
762	1305	PREFORMED PATTERNED PVTM MK 4IN LINE-GROOVED	LF	72,312
762	1309	PREFORMED PATTERNED PVTM MK 8IN LINE-GROOVED	LF	6,587
762	1315	PREFORMED PATTERNED PVTM MK 12IN LINE-GROOVED	LF	420
762	1325	PREFORMED PATTERNED PVTM MK 24IN LINE-GROOVED	LF	134
764	0131	W-BEAM GUARDRAIL	LF	474
764	0145	W-BEAM GUARDRAIL END TERMINAL	EA	6
764	0151	REMOVE W-BEAM GUARDRAIL & POSTS	LF	116
764	2020	REMOVE 3-CABLE GUARDRAIL & POSTS	LF	263
764	2080	REMOVE BOX BEAM GUARDRAIL	LF	596
764	2081	REMOVE END TREATMENT & TRANSITION	EA	10
766	0100	MAILBOX-ALL TYPES	EA	26
770	0001	LIGHTING SYSTEM	EA	1
770	4560	REMOVE LIGHT STANDARD	EA	13
772	0001	TRAFFIC SIGNALS SYSTEM	EA	1
772	2810	TEMPORARY TRAFFIC SIGNALS	EA	4
772	3125	REMOVE TRAFFIC SIGNAL SYSTEM	EA	1
772	3180	REMOVE WOOD POLE	EA	4
900	1000	TEMPORARY STREAM DIVERSION	EA	1
910	0480	TRASH RACK	EA	2
920	1233	HEALTH AND SAFETY PLAN	L SUM	1
930	8230	SHORING	EA	4
930	9647	BARRIER END MODIFICATION	EA	4
980	0170	CATTLE GUARD RESET	EA	2

BASIS OF ESTIMATE

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RUMBLE STRIPS	
Location	RUMBLE STRIPS ASPHALT SHOULDER (MILE)
16522+44 to 16575+10	2.0

TEMPORARY TRAFFIC CONTROL SURFACING				
Station	Station	TEMPORARY TRAFFIC SURFACE AGGREGATE (8") (CY)	COMMERCIAL GRADE HOT MIX ASPHALT (4") (TON)	SALVAGED BASE COURSE (12") (TON)
		302-0314	430-0500	302-0100
16508+50	16511+00	141	0	0
16511+00	16519+50	94	582	1771
16519+50	16525+50	320	235	833
16525+50	16540+00	161	992	3021
16540+00	16632+00	5207	0	0
16632+00	16655+00	1046	0	0
16659+00	16668+00	0	756	2128
Total		6969	2565*	7753

* Quantity included in "Removal of Bituminous Surfacing".

SALVAGED BASE COURSE CALCULATION

			% Breakdown
Total Bituminous Removed	21331	CY	98.3%
Total Concrete Removed	358	CY	1.7%
Total Removals	21689	CY	100.0%
5% Less in Removals	1084	CY	
Total Material Available from Removals	20604	CY	
Subtract Required Salvage Base Course	53510	CY	
Additional Material needed for Salvaged Base Course	32906	CY	

MATERIALS		
Material Description	Material Use	Rate
Water	Aggregates	20 Gal/Ton
	Embankment	10 Gal/CY
	Dust Palliative	25 MGal/Mile
	Subgrade Preparation	25 MGal/Mile
Remove & Salvage Bituminous Surfacing	Base	1.875 Ton/CY
Salvaged Base Course	Base	1.875 Ton/CY
Commercial Grade Hot Mix Asphalt	Surfacing	2 Ton/CY

SUBGRADE PREPARATION - TYPE A - 12IN

Location	Length (Station)
Sta. 16522+44 to 16721+00	199

SEEDING

Within Highway R/W	Quantity (Acres)
Class III	48.34
Temporary Cover Crop	46.73

MULCHING

Within Highway R/W	Quantity (Acres)
Grass, Hay, or Straw	78.95

RIPRAP-SALVAGED

Location	Quantity (CY)
Stony Creek Bridge	531 *

*Quantity based on an existing riprap thickness of 1.5'

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SHORT TERM PAVEMENT MARKING

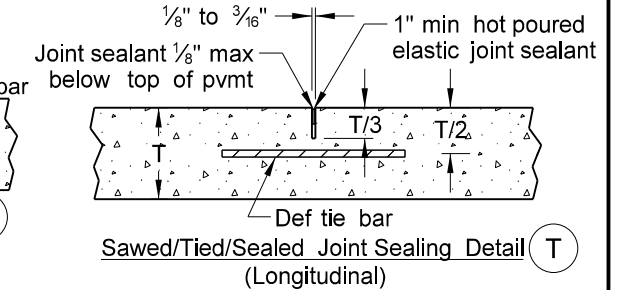
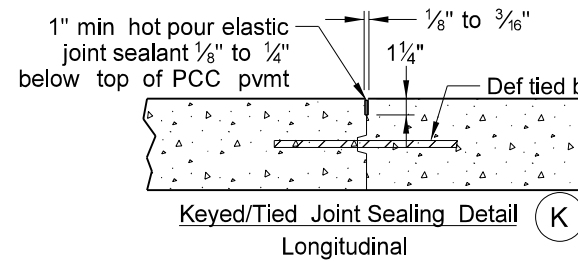
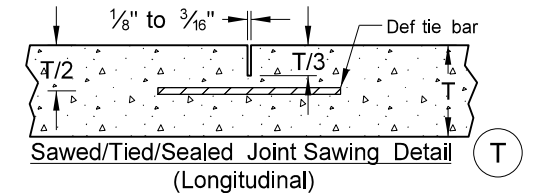
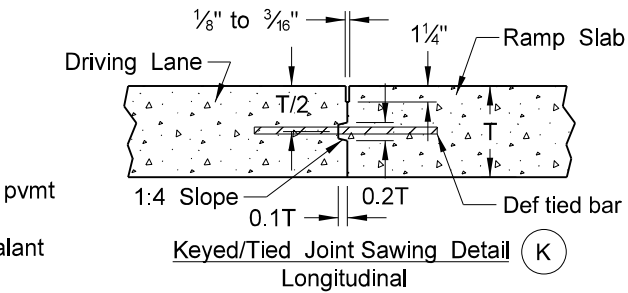
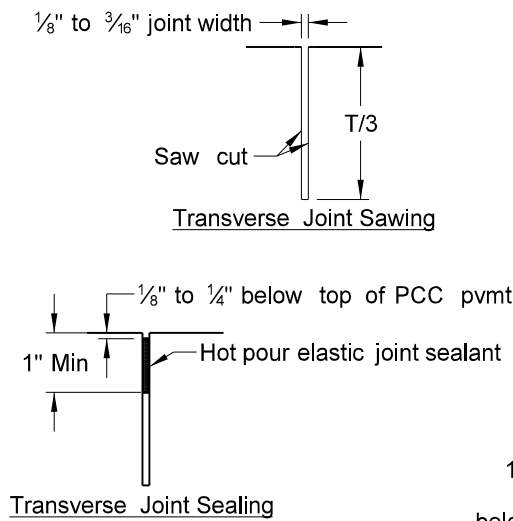
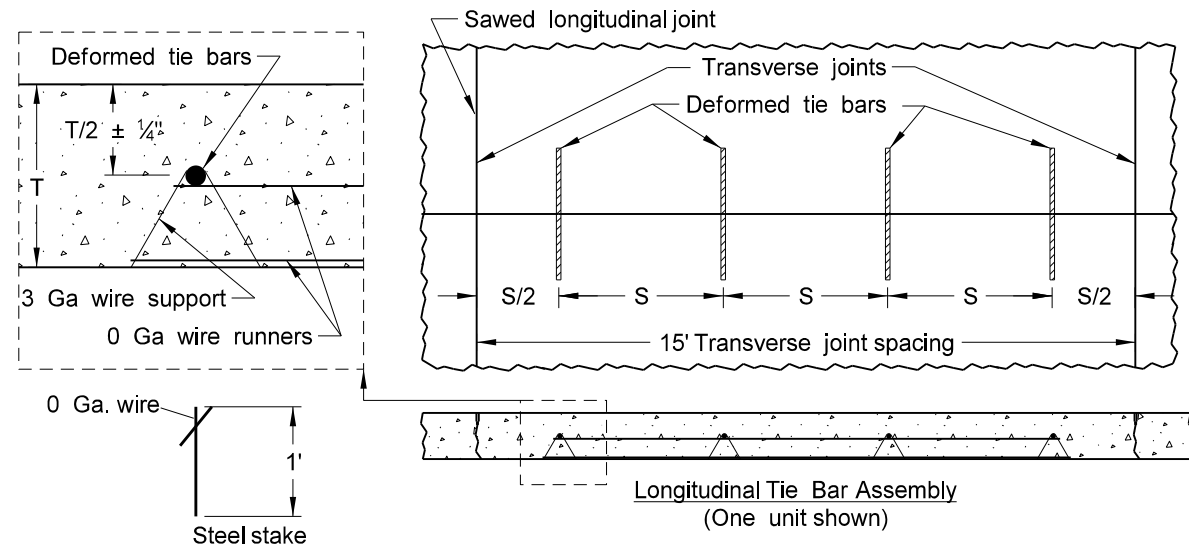
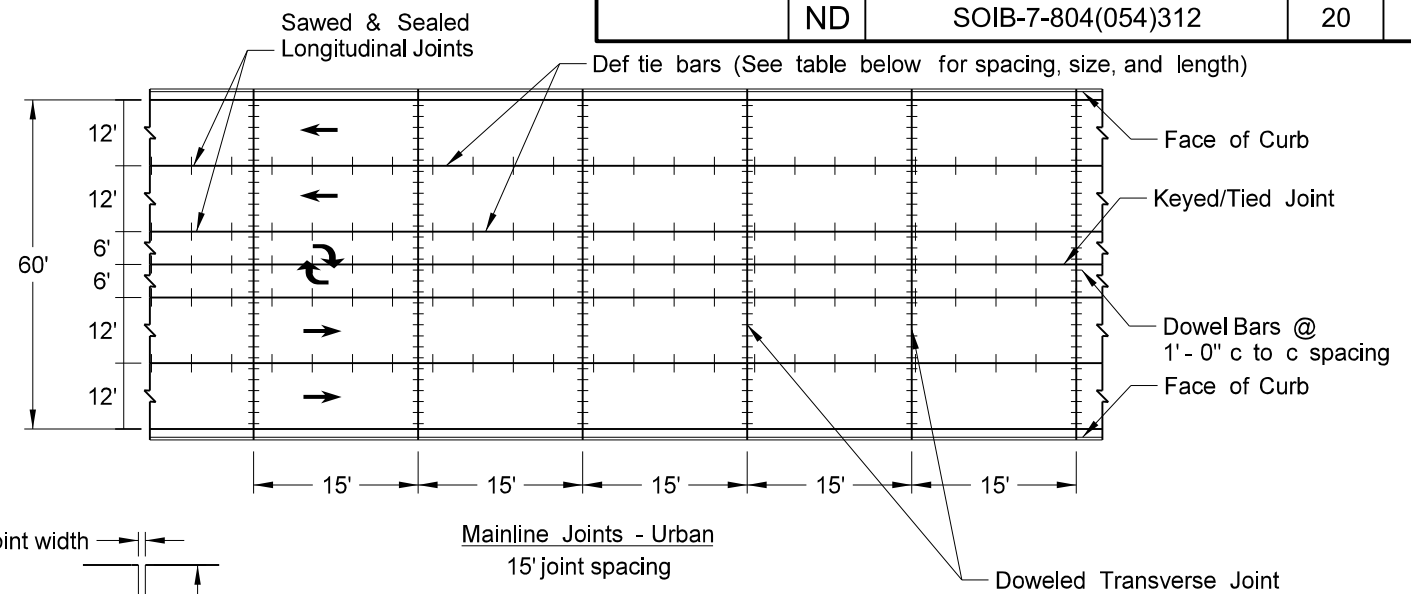
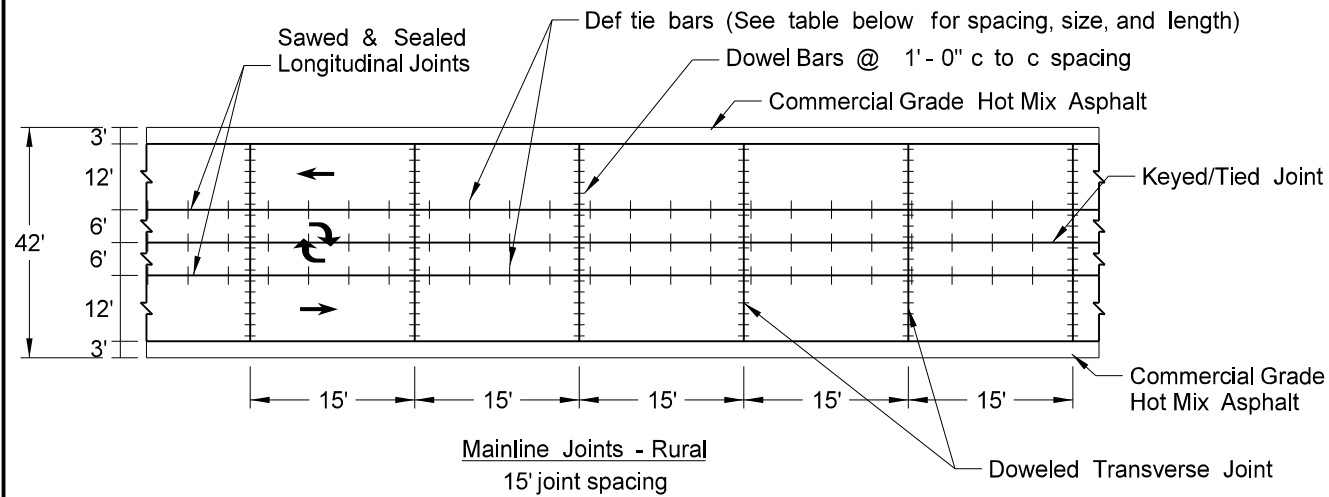
Short term pavement marking shall be placed prior to the end of each day to cover the day's paving (centerline stripe).

Fog coat operations shall not resume if the short term pavement marking has not been placed as required.

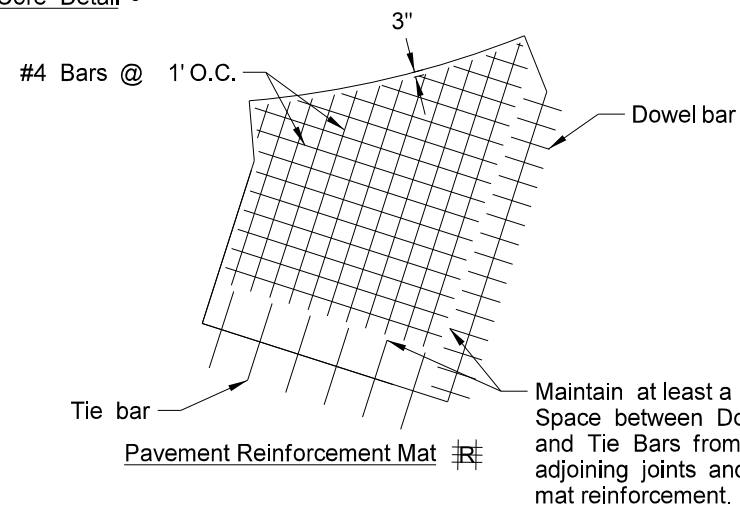
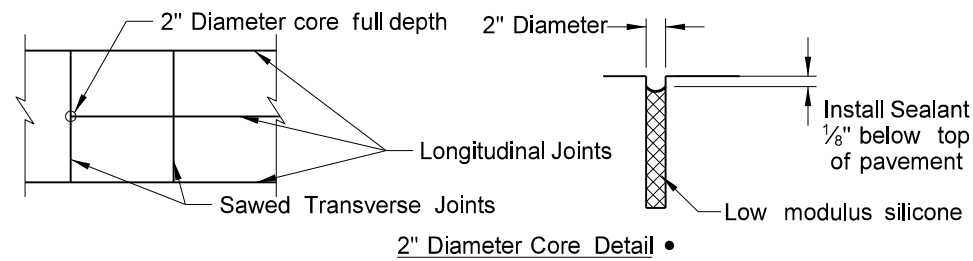
SHORT TERM PAVEMENT MARKING		
Application	Basis	Quantity (LF)
Yellow Centerline Concrete Sections	Centerline Skips (1320 LF/Mile)	4501
	Centerline Barrier (5280 LF/Mile)	45399
White Lane Line - Concrete Sections	Lane Skips (1320 LF/Mile)	5827
White Lane Line – Phase 2 (2016) – See Section 100 sheet 29	Edge Line Barrier (5280 LF/Mile)	3422
Total		59149

PAVEMENT MARKING SUMMARY		
Description	Unit	Quantity
SHORT TERM 4IN LINE - TYPE NR	LF	59149
PVMT MK 4IN LINE - GROOVED (Yellow Centerline, White Edge Line, White Lane Line)	LF	72312
PVMT MK 8IN LINE - GROOVED (White Channelizing Line, White Crosshatch)	LF	6587
PVMT MK 12IN LINE - GROOVED (Yellow Crosshatch, White Crosswalk)	LF	420
PVMT MK 24IN LINE - GROOVED (Stopping Bars)	LF	134
PVMT MK MESSAGE (Right/Left Turn Arrows, Merging Arrows, RR Crossing)	SF	1764

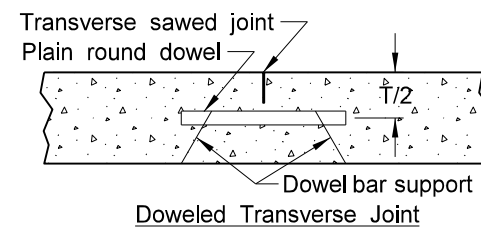
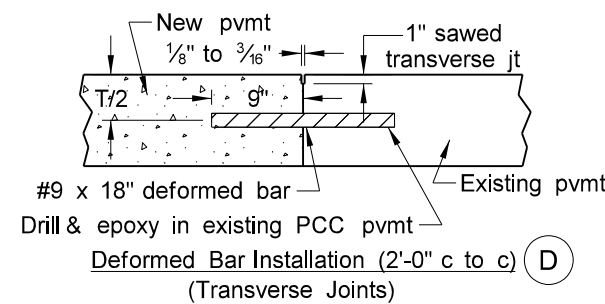
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- Notes:**
- S = Tiebar spacing
 - T = Pavement thickness
 - Dowel bars shall be 1 1/4" x 18" for T = 10" or less.
 - Place dowels in ramp tapers also.
 - Place no tie bar within 15" of a transverse joint.
 - 2" diameter core shall be the full depth of pavement and completed in the same time frame of sawed joints.



Pavement Depth	Grade 40	Grade 60
	10"	10"
Bar Size x Length (S=30")	#5 Bar x 30"	#4 Bar x 36"
Bar Size x Length (S=45")	#6 Bar x 36"	#5 Bar x 42"

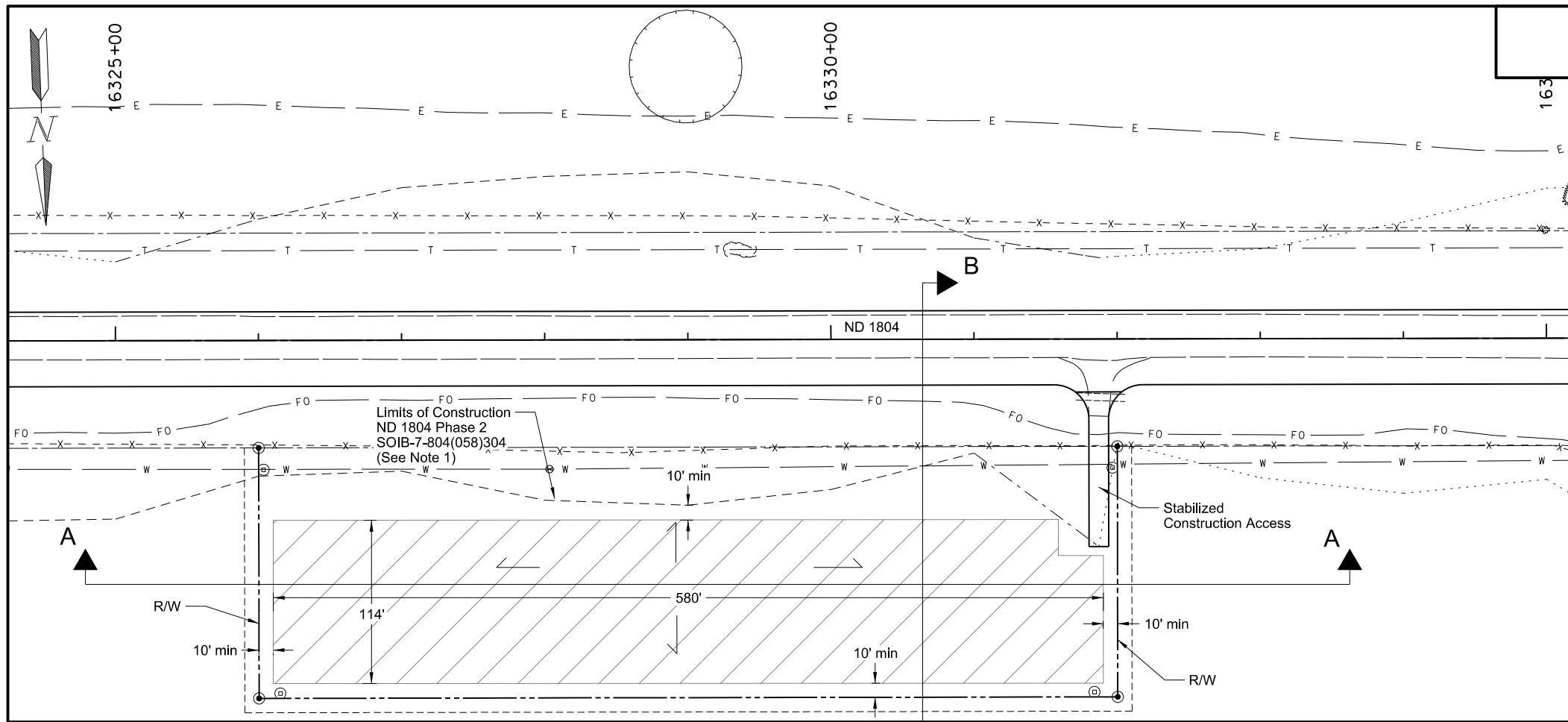


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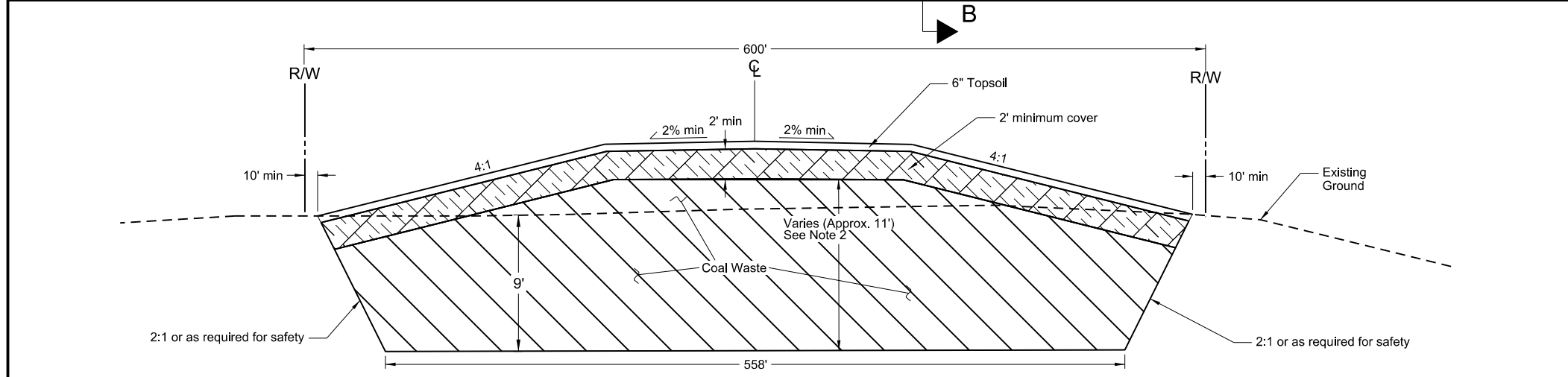
General Details
PCC Pavement Joint Details
ND 1804 Reconstruction
Williams County, ND

8/24/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-804(054)312	60	32



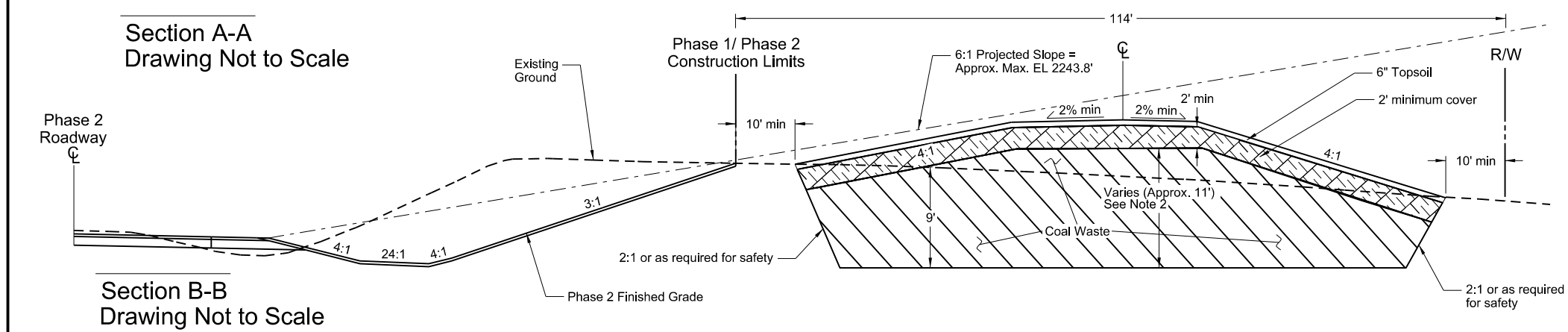
SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
720	0110	RIGHT OF WAY MARKERS		
		16326+00 TO 16332+00	EA	4
720	0130	IRON PIN R/W MONUMENTS		
		16326+00 TO 16332+00	EA	4
203	0109	TOPSOIL		
		16326+00 TO 16332+00	CY	1504



- Notes:
- Phase 2 improvements and limits of construction depicted for information only.
 - Actual Quantity of coal may vary. Dimensions and layout given are based upon estimated volume as indicated by Section 8 under "COMMON EXCAVATION - WASTE". If more coal is found than anticipated, contractor can raise the elevation in similar manner as shown. If less quantity of coal is found then the cover can be increased so that backfilling of site does not create a depression.
 - Coordinate coal waste site activities with the Phase 2 contractor.

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Section A-A
 Drawing Not to Scale



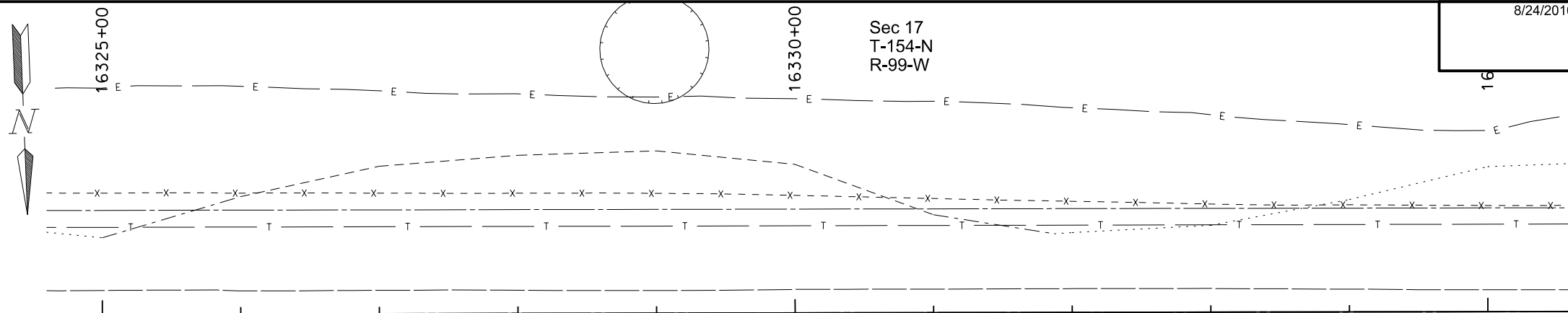
Section B-B
 Drawing Not to Scale

Plan and Profile
 Coal Waste Site Plan
 ND 1804 Reconstruction
 Williams County, ND

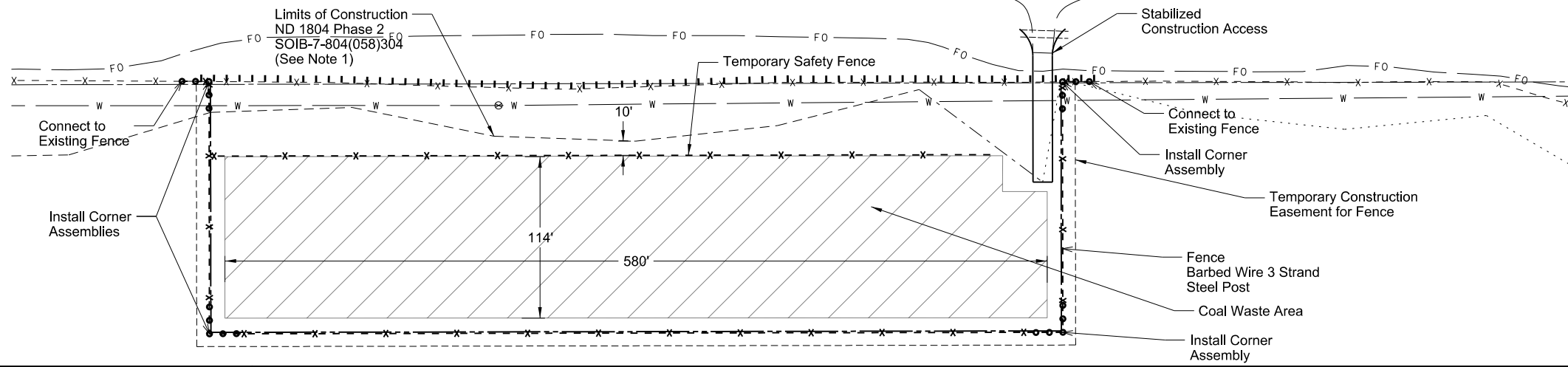
8/24/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-804(054)312	80	8

Sec 17
T-154-N
R-99-W



Spec	Code	Bid Item	Unit	Quantity
202	0312	REMOVE EXISTING FENCE 16325+80, RT to 16332+20, RT	LF	641
752	0110	FENCE BARBED WIRE 3 STRAND-STEEL POST 16325+80, RT to 16332+20, RT	LF	995
752	3140	CORNER ASSEMBLY BARBED WIRE 16325+99, RT 16332+01, RT	EA EA	2 2
752	0911	TEMPORARY SAFETY FENCE 16325+99, RT to 16332+01, RT	LF	551



Note:
1. Phase 2 improvements and limits of construction depicted for information only.

----- Remove Existing Fence
- - - - -x New Fence

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Fence Layout
Waste Site Plan
ND 1804 Reconstruction

Williams County, ND
Top View Sta 16697+00 to 16707+00
Bottom View Sta 16325+00 to 16335+00

Revised 8/22/2016

Revised 8/25/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-804(054)312	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED			TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
			1	2	3			
D3-36	36"x6"	STREET NAME SIGN (Sign and installation only)					6	
G20-1-60	60"x24"	ROAD WORK NEXT ___ MILES	2	2	2	2	34	68
G20-1b-60	60"x24"	WORK IN PROGRESS/ NO WORK IN PROGRESS (Sign and installation only)					26	
G20-2-48	48"x24"	END ROAD WORK	11	11	11	11	19	209
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)					18	
G20-10-108	108"x48"	CONTRACTOR SIGN	2	2	2	2	64	128
G20-50a-72	72"x36"	ROAD WORK NEXT ___ MILES RT & LT ARROWS					37	
G20-52a-72	72"x24"	ROAD WORK NEXT ___ MILES RT or LT ARROW	9	9	9	9	30	270
G20-55-96	96"x48"	SPEED LIMIT ENFORCED - MINIMUM FEE \$80 WHEN WORKERS PRESENT	2	2	2	2	59	118
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)	3	3	3	3	10	30
M1-5-24	24"x24"	STATE ROUTE MARKER (Post and installation only)	2	2	2	2	10	20
M3-1-24	24"x12"	NORTH (Mounted on route marker post)					7	
M3-2-24	24"x12"	EAST (Mounted on route marker post)					7	
M3-3-24	24"x12"	SOUTH (Mounted on route marker post)					7	
M3-4-24	24"x12"	WEST (Mounted on route marker post)					7	
M4-8-24	24"x12"	DETOUR (Mounted on route marker post)					7	
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT					15	
M4-10-48	48"x18"	DETOUR ARROW RIGHT or LEFT					23	
M5-1-21	21"x15"	ARROW AHD AND RT or LT (Mounted on route marker post)					7	
M5-2-21	21"x15"	ARROW AHD UP & RT or LT (Mounted on route marker post)					7	
M6-1-21	21"x15"	ARROW RT or LT (Mounted on route marker post)					7	
M6-2-21	21"x15"	ARROW UP & RT or LT (Mounted on route marker post)					7	
M6-3-21	21"x15"	ARROW AHD (Mounted on route marker post)					7	
R1-1-48	48"x48"	STOP	7	7	7	7	32	224
R1-1a-18	18"x18"	STOP and SLOW PADDLE Back to Back					5	
R1-2-60	60"x60"	YIELD	2	2	2	2	29	58
R2-1-48	48"x60"	SPEED LIMIT ___	14	14	14	14	39	546
R2-1a-24	24"x18"	MINIMUM FEE \$80 (Mounted on Speed Limit post)	12	12	12	12	10	120
R3-7-48	48"x48"	LEFT or RIGHT LANE MUST TURN LEFT or RIGHT					35	
R4-1-48	48"x60"	DO NOT PASS	1	1	1	1	39	39
R4-7-48	48"x60"	KEEP RIGHT SYMBOL					39	
R5-1-48	48"x48"	DO NOT ENTER					35	
R6-1-36	36"x12"	ONE WAY RIGHT or LEFT					13	
R7-1-12	12"x18"	NO PARKING					11	
R10-6-24	24"x36"	STOP HERE ON RED					16	
R11-2-48	48"x30"	ROAD CLOSED					28	
R11-2a-48	48"x30"	STREET CLOSED					28	
R11-3a-60	60"x30"	ROAD CLOSED ___ MILES AHEAD LOCAL TRAFFIC ONLY					31	
R11-3c-60	60"x30"	STREET CLOSED ___ MILES AHEAD LOCAL TRAFFIC ONLY					31	
R11-4a-60	60"x30"	STREET CLOSED TO THRU TRAFFIC					31	
W1-3-48	48"x48"	RIGHT or LEFT SHARP REVERSE CURVE ARROW					35	
W1-4-48	48"x48"	RIGHT or LEFT REVERSE CURVE ARROW	13	13	13	13	35	455
W1-4b-48	48"x48"	DOUBLE RIGHT or LEFT REVERSE CURVE ARROW					35	
W1-6-48	48"x24"	LARGE ARROW	2			2	26	52
W3-1-48	48"x48"	STOP AHEAD SYMBOL					35	
W3-3-48	48"x48"	SIGNAL AHEAD SYMBOL					35	
W3-4-48	48"x48"	BE PREPARED TO STOP					35	
W3-5-48	48"x48"	SPEED REDUCTION AHEAD	2	2	2	2	35	70
W4-2-48	48"x48"	RIGHT or LEFT LANE TRANSITION SYMBOL	1	1	1	1	35	35
W5-1-48	48"x48"	ROAD NARROWS					35	
W5-8-48	48"x48"	THRU TRAFFIC RIGHT LANE					35	
W5-9-48	48"x48"	ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW					35	
W6-3-48	48"x48"	TWO WAY TRAFFIC SYMBOL					35	
W8-1-48	48"x48"	BUMP					35	
W8-3-48	48"x48"	PAVEMENT ENDS					35	
W8-7-48	48"x48"	LOOSE GRAVEL					35	
W8-9a-48	48"x48"	SHOULDER DROP-OFF					35	
W8-11-48	48"x48"	UNEVEN LANES					35	
W8-12-48	48"x48"	NO CENTER STRIPE	1	1	1	1	35	35
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY					35	
W8-54-48	48"x48"	TRUCKS ENTERING AHEAD or ___ FT.					35	
W8-55-48	48"x48"	TRUCKS CROSSING AHEAD or ___ FT.					35	
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY					35	
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL					35	
W12-2-48	48"x48"	LOW CLEARANCE SYMBOL					35	
W13-1-24	24"x24"	___ MPH ADVISORY SPEED PLATE (Mounted on warning sign post)					11	
W13-4-48	48"x60"	RAMP ARROW					39	
W14-3-48	48"x36"	NO PASSING ZONE					23	
W20-1-48	48"x48"	ROAD WORK AHEAD or ___ FT or ___ MILE	11	11	11	11	35	385
W20-2-48	48"x48"	DETOUR AHEAD or ___ FT					35	
W20-3-48	48"x48"	ROAD or STREET CLOSED AHEAD or ___ FT.					35	
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or ___ FT.					35	
W20-5-48	48"x48"	RIGHT or LEFT LANE CLOSED AHEAD or ___ FT.	2	1	1	2	35	70
W20-7a-48	48"x48"	FLAGGING SYMBOL					35	
W20-7k-24	24"x18"	___ FEET (Mounted on warning sign post)					10	
W20-8-48	48"x48"	STREET CLOSED					35	
W20-51-48	48"x48"	EQUIPMENT WORKING					35	
W20-52-54	54"x12"	NEXT ___ MILES (Mounted on warning sign post)					12	
W21-1a-48	48"x48"	WORKERS SYMBOL					35	
W21-2-48	48"x48"	FRESH OIL					35	
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or ___ FT					35	

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED			TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
			1	2	3			
W21-5-48	48"x48"	SHOULDER WORK					35	
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED					35	
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or ___ FT.					35	
W21-6a-48	48"x48"	SURVEY CREW AHEAD					35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or ___ FT.					35	
W21-51-48	48"x48"	MATERIAL ON ROADWAY					35	
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK					35	
	24"x24"	TAKE TURNS (6" D letters) (Mounted on stop sign post)					11	

SPECIAL SIGNS

SIGN NUMBER	SIGN SIZE	DESCRIPTION	1	2	3	TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
W10-1	36" dia.	Grade Crossing Advance Warning	2	2	2	2	18	36

SPEC & CODE

704-1000	TRAFFIC CONTROL SIGNS	TOTAL UNITS	2968
-----------------	------------------------------	--------------------	-------------

SPEC & CODE	DESCRIPTION	UNIT	QUANTITY BY PHASE NO.			TOTAL QUANTITY
			1	2	3	
704-0100	FLAGGING	MHR	1000	750	250	2000
704-1041	ATTENUATION DEVICE-TYPE B-55	EACH	2	6	2	6
704-1043	ATTENUATION DEVICE-TYPE B-65	EACH				
704-1044	ATTENUATION DEVICE-TYPE B-70	EACH				
704-1050	TYPE I BARRICADES	EACH				
704-1051	TYPE II BARRICADES	EACH				
704-1052	TYPE III BARRICADES	EACH	20	19	17	20
704-1060	DELINEATOR DRUMS	EACH	405	405	370	405
704-1065	TRAFFIC CONES	EACH				
704-1067	TUBULAR MARKERS	EACH	330	350	310	350
704-1070	DELINEATOR	EACH				
704-1072	FLEXIBLE DELINEATORS	EACH				
704-1080	STACKABLE VERTICAL PANELS	EACH	350	300	260	350
704-1081	VERTICAL PANELS - BACK TO BACK	EACH	122			122
704-1085	SEQUENCING ARROW PANEL - TYPE A	EACH				
704-1086	SEQUENCING ARROW PANEL - TYPE B	EACH	1	1	1	1
704-1087	SEQUENCING ARROW PANEL - TYPE C	EACH	1			1
704-1088	SEQUENCING ARROW PANEL - TYPE C - CROSSOVER	EACH				
704-1095	TYPE B FLASHERS	EACH				
704-1500	OBLITERATION OF PVMT MK	SF				
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF				
704-3510	PRECAST CONCRETE MED BARRIER - STATE FURNISHED	EACH	11	40	11	40
762-0200	RAISED PAVEMENT MARKERS	EACH				
762-0420	SHORT TERM 4IN LINE - TYPE R	LF				
762-0430	SHORT TERM 4IN LINE - TYPE NR	LF	3422	55727		59149
772-2110	FLASHING BEACON - POST MOUNTED	EACH				
772-2810	TEMPORARY TRAFFIC SIGNALS	EACH	4	4	4	4

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

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Traffic Control Devices List
ND 1804 Reconstruction
Williams County, ND

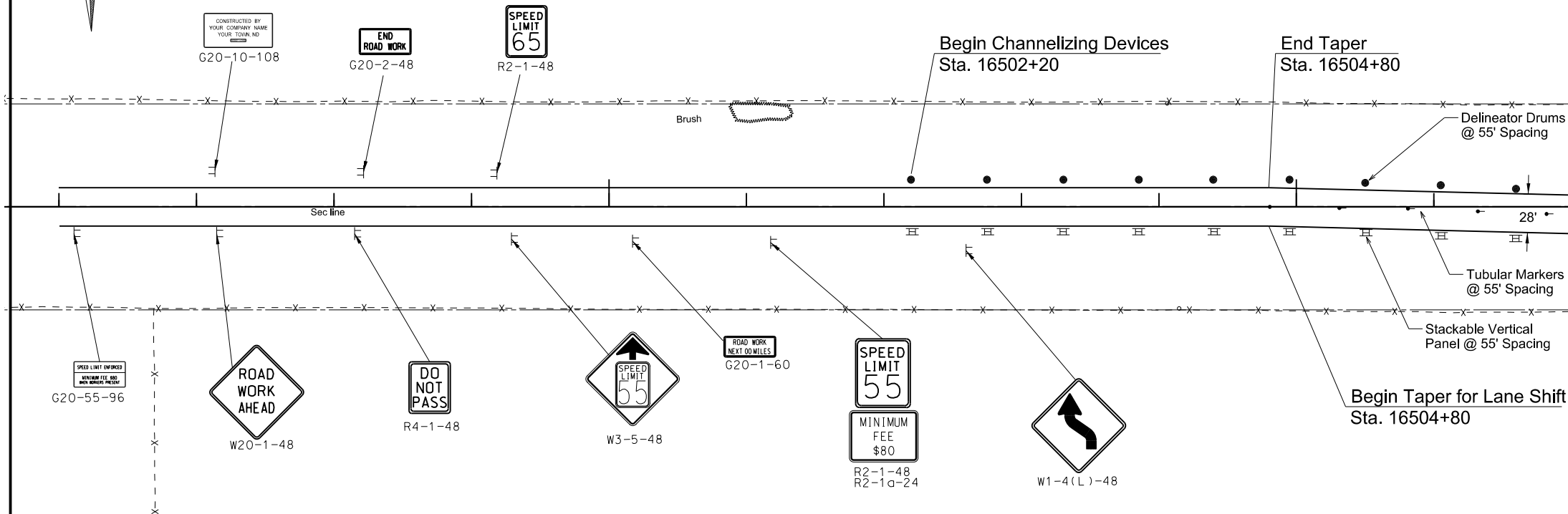
8/22/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-804(054)312	100	15

Sec 23
T-154-N
R-100-W

16500+00

16505+00



- Notes:
1. Use Standard Drawing D-704-15 Type B for sign spacing.
 2. Per MUTCD, channelizing device spacing should not exceed a distance in feet equal to 1.0 times the posted speed limit in mph when used for taper channelization, and a distance in feet equal to 2.0 times the posted speed limit in mph when used for tangent channelization. Device frequency may be adjusted by Engineer.

LEGEND

	Type III Barricade
	Jersey Barrier
	Delineator Drum
	Tubular Marker
	Stackable Vertical Panel
	Work Area
	Highway Sign

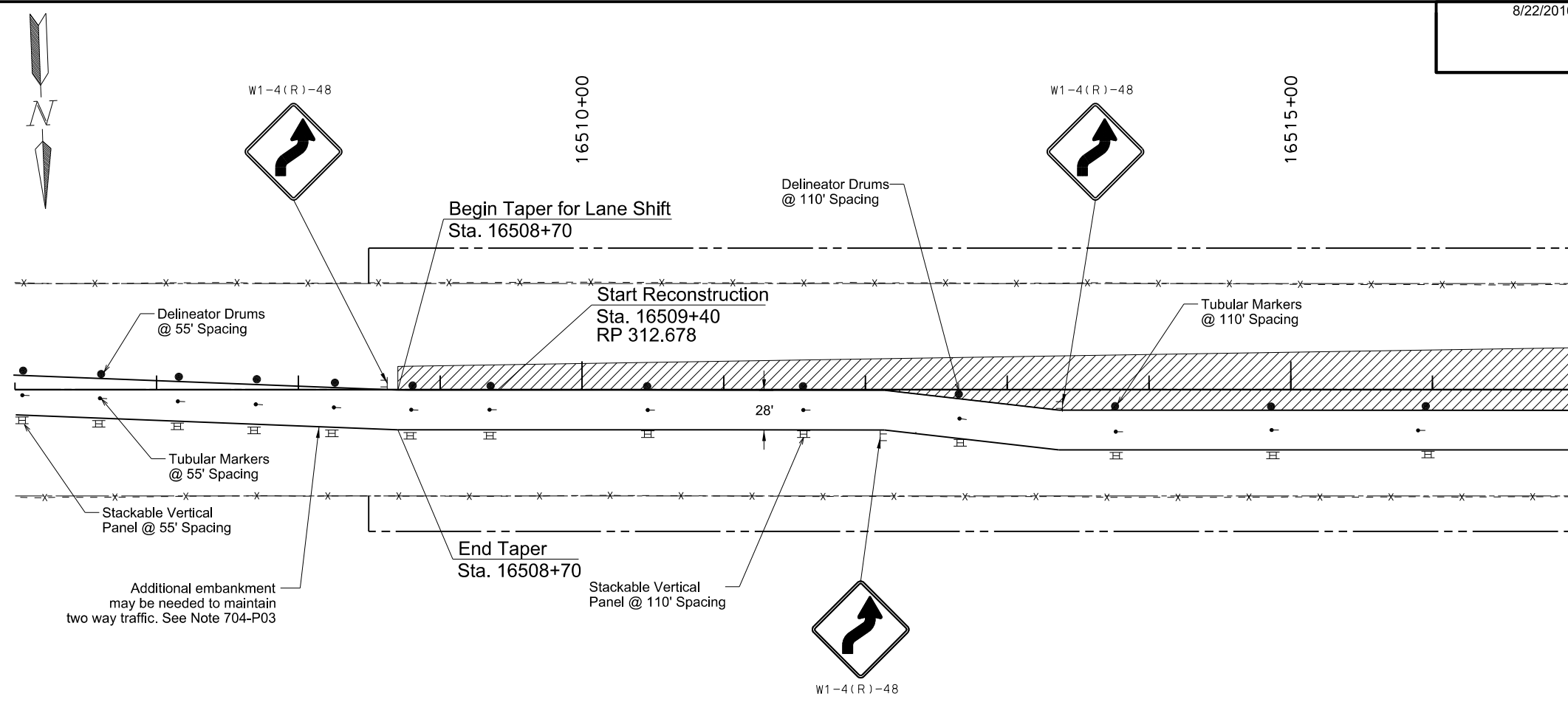
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Work Zone Traffic Control
 Construction Sign Layout

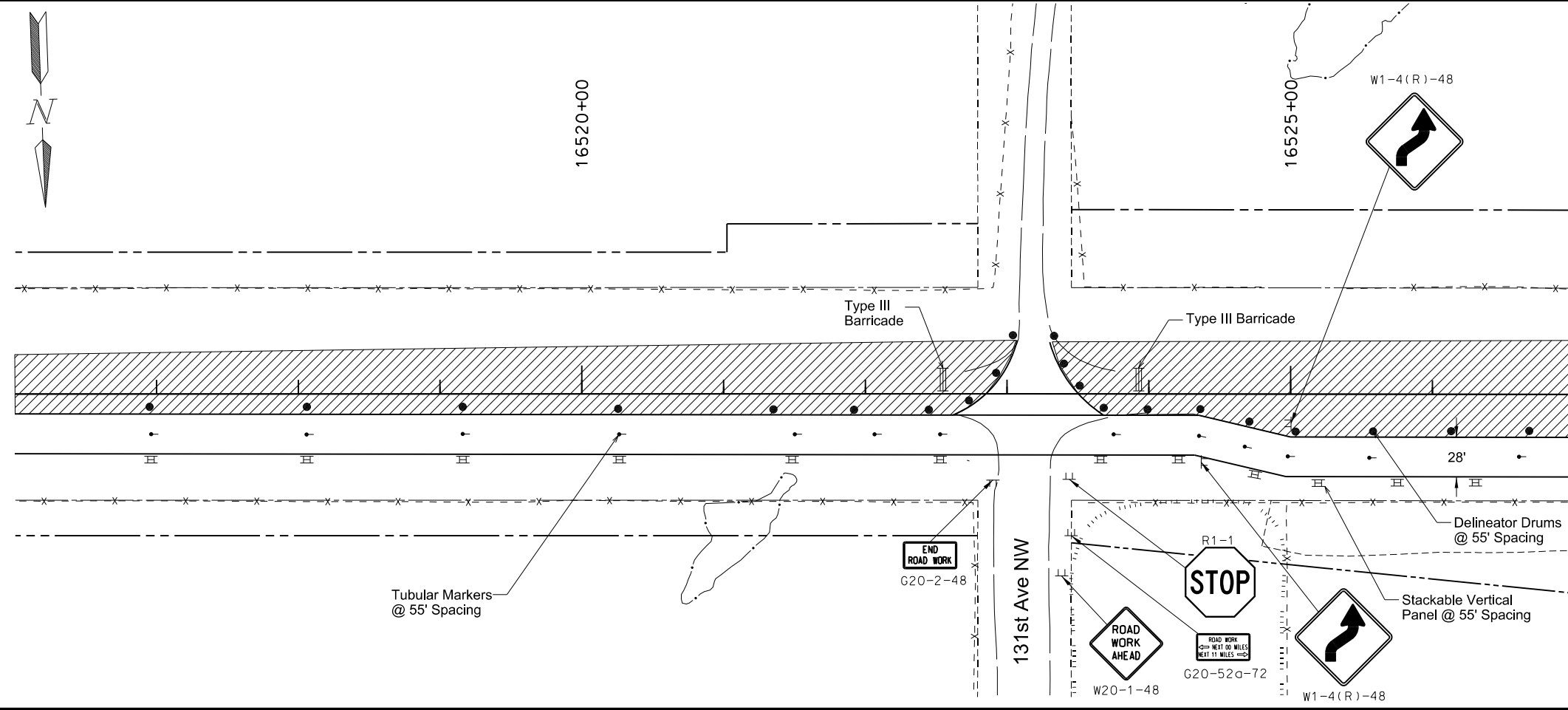
ND 1804 Reconstruction
 Williams County, ND
 Sta 16496+00 to Sta 16507+00

8/22/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-804(054)312	100	16



- Notes:**
1. Use Standard Drawing D-704-15 for sign spacing.
 2. Per MUTCD, channelizing device spacing should not exceed a distance in feet equal to 1.0 times the posted speed limit in mph when used for taper channelization, and a distance in feet equal to 2.0 times the posted speed limit in mph when used for tangent channelization. Device frequency may be adjusted by Engineer.



LEGEND

- Type III Barricade
- Jersey Barrier
- Delineator Drum
- Tubular Marker
- Stackable Vertical Panel
- Work Area
- Highway Sign

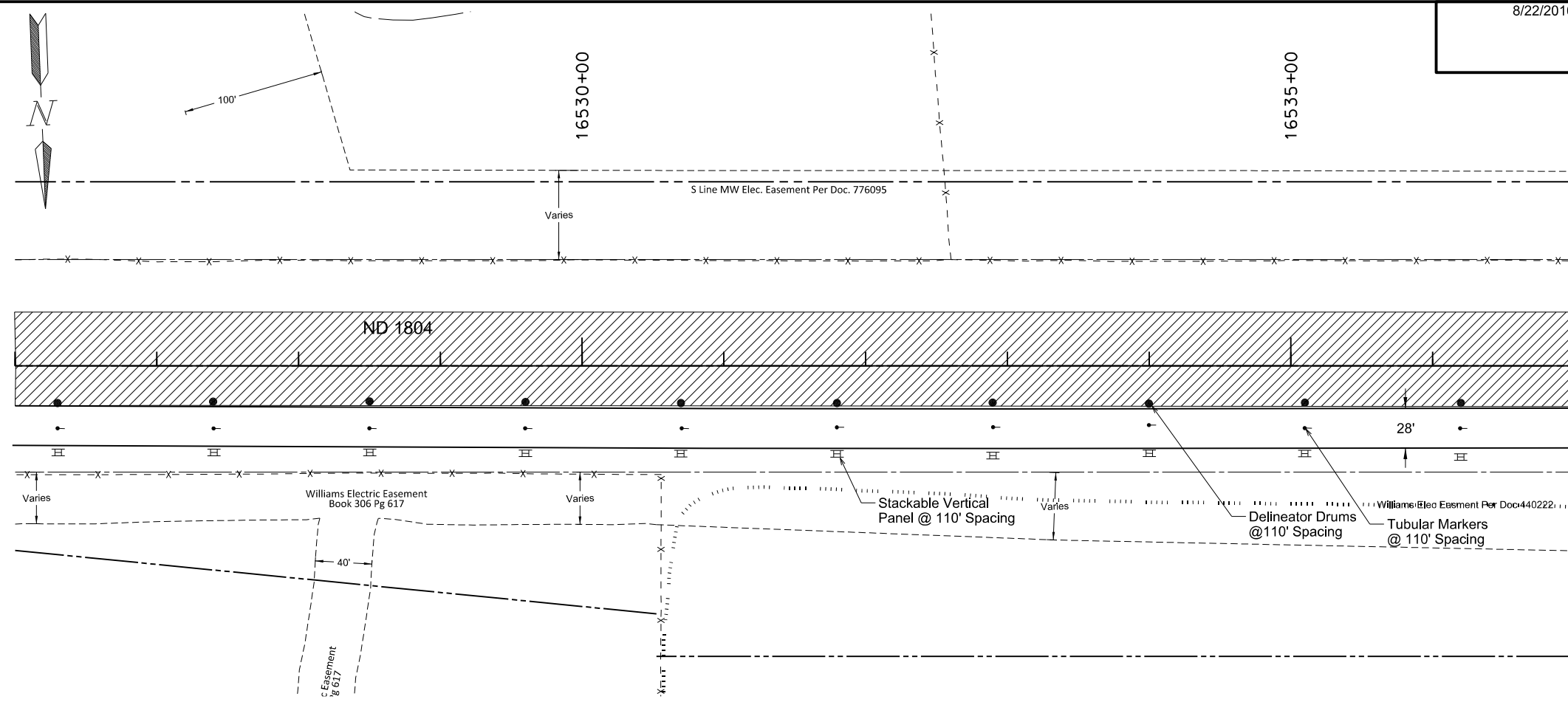
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Work Zone Traffic Control Construction Sign Layout

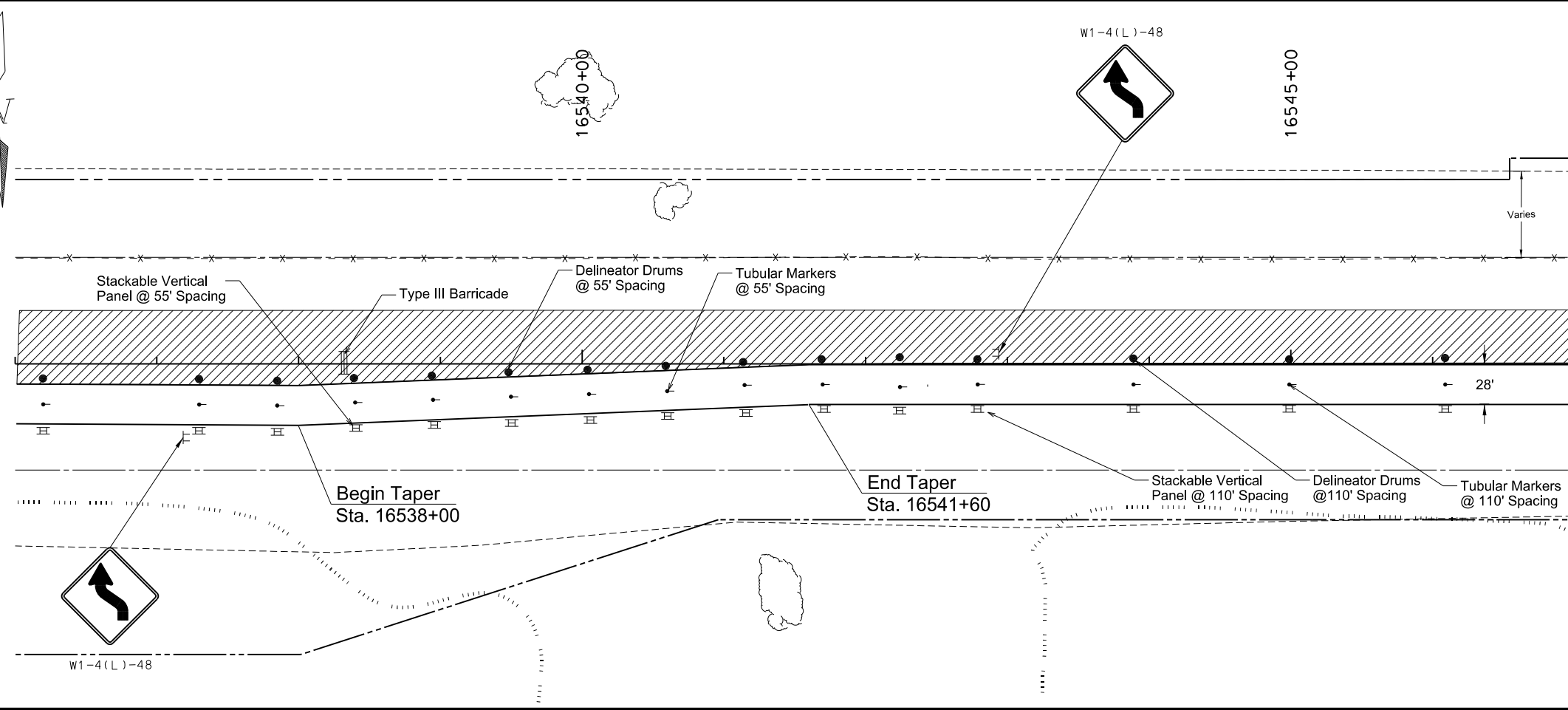
ND 1804 Reconstruction
Williams County, ND
Sta 16507+00 to Sta 16527+00

8/22/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-804(054)312	100	17



- Notes:**
1. Use Standard Drawing D-704-15 for sign spacing.
 2. Per MUTCD, channelizing device spacing should not exceed a distance in feet equal to 1.0 times the posted speed limit in mph when used for taper channelization, and a distance in feet equal to 2.0 times the posted speed limit in mph when used for tangent channelization. Device frequency may be adjusted by Engineer.



LEGEND

	Type III Barricade
	Jersey Barrier
	Delineator Drum
	Tubular Marker
	Stackable Vertical Panel
	Work Area
	Highway Sign

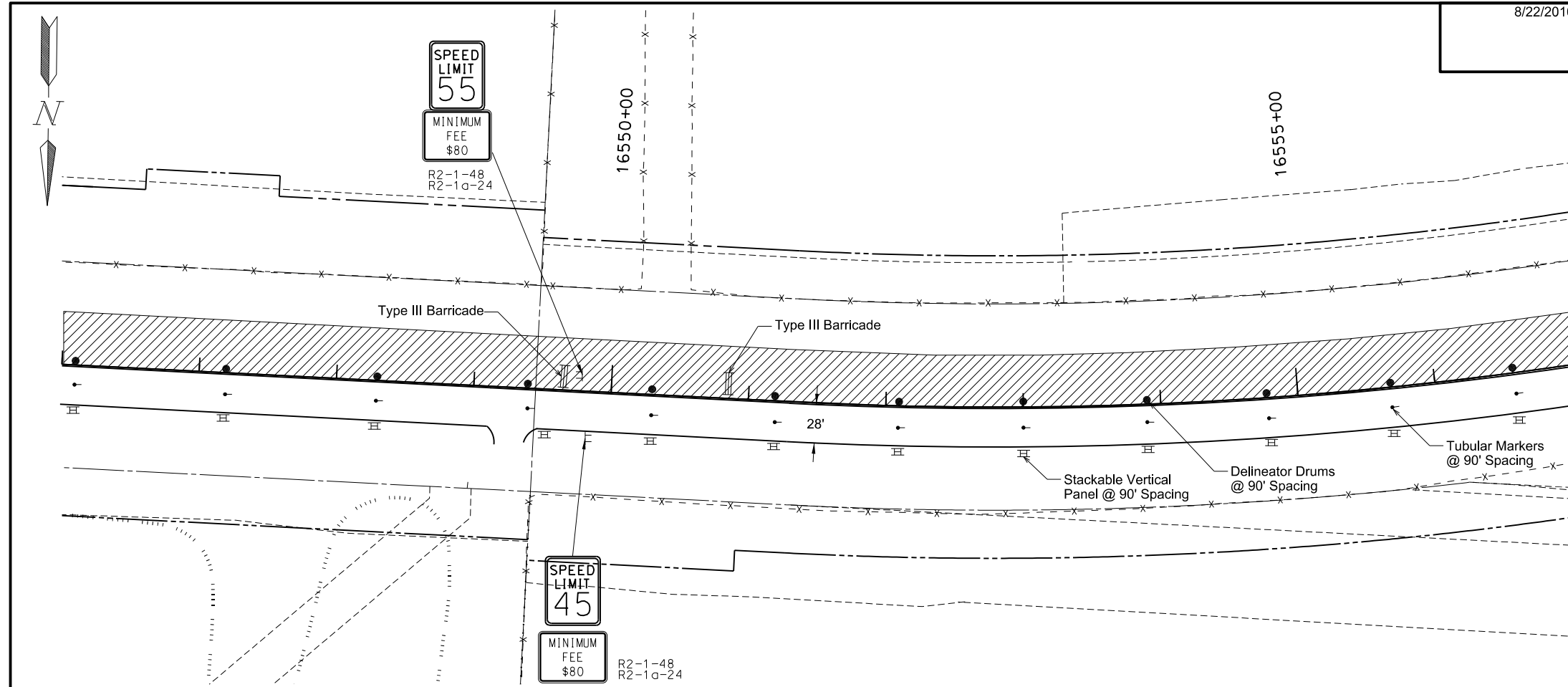
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Work Zone Traffic Control Construction Sign Layout

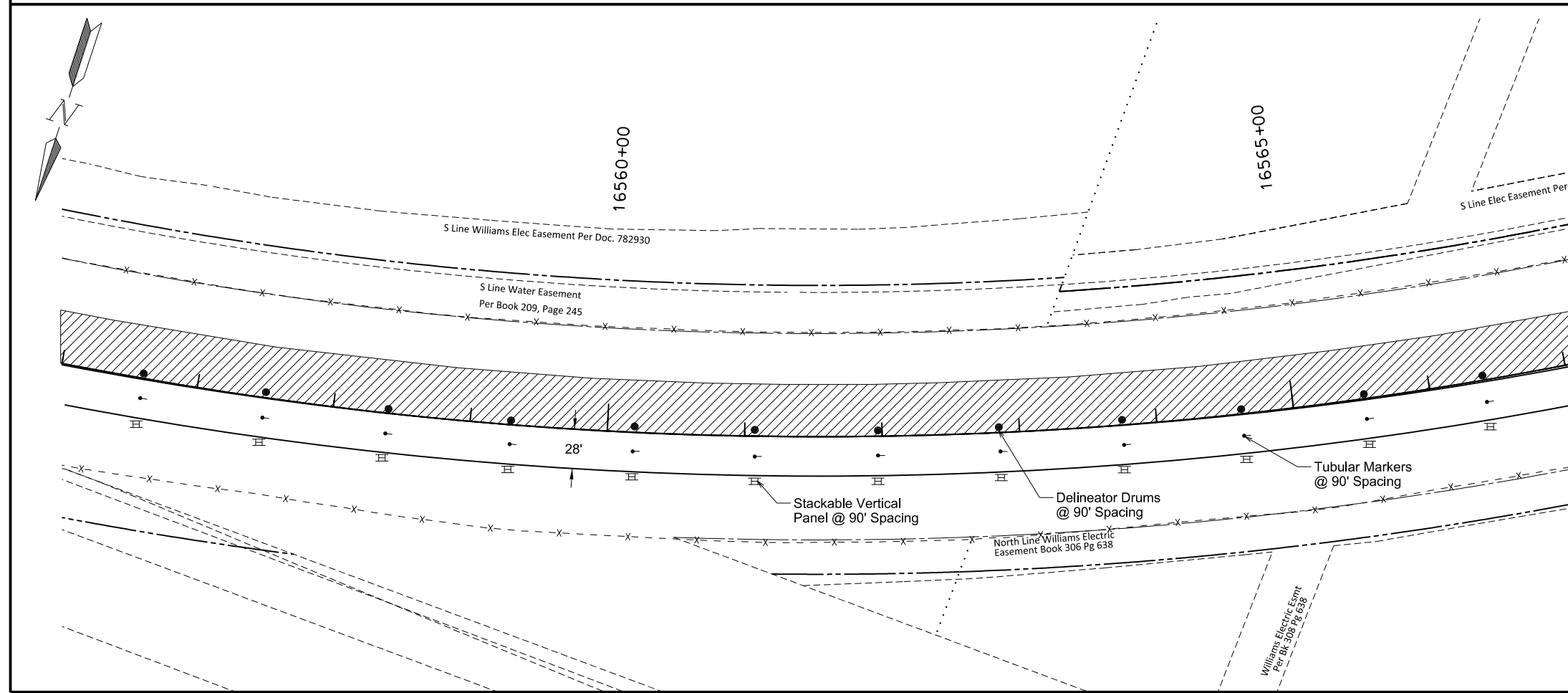
ND 1804 Reconstruction
Williams County, ND
Sta 16527+00 to Sta 16547+00

8/22/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-804(054)312	100	18



- Notes:
1. Use Standard Drawing D-704-15 for sign spacing.
 2. Per MUTCD, channelizing device spacing should not exceed a distance in feet equal to 1.0 times the posted speed limit in mph when used for taper channelization, and a distance in feet equal to 2.0 times the posted speed limit in mph when used for tangent channelization. Device frequency may be adjusted by Engineer.



LEGEND

- Type III Barricade
- Jersey Barrier
- Delineator Drum
- Tubular Marker
- Stackable Vertical Panel
- Work Area
- Highway Sign

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Work Zone Traffic Control Construction Sign Layout

ND 1804 Reconstruction
Williams County, ND
Sta 16547+00 to Sta 16567+07

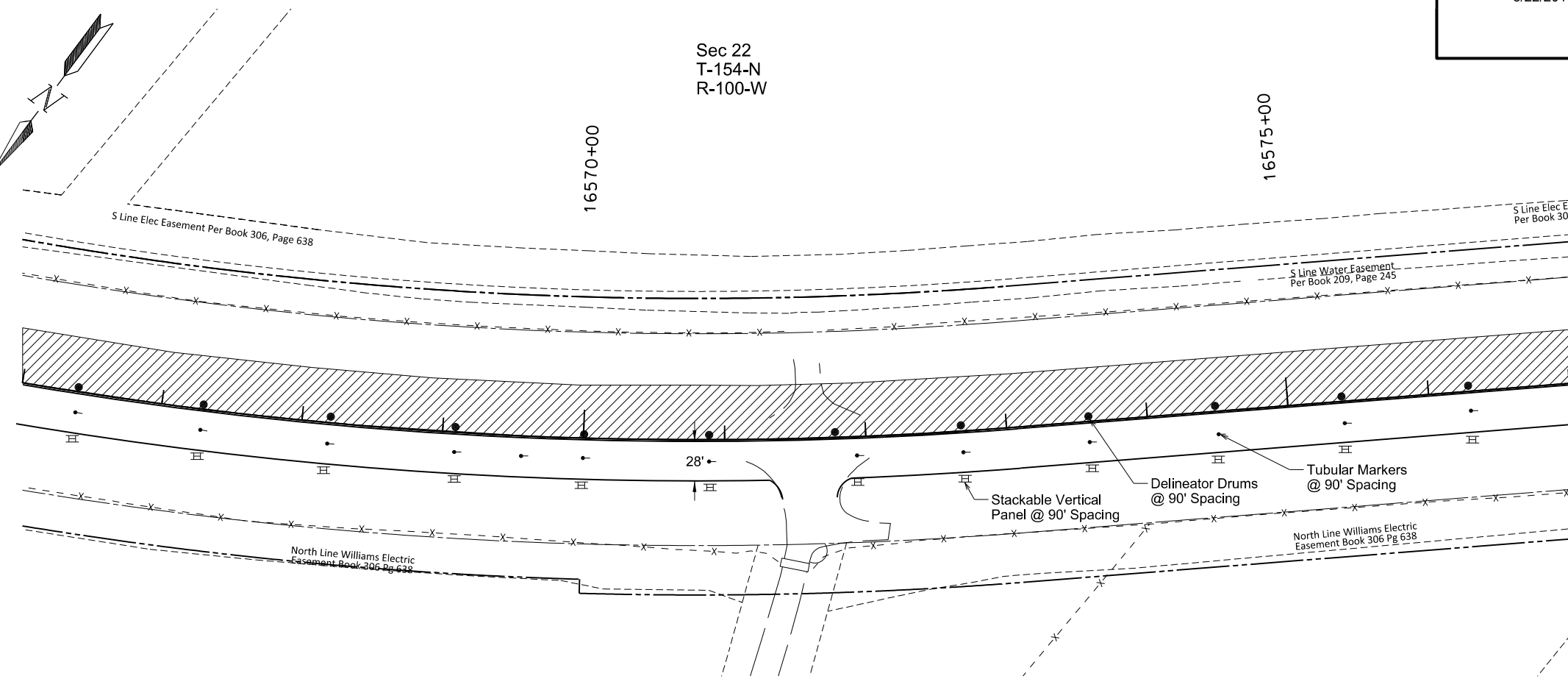
8/22/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-804(054)312	100	19

Sec 22
T-154-N
R-100-W

16570+00

16575+00

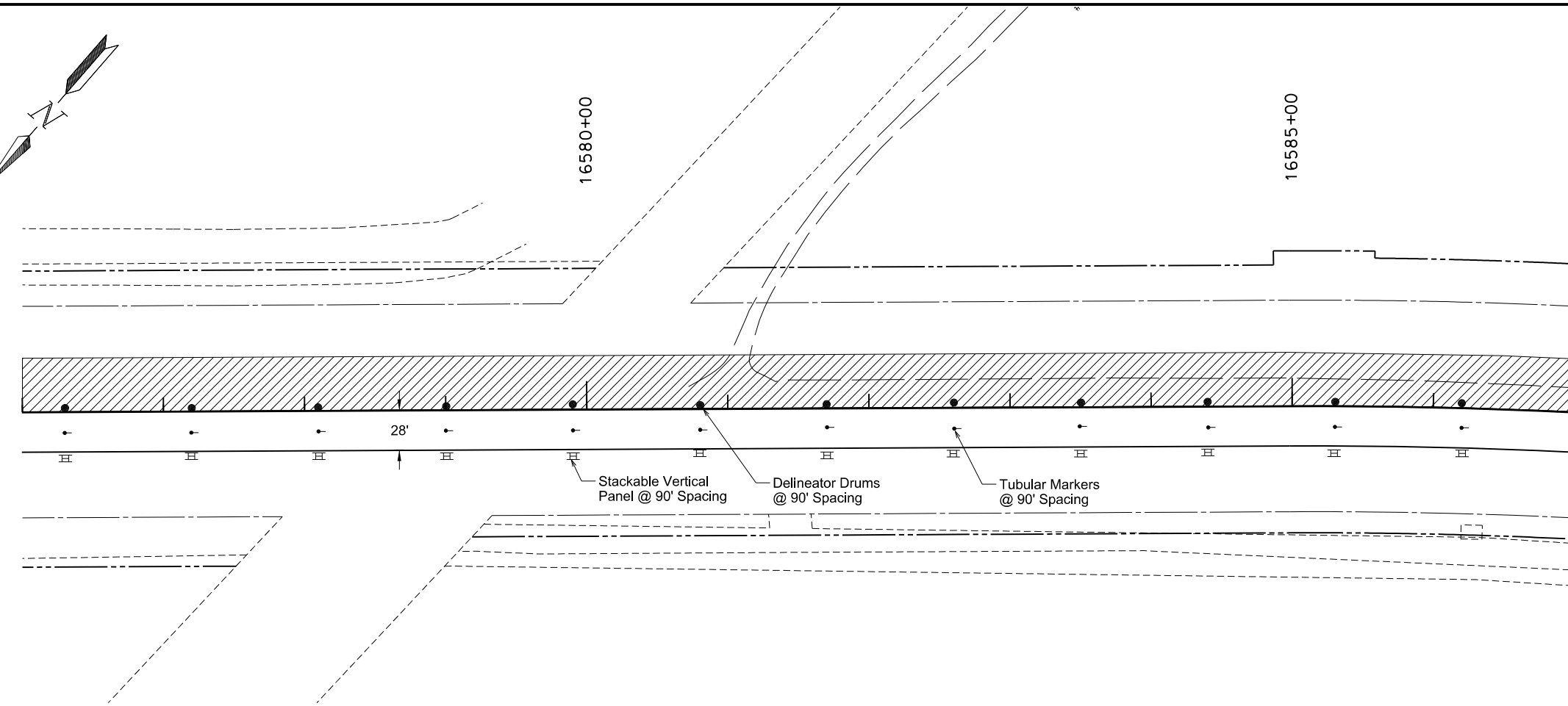


Notes:

1. Use Standard Drawing D-704-15 for sign spacing.
2. Per MUTCD, channelizing device spacing should not exceed a distance in feet equal to 1.0 times the posted speed limit in mph when used for taper channelization, and a distance in feet equal to 2.0 times the posted speed limit in mph when used for tangent channelization. Device Frequency may be adjusted by Engineer.

16580+00

16585+00



LEGEND

	Type III Barricade
	Jersey Barrier
	Delineator Drum
	Tubular Marker
	Stackable Vertical Panel
	Work Area
	Highway Sign

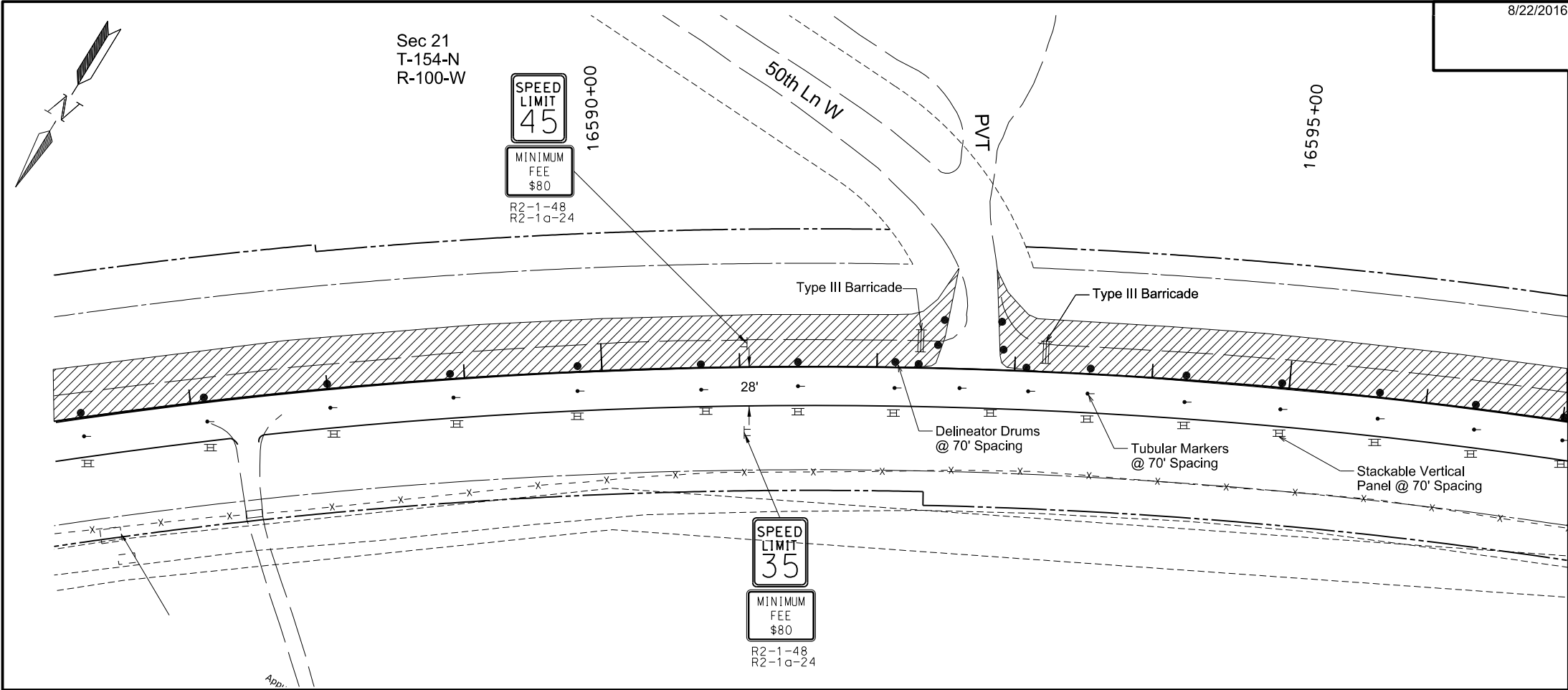
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Work Zone Traffic Control
Construction Sign Layout

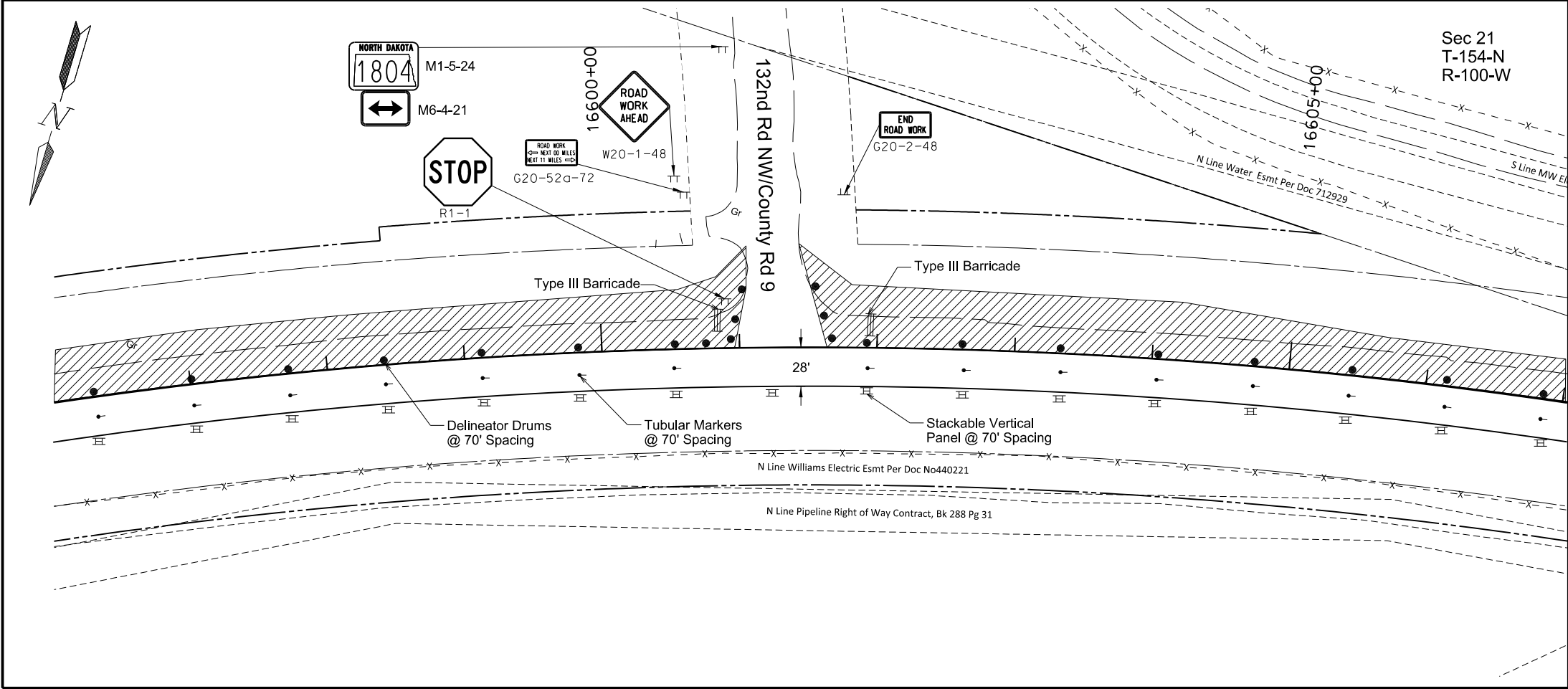
ND 1804 Reconstruction
Williams County, ND
Sta 16567+07 to Sta16587+00

8/22/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-804(054)312	100	20



- Notes:
1. Use Standard Drawing D-704-15 for sign spacing.
 2. Per MUTCD, channelizing device spacing should not exceed a distance in feet equal to 1.0 times the posted speed limit in mph when used for taper channelization, and a distance in feet equal to 2.0 times the posted speed limit in mph when used for tangent channelization. Device frequency may be adjusted by Engineer.



LEGEND

	Type III Barricade
	Jersey Barrier
	Delineator Drum
	Tubular Marker
	Stackable Vertical Panel
	Work Area
	Highway Sign

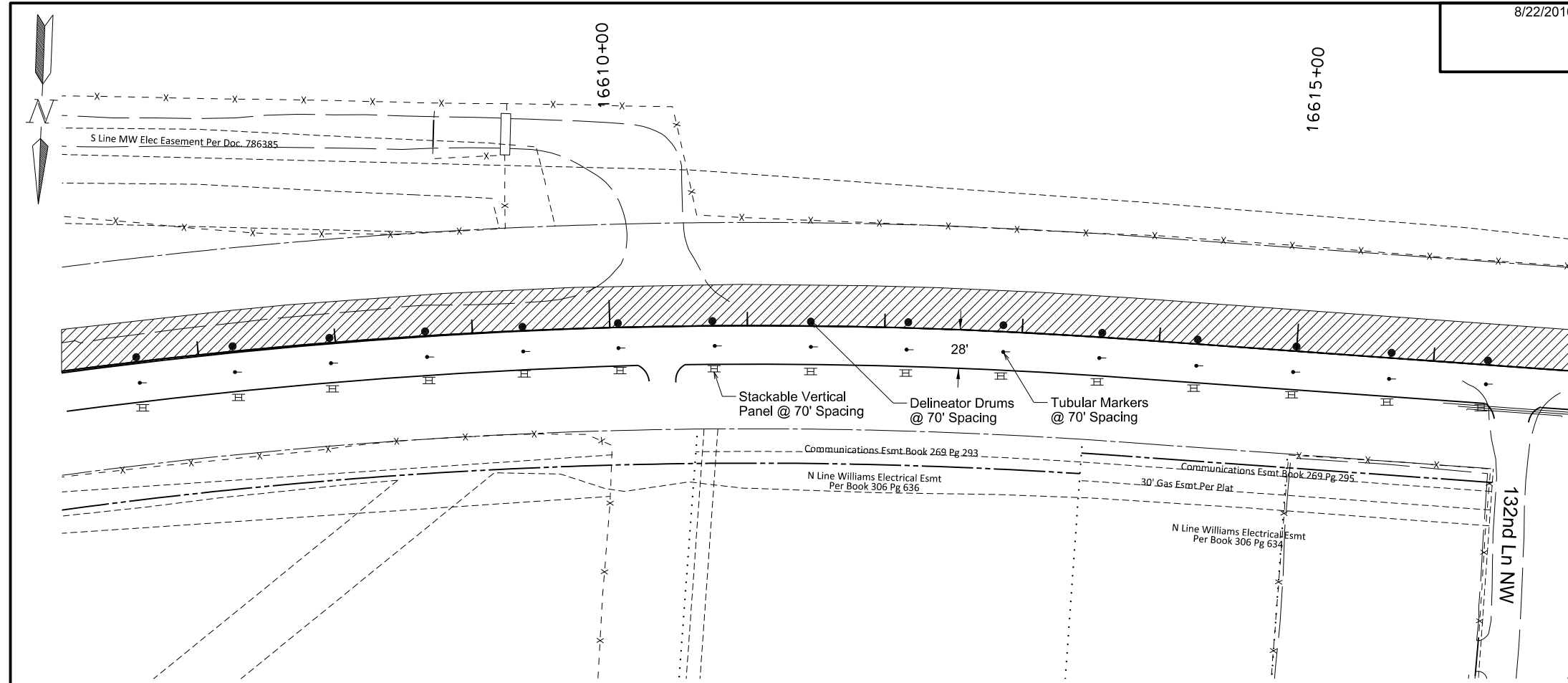
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Work Zone Traffic Control Construction Sign Layout

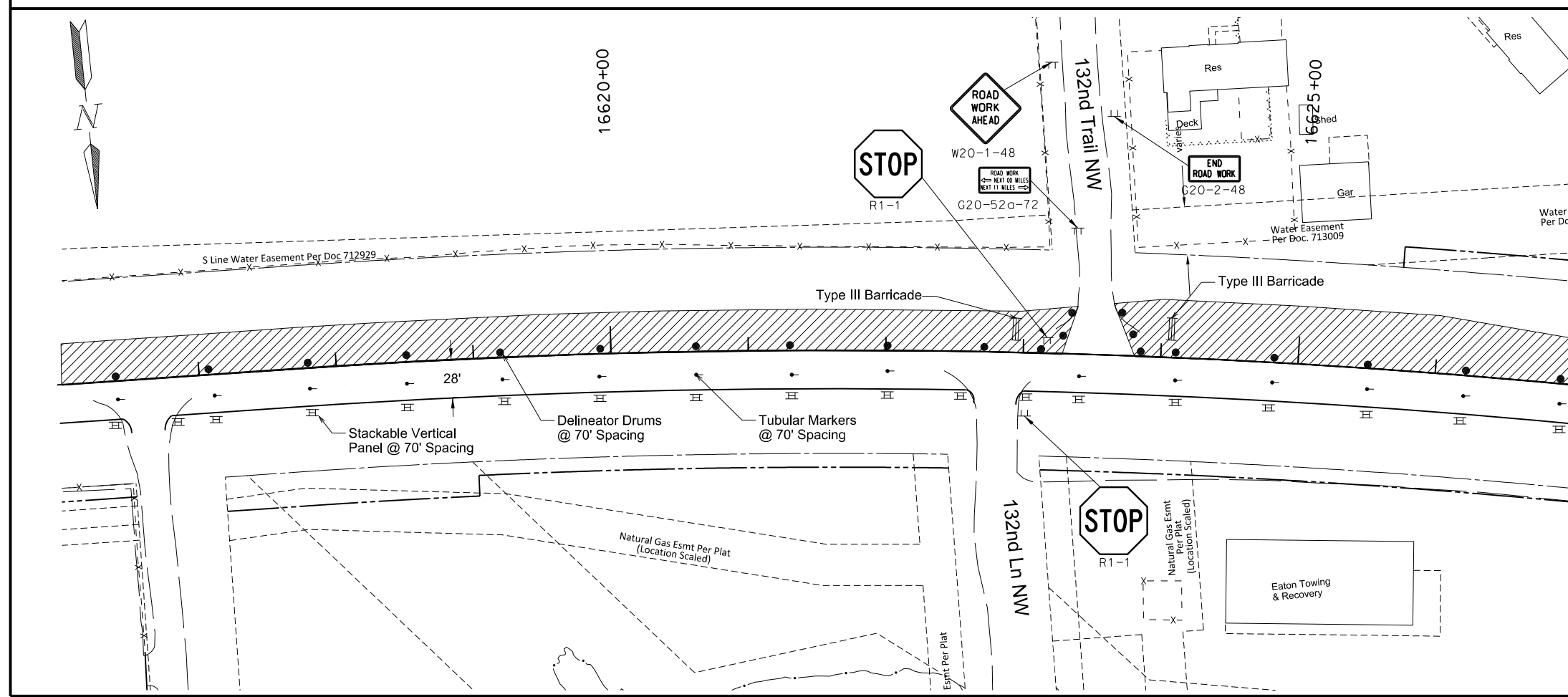
ND 1804 Reconstruction
Williams County, ND
Sta 16587+00 to Sta 16607+04

8/22/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-804(054)312	100	21



- Notes:**
1. Use Standard Drawing D-704-15 for sign spacing.
 2. Per MUTCD, channelizing device spacing should not exceed a distance in feet equal to 1.0 times the posted speed limit in mph when used for taper channelization, and a distance in feet equal to 2.0 times the posted speed limit in mph when used for tangent channelization. Device frequency may be adjusted by Engineer.



LEGEND

	Type III Barricade
	Jersey Barrier
	Delineator Drum
	Tubular Marker
	Stackable Vertical Panel
	Work Area
	Highway Sign

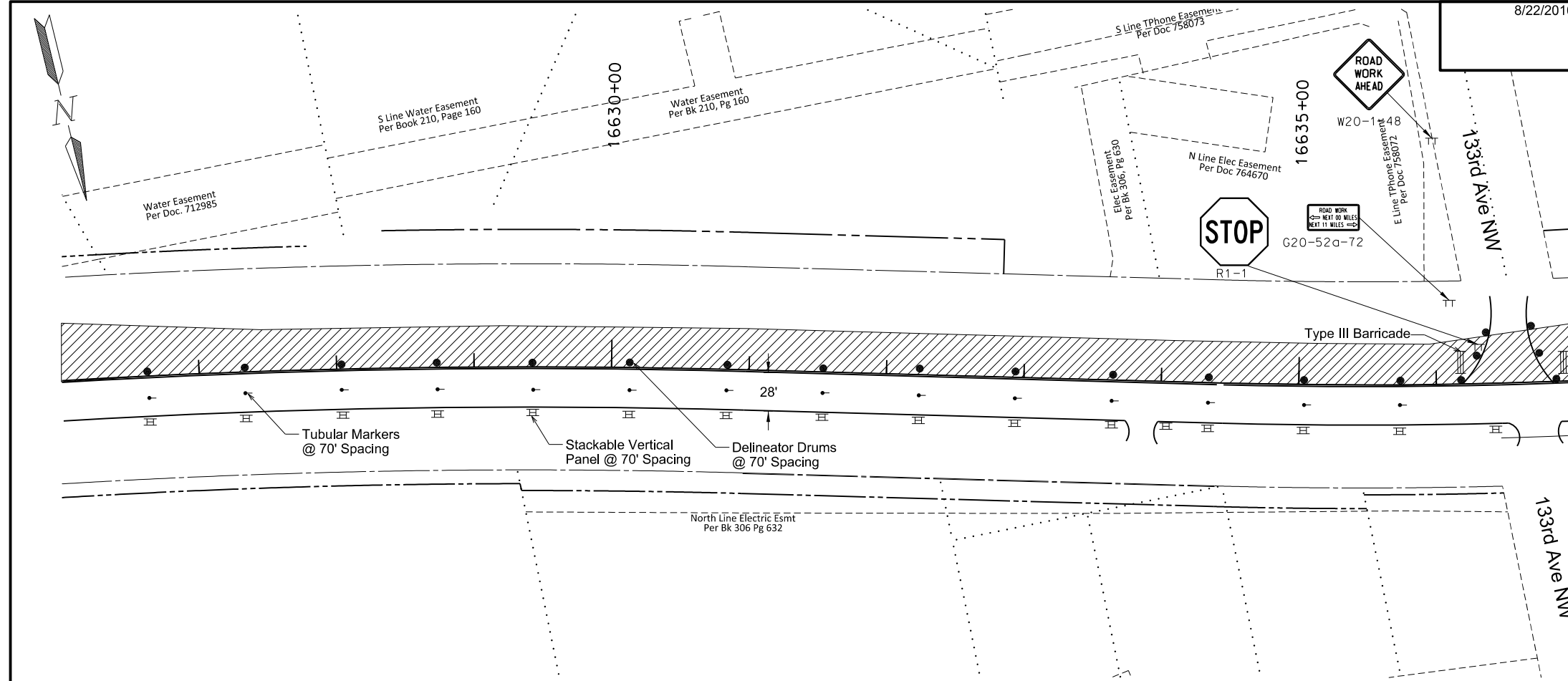
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Work Zone Traffic Control Construction Sign Layout

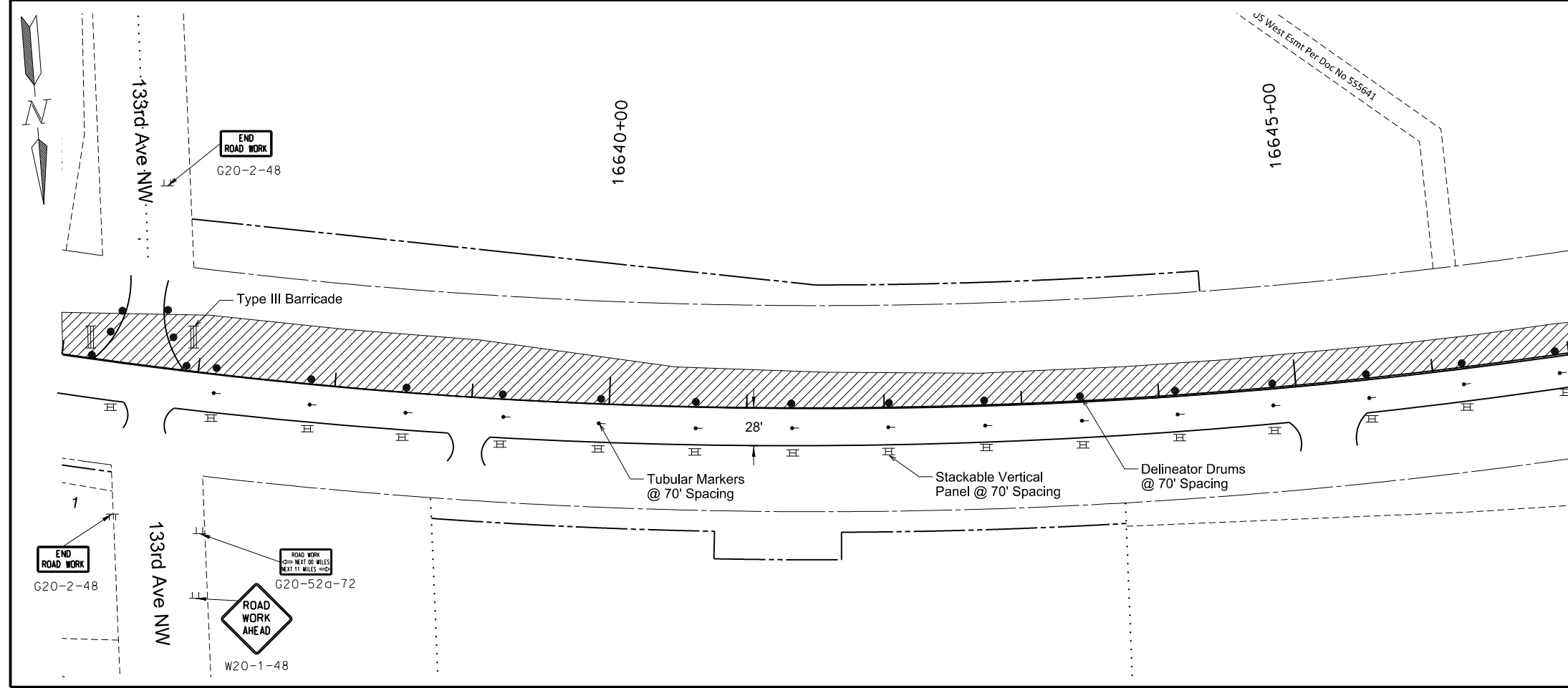
ND 1804 Reconstruction
Williams County, ND
Sta 16607+04 to Sta 16627+01

8/22/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-804(054)312	100	22



- Notes:**
1. Use Standard Drawing D-704-15 for sign spacing.
 2. Per MUTCD, channelizing device spacing should not exceed a distance in feet equal to 1.0 times the posted speed limit in mph when used for taper channelization, and a distance in feet equal to 2.0 times the posted speed limit in mph when used for tangent channelization. Device frequency may be adjusted by Engineer.



LEGEND

	Type III Barricade
	Jersey Barrier
	Delineator Drum
	Tubular Marker
	Stackable Vertical Panel
	Work Area
	Highway Sign

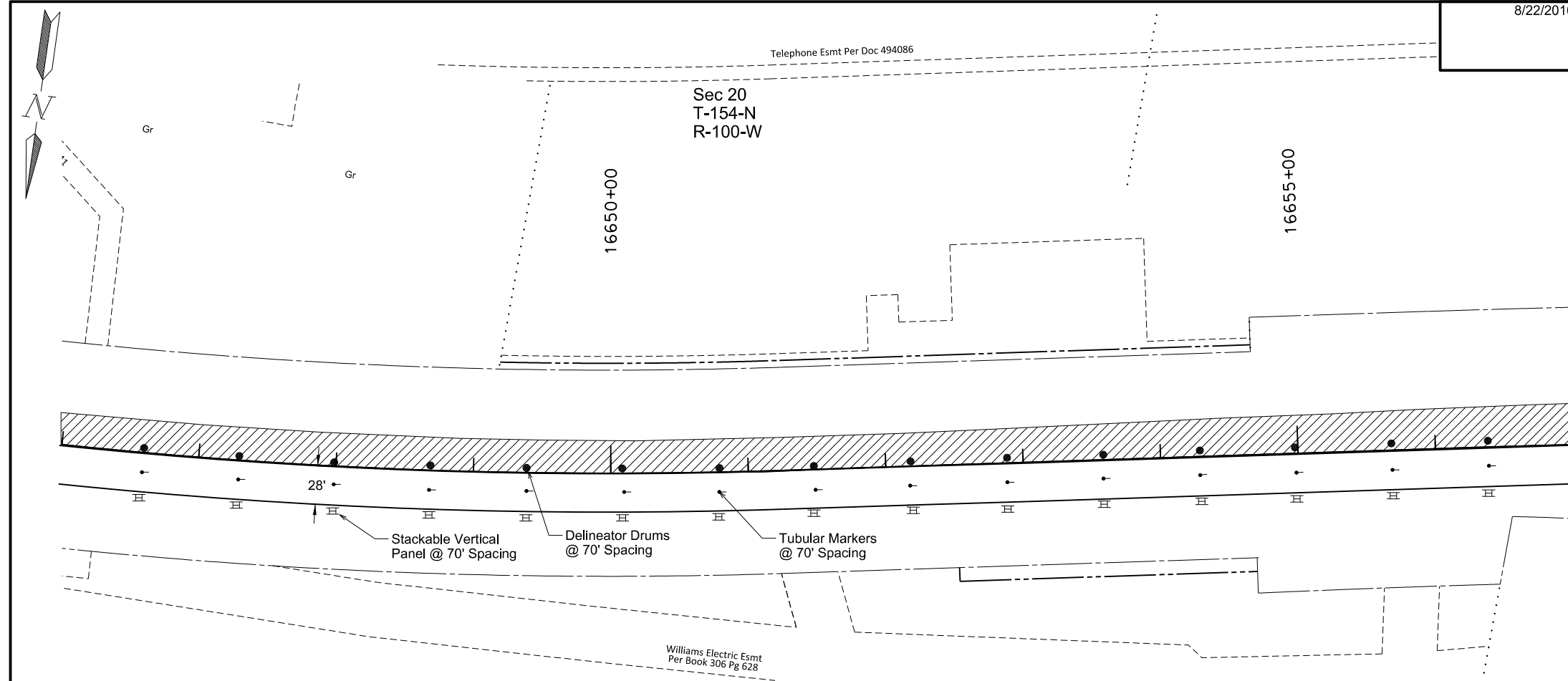
This document was originally issued and sealed by Mark Millstone Registration Number PE- 8801, on 8/22/2016 and the original document is stored at the North Dakota Department of Transportation

Work Zone Traffic Control Construction Sign Layout

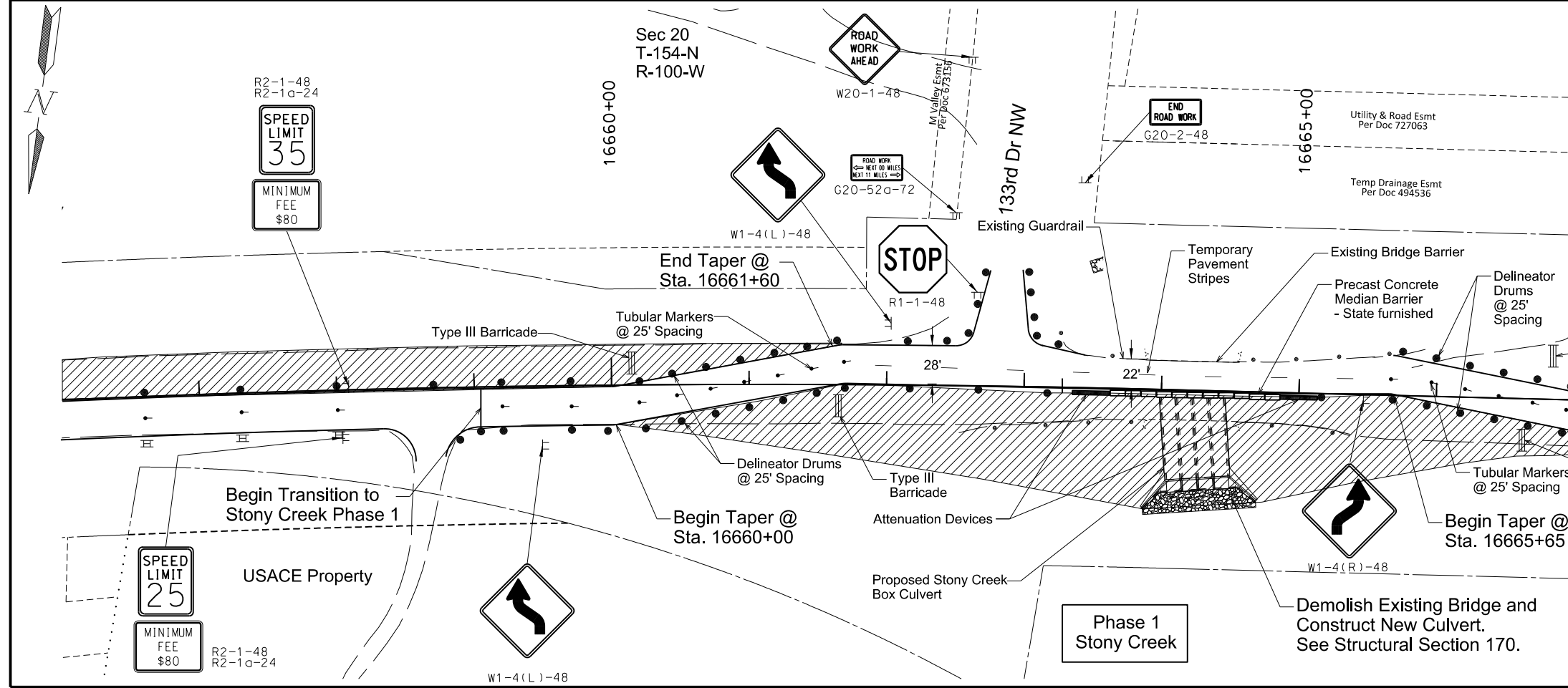
ND 1804 Reconstruction
Williams County, ND
Sta 16627+01 to Sta 16647+04

8/22/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-804(054)312	100	23



- Notes:**
1. Use Standard Drawing D-704-15 & D-704-21 for sign spacing.
 2. Per MUTCD, channelizing device spacing should not exceed a distance in feet equal to 1.0 times the posted speed limit in mph when used for taper channelization, and a distance in feet equal to 2.0 times the posted speed limit in mph when used for tangent channelization. Device frequency may be adjusted by Engineer.



LEGEND

	Type III Barricade
	Jersey Barrier
	Delineator Drum
	Tubular Marker
	Stackable Vertical Panel
	Work Area
	Temporary Pavement Stripe
	Highway Sign

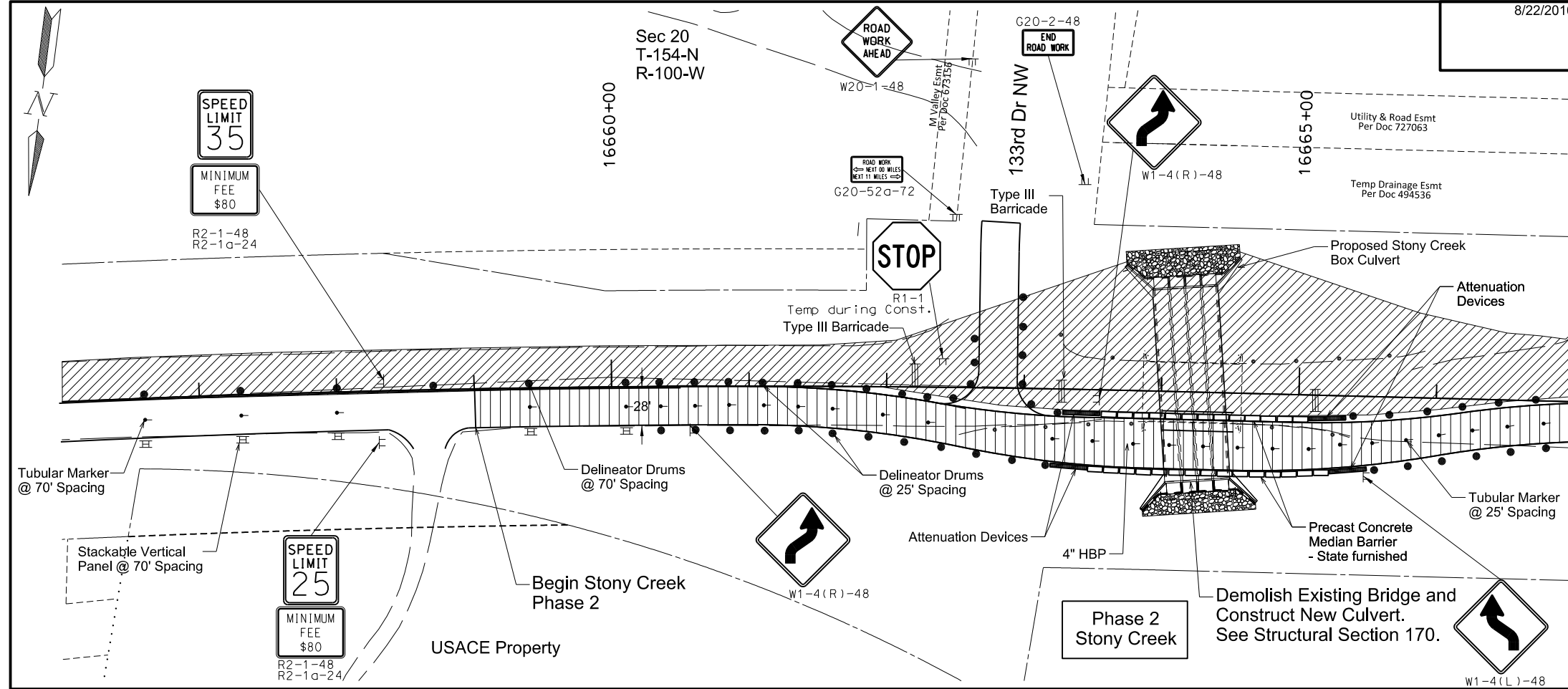
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Work Zone Traffic Control Construction Sign Layout

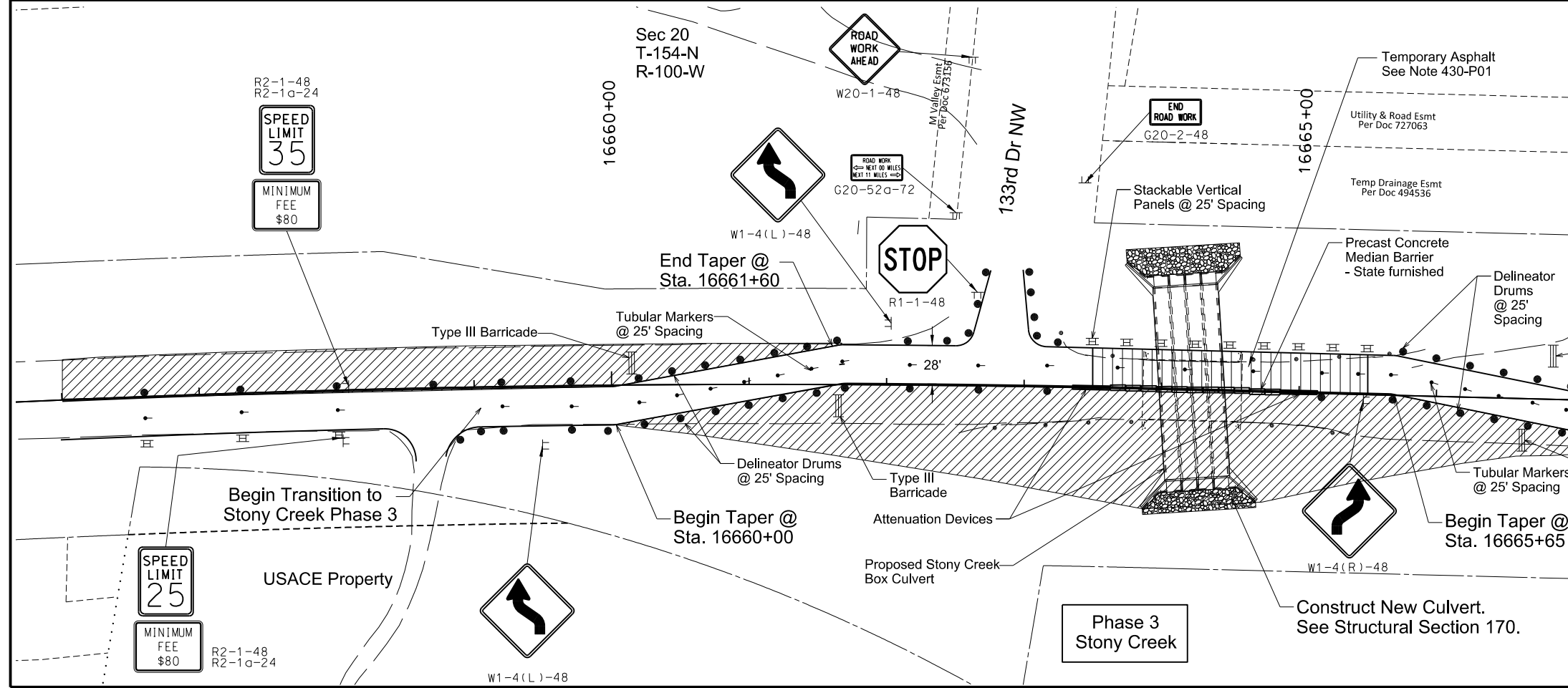
ND 1804 Reconstruction
Williams County, ND
Sta 16647+04 to Sta 16667+00

8/22/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-804(054)312	100	24



- Notes:**
1. Use Standard Drawing D-704-15 & D-704-21 for sign spacing.
 2. Per MUTCD, channelizing device spacing should not exceed a distance in feet equal to 1.0 times the posted speed limit in mph when used for taper channelization, and a distance in feet equal to 2.0 times the posted speed limit in mph when used for tangent channelization. Device frequency may be adjusted by Engineer.



LEGEND

	Type III Barricade
	Jersey Barrier
	Delineator Drum
	Tubular Marker
	Stackable Vertical Panel
	Work Area
	Temporary Asphalt
	Highway Sign

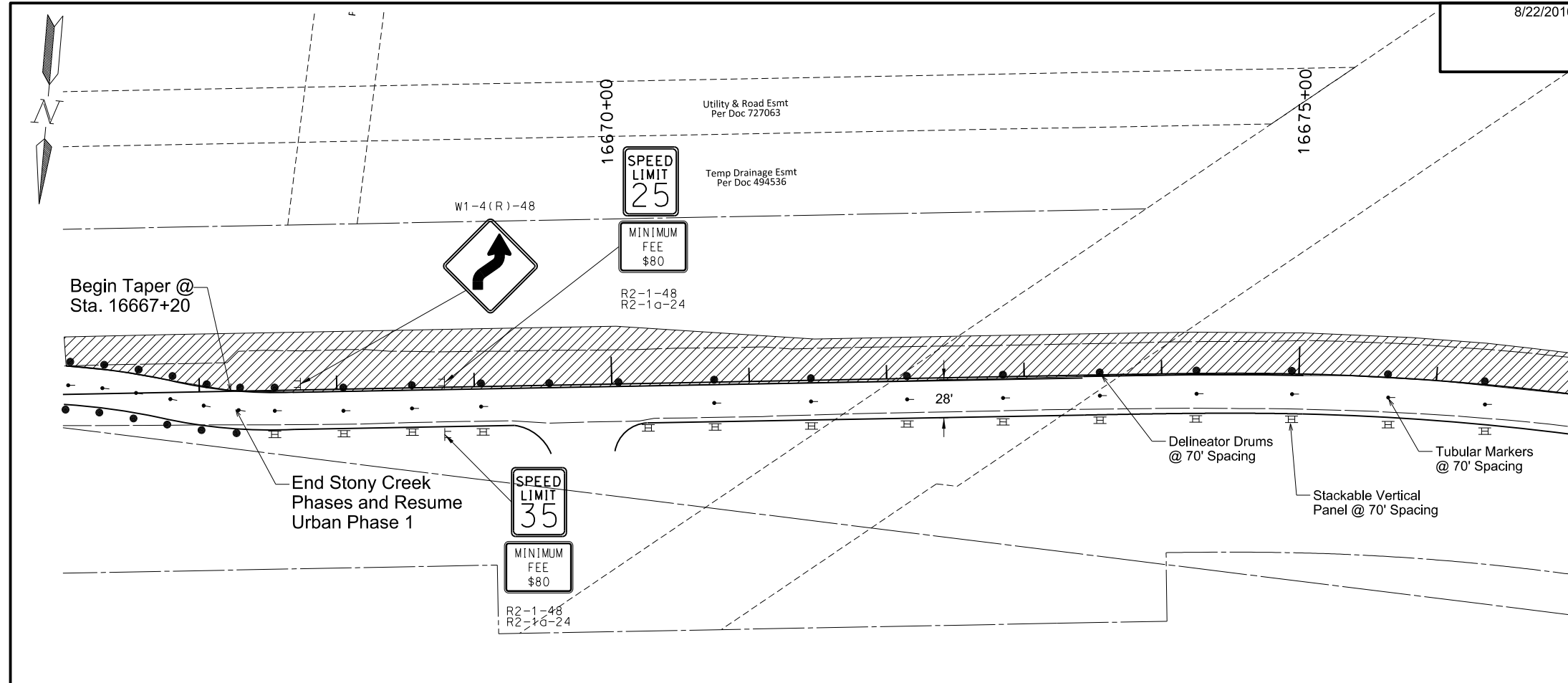
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Work Zone Traffic Control
 Construction Sign Layout

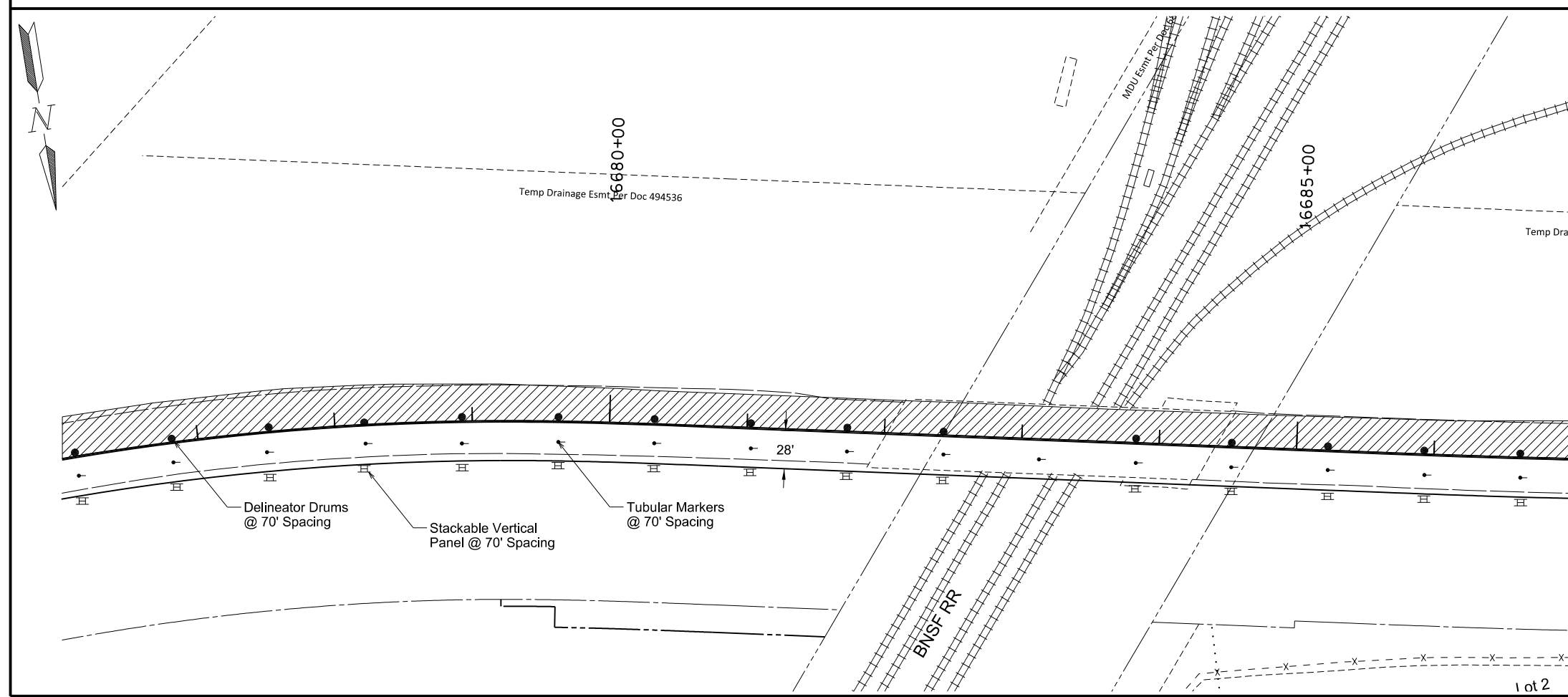
ND 1804 Reconstruction
 Williams County, ND
 Sta 16656+00 to Sta 16667+00

8/22/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-804(054)312	100	25



- Notes:**
1. Use Standard Drawing D-704-15 for sign spacing.
 2. Per MUTCD, channelizing device spacing should not exceed a distance in feet equal to 1.0 times the posted speed limit in mph when used for taper channelization, and a distance in feet equal to 2.0 times the posted speed limit in mph when used for tangent channelization. Device frequency may be adjusted by Engineer.



LEGEND

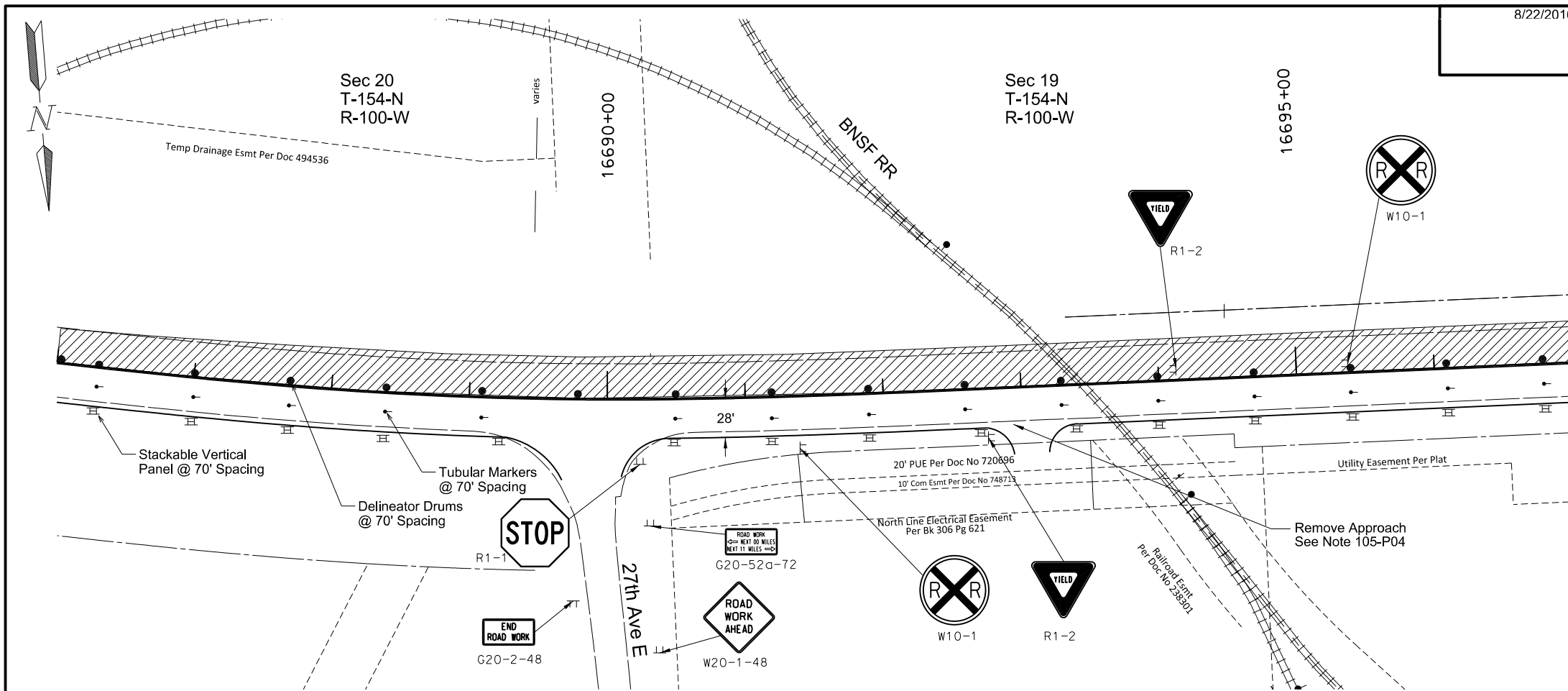
	Type III Barricade
	Jersey Barrier
	Delineator Drum
	Tubular Marker
	Stackable Vertical Panel
	Work Area
	Highway Sign

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Work Zone Traffic Control Construction Sign Layout

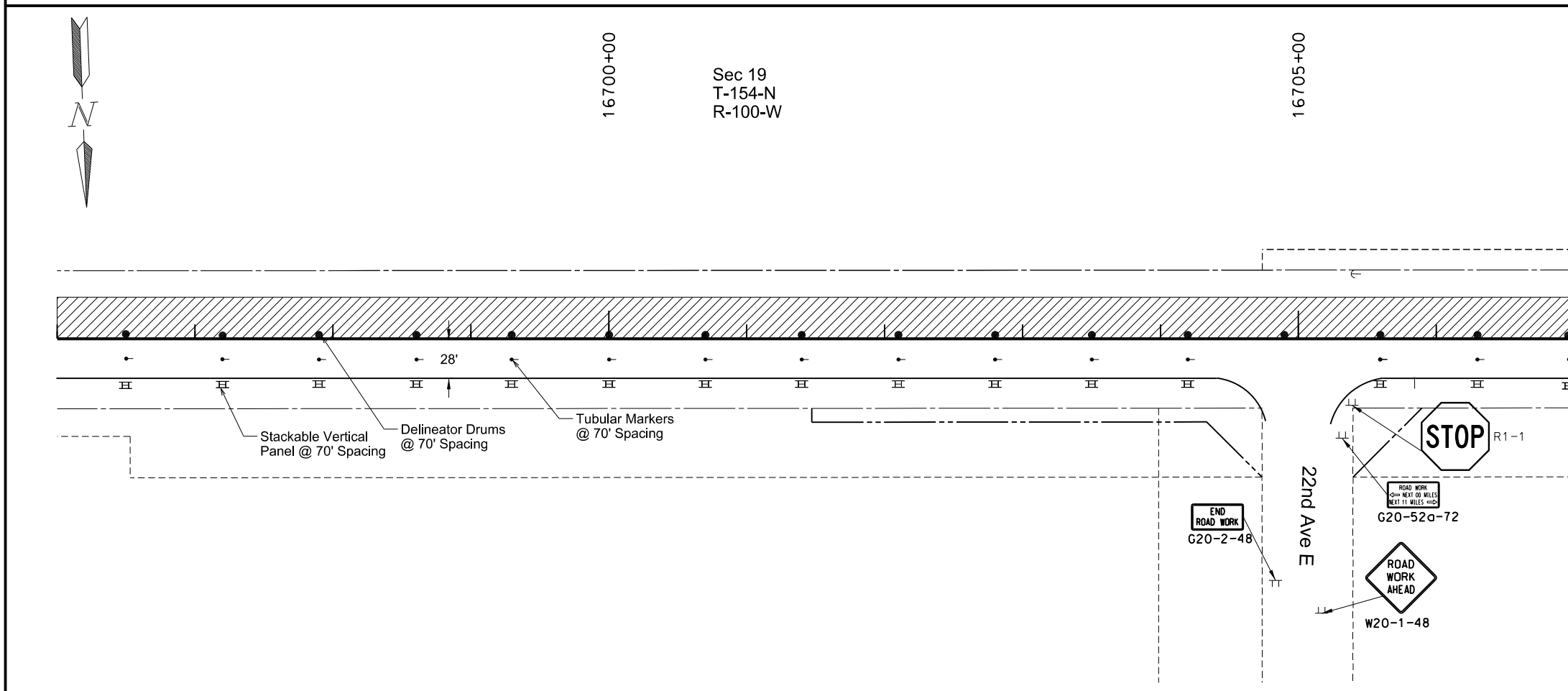
ND 1804 Reconstruction
Williams County, ND
Sta 16667+00 to 16687+02

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-804(054)312	100	26



Notes:

1. Use Standard Drawing D-704-15 for sign spacing
2. Railroad crossing signs and cross bucks will remain in place until roadway widening conflicts with signs, at which time, temporary replacement signs should be installed.
3. Per MUTCD, channelizing device spacing should not exceed a distance in feet equal to 1.0 times the posted speed limit in mph when used for taper channelization, and a distance in feet equal to 2.0 times the posted speed limit in mph when used for tangent channelization. Device frequency may be adjusted by Engineer.
4. Contractor shall coordinate construction adjacent to the railroad with BNSF. See note 107-P02, section 6.



LEGEND

	Type III Barricade
	Jersey Barrier
	Delineator Drum
	Tubular Marker
	Stackable Vertical Panel
	Work Area
	Highway Sign

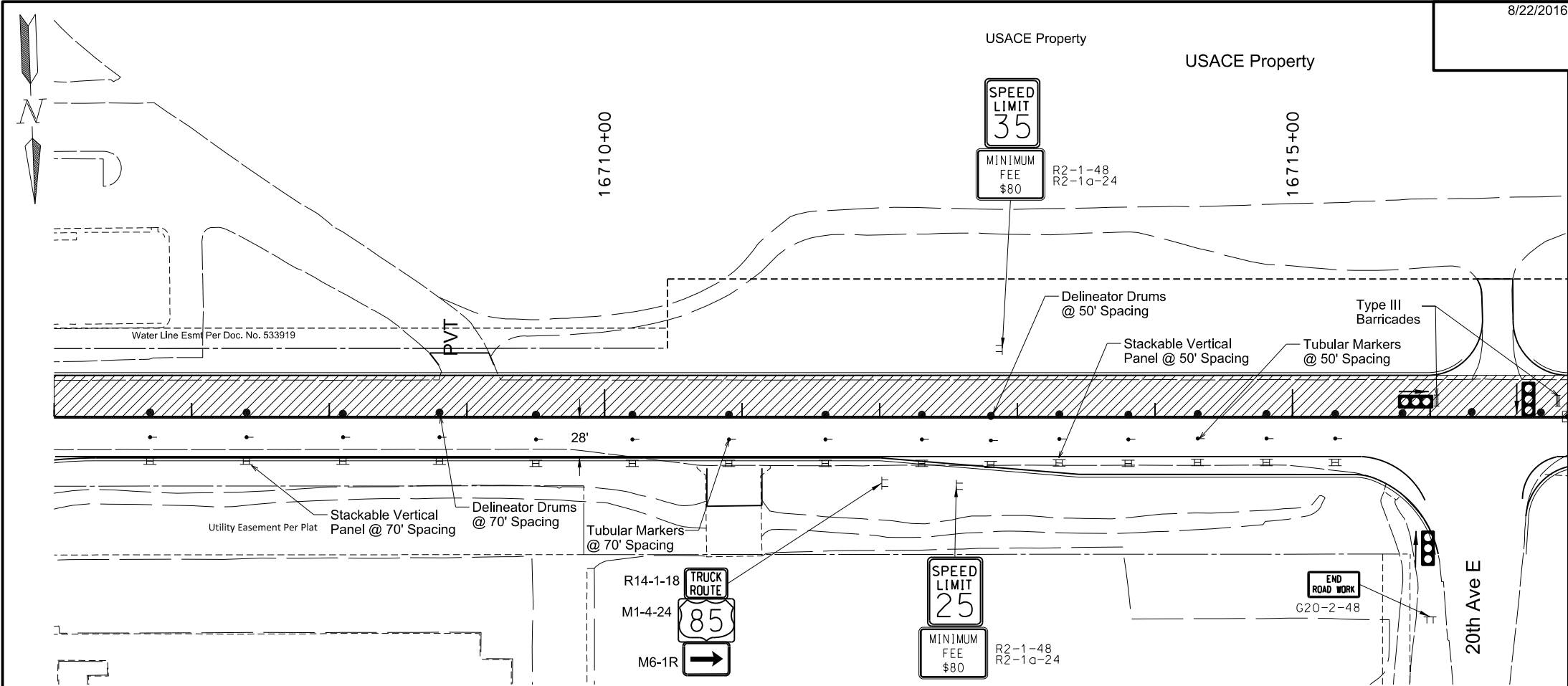
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Work Zone Traffic Control Construction Sign Layout

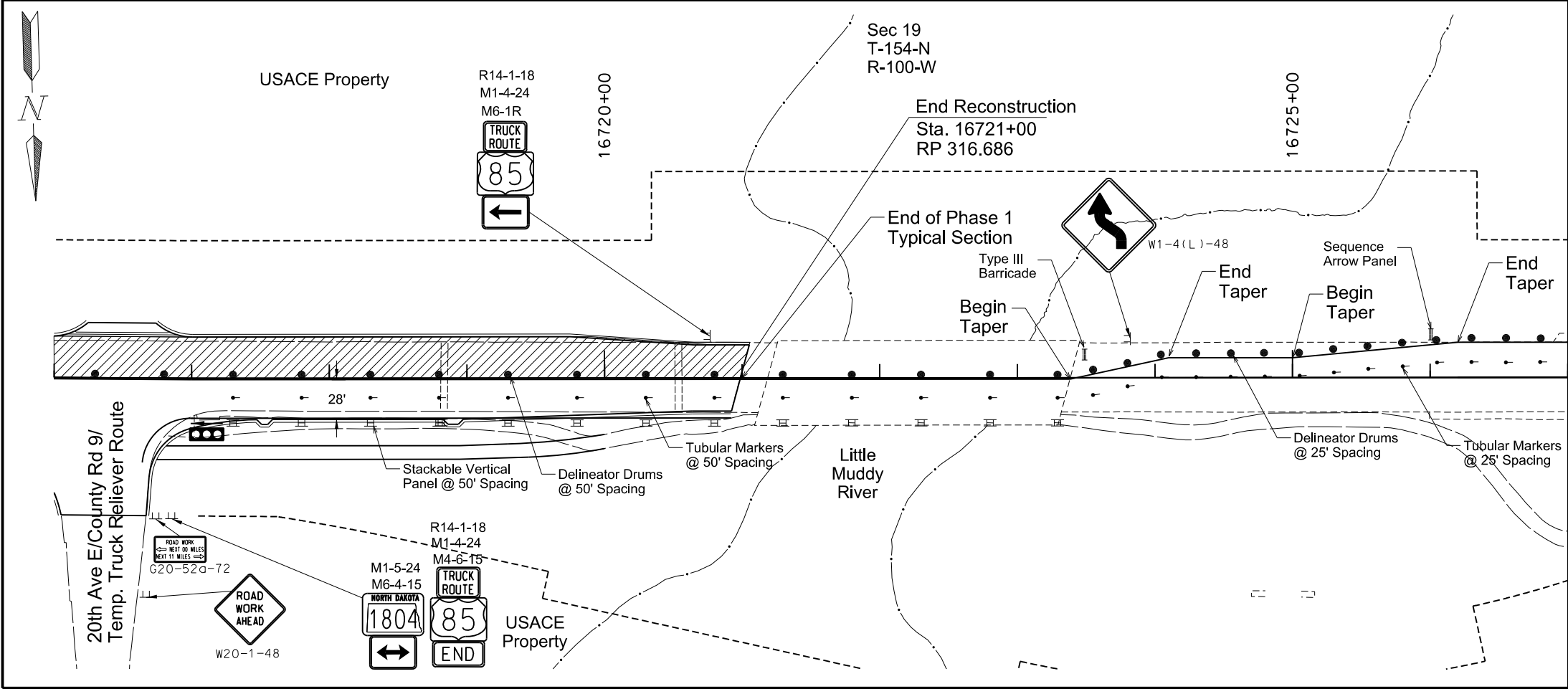
ND 1804 Reconstruction
Williams County, ND
Sta 16687+02 to 16707+00

8/22/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-804(054)312	100	27



- Notes:**
1. Use Standard Drawing D-704-15 Type C for sign spacing.
 2. Per MUTCD, channelizing device spacing should not exceed a distance in feet equal to 1.0 times the posted speed limit in mph when used for taper channelization, and a distance in feet equal to 2.0 times the posted speed limit in mph when used for tangent channelization. Device frequency may be adjusted by Engineer.
 3. Use portable trailer mounted traffic signals during signal replacement when the existing controller is not in operation. Orient the traffic signal to face the direction indicated by the arrow. See Note 772-P03.



LEGEND

	Type III Barricade
	Jersey Barrier
	Delineator Drum
	Tubular Marker
	Stackable Vertical Panel
	Work Area
	Highway Sign
	Portable Trailer Mounted Traffic Signal

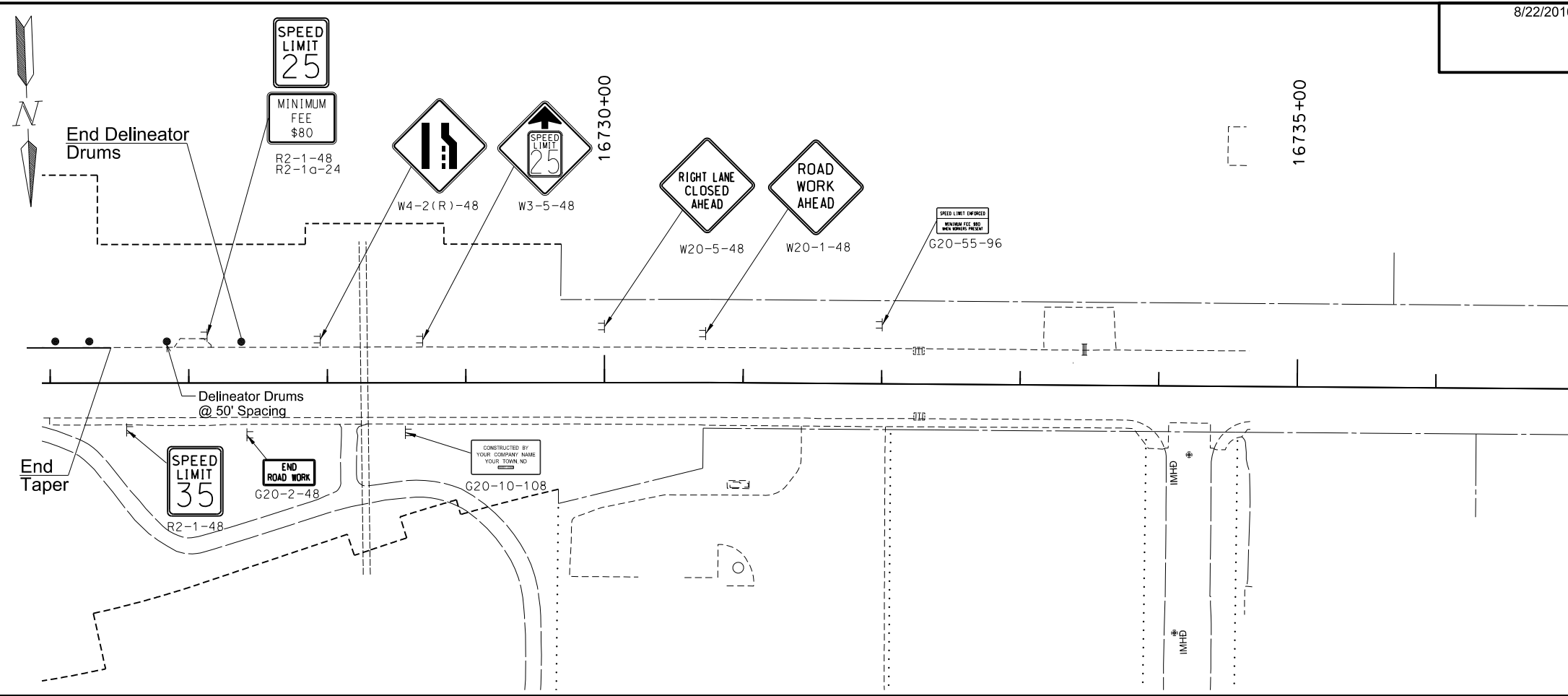
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Work Zone Traffic Control Construction Sign Layout

ND 1804 Reconstruction
Williams County, ND
Sta 16707+00 to Sta 16727+00

8/22/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-804(054)312	100	28



- Notes:**
1. Use Standard Drawing D-704-15 Type C for sign spacing.
 2. Per MUTCD, channelizing device spacing should not exceed a distance in feet equal to 1.0 times the posted speed limit in mph when used for taper channelization, and a distance in feet equal to 2.0 times the posted speed limit in mph when used for tangent channelization. Device frequency may be adjusted by Engineer.

LEGEND

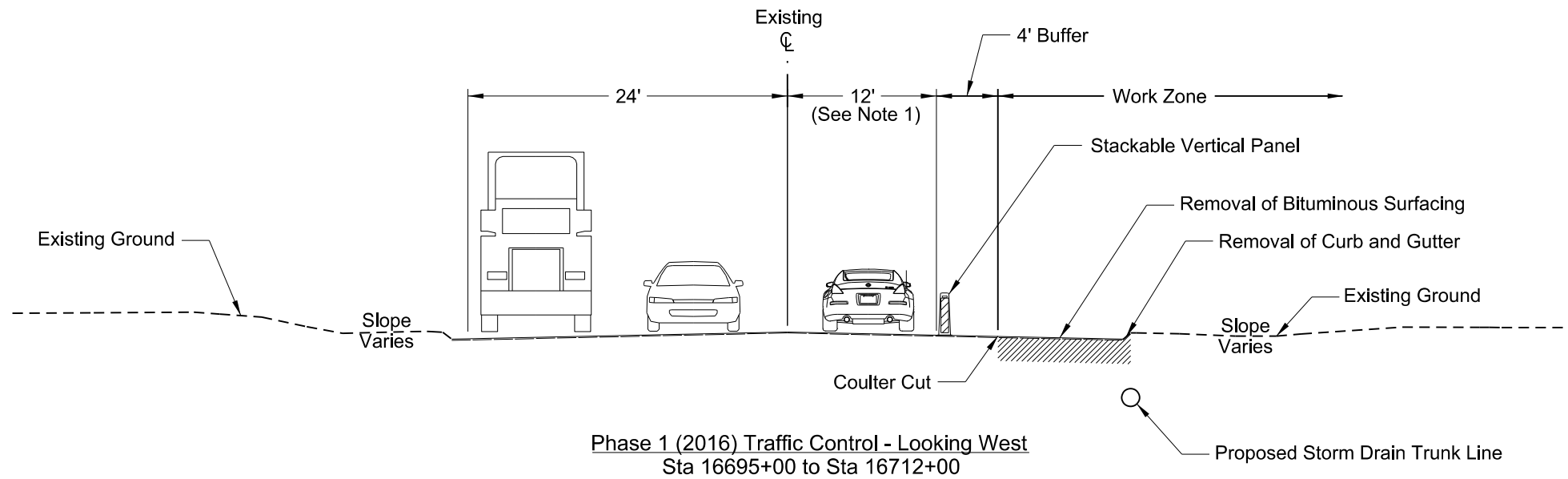
	Type III Barricade
	Jersey Barrier
	Delineator Drum
	Tubular Marker
	Stackable Vertical Panel
	Work Area
	Highway Sign

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Work Zone Traffic Control
 Construction Sign Layout

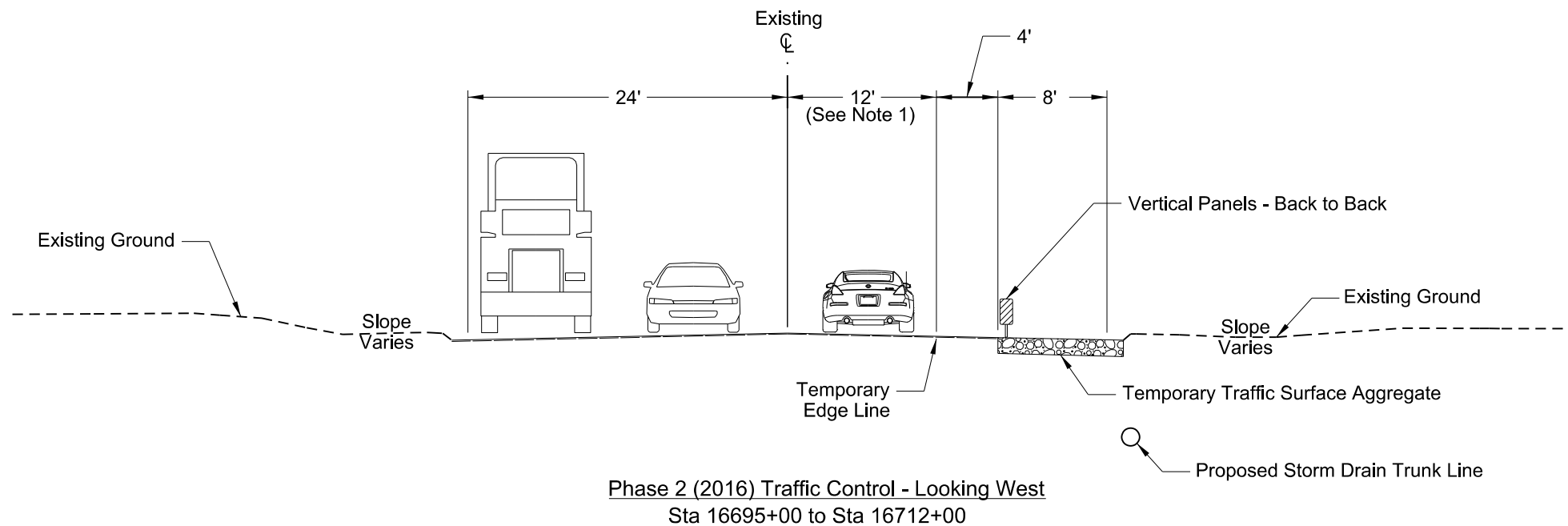
ND 1804 Reconstruction
 Williams County, ND
 Sta 16727+00 to Sta 16737+00

8/22/2016	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-804(054)312	100	29



Work to be Performed in Phase 1 (2016)

- Maintain two lanes of eastbound traffic and reduce westbound traffic to one lane.
- Demolish 8' of pavement on existing northernmost westbound lane.
- Construct new storm drain trunk line.



Work to be Performed in Phase 2 (2016)

- Maintain two lanes of eastbound traffic and reduce westbound traffic to one lane.
- Place temporary barrier stripe on north edge of westbound lane.
- Install vertical panels in the gravel along the coultter cut.

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Notes:

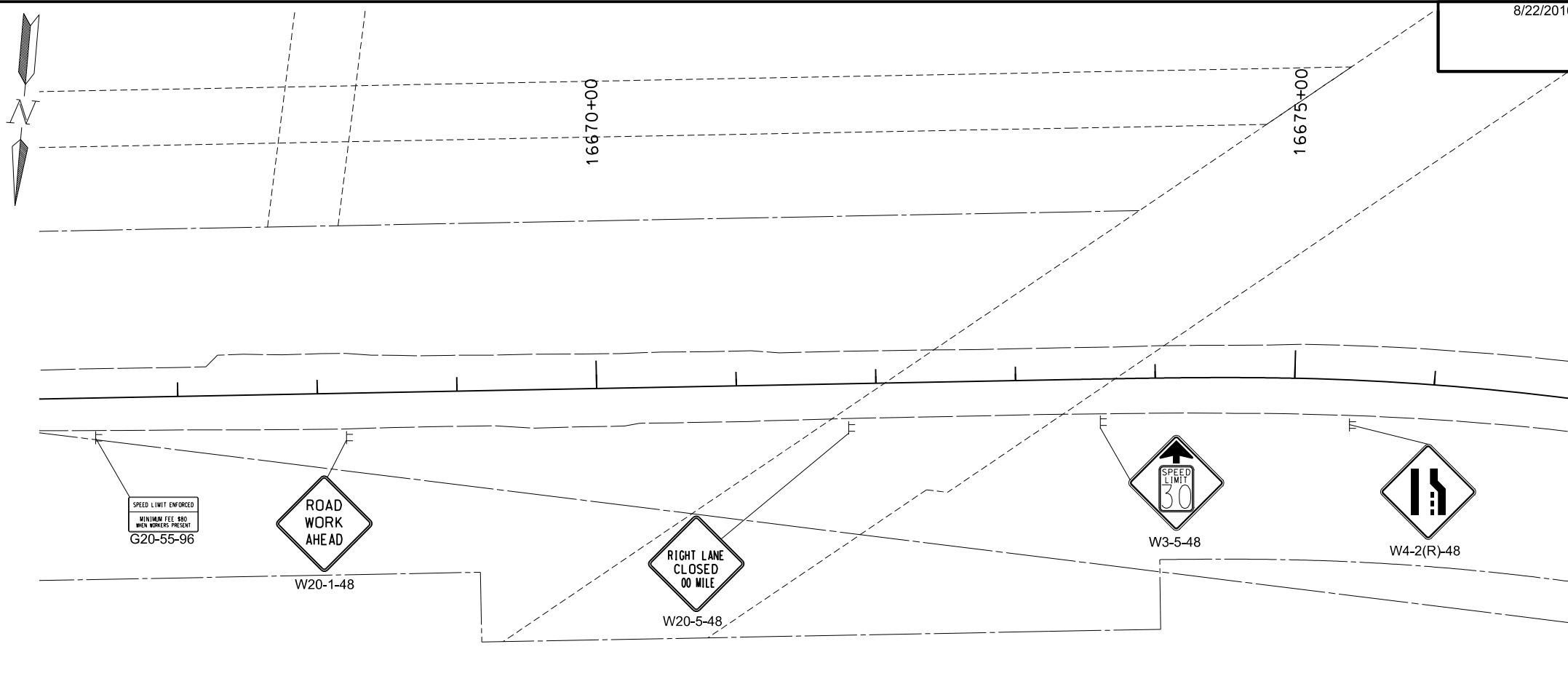
1. Lane widths shown are measured from the inside of traffic channelizing device.
2. Work is to be completed for Phase 1 (2016) and Phase 2 (2016) according to note 105-P05.

Work Zone Traffic Control
Urban Roadway Typical Sections
Phase 1 & 2 (2016)

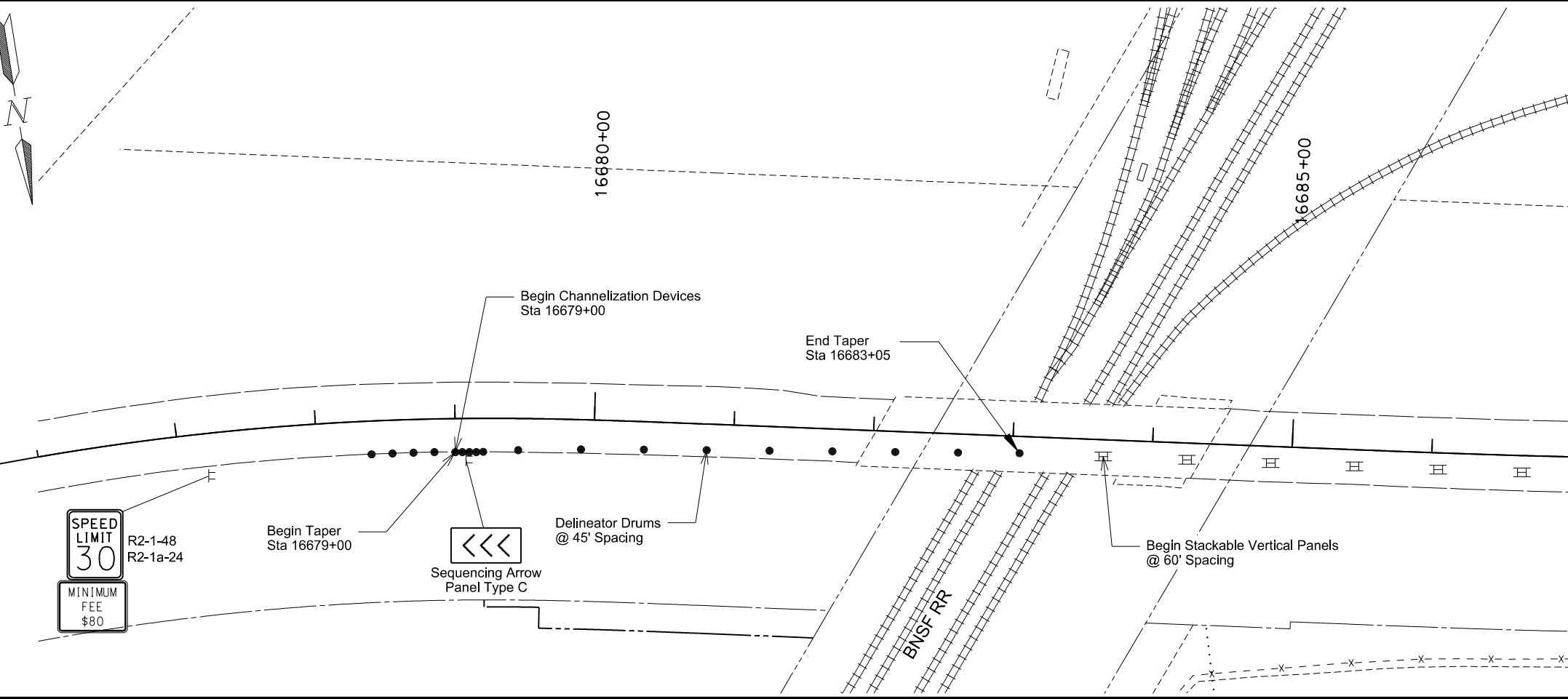
ND 1804 Reconstruction
Williams County, ND

8/22/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-804(054)312	100	30



- Notes:**
1. Use Standard Drawing D-704-34 for sign spacing.
 2. Per MUTCD, channelizing device spacing should not exceed a distance in feet equal to 1.0 times the posted speed limit in mph when used for taper channelization, and a distance in feet equal to 2.0 times the posted speed limit in mph when used for tangent channelization. Device frequency may be adjusted by Engineer.



- LEGEND**
- ||| Type III Barricade
 - Delineator Drum
 - Tubular Marker
 - ≡ Stackable Vertical Panel
 - ▨ Work Area
 - ⊥ Highway Sign

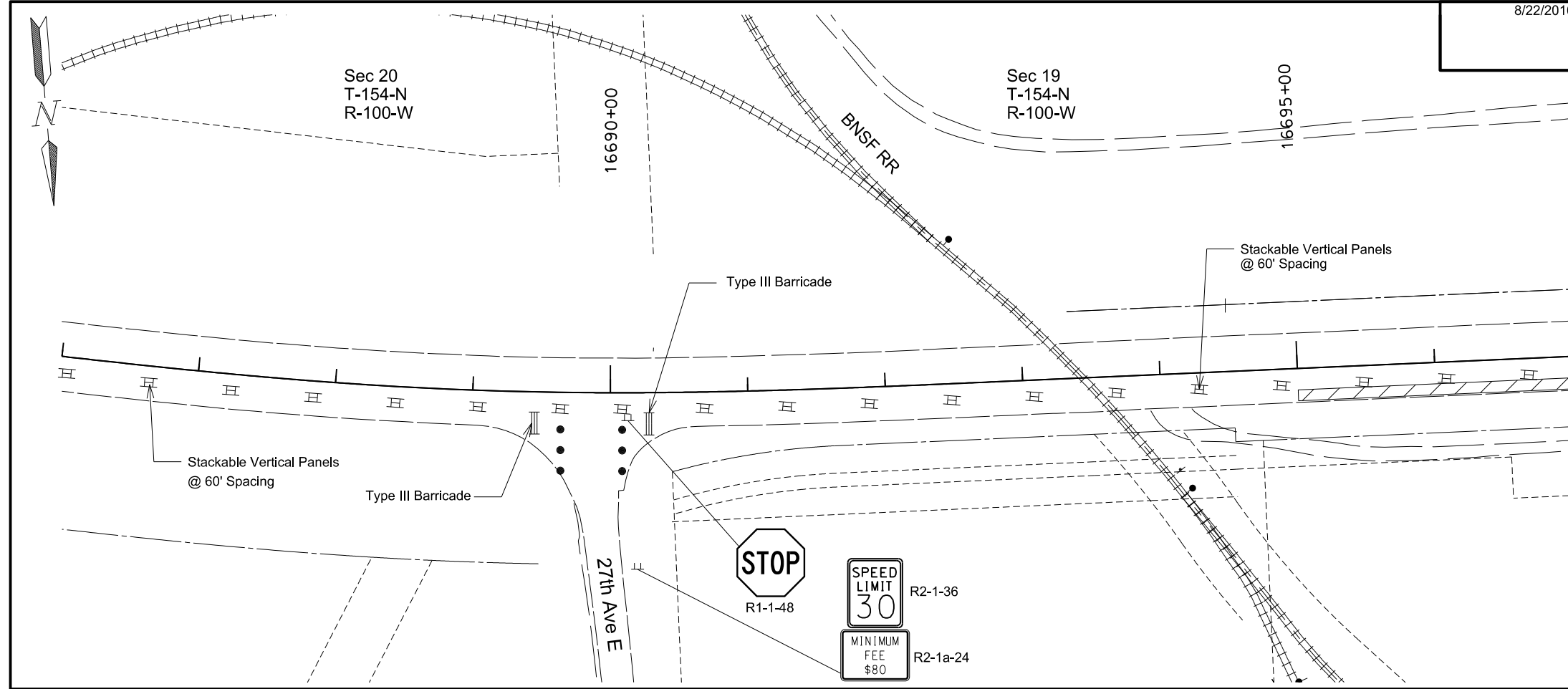
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Work Zone Traffic Control Construction Sign Layout Phase 1 (2016)

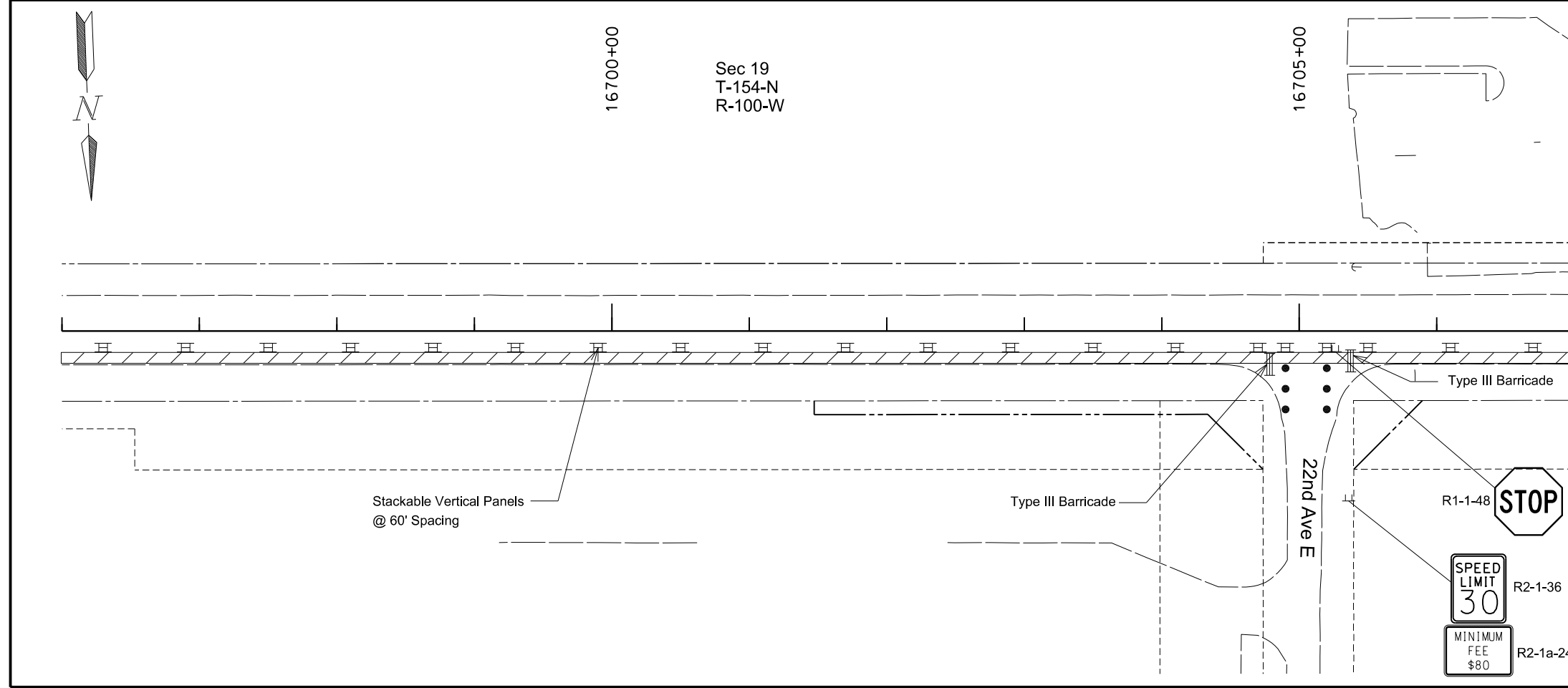
ND 1804 Reconstruction
Williams County, ND
Sta 16667+00 to 16687+02

8/22/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-804(054)312	100	31



- Notes:**
1. Use Standard Drawing D-704-34 for sign spacing.
 2. Per MUTCD, channelizing device spacing should not exceed a distance in feet equal to 1.0 times the posted speed limit in mph when used for taper channelization, and a distance in feet equal to 2.0 times the posted speed limit in mph when used for tangent channelization. Device frequency may be adjusted by Engineer.



LEGEND

- Type III Barricade
- Delineator Drum
- Tubular Marker
- Stackable Vertical Panel
- Work Area
- Highway Sign

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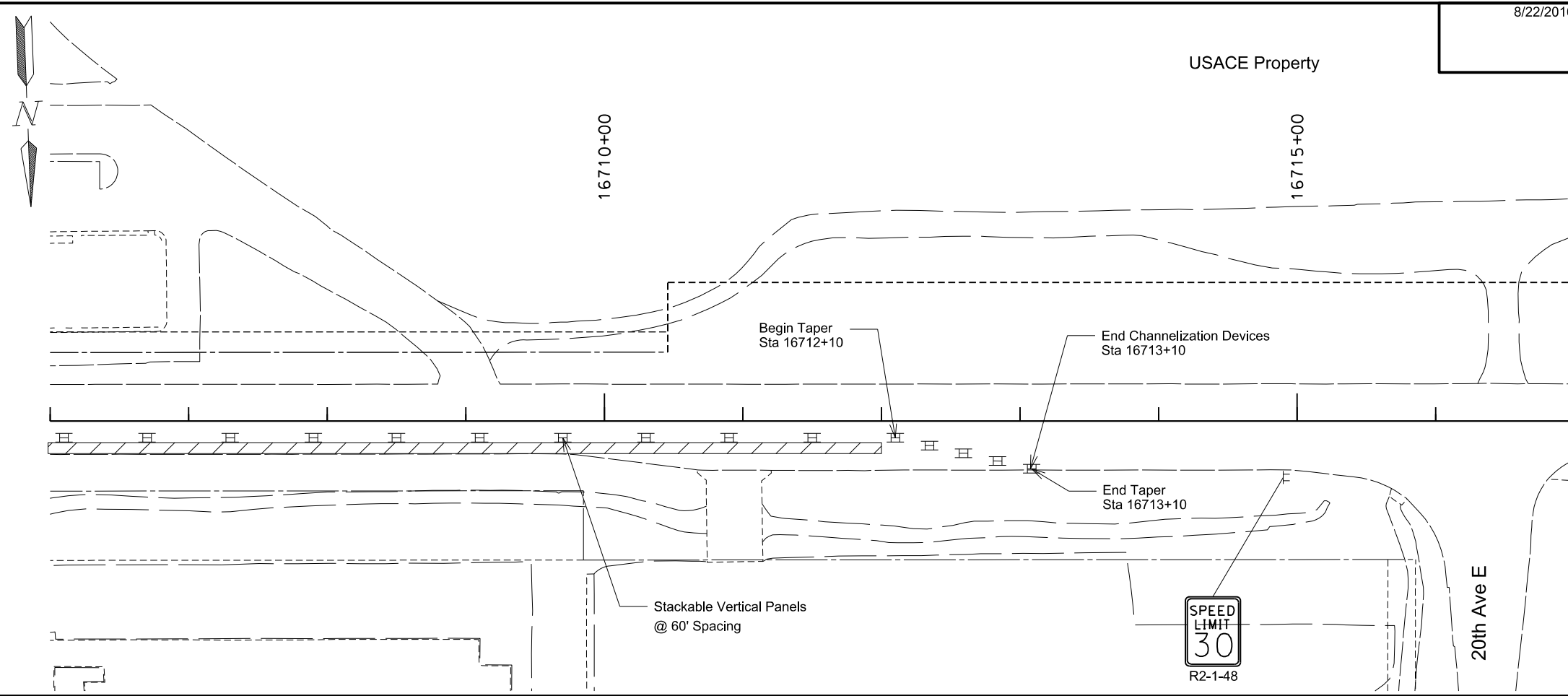
Work Zone Traffic Control Construction Sign Layout Phase 1 (2016)

ND 1804 Reconstruction
Williams County, ND
Sta 16687+02 to 16707+00

8/22/2016

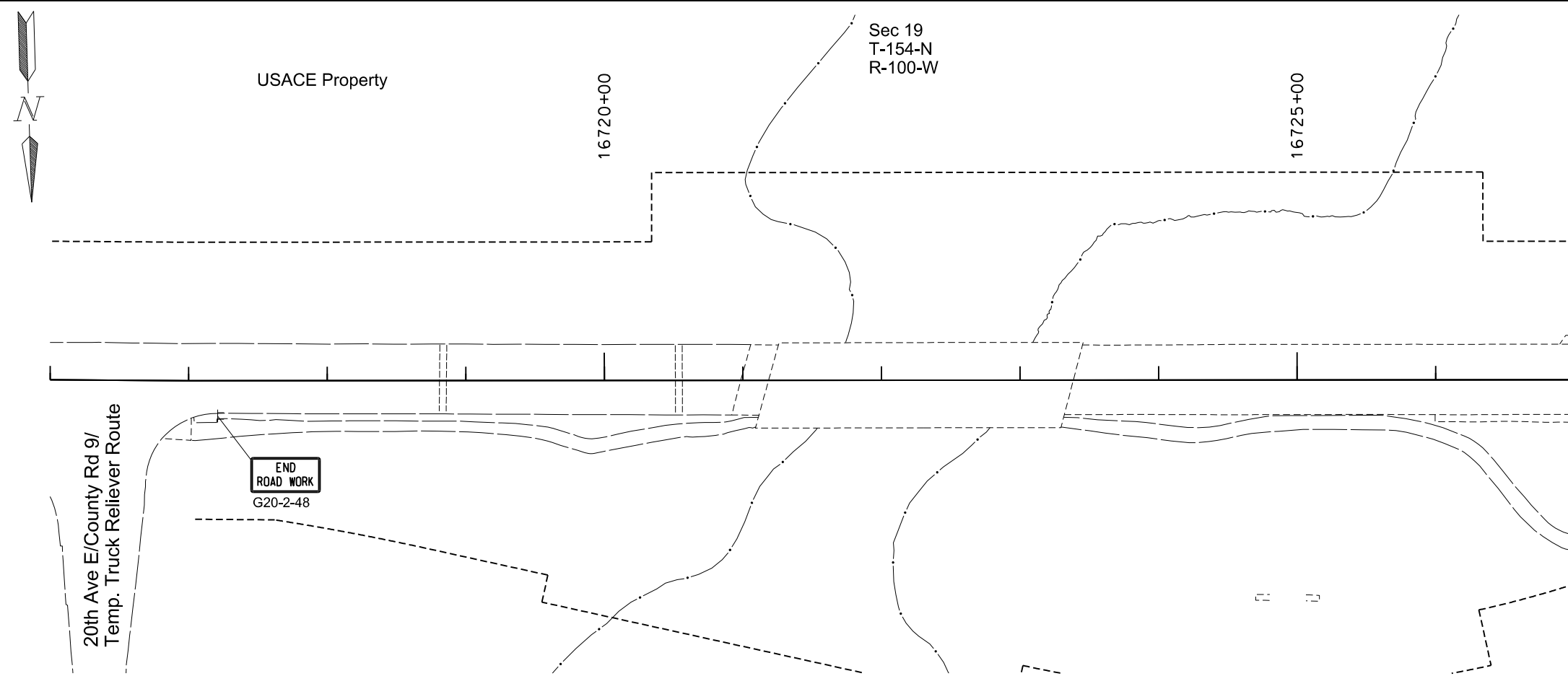
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-804(054)312	100	32

USACE Property



Notes:

1. Use Standard Drawing D-704-34 for sign spacing.
2. Per MUTCD, channelizing device spacing should not exceed a distance in feet equal to 1.0 times the posted speed limit in mph when used for taper channelization, and a distance in feet equal to 2.0 times the posted speed limit in mph when used for tangent channelization. Device frequency may be adjusted by Engineer.



LEGEND

	Type III Barricade
	Delineator Drum
	Tubular Marker
	Stackable Vertical Panel
	Work Area
	Highway Sign

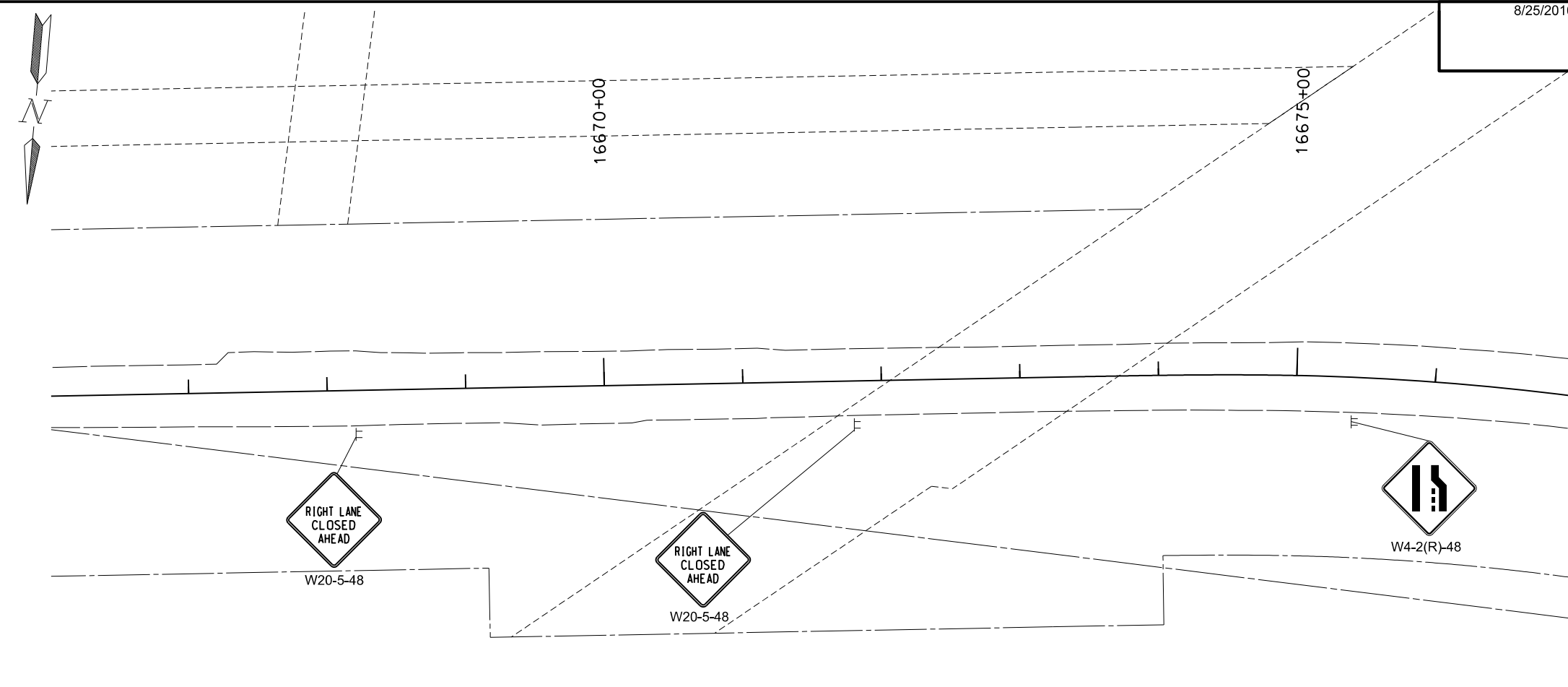
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Work Zone Traffic Control
 Construction Sign Layout
 Phase 1 (2016)

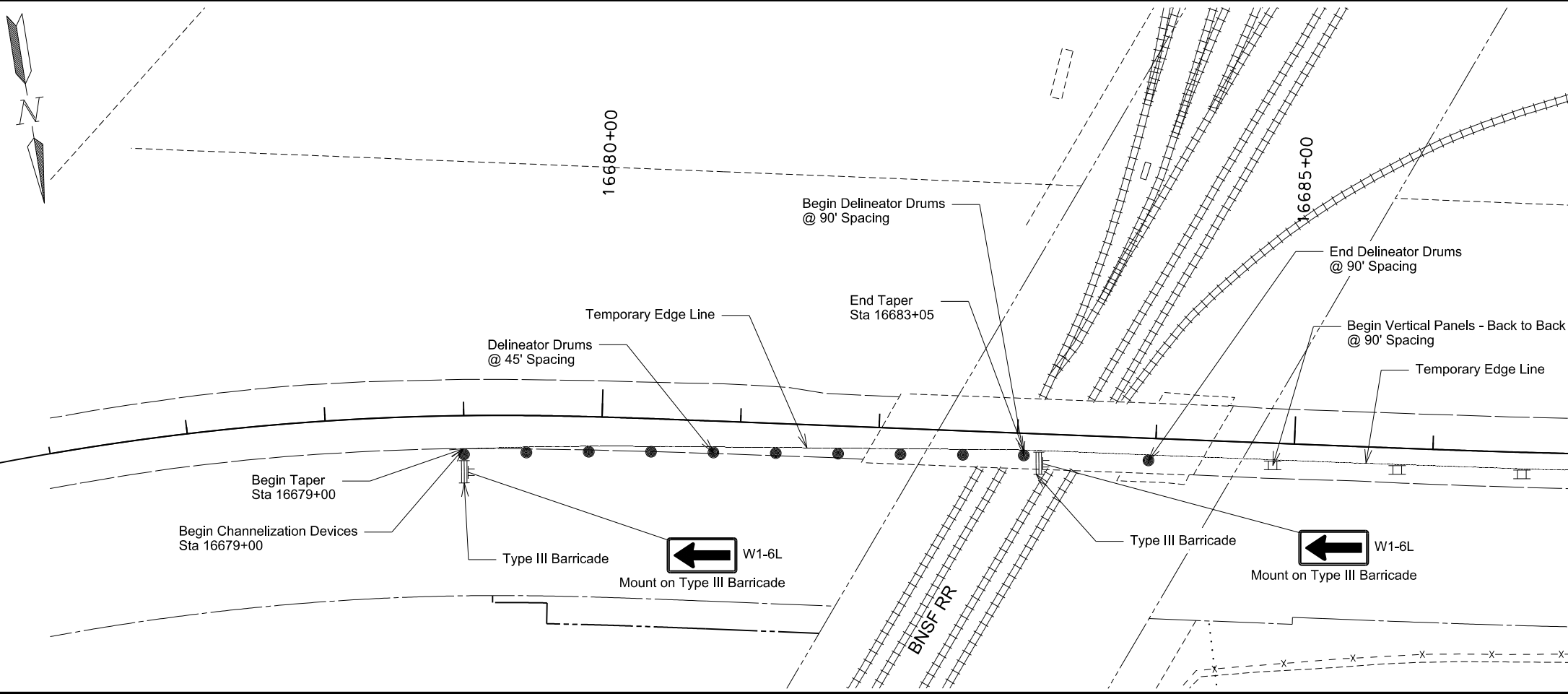
ND 1804 Reconstruction
 Williams County, ND
 Sta 16707+00 to Sta 16727+00

8/25/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-804(054)312	100	33



- Notes:**
1. Use Standard Drawing D-704-34 for sign spacing.
 2. Install Vertical Panels - Back to Back in existing pavement with the exception of the bridge surface. Delineator Drums are used in place of Vertical Panels - Back to Back on the bridge surface.
 3. Per MUTCD, channelizing device spacing should not exceed a distance in feet equal to 1.0 times the posted speed limit in mph when used for taper channelization, and a distance in feet equal to 2.0 times the posted speed limit in mph when used for tangent channelization. Device frequency may be adjusted by Engineer.



LEGEND

- Type III Barricade
- Delineator Drums
- Stackable Vertical Panel
- Vertical Panel - Back to Back
- Work Area
- Highway Sign
- Temporary Edge Line

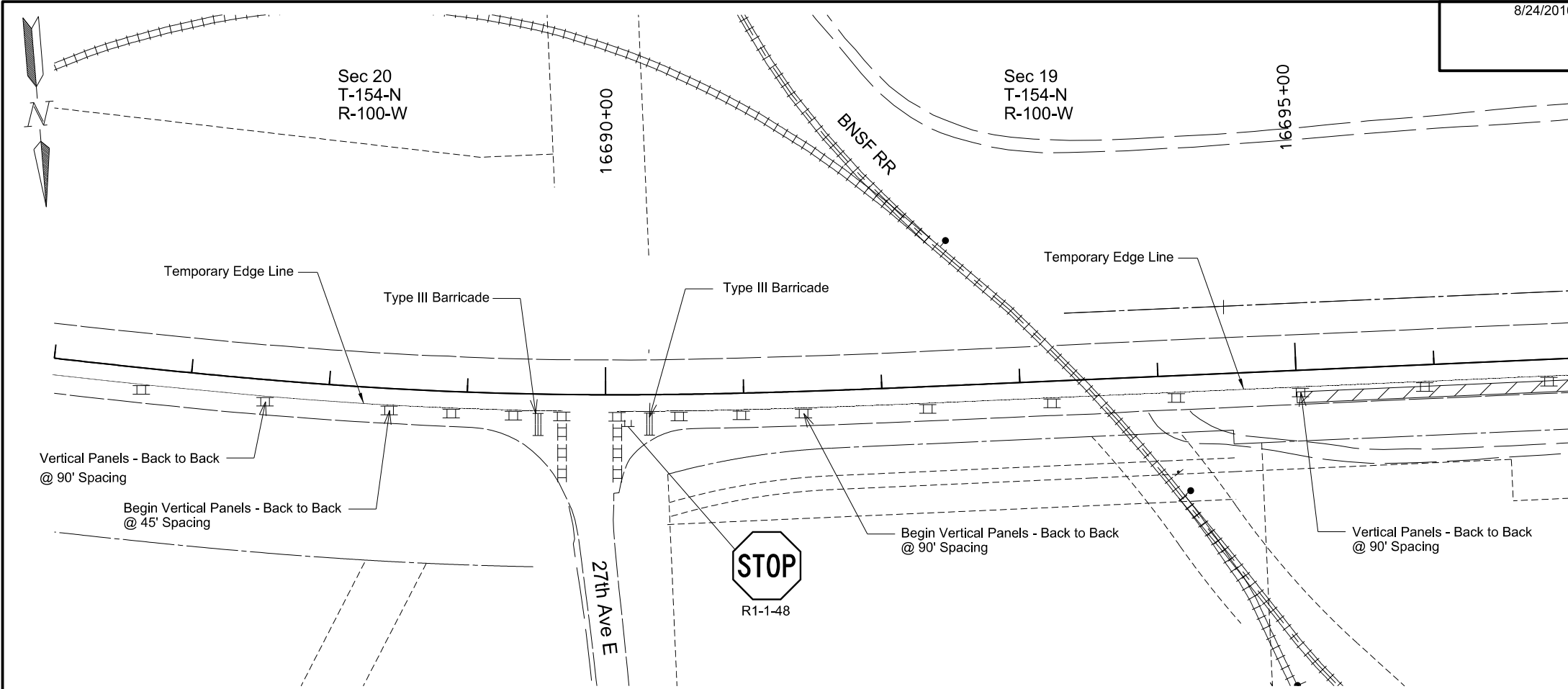
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Work Zone Traffic Control Construction Sign Layout Phase 2 (2016)

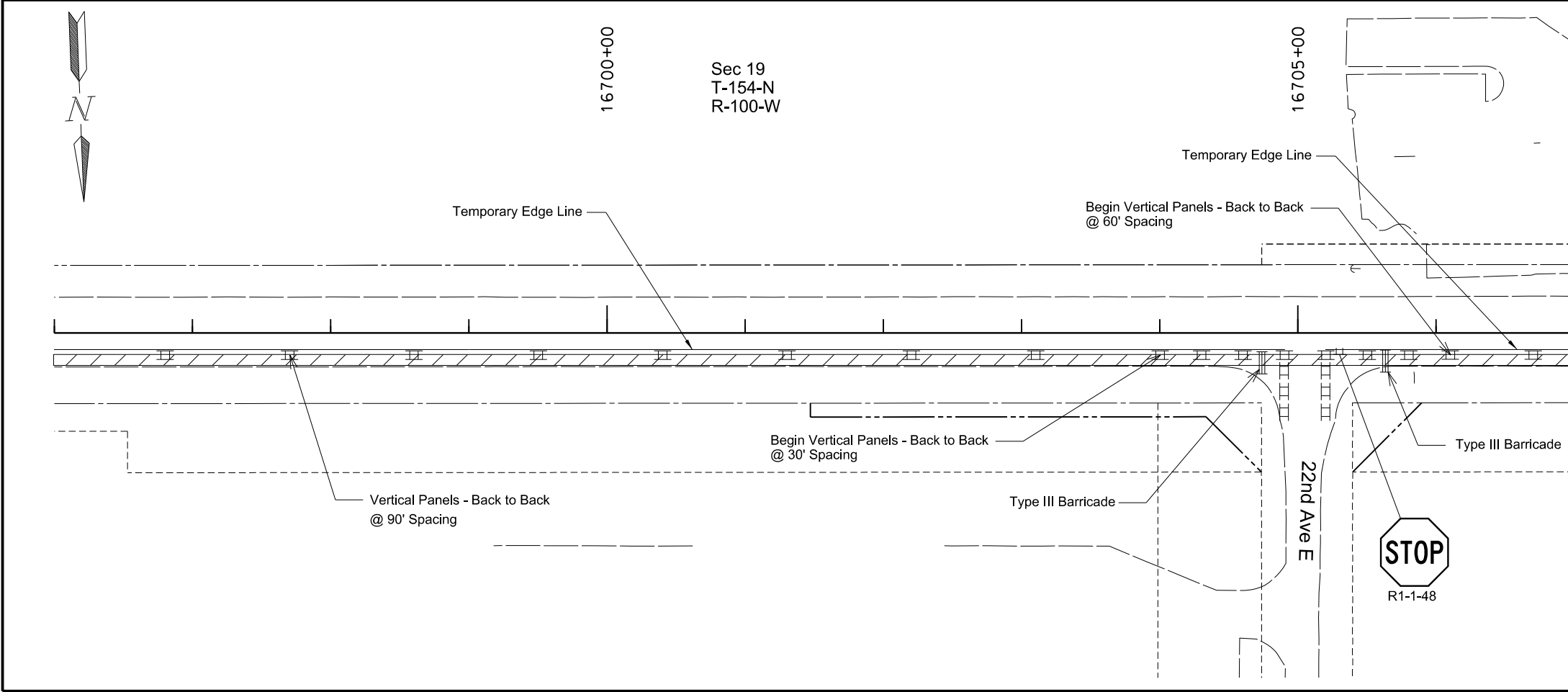
ND 1804 Reconstruction
Williams County, ND
Sta 16667+00 to 16687+02

8/24/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-804(054)312	100	34



- Notes:**
1. Install Vertical Panels - Back to Back in temporary traffic surface aggregate through the work area and in existing pavement in all other locations.
 2. Per MUTCD, channelizing device spacing should not exceed a distance in feet equal to 1.0 times the posted speed limit in mph when used for taper channelization, and a distance in feet equal to 2.0 times the posted speed limit in mph when used for tangent channelization. Device frequency may be adjusted by Engineer.



LEGEND

	Type III Barricade
	Vertical Panel - Back to Back
	Work Area
	Highway Sign
	Temporary Edge Line

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Work Zone Traffic Control Construction Sign Layout Phase 2 (2016)

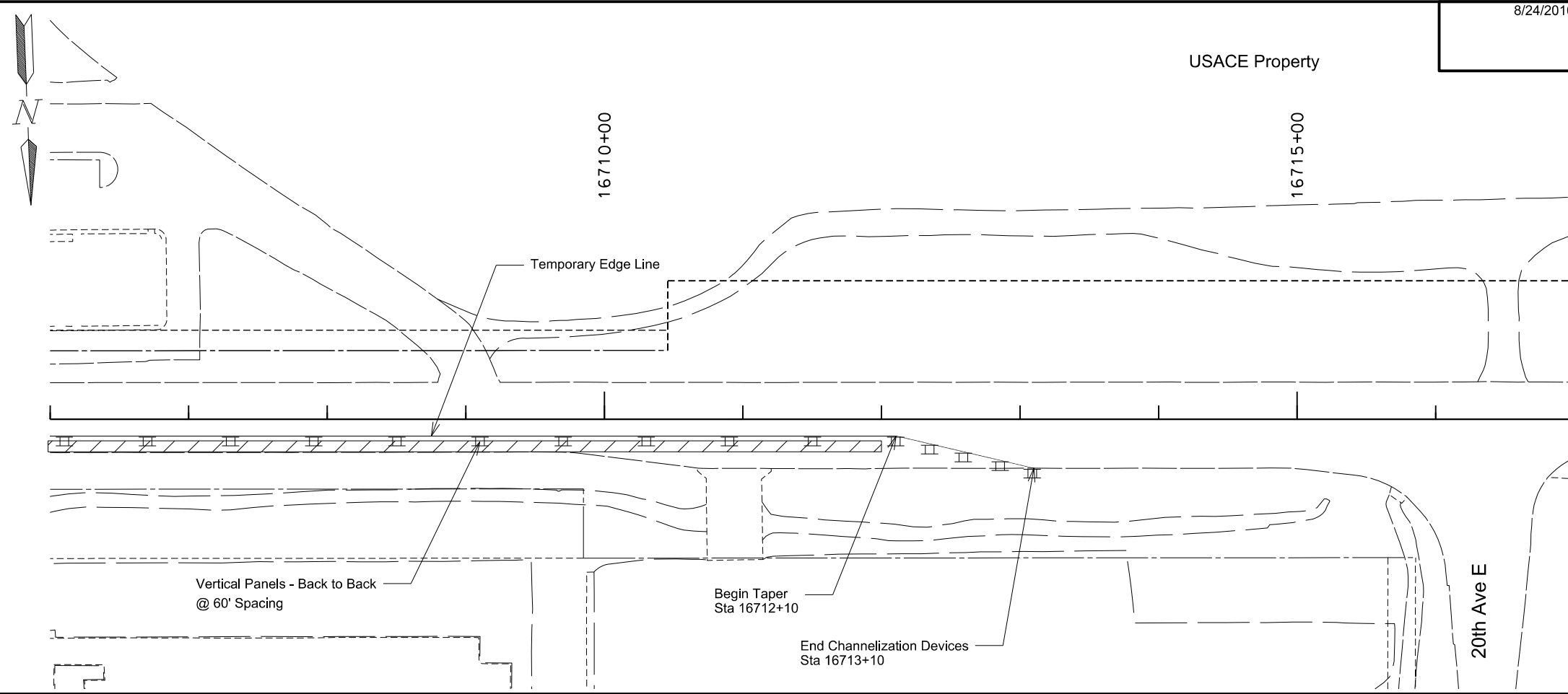
ND 1804 Reconstruction Williams County, ND

Sta 16687+02 to 16707+00

8/24/2016

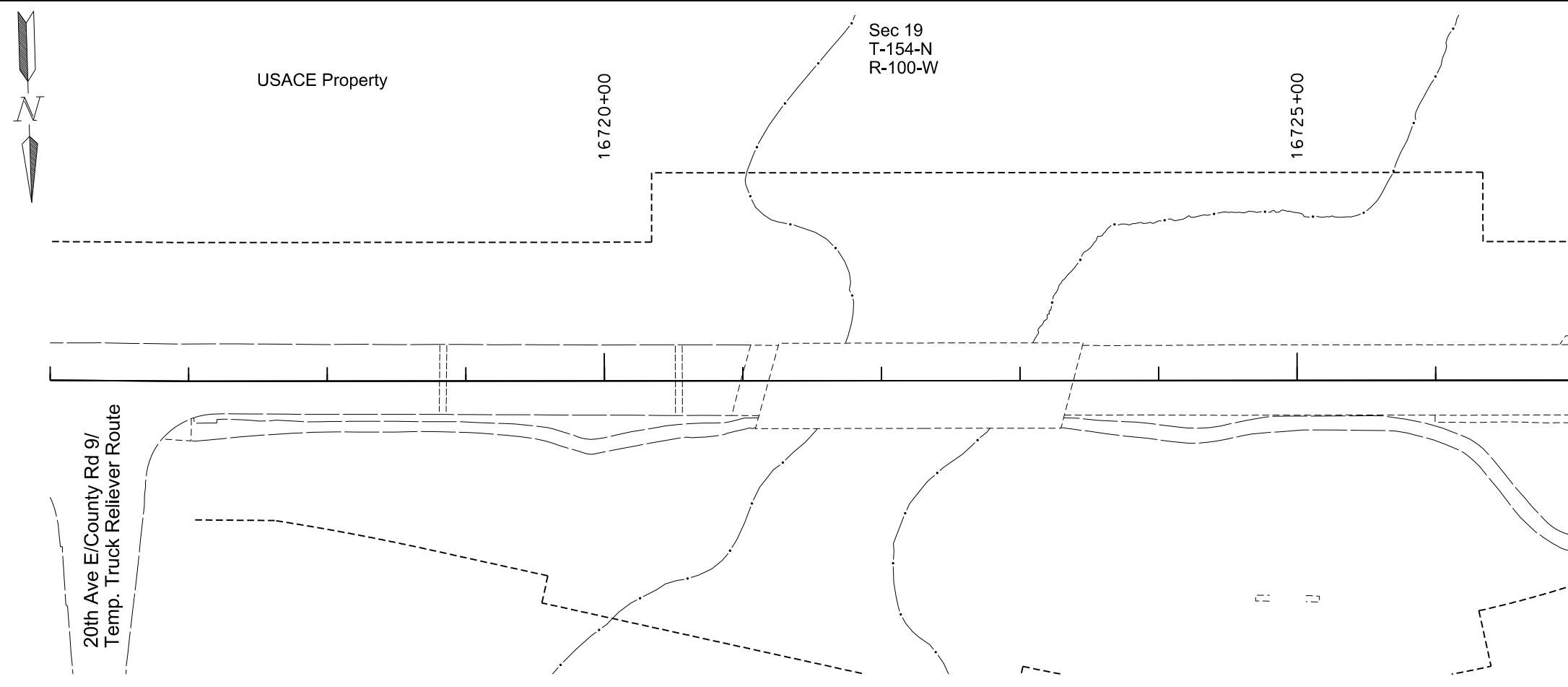
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-804(054)312	100	35

USACE Property



Notes:

1. Install Vertical Panels - Back to Back in temporary traffic surface aggregate through the work area and in existing pavement in all other locations.
2. Per MUTCD, channelizing device spacing should not exceed a distance in feet equal to 1.0 times the posted speed limit in mph when used for taper channelization, and a distance in feet equal to 2.0 times the posted speed limit in mph when used for tangent channelization. Device frequency may be adjusted by Engineer.



LEGEND

	Type III Barricade
	Vertical Panel - Back to Back
	Work Area
	Highway Sign
	Temporary Edge Line

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Work Zone Traffic Control Construction Sign Layout Phase 2 (2016)

ND 1804 Reconstruction Williams County, ND Sta 16707+00 to Sta 16727+00