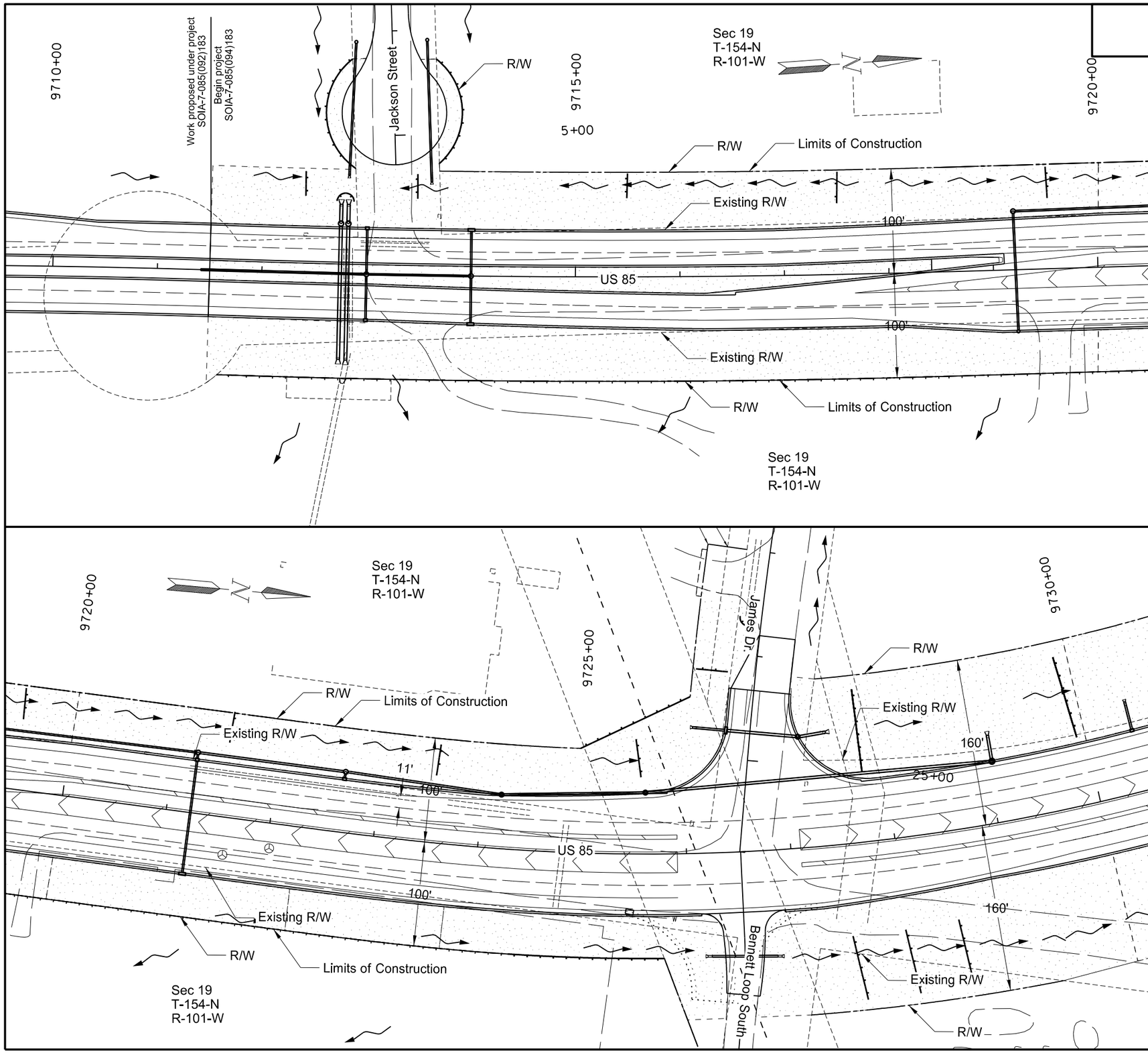
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	1



708	2260	Seeding-Type B CL IV		
		9710+00 to 9720+00	2.5	Acre
		9720+00 to 9730+00	3.0	Acre
708	5500	Mulching		
		9710+00 to 9720+00	2.5	Acre
		9720+00 to 9730+00	3.0	Acre

Note: Stations & Offsets from US 85 Chain: PR85

LEGEND

- Fiber Rolls
- Flotation Silt Curtain
- Seeding - Type B CL IV and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts

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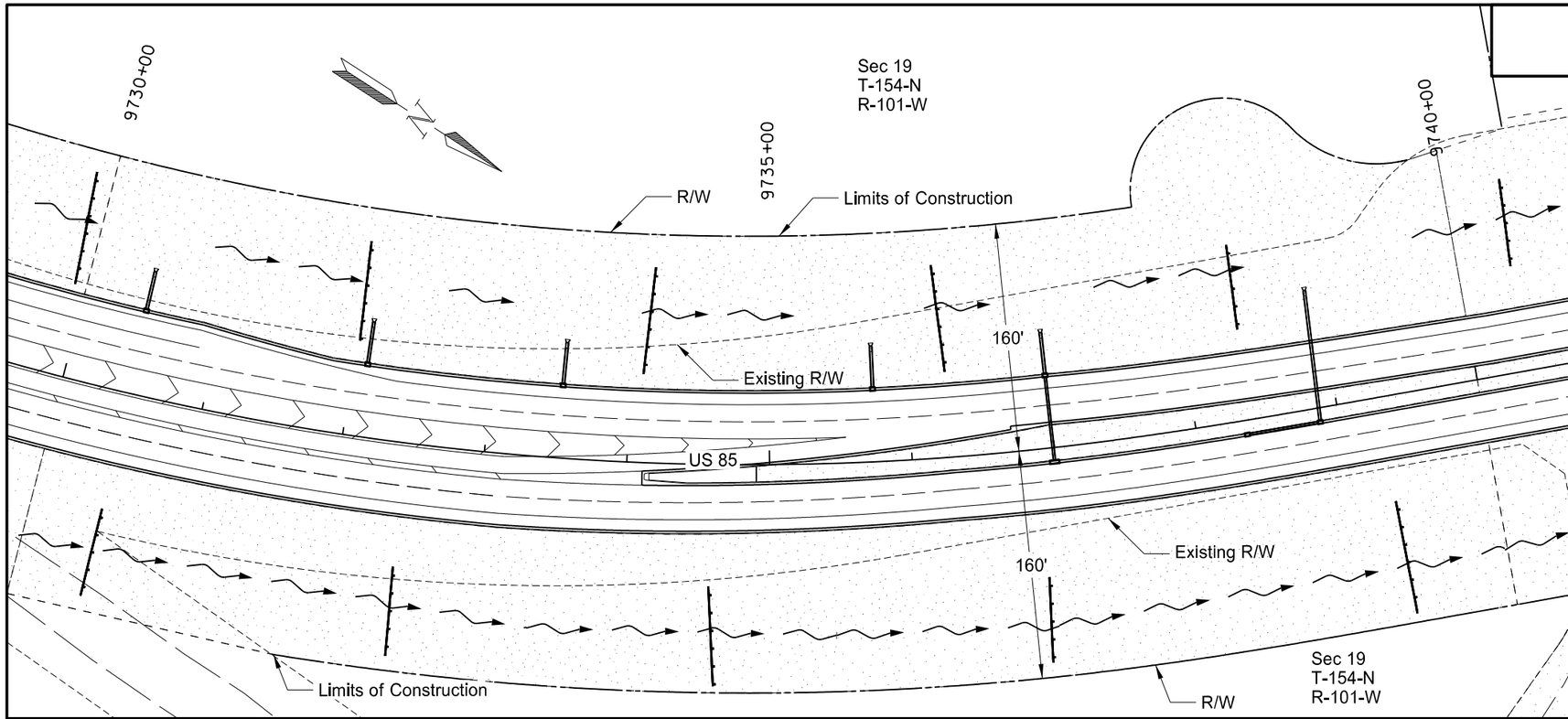
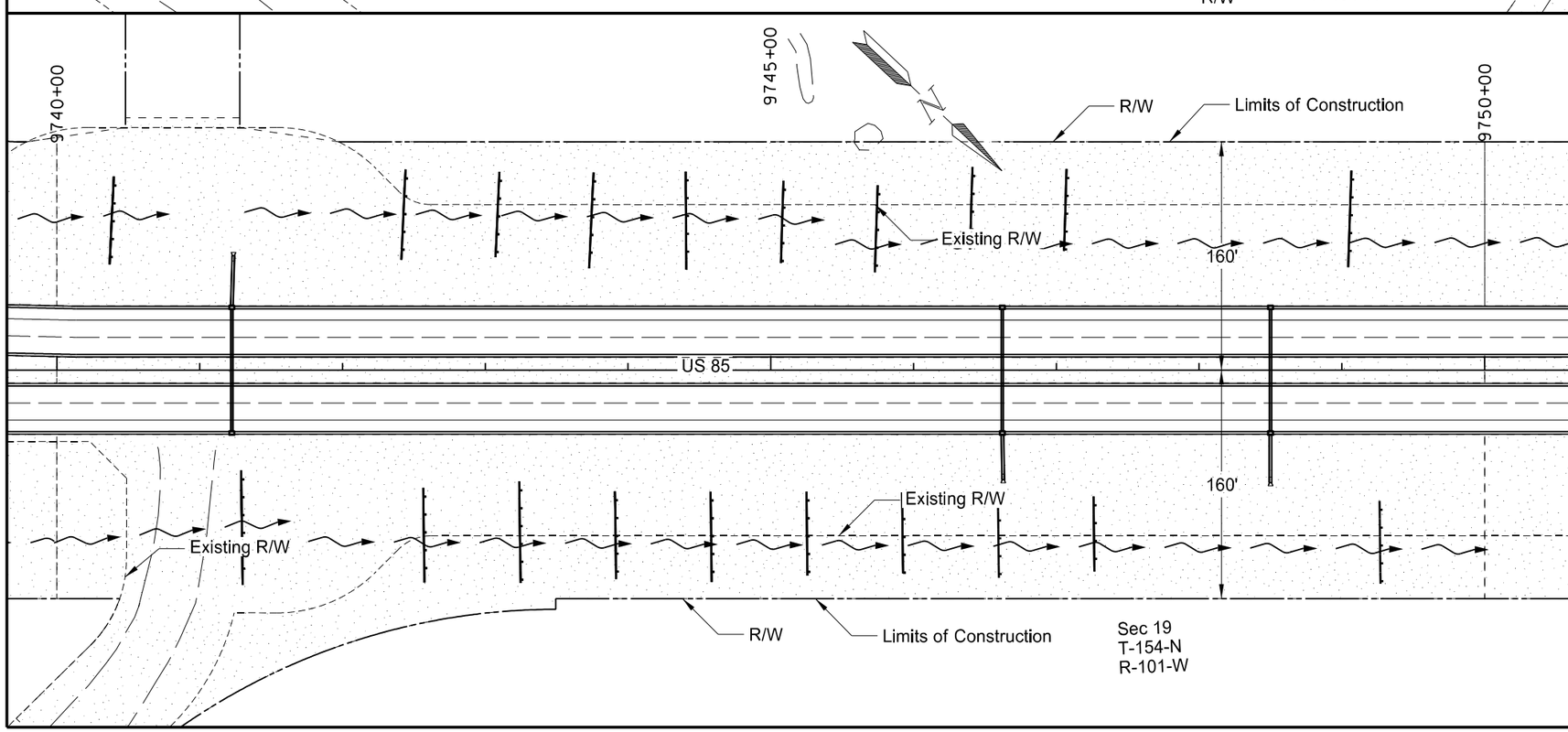
Temporary Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9710+00 to 9730+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	2





708	2260	Seeding-Type B CL IV		
		9730+00 to 9740+00	5.5	Acre
		9740+00 to 9750+00	6.2	Acre
708	5500	Mulching		
		9730+00 to 9740+00	5.5	Acre
		9740+00 to 9750+00	6.2	Acre

Note: Stations & Offsets from US 85 Chain: PR85

LEGEND

- Fiber Rolls
- — s — Flotation Silt Curtain
- Seeding - Type B CL IV and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts

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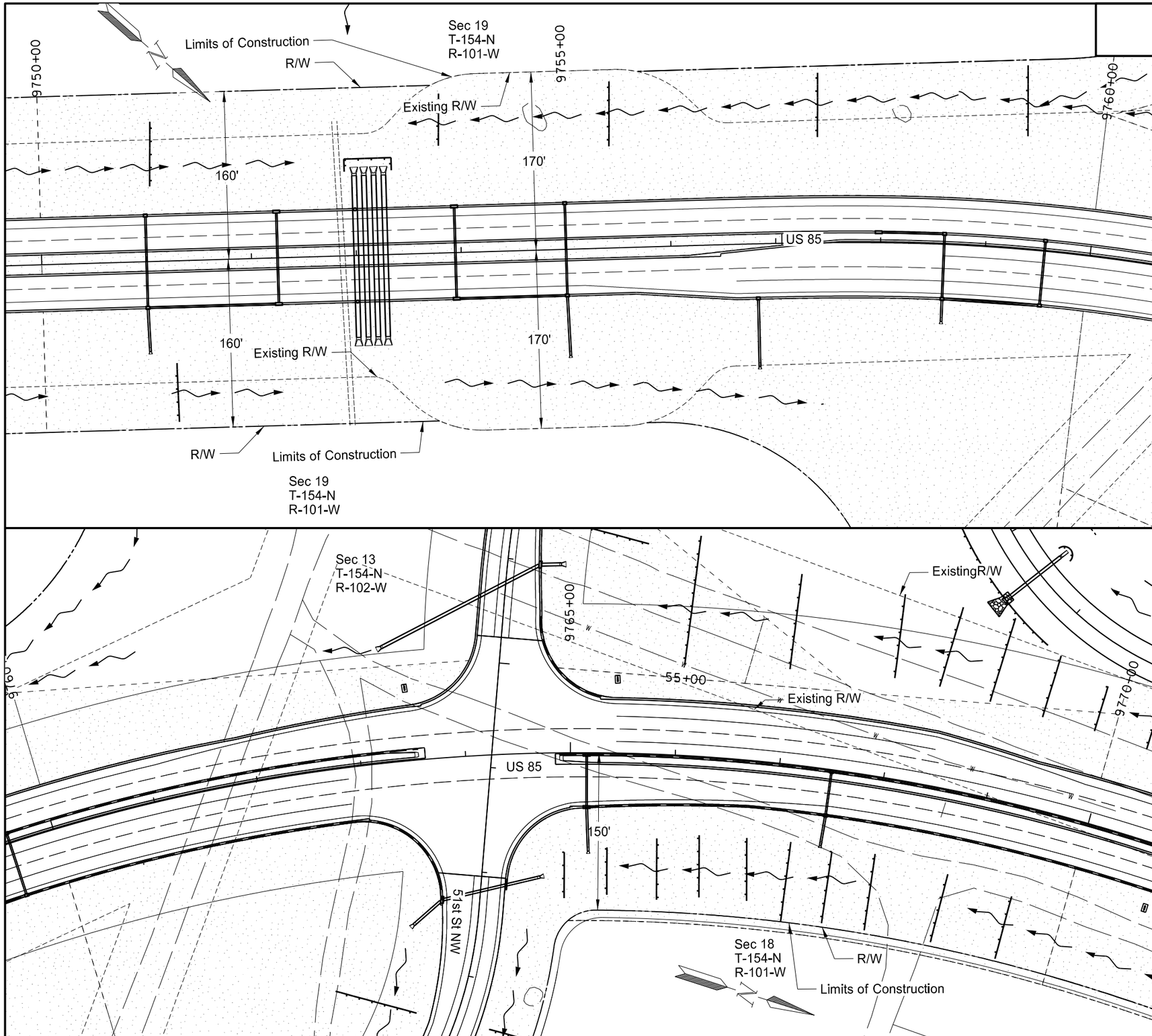
Temporary Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9730+00 to 9750+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	3



708	2260	Seeding-Type B CL IV		
		9750+00 to 9760+00	6.4	Acre
		9760+00 to 9770+00	4.6	Acre
708	5500	Mulching		
		9750+00 to 9760+00	6.4	Acre
		9760+00 to 9770+00	4.6	Acre

Note: Stations & Offsets from US 85 Chain: PR85

LEGEND

- Fiber Rolls
- Flotation Silt Curtain
- Seeding - Type B CL IV and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts

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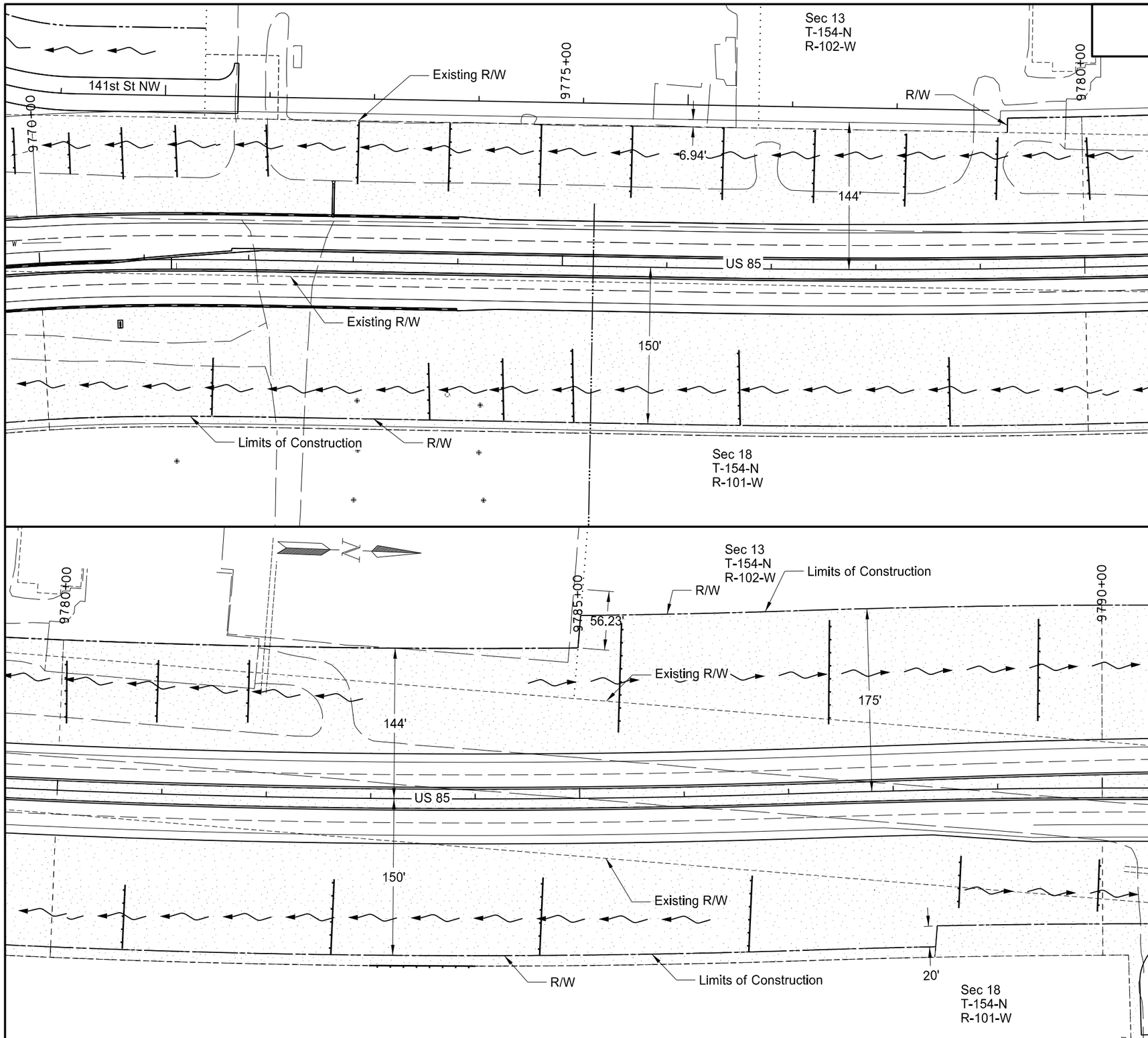
Temporary Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9750+00 to 9770+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	4



708	2260	Seeding-Type B CL IV		
		9770+00 to 9780+00	5.2	Acre
		9780+00 to 9790+00	5.7	Acre
708	5500	Mulching		
		9770+00 to 9780+00	5.2	Acre
		9780+00 to 9790+00	5.7	Acre

Note: Stations & Offsets from US 85 Chain: PR85

LEGEND

- Fiber Rolls
- — s — Flotation Silt Curtain
- Seeding - Type B CL IV and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts

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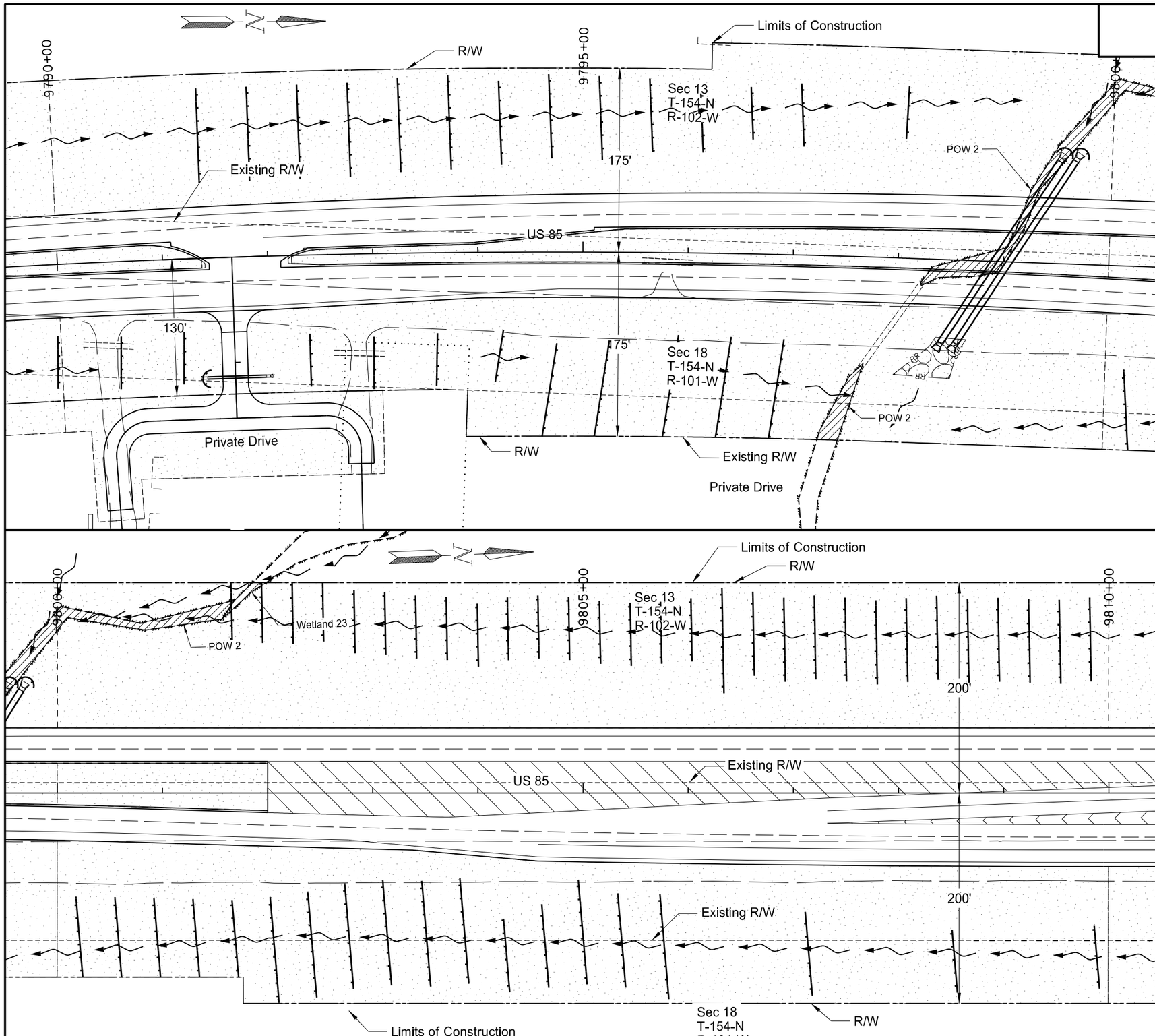
Temporary Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9770+00 to 9790+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	5



708	2260	Seeding-Type B CL IV		
		9790+00 to 9800+00	6.5	Acre
		9800+00 to 9810+00	6.5	Acre
708	5500	Mulching		
		9790+00 to 9800+00	6.5	Acre
		9800+00 to 9810+00	6.5	Acre

Note: Stations & Offsets from US 85 Chain: PR85

LEGEND

- Fiber Rolls
- Flotation Silt Curtain
- Seeding - Type B CL IV and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts

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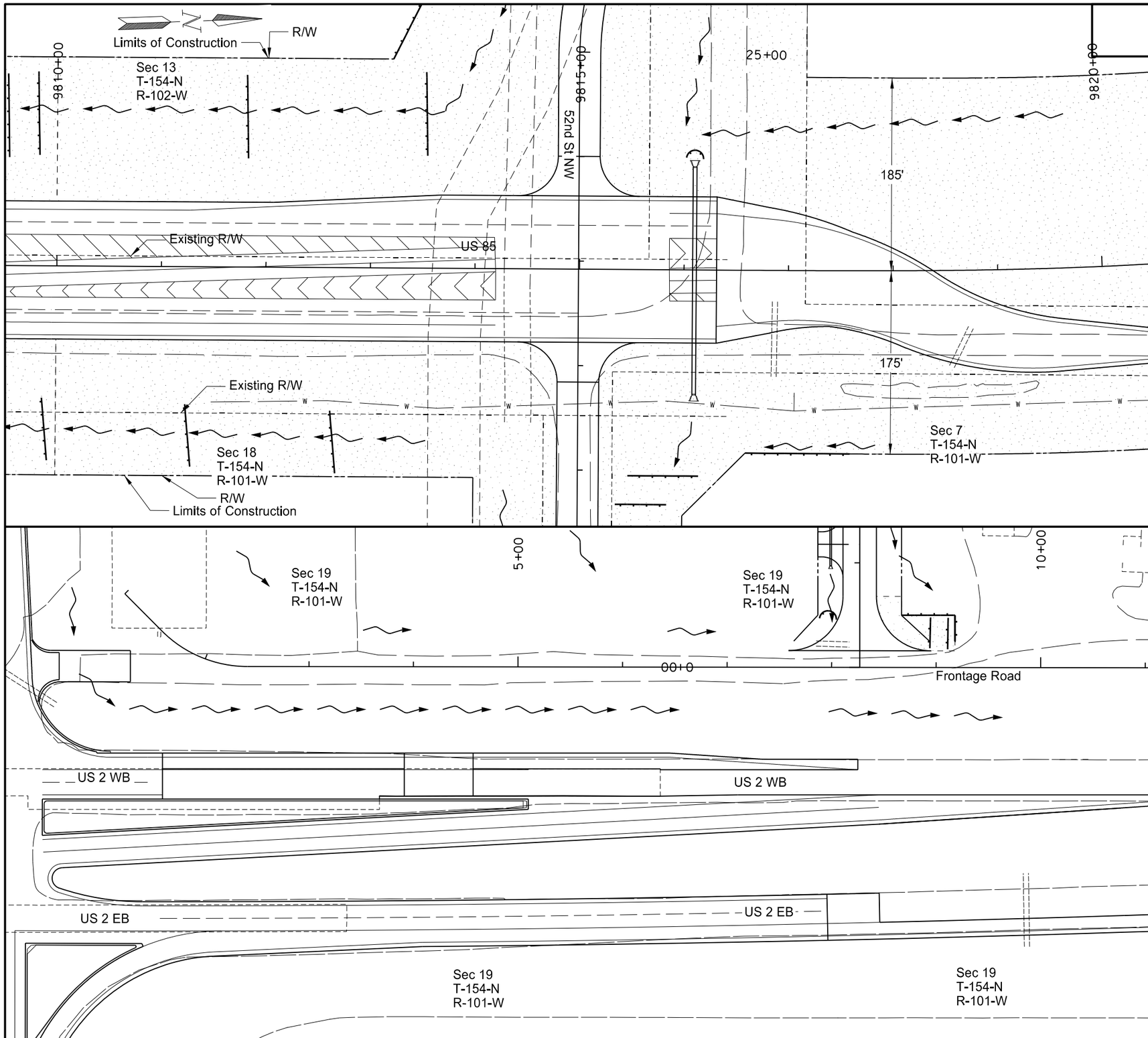
Temporary Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route Phase 1A

US 85
9790+00 to 9810+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	6



708	2260	Seeding-Type B CL IV		
		9810+00 to 9820+69.50 (PR85)	7.0	Acre
		1+00 to 10+50 (PR_FR_US2_NE)	0.0	Acre
708	5500	Mulching		
		9810+00 to 9820+69.50 (PR85)	7.0	Acre
		1+00 to 10+50 (PR_FR_US2_NE)	0.0	Acre

LEGEND

- Fiber Rolls
- Flotation Silt Curtain
- Seeding - Type B CL IV and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts

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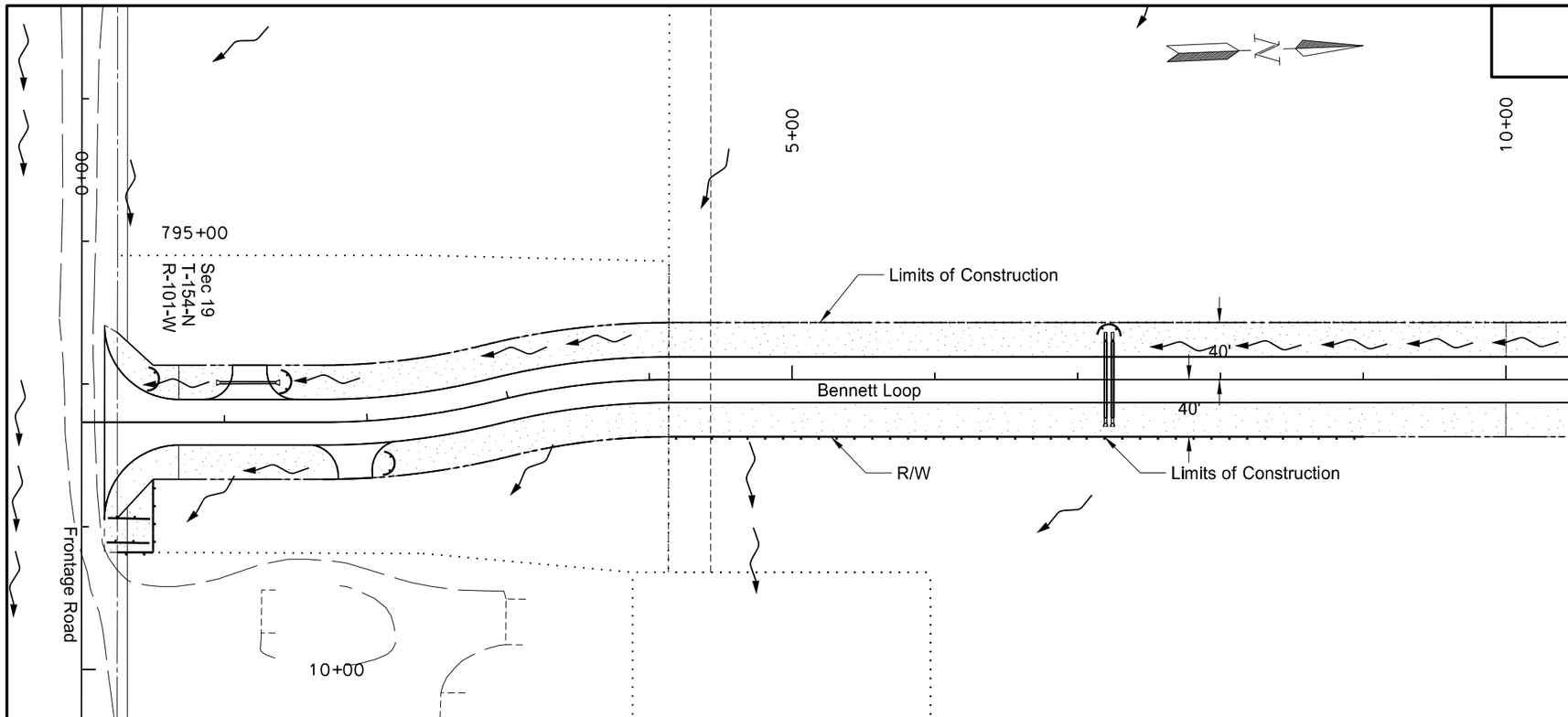
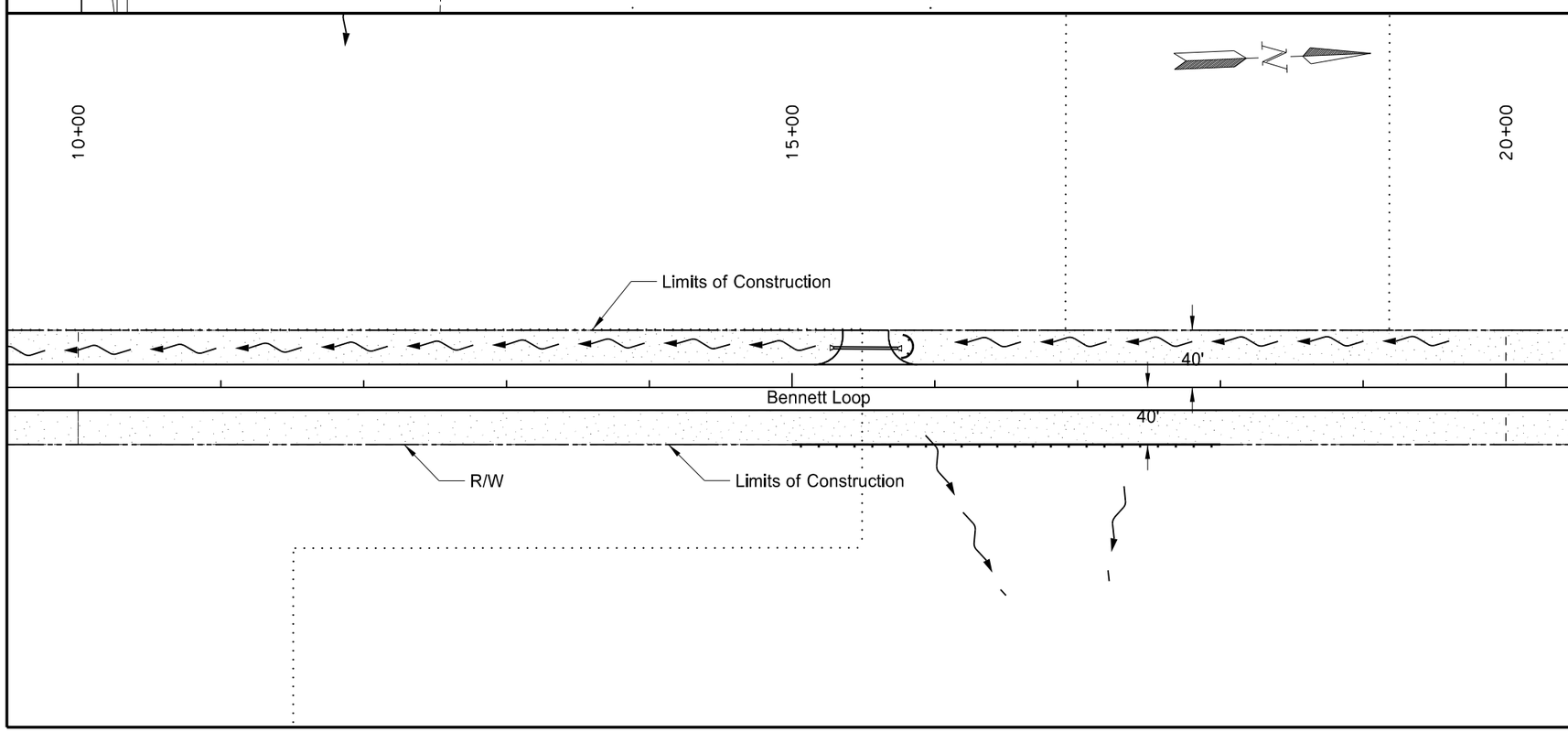
Temporary Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85 9810+00 to 9820+00
US2 NE Frontage Road 1+00 to 10+50

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	7





708	2260	Seeding-Type B CL IV		
		0+00 to 10+00	1.0	Acre
		10+00 to 20+00	1.1	Acre
708	5500	Mulching		
		0+00 to 10+00	1.0	Acre
		10+00 to 20+00	1.1	Acre

Note: Stations & Offsets from Bennett Loop Chain: PR_FR_S_BN_LP

LEGEND

- Fiber Rolls
- — s — Flotation Silt Curtain
- Seeding - Type B CL IV and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts

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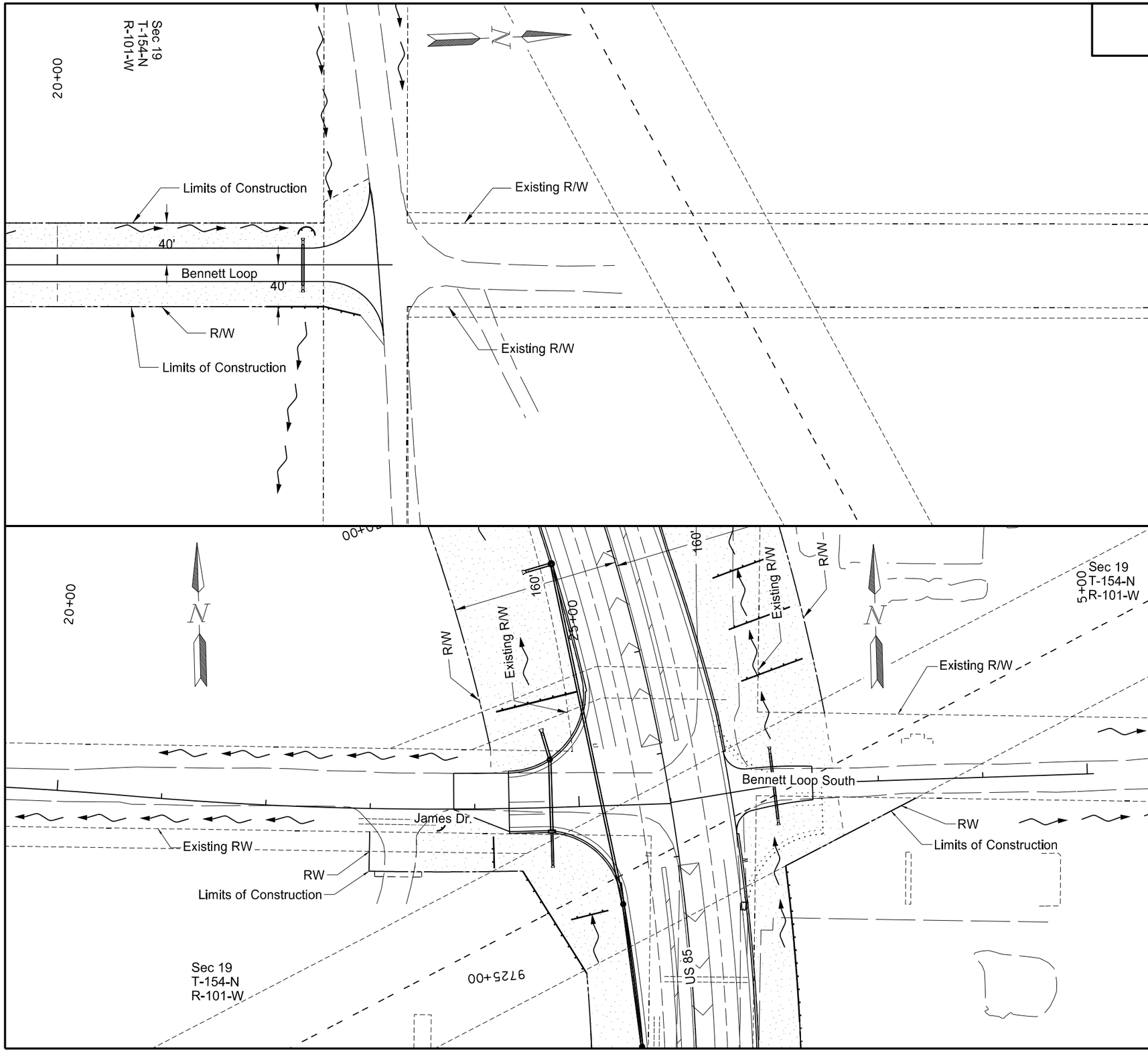
Temporary Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route
Phase 1A

Bennett Loop
0+00 to 20+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	8



708	2260	Seeding-Type B CL IV		
		20+00 to 23+20.69	0.4	Acre
708	5500	Mulching		
		20+00 to 23+20.69	0.4	Acre

Note: Stations & Offsets from Bennett Loop Chain: PR_FR_S_BN_LP

LEGEND

- Fiber Rolls
- Flotation Silt Curtain
- Seeding - Type B CL IV and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts

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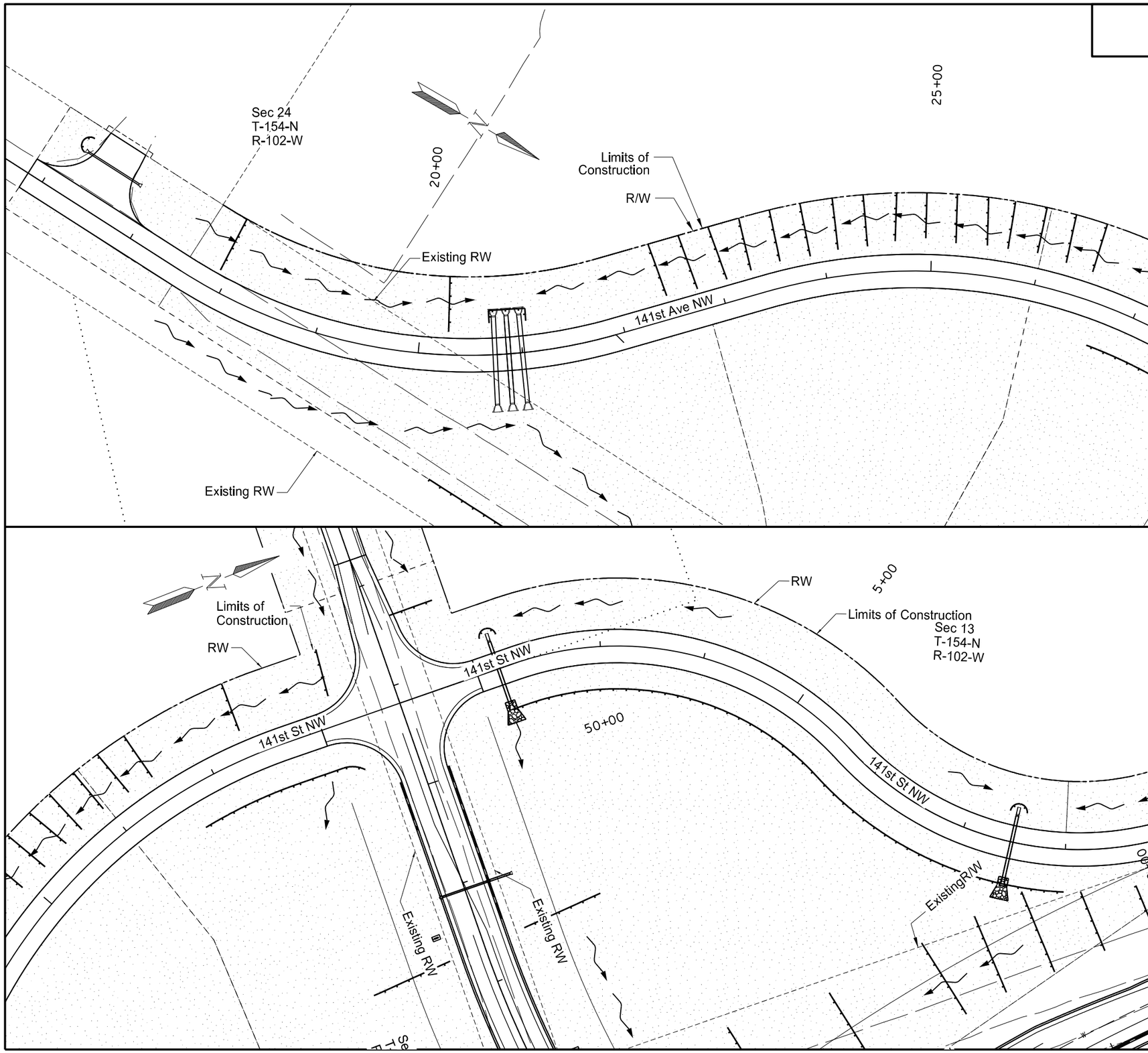
Temporary Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route
Phase 1A

Bennett Loop 20+00 to 23+20.69
James Drive 20+00 to 25+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	9



708	2260	Seeding-Type B CL IV		
		15+84.07 to 26+00 (PR_141_S_51)	4.4	Acre
		26+00 to 28+90.66 (PR_141_S_51)	1.9	Acre
		1+00 to 8+00 (PR_PD_51_NW)	4.6	Acre
708	5500	Mulching		
		15+84.07 to 26+00 (PR_141_S_51)	4.4	Acre
		26+00 to 28+90.66 (PR_141_S_51)	1.9	Acre
		1+00 to 8+00 (PR_PD_51_NW)	4.6	Acre

LEGEND

- Fiber Rolls
- Flotation Silt Curtain
- Seeding - Type B CL IV and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts

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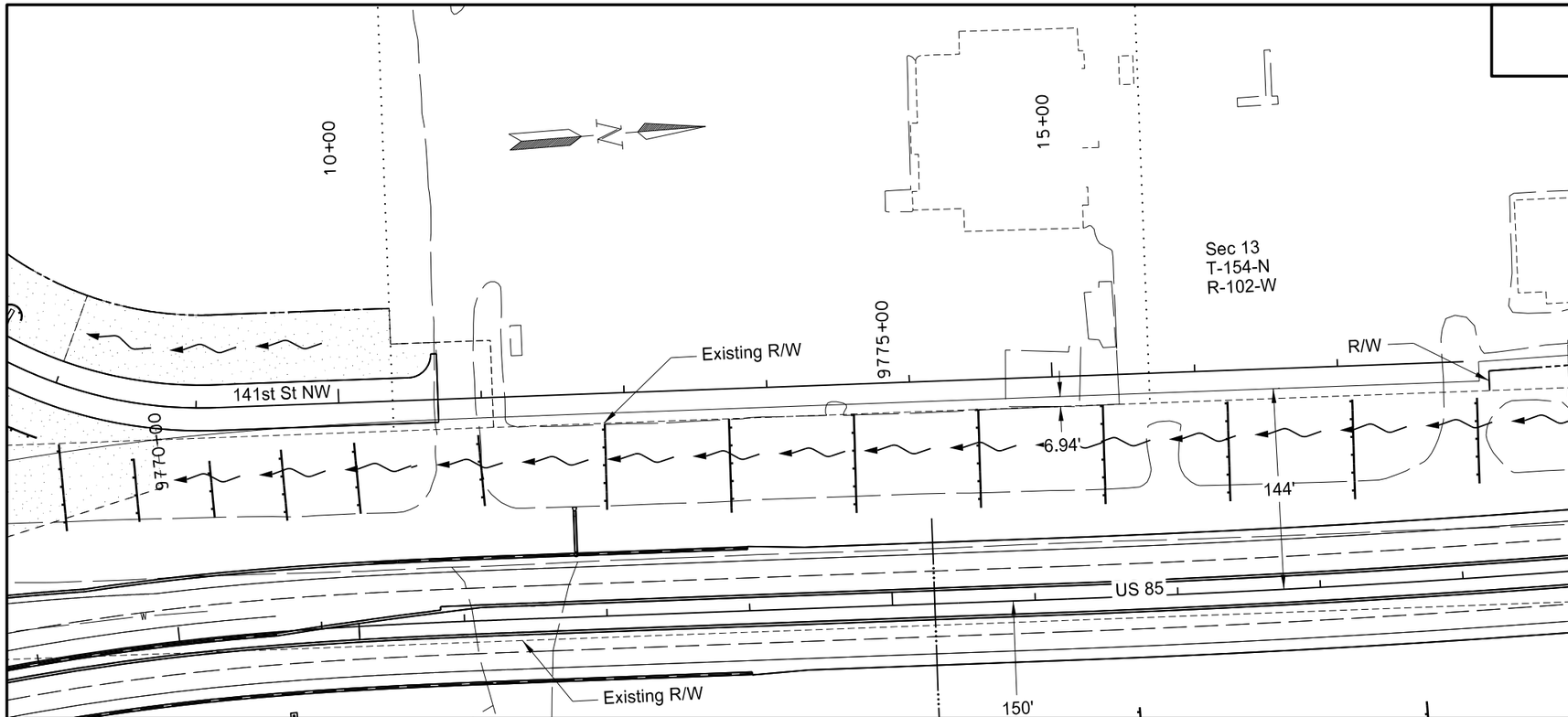
Temporary Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route
Phase 1A
141st Ave. NW
15+00 to 26+00, 26+00 to 28+90.66
141st Ave. NW North of 51st St. NW 1+23 to 10+69.57

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	10



708	2260	Seeding-Type B CL IV		
		8+00 to 10+69.57	0.3	Acre
708	5500	Mulching		
		8+00 to 10+69.57	0.3	Acre

Note: Stations & Offsets from 141st Ave. NW Chain: PR_PD_51_NW

LEGEND

- Fiber Rolls
- — s — Flotation Silt Curtain
- Seeding - Type B CL IV and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts

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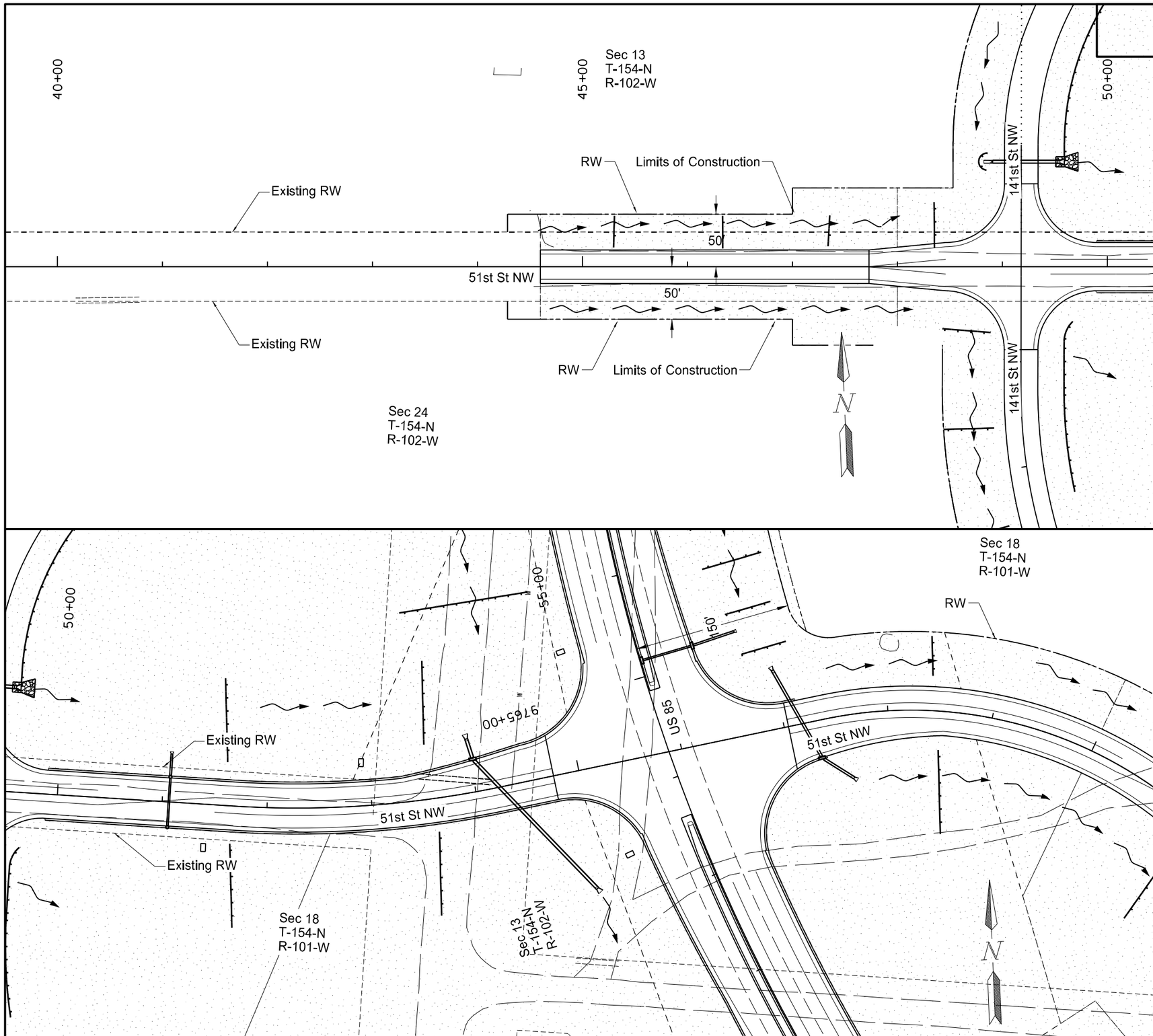
Temporary Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route
Phase 1A

Private Drive
8+00 to 10+69.57

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	11



708	2260	Seeding-Type B CL IV		
		44+60 to 50+00	0.7	Acre
		50+00 to 60+00	0.4	Acre
708	5500	Mulching		
		44+60 to 50+00	0.7	Acre
		50+00 to 60+00	0.4	Acre

Note: Stations & Offsets from 51st St. NW Chain: PR_51ST

LEGEND

- Fiber Rolls
- Flotation Silt Curtain
- Seeding - Type B CL IV and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts

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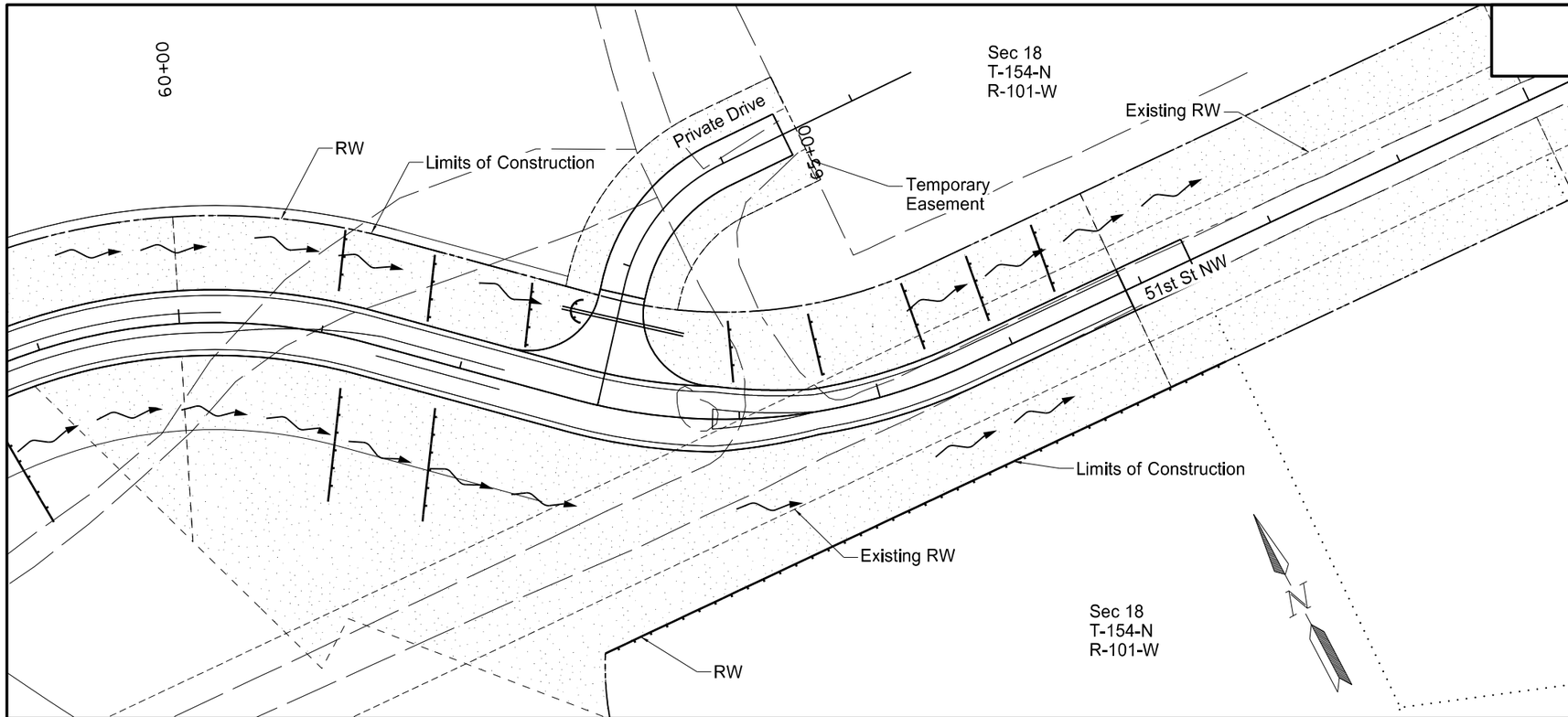
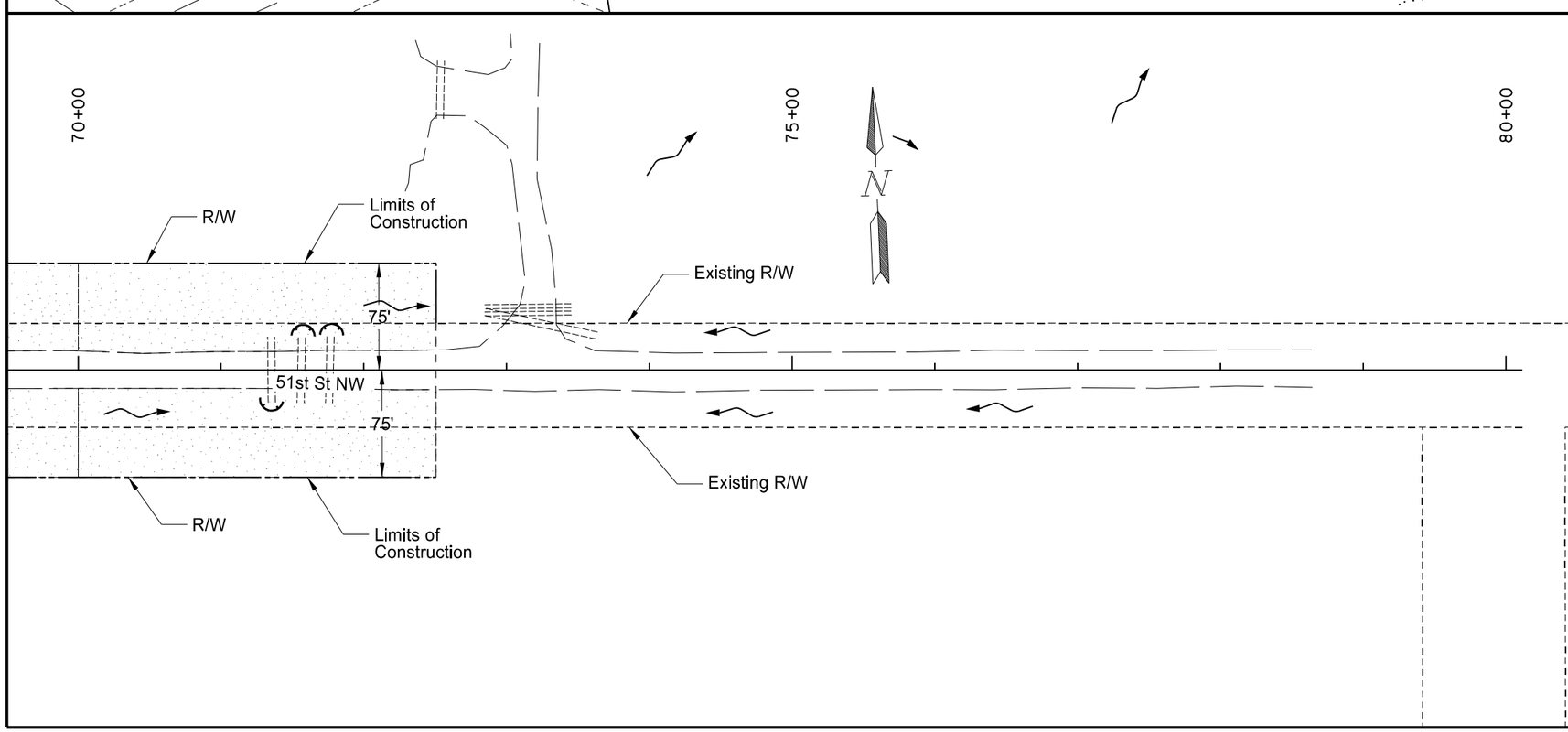
Temporary Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route
Phase 1A

51st St. NW
40+00 to 60+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	12





708	2260	Seeding-Type B CL IV		
		60+00 to 70+00 (PR_51ST)	3.6	Acre
		70+00 to 72+50.68 (PR_51ST)	0.8	Acre
		1+75 to 3+56.24 (PR_PD_51_NE)	0.2	Acre
708	5500	Mulching		
		60+00 to 70+00 (PR_51ST)	3.6	Acre
		70+00 to 72+50.68 (PR_51ST)	0.8	Acre
		1+75 to 3+56.24 (PR_PD_51_NE)	0.2	Acre

LEGEND

- Fiber Rolls
- — s — Flotation Silt Curtain
- Seeding - Type B CL IV and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts

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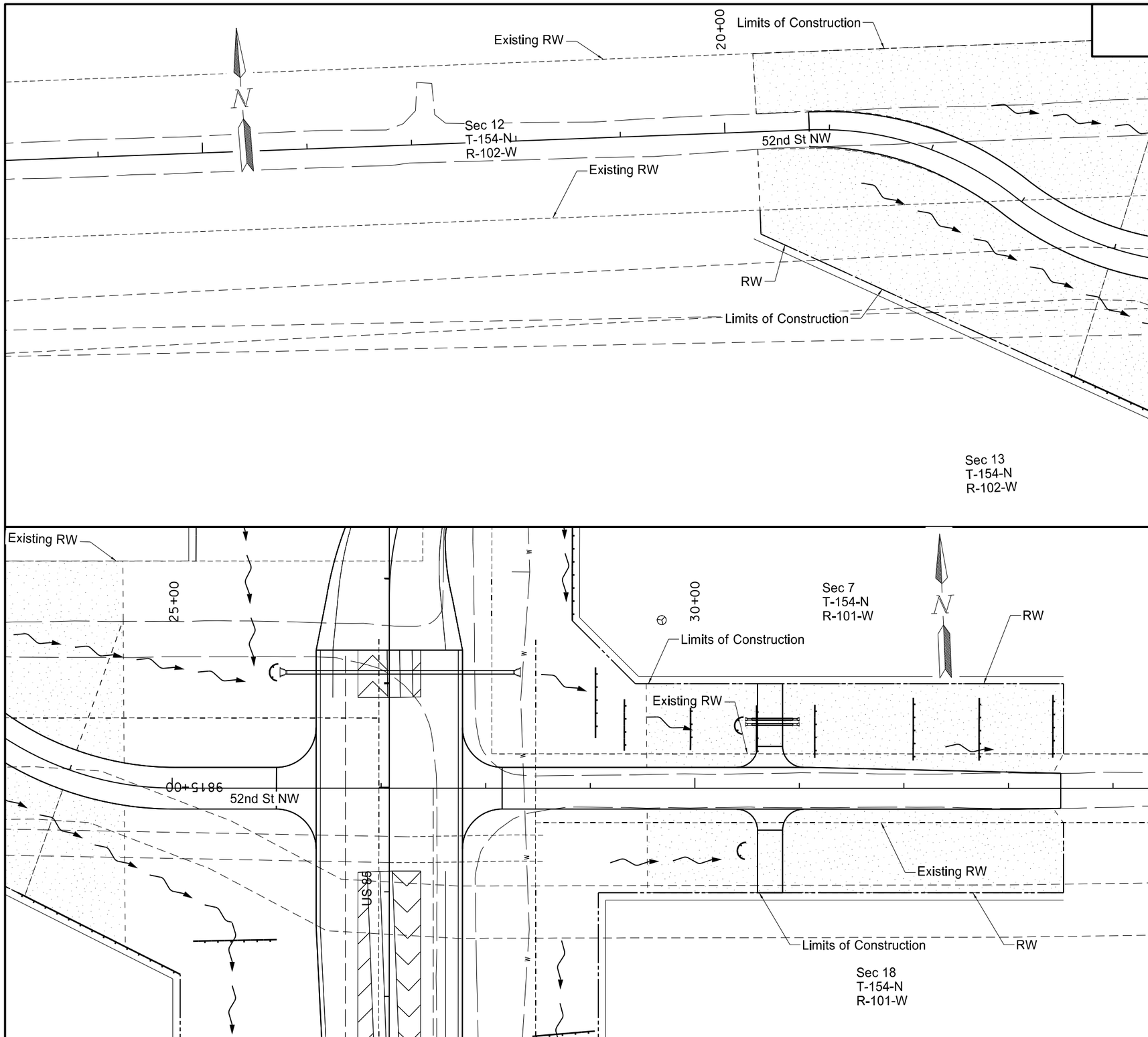
Temporary Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route
Phase 1A

51st St. NW 60+00 to 80+00
Private Drive NE 51st St. NW 1+75 to 3+56.24

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	13



708	2260	Seeding-Type B CL IV		
		20+30.83 to 24+00	1.8	Acre
		24+00 to 33+52.78	1.7	Acre
708	5500	Mulching		
		20+30.83 to 24+00	1.8	Acre
		24+00 to 33+52.78	1.7	Acre

Note: Stations & Offsets from 52nd St. NW Chain: PR_52ND_ST

LEGEND

- Fiber Rolls
- — s — Flotation Silt Curtain
- Seeding - Type B CL IV and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts

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Temporary Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route
Phase 1A

52nd St. NW
15+00 to 24+00, 24+00 to 33+52.78

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	14

TEMPORARY R/W AND PIPE END SECTION FIBER ROLLS

Alignment	Station	Offset (ft)	-	Station	Offset (ft)	Length (LF) 12" Fiber Roll
PR_FR_US2_NE	7+97	-55	to	-	-	25
PR_FR_US2_NE	8+67	-50	to	9+18	-25	76
PR_FR_S_BN_LP	1+47	-28	to	-	-	25
PR_FR_S_BN_LP	2+16	-32	to	-	-	25
PR_FR_S_BN_LP	4+14	40	to	9+00	40	487
PR_FR_S_BN_LP	7+22	-39	to	-	-	25
PR_FR_S_BN_LP	15+00	40	to	18+00	40	300
PR_FR_S_BN_LP	15+85	-28	to	-	-	25
PR_FR_S_BN_LP	20+00	40	to	22+90	48	91
PR_FR_S_BN_LP	22+39	-36	to	-	-	25
PR_141_S_51	16+12	-55	to	-	-	25
PR_141_S_51	20+18	-120	to	21+87	-314	307
PR_141_S_51	26+67	41	to	28+39	49	166
PR_PD_51_NW	2+01	-41	to	-	-	25
PR_PD_51_NW	1+70	41	to	8+00	41	615
PR_PD_51_NW	7+48	-37	to	-	-	25
PR_51ST	62+64	-60	to	-	-	25
PR_51ST	63+31	-170	to	67+30	-75	480
PR_51ST	71+34	28	to	-	-	25
PR_51ST	71+60	-32	to	-	-	25
PR_51ST	71+78	-32	to	-	-	25
PR_52ND_ST	30+38	-60	to	-	-	25
PR_52ND_ST	30+41	59	to	-	-	25
PR_52ND_ST	23+95	127	to	25+08	178	174
PR_85	9711+60	100	to	9725+78	100	1439
PR_85	9712+82	-81	to	-	-	25
PR_85	9712+88	-101	to	9712+82	-206	122
PR_85	9713+68	-107	to	9713+64	-207	114
PR_85	9724+95	-100	to	9726+07	-150	116
PR_85	9726+70	-216	to	-	-	25
PR_85	9783+00	160	to	9784+00	160	102
PR_85	9791+35	114	to	-	-	25
PR_85	9816+10	-115	to	-	-	25
PR_85	9816+60	175	to	9817+60	175	100

Alignment	Station	Offset (ft)	-	Station	Offset (ft)	Length (LF) 20" Fiber Roll
PR_141_S_51	20+88	-43	to	-	-	59
PR_85	9753+13	-92	to	-	-	69
PR_85	9799+62	-119	to	-	-	25
PR_85	9799+77	-119	to	-	-	25

Total 12IN Fiber Rolls	
5164	LF

Total 20IN Fiber Rolls	
178	LF

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Temporary Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route Phase 1A

Temporary Ditch Fiber Rolls

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	15

TEMPORARY DITCH FIBER ROLLS

Alignment	Station	Offset	Length (LF) 12" Fiber Roll
PR_85	9712+40	Lt	24
PR_85	9713+48	Lt	24
PR_85	9715+49	Lt	24
PR_85	9717+51	Lt	30
PR_85	9719+52	Lt	30
PR_85	9721+52	Lt	30
PR_85	9723+54	Lt	30
PR_85	9725+56	Lt	37
PR_85	9727+51	Rt	63
PR_85	9727+75	Lt	80
PR_85	9728+00	Rt	63
PR_85	9728+49	Rt	63
PR_85	9729+92	Lt	80
PR_85	9730+47	Rt	63
PR_85	9732+00	Lt	70
PR_85	9732+46	Rt	63
PR_85	9734+09	Lt	75
PR_85	9734+58	Rt	70
PR_85	9736+27	Lt	75
PR_85	9736+87	Rt	60
PR_85	9738+40	Lt	60
PR_85	9739+29	Rt	80
PR_85	9740+37	Lt	61
PR_85	9741+29	Rt	80
PR_85	9742+41	Lt	63
PR_85	9742+57	Rt	66
PR_85	9743+07	Lt	60
PR_85	9743+24	Rt	71
PR_85	9743+73	Lt	67
PR_85	9743+91	Rt	61
PR_85	9744+40	Lt	69
PR_85	9744+58	Rt	63
PR_85	9745+07	Lt	58
PR_85	9745+25	Rt	59
PR_85	9745+73	Lt	61
PR_85	9745+92	Rt	57
PR_85	9746+39	Lt	58
PR_85	9746+59	Rt	59
PR_85	9747+05	Lt	57
PR_85	9747+26	Rt	53
PR_85	9749+04	Lt	68
PR_85	9749+26	Rt	58

Alignment	Station	Offset (ft)	Length (LF) 12" Fiber Roll
PR_85	9751+05	Lt	62
PR_85	9751+26	Rt	56
PR_85	9753+81	Lt	50
PR_85	9755+44	Lt	62
PR_85	9757+41	Lt	61
PR_85	9759+32	Lt	68
PR_85	9764+93	Rt	44
PR_85	9765+36	Rt	45
PR_85	9765+86	Rt	59
PR_85	9766+05	Lt	124
PR_85	9766+28	Rt	59
PR_85	9766+75	Rt	60
PR_85	9767+00	Lt	92
PR_85	9767+18	Rt	77
PR_85	9767+61	Rt	69
PR_85	9767+95	Lt	81
PR_85	9768+04	Rt	74
PR_85	9768+36	Lt	79
PR_85	9768+79	Rt	67
PR_85	9768+84	Lt	83
PR_85	9769+34	Lt	61
PR_85	9769+45	Rt	62
PR_85	9769+82	Lt	45
PR_85	9770+33	Lt	40
PR_85	9770+80	Lt	50
PR_85	9771+30	Lt	50
PR_85	9771+66	Rt	55
PR_85	9772+17	Lt	50
PR_85	9773+03	Lt	60
PR_85	9773+74	Rt	55
PR_85	9773+90	Lt	66
PR_85	9774+45	Rt	60
PR_85	9774+77	Lt	69
PR_85	9775+11	Rt	71
PR_85	9775+65	Lt	69
PR_85	9776+52	Lt	70
PR_85	9776+70	Rt	72
PR_85	9777+40	Lt	70
PR_85	9778+28	Lt	70
PR_85	9778+69	Rt	65
PR_85	9779+16	Lt	60
PR_85	9780+06	Lt	60

Alignment	Station	Offset (ft)	Length (LF) 12" Fiber Roll
PR_85	9780+68	Rt	61
PR_85	9780+93	Lt	60
PR_85	9781+81	Lt	60
PR_85	9782+64	Rt	72
PR_85	9784+61	Rt	75
PR_85	9785+38	Lt	105
PR_85	9786+63	Rt	74
PR_85	9787+40	Lt	100
PR_85	9788+64	Rt	50
PR_85	9789+39	Lt	98
PR_85	9789+95	Rt	50
PR_85	9790+56	Rt	50
PR_85	9791+16	Rt	50
PR_85	9791+37	Lt	90
PR_85	9791+84	Lt	90
PR_85	9792+32	Lt	90
PR_85	9792+38	Rt	50
PR_85	9792+80	Lt	90
PR_85	9792+99	Rt	50
PR_85	9793+26	Lt	90
PR_85	9793+61	Rt	50
PR_85	9793+76	Lt	90
PR_85	9794+23	Rt	50
PR_85	9794+23	Lt	80
PR_85	9794+70	Rt	80
PR_85	9794+75	Lt	90
PR_85	9795+18	Rt	80
PR_85	9795+25	Lt	93
PR_85	9795+65	Lt	70
PR_85	9795+92	Rt	98
PR_85	9796+13	Lt	60
PR_85	9796+42	Rt	97
PR_85	9796+57	Lt	50
PR_85	9796+93	Rt	96
PR_85	9797+08	Lt	60
PR_85	9798+04	Lt	50

Page Total	
7789	LF

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Temporary Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route Phase 1A

Temporary Ditch Fiber Rolls

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	16

TEMPORARY DITCH FIBER ROLLS

Alignment	Station	Offset (ft)	Length (LF) 12" Fiber Roll
PR_85	9800+18	Rt	77
PR_85	9800+55	Rt	76
PR_85	9800+92	Rt	76
PR_85	9801+29	Rt	75
PR_85	9801+65	Lt	60
PR_85	9801+66	Rt	74
PR_85	9801+94	Lt	57
PR_85	9802+02	Rt	101
PR_85	9802+23	Lt	58
PR_85	9802+38	Rt	101
PR_85	9802+52	Lt	56
PR_85	9802+73	Rt	101
PR_85	9802+82	Lt	60
PR_85	9803+09	Rt	101
PR_85	9803+11	Lt	60
PR_85	9803+41	Lt	60
PR_85	9803+47	Rt	101
PR_85	9803+70	Lt	60
PR_85	9803+83	Rt	101
PR_85	9803+99	Lt	60
PR_85	9804+24	Rt	70
PR_85	9804+28	Lt	60
PR_85	9804+57	Lt	60
PR_85	9804+61	Rt	80
PR_85	9804+86	Lt	60
PR_85	9804+95	Rt	100
PR_85	9805+16	Lt	60
PR_85	9805+33	Rt	90
PR_85	9805+45	Lt	60
PR_85	9805+73	Rt	100
PR_85	9805+74	Lt	60
PR_85	9806+03	Lt	60
PR_85	9806+32	Lt	100
PR_85	9806+61	Lt	80
PR_85	9806+91	Lt	80
PR_85	9807+11	Rt	80
PR_85	9807+20	Lt	80
PR_85	9807+49	Lt	80
PR_85	9807+80	Lt	80
PR_85	9808+09	Lt	80
PR_85	9808+36	Lt	80
PR_85	9808+51	Rt	60

Alignment	Station	Offset (ft)	Length (LF) 12" Fiber Roll
PR_85	9808+67	Lt	80
PR_85	9808+96	Lt	80
PR_85	9809+24	Lt	80
PR_85	9809+53	Lt	80
PR_85	9809+82	Lt	80
PR_85	9809+86	Rt	60
PR_85	9811+23	Rt	60
PR_85	9811+83	Lt	80
PR_85	9812+62	Rt	60
PR_85	9813+53	Lt	80
PR_85	9813+99	Lt	155
PR_141_S_51	17+88	Lt	55
PR_141_S_51	20+27	Lt	53
PR_141_S_51	22+44	Lt	53
PR_141_S_51	22+74	Lt	55
PR_141_S_51	23+04	Lt	53
PR_141_S_51	23+35	Lt	52
PR_141_S_51	23+62	Lt	50
PR_141_S_51	23+88	Lt	52
PR_141_S_51	24+15	Lt	50
PR_141_S_51	24+41	Lt	50
PR_141_S_51	24+69	Lt	47
PR_141_S_51	24+95	Lt	44
PR_141_S_51	25+20	Lt	47
PR_141_S_51	25+46	Lt	46
PR_141_S_51	25+69	Lt	50
PR_141_S_51	25+96	Lt	45
PR_141_S_51	26+21	Lt	47
PR_141_S_51	26+48	Lt	48
PR_141_S_51	27+41	Lt	48
PR_141_S_51	28+32	Lt	46
PR_51ST	45+30	Lt	30
PR_51ST	46+34	Lt	31
PR_51ST	47+34	Lt	29
PR_51ST	48+35	Lt	44
PR_51ST	51+60	Lt	80
PR_51ST	51+67	Rt	80
PR_51ST	53+60	Rt	80
PR_51ST	53+57	Lt	80
PR_51ST	58+39	Lt	38
PR_51ST	58+51	Rt	80
PR_51ST	61+06	Lt	43

708	1430	Fiber Rolls 12IN		
		Total	19557	LF
708	1431	Removal Fiber Rolls 12IN		
		Total	19557	LF
708	1460	Fiber Rolls 20IN		
		Total	178	LF
708	1431	Removal Fiber Rolls 20IN		
		Total	178	LF

Alignment	Station	Offset (ft)	Length (LF) 12" Fiber Roll
PR_51ST	61+22	Rt	80
PR_51ST	61+70	Lt	47
PR_51ST	61+91	Rt	80
PR_51ST	62+40	Lt	45
PR_51ST	63+96	Lt	43
PR_51ST	64+63	Lt	44
PR_51ST	65+41	Lt	49
PR_51ST	65+92	Lt	48
PR_51ST	66+42	Lt	50
PR_52ND_ST	29+05	-48	68
PR_52ND_ST	29+33	-36	49
PR_52ND_ST	29+96	-36	44
PR_52ND_ST	30+59	-35	44
PR_52ND_ST	31+15	-29	51
PR_52ND_ST	32+09	-27	60
PR_52ND_ST	32+72	-26	60
PR_52ND_ST	33+43	-29	60

Page Total	
6598	LF

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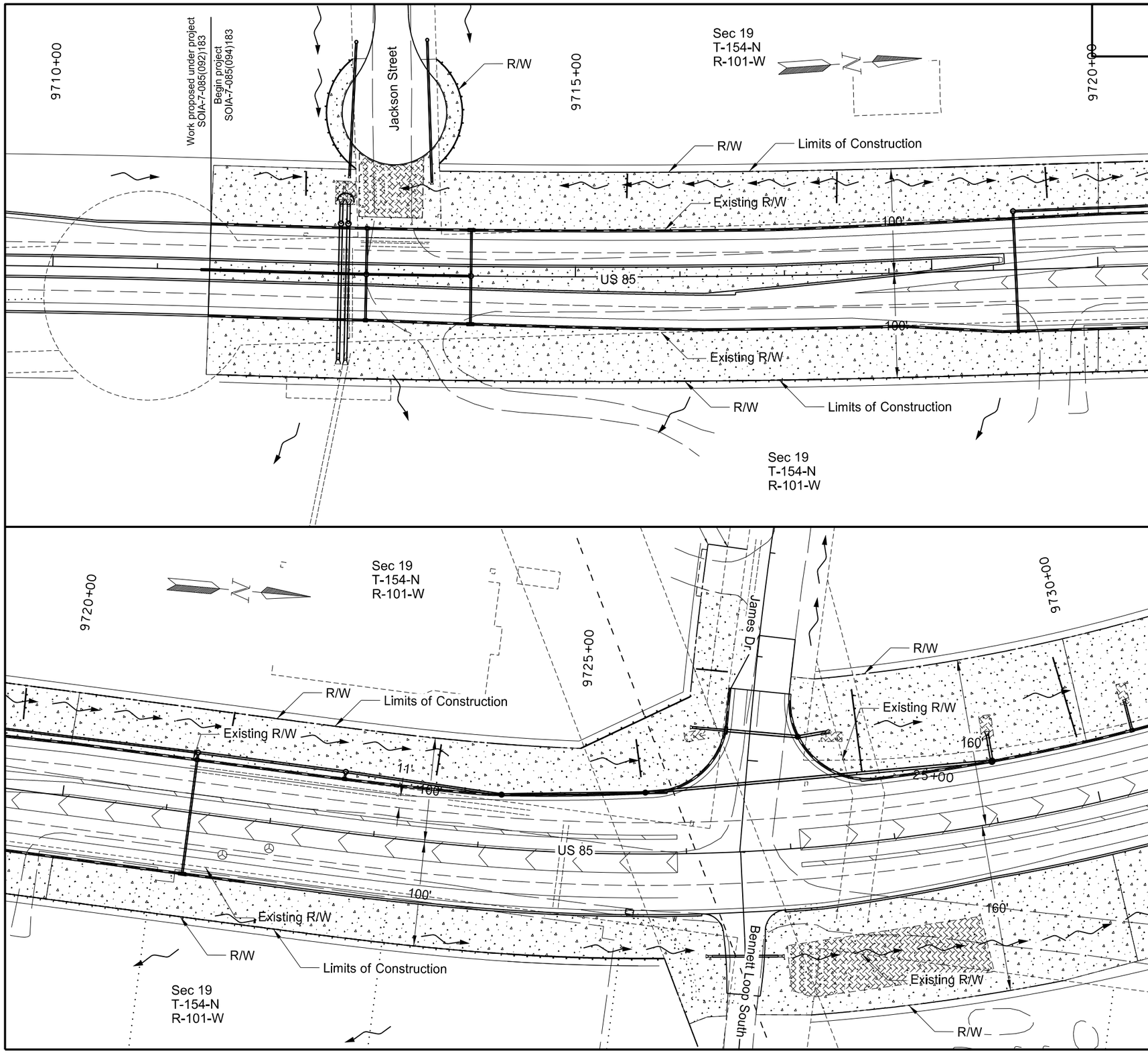
Temporary Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route Phase 1A

Temporary Ditch Fiber Rolls

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	17



708	2260	Seeding-Type B CL II		
		9710+00 to 9720+00	2.5	Acre
		9720+00 to 9730+00	3.0	Acre
708	5500	Mulching		
		9710+00 to 9720+00	2.5	Acre
		9720+00 to 9730+00	3.0	Acre
708	5651	ECB Type 2		
		9710+00 to 9720+00	359	SY
		9720+00 to 9730+00	1121	SY

Note: Stations & Offsets from US 85 Chain: PR85

LEGEND

- Fiber Rolls
- Seeding - Type B CL II and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts
- ECB Type 2

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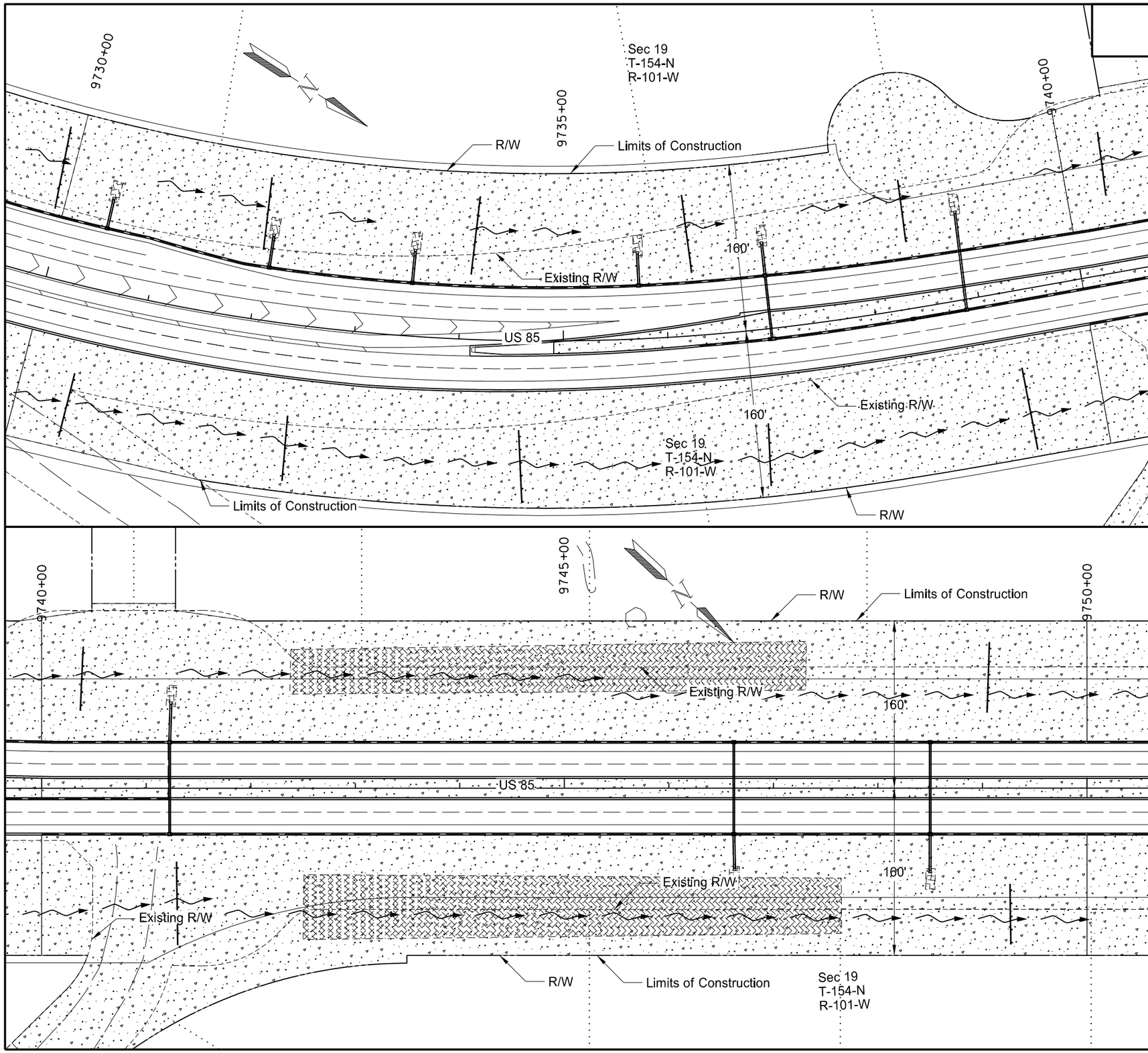
Permanent Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route Phase 1A

US 85
9710+00 to 9730+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	18



708	2260	Seeding-Type B CL II		
		9730+00 to 9740+00	5.5	Acre
		9740+00 to 9750+00	6.2	Acre
708	5500	Mulching		
		9730+00 to 9740+00	5.5	Acre
		9740+00 to 9750+00	6.2	Acre
708	5651	ECB Type 2		
		9730+00 to 9740+00	0	SY
		9740+00 to 9750+00	5738	SY

Note: Stations & Offsets from US 85 Chain: PR85

LEGEND

- Fiber Rolls
- Seeding - Type B CL II and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts
- ECB Type 2

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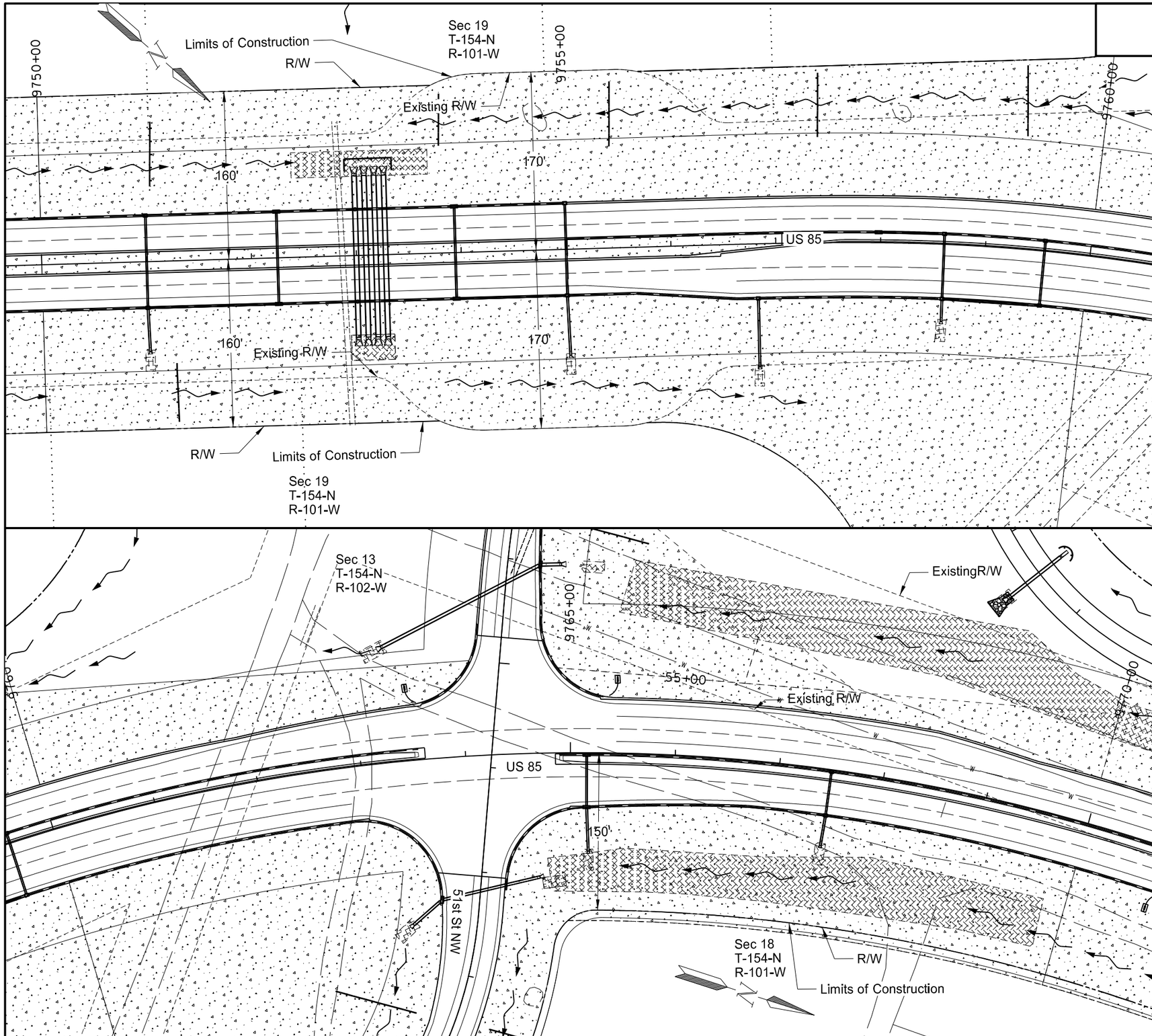
Permanent Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route Phase 1A

US 85
9730+00 to 9750+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	19



708	2260	Seeding-Type B CL II		
		9750+00 to 9760+00	6.4	Acre
		9760+00 to 9770+00	4.6	Acre
708	5500	Mulching		
		9750+00 to 9760+00	6.4	Acre
		9760+00 to 9770+00	4.6	Acre
708	5651	ECB Type 2		
		9750+00 to 9760+00	350	SY
		9760+00 to 9770+00	5310	SY

Note: Stations & Offsets from US 85 Chain: PR85

LEGEND

- Fiber Rolls
- Seeding - Type B CL II and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts
- ECB Type 2

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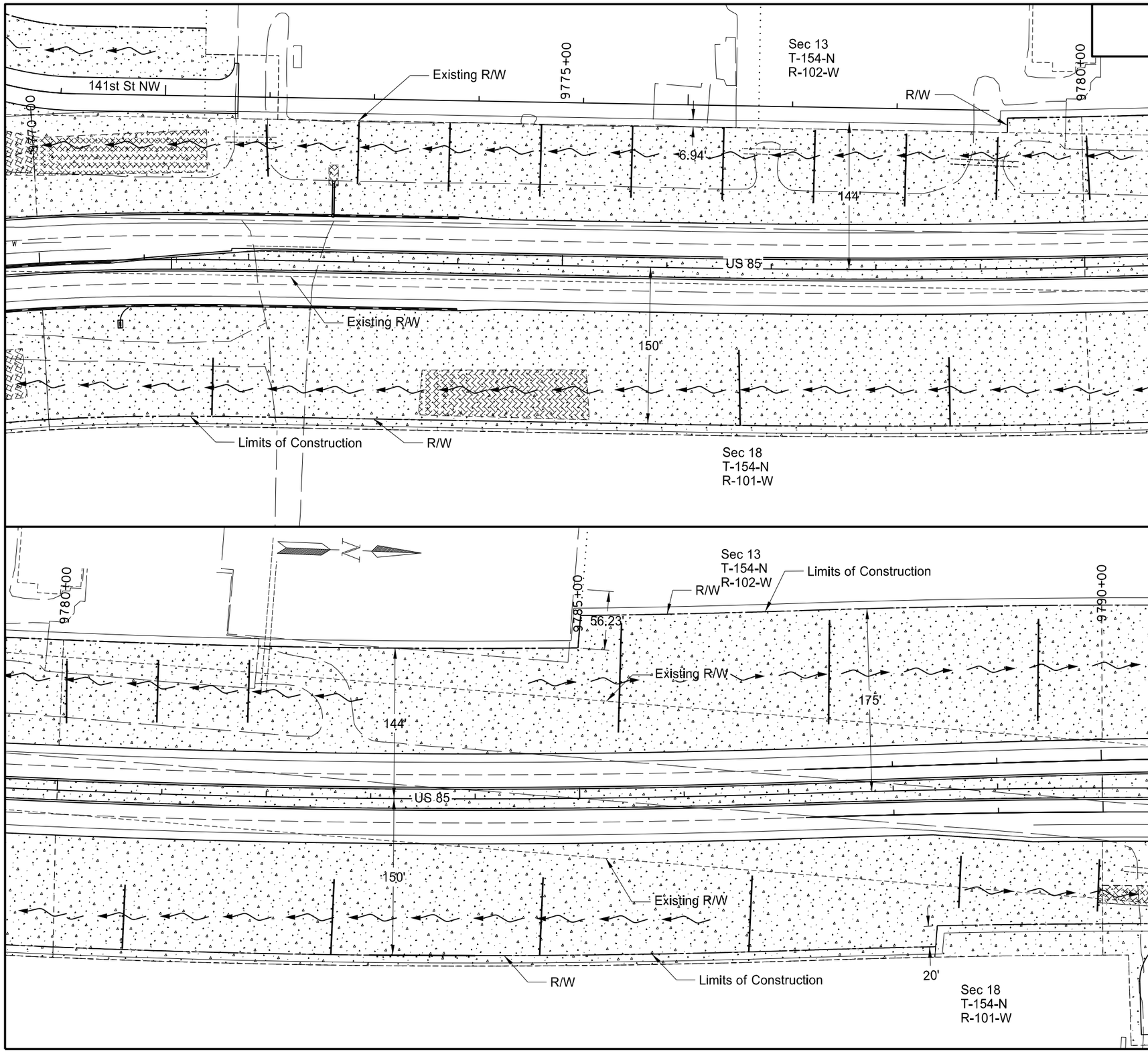
Permanent Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9750+00 to 9770+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	20



708	2260	Seeding-Type B CL II		
		9770+00 to 9780+00	5.2	Acre
		9780+00 to 9790+00	5.8	Acre
708	5500	Mulching		
		9770+00 to 9780+00	5.2	Acre
		9780+00 to 9790+00	5.8	Acre
708	5651	ECB Type 2		
		9770+00 to 9780+00	1513	SY
		9780+00 to 9790+00	0	SY

Note: Stations & Offsets from US 85 Chain: PR85

LEGEND

- Fiber Rolls
- Seeding - Type B CL II and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts
- ECB Type 2

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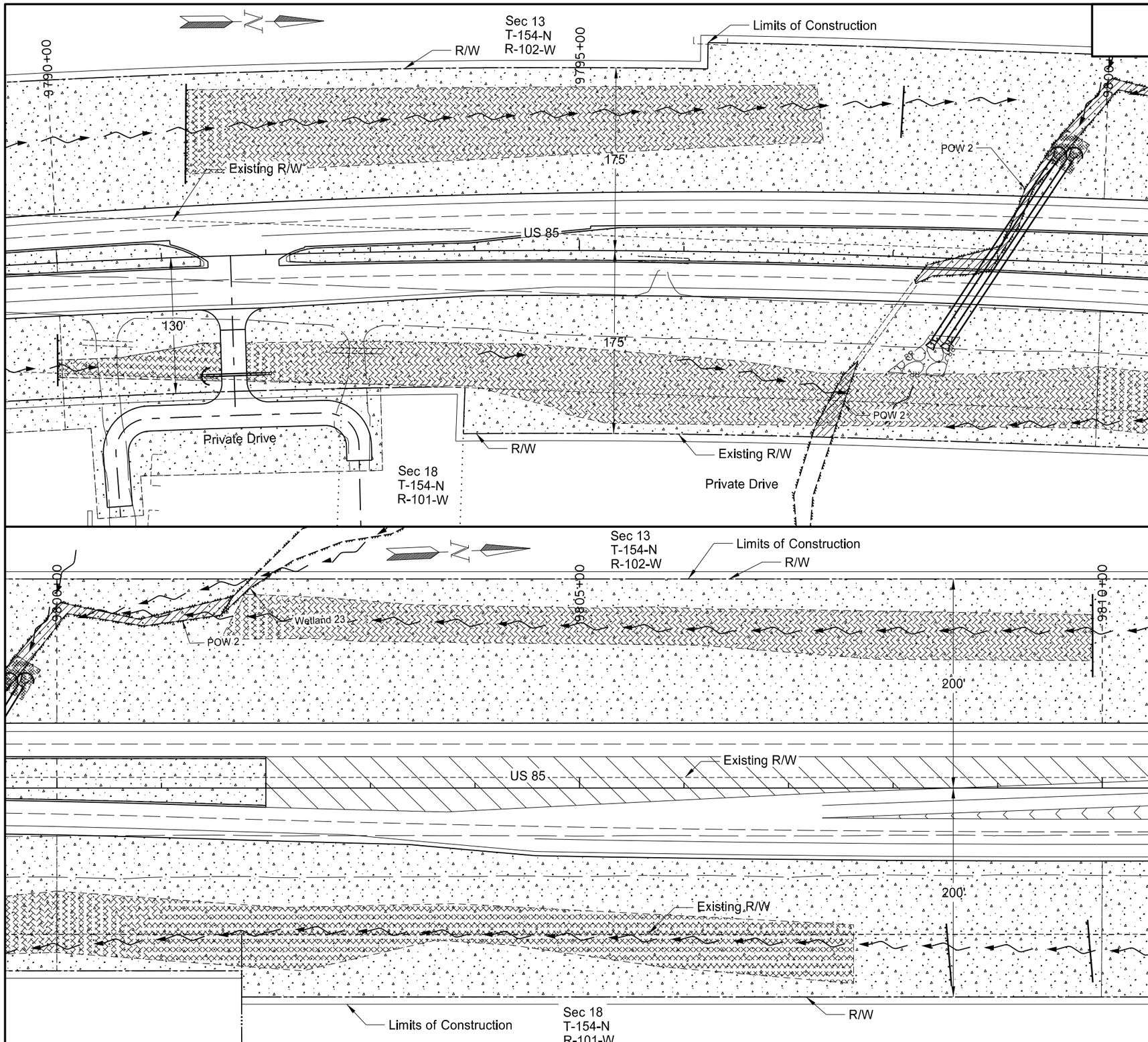
Permanent Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route Phase 1A

US 85
9770+00 to 9790+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	21



708	2260	Seeding-Type B CL II		
		9790+00 to 9800+00	6.5	Acre
		9800+00 to 9810+00	6.5	Acre
708	5500	Mulching		
		9790+00 to 9800+00	6.5	Acre
		9800+00 to 9810+00	6.5	Acre
708	5651	ECB Type 2		
		9790+00 to 9800+00	9693	SY
		9800+00 to 9810+00	7915	SY

Note: Stations & Offsets from US 85 Chain: PR85

LEGEND

- Fiber Rolls
- Seeding - Type B CL II and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts
- ECB Type 2

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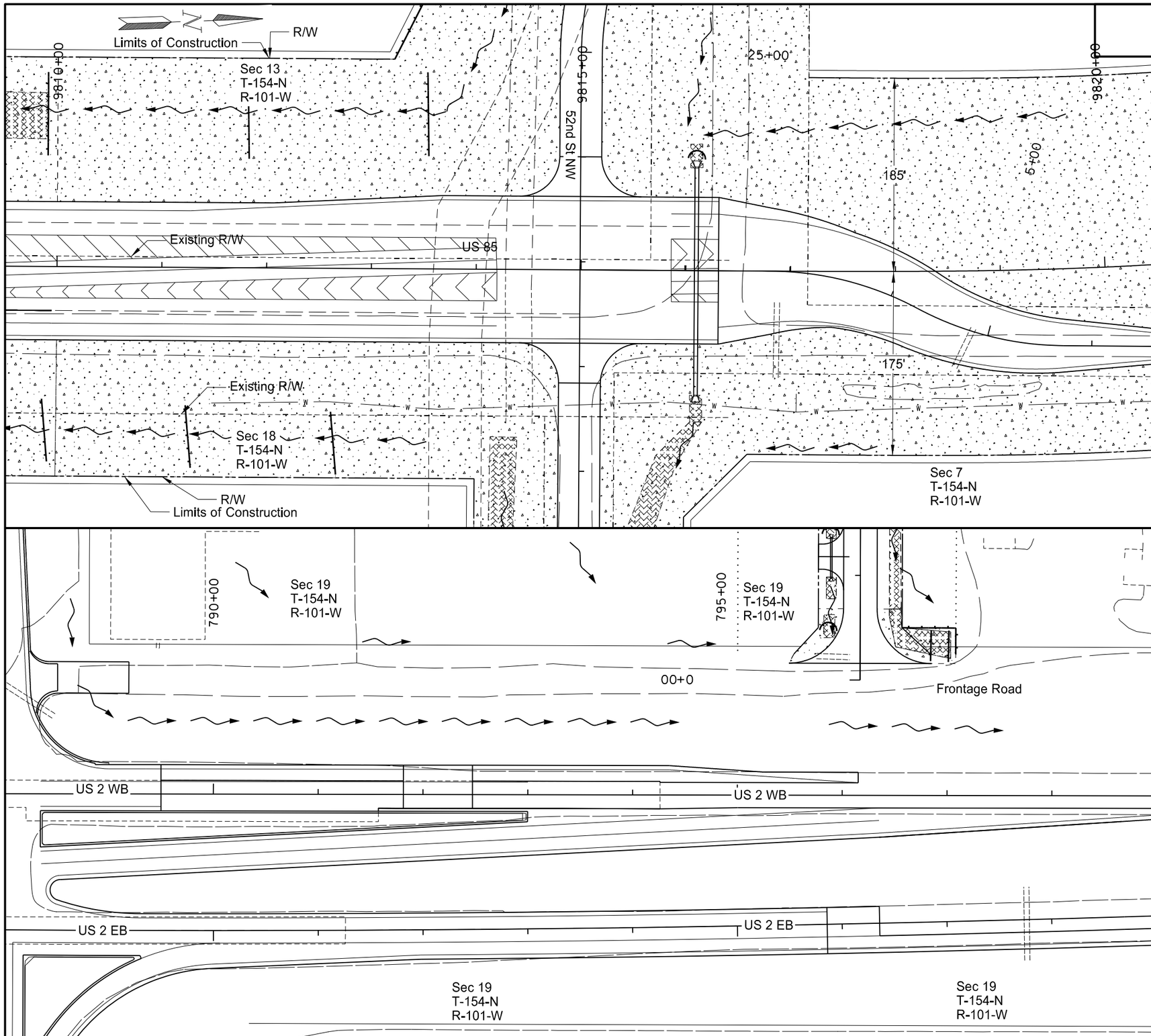
Permanent Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9790+00 to 9810+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	22



708	2260	Seeding-Type B CL II		
		9810+00 to 9820+69.50 (PR85)	7.0	Acre
		1+00 to 10+50 (PR_FR_US2_NE)	0.1	Acre
708	5500	Mulching		
		9810+00 to 9820+69.50 (PR85)	7.0	Acre
		1+00 to 10+50 (PR_FR_US2_NE)	0.1	Acre
708	5651	ECB Type 2		
		9810+00 to 9820+69.50 (PR85)	486	SY
		1+00 to 10+50 (PR_FR_US2_NE)	154	SY

LEGEND

- Fiber Rolls
- Seeding - Type B CL II and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts
- ECB Type 2

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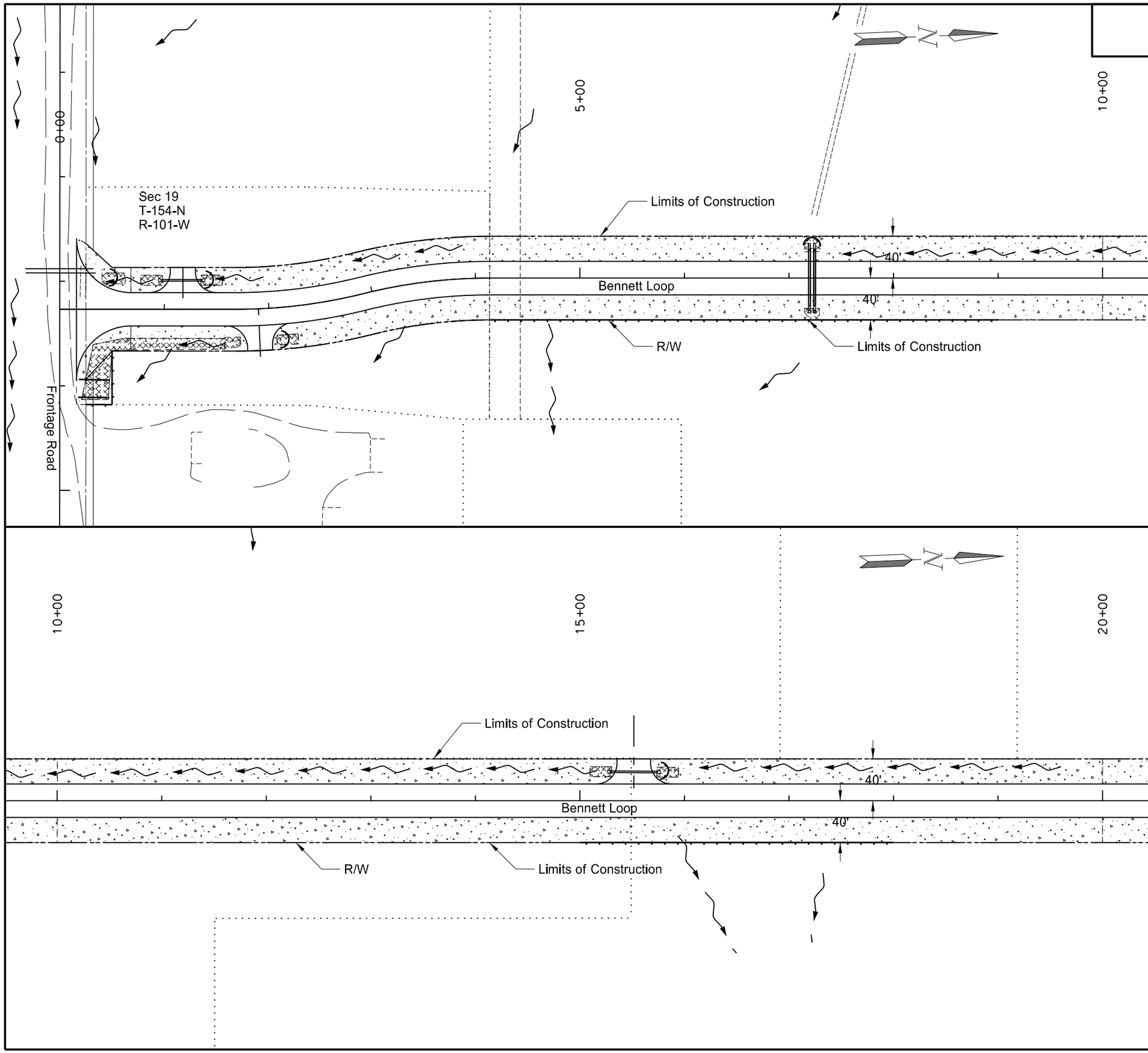
Permanent Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85 9810+00 to 9820+00
US 2 NE Frontage Road 1+00 to 10+50

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	23



708	2260	Seeding-Type B CL II		
		0+00 to 10+00	1.0	Acre
		10+00 to 20+00	1.1	Acre
708	5500	Mulching		
		0+00 to 10+00	1.0	Acre
		10+00 to 20+00	1.1	Acre
708	5651	ECB Type 2		
		0+00 to 10+00	108	SY
		10+00 to 20+00	0	SY

Note: Stations & Offsets from Bennett Loop Chain: PR_FR_S_BN_LP

LEGEND

- Fiber Rolls
- Seeding - Type B CL II and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts
- ECB Type 2

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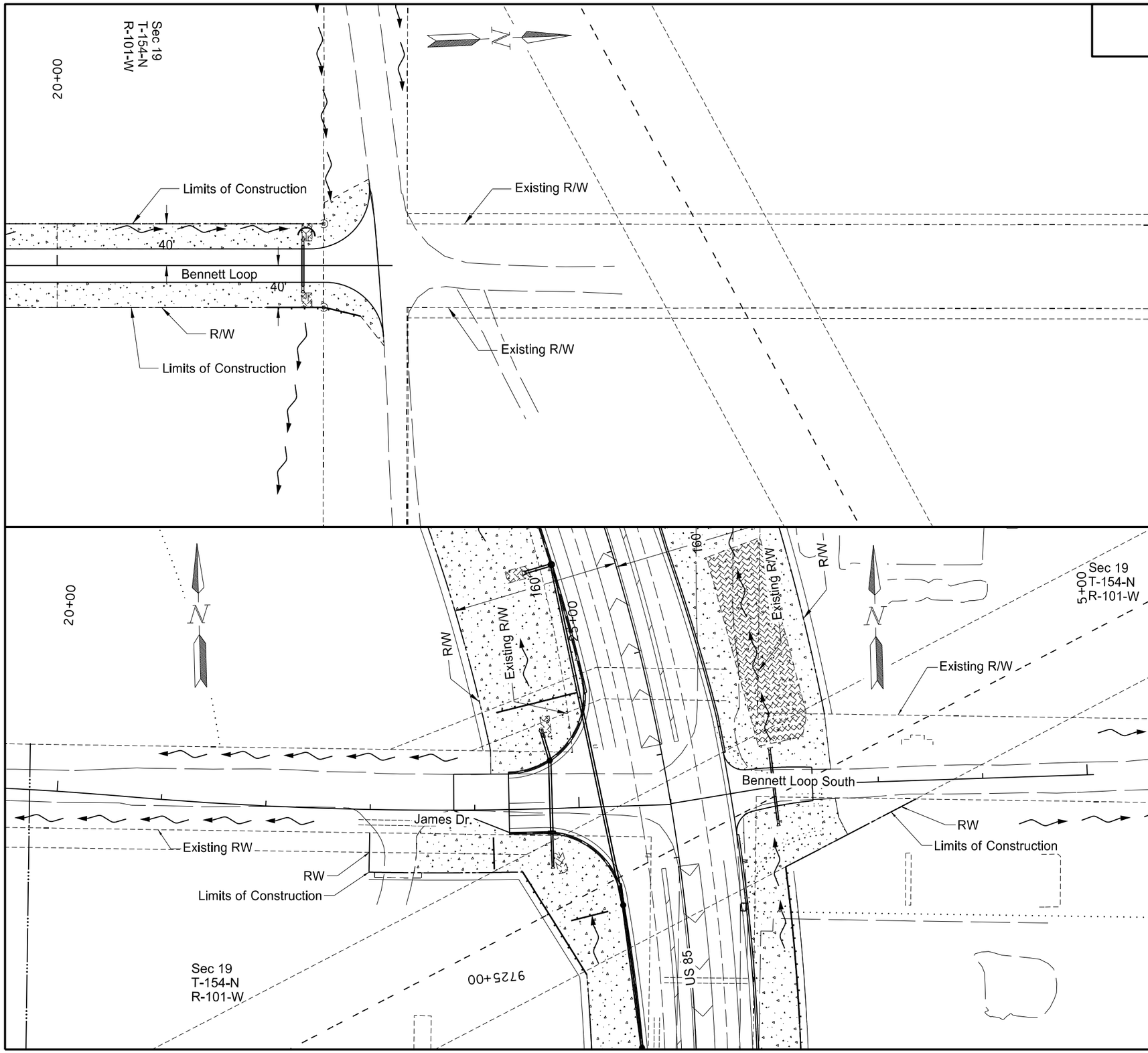
Permanent Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route
Phase 1A

Bennett Loop
0+00 to 20+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	24



708	2260	Seeding-Type B CL II		
		20+00 to 23+20.69	0.4	Acre
708	5500	Mulching		
		20+00 to 23+20.69	0.4	Acre

Note: Stations & Offsets from Bennett Loop Chain: PR_FR_S_BN_LP

LEGEND

- Fiber Rolls
- Seeding - Type B CL II and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts
- ECB Type 2

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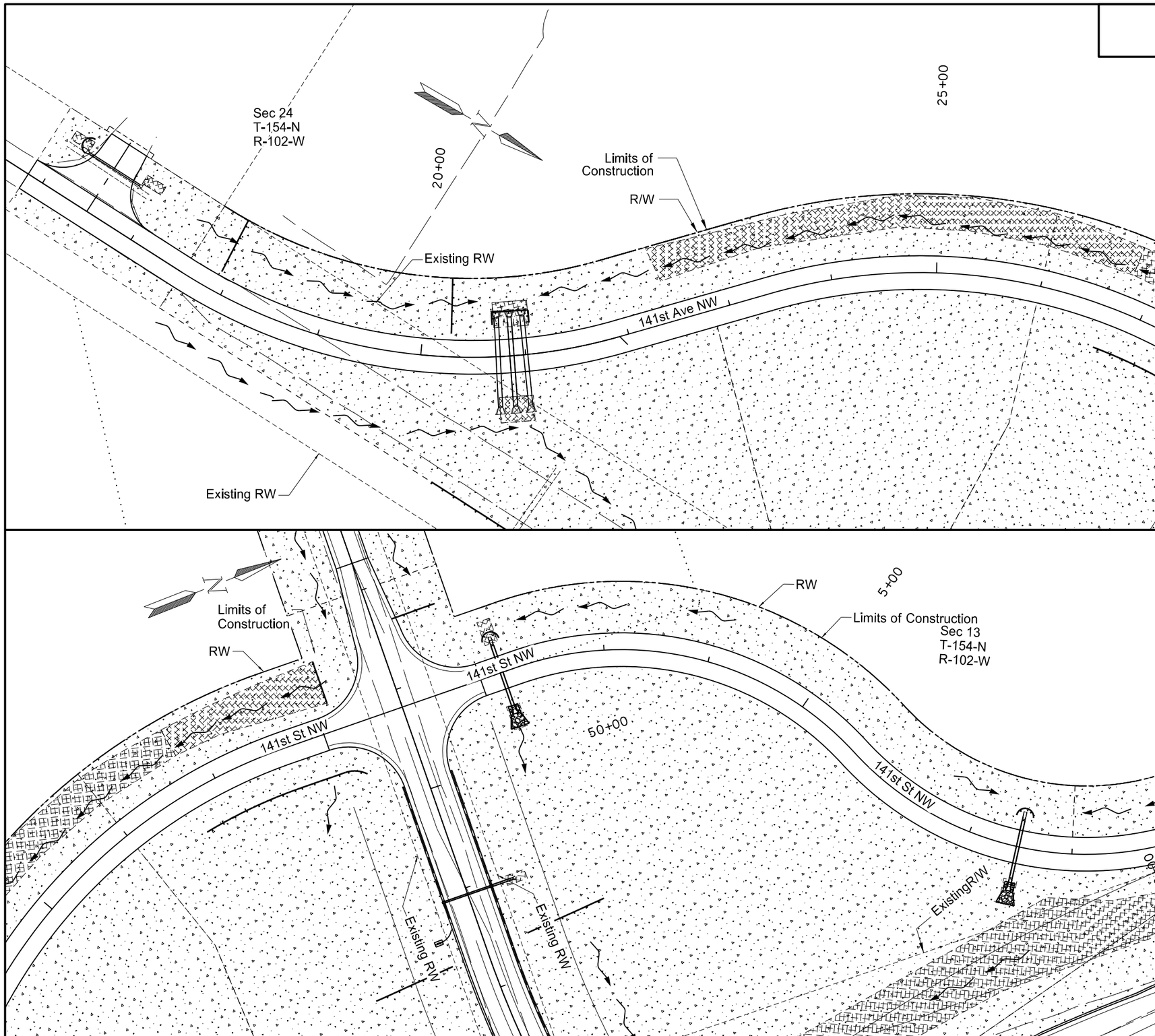
Permanent Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route
Phase 1A

Bennett Loop 20+00 to 23+20.69
James Drive 20+00 to 25+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	25



708	2260	Seeding-Type B CL II		
		15+84.07 to 26+00 (PR_141_S_51)	4.4	Acre
		26+00 to 28+90.66 (PR_141_S_51)	1.9	Acre
		1+00 to 8+00 (PR_PD_51_NW)	4.6	Acre
708	5500	Mulching		
		15+84.07 to 26+00 (PR_141_S_51)	4.4	Acre
		26+00 to 28+90.66 (PR_141_S_51)	1.9	Acre
		1+00 to 8+00 (PR_PD_51_NW)	4.6	Acre
708	5651	ECB Type 2		
		15+84.07 to 26+00 (PR_141_S_51)	1572	SY
		26+00 to 28+90.66 (PR_141_S_51)	583	SY
		1+00 to 8+00 (PR_PD_51_NW)	0.0	SY

LEGEND

- Fiber Rolls
- Seeding - Type B CL II and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts
- ECB Type 2

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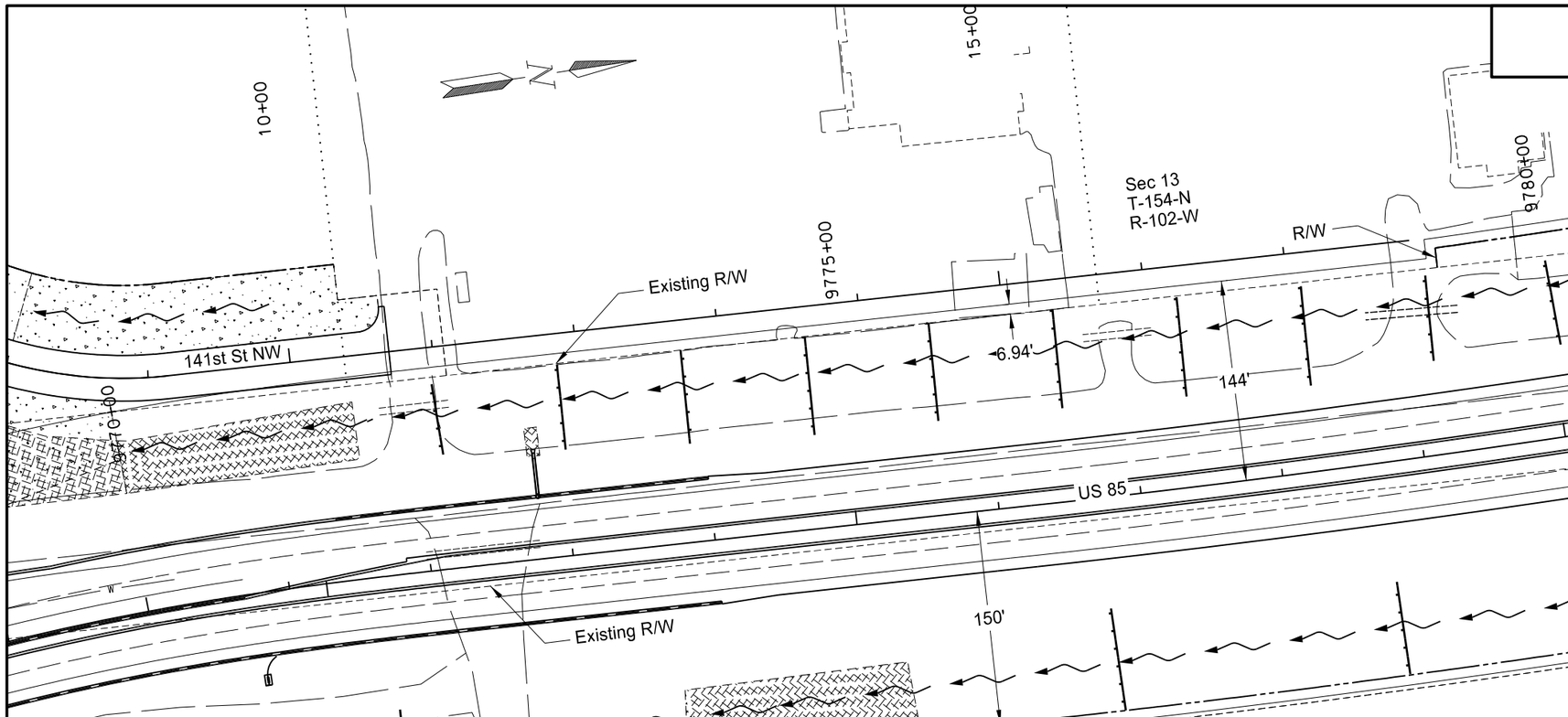
Permanent Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route
Phase 1A
141st Ave. NW
15+00 to 26+00, 26+00 to 28+90.66
141st Ave. NW North of 51st St. NW 1+23 to 10+69.57

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	26



708	2260	Seeding-Type B CL II		
		8+00 to 10+69.57	0.3	Acre
708	5500	Mulching		
		8+00 to 10+69.57	0.3	Acre

Note: Stations & Offsets from 141st Ave. NW Chain: PR_PD_51_NW

LEGEND

- Fiber Rolls
- Seeding - Type B CL II and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts
- ECB Type 2

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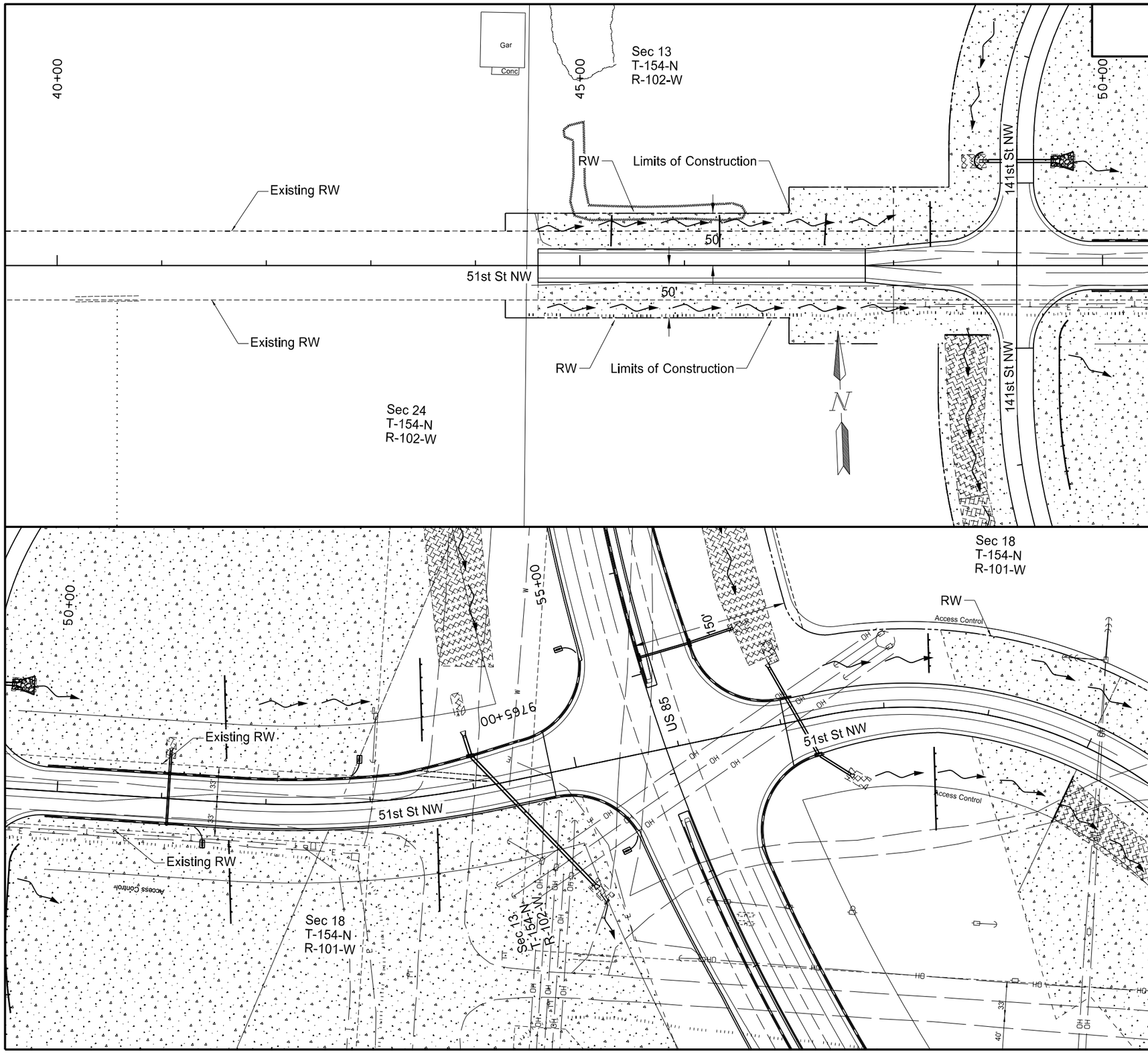
Permanent Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route Phase 1A

Private Drive
8+00 to 10+69.57

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	27



708	2260	Seeding-Type B CL II		
		44+60 to 50+00	0.7	Acre
		50+00 to 60+00	0.4	Acre
708	5500	Mulching		
		44+60 to 50+00	0.7	Acre
		50+00 to 60+00	0.4	Acre

Note: Stations & Offsets from 51st St. NW Chain: PR_51ST

LEGEND

- Fiber Rolls
- Seeding - Type B CL II and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts
- ECB Type 2

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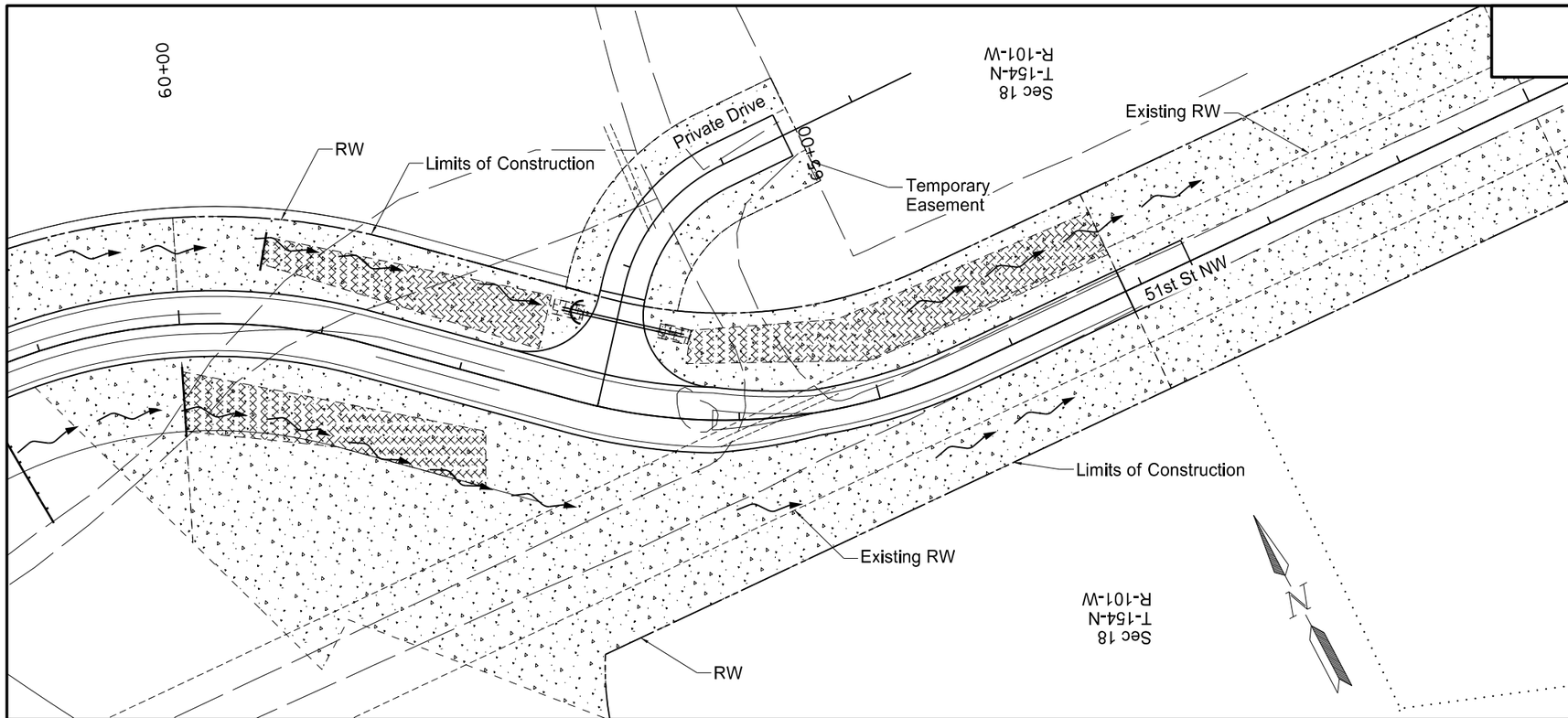
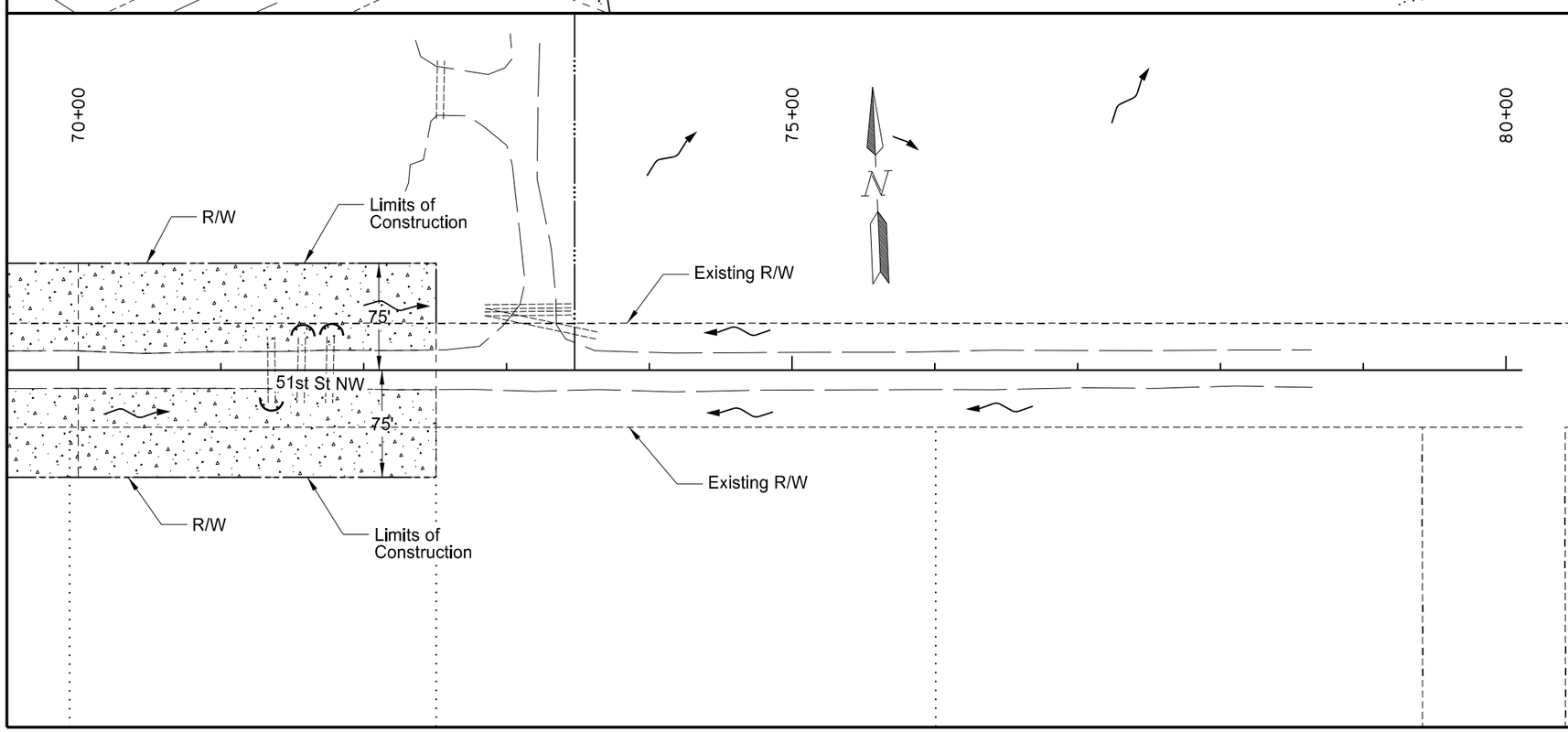
Permanent Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route
Phase 1A

51st St. NW
40+00 to 60+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	28





708	2260	Seeding-Type B CL II		
		60+00 to 70+00 (PR_51ST)	3.6	Acre
		70+00 to 72+50.68 (PR_51ST)	0.8	Acre
		1+75 to 3+56.24 (PR_PD_51_NE)	0.2	Acre
708	5500	Mulching		
		60+00 to 70+00 (PR_51ST)	3.6	Acre
		70+00 to 72+50.68 (PR_51ST)	0.8	Acre
		1+75 to 3+56.24 (PR_PD_51_NE)	0.2	Acre
708	5651	ECB Type 2		
		60+00 to 70+00 (PR_51ST)	2553	SY
		70+00 to 72+50.68 (PR_51ST)	0	SY
		1+75 to 3+56.24 (PR_PD_51_NE)	0	SY

LEGEND

- Fiber Rolls
- Seeding - Type B CL II and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts
- ECB Type 2

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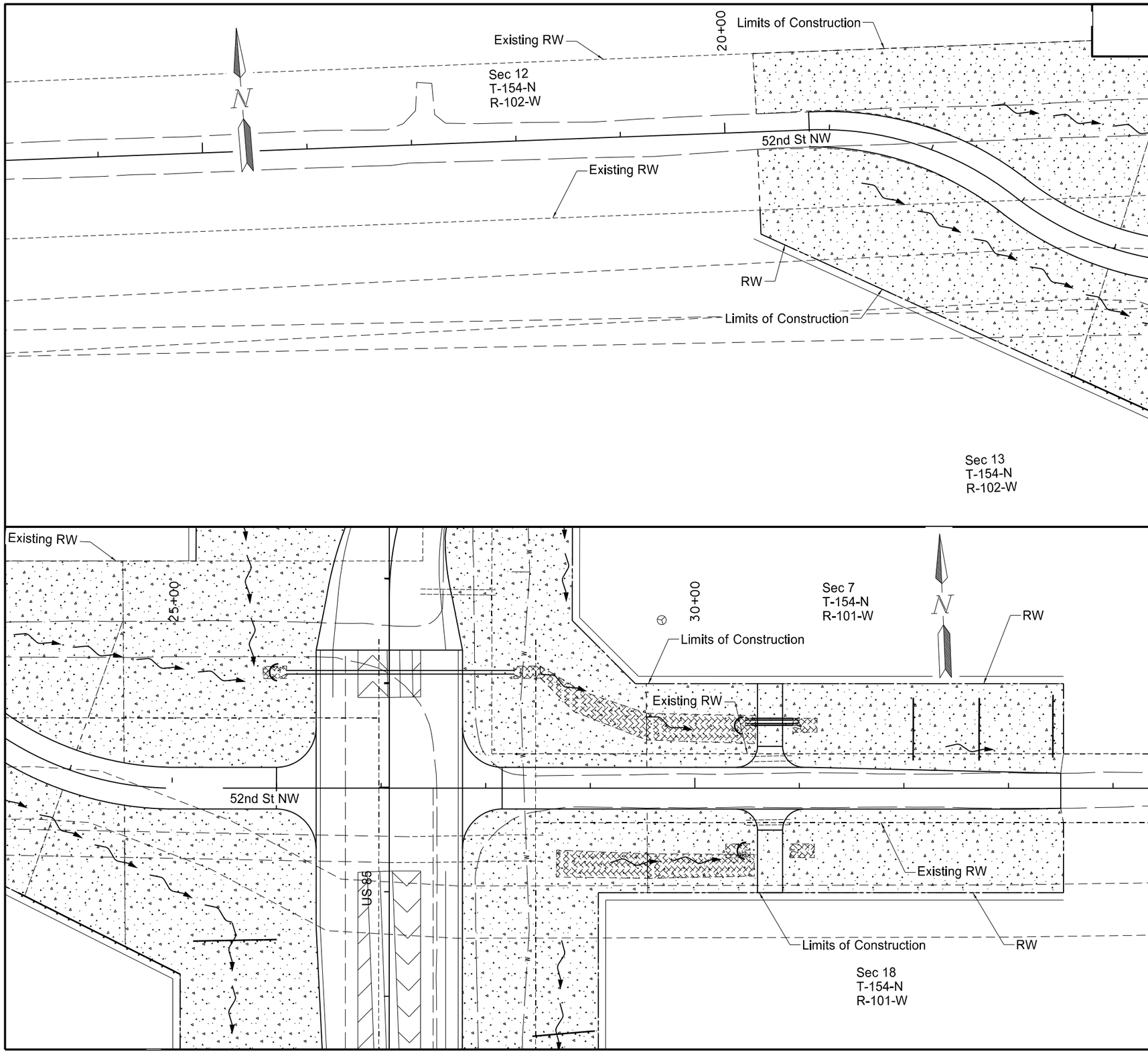
Permanent Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route
Phase 1A

51st St. NW 60+00 to 80+00
Private Drive NE 51st. NW 1+75 to 3+56.24

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	29



708	2260	Seeding-Type B CL II		
		20+30.83 to 24+00	1.8	Acre
		24+00 to 33+52.78	1.7	Acre
708	5500	Mulching		
		20+30.83 to 24+00	1.8	Acre
		24+00 to 33+52.78	1.7	Acre
708	5651	ECB Type 2		
		20+30.83 to 24+00	0	SY
		24+00 to 33+52.78	556	SY

Note: Stations & Offsets from 52nd St. NW Chain: PR_52ND_ST

LEGEND

- Fiber Rolls
- Seeding - Type B CL II and Mulching
- Permanent Wetland Impact
- Temporary Wetland Impacts
- ECB Type 2

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Permanent Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route
Phase 1A

52nd St. NW
15+00 to 24+00, 24+00 to 33+52.78

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	30

PERMANENT R/W AND PIPE END SECTION FIBER ROLLS

Alignment	Station	Offset (ft)	-	Station	Offset (ft)	Length (LF) 12" Fiber Roll
PR_FR_US2_NE	7+97	-55	to	-	-	25
PR_FR_US2_NE	8+67	-50	to	9+18	-25	76
PR_FR_S_BN_LP	1+47	-28	to	-	-	25
PR_FR_S_BN_LP	2+16	-32	to	-	-	25
PR_FR_S_BN_LP	4+14	40	to	9+00	40	487
PR_FR_S_BN_LP	7+22	-39	to	-	-	25
PR_FR_S_BN_LP	15+00	40	to	18+00	40	300
PR_FR_S_BN_LP	15+85	-28	to	-	-	25
PR_FR_S_BN_LP	20+00	40	to	22+90	48	91
PR_FR_S_BN_LP	22+39	-36	to	-	-	25
PR_141_S_51	16+12	-55	to	-	-	25
PR_141_S_51	20+18	-120	to	21+87	-314	307
PR_141_S_51	26+67	41	to	28+39	49	166
PR_PD_51_NW	2+01	-41	to	-	-	25
PR_PD_51_NW	1+70	41	to	8+00	41	615
PR_PD_51_NW	7+48	-37	to	-	-	25
PR_51ST	62+64	-60	to	-	-	25
PR_51ST	63+31	-170	to	67+30	-75	480
PR_51ST	71+34	28	to	-	-	25
PR_51ST	71+60	-32	to	-	-	25
PR_51ST	71+78	-32	to	-	-	25
PR_52ND_ST	30+38	-60	to	-	-	25
PR_52ND_ST	30+41	59	to	-	-	25
PR_52ND_ST	23+95	127	to	25+08	178	174
PR_85	9711+60	100	to	9725+78	100	1439
PR_85	9712+82	-81	to	-	-	25
PR_85	9712+88	-101	to	9712+82	-206	122
PR_85	9713+68	-107	to	9713+64	-207	114
PR_85	9724+95	-100	to	9726+07	-150	116
PR_85	9726+70	-216	to	-	-	25
PR_85	9783+00	160	to	9784+00	160	102
PR_85	9791+35	114	to	-	-	25
PR_85	9816+10	-115	to	-	-	25
PR_85	9816+60	175	to	9817+60	175	100

Alignment	Station	Offset (ft)	-	Station	Offset (ft)	Length (LF) 20" Fiber Roll
PR_141_S_51	20+88	-43	to	-	-	59
PR_85	9753+13	-92	to	-	-	69
PR_85	9799+62	-119	to	-	-	25
PR_85	9799+77	-119	to	-	-	25

Total 12IN Fiber Rolls	
5164	LF

Total 20IN Fiber Rolls	
178	LF

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Permanent Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route Phase 1A

Permanent Ditch Fiber Rolls

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	75	31

PERMANENT DITCH FIBER ROLLS

Alignment	Station	Offset	Length (LF) 12" Fiber Roll
PR_85	9712+40	Lt	24
PR_85	9715+49	Lt	24
PR_85	9717+51	Lt	30
PR_85	9719+52	Lt	30
PR_85	9721+52	Lt	30
PR_85	9723+54	Lt	30
PR_85	9725+56	Lt	37
PR_85	9727+75	Lt	80
PR_85	9729+92	Lt	80
PR_85	9730+47	Rt	63
PR_85	9732+00	Lt	70
PR_85	9732+46	Rt	63
PR_85	9734+09	Lt	75
PR_85	9734+58	Rt	70
PR_85	9736+27	Lt	75
PR_85	9736+87	Rt	60
PR_85	9738+40	Lt	60
PR_85	9739+29	Rt	80
PR_85	9740+37	Lt	61
PR_85	9741+29	Rt	80
PR_85	9749+04	Lt	68
PR_85	9749+26	Rt	58
PR_85	9751+05	Lt	62
PR_85	9751+26	Rt	56
PR_85	9753+81	Lt	50
PR_85	9755+44	Lt	62
PR_85	9757+41	Lt	61
PR_85	9759+32	Lt	68
PR_85	9771+66	Rt	55
PR_85	9772+17	Lt	50
PR_85	9773+03	Lt	60
PR_85	9773+90	Lt	66
PR_85	9774+77	Lt	69
PR_85	9775+65	Lt	69
PR_85	9776+52	Lt	70
PR_85	9776+70	Rt	72
PR_85	9777+40	Lt	70
PR_85	9778+28	Lt	70
PR_85	9778+69	Rt	65
PR_85	9779+16	Lt	60
PR_85	9780+06	Lt	60

Alignment	Station	Offset (ft)	Length (LF) 12" Fiber Roll
PR_85	9780+68	Rt	61
PR_85	9780+93	Lt	60
PR_85	9781+81	Lt	60
PR_85	9782+64	Rt	72
PR_85	9784+61	Rt	75
PR_85	9785+38	Lt	105
PR_85	9786+63	Rt	74
PR_85	9787+40	Lt	100
PR_85	9788+64	Rt	50
PR_85	9789+39	Lt	98
PR_85	9789+95	Rt	50
PR_85	9791+26	Lt	96
PR_85	9798+04	Lt	50
PR_85	9808+51	Rt	60
PR_85	9809+91	Lt	80
PR_85	9809+86	Rt	60
PR_85	9811+23	Rt	60
PR_85	9811+83	Lt	80
PR_85	9812+62	Rt	60
PR_85	9813+53	Lt	80
PR_85	9813+99	Lt	155
PR_141_S_51	17+88	Lt	55
PR_141_S_51	20+27	Lt	53
PR_141_S_51	28+24	Lt	42
PR_51ST	45+30	Lt	30
PR_51ST	46+34	Lt	31
PR_51ST	47+34	Lt	29
PR_51ST	48+35	Lt	44
PR_51ST	51+60	Lt	80
PR_51ST	51+67	Rt	80
PR_51ST	53+60	Rt	80
PR_51ST	53+57	Lt	80
PR_51ST	58+39	Lt	38
PR_51ST	58+51	Rt	80
PR_51ST	60+54	Lt	28
PR_51ST	60+00	Lt	50
PR_52ND_ST	32+09	Lt	60
PR_52ND_ST	32+72	Lt	60
PR_52ND_ST	33+43	Lt	60

Total Total	
5008	LF

708	1430	Fiber Rolls 12IN		
		Total	10178	LF
708	1460	Fiber Rolls 20IN		
		Total	178	LF

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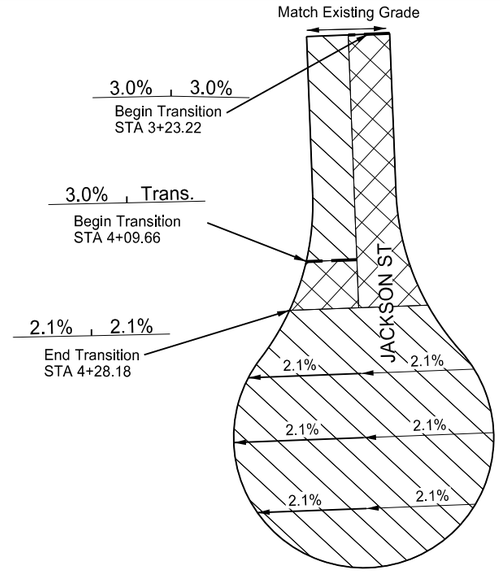
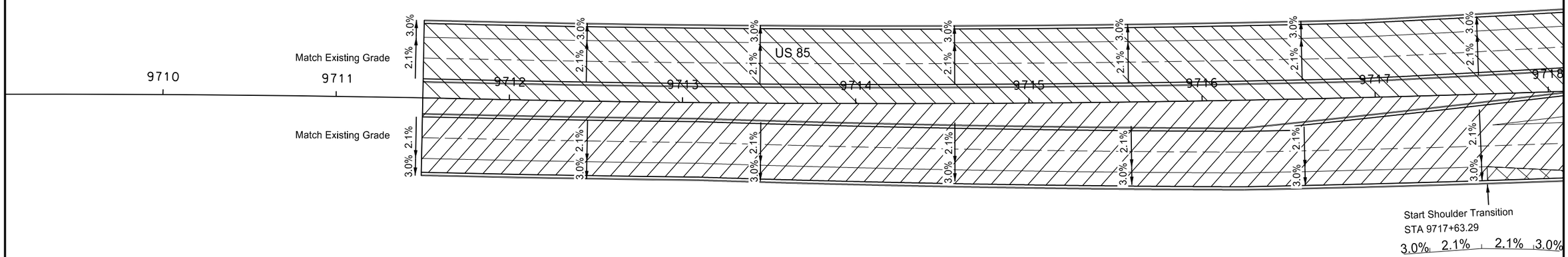
Permanent Erosion Control & Wetlands

Williston NW Permanent Truck Reliever Route Phase 1A

Permanent Ditch Fiber Rolls

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	1





Legend

Normal Crown (2.1% or 3.0%)

Transition (Varies)

Superelevation (Varies)

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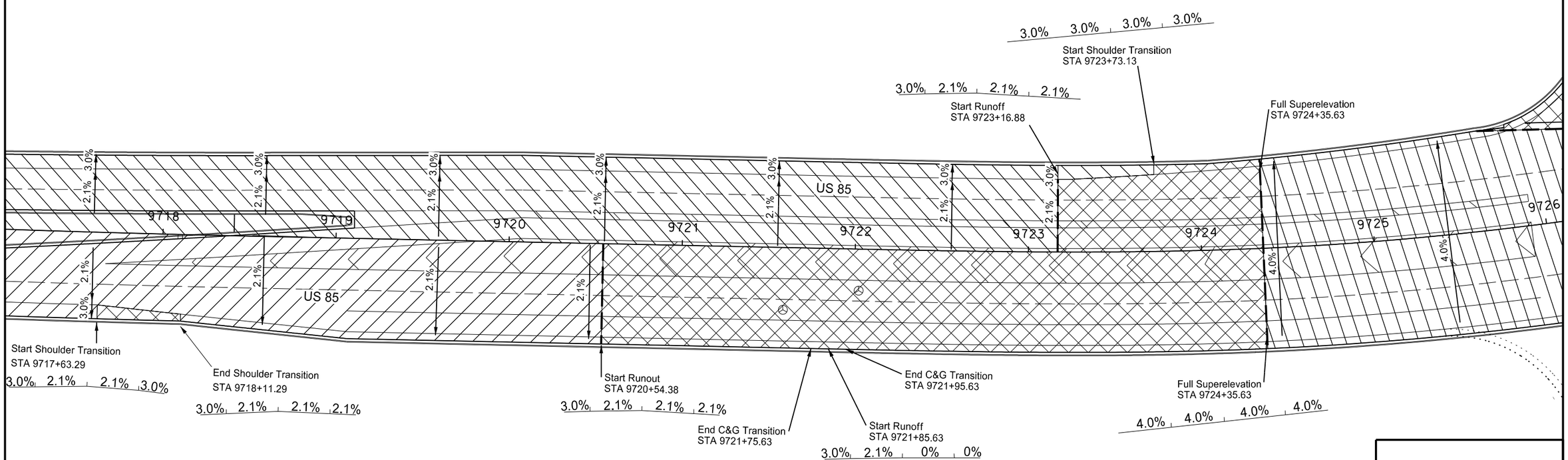
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85 9711+50 to 9718+00
Jackson Street 3+23.22 to 5+28.18

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	2



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Normal Crown (2.1% or 3.0%)

Transition (Varies)

Superelevation (Varies)

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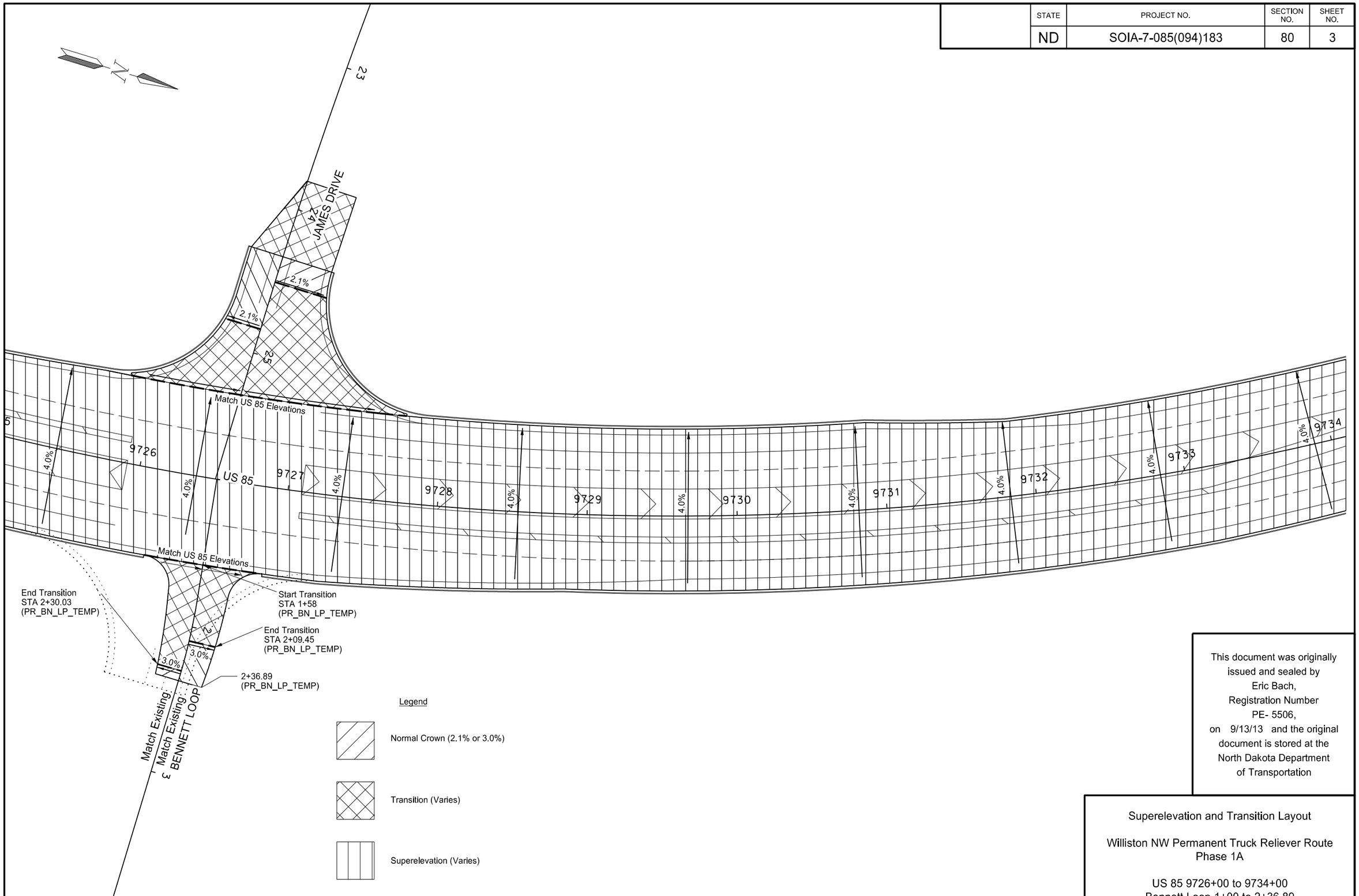
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9718+00 to 9726+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	3



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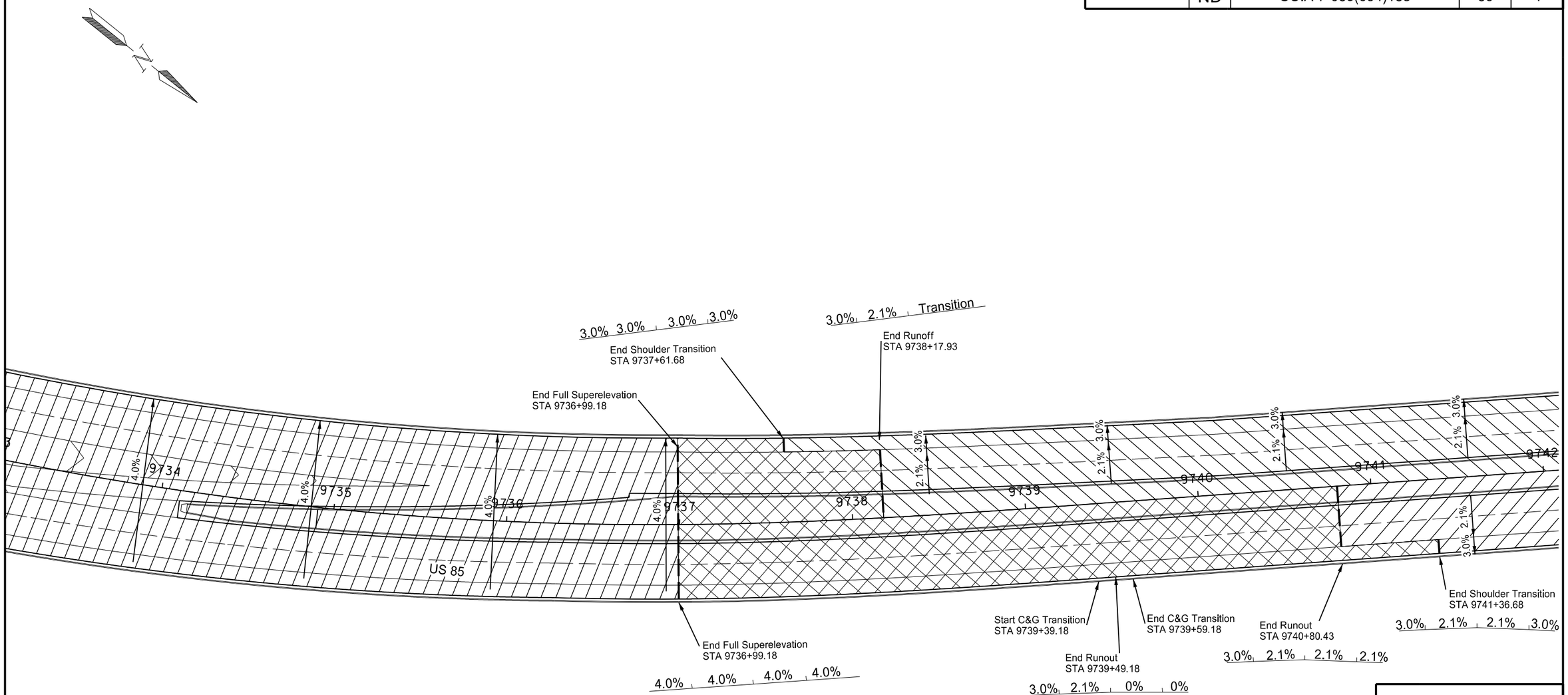
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85 9726+00 to 9734+00
Bennett Loop 1+00 to 2+36.89

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	4



Legend

Normal Crown (2.1% or 3.0%)

Transition (Varies)

Superelevation (Varies)

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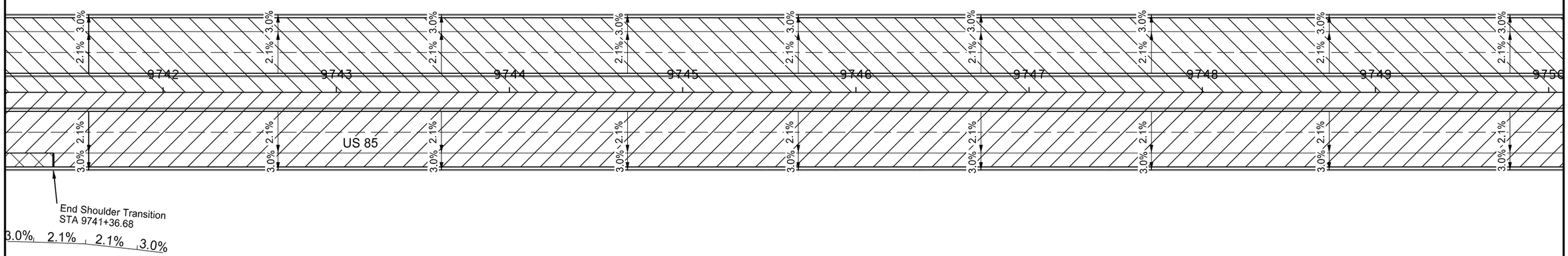
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9734+00 to 9742+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	5



Legend

Normal Crown (2.1% or 3.0%)

Transition (Varies)

Superelevation (Varies)

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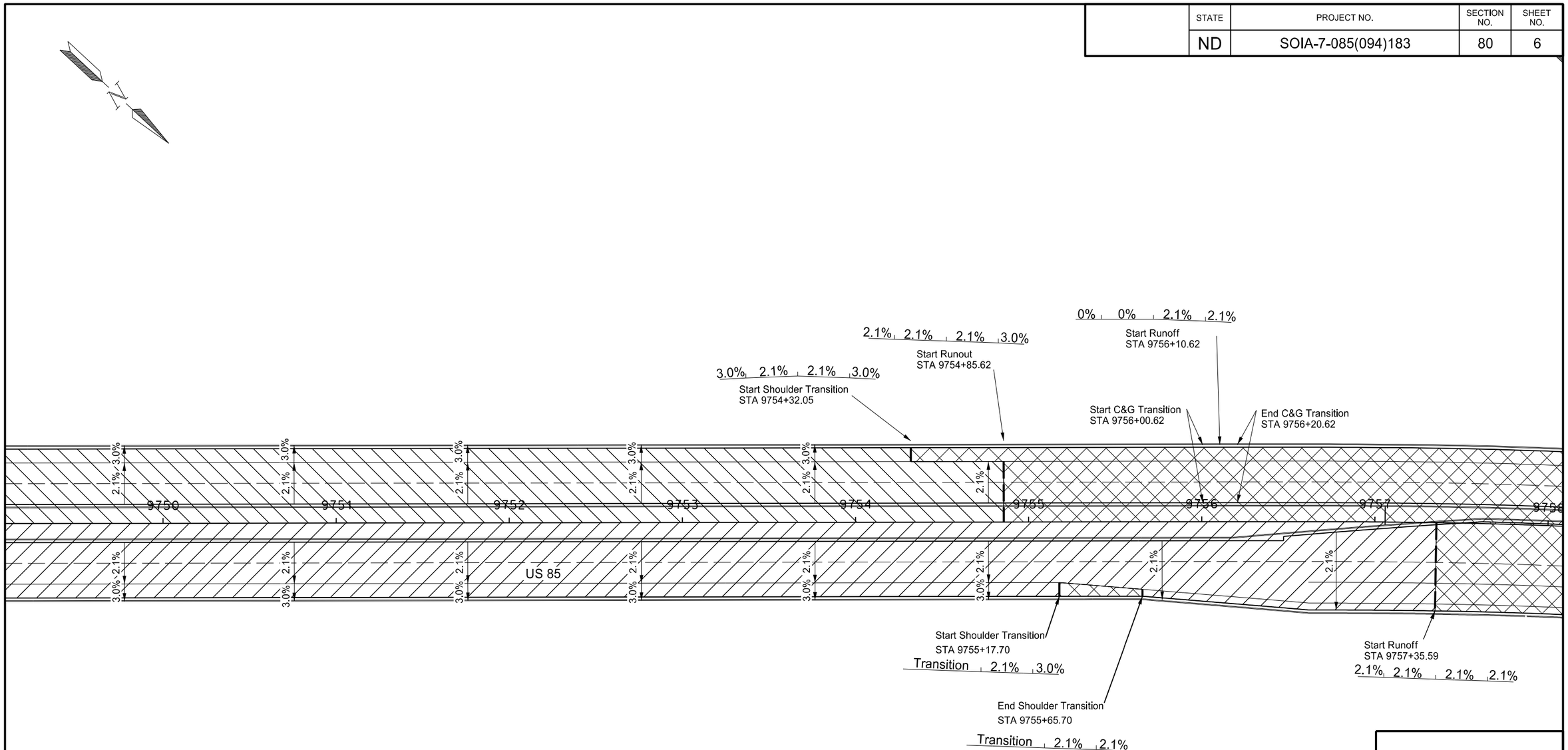
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route Phase 1A

US 85
9742+00 to 9750+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	6



Legend

Normal Crown (2.1% or 3.0%)

Transition (Varies)

Superelevation (Varies)

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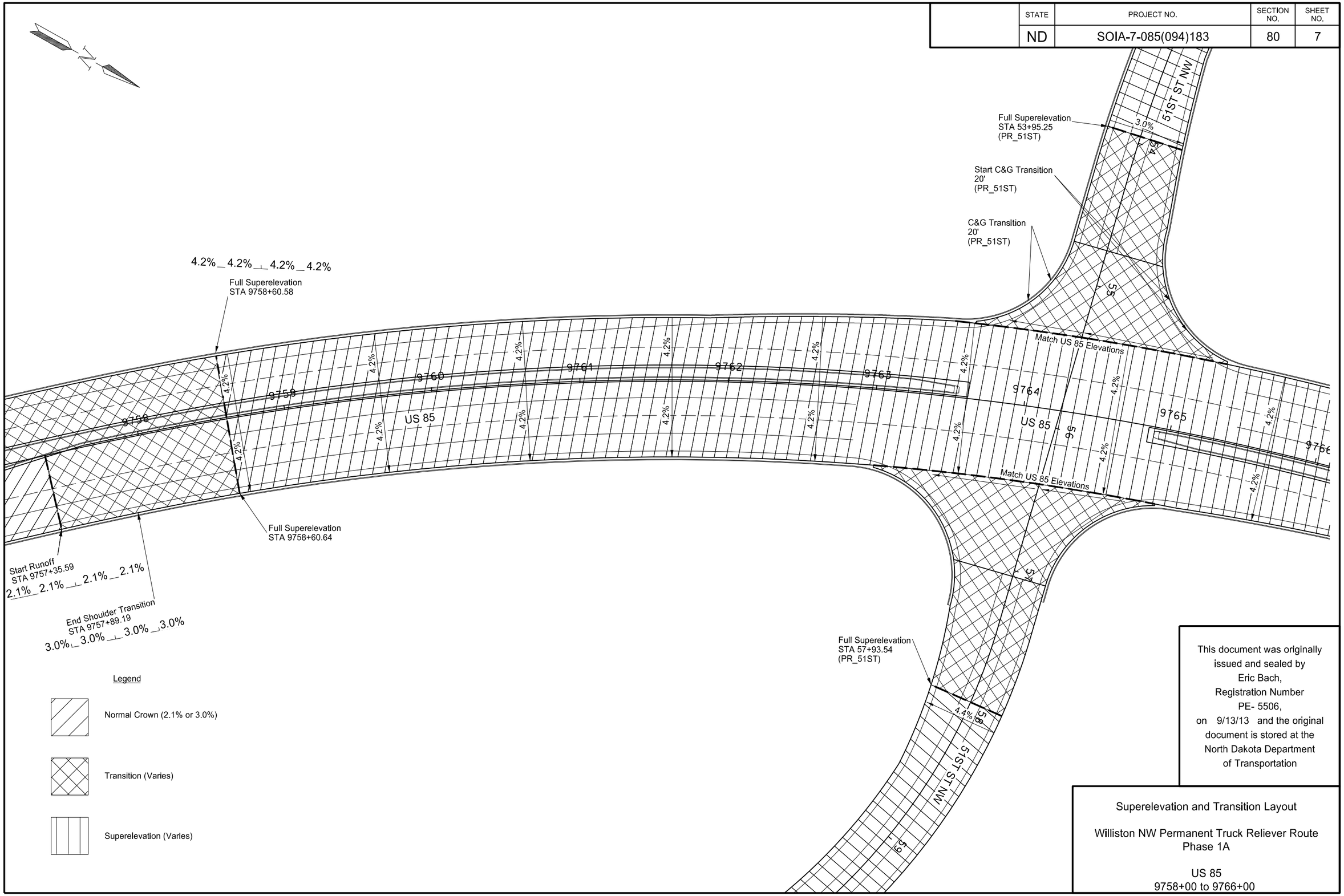
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9750+00 to 9758+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	7



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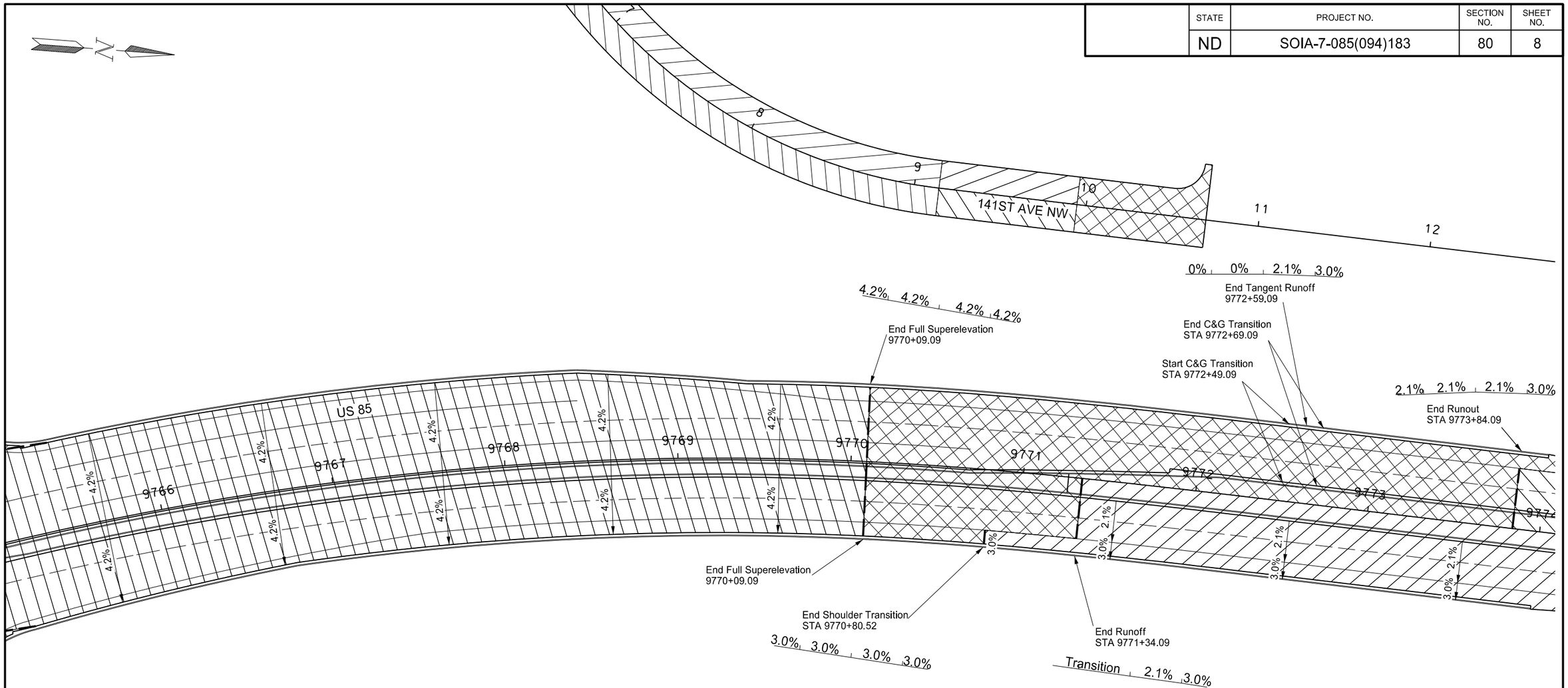
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9758+00 to 9766+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	8



Legend

Normal Crown (2.1% or 3.0%)

Transition (Varies)

Superelevation (Varies)

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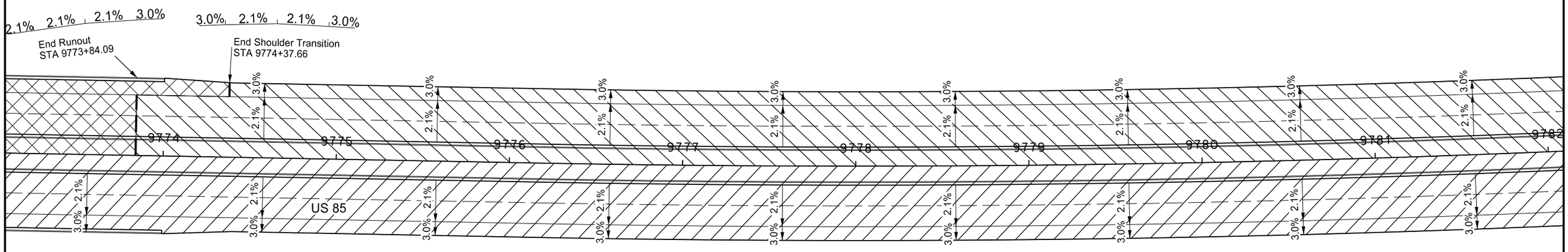
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9766+00 to 9774+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	9



Legend

Normal Crown (2.1% or 3.0%)

Transition (Varies)

Superelevation (Varies)

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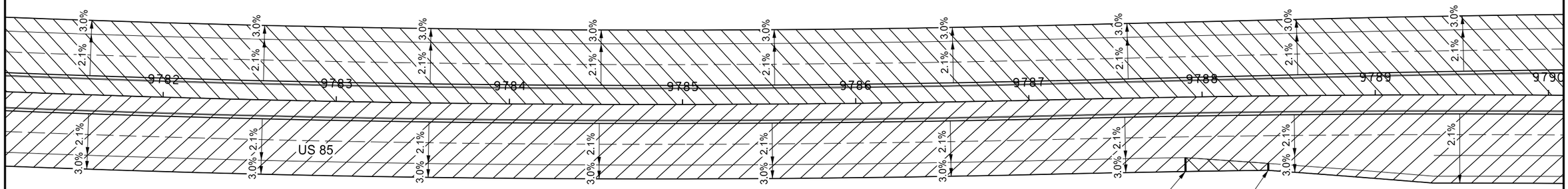
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9774+00 to 9782+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	10



Start Shoulder Transition
STA 9787+89.58
PR85_NB_SHIFT

3.0% 2.1% 2.1% 3.0%

Start Shoulder Transition
STA 9788+37.47
PR85_NB_SHIFT

3.0% 2.1% 2.1% 2.1%

Legend

Normal Crown (2.1% or 3.0%)

Transition (Varies)

Superelevation (Varies)

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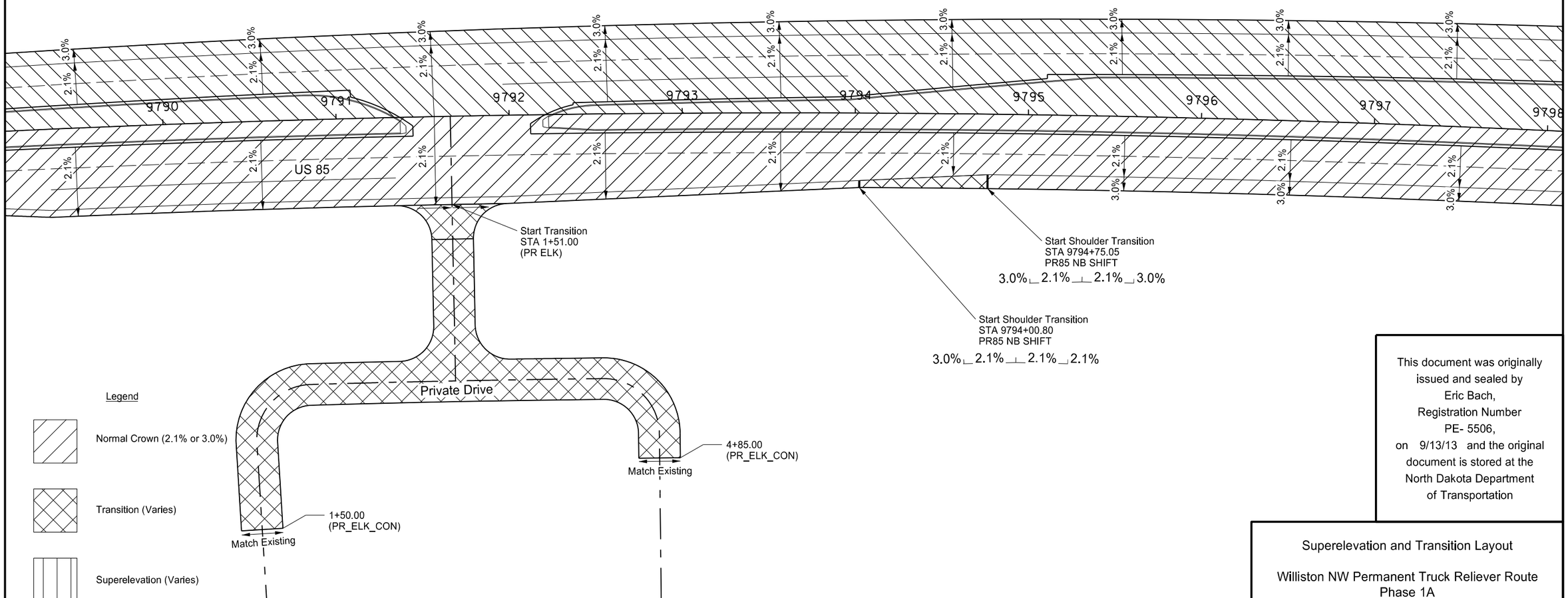
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9782+00 to 9790+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	11



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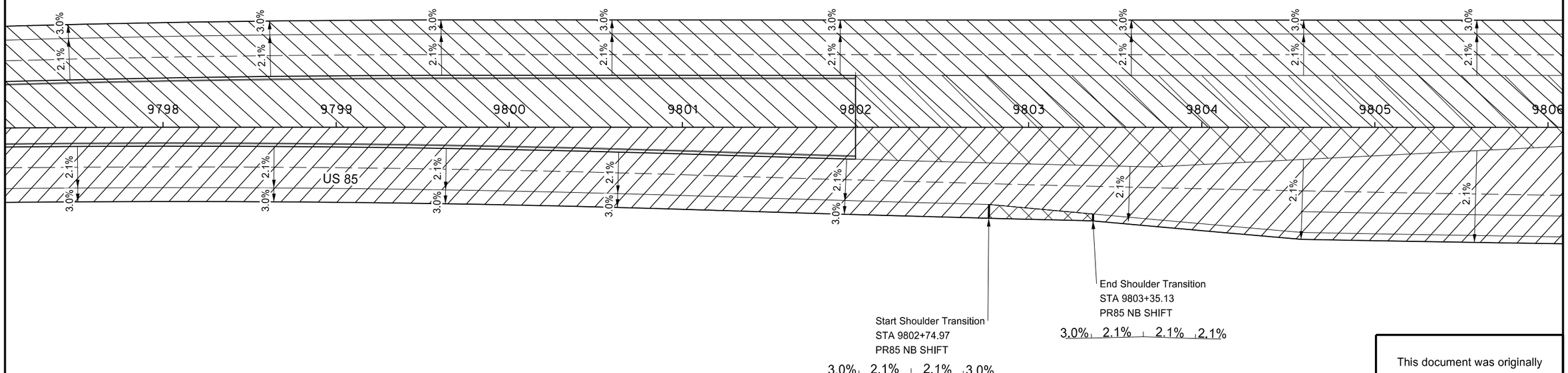
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85 9790+00 to 9798+00
Private Drive

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	12



Legend

Normal Crown (2.1% or 3.0%)

Transition (Varies)

Superelevation (Varies)

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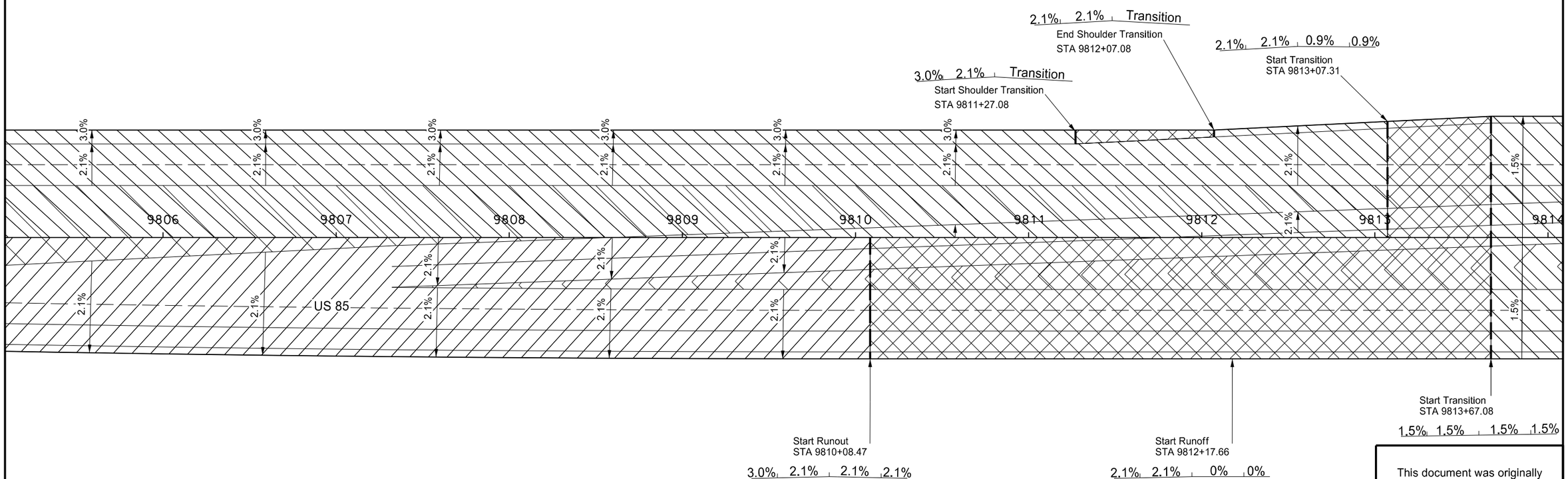
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9798+00 to 9806+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	13



Legend

Normal Crown (2.1% or 3.0%)

Transition (Varies)

Superelevation (Varies)

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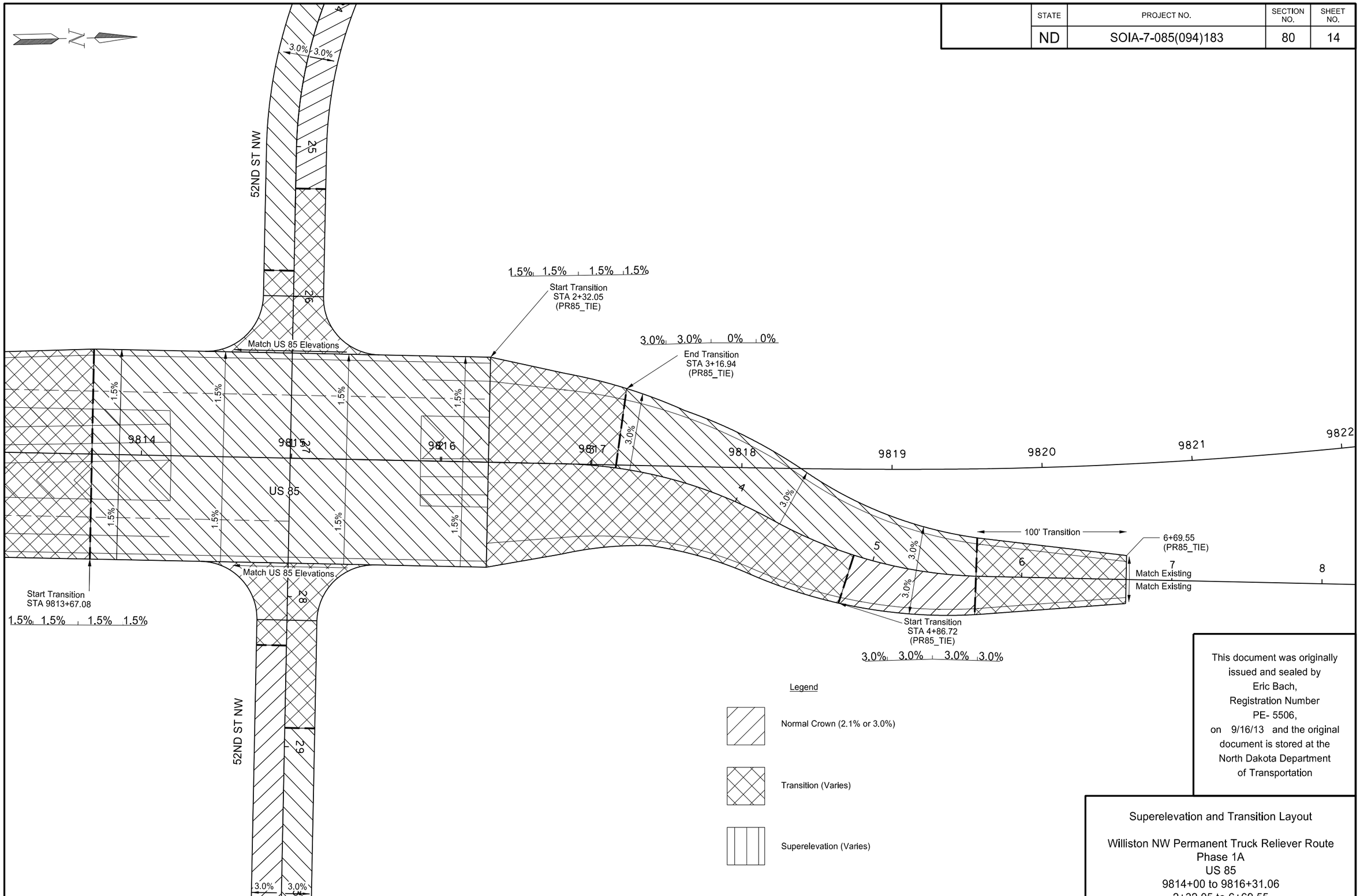
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9806+00 to 9814+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	14



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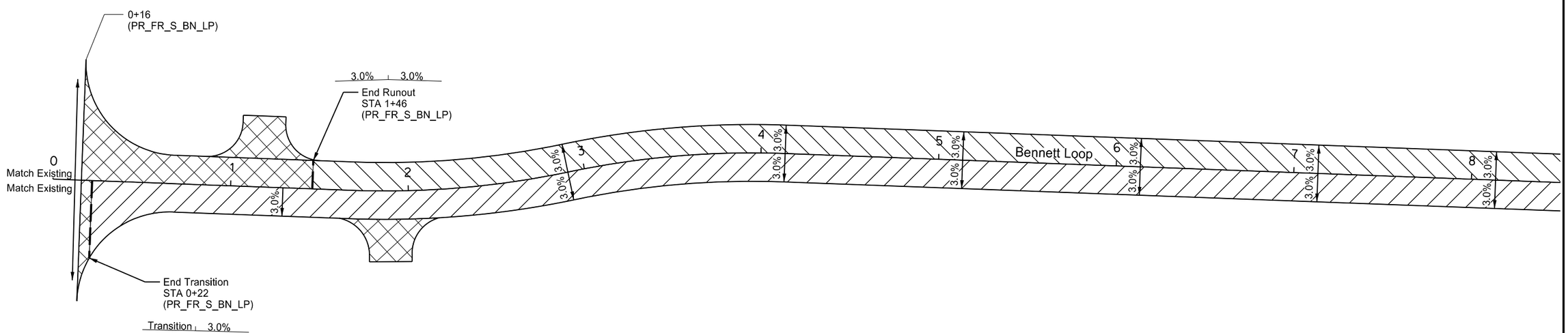
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route
Phase 1A
US 85
9814+00 to 9816+31.06
2+32.05 to 6+69.55

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	15



Legend

Normal Crown (2.1% or 3.0%)

Transition (Varies)

Superelevation (Varies)

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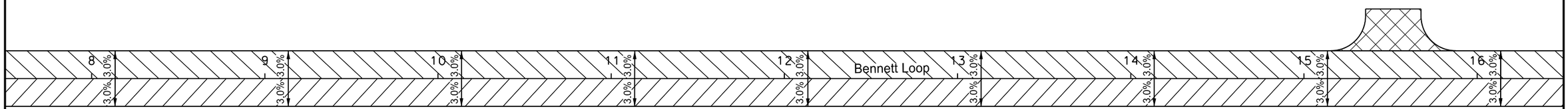
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

Bennett Loop
0+00 to 8+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	16



Legend

Normal Crown (2.1% or 3.0%)

Transition (Varies)

Superelevation (Varies)

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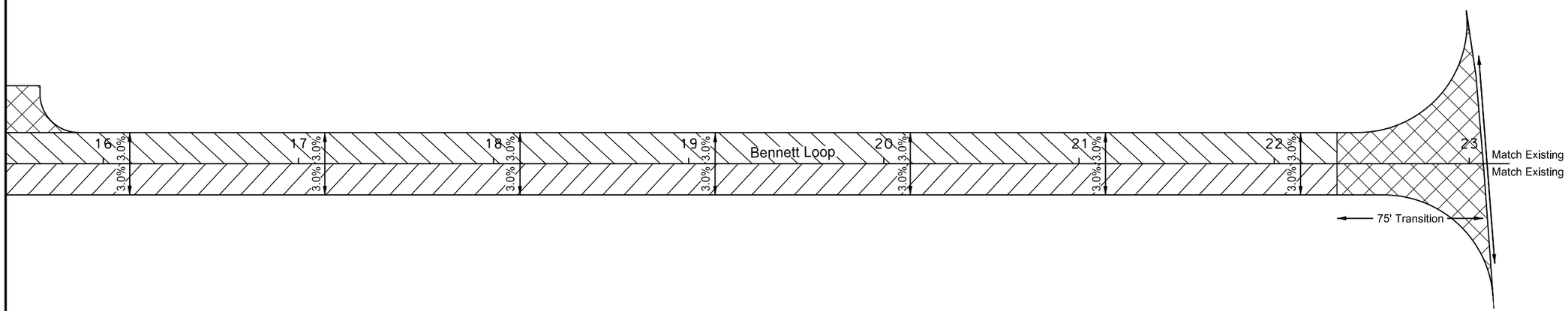
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route Phase 1A

Bennett Loop
8+00 to 16+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	17



Legend

Normal Crown (2.1% or 3.0%)

Transition (Varies)

Superelevation (Varies)

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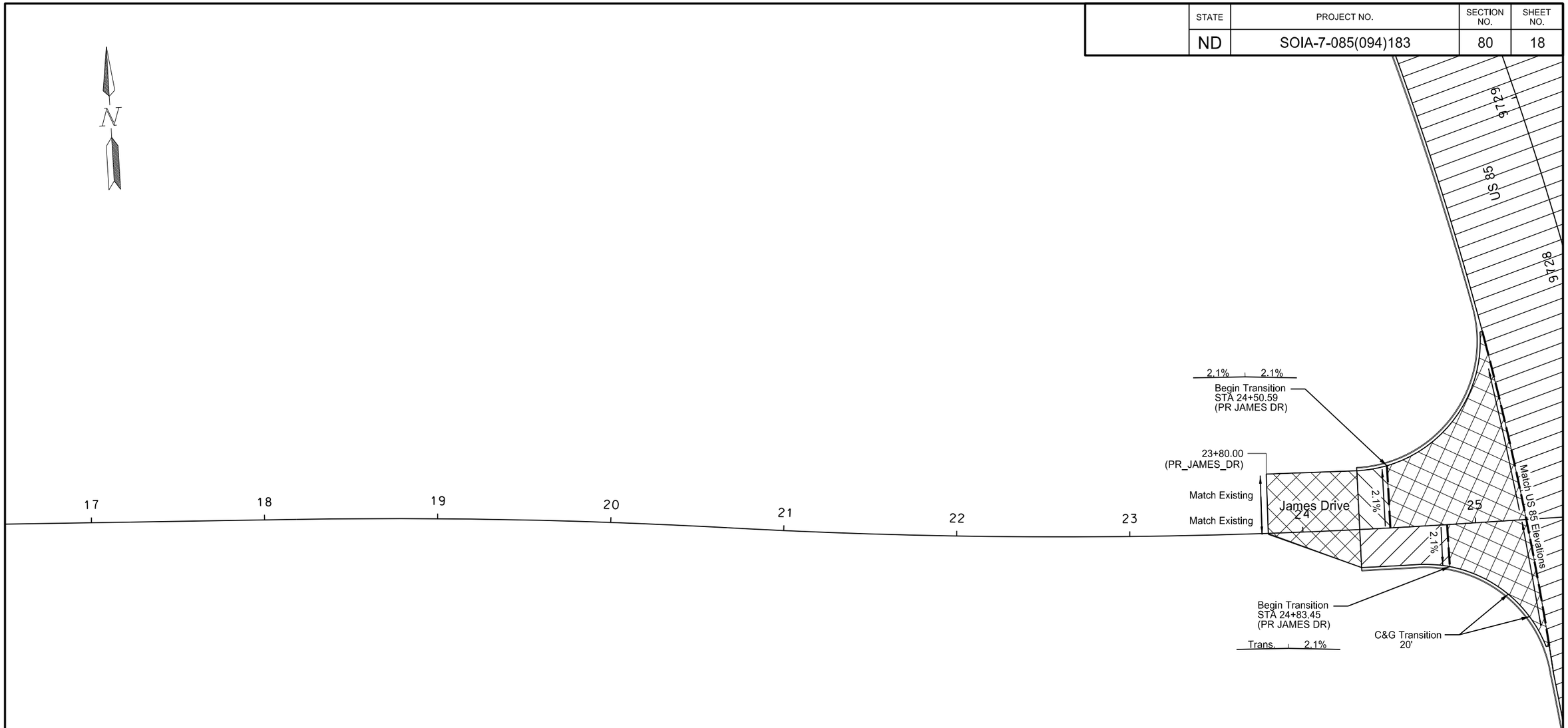
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

Bennett Loop
16+00 to 23+07.20

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	18



Legend

Normal Crown (2.1% or 3.0%)

Transition (Varies)

Superelevation (Varies)

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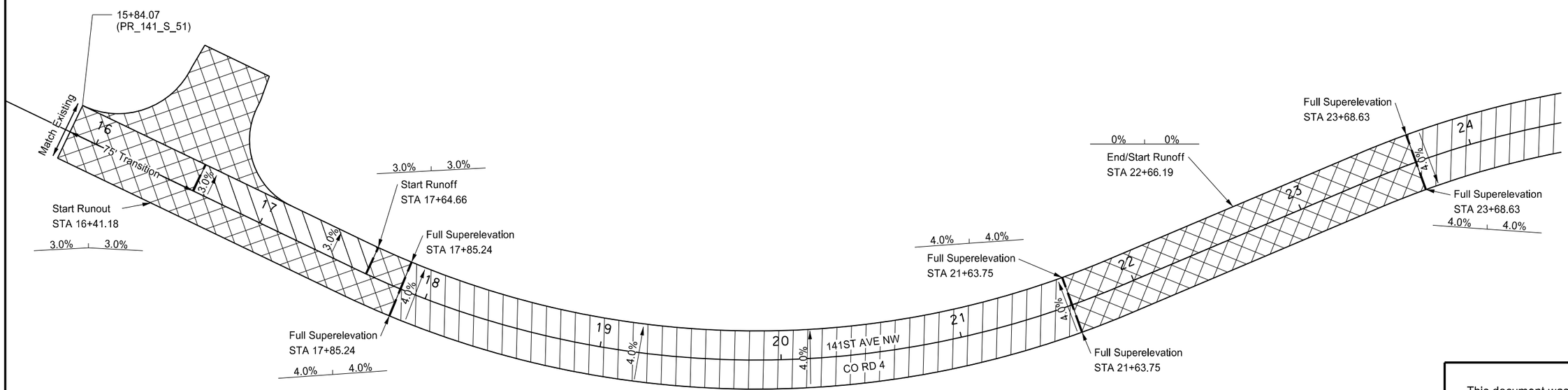
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

James Drive
23+80 to 25+87.79

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	19



Legend

Normal Crown (2.1% or 3.0%)

Transition (Varies)

Superelevation (Varies)

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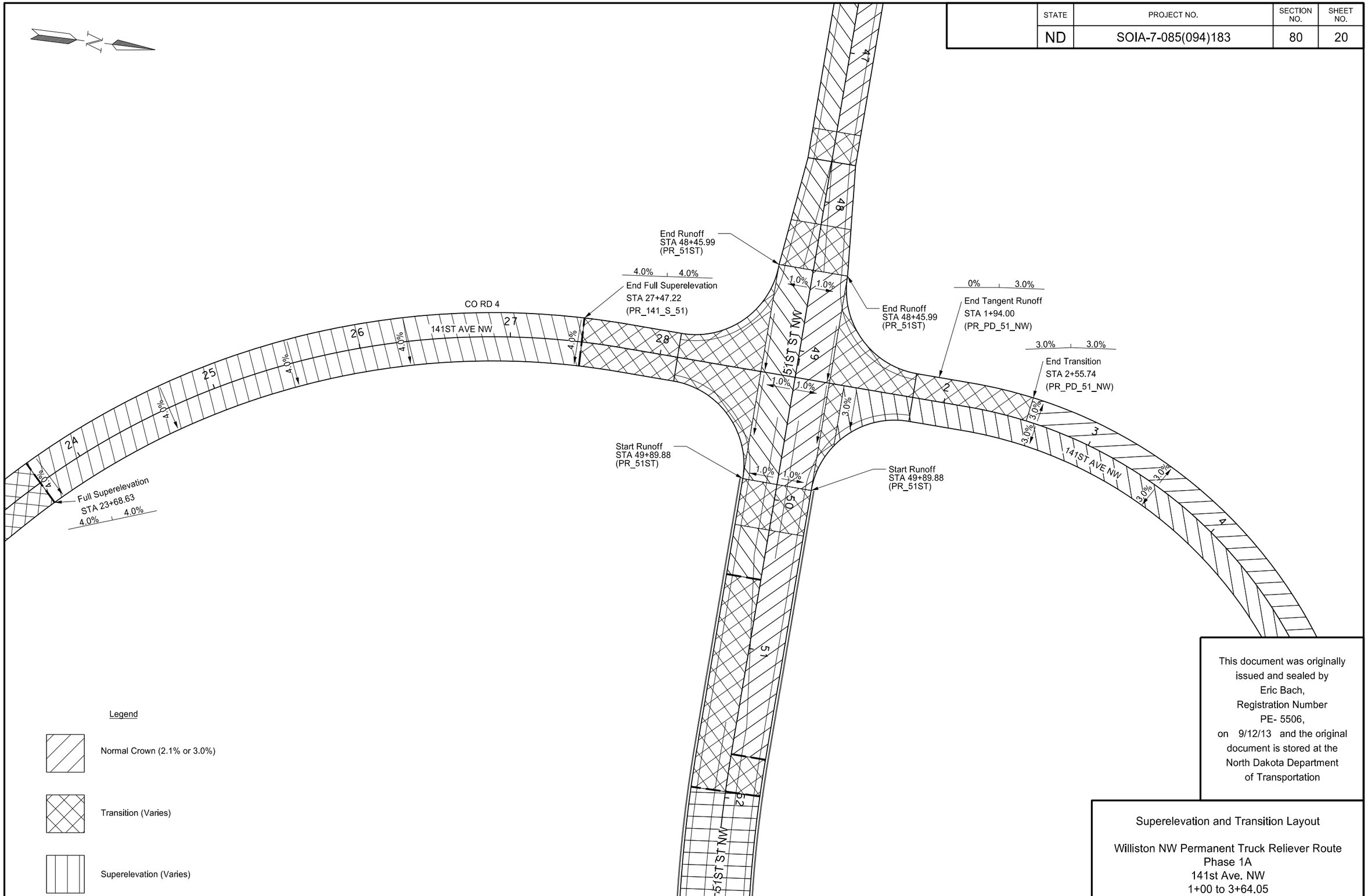
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

141st Ave. NW South of 51st St. NW
15+84.07 to 24+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	20



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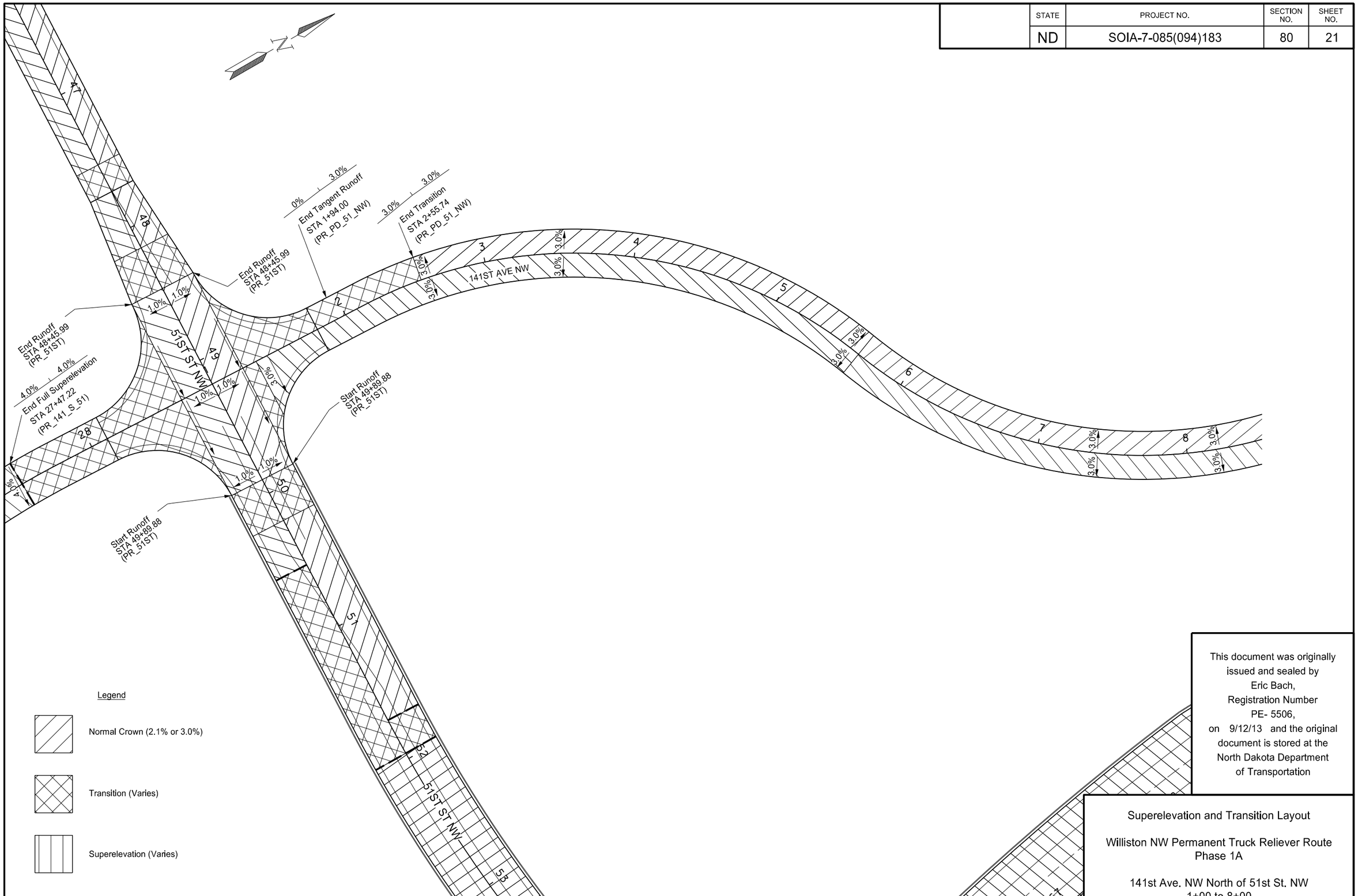
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route
Phase 1A
141st Ave. NW
1+00 to 3+64.05
24+00 to 28+72.76

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	21



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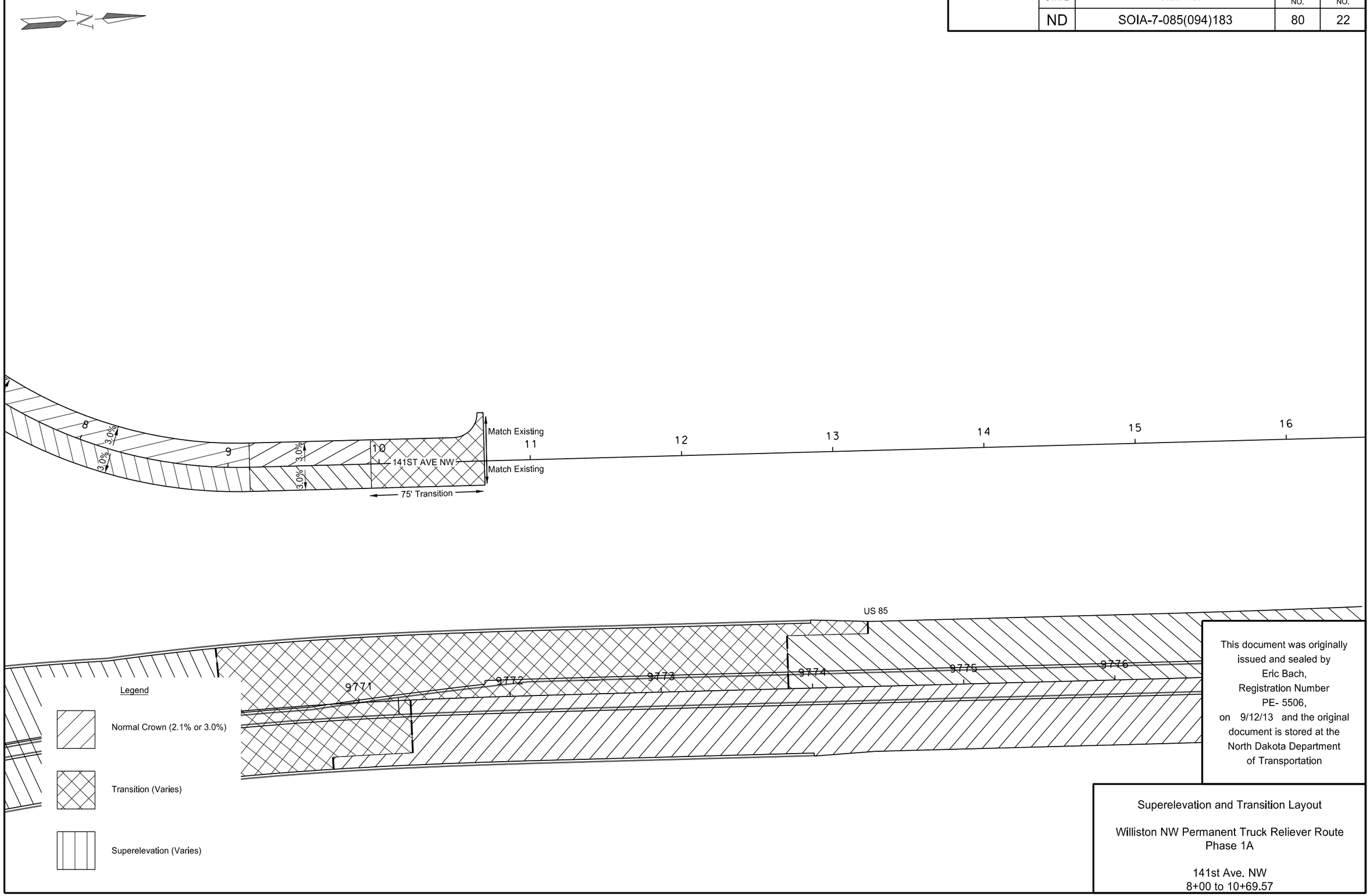
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

141st Ave. NW North of 51st St. NW
1+00 to 8+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	22



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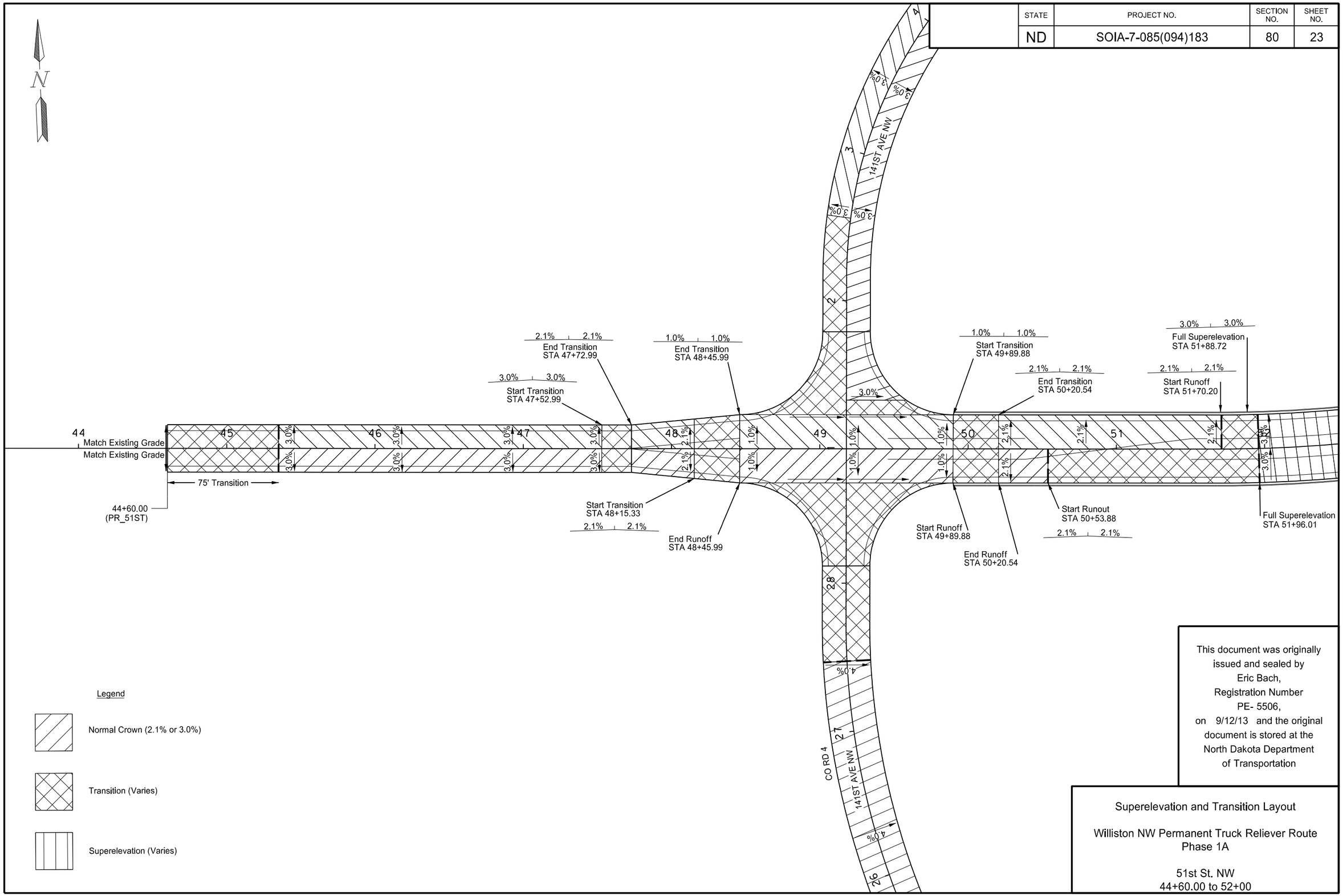
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route Phase 1A

141st Ave. NW
8+00 to 10+69.57

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	23



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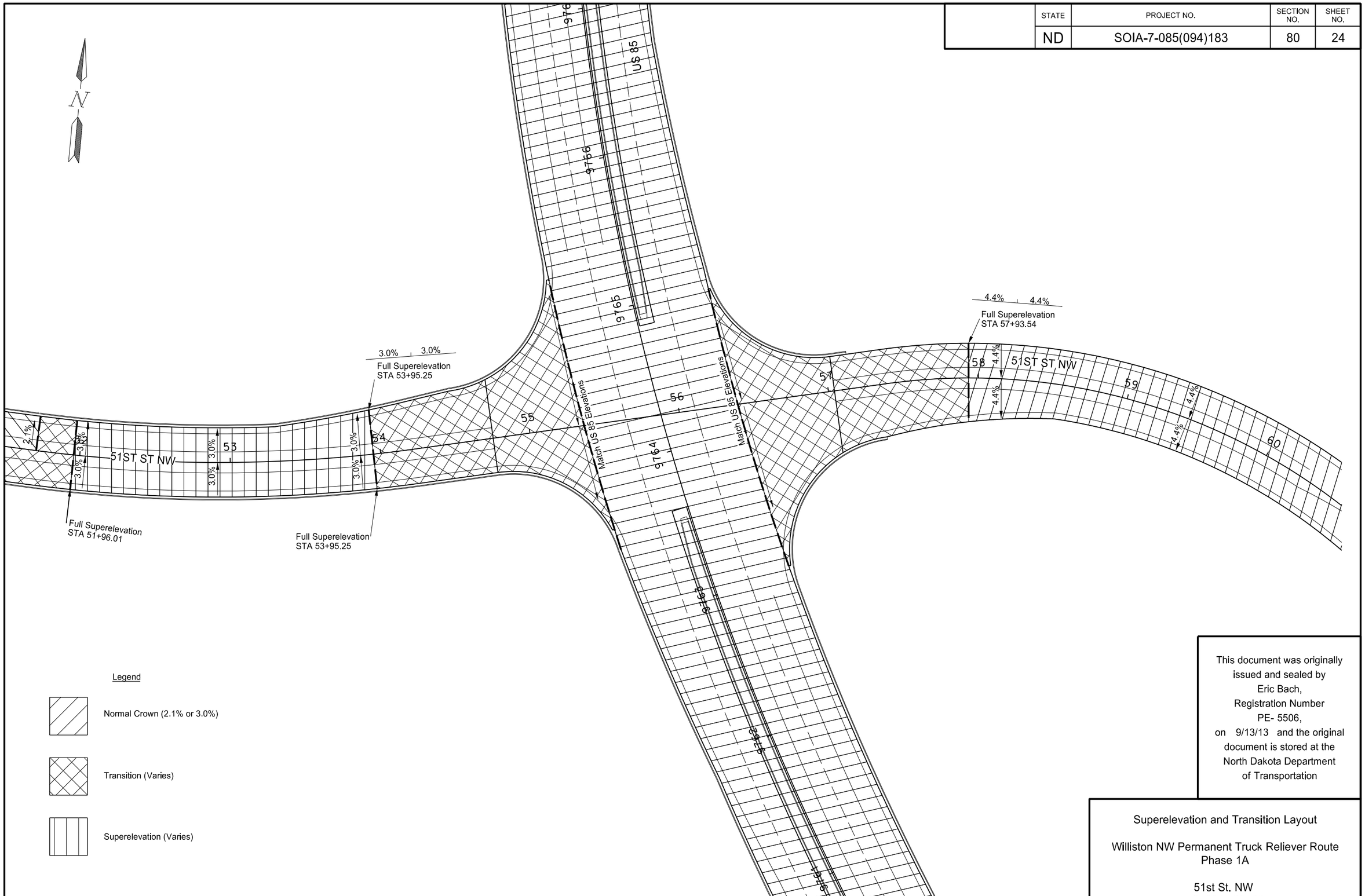
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

51st St. NW
44+60.00 to 52+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	24



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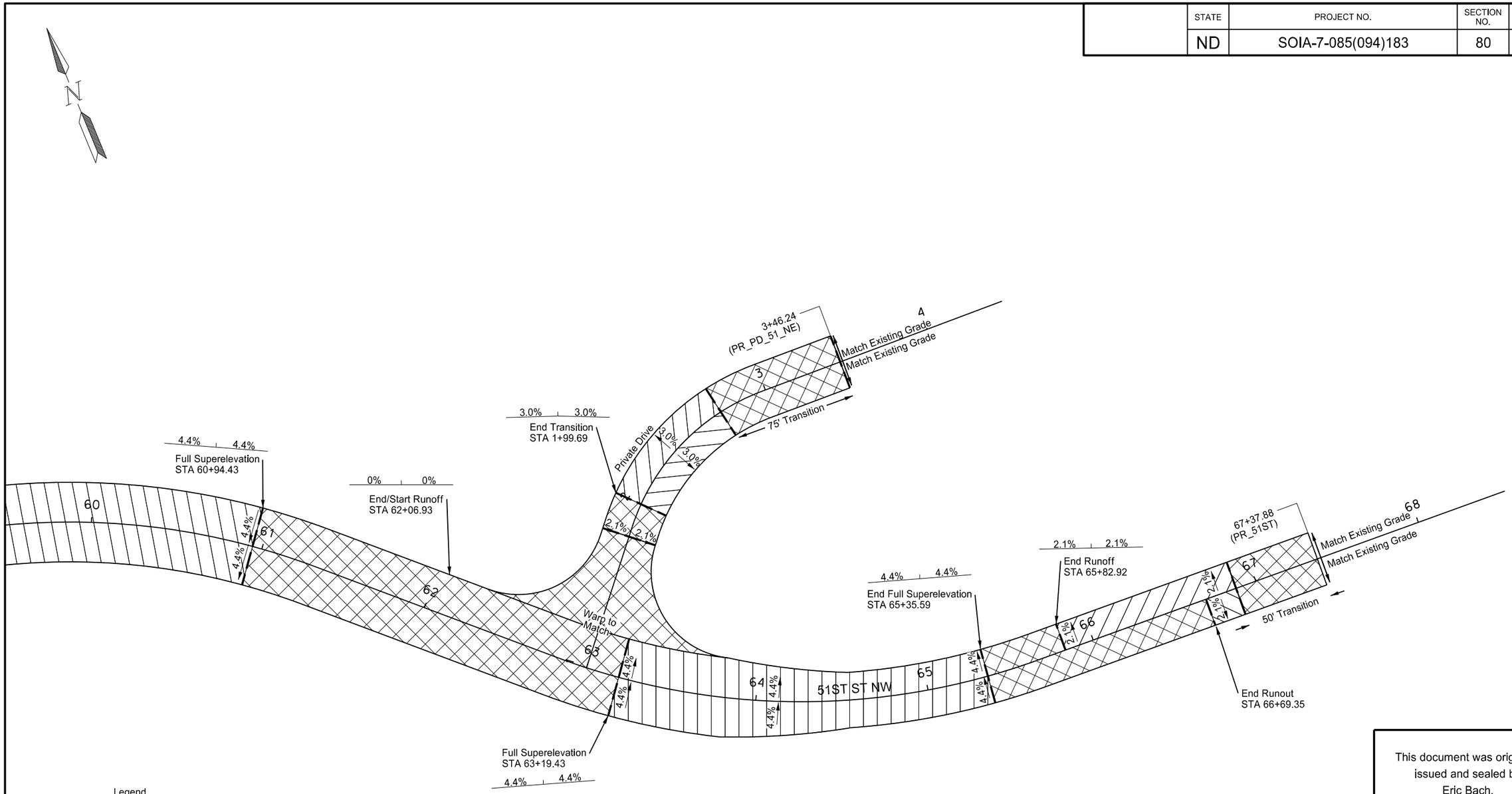
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

51st St. NW
52+00 to 60+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	25



Legend

Normal Crown (2.1% or 3.0%)

Transition (Varies)

Superelevation (Varies)

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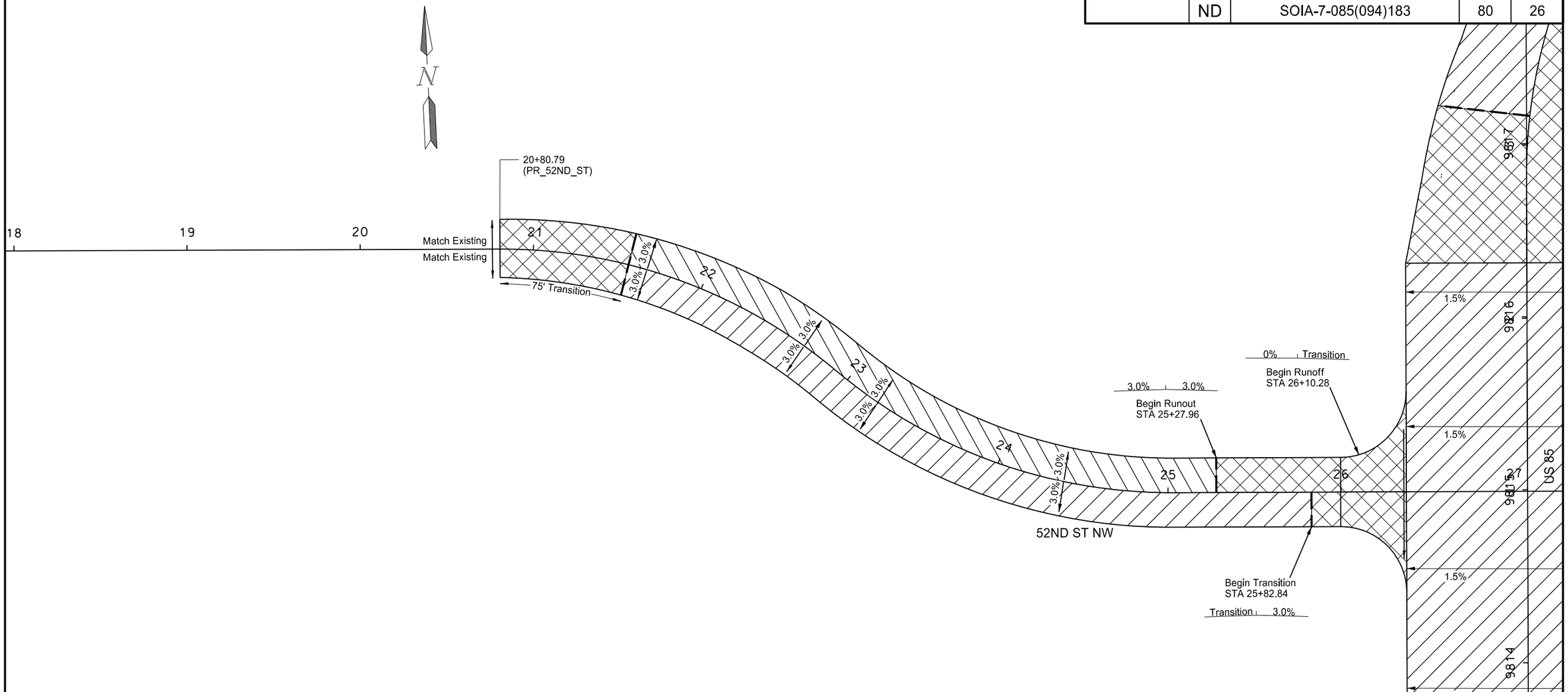
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

51st St. NW
60+00 to 67+37.88

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	26



Legend

Normal Crown (2.1% or 3.0%)

Transition (Varies)

Superelevation (Varies)

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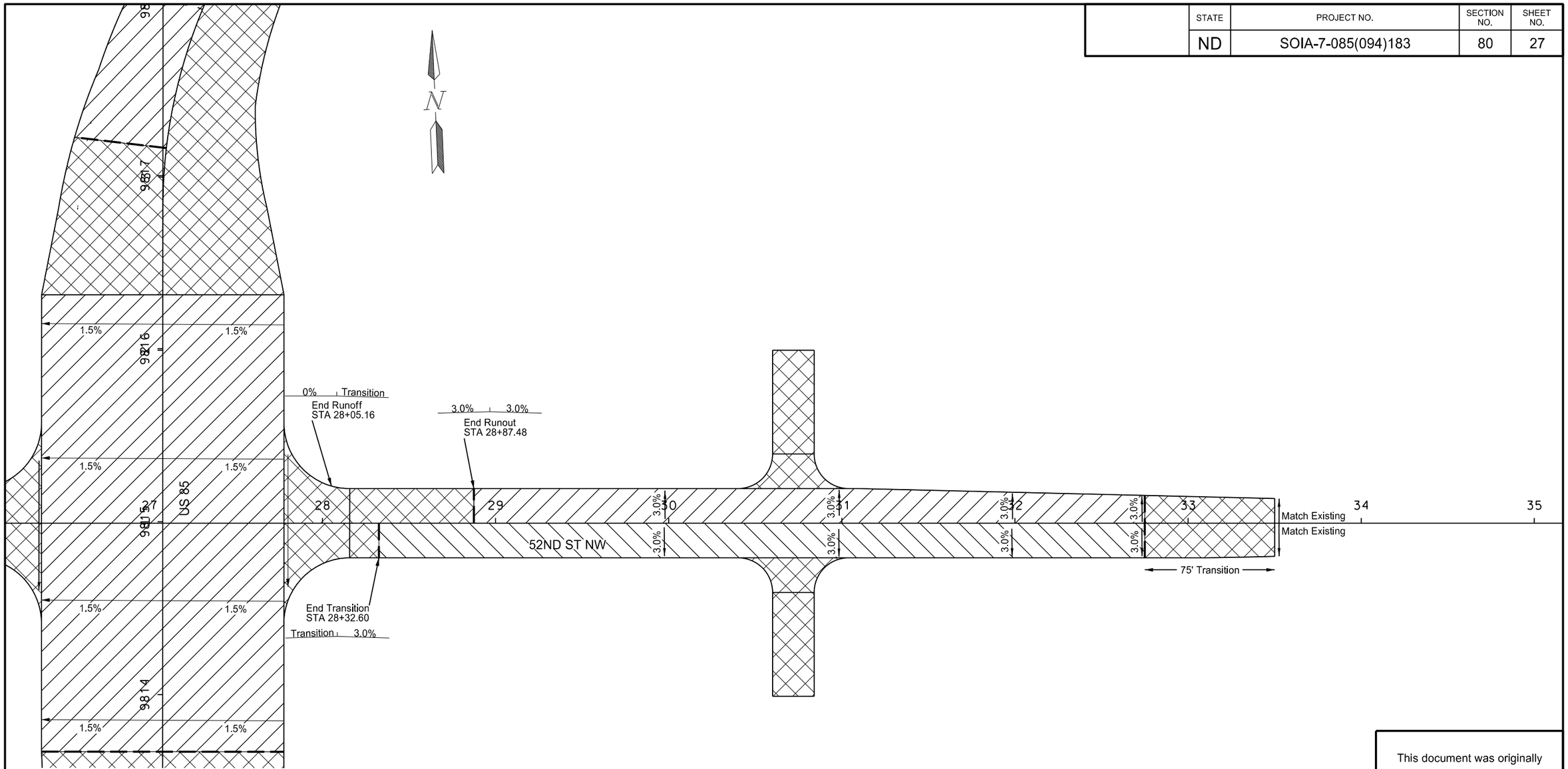
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

52nd St. NW
20+80.79 to 27+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	27



Legend

Normal Crown (2.1% or 3.0%)

Transition (Varies)

Superelevation (Varies)

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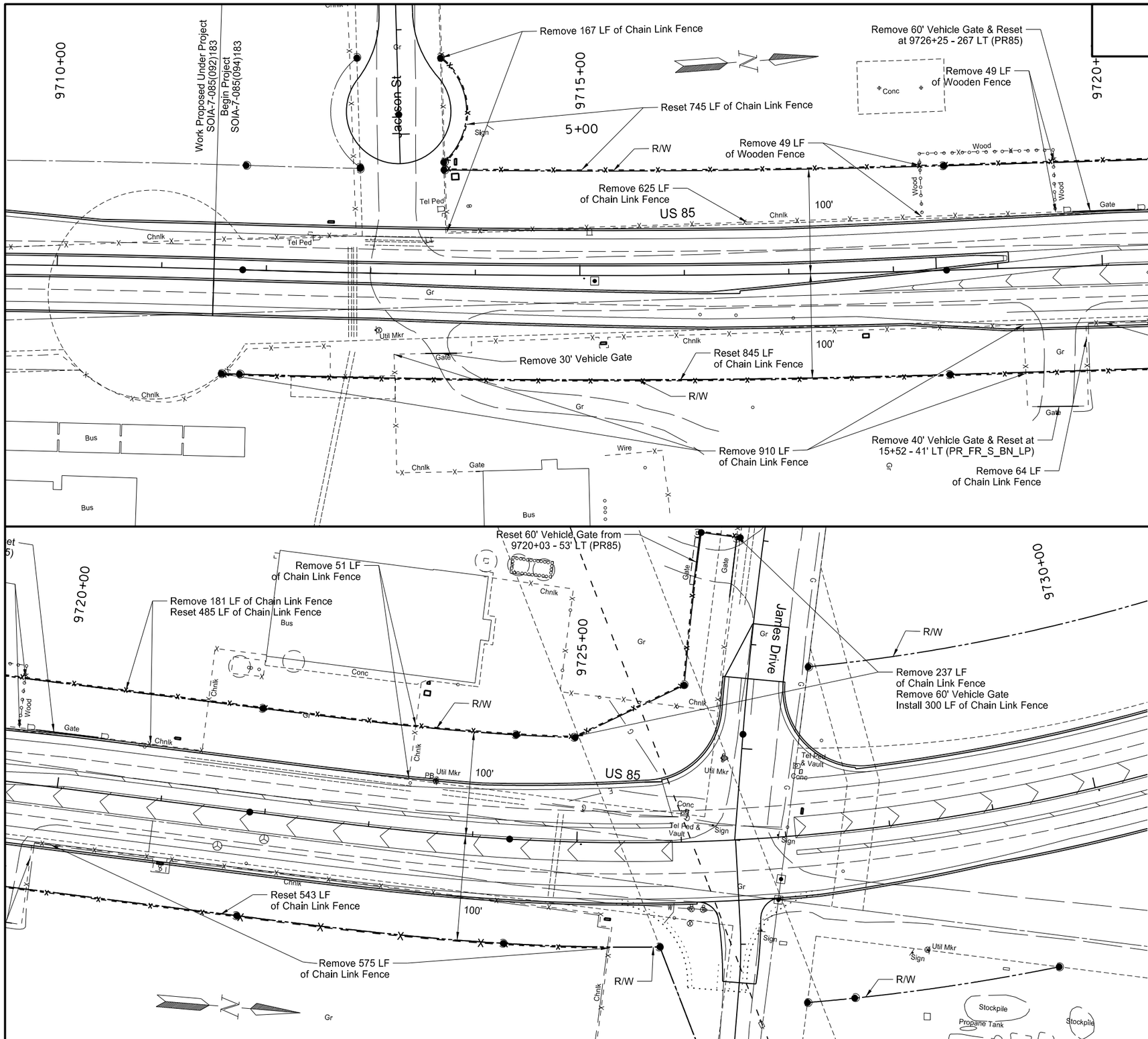
Superelevation and Transition Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

52nd St. NW
27+00 to 33+50

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	28



202	0312	Remove Existing Fence	
		9713+65 - 208' LT to 9720+00 - 53' LT (PR85)	792 LF
		9718+29 - 52' LT to 9718+28 - 101' LT (PR85)	49 LF
		9719+57 - 52' LT to 9719+57 - 101' LT (PR85)	49 LF
		9711+61 - 101' RT to 9719+24 - 101' RT (PR85)	910 LF
		9719+83 - 101' RT to 9720+00 - 55' RT (PR85)	64 LF
		9720+00 - 53' LT to 9721+33 101' LT (PR85)	181 LF
		9720+00 - 55' RT to 9725+32 101' RT (PR85)	575 LF
		9723+34 - 50' LT to 9723+35 - 101' LT (PR85)	51 LF
		9725+67 - 134' LT to 9726+72 - 290' LT (PR85)	237 LF
		Total =	2908 LF
752	0650	Fence Chain Link With Barbed Wire	
		9724+95 - 101' LT to 9726+72 - 290' LT (PR85)	300 LF
		Total =	300 LF
752	0930	Fence Reset Existing	
		9713+65 - 208' LT to 9720+00 - 101' LT (PR85)	745 LF
		9711+61 - 101' RT to 9720+00 - 101' RT (PR85)	845 LF
		9720+00 - 101' RT to 9725+32 - 101' RT (PR85)	543 LF
		9720+00 - 101' LT to 9724+95 - 101' LT (PR85)	485 LF
		Total =	2618 LF
752	2110	Reset Vehicle Gate	
		9726+25 - 267' LT (PR 85)	1 EA
		Total =	1 EA
752	2120	Remove Vehicle Gate	
		9713+69 - 76' RT (PR85)	1 EA
		9719+54 - 134' RT (PR85)	1 EA
		9720+00 - 53' LT (PR85)	1 EA
		9726+65 - 261' LT (PR85)	1 EA
		Total =	4 EA
752	3100	Corner Assembly Chain Link	
		9713+65 - 208' LT (PR85)	1 EA
		9713+70 - 108' LT (PR85)	1 EA
		9713+71 - 101' LT (PR85)	1 EA
		9711+61 - 101' RT (PR85)	1 EA
		9713+25 - 101' RT (PR85)	1 EA
		9719+24 - 101' RT (PR85)	1 EA
		9719+83 - 101' RT (PR85)	1 EA
		9721+33 - 101' LT (PR85)	1 EA
		9723+35 - 101' LT (PR85)	1 EA
		9724+95 - 101' LT (PR85)	1 EA
		9726+06 - 151' LT (PR85)	1 EA
		9726+31 - 297' LT (PR85)	1 EA
		9726+72 - 290' LT (PR85)	1 EA
		9725+32 - 101' RT (PR85)	1 EA
		Total =	14 EA

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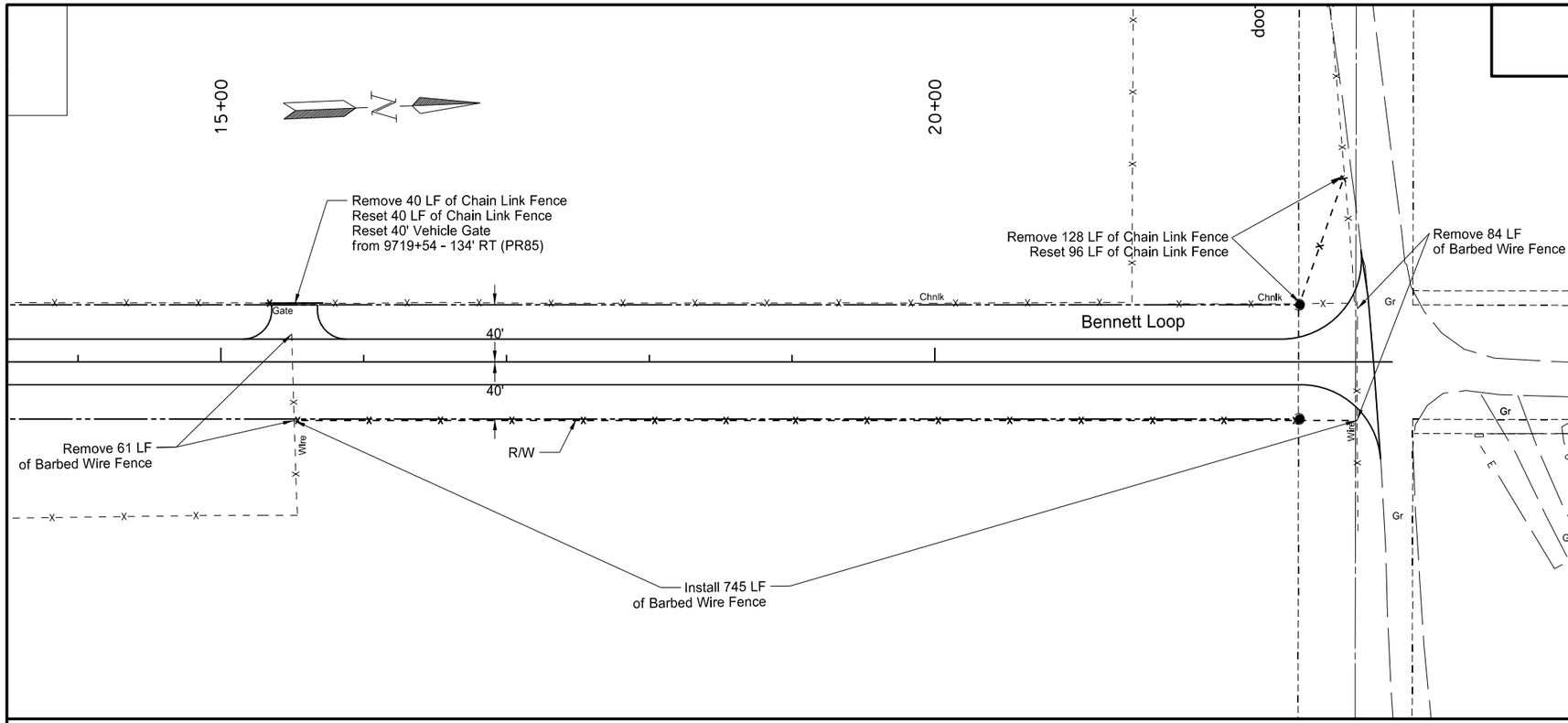
Fencing Details Layout

Williston NW Permanent Truck Reliever Route Phase 1A

US 85
9710+00 to 9730+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	29



202	0312	Remove Existing Fence	
		15+32 - 41' LT to 15+72 - 41' LT (PR_FR_S_BN_LP)	40 LF
		15+51 - 41' RT to 15+50 - 20' LT (PR_FR_S_BN_LP)	61 LF
		22+55 - 41' LT to 22+87 - 131' LT (PR_FR_S_BN_LP)	128 LF
		22+96 - 41' RT to 22+96 - 43' LT (PR_FR_S_BN_LP)	84 LF
		Total =	313 LF
752	0200	Fence Barbed Wire 4 Strand	
		15+51 - 41' RT to 22+96 - 41' RT (PR_FR_S_BN_LP)	745 LF
		Total =	745 LF
752	0930	Fence Reset Existing	
		15+32 - 41' LT to 15+72 - 41' LT (PR_FR_S_BN_LP)	40 LF
		22+55 - 41' RT to 22+87 - 131' LT (PR_FR_S_BN_LP)	96 LF
		Total =	136 LF
752	2110	Reset Vehicle Gate	
		15+52 - 41' LT (PR_FR_S_BN_LP)	1 EA
		Total =	1 EA
752	3100	Corner Assembly Chain Link	
		22+55 - 41' LT (PR_FR_S_BN_LP)	1 EA
		22+87 - 131' LT (PR_FR_S_BN_LP)	1 EA
		Total =	2 EA
752	3140	Corner Assembly Barbed Wire	
		15+51 - 41' RT (PR_FR_S_BN_LP)	1 EA
		22+96 - 41' RT (PR_FR_S_BN_LP)	1 EA
		Total =	2 EA

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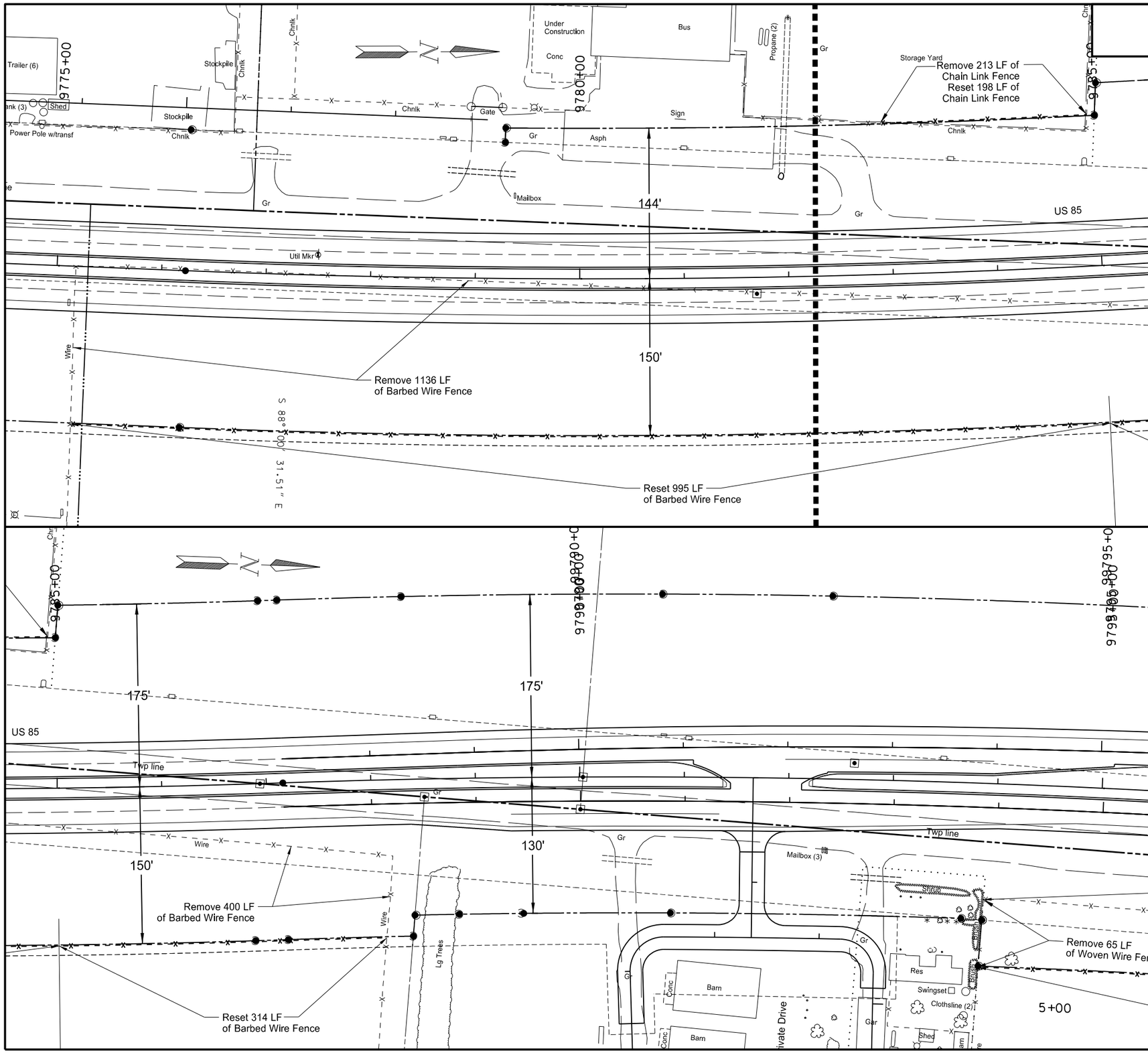
Fencing Details Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

Frontage Road South Bennett Loop
14+00 to 24+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	30



202	0312	Remove Existing Fence	
		9775+19 - 151' RT to 9785+00 - 37' RT (PR85)	1136 LF
		9782+92 - 145' LT to 9784+93 - 145' LT (PR85)	213 LF
		9785+00 - 37' RT to 9788+12 - 151' RT (PR85)	400 LF
		Total =	1749 LF
752	0930	Fence Reset Existing	
		9775+19 - 151' RT to 9785+00 - 151' RT (PR85)	995 LF
		9782+92 - 145' LT to 9784+93 - 145' LT (PR85)	198 LF
		9785+00 - 151' RT to 9788+12 - 151' RT (PR85)	314 LF
		Total =	1507 LF
752	3100	Corner Assembly Chain Link	
		9784+93 - 145' LT (PR85)	1 EA
		Total =	1 EA
752	3140	Corner Assembly Barbed Wire	
		9775+19 - 151' RT (PR85)	1 EA
		9788+12 - 151' RT (PR85)	1 EA
		Total =	2 EA

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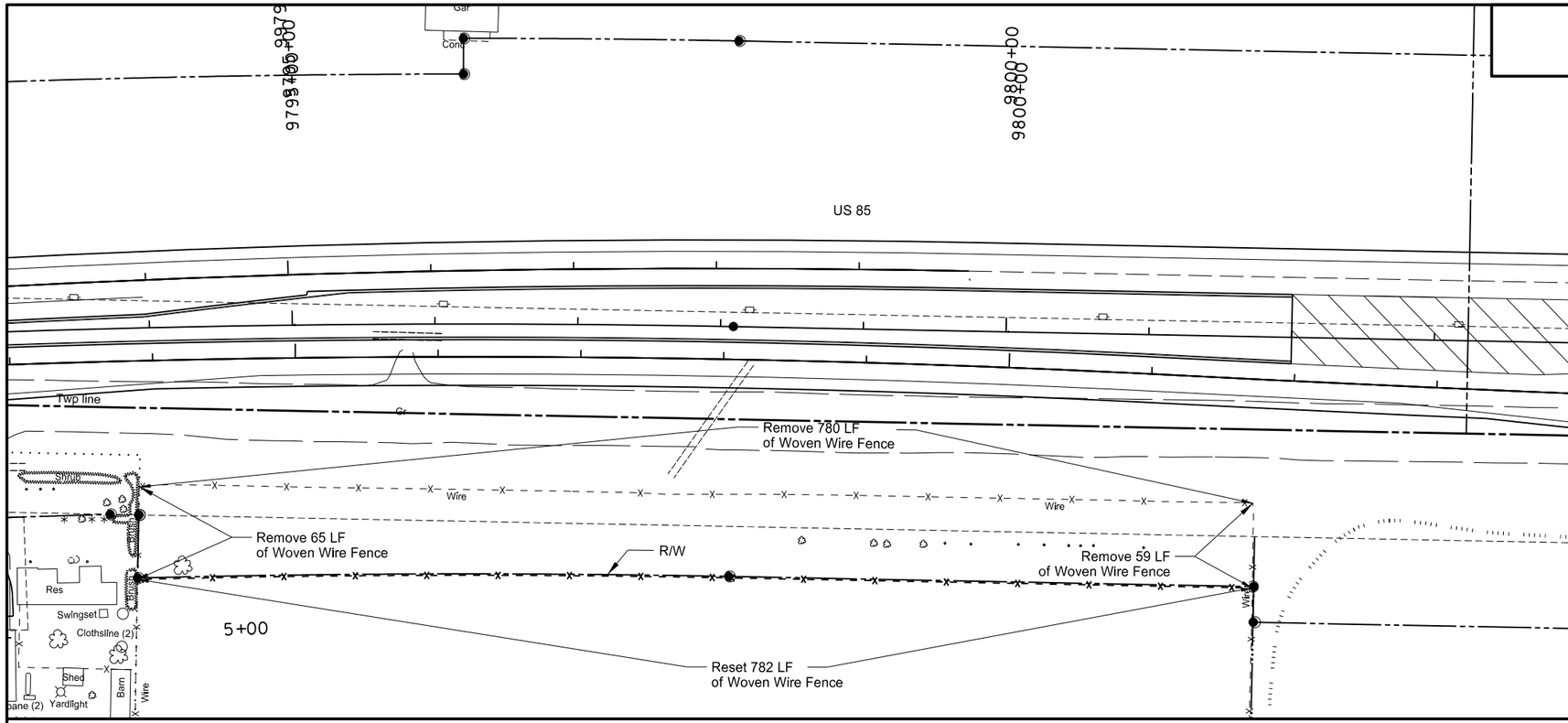
Fencing Details Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9775+00 to 9795+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	80	31



202	0312	Remove Existing Fence	
		9793+87 - 176' RT to 9793+90 - 111' RT (PR85)	65 LF
		9793+90 - 111' RT to 9801+75 - 117' RT (PR85)	780 LF
		9801+75 - 117' RT to 9801+76 - 176' RT (PR85)	59 LF
		Total =	904 LF
752	0930	Fence Reset Existing	
		9793+87 - 176' RT to 9801+76 - 176' RT (PR85)	782 LF
752	3120	Corner Assembly Woven Wire	
		9793+87 - 176' RT (PR85)	1 EA
		9801+76 - 176' RT (PR85)	1 EA
		Total =	2 LF

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Fencing Details Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9793+00 to 9804+00

PRELIMINARY SURVEY COORDINATE AND CURVE DATA - Williston NW Permanent Truck Reliever Route Phase 1A

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	81	1

HORIZONTAL ALIGNMENT

PNT	STATION	NORTHING	EASTING

CURVE DATA

ARC DEFINITION	

US PUBLIC LAND SURVEY DATA

DESC.	SEC-TWP-RGE	NORTHING	EASTING
SW Cor	Sec 19 T-154-N R-101-W	432362.33	1179421.68
S¼ Cor	Sec 19 T-154-N R-101-W	432258.85	1181959.30
SE Cor	Sec 19 T-154-N R-101-W	432149.47	1184597.58
W¼ Cor	Sec 19 T-154-N R-101-W	435007.53	1179532.87
C¼ Cor	Sec 19 T-154-N R-101-W	434899.66	1182068.86
E¼ Cor	Sec 19 T-154-N R-101-W	434787.64	1184703.48
NW Cor	Sec 19 T-154-N R-101-W	437651.70	1179644.04
N¼ Cor	Sec 19 T-154-N R-101-W	437543.35	1182178.56
NE Cor	Sec 19 T-154-N R-101-W	437430.61	1184818.81
W¼ Cor	Sec 18 T-154-N R-101-W	440289.17	1179755.34
E¼ Cor	Sec 18 T-154-N R-101-W	440072.55	1184934.08
NW Cor	Sec 18 T-154-N R-101-W	442931.63	1179866.59
N¼ Cor	Sec 18 T-154-N R-101-W	442825.03	1182407.75
NE Cor	Sec 18 T-154-N R-101-W	442714.41	1185049.49
W¼ Cor	Sec 7 T-154-N R-101-W	445564.46	1179984.00
W¼ Cor	Sec 8 T-154-N R-101-W	445351.49	1185166.70
NW Cor	Sec 7 T-154-N R-101-W	448197.21	1180101.58
N¼ Cor	Sec 7 T-154-N R-101-W	448095.29	1182646.68
NE Cor	Sec 25 T-154-N R-102-W	432532.19	1179427.79
E¼ Cor	Sec 24 T-154-N R-102-W	435169.46	1179539.24
NE Cor	Sec 23 T-154-N R-102-W	438023.47	1174378.56
S¼ Cor	Sec 13 T-154-N R-102-W	437915.38	1177014.56
NE Cor	Sec 24 T-154-N R-102-W	437807.29	1179650.56
W¼ Cor	Sec 13 T-154-N R-102-W	440659.14	1174489.25
E¼ Cor	Sec 13 T-154-N R-102-W	440440.53	1179761.86
NW Cor	Sec 13 T-154-N R-102-W	443294.81	1174599.95
N¼ Cor	Sec 13 T-154-N R-102-W	443184.26	1177236.60
NE Cor	Sec 13 T-154-N R-102-W	443073.77	1179873.15
W¼ Cor	Sec 12 T-154-N R-102-W	445934.75	1174712.10
E¼ Cor	Sec 12 T-154-N R-102-W	445708.96	1179987.26
N¼ Cor	Sec 12 T-154-N R-102-W	448458.03	1177462.33
NE Cor	Sec 12 T-154-N R-102-W	448344.15	1180101.36

SURVEY CONTROL POINTS

PNT	NORTHING	EASTING	ELEV	STATION	OFFSET	CONTROL POINT DESCRIPTION
GPS 3	451335.06	1169703.42	2252.48	9925+18	5180' LT	#6 Rebar
GPS 4	469766.32	1202817.07	2019.41	10343+01	267' LT	#6 Rebar
GPS 5	443186.12	1178827.44	2132.50	9817+09	985' LT	#6 Rebar
GPS 6	431273.68	1181662.58	2050.14	9693+00	195' LT	#6 Rebar
GPS 9	469170.63	1186092.74	2274.25	10171+47	63' RT	#6 Rebar

All coordinates and measurements on this document derived from the International Foot definition.

INITIALIZING BENCH MARK

- [x] NAVD-88
- [ ] NGVD-29
- [x] GEOID 09
- [ ] GEOID 12A
- [ ] _____

NOTES:

Date Survey Completed 9/10/13

- [ ] Assumed Coordinates
- [x] All coordinates on this sheet are Williams County ground coordinates. They are derived from the "North Dakota Coordinate System of 1983", NAD83(CORS96).North Zone Combination Factor (cf) = .9998445

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	81	2

Iron R/W Pins/Right of Way Markers

PR85		
Station	Offset	Description
9711+59.89	100	R/W
9711+77.51	100	PRC
9711+77.51	-100	PRC
9712+87.78	-100	R/W
9712+87.73	-100.95	R/W
9713+68.29	-107.31	R/W
9713+68.62	-100	R/W
9718+50.94	-100	PT
9718+50.94	100	PT
9721+85.63	-100	TS
9721+85.63	100	TS
9724+35.63	-100	SC
9724+35.63	100	SC
9724+95.32	-100	R/W
9725+78.01	100	R/W
9726+07.13	-150	R/W
9726+21.46	232.36	R/W
9727+07.66	160	R/W
9727+37.13	-160	R/W
9727+49.55	160	QTR. COR.
9729+32.15	160	R/W
9731+28.51	-160	QTR. COR.
9731+75.53	160	R/W
9736+99.18	-160	CS
9736+99.18	160	CS
9737+78.13	-160	R/W
9739+49.18	-163.09	ST
9739+49.18	160	ST
9739+71.61	-160	R/W
9739+87.59	-776.79	R/W
9739+78.94	-160	R/W
9740+22.07	-170	R/W
9740+44.00	160	R/W
9740+44.55	-832.96	R/W
9740+48.08	-170	R/W
9740+48.08	-629.32	R/W
9740+52.22	276.38	R/W
9741+28.08	-170	R/W
9741+28.08	-629.32	R/W
9741+54.08	-170	R/W
9741+97.21	-160	R/W
9743+49.40	160	R/W
9743+49.40	167.5	R/W
9753+74.89	-160	R/W
9753+74.89	160	R/W
9754+18.02	-170	R/W
9754+18.02	170	R/W
9755+50.03	-170	R/W
9755+50.03	170	R/W
9755+71.95	-167.52	R/W
9755+72.02	167.5	R/W
9755+81.16	167.5	R/W
9756+10.62	-167.52	TS
9756+10.62	169.58	TS
9757+93.93	313.85	R/W
9758+60.62	-173.85	SC
9759+61.33	-184.92	R/W
9761+23.11	-319.6	R/W
9764+81.38	184.38	R/W
9765+25.69	150	R/W
9770+09.09	-230.75	CS
9770+09.09	150	CS
9771+57.00	-135.41	R/W
9772+59.09	-135	ST
9772+59.09	150	ST
9776+22.73	-135	PC

PR85		
Station	Offset	Description
9776+22.73	-135	PC
9776+22.73	150	PC
9779+27.69	-130.2	R/W
9779+28.12	-144	R/W
9784+99.84	-144	R/W
9785+02.71	-175	R/W
9786+97.21	-175	QTR. COR.
9786+85.07	150	QTR. COR.
9787+15.88	-175	PRC
9787+15.88	150	PRC
9788+32.78	-175	QTR. COR.
9788+37.50	150	R/W
9788+39.56	130	R/W
9788+82.50	130	QTR. COR.
9789+44.96	130	QTR. COR.
9790+87.24	130	QTR. COR.
9790+78.57	-175	QTR. COR.
9792+38.61	-175	QTR. COR.
9793+68.96	130	R/W
9793+68.96	175	R/W
9793+87.30	130.9	R/W
9796+20.00	-175	R/W
9796+20.00	-200	R/W
9798+09.02	-200	PT
9798+09.02	175	PT
9801+76.80	175	R/W
9803+26.80	200	R/W
9812+34.14	-200	SEC. COR.
9813+21.02	-200	R/W
9813+39.54	-236.9	SEC. COR.
9813+64.14	200	SEC. COR.
9813+99.16	307.27	SEC. COR.
9813+99.18	200	R/W
9815+99.20	235.36	R/W
9816+56.74	177.78	TS
9816+59.49	175.02	R/W
9817+16.64	-184.89	R/W
9817+49.73	-184.77	SEC. COR.
9817+50.87	175.24	SEC. COR.
9818+96.72	-183.7	SEC. COR.
9820+43.80	176.78	R/W
9820+48.25	107.39	R/W
9820+52.67	41.55	R/W
9820+69.37	-183.22	R/W
9820+56.74	-183.22	SC

PR_FR_S_BN_LP		
0+24.97	67.12	R/W
0+25.05	-63.02	R/W
1+68.77	-40	PC
1+68.77	40	PC
2+91.15	-40	PRC
2+91.15	40	PRC
4+13.59	-40	PT
4+13.59	40	PT
22+55.46	40	R/W
22+55.52	-40	R/W

PR_JACKSON_ST		
4+25.80	38.49	R/W
4+28.17	-41.52	R/W

PR_JAMES_DR		
Station	Offset	Description
12+31.66	-40.02	R/W
13+07.64	-116.18	R/W
13+87.65	-109.73	R/W
14+10.11	95.23	R/W
14+57.35	-40.02	R/W
14+65.36	39.98	R/W
18+18.58	-40.01	PC
18+18.58	39.99	PC
20+67.83	-49	PRC
23+00.00	22.29	R/W
23+00.00	60	R/W

PR_141_S_51		
17+57.80	-75	PC
17+57.80	75	PC
21+91.19	-75	PT
23+41.19	-75	PC
27+74.66	-75	PT
28+40.56	-75	R/W

PR_PD_51_NW		
1+49.85	-114.93	R/W
1+99.85	-65	R/W
2+16.00	-65	PC
5+65.14	-65	PRC
9+14.31	-65	PT
10+37.74	-65	R/W

PR_51ST		
44+28.64	-50	R/W
44+28.64	-33	R/W
44+28.64	33	R/W
44+28.64	50	R/W
61+31.93	-75	PT
65+65.77	-75	PT
65+65.77	75	PT
72+50.66	-75	R/W
72+50.67	-33	R/W
72+50.68	40	R/W
72+50.69	75	R/W

PR_141_S_52		
12+75.66	-75	PT
12+75.66	75	PT
32+30.63	-75	PC
32+30.63	75	PC
37+64.19	-75	PT
37+64.19	75	PT
46+38.84	-75	R/W
46+39.06	75	R/W

PR_52ND_ST		
Station	Offset	Description
20+30.79	75	R/W
20+30.79	97.84	R/W
20+80.79	-75	PC
20+80.79	122.95	PC
22+91.71	137.21	PRC
22+91.71	-191.57	PRC
25+02.62	175.5	PT
25+02.62	-217.28	PT
33+52.72	100	R/W
33+52.72	33	R/W
33+52.72	-33	R/W
33+52.72	-100	R/W
Iron Pins=		177
Total ROW Markers=		177

720 0110 Right of Way Markers

Total = 177 EA

*Station and offsets given are perpendicular to alignment

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R/W Monuments

Williston NW Permanent Truck Reliever Route Phase 1A

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	81	3

Iron R/W Pins/Concrete Monuments

PR85	
Centerline Locations	
Station	Description
9711+77.51	PRC
9718+50.94	PT
9721+85.63	TS
9724+35.63	SC
9736+99.18	CS
9739+49.18	ST
9756+10.62	TS
9758+60.62	SC
9770+09.09	CS
9772+59.09	ST
9776+22.73	PC
9787+15.88	PRC
9798+09.02	PT
9814+99.12	POT
9816+56.74	TS

PR_FR_S_BN_LP	
1+68.77	PC
2+91.15	PRC
4+13.59	PT

PR_JACKSON_ST	
4+81.18	POT

PR_JAMES_DR	
18+18.58	PC
20+67.83	PRC
24+86.34	PT

PR_141_S_51	
Centerline Locations	
Station	Description
17+57.80	PC
21+91.19	PT
23+41.19	PC
27+74.66	PT

PR_PD_51_NW	
2+16.00	PC
5+65.14	PRC
9+14.31	PT

PR_51ST	
51+68.14	PC
54+23.12	PT
57+38.80	PC
61+31.93	PT
62+81.93	PC
65+65.77	PT

PR_52ND_ST	
20+80.79	PC
22+91.71	PRC
25+02.62	PT

PR_51st Pin Only Locations		
Station	Offset	Description
62+81.93	-75	PC
Iron Pins =		39
Total Iron Pins =		216

PR85		
Concrete Monuments		
Station	Offset	Description
9715+14.22	5.28	PI
9726+88.63	59.81	QTR. COR.
9726+92.50	40.21	QTR. CROSSING
9730+67.40	161.89	PI
9761+98.84	-64.19	SEC. CROSSING
9763+07.34	-282.27	SEC. COR.
9764+31.15	-216.78	SEC. COR.
9764+34.86	-149.98	PI
9781+69.31	15.66	PI
9786+94.27	0.02	SEC. CROSSING
9788+51.03	17.07	QTR. COR.
9790+00.44	30.87	QTR. COR.
9790+04.42	-4.33	QTR. CROSSING
9792+62.45	-15.66	PI
9814+99.14	65	SEC. COR.
9816+41.44	65	SEC. COR.

PR_FR_S_BN_LP		
2+29.96	3.77	PI
3+52.37	-3.77	PI

PR_JAMES_DR		
19+43.21	-2.22	PI
22+77.08	6.26	PI

PR_141_S_51		
Concrete Monuments		
Station	Offset	Description
19+74.50	49.66	PI
25+57.93	-49.68	PI

PR_PD_51_NW		
3+90.57	-59.1	PI
7+39.73	59.11	PI

PR_51ST		
52+95.63	8.68	PI
53+77.95	1.08	SEC. CROSSING
59+35.36	-53.36	PI
64+23.85	26.42	PI

PR_52ND		
21+86.25	-19.54	PI
23+97.16	19.54	PI
Total Concrete Monuments =		30

720 0100 Monuments

Total = 30 EA

*Station and offsets given are perpendicular to alignment

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R/W Monuments

Williston NW Permanent Truck Reliever Route Phase 1A

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	1

Chain PR85 contains:
CUR C8003 CUR C8004 SCS C8005 SCS C800-6 CUR
C8007 CUR C8008 8009 8010 SCS C8011

Curve Data

Curve C8003
P.I. Station 9708+40.89 N 433,047.70 E 1,181,929.77
Delta = 3° 35' 30.26" (RT)
Degree = 0° 32' 00.00"
Tangent = 336.84
Length = 673.45
Radius = 10,742.96
External = 5.28
Long Chord = 673.34
Mid. Ord. = 5.28
P.C. Station 9705+04.06 N 432,711.16 E 1,181,915.81
P.T. Station 9711+77.51 N 433,382.71 E 1,181,964.79
C.C. N 432,265.81 E 1,192,649.53
Back = N 2° 22' 33.19" E
Ahead = N 5° 58' 03.44" E
Chord Bear = N 4° 10' 18.32" E

Curve Data

Curve C8004
P.I. Station 9715+14.33 N 433,717.72 E 1,181,999.81
Delta = 3° 35' 29.87" (LT)
Degree = 0° 32' 00.00"
Tangent = 336.83
Length = 673.43
Radius = 10,742.96
External = 5.28
Long Chord = 673.32
Mid. Ord. = 5.28
P.C. Station 9711+77.51 N 433,382.71 E 1,181,964.79
P.T. Station 9718+50.94 N 434,054.25 E 1,182,013.77
C.C. N 434,499.62 E 1,171,280.05
Back = N 5° 58' 03.44" E
Ahead = N 2° 22' 33.57" E
Chord Bear = N 4° 10' 18.51" E

Course from PT C8004 to TS C8005B N 2° 22' 33.57" E Dist 334.69

SCS C8005 found within chain PR85, contains:
SPI C8005B CUR C8005 SPI C8005A

PISCS C8005 N 435,312.45 E 1,182,065.98 STA 9731+10.22
Total Tangent = 924.59
Total Length = 1,763.54
Total Delta = 45° 24' 22.47" (LT)
Back Tangent = N 2° 22' 33.57" E
Ahead Tangent = N 43° 01' 48.89" W

Beginning SCS C8005 description

Spiral Back
Spiral C8005B Type 1 Spiral Element

Angle 3° 45' 00.00" (LT) P 1.36 BK N 2° 22' 33.57" E
LS 250.00 K 124.98 AH N 1° 22' 26.43" W
R 1,909.86 LT 166.70 CB N 1° 07' 33.73" E
YS 5.45 ST 83.37 Defl 1° 14' 59.84"
XS 249.89 LC 249.95 Deg 3° 00' 00.00"

Spiral Coordinates

Point	North	East	Station
TS	434,388.66	1,182,027.65	9721+85.63
PI	434,555.22	1,182,034.56	9723+52.34
SC	434,638.56	1,182,032.56	9724+35.63
CC	434,592.77	1,180,123.25	

Circular Section

Curve Data

Curve C8005
P.I. Station 9730+91.50 N 435,294.24 E 1,182,016.83
Delta = 37° 54' 22.47" (LT)
Degree = 3° 00' 00.00"
Tangent = 655.87
Length = 1,263.54
Radius = 1,909.86
External = 109.48
Long Chord = 1,240.62
Mid. Ord. = 103.54
P.C. Station 9724+35.63 N 434,638.56 E 1,182,032.56
P.T. Station 9736+99.18 N 435,801.93 E 1,181,601.59
C.C. N 434,592.77 E 1,180,123.25
Back = N 1° 22' 26.43" W
Ahead = N 39° 16' 48.89" W
Chord Bear = N 20° 19' 37.66" W

Spiral Ahead
Spiral C8005A Type 2 Spiral Element

Angle 3° 45' 00.00" (LT) P 1.36 BK N 39° 16' 48.89" W
LS 250.00 K 124.98 AH N 43° 01' 48.89" W
R 1,909.86 LT 166.70 CB N 41° 46' 49.06" W
YS 5.45 ST 83.37 Defl 1° 14' 59.84"
XS 249.89 LC 249.95 Deg 3° 00' 00.00"

Spiral Coordinates

Point	North	East	Station
CS	435,801.93	1,181,601.59	9736+99.18
PI	435,866.46	1,181,548.81	9737+82.54
ST	435,988.32	1,181,435.06	9739+49.18
CC	434,592.77	1,180,123.25	

Ending SCS C8005 description

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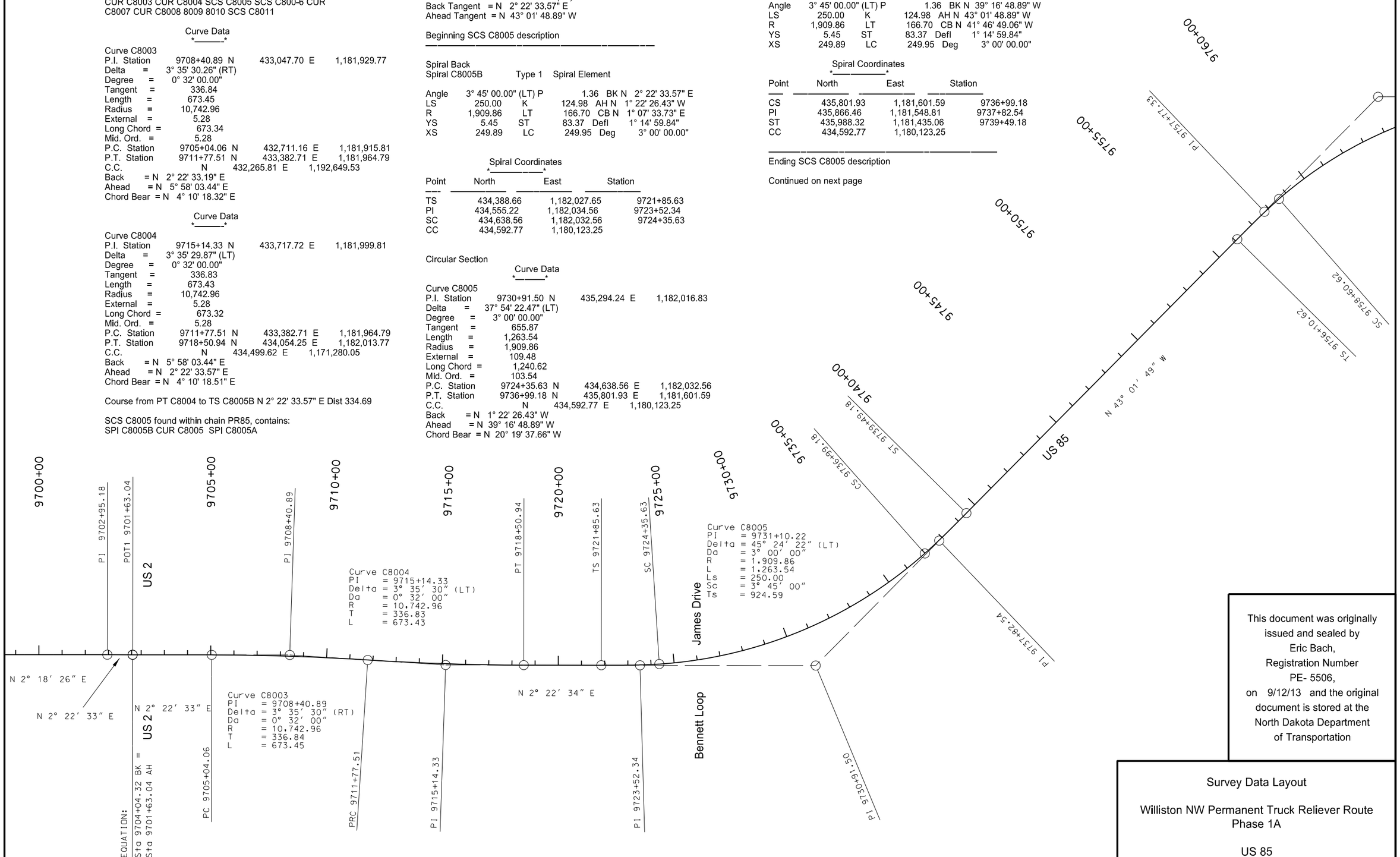

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Survey Data Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9701+63.04 AH to 9750+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	2

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Course from ST C8005A to TS C8006B N 43° 01' 48.89" W Dist 1,661.44

SCS C8006 found within chain PR85, contains:
SPI C8006B CUR C8006 SPI C8006A

PISCS C8006 N 437,834.37 E 1,179,711.76 STA 9764+74.59
Total Tangent = 863.97
Total Length = 1,648.48
Total Delta = 45° 27' 01.77" (RT)
Back Tangent = N 43° 01' 48.89" W
Ahead Tangent = N 2° 25' 12.87" E

Beginning SCS C8006 description

Spiral Back
Spiral C8006B Type 1 Spiral Element

Angle	4° 03' 45.00" (RT)	P	1.48	BK N	43° 01' 48.89" W
LS	250.00	K	124.98	AH N	38° 58' 03.89" W
R	1,762.95	LT	166.71	CB N	41° 40' 34.10" W
YS	5.91	ST	83.37	Defl	1° 21' 14.79"
XS	249.87	LC	249.94	Deg	3° 15' 00.00"

Spiral Coordinates

Point	North	East	Station
TS	437,202.82	1,180,301.31	9756+10.62
PI	437,324.68	1,180,187.55	9757+77.33
SC	437,389.51	1,180,135.12	9758+60.62
CC	438,498.19	1,181,505.81	

Circular Section

Curve Data

Curve C8006
P.I. Station 9764+56.07 N 437,852.47 E 1,179,760.65
Delta = 37° 19' 31.77" (RT)
Degree = 3° 15' 00.00"
Tangent = 595.45
Length = 1,148.48
Radius = 1,762.95
External = 97.84
Long Chord = 1,128.28
Mid. Ord. = 92.70
P.C. Station 9758+60.62 N 437,389.51 E 1,180,135.12
P.T. Station 9770+09.09 N 438,447.67 E 1,179,743.59
C.C. N 438,498.19 E 1,181,505.81
Back = N 38° 58' 03.89" W
Ahead = N 1° 38' 32.13" W
Chord Bear = N 20° 18' 18.01" W

Spiral Ahead
Spiral C8006A Type 2 Spiral Element

Angle	4° 03' 45.00" (RT)	P	1.48	BK N	1° 38' 32.13" W
LS	250.00	K	124.98	AH N	2° 25' 12.87" E
R	1,762.95	LT	166.71	CB N	1° 03' 58.08" E
YS	5.91	ST	83.37	Defl	1° 21' 14.79"
XS	249.87	LC	249.94	Deg	3° 15' 00.00"

Spiral Coordinates

Point	North	East	Station
CS	438,447.67	1,179,743.59	9770+09.09
PI	438,531.01	1,179,741.20	9770+92.47
ST	438,697.57	1,179,748.24	9772+59.09
CC	438,498.19	1,181,505.81	

Ending SCS C8006 description

Course from ST C8006A to PC C8007 N 2° 25' 12.87" E Dist 363.64

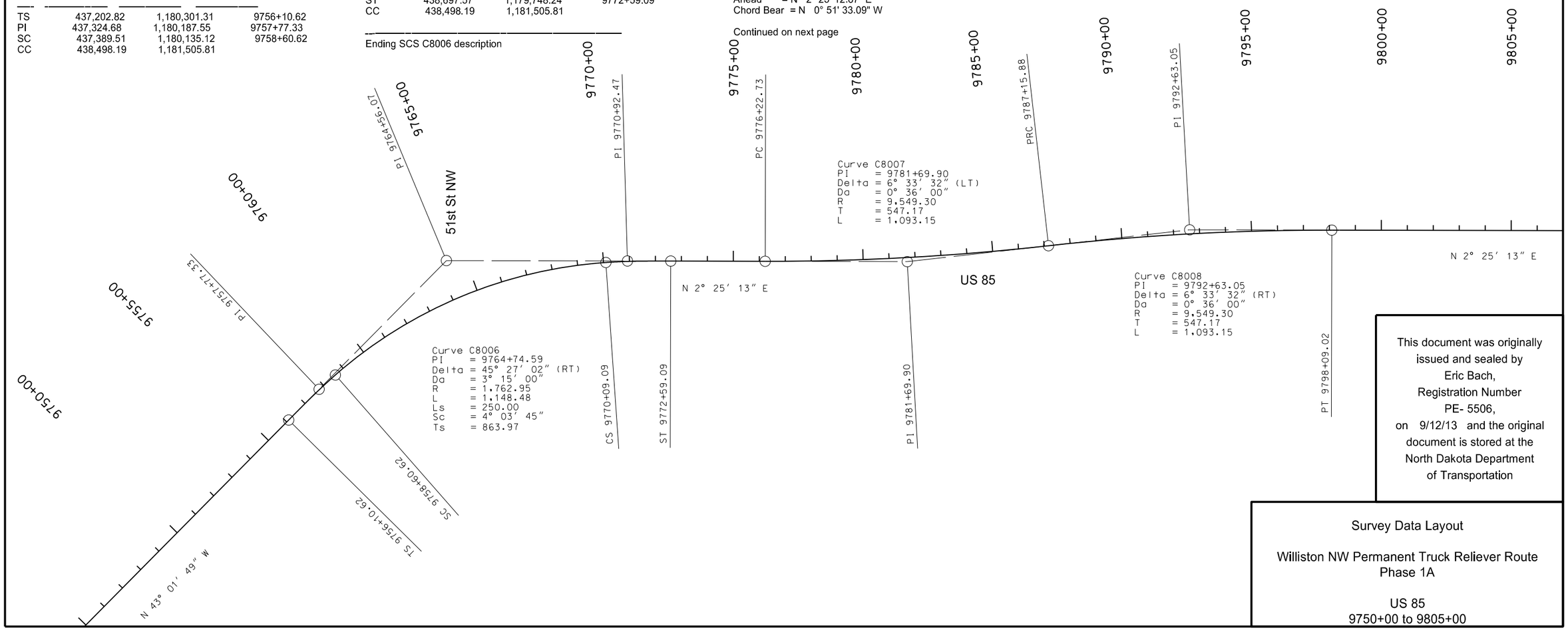
Curve Data

Curve C8007
P.I. Station 9781+69.90 N 439,607.57 E 1,179,786.70
Delta = 6° 33' 31.94" (LT)
Degree = 0° 36' 00.00"
Tangent = 547.17
Length = 1,093.15
Radius = 9,549.30
External = 15.66
Long Chord = 1,092.55
Mid. Ord. = 15.64
P.C. Station 9776+22.73 N 439,060.89 E 1,179,763.60
P.T. Station 9787+15.88 N 440,153.31 E 1,179,747.21
C.C. N 439,464.14 E 1,170,222.82
Back = N 2° 25' 12.87" E
Ahead = N 4° 08' 19.06" W
Chord Bear = N 0° 51' 33.09" W

Curve Data

Curve C8008
P.I. Station 9792+63.05 N 440,699.05 E 1,179,707.72
Delta = 6° 33' 31.94" (RT)
Degree = 0° 36' 00.00"
Tangent = 547.17
Length = 1,093.15
Radius = 9,549.30
External = 15.66
Long Chord = 1,092.55
Mid. Ord. = 15.64
P.C. Station 9787+15.88 N 440,153.31 E 1,179,747.21
P.T. Station 9798+09.02 N 441,245.74 E 1,179,730.83
C.C. N 440,842.48 E 1,189,271.61
Back = N 4° 08' 19.06" W
Ahead = N 2° 25' 12.87" E
Chord Bear = N 0° 51' 33.09" W

Continued on next page



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Survey Data Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9750+00 to 9805+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	3

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Course from PT C8008 to 8009 N 2° 25' 12.87" E Dist 1,690.10

Point 8009 N 442,934.33 E 1,179,802.20 Sta 9814+99.12

Course from 8009 to TS C8011B N 2° 25' 12.87" E Dist 157.62

SCS C8011 found within chain PR85, contains:
SPI C8011B CUR C8011 SPI C8011A

PISCS C8011 N 445,583.26 E 1,179,914.16 STA 9841+50.42
Total Back Tangent = 2,493.68
Total Ahead Tangent = 2,408.19
Total Length = 4,180.49
Total Delta = 77° 21' 35.05" (LT)
Back Tangent = N 2° 25' 12.87" E
Ahead Tangent = N 74° 56' 22.18" W

Beginning SCS C8011 description

Spiral Back
Spiral C8011B Type 1 Spiral Element

Angle	4° 00' 00.00" (LT) P		2.33	BK N	2° 25' 12.87" E
LS	400.00	K	199.97	AH N	1° 34' 47.13" W
R	2,864.79	LT	266.73	CB N	1° 05' 13.07" E
YS	9.31	ST	133.40	Defl	1° 19' 59.80"
XS	399.81	LC	399.91	Deg	2° 00' 00.00"

Spiral Coordinates

Point	North	East	Station
TS	443,091.80	1,179,808.86	9816+56.74
PI	443,358.30	1,179,820.12	9819+23.47
SC	443,491.65	1,179,816.44	9820+56.74
CC	443,412.67	1,176,952.74	

Circular Section

Curve Data

Curve C8011
P.I. Station 9841+04.32 N 445,538.44 E 1,179,759.99
Delta = 71° 06' 35.05" (LT)
Degree = 2° 00' 00.00"
Tangent = 2,047.58
Length = 3,555.49
Radius = 2,864.79
External = 656.52
Long Chord = 3,331.65
Mid. Ord. = 534.11
P.C. Station 9820+56.74 N 443,491.65 E 1,179,816.44
P.T. Station 9856+12.23 N 446,147.70 E 1,177,805.16
C.C. N 443,412.67 E 1,176,952.74
Back = N 1° 34' 47.13" W
Ahead = N 72° 41' 22.18" W
Chord Bear = N 37° 08' 04.65" W

Spiral Ahead
Spiral C8011A Type 2 Spiral Element

Angle	2° 15' 00.00" (LT) P		0.74	BK N	72° 41' 22.18" W
LS	225.00	K	112.49	AH N	74° 56' 22.18" W
R	2,864.79	LT	150.01	CB N	74° 11' 22.21" W
YS	2.94	ST	75.01	Defl	0° 44' 59.96"
XS	224.97	LC	224.98	Deg	2° 00' 00.00"

Spiral Coordinates

Point	North	East	Station
CS	446,147.70	1,177,805,16	9856+12,23
PI	446,170.02	1,177,733.55	9856+87.24
ST	446,209.00	1,177,588.69	9858+37.23
CC	443,412.67	1,176,952.74	

Ending SCS C8011 description

Course from ST C8011A to TS C8012B N 74° 56' 22.18" W Dist 400.95

SCS C8012 found within chain PR85, contains:
SPI C8012B CUR C8012 SPI C8012A

PISCS C8012 N 446,891.55 E 1,175,052.08 STA 9884+64.06
Total Tangent = 2,225.88
Total Length = 3,865.96
Total Delta = 72° 49' 08.90" (RT)
Back Tangent = N 74° 56' 22.18" W
Ahead Tangent = N 2° 07' 13.28" W

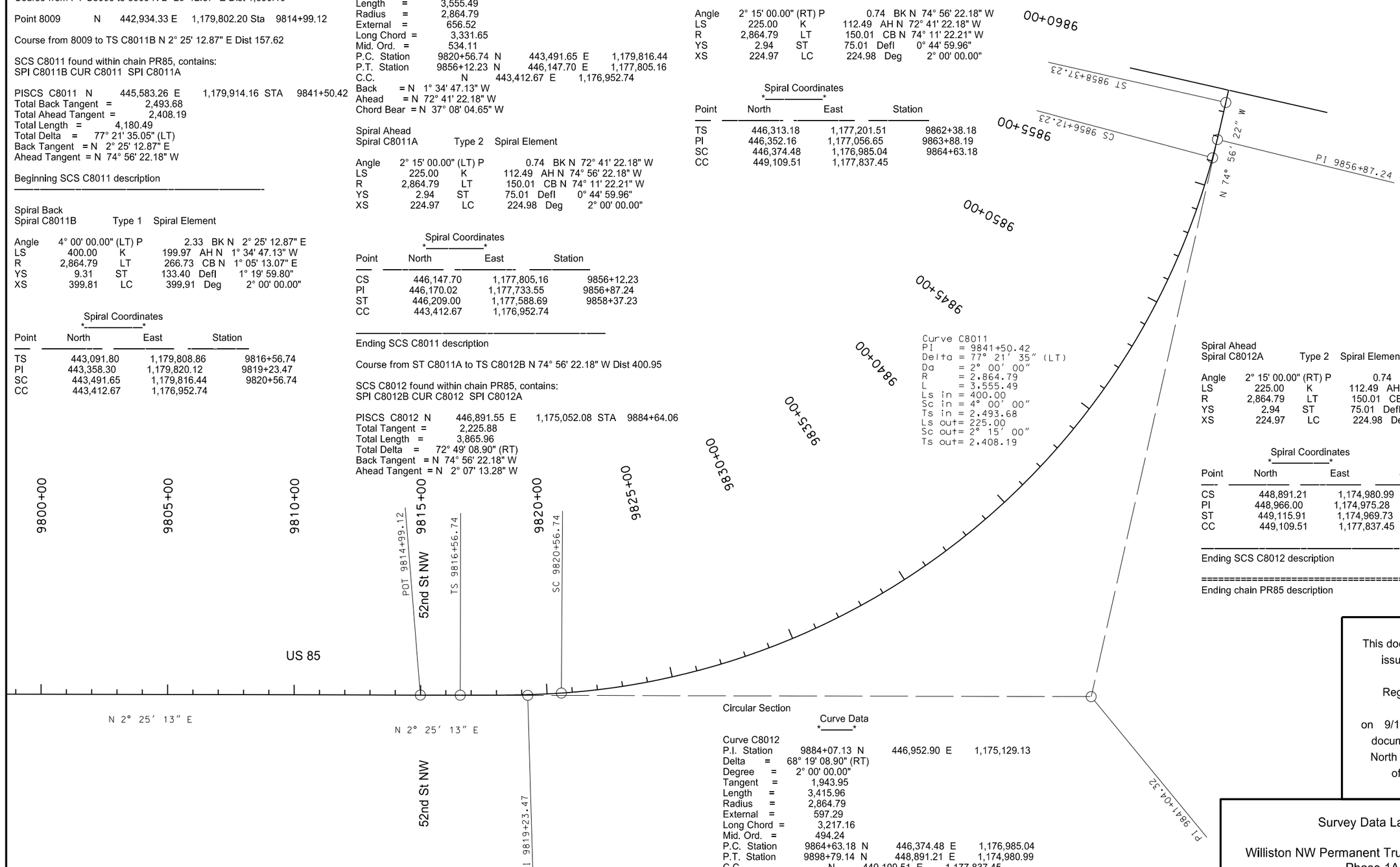
Beginning SCS C8012 description

Spiral Back
Spiral C8012B Type 1 Spiral Element

Angle	2° 15' 00.00" (RT) P		0.74	BK N	74° 56' 22.18" W
LS	225.00	K	112.49	AH N	72° 41' 22.18" W
R	2,864.79	LT	150.01	CB N	74° 11' 22.21" W
YS	2.94	ST	75.01	Defl	0° 44' 59.96"
XS	224.97	LC	224.98	Deg	2° 00' 00.00"

Spiral Coordinates

Point	North	East	Station
TS	446,313.18	1,177,201.51	9862+38.18
PI	446,352.16	1,177,056.65	9863+88.19
SC	446,374.48	1,176,985.04	9864+63.18
CC	449,109.51	1,177,837.45	



Circular Section

Curve Data

Curve C8012
P.I. Station 9884+07.13 N 446,952.90 E 1,175,129.13
Delta = 68° 19' 08.90" (RT)
Degree = 2° 00' 00.00"
Tangent = 1,943.95
Length = 3,415.96
Radius = 2,864.79
External = 597.29
Long Chord = 3,217.16
Mid. Ord. = 494.24
P.C. Station 9864+63.18 N 446,374.48 E 1,176,985.04
P.T. Station 9898+79.14 N 448,891.21 E 1,174,980.99
C.C. N 449,109.51 E 1,177,837.45
Back = N 72° 41' 22.18" W
Ahead = N 4° 22' 13.28" W
Chord Bear = N 38° 31' 47.73" W

Spiral Ahead
Spiral C8012A Type 2 Spiral Element

Angle	2° 15' 00.00" (RT) P		0.74	BK N	4° 22' 13.28" W
LS	225.00	K	112.49	AH N	2° 07' 13.28" W
R	2,864.79	LT	150.01	CB N	2° 52' 13.24" W
YS	2.94	ST	75.01	Defl	0° 44' 59.96"
XS	224.97	LC	224.98	Deg	2° 00' 00.00"

Spiral Coordinates

Point	North	East	Station
CS	448,891.21	1,174,980.99	9898+79.14
PI	448,966.00	1,174,975.28	9899+54.15
ST	449,115.91	1,174,969.73	9901+04.14
CC	449,109.51	1,177,837.45	

Ending SCS C8012 description

Ending chain PR85 description

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Survey Data Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9805+00 to 9858+37.23

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	4

Chain PR FR S BN LP contains:
450 CUR PR FR S BN LP 1 CUR PR FR S BN LP 2 451

Beginning chain PR FR S BN LP description
==========

Point 450 N 432,576.2149 E 1,182,753.6412 Sta 0+00.00

Course from 450 to PC PR FR S BN LP 1 N 2° 19' 47.04" E Dist 168.7706

Curve Data
——

Curve PR FR S BN LP 1
P.I. Station 2+30.27 N 432,806.2913 E 1,182,763.0016
Delta = 14° 01' 24.41" (LT)
Degree = 11° 27' 32.96"
Tangent = 61.4961
Length = 122.3777
Radius = 500.0000
External = 3.7676
Long Chord = 122.0724
Mid. Ord. = 3.7394
P.C. Station 1+68.77 N 432,744.8460 E 1,182,760.5017
P.T. Station 2+91.15 N 432,866.5111 E 1,182,750.5375
C.C. N 432,765.1712 E 1,182,260.9150
Back = N 2° 19' 47.04" E
Ahead = N 11° 41' 37.37" W
Chord Bear = N 4° 40' 55.16" W

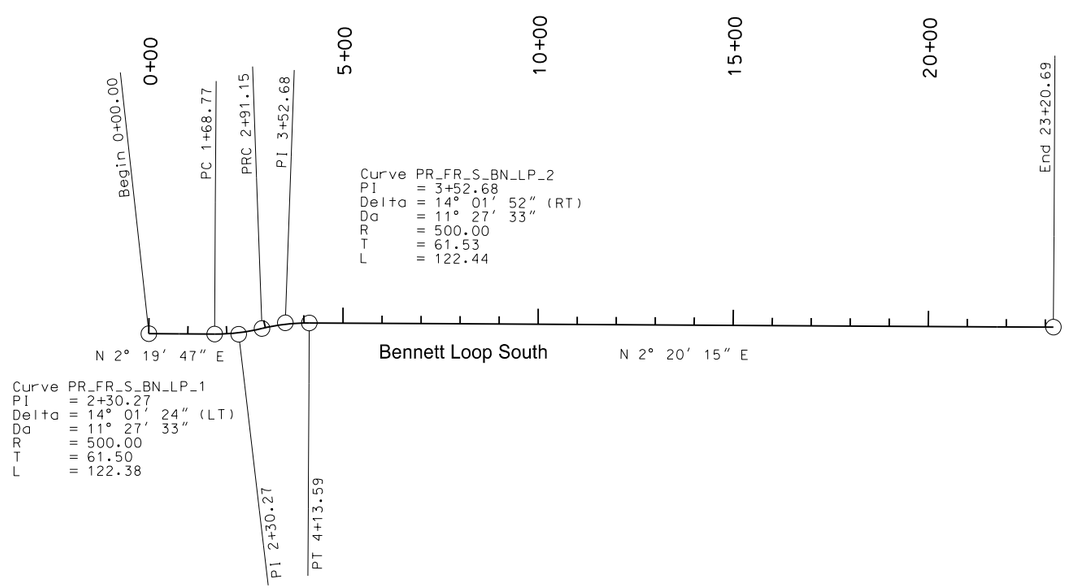
Curve Data
——

Curve PR FR S BN LP 2
P.I. Station 3+52.68 N 432,926.7641 E 1,182,738.0666
Delta = 14° 01' 51.98" (RT)
Degree = 11° 27' 32.96"
Tangent = 61.5301
Length = 122.4445
Radius = 500.0000
External = 3.7717
Long Chord = 122.1388
Mid. Ord. = 3.7435
P.C. Station 2+91.15 N 432,866.5111 E 1,182,750.5375
P.T. Station 4+13.59 N 432,988.2429 E 1,182,740.5761
C.C. N 432,967.8510 E 1,183,240.1601
Back = N 11° 41' 37.37" W
Ahead = N 2° 20' 14.61" E
Chord Bear = N 4° 40' 41.38" W

Course from PT PR_FR_S_BN_LP_2 to 451 N 2° 20' 14.61" E Dist 1,907.0956

Point 451 N 434,893.7519 E 1,182,818.3548 Sta 23+20.69

==========
Ending chain PR_FR_S_BN_LP description



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Survey Data Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

Bennett Loop South
0+00 to 23+20.69

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	5

Chain PR JACKSON ST contains:
220 221 222

Beginning chain PR JACKSON ST description
==========

Point 220	N 433,562.9907 E	1,181,346.6516 Sta	0+00.00

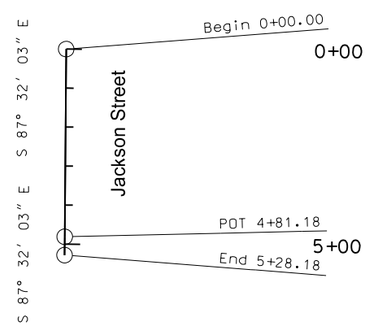
Course from 220 to 221 S 87° 32' 02.89" E Dist 481.1832

Point 221	N 433,542.2882 E	1,181,827.3892 Sta	4+81.18

Course from 221 to 222 S 87° 32' 02.89" E Dist 47.0000

Point 222	N 433,540.2661 E	1,181,874.3457 Sta	5+28.18

==========
Ending chain PR JACKSON ST description



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Survey Data Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

Jackson Street
0+00 to 5+28.18

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	6

Chain PR JAMES DR contains:
230 CUR PR JAMES DR-1 CUR PR JAMES DR-2 231

Beginning chain PR JAMES DR description
==========

Point 230 N 434,967.5521 E 1,179,530.7093 Sta 1+00.00

Course from 230 to PC PR JAMES DR-1 S 87° 33' 54.66" E Dist 1,718.5791

Curve Data
_____

Curve PR JAMES DR-1
P.I. Station 19+43.26 N 434,889.2454 E 1,181,372.3031
Delta = 4° 04' 49.13" (RT)
Degree = 1° 38' 13.28"
Tangent = 124.6788
Length = 249.2522
Radius = 3,500.0000
External = 2.2200
Long Chord = 249.1996
Mid. Ord. = 2.2186
P.C. Station 18+18.58 N 434,894.5421 E 1,181,247.7368
P.T. Station 20+67.83 N 434,875.0986 E 1,181,496.1767
C.C. N 431,397.7019 E 1,181,099.0471
Back = S 87° 33' 54.66" E
Ahead = S 83° 29' 05.53" E
Chord Bear = S 85° 31' 30.09" E

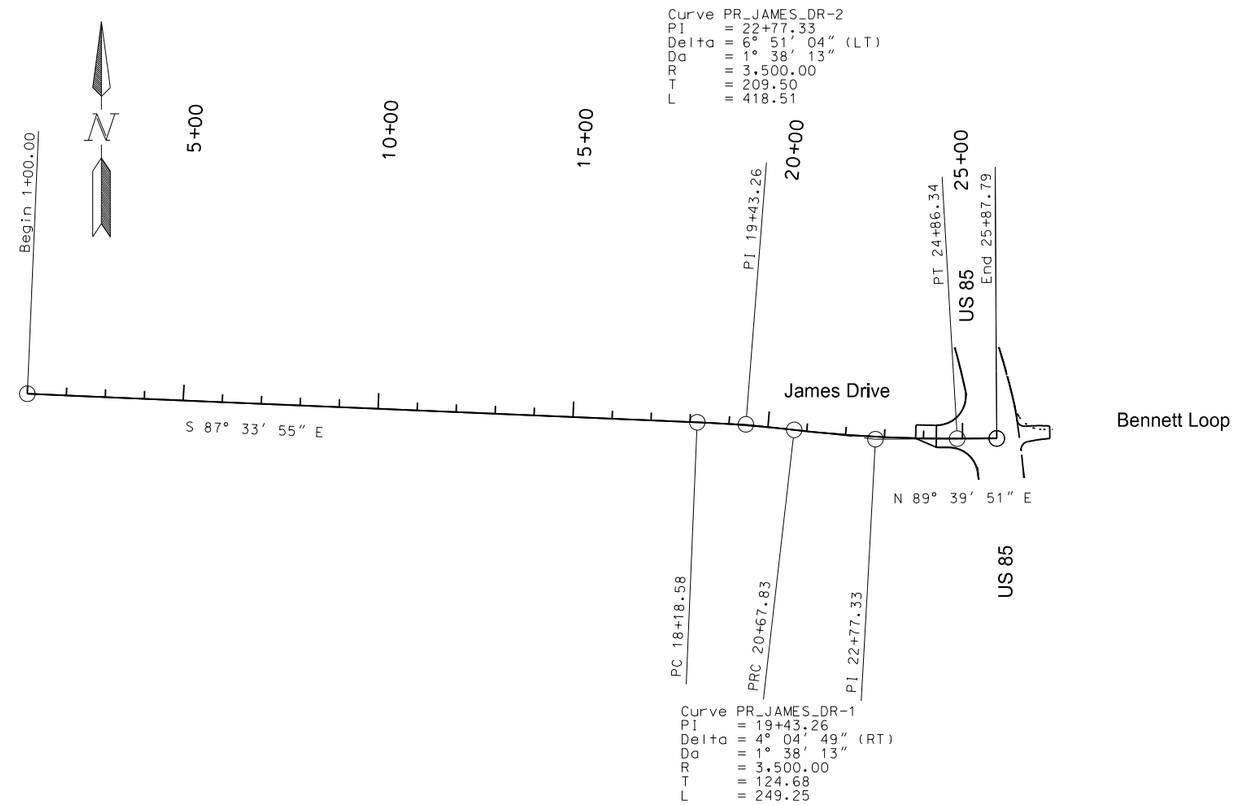
Curve Data
_____

Curve PR JAMES DR-2
P.I. Station 22+77.33 N 434,851.3272 E 1,181,704.3270
Delta = 6° 51' 03.80" (LT)
Degree = 1° 38' 13.28"
Tangent = 209.5033
Length = 418.5072
Radius = 3,500.0000
External = 6.2646
Long Chord = 418.2579
Mid. Ord. = 6.2534
P.C. Station 20+67.83 N 434,875.0986 E 1,181,496.1767
P.T. Station 24+86.34 N 434,852.5555 E 1,181,913.8267
C.C. N 438,352.4954 E 1,181,893.3063
Back = S 83° 29' 05.53" E
Ahead = N 89° 39' 50.67" E
Chord Bear = S 86° 54' 37.43" E

Course from PT PR JAMES DR-2 to 231 N 89° 39' 50.67" E Dist 101.4523

Point 231 N 434,853.1503 E 1,182,015.2772 Sta 25+87.79

==========
Ending chain PR JAMES DR description



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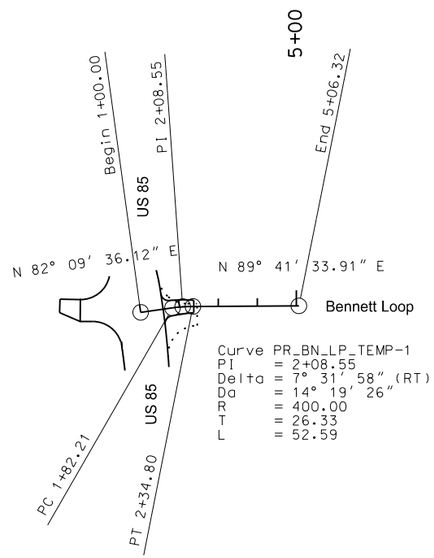
Survey Data Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

James Drive
1+00 to 25+87.79

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	7



Chain PR BN LP TEMP contains:
9040 CUR PR BN LP TEMP-1 9041

Beginning chain PR BN LP TEMP description
==========

Point 9040 N 434,854.0353 E 1,182,015.1552 Sta 1+00.00

Course from 9040 to PC PR BN LP TEMP-1 N 82° 09' 36.12" E Dist 82.2135

Curve Data
———

Curve PR BN LP TEMP-1
P.I. Station 2+08.55 N 434,868.8416 E 1,182,122.6862
Delta = 7° 31' 57.79" (RT)
Degree = 14° 19' 26.20"
Tangent = 26.3321
Length = 52.5883
Radius = 400.0000
External = 0.8658
Long Chord = 52.5504
Mid. Ord. = 0.8639
P.C. Station 1+82.21 N 434,865.2497 E 1,182,096.6003
P.T. Station 2+34.80 N 434,868.9828 E 1,182,149.0179
C.C. N 434,468.9886 E 1,182,151.1629
Back = N 82° 09' 36.12" E
Ahead = N 89° 41' 33.91" E
Chord Bear = N 85° 55' 35.01" E

Course from PT PR BN LP TEMP-1 to 9041 N 89° 41' 33.91" E Dist 271.5193

Point 9041 N 434,870.4388 E 1,182,420.5334 Sta 5+06.32

==========
Ending chain PR BN LP TEMP description

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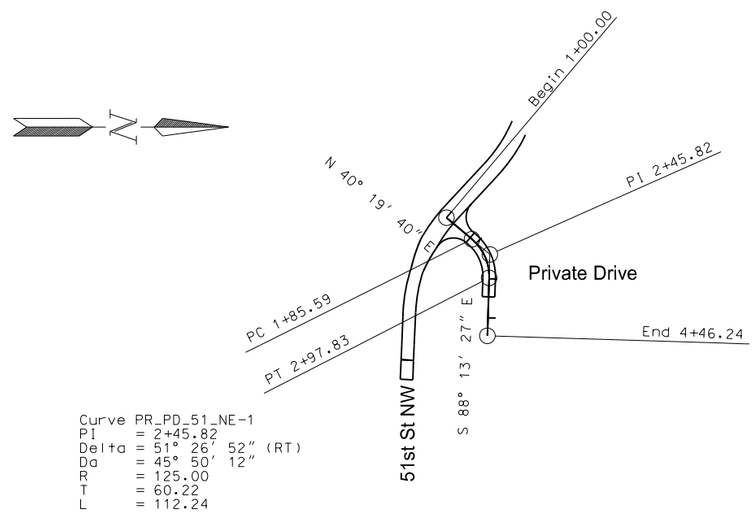
Survey Data Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

Bennett Loop
1+00 to 5+06.32

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	8



Chain PR PD 51 NE contains:
280 CUR PR PD 51 NE-1 281

Beginning chain PR PD 51 NE description
==========

Point 280 N 437,700.2575 E 1,180,491.3070 Sta 1+00.00

Course from 280 to PC PR PD 51 NE-1 N 40° 19' 40.24" E Dist 85.5922

Curve Data
———

Curve PR PD 51 NE-1
P.I. Station 2+45.82 N 437,811.4201 E 1,180,585.6727
Delta = 51° 26' 52.39" (RT)
Degree = 45° 50' 11.84"
Tangent = 60.2228
Length = 112.2419
Radius = 125.0000
External = 13.7508
Long Chord = 108.5089
Mid. Ord. = 12.3880
P.C. Station 1+85.59 N 437,765.5090 E 1,180,546.6989
P.T. Station 2+97.83 N 437,809.5540 E 1,180,645.8666
C.C. N 437,684.6140 E 1,180,641.9931
Back = N 40° 19' 40.24" E
Ahead = S 88° 13' 27.37" E
Chord Bear = N 66° 03' 06.43" E

Course from PT PR PD 51 NE-1 to 281 S 88° 13' 27.37" E Dist 148.4014

Point 281 N 437,804.9554 E 1,180,794.1967 Sta 4+46.24

==========
Ending chain PR PD 51 NE description

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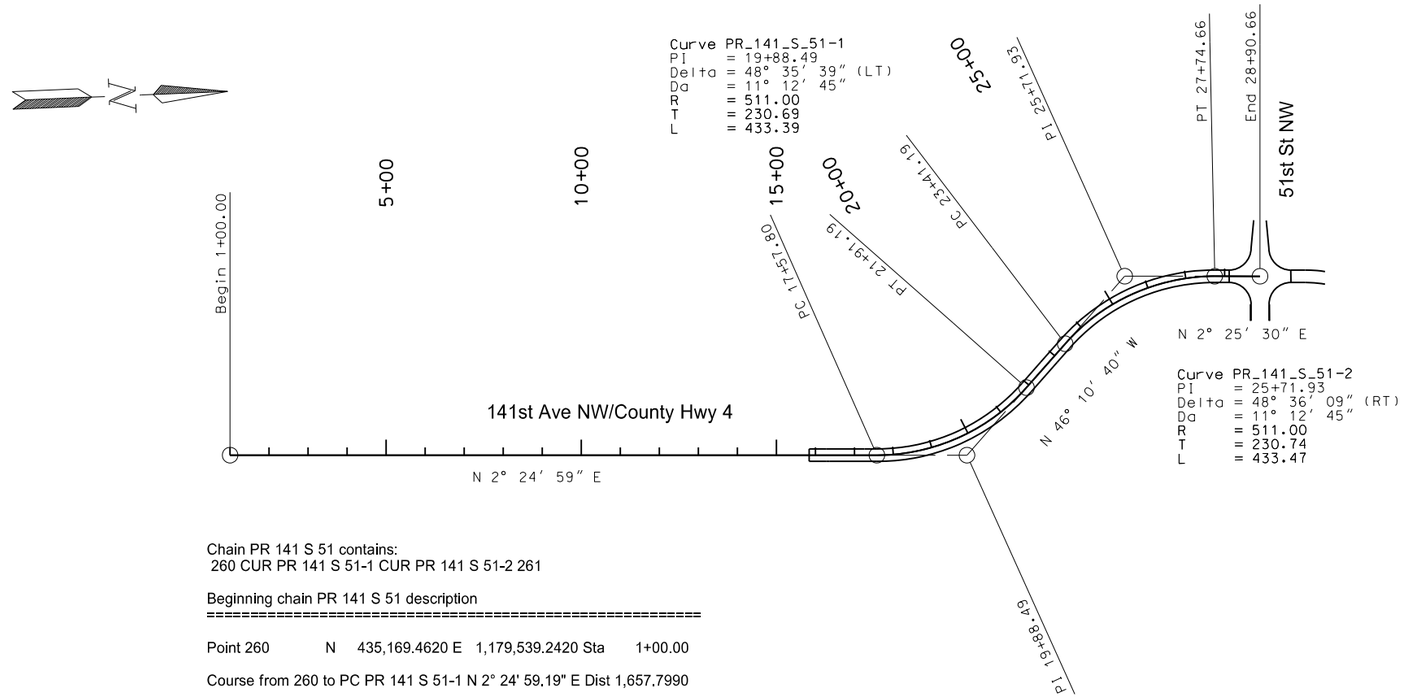
Survey Data Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

Private Drive (NE of 51st St. NW)
1+00 to 4+46.24

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	9



Chain PR 141 S 51 contains:
260 CUR PR 141 S 51-1 CUR PR 141 S 51-2 261

Beginning chain PR 141 S 51 description
==========

Point 260 N 435,169.4620 E 1,179,539.2420 Sta 1+00.00

Course from 260 to PC PR 141 S 51-1 N 2° 24' 59.19" E Dist 1,657.7990

Curve Data
———

Curve PR 141 S 51-1
P.I. Station 19+88.49 N 437,056.2754 E 1,179,618.8653
Delta = 48° 35' 38.78" (LT)
Degree = 11° 12' 44.93"
Tangent = 230.6937
Length = 433.3930
Radius = 511.0000
External = 49.6608
Long Chord = 420.5198
Mid. Ord. = 45.2621
P.C. Station 17+57.80 N 436,825.7868 E 1,179,609.1387
P.T. Station 21+91.19 N 437,216.0134 E 1,179,452.4221
C.C. N 436,847.3318 E 1,179,098.5931
Back = N 2° 24' 59.19" E
Ahead = N 46° 10' 39.58" W
Chord Bear = N 21° 52' 50.20" W

Course from PT PR 141 S 51-1 to PC PR 141 S 51-2 N 46° 10' 39.58" W Dist 150.0000

Curve Data
———

Curve PR 141 S 51-2
P.I. Station 25+71.93 N 437,479.6465 E 1,179,177.7224
Delta = 48° 36' 09.32" (RT)
Degree = 11° 12' 44.93"
Tangent = 230.7392
Length = 433.4686
Radius = 511.0000
External = 49.6796
Long Chord = 420.5887
Mid. Ord. = 45.2777
P.C. Station 23+41.19 N 437,319.8770 E 1,179,344.1985
P.T. Station 27+74.66 N 437,710.1791 E 1,179,187.4850
C.C. N 437,688.5586 E 1,179,698.0274
Back = N 46° 10' 39.58" W
Ahead = N 2° 25' 29.73" E
Chord Bear = N 21° 52' 34.93" W

Course from PT PR 141 S 51-2 to 261 N 2° 25' 29.73" E Dist 116.0000

Point 261 N 437,826.0753 E 1,179,192.3930 Sta 28+90.66

==========
Ending chain PR 141 S 51 description

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Survey Data Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

141st Ave. NW/County Hwy 4
1+00 to 28+90.66

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	10

Chain PR PD 51 NW contains:
120 CUR PR PD 51 NW-1 CUR PR PD 51 NW-2 121

Beginning chain PR PD 51 NW description
==========

Point 120 N 437,826.0753 E 1,179,192.3930 Sta 1+00.00

Course from 120 to PC PR PD 51 NW-1 N 2° 25' 29.73" E Dist 116.0000

Curve Data
_____

Curve PR PD 51 NW-1
P.I. Station 4+13.37 N 438,139.1635 E 1,179,205.6518
Delta = 66° 40' 53.53" (RT)
Degree = 19° 05' 54.94"
Tangent = 197.3689
Length = 349.1437
Radius = 300.0000
External = 59.1023
Long Chord = 329.7704
Mid. Ord. = 49.3750
P.C. Station 2+16.00 N 437,941.9714 E 1,179,197.3010
P.T. Station 5+65.14 N 438,209.5517 E 1,179,390.0426
C.C. N 437,929.2783 E 1,179,497.0324
Back = N 2° 25' 29.73" E
Ahead = N 69° 06' 23.26" E
Chord Bear = N 35° 45' 56.50" E

Curve Data
_____

Curve PR PD 51 NW-2
P.I. Station 7+62.53 N 438,279.9462 E 1,179,574.4498
Delta = 66° 41' 10.39" (LT)
Degree = 19° 05' 54.94"
Tangent = 197.3864
Length = 349.1682
Radius = 300.0000
External = 59.1120
Long Chord = 329.7909
Mid. Ord. = 49.3818
P.C. Station 5+65.14 N 438,209.5517 E 1,179,390.0426
P.T. Station 9+14.31 N 438,477.1565 E 1,179,582.7852
C.C. N 438,489.8251 E 1,179,283.0528
Back = N 69° 06' 23.26" E
Ahead = N 2° 25' 12.87" E
Chord Bear = N 35° 45' 48.07" E

Course from PT PR PD 51 NW-2 to 121 N 2° 25' 12.87" E Dist 874.0122

Point 121 N 439,350.3891 E 1,179,619.6935 Sta 17+88.32

==========
Ending chain PR PD 51 NW description

Chain PR_ELK contains:
8210 8211

Beginning chain PR_ELK description
==========

Point 8210 N 440,602.86 E 1,179,725.32 Sta 1+00.00

Course from 8210 to 8211 N 88° 33' 44.04" E Dist 153.00

Point 8211 N 440,606.70 E 1,179,878.27 Sta 2+53.00

==========
Ending chain PR_ELK description

Chain PR_ELK_CON contains:
8800 CUR PR_ELK_CON-1 CUR PR_ELK_CON-2 CUR PR_ELK_CON-3 8801

Beginning chain PR_ELK_CON description
==========

Point 8800 N 440,498.81 E 1,180,014.65 Sta 1+00.00

Course from 8800 to PC PR_ELK_CON-1 S 86° 09' 22.42" W Dist 100.00

Curve Data
_____

Curve PR_ELK_CON-1
P.I. Station 2+33.08 N 440,489.89 E 1,179,881.87
Delta = 91° 53' 42.72" (RT)
Degree = 179° 02' 57.52"
Tangent = 33.08
Length = 51.32
Radius = 32.00
External = 14.02
Long Chord = 46.00
Mid. Ord. = 9.75
P.C. Station 2+00.00 N 440,492.11 E 1,179,914.87
P.T. Station 2+51.32 N 440,522.95 E 1,179,880.75
C.C. N 440,524.04 E 1,179,912.73
Back = S 86° 09' 22.42" W
Ahead = N 1° 56' 54.86" W
Chord Bear = N 47° 53' 46.22" W

Curve Data
_____

Curve PR_ELK_CON-2
P.I. Station 3+35.90 N 440,607.48 E 1,179,877.87
Delta = 1° 01' 48.94" (RT)
Degree = 0° 36' 32.60"
Tangent = 84.58
Length = 169.16
Radius = 9,407.30
External = 0.38
Long Chord = 169.15
Mid. Ord. = 0.38
P.C. Station 2+51.32 N 440,522.95 E 1,179,880.75
P.T. Station 4+20.48 N 440,692.05 E 1,179,876.52
C.C. N 440,842.82 E 1,189,282.60
Back = N 1° 56' 54.86" W
Ahead = N 0° 55' 05.92" W
Chord Bear = N 1° 26' 00.39" W

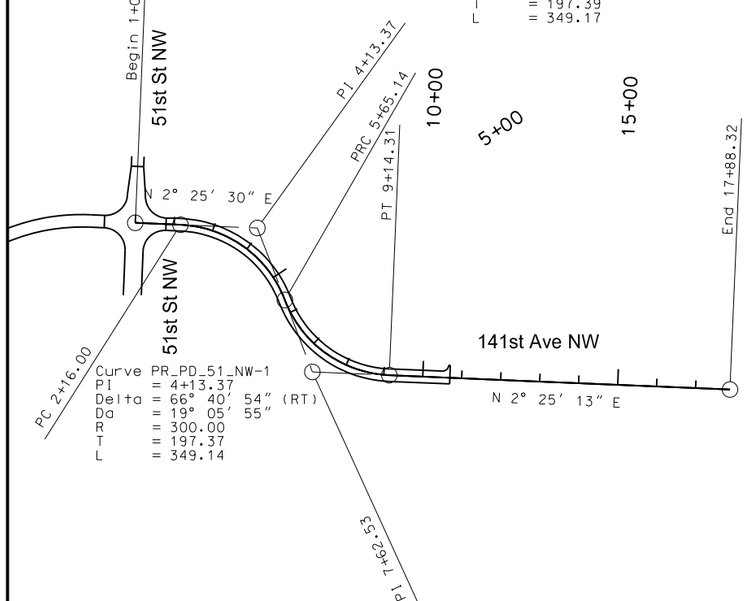
Curve Data
_____

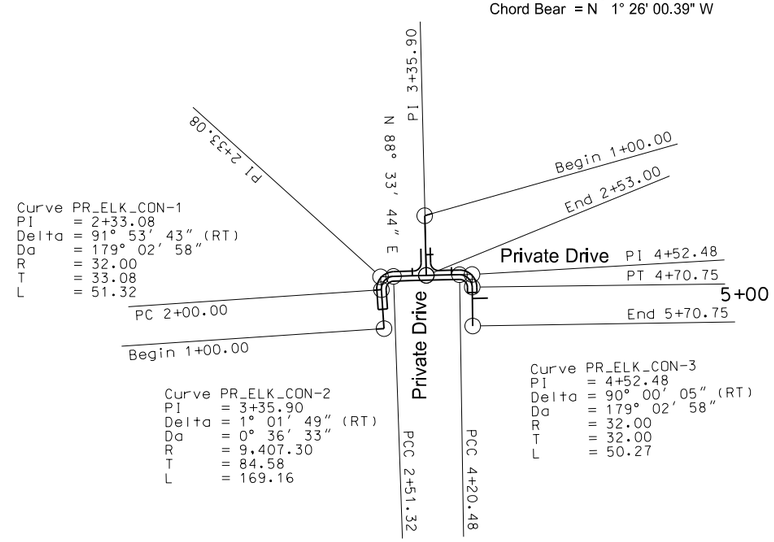
Curve PR_ELK_CON-3
P.I. Station 4+52.48 N 440,724.05 E 1,179,876.00
Delta = 90° 00' 04.89" (RT)
Degree = 179° 02' 57.52"
Tangent = 32.00
Length = 50.27
Radius = 32.00
External = 13.26
Long Chord = 45.26
Mid. Ord. = 9.37
P.C. Station 4+20.48 N 440,692.05 E 1,179,876.52
P.T. Station 4+70.75 N 440,724.56 E 1,179,908.00
C.C. N 440,692.56 E 1,179,908.51
Back = N 0° 55' 05.92" W
Ahead = N 89° 04' 58.98" E
Chord Bear = N 44° 04' 56.53" E

Course from PT PR_ELK_CON-3 to 8801 N 89° 04' 58.98" E Dist 100.00

Point 8801 N 440,726.16 E 1,180,007.99 Sta 5+70.75

==========
Ending chain PR_ELK_CON description





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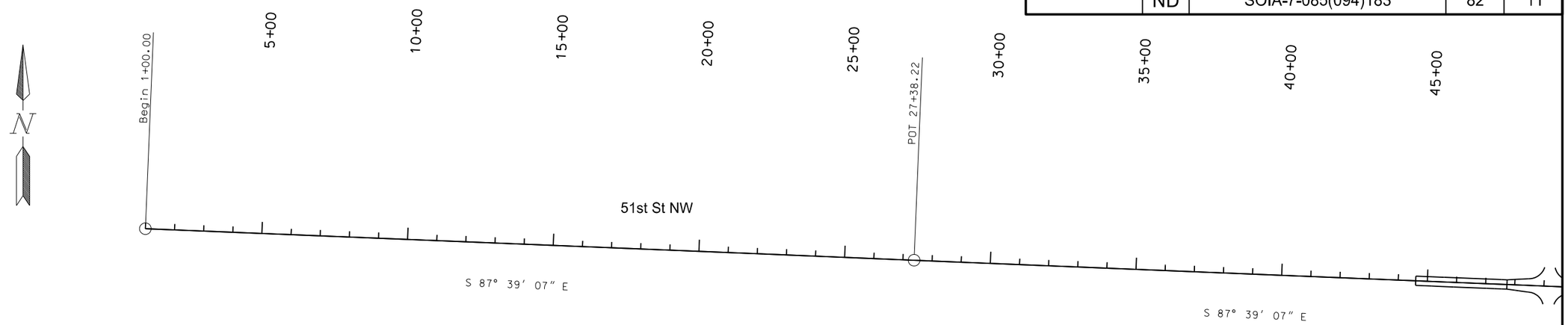
Survey Data Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

141st Ave. NW (N of 51st St. NW) 1+00 to 17+88.32
Elk 1+00 to 2+53 Elk Con 1+00 to 5+70.75

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	11



Chain PR 51ST contains:
240 241 CUR PR 51ST-1 CUR PR 51ST-2 CUR PR 51ST-3 242

Beginning chain PR 51ST description
==========

Point 240 N 438,023.4690 E 1,174,378.5550 Sta 1+00.00

Course from 240 to 241 S 87° 39' 06.75" E Dist 2,638.2167

Point 241 N 437,915.3785 E 1,177,014.5565 Sta 27+38.22

Continued on next page

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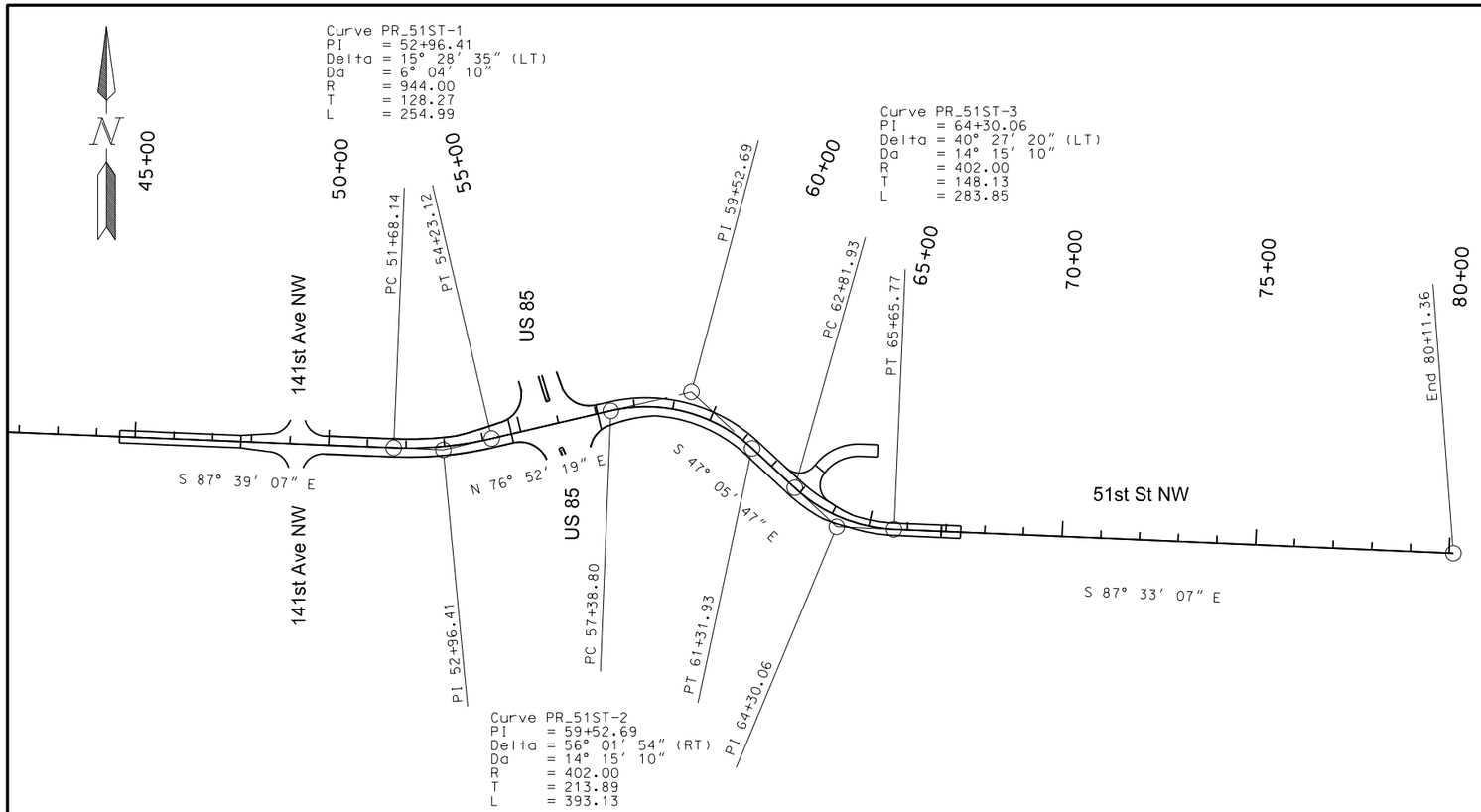
Survey Data Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

51st St. NW
1+00 to 45+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	12



Course from 241 to PC PR 51ST-1 S 87° 39' 06.75" E Dist 2,429.9186

Curve Data

Curve PR 51ST-1
P.I. Station 52+96.41 N 437,810.5667 E 1,179,570.6010
Delta = 15° 28' 34.67" (LT)
Degree = 6° 04' 10.09"
Tangent = 128.2739
Length = 254.9861
Radius = 944.0000
External = 8.6753
Long Chord = 254.2116
Mid. Ord. = 8.5963
P.C. Station 51+68.14 N 437,815.8222 E 1,179,442.4348
P.T. Station 54+23.12 N 437,839.7016 E 1,179,695.5223
C.C. N 438,759.0295 E 1,179,481.1114
Back = S 87° 39' 06.75" E
Ahead = N 76° 52' 18.58" E
Chord Bear = N 84° 36' 35.91" E

Course from PT PR 51ST-1 to PC PR 51ST-2 N 76° 52' 18.58" E Dist 315.6763

Curve Data

Curve PR 51ST-2
P.I. Station 59+52.69 N 437,959.9820 E 1,180,211.2479
Delta = 56° 01' 54.08" (RT)
Degree = 14° 15' 09.65"
Tangent = 213.8898
Length = 393.1308
Radius = 402.0000
External = 53.3601
Long Chord = 377.6514
Mid. Ord. = 47.1073
P.C. Station 57+38.80 N 437,911.4012 E 1,180,002.9482
P.T. Station 61+31.93 N 437,814.3731 E 1,180,367.9224
C.C. N 437,519.9077 E 1,180,094.2546
Back = N 76° 52' 18.58" E
Ahead = S 47° 05' 47.35" E
Chord Bear = S 75° 06' 44.39" E

Course from PT PR 51ST-2 to PC PR 51ST-3 S 47° 05' 47.35" E Dist 150.0000

Curve Data

Curve PR 51ST-3
P.I. Station 64+30.06 N 437,611.4174 E 1,180,586.3019
Delta = 40° 27' 20.02" (LT)
Degree = 14° 15' 09.65"
Tangent = 148.1285
Length = 283.8453
Radius = 402.0000
External = 26.4228
Long Chord = 277.9856
Mid. Ord. = 24.7932
P.C. Station 62+81.93 N 437,712.2583 E 1,180,477.7976
P.T. Station 65+65.77 N 437,605.0906 E 1,180,734.2953
C.C. N 438,006.7237 E 1,180,751.4655
Back = S 47° 05' 47.35" E
Ahead = S 87° 33' 07.36" E
Chord Bear = S 67° 19' 27.36" E

Course from PT PR 51ST-3 to 242 S 87° 33' 07.36" E Dist 1,445.5869

Point 242 N 437,543.3469 E 1,182,178.5630 Sta 80+11.36

==========
Ending chain PR 51ST description

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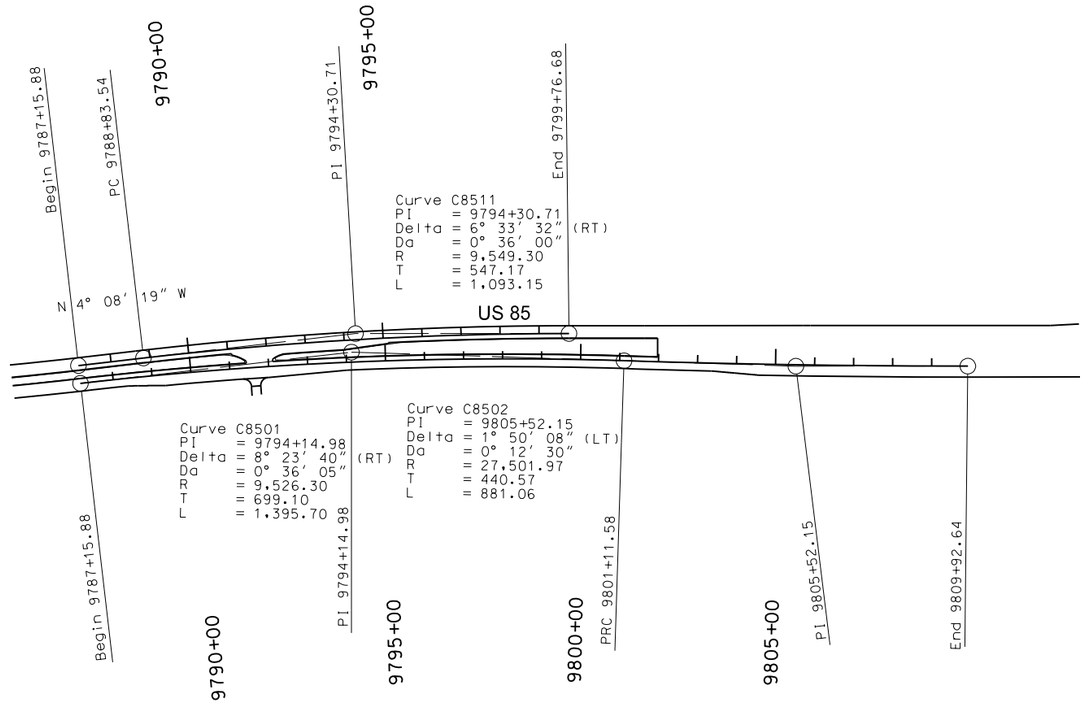
Survey Data Layout

Williston NW Permanent Truck Reliever Route Phase 1A

51st St. NW
45+00 to 80+11.36

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	13



Chain PR85_SB_SHIFT contains:
8510 CUR C8511

Beginning chain PR85_SB_SHIFT description
==========

Point 8510 N 440,151.65 E 1,179,724.27 Sta 9787+15.88

Course from 8510 to PC C8511 N 4° 08' 19.06" W Dist 167.66

Curve Data
———

Curve C8511
P.I. Station 9794+30.71 N 440,864.62 E 1,179,672.68
Delta = 6° 33' 31.94" (RT)
Degree = 0° 36' 00.00"
Tangent = 547.17
Length = 1,093.15
Radius = 9,549.30
External = 15.66
Long Chord = 1,092.55
Mid. Ord. = 15.64
P.C. Station 9788+83.54 N 440,318.87 E 1,179,712.17
P.T. Station 9799+76.68 N 441,411.30 E 1,179,695.79
C.C. N 441,008.04 E 1,189,236.57
Back = N 4° 08' 19.06" W
Ahead = N 2° 25' 12.87" E
Chord Bear = N 0° 51' 33.09" W

==========
Ending chain PR85_SB_SHIFT description

Chain PR85_NB_SHIFT contains:
CUR C8501 CUR C8502

Beginning chain PR85_NB_SHIFT description
==========

Curve Data
———

Curve C8501
P.I. Station 9794+14.98 N 440,852.25 E 1,179,719.70
Delta = 8° 23' 39.92" (RT)
Degree = 0° 36' 05.22"
Tangent = 699.10
Length = 1,395.70
Radius = 9,526.30
External = 25.62
Long Chord = 1,394.45
Mid. Ord. = 25.55
P.C. Station 9787+15.88 N 440,154.97 E 1,179,770.15
P.T. Station 9801+11.58 N 441,549.42 E 1,179,771.58
C.C. N 440,842.48 E 1,189,271.61
Back = N 4° 08' 19.06" W
Ahead = N 4° 15' 20.86" E
Chord Bear = N 0° 03' 30.90" E

Curve Data
———

Curve C8502
P.I. Station 9805+52.15 N 441,988.78 E 1,179,804.27
Delta = 1° 50' 07.98" (LT)
Degree = 0° 12' 30.00"
Tangent = 440.57
Length = 881.06
Radius = 27,501.97
External = 3.53
Long Chord = 881.03
Mid. Ord. = 3.53
P.C. Station 9801+11.58 N 441,549.42 E 1,179,771.58
P.T. Station 9809+92.64 N 442,428.95 E 1,179,822.88
C.C. N 443,590.33 E 1,152,345.44
Back = N 4° 15' 20.86" E
Ahead = N 2° 25' 12.87" E
Chord Bear = N 3° 20' 16.86" E

==========
Ending chain PR85_NB_SHIFT description

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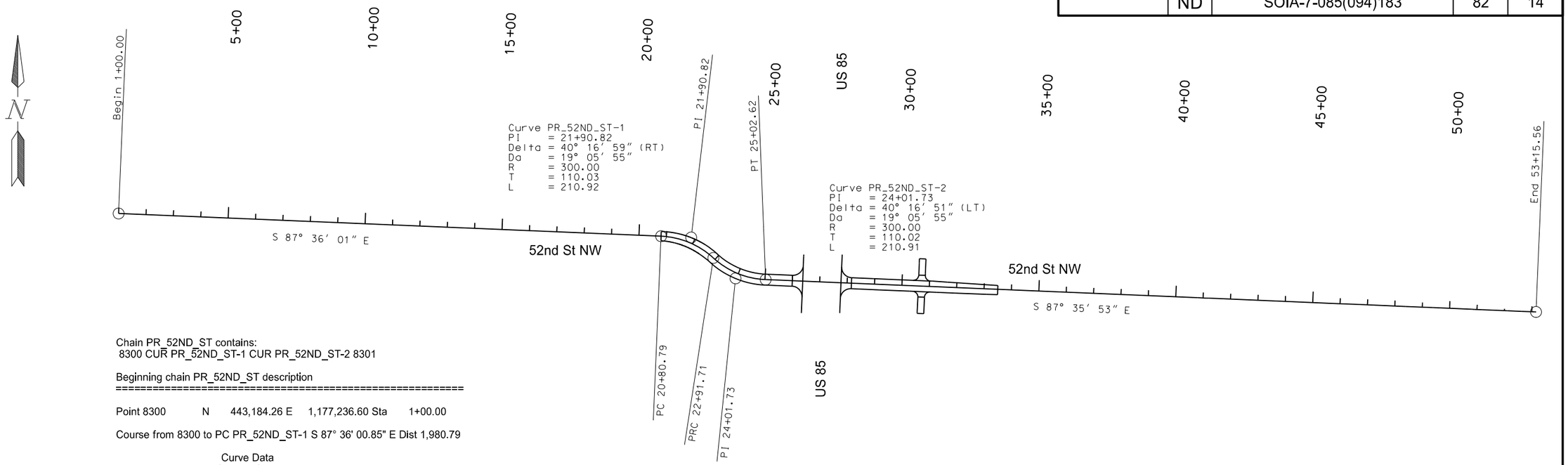
Survey Data Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85 SB Shift 9787+15.88 to 9799+76.68
US 85 NB Shift 9787+15.88 to 9809+92.64

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	14



Chain PR_52ND_ST contains:
8300 CUR PR_52ND_ST-1 CUR PR_52ND_ST-2 8301

Beginning chain PR_52ND_ST description
==========

Point 8300 N 443,184.26 E 1,177,236.60 Sta 1+00.00

Course from 8300 to PC PR_52ND_ST-1 S 87° 36' 00.85" E Dist 1,980.79

Curve Data
———-

Curve PR_52ND_ST-1
P.I. Station 21+90.82 N 443,096.72 E 1,179,325.58
Delta = 40° 16' 59.28" (RT)
Degree = 19° 05' 54.94"
Tangent = 110.03
Length = 210.92
Radius = 300.00
External = 19.54
Long Chord = 206.60
Mid. Ord. = 18.35
P.C. Station 20+80.79 N 443,101.33 E 1,179,215.65
P.T. Station 22+91.71 N 443,022.12 E 1,179,406.47
C.C. N 442,801.59 E 1,179,203.09
Back = S 87° 36' 00.85" E
Ahead = S 47° 19' 01.57" E
Chord Bear = S 67° 27' 31.21" E

Curve Data
———-

Curve PR_52ND_ST-2
P.I. Station 24+01.73 N 442,947.53 E 1,179,487.35
Delta = 40° 16' 51.06" (LT)
Degree = 19° 05' 54.94"
Tangent = 110.02
Length = 210.91
Radius = 300.00
External = 19.54
Long Chord = 206.59
Mid. Ord. = 18.34
P.C. Station 22+91.71 N 443,022.12 E 1,179,406.47
P.T. Station 25+02.62 N 442,942.92 E 1,179,597.28
C.C. N 443,242.66 E 1,179,609.85
Back = S 47° 19' 01.57" E
Ahead = S 87° 35' 52.63" E
Chord Bear = S 67° 27' 27.10" E

Course from PT PR_52ND_ST-2 to 8301 S 87° 35' 52.63" E Dist 2,812.94

Point 8301 N 442,825.03 E 1,182,407.75 Sta 53+15.56

==========
Ending chain PR_52ND_ST description

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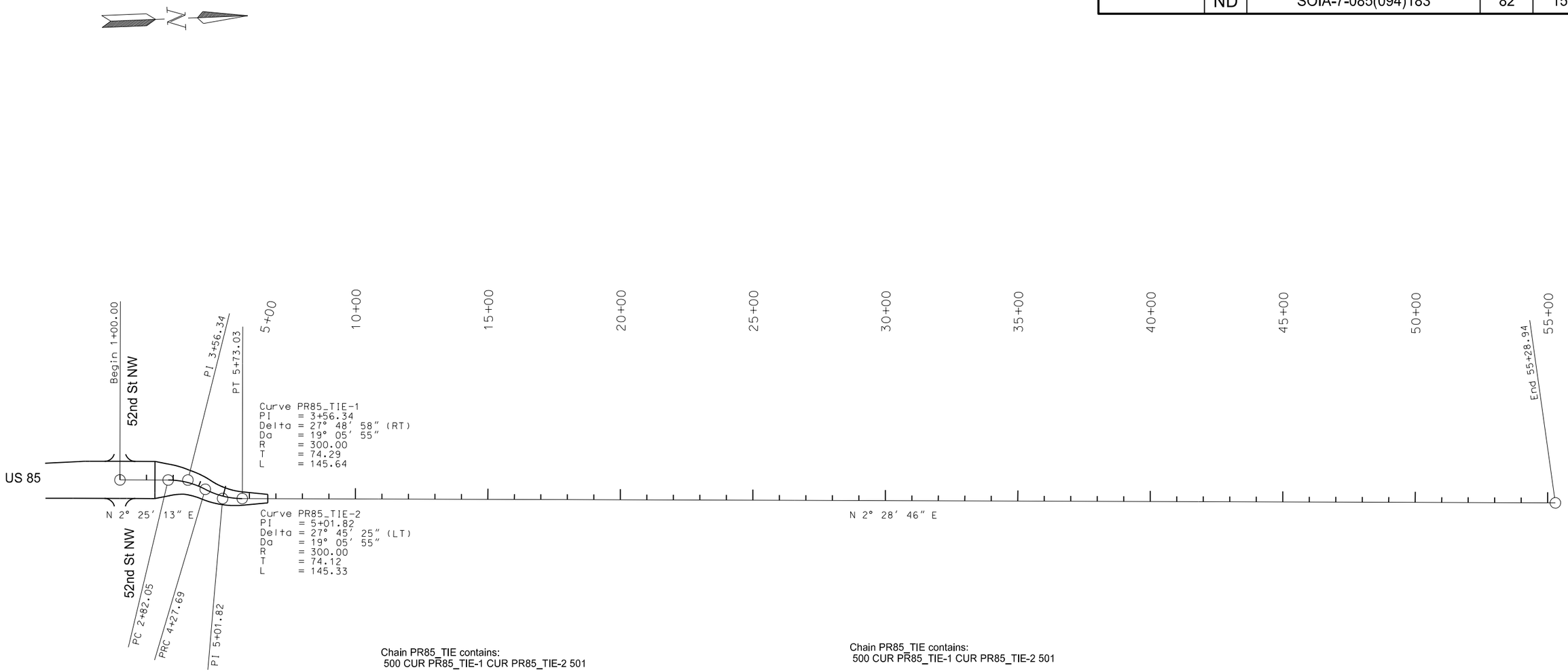
Survey Data Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

52nd St. NW
1+00 to 53+15.56

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	15



Chain PR85_TIE contains:
500 CUR PR85_TIE-1 CUR PR85_TIE-2 501

Beginning chain PR85_TIE description
==========

Point 500 N 442,934.33 E 1,179,802.20 Sta 1+00.00

Course from 500 to PC PR85_TIE-1 N 2° 25' 12.87" E Dist 182.05

Curve Data
———

Curve PR85_TIE-1
P.I. Station 3+56.34 N 443,190.43 E 1,179,813.03
Delta = 27° 48' 57.77" (RT)
Degree = 19° 05' 54.94"
Tangent = 74.29
Length = 145.64
Radius = 300.00
External = 9.06
Long Chord = 144.22
Mid. Ord. = 8.80
P.C. Station 2+82.05 N 443,116.21 E 1,179,809.89
P.T. Station 4+27.69 N 443,254.61 E 1,179,850.43
C.C. N 443,103.54 E 1,180,109.62
Back = N 2° 25' 12.87" E
Ahead = N 30° 14' 10.64" E
Chord Bear = N 16° 19' 41.76" E

Chain PR85_TIE contains:
500 CUR PR85_TIE-1 CUR PR85_TIE-2 501

Beginning chain PR85_TIE description
==========

Point 500 N 442,934.33 E 1,179,802.20 Sta 1+00.00

Course from 500 to PC PR85_TIE-1 N 2° 25' 12.87" E Dist 182.05

Curve Data
———

Curve PR85_TIE-1
P.I. Station 3+56.34 N 443,190.43 E 1,179,813.03
Delta = 27° 48' 57.77" (RT)
Degree = 19° 05' 54.94"
Tangent = 74.29
Length = 145.64
Radius = 300.00
External = 9.06
Long Chord = 144.22
Mid. Ord. = 8.80
P.C. Station 2+82.05 N 443,116.21 E 1,179,809.89
P.T. Station 4+27.69 N 443,254.61 E 1,179,850.43
C.C. N 443,103.54 E 1,180,109.62
Back = N 2° 25' 12.87" E
Ahead = N 30° 14' 10.64" E
Chord Bear = N 16° 19' 41.76" E

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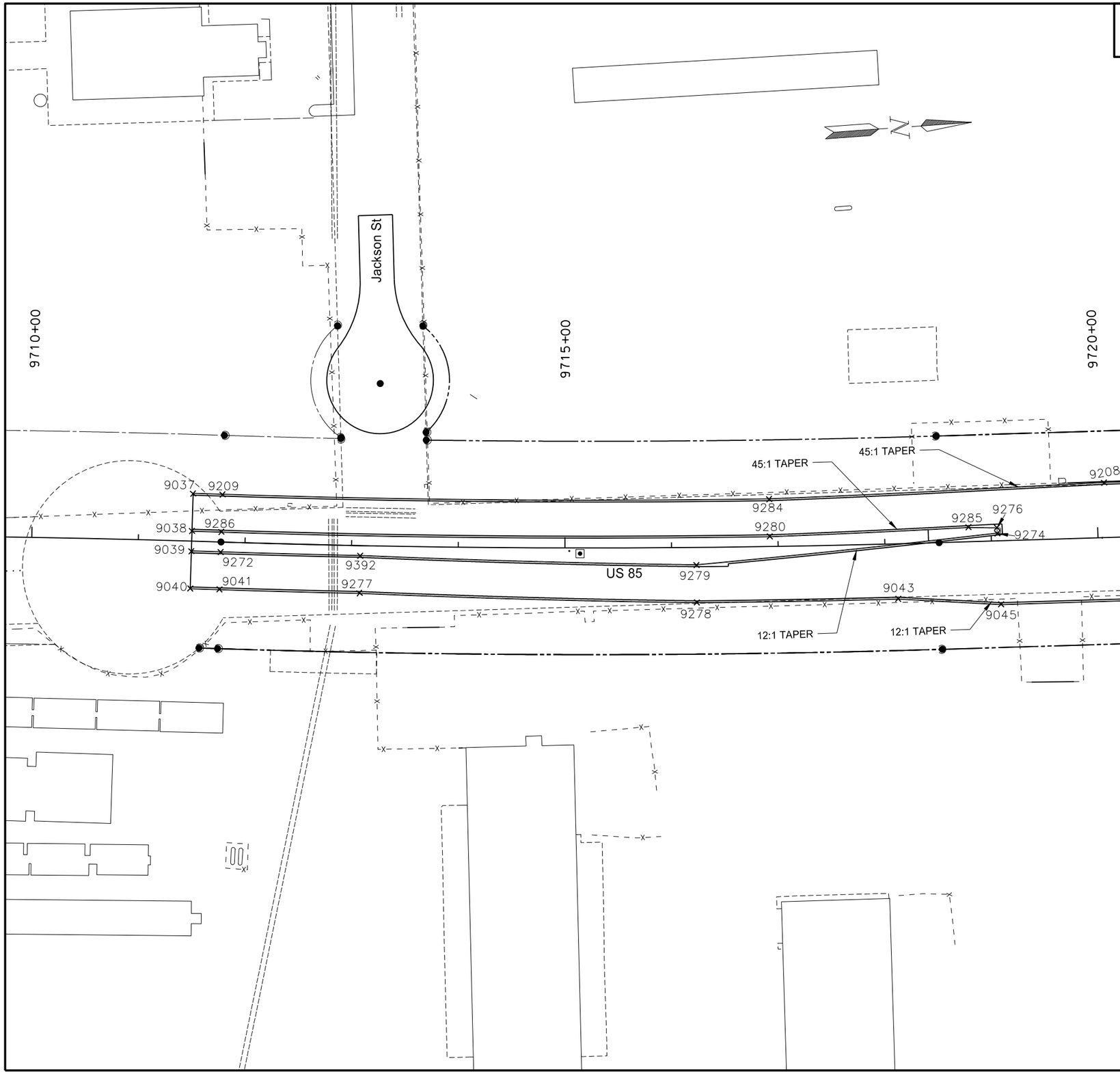
Survey Data Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85 Tie
1+00 to 55+28.94

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	16



Alignment: PR85					
Point	North	East	Station	Offset	Region
9037	433359.86	1181917.70	9711+50.00	-44.50	2
9038	433356.31	1181952.52	9711+50.00	-9.50	2
9039	433354.39	1181971.42	9711+50.00	9.50	2
9040	433350.84	1182006.24	9711+50.00	44.50	2
9041	433378.09	1182009.05	9711+77.51	44.50	2
9043	434012.31	1182063.50	9718+11.29	51.50	2
9045	434108.09	1182075.56	9719+07.29	59.50	2
9208	434212.60	1181968.80	9720+07.29	-51.50	2
9209	433387.34	1181920.53	9711+77.51	-44.50	2
9272	433381.73	1181974.24	9711+77.51	9.50	2
9274	434109.27	1182009.02	9719+05.71	-7.04	2
9276	434109.42	1182003.59	9719+05.63	-12.46	2
9277	433508.78	1182021.91	9713+08.29	44.50	2
9278	433823.69	1182053.33	9716+23.29	51.50	2
9279	433825.88	1182018.39	9716+23.29	16.50	2
9280	433896.33	1181996.54	9716+92.29	-9.50	2
9284	433898.29	1181961.60	9716+92.29	-44.50	2
9285	434082.74	1182001.30	9718+78.88	-13.65	2
9286	433383.70	1181955.34	9711+77.51	-9.50	2
9392	433511.99	1181987.06	9713+08.29	9.50	2

Point locations given, other than radius points, are on face of curb.

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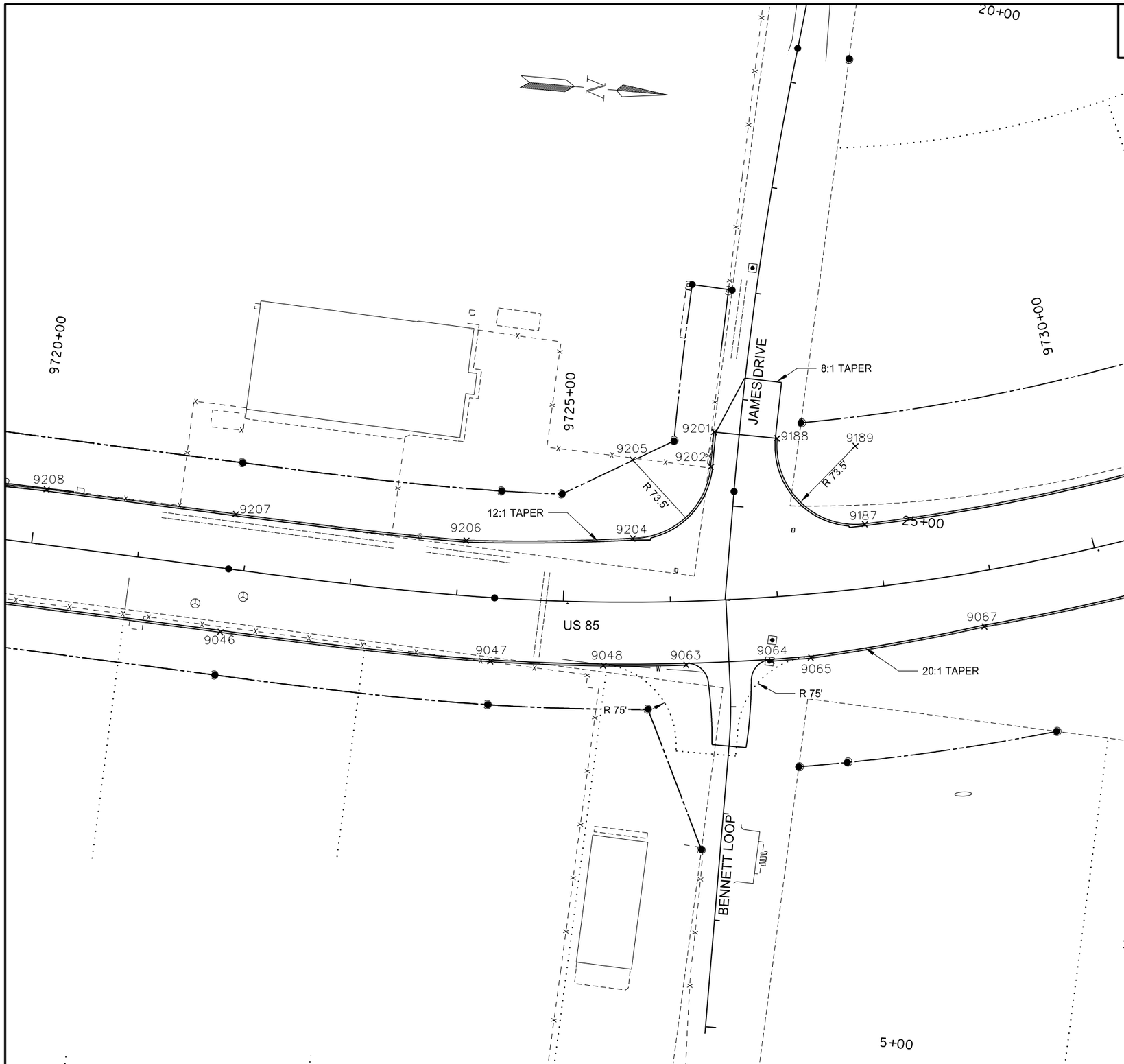
Survey Data Points

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9710+00 to 9720+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	17



Alignment: PR85					
Point	North	East	Station	Offset	Region
9046	434386.19	1182087.10	9721+85.63	59.50	2
9047	434639.94	1182092.05	9724+35.59	59.50	2
9048	434745.44	1182086.68	9725+38.05	59.50	2
9063	434822.51	1182079.16	9726+13.14	59.50	2
9064	434901.61	1182068.24	9726+90.59	59.50	2
9065	434937.96	1182062.12	9727+26.34	59.50	2
9067	435096.94	1182018.70	9728+86.34	51.50	2
9187	434976.90	1181933.30	9727+89.23	-59.50	2
9188	434888.15	1181860.71	9727+11.45	-147.47	2
9189	434961.65	1181861.40	9727+89.23	-133.00	2
9201	434829.15	1181860.15	9726+48.17	-156.95	2
9202	434829.00	1181892.66	9726+43.32	-124.75	2
9204	434762.23	1181965.83	9725+64.99	-59.50	2
9205	434755.50	1181892.64	9725+64.99	-133.00	2
9206	434607.46	1181981.56	9724+04.99	-51.50	2
9207	434390.79	1181976.19	9721+85.63	-51.50	2
9208	434212.60	1181968.80	9720+07.29	-51.50	2

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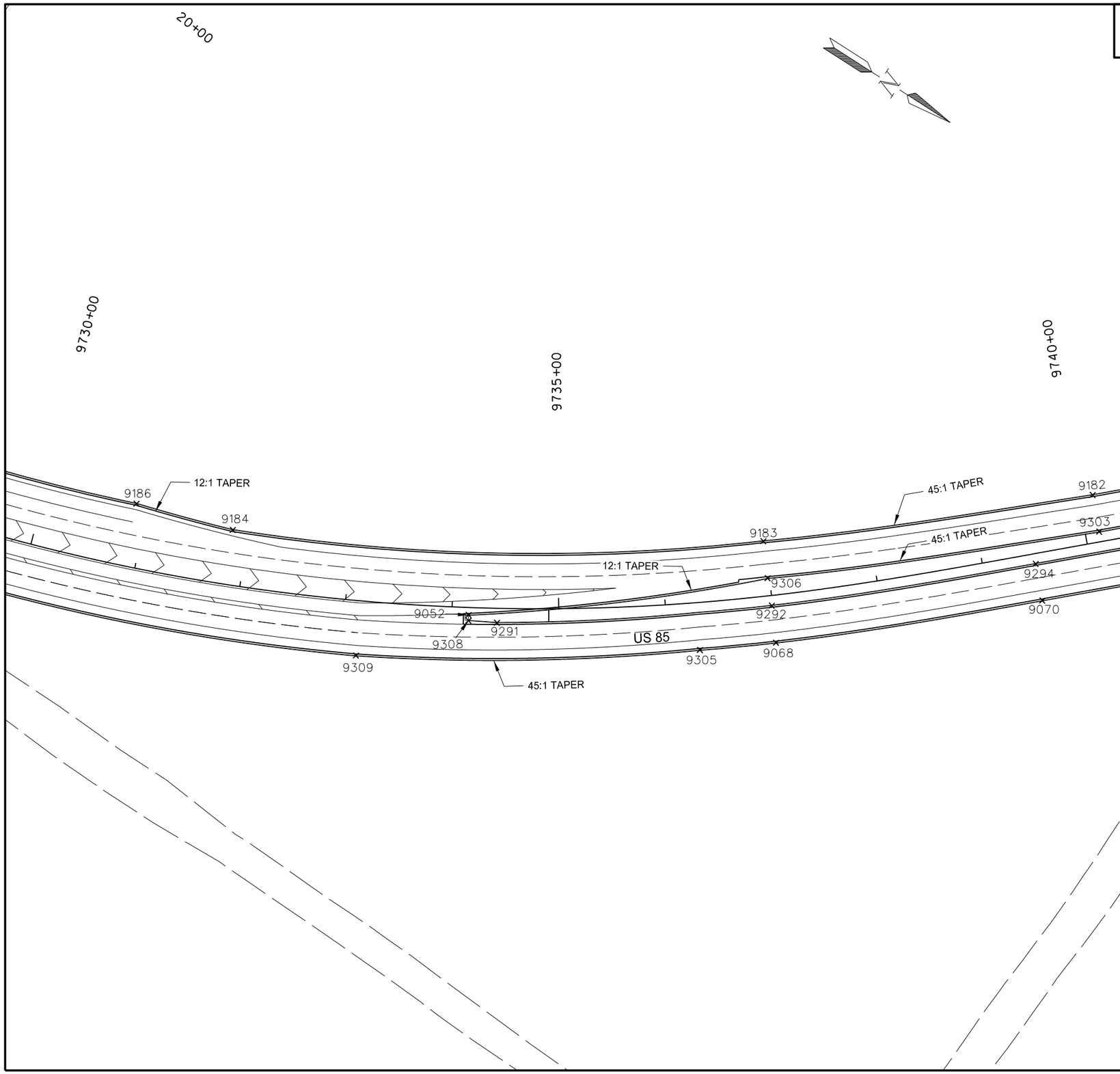
Survey Data Points

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85 / James Drive / Bennett Loop S
9720+00 to 9730+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	18



Alignment: PR85					
Point	North	East	Station	Offset	Region
9052	435573.70	1181770.15	9734+15.80	7.04	2
9068	435830.13	1181636.01	9736+99.22	44.50	2
9070	436018.68	1181467.59	9739+49.18	44.50	2
9182	436004.77	1181358.82	9740+13.23	-44.50	2
9183	435768.61	1181562.31	9736+98.23	-51.50	2
9184	435344.53	1181822.76	9731+85.23	-51.50	2
9186	435255.33	1181850.92	9730+89.23	-59.50	2
9291	435600.01	1181761.95	9734+42.41	13.65	2
9292	435807.95	1181608.94	9736+99.18	9.50	2
9294	435994.80	1181442.00	9739+49.18	9.50	2
9303	436028.66	1181384.40	9740+13.23	-9.50	2
9305	435773.88	1181680.33	9736+29.23	44.50	2
9306	435790.75	1181589.42	9736+98.23	-16.50	2
9308	435576.55	1181774.73	9734+15.91	12.44	2
9309	435505.45	1181859.32	9733+14.23	51.50	2

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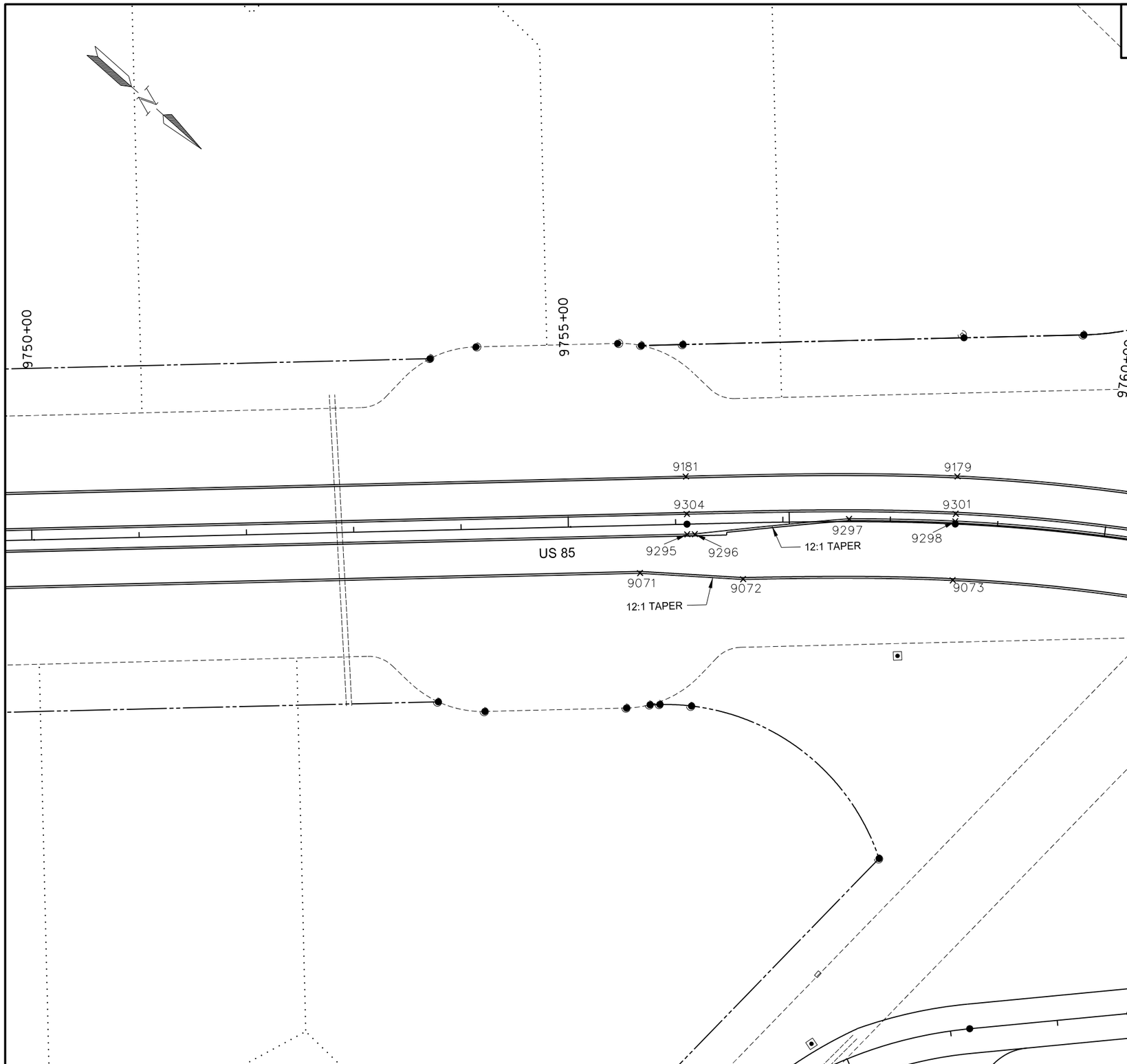
Survey Data Points

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9730+00 to 9740+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	19



Alignment: PR85					
Point	North	East	Station	Offset	Region
9071	437200.35	1180364.49	9755+65.70	44.50	2
9072	437275.91	1180304.98	9756+61.70	52.50	2
9073	437422.54	1180175.92	9758+60.64	52.50	2
9179	437361.49	1180100.55	9758+60.57	-44.50	2
9181	437172.45	1180268.78	9756+10.62	-44.50	2
9295	437209.30	1180308.26	9756+10.62	9.50	2
9296	437214.48	1180303.42	9756+17.70	9.50	2
9297	437312.49	1180197.31	9757+61.70	-2.50	2
9298	437387.93	1180133.18	9758+60.62	-2.50	2
9301	437383.53	1180127.74	9758+60.61	-9.50	2
9304	437196.34	1180294.37	9756+10.62	-9.50	2

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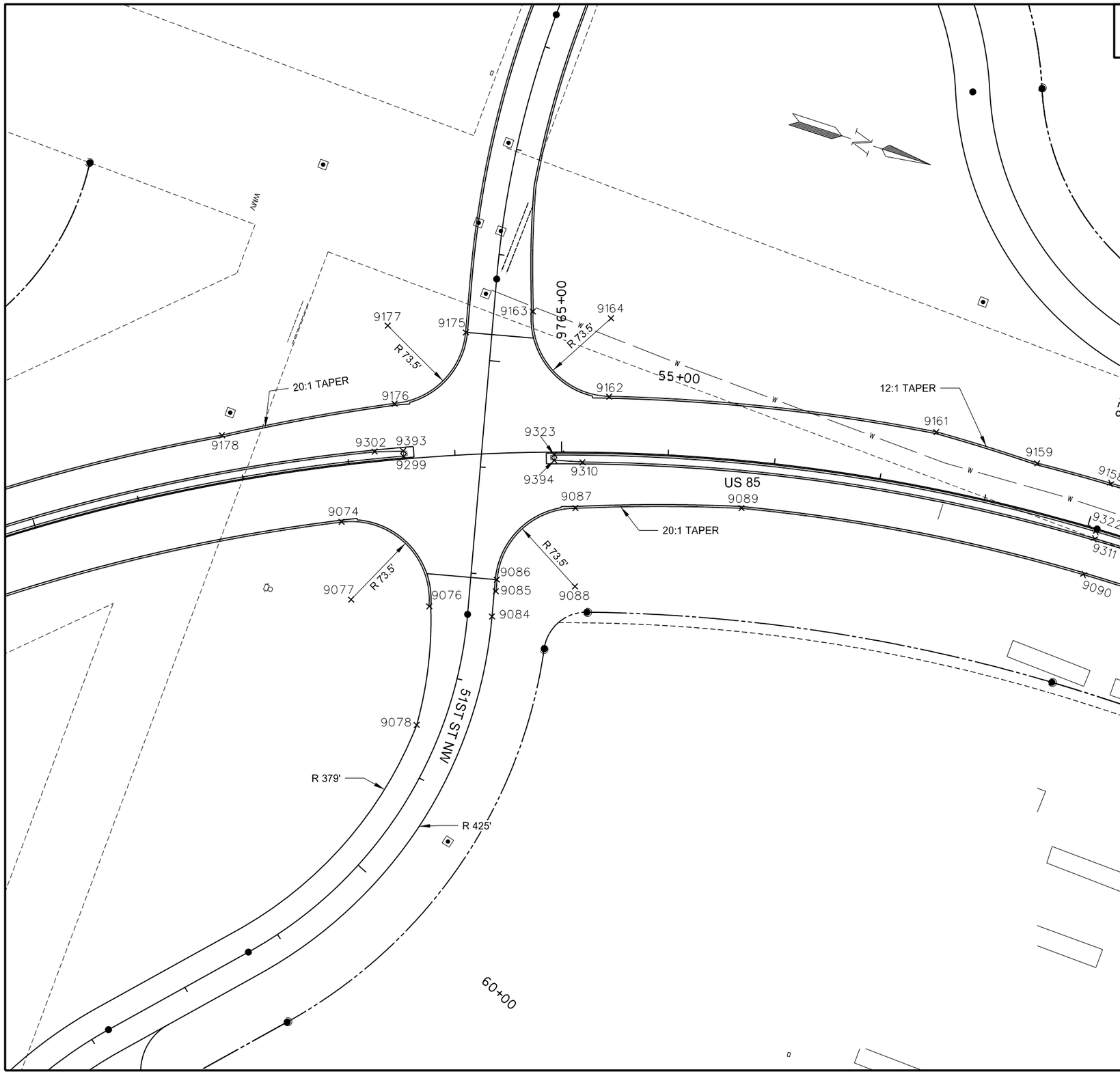
Survey Data Points

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9750+00 to 9760+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	20



Alignment: PR85					
Point	North	East	Station	Offset	Region
9074	437772.08	1179957.14	9762+86.70	52.50	2
9076	437874.86	1180006.99	9763+64.81	139.68	2
9077	437803.29	1180023.69	9762+86.70	126.00	2
9078	437898.26	1180116.43	9763+41.02	249.57	2
9084	437933.80	1179997.72	9764+28.30	152.71	2
9085	437929.86	1179974.21	9764+33.21	129.29	2
9086	437927.37	1179963.55	9764+34.69	118.44	2
9087	437976.53	1179876.86	9765+13.25	52.50	2
9088	437998.95	1179946.86	9765+13.25	126.00	2
9089	438124.56	1179828.48	9766+73.23	44.50	2
9090	438448.92	1179788.07	9770+09.07	44.50	2
9158	438446.39	1179699.11	9770+09.09	-44.50	2
9159	438375.13	1179702.56	9769+39.50	-44.50	2
9161	438276.19	1179703.99	9768+43.50	-52.50	2
9162	437974.27	1179767.61	9765+43.51	-52.50	2
9163	437881.48	1179713.93	9764+75.25	-132.09	2
9164	437953.05	1179697.24	9765+43.51	-126.00	2
9175	437827.72	1179752.03	9764+15.88	-114.63	2
9176	437785.02	1179836.31	9763+47.90	-52.50	2
9177	437756.14	1179768.72	9763+47.90	-126.00	2
9178	437640.43	1179914.87	9761+87.88	-44.50	2
9299	437808.47	1179880.67	9763+52.03	-2.50	2
9302	437781.15	1179884.88	9763+25.38	-9.50	2
9310	437969.53	1179833.96	9765+19.70	9.50	2
9311	438447.94	1179753.09	9770+09.09	9.50	2
9322	438447.74	1179746.09	9770+09.09	2.50	2
9323	437942.11	1179835.50	9764+93.05	2.50	2
9393	437806.45	1179875.88	9763+52.04	-7.70	2
9394	437943.78	1179840.48	9764+93.06	7.75	2

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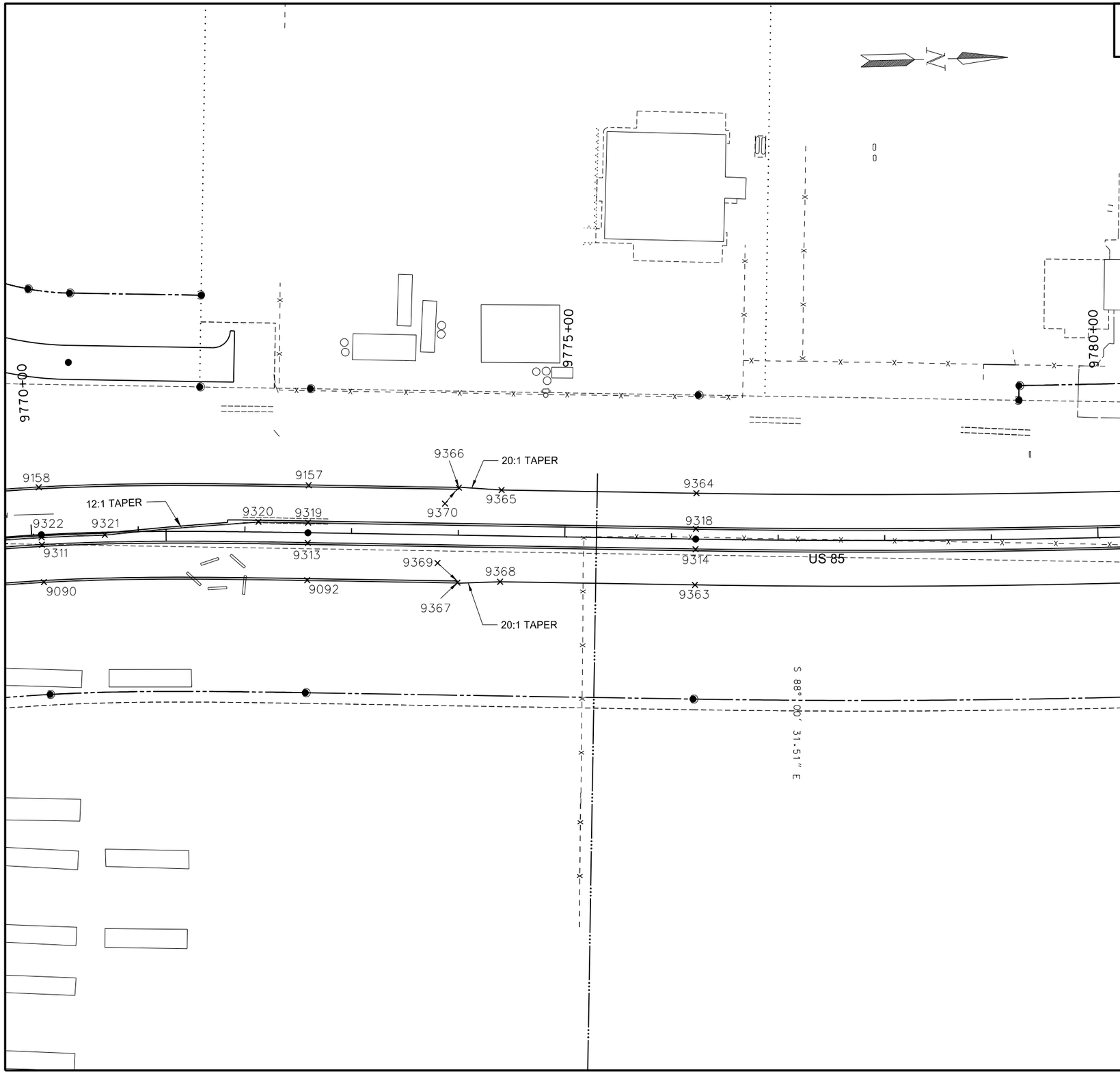
Survey Data Points

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9760+00 to 9770+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	21



Alignment: PR85					
Point	North	East	Station	Offset	Region
9090	438448.92	1179788.07	9770+09.07	44.50	2
9092	438695.69	1179792.70	9772+59.09	44.50	2
9157	438699.45	1179703.78	9772+59.09	-44.50	2
9158	438446.39	1179699.11	9770+09.09	-44.50	2
9311	438447.94	1179753.09	9770+09.09	9.50	2
9313	438697.17	1179757.73	9772+59.09	9.50	2
9314	439060.48	1179773.09	9776+22.73	9.50	2
9318	439061.29	1179754.11	9776+22.73	-9.50	2
9319	438697.97	1179738.75	9772+59.09	-9.50	2
9320	438651.40	1179736.82	9772+12.50	-9.50	2
9321	438507.07	1179745.31	9770+68.50	2.50	2
9322	438447.74	1179746.09	9770+09.09	2.50	2
9363	439059.07	1179806.56	9776+22.73	43.00	2
9364	439062.70	1179720.63	9776+22.73	-43.00	2
9365	438880.13	1179712.92	9774+40.00	-43.00	2
9366	438840.25	1179709.23	9774+00.00	-45.00	2
9367	438836.45	1179799.15	9774+00.00	45.00	2
9368	438876.50	1179798.84	9774+40.00	43.00	2
9369	438836.47	1179798.65	9774+00.00	44.50	2
9370	438840.23	1179709.73	9774+00.00	-44.50	2

Point locations given, other than radius points, are on face of curb.

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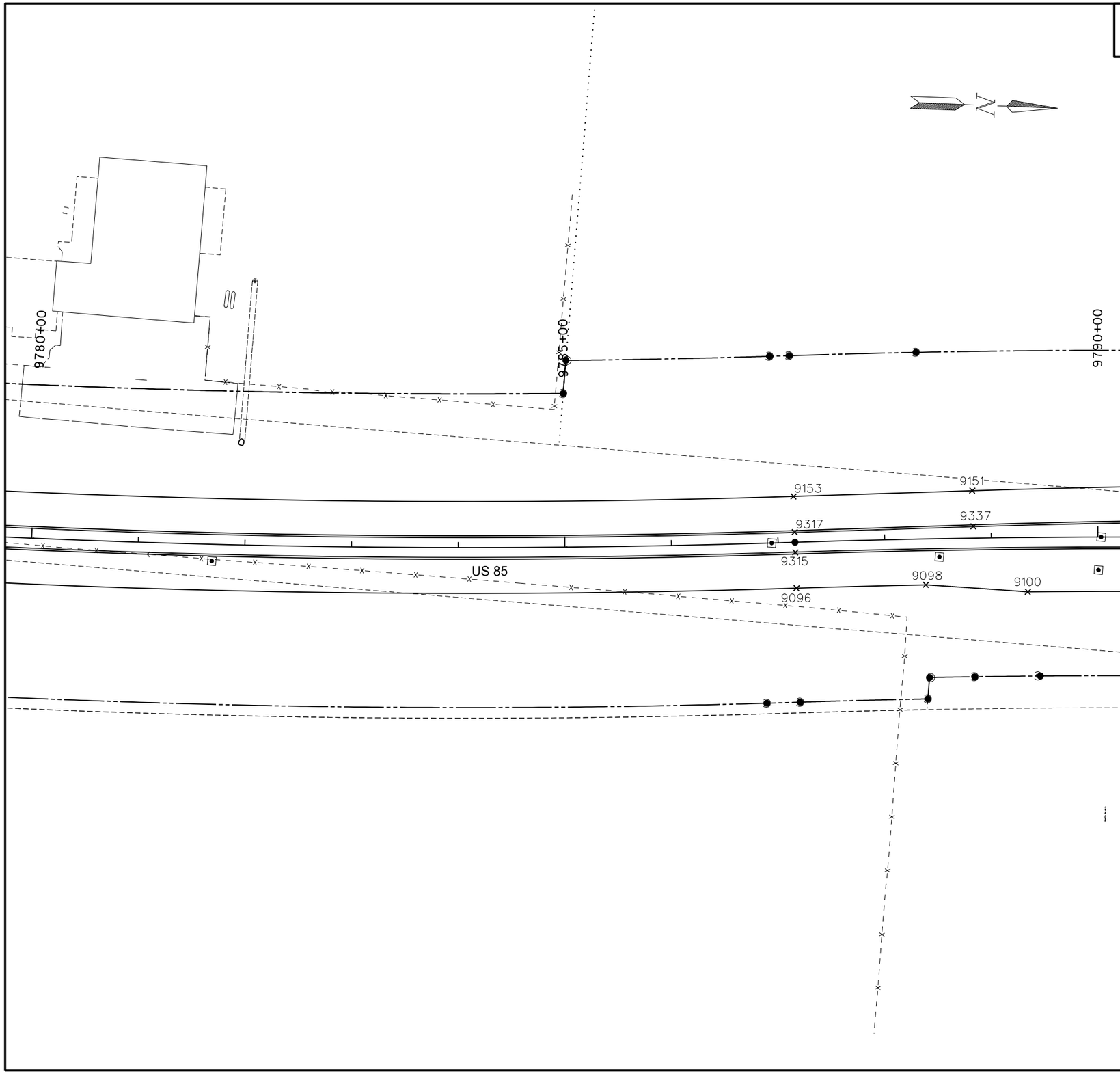
Survey Data Points

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9770+00 to 9780+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	22



Alignment: PR85					
Point	North	East	Station	Offset	Region
9096	440,156.41	1,179,790.10	9787+15.88	43.00	2
9098	440,277.48	1,179,782.12	9788+37.76	43.00	2
9100	440,373.30	1,179,784.91	9789+33.76	51.00	2
9151	440,317.43	1,179,692.23	9788+82.77	-44.47	2
9153	440,150.21	1,179,704.33	9787+15.88	-43.00	2
9315	440,154.00	1,179,756.69	9787+15.88	9.50	2
9317	440152.63	1179737.74	9787+15.88	-9.50	2
9337	440319.85	1179725.64	9788+83.35	-10.97	2

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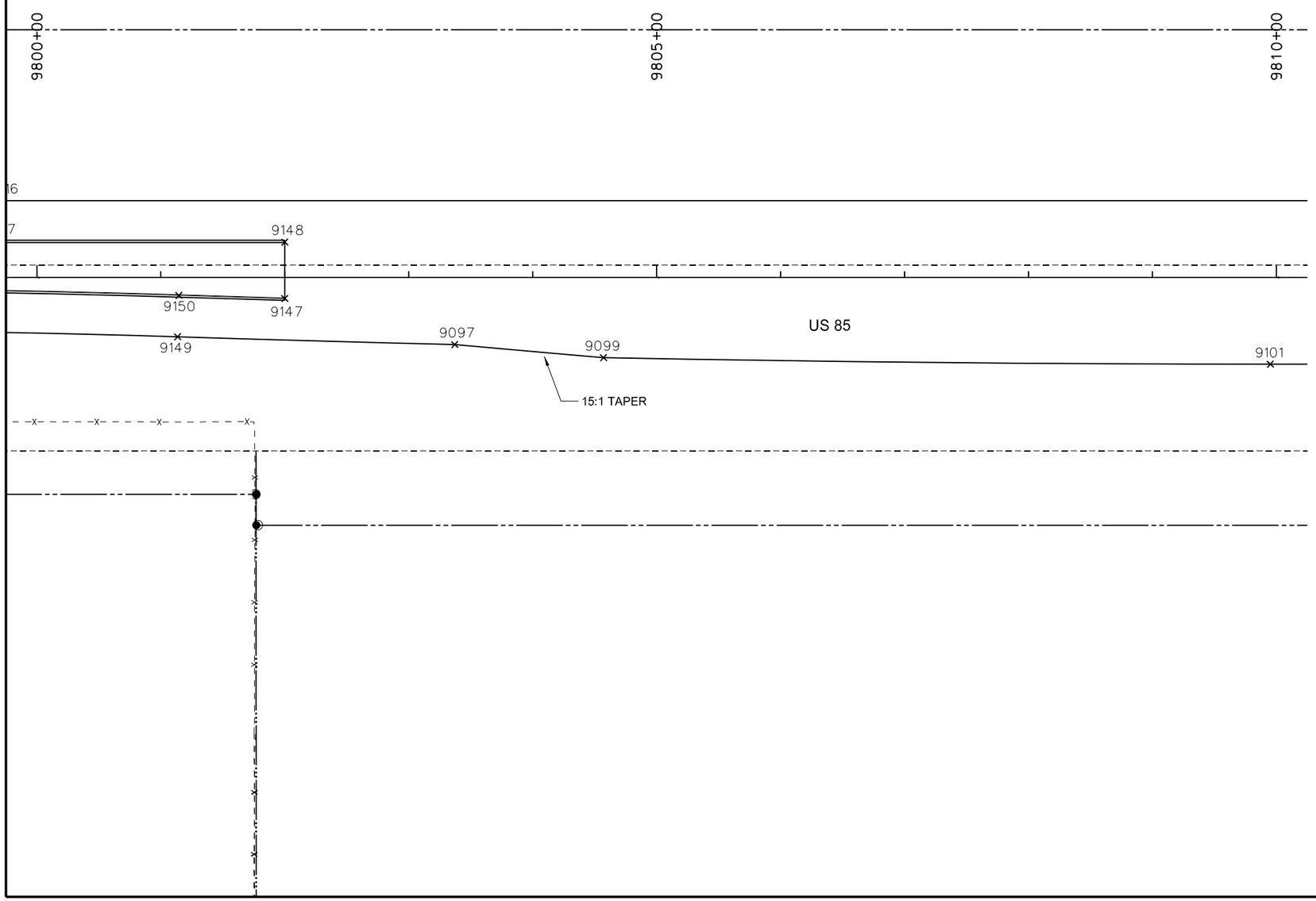
Survey Data Points

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9780+00 to 9790+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	23



Alignment: PR85					
Point	North	East	Station	Offset	Region
9097	441771.10	1179807.22	9803+37.14	54.13	2
9099	441890.57	1179822.89	9804+57.17	64.74	2
9101	442427.77	1179850.85	9809+95.07	70.00	2
9147	441635.65	1179764.33	9802+00.00	17.00	2
9148	441637.57	1179718.87	9802+00.00	-28.50	2
9149	441547.94	1179791.52	9801+13.52	47.88	2
9150	441550.42	1179758.12	9801+14.59	14.40	2

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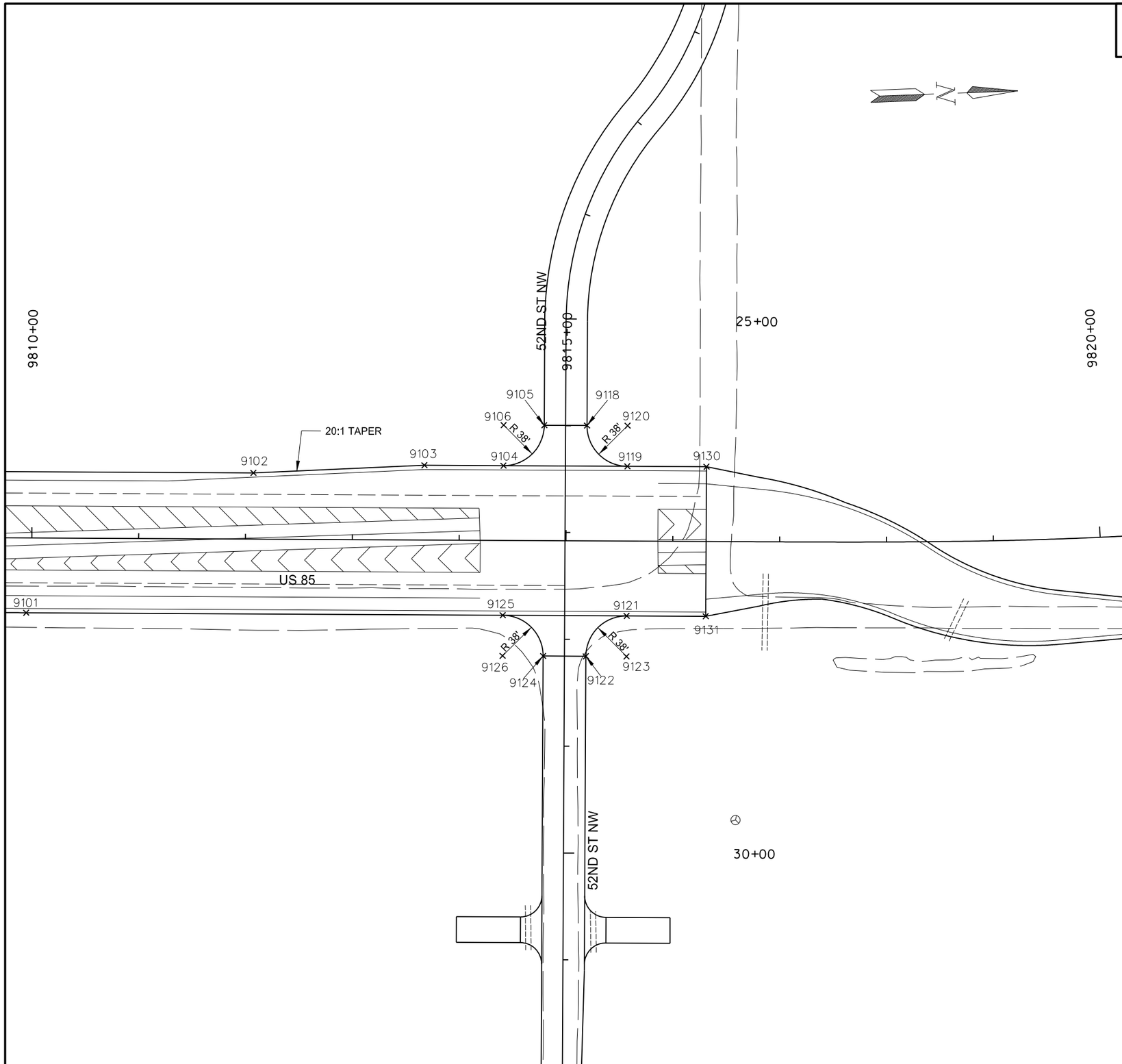
Survey Data Points

Williston NW Permanent Truck Reliever Route Phase 1A

US 85
9800+00 to 9810+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	24



Alignment: PR85					
Point	North	East	Station	Offset	Region
9101	42427.77	1179850.85	9809+95.07	70.00	2
9102	42645.16	1179727.92	9812+07.08	-62.00	2
9103	42805.35	1179726.69	9813+67.08	-70.00	2
9104	42879.30	1179729.81	9814+41.09	-70.00	2
9105	42918.87	1179693.44	9814+79.09	-108.01	2
9106	42880.90	1179691.85	9814+41.09	-108.00	2
9118	42958.83	1179695.15	9815+19.09	-107.99	2
9119	42995.20	1179734.71	9815+57.09	-70.00	2
9120	42996.80	1179696.75	9815+57.09	-108.00	2
9121	42989.35	1179874.59	9815+57.16	70.00	2
9122	42949.78	1179910.96	9815+19.16	108.01	2
9123	42987.75	1179912.56	9815+57.16	108.00	2
9124	42909.82	1179909.25	9814+79.16	107.99	2
9125	42873.46	1179869.69	9814+41.16	70.00	2
9126	42871.85	1179907.66	9814+41.16	108.00	2
9130	43069.21	1179737.84	9816+31.17	-70.00	2
9131	43063.30	1179877.71	9816+31.17	70.00	2

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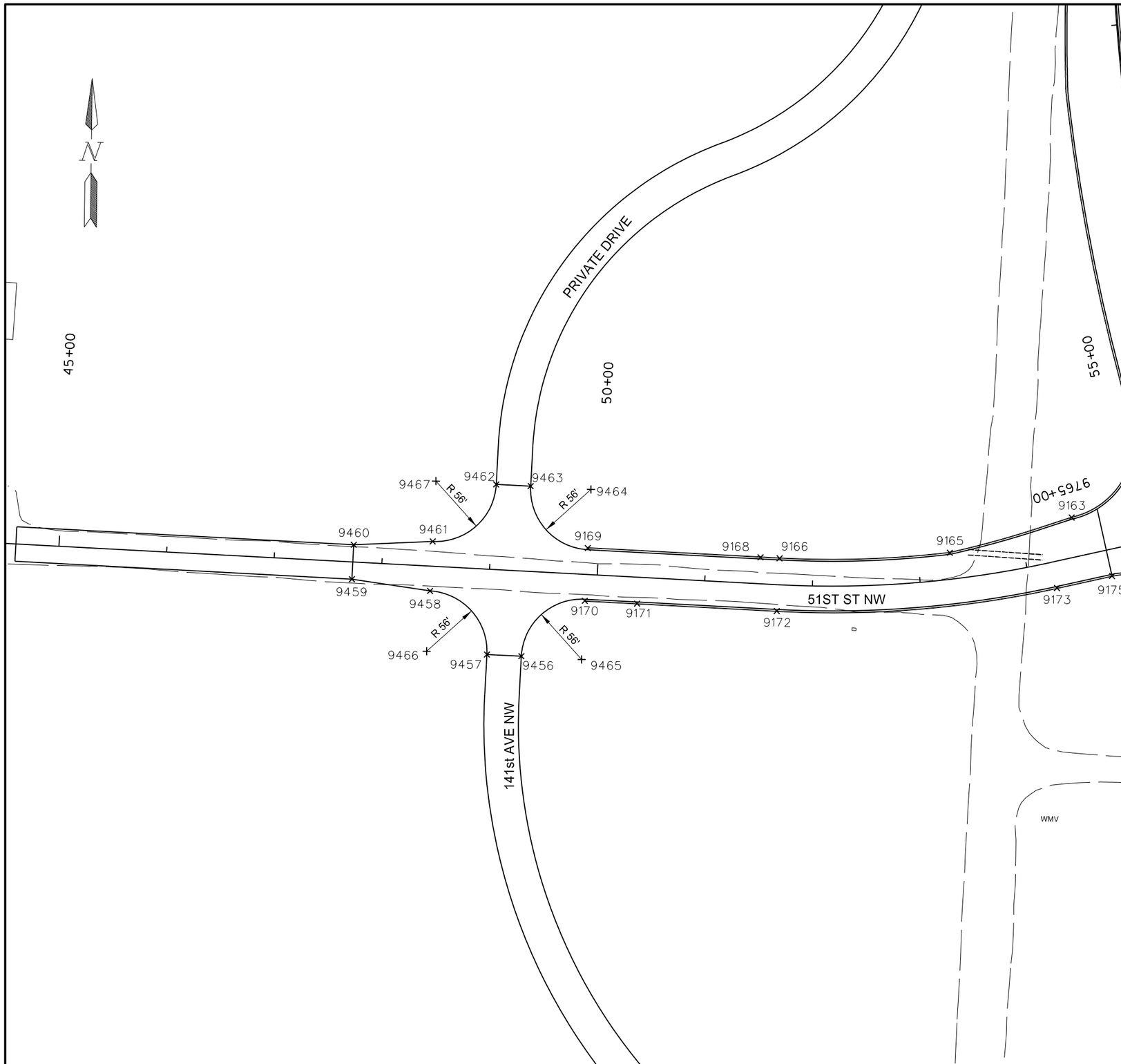
Survey Data Points

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9810+00 to 9820+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	25



Alignment: PR51ST				
Point	North	East	Station	Offset
9163	437881.48	1179713.93	54+50.54	-36.50
9165	437847.41	1179601.27	53+30.54	-24.50
9166	437840.30	1179443.44	51+68.14	-24.50
9168	437841.03	1179425.75	51+50.43	-24.50
9169	437847.59	1179265.44	49+89.99	-24.49
9170	437798.65	1179263.22	49+89.78	24.50
9171	437796.66	1179311.74	50+38.33	24.50
9172	437791.34	1179441.43	51+68.14	24.50
9173	437815.84	1179701.09	54+23.12	24.50
9175	437827.72	1179752.03	54+75.43	24.50
9456	437746.57	1179205.04	49+33.78	78.92
9457	437747.73	1179173.06	49+01.78	79.08
9458	437806.04	1179119.62	48+45.99	23.00
9459	437816.03	1179046.97	47+72.99	16.00
9460	437848.00	1179048.28	47+72.99	-16.00
9461	437852.00	1179121.50	48+45.99	-23.00
9462	437905.59	1179179.75	49+01.99	-78.92
9463	437904.42	1179211.73	49+33.99	-79.08
9464	437902.05	1179267.68	49+89.99	-79.00
9465	437744.20	1179260.99	49+89.78	79.00
9466	437750.10	1179117.11	48+45.78	79.00
9467	437907.95	1179123.80	48+45.99	-79.00

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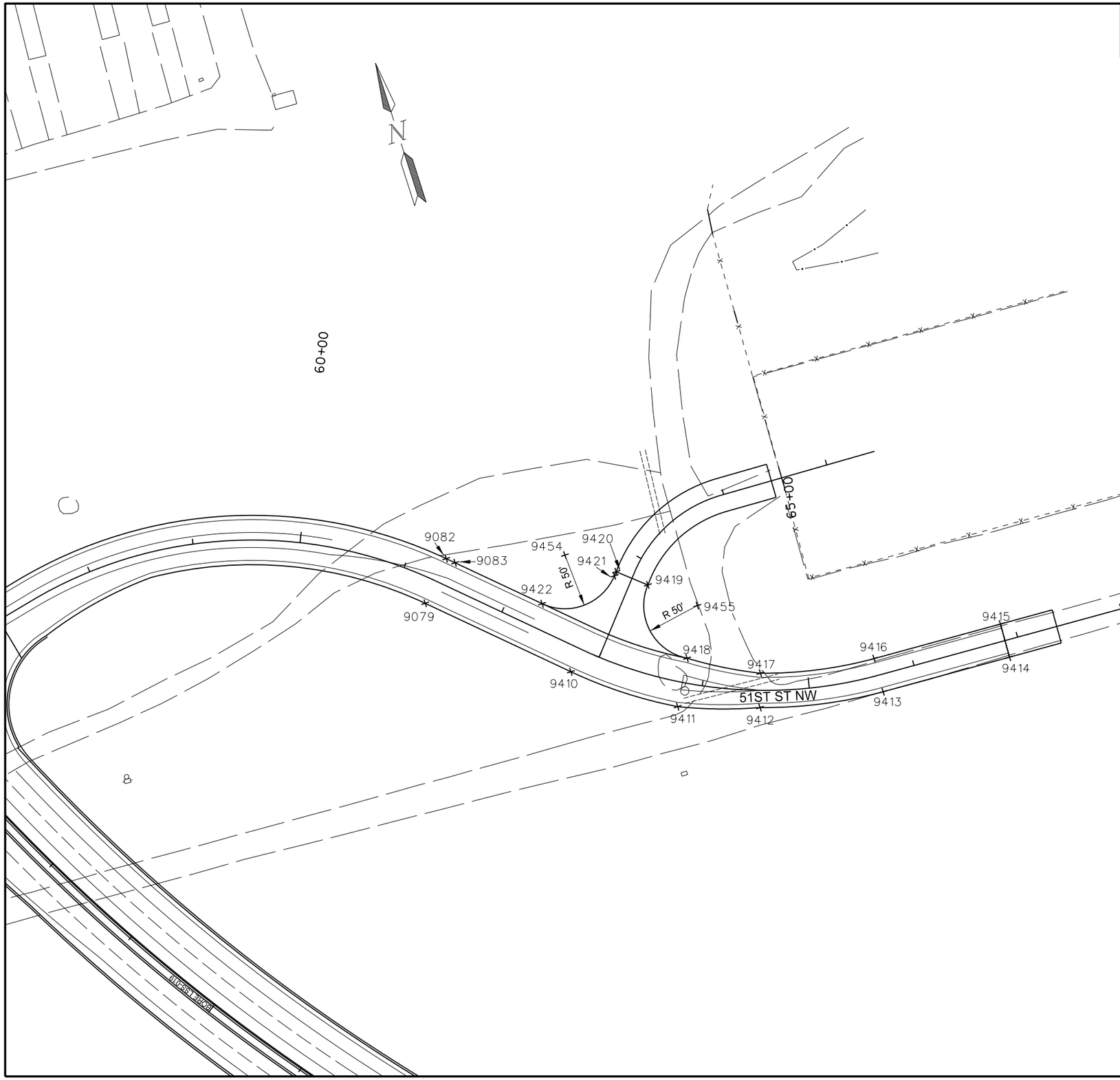
Survey Data Points

Williston NW Permanent Truck Reliever Route
Phase 1A

51st St. NW
45+00 to 55+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	26



Alignment: PR_51ST				
Point	North	East	Station	Offset
9079	437,797.53	1,180,352.26	61+31.93	23.00
9082	437831.22	1180383.58	61+31.93	-23.00
9083	437,825.00	1,180,390.27	61+41.06	-23.00
9410	437695.41	1180462.14	62+81.93	23.00
9411	437,634.13	1,180,547.01	63+81.20	23.00
9412	437,609.98	1,180,619.87	64+54.20	16.00
9413	437,589.11	1,180,733.61	65+65.77	16.00
9414	437,583.89	1,180,855.61	66+87.88	16.00
9415	437,615.86	1,180,856.97	66+87.88	-16.00
9416	437,621.08	1,180,734.98	65+65.77	-16.00
9417	437640.35	1180629.94	64+54.20	-16.00
9418	437674.46	1180569.14	63+81.20	-23.00
9419	437750.65	1180555.08	63+19.94	-79.29
9420	437771.36	1180530.68	62+80.43	-79.29
9421	437768.27	1180528.06	62+80.61	-75.25
9422	437764.01	1180455.90	62+30.66	-23.00
9454	437800.63	1180489.94	62+30.66	-73.00
9455	437718.30	1180593.19	63+81.20	-73.00

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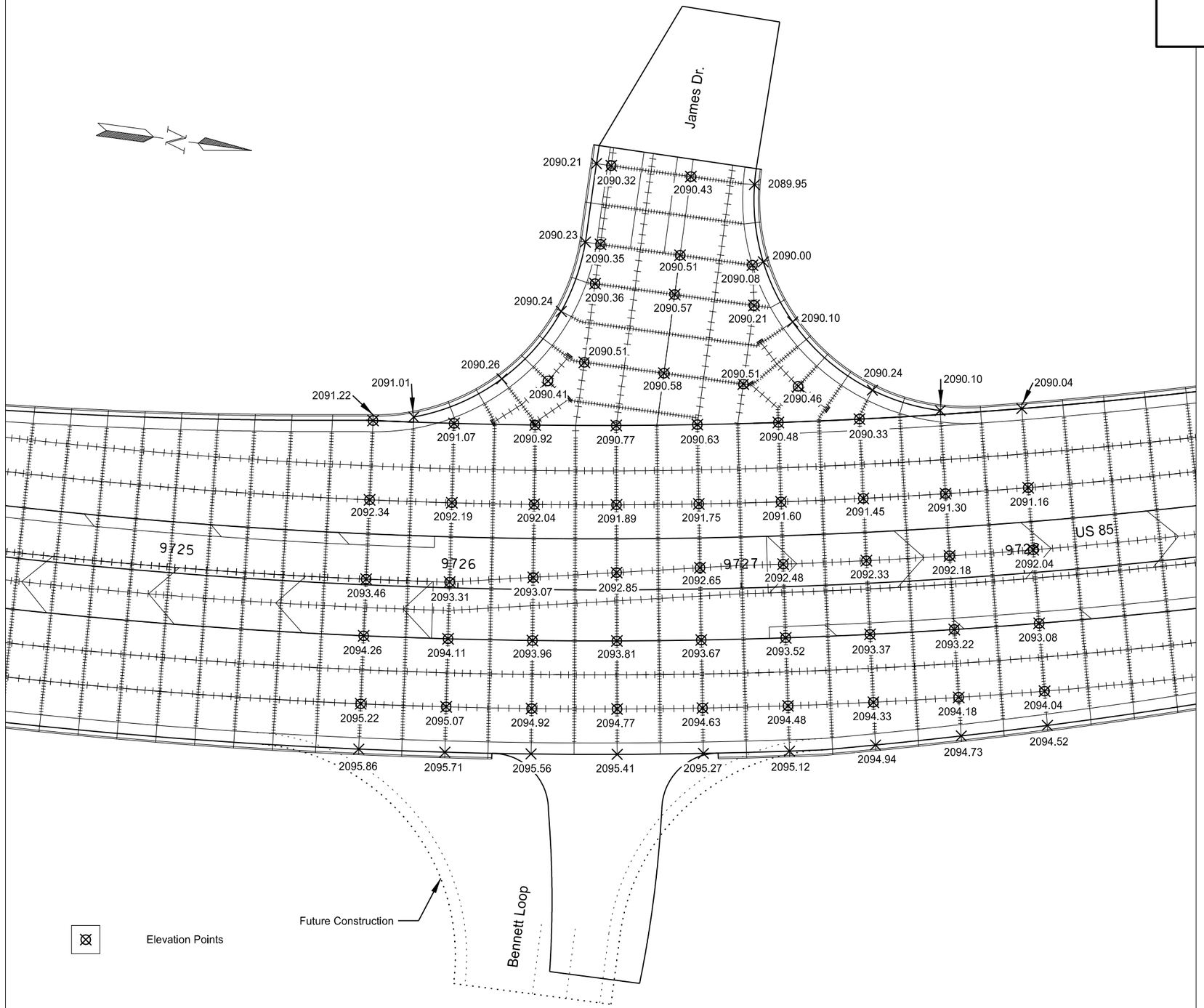
Survey Data Points

Williston NW Permanent Truck Reliever Route
Phase 1A

51st St. NW
58+00 to 68+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	27



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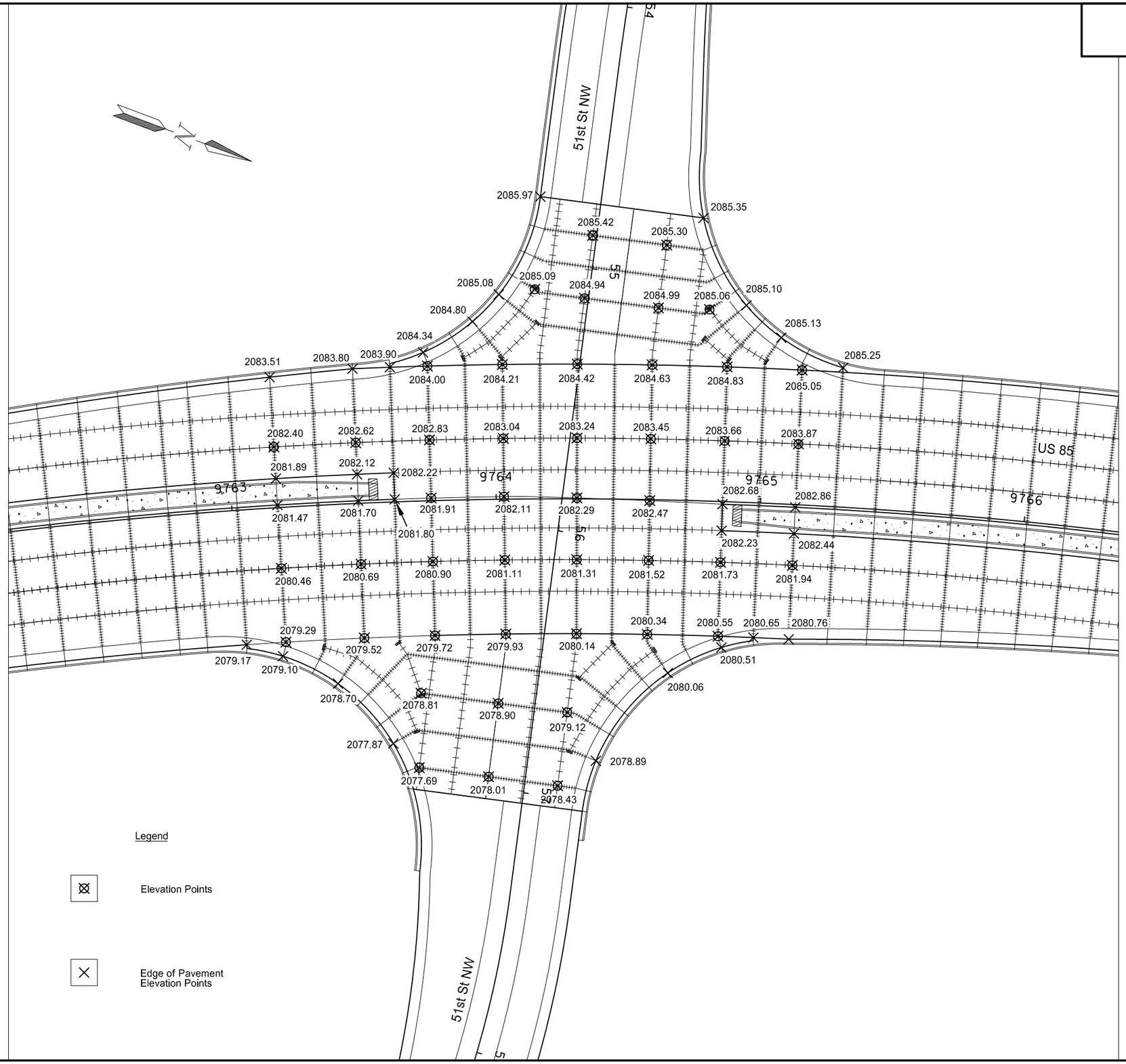
Elevation Data Points

Williston NW Permanent Truck Reliever Route Phase 1A

Intersection of US 85 & James Dr./Bennett Loop

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	28



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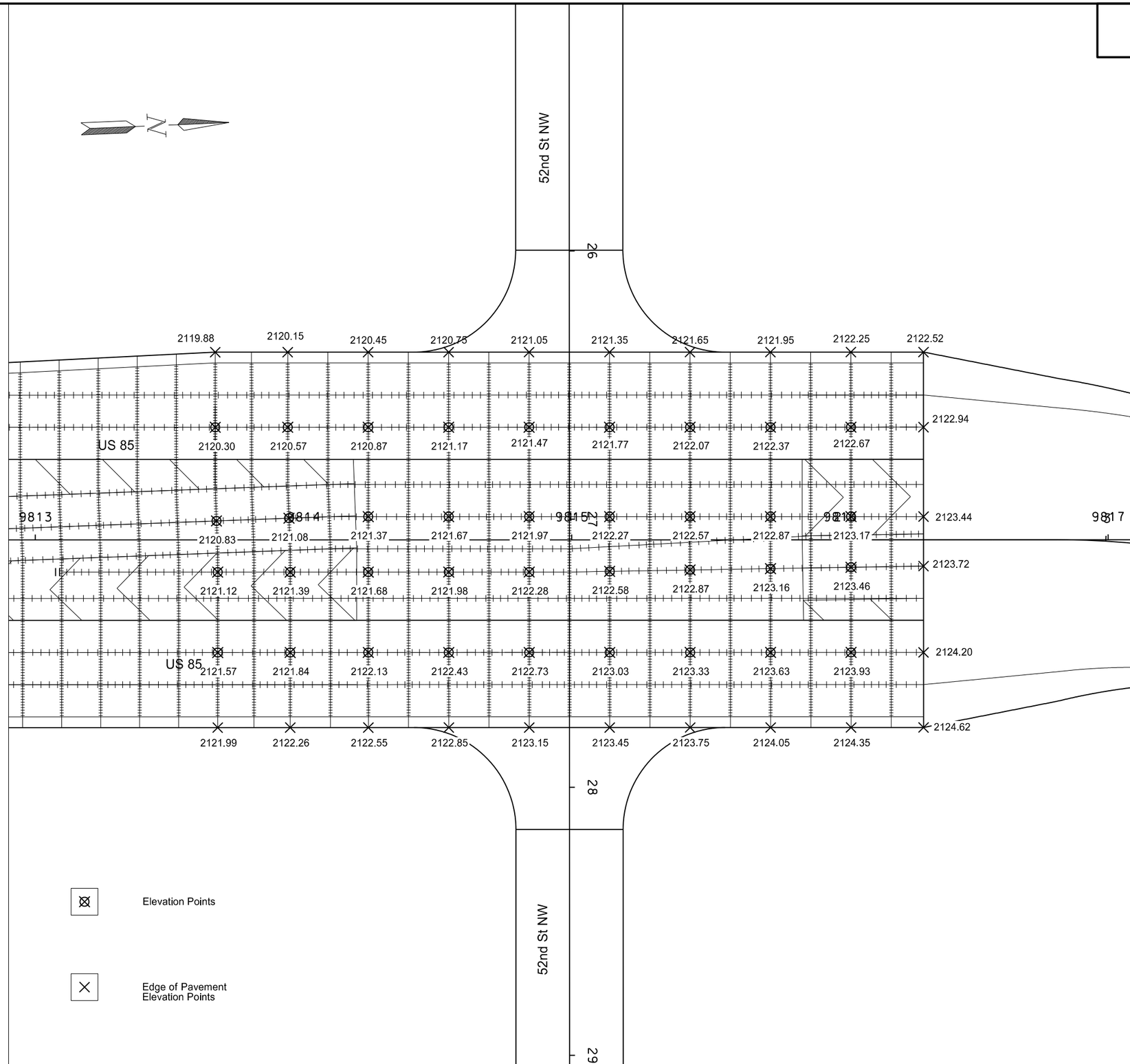
Elevation Data Points

Williston NW Permanent Truck Reliever Route Phase 1A

Intersection of US 85 & 51st St. NW

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	82	29



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Elevation Data Points

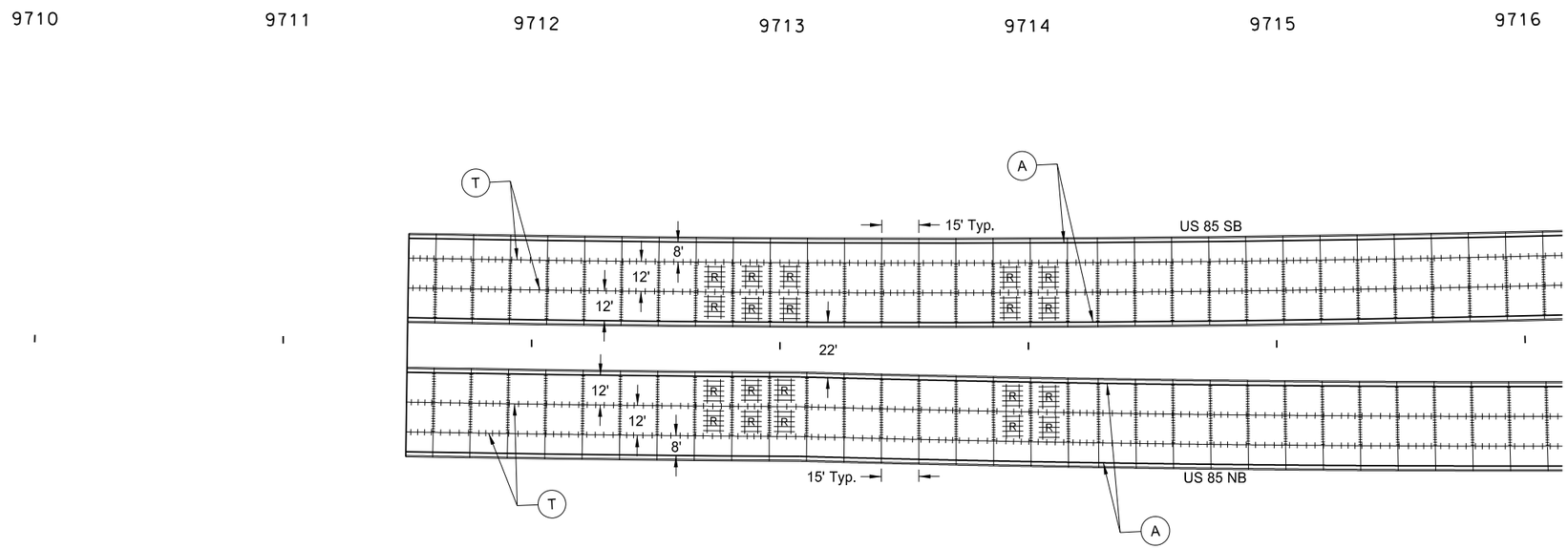
Williston NW Permanent Truck Reliever Route Phase 1A

Intersection of US 85 & 52nd St. NW

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	90	1

302	0100	Salvaged Base Course		
		9711+50 to 9716+00	1640	TON
550	0328	14IN Non Reinf Concrete Pvmt CL AE-Doweled		
		9711+50 to 9716+00	3201	SY
748	0140	Curb & Gutter-Type I		
		9711+50 to 9716+00 South Bound LT	448	LF
		9711+50 to 9716+00 Median LT	450	LF
		9711+50 to 9716+00 Median RT	450	LF
		9711+50 to 9716+00 North Bound RT	452	LF

Note: Stations & Offsets from US 85 Chain: PR85



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(A) — Curb and Gutter (All): No. 3 tie bars, 1'-6" @ 4' c to c (continuous)

(T) — Tied Joint - See Detail

(R) — Reinforcing Steel - See Detail

Sawed Traverse Joint

(K) — Non-Tied Keyed Joint - See Detail

(S) — Sawed Longitudinal Joint

Pavement Reinforcement at Pipe Locations - See Detail

Doweled Joint - Placed in driving lanes only @ 15' Average transverse joint spacing (Continuous)

Concrete Median Paving

Concrete Median Nose Paving

Paving Joint Layouts

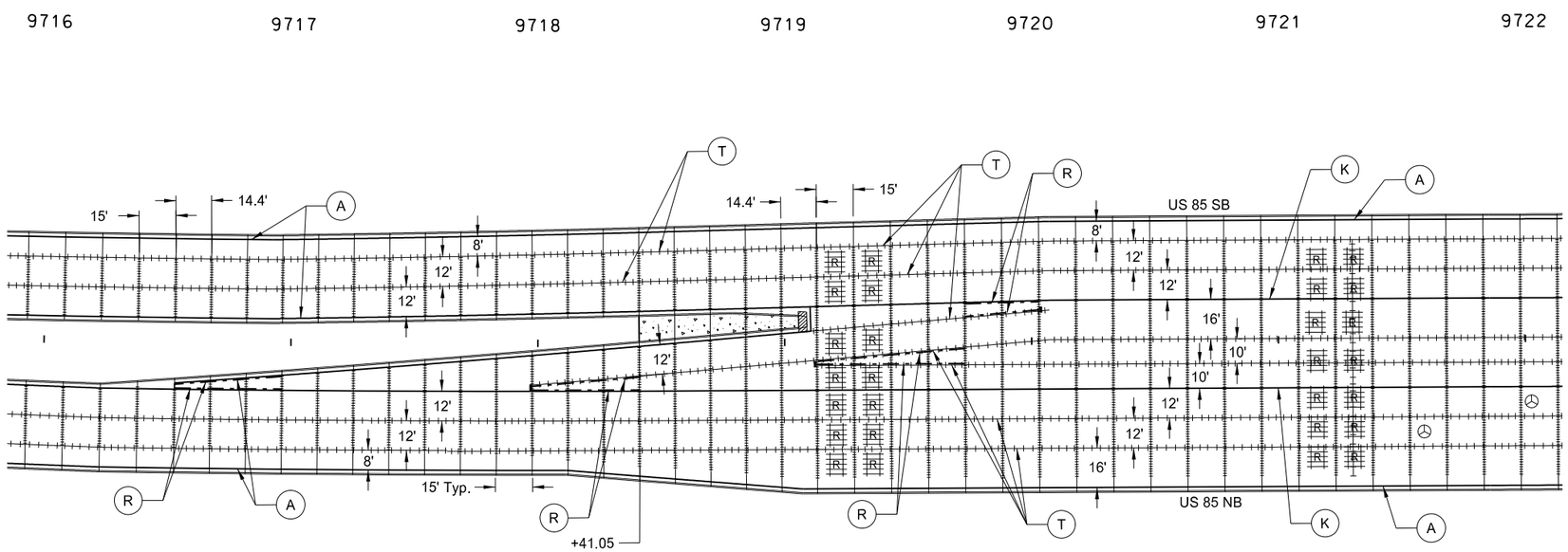
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9711+50 to 9716+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	90	2

302	0100	Salvaged Base Course		
		9716+00 to 9722+00	2841	TON
		9718+41.05 to 9719+08.68 Median	67	TON
550	0328	14IN Non Reinf Concrete Pvmt CL AE-Doweled		
		9716+00 to 9722+00	6104	SY
748	0140	Curb & Gutter-Type I		
		9716+00 to 9722+00 South Bound LT	599	LF
		9716+00 to 9719+05.65 Median LT	305	LF
		9716+00 to 9719+05.65 Median RT	307	LF
		9716+00 to 9722+00 North Bound RT	602	LF
750	0200	Concrete Median Paving		
		9718+41.05 to 9719+05.65	57	SY
750	0210	Concrete Median Nose Paving		
		9719+05.65 to 9719+08.98	3	SY

Note: Stations & Offsets from US 85 Chain: PR85



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(A) — Curb and Gutter (All): No. 3 tie bars, 1'-6" @ 4' c to c (continuous)

(T) — Tied Joint - See Detail

(R) — Reinforcing Steel - See Detail

Sawed Traverse Joint

(K) — Non-Tied Keyed Joint - See Detail

(S) — Sawed Longitudinal Joint

Pavement Reinforcement at Pipe Locations - See Detail

Doweled Joint - Placed in driving lanes only @ 15' Average transverse joint spacing (Continuous)

Concrete Median Paving

Concrete Median Nose Paving

Paving Joint Layouts

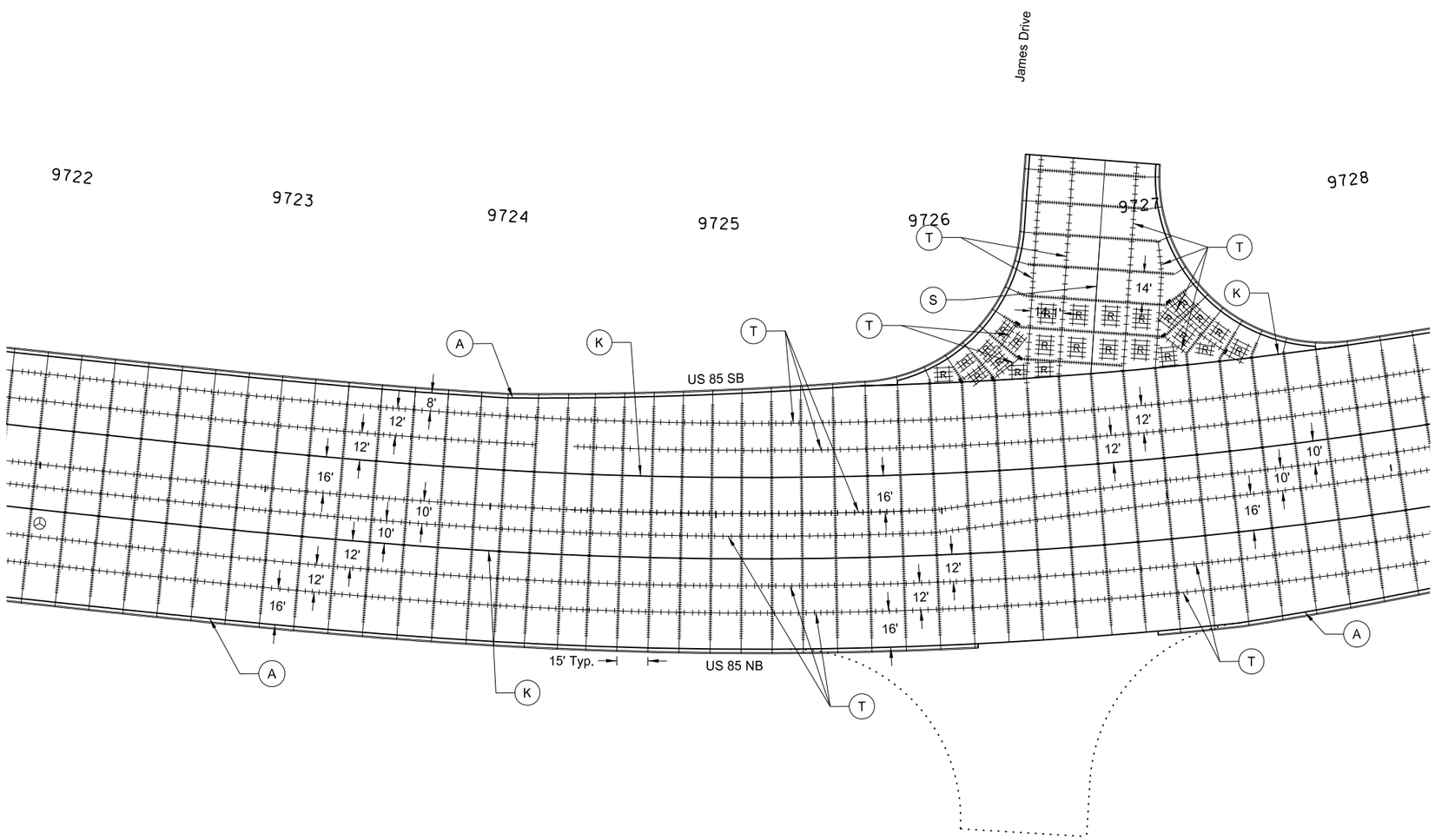
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9716+00 to 9722+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	90	3

302	0100	Salvaged Base Course		
		9722+00 to 9728+00	3691	TON
550	0328	14IN Non Reinf Concrete Pvmt CL AE-Doweled		
		9722+00 to 9728+00	8377	SY
748	0140	Curb & Gutter-Type I		
		9722+00 to 9726+48 South Bound LT	499	LF
		9722+00 to 9726+13 North Bound RT	423	LF
		9726+91 to 9728+00 North Bound RT	113	LF
		9727+11 to 9728+00 South Bound LT	142	LF

Note: Stations & Offsets from US 85 Chain: PR85



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(A) — Curb and Gutter (All): No. 3 tie bars, 1'-6" @ 4' c to c (continuous)

(T) — Tied Joint - See Detail

(R) — Reinforcing Steel - See Detail

Sawed Traverse Joint

(K) — Non-Tied Keyed Joint - See Detail

(S) — Sawed Longitudinal Joint

Pavement Reinforcement at Pipe Locations - See Detail

Doweled Joint - Placed in driving lanes only @ 15' Average transverse joint spacing (Continuous)

Concrete Median Paving

Concrete Median Nose Paving

Paving Joint Layouts

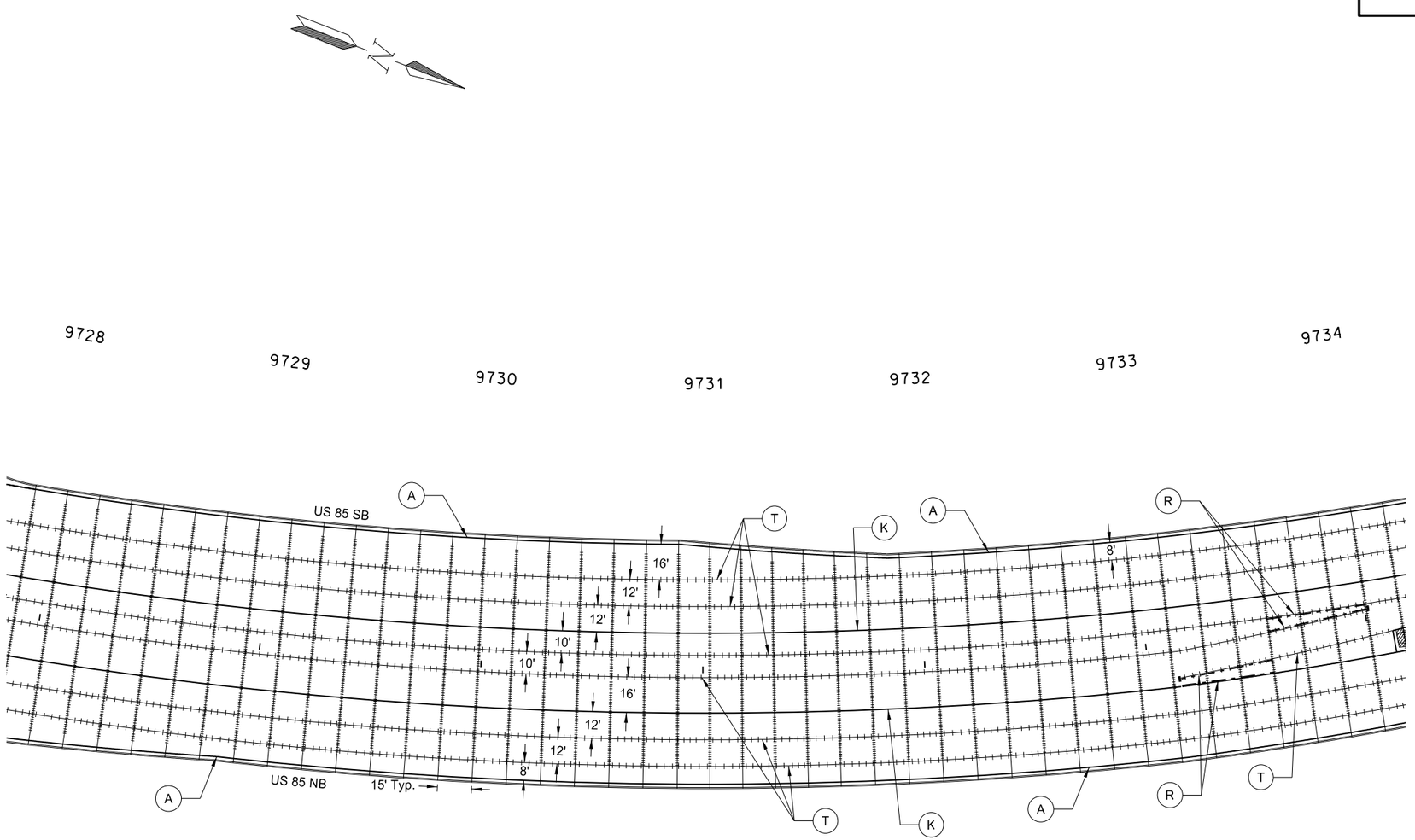
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9722+00 to 9728+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	90	4

302	0100	Salvaged Base Course		
		9728+00 to 9734+00	3108	TON
550	0328	14IN Non Reinf Concrete Pvmt CL AE-Doweled		
		9728+00 to 9734+00	6970	SY
748	0140	Curb & Gutter-Type I		
		9728+00 to 9734+00 South Bound LT	583	LF
		9728+00 to 9734+00 North Bound RT	616	LF

Note: Stations & Offsets from US 85 Chain: PR85



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(A) Curb and Gutter (All): No. 3 tie bars, 1'-6" @ 4' c to c (continuous)

(T) Tied Joint - See Detail

(R) Reinforcing Steel - See Detail

Sawed Traverse Joint

(K) Non-Tied Keyed Joint - See Detail

(S) Sawed Longitudinal Joint

Pavement Reinforcement at Pipe Locations - See Detail

Doweled Joint - Placed in driving lanes only @ 15' Average transverse joint spacing (Continuous)

Concrete Median Paving

Concrete Median Nose Paving

Paving Joint Layouts

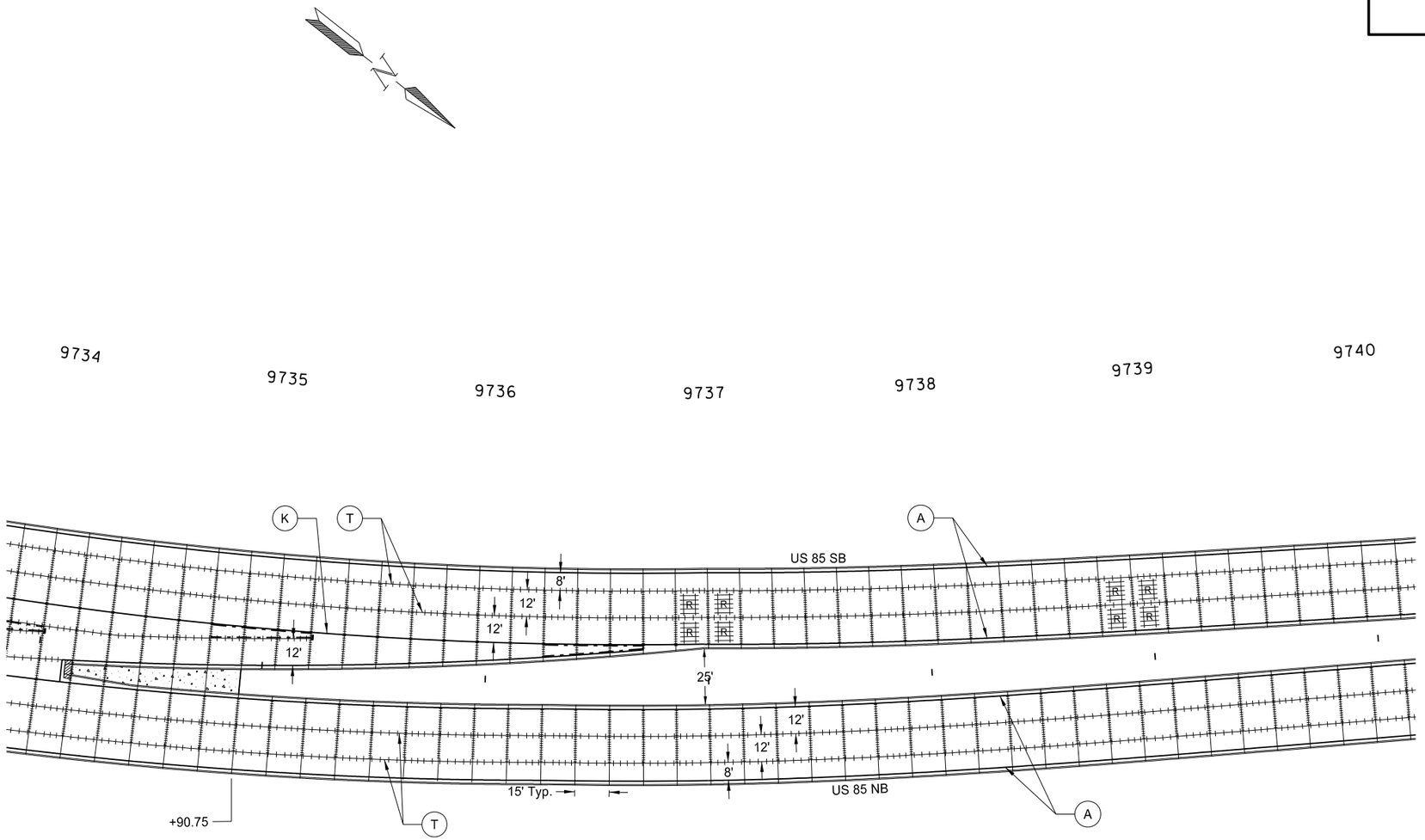
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9728+00 to 9734+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	90	5

302	0100	Salvaged Base Course		
		9734+00 to 9740+00	2345	TON
		9734+12.54 to 9734+90.75 Median	81	TON
550	0328	14IN Non Reinf Concrete Pvmt CL AE-Doweled		
		9734+00 to 9740+00	4690	SY
748	0140	Curb & Gutter-Type I		
		9734+00 to 9740+00 South Bound LT	589	LF
		9734+00 to 9740+00 North Bound RT	610	LF
		9734+15.86 to 9740+00 Median LT	584	LF
		9734+15.86 to 9740+00 Median RT	586	LF
750	0200	Concrete Median Paving		
		9734+15.86 to 9734+90.75	69	SY
750	0210	Concrete Median Nose Paving		
		9734+12.54 to 9734+15.86	3	SY

Note: Stations & Offsets from US 85 Chain: PR85



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A — Curb and Gutter (All): No. 3 tie bars, 1'-6" @ 4' c to c (continuous)

T — Tied Joint - See Detail

R — Reinforcing Steel - See Detail

Sawed Traverse Joint

K — Non-Tied Keyed Joint - See Detail

S — Sawed Longitudinal Joint

Pavement Reinforcement at Pipe Locations - See Detail

Doweled Joint - Placed in driving lanes only @ 15' Average transverse joint spacing (Continuous)

Concrete Median Paving

Concrete Median Nose Paving

Paving Joint Layouts

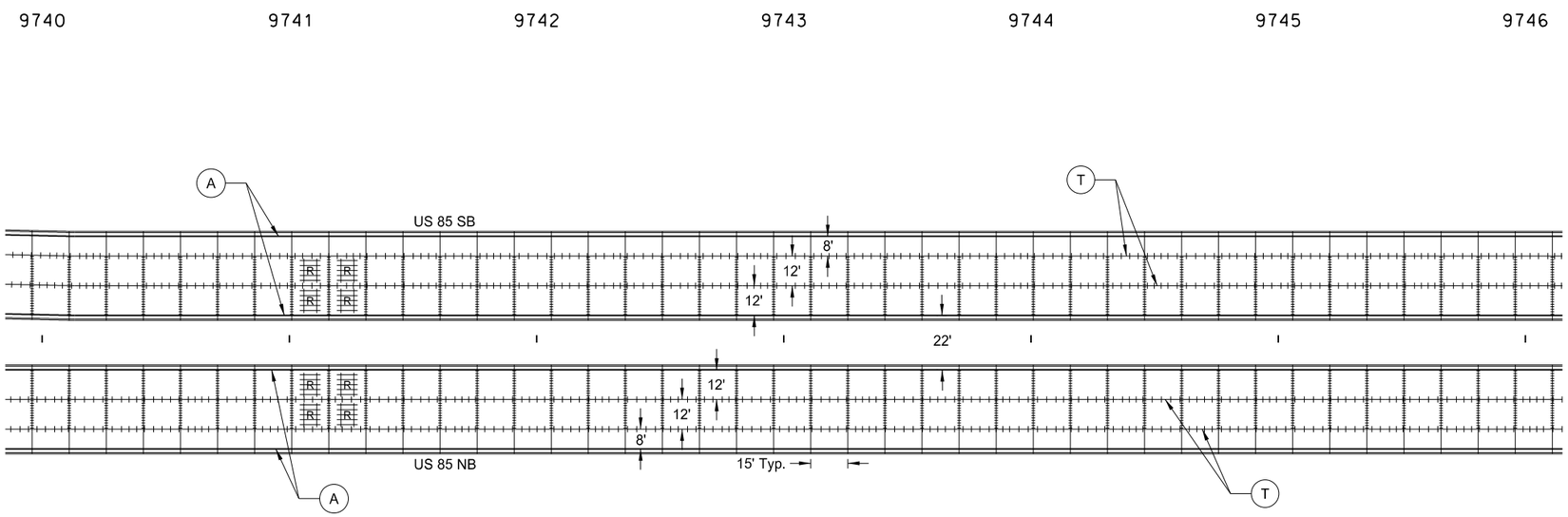
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9734+00 to 9740+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	90	6

302	0100	Salvaged Base Course		
		9740+00 to 9746+00	2186	TON
550	0328	14IN Non Reinf Concrete Pvmt CL AE-Doweled		
		9740+00 to 9746+00	4267	SY
748	0140	Curb & Gutter-Type I		
		9740+00 to 9746+00 South Bound LT	600	LF
		9740+00 to 9746+00 Median LT	600	LF
		9740+00 to 9746+00 Median RT	600	LF
		9740+00 to 9746+00 North Bound RT	600	LF

Note: Stations & Offsets from US 85 Chain: PR85



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(A) — Curb and Gutter (All): No. 3 tie bars, 1'-6" @ 4' c to c (continuous)

(T) — Tied Joint - See Detail

(R) — Reinforcing Steel - See Detail

Sawed Traverse Joint

(K) — Non-Tied Keyed Joint - See Detail

(S) — Sawed Longitudinal Joint

Pavement Reinforcement at Pipe Locations - See Detail

Doweled Joint - Placed in driving lanes only @ 15' Average transverse joint spacing (Continuous)

Concrete Median Paving

Concrete Median Nose Paving

Paving Joint Layouts

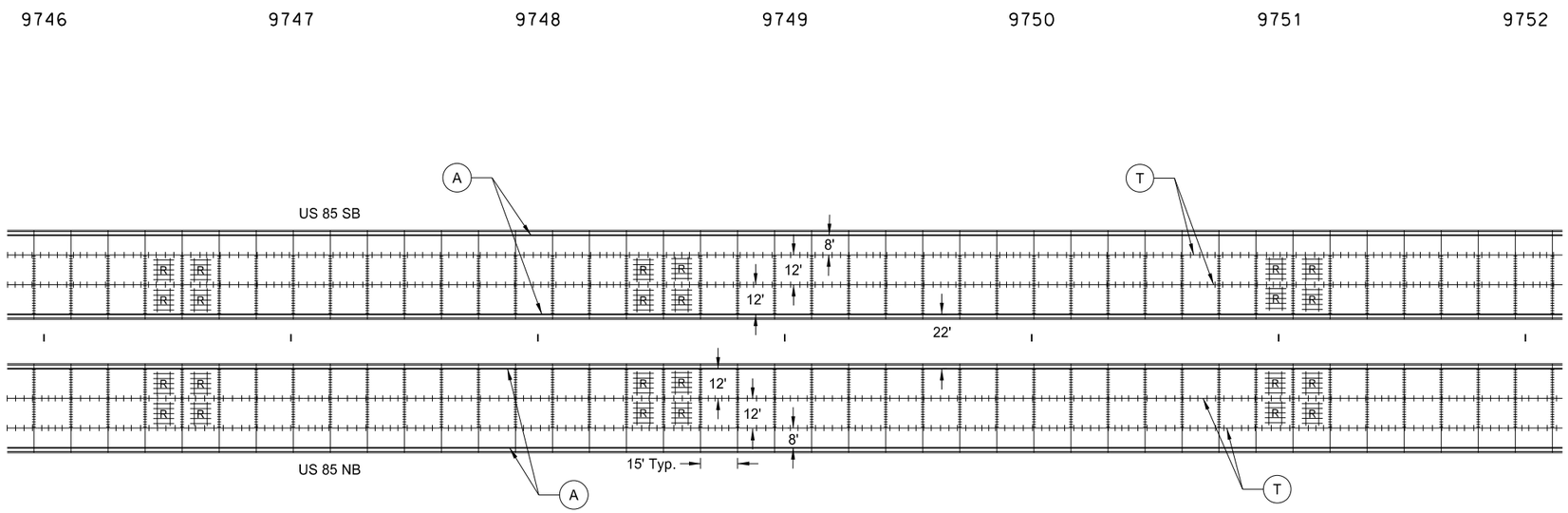
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9740+00 to 9746+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	90	7

302	0100	Salvaged Base Course		
		9746+00 to 9752+00	2186	TON
550	0328	14IN Non Reinf Concrete Pvmt CL AE-Doweled		
		9746+00 to 9752+00	4267	SY
748	0140	Curb & Gutter-Type I		
		9746+00 to 9752+00 South Bound LT	600	LF
		9746+00 to 9752+00 Median LT	600	LF
		9746+00 to 9752+00 Median RT	600	LF
		9746+00 to 9752+00 North Bound RT	600	LF

Note: Stations & Offsets from US 85 Chain: PR85



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Concrete Median Paving

Concrete Median Nose Paving

Paving Joint Layouts

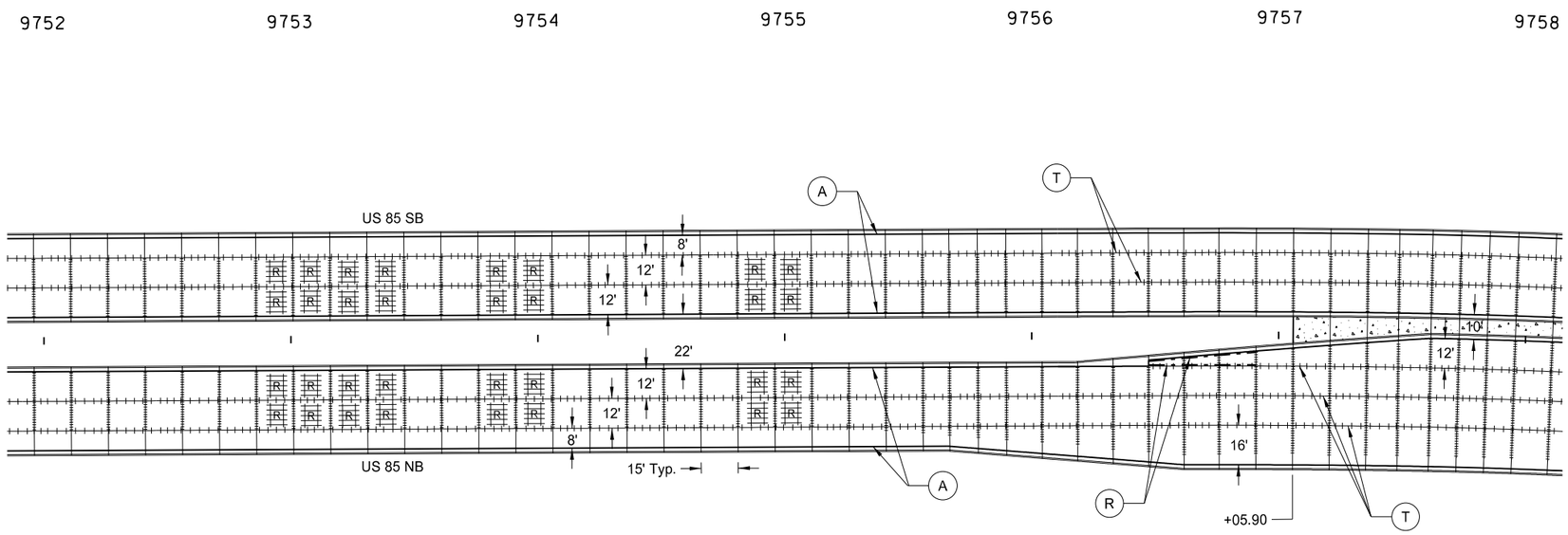
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9746+00 to 9752+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	90	8

302	0100	Salvaged Base Course		
		9752+00 to 9758+00	2301	TON
		9757+05.90 to 9758+00 Median	90	TON
550	0328	14IN Non Reinf Concrete Pvmt CL AE-Doweled		
		9752+00 to 9758+00	4578	SY
748	0140	Curb & Gutter-Type I		
		9752+00 to 9758+00 South Bound LT	602	LF
		9752+00 to 9758+00 Median LT	600	LF
		9752+00 to 9758+00 Median RT	600	LF
		9752+00 to 9758+00 North Bound RT	598	LF
750	0200	Concrete Median Paving		
		9757+05.90 to 9758+00	78	SY

Note: Stations & Offsets from US 85 Chain: PR85



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S — Sawed Longitudinal Joint

Pavement Reinforcement at Pipe Locations - See Detail

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Concrete Median Paving

Concrete Median Nose Paving

Paving Joint Layouts

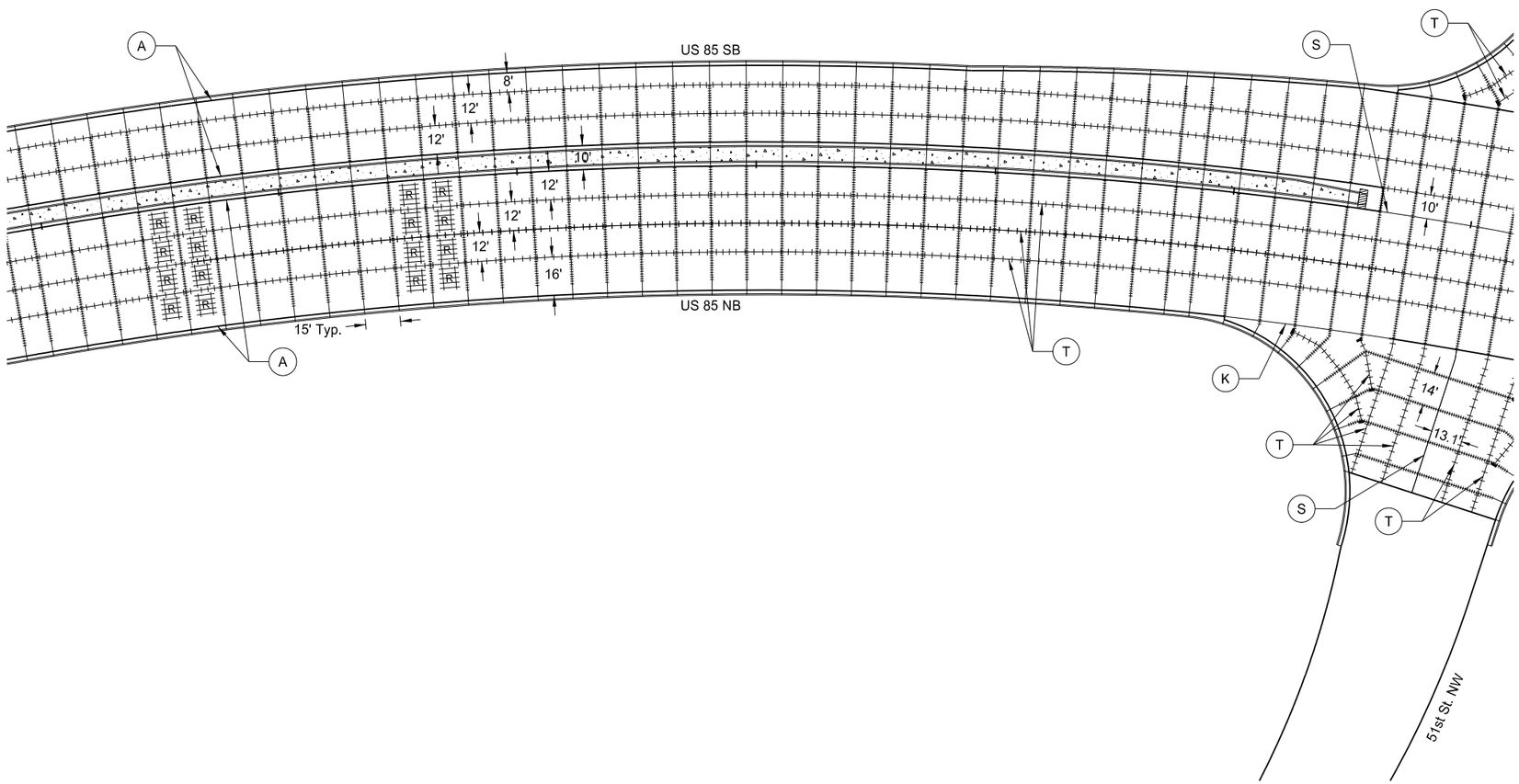
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9752+00 to 9758+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	90	9

302	0100	Salvaged Base Course		
		9758+00 to 9764+00	2870	TON
		9758+00 to 9763+55.36 Median	422	TON
550	0328	14IN Non Reinf Concrete Pvmt CL AE-Doweled		
		9758+00 to 9764+00	6153	SY
748	0140	Curb & Gutter-Type I		
		9758+00 to 9764+00 South Bound LT	623	LF
		9758+00 to 9763+52.04 Median LT	555	LF
		9758+00 to 9763+52.04 Median RT	553	LF
		9758+00 to 9763+63.22 North Bound RT	572	LF
750	0200	Concrete Median Paving		
		9758+00 to 9763+52.04	367	SY
750	0210	Concrete Median Nose Paving		
		9763+52.04 to 9763+55.36	3	SY

Note: Stations & Offsets from US 85 Chain: PR85



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R — Reinforcing Steel - See Detail

Sawed Traverse Joint

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S — Sawed Longitudinal Joint

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Concrete Median Paving

Concrete Median Nose Paving

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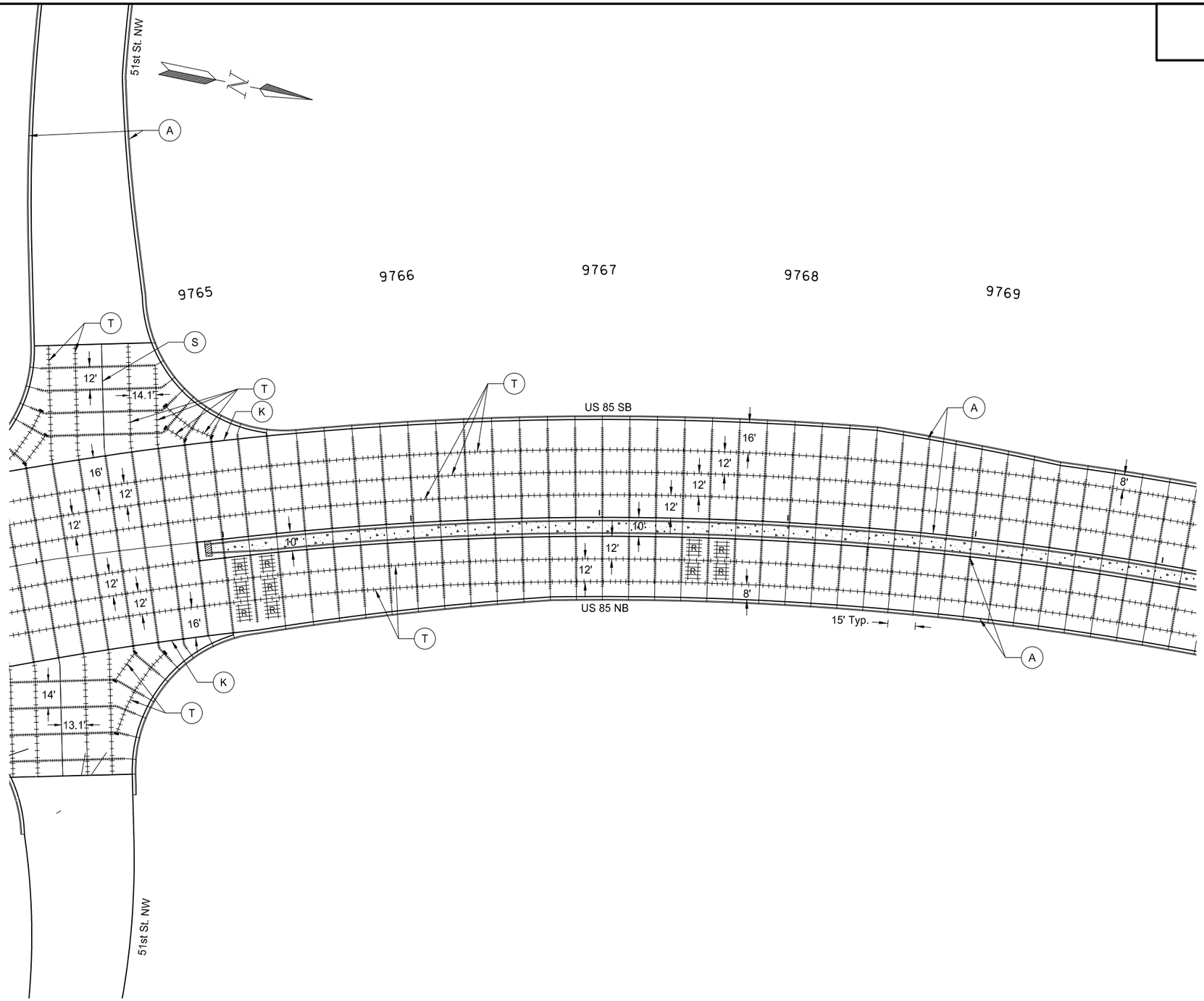
Paving Joint Layouts

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9758+00 to 9764+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	90	10



302	0100	Salvaged Base Course		
		9764+00 to 9770+00	3107	TON
		9764+89.71 to 9770+00 Median	386	TON
550	0328	14IN Non Reinf Concrete Pvmt CL AE-Doweled		
		9764+00 to 9770+00	6747	SY
748	0140	Curb & Gutter-Type I		
		9764+00 to 9764+15.88 South Bound LT	41	LF
		9764+34.69 to 9770+00 North Bound RT	584	LF
		9764+76.93 to 9770+00 South Bound LT	565	LF
		9764+93.06 to 9770+00 Median LT	506	LF
		9764+93.06 to 9770+00 Median RT	504	LF
750	0200	Concrete Median Paving		
		9764+93.06 to 9770+00	335	SY
750	0210	Concrete Median Nose Paving		
		9764+89.71 to 9764+93.06	3	SY

Note: Stations & Offsets from US 85 Chain: PR85

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(T) — Tied Joint - See Detail

(R) — Reinforcing Steel - See Detail

Sawed Traverse Joint

(K) — Non-Tied Keyed Joint - See Detail

(S) — Sawed Longitudinal Joint

Pavement Reinforcement at Pipe Locations - See Detail

Doweled Joint - Placed in driving lanes only @ 15' Average transverse joint spacing (Continuous)

Concrete Median Paving

Concrete Median Nose Paving

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Paving Joint Layouts

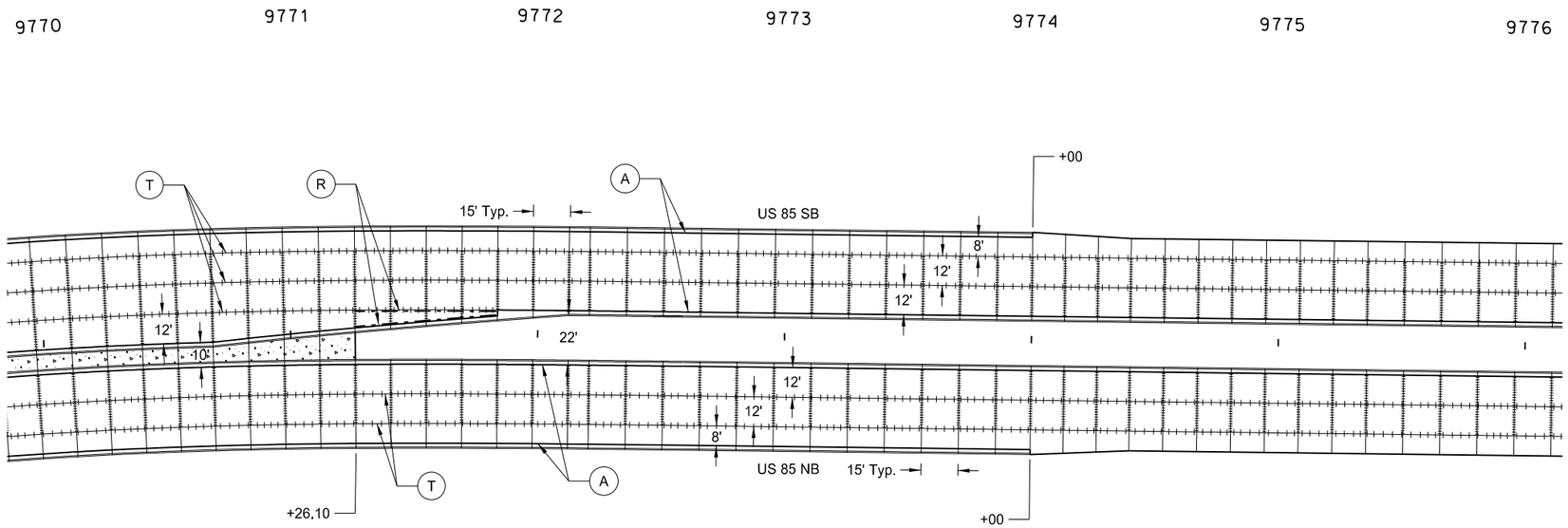
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9764+00 to 9770+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	90	11

302	0100	Salvaged Base Course		
		9770+00 to 9776+00	2318	TON
		9770+00 to 9771+26.10 Median	115	TON
550	0328	14IN Non Reinf Concrete Pvmt CL AE-Doweled		
		9770+00 to 9776+00	4464	SY
748	0140	Curb & Gutter-Type I		
		9770+00 to 9774+00 South Bound LT	403	LF
		9770+00 to 9776+00 Median LT	601	LF
		9770+00 to 9776+00 Median RT	599	LF
		9770+00 to 9774+00 North Bound RT	397	LF
750	0200	Concrete Median Paving		
		9770+00 to 9771+26.10	100	SY

Note: Stations & Offsets from US 85 Chain: PR85



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Sawed Traverse Joint

(K) — Non-Tied Keyed Joint - See Detail

(S) — Sawed Longitudinal Joint

Pavement Reinforcement at Pipe Locations - See Detail

Doweled Joint - Placed in driving lanes only @ 15' Average transverse joint spacing (Continuous)

Concrete Median Paving

Concrete Median Nose Paving

Paving Joint Layouts

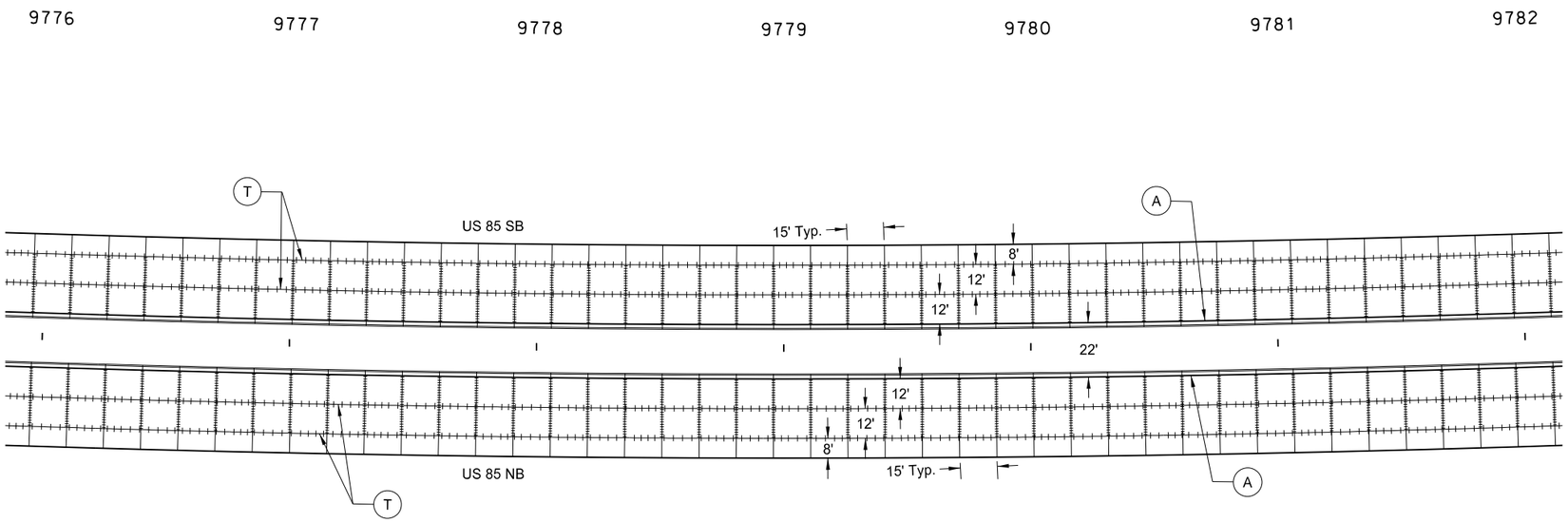
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9770+00 to 9776+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	90	12

302	0100	Salvaged Base Course		
		9776+00 to 9782+00	2469	TON
550	0328	14IN Non Reinf Concrete Pvmt CL AE-Doweled		
		9776+00 to 9782+00	4267	SY
748	0140	Curb & Gutter-Type I		
		9776+00 to 9782+00 Median LT	599	LF
		9776+00 to 9782+00 Median RT	601	LF

Note: Stations & Offsets from US 85 Chain: PR85



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(S) — Sawed Longitudinal Joint

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Concrete Median Paving

Concrete Median Nose Paving

Paving Joint Layouts

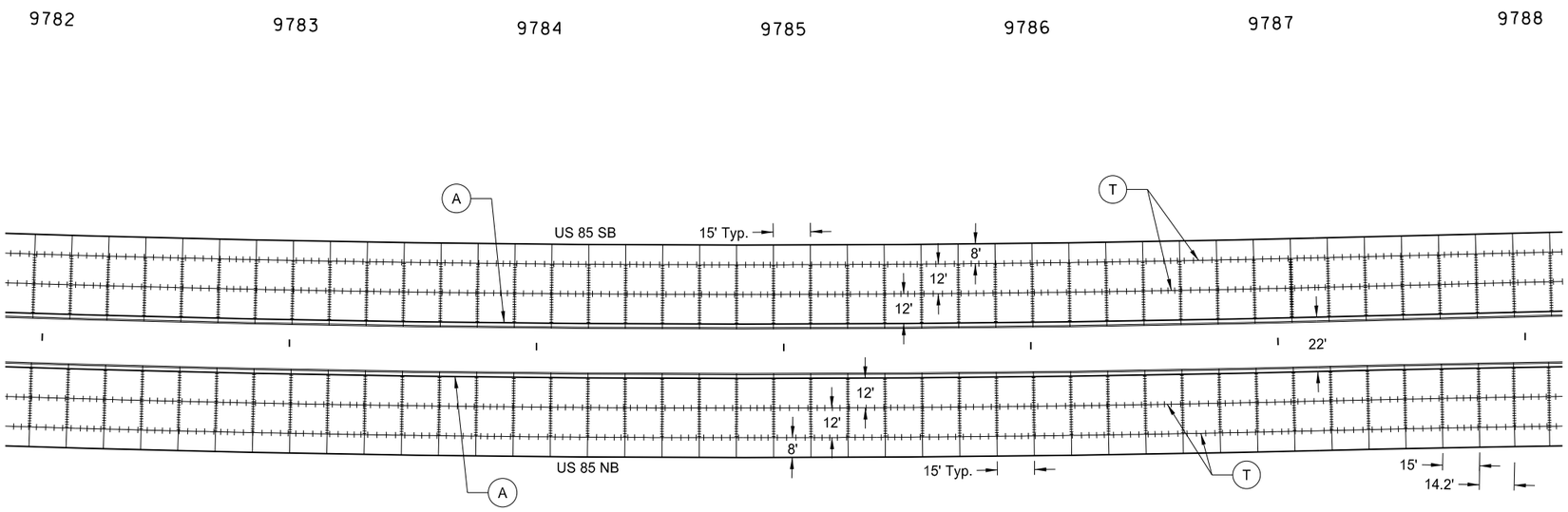
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9776+00 to 9782+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	90	13

302	0100	Salvaged Base Course		
		9782+00 to 9788+00	2469	TON
550	0328	14IN Non Reinf Concrete Pvmt CL AE-Doweled		
		9782+00 to 9788+00	4267	SY
748	0140	Curb & Gutter-Type I		
		9782+00 to 9788+00 Median LT	600	LF
		9782+00 to 9788+00 Median RT	600	LF

Note: Stations & Offsets from US 85 Chain: PR85



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R — Reinforcing Steel - See Detail

Sawed Traverse Joint

K — Non-Tied Keyed Joint - See Detail

S — Sawed Longitudinal Joint

R — Pavement Reinforcement at Pipe Locations - See Detail

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Concrete Median Paving

Concrete Median Nose Paving

Paving Joint Layouts

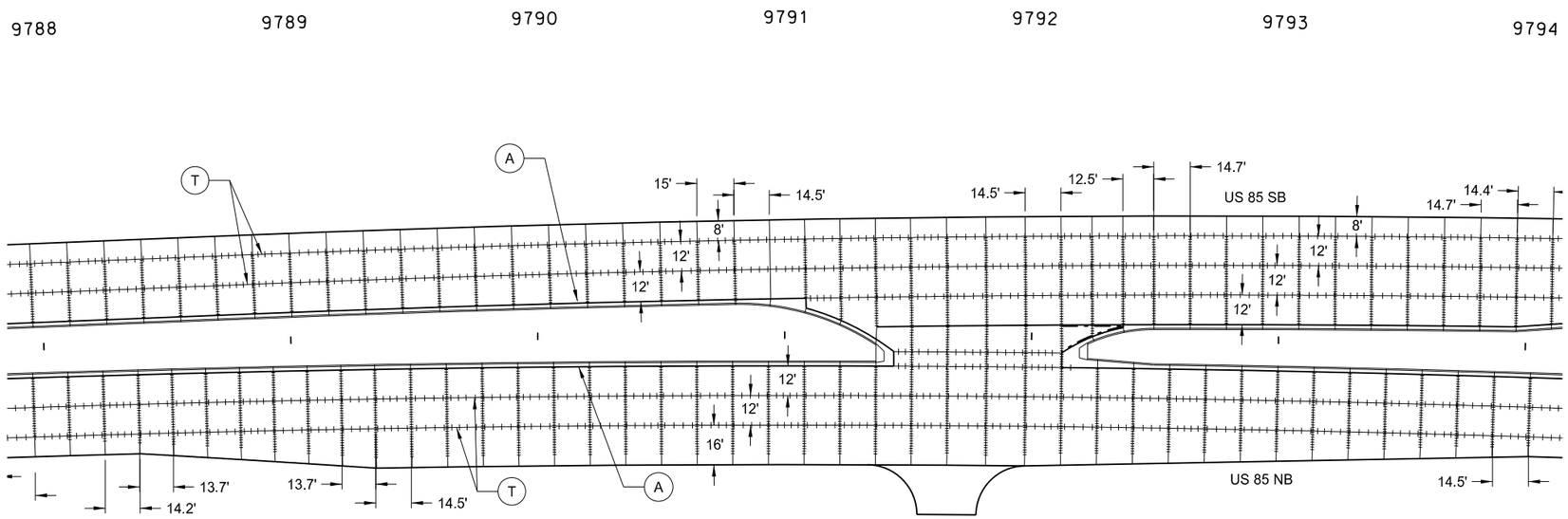
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9782+00 to 9788+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	90	14

302	0100	Salvaged Base Course		
		9788+00 to 9794+00	2799	TON
		9791+36.97 to 9791+40.31 Median	2	TON
		9792+19.45 to 9792+22.79 Median	1	TON
550	0328	14IN Non Reinf Concrete Pvmt CL AE-Doweled		
		9788+00 to 9794+00	5189	SY
748	0140	Curb & Gutter-Type I		
		9788+00 to 9791+36.97 Median LT	341	LF
		9788+00 to 9791+36.97 Median RT	337	LF
		9792+22.79 to 9794+00 Median LT	178	LF
		9792+22.79 to 9794+00 Median RT	177	LF
750	0210	Concrete Median Nose Paving		
		9791+36.97 to 9791+40.31	4	SY
		9792+19.45 to 9792+22.79	3	SY

Note: Stations & Offsets from US 85 Chain: PR85



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Concrete Median Paving

Concrete Median Nose Paving

Paving Joint Layouts

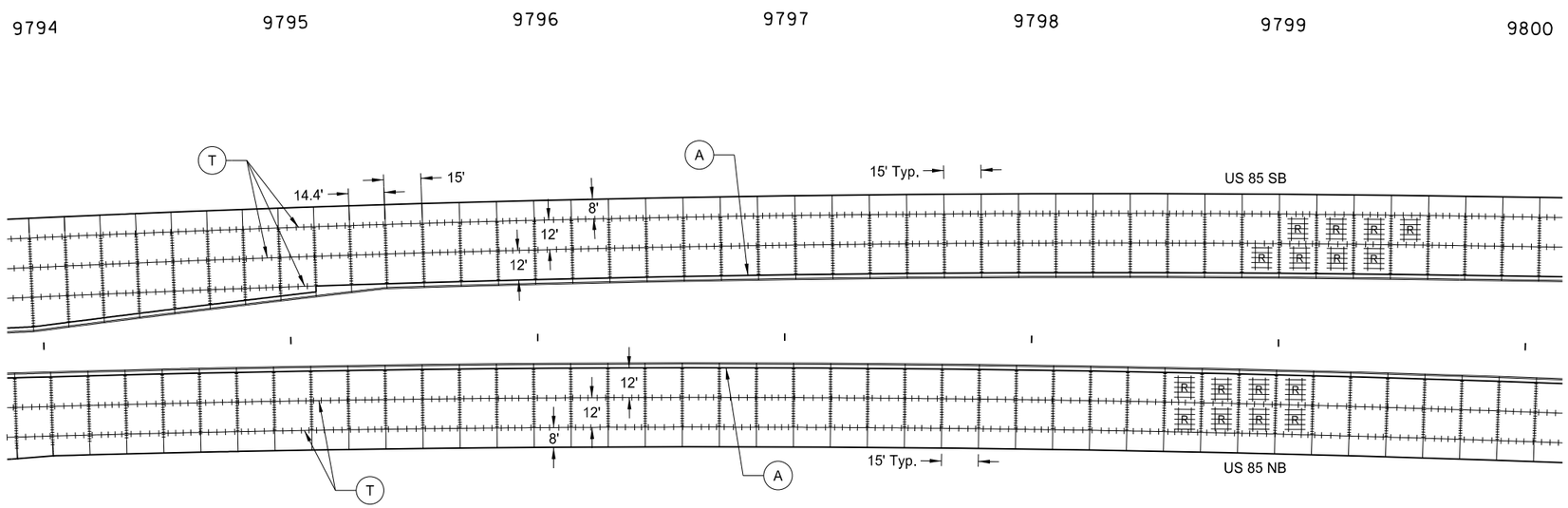
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9788+00 to 9794+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	90	15

302	0100	Salvaged Base Course		
		9794+00 to 9800+00	2508	TON
550	0328	14IN Non Reinf Concrete Pvmt CL AE-Doweled		
		9794+00 to 9800+00	4360	SY
748	0140	Curb & Gutter-Type I		
		9794+00 to 9800+00 Median LT	602	LF
		9794+00 to 9800+00 Median RT	600	LF

Note: Stations & Offsets from US 85 Chain: PR85



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(S) Sawed Longitudinal Joint

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Concrete Median Paving

Concrete Median Nose Paving

Paving Joint Layouts

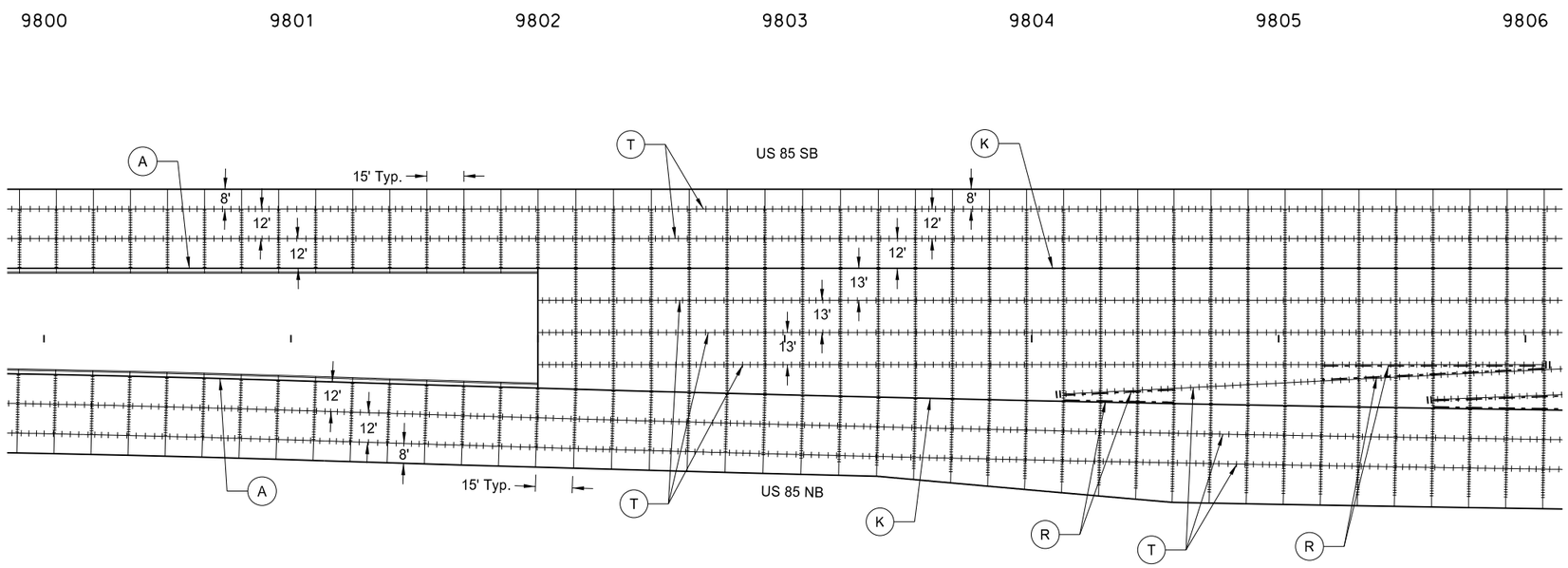
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9794+00 to 9800+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	90	16

302	0100	Salvaged Base Course		
		9800+00 to 9806+00	3414	TON
550	0328	14IN Non Reinf Concrete Pvmt CL AE-Doweled		
		9800+00 to 9806+00	6818	SY
748	0140	Curb & Gutter-Type I		
		9800+00 to 9806+00 Median LT	200	LF
		9800+00 to 9806+00 Median RT	200	LF

Note: Stations & Offsets from US 85 Chain: PR85



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R — Reinforcing Steel - See Detail

Sawed Traverse Joint

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S — Sawed Longitudinal Joint

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Concrete Median Nose Paving

Paving Joint Layouts

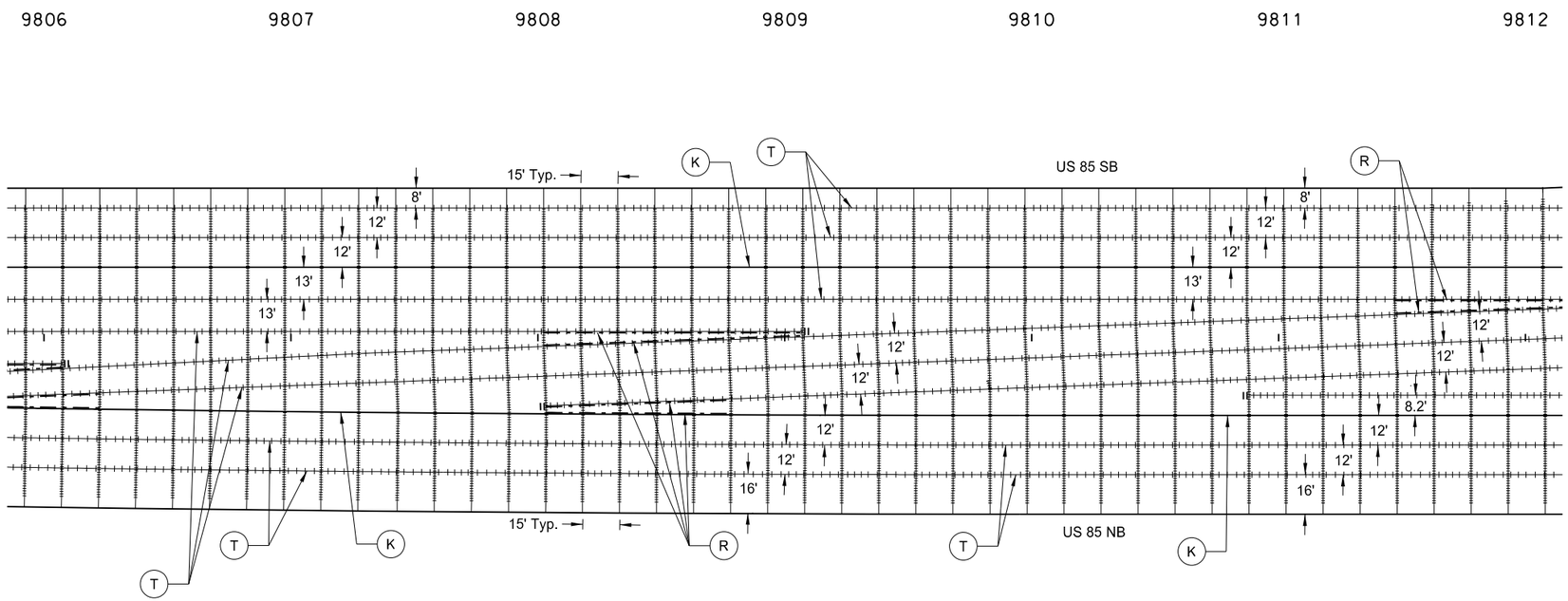
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9800+00 to 9806+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	90	17

302	0100	Salvaged Base Course		
		9806+00 to 9812+00	4137	TON
550	0328	14IN Non Reinf Concrete Pvmt CL AE-Doweled		
		9806+00 to 9812+00	8759	SY

Note: Stations & Offsets from US 85 Chain: PR85



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Concrete Median Paving

Concrete Median Nose Paving

Paving Joint Layouts

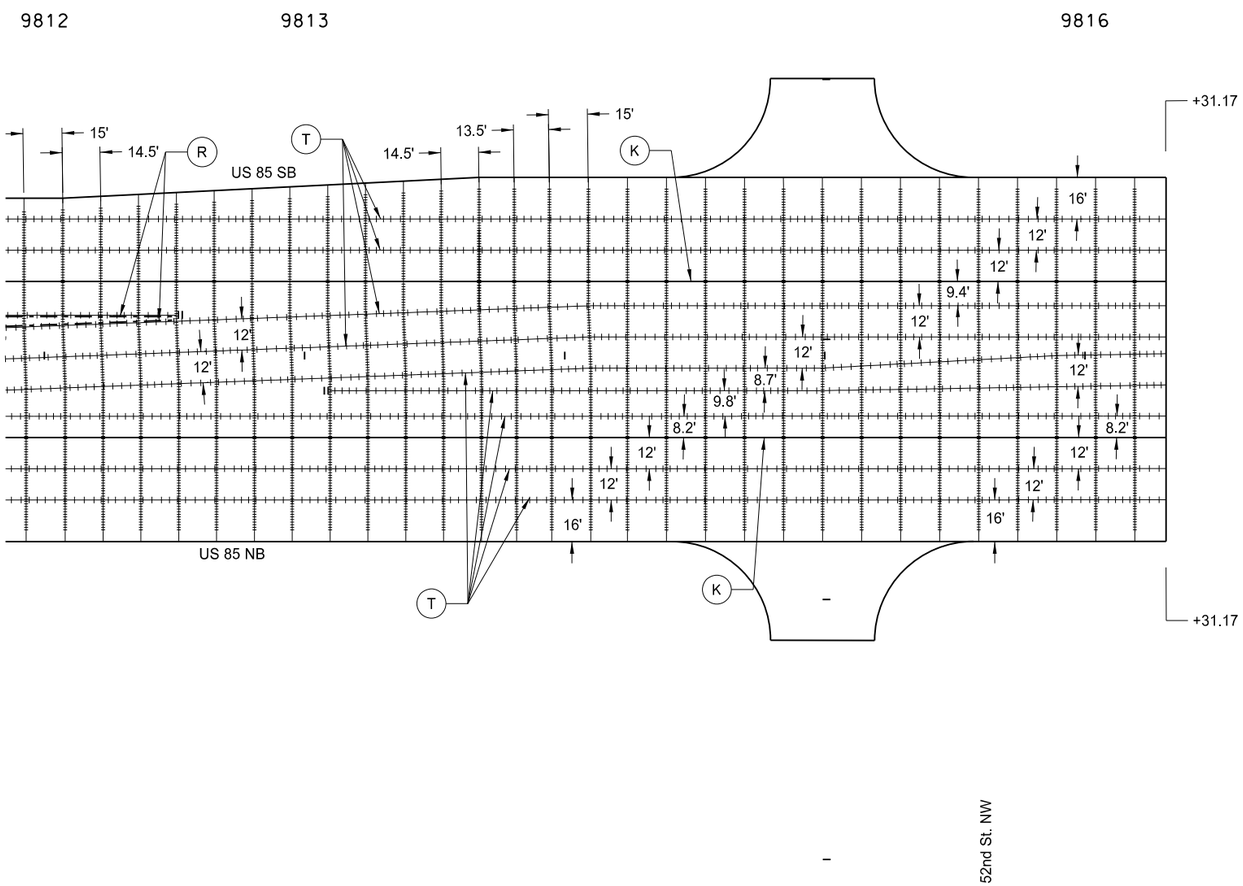
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9806+00 to 9812+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	90	18

302	0100	Salvaged Base Course		
		9812+00 to 9816+31.17	3075	TON
550	0328	14IN Non Reinf Concrete Pvmt CL AE-Doweled		
		9812+00 to 9816+31.17	6630	SY

Note: Stations & Offsets from US 85 Chain: PR85



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R — Reinforcing Steel - See Detail

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Concrete Median Nose Paving

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Paving Joint Layouts

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9812+00 to 9816+31.17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED BY PHASE NO. 1	2		TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
D3-36	36"x6"	STREET NAME SIGN (Sign and installation only)					6	
G20-1-60	60"x24"	ROAD WORK NEXT __ MILES					34	
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**	**9**	**9**		**9**	**19**	**171**
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)					18	
G20-10-108	108"x48"	CONTRACTOR SIGN					64	
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					30	
G20-55-96	96"x48"	SPEED LIMIT ENFORCED - MINIMUM FEE $80 WHEN WORKERS PRESENT					59	
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)					10	
M1-4-24	24"x24"	U.S. ROUTE MARKER (Post and installation only)					10	
M1-5-24	24"x24"	STATE ROUTE MARKER (Post and installation only)					10	
M3-1-24	**24"x12"**	**NORTH (Mounted on route marker post)**	**12**	**12**		**12**	**7**	**84**
M3-2-24	24"x12"	EAST (Mounted on route marker post)					7	
M3-3-24	**24"x12"**	**SOUTH (Mounted on route marker post)**	**11**	**11**		**11**	**7**	**77**
M3-4-24	24"x12"	WEST (Mounted on route marker post)					7	
M4-8-24	**24"x12"**	**DETOUR (Mounted on route marker post)**	**23**	**23**		**23**	**7**	**161**
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**	**1**	**1**		**1**	**23**	**23**
M5-1-21	**21"x15"**	**ARROW AHD AND RT or LT(Mounted on route marker post)**	**7**	**7**		**7**	**7**	**49**
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**	**7**		**7**	**7**	**49**
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)**	**9**	**9**		**9**	**7**	**63**
R1-1-48	**48"x48"**	**STOP**	**11**	**9**		**11**	**32**	**352**
R1-1a-18	**18"x18"**	**STOP and SLOW PADDLE Back to Back**	**9**	**4**		**9**	**5**	**45**
R1-2-60	60"x60"	YIELD					29	
R2-1-48	**48"x60"**	**SPEED LIMIT __**	**15**	**9**		**15**	**39**	**585**
R2-1a-24	**24"x18"**	**MINIMUM FEE $80 (Mounted on Speed Limit post)**	**7**	**7**		**7**	**10**	**70**
R3-7-48	48"x48"	LEFT or RIGHT LANE MUST TURN LEFT or RIGHT					35	
R4-1-48	48"x60"	DO NOT PASS					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**	**12**	**11**		**12**	**28**	**336**
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					35	
W1-4b-48	48"x48"	DOUBLE RIGHT or LEFT REVERSE CURVE ARROW					35	
W1-6-48	48"x24"	LARGE ARROW					26	
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**	**7**	**7**		**7**	**35**	**245**
W4-2-48	48"x48"	RIGHT or LEFT LANE TRANSITION SYMBOL					35	
W5-1-48	48"x48"	ROAD NARROWS					35	
W5-8-48	48"x48"	THRU TRAFFIC RIGHT LANE					35	
W5-9-48	48"x48"	ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW					35	
W6-3-48	48"x48"	TWO WAY TRAFFIC SYMBOL					35	
W8-1-48	**48"x48"**	**BUMP**	**18**	**12**		**18**	**35**	**630**
W8-3-48	**48"x48"**	**PAVEMENT ENDS**	**8**	**5**		**8**	**35**	**280**
W8-7-48	**48"x48"**	**LOOSE GRAVEL**	**10**	**10**		**10**	**35**	**350**
W8-9a-48	48"x48"	SHOULDER DROP-OFF					35	
W8-11-48	**48"x48"**	**UNEVEN LANES**	**8**	**3**		**8**	**35**	**280**
W8-12-48	48"x48"	NO CENTER STRIPE					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**	**9**	**10**		**10**	**35**	**350**
W20-2-48	**48"x48"**	**DETOUR AHEAD or __ FT**	**12**	**12**		**12**	**35**	**420**
W20-3-48	**48"x48"**	**ROAD or STREET CLOSED AHEAD or __ FT.**	**4**	**5**		**5**	**35**	**175**
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.					35	
W20-7a-48	**48"x48"**	**FLAGGING SYMBOL**	**9**	**4**		**9**	**35**	**315**
W20-7k-24	**24"x18"**	**__ FEET (Mounted on warning sign post)**	**8**	**4**		**8**	**10**	**80**
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 BY PHASE NO. 1	2		TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
W21-5-48	48"x48"	SHOULDER WORK					35	
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED					35	
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or __ FT.					35	
W21-6a-48	48"x48"	SURVEY CREW AHEAD					35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or __ FT.					35	
W21-51-48	48"x48"	MATERIAL ON ROADWAY					35	
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK					35	
	24"x24"	TAKE TURNS (6" D letters) (Mounted on stop sign post)					11	

SPECIAL SIGNS

M1-6	**24"x24"**	**WILLIAMS COUNTY 4**	**23**	**23**		**23**	**14**	**322**
SIGN 3	**54"x42"**	**ACCESS TO 51ST STREET (AHEAD ARROW)**	**1**	**1**		**1**	**34**	**34**
SIGN 4	**54"x42"**	**ACCESS TO 51ST STREET (RIGHT ARROW)**	**1**	**1**		**1**	**34**	**34**
SIGN 5	**54"x42"**	**ACCESS TO 51ST STREET (LEFT ARROW)**	**1**	**1**		**1**	**34**	**34**

SPEC & CODE

704-1000	**TRAFFIC CONTROL SIGNS**	**TOTAL UNITS**	**5614**

SPEC & CODE	DESCRIPTION	UNIT	QUANTITY BY PHASE NO. 1	2		TOTAL QUANTITY
704-0100	**FLAGGING**	MHR	**400**	**600**		**1000**
704-1041	ATTENUATION DEVICE-TYPE B-55	EACH				
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**		**20**
704-1060	DELINEATOR DRUMS	EACH				
704-1065	TRAFFIC CONES	EACH				
704-1067	TUBULAR MARKERS	EACH				
704-1070	DELINEATOR	EACH				
704-1072	FLEXIBLE DELINEATORS	EACH				
704-1081	VERTICAL PANELS - BACK TO BACK	EACH				
704-1085	SEQUENCING ARROW PANEL - TYPE A	EACH				
704-1086	SEQUENCING ARROW PANEL - TYPE B	EACH				
704-1087	SEQUENCING ARROW PANEL - TYPE C	EACH				
704-1088	SEQUENCING ARROW PANEL - TYPE C - CROSSOVER	EACH				
704-1095	TYPE B FLASHERS	EACH				
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF				
704-3510	PRECAST CONCRETE MED BARRIER - STATE FURNISHED	EACH				
762-0200	RAISED PAVEMENT MARKERS	EACH				
762-0420	**SHORT TERM 4IN LINE - TYPE R**	LF		**600**		**600**
762-0424	SHORT TERM 8IN LINE - TYPE R	LF				
762-0426	SHORT TERM 24IN LINE - TYPE R	LF				
762-0430	SHORT TERM 4IN LINE - TYPE NR	LF				
762-1250	PREFORMED THERMO PLASTIC PVMT MK 4IN LINE	LF				
762-1260	PREFORMED THERMO PLASTIC PVMT MK 8IN LINE	LF				
762-1500	OBLITERATION OF PVMT MK	SF				
772-2110	FLASHING BEACON - POST MOUNTED	EACH				

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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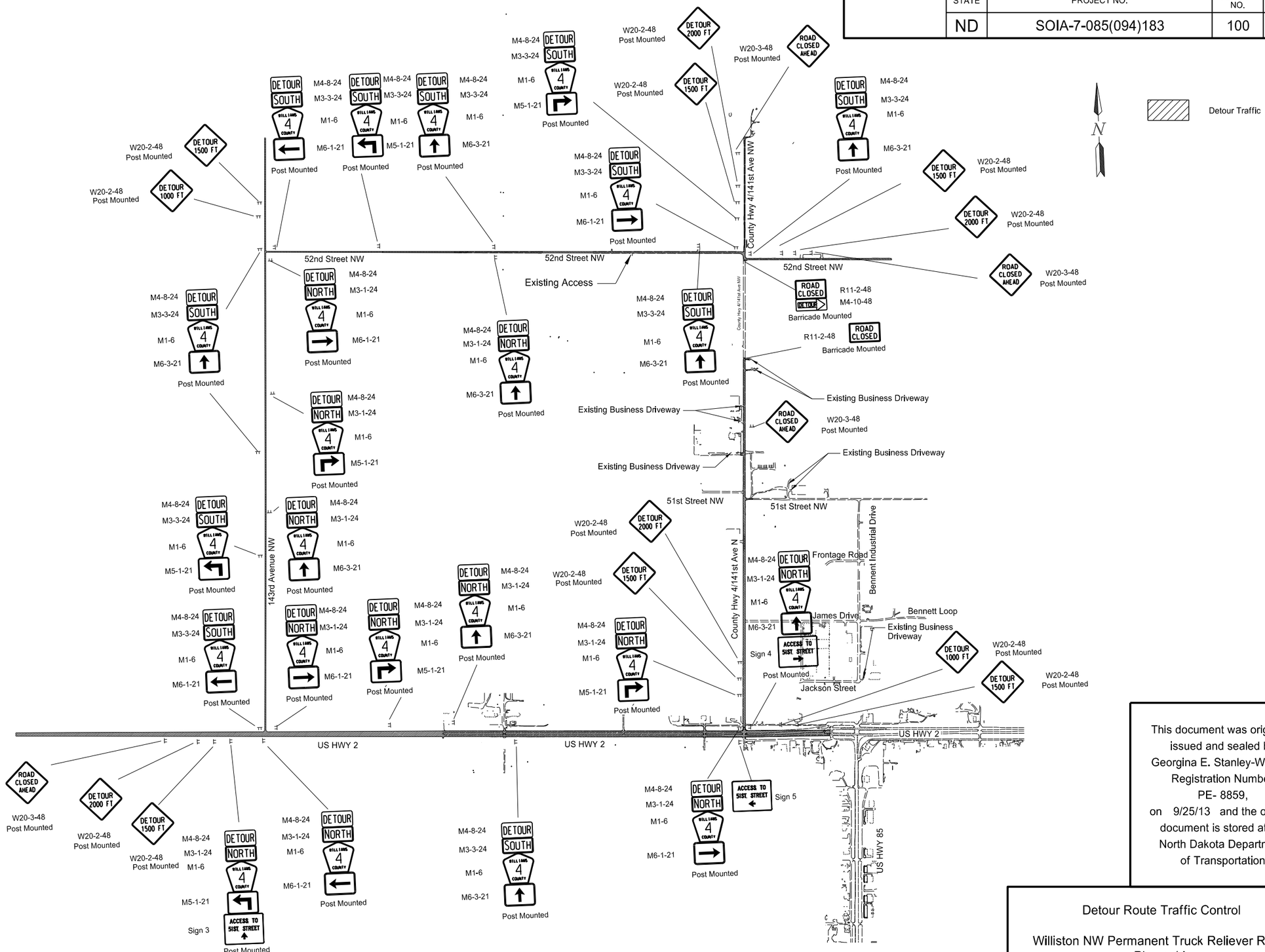
Traffic Control Devices List

Williston NW Permanent Truck Reliever

Route Phase 1A

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	100	2



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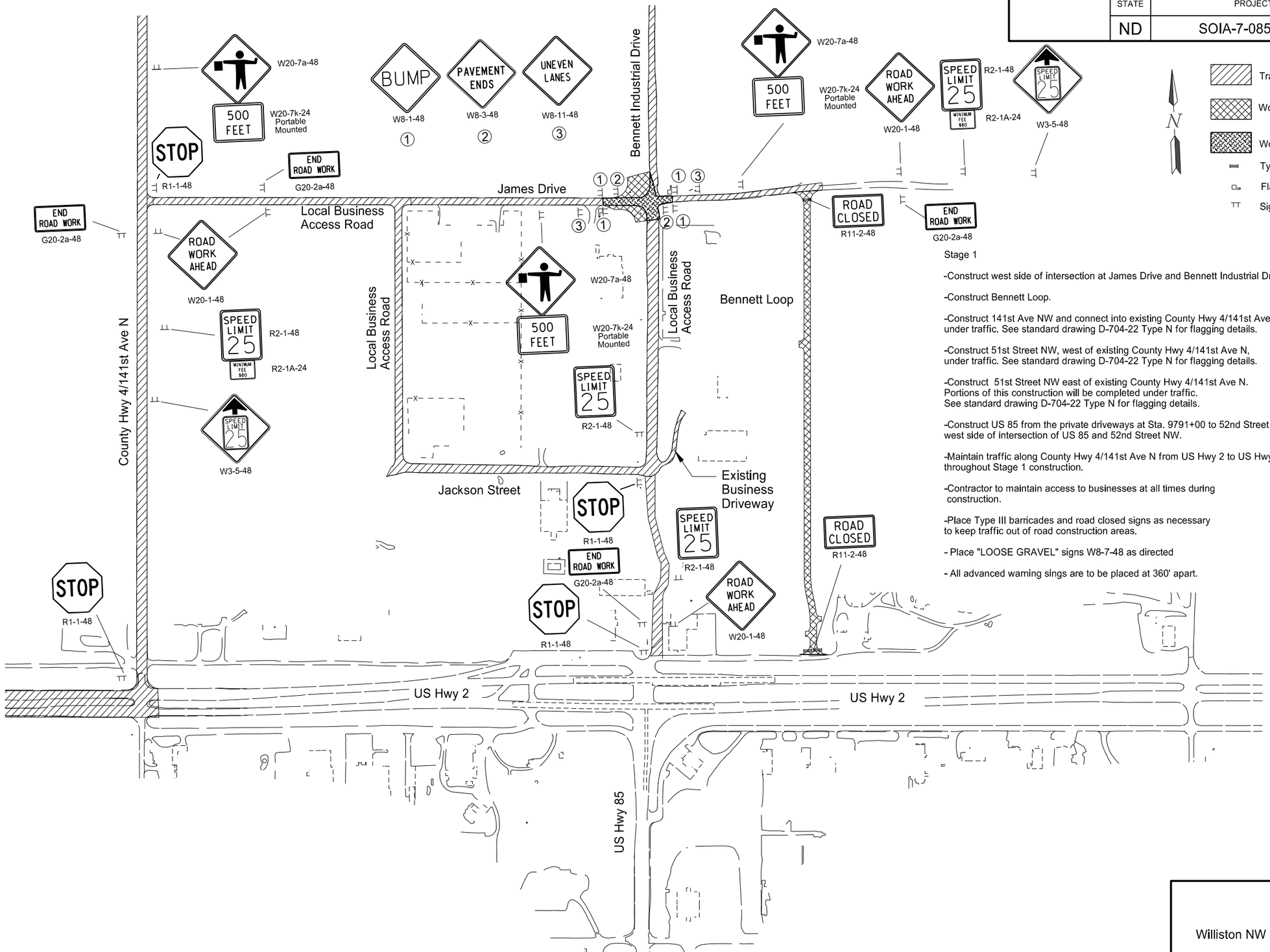
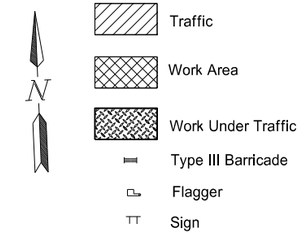
Detour Route Traffic Control

Williston NW Permanent Truck Reliever Route Phase 1A

Stage 1

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	100	3





Stage 1

-Construct west side of intersection at James Drive and Bennett Industrial Drive.

-Construct Bennett Loop.

-Construct 141st Ave NW and connect into existing County Hwy 4/141st Ave N under traffic. See standard drawing D-704-22 Type N for flagging details.

-Construct 51st Street NW, west of existing County Hwy 4/141st Ave N, under traffic. See standard drawing D-704-22 Type N for flagging details.

-Construct 51st Street NW east of existing County Hwy 4/141st Ave N. Portions of this construction will be completed under traffic. See standard drawing D-704-22 Type N for flagging details.

-Construct US 85 from the private driveways at Sta. 9791+00 to 52nd Street NW. Construct west side of intersection of US 85 and 52nd Street NW.

-Maintain traffic along County Hwy 4/141st Ave N from US Hwy 2 to US Hwy 85, Sta. 9791+00, throughout Stage 1 construction.

-Contractor to maintain access to businesses at all times during construction.

-Place Type III barricades and road closed signs as necessary to keep traffic out of road construction areas.

- Place "LOOSE GRAVEL" signs W8-7-48 as directed

- All advanced warning sings are to be placed at 360' apart.

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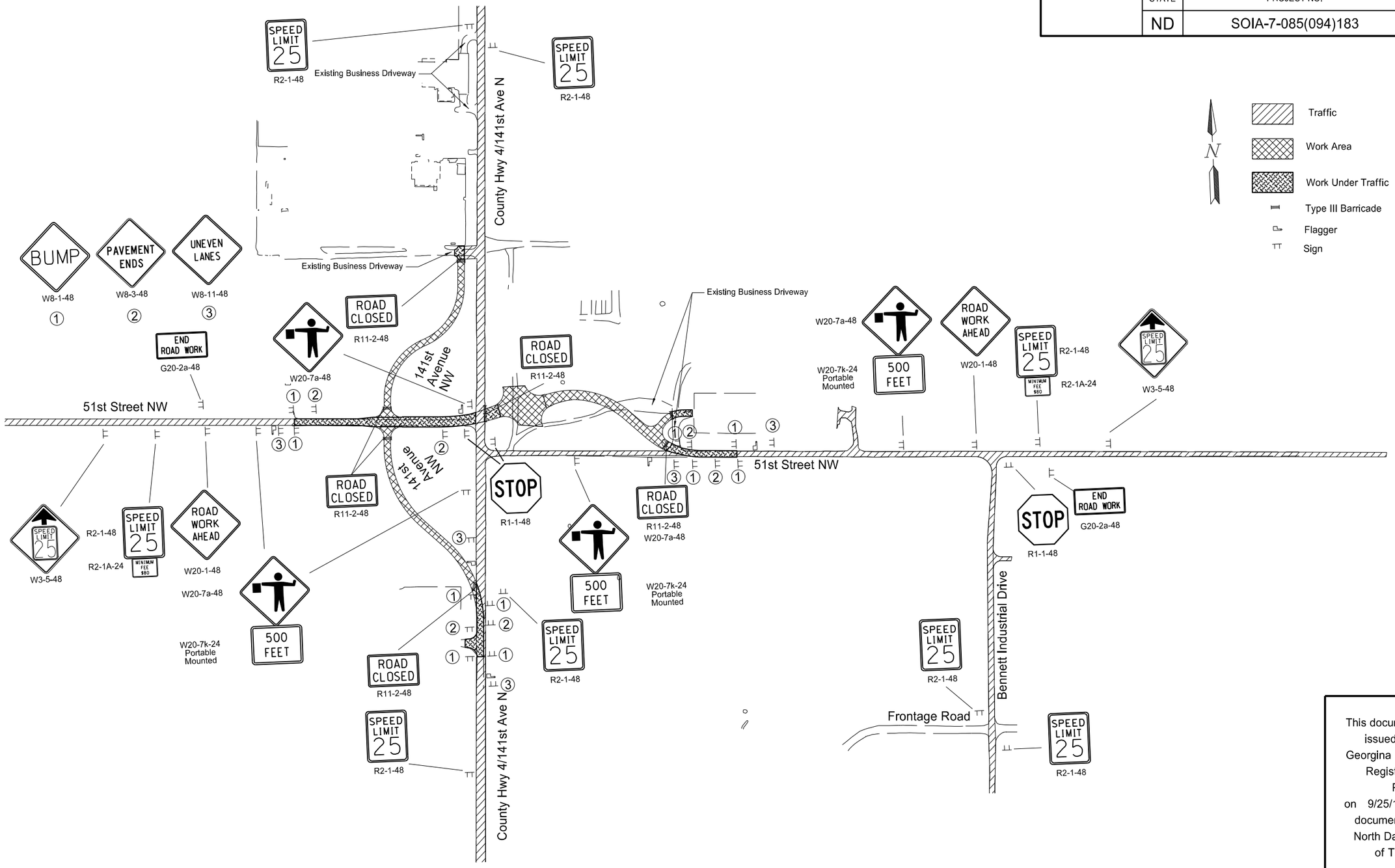
Traffic Control

Williston NW Permanent Truck Reliever Route Phase 1A

Stage 1

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	100	4



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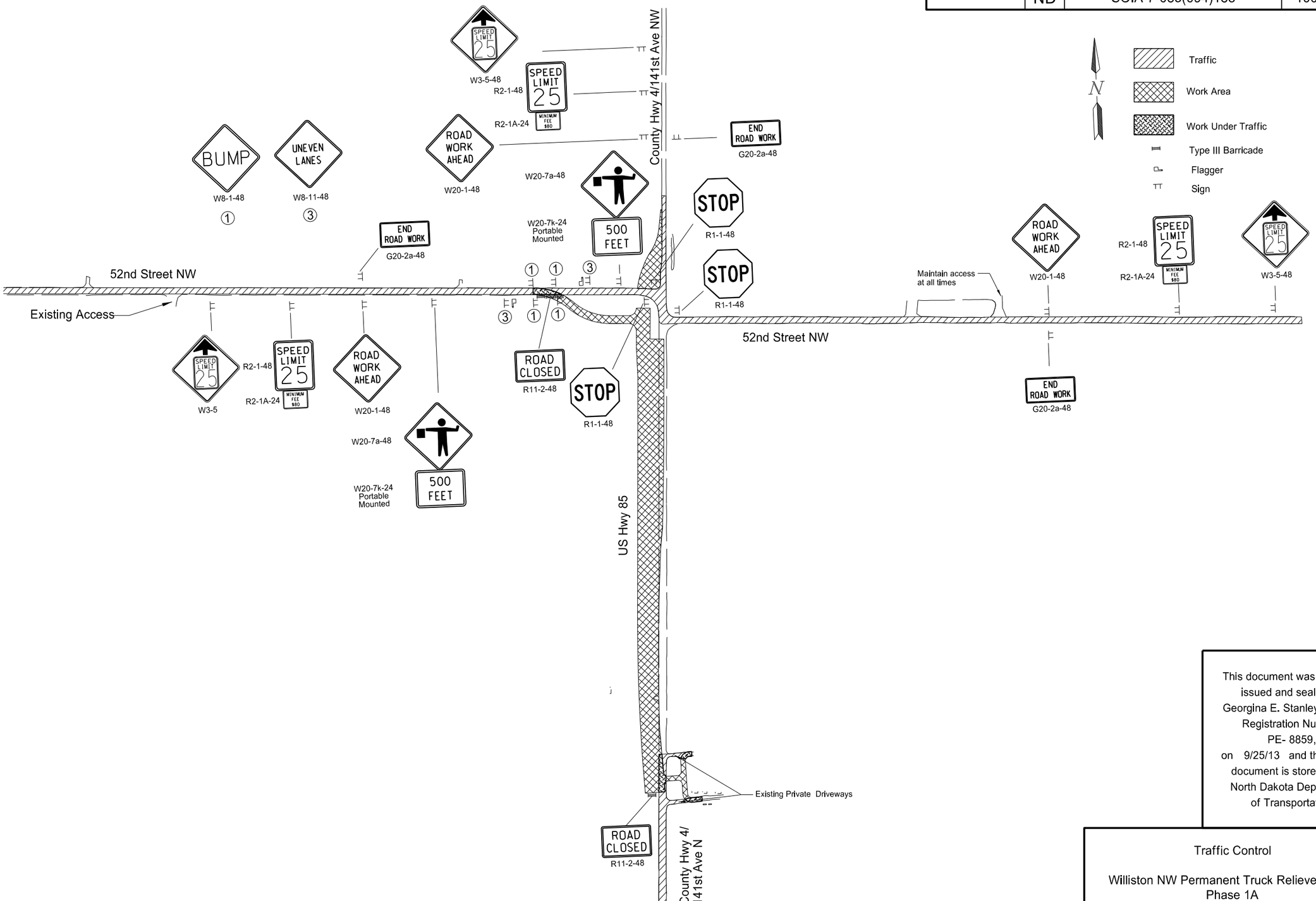
Traffic Control

Williston NW Permanent Truck Reliever Route Phase 1A

Stage 1

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	100	5



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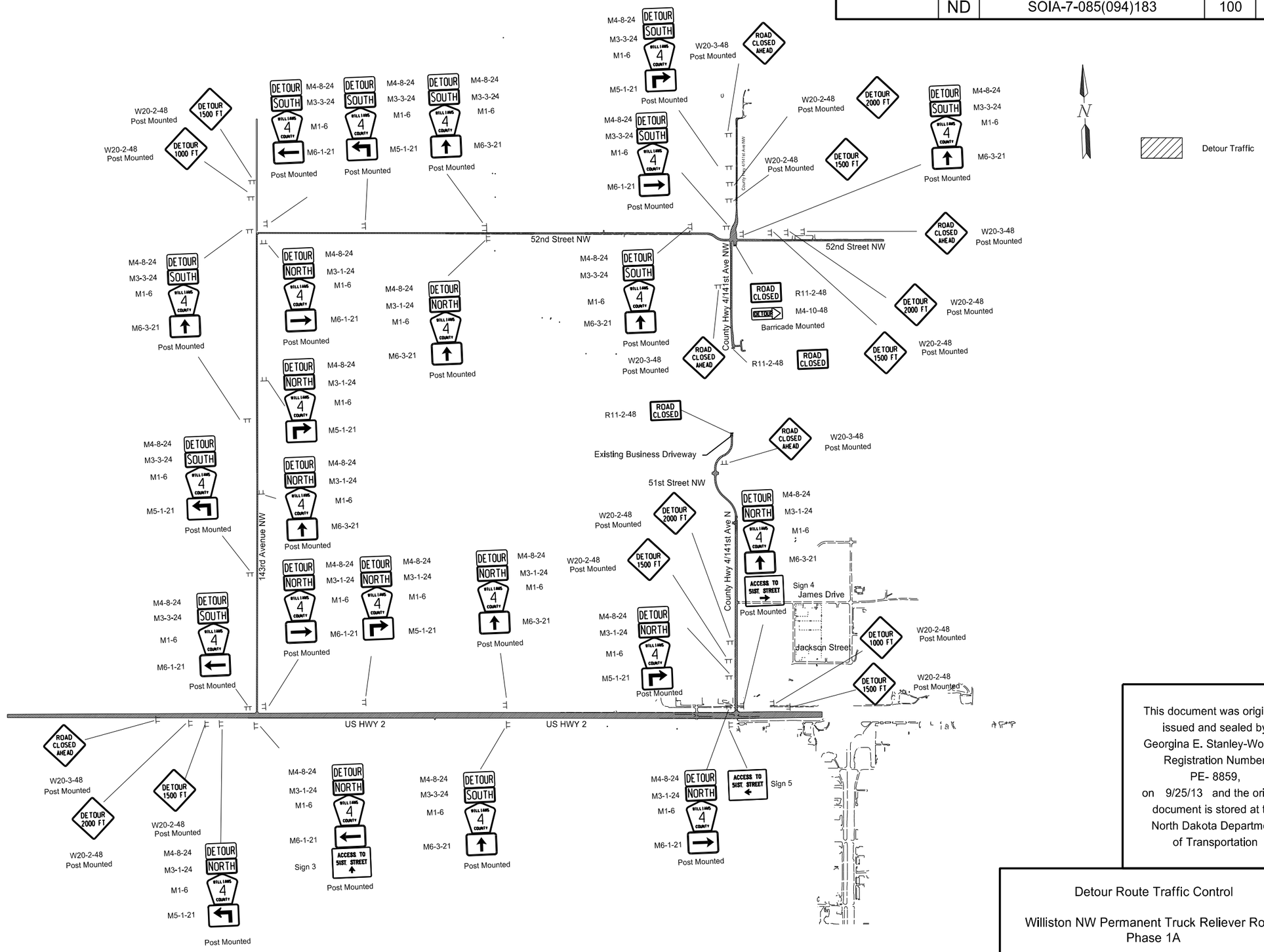
Traffic Control

Williston NW Permanent Truck Reliever Route Phase 1A

Stage 1

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	100	6



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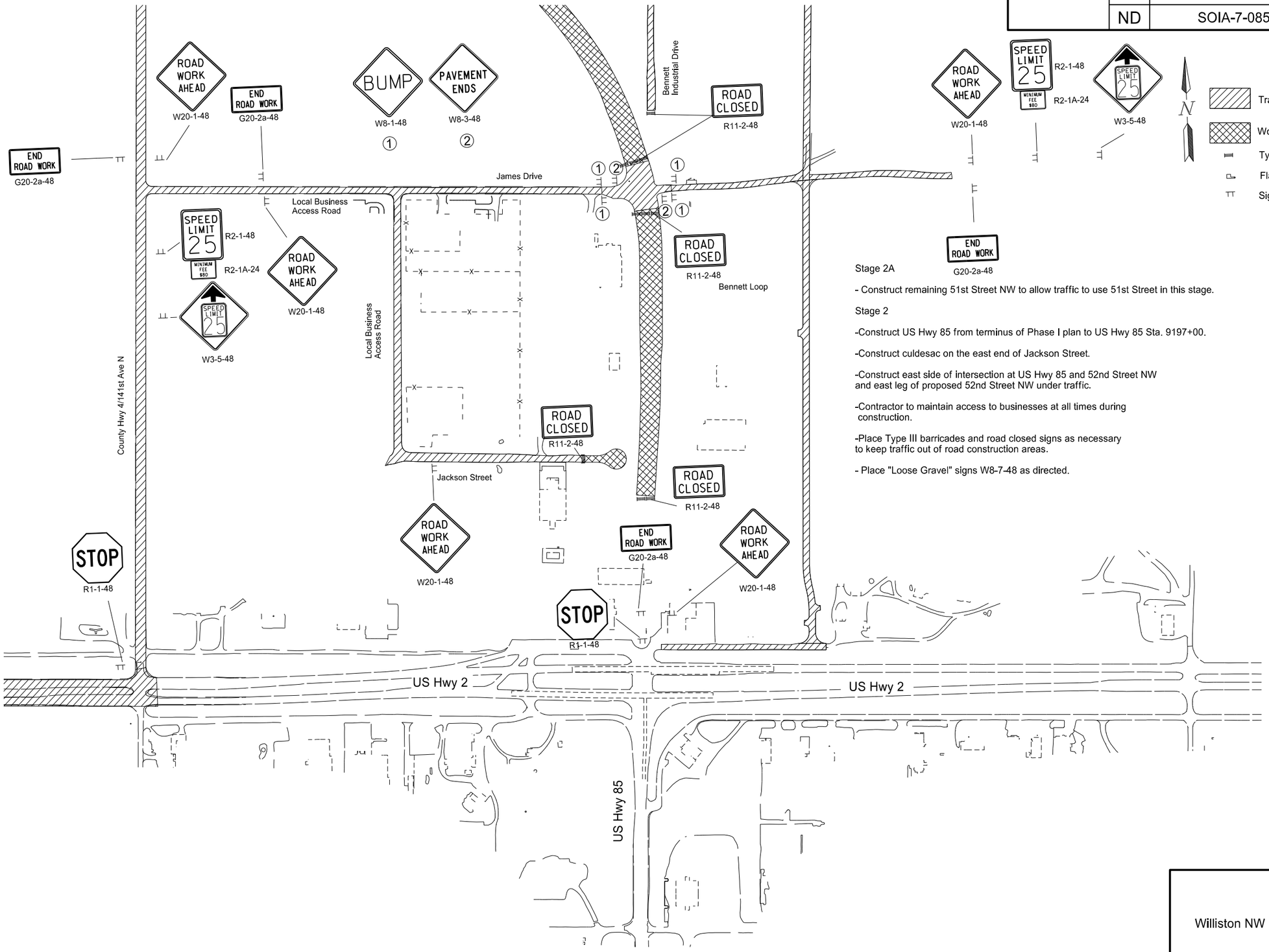
Detour Route Traffic Control

Williston NW Permanent Truck Reliever Route Phase 1A

Stage 2

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	100	7



Stage 2A

- Construct remaining 51st Street NW to allow traffic to use 51st Street in this stage.

Stage 2

-Construct US Hwy 85 from terminus of Phase I plan to US Hwy 85 Sta. 9197+00.

-Construct culdesac on the east end of Jackson Street.

-Construct east side of intersection at US Hwy 85 and 52nd Street NW and east leg of proposed 52nd Street NW under traffic.

-Contractor to maintain access to businesses at all times during construction.

-Place Type III barricades and road closed signs as necessary to keep traffic out of road construction areas.

- Place "Loose Gravel" signs W8-7-48 as directed.

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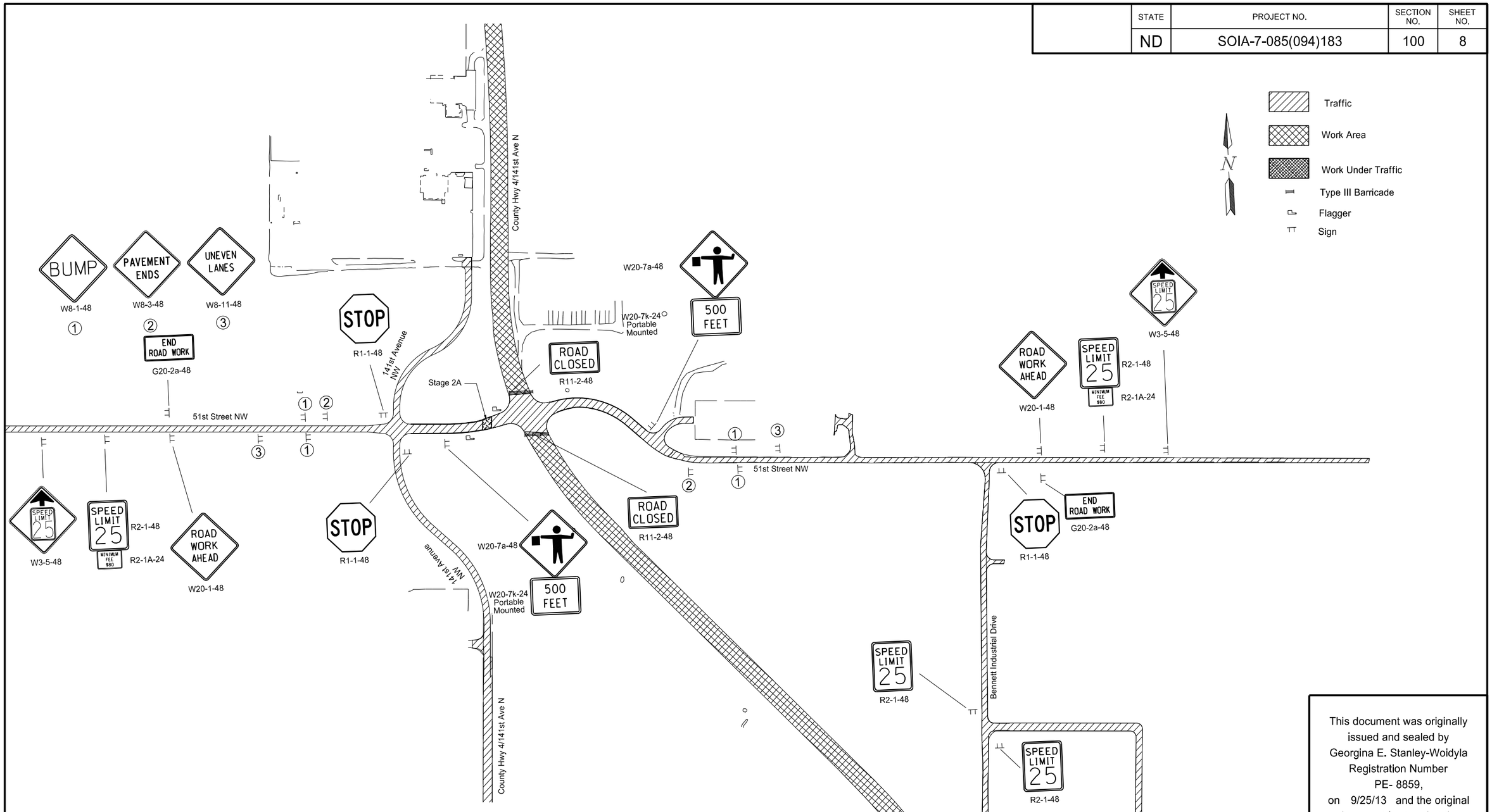
Traffic Control

Williston NW Permanent Truck Reliever Route Phase 1A

Stage 2

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	100	8



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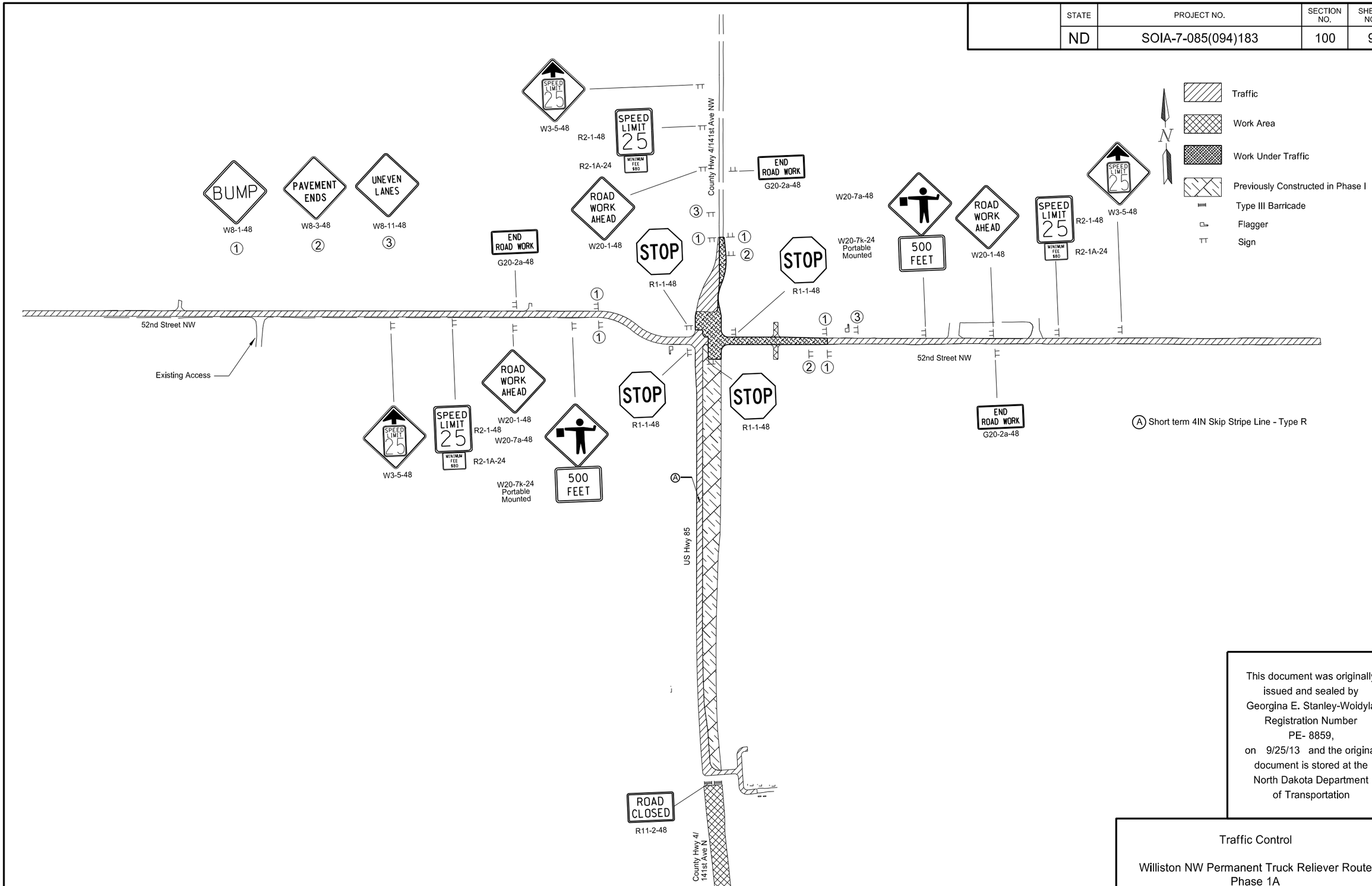
Traffic Control

Williston NW Permanent Truck Reliever Route
Phase 1A

Stage 2

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	100	9



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Traffic Control

Williston NW Permanent Truck Reliever Route Phase 1A

Stage 2

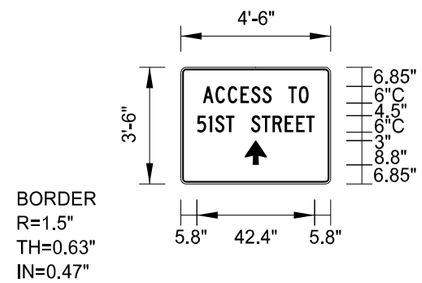
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-075(094)183	100	10

SIGN NUMBER	Sign 3
WIDTH x HEIGHT	4'-6" x 3'-6"
BORDER WIDTH	0.63" (inset 0.47")
CORNER RADIUS	1.5"
MOUNTING	Overhead
BACKGROUND	TYPE: XI Reflective
	COLOR: Orange
LEGEND/BORDER	TYPE: XI Reflective
	COLOR: Black

SYMBOL	X	Y	WID	HT	ANGLE
AREXIT	23	6.9	8	8.8	90

STATION(S):
EB Hwy 2

AREA: 15.8 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: construction_guide.ssl

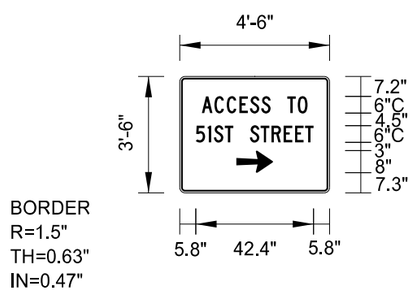
LETTER POSITION (X)																																LENGTH	SIZE	SERIES
A	C	C	E	S	S		T	O																								38.1	6	C 2000
8	12.5	17	21.5	25.3	29.4	32.7	38.7	42.5																										
5	1	S	T		S	T	R	E	E	T																						42.4	6	C 2000
5.8	10.1	12.3	16.2	19.3	25.3	29.2	33.1	37.5	41.6	45.2																								

SIGN NUMBER	Sign 4
WIDTH x HEIGHT	4'-6" x 3'-6"
BORDER WIDTH	0.63" (inset 0.47")
CORNER RADIUS	1.5"
MOUNTING	Overhead
BACKGROUND	TYPE: XI Reflective
	COLOR: Orange
LEGEND/BORDER	TYPE: XI Reflective
	COLOR: Black

SYMBOL	X	Y	WID	HT	ANGLE
ARGORE	20.4	7.3	8	13.2	0

STATION(S):
WB Hwy 2

AREA: 15.8 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: construction_guide.ssl

LETTER POSITION (X)																																LENGTH	SIZE	SERIES
A	C	C	E	S	S		T	O																								38.1	6	C 2000
8	12.5	17	21.5	25.3	29.4	32.7	38.7	42.5																										
5	1	S	T		S	T	R	E	E	T																						42.4	6	C 2000
5.8	10.1	12.3	16.2	19.3	25.3	29.2	33.1	37.5	41.6	45.2																								

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Staging Signing Details

Williston NW Permanent Truck Reliver Route
Phase 1A

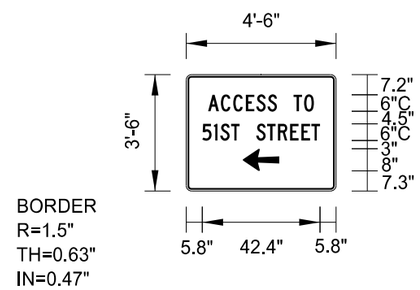
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	100	11

SIGN NUMBER	Sign 5
WIDTH x HEIGHT	4'-6" x 3'-6"
BORDER WIDTH	0.63" (inset 0.47")
CORNER RADIUS	1.5"
MOUNTING	Overhead
BACKGROUND	TYPE: XI Reflective
	COLOR: Orange
LEGEND/BORDER	TYPE: XI Reflective
	COLOR: Black

SYMBOL	X	Y	WID	HT	ANGLE
ARGORE	20.4	7.3	8	13.2	180

STATION(S):
WB Hwy 2

AREA: 15.8 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: construction_guide.ssl

LETTER POSITION (X)																																LENGTH	SIZE	SERIES
A	C	C	E	S	S		T	O																								38.1	6	C 2000
8	12.5	17	21.5	25.3	29.4	32.7	38.7	42.5																										
5	1	S	T		S	T	R	E	E	T																						42.4	6	C 2000
5.8	10.1	12.3	16.2	19.3	25.3	29.2	33.1	37.5	41.6	45.2																								

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Staging Signing Details

Williston NW Permanent Truck Reliver Route
Phase 1A

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	110	1

Sta/RP	Sign No.	Assembly No.	Flat Sheet For Signs IV SF	Flat Sheet For Signs XI SF	Sign Support Length 1st LF	Sign Support Length 2nd LF	Sign Support Length 3rd LF	Sign Support Length 4th LF	Support Size	Max Post Len LF	Sleeve Length 1st LF	Sleeve Length 2nd LF	Sleeve Length 3rd LF	Sleeve Length 4th LF	Sleeve Size	Anchor EA	Anchor LF	Anchor Size	Reset Sign Panel EA	Reset Sign Support EA	Break-Away EA	Comments
US Highway 85																						
9713+04 Lt		21		16.0	11.3				2.5 x 2.5 10 ga	12.6	3.4				2.19 x 2.19 10 ga	1	4	3 x 3 7 ga			1	
9715+75 Lt	SA A		13.4		11.7				2.5 x 2.5 12 ga	14.1	2.7				2.25 x 2.25 12 ga	1	4	3 x 3 7 ga			1	
9722+00 Lt		11		12.0	10.2				2.25 x 2.25 12 ga	11.2	3.2				2 x 2 12 ga	1	4	3 x 3 7 ga			1	
9726+04 Lt		452		11.2	11.7				2.5 x 2.5 12 ga	12.5						1	4	3 x 3 7 ga				
9726+15 Rt		27		3.0	8.8				2 x 2 12 ga	13.2						1	4	2.25 x 2.25 12 ga				
9726+33 Lt	SA B			8.2	9.9				2.5 x 2.5 12 ga	12.4						1	4	3 x 3 7 ga				
9726+89 Rt		452		11.2	10.9				2.5 x 2.5 12 ga	12.5						1	4	3 x 3 7 ga				
9727+09 Rt	SN1	1B	21.0		8.9	8.9			2 x 2 12 ga	9.8						2	4	2.25 x 2.25 12 ga				
9727+49 Lt	SN2,3	1E	35.5		8.9				2.5 x 2.5 12 ga	9.8						1	4	3 x 3 7 ga				
9738+86 Rt		11		12.0	10.2				2.25 x 2.25 12 ga	11.2	3.2				2 x 2 12 ga	1	4	3 x 3 7 ga			1	
9763+42 Lt	SN4		18.0																			Mount on Mast Arm
9763+75 Rt	SN5		19.0																			Mount on Mast Arm
9764+62 Lt	SN5		19.0																			Mount on Mast Arm
9765+18 Rt	SN4		18.0																			Mount on Mast Arm
9772+25 Rt		11		12.0	10.2				2.25 x 2.25 12 ga	11.2	3.2				2 x 2 12 ga	1	4	3 x 3 7 ga			1	
9791+90 Rt		1		5.2	10.3				2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga				
9801+00 Rt		21		16.0	13.1	13.4			2.5 x 2.5 10 ga	14.3						2	4	3 x 3 7 ga			2	
9802+00 Lt		11		12.0	11.9				2.5 x 2.5 12 ga	14.3	3.3				2.25 x 2.25 12 ga	1	4	3 x 3 7 ga			1	
9802+00 Rt		11		12.0	11.9				2.5 x 2.5 12 ga	14.3	3.3				2.25 x 2.25 12 ga	1	4	3 x 3 7 ga			1	
9806+45 Rt		21		16.0	14.0	14.3			2.25 x 2.25 12 ga	15.7	4.3	4.7			2 x 2 12 ga	2	4	3 x 3 7 ga			2	
9813+00 Lt		11		12.0	12.7				2.5 x 2.5 12 ga	14.3	4.1				2.25 x 2.25 12 ga	1	4	3 x 3 7 ga			1	
9814+20 Rt	SA C			8.2	11.8				2.5 x 2.5 10 ga	14.4						1	4	3 x 3 7 ga			1	
9814+30 Lt	SN2,6	1E	37.5		11.5	12.1			2.25 x 2.25 12 ga	13.9						2	4	2.5 x 2.5 12 ga				
9814+58 Lt	SA D			16.2	14.5				2.5 x 2.5 10 ga	14.9	4.6				2.19 x 2.19 10 ga	1	4	3 x 3 7 ga			1	
9814+58 Rt		27		3.0	9.8				2 x 2 12 ga	13.2						1	4	2.25 x 2.25 12 ga				
9815+40 Lt		27		3.0	9.1				2 x 2 12 ga	13.2						1	4	2.25 x 2.25 12 ga				
9815+40 Rt	SA D			16.2	14.7	14.9			2.5 x 2.5 10 ga	16.6						2	4	3 x 3 7 ga			2	
9815+86 Lt	SA C			8.2	12.5				2.5 x 2.5 10 ga	14.4						1	4	3 x 3 7 ga			1	
Sub Total			181.4	213.6		**Total**	334.1									**Total**	116		0	0	17	

Basis of Estimate
Sign Support Lengths

The sign support lengths have been calculated
using the following vertical clearances:

Urban/rural expressway and freeway - 84" (Offset - 60")
Rural Roadway - 60"

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Signing Summary

Williston Truck Reliever Route
Phase IA

Perforated Tube

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	110	2

Sta/RP	Sign No.	Assembly No.	Flat Sheet For Signs IV SF	XI SF	Sign Support Length 1st LF	2nd LF	3rd LF	4th LF	Support Size	Max Post Len LF	Sleeve Length 1st LF	2nd LF	3rd LF	4th LF	Sleeve Size	Anchor EA	Anchor LF	Anchor Size	Reset Sign Panel EA	Reset Sign Support EA	Break-Away EA	Comments
S Bennett Loop																						
0000+43 Lt		1		5.2	10.2				2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga				
0022+57 Rt		1		5.2	11.9				2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga				
0022+81 Lt	SN1	1B	21.0		8.3	8.3			2 x 2 12 ga	9.8						2	4	2.25 x 2.25 12 ga				
Sub Total			21.0	10.4		**Total**	38.7									**Total**	16		0	0	0	
Jackson St																						
0002+00 Rt		19		6.3	9.9				2.25 x 2.25 12 ga	11.6						1	4	2.5 x 2.5 12 ga				
Sub Total			0.0	6.3		**Total**	9.9									**Total**	4		0	0	0	
James Dr																						
0023+20 Lt		9		5.0	9.8				2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
Sub Total			0.0	5.0		**Total**	9.8									**Total**	4		0	0	0	
141st Ave South of 51st St																						
0017+00 Rt		9		5.0	11.8				2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
0026+50 Lt		9		5.0	11.6				2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
Sub Total			0.0	10.0		**Total**	23.4									**Total**	8		0	0	0	
51st St																						
0046+00 Rt		9		5.0	11.0				2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
0048+66 Rt	SN7,8	1E	40.5		10.3	10.3			2.25 x 2.25 12 ga	11.9						2	4	2.5 x 2.5 12 ga				
0048+73 Lt		1		5.2	11.1				2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga				
0049+69 Rt		1		5.2	11.0				2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga				
0052+11 Lt		14		4.0	7.4				2 x 2 12 ga	13.0						1	4	2.25 x 2.25 12 ga				
0062+64 Lt		1		5.2	11.1				2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga				
0067+00 Lt		9		5.0	11.1				2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
Sub Total			40.5	29.6		**Total**	83.3									**Total**	32		0	0	0	
Private Drive NW 51st St																						
0009+00 Lt		9		5.0	12.0				2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
Sub Total			0.0	5.0		**Total**	12.0									**Total**	4		0	0	0	

Basis of Estimate
Sign Support Lengths

The sign support lengths have been calculated
using the following vertical clearances:

Urban/rural expressway and freeway - 84" (Offset - 60")
Rural Roadway - 60"

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Signing Summary

Williston Truck Reliever Route
Phase IA

Perforated Tube

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	110	3

Sta/RP	Sign No.	Assembly No.	Flat Sheet For Signs IV SF	Flat Sheet For Signs XI SF	Sign Support Length 1st LF	Sign Support Length 2nd LF	Sign Support Length 3rd LF	Sign Support Length 4th LF	Support Size	Max Post Len LF	Sleeve Length 1st LF	Sleeve Length 2nd LF	Sleeve Length 3rd LF	Sleeve Length 4th LF	Sleeve Size	Anchor EA	Anchor LF	Anchor Size	Reset Sign Panel EA	Reset Sign Support EA	Break-Away EA	Comments
52nd St																						
0019+00 Rt		9		5.0	11.1				2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
0033+08 Lt		9		5.0	10.1				2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
Sub Total			0.0	10.0		**Total**	21.2									**Total**	8		0	0	0	
52nd Northbound Access																						
0006+00 Lt		9		5.0	11.6				2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
Sub Total			0.0	5.0		**Total**	11.6									**Total**	4		0	0	0	
Grand Total			242.9	294.9		**Total**	544.0									**Total**	196		0	0	17	

Basis of Estimate
Sign Support Lengths

The sign support lengths have been calculated
using the following vertical clearances:

Urban/rural expressway and freeway - 84" (Offset - 60")
Rural Roadway - 60"

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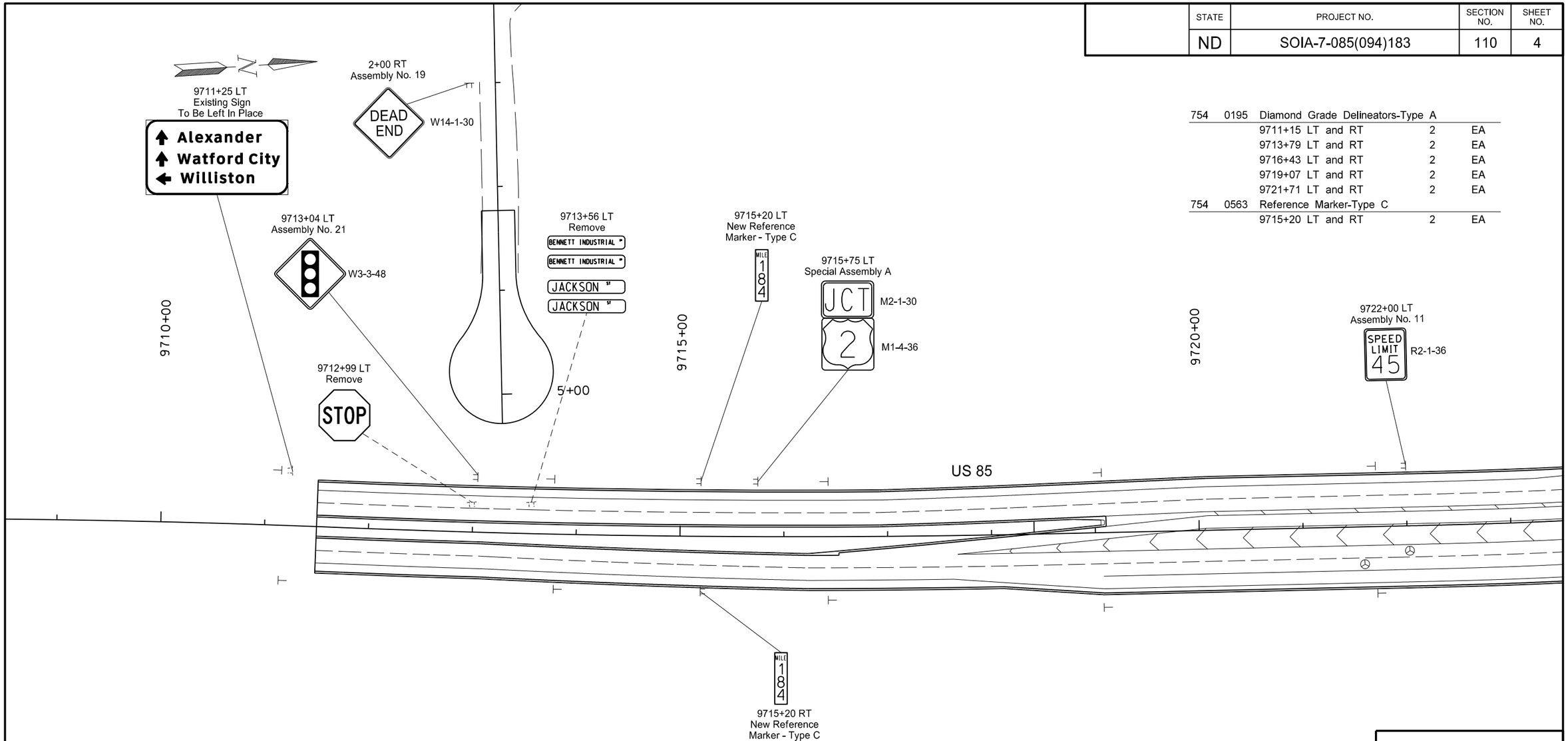
Signing Summary

Williston Truck Reliever Route
Phase IA

Perforated Tube

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	110	4



754	0195	Diamond Grade Delineators-Type A		
		9711+15 LT and RT	2	EA
		9713+79 LT and RT	2	EA
		9716+43 LT and RT	2	EA
		9719+07 LT and RT	2	EA
		9721+71 LT and RT	2	EA
754	0563	Reference Marker-Type C		
		9715+20 LT and RT	2	EA

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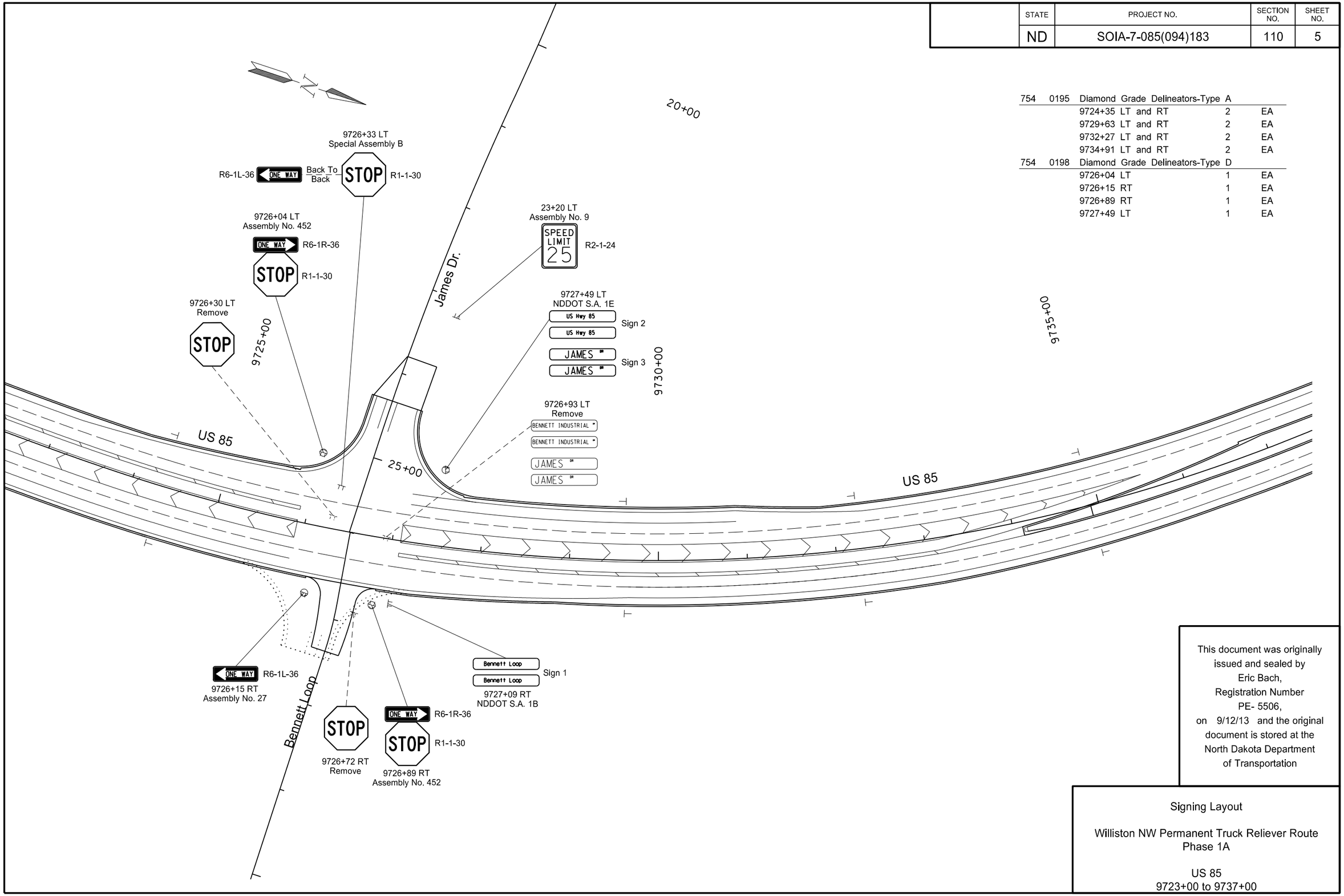
Signing Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9709+00 to 9723+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	110	5



754	0195	Diamond Grade Delineators-Type A		
		9724+35 LT and RT	2	EA
		9729+63 LT and RT	2	EA
		9732+27 LT and RT	2	EA
		9734+91 LT and RT	2	EA
754	0198	Diamond Grade Delineators-Type D		
		9726+04 LT	1	EA
		9726+15 RT	1	EA
		9726+89 RT	1	EA
		9727+49 LT	1	EA

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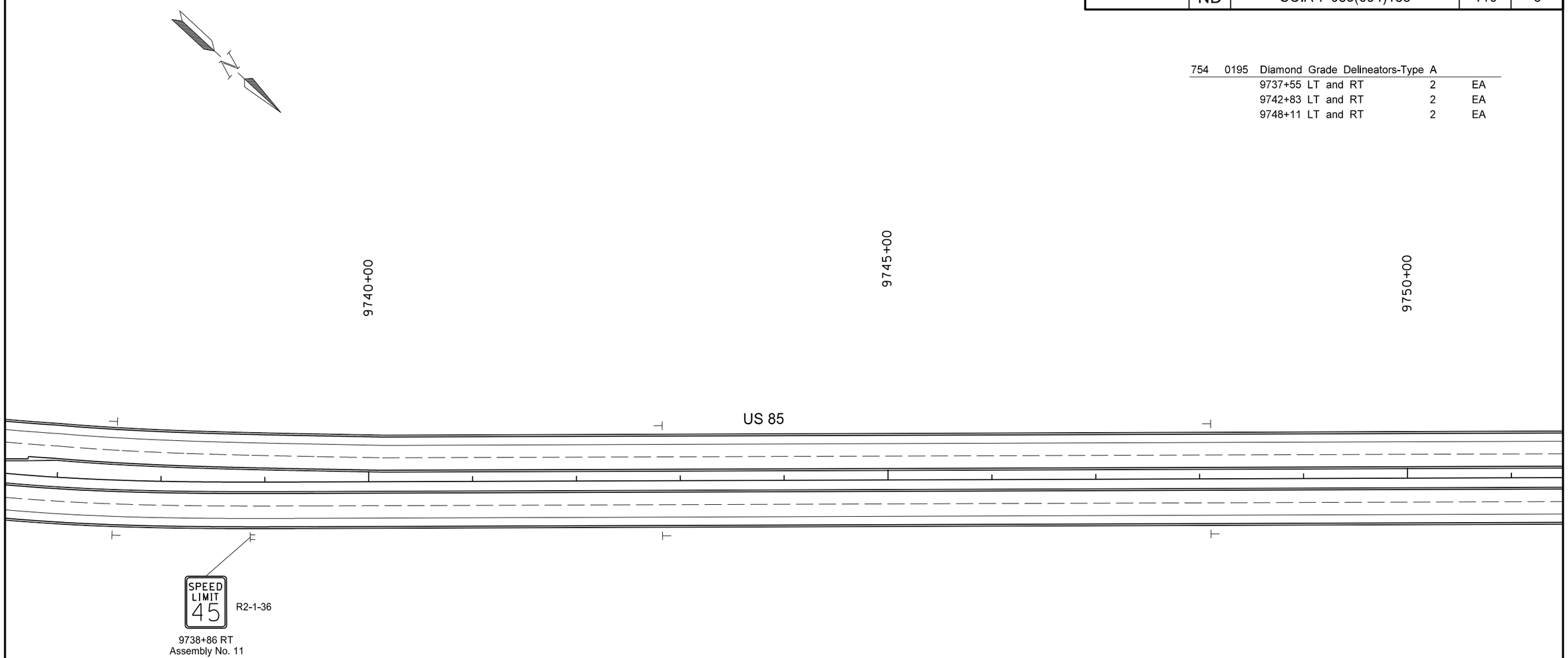
Signing Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9723+00 to 9737+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	110	6

754	0195	Diamond Grade Delineators-Type A		
		9737+55 LT and RT	2	EA
		9742+83 LT and RT	2	EA
		9748+11 LT and RT	2	EA



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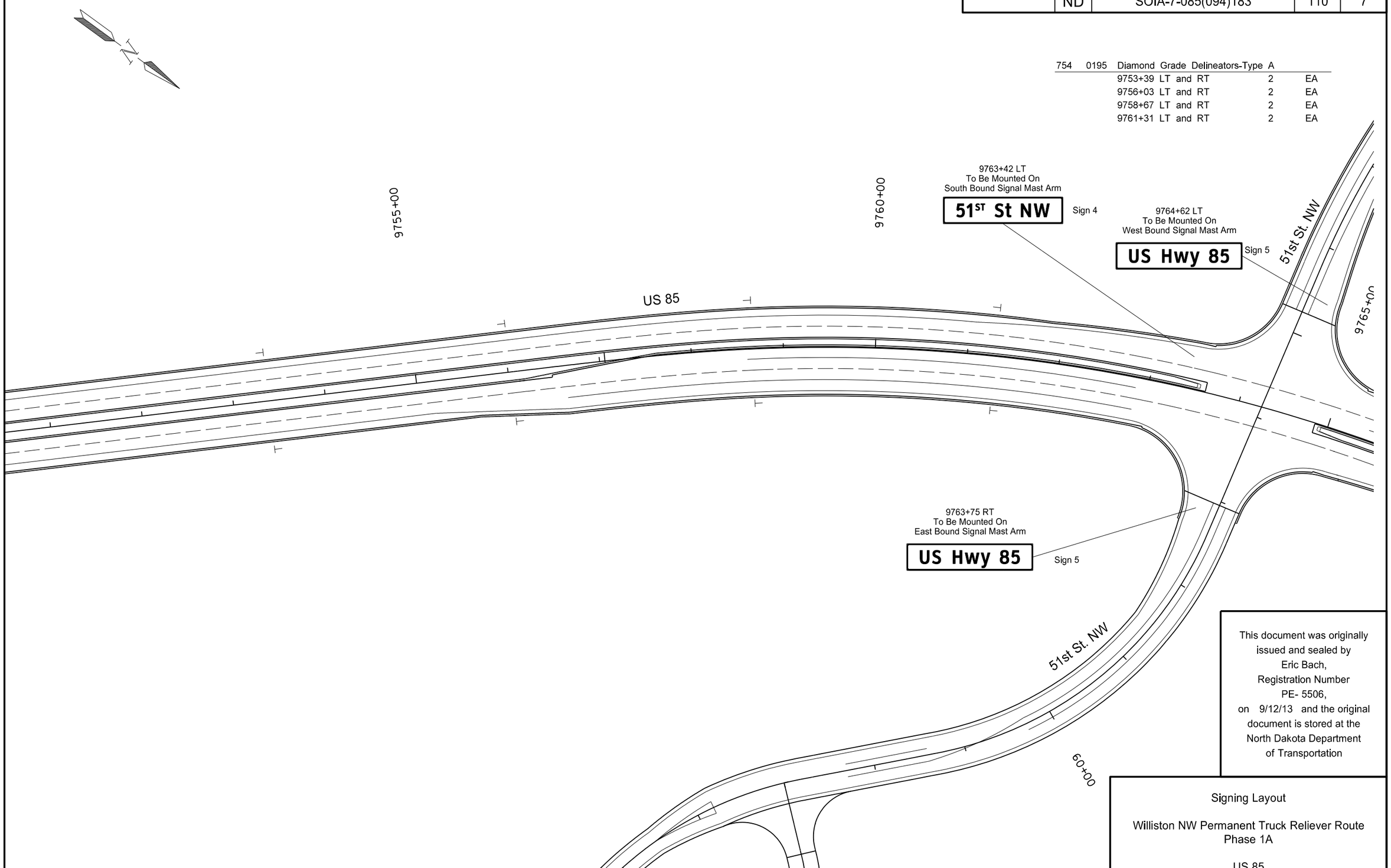
Signing Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9737+00 to 9751+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	110	7

754	0195	Diamond Grade Delineators-Type A		
		9753+39 LT and RT	2	EA
		9756+03 LT and RT	2	EA
		9758+67 LT and RT	2	EA
		9761+31 LT and RT	2	EA



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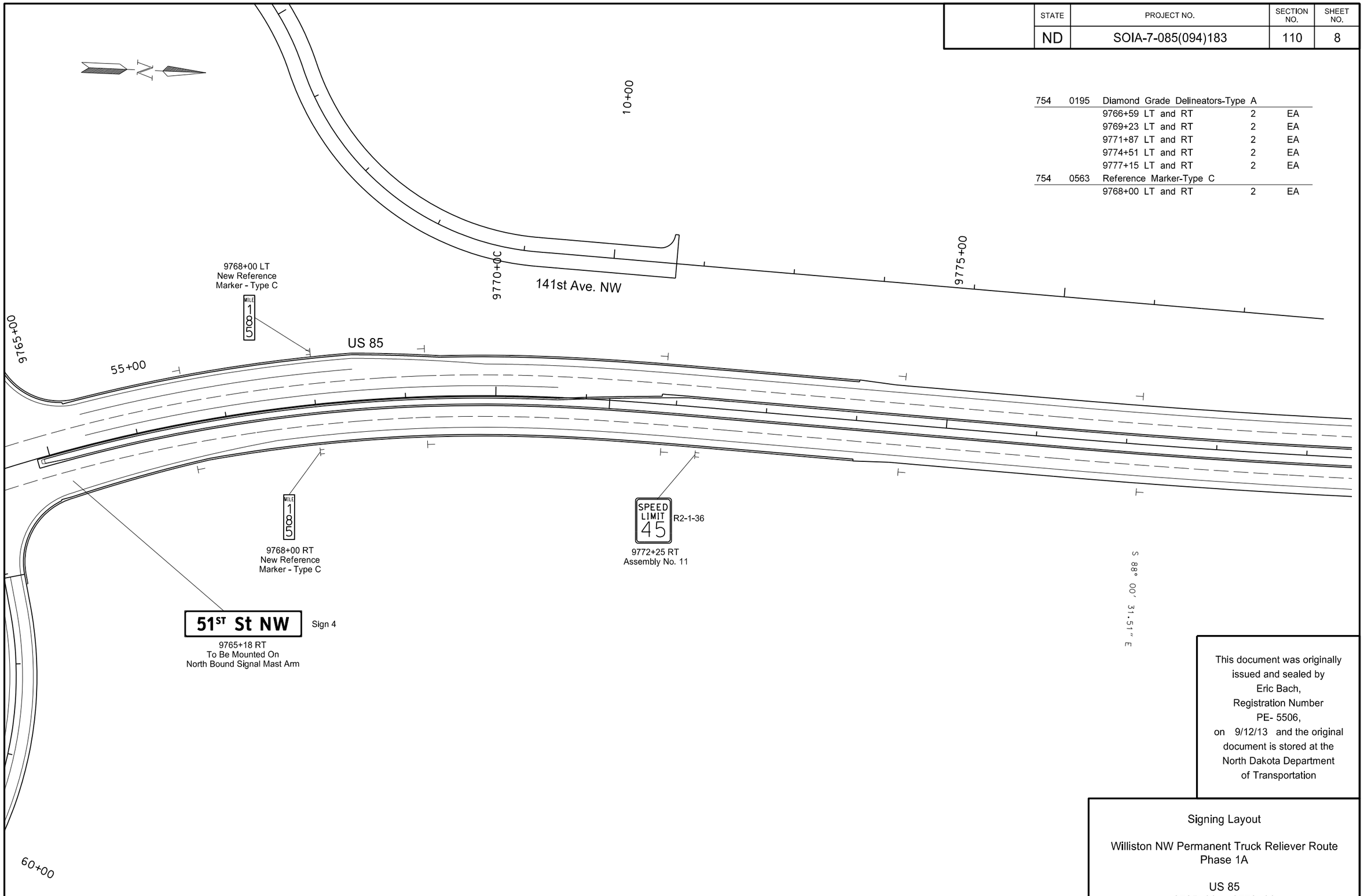
Signing Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9751+00 to 9765+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	110	8

754	0195	Diamond Grade Delineators-Type A		
		9766+59 LT and RT	2	EA
		9769+23 LT and RT	2	EA
		9771+87 LT and RT	2	EA
		9774+51 LT and RT	2	EA
		9777+15 LT and RT	2	EA
754	0563	Reference Marker-Type C		
		9768+00 LT and RT	2	EA



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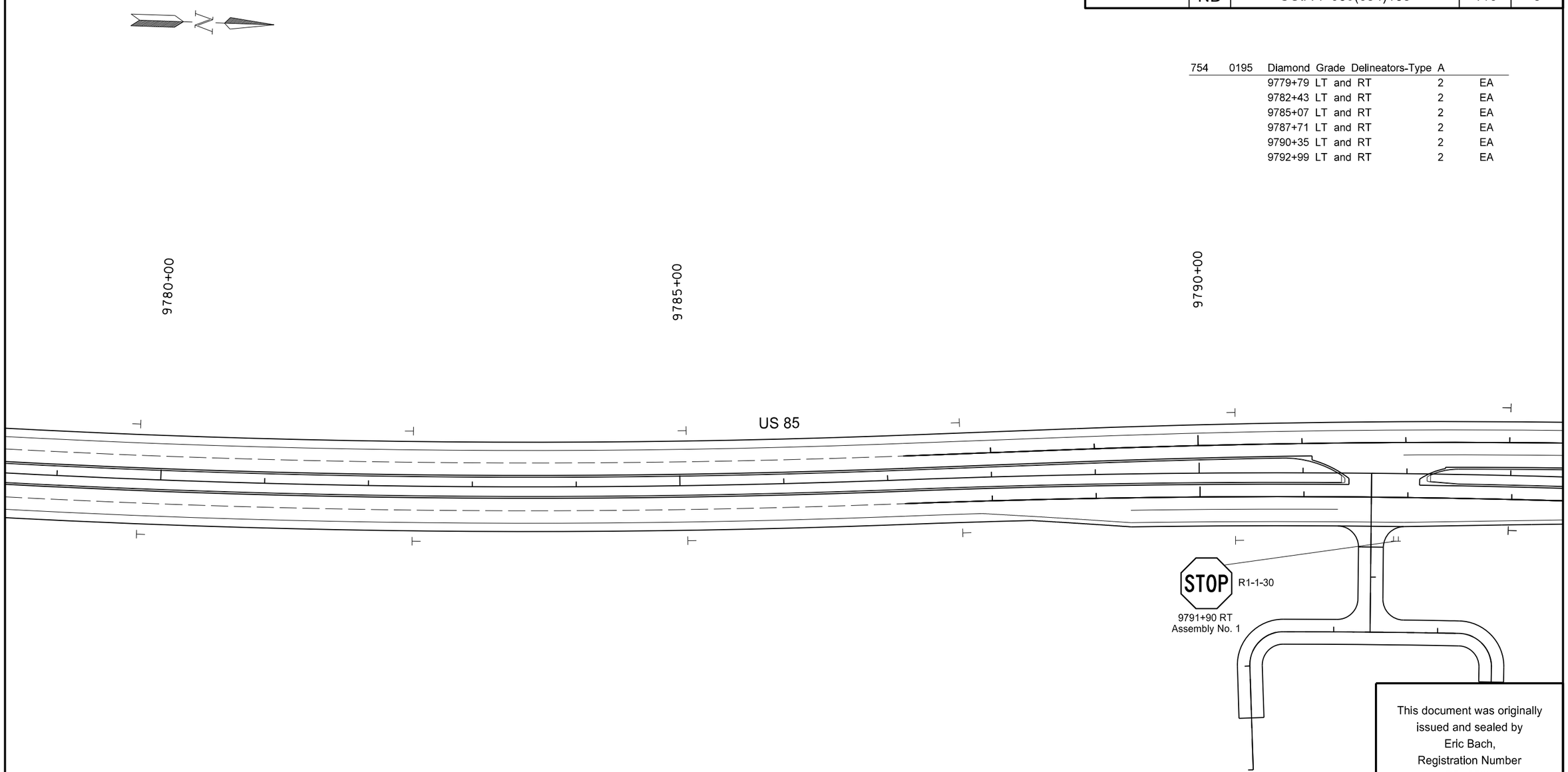
Signing Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9765+00 to 9779+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	110	9

754	0195	Diamond Grade Delineators-Type A		
		9779+79 LT and RT	2	EA
		9782+43 LT and RT	2	EA
		9785+07 LT and RT	2	EA
		9787+71 LT and RT	2	EA
		9790+35 LT and RT	2	EA
		9792+99 LT and RT	2	EA



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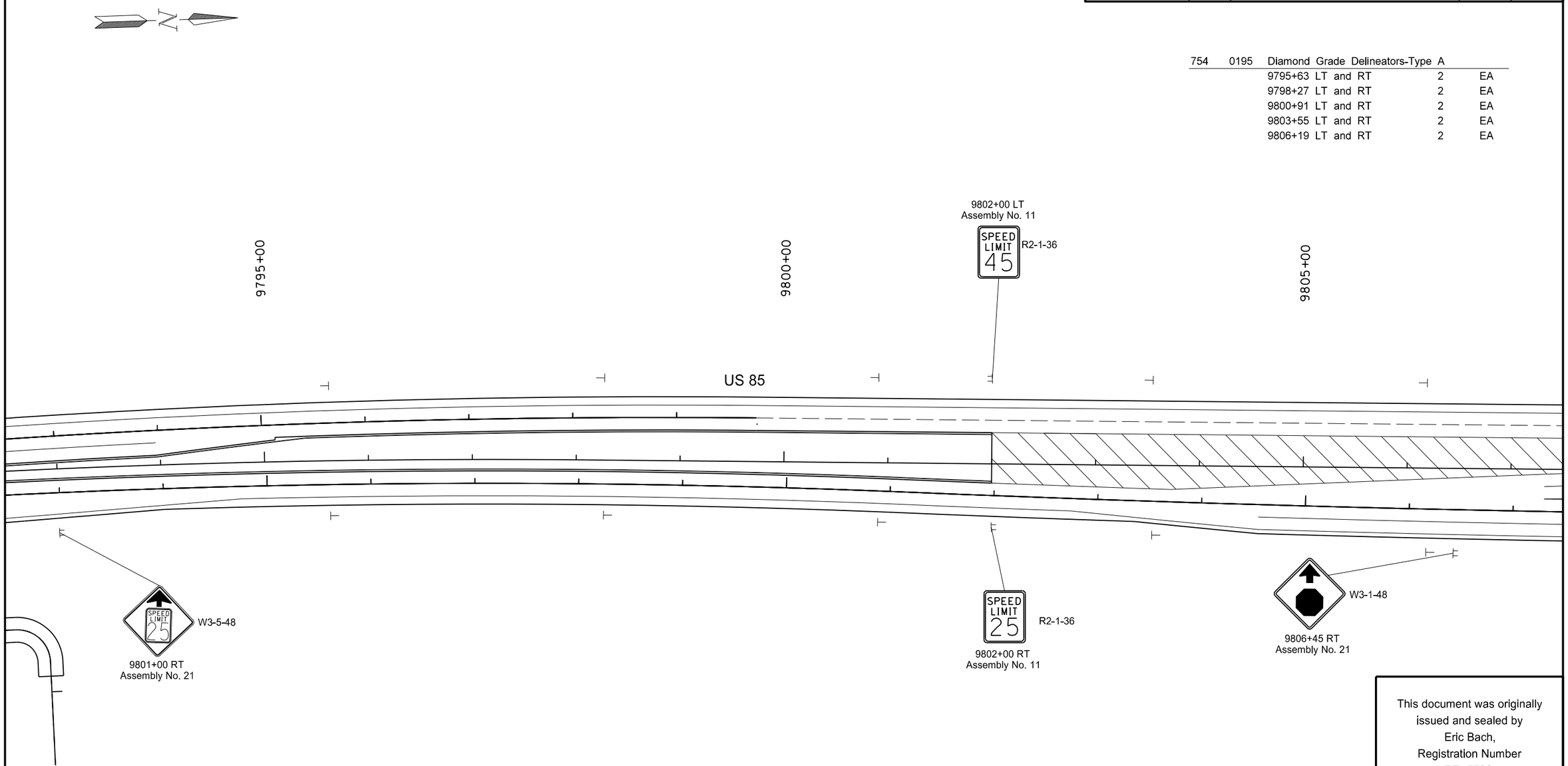
Signing Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9779+00 to 9793+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	110	10

754	0195	Diamond Grade Delineators-Type A		
		9795+63 LT and RT	2	EA
		9798+27 LT and RT	2	EA
		9800+91 LT and RT	2	EA
		9803+55 LT and RT	2	EA
		9806+19 LT and RT	2	EA



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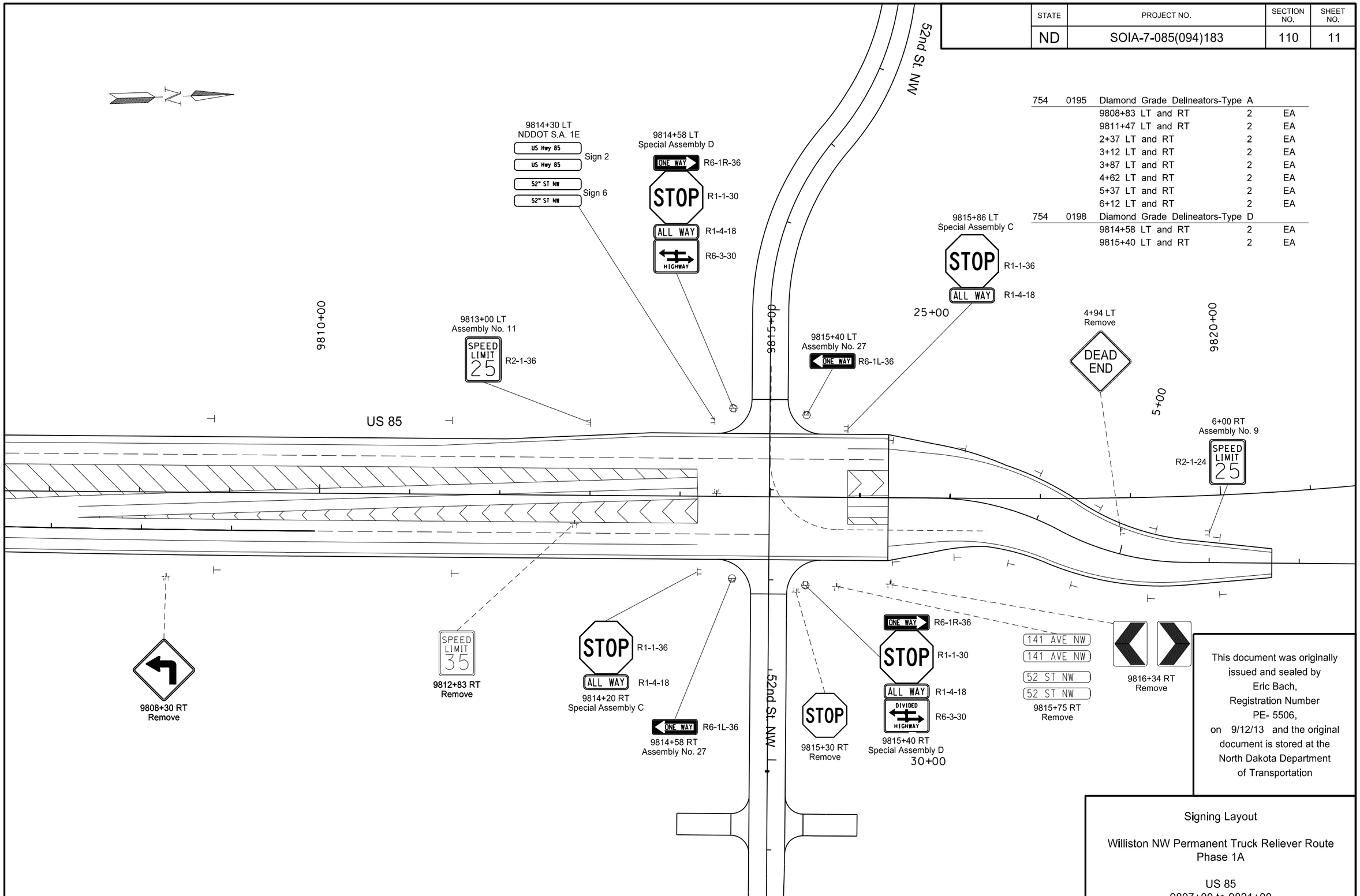
Signing Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9793+00 to 9807+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	110	11

754	0195	Diamond Grade Delineators-Type A		
		9808+83 LT and RT	2	EA
		9811+47 LT and RT	2	EA
		2+37 LT and RT	2	EA
		3+12 LT and RT	2	EA
		3+87 LT and RT	2	EA
		4+62 LT and RT	2	EA
		5+37 LT and RT	2	EA
		6+12 LT and RT	2	EA
754	0198	Diamond Grade Delineators-Type D		
		9814+58 LT and RT	2	EA
		9815+40 LT and RT	2	EA



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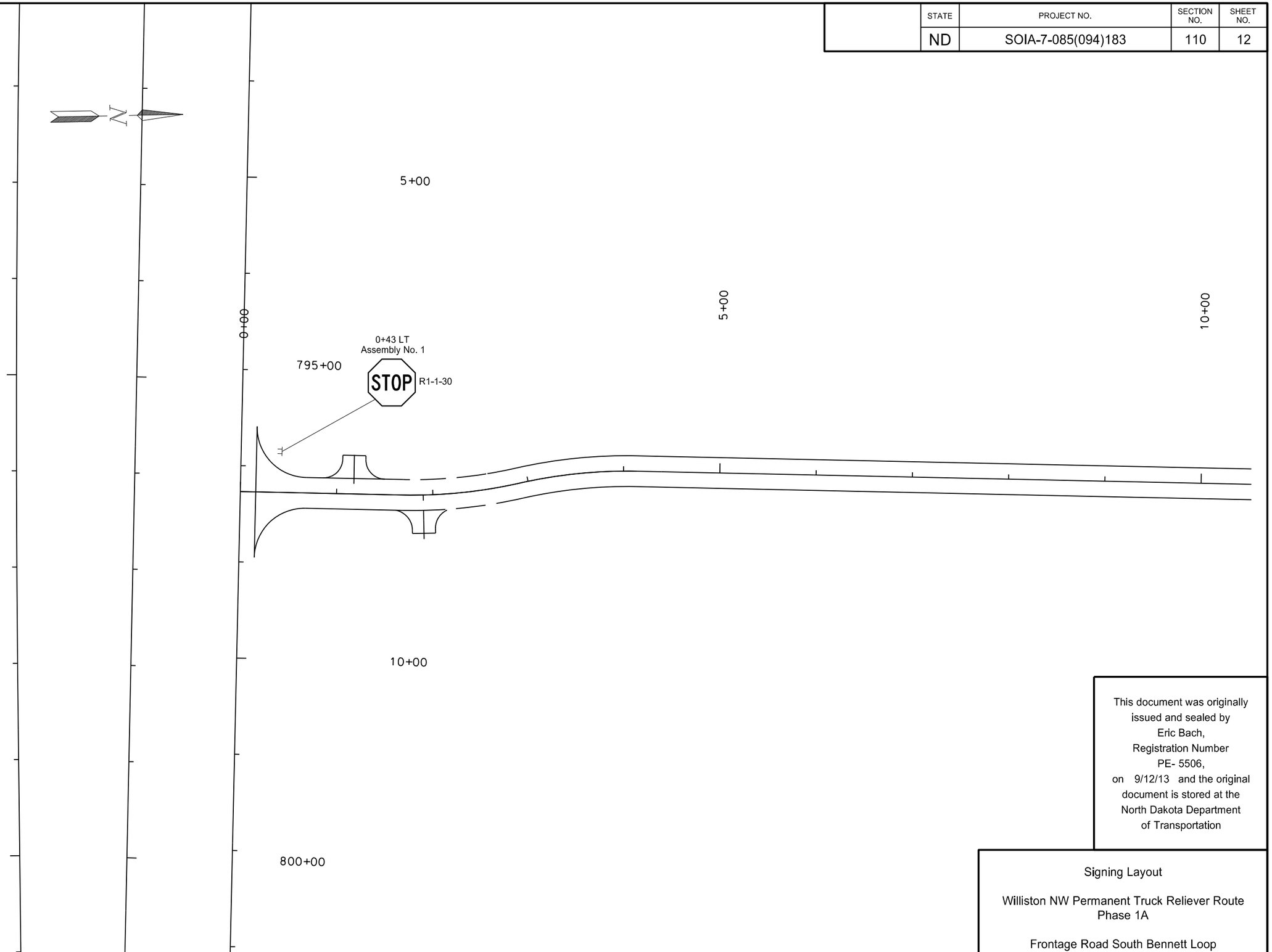
Signing Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9807+00 to 9821+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	110	12



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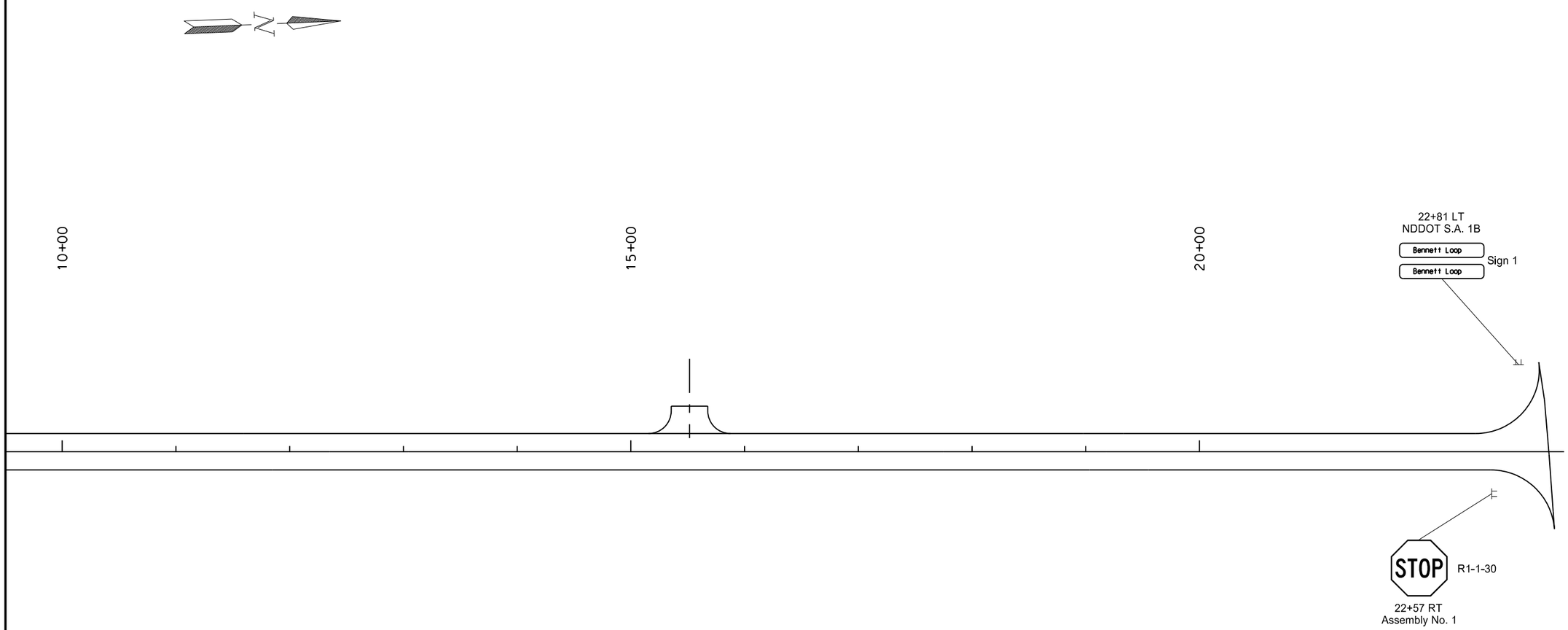
Signing Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

Frontage Road South Bennett Loop
0+00 to 10+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	110	13



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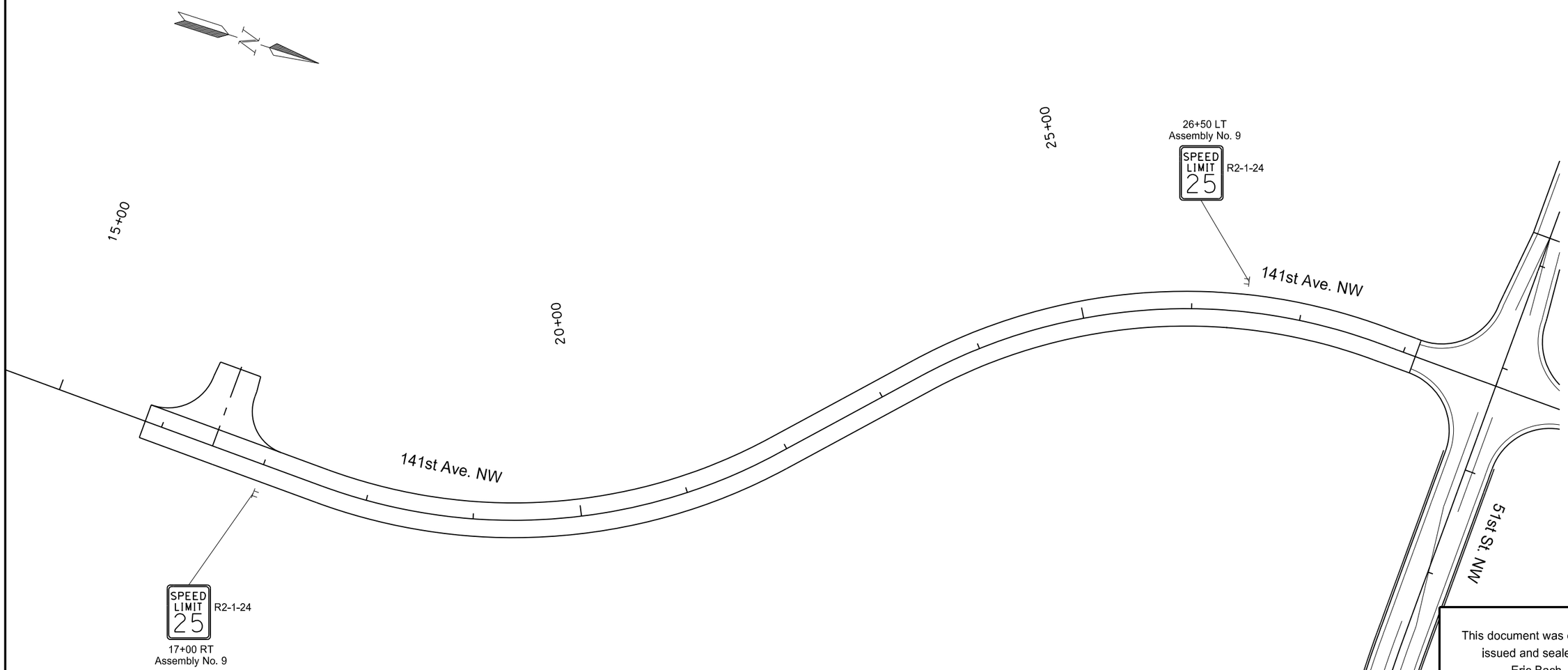
Signing Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

Frontage Road South Bennett Loop
10+00 to 23+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	110	14



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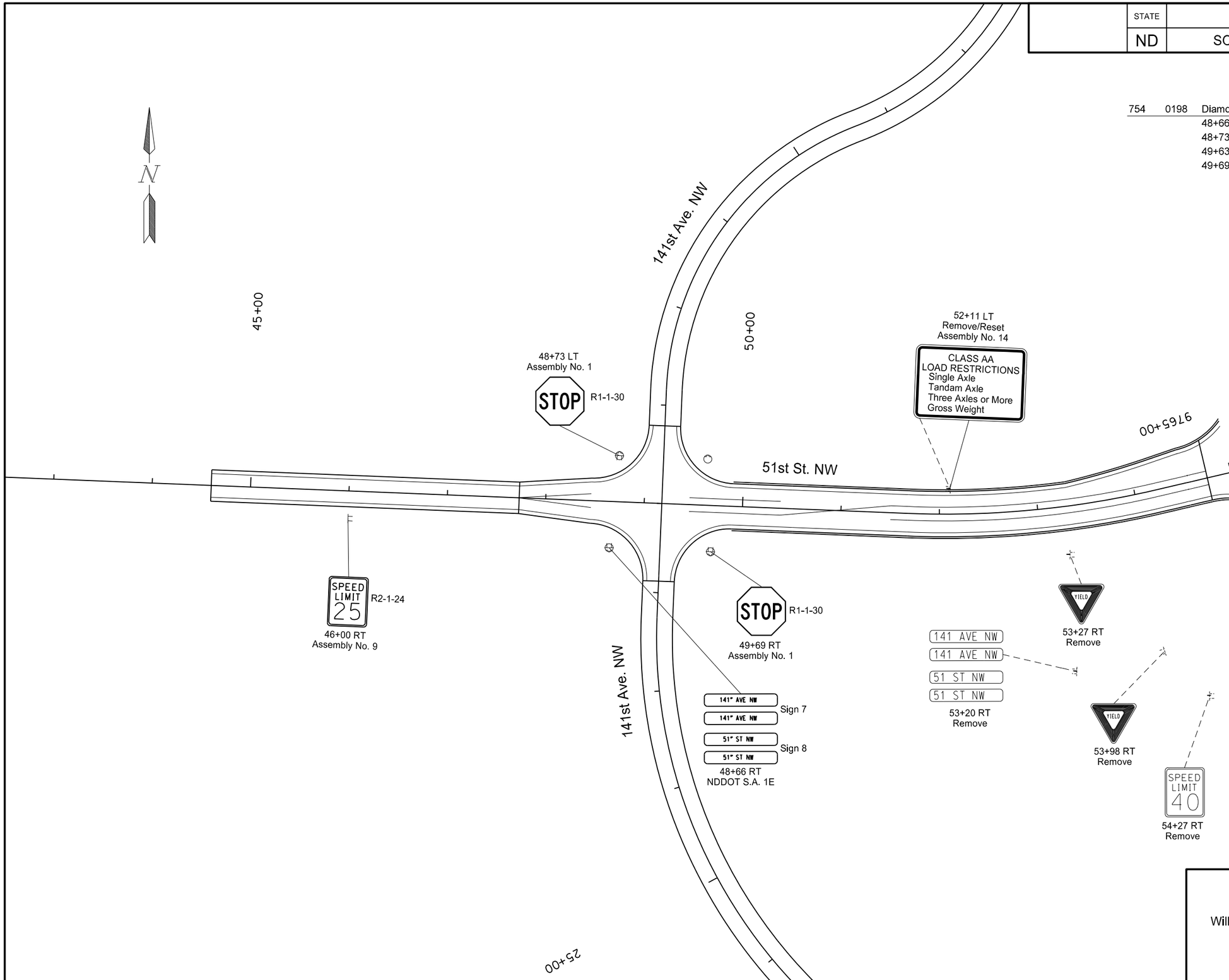
Signing Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

141st Ave. NW
15+00 to 28+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	110	15

754	0198	Diamond Grade Delineators-Type D		
		48+66 RT	1	EA
		48+73 LT	1	EA
		49+63 LT	1	EA
		49+69 RT	1	EA



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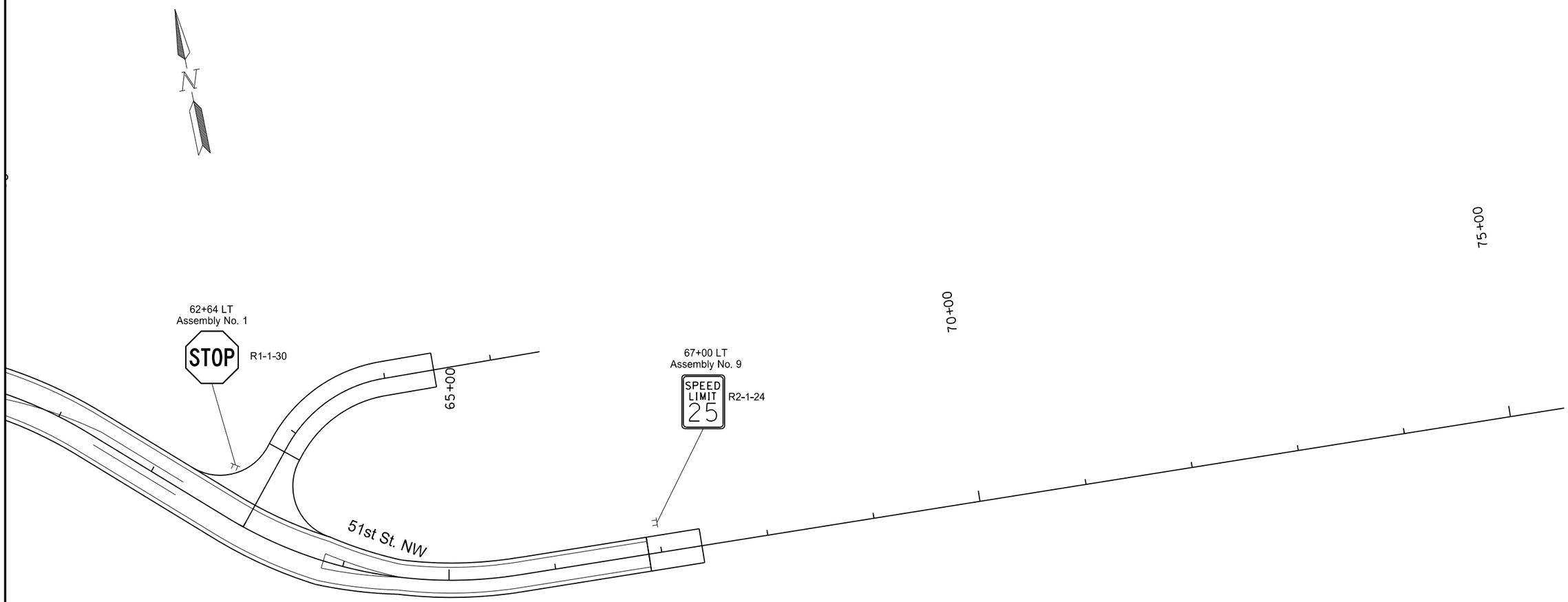
Signing Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

51st St. NW
43+00 to 55+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	110	16



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Signing Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

51st St. NW
61+00 to 75+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	110	17

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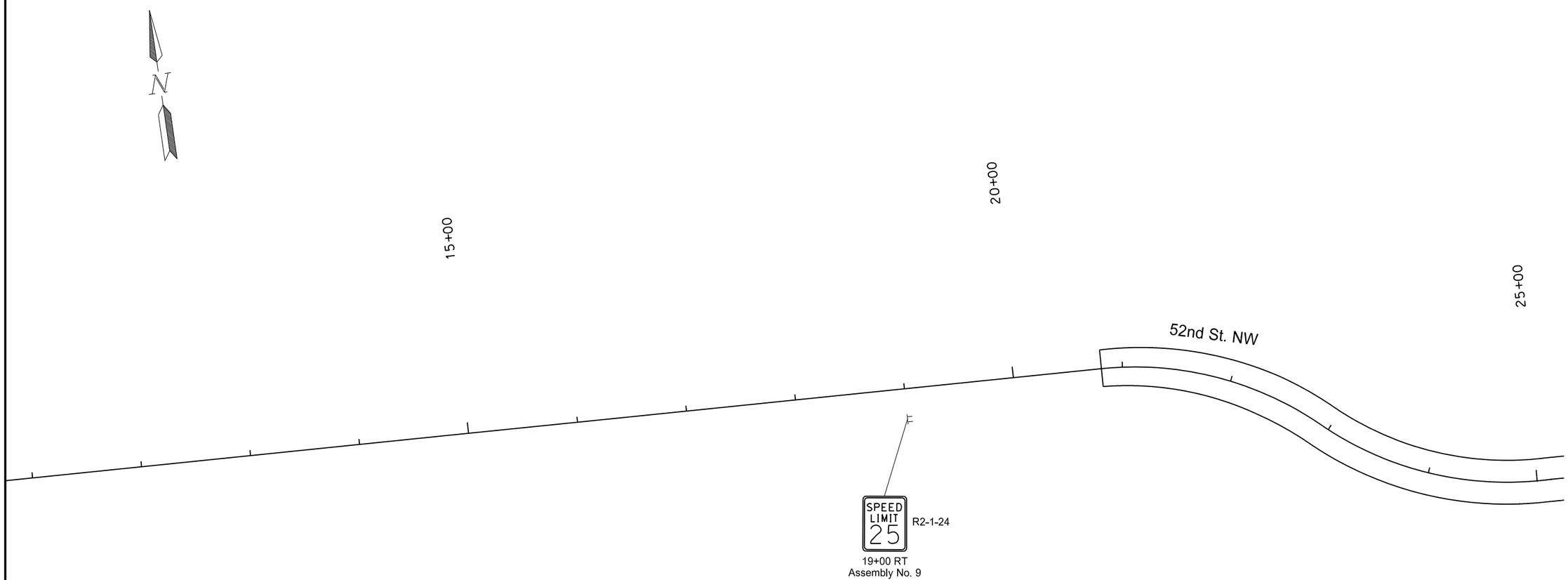
Signing Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

Private Drive North of 51st St. NW
1+00 to 15+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	110	18



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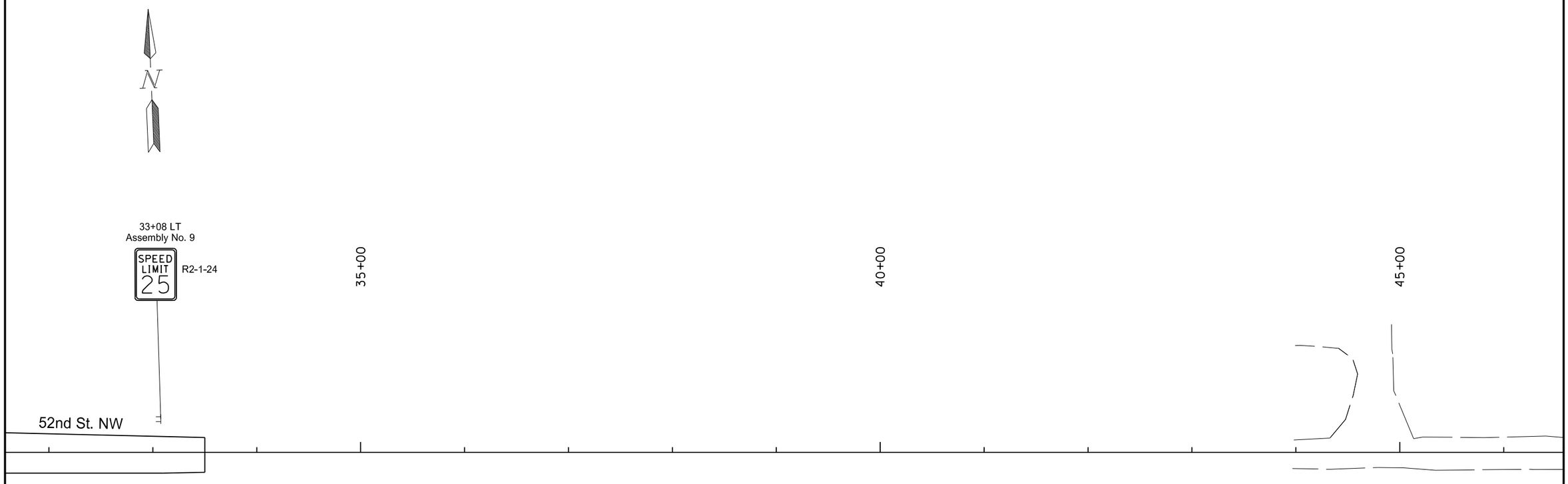
Signing Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

52nd St. NW
11+00 to 25+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	110	19



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Signing Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

52nd St. NW
32+00 to 46+00

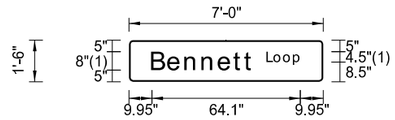
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	110	20

SIGN NUMBER	Sign 1
WIDTH x HEIGHT	7'-0" x 1'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	1.88"
MOUNTING	Ground
BACKGROUND	TYPE: Type IV
	COLOR: Green
LEGEND/BORDER	TYPE: Type IV
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
9727+09 RT
22+81 LT

AREA: 10.5 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Street_Name_Expwy_Border.ssl

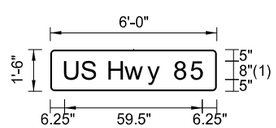
LETTER POSITION (X)											LENGTH	SIZE	SERIES
B	e	n	n	e	t	t	L	o	o	p	64.1	8/6.5, 4.5/3.7	ClearviewHwy-3-W
354.9	361.9	369.3	376.7	383.7	390.4	395.1	404.5	407.6	411.7	416.1			

SIGN NUMBER	Sign 2
WIDTH x HEIGHT	6'-0" x 1'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	1.88"
MOUNTING	Ground
BACKGROUND	TYPE: Type IV
	COLOR: Green
LEGEND/BORDER	TYPE: Type IV
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
9727+49 LT
9814+30 LT

AREA: 9 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Street_Name_Expwy_Border.ssl

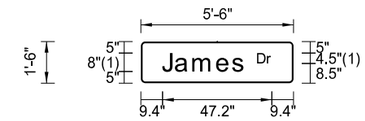
LETTER POSITION (X)											LENGTH	SIZE	SERIES
U	S		H	w	y		8	5			59.5	8/6.5	ClearviewHwy-3-W
357.3	364.7	369.8	376.5	383.8	393.4	398.9	405.1	412					

SIGN NUMBER	Sign 3
WIDTH x HEIGHT	5'-6" x 1'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	1.88"
MOUNTING	Ground
BACKGROUND	TYPE: Type IV
	COLOR: Green
LEGEND/BORDER	TYPE: Type IV
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
9727+49 LT

AREA: 7 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Street_Name_Expwy_Border.ssl

LETTER POSITION (X)											LENGTH	SIZE	SERIES
J	a	m	e	s	D	r					47.2	8/6.5, 4.5/3.7	ClearviewHwy-3-W
841.6	847.4	854.9	865.2	872	882.6	887							

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Signing Details

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
Sign Details

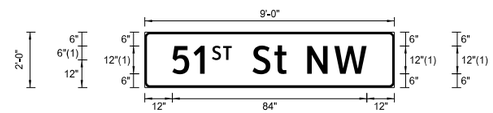
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	110	21

SIGN NUMBER	Sign 4
WIDTH x HEIGHT	9'-0" x 2'-0"
BORDER WIDTH	1" (inset 0")
CORNER RADIUS	2.25"
MOUNTING	Mast Arm Mounted
BACKGROUND	TYPE: Type IV
	COLOR: Green
LEGEND/BORDER	TYPE: Type IV
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
Intersection of 51st St NW & US 85
N & S Bound US 85 Mast Arms

AREA: 18.0 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Street_Name_Overhead_Border.ssl

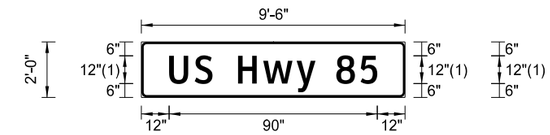
LETTER POSITION (X)																			LENGTH	SIZE	SERIES
5	1	S	T	S	t	N	W												84	12,6,12/9.8	ClearviewHwy-3-W
12	21.2	29.1	33.9	46.7	56.1	70.3	82														

SIGN NUMBER	Sign 5
WIDTH x HEIGHT	9'-6" x 2'-0"
BORDER WIDTH	1" (inset 0")
CORNER RADIUS	2.25"
MOUNTING	Overhead
BACKGROUND	TYPE: Type IV
	COLOR: Green
LEGEND/BORDER	TYPE: Type IV
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
Intersection of 51st St NW & US 85
E & W Bound 51st St NW Mast Arms

AREA: 19.0 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Street_Name_Overhead_Border.ssl

LETTER POSITION (X)																			LENGTH	SIZE	SERIES
U	S	H	w	y	8	5													90	12,12/9.8	ClearviewHwy-3-W
12	23.1	41.7	52.7	67.1	84.3	94.7															

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Signing Details

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
Sign Details

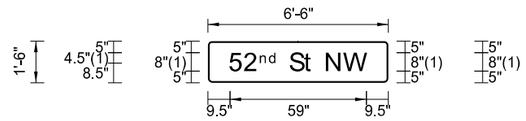
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	110	22

SIGN NUMBER	Sign 6
WIDTH x HEIGHT	6'-6" x 1'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	1.88"
MOUNTING	Ground
BACKGROUND	TYPE: Type IV
	COLOR: Green
LEGEND/BORDER	TYPE: Type IV
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
9814+30 LT

AREA: 9.8 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Street_Name_Expwy_Border.ssl

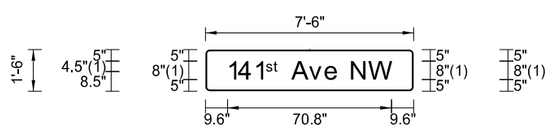
LETTER POSITION (X)								LENGTH	SIZE	SERIES
5	2	n	d	S	t	N	W	59	8,4.5/3.7, 8/6.5	ClearviewHwy-3-W
9.5	15.8	22.7	26.6	35.6	41.9	51.3	59.1			

SIGN NUMBER	Sign 7
WIDTH x HEIGHT	7'-6" x 1'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	1.88"
MOUNTING	Ground
BACKGROUND	TYPE: Type IV
	COLOR: Green
LEGEND/BORDER	TYPE: Type IV
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
48+66 RT

AREA: 11.3 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Street_Name_Expwy_Border.ssl

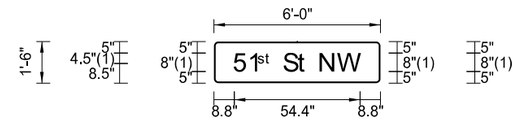
LETTER POSITION (X)										LENGTH	SIZE	SERIES
1	4	1	s	t	A	v	e	N	W	70.8	8,4.5/3.7, 8/6.5	ClearviewHwy-3-W
9.6	14.5	21.2	26.4	29.7	37.6	45.2	51.9	63.3	71.1			

SIGN NUMBER	Sign 8
WIDTH x HEIGHT	6'-0" x 1'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	1.88"
MOUNTING	Ground
BACKGROUND	TYPE: Type IV
	COLOR: Green
LEGEND/BORDER	TYPE: Type IV
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
48+66 RT

AREA: 9.0 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Street_Name_Expwy_Border.ssl

LETTER POSITION (X)								LENGTH	SIZE	SERIES
5	1	s	t	S	t	N	W	54.4	8,4.5/3.7, 8/6.5	ClearviewHwy-3-W
8.8	14.9	19.1	22.4	30.3	36.6	46	53.8			

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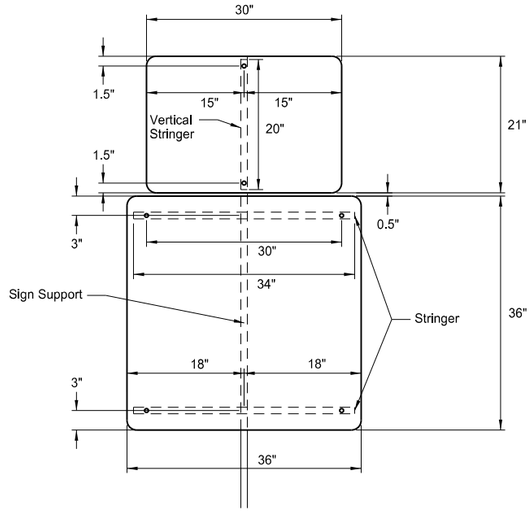
Signing Details

Williston NW Permanent Truck Reliever Route
Phase 1A

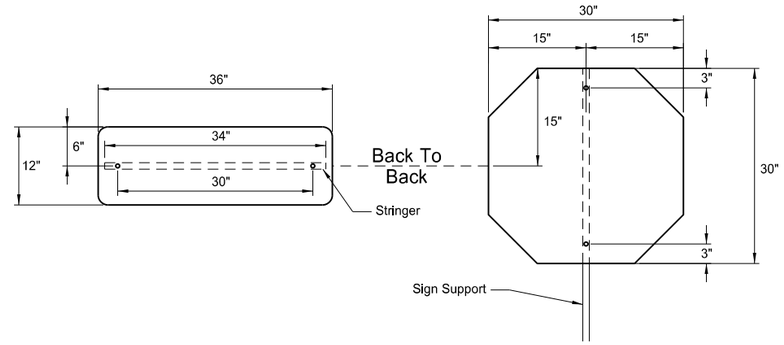
US 85
Sign Details

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	110	23



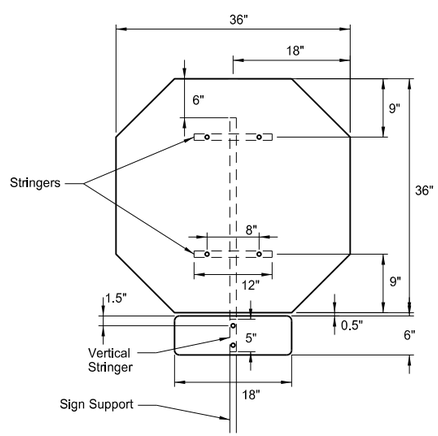
Special Assembly A
US 85: 9715+75 LT

Design Area: 13.4 SF



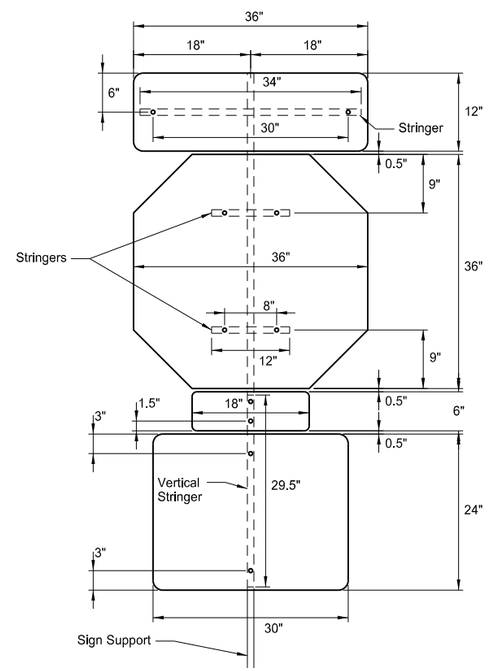
Special Assembly B
US 85: 9726+33 LT

Design Area: 8.2 SF



Special Assembly C
US 85: 9814+20 RT, 9815+86 LT

Design Area: 8.2 SF



Special Assembly D
US 85: 9814+58 LT, 9815+40 RT

Design Area: 16.2 SF

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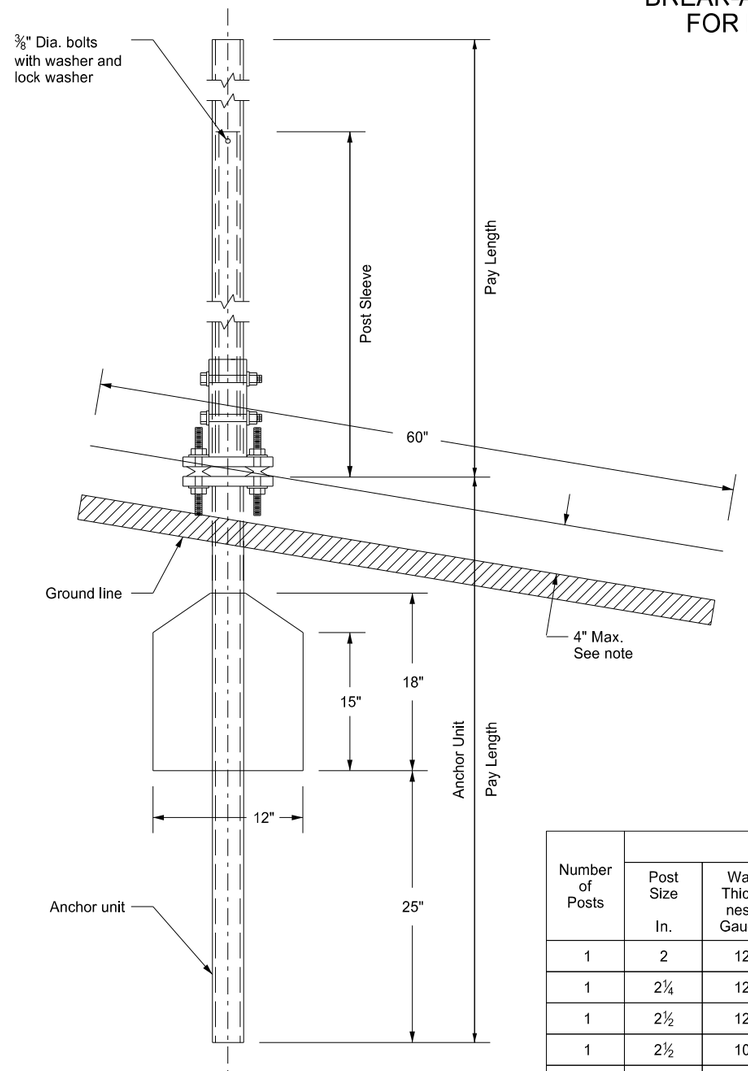
Signing Details

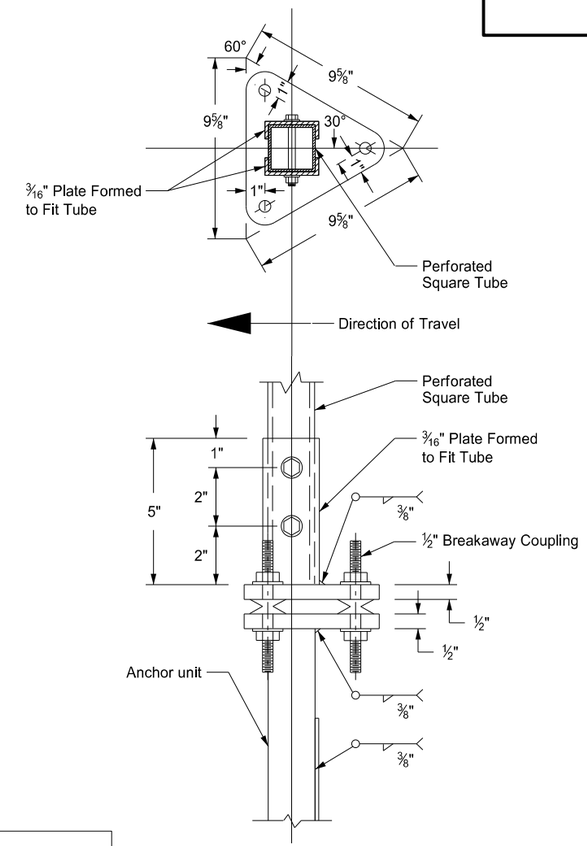
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
Special Assemblies

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	110	24

BREAK-AWAY COUPLER SYSTEM FOR PERFORATED TUBES





BASE PLATE WITH BREAKAWAY COUPLER

NOTES:

1. 4" Vertical clearance of anchor or breakaway base. The 4" x 60" measurement shall be made above and below post location and also back and ahead of post.
2. Anchor unit shall be the same size as the post and shall have the same specification as the post.
3. When used in concrete sidewalk, anchor shall be the same except the anchor plate shall be omitted.
4. Four post signs shall have over 8' between the first and fourth post.
5. In lieu of the breakaway base system on standard D-754-24 the breakaway coupling system may be used. The breakaway coupler system shall be manufactured from material meeting the requirements of ASTM A325 fasteners with the special requirements as specified by DENT BREAKAWAY IND., INC. which meets the test requirements of NCHRP Report 350.
6. Base plates and formed plates shall be fabricated from steel meeting the requirements of AASHTO M-183 and M232.

Number of Posts	Telescoping Perforated Tube					
	Post Size In.	Wall Thick-ness Gauge	Sleeve Size In.	Wall Thick-ness Gauge	Slip Base	Anchor Size In.
1	2	12			No	2¼
1	2¼	12			No	2½
1	2½	12			B	2½
1	2½	10			Yes	2½
1	2¼	12	2	12	Yes	2¼ & 2 Sleeve
1	2½	12	2¼	12	Yes	2½ & 2¼ Sleeve
2	2	12			No	2¼
2	2¼	12			No	2½
2	2½	12			Yes	2½
2	2½	10			Yes	2½
2	2¼	12	2	12	Yes	2¼ & 2 Sleeve
2	2½	12	2¼	12	Yes	2½ & 2¼ Sleeve
3 & 4	2½	12			Yes	2½
3 & 4	2½	10			Yes	2½
3 & 4	2½	12	2¼	12	Yes	2½ & 2¼ Sleeve
3 & 4	2¼	12	2	12	Yes	2¼ & 2 Sleeve
3 & 4	2½	10	2 3/16	10	Yes	2½ & 2 3/16 Sleeve

B - The 2½" 12 gauge posts do not need breakaway bases when placed in standard soils. The breakaway base is required when the support is placed in weak soils. The Engineer shall determine if the soils are weak. Weak soils are classified as boggy, wet, or loose soil areas.

Telescoping Perforated Tubes						
Tube Size In.	Wall Thickness In.	U.S. Standard Gauge	Weight Per Foot Lbs.	Moment of Inertia In.^4	Cross Sect. area In.^2	Section Modules In.^3
1½ x 1½	0.105	12	1.702	0.129	0.380	0.172
2 x 2	0.105	12	2.416	0.372	0.590	0.372
2¼ x 2¼	0.105	12	2.773	0.561	0.695	0.499
2 3/16 x 2 3/16	0.135	10	3.432	0.605	0.841	0.590
2½ x 2½	0.105	12	3.141	0.804	0.803	0.643
2½ x 2½	0.135	10	4.006	0.979	1.010	0.785

The 2 3/16" size 10 gauge is shown as 2.19" size on the plans. The 2½" size 10 gauge is shown as 2.51" size on the plans.

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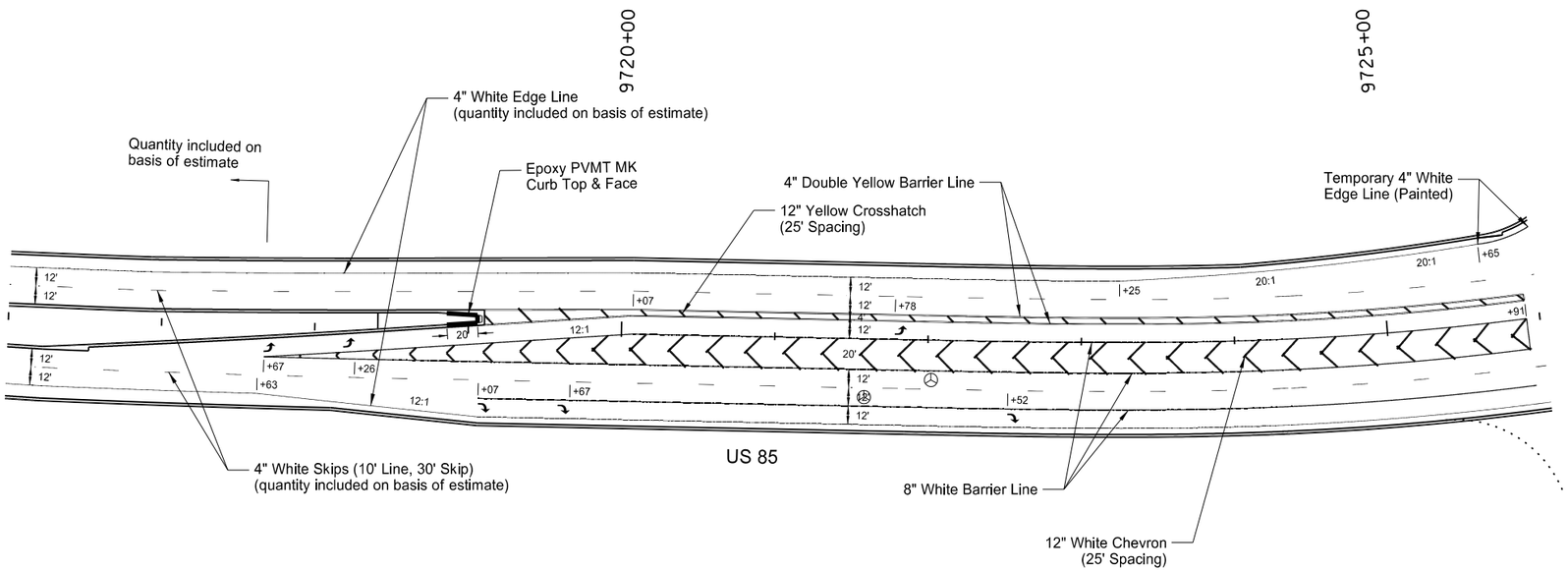
Breakaway Assembly Details

Williston NW Permanent Truck Reliever Route Phase 1A

US 85
Special Assemblies

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	120	1

762	0118	Epoxy PVMT MK Curb Top & Face			
		Yellow		45	LF
762	0122	Preformed Patterned Pvmt Mk - Message (Grooved)			
		Arrow (RT)	16 SF x 3 EA =	48	SF
		Arrow (LT)	16 SF x 3 EA =	48	SF
			Total =	96	SF
762	1104	Pvmt Mk Painted 4in Line (Temporary)			
		White Edge		35	LF
762	1305	Preformed Patterned Pvmt Mk 4in Line - Grooved			
		Double Yellow Barrier		2722	LF
762	1309	Preformed Patterned Pvmt Mk 8in Line - Grooved			
		White Channel Line		2362	LF
762	1313	Preformed Patterned Pvmt Mk 12in Line - Grooved			
		White Chevron		808	LF
		Yellow Crosshatch		172	LF
			Total =	980	LF



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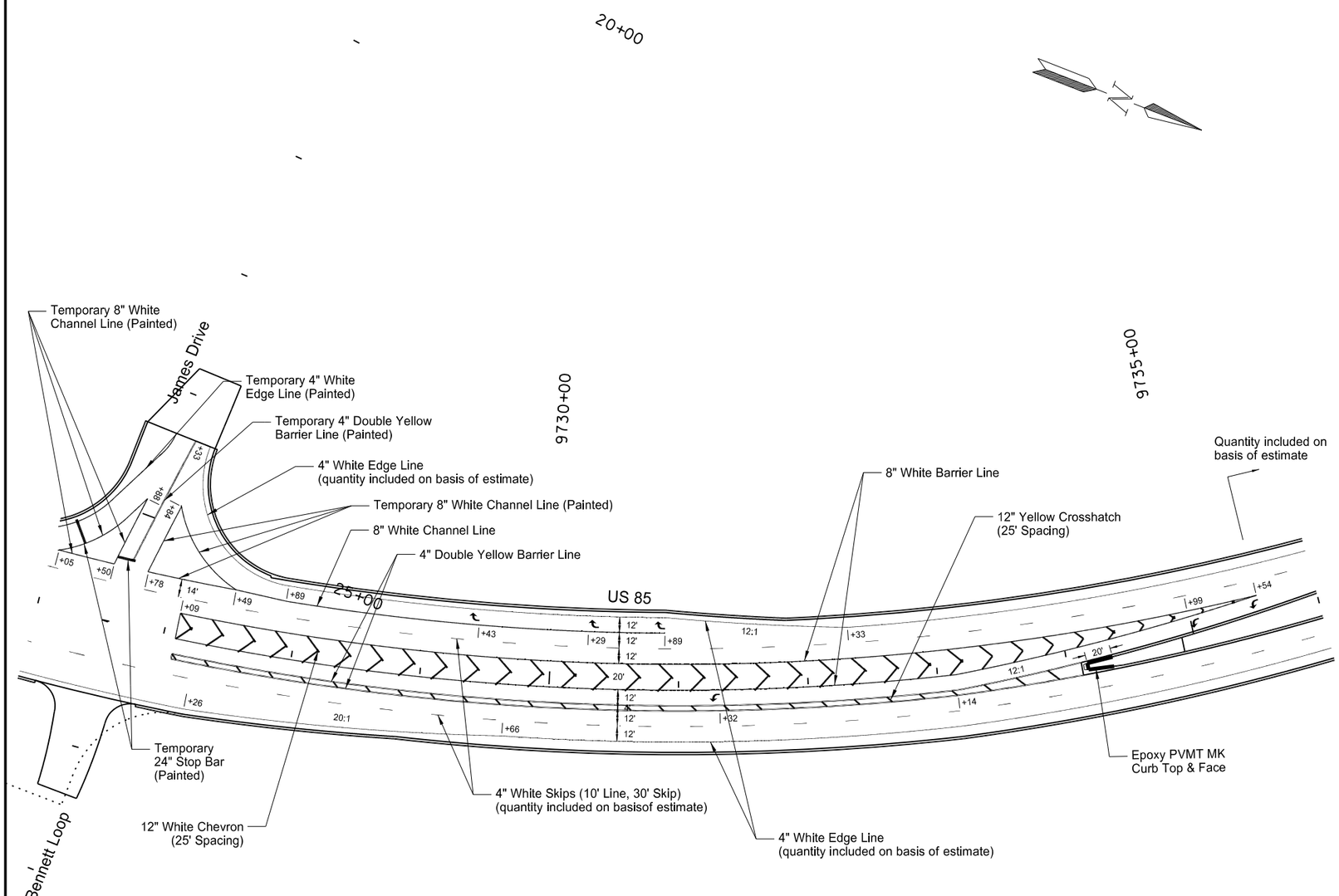
Pavement Marking Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9716+00 to 9726+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	120	2



762	0118	Epoxy PVMT MK Curb Top & Face			
		Yellow		45	LF
762	0122	Preformed Patterned Pvmt Mk - Message (Grooved)			
		Arrow (RT)	16 SF x 3 EA =	48	SF
		Arrow (LT)	16 SF x 3 EA =	48	SF
			Total =	96	SF
762	1104	Pvmt Mk Painted 4in Line (Temporary)			
		White Edge		119	LF
		Double Yellow Barrier Line		208	LF
			Total =	327	LF
762	1108	Pvmt Mk Painted 8in Line (Temporary)			
		White Channel Line		386	LF
762	1124	Pvmt Mk Painted 24in Line (Temporary)			
		White Stop Bar		30	LF
762	1305	Preformed Patterned Pvmt Mk 4in Line - Grooved			
		Double Yellow Barrier Line		2838	LF
762	1309	Preformed Patterned Pvmt Mk 8in Line - Grooved			
		White Channel Line		2035	LF
762	1313	Preformed Patterned Pvmt Mk 12in Line - Grooved			
		White Chevron		832	LF
		Yellow Crosshatch		171	LF
			Total =	1003	LF

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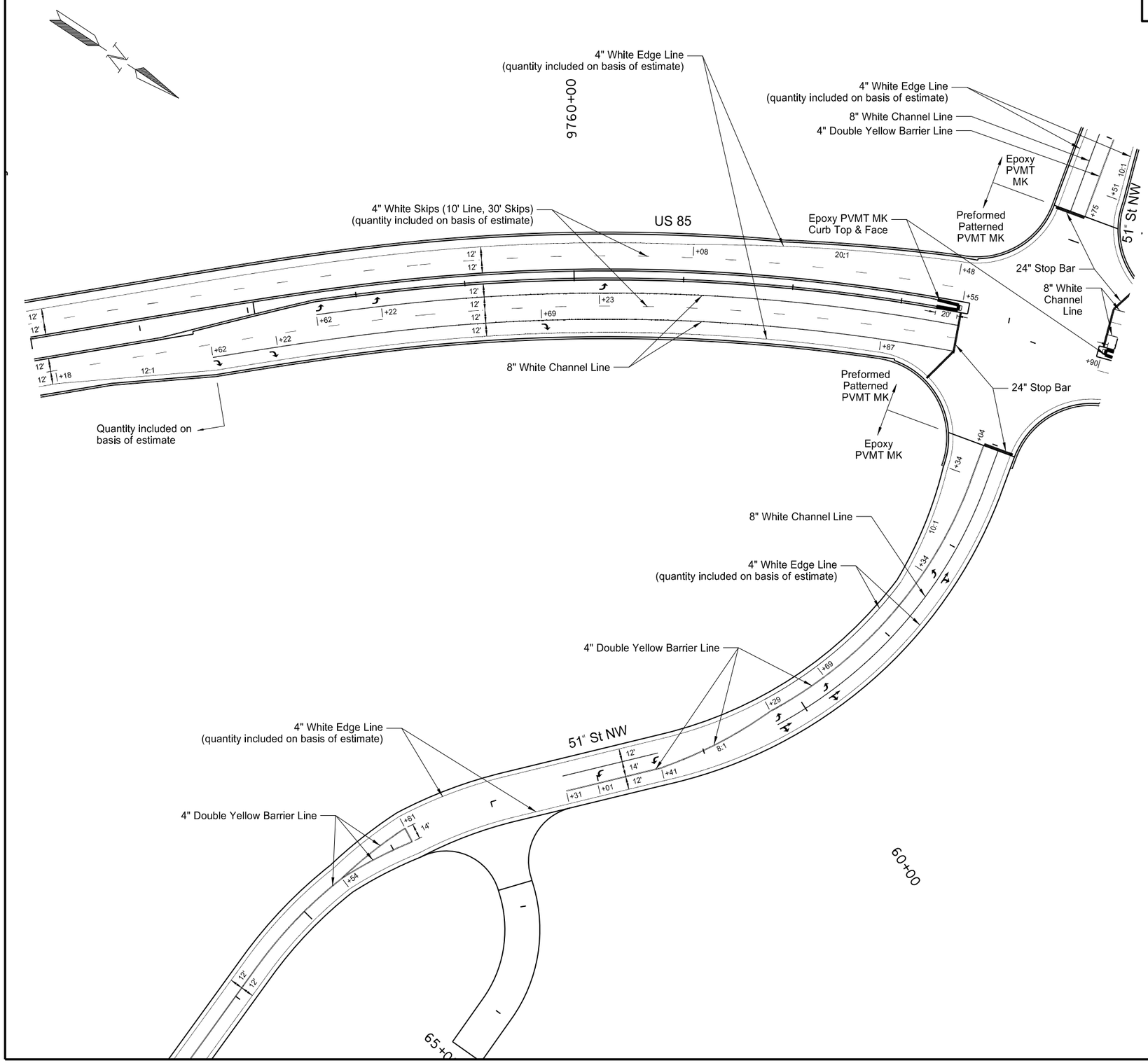
Pavement Marking Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9726+00 to 9736+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	120	3



762	0112	Epoxy PVMT MK Message		
		Arrow (LT) 16 SF x 5 EA =	80	SF
		Arrow (RT/Thru) 26 SF x 3 EA =	78	SF
		Total =	158	SF
762	0113	Epoxy PVMT MK 4in Line		
		Double Yellow Barrier Line	1984	LF
762	0115	Epoxy PVMT MK 8in Line		
		White Channel Line	495	LF
762	0118	Epoxy PVMT MK Curb Top & Face		
		Yellow	64	LF
762	0122	Preformed Patterned Pvmt Mk - Message (Grooved)		
		Arrow (RT) 16 SF x 3 EA =	48	SF
		Arrow (LT) 16 SF x 3 EA =	48	SF
		Total =	96	SF
762	1309	Preformed Patterned Pvmt Mk 8in Line - Grooved		
		White Channel Line	1293	LF
762	1325	Preformed Patterned Pvmt MK 24in Line - Grooved		
		White Stop Bar	177	LF

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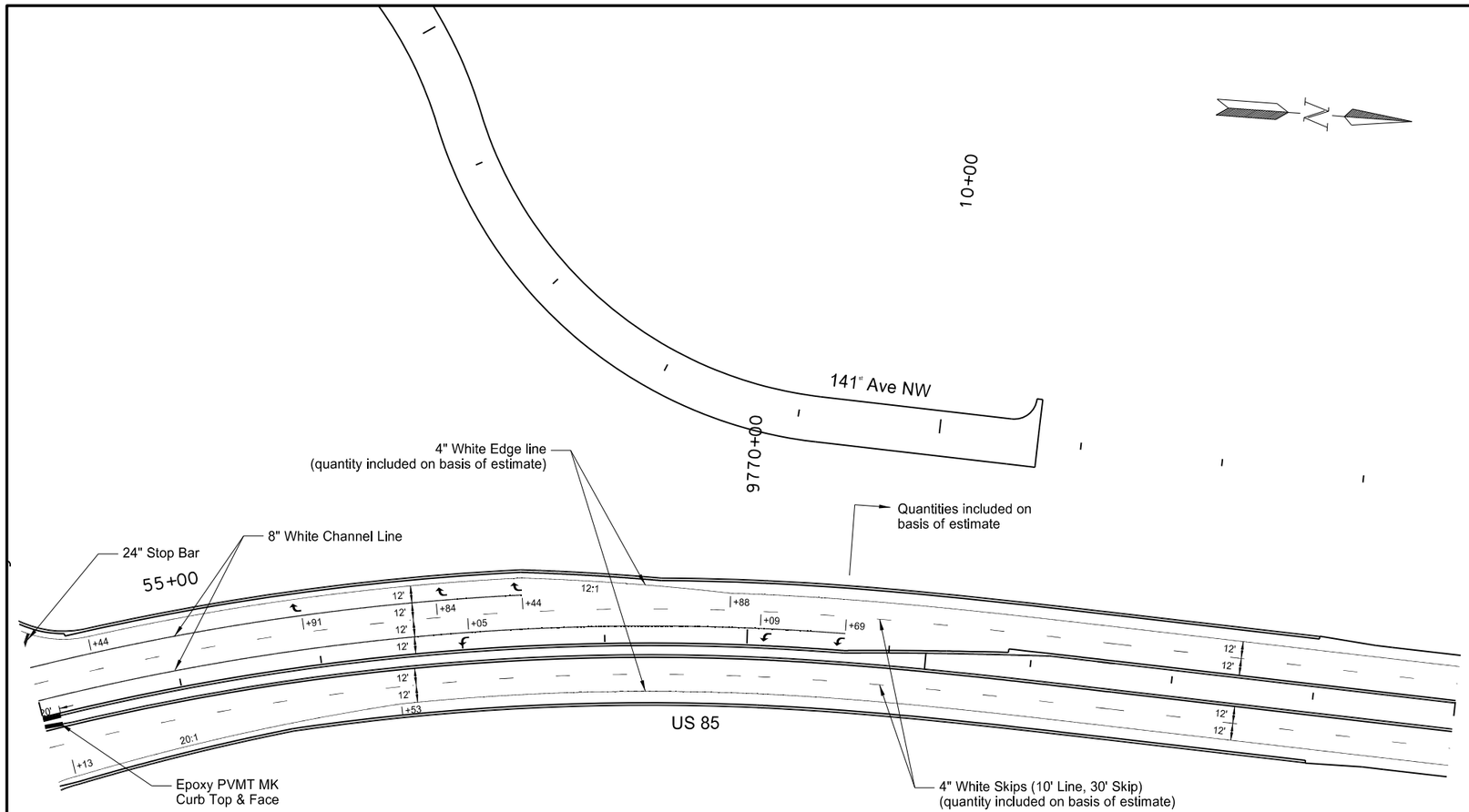
Pavement Marking Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9755+00 to 9765+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	120	4



762	0118	Epoxy PVMT MK Curb Top			
		Yellow		26	LF
762	0122	Preformed Patterned Pvmt Mk - Message (Grooved)			
		Arrow (RT)	16 SF x 3 EA =	48	SF
		Arrow (LT)	16 SF x 3 EA =	48	SF
			Total =	96	SF
762	1309	Preformed Patterned Pvmt Mk 8in Line - Grooved			
		8" White Channel Line		922	LF
762	1325	Preformed Patterned Pvmt MK 24in Line - Grooved			
		White Stop Bar		8	LF

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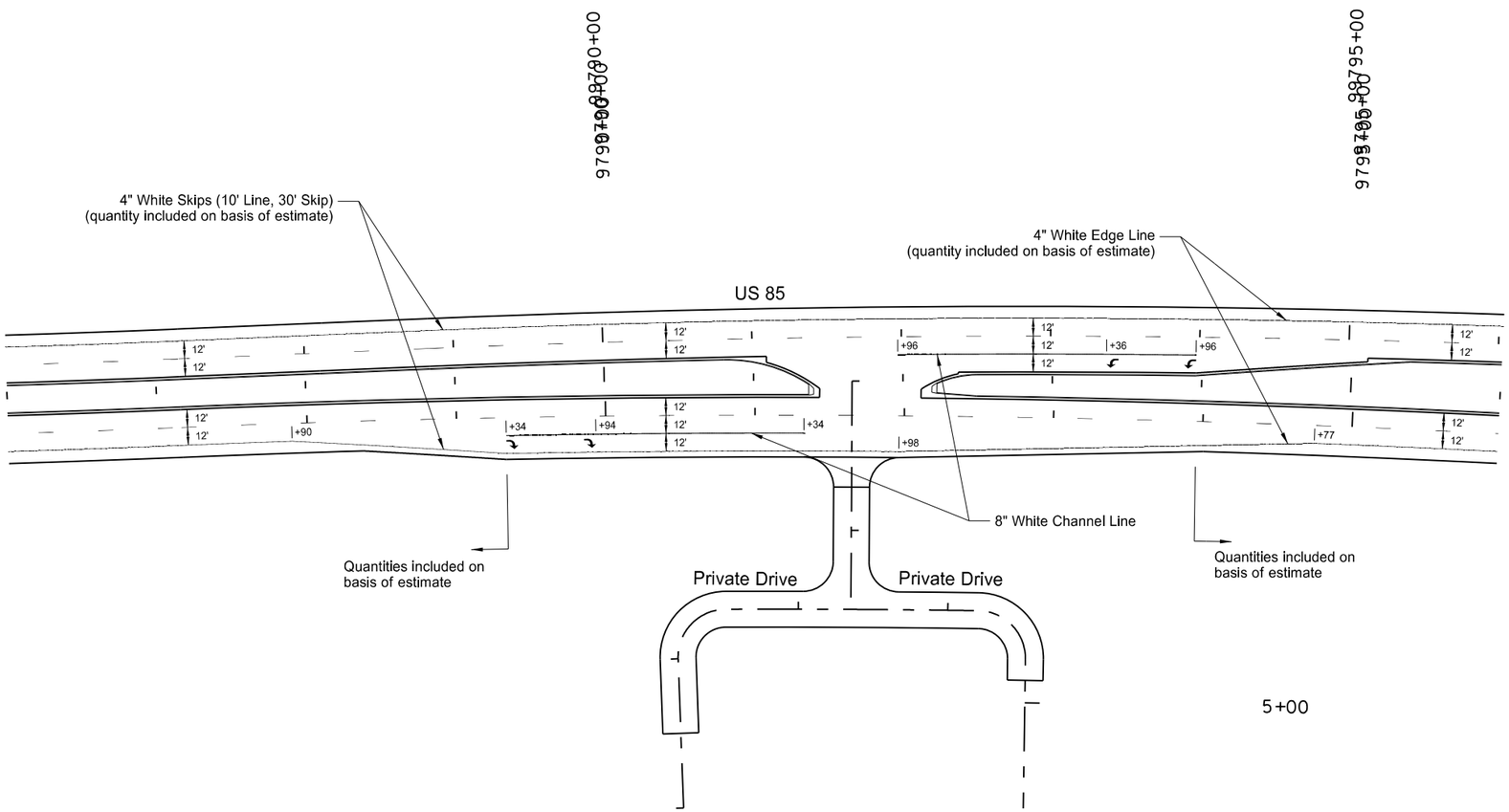
Pavement Marking Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9765+00 to 9775+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	120	5

762	0122	Preformed Patterned Pvmt Mk - Message (Grooved)			
		Arrow (RT)	16 SF x 2 EA =	32	SF
		Arrow (LT)	16 SF x 2 EA =	32	SF
			Total =	64	SF
762	1309	Preformed Patterned Pvmt Mk 8in Line - Grooved			
		White Channel Line		399	LF



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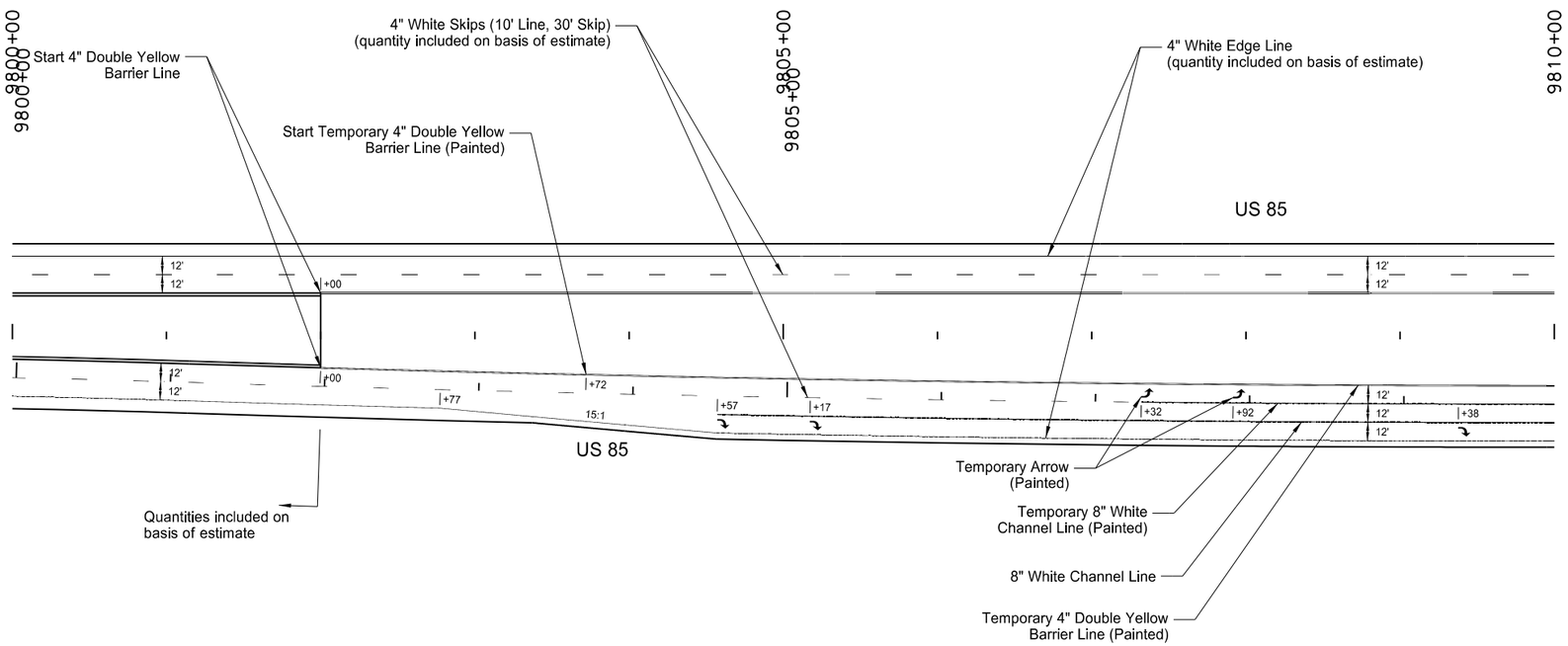
Pavement Marking Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9786+00 to 9796+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	120	6

762	0103	Pvmt Mk Painted - Message (Temporary)			
		Arrow (LT)	16 SF x 2 EA =	32	SF
762	0122	Preformed Patterned Pvmt Mk - Message (Grooved)			
		Arrow (RT)	16 SF x 3 EA =	48	SF
762	1104	Pvmt Mk Painted 4in Line (Temporary)			
		Double Yellow Barrier Line		1256	LF
762	1108	Pvmt Mk Painted 8in Line (Temporary)			
		White Channel Line		268	LF
762	1305	Preformed Patterned Pvmt Mk 4in Line - Grooved			
		Double Yellow Barrier Line		1944	LF
762	1309	Preformed Patterned Pvmt Mk 8in Line - Grooved			
		White Channel Line		543	LF



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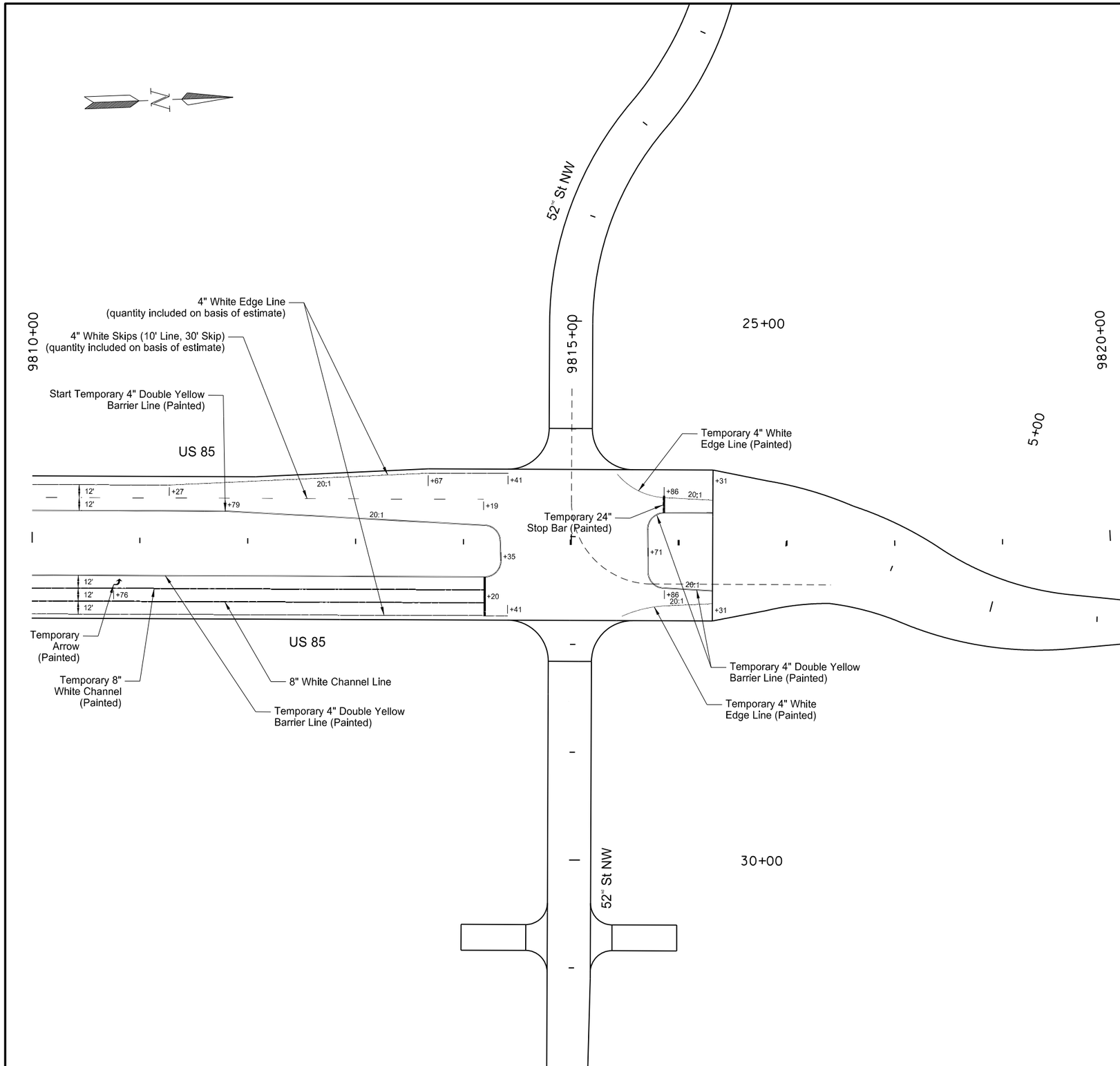
Pavement Marking Layout

Williston NW Permanent Truck Reliever Route Phase 1A

US 85
9800+00 to 9810+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	120	7



762	0103	Pvmt Mk Painted - Message (Temporary)		
		Arrow (LT) 16 SF x 1 EA =	16	SF
762	1104	Pvmt Mk Painted 4in Line (Temporary)		
		Double Yellow Barrier Line	1808	LF
		White Edge Line	181	LF
		Total =	1989	LF
762	1108	Pvmt Mk Painted 8in Line (Temporary)		
		White Channel Line	420	LF
762	1124	Pvmt Mk Painted 24in Line (Temporary)		
		White Stop Bar	14	LF
762	1305	Preformed Patterned Pvmt Mk 4in Line - Grooved		
		Double Yellow Barrier Line	358	LF
762	1309	Preformed Patterned Pvmt Mk 8in Line - Grooved		
		White Channel Line	420	LF
762	1325	Preformed Patterned Pvmt MK 24in Line - Grooved		
		White Stop Bar	36	LF

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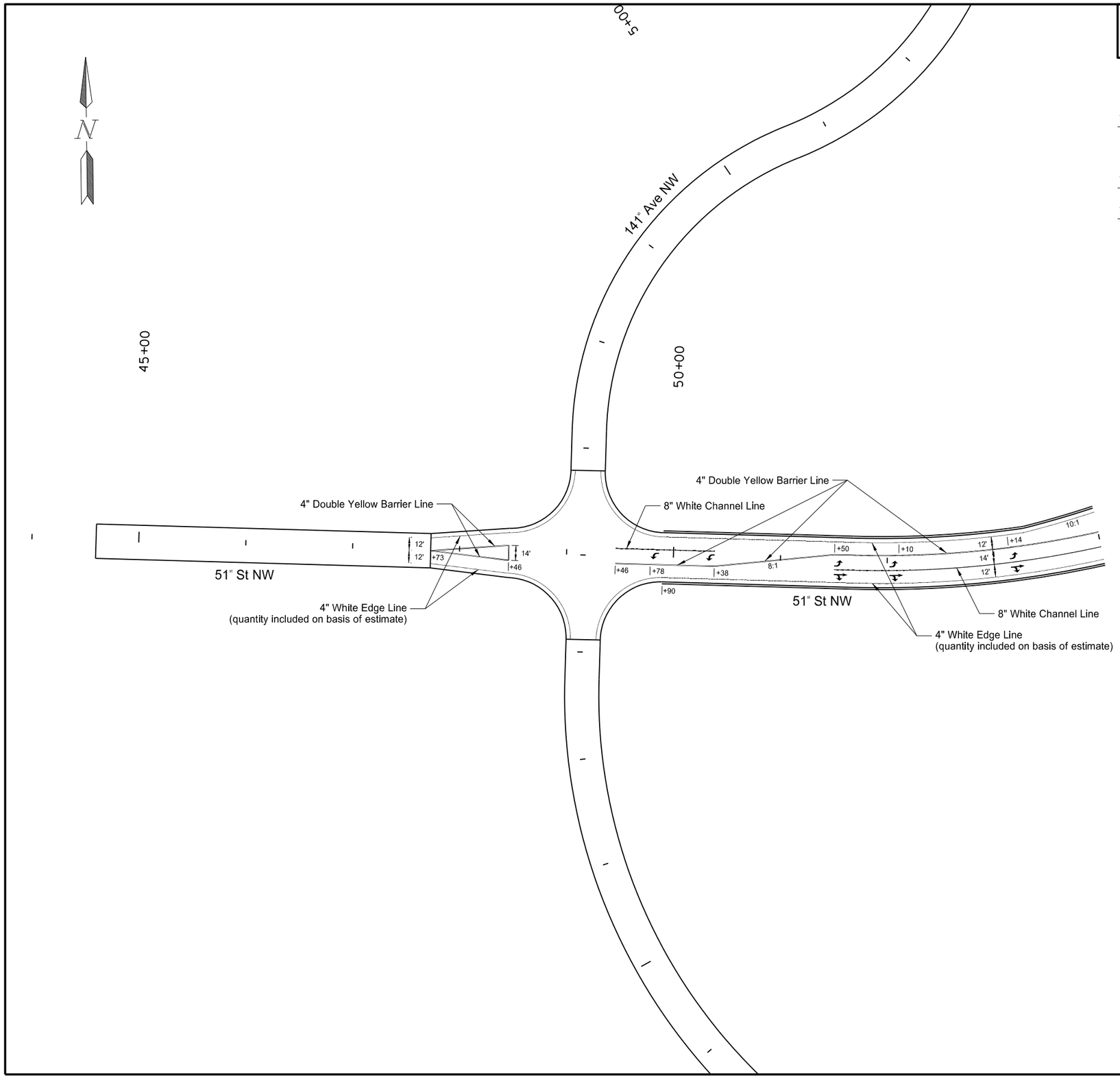
Pavement Marking Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9810+00 to 9816+31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	120	8



762	0112	Epoxy PVMT MK Message			
		Arrow (LT)	16 SF x 3 EA =	48	SF
		Arrow (RT/Thru)	26 SF x 3 EA =	78	SF
			Total =	126	SF
762	0113	Epoxy PVMT MK 4in Line			
		Double Yellow Barrier Line		1228	LF
762	0115	Epoxy PVMT MK 8in Line			
		White Channel Line		252	LF

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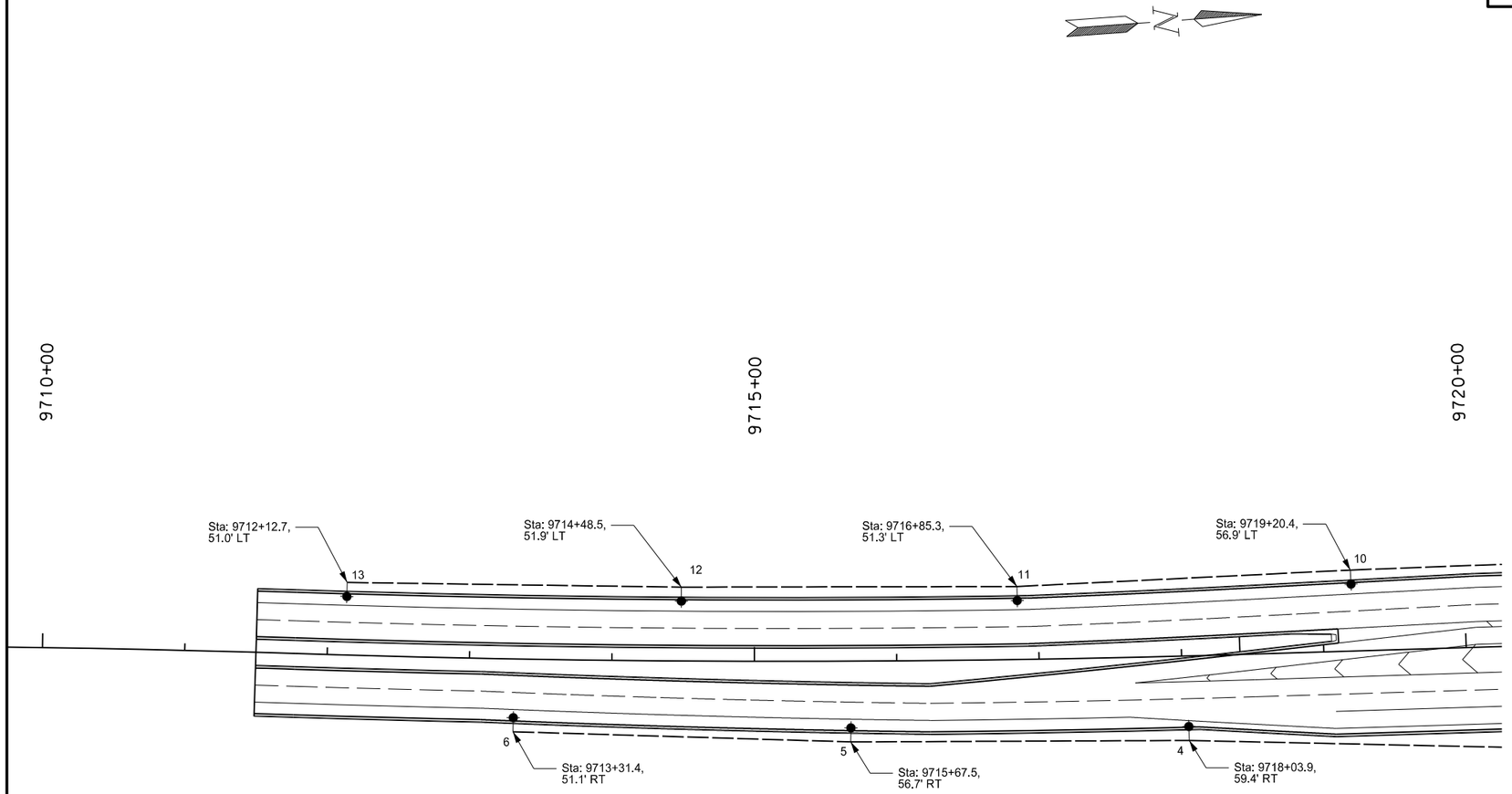
Pavement Marking Layout

Williston NW Permanent Truck Reliever Route
Phase 1A

51st St. NW
44+00 to 54+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	140	1



Notes:
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2. All Multiple Underground Cable passing under a roadway shall utilize a 3" NMC sleeve (unless otherwise noted) that shall be placed perpendicular to the roadway.
3. Electrical equipment shall be staked and verified by Field Engineer.

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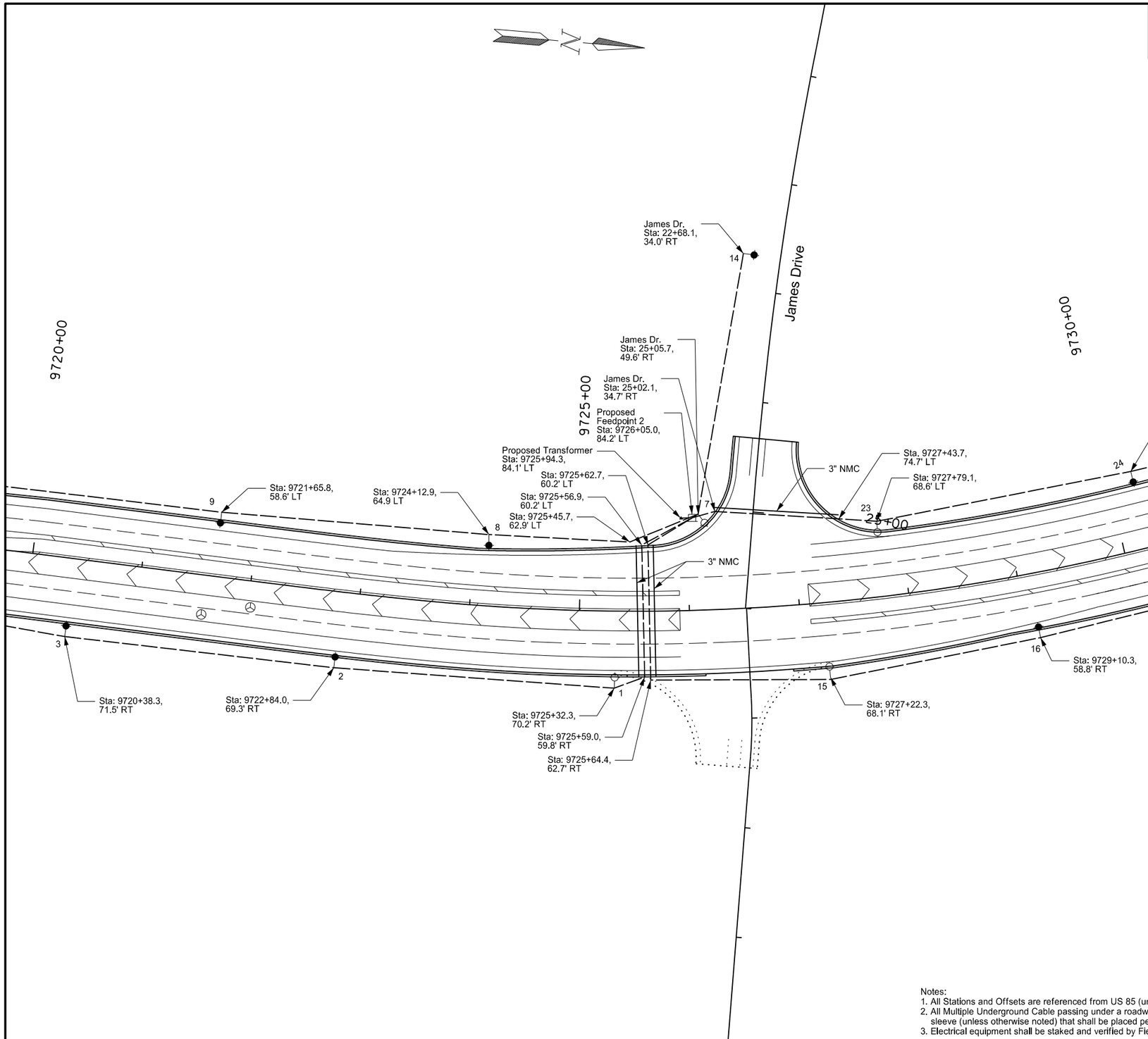
Lighting
Feed Point 2
Williston NW Permanent Truck Reliever Route
Phase 1A

Lighting Layout

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	140	2



Notes:
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2. All Multiple Underground Cable passing under a roadway shall utilize a 3" NMC sleeve (unless otherwise noted) that shall be placed perpendicular to the roadway.
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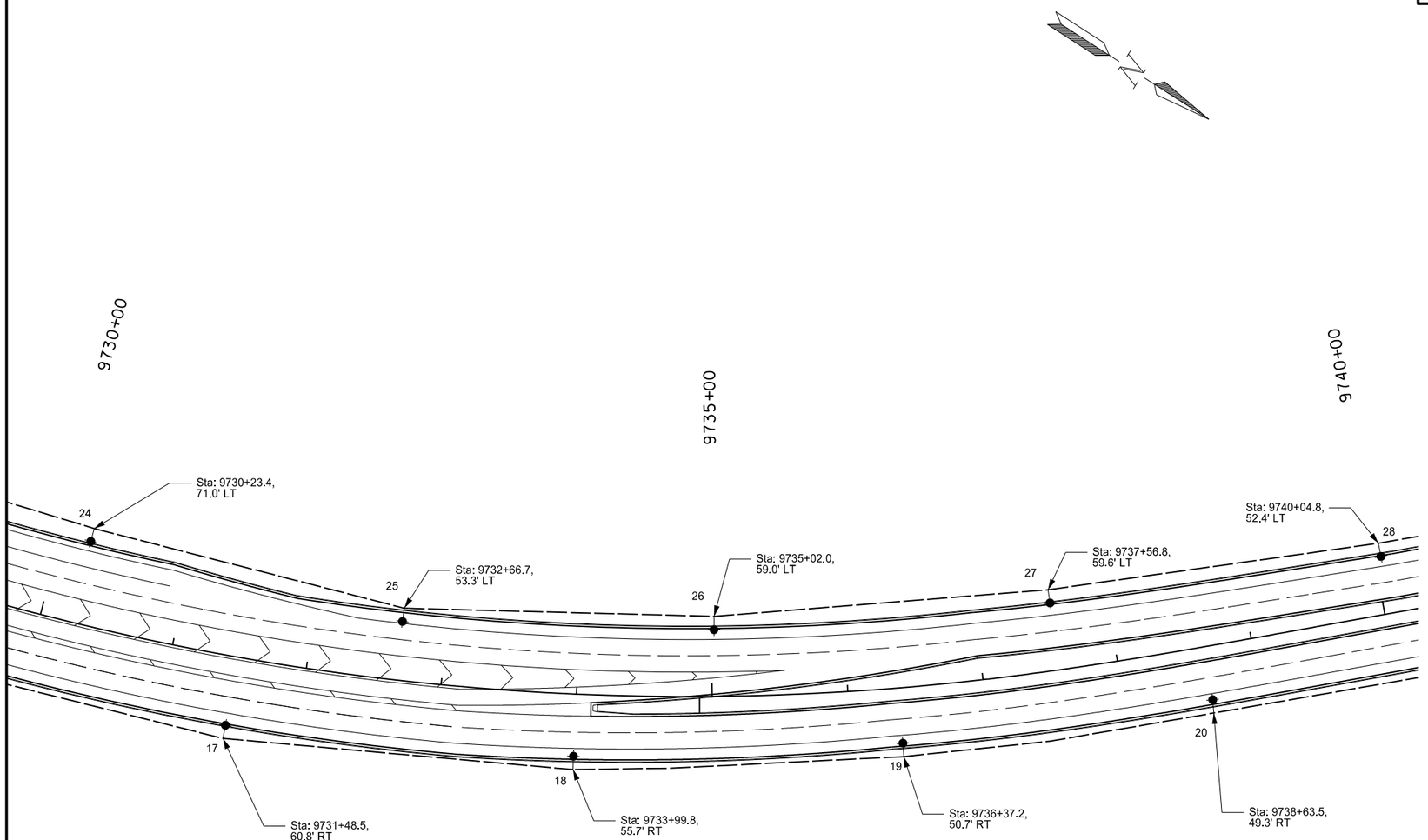
Lighting
Feed Point 2
Williston NW Permanent Truck Reliever Route
Phase 1A

Lighting Layout

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	140	3



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Notes:
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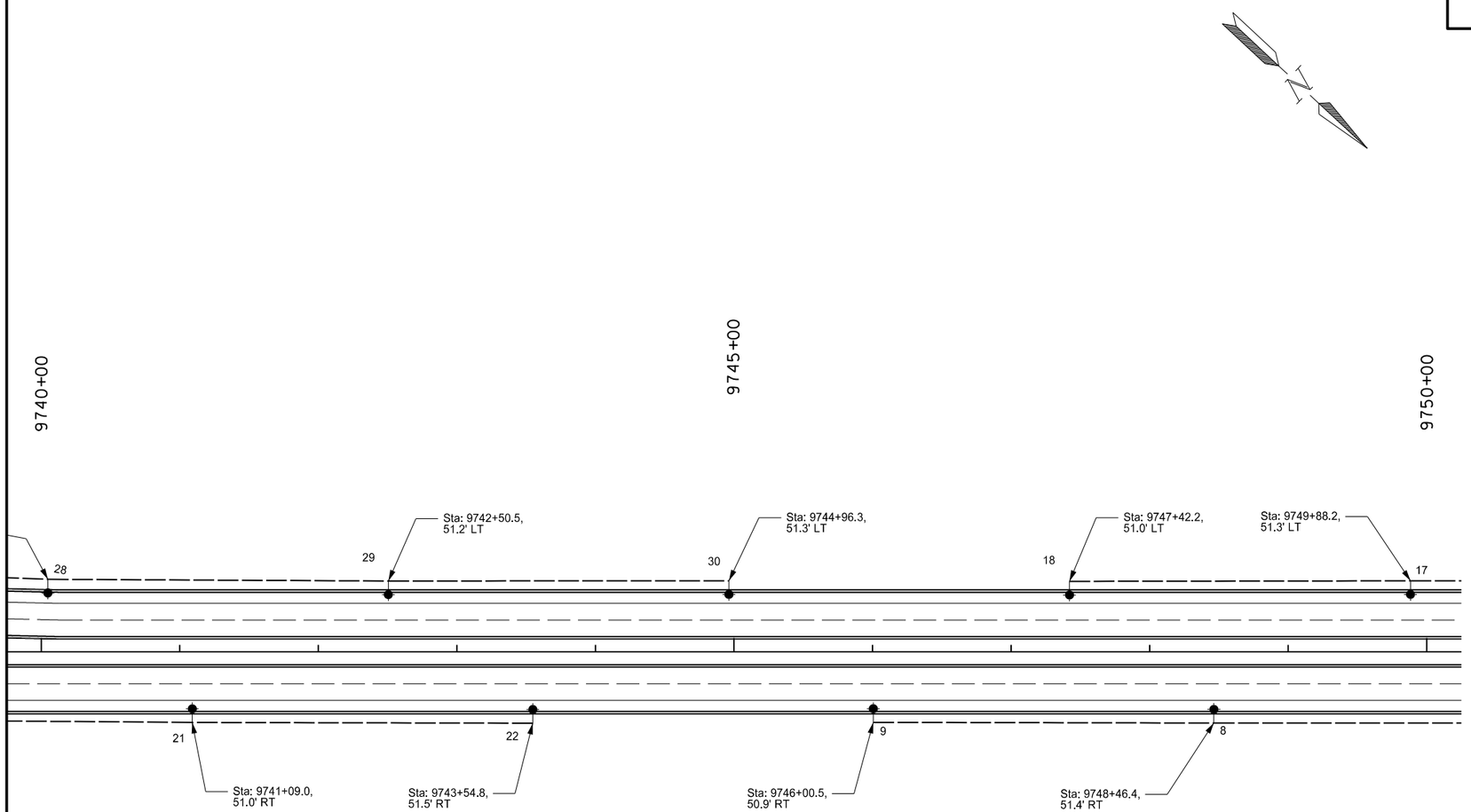
2. All Multiple Underground Cable passing under a roadway shall utilize a 3" NMC sleeve (unless otherwise noted) that shall be placed perpendicular to the roadway.
3. Electrical equipment shall be staked and verified by Field Engineer.

Lighting
Feed Point 2
Williston NW Permanent Truck Reliever Route
Phase 1A

Lighting Layout

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	140	4



Notes:
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2. All Multiple Underground Cable passing under a roadway shall utilize a 3" NMC sleeve (unless otherwise noted) that shall be placed perpendicular to the roadway.
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Lighting
Feed Point 3
Williston NW Permanent Truck Reliever Route
Phase 1A

Lighting Layout

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	140	5

Station	Conduit Runs		Cable Trench	Cable Runs	
	Length (ft)	Size	Length (ft)	Length (ft)	Type
9725+94.3 - 84.1 LT TO	7	2"		54	2-1/C #2 RHW
9726+05.0 - 84.2 LT				27	1-1/C #2 THW
9726+05.0 - 84.2 LT TO			201	215	3 No 4 Style USE
9725+56.9 - 60.2 LT TO	120	3"			
9725+59.0 - 59.8' RT TO					
9725+32.3 - 70.2 RT					
9725+32.3 - 70.2 RT TO			256	264	3 No 4 Style USE
9722+84.0 - 69.3' RT					
9722+84.0 - 69.3' RT TO			247	255	3 No 4 Style USE
9720+38.3 - 71.5' RT					
9720+38.3 - 71.5' RT TO			235	243	3 No 4 Style USE
9718+03.9 - 59.4' RT					
9718+03.9 - 59.4' RT TO			238	246	3 No 4 Style USE
9715+67.5 - 56.7' RT					
9715+67.5 - 56.7' RT TO			238	246	3 No 4 Style USE
9713+31.4 - 51.1' RT					
9726+05.0 - 84.2 LT TO			7	21	3 No 4 Style USE
25+05.7 - 49.6' RT					
25+05.7 - 49.6' RT TO			196	204	3 No 4 Style USE
9725+45.7 - 62.9' LT TO					
9724+12.9 - 64.9' LT					
9724+12.9 - 64.9' LT TO			244	252	3 No 4 Style USE
9721+65.8 - 58.6' LT					
9721+65.8 - 58.6' LT TO			246	254	3 No 4 Style USE
9719+20.4 - 56.9' LT					
9719+20.4 - 56.9' LT TO			235	243	3 No 4 Style USE
9716+85.3 - 51.3' LT					
9716+85.3 - 51.3' LT TO			236	244	3 No 4 Style USE
9714+48.5 - 51.9' LT					
9714+48.5 - 51.9' LT TO			235	243	3 No 4 Style USE
9712+12.7 - 51.0' LT					

	Length (ft)	Size	Length (ft)	Length (ft)	Type
25+05.7 - 49.6' RT TO			240	248	3 No 4 Style USE
22+68.1 - 34.0' RT					
9726+05.0 - 84.2 LT TO			201	215	3 No 4 Style USE
9725+62.7 - 60.2' LT TO	120	3"			
9725+64.4 - 62.7' RT TO					
9727+22.3 - 68.1' RT					
9727+22.3 - 68.1' RT TO			195	203	3 No 4 Style USE
9729+10.3 - 58.8' RT					
9729+10.3 - 58.8' RT TO			246	254	3 No 4 Style USE
9731+48.5 - 60.8 RT					
9731+48.5 - 60.8 RT TO			259	267	3 No 4 Style USE
9733+99.8 - 55.7' RT					
9733+99.8 - 55.7' RT TO			244	252	3 No 4 Style USE
9736+37.2 - 50.7' RT					
9736+37.2 - 50.7' RT TO			231	239	3 No 4 Style USE
9738+63.5 - 49.3' RT					
9738+63.5 - 49.3' RT TO			246	254	3 No 4 Style USE
9741+09.0 - 51.0' RT					
9741+09.0 - 51.0' RT TO			246	254	3 No 4 Style USE
9743+54.8 - 51.5' RT					
9726+05.0 - 84.2 LT TO			169	183	3 No 4 Style USE
25+02.1 - 34.7' RT TO	113	3"			
9727+43.1 - 75.9' LT TO					
9727+79.1 - 68.6' LT					
9727+79.1 - 68.6' LT TO			235	243	3 No 4 Style USE
9730+23.4 - 71.0' LT					
9730+23.4 - 71.0' LT TO			236	244	3 No 4 Style USE
9732+66.7 - 53.3' LT					
9732+66.7 - 53.3' LT TO			228	236	3 No 4 Style USE
9735+02.0 - 59.0' LT					

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Lighting
Feed Point 2
Williston NW Permanent Truck Reliever Route
Phase 1A

Lighting Quantities

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	140	6

Station	Conduit Runs		Cable Trench	Cable Runs	
	Length (ft)	Size	Length (ft)	Length (ft)	Type
9735+02.0 - 59.0' LT			247	255	3 No 4 Style USE
9737+56.8 - 59.6' LT					
9737+56.8 - 59.6' LT TO			246	254	3 No 4 Style USE
9740+04.8 - 52.4' LT					
9740+04.8 - 52.4' LT TO			246	254	3 No 4 Style USE
9742+50.5 - 51.2' LT					
9742+50.5 - 51.2' LT TO			246	254	3 No 4 Style USE
9744+96.3 - 51.3' LT					

No.	Station	Offset	Wattage	Circuit	IES-Type	Pole Ht.	Mast Arm	Notes
1	9725+32.3	70.2' RT	400	1	3	40	8'	
2	9722+84.0	69.3' RT	250	1	3	40	8'	
3	9720+38.3	71.5' RT	250	1	3	40	8'	
4	9718+03.9	59.4' RT	250	1	3	40	8'	
5	9715+67.5	56.7' RT	250	1	3	40	8'	
6	9713+31.4	51.1' RT	250	1	3	40	8'	
7	25+05.7	49.6' RT	400	2	3	40	8'	
8	9724+12.9	64.9' LT	250	2	3	40	8'	
9	9721+65.8	58.6' LT	250	2	3	40	8'	
10	9719+20.4	56.9' LT	250	2	3	40	8'	
11	9716+85.3	51.3' LT	250	2	3	40	8'	
12	9714+48.5	51.9' LT	250	2	3	40	8'	
13	9712+12.7	51.0' LT	250	2	3	40	8'	
14	22+68.1	34.0' RT	250	2	3	40	8'	
15	9727+22.3	68.1' RT	400	3	3	40	8'	
16	9729+10.3	58.8' RT	250	3	3	40	8'	
17	9731+48.5	60.8' RT	250	3	3	40	8'	
18	9733+99.8	55.7' RT	250	3	3	40	8'	
19	9736+37.2	50.7' RT	250	3	3	40	8'	
20	9738+63.5	49.3' RT	250	3	3	40	8'	
21	9741+09.0	51.0' RT	250	3	3	40	8'	
22	9743+54.8	51.5' RT	250	3	3	40	8'	
23	9727+79.1	68.6' LT	400	4	3	40	8'	
24	9730+23.4	71.0' LT	250	4	3	40	8'	
25	9732+66.7	53.3' LT	250	4	3	40	8'	
26	9735+02.0	59.0' LT	250	4	3	40	8'	
27	9737+56.8	59.6' LT	250	4	3	40	8'	
28	9740+04.8	52.4' LT	250	4	3	40	8'	
29	9742+50.5	51.2' LT	250	4	3	40	8'	
30	9744+96.3	51.3' LT	250	4	3	40	8'	

Quantities

CONCRETE FOUNDATION - HIGHWAY LIGHTING	CONCRETE FOUNDATION - FEED POINT TYPE B	CABLE TRENCH II	2IN DIAMETER RIGID STEEL CONDUIT	3IN DIAMETER RIGID CONDUIT	MULTIPLE UNDERGRUOND CABLE 3NO4 STYLE USE	UNDERGROUND CONDUCTOR NO2 - TYPE RHW	UNDERGROUND CONDUCTOR NO2 - TYPE THW	FEEDPOINT - TYPE IV PAD MOUNTED	LT STD 8FT MA 40FT MT HT BREAKAWAY	HP SODIUM LUNINAIRE- 250 WATT	HP SODIUM LUNINAIRE- 400 WATT
EA	EA	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA
30	1	6775	7	353	7039	54	27	1	30	26	4

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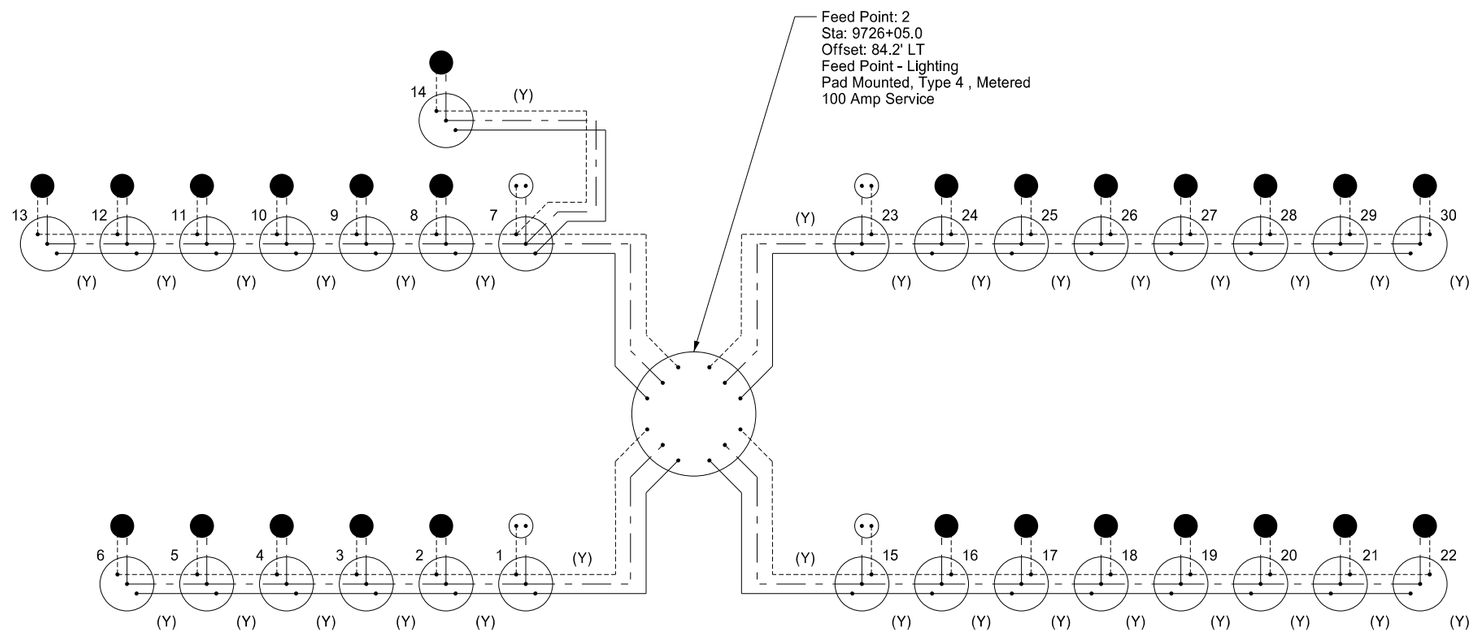
NOTES:

1. Conduit length included in a previous total
2. Luminaire counted in and installed in Signals Plan

Lighting
Feed Point 2
Williston NW Permanent Truck Reliever Route
Phase 1A

Lighting Quantities

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	140	7



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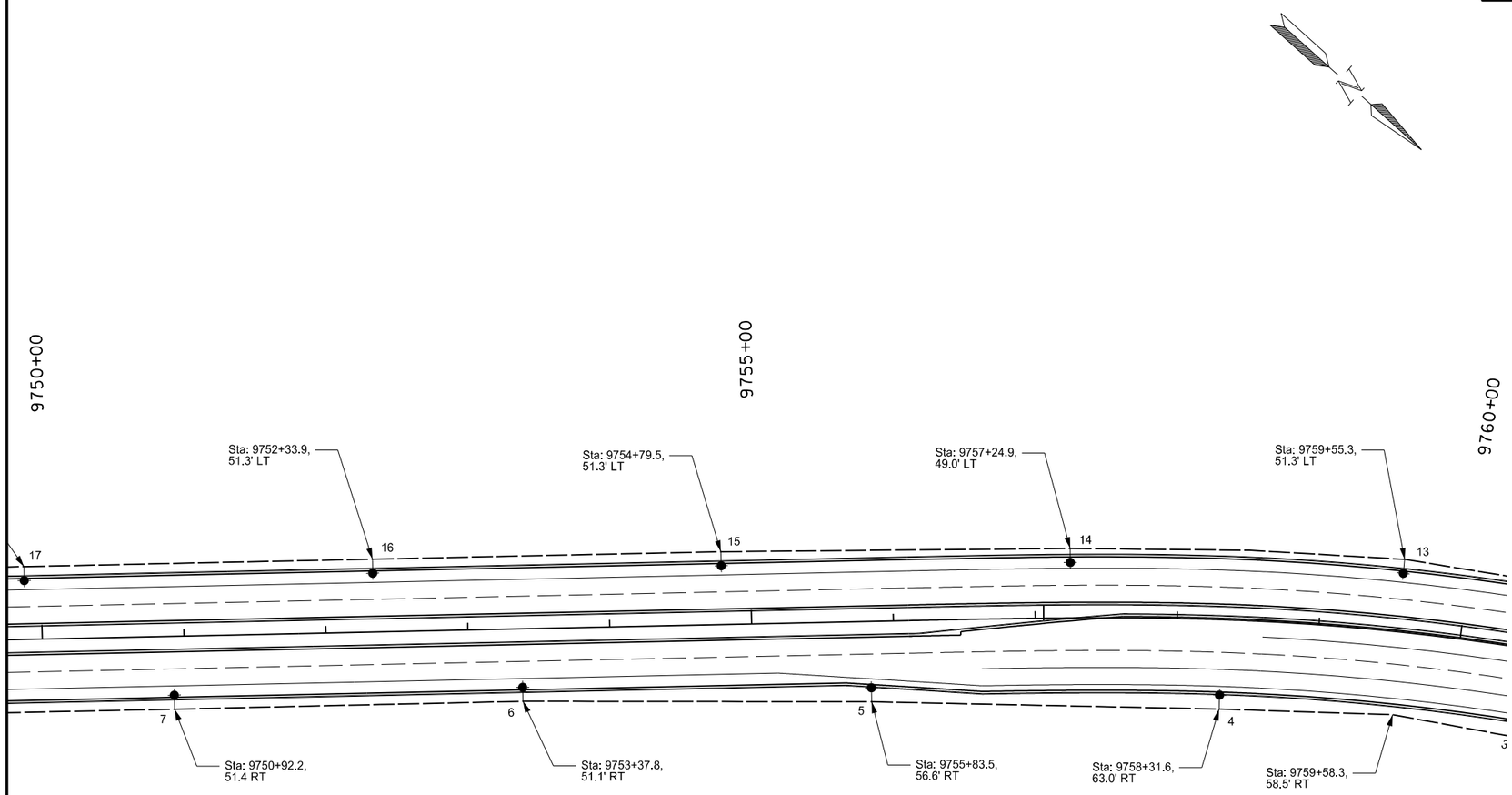
Legend

Phase Conductor	- - - - - - - - - - - - -	1	Light Standard Number	●	250 Watt HP Sodium Vapor Luminaire
Phase Conductor	——— – ——— –	1C	Combination Lighting and Signal Standard	○	400 Watt HP Sodium Vapor Luminaire
Ground Conductor	———————	(Y)	3 No. 4 Style USE	▭	Pull Box
				◯	Light Standard

Lighting Schematic
Feed Point 2
Williston NW Permanent Truck Reliever Route
Phase 1A

Lighting Quantities

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	140	8



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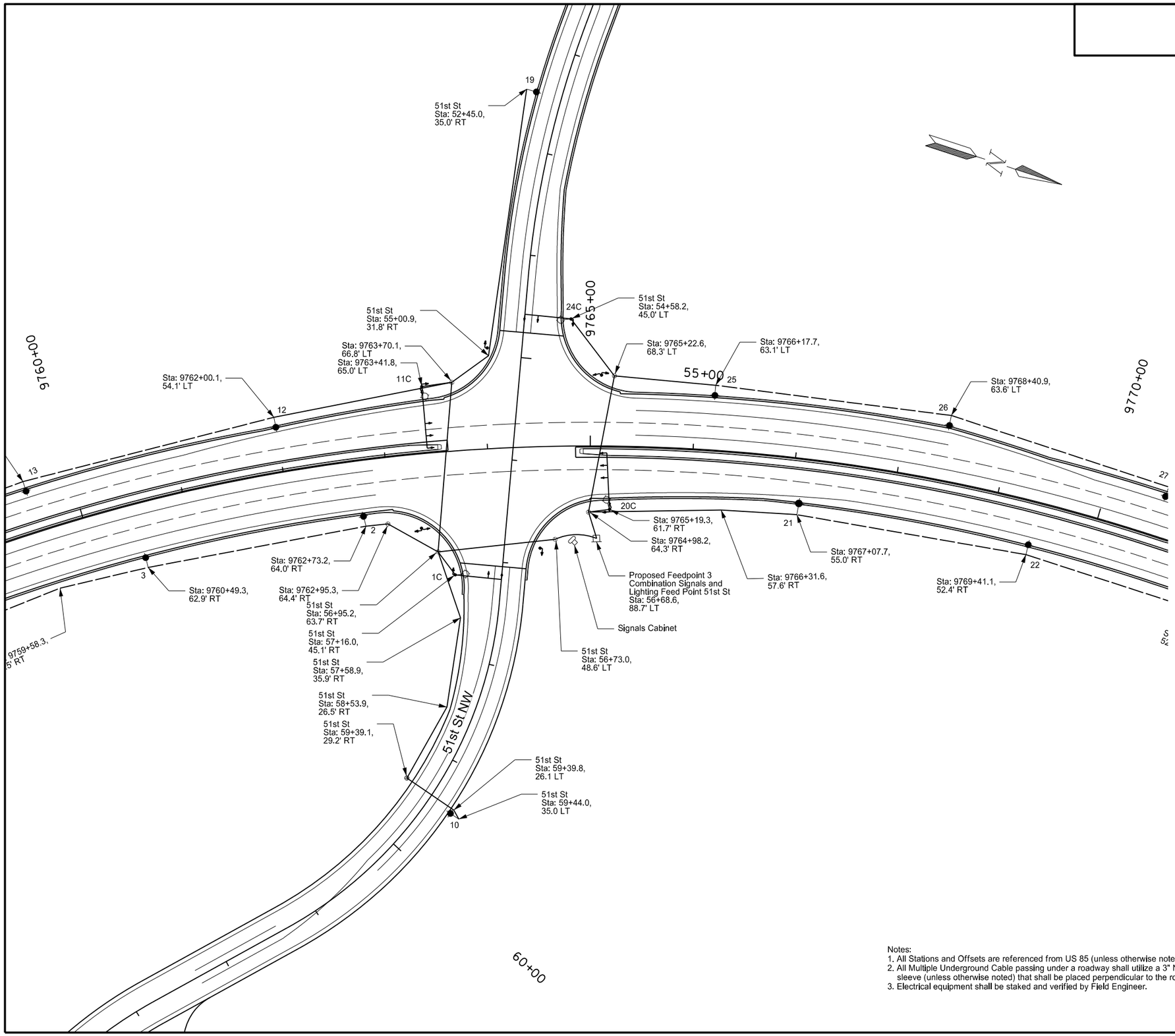
Lighting
Feed Point 3
Williston NW Permanent Truck Reliever Route
Phase 1A

Lighting Layout

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	140	9



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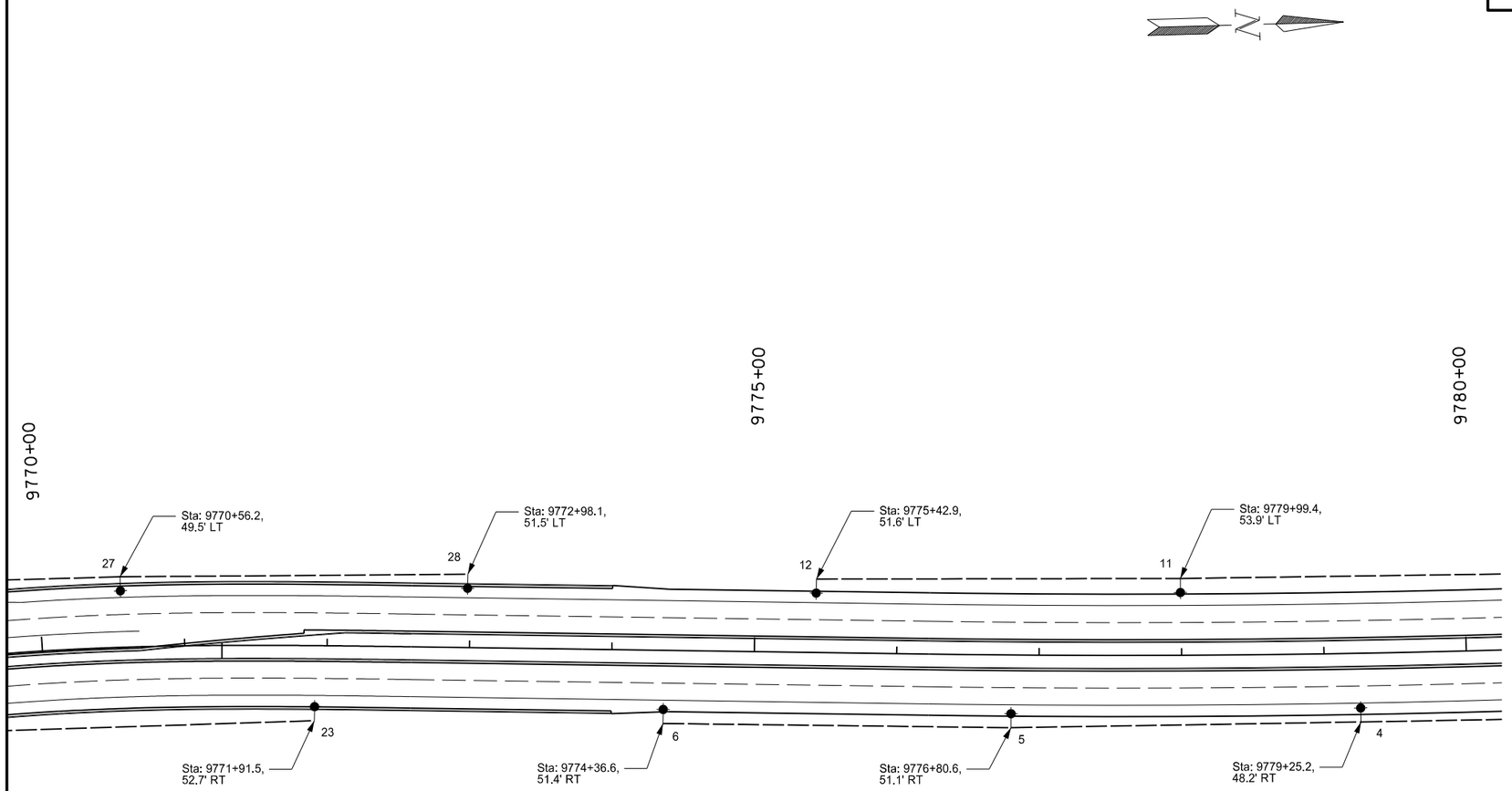
Lighting
Feed Point 3
Williston NW Permanent Truck Reliever Route
Phase 1A

Lighting Layout

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	140	10



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Lighting Removals
Feed Points 3 and 4
Williston NW Permanent Truck Reliever Route
Phase 1A

Lighting Layout

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	140	11

Station	Conduit Runs		Cable Trench	Cable Runs	
	Length (ft)	Size	Length (ft)	Length (ft)	Type
56+68.6 - 88.7' LT TO	42	2"		400	2-1/C #2 RHW
56+73.0 - 48.6' LT TO	115	2"		200	1-1/C #2 THW
56+95.2 - 63.7' RT TO	28	2"			
57+16.0 - 45.1' RT					
57+16.0 - 45.1' RT TO	NOTE 1	2"		228	2-1/C #4 RHW
56+95.2 - 63.7' RT TO	56	2"		114	1-1/C #4 THW
9762+95.3 - 64.4' RT TO	22	2"			
9762+73.2 - 64.0' RT					
9762+73.2 - 64.0' RT TO			216	224	3 No 4 Style USE
9760+49.3 - 62.9' RT					
9760+49.3 - 62.9' RT TO			210	218	3 No 4 Style USE
9759+58.3 - 58.5' RT TO					
9758+31.6 - 63.0' RT					
9758+31.6 - 63.0' RT TO			245	253	3 No 4 Style USE
9755+83.5 - 56.6' RT					
9755+83.5 - 56.6' RT TO			246	254	3 No 4 Style USE
9753+37.8 - 51.1' RT					
9753+37.8 - 51.1' RT TO			246	254	3 No 4 Style USE
9750+92.2 - 51.4' RT					
9750+92.2 - 51.4' RT TO			246	254	3 No 4 Style USE
9748+46.4 - 51.4' RT					
9748+46.4 - 51.4' RT TO			246	254	3 No 4 Style USE
9746+00.5 - 50.9' RT					
57+16.0 - 45.1' RT TO	NOTE 1	2"		674	2-1/C #4 RHW
56+95.2 - 63.7' RT TO	235	2"		337	1-1/C #4 THW
57+58.9 - 35.9' RT TO		2"			
58+53.9 - 26.5' RT TO		2"			
59+39.1 - 29.2' RT TO	65	2"			
59+39.8 - 26.1' LT TO		2"			
59+44.0 - 35.0' LT					
56+68.6 - 88.7' LT TO	NOTE 1	2"		734	2-1/C #2 RHW
56+73.0 - 48.6' LT TO	NOTE 1	2"		367	1-1/C #2 THW
56+95.2 - 63.7' RT TO	164	2"			
9763+70.1 - 66.8' LT TO	30	2"			
9763+41.8 - 65.0' LT					
9763+41.8 - 65.0' LT TO	NOTE 1	2"		430	2-1/C #4 RHW
9763+70.1 - 66.8' LT TO	177	2"		215	1-1/C #4 THW
9762+00.1 - 54.1' LT					
9762+00.1 - 54.1' LT TO			252	260	3 No 4 Style USE
9759+55.3 - 51.3' LT					

Station	Conduit Runs		Cable Trench	Cable Runs	
	Length (ft)	Size	Length (ft)	Length (ft)	Type
9759+55.3 - 51.3' LT TO			236	244	3 No 4 Style USE
9757+24.9 - 49.0' LT					
9757+24.9 - 49.0' LT TO			246	254	3 No 4 Style USE
9754+79.5 - 51.3' LT					
9754+79.5 - 51.3' LT TO			246	254	3 No 4 Style USE
9752+33.9 - 51.3' LT					
9752+33.9 - 51.3' LT TO			246	254	3 No 4 Style USE
9749+88.2 - 51.3' LT					
9749+88.2 - 51.3' LT TO			246	254	3 No 4 Style USE
9747+42.2 - 51.0' LT					
9763+41.8 - 65.0' LT TO	NOTE 1	2"		688	2-1/C #4 RHW
9763+70.1 - 66.8' LT TO	306	2"		344	1-1/C #4 THW
55+00.9 - 31.8' RT TO					
52+45.0 - 35.0' RT					
56+68.6 - 88.7' LT TO	27	2"		124	2-1/C #4 RHW
9764+98.2 - 64.3' RT TO	21	2"		62	1-1/C #4 THW
9765+19.3 - 61.7' RT					
9765+19.3 - 61.7' RT TO	NOTE 1	2"		472	2-1/C #4 RHW
9764+98.2 - 64.3' RT TO	203	2"		236	1-1/C #4 THW
9766+31.6 - 57.6' RT TO					
9767+07.7 - 55.0' RT					
9767+07.7 - 55.0' RT TO			227	235	3 No 4 Style USE
9769+41.1 - 52.4' RT					
9769+41.1 - 52.4' RT TO			245	253	3 No 4 Style USE
9771+91.5 - 52.7' RT					
56+68.6 - 88.7' LT TO	NOTE 1	2"		492	2-1/C #4 RHW
9764+98.2 - 64.3' RT TO	135	2"		246	1-1/C #4 THW
9765+22.6 - 68.3' LT TO	70	2"			
54+58.2 - 45.0' LT		2"			
54+58.2 - 45.0' LT TO	NOTE 1	2"		354	2-1/C #4 RHW
9765+22.6 - 68.3' LT TO	99	2"		177	1-1/C #4 THW
9766+17.7 - 63.1' LT					

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Lighting
Feed Point 3
Williston NW Permanent Truck Reliever Route
Phase 1A

Lighting Quantities

Station	Conduit Runs		Cable Trench	Cable Runs	
	Length (ft)	Size	Length (ft)	Length (ft)	Type
9766+17.7 - 63.1' LT TO			232	240	3 No 4 Style USE
9768+40.9 - 63.6' LT					
9768+40.9 - 63.6' LT TO			223	231	3 No 4 Style USE
9770+56.2 - 49.5' LT					
9770+56.2 - 49.5' LT TO			244	252	3 No 4 Style USE
9772+98.1 - 51.5' LT					

NOTES:
1. Conduit length included in a previous total

No.	Station	Offset	Wattage	Circuit	IES-Type	Pole Ht.	Mast Arm	Notes
1C	57+16.0	45.1' RT	400	1	3	40	8'	
2	9762+73.2	64.0' RT	250	1	3	40	8'	
3	9760+49.3	62.9' RT	250	1	3	40	8'	
4	9758+31.6	63.0' RT	250	1	3	40	8'	
5	9755+83.5	56.6' RT	250	1	3	40	8'	
6	9753+37.8	51.1' RT	250	1	3	40	8'	
7	9750+92.2	51.4' RT	250	1	3	40	8'	
8	9748+46.4	51.4' RT	250	1	3	40	8'	
9	9746+00.5	50.9' LT	250	1	3	40	8'	
10	59+44.0	35.0' LT	250	1	3	40	8'	
11C	9763+41.8	65.0' LT	400	2	3	40	8'	
12	9762+00.1	54.1' LT	250	2	3	40	8'	
13	9759+55.3	51.3' LT	250	2	3	40	8'	
14	9757+24.9	49.0' LT	250	2	3	40	8'	
15	9754+79.5	51.3' LT	250	2	3	40	8'	
16	9752+33.9	51.3' LT	250	2	3	40	8'	
17	9749+88.2	51.3' LT	250	2	3	40	8'	
18	9747+42.2	51.0' RT	250	2	3	40	8'	
19	52+45.0	35.0' RT	250	2	3	40	8'	
20C	9765+19.3	61.7' RT	400	3	3	40	8'	
21	9767+07.7	55.0' RT	250	3	3	40	8'	
22	9769+41.1	52.4' RT	250	3	3	40	8'	
23	9771+91.5	52.7' RT	250	3	3	40	8'	
24C	54+58.2	45.0' LT	400	4	3	40	8'	
25	9766+17.7	63.1' LT	250	4	3	40	8'	
26	9768+40.9	63.6' LT	250	4	3	40	8'	
27	9770+56.2	49.5' LT	250	4	3	40	8'	
28	9772+98.1	51.5' LT	250	4	3	40	8'	

Quantities

CONCRETE FOUNDATION - HIGHWAY LIGHTING	CONCRETE FOUNDATION - FEED POINT TYPE B	CABLE TRENCH II	2IN DIAMETER RIGID CONDUIT	MULTIPLE UNDERGRUOND CABLE 3NO4 STYLE USE	UNDERGROUND CONDUCTOR NO2 - TYPE RHW	UNDERGROUND CONDUCTOR NO4 - TYPE RHW	UNDERGROUND CONDUCTOR NO2 - TYPE THW	UNDERGROUND CONDUCTOR NO4 - TYPE THW	FEEDPOINT - TYPE IV PAD MOUNTED	LT STD 8FT MA 40FT MT HT BREAKAWAY	HP SODIUM LUNINAIRE- 250 WATT	HP SODIUM VAPOR LUMINAIRE- 400 WATT
EA	EA	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA
24	1	4298	1795	4442	1134	3462	567	1731	1	24	24	4

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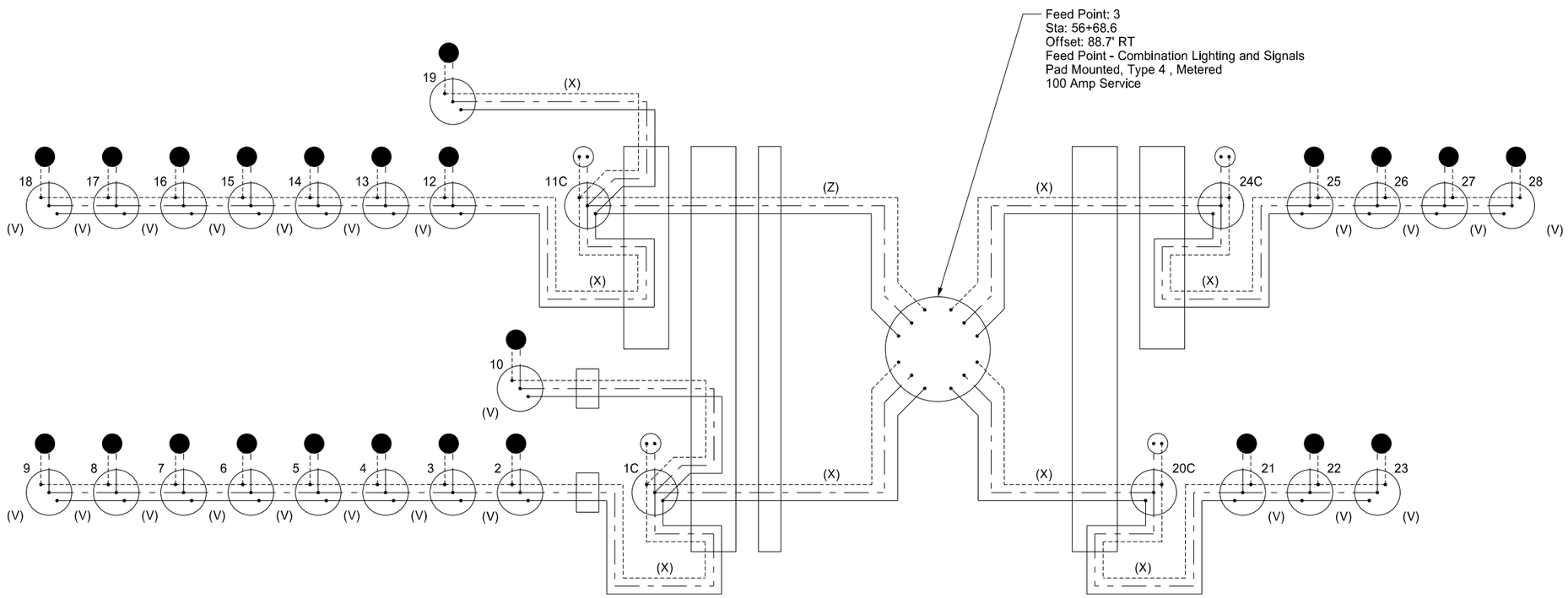
Lighting
Feed Point 3
Williston NW Permanent Truck Reliever Route
Phase 1A

Lighting Quantities

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	140	13



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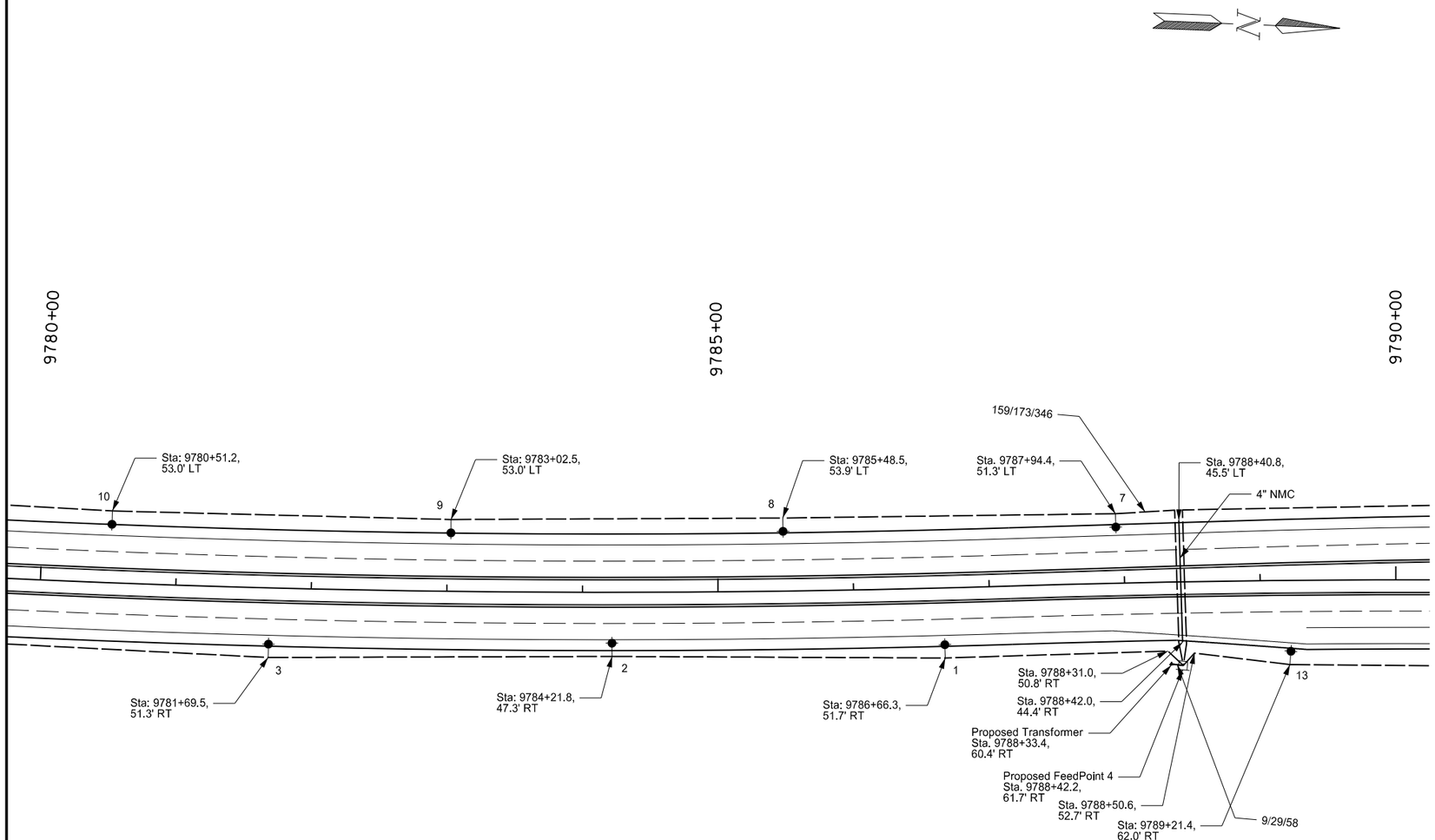
Legend

Phase Conductor		1	Light Standard Number	●	250 Watt HP Sodium Vapor Luminaire
Phase Conductor		1C	Combination Lighting and Signal Standard	○	400 Watt HP Sodium Vapor Luminaire
Ground Conductor		(V)	3 No. 4 Style USE	▭	Pull Box
		(X)	2 No. 4 RHW, 1 No. 4 THW	◯	Light Standard
		(Z)	2 No. 2 RHW, 1 No. 2 THW		

Lighting Schematic
Feed Point 3
Williston NW Permanent Truck Reliever Route

Lighting Quantities

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	140	14



Notes:
1. All Stations and Offsets are referenced from US 85 (unless otherwise noted).
2. All Multiple Underground Cable passing under a roadway shall utilize a 3" NMC sleeve (unless otherwise noted) that shall be placed perpendicular to the roadway.
3. Electrical equipment shall be staked and verified by Field Engineer.

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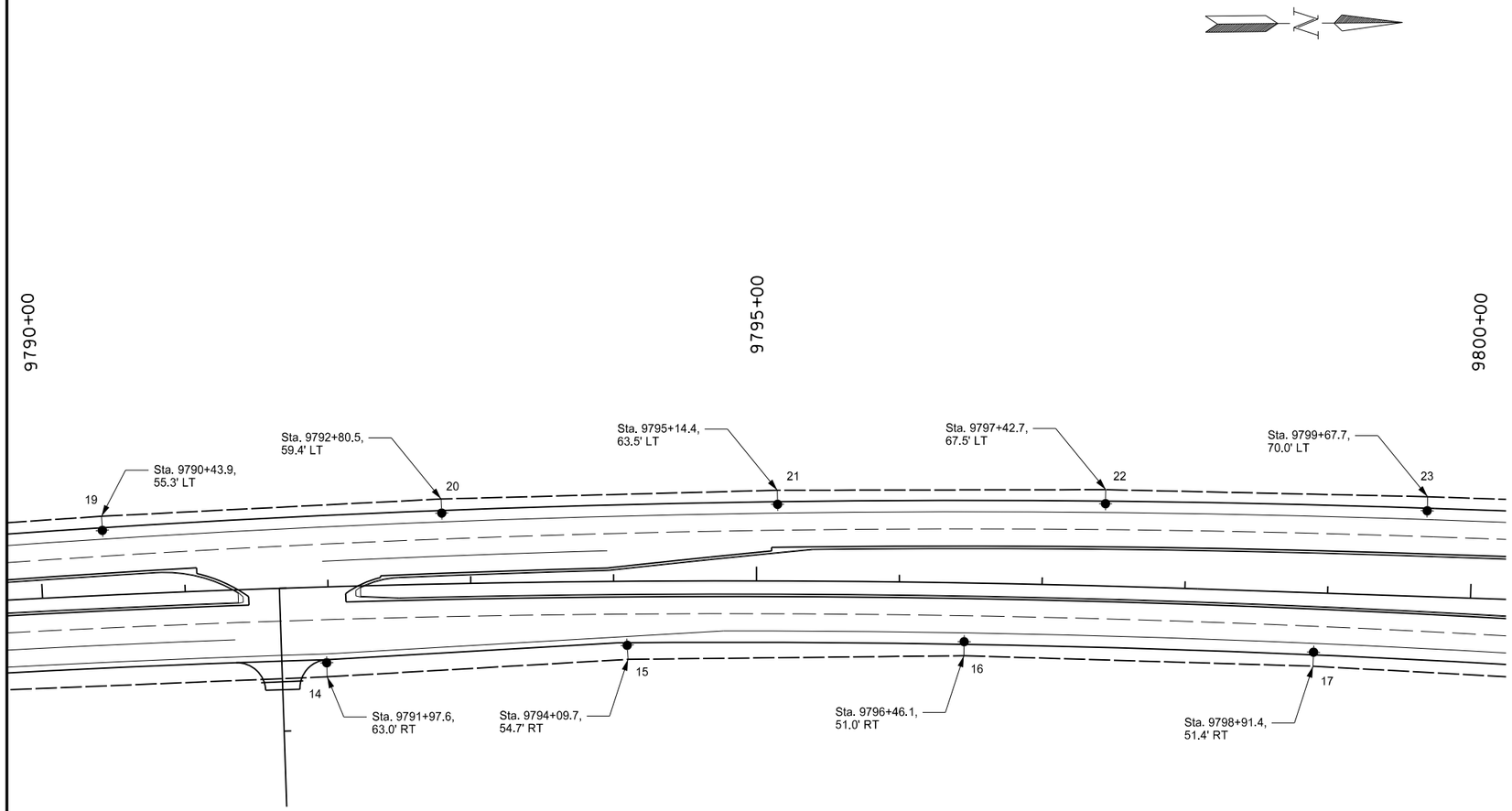
Lighting Removals
Feed Point 4
Williston NW Permanent Truck Reliever Route
Phase 1A

Lighting Layout

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	140	15



Notes:
1. All Stations and Offsets are referenced from US 85 (unless otherwise noted).
2. All Multiple Underground Cable passing under a roadway shall utilize a 3" NMC sleeve (unless otherwise noted) that shall be placed perpendicular to the roadway.
3. Electrical equipment shall be staked and verified by Field Engineer.

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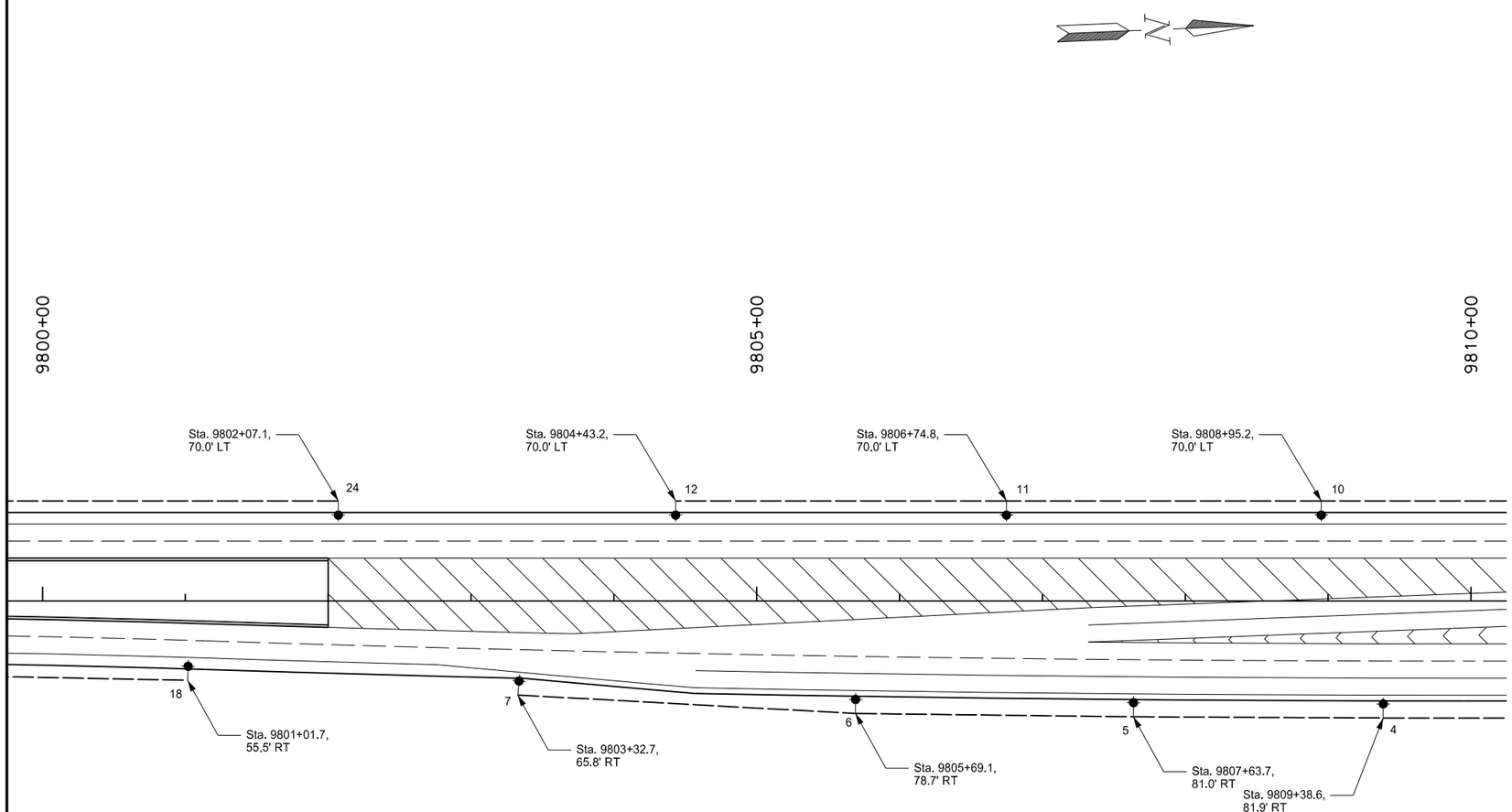
Lighting
Feed Point 4
Williston NW Permanent Truck Reliever Route

Lighting Layout

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	140	16



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Notes:
1. All Stations and Offsets are referenced from US 85 (unless otherwise noted).
2. All Multiple Underground Cable passing under a roadway shall utilize a 3" NMC sleeve (unless otherwise noted) that shall be placed perpendicular to the roadway.
3. Electrical equipment shall be staked and verified by Field Engineer.

Lighting
Feed Points 4 and 5
Williston NW Permanent Truck Reliever Route

Lighting Layout

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	140	17

Station	Conduit Runs		Cable Trench	Cable Runs	
	Length (ft)	Size	Length (ft)	Length (ft)	Type
9788+33.4 - 60.4' RT TO	9	2"	9	58	2-1/C #2 RHW
9788+42.2 - 61.7' RT				29	1-1/C #2 THW
9788+42.2 - 61.7' RT TO			180	194	3 No 4 Style USE
9788+31.0 - 50.8' RT TO					
9786+66.3 - 51.7' RT					
9786+66.3 - 51.7' RT TO			246	254	3 No 4 Style USE
9784+21.8 - 47.3' RT					
9784+21.8 - 47.3' RT TO			254	262	3 No 4 Style USE
9781+69.5 - 51.3' RT					
9781+69.5 - 51.3' RT TO			246	254	3 No 4 Style USE
9779+25.2 - 48.2' RT					
9779+25.2 - 48.2' RT TO			246	254	3 No 4 Style USE
9776+80.6 - 51.1' RT					
9776+80.6 - 51.1' RT TO			245	253	3 No 4 Style USE
9774+36.6 - 51.4' RT					
9788+42.2 - 61.7' RT TO	90	4	159	173	3 No 4 Style USE
9788+42.0 - 44.4' RT TO					
9788+40.8 - 45.5' LT TO					
9787+94.4 - 51.3' LT					
9787+94.4 - 51.3' LT TO			246	254	3 No 4 Style USE
9785+48.5 - 53.9' LT					
9785+48.5 - 53.9' LT TO			245	253	3 No 4 Style USE
9783+02.5 - 53.0' LT					
9783+02.5 - 53.0' LT TO			250	258	3 No 4 Style USE
9780+51.2 - 53.0' LT					
9780+51.2 - 53.0' LT TO			251	259	3 No 4 Style USE
9779+99.4 - 53.9' LT					
9779+99.4 - 53.9' LT TO			256	264	3 No 4 Style USE
9775+42.9 - 51.6' LT					
9788+42.2 - 61.7' RT TO			84	98	3 No 4 Style USE
9788+50.6 - 52.7' RT TO					
9789+21.4 - 62.0' RT					
9789+21.4 - 62.0' RT TO	30	3	275	283	3 No 4 Style USE
9791+97.6 - 63.0' RT					

Station	Conduit Runs		Cable Trench	Cable Runs	
	Length (ft)	Size	Length (ft)	Length (ft)	Type
9791+97.6 - 63.0' RT TO			211	219	3 No 4 Style USE
9794+09.7 - 54.7' RT					
9794+09.7 - 54.7' RT TO			236	244	3 No 4 Style USE
9796+46.1 - 51.0' RT					
9796+46.1 - 51.0' RT TO			245	253	3 No 4 Style USE
9798+91.4 - 51.4' RT					
9798+91.4 - 51.4' RT TO			211	212	3 No 4 Style USE
9801+01.7 - 55.5' RT					
9788+42.2 - 61.7' RT TO	NOTE 1		317	331	3 No 4 Style USE
9788+42.0 - 44.4' RT TO					
9788+40.8 - 45.5' LT TO					
9790+43.9 - 55.3' LT					
9790+43.9 - 55.3' LT TO			239	247	3 No 4 Style USE
9792+80.5' - 59.4' LT					
9792+80.5' - 59.4' LT TO			236	244	3 No 4 Style USE
9795+14.4 - 63.5' LT					
9795+14.4 - 63.5' LT TO			230	238	3 No 4 Style USE
9797+42.7 - 67.5' LT					
9797+42.7 - 67.5' LT TO			226	234	3 No 4 Style USE
9799+67.7 - 70.0' LT					
9799+67.7 - 70.0' LT TO			240	248	3 No 4 Style USE
9802+07.1 - 70.0' LT					

NOTES:

1. Conduit length included in a previous total

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Lighting
Feed Point 4
Williston NW Permanent Truck Reliever Route
Phase 1A

Lighting Quantities

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	140	18

No.	Station	Offset	Wattage	Circuit	IES-Type	Pole Ht.	Mast Arm	Notes
1	9786+66.3	51.7' RT	250	1	3	40	8'	
2	9784+21.8	47.3' RT	250	1	3	40	8'	
3	9781+69.5	51.3' RT	250	1	3	40	8'	
4	9779+25.2	48.2' RT	250	1	3	40	8'	
5	9776+80.6	51.1' RT	250	1	3	40	8'	
6	9774+36.6	51.4' RT	250	1	3	40	8'	
7	9787+94.4	51.3' LT	250	2	3	40	8'	
8	9785+48.5	53.9' LT	250	2	3	40	8'	
9	9783+02.5	53.0' LT	250	2	3	40	8'	
10	9780+51.2	53.0' LT	250	2	3	40	8'	
11	9779+99.4	53.9' LT	250	2	3	40	8'	
12	9775+42.9	51.6' LT	250	2	3	40	8'	
13	9789+21.4	62.0' RT	250	3	3	40	8'	
14	9791+97.6	63.0' RT	250	3	3	40	8'	
15	9794+09.7	54.7' RT	250	3	3	40	8'	
16	9796+46.1	51.0' RT	250	3	3	40	8'	
17	9798+91.4	51.4' RT	250	3	3	40	10'	
18	9801+01.7	55.5' RT	250	3	3	40	10'	
19	9790+43.9	55.3' LT	250	2	3	40	8'	
20	9792+80.5	59.4' LT	250	3	3	40	8'	
21	9795+14.4	63.5' LT	250	3	3	40	8'	
22	9797+42.7	67.5' LT	250	3	3	40	8'	
23	9799+67.7	70.0' LT	250	3	3	40	8'	
24	9802.07.1	70.0' LT	250	3	3	40	8'	

NOTES:

1. Conduit length included in a previous total

Quantities

CONCRETE FOUNDATION-HIGHWAY LIGHTING	CONCRETE FOUNDATION-FEED POINT TYPE B	CABLE TRENCH II	2IN DIAMETER RIGID CONDUIT	3IN DIAMETER RIGID CONDUIT	4IN DIAMETER RIGID CONDUIT	MULTIPLE UNDERGRUOND CABLE 3NO4 STYLE USE	UNDERGROUND CONDUCTOR NO2-TYPE RHW	UNDERGROUND CONDUCTOR NO2-TYPE THW	FEEDPOINT-TYPE IV-PAD MOUNTED	LT STD 8FT MA 40FT MT HT BREAKAWAY	HP SODIUM LUNINAIRE-250 WATT
EA	EA	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA
24	1	5583	9	30	90	5783	58	29	1	24	24

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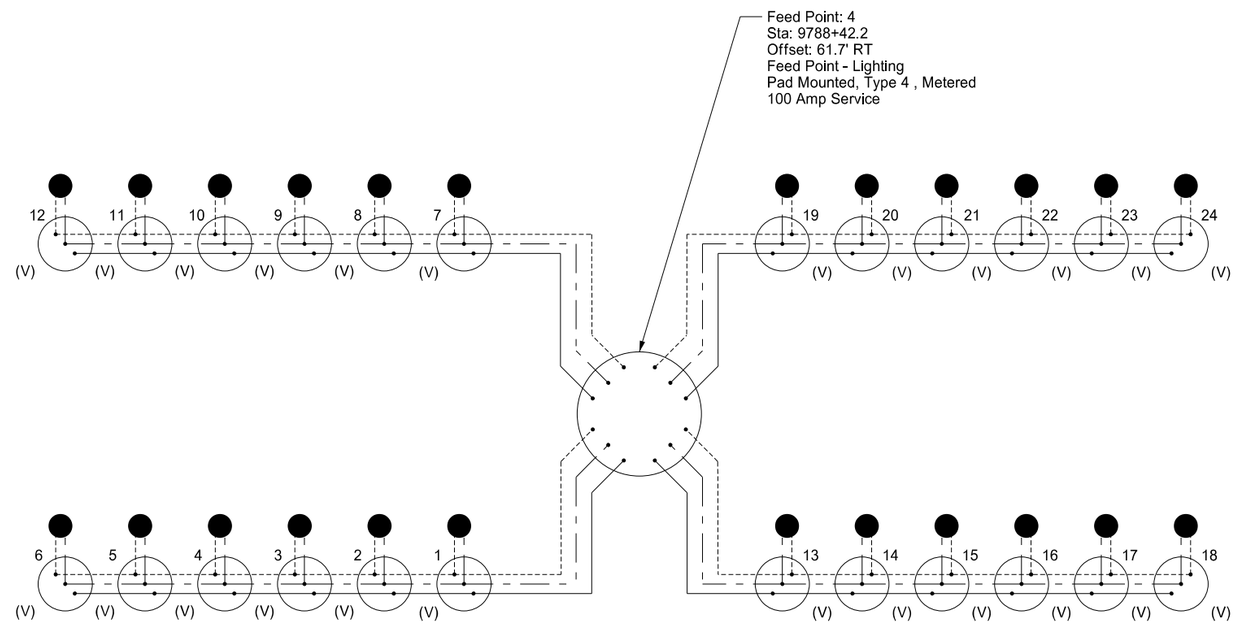
Lighting
Feed Point 4
Williston NW Permanent Truck Reliever Route
Phase 1A

Lighting Quantities

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	140	19



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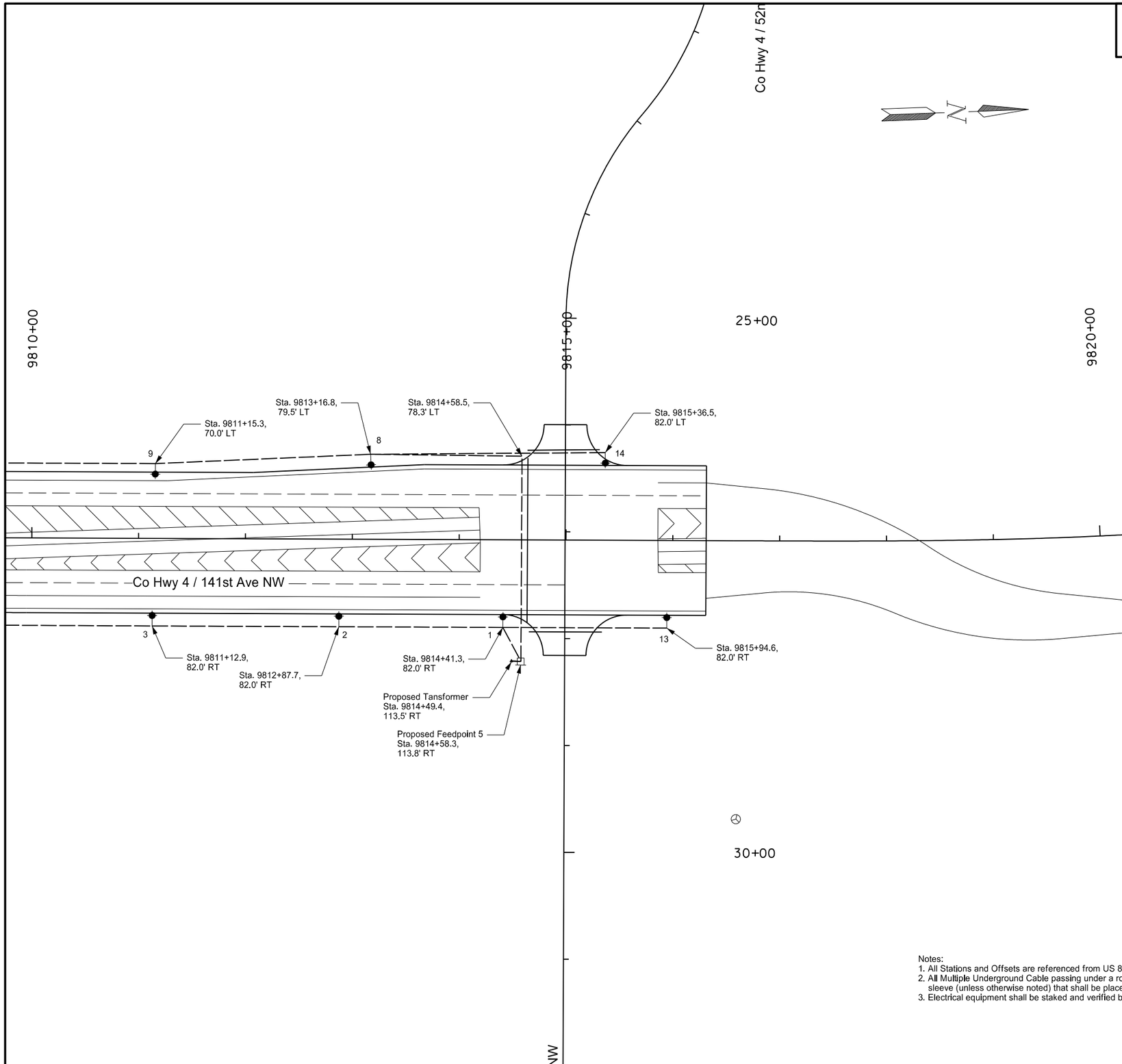
Legend

Phase Conductor	- - - - - - - - - - - - -	1	Light Standard Number	●	250 Watt HP Sodium Vapor Luminaire
Phase Conductor	——— – ——— –	(V)	3 No. 4 Style USE	▭	Pull Box
Ground Conductor	———————			○	Light Standard

Lighting Schematic
Feed Point 4
Williston NW Permanent Truck Reliever Route

Lighting Quantities

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	140	20



Notes:
1. All Stations and Offsets are referenced from US 85 (unless otherwise noted).
2. All Multiple Underground Cable passing under a roadway shall utilize a 3" NMC sleeve (unless otherwise noted) that shall be placed perpendicular to the roadway.
3. Electrical equipment shall be staked and verified by Field Engineer.

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Lighting
Feed Point 5
Williston NW Permanent Truck Reliever Route

Lighting Layout

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	140	21

Station	Conduit Runs		Cable Trench	Cable Runs	
	Length (ft)	Size	Length (ft)	Length (ft)	Type
9814+49.4 - 113.5' RT TO	9	2"		58	2-1/C #2 RHW
9814+58.3 - 113.8' RT				29	1-1/C #2 THW
9814+58.3 - 113.8' RT TO			37	51	3 No 4 Style USE
9814+41.3 - 82.0' RT					
9814+41.3 - 82.0' RT TO			154	162	3 No 4 Style USE
9812+87.7 - 82.0' RT					
9812+87.7 - 82.0' RT TO			175	183	3 No 4 Style USE
9811+12.9 - 82.0' RT					
9811+12.9 - 82.0' RT TO			175	183	3 No 4 Style USE
9809+58.6 - 81.9' RT					
9809+58.6 - 81.9' RT TO			175	183	3 No 4 Style USE
9807+63.7 - 81.0' RT					
9807+63.7 - 81.0' RT TO			195	203	3 No 4 Style USE
9805+69.1 - 78.7' RT					
9805+69.1 - 78.7' RT TO			237	245	3 No 4 Style USE
9803+32.7 - 65.8' RT					
9814+41.3 - 82.0' RT TO	69	3"	154	162	3 No 4 Style USE
9815+94.6 - 82.0' RT					
9814+58.3 - 113.8' RT TO	155	3"	334	348	3 No 4 Style USE
9814+58.5 - 78.3' LT TO					
9813+16.8 - 79.5' LT					
9813+16.8 - 79.5' LT TO			202	210	3 No 4 Style USE
9811+15.3 - 70.0' LT					
9811+15.3 - 70.0' LT TO			221	229	3 No 4 Style USE
9808+95.2 - 70.0' LT					
9808+95.2 - 70.0' LT TO			221	229	3 No 4 Style USE
9806+74.8 - 70.0' LT					
9806+74.8 - 70.0' LT TO			232	240	3 No 4 Style USE
9804+43.2 - 70.0' LT					
9813+16.8 - 79.5' LT TO	68	3"	220	228	3 No 4 Style USE
9815+36.5 - 82.0' LT					

No.	Station	Offset	Wattage	Circuit	IES-Type	Pole Ht.	Mast Arm	Notes
1	9814+41.3	82.0' RT	250	1	3	40	12'	
2	9812+87.7	82.0' RT	250	1	3	40	12'	
3	9811+12.9	82.0' RT	250	1	3	40	12'	
4	9809+58.6	81.9' RT	250	1	3	40	12'	
5	9807+63.7	81.0' RT	250	1	3	40	12'	
6	9805+69.1	78.7' RT	250	1	3	40	12'	
7	9803+32.7	65.8' RT	250	1	3	40	12'	
8	9813+16.8	79.5' LT	250	2	3	40	10'	
9	9811+15.3	70.0' LT	250	2	3	40	10'	
10	9808+95.2	70.0' LT	250	2	3	40	10'	
11	9806+74.8	70.0' LT	250	2	3	40	10'	
12	9804+43.2	70.0' LT	250	2	3	40	10'	
13	9815+94.6	82.0' RT	250	1	3	40	12'	
14	9815+36.5	82.0' LT	250	2	3	40	12'	

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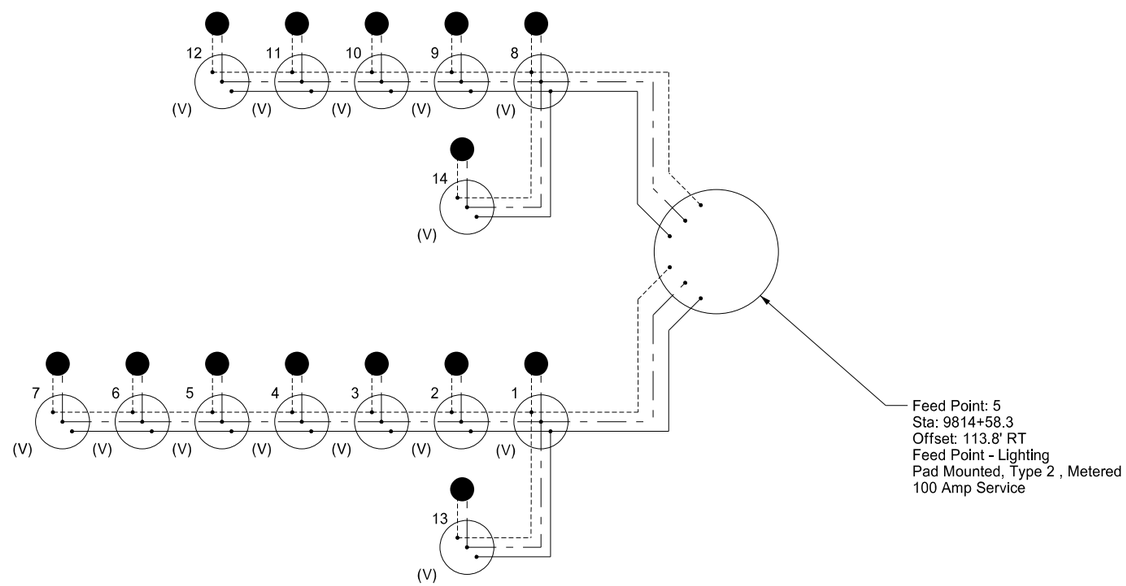
Lighting
Feed Point 5
Williston NW Permanent Truck Reliever Route
Phase 1A

Lighting Quantities

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	140	22

Quantities											
CONCRETE FOUNDATION-HIGHWAY LIGHTING	CONCRETE FOUNDATION-FEED POINT TYPE B	CABLE TRENCH II	2IN DIAMETER RIGID CONDUIT	3IN DIAMETER RIGID CONDUIT	MULTIPLE UNDERGRUOND CABLE 3NO4 STYLE USE	UNDERGROUND CONDUCTOR NO2-TYPE RHW	UNDERGROUND CONDUCTOR NO2-TYPE THW	FEEDPOINT-TYPE IV-PAD MOUNTED	LT STD 10FT MA 40FT MT HT BREAKAWAY	LT STD 12FT MA 40FT MT HT BREAKAWAY	HP SODIUM LUNINAIRE-250 WATT
EA	EA	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA
14	1	2732	9	292	2856	58	29	1	5	9	14



Legend

Phase Conductor	1	Light Standard Number	250 Watt HP Sodium Vapor Luminaire
Phase Conductor	(V)	3 No. 4 Style USE	Pull Box
Ground Conductor			Light Standard

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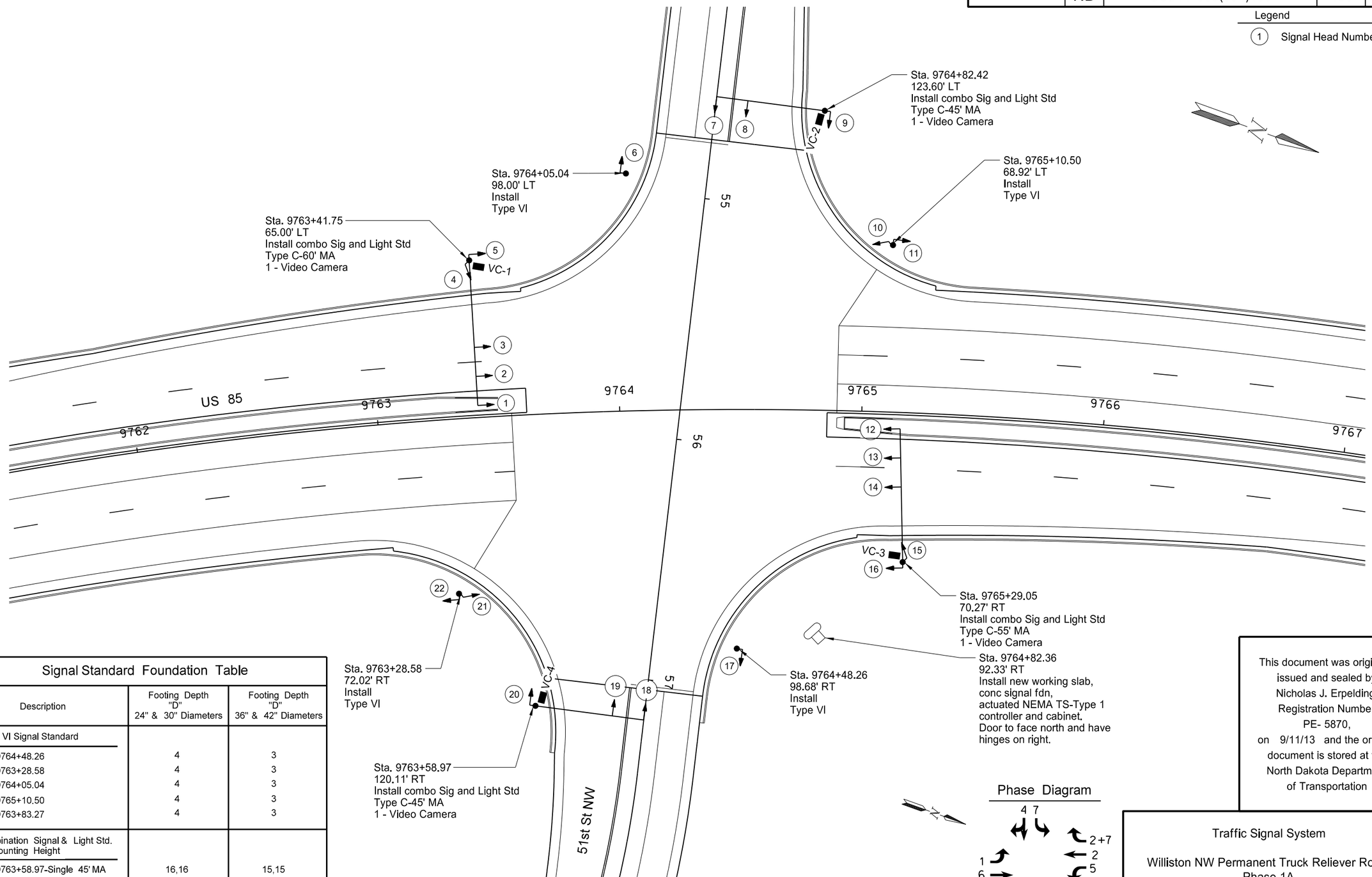
Lighting
Feed Point 5
Williston NW Permanent Truck Reliever Route

Lighting Quantities and Schematic

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	150	1

Legend

(1) Signal Head Number



Signal Standard Foundation Table

Description	Footing Depth "D" 24" & 30" Diameters	Footing Depth "D" 36" & 42" Diameters
Type VI Signal Standard		
Sta. 9764+48.26	4	3
Sta. 9763+28.58	4	3
Sta. 9764+05.04	4	3
Sta. 9765+10.50	4	3
Sta. 9763+83.27	4	3
Combination Signal & Light Std. 40' Mounting Height		
Sta. 9763+58.97-Single 45' MA	16,16	15,15
Sta. 9763+41.75-Single 60' MA	19,18	17,17
Sta. 9764+82.42-Single 45' MA	16,16	15,15
Sta. 9765+29.05-Single 55' MA	18,17	16,16

Note:
All stations and offsets are referenced from US 85 alignment

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Traffic Signal System

Williston NW Permanent Truck Reliever Route
Phase 1A

Traffic Signal Layout

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	150	2

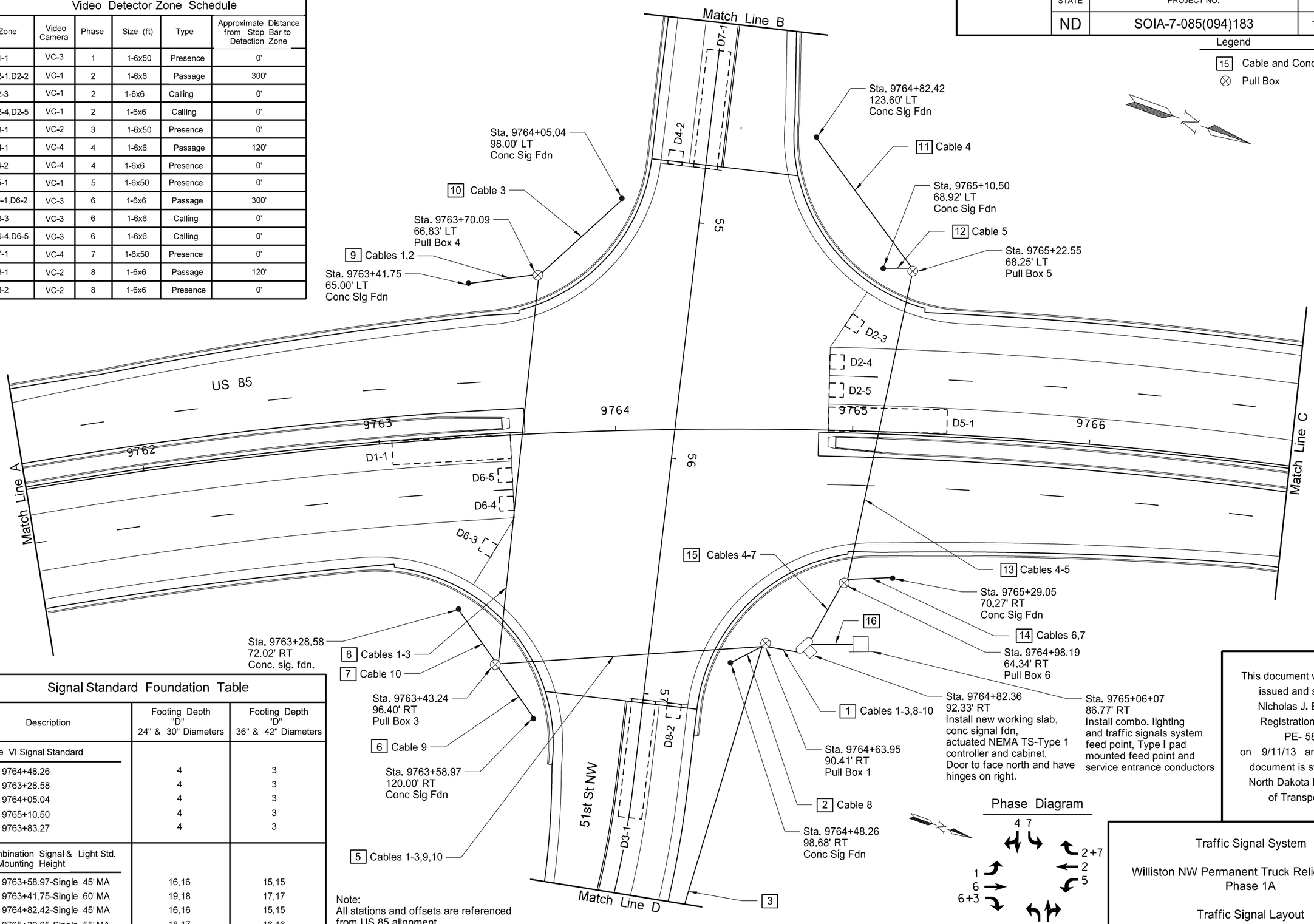
Video Detector Zone Schedule

Zone	Video Camera	Phase	Size (ft)	Type	Approximate Distance from Stop Bar to Detection Zone
D1-1	VC-3	1	1-6x50	Presence	0'
D2-1,D2-2	VC-1	2	1-6x6	Passage	300'
D2-3	VC-1	2	1-6x6	Calling	0'
D2-4,D2-5	VC-1	2	1-6x6	Calling	0'
D3-1	VC-2	3	1-6x50	Presence	0'
D4-1	VC-4	4	1-6x6	Passage	120'
D4-2	VC-4	4	1-6x6	Presence	0'
D5-1	VC-1	5	1-6x50	Presence	0'
D6-1,D6-2	VC-3	6	1-6x6	Passage	300'
D6-3	VC-3	6	1-6x6	Calling	0'
D6-4,D6-5	VC-3	6	1-6x6	Calling	0'
D7-1	VC-4	7	1-6x50	Presence	0'
D8-1	VC-2	8	1-6x6	Passage	120'
D8-2	VC-2	8	1-6x6	Presence	0'

Legend

15 Cable and Conduit Run Number

⊗ Pull Box



Signal Standard Foundation Table

Description	Footing Depth "D" 24" & 30" Diameters	Footing Depth "D" 36" & 42" Diameters
Type VI Signal Standard		
Sta. 9764+48.26	4	3
Sta. 9763+28.58	4	3
Sta. 9764+05.04	4	3
Sta. 9765+10.50	4	3
Sta. 9763+83.27	4	3
Combination Signal & Light Std. 40' Mounting Height		
Sta. 9763+58.97-Single 45' MA	16,16	15,15
Sta. 9763+41.75-Single 60' MA	19,18	17,17
Sta. 9764+82.42-Single 45' MA	16,16	15,15
Sta. 9765+29.05-Single 55' MA	18,17	16,16

Note:
All stations and offsets are referenced from US 85 alignment

Phase Diagram

4 7
2+7
2
5
1
6
6+3
3 8

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Traffic Signal System

Williston NW Permanent Truck Reliever Route
Phase 1A

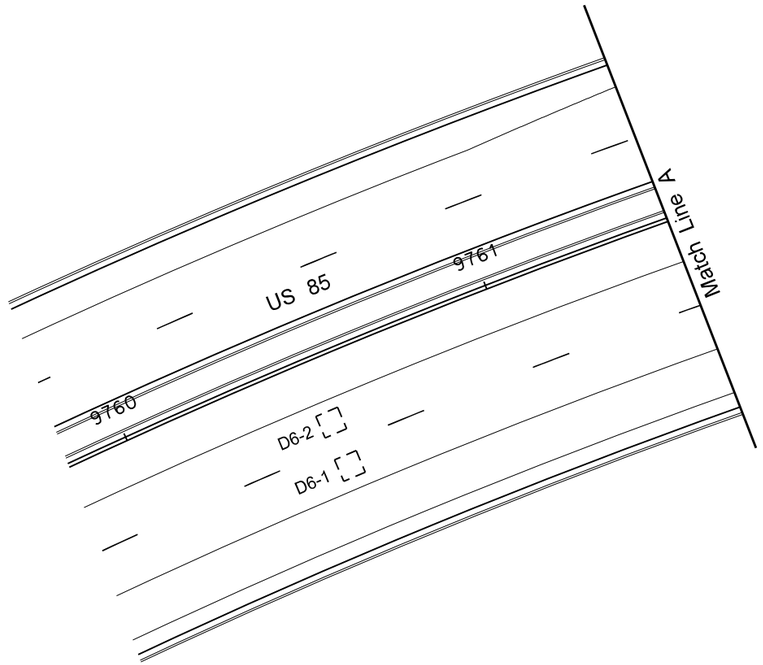
Traffic Signal Layout

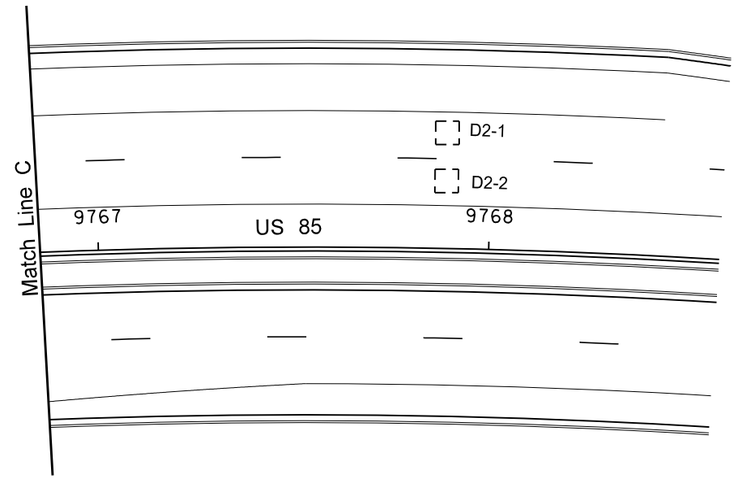
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	150	3

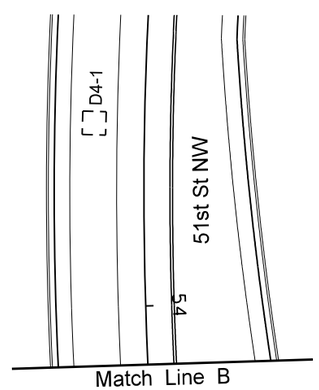
Legend

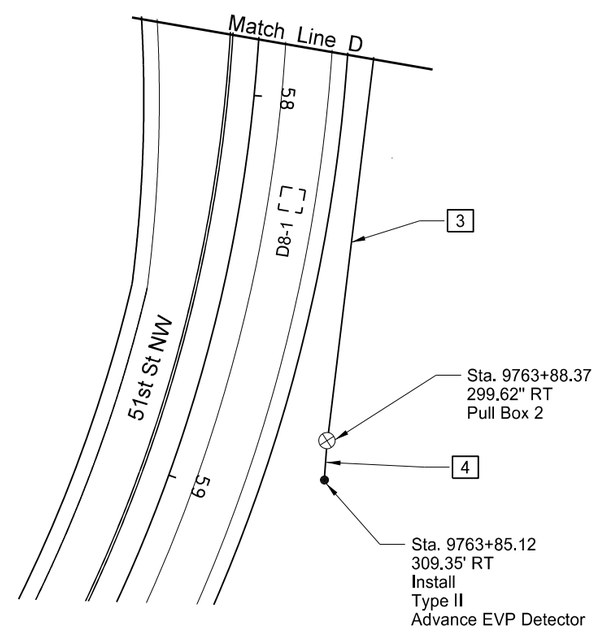
15 Cable and Conduit Run Number

⊗ Pull Box









Note:
All stations and offsets are referenced from US 85 alignment

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Traffic Signal System

Williston NW Permanent Truck Reliever Route Phase 1A

Traffic Signal Layout

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	150	4

Run	Station	Location	Conduit Run		Cable Trench	Cable Run			
			Length	Size	Length	QTY	Code	Length	Type
1	9764+82.36 to 9764+63.95	Controller to Pull Box 1	14	4"		2	A	48	No. 12 AWG 2 Conductor Cable
						3	B	72	Emergency Detector Cable
						2	C	48	No. 12 AWG 5 Conductor Cable
						4	C	96	No. 12 AWG 12 Conductor Cable
						1	C	24	Mult 3 No 6 USE
						2	D	48	Video Detector Cable
2	9764+63.95 to 9764+48.26	Pull Box 1 to Type VI Signal	15	2"		1	C	30	No. 12 AWG 5 Conductor Cable
3	9764+63.95 to 9763+88.37	Pull Box 1 to Pull Box 2	216	2"		1	B	226	Emergency Detector Cable
4	9763+88.37 to 9763+85.12	Pull Box 2 to Type II Signal	10	2"		1	B	20	Emergency Detector Cable
5	9764+63.95 to 9763+43.24	Pull Box 1 to Pull Box 3	115	4"		2	A	250	No. 12 AWG 2 Conductor Cable
						2	B	250	Emergency Detector Cable
						1	C	125	No. 12 AWG 5 Conductor Cable
						4	C	500	No. 12 AWG 12 Conductor Cable
						1	C	125	Mult 3 No 6 USE
						2	D	250	Video Detector Cable
6	9763+43.24 to 9763+58.97	Pull Box 3 to Signal	27	3"		1	A	42	No. 12 AWG 2 Conductor Cable
						1	B	42	Emergency Detector Cable
						1	C	42	No. 12 AWG 12 Conductor Cable
						1	C	42	Video Detector Cable
7	9763+43.24 to 9763+28.58	Pull Box 3 to Type VI Signal	30	4"		1	C	40	No. 12 AWG 12 Conductor Cable
						1	C	40	Mult 3 No 6 USE
8	9763+43.24 to 9763+70.09	Pull Box 3 to Pull Box 4	173	4"		1	A	183	No. 12 AWG 2 Conductor Cable
						1	B	183	Emergency Detector Cable
						1	C	183	No. 12 AWG 5 Conductor Cable
						2	C	366	No. 12 AWG 12 Conductor Cable
						1	D	183	Video Detector Cable
9	9763+70.09 to 9763+41.75	Pull Box 4 to Signal	30	3"		1	A	45	No. 12 AWG 2 Conductor Cable
						1	B	45	Emergency Detector Cable
						2	C	90	No. 12 AWG 12 Conductor Cable
						1	D	45	Video Detector Cable
10	9763+70.09 to 9764+05.04	Pull Box 4 to Type VI Signal	48	2"		1	C	63	No. 12 AWG 5 Conductor Cable
11	9765+22.55 to 9764+82.42	Pull Box 5 to Signal	73	3"		1	A	88	No. 12 AWG 2 Conductor Cable
						1	B	88	Emergency Detector Cable
						1	C	88	No. 12 AWG 12 Conductor Cable
						1	D	88	Video Detector Cable
12	9765+22.55 to 9765+10.50	Pull Box 5 to Type VI Signal	11	2"		1	C	26	No. 12 AWG 12 Conductor Cable
13	9765+22.55 to 9764+98.19	Pull Box 5 to Pull Box 6	139	4"		1	A	149	No. 12 AWG 2 Conductor Cable
						1	B	149	Emergency Detector Cable
						2	C	298	No. 12 AWG 12 Conductor Cable
						1	C	149	Mult 3 No 6 USE
						1	D	149	Video Detector Cable
14	9764+98.19 to 9765+29.05	Pull Box 6 to Signal	19	3"		1	A	34	No. 12 AWG 2 Conductor Cable
						1	B	34	Emergency Detector Cable
						2	C	68	No. 12 AWG 12 Conductor Cable
						1	D	34	Video Detector Cable
15	9764+82.36 to 9764+98.19	Controller to Pull Box 6	31	4"		2	A	82	No. 12 AWG 2 Conductor Cable
						2	B	82	Emergency Detector Cable
						4	C	164	No. 12 AWG 12 Conductor Cable
						1	C	41	Mult 3 No 6 USE
						2	D	82	Video Detector Cable
16	9765+06.07 to 9764+82.36	Feedpoint to Controller	18	2"		1	E	28	#6 USE

Cable Code

A = Emergency Vehicle Indicator Lamp
B = Emergency Vehicle Detector Cable
C = Signal Control Cable
D = Video Detection Cable
E = Power Cable

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Traffic Signal System

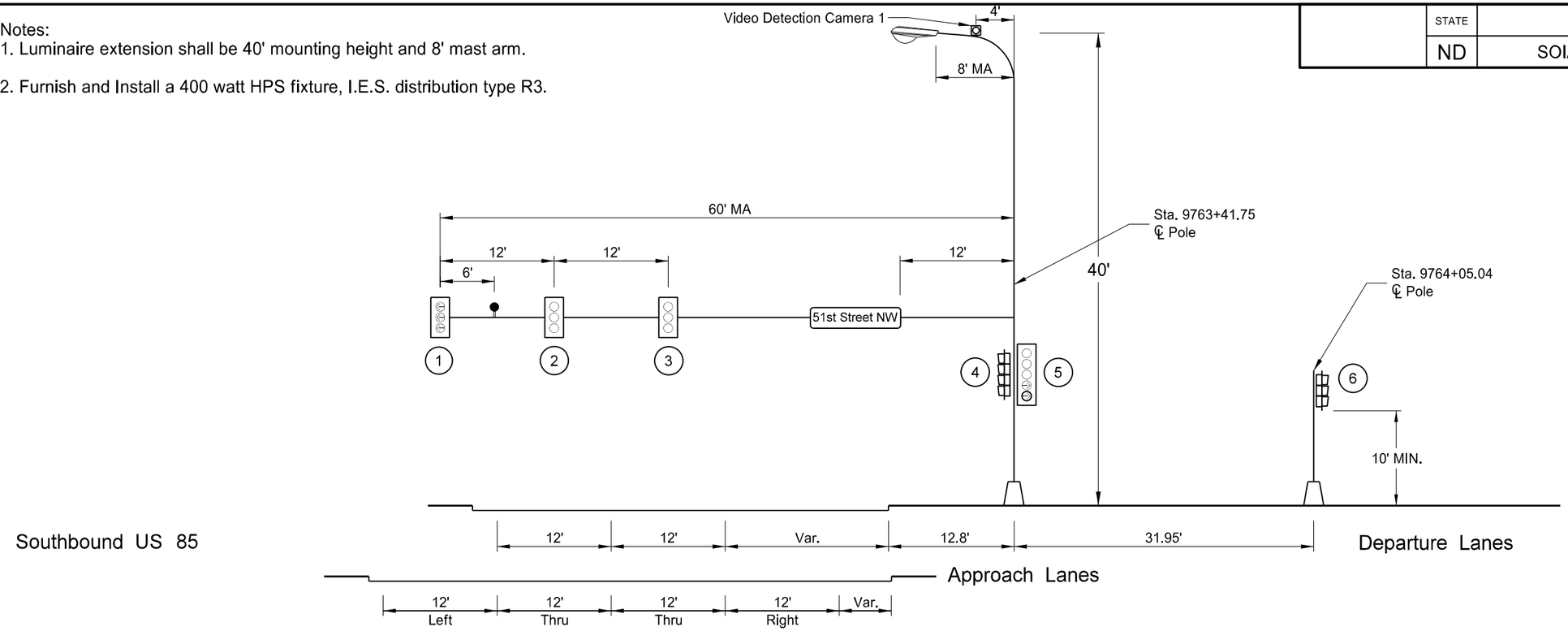
Williston NW Permanent Truck Reliever Route Phase 1A

Conduit and Conductors

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	150	5

Notes:
1. Luminaire extension shall be 40' mounting height and 8' mast arm.

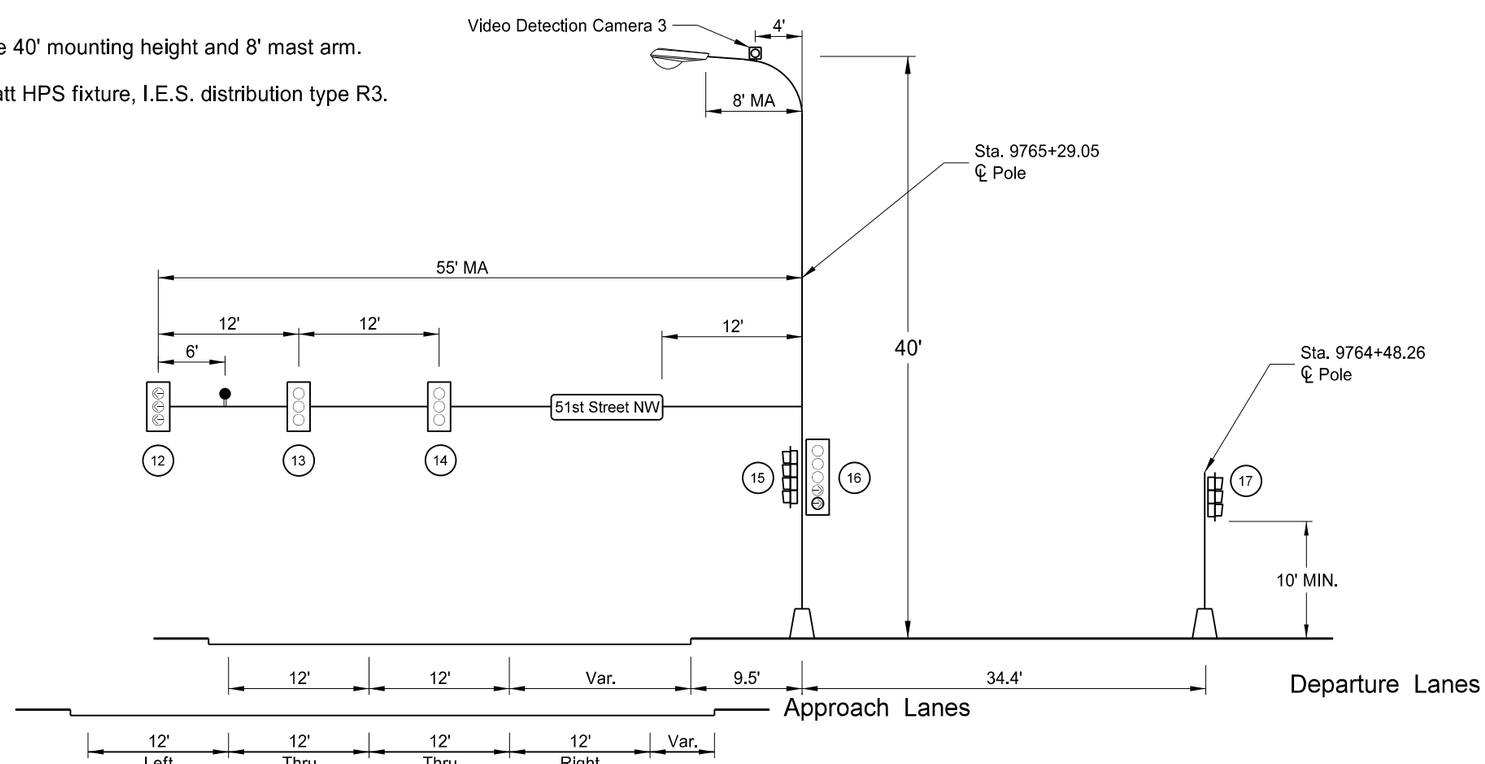
2. Furnish and Install a 400 watt HPS fixture, I.E.S. distribution type R3.



*The final location of the video detection cameras shall be determined by the contractor to provide a functional system.

Notes:
1. Luminaire extension shall be 40' mounting height and 8' mast arm.

2. Furnish and Install a 400 watt HPS fixture, I.E.S. distribution type R3.



LEGEND

- Transformer Base
- Video Detection Camera
- Traffic Signal Head
- (X) Signal Head Number
- Emergency Vehicle Detection Unit

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Traffic Signal System

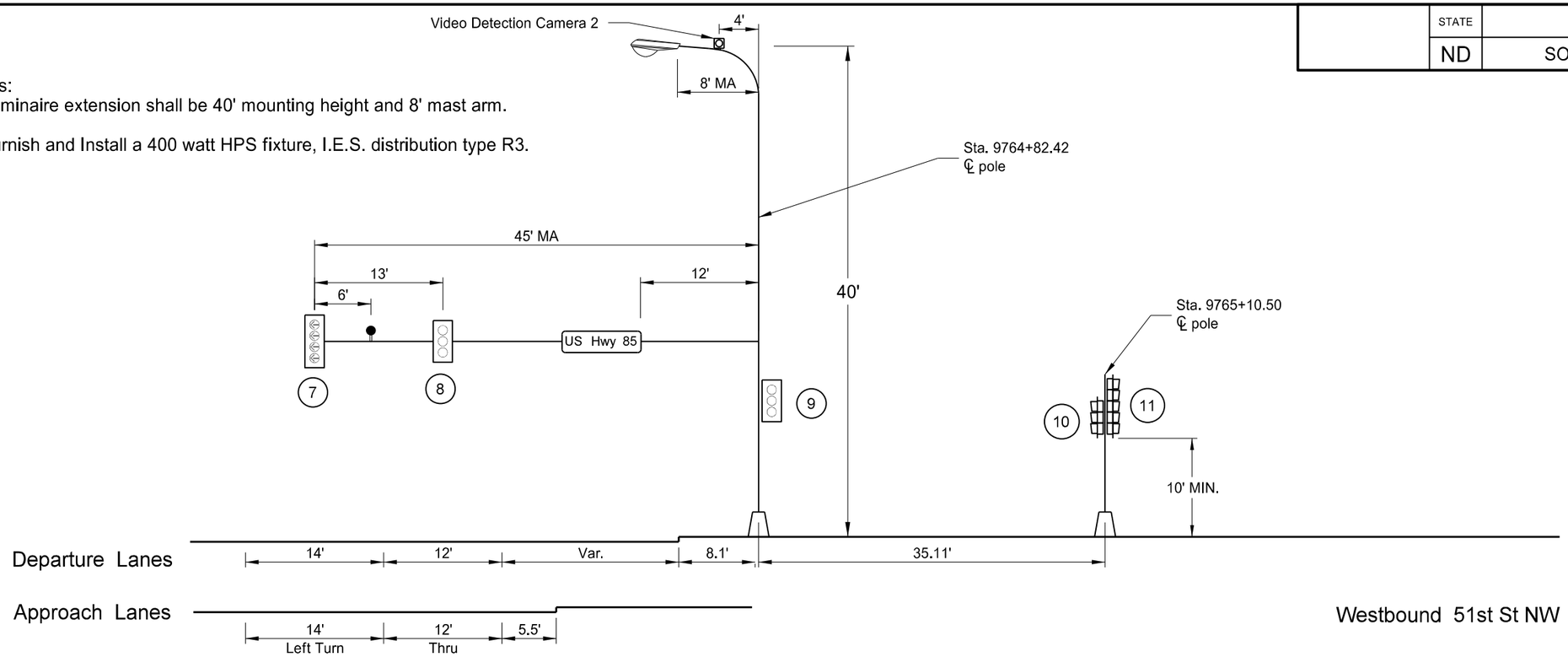
Williston NW Permanent Truck Reliever Route Phase 1A

Signal Standards and Head Locations

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	150	6

Notes:
1. Luminaire extension shall be 40' mounting height and 8' mast arm.

2. Furnish and Install a 400 watt HPS fixture, I.E.S. distribution type R3.

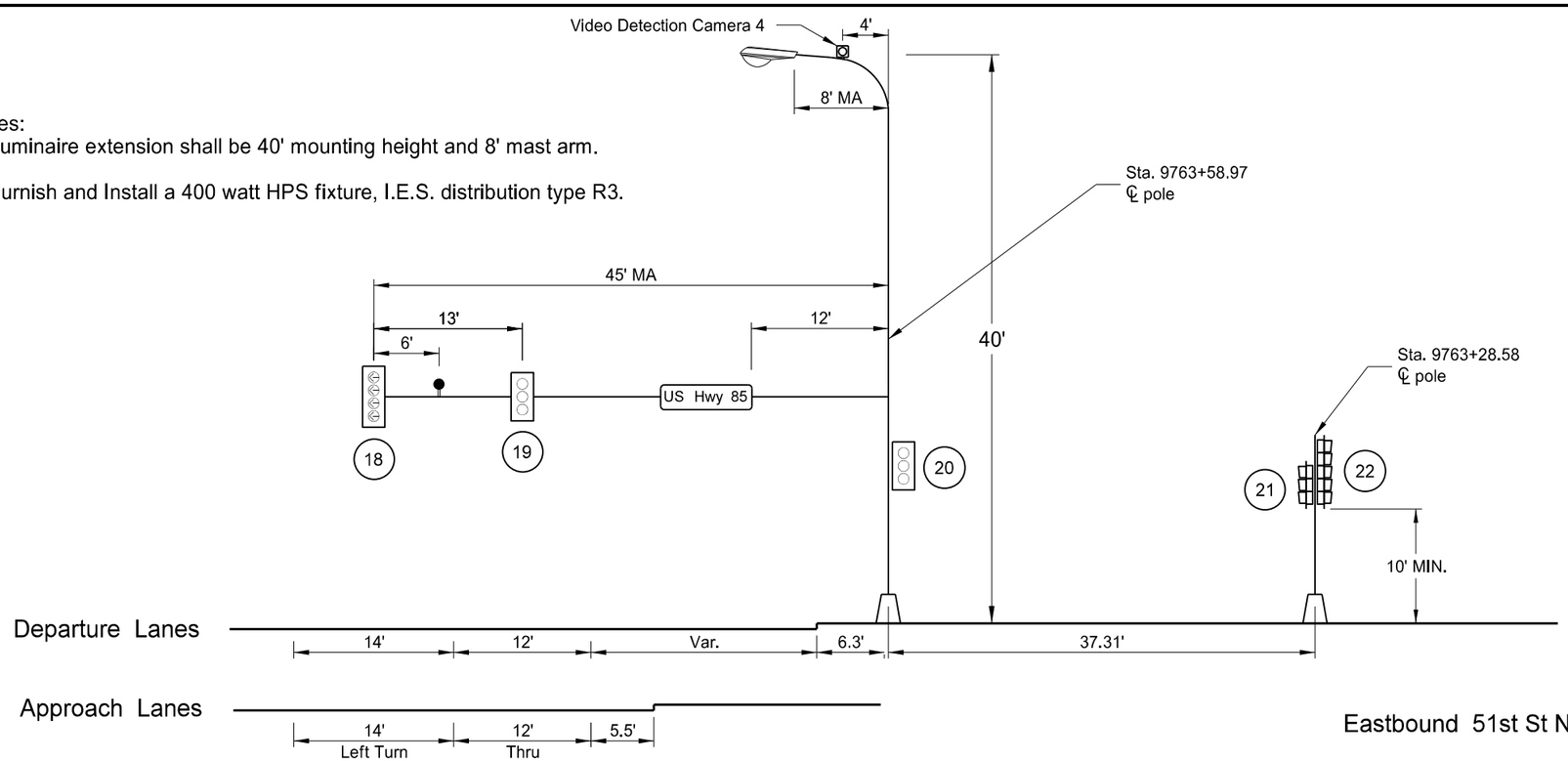


Westbound 51st St NW

*The final location of the video detection cameras shall be determined by the contractor to provide a functional system.

Notes:
1. Luminaire extension shall be 40' mounting height and 8' mast arm.

2. Furnish and Install a 400 watt HPS fixture, I.E.S. distribution type R3.



Eastbound 51st St NW

LEGEND

- Transformer Base
- Video Detection Camera
- Traffic Signal Head
- (X) Signal Head Number
- Emergency Vehicle Detection Unit

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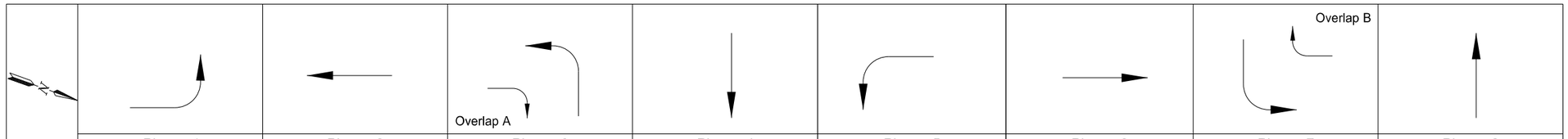
Traffic Signal System

Williston NW Permanent Truck Reliever Route Phase 1A

Signal Standarda and Head Locations

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	150	7



Head #	Phase 1 R/W	Clear to Phase 2	3	4	5	6	7	8
1								
2								
3								
4								
5								
6								
7								
8								
9								
10	G	Y	Y	Y	(A)	(A)	Y	Y
11								
12	G	Y	Y	Y	(A)	(A)	Y	Y
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								

Head #	Phase 2 R/W	Clear to Phase 3	4	5	6	7	8	1
1								
2	G	Y	Y	(A)	(A)	Y	Y	Y
3	G	Y	Y	(A)	(A)	Y	Y	Y
4								
5	G	Y	Y	(A)	(A)	Y	Y	Y
6								
7								
8								
9								
10								
11	G	Y	Y	(A)	(A)	Y	Y	Y
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								

Head #	Phase 3 R/W	Clear to Phase 4	5	6	7	8	1	2
1								
2								
3								
4								
5	G	Y	Y	Y	(A)	(A)	Y	Y
6								
7								
8								
9								
10								
11	G	Y	Y	Y	(A)	(A)	Y	Y
12								
13								
14								
15	G	Y	Y	Y	(A)	(A)	Y	Y
16								
17								
18	G	Y	Y	Y	(A)	(A)	Y	Y
19								
20								
21								
22								

Head #	Phase 4 R/W	Clear to Phase 5	6	7	8	1	2	3
1								
2								
3								
4								
5								
6								
7								
8	G	Y	Y	(A)	(A)	Y	Y	Y
9	G	Y	Y	(A)	(A)	Y	Y	Y
10								
11								
12								
13								
14								
15								
16								
17	G	Y	Y	(A)	(A)	Y	Y	Y
18								
19								
20								
21								
22								

Head #	Phase 5 R/W	Clear to Phase 6	7	8	1	2	3	4
1	G	Y	Y	Y	(A)	(A)	Y	Y
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21	G	Y	Y	Y	(A)	(A)	Y	Y
22								

Head #	Phase 6 R/W	Clear to Phase 7	8	1	2	3	4	5
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13	G	Y	Y	(A)	(A)	Y	Y	Y
14	G	Y	Y	(A)	(A)	Y	Y	Y
15								
16	G	Y	Y	(A)	(A)	Y	Y	Y
17								
18								
19								
20								
21								
22	G	Y	Y	(A)	(A)	Y	Y	Y

Head #	Phase 7 R/W	Clear to Phase 8	1	2	3	4	5	6
1								
2								
3								
4	G	Y	Y	Y	(A)	(A)	Y	Y
5								
6								
7	G	Y	Y	Y	(A)	(A)	Y	Y
8								
9								
10								
11								
12								
13								
14								
15								
16	G	Y	Y	Y	(A)	(A)	Y	Y
17								
18								
19								
20								
21								
22	G	Y	Y	Y	(A)	(A)	Y	Y

Head #	Phase 8 R/W	Clear to Phase 1	2	3	4	5	6	7
1								
2								
3								
4								
5								
6	G	Y	Y	(A)	(A)	Y	Y	Y
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19	G	Y	Y	(A)	(A)	Y	Y	Y
20	G	Y	Y	(A)	(A)	Y	Y	Y
21								
22								

Blank squares denote a red indication

(A) When one phase is on alone any nonconflicting phase may start timing concurrently without a clearance interval (See Chart A)

Chart A

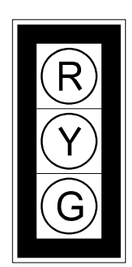
On Phase	Non-Conflicting Phase Allowed to Time Concurrently
1	5 or 6
2	5 or 6
3	7 or 8
4	7 or 8
5	1 or 2
6	1 or 2
7	3 or 4
8	3 or 4

Notes:

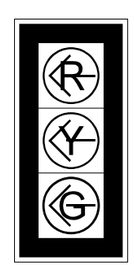
All Heads Shall use LED.

5" Louvered Back Plate with Type XI Yellow Reflective Border (typ.) on all heads.

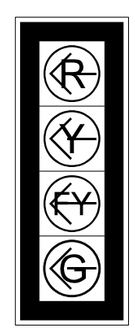
Leading/lagging of turn phases may vary to best handle traffic demands.



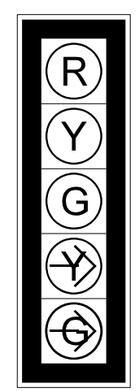
(12" Lenses)
Heads 2,3,6,8,9,
13,14,17,19,20



(12" Lenses)
Heads 1,10,12,21



(12" Lenses)
Heads 4,7,15,18



(12" Lenses)
Heads 5,11,16,22

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Traffic Signal System

Williston NW Permanent Truck Reliever Route
Phase 1A

Phasing

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	150	8

US 85 & 51st St NW

Conductor			Cable 1 (12 No.12 AWG)		Cable 2 (12 No.12 AWG)		Cable 3 (5 No.12 AWG)		Cable 4 (12 No. 12 AWG)		Cable 5 (12 No.12 AWG)	
Run	Base	Tracer	Head	Indication	Head	Indication	Head	Indication	Head	Indication	Head	Indication
1	Black		2,3,5	Ø2 Green		Spare	6	Ø4 Green	8,9	Ø8 Green	11	Ø2 Green
2	White			Neutral		Neutral		Neutral		Neutral		Neutral
3	Red		2,3,5	Ø2 Red		Spare	6	Ø4 Red	8,9	Ø8 Red	11	Ø2 Red
4	Green			Ground		Ground		Ground		Ground		Ground
5	Orange		2,3,5	Ø2 Yellow		Spare	6	Ø4 Yellow	8,9	Ø8 Yellow	11	Ø2 Yellow
6	Blue		1	Ø5 Green Left Arrow	4	Ø3 Green Left Arrow			7	Ø3 Green Left Arrow	10	Ø1 Green Left Arrow
7	White	Black	1	Ø5 Yellow Left Arrow	4	Ø3 Yellow Left Arrow			7	Ø3 Yellow Left Arrow	10	Ø1 Yellow Left Arrow
8	Red	Black	1	Ø5 Red Left Arrow	4	Ø3 Red Left Arrow			7	Ø3 Red Left Arrow	10	Ø1 Red Left Arrow
9	Green	Black	5	Ø7 Green Right Arrow		Spare				Spare	11	Ø7 Green Right Arrow
10	Orange	Black	5	Ø7 Yellow Right Arrow	4	Ø3 Flashing Yellow Left Arrow			7	Ø3 Flashing Yellow Left Arrow	11	Ø7 Yellow Right Arrow
11	Blue	Black		Spare		Spare				Spare		Spare
12	Black	White		Spare		Spare				Spare		Spare

Conductor			Cable 6 (12 No. 12 AWG)		Cable 7 (12 No. 12 AWG)		Cable 8 (5 No.12 AWG)		Cable 9 (12 No. 12 AWG)		Cable 10 (12 No.12 AWG)	
Run	Base	Tracer	Head	Indication	Head	Indication	Head	Indication	Head	Indication	Head	Indication
1	Black		13,14,16	Ø6 Green		Spare	17	Ø8 Green	19,20	Ø4 Green	22	Ø6 Green
2	White			Neutral		Neutral		Neutral		Neutral		Neutral
3	Red		13,14,16	Ø6 Red		Spare	17	Ø8 Red	19,20	Ø4 Red	22	Ø6 Red
4	Green			Ground		Ground		Ground		Ground		Ground
5	Orange		13,14,16	Ø6 Yellow		Spare	17	Ø8 Yellow	19,20	Ø4 Yellow	22	Ø6 Yellow
6	Blue		12	Ø1 Green Left Arrow	15	Ø7 Green Left Arrow			18	Ø7 Green Left Arrow	21	Ø5 Green Left Arrow
7	White	Black	12	Ø1 Yellow Left Arrow	15	Ø7 Yellow Left Arrow			18	Ø7 Yellow Left Arrow	21	Ø5 Yellow Left Arrow
8	Red	Black	12	Ø1 Red Left Arrow	15	Ø7 Red Left Arrow			18	Ø7 Red Left Arrow	21	Ø5 Red Left Arrow
9	Green	Black	16	Ø3 Green Right Arrow		Spare				Spare	22	Ø3 Green Right Arrow
10	Orange	Black	16	Ø3 Yellow Right Arrow	15	Ø7 Flashing Yellow Left Arrow			18	Ø7 Flashing Yellow Left Arrow	22	Ø3 Yellow Right Arrow
11	Blue	Black		Spare		Spare				Spare		Spare
12	Black	White		Spare		Spare				Spare		Spare

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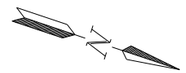
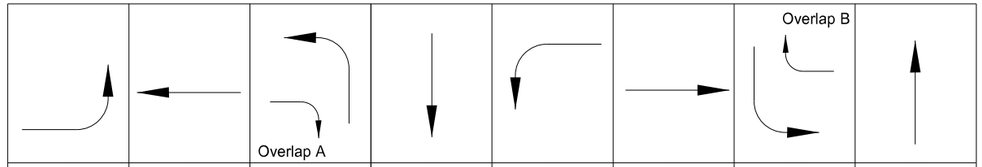
Traffic Signal System

Williston NW Permanent Truck Reliever Route Phase 1A

Conductors

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	150	9





		Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
BASIC INTERVALS (OR FUNCTIONS)									
Minimum Initial		7.0	20.0	7.0	10.0	7.0	20.0	7.0	10.0
Passage Time		1.0	4.5	1.0	3.0	1.0	4.5	1.0	3.0
Maximum (Maximum Green or Ext.Limit)		30.0	60.0	30.0	45.0	30.0	60.0	30.0	45.0
Yellow Change		3.0	4.5	3.0	3.0	3.0	4.5	3.0	3.0
Red Clearance		4.1	1.7	4.6	4.6	4.1	1.7	4.6	4.6
VOLUME DENSITY TIMING FUNCTIONS VARIABLE INITIAL TIMING OPTIONS									
Actuations Before Added Initial		-	-	-	-	-	-	-	-
Added Initial per Actuation		-	-	-	-	-	-	-	-
Maximum Initial		-	-	-	-	-	-	-	-
TIME WAITING GAP REDUCTION OPTIONS									
Time Before Reduction		-	20.0	-	-	-	20.0	-	-
Time to Reduce to Minimum Gap		-	20.0	-	-	-	20.0	-	-
Minimum Gap		-	2.0	-	-	-	2.0	-	-
Locking Memory		X	X	X	X	X	X	X	X
Non-Locking Memory									
Phase recall (Y/N)		N	Y	N	N	N	Y	N	N
Flashing-Normal & Conflict Monitor		R	R	R	R	R	R	R	R
Start Up Phasing		R	G	R	R	R	G	R	R
Type of Detector	Presence	X		X	X	X		X	X
	Calling		X				X		
	Passage		X		X		X		X
Emergency Vehicle Pre-emption		X	X	X	X	X	X	X	X

Note:

Leading/Lagging of turn phases may vary to best handle traffic demand

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Traffic Signal System

Williston NW Permanent Truck Reliever Route Phase 1A

Controller Settings

SPEC	CODE	ITEM DESCRIPTION	UNIT	TOTAL
772	0100	PULL BOX	EA	6
772	0020	CONCRETE FOUNDATION-TRAFFIC SIGNALS	EA	9
772	0240	2IN DIAMETER RIGID CONDUIT	LF	318
772	0270	3IN DIAMETER RIGID CONDUIT	LF	149
772	0290	4IN DIAMETER RIGID CONDUIT	LF	502
772	0310	UNDERGROUND CONDUCTOR NO6-TYPE THW	LF	28
772	0375	EMERGENCY VEHICLE DETECTOR CABLE	LF	1191
772	0400	NO12 AWG 2 CONDUCTOR CABLE	LF	921
772	0403	NO12 AWG 5 CONDUCTOR CABLE	LF	449
772	0410	NO12 AWG 12 CONDUCTOR CABLE	LF	1778
772	0551	FEED POINT-COMBO LIGHTING & SIGNAL-PAD MOUNT	EA	1
772	0601	TYPE II SIGNAL STANDARD	EA	1
772	0700	TYPE VI SIGNAL STANDARD	EA	4
772	1152	COMBO 45FT MA SIG & LT STD-TYPE C	EA	2
772	1252	COMBO 55FT MA SIG & LT STD-TYPE C	EA	1
772	1295	COMBO 60FT MA SIG & LT STD-TYPE C	EA	1
772	1810	1-WAY 3 SEC HEAD W/12IN LENS-POST MTD	EA	6
772	1812	1-WAY 3 SEC HEAD W/12IN LENS-MA MTD	EA	8
772	1820	1-WAY 4 SEC HEAD W/12IN LENS-POST MTD	EA	2
772	1822	1-WAY 4 SEC HEAD W/12IN LENS-MA MTD	EA	2
772	1830	1-WAY 5 SEC HEAD W/12IN LENS-POST MTD	EA	4
772	2260	VIDEO DETECTION CABLE	LF	921
772	2265	VIDEO DETECTION SYSTEM	EA	1
772	2522	VOLUME DENSITY CONTR W/EMER PRE-EMPTION & CABINET	EA	1
772	2610	EMERGENCY VEHICLE PRE-EMPTION UNIT	EA	4
772	9811	TRAFFIC SIGNAL SYSTEM--SITE 1	EA	1
		Items shown above are for informational purposes; contractor shall provide all labor and equipment necessary for the signal system to be fully operational as shown in the Plans. Items shall be included in the corresponding price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1"		

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Traffic Signal System

Williston NW Permanent Truck Reliever Route Phase 1A

Estimated Signal Quantities

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	175	1

Boring Number	LSS-010	LSS-011	LSS-012	LSS-013	LSS-014	LSS-015	LSS-016	LSS-017	LSS-018	LSS-019	LSS-020	LSS-021	LSS-022	LSS-023
Northing	433640.42	434139.75	434639.32	435128.98	435577.16	435959.20	436324.66	436690.07	437055.53	437434.57	437881.39	438372.07	438871.65	439371.36
Easting	1181852.83	1181806.27	1181878.00	1181754.64	1181536.53	1181215.26	1180874.06	1180532.97	1180191.80	1179866.72	1179646.29	1179559.86	1179575.02	1179588.63
Station	9715+04.17	9720+04.08	9725+03.93	9730+03.22	9735+02.40	9740+02.08	9745+02.14	9750+02.08	9755+02.12	9760+02.05	9765+01.86	9770+01.68	9775+01.64	9780+01.66
Offset	2.83 Rt	.04 Lt	2.10 Rt	3.13 Rt	2.60 Rt	0.02 Rt	0.01 Lt	0.00	0.01 Lt	0.56 Lt	0.64 Lt	0.51 Lt	0.01 Lt	0.00
Elevation	2093.9	2093.9	2092.0	2091.2	2088.7	2083.9	2079.1	2074.0	2074.0	2074.2	2077.0	2088.2	2094.5	2101.6
Sample Depth	3' - 10'	0' - 6'	0' - 10'	1' - 10'	1' - 10'	2' - 10'	3' - 10'	1' - 6'	1' - 10'	1' - 10'	1' - 6'	0.5' - 6'	3' - 15'	0.5' - 15'
% Passing 3/8" Sieve	100	100	100	99	98	97	95	100	96	90	99	100	99	98
% Passing No. 4 Sieve	96	97	95	97	96	96	93	97	94	87	99	97	97	96
% Passing No. 10 Sieve	93	94	88	94	93	93	89	95	90	82	97	92	92	94
% Coarse Sand (-No. 10, +No. 40)	12	8	10	7	8	8	7	8	10	7	7	13	9	6
% Fine Sand (-No. 40, +No. 200)	26	22	21	21	22	22	22	21	22	21	16	25	20	19
% Silt (0.075 - 0.002 mm)	36	43	38	37	38	39	35	39	35	32	43	35	35	34
% Clay (<0.002 mm)	19	22	19	30	25	25	26	27	24	23	30	20	28	35
% Finer than 0.02 mm	38	39	36	48	45	45	43	45	39	37	52	38	46	53
Frost Group	F3	F3	F3	F3	F3	F3	F3	F3	F3	F3	F3	F3	F3	F3
Liquid Limit (-No. 40)	29	34	31	42	37	32	39	40	36	34	38	25	39	44
Plastic Limit (-No. 40)	14	15	14	14	13	12	14	15	14	14	16	10	12	13
Plasticity Index (-No. 40)	15	19	17	28	24	20	25	25	22	20	22	15	27	31
Soil Color	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
USCS Classification	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL
Soil Classification (AASHTO M-15)	A-6 (5)	A-6 (10)	A-6 (6)	A-7-6 (16)	A-6 (12)	A-6 (9)	A-6 (12)	A-6 (14)	A-6 (9)	A-6 (7)	A-6 (14)	A-6 (5)	A-6 (14)	A-7-6 (19)
Optimum Moisture (%)	9.0	9.0	9.0	10.0	9.0	9.0	9.0	11.0	9.0	10.0	10.0	9.0	10.0	11.0
Maximum Dry Density (pcf)	131.0	131.0	131.0	126.0	129.0	133.0	131.0	125.0	131.0	130.0	124.0	132.0	129.0	127.0

Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)	LSS-010	LSS-011	LSS-012	LSS-013	LSS-014	LSS-015	LSS-016	LSS-017	LSS-018	LSS-019	LSS-020	LSS-021	LSS-022	LSS-023
3.0	20	0.0	8	0.0	14	1.0	12	1.0	12	2.0	8	3.0	16	1.0	12	1.0	11	1.0	14	1.0	14	1.0	8	3.0	10	1.0	16
4.0	11	1.0	8	1.0	12	2.0	12	2.0	11	3.0	9	4.0	15	2.0	12	2.0	9	2.0	17	2.0	9	2.0	5	4.0	10	2.0	9
5.0	9	2.0	13	2.0	13	3.0	10	3.0	16	4.0	12	5.0	11	3.0	15	3.0	14	3.0	26	3.0	7	3.0	4	5.0	11	3.0	9
6.0	9	3.0	15	3.0	14	4.0	11	4.0	16	5.0	14	6.0	12	4.0	15	4.0	14	4.0	19	4.0	8	4.0	4	6.0	11	4.0	10
7.0	16	4.0	17	4.0	12	5.0	14	5.0	7	6.0	14	7.0	14	5.0	15	5.0	14	5.0	15	5.0	9	5.0	6	7.0	10	5.0	9
8.0	14	5.0	11	5.0	13	6.0	14	6.0	15	7.0	14	8.0	14			6.0	14	6.0	14					8.0	10	6.0	10
9.0	14			6.0	14	7.0	14	7.0	15	8.0	14	9.0	14			7.0	15	7.0	13					9.0	10	7.0	10
				7.0	15	8.0	12	8.0	16	9.0	15					8.0	15	8.0	16					10.0	20	8.0	11
Avg. Moisture of Sample Depth (all)		13	12	14	13	14	13	14	14	14	17	9	5	12	11

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Soil Boring Logs

Williston NW Permanent Truck Reliever Route
Phase 1A

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	175	2

Boring Number	LSS-024	LSS-025	LSS-026	LSS-027	LSS-028	LSS-029	LSS-030
Northing	439871.12	440370.16	440869.92	441369.55	441869.08	442368.53	442867.99
Easting	1179576.81	1179547.45	1179539.35	1179555.55	1179576.65	1179597.71	1179618.93
Station	9785+01.69	9790+01.70	9795+01.65	9800+01.66	9805+01.71	9810+01.68	9815+01.67
Offset	0.01 Lt	0.05 Rt	0.00	0.03 Rt	0.02 Rt	0.03 Lt	0.08 Rt
Elevation	2105.4	2100.9	2092.1	2087.7	2106.2	2112.2	2117.9
Sample Depth	2' - 7'	0.5' - 10'	0.5' - 10'	0.3' - 5'	0.3' - 10'	0.3' - 15'	0.3' - 5'
% Passing 3/8" Sieve	98	99	99	99	99	100	99
% Passing No. 4 Sieve	95	96	97	95	96	99	98
% Passing No. 10 Sieve	89	91	93	90	93	96	95
% Coarse Sand (-No. 10, +No. 40)	14	8	9	10	7	7	8
% Fine Sand (-No. 40, +No. 200)	27	19	23	22	19	20	26
% Silt (0.075 - 0.002 mm)	31	35	34	38	39	40	36
% Clay (<0.002 mm)	17	29	27	21	28	30	24
% Finer than 0.02 mm	31	47	44	39	49	50	41
Frost Group	F3	F3	F3				
Liquid Limit (-No. 40)	26	40	30	37	44	41	34
Plastic Limit (-No. 40)	13	13	11	16	14	14	13
Plasticity Index (-No. 40)	13	27	19	21	30	27	21
Soil Color	Brown	Brown	Brown	Dark Brown	Brown	Brown	Brown
USCS Classification	SC	CL	CL	CL	CL	CL	CL
Soil Classification (AASHTO M-15)	A-6 (3)	A-6 (14)	A-6 (8)	A-6 (10)	A-7-6 (17)	A-7-6 (16)	A-6 (9)
Optimum Moisture (%)	8.0	10.0	9.0	11.0	12.0	11.0	9.0
Maximum Dry Density (pcf)	137.0	129.0	132.0	123.0	122.0	123.0	126.0

Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)													
	2.0	12	1.0	13	1.0	9	1.0	10	1.0	19	1.0	17	1.0	6
	3.0	9	2.0	12	2.0	6	2.0	9	2.0	19	2.0	17	2.0	6
	4.0	10	3.0	11	3.0	7	3.0	8	3.0	19	3.0	17	3.0	6
	5.0	9	4.0	11	4.0	9	4.0	5	4.0	18	4.0	17	4.0	9
	6.0	8	5.0	11	5.0	9			5.0	18	5.0	17		
			6.0	10	6.0	10			6.0	18	6.0	17		
			7.0	11	7.0	11			7.0	18	7.0	18		
			8.0	12	8.0	12			8.0	18	8.0	18		
Avg. Moisture of Sample Depth (all)	10		11		9		8		18		17		7	

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Soil Boring Logs

Williston NW Permanent Truck Reliever Route
Phase 1A

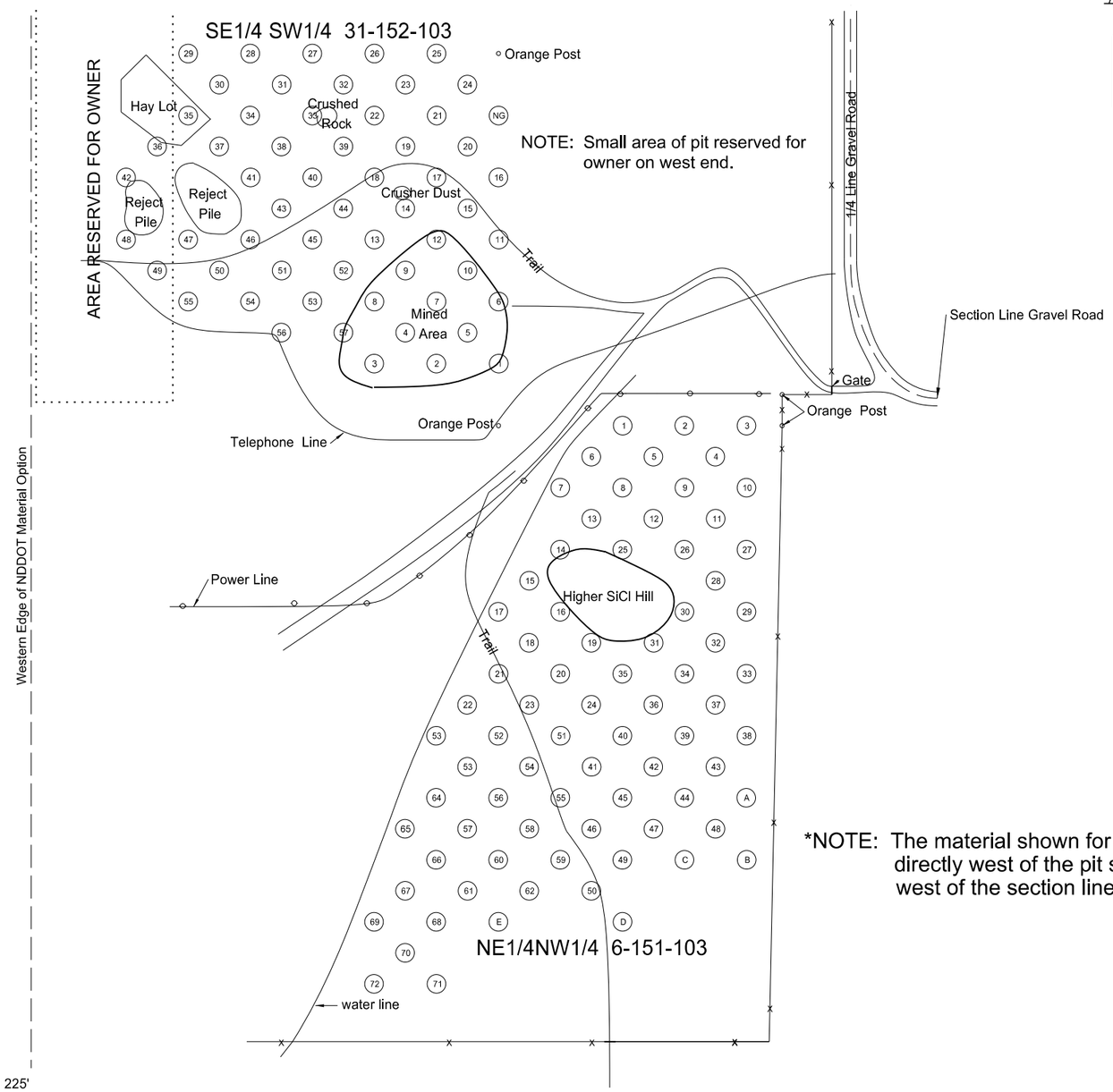
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	180	1

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

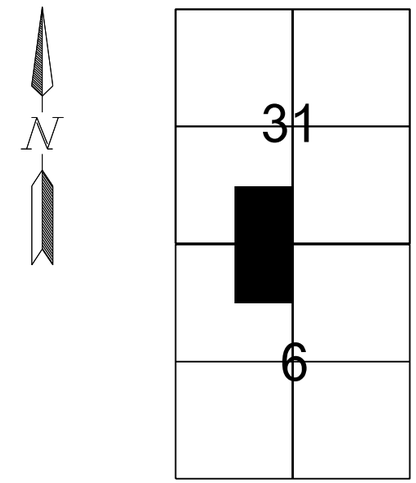
TEST HOLE PLAT

Location: SE1/4SW1/4 31-152-103 & NE1/4NW1/4 6-151-103 County: McKenzie

Ownership: James & Diana Gullikson, Cartwright, ND



LOCATION OF PIT IN SECTION



SE1/4SW1/4 31-152-103

Area "A" consists of Test Holes 1 - 13
Area "B consists of Test Holes 14 - 26
Area "C" consists of Test Holes 27 - 39
Area "D" consists of Test Holes 40 - 48
Area "E" consists of Test Holes 49 - 57

NE1/4NW1/4 6-151-103

Area "A" consists of Test Holes 1 - 13
Area "B consists of Test Holes 14 - 24
Area "C" consists of Test Holes 25 - 37
Area "D" consists of Test Holes 38 - 50
Area "E" consists of Test Holes 51 - 62
Area "F" consists of Test Holes 63 - 72

Legend:
gr = gravel
sd = sand
FS = fine sand
Fgr = fine gravel
CS = coarse sand
sh = shale
SiCl = silt clay
rk = rock
FeO = Iron oxide
CoS = Coal Slack
WL = water line
NG = no gravel

*NOTE: The material shown for Section 6 may now be depleted. More material may be available directly west of the pit shown in Section 6. The NDDOT Material Option includes 1,320 feet west of the section line and 1,320 feet south of the section line in Section 6.

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	**SOIA-7-085(094)183**	**180**	**2**

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
1	1.5	9.0 gr	0	18	45	62	+WL16.5
		1.5 FS					
		4.5 gr					
2	0.5	0.5 gr	0	16	33	42	+WL 7.0
		1.0 Fgr					
		1.0 Fgr SiCl					
		1.0 Fgr					
		1.0 Fgr SiCl					
		2.0 gr					
3	0.5	4.5 gr	2	17	32	51	+WL 5.0
4	0.5	3.5 gr	1	24	48	62	+WL 4.0
5	5.0	1.0 gr	3	18	28	35	+WL 8.0
		1.0 FS					
		1.0 gr					
6	0.5	5.5 gr SiCl	1	12	27	33	+WL14.0
		1.0 gr					
		0.5 FS					
		0.5 Fgr					
		4.0 gr					
		2.0 FS					
7	0.5	3.5 gr	0	12	24	37	+WL 4.0
8	0.5	4.5 gr	1	26	48	58	+WL 5.0
9	0.5	1.5 gr	1	22	33	37	+WL 2.0
10	2.0	1.0 sd	2	21	40	50	+WL 8.0
		4.0 gr					
		1.0 FS					
11	1.0	1.0 Fgr	2	21	41	54	+WL17.0
		8.0 gr					
		1.0 Fgr					
		2.0 gr					
		1.0 Fgr					
		3.0 gr					
12	0.5	0.5 FS	1	21	44	55	+WL 3.0
		2.0 gr					
13	0.5	5.5 Fgr	0	9	22	29	+WL 9.0
		1.0 sd					
		1.0 Fgr					
		1.0 gr					
14	0.5	2.5 FS	0	7	19	29	+WL 8.0
		3.0 gr					
		2.0 FS					
15	2.0	1.0 gr	1	17	35	43	+WL13.0
		1.0 sd					
		6.0 gr					
		2.0 FS					
		1.0 gr					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
16	0.5	0.5 Fgr	1	13	29	37	+WL 9.5
		1.0 FS					
		1.0 Fgr					
		2.0 FgrSiCl					
		1.0 FS					
		3.0 gr					
17	1.0	2.0 FS	0	15	33	40	+WL 7.0
		3.0 gr					
		1.0 FS					
18	0.5	6.5 gr	0	16	36	48	+WL 8.0
		1.0 sd					
19	0.5	3.5 gr	0	10	27	35	+WL 6.0
		1.0 FS					
		1.0 gr					
20	0.5	2.5 Fgr	0	14	32	43	+WL10.0
		3.0 gr					
		0.5 FS					
		3.5 gr					
21	0.5	5.5 gr	0	14	33	44	+WL 6.0
22	0.5	0.5 sd	0	12	29	42	+WL 6.0
		4.5 gr					
		0.5 Fgr					
23	0.5	1.5 sd	0	9	19	25	+WL 9.0
		1.0 sd SiCl					
		1.0 FS					
		3.0 gr					
		1.0 FS					
		1.0 gr					
24	0.5	2.5 sd	0	4	12	17	+WL10.0
		1.0 Fgr SiCl					
		3.0 gr					
		3.0 FS					
25	0.5	2.5 sd SiCl	0	11	25	31	+WL 9.0
		5.0 gr					
		1.0 FS					
26	0.5	3.5 FS	0	6	15	20	+WL12.0
		1.0 sd					
		1.0 FS					
		1.0 Fgr					
27	0.5	2.5 gr	0	9	19	26	+WL 7.0
		4.0 FS					
28	0.5	3.5 gr	2	28	44	50	+WL 8.0
		1.0 FS					
		3.0 gr					
29	0.5	4.5 gr	1	21	44	50	+WL 9.0
		2.0 FS					
		2.0 gr					
30	0.5	7.5 gr	4	29	51	60	+WL 8.0

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
31	0.5	6.0 gr	3	23	55	75	+WL 6.5
32	0.5	5.5 gr	0	16	37	49	+WL 6.0
33	0.5	1.5 gr	0	11	32	47	+WL 5.0
		1.0 FS					
		2.0 gr					
34	0.5	5.5 gr	3	19	45	63	+WL 6.0
35	0.5	7.5 gr	2	31	53	69	+WL 8.0
36	0.5	4.5 FS SiCl	0	20	35	45	+WL 8.5
		3.5 gr					
37	0.5	1.5 gr	0	10	28	37	+WL 5.0
		1.0 FS					
		1.0 gr					
		1.0 FS					
38	0.5	5.5 gr	0	17	38	48	+WL 6.0
39	1.0	4.0 gr	0	13	31	44	+WL 5.0
40	0.5	1.5 gr	0	9	24	33	+WL 6.0
		4.0 FS SiCl					
41	0.5	5.5 gr	0	13	36	48	+WL 6.0
42	0.5	2.5 sd	0	7	17	28	+WL 7.0
		4.0 gr					
43	0.5	4.5 gr	0	21	46	60	+WL 8.0
		1.0 FS					
		2.0 gr					
44	0.5	3.5 gr	0	6	19	27	+WL 7.0
		3.0 sd SiCl					
45	0.5	3.0 gr	0	15	36	52	+WL 9.0
		0.5 FS					
		1.5 gr					
		0.5 Fgr					
		3.0 gr					
46	0.5	0.5 gr	2	22	42	54	+WL 8.5
		1.0 sd					
		4.0 gr					
		1.0 FS					
		1.5 gr					
47	1.0	1.0 Fgr	0	16	39	53	+WL 8.0
		6.0 gr					
48	0.5	2.5 FS	0	11	24	31	+WL 8.0
		2.0 gr					
		2.0 FS					
		1.0 gr					
49	1.5	7.5 gr	2	22	43	58	+WL 12.0
		1.0 gr Si Cl					
		2.0 gr					
50	0.5	6.0 FS	0	9	21	31	+WL 10.5
		1.5 Fgr					
		2.5 gr					
51	0.5	5.5 gr	3	25	41	51	+WL 9.5
		2.0 FS					
		1.5 gr					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
52	0.5	1.5 gr	0	13	25	30	+WL 10.0
		2.0 FS					
		3.0 gr					
		5.0 Fgr					
		2.5 FS					
53	0.5	1.5 gr	0	15	29	37	+WL 9.5
		5.0 FS					
		2.5 gr					
54	0.5	0.5 Fgr	0	23	46	59	+WL 11.0
		10.0 gr					
55	5.0	6.0 gr	2	20	38	52	+Cave
		2.0 FS					
56	0.5	2.0 gr	0	11	24	34	+WL 10.0
		4.5 FS					
		2.0 gr					
		1.0 FS					
57	0.5	6.0 gr	0	21	42	54	+WL 6.5

RANGE 103 **TWP** 152 **SEC** SE¼SW¼ 31

COUNTY McKenzie Sep-08

PROSPECTED BY Volk/Swenson

INSPECTED & APPROVED Carter Jun-09

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	**SOIA-7-085(094)183**	**180**	**3**

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
1	1.0	2.0 sd	2	25	46	58	+
		2.0 gr					
		1.5 sd					
		13.5 gr					
2	4.0	2.0 FS	2	14	33	45	+
		10.5 gr					
		0.5 gr SiCl					
		1.5 gr					
		0.5 gr CoS					
		1.0 gr					
3	2.0	2.0 gr	1	15	36	51	+
		1.0 FS					
		2.0 Fgr					
		1.0 FS SiCl					
		6.0 gr					
		1.0 FS					
		2.0 gr					
		1.0 FS					
		2.0 gr					
4	2.0	2.0 FS SiCl	1	20	41	54	+
		14.5 gr					
		0.5 gr CoS					
		1.0 Fgr					
5	0.5	1.0 sd	1	23	48	60	+
		2.5 Fgr					
		14.0 gr					
		1.0 FS					
		1.0 gr					
6	0.5	1.5 sd	2	18	44	58	+
		15.5 gr					
		1.5 Fgr					
7	0.5	0.5 sd	2	25	49	63	+
		2.0 Fgr					
		17.0 gr					
8	1.0	1.0 Fgr	3	22	49	62	+
		1.0 sd					
		8.0 gr					
		2.0 FS					
		2.0 gr					
		2.0 gr SiCl					
		3.0 gr					
9	1.0	2.0 sd	0	21	43	55	+
		15.5 gr					
		1.5 FS					
10	0.5	1.5 FS	3	22	49	62	+
		18.0 gr					
11	0.5	2.5 sd	1	20	42	56	+
		2.0 Fgr					
		15.0 gr					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
12	1.0	2.0 sd SiCl	3	28	54	65	+
		14.0 gr					
		2.0 gr SiCl					
		1.0 gr					
13	2.0	16.0 gr	0	16	44	61	+
		2.0 FS					
14	8.0	1.0 sd Si Cl	0	11	31	43	+
		1.0 Fgr					
		2.0 gr					
		2.0 FS					
		6.0 gr					
15	4.0	0.5 FS	0	21	44	59	+
		4.0 gr					
		0.5 FS					
		11.0 gr					
16	9.0	4.0 Fgr	0	7	26	43	+
		1.0 gr					
		1.0 FS					
		4.0 Fgr					
		1.0 FS					
17	3.0	2.0 Fgr	1	14	34	44	+
		8.0 gr					
		5.0 FS					
		1.0 gr					
		1.0 FS					
18	5.0	1.5 FS	2	16	34	46	+
		4.5 gr					
		1.0 FS					
		8.0 gr					
19	6.0	9.0 FS	0	0	1	3	+ Cave
20	4.0	1.5 FS	0	16	27	34	+
		1.5 gr					
		1.0 FS					
		2.0 gr					
		1.0 FS					
		1.0 Fgr					
		3.0 gr					
		2.0 FS Si Cl					
		0.5 Fgr					
		0.5 FS					
		2.0 gr					
21	1.0	1.0 FS	2	22	47	60	+
		18.0 gr					
22	1.0	1.0 FS	1	17	36	47	+
		2.0 gr					
		0.5 FS					
		1.5 Fgr					
		12.0 gr					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
23	2.0	1.5 sd	1	20	38	49	+
		3.5 gr					
		1.0 FS					
		4.5 gr					
		3.5 FS					
		4.0 gr					
24	2.0	1.5 FS	3	17	37	47	+
		6.5 gr					
		1.0 sd					
		3.5 gr					
		0.5 sd					
		1.5 gr					
		0.5 FS					
		3.0 gr					
25	5.0	7.0 gr	1	21	45	57	+
		2.0 FS					
		6.0 gr					
26	1.0	2.0 FS	3	19	37	50	+
		4.5 gr					
		1.5 FS					
27	1.0	3.0 FS	1	18	41	54	+
		13.0 gr					
		1.5 FS					
		1.5 gr					
28	2.0	2.0 sd	0	13	38	52	+
		8.5 gr					
		1.5 Fgr					
		4.5 gr					
		1.5 gr Co S					
29	4.0	2.0 sd	1	13	32	46	+
		2.5 FS					
		4.5 gr					
		4.0 Fgr					
		3.0 gr					
30	7.0	5.0 gr	0	16	37	50	+
		1.0 gr Si Cl					
		1.0 gr					
		1.0 gr Si Cl					
		2.0 gr					
		2.0 FS					
		1.0 Fgr					
31	8.0	2.0 FS Si Cl	0	15	33	46	+
		1.0 FS					
		9.0 gr					
32	7.0	6.0 gr	2	21	44	61	+
		1.0 gr Si Cl					
		6.0 gr					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
33	4.0	8.0 FS	0	14	30	39	+
		8.0 gr					
34	2.5	1.0 FS	0	14	37	49	+
		0.5 Fgr					
		6.5 gr					
		0.5 FS					
		9.0 gr					
35	2.0	7.0 FS	0	18	35	42	+
		9.0 gr					
		1.0 FS					
		1.0 gr					
36	2.0	2.0 FS	1	14	31	42	+
		1.0 sd					
		1.0 Fgr					
		1.0 gr					
		1.0 FS					
		6.5 gr					
		2.5 FS					
		3.0 gr					
37	5.0	1.0 FS	0	15	41	54	+
		4.0 gr Si Cl					
		6.0 gr					
		1.0 FS					
		1.0 gr					
		1.5 gr Si Cl					
		0.5 gr					
38	6.0	10.0 FS	0	4	13	17	+
		4.0 gr					
39	3.0	2.0 FS	1	19	44	57	+
		6.5 gr					
		1.5 Fgr					
		7.0 gr					
40	1.0	19.0 gr	2	17	39	56	+
41	2.0	3.0 gr	1	17	36	48	+
		1.0 FS					
		1.0 Fgr					
		1.0 FS					
		5.0 gr					
		1.0 FS					
		6.0 gr					

RANGE 103 **TWP** 152 **SEC** NE¼ NW¼ 6

COUNTY McKenzie Sep-08

PROSPECTED BY Volk/Swenson

INSPECTED & APPROVED Carter Jun-09

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-085(094)183	180	4

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
42	2.0	2.0 FS	3	20	44	57	+
		16.0 gr					
43	3.5	4.5 FS	0	9	23	30	+
		2.0 sd					
		2.0 gr					
		1.0 FS					
		1.5 gr					
		3.5 FS					
		2.0 gr					
44	6.0	2.0 FS	0	11	33	47	+
		1.0 gr					
		1.0 FS					
		4.0 gr					
		1.0 Fgr					
		5.0 gr					
45	3.0	1.0 sd	1	22	46	57	+
		4.0 gr					
		1.0 FS					
		1.0 gr					
		1.0 FS					
		9.0 gr					
46	6.0	1.0 Fgr	1	23	46	56	+
		4.0 gr					
		2.0 FS					
		7.0 gr					
47	6.0	1.0 sd	1	18	39	51	+
		1.0 Fgr					
		5.0 gr					
		1.0 FS					
		1.0 Fgr					
		5.0 gr					
48	7.0	6.0 FS	0	9	27	40	+
		7.0 gr					
49	8.0	1.0 FS	1	14	36	50	+
		8.5 gr					
		0.5 FS					
		2.0 gr					
50	6.0	1.0 FS	0	12	27	38	+
		1.0 Fgr					
		1.0 FS					
		1.0 Fgr Co S					
		1.0 Fgr Si Cl					
		2.0 FS					
		7.0 gr					
51	2.0	1.0 FS	0	20	40	50	+
		9.0 gr					
		0.5 FS					
		1.5 Fgr					
		6.0 gr					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
52	2.5	1.5 gr	1	21	41	54	+
		2.0 FS					
		11.0 gr					
		2.0 FS					
		1.0 gr					
53	2.0	0.5 gr	3	28	54	65	+
		1.5 FS					
		16.0 gr					
54	3.0	2.5 gr	1	14	34	46	+
		3.5 FS					
		3.0 gr					
		1.0 FS					
		1.0 gr					
		1.0 FS					
		5.0 gr					
55	4.0	0.5 FS	1	18	37	48	+
		2.5 gr					
		3.0 FS					
		10.0 gr					
56	2.0	1.0 FS	0	10	24	35	+
		4.0 gr					
		1.0 FS					
		1.0 Fgr					
		1.0 FS					
		1.0 Fgr					
		1.0 FS					
		4.0 gr					
		1.0 FS					
		1.0 Fgr					
		1.0 FS					
		1.0 Fgr					
57	2.0	2.5 FS	1	18	35	45	+
		4.5 gr					
		5.0 FS					
		5.0 gr					
		1.0 FS					
58	2.0	3.0 FS	2	17	38	49	+
		1.0 Fgr					
		6.0 gr					
		0.5 FS					
		0.5 Fgr					
		7.0 gr					
59	4.0	1.5 gr	1	14	32	42	+
		2.5 FS					
		8.0 gr					
		1.0 FS					
		2.0 gr					
		1.0 FS					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
60	5.0	3.0 FS	0	18	38	46	+
		7.0 gr					
		1.0 sd					
		4.0 gr					
61	2.0	2.0 FS	0	7	19	29	+
		2.0 FS Co S					
		1.0 Fgr					
		2.0 FS					
		1.0 sd Si Cl					
		1.0 FS					
		9.0 gr					
62	8.5	1.5 FS	0	14	33	45	+
		1.0 Fgr					
		1.0 FS					
		2.0 Fgr					
		6.0 gr					
63	1.0	1.0 FS	2	20	45	58	+
		1.0 Fgr					
		17.0 gr					
64	2.0	7.0 gr	2	26	46	57	+
		3.0 FS					
		4.0 gr					
		1.0 FS					
		3.0 gr					
65	1.0	1.0 Fgr	0	19	44	56	+
		8.0 gr					
		1.0 FS					
		9.0 gr					
66	3.5	1.5 FS	1	18	38	49	+
		6.0 gr					
		3.0 FS					
		6.0 gr					
67	5.5	1.5 FS	0	16	42	55	+
		9.0 gr					
		1.0 FS					
		3.0 gr					
68	6.0	1.0 sd	0	12	27	38	+
		1.0 gr					
		3.0 FS					
		2.0 gr					
		1.0 FS					
		6.0 gr					
69	5.5	0.5 FS	0	14	36	50	+
		2.0 Fgr					
		7.0 gr					
		1.0 sd					
		4.0 gr					
70	4.0	1.0 gr	0	6	19	27	+
		10.0 FS					
		5.0 gr					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
71	3.5	4.5 sd	0	0	4	3	+
		12.0 FS					
72	6.0	4.0 sd	1	12	29	42	+
		4.0 gr					
		1.5 FS					
		3.0 gr					
		1.5 FS					
A	1.0	3.0 FS	0	0	0	0	+
		1.0 sd Si Cl					
		16.0 FS					
B	6.0	14.0 FS	0	0	0	0	+
C	1.0	14.0 FS	0	0	2	3	+
		0.5 Fgr					
		3.5 FS					
		1.0 Fgr					
D	8.0	2.0 FS Si Cl	0	2	7	10	+
		1.0 gr Si Cl					
		1.0 FS Si Cl					
		8.0 FS					
E	2.0	1.0 FS	0	0	5	8	+
		1.0 Fgr					
		1.0 sd Co S					
		2.0 Fgr					
		3.0 sd					
		2.0 Fgr					
		1.0 FS					
		1.5 Fgr					
		0.5 gr					

***NOTE: THE MATERIAL IN SECTION 6 MIGHT BE DEPLETED**

RANGE 103 **TWP** 151 **SEC** NE¼ NW¼ 6

COUNTY McKenzie Sep-08

PROSPECTED BY Volk/Swenson

INSPECTED & APPROVED Carter Jun-09