STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED BY PHASE NO. 1A	1B	2	3	4A	TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
E5-1-48	48"x48"	EXIT GORE							35	
G20-1-60	60"x24"	ROAD WORK NEXT __ MILES							28	
G20-1b-60	60"x24"	NO WORK IN PROGRESS (Sign and installation only)							18	
G20-2-48	**48"x24"**	**END ROAD WORK**	**4**	**2**	**2**	**2**	**2**	**4**	**26**	**104**
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)							18	
G20-4b-36	36"x30"	WAIT FOR PILOT CAR							18	
G20-50a-72	72"x36"	ROAD WORK NEXT __ MILES RT & LT ARROWS							43	
G20-52a-72	72"x24"	ROAD WORK NEXT __ MILES RT or LT ARROW							36	
G20-55-96	**96"x48"**	**SPEED LIMIT ENFORCED - MINIMUM FEE $150 WHEN WORKERS PRESENT**	**5**	**3**	**3**	**3**	**4**	**5**	**59**	**295**
M1-1-24	**24"x24"**	**INTERSTATE ROUTE MARKER (Post and installation only)**		**2**	**2**		**1**	**2**	**10**	**20**
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)							11	
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)**		**32**	**7**	**21**	**10**	**32**	**7**	**224**
M3-2-24	24"x12"	EAST (Mounted on route marker post)							7	
M3-3-24	**24"x12"**	**SOUTH (Mounted on route marker post)**		**33**		**25**	**2**	**33**	**7**	**231**
M3-4-24	24"x12"	WEST (Mounted on route marker post)							7	
M4-4-24	**24"x12"**	**TRUCK**		**34**				**34**	**12**	**408**
M4-6P-24	**24"x12"**	**END**		**2**		**1**		**2**	**7**	**14**
M4-8-24	**24"x12"**	**DETOUR (Mounted on route marker post)**		**74**	**7**	**46**	**12**	**74**	**7**	**518**
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT							15	
M4-10-48	**48"x18"**	**DETOUR (INSIDE ARROW) RIGHT or LEFT (Mounted on barricade)**				**2**	**2**	**2**	**7**	**14**
M5-1-21	**21"x15"**	**ADVANCE TURN ARROW RT or LT(Mounted on route marker post)**		**24**	**2**	**17**	**4**	**24**	**7**	**168**
M5-1-30	30"x21"	ADVANCE TURN ARROW RT or LT(Mounted on route marker post)							9	
M6-1-21	**21"x15"**	**DIRECTIONAL ARROW RT or LT (Mounted on route marker post)**		**24**	**2**	**17**	**4**	**24**	**7**	**168**
M6-1-30	30"x21"	DIRECTIONAL ARROW RT or LT (Mounted on route marker post)							9	
M6-3-21	**21"x15"**	**DIRECTIONAL ARROW UP (Mounted on route marker post)**		**22**	**3**	**12**	**4**	**22**	**7**	**154**
R1-1-48	**48"x48"**	**STOP**				**1**	**1**	**1**	**32**	**32**
R1-2-60	60"x60"	YIELD							29	
R2-1-36	36"x48"	SPEED LIMIT __ (Portable only)							30	
R2-1-48	**48"x60"**	**SPEED LIMIT __**	**9**	**5**	**5**	**5**	**7**	**9**	**39**	**351**
R2-1aP-24	**24"x18"**	**MINIMUM FEE $150 (Mounted on Speed Limit post)**	**5**	**3**	**3**	**3**	**4**	**5**	**10**	**50**
R3-1-48	48"x48"	NO RIGHT TURN							35	
R3-2-48	48"x48"	NO LEFT TURN							35	
R3-7-30	**30"x30"**	**LEFT or RIGHT LANE MUST TURN LEFT or RIGHT**				**1**	**3**	**3**	**17**	**51**
R4-1-48	**48"x60"**	**DO NOT PASS**				**1**	**1**	**1**	**39**	**39**
R4-7-48	48"x60"	KEEP RIGHT							39	
R5-1-48	48"x48"	DO NOT ENTER							35	
R6-1-54	54"x18"	ONE WAY RIGHT or LEFT (Mounted on STOP or DO NOT ENTER post)							14	
R7-1-12	12"x18"	NO PARKING ANY TIME							11	
R9-9-24	**24"x12"**	**SIDEWALK CLOSED (Mounted on Barricade)**	**4**	**2**	**1**	**4**	**7**	**7**	**3**	**21**
R9-11a-24	**24"x12"**	**SIDEWALK CLOSED CROSS HERE (Mounted on barricade)**				**1**		**1**	**3**	**3**
R10-6-24	24"x36"	STOP HERE ON RED							16	
R11-2-48	**48"x30"**	**ROAD CLOSED (Mounted on barricade)**	**1**	**8**	**8**	**4**	**6**	**8**	**12**	**96**
R11-2a-48	48"x30"	STREET CLOSED (Mounted on barricade)							12	
R11-3a-60	**60"x30"**	**ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)**		**2**		**2**		**2**	**15**	**30**
R11-3c-60	60"x30"	STREET CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)							15	
R11-4a-60	**60"x30"**	**STREET CLOSED TO THRU TRAFFIC (Mounted on barricade)**		**1**	**1**	**1**		**1**	**15**	**15**
W1-3-48	48"x48"	REVERSE TURN RIGHT or LEFT							35	
W1-4-48	**48"x48"**	**REVERSE CURVE RIGHT or LEFT**	**3**			**4**	**5**	**5**	**35**	**175**
W1-4b-48	48"x48"	TWO LANE REVERSE CURVE RIGHT or LEFT							35	
W1-6-48	**48"x24"**	**ONE DIRECTION LARGE ARROW**		**2**	**2**	**1**	**1**	**2**	**26**	**52**
W3-1-48	48"x48"	STOP AHEAD							35	
W3-3-48	48"x48"	SIGNAL AHEAD							35	
W3-4-48	48"x48"	BE PREPARED TO STOP							35	
W3-5-48	**48"x48"**	**SPEED REDUCTION AHEAD**	**5**	**3**	**3**	**3**	**4**	**5**	**35**	**175**
W4-1-48	**48"x48"**	**MERGING TRAFFIC**	**1**	**1**	**1**	**1**	**1**	**1**	**35**	**35**
W4-2-48	**48"x48"**	**LANE ENDS RIGHT or LEFT**	**3**	**1**	**1**	**1**	**2**	**3**	**35**	**105**
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**				**1**	**1**	**1**	**35**	**35**
W8-1-48	48"x48"	BUMP							35	
W8-3-48	48"x48"	PAVEMENT ENDS							35	
W8-7-48	48"x48"	LOOSE GRAVEL							35	
W8-11-48	48"x48"	UNEVEN LANES							35	
W8-12-48	48"x48"	NO CENTER LINE							35	
W8-17-48	48"x48"	SHOULDER DROP-OFF SYMBOL							35	
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY							35	
W8-54-48	48"x48"	TRUCKS ENTERING AHEAD or __ FT or _ MILE							35	
W8-55-48	48"x48"	TRUCKS CROSSING AHEAD or __ FT or _ MILE							35	
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY							35	
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL							35	
W11-2-48	**48"x48"**	**PEDESTRIAN CROSSING (Flourescent yellow-green)**				**2**	**2**	**2**	**35**	**70**
W13-1P-30	30"x30"	__ MPH ADVISORY SPEED PLAQUE (Mounted on warning sign post)							14	
W14-3-64	64"x48"	NO PASSING ZONE							28	
W16-2P-30	30"x24"	__ FEET PLAQUE (Mounted on warning sign post)							10	
W16-7p-24	**24"x12"**	**LEFT or RIGHT DIAGONAL ARROW (Mounted on pedestrian sign post)**				**2**	**2**	**2**	**7**	**14**
W20-1-48	**48"x48"**	**ROAD WORK AHEAD or _FT or _ MILE**	**5**	**3**	**3**	**3**	**4**	**5**	**35**	**175**
W20-2-48	**48"x48"**	**DETOUR AHEAD or __ FT or _ MILE**		**6**		**5**	**2**	**6**	**35**	**210**
W20-3-48	**48"x48"**	**ROAD or STREET CLOSED AHEAD or __ FT or _ MILE**		**1**	**2**	**1**	**1**	**2**	**35**	**70**
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or __ FT or _ MILE							35	

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED BY PHASE NO. 1A	1B	2	3	4A	TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
W20-5-48	**48"x48"**	**RIGHT or CENTER or LEFT LANE CLOSED AHEAD or __ FT or _ MILE**	**8**	**2**	**3**	**3**	**5**	**8**	**35**	**280**
W20-7-48	**48"x48"**	**FLAGGER**	**4**	**4**	**4**	**4**	**4**	**4**	**35**	**140**
W20-8-18	**18"x18"**	**STOP - SLOW PADDLE Back to Back**	**4**	**4**	**4**	**4**	**4**	**4**	**5**	**20**
W20-52P-54	**54"x12"**	**NEXT __ MILES (Mounted on warning sign post)**				**1**	**1**	**1**	**12**	**12**
W21-1-48	48"x48"	WORKERS							35	
W21-2-48	48"x48"	FRESH OIL							35	
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or __ FT or _ MILE							35	
W21-5-48	48"x48"	SHOULDER WORK							35	
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED							35	
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or __ FT or _ MILE							35	
W21-6-48	48"x48"	SURVEY CREW							35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or __ FT							35	
W21-51-48	48"x48"	MATERIAL ON ROADWAY							35	
W21-52-48	48"x48"	PAVEMENT BREAKS							35	
W21-53-48	48"x48"	RUMBLE STRIPS AHEAD							35	
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK							35	
W24-1-48	48"x48"	DOUBLE REVERSE CURVE							35	
SPECIAL SIGNS										
CS1-42	**42"x12"**	**DeMers Ave**		**9**				**9**	**14**	**126**
CS2-42	**42"x12"**	**N 42nd St**		**29**	**5**	**44**	**10**	**44**	**14**	**616**
CS3-42	**42"x12"**	**S 42nd St**		**33**		**27**	**2**	**33**	**14**	**462**

SPEC & CODE

704-1000	TRAFFIC CONTROL SIGNS	TOTAL UNITS	5778

SPEC & CODE	DESCRIPTION	UNIT	QUANTITY BY PHASE NO. 1A	1B	2	3	4A	TOTAL QUANTITY
704-0100	**FLAGGING**	MHR	**50**	**50**	**50**	**50**	**62**	**262**
704-1048	PORTABLE RUMBLE STRIPS	EACH						
704-1050	TYPE I BARRICADES	EACH						
704-1052	**TYPE III BARRICADES**	EACH	**6**	**20**	**15**	**15**	**11**	**20**
704-1054	**SIDEWALK BARRICADE**	EACH	**4**	**2**	**1**	**5**	**7**	**7**
704-1058	**PEDESTRIAN WALKWAY**	LF	**129**	**68**	**68**	**338**	**524**	**524**
704-1060	**DELINEATOR DRUMS**	EACH	**282**	**44**	**36**	**83**	**178**	**282**
704-1065	TRAFFIC CONES	EACH						
704-1067	**TUBULAR MARKERS**	EACH	**47**	**77**	**69**	**139**	**146**	**146**
704-1070	DELINEATOR	EACH						
704-1072	FLEXIBLE DELINEATORS	EACH						
704-1080	STACKABLE VERTICAL PANELS	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	**3**	**2**	**2**	**1**	**2**	**3**
704-1500	**OBLITERATION OF PVMT MK**	SF	**183**					**183**
704-2108	**TEMPORARY CURB RAMP**	EACH	**2**	**2**	**2**	**1**	**2**	**2**
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF						
704-3510	PRECAST CONCRETE MED BARRIER - STATE FURNISHED	EACH						
704-4011	**PORTABLE CHANGEABLE MESSAGE SIGN**	EACH		**3**				**3**
704-5050	**COVER SIGN**	EACH				**1**	**1**	**1**
762-0200	RAISED PAVEMENT MARKERS	EACH						
762-0420	**SHORT TERM 4IN LINE - TYPE R**	LF	**3974**			**765**	**764**	**5503**
762-0430	SHORT TERM 4IN LINE - TYPE NR	LF						

NOTE:
If additional signs are required, units will be calculated using the formula from Section III-18.06 of the Design Manual.
http://www.dot.nd.gov/



Traffic Control Devices List
Work Zone Traffic Control
Phase 1A-4A
ND 297(DeMers Ave) & 42nd St
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	2

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED BY PHASE NO. 4B	5A	5B	5C	5D	TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
D9-7-24	**24"x24"**	**GAS**				**11**		**11**	**14**	**154**
E5-1-48	48"x48"	EXIT GORE							35	
E5-2a-48	**48"x36"**	**EXIT CLOSED (Mounted on Barricade)**		**1**				**1**	**14**	**14**
G20-1-60	60"x24"	ROAD WORK NEXT __ MILES							28	
G20-1b-60	60"x24"	NO WORK IN PROGRESS (Sign and installation only)							18	
G20-2-48	**48"x24"**	**END ROAD WORK**	**4**		**2**	**2**	**1**	**4**	**26**	**104**
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)							18	
G20-4b-36	36"x30"	WAIT FOR PILOT CAR							18	
G20-50a-72	72"x36"	ROAD WORK NEXT __ MILES RT & LT ARROWS							43	
G20-52a-72	72"x24"	ROAD WORK NEXT __ MILES RT or LT ARROW							36	
G20-55-96	**96"x48"**	**SPEED LIMIT ENFORCED - MINIMUM FEE $150 WHEN WORKERS PRESENT**	**5**		**3**	**3**	**5**	**5**	**59**	**295**
M1-1-24	**24"x24"**	**INTERSTATE ROUTE MARKER (Post and installation only)**		**34**			**20**	**34**	**10**	**340**
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)							11	
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)**		**18**			**7**	**18**	**7**	**126**
M3-2-24	**24"x12"**	**EAST (Mounted on route marker post)**		**34**		**16**	**31**	**34**	**7**	**238**
M3-3-24	**24"x12"**	**SOUTH (Mounted on route marker post)**		**16**			**14**	**16**	**7**	**112**
M3-4-24	**24"x12"**	**WEST (Mounted on route marker post)**		**21**			**23**	**23**	**7**	**161**
M4-4-24	**24"x12"**	**TRUCK**		**59**		**16**	**56**	**59**	**12**	**708**
M4-6P-24	**24"x12"**	**END**		**4**		**1**	**4**	**4**	**7**	**28**
M4-8-24	**24"x12"**	**DETOUR (Mounted on route marker post)**		**93**		**28**	**80**	**93**	**7**	**651**
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT							15	
M4-10-48	**48"x18"**	**DETOUR (INSIDE ARROW) RIGHT or LEFT (Mounted on barricade)**		**1**			**1**	**1**	**7**	**7**
M5-1-21	**21"x15"**	**ADVANCE TURN ARROW RT or LT(Mounted on route marker post)**		**29**		**10**	**28**	**29**	**7**	**203**
M5-1-30	30"x21"	ADVANCE TURN ARROW RT or LT(Mounted on route marker post)							9	
M6-1-21	**21"x15"**	**DIRECTIONAL ARROW RT or LT (Mounted on route marker post)**		**33**		**10**	**30**	**33**	**7**	**231**
M6-1-30	30"x21"	DIRECTIONAL ARROW RT or LT (Mounted on route marker post)							9	
M6-3-21	**21"x15"**	**DIRECTIONAL ARROW UP (Mounted on route marker post)**		**22**		**7**	**19**	**22**	**7**	**154**
R1-1-48	48"x48"	STOP							32	
R1-2-60	60"x60"	YIELD							29	
R2-1-36	36"x48"	SPEED LIMIT __ (Portable only)							30	
R2-1-48	**48"x60"**	**SPEED LIMIT __**	**9**		**5**	**5**	**4**	**9**	**39**	**351**
R2-1aP-24	**24"x18"**	**MINIMUM FEE $150 (Mounted on Speed Limit post)**	**5**		**3**	**3**	**3**	**5**	**10**	**50**
R3-1-48	48"x48"	NO RIGHT TURN							35	
R3-2-48	**48"x48"**	**NO LEFT TURN**		**1**				**1**	**35**	**35**
R4-1-48	**48"x60"**	**DO NOT PASS**	**1**					**1**	**39**	**39**
R4-7-48	48"x60"	KEEP RIGHT							39	
R5-1-48	48"x48"	DO NOT ENTER							35	
R6-1-54	54"x18"	ONE WAY RIGHT or LEFT (Mounted on STOP or DO NOT ENTER post)							14	
R7-1-12	12"x18"	NO PARKING ANY TIME							11	
R9-9-24	**24"x12"**	**SIDEWALK CLOSED (Mounted on Barricade)**	**6**	**1**		**1**		**6**	**3**	**18**
R10-6-24	24"x36"	STOP HERE ON RED							16	
R11-2-48	**48"x30"**	**ROAD CLOSED (Mounted on barricade)**	**1**	**2**	**1**	**2**	**3**	**3**	**12**	**36**
R11-2a-48	48"x30"	STREET CLOSED (Mounted on barricade)							12	
R11-3a-60	**60"x30"**	**ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)**		**1**				**1**	**15**	**15**
R11-3c-60	60"x30"	STREET CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)							15	
R11-4a-60	60"x30"	STREET CLOSED TO THRU TRAFFIC (Mounted on barricade)							15	
W1-3-48	48"x48"	REVERSE TURN RIGHT or LEFT							35	
W1-4-48	**48"x48"**	**REVERSE CURVE RIGHT or LEFT**	**5**		**2**	**2**		**5**	**35**	**175**
W1-4b-48	48"x48"	TWO LANE REVERSE CURVE RIGHT or LEFT							35	
W1-6-48	**48"x24"**	**ONE DIRECTION LARGE ARROW**	**2**			**1**		**2**	**26**	**52**
W3-1-48	48"x48"	STOP AHEAD							35	
W3-3-48	48"x48"	SIGNAL AHEAD							35	
W3-4-48	48"x48"	BE PREPARED TO STOP							35	
W3-5-48	**48"x48"**	**SPEED REDUCTION AHEAD**	**5**		**3**	**3**	**4**	**5**	**35**	**175**
W4-1-48	**48"x48"**	**MERGING TRAFFIC**	**1**		**1**	**1**		**1**	**35**	**35**
W4-2-48	**48"x48"**	**LANE ENDS RIGHT or LEFT**	**3**	**1**	**1**	**1**	**3**	**3**	**35**	**105**
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**	**1**			**1**		**1**	**35**	**35**
W8-1-48	**48"x48"**	**BUMP**			**1**			**1**	**35**	**35**
W8-3-48	48"x48"	PAVEMENT ENDS							35	
W8-7-48	48"x48"	LOOSE GRAVEL							35	
W8-11-48	48"x48"	UNEVEN LANES							35	
W8-12-48	48"x48"	NO CENTER LINE							35	
W8-17-48	48"x48"	SHOULDER DROP-OFF SYMBOL							35	
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY							35	
W8-54-48	48"x48"	TRUCKS ENTERING AHEAD or __ FT or _ MILE							35	
W8-55-48	48"x48"	TRUCKS CROSSING AHEAD or __ FT or _ MILE							35	
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY							35	
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL							35	
W13-1P-30	30"x30"	__ MPH ADVISORY SPEED PLAQUE (Mounted on warning sign post)							14	
W14-3-64	64"x48"	NO PASSING ZONE							28	
W16-2P-30	30"x24"	__ FEET PLAQUE (Mounted on warning sign post)							10	
W16-7p-24	**24"x12"**	**LEFT or RIGHT DIAGONAL ARROW (Mounted on pedestrian sign post)**			**1**			**1**	**7**	**7**
W20-1-48	**48"x48"**	**ROAD WORK AHEAD or _FT or _ MILE**	**8**	**1**	**4**	**4**	**5**	**8**	**35**	**280**
W20-2-48	**48"x48"**	**DETOUR AHEAD or __ FT or _ MILE**		**1**			**3**	**3**	**35**	**105**
W20-3-48	**48"x48"**	**ROAD or STREET CLOSED AHEAD or __ FT or _ MILE**		**2**			**1**	**2**	**35**	**70**
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or __ FT or _ MILE							35	
W20-5-48	**48"x48"**	**RIGHT or CENTER or LEFT LANE CLOSED AHEAD or __ FT or _ MILE**	**7**	**2**	**4**	**6**	**8**	**8**	**35**	**280**

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED BY PHASE NO. 4B	5A	5B	5C	5D	TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
W20-7-48	**48"x48"**	**FLAGGER**	**4**	**4**	**4**	**4**	**4**	**4**	**35**	**140**
W20-8-18	**18"x18"**	**STOP - SLOW PADDLE Back to Back**	**4**	**4**	**4**	**4**	**4**	**4**	**5**	**20**
W20-52P-54	**54"x12"**	**NEXT __ MILES (Mounted on warning sign post)**	**1**					**1**	**12**	**12**
W21-1-48	48"x48"	WORKERS							35	
W21-2-48	48"x48"	FRESH OIL							35	
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or __ FT or _ MILE							35	
W21-5-48	48"x48"	SHOULDER WORK							35	
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED							35	
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or __ FT or _ MILE							35	
W21-6-48	48"x48"	SURVEY CREW							35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or __ FT							35	
W21-51-48	48"x48"	MATERIAL ON ROADWAY							35	
W21-52-48	48"x48"	PAVEMENT BREAKS							35	
W21-53-48	48"x48"	RUMBLE STRIPS AHEAD							35	
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK							35	
W24-1-48	48"x48"	DOUBLE REVERSE CURVE							35	
SPECIAL SIGNS										
CS1-42	**42"x12"**	**DeMers Ave**		**54**		**16**	**53**	**54**	**14**	**756**
CS2-42	42"x12"	N 42nd St							14	
CS3-42	42"x12"	S 42nd St							14	

SPEC & CODE

704-1000	**TRAFFIC CONTROL SIGNS**	**TOTAL UNITS 6701**

SPEC & CODE	DESCRIPTION	UNIT	QUANTITY BY PHASE NO. 4B	5A	5B	5C	5D	TOTAL QUANTITY
704-0100	**FLAGGING**	MHR	**50**	**50**	**50**	**50**	**50**	**250**
704-1048	PORTABLE RUMBLE STRIPS	EACH						
704-1050	TYPE I BARRICADES	EACH						
704-1052	**TYPE III BARRICADES**	EACH	**8**	**16**	**2**	**10**	**11**	**16**
704-1054	**SIDEWALK BARRICADE**	EACH	**6**	**1**		**2**		**6**
704-1058	**PEDESTRIAN WALKWAY**	LF		**122**	**227**			**227**
704-1060	**DELINEATOR DRUMS**	EACH	**145**	**87**	**68**	**105**	**71**	**145**
704-1065	TRAFFIC CONES	EACH						
704-1067	**TUBULAR MARKERS**	EACH	**84**		**85**	**81**		**85**
704-1070	DELINEATOR	EACH						
704-1072	FLEXIBLE DELINEATORS	EACH						
704-1080	STACKABLE VERTICAL PANELS	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	**3**		**1**	**1**	**2**	**3**
704-1150	**TEMPORARY TRAFFIC SIGNAL**	EACH	**3**		**1**	**1**		**3**
704-1500	OBLITERATION OF PVMT MK	SF						
704-2108	**TEMPORARY CURB RAMP**	EACH			**2**			**2**
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF						
704-3510	PRECAST CONCRETE MED BARRIER - STATE FURNISHED	EACH						
704-4011	**PORTABLE CHANGEABLE MESSAGE SIGN**	EACH		**4**		**2**	**4**	**4**
704-5050	COVER SIGN	EACH						
762-0200	RAISED PAVEMENT MARKERS	EACH						
762-0420	**SHORT TERM 4IN LINE - TYPE R**	LF	**603**		**332**	**302**		**1237**
762-0422	**SHORT TERM 6IN LINE-TYPE R**	LF			**210**			**210**
762-0426	**SHORT TERM 24IN LINE-TYPE R**	LF	**12**		**27**	**18**		**57**
762-0430	SHORT TERM 4IN LINE - TYPE NR	LF						

NOTE:
If additional signs are required, units will be calculated using the formula from Section III-18.06 of the Design Manual.
http://www.dot.nd.gov/

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE - 8256
DATE: 12/5/25
NORTH DAKOTA

Traffic Control Devices List
Work Zone Traffic Control
Phase 4B - 5D
ND 297 (DeMers Ave) & 42nd St
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	3

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED BY PHASE NO. 5E	-		TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
D9-7-24	24"x24"	GAS					14	
E5-1-48	48"x48"	EXIT GORE					35	
E5-2a	48"x36"	EXIT CLOSED (Mounted on Barricade)					14	
G20-1-60	60"x24"	ROAD WORK NEXT __ MILES					28	
G20-1b-60	60"x24"	NO WORK IN PROGRESS (Sign and installation only)					18	
G20-2-48	**48"x24"**	**END ROAD WORK**	**2**			**2**	**26**	**52**
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)					18	
G20-4b-36	36"x30"	WAIT FOR PILOT CAR					18	
G20-50a-72	72"x36"	ROAD WORK NEXT __ MILES RT & LT ARROWS					43	
G20-52a-72	72"x24"	ROAD WORK NEXT _ MILES RT or LT ARROW					36	
G20-55-96	**96"x48"**	**SPEED LIMIT ENFORCED - MINIMUM FEE $150 WHEN WORKERS PRESENT**	**4**			**4**	**59**	**236**
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)					11	
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)					7	
M3-2-24	24"x12"	EAST (Mounted on route marker post)					7	
M3-3-24	24"x12"	SOUTH (Mounted on route marker post)					7	
M3-4-24	24"x12"	WEST (Mounted on route marker post)					7	
M4-8-24	24"x12"	DETOUR (Mounted on route marker post)					7	
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT					15	
M4-10-48	48"x18"	DETOUR (INSIDE ARROW) RIGHT or LEFT (Mounted on barricade)					7	
M5-1-21	21"x15"	ADVANCE TURN ARROW RT or LT(Mounted on route marker post)					7	
M5-1-30	30"x21"	ADVANCE TURN ARROW RT or LT(Mounted on route marker post)					9	
M6-1-21	21"x15"	DIRECTIONAL ARROW RT or LT (Mounted on route marker post)					7	
M6-1-30	30"x21"	DIRECTIONAL ARROW RT or LT (Mounted on route marker post)					9	
M6-3-21	21"x15"	DIRECTIONAL ARROW UP (Mounted on route marker post)					7	
R1-1-48	48"x48"	STOP					32	
R1-2-60	60"x60"	YIELD					29	
R2-1-36	36"x48"	SPEED LIMIT __ (Portable only)					30	
R2-1-48	**48"x60"**	**SPEED LIMIT __**	**4**			**4**	**39**	**156**
R2-1aP-24	**24"x18"**	**MINIMUM FEE $150 (Mounted on Speed Limit post)**	**2**			**2**	**10**	**20**
R3-2-48	48"x48"	NO LEFT TURN					35	
R4-1-48	48"x60"	DO NOT PASS					39	
R4-7-48	48"x60"	KEEP RIGHT					39	
R5-1-48	48"x48"	DO NOT ENTER					35	
R6-1-54	54"x18"	ONE WAY RIGHT or LEFT (Mounted on STOP or DO NOT ENTER post)					14	
R7-1-12	12"x18"	NO PARKING ANY TIME					11	
R9-9-24	24"x12"	SIDEWALK CLOSED (Mounted on Barricade)					3	
R10-6-24	24"x36"	STOP HERE ON RED					16	
R11-2-48	48"x30"	ROAD CLOSED (Mounted on barricade)					12	
R11-2a-48	48"x30"	STREET CLOSED (Mounted on barricade)					12	
R11-3a-60	60"x30"	ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)					15	
R11-3c-60	60"x30"	STREET CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)					15	
R11-4a-60	60"x30"	STREET CLOSED TO THRU TRAFFIC (Mounted on barricade)					15	
W1-3-48	48"x48"	REVERSE TURN RIGHT or LEFT					35	
W1-4-48	48"x48"	REVERSE CURVE RIGHT or LEFT					35	
W1-4b-48	48"x48"	TWO LANE REVERSE CURVE RIGHT or LEFT					35	
W1-6-48	48"x24"	ONE DIRECTION LARGE ARROW					26	
W3-1-48	48"x48"	STOP AHEAD					35	
W3-3-48	48"x48"	SIGNAL AHEAD					35	
W3-4-48	48"x48"	BE PREPARED TO STOP					35	
W3-5-48	**48"x48"**	**SPEED REDUCTION AHEAD**	**2**			**2**	**35**	**70**
W4-1-48	48"x48"	MERGING TRAFFIC					35	
W4-2-48	**48"x48"**	**LANE ENDS RIGHT or LEFT**	**2**			**2**	**35**	**70**
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					35	
W8-1-48	48"x48"	BUMP					35	
W8-3-48	48"x48"	PAVEMENT ENDS					35	
W8-7-48	48"x48"	LOOSE GRAVEL					35	
W8-11-48	48"x48"	UNEVEN LANES					35	
W8-12-48	48"x48"	NO CENTER LINE					35	
W8-17-48	48"x48"	SHOULDER DROP-OFF SYMBOL					35	
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY					35	
W8-54-48	48"x48"	TRUCKS ENTERING AHEAD or __ FT or _ MILE					35	
W8-55-48	48"x48"	TRUCKS CROSSING AHEAD or __ FT or _ MILE					35	
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY					35	
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL					35	
W13-1P-30	30"x30"	__ MPH ADVISORY SPEED PLAQUE (Mounted on warning sign post)					14	
W14-3-64	64"x48"	NO PASSING ZONE					28	
W16-2P-30	30"x24"	__ FEET PLAQUE (Mounted on warning sign post)					10	
W20-1-48	**48"x48"**	**ROAD WORK AHEAD or _FT or _ MILE**	**4**			**4**	**35**	**140**
W20-2-48	48"x48"	DETOUR AHEAD or __ FT or _ MILE					35	
W20-3-48	48"x48"	ROAD or STREET CLOSED AHEAD or __ FT or _ MILE					35	
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or __ FT or _ MILE					35	
W20-5-48	**48"x48"**	**RIGHT or CENTER or LEFT LANE CLOSED AHEAD or __ FT or _ MILE**	**4**			**4**	**35**	**140**
W20-7-48	**48"x48"**	**FLAGGER**	**4**			**4**	**35**	**140**
W20-8-18	**18"x18"**	**STOP - SLOW PADDLE Back to Back**	**4**			**4**	**5**	**20**
W20-52P-54	54"x12"	NEXT __ MILES (Mounted on warning sign post)					12	
W21-1-48	48"x48"	WORKERS					35	
W21-2-48	48"x48"	FRESH OIL					35	

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED BY PHASE NO. 5E	-		TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or __ FT or _ MILE					35	
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 or _ MILE					35	
W21-6-48	48"x48"	SURVEY CREW					35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or __ FT					35	
W21-51-48	48"x48"	MATERIAL ON ROADWAY					35	
W21-52-48	48"x48"	PAVEMENT BREAKS					35	
W21-53-48	48"x48"	RUMBLE STRIPS AHEAD					35	
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK					35	
W24-1-48	48"x48"	DOUBLE REVERSE CURVE					35	

SPECIAL SIGNS

CS1-42	42"x12"	DeMers Ave					14	
CS2-42	42"x12"	N 42nd St					14	
CS3-42	42"x12"	S 42nd St					14	

SPEC & CODE

704-1000	**TRAFFIC CONTROL SIGNS**	**TOTAL UNITS 1044**

SPEC & CODE	DESCRIPTION	UNIT	QUANTITY BY PHASE NO. 5E	-		TOTAL QUANTITY
704-0100	**FLAGGING**	MHR	**50**			**50**
704-1048	PORTABLE RUMBLE STRIPS	EACH				
704-1050	TYPE I BARRICADES	EACH				
704-1052	TYPE III BARRICADES	EACH				
704-1054	SIDEWALK BARRICADE	EACH				
704-1058	PEDESTRIAN WALKWAY	LF				
704-1060	**DELINEATOR DRUMS**	EACH	**52**			**52**
704-1065	TRAFFIC CONES	EACH				
704-1067	TUBULAR MARKERS	EACH				
704-1070	DELINEATOR	EACH				
704-1072	FLEXIBLE DELINEATORS	EACH				
704-1080	STACKABLE VERTICAL PANELS	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	**2**			**2**
704-1500	OBLITERATION OF PVMT MK	SF				
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF				
704-3510	PRECAST CONCRETE MED BARRIER - STATE FURNISHED	EACH				
704-4011	PORTABLE CHANGEABLE MESSAGE SIGN	EACH				
704-5050	COVER SIGN	EACH				
762-0200	RAISED PAVEMENT MARKERS	EACH				
762-0420	SHORT TERM 4IN LINE - TYPE R	LF				
762-0430	SHORT TERM 4IN LINE - TYPE NR	LF				
762-0432	SHORT TERM 6IN LINE-TYPE R	LF				
762-0436	SHORT TERM 24IN LINE-TYPE R	LF				
772-2810	TEMPORARY TRAFFIC SIGNAL	EACH				

NOTE:
If additional signs are required, units will be calculated using the formula from Section III-18.06 of the Design Manual.
http://www.dot.nd.gov/

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE - 8256
DATE: 12/5/25
NORTH DAKOTA

Traffic Control Devices List
Work Zone Traffic Control
Phase 5E
ND 297 (DeMers Ave) & 42nd St
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	4

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED BY PHASE NO. T	-		TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
D9-7-24	**24"x24"**	**GAS**	**11**			**11**	**14**	**154**
E5-1-48	48"x48"	EXIT GORE					35	
E5-2a-48	**48"x36"**	**EXIT CLOSED (Mounted on Barricade)**	**1**			**1**	**14**	**14**
G20-1-60	60"x24"	ROAD WORK NEXT __ MILES					28	
G20-1b-60	60"x24"	NO WORK IN PROGRESS (Sign and installation only)					18	
G20-2-48	**48"x24"**	**END ROAD WORK**	**4**			**4**	**26**	**104**
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)					18	
G20-4b-36	36"x30"	WAIT FOR PILOT CAR					18	
G20-50a-72	72"x36"	ROAD WORK NEXT __ MILES RT & LT ARROWS					43	
G20-52a-72	72"x24"	ROAD WORK NEXT __ MILES RT or LT ARROW					36	
G20-55-96	**96"x48"**	**SPEED LIMIT ENFORCED - MINIMUM FEE $150 WHEN WORKERS PRESENT**	**5**			**5**	**59**	**295**
M1-1-24	**24"x24"**	**INTERSTATE ROUTE MARKER (Post and installation only)**	**34**			**34**	**10**	**340**
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)					11	
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)**	**32**			**32**	**7**	**224**
M3-2-24	**24"x12"**	**EAST (Mounted on route marker post)**	**31**			**31**	**7**	**217**
M3-3-24	**24"x12"**	**SOUTH (Mounted on route marker post)**	**33**			**33**	**7**	**231**
M3-4-24	**24"x12"**	**WEST (Mounted on route marker post)**	**23**			**23**	**7**	**161**
M4-4-24	**24"x12"**	**TRUCK**	**59**			**59**	**12**	**708**
M4-6P-24	**24"x12"**	**END**	**5**			**5**	**7**	**35**
M4-8-24	**24"x12"**	**DETOUR (Mounted on route marker post)**	**##**			**137**	**7**	**959**
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT					15	
M4-10-48	**48"x18"**	**DETOUR (INSIDE ARROW) RIGHT or LEFT (Mounted on barricade)**	**2**			**2**	**7**	**14**
M5-1-21	**21"x15"**	**ADVANCE TURN ARROW RT or LT(Mounted on route marker post)**	**29**			**29**	**7**	**203**
M5-1-30	30"x21"	ADVANCE TURN ARROW RT or LT(Mounted on route marker post)					9	
M6-1-21	**21"x15"**	**DIRECTIONAL ARROW RT or LT (Mounted on route marker post)**	**33**			**33**	**7**	**231**
M6-1-30	30"x21"	DIRECTIONAL ARROW RT or LT (Mounted on route marker post)					9	
M6-3-21	**21"x15"**	**DIRECTIONAL ARROW UP (Mounted on route marker post)**	**22**			**22**	**7**	**154**
R1-1-48	**48"x48"**	**STOP**	**1**			**1**	**32**	**32**
R1-2-60	60"x60"	YIELD					29	
R2-1-36	36"x48"	SPEED LIMIT __ (Portable only)					30	
R2-1-48	**48"x60"**	**SPEED LIMIT __**	**9**			**9**	**39**	**351**
R2-1aP-24	**24"x18"**	**MINIMUM FEE $150 (Mounted on Speed Limit post)**	**5**			**5**	**10**	**50**
R3-2-48	**48"x48"**	**NO LEFT TURN**	**1**			**1**	**35**	**35**
R3-7-30	**30"x30"**	**LEFT or RIGHT LANE MUST TURN LEFT or RIGHT**	**3**			**3**	**17**	**51**
R4-1-48	**48"x60"**	**DO NOT PASS**	**1**			**1**	**39**	**39**
R4-7-48	48"x60"	KEEP RIGHT					39	
R5-1-48	48"x48"	DO NOT ENTER					35	
R6-1-54	54"x18"	ONE WAY RIGHT or LEFT (Mounted on STOP or DO NOT ENTER post)					14	
R7-1-12	12"x18"	NO PARKING ANY TIME					11	
R9-9-24	**24"x12"**	**SIDEWALK CLOSED (Mounted on Barricade)**	**7**			**7**	**3**	**21**
R9-11a-24	**24"x12"**	**SIDEWALK CLOSED CROSS HERE (Mounted on barricade)**	**1**			**1**	**3**	**3**
R10-6-24	24"x36"	STOP HERE ON RED					16	
R11-2-48	**48"x30"**	**ROAD CLOSED (Mounted on barricade)**	**8**			**8**	**12**	**96**
R11-2a-48	48"x30"	STREET CLOSED (Mounted on barricade)					12	
R11-3a-60	**60"x30"**	**ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)**	**2**			**2**	**15**	**30**
R11-3c-60	60"x30"	STREET CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)					15	
R11-4a-60	**60"x30"**	**STREET CLOSED TO THRU TRAFFIC (Mounted on barricade)**	**1**			**1**	**15**	**15**
W1-3-48	48"x48"	REVERSE TURN RIGHT or LEFT					35	
W1-4-48	**48"x48"**	**REVERSE CURVE RIGHT or LEFT**	**5**			**5**	**35**	**175**
W1-4b-48	48"x48"	TWO LANE REVERSE CURVE RIGHT or LEFT					35	
W1-6-48	**48"x24"**	**ONE DIRECTION LARGE ARROW**	**2**			**2**	**26**	**52**
W3-1-48	48"x48"	STOP AHEAD					35	
W3-3-48	48"x48"	SIGNAL AHEAD					35	
W3-4-48	48"x48"	BE PREPARED TO STOP					35	
W3-5-48	**48"x48"**	**SPEED REDUCTION AHEAD**	**5**			**5**	**35**	**175**
W4-1-48	**48"x48"**	**MERGING TRAFFIC**	**1**			**1**	**35**	**35**
W4-2-48	**48"x48"**	**LANE ENDS RIGHT or LEFT**	**4**			**4**	**35**	**140**
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**	**1**			**1**	**35**	**35**
W8-1-48	**48"x48"**	**BUMP**	**1**			**1**	**35**	**35**
W8-3-48	48"x48"	PAVEMENT ENDS					35	
W8-7-48	48"x48"	LOOSE GRAVEL					35	
W8-11-48	48"x48"	UNEVEN LANES					35	
W8-12-48	48"x48"	NO CENTER LINE					35	
W8-17-48	48"x48"	SHOULDER DROP-OFF SYMBOL					35	
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY					35	
W8-54-48	48"x48"	TRUCKS ENTERING AHEAD or __ FT or _ MILE					35	
W8-55-48	48"x48"	TRUCKS CROSSING AHEAD or __ FT or _ MILE					35	
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY					35	
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL					35	
W11-2-48	**48"x48"**	**PEDESTRIAN CROSSING (Flourescnt yellow-green)**	**2**			**2**	**35**	**70**
W13-1P-30	30"x30"	__ MPH ADVISORY SPEED PLAQUE (Mounted on warning sign post)					14	
W14-3-64	64"x48"	NO PASSING ZONE					28	
W16-2P-30	30"x24"	__ FEET PLAQUE (Mounted on warning sign post)					10	
W16-7p-24	**24"x12"**	**LEFT or RIGHT DIAGONAL ARROW (Mounted on pedestrian sign post)**	**2**			**2**	**7**	**14**
W20-1-48	**48"x48"**	**ROAD WORK AHEAD or _FT or _ MILE**	**8**			**8**	**35**	**280**
W20-2-48	**48"x48"**	**DETOUR AHEAD or __ FT or _ MILE**	**6**			**6**	**35**	**210**
W20-3-48	**48"x48"**	**ROAD or STREET CLOSED AHEAD or __ FT or _ MILE**	**2**			**2**	**35**	**70**

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED BY PHASE NO. T	-		TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or __ FT or _ MILE					35	
W20-5-48	**48"x48"**	**RIGHT or CENTER or LEFT LANE CLOSED AHEAD or __ FT or _ MILE**	**8**			**8**	**35**	**280**
W20-7-48	**48"x48"**	**FLAGGER**	**4**			**4**	**35**	**140**
W20-8-18	**18"x18"**	**STOP - SLOW PADDLE Back to Back**	**4**			**4**	**5**	**20**
W20-52P-54	**54"x12"**	**NEXT __ MILES (Mounted on warning sign post)**	**1**			**1**	**12**	**12**
W21-1-48	48"x48"	WORKERS					35	
W21-2-48	48"x48"	FRESH OIL					35	
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or __ FT or _ MILE					35	
W21-5-48	48"x48"	SHOULDER WORK					35	
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED					35	
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or __ FT or _ MILE					35	
W21-6-48	48"x48"	SURVEY CREW					35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or __ FT					35	
W21-51-48	48"x48"	MATERIAL ON ROADWAY					35	
W21-52-48	48"x48"	PAVEMENT BREAKS					35	
W21-53-48	48"x48"	RUMBLE STRIPS AHEAD					35	
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK					35	
W24-1-48	48"x48"	DOUBLE REVERSE CURVE					35	
SPECIAL SIGNS								
CS1-42	**42"x12"**	**DeMers Ave**	**54**			**54**	**14**	**756**
CS2-42	**42"x12"**	**N 42nd St**	**44**			**44**	**14**	**616**
CS3-42	**42"x12"**	**S 42nd St**	**33**			**33**	**14**	**462**

SPEC & CODE

704-1000	TRAFFIC CONTROL SIGNS	TOTAL UNITS	8344

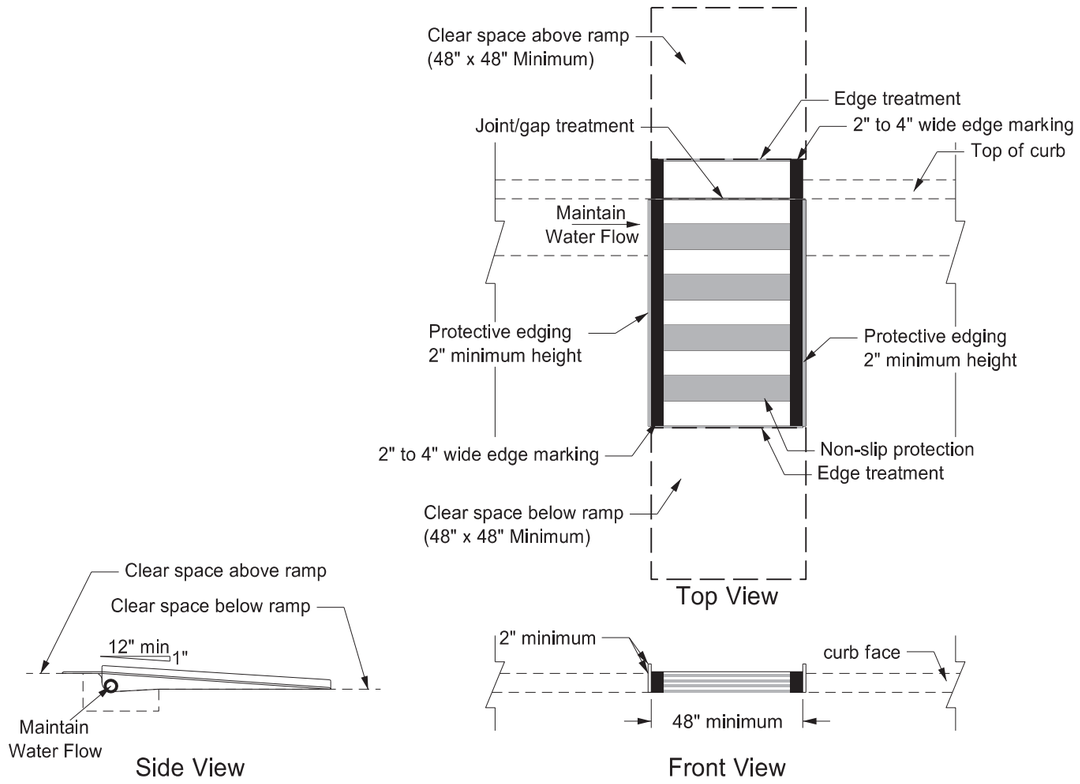
SPEC & CODE	DESCRIPTION	UNIT	QUANTITY BY PHASE NO. T	-		TOTAL QUANTITY
704-0100	**FLAGGING**	MHR	**562**			**562**
704-1048	PORTABLE RUMBLE STRIPS	EACH				
704-1050	TYPE I BARRICADES	EACH				
704-1052	**TYPE III BARRICADES**	EACH	**20**			**20**
704-1054	**SIDEWALK BARRICADE**	EACH	**7**			**7**
704-1058	**PEDESTRIAN WALKWAY**	LF	**524**			**524**
704-1060	**DELINEATOR DRUMS**	EACH	**282**			**282**
704-1065	TRAFFIC CONES	EACH				
704-1067	**TUBULAR MARKERS**	EACH	**146**			**146**
704-1070	DELINEATOR	EACH				
704-1072	FLEXIBLE DELINEATORS	EACH				
704-1080	STACKABLE VERTICAL PANELS	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	**3**			**3**
704-1150	**TEMPORARY TRAFFIC SIGNAL**	EACH	**3**			**3**
704-1500	**OBLITERATION OF PVMT MK**	SF	**183**			**183**
704-2108	**TEMPORARY CURB RAMP**	EACH	**2**			**2**
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF				
704-3510	PRECAST CONCRETE MED BARRIER - STATE FURNISHED	EACH				
704-4011	**PORTABLE CHANGEABLE MESSAGE SIGN**	EACH	**4**			**4**
704-5050	**COVER SIGN**	EACH	**1**			**1**
762-0200	RAISED PAVEMENT MARKERS	EACH				
762-0420	**SHORT TERM 4IN LINE - TYPE R**	LF	**6740**			**6740**
762-0422	**SHORT TERM 6IN LINE-TYPE R**	LF	**210**			**210**
762-0426	**SHORT TERM 24IN LINE-TYPE R**	LF	**57**			**57**
762-0430	SHORT TERM 4IN LINE - TYPE NR	LF				

NOTE:
If additional signs are required, units will be calculated using the formula from Section III-18.06 of the Design Manual.
http://www.dot.nd.gov/

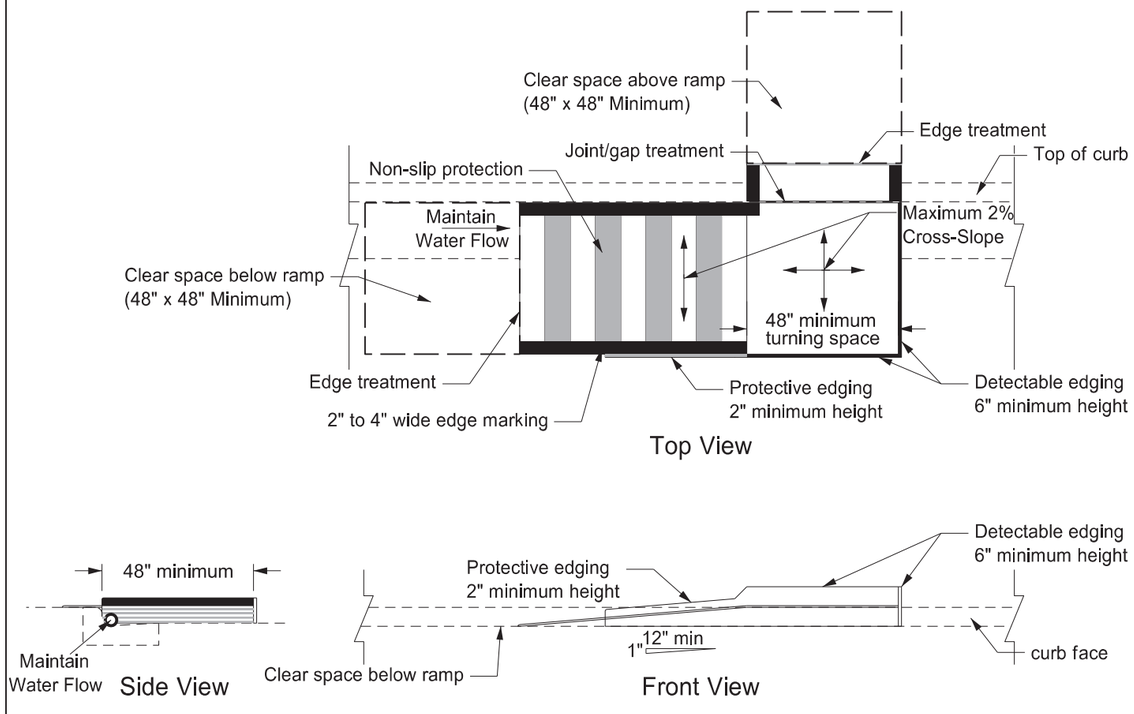
REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE - 8256
DATE: 12/5/25
NORTH DAKOTA

Traffic Control Devices List
Work Zone Traffic Control
Phase 1A - 5E
ND 297 (DeMers Ave) & 42nd St
Grand Forks, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	5

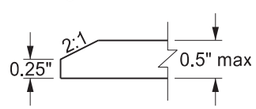


Temporary Perpendicular Curb Ramp



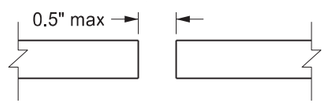
Temporary Parallel Curb Ramp

Edge Treatment



Maximum Surface
Height Change Detail

Joint/Gap Treatment



Maximum Width
Lateral Joints or Gaps

Work Zone Traffic Control

Temporary Pedestrian Curb Ramp Details

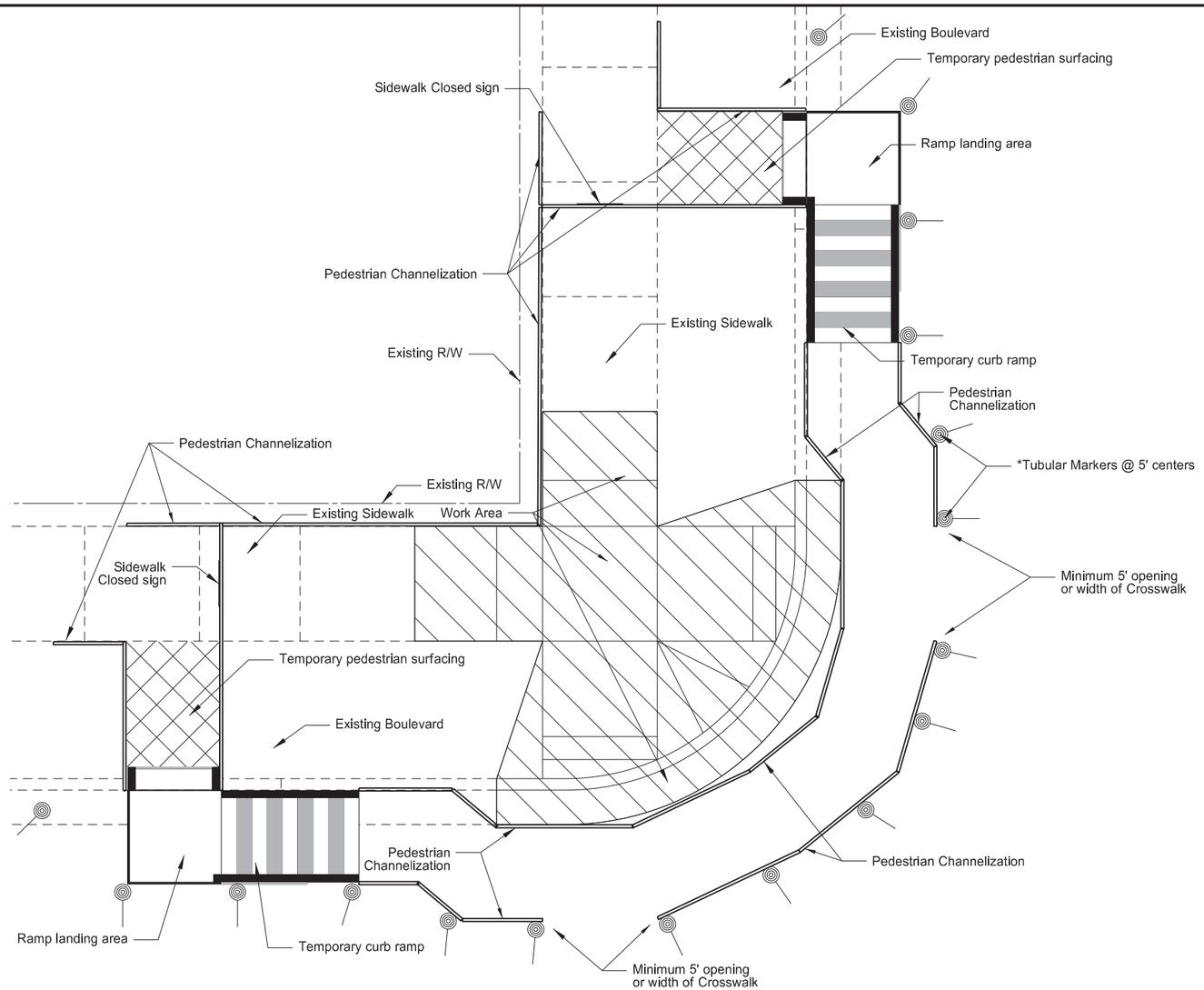
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4276
DATE: 2025.12.05 15:28:10 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	6



*NOTE: Eliminate tubular markers if pedestrian channelization is retro-reflective

Work Zone Traffic Control

Temporary Pedestrian Access Route

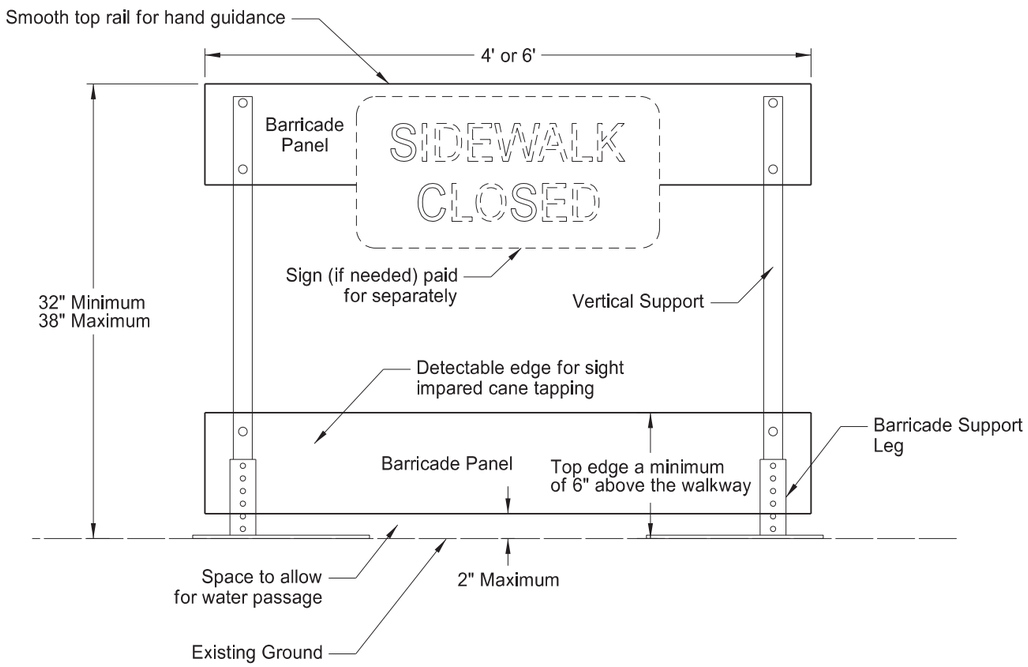
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

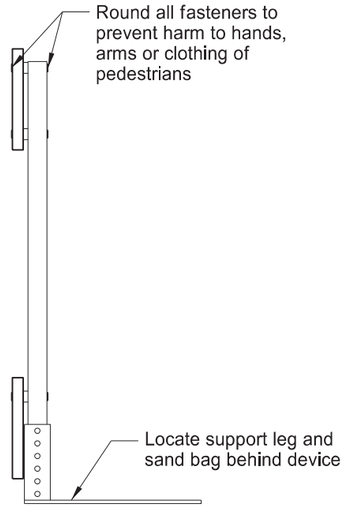
Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.05 15:27:59 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	7



Front View

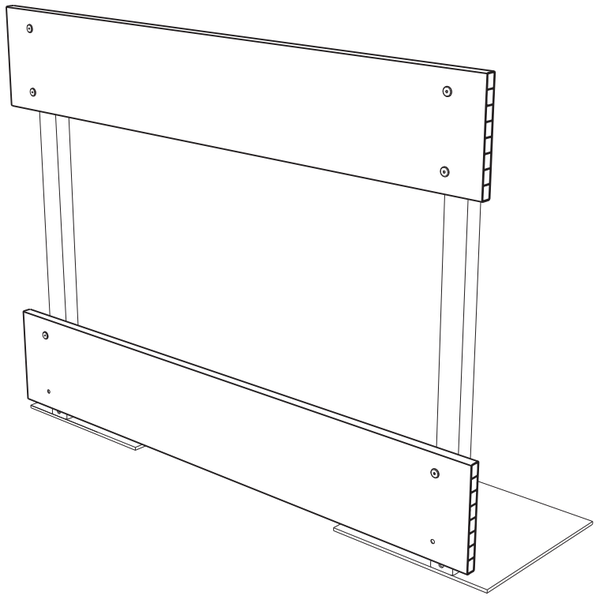


End View

NOTES:

Sidewalk Barricades

1. Provide self standing sidewalk barricade with no supports extending into the pedestrians path.
2. Use orange or orange and white diagonal striped barricade panels contrasting with the walkway surface.
3. Provide ADA compliant and NCHRP 350 or Mash Test Level 3 (TL3) approved sidewalk barricades.
4. Include all costs to furnish, maintain and remove sidewalk barricades in the price bid for "Sidewalk Barricade".



Perspective View

Work Zone Traffic Control

Sidewalk Barricade

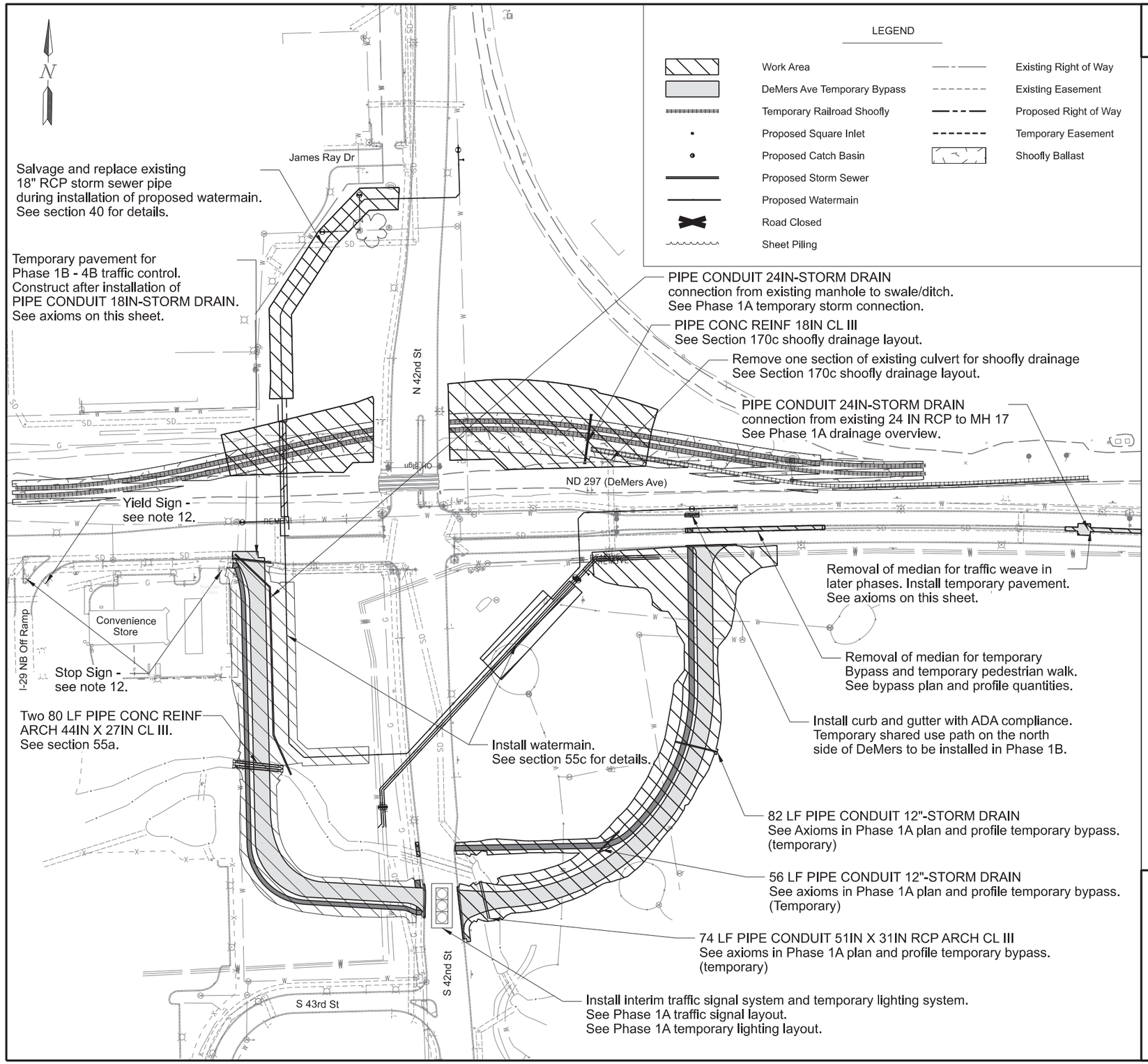
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	8



SPEC	CODE	BID ITEM	QTY	UNIT
302	0100	SALVAGED BASE COURSE		
		Sta 208+28 to 208+88 (OCL_297EB)	14	TON
		Sta 224+09 to 225+61 (OCL_297EB)	26	TON
430	0500	COMMERCIAL GRADE HOT MIX ASPHALT		
		Sta 208+28 to 208+88 (OCL_297EB)	30	TON
		Sta 224+09 to 225+61 (OCL_297EB)	55	TON
770	4501	TEMPORARY LIGHTING SYSTEM		
		Phase 1A	1	EA
772	2800	INTERIM TRAFFIC SIGNALS		
		Phase 1A	1	EA

TASKS:

Construct railroad shoofly without impacting 42nd St or existing railroad tracks.

Construct temporary bypass road and shared use path without impacting 42nd St.

Construct temporary bypass ditch.

Remove existing median on DeMers Ave, near temporary bypass road / east project limits.

Install proposed Phase 1A watermain lines without impacting 42nd St, DeMers Ave, existing railroad tracks or proposed shoofly tracks.

Install temporary lighting system and interim traffic signal system.

Install temporary storm sewer / culverts and temporary surfacing.

Maintain access to convenience store at all times.

NOTES:

1. Construction quantities for the temporary bypass road are located in the section 100 plan and profile sheets.

2. Earthwork quantities for the temporary bypass are located in Section 11 earthwork table.

3. Striping quantities for the temporary bypass road are located in Section 100 Phase 1A signing and striping. All other striping call-outs are accounted for with Section 100 TCDL for corresponding phase(s).

4. Shared-use path north of DeMers Ave near the east connection of the temporary bypass road with DeMers Ave to be completed in Phase 1B.

5. Complete PIPE CONDUIT 24IN-STORM DRAIN temporary storm sewer connection before constructing the temporary bypass on the west connection to DeMers Ave.

6. All temporary pavement installed adjacent to existing pavement is planned to follow existing pavement joints.

7. For shoofly details see section 170c.

8. See Phase 1A drainage overview for more information about installation of proposed MH 17.

9. See section 55c for proposed watermain details.

10. See section 40 for watermain removal and salvage and relay storm sewer details.

11. See section 55a for proposed storm sewer details.

12. Remove all existing signs from I-29 Off Ramp and ND 297 (DeMers Ave) intersection to ND 297 (DeMers Ave) and 42nd St intersection with the exception of called out signs on Phase 1A Overview Sheet.

Work Zone Traffic Control

Phase 1A Overview

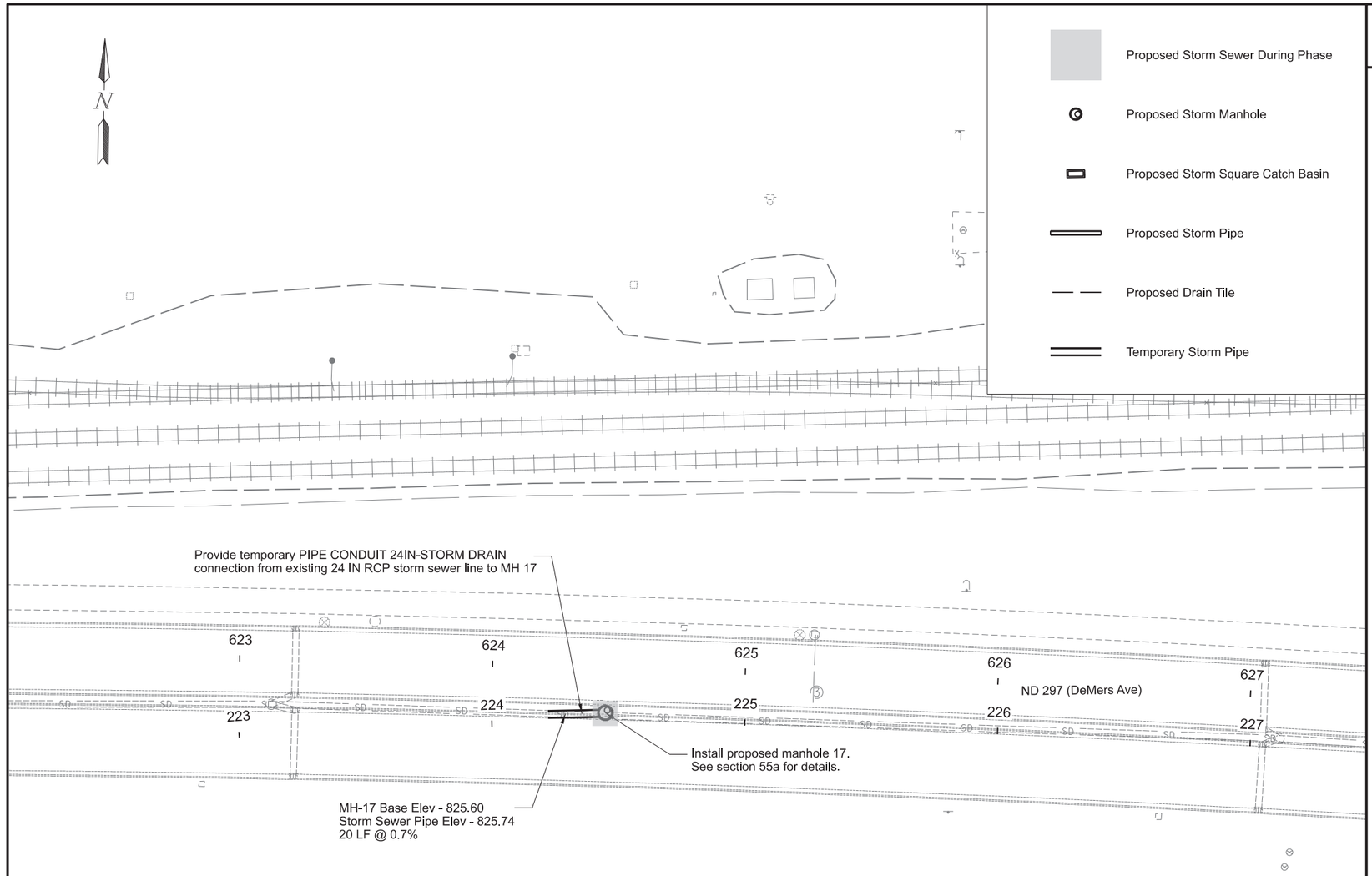
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8276
DATE: 2025.12.05 18:19:34 -06'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	9



SPEC	CODE	BID ITEM	QTY	UNIT
714	4107	PIPE CONDUIT 24IN-STORMDRAIN		
		Sta 224+22 to 224+42 (OCL_297EB)	20	LF

TASKS:

Install MH 17 with proposed connection to existing storm sewer system to the east.

Install temporary connection to the existing storm sewer system to the west.

Temporarily close precast manhole pipe outlets that are not being used.

Install temporary connection between existing 24" RCP and proposed manhole 17.

NOTES:

1. Protect MH 17 precast doghouse during installation of temporary PIPE CONDUIT 24IN - STORM DRAIN.

2. Do not modify the MH 17 precast structure.

3. Install MH 17 in Phase 1A and install manhole castings and rings during Phase 5D.

4. Provide temporary covering (INCIDENTAL) over proposed cover and castings location to allow backfill and temporary paving to occur without entring the manhole structure.

5. Verify all installed temporary drainage structures and storm connections are sealed.

6. 20 LF of PIPE CONDUIT 24IN-STORM DRAIN allocated to allow field fitting for temporary drainage connection on the west side.

7. See Section 40 for removal details.

8. See Section 55a for proposed storm sewer details.

Work Zone Traffic Control

Phase 1A Drainage Overview
Proposed Storm by Phase

ND 297 (DeMers Ave)

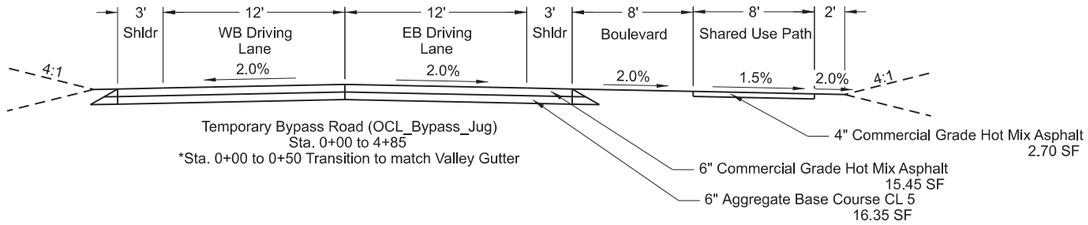
ND 297 (DeMers Ave) & 42nd St Grade Separation

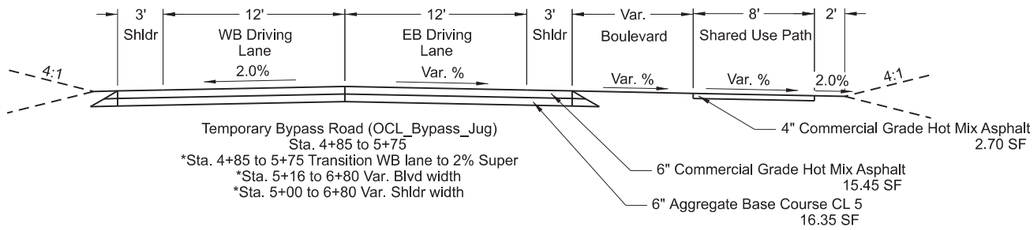
Grand Forks County

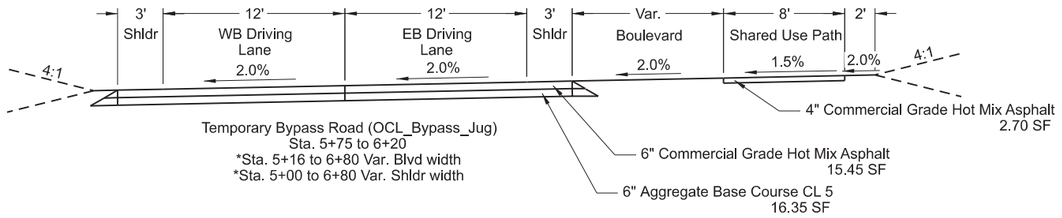
Grand Forks, ND

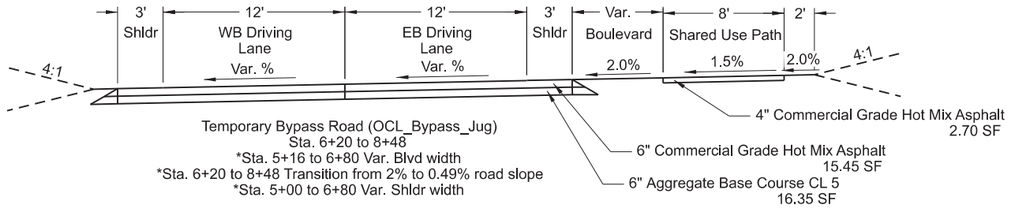
REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE - 8256
DATE: 2025.12.05 18:19:45 -06'00'
NORTH DAKOTA

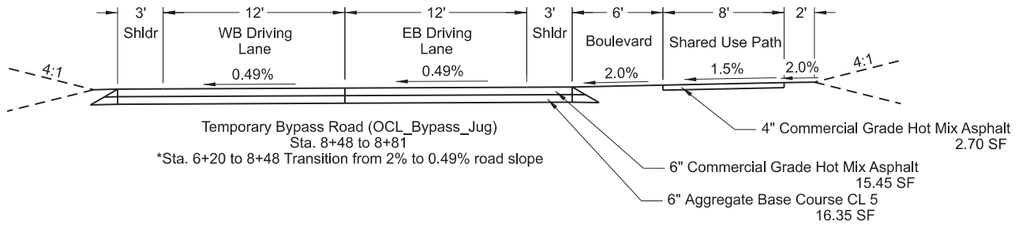
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	10











Work Zone Traffic Control

Typical Sections
Proposed

Temporary Bypass

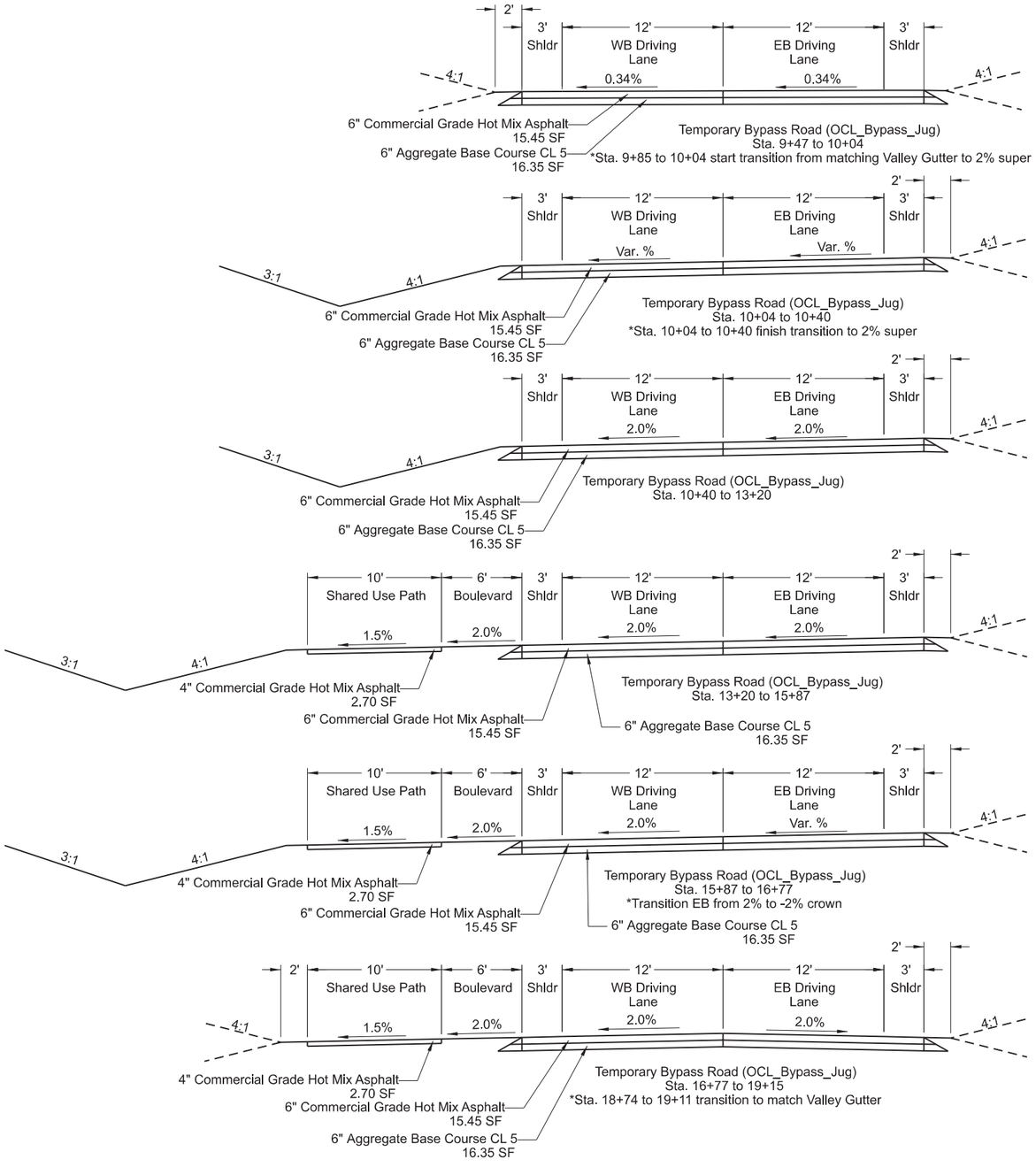
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8276
DATE: 2025.12.05 18:19:59 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	11



Work Zone Traffic Control

Typical Sections
Proposed

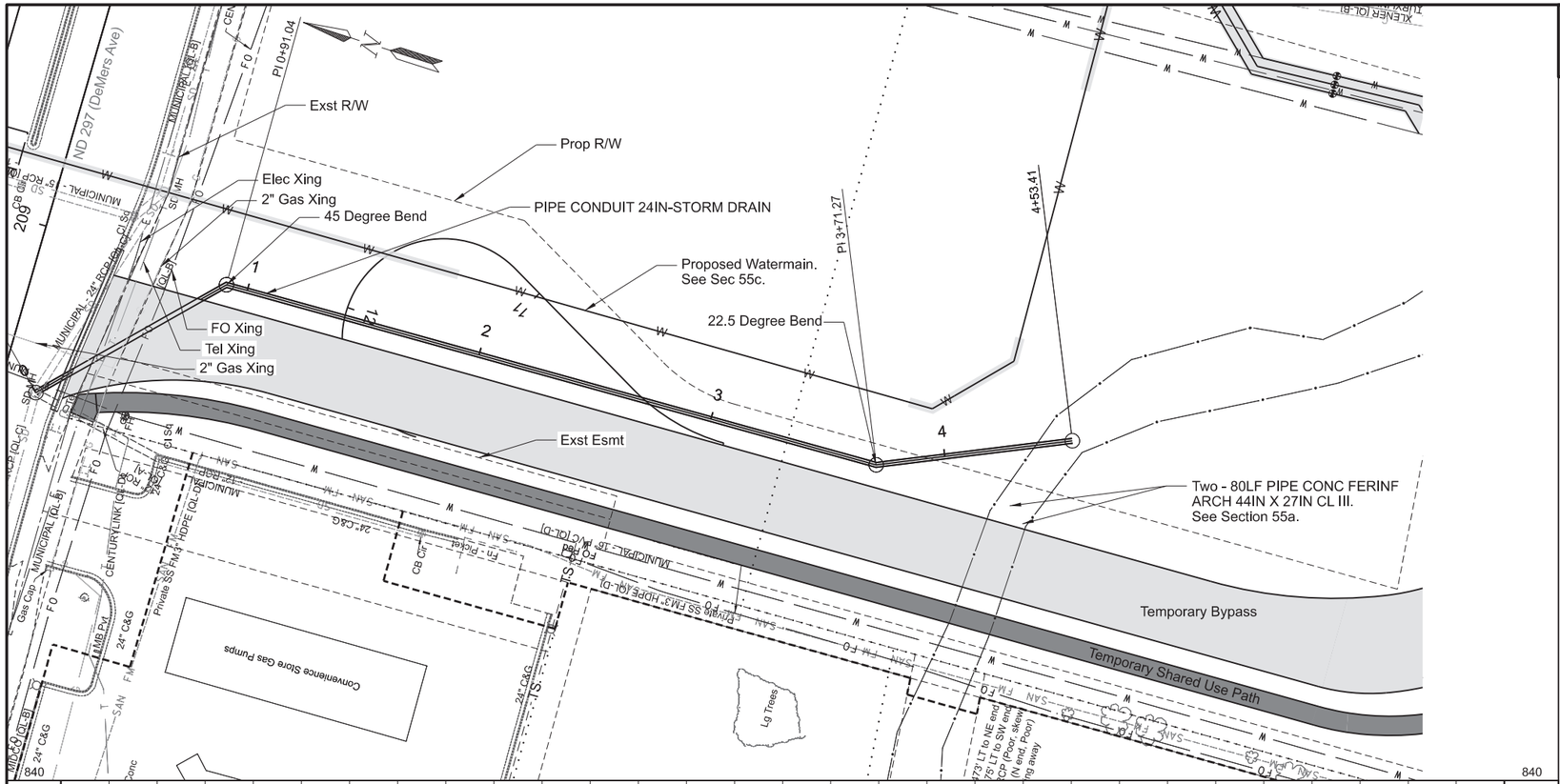
Temporary Bypass

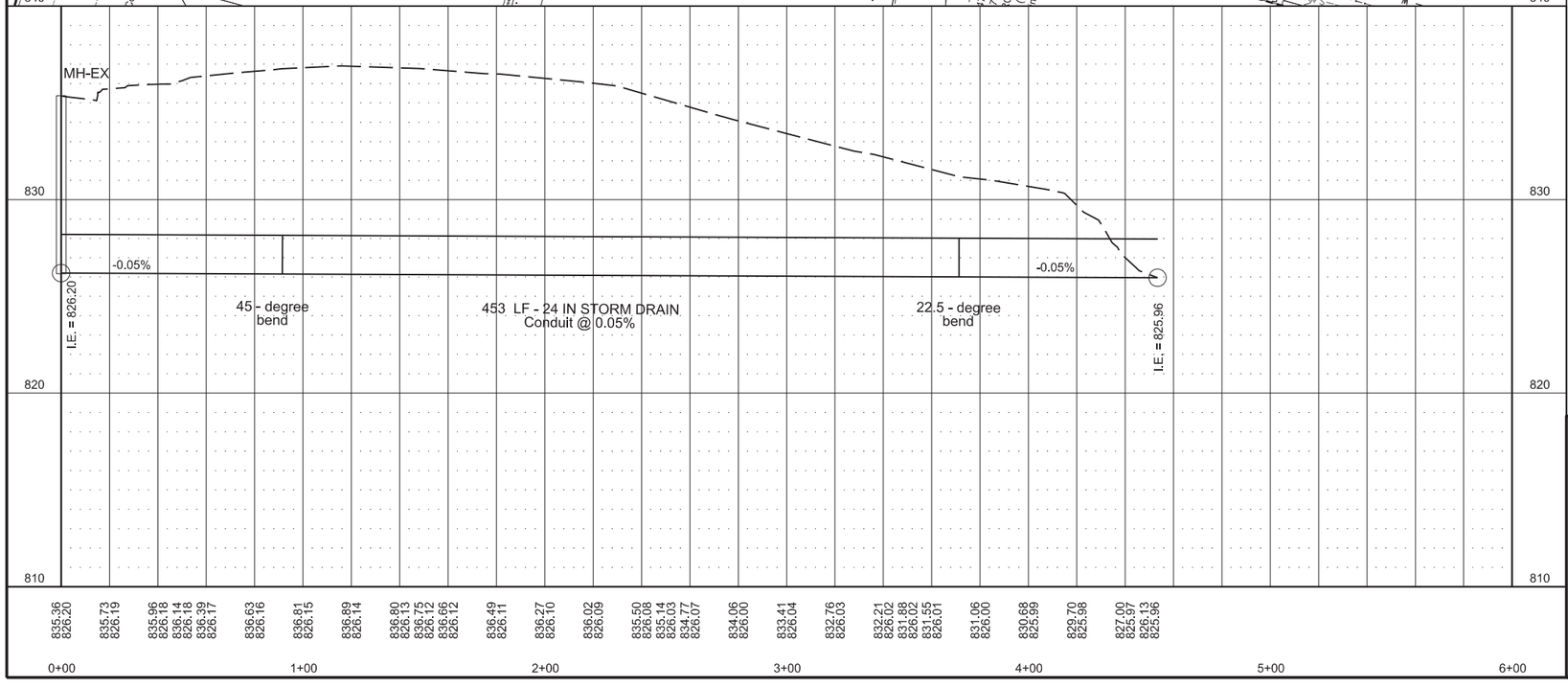
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4276
DATE: 2025.12.05 18:20:22 -06'00'
NORTH DAKOTA





	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	12

SPEC	CODE	BID ITEM	QTY	UNIT
714	4107	PIPE CONDUIT 24IN-STORMDRAIN		
		Sta 208+32 to 209+33 (OCL_297EB)	453	LF

Notes:

1. Install Temporary Drainage Pipe from the bottom of the existing manhole to the bottom of existing ditch.

2. All bends are INCIDENTAL

Work Zone Traffic Control

Plan and Profile
Phase 1A

Temporary Storm Connection

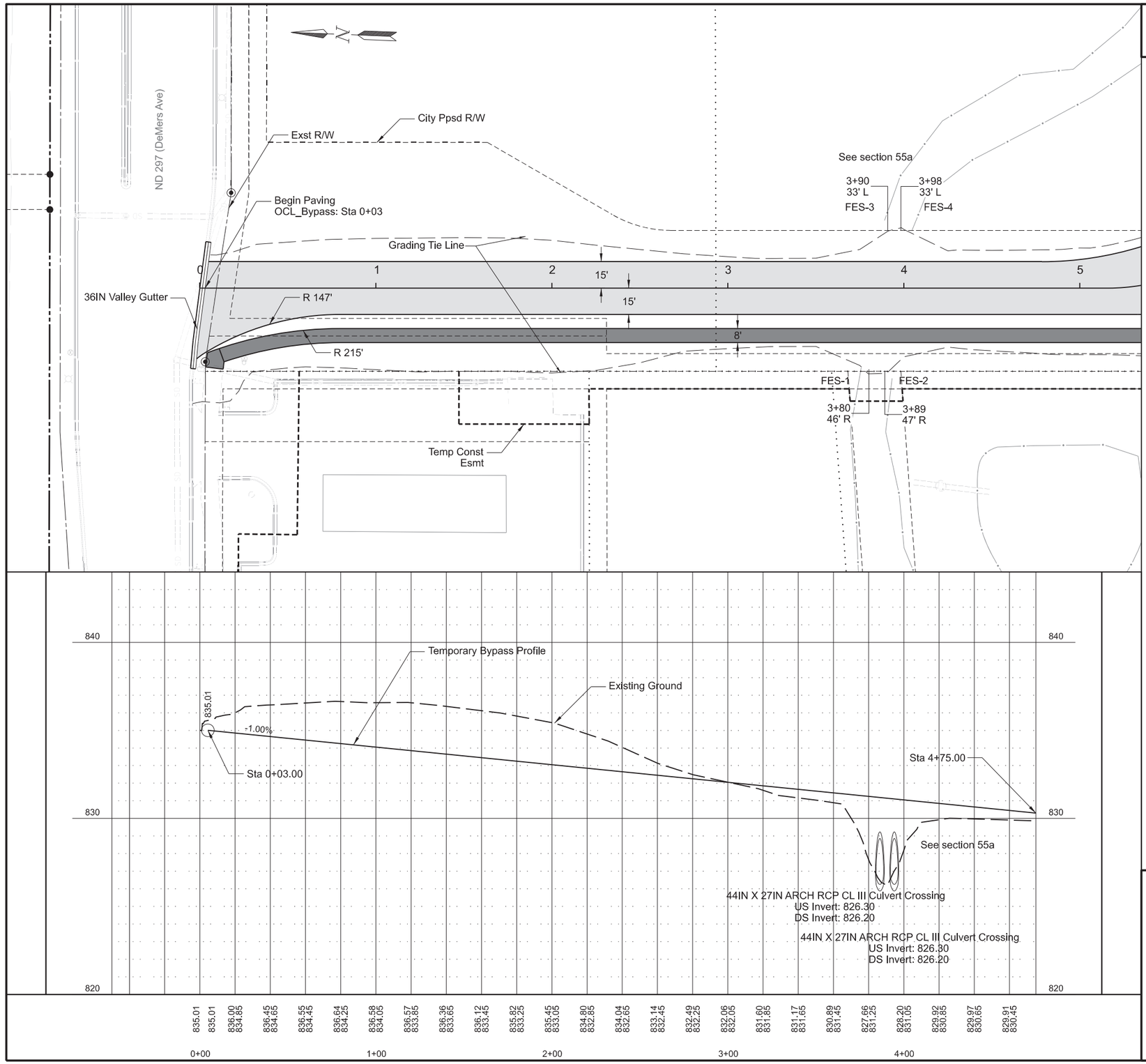
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8076
DATE: 2025.12.05 18:20:33 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	13



SPEC	CODE	BID ITEM	QTY	UNIT
302	0120	AGGREGATE BASE COURSE CL 5		
		Sta 0+00 to 5+35 (OCL_Bypass_Jug)(Road)	582	TON
		Sta 0+00 to 5+35 (OCL_Bypass_Jug)(Sluff)	100	TON
		Sta 0+00 (OCL_Bypass_Jug)(ValleyGutter)	7	TON
430	0500	COMMERCIAL GRADE HOT MIX ASPHALT		
		Sta 0+00 to 5+35 (OCL_Bypass_Jug)(Road)	620	TON
		Sta 0+00 to 5+35 (OCL_Bypass_Jug)(Sluff)	36	TON
		Sta 0+00 to 5+35 (OCL_Bypass_Jug)(Walk)	105	TON
748	1000	VALLEY GUTTER 36IN		
		Sta 0+00 (OCL_Bypass_Jug)	73	LF

Notes:

1. See Section 11 Earthwork for Temporary Bypass Road earthwork quantities
2. See Section 55a for permanent ARCH PIPE RCP CL III culvert information

Work Zone Traffic Control

Plan and Profile
Phase 1A

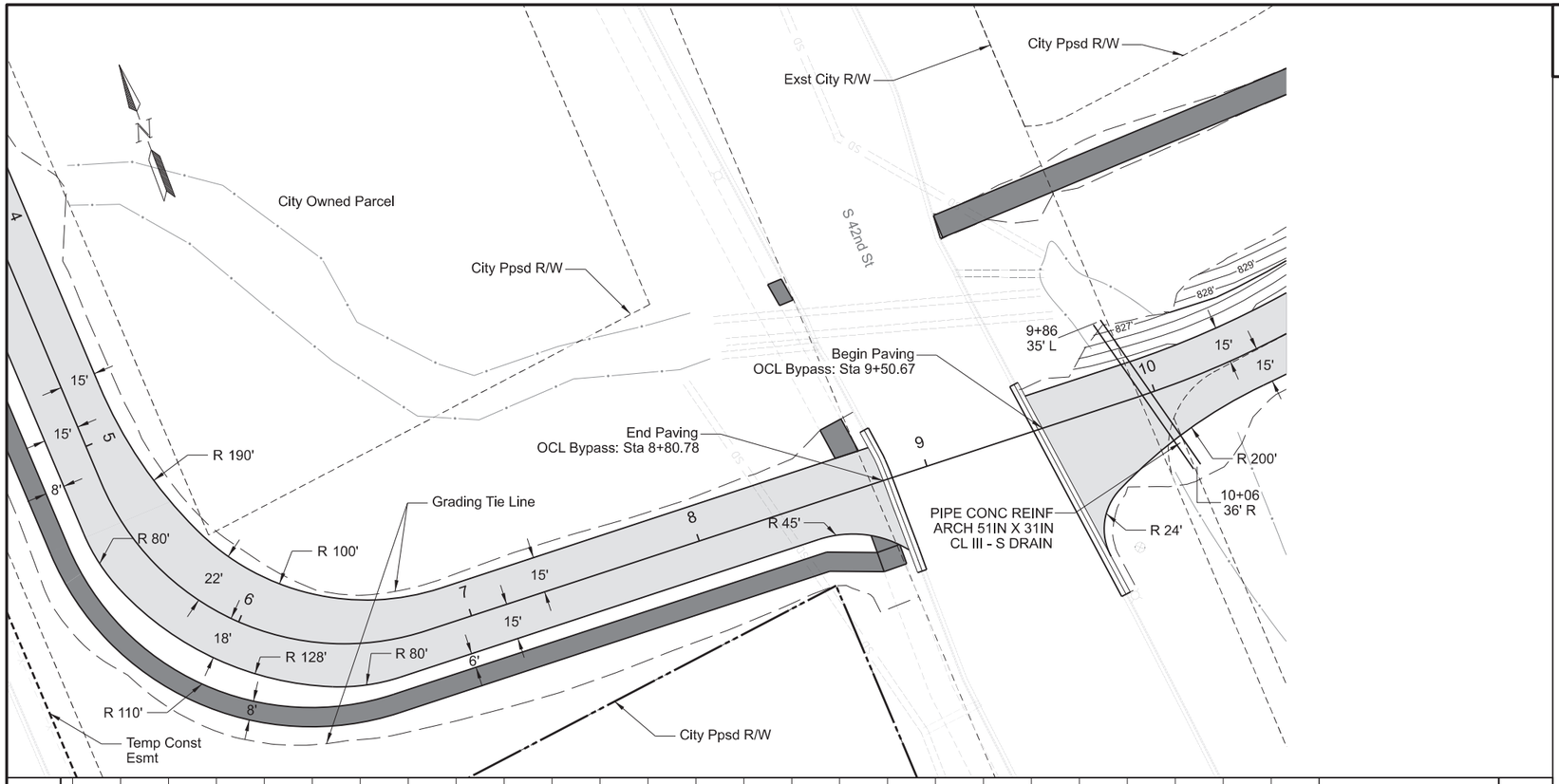
Temporary Bypass Road

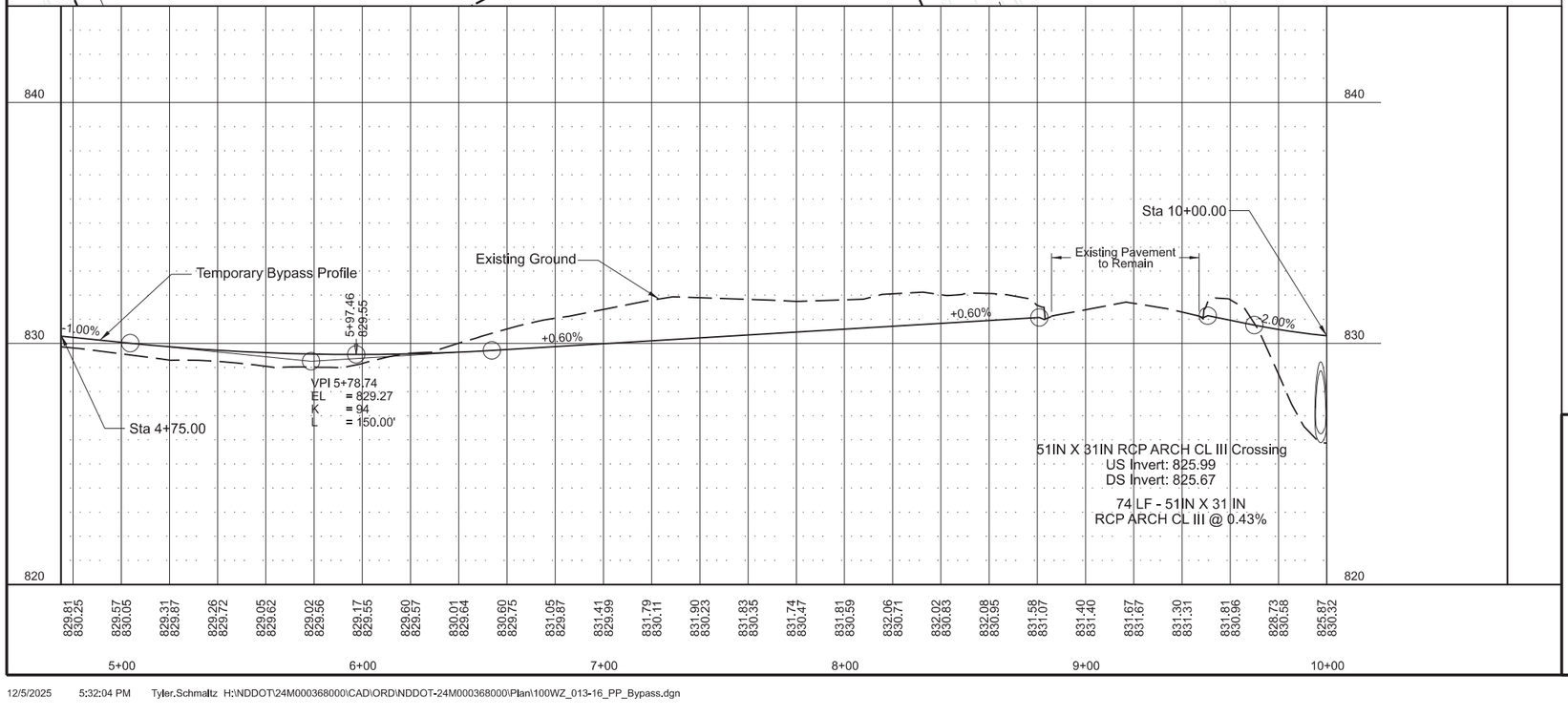
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8256
DATE: 2025.12.05 18:20:47 -06'00'
NORTH DAKOTA





	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	14

SPEC	CODE	BID ITEM	QTY	UNIT
302	0120	AGGREGATE BASE COURSE CL 5		
		Sta 5+35 to 8+81 (OCL_Bypass_Jug)(Road)	403	TON
		Sta 5+35 to 8+81 (OCL_Bypass_Jug)(Sluff)	65	TON
		Sta 9+51 to 10+61 (OCL_Bypass_Jug)(Road)	147	TON
		Sta 9+51 to 10+61 (OCL_Bypass_Jug)(Sluff)	22	TON
		Sta 8+83 to 9+49 (OCL_Bypass_Jug)(ValleyGutter)	15	TON
430	0500	COMMERCIAL GRADE HOT MIX ASPHALT		
		Sta 5+35 to 8+81 (OCL_Bypass_Jug)(Road)	430	TON
		Sta 5+35 to 8+81 (OCL_Bypass_Jug)(Sluff)	24	TON
		Sta 5+35 to 8+81 (OCL_Bypass_Jug)(Walk)	82	TON
		Sta 9+51 to 10+61 (OCL_Bypass_Jug)(Road)	157	TON
		Sta 9+51 to 10+61 (OCL_Bypass_Jug)(Sluff)	8	TON
		Sta 9+51 to 10+61 (OCL_Bypass_Jug)(Walk)	39	TON
714	2119	PIPE CONC REINF ARCH 51IN X 31IN CL III-S DRAIN		
		Sta 9+86 to 10+06 (OCL_Bypass_Jug)	74	LF
748	1000	VALLEY GUTTER 36IN		
		Sta 8+83 (OCL_Bypass_Jug)	64	LF
		Sta 9+49 (OCL_Bypass_Jug)	100	LF

Notes:

1. See Section 11 Earthwork for Temporary Bypass Road quantities

Work Zone Traffic Control

Plan and Profile
Phase 1A

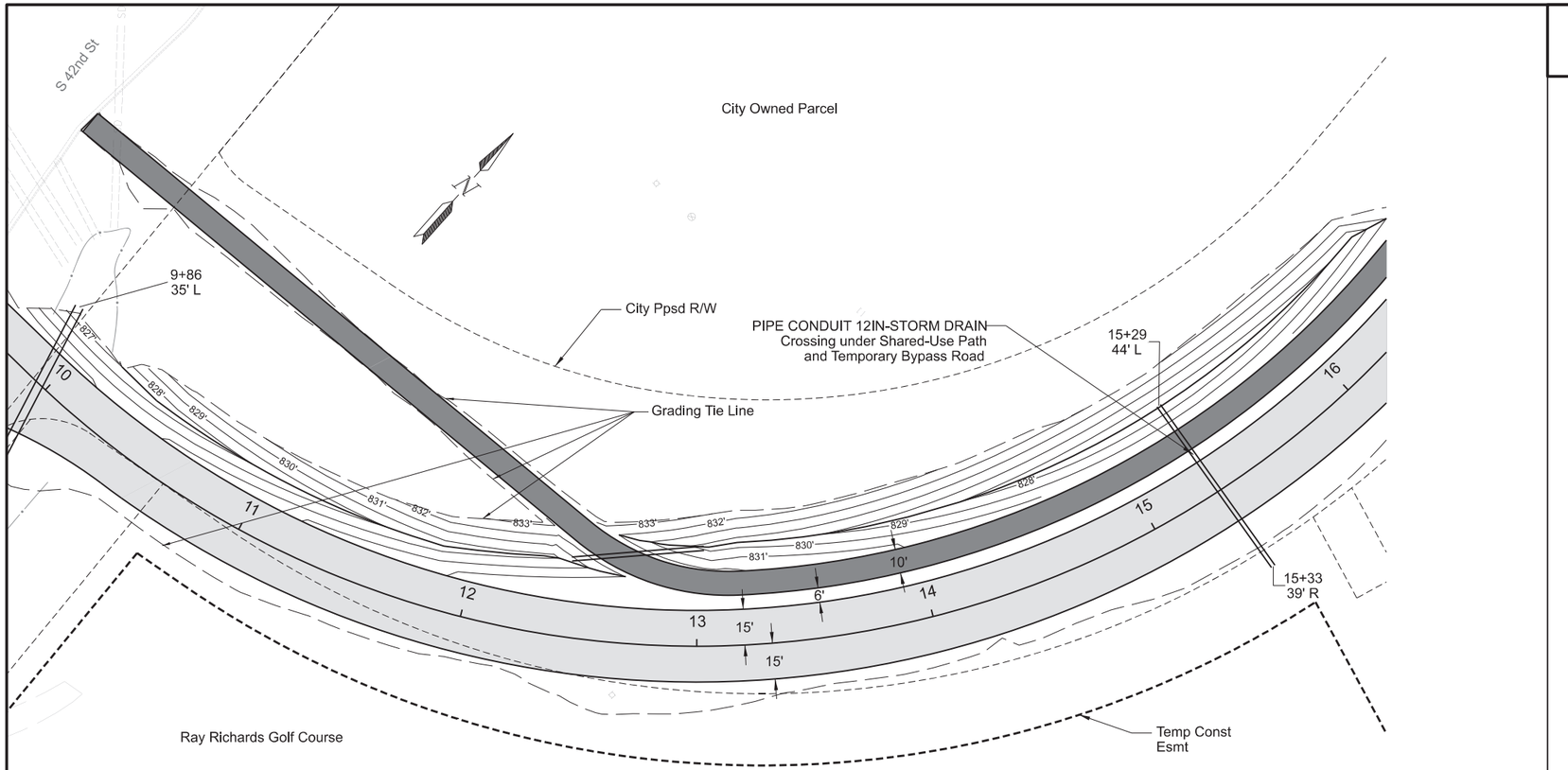
Temporary Bypass Road

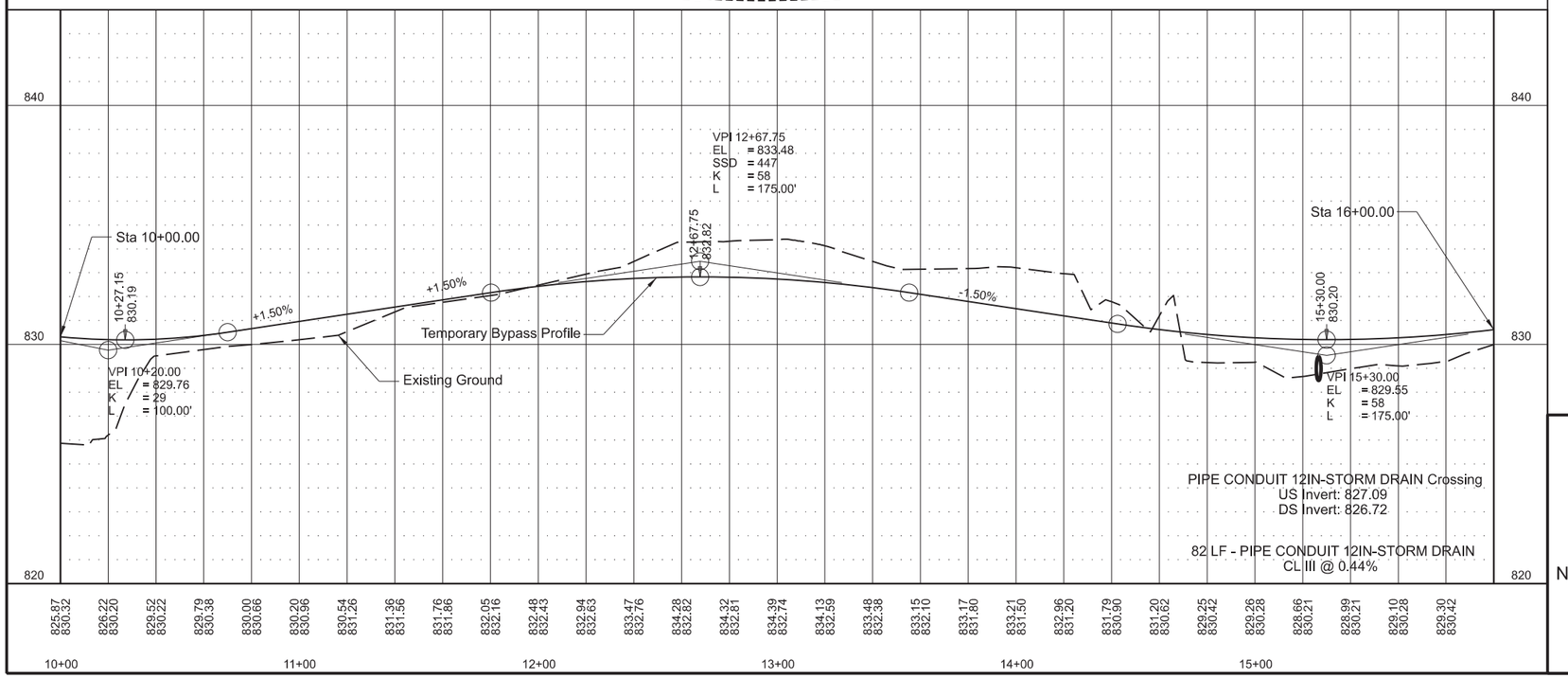
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.05 18:21:02 -06'00'
NORTH DAKOTA





	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	15

SPEC	CODE	BID ITEM	QTY	UNIT
302	0120	AGGREGATE BASE COURSE CL 5		
		Sta 10+61 to 16+23 (OCL_Bypass_Jug)(Road)	587	TON
		Sta 10+61 to 16+23 (OCL_Bypass_Jug)(Sluff)	105	TON
430	0500	COMMERCIAL GRADE HOT MIX ASPHALT		
		Sta 10+61 to 16+23 (OCL_Bypass_Jug)(Road)	626	TON
		Sta 10+61 to 16+23 (OCL_Bypass_Jug)(Sluff)	38	TON
		Sta 10+61 to 16+23 (OCL_Bypass_Jug)(Walk)	121	TON
714	4092	PIPE CONDUIT 12IN-STORM DRAIN		
		Sta 15+29 to 15+33 (OCL_Bypass_Jug)	83	LF

Notes:

1. See Section 11 Earthwork for Temporary Bypass Road quantities

Work Zone Traffic Control

Plan and Profile
Phase 1A

Temporary Bypass Road

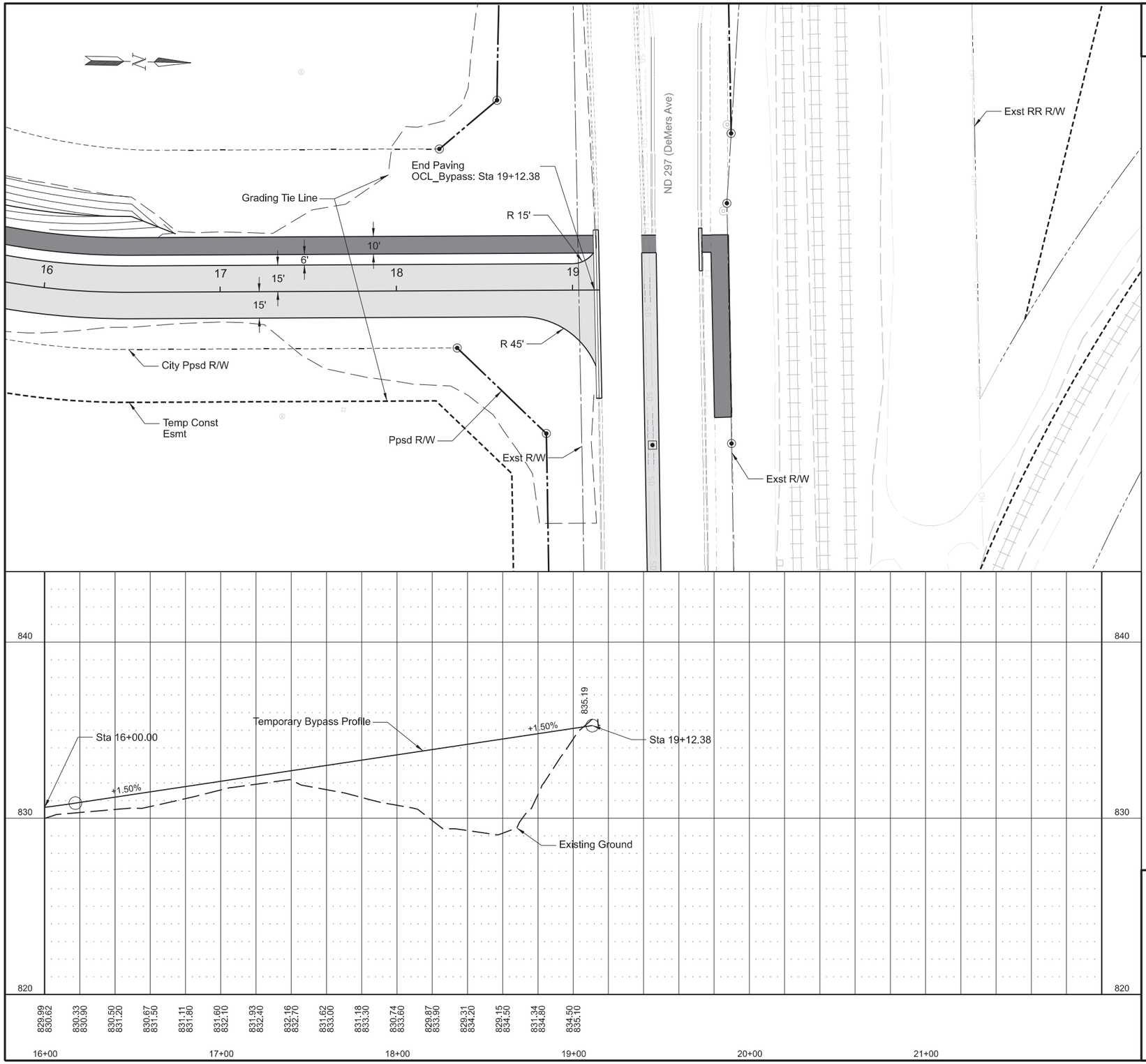
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8276
DATE: 2025.12.05 18:21:13 -06'00'
NORTH DAKOTA

12/5/2025 5:32:04 PM Tyler.Schmaltz H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_013-16_PP_Bypass.dgn



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	16

SPEC	CODE	BID ITEM	QTY	UNIT
302	0120	AGGREGATE BASE COURSE CL 5		
		Sta 16+23 to 19+12 (OCL_Bypass_Jug)(Road)	314	TON
		Sta 16+23 to 19+12 (OCL_Bypass_Jug)(Sluff)	56	TON
		Sta 216+90 to 217+00 (OCL_297EB)(MedianWalk)	3	TON
		Sta 217+00 to 219+46 (OCL_297EB)(Median)	34	TON
		Sta 19+14 (OCL_Bypass_Jug)(ValleyGutter)	9	TON
		Sta 216+86 to 217+11 (OCL_297EB)(C&G)	1	TON
430	0500	COMMERCIAL GRADE HOT MIX ASPHALT		
		Sta 16+23 to 19+12 (OCL_Bypass_Jug)(Road)	335	TON
		Sta 16+23 to 19+12 (OCL_Bypass_Jug)(Sluff)	20	TON
		Sta 16+23 to 19+12 (OCL_Bypass_Jug)(Walk)	64	TON
		Sta 216+90 to 217+00 (OCL_297EB)(MedianWalk)	3	TON
		Sta 217+00 to 219+46 (OCL_297EB)(Median)	72	TON
		Sta 216+90 to 217+94 (OCL_297EB)(Walk)	27	TON
748	0140	CURB & GUTTER TYPE I		
		Sta 216+86 to 217+11 (OCL_297EB)	24	LF
748	1000	VALLEY GUTTER 36IN		
		Sta 19+34 (OCL_Bypass_Jug)	96	LF

Notes:

1. See Section 11 Earthwork for Temporary Bypass Road quantites

Work Zone Traffic Control

Plan and Profile
Phase 1A

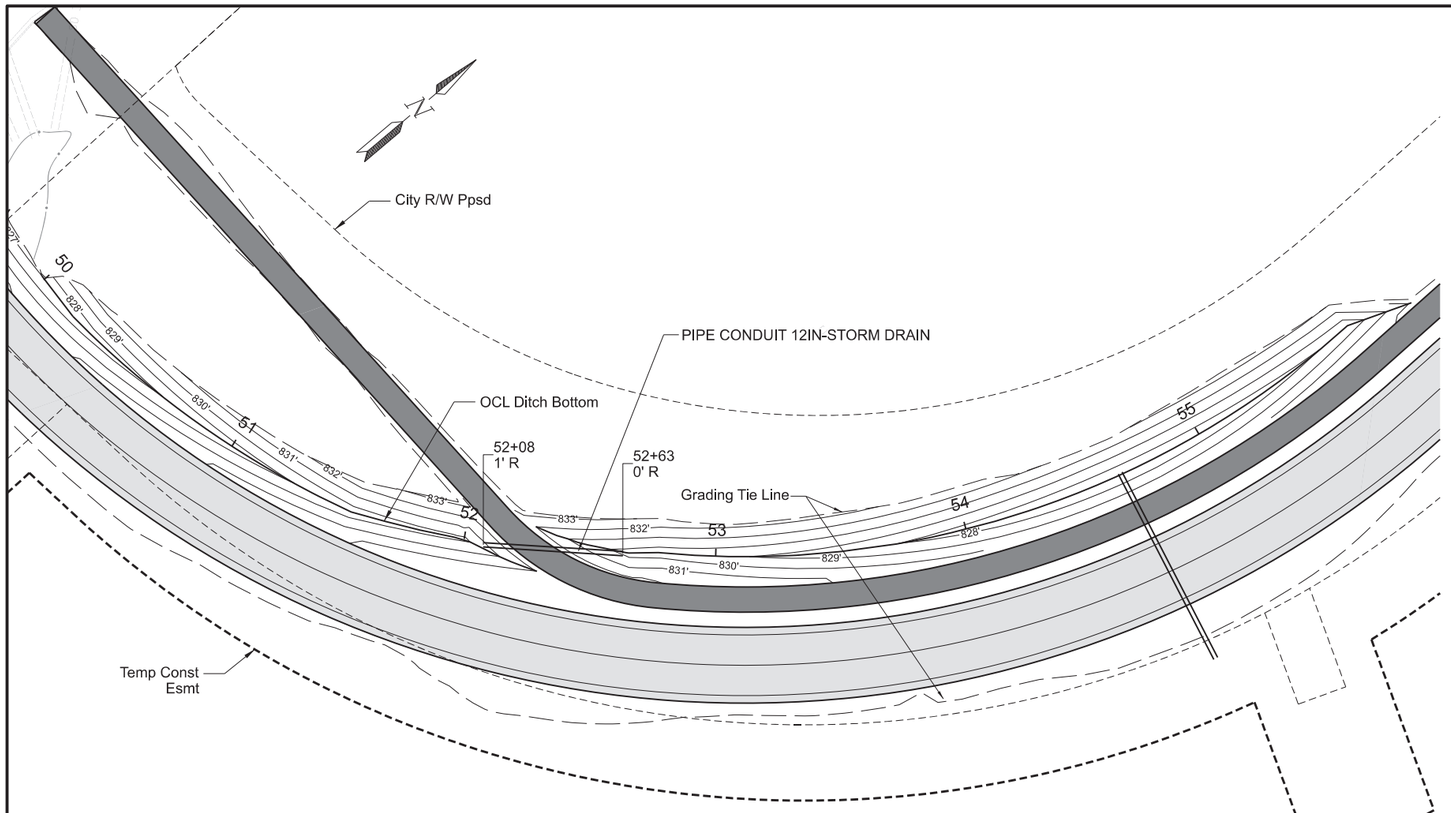
Temporary Bypass Road

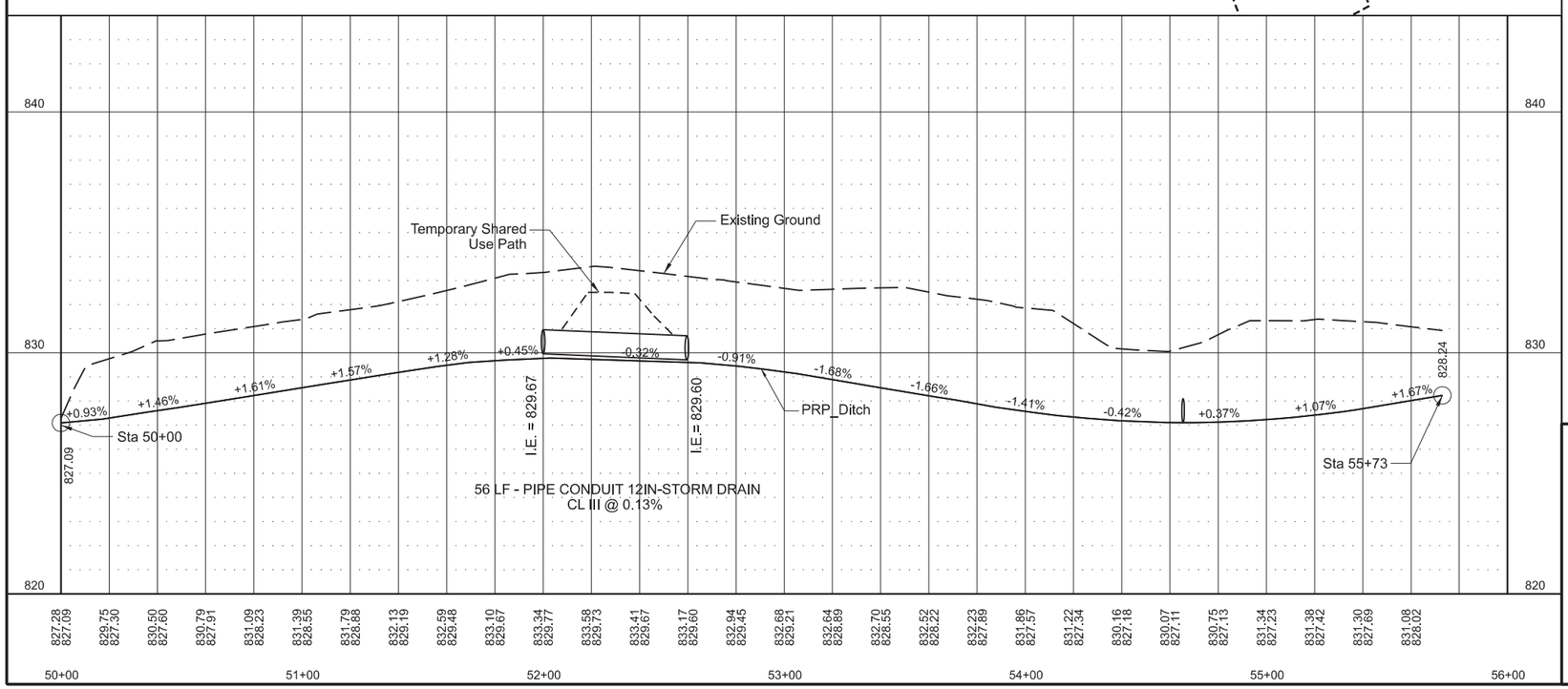
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9026
DATE 2025.12.05 18:21:23 -06'00'
NORTH DAKOTA





	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	17

SPEC	CODE	BID ITEM	QTY	UNIT
714	4092	PIPE CONDUIT 12IN-STORMDRAIN		
		Sta 52+08 to 52+63 (Bypass_W_SW)	56	LF

Work Zone Traffic Control

Plan and Profile
Phase 1A

Temporary Bypass Road Ditch Bottom

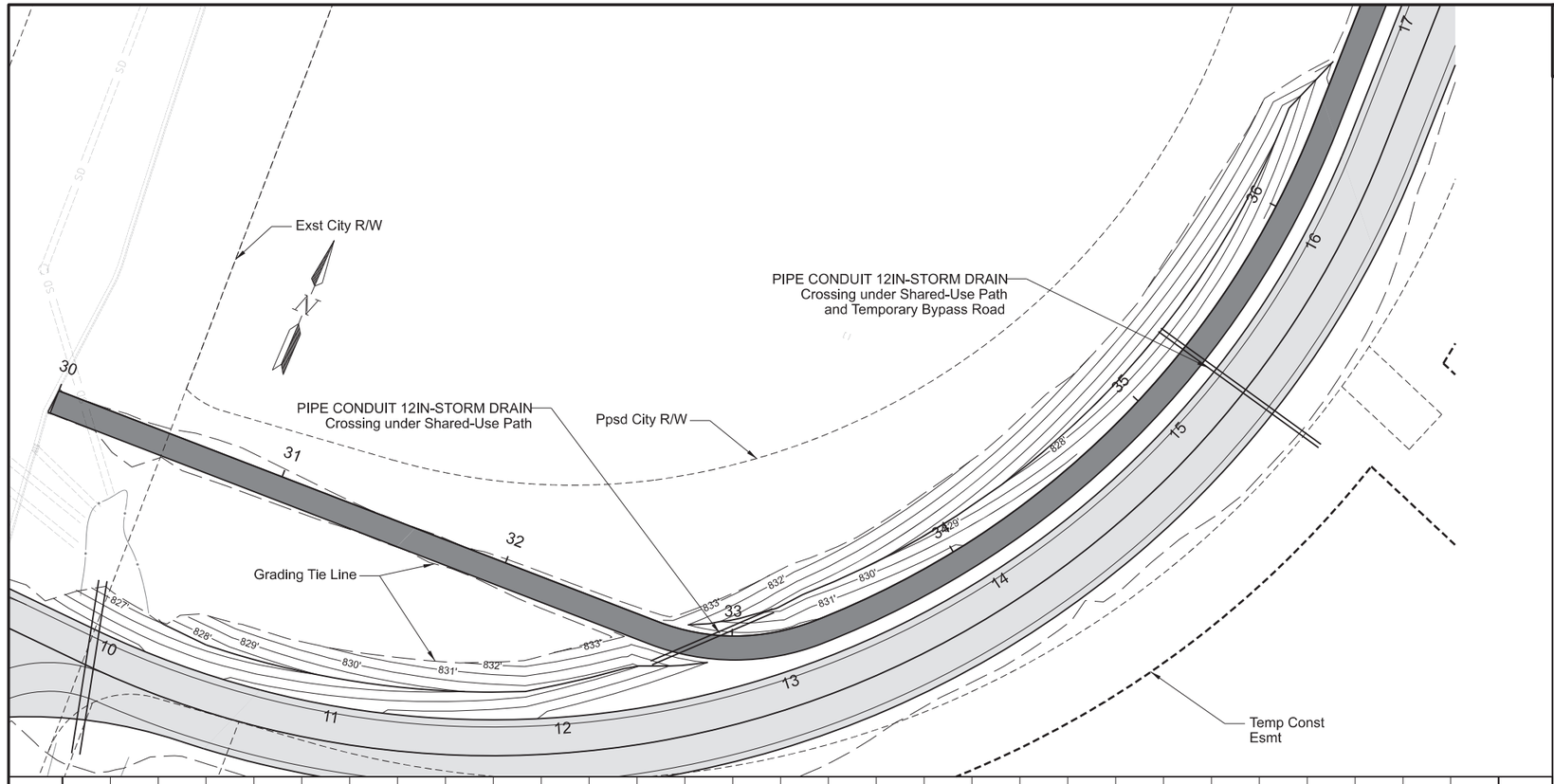
ND 297 (DeMers Ave) & 42nd St Grade Separation

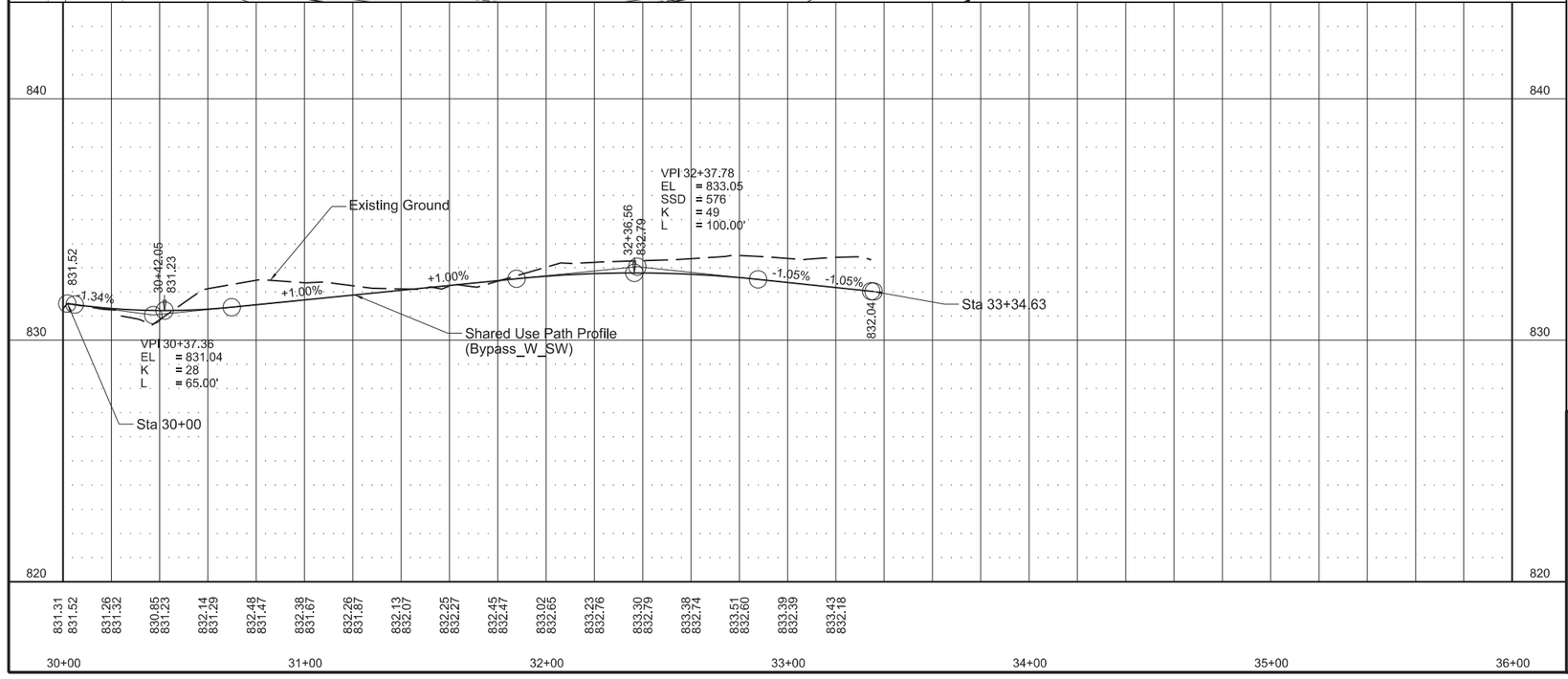
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8076
DATE: 2025.12.05 18:21:36 -06'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	18





Work Zone Traffic Control

Plan and Profile
Phase 1A

Temporary Shared Use Path

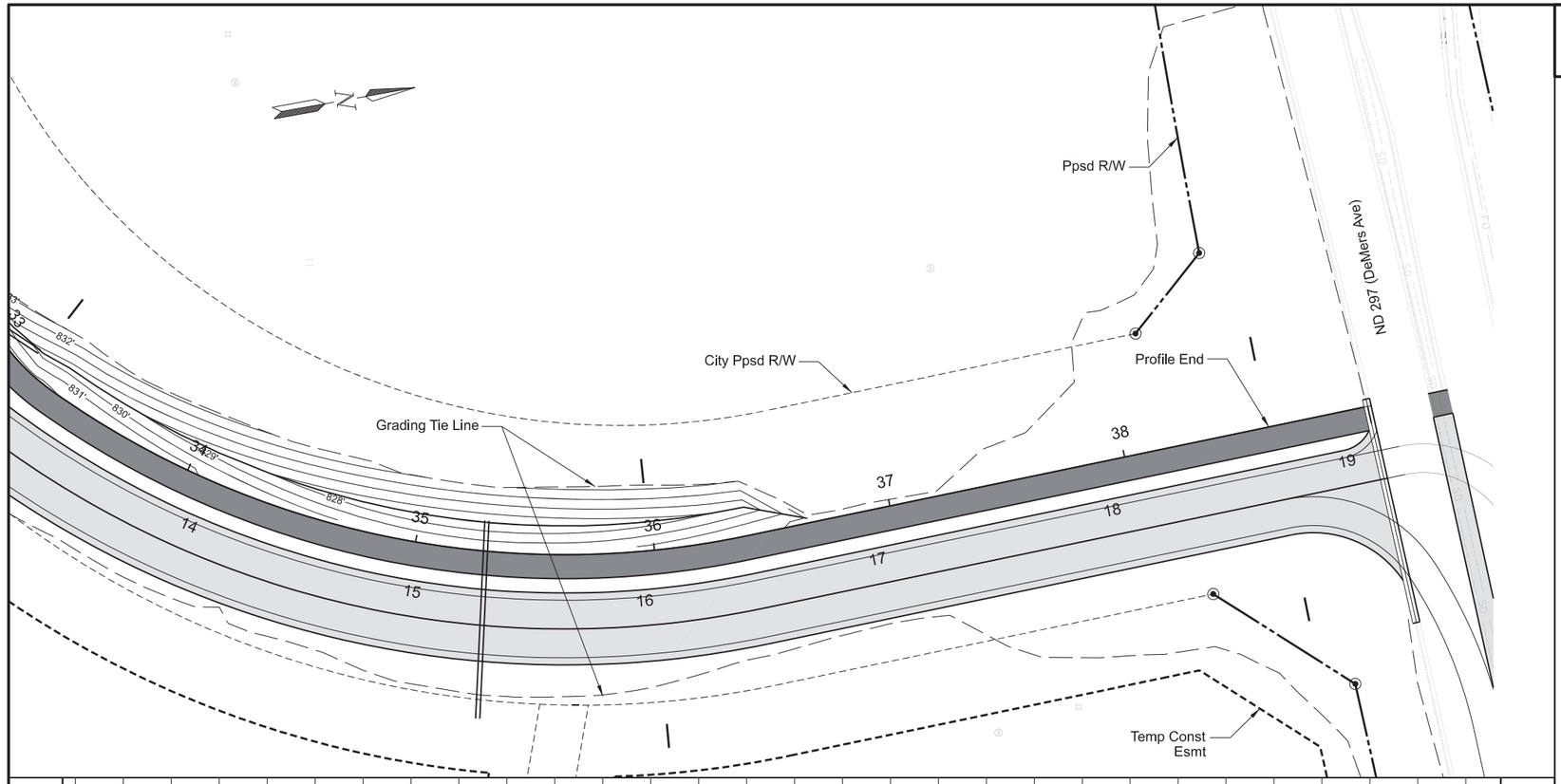
ND 297 (DeMers Ave) & 42nd St Grade Separation

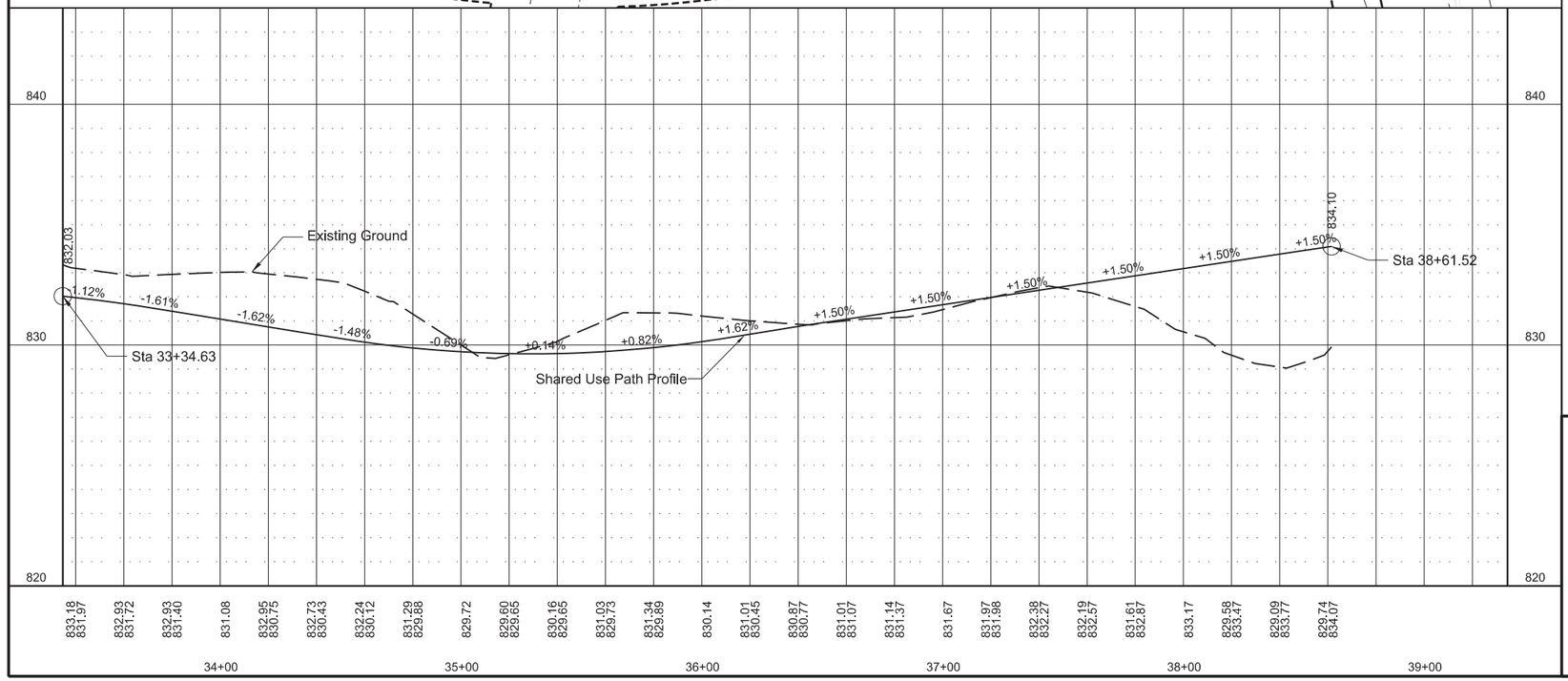
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9076
DATE 2025.12.05 18:21:46 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	19





Work Zone Traffic Control

Plan and Profile
Phase 1A

Temporary Shared Use Path

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-6276
DATE: 2025.12.05 18:21:57 -06'00'
NORTH DAKOTA



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	20

AlignmenName: Bypass_Jug1
AlignmenDescription:
AlignmenStyle: Alignment\Horizontal\SmallScale\Alignment1

		Station	Northing	Easting
Element: Linear				
START	(START)	0.000 R1	353475.162	2804815.193
PC	(PC)	516.443 R1	352959.124	2804835.635
	Tangential Direction:	S2.268°E		
	Tangential Length:	516.443		
Element: Circular				
PC	(PC)	516.443 R1	352959.124	2804835.635
COMBINATION	(COMBINATION PI)	617.788 R1	352857.858	2804839.646
CC	(CC)		352963.477	2804945.549
PT	(PT)	680.226 R1	352853.576	2804940.901
	Radius:	110		
	Delta:	85.31 Left		
	Degree of Curvature (Arc):	52.087		
	Length:	163.783		
	Tangent:	101.345		
	Chord:	149.068		
	Middle Ordinate:	29.101		
	External:	39.569		
	Back Tangent Direction:	S2.268°E		
	Back Radial Direction:	S87.732°W		
	Chord Direction:	S44.923°E		
	Ahead Radial Direction:	S2.422°W		
	Ahead Tangent Direction:	S87.578°E		
Element: Linear				
PT	(PT)	680.226 R1	352853.576	2804940.901
PC	(PC)	992.148 R1	352840.396	2805252.544
	Tangential Direction:	S87.578°E		
	Tangential Length:	311.922		
Element: Circular				
PC	(PC)	992.148 R1	352840.396	2805252.544
COMBINATION	(COMBINATION PI)	1420.960 R1	352822.277	2805680.974
CC	(CC)		353240.038	2805269.446
PT	(PT)	1648.266 R1	353250.93	2805669.298
	Radius:	400		
	Delta:	93.982 Left		
	Degree of Curvature (Arc):	14.324		
	Length:	656.118		
	Tangent:	428.813		
	Chord:	584.997		
	Middle Ordinate:	127.155		
	External:	186.413		
	Back Tangent Direction:	S87.578°E		
	Back Radial Direction:	S2.422°W		
	Chord Direction:	N45.431°E		
	Ahead Radial Direction:	N88.440°E		
	Ahead Tangent Direction:	N1.560°W		
Element: Linear				
PT	(PT)	1648.266 R1	353250.93	2805669.298
END	(END)	1915.381 R1	353517.946	2805662.024
	Tangential Direction:	N1.560°W		
	Tangential Length:	267.115		

Work Zone Traffic Control

Survey Data Layout
Office Center Line

Temporary Bypass Road

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE 2025.12.05 18:22:09 -06'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	21

N

ROAD WORK AHEAD
W20-1-48
Post Mtd

140'

SPEED LIMIT ENFORCED
MINIMUM FEE $150
WHEN WORKERS PRESENT
G20-55-96
Post Mtd

340'

200 ND 297 (DeMers Ave) 201 202 203

140' 140'

12' EX THRU LN

RIGHT LANE CLOSED 600 FT
W20-5-48
Post Mtd

SPEED LIMIT 25
W3-5-48
Post Mtd

R2-1-48
Post Mtd
SPEED LIMIT 40

75'

G20-2-48
Post Mtd
END ROAD WORK

R1-1
Existing
204 STOP

132'

517

12' EX THRU LN

12' EX LT TURN LN

12' EX RT TURN LN

I-29 NB On Ramp

516

I-29 NB Off Ramp

515

75'

SPEED LIMIT 25
MINIMUM FEE $150
R2-1-48
R2-1aP-24
Post Mtd

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 1A

ND 297 (DeMers Ave)

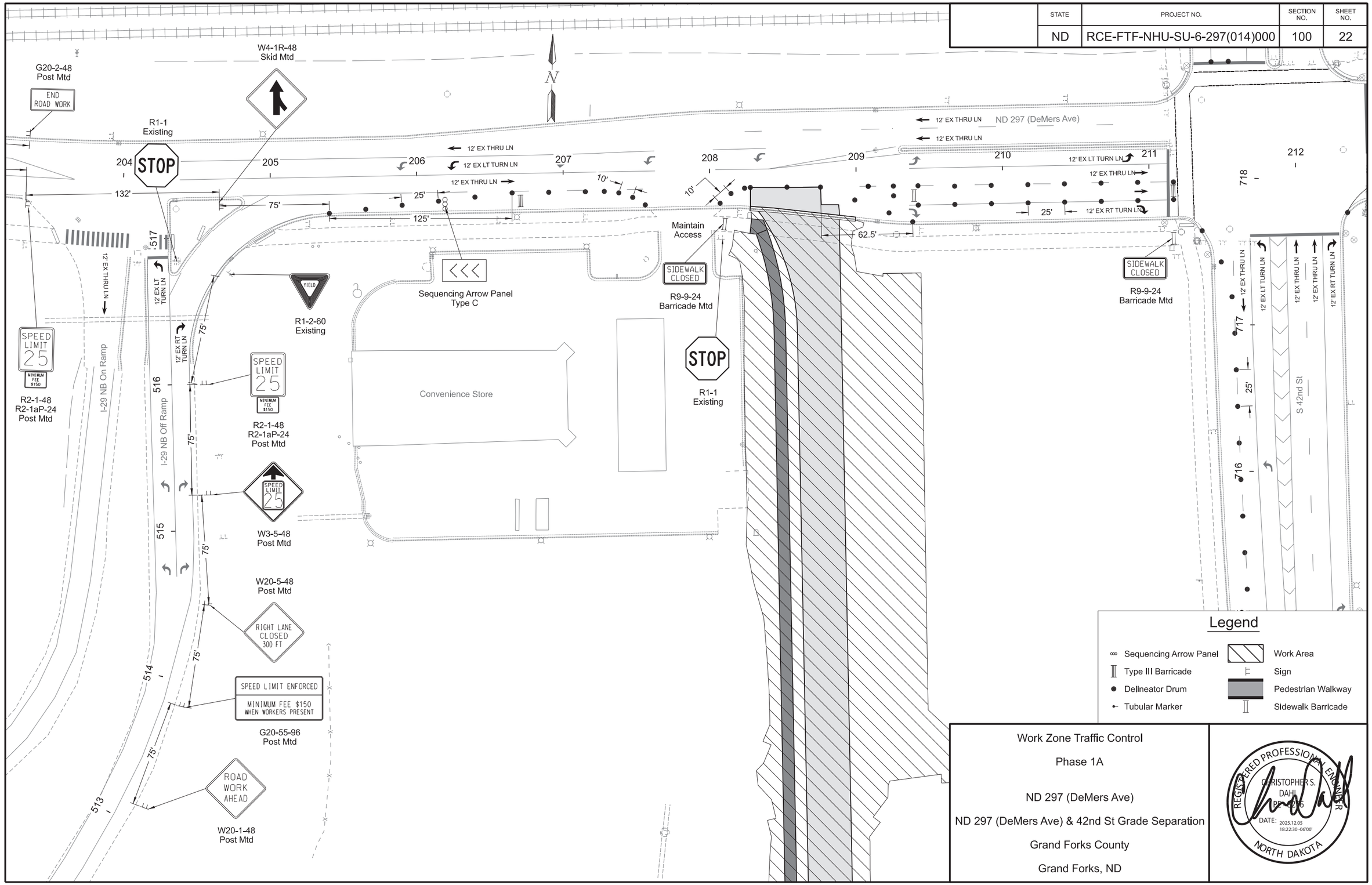
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4206
DATE: 2025.12.05 18:22:19 -06'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	22



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 1A

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

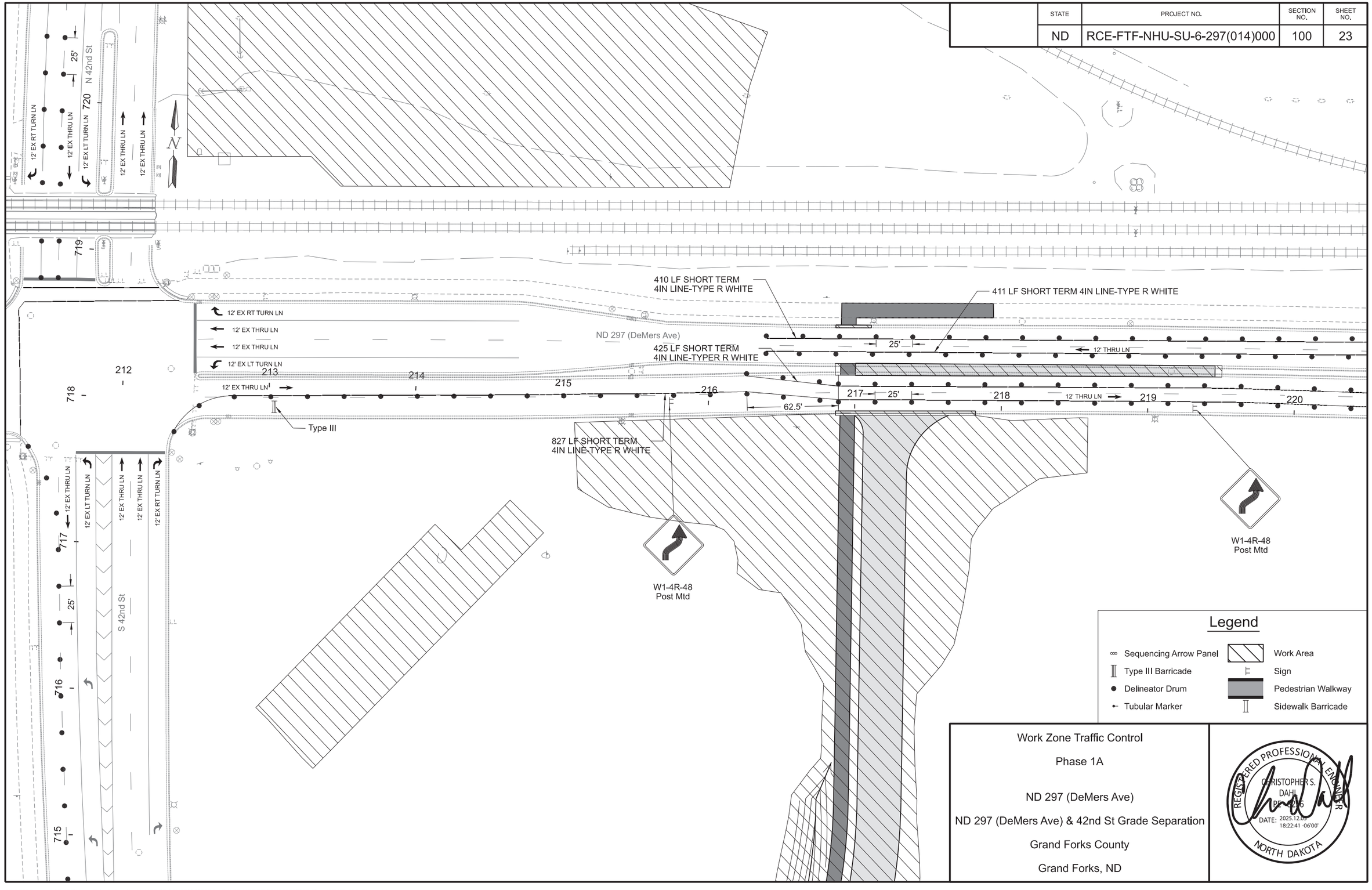
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8276
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NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	23



Work Zone Traffic Control

Phase 1A

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

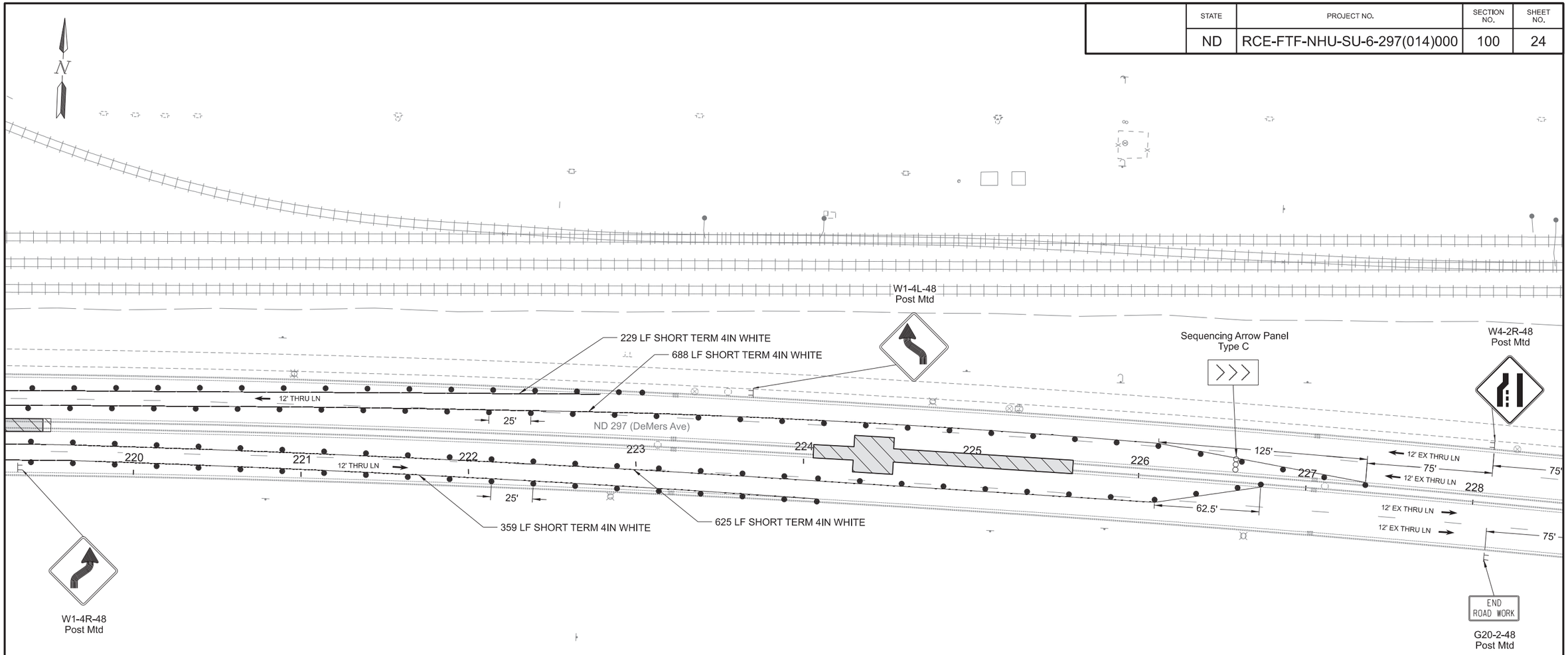
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9076
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NORTH DAKOTA

12/5/2025 5:32:16 PM Tyler.Schmaltz H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_023_Phase 1A.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	24



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 1A

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4276
DATE: 2025.12.05 18:22:54 -06'00'
NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	25

N

W4-2R-48
Post Mtd

R2-1-48
R2-1aP-24
Post Mtd
SPEED LIMIT 25
MINIMUM FEE $150

W20-5L-48
Post Mtd
LEFT LANE CLOSED 300 FT

W3-5-48
Post Mtd
SPEED LIMIT 25

W20-5L-48
Post Mtd
LEFT LANE CLOSED 600 FT

G20-55-96
Post Mtd
SPEED LIMIT ENFORCED
MINIMUM FEE $150 WHEN WORKERS PRESENT

W20-1-48
Post Mtd
ROAD WORK AHEAD

12' EX THRU LN
12' EX THRU LN
12' EX THRU LN
12' EX THRU LN

75'
75'
140'
140'
140'
140'
140'
140'

228
229

ND 297 (DeMers Ave)

12' EX THRU LN
12' EX THRU LN
12' EX THRU LN
12' EX THRU LN

END ROAD WORK
G20-2-48
Post Mtd

SPEED LIMIT 40
R2-1-48
Post Mtd

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 1A

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

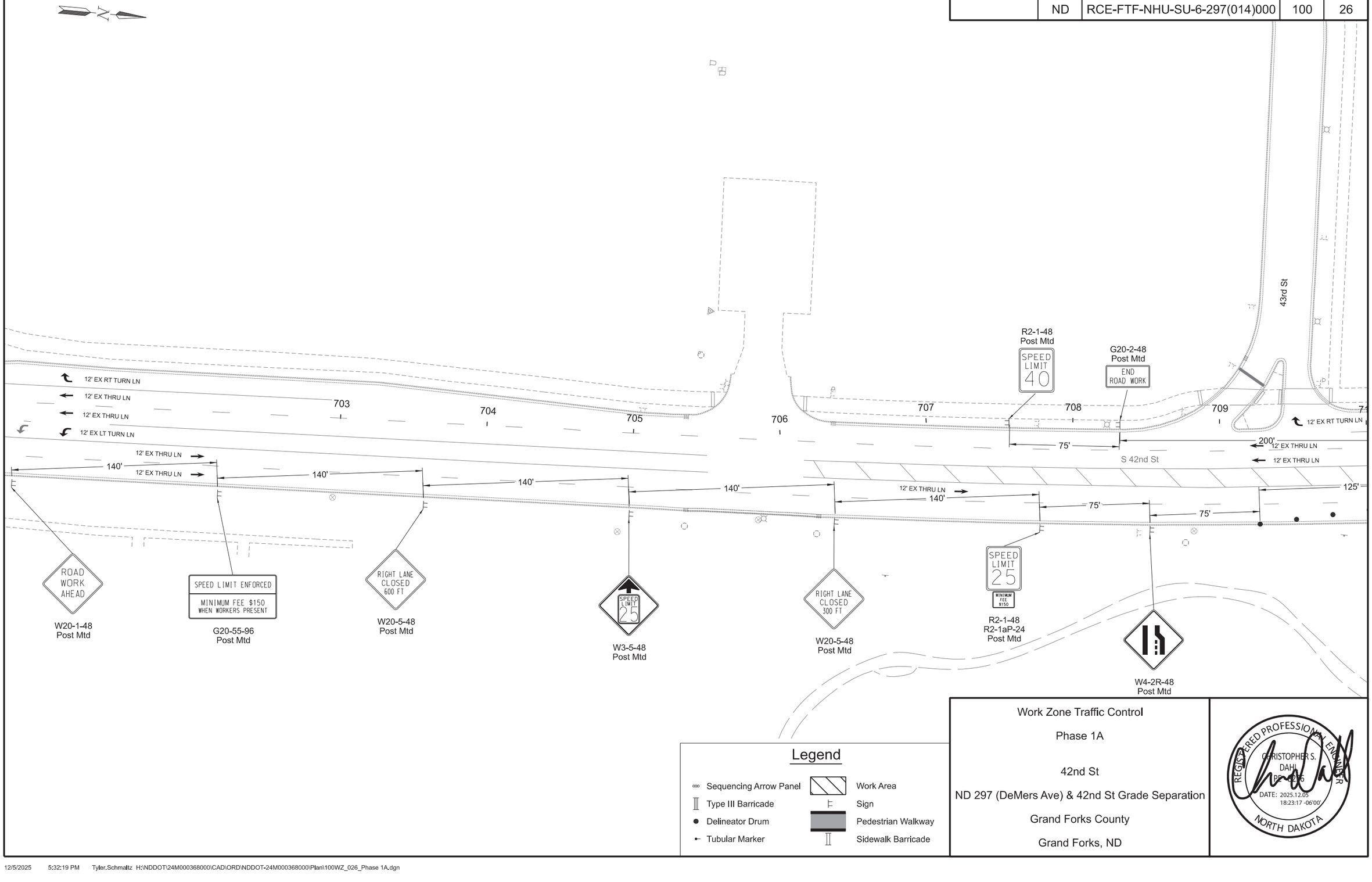
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.05 18:23:06 -06'00'
NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	26



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 1A

42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4296
DATE: 2025.12.05 18:23:17 -06'00'
NORTH DAKOTA

12/5/2025 5:32:19 PM Tyler.Schmaltz H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_026_Phase 1A.dgn

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	27

43rd St

R9-9-24
Barricade Mtd
SIDEWALK CLOSED

R9-9-24
Barricade Mtd
SIDEWALK CLOSED

R9-9-24
Barricade Mtd
SIDEWALK CLOSED

709 710 711 712 713 714 715 716 717 718

12' EX RT TURN LN
12' EX THRU LN
12' EX THRU LN
12' EX THRU LN
12' EX LT TURN LN
12' EX THRU LN
12' EX RT TURN LN

200'
62.5'
125'
125'
75'
25'
25'

S 42nd St

12' EX THRU LN
12' EX THRU LN
12' EX RT TURN LN
12' EX LT TURN LN
12' EX THRU LN
12' EX THRU LN

Sequencing Arrow Panel
Type C

ROAD CLOSED
R11-2-48
Barricade Mtd

Type III

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 1A

42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

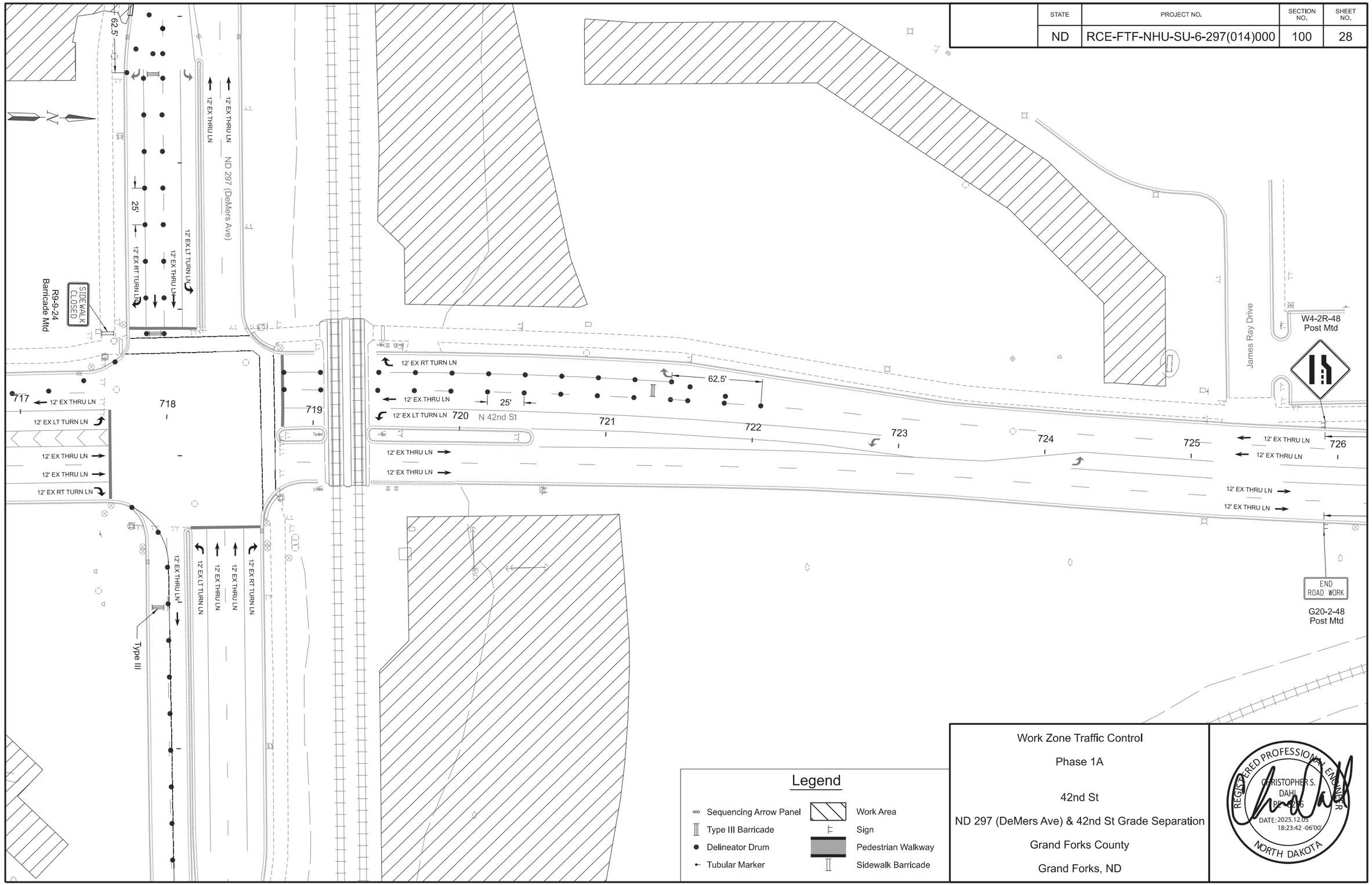
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4296
DATE: 2025.12.05 18:23:30 -06'00'
NORTH DAKOTA

12/5/2025 5:32:20 PM Tyler.Schmaltz H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_027_Phase 1A.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	28



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 1A

42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

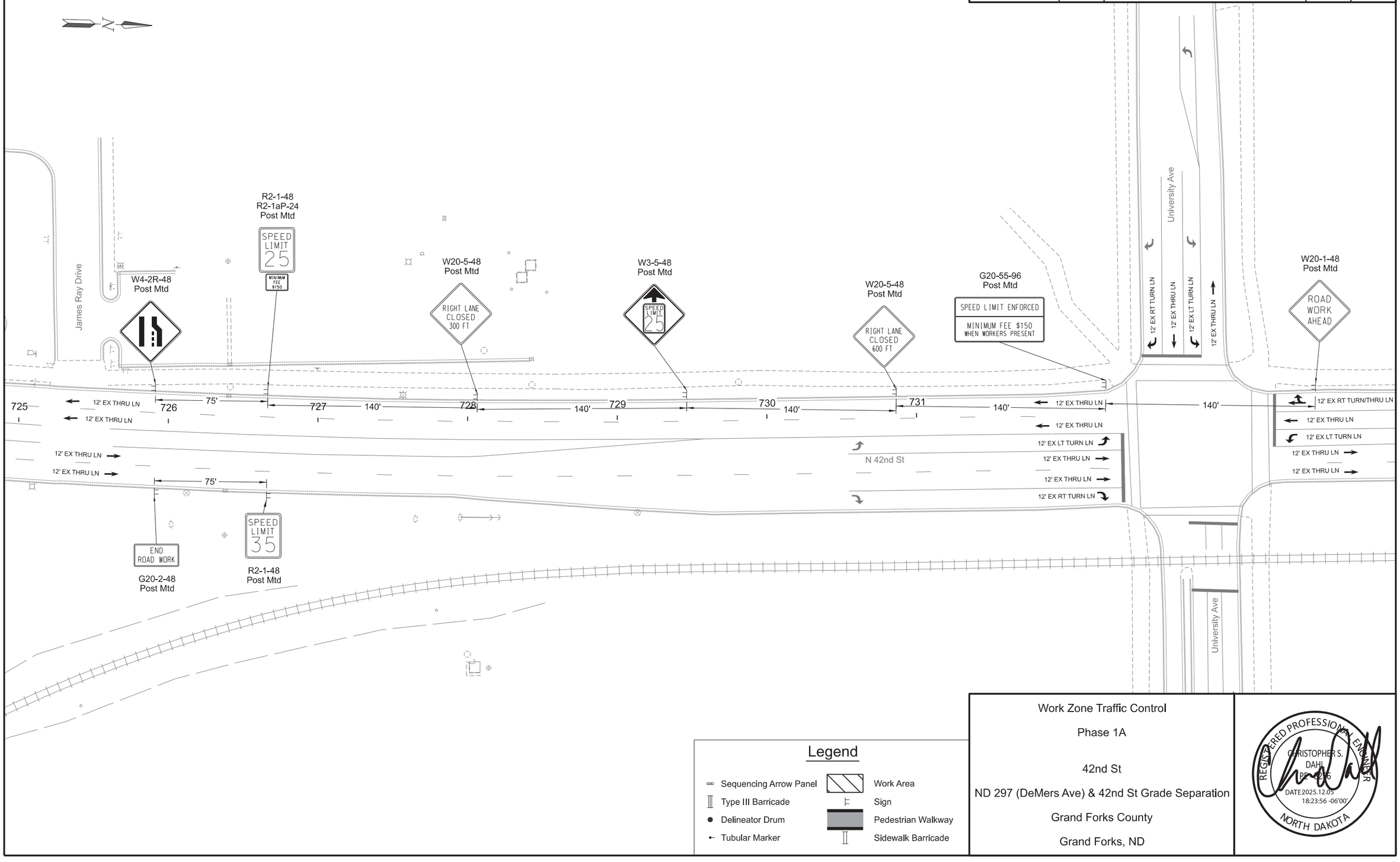
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4276
DATE: 2025.12.05 18:23:42 -06'00'
NORTH DAKOTA

12/5/2025 5:32:21 PM Tyler.Schmaltz H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_028_Phase 1A.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	29



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 1A

42nd St

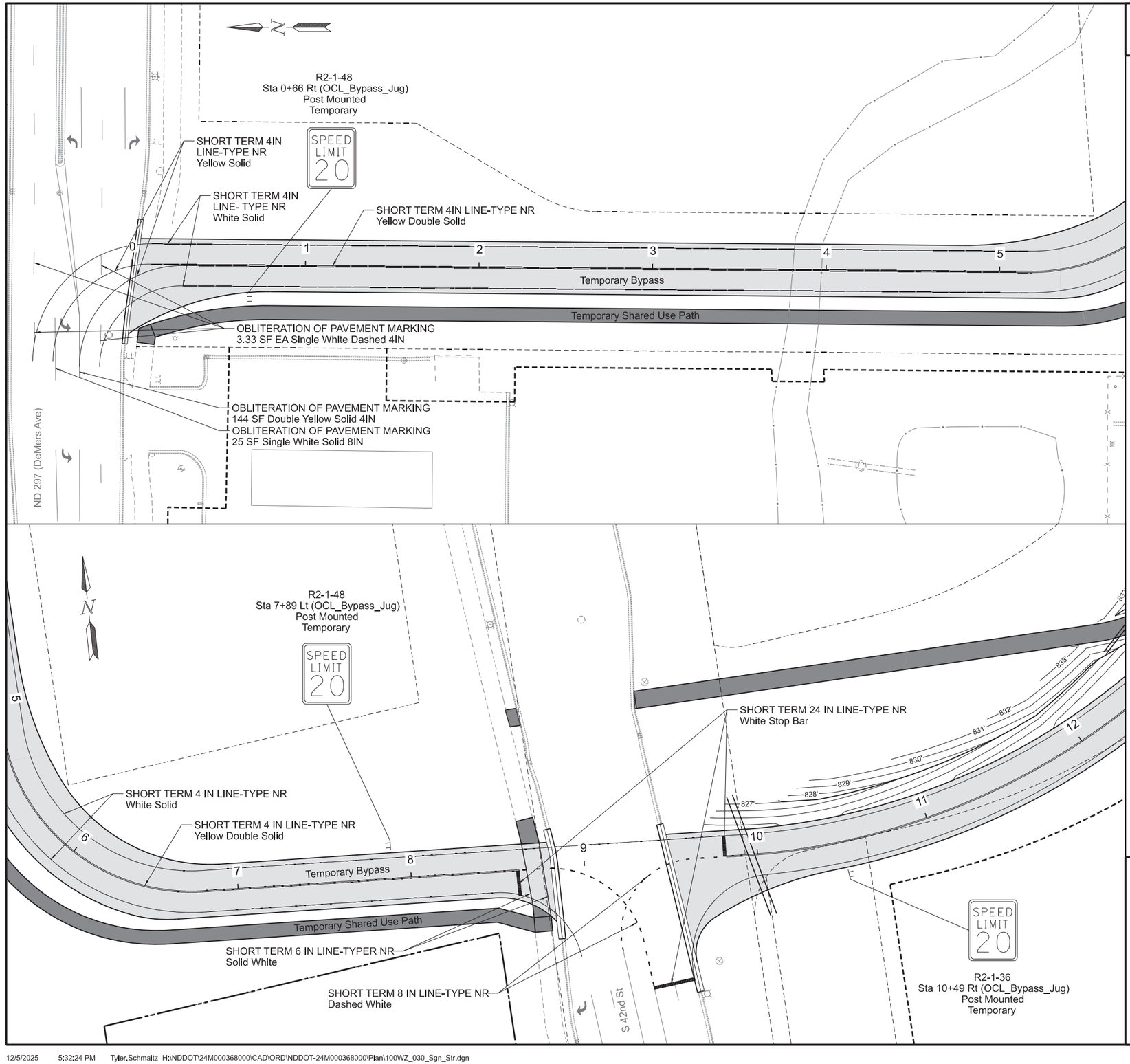
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9026
DATE 2025.12.05 18:23:56 -06'00'
NORTH DAKOTA

12/5/2025 5:32:23 PM Tyler.Schmaltz H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_029_Phase 1A.dgn



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	30

SPEC	CODE	BID ITEM	QTY	UNIT
704	1500	OBLITERATION OF PAVEMENT MARKING		
		Sta 208+04 to 209+30 (OCL_297EB)	144	SF
		Sta 208+24 to 208+75 (OCL_297EB)	14	SF
		Sta 208+02 to 208+39 (OCL_297EB)	25	SF
762	0430	SHORT TERM 4IN LINE-TYPE NR		
		Sta -0+45 to 5+73 (Yellow Double Solid)	1286	LF
		Sta -0+57 to 5+73 (White Solid)	1286	LF
		Sta 5+73 to 11+73 Yellow Double Solid)	961	LF
		Sta 5+73 to 11+73 (White Solid)	1193	LF
762	043	SHORT TERM 6IN LINE-TYPE NR		
		Sta 8+66 (Crosswalk)	36	LF
		Sta 8+76 (Crosswalk)	43	LF
762	0434	SHORT TERM 8IN LINE-TYPE NR		
		Sta 8+65 to 9+36 (Left Turn Lane)	38	LF
		Sta 9+19 to 9+80 (Left Turn Lane)	30	LF
762	0436	SHORT TERM 24IN LINE-TYPE NR		
		Sta 8+63 (Stop Bar)	15	LF
		Sta 9+36 to 9+59 (Stop Bar)	24	LF
		Sta 9+81 (Stop Bar)	12	LF

Notes:

1. Signs shown are included in Phase 1A TCDL sheet and will be removed when bypass road is removed during Phase 3

Work Zone Traffic Control

Signing & Striping
Phase 1A

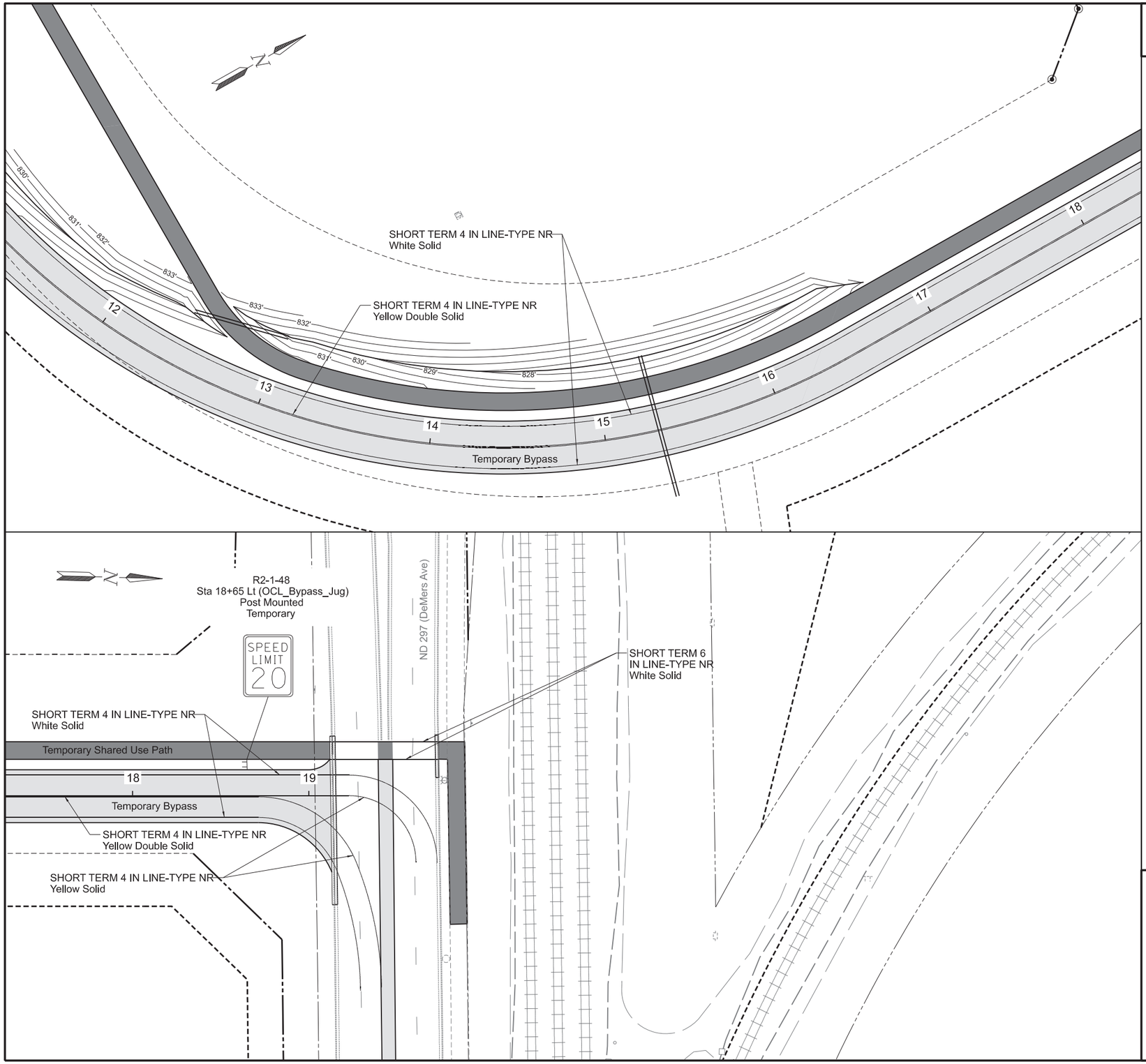
Temporary Bypass Road

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9256
DATE 2025.12.05 18:24:07 -06'00'
NORTH DAKOTA



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	31

SPEC	CODE	BID ITEM	QTY	UNIT
762	0430	SHORT TERM 4IN LINE-TYPE NR		
		Sta 11+73 to 17+72 (Yellow Double Solid)	1200	LF
		Sta 11+73 to 17+72 (White Solid)	1200	LF
		Sta 17+72 to 19+49 (Yellow Double Solid)	453	LF
		Sta 17+72 to 19+61(White Solid)	545	LF
762	0432	SHORT TERM 6IN LINE-TYPE NR		
		Sta 19+11 to 19+73 (Crosswalk)	54	LF
		Sta 19+11 to 19+73 (Crosswalk)	62	LF

Notes:

1. Signs shown are included in Phase 1A TCDL sheet and will be removed when bypass road is removed

Work Zone Traffic Control

Signing & Striping
Phase 1A

Temporary Bypass Road

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8256
DATE: 2025.12.05 18:24:19 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	32

N

ND 297 (DeMers Ave)

Convenience Store

Wood Pole #5
Sta. 1+38.33 - 35.3' Rt

Temporary Shared Use Path

Temporary Bypass

272'

Wood Pole #6
Sta. 4+10.58 - 37.5' Rt

152'

Connect span wire to existing light on circuit and splice

S 42nd St

Wood Pole #7
Sta. 5+50.78 - 39' Rt

88'

Wood Pole #2
Sta. 8+54.84 - 20.2' Lt

121

Wood Pole #8
Sta. 6+16.52 - 40.7' Rt

175'

58'

87'

Wood Pole #9
Sta. 6+82.74 - 33.6' Rt

Wood Pole #1
Sta. 8+57.73 - 36.3' Rt

S 42nd St

Connect span wire to existing light on circuit and splice

Wood Pole #11
Sta. 13+96.27 - 28.2' Rt

Temporary Shared Use Path

Wood Pole #3
Sta. 9+72.22 - 19.3' Lt

55'

229'

49'

Wood Pole #4
Sta. 9+81.91 - 35.1' Rt

Wood Pole #10
Sta. 11+99.63 - 33.8' Rt

Temporary Bypass

199'

210'

Wood Pole #14
Sta. 19+04.13 - 44' Rt

113'

Wood Pole #13
Sta. 17+91.53 - 37' Rt

216'

Wood Pole #12
Sta. 15+81.44 - 38.1' Rt

*Note: All quantities to be included in the bid item TEMPORARY LIGHTING SYSTEM

LEGEND

- EXISTING LIGHT STANDARD
- EXISTING ELECTRIC LINE
- GRADING LIMITS
- POLE MOUNTED PEDESTRAIN HEAD
- OVERHEAD WIRE MOUNTED SIGNAL
- OVERHEAD WIRE
- CONDUIT
- GUY WIRE ANCHOR (SEE DETAIL D-772-06)
- PUSHBUTTON POST
- Temporary Light

Work Zone Traffic Control

Temporary Lighting Layout
Phase 1A

Temporary Bypass

ND 297 (DeMers Ave) & 42nd St Grade Seperation

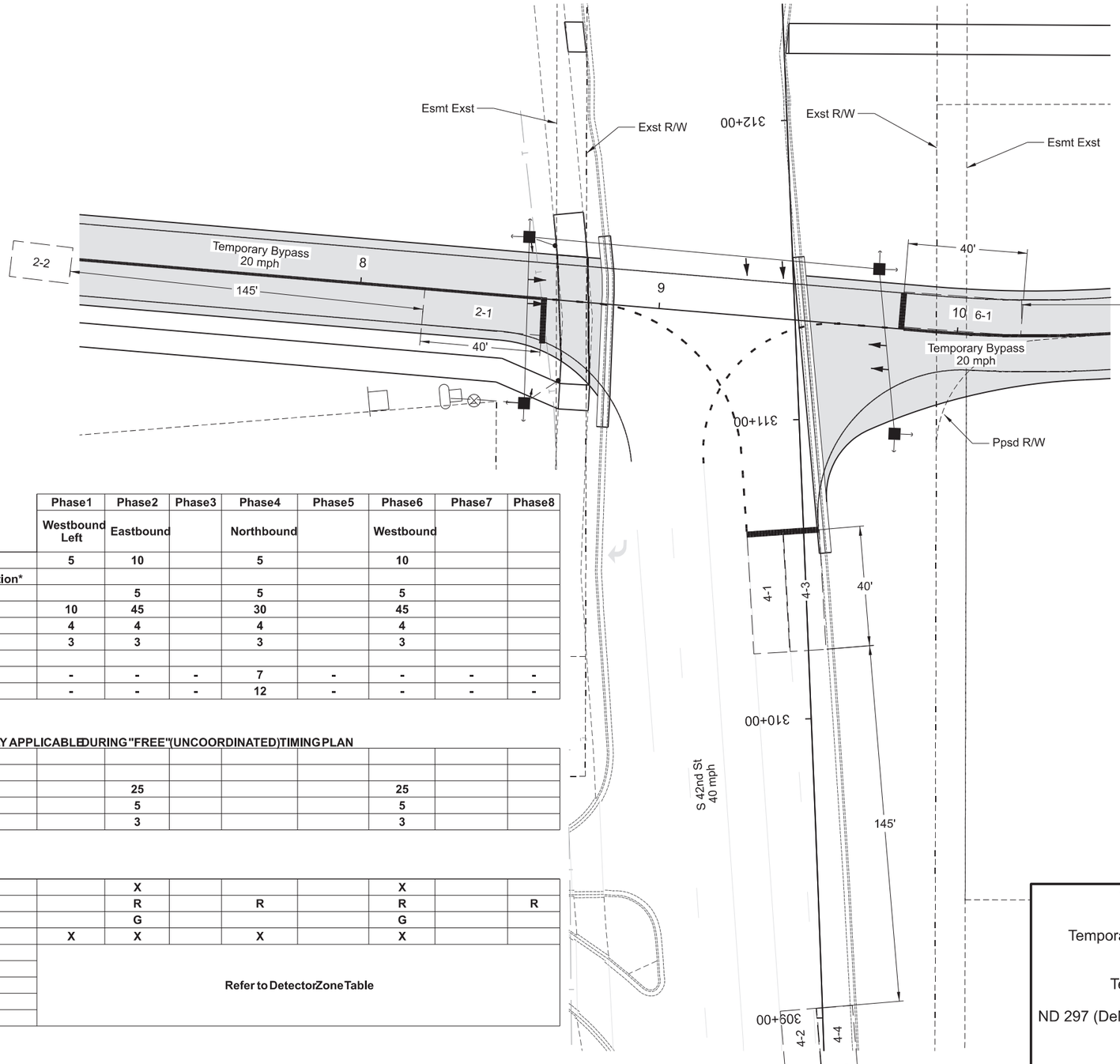
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-12276
DATE: 2025.12.05 18:24:34 -06'00'
NORTH DAKOTA

12/5/2025 5:32:28 PM Tyler.Schmaltz H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_032_LT _Temp-Lighting.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	33



*Note: all quantites to be included in bid item TEMPORARY TRAFFIC SIGNALS

Phase Number	Distance from Stop Bar (Feet)	Length (Feet)	Presence/Counting	Passage/Counting	Queue/Counting	Locking Memory	Non-Locking Memory	
2-1	0	40			x		x	
2-2	185	20		x		x		
4-1	0	40			x		x	
4-2	185	20		x		x		
4-3	0	40			x		x	
4-4	185	20		x		x		
6-1	0	40			x		x	
6-2	185	20		x		x		

Note: * If video detection zones cannot be placed at distance described above (whether due to vertical of horizontal curvature), place at maximum extent feasible.

		Phase1	Phase2	Phase3	Phase4	Phase5	Phase6	Phase7	Phase8
BASIC INTERVALS (OR FUNCTIONS)		Westbound Left	Eastbound		Northbound		Westbound		
Minimum Initial		5	10		5		10		
Minimum Initial with Pedestrian Actuation*									
Passage Time			5		5		5		
Max Green		10	45		30		45		
Yellow Change		4	4		4		4		
Red Clearance		3	3		3		3		
Delayed Green									
Walk		-	-	-	7	-	-	-	-
Pedestrian Clearance		-	-	-	12	-	-	-	-
VOLUME DENSITY TIMING FUNCTIONS - ONLY APPLICABLE DURING "FREE" (UNCOORDINATED) TIMING PLAN									
Added Initial per Actuation									
Maximum Initial									
Time Before Reduction			25				25		
Time to Reduce to Minimum Gap			5				5		
Minimum Gap			3				3		
OTHER CONTROLLER FUNCTIONS									
Recall			X				X		
Flashing - Normal & Conflict Monitor			R		R		R		R
Start Up Phasing			G				G		
Emergency Vehicle Pre-emption		X	X		X		X		
Type of Detector	Presence	Refer to Detector Zone Table							
	Queue								
	Passage								
Locking Memory									
Non-Locking Memory									

Work Zone Traffic Control

Temporary Traffic Signal Detection Layout
Phase 1A

Temporary Bypass & 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Seperation

Grand Forks County

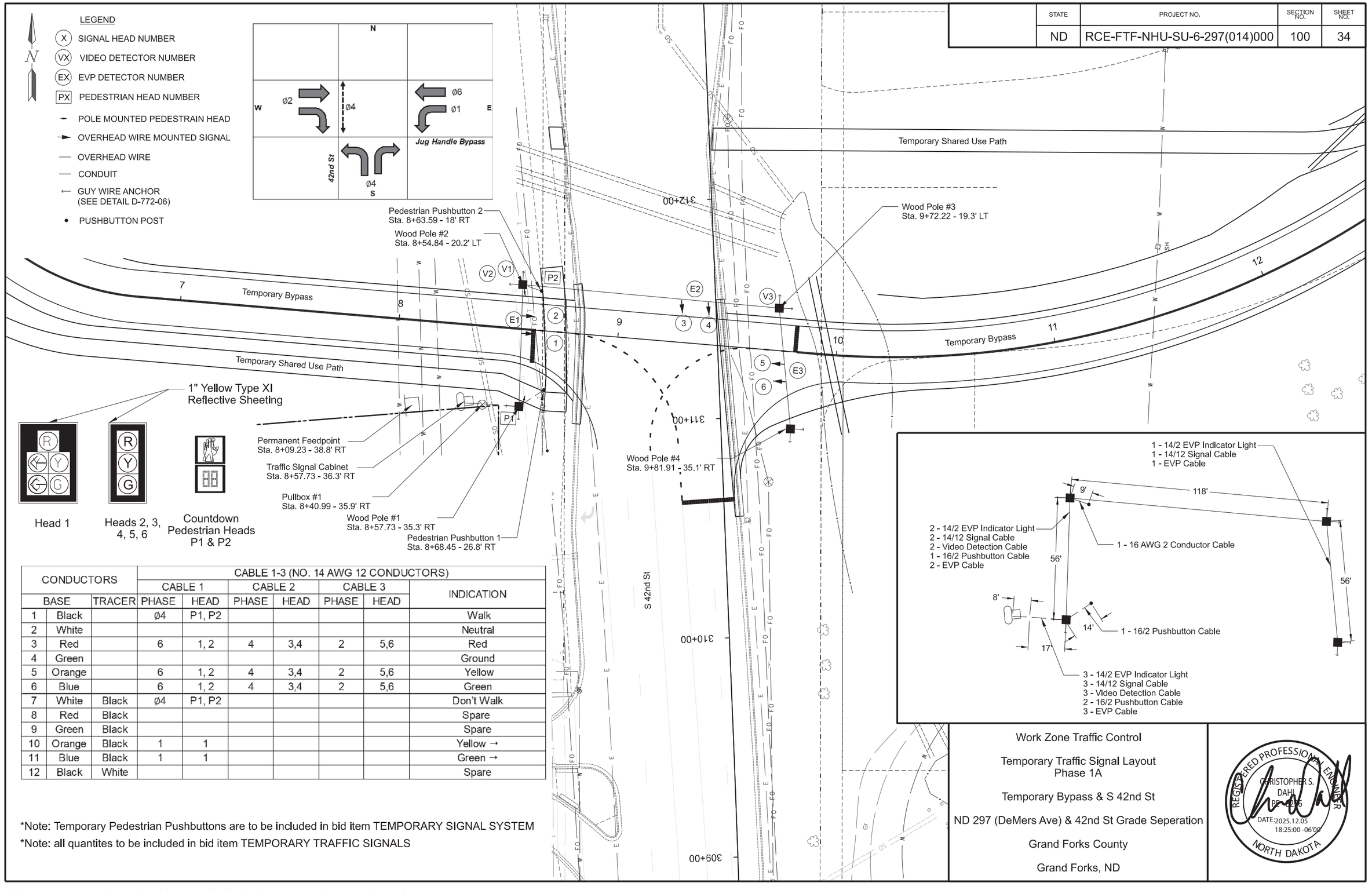
Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9236
DATE: 2025.12.05 18:24:47 -06'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	34

LEGEND

- (X) SIGNAL HEAD NUMBER
- (VX) VIDEO DETECTOR NUMBER
- (EX) EVP DETECTOR NUMBER
- [PX] PEDESTRIAN HEAD NUMBER
- POLE MOUNTED PEDESTRAIN HEAD
- OVERHEAD WIRE MOUNTED SIGNAL
- OVERHEAD WIRE
- CONDUIT
- GUY WIRE ANCHOR (SEE DETAIL D-772-06)
- PUSHBUTTON POST



Head 1

Heads 2, 3, 4, 5, 6

Countdown Pedestrian Heads P1 & P2

CONDUCTORS			CABLE 1-3 (NO. 14 AWG 12 CONDUCTORS)						
			CABLE 1		CABLE 2		CABLE 3		INDICATION
	BASE	TRACER	PHASE	HEAD	PHASE	HEAD	PHASE	HEAD	
1	Black		Ø4	P1, P2					Walk
2	White								Neutral
3	Red		6	1, 2	4	3,4	2	5,6	Red
4	Green								Ground
5	Orange		6	1, 2	4	3,4	2	5,6	Yellow
6	Blue		6	1, 2	4	3,4	2	5,6	Green
7	White	Black	Ø4	P1, P2					Don't Walk
8	Red	Black							Spare
9	Green	Black							Spare
10	Orange	Black	1	1					Yellow →
11	Blue	Black	1	1					Green →
12	Black	White							Spare

*Note: Temporary Pedestrian Pushbuttons are to be included in bid item TEMPORARY SIGNAL SYSTEM

*Note: all quantites to be included in bid item TEMPORARY TRAFFIC SIGNALS

Work Zone Traffic Control

Temporary Traffic Signal Layout
Phase 1A

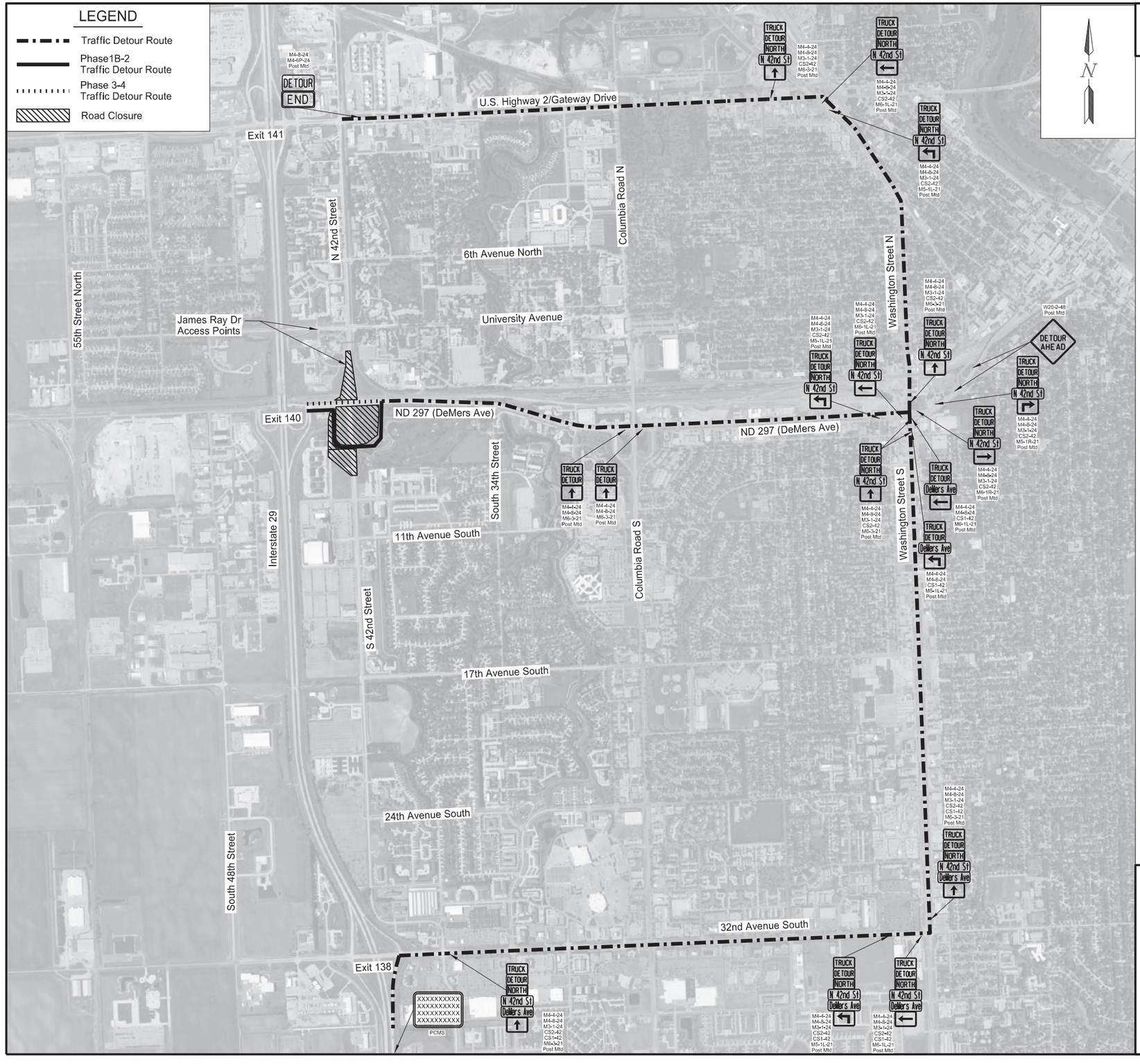
Temporary Bypass & S 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Seperation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9256
DATE: 2025.12.05 18:25:00 -06'00'
NORTH DAKOTA



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	35

Notes:

1. Designated truck routes are ND 297 (DeMers Ave), Washington Street, Gateway Drive, and 32nd Ave S, US Hwy 81, and US Hwy 2.

2. Advanced signage at exits 138 & 141 to notify vehicles and trucks that they can take exits before ND 297 (DeMers Ave) to reduce volume of traffic. This should help with the volume of traffic on the ND 297 (DeMers Ave) temp bypass.

3. Truck traffic using northbound interstate with intent to reach ND 297 (DeMers Ave) west of project area during phase 5A and 5D must use exit 141, get onto truck traffic detour (US2/Gateway WB), and head southbound on N 55th St.

4. Refer to NDDOT Standard Drawing D-704-12 for placement and details of Portable Changeable Message Signs. Engineer will determine final locations.

5. Confirmatory signs shall be placed 200' after each major turning movement onto Gateway Dr, Washington St, and 32nd Ave S.

6. ND 297 (DeMers Ave) is to remain open during Phases 1-4 with minor closures during Phase 5.

Work Zone Traffic Control

Northbound Detour

Phase 1B-4A Truck Route

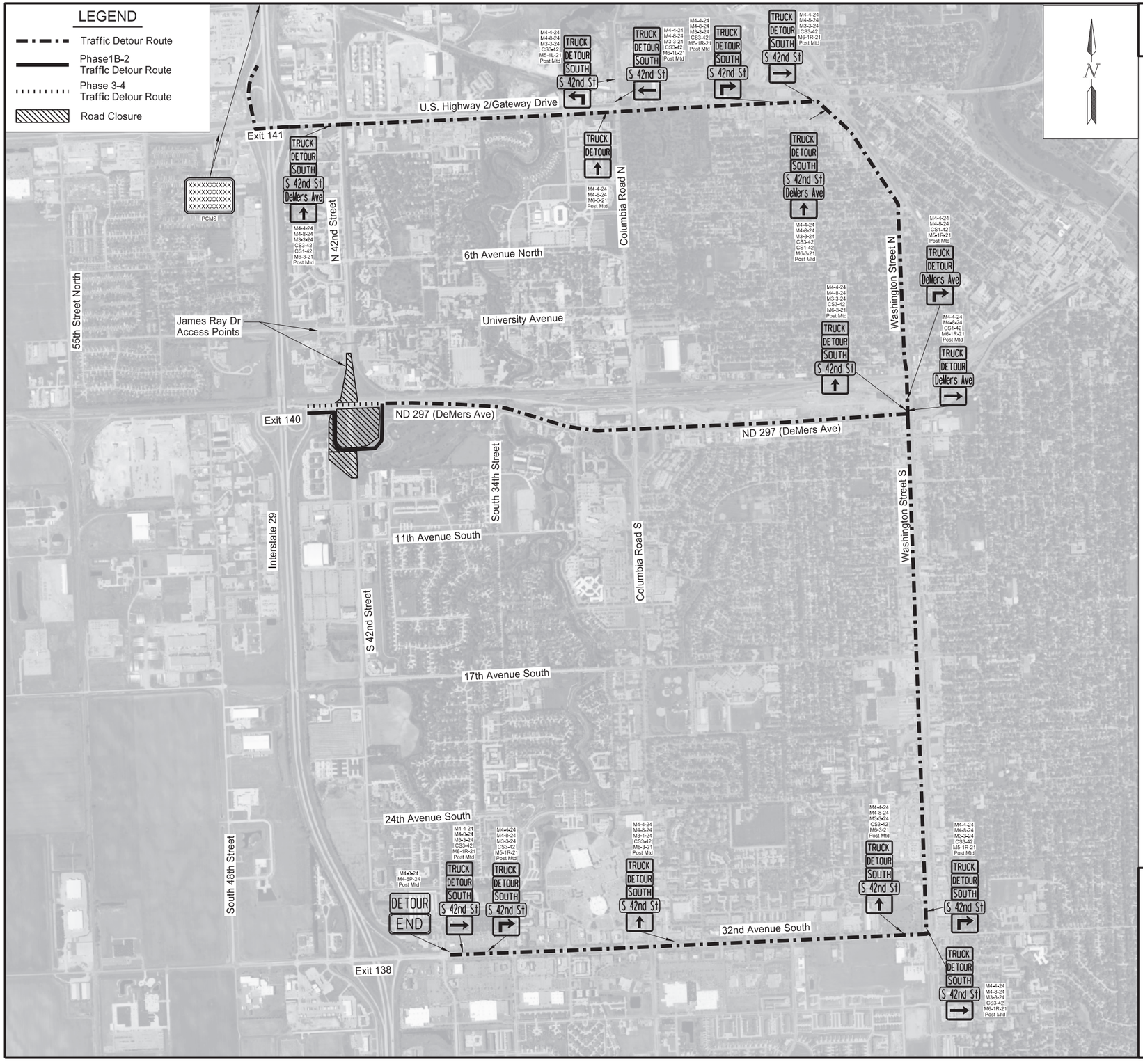
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4276
DATE: 2025.12.05 19:33:02 -06'00'
NORTH DAKOTA

12/4/2025 8:57:54 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_035-036_099-100_119_130-131_truck detour route.dgn



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	36

Notes:

1. Designated truck routes are ND 297 (DeMers Ave), Washington Street, Gateway Drive, and 32nd Ave S, US Hwy 81, and US Hwy 2.

2. Advanced signage at exits 138 & 141 to notify vehicles and trucks that they can take exits before ND 297 (DeMers Ave) to reduce volume of traffic. This should help with the volume of traffic on the ND 297 (DeMers Ave) temp bypass.

3. Truck traffic using northbound interstate with intent to reach ND 297 (DeMers Ave) west of project area during phase 5A and 5D must use exit 141, get onto truck traffic detour (US2/Gateway WB), and head southbound on N 55th St.

4. Refer to NDDOT Standard Drawing D-704-12 for placement and details of Portable Changeable Message Signs. Engineer will determine final locations.

5. Confirmatory signs shall be placed 200' after each major turning movement onto Gateway Dr, Washington St, and 32nd Ave S.

6. ND 297 (DeMers Ave) is to remain open during Phases 1-4 with minor closures during Phase 5.

Work Zone Traffic Control

Southbound Detour

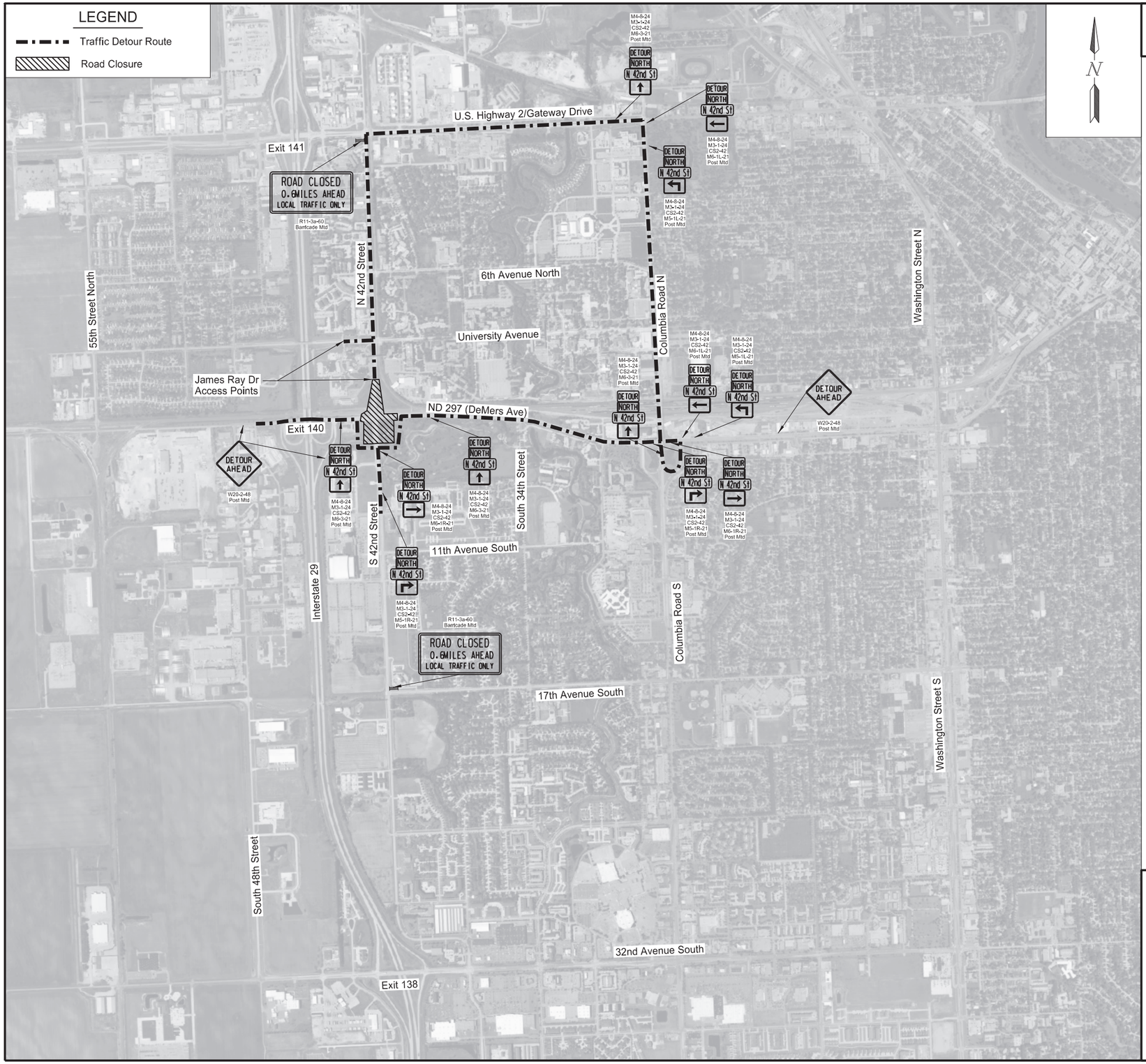
Truck Route
Phase 1B-4A

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4276
DATE: 2025.12.05 19:33:12 -06'00'
NORTH DAKOTA



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	37

Notes:

1. N 42nd St and S 42nd St signage will take place simultaneously within the same phases as directed.

2. Advanced signage at exits 138 & 141 to notify vehicles and trucks that they can take exits before DeMers to reduce volume of traffic. This should help with the volume of traffic on the DeMers temp bypass. Refer to NDDOT Standard Drawing D-704-12 for PCMS layout.

3. Access and direction to Hilton Garden Inn Grand Forks-UND shall be maintained at all times.

4. Refer to NDDOT Standard Drawing D-704-21 for sign spacing.

5. Confirmatory signs shall be placed 200' after each major turning movement onto Gateway Dr, Columbia Rd, and 17th Ave S.

6. R11-3a-60 Barricade Mtd signage shall be placed on the NE corner of S 42nd St/17th Ave S and the SW corner of N 42nd S/Gateway Dr within the boulevard.

Work Zone Traffic Control

N 42nd St Detour

Phase 1B & 2 Vehicular Route

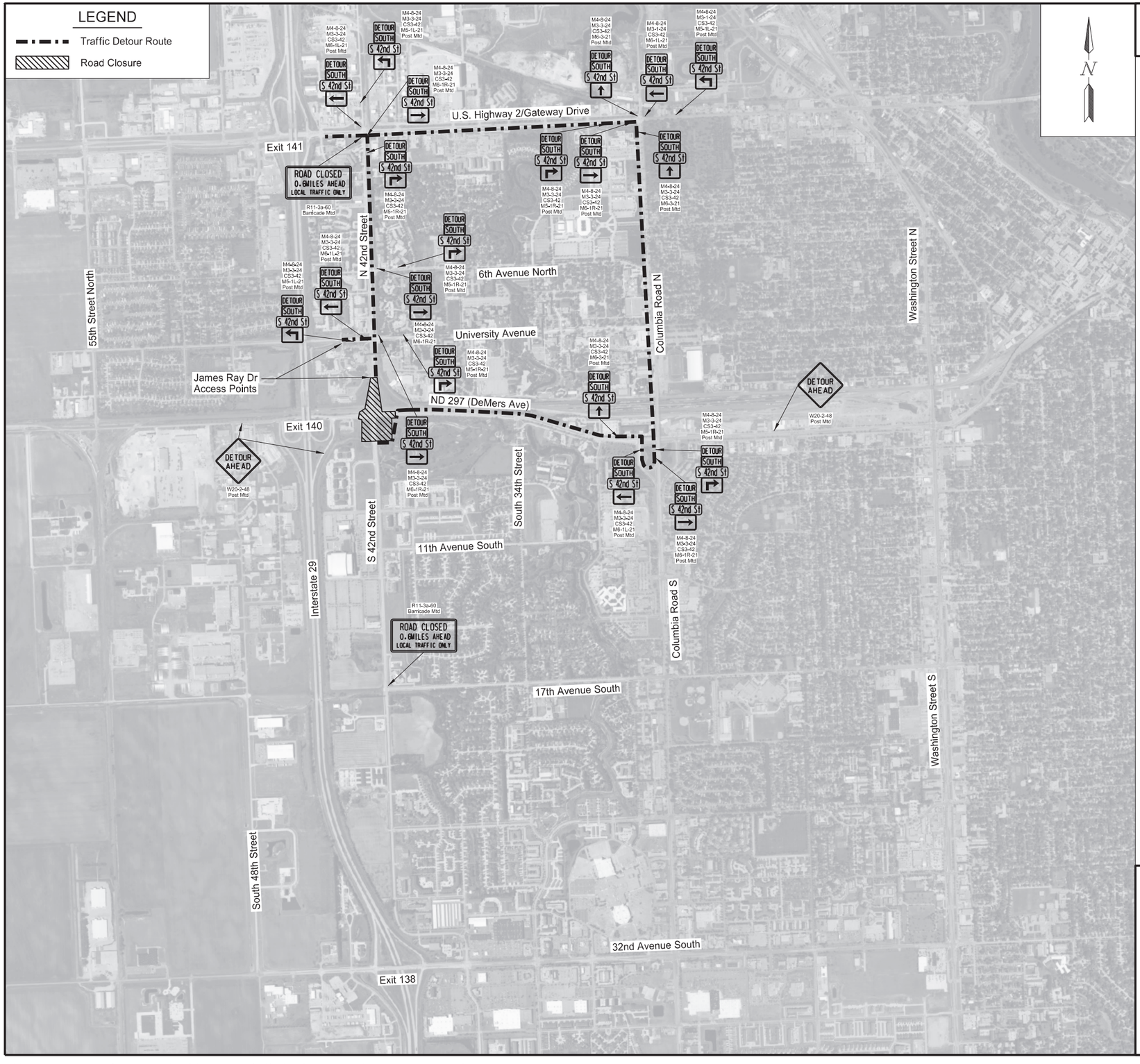
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8276
DATE:2025.12.05 19:33:25 -06'00'
NORTH DAKOTA

12/4/2025 8:58:09 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_037-038_058-059_101-102_132-133_ phase 1-4 detour routes.dgn



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	38

Notes:

1. N 42nd St and S 42nd St signage will take place simultaneously within the same phases as directed.

2. Advanced signage at exits 138 & 141 to notify vehicles and trucks that they can take exits before DeMers to reduce volume of traffic. This should help with the volume of traffic on the DeMers temp bypass. Refer to NDDOT Standard Drawing D-704-12 for PCMS layout.

3. Access and direction to Hilton Garden Inn Grand Forks-UND shall be maintained at all times.

4. Refer to NDDOT Standard Drawing D-704-21 for sign spacing.

5. Confirmatory signs shall be placed 200' after each major turning movement onto Gateway Dr, Columbia Rd, and 17th Ave S.

6. R11-3a-60 Barricade Mtd signage shall be placed on the NE corner of S 42nd St/17th Ave S and the SW corner of N 42nd S/Gateway Dr within the boulevard.

Work Zone Traffic Control

S 42nd St Detour

Phase 1B & 2 Vehicular Route

ND 297 (DeMers Ave) & 42nd St Grade Separation

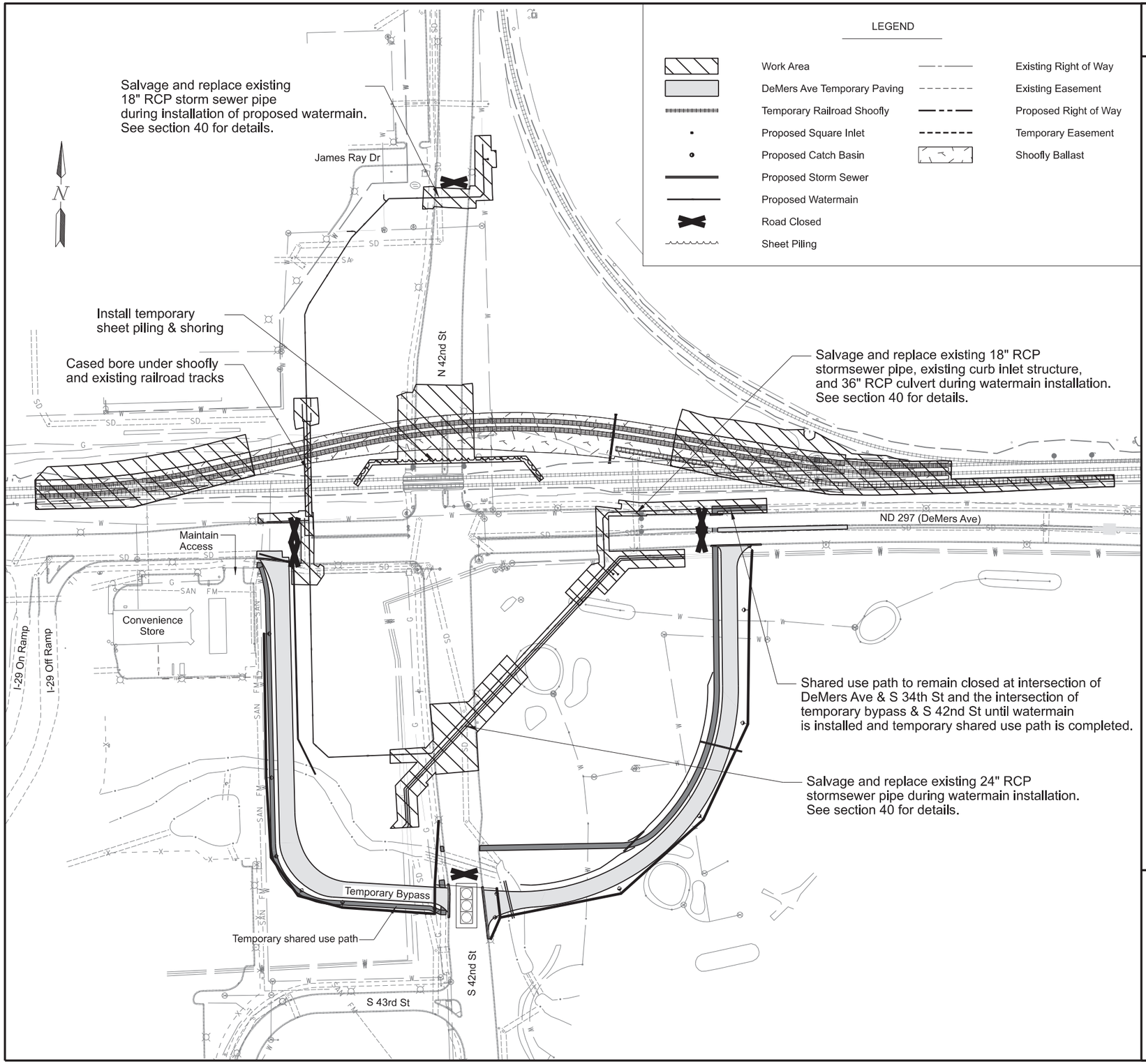
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8256
DATE: 2025.12.05 19:33:35 -06'00'
NORTH DAKOTA

12/4/2025 8:58:11 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_037-038_058-059_101-102_132-133_ phase 1-4 detour routes.dgn

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	39



TASKS:

Install railroad temporary sheet piling and shoring.

Construct railroad shoofly across 42nd Street.

Connect railroad shoofly to existing mainline tracks and shift rail traffic to shoofly.

Install new watermain across 42nd Street and ND 297 (DeMers Ave).

See Section 55c for proposed watermain.

Connect new watermain lines to existing.

See section 40 for watermain removals.

Coordinate with City on date and time to switch to new water lines.

Finish shoofly tie into existing railroad tracks when shoofly is ready for train traffic.

For shoofly details see section 170c.

Maintain access to convenience store at all times.

Work Zone Traffic Control

Phase 1B Overview

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8276
DATE: 2025.12.05 18:27:23 -06'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	40

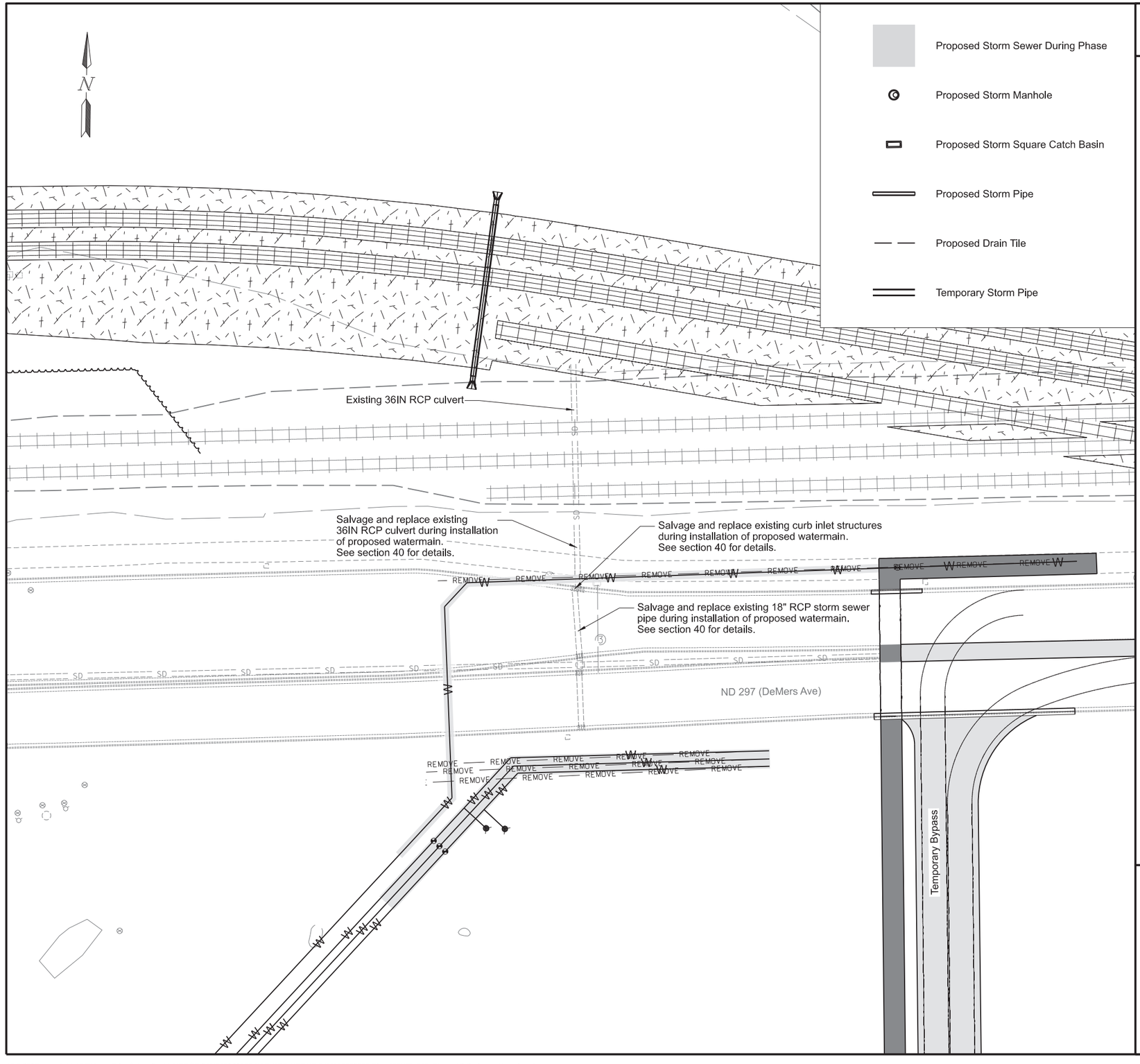
TASKS:

Salvage and re-lay all existing storm sewer infrastructure affected by proposed watermain installation.

NOTES:

1. See Section 40 for removal of existing stormsewer system.

2. See Section 55c for proposed watermain system information.



Work Zone Traffic Control

Phase 1B Drainage Overview
Proposed Storm by Phase

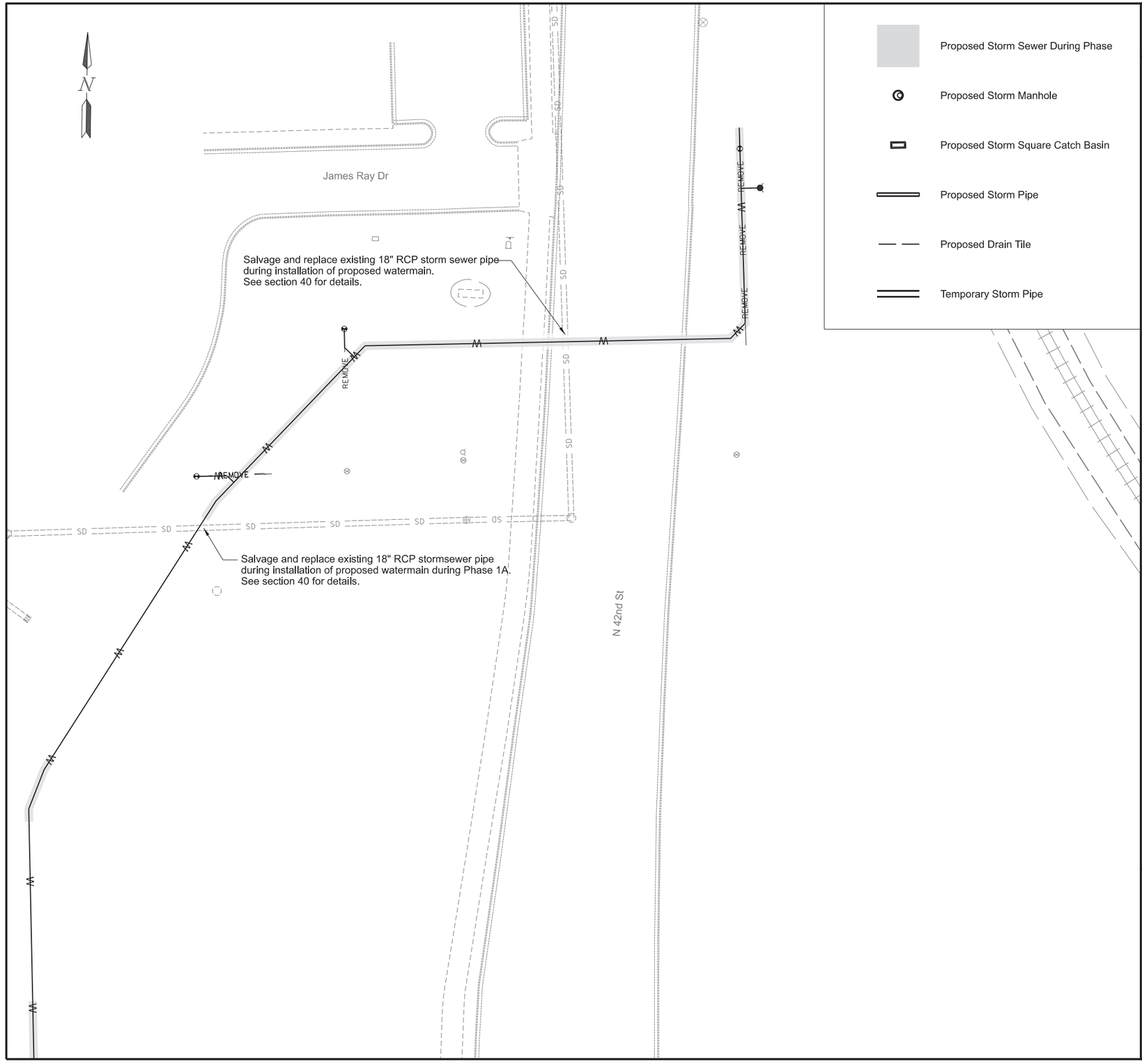
ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9026
DATE:2025.12.05 18:27:12 -06'00'
NORTH DAKOTA



Proposed Storm Sewer During Phase

Proposed Storm Manhole

Proposed Storm Square Catch Basin

Proposed Storm Pipe

Proposed Drain Tile

Temporary Storm Pipe

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	41

TASKS:

Salvage and re-lay all existing stormsewer infrastructure affected by proposed watermain installation.

NOTES:

1. See Section 40 for removal of existing stormsewer system.

2. See Section 55a for proposed stormsewer system information.

Work Zone Traffic Control

Phase 1B Drainage Overview
Proposed Storm by Phase

42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8276
DATE: 2025.12.05 18:27:03 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	42

N

510 511 512 513 514 515 516 517 203 204 205 206 207

140' 140' 140' 140' 140' 75' 140' 12' EX RT TURN LN 12' EX LT TURN LN 12' EX THRU LN 12' EX THRU LN 12' EX LT TURN LN 12' EX THRU LN 62.5' 25' 15' 25'

I-29 NB On Ramp

I-29 NB Off Ramp

ROAD WORK AHEAD
W20-1-48
Post Mtd

SPEED LIMIT ENFORCED
MINIMUM FEE $150
WHEN WORKERS PRESENT
G20-55-96
Post Mtd

SPEED LIMIT 25
W3-5-48
Post Mtd

SPEED LIMIT 25 MINIMUM FINE $150
R2-1-48
R2-1aP-24
Post Mtd

STOP
R1-1
Existing

YIELD
R1-2
Existing

SPEED LIMIT 25 MINIMUM FINE $150
R2-1-48
R2-1aP-24
Post Mtd

Sequencing Arrow Panel
Type C

W4-1-48
Skid Mtd

Convenience Store

ROAD CLOSED AHEAD
W20-3-48
Skid Mtd

ND 297 (DeMers Ave)

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Railroad Ballast
- Sidewalk Barricade

Work Zone Traffic Control

Phase 1B

I-29 On / Off Ramps

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.05 18:26:52 -06'00'
NORTH DAKOTA

12/5/2025 5:41:44 PM Tyler.Schmaltz H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_042_Phase 1B.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	43

N

R2-1-48
Post Mtd

SPEED LIMIT 40

G20-2-48
Post Mtd

END ROAD WORK

W4-1-48
Skid Mtd

200

ND 297 (DeMers Ave)

201

202

203

204

12' EX THRU LN

75'

475'

140'

12' EX THRU LN

140'

12' EX THRU LN

12' EX LT TURN LN

12' EX THRU LN

STOP

R1-1
Existing

517

SPEED LIMIT ENFORCED

MINIMUM FEE $150
WHEN WORKERS PRESENT

G20-55-96
Post Mtd

ROAD WORK AHEAD

W20-1-48
Post Mtd

SPEED LIMIT 25

W3-5-48
Post Mtd

SPEED LIMIT 25

MINIMUM FEE $150

R2-1-48
R2-1aP-24
Post Mtd

12' EX THRU LN

I-29 NB On Ramp

12' EX LT TURN LN

I-29 NB Off Ramp

12' EX RT TURN LN

75'

YIELD

R1-2
Existing

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Railroad Ballast
- Sidewalk Barricade

Work Zone Traffic Control

Phase 1B

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4256
DATE: 2025.12.05 18:26:43 -06'00'
NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	44

N

W4-1-48
Skid Mtd

R11-2-48
Barricade Mtd

ROAD
CLOSED

W1-6R-48
Barricade Mtd

721

720

719

N 42nd Street

ND 297 (DeMers Ave)

ND 297 (DeMers Ave)

204 205 206 207 208 209 210 211 212

718

12' EX THRU LN

12' EX LT TURN LN

12' EX THRU LN

62.5'

25'

15'

25'

6

1

2

STOP

R1-1
Existing

517

12' EX THRU LN

I-29 NB On Ramp

12' EX LT TURN LN

I-29 NB Off Ramp

12' EX RT TURN LN

516

515

75'

140'

YIELD

R1-2
Existing

SPEED
LIMIT
25

MINIMUM
FEE
$150

R2-1-48
R2-1aP-24
Post Mtd

Sequencing Arrow Panel
Type C

ROAD
CLOSED
AHEAD

W20-3-48
Skid Mtd

Maintain
Access

STOP

R1-1
Existing

Convenience Store

Temporary Shared Use Path

Temporary Bypass

DETOUR
NORTH
N 42nd St

M4-8-24
M3-1-23
CS2-42
M6-3-21
Skid Mtd

TT

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Railroad Ballast
- Sidewalk Barricade

Work Zone Traffic Control

Phase 1B

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9216
DATE: 2025.12.05 18:26:34 -06'00'
NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	45

N

721

720

OH Sign

N 42nd Street

W1-6L-48
Barricade Mtd

Temporary Bypass Shared-Use Path
to remain closed until Watermain installation
and temporary surfacing is completed

12' EX THRU LN

25'

125'

12' EX THRU LN

12' EX THRU LN

212 213 214 215 216 ND 297 (DeMers Ave) 217 218 219 220

Sequencing Arrow Panel
Type C

ROAD
CLOSED

R11-2-48
Barricade Mtd

Temporary Shared Use Path

Temporary Bypass

S 42nd St

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Railroad Ballast
- Sidewalk Barricade

Work Zone Traffic Control

Phase 1B

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4206
DATE:2025.12.05 18:26:25 -06'00'
NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	46

N

W4-2L-48
Post Mtd

R2-1-48
R2-1aP-24
Post Mtd

W20-5-48
Post Mtd

W3-5-48
Post Mtd

W20-5-48
Post Mtd

G20-55-96
Post Mtd

W20-1-48
Skid Mtd

125'
75'
75'
140'
140'
140'
140'
140'
12' EX THRU LN
12' EX THRU LN
12' EX THRU LN
12' EX THRU LN
ND 297 (DeMers Ave)
220
221
222
223
224
225
226
227
228
75'

Sequencing Arrow Panel
Type C

G20-2-48
Post Mtd

R2-1-48
Post Mtd

M4-8-24
M3-1-24
CS2-42
M6-3-21
Post Mtd

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Railroad Ballast
- Sidewalk Barricade

Work Zone Traffic Control

Phase 1B

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8256
DATE: 2025.12.05 18:26:15 -06'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	47

43rd Street

S 43nd St

S 42nd St

Temporary Shared Use Path

Temporary Bypass

DETOUR
NORTH
N 42nd St

M4-8-24
M3-1-24
CS2-42
M6-3-21
Post Mtd

R9-9-24
Barricade Mtd

SIDEWALK CLOSED

Temporary Bypass Shared-Use Path
to remain closed until Watermain installation
and temporary surfacing is completed

708 709 710 711 712 713 714 715 716

12' EX RT TURN LN
12' EX THRU LN
12' EX THRU LN
12' EX LT TURN LN
12' EX RT TURN LN

ROAD CLOSED

R11-2-48
Barricade Mtd

DETOUR
NORTH
INTERSTATE
NORTH DAKOTA
29

M4-8-24
M3-1-24
M1-1-24
M5-1L-21
Post Mtd

DETOUR
NORTH
N 42nd St

M4-8-24
M3-1-24
CS2-42
M5-1R-21
Post Mtd

DETOUR
NORTH
INTERSTATE
NORTH DAKOTA
29

M4-8-24
M3-1-24
M1-1-24
M6-1L-21
Post Mtd

DETOUR
NORTH
N 42nd St

M4-8-24
M3-1-24
CS2-42
M6-1R-21
Post Mtd

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Railroad Ballast
- Sidewalk Barricade

Work Zone Traffic Control

Phase 1B

42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.05 18:26:04 -06'00'
NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	48

James Ray Drive

R9-9-24
Barricade Mtd

SIDEWALK CLOSED

R11-2-48
Barricade Mtd

ROAD CLOSED

R11-4a-60
Barricade Mtd

STREET CLOSED TO THRU TRAFFIC

725 726 727 728 729 730 731

12' EX THRU LN
12' EX THRU LN

N 42nd Street

12' EX LT TURN LN
12' EX THRU LN
12' EX THRU LN
12' EX RT TURN LN

University Ave

12' EX RT TURN LN
12' EX THRU LN
12' EX LT TURN LN
12' EX THRU LN

W20-3-48
Post Mtd

ROAD CLOSED AHEAD

12' EX RT TURN/THRU LN
12' EX THRU LN
12' EX LT TURN LN
12' EX THRU LN
12' EX THRU LN

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Railroad Ballast
- Sidewalk Barricade

Work Zone Traffic Control

Phase 1B

42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

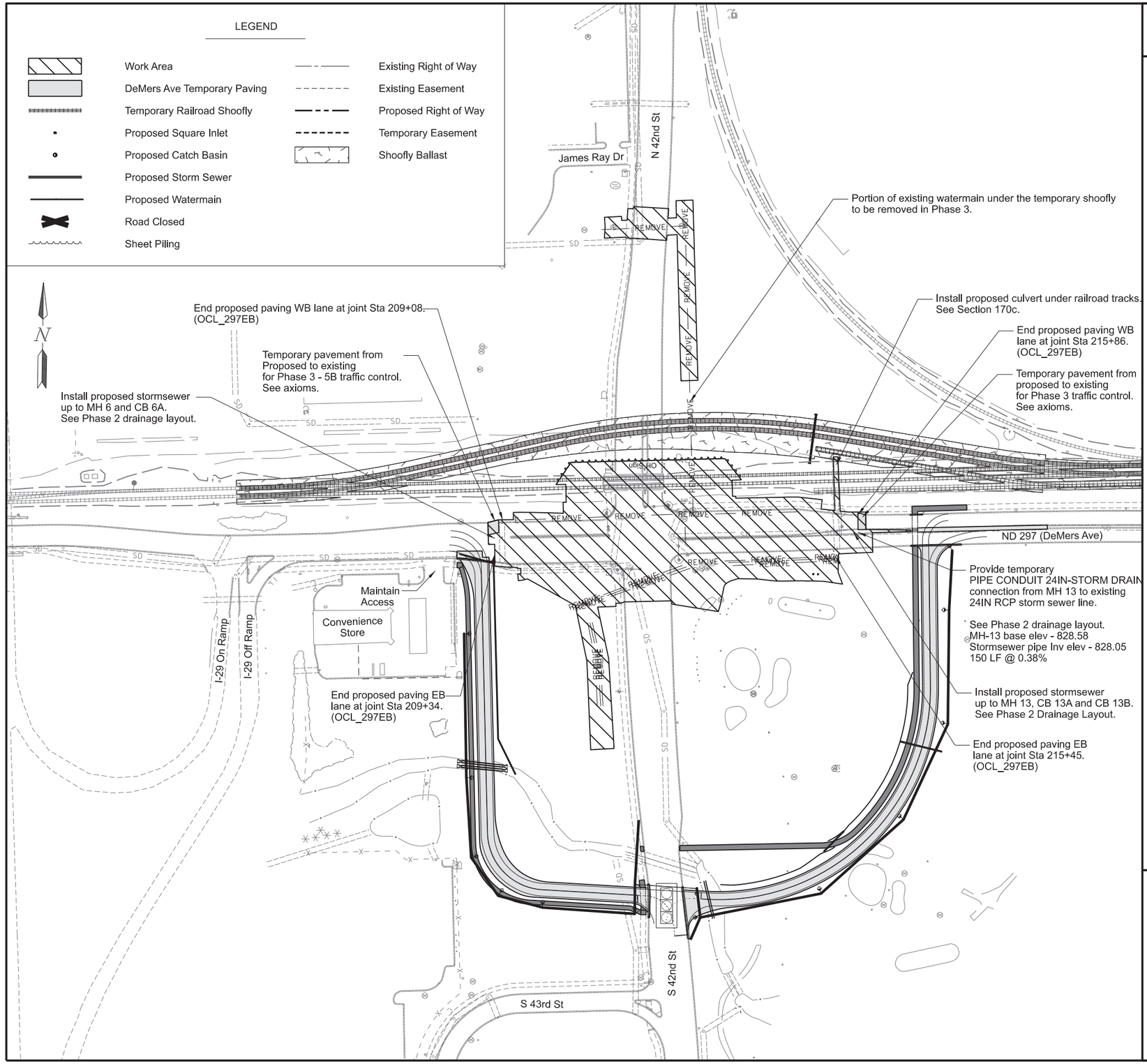
REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4276
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NORTH DAKOTA

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	49

LEGEND

- Work Area
- DeMers Ave Temporary Paving
- Temporary Railroad Shoofly
- Proposed Square Inlet
- Proposed Catch Basin
- Proposed Storm Sewer
- Proposed Watermain
- Road Closed
- Sheet Piling
- Existing Right of Way
- Existing Easement
- Proposed Right of Way
- Temporary Easement
- Shoofly Ballast



SPEC	CODE	BID ITEM	QTY	UNIT
302	0100	SALVAGED BASE COURSE		
		Sta 208+87 to 209+08 (OCL_297EB)	9	TON
		Sta 215+86 to 216+01(OCL_297EB)	8	TON
430	0500	COMMERCIAL GRADE HOT MIX ASPHALT		
		Sta 208+87 to 209+15 (OCL_297EB)	18	TON
		Sta 215+86 to 216+01(OCL_297EB)	17	TON

TASKS:

Excavate for underpass.

Drive H-Pile.

Construct Railroad and DeMers Ave Bridges.

Construct Wing Walls.

Watermain removals see section 40.

Maintain access to Convenience Store at all times.

Install temporary and proposed storm sewer.

Install permanent mainline track.

NOTES:

1. All Temporary Pavement installed adjacent to existing pavement is planned to follow exsting pavement joints.

2. All Temporary Pavement installed adjacent to proposed pavement is planned to follow propsed pavement joints.

Work Zone Traffic Control

Phase 2 Overview

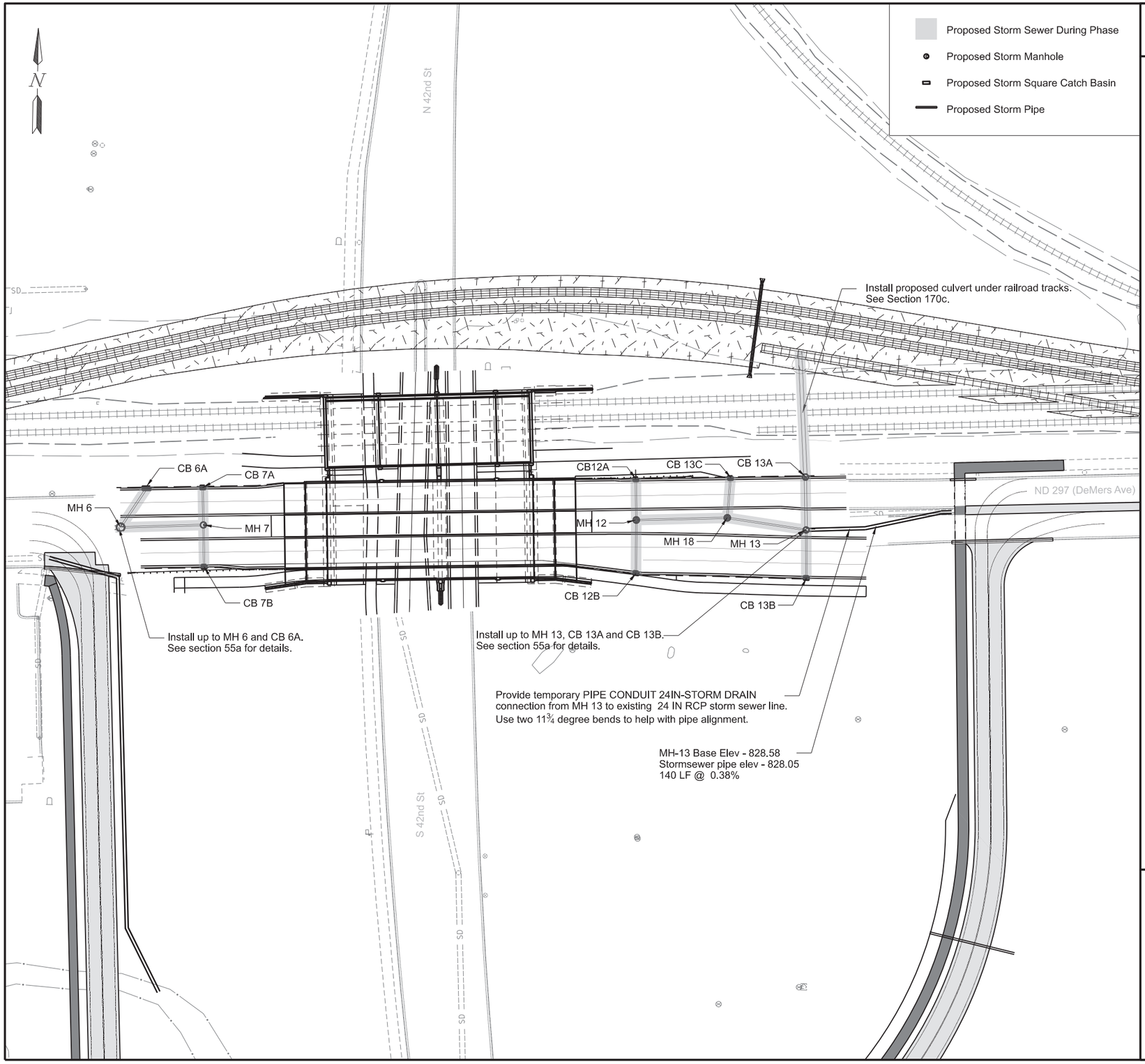
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9026
DATE: 2025.12.05 18:28:07 -06'00'
NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	50

SPEC	CODE	BID ITEM	QTY	UNIT
714	4107	PIPE CONDUIT 24IN-STORMDRAIN		
		Sta 215+49 to 216+87 (OCL_297EB)	140	LF

TASKS:

Temporarily close precast manhole pipe outlets that are not being used.

Remove sitting water in installed portions of proposed storm sewer.

Install temporary connection between MH 13 and existing storm sewer system.

Install culvert underneath proposed railroad tracks.

NOTES:

1. Protect MH 13 precast doghouse during installation of temporary PIPE CONDUIT 24IN-STORM DRAIN

2. Do not alter MH 13 precast structure.

3. Verify all installed temporary drainage structures and storm connections are sealed.

4. Up to 140 LF of PIPE CONDUIT 24IN-STORM DRAIN allocated to allow field fitting for temporary drainage connection.

5. Two 11 3/4 bends intended to help with alginment of temporary storm pipe with proposed manhole and existing pipe. Any bends will be incidental.

6. See Section 40 for removal of existing stormsewer system.

7. See Section 55a for proposed stormsewer system information.

Work Zone Traffic Control

Phase 2 Drainage Overview
Proposed Storm by Phase

ND 297 (DeMers Ave)

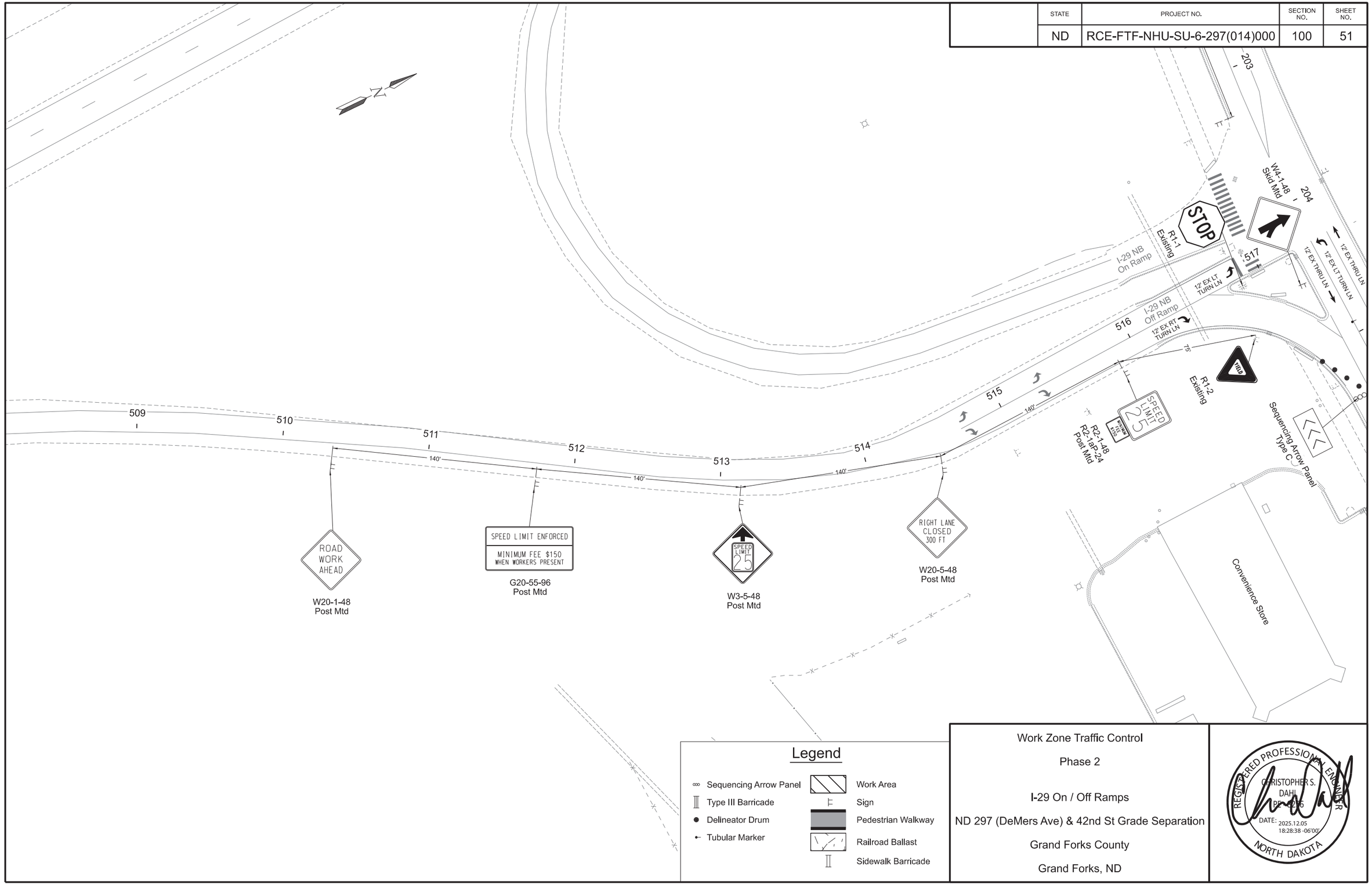
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8256
DATE: 2025.12.05 18:28:29 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	51



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Railroad Ballast
- Sidewalk Barricade

Work Zone Traffic Control

Phase 2

I-29 On / Off Ramps

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.05 18:28:38 -06'00'
NORTH DAKOTA

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	52

N

R2-1-48
Post Mtd

SPEED LIMIT 40

G20-2-48
Post Mtd

END ROAD WORK

200 ND 297 (DeMers Ave) 201 202 203 204

12' EX THRU LN

75'

475'

140'

12' EX THRU LN

140'

12' EX THRU LN

12' EX LT TURN LN

12' EX THRU LN

ROAD WORK AHEAD

W20-1-48
Post Mtd

SPEED LIMIT ENFORCED
MINIMUM FEE $150
WHEN WORKERS PRESENT

G20-55-96
Post Mtd

SPEED LIMIT 25

W3-5-48
Post Mtd

SPEED LIMIT 25
MINIMUM FEE $150

R2-1-48
R2-1aP-24
Post Mtd

W4-1-48
Skid Mtd

STOP

R1-1
Existing

517

12' EX LT TURN LN

I-29 NB On Ramp

I-29 NB Off Ramp

12' EX RT TURN LN

75'

YIELD

R1-2
Existing

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Railroad Ballast
- Sidewalk Barricade

Work Zone Traffic Control

Phase 2

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.05 18:28:49 -06'00'
NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	53

N

721

720

719

718

R11-2-48
Barricade Mtd

ROAD CLOSED

55 LF - SHORT TERM 4IN LINE-TYPE R

51 LF - SHORT TERM 4IN LINE-TYPE R

ND 297 (DeMers Ave)

12' EX THRU LN

12' EX LT TURN LN

12' EX THRU LN

204 205 206 207 208 209 210 211 212

25'

25'

10'

W4-1-48
Skid Mtd

517

STOP
R1-1
Existing

12' EX LT TURN LN

I-29 NB On Ramp

I-29 NB Off Ramp

12' EX RT TURN LN

516

515

75'

140'

YIELD
R1-2
Existing

Sequencing Arrow Panel
Type C

SPEED LIMIT 25
MINIMUM FINE $150
R2-1-48
R2-1aP-24
Post Mtd

Convenience Store

Maintain Access

ROAD CLOSED AHEAD
W20-3-48
Skid Mtd

STOP
R1-1
Existing

DETOUR
NORTH
N 42nd St
M4-8-24
M3-1-24
CS2-42
M6-3-21
Post Mtd

Temporary Shared Use Path

Temporary Bypass

W1-6R-48
Barricade Mtd

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Railroad Ballast
- Sidewalk Barricade

Work Zone Traffic Control

Phase 2

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9236
DATE: 2025.12.05 18:28:59 -06'00'
NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	54

N

721

720

W1-6L-48
Barricade Mtd

12' EX THRU LN

25'

125'

ND 297 (DeMers Ave)

12' EX THRU LN

12' EX THRU LN

212 213 214 215 216 218 219 220

ROAD CLOSED

R11-2-48
Barricade Mtd

Sequencing Arrow Panel
Type C

Temporary Shared Use Path

Temporary Bypass

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Railroad Ballast
- Sidewalk Barricade

Work Zone Traffic Control

Phase 2

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4256
DATE: 2025.12.05 18:29:19 -06'00'
NORTH DAKOTA

12/5/2025 5:48:16 PM Tyler.Schmaltz H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_054_Phase 2.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	55

N

W4-2L-48
Post Mtd

R2-1-48
R2-1aP-24
Post Mtd
SPEED LIMIT 25
MINIMUM FEE $150

W20-5-48
Post Mtd
LEFT LANE CLOSED 300 FT

W3-5-48
Post Mtd
SPEED LIMIT 25

W20-5-48
Post Mtd
LEFT LANE CLOSED 600 FT

G20-55-96
Post Mtd
SPEED LIMIT ENFORCED
MINIMUM FEE $150
WHEN WORKERS PRESENT

W20-1-48
Post Mtd
ROAD WORK AHEAD

125'
75'
75'
12' EX THRU LN
12' EX THRU LN
140'
140'
140'
140'
140'
12' EX THRU LN
12' EX THRU LN
ND 297 (DeMers Ave)
220
221
222
223
224
225
226
227
228
75'
140'

Sequencing Arrow Panel
Type C

END ROAD WORK
G20-2-48
Post Mtd

SPEED LIMIT 40
R2-1-48
Post Mtd

DETOUR
NORTH
N 42nd St
M4-8-24
M3-1-24
CS2-42
M6-3-21
Post Mtd

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Railroad Ballast
- Sidewalk Barricade

Work Zone Traffic Control

Phase 2

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4256
DATE: 2025.12.05 18:29:28 -06'00'
NORTH DAKOTA

12/5/2025 5:48:17 PM Tyler.Schmaltz H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_055_Phase 2.dgn

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	56

DETOUR
NORTH
INTERSTATE
NORTH DAKOTA
29

M4-8-24
M3-1-24
M1-1-24
M5-1L-21
Post Mtd

S 43rd St

M4-8-24
M3-1-24
CS2-42
M5-1R-21
Post Mtd

DETOUR
NORTH
N 42nd St

M4-8-24
M3-1-24
CS2-42
M6-3-21
Post Mtd

Temporary Shared Use Path

Temporary Bypass

708 709 710 711 712 713 714 715 716

12' EX RT TURN LN
12' EX THRU LN
12' EX THRU LN
12' EX LT TURN LN
12' EX RT TURN LN

S 42nd St

ROAD
CLOSED

R11-2-48
Barricade Mtd

DETOUR
NORTH
INTERSTATE
NORTH DAKOTA
29

M4-8-24
M3-1-24
M1-1-24
M6-1L-21
Post Mtd

DETOUR
NORTH
N 42nd St

M4-8-24
M3-1-24
CS2-42
M6-1R-21
Post Mtd

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Railroad Ballast
- Sidewalk Barricade

Work Zone Traffic Control

Phase 2

42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9076
DATE: 2025.12.05 18:29:39 -06'00'
NORTH DAKOTA

12/5/2025 5:48:19 PM Tyler.Schmaltz H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_056_Phase 2.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	57

James Ray Dr

R9-9-24
Post Mtd
SIDEWALK CLOSED

R11-4a-60
Post Mtd
STREET CLOSED TO THRU TRAFFIC

University Ave
12' EX RT TURN LN
12' EX THRU LN
12' EX LT TURN LN
12' EX THRU LN

W20-3-48
Post Mtd
ROAD CLOSED AHEAD

725
R11-2-48
Barricade Mtd
ROAD CLOSED
726
727
728
729
730
731
12' EX THRU LN
12' EX THRU LN

N 42nd Street
12' EX LT TURN LN
12' EX THRU LN
12' EX THRU LN
12' EX RT TURN LN

12' EX RT TURN/THRU LN
12' EX THRU LN
12' EX LT TURN LN
12' EX THRU LN
12' EX THRU LN

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Railroad Ballast
- Sidewalk Barricade

Work Zone Traffic Control

Phase 2

42nd St

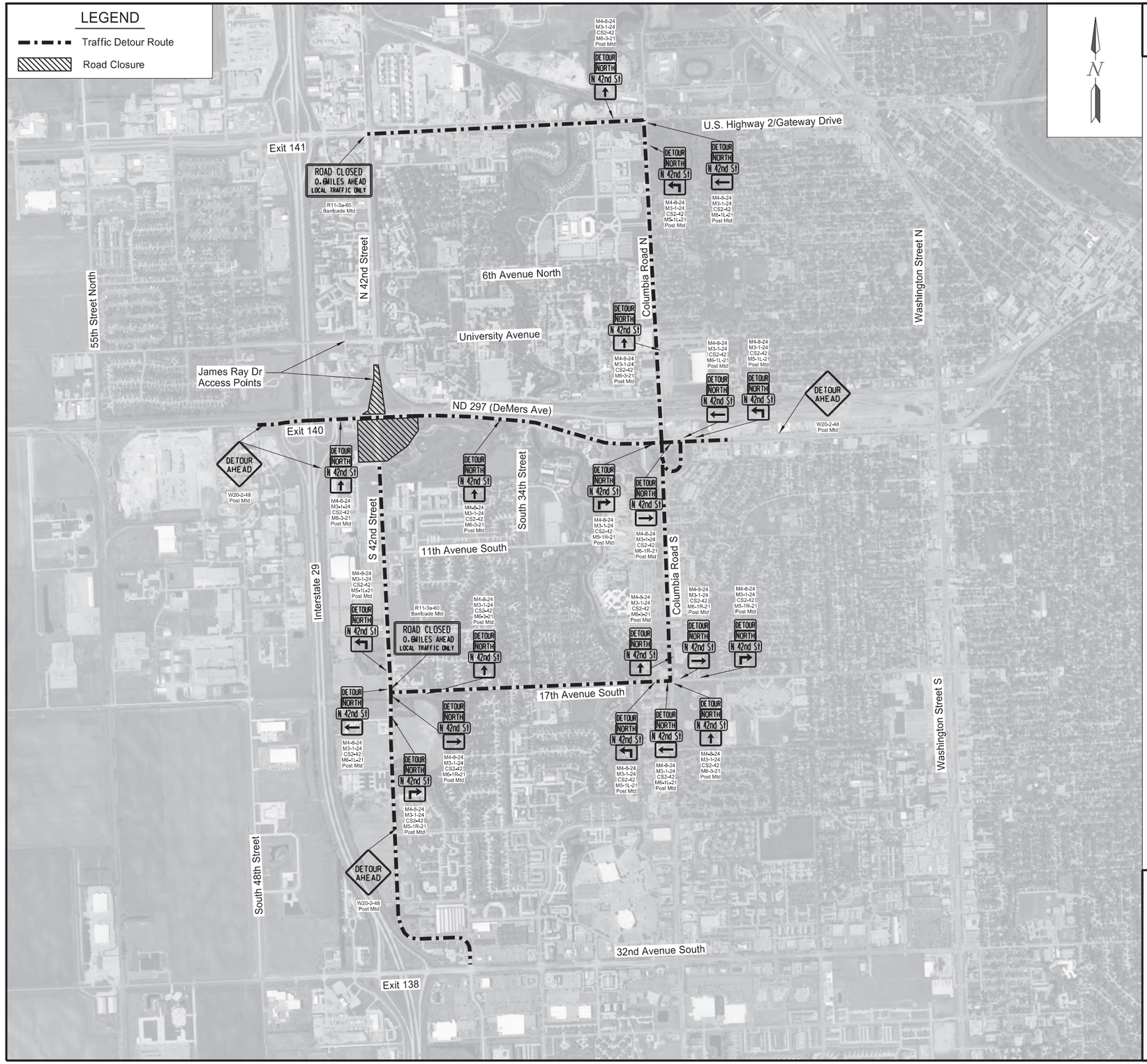
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9296
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NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	58

Notes:

1. N 42nd St and S 42nd St signage will take place simultaneously within the same phases as directed.

2. Advanced signage at exits 138 & 141 to notify vehicles and trucks that they can take exits before DeMers to reduce volume of traffic. This should help with the volume of traffic on the DeMers temp bypass. Refer to NDDOT Standard Drawing D-704-12 for PCMS layout.

3. Access and direction to Hilton Garden Inn Grand Forks-UND shall be maintained at all times.

4. Refer to NDDOT Standard Drawing D-704-21 for sign spacing.

5. Confirmatory signs shall be placed 200' after each major turning movement onto Gateway Dr, Columbia Rd, and 17th Ave S.

6. R11-3a-60 Barricade Mtd signage shall be placed on the NE corner of S 42nd St/17th Ave S and the SW corner of N 42nd S/Gateway Dr within the boulevard.

Work Zone Traffic Control

N 42nd St Detour

Phase 3 & 4A Vehicular Route

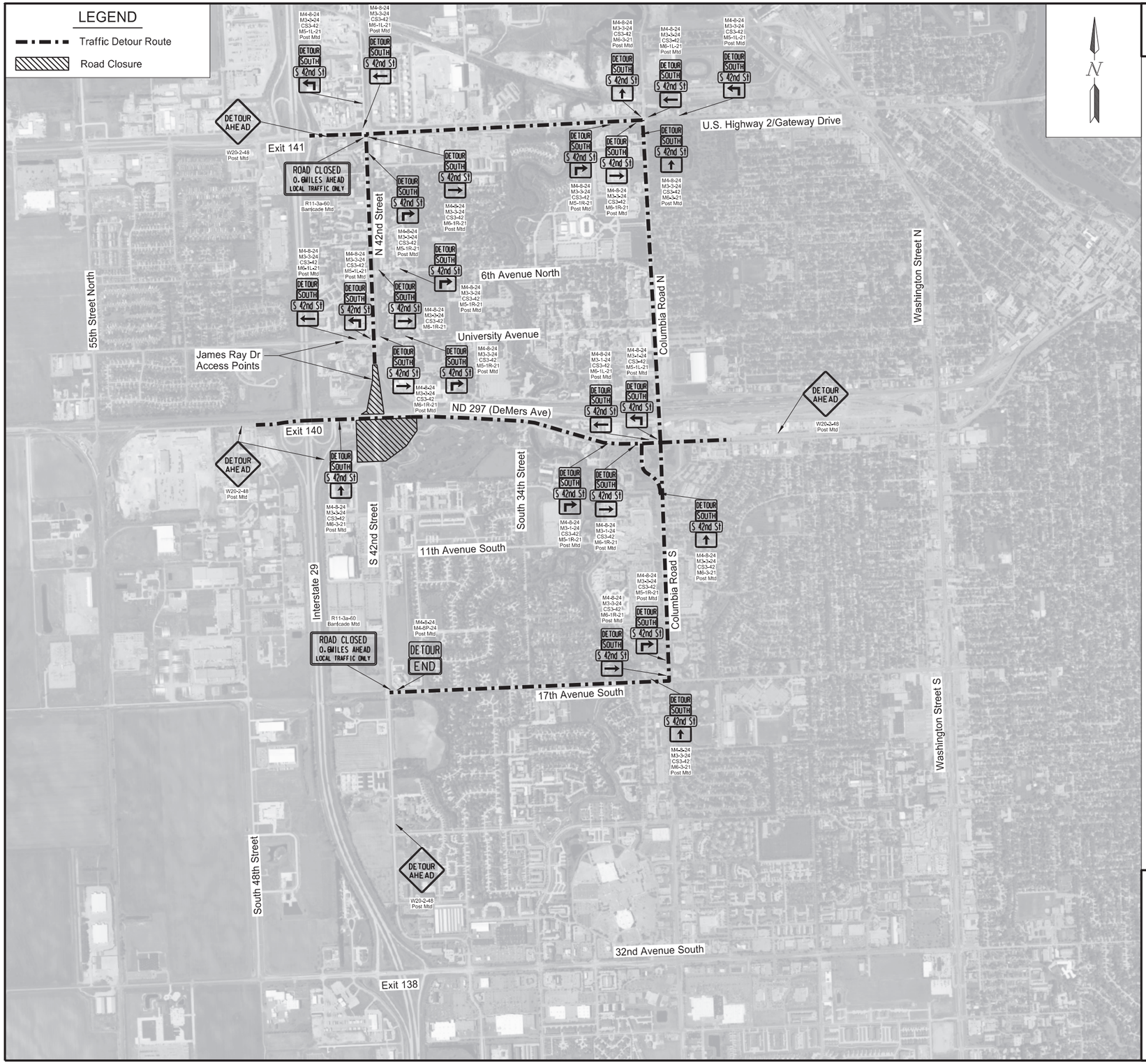
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8216
DATE: 2025.12.05 18:32:21 -06'00'
NORTH DAKOTA

12/4/2025 8:59:34 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_037-038_058-059_101-102_132-133_ phase 1-4 detour routes.dgn



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	59

Notes:

1. N 42nd St and S 42nd St signage will take place simultaneously within the same phases as directed.

2. Advanced signage at exits 138 & 141 to notify vehicles and trucks that they can take exits before DeMers to reduce volume of traffic. This should help with the volume of traffic on the DeMers temp bypass. Refer to NDDOT Standard Drawing D-704-12 for PCMS layout.

3. Access and direction to Hilton Garden Inn Grand Forks-UND shall be maintained at all times.

4. Refer to NDDOT Standard Drawing D-704-21 for sign spacing.

5. Confirmatory signs shall be placed 200' after each major turning movement onto Gateway Dr, Columbia Rd, and 17th Ave S.

6. R11-3a-60 Barricade Mtd signage shall be placed on the NE corner of S 42nd St/17th Ave S and the SW corner of N 42nd S/Gateway Dr within the boulevard.

Work Zone Traffic Control

S 42nd St Detour

Phase 3 & 4A Vehicular Route

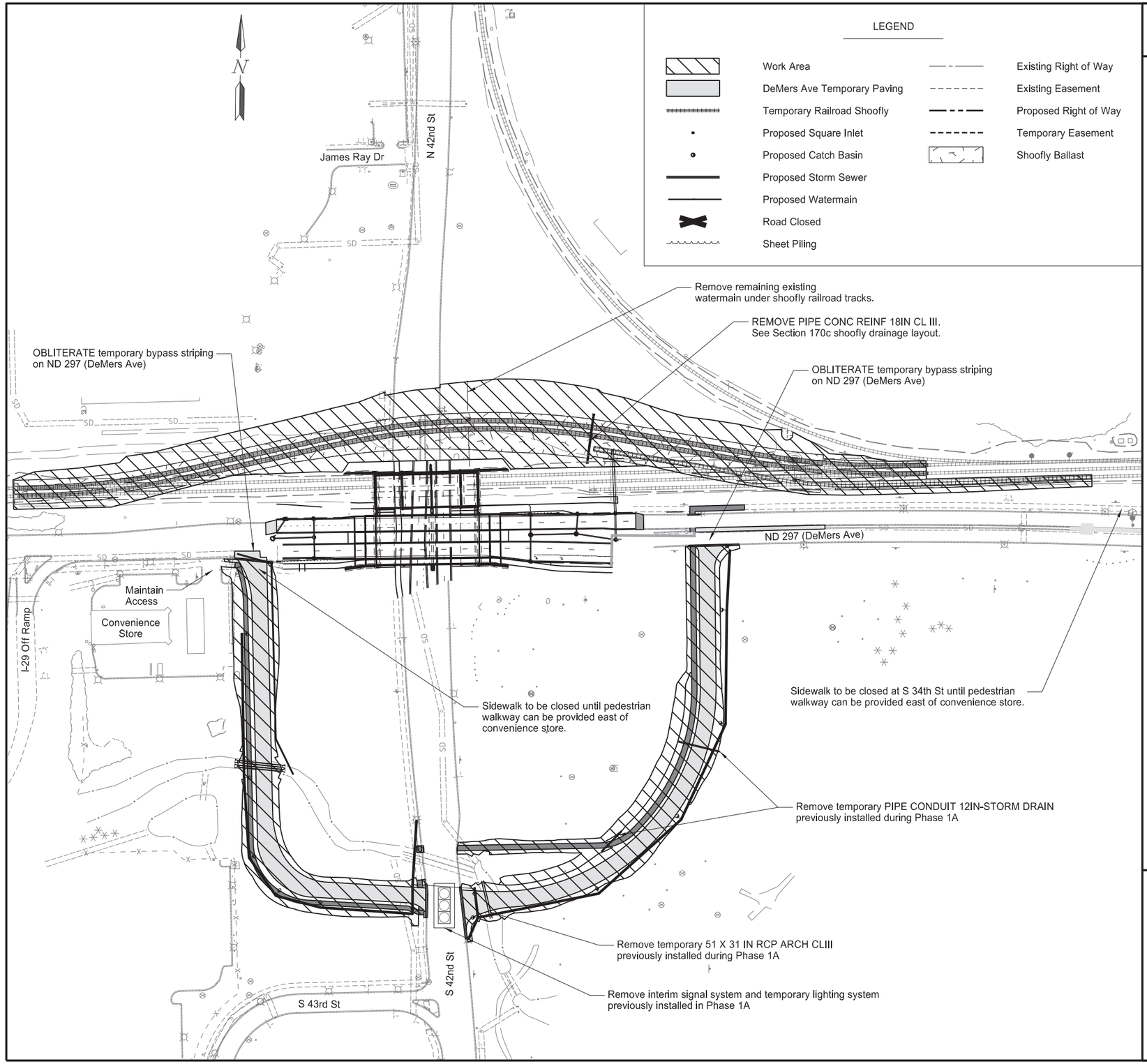
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8216
DATE: 2025.12.05 18:32:10 -06'00'
NORTH DAKOTA

12/4/2025 8:59:37 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_037-038_058-059_101-102_132-133_ phase 1-4 detour routes.dgn



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	60

SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 0+00 to 19+12 (OCL_Bypass_Jug)(Aggregate)	2033	TON
		Sta 0+00 to 19+12 (OCL_Bypass_Jug)(Aggregate Sluff)	348	TON
		Sta 0+00 to 19+12 (OCL_Bypass_Jug)(Bituminous)	2165	TON
		Sta 0+00 to 19+12 (OCL_Bypass_Jug)(Bituminous Sluff)	126	TON
		Sta 0+00 to 19+12 (OCL_Bypass_Jug)(Bituminous Walk)	412	TON
202	0286	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 9+86 to 10+06 (OCL_Bypass_Jug)	74	LF
		Sta 12+43 to 13+03 (OCL_Bypass_Jug)	56	LF
		Sta 15+29 to 15+33 (OCL_Bypass_Jug)	82	LF
704	1500	OBLITERATION OF PAVEMENT MARKING		
		Sta -0+45 to 0+00 (OCL_Bypass_Jug)	49	SF
		Sta -0+57 to 0+00 (OCL_Bypass_Jug)	48	SF
		Sta 19+12 to 19+49 (OCL_Bypass_Jug)	57	SF
		Sta 19+12 to 19+61 (OCL_Bypass_Jug)	56	SF
770	4565	REMOVE TEMPORARY LIGHTING SYSTEM		
		Phase 3	1	EA

TASKS:

Shift railroad train traffic to new bridge / mainline tracks and remove shoofly.

Remove temporary sheet piling and shoring.

Remove temporary bypass and shared use path.

Remove temporary lighting system.

Remove interim signal system.

Head to head traffic on the north side of DeMers Ave (WB Lane).

Maintain access to convenience store at all times.

NOTES:

1. Close shared use path at intersection of DeMers Ave and S 34th St until path continuity can be provided at convenience store.

2. See Section 6 notes for removal of interim traffic signals.

Work Zone Traffic Control

Phase 3 Overview

ND 297 (DeMers Ave) & 42nd St Grade Separation

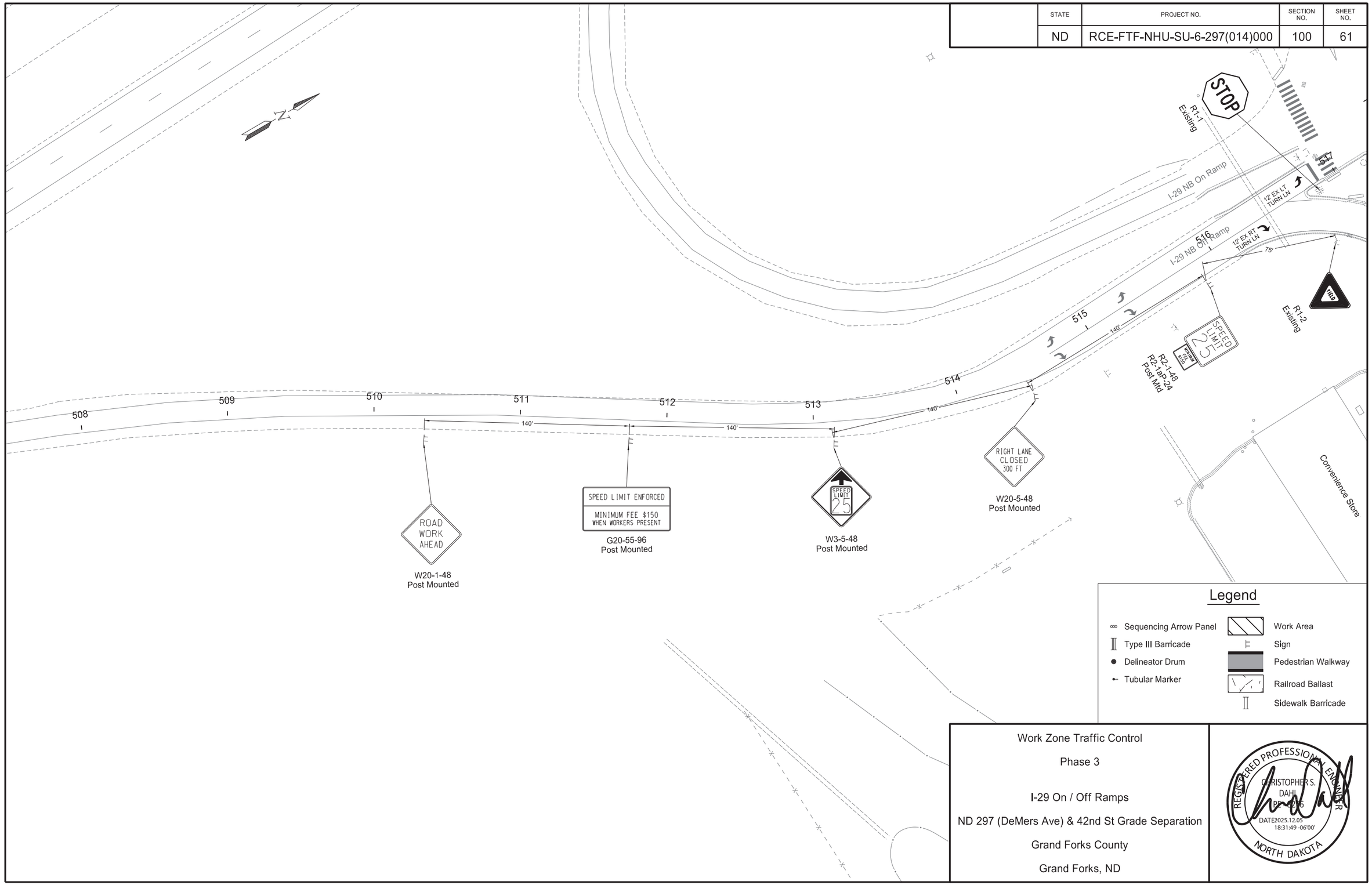
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9016
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NORTH DAKOTA

12/5/2025 5:43:26 PM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_060_Phase 3 Overview.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	61



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Railroad Ballast
- Sidewalk Barricade

Work Zone Traffic Control

Phase 3

I-29 On / Off Ramps

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4256
DATE 2025.12.05 18:31:49 -06'00'
NORTH DAKOTA

12/5/2025 5:43:29 PM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_061_Phase 3.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	62

N

R2-1-48
Post Mtd

SPEED LIMIT 40

G20-2-48
Post Mtd

END ROAD WORK

75'

ND 297 (DeMers Ave)

12' EX THRU LN

200

201

202

12' EX THRU LN

140'

325'

ROAD WORK AHEAD

W20-1-48
Post Mtd

SPEED LIMIT ENFORCED

MINIMUM FEE $150
WHEN WORKERS PRESENT

G20-55-96
Post Mtd

SPEED LIMIT 25

W3-5-48
Post Mtd

I-29 SB On Ramp

I-29 SB Off Ramp

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Railroad Ballast
- Sidewalk Barricade

Work Zone Traffic Control

Phase 3

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4276
DATE: 2025.12.05 18:31:37 -06'00'
NORTH DAKOTA

12/5/2025 5:43:32 PM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_062_Phase 3.dgn

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	63

N

W4-1R-48
Skid Mtd

W1-4L-48
Skid Mtd

R1-1-48
Skid Mtd

67 LF - SHORT TERM 4IN LINE-TYPE R
64 LF - SHORT TERM 4IN LINE-TYPE R
293 LF - SHORT TERM 4IN LINE-TYPE R
126 LF - SHORT TERM 4IN LINE-TYPE R
155 LF - SHORT TERM 4IN LINE-TYPE R
60 LF - SHORT TERM 4IN LINE-TYPE R

12' EX THRU LN
12' EX LT TURN LN
12' THRU LN
140'
25'
12'
10'

202 203 204 205 206 207 208 209 210 14

ND 297 (DeMers Ave)

SPEED LIMIT 25 MINIMUM FEE $150
W3-5-48
Post Mtd

SPEED LIMIT 25 MINIMUM FEE $150
R2-1-48
R2-1aP-24
Post Mtd

STOP
R1-1
Existing

YIELD
R1-2
Existing

12' EX LT TURN LN
12' EX RT TURN LN
75'
140'
517
516
515
I-29 NB On Ramp

SPEED LIMIT 25 MINIMUM FEE $150
R2-1-48
R2-1aP-24
Post Mtd

RIGHT LANE MUST TURN RIGHT
R3-7R-30
Skid Mtd

DO NOT PASS
R4-1-48
Skid Mtd

NEXT 0.5 MILES
W6-3-48
W20-52P-54
Skid Mtd

W1-4L-48
Skid Mtd

Convenience Store

Close shared use path at intersection until Pedestrian Walkway can be provided near Convenience Store

Maintain Access
SIDEWALK CLOSED
R9-9-48
Barricade Mtd
COVER SIGN
R1-1 Stop

Temporary closure of PEDESTRIAN WALKWAY during removal of temporary bypass

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Railroad Ballast
- Sidewalk Barricade

Work Zone Traffic Control

Phase 3

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4276
DATE: 2025.12.05 18:31:28 -06'00'
NORTH DAKOTA

12/5/2025 5:43:35 PM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_063_Phase 3.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	64

721

728

719

718

717

716

W1-4L-48
Post Mtd

W11-2-48
W16-7pL-21
Post Mtd

12' THRU LN
12' THRU LN
25'
12' THRU LN
12' THRU LN

12' EX THRU LN
12' EX THRU LN

210 211 212 213 214 215 216 217 218

5'

ND 297 (DeMers Ave)

S 42nd St

Temporary closure of
PEDESTRIAN WALKWAY
during removal of
temporary bypass

DETOUR
NORTH
N 42nd St

DETOUR
SOUTH
S 42nd St

M4-8-24
M3-1-24
CS2-42
M6-3-21
Post Mtd

M4-8-24
M3-3-24
CS3-42
M6-3-21
Post Mtd

W1-4R-48
Post Mtd

SIDEWALK
CLOSED

R9-9-24
Barricade Mtd

N

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Railroad Ballast
- Sidewalk Barricade

Work Zone Traffic Control

Phase 3

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

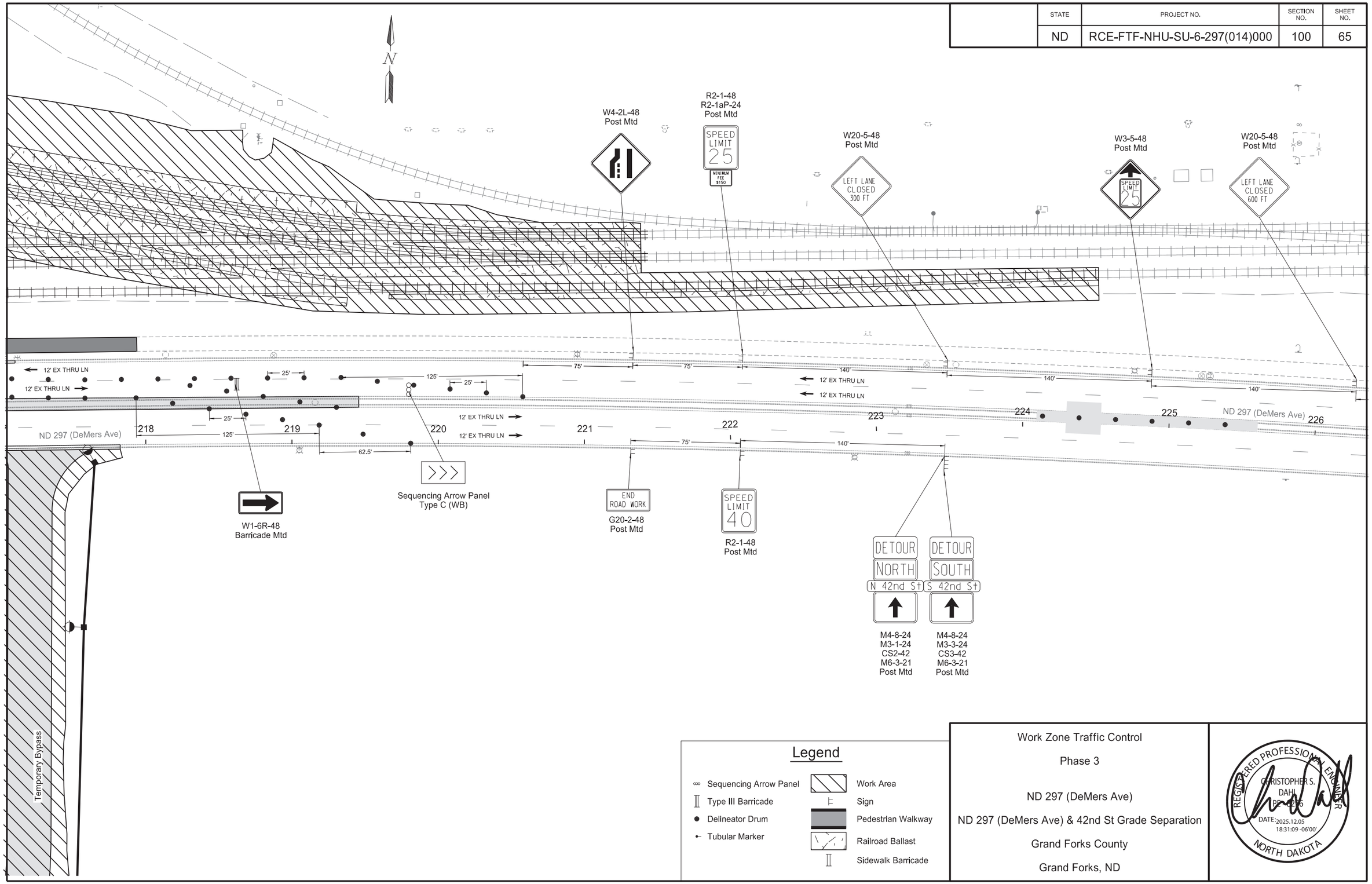
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8256
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NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	65



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Railroad Ballast
- Sidewalk Barricade

Work Zone Traffic Control

Phase 3

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

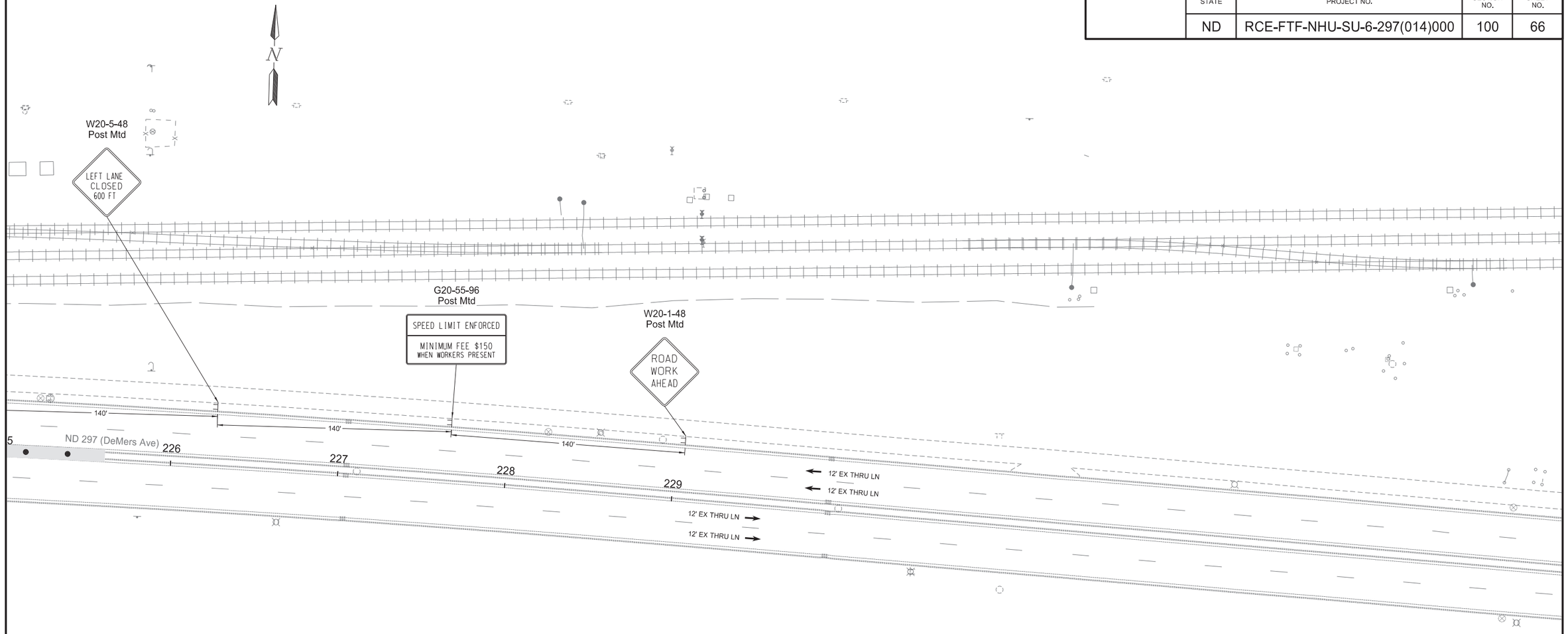
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9256
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NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	66



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Railroad Ballast
- Sidewalk Barricade

Work Zone Traffic Control

Phase 3

ND 297 (DeMers Ave)

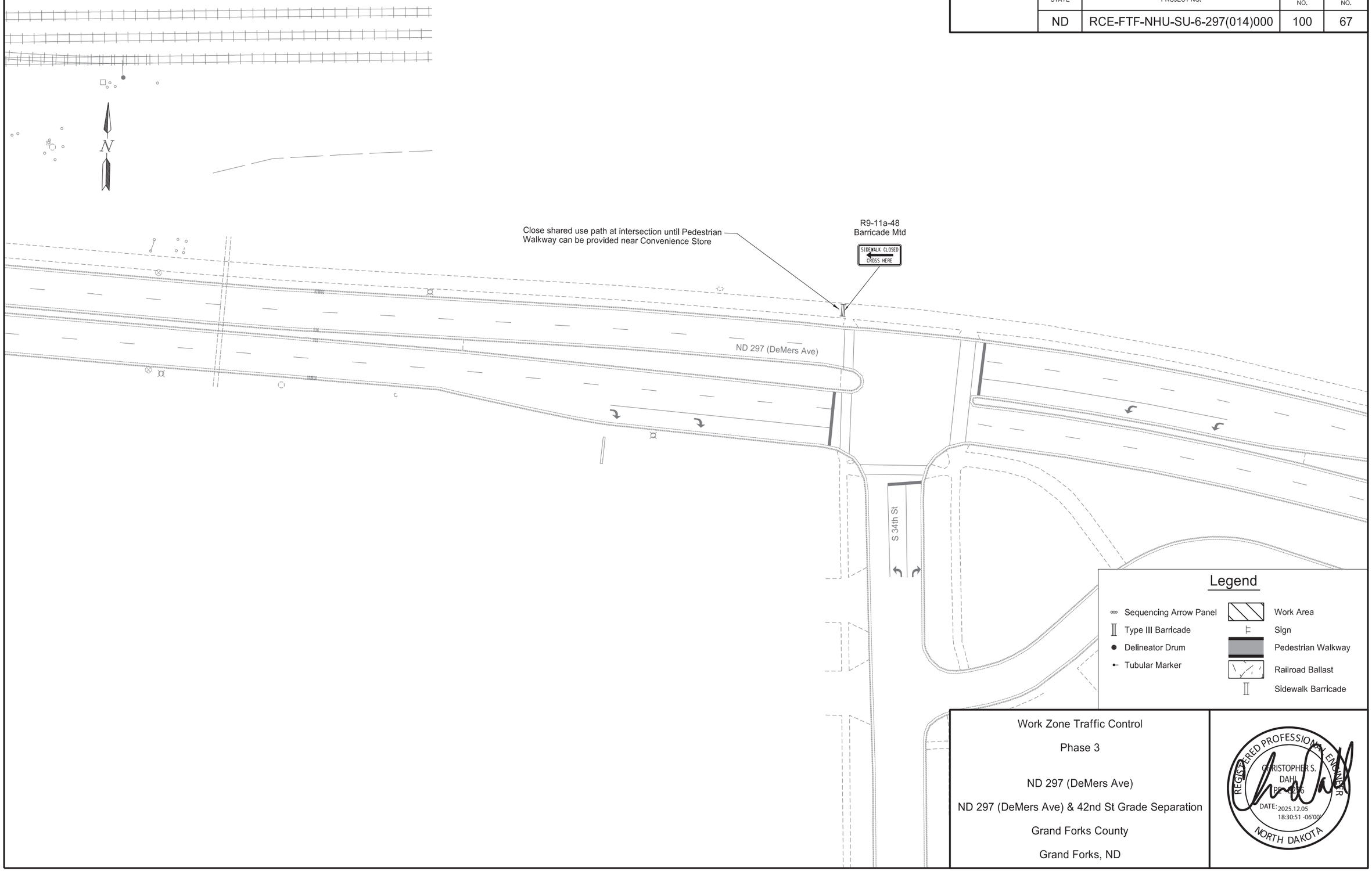
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4276
DATE: 2025.12.05 18:31:00 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	67



Work Zone Traffic Control

Phase 3

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8256
DATE: 2025.12.05 18:30:51 -06'00'
NORTH DAKOTA

12/5/2025 5:43:44 PM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_067_Phase 3.dgn

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	68

S 43rd St

S 42nd St

R9-9-24
Barricade Mtd
SIDEWALK CLOSED

706 707 708 709 710 711 712 713 714

12' EX RT TURN LN
12' EX THRU LN
12' EX THRU LN
12' EX THRU LN
12' EX THRU LN

ROAD CLOSED
DETOUR

R11-2-48
M4-10L-48
Barricade Mtd

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Railroad Ballast
- Sidewalk Barricade

Work Zone Traffic Control

Phase 3

42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9256
DATE: 2025.12.05 18:30:42 -06'00'
NORTH DAKOTA

12/5/2025 5:43:46 PM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_068_Phase 3.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	69

James Ray Dr

R9-9-24
Barricade Mtd
SIDEWALK CLOSED

725 726 727 728 729 730 731

N 42nd St

ROAD CLOSED
R11-2-48
Barricade Mtd

R11-4a-60
Barricade Mtd
STREET CLOSED TO THRU TRAFFIC

University Ave

12' EX RT TURN LN
12' EX THRU LN
12' EX LT TURN LN
12' EX THRU LN

W20-3-48
Post Mtd
ROAD CLOSED AHEAD

12' EX THRU LN
12' EX THRU LN
12' EX RT TURN LN

N 42nd St

12' EX LT TURN LN
12' EX THRU LN
12' EX THRU LN
12' EX RT TURN LN

12' EX RT TURN/THRU LN
12' EX THRU LN
12' EX LT TURN LN
12' EX THRU LN
12' EX THRU LN

University Ave

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Railroad Ballast
- Sidewalk Barricade

Work Zone Traffic Control

Phase 3

42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

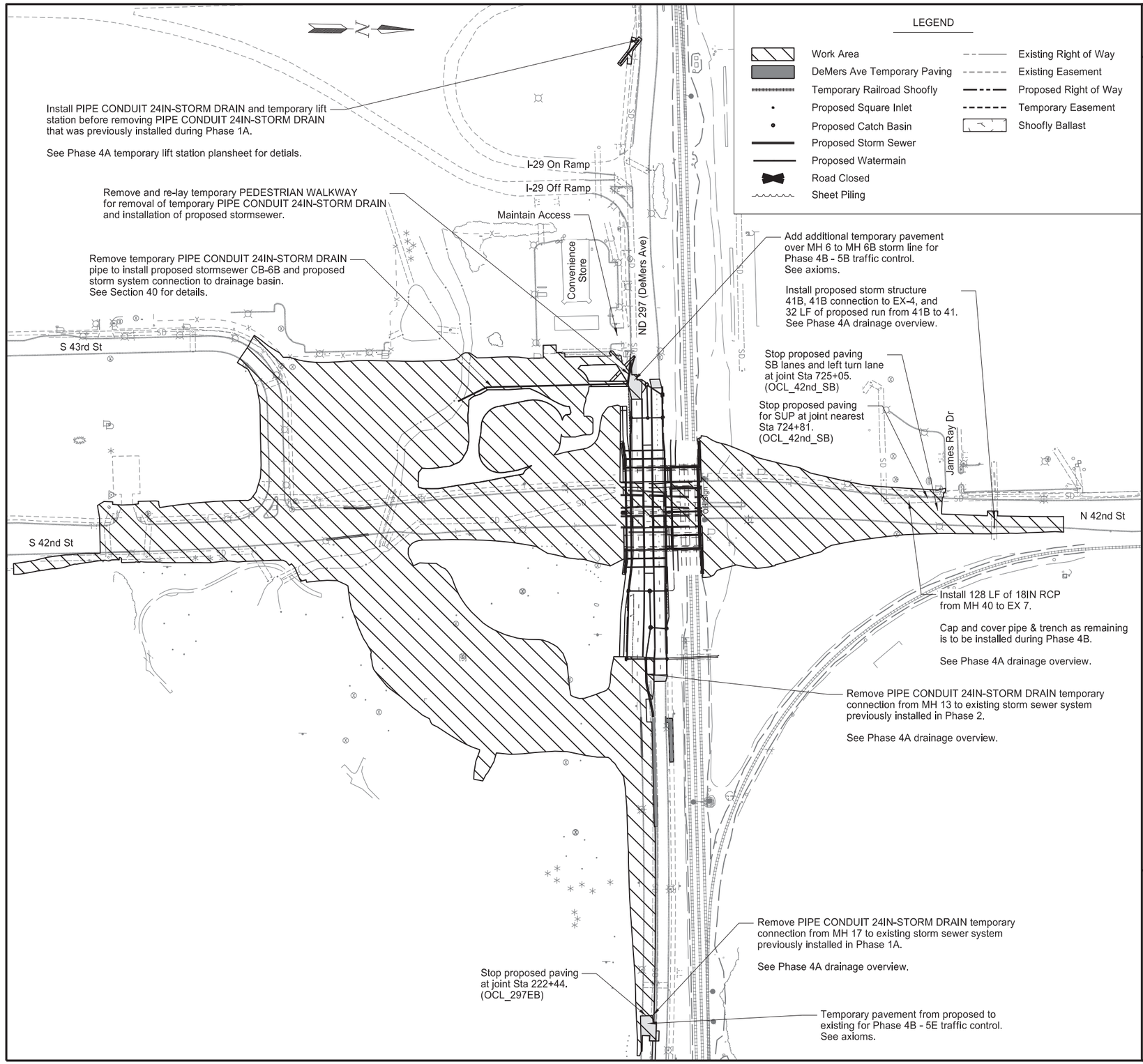
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9026
DATE: 2025.12.05 18:30:32 -06'00'
NORTH DAKOTA

12/5/2025 5:43:49 PM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_069_Phase 3.dgn

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	70



SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 0+00 to 19+12 (OCL_Bypass_Jug)(Valley Gutter)	41	TON
		Sta 0+00 to 19+12 (OCL_Bypass_Jug)(Valley Gutter Agg.	31	TON
		Sta 208+43 to 208+88 (OCL_297EB)(Aggregate)	4	TON
		Sta 224+09 to 224+76 (OCL_297EB)(Aggregate)	9	TON
		Sta 208+43 to 208+88 (OCL_297EB)(Bituminous)	7	TON
		Sta 224+09 to 224+76 (OCL_297EB)(Bituminous)	19	TON
302	0100	SALVAGED BASE COURSE		
		Sta 208+76 to 209+19 (OCL_297EB)	29	TON
		Sta 222+44 to 224+06 (OCL_297EB)	33	TON
430	0500	COMMERCIAL GRADE HOT MIX ASPHALT		
		Sta 208+76 to 209+19 (OCL_297EB)	61	TON
		Sta 222+44 to 224+06 (OCL_297EB)	70	TON

TASKS:

Reconstruct 42nd St, S 43rd St, 7th Ave, and the south side of DeMers on eastern side of project.

Install proposed stormsewer and lift station.

Construct dry basin and swale expansion.

Install temporary lift station on west side of DeMers project limits.

Maintain access to convenience store at all times.

Maintain access to James Ray Dr at all times.

Remove temporary storm connection and temporary storm sewer.

Install additional temporary pavement near MH 17.

Remove and re-lay any PEDESTRIAN WALKWAY within construction areas.

NOTES:

1. All temporary pavement installed will be abutted directly to existing or proposed pavement joints.

2. See Section 6 note 704-P01 for opening of roadway upon completion of Phase 4A.

4. Finish removing temporary stormsewer connections and installing proposed stormsewer before pouring foundations for signal installation.

5. 12 hours of additional FLAGGING added for traffic control during proposed storm sewer connection to MH 17

Work Zone Traffic Control

Phase 4A Overview

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.05 15:47:47 -06'00'
NORTH DAKOTA

12/4/2025 9:00:02 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_070_Phase 4a Overview.dgn

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	71

S 43rd St

Previously installed in Phase 1A

Swale Expansion

Dry Basin

Remove temporary drainage pipe previously installed during Phase 1A. See section 40 for details.

S 42nd St

Swale Expansion

7th Ave S

Dry Basin

- Proposed Stormsewer During Phase
- Proposed Storm Manhole
- Proposed Storm Square Catch Basin
- Proposed Storm Pipe
- Proposed Drain Tile
- Temporary Storm Pipe

Tasks:

Install proposed stormsewer along 42nd St, 7th Ave S, and 43rd St.

Construct dry basins and swale expansions.

Install lift station, pump house, driveway & pad, pumps.

Install proposed culverts.

Remove temporary drainage pipe.

Notes:

1. See Section 40 for removal of existing stormsewer system.

2. See Section 55a for proposed stormsewer system, dry basins, and swale expansion information.

Work Zone Traffic Control

Phase 4A Drainage Overview
Proposed Storm by Phase

42nd St , S 43rd St, & 7th Ave S

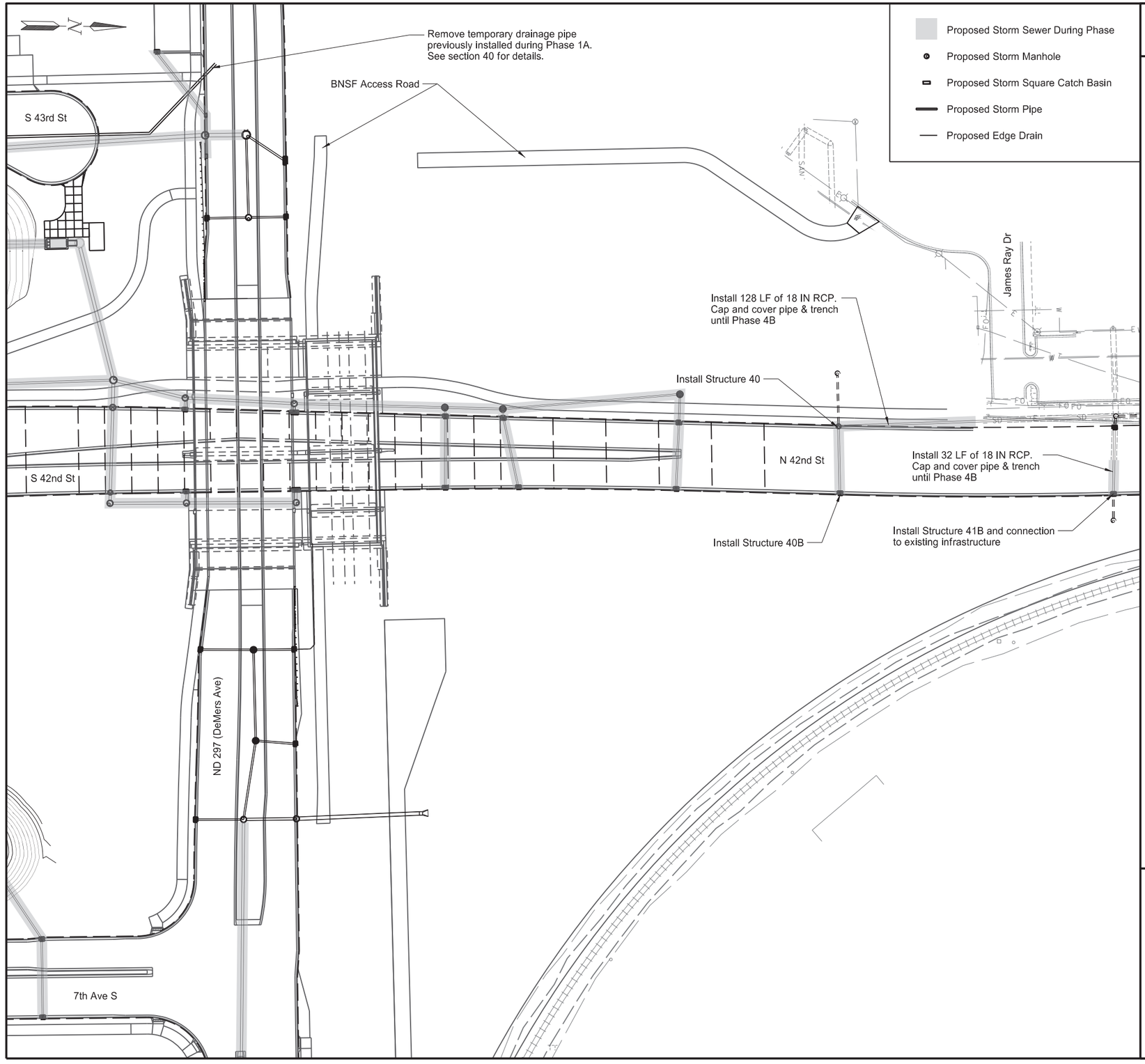
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

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CHRISTOPHER S. DAHL
PE-9206
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	72

Tasks:

Install proposed stormsewer along 42nd St, 43rd St and DeMers Ave.

Install 128 LF of 18IN RCP from MH 40 to EX 7, cap and cover until Phase 4B.

Install 32LF of 18IN RCP from 41B to 41, cap and cover until Phase 4B.

Construct dry basisn's and swale expansions.

Install lift station, pump house, pumps, driveway & pad.

Install proposed culverts.

Remove temporary drainage pipe.

Splitting proposed storm sewer installation on N 42nd St near James Ray Dr to accomodate traffic, remaining portion installed in Phase 4B.

Notes:

1. See Section 40 for removal of existing stormsewer system.

2. See Section 55a for proposed stormsewer system information.

Work Zone Traffic Control

Phase 4A Drainage Overview
Proposed Storm by Phase

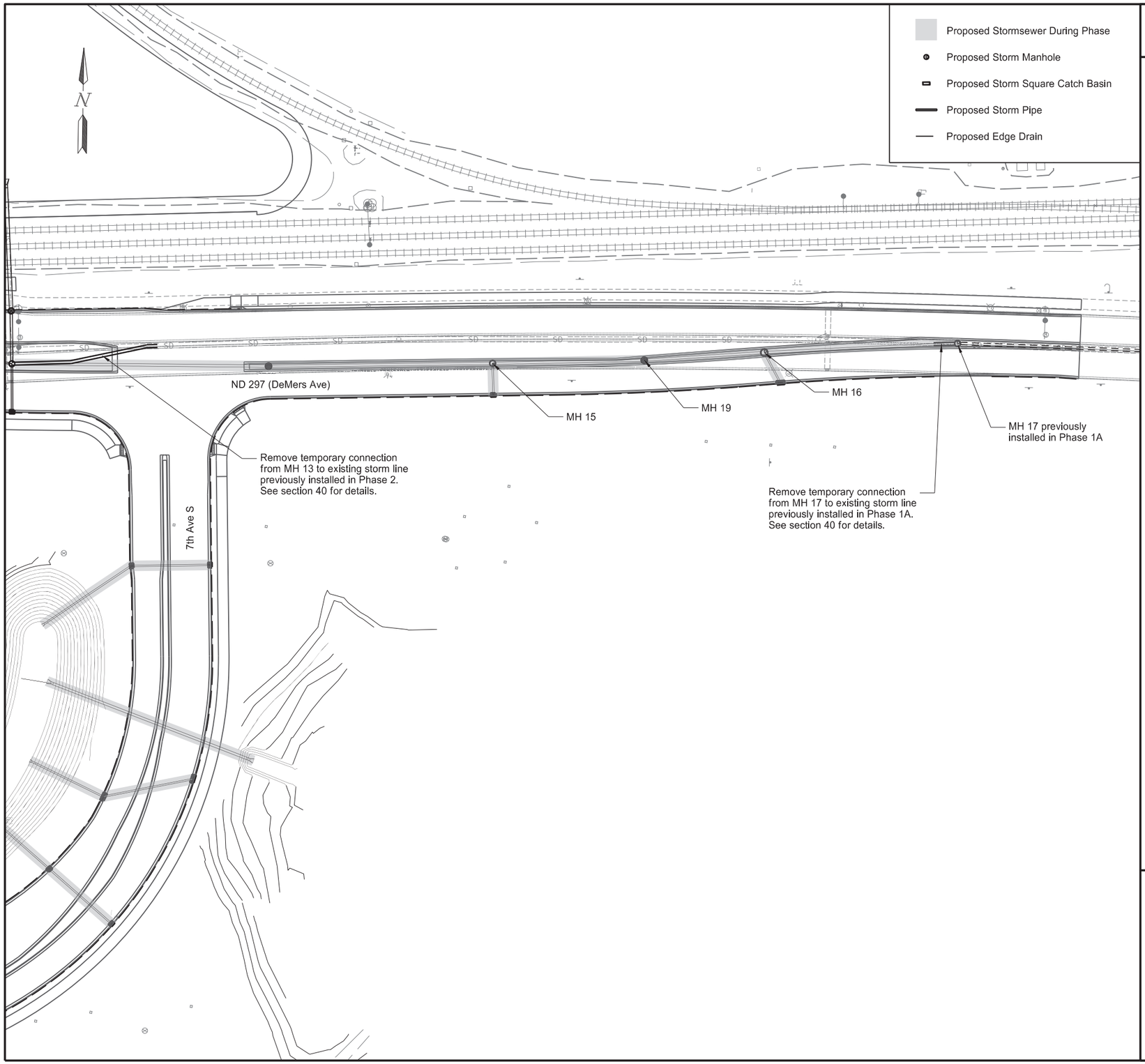
ND 297 (DeMers Ave), 42nd St, S 43rd St, 7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

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PE-8256
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NORTH DAKOTA



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	73

TASKS:

Install Mainline Proposed Storm from MH 13 to MH 17.

Install All Square Curb Inlets on South side of Proposed Manholes.

Temporarily close all non-used pipe openings on manholes.

NOTES:

1. See Section 40 for removal of existing Storm Sewer System and Temporary Storm Pipes.
2. See Section 55a for proposed Storm Sewer System information.

Work Zone Traffic Control

Phase 4A Drainage Overview
Proposed Storm by Phase

ND 297 (DeMers Ave), 7th Ave S

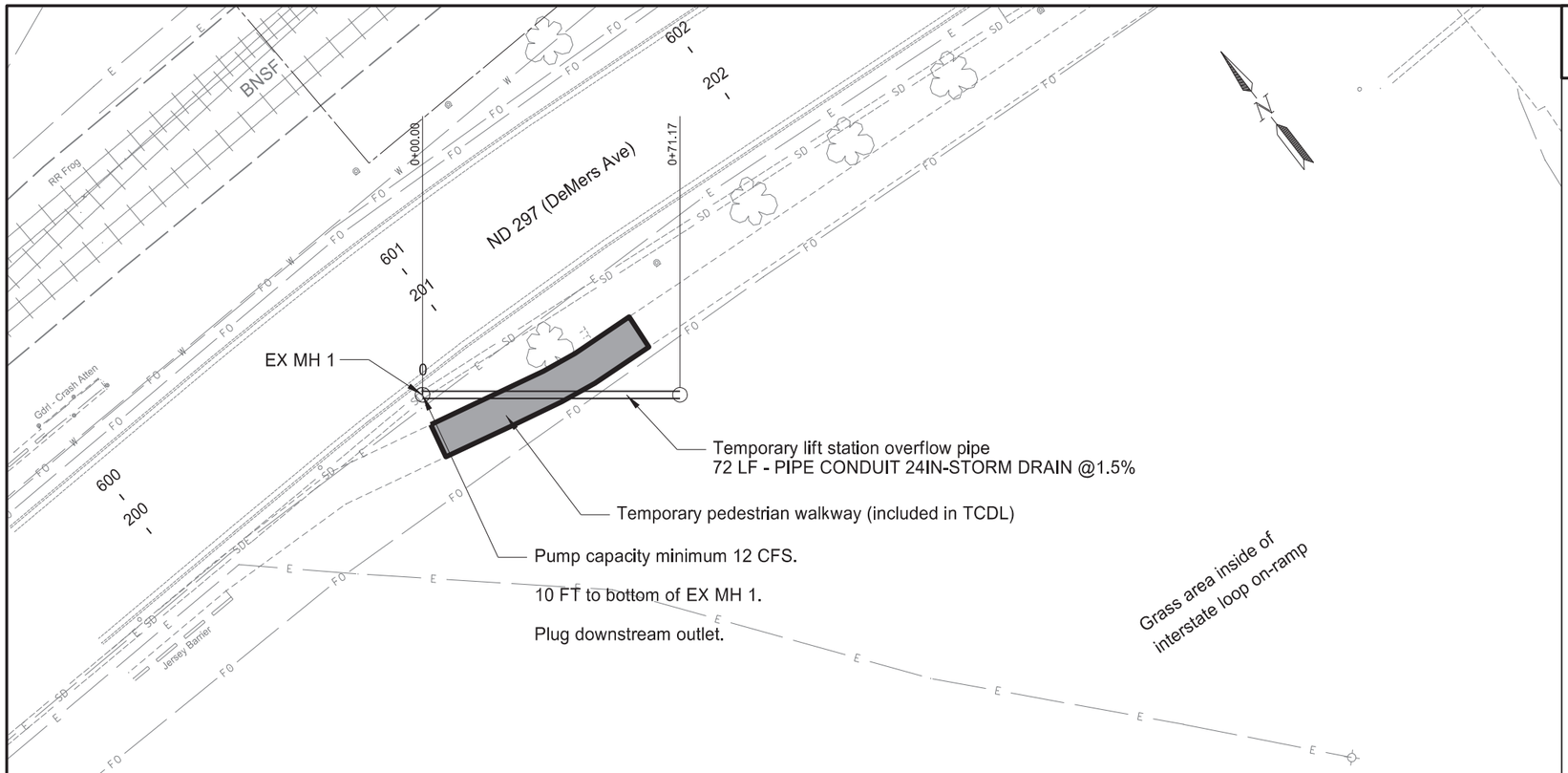
ND 297 (DeMers Ave) & 42nd St Grade Separation

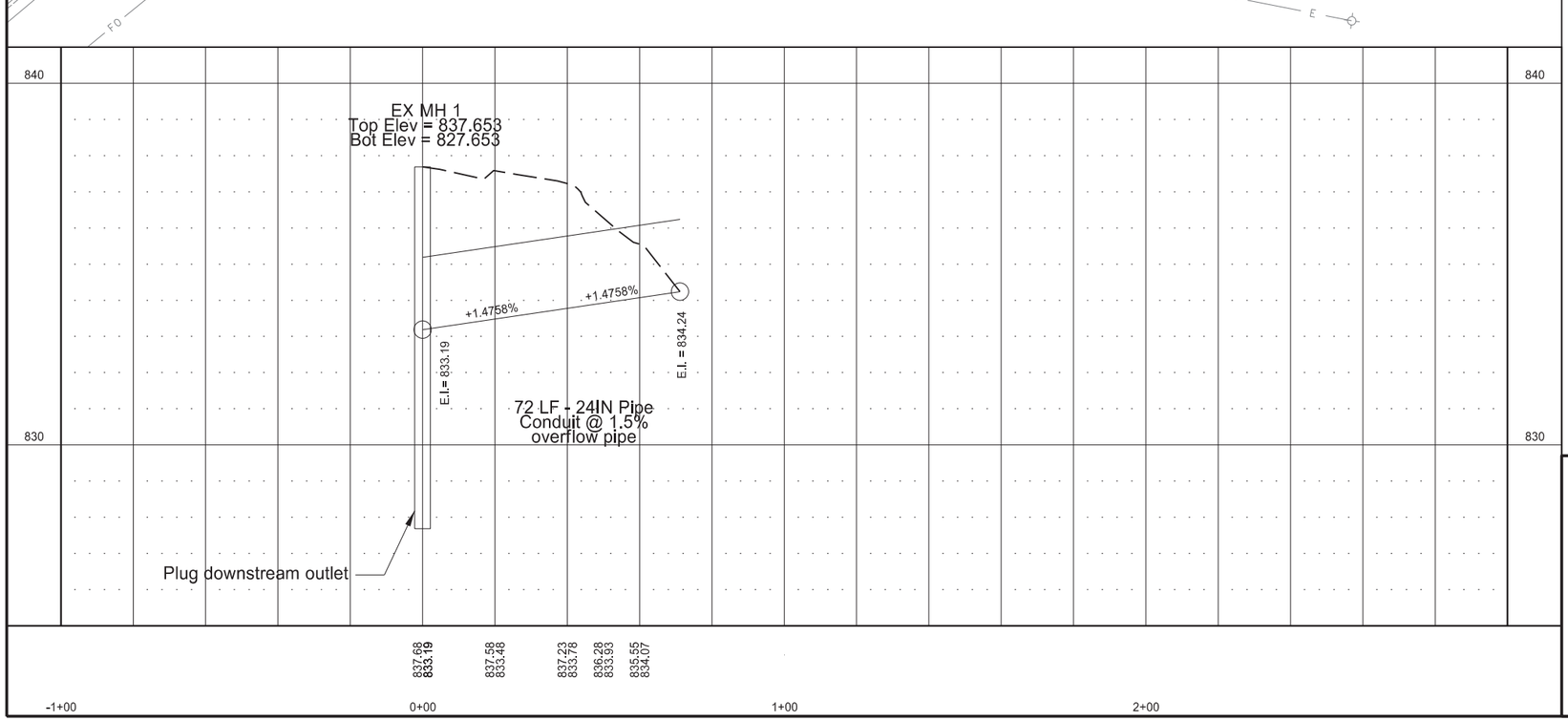
Grand Forks County

Grand Forks, ND

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CHRISTOPHER S. DAHL
PE-4276
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NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	74

714 4107 PIPE CONDUIT 24IN-STORM DRAIN

Sta 200+83 to 201+41 (OCL_297EB) 72 LF

Tasks:

Install temporary lift station pump at EX MH 1 capable of 12 CFS.

Install PIPE CONDUIT 24IN-STORM DRAIN as additional drainage relief.

Pump can discharge in existing ditch/swale to the south.

Install PEDESTRIAN WALKWAY in place of removed shared use path to accomodate pedestrian traffic.

Temporary lift station & pump must manage 27 acres of drainage coming from the west.

Plug EX MH 1 downstream outlet.

Install temporary lift station before removal of temporary storm connection 24IN Pipe near convenience store installed in Phase 1A.

Notes:

1. 64 LF of temporary pedestrian walkway has been added to temporarily replace the sidewalk after removal for the installation of the temporary lift station.

2. Avoid damage to EX MH 1 riser section & joints when installing temporary drainage pipe.

3. Optional to spin EX MH 1 riser section to avoid damaging existing steps when cutting opening for temporary drainage pipe.

4. Replace EX MH 1 riser section cut for temporary drainage pipe installation with a salvaged riser section from elsewhere on the project when removing temporary lift station in Phase 5B.

5. See section 40 for removal details.

6. Term "temporary lift station" includes 24 IN relief pipe, 12 CFS capable pump, hoses used with the pump, replacement top riser section of EX MH 1.

7. See plan note 714-P01 STORM SEWER & STORMWATER MANAGEMENT.

Work Zone Traffic Control

Temporary Lift Station
Phase 4A

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9076
DATE: 2025.12.05 15:46:52 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	75

N

508 509 510 511 512 513 514 515 516

140' 140' 140' 140'

I-29 NB On Ramp

I-29 NB Off Ramp

12' EX THRU LN

12' EX LT TURN LN

12' EX RT TURN LN

ROAD WORK AHEAD
W20-1-48
Post Mounted

SPEED LIMIT ENFORCED
MINIMUM FEE $150 WHEN WORKERS PRESENT
G20-55-96
Post Mounted

SPEED LIMIT 25
W3-5-48
Post Mounted

RIGHT LANE CLOSED 300 FT
W20-5-48
Post Mounted

SPEED LIMIT 25
R2-1-48
R2-1aP-24
Post Mtd

Convenience Store

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 4A

ND 297 (DeMers Ave) & 42nd St Grade Separation

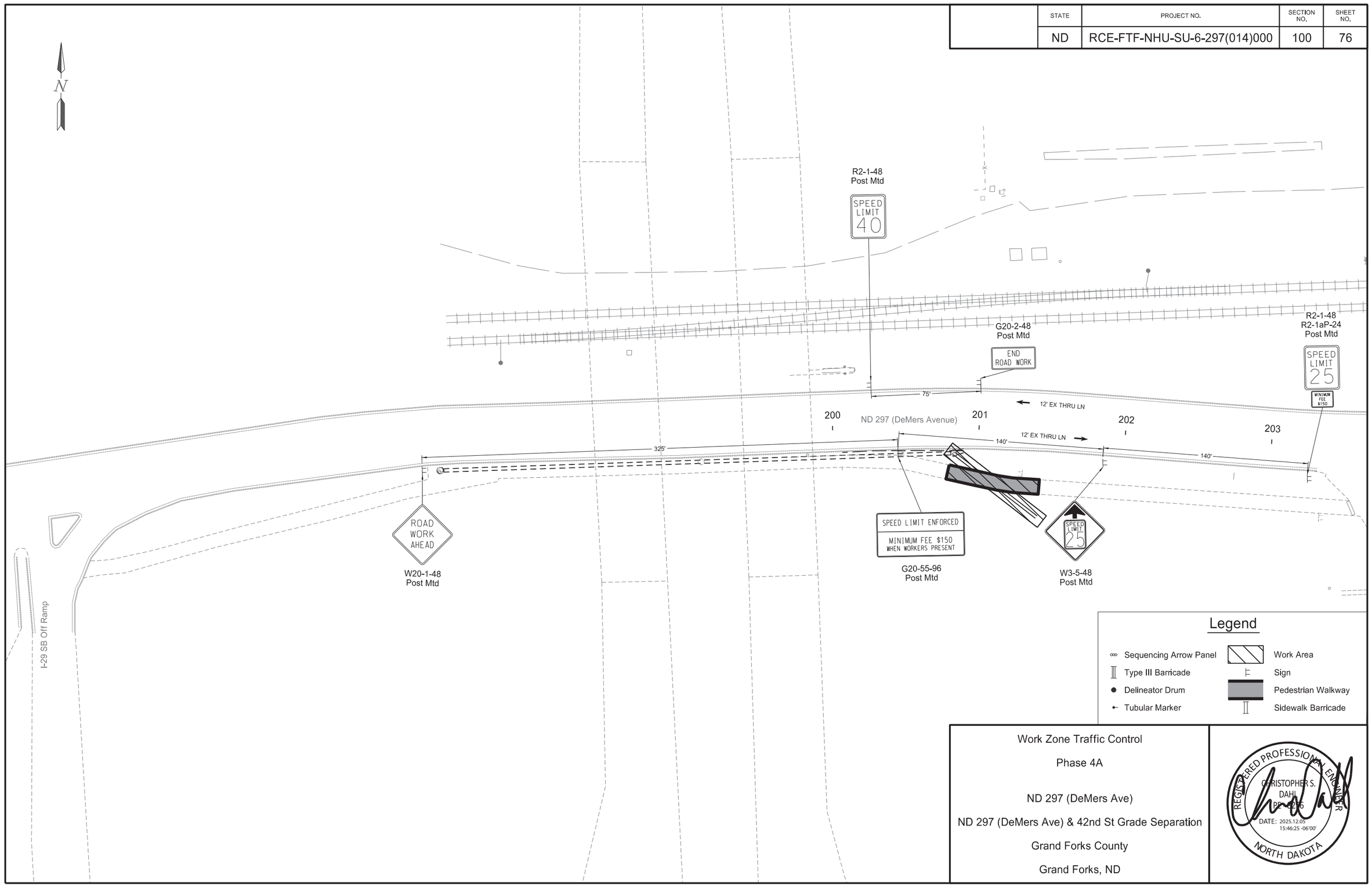
Grand Forks County

Grand Forks, ND

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CHRISTOPHER S. DAHL
PE-9276
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NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	76



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 4A

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

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PE-9276
DATE: 2025.12.05 15:46:25 -06'00'
NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	77

N

R2-1-48
R2-1aP-24
Post Mtd

SPEED LIMIT 25
MINIMUM FEE $150

W4-1R-48
Skid Mtd

67 LF - SHORT TERM 4IN LINE-TYPE R

64 LF - SHORT TERM 4IN LINE-TYPE R

60 LF - SHORT TERM 4IN LINE-TYPE R

293 LF - SHORT TERM 4IN LINE-TYPE R

125 LF - SHORT TERM 4IN LINE-TYPE R

155 LF - SHORT TERM 4IN LINE-TYPE R

Sequencing Arrow Panel
Type C

M1-1-24
M5-1L-21
R3-7L-30
Post Mtd

INTERSTATE NORTH DAKOTA 29

LEFT LANE MUST TURN LEFT

W1-4L-48
Post Mtd

12' THRU LN

12' THRU LN

14

1

203

204

205

206

207

208

209

211

ND 297 (DeMers Avenue)

140'

12' EX THRU LN

12' EX LT TURN LN

12' EX THRU LN

25'

25'

10'

10'

R1-1
Existing

STOP

517

12' EX THRU LN

12' EX LT TURN LN

12' EX RT TURN LN

75'

R1-2
Existing

YIELD

W1-4L-48
Skid Mtd

RIGHT LANE MUST TURN RIGHT

R3-7R-30
Skid Mtd

DO NOT PASS

R4-1-48
Skid Mtd

NEXT 0.5 MILES

W6-3-48
W20-52P-54
Skid Mtd

COVER SIGN
R1-1 Stop

Maintain Access

W1-4L-48
Skid Mtd

SIDEWALK CLOSED

R9-9-24
Barricade Mtd

STOP

R1-1-48
Skid Mtd

I-29 NB On Ramp

I-29 NB Off Ramp

516

515

Convenience Store

Close PEDESTRIAN WALKWAY
for Proposed Storm installation
and re-open when completed

SPEED LIMIT 25
MINIMUM FEE $150

R2-1-48
R2-1aP-24
Post Mtd

140'

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 4A

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

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CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.05 15:46:13 -06'00'
NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	78

N

W1-4L-48
Post Mtd

W11-2-48
W16-7pL-21
Post Mtd

12' THRU LN
12' THRU LN
12' THRU LN
12' THRU LN
12' EX THRU LN
12' EX THRU LN

ND 297 (DeMers Avenue)

211 212 213 214 215 216 217 218 219

721
720
719
718
717
716

DETOUR
NORTH
N 42nd St

M4-8-24
M3-1-24
CS2-42
M6-3-21
Post Mtd

DETOUR
SOUTH
S 42nd St

M4-8-24
M3-3-24
CS3-42
M6-3-21
Post Mtd

SIDEWALK
CLOSED

R9-9-24
Barricade Mtd

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 4A

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

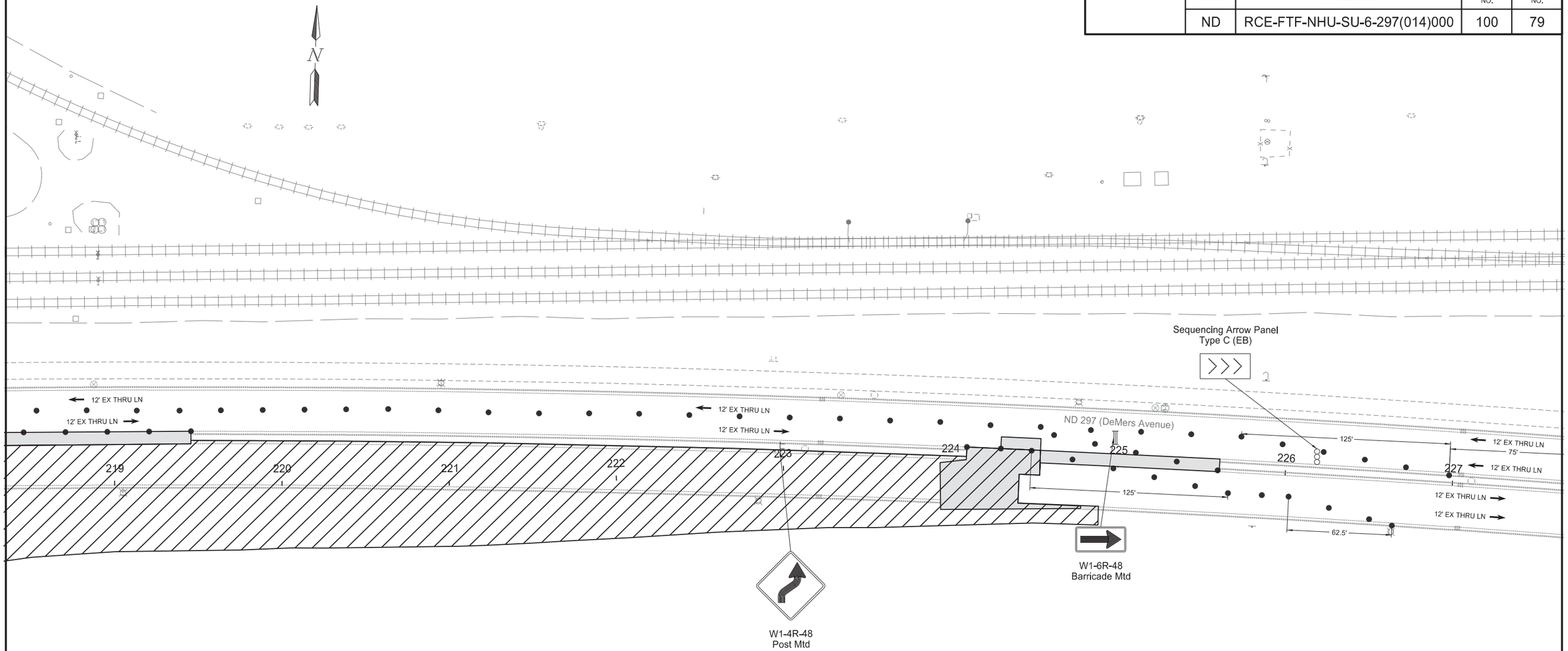
Grand Forks County

Grand Forks, ND

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CHRISTOPHER S. DAHL
PE-9226
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NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	79



Legend

Sequencing Arrow Panel	Work Area
Type III Barricade	Sign
Delineator Drum	Pedestrian Walkway
Tubular Marker	Sidewalk Barricade

Work Zone Traffic Control

Phase 4A

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

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CHRISTOPHER S. DAHL
PE - 8256
DATE: 2025.12.05 15:45:19 -06'00'
NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	80

N

W4-2L-48
Post Mtd

R2-1-48
R2-1aP-24
Post Mtd

SPEED LIMIT 25
MINIMUM FEE $150

W20-5-48
Post Mtd

LEFT LANE CLOSED 300 FT

W3-5-48
Post Mtd

SPEED LIMIT 25

W20-5-48
Post Mtd

LEFT LANE CLOSED 600 FT

Close PEDESTRIAN WALKWAY
at S 34th St intersection
for Proposed Storm installation
and re-open when completed

G20-55-96
Post Mtd

SPEED LIMIT ENFORCED
MINIMUM FEE $150
WHEN WORKERS PRESENT

W20-1-48
Post Mtd

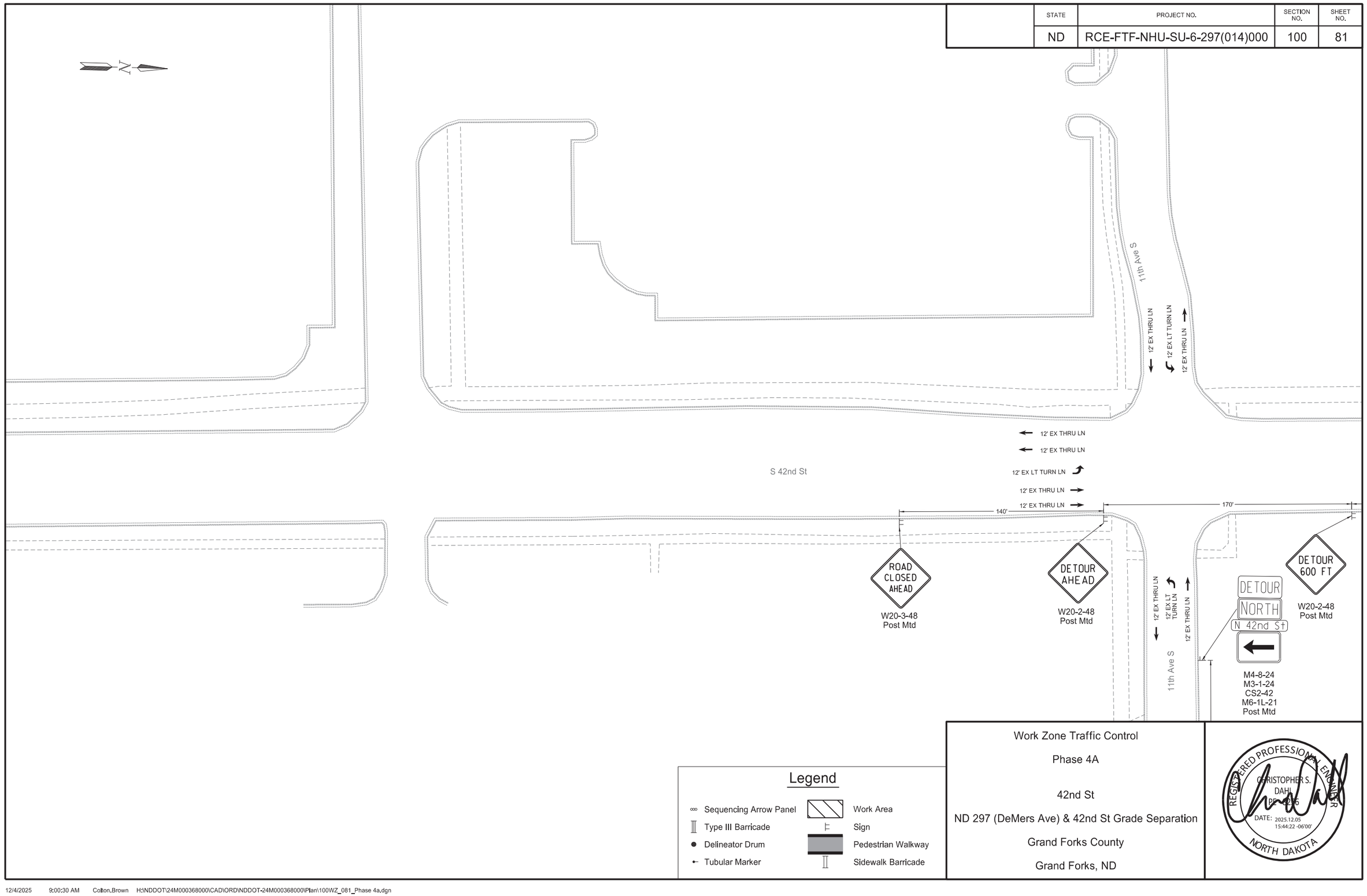
ROAD WORK AHEAD

R9-9-24
Barricade Mtd

SIDEWALK CLOSED

25'
12' EX THRU LN
75'
75'
140'
140'
140

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	81



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 4A

42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

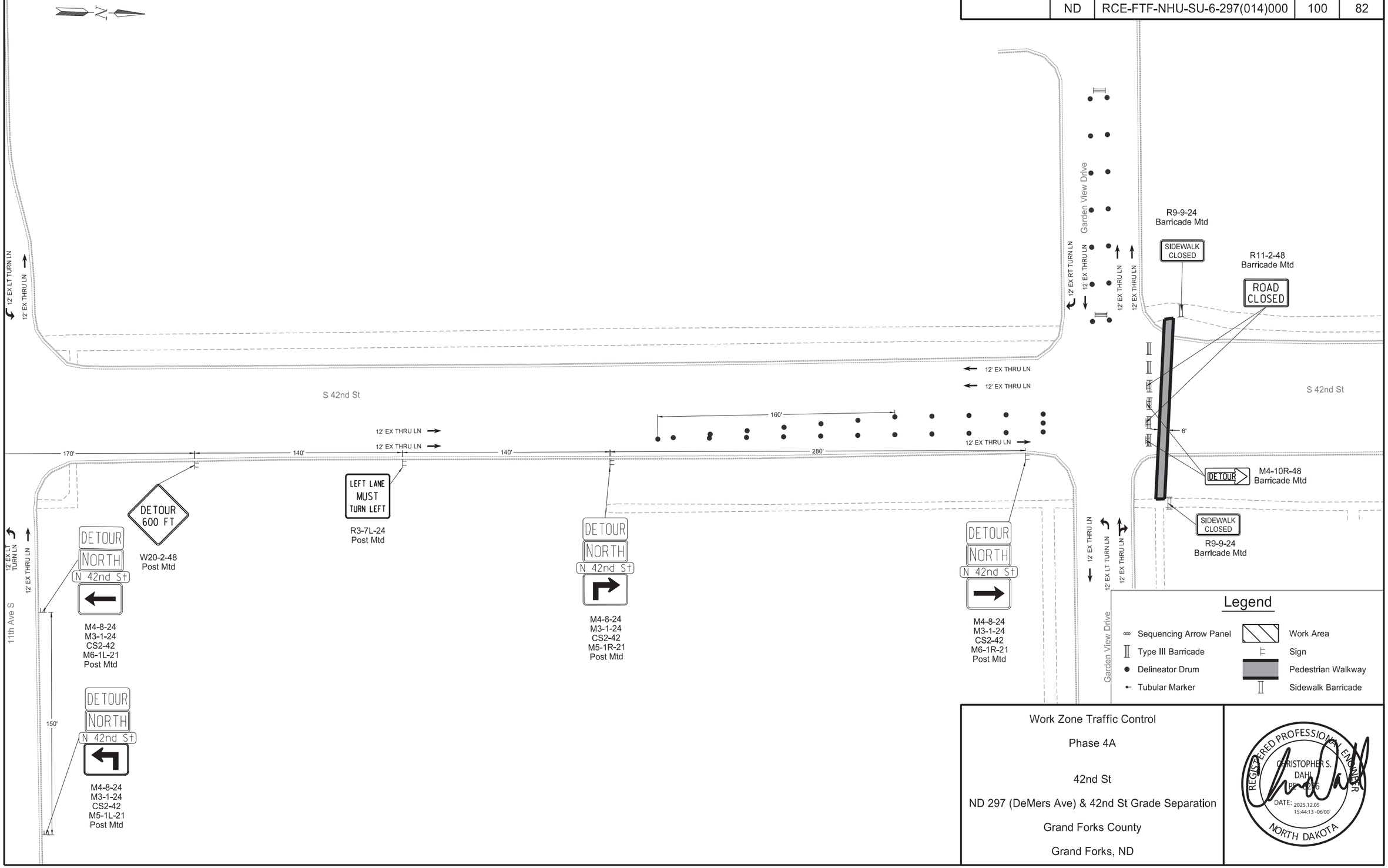
Grand Forks County

Grand Forks, ND

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CHRISTOPHER S. DAHL
PE-9276
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	ND	RCE-FTF-NHU-SU-6-297(014)000	100	82



Work Zone Traffic Control

Phase 4A

42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

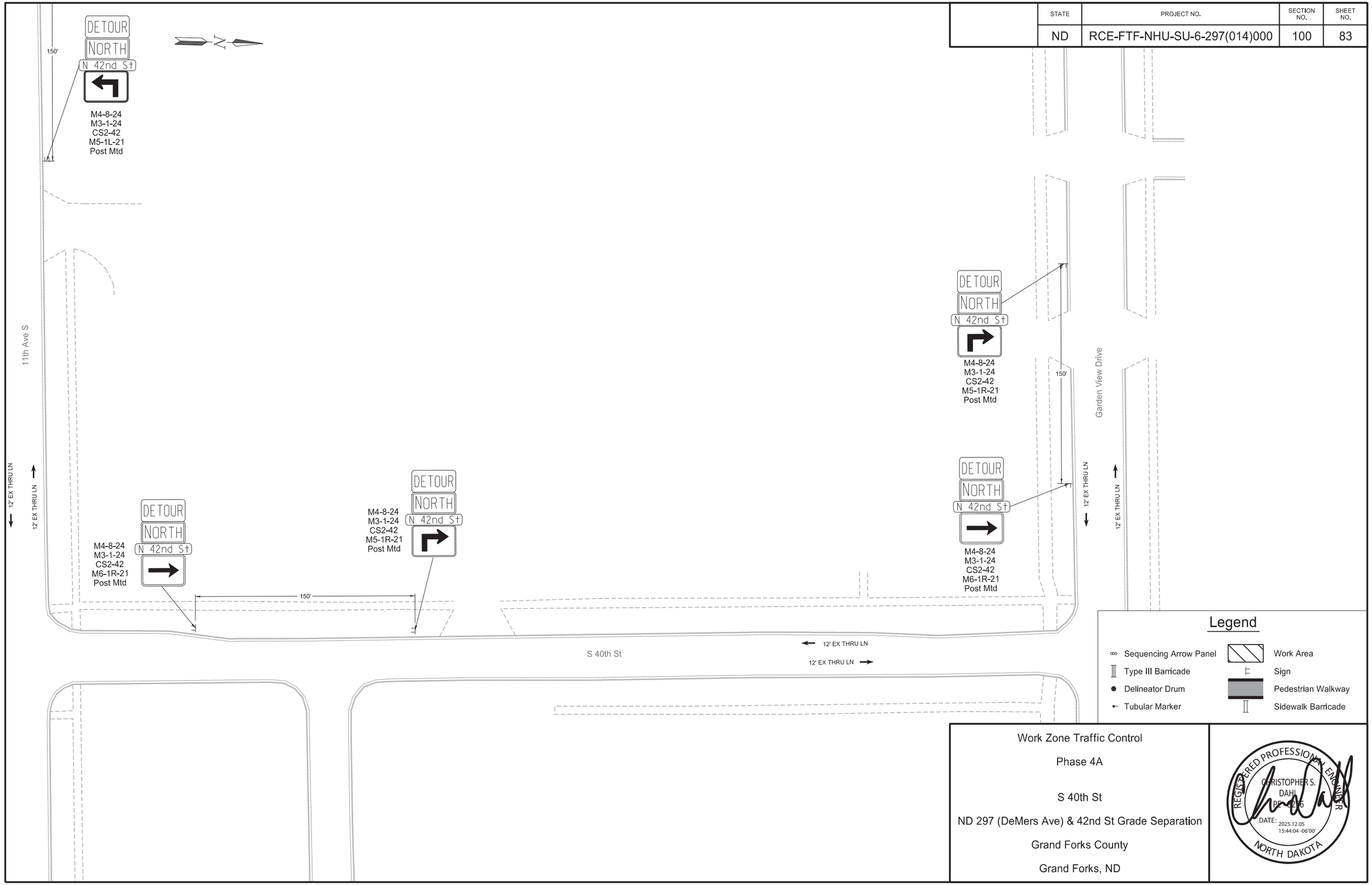
Grand Forks County

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NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	83



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 4A

S 40th St

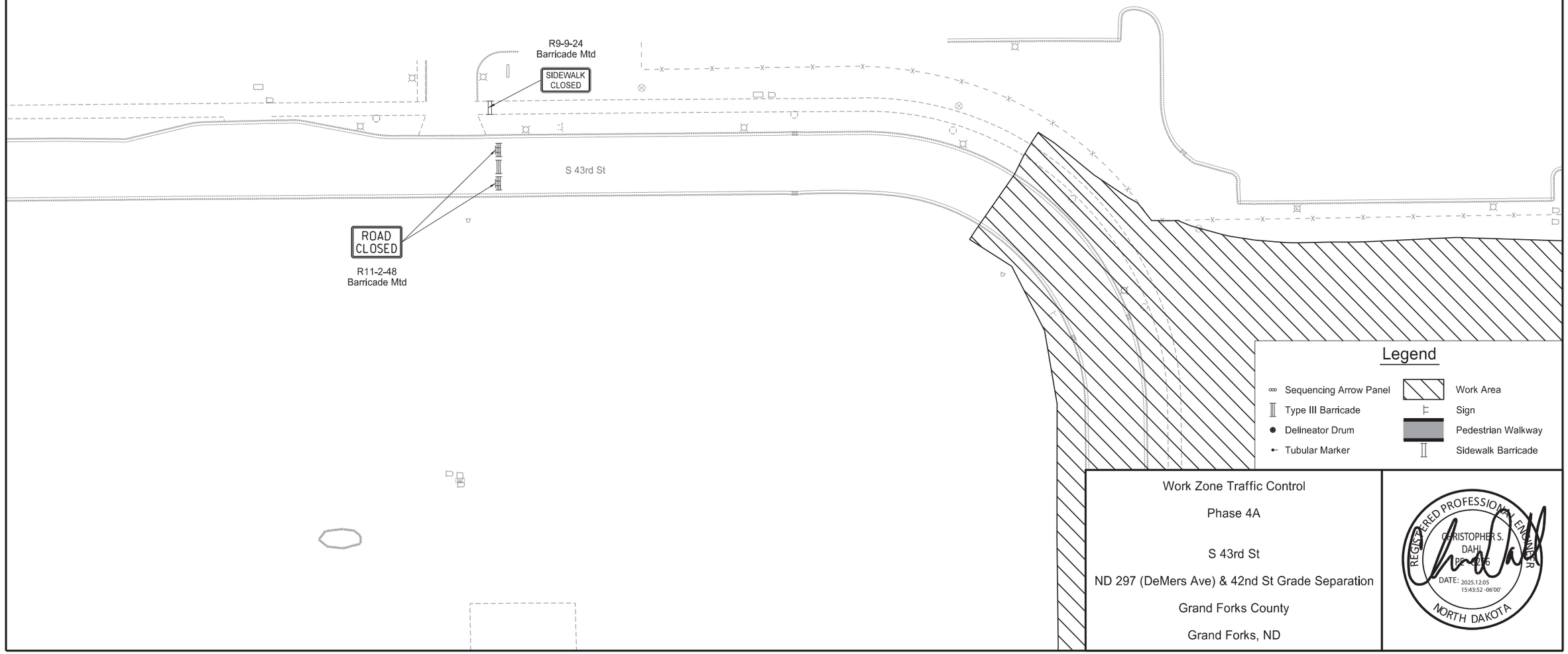
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

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CHRISTOPHER S. DAHL
PE-9256
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NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	84



Work Zone Traffic Control

Phase 4A

S 43rd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

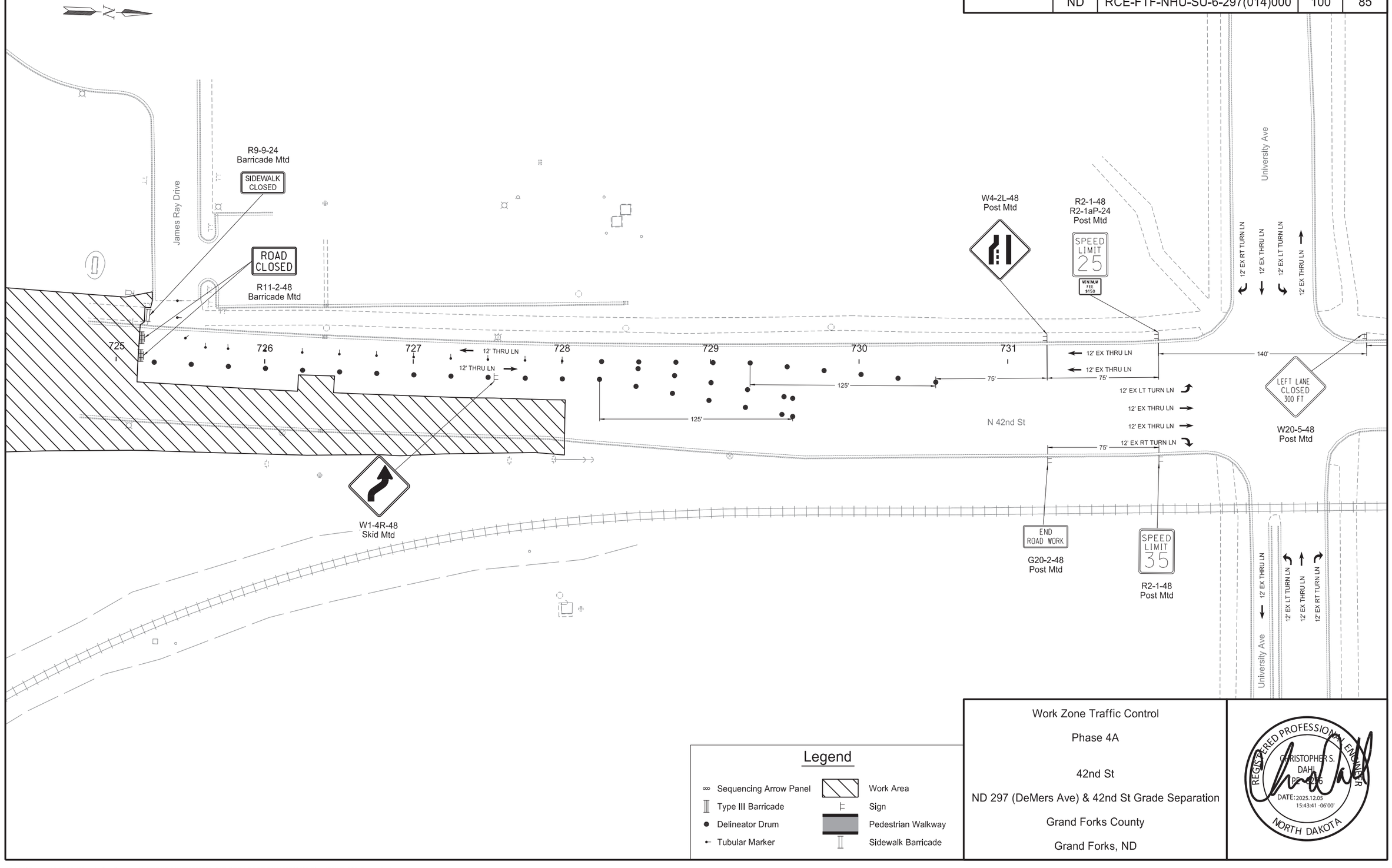
Grand Forks County

Grand Forks, ND

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PE-8276
DATE: 2025.12.05 15:43:52 -06'00'
NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	85



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 4A

42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

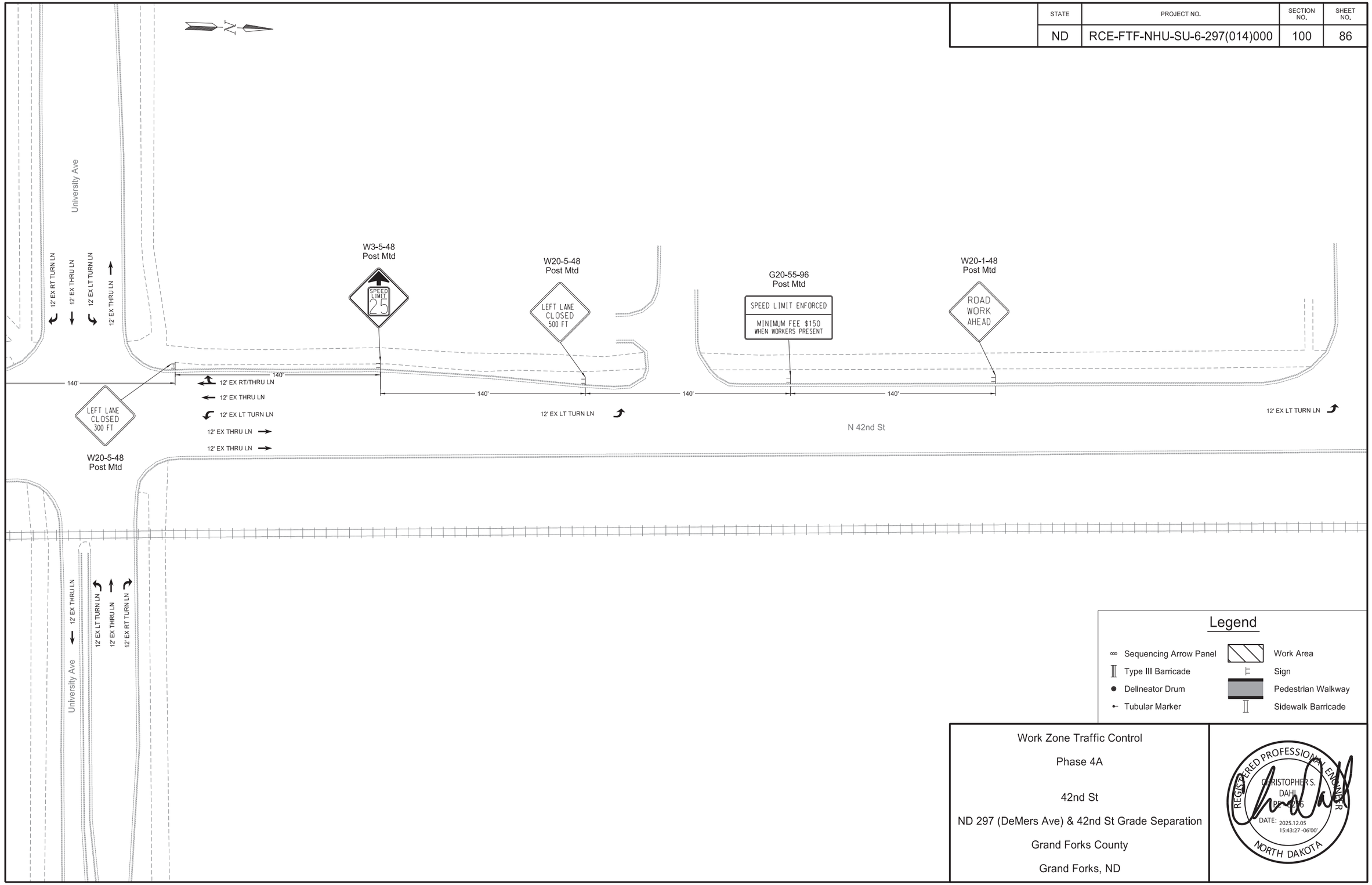
Grand Forks County

Grand Forks, ND

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PE-9076
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NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	86



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 4A

42nd St

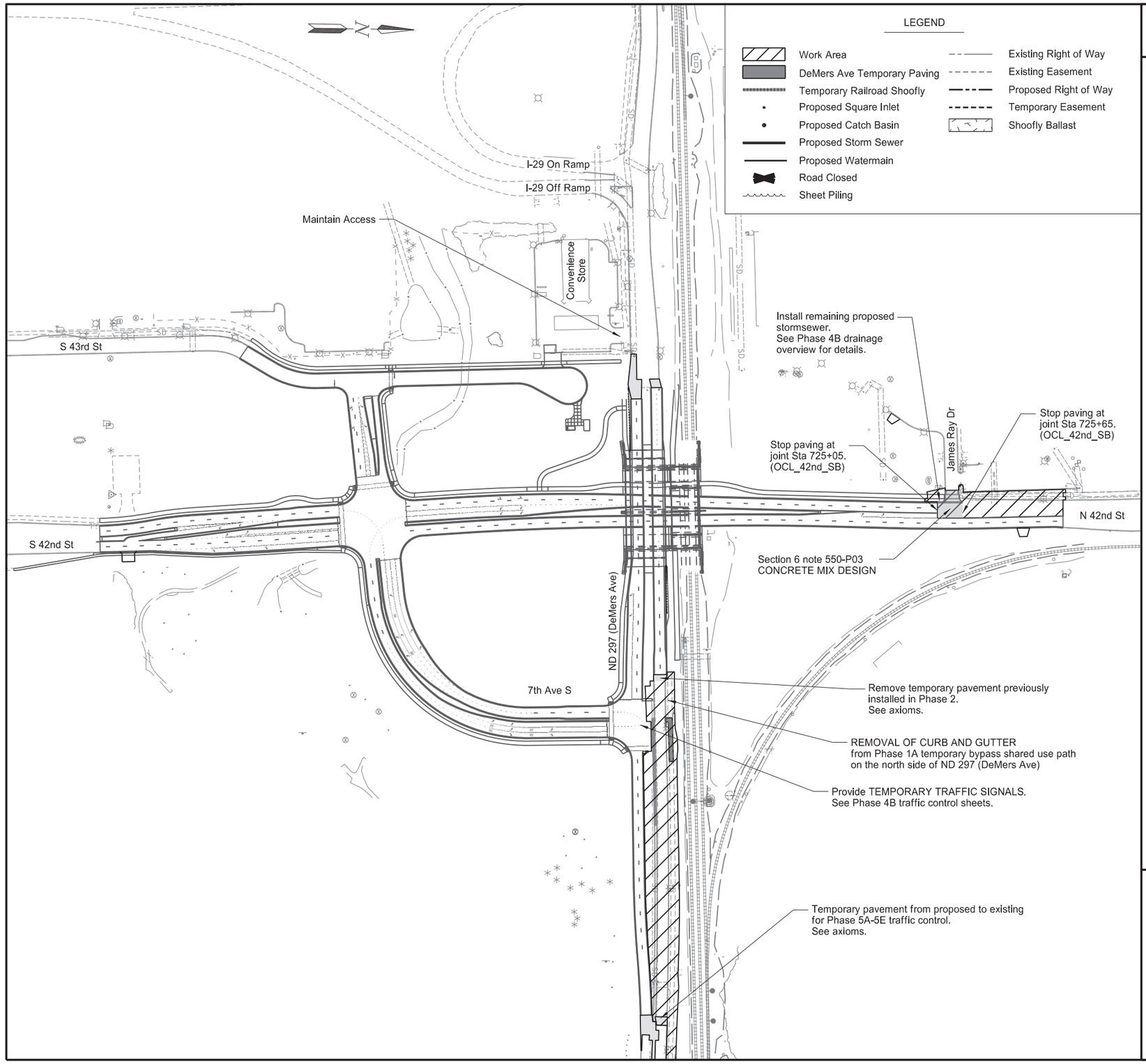
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

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PE-4276
DATE: 2025.12.05 15:43:27 -06'00'
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	87

SPEC	CODE	BID ITEM	QTY	UNIT
202	0128	REMOVE AGGREGATE BASE		
		Sta 725+20 to 725+63 (OCL_42nd_SB)	169	TON
202	0136	REMOVAL OF PAVEMENT		
		Sta 216+86 to 217+11 (OCL_297EB)(C&G)	4	TON
		Sta 215+86 to 216+01 (OCL_297EB)(Aggregate)	8	TON
		Sta 217+00 to 219+46 (OCL_297EB)(Median Agg.)	34	TON
		Sta 216+90 to 217+00 (OCL_297EB)(Median Walk Agg.)	3	TON
		Sta 215+86 to 216+01 (OCL_297EB)(Bituminous)	17	TON
		Sta 217+00 to 219+46 (OCL_297EB)(Bituminous Median	72	TON
		Sta 216+90 to 217+00 (OCL_297EB)(Bituminous Median Walk	3	TON
		Sta 216+90 to 217+94 (OCL_297EB)(Walk)	27	TON
302	0100	SALVAGED BASE COURSE		
		Sta 222+42 to 222+54 (OCL_297EB)	10	TON
		Sta 725+20 to 725+63 (OCL_42nd_SB)(James Ray)	169	TON
430	0500	COMMERCIAL GRADE HOT MIX ASPHALT		
		Sta 222+42 to 222+54 (OCL_297EB)	21	TON

TASKS:

Reconstruct N 42nd St southbound lanes and James Ray Drive access.

Reconstruct DeMers Ave WB lanes near east project limits.

See Section 6 note 550-P03 CONCRETE MIX DESIGN for James Ray Drive, adjacent SB lanes and left turn lane during Phase 4B.

Use regular mix design for sidewalk installation during Phase 4B.

Maintain access to convenience store at all times.

Install temporary traffic signal trailers at intersection of 7th Ave S and ND 297 (DeMers Ave).

Notes:

1. James Ray Drive is to remain open when not under construction.

2. 169 TON of SALVAGED BASE COURSE is allocated to provide temporary roadway surfacing at James Ray Drive if needed.

3. All temporary pavement installed will be abutted directly to existing or proposed pavement joints.

Work Zone Traffic Control

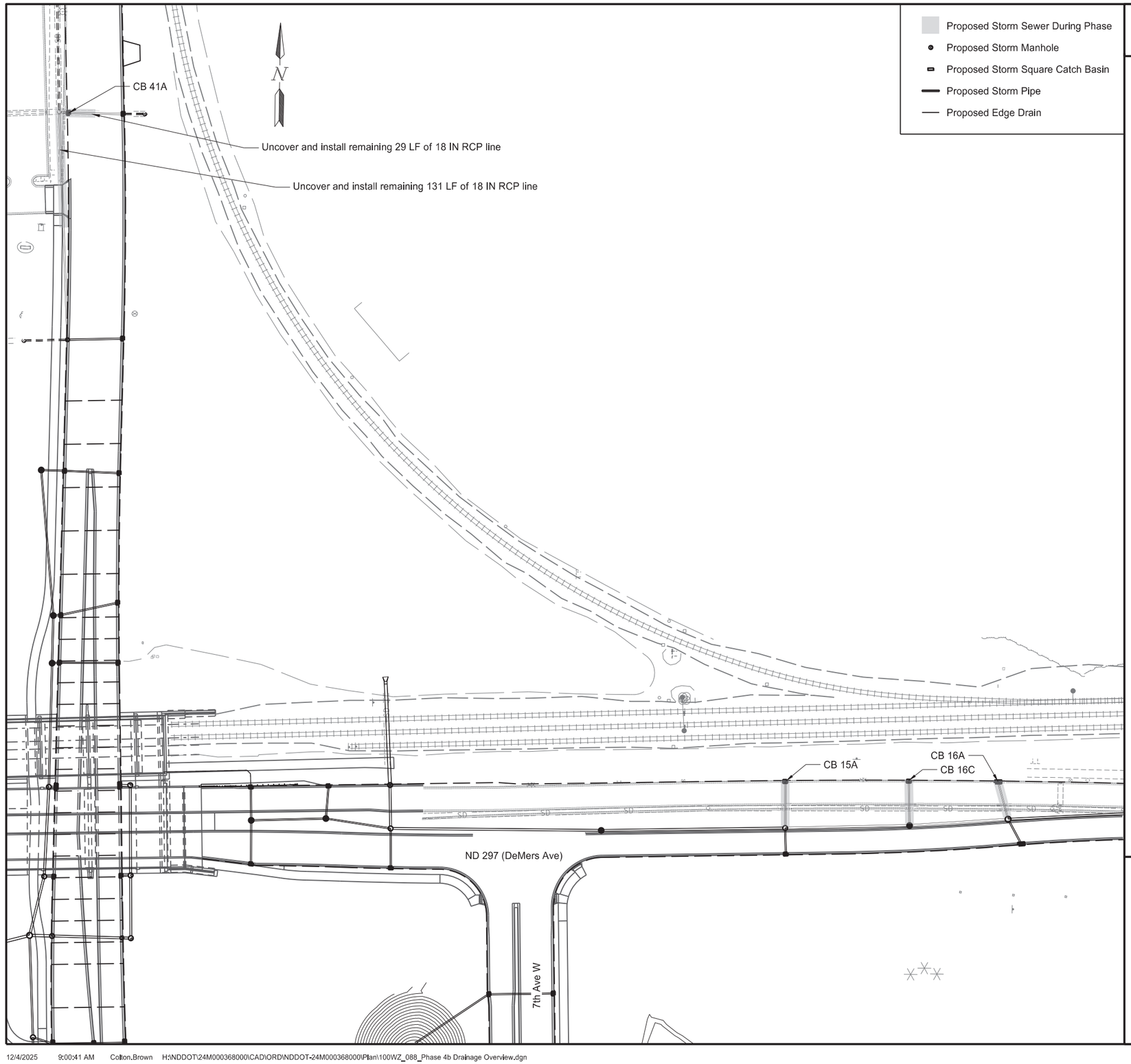
Phase 4B Overview

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4276
DATE: 2025.12.05 15:42:27 -06'00'
NORTH DAKOTA



Proposed Storm Sewer During Phase
Proposed Storm Manhole
Proposed Storm Square Catch Basin
Proposed Storm Pipe
Proposed Edge Drain

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	88

TASKS:

Install stormsewer and inlets on north side of ND 297 (DeMers Ave).

Finish installing stormsewer on north end of N 42nd St.

Temporary closure of James Ray Dr for proposed stormsewer installation.

NOTES:

1. See Section 40 for removal of existing storm sewer system.
2. See Section 55a for proposed storm sewer system information.

Work Zone Traffic Control

Phase 4B Drainage Overview
Proposed Storm by Phase

ND 297 (DeMers Ave) & 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8216
DATE: 2025.12.05 15:42:18 -06'00'
NORTH DAKOTA

12/4/2025 9:00:41 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_088_Phase 4b Drainage Overview.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	89

N

509

510

511

140'

512

140'

513

140'

514

140'

515

516

140'

517

75'

30'

ROAD WORK AHEAD

W20-1-48
Post Mounted

SPEED LIMIT ENFORCED
MINIMUM FEE $150
WHEN WORKERS PRESENT

G20-55-96
Post Mounted

SPEED LIMIT 25

W3-5-48
Post Mtd

RIGHT LANE CLOSED 300 FT

W20-5-48
Post Mounted

I-29 NB On Ramp

I-29 NB Off Ramp

ND 297 (DeMers Ave)

12' EX THRU LN

12' EX LT TURN LN

12' EX RT TURN LN

W3-5-48
Post Mtd

R2-1-48
R2-1aP-24
Post Mtd

R1-1
Existing

STOP

W4-1-48
Skid Mtd

R1-2
Existing

YIELD

W1-4L-48
Skid Mtd

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 4B

I-29 On / Off Ramps

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4226
DATE: 2025.12.05 15:42:07 -06'00'
NORTH DAKOTA

12/4/2025 9:00:44 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_089_Phase 4b.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	90

N

R2-1-48
Post Mtd

G20-2-48
Post Mtd

SPEED LIMIT 40

END ROAD WORK

75'

W4-1-48
Skid Mtd

12' EX THRU LN

ND 297 (DeMers Ave)

12' EX THRU LN

12' EX LT TURN LN

12' EX THRU LN

325'

140'

12' EX THRU LN

140'

R1-1
Existing

STOP

517

ROAD WORK AHEAD

W20-1-48
Post Mtd

SPEED LIMIT ENFORCED

MINIMUM FEE $150
WHEN WORKERS PRESENT

G20-55-96
Post Mtd

SPEED LIMIT 25

W3-5-48
Post Mtd

SPEED LIMIT 25
MINIMUM FEE $150

R2-1-48
R2-1aP-24
Post Mtd

12' EX LT TURN LN

YIELD

R1-2
Existing

12' EX RT TURN LN

75'

I-29 NB On Ramp

516

I-29 NB Off Ramp

SPEED LIMIT 25
MINIMUM FEE $150

R2-1-48
R2-1aP-24
Post Mtd

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Sidewalk Barricade
- Work Area
- Sign
- Pedestrian Walkway
- Temporary Traffic Signal

Work Zone Traffic Control

Phase 4B

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-10026
DATE:2025.12.05 15:41:48 -06'00'
NORTH DAKOTA

12/4/2025 9:00:47 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_090_Phase 4b.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	91

N

W4-1-48
Skid Mtd

255 LF - SHORT TERM 4IN LINE-TYPE R

161 LF - SHORT TERM 4IN LINE-TYPE R

161 LF - SHORT TERM 4IN LINE-TYPE R

125'

25'

30'

ND 297 (DeMers Ave)

12' EX THRU LN

12' EX LT TURN LN

12' EX THRU LN

14 LF - SHORT TERM 4IN LINE-TYPE R

12' THRU LN

12' THRU LN

R1-1
Existing
STOP

517

516

515

12' EX LT TURN LN

12' EX RT TURN LN

75'

140'

I-29 NB On Ramp

I-29 NB Off Ramp

R1-2
Existing
YIELD

SPEED LIMIT 25
MINIMUM FEE $150

R2-1-48
R2-1aP-24
Post Mtd

W1-4L-48
Skid Mtd

R4-1-48
Skid Mtd
DO NOT PASS

W6-3-48
W20-52P-54
Skid Mtd
NEXT 0.5 MILES

Maintain Access

R1-1
Existing
STOP

Convenience Store

W1-4R-48
Skid Mtd

SIDEWALK CLOSED

R9-9-24
Barricade Mtd

G20-2-48
Post Mtd
END ROAD WORK

R2-1-48
Post Mtd
SPEED LIMIT 35

720

719

718

717

75'

75'

220'

140'

S 42nd St

W4-2L-48
Post Mtd

R2-1-48
R2-1aP-24
Post Mtd
SPEED LIMIT 25
MINIMUM FEE $150

LEFT LANE CLOSED 500 FT

W20-5-48
Post Mtd

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Sidewalk Barricade
- Work Area
- Sign
- Pedestrian Walkway
- Temporary Traffic Signal

Work Zone Traffic Control

Phase 4B

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

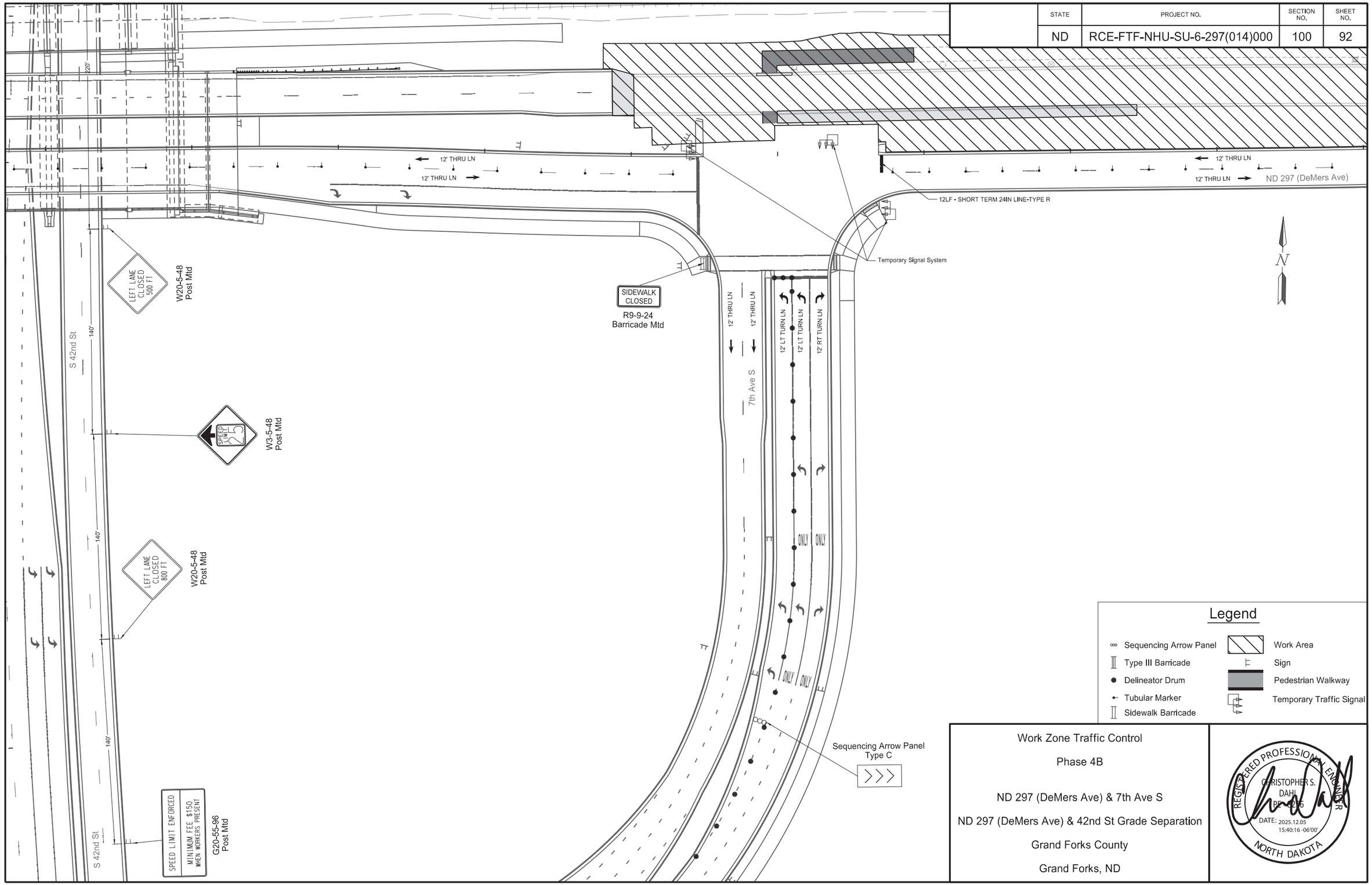
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9076
DATE: 2025.12.05 15:40:41 -06'00'
NORTH DAKOTA

12/4/2025 9:00:50 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_091_Phase 4b.dgn

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	92



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Sidewalk Barricade
- Work Area
- Sign
- Pedestrian Walkway
- Temporary Traffic Signal

Work Zone Traffic Control

Phase 4B

ND 297 (DeMers Ave) & 7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

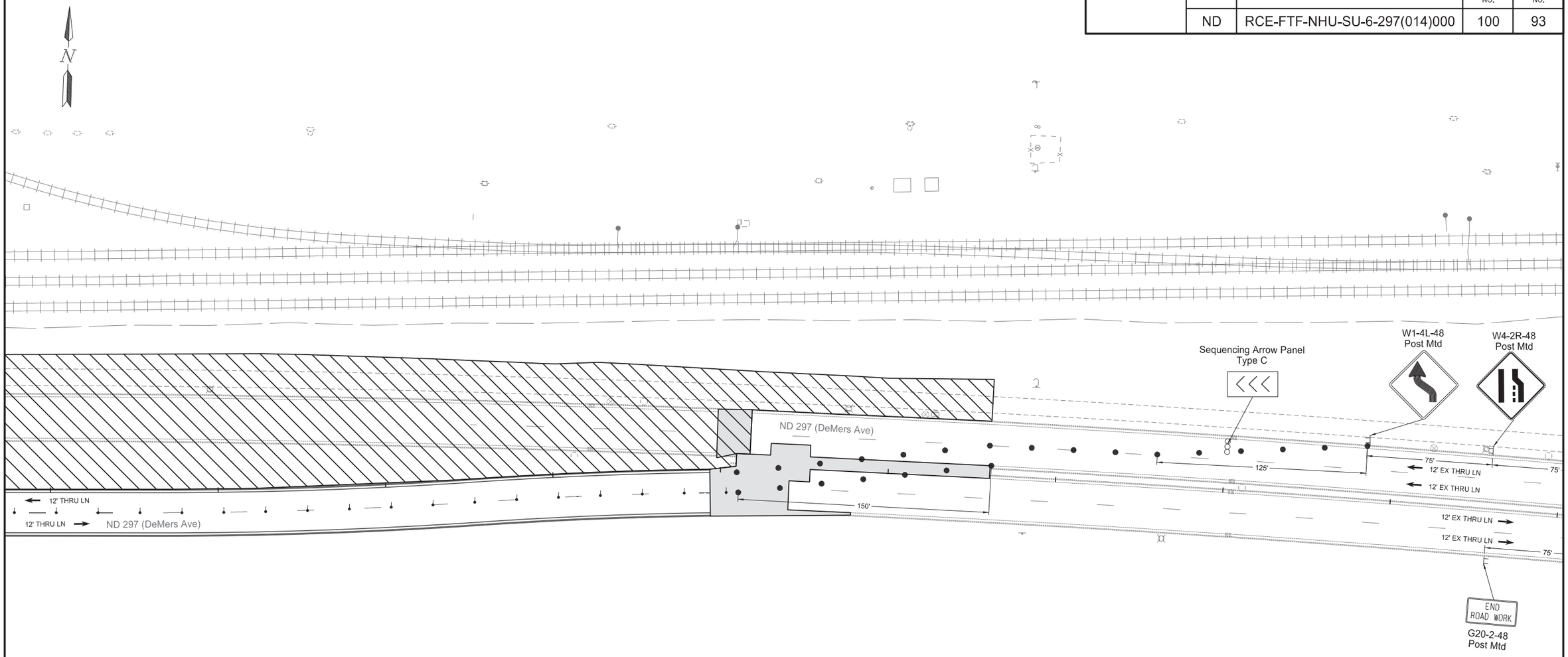
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.05 15:40:16 -06'00'
NORTH DAKOTA

12/4/2025 9:00:53 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_092_Phase 4b.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	93



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Sidewalk Barricade
- Work Area
- Sign
- Pedestrian Walkway
- Temporary Traffic Signal

Work Zone Traffic Control

Phase 4B

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

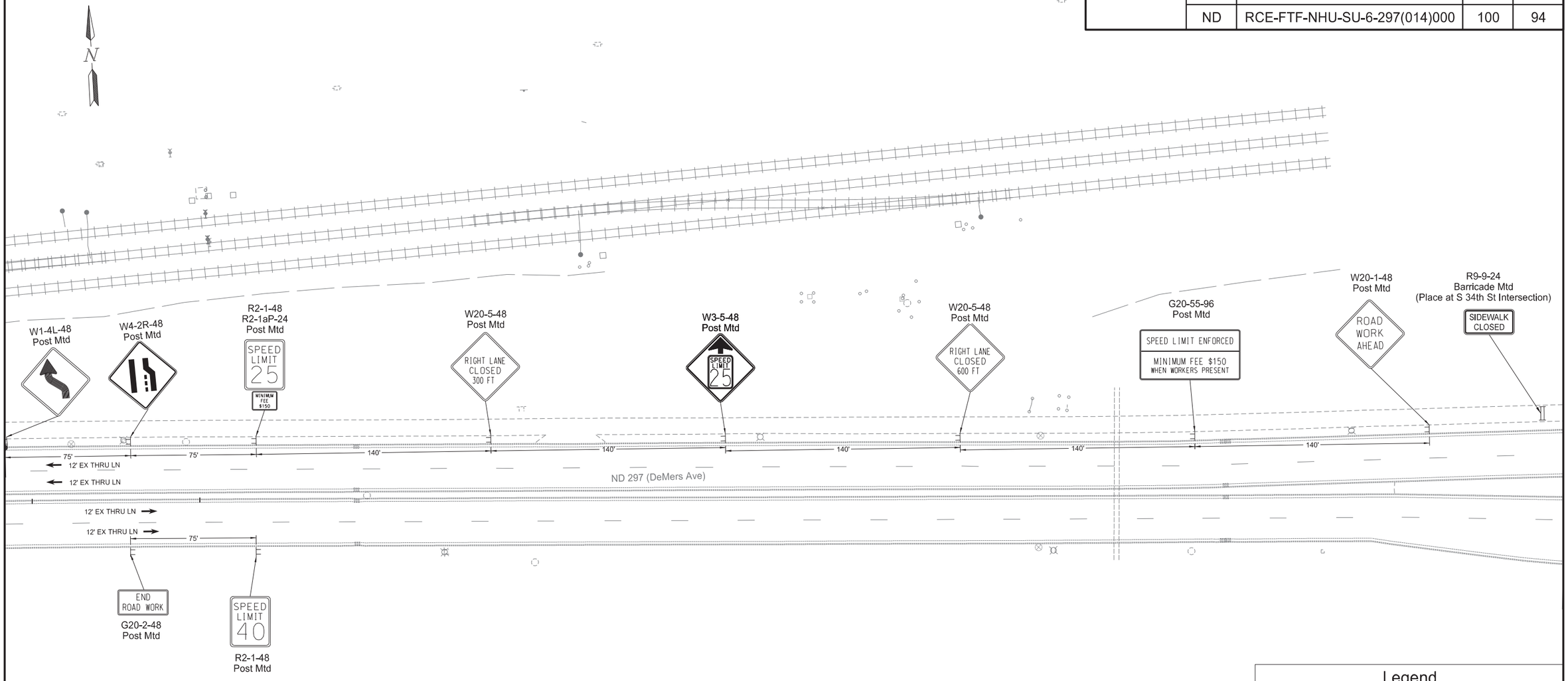
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8076
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NORTH DAKOTA

12/4/2025 9:00:55 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_093_Phase 4b.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	94



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Sidewalk Barricade
- Work Area
- Sign
- Pedestrian Walkway
- Temporary Traffic Signal

Work Zone Traffic Control

Phase 4B

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4296
DATE 2025.12.05 15:39:57 -06'00'
NORTH DAKOTA

12/4/2025 9:00:57 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_094_Phase 4b.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	95

N

707 708 709 710 711 712 713 714 715

S 42nd St

12' RT/THRU LN
12' THRU LN
12' LT TURN LN
12' RT TURN LN

ROAD WORK AHEAD
W20-1-48
Skid Mtd

R9-9-24
Barricade Mtd
SIDEWALK CLOSED

140'

LEFT LANE CLOSED 800 FT
W20-5-48
Post Mtd

SPEED LIMIT ENFORCED
MINIMUM FEE $150 WHEN WORKERS PRESENT
G20-55-96
Post Mtd

7th Ave S
ONLY

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Sidewalk Barricade
- Work Area
- Sign
- Pedestrian Walkway
- Temporary Traffic Signal

Work Zone Traffic Control

Phase 4B

42nd St & 7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9296
DATE: 2025.12.05 15:39:47 -06'00'
NORTH DAKOTA

12/4/2025 9:00:58 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_095_Phase 4b.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	96

N

R9-9-24
Barricade Mtd
SIDEWALK CLOSED

R9-9-24
Barricade Mtd
SIDEWALK CLOSED

12' THRU LN
12' THRU LN

W1-4R-48
Skid Mtd

R2-1-48
Post Mtd
SPEED LIMIT 35

G20-2-48
Post Mtd
END ROAD WORK

715 716 717 718 719 720 721 722 723

S 42nd St

140' 140' 220' 75' 75' 125' 125'

12' THRU LN
12' THRU LN
12' THRU LN

LEFT LANE CLOSED 800 FT
W20-5-48
Post Mtd

SPEED LIMIT 25
W3-5-48
Post Mtd

LEFT LANE CLOSED 500 FT
W20-5-48
Post Mtd

SPEED LIMIT 25
MINIMUM FEE $150
R2-1-48
R2-1aP-24
Post Mtd

W4-2L-48
Post Mtd

Sequencing Arrow Panel
Type C (NB)

W1-6R-48
Barricade Mtd

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Sidewalk Barricade
- Work Area
- Sign
- Pedestrian Walkway
- Temporary Traffic Signal

Work Zone Traffic Control

Phase 4B

42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

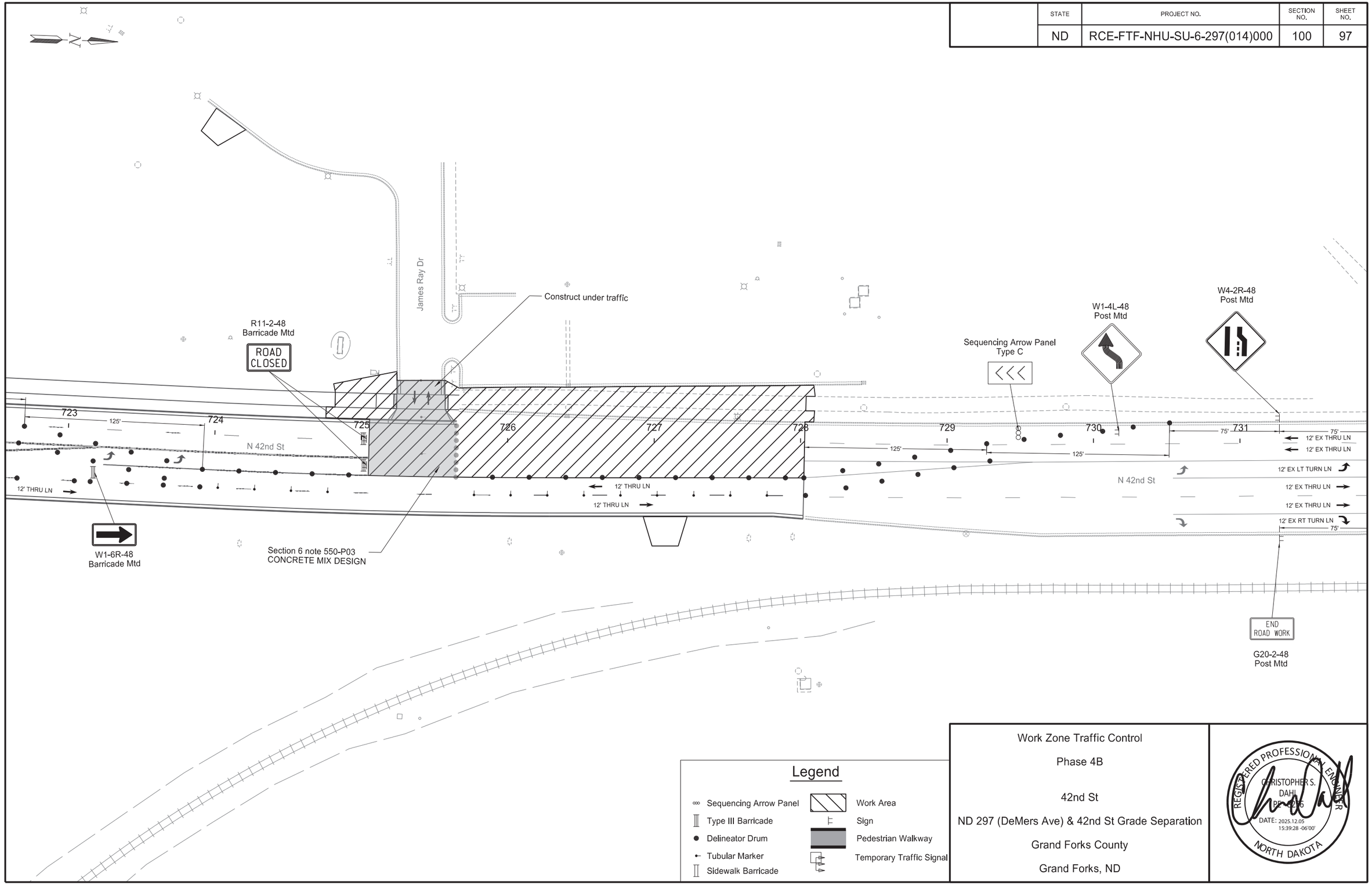
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8276
DATE: 2025.12.05 15:39:38 -06'00'
NORTH DAKOTA

12/4/2025 9:01:01 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_096_Phase 4b.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	97



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Sidewalk Barricade
- Work Area
- Sign
- Pedestrian Walkway
- Temporary Traffic Signal

Work Zone Traffic Control

Phase 4B

42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

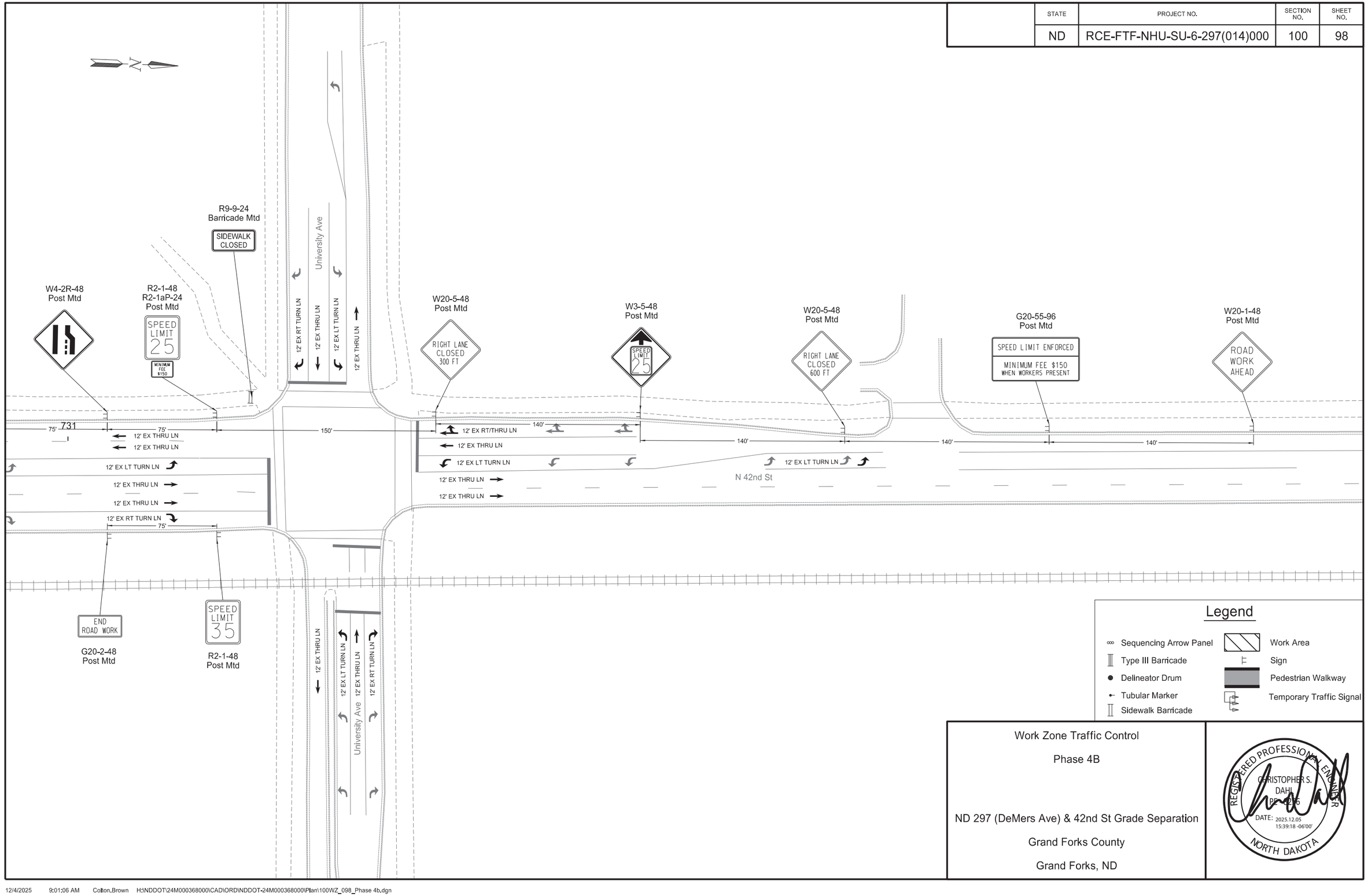
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.05 15:39:28 -06'00'
NORTH DAKOTA

12/4/2025 9:01:03 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_097_Phase 4b.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	98



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Sidewalk Barricade
- Work Area
- Sign
- Pedestrian Walkway
- Temporary Traffic Signal

Work Zone Traffic Control

Phase 4B

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8026
DATE: 2025.12.05 15:39:18 -06'00'
NORTH DAKOTA

12/4/2025 9:01:06 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_098_Phase 4b.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	99

Notes:

1. Designated truck routes are ND 297 (DeMers Ave), Washington Street, Gateway Drive, and 32nd Ave S, US Hwy 81, and US Hwy 2.

2. Advanced signage at exits 138 & 141 to notify vehicles and trucks that they can take exits before ND 297 (DeMers Ave) to reduce volume of traffic. This should help with the volume of traffic on the ND 297 (DeMers Ave) temp bypass.

3. Truck traffic using northbound interstate with intent to reach ND 297 (DeMers Ave) west of project area during phase 5A and 5D must use exit 141, get onto truck traffic detour (US2/Gateway WB), and head southbound on N 55th St.

4. Refer to NDDOT Standard Drawing D-704-12 for placement and details of Portable Changeable Message Signs. Engineer will determine final locations.

5. Confirmatory signs shall be placed 200' after each major turning movement onto Gateway Dr, Washington St, and 32nd Ave S.

6. ND 297 (DeMers Ave) is to remain open during Phases 1-4 with minor closures during Phase 5.

Work Zone Traffic Control

North & West Detour

Phase 5A Truck Route

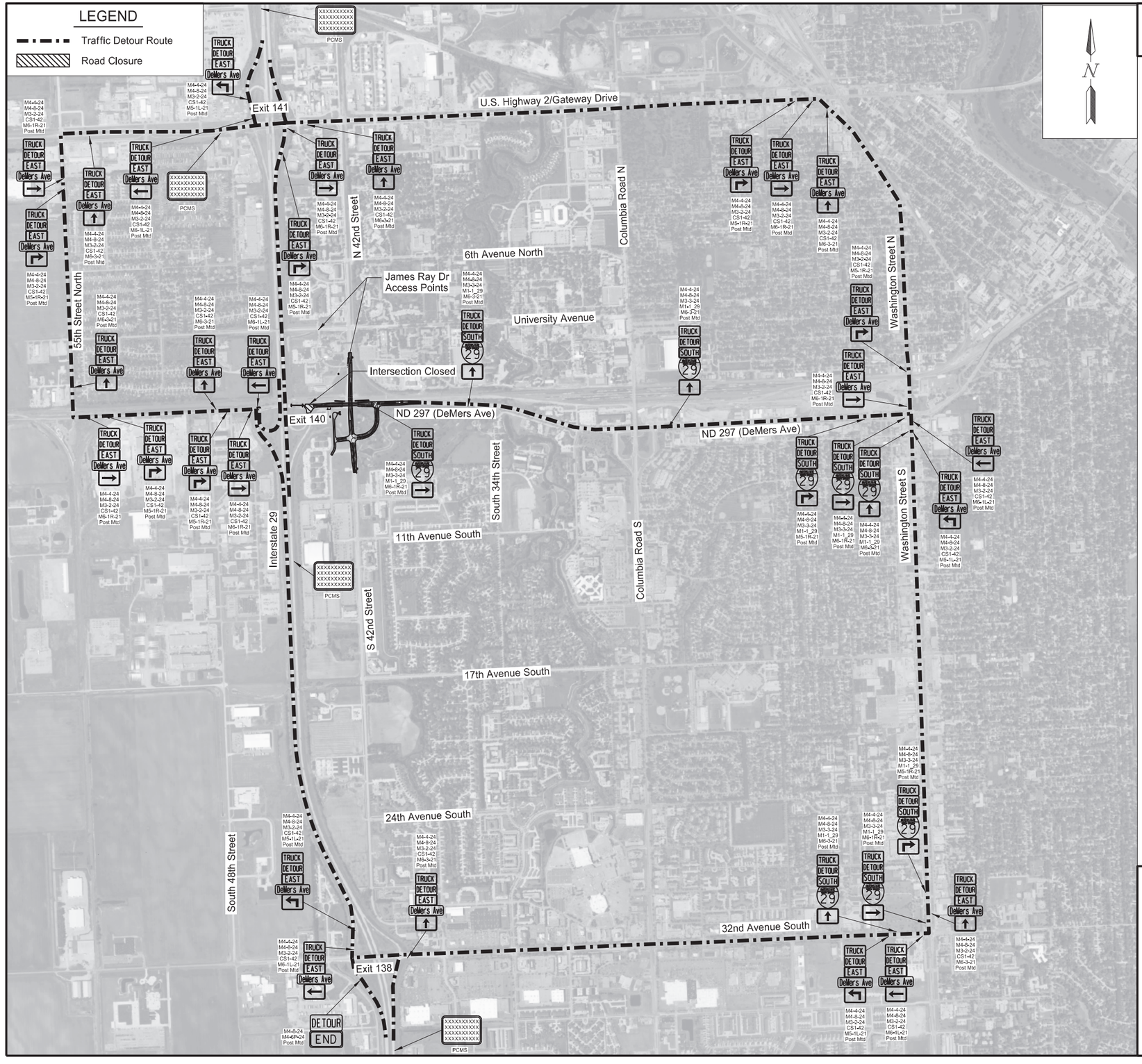
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-10276
DATE: 2025.12.05 16:39:49 -06'00'
NORTH DAKOTA

12/4/2025 9:01:13 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_035-036_099-100_119_130-131_truck detour route.dgn



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	100

Notes:

1. Designated truck routes are ND 297 (DeMers Ave), Washington Street, Gateway Drive, and 32nd Ave S, US Hwy 81, and US Hwy 2.

2. Advanced signage at exits 138 & 141 to notify vehicles and trucks that they can take exits before ND 297 (DeMers Ave) to reduce volume of traffic. This should help with the volume of traffic on the ND 297 (DeMers Ave) temp bypass.

3. Truck traffic using northbound interstate with intent to reach ND 297 (DeMers Ave) west of project area during phase 5A and 5D must use exit 141, get onto truck traffic detour (US2/Gateway WB), and head southbound on N 55th St.

4. Refer to NDDOT Standard Drawing D-704-12 for placement and details of Portable Changeable Message Signs. Engineer will determine final locations.

5. Confirmatory signs shall be placed 200' after each major turning movement onto Gateway Dr, Washington St, and 32nd Ave S.

6. ND 297 (DeMers Ave) is to remain open during Phases 1-4 with minor closures during Phase 5.

Work Zone Traffic Control

South & East Detour

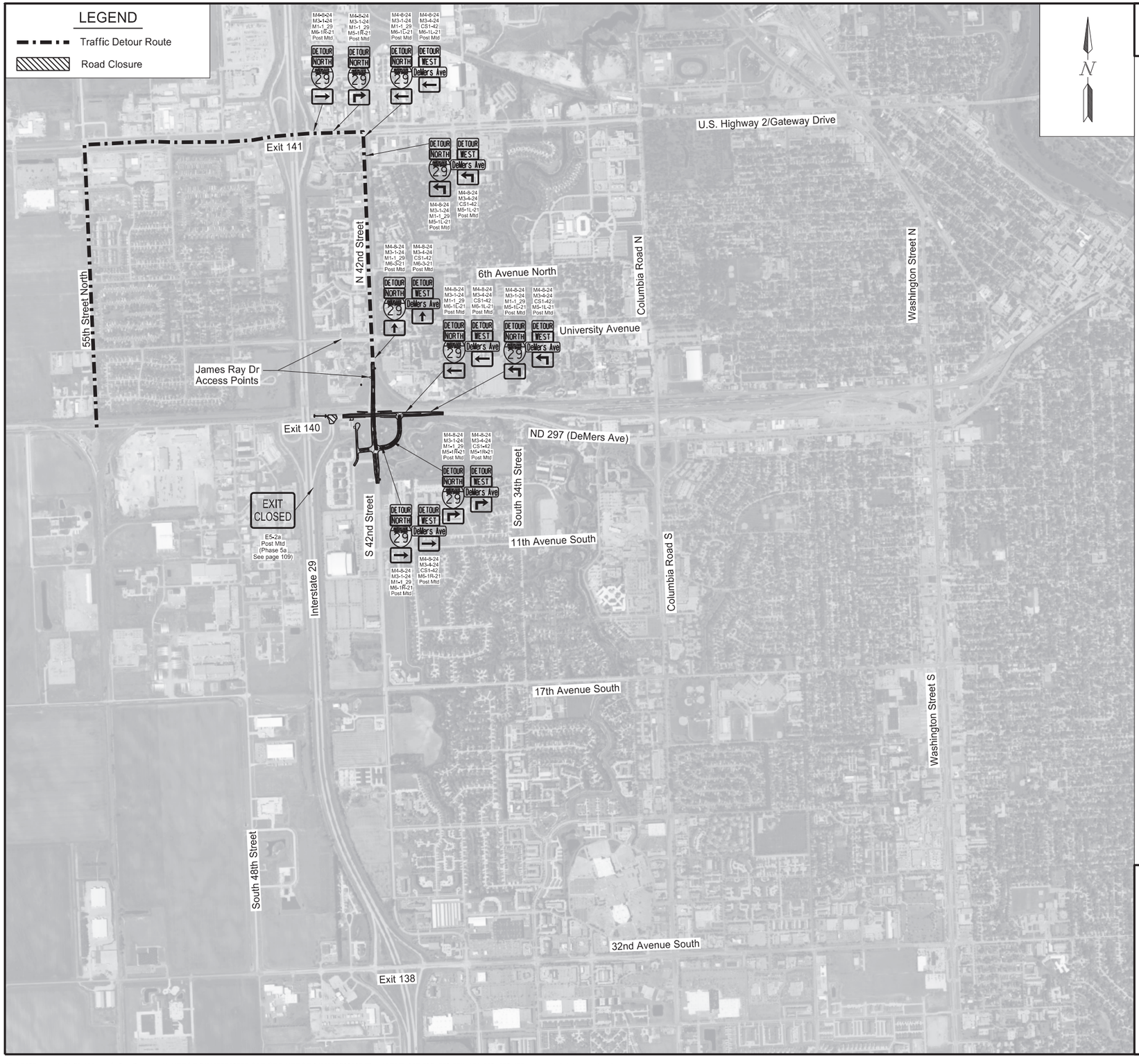
Truck Route
Phase 5A

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9076
DATE: 2025.12.05 16:39:38 -06'00'
NORTH DAKOTA



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	101

Notes:

1. N 42nd St and S 42nd St signage will take place simultaneously within the same phases as directed.

2. Advanced signage at exits 138 & 141 to notify vehicles and trucks that they can take exits before DeMers to reduce volume of traffic. This should help with the volume of traffic on the DeMers temp bypass. Refer to NDDOT Standard Drawing D-704-12 for PCMS layout.

3. Access and direction to Hilton Garden Inn Grand Forks-UND shall be maintained at all times.

4. Refer to NDDOT Standard Drawing D-704-21 for sign spacing.

5. Confirmatory signs shall be placed 200' after each major turning movement onto Gateway Dr, Columbia Rd, and 17th Ave S.

6. R11-3a-60 Barricade Mtd signage shall be placed on the NE corner of S 42nd St/17th Ave S and the SW corner of N 42nd S/Gateway Dr within the boulevard.

Work Zone Traffic Control

North & West Detour

Phase 5A Vehicular Route

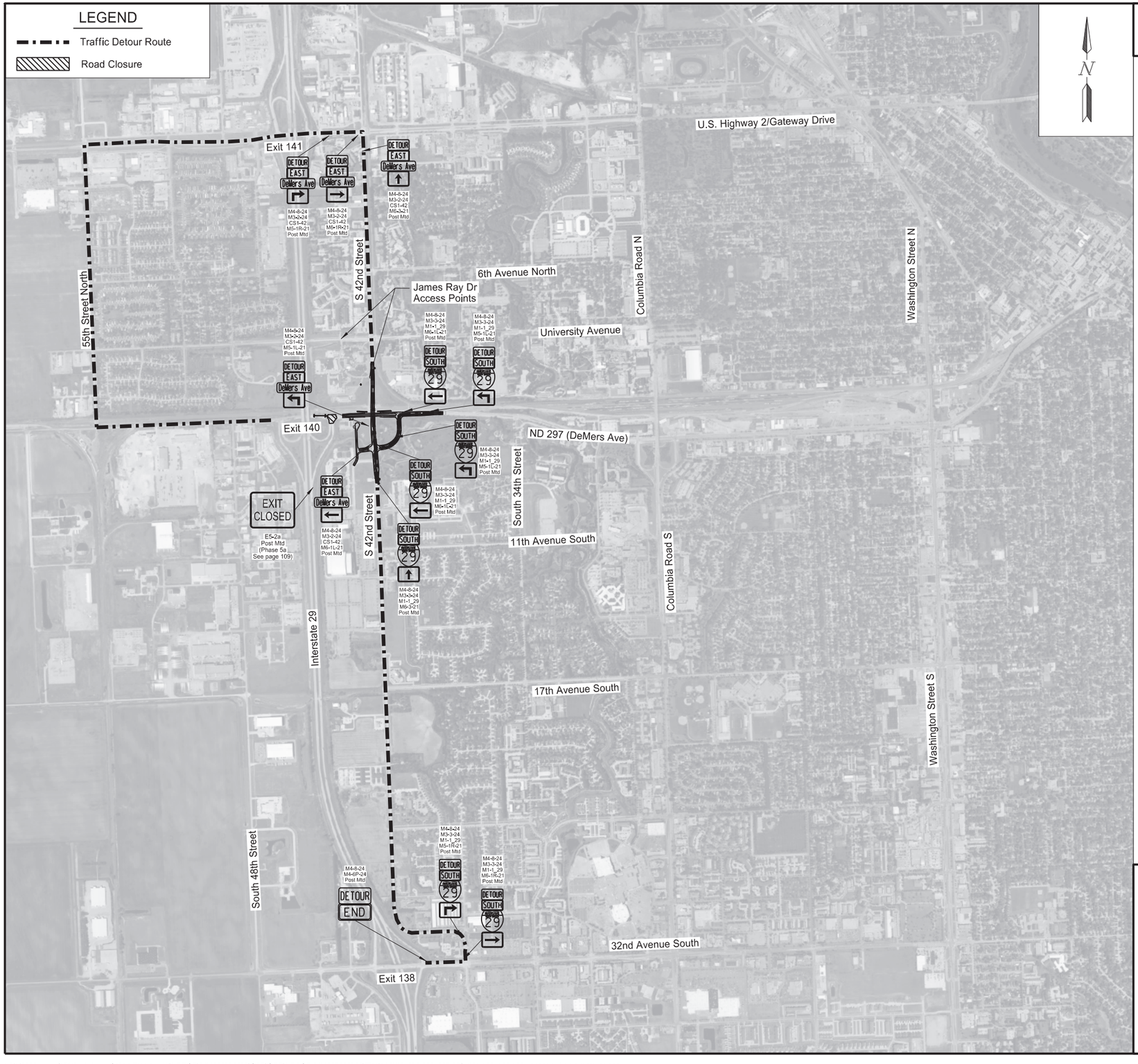
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8026
DATE: 2025.12.05 16:39:28 -06'00'
NORTH DAKOTA

12/4/2025 9:01:20 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_037-038_058-059_101-102_132-133_ phase 1-4 detour routes.dgn



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	102

Notes:

1. N 42nd St and S 42nd St signage will take place simultaneously within the same phases as directed.

2. Advanced signage at exits 138 & 141 to notify vehicles and trucks that they can take exits before DeMers to reduce volume of traffic. This should help with the volume of traffic on the DeMers temp bypass. Refer to NDDOT Standard Drawing D-704-12 for PCMS layout.

3. Access and direction to Hilton Garden Inn Grand Forks-UND shall be maintained at all times.

4. Refer to NDDOT Standard Drawing D-704-21 for sign spacing.

5. Confirmatory signs shall be placed 200' after each major turning movement onto Gateway Dr, Columbia Rd, and 17th Ave S.

6. R11-3a-60 Barricade Mtd signage shall be placed on the NE corner of S 42nd St/17th Ave S and the SW corner of N 42nd S/Gateway Dr within the boulevard.

Work Zone Traffic Control

South & East Detour

Phase 5A Vehicular Route

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

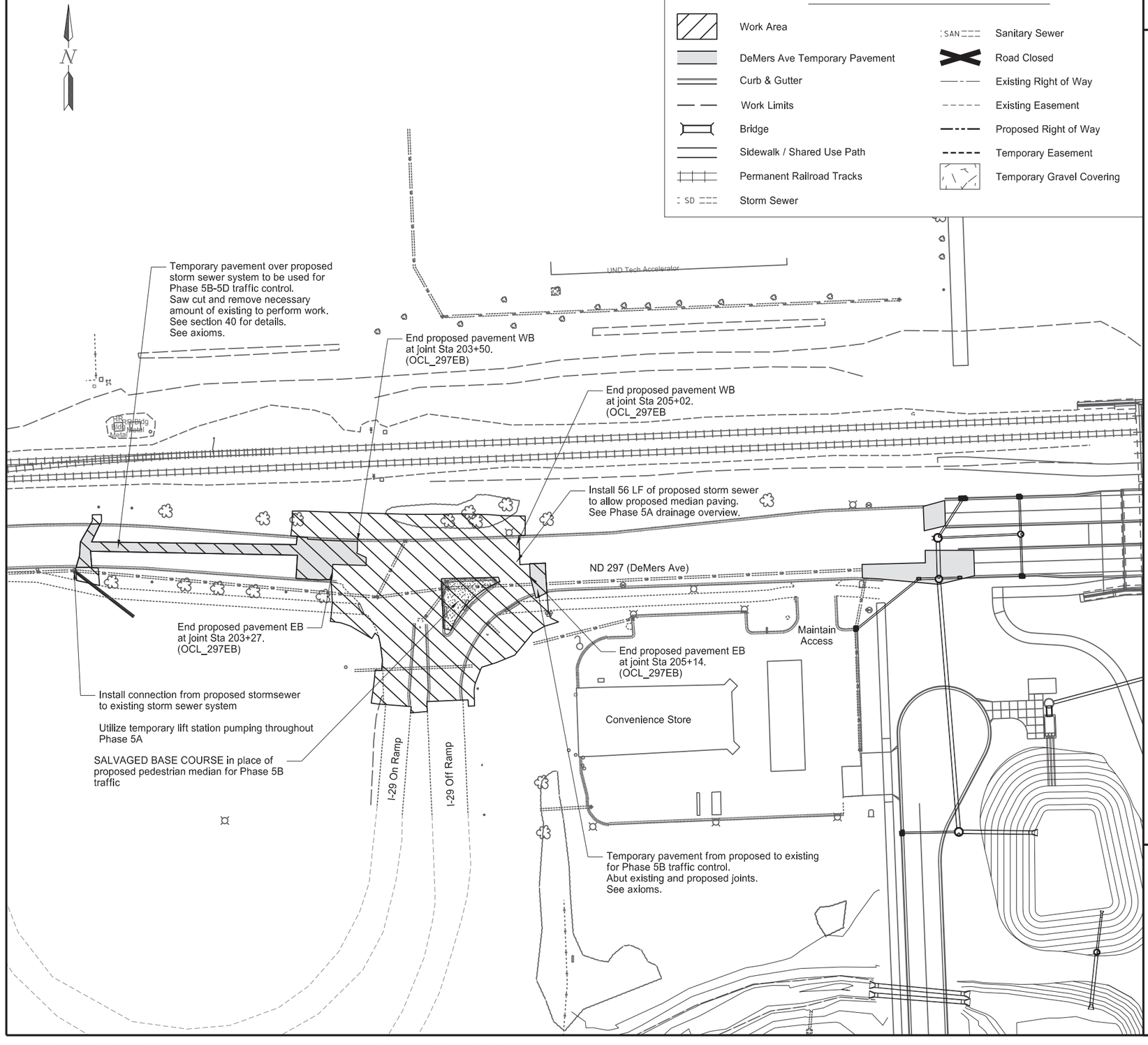
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PE-8296
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	103

LEGEND

- Work Area
- DeMers Ave Temporary Pavement
- Curb & Gutter
- Work Limits
- Bridge
- Sidewalk / Shared Use Path
- Permanent Railroad Tracks
- SD Storm Sewer
- SAN Sanitary Sewer
- Road Closed
- Existing Right of Way
- Existing Easement
- Proposed Right of Way
- Temporary Easement
- Temporary Gravel Covering



SPEC	CODE	BID ITEM	QTY	UNIT
302	0100	SALVAGED BASE COURSE		
		Sta 200+80 to 203+59 (OCL_297EB)	75	TON
		Sta 204+30 to 204+85 (OCL_297EB)(Median)	69	TON
		Sta 205+14 to 205+29 (OCL_297EB)	8	TON
430	0500	COMMERCIAL GRADE HOT MIX ASPHALT		
		Sta 200+80 to 203+59 (OCL_297EB)	159	TON
		Sta 205+14 to 205+29 (OCL_297EB)	16	TON

TASKS:

Close northbound Exit 140.

Construct I-29 On/Off ramp intersection.

Construct proposed stormsewer from MH 1 to MH 3.

See Section 6 note 550-P03 for CONCRETE MIX DESIGN for roadway pavement, median, and curb and gutter during Phase 5A.

Use regular mix design for sidewalk installation during Phase 5A.

Install temporary pavement over proposed storm sewer outside of I-29 ramp and ND 297 (DeMers) intersection.

Notes:

1. 69 TONS of SALVAGED BASE COURSE has been allocated to use as temporary roadway for the proposed median area at the northbound exit 140 ramps intersection of ND 297 (DeMers Ave) to be driven over during subsequent phase.

Work Zone Traffic Control

Phase 5A Overview

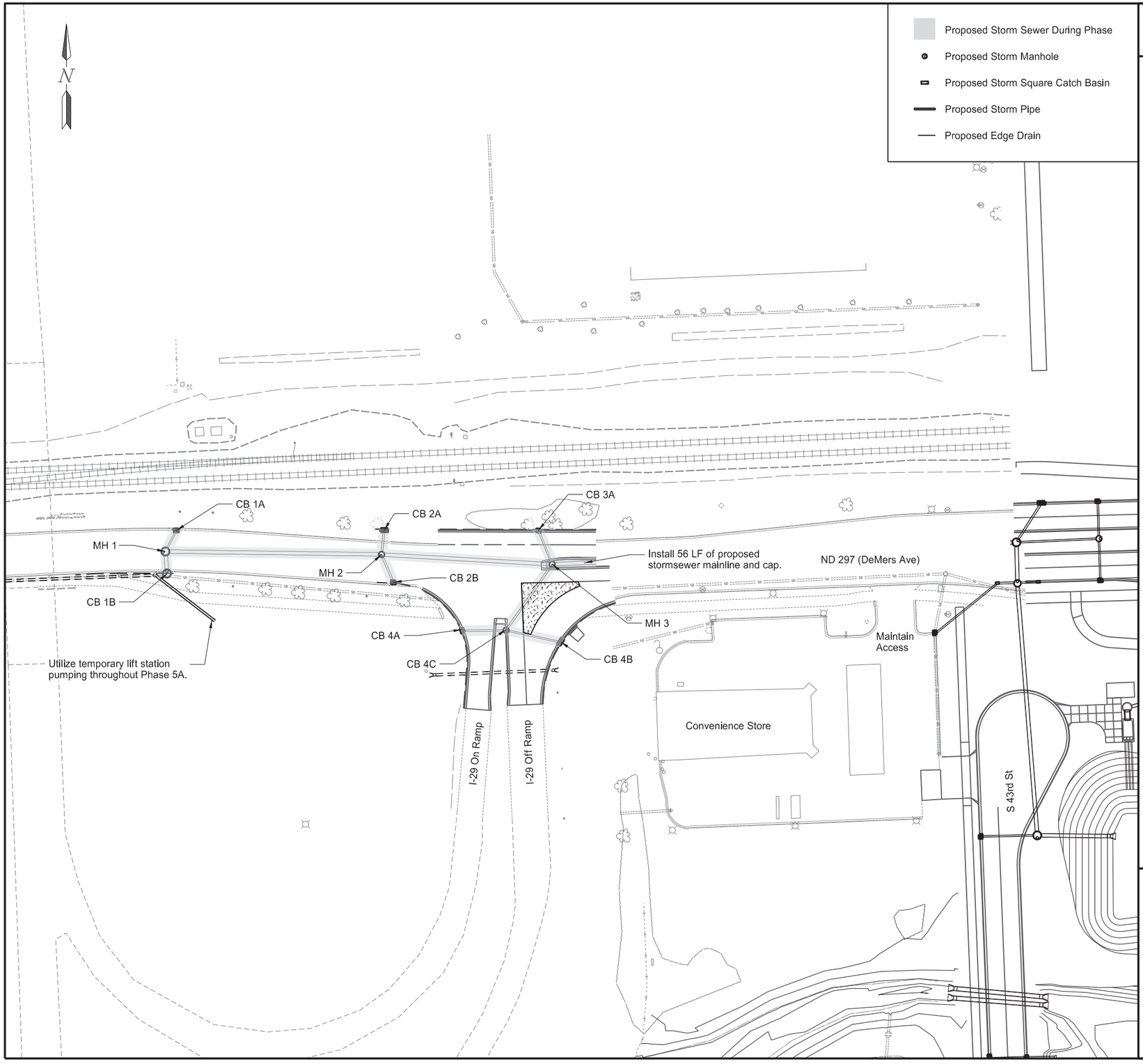
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

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NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	104

Tasks:

Install proposed stormsewer along DeMers Ave from MH 1 to MH 3 and all subsequent catchbasins attached.

Backfill and provide temporary surfacing for storm sewer installed West of On/Off Ramp intersection outside proposed pavement work area.

Install 56' run of 30IN stormsewer east of MH 3.

Cap and cover 56' run of stormsewer if choosing to cover up between Phase 5A and 5B.

NOTES:

1. See Section 40 for removal of existing stormsewer system.

2. See Section 55a for proposed stormsewer system information.

Work Zone Traffic Control

Phase 5A
Proposed Storm by Phase

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9256
DATE: 2025.12.05 16:38:53 -06'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	105

N

M4-4-24
M4-8-24
M3-2-24
CS1-42
M6-1L-21
Post Mtd
(See Truck Detour)

TRUCK
DETOUR
EAST
DeMers Ave

R11-2-48
Barricade Mtd

ROAD
CLOSED

ND 297 (DeMers Ave)

200

201

12' EX THRU LN

12' EX THRU LN

12' EX THRU LN

I-29 SB On Ramp

I-29 SB Off Ramp

12' EX LT TURN LN

20'

40'

25'

W20-1-48
Post Mtd

ROAD
WORK
AHEAD

W4-2L-48
Post Mtd

W20-5-48
Post Mtd

RIGHT LANE
CLOSED
150 FT

W20-5-48
Post Mtd

RIGHT LANE
CLOSED
225 FT

75'

75'

75'

75'

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 5A

ND 297 (DeMers Ave) & I-29 On / Off Ramps

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	106

N

720
N 42nd St

719

W20-3-48
Post Mtd

ROAD
CLOSED
300 FT

R3-2-48
Post Mtd

R11-2-48
Barricade Mtd

ROAD
CLOSED

280'

12' THRU LN

12' THRU LN

450'

204 205 206 207 208 209 ND 297 (DeMers Ave) 210 211 212

718

12' THRU LN

12' THRU LN

S 42nd St

717

517

Maintain
Access

SIDEWALK
CLOSED

R9-9-24
Barricade Mtd

STOP

R1-1
Existing

122 LF
PEDESTRIAN WALKWAY

SALVAGED BASE COURSE in place
of proposed pedestrian median

Section 6 note 550-P03
CONCRETE MIX DESIGN
for all concrete in Phase 5A

Convenience Store

516

I-29 On Ramp

I-29 Off Ramp

515

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 5A

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

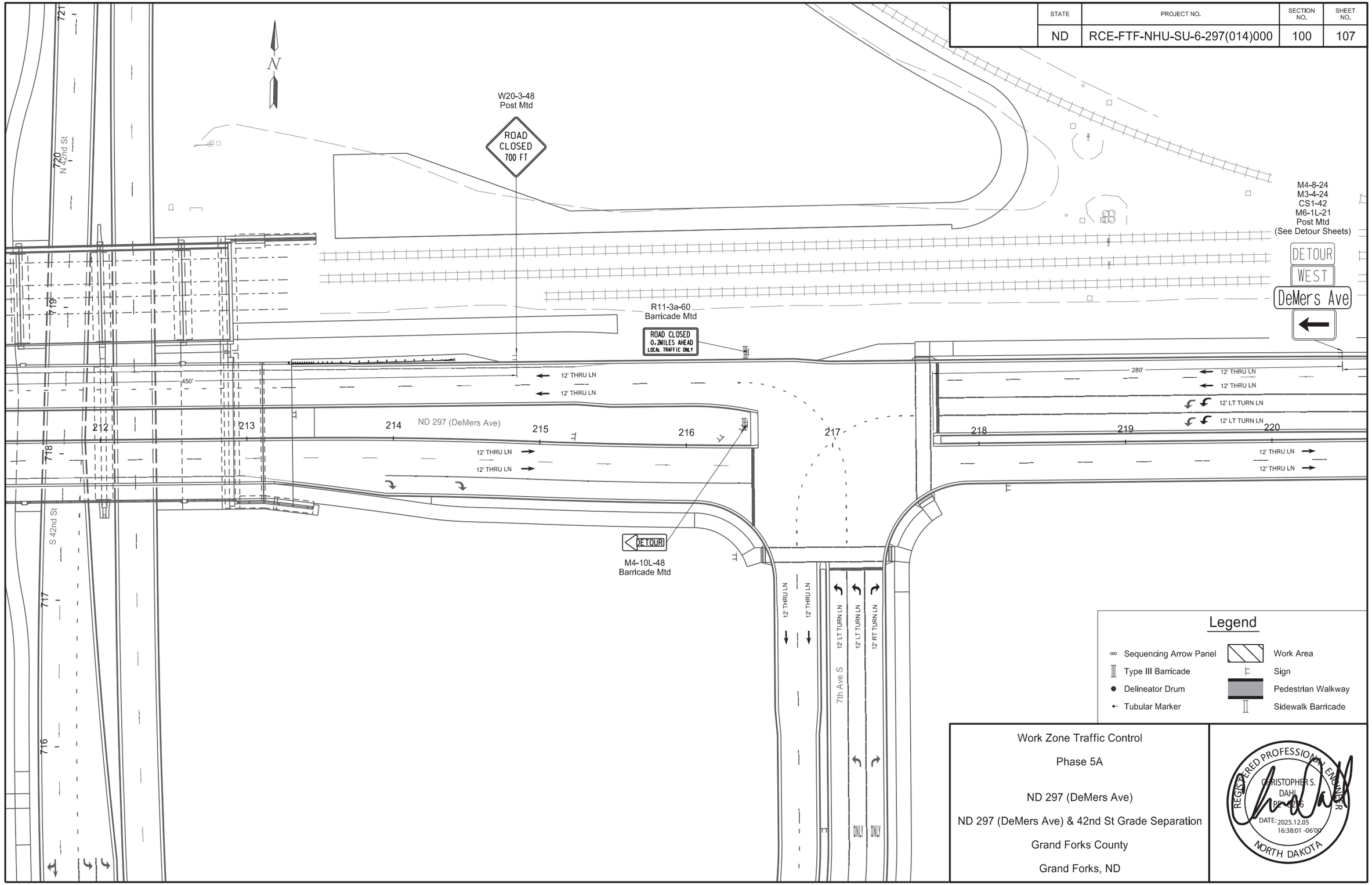
Grand Forks County

Grand Forks, ND

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	107



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 5A

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

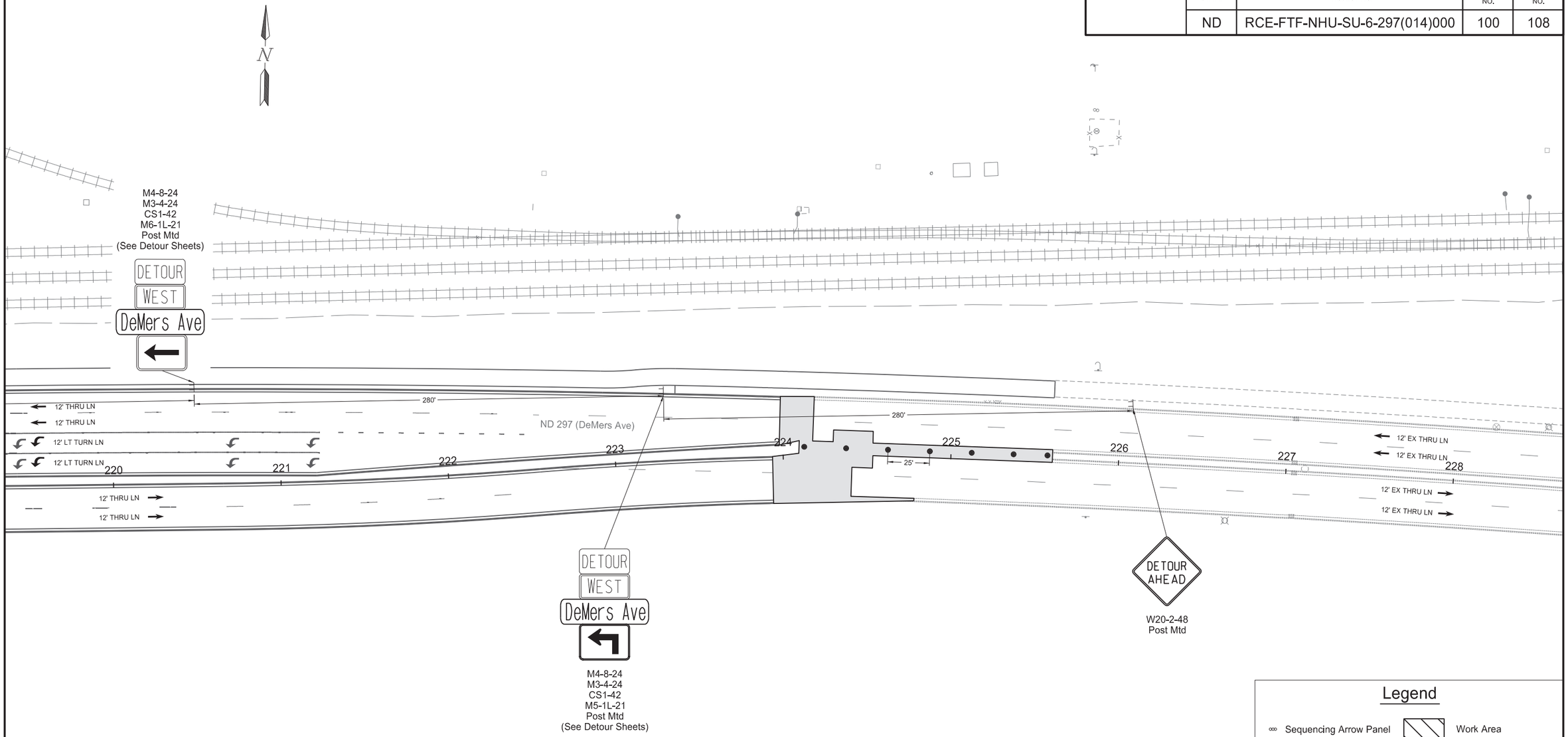
Grand Forks County

Grand Forks, ND

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	108



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 5A

ND 297 (DeMers Ave)

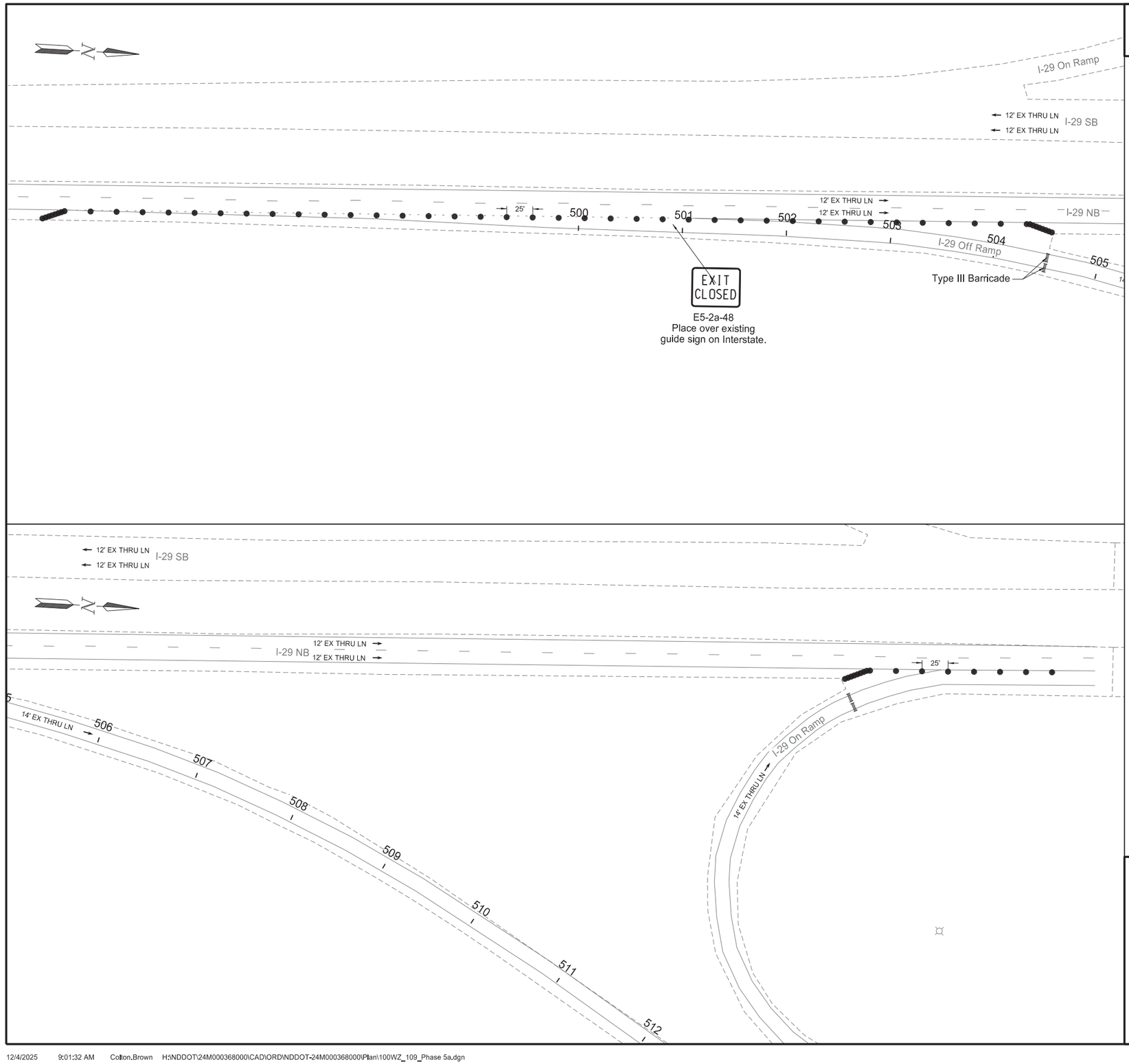
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

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NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	109



Legend

Sequencing Arrow Panel	Work Area
Type III Barricade	Sign
Delineator Drum	Pedestrian Walkway
Tubular Marker	Sidewalk Barricade

Work Zone Traffic Control

Phase 5A

ND 297 (DeMers Ave) & 42nd St Grade Separation

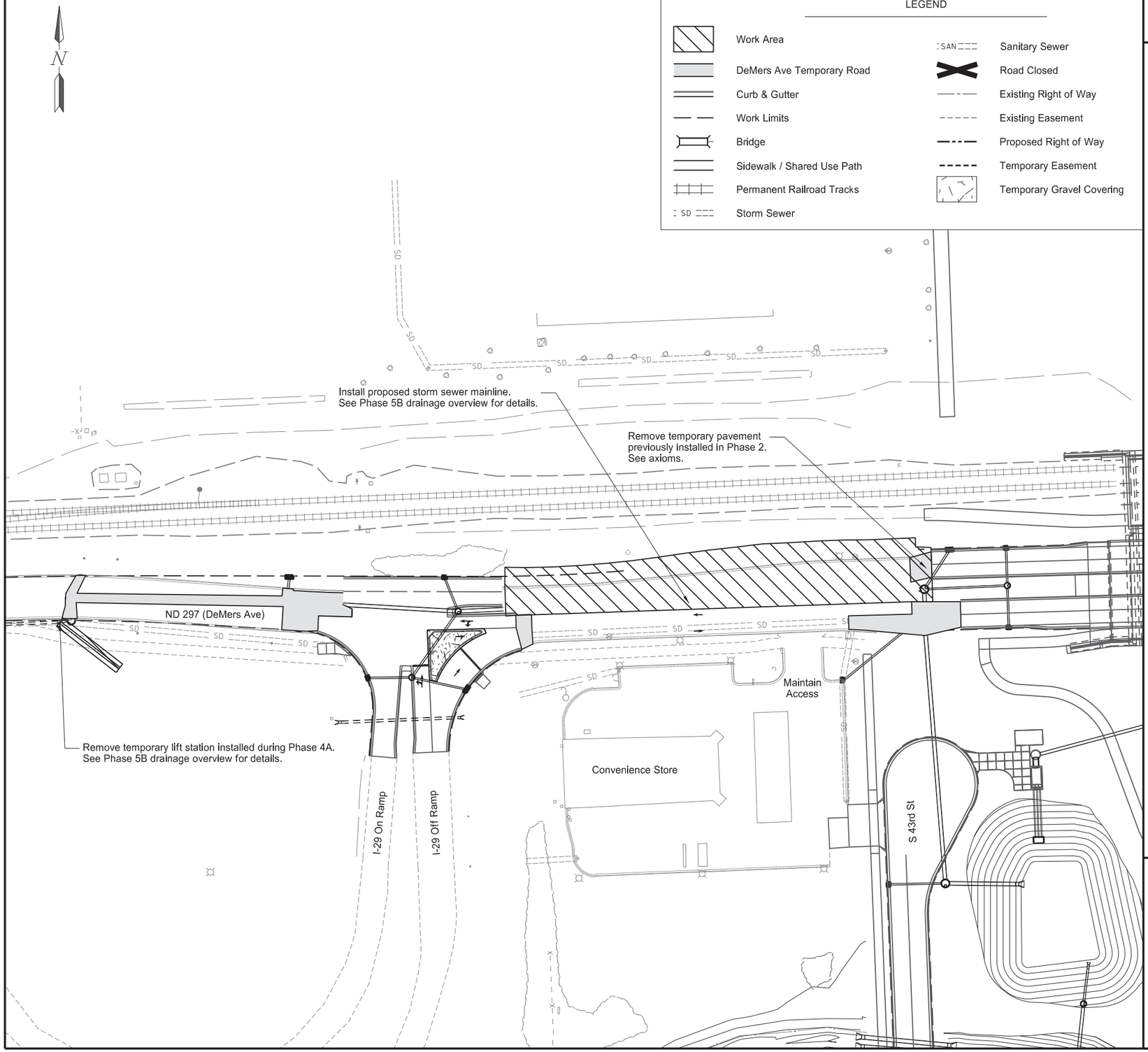
Grand Forks County

Grand Forks, ND

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PE-8276
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NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	110

SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 208+87 to 209+08 (Aggregate)	9	TON
		Sta 208+87 to 209+08 (Bituminous)	18	TON



TASKS:

Finish mainline storm sewer from MH 3 to MH 6

Install all proposed stormsewer runs on the north side of mainline.

Remove temporary lift station and drainage pipe previously installed during Phase 4A after proposed storm sewer mainline is connected

Maintain access to convenience store at all times.

Work Zone Traffic Control

Phase 5B Overview

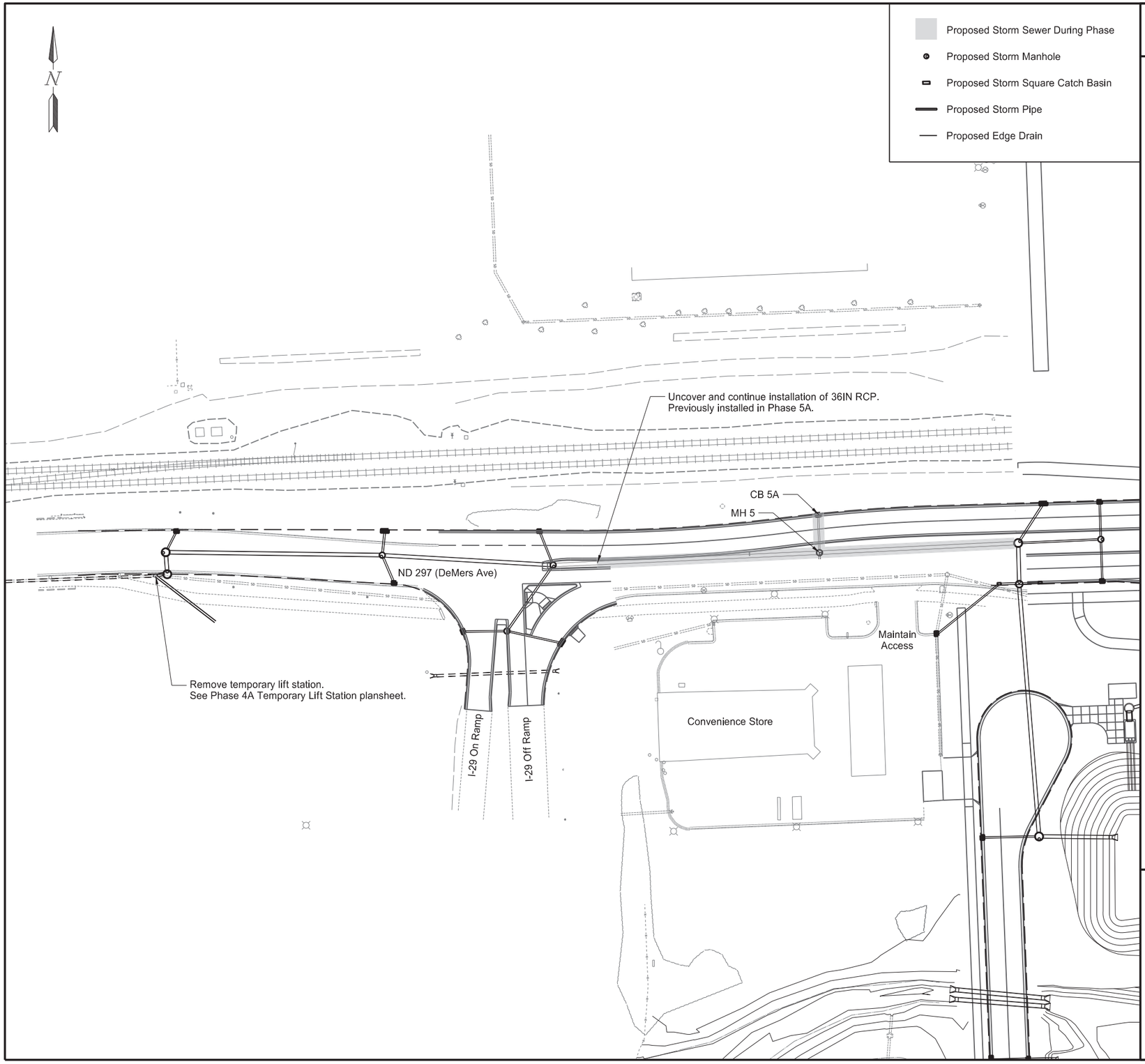
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
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NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	111

Tasks:

Install proposed stormsewer along DeMers Ave.

Remove temporary lift station after installation of stormsewer mainline is complete.

NOTES:

1. See Section 40 for removal of existing stormsewer system.

2. See Section 55a for proposed stormsewer system information.

3. See Phase 4A Lift Station plansheet for details of EX MH 1 adjustments after removal of temorary lift station.

Work Zone Traffic Control

Phase 5B

Proposed Storm by Phase

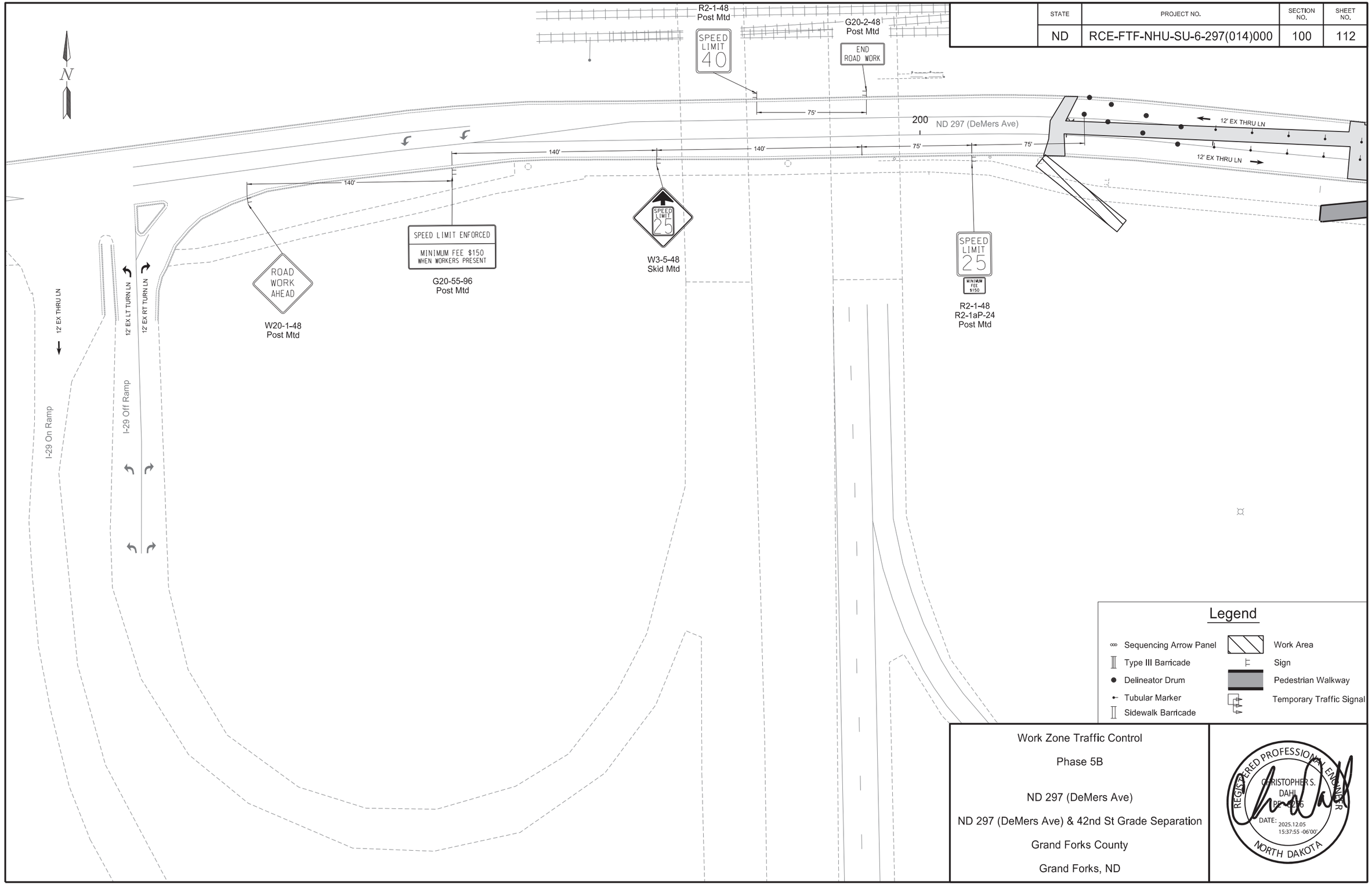
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	112



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Sidewalk Barricade
- Work Area
- Sign
- Pedestrian Walkway
- Temporary Traffic Signal

Work Zone Traffic Control

Phase 5B

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8276
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NORTH DAKOTA

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	113

W1-4L-48
Skid Mtd

118LF
SHORT TERM 4IN
LINE-TYPE R WHITE

111LF
SHORT TERM 4IN
LINE-TYPE R YELLOW

SALVAGED BASE COURSE
to protect median

103LF
SHORT TERM 4IN
LINE-TYPE R WHITE

12' EX THRU LN

12' EX THRU LN

204 205 206 207 208 209 210 211

81 LF SHORT TERM 6IN LINE-TYPE R WHITE

69 LF SHORT TERM 6IN LINE-TYPE R WHITE

ND 297 (DeMers Ave)

12' THRU LN

12' THRU LN

Maintain Access

31 LF SHORT TERM 6IN LINE-TYPE R WHITE

29 LF SHORT TERM 6IN LINE-TYPE R WHITE

15 LF SHORT TERM 24IN
LINE-TYPE R WHITE

W4-1R-48
Skid Mtd

12' LT TURN LN

12' RT TURN LN

12' THRU LN

YIELD

R1-2
See Section 110

75'

N

BUMP

W8-1-48
W16-7PL-24
Skid Mtd

I-29 On Ramp

I-29 Off Ramp

516

SPEED LIMIT 25
MINIMUM FEE $150

R2-1-48
R2-1aP-24
Post Mtd

Convenience Store

515

SPEED LIMIT 25

W3-5-48
Post Mtd

140'

514

SPEED LIMIT ENFORCED
MINIMUM FEE $150
WHEN WORKERS PRESENT

G20-55-96
Post Mtd

513

ROAD WORK AHEAD

W20-1-48
Post Mtd

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Sidewalk Barricade
- Work Area
- Sign
- Pedestrian Walkway
- Temporary Traffic Signal

Work Zone Traffic Control

Phase 5B

ND 297 (DeMers Ave) & I-29 On / Off Ramps

ND 297 (DeMers Ave) & 42nd St Grade Separation

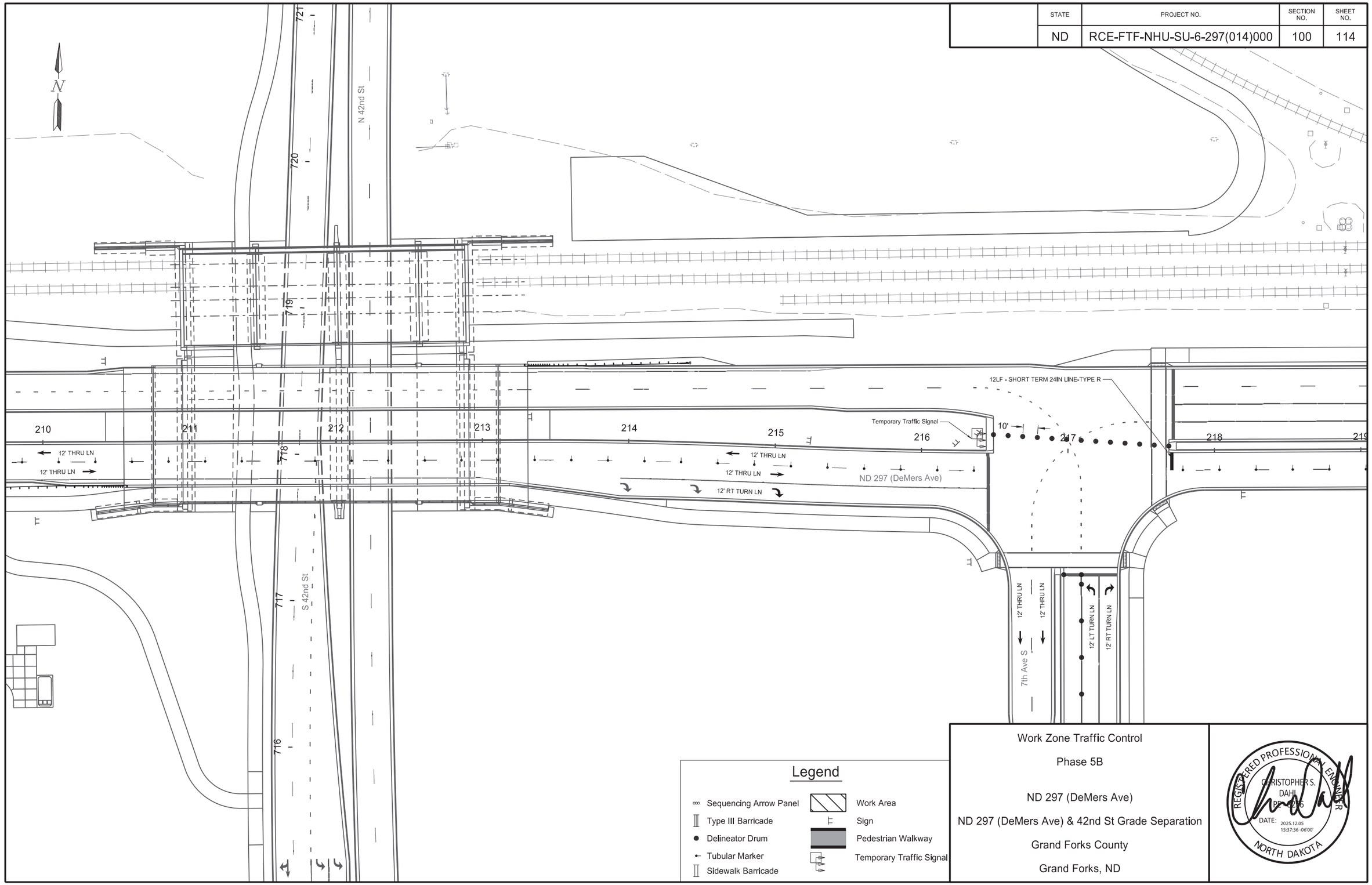
Grand Forks County

Grand Forks, ND

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	114



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Sidewalk Barricade
- Work Area
- Sign
- Pedestrian Walkway
- Temporary Traffic Signal

Work Zone Traffic Control

Phase 5B

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

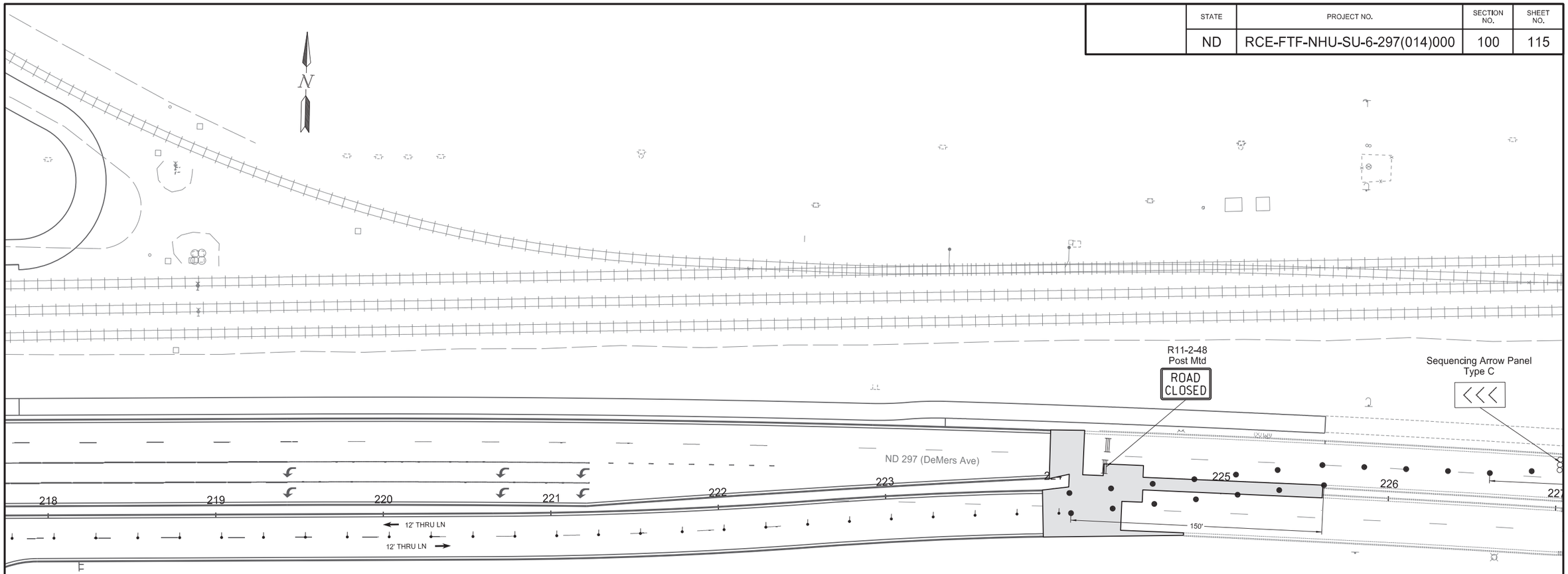
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4256
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NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	115



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Sidewalk Barricade
- Work Area
- Sign
- Pedestrian Walkway
- Temporary Traffic Signal

Work Zone Traffic Control

Phase 5B

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

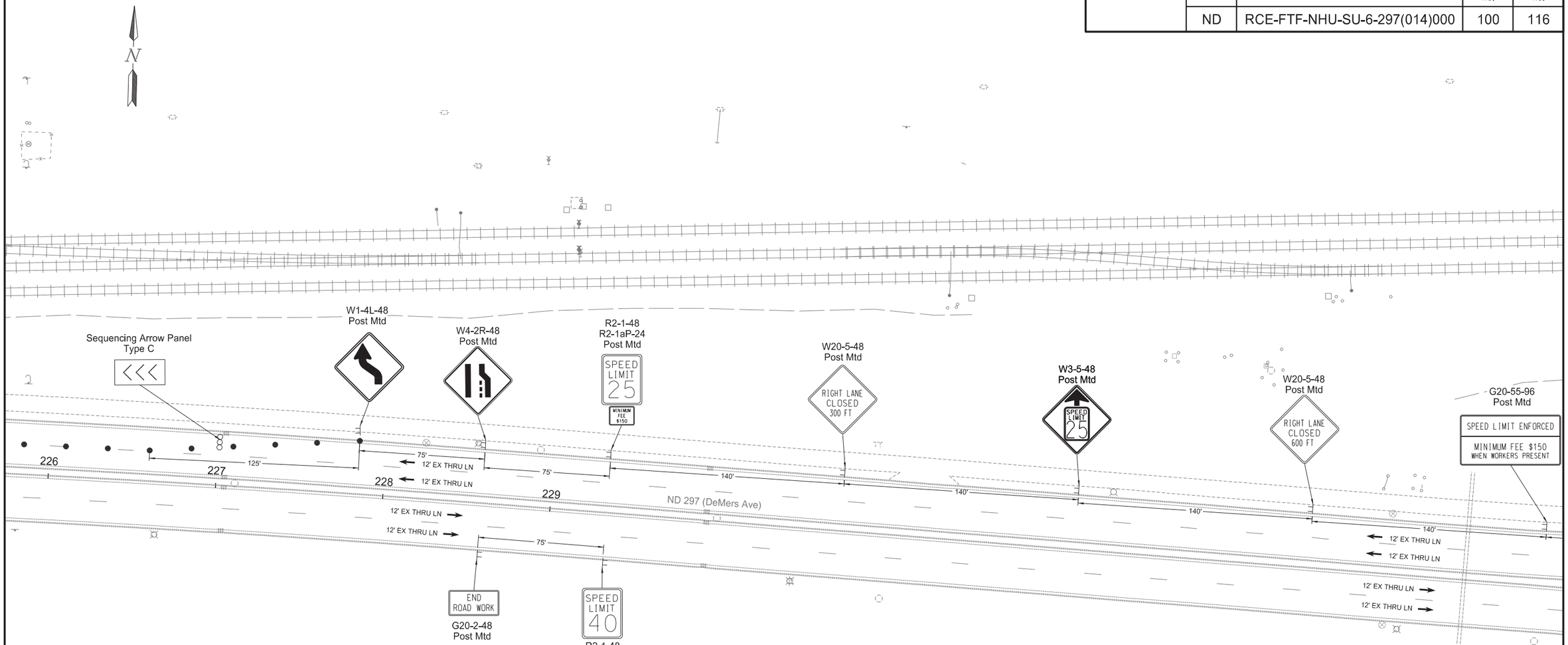
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
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NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	116



Legend

Sequencing Arrow Panel	Work Area
Type III Barricade	Sign
Delineator Drum	Pedestrian Walkway
Tubular Marker	Temporary Traffic Signal
Sidewalk Barricade	

Work Zone Traffic Control

Phase 5B

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

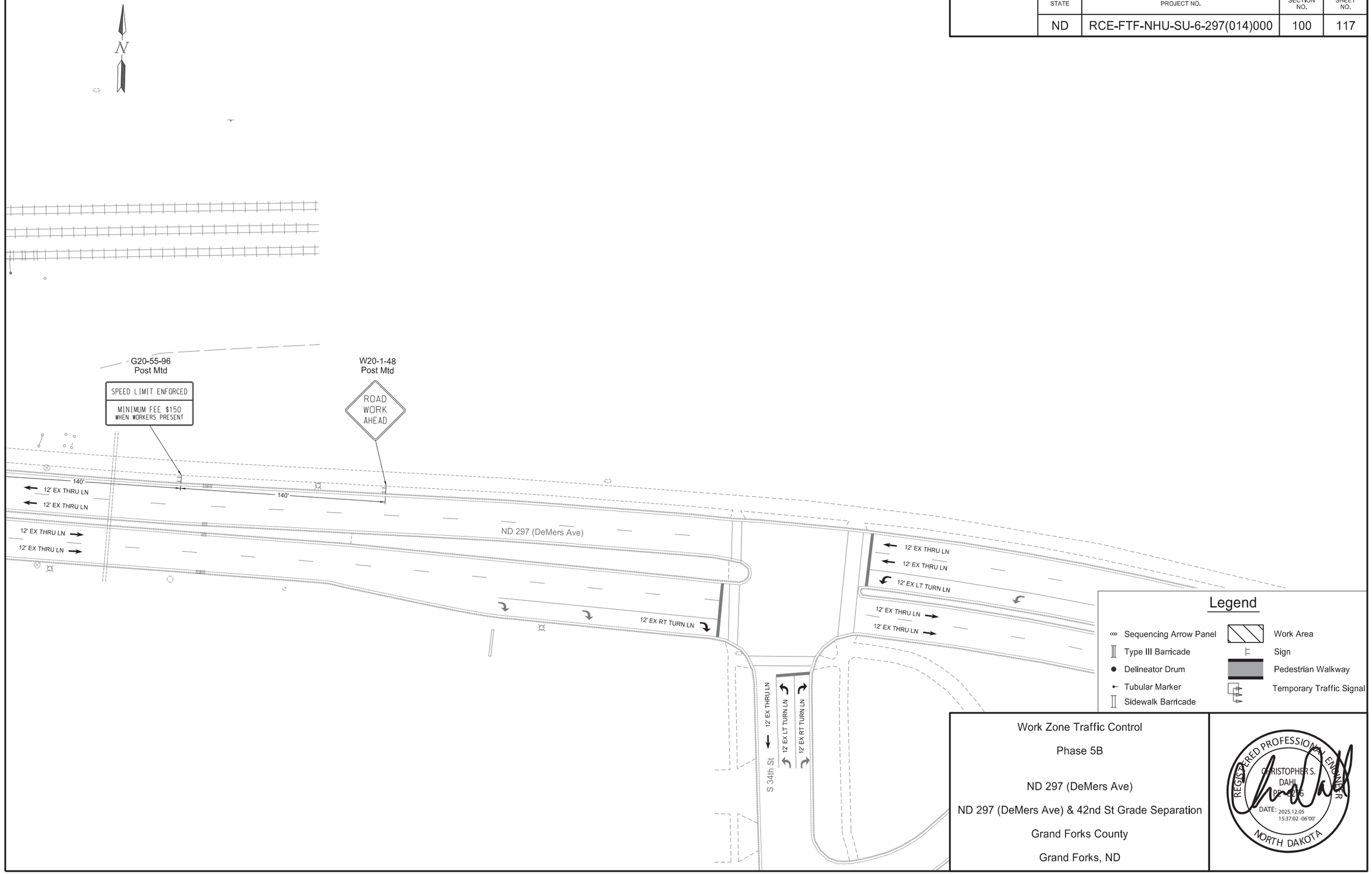
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	117



Work Zone Traffic Control

Phase 5B

ND 297 (DeMers Ave)

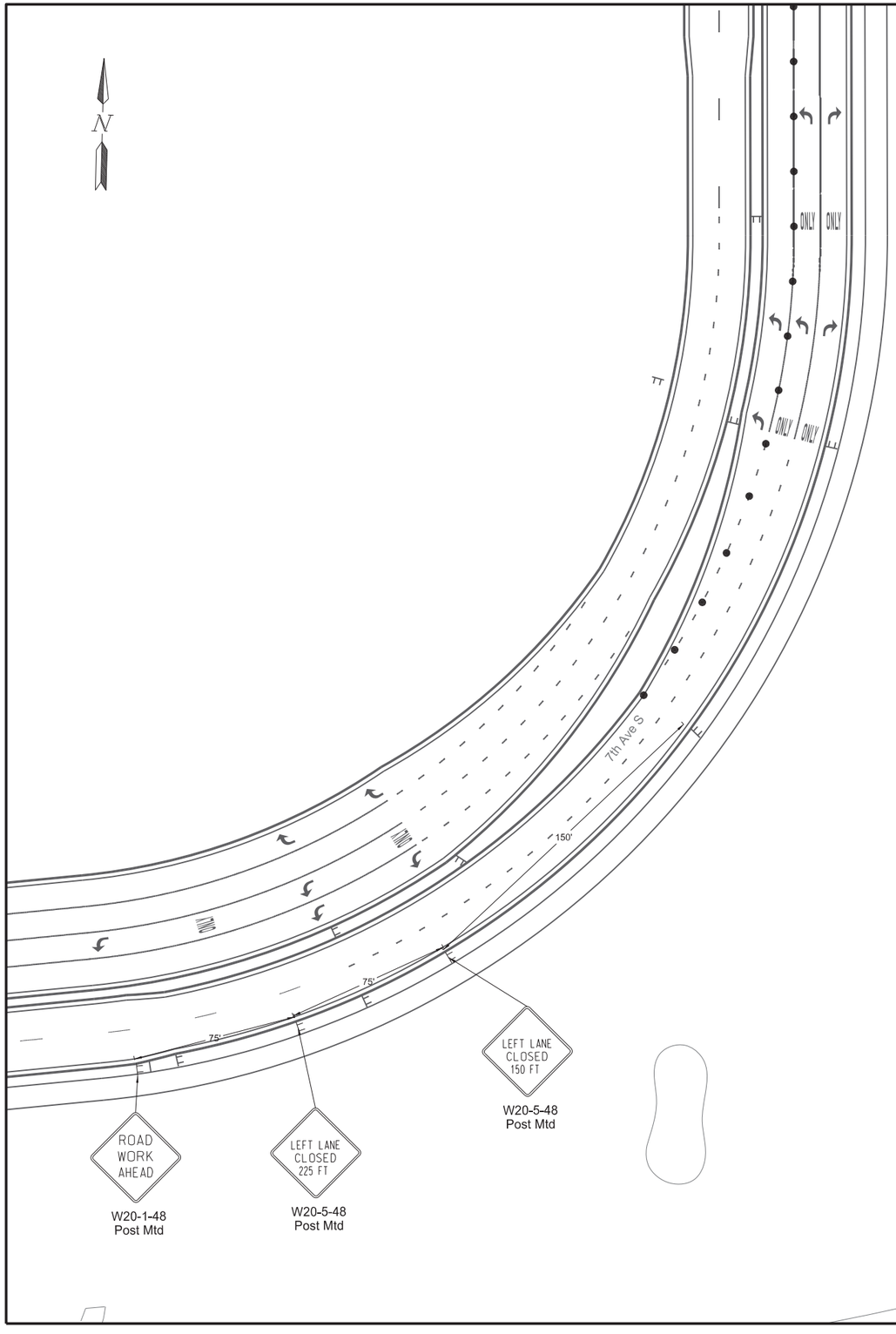
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
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NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	118



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Sidewalk Barricade
- Work Area
- Sign
- Pedestrian Walkway
- Temporary Traffic Signal

Work Zone Traffic Control

Phase 5B

7th Ave S

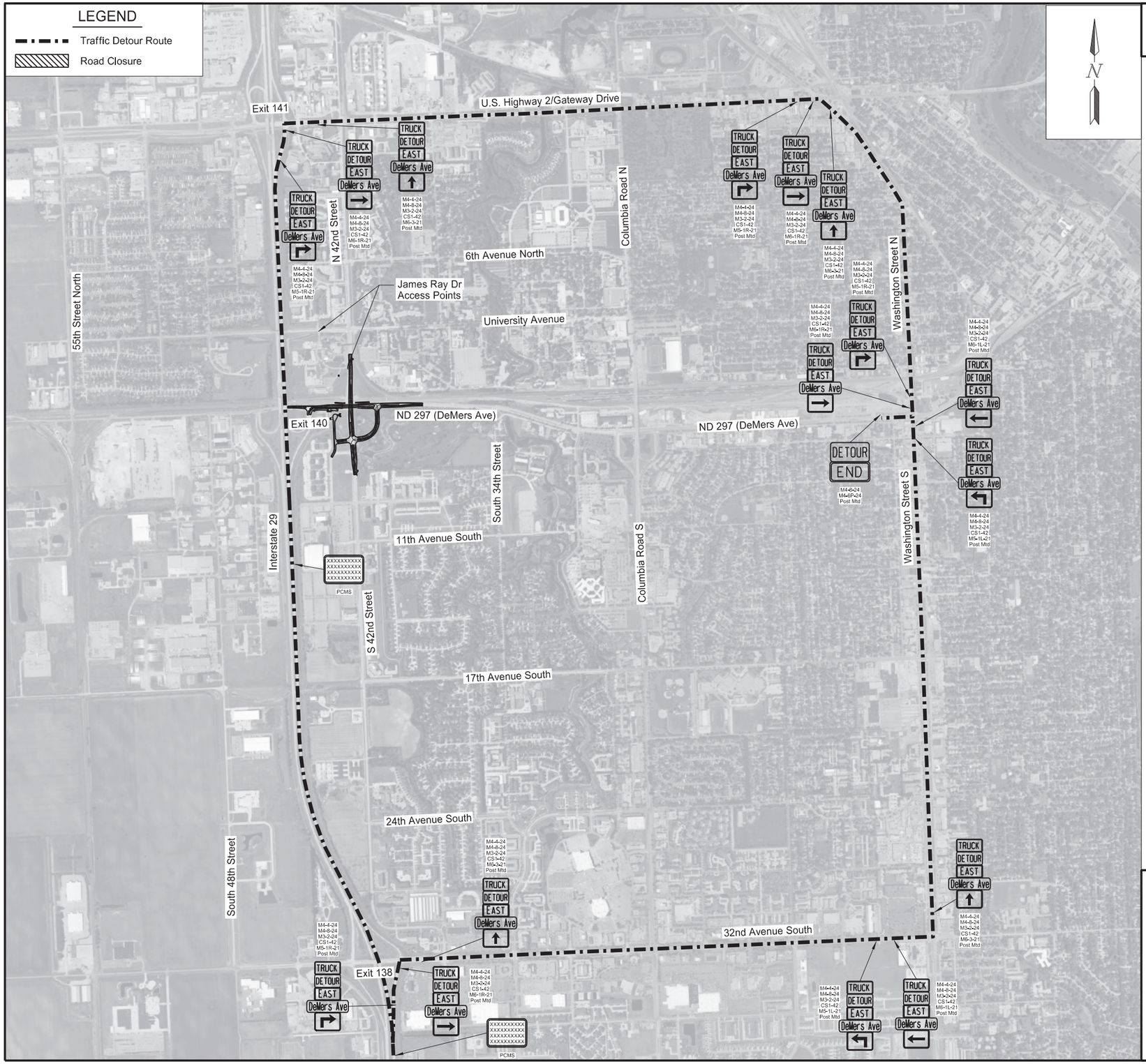
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	119

Notes:

1. Designated truck routes are ND 297 (DeMers Ave), Washington Street, Gateway Drive, and 32nd Ave S, US Hwy 81, and US Hwy 2.

2. Advanced signage at exits 138 & 141 to notify vehicles and trucks that they can take exits before ND 297 (DeMers Ave) to reduce volume of traffic. This should help with the volume of traffic on the ND 297 (DeMers Ave) temp bypass.

3. Truck traffic using northbound interstate with intent to reach ND 297 (DeMers Ave) west of project area during phase 5A and 5D must use exit 141, get onto truck traffic detour (US2/Gateway WB), and head southbound on N 55th St.

4. Refer to NDDOT Standard Drawing D-704-12 for placement and details of Portable Changeable Message Signs. Engineer will determine final locations.

5. Confirmatory signs shall be placed 200' after each major turning movement onto Gateway Dr, Washington St, and 32nd Ave S.

6. ND 297 (DeMers Ave) is to remain open during Phases 1-4 with minor closures during Phase 5.

7. The intention of the detour during 5C is to avoid the breaking of the median after being constructed at the I-29 Off Ramp and ND 297 (DeMers Ave) intersection.

Work Zone Traffic Control

North & East Detour

Phase 5C Truck Route

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

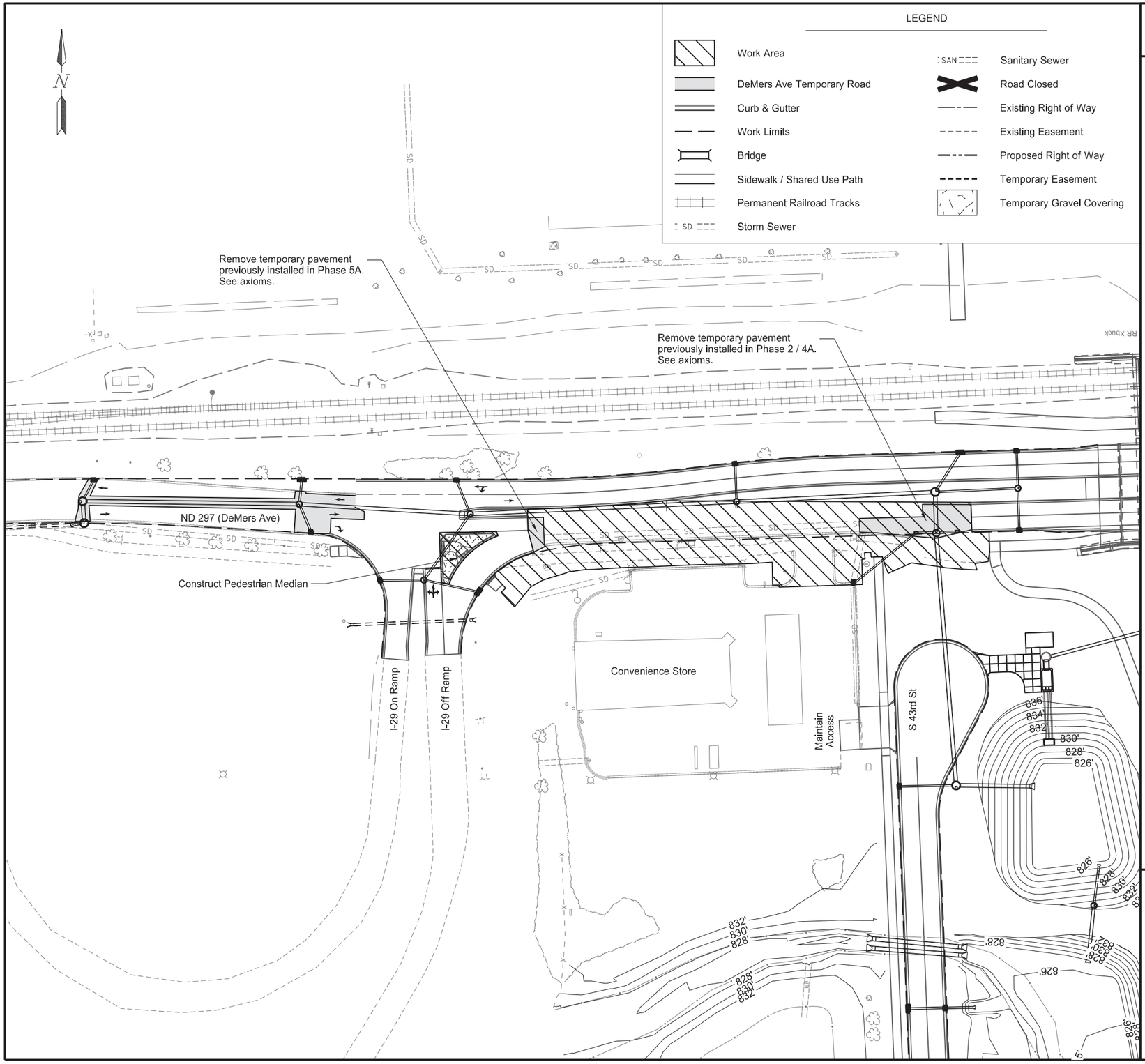
Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8256
DATE: 2025.12.05 15:36:31 -06'00'
NORTH DAKOTA

12/4/2025 9:02:02 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_035-036_099-100_119_130-131_truck detour route.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	120

SPEC	CODE	BID ITEM	QTY	UNIT
202	0128	REMOVE AGGREGATE BASE		
		Sta 204+30 to 204+85 (OCL_297EB)(Median)	69	TON
202	0136	REMOVAL OF PAVEMENT		
		Sta 205+14 to 205+29 (OCL_297EB)(Aggregate)	8	TON
		Sta 208+28 to 209+19 (OCL_297EB)(Aggregate)	40	TON
		Sta 205+14 to 205+29 (OCL_297EB)(Bituminous)	16	TON
		Sta 208+28 to 209+19 (OCL_297EB)(Bituminous)	85	TON



TASKS:

Reconstruct ND 297 (DeMers Ave) EB lanes.

Reconstruct convenience store entrance.

Construct pedestrian median at the intersection of NB Exit 140 On/Off ramp and ND 297 (DeMers Ave).

Maintain access to convenience store via 7th Ave S and 43rd St S alternative route.

Install proposed stormsewer catch basin.

See section 40 for removal details.

See section 55a for stormsewer details.

Work Zone Traffic Control

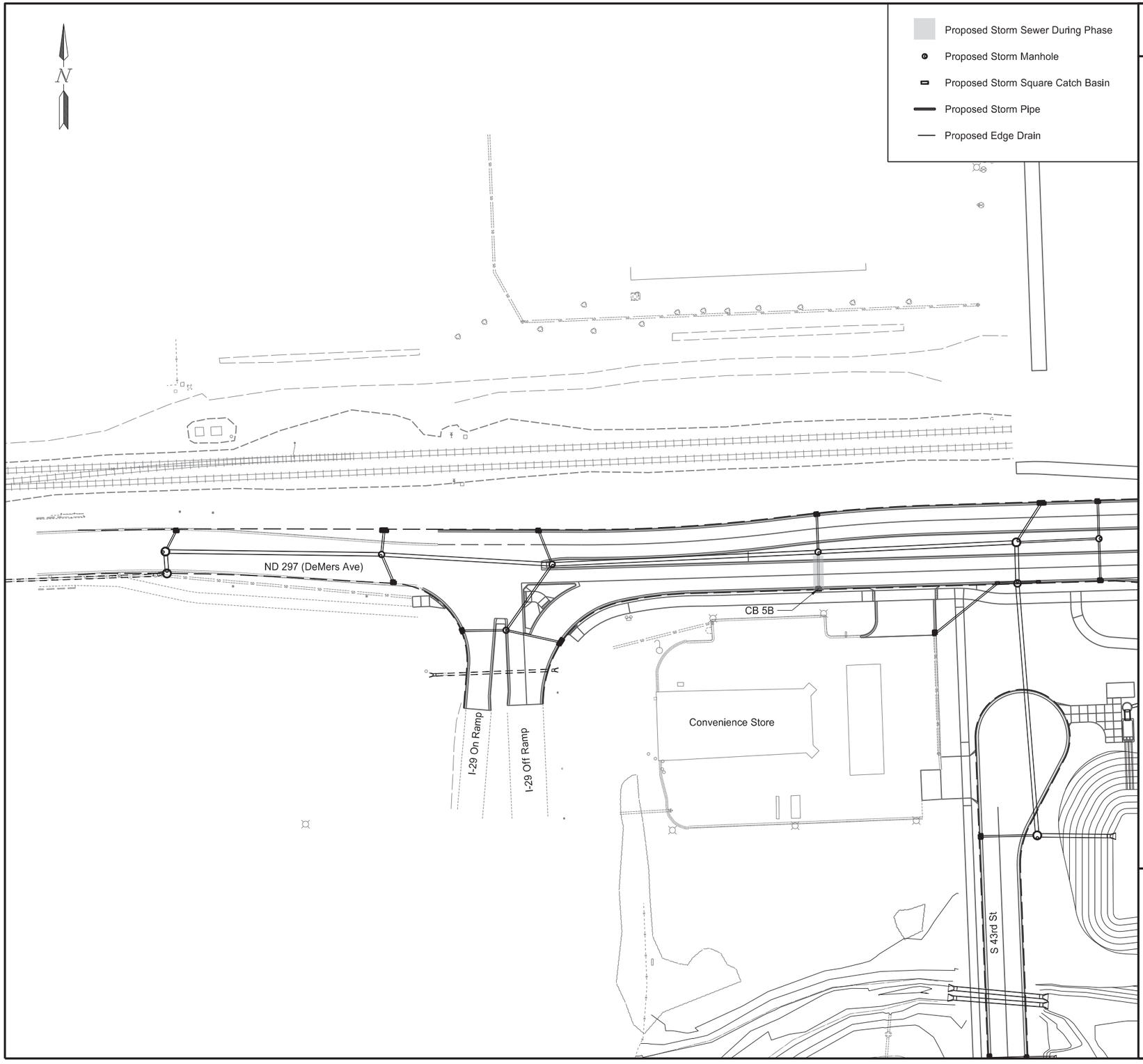
Phase 5C Overview

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8256
DATE: 2025.12.05 15:36:19 -06'00'
NORTH DAKOTA



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	121

Tasks:

Install CB 5B and connection to MH 5.

NOTES:

1. See Section 40 for removal of existing Storm Sewer System.
2. See Section 55a for proposed Storm Sewer System information.

Work Zone Traffic Control

Phase 5C Drainage Overview
Proposed Storm by Phase

ND 297 (DeMers Ave)

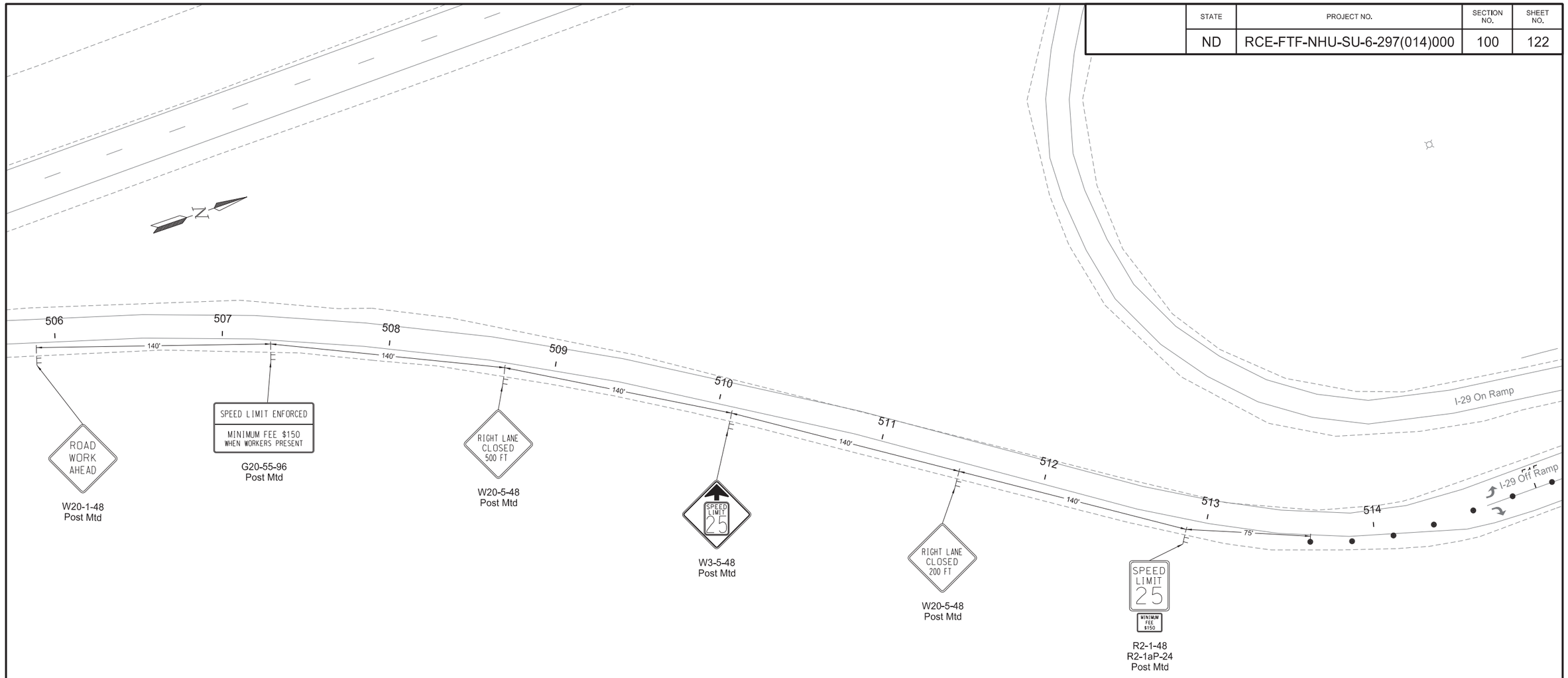
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4296
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NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	122



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Sidewalk Barricade
- Work Area
- Sign
- Pedestrian Walkway
- Temporary Traffic Signal

Work Zone Traffic Control

Phase 5C

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-10276
DATE: 2025.12.05 15:35:55 -06'00'
NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	123

N

G20-2-48
Post Mtd

R2-1-48
Post Mtd

END
ROAD WORK

SPEED
LIMIT
40

75'

200

ND 297 (DeMers Ave)

140'

215'

120'

12' EX THRU LN

25'

62.5'

12' EX THRU LN

140'

SIDEWALK
CLOSED

R9-9-24
Barricade Mtd

12' EX THRU LN

12' EX LT TURN LN

12' EX RT TURN LN

I-29 On Ramp

I-29 Off Ramp

ROAD
WORK
AHEAD

W20-1-48
Post Mtd

SPEED LIMIT ENFORCED
MINIMUM FEE $150
WHEN WORKERS PRESENT

G20-55-96
Post Mtd

SPEED
LIMIT
25

W3-5-48
Skid Mtd

I-29 SB

I-29 NB

SPEED
LIMIT
25
MINIMUM
FEE
$150

R2-1-48
R2-1aP-24
Post Mtd

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Sidewalk Barricade
- Work Area
- Sign
- Pedestrian Walkway
- Temporary Traffic Signal

Work Zone Traffic Control

Phase 5C

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.05 15:35:46 -06'00'
NORTH DAKOTA

12/4/2025 9:02:11 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_123_Phase 5c.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	124

N

M4-8-24
D9-7-24
M6-3-21
Post Mtd

DETOUR

W1-4L-48
Skid Mtd

150 LF SHORT TERM 4IN LINE-TYPE R YELLOW

152 LF SHORT TERM 4IN LINE-TYPE R WHITE

12' EX THRU LN

25'

62.5'

12' EX THRU LN

12' THRU LN

12' THRU LN

ND 297 (DeMers Ave)

204 205 206 207 208 209 210 21

517

516

515

12' THRU LN

12' LT TURN LN

W4-1R-48
Skid Mtd

W6-3-48
Skid Mtd

SIDEWALK CLOSED

R9-9-24
Barricade Mtd

Convenience Store

Maintain Access

I-29 On Ramp

I-29 Off Ramp

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Sidewalk Barricade
- Work Area
- Sign
- Pedestrian Walkway
- Temporary Traffic Signal

Work Zone Traffic Control

Phase 5C

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.05 15:35:35 -06'00'
NORTH DAKOTA

12/4/2025 9:02:12 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_124_Phase 5c.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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M4-8-24
D9-7-24
M5-1R-21
Post Mtd

M4-8-24
D9-7-24
M6-1R-21
Post Mtd

M4-8-24
D9-7-24
M6-1L-21
Post Mtd

DETOUR

18LF - SHORT TERM 24IN LINE-TYPE R

12' THRU LN

12' THRU LN

ND 297 (DeMers Ave)

140'

Temporary Traffic Signal

ROAD CLOSED
R11-2-48
Barricade Mtd

ROAD CLOSED
R11-2-48
Barricade Mtd

12' THRU LN

12' THRU LN

12' LT TURN LN

12' RT TURN LN

7th Ave S

721

720

719

718

717

716

210 211 212 213 214 215 216 217 218 219

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Sidewalk Barricade
- Work Area
- Sign
- Pedestrian Walkway
- Temporary Traffic Signal

Work Zone Traffic Control

Phase 5C

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8276
DATE: 2025.12.05 15:35:23 -06'00'
NORTH DAKOTA

12/4/2025 9:02:15 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_125_Phase 5c.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	126

M4-8-24
D9-7-24
M6-1L-21
Post Mtd

D9-7-24
M4-8-24
M5-1L-21
Post Mtd

N

12' THRU LN

12' THRU LN

Temporary Traffic Signal

218 219 220 221 222 223 225 226

ND 297 (DeMers Ave)

Sequencing Arrow Panel
Type C (WB)

125'

120'

62.5'

W1-6R-48
Barricade Mtd

W1-4R-48
Skid Mtd

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Sidewalk Barricade
- Work Area
- Sign
- Pedestrian Walkway
- Temporary Traffic Signal

Work Zone Traffic Control

Phase 5C

ND 297 (DeMers Ave) & 42nd St Grade Separation

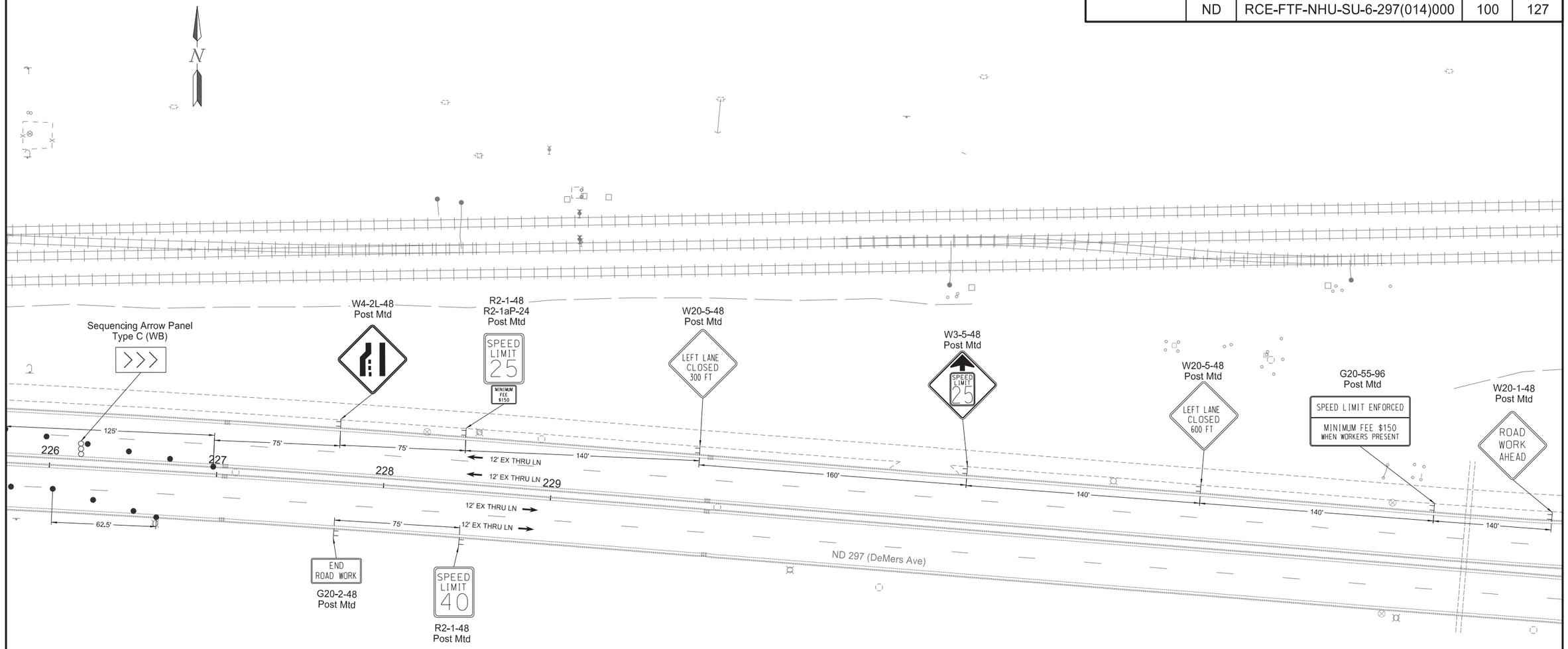
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9256
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NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	127



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Sidewalk Barricade
- Work Area
- Sign
- Pedestrian Walkway
- Temporary Traffic Signal

Work Zone Traffic Control

Phase 5C

ND 297 (DeMers Ave) & 42nd St Grade Separation

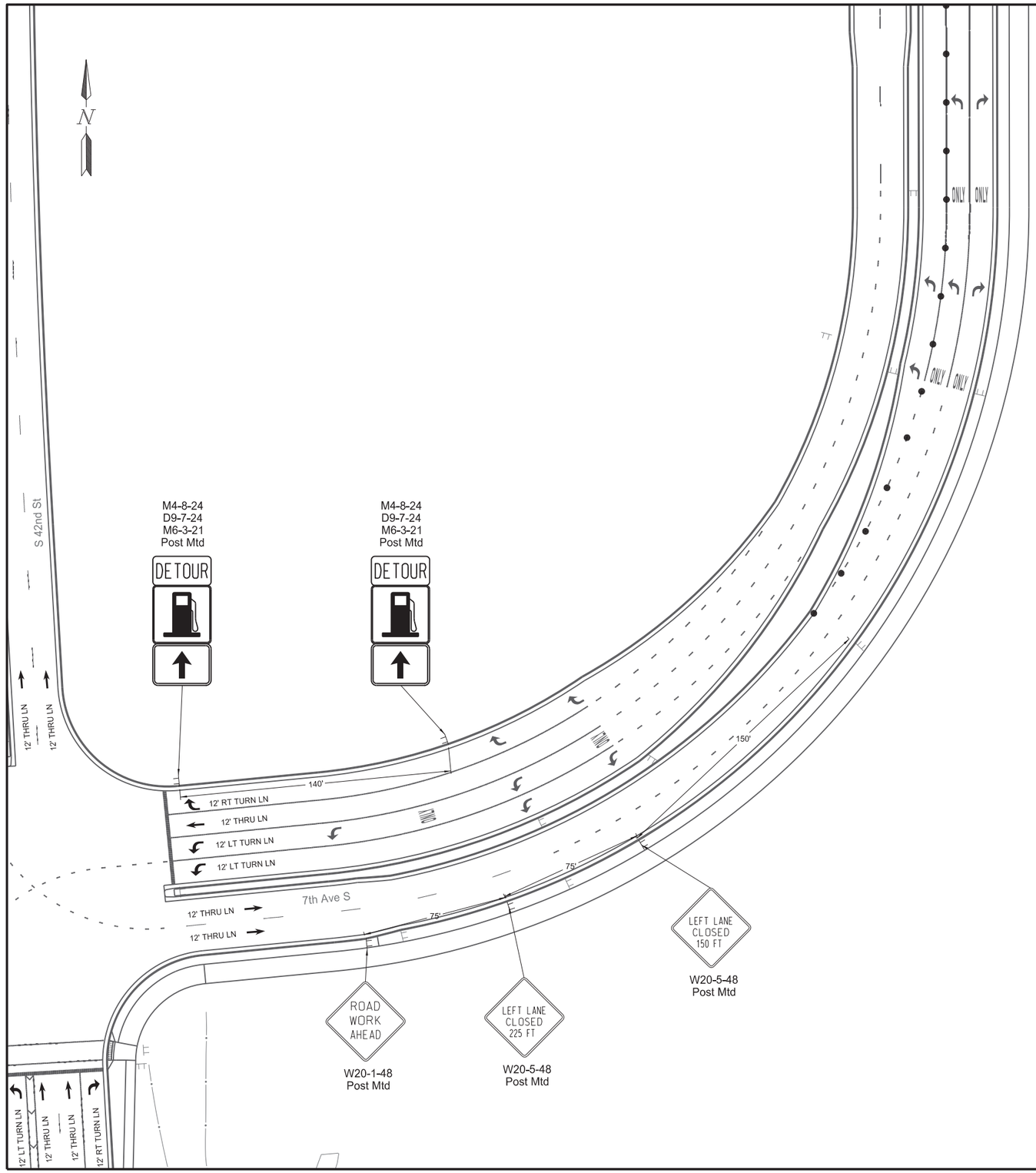
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
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NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	128



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Sidewalk Barricade
- Work Area
- Sign
- Pedestrian Walkway
- Temporary Traffic Signal

Work Zone Traffic Control

Phase 5C

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.04 15:34:43 -06'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	129

Maintain Access

711 712 713 714 715 716

715 ← 12' THRU LN

S 43rd St 140' 12' THRU LN →

M4-8-24
D9-7-24
M6-1R-21
Post Mtd
DE TOUR

M4-8-24
D9-7-24
M5-1L-21
Post Mtd
DE TOUR

M4-8-24
D9-7-24
M6-1L-21
Post Mtd
DE TOUR

M4-8-24
D9-7-24
M5-1R-21
Post Mtd
DE TOUR

SIDEWALK CLOSED
R9-9-24
Barricade Mtd

ND 297 (DeMers Ave)

208 209 210 211 212

12' THRU LN
12' THRU LN

7th Ave S

140'

12' THRU/RT LN
12' THRU LN
12' LT TURN LN
12' THRU LN

710 711 712 713 714 715 716 717 718 719

12' THRU LN
12' THRU LN
12' THRU/RT LN
12' THRU LN

310 311 312 313 314 315 316 317 318 319

12' LT TURN LN
12' THRU LN
12' THRU LN
12' RT TURN LN
12' THRU LN
12' THRU LN

S 42nd St

M4-8-24
D9-7-24
M6-3-21
Post Mtd
DE TOUR

12' THRU LN
12' THRU LN
12' LT TURN LN
12' LT TURN LN
12' THRU LN
12' RT TURN LN

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Sidewalk Barricade
- Work Area
- Sign
- Pedestrian Walkway
- Temporary Traffic Signal

Work Zone Traffic Control

Phase 5C

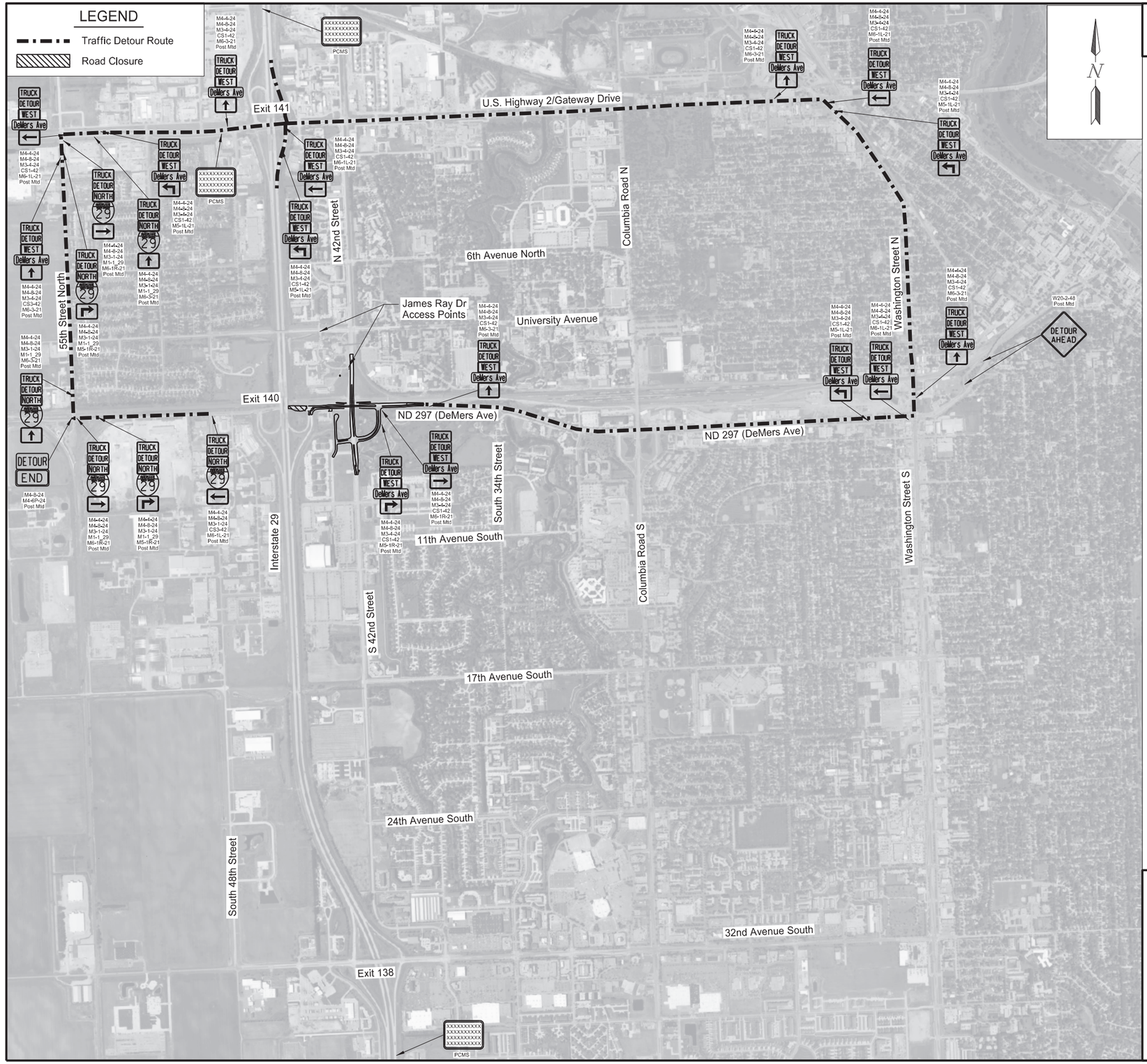
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	130

Notes:

1. Designated truck routes are ND 297 (DeMers Ave), Washington Street, Gateway Drive, and 32nd Ave S, US Hwy 81, and US Hwy 2.

2. Advanced signage at exits 138 & 141 to notify vehicles and trucks that they can take exits before ND 297 (DeMers Ave) to reduce volume of traffic. This should help with the volume of traffic on the ND 297 (DeMers Ave) temp bypass.

3. Truck traffic using northbound interstate with intent to reach ND 297 (DeMers Ave) west of project area must use exit 138, get onto truck traffic detour (32nd Ave S, Washington, US2/Gateway), get onto Interstate SB and take exit 140 South bound

4. Refer to NDDOT Standard Drawing D-704-12 for placement and details of Portable Changeable Message Signs.

5. Confirmatory signs shall be placed 200' after each major turning movement onto Gateway Dr, Washington St, and 32nd Ave S.

6. ND 297 (DeMers Ave) is to remain open during Phases 1-4 with minor closures during Phase 5.

Work Zone Traffic Control

North & West Detour

Phase 5D Truck Route

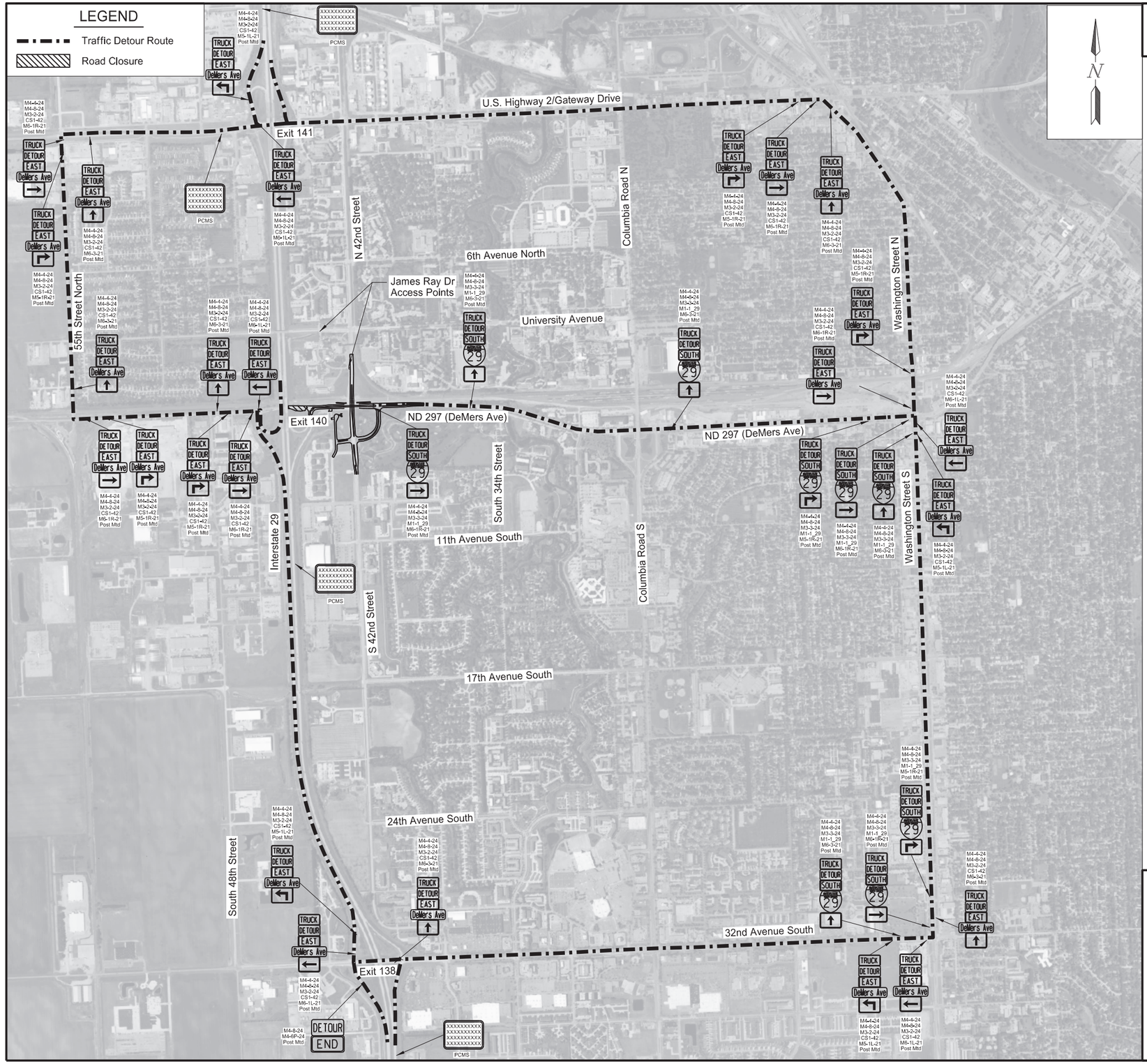
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8256
DATE: 2025.12.05 15:34:11 -06'00'
NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	131

Notes:

1. Designated truck routes are ND 297 (DeMers Ave), Washington Street, Gateway Drive, and 32nd Ave S, US Hwy 81, and US Hwy 2.

2. Advanced signage at exits 138 & 141 to notify vehicles and trucks that they can take exits before ND 297 (DeMers Ave) to reduce volume of traffic. This should help with the volume of traffic on the ND 297 (DeMers Ave) temp bypass.

3. Truck traffic using northbound interstate with intent to reach ND 297 (DeMers Ave) west of project area during phase 5A and 5D must use exit 141, get onto truck traffic detour (US2/Gateway WB), and head southbound on N 55th St.

4. Refer to NDDOT Standard Drawing D-704-12 for placement and details of Portable Changeable Message Signs. Engineer will determine final locations.

5. Confirmatory signs shall be placed 200' after each major turning movement onto Gateway Dr, Washington St, and 32nd Ave S.

6. ND 297 (DeMers Ave) is to remain open during Phases 1-4 with minor closures during Phase 5.

Work Zone Traffic Control

South & East Bound Detour

Phase 5D Truck Route

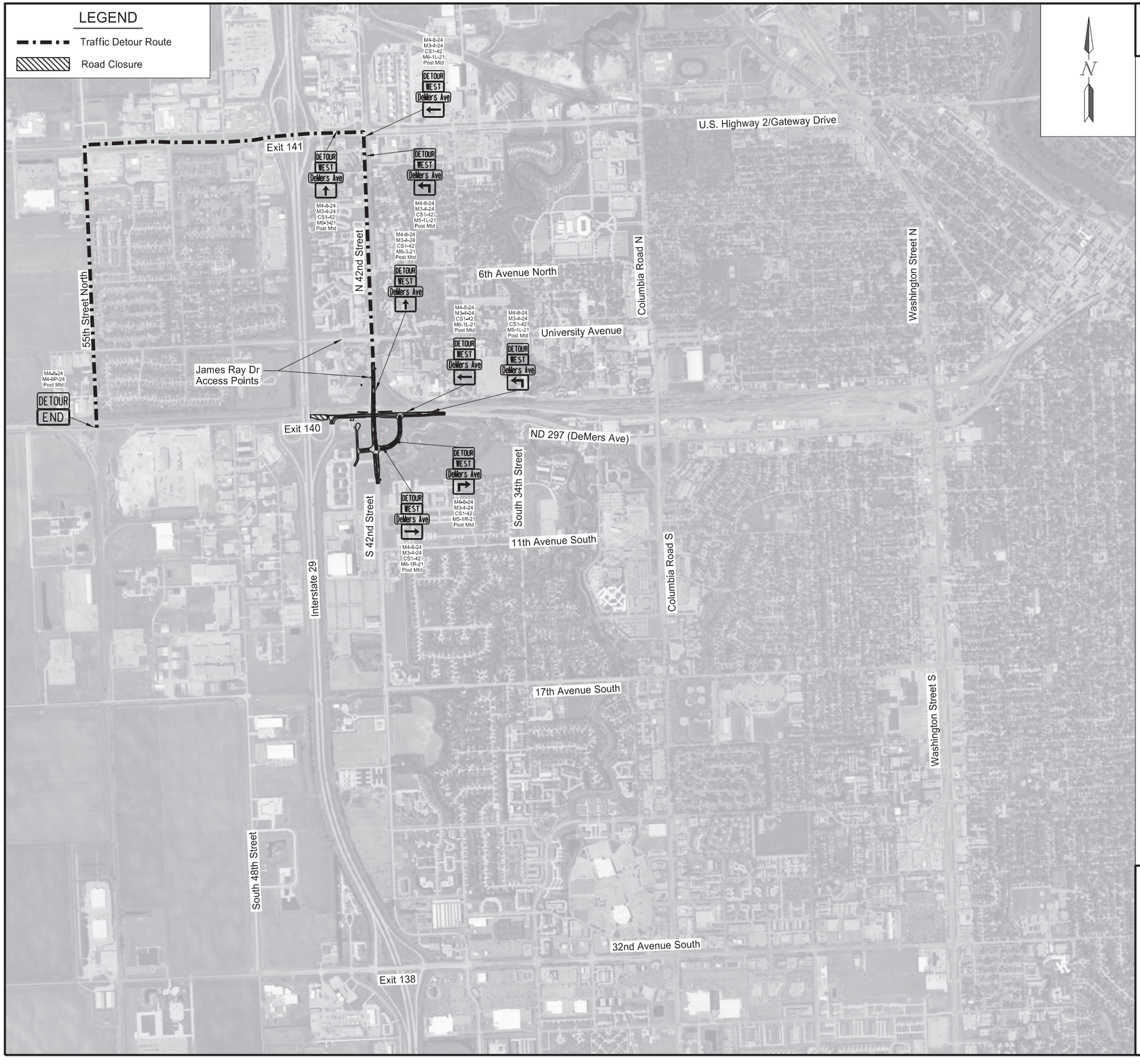
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8276
DATE: 2025.12.05 15:34:01 -06'00'
NORTH DAKOTA

12/4/2025 9:02:34 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_035-036_099-100_119_130-131_truck detour route.dgn



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	132

Notes:

1. N 42nd St and S 42nd St signage will take place simultaneously within the same phases as directed.

2. Advanced signage at exits 138 & 141 to notify vehicles and trucks that they can take exits before DeMers to reduce volume of traffic. This should help with the volume of traffic on the DeMers temp bypass. Refer to NDDOT Standard Drawing D-704-12 for PCMS layout.

3. Access and direction to Hilton Garden Inn Grand Forks-UND shall be maintained at all times.

4. Refer to NDDOT Standard Drawing D-704-21 for sign spacing.

5. Confirmatory signs shall be placed 200' after each major turning movement onto Gateway Dr, Columbia Rd, and 17th Ave S.

6. R11-3a-60 Barricade Mtd signage shall be placed on the NE corner of S 42nd St/17th Ave S and the SW corner of N 42nd S/Gateway Dr within the boulevard.

Work Zone Traffic Control

North & West Detour

Phase 5D Vehicular Route

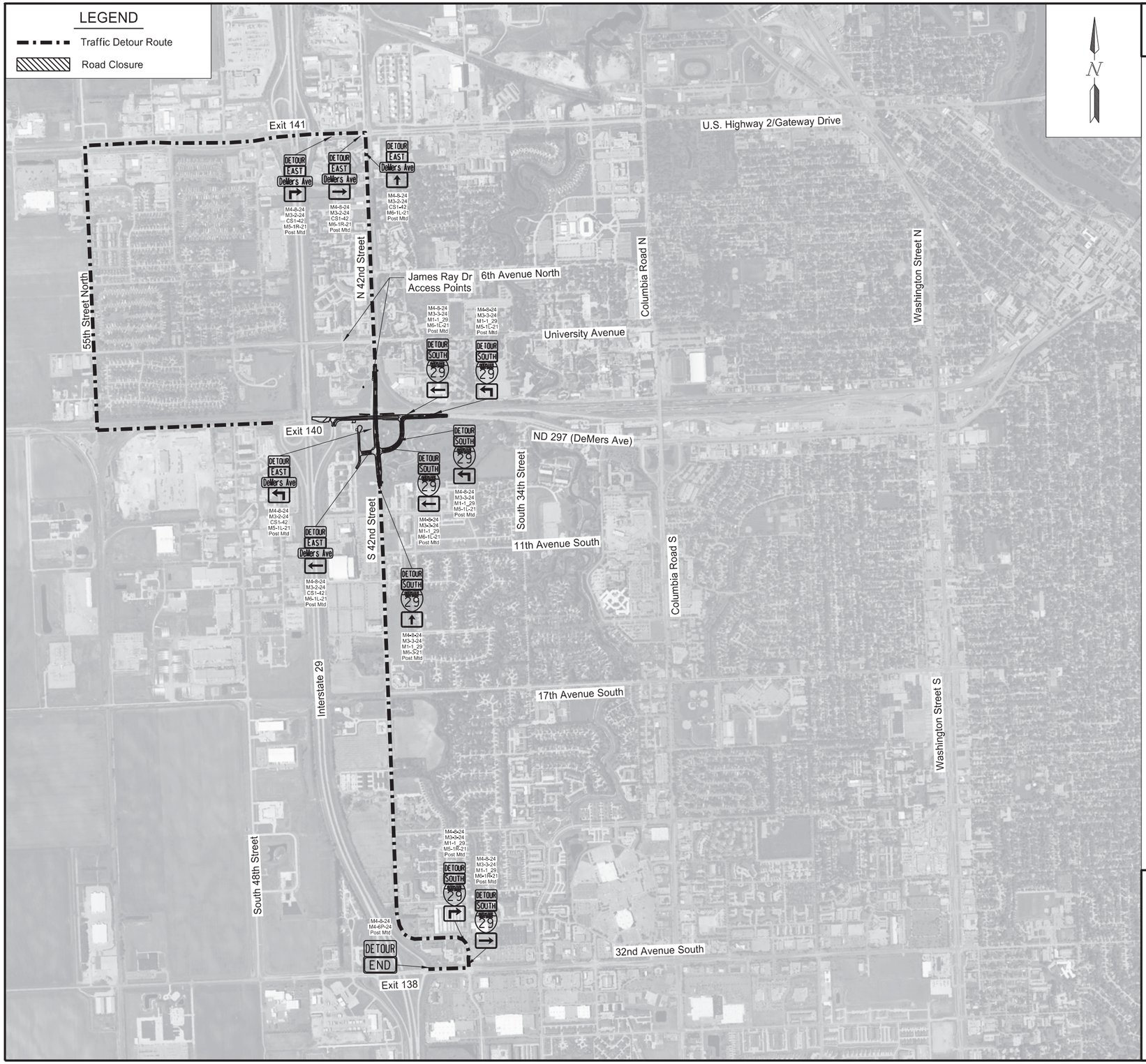
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8276
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NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	133

Notes:

1. N 42nd St and S 42nd St signage will take place simultaneously within the same phases as directed.

2. Advanced signage at exits 138 & 141 to notify vehicles and trucks that they can take exits before DeMers to reduce volume of traffic. This should help with the volume of traffic on the DeMers temp bypass. Refer to NDDOT Standard Drawing D-704-12 for PCMS layout.

3. Access and direction to Hilton Garden Inn Grand Forks-UND shall be maintained at all times.

4. Refer to NDDOT Standard Drawing D-704-21 for sign spacing.

5. Confirmatory signs shall be placed 200' after each major turning movement onto Gateway Dr, Columbia Rd, and 17th Ave S.

6. R11-3a-60 Barricade Mtd signage shall be placed on the NE corner of S 42nd St/17th Ave S and the SW corner of N 42nd S/Gateway Dr within the boulevard.

Work Zone Traffic Control

South & East Detour

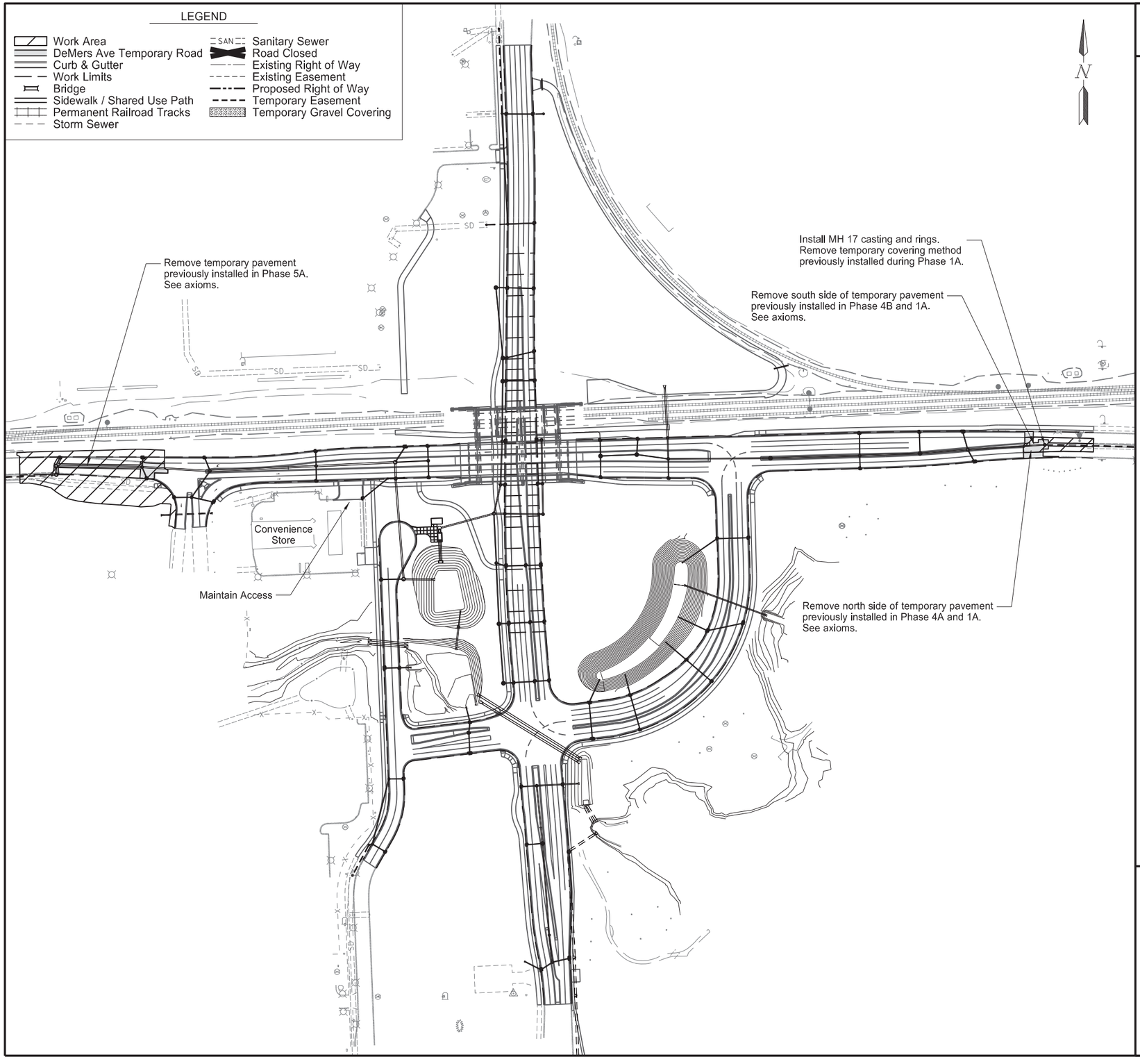
Phase 5D Vehicular Route

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8276
DATE: 2025.12.05 15:33:37 -06'00'
NORTH DAKOTA



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	134

SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 200+80 to 203+59 (OCL_297EB)(Aggregate)	75	TON
		Sta 222+44 to 224+06 (OCL_297EB)(Aggregate)	42	TON
		Sta 200+80 to 203+59 (OCL_297EB)(Bituminous)	159	TON
		Sta 222+44 to 224+06 (OCL_297EB)(Bituminous)	89	TON

TASKS:

Reconstruct inside lanes and median of ND 297 (DeMers Ave) on eastern side of project limits.

Finish constructing ND 297 (DeMers Ave) on western side of project.

Remove temporary cover over MH 17 previously installed during Phase 1A.

Finish installing MH 17 cover and rings.

See section 40 for removal details.

Work Zone Traffic Control

Phase 5D Overview

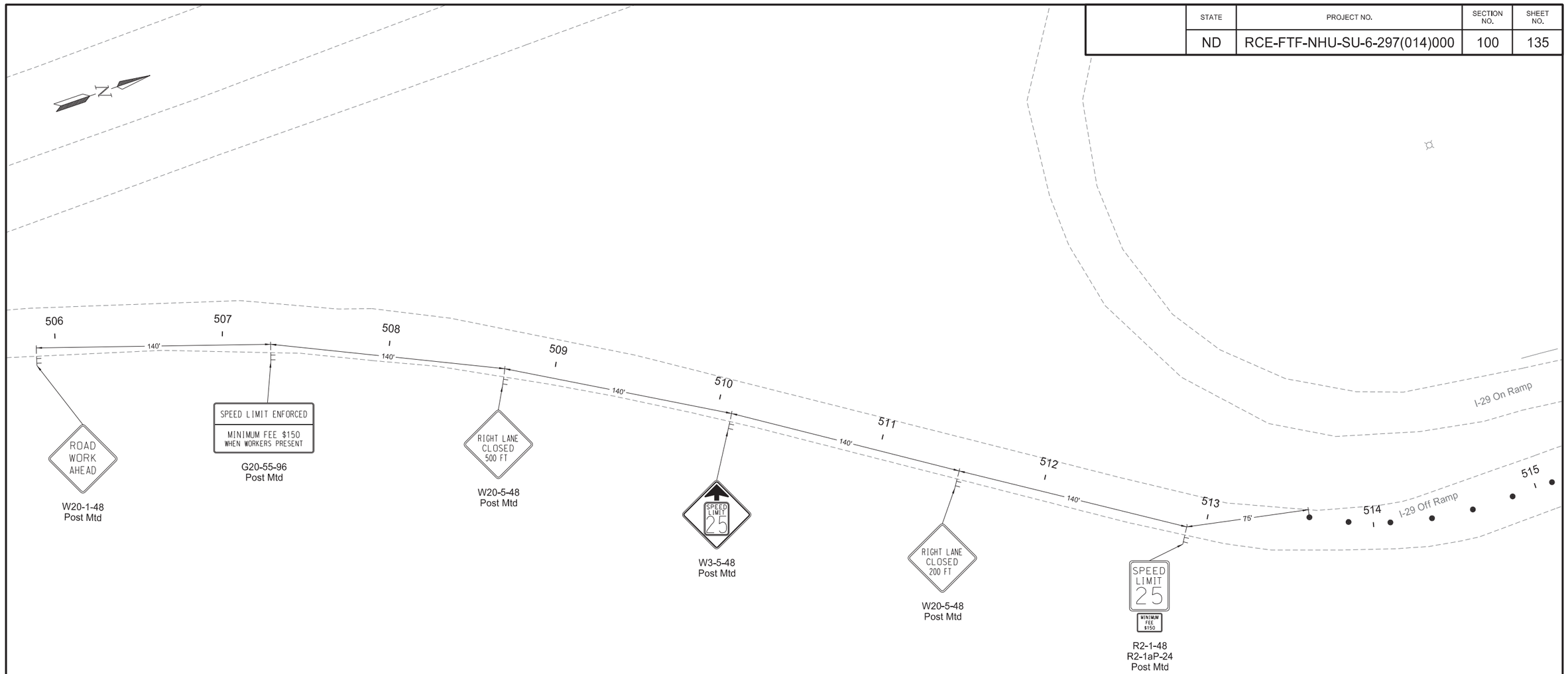
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.05 15:33:26 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	135



Legend

Sequencing Arrow Panel	Work Area
Type III Barricade	Sign
Delineator Drum	Pedestrian Walkway
Tubular Marker	Sidewalk Barricade

Work Zone Traffic Control

Phase 5D

I-29 On \ Off Ramps

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.05 15:33:15 -06'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	136

M4-8-24
M3-2-24
CS1-42
M6-1L-24
Post Mtd
(See Truck Detour)

DETOUR
EAST
DeMers Ave

N

ND 297 (DeMers Ave)

200'

12' EX THRU LN

12' EX THRU LN

DETOUR

M4-10R-48
Barricade Mtd

12' EX THRU LN

12' EX LT TURN LN

ROAD CLOSED

R11-2-48
Barricade Mtd

I-29 On Ramp

I-29 Off Ramp

I-29 SB

I-29 NB

DETOUR AHEAD

W20-2-48
Post Mtd

ROAD CLOSED

R11-2-48
Barricade Mtd

140'

W20-1-48
Post Mtd

ROAD WORK AHEAD

W4-2L-48
Post Mtd

W20-5-48
Post Mtd

RIGHT LANE CLOSED 150 FT

W20-5-48
Post Mtd

RIGHT LANE CLOSED 225 FT

75'

75'

75'

75'

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 5D

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.05 15:33:04 -06'00'
NORTH DAKOTA

12/4/2025 9:02:48 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_136_Phase 5d.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	137

N

R11-2-48
Barricade Mtd

ROAD CLOSED

204

205

206

207

208

ND 297 (DeMers Ave)

209

210

12' THRU LN

12' THRU LN

12' THRU LN

12' THRU LN

140'

417

516

515

I-29 Off Ramp

I-29 On Ramp

Maintain Access

ROAD WORK AHEAD

W20-1-48
Post Mtd

SPEED LIMIT ENFORCED

MINIMUM FEE $150
WHEN WORKERS PRESENT

G20-55-96
Post Mtd

Convenience Store

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 5D

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4276
DATE: 2025.12.05 15:32:49 -06'00'
NORTH DAKOTA

12/4/2025 9:02:51 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_137_Phase 5d.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	138

N

721

720

N 42nd St

719

718

717

716

S 42nd St

12' THRU LN

12' THRU LN

12' THRU LN

12' THRU LN

210 211 212 213 214 215 216 217 218

ND 297 (DeMers Ave)

140'

430'

140'

273'

140'

150'

12' THRU LN

12' THRU LN

12' LT TURN LN

12' LT TURN LN

12' RT TURN LN

7th Ave S

SPEED LIMIT ENFORCED
MINIMUM FEE $150
WHEN WORKERS PRESENT

G20-55-96
Post Mtd

LEFT LANE CLOSED 600 FT

W20-5-48
Post Mtd

SPEED LIMIT 25

W3-5-48
Post Mtd

SPEED LIMIT 25

W3-5-48
Post Mtd

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 5D

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4276
DATE: 2025.12.05 15:32:39 -06'00'
NORTH DAKOTA

12/4/2025 9:02:53 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_138_Phase 5d.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	139

M4-8-24
M3-4-24
CS1-42
M6-1L-21
Post Mtd
(See Vehicle Detour)

DETOUR
WEST
DeMers Ave

M4-8-24
M3-4-24
CS1-42
M5-1L-21
Post Mtd
(See Vehicle Detour)

DETOUR
WEST
DeMers Ave

W20-2-48
Post Mtd

DETOUR
500 FT

W20-3-48
Post Mtd

ROAD
CLOSED
AHEAD

Sequencing Arrow Panel
Type C

ND 297 (DeMers Ave)

12' THRU LN
12' THRU LN
12' LT TURN LN
12' LT TURN LN
12' THRU LN
12' THRU LN
12' RT TURN LN

140'
140'
140'
140'
140'
75'
75'
125'
200'
273'
150'
62.5'

218
219
220
221
222
223
225
226

LEFT LANE
CLOSED
300 FT

W20-5-48
Post Mtd

SPEED
LIMIT
25
MINIMUM
FEE
$150

R2-1-48
R2-1aP-24
Post Mtd

W4-2L-48
Post Mtd

SPEED
LIMIT
25

W3-5-48
Post Mtd

SPEED LIMIT ENFORCED
MINIMUM FEE $150
WHEN WORKERS PRESENT

G20-55-96
Post Mtd

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 5D

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

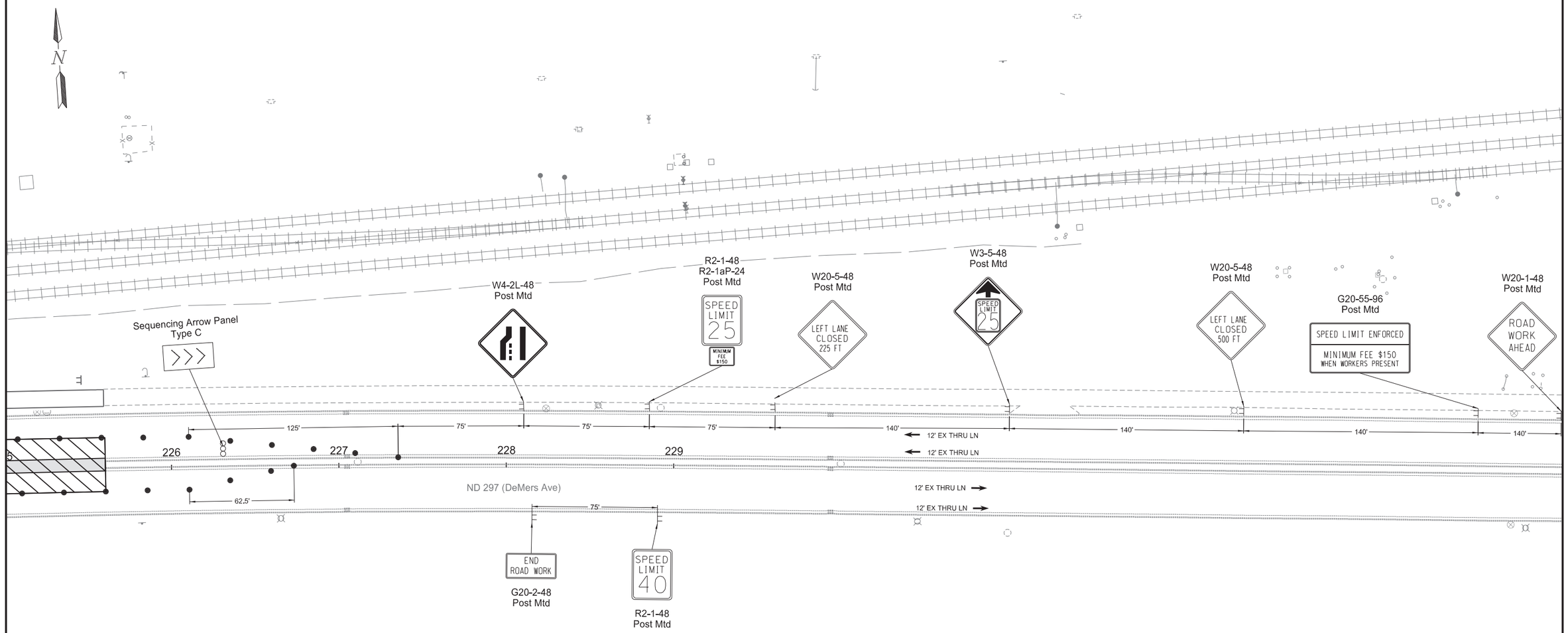
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
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NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	140



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 5D

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

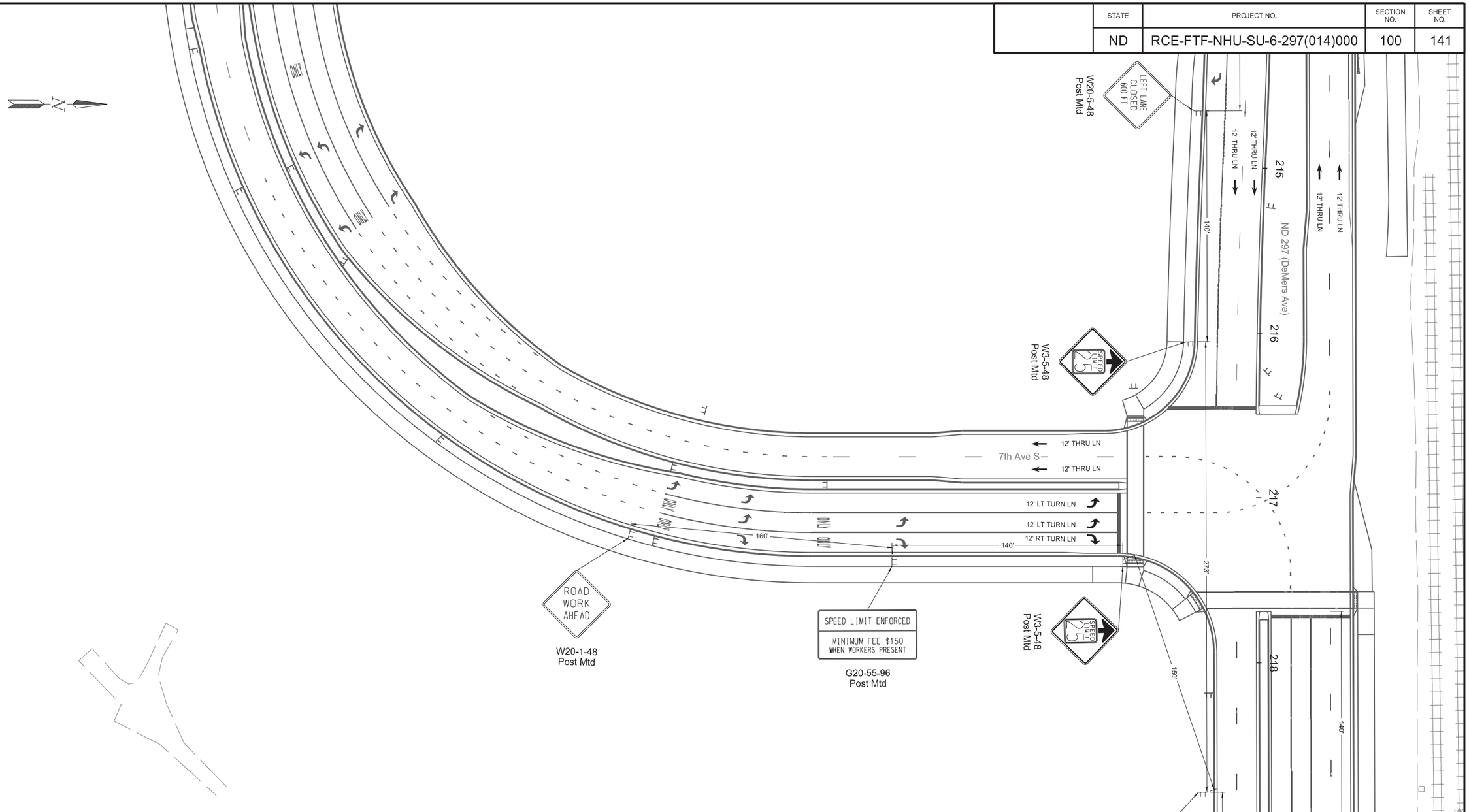
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4276
DATE: 2025.12.05 15:32:08 -06'00'
NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	141



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 5D

ND 297 (DeMers Ave) & 7th Ave S

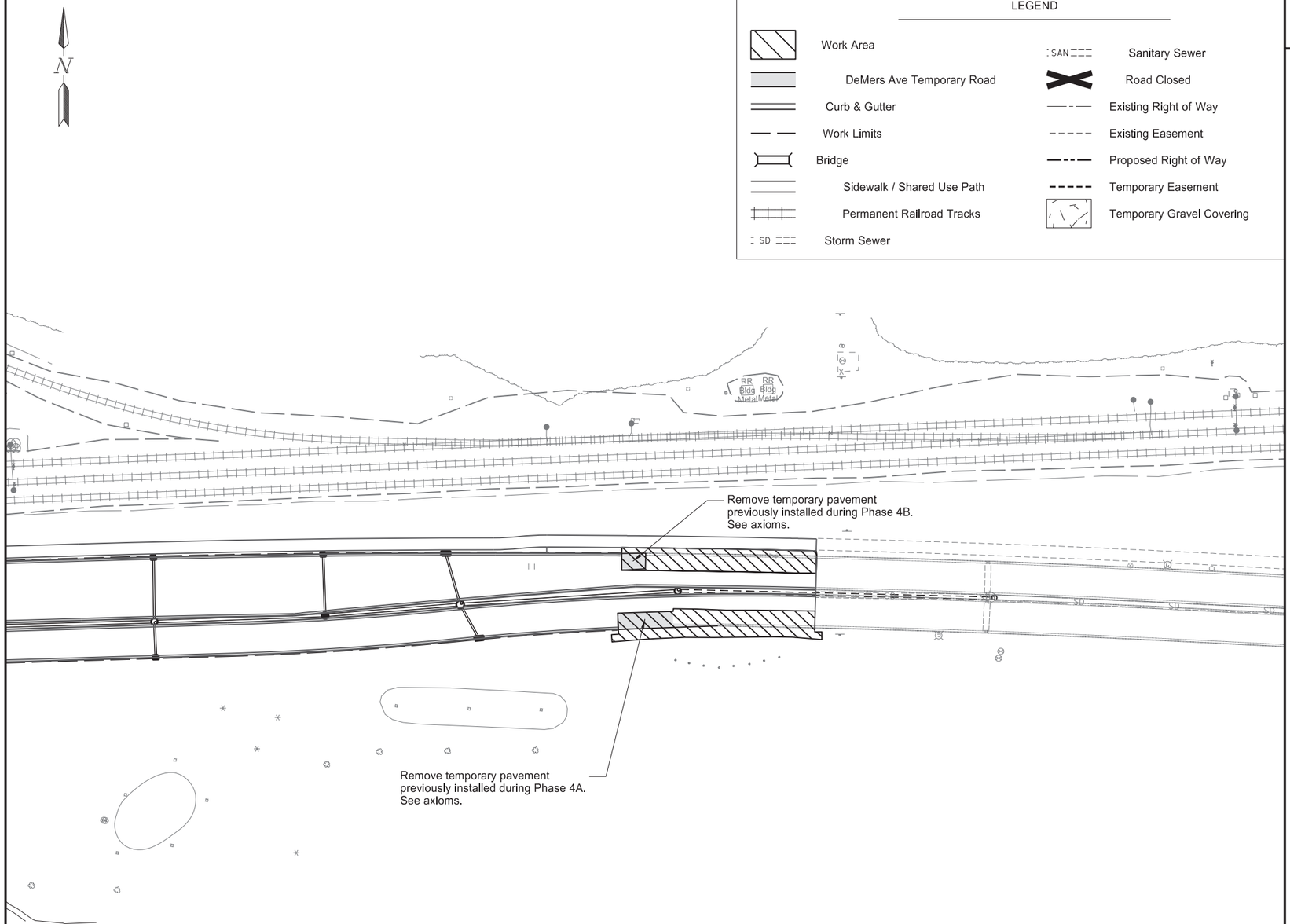
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.05 15:31:57 -06'00'
NORTH DAKOTA

12/4/2025 9:03:02 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_141_Phase 5d.dgn



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	142

SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 223+99 to 224+19 (OCL_297EB)(Aggregate)	5	TON
		Sta 223+94 to 224+78 (OCL_297EB)(Aggregate)	13	TON
		Sta 223+99 to 224+19 (OCL_297EB)(Bituminous)	11	TON
		Sta 223+94 to 224+78 (OCL_297EB)(Bituminous)	28	TON

TASKS:

Reconstruct ND 297 (DeMers Ave) east connection.

Maintain access to convenience store at all times.

See section 40 for removal details.

Work Zone Traffic Control

Phase 5E Overview

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4256
DATE: 2025.12.05 15:31:41 -06'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	143

N

W20-1-48
Post Mtd

ROAD WORK AHEAD

G20-55-96
Post Mtd

SPEED LIMIT ENFORCED
MINIMUM FEE $150
WHEN WORKERS PRESENT

W20-5-48
Post Mtd

RIGHT LANE CLOSED 500 FT

R2-1-48
Post Mtd

SPEED LIMIT 40

G20-2-48
Post Mtd

END ROAD WORK

ND 297 (DeMers Ave)

12' THRU LN
12' THRU LN
12' LT TURN LN
12' LT TURN LN
12' RT TURN LN
12' RT TURN LN

213 214 215 216 217 218 219 220 221

90' 90' 90' 90' 75' 75' 62.5' 140' 75' 75' 125'

W20-1-48
Post Mtd

ROAD WORK AHEAD

G20-55-96
Post Mtd

SPEED LIMIT ENFORCED
MINIMUM FEE $150
WHEN WORKERS PRESENT

W20-5-48
Post Mtd

RIGHT LANE CLOSED 500 FT

W3-5-48
Post Mtd

SPEED LIMIT 25

G20-55-96
Post Mtd

SPEED LIMIT ENFORCED
MINIMUM FEE $150
WHEN WORKERS PRESENT

W20-1-48
Post Mtd

ROAD WORK AHEAD

R2-1-48
R2-1aP-24
Post Mtd

SPEED LIMIT 25
MINIMUM FEE $150

W4-2R-48
Post Mtd

Sequencing Arrow Panel
Type C

7th Ave S

ONLY ONLY ONLY ONLY

Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 5E

ND 297 (DeMers Ave) & 7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

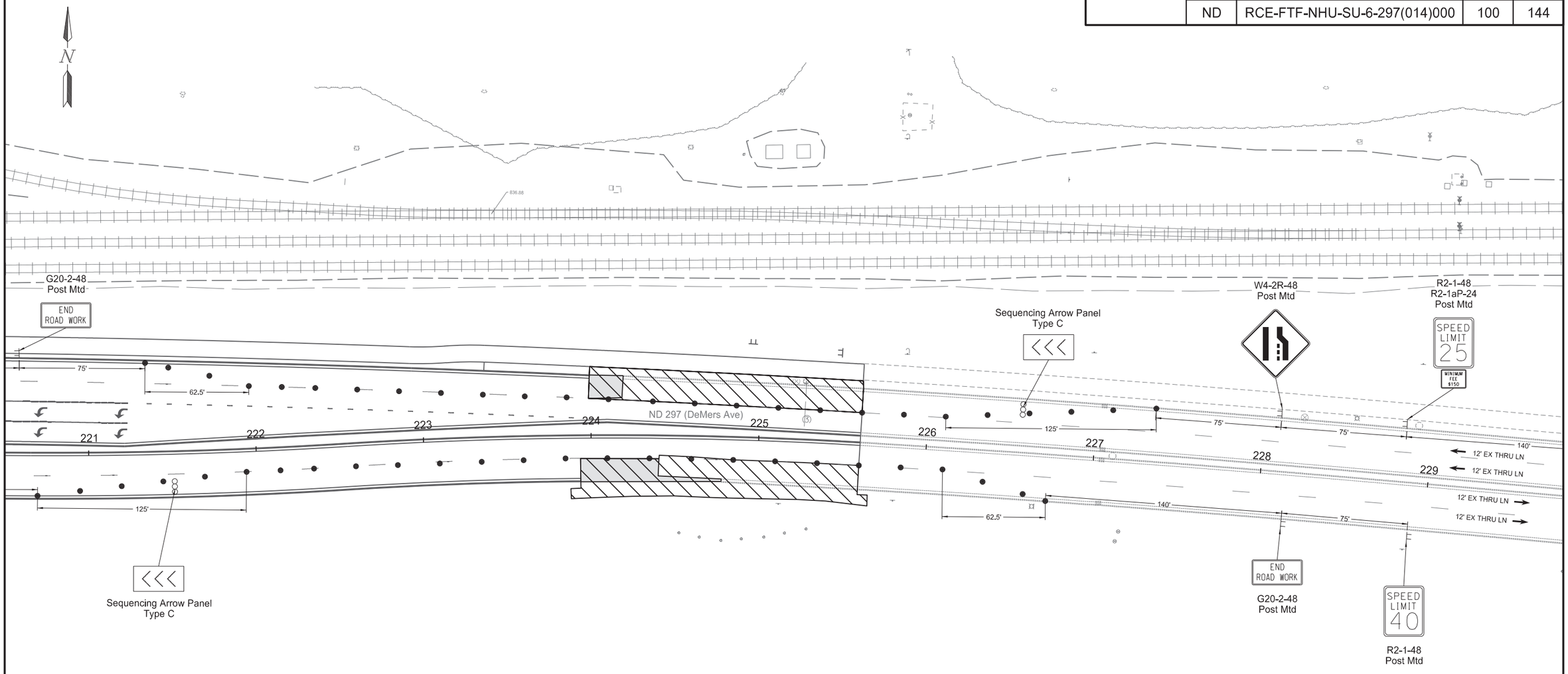
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9256
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NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	144



Legend

Sequencing Arrow Panel	Work Area
Type III Barricade	Sign
Delineator Drum	Pedestrian Walkway
Tubular Marker	Sidewalk Barricade

Work Zone Traffic Control

Phase 5E

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

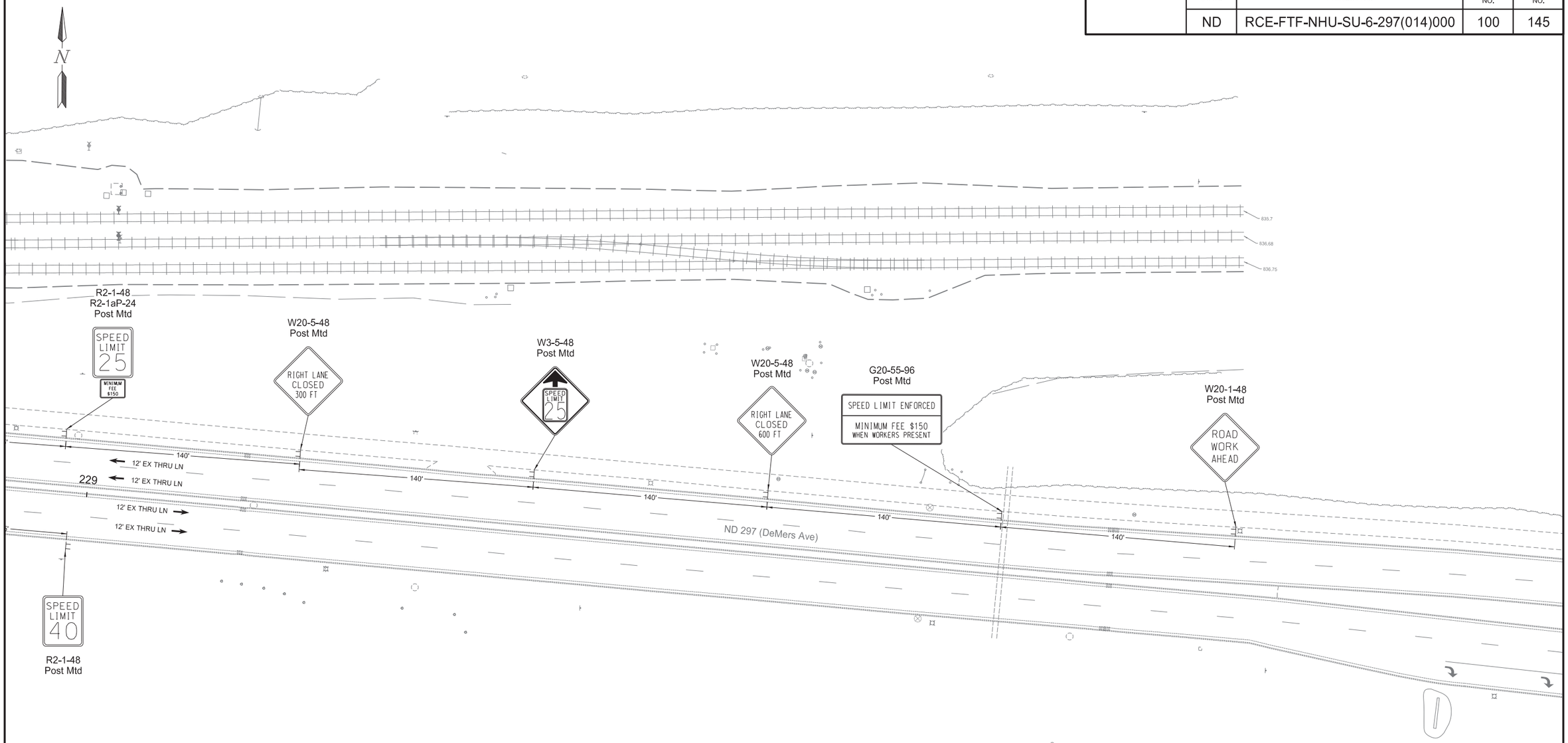
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8216
DATE: 2025.12.05 15:31:21 -06'00'
NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	100	145



Legend

- Sequencing Arrow Panel
- Type III Barricade
- Delineator Drum
- Tubular Marker
- Work Area
- Sign
- Pedestrian Walkway
- Sidewalk Barricade

Work Zone Traffic Control

Phase 5E

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9076
DATE: 2025.12.05 15:31:12 -06'00'
NORTH DAKOTA

12/4/2025 9:03:09 AM Colton.Brown H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\100WZ_145_Phase 5e.dgn

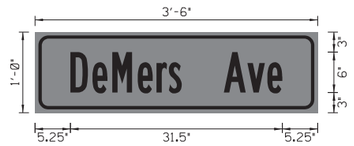
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	100	146

SIGN NUMBER	N
WIDTH X HEIGHT	3'-6" x 1'-0"
BORDER WIDTH	0.5" (inset 0.5")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Orange
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: Black

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S): none

AREA: 3.5 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Const_Conv_Detour.ssl

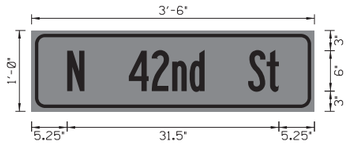
LETTER POSITION (X)																			LENGTH	SIZE	SERIES
D	e	M	e	r	s		A	v	e										31.45	6/4.5	B 2000
5.28	8.53	11.49	15.26	18.06	19.88	21.9	28.06	31.56	34.51												

SIGN NUMBER	N
WIDTH X HEIGHT	3'-6" x 1'-0"
BORDER WIDTH	0.5" (inset 0.5")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Orange
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: Black

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S): none

AREA: 3.5 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Const_Conv_Detour.ssl

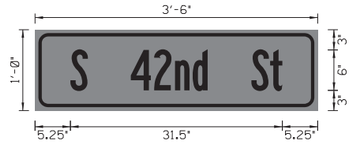
LETTER POSITION (X)																			LENGTH	SIZE	SERIES
N		4	2	n	d		S	t											31.45	6/4.5	B 2000
5.28	8.25	14.43	17.84	20.89	23.48	25.99	32.17	34.93													

SIGN NUMBER	N
WIDTH X HEIGHT	3'-6" x 1'-0"
BORDER WIDTH	0.5" (inset 0.5")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Orange
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: Black

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S): none

AREA: 3.5 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Const_Conv_Detour.ssl

LETTER POSITION (X)																			LENGTH	SIZE	SERIES
S		4	2	n	d		S	t											31.45	6/4.5	B 2000
5.28	8.05	14.25	17.7	20.79	23.42	25.95	32.15	34.93													

Work Zone Traffic Control

Sign Details

ND 297 (DeMers Ave) & 42nd St Grade Separation

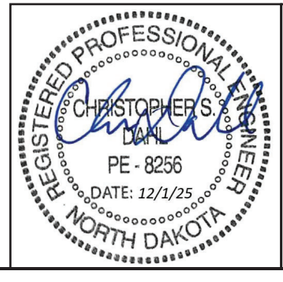
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-10276
DATE: 2025.12.05 15:30:59 -06'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
N.D.	RCE-FTF-NHU-SU-6-297(014)000	110	1

Station / RP	Sign / Assembly No.	Flat Sheet For Signs IV SF	Flat Sheet For Signs XI SF	Panel For Signs IV SF	Panel For Signs XI SF	Overlay Panel IV SF	Overlay Panel XI SF	Vert Clear-ance FT	Galv Steel Sheet Standard Pipe 1st LF	Galv Steel Sheet Standard Pipe 2nd LF	Size	Galv Steel Post W-Shape Posts 1st LF	Galv Steel Post W-Shape Posts 2nd LF	Galv Steel Post W-Shape Posts 3rd LF	Max Post Len LF	Post Space FT	Revise Fuse Joint EA	Std Pipe Fdn Dia FT	Std Pipe Fdn Dep FT	Std Pipe Fdn Vol CY	W-Shape Pile LF	Remove Sign Fdns Conc Fdn EA	Remove Sign Fdns W-Shape Pile EA	Reset Sign Panel EA	Reset Sign Support EA	Stub Post EA	Multi Dir Base EA	Comments
OCL_29SEL																												
400+51 Lt mdn	R4-7		5.0					7.0	9.2		3.5				35.4			1.3	4.5	0.2							1	
Sub Total			5.0						**Total** 9.2			**Total** 0.0								0.2	0	0	0	0	0	0	1	
OCL_29NBE																												
516+69 Rt	R1-2		3.9					7.0	9.2		3.5				37.3			1.3	4.5	0.2						1		
516+97 Rt mdn	R6-1L, R6-1R, R1-1, R5-1		35.3					7.0	11.2		3.5				16.6			1.3	5.5	0.3							1	
Sub Total			39.2						**Total** 20.4			**Total** 0.0								0.5	0	0	0	0	0	1	1	
SCL_DeMersAve																												
10+49 Rt mdn	R4-7																					1						
10+75 Rt mdn	R1-1																					1						
11+11 Rt	R1-2																					1						
Sub Total									**Total** 0.0			**Total** 0.0								0.0	0	3	0	0	0	0	0	
Grand Total			**44.2**						**Total** **29.6**			**Total** **0.0**								**0.7**	**0**	**3**	**0**	**0**	**0**	**1**	**2**	



Sign Summary
Round Steel Pipe & W-Shape

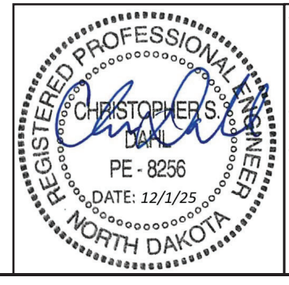
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
N.D.	RCE-FTF-NHU-SU-6-297(014)000	110	2

Station / RP	Sign No.	Assembly No.	Flat Sheet For Signs IV SF	Flat Sheet For Signs XI SF	Sign Support Length 1st LF	2nd LF	3rd LF	4th LF	Vert Clear-ance FT	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
ND 297 (DeMers Ave)																							
200+92 Lt mdn	R4-7	9		5.0	9.7				7.0	2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
201+31 Rt	W5-4a	102		2.3	6.0				4.0	2 x 2 12 ga	17.8						1	4	2.25 x 2.25 12 ga				
201+96 Rt	SN6		29.8		9.7	9.7			7.0	2.25 x 2.25 12 ga	11.1	2.9	2.9			2.5 x 2.5 12 ga	2	4	3 x 3 7 ga			2	
203+29 Rt	R1-1	100		1.9	5.7				4.0	2 x 2 12 ga	21.4						1	4	2.25 x 2.25 12 ga				
204+65 Lt mdn	R4-7	9		5.0	9.7				7.0	2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
208+06 Rt mdn	R6-1R	27		3.0	8.2				7.0	2 x 2 12 ga	13.2						1	4	2.25 x 2.25 12 ga				
208+26 Rt	S.A.C			9.2	11.7				7.0	2.5 x 2.5 12 ga	11.8						1	4	3 x 3 7 ga				R1-1 with R3-2
208+71 Rt	R2-1	10		7.5					7.0														Mount on Light Standard
209+95 Rt	SN8		18.8		8.9	8.9			7.0	2.5 x 2.5 12 ga	9.8						2	4	3 x 3 7 ga			2	
214+68 Rt	RESET																			1			Mount on Light Standard
215+24 Lt	R1-5a	36		8.8	9.7				7.0	2.5 x 2.5 12 ga	10.7						1	4	3 x 3 7 ga				
216+24 Lt	R5-1	16		9.0	9.9				7.0	2.5 x 2.5 12 ga	10.5						1	4	3 x 3 7 ga				
216+34 Rt	D11-1a	103	3.8		6.4				4.0	2 x 2 12 ga	14.8						1	4	2.25 x 2.25 12 ga				Mount with M6-4P
216+39 Lt	R4-7	9		5.0	9.7				7.0	2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
217+72 Rt	R3-4			9.0																			Mount on Mast Arm
217+72 Rt	R3-5R			12.0																			Mount on Signal
217+72 Rt	SN3		17.0																				Mount on Mast Arm
217+72 Rt	R3-6a			7.5																			Mount on Mast Arm
217+72 Rt	R3-6a			7.5																			Mount on Mast Arm
218+18 Rt	R14-1	29		3.0	8.7				7.0	2 x 2 12 ga	13.6						1	4	2.25 x 2.25 12 ga				
218+87 Rt	R2-1	10		7.5																			Mount on Light Standard
222+90 Rt	RESET																			1			Mount on Light Standard
606+10 Lt	S.A.A		24.4		12.9	12.9			7.0	2.25 x 2.25 12 ga	16.0	2.5	2.5			2.5 x 2.5 12 ga	2	4	3 x 3 7 ga			2	
606+51 Rt mdn	R3-7L	16		9.0	9.9				7.0	2.5 x 2.5 12 ga	10.5						1	4	3 x 3 7 ga				
610+43 Lt	SN7		13.8		8.9				7.0	2.25 x 2.25 12 ga	11.5	2.0				2.5 x 2.5 12 ga	1	4	3 x 3 7 ga			1	
613+34 Rt mdn	R3-7L	16		9.0	9.9				7.0	2.5 x 2.5 12 ga	10.5						1	4	3 x 3 7 ga				
616+06 Rt	R3-4			9.0																			Mount on Signal
616+06 Lt	R3-6a			7.5																			Mount on Mast Arm
616+06 Rt	R3-6a			7.5																			Mount on Mast Arm
616+06 Lt	SN3		17.0																				Mount on Mast Arm
617+05 Lt	R3-4			9.0																			Mount on Mast Arm
617+22 Lt	M1-1_29	379	8.2																				Mount with M4-5 and M6-1L on Mast Arm
617+30 Lt	R3-5R			7.5																			Mount on Mast Arm



Sign Summary
Perforated Tube

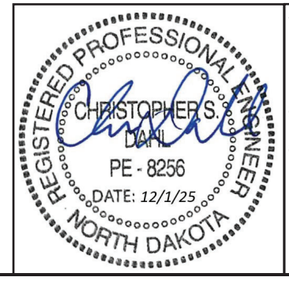
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
N.D.	RCE-FTF-NHU-SU-6-297(014)000	110	3

Station / RP	Sign No.	Assembly No.	Flat Sheet For Signs IV SF	Flat Sheet For Signs XI SF	Sign Support Length 1st LF	2nd LF	3rd LF	4th LF	Vert Clear-ance FT	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
617+33 Lt	SN2		18.0																				Mount on Mast Arm
625+48 Lt	SN9		18.8		8.9	8.9			7.0	2.5 x 2.5 12 ga	9.8						2	4	3 x 3 7 ga			2	
Sub Total			169.6	161.7		**Total**	204.9										**Total**	88.0		2	0	9	



Sign Summary
Perforated Tube

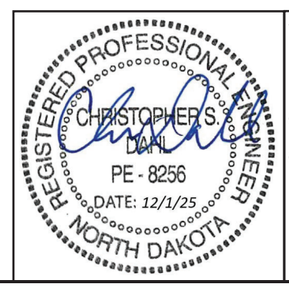
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
N.D.	RCE-FTF-NHU-SU-6-297(014)000	110	4

Station / RP	Sign No.	Assembly No.	Flat Sheet For Signs IV SF	Flat Sheet For Signs XI SF	Sign Support Length 1st LF	2nd LF	3rd LF	4th LF	Vert Clear-ance FT	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 42nd Street / N 42nd St																							
305+00 Rt	M1-1_29	379	8.2																				M1-1_29 with M4-5 & M5-1R, Mount on Light Standard
305+27 Lt mdn	R4-7	9		5.0	9.7				7.0	2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
305+84 Lt mdn	R6-1R	27		3.0	8.2				7.0	2 x 2 12 ga	13.2						1	4	2.25 x 2.25 12 ga				
306+80 Lt mdn	R4-7c			3.8	9.7				7.0	2 x 2 12 ga	14.7						1	4	2.25 x 2.25 12 ga				Mount using Special Assembly D
310+86 Rt	D11-1a	103	3.8		6.4				4.0	2 x 2 12 ga	14.8						1	4	2.25 x 2.25 12 ga				Mount with M6-1P
310+93 Rt	D11-1a	103	3.8		6.4				4.0	2 x 2 12 ga	14.8						1	4	2.25 x 2.25 12 ga				Mount with M6-1P
312+56 Lt mdn	R4-7	9		5.0	9.7				7.0	2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
312+60 Rt	R3-5R			12.0																			Mount on Mast Arm
312+60 Rt	SN3		17.0																				Mount on Mast Arm
312+60 Lt	R3-6a			7.5																			Mount on Mast Arm
312+60 Rt	R3-6a			7.5																			Mount on Mast Arm
312+60 Rt	M1-1_29	379	8.2																				M1-1_29 with M4-5 & M6-1R, Mount on Mast Arm
316+67 Rt	R2-1	10		7.5					7.0														Mount on Light Standard
325+51 Rt	R8-3	9		5.0																			Mount on Light Standard
705+48 Lt	R2-1	10		7.5	10.2				7.0	2.25 x 2.25 12 ga	10.6						1	4	2.5 x 2.5 12 ga				
706+50 Lt	R9-6	7		1.5	5.7				4.0	2 x 2 12 ga	25.5						1	4	2.25 x 2.25 12 ga				
706+93 Rt mdn	R4-7	9		5.0	9.7				7.0	2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
707+43 Lt	R3-8a	9		5.0																			Mount on Light Standard
707+76 Lt	RESET	15			7.7				5.0	2 x 2 12 ga	8.9						1	4	2.25 x 2.25 12 ga	1			Reset Event Sign on New Post
710+80 Rt mdn	R4-7	9		5.0	9.7				7.0	2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
710+87 Rt	R3-6a			7.5																			Mount on Mast Arm
710+87 Lt	R3-6R			7.5																			Mount on Mast Arm
710+87 Lt	SN3		17.0																				Mount on Mast Arm
710+87 Rt	R3-4			9.0																			Mount on Mast Arm
710+87 Lt	M1-1_29	379	8.2																				M1-1_29 with M4-5 & M6-1L, Mount on Mast Arm
712+34 Lt	D11-1a	103	3.8		6.4				4.0	2 x 2 12 ga	14.8						1	4	2.25 x 2.25 12 ga				Mount with M6-1P
714+23 Lt	RESET	9																		1			Mount on Light Standard
722+06 Rt mdn	R4-7	9		5.0	9.7				7.0	2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
723+05 Lt	M1-1_29	379	8.2																				Mount on Light Standard. Mount with M4-5 & M5-1L
725+09 Lt	R1-1	100		1.9	5.7				4.0	2 x 2 12 ga	21.4						1	4	2.25 x 2.25 12 ga				
725+20 Lt	R1-1	1		5.2	9.7				7.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga				



Sign Summary
Perforated Tube

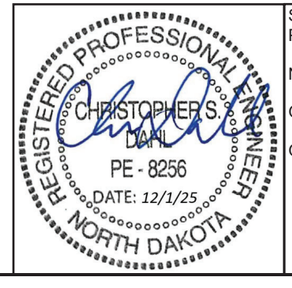
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
N.D.	RCE-FTF-NHU-SU-6-297(014)000	110	5

Station / RP	Sign No.	Assembly No.	Flat Sheet For Signs IV SF	Flat Sheet For Signs XI SF	Sign Support Length 1st LF	2nd LF	3rd LF	4th LF	Vert Clear-ance FT	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
725+76 Lt	R1-1	100		1.9	5.7				4.0	2 x 2 12 ga	21.4						1	4	2.25 x 2.25 12 ga				
727+00 Lt	RESET								7.0	2 x 2 12 ga										1	1		
728+03 Lt	R8-3	9		5.0																			Mount on Light Standard
Sub Total			78.2	123.3		**Total**	130.3										**Total**	64.0		3	1	0	
South 43rd Street																							
709+47 Rt	SN11	8		3.0	9.2				7.0	2 x 2 12 ga	14.6						1	4	2.25 x 2.25 12 ga				
709+70 Lt	R2-1	9		5.0																			Mount on Light Standard
711+13 Rt	S.A.3D		12.0	6.0	11.7				7.0	2.25 x 2.25 12 ga	12.2	3.5				2.5 x 2.5 12 ga	1	4	3 x 3 7 ga			1	Mount R1-1 with SN4, SN5 Back-to-Back, & R1-3P
712+59 Lt	S.A.F			6.0	10.2				7.0	2.25 x 2.25 12 ga	10.6						1	4	2.5 x 2.5 12 ga				Mount R1-1 with R1-3P
713+43 Rt	SN11	8		3.0	9.2				7.0	2 x 2 12 ga	14.6						1	4	2.25 x 2.25 12 ga				
714+68 Lt	SN11	8		3.0																			Mount on Light Standard
717+03 Lt	SN12	8		3.0					7.0														Mount on Light Standard
Sub Total			12.0	29.0		**Total**	40.3										**Total**	16.0		0	0	1	



Sign Summary
Perforated Tube

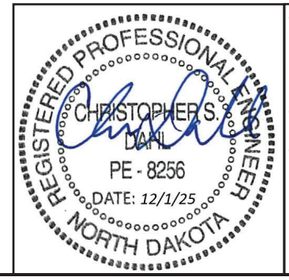
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
N.D.	RCE-FTF-NHU-SU-6-297(014)000	110	6

Station / RP	Sign No.	Assembly No.	Flat Sheet For Signs IV SF	Flat Sheet For Signs XI SF	Sign Support Length 1st LF	2nd LF	3rd LF	4th LF	Vert Clear-ance FT	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
7th Ave S																							
401+00 Lt mdn	R4-7c			3.8	9.7				7.0	2 x 2 12 ga	14.7						1	4	2.25 x 2.25 12 ga				Mount using Special Assembly D
401+02 Rt	SN1		17.0																				Mount on Mast Arm
401+02 Rt	R3-6R			7.5																			Mount on Mast Arm
401+02 Rt	R3-6a			7.5																			Mount on Mast Arm
402+10 Rt	R2-1	9		5.0	9.7				7.0	2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
402+96 Lt mdn	R3-7L	15		6.3	9.7				7.0	2.25 x 2.25 12 ga	11.6						1	4	2.5 x 2.5 12 ga				
402+96 Rt	R3-7R	15		6.3	9.7				7.0	2.25 x 2.25 12 ga	11.6						1	4	2.5 x 2.5 12 ga				
404+83 Rt	M1-1_29	379	8.2		11.5				7.0	2.5 x 2.5 12 ga	12.9						1	4	3 x 3 7 ga				M1-1_29 with M4-5 & M5-1L Post Mounted
406+20 Lt mdn	R3-7L	15		6.3	9.7				7.0	2.25 x 2.25 12 ga	11.6						1	4	2.5 x 2.5 12 ga				
406+21 Rt	R3-7R	15		6.3	9.7				7.0	2.25 x 2.25 12 ga	11.6						1	4	2.5 x 2.5 12 ga				
796+81 Lt	S.A.F			6.0	10.2				7.0	2.25 x 2.25 12 ga	10.6						1	4	2.5 x 2.5 12 ga				Mount R1-1 with R1-3P
798+51 Rt mdn	R4-7	9		5.0	9.7				7.0	2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
798+98 Rt	R3-4			9.0																			Mount on Mast Arm
798+99 Lt	R3-6a			7.5																			Mount on Mast Arm
799+01 Lt	SN1		17.0																				Mount on Mast Arm
799+02 Lt	R3-5R			12.0																			Mount on Mast Arm
803+02 Rt mdn	R3-7L	15		6.3	9.7				7.0	2.25 x 2.25 12 ga	11.6						1	4	2.5 x 2.5 12 ga				
805+48 Lt	SN10		18.8		8.9	8.9			7.0	2.5 x 2.5 12 ga	9.8						2	4	3 x 3 7 ga			2	
806+27 Rt mdn	R3-7L	16		9.0	9.9				7.0	2.5 x 2.5 12 ga	10.5						1	4	3 x 3 7 ga				
807+35 Lt	R2-1	9		5.0																			Mount on Light Standard
Sub Total			61.0	108.8	**Total**	127.0											**Total**	52.0		0	0	2	
Grand Total			**320.8**	**422.8**	**Total**	**502.5**											**Total**	**220**	**0**	**5**	**1**	**12**	



Sign Summary
Perforated Tube

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	110	7

N

W MH

Sta 10+73 Lt
Remove

NORTH
INTERSTATE NORTH DAKOTA 29
81

SOUTH
INTERSTATE NORTH DAKOTA 29
81

BNSF

R/W Exst

6 7 8 9 10 11 12 13

ND 297 (DeMers Avenue)

I-29 SB

I-29 NB

PATH NARROWS
Sta 7+82 Rt
Remove

NORTH
29 81
Winnipeg
Sta 9+17 Rt
Remove

STOP
Sta 9+75 Rt
Remove

Sta 10+49 Rt
Remove Sign,
Support, and Foundation

I-29
Entrance Loop

I-29
Off Ramp

ONE WAY
ONE WAY
STOP
DO NOT
ENTER
Sta 10+75 Rt
Remove Signs,
Support, and Foundation

YIELD
Sta 11+11 Rt
Remove Sign, Support,
and Foundation

STOP
Sta 11+66 Rt
Remove

SPEED LIMIT 40
TRUCK ROUTE
Sta 12+22 Rt
Remove

Sta 12+94 Rt
Remove

Signing

Removals

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4276
DATE: 2025.12.01 16:08:29 -06'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	110	8

N

Sta 13+59 Lt
Remove
Fargo
Winnipeg

R/W RR Exst

Sta 16+04 Lt
Remove

Sta 17+52 Lt
Remove
BIKE ROUTE

Sta 17+51 Lt
Remove
R R
LOOK
NO
TRAIN HORN

R/W Exst

N 42nd Street

Sta 18+27 Lt
Sta 18+26 Lt
Remove
RAIL ROAD CROSSING
2 TRACKS

Sta 18+27 Lt
Remove

Sta 18+32 Lt
Remove
TO
INTERSTATE
NORTH DAKOTA
29

Sta 18+64 Lt
Remove
RAIL ROAD CROSSING
2 TRACKS

Sta 18+39 Lt
Sta 18+53 Rt
Remove

Sta 17+53 Lt
Remove
ONLY

BNSF

STA 18+84 LT
Remove
BIKE ROUTE

Sta 18+90 Lt
Remove
ONE WAY
LOOK
NO
TRAIN HORN

Sta 18+30 Lt
Sta 17+55 Lt
Remove

Sta 18+68 Lt
Remove Sign
ONLY

Sta 19+36 Lt
Remove
YIELD
TO
PEDS

LEFT TURN
YIELD
ON GREEN

R/W Exst

13 14 15 16 17 18 19 20 21

ND 297 (DeMers Avenue)

N 42nd St
Alerus Center

Sta 17+54 Lt
Remove

Sta 18+89 Rt
Remove

Sta 17+54 Lt
Remove
Electronic
Lane Control
Sign

Sta 17+54 Lt
Remove
Electronic
Lane Control
Sign

ONLY
Sta 17+55 Lt
Remove

DeMers Ave
Sta 18+65 Lt
Sta 17+76 Rt
Remove

Sta 18+88 Rt,
Sta 18+88 Rt
Remove

R/W Exst

Esmt Exst

S 42nd St
Alerus Center
Sta 18+87 Rt
Remove

ONLY
Sta 18+88 Rt
Remove

UND
ERICKSON ALUMNI CENTER
RALPH ENGELSTAD ARENA
CHESTER FRITZ AUDITORIUM
MEMORIAL UNION
STA 13+54 Rt
Remove

STOP
Sta 14+47 Rt
Remove

NO
TRAIN HORN
Sta 14+59 Rt
Remove

UNIVERSITY
OF NORTH
DAKOTA
Sta 15+82 Rt
Remove

GRAND FORKS
NORTH DAKOTA
GREAT
AMERICAN
Military Friendly
Since
1955
Sta 16+21 Rt
Reset Signs Panels on Light Standard at
Sta 214+94 Rt (OCL_297EB)

ONE WAY
Sta 17+49 Rt
Remove

NO
MOTOR
VEHICLES
Sta 17+58 Rt
Remove

ONLY
Sta 17+71 Rt
Remove

Sta 17+90 Lt
Sta 18+03 Lt
Remove

LEFT TURN
YIELD
ON GREEN
Sta 18+10 Lt
Remove

S 42nd Street

Tee Box

Signing

Removals

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4226
DATE:2025.12.01 16:08:42 -06'00'
NORTH DAKOTA

11/24/2025 2:17:55 PM ryan.genz H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\110SN_008_LREMSIGN.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	110	9

N

BNSF

R/W RR Exst

Sta 21+97 Lt
Remove

Sta 21+97 Lt
Remove

ONLY

NO TRAIN HORN

Sta 21+96 Lt
Remove

ONLY

Sta 23+20 Lt
Remove and
Return to BNSF

DANGER
TRESPASSING
RAILWAY
BNSF POLICE

Sta 23+53 Lt
Remove and
Return to GO CHURCH

GO CHURCH

Sta 27+27 Lt
Remove and
Return to BNSF

DANGER
TRESPASSING
RAILWAY
BNSF POLICE

Sta 27+35 Lt
Remove

ALERUS CENTER

Sta 29+32 Lt
Remove and
Return to BNSF

DANGER
TRESPASSING
RAILWAY
BNSF POLICE

BNSF

BNSF

R/W Exst

R/W Exst

Sta 21+96 Lt
Remove Electronic
Lane Control Sign

21 22 23 ND 297 (DeMers Avenue) 24 25 26 27 28 29

R/W Exst

Esmt Exst

USDA
NUTRITION
RESEARCH
CENTER

Sta 25+45 Rt
Reset Sign Panel on Light Standard at
Sta 222+90 Rt (OCL_297EB)

SPEED
LIMIT
40

Sta 21+81 Rt
Remove

NO TRAIN HORN

Sta 21+95 Rt
Remove

ONLY

Sta 21+96 Lt
Remove

UND
NO
UNAUTHORIZED
VEHICLES
ALLOWED

Sta 23+00 Rt
Remove and Return
to Ray Richards Golf Course

UND
NO
UNAUTHORIZED
VEHICLES
ALLOWED

Sta 27+19 Rt
Remove and Return to
Ray Richards Golf Course

Tee Box

Tee Box

Green

Sand Bunker

Signing

Removals

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-10276
DATE: 2025.12.01 16:08:54 -06'00'
NORTH DAKOTA

11/24/2025 2:17:57 PM ryan.genz H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\110SN_009_LREMSIGN.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	110	10

N

R/W RR Exst

Lg Evgr Trees

Sta 29+32 Lt
Remove and
Return to BNSF

DANGER TRESPASSING RAILWAY BNSF POLICE

Sta 31+34 Lt
Remain in Place

DANGER TRESPASSING RAILWAY BNSF POLICE

Sta 31+67 Lt
Remove

UND

Sta 33+36 Lt
Remain in Place

DANGER TRESPASSING RAILWAY BNSF POLICE

Sta 35+31 Lt
Remain in Place

DANGER TRESPASSING RAILWAY BNSF POLICE

Sta 37+32 Lt
Remain in Place

Back to Back

STOP

DANGER TRESPASSING RAILWAY BNSF POLICE

BNSF

BNSF

Sta 31+67 Lt
Remove

ONLY

Sta 31+67 Lt
Remove Electronic
Lane Control Sign

29 30 31 32 33 34 35 36 37 38

ND 297 (DeMers Avenue)

R/W Exst

Tee Box

UND
NO
UNAUTHORIZED
VEHICLES
ALLOWED

Sta 31+54 Rt
Remain in Place

R/W Exst

Esmt Exst

Esmt Exst

UND
NO
UNAUTHORIZED
VEHICLES
ALLOWED

Sta 35+28 Rt
Remain in Place

SERTOMA PARK
JAPANESE
GARDEN

Sta 36+86 Rt
Remain in Place

Signing

Removals

ND 297 (DeMers Ave)

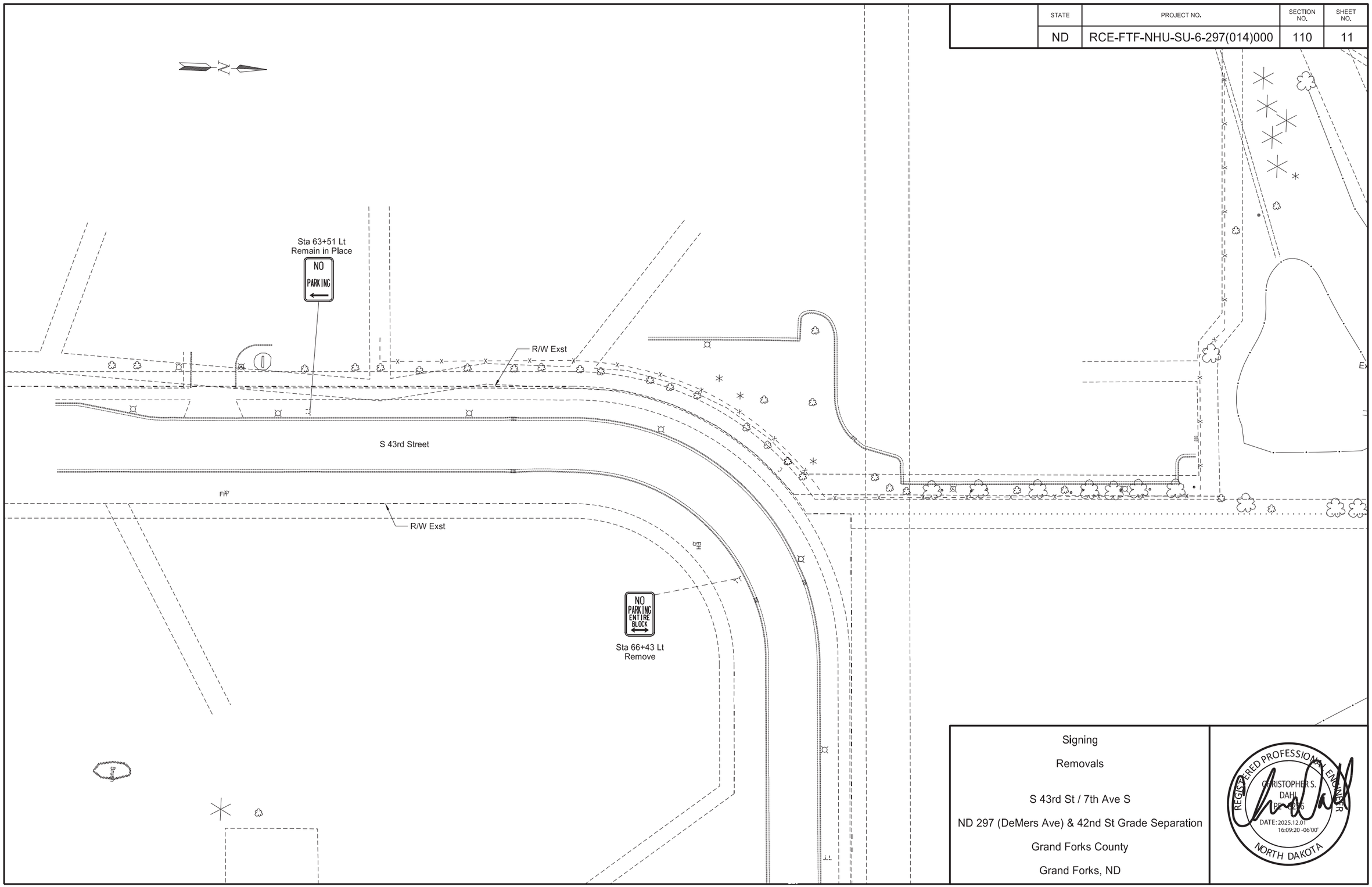
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4276
DATE: 2025.12.01 16:09:08 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	110	11



Signing

Removals

S 43rd St / 7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
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NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	110	12

Sta 62+46 Lt
Remain In Place

HOTEL PARKING
EVENT PARKING $10.00

Sta 63+01 Lt
Remove

NO MOTOR VEHICLES

Sta 63+01 Lt
Remove

S 42nd St
8th Ave S
STOP

Sta 63+74 Lt
Remove

YIELD TO PEDS

Exst Esmt

Sta 65+16 Lt
Reset Sign Panel on New Support
at Sta 707+76 Lt (OCL_42nd_SB)

HOTEL PARKING
EVENT PARKING $10.00

Grading Limits

R/W Exst

Sta 66+46 Lt
Remove

STOP

Sta 66+13 Lt
Remove

STOP

Sta 66+57 Lt
Remove

ONLY

7th Ave S / S 43rd St

Sta 67+04 Lt
Remove

SPEED LIMIT 25

Sta 67+07 Lt
Remove

S 42nd St
7th Ave S
STOP

R/W Exst

Sta 70+23 Lt
Remove

SPEED LIMIT 40

ADOPT A STREET
LITTER CONTROL
NEXT 1 MILE

ALTRU-HEALTH SYSTEMS

62 63 64 65 66 67 68 69 70

S 42nd Street

UND
NO
UNAUTHORIZED
VEHICLES
ALLOWED

Sta 67+28 Rt
Remove and Return
to Ray Richards Golf Course

R/W Exst

Tee Box

NO
LEFT TURN
BUS
EXEMPT

Sta 65+87 Rt
Remove

Lg Trees

Rocks

Gr

Gr

Gr

Green

Sand Bunker

Sand Bunker

Signing

Removals

S 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-12276
DATE: 2025.12.01 16:09:33 -06'00'
NORTH DAKOTA

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	110	13

Sta 70+23 Lt
Remove

SPEED LIMIT 40

ADOPT A STREET
LITTER CONTROL
NEXT 1 MILE

ALTRU-HEALTH SYSTEMS

Sta 73+68 Lt
Remove Signs and Support
Reset Sign Panel "HUGO'S RACEWAY"
on Light Standard at
Sta 714+23 Lt (OCL_42nd_SB)

HUGO'S RACEWAY

NO PARKING

R/W Exst

S 42nd Street

ND 297 (DeMers Avenue)

Sta 76+97 Lt
Remove

RAIL ROAD CROSSING

(2) TRACKS

Sta 77+83 Lt
Remove

R R

LOOK

NO TRAIN HORN

STA 77+00 LT
Remove

DO NOT STOP ON TRACKS

STOP HERE ON RED

Sta 76+91 Lt
Remove

RAIL ROAD CROSSING

Sta 77+01 Lt
Remove

DO NOT STOP ON TRACKS

STOP HERE ON RED

2 Conc Xwalk

Asph

Asph

RR gantry Sig

Sta 77+79 Lt
Remove

N 42nd Street

Traf Sensor

Ped Sign

70 71 72 73 74 75 76 77 78 79

UND NO UNAUTHORIZED VEHICLES ALLOWED

Sta 74+93 Rt
Remove and Return to
Ray Richards
Golf Course

R/W Exst

UND NO UNAUTHORIZED VEHICLES ALLOWED

Sta 71+34 Rt
Remove and Return to
Ray Richards Golf Course

Green

R R

NO TRAIN HORN

Sta 73+83 Lt
Remove

SERTOMA PARK
JAPANESE
GARDEN

Sta 71+02 Rt
Remove Signal Sign and Support
Sertoma Park Sign to be relocated
by City of Grand Forks

Sand Bunker

Rocks

Tee Box

Rocks

Gr

RR Bldg Metal

Gr

LOOK

NO TRAIN HORN

Sta 77+95 Lt
Remove

SPEED LIMIT 35

Sta 77+94 Lt
Remove

Signing

Removals

S 42nd St / N 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.01 16:09:46 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	110	14

Sta 82+59 Lt
Remain in Place
NO PARKING ANY TIME

Sta 83+06 Lt
Remain in Place
PHONE
NO PARKING ANY TIME

Sta 83+01 Lt
Remain in Place
SPEED LIMIT 15
UND

Sta 83+07 Lt
Remain in Place
Welcome to UND
Center for Innovation
Visitor Parking Only
UND Students, Faculty, Staff, and Affiliates Not Eligible

Sta 83+45 Lt
Remain in Place
Welcome to UND
Center for Innovation
Visitor Parking Only
UND Students, Faculty, Staff, and Affiliates Not Eligible

Sta 83+00 Lt
Remain in Place
Welcome to UND
UND Parking
Permit Required
Visitors Please
Use Designated
Visitor Spaces Only
UND PARKING
A S

Sta 82+49 Lt
Remove
TO
INTERSTATE
NORTH DAKOTA
29
SERTOMA PARK
JAPANESE
GARDEN

Sta 78+98 Lt
Remove
R R
NO
TRAIN HORN

Sta 82+60 Lt
Remove
STOP

Relocated
by Others
STOP

Rocks

James Ray Dr.

R/W Exst

Sta 83+10 Lt
Remove
STOP

Sta 83+00 Lt
Remain in Place
42nd St N
James Ray Dr

Sta 84+38 Lt
Reset Sign Panel & Support at
Sta 727+00 Lt (OCL_42nd_SB)
FH
UND PARKING
A S

Sta 84+95 Lt
Remove
NO
PARKING

79 80 81 82 83 84 N 42nd Street 85 86 87

R/W Exst

Sta 82+46 Rt
Remove
NO
PARKING

Gr
RR Btry Box

Sta 86+98 Rt
Remain in Place
NO
TRAIN HORN
UND
Ride's Right
1 Ride

Signing

Removals

N 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-10216
DATE: 2025.12.01 16:09:58 -06'00'
NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	110	15

N

UND Tech Accelerator

GVP

M3-1-24 M3-3-24
M1-1_29-24 M1-1_29-24
M1-4-24 M1-4-24
M6-1L-21 M6-3-21
Sta 606+10 Lt (OCL_297WB)
New Signs and Support
Special Assembly A

NORTH SOUTH
INTERSTATE NORTH DAKOTA 29 29
81 81

R3-7L-36
Sta 606+51 Rt Mdn (OCL_297WB)
New Sign Mount
on New Support
Assembly No. 16

LEFT LANE MUST TURN LEFT

R4-7-24
Sta 204+65 Lt Mdn (OCL_297EB)
New Sign and Support
Assembly No. 9

RR Bldg Metal

RR Bldg Metal

Gdrl - W Beam

Barr

Gdrl - Crash Atten

R/W Exst

Ppsd R/W

600 601 602 603 604 605 606
200 201 202 203 204 205 206 400

ND 297 (DeMers Avenue)

Elec MH

Gdrl - W Beam

Barr

411

951

I-29 SB

I-29 NB

410

409

R4-7-24
Sta 200+92 Lt Mdn (OCL_297EB)
New Sign and Support
Assembly No. 9

W5-4a-18
Sta 201+31 Rt (OCL_297EB)
New Sign and Support
Assembly No. 102

SN6
Sta 201+96 Rt (OCL_297EB)
New Sign and Support
Variable Length Assembly

R1-1-18
Sta 203+29 Rt (OCL_297EB)
New Sign and Support
Assembly No. 100

R4-7-24
Sta 400+51 Lt Mdn (OCL_29SEL)
New Sign and Support
Assembly No. 9

I-29 NB On Ramp

401

402

517 950 516

I-29 NB Off Ramp

R/W Exst

Esmt Exst

Ppsd Temp Const Esmt

YIELD

R1-2-36

Sta 516+69 Rt (OCL_29NBE)
New Sign and Support
Assembly No. 4

ONE WAY ONE WAY

STOP DO NOT ENTER

R6-1L-36 (Facing West)
R6-1R-36 (Facing East)
R1-1-48 (Facing South)
R5-1-48 (Facing North)
Sta 516+97 Rt Mdn (OCL_29NBE)
New Sign and Support
Special Assembly B

Gas Station

Signing

Layouts

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	110	16

UND Tech Accelerator

N

SN7
Sta 610+43 Lt (OCL_297WB)
New Sign and Support
Variable Length Assembly

Fargo
Winnipeg

R6-1R-36
Sta 208+06 Rt Mdn (OCL_297EB)
New Sign Mount
on New Support
Assembly No. 27

ONE WAY

Ppsd R/W

R3-7L-36
Sta 613+34 Rt Mdn (OCL_297WB)
New Sign Mount
on New Support
Assembly No. 16

LEFT LANE
MUST
TURN LEFT

721
720
719
718
717
716
321
320
319
318
317
316

N 42nd Street

S 42nd Street

Ppsd R/W
R/W Exst

606 607 608 609 610 611 612 613 614 615

206 207 208 ND 297 (DeMers Avenue) 209 210 211 212 213 214 215

R/W Exst
Esmt Exst
Ppsd Temp
Const Esmt

SPEED
LIMIT
40

R2-1-30
Sta 208+71 Rt (OCL_297EB)
New Sign
Light Std Mounted
Assembly No. 10

Alerus Center
UND

SN8
Sta 209+95 Rt
(OCL_297EB)
New Sign and Support
Variable Length Assembly

STOP

R1-1-30
R3-2-24
Sta 208+26 Rt (OCL_297EB)
New Sign on New Support
Special Assembly C

Gas Station
Gas Pumps
Ugrnd Tank
Ugrnd Tank

12
11

GRAND FORKS
NORTH DAKOTA
GREAT
AMERICAN
DEFENSE COMMUNITY
Military Friendly
Since
1955

Reset (Great American Defense)
Reset (Military Friendly)
Sta 214+68 Rt (OCL_297EB)
Reset Sign Panels
Mount on Light Standard

Signing

Layouts

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8256
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	110	17

N

M4-5-24
M1-1_29-24
M6-1L-21
Sta 617+22 Lt (OCL_297WB)
New Signs
Mount on Mast Arm
Assembly No. 379

TO
INTERSTATE
NORTH DAKOTA
29

R3-6a-30
Sta 616+06 Lt (OCL_297WB)
New Sign Mount on
Mast Arm

R3-4-36
Sta 617+05 Lt (OCL_297WB)
New Sign Mount on
Mast Arm

R3-5R-30
Sta 617+30 Lt (OCL_297WB)
New Sign Mount on
Mast Arm

SN3
Sta 616+06 Rt (OCL_297WB)
New Sign Mount
on Mast Arm

7th Ave S

ONLY

Ppsd Temp Const Esmt

R3-4-36
Sta 616+06 Rt (OCL_297WB)
New Sign Mount on
Signal Standard

R3-6a-30
Sta 616+06 Rt (OCL_297WB)
New Sign Mount on
Mast Arm

SN2
Sta 617+33 Lt (OCL_297WB)
New Sign Mount
on Mast Arm

DeMers Ave

R/W Exst
Ppsd R/W
615
616
617
618
619
620
621
622
623
ND 297 (DeMers Avenue)

WRONG
WAY
R5-1a-42
Sta 215+24 Lt (OCL_29215)
New Signs and Support
Assembly No. 36

216
217
218
219
220
221
222
223
ND 297 (DeMers Avenue)

R/W Exst
Esmt Exst
Ppsd R/W
Esmt Exst
Ppsd Temp Const Esmt

R3-4-36
Sta 217+72 Rt (OCL_297WB)
New Sign Mount on
Mast Arm

SPEED
LIMIT
40
R2-1-30
Sta 218+87 Rt (OCL_297EB)
New Sign Mount on
Light Standard
Assembly No. 10

USDA
NUTRITION
RESEARCH
CENTER
RESET
Sta 222+90 Rt (OCL_297EB)
Reset Sign Panel
Mount on Light Standard

DO NOT
ENTER
R5-1-36
Sta 216+24 Lt (OCL_297EB)
New Signs and Support
Assembly No. 16

R4-7-24
Sta 216+39 Lt Mdn
(OCL_297EB)
New Sign and Support
Assembly No. 9

D11-1a-24
M6-4P-12
Sta 216+34 Rt
(OCL_297EB)
New Signs and Support
Assembly No. 103

808
807
409
408

ONLY
R3-5R-36
Sta 217+72 Rt (OCL_297EB)
New Sign Mount on
Signal Standard

R3-6a-30
Sta 217+72 Rt (OCL_297EB)
New Sign Mount on
Mast Arm

TRUCK
ROUTE
R14-1-24
Sta 218+18 Rt (OCL_297EB)
New Signs and Support
Assembly No. 29

7th Ave S
SN3
Sta 217+72 Rt (OCL_297EB)
New Sign Mount
on Mast Arm

R3-6a-30
Sta 217+72 Rt (OCL_297EB)
New Sign Mount on
Mast Arm

Windmill Tower
Windmill Tower

ONLY
ONLY

Signing

Layouts

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
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PE-9216
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	110	18

N

GVP

GMV

GVP

Lg Trees

STA 624+94 Lt
(OCL_297WB)
Remain in Place

RR Bldg Metal

RR Bldg Metal

DANGER TRESPASSING RAILWAY BNSF POLICE

Lg Trees

Sta 626+97 Lt (OCL_297WB)
Remain in Place

DANGER TRESPASSING RAILWAY BNSF POLICE

Lg Trees

Sta 628+92 Lt (OCL_297WB)
Remain in Place

DANGER TRESPASSING RAILWAY BNSF POLICE

Lg Evgr Trees

Sta 630+93 (OCL_297WB)
Remain in Place

Back to Back

STOP

DANGER TRESPASSING RAILWAY BNSF POLICE

SN9

Sta 625+48 Lt
(OCL_297WB)
New Sign and Support
Variable Length Assembly

Alerus Center
U N D

R/W Exst

GVP

623 624 625 626 627 628 629

223 224 225 226 227 228 229

ND 297 (DeMers Avenue)

Esmt Exst

UND NO UNAUTHORIZED VEHICLES ALLOWED

Sta 31+54 Rt
Remain in Place

Ppsd R/W

Esmt Exst

Esmt Exst

R/W Exst

UND NO UNAUTHORIZED VEHICLES ALLOWED

Sta 228+88 Rt (OCL_297EB)
Remain in Place

SERTOMA PARK JAPANESE GARDEN

Sta 230+46 Rt (OCL_297EB)
Remain in Place

Signing

Layouts

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4276
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	110	19

R2-1-30
Sta 705+48 Lt (OCL_42nd_SB)
New Sign Mount
on New Support
Assembly No. 10

R4-7-24
Sta 706+93 Rt Mdn (OCL_42nd SB)
New Sign and Support
Assembly No. 9

R8-3a-24
Sta 707+43 Lt (OCL_42nd_SB)
New Sign Mount
on Light Std
Assembly No. 9

RESET
Sta 707+76 Lt (OCL_42nd_SB)
Reset Sign Panel for Events
on New Support
Face Toward Shared Use Path
Assembly No. 15

M4-5-24
M1-1_29-24
M6-1L-21
Sta 710+87 Rt (OCL_42nd_SB)
New Signs
Mount on Mast Arm
Assembly No. 379

R3-6a-30
Sta 710+87 Rt (OCL_42nd_SB)
New Sign Mount
on Mast Arm

R3-6R-30
Sta 710+87 Lt (OCL_42nd_SB)
New Sign Mount
on Mast Arm

SN3
Sta 710+87 Lt (OCL_42nd_SB)
New Sign Mount
on Mast Arm

Ppsd R/W

D11-1a-24
M6-1P-12
Sta 712+34 Lt (OCL_42nd_SB)
New Signs & Support
Assembly No. 103

R4-7-24
Sta 312+56 Lt Mdn
(OCL_42nd_NB)
New Sign and Support
Assembly No. 9

Ppsd R/W

Sta 705+06 Lt
(OCL_42nd_SB)
Remain In Place

R9-6-12
Sta 706+50 Lt
(OCL_42nd_SB)
New Sign on New Support
Assembly No. 7

Esmt Exst

R/W Exst

R3-4-36
Sta 710+87 Rt (OCL_42nd_SB)
New Sign Mount
on Mast Arm

R4-7-24
Sta 710+80 Rt (OCL_42nd SB)
New Sign and Support
Assembly No. 9

S 42nd St

7th Ave S

SN3
Sta 312+60 Rt (OCL_42nd_NB)
New Sign Mount
on Mast Arm

R3-6a-30
Sta 312+60 Lt
(OCL_42nd_NB)
New Sign Mount
on Mast Arm

R3-6a-30
Sta 312+60 Rt
(OCL_42nd_NB)
New Sign Mount
on Mast Arm

Esmt
Exst

Esmt Util Exst

R/W Exst

Ppsd Temp Const Esmt

Ppsd Util Esmt

D11-1a-24
M6-1P-12
Sta 310+86 Rt (OCL_42nd_NB)
New Sign and Support
Assembly No. 103

D11-1a-24
M6-1P-12
Sta 310+93 Rt (OCL_42nd_NB)
New Signs and Support
Assembly No. 103

Ppsd R/W

Ppsd Temp
Const Esmt

R4-7c-18
Sta 306+80 Lt Mdn (OCL_42nd_NB)
New Sign and Support
Special Assembly D

R6-1R-36
Sta 305+84 Lt Mdn (OCL_42nd_NB)
New Signs Mount
on New Support
Assembly No.

M4-5-24
M1-1_29-24
M5-1R-21
Sta 305+00 Rt (OCL_42nd_NB)
New Signs
Mount on Light Std
Assembly No. 379

R4-7-24
Sta 305+27 Lt Mdn(OCL_42nd NB)
New Sign and Support
Assembly No. 9

R3-5R-36
Sta 312+60 Rt (OCL_42nd_NB)
New Sign Mount on
Signal Standard

M4-5-24
M1-1_29-24
M6-1R-21
Sta 312+60 Rt (OCL_42nd_NB)
New Signs
Mount on Mast Arm
Assembly No. 379

Signing

Layouts

S 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4296
DATE: 2025.12.01 16:11:10 -06'00'
NORTH DAKOTA

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	110	20

RESET
Sta 714+23 Lt (OCL_42nd_SB)
Reset Sign Panel on Light Std
Assembly No. 9

HUGO'S RACEWAY

R2-1-30
Sta 316+67 Rt (OCL_42nd_NB)
New Sign Mount on Light Std
Assembly No. 10

SPEED LIMIT 35

S 42nd St

N 42nd St

MHU

Ppsd R/W

R/W Exst

Esmt Exst

Ppsd Temp Const Esmt

210 211 212 213 214 215

610 611 612 613 614 615

714 715 716 717 718 719 720 721 722

314 315 316 317 318 319 320 321 322

Signing

Layouts

S 42nd St / N 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8276
DATE: 2025.12.01 16:11:23 -06'00'
NORTH DAKOTA

11/24/2025 2:18:34 PM ryan.genz H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\110SN_020_LSIGN.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	110	21

Ppsd Temp Const Esmt

M4-5-24
M1-1_29_24
M5-1L-21
Sta 723+05 Lt (OCL_42nd_SB)
New Signs Mount on Light Std
Assembly No. 379

Sta 725+18 Lt (OCL_42nd_SB)
Remain in Place

Sta 725+67 Lt (OCL_42nd_SB)
Remain in Place

Sta 725+61 Lt (OCL_42nd_SB)
Remain in Place

Sta 725+67 Lt (OCL_42nd_SB)
Remain in Place

Sta 726+06 Lt (OCL_42nd_SB)
Remain in Place

Sta 725+60 Lt (OCL_42nd_SB)
Remain in Place

R1-1-30
Sta 725+20 Lt (OCL_42nd_SB)
New Sign and Support
Assembly No. 1

Ppsd Temp Const Esmt

R4-7-24
Sta 722+06 Rt Mdn (OCL_42nd_SB)
New Sign and Support
Assembly No. 9

R1-1-18
Sta 725+09 Lt (OCL_42nd_SB)
New Sign and Support
Assembly No. 100

Ppsd Temp Const Esmt

Ppsd R/W

R/W Exst

Esmt Exst

James Ray Dr.

Sta 725+61 Lt (OCL_42nd_SB)
Remain in Place

RESET
Sta 727+00 Lt (OCL_42nd_SB)
Reset Sign Panel and Support

R1-1-18
Sta 725+76 Lt (OCL_42nd_SB)
New Sign and Support
Assembly No. 100

R8-3-24
Sta 728+03 Lt (OCL_42nd_SB)
New Sign Mount on
Light Standard
Assembly No. 9

Ppsd Temp Const Esmt

722 723 724 725 726 727 728 729 730

N 42nd St

322 323 324 325 326 327 328 329 330

N 42nd St

R/W Exst

Esmt Exst

Esmt Exst

Ppsd Temp Const Esmt

Ppsd Temp Const Esmt

R8-3-24
Sta 325+51 Rt (OCL_42nd_NB)
New Sign Mount on
Light Standard
Assembly No. 9

Sta 329+58 Rt (OCL_42nd_NB)
Remain in Place

Signing

Layouts

N 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.01 16:11:37 -06'00'
NORTH DAKOTA

11/24/2025 2:18:36 PM ryan.genz H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\110SN_021_LSIGN.dgn

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	110	22

N

Ppsd R/W

714

713

712

711

710

709

R/W Exst

SN1
Sta 799+01 Lt (OCL_7th_WB)
New Sign Mount
on Mast Arm
S 42nd St

R3-5R-36
Sta 799+02 Lt (OCL_7th_WB)
New Sign Mount on
Signal Standard
ONLY

R3-6a-30
Sta 798+99 Lt (OCL_7th_WB)
New Sign Mount
on Mast Arm

R1-1-30
R1-3P-18
Sta 796+81 Lt
(OCL_7th_WB)
New Sign on New Support
Special Assembly F
STOP
ALL WAY

Ppsd R/W

R4-7-24
Sta 798+51 Rt Mdn (OCL_7th_WB)
New Sign and Support
Assembly No. 9

S 42nd St

314

313

312

797 798 799 800 801

7th Ave S

397 398 399 400 401 402

R4-7c-18
Sta 401+00 Lt Mdn (OCL_7th_EB)
New Sign and Support
Special Assembly D

Ppsd Temp Const Esmt

Ppsd R/W

Ppsd R/W

R3-4-36
Sta 798+98 Rt (OCL_7th_WB)
New Sign Mount on
Mast Arm

Esmt Exst

R/W Exst

R/W Exst

310

R/W Exst

R/W Exst

R/W Exst

S 43rd St

Signing

Layouts

7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9226
DATE: 2025.12.01 16:11:50 -06'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	110	23

S 42nd St
R/W Exst
R/W Exst
7th Ave S
Ppsd R/W
Ppsd Temp Const Esmt
Ppsd R/W
Ppsd Temp Const Esmt
Ppsd Esmt
Ppsd Temp Const Esmt
Ppsd R/W
713
314
313
799
712
312
800
400
801
401
802
402
803
403
804
404
405
805
406
806
407
807
408
808
409
617
217
218

R3-7L-30
Sta 803+02 Rt Mdn (OCL_7th_WB)
New Sign Mount
on New Support
Assembly No. 15
LEFT LANE MUST TURN LEFT

R2-1-30
Sta 807+35 Lt (OCL_7th_WB)
New Sign Mount
on Light Std
Assembly No. 9
SPEED LIMIT 30

R3-7L-30
Sta 806+27 Rt Mdn (OCL_7th_WB)
New Sign Mount
on New Support
Assembly No. 15
LEFT LANE MUST TURN LEFT

SN10
Sta 805+48 Lt
(OCL_7th_WB)
New Sign and Support
Variable Length Assembly
Alerus Center
U N D

R3-6R-30
Sta 401+02 Rt
(OCL_7th_EB)
New Sign Mount
on Mast Arm

R3-6a-30
Sta 401+02 Lt
(OCL_7th_EB)
New Sign Mount
on Mast Arm

SN1
Sta 401+02 Rt
(OCL_7th_EB)
New Sign Mount
on Mast Arm
S 42nd St

R2-1-30
Sta 402+10 Rt (OCL_7th_EB)
New Sign Mount
on New Support
Assembly No. 9
SPEED LIMIT 30

R3-7R-30
Sta 402+96 Rt (OCL_7th_EB)
New Sign Mount
on New Support
Assembly No. 15
RIGHT LANE MUST TURN RIGHT

R3-7L-30
Sta 402+96 Lt Mdn (OCL_7th_EB)
New Sign Mount
on New Support
Assembly No. 15
LEFT LANE MUST TURN LEFT

M4-5-24
M1-1_29-24
M5-TL-21
Sta 404+83 Rt (OCL_7th_EB)
New Signs on New Support
Assembly No. 379
TO INTERSTATE NORTH DAKOTA 29

R3-7L-30
Sta 406+20 Lt Mdn (OCL_7th_EB)
New Sign Mount
on New Support
Assembly No. 15
LEFT LANE MUST TURN LEFT

R3-7R-30
Sta 406+21 Rt (OCL_7th_EB)
New Sign Mount
on New Support
Assembly No. 15
RIGHT LANE MUST TURN RIGHT

Signing

Layouts

7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4256
DATE: 2025.12.01 16:12:04 -06'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	110	24

R2-1-24
Sta 709+70 Lt (OCL_43RD)
New Sign Mount on
Light Standard
Assembly No. 9

R/W Exst
Esmt Exst
SPEED LIMIT 25
Ppsd Temp Const Esmt
Esmt Exst
S 43rd St
709
710
711
712
713
714
715
716
10
Ppsd R/W
R1-1-30
R1-3P-18
STA 712+59 Lt (OCL_43RD)
New Sign on New Support
Special Assembly F
STOP
ALL WAY
SN11
Sta 714+68 Lt (OCL_43RD)
New Sign Mount on
Light Standard
Assembly No. 8
NO PARKING ENTIRE BLOCK
Lg Trees
Gas Station
Ugmd Tank
Ugmd Tank
Gas Pumps
Ppsd Temp
Const Esmt
SERVICE - 1.5" Ø
Esmt Exst
R/W Exst
R/W Exst
NO PARKING ENTIRE BLOCK
SN11
Sta 709+47 Rt (OCL_43RD)
New Sign Mount on
New Support
Assembly No. 8
Angle 30 to 45 Degrees to
Travel Lane
Ppsd R/W
S 43rd St
7th Ave S
STOP
ALL WAY
SN4
SN5 (Back to Back)
R1-1-30
R1-3P-18
STA 711+13 Rt (OCL_43RD)
New Sign on New Support
Special Assembly 3D
397
398
399
7th Ave S
797
798
799
Ppsd R/W
NO PARKING ENTIRE BLOCK
SN11
Sta 713+43 Rt (OCL_43RD)
New Sign Mount on
New Support
Assembly No. 8
Angle 30 to 45 Degrees to
Travel lane
Ppsd R/W
12
11
NO PARKING IN CUL-DE-SAC
SN12
Sta 717+03 Lt (OCL_43RD)
New Sign Mount on
Light Standard
Assembly No. 8
711
712
713
714

Signing

Layouts

S 43rd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.01 16:12:18 -06'00'
NORTH DAKOTA

11/24/2025 2:18:43 PM ryan.genz H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\110SN_024_LSIGN.dgn

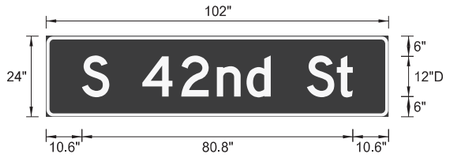
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	110	25

SIGN NUMBER	SN1
WIDTH X HEIGHT	8'-6" x 2'-0"
BORDER WIDTH	1" (inset 0")
CORNER RADIUS	2.25"
MOUNTING	Overhead
BACKGROUND	TYPE: IV Reflective
	COLOR: Blue
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
400+94 Rt (OCL_7th_EB)
799+01 Lt (OCL_7th_WB)

AREA: 17 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: B&M_Street Name_Overhead_Grand Forks.ssl

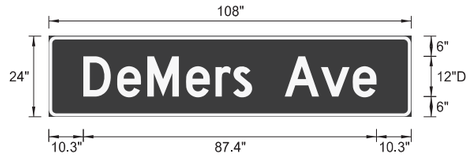
LETTER POSITION (X)																		LENGTH	SIZE	SERIES
S		4	2	n	d		S	t										80.76	12/9	D 2000
10.62	19.38	28.62	40.26	50.82	59.7	68.1	77.7	86.58												

SIGN NUMBER	SN2
WIDTH X HEIGHT	9'-0" x 2'-0"
BORDER WIDTH	1" (inset 0")
CORNER RADIUS	2.25"
MOUNTING	Overhead
BACKGROUND	TYPE: IV Reflective
	COLOR: Blue
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
617+49 Lt (OCL_297WB)

AREA: 18 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: B&M_Street Name_Overhead_Grand Forks.ssl

LETTER POSITION (X)																		LENGTH	SIZE	SERIES
D	e	M	e	r	s		A	v	e									87.36	12/9	D 2000
10.32	20.4	29.4	40.92	49.68	54.96	60.96	70.32	81.12	90.6											

Signing

Sign Details

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4276
DATE: 2025.12.01 16:12:32 -06'00'
NORTH DAKOTA

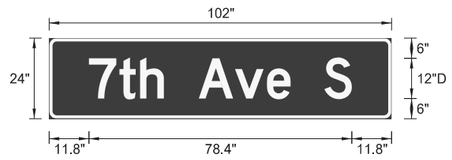
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	110	26

SIGN NUMBER	SN3
WIDTH X HEIGHT	8'-6" x 2'-0"
BORDER WIDTH	1" (inset 0")
CORNER RADIUS	2.25"
MOUNTING	Overhead
BACKGROUND	TYPE: IV Reflective
	COLOR: Blue
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
616+35 Lt (OCL_297WB)
217+67 Rt (OCL_297WB)
710+87 Lt (OCL_42nd_SB)
312+60 Rt (OCL_42nd_NB)

AREA: 17 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: B&M_Street Name_Overhead_Grand Forks.ssl

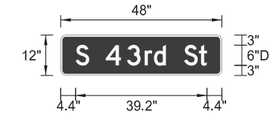
LETTER POSITION (X)																			LENGTH	SIZE	SERIES
7	t	h		A	v	e		S											78.36	12/9	D 2000
11.82	20.94	27.06	35.22	44.58	55.38	64.86	72.42	82.02													

SIGN NUMBER	SN4
WIDTH X HEIGHT	4'-0" x 1'-0"
BORDER WIDTH	0.5" (inset 0")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Blue
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
711+13 Rt (OCL_43RD)

AREA: 4 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: B&M_Street Name_Grand Forks.ssl

LETTER POSITION (X)																			LENGTH	SIZE	SERIES
S		4	3	r	d		S	t											39.18	6/4.5	D 2000
4.41	8.79	13.41	19.71	24.99	27.75	31.95	36.75	41.19													

SIGN NUMBER	SN5
WIDTH X HEIGHT	4'-0" x 1'-0"
BORDER WIDTH	0.5" (inset 0")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Blue
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
711+13 Rt (OCL_43RD) (2 Panels)

AREA: 4 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: B&M_Street Name_Grand Forks.ssl

LETTER POSITION (X)																			LENGTH	SIZE	SERIES
7	t	h		A	v	e		S											39.18	6/4.5	D 2000
4.41	8.97	12.03	16.11	20.79	26.19	30.93	34.71	39.51													

Signing

Sign Details

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8076
DATE: 2025.12.01 16:12:45 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	110	27

SIGN NUMBER	SN6
WIDTH X HEIGHT	8'-6" x 3'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
M1_1	6.76	17.25	18	18	0
M1_4	30.76	17.25	18	18	0
ND_6IN_TYPE B	81.76	15.01	11.98	13.49	270

STATION(S):
201+96 Rt (OCL_297EB)

AREA: 29.75 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Conv_Destination.ssl

LETTER POSITION (X)																				LENGTH	SIZE	SERIES
N	O	R	T	H																21	6,5	D 2000
54.76	60.06	64.71	68.51	72.36																		
W	i	n	n	i	p	e	g													36.95	6/4.5	D 2000
22.78	29.49	32.55	38.08	43.62	46.68	51.54	56.13															

SIGN NUMBER	SN7
WIDTH X HEIGHT	5'-6" x 2'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
ND_6IN_TYPE D	8.53	16.5	6	9	0
ND_6IN_TYPE D	7.03	6	6	9	90

STATION(S):
610+43 Lt (OCL_297WB)

AREA: 13.75 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Conv_Destination.ssl

LETTER POSITION (X)																				LENGTH	SIZE	SERIES
F	a	r	g	o																22.03	6/4.5	D 2000
22.03	26.59	32	35.12	40.4																		
W	i	n	n	i	p	e	g													36.94	6/4.5	D 2000
22.03	28.73	31.79	37.33	42.86	45.92	50.78	55.37															

Signing

Sign Details

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4276
DATE: 2025.12.01 16:13:00 -06'00'
NORTH DAKOTA

11/24/2025 2:18:50 PM ryan.genz H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\110SN_027_DSIGNDET.dgn

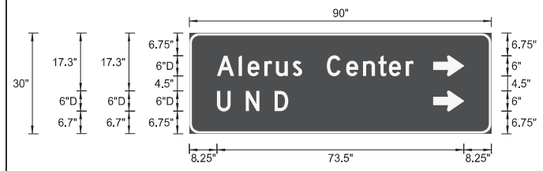
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	110	28

SIGN NUMBER	SN8
WIDTH X HEIGHT	7'-6" x 2'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
ND_6IN_TYPE D	72.77	17.25	6	9	270
ND_6IN_TYPE D	72.77	6.75	6	9	270

STATION(S):
209+95 Rt (OCL_297EB)

AREA: 18.75 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Conv_Destination.ssl

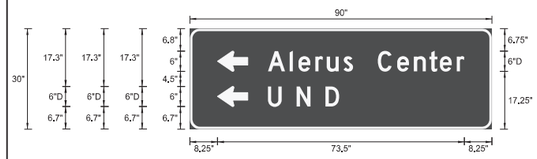
LETTER POSITION (X)																				LENGTH	SIZE	SERIES
A	l	e	r	u	s		C	e	n	t	e	r								58.53	6/4.5	D 2000
8.24	14.7	17.34	22.35	25.79	30.8	33.93	40.98	46.74	51.75	56.34	59.48	64.49										
U	N	D																		21.24	6	D 2000
8.24	16.82	25.4																				

SIGN NUMBER	SN9
WIDTH X HEIGHT	7'-6" x 2'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
ND_6IN_TYPE D	8.24	17.25	6	9	90
ND_6IN_TYPE D	8.24	6.75	6	9	90

STATION(S):
625+48 Lt (OCL_297WB)

AREA: 18.75 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Conv_Destination.ssl

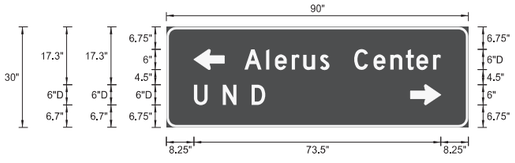
LETTER POSITION (X)																				LENGTH	SIZE	SERIES
A	l	e	r	u	s		C	e	n	t	e	r								58.53	6/4.5	D 2000
23.24	29.7	32.34	37.35	40.79	45.8	48.93	55.98	61.74	66.75	71.34	74.48	79.49										
U	N	D																		21.24	6	D 2000
23.24	31.82	40.4																				

SIGN NUMBER	SN10
WIDTH X HEIGHT	7'-6" x 2'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
ND_6IN_TYPE D	8.23	17.25	6	9	90
ND_6IN_TYPE D	72.77	6.75	6	9	270

STATION(S):
805+48 Lt (OCL_7th_WB)

AREA: 18.75 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Conv_Destination.ssl

LETTER POSITION (X)																				LENGTH	SIZE	SERIES
A	l	e	r	u	s		C	e	n	t	e	r								58.53	6/4.5	D 2000
23.24	29.7	32.34	37.35	40.79	45.8	48.93	55.98	61.74	66.75	71.34	74.48	79.49										
U	N	D																		21.24	6	D 2000
8.23	16.81	25.39																				

Signing

Sign Details

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9076
DATE: 2025.12.01 16:13:12 -06'00'
NORTH DAKOTA

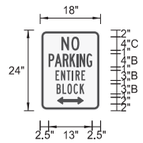
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	ND	RCE-FTF-NHU-SU-6-297(014)000	110	29

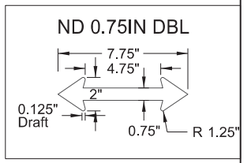
SIGN NUMBER	SN11
WIDTH X HEIGHT	1'-6" x 2'-0"
BORDER WIDTH	0.63" (inset 0.38")
CORNER RADIUS	1.5"
MOUNTING	Overhead
BACKGROUND	TYPE: XI Reflective
	COLOR: White
LEGEND/BORDER	TYPE: Non-Reflective
	COLOR: Red

SYMBOL	X	Y	WID	HT	ANGLE
ND_0.75IN_DBL	5.13	2	7.75	2	0

STATION(S):
709+47 Rt (OCL_43RD)
713+43 Rt (OCL_43RD)
714+68 Lt (OCL_43RD)

AREA: 3 Sq.Ft.





Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Reg_24_Small_Red.ssl

LETTER POSITION (X)																					LENGTH	SIZE	SERIES
N	O																				5.33	4	C 2000
6.33	9.31																						
P	A	R	K	I	N	G															13	4	B 2000
2.5	4.33	6.74	8.75	10.8	11.72	13.78																	
E	N	T	I	R	E																8.85	3	B 2000
4.58	6.2	7.91	9.47	10.52	12.29																		
B	L	O	C	K																	8.28	3	B 2000
4.86	6.63	8.1	9.96	11.82																			

SIGN NUMBER	SN12
WIDTH X HEIGHT	1'-6" x 2'-0"
BORDER WIDTH	0.63" (inset 0.38")
CORNER RADIUS	1.5"
MOUNTING	Overhead
BACKGROUND	TYPE: XI Reflective
	COLOR: White
LEGEND/BORDER	TYPE: Non-Reflective
	COLOR: Red

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
713+03 Lt (OCL_43RD)

AREA: 3 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Reg_24_Small_Red.ssl

LETTER POSITION (X)																					LENGTH	SIZE	SERIES
N	O																				6	4.5	C 2000
6.33	9.68																						
P	A	R	K	I	N	G															13	4	B 2000
2.5	4.33	6.74	8.75	10.8	11.72	13.78																	
I	N																				2.34	3	B 2000
7.83	8.88																						
C	U	L	-	D	E	-	S	A	C												14.97	3	B 2000
1.52	3.26	5.08	6.36	7.63	9.38	10.71	11.83	13.31	15.2														

Signing

Sign Details

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4276
DATE: 2025.12.01 16:13:27 -06'00'
NORTH DAKOTA

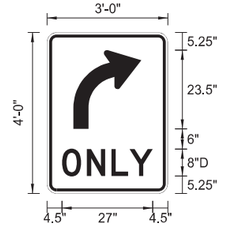
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	110	30

SIGN NUMBER	R3-5R-36
WIDTH X HEIGHT	3'-0" x 4'-0"
BORDER WIDTH	0.88" (inset 0.63")
CORNER RADIUS	2.25"
MOUNTING	Overhead
BACKGROUND	**TYPE:** XI Reflective
	COLOR: White
LEGEND/BORDER	**TYPE:** Non-reflective
	COLOR: Black

SYMBOL	X	Y	WID	HT	ANGLE
ARONLY_RT	7.89	19.25	20.22	23.5	180

STATION(S):
617+30 Lt (OCL_297WB)
217+67 Rt (OCL 297EB)
312+60 Rt (OCL_42nd NB)
798+57 Lt (OCL_7th_WB)

AREA: 12 Sq.Ft.

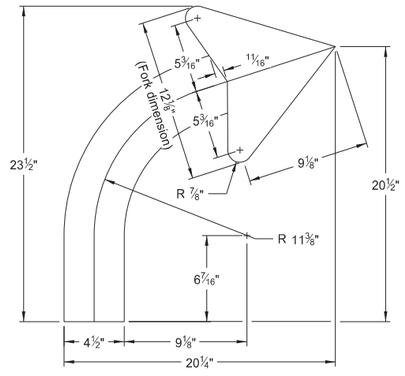


Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Misc_Regulatory.ssl

LETTER POSITION (X)																		LENGTH	SIZE	SERIES
O	N	L	Y																	
4.5	11.89	19.19	24.62															27	8	D 2000



ARONLY_RT DETAIL

Signing

Sign Details

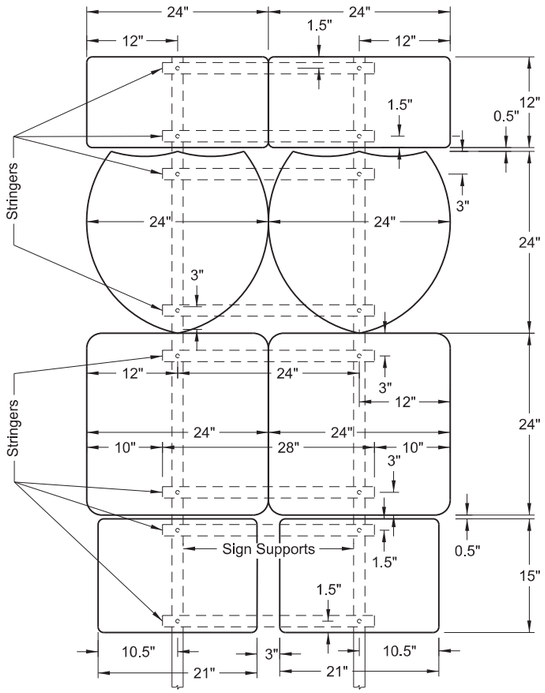
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE - 9276
DATE: 2025.12.01 16:13:42 -06'00'
NORTH DAKOTA

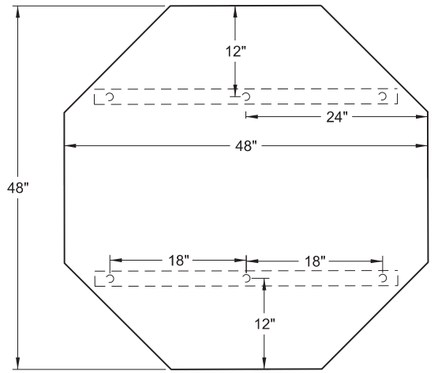
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	110	31



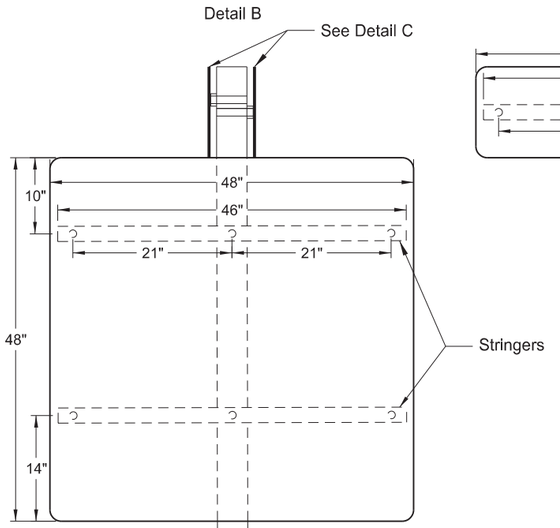
Special Assembly A
Sta 606+10 Lt (OCL_297WB)

Pay Area: 24.4 Sq. Ft.

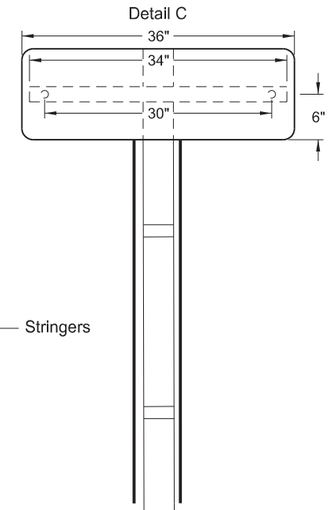
Detail A

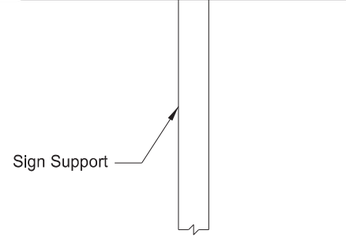


Detail B



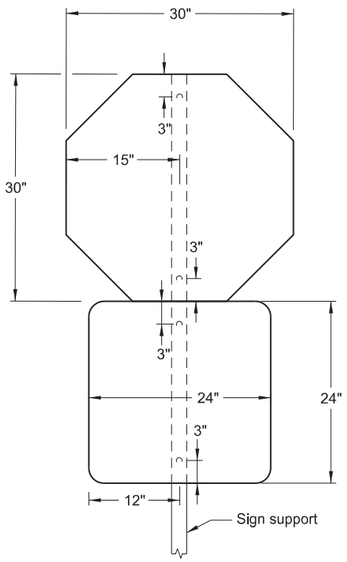
Detail C





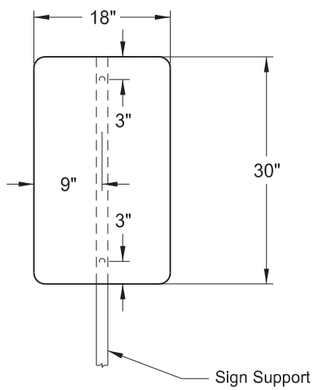
Special Assembly B
Sta. 516+97 Rt Mdn (OCL_29NBE)

Pay Area: 35.25 Sq Ft



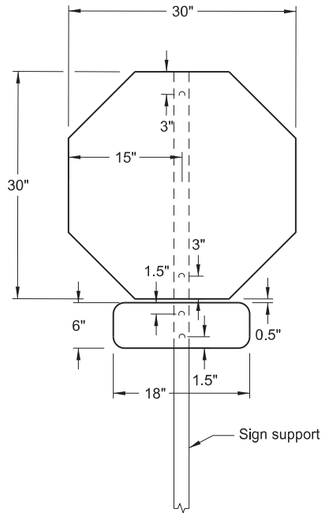
Special Assembly C
Sta 208+26 Rt (OCL_297EB)

Design Area: 9.2 Sq Ft



Special Assembly D
Sta. 401+00 Lt (OCL_7th_EB)

Design Area: 3.75 Sq Ft



Special Assembly F
Sta 712+59 Lt (OCL_43RD)
Sta 796+81 Lt (OCL_7th_WB)

Design Area: 6.0 Sq Ft

Signing

Special Assemblies

ND 297 (DeMers Ave) & 42nd St Grade Separation

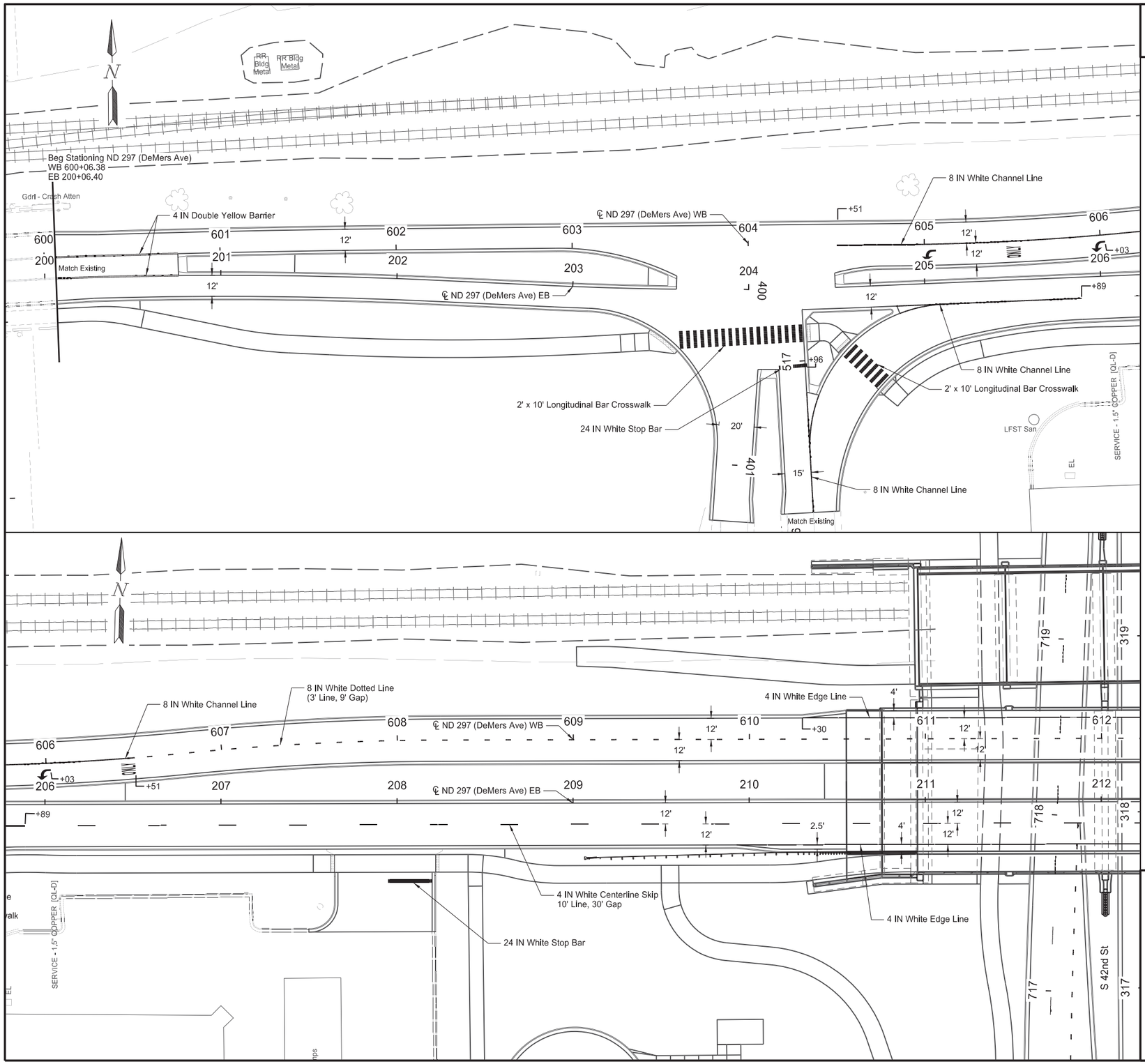
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-4226
DATE: 2025.12.01 16:13:56 -06'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	120	1

SPEC	CODE	BID ITEM	QTY	UNIT
762	0110	EPOXY PVMT MK 4IN LINE-GROOVED		
		White Centerline Skip	150	LF
		Double Yellow Barrier	278	LF
		White Edge Line	376	LF
762	0132	EPOXY PVMT MK 8IN LINE-GROOVED		
		White Channel Line	433	LF
		White Dotted Line	138	LF
762	0135	EPOXY PVMT MK 24IN LINE-GROOVED		
		White Stop Bar	39	LF
		White Continental Crosswalk	260	LF
762	0136	EPOXY PVMT MK MESSAGE-GROOVED		
		White Left Turn Arrow	32	SF
		White ONLY Message	44	SF



See Plan Note for CONCRETE MEDIAN NOSE PAVING for Painting Median Noses.

Pavement Marking

Layouts
Sta 200+00 EB to Sta 212+00 EB

ND 297 (DeMers Ave)

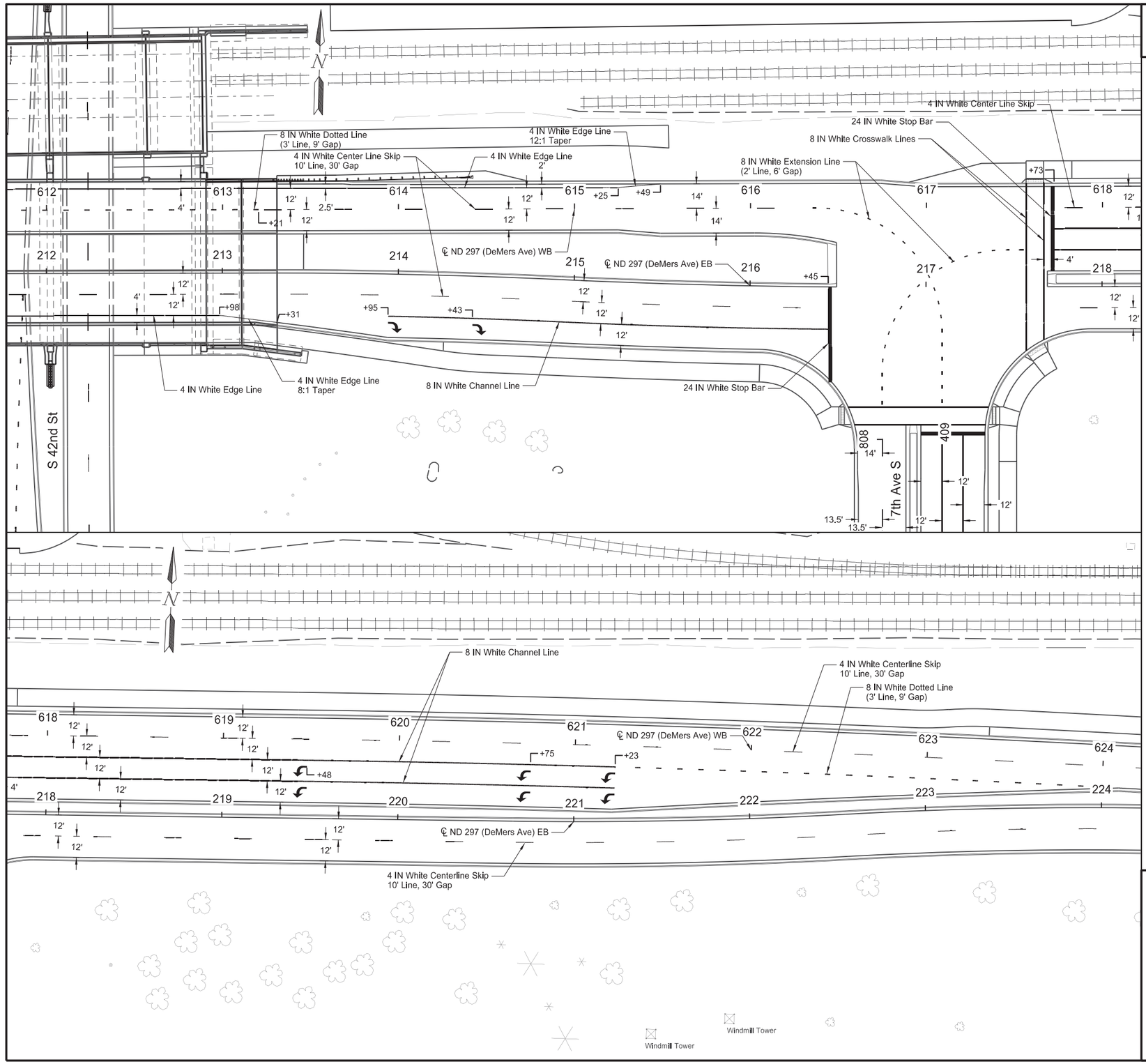
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8256
DATE: 2025.12.05 15:24:37 -06'00'
NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	120	2

SPEC	CODE	BID ITEM	QTY	UNIT
762	0110	EPOXY PVMT MK 4IN LINE-GROOVED		
		White Centerline Skip	510	LF
		White Edge Line	481	LF
762	0132	EPOXY PVMT MK 8IN LINE-GROOVED		
		White Channel Line	951	LF
		White Dotted Line	99	LF
		White Extension Line	74	LF
		White Crosswalk Line	184	LF
762	0135	EPOXY PVMT MK 24IN LINE-GROOVED		
		White Stop Bar	101	LF
762	0136	EPOXY PVMT MK MESSAGE-GROOVED		
		White Left Turn Arrow	96	SF
		White Right Turn Arrow	32	SF

See Plan Note for CONCRETE MEDIAN NOSE PAVING for Painting Median Noses.

Pavement Marking

Layouts
Sta 212+00 EB to Sta 224+00 EB

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

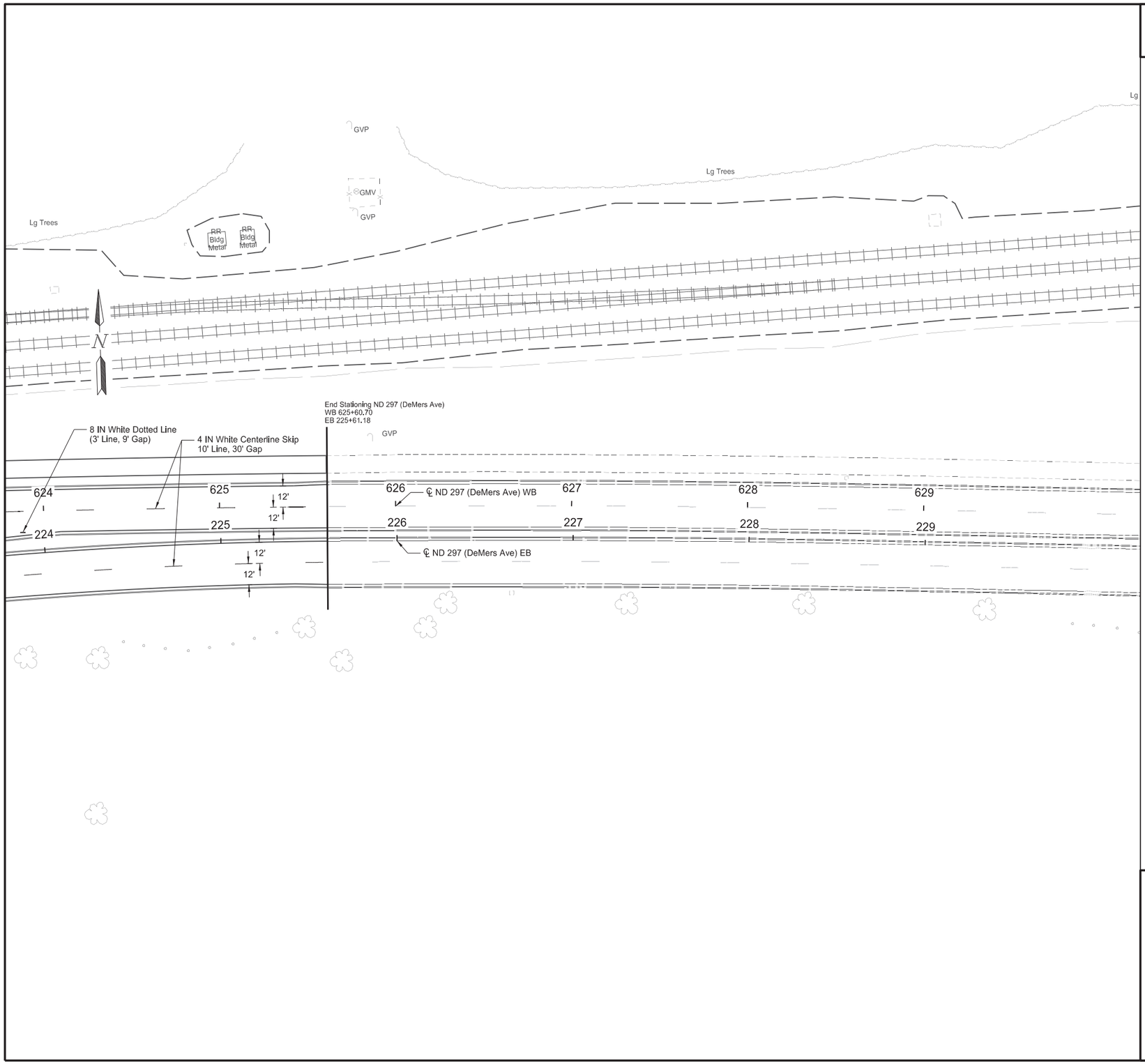
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8276
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NORTH DAKOTA

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	120	3



SPEC	CODE	BID ITEM	QTY	UNIT
762	0110	EPOXY PVMT MK 4IN LINE-GROOVED		
		White Centerline Skip	80	LF

See Plan Note for CONCRETE MEDIAN NOSE PAVING for Painting Median Noses.

Pavement Marking

Layouts
Sta 222+00 EB to Sta 226+39.85 EB

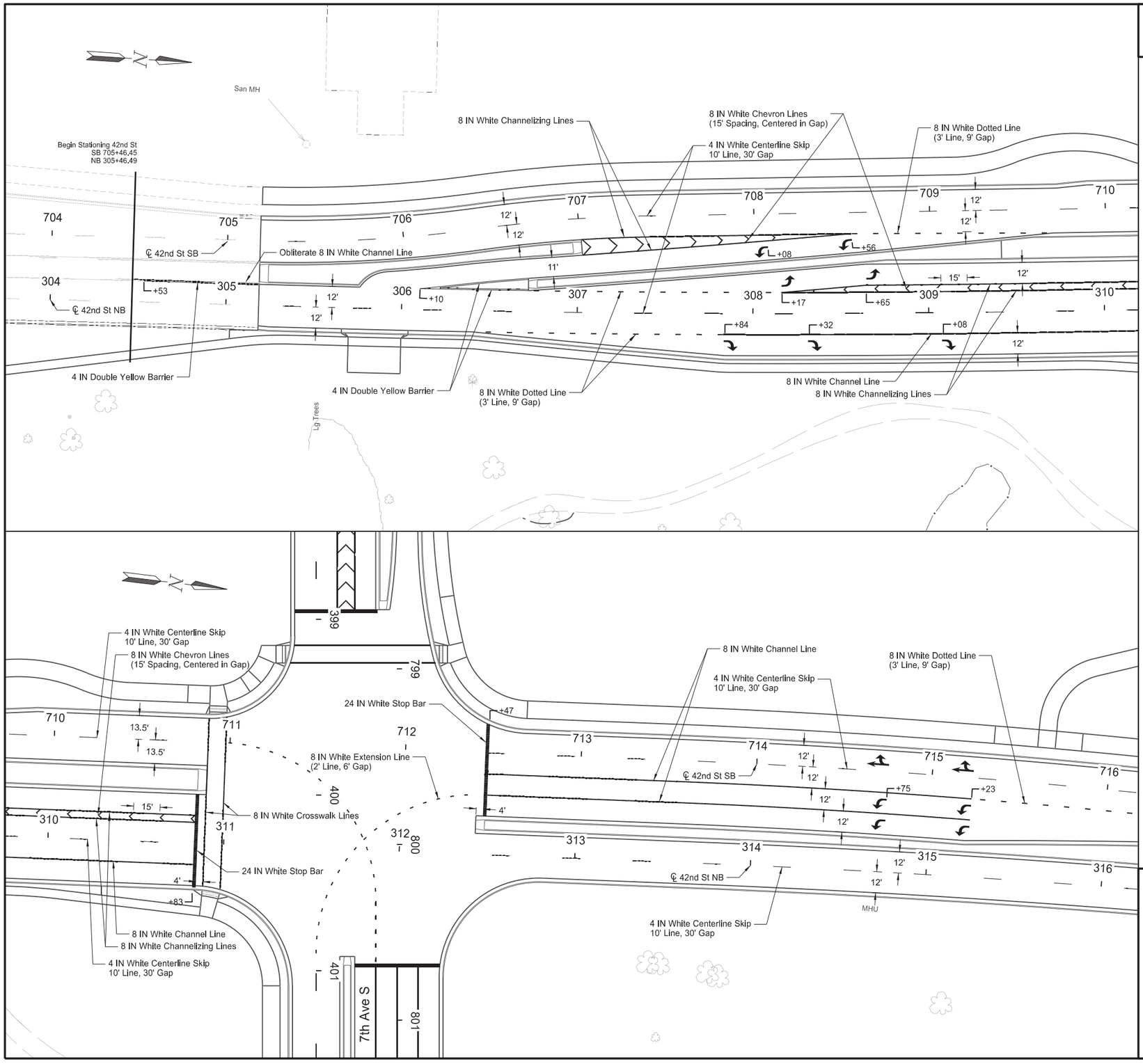
ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8256
DATE: 2025.12.05 15:24:57 -06'00'
NORTH DAKOTA



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	120	4

SPEC	CODE	BID ITEM	QTY	UNIT
762	0110	EPOXY PVMT MK 4IN LINE-GROOVED		
		White Centerline Skip	459	LF
		Double Yellow Barrier Lines	363	LF
762	0132	EPOXY PVMT MK 8IN LINE-GROOVED		
		White Channel Line	1690	LF
		White Chevron Line	153	LF
		White Dotted Line	120	LF
		White Extension Line	36	LF
		White Crosswalk Line	194	LF
762	0135	EPOXY PVMT MK 24IN LINE-GROOVED		
		White Stop Bar	104	LF
762	0136	EPOXY PVMT MK MESSAGE-GROOVED		
		White Left Turn Arrow	128	SF
		White Right Turn Arrow	48	SF
		White Thru/Right	54	SF

See Plan Note for CONCRETE MEDIAN NOSE PAVING for Painting Median Noses.

Pavement Marking

Layouts
Sta 305+18.66 NB to Sta 316+00 NB

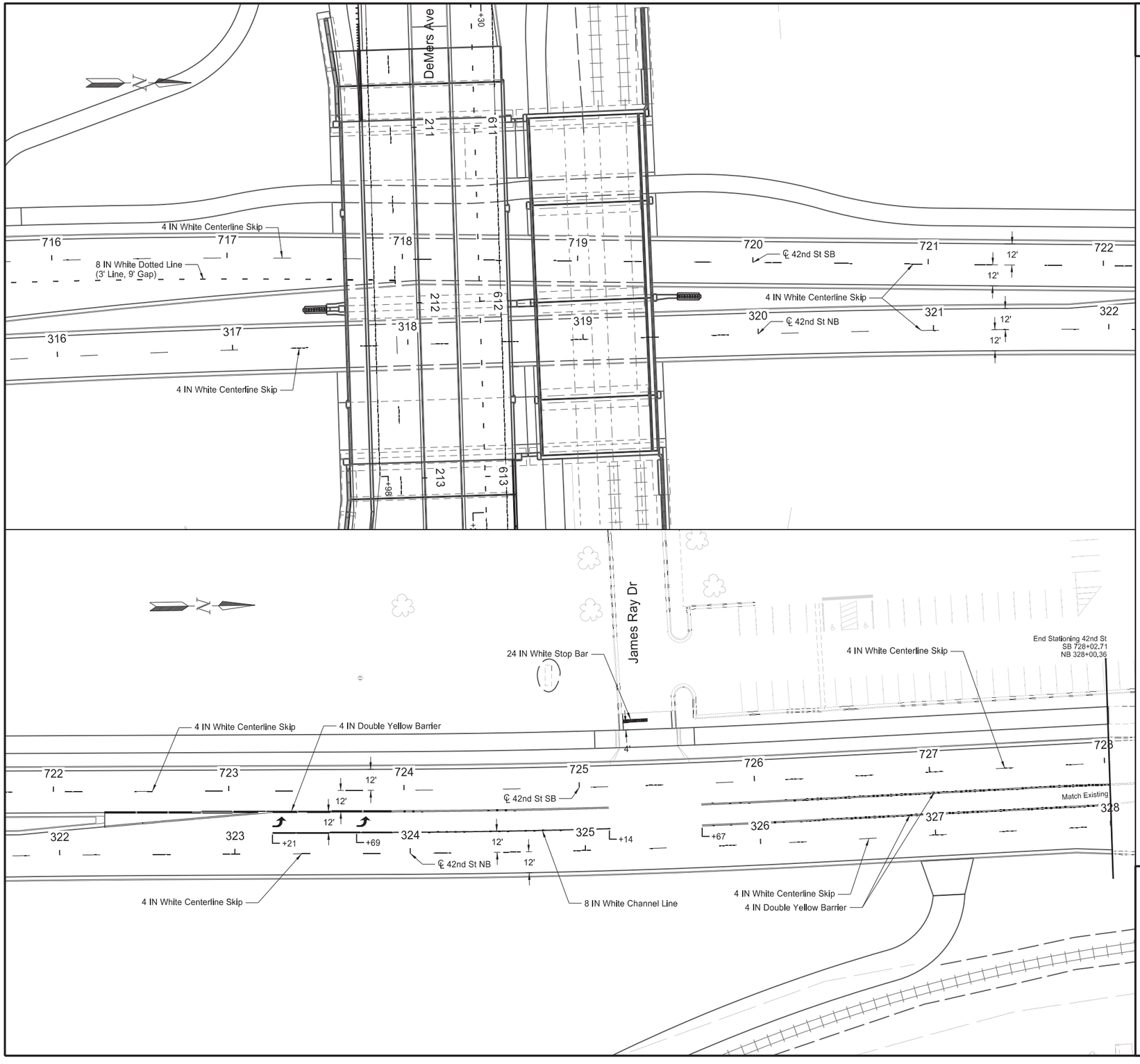
S 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9256
DATE: 2025.12.05 15:25:06 -06'00'
NORTH DAKOTA



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	120	5

SPEC	CODE	BID ITEM	QTY	UNIT
762	0110	EPOXY PVMT MK 4IN LINE-GROOVED		
		White Centerline Skip	600	LF
		Double Yellow Barrier	1685	LF
762	0132	EPOXY PVMT MK 8IN LINE-GROOVED		
		White Channel Line	192	LF
		White Dotted Line	51	LF
762	0135	EPOXY PVMT MK 24IN LINE-GROOVED		
		White Stop Bar	14	LF
762	0136	EPOXY PVMT MK MESSAGE-GROOVED		
		White Left Turn Arrow	32	SF

See Plan Note for CONCRETE MEDIAN NOSE PAVING for Painting Median Noses.

Pavement Marking

Layouts
Sta 316+00 NB to Sta 328+00.36 NB

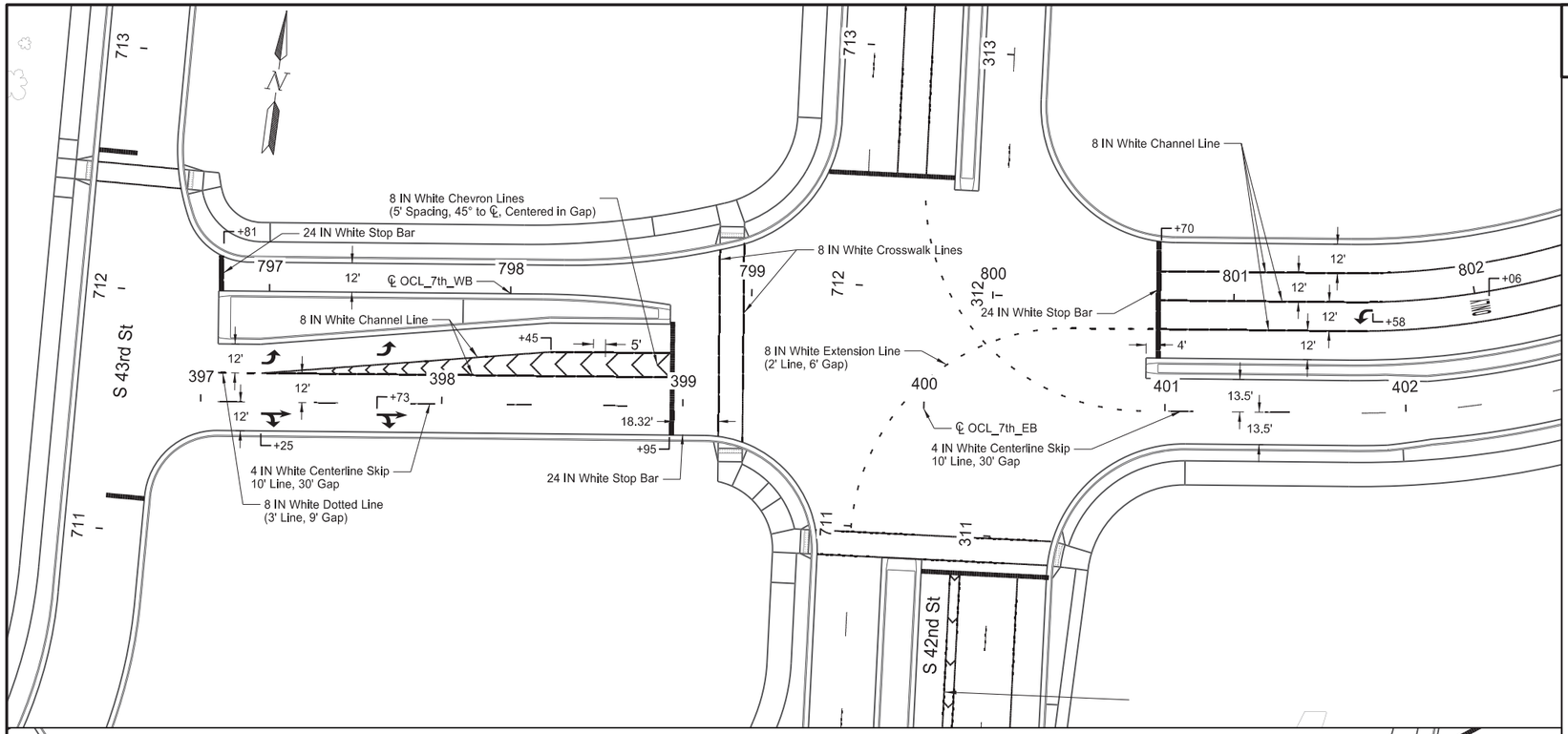
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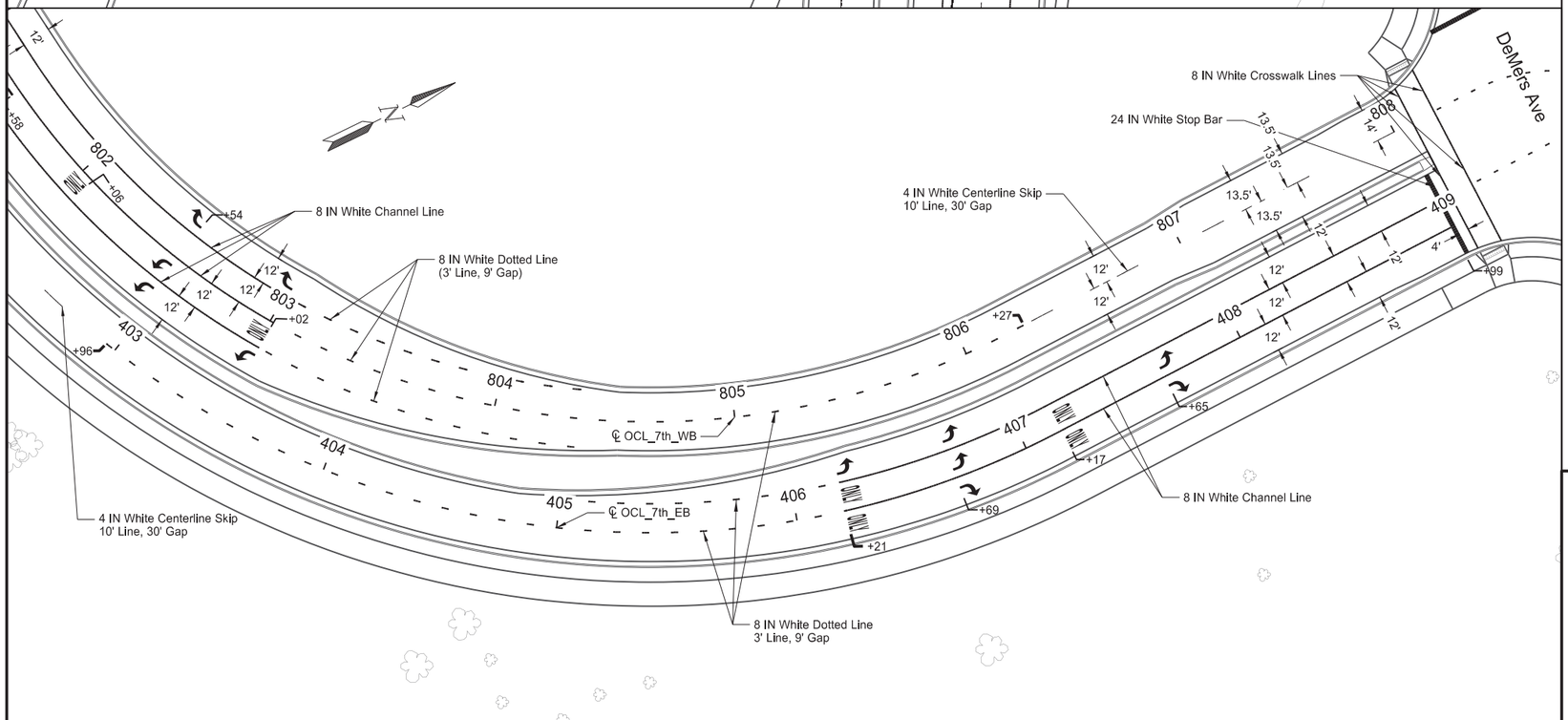
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9056
DATE: 2025.12.05 15:25:16 -06'00'
NORTH DAKOTA





	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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SPEC	CODE	BID ITEM	QTY	UNIT
762	0110	EPOXY PVMT MK 4IN LINE-GROOVED		
		White Centerline Skip	150	LF
762	0132	EPOXY PVMT MK 8IN LINE-GROOVED		
		White Channel Line	1587	LF
		White Dotted Line	267	LF
		White Extension Line	44	LF
		White Chevron Line	158	LF
		White Crosswalk Line	314	LF
762	0135	EPOXY PVMT MK 24IN LINE-GROOVED		
		White Stop Bar	146	LF
762	0136	EPOXY PVMT MK MESSAGE-GROOVED		
		White Left Turn Arrow	160	SF
		White Right Turn Arrow	64	SF
		White Thru/Right Combination	54	SF
		White ONLY Message	132	SF

See Plan Note for CONCRETE MEDIAN NOSE PAVING for Painting Median Noses.

Pavement Marking

Layouts
Sta 396+64.35 EB to Sta 409+17 EB

7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

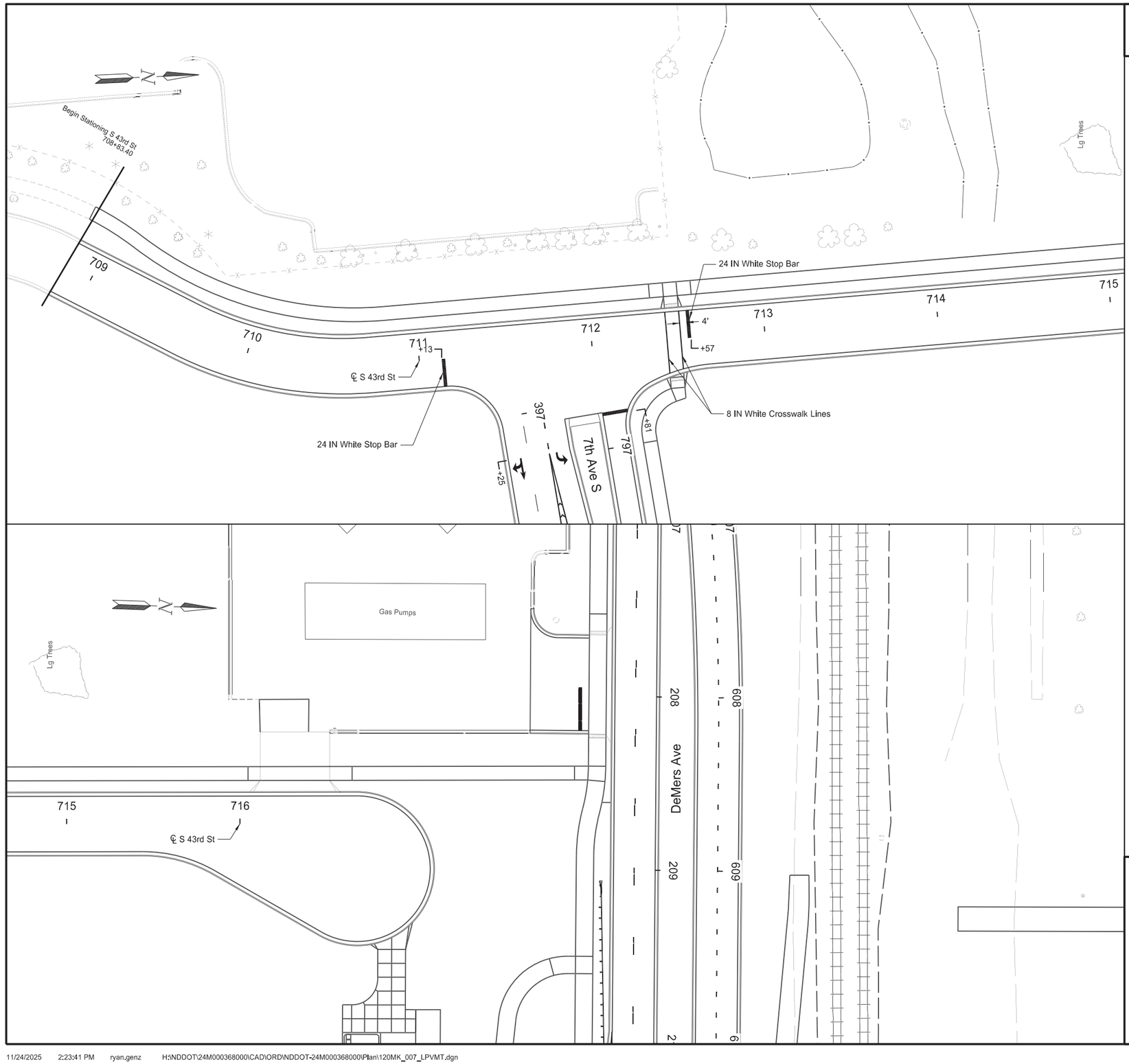
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8216
DATE 2025.12.05 15:25:46 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	120	7

SPEC	CODE	BID ITEM	QTY	UNIT
762	0132	EPOXY PVMT MK 8IN LINE-GROOVED		
		White Crosswalk Line	69	LF
762	0135	EPOXY PVMT MK 24IN LINE-GROOVED		
		White Stop Bar	32	LF



See Plan Note for CONCRETE MEDIAN NOSE PAVING for Painting Median Noses.

Pavement Marking

Layouts
Sta 708+83.40 NB to Sta 717+00 NB

S 43rd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

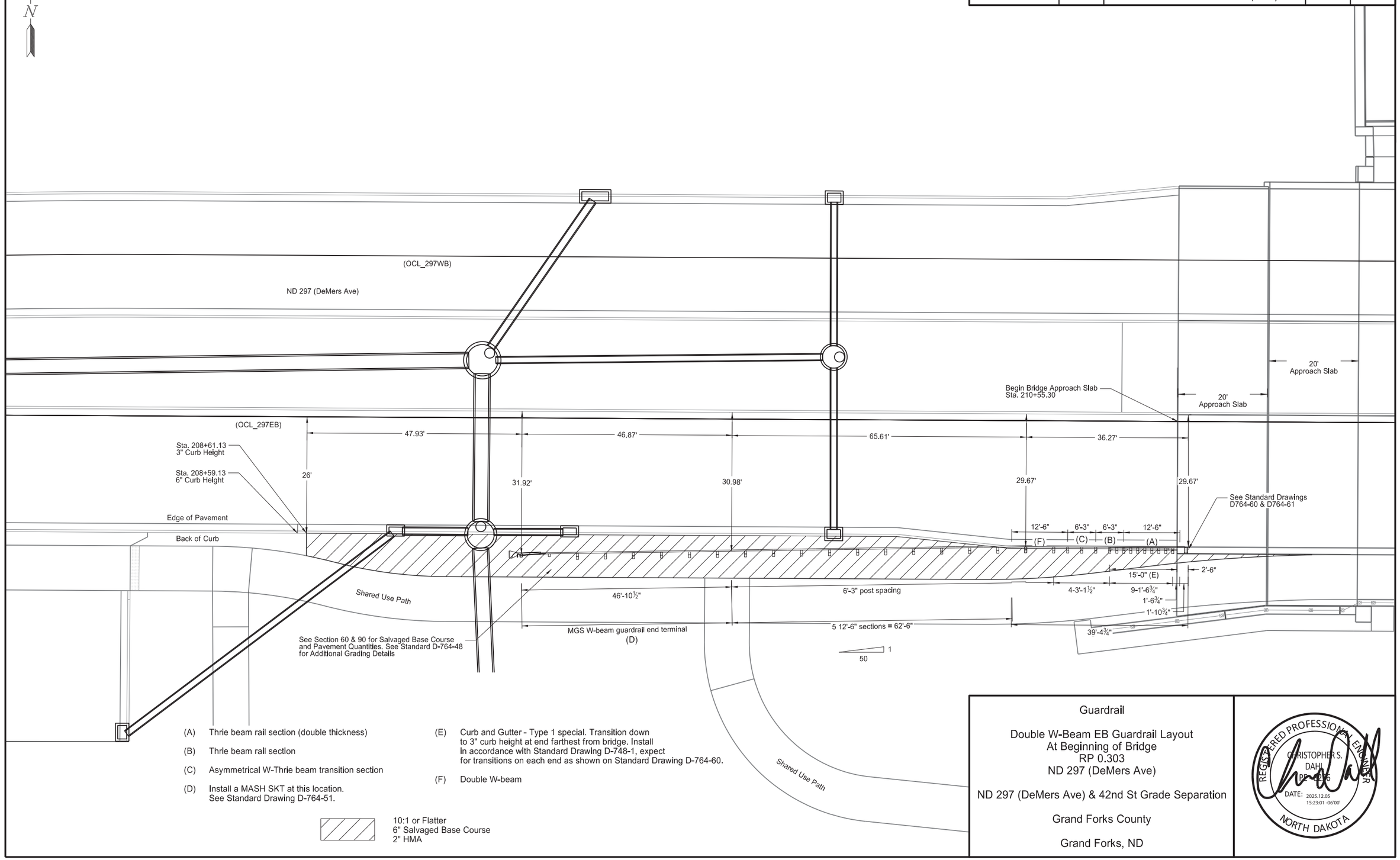
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8216
DATE: 2025.12.05 15:25:59 -06'00'
NORTH DAKOTA

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	130	1



(A) Thrie beam rail section (double thickness)

(B) Thrie beam rail section

(C) Asymmetrical W-Thrie beam transition section

(D) Install a MASH SKT at this location.
See Standard Drawing D-764-51.

(E) Curb and Gutter - Type 1 special. Transition down to 3" curb height at end farthest from bridge. Install in accordance with Standard Drawing D-748-1, expect for transitions on each end as shown on Standard Drawing D-764-60.

(F) Double W-beam

10:1 or Flatter
6" Salvaged Base Course
2" HMA

Guardrail

Double W-Beam EB Guardrail Layout
At Beginning of Bridge
RP 0.303
ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

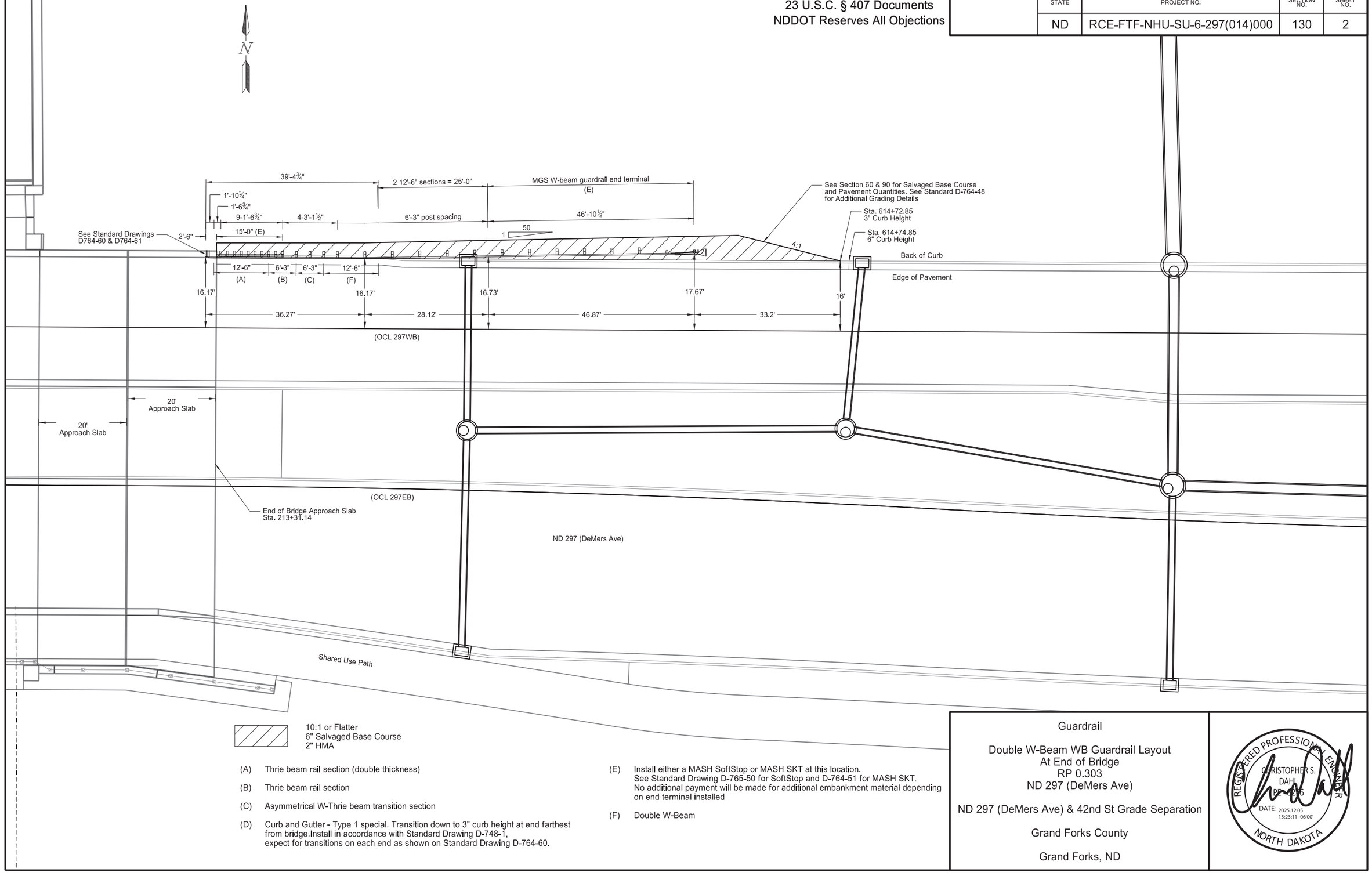
Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8276
DATE: 2025.12.05 15:23:01 -06'00'
NORTH DAKOTA

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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	130	2



10:1 or Flatter
6" Salvaged Base Course
2" HMA

(A) Thrie beam rail section (double thickness)

(B) Thrie beam rail section

(C) Asymmetrical W-Thrie beam transition section

(D) Curb and Gutter - Type 1 special. Transition down to 3" curb height at end farthest from bridge.Install in accordance with Standard Drawing D-748-1, expect for transitions on each end as shown on Standard Drawing D-764-60.

(E) Install either a MASH SoftStop or MASH SKT at this location. See Standard Drawing D-765-50 for SoftStop and D-764-51 for MASH SKT. No additional payment will be made for additional embankment material depending on end terminal installed

(F) Double W-Beam

Guardrail

Double W-Beam WB Guardrail Layout
At End of Bridge
RP 0.303
ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8076
DATE: 2025.12.05 15:23:11 -06'00'
NORTH DAKOTA

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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	130	3

MGS W-BEAM GUARDRAIL SUMMARY OF QUANTITIES

THRIE/MGS W-BEAM GUARDRAIL AT BRIDGE ENDS

LOCATION	(A) 5/8" x 18" LONG GUARD-RAIL BOLT EACH	(A) 6" x 8" x 6'-0" TIMBER POST EACH	(A) 6" x 8" x 14" TIMBER BLOCK EACH	(A) 5/8" x 1 1/4" LONG GUARD-RAIL BOLT EACH	(A) 12'-6" STRAIGHT W-BEAM RAIL SECTION EACH	(A) 12'-6" DOUBLE W-BEAM SECTION EACH	(A) REFL-ECTOR-IZED PLATES EACH	(A) 6" x 8" x 7' WOOD POST EACH	(A) 6" x 8" x 19" WOOD OFF-SET BLOCK EACH	(A) 6'-3" W-THRIE BEAM TRANS-ITION SECTION EACH	(A) 6'-3" THRIE BEAM SECTION EACH	(A) 12'-6" DOUBLE THRIE BEAM SECTION EACH	(A) 2'-6" THRIE BEAM TERM-INAL CON-NECTOR EACH	(A) 7/8" x 15" LONG HEX HEAD BOLT EACH	(A) SINGLE SLOPE TO THRIE BEAM CONN-ECTOR PLATE EACH
Sta 209+09.05 to 210+57.80 Rt	36	19	13	92	5	1	8	6	12	1	1	1	1	5	1
Sta 213+28.64 to 214+39.90 Lt	30	13	7	68	2	1	6	6	12	1	1	1	1	5	1
TOTAL	66	32	20	160	7	2	14	12	24	2	2	2	2	10	2

(A) Include these items in the contract unit price bid for "W-Beam Guardrail".

SPEC	CODE	BID ITEM	QTY	UNIT
764	0131	W-BEAM GUARDRAIL		
		Sta 209+55.92 to 210+57.80 Rt	101.9	LF
		Sta 213+28.64 to 213+93.03 Lt	64.4	LF
		Total	166.3	LF
764	0145	W-BEAM GUARDRAIL END TERMINAL		
		Sta 209+09.05 to 209+55.92 Rt	1	Ea
		Sta 213+93.03 to 214+39.90 Lt	1	Ea
		Total	2	Ea

Guardrail

Double W-Beam Guardrail Quantities

RP 0.303

ND 297 (DeMers Ave) & 42nd St Grade Separation

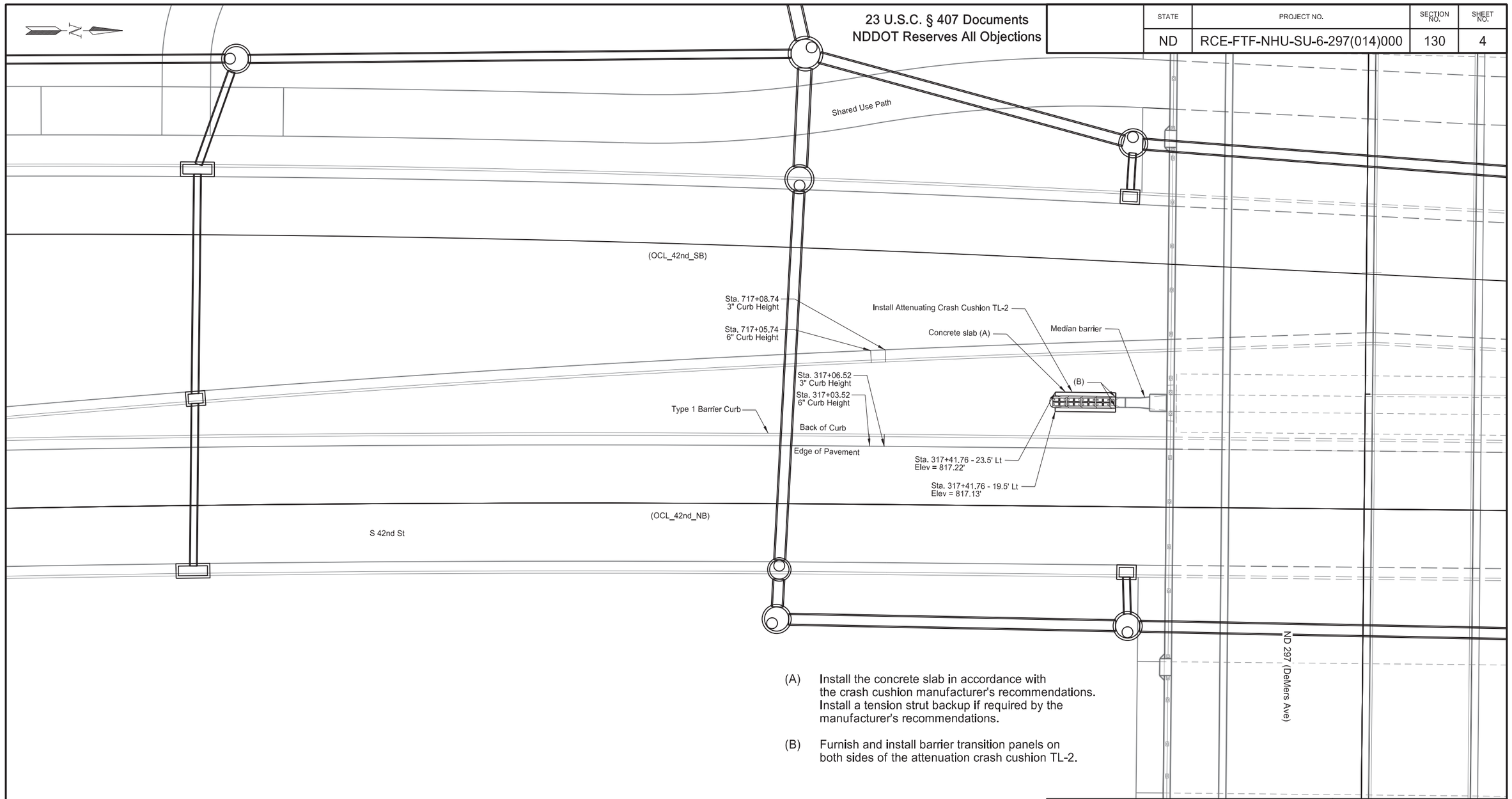
Grand Forks County

Grand Forks, ND

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PE-9276
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	130	4



(A) Install the concrete slab in accordance with the crash cushion manufacturer's recommendations. Install a tension strut backup if required by the manufacturer's recommendations.

(B) Furnish and install barrier transition panels on both sides of the attenuation crash cushion TL-2.

Guardrail

Crash Cushion and Median Pier
Transition Wall Layout South of Bridge
RP 0.303
S 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

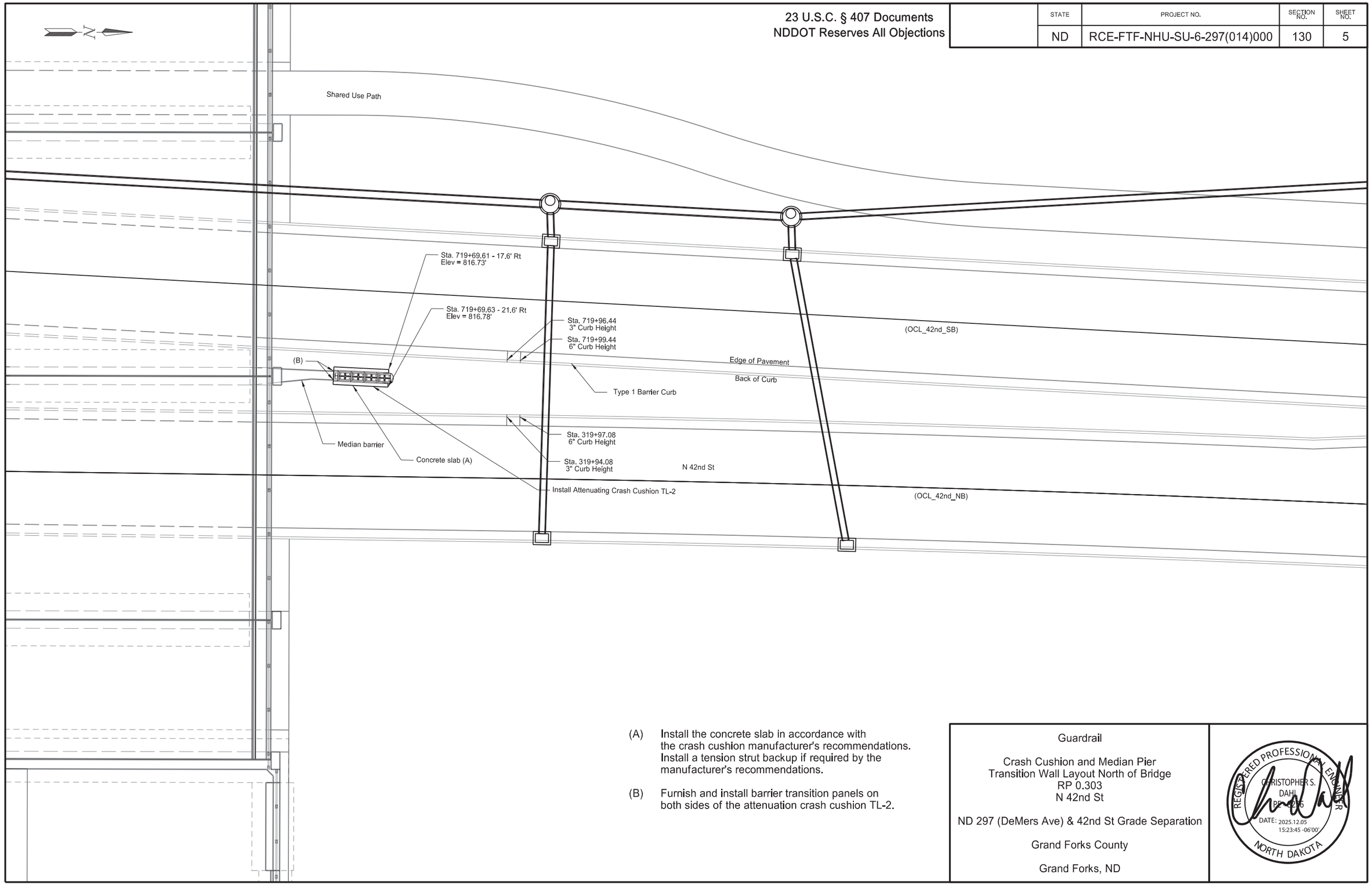
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Grand Forks, ND

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CHRISTOPHER S. DAHL
PE-8276
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	130	5



(A) Install the concrete slab in accordance with the crash cushion manufacturer's recommendations. Install a tension strut backup if required by the manufacturer's recommendations.

(B) Furnish and install barrier transition panels on both sides of the attenuation crash cushion TL-2.

Guardrail

Crash Cushion and Median Pier
Transition Wall Layout North of Bridge
RP 0.303
N 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

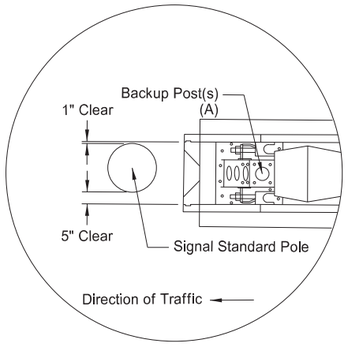
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PE-4276
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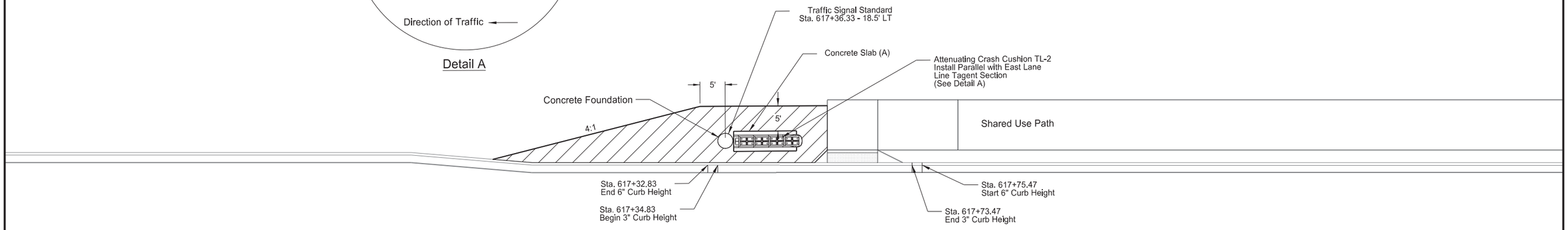
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23 U.S.C. § 407 Documents
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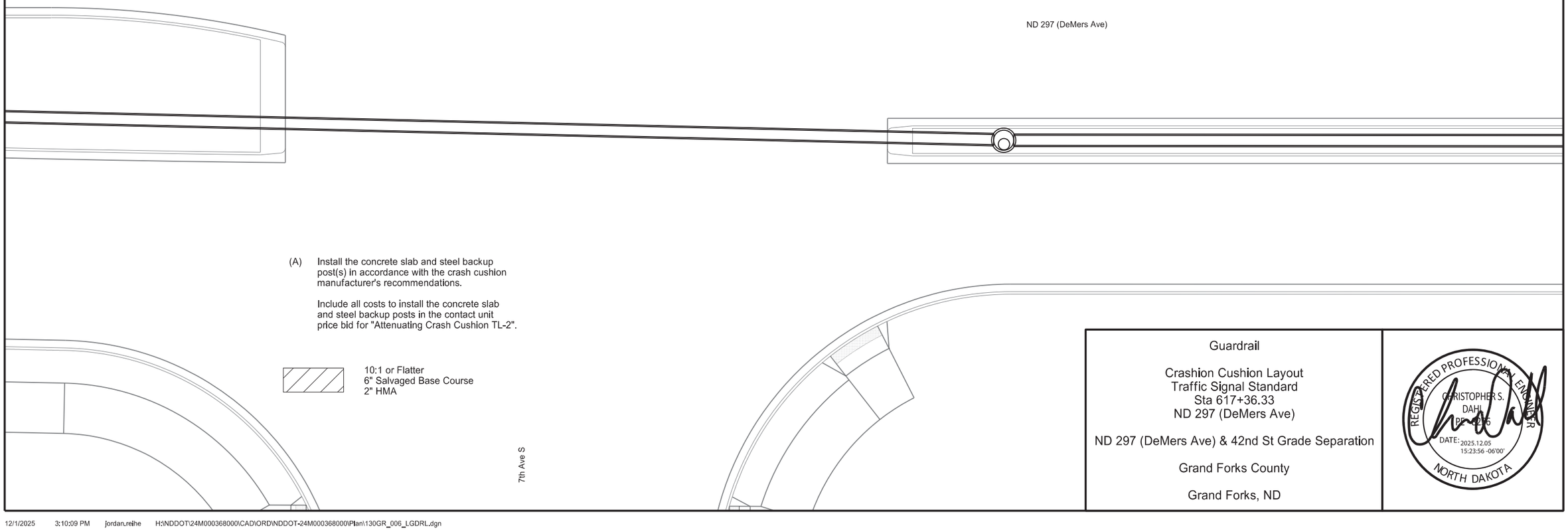
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ND	RCE-FTF-NHU-SU-6-297(014)000	130	6



Detail A



(OCL_297WB)



(A) Install the concrete slab and steel backup post(s) in accordance with the crash cushion manufacturer's recommendations.

Include all costs to install the concrete slab and steel backup posts in the contact unit price bid for "Attenuating Crash Cushion TL-2".

10:1 or Flatter
6" Salvaged Base Course
2" HMA

Guardrail

Crashion Cushion Layout
Traffic Signal Standard
Sta 617+36.33
ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

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CHRISTOPHER S. DAHL
PE-8276
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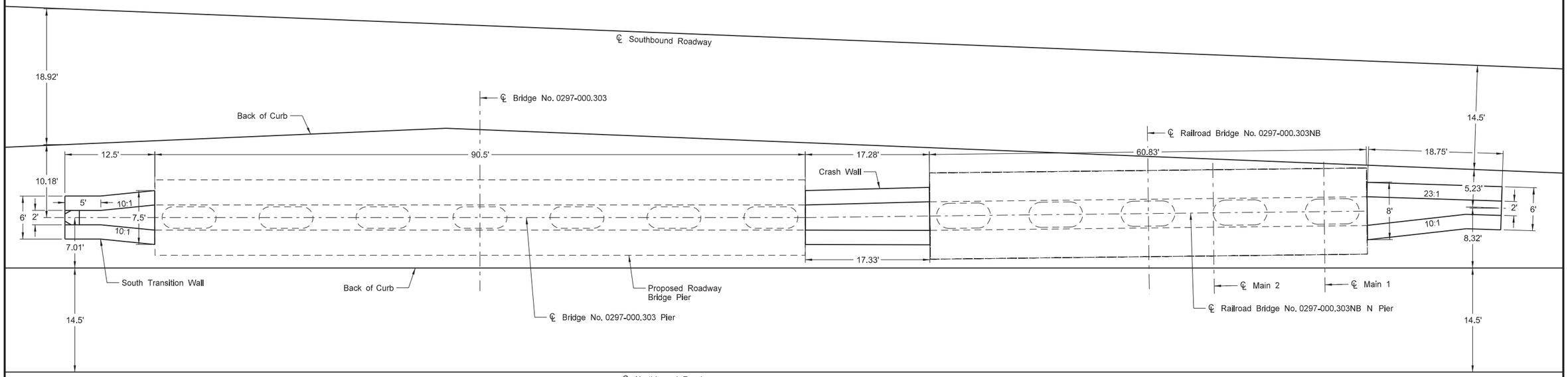
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Notes:

1. See Section 130 Sheet 4 for Attenuation Device and Grading Details
2. Pier cap not shown for clarity

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

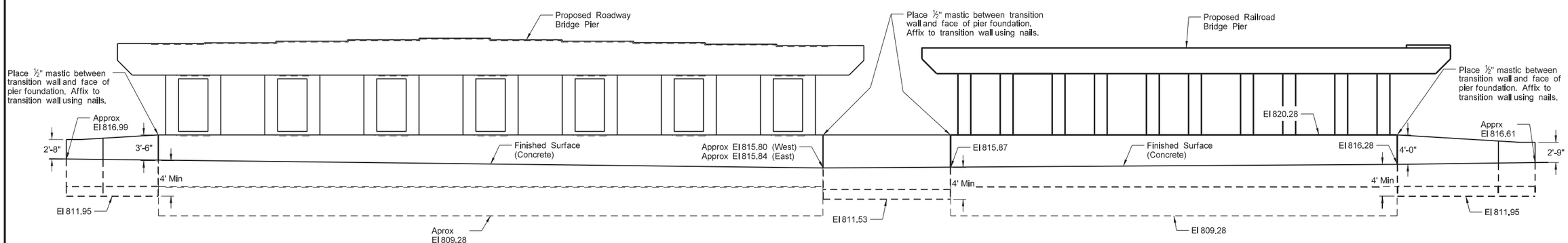
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	130	7



Plan View
Crash Wall and Transition Wall

Note:

See Section 130 Sheet 4 for Attenuation Device and Grading Details



(Looking West)
Elevation
Crash Wall and Transition Wall

QUANTITIES

SPEC	CODE	BID ITEM	QTY	UNIT
602	500	BRIDGE SUBSTRUCTURE CONCRETE	55.6	CY
612	116	REINFORCING STEEL-GRADE 60-EPOXY COATED	5,808	LBS
764	9010	ATTENUATING CRASH CUSION TL-2	2	EA

DESIGN STRENGTHS:

f'c = 4,000 psi ~ Class AE-3 Concrete
fy = 60,000 psi ~ Reinforcing Steel

Guardrail

Median Pier Protection Layout

RP 0.303
ND 297 (DeMers Ave) & 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

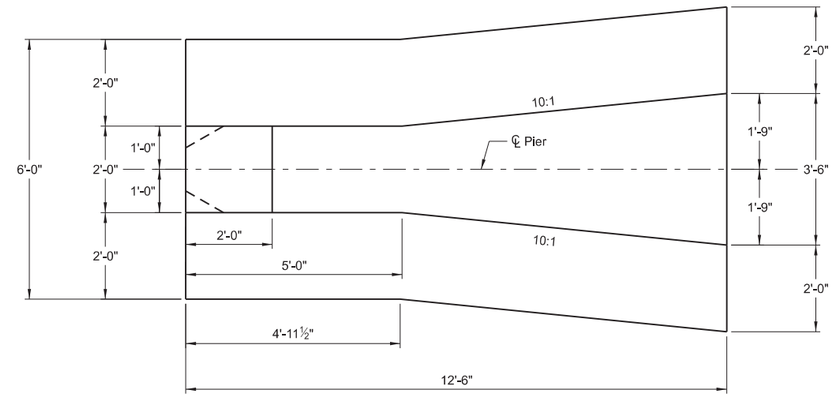
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WESLEY J. KELLER
PE-27400
DATE
NORTH DAKOTA

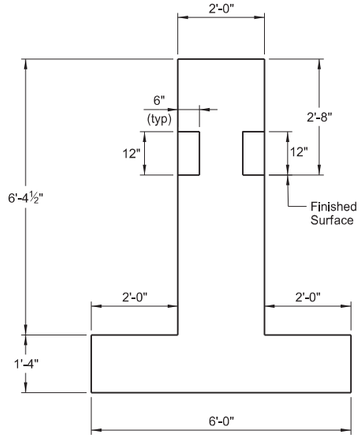
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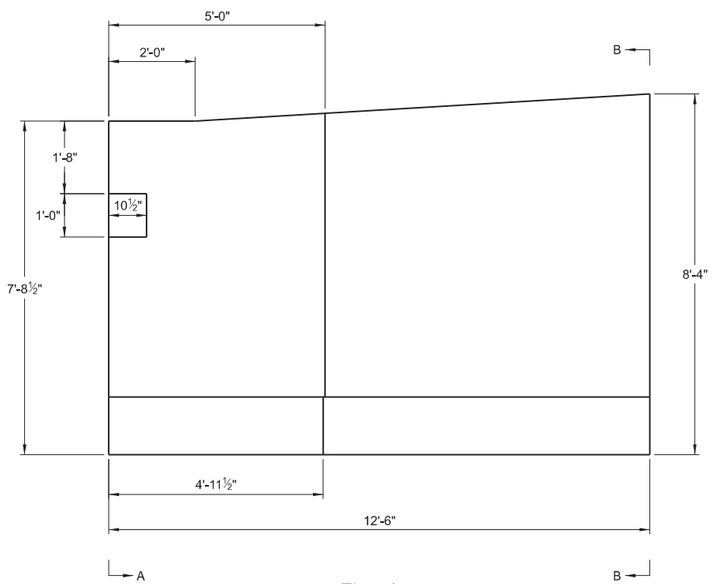
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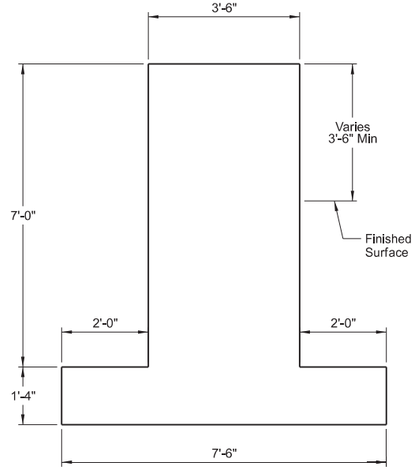
Plan



A-A



Elevation



B-B

Guardrail

Median Pier Protection
South Transition Wall Details
RP 0.303
ND 297 (DeMers Ave) & 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

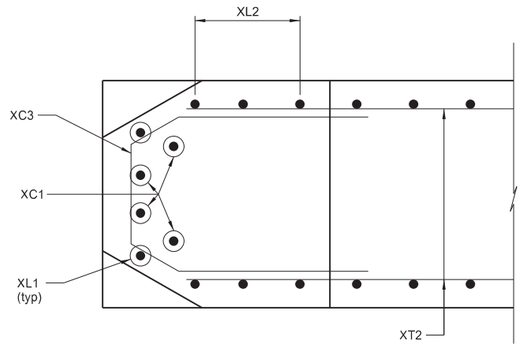
Grand Forks, ND

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WESLEY J. KELLER
PE-27400
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NORTH DAKOTA

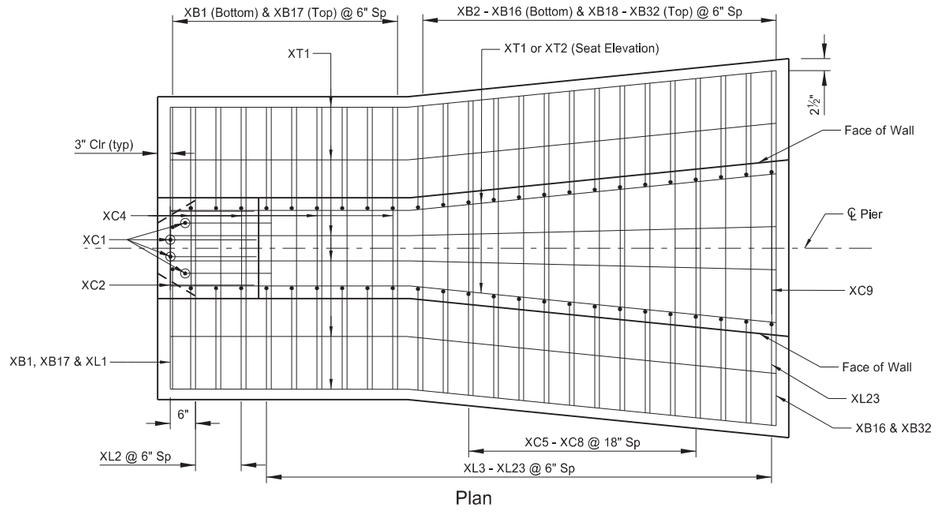
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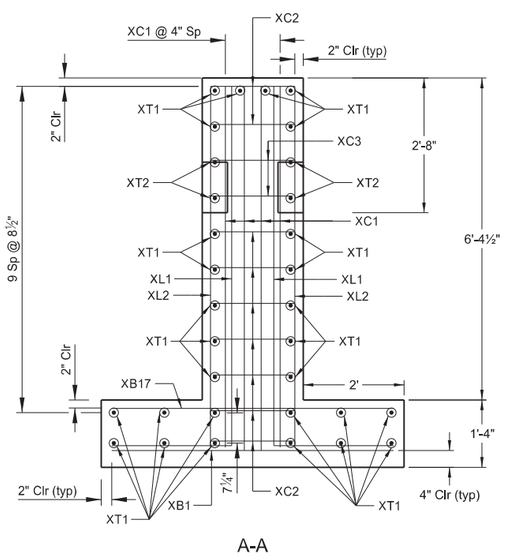
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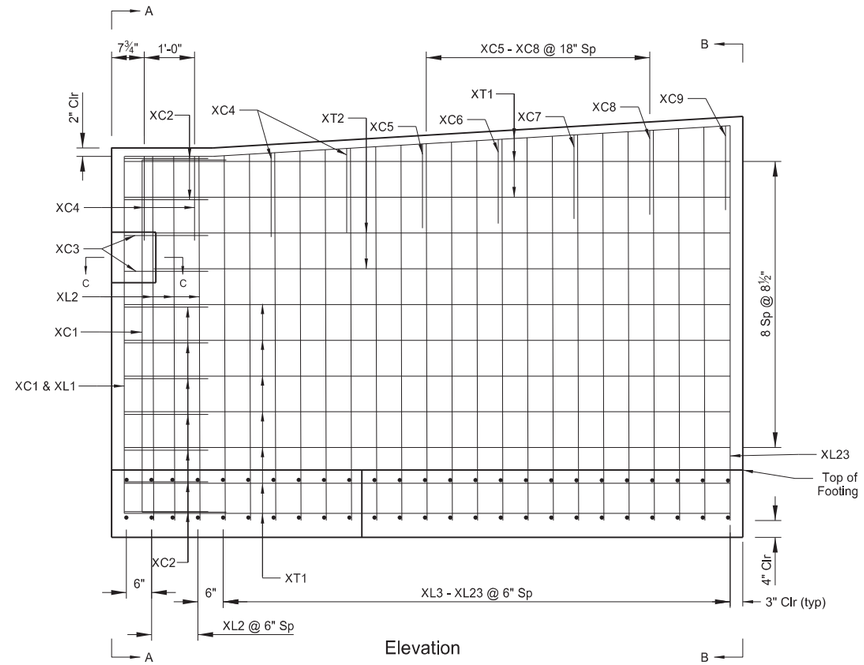
C-C



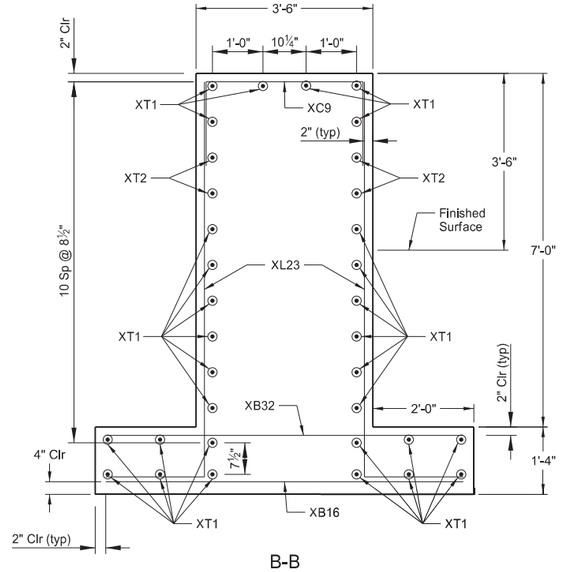
Plan



A-A



Elevation



B-B

Guardrail
Median Pier Protection
South Transition Wall Details
Reinforcing Steel Layout
RP 0.303
ND 297 (DeMers Ave) & 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

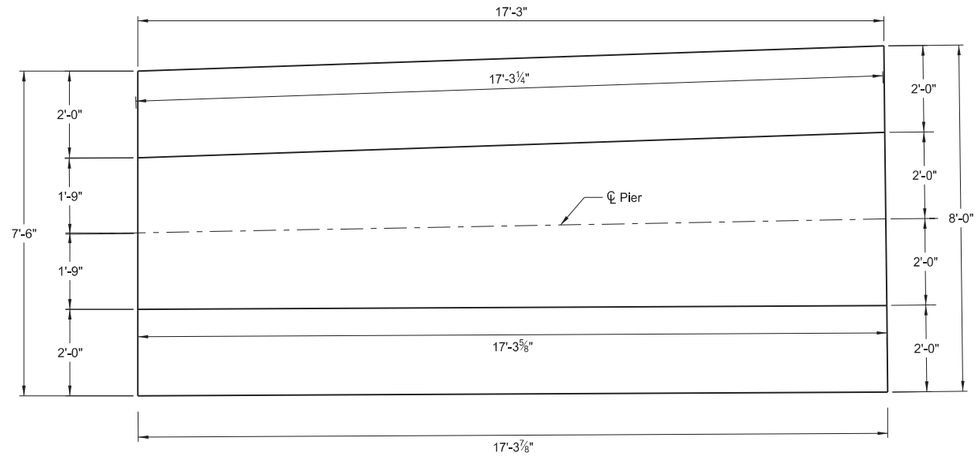
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PE-27400
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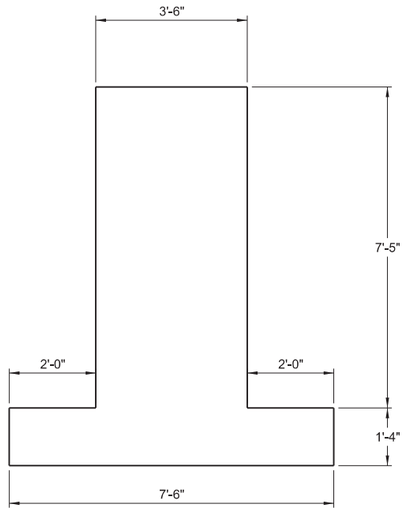
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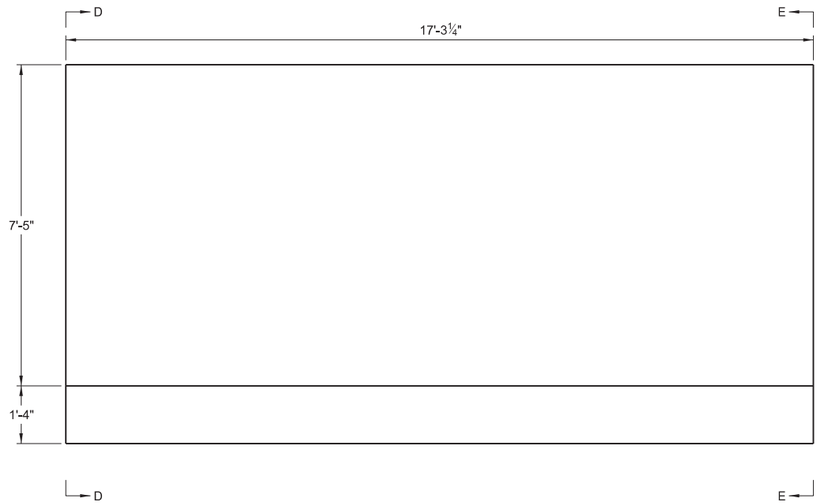
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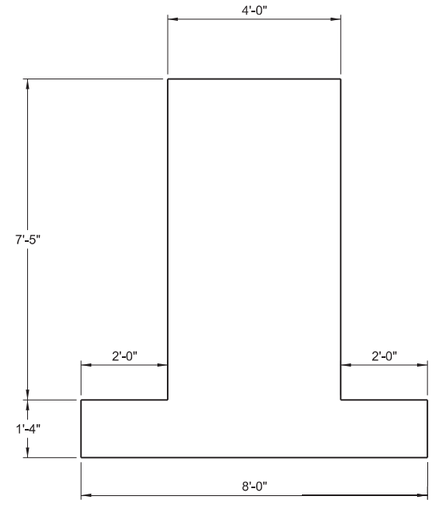
Plan



D-D



Elevation



E-E

Guardrail

Median Pier Protection
Between Pier Crash Wall Details
RP 0.303
ND 297 (DeMers Ave) & 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

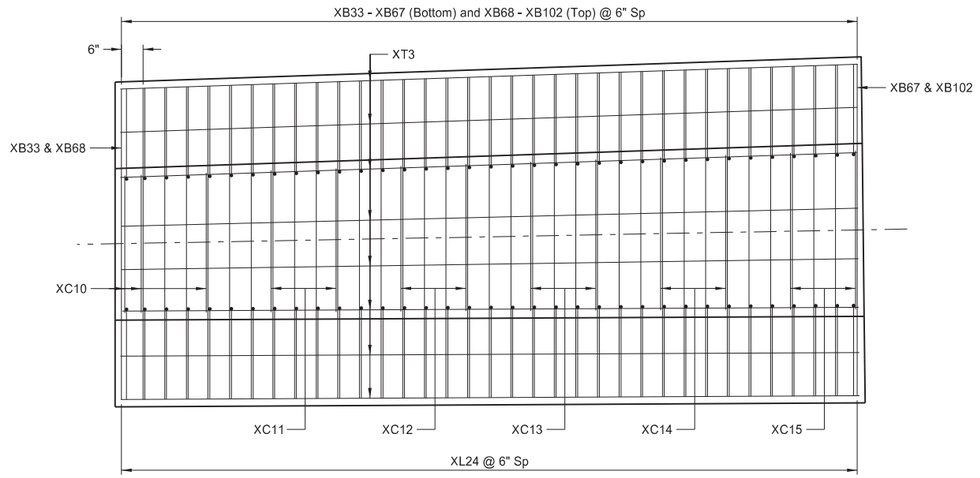
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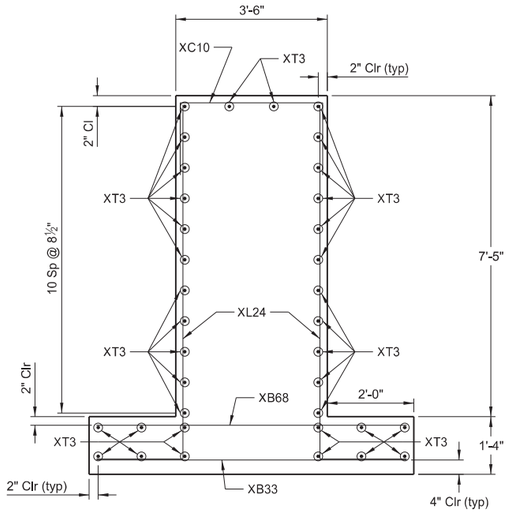
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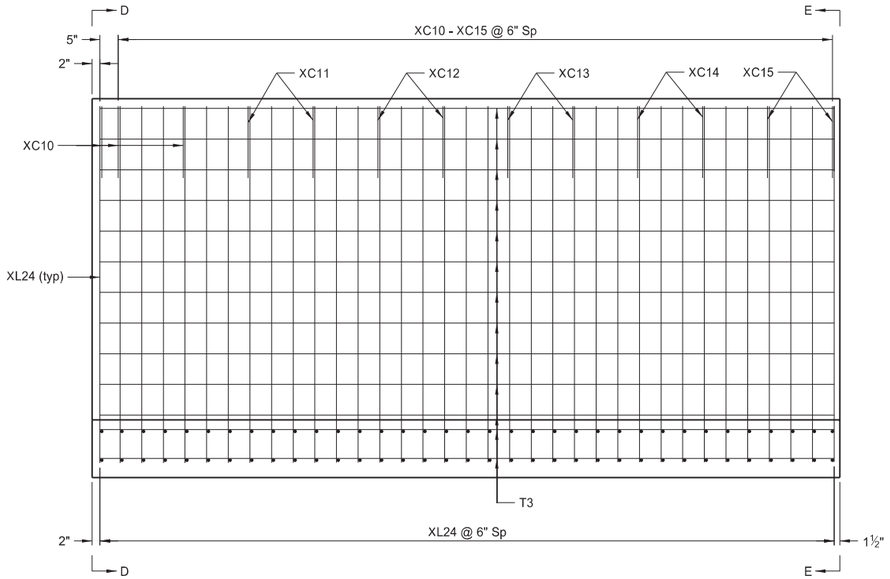
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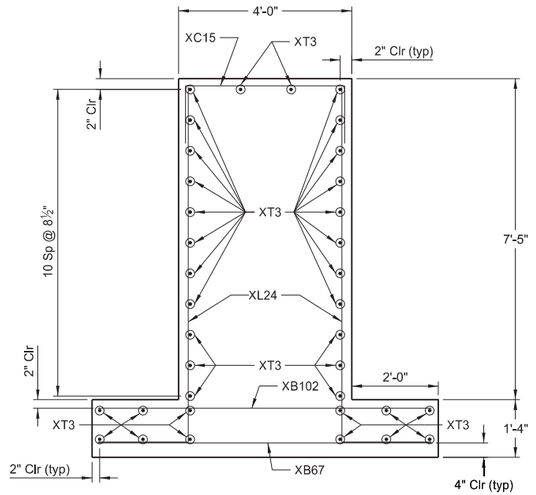
Plan



D-D



Elevation



E-E

Guardrail
Median Pier Protection
Between Pier Crash Wall Details
Reinforcing Steel Layout
RP 0.303
ND 297 (DeMers Ave) & 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

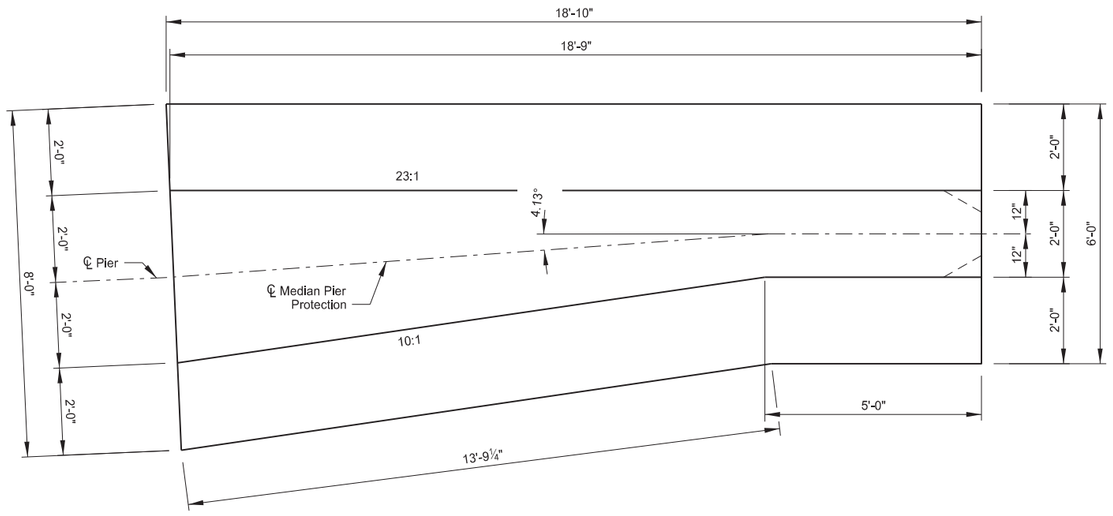
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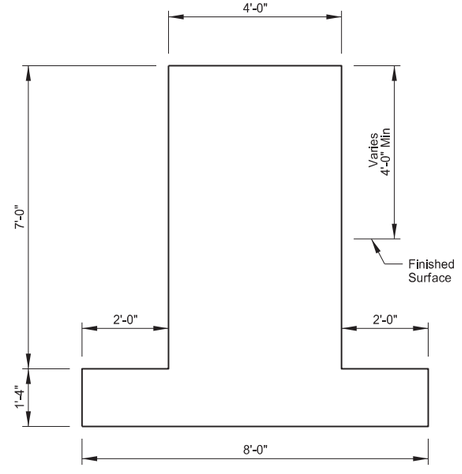
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23 U.S.C. § 407 Documents
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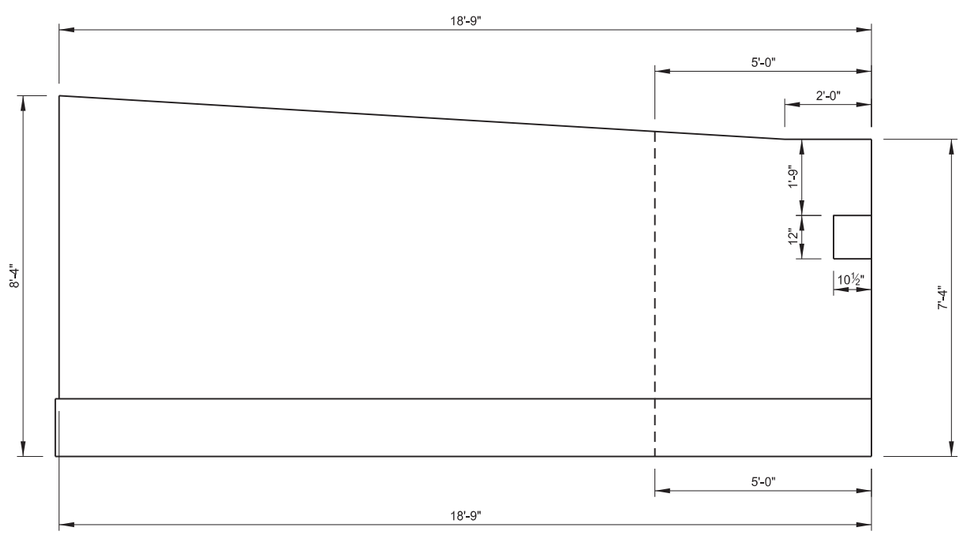
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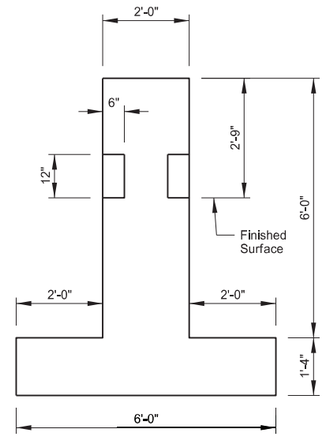
Plan View



Section D-D



Elevation



Section C-C

Guardrail

Median Pier Protection
North Transition Wall Details
RP 0.303
N 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

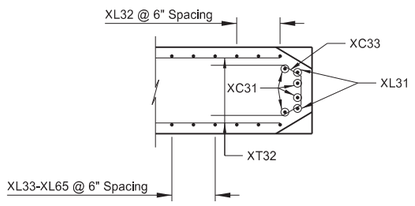
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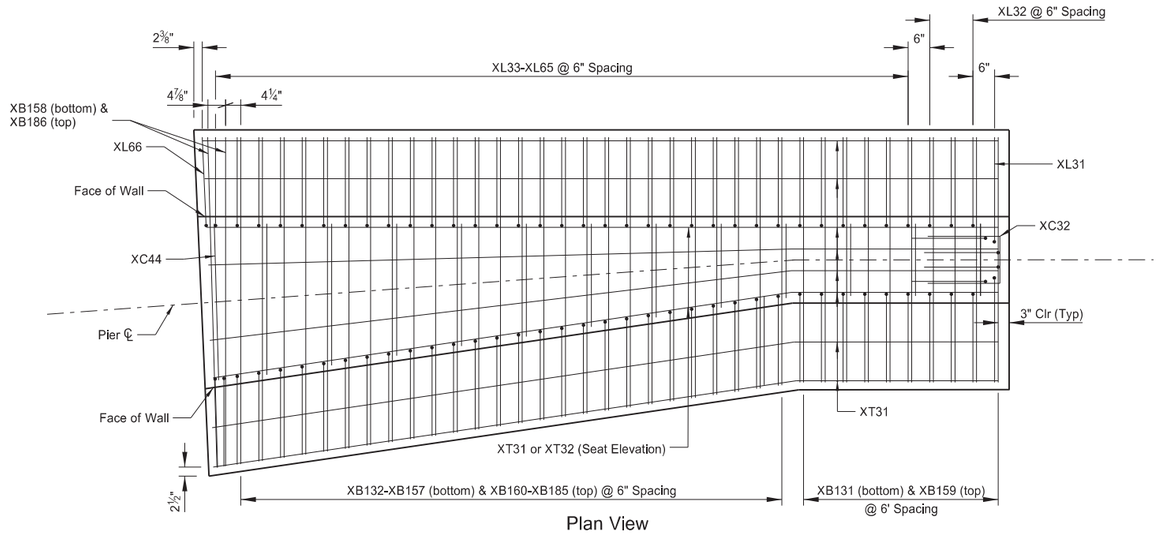
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23 U.S.C. § 407 Documents
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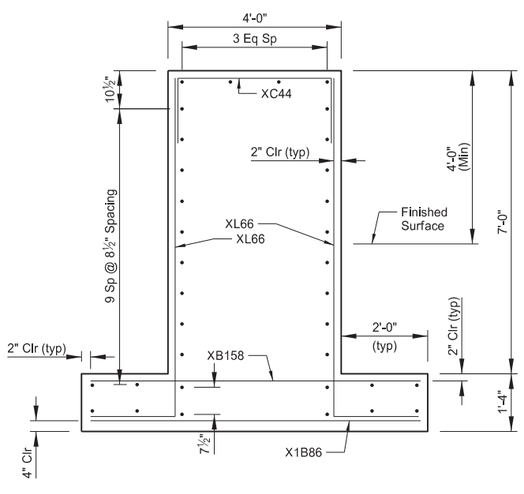
Section E-E



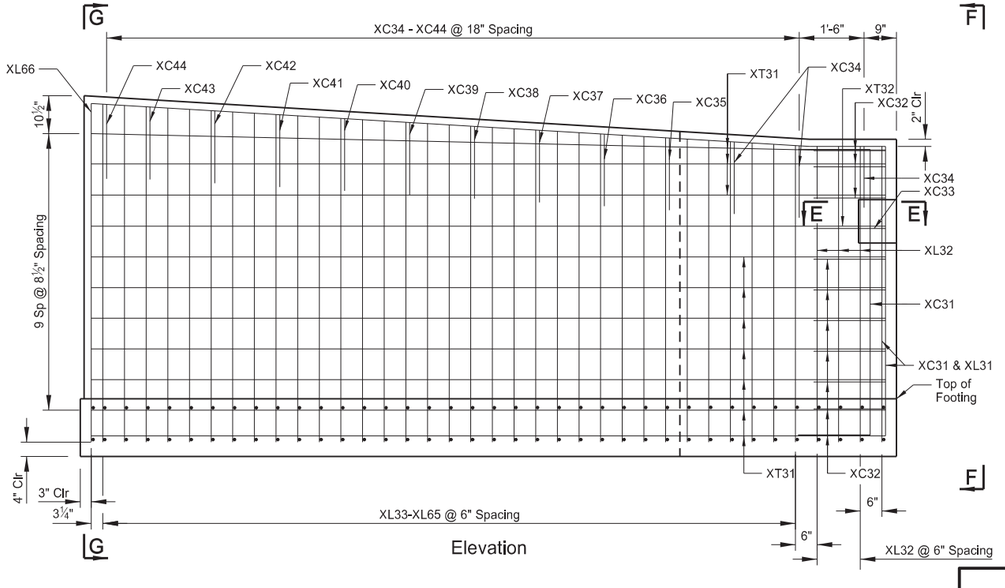
Plan View

NOTE:

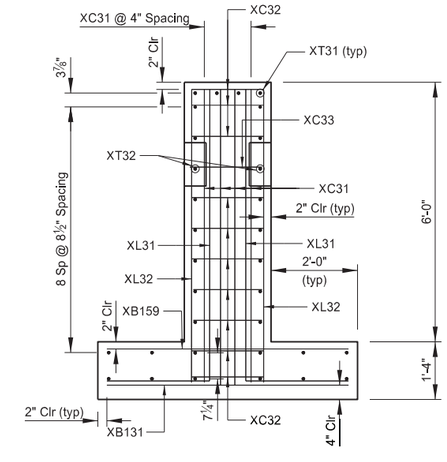
Field bend XT31 & XT32 bars as shown. During and after bending, inspect the bars for any damage or degradation to the epoxy coating. Any areas where the coating is cracked, chipped, or otherwise compromised must be repaired in accordance with ASTM A775/A775M and project specifications.



Section G-G



Elevation



Section F-F

Guardrail

Median Pier Protection
North Transition Wall Details Reinforcing Steel Layout
RP 0.303
N 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

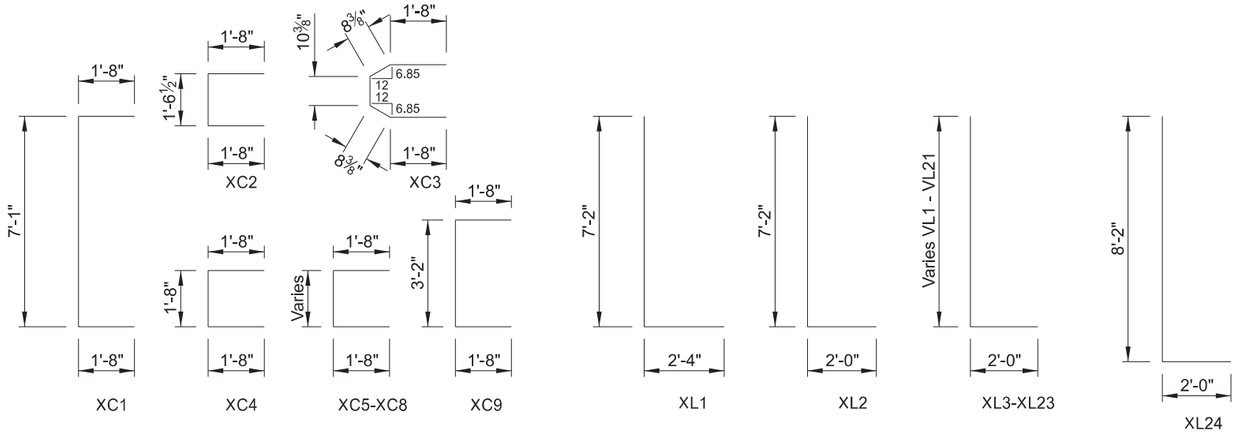
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
TRAVIS M. SCHAFER
PE-40826
DATE
NORTH DAKOTA
12/5/2025

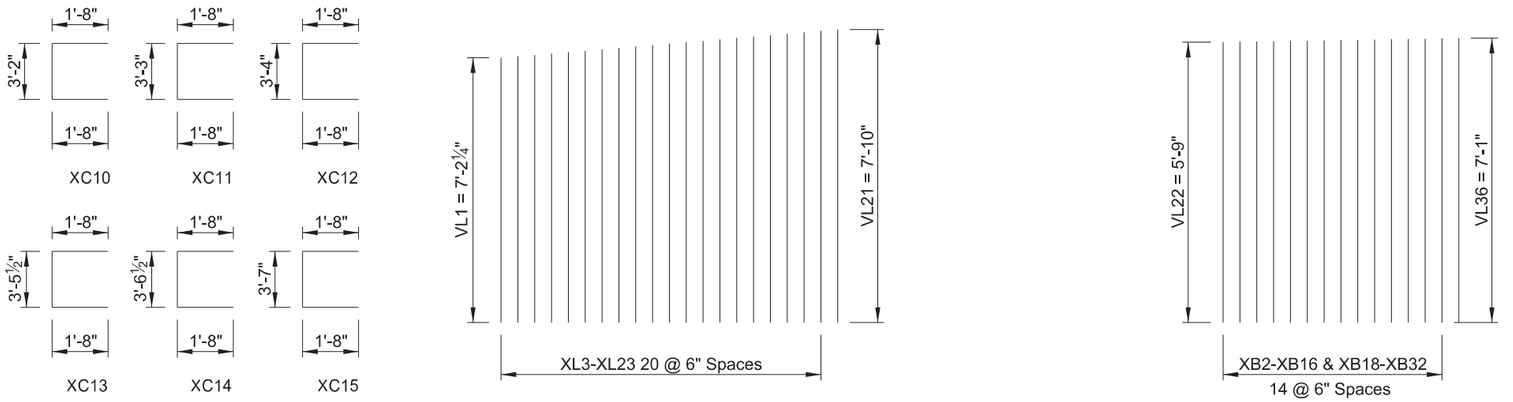
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

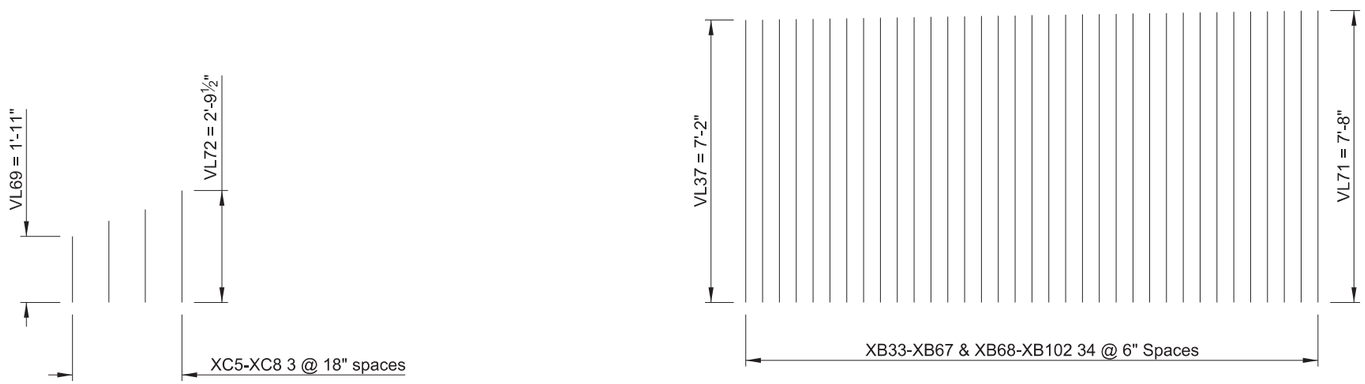
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	130	14



BENT BAR DETAILS

BAR LIST SOUTH, TRANSITION WALL				
MARK	SIZE	NO.	LENGTH	SHAPE
XC1	6	4	10'-5"	BENT
XC2	5	9	4'-10½"	BENT
XC3	5	2	5'-7⅛"	BENT
XC4	5	4	5'-0"	BENT
XC5-XC8	5	1 SET	22'-6⅜"	BENT
XC9	5	1	6'-6"	BENT
XL1	6	2	9'-6"	BENT
XL2	6	6	9'-2"	BENT
XL3-XL23	6	2 SETS	398'-10¼"	BENT
XT1	4	30	12'-0"	STRAIGHT
XT2	4	4	11'-6½"	STRAIGHT
XB1	6	10	5'-8"	STRAIGHT
XB2-XB16	6	1 SET	95'-8⅛"	STRAIGHT
XB17	4	10	5'-8"	STRAIGHT
XB18-XB32	4	1 SET	95'-8⅛"	STRAIGHT





BENT CUTTING DETAILS

BAR LIST, CRASH WALL				
MARK	SIZE	NO.	LENGTH	SHAPE
XC10	5	3	6'-6"	BENT
XC11	5	2	6'-7"	BENT
XC12	5	2	6'-8"	BENT
XC13	5	2	6'-9½"	BENT
XC14	5	2	6'-10½"	BENT
XC15	5	2	6'-11"	BENT
XL24	6	70	10'-2"	BENT
XT3	4	36	16'-11"	STRAIGHT
XB33-XB67	6	1 SET	259'-4¼"	STRAIGHT
XB68-XB102	4	1 SET	259'-4¼"	STRAIGHT

Construction Notes:

1. Dimensions of bent bars are given out to out. The length of bent bars listed is the sum of the detailing dimensions.
2. Use grade 60 reinforcing steel and Class AE Concrete.
3. Longitudinal reinforcing splice length is 19".
4. Surface finish "D" is required for all exposed surfaces of the wall.
5. An "X" preceding a bar designation indicates an epoxy bar.
6. Field bend XT1 bars in stem and footing as shown. During and after bending, inspect the bars for any damage of degradation to the epoxy coating. Any areas where the coating is cracked, chipped, or otherwise compromised must be repaired in accordance with ASTM A775/A775M and project specifications.

Guardrail

Median Pier Protection
Reinforcing Bar List & Details
RP 0.303
ND 297 (DeMers Ave) & 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

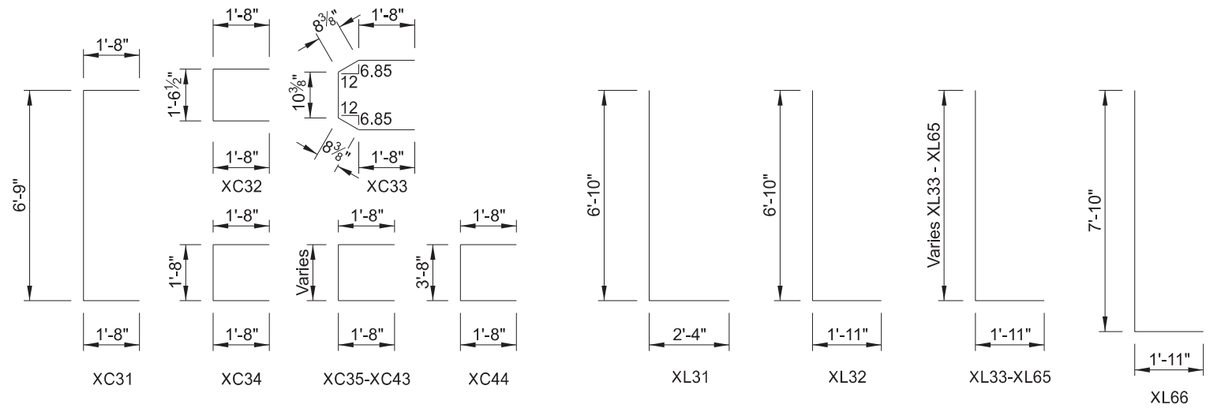
Grand Forks County

Grand Forks, ND

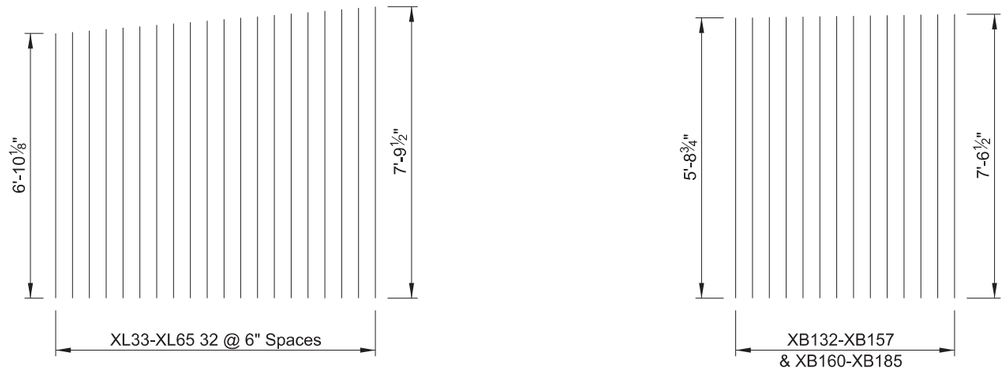
REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE
NORTH DAKOTA

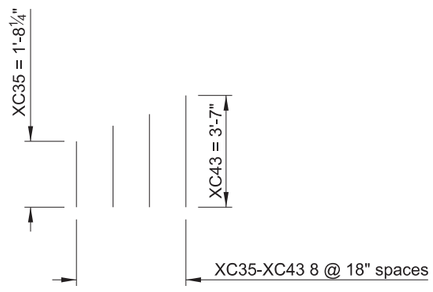
12/5/2025

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	130	15



BENT BAR DETAILS





BENT CUTTING DETAILS

BAR LIST NORTH, TRANSITION WALL				
MARK	SIZE	NO.	LENGTH	SHAPE
XC31	6	4	10'-1"	BENT
XC32	5	10	4'-10½"	BENT
XC33	5	1	5'-7⅛"	BENT
XC34	5	3	5'-0"	BENT
XC35-XC43	5	1 SET	53'-9"	BENT
XC44	5	1	7'-0"	BENT
XL31	6	2	9'-2"	BENT
XL32	6	6	8'-9"	BENT
XL33-XL65	6	2 SET	304'-9"	BENT
XL66	6	2	9'-9"	BENT
XT31	4	32	18'-5"	STRAIGHT
XT32	4	2	17'-6½"	STRAIGHT
XB131	6	10	5'-8"	STRAIGHT
XB132-XB157	6	1 SET	172'-6"	STRAIGHT
XB158	6	2	7'-6"	STRAIGHT
XB159	4	10	5'-8"	STRAIGHT
XB160-XB185	4	1 SET	172'-6"	STRAIGHT
XB186	4	2	7'-6"	STRAIGHT

CONSTRUCTION NOTES:

1. Dimensions of bent bars are given out to out. The length of bent bars listed is the sum of the detailing dimensions.
2. Reinforcing steel shall be epoxy coated grade 60, and concrete shall be Class AE.
3. Longitudinal reinforcing shall be lap spliced 19".
4. Surface finish "D" shall be required for all exposed surfaces of the wall.

Guardrail

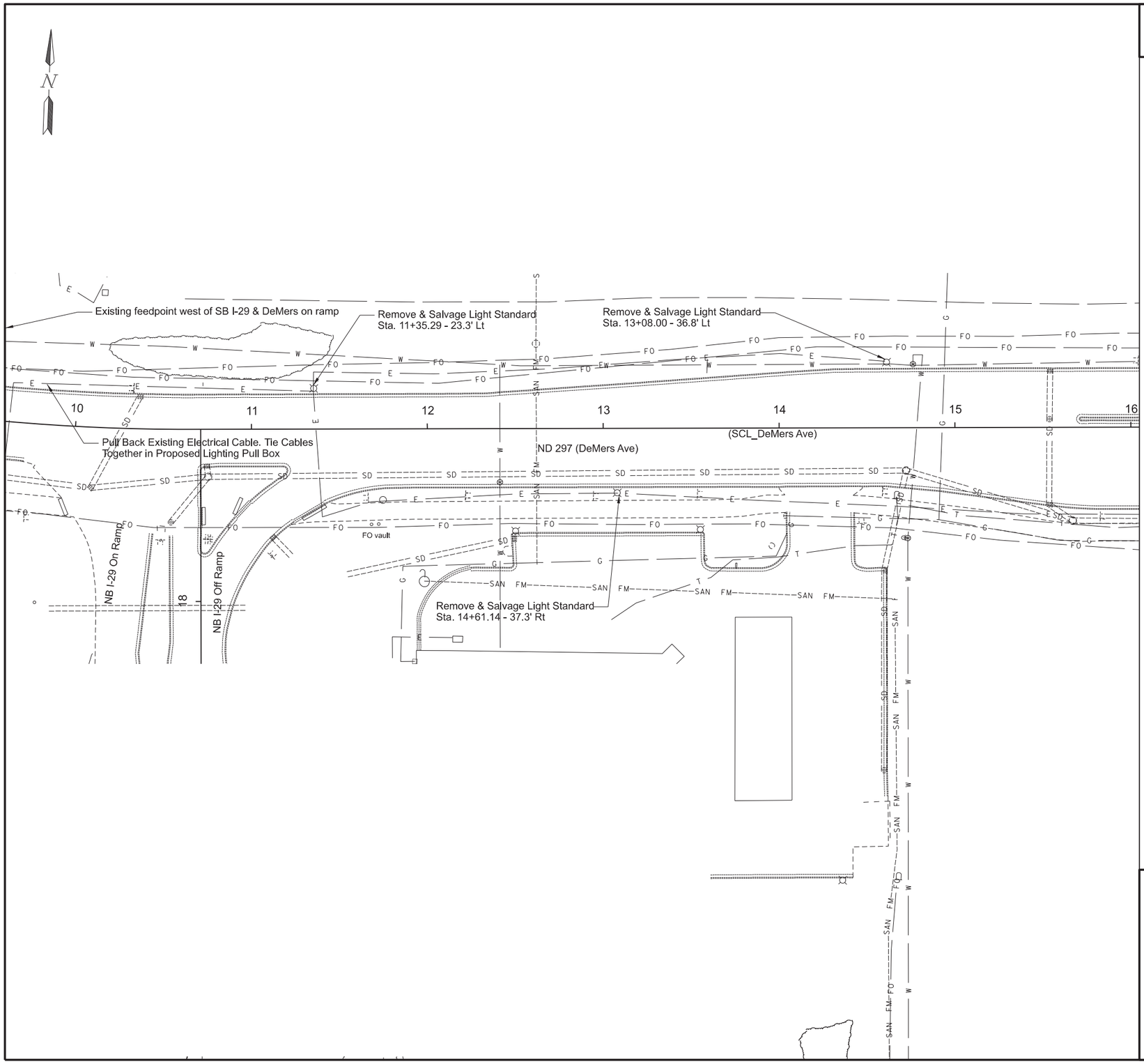
Median Pier Protection
Reinforcing Bar List & Details
RP 0.303
ND 297 (DeMers Ave) & 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
TRAVIS M. SCHAFER
PE-40826
DATE
NORTH DAKOTA
12/5/2025



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	140	1

Note:

1. Return salvaged street light poles and pull box lids to Rick Hanson (701-738-8796) with the City of Grand Forks (724 N 47th St, Grand Forks, ND 58203)

2. Include costs to remove and salvage these items in the bid price for "REMOVE LIGHTING SYSTEM".

3. Existing roadway lights to remain active until conflicts with construction.

4. This bid item includes the complete removal and disposal of street light foundations.

5. Turn off power before removing lights from circuit.

Item	Location	Quantity
Remove and Salvage Light Standard	DeMers Ave	3
Remove Light Standard Foundation	DeMers Ave	3

Lighting

Removals

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-40917
DATE: 2025.12.04 08:48:51 -06'00'
NORTH DAKOTA

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	140	2

Note:

1. Return salvaged street light poles and pull box lids to Rick Hanson (701-738-8796) with the City of Grand Forks (724 N 47th St, Grand Forks, ND 58203)

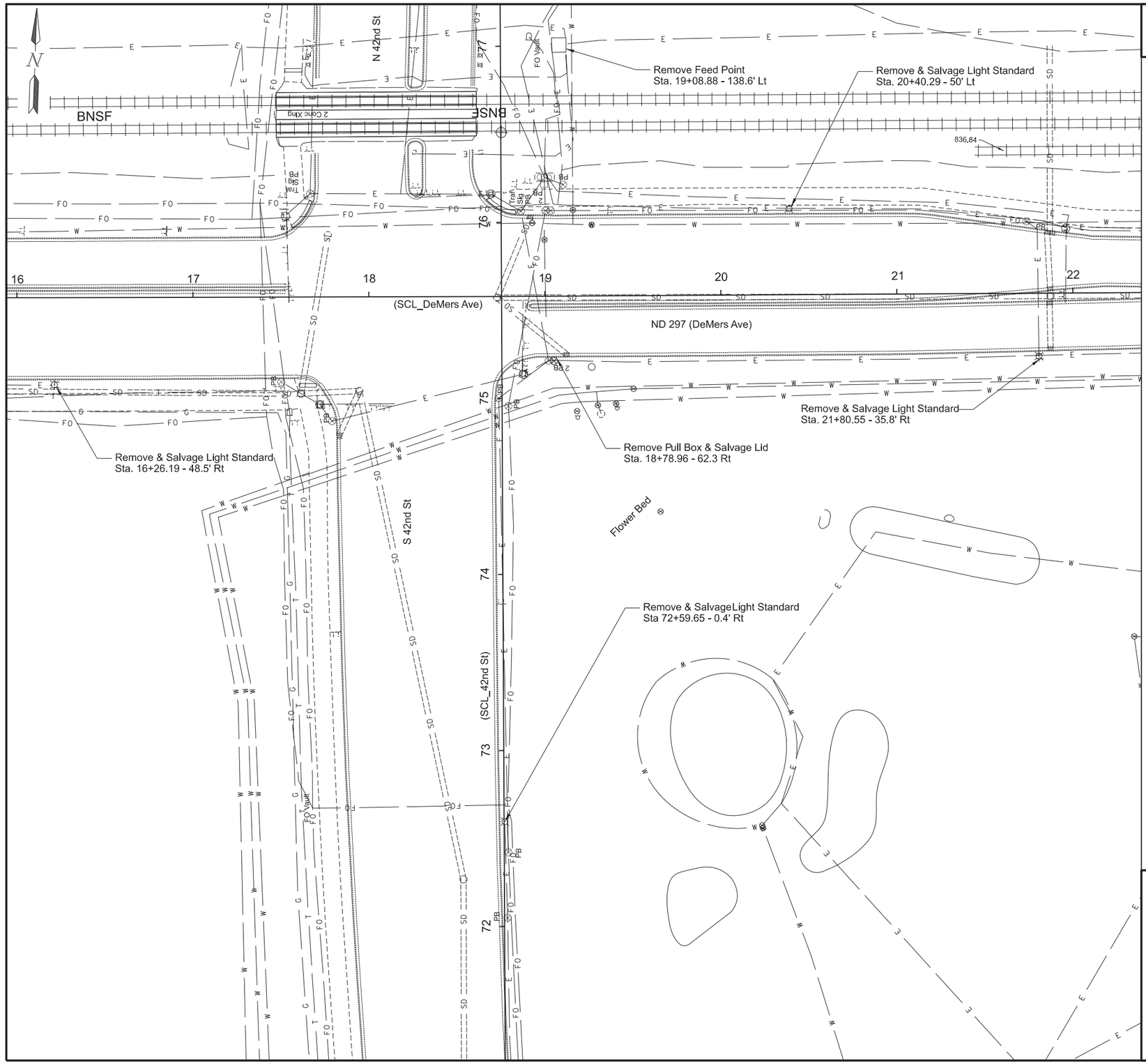
2. Include costs to remove and salvage these items in the bid price for "REMOVE LIGHTING SYSTEM".

3. Existing roadway lights to remain active until conflicts with construction.

4. This bid item includes the complete removal and disposal of street light foundations.

5. Turn off power before removing lights from circuit.

Item	Location	Quantity
Remove and Salvage Light Standard	DeMers Ave	3
Remove and Salvage Light Standard	S 42nd St	1
Remove Light Standard Foundation	DeMers Ave	3
Remove Light Standard Foundation	S 42nd St	1
Remove Feed Point	N 42nd St	1
Remove Pull Box	DeMers Ave	1
Salvage Pull Box lid	DeMers Ave	1



Lighting

Removals

ND 297 (DeMers Ave)

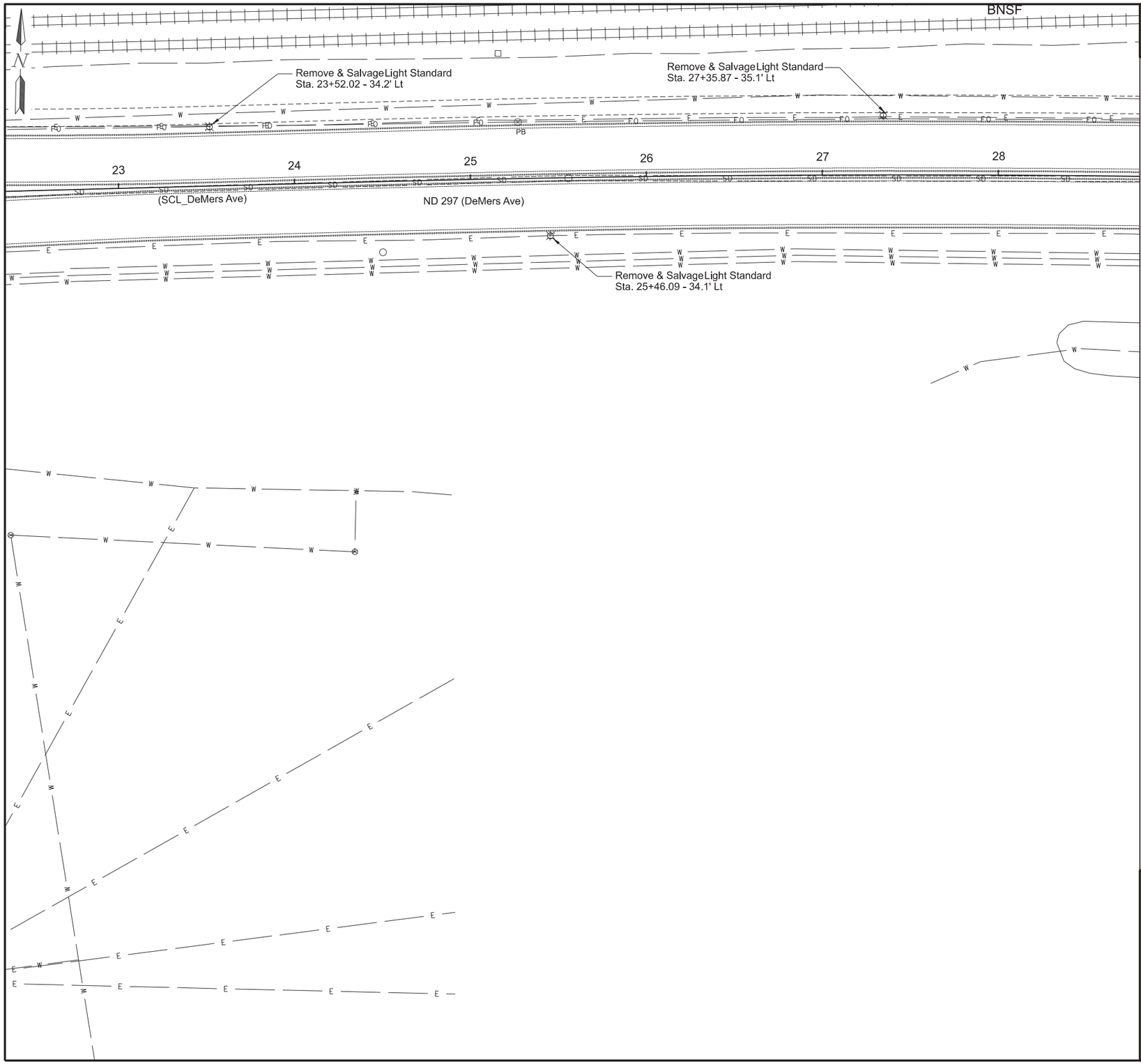
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-40917
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NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	140	3

Note:

1. Return salvaged street light poles and pull box lids to Rick Hanson (701-738-8796) with the City of Grand Forks (724 N 47th St, Grand Forks, ND 58203)

2. Include costs to remove and salvage these items in the bid price for "REMOVE LIGHTING SYSTEM".

3. Existing roadway lights to remain active until conflicts with construction.

4. This bid item includes the complete removal and disposal of street light foundations.

5. Turn off power before removing lights from circuit.

Item	Location	Quantity
Remove and Salvage Light Standard	DeMers Ave	3
Remove Light Standard Foundation	DeMers Ave	3

Lighting

Removals

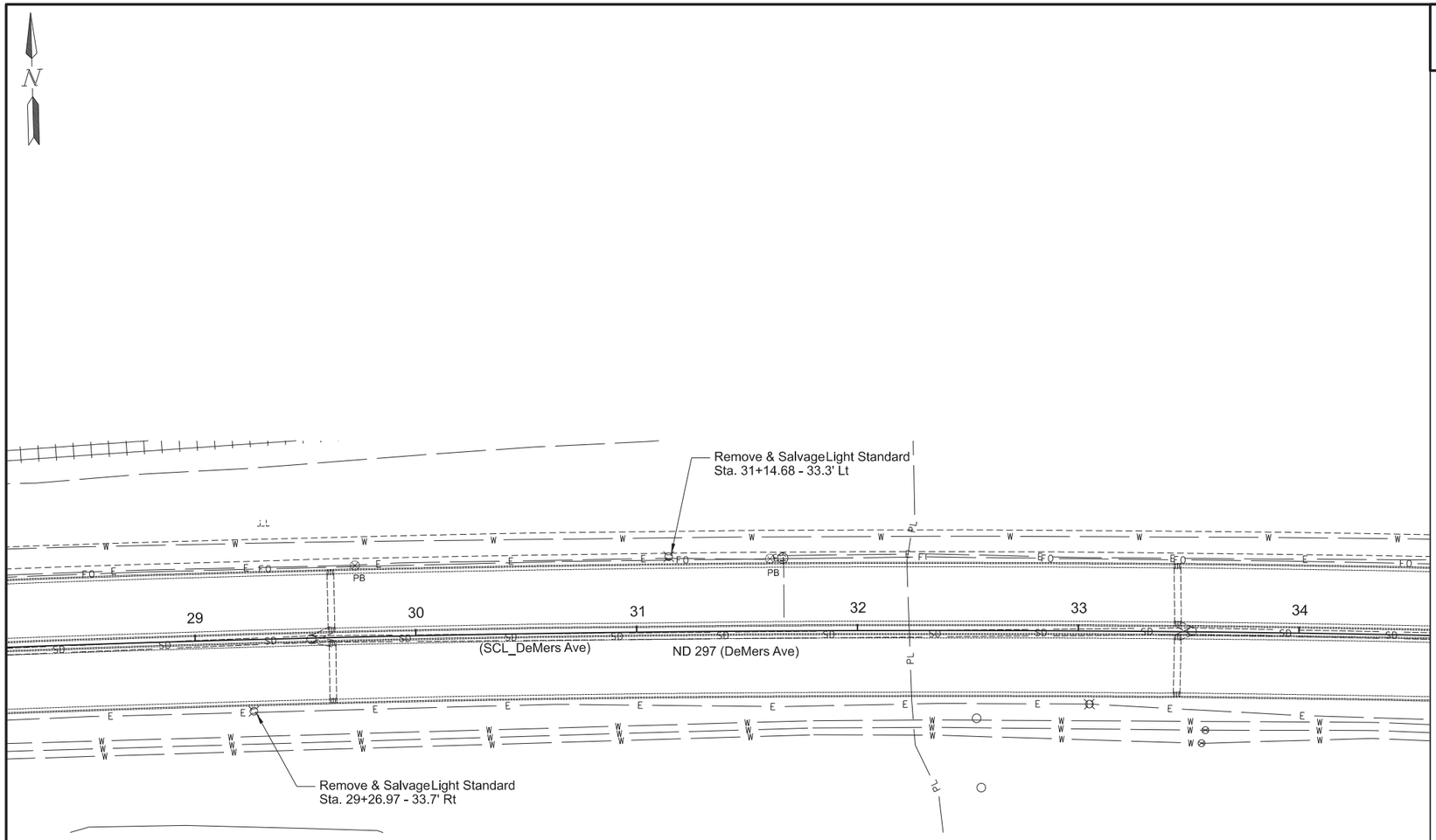
ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-40917
DATE: 2025.12.04 08:49:29 -06'00'
NORTH DAKOTA



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	140	4

Note:

1. Return salvaged street light poles and pull box lids to Rick Hanson (701-738-8796) with the City of Grand Forks (724 N 47th St, Grand Forks, ND 58203)

2. Include costs to remove and salvage these items in the bid price for "REMOVE LIGHTING SYSTEM".

3. Existing roadway lights to remain active until conflicts with construction.

4. This bid item includes the complete removal and disposal of street light foundations.

5. Turn off power before removing lights from circuit.

Item	Location	Quantity
Remove and Salvage Light Standard	DeMers Ave	2
Remove Light Standard Foundation	DeMers Ave	2

Lighting

Removals

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-10917
DATE: 2025.12.04 08:49:48 -06'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	140	5

Note:

1. Return salvaged street light poles and pull box lids to Rick Hanson (701-738-8796) with the City of Grand Forks (724 N 47th St, Grand Forks, ND 58203)

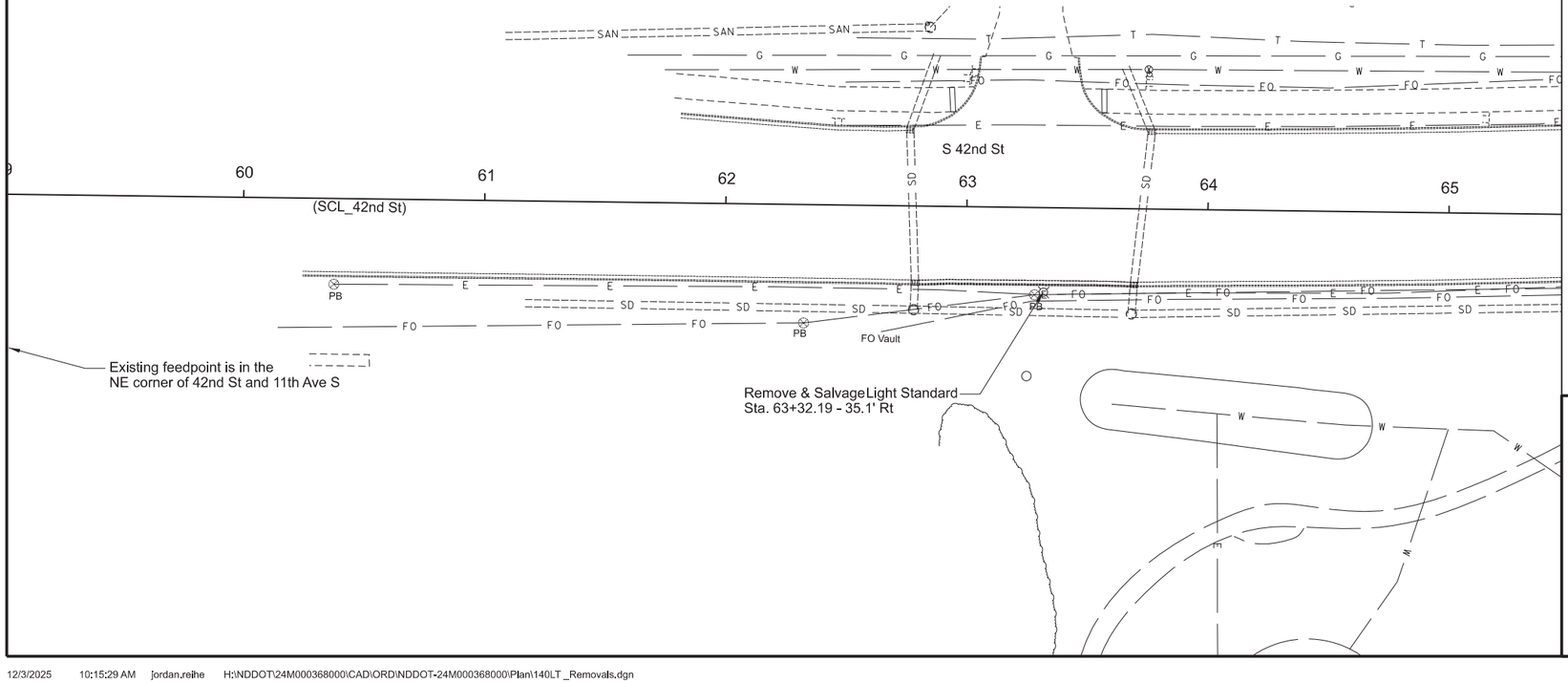
2. Include costs to remove and salvage these items in the bid price for "REMOVE LIGHTING SYSTEM".

3. Existing roadway lights to remain active until conflicts with construction.

4. This bid item includes the complete removal and disposal of street light foundations.

5. Turn off power before removing lights from circuit.

Item	Location	Quantity
Remove and Salvage Light Standard	S 42nd St	1
Remove Light Standard Foundation	S 42nd St	1



Lighting

Removals

S 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-40917
DATE: 2025.12.04 08:50:08 -06'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	140	6

Remove & SalvageLight Standard
Sta. 66+85.93 - 379.2' Lt

Existing feedpoint in the NW corner of
S 43rd St and North Dr

Remove & SalvageLight Standard
Sta. 67+02.13 - 249.2' Lt

Remove & SalvageLight Standard
Sta. 65+63.39 - 41.7' Lt

Remove & SalvageLight Standard
Sta. 67+02.52 - 118.3' Lt

Remove & SalvageLight Standard
Sta. 70+22.8 - 75.9' Lt

Remove & SalvageLight Standard
Sta. 67+94.29 - 16.9' Rt

43rd St

S 42nd St

(SCL_42nd St)

65 66 67 68 69 70 71

Note:

1. Return salvaged street light poles and pull box lids to Rick Hanson (701-738-8796) with the City of Grand Forks (724 N 47th St, Grand Forks, ND 58203)

2. Include costs to remove and salvage these items in the bid price for "REMOVE LIGHTING SYSTEM".

3. Existing roadway lights to remain active until conflicts with construction.

4. This bid item includes the complete removal and disposal of street light foundations.

5. Turn off power before removing lights from circuit.

Item	Location	Quantity
Remove and Salvage Light Standard	S 42nd St	3
Remove and Salvage Light Standard	S 43rd St	3
Remove Light Standard Foundation	S 42nd St	3
Remove Light Standard Foundation	S 43rd St	3

Lighting

Removals

S 42nd St

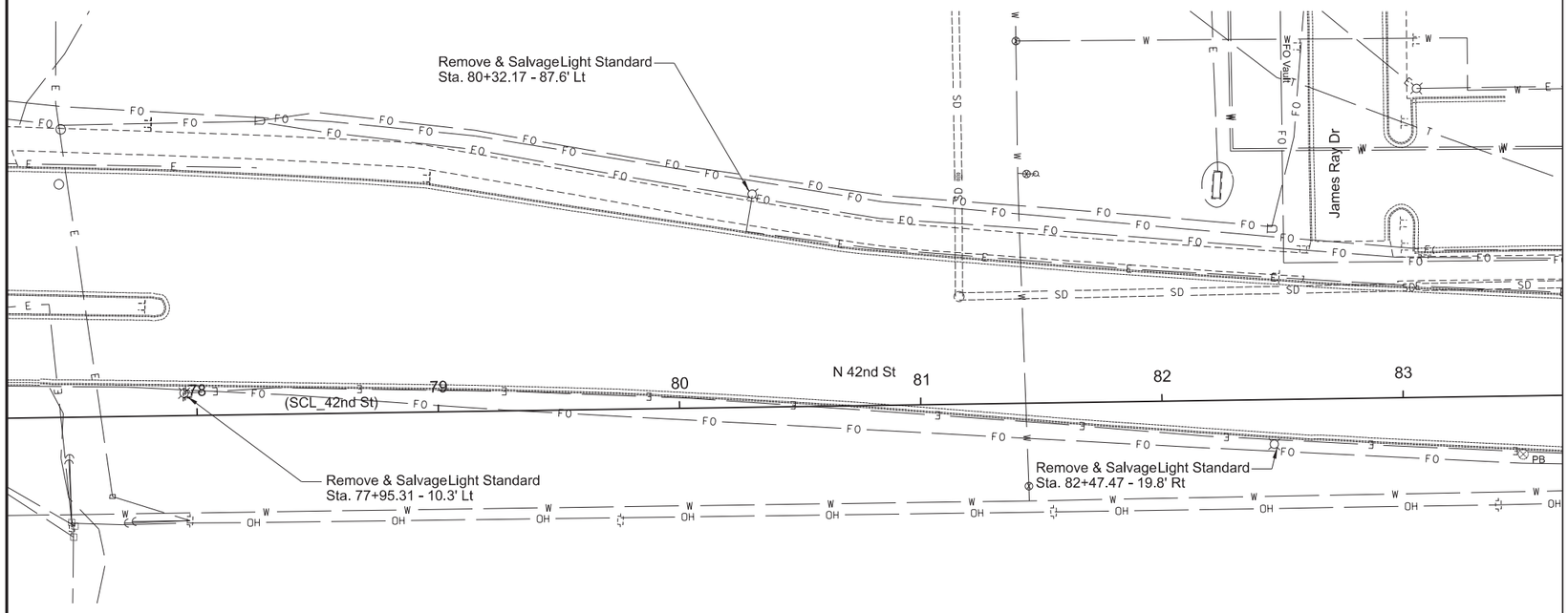
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-40917
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NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	140	7

Note:

1. Return salvaged street light poles and pull box lids to Rick Hanson (701-738-8796) with the City of Grand Forks (724 N 47th St, Grand Forks, ND 58203)

2. Include costs to remove and salvage these items in the bid price for "REMOVE LIGHTING SYSTEM".

3. Existing roadway lights to remain active until conflicts with construction.

4. This bid item includes the complete removal and disposal of street light foundations.

5. Turn off power before removing lights from circuit.

Item	Location	Quantity
Remove and Salvage Light Standard	N 42nd St	3
Remove Light Standard Foundation	N 42nd St	3

Lighting

Removals

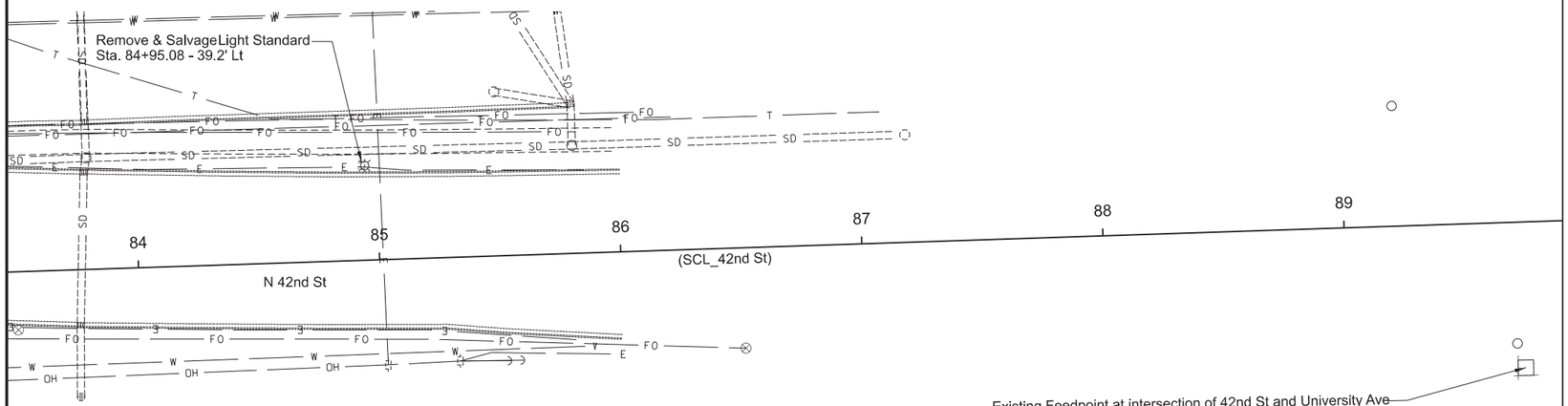
N 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN D. RICKBEIL
PE-40917
DATE: 2025.12.04 08:51:15 -06'00'
NORTH DAKOTA



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	140	8

Note:

1. Return salvaged street light poles and pull box lids to Rick Hanson (701-738-8796) with the City of Grand Forks (724 N 47th St, Grand Forks, ND 58203)

2. Include costs to remove and salvage these items in the bid price for "REMOVE LIGHTING SYSTEM".

3. Existing roadway lights to remain active until conflicts with construction.

4. This bid item includes the complete removal and disposal of street light foundations.

5. Turn off power before removing lights from circuit.

Item	Location	Quantity
Remove and Salvage Light Standard	N 42nd St	1
Remove Light Standard Foundation	N 42nd St	1

Lighting

Removals

N 42nd St

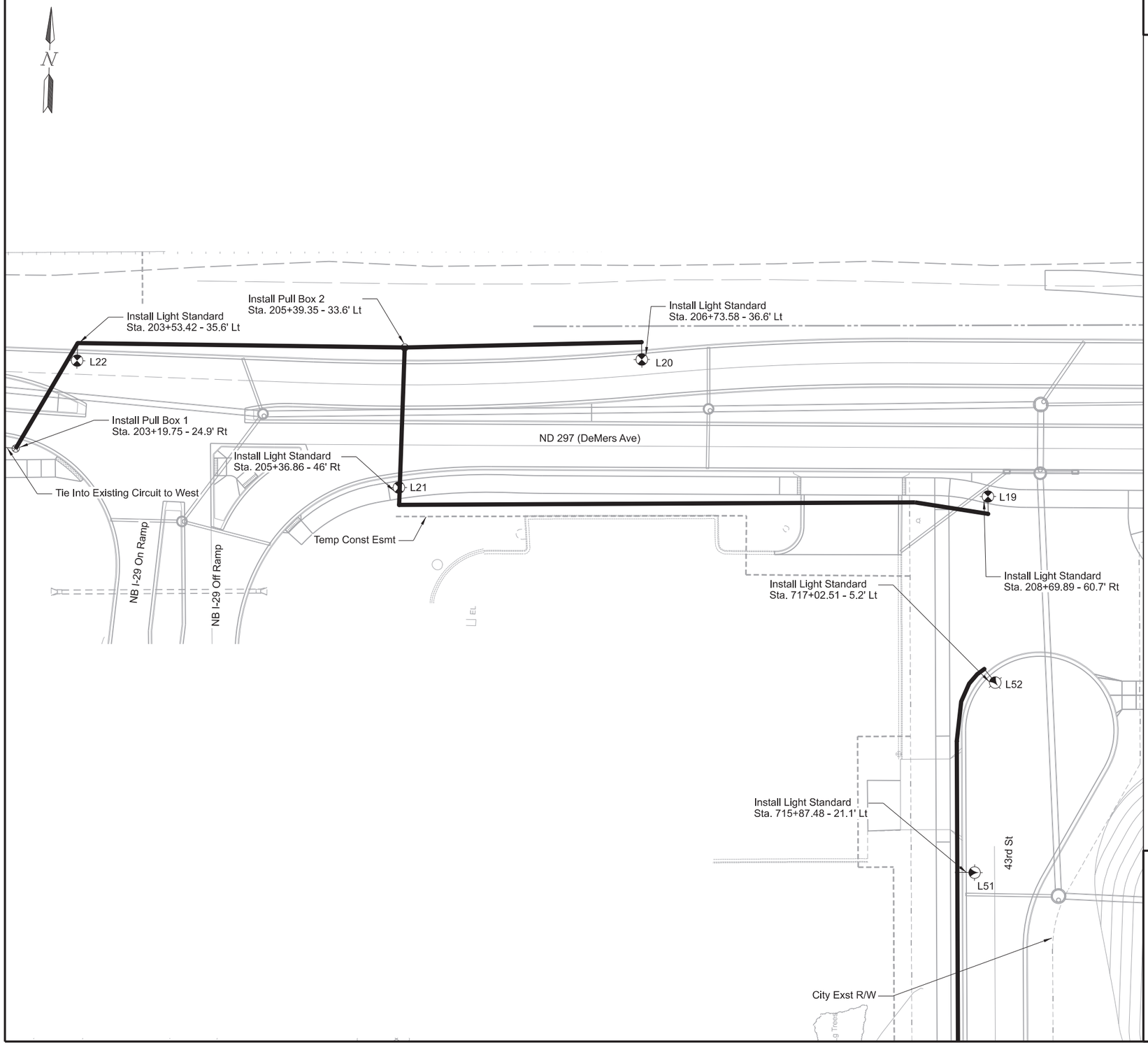
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-40917
DATE: 2025.12.04 08:51:35 -06'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	140	9



Legend

- COMMERCIAL STREET LIGHT
- CANOPY LIGHT
- RESIDENTIAL STREET LIGHT
- WALL PACK LIGHT
- RGB WALL MOUNTED LIGHT
- PROPOSED CONDUIT AND CONDUCTORS
- EXISTING ELECTRIC LINE
- EXISTING CONDUIT WITH PROPOSED CONDUCTORS
- PROPOSED CONTROLLER CABINET
- EXISTING FEED POINT
- PROPOSED FEED POINT
- PROPOSED PULL BOX
- EXISTING LUMINAIRE

Lighting

Layout

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

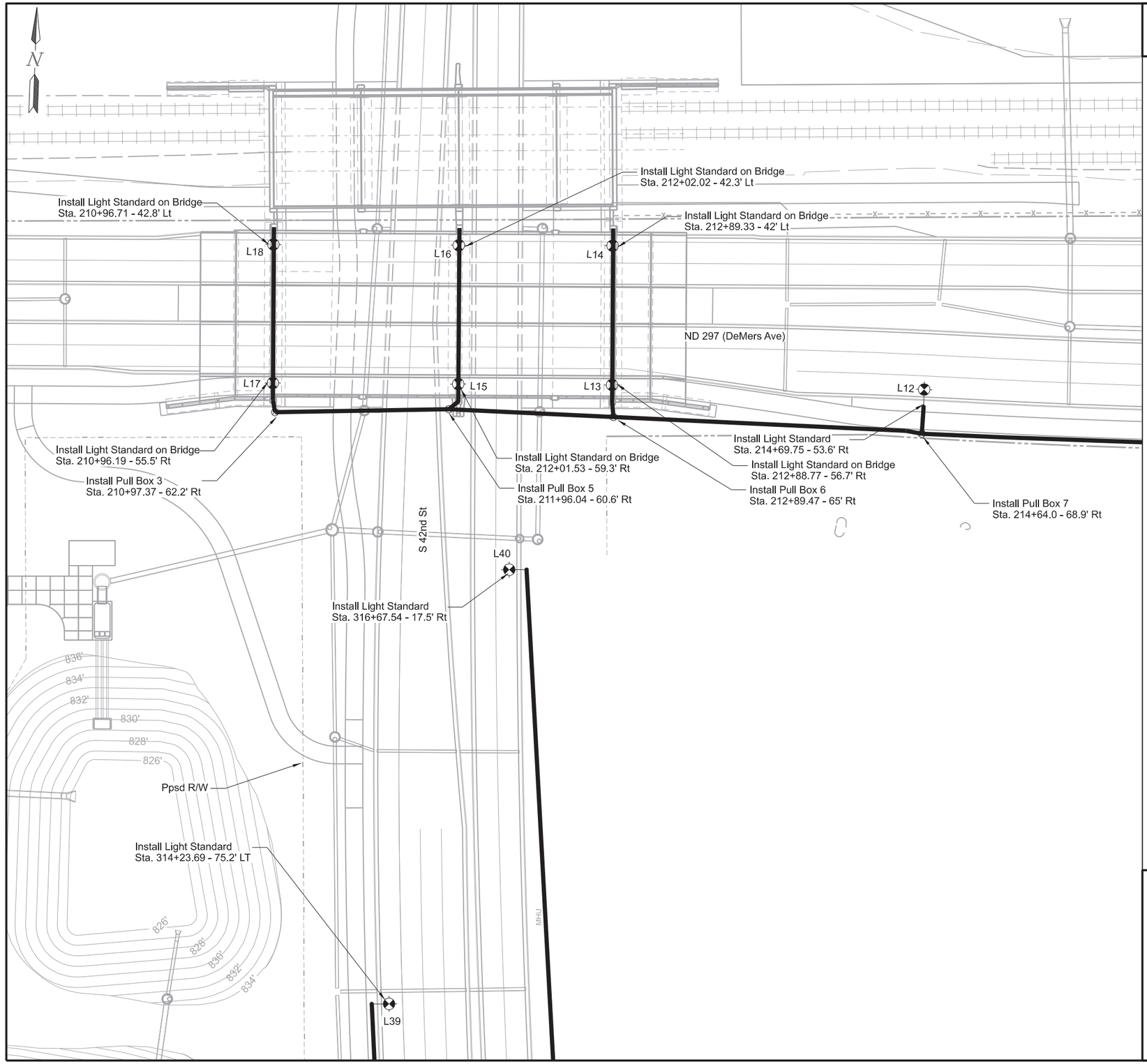
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-409117
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NORTH DAKOTA

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	140	10



Legend

- COMMERCIAL STREET LIGHT
- CANOPY LIGHT
- RESIDENTIAL STREET LIGHT
- WALL PACK LIGHT
- RGB WALL MOUNTED LIGHT
- PROPOSED CONDUIT AND CONDUCTORS
- E — EXISTING ELECTRIC LINE
- EXISTING CONDUIT WITH PROPOSED CONDUCTORS
- PROPOSED CONTROLLER CABINET
- EXISTING FEED POINT
- PROPOSED FEED POINT
- PROPOSED PULL BOX
- EXISTING LUMINAIRE

Lighting

Layout

ND 297 (DeMers Ave) & S 42nd St/N 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

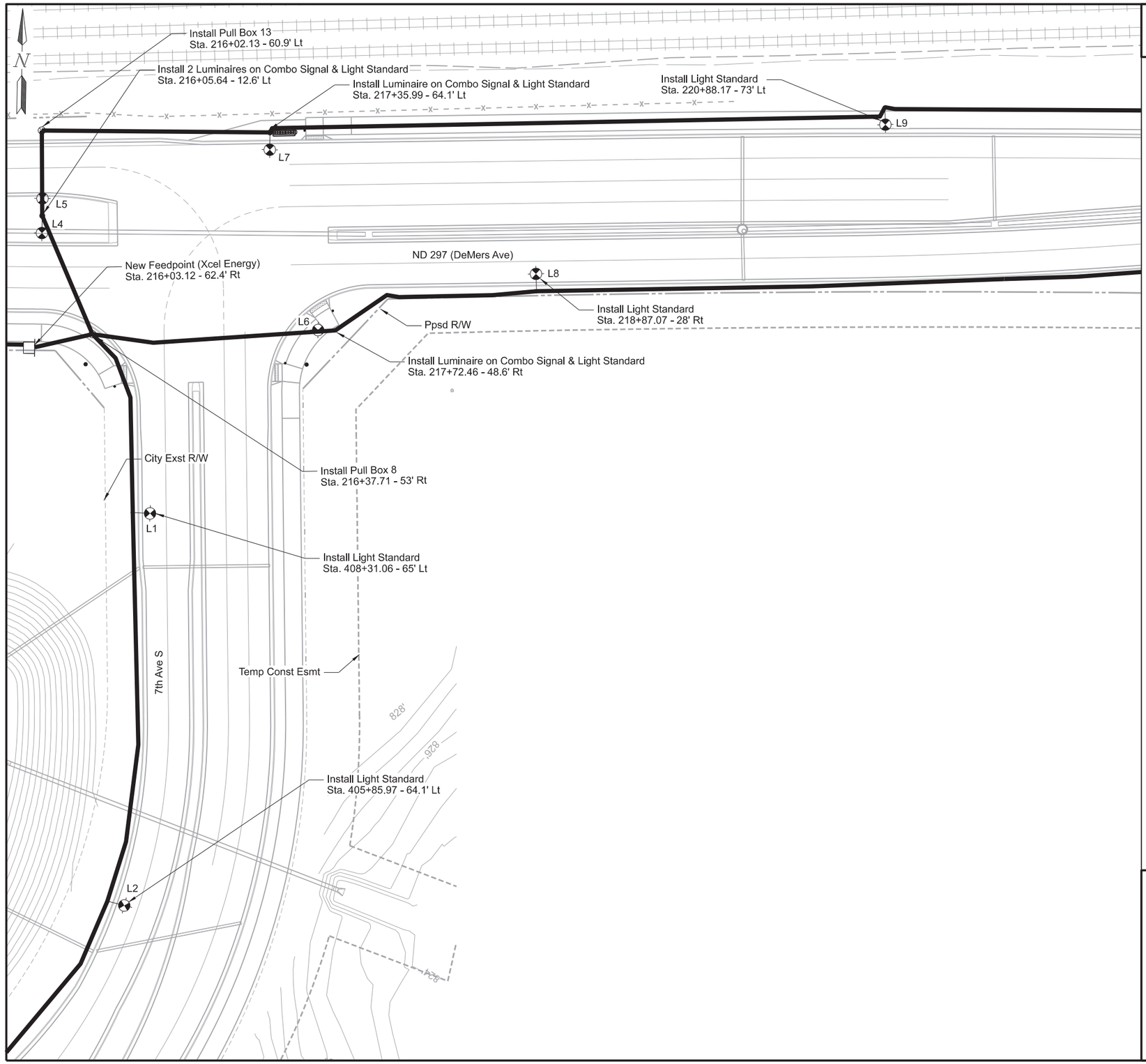
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
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PE-40917
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NORTH DAKOTA

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	140	11



Legend

- COMMERCIAL STREET LIGHT
- CANOPY LIGHT
- RESIDENTIAL STREET LIGHT
- WALL PACK LIGHT
- RGB WALL MOUNTED LIGHT
- PROPOSED CONDUIT AND CONDUCTORS
- EXISTING ELECTRIC LINE
- EXISTING CONDUIT WITH PROPOSED CONDUCTORS
- PROPOSED CONTROLLER CABINET
- EXISTING FEED POINT
- PROPOSED FEED POINT
- PROPOSED PULL BOX
- EXISTING LUMINAIRE

Lighting

Layout

ND 297 (DeMers Ave) & 7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

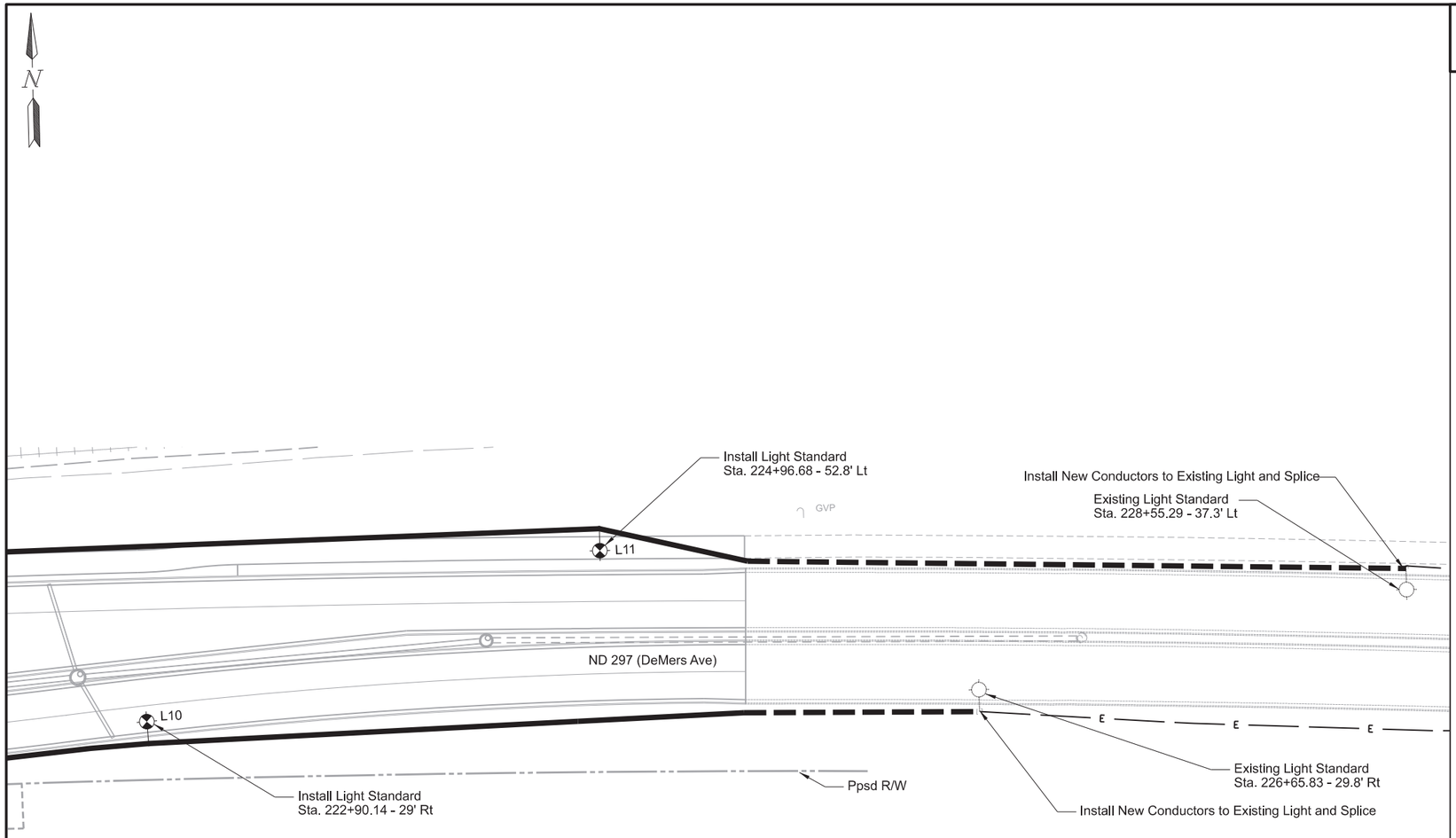
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
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NORTH DAKOTA

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	140	12



Legend

- COMMERCIAL STREET LIGHT
- CANOPY LIGHT
- RESIDENTIAL STREET LIGHT
- WALL PACK LIGHT
- RGB WALL MOUNTED LIGHT
- PROPOSED CONDUIT AND CONDUCTORS
- EXISTING ELECTRIC LINE — E —
- EXISTING CONDUIT WITH PROPOSED CONDUCTORS
- PROPOSED CONTROLLER CABINET
- EXISTING FEED POINT
- PROPOSED FEED POINT
- PROPOSED PULL BOX
- EXISTING LUMINAIRE

Lighting

Layout

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

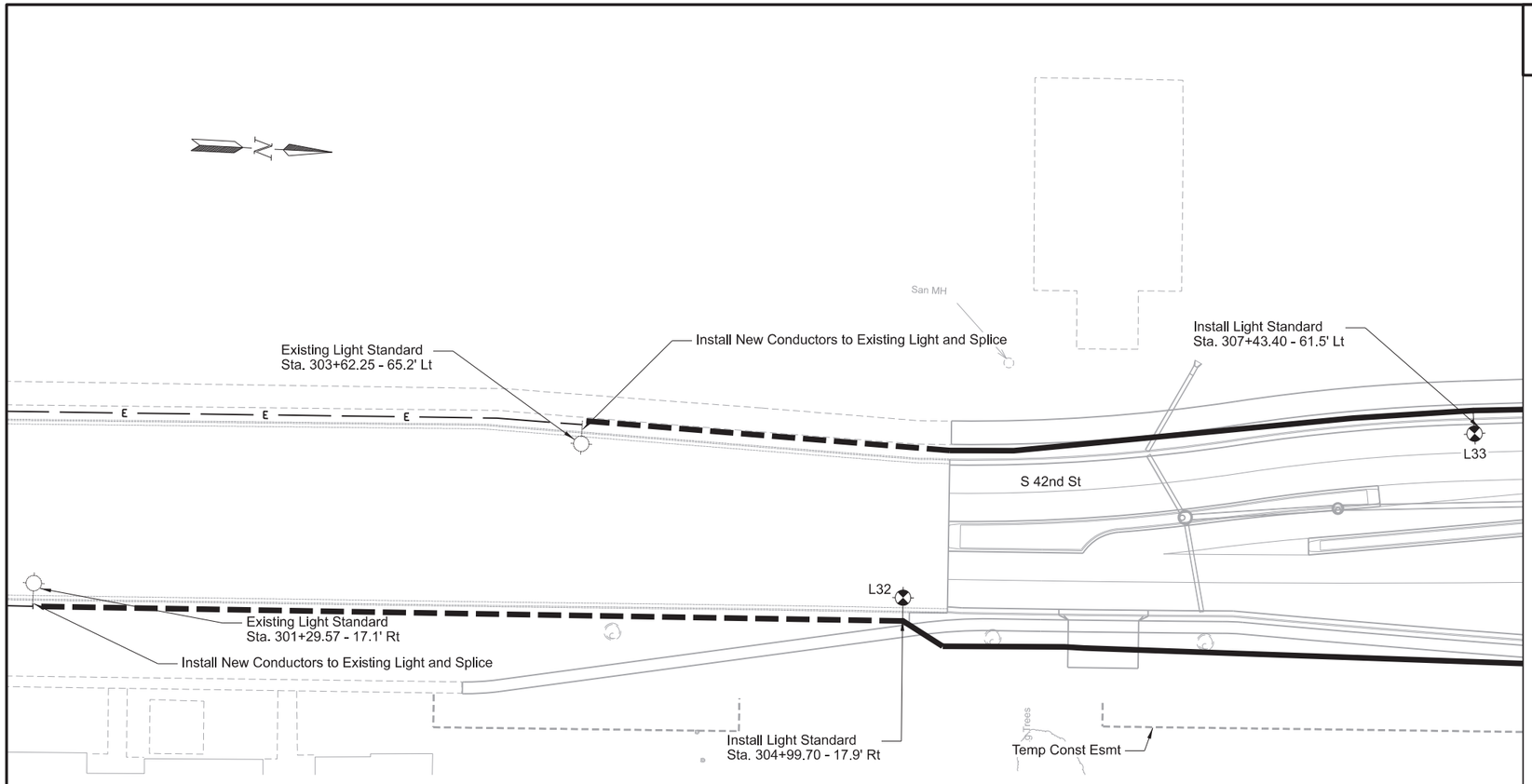
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN L. RICKBEIL
PE-40917
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NORTH DAKOTA

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	140	13



Legend

- COMMERCIAL STREET LIGHT
- CANOPY LIGHT
- RESIDENTIAL STREET LIGHT
- WALL PACK LIGHT
- RGB WALL MOUNTED LIGHT
- PROPOSED CONDUIT AND CONDUCTORS
- E — EXISTING ELECTRIC LINE
- EXISTING CONDUIT WITH PROPOSED CONDUCTORS
- PROPOSED CONTROLLER CABINET
- EXISTING FEED POINT
- PROPOSED FEED POINT
- PROPOSED PULL BOX
- EXISTING LUMINAIRE

Lighting

Layout

S 42nd St

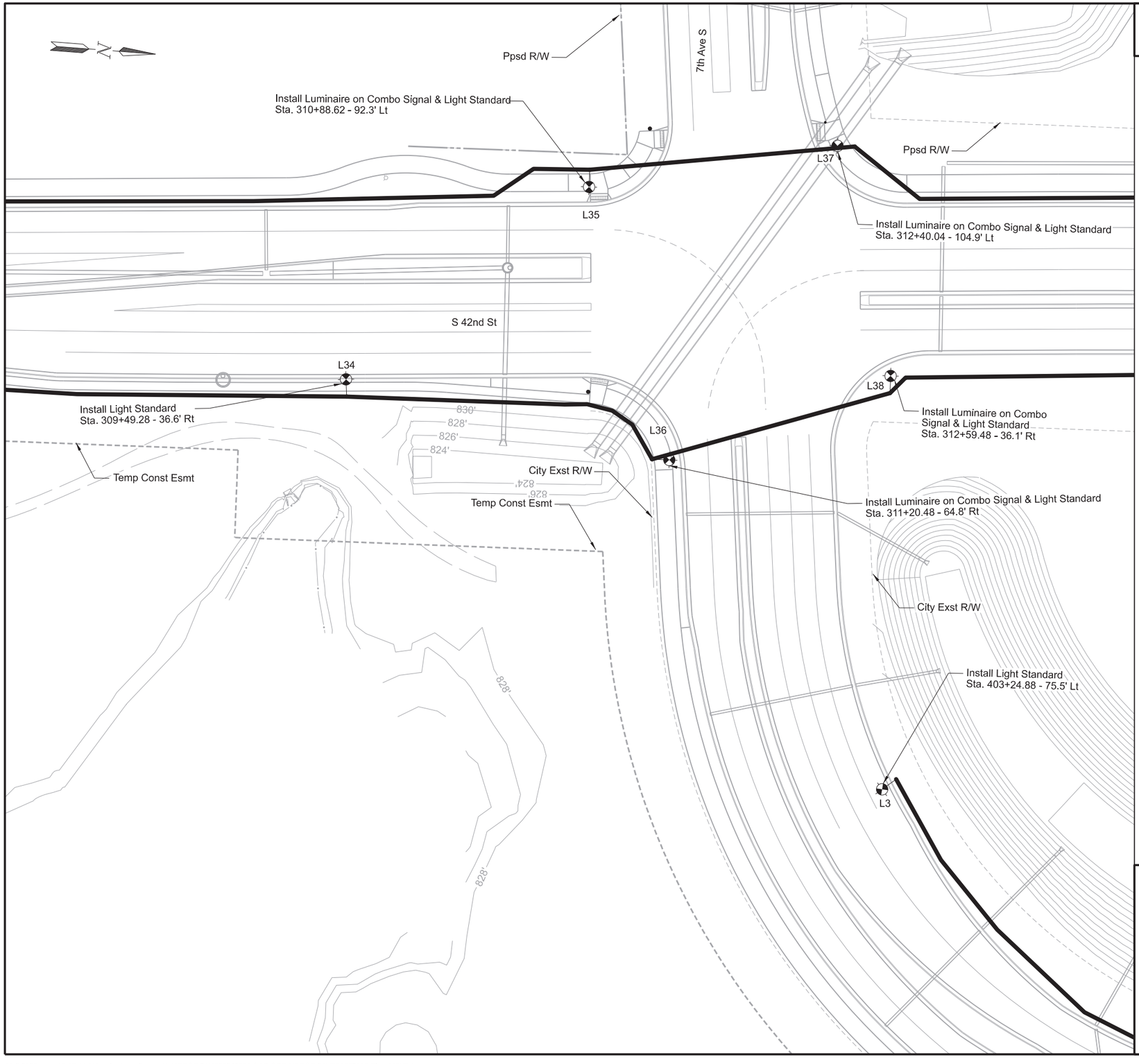
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
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PE-40917
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NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	140	14



Legend

- COMMERCIAL STREET LIGHT
- CANOPY LIGHT
- RESIDENTIAL STREET LIGHT
- WALL PACK LIGHT
- RGB WALL MOUNTED LIGHT
- PROPOSED CONDUIT AND CONDUCTORS
- E — EXISTING ELECTRIC LINE
- EXISTING CONDUIT WITH PROPOSED CONDUCTORS
- PROPOSED CONTROLLER CABINET
- EXISTING FEED POINT
- PROPOSED FEED POINT
- PROPOSED PULL BOX
- EXISTING LUMINAIRE

Lighting

Layout

S 42nd St & 7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

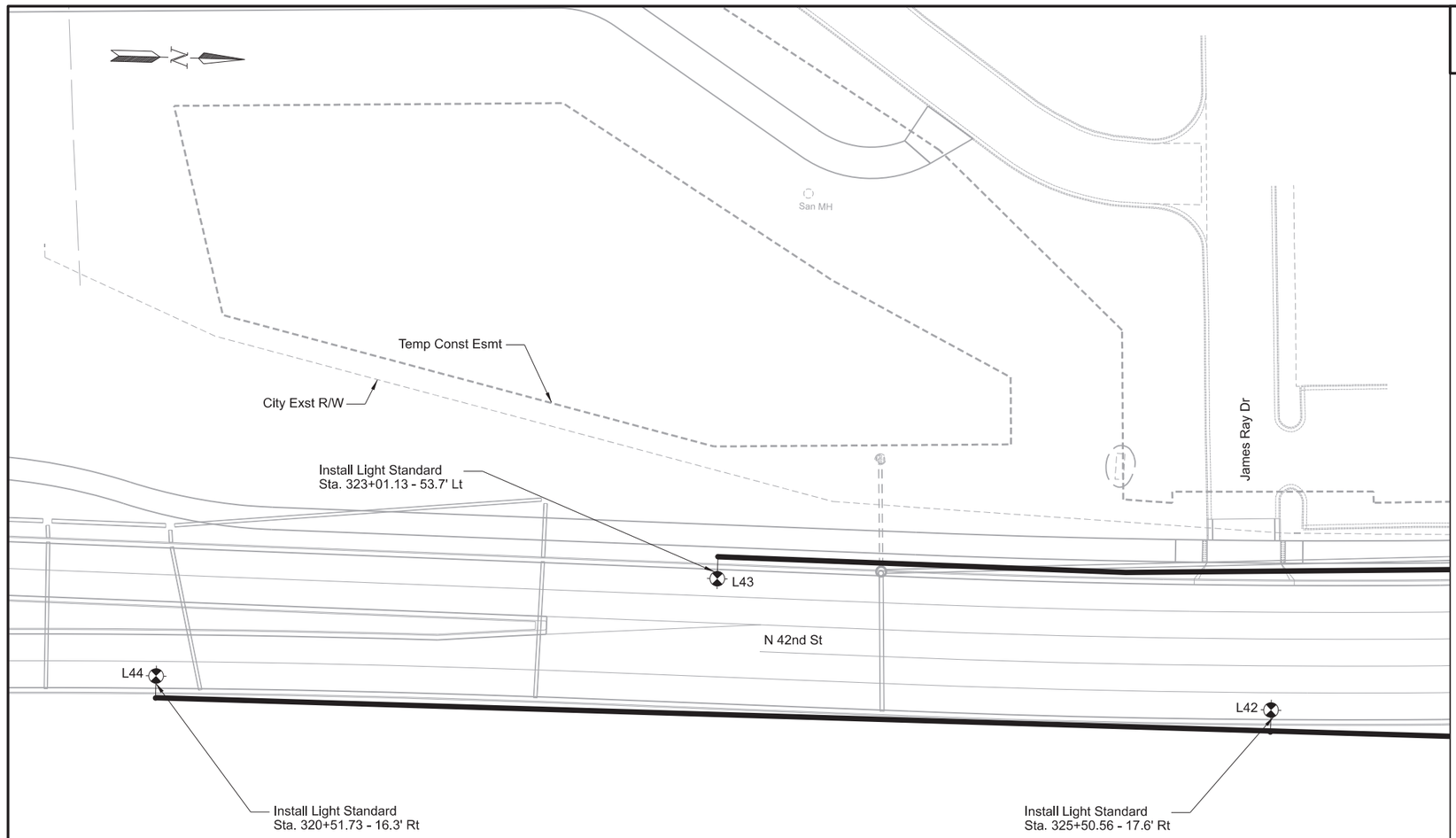
Grand Forks County

Grand Forks, ND

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PE-40917
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	140	15



Legend

- COMMERCIAL STREET LIGHT
- CANOPY LIGHT
- RESIDENTIAL STREET LIGHT
- WALL PACK LIGHT
- RGB WALL MOUNTED LIGHT
- PROPOSED CONDUIT AND CONDUCTORS
- E — EXISTING ELECTRIC LINE
- EXISTING CONDUIT WITH PROPOSED CONDUCTORS
- PROPOSED CONTROLLER CABINET
- EXISTING FEED POINT
- PROPOSED FEED POINT
- PROPOSED PULL BOX
- EXISTING LUMINAIRE

Lighting

Layout

N 42nd St

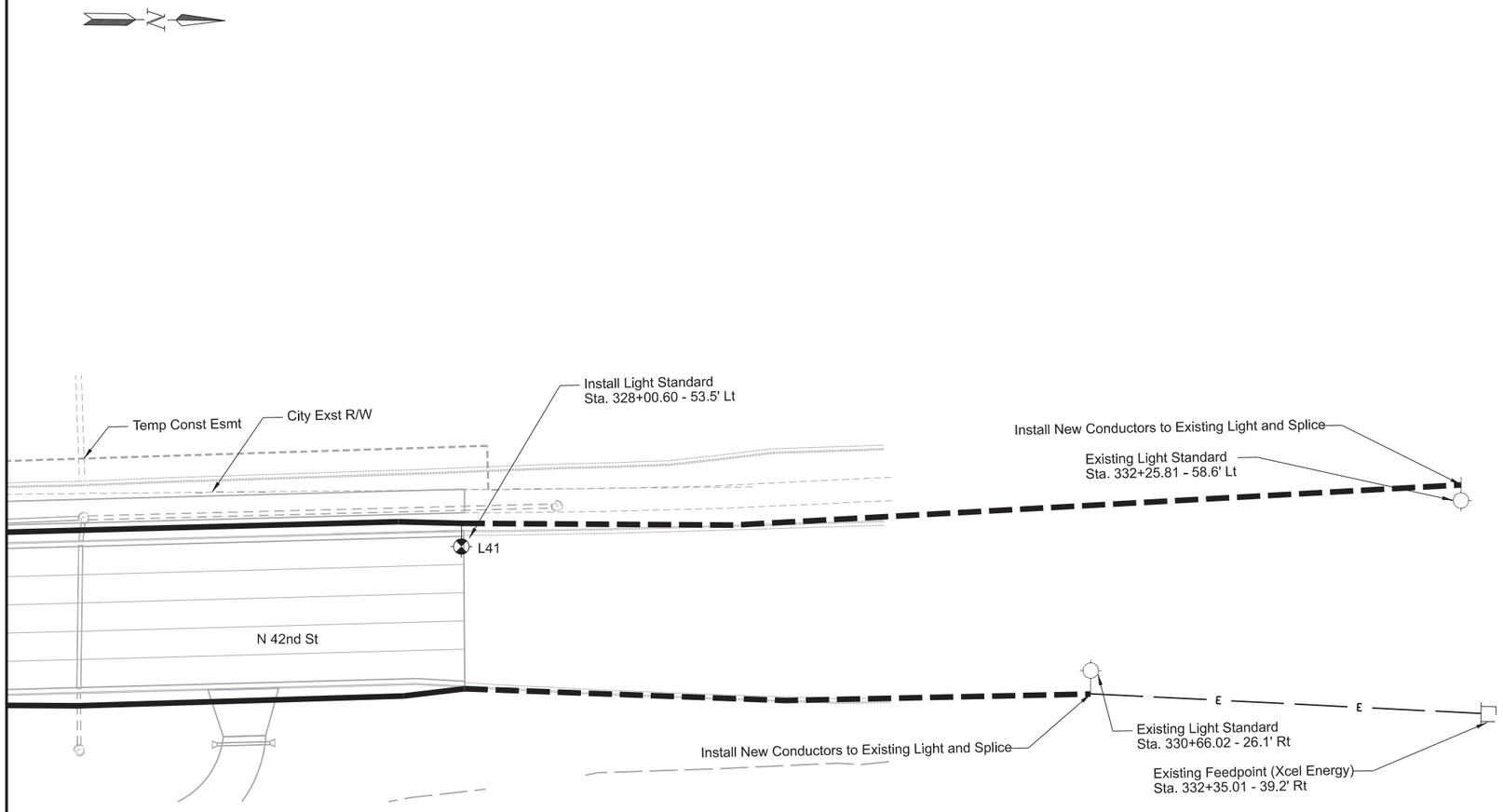
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-40917
DATE: 2025.12.04 08:56:54 -06'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	140	16



Legend

- COMMERCIAL STREET LIGHT
- CANOPY LIGHT
- RESIDENTIAL STREET LIGHT
- WALL PACK LIGHT
- RGB WALL MOUNTED LIGHT
- PROPOSED CONDUIT AND CONDUCTORS
- EXISTING ELECTRIC LINE — E —
- EXISTING CONDUIT WITH PROPOSED CONDUCTORS
- PROPOSED CONTROLLER CABINET
- EXISTING FEED POINT
- PROPOSED FEED POINT
- PROPOSED PULL BOX
- EXISTING LUMINAIRE

Lighting

Layout

N 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

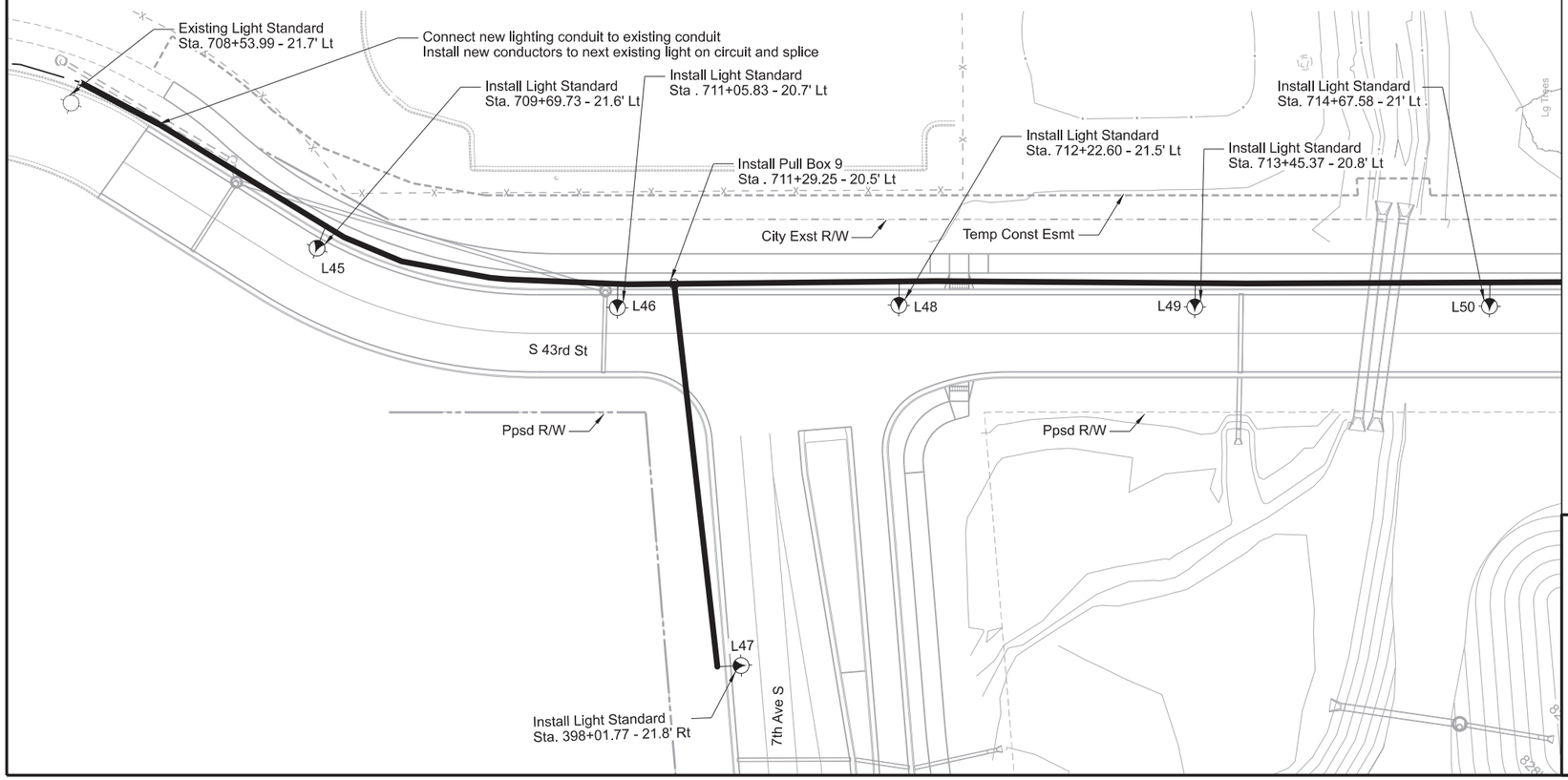
Grand Forks County

Grand Forks, ND

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PE-40917
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	140	17



Legend

- COMMERCIAL STREET LIGHT
- CANOPY LIGHT
- RESIDENTIAL STREET LIGHT
- WALL PACK LIGHT
- RGB WALL MOUNTED LIGHT
- PROPOSED CONDUIT AND CONDUCTORS
- EXISTING ELECTRIC LINE
- EXISTING CONDUIT WITH PROPOSED CONDUCTORS
- PROPOSED CONTROLLER CABINET
- EXISTING FEED POINT
- PROPOSED FEED POINT
- PROPOSED PULL BOX
- EXISTING LUMINAIRE

Lighting

Layout

S 43rd St & 7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

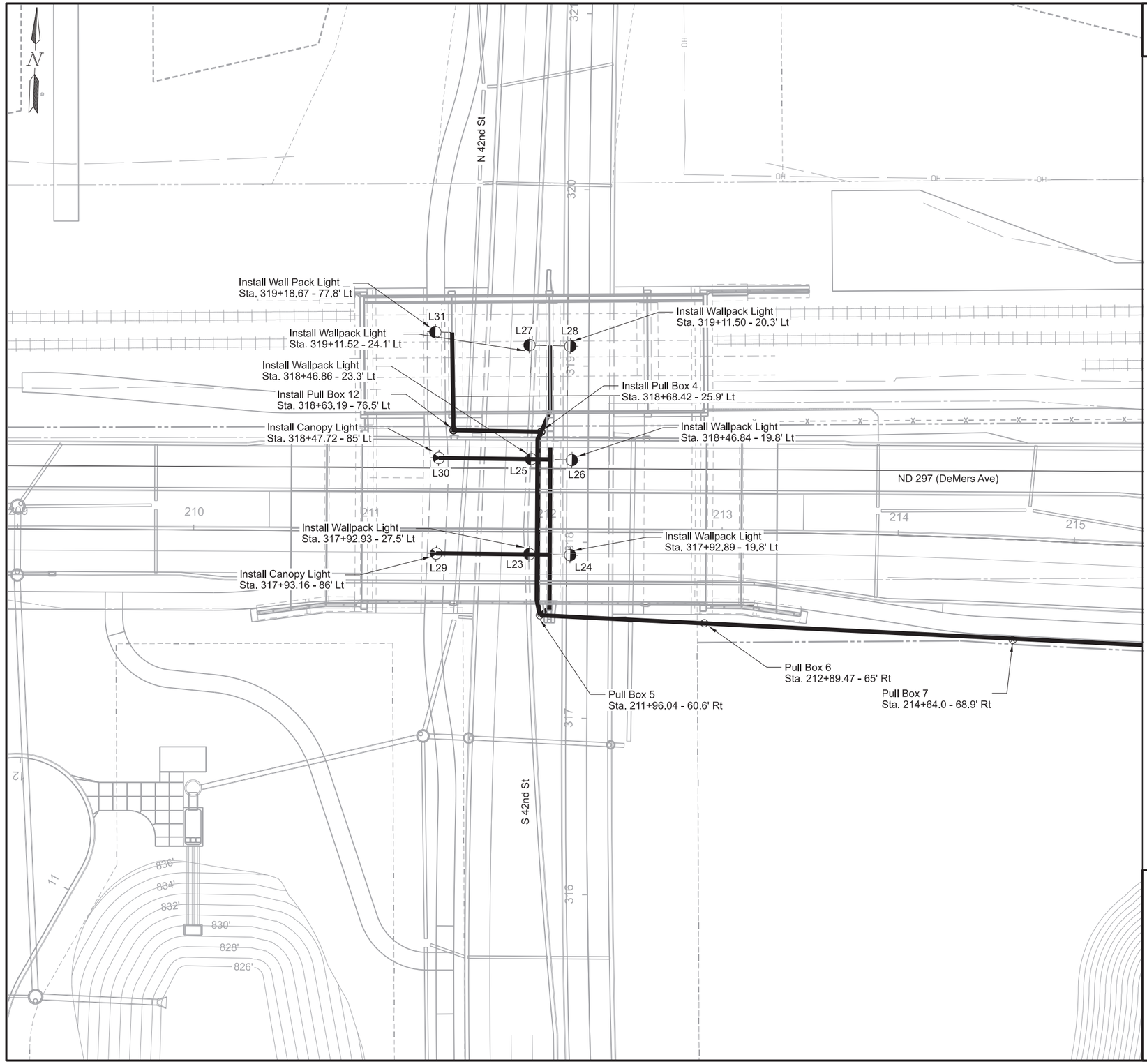
Grand Forks County

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DARRIN RICKBEIL
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NORTH DAKOTA

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	140	18



Legend

- COMMERCIAL STREET LIGHT
- CANOPY LIGHT
- RESIDENTIAL STREET LIGHT
- WALL PACK LIGHT
- RGB WALL MOUNTED LIGHT
- PROPOSED CONDUIT AND CONDUCTORS
- E — EXISTING ELECTRIC LINE
- EXISTING CONDUIT WITH PROPOSED CONDUCTORS
- PROPOSED CONTROLLER CABINET
- EXISTING FEED POINT
- PROPOSED FEED POINT
- PROPOSED PULL BOX
- EXISTING LUMINAIRE

Lighting

Under Bridge Mounted Lighting Layout

ND 297 (DeMers Ave) & S 42nd St/N 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

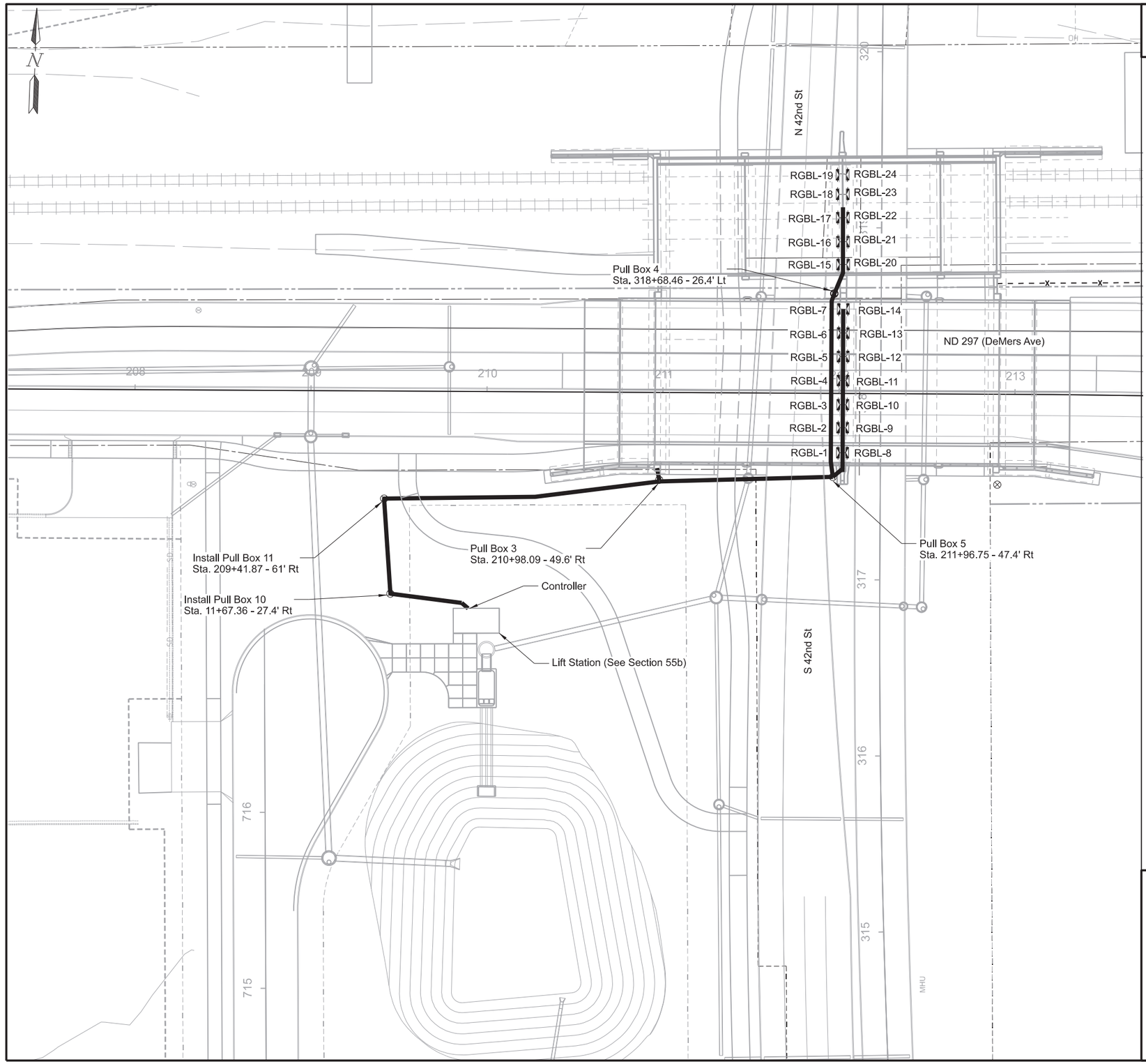
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-10917
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NORTH DAKOTA

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	140	19



Legend

- COMMERCIAL STREET LIGHT
- CANOPY LIGHT
- RESIDENTIAL STREET LIGHT
- WALL PACK LIGHT
- RGB WALL MOUNTED LIGHT
- PROPOSED CONDUIT AND CONDUCTORS
- EXISTING ELECTRIC LINE
- EXISTING CONDUIT WITH PROPOSED CONDUCTORS
- PROPOSED CONTROLLER CABINET
- EXISTING FEED POINT
- PROPOSED FEED POINT
- PROPOSED PULL BOX
- EXISTING LUMINAIRE

Lighting

RGB Layout (Aesthetic Lighting)

ND 297 (DeMers Ave) & S 42nd St/N 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

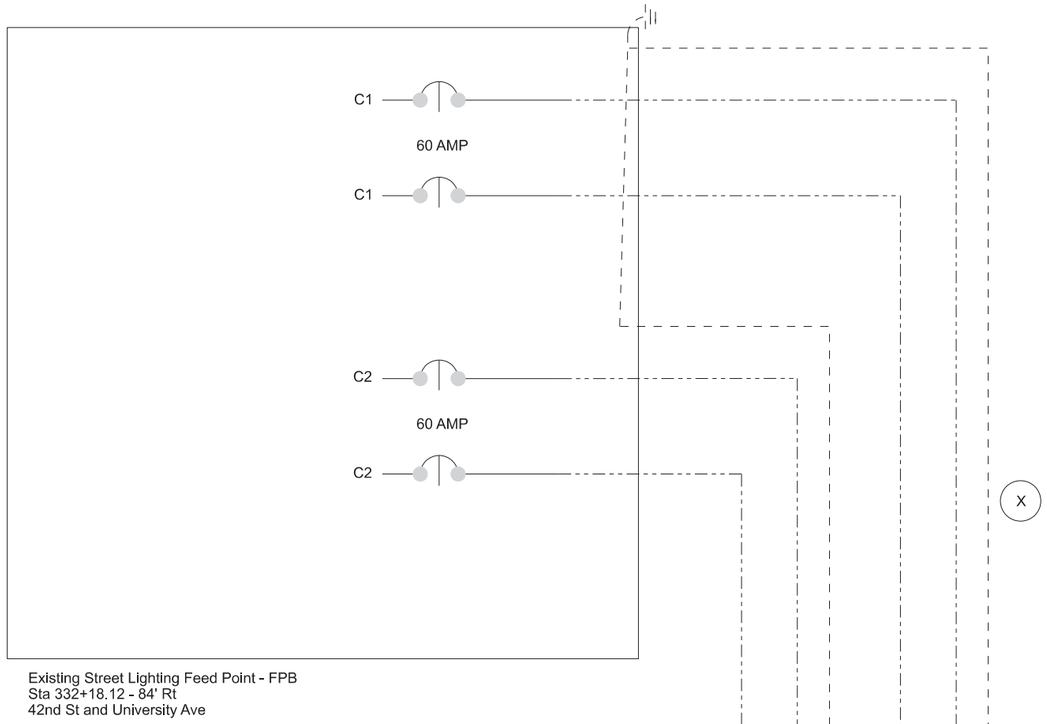
Grand Forks County

Grand Forks, ND

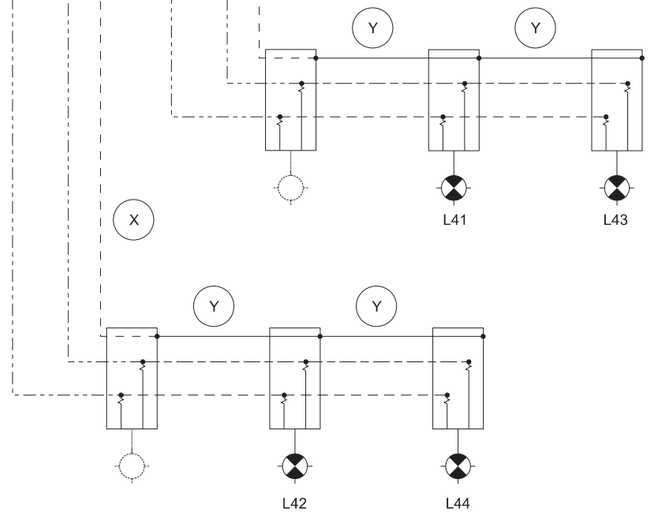
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NORTH DAKOTA

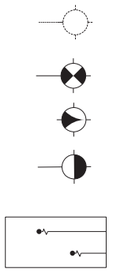
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	140	20



Existing Street Lighting Feed Point - FPB
Sta 332+18.12 - 84' Rt
42nd St and University Ave





Existing Luminaire

Proposed Commercial Street Light

Proposed Canopy Light

Proposed Wall Pack Light

Light Standard
with Single Luminaire
and Fuses

Proposed Conductor Phase 1

Proposed Conductor Phase 2

Proposed Conductor Ground

Existing Conductor

Existing Ground

X — Existing Conduit and Conductor

Y — 3-#6 RHW

Z — 3-#10 RHW

Lighting

Wiring Schematic (System A)

N 42nd St & University Ave

ND 297 (DeMers Ave) & 42nd St Grade Separation

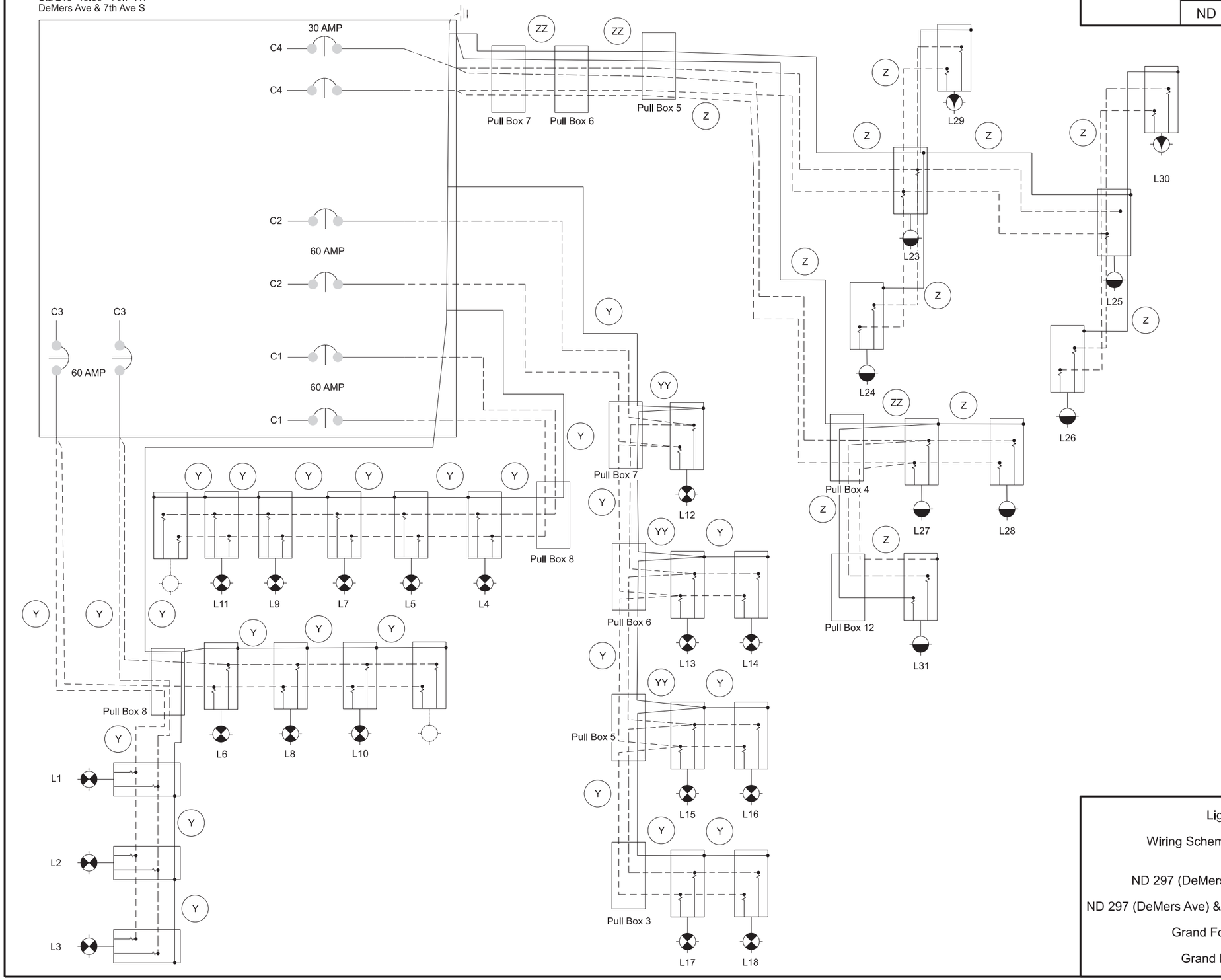
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-40917
DATE: 2025.12.04 08:59:05 -06'00'
NORTH DAKOTA

Street Lighting Feed Point - FPB
Sta 215+45.83 - 70.7' RT
DeMers Ave & 7th Ave S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	140	21



- Existing Luminaire
- Proposed Commercial Street Light
- Proposed Canopy Light
- Proposed Wall Pack Light
- Light Standard with Single Luminaire and Fuses
- Proposed Conductor Phase 1
- Proposed Conductor Phase 2
- Proposed Conductor Ground
- Existing Conductor
- Existing Ground
- X — Existing Conduit and Conductor
- Y — 3-#6 RHW
- Z — 3-#10 RHW
- YY — 6-#6 RHW
- ZZ — 6-#10 RHW

Lighting

Wiring Schematic (System B)

ND 297 (DeMers Ave) & S 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

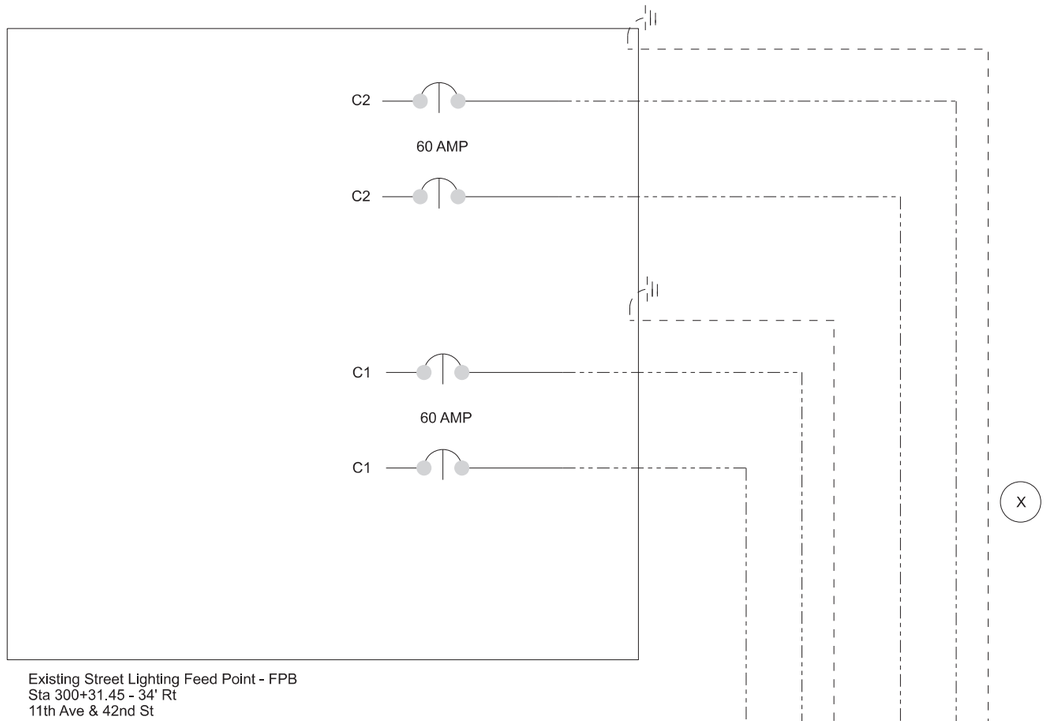
Grand Forks County

Grand Forks, ND

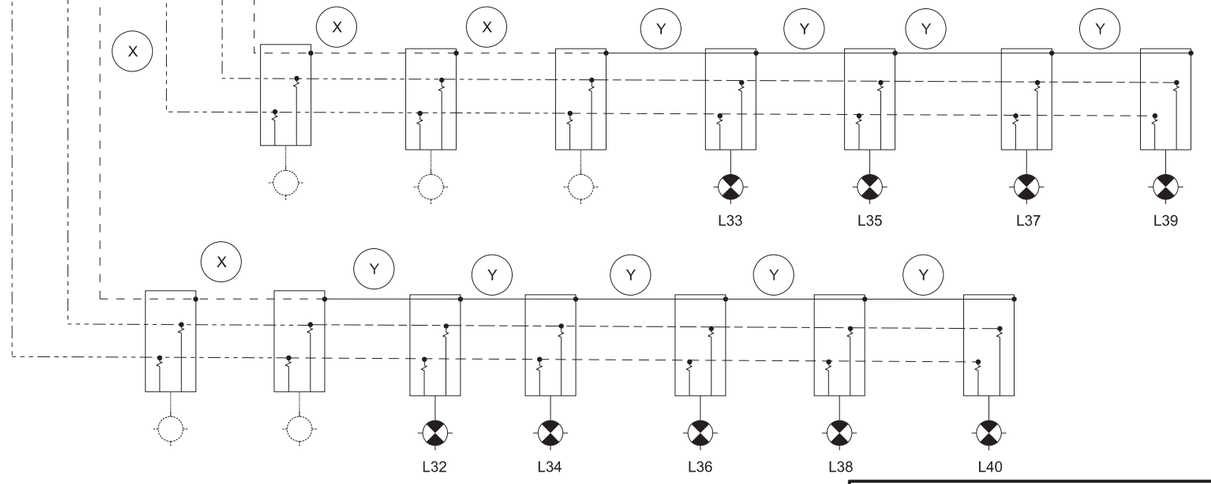
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	140	22



Existing Street Lighting Feed Point - FPB
Sta 300+31.45 - 34' Rt
11th Ave & 42nd St



- Existing Luminaire
- Proposed Commercial Street Light
- Proposed Canopy Light
- Proposed Wall Pack Light
- Light Standard with Single Luminaire and Fuses
- Proposed Conductor Phase 1
- Proposed Conductor Phase 2
- Proposed Conductor Ground
- Existing Conductor
- Existing Ground
- X — Existing Conduit and Conductor
- Y — 3-#6 RHW
- Z — 3-#10 RHW

Lighting

Wiring Schematic (System C)

11th Ave & S 42nd St

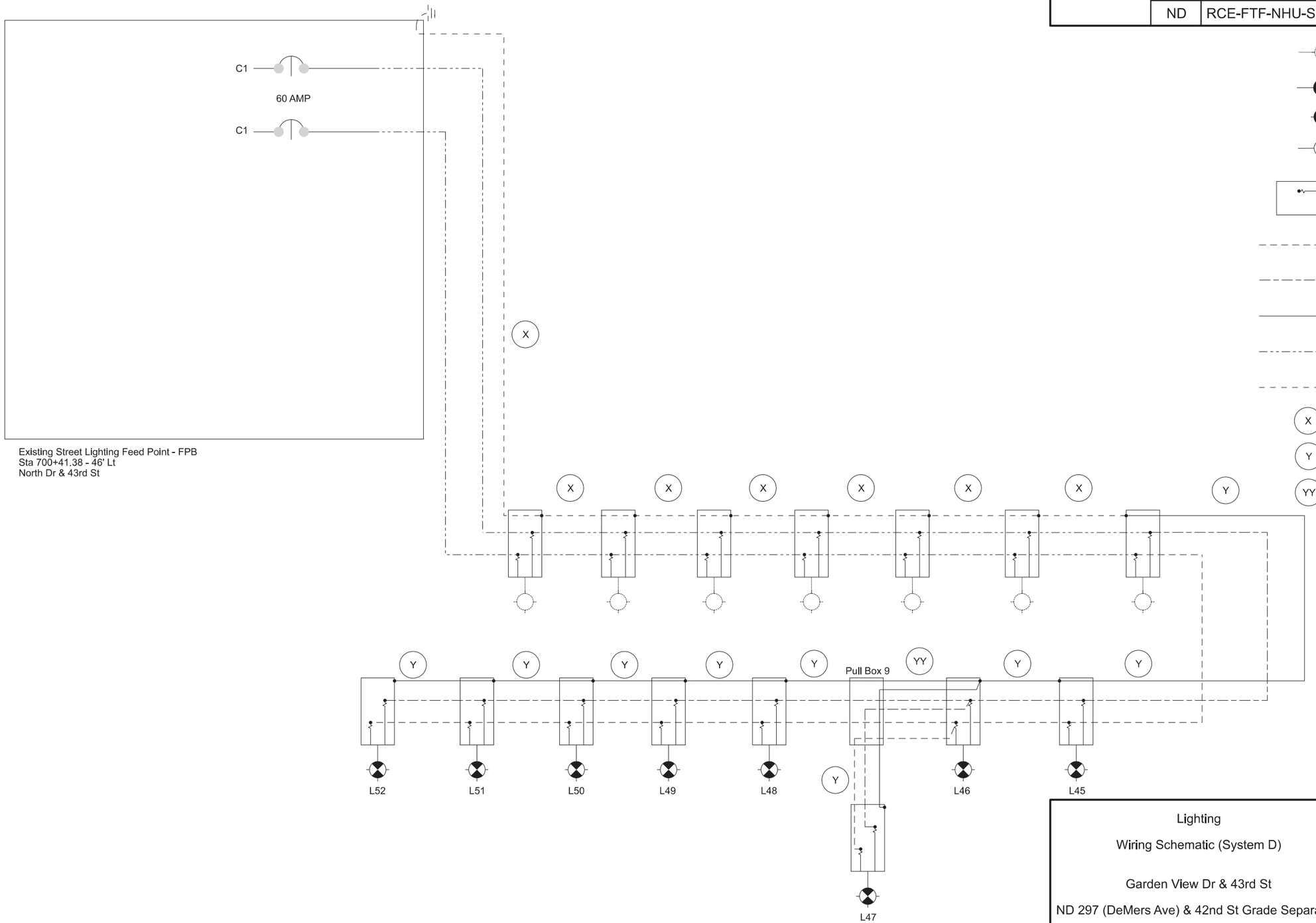
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-40917
DATE: 2025.12.04 09:01:06 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	140	23



Existing Luminaire

Proposed Commercial Street Light

Proposed Canopy Light

Proposed Wall Pack Light

Light Standard with Single Luminaire and Fuses

Proposed Conductor Phase 1

Proposed Conductor Phase 2

Proposed Conductor Ground

Existing Conductor

Existing Ground

X — Existing Conduit and Conductor

Y — 3-#6 RHW

YY — 6-#6 RHW

Lighting

Wiring Schematic (System D)

Garden View Dr & 43rd St

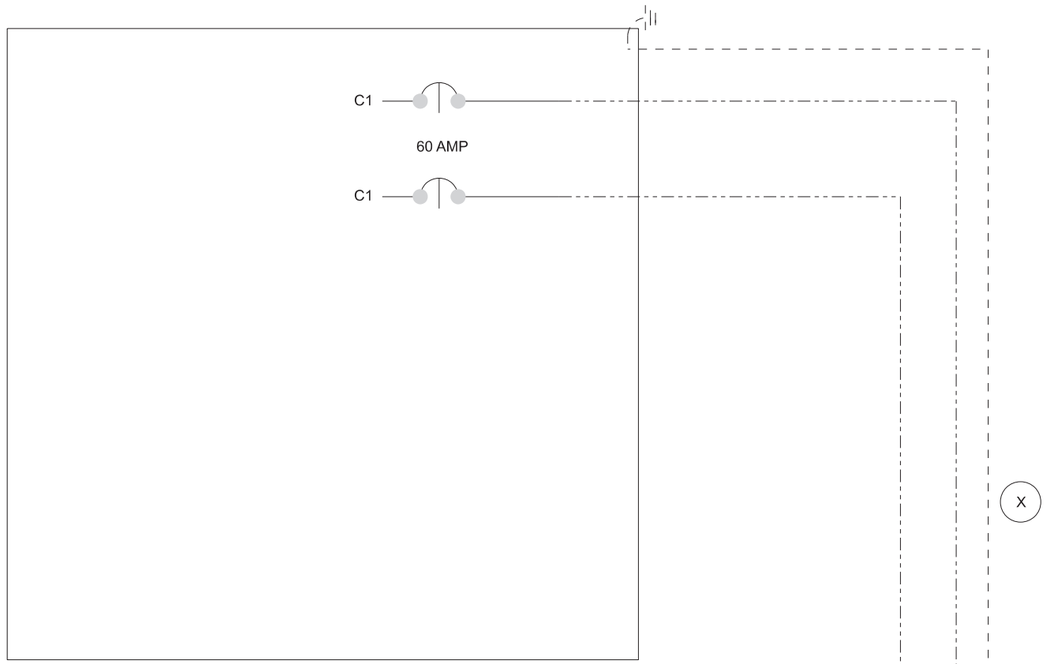
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-40917
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NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	140	24



Existing Street Lighting Feed Point - FPB
Sta 192+82.07 - 85.1' Rt
42nd St and I-29 West Ramps

- Existing Luminaire
- Proposed Commercial Street Light
- Proposed Canopy Light
- Proposed Wall Pack Light
- Light Standard with Single Luminaire and Fuses
- Proposed Conductor Phase 1
- Proposed Conductor Phase 2
- Proposed Conductor Ground
- Existing Conductor
- Existing Ground
- X — Existing Conduit and Conductor
- Y — 3-#6 RHW
- YY — 6-#6 RHW
- XX — New Conduit with Existing Conductor

Lighting

Wiring Schematic (System E)

N 42nd St & I-29 West Ramps

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

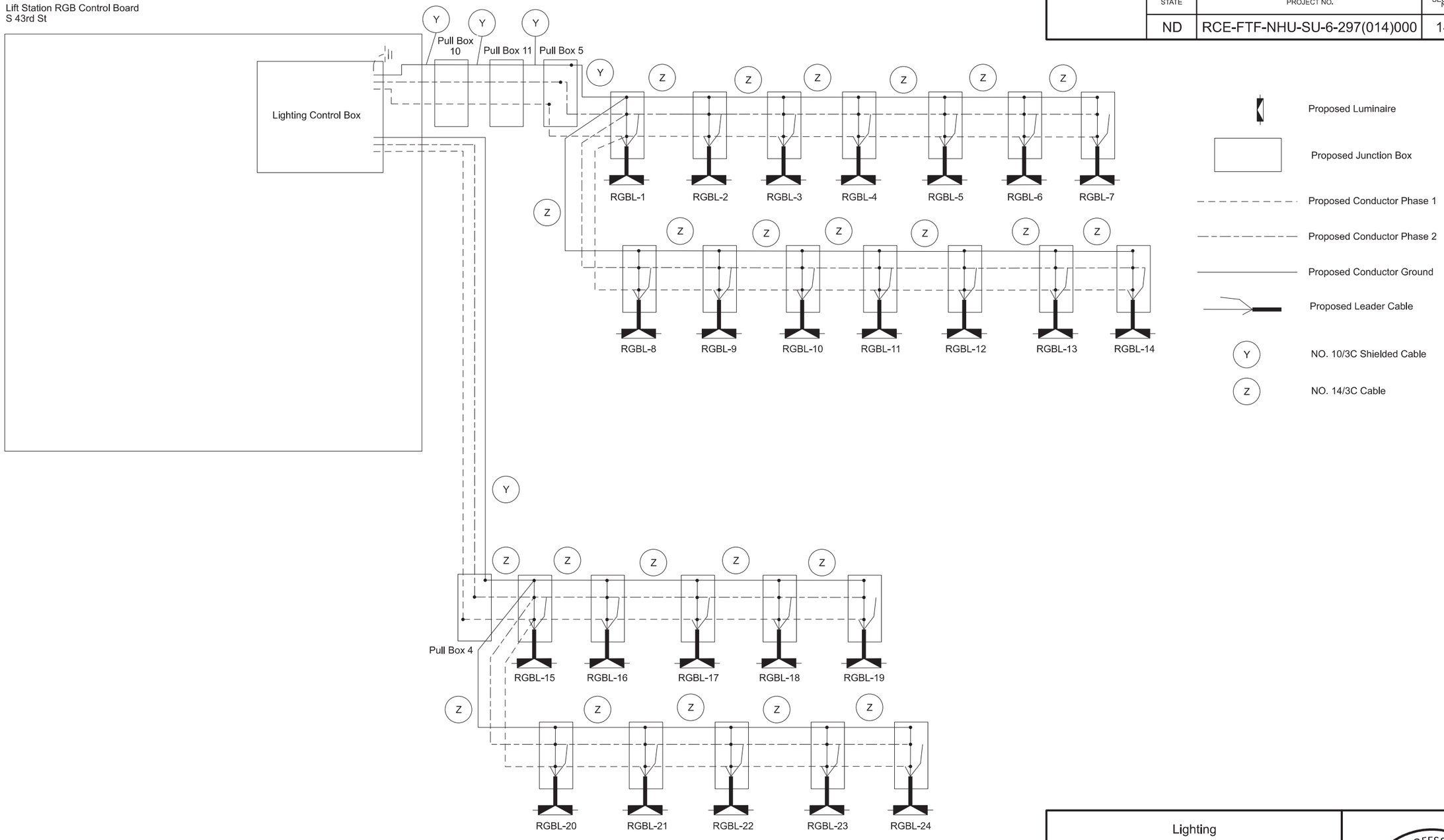
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	140	25

Lift Station RGB Control Board
S 43rd St



Proposed Luminaire

Proposed Junction Box

Proposed Conductor Phase 1

Proposed Conductor Phase 2

Proposed Conductor Ground

Proposed Leader Cable

(Y) NO. 10/3C Shielded Cable

(Z) NO. 14/3C Cable

Lighting

Wiring Schematic (Aesthetic Lighting)

ND 297 (DeMers Ave) & S 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-40917
DATE: 2025.12.04 09:09:23 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	140	26

Light Standards and Pull Boxes - From Existing Feed Point Univ Dr & N 42nd St - Sta. 332+35.01-39.2' Rt					
Light Std/Pull Box Number	Station	Conduit Runs		Cable Runs	
		LF	Dia	LF	Type
L44 TO	320+51.73 - 16.3' Rt	500	2	1,515	(3) NO. 6 RHW
L42	325+50.56 - 17.6' Rt				
L42 TO	325+50.56 - 17.6' Rt	520	2	1,575	(3) NO. 6 RHW
EXISTING LIGHT ON EAST SIDE OF 42ND	330+66.02 - 26.1' Rt				
L43 TO	323+01.13 - 53.7' Lt	500	2	1,515	(3) NO. 6 RHW
L41	328+00.60 - 53.5' Lt				
L41TO	328+00.60 - 53.5' Lt	426	2	1,293	(3) NO. 6 RHW
EXISTING LIGHT ON WEST SIDE OF 42ND	332+25.81 - 58.6' Lt				

QUANTITIES INCLUDED IN "LIGHTING SYSTEM A"					
DESCRIPTION	CONCRETE FOUNDATION-HIGHWAY LIGHTING	2IN DIAMETER RIGID CONDUIT	UNDERGROUND CONDUCTOR NO6-TYPE RHW	LT STD 6FT MA 40FT MT HT BREAKAWAY	LED LUMINAIRE - TYPE A
UNIT	EA	LF	LF	EA	EA
QUANTITY	4	1,946	5,898	4	4

Lighting

Quantities (System A)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBELL
PE-40917
DATE: 2025.12.04 09:09:51 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	140	27

Light Standards and Pull Boxes - From NEW Feed Demers & 7th Ave S - Sta. 216+03.12-62.4' Rt					
LIght Std/Pull Box Number	Statlon	Conduit Runs		Cable Runs	
		LF	Dia	LF	Type
NEW FEEDPOINT TO	216+03.12 - 62.4' Rt	40	3-2"	450	(9) NO. 6 RHW
PULL BOX 8	216+37.71 - 53' Rt				
PULL BOX 8 TO	216+37.71 - 53' Rt	122	2	381	(3) NO. 6 RHW
L4	216+05.64 - 12.6' Lt				
L4	216+05.64 - 12.6' Lt			15	(3) NO. 6 RHW
L5	216+05.64 - 12.6' Lt				
L5 TO	216+05.64 - 12.6' Lt	130	2	405	(3) NO. 6 RHW
L7	217+35.99 - 64.1' Lt				
L7 TO	217+35.99 - 64.1' Lt	355	2	1,080	(3) NO. 6 RHW
L9	220+88.17 - 73' Lt				
L9 TO	220+88.17 - 73' Lt	412	2	1,251	(3) NO. 6 RHW
L11	224+96.68 - 52.8' Lt				
L11 TO	224+96.68 - 52.8' Lt	360	2	1,095	(3) NO. 6 RHW
EXISTING LIGHT NORTH SIDE DEMERS	228+55.29 - 37.3' Lt				
PULL BOX 8 TO	216+37.71 - 53' Rt	140	2	435	(3) NO. 6 RHW
L6	217+72.46 - 48.6' Rt				
L6 TO	217+72.46 - 48.6' Rt	124	2	387	(3) NO. 6 RHW
L8	218+87.07 - 28' Rt				
L8 TO	218+87.07 - 28' Rt	406	2	1,233	(3) NO. 6 RHW
L10	222+90.14 - 29' Rt				
L10 TO	222+90.14 - 29' Rt	372	2	1,131	(3) NO. 6 RHW
EXISTING LIGHT SOUTH SIDE DEMERS	226+65.83 - 29.8' Rt				

NEW FEEDPOINT TO	216+03.12 - 62.4' Rt	34	2	162	(3) NO. 6 RHW
PULL BOX 8	216+37.71 - 53' Rt				
PULL BOX 8 TO	216+37.71 - 53' Rt	109	2	327	(3) NO. 6 RHW
L1	408+31.06 - 65' Lt				
L1 TO	408+31.06 - 65' Lt	224	2	672	(3) NO. 6 RHW
L2	405+85.97 - 64.1' Lt				
L2 TO	405+85.97 - 64.1' Lt	215	2	645	(3) NO. 6 RHW
L3	403+24.88 - 75.5' Lt				

NEW FEEDPOINT TO	216+03.12 - 62.4' Rt	130	2	420	(3) NO. 6 RHW
PULL BOX 7	214+64.0 - 68.9' Rt				
PULL BOX 7 TO	214+64.0 - 68.9' Rt	16	2	63	(3) NO. 6 RHW
L12	214+69.75 - 53.6' Rt				
PULL BOX 7 TO	214+64.0 - 68.9' Rt	176	2	558	(3) NO. 6 RHW
PULL BOX 6	212+89.47 - 65' Rt				
PULL BOX 6 TO	212+89.47 - 65' Rt	34	2	117	(3) NO. 6 RHW
L13	212+88.77 - 56.7' Rt				
L13 TO	212+88.77 - 56.7' Rt	125	2	390	(3) NO. 6 RHW
L14	212+89,33 - 42' Lt				
PULL BOX 6 TO	212+89.47 - 65' Rt	94	2	312	(3) NO. 6 RHW
PULL BOX 5	211+96.04 - 60.6' Rt				
PULL BOX 5 TO	211+96.04 - 60.6' Rt	33	2	114	(3) NO. 6 RHW
L15	212+01.53 - 59.3' Rt				
L15 TO	212+01.53 - 59.3' Rt	125	2	390	(3) NO. 6 RHW
L16	212+02.02 - 42.3' Lt				
L15 TO	211+96.04 - 60.6' Rt	100	2	330	(3) NO. 6 RHW
PULL BOX 3	210+97.37 - 62.2' Rt				
PULL BOX 3 TO	210+97.37 - 62.2' Rt	33	2	114	(3) NO. 6 RHW
L17	210+96.19 - 55.5' Rt				
L17 TO	210+96.19 - 55.5' Rt	125	2	390	(3) NO. 6 RHW
L18	210+96.71 - 42.8' Lt				

Light Standards and Pull Boxes (Under Bridges) - From NEW Feed Demers & 7th Ave S - Sta. 216+03.12-62.4' Rt					
Light Std/Pull Box Number	Station	Conduit Runs		Cable Runs	
		LF	Dia	LF	Type
NEW FEEDPOINT TO	216+03.12 - 62.4' Rt	402	2"	2,532	(6) NO. 10 RHW
PULL BOX 5	211+96.04 - 60.6' Rt				
PULL BOX 5 TO	211+96.04 - 60.6' Rt	52	1"	183	(3) NO. 10 RHW
L23	317+92.93 - 27.5' Lt				
L23 TO	317+92.93 - 27.5' Lt	5	1"	21	(3) NO. 10 RHW
L24	317+92.89 - 19.8' Lt				
L23 TO	317+92.93 - 27.5' Lt	65	1"	201	(3) NO. 10 RHW
L29	317+93,16 - 86' Lt				
L23 TO	317+92.93 - 27.5' Lt	55	1"	171	(3) NO. 10 RHW
L25	318+46.86 - 23.3' Lt				
L25 TO	318+46.86 - 23.3' Lt	5	1"	21	(3) NO. 10 RHW
L26	318+46.84 - 19.8' Lt				
L25 TO	318+63.19 - 76.5' Lt	65	1"	201	(3) NO. 10 RHW
L30	318+47.72 - 85' Lt				
PULL BOX 5 TO	211+96.04 - 60.6' Rt	105	2"	345	(3) NO. 10 RHW
PULL BOX 4	318+68.42 - 25.9' Lt				
PULL BOX 4 TO	318+68.42 - 25.9' Lt	50	2"	180	(3) NO. 10 RHW
PULL BOX 12	318+63.19 - 76.5' Lt				
PULL BOX 12 TO	318+63.19 - 76.5' Lt	66	1"	204	(3) NO. 10 RHW
L31	319+18.67 - 77.8' Lt				
PULL BOX 4 TO	318+68.42 - 25.9' Lt	75	1"	462	(6) NO. 10 RHW
L27	319+11.52 - 24.1' Lt				
L27 TO	319+11.52 - 24.1' Lt	5	1"	21	(3) NO. 10 RHW
L28	319+11.50 - 20.3' Lt				

QUANTITIES INCLUDED IN "LIGHTING SYSTEM B"													
DESCRIPTION	1IN DIAMETER RIGID CONDUIT	2IN DIAMETER RIGID CONDUIT	UNDERGROUND CONDUCTOR NO6-TYPE RHW	UNDERGROUND CONDUCTOR NO10-TYPE RHW	CONCRETE FOUNDATION-HIGHWAY LIGHTING	LT STD 6FT MA 40FT MT HT BREAKAWAY	LT STD 3FT MA 20FT MT HT BRIDGE MOUNTED	LED LUMINAIRE - TYPE A	LED LUMINAIRE - TYPE B	LED LUMINAIRE - TYPE D	LED LUMINAIRE - TYPE E	LED LUMINAIRE - TYPE F	PULL BOX
UNIT	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	EA	EA
QUANTITY	548	4,436	12,867	4,542	8	8	6	18	6	6	2	1	8

Lighting

Quantities (System B)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-40917
DATE: 2025.12.04 09:10:13 -06'00'
NORTH DAKOTA

12/3/2025 10:33:38 AM jordan.reihe H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\140LT_Quantities&Schedule.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	140	28

Light Standards and Pull Boxes - From Existing Feed Point 11th Ave & N 42nd St - Sta. 300+31.45-34' Rt					
Light Std/Pull Box Number	Station	Conduit Runs		Cable Runs	
		LF	Dia	LF	Type
EXISTING LIGHT ON EAST SIDE OF 42ND ST TO	301+29.57 - 17.1' Rt	372	2	1,131	(3) NO. 6 RHW
L32	304+99.70 - 17.9' Rt				
L32 TO	304+99.70 - 17.9' Rt	455	2	1,380	(3) NO. 6 RHW
L34	309+49.28 - 36.6' Rt				
L34 TO	309+49.28 - 36.6' Rt	181	2	558	(3) NO. 6 RHW
L36	311+20.48 - 64.8' Rt				
L36 TO	311+20.48 - 64.8' Rt	142	2	441	(3) NO. 6 RHW
L38	312+59.48 - 36.1' Rt				
L38 TO	312+59.48 - 36.1' Rt	412	2	1,251	(3) NO. 6 RHW
L40	316+67.54 - 17.5' Rt				
EXISTING LIGHT ON WEST SIDE OF 42ND ST TO	303+62.25 + 65.2' Lt	382	2	1,161	(3) NO. 6 RHW
L33	307+43.40 - 61.5' Lt				
L33 TO	307+43.40 - 61.5' Lt	350	2	1,077	(3) NO. 6 RHW
L35	310+88.62 - 92.3' Lt				
L35 TO	310+88.62 - 92.3' Lt	152	2	471	(3) NO. 6 RHW
L37	312+40.04 - 104.9' Lt				
L37 TO	312+40.04 - 104.9' Lt	200	2	615	(3) NO. 6 RHW
L39	314+23.69 - 75.2' Lt				

QUANTITIES INCLUDED IN "LIGHTING SYSTEM C"						
DESCRIPTION	CONCRETE FOUNDATION-HIGHWAY LIGHTING	2IN DIAMETER RIGID CONDUIT	UNDERGROUND CONDUCTOR NO6-TYPE RHW	LT STD 6FT DAVIT 40FT MT HT BREAKAWAY	LED LUMINAIRE - TYPE A	LED LUMINAIRE - TYPE B
UNIT	EA	LF	LF	EA	EA	EA
QUANTITY	5	2,646	8,085	5	5	4

Lighting

Quantities (System C)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-40917
DATE: 2025.12.04 09:10:36 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	140	29

Light Standards and Pull Boxes - From Existing Feed Point North Dr & N 43rd St - Sta. 700+41.38-46' Rt					
Light Std/Pull Box Number	Station	Conduit Runs		Cable Runs	
		LF	Dia (")	LF	Type
EXISTING LIGHT ON WEST SIDE OF 43RD TO	708+53.99 - 21.7' Lt	120	1.5	375	(3) NO. 6 RHW
L45	709+69.73 - 21.6' Lt				
L45 TO	709+69.73 - 21.6' Lt	126	1.5	375	(3) NO. 6 RHW
L46	711+05.83 - 20.7' Lt				
L46 TO	711+05.83 - 20.7' Lt	24	1.5	240	(6) NO. 6 RHW
PULL BOX 9	711+29.25 - 20.5' Lt				
PULL BOX 9 TO	711+29.25 - 20.5' Lt	160	1.5	495	(3) NO. 6 RHW
L47	398+01.77 - 21.8' Rt				
PULL BOX 9 TO	711+29.25 - 20.5' Lt	94	1.5	312	(3) NO. 6 RHW
L48	712+22.60 - 21.5' Lt				
L48 TO	712+22.60 - 21.5' Lt	123	1.5	384	(3) NO. 6 RHW
L49	713+45.37 - 20.8' Lt				
L49 TO	713+45.37 - 20.8' Lt	123	1.5	384	(3) NO. 6 RHW
L50	714+67.58 - 21' Lt				
L50 TO	714+67.58 - 21' Lt	120	1.5	375	(3) NO. 6 RHW
L51	715+87.48 - 21.1' Lt				
L51 TO	715+87.48 - 21.1' Lt	120	1.5	375	(3) NO. 6 RHW
L52	717+02.51 - 5.2' Lt				

QUANTITIES INCLUDED IN "LIGHTING SYSTEM D"						
DESCRIPTION	CONCRETE FOUNDATION-HIGHWAY LIGHTING	PULL BOX	1.5IN DIAMETER RIGID CONDUIT	UNDERGROUND CONDUCTOR NO6-TYPE RHW	LED LUMINAIRE - TYPE C	LIGHT STANDARD 20FT MT HT (NO DAVIT ARM)
UNIT	EA	EA	LF	LF	EA	EA
QUANTITY	8	1	1,010	3,315	8	8

Lighting

Quantities (System D)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

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DARRIN RICKBEIL
PE-40917
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NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	140	30

Light Standards and Pull Boxes - From Existing Feed Point DeMers Ave West of West I-29 Ramp - Sta. 192+82.07 - 85.1' Rt					
Light Std/Pull Box Number	Station	Conduit Runs		Cable Runs	
		LF	Dia	LF	Type
PULL BOX 1TO	203+19.75 - 24.9' Rt	70	2		EXISTING (3) NO. 2 RHW
L22	203+53.42 - 35.6' Lt				
L22 TO	203+53.42 - 35.6' Lt	186	2	573	(3) NO. 6 RHW
PULL BOX 2	205+39.35 - 33.6' Lt				
PULL BOX 2 TO	205+39.35 - 33.6' Lt	135	2	840	(6) NO. 6 RHW
L20	206+73.58 - 36.6' Lt				
PULL BOX 2 TO	205+39.35 - 33.6' Lt	93	2	294	(3) NO. 6 RHW
L21	205+36.86 - 46' Rt				
L21TO	205+36.03 - 59.2' Rt	335	2	1,020	(3) NO. 6 RHW
L19	208+69.89 - 60.7' Rt				

QUANTITIES INCLUDED IN "LIGHTING SYSTEM E"						
DESCRIPTION	CONCRETE FOUNDATION-HIGHWAY LIGHTING	2IN DIAMETER RIGID CONDUIT	UNDERGROUND CONDUCTOR NO6-TYPE RHW	LT STD 6FT DAVIT 40FT MT HT BREAKAWAY	LED LUMINAIRE - TYPE A	LED LUMINAIRE - TYPE B
UNIT	EA	LF	LF	EA	EA	EA
QUANTITY	5	819	2,727	5	5	4

Lighting

Quantities (System E)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-40917
DATE: 2025.12.04 09:13:56 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	140	31

Light Standards and Pull Boxes (RGB Lighting Under Bridge) - From NEW Lift Station at Sta. 209+94.44 - 130.8' Rt					
Light Std/Pull Box Number	Station	Conduit Runs		Cable Runs	
		LF	Dia	LF	Type
LIFT STATION	209+94.44 - 130.8' Rt	46	2"	132	(2) NO. 10/3C CABLE
PULL BOX 10	109+45.68 - 115.1' Rt				
PULL BOX 10 TO	109+45.68 - 115.1' Rt	55	2"	150	(2) NO. 10/3C CABLE
PULL BOX 11	209+41.87 - 61' Rt				
PULL BOX 11 TO	209+41.87 - 61' Rt	157	2"	354	(2) NO. 10/3C CABLE
PULL BOX 3	210+98.09 - 49.6' Rt				
PULL BOX 3 TO	210+98.09 - 49.6' Rt	100	2"	240	(2) NO. 10/3C CABLE
PULL BOX 5	211+96.75 - 47.4' Rt				
PULL BOX 5 TO	211+96.75 - 47.4' Rt	40	1"	51	NO. 10/3C CABLE
RGBL-1					
RGBL-1 TO		15	1"	16	NO. 14/3C CABLE
RGBL-2					
RGBL-2 TO		15	1"	16	NO. 14/3C CABLE
RGBL-3					
RGBL-3 TO		15	1"	16	NO. 14/3C CABLE
RGBL-4					
RGBL-4 TO		15	1"	16	NO. 14/3C CABLE
RGBL-5					
RGBL-5 TO		15	1"	16	NO. 14/3C CABLE
RGBL-6					
RGBL-6 TO		15	1"	16	NO. 14/3C CABLE
RGBL-7					
RGBL-1 TO		5	1"	6	NO. 14/3C CABLE
RGBL-8					
RGBL-8 TO		15	1"	16	NO. 14/3C CABLE
RGBL-9					
RGBL-9 TO		15	1"	16	NO. 14/3C CABLE
RGBL-10					
RGBL-10 TO		15	1"	16	NO. 14/3C CABLE
RGBL-11					
RGBL-11 TO		15	1"	16	NO. 14/3C CABLE
RGBL-12					
RGBL-12 TO		15	1"	16	NO. 14/3C CABLE
RGBL-13					
RGBL-13 TO		15	1"	16	NO. 14/3C CABLE
RGBL-14					
PULL BOX 5 TO	211+96.75 - 47.4' Rt	105	2"	115	NO. 10/3C CABLE
PULL BOX 4	318+68.46 - 26.4' Lt				
PULL BOX 4 to	318+68.46 - 26.4' Lt	40	2"	41	NO. 10/3C CABLE
RGBL-15					
RGBL-15 TO		15	1"	16	NO. 14/3C CABLE
RGBL-16					
RGBL-16 TO		15	1"	16	NO. 14/3C CABLE
RGBL-17					
RGBL-17 TO		15	1"	16	NO. 14/3C CABLE
RGBL-18					
RGBL-18 TO		15	1"	16	NO. 14/3C CABLE
RGBL-19					
RGBL-15 TO		5	1"	6	NO. 14/3C CABLE
RGBL-20					
RGBL-20 TO		15	1"	16	NO. 14/3C CABLE
RGBL-21					
RGBL-21 TO		15	1"	16	NO. 14/3C CABLE
RGBL-22					
RGBL-22 TO		15	1"	16	NO. 14/3C CABLE
RGBL-23					
RGBL-23 TO		15	1"	16	NO. 14/3C CABLE
RGBL-24					

QUANTITIES INCLUDED IN "LIGHTING SYSTEM (AESTHETIC)"						
DESCRIPTION	1IN DIAMETER RIGID CONDUIT	2IN DIAMETER RIGID CONDUIT	NO. 10/3C SHIELDED CABLE	NO. 14/3C CABLE	RGB LIGHT	PULL BOX
UNIT	LF	LF	LF	LF	EA	EA
QUANTITY	350	503	1,083	332	24	2

Lighting

Quantities (Aesthetic Lighting)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-40917
DATE: 2025.12.04 09:14:22 -06'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	140	32

Light Standards

No.	Station	Offset	LUMINAIRE	LIGHTING SYSTEM	Wattage	Circuit	Pole Ht.	Mast Arm	Note
L1	408+31.06	65' Lt	TYPE A	B	159	C3	40'	6'	
L2	405+85.97	64.1' Lt	TYPE A	B	159	C3	40'	6'	
L3	403+24.88	75.5' Lt	TYPE A	B	159	C3	40'	6'	
L4	216+05.64	12.6' Lt	TYPE B	B	159	C1	40'	6'	INSTALL ON COMBINATION TRAFFIC & SIGNAL STANDARD
L5	216+05.64	12.6' Lt	TYPE B	B	159	C1	40'	6'	INSTALL ON COMBINATION TRAFFIC & SIGNAL STANDARD
L6	217+72.46	48.6' Rt	TYPE B	B	159	C3	40'	6'	INSTALL ON COMBINATION TRAFFIC & SIGNAL STANDARD
L7	217+35.99	64.1' Lt	TYPE B	B	159	C1	40'	6'	INSTALL ON COMBINATION TRAFFIC & SIGNAL STANDARD
L8	218+87.07	28' Lt	TYPE A	B	159	C3	40'	6'	
L9	220+88.17	73' Lt	TYPE A	B	159	C1	40'	6'	
L10	222+90.14	29' Lt	TYPE A	B	159	C3	40'	6'	
L11	224+96.68	52.8' Lt	TYPE A	B	159	C1	40'	6'	
L12	214+69.75	53.6' Rt	TYPE A	B	159	C2	40'	6'	
* L13	212+88.77	56.7' Rt	TYPE B	B	159	C2	30'	3.5'	INSTALL ON ORNAMENTAL BRIDE DECK STRUCTURES. 20' POLE ON 10' BRIDGE PILASTER
* L14	212+89.33	42' Lt	TYPE B	B	159	C2	28'	3.5'	INSTALL ON ORNAMENTAL BRIDE DECK STRUCTURES. 20' POLE ON 8' BRIDGE PILASTER
* L15	212+01.53	59.3' Rt	TYPE B	B	159	C2	30'	3.5'	INSTALL ON ORNAMENTAL BRIDE DECK STRUCTURES. 20' POLE ON 10' BRIDGE PILASTER
* L16	212+02.02	42.3' Lt	TYPE B	B	159	C2	28'	3.5'	INSTALL ON ORNAMENTAL BRIDE DECK STRUCTURES. 20' POLE ON 8' BRIDGE PILASTER
* L17	210+96.19	55.5' Rt	TYPE B	B	159	C2	30'	3.5'	INSTALL ON ORNAMENTAL BRIDE DECK STRUCTURES. 20' POLE ON 10' BRIDGE PILASTER
* L18	210+96.71	42.8' Lt	TYPE B	B	159	C2	28'	3.5'	INSTALL ON ORNAMENTAL BRIDE DECK STRUCTURES. 20' POLE ON 8' BRIDGE PILASTER
L19	208+69.89	60.7' Rt	TYPE A	E	159	C1	40'	6'	
L20	206+73.58	36.6' Lt	TYPE A	E	159	C1	40'	6'	
L21	205+36.86	46' Rt	TYPE A	E	159	C1	40'	6'	
L22	203+53.42	35.6' Lt	TYPE A	E	159	C1	40'	6'	
L23	317+92.93	27.5' Lt	TYPE D	B	50-55	C4	0'	0'	ROADWAY WALL PACK LIGHT
L24	317+92.89	19.8' Lt	TYPE D	B	50-55	C4	0'	0'	ROADWAY WALL PACK LIGHT
L25	318+46.86	23.3' Lt	TYPE D	B	50-55	C4	0'	0'	ROADWAY WALL PACK LIGHT
L26	318+46.84	19.8' Lt	TYPE D	B	50-55	C4	0'	0'	ROADWAY WALL PACK LIGHT
L27	319+11.52	24.1' Lt	TYPE D	B	50-55	C4	0'	0'	ROADWAY WALL PACK LIGHT
L28	319+11.50	20.3' Lt	TYPE D	B	50-55	C4	0'	0'	ROADWAY WALL PACK LIGHT
L29	319+93.16	86' Lt	TYPE E	B	40-45	C4	0'	0'	PATHWAY CANOPY LIGHT
L30	318+47.72	85' Lt	TYPE E	B	40-45	C4	0'	0'	PATHWAY CANOPY LIGHT
L31	319+18.67	77.8' Lt	TYPE F	B	30-35	C4	0'	0'	PATHWAY WALL PACK LIGHT
L32	304+99.70	17.9' Rt	TYPE A	C	159	C1	40'	6'	
L33	307+43.40	61.5' Lt	TYPE A	C	159	C2	40'	6'	
L34	309+49.28	36.6' Rt	TYPE A	C	159	C1	40'	6'	
L35	310+88.62	92.3' Lt	TYPE B	C	159	C2	40'	6'	INSTALL ON COMBINATION TRAFFIC & SIGNAL STANDARD
L36	311+20.48	64.8' Rt	TYPE B	C	159	C1	40'	6'	INSTALL ON COMBINATION TRAFFIC & SIGNAL STANDARD
L37	312+40.04	104.9' Lt	TYPE B	C	159	C2	40'	6'	INSTALL ON COMBINATION TRAFFIC & SIGNAL STANDARD
L38	312+59.48	36.1' Rt	TYPE B	C	159	C1	40'	6'	INSTALL ON COMBINATION TRAFFIC & SIGNAL STANDARD
L39	319+23.69	75.2' Lt	TYPE A	C	159	C2	40'	6'	
L40	316+67.54	17.5' Rt	TYPE A	C	159	C1	40'	6'	
L41	328+00.60	53.5' Lt	TYPE A	A	159	C1	40'	6'	
L42	325+50.56	17.6' Rt	TYPE A	A	159	C2	40'	6'	
L43	323+01.13	53.7' Lt	TYPE A	A	159	C1	40'	6'	
L44	320+51.73	16.3' Rt	TYPE A	A	159	C2	40'	6'	
L45	709+69.73	21.6' Lt	TYPE C	D	50	C1	20'	0	
L46	711+05.83	20.7' Lt	TYPE C	D	50	C1	20'	0	
L47	398+01.77	21.8' Rt	TYPE C	D	50	C1	20'	0	
L48	712+22.60	21.5' Lt	TYPE C	D	50	C1	20'	0	
L49	713+45.37	20.8' Lt	TYPE C	D	50	C1	20'	0	
L50	714+67.58	21' Lt	TYPE C	D	50	C1	20'	0	
L51	715+87.48	21.1' Lt	TYPE C	D	50	C1	20'	0'	
L52	717+02.51	5.2' Lt	TYPE C	D	50	C1	20'	0'	
									* Pole detail in Section 85

Lighting

Lighting Fixture Schedule

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-40917
DATE: 2025.12.04 09:14:41 -06'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	150	1

Note: Return salvaged signal poles, overhead sign poles, mast arms & equipmentto Rick Hanson (701-738-8796) with the City of Grand Forks 724 N 47th Street, Grand Forks, ND 58203.

SPEC	CODE	BID ITEM	QTY	UNIT
772	3125	REMOVE TRAFFIC SIGNAL SYSTEM	1	EA

Sta. 17+64.52 - 56.3' Lt
Remove and Salvage Pedestrian Pushbutton & Sign

Sta. 17+52.74 - 45.8' Lt
Remove and Salvage Combo Signal Std

Exst R/W

Sta. 18+69.48 - 58.2' Lt
Remove and Salvage Combo Signal Std

Remove Pull Box & Salvage Lid
Sta. 17+66.75 - 58.7' Lt

Sta. 18+69.48 - 58.2' Lt
Remove and Salvage PTZ Camera

Exst R/W

Sta. 18+99.98 - 67.6' Lt
Remove and Salvage Traffic Signal Controller & signal equipment, remove and dispose cabinet foundation

Remove Pull Box & Salvage Lid
Sta. 18+88.27 - 48.6' Lt

SCL_DeMersAve

ND 297 (DeMers Ave)

Remove Pull Box & Salvage Lid
Sta. 19+01.86 - 36.4' Rt

Sta. 18+87.37 - 44.1' Rt
Remove and Salvage Combo Signal Std

Remove Pull Box & Salvage Lid
Sta. 17+50.77 - 48.9' Rt

Remove Pull Box & Salvage Lid
Sta. 17+78.97 - 70.5' Rt

Exst R/W

Sta. 17+72.00 - 61.1' Rt
Remove and Salvage Combo Signal Std

Exst R/W

Remove Pull Box & Salvage Lid
Sta. 72+05.08 - 1.7' Rt

Signals

Removals

ND 297 (DeMers Ave) & S 42nd St/N 42nd St

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

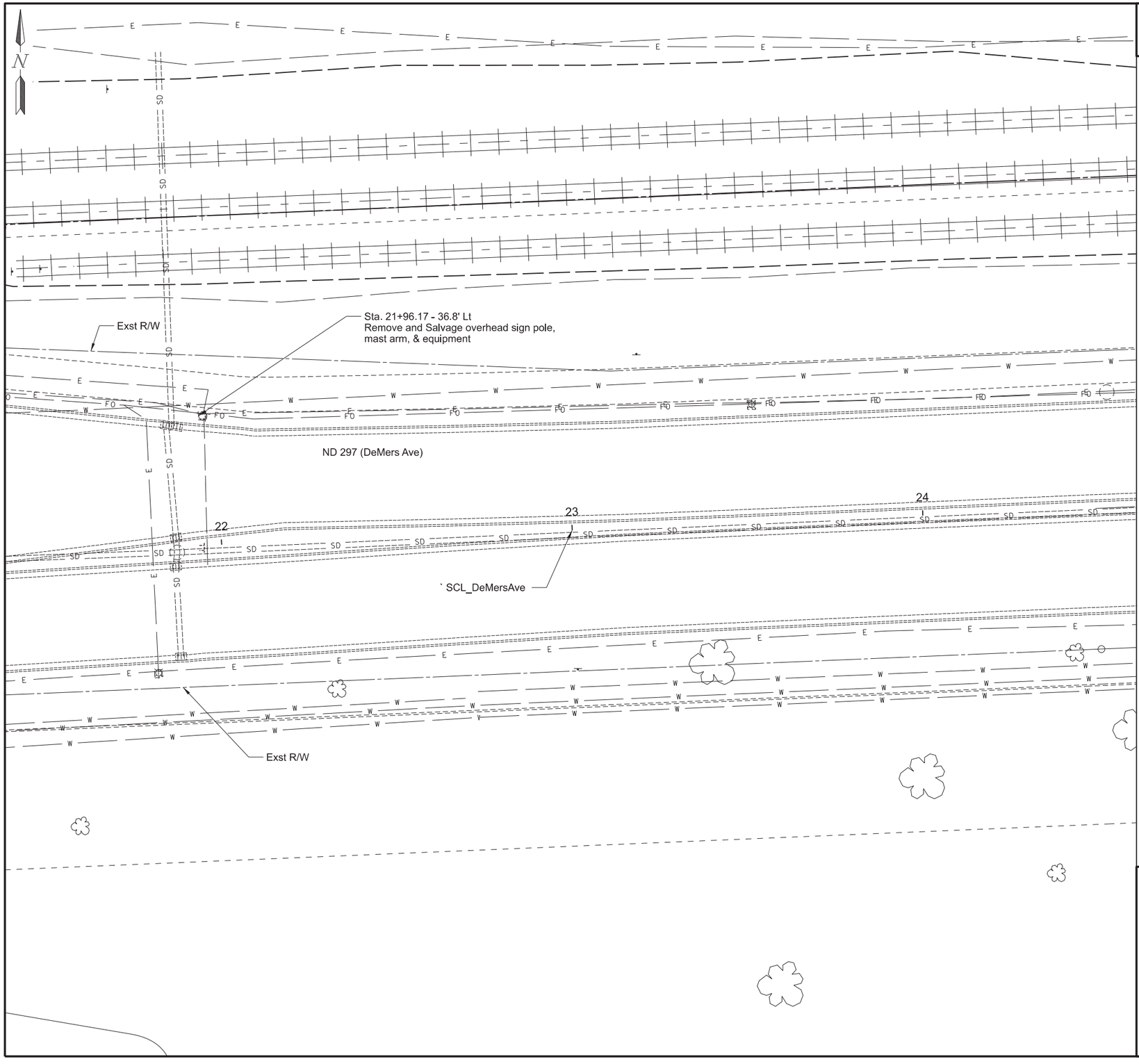
Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-40917
DATE: 2025.12.04 09:16:46 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	150	2

Note: Return salvaged signal poles, overhead sign poles, mast arms & equipmentto Rick Hanson (701-738-8796) with the City of Grand Forks 724 N 47th Street, Grand Forks, ND 58203.

SPEC	CODE	BID ITEM	QTY	UNIT
772	3125	REMOVE TRAFFIC SIGNAL SYSTEM	1	EA



Signals

Removals

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

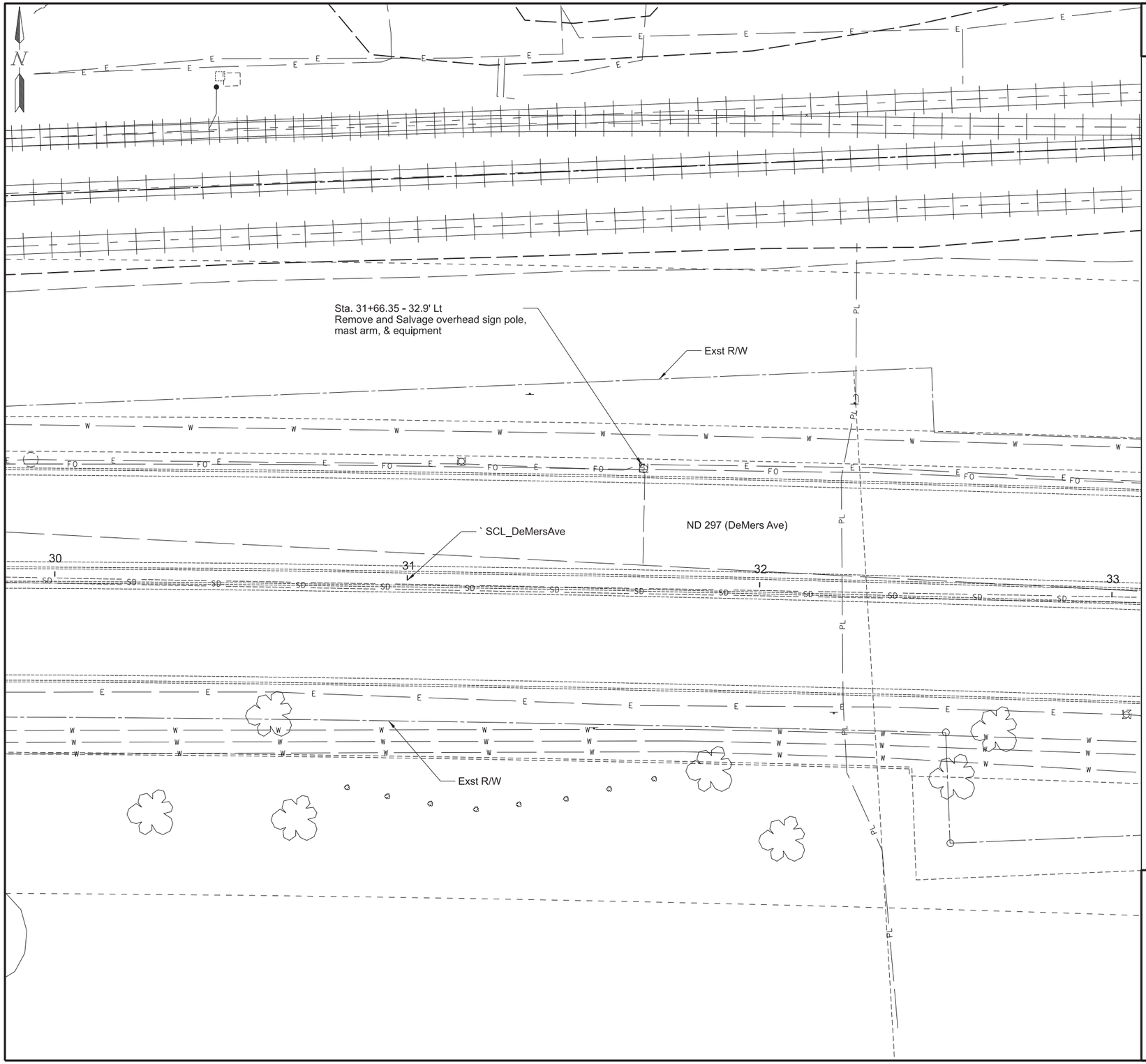
Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-40917
DATE: 2025.12.04 09:19:05 -06'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	150	3

Note: Return salvaged signal poles, overhead sign poles, mast arms & equipmentto Rick Hanson (701-738-8796) with the City of Grand Forks 724 N 47th Street, Grand Forks, ND 58203.

SPEC	CODE	BID ITEM	QTY	UNIT
772	3125	REMOVE TRAFFIC SIGNAL SYSTEM	1	EA



Signals

Removals

ND 297 (DeMers Ave)

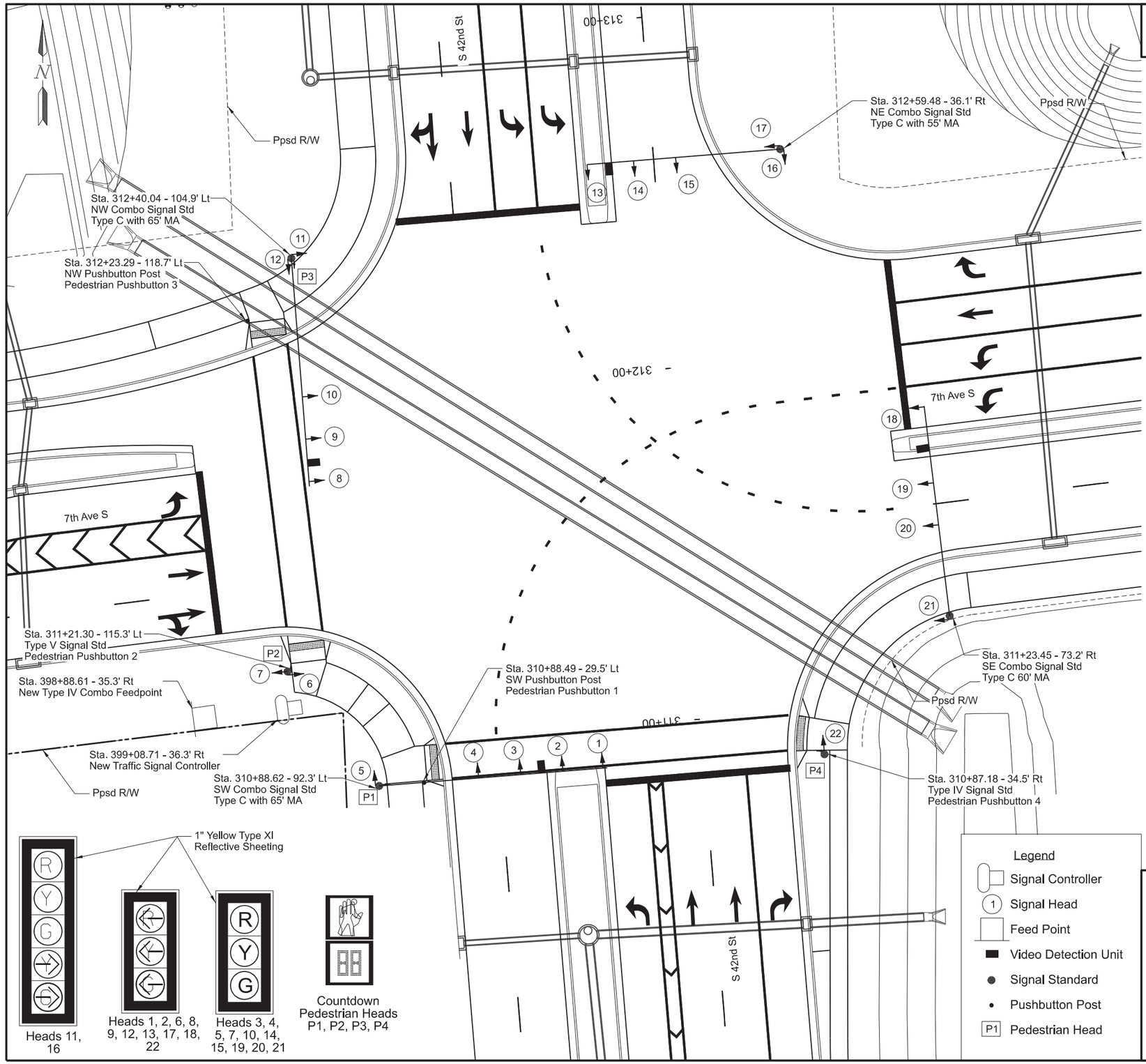
ND 297 (DeMers Ave) & 42nd St Grade Separation

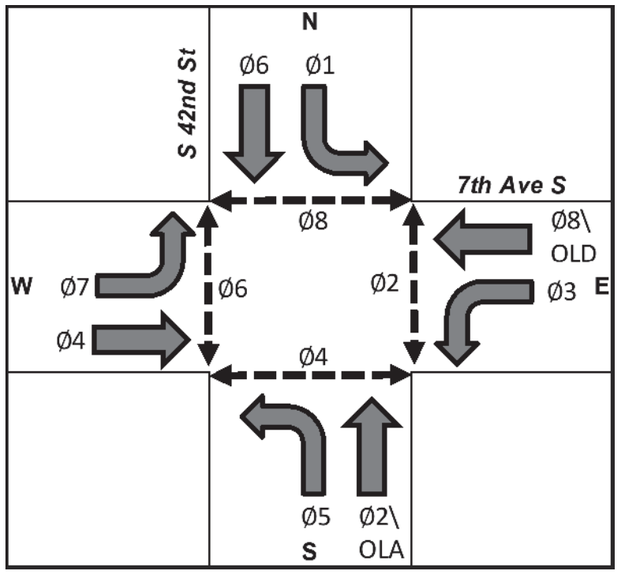
Grand Forks County

Grand Forks, ND

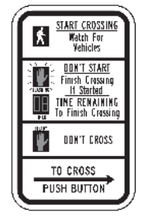
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DARRIN RICKBEIL
PE-40917
DATE: 2025.12.04 09:19:35 -06'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	150	4





Pedestrian Pushbutton Schedule			
Location	Pushbutton & Sign Location on Pole	Direction of Arrow on Sign	Message of Roadway to Cross
Pushbutton 1	North	Left	"S 42nd St"
Pushbutton 2	East	Right	"7th Ave S"
Pushbutton 3	East	Left	"7th Ave S"
Pushbutton 4	North	Right	"S 42nd St"



Sign R10-3E

Signals

Traffic Signal Layout
Site 1

S 42nd St & 7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

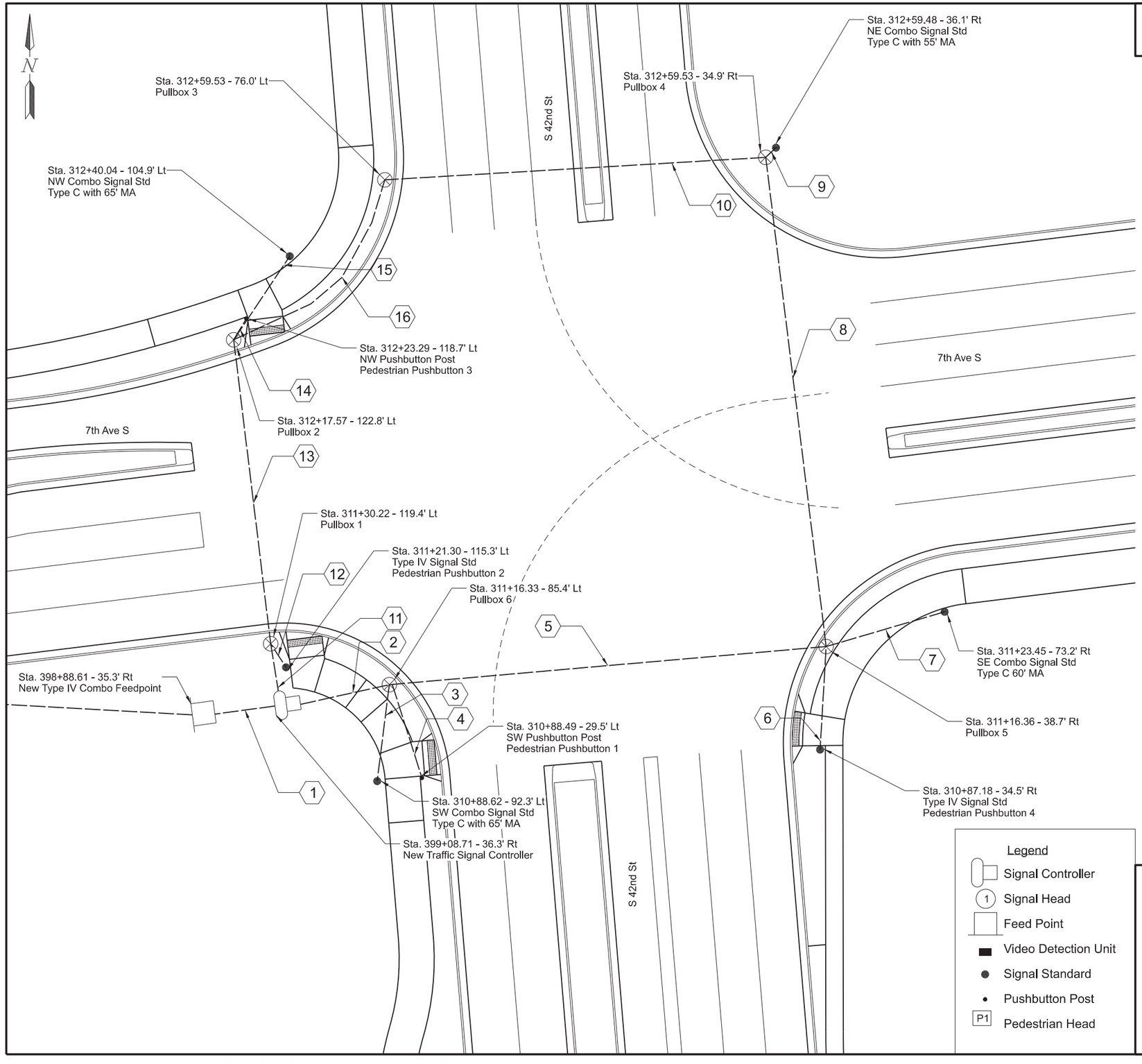
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-40917
DATE: 2025.12.04 09:19:57 -06'00'
NORTH DAKOTA

12/3/2025 9:39:23 AM jordan.reihe H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\150SL_004_LSGNL_1.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	150	5



Signals

Conduit Layout
Site 1

S 42nd St & 7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

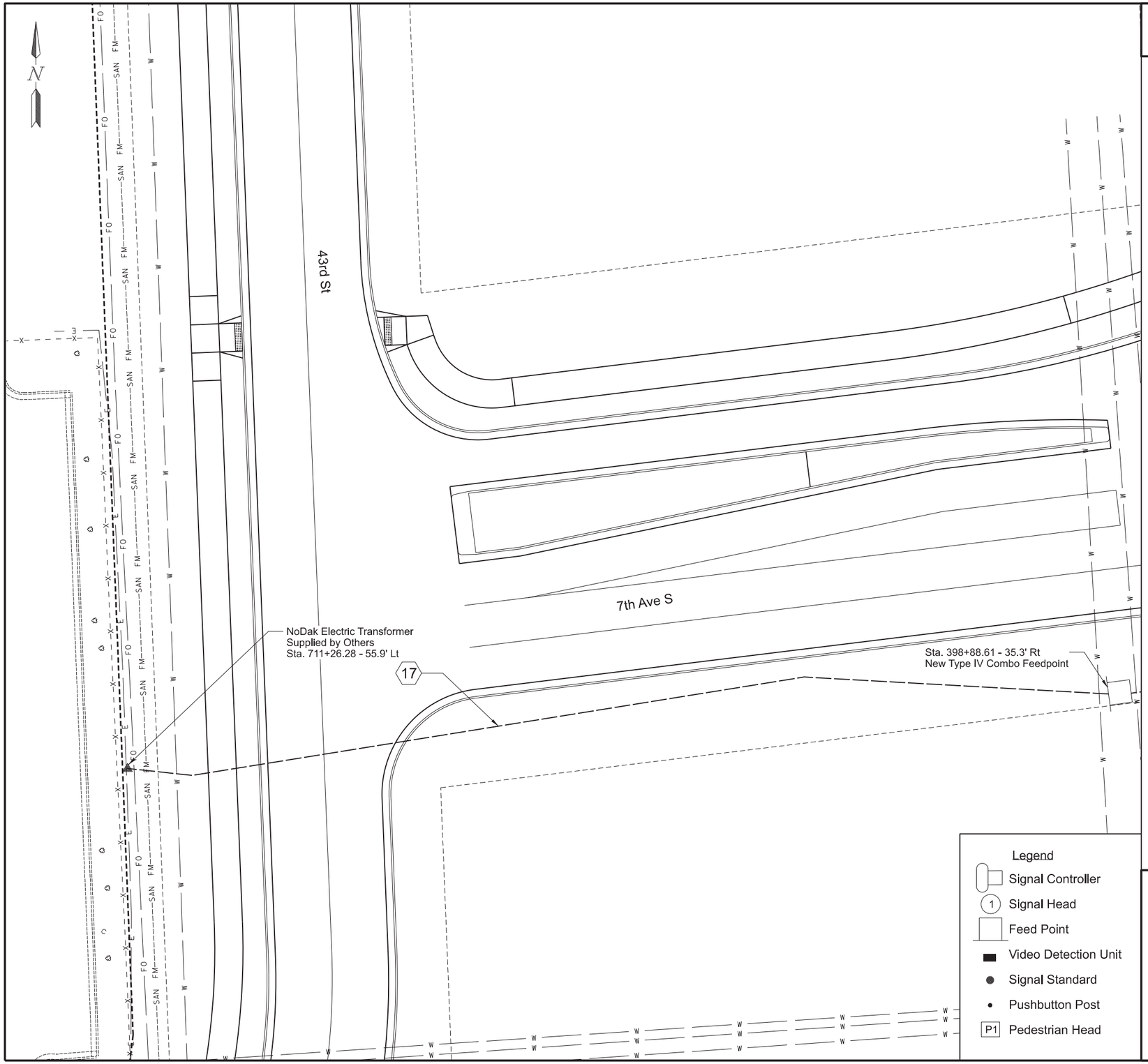
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PE-40917
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NORTH DAKOTA

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	150	6

Note:
1. Supply run from pole to cabinet is in a seperate conduit from the street light conduit

2. Include a tracer wire for conduit 17



Signals

Feed Point Service Conduit Layout 1
Site 1

43rd St & 7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

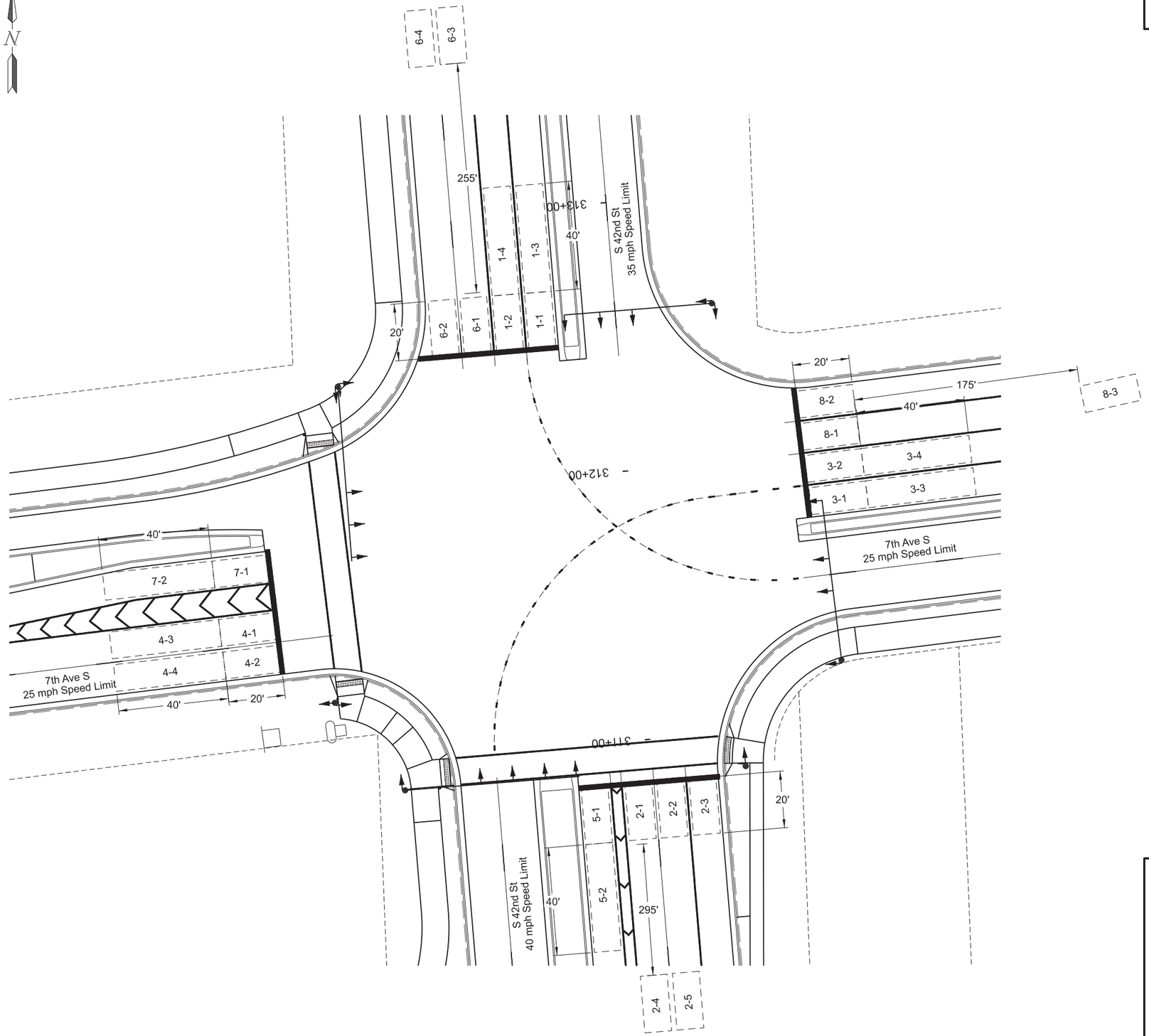
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-40917
DATE: 2025.12.04 09:21:04 -06'00'
NORTH DAKOTA

12/3/2025 9:39:31 AM jordan.reihe H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\150SL_006_LSCOP_1.dgn

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	150	7



Phase Number	Distance from Stop Bar (Feet)	Length (Feet)	Presence/Counting	Passage/Counting	Queue/Counting	Locking Memory	Non-Locking Memory
1-1	0	20	x				x
1-2	0	20	x				x
1-3	20	40	x				x
1-4	20	40	x				x
2-1	0	20			x		x
2-2	0	20			x		x
2-3	0	20	x				
2-4	315	20		x		x	
2-5	315	20		x		x	
3-1	0	20	x				x
3-2	0	20	x				x
3-3	20	40	x				x
3-4	20	40	x				x
4-1	0	20	x				x
4-2	0	20	x				x
4-3	20	40	x				x
4-4	20	40	x				x
5-1	0	20	x				x
5-2	20	40	x				x
6-1	0	20			x		x
6-2	0	20			x		x
6-3	275	20		x		x	
6-4	275	20		x		x	
7-1	0	20	x				x
7-2	20	40	x				x
8-1	0	20	x				x
8-2	0	20	x				
8-3	195	20		x		x	

Note: If video detection zones cannot be placed at distance described above (whether due to vertical of horizontal curvature), place at maximum extent feasible.

Signals

Video Detection Layout
Site 1

S 42nd St & 7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

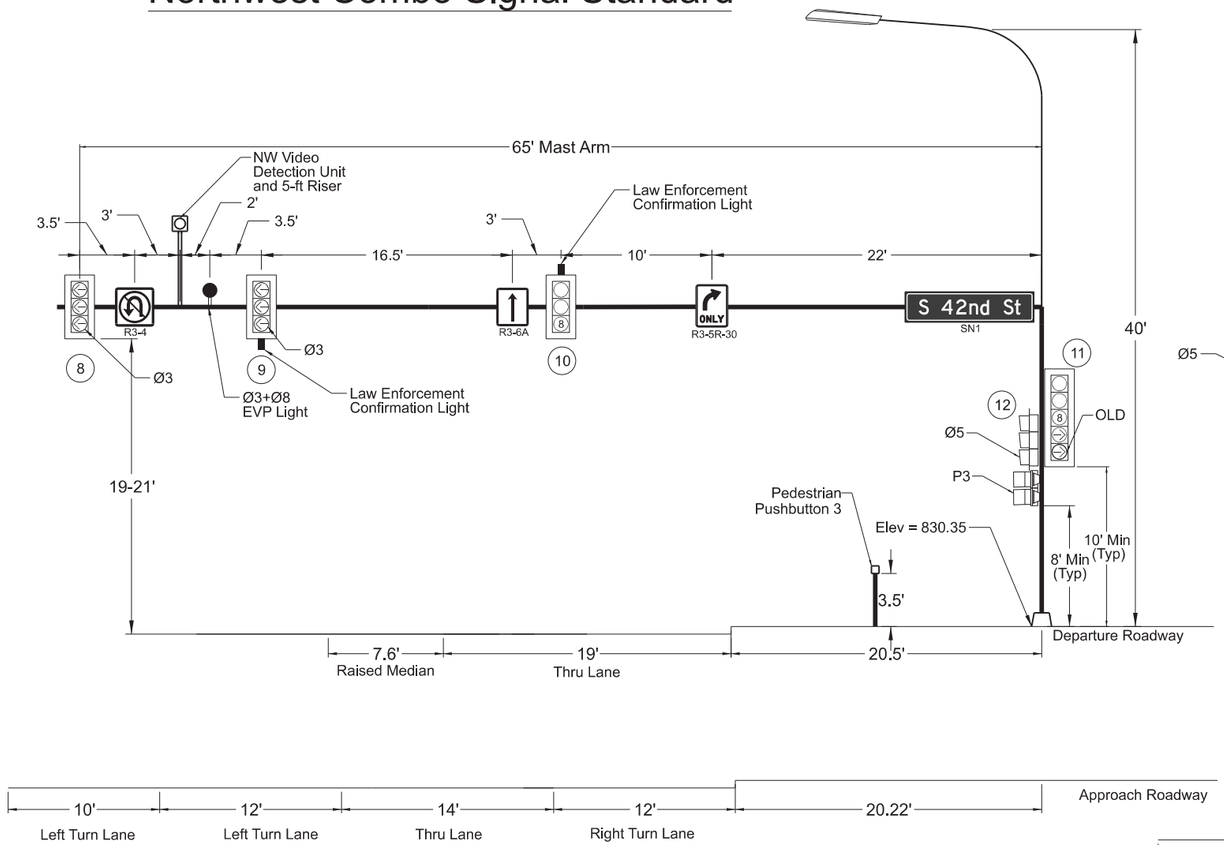
Grand Forks County

Grand Forks, ND

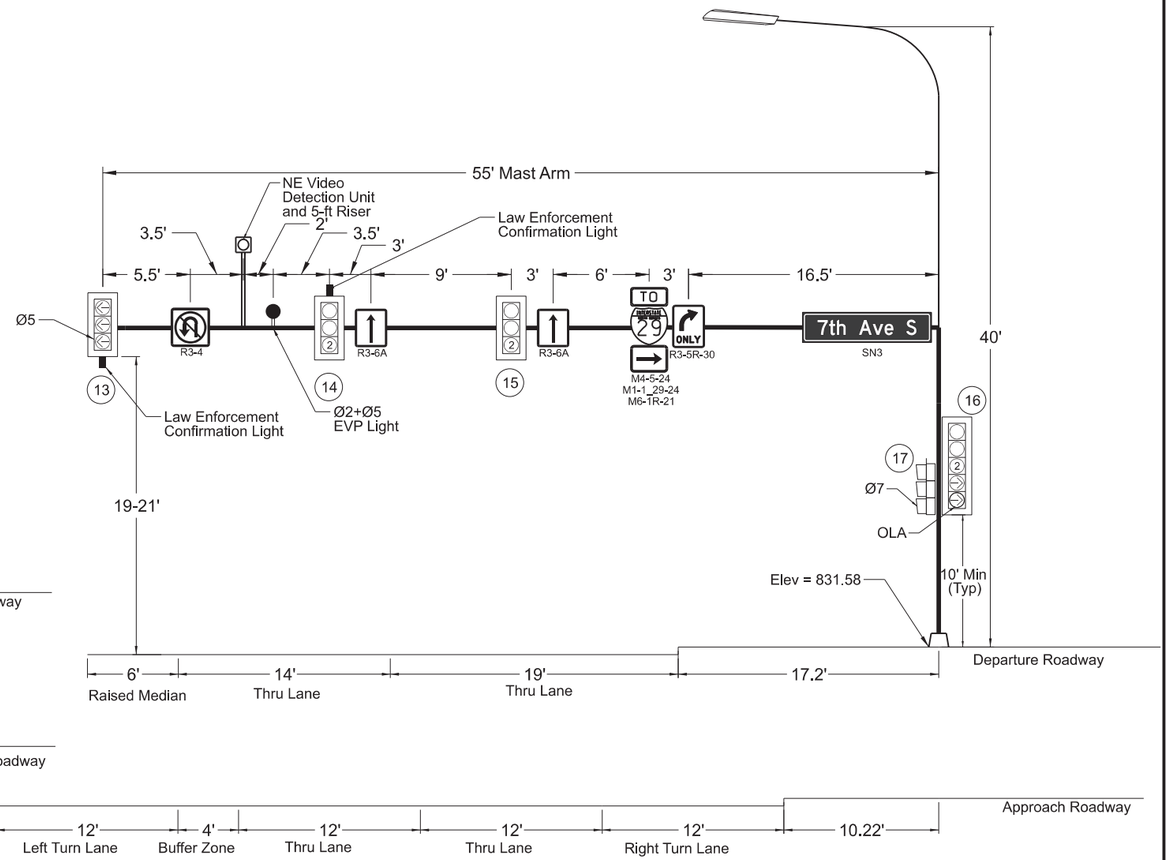
REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-40917
DATE: 2025.12.04 09:21:32 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	150	8

Northwest Combo Signal Standard



Northeast Combo Signal Standard



Westbound

Northbound

Signals

Signal Standards & Head Locations
Site 1

S 42nd St & 7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

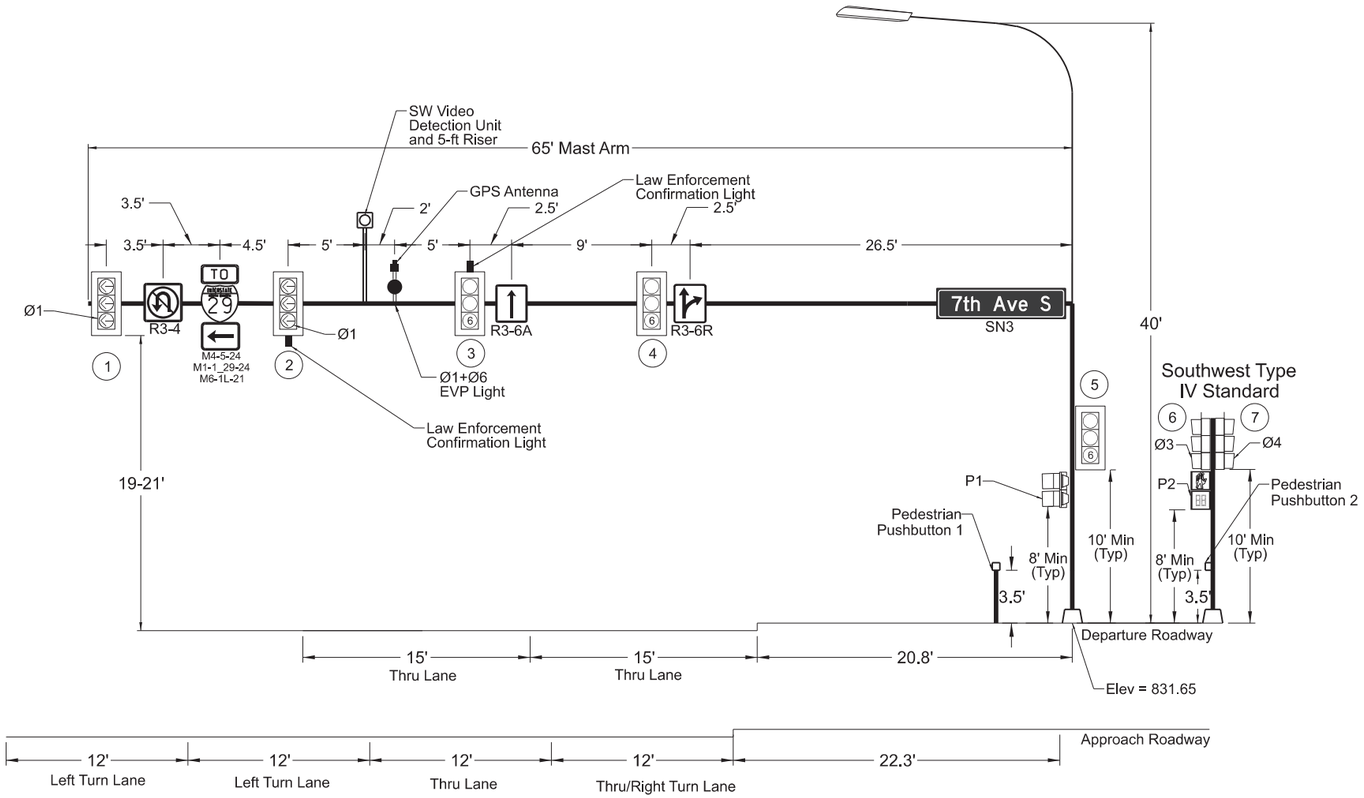
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-40917
DATE: 2025.12.04 09:22:44 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	150	9

Southwest Combo Signal Standard



Southbound

Signals

Signal Standards & Head Locations
Site 1

S 42nd St & 7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

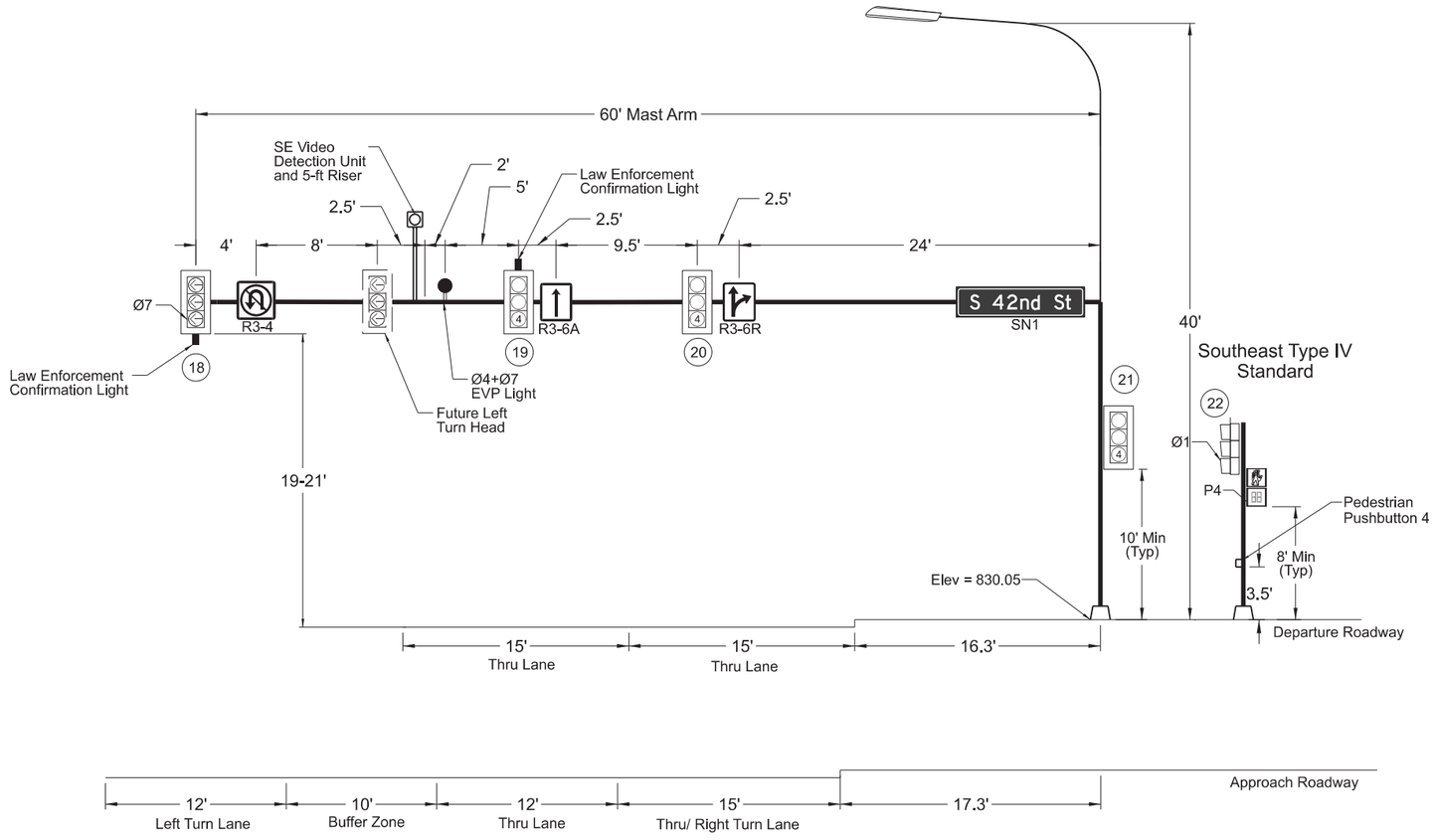
Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-40917
DATE: 2025.12.04 09:23:06 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	150	10

Southeast Combo Signal Standard



Eastbound

Signals

Signal Standards & Head Locations
Site 1

S 42nd St & 7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-40917
DATE: 2025.12.04 09:23:26 -06'00'
NORTH DAKOTA

	Phase 1								Phase 2								Phase 3								Phase 4								Phase 5								Phase 6								Phase 7								Phase 8							
								OLD															OLA																																									
	Southbound Left								Northbound								Westbound Left								Eastbound								Northbound Left								Southbound								Eastbound Left								Westbound							
Head Number	R W	Clear to Phase								R W	Clear to Phase								R W	Clear to Phase								R W	Clear to Phase								R W	Clear to Phase								R W	Clear to Phase								R W	Clear to Phase						
		2	3	4	5	6	7	8		3	4	5	6	7	8	1		4	5	6	7	8	1	2		5	6	7	8	1	2	3		6	7	8	1	2	3	4		7	8	1	2	3	4	5		8	1	2	3	4	5	6		1	2	3	4	5	6	7
1	GL	YL	YL	YL	N	N	YL	YL																																																								
2	GL	YL	YL	YL	N	N	YL	YL																																																				
3																																										G	Y	Y	N	N	Y	Y	Y																
4																																										G	Y	Y	N	N	Y	Y	Y																
5																																										G	Y	Y	N	N	Y	Y	Y																
6																	GL	YL	YL	YL	N	N	YL	YL																																									
7																									G	Y	Y	N	N	Y	Y	Y																																									
8																	GL	YL	YL	YL	N	N	YL	YL																																									
9																	GL	YL	YL	YL	N	N	YL	YL																																									
10																																																											G	Y	Y	N	N	Y	Y	Y
11	GR	YR	YR	YR	N	N	YR	YR																																																			G	Y	Y	N	N	Y	Y	Y
12																																	GL	YL	YL	YL	N	N	YL	YL																												
13																																	GL	YL	YL	YL	N	N	YL	YL																												
14									G	Y	Y	N	N	Y	Y	Y																																																	
15									G	Y	Y	N	N	Y	Y	Y																																															
16									G	Y	Y	N	N	Y	Y	Y	GR	YR	YR	YR	N	N	YR	YR																																									
17																																																										GL	YL	YL	YL	N	N	YL	YL							
18																																																										GL	YL	YL	YL	N	N	YL	YL							
19																									G	Y	Y	N	N	Y	Y	Y																																									
20																									G	Y	Y	N	N	Y	Y	Y																																									
21	GL	YL	YL	YL	N	N	YL	YL																																																																								

Blank Spares Denote a 'Red" Indication
G = Green Ball Indication
Y = Yellow Ball Indication
GL = Green Left Arrow Indication
YL = Yellow Left Arrow Indication
GR = Green Right Arrow Indication
YR = Yellow Right Arrow Indication

N = Continue to Display Right-of-Way Indication.
When any phase is on alone, any non-conflicting phase may start timing without a clearance interval.
See Chart A.

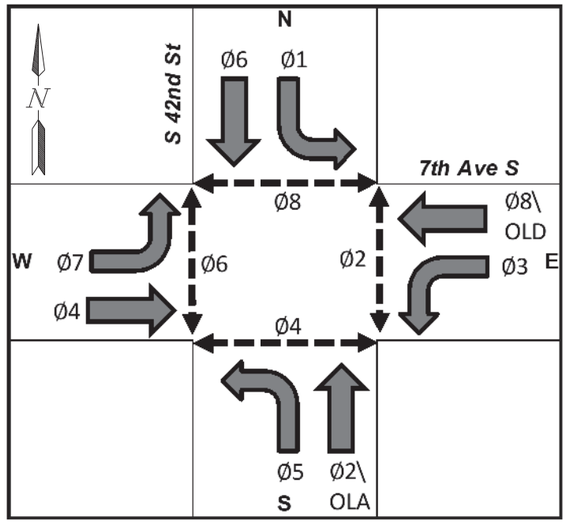
Do not allow Flashing Yellow Arrow (FYA) during Emergency Vehicle Preemption

Phase	Non-Conflicting Phase Allowed to Time
1	5, 6
2	5, 6
3	7, 8
4	7, 8
5	1, 2
6	1, 2
7	3, 4
8	3, 4

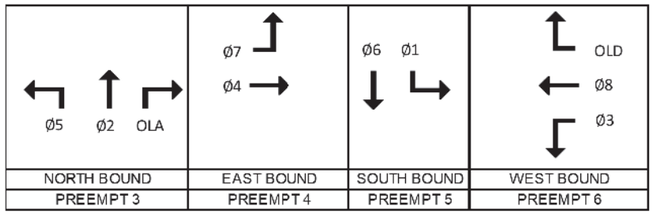
Conductor			Cable NWS1 NW Combo Signal 12 No. 14 AWG		Cable NWS2 NW Combo Signal 12 No. 14 AWG		Cable SES1 SE Combo Signal 12 No. 14 AWG		Cable SEP SE Type IV Signal Std 12 No. 14 AWG	
	Base	Tracer	Head	Indication	Head	Indication	Head	Indication	Head	Indication
1	Black		P3	Ø6 Walk		Spare		Spare	P4	Ø4 Walk
2	White			Neutral		Neutral		Neutral		Neutral
3	Red		8, 9	Ø3 Red←	10, 11	Ø8 Red	19, 20, 21	Ø4 Red	22	Ø1 Red←
4	Green			Spare		Ground		Ground		Ground
5	Orange		8, 9	Ø3 Yellow←	10, 11	Ø8 Yellow	19, 20, 21	Ø4 Yellow	22	Ø1 Yellow←
6	Blue		8, 9	Ø3 Green←	10, 11	Ø8 Green	19, 20, 21	Ø4 Green	22	Ø1 Green←
7	White	Black	P3	Ø6 Don't Walk		Spare		Spare	P4	Ø4 Don't Walk
8	Red	Black	12	Ø5 Red←		Spare	18	Ø7 Red←		Spare
9	Green	Black		Spare		Spare		Spare		Spare
10	Orange	Black	12	Ø5 Yellow←	11	OLD Yellow→	18	Ø7 Yellow←		Spare
11	Blue	Black	12	Ø5 Green←	11	OLD Green→	18	Ø7 Green←		Spare
12	Black	White		Spare		Spare		Spare		Spare

Conductor			Cable SWS1 SW Combo Signal 12 No. 14 AWG		Cable SWP SW Type IV Signal Std 12 No. 14 AWG		Cable NES1 NE Combo Signal 12 No. 14 AWG		Cable NES2 NE Combo Signal 12 No. 14 AWG	
	Base	Tracer	Head	Indication	Head	Indication	Head	Indication	Head	Indication
1	Black		P1	Ø4 Walk	P2	Ø6 Walk		Spare		Spare
2	White			Neutral		Neutral		Neutral		Neutral
3	Red		3, 4, 5	Ø6 Red	7	Ø4 Red	13	Ø5 Red←	14, 15, 16	Ø2 Red
4	Green			Ground		Ground		Ground		Ground
5	Orange		3, 4, 5	Ø6 Yellow	7	Ø4 Yellow	13	Ø5 Yellow←	14, 15, 16	Ø2 Yellow
6	Blue		3, 4, 5	Ø6 Green	7	Ø4 Green	13	Ø5 Green←	14, 15, 16	Ø2 Green
7	White	Black	P1	Ø4 Don't Walk	P2	Ø6 Don't Walk		Spare		Spare
8	Red	Black	1, 2	Ø1 Red←	6	Ø3 Red←	17	Ø7 Red←		Spare
9	Green	Black		Ground		Spare		Spare		Spare
10	Orange	Black	1, 2	Ø1 Yellow←	6	Ø3 Yellow←	17	Ø7 Yellow←	16	OLA Yellow→
11	Blue	Black	1, 2	Ø1 Green←	6	Ø3 Green←	17	Ø7 Green←	16	OLA Green→
12	Black	White		Spare		Spare		Spare		Spare

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	150	11



EMERGENCY VEHICLE PRE-EMPTION DWELL PHASINGS



RIGHT TURN OVERLAPS		
OVERLAP	INCLUDED PHASES	PROTECTED PED PHASES
A	2 & 3	2
D	1& 8	8

Signals

Controller Phasing & Conductors
Site 1

S 42nd St & 7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBELL
PE-40917
DATE: 2025.12.04 09:24:13 -06'00'
NORTH DAKOTA

12/3/2025 9:39:41 AM Jordan.reihe H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\150SL_011_DSIGDET_1.dgn

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	150	12

SIGNAL CABLE & CONDUIT SCHEDULE

#	RUN ITEM		CONDUIT SIZE (IN)	CONDUIT LF	CABLE Origin	Destination	# of Cables	SIZE/TYPE	Total LF	TITLE
1	Origin	Feed Point	2	18	Feed Point	Traffic Signal Controller	2	UNDERGROUND CONDUCTOR NO6-TYPE RHW	74	
	Destination	Traffic Signal Controller			Feed Point	Traffic Signal Controller	1	UNDERGROUND CONDUCTOR NO6-TYPE THW	37	
2	*Origin*	Traffic Signal Controller	2-4	26	Traffic Signal Controller	Pull Box 6	3	14 AWG 12 CONDUCTOR CABLE	123	SES1, SWS1, SEP
	Destination	Pull Box 6			Traffic Signal Controller	Pull Box 6	2	16 AWG 2 CONDUCTOR CABLE	82	PB4, PB1
					Traffic Signal Controller	Pull Box 6	2	VIDEO DETECTION CABLE	82	SEV, SWV
					Traffic Signal Controller	Pull Box 6	2	14 AWG 2 CONDUCTOR CABLE	82	EL47, EL16
					Traffic Signal Controller	Pull Box 6	1	EMERGENCY VEHICLE DETECTION CABLE	41	ED
3	*Origin*	Pull Box 6	4	28	Pull Box 6	Southwest Combo Signal Std Transformer Base	1	14 AWG 12 CONDUCTOR CABLE	39	SWS1
	Destination	Southwest Combo Signal Std Transformer Base			Pull Box 6	Southwest Video Detection Unit	1	VIDEO DETECTION CABLE	106	SWV
					Pull Box 6	Southwest Emergency Preemption Light	1	14 AWG 2 CONDUCTOR CABLE	104	EL16
					Pull Box 6	Southwest Emergency Preemption Detector	1	EMERGENCY VEHICLE DETECTION CABLE	104	ED
4	*Origin*	Pull Box 6	2	28	Pull Box 6	Pushbutton 1	1	16 AWG 2 CONDUCTOR CABLE	42	PB1
	Destination	Southwest Pushbutton Post 1								
5	*Origin*	Pull Box 6	2-4	126	Pull Box 6	Pull Box 5	2	14 AWG 12 CONDUCTOR CABLE	276	SES1, SEP
	Destination	Pull Box 5			Pull Box 6	Pull Box 5	1	16 AWG 2 CONDUCTOR CABLE	138	PB4
					Pull Box 6	Pull Box 5	1	VIDEO DETECTION CABLE	138	SEV
					Pull Box 6	Pull Box 5	1	14 AWG 2 CONDUCTOR CABLE	138	EL47
6	*Origin*	Pull Box 5	2	30	Pull Box 5	Southeast Type IV Signal Std Transformer Base	1	14 AWG 12 CONDUCTOR CABLE	41	SEP
	Destination	Southeast Type II Std Transformer Base			Pull Box 5	Southeast Type IV Signal Std Transformer Base	1	16 AWG 2 CONDUCTOR CABLE	41	PB4
7	*Origin*	Pull Box 5	4	36	Pull Box 5	Southeast Combo Signal Std Transformer Base	1	14 AWG 12 CONDUCTOR CABLE	47	SES1
	Destination	Southeast Combo Signal Std Transformer Base			Pull Box 5	Southeast Video Detection Unit	1	VIDEO DETECTION CABLE	112	SEV
					Pull Box 5	Southeast Emergency Preemption Light	1	14 AWG 2 CONDUCTOR CABLE	110	EL47
8	*Origin*	Pull Box 5	2-4	142	Pull Box 5	Pull Box 4		FUTURE		
	Destination	Pull Box 4								
9	*Origin*	Pull Box 4	4	5	Pull Box 4	Northeast Combo Signal Std Transformer Base	2	14 AWG 12 CONDUCTOR CABLE	32	NES1, NES2
	Destination	Northeast Combo Signal Std Transformer Base			Pull Box 4	Northeast Video Detection Unit	1	VIDEO DETECTION CABLE	81	NEV
					Pull Box 4	Northeast Emergency Preemption Light	1	14 AWG 2 CONDUCTOR CABLE	79	EL25
10	*Origin*	Pull Box 3	2-4	110	Pull Box 3	Pull Box 4	2	14 AWG 12 CONDUCTOR CABLE	244	NES1, NES2
	Destination	Pull Box 4			Pull Box 3	Pull Box 4	1	VIDEO DETECTION CABLE	122	NEV
					Pull Box 3	Pull Box 4	1	14 AWG 2 CONDUCTOR CABLE	122	EL25
11	*Origin*	Traffic Signal Controller	2-4	14	Traffic Signal Controller	Pull Box 1	5	14 AWG 12 CONDUCTOR CABLE	145	NWS1, NWS2, NES1, NES2, SWP
	Destination	Pull Box 1			Traffic Signal Controller	Pull Box 1	2	16 AWG 2 CONDUCTOR CABLE	58	PB3, PB2
					Traffic Signal Controller	Pull Box 1	2	VIDEO DETECTION CABLE	58	NWV, NEV
					Traffic Signal Controller	Pull Box 1	2	14 AWG 2 CONDUCTOR CABLE	58	EL38, EL 25
12	*Origin*	Pull Box 1	2	10	Pull Box 1	Pushbutton 2	1	16 AWG 2 CONDUCTOR CABLE	24	PB2
	Destination	Southwest Type IV Signal Std Transformer Base			Pull Box 1	Southwest Type IV Signal Std Transformer Base	1	14 AWG 12 CONDUCTOR CABLE	21	SWP
13	*Origin*	Pull Box 1	2-4	88	Pull Box 1	Pull Box 2	4	14 AWG 12 CONDUCTOR CABLE	400	NWS1, NWS2, NES1, NES2
	Destination	Pull Box 2			Pull Box 1	Pull Box 2	1	16 AWG 2 CONDUCTOR CABLE	100	PB3
					Pull Box 1	Pull Box 2	2	VIDEO DETECTION CABLE	200	NWV, NEV
					Pull Box 1	Pull Box 2	2	14 AWG 2 CONDUCTOR CABLE	200	EL38, EL25
14	*Origin*	Pull Box 2	2	17	Pull Box 2	Pushbutton 3	1	16 AWG 2 CONDUCTOR CABLE	31	PB3
	Destination	Northwest Pushbutton Post								
15	*Origin*	Pull Box 2	4	29	Pull Box 2	Northwest Combo Signal Std Transformer Base	2	14 AWG 12 CONDUCTOR CABLE	80	NWS1, NWS2
	Destination	Northwest Combo Signal Std Transformer Base			Pull Box 2	Northwest Video Detection Unit	1	VIDEO DETECTION CABLE	116	NWV
					Pull Box 2	Northwest Emergency Preemption Light	1	14 AWG 2 CONDUCTOR CABLE	114	EL38
16	*Origin*	Pull Box 2	4	67	Pull Box 2	Pull Box 3	2	14 AWG 12 CONDUCTOR CABLE	158	NES1, NES2
	Destination	Pull Box 3			Pull Box 2	Pull Box 3	1	VIDEO DETECTION CABLE	79	NEV
					Pull Box 2	Pull Box 3	1	14 AWG 2 CONDUCTOR CABLE	79	EL25
17	Origin	Transformer	2	282	Transformer	Feedpoint	2	UNDERGROUND CONDUCTOR 3/0-TYPE RHW	604	
	Destination	Feed Point			Transformer	Feedpoint	1	UNDERGROUND CONDUCTOR 3/0-TYPE THW	302	

SES1 = Southeast Combo Signal Standard Cable 1
SWS1 = Southwest Combo Signal Standard Cable 1
SEP = Southeast Type IV Signal Standard
SWP = Southwest Type IV Signal Standard
NES1 = Northeast Combo Signal Standard Cable 1
NES2 = Northeast Combo Signal Standard Cable 2
ED = EVP Detection Unit
EL16 = Ø1 + Ø6 EVP Light
EL25 = Ø2 + Ø5 EVP Light
EL38 = Ø3 + Ø8 EVP Light
EL47 = Ø4 + Ø7 EVP Light
SEV = Southeast Video Detection Unit
NEV = Northeast Video Detection Unit
NWV = Nothwest Video Detection Unit
SWV = Southwest Video Detection Unit
PB1 = Pushbutton 1
PB2 = Pushbutton 2
PB3 = Pushbutton 3
PB4 = Pushbutton 4

INTERNAL MAST ARM/STANDARD SIGNAL HEAD CABLE

Origin	Destination	# of Cables	SIZE/TYPE	Total LF	Origin	Destination	# of Cables	SIZE/TYPE	Total LF
Southwest Combo Signal Std Transformer Base	Vehicle Head 1	1	14 AWG 5 CONDUCTOR CABLE	93	Northwest Combo Pedestrian Std Transformer Base	Vehicle Head 8	1	14 AWG 5 CONDUCTOR CABLE	79
	Vehicle Head 2	1	14 AWG 5 CONDUCTOR CABLE	82		Vehicle Head 9	1	14 AWG 5 CONDUCTOR CABLE	68
	Vehicle Head 3	1	14 AWG 5 CONDUCTOR CABLE	70		Vehicle Head 10	1	14 AWG 5 CONDUCTOR CABLE	56
	Vehicle Head 4	1	14 AWG 5 CONDUCTOR CABLE	58		Vehicle Head 11	1	14 AWG 7 CONDUCTOR CABLE	20
	Vehicle Head 5	1	14 AWG 5 CONDUCTOR CABLE	20		Vehicle Head 12	1	14 AWG 5 CONDUCTOR CABLE	20
	Pedestrian Head 1	1	14 AWG 3 CONDUCTOR CABLE	17		Pedestrian Head 3	1	14 AWG 3 CONDUCTOR CABLE	17
Southwest Type IV Signal Std Transformer Base	Vehicle Head 6	1	14 AWG 5 CONDUCTOR CABLE	20	Northeast Combo Signal Std Transformer Base	Vehicle Head 13	1	14 AWG 5 CONDUCTOR CABLE	84
	Vehicle Head 7	1	14 AWG 5 CONDUCTOR CABLE	20		Vehicle Head 14	1	14 AWG 5 CONDUCTOR CABLE	71
	Pedestrian Head 2	1	14 AWG 3 CONDUCTOR CABLE	17		Vehicle Head 15	1	14 AWG 5 CONDUCTOR CABLE	59
Southeast Combo Signal Std Transformer Base	Vehicle Head 18	1	14 AWG 5 CONDUCTOR CABLE	89		Vehicle Head 16	1	14 AWG 7 CONDUCTOR CABLE	20
	Vehicle Head 19	1	14 AWG 5 CONDUCTOR CABLE	64		Vehicle Head 17	1	14 AWG 5 CONDUCTOR CABLE	20
	Vehicle Head 20	1	14 AWG 5 CONDUCTOR CABLE	20					
	Vehicle Head 21	1	14 AWG 5 CONDUCTOR CABLE	20					
Southeast Type IV Signal Std Transformer Base	Vehicle Head 22	1	14 AWG 5 CONDUCTOR CABLE	5					
	Pedestrian Head 4	1	14 AWG 3 CONDUCTOR CABLE	17					

Signals

Cable & Conduit Schedule
Site 1

S 42nd St & 7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

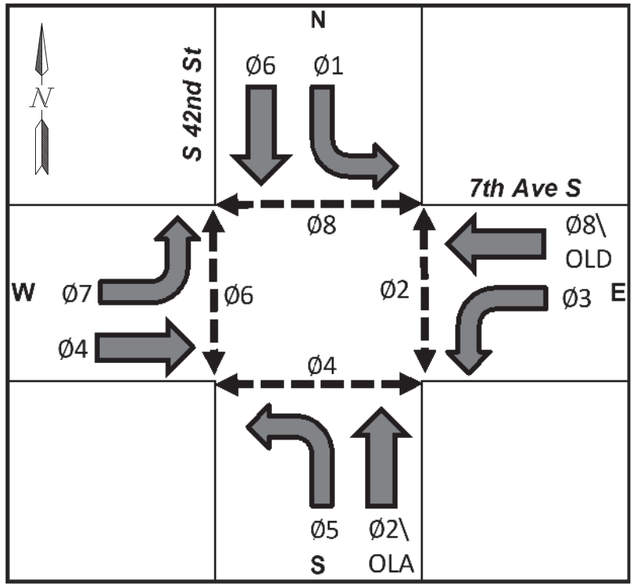
Grand Forks County

Grand Forks, ND

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DARRIN RICKBEIL
PE-40917
DATE: 2025.12.04 09:24:33 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	150	13

	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8
BASIC INTERVALS (OR FUNCTIONS)	Southbound Left	Northbound	Westbound Left	Eastbound	Northbound Left	Southbound	Eastbound Left	Westbound
Minimum Initial	5	10	5	5	5	10	5	5
Minimum Initial with Pedestrian Actuation*								
Passage Time	3	5	3	3	3	5	3	3
Max Green	25	45	25	30	25	45	25	30
Yellow Change	3	4	3	4	3	4	3	4
Red Clearance	3	3	3	3	3	3	3	3
Delayed Green								
Walk	-	7	-	7	-	7	-	7
Pedestrian Clearance	-	27	-	29	-	23	-	33
VOLUME DENSITY TIMING FUNCTIONS - ONLY APPLICABLE DURING "FREE" (UNCOORDINATED) TIMING PLAN								
Added Initial per Actuation								
Maximum Initial								
Time Before Reduction		25				25		
Time to Reduce to Minimum Gap		5				5		
Minimum Gap		3		3		3		3
OTHER CONTROLLER FUNCTIONS								
Recall		X				X		
Flashing-Normal & Conflict Monitor		R		R		R		R
Start Up Phasing		G				G		
Emergency Vehicle Pre-emption	X	X	X	X	X	X	X	X
Type of Detector: Presence	Refer to Detector Zone Table							
Type of Detector: Queue								
Type of Detector: Passage								
Locking Memory								
Non-Locking Memory								



Signals

Basic Signal Timings
Site 1

S 42nd St & 7th Ave S

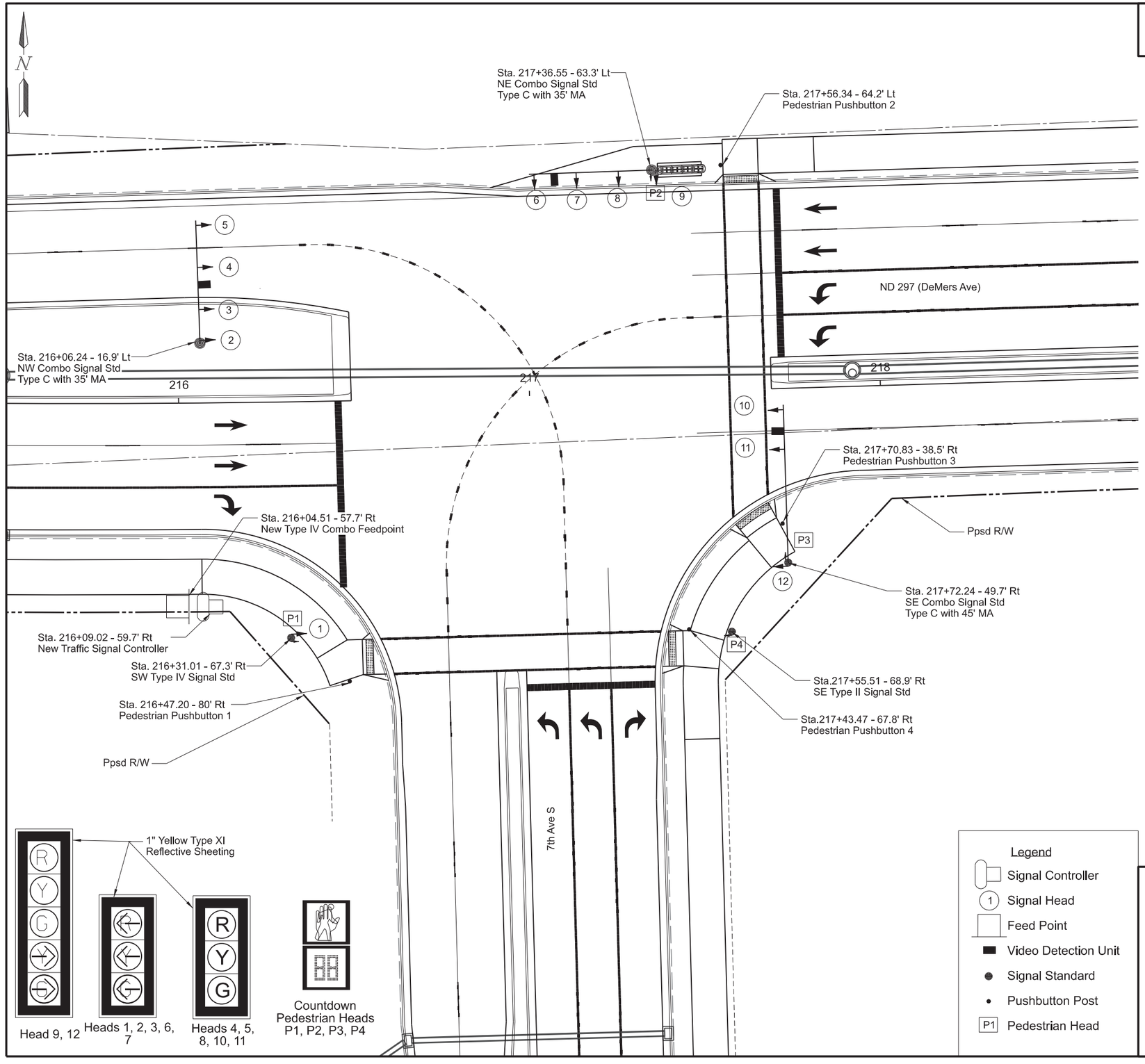
ND 297 (DeMers Ave) & 42nd St Grade Separation

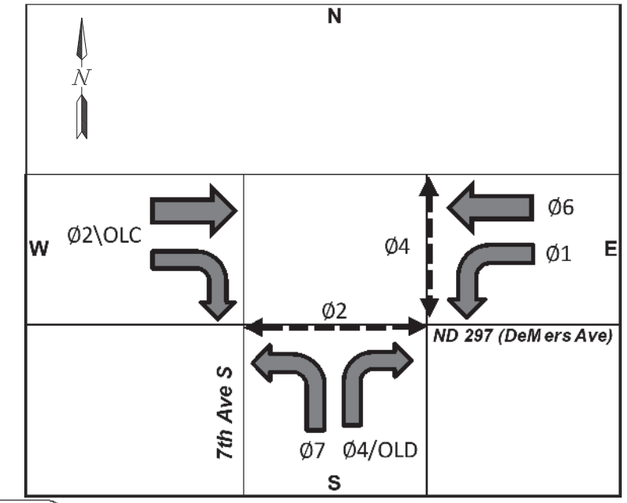
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	ND	RCE-FTF-NHU-SU-6-297(014)000	150	14







Sign R10-3E

Pedestrian Pushbutton Schedule

Location	Pushbutton & Sign Location on Pole	Direction of Arrow on Sign	Message of Roadway to Cross
Pushbutton 1	North	Left	"7th Ave S"
Pushbutton 2	East	Left	"DeMers Ave"
Pushbutton 3	West	Left	"DeMers Ave"
Pushbutton 4	South	Left	"7th Ave S"

Legend

- Signal Controller
- (1) Signal Head
- Feed Point
- Video Detection Unit
- Signal Standard
- Pushbutton Post
- P1 Pedestrian Head

Signals

Traffic Signal Layout
Site 2

ND 297 (DeMers Ave) & 7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

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NORTH DAKOTA

12/3/2025 9:39:51 AM jordan.reihe H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\150SL_014_LSGNL_2.dgn

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	150	15

N

Sta. 217+36.55 - 63.3' Lt
NE Combo Signal Std
Type C with 35' MA

Sta. 216+05.99 - 64.5' Lt
Pullbox 3

Sta. 217+56.34 - 64.2' Lt
Pedestrian Pushbutton 2

Sta. 217+31.30 - 63.4' Lt
Pullbox 4

ND 297 (DeMers Ave)

Sta. 216+06.38 - 16.9' Lt
NW Combo Signal Std
Type C with 35' MA

Sta. 216+11.84 - 15.2' Lt
Pullbox 2

215+00

216+00

217+00

Sta. 217+70.83 - 38.5' Rt
Pedestrian Pushbutton 3

Sta. 217+72.24 - 49.7' Rt
SE Combo Signal Std
Type C with 45' MA

Sta. 216+08.09 - 41' Rt
Pullbox 1

Sta. 216+09.02 - 59.7' Rt
New Traffic Signal Controller

Sta. 216+04.51 - 57.7' Rt
New Feedpoint

Sta. 216+45.04 - 59' Rt
Pullbox 6

Sta. 217+43.25 - 59.5' Rt
Pullbox 5

Sta. 217+55.51 - 68.9' Rt
SE Type II Signal Std

Sta. 216+31.01 - 67.3' Rt
SW Type IV Signal Std

Sta. 216+47.20 - 80' Rt
Pedestrian Pushbutton 1

7th Ave S

Sta. 217+43.47 - 67.8' Rt
Pedestrian Pushbutton 4

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

Legend

- Signal Controller
- (1) Signal Head
- Feed Point
- Video Detection Unit
- Signal Standard
- Pushbutton Post
- P1 Pedestrian Head

Signals

Conduit Layout
Site 2

ND 297 (DeMers Ave) & 7th Ave S

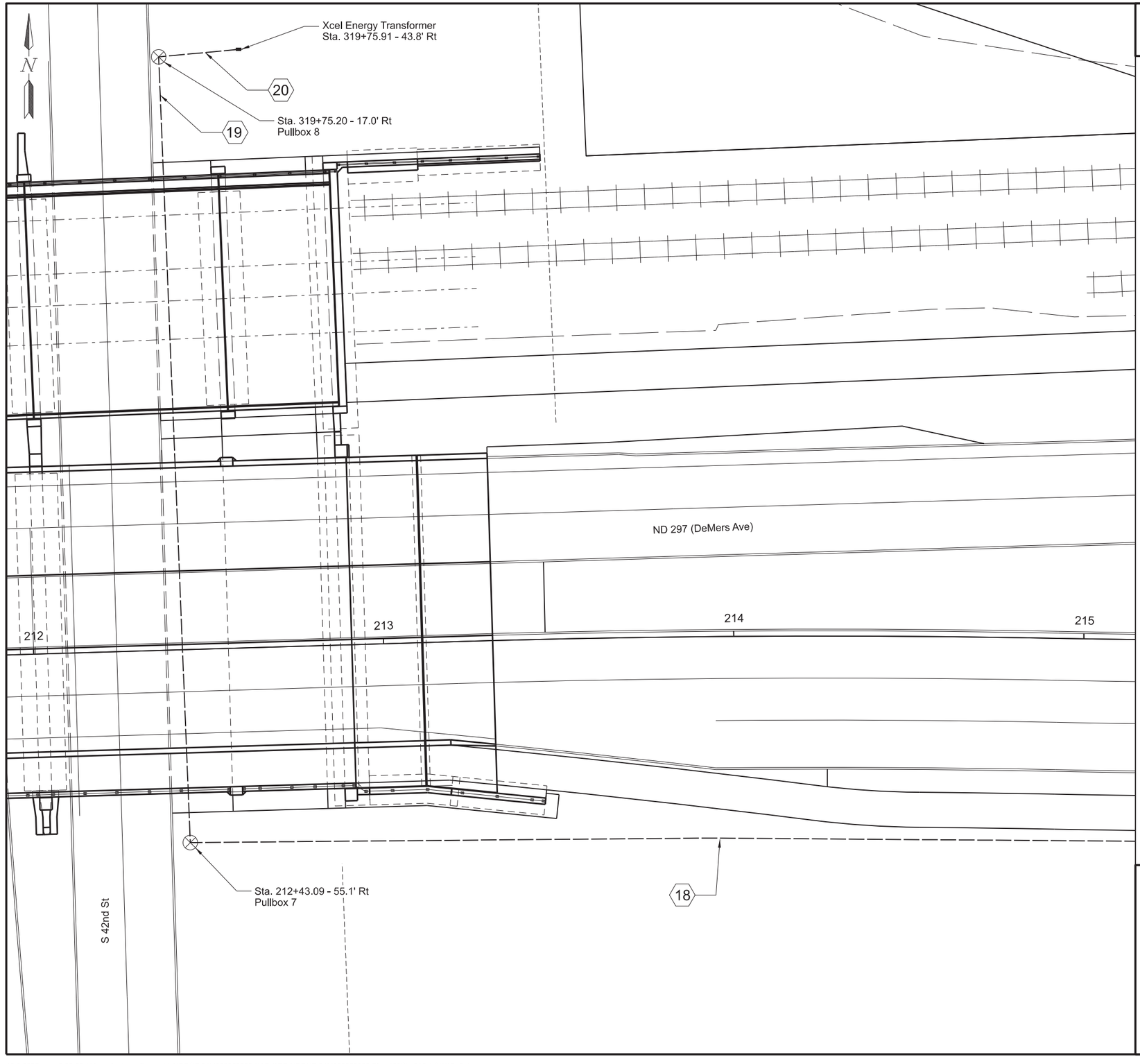
ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

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NORTH DAKOTA

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	150	16

Note:
1. Supply run from pole to cabinet is in a seperate conduit from the street light conduit

2. Include a tracer wire for conduit 18, 19 and 20.

Signals

Feed Point Service Conduit Layout 2
Site 2

ND 297 (DeMers Ave) & 7th Ave S

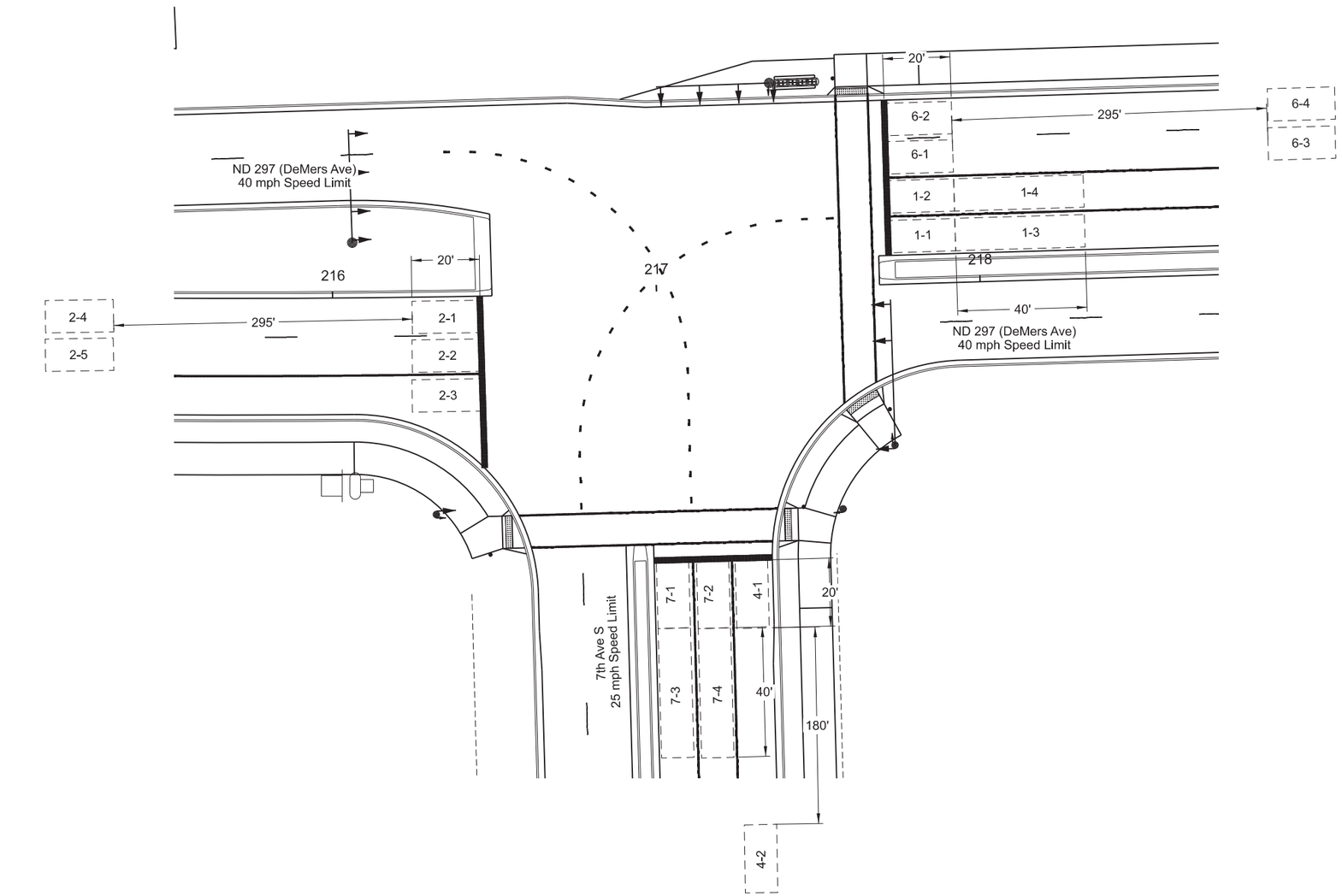
ND 297 (DeMers Ave) & 42nd St Grade Separation

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NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	150	17



Phase Number	Distance from Stop Bar (Feet)	Length (Feet)	Presence/Counting	Passage/Counting	Queue/Counting	Locking Memory	Non-Locking Memory
1-1	0	20	x				x
1-2	0	20	x				x
1-3	20	40	x				x
1-4	20	40	x				x
2-1	0	20			x		x
2-2	0	20			x		x
2-3	0	20	x				
2-4	315	20		x		x	
2-5	315	20		x		x	
4-1	0	20	x				x
4-2	200	20		x		x	
6-1	0	20			x		x
6-2	0	20			x		x
6-3	315	20		x		x	
6-4	315	20		x		x	
7-1	0	20	x				x
7-2	0	20	x				x
7-3	20	40	x				x
7-4	20	40	x				x

Note: If video detection zones cannot be placed at distance described above (whether due to vertical of horizontal curvature), place at maximum extent feasible.

Signals

Video Detection Layout
Site 2

ND 297 (DeMers Ave) & 7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

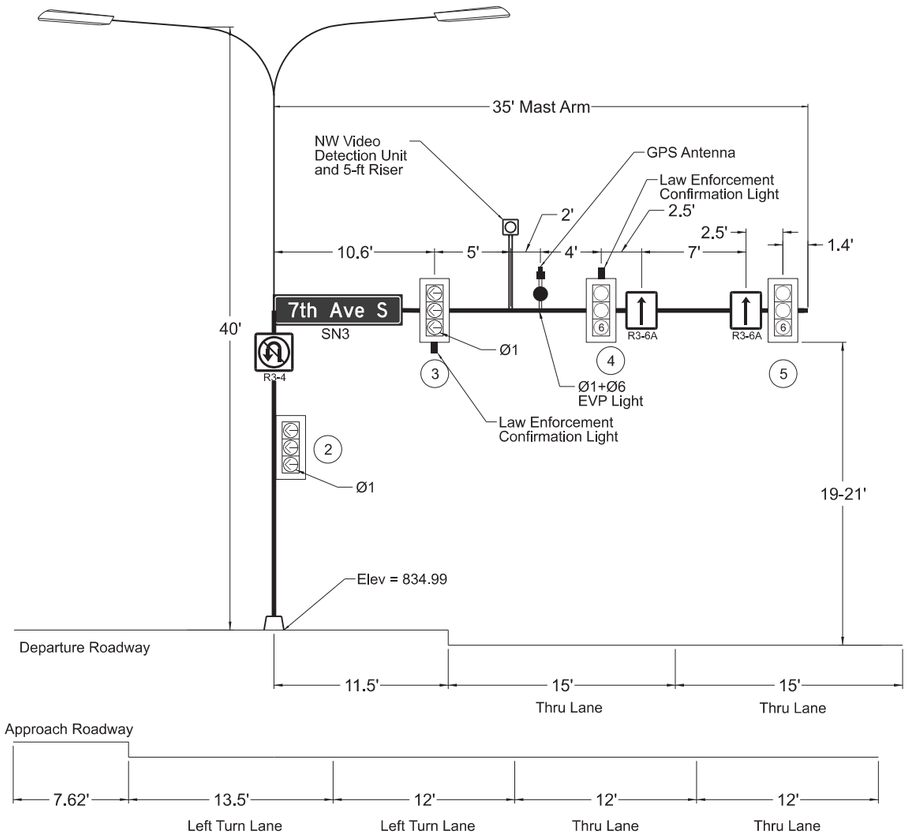
Grand Forks County

Grand Forks, ND

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NORTH DAKOTA

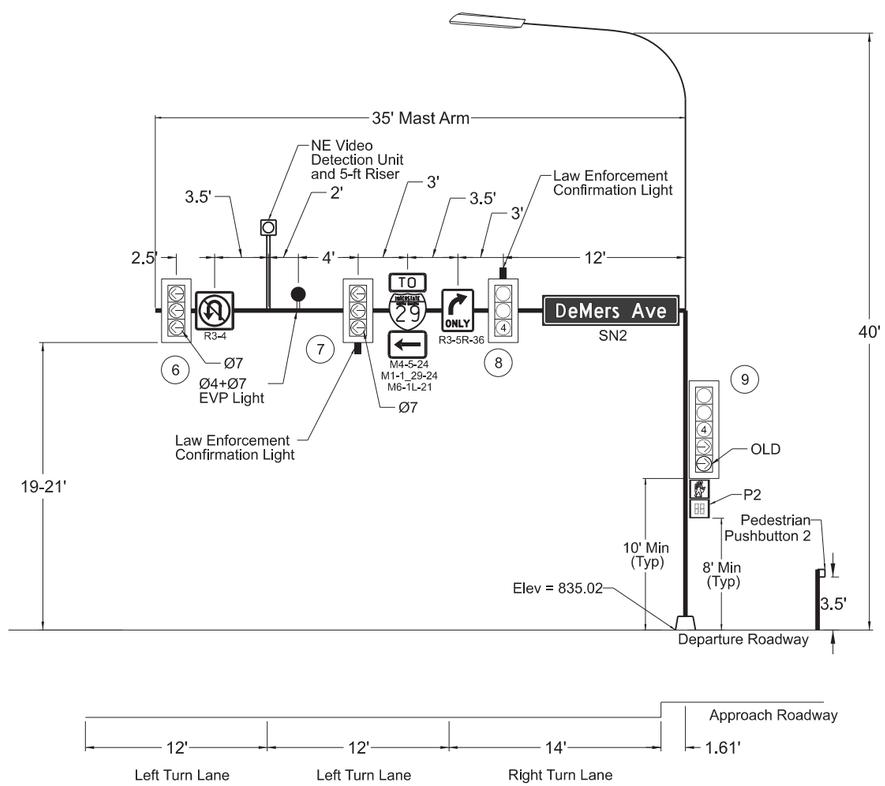
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	ND	RCE-FTF-NHU-SU-6-297(014)000	150	18

Northwest Combo Signal Standard



Westbound

Northeast Combo Signal Standard



Northbound

Signals

Signal Standards & Head Locations
Site 2

ND 297 (DeMers Ave) & 7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

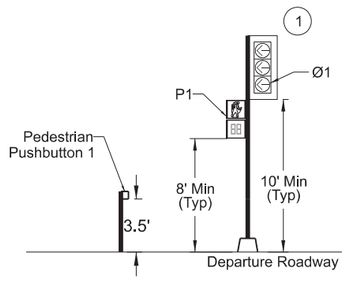
Grand Forks County

Grand Forks, ND

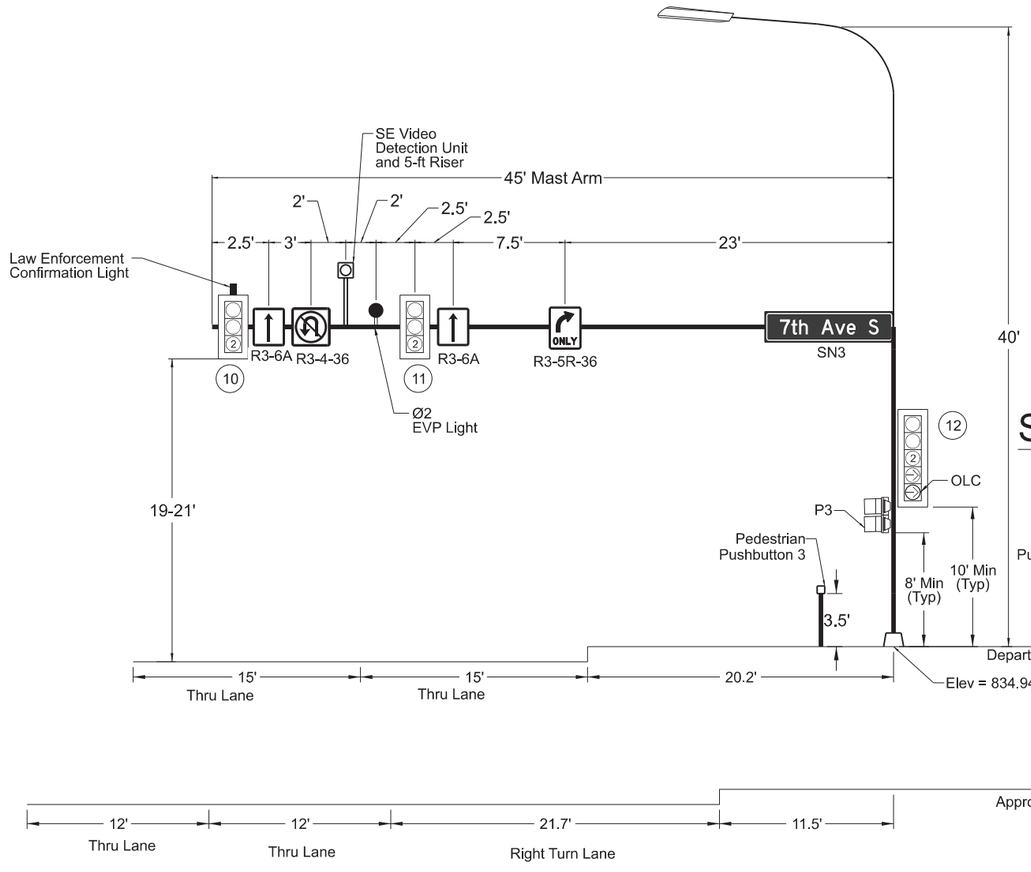
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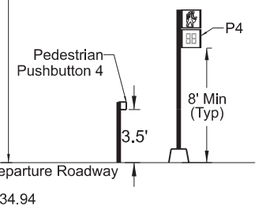
Southwest Type IV Standard



Southeast Combo Signal Standard



Southeast Type II Standard



Eastbound

Signals

Signal Standards & Head Locations
Site 2

ND 297 (DeMers Ave) & 7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

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NORTH DAKOTA

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	ND	RCE-FTF-NHU-SU-6-297(014)000	150	20

	Phase 1								Phase 2							Phase 4							Phase 6							Phase 7						
						OLD																								OLC						
	Westbound Left								Eastbound							Northbound							Westbound							Southbound Left						
Head Number	R W	Clear to Phase							R W	Clear to Phase						R W	Clear to Phase						R W	Clear to Phase						R W	Clear to Phase					
1	GL	YL		YL		N	YL																													
2	GL	YL		YL		N	YL																													
3	GL	YL		YL		N	YL																													
4																							G	Y		N	N		Y							
5																							G	Y		N	N		Y							
6																														GL		YL	YL		N		YL
7																														GL		YL	YL		N		YL
8																G		Y	N		Y	Y														
9	GR	YR		YR		N	YR									G		Y	N		Y	Y														
10									G		Y		N	Y		Y																				
11									G		Y		N	Y		Y																				
12									G		Y		N	Y		Y														GR		YR	YR		N		YR

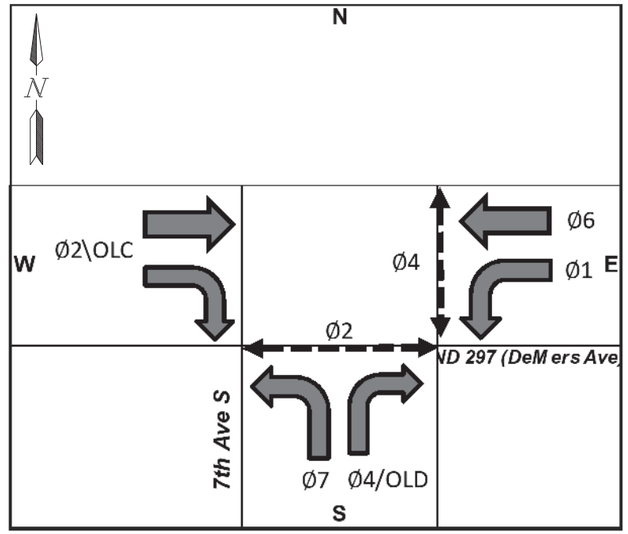
Blank Spares Denote a 'Red" Indication
G = Green Ball Indication
Y = Yellow Ball Indication
GL = Green Left Arrow Indication
YL = Yellow Left Arrow Indication
GR = Green Right Arrow Indication
YR = Yellow Right Arrow Indication

Chart A	
Phase	Non-Conflicting Phase Allowed to Time
1	6
2	6
4	7
6	1
7	4

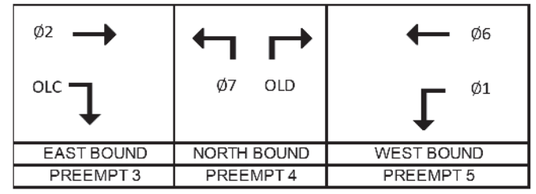
N = Continue to Display Right-of-Way Indication.
When any phase is on alone, any non-conflicting phase may start timing without a clearance interval.
See Chart A.

Conductor			Cable SES1 SE Combo Signal 12 No. 14 AWG		Cable SEP SE Type II Ped Signal 12 No. 14 AWG		Cable SWP SW Type IV Ped Signal 12 No. 14 AWG	
Base		Tracer	Head	Indication	Head	Indication	Head	Indication
1	Black		P3	Ø4 Walk	P4	Ø4 Walk	P1	Ø4 Walk
2	White			Neutral		Neutral		Neutral
3	Red		10, 11, 12	Ø2 Red		Spare	1	Ø1 Red↰
4	Green			Ground		Ground		Ground
5	Orange		10, 11, 12	Ø2 Yellow		Spare	1	Ø1 Yellow↰
6	Blue		10, 11, 12	Ø2 Green		Spare	1	Ø1 Green↰
7	White	Black	P3	Ø4 Don't Walk	P4	Ø4 Don't Walk	P1	Ø4 Don't Walk
8	Red	Black		Spare		Spare		Spare
9	Green	Black		Spare		Spare		Spare
10	Orange	Black	12	OLC Yellow→		Spare		Spare
11	Blue	Black	12	OLC Green→		Spare		Spare
12	Black	White		Spare		Spare		Spare

Conductor			Cable NWS1 NW Combo Signal 12 No. 14 AWG		Cable NES2 NE Combo Signal 12 No. 14 AWG		Cable NES1 NE Combo Signal 12 No. 14 AWG	
Base		Tracer	Head	Indication	Head	Indication	Head	Indication
1	Black			Spare		Spare	P2	Ø4 Walk
2	White			Neutral		Spare		Neutral
3	Red		4, 5	Ø6 Red	8, 9	Ø4 Red		Spare
4	Green			Ground		Ground		Ground
5	Orange		4, 5	Ø6 Yellow	8, 9	Ø4 Yellow		Spare
6	Blue		4, 5	Ø6 Green	8, 9	Ø4 Green		Spare
7	White	Black		Spare		Spare	P2	Ø4 Don't Walk
8	Red	Black	2, 3	Ø1 Red←		Spare	6, 7	Ø7 Red←
9	Green	Black		Spare		Spare		Spare
10	Orange	Black	2, 3	Ø1 Yellow←	9	OLD Yellow→	6, 7	Ø7 Yellow←
11	Blue	Black	2, 3	Ø1 Green←	9	OLD Green→	6, 7	Ø7 Green←
12	Black	White		Spare		Spare		Spare



EMERGENCY VEHICLE PRE-EMPTION DWELL PHASINGS



RIGHT TURN OVERLAPS		
OVERLAP	INCLUDED PHASES	PROTECTED PED PHASES
C	2 & 7	2
D	1 & 4	4

Signals

Controller Phasing & Conductors
Site 2

ND 297 (DeMers Ave) & 7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN L. RICKBEIL
PE-40917
DATE: 2025.12.04 09:27:39 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	150	21

SIGNAL CABLE & CONDUIT SCHEDULE

RUN			CONDUIT		CABLE					
#	ITEM		SIZE (IN)	LF	Origin	Destination	# of Cables	SIZE/TYPE	Total LF	TITLE
1	Origin Destination	Feed Point Traffic Signal Controller	2	3	Feed Point Feed Point	Traffic Signal Controller Traffic Signal Controller	2 1	UNDERGROUND CONDUCTOR NO6-TYPE RHW UNDERGROUND CONDUCTOR NO6-TYPE THW	46 23	
2	*Origin* *Destination*	Traffic Signal Controller Pull Box 6	2-4	35	Traffic Signal Controller Traffic Signal Controller Traffic Signal Controller Traffic Signal Controller	Pull Box 6 Pull Box 6 Pull Box 6 Pull Box 6	5 4 2 2	14 AWG 12 CONDUCTOR CABLE 16 AWG 2 CONDUCTOR CABLE VIDEO DETECTION CABLE 14 AWG 2 CONDUCTOR CABLE	250 200 100 100	NES1, NES2, SES1, SWP, SEP PB1, PB2, PB3, PB4 SEV, NEV EL25, EL47
3	*Origin* *Destination*	Pull Box 6 Southwest Type IV Signal Std Transformer Base	2	20	Pull Box 6	Southwest Type IV Signal Std Transformer Base	1	14 AWG 12 CONDUCTOR CABLE	31	SWP
4	*Origin* *Destination*	Pull Box 6 Southwest Pushbutton Post	2	22	Pull Box 6	Pushbutton 1	1	16 AWG 2 CONDUCTOR CABLE	36	PB1
5	*Origin* *Destination*	Traffic Signal Controller Pull Box 2	2-4	16	Traffic Signal Controller Traffic Signal Controller Traffic Signal Controller Traffic Signal Controller	Pull Box 2 Pull Box 2 Pull Box 2 Pull Box 2	1 1 1 1	14 AWG 12 CONDUCTOR CABLE VIDEO DETECTION CABLE 14 AWG 2 CONDUCTOR CABLE EMERGENCY VEHICLE DETECTION CABLE	31 31 31 31	NWS1 NWV EL16 ED
6	*Origin* *Destination*	Pull Box 1 Pull Box 2	2-4	57	Pull Box 1 Pull Box 1 Pull Box 1 Pull Box 1	Pull Box 2 Pull Box 2 Pull Box 2 Pull Box 2	1 1 1 1	14 AWG 12 CONDUCTOR CABLE VIDEO DETECTION CABLE 14 AWG 2 CONDUCTOR CABLE EMERGENCY VEHICLE DETECTION CABLE	69 69 69 69	NWS1 NWV EL16 ED
7	*Origin* *Destination*	Pull Box 2 Northwest Combo Signal Std Transformer Base	4	6	Pull Box 2 Pull Box 2 Pull Box 2 Pull Box 2	Northwest Combo Signal Std Transformer Base Northwest Combo Signal Std Transformer Base Northwest Combo Signal Std Transformer Base Northwest Combo Signal Std Transformer Base	1 1 1 1	14 AWG 12 CONDUCTOR CABLE VIDEO DETECTION CABLE 14 AWG 2 CONDUCTOR CABLE EMERGENCY VEHICLE DETECTION CABLE	17 17 17 17	NWS1 NWV EL16 ED
8	*Origin* *Destination*	Pull Box 2 Pull Box 3	2-4	50	Pull Box 2	Pull Box 3		FUTURE		
9	*Origin* *Destination*	Pull Box 3 Pull Box 4	4	135	Pull Box 3	Pull Box 4		FUTURE		
10	*Origin* *Destination*	Pull Box 4 Northeast Combo Signal Std Transformer Base	2	6	Pull Box 4 Pull Box 4 Pull Box 4	Northeast Combo Signal Std Transformer Base Northeast Combo Signal Std Transformer Base Northeast Combo Signal Std Transformer Base	2 1 1	14 AWG 12 CONDUCTOR CABLE VIDEO DETECTION CABLE 14 AWG 2 CONDUCTOR CABLE	34 17 17	NES1, NES2 NEV EL47
11	*Origin* *Destination*	Pull Box 4 Southeast Pushbutton Post	2	25	Pull Box 4	Southeast Pushbutton Post	1	16 AWG 2 CONDUCTOR CABLE	39	PB2
12	*Origin* *Destination*	Pull Box 6 Pull Box 5	2-4	100	Pull Box 6 Pull Box 6 Pull Box 6 Pull Box 6	Pull Box 5 Pull Box 5 Pull Box 5 Pull Box 5	5 3 2 2	14 AWG 12 CONDUCTOR CABLE 16 AWG 2 CONDUCTOR CABLE VIDEO DETECTION CABLE 14 AWG 2 CONDUCTOR CABLE	560 336 224 224	NES1, NES2, NWS1, SES1, SEP PB2, PB3, PB4 SEV, NEV EL25, EL47
13	*Origin* *Destination*	Pull Box 5 Southeast Pushbutton Post	2	10	Pull Box 5	Southeast Pushbutton Post	1	16 AWG 2 CONDUCTOR CABLE	24	PB4
14	*Origin* *Destination*	Pull Box 5 Southeast Type II Std Transformer Base	4	16	Pull Box 5	Southeast Type II Std Transformer Base	1	14 AWG 12 CONDUCTOR CABLE	27	SEP
15	*Origin* *Destination*	Pull Box 5 Southeast Combo Signal Std Transformer Base	2	31	Pull Box 5 Pull Box 5 Pull Box 5	Southeast Combo Signal Std Transformer Base Southeast Combo Signal Std Transformer Base Southeast Combo Signal Std Transformer Base	1 1 1	14 AWG 12 CONDUCTOR CABLE VIDEO DETECTION CABLE 14 AWG 2 CONDUCTOR CABLE	42 42 42	SES1 SEV EL25
16	*Origin* *Destination*	Pull Box 5 Southeast Pushbutton Post	2	36	Pull Box 5	Southeast Pushbutton Post	1	16 AWG 2 CONDUCTOR CABLE	50	PB3
17	*Origin* *Destination*	Pull Box 5 Pull Box 4	2-4	124	Pull Box 5 Pull Box 5 Pull Box 5 Pull Box 5	Pull Box 4 Pull Box 4 Pull Box 4 Pull Box 4	2 1 1 1	14 AWG 12 CONDUCTOR CABLE VIDEO DETECTION CABLE 14 AWG 2 CONDUCTOR CABLE 16 AWG 2 CONDUCTOR CABLE	272 136 136 136	NES1, NES2 NEV EL47 PB2
18	Origin Destination	Feed Point Pull Box 7	2	352	Feed Point Feed Point	Pull Box 7 Pull Box 7	2 1	UNDERGROUND CONDUCTOR 3/0-TYPE RHW UNDERGROUND CONDUCTOR 3/0-TYPE THW	744 372	
19	Origin Destination	Pull Box 7 Pull Box 8	2	225	Pull Box 7 Pull Box 7	Pull Box 8 Pull Box 8	2 1	UNDERGROUND CONDUCTOR 3/0-TYPE RHW UNDERGROUND CONDUCTOR 3/0-TYPE THW	490 245	
20	Origin Destination	Pull Box 8 Transformer	2	24	Pull Box 8 Pull Box 8	Transformer Transformer	2 1	UNDERGROUND CONDUCTOR 3/0-TYPE RHW UNDERGROUND CONDUCTOR 3/0-TYPE THW	88 44	

INTERNAL MAST ARM/STANDARD SIGNAL HEAD CABLE

Origin	Destination	# of Cables	SIZE/TYPE	Total LF
Southeast Combo Signal Std Transformer Base	Vehicle Head 10	1	14 AWG 5 CONDUCTOR CABLE	74
	Vehicle Head 11	1	14 AWG 5 CONDUCTOR CABLE	63
	Vehicle Head 12	1	14 AWG 7 CONDUCTOR CABLE	20
	Pedestrian Head 3	1	14 AWG 3 CONDUCTOR CABLE	17
Southeast Type II Std Transformer Base	Pedestrian Head 4	1	14 AWG 3 CONDUCTOR CABLE	17
Northeast Combo Signal Std Transformer Base	Vehicle Head 6	1	14 AWG 5 CONDUCTOR CABLE	63
	Vehicle Head 7	1	14 AWG 5 CONDUCTOR CABLE	51
	Vehicle Head 8	1	14 AWG 5 CONDUCTOR CABLE	39
	Vehicle Head 9	1	14 AWG 7 CONDUCTOR CABLE	20
	Pedestrian Head 2	1	14 AWG 3 CONDUCTOR CABLE	17
Northwest Combo Signal Std Transformer Base	Vehicle Head 2	1	14 AWG 5 CONDUCTOR CABLE	20
	Vehicle Head 3	1	14 AWG 5 CONDUCTOR CABLE	39
	Vehicle Head 4	1	14 AWG 5 CONDUCTOR CABLE	51
	Vehicle Head 5	1	14 AWG 5 CONDUCTOR CABLE	63
Southwest Type IV Signal Std Transformer Base	Pedestrian Head 1	1	14 AWG 3 CONDUCTOR CABLE	17
	Vehicle Head 1	1	14 AWG 5 CONDUCTOR CABLE	20

Signals

Cable & Conduit Schedule
Site 2

ND 297 (DeMers Ave) & 7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

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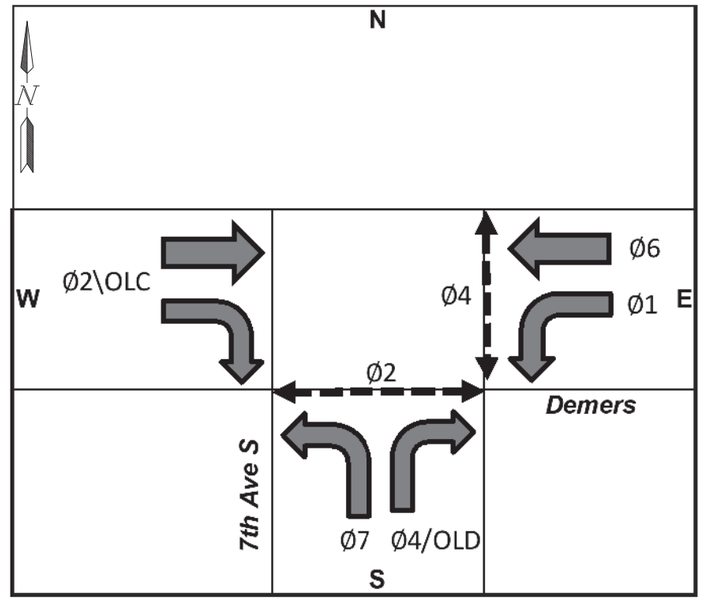
REGISTERED PROFESSIONAL ENGINEER
DARRIN D. RICKBEIL
PE-40917
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NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	150	22

BASIC INTERVALS (OR FUNCTIONS)	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8
	Westbound Left	Eastbound		Northbound		Westbound	Northbound Left	
Minimum Initial	5	10		5		10	5	
Minimum Initial with Pedestrian Actuation*								
Passage Time	3	5		3		5	3	
Max Green	25	45		30		45	25	
Yellow Change	3	4		3		4	3	
Red Clearance	3	3		3		3	3	
Delayed Green								
Walk	-	7	-	7	-	-	-	-
Pedestrian Clearance	-	23	-	27	-	-	-	-

VOLUME DENSITY TIMING FUNCTIONS - ONLY APPLICABLE DURING "FREE" (UNCOORDINATED) TIMING PLAN								
Added Initial per Actuation								
Maximum Initial								
Time Before Reduction		25				25		
Time to Reduce to Minimum Gap		5				5		
Minimum Gap		3		3		3		

OTHER CONTROLLER FUNCTIONS								
Recall		X				X		
Flashing-Normal & Conflict Monitor		R		R		R		
Start Up Phasing		G				G		
Emergency Vehicle Pre-emption	X	X		X		X	X	
Type of Detector: Presence	Refer to Detector Zone Table							
Type of Detector: Queue								
Type of Detector: Passage								
Locking Memory								
Non-Locking Memory								



Signals

Basic Signal Timings
Site 2

ND 297 (DeMers Ave) & 7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	150	23

LIGHTING & TRAFFIC SIGNAL FOUNDATION TABLE (USE FOR SINGLE MAST ARMS ONLY)		
Description	**Footing Depth, "D" 24" & 30" ø (ft)**	**Footing Depth, "D" 36" & 42" ø (ft)**
Light Standard		
30-35' Mounting Height	6	5
36-44' Mounting Height	6	5
45-50' Mounting Height	8	7
Type I, II, V, VI, VII Signal Standard		
	4	3
Type IV Signal Standard		
0-25' Signal Mast Arm	11,11	11,11
26-30' Signal Mast Arm	12,12	12,12
31-35' Signal Mast Arm	12,12	12,12
36-39' Signal Mast Arm	13,13	13,13
40-45' Signal Mast Arm	16,15	15,15
46-50' Signal Mast Arm	16,16	15,15
51-55' Signal Mast Arm	17,16	16,16
56-60' Signal Mast Arm	18,17	17,17
Combination 30' Mounting Height		
0-25' Signal Mast Arm	11,11	11,11
26-30' Signal Mast Arm	12,12	12,12
31-35' Signal Mast Arm	13,13	13,13
36-39' Signal Mast Arm	14,14	14,14
40-45' Signal Mast Arm	16,16	15,15
46-50' Signal Mast Arm	17,16	16,16
51-55' Signal Mast Arm	17,17	16,16
56-60' Signal Mast Arm	18,18	17,17

LIGHTING & TRAFFIC SIGNAL FOUNDATION TABLE (USE FOR SINGLE MAST ARMS ONLY)		
Description	**Footing Depth, "D" 24" & 30" ø (ft)**	**Footing Depth, "D" 36" & 42" ø (ft)**
Combination 40' Mounting Height		
0-25' Signal Mast Arm	12,12	12,12
26-30' Signal Mast Arm	13,13	13,13
31-35' Signal Mast Arm	13,13	13,13
36-39' Signal Mast Arm	14,14	14,14
40-45' Signal Mast Arm	16,16	15,15
46-50' Signal Mast Arm	17,16	16,16
51-55' Signal Mast Arm	18,17	16,16
56-60' Signal Mast Arm	19,18	17,17
Combination 50' Mounting Height		
0-25' Signal Mast Arm	12,12	12,12
26-30' Signal Mast Arm	13,13	13,13
31-35' Signal Mast Arm	14,13	13,13
36-39' Signal Mast Arm	15,14	14,14
40-45' Signal Mast Arm	17,16	16,16
46-50' Signal Mast Arm	17,16	16,16
51-55' Signal Mast Arm	18,17	17,17
56-60' Signal Mast Arm	19,18	18,17

SITE 1 - S 42ND ST & 7TH AVE S

DIRECTION	CORNER	MA LENGTH / MH	DEPTH	DIAMETER	ELEVATION OF BASE	VERTS	RINGS	BOLT CIRCLE
SB	SW	65' C - 40' MH	19.5'	42"	831.90'	8 #8 - 19'	19 #4 - 36"D	28" X 1.75"
WB	NW	65' C - 40' MH	19.5'	42"	830.60'	8 #8 - 19'	19 #4 - 36"D	28" X 1.75"

Signals

Foundation Depth Table

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	150	24

ITEM DESCRIPTION	Unit	SITE 1	SITE 2	Total
UNDERGROUND CONDUCTOR 3/0-TYPE RHW	LF	604	1322	1926
UNDERGROUND CONDUCTOR 3/0-TYPE THW	LF	302	661	963
PAD MOUNTED CONCRETE FOUNDATION	EA	1	1	2
CONCRETE FOUNDATION-TRAFFIC SIGNALS	EA	6	5	11
PULL BOX	EA	6	6	12
2IN DIAMETER RIGID CONDUIT	LF	385	732	1117
4IN DIAMETER RIGID CONDUIT	LF	1177	921	2098
UNDERGROUND CONDUCTOR NO6-TYPE RHW	LF	74	46	120
UNDERGROUND CONDUCTOR NO6-TYPE THW	LF	37	23	60
EMERGENCY VEHICLE DETECTOR CABLE	LF	145	117	262
NO16 AWG 2 CONDUCTOR CABLE	LF	499	821	1320
NO14 AWG 2 CONDUCTOR CABLE	LF	1085	636	1721
NO14 AWG 12 CONDUCTOR CABLE	LF	1606	1333	2939
FEED POINT-COMBO LIGHTING & SIGNAL	EA	1	1	2
TYPE II SIGNAL STANDARD	EA	1	1	2
TYPE IV SIGNAL STANDARD	EA	1	1	2
TYPE V SIGNAL STANDARD	EA	1	0	1
COMBO 35FT MA SIG & LT STD-TYPE C	EA	0	2	2
COMBO 45FT MA SIG & LT STD-TYPE C	EA	0	1	1
COMBO 55FT MA SIG & LT STD-TYPE C	EA	1	0	1
COMBO 60FT MA SIG & LT STD-TYPE C	EA	1	0	1
COMBO 65FT MA SIG & LT STD-TYPE C	EA	2	0	2
1-WAY 3 SEC HEAD W/12IN LENS-POST MTD	EA	7	2	9
1-WAY 3 SEC HEAD W/12IN LENS-MA MTD	EA	13	8	21
1-WAY 5 SEC HEAD W/12IN LENS-POST MTD	EA	2	2	4
PEDESTRIAN COUNTDOWN SIGNAL HEAD-POST MTD	EA	4	4	8
LAW ENFORCEMENT CONFIRMATION LIGHT	EA	8	5	13
EMERGENCY VEHICLE PRE-EMPTION UNIT	EA	4	3	7
EMERGENCY VEHICLE PRE-EMPTION DETECTOR (GPS)	EA	1	1	2
PEDESTRIAN PUSHBUTTON POST	EA	2	2	4
PEDESTRIAN PUSHBUTTON & SIGN	EA	4	4	8
VIDEO DETECTION CABLE	LF	1093	636	1729
VIDEO DETECTION SYSTEM	EA	1	1	2
TYPE B CONTROLLER & CABINET	EA	1	1	2

Items shown above are for informational purposes, contractor is to 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 "Traffic Signal System - Site X".

"Remove Traffic Signal System - Site X"

Signals

Quantities

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

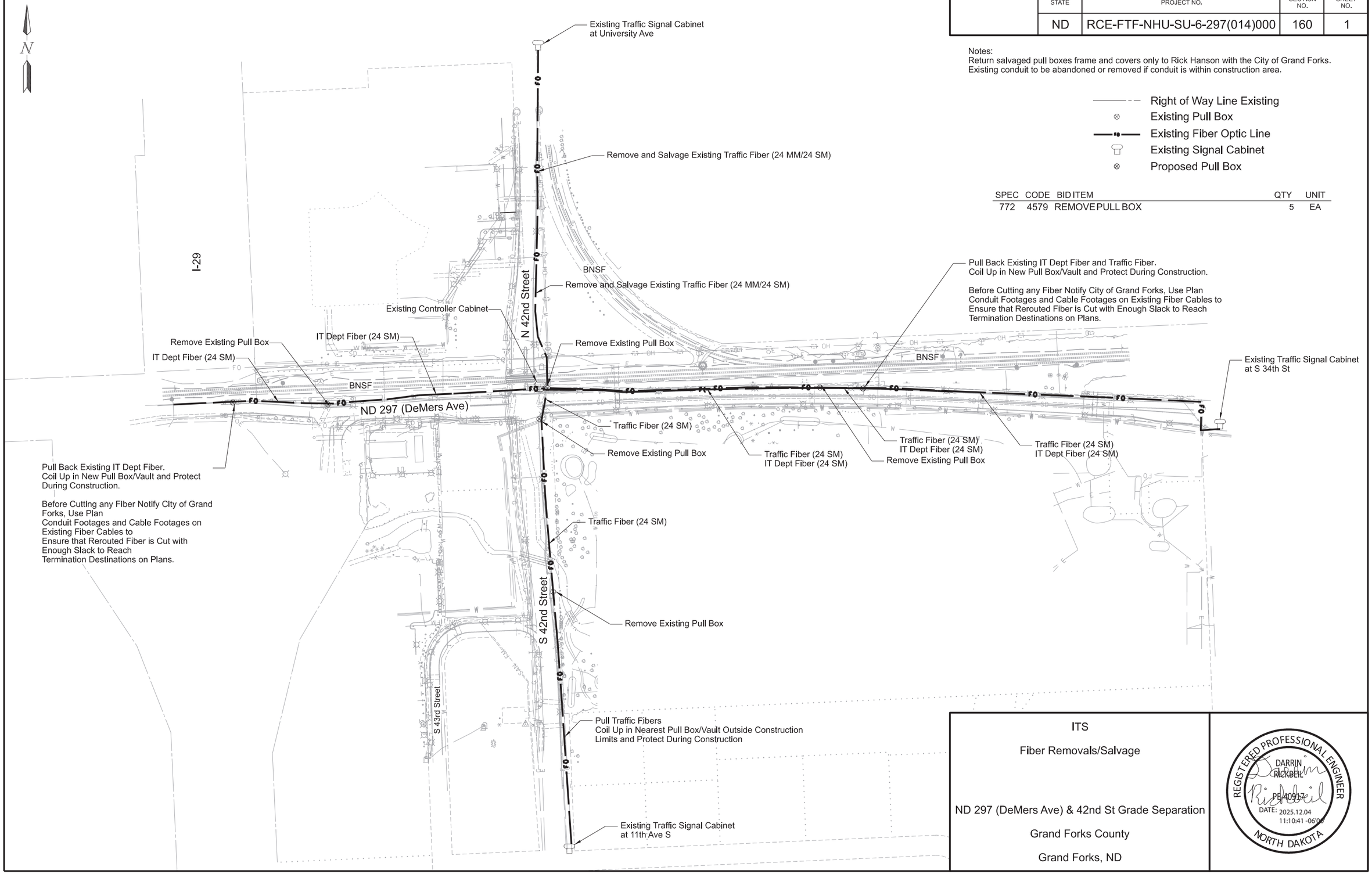
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	ND	RCE-FTF-NHU-SU-6-297(014)000	160	1

Notes:
Return salvaged pull boxes frame and covers only to Rick Hanson with the City of Grand Forks.
Existing conduit to be abandoned or removed if conduit is within construction area.

Right of Way Line Existing
Existing Pull Box
Existing Fiber Optic Line
Existing Signal Cabinet
Proposed Pull Box

SPEC	CODE	BID ITEM	QTY	UNIT
772	4579	REMOVE PULL BOX	5	EA



ITS

Fiber Removals/Salvage

ND 297 (DeMers Ave) & 42nd St Grade Separation

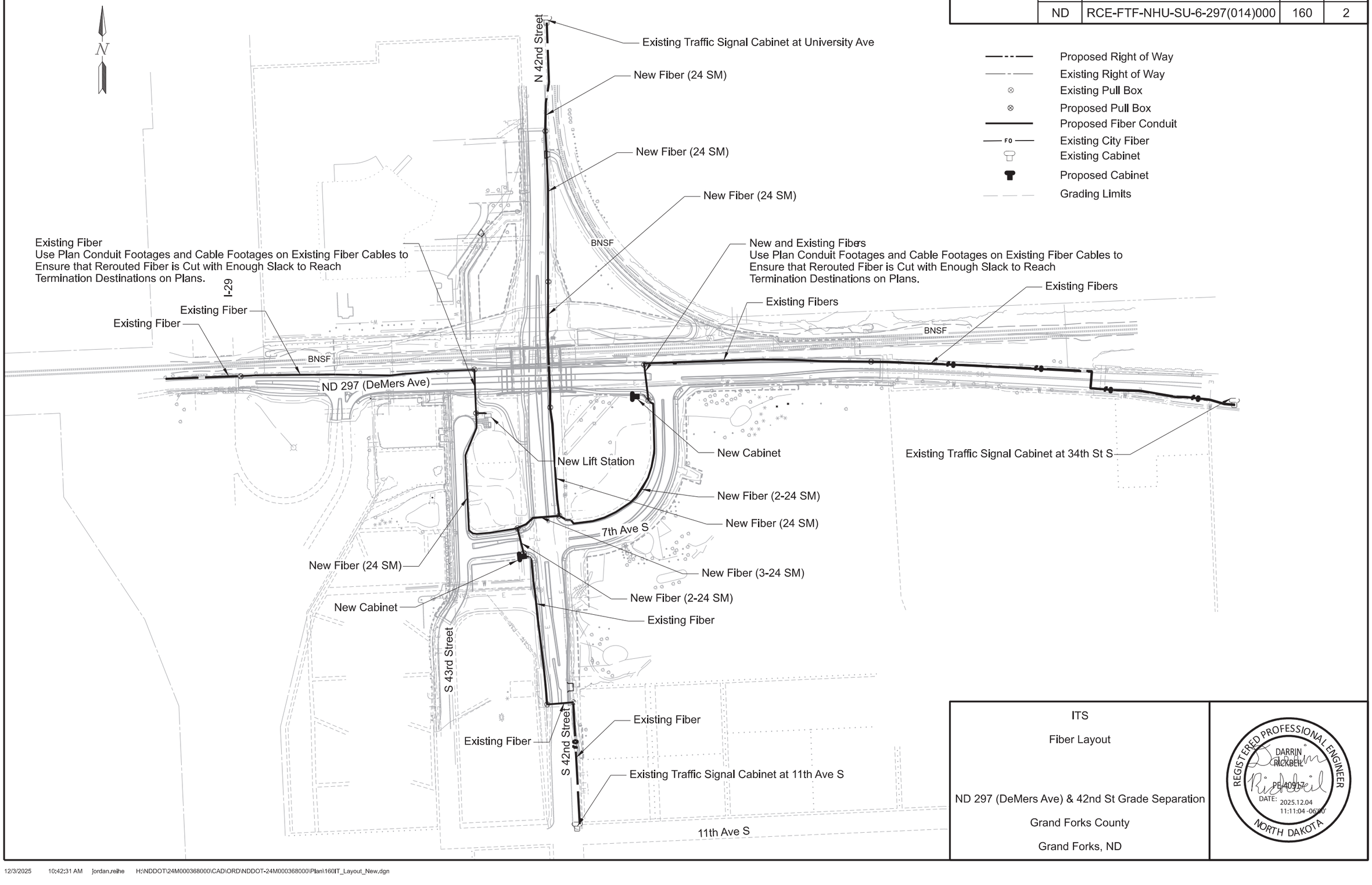
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Grand Forks, ND

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	ND	RCE-FTF-NHU-SU-6-297(014)000	160	2



ITS

Fiber Layout

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

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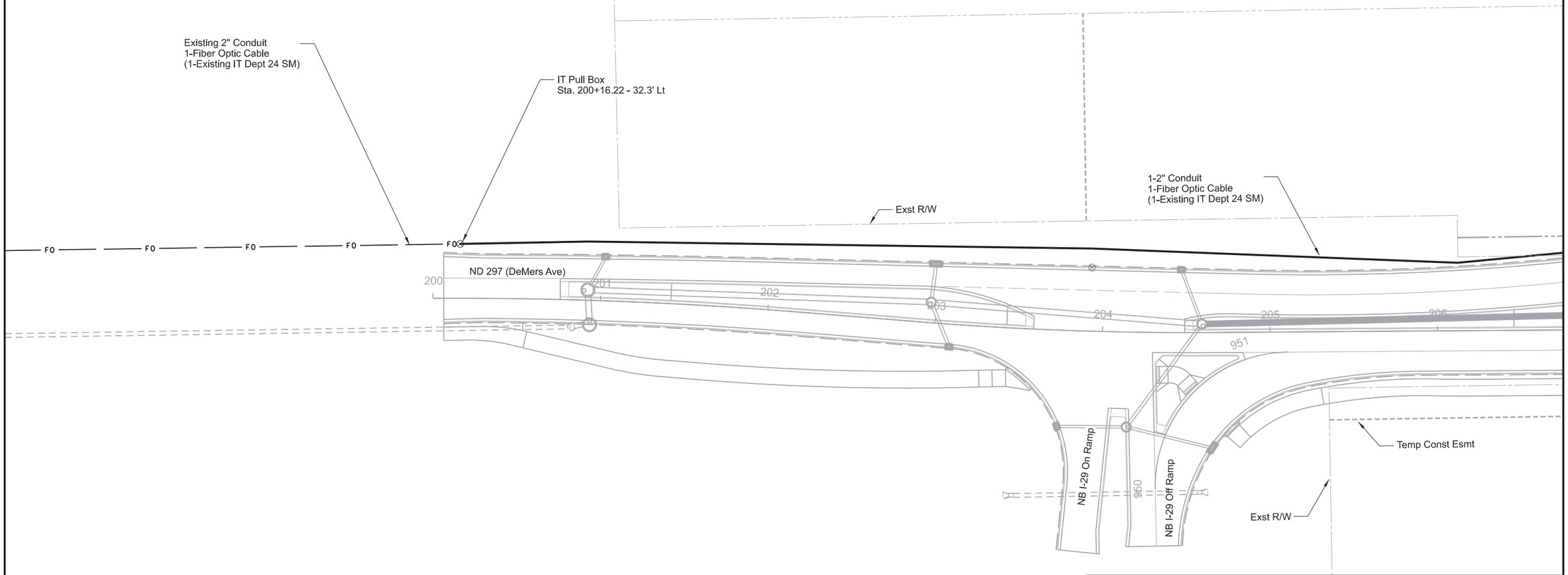
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	160	3

DEVICE LAYOUT			
FROM	TO	2" CONDUIT (LF)	IT FIBEROPTIC CABLE (LF)
IT-PULL BOX Sta. 200+16.22 - 32.4' Lt	IT-PULL BOX Sta. 209+47.03 - 53.9' Lt	932	0

QUANTITY TABULATION (IT SYSTEM)		
ITEM	UNIT	TOTAL
2IN DIAMETER RIGID CONDUIT	LF	932
RELAY IT FIBEROPTIC CABLE*	LF	932
IT-PULL BOX	EA	1

* The re-laid fiber optic cable will follow the same installation specifications and slack requirements as a new cable installation. This includes pulling tension limits, minimum bend radius, and slack loop provisions at handholes and termination points to ensure compliance with applicable standards and maintain system integrity.



Legend			
Proposed Pull Box		E	Existing Electric Conduit
Existing Pull Box		FO	Existing Fiber Optic Conduit
Proposed Cabinet			Proposed Conduit
Existing Cabinet			Proposed Right of Way
			Existing Right of Way

ITS

Fiber Layout

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

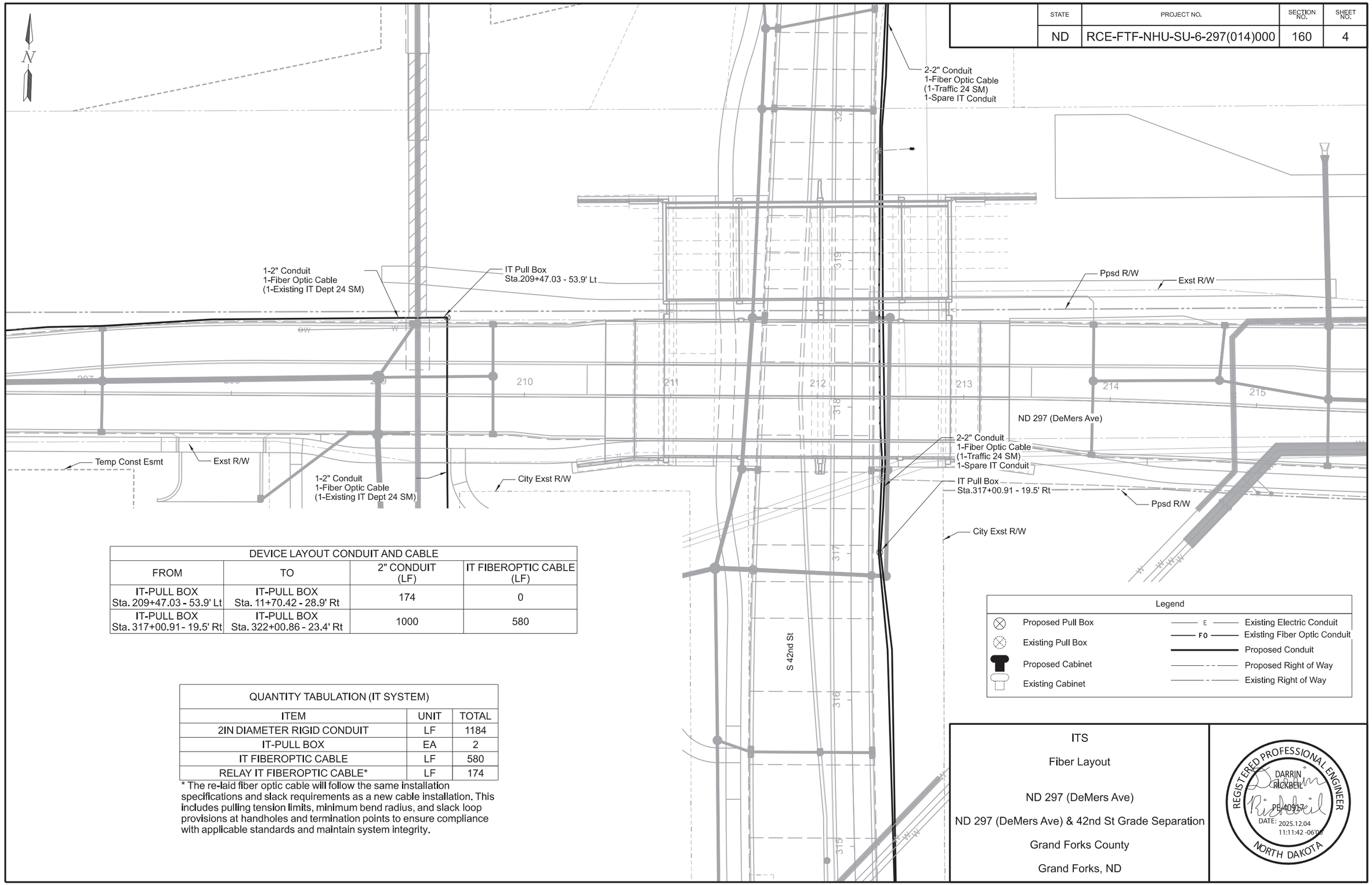
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	160	4



DEVICE LAYOUT CONDUIT AND CABLE			
FROM	TO	2" CONDUIT (LF)	IT FIBEROPTIC CABLE (LF)
IT-PULL BOX Sta. 209+47.03 - 53.9' Lt	IT-PULL BOX Sta. 11+70.42 - 28.9' Rt	174	0
IT-PULL BOX Sta. 317+00.91 - 19.5' Rt	IT-PULL BOX Sta. 322+00.86 - 23.4' Rt	1000	580

QUANTITY TABULATION (IT SYSTEM)		
ITEM	UNIT	TOTAL
2IN DIAMETER RIGID CONDUIT	LF	1184
IT-PULL BOX	EA	2
IT FIBEROPTIC CABLE	LF	580
RELAY IT FIBEROPTIC CABLE*	LF	174

* The re-laid fiber optic cable will follow the same installation specifications and slack requirements as a new cable installation. This includes pulling tension limits, minimum bend radius, and slack loop provisions at handholes and termination points to ensure compliance with applicable standards and maintain system integrity.

Legend	
Proposed Pull Box	E — Existing Electric Conduit
Existing Pull Box	FO — Existing Fiber Optic Conduit
Proposed Cabinet	Proposed Conduit
Existing Cabinet	Proposed Right of Way
	Existing Right of Way

ITS

Fiber Layout

ND 297 (DeMers Ave)

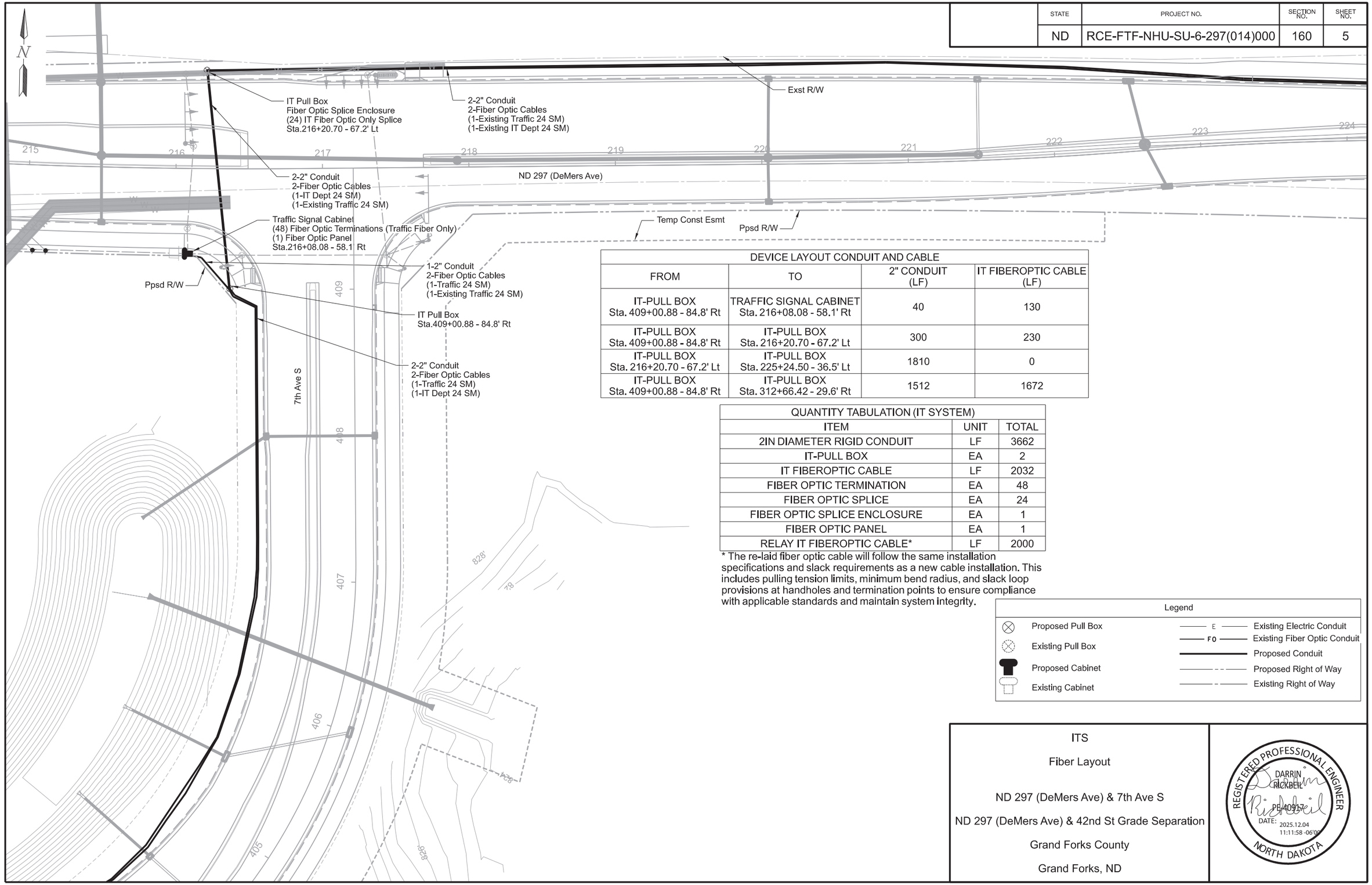
ND 297 (DeMers Ave) & 42nd St Grade Separation

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NORTH DAKOTA

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	ND	RCE-FTF-NHU-SU-6-297(014)000	160	5



DEVICE LAYOUT CONDUIT AND CABLE			
FROM	TO	2" CONDUIT (LF)	IT FIBEROPTIC CABLE (LF)
IT-PULL BOX Sta. 409+00.88 - 84.8' Rt	TRAFFIC SIGNAL CABINET Sta. 216+08.08 - 58.1' Rt	40	130
IT-PULL BOX Sta. 409+00.88 - 84.8' Rt	IT-PULL BOX Sta. 216+20.70 - 67.2' Lt	300	230
IT-PULL BOX Sta. 216+20.70 - 67.2' Lt	IT-PULL BOX Sta. 225+24.50 - 36.5' Lt	1810	0
IT-PULL BOX Sta. 409+00.88 - 84.8' Rt	IT-PULL BOX Sta. 312+66.42 - 29.6' Rt	1512	1672

QUANTITY TABULATION (IT SYSTEM)		
ITEM	UNIT	TOTAL
2IN DIAMETER RIGID CONDUIT	LF	3662
IT-PULL BOX	EA	2
IT FIBEROPTIC CABLE	LF	2032
FIBER OPTIC TERMINATION	EA	48
FIBER OPTIC SPLICE	EA	24
FIBER OPTIC SPLICE ENCLOSURE	EA	1
FIBER OPTIC PANEL	EA	1
RELAY IT FIBEROPTIC CABLE*	LF	2000

* The re-laid fiber optic cable will follow the same installation specifications and slack requirements as a new cable installation. This includes pulling tension limits, minimum bend radius, and slack loop provisions at handholes and termination points to ensure compliance with applicable standards and maintain system integrity.

Legend

- Proposed Pull Box
- Existing Pull Box
- Proposed Cabinet
- Existing Cabinet
- E — Existing Electric Conduit
- FO — Existing Fiber Optic Conduit
- Proposed Conduit
- Proposed Right of Way
- Existing Right of Way

ITS

Fiber Layout

ND 297 (DeMers Ave) & 7th Ave S

ND 297 (DeMers Ave) & 42nd St Grade Separation

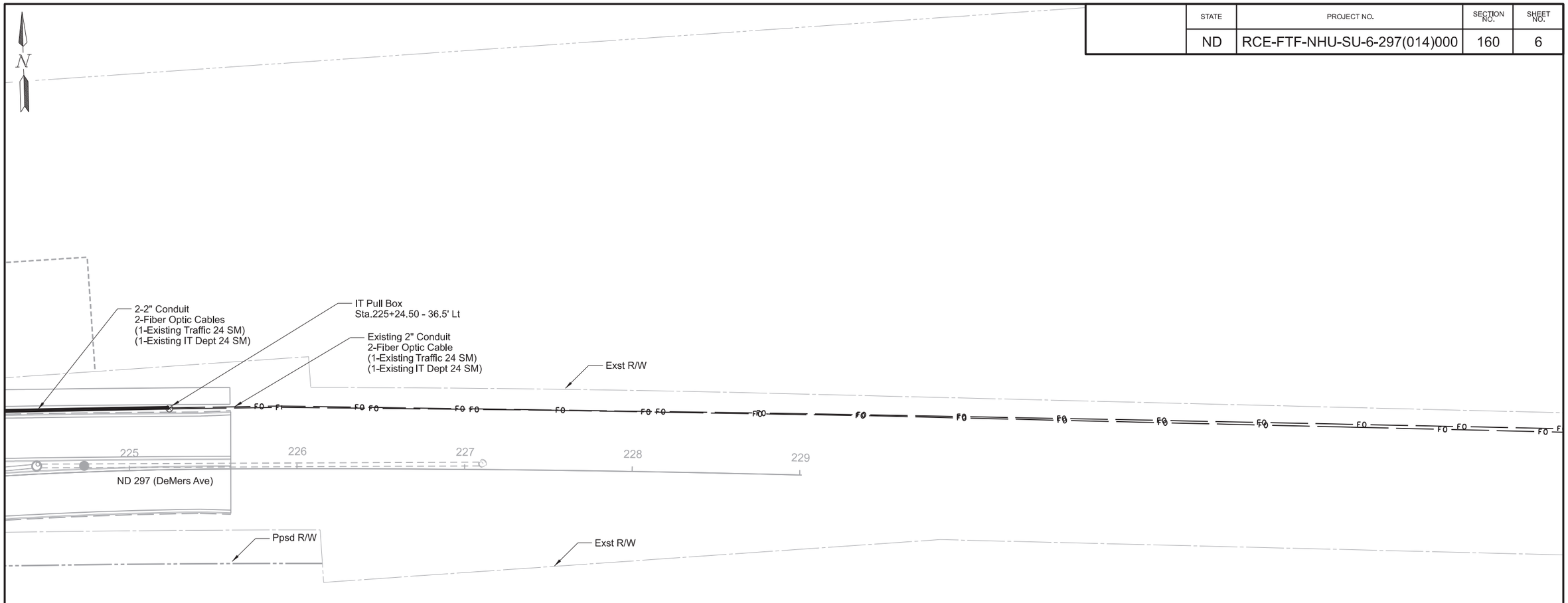
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	160	6



QUANTITY TABULATION (IT SYSTEM)		
ITEM	UNIT	TOTAL
IT-PULL BOX	EA	1

Legend	
Proposed Pull Box	E — Existing Electric Conduit
Existing Pull Box	FO — Existing Fiber Optic Conduit
Proposed Cabinet	Proposed Conduit
Existing Cabinet	Proposed Right of Way
	Existing Right of Way

ITS

Fiber Layout

ND 297 (DeMers Ave)

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN D. RICKBEIL
PE-40917
DATE: 2025.12.04 11:12:16 -06'00'
NORTH DAKOTA

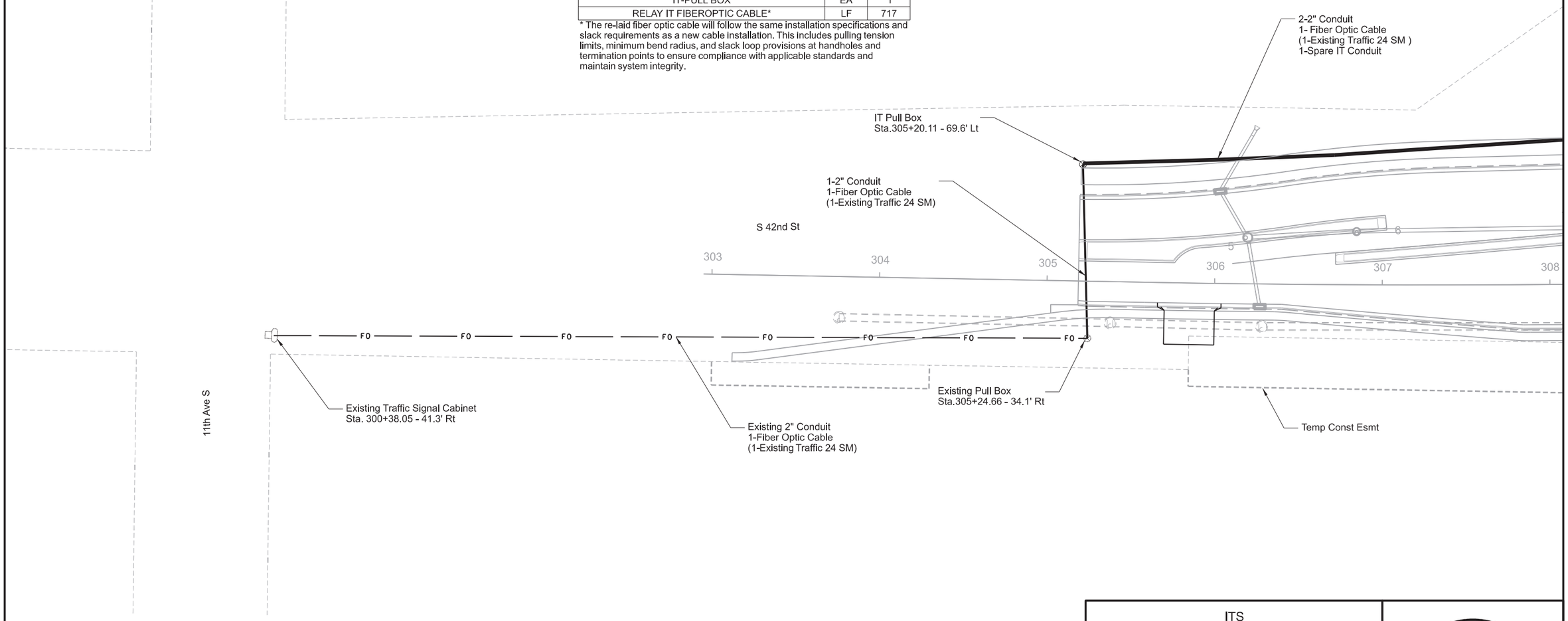
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	160	7

DEVICE LAYOUT CONDUIT AND CABLE			
FROM	TO	2" CONDUIT (LF)	IT FIBEROPTIC CABLE (LF)
IT-PULL BOX Sta. 305+24.66 - 34.1' Rt	IT-PULL BOX Sta. 305+20.11 - 69.6' Lt	104	0
IT-PULL BOX Sta. 305+20.11 - 69.6' Lt	IT-PULL BOX Sta. 399+07.86 - 25.9'	1226	0

QUANTITY TABULATION (IT SYSTEM)		
ITEM	UNIT	TOTAL
2IN DIAMETER RIGID CONDUIT	LF	1330
IT-PULL BOX	EA	1
RELAY IT FIBEROPTIC CABLE*	LF	717

* The re-laid fiber optic cable will follow the same installation specifications and slack requirements as a new cable installation. This includes pulling tension limits, minimum bend radius, and slack loop provisions at handholes and termination points to ensure compliance with applicable standards and maintain system integrity.



Legend			
⊗	Proposed Pull Box	E	Existing Electric Conduit
⊗	Existing Pull Box	FO	Existing Fiber Optic Conduit
▬	Proposed Cabinet		Proposed Conduit
▬	Existing Cabinet		Proposed Right of Way
			Existing Right of Way

ITS

Fiber Layout

S 42nd Street

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-409117
DATE: 2025.12.04 11:12:31 -06'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	160	8

DEVICE LAYOUT CONDUIT AND CABLE			
FROM	TO	2" CONDUIT (LF)	IT FIBEROPTIC CABLE (LF)
IT-PULL BOX Sta. 399+07.86 - 25.8' Rt	PROPOSED SIGNAL CABINET Sta. 311+12.57 - 116.3' Lt	11	333
IT-PULL BOX Sta. 399+07.86 - 25.8' Rt	IT-PULL BOX Sta. 398+92.91 - 84.9' Lt	210	370
IT-PULL BOX Sta. 398+92.91 - 84.9' Lt	IT-PULL BOX Sta. 11+70.42 - 28.9' Rt	673	783
IT-PULL BOX Sta. 11+70.42 - 28.9' Rt	PROPOSED LIFT STATION Sta. 11+55.86 - 49.2' Rt	48	128
IT-PULL BOX Sta. 398+92.91 - 84.9' Lt	IT-PULL BOX Sta. 312+66.42 - 29.6' Rt	362	783
IT-PULL BOX Sta. 312+66.42 - 29.6' Rt	IT-PULL BOX Sta. 317+00.91 - 19.5' Rt	870	515

QUANTITY TABULATION (IT SYSTEM)		
ITEM	UNIT	TOTAL
2IN DIAMETER RIGID CONDUIT	LF	2165
IT-PULL BOX	EA	4
IT FIBEROPTIC CABLE	LF	2912
FIBER OPTIC TERMINATION	EA	120
FIBER OPTIC PANEL	EA	2
RELAY IT FIBEROPTIC CABLE*	LF	33

* The re-laid fiber optic cable will follow the same installation specifications and slack requirements as a new cable installation. This includes pulling tension limits, minimum bend radius, and slack loop provisions at handholes and termination points to ensure compliance with applicable standards and maintain system integrity.

Legend	
Proposed Pull Box	E — Existing Electric Conduit
Existing Pull Box	FO — Existing Fiber Optic Conduit
Proposed Cabinet	Proposed Conduit
Existing Cabinet	Proposed Right of Way
	Existing Right of Way

S 43rd St
43rd St
7th Ave S
S 42nd St
City Exst R/W
Temp Const Esmt

1-2" IT Conduit
1-Fiber Optic Cable
(1-IT Dept 24 SM)

IT Pull Box
Sta.11+70.42 - 28.9' Rt

1-2" Conduit
2- Fiber Optic Cables
(1-IT Dept 24 SM)
(1-Existing IT Dept 24 SM)

(48) Fiber Optic Terminations
(1) Fiber Optic Panel

Lift Station (See Section 55b)

1-2" Conduit
1-Fiber Optic Cable
(1-Existing IT Dept 24 SM)

2-2" Conduit
2-Fiber Optic Cables
(2-Traffic 24 SM)
1-Spare IT Conduit

1-2" IT Conduit
1-Fiber Optic Cable
(1-IT Dept 24 SM)

IT Pull Box
Sta.398+92.91 - 84.9' Lt

2-2" Conduit
3-Fiber Optic Cables
(2-Traffic 24 SM)
(1-IT Dept 24 SM)
1-Spare IT Conduit

IT Pull Box
Sta.399+07.86 - 25.8' Rt

1-2" Conduit
3-Fiber Optic Cable
(1-Existing Traffic 24 SM)
(2-Traffic 24 SM)

Traffic Signal Cabinet
(72) Fiber Optic Terminations
(1) Fiber Optic Panel
Sta.311+12.57 - 116.3' Lt

2-2" Conduit
1-Fiber Optic Cable
(1-Existing Traffic 24 SM)
1-Spare IT Conduit

2-2" Conduit
3-Fiber Optic Cables
(2-Traffic 24 SM)
(1-IT Dept 24 SM)
1-Spare IT Conduit

IT Pull Box
Sta.312+66.42 - 29.6' Rt

2-2" Conduit
1-Fiber Optic Cable
(1-Traffic 24 SM)
1-Spare IT Conduit

2-2" Conduit
2-Fiber Optic Cables
(1-Traffic 24 SM)
(1-IT Dept 24 SM)

ITS

Fiber Layout

S 42nd Street

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

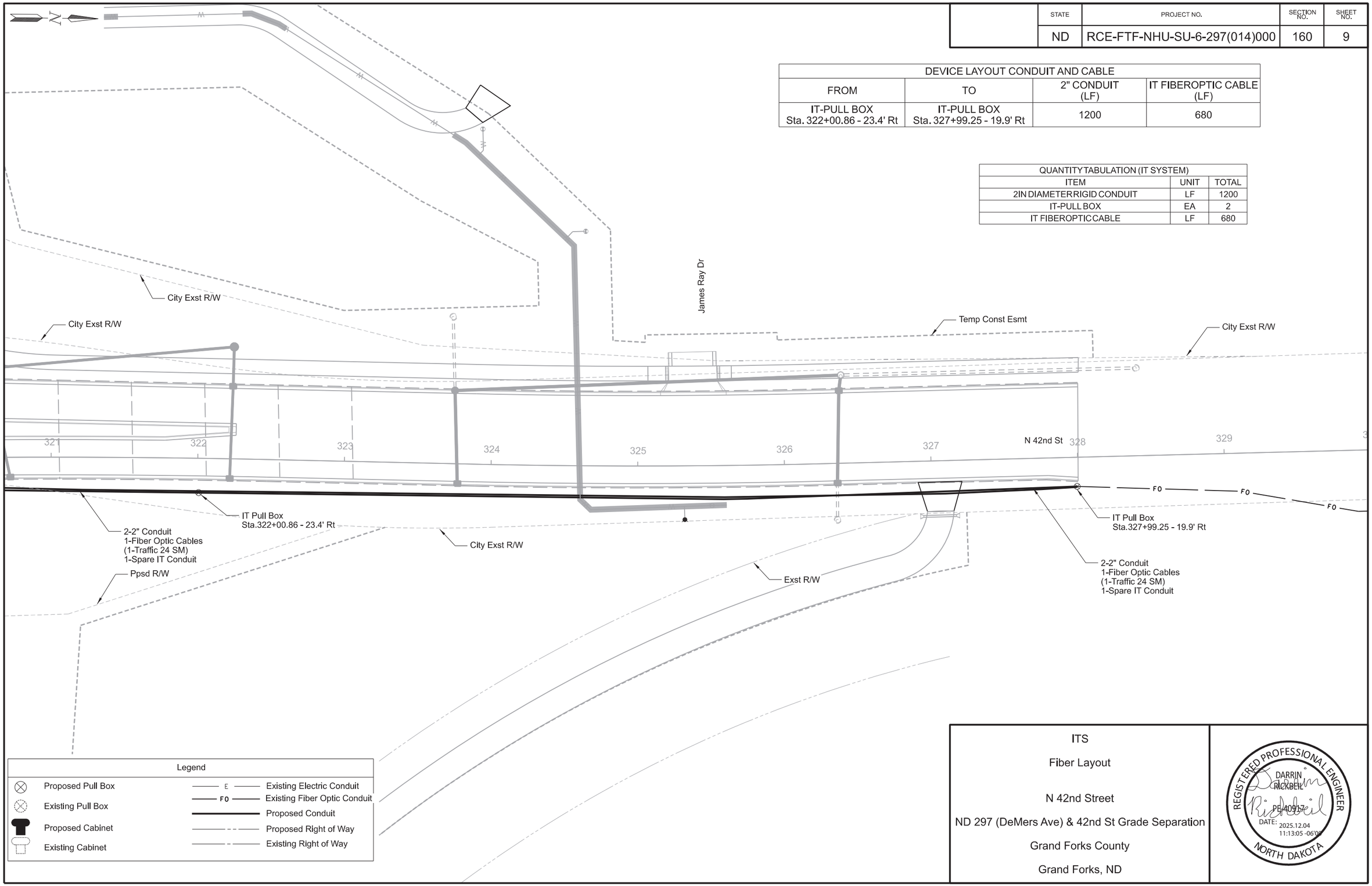
Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN RICKBEIL
PE-40917
DATE: 2025.12.04 11:12:46 -06'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	160	9

DEVICE LAYOUT CONDUIT AND CABLE			
FROM	TO	2" CONDUIT (LF)	IT FIBEROPTIC CABLE (LF)
IT-PULL BOX Sta. 322+00.86 - 23.4' Rt	IT-PULL BOX Sta. 327+99.25 - 19.9' Rt	1200	680

QUANTITY TABULATION (IT SYSTEM)		
ITEM	UNIT	TOTAL
2IN DIAMETER RIGID CONDUIT	LF	1200
IT-PULL BOX	EA	2
IT FIBEROPTIC CABLE	LF	680



Legend	
Proposed Pull Box	E — Existing Electric Conduit
Existing Pull Box	FO — Existing Fiber Optic Conduit
Proposed Cabinet	Proposed Conduit
Existing Cabinet	Proposed Right of Way
	Existing Right of Way

ITS

Fiber Layout

N 42nd Street

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

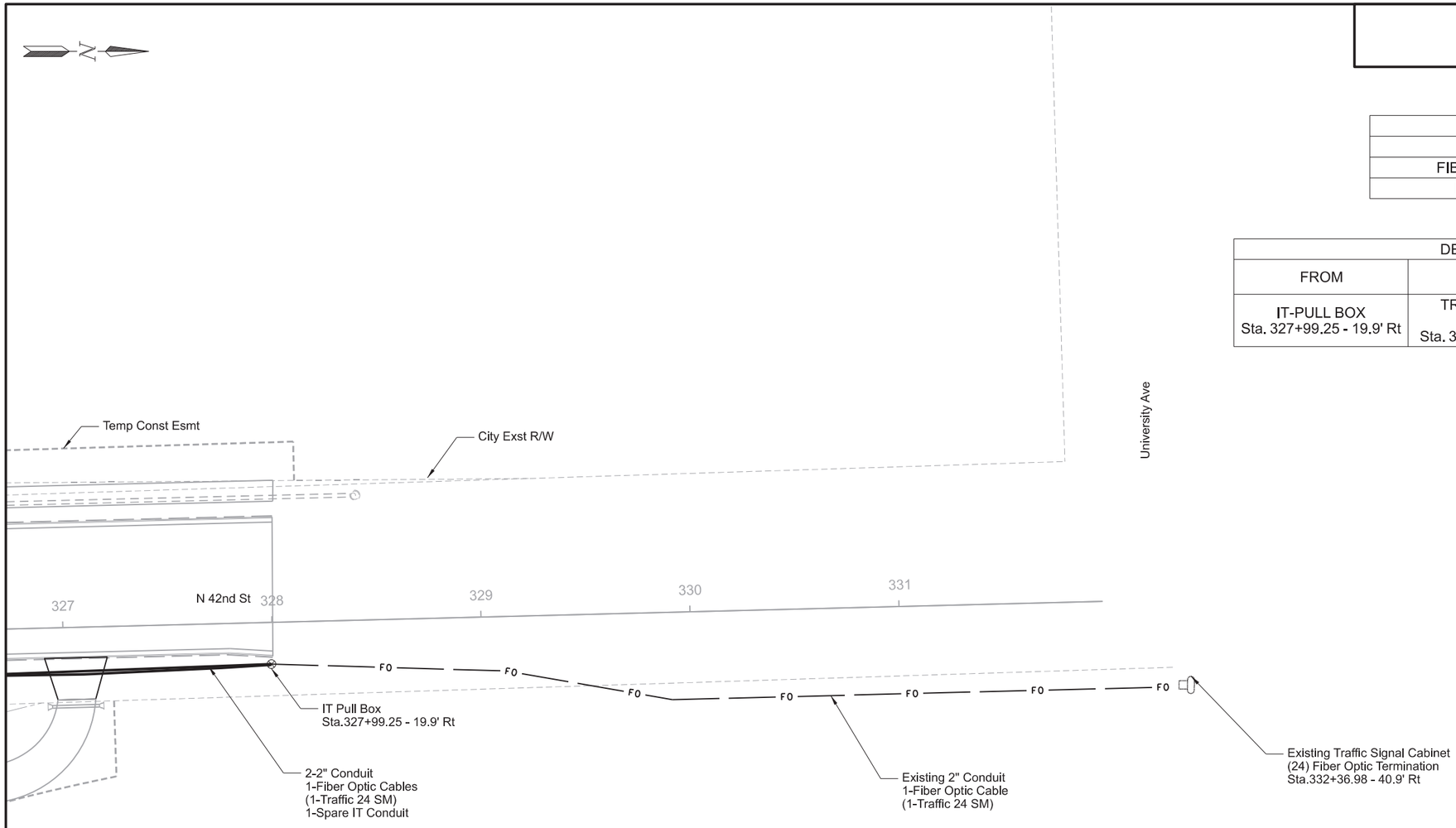
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DARRIN RICKBEIL
PE-40917
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NORTH DAKOTA

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	160	10

QUANTITY TABULATION (IT SYSTEM)		
ITEM	UNIT	TOTAL
FIBER OPTIC TERMINATION	EA	24
IT FIBEROPTIC CABLE	LF	525

DEVICE LAYOUT CONDUIT AND CABLE			
FROM	TO	2" CONDUIT (LF)	IT FIBEROPTIC CABLE (LF)
IT-PULL BOX Sta. 327+99.25 - 19.9' Rt	TRAFFIC SIGNAL CABINET Sta. 332+36.98 - 40.9' Rt		525



Legend			
	Proposed Pull Box	E	Existing Electric Conduit
	Existing Pull Box	FO	Existing Fiber Optic Conduit
	Proposed Cabinet		Proposed Conduit
	Existing Cabinet		Proposed Right of Way
			Existing Right of Way

ITS

Fiber Layout

N 42nd Street

ND 297 (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

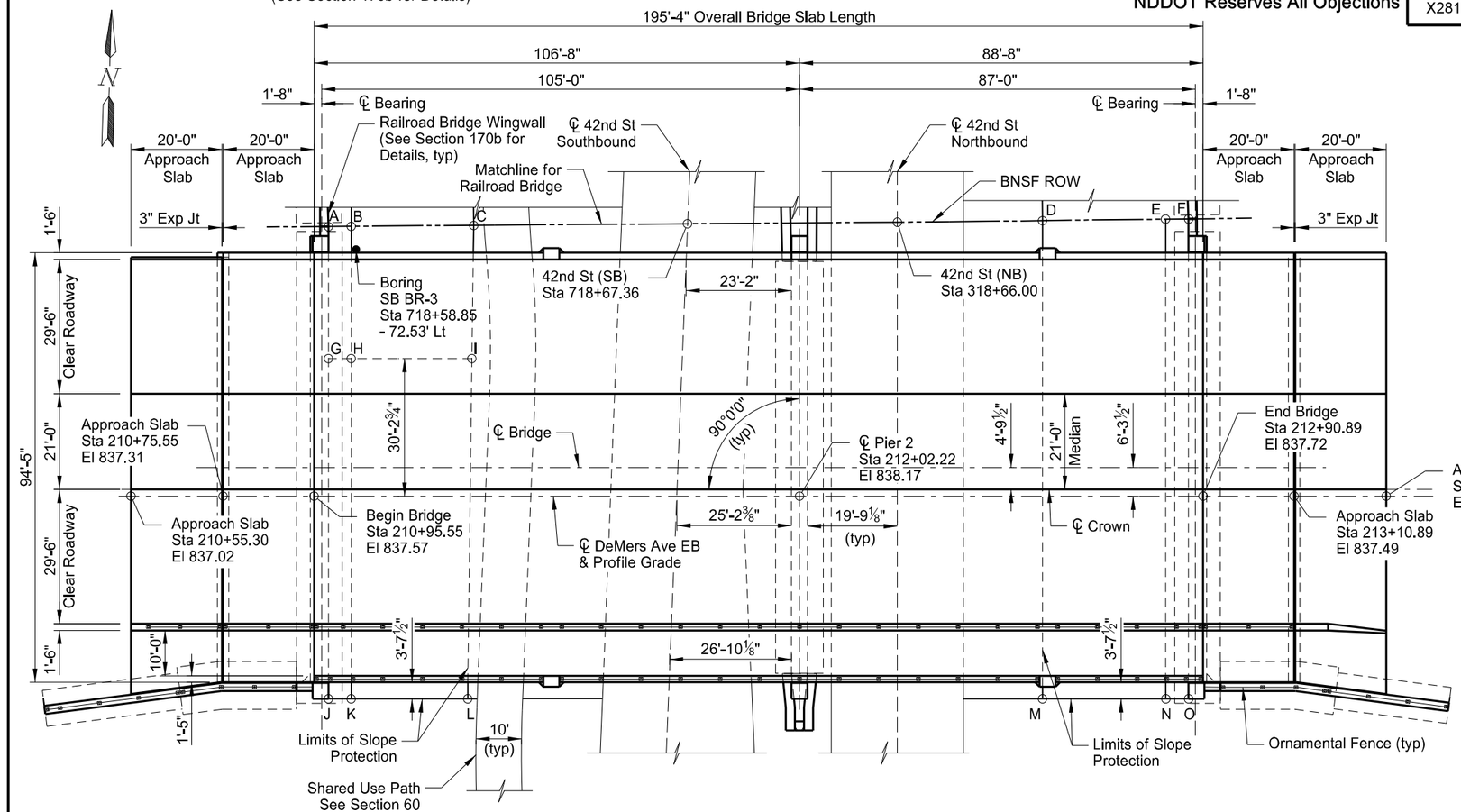
Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
DARRIN L. RICKBEIL
PE-40917
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NORTH DAKOTA

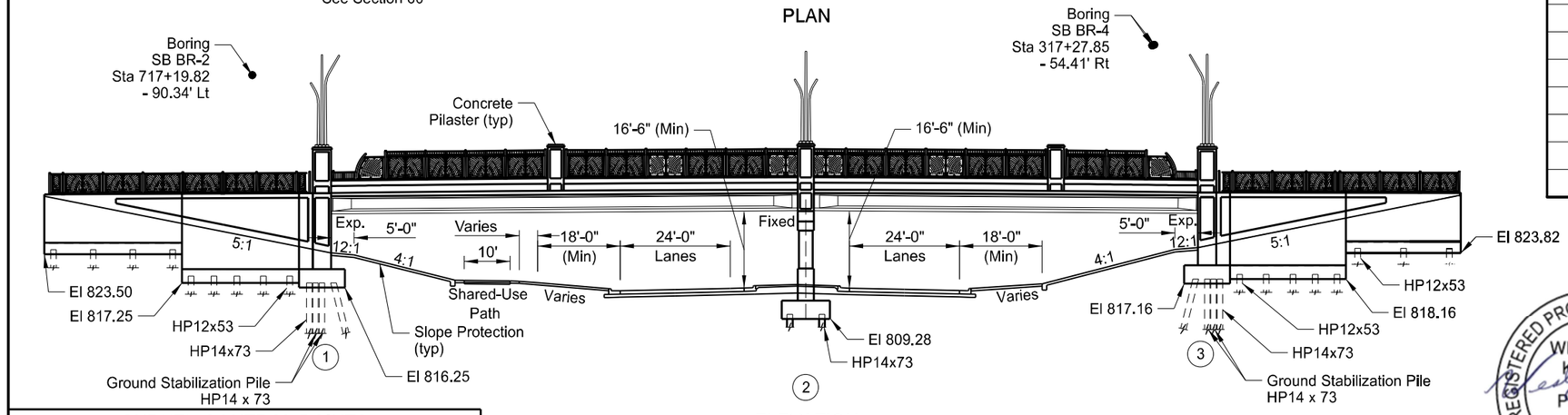
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BRIDGE CODE		STATE	PROJECT NO.	SECTION NO.	SHEET NO.
X281		ND	RCE-FTF-NHU-SU-6-297(014)000	170a	1

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

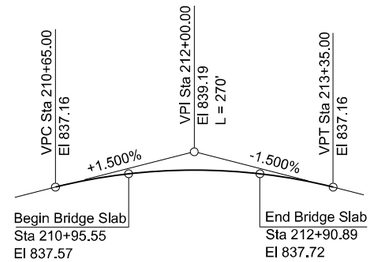


PLAN



ELEVATION

Boring SB R-15 Sta 318+69.15 - 163.30' Rt



* VERTICAL CURVE DATA

* Bridge design profile located on ℄ Demers Ave EB alignment. Bridge crown is offset from ℄ Demers Ave EB Alignment.

DESIGN STRENGTHS:

f'c = 4,000 psi ~ Class AE Concrete
f'c = 6,000 psi ~ Prestressed Beam Concrete
f'c = 9,000 psi ~ Prestressed Beam Concrete
fy = 60,000 psi ~ Reinforcing Steel

Load & Resistance Factor Design

TOP OF SLOPE PROTECTION ELEVATIONS	
A	823.10
B	822.68
C	815.95
D	816.09
E	822.86
F	823.28
G	822.70
H	822.28
I	815.65
J	823.76
K	823.34
L	816.94
M	817.35
N	824.60
O	825.02

SURVEY CONTROL POINTS			
POINT	NORTHING	EASTING	ELEVATION
BM 206412	353,464.71	2,805,243.98	838.22
BM 206413	353,458.86	2,805,221.82	838.53

SPECIAL PROVISIONS	
SP 391(24)	LANDSCAPE AND STREETSCAPE IMPROVEMENTS
SP 396(24)	PAINTING OVER GALVANIZED STEEL
SP 416(24)	ARCHITECTURAL FORM LINER
SP 637(24)	BRIDGE DECORATIVE LIGHTING
SP 643(24)	PILE DYNAMIC ANALYZER (PDA) TESTING & ANALYSIS
SP 679(24)	DEWATERING

STANDARD DRAWINGS
D-258-1, D-622-1, D-714-18, D-900-1

F.W.S. 15 PSF

HL-93 DESIGN LOADING

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

BRIDGE LAYOUT
GRAND FORKS, ND

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 01/29/26
NORTH DAKOTA

ND DEPARTMENT OF TRANSPORTATION
BRIDGE DIVISION

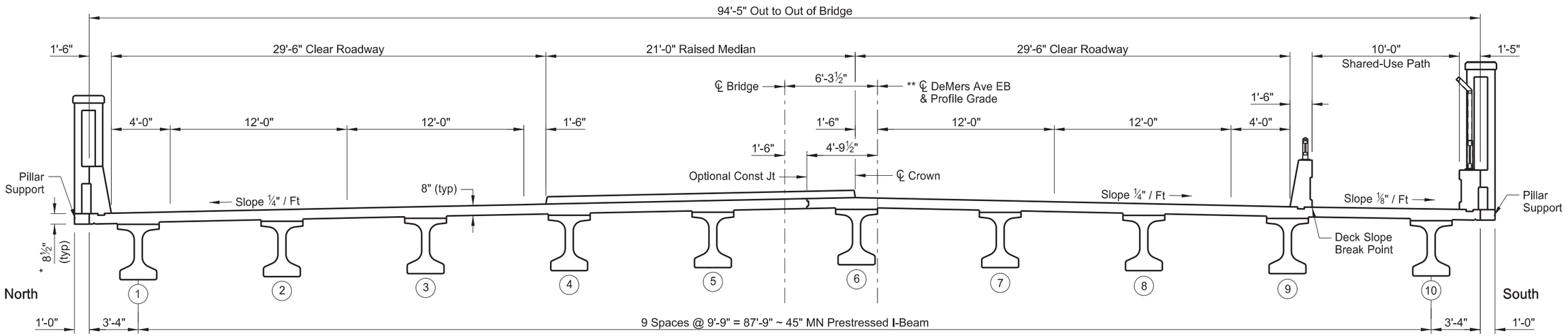
Jason Thorenson
01/29/26

DRAWING NO. 0297-000.303-1

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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

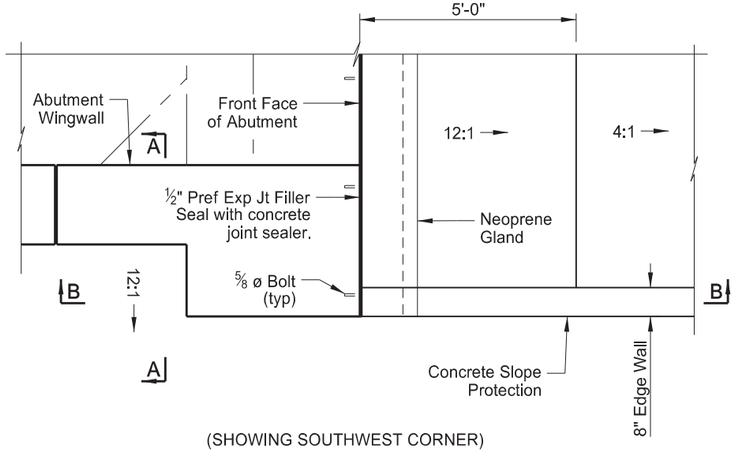
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	2



* Construct 8½" thick deck overhang to outside flange of fascia girders.

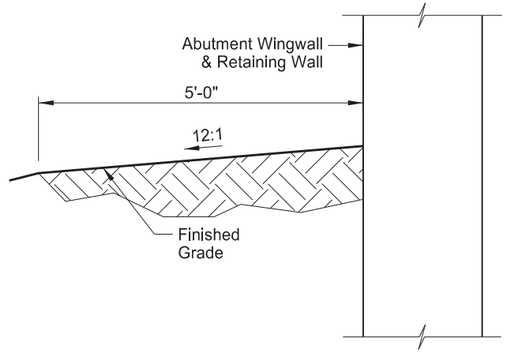
** Bridge design profile located on ℄ Demers Ave EB alignment. Bridge crown is offset from ℄ Demers Ave EB alignment.

TYPICAL SECTION

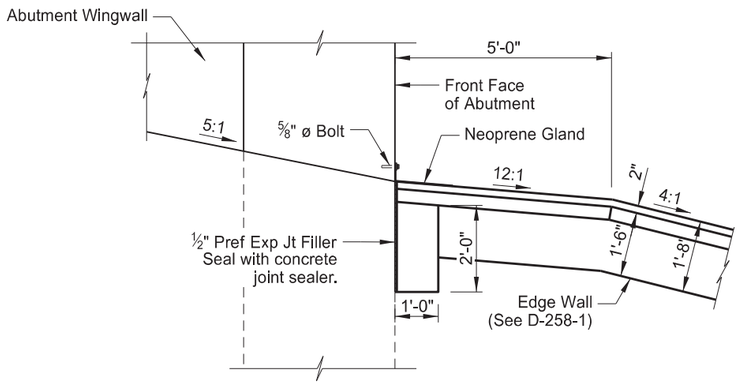


(SHOWING SOUTHWEST CORNER)

SLOPE PROTECTION PLAN



A-A



B-B

NOTE:

See D-258-1 for additional slope protection details.

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

TYPICAL SECTION

DRAWING NO. 0297-000.303-2

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NOTES

100 SCOPE OF WORK: This project consists of building a new 2-span prestressed concrete I-beam bridge with an overall bridge length of 195'-4". The slab includes a 29'-6" clear roadway width in each direction, a 21'-0" raised concrete median, and a 10'-0" shared-use path, for an overall out-to-out dimension of 94'-5".

100 GENERAL: Include the cost of furnishing and placing preformed expansion joint filler, concrete inserts, rebar couplers, silicone sealant, waterproof membrane, geotextile, conduit, electrical boxes, and other miscellaneous items in the price bid for the appropriate concrete bid items.

100 GENERAL: The Contractor must follow the construction sequencing found in Section 6, Sheet 2 and 3, Plan Note 704-P02, unless an alternative construction schedule is submitted to and approved by the Engineer.

105 WORK DRAWINGS: Submit the following work drawings to the Engineer for review.

1. Prestressed I-Beam
2. Bearings (Expansion)
3. 3 IN Expansion Joint
4. Pedestrian Railing, Pedestrian Fence, Ornamental Fence
5. Architectural Form Liner
6. Structural Steel
7. Abutment Underdrain System
8. Street Lighting Anchor Assemblies
9. Deck Pour Sequence

210 EXCAVATION: "Class 1 Excavation - Site 1" required for the Demers Ave Bridge includes all excavation required for bridge substructures, retaining walls, and pier crash & transition walls as shown in the plans. "Class 1 Excavation - Site 1" quantity includes all material below proposed subgrade of Demers Ave, 42nd Ave, and slope paving subgrades. See Section 60 for additional details. Estimated quantity of 6,120 cubic yards provided for informational purposes only. Include the excavation costs as described above in the lump sum bid item, "Class 1 Excavation - Site 1."

210 FOUNDATION PREPARATION: Include all work associated with dewatering for the Demers Avenue Roadway Bridge construction in the lump sum price for "Foundation Preparation-Site 1". All dewatering work to adhere to SP 679(24).

210 FOUNDATION FILL: Foundation Fill will not be measured for payment and will be paid at plan quantity to limits shown in plans. If excavation exceeds limits shown and requires additional foundation fill, no price adjustment will be considered.

602 BRIDGE CONCRETE: Supply AE Portland Cement Concrete using well graded or optimized aggregates as specified in Section 802.02 B. Design a mix that meets Section 802 and will attain a minimum compressive strength of 4,000 psi at 28-days.

The Engineer will verify the mix design using materials that are to be used on the project. Supply samples of materials as specified in the table below. Provide additional materials upon request.

Material	Sample Size
Cement	100 lbs
SCM	35 lbs
Aggregate	1000 lbs
Admixtures	½ pint each

Deliver the samples and the mix design, including the test results, to the Materials and Research Division a minimum of 14 calendar days before placing concrete. Attach a tag to all samples identifying the Department's project number and the type of material. On the day the material is delivered, provide the Engineer with a copy of the mix design and test results, and notify the Engineer the samples have been delivered.

602 CONCRETE AGGREGATE TESTING: In addition to testing in Section 802 of the Standard Specifications for Road and Bridge Construction, AASHTO T 303 will be conducted. The contractor must have coarse and fine aggregates used in concrete be tested for alkali silica reactivity by an independent lab. If the average of the test results show an expansion greater than 0.10 percent, then the aggregate will not be allowed for use on the project. Test results must be given to the Engineer a minimum of 30 calendar days before the aggregate is used on the project.

The aggregate tested must be from the stockpiled material used for the project.

602 DIAPHRAGMS AND ENDWALLS: Install steel intermediate diaphragms before deck concrete. Place the pier diaphragm and abutment endwall concrete at the same time as the deck concrete.

Maintain plan beam spacing and alignment at all pier diaphragms, intermediate diaphragms and endwalls.

602 DECK PLACEMENT: Do not place deck concrete until the entire deck is formed. Place the deck concrete at a minimum rate of 80 CY per hour. See Dwgs 0297-000.303-31 & 32 for the location of an optional construction joint. Allow the deck to cure a minimum of 72 hours between deck pours.

602 SHARED-USE PATH BROOMING: Do not groove the shared-use path on the bridge or approach slabs. Transversely broom the shared-use path to slightly roughen the surface.

602 FORM LINERS: Include the cost to provide and install the form liners in the price bid for the appropriate concrete items.

602 BARRIERS AND PEDESTRIAN WALL: Construct V-grooves that are ¾ inch wide and ¾ inch deep in all faces, excluding the recessed areas, of the barriers and pedestrian wall as shown on Dwgs 0297-000.303-58 through 60.

602 WATER WASHING EQUIPMENT: In addition to the water-washing equipment listed in Section 602.02 D, a cold-water pressure washer that provides a minimum nozzle pressure of 3,000 psi may be used.

602 PENETRATING WATER REPELLENT TREATMENT: Apply penetrating water repellent to the driving surface of the bridge deck, shared-use path, and approach slabs, top of abutment bearing surfaces, and top and sides of the raised median prior to crack sealing. Do not allow traffic on the driving surfaces until the solution has completely penetrated and the entire driving surface is dry.

602 REMOVAL OF FORMS: Leave deck slab forms in place for a minimum of 1 day after completion of the curing period and the bridge deck concrete has reached 70 percent of the required design strength.

602 CRACK SEALING: After the penetrating water repellent has been applied and is dry, the Engineer will perform a visual inspection of the bridge deck and approach slabs to determine the need for crack sealing. Mark and repair all visible cracks appearing on the top surface 0.012" or greater in width at its widest segment or as directed by the Engineer.

Immediately before applying the sealer, clean the cracks by removing all dust and debris with compressed air. Seal the cracks with a two-part epoxy in accordance with the manufacturer's recommendations. Chase crack with the sealant application to limits of crack, including those portions that are narrower than 0.012" wide. Use Paulco TE-2501 (Viking Paints, Inc.), Dural 50 LM (Euclid Chemical Co.), TK-9000 or TK-2110 (TK Products), or an approved epoxy sealer.

Include all material, labor, and equipment required to crack seal the bridge deck and approach slabs in the price bid for Bridge Deck Concrete.

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

NOTES

602 SPECIAL SURFACE FINISH: Clean the surfaces that are to receive Tex-Cote surface finish using sandblasting, shot blasting, or water-washing equipment to remove all dirt, grease, oil, efflorescence, and laitance. Ensure any curing compounds and release agents have been completely removed from the surfaces to receive the Tex-Cote surface finish.

Apply TexCote XL 70 BridgeCote with Silane to the areas listed below. Apply the surface finish in accordance with the manufacturer's recommended application procedures to attain a dry film thickness of 15 mils. Do not apply Tex-Cote special surface finish to any form liner areas.

- All exposed substructure surfaces
- All exposed retaining wall surfaces
- Outside edges of the bridge deck
- Underside of the bridge deck overhang
- Outside and bottom surfaces of the exterior beams
- Exposed endwall areas outside the exterior beams
- All exposed pillar surfaces
- All bridge and approach slab barrier & pedestrian wall surfaces

Finish the surface with a uniform texture, color, and appearance free from fins, projections, cavities, and porous areas. Use a sand textured finish. Use Tex-Cote "Chamois T-125" standard decorative finish color for the bridge and approach slab barrier surfaces. Use Tex-Cote "Sandalwood T-114" standard decorative finish color for all other surfaces. Submit to the Engineer a Tex-Cote color chip card with a declaration of conformity along with a 1'x1' sample of each surface finish.

Include all special surface finish costs in the price bid for the appropriate concrete bid items.

602 WEATHER LIMITATIONS: The conditions of cold weather concreting exist when the air temperature has fallen to, or is expected to fall below, 40°F at any time in the curing period. All concrete work meeting these conditions is to be constructed in accordance with 602.04 C.4 "Weather Limitations", ACI 306R-16, and will require submittal of a cold weather concrete protection plan accepted by the NDDOT Bridge Division before placement of concrete. The Engineer's acceptance of the plan does not relieve the Contractor of the obligation to remove and replace concrete that is damaged due to not maintaining concrete temperature within the required range during the curing period or from exceeding the required rate of temperature reduction.

Submit a cold weather concrete protection plan in accordance with 602.04 C.4 "Weather Limitations" including, but not limited to, the following provisions for maintaining required curing temperatures:

1. Preheat the forms, in-place concrete, reinforcement bars, and items including the top flanges of beams to a minimum of 40°F when the temperatures of these surface areas are below freezing before placing concrete. Do not apply flames directly to concrete or steel.
2. Provide insulated forms, insulation, or heating and housing facilities to maintain a concrete surface temperature of between 50°F and 90°F during the curing period.
3. Protect all exposed concrete surfaces within the heated enclosures from drying and carbonation throughout the curing period. Vent the heated enclosures to prevent the buildup of carbon dioxide. Ensure a reasonably uniform temperature throughout the enclosure.
4. Keep the forms, insulation, and housing enclosure in place until the completion of the curing period as defined in 602.04 F.1.
5. Provide a concrete temperature monitoring system for all cold weather concrete work performed. Monitor temperatures hourly throughout the curing period and provide written documentation to the Engineer.
6. Gradually discontinue the use of cold weather protection so the rate of temperature reduction adjacent to the concrete surfaces does not exceed 20°F during any 12 hour period until the surface temperature reaches the ambient air temperature.

622 PILING: Drive piling using a diesel hammer meeting the minimum specifications listed below for each substructure unit. The operating energy is the energy a hammer is capable of producing during pile driving under actual project conditions and shall be estimated to be no greater than 90% of the hammer's maximum rated energy as specified in the manufacturer's literature. Submit specifications for all pile hammers proposed for use on the project to the Engineer for review at least 14 calendar days prior to beginning pile driving operations.

Approach Slab Piling:	Minimum Ram Weight = 3,500 lbs Minimum Operating Energy = 32,000 foot-pounds
Bridge Piling:	Minimum Ram Weight = 5,500 lbs Minimum Operating Energy = 54,000 foot-pounds
Retaining Wall Piling:	Minimum Ram Weight = 5,000 lbs Minimum Operating Energy = 37,000 foot-pounds

Run the hammer at an energy that produces a penetration at bearing between ½" and 3 inches in the last 10 blows.

622 GROUND STABILIZATION PILING: Ground stabilization piling will not be measured for payment and will be paid at plan quantity. If piling is driven deeper than plan depth, no price adjustment will be considered.

624 PEDESTRIAN RAILING & FENCE: Paint the pedestrian railing and fence after fabrication in accordance with SP 396(24). Use paint color No. 30108 (Red Brown, Walnut Brown) in accordance with AMS-STD-595. Include all costs associated with fabrication, assembly, galvanizing, paint, and installation of the fence in the unit price bid for "Pedestrian Fence" and "Pedestrian Railing". Provide Grand Forks Public Works two additional sections of Pedestrian Fence Panel – Type A and Pedestrian Railing Penel – Type A for later use in the event of damage.

752 ORNAMENTAL FENCE: Paint the ornamental fence after fabrication in accordance with SP 396(24). Use paint color No. 30108 (Red Brown, Walnut Brown) in accordance with AMS-STD-595. Include all costs associated with fabrication, assembly, galvanizing, paint, and installation of the fence in the unit price bid for "Ornamental Fence". Provide Grand Forks Public Works two additional sections of Ornamental Fence Panel – Type A for later use in the event of damage.

930 3IN EXPANSION JOINT: Install expansion joints consisting of a pre-compressed polymer impregnated self-expanding polyurethane foam joint seal coated with a silicone surface providing a permanent weather tight seal. The joint seal may be:

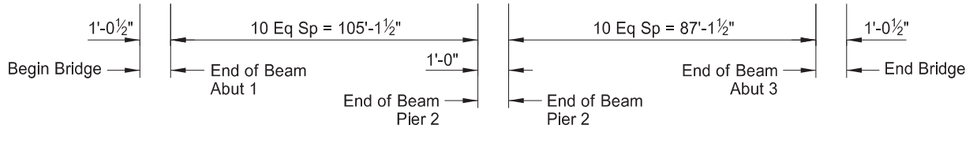
1. Wabo FS Bridge Seal (Watson Bowman Acme);
2. BEJS Bridge Expansion Joint System (EMSEAL);
3. Iso-Flex Silfast XL (LymTal International);
4. Polytite N (Schul International),

Prepare the joint opening and install the joint seal according to the manufacturer's recommendations.

Follow the manufacturer's recommendation for attaching the expansion joint seal to the concrete and for splicing foam together. Install the membrane sealant material into the joint, positioning it with the manufacturer's recommended recess from the top surface of the concrete. Do not stretch or compress the membrane sealant material.

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PE-27400
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NORTH DAKOTA

℄ BEAM 1	℄ BEAM 2	℄ BEAM 3	℄ BEAM 4	℄ BEAM 5	℄ BEAM 6	℄ BEAM 7	℄ BEAM 8	℄ BEAM 9	℄ BEAM 10
836.59	836.79	836.99	837.20	837.40	837.60	837.39	837.19	836.99	836.87
836.60	836.80	837.00	837.21	837.41	837.61	837.41	837.20	837.00	836.88
836.80	837.02	837.22	837.42	837.62	837.82	837.62	837.42	837.22	837.09
836.99	837.21	837.41	837.61	837.82	838.02	837.81	837.61	837.41	837.27
837.14	837.37	837.57	837.77	837.98	838.18	837.97	837.77	837.57	837.42
837.26	837.49	837.69	837.90	838.10	838.30	838.09	837.89	837.69	837.54
837.33	837.57	837.77	837.98	838.18	838.38	838.18	837.97	837.77	837.62
837.37	837.61	837.81	838.01	838.22	838.42	838.21	838.01	837.81	837.66
837.38	837.60	837.81	838.01	838.21	838.41	838.21	838.01	837.80	837.66
837.34	837.56	837.77	837.97	838.17	838.37	838.17	837.97	837.76	837.63
837.28	837.49	837.69	837.90	838.10	838.30	838.10	837.89	837.69	837.56
837.19	837.39	837.60	837.80	838.00	838.20	838.00	837.80	837.59	837.48
837.19	837.39	837.60	837.80	838.00	838.20	838.00	837.80	837.59	837.48
837.23	837.43	837.64	837.84	838.04	838.24	838.04	837.84	837.63	837.51
837.25	837.46	837.66	837.87	838.07	838.27	838.07	837.86	837.66	837.53
837.25	837.47	837.67	837.87	838.08	838.28	838.07	837.87	837.67	837.54
837.24	837.46	837.66	837.86	838.07	838.27	838.06	837.86	837.66	837.52
837.21	837.42	837.63	837.83	838.03	838.23	838.03	837.83	837.62	837.49
837.15	837.37	837.57	837.77	837.98	838.18	837.97	837.77	837.57	837.43
837.07	837.29	837.49	837.70	837.90	838.10	837.90	837.69	837.49	837.36
836.98	837.19	837.39	837.60	837.80	838.00	837.80	837.59	837.39	837.26
836.87	837.08	837.28	837.48	837.68	837.88	837.68	837.48	837.28	837.15
836.74	836.95	837.15	837.35	837.56	837.76	837.55	837.35	837.15	837.03
836.73	836.94	837.14	837.34	837.55	837.75	837.54	837.34	837.14	837.02



Beam 1 is the north beam.

SCREED ELEVATION

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170a	5

BRIDGE BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
210	0102	CLASS 1 EXCAVATION-SITE 1	L SUM	1
210	0202	FOUNDATION PREPARATION-SITE 1	L SUM	1
210	0210	FOUNDATION FILL	CY	4,720
258	0100	CONCRETE SLOPE PROTECTION	SY	749
602	0500	BRIDGE SUBSTRUCTURE CONCRETE	CY	1,203.0
602	0510	BRIDGE DECK CONCRETE	CY	632.3
602	0520	BRIDGE BARRIER CONCRETE	CY	87.2
602	1133	CONCRETE BRIDGE APPROACH SLAB	SY	423.1
602	1134	PILE SUPPORTED APPROACH SLAB	SY	420
602	1250	PENETRATING WATER REPELLENT TREATMENT	SY	2,803
604	3910	PRESTRESSED I-BEAM-MN45IN	LF	1,922.5
612	0115	REINFORCING STEEL-GRADE 60	LBS	36,543
612	0116	REINFORCING STEEL-GRADE 60-EPOXY COATED	LBS	270,039
616	0360	STRUCTUREAL STEEL	LBS	5,805
622	0020	STEEL PILING HP 10 X 42	LF	2,880
622	0040	STEEL PILING HP 12 X 53	LF	5,850
622	0060	STEEL PILING HP 14 X 73	LF	12,480
622	0260	GROUND STABILIZATION PILING HP 14 X 73	LF	4,620
622	7001	DYNAMIC PILE TEST	EA	5
624	0123	PEDESTRIAN RAILING	LF	251.0
624	0124	PEDESTRIAN FENCE	LF	186.3
750	0020	PIGMENTED CONCRETE	SY	642.4
752	0850	ORNAMENTAL FENCE	LF	116.6
770	9402	LIGHTING SYSTEM (AESTHETIC)	LS	0.5
930	3000	BRIDGE BENCH MARKS	SET	1
930	3040	BEARINGS (EXPANSION)	EA	20
930	8600	ELASTOMERIC BEARING PAD	SF	58.3
930	8700	3 IN EXPANSION JOINT	LF	188
930	9537	ABUTMENT UNDERDRAIN SYSTEM	EA	2

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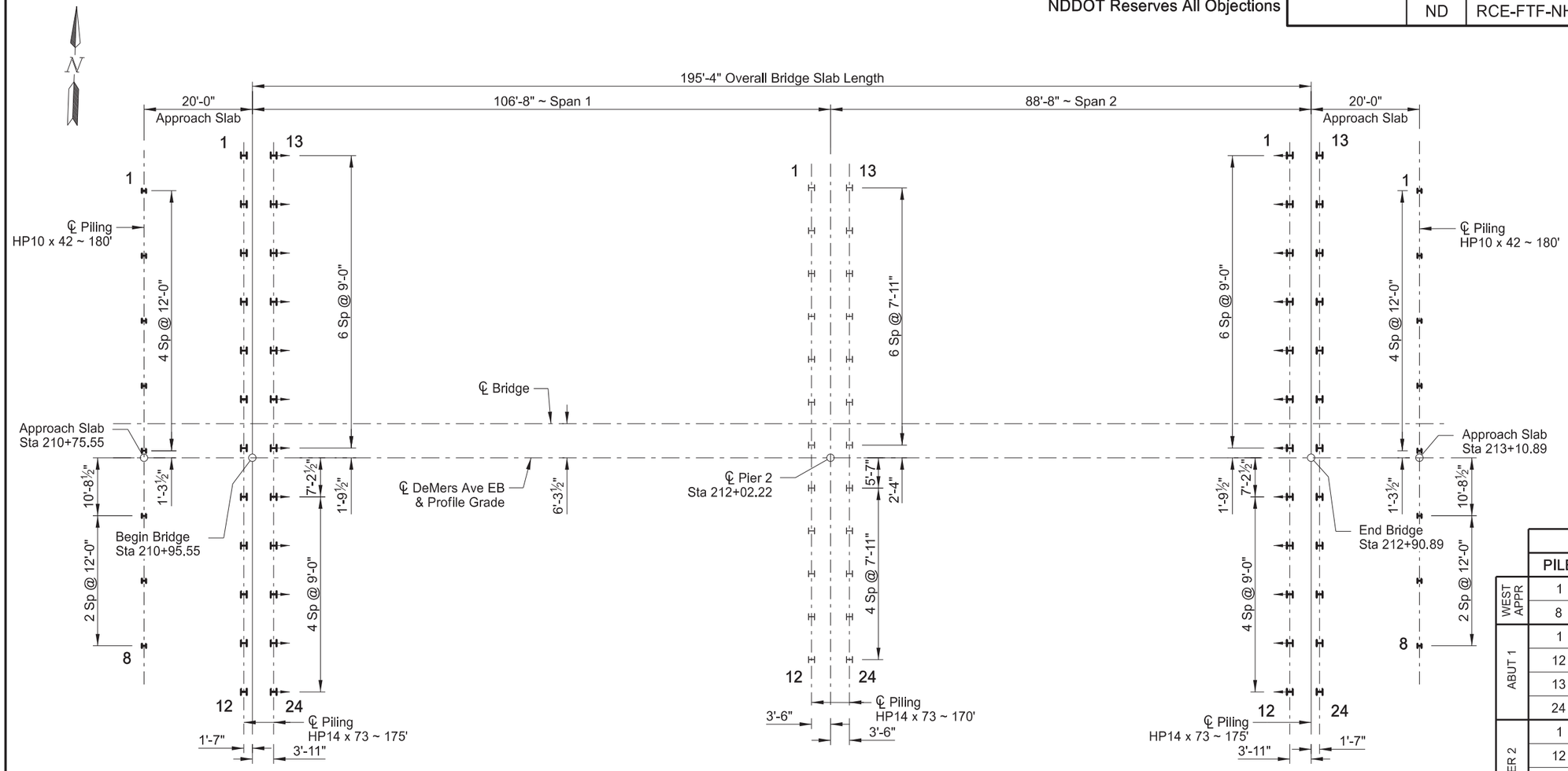
ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

SCREED ELEVATIONS &
BID ITEM QUANTITIES

DRAWING NO. 0297-000.303-5

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	6



Drive the HP10 x 42 Pile to a bearing resistance of 105 tons.
Drive the HP14 x 73 Pile to a bearing resistance of 180 tons.

PILING LAYOUT

	PILE	NORTHING	EASTING
WEST APPR	1	353,558.29	2,805,015.22
	8	353,474.33	2,805,017.73
ABUT 1	1	353,565.34	2,805,033.43
	12	353,466.38	2,805,036.39
	13	353,565.50	2,805,038.93
	24	353,466.54	2,805,041.89
PIER 2	1	353,562.51	2,805,138.31
	12	353,475.46	2,805,140.91
	13	353,562.72	2,805,145.31
	24	353,475.67	2,805,147.91
ABUT 3	1	353,571.10	2,805,226.34
	12	353,472.14	2,805,229.30
	13	353,571.26	2,805,231.84
	24	353,472.31	2,805,234.80
EAST APPR	1	353,565.32	2,805,250.44
	8	353,481.35	2,805,252.95

PILE COORDINATES

NOTES:

1. For double acting or single acting diesel hammers, calculate the bearing resistance of piles by the following formula:

$$\Phi Rn = \frac{4.5E}{S + 0.2} \times \frac{W + 0.2M}{W + M}$$

Where:

ΦRn = Nominal pile bearing resistance, in pounds. The Φ factor is included in equation.
W = Weight of striking parts (ram), in pounds.
M = Weight of parts being driven, in pounds. Includes pile weight, anvil (if any), driving cap, etc.
E = Energy per blow, in foot-pounds.
S = Average penetration of pile in inches per blow for last ten blows.

For single acting hammers, calculate E by multiplying observed stroke (ft) and W (lbs).

2. Arrows indicate direction of pile batter. Pile batter is 3:12 at locations shown.
3. See Dwg 0297-000.303-7 for Ground Stabilization pile details.
4. See Dwg 0297-000.303-8 for Retaining Wall pile details.

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ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

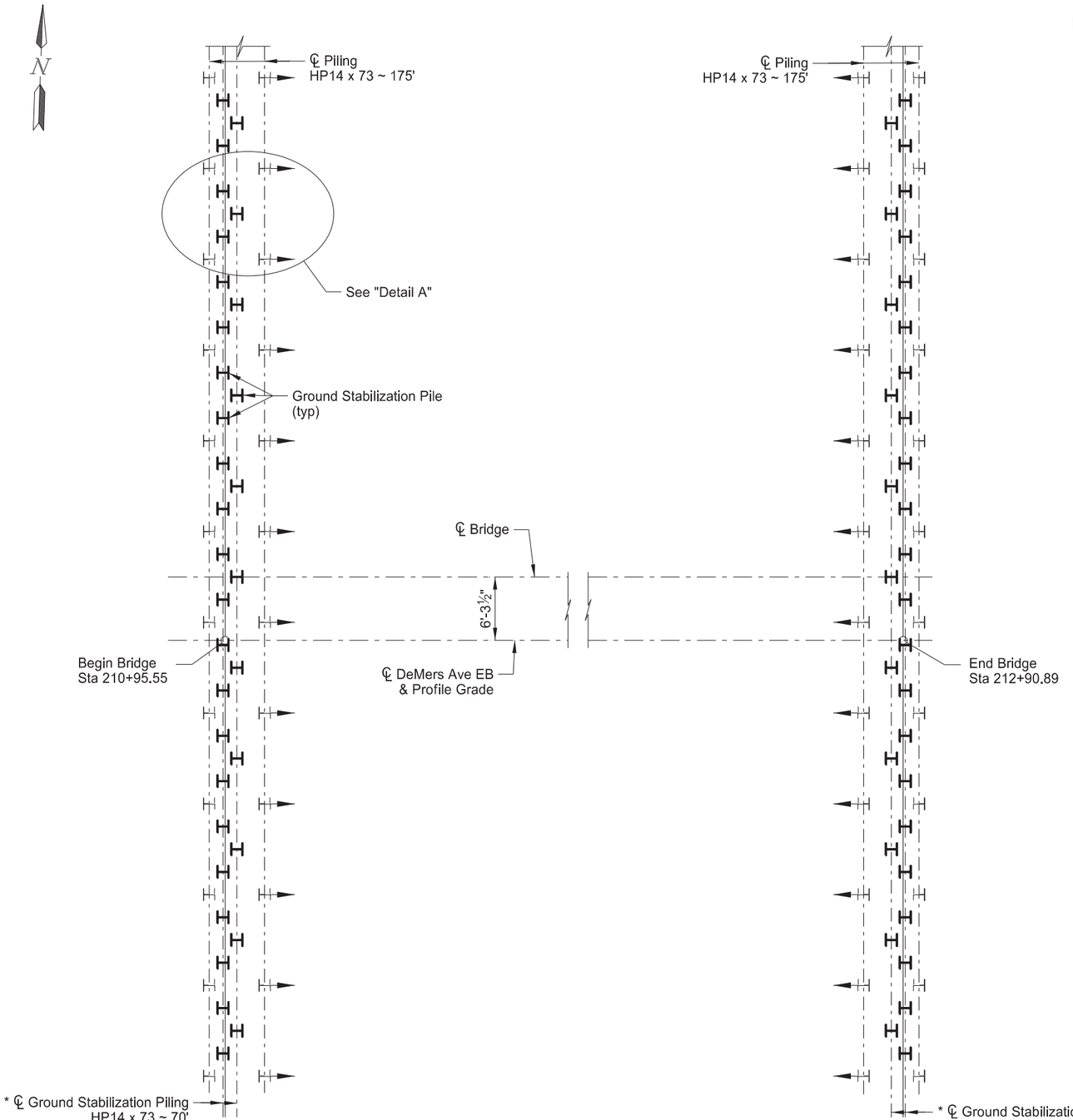
BRIDGE

PILING LAYOUT

DRAWING NO. 0297-000.303-6

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

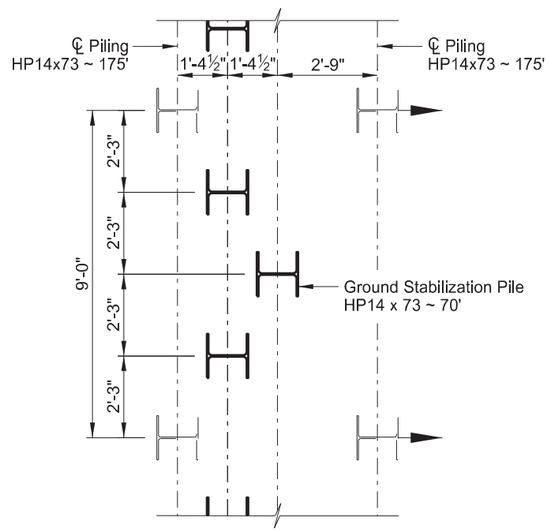
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170a	7



Drive the HP14 x 73 Ground Stabilization Pile to a depth of 70' below cut-off elevation.

PILING LAYOUT

* Do not drive ground stabilization piling until all abutment foundation pile are driven to acceptable bearing resistance.



(Abutment 3 Similar)

DETAIL "A"

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DATE 1/29/2026
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ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

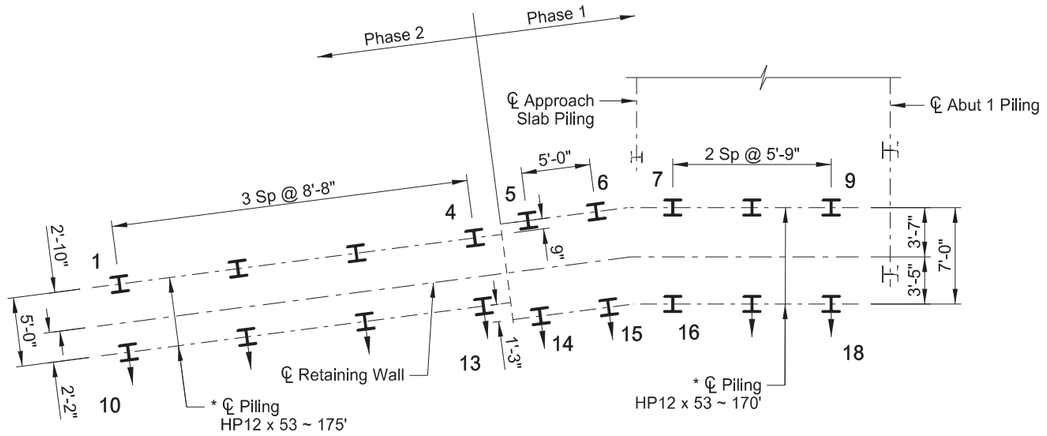
GROUND STABILIZATION

PILING LAYOUT

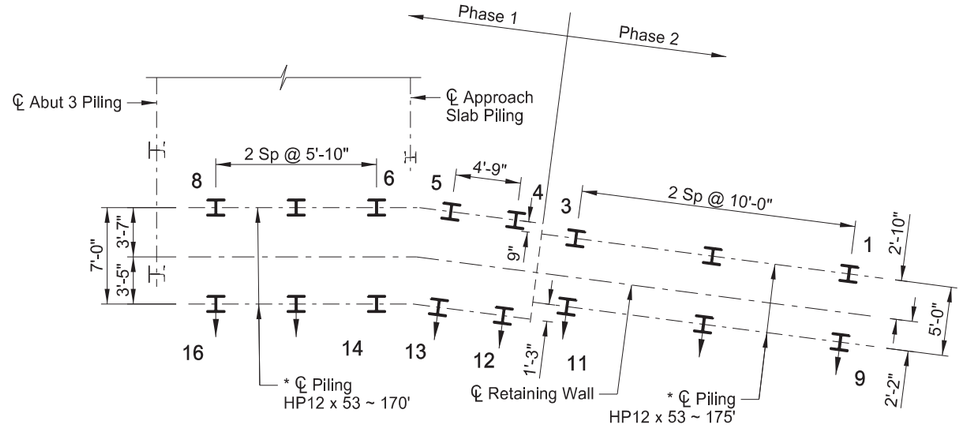
DRAWING NO. 0297-000.303-7

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	8



WEST RETAINING WALL



EAST RETAINING WALL

Drive the HP12 x 53 Pile to a bearing resistance of 130 tons.

PILING LAYOUT

NOTES:

1. For double acting or single acting diesel hammers, calculate the bearing resistance of piles by the following formula:

$$\Phi Rn = \frac{4.5E}{S + 0.2} \times \frac{W + 0.2M}{W + M}$$

Where:

ΦRn = Nominal pile bearing resistance, in pounds. The Φ factor is included in equation.
W = Weight of striking parts (ram), in pounds.
M = Weight of parts being driven, in pounds. Includes pile weight, anvil (if any), driving cap, etc.
E = Energy per blow, in foot-pounds.
S = Average penetration of pile in inches per blow for last ten blows.

For single acting hammers, calculate E by multiplying observed stroke (ft) and W (lbs).

2. Arrow indicates direction of pile batter. Pile batter is 3:12 at locations shown.

3. Phase 1 piling and concrete placement must be completed and backfilled to bottom elevation of Phase 2 footing prior to driving Phase 2 piling.

PILE COORDINATES

	PILE	NORTHING	EASTING		PILE	NORTHING	EASTING
WEST RETAINING WALL	1	353,463.99	2,804,980.47	EAST RETAINING WALL	1	353,473.83	2,805,285.04
	4	353,468.11	2,805,006.14		3	353,475.82	2,805,265.14
	5	353,469.49	2,805,009.97		4	353,477.01	2,805,260.74
	6	353,470.28	2,805,014.91		5	353,477.48	2,805,256.01
	7	353,470.74	2,805,020.46		6	353,477.62	2,805,250.60
	9	353,471.09	2,805,031.96		8	353,477.27	2,805,238.94
	10	353,459.05	2,804,981.26		9	353,468.85	2,805,284.54
	13	353,463.18	2,805,006.93		11	353,470.84	2,805,264.64
	14	353,462.58	2,805,011.08		12	353,470.04	2,805,260.04
	15	353,463.37	2,805,016.02		13	353,470.52	2,805,255.31
	16	353,463.75	2,805,020.67		14	353,470.62	2,805,250.81
	18	353,464.09	2,805,032.17		16	353,470.27	2,805,239.15

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ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

RETAINING WALL

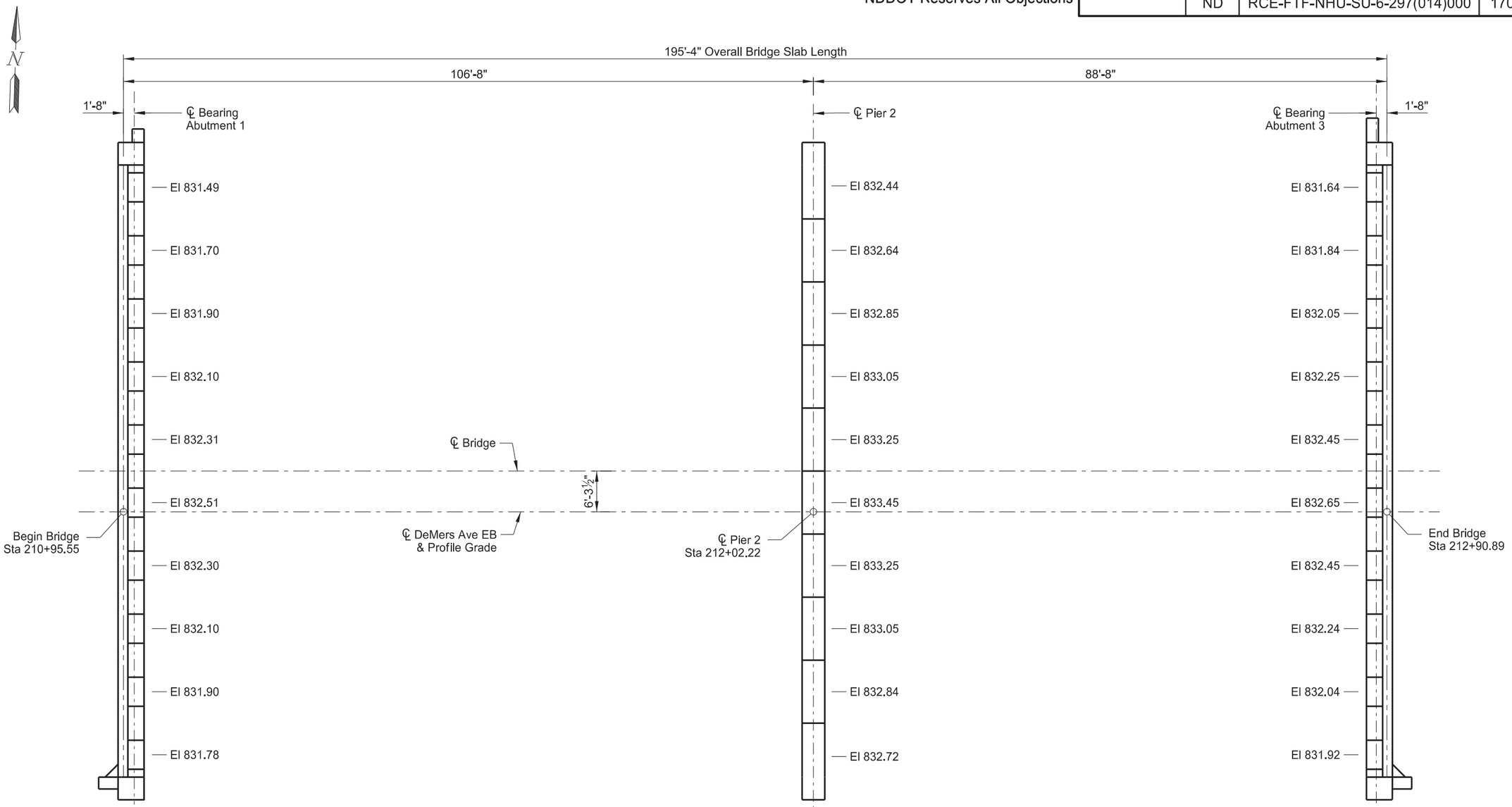
PILING LAYOUT

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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

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Elevations shown are to top of finished concrete.

BEARING ELEVATIONS

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PE-27400
DATE 1/29/2026
NORTH DAKOTA

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

BEARING ELEVATION

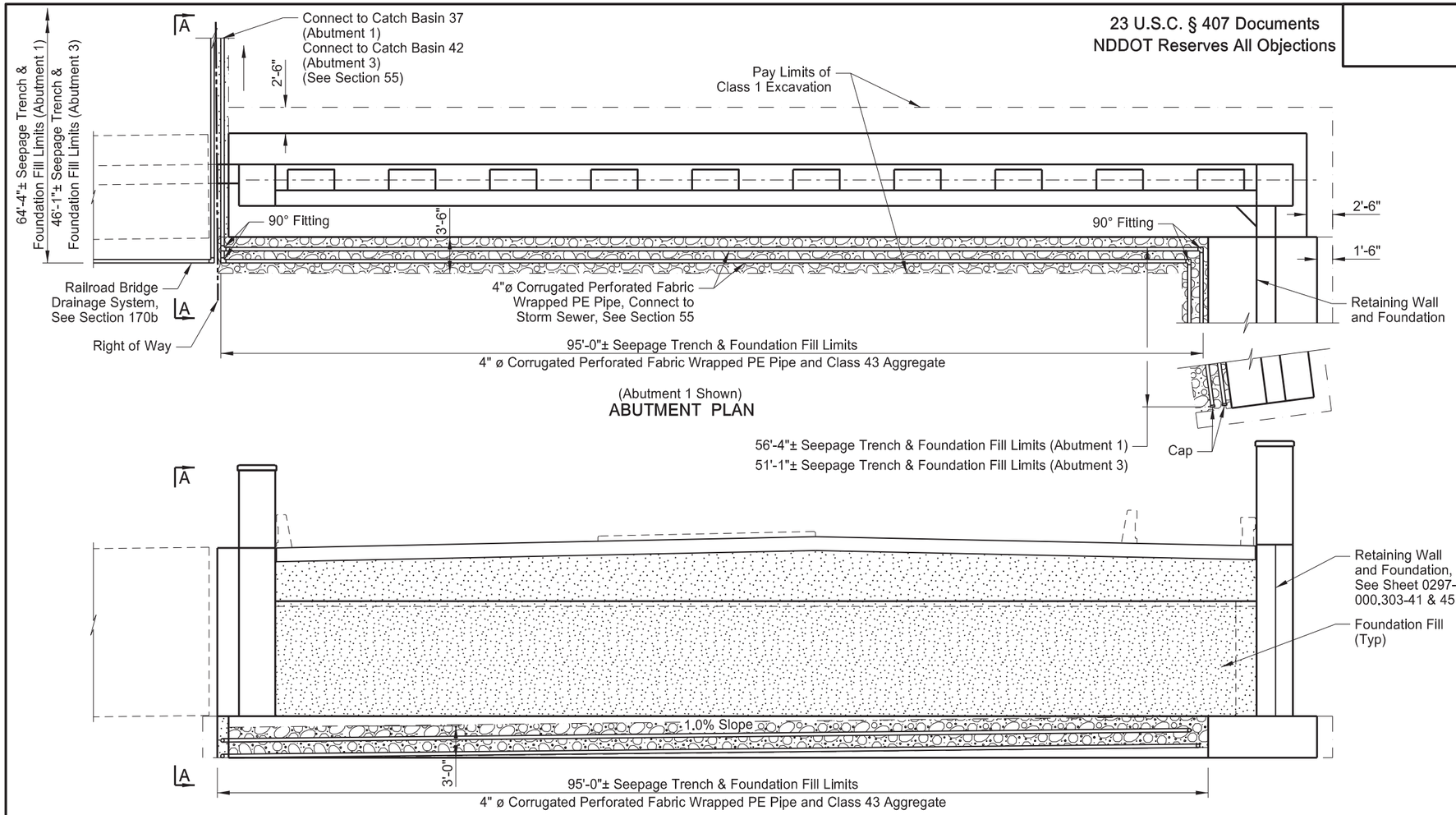
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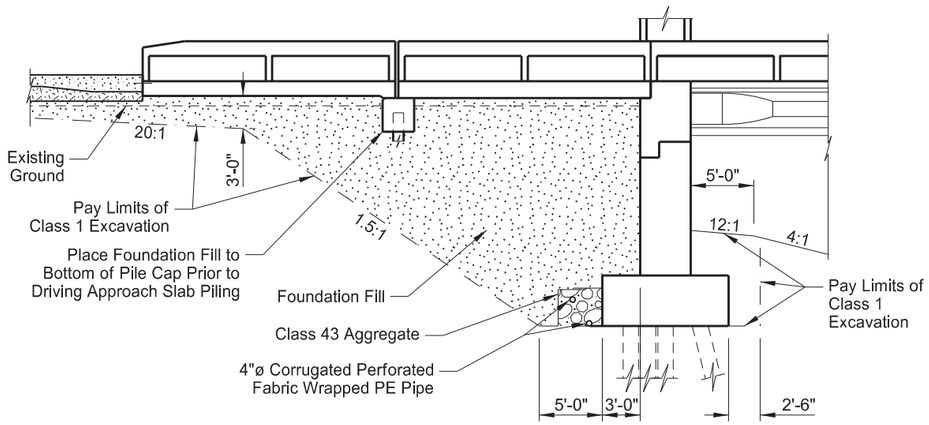
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	10

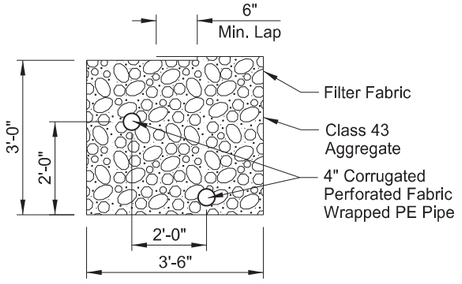


(Abutment 1 Shown)
ABUTMENT PLAN

(Abutment 1 Shown)
BACK FACE OF ABUTMENT



DETAIL AT ABUTMENT



PIPE EMBEDMENT DETAIL

END VIEW
A-A

NOTES:

Use corrugated perforated fabric wrapped PE pipe that meets the requirements of Section 830.03 A.4. Provide fabric wrapping for the pipe that meets the requirements of Section 858.01 for D3 or D4 drainage fabric. Provide aggregate that meets the requirements of Section 816.03, Class 43. Use non-perforated PVC pipe fittings that meets the requirements of Section 816.03, Class 43. Provide foundation fill that meets the requirements of Section 210.

Include the cost to furnish and place the Class 43 aggregate, filter rabric, corrugated perforated pipe, non-perforated pipe, fittings, and connection to storm sewer in the pay item "Abutment Underdrain System".

Include the cost to furnish and place the foundation fill in the pay item "Foundation Fill" to the limits shown.

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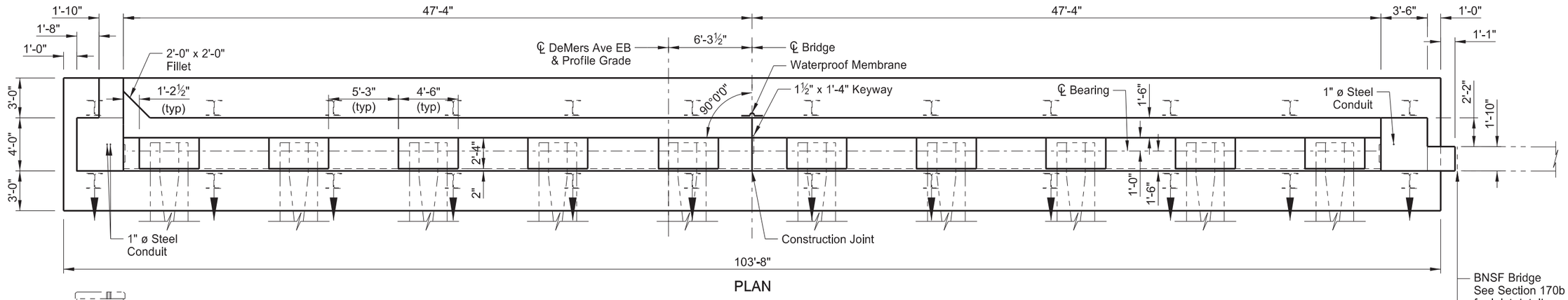
ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

ABUTMENT UNDERDRAIN & EXCAVATION DETAILS

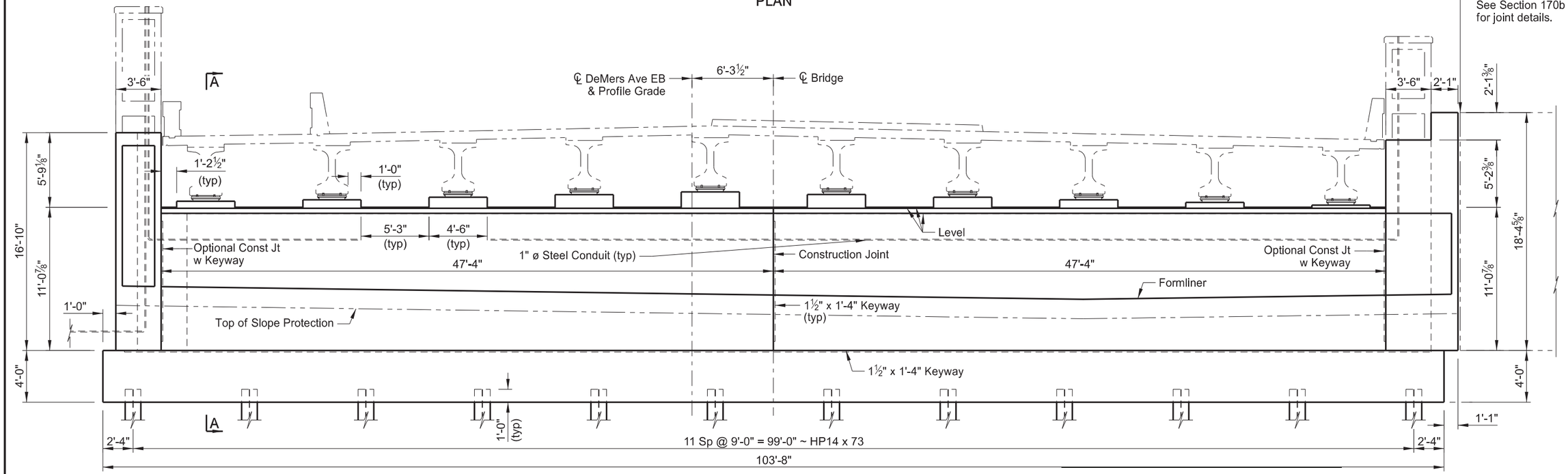
DRAWING NO. 0297-000.303-10

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	11



PLAN



(LOOKING WEST)

ELEVATION

NOTES:

Use waterproof membrane meeting Section 602.03 C. Center the waterproof membrane (1'-0" minimum width) on the back face of all construction joints.

See Dwg 0297-000.303-12 for Section A-A.

See Dwg 0297-000.303-76 for Form Liner details.

Ground Stabilization pile not shown for clarity.



QUANTITIES

SEE DWG 0297-000.303-15

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

(SHOWING DIMENSIONS)

ABUTMENT 1

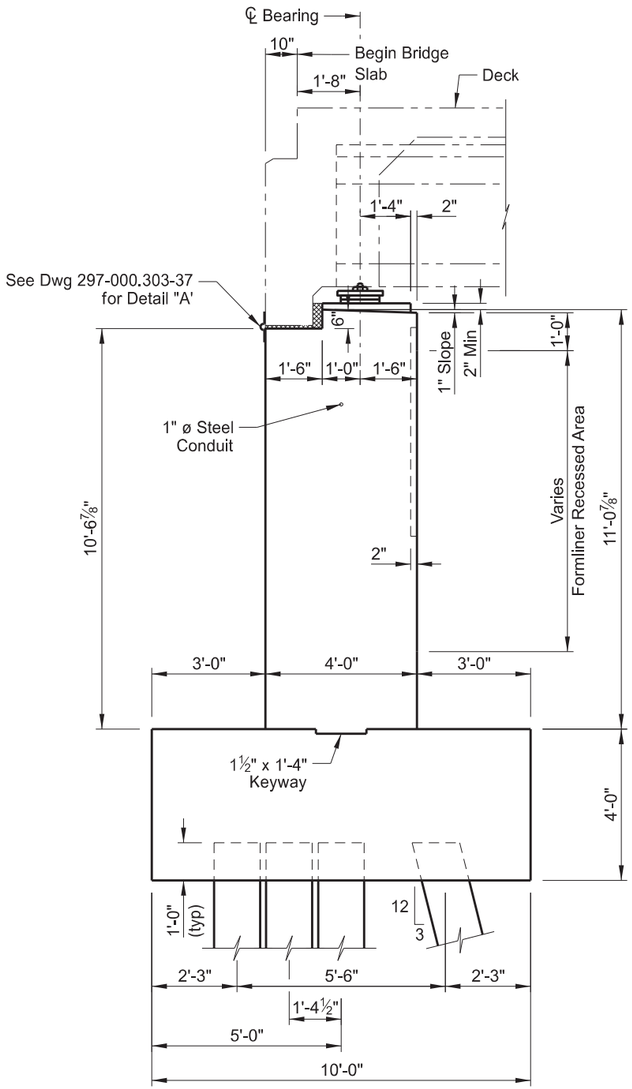
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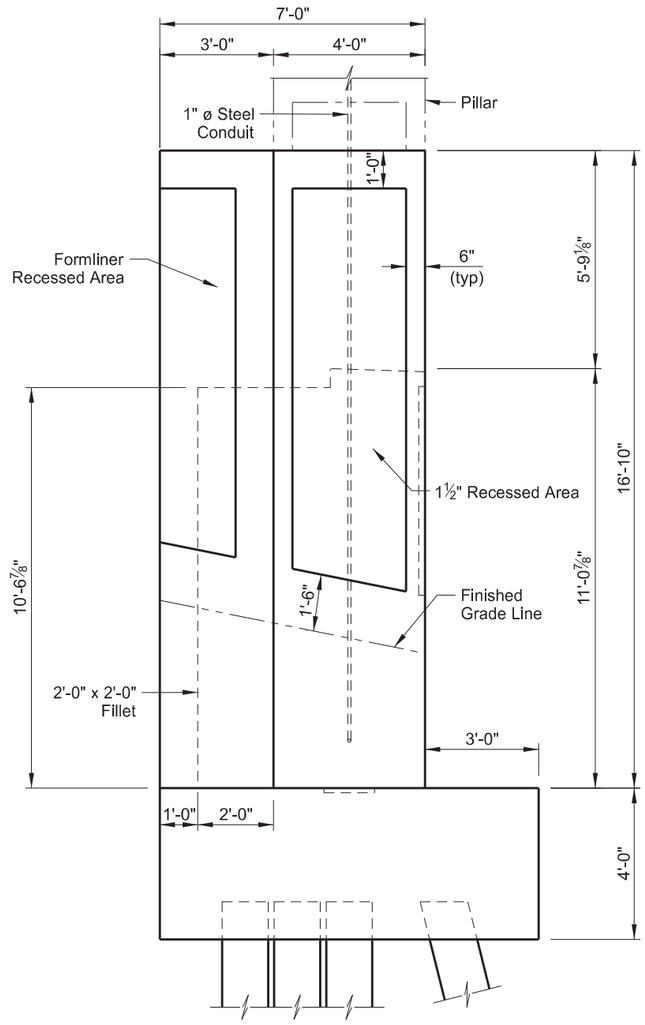
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

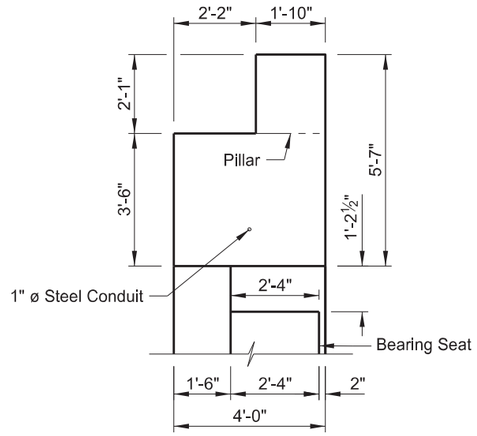
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ND	RCE-FTF-NHU-SU-6-297(014)000	170a	12



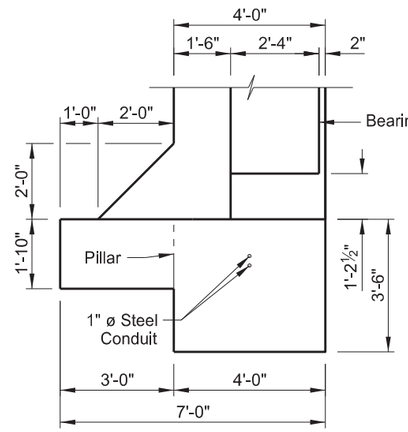
A-A



SOUTHWEST
WING ELEVATION



NORTHWEST
WING PLAN



SOUTHWEST
WING PLAN

NOTES:

Use waterproof membrane meeting Section 602.03 C. Center the waterproof membrane (1'-0" minimum width) on the back face of all construction joints.

See Dwg 0297-000.303-76 for Form Liner details.

REGISTERED PROFESSIONAL ENGINEER
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PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES

SEE DWG 0297-000.303-15

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

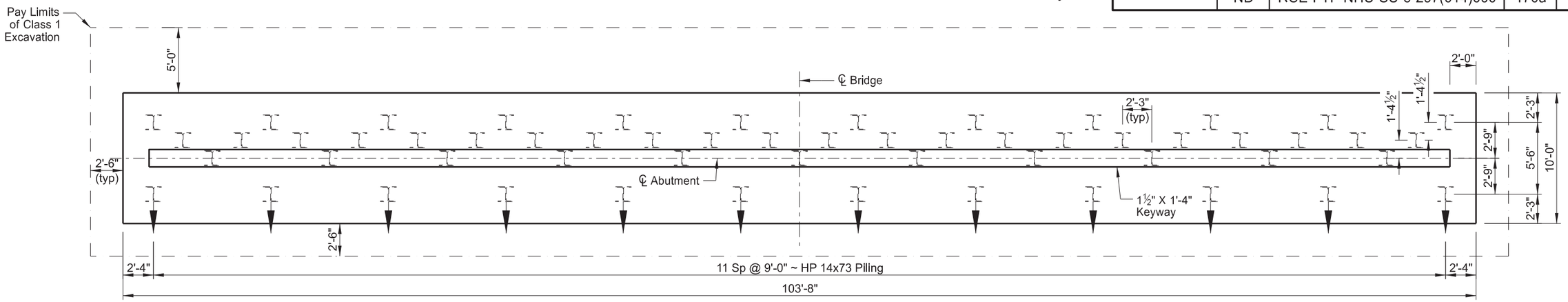
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ABUTMENT 1 DETAILS

DRAWING NO. 0297-000.303-12

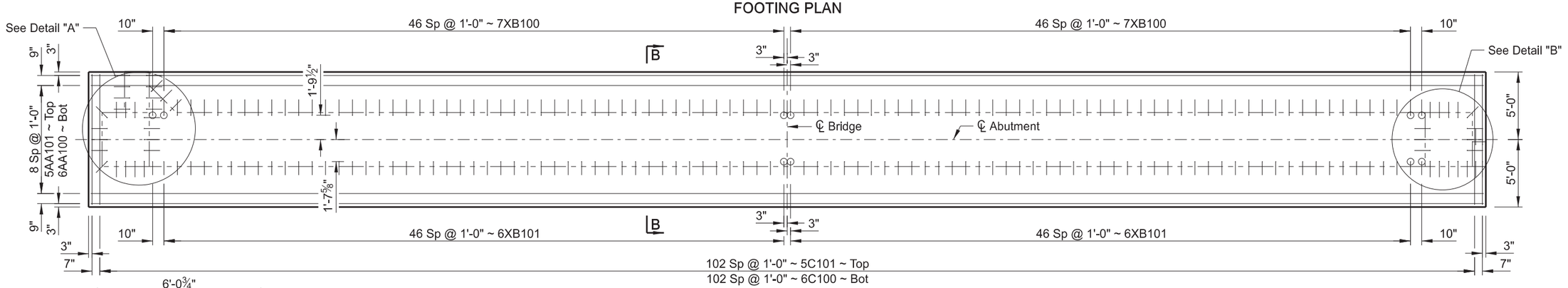
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	13



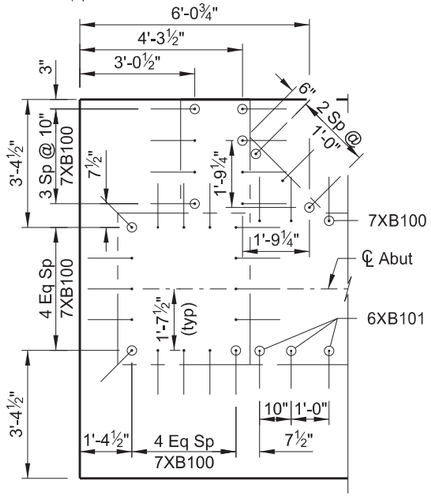
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FOOTING PLAN

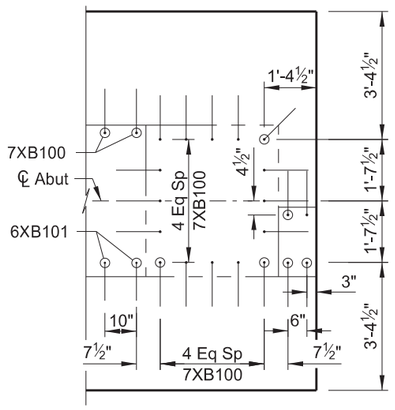


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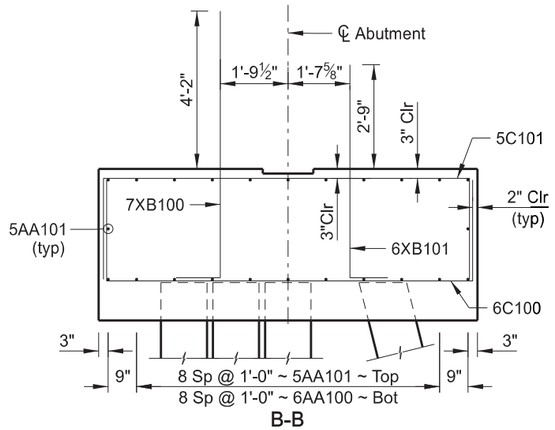
FOOTING PLAN



DETAIL "A"



DETAIL "B"



B-B

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES

SEE DWG 0297-000.303-15

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

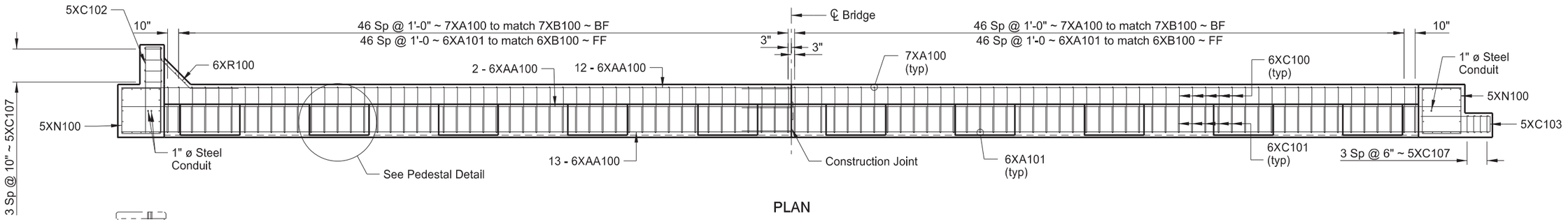
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ABUTMENT 1 FOOTING DETAILS

DRAWING NO. 0297-000.303-13

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	14



PLAN

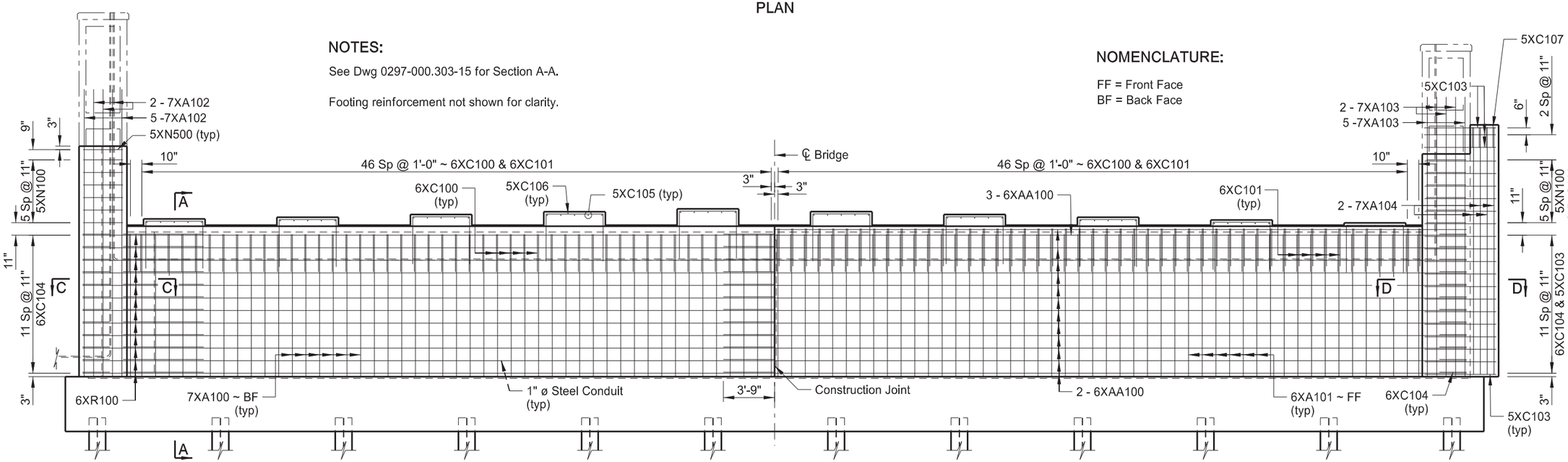
NOTES:

See Dwg 0297-000.303-15 for Section A-A.

Footing reinforcement not shown for clarity.

NOMENCLATURE:

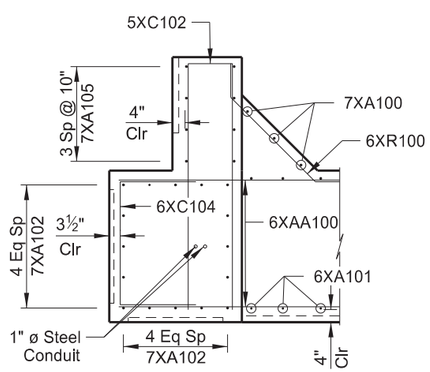
FF = Front Face
BF = Back Face



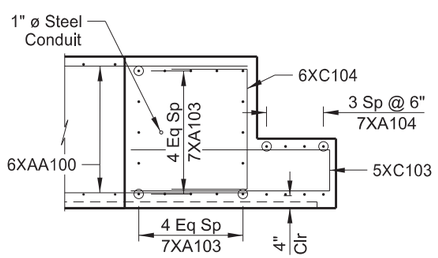
SHOWING BACK FACE REINFORCEMENT

SHOWING FRONT FACE REINFORCEMENT

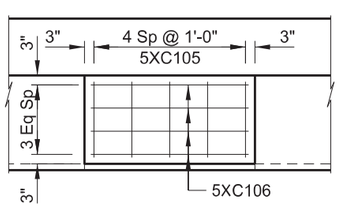
(LOOKING WEST)
ELEVATION



C-C



D-D



PEDESTAL DETAIL

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES

SEE DWG 0297-000.303-15

ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

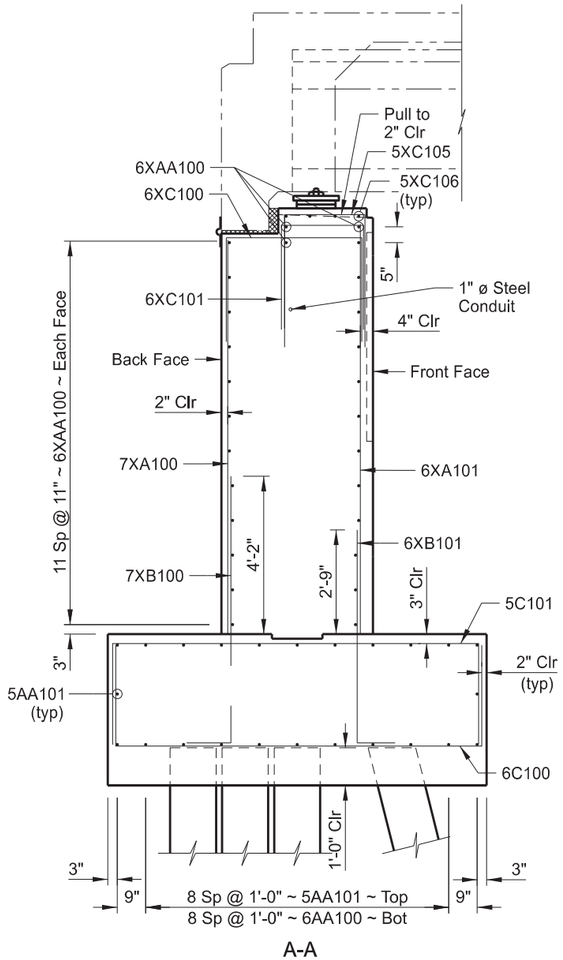
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ABUTMENT 1

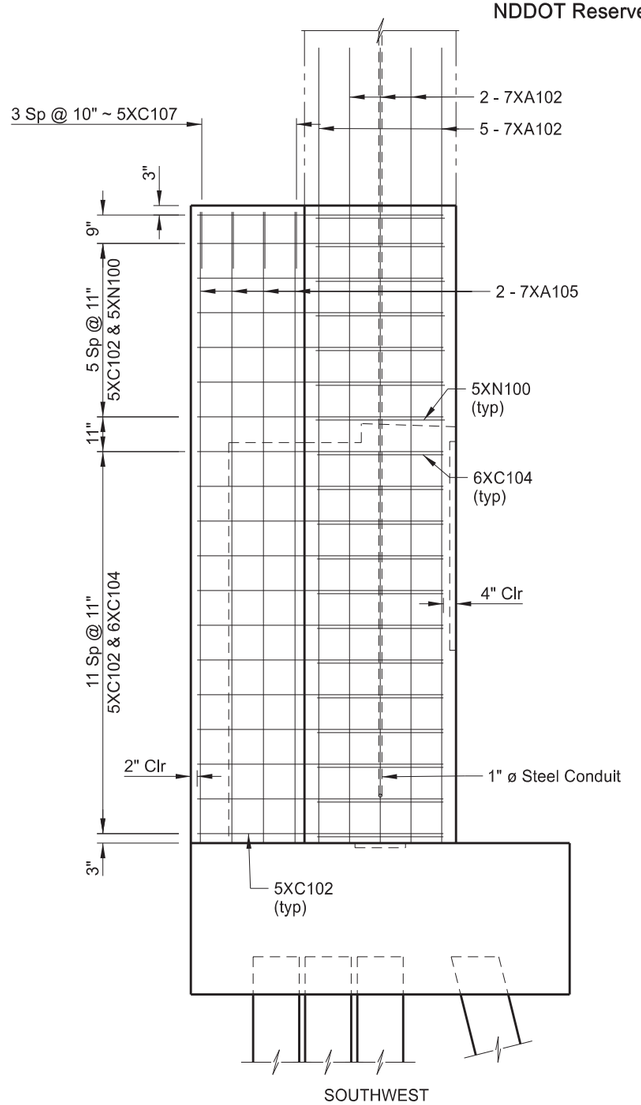
DRAWING NO. 0297-000.303-14

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	15



A-A



SOUTHWEST
WING ELEVATION

QUANTITIES	(ONE ABUTMENT)
BRIDGE SUBSTRUCTURE CONCRETE	329.1 CY
REINFORCING STEEL	7,219 LBS
REINFORCING STEEL (EPOXY)	17,696 LBS

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

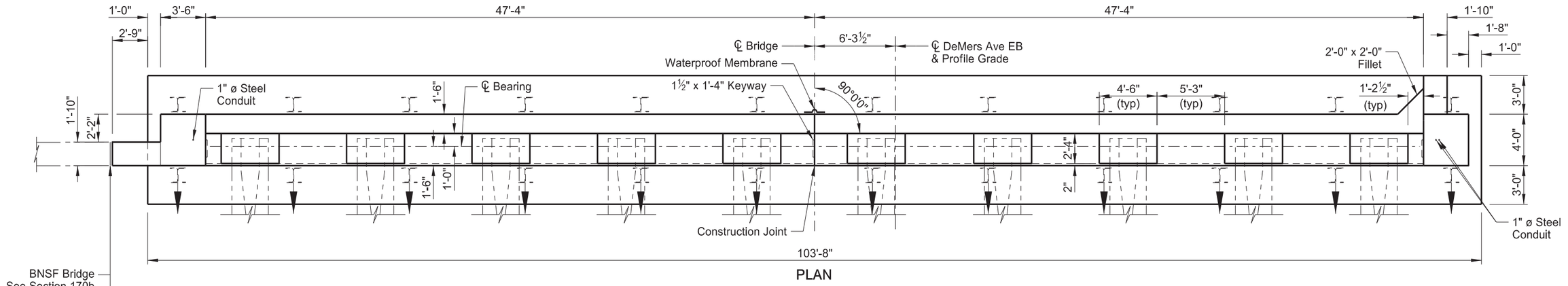
(SHOWING REINFORCING)

ABUTMENT 1 DETAILS

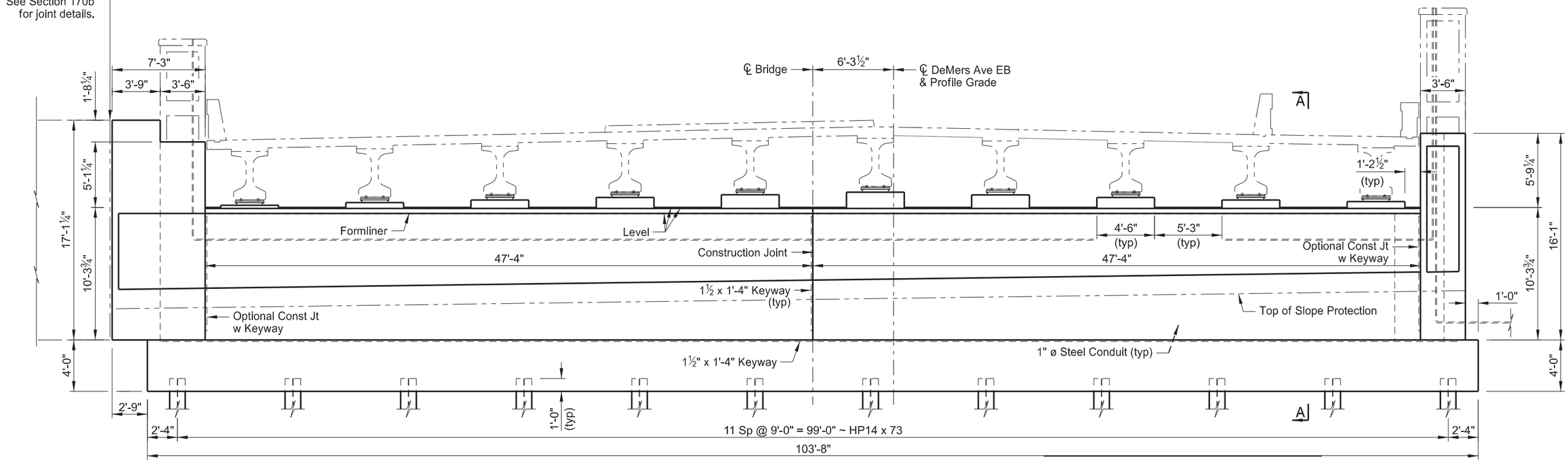
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	16



PLAN



(LOOKING EAST)

ELEVATION

NOTES:

Use waterproof membrane meeting Section 602.03 C.
Center the waterproof membrane (1'-0" minimum width) on the back face of all construction joints.

See Dwg 0297-000.303-17 for Section A-A.

See Dwg 0297-000.303-76 for Form Liner details.

Ground Stabilization pile not shown for clarity.

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES

SEE DWG 0297-000.303-20

ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

(SHOWING DIMENSIONS)

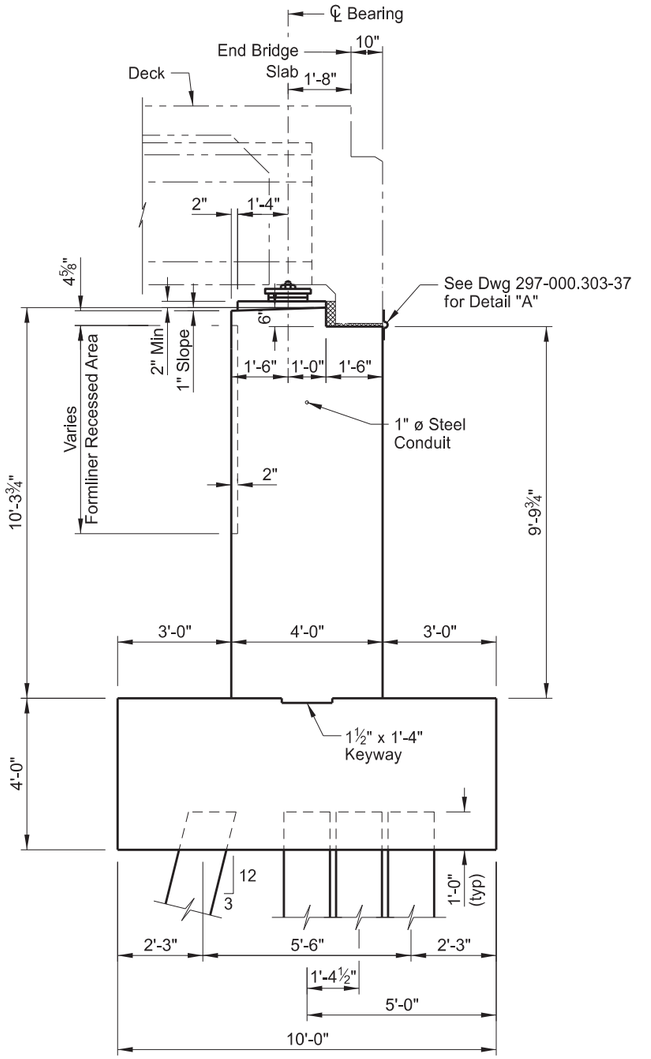
ABUTMENT 3

DRAWING NO. 0297-000.303-16

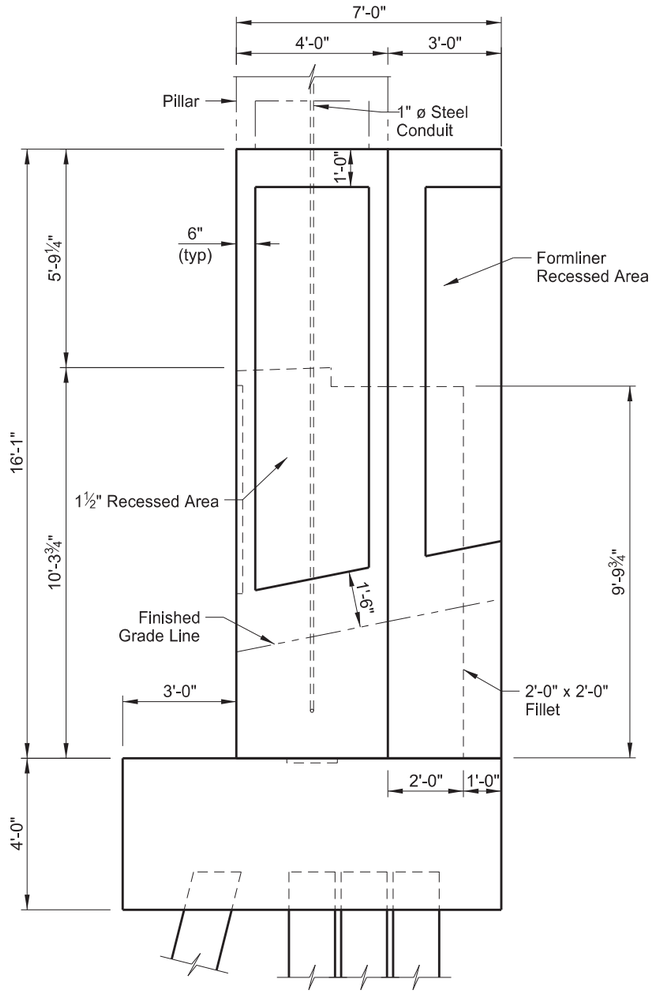
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

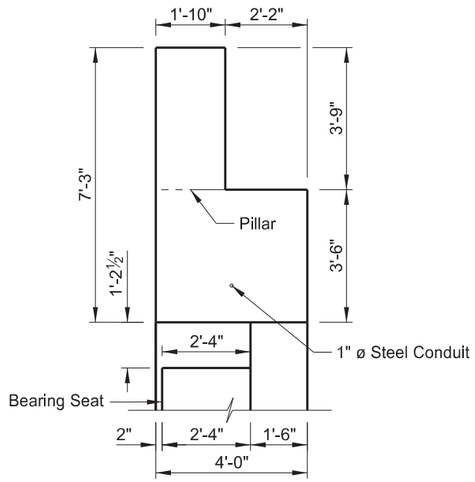
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	17



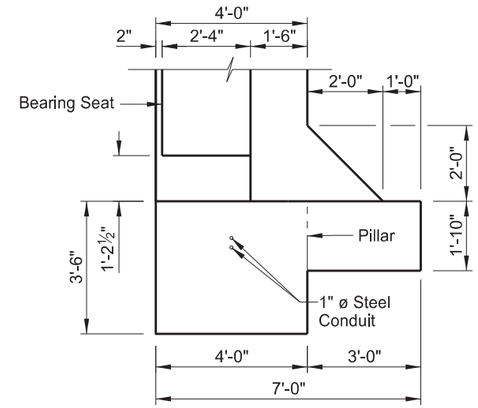
A-A



SOUTHEAST
WING ELEVATION



NORTHEAST
WING PLAN



SOUTHEAST
WING PLAN

NOTES:

Use waterproof membrane meeting Section 602.03 C.
Center the waterproof membrane (1'-0" minimum width) on the back face of all construction joints.

See Dwg 0297-000.303-76 for Form Liner details.

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES

SEE DWG 0297-000.303-20

ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

(SHOWING DIMENSIONS)

ABUTMENT 3 DETAILS

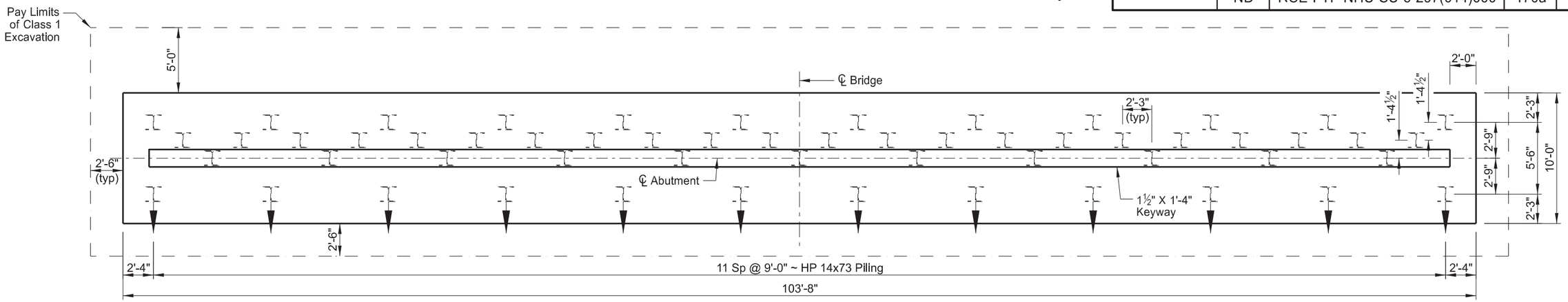
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KHC DJK

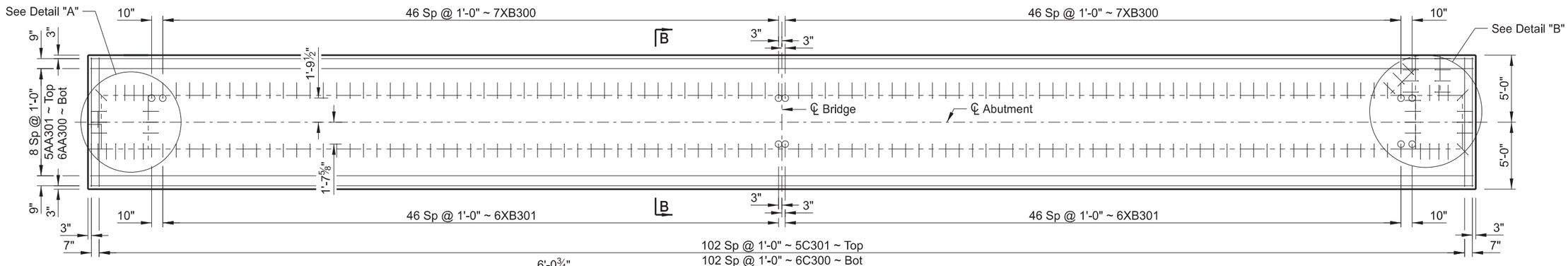
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	18



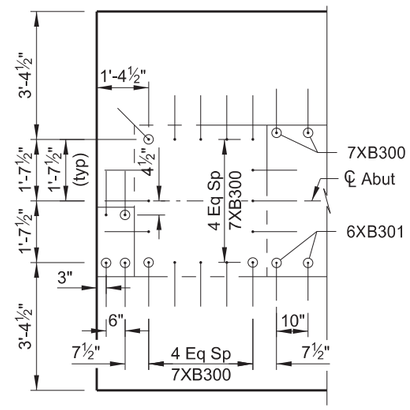
(SHOWING DIMENSIONS)

FOOTING PLAN

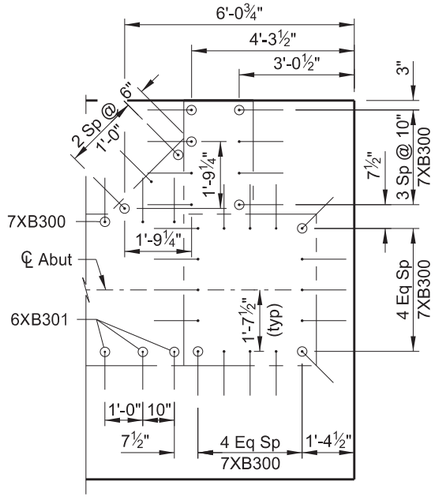


(SHOWING REINFORCING)

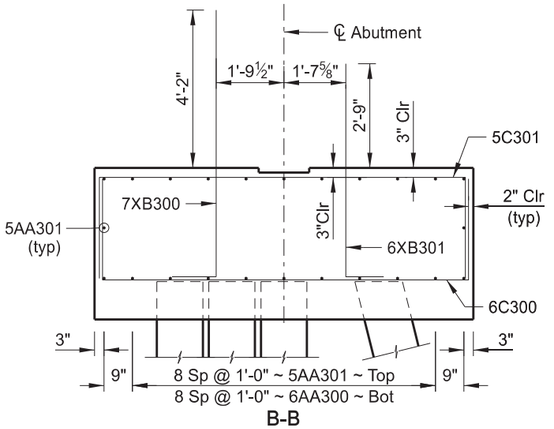
FOOTING PLAN



DETAIL "A"



DETAIL "B"



B-B

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES

SEE DWG 0297-000.303-20

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

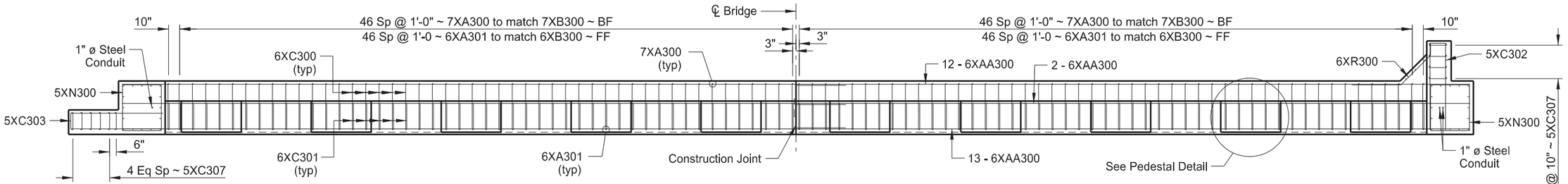
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ABUTMENT 3 FOOTING DETAILS

DRAWING NO. 0297-000.303-18

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	19



PLAN

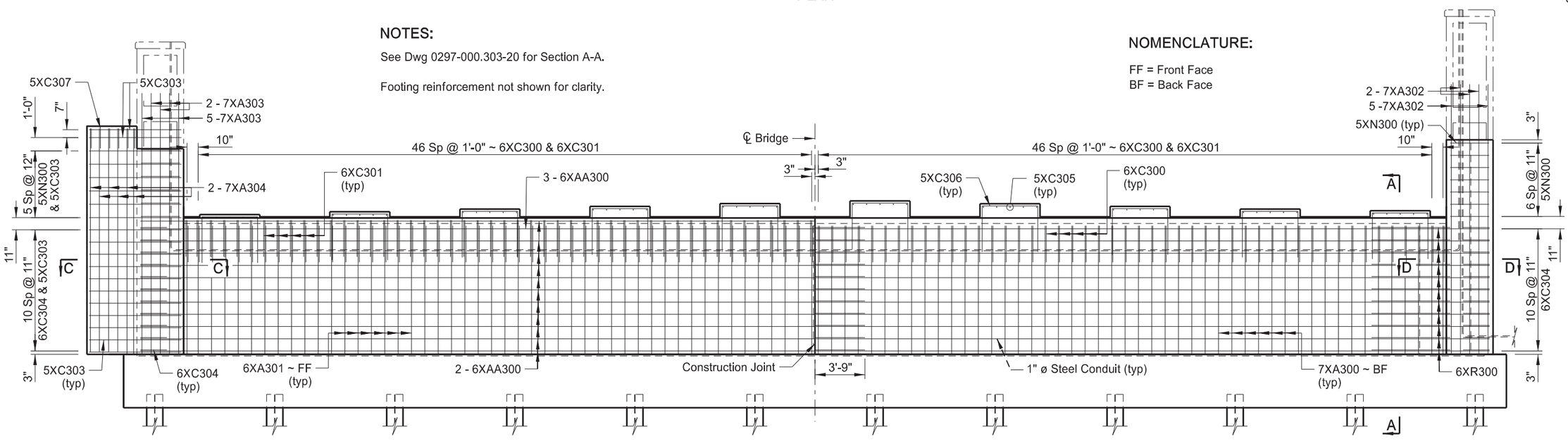
NOTES:

See Dwg 0297-000.303-20 for Section A-A.

Footing reinforcement not shown for clarity.

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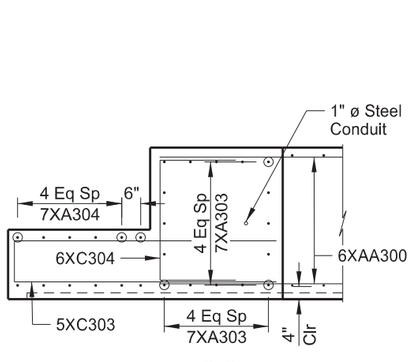
FF = Front Face
BF = Back Face



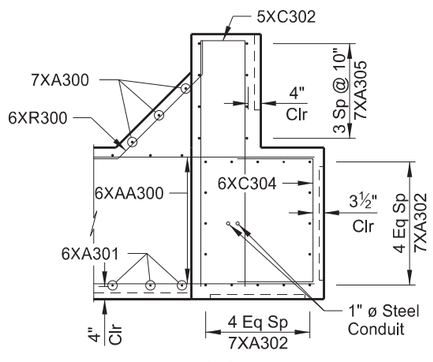
SHOWING FRONT FACE REINFORCEMENT

SHOWING BACK FACE REINFORCEMENT

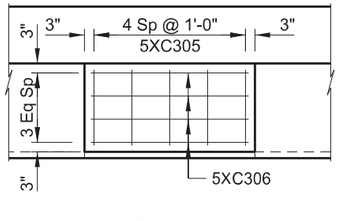
(LOOKING EAST)
ELEVATION



C-C



D-D



PEDESTAL DETAIL

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES

SEE DWG 0297-000.303-20

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

(SHOWING REINFORCING)

ABUTMENT 3

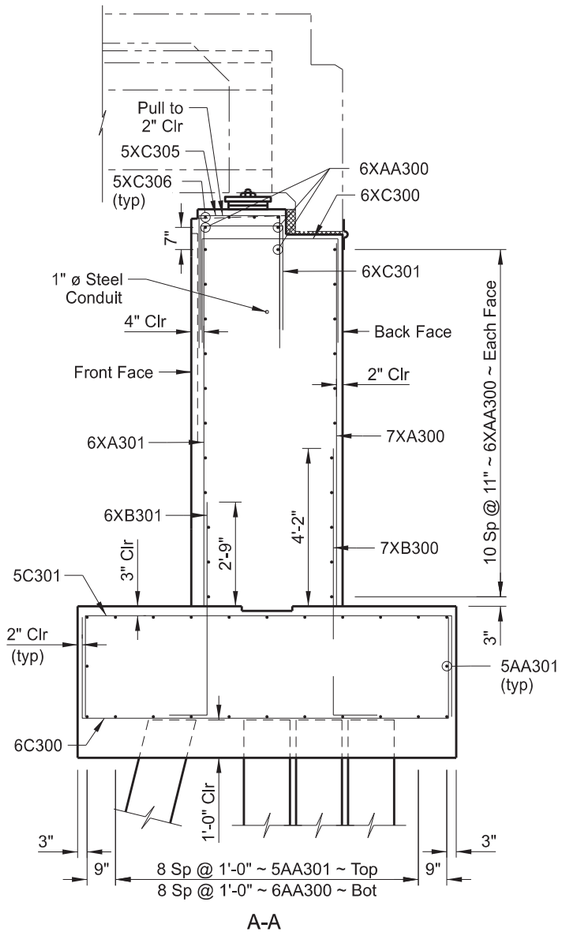
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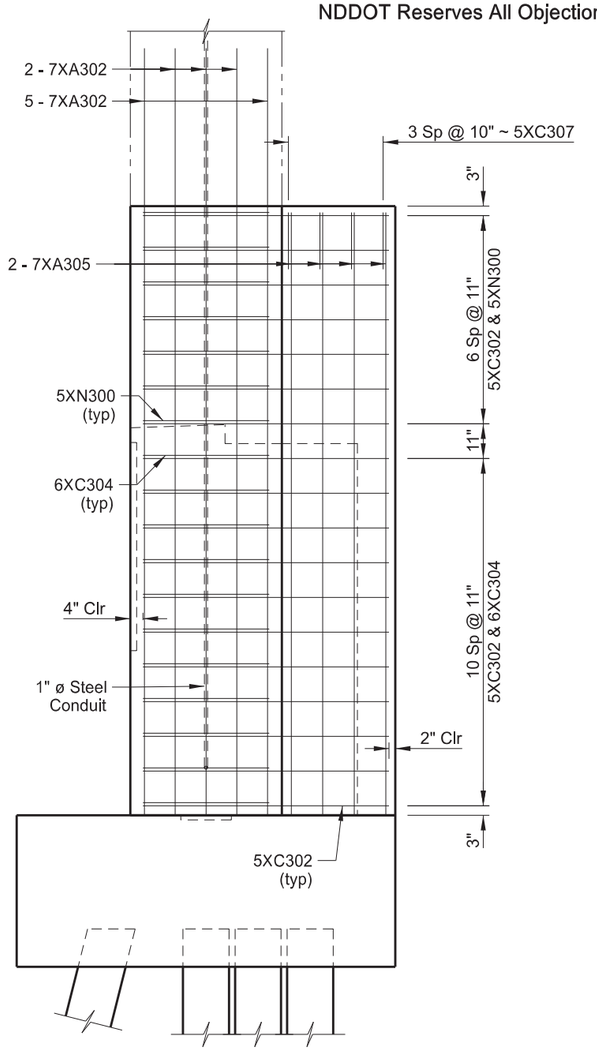
KHC DJK

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	20



A-A



SOUTHEAST
WING ELEVATION

QUANTITIES	(ONE ABUTMENT)
BRIDGE SUBSTRUCTURE CONCRETE	323.3 CY
REINFORCING STEEL	7,219 LBS
REINFORCING STEEL (EPOXY)	17,136 LBS

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

(SHOWING REINFORCING)

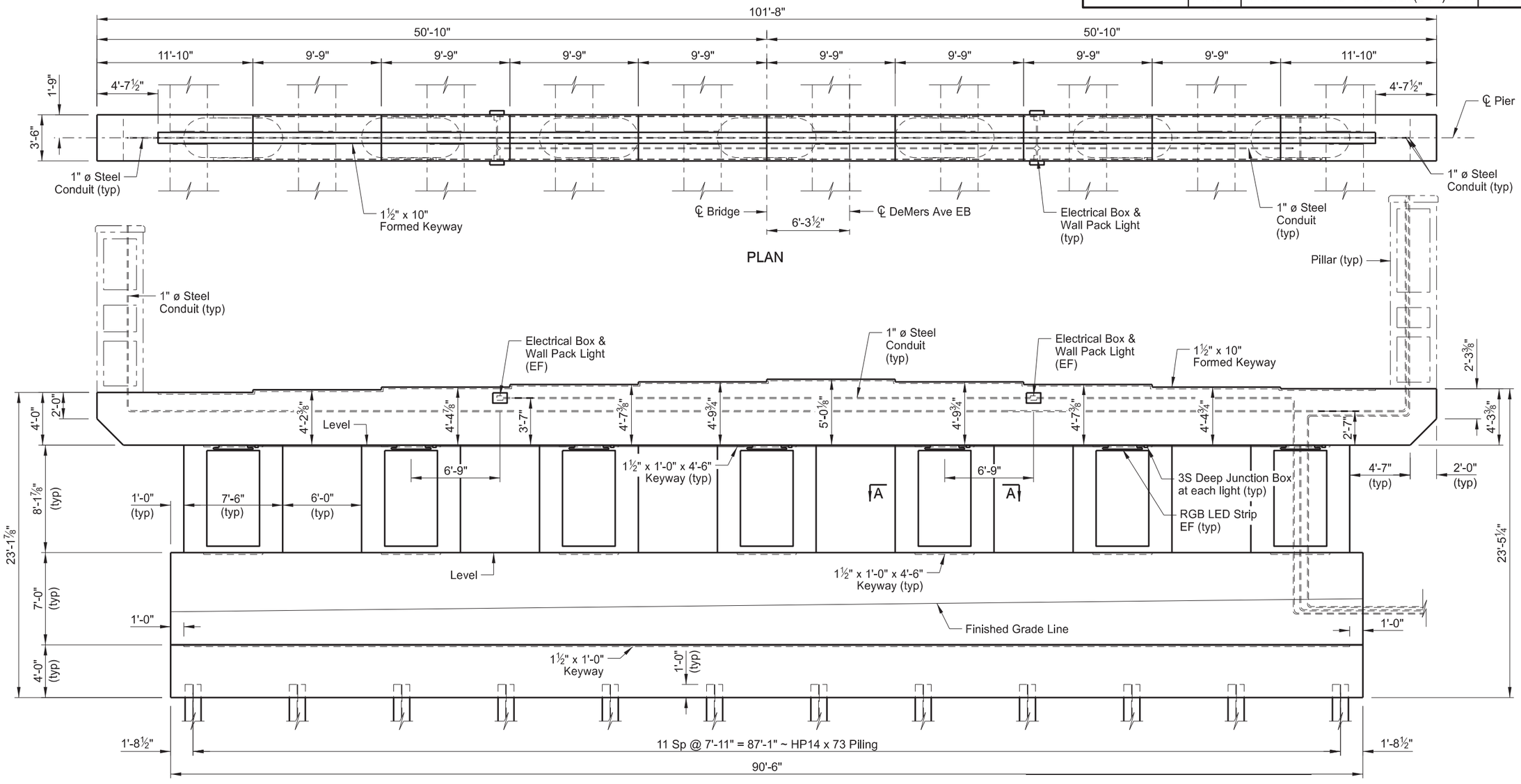
ABUTMENT 3 DETAILS

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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

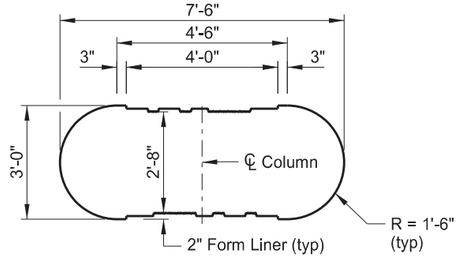
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	21



(LOOKING EAST)
ELEVATION

NOMENCLATURE:

EF = Each Face



A-A

NOTES:

Use 5½" x 4" x 5" depth galvanized steel electrical boxes. Install pull wire in the conduit.

See DWG 0297-000.303-77 for Form Liner Details.

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES

SEE DWG 0297-000.303-24

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

(SHOWING DIMENSIONS)

PIER

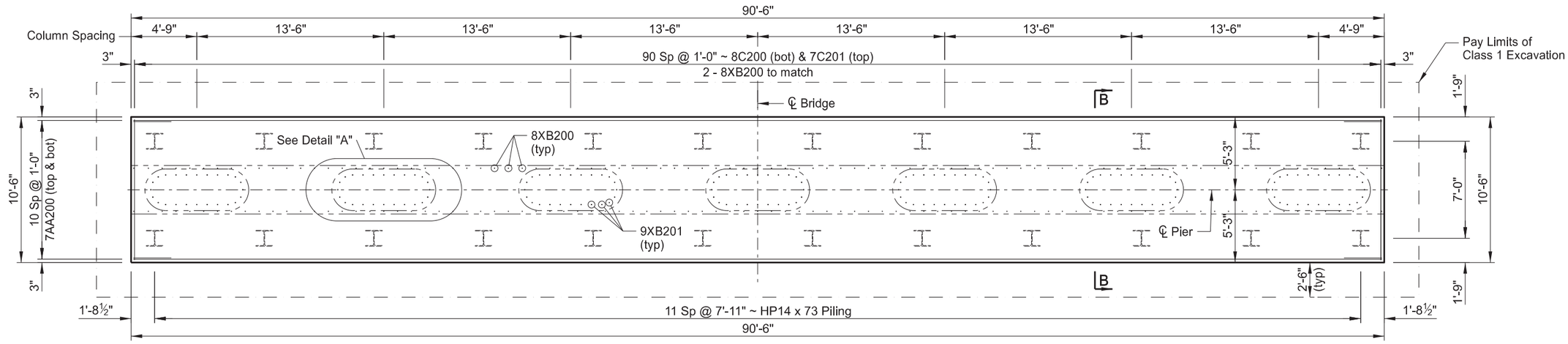
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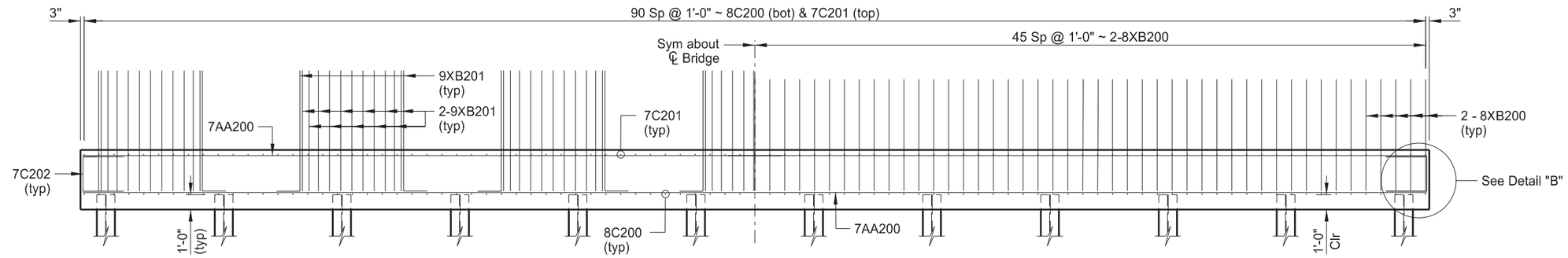
KHC AMK

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

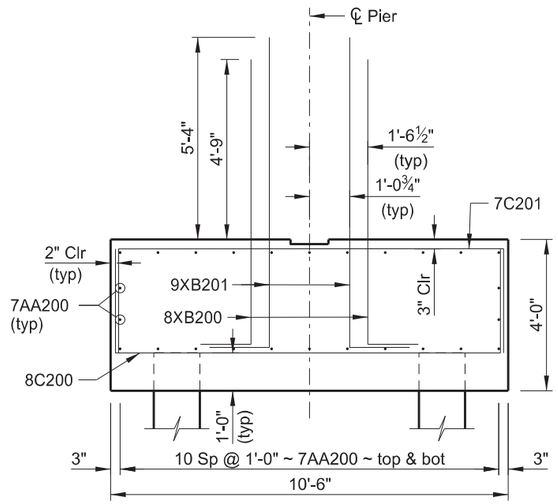
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	22



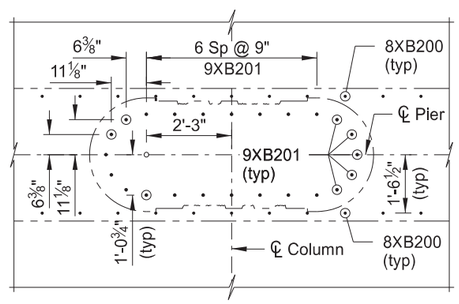
FOOTING PLAN



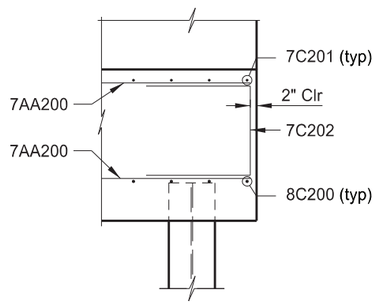
FOOTING ELEVATION



B-B



DETAIL "A"



DETAIL "B"

NOTE:

See Dwg 0297-000.303-23 for column and cap reinforcement.

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES

SEE DWG 0297-000.303-24

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

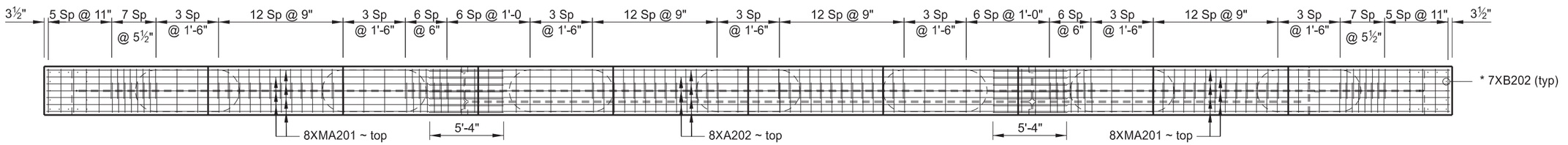
(SHOWING DIMENSIONS & REINFORCING)

PIER FOOTING DETAILS

DRAWING NO. 0297-000.303-22

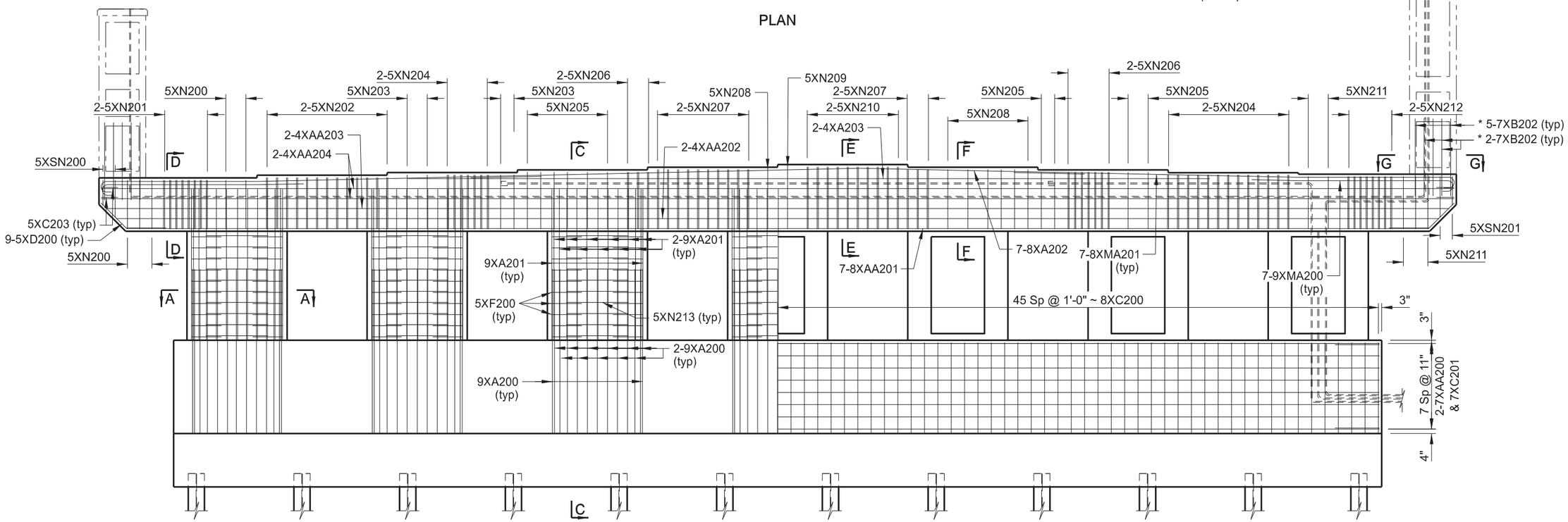
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	23



* Embed 7XB202 bars 1'-8" into the pier cap.

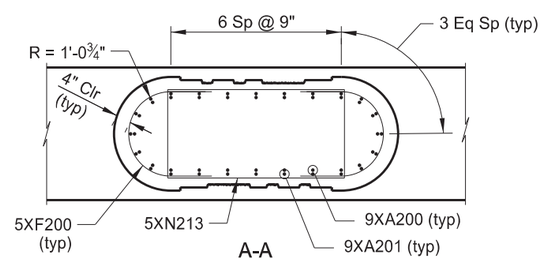
PLAN



(SHOWING COLUMNS)

(SHOWING CRASH WALL)

ELEVATION



NOTES:

See Dwg 0297-000.303-22 for footing reinforcement.

See Dwg 0297-000.303-24 for Sections C-C, D-D, E-E, F-F, and G-G.

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES

SEE DWG 0297-000.303-24

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

(SHOWING REINFORCING)

PIER DETAILS

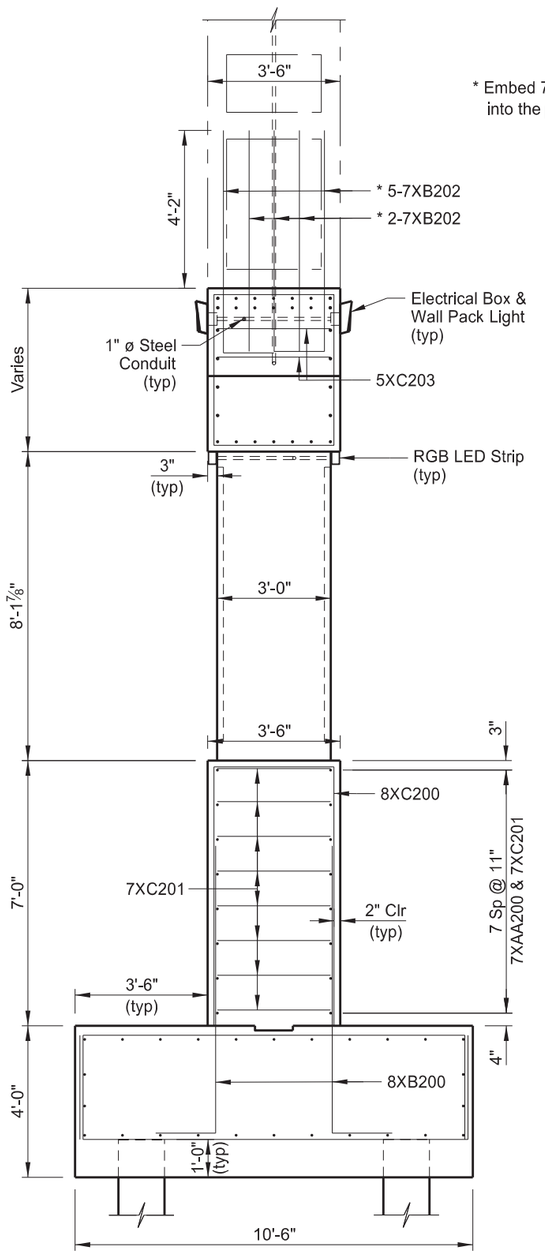
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KHC AMK

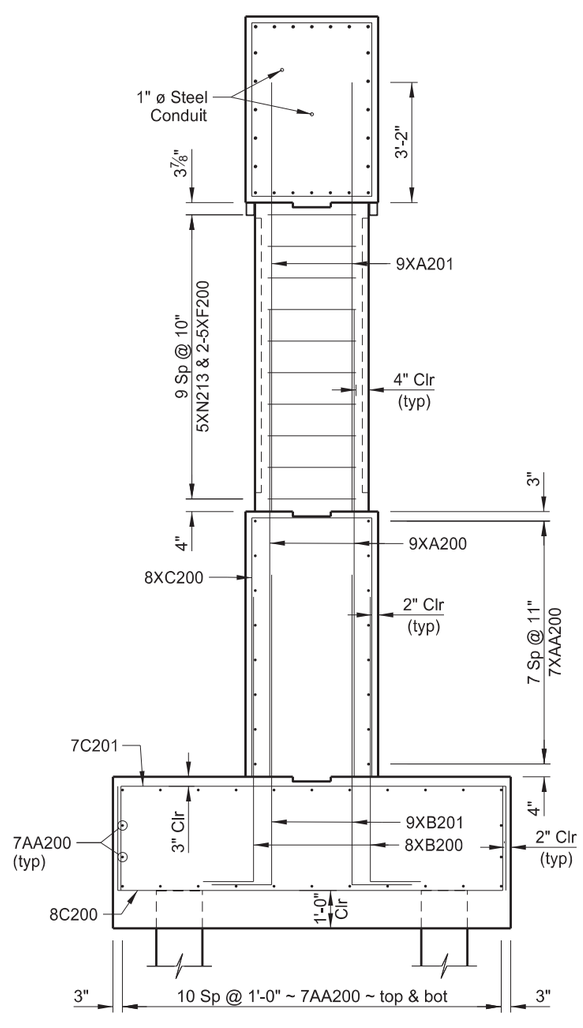
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	24

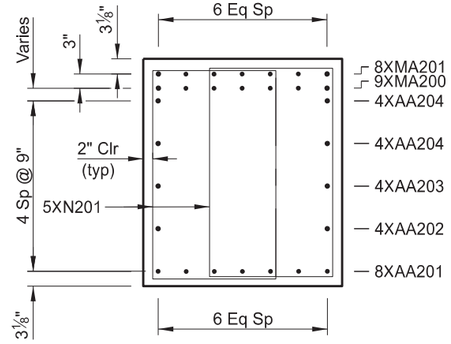


END VIEW

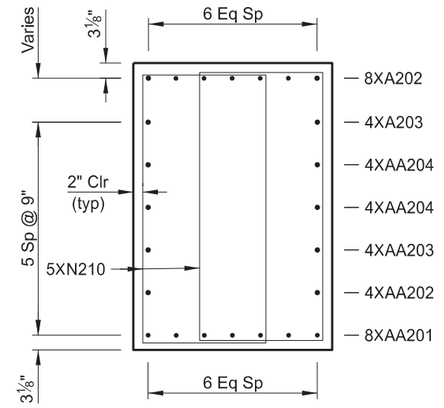
* Embed 7XB202 bars 1'-8" into the pier cap.



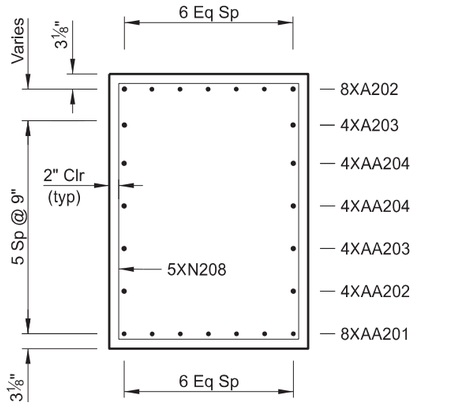
C-C



D-D



E-E



F-F

G-G

QUANTITIES	
BRIDGE SUBSTRUCTURE CONCRETE	325.2 CY
REINFORCING STEEL	12,071 LBS
REINFORCING STEEL (EPOXY)	45,387 LBS

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

(SHOWING DIMENSIONS & REINFORCING)

PIER DETAILS

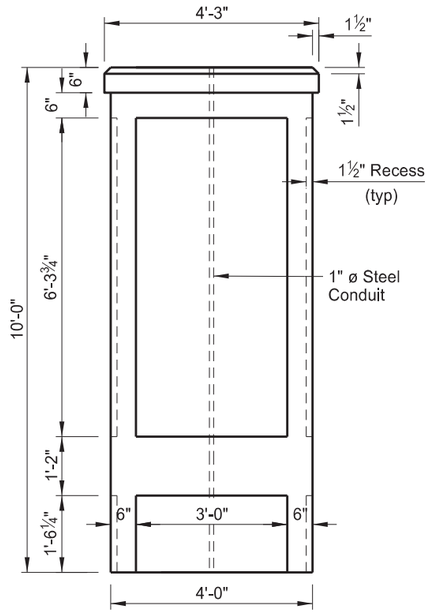
DRAWING NO. 0297-000.303-24

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

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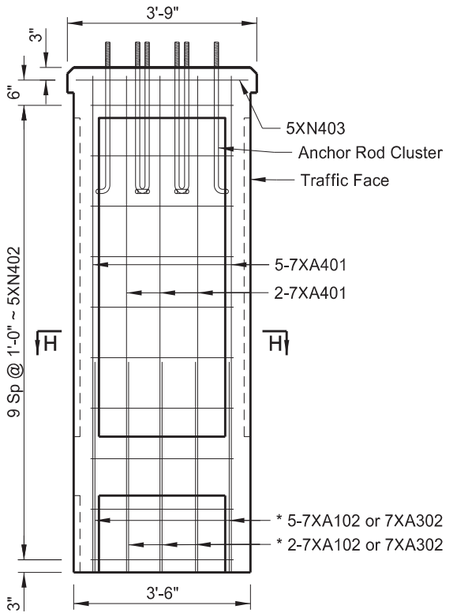
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	25



(SOUTH FACE)

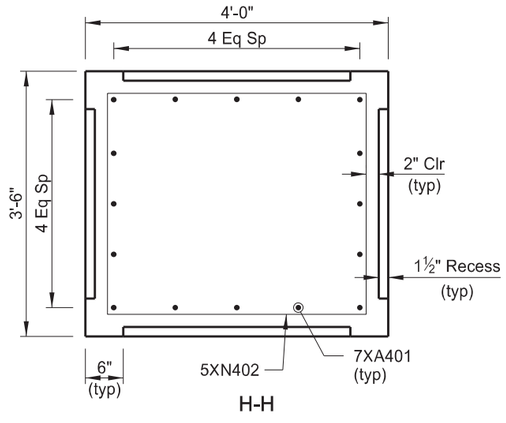
SHOWING DIMENSIONS



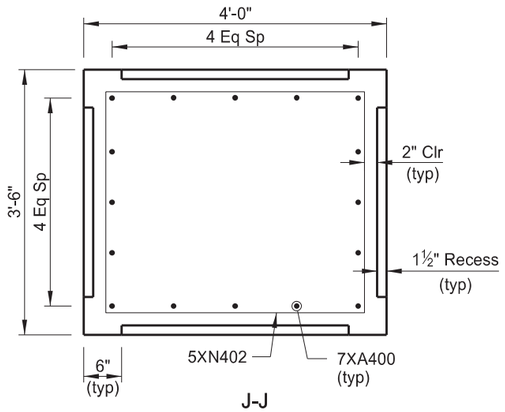
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SHOWING REINFORCING

ABUTMENT SOUTH PILLAR DETAIL

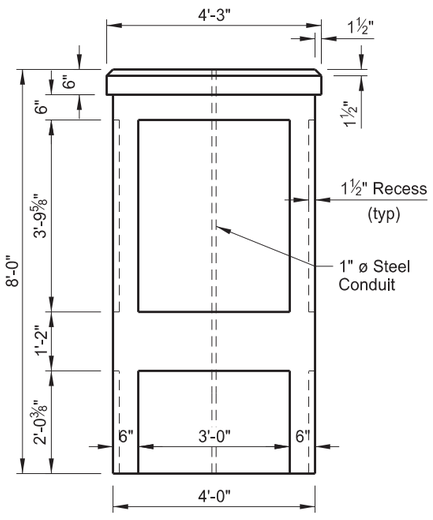


H-H



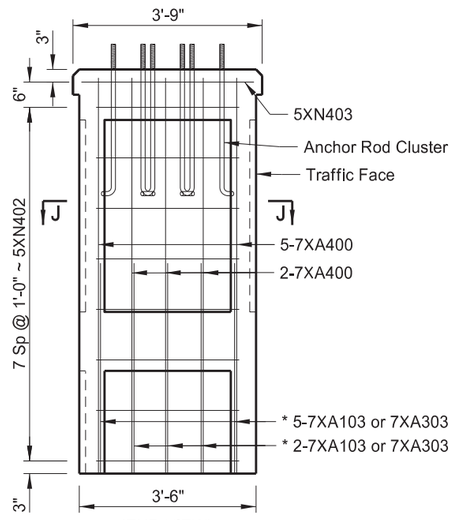
J-J

* Shown in bar list for abutment



(NORTH FACE)

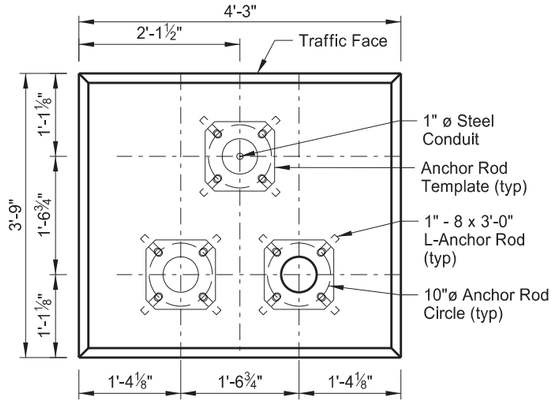
SHOWING DIMENSIONS



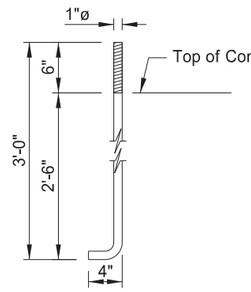
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SHOWING REINFORCING

ABUTMENT NORTH PILLAR DETAIL



ANCHOR ROD CLUSTER DETAIL



ANCHOR ROD DETAIL

NOTES:

Top mounting assembly per light post manufacturer's recommendations.

Conform to ASTM F1554, Grade 55, requirements for anchor rods.

Conform to ASTM A 307 for all hex nuts, washers, and miscellaneous hardware.

Galvanize all anchorage system material in accordance with Section 854.

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES
SEE DWG 0297-000.303-26

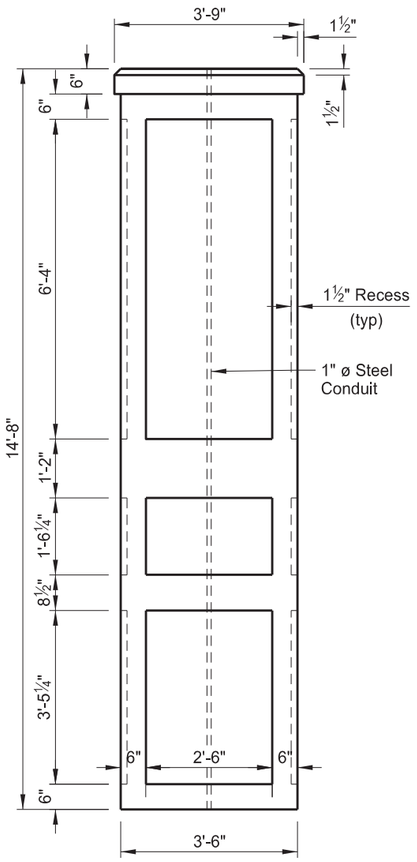
ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

PILLAR DETAILS

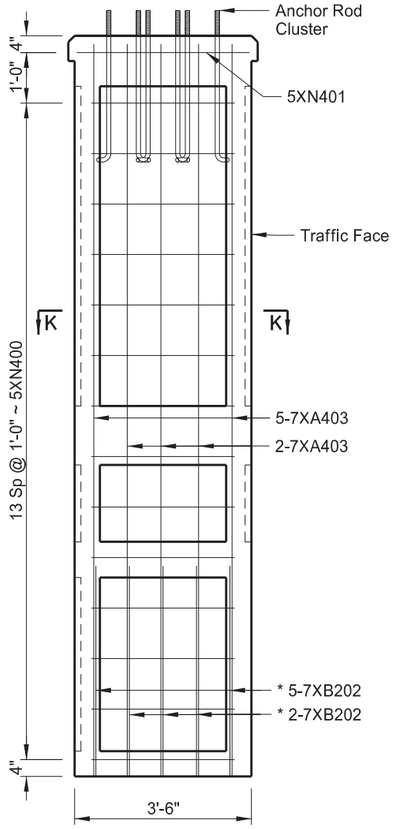
DRAWING NO.	0297-000.303-25

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	26

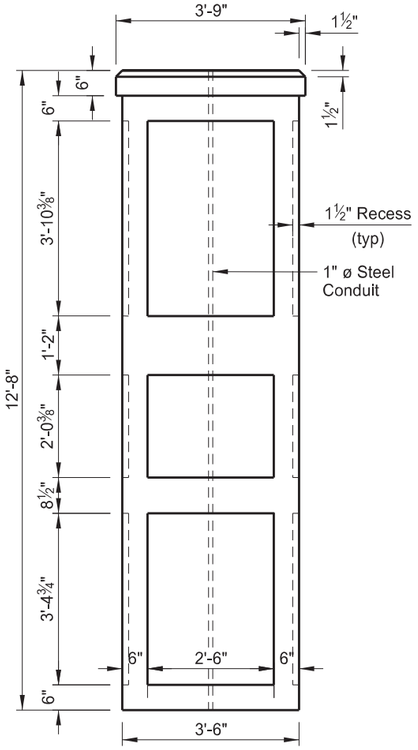


(SOUTH FACE)
SHOWING DIMENSIONS



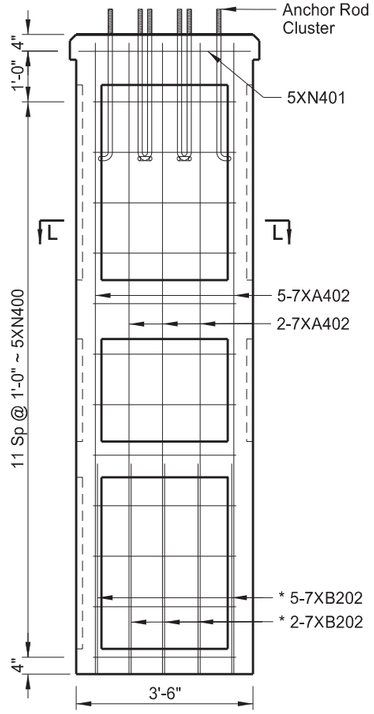
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SHOWING REINFORCING

PIER SOUTH PILLAR DETAIL



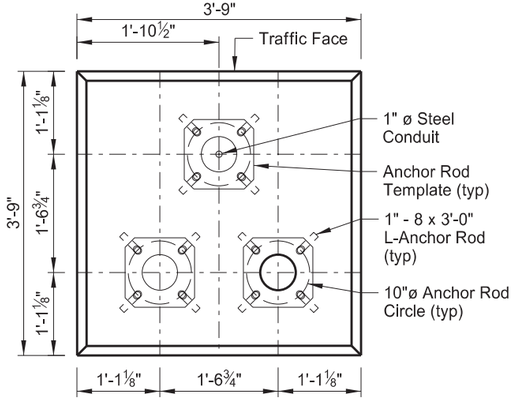
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SHOWING DIMENSIONS

* Shown in bar list for pier

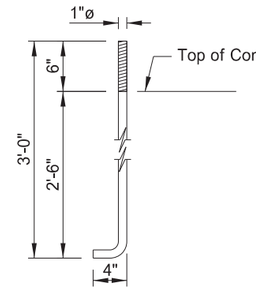


(END VIEW)
SHOWING REINFORCING

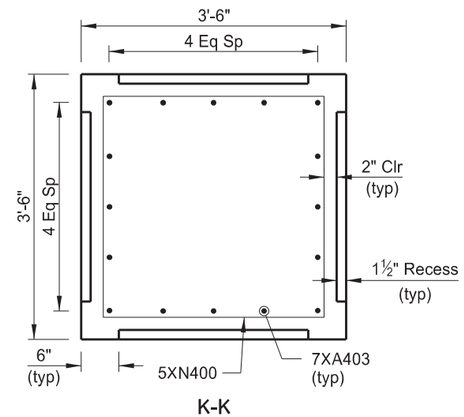
PIER NORTH PILLAR DETAIL



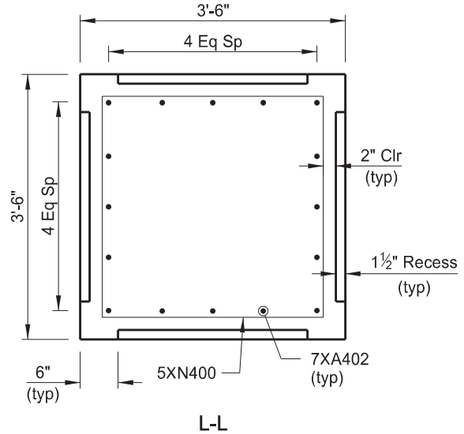
ANCHOR ROD CLUSTER DETAIL



ANCHOR ROD DETAIL



K-K



L-L

NOTES:

Top mounting assembly per light post manufacturer's recommendations.

Conform to ASTM F1554, Grade 55, requirements for anchor rods.

Conform to ASTM A 307 for all hex nuts, washers, and miscellaneous hardware.

Galvanize all anchorage system material in accordance with Section 854.

QUANTITIES	
BRIDGE SUBSTRUCTURE CONCRETE	28.7 CY
REINFORCING STEEL (EPOXY)	2,992 LBS

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

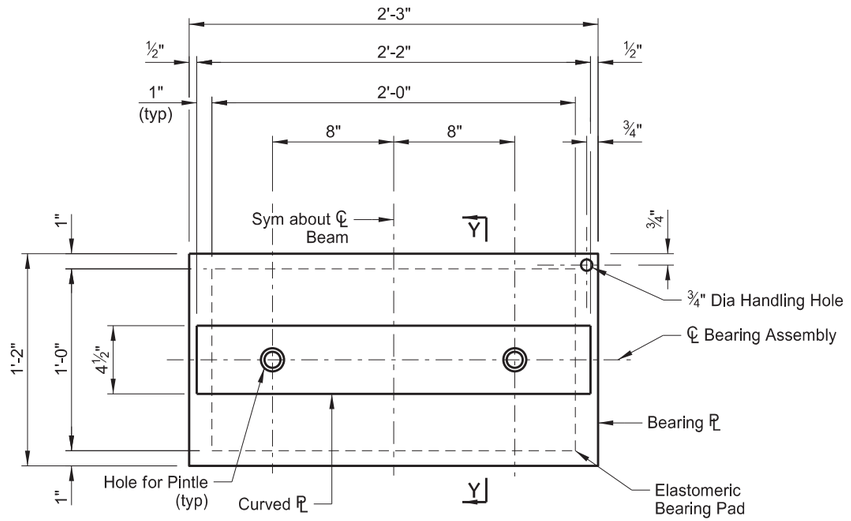
ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

PILLAR DETAILS

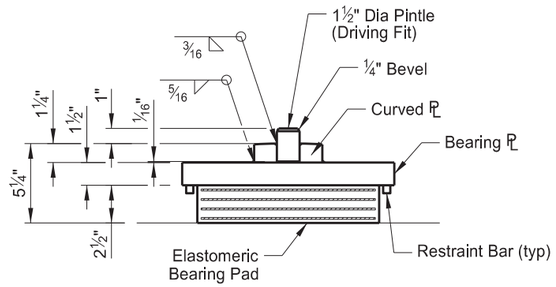
DRAWING NO. 0297-000.303-26

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

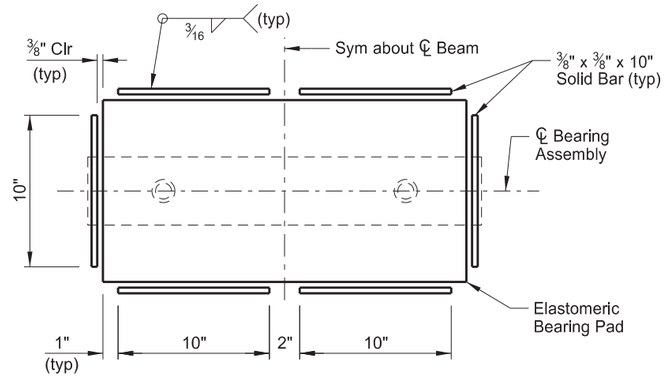
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	27



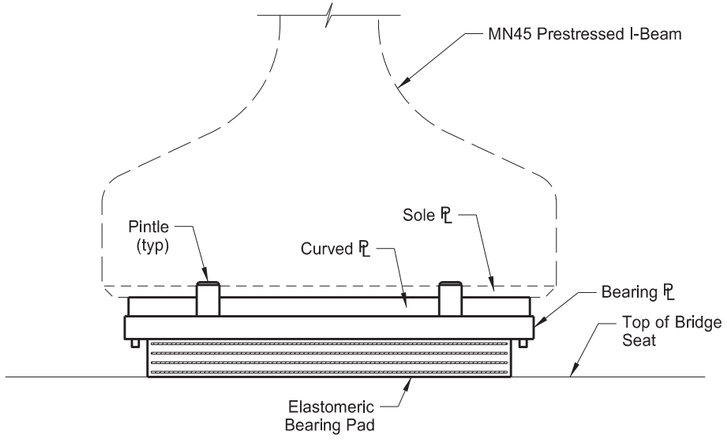
PLAN



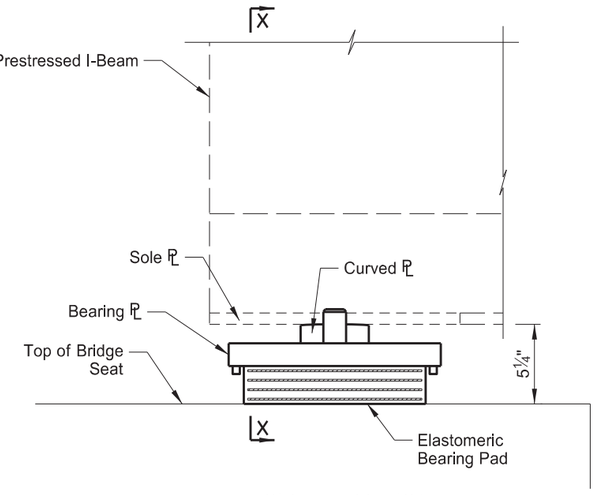
Y-Y



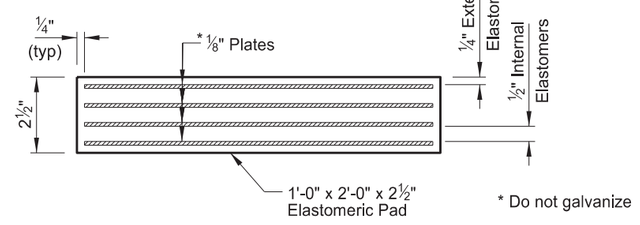
BEARING PAD RESTRAINT



X-X



SIDE ELEVATION



ELASTOMERIC BEARING PAD

NOTES:

1. Elastomeric bearing pads were designed using the provisions of "Method A" of the AASHTO Specifications. Provide bearing components that meet all requirements of Section 14 of the current AASHTO LRFD Bridge Design Specifications.
2. Provide 60 durometer neoprene elastomeric pads.
3. Provide AASHTO M 270 Grade 50 structural steel.
4. Provide pintels that meet AASHTO M 270 Grade 50W (ASTM A588).
5. Galvanize the structural steel bearing assembly after fabrication in accordance with Section 854, except as noted.
6. The radius of the curved plate is 16". Finish to 250 micro. The finished thickness of the curved plate may be 1/16" less than shown.
7. Bearing details shown are typical of all beams at both abutments. Payment for expansion bearings includes all material on this detail. Include all materials, labor, and equipment required to set the bearings in the bid item "Bearings (Expansion)."

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES	
BEARINGS (EXPANSION)	20 EA

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

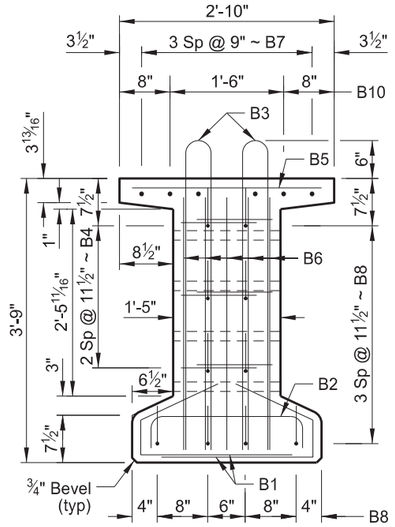
(ABUTMENTS)

BEARING DETAILS

DRAWING NO. 0297-000.303-27

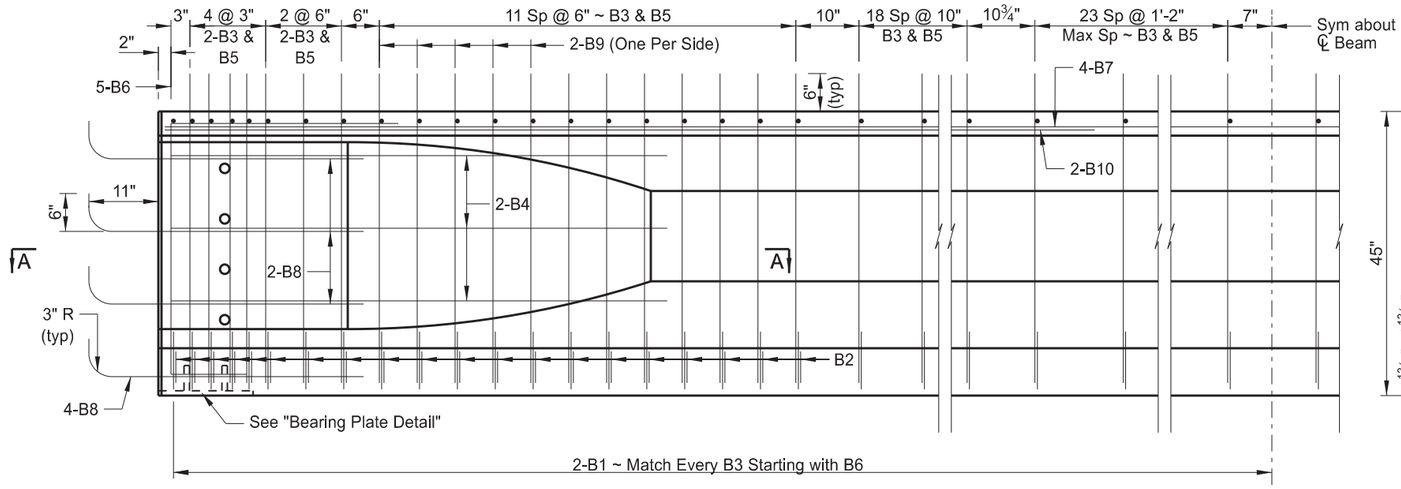
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	28

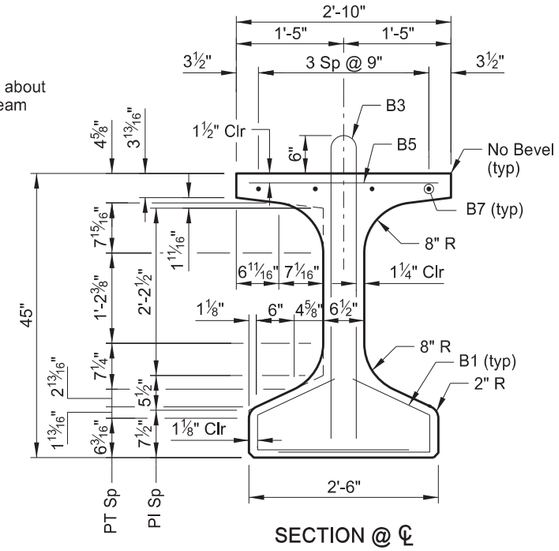


(DETAILS NOT SHOWN ARE SAME AS "SECTION @ ℄")

END VIEW



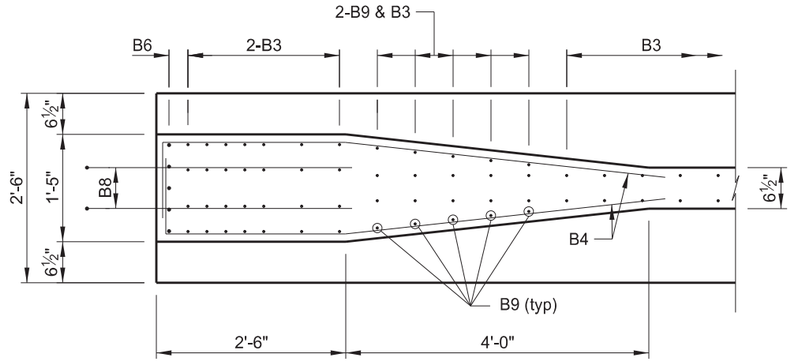
PART BEAM ELEVATION



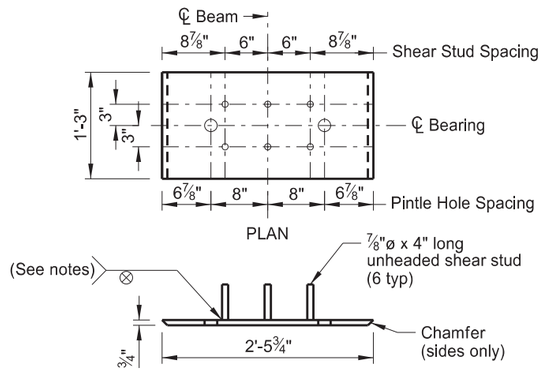
SECTION @ ℄

BAR LIST ~ ONE BEAM				
MARK	SIZE	NO.	LENGTH	SHAPE
B1	3	252	3'-10"	BENT
B2	3	40	2'-10"	BENT
* B3	4	138	8'-6"	BENT
B4	4	12	7'-7"	BENT
B5	3	126	2'-6"	STR
B6	6	10	7'-4"	BENT
B7	8	12	38'-3"	STR
** B8	5	20	4'-0"	STR
*** B9	4	20	4'-0"	BENT
B10	8	4	36'-0"	STR

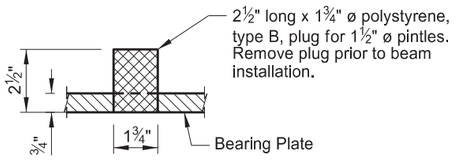
* Epoxy Coated.
** Field bend as shown (Grade 40).
*** Place std. hook within the top flange.



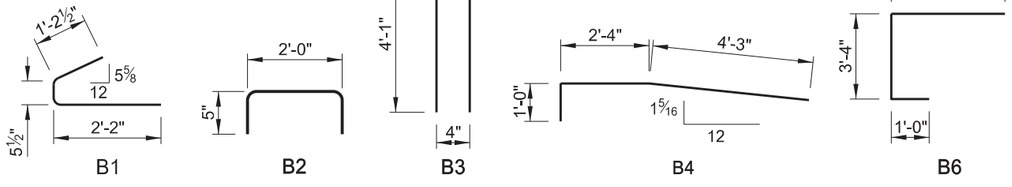
A-A



BEARING PLATE DETAIL



PINTLE HOLE DETAIL



(DIMENSIONS SHOWN ARE OUT TO OUT)

BENT BAR DETAILS

NOTES:

Use ASTM A36 steel. Galvanize per Section 854.

Weld shear studs per AWS D1.1.

Include bearing plates in the bid item for Prestressed Beam.

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

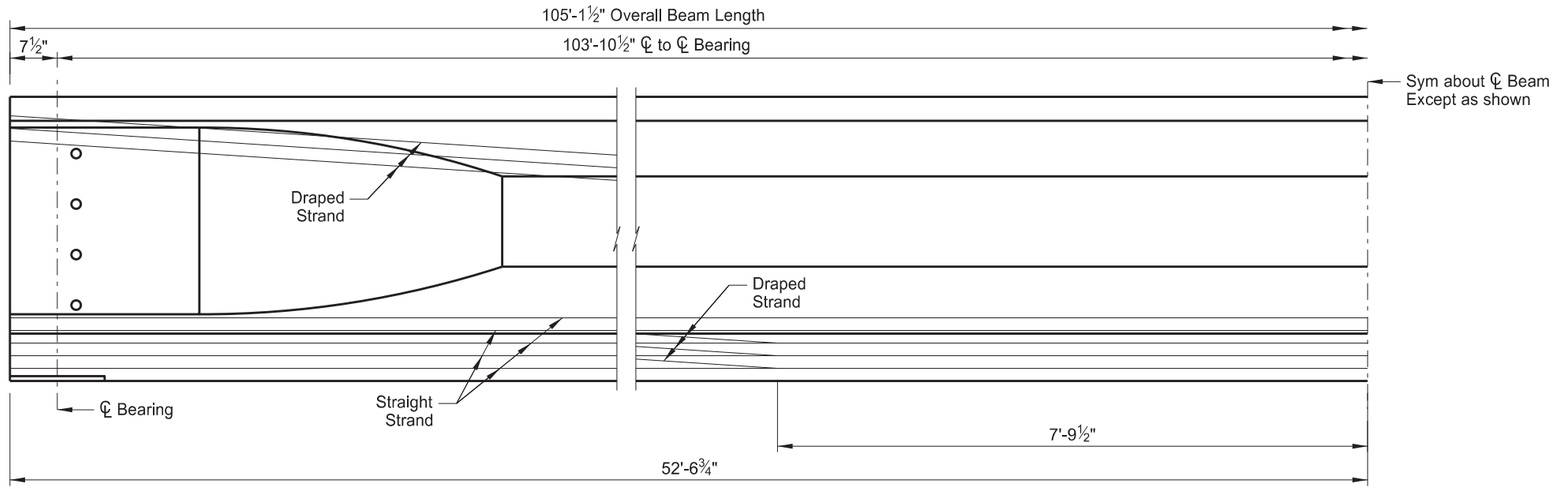
SPAN 1

PRE-TENSIONED MN45 PRESTRESSED I-BEAM

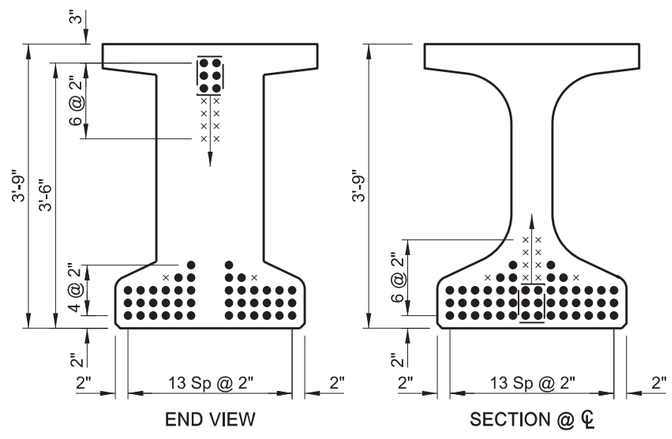
DRAWING NO.	0297-000.303-28

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

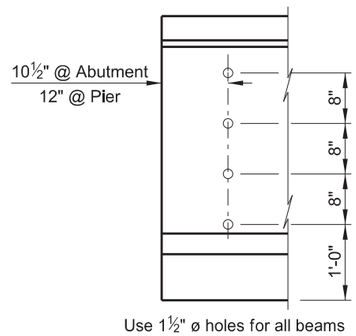
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170a	29



BEAM ELEVATION

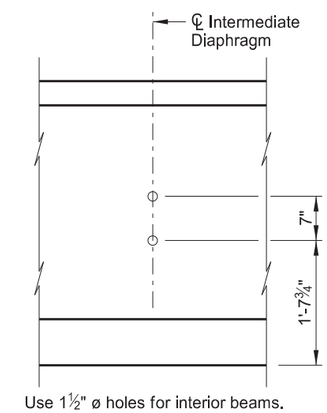


PRESTRESSING STRAND LAYOUT



ELEVATION

BEAM END DETAIL



ELEVATION

INTERMEDIATE DIAPHRAGM DETAIL

KEY:

× Vacant Strand Location

● Filled Strand Location (Bonded)

or Indicates Locations of Draped Strands

NOTES:

Provide holes and inserts in the beams at the locations shown to accommodate the diaphragm bars. See Slab Layout for diaphragm location details and required skew angle.

Provide lifting loops or handling hooks as required by the Contractor. Additional inserts, brackets, and hardware may be incorporated into the finished beam for the convenience of the Contractor. Use galvanized, epoxy-coated, stainless steel, or non-metallic material for all inserts, brackets, and hardware if less than 1 inch of concrete cover will be provided in the finished structure.

The required Detensioning Strength indicates the minimum required concrete strength at the time of prestress transfer. The required Acceptance Strength indicates the minimum required concrete strength prior to transporting and erecting the beams.

Y Distances shown in the table are measured from the bottom of the beam to the center of gravity of the strand group listed.

Minor changes to the shape of the beam and to the reinforcing steel may be made to accomodate the forms of various Contractors and their construction methods with the approval of the Engineer.

BEAM SECTION DATA		
Beam Wt =743.0 lbs/ft +2570 lbs for End Blocks		
Beam Length	105.1	ft
Total Beam Weight	40.3	tons
Cross Sectional Area at End Span	955.31	in^2
Cross Sectional Area at Midspan	690	in^2
C.G. from Bottom of Beam at Midspan	20.58	in
Moment of Inertia at Midspan (I)	178,780	in^4
Section Modulus at Midspan (SB)	8,687	in^3

MINIMUM CONCRETE COMPRESSIVE STRENGTH		
Detensioning Strength (f'ci)	8.00	ksi
Acceptance Strength (f'c)	9.00	ksi

PRESTRESSING STRAND DATA			
0.60" Diameter - Grade 270 Prestressing Strands			
Initial Prestress = 0.75 * fpu			
	Number	Y Distance (inches)	
		Midspan	End Span
Straight Strands	42	4.67	4.67
Draped Strands	6	4.00	40.00
Total Strands	48	4.58	9.08

PRESTRESS LOSSES		
Elastic Shortening Loss	26.091	ksi
Long Term Losses	26.049	ksi
Total Losses	52.14	ksi

PRESTRESS FORCES		
Initial Prestress Force	2109.2	kips
Final P/S Force after Losses	1566.1	kips

QUANTITIES	(ONE BEAM)
PRESTRESSED I-BEAM - 45 INCH	105.1 LF

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

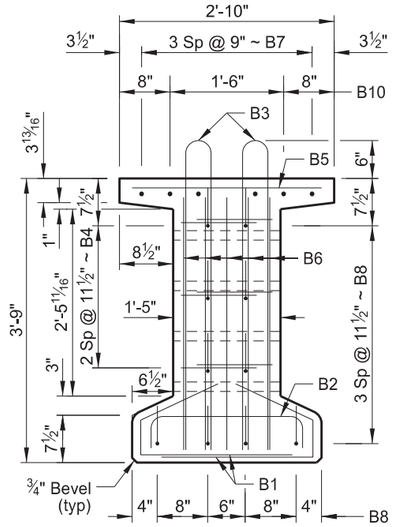
SPAN 1

PRE-TENSIONED MN45
PRESTRESSED I-BEAM

DRAWING NO. 0297-000.303-29

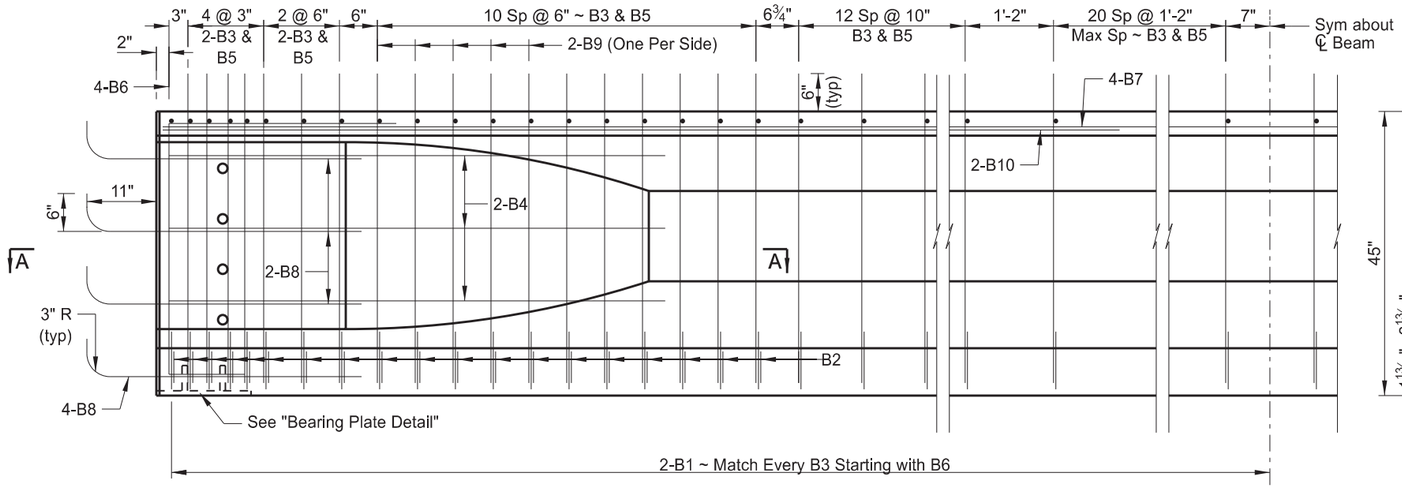
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	30

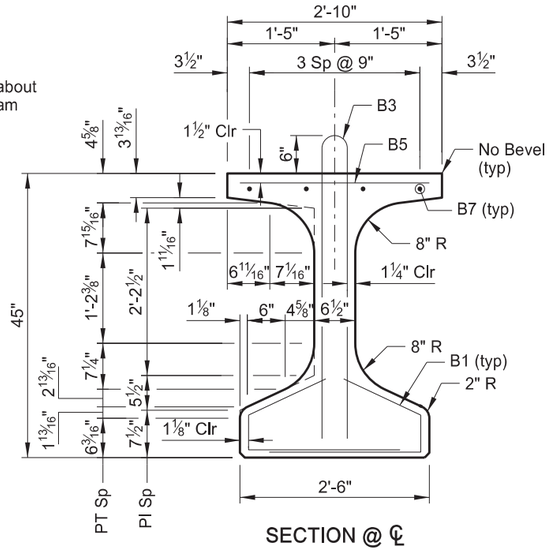


(DETAILS NOT SHOWN ARE SAME AS "SECTION @ ℄")

END VIEW



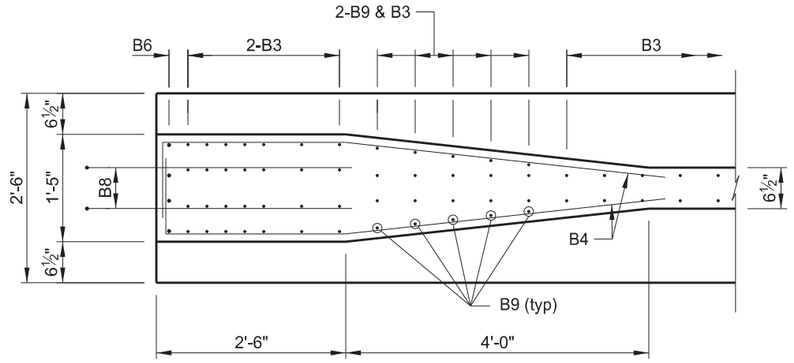
PART BEAM ELEVATION



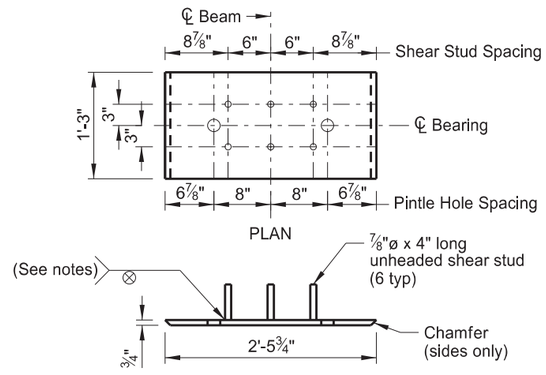
SECTION @ ℄

BAR LIST ~ ONE BEAM				
MARK	SIZE	NO.	LENGTH	SHAPE
B1	3	216	3'-10"	BENT
B2	3	38	2'-10"	BENT
* B3	4	120	8'-6"	BENT
B4	4	12	7'-7"	BENT
B5	3	108	2'-6"	STR
B6	6	8	7'-4"	BENT
B7	8	12	32'-3"	STR
** B8	5	20	4'-0"	STR
*** B9	4	20	4'-0"	BENT

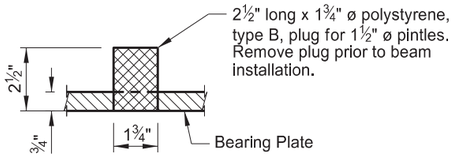
* Epoxy Coated.
** Field bend as shown (Grade 40).
*** Place std. hook within the top flange.



A-A



BEARING PLATE DETAIL



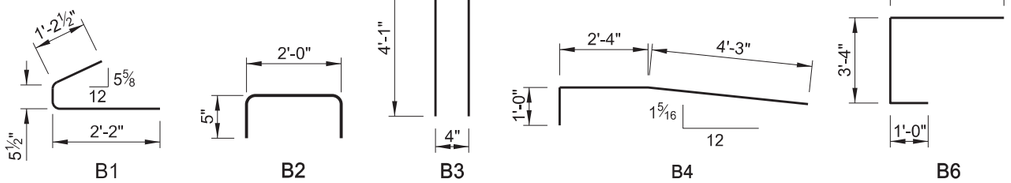
PINTLE HOLE DETAIL

NOTES:

Use ASTM A36 steel. Galvanize per Section 854.

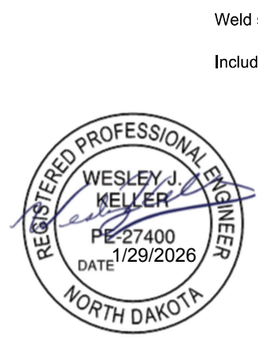
Weld shear studs per AWS D1.1.

Include bearing plates in the bid item for Prestressed Beam.



(DIMENSIONS SHOWN ARE OUT TO OUT)

BENT BAR DETAILS



ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

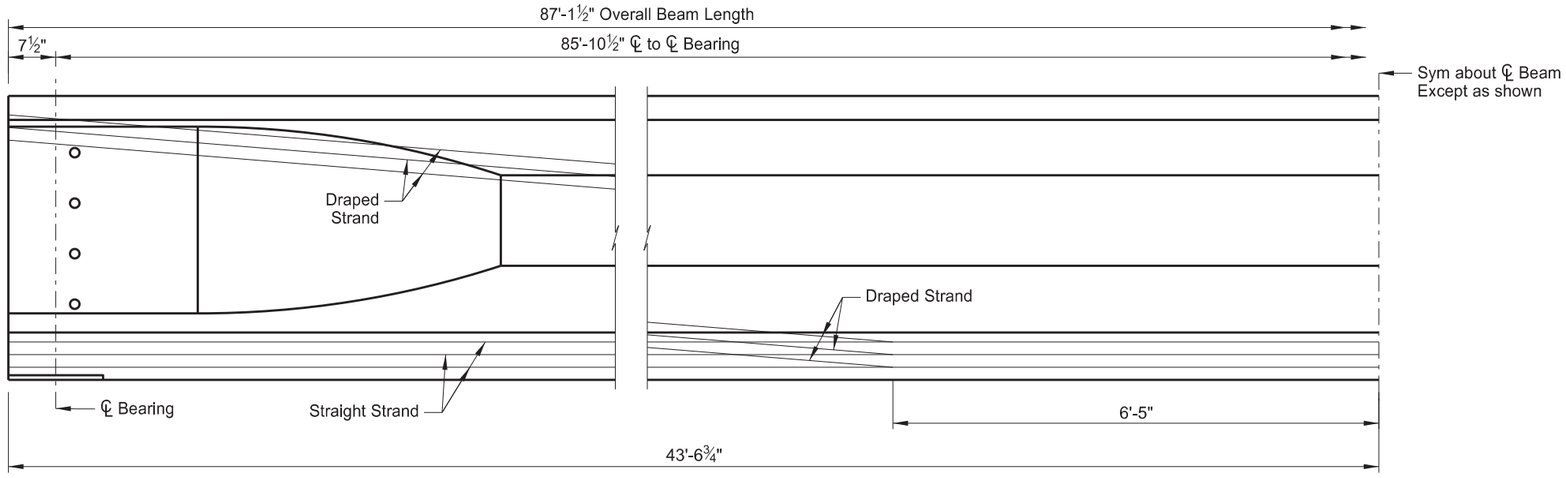
SPAN 2

PRE-TENSIONED MN45 PRESTRESSED I-BEAM

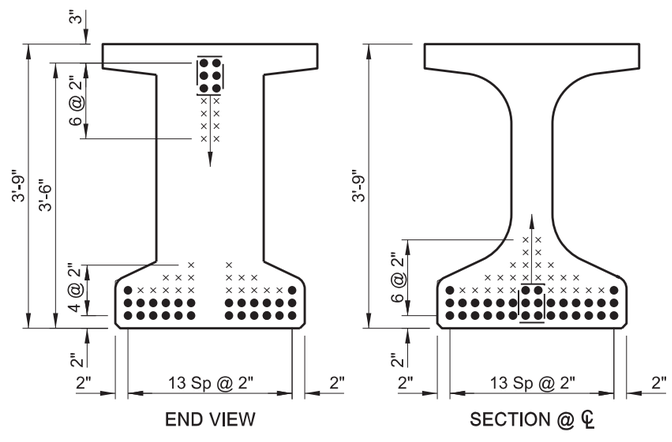
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

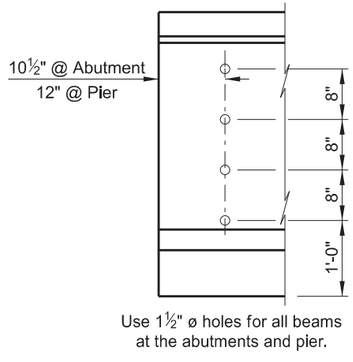
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	31



BEAM ELEVATION

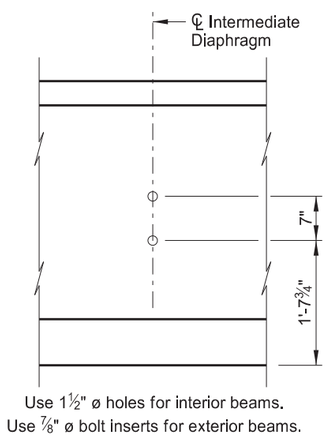


PRESTRESSING STRAND LAYOUT



ELEVATION

BEAM END DETAIL



ELEVATION

INTERMEDIATE DIAPHRAGM DETAIL

KEY:

× Vacant Strand Location
● Filled Strand Location (Bonded)

or — Indicates Locations of Draped Strands

NOTES:

Provide holes and inserts in the beams at the locations shown to accommodate the diaphragm bars. See Slab Layout for diaphragm location details and required skew angle.

Provide lifting loops or handling hooks as required by the Contractor. Additional inserts, brackets, and hardware may be incorporated into the finished beam for the convenience of the Contractor. Use galvanized, epoxy-coated, stainless steel, or non-metallic material for all inserts, brackets, and hardware if less than 1 inch of concrete cover will be provided in the finished structure.

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Minor changes to the shape of the beam and to the reinforcing steel may be made to accomodate the forms of various Contractors and their construction methods with the approval of the Engineer.

BEAM SECTION DATA		
Beam Wt =743.0 lbs/ft +2570 lbs for End Blocks		
Beam Length	87.1	ft
Total Beam Weight	33.7	tons
Cross Sectional Area at End Span	955.31	in^2
Cross Sectional Area at Midspan	690	in^2
C.G. from Bottom of Beam at Midspan	20.58	in
Moment of Inertia at Midspan (I)	178,780	in^4
Section Modulus at Midspan (SB)	8,687	in^3

MINIMUM CONCRETE COMPRESSIVE STRENGTH		
Detensioning Strength (f'ci)	5.50	ksi
Acceptance Strength (f'c)	6.00	ksi

PRESTRESSING STRAND DATA			
0.60" Diameter - Grade 270 Prestressing Strands			
Initial Prestress = 0.75 * fpu			
	Number	Y Distance (inches)	
		Midspan	End Span
Straight Strands	26	3.23	3.23
Draped Strands	6	4.00	40.00
Total Strands	32	3.38	10.13

PRESTRESS LOSSES		
Elastic Shortening Loss	18.909	ksi
Long Term Losses	27.307	ksi
Total Losses	46.216	ksi

PRESTRESS FORCES		
Initial Prestress Force	1406.2	kips
Final P/S Force after Losses	1085.2	kips

QUANTITIES	(ONE BEAM)
PRESTRESSED I-BEAM - 45 INCH	87.1

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

SPAN 2

PRE-TENSIONED MN45
PRESTRESSED I-BEAM

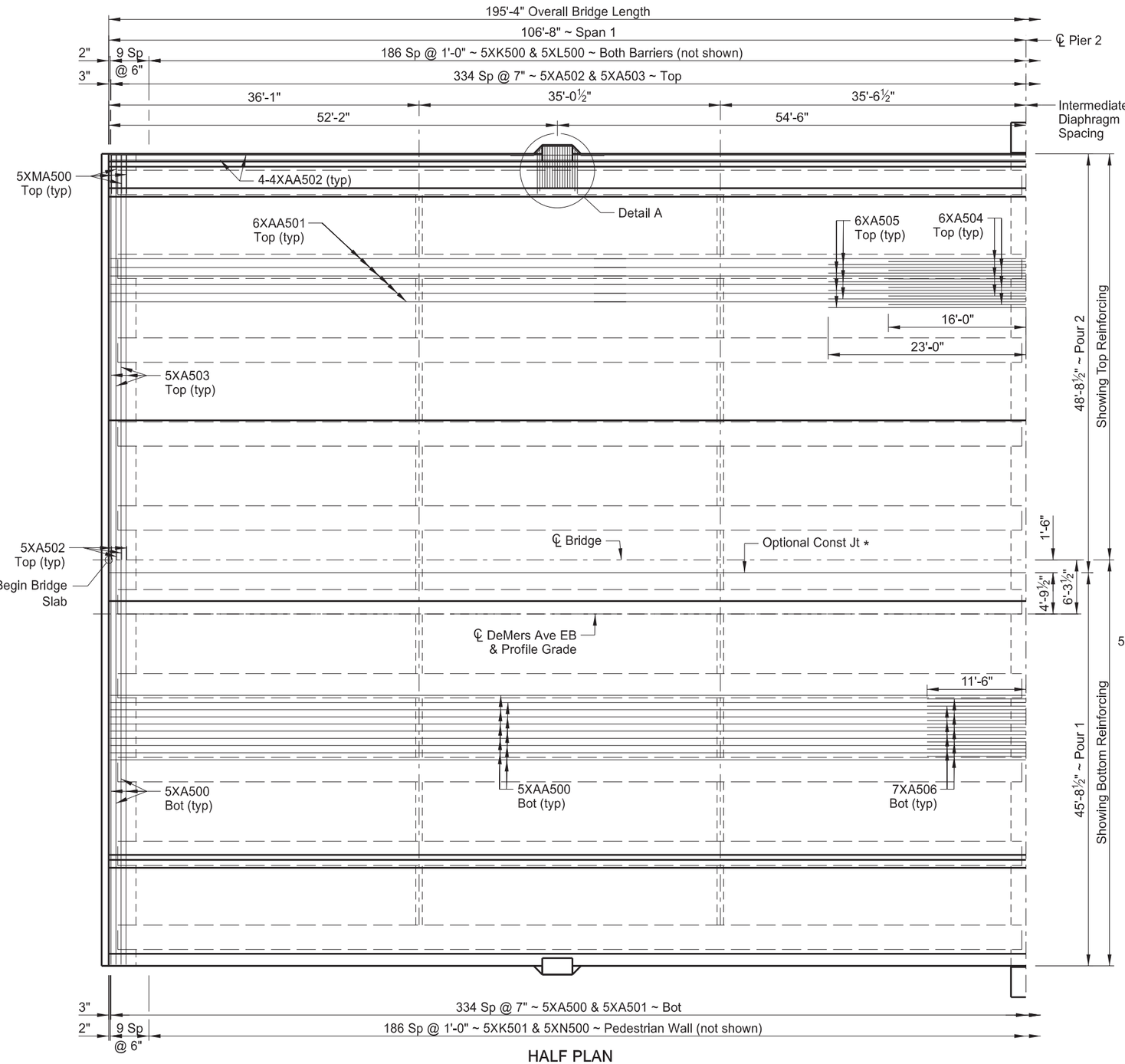
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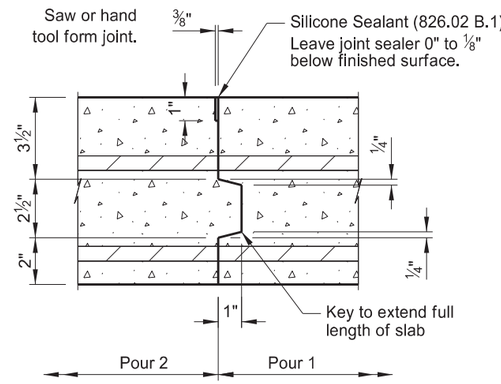
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	32

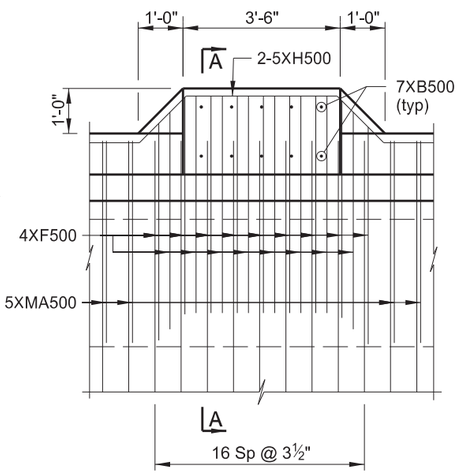


HALF PLAN

* If optional construction joint is elected, pour south portion of deck first.

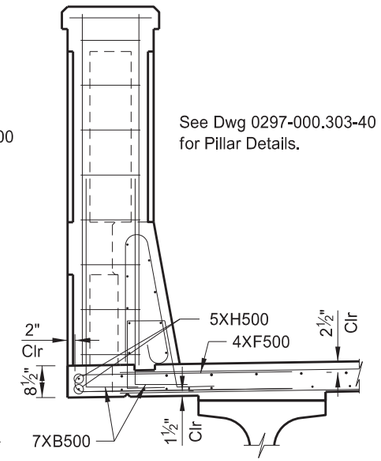


CONSTRUCTION JOINT DETAIL



DETAIL A

(Longitudinal Reinforcement Not Shown)



A-A

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES

SEE DWG 0297-000.303-40

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

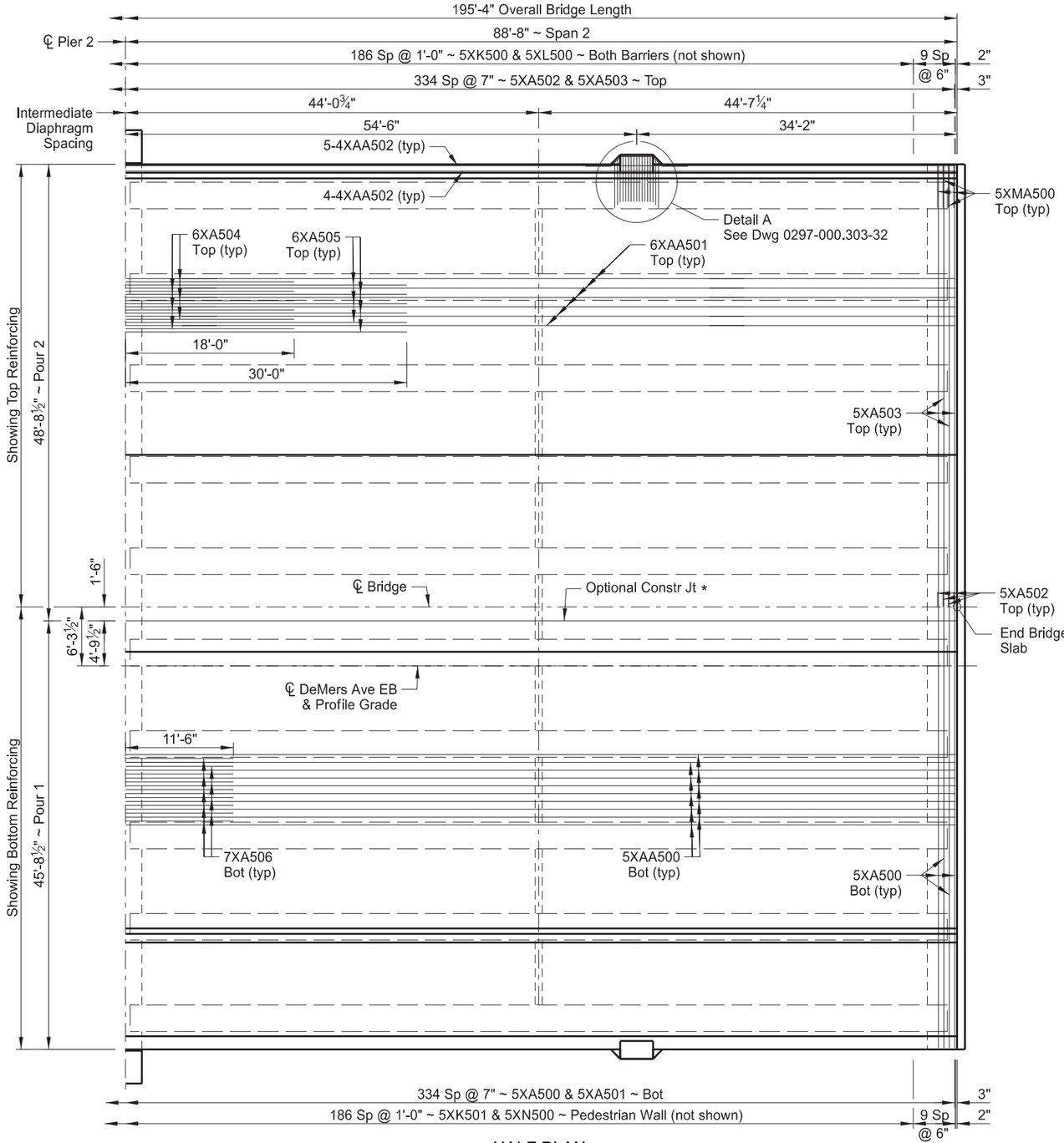
HALF SLAB LAYOUT

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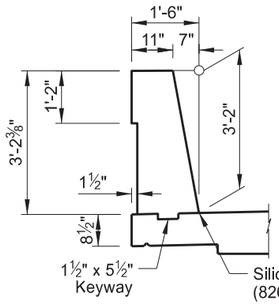
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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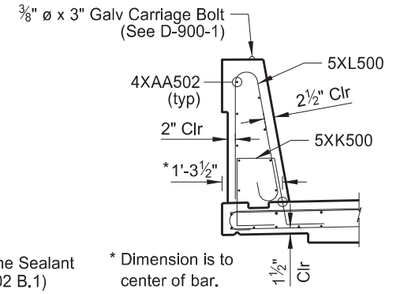


HALF PLAN

* If optional construction joint is elected, pour south portion of deck first.

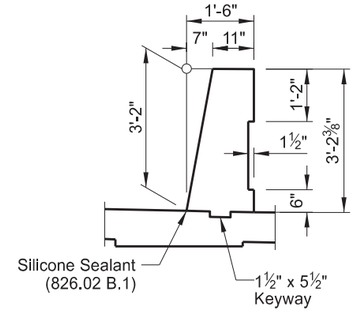


SHOWING DIMENSIONS

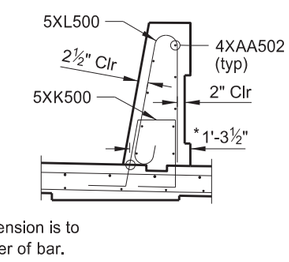


SHOWING REINFORCING

EXTERIOR BARRIER DETAIL

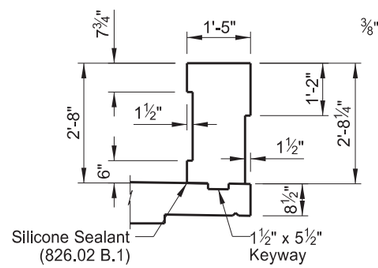


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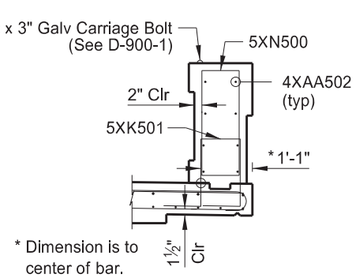


SHOWING REINFORCING

INTERIOR BARRIER DETAIL



SHOWING DIMENSIONS



SHOWING REINFORCING

PEDESTRIAN WALL DETAIL

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES

SEE DWG 0297-000.303-40

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

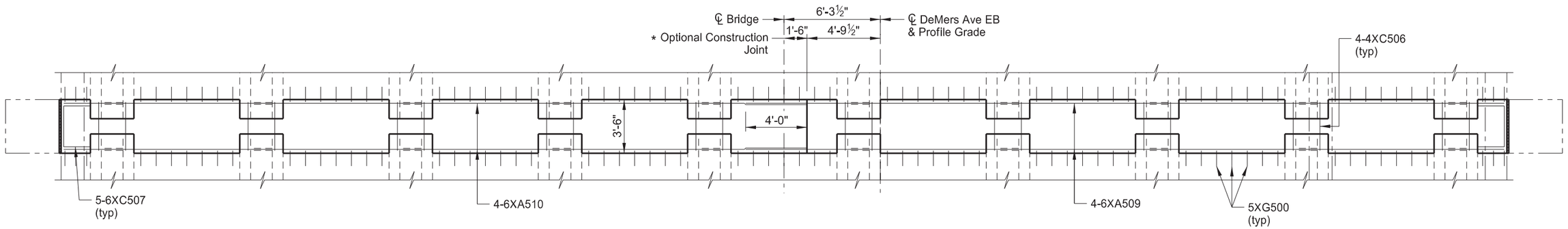
HALF SLAB LAYOUT

DRAWING NO. 0297-000.303-33

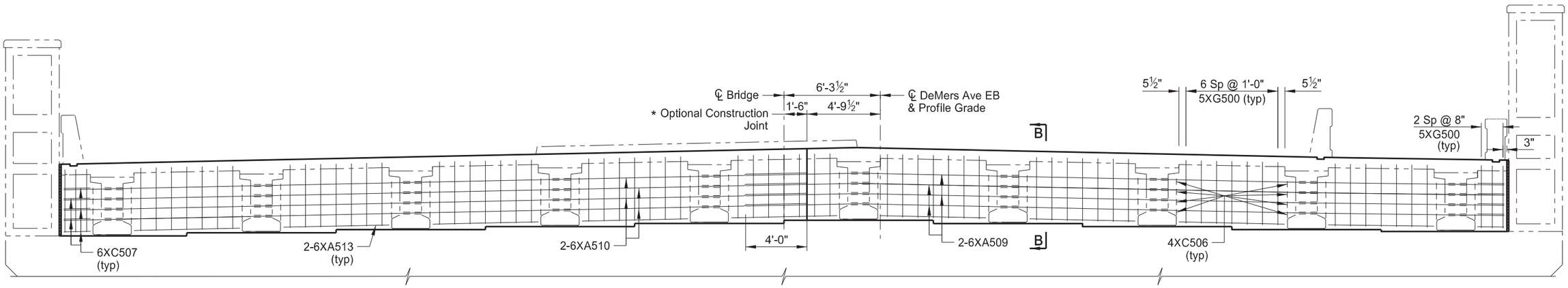
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	34

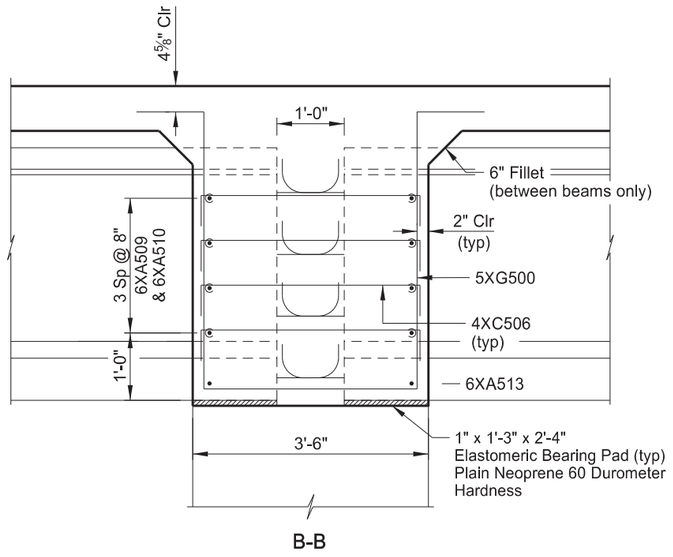


PLAN



ELEVATION

* If optional construction joint is elected, pour south portion of deck first.



B-B

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES

SEE DWG 0297-000.303-40

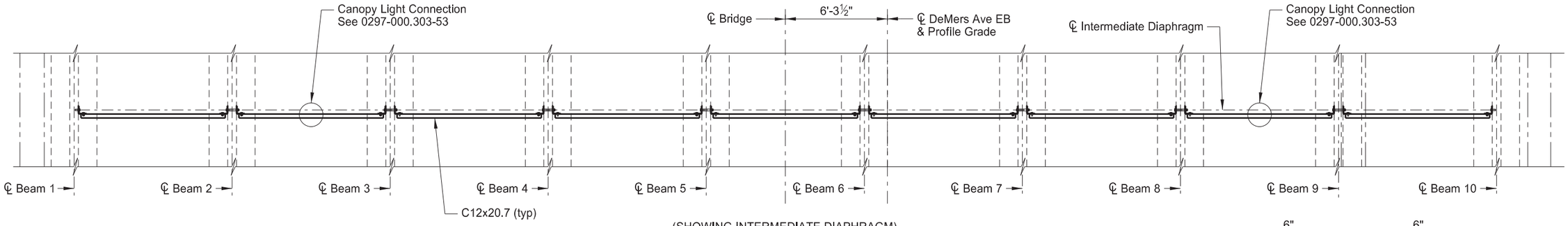
ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

PIER DIAPHRAGM DETAILS

DRAWING NO. 0297-000.303-34

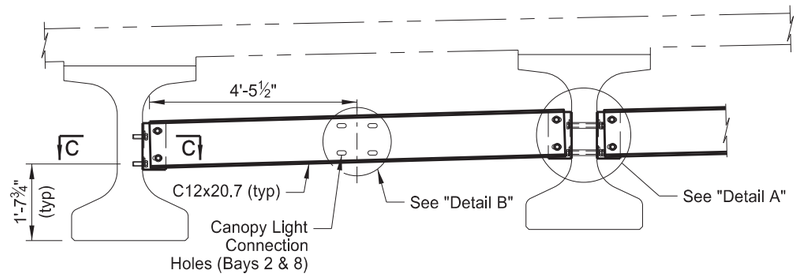
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

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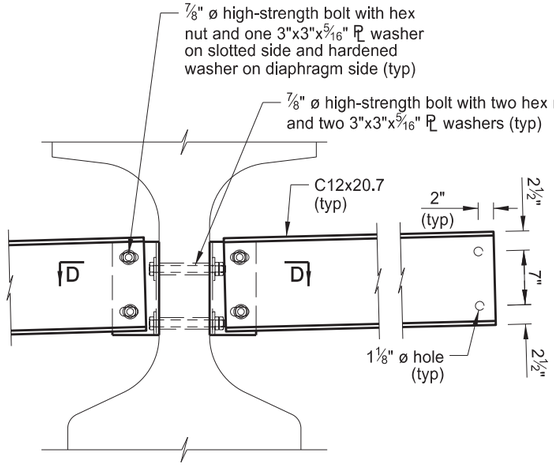


(SHOWING INTERMEDIATE DIAPHRAGM)

PLAN

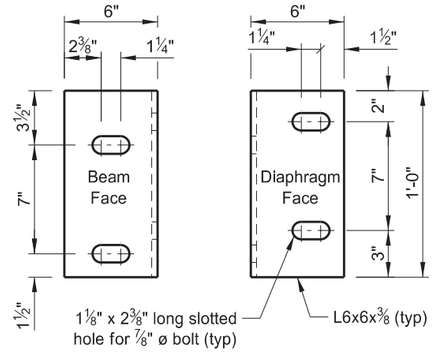


PARTIAL ELEVATION

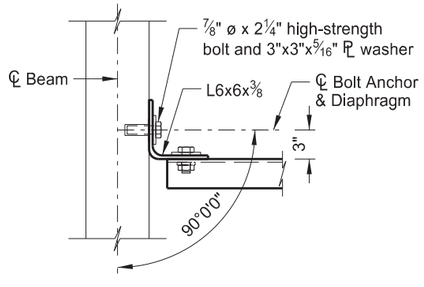


(INTERIOR BEAM)

DETAIL A

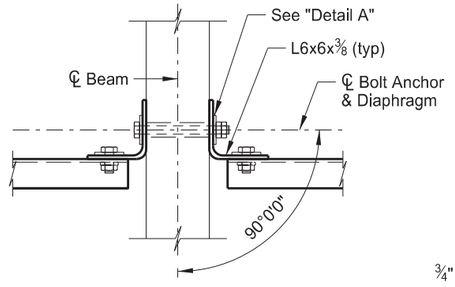


DIAPHRAGM CONNECTION



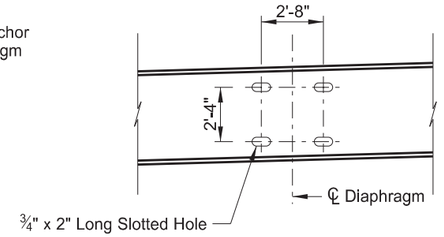
(EXTERIOR BEAM)

C-C



(INTERIOR BEAM)

D-D



DETAIL B

NOTES:

Supply AASHTO M 270 Grade 36 structural steel.

Supply high tensile strength bolts, nuts, and washers in accordance with Section 834.03.

Assemble diaphragms in accordance with Section 616.04.G.

All structural steel and hardware to be galvanized surface finish only.

Galvanize all structural steel and hardware in accordance with Section 854.

Canopy Light Connection, See 029-000.303-53.

QUANTITIES	
STRUCTURAL STEEL	5,805 LBS

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

INTERMEDIATE DIAPHRAGM DETAILS

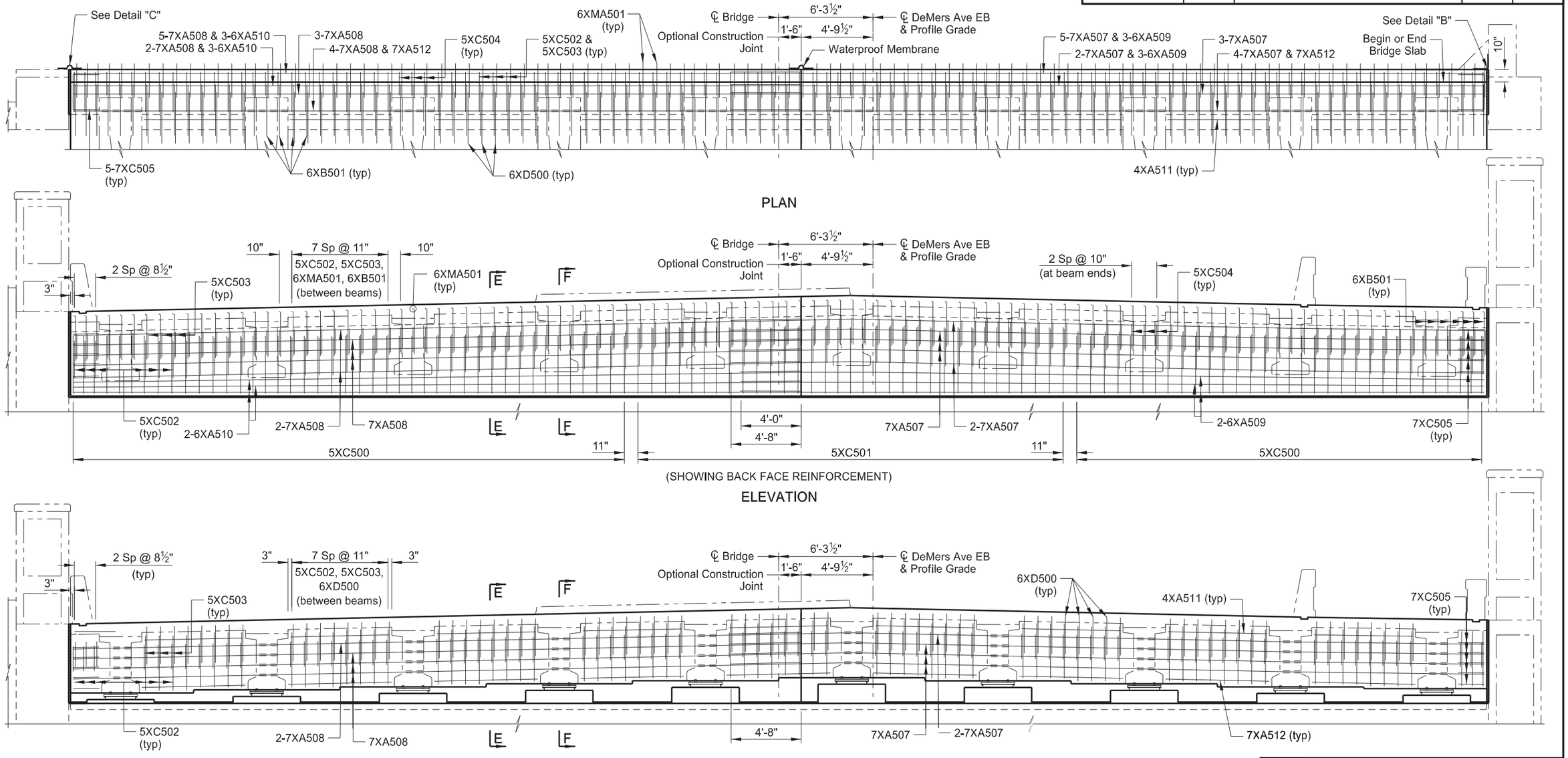
DRAWING NO. 0297-000.303-35

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

1/28/2026 10:10:46 AM kcochran H:\JBN\3900\3950\3950_0362 Demers\CAD\60297014.000-2023 Demers\dgn\Design\Sheets\170BR_035_INTDIAPH.dgn KHC AMK

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	36



NOTES:

Use waterproof membrane meeting Section 602.03 C. Center the waterproof membrane (1'-0 minimum width) on the back face of all construction joints.

See Dwg 297-000.303-37 for Sections E-E and F-F.

See Dwg 297-000.303-37 for Details "B" and "C".

Abutment 3 shown. Abutment 1 is similar.

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DATE 1/29/2026
NORTH DAKOTA

QUANTITIES

SEE DWG 0297-000.303-40

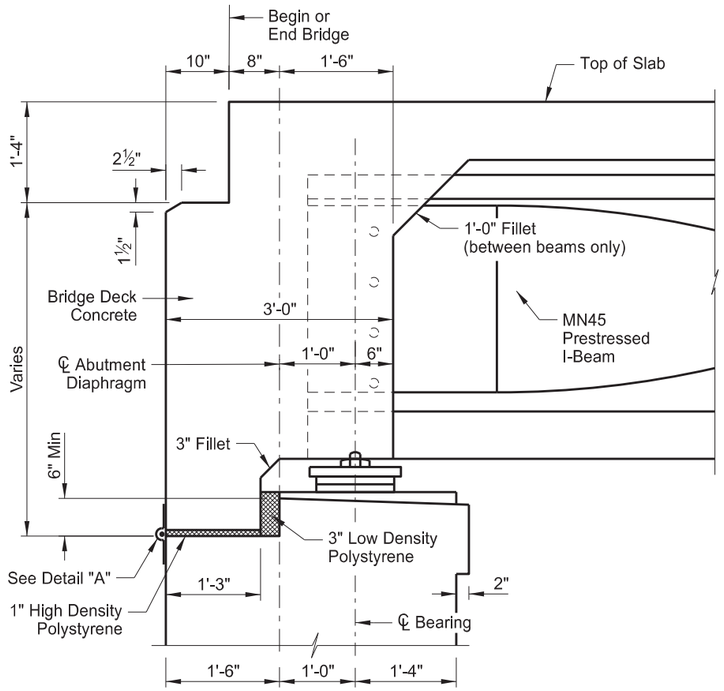
ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

ABUTMENT DIAPHRAGM DETAILS

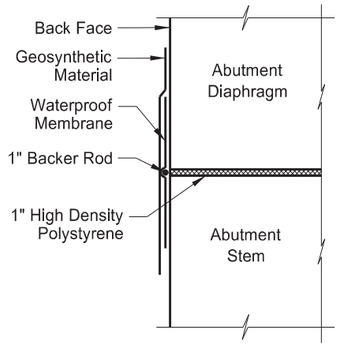
DRAWING NO. 0297-000.303-36

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

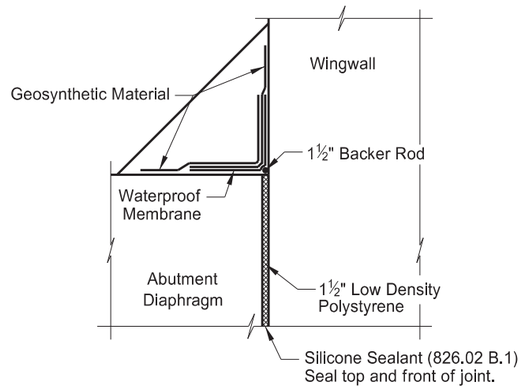
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	37



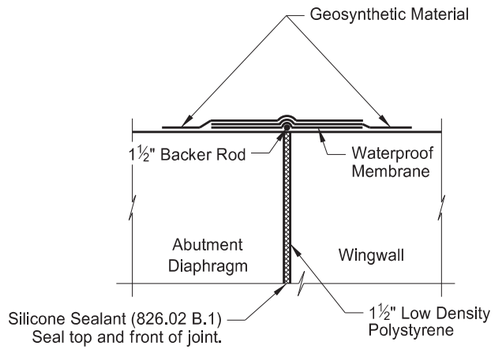
SECTION AT ABUTMENT



DETAIL "A"



DETAIL "B"



DETAIL "C"

NOTES:

1. Diaphragms at the abutments shall be placed integrally with the Deck Slab. Use chemical retarder meeting Section 802.02 D.2.c. in the concrete of the first poured end diaphragm. Adjust retarder dosage so the initial end diaphragm concrete remains in an unhardened state during the placement of the initial full span of the bridge. Gradually reduce retarder dosage after the first end diaphragm pour.

2. Diaphragm concrete and reinforcement quantites are included in the superstructure quantities.

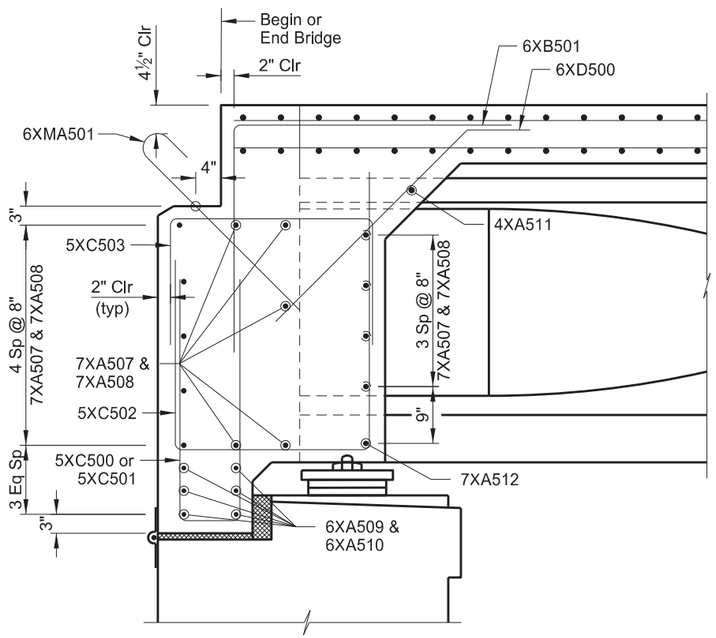
3. Include waterproof membrane and backer rod in the contract unit price for "Bridge Deck Concrete".

4. Low density polystyrene will have a minimum compressive strength of 10 psi. High density polystyrene material will have a minimum compressive strength of 30 psi. Include the cost of the polystyrene material in the contract unit price for "Bridge Deck Concrete."

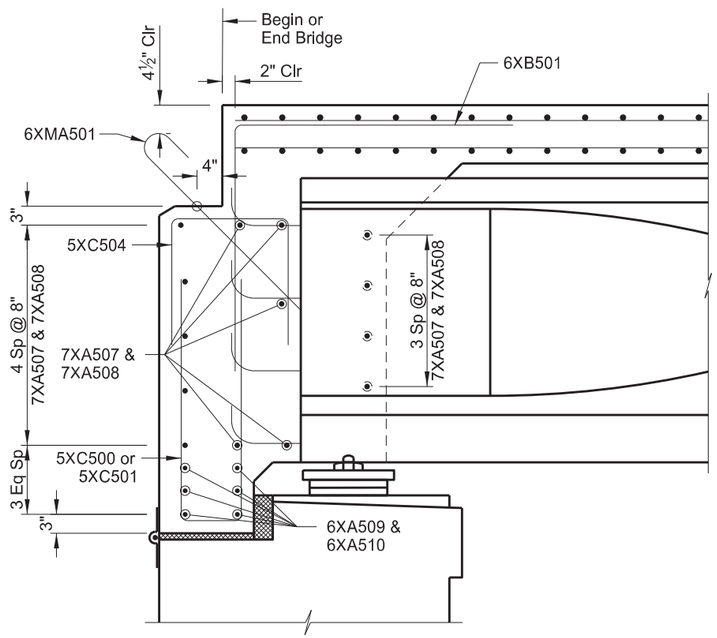
5. Use waterproof membrane that meets the requirements of Section 602.03 C. The backer rod material must conform to ASTM D5249. The strip will be 24" wide and placed such that a 1" wrinkle in the membrane will be formed over the joint opening to allow movement.

6. Attach first layer of geosynthetic material to diaphragm only and provide a minimum lap of 2'-0". Attach the second layer of geosynthetic material to wingwall only. Allow movement between the diaphragm and wingwall. Use Geosynthetic Material - Type S2 and include in the contract unit price for "Bridge Deck Concrete".

SECTION AT ABUTMENT



E-E



F-F



QUANTITIES

SEE DWG 0297-000.303-40

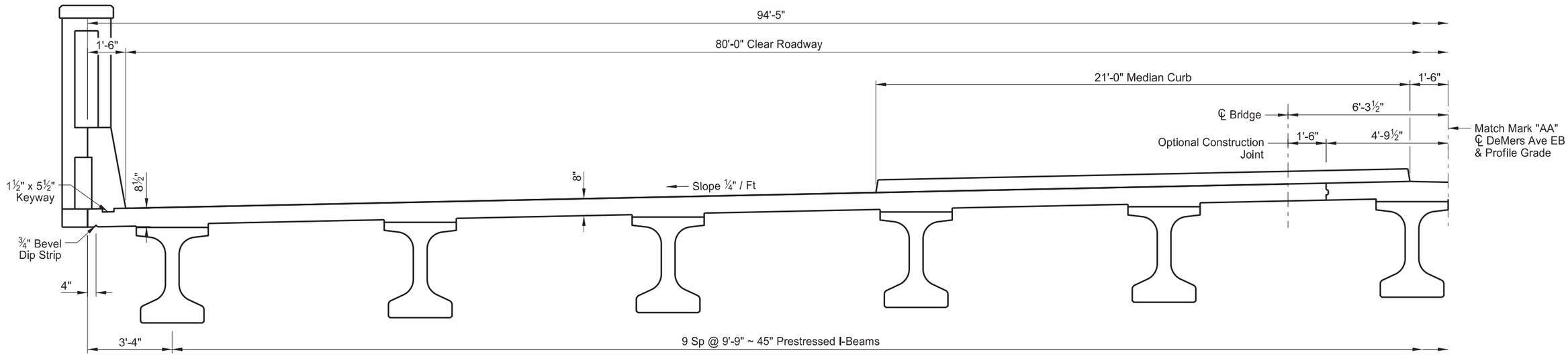
ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

ABUTMENT DIAPHRAGM DETAILS

DRAWING NO. 0297-000.303-37

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	38



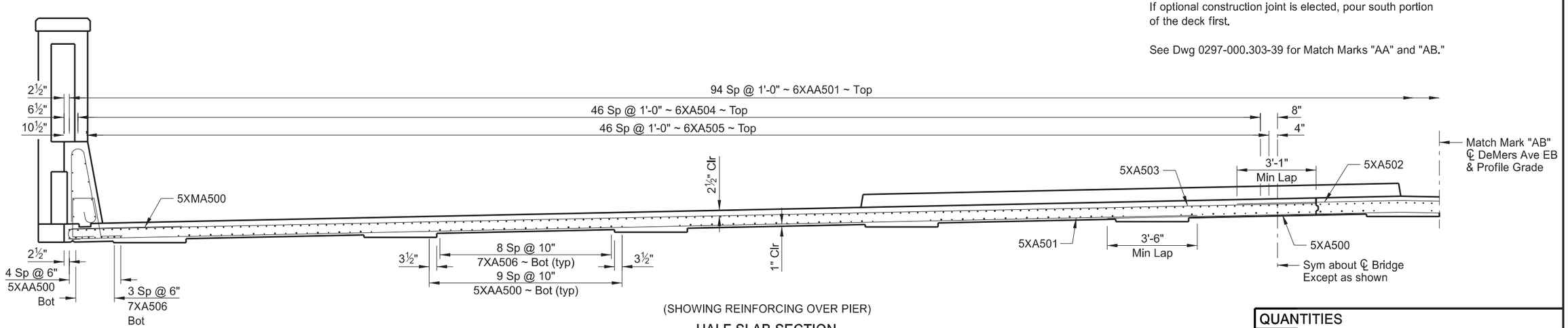
(SHOWING DIMENSIONS)

HALF SLAB SECTION

NOTES:

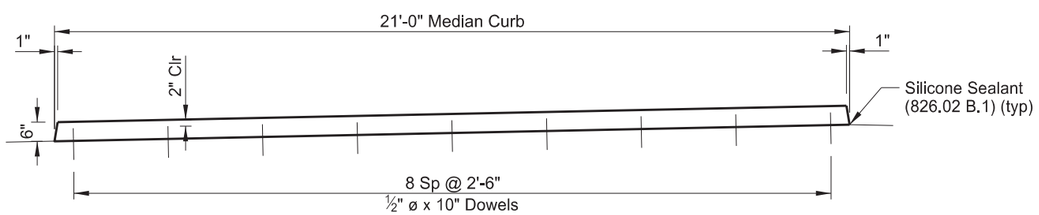
If optional construction joint is elected, pour south portion of the deck first.

See Dwg 0297-000.303-39 for Match Marks "AA" and "AB."



(SHOWING REINFORCING OVER PIER)

HALF SLAB SECTION



MEDIAN CURB SECTION

NOTES:

Provide smooth epoxy coated dowel bars.

Space dowels longitudinally @ 3'-0" ±. Drill and epoxy dowels into the deck. Include dowels in the pay item "Pigmented Concrete."

Provide raised median saw cut joints at 12' max transverse spacing and 10.5' max longitudinal spacing.

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES

SEE DWG 0297-000.303-40

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

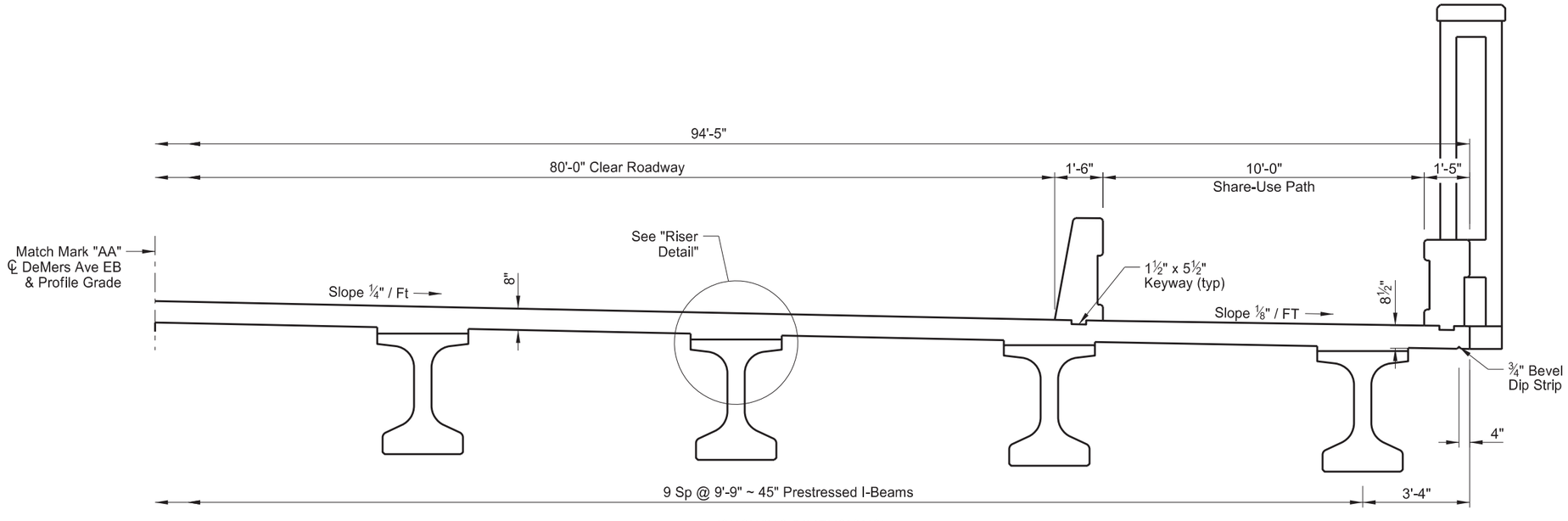
HALF SLAB SECTION

DRAWING NO. 0297-000.303-38

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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

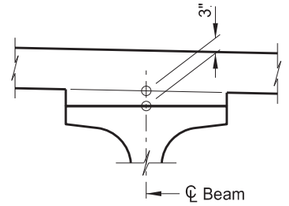
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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(SHOWING DIMENSIONS)

HALF SLAB SECTION

The 3" dimension shown are located at the supports. The anticipated midspan riser is 2⅞" for Span 1. The anticipated riser is 3⅛" for Span 2. Adjust the riser to maintain the 8" slab.

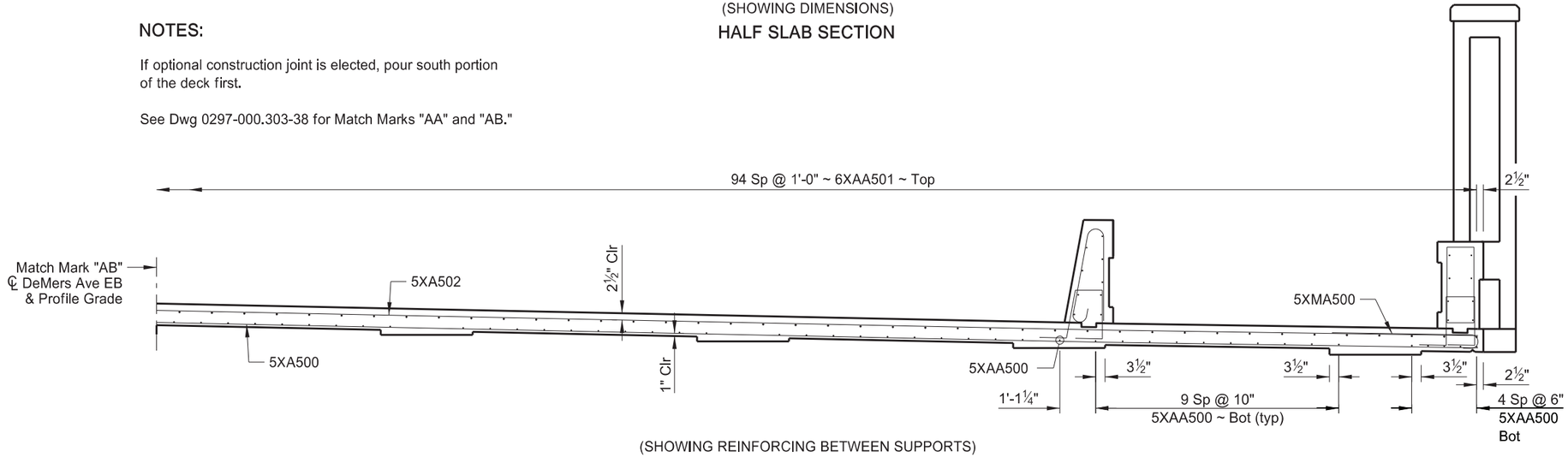


RISER DETAIL

NOTES:

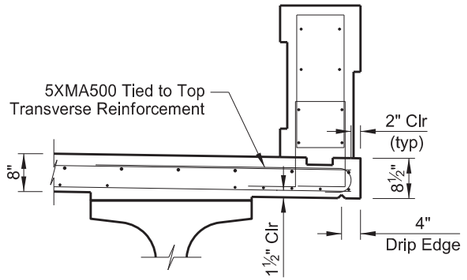
If optional construction joint is elected, pour south portion of the deck first.

See Dwg 0297-000.303-38 for Match Marks "AA" and "AB."



(SHOWING REINFORCING BETWEEN SUPPORTS)

HALF SLAB SECTION



OVERHANG DETAIL

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES

SEE DWG 0297-000.303-40

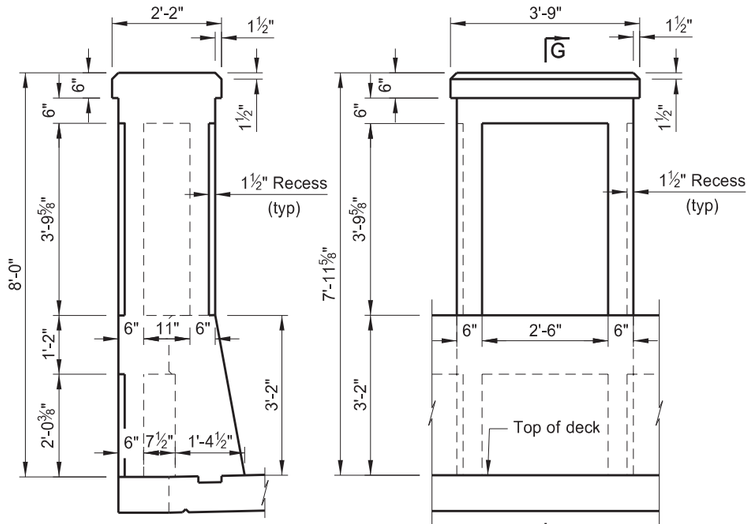
ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

HALF SLAB SECTION

DRAWING NO. 0297-000.303-39

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

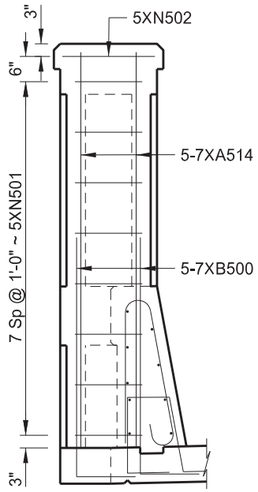
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	40



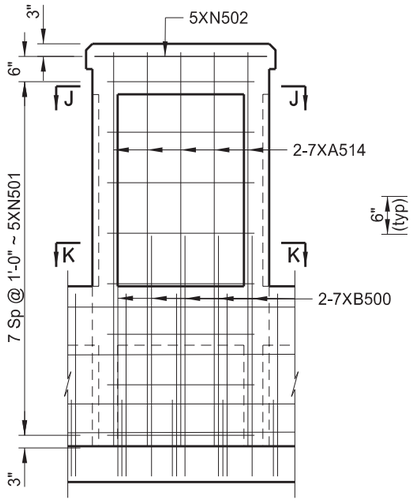
END VIEW

ELEVATION

SHOWING DIMENSIONS



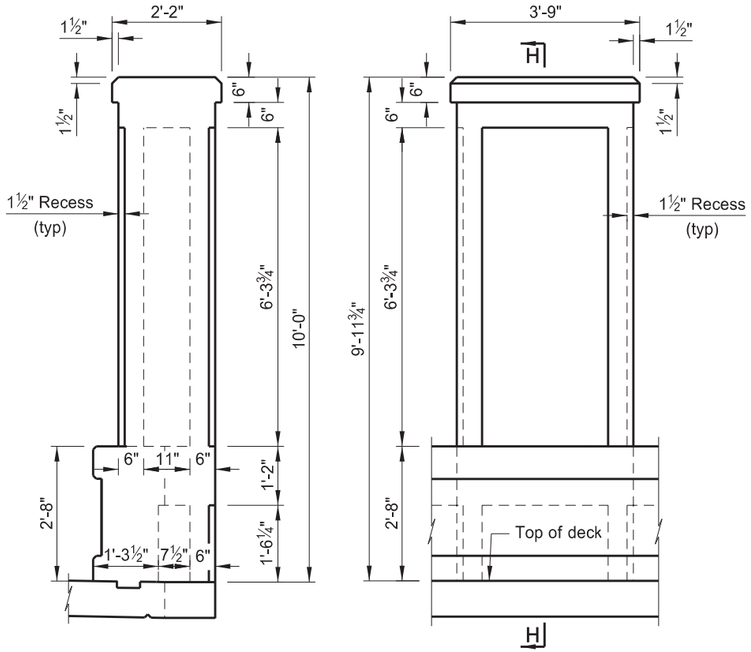
G-G



ELEVATION

SHOWING REINFORCING

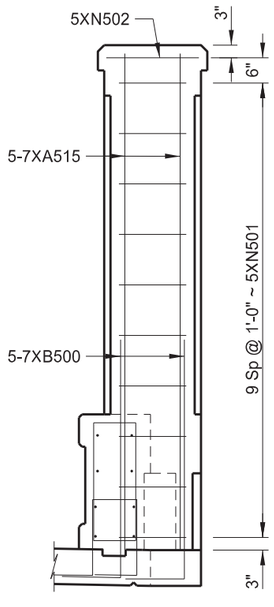
NORTH BARRIER PILLAR DETAILS



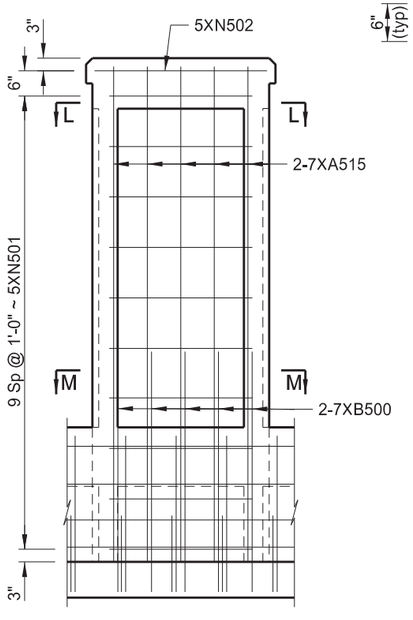
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ELEVATION

SHOWING DIMENSIONS



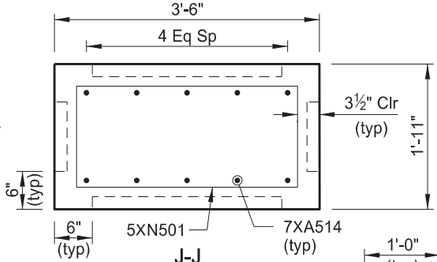
H-H



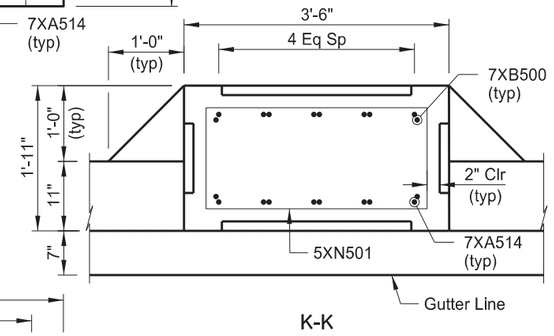
ELEVATION

SHOWING REINFORCING

SOUTH PEDESTRIAN WALL PILLAR DETAILS

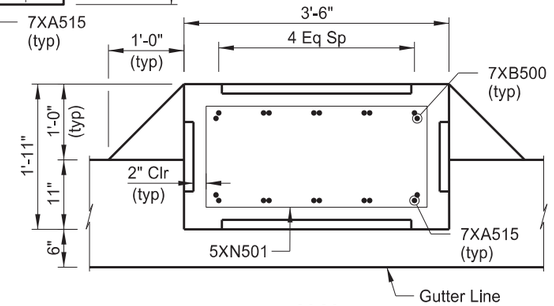


J-J



K-K

L-L



M-M

QUANTITIES	
BRIDGE DECK CONCRETE	632.3 CY
BRIDGE BARRIER CONCRETE	87.2 CY
REINFORCING STEEL (EPOXY)	172,488 LBS
PIGMENTED CONCRETE	455.8 SY

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

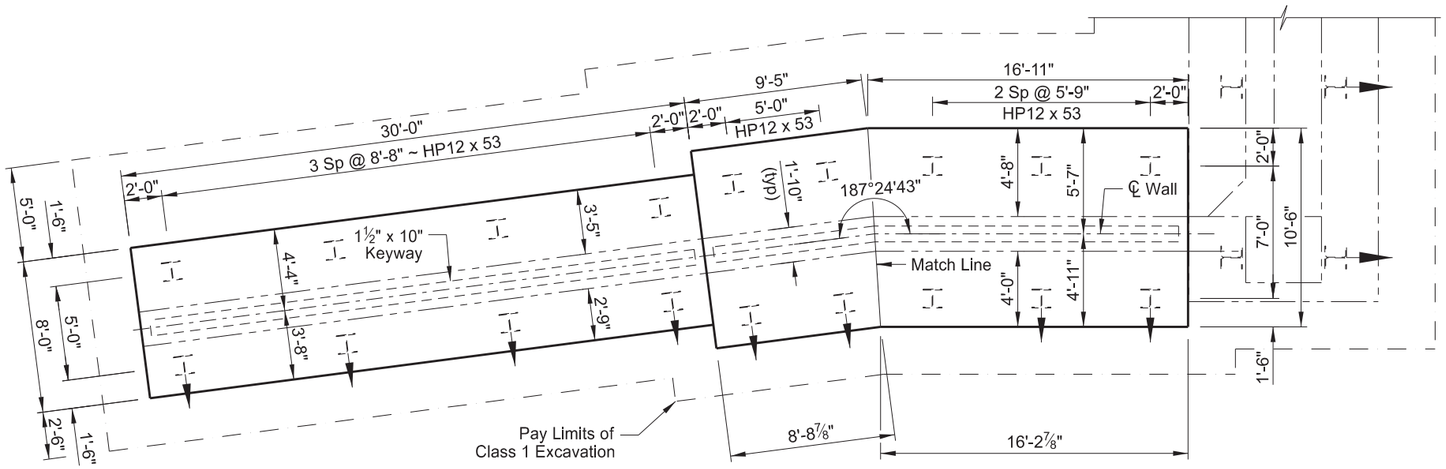
ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

PEDESTRIAN WALL & BARRIER
PILLAR DETAILS

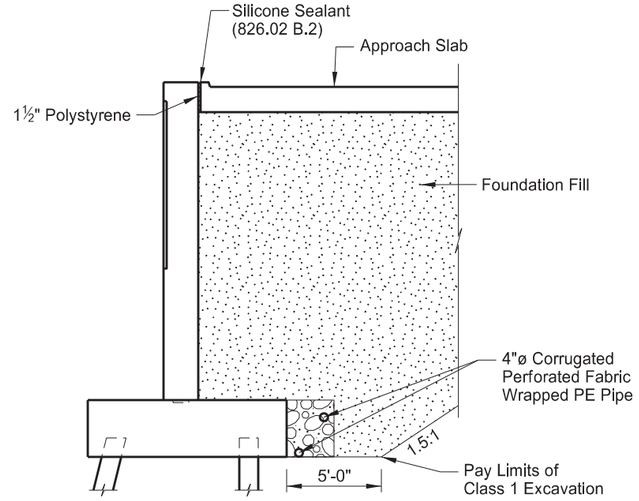
DRAWING NO. 0297-000.303-40

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

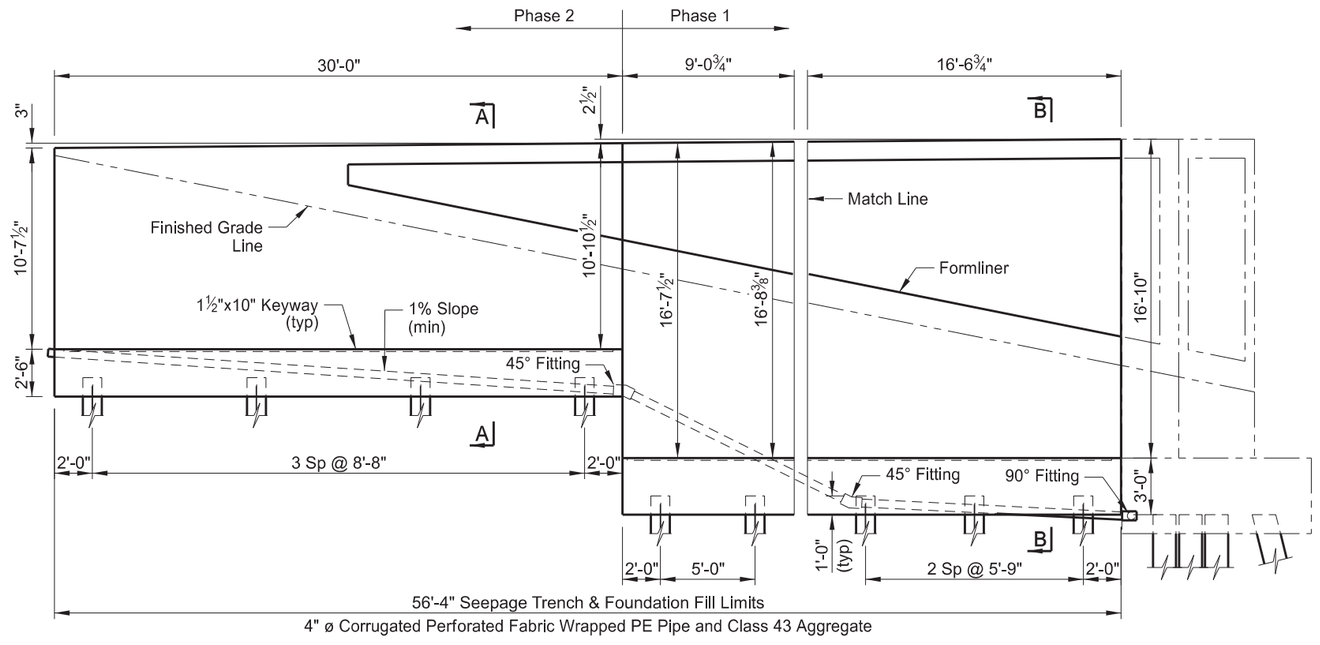
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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PLAN

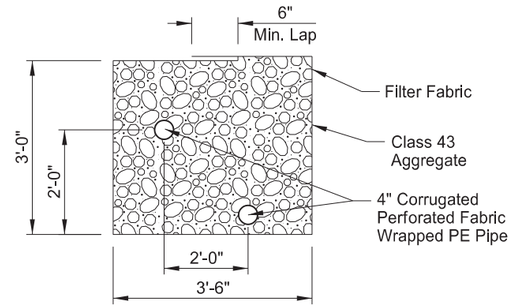


RETAINING WALL DETAIL



(At ℄ Wall)

ELEVATION



PIPE EMBEDMENT DETAIL

NOTES:

See Dwg 0297-000.303-44 for Section A-A and B-B.

See Dwg 0297-000.303-75 for Form Liner Details.

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PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES
SEE DWG 0297-000.303-44

ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

(SHOWING DIMENSIONS)

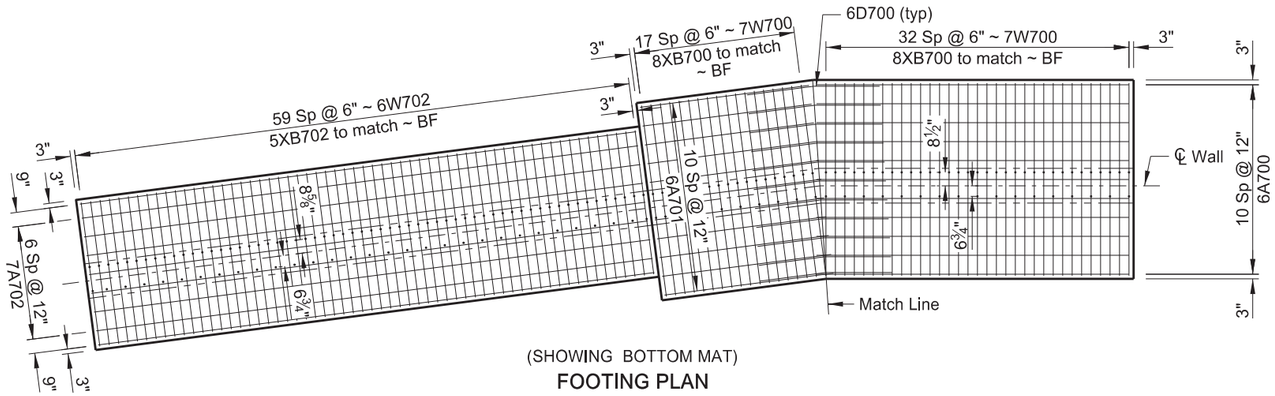
SOUTHWEST RETAINING WALL

DRAWING NO.	0297-000.303-41

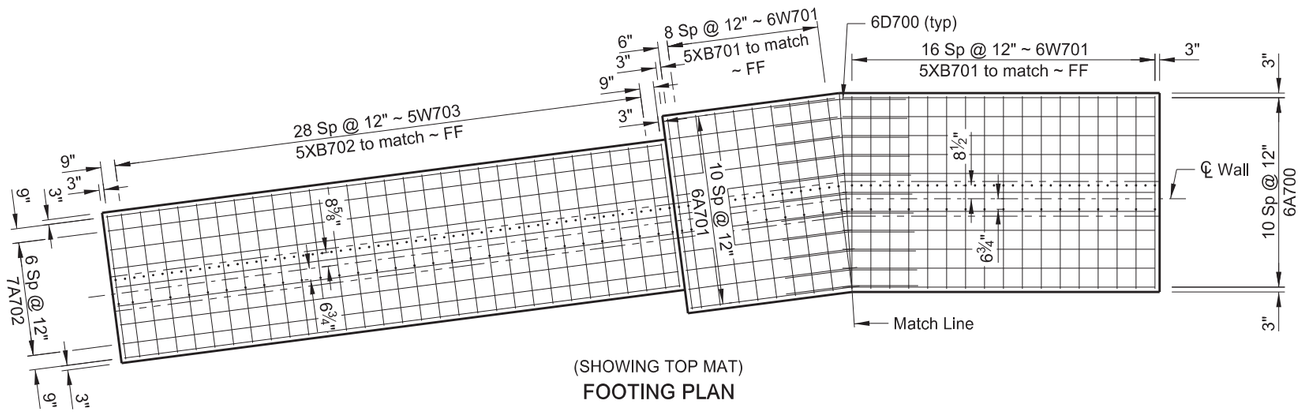
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

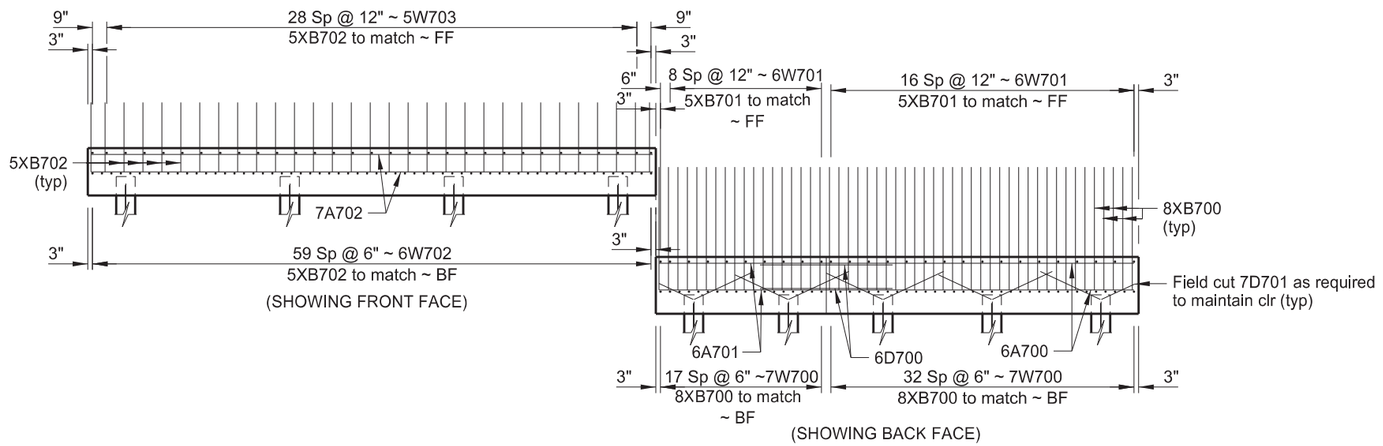
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170a	42



(SHOWING BOTTOM MAT)
FOOTING PLAN



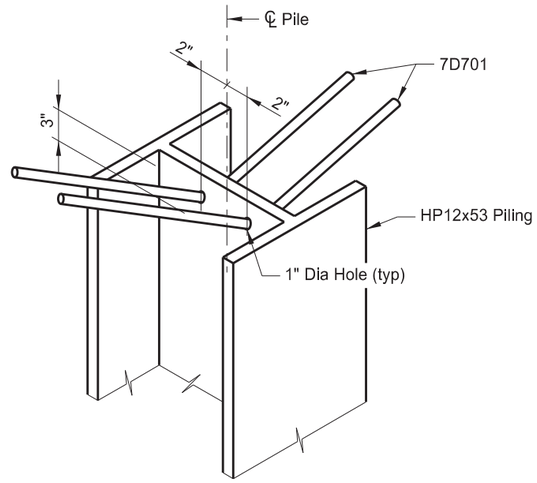
(SHOWING TOP MAT)
FOOTING PLAN



ELEVATION

NOMENCLATURE:

FF = Front Face
BF = Back Face



(Non-Battered Pile Only)
TYPICAL PILE ANCHORAGE DETAIL

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES

SEE DWG 0297-000.303-44

ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

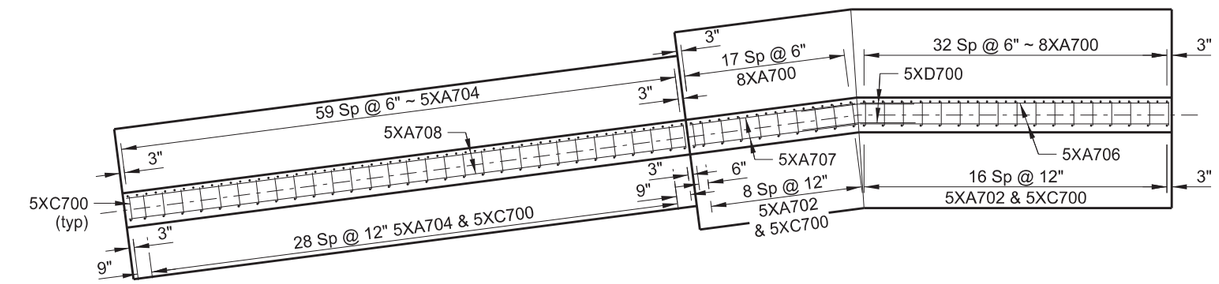
(SHOWING REINFORCING)

SOUTHWEST RETAINING WALL

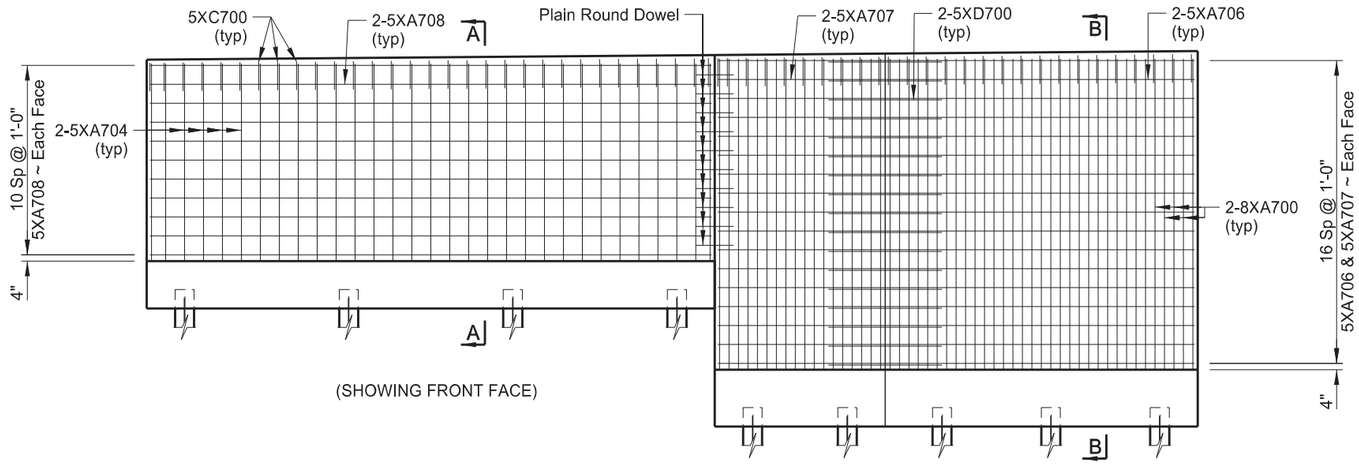
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

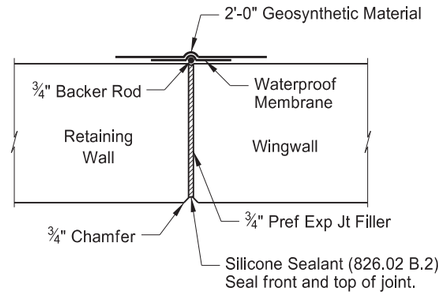
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ND	RCE-FTF-NHU-SU-6-297(014)000	170a	43



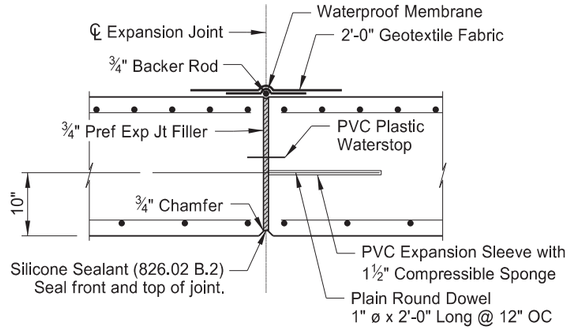
PLAN



ELEVATION



WINGWALL JOINT DETAIL



WALL EXPANSION JOINT DETAIL

NOTES:

Use waterproof membrane meeting Section 602.03 C. Center the waterproof membrane (1'-0" minimum width) on the back face of the joints.

See Dwg 0297-000.303-44 for Section A-A and B-B.



QUANTITIES
SEE DWG 0297-000.303-44

ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

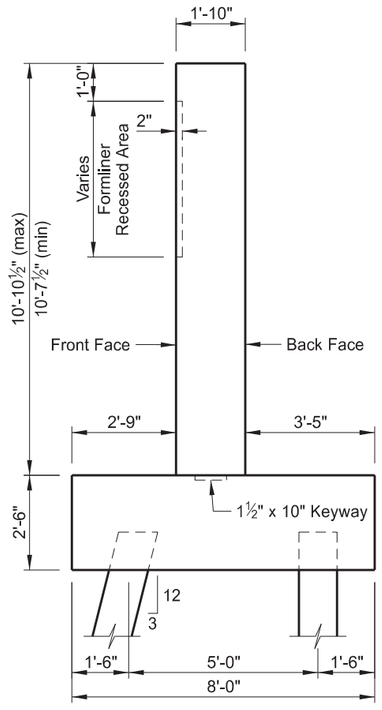
(SHOWING REINFORCING)

SOUTHWEST RETAINING WALL

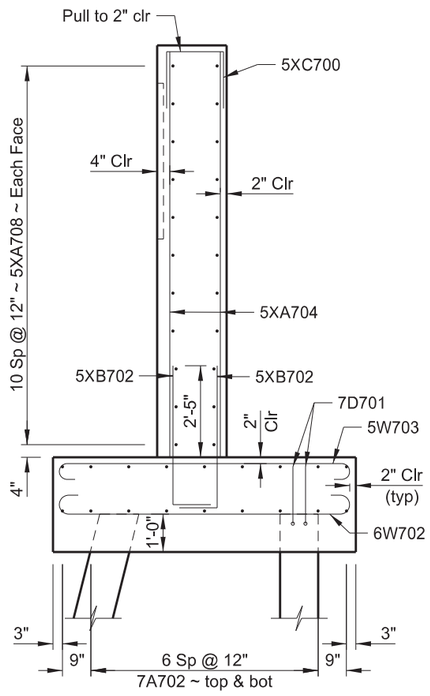
DRAWING NO.	0297-000.303-43

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	44

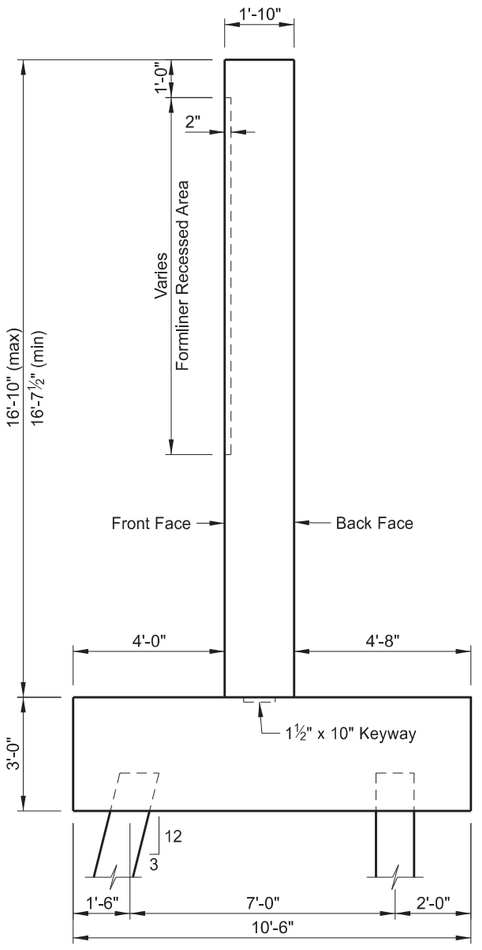


(SHOWING DIMENSIONS)

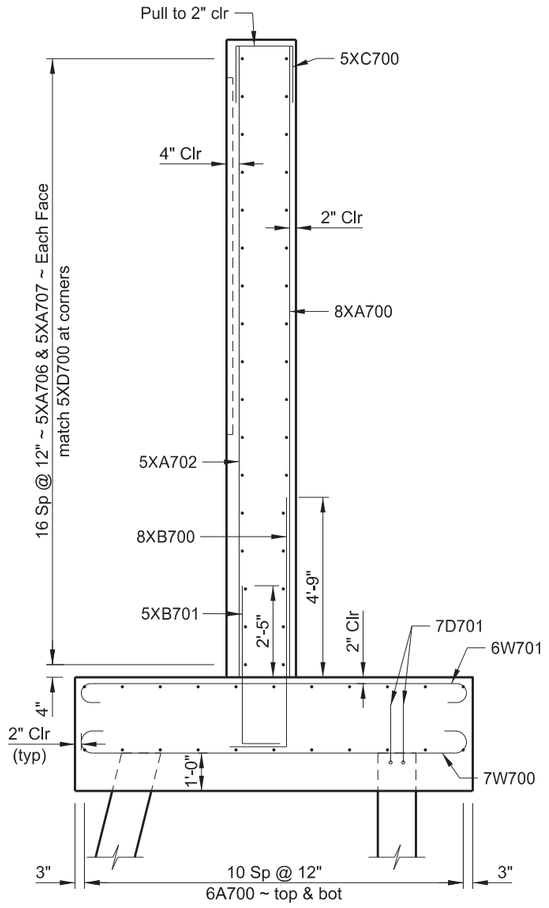


(SHOWING REINFORCING)

A - A



(SHOWING DIMENSIONS)



(SHOWING REINFORCING)

B-B

QUANTITIES	
SUBSTRUCTURE CONCRETE	102.6 CY
REINFORCING STEEL	5,214 LBS
REINFORCING STEEL (EPOXY)	7,477 LBS

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

(SHOWING DIMENSIONS & REINFORCING)

SOUTHWEST RETAINING WALL

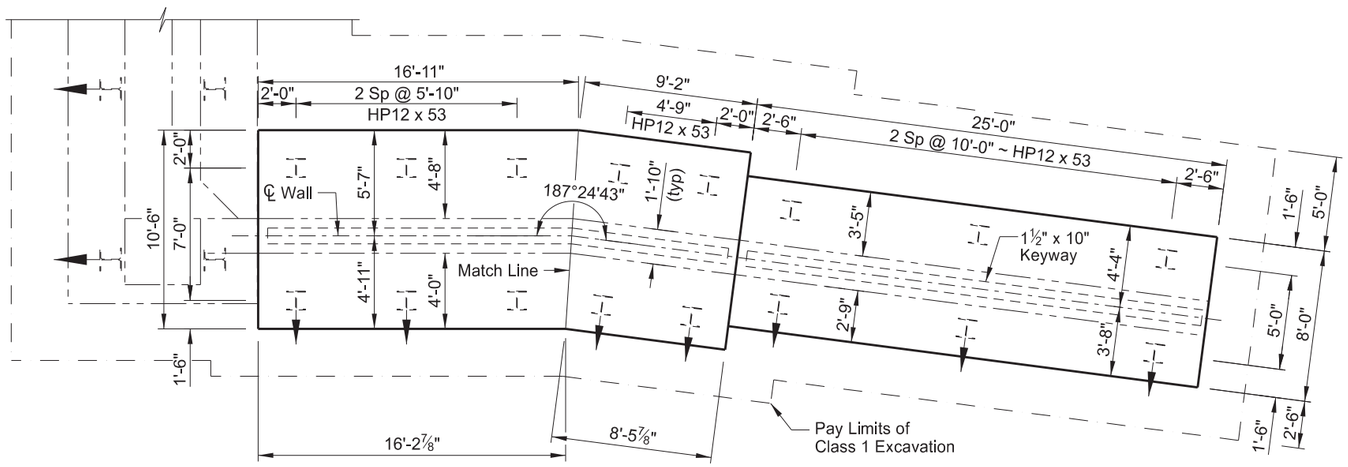
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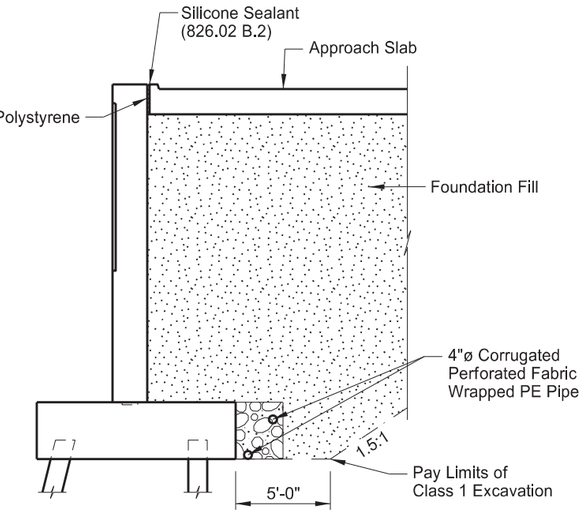
KHC LJB

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

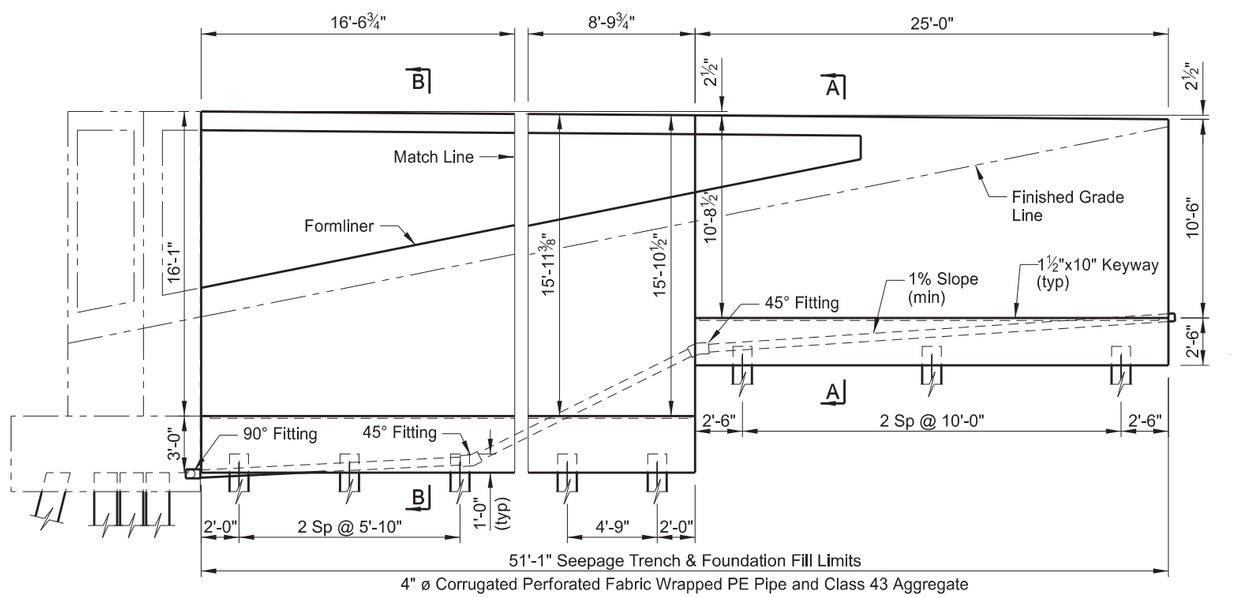
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	45



PLAN

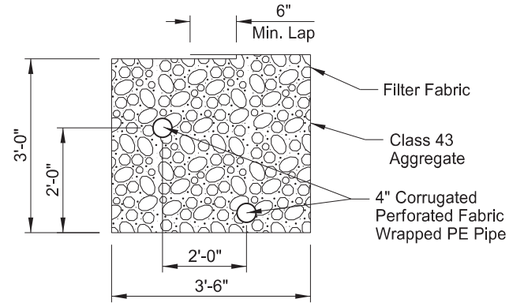


RETAINING WALL DETAIL



(At ℄ Wall)

ELEVATION



PIPE EMBEDMENT DETAIL

NOTES:

See Dwg 0297-000.303-48 for Section A-A and B-B.

See Dwg 0297-000.303-75 for Form Liner Details.

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES

SEE DWG 0297-000.303-48

ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

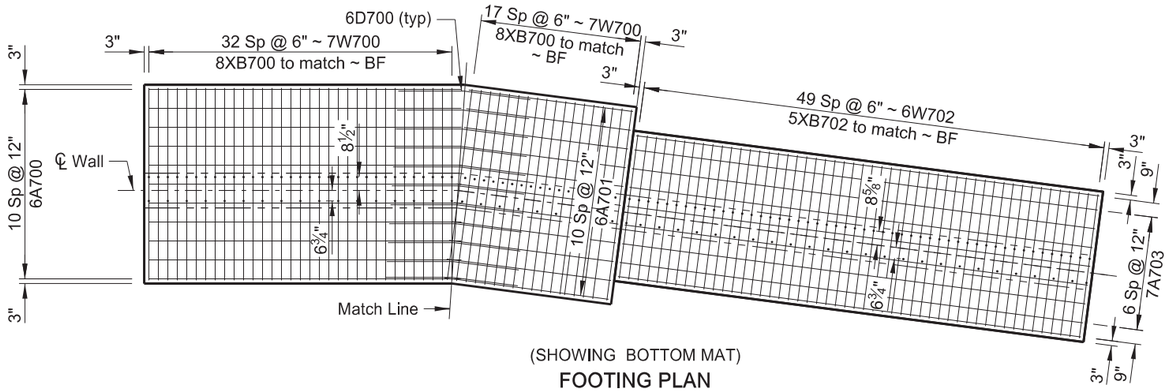
(SHOWING DIMENSIONS)

SOUTHEAST RETAINING WALL

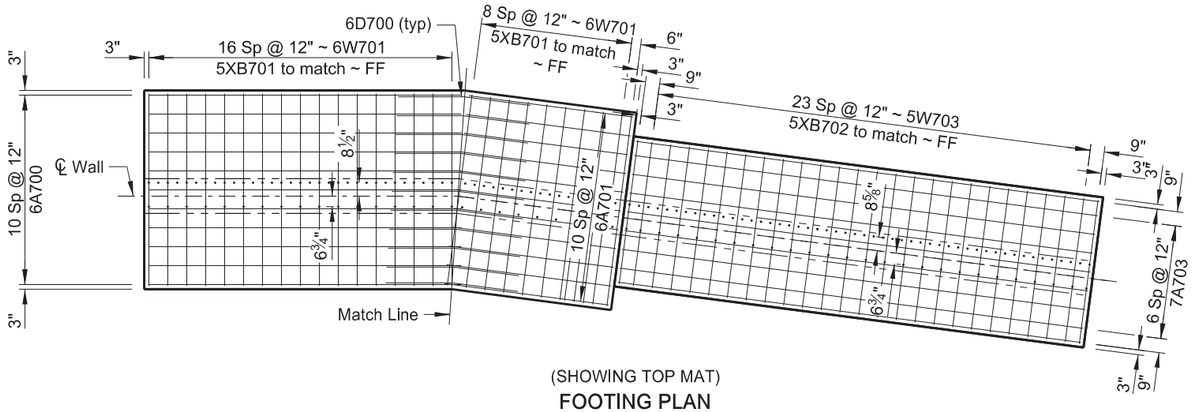
DRAWING NO. 0297-000.303-45

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

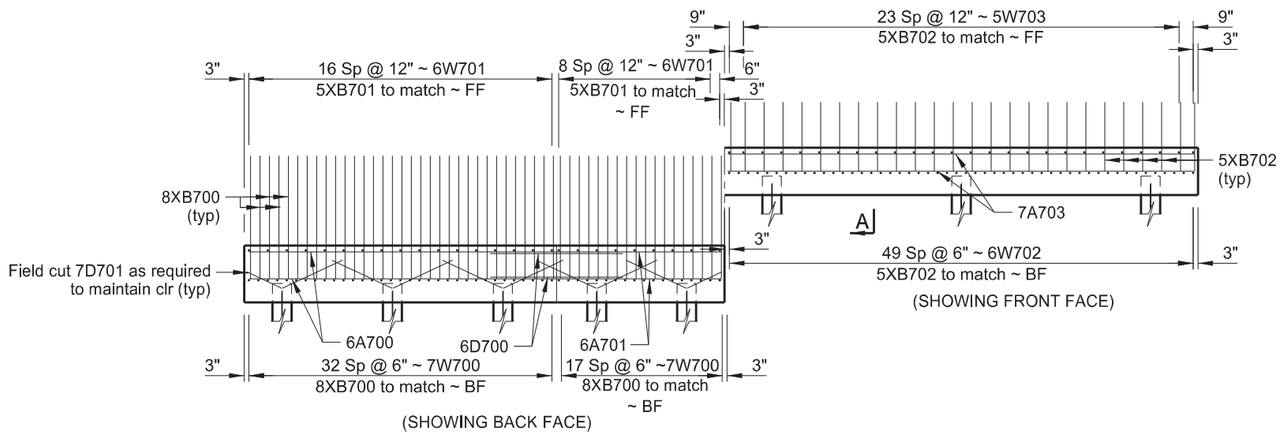
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	46



(SHOWING BOTTOM MAT)
FOOTING PLAN



(SHOWING TOP MAT)
FOOTING PLAN

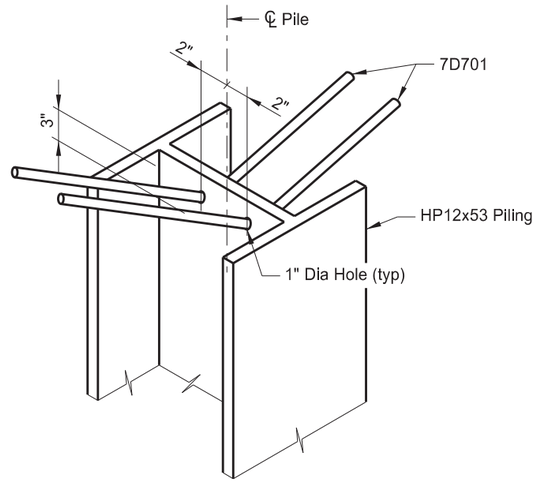


(SHOWING FRONT FACE)
(SHOWING BACK FACE)

ELEVATION

NOMENCLATURE:

FF = Front Face
BF = Back Face



(Non-Battered Pile Only)
TYPICAL PILE ANCHORAGE DETAIL

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES

SEE DWG 0297-000.303-48

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

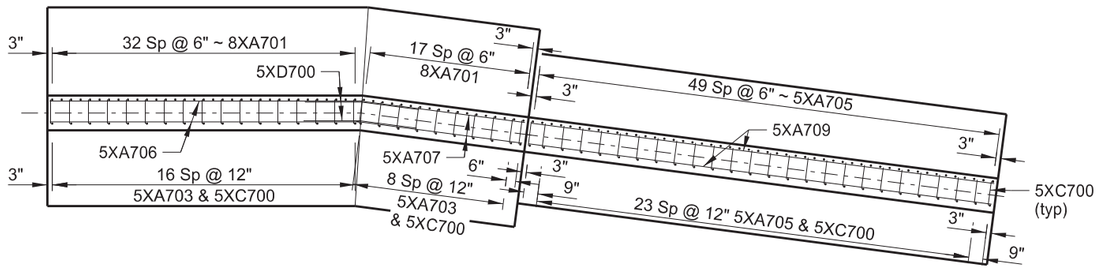
(SHOWING REINFORCING)

SOUTHEAST RETAINING WALL

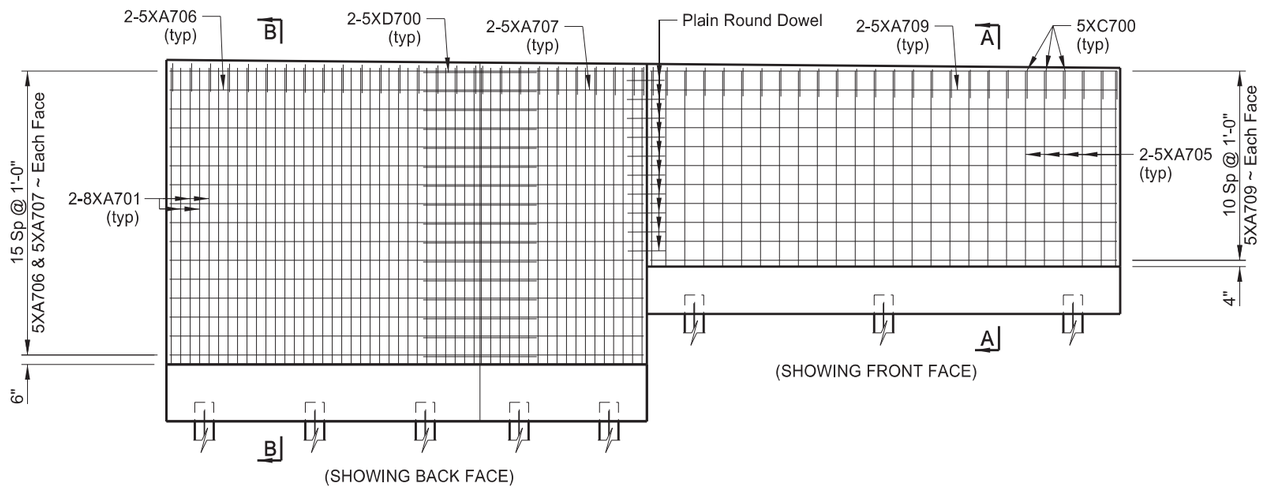
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

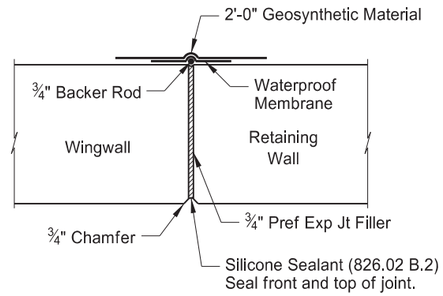
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	47



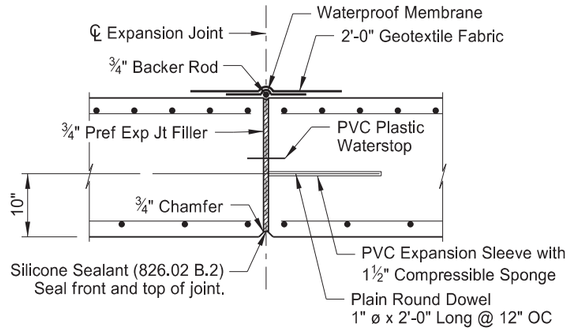
PLAN



ELEVATION



WINGWALL JOINT DETAIL



WALL EXPANSION JOINT DETAIL

NOTES:

Use waterproof membrane meeting Section 602.03 C. Center the waterproof membrane (1'-0" minimum width) on the back face of the joints.

See Dwg 0297-000.303-48 for Section A-A and B-B.

QUANTITIES
SEE DWG 0297-000.303-48

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

(SHOWING REINFORCING)

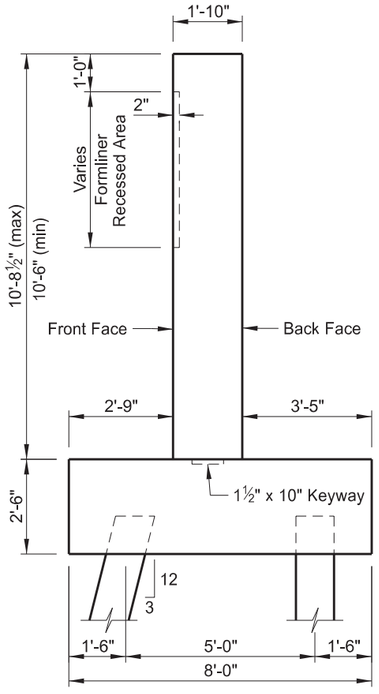
SOUTHEAST RETAINING WALL

DRAWING NO.	0297-000.303-47

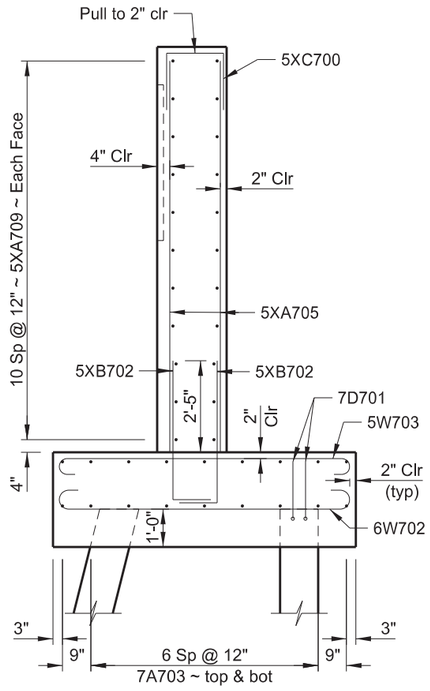
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	48

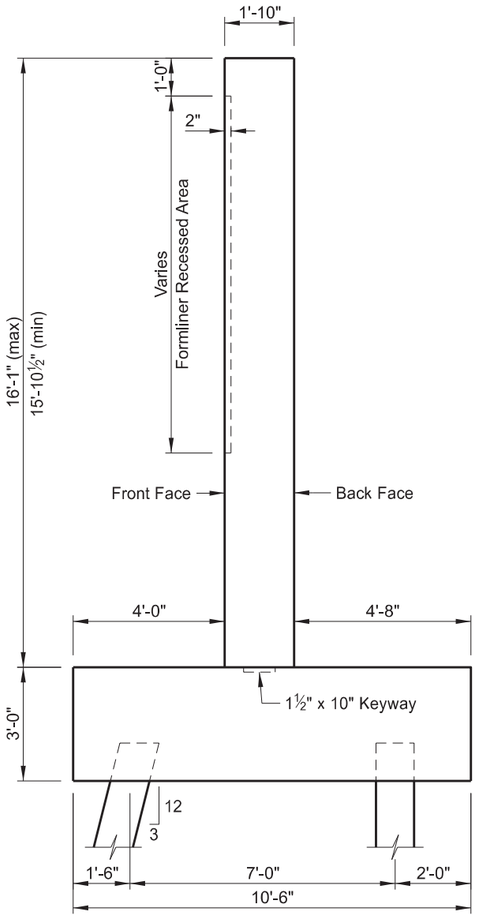


(SHOWING DIMENSIONS)

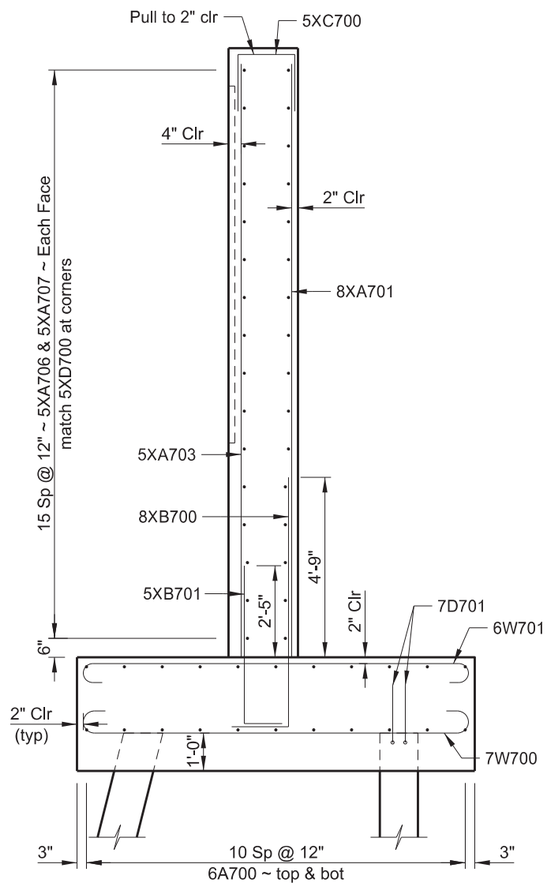


(SHOWING REINFORCING)

A - A



(SHOWING DIMENSIONS)



(SHOWING REINFORCING)

B-B

QUANTITIES	
SUBSTRUCTURE CONCRETE	94 CY
REINFORCING STEEL	4,820 LBS
REINFORCING STEEL (EPOXY)	6,905 LBS

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

(SHOWING DIMENSIONS & REINFORCING)

SOUTHEAST RETAINING WALL

DRAWING NO. 0297-000.303-48

BILL OF REINFORCING STEEL, GRADE 60

LETTER PREFIX OF BAR MARK DENOTES SHAPE ~ SEE BAR DETAILS

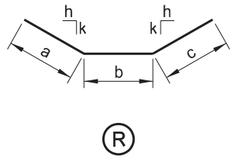
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	49

LOCATION		SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS								
						a	b	c	d	e	f	g	h	k
ABUTMENT 1	REGULAR	6	C100	105	15'-0"		2'-8"	9'-8"	2'-8"					
		5	C101	105	15'-0"		2'-8"	9'-8"	2'-8"					
		6	AA100	11	107'-1"		60'-0"	3'-9"	47'-1"	1		103'-4"		
		5	AA101	13	106'-4"		60'-0"	3'-0"	46'-4"	1		103'-4"		
	EPOXY	7	XA100	99	10'-5"		10'-5"							
		6	XA101	96	10'-10"		10'-10"							
		7	XA102	16	21'-0"		21'-0"							
		7	XA103	16	20'-6"		20'-6"							
		7	XA104	8	18'-0"		18'-0"							
		7	XA105	8	16'-8"		16'-8"							
		7	XB100	143	8'-4"		7'-2"	1'-2"						
		6	XB101	96	6'-9"		5'-9"	1'-0"						
		6	XC100	96	9'-0"		2'-9"	3'-6"	2'-9"					
		6	XC101	96	7'-6"		2'-9"	2'-0"	2'-9"					
		5	XC102	19	14'-2"		6'-6"	1'-2"	6'-6"					
		5	XC103	21	11'-8"		5'-3"	1'-2"	5'-3"					
		6	XC104	24	7'-4"		2'-0"	3'-4"	2'-0"					
		5	XC105	50	9'-0"		3'-6"	2'-0"	3'-6"					
		5	XC106	40	11'-2"		3'-6"	4'-2"	3'-6"					
		5	XC107	8	4'-4"		1'-6"	1'-4"	1'-6"					
													0	0
		5	XN100	13	13'-8"	3'-5"	2'-11"	6"						12
		6	XR100	12	7'-8"	10"	3'-2"	3'-8"					12	12
		6	XAA100	27	104'-11"	0	54'-4"	3'-9"	50'-7"	1	0	101'-2"	0	0
ABUTMENT 3	REGULAR	6	C300	105	15'-0"		2'-8"	9'-8"	2'-8"					
		5	C301	105	15'-0"		2'-8"	9'-8"	2'-8"					
		6	AA300	11	107'-1"		60'-0"	3'-9"	47'-1"	1		103'-4"		
		5	AA301	13	106'-4"		60'-0"	3'-0"	46'-4"	1		103'-4"		
	EPOXY	7	XA300	99	9'-7"		9'-7"							
		6	XA301	96	10'-0"		10'-0"							
		7	XA302	16	20'-3"		20'-3"							
		7	XA303	16	19'-7"		19'-7"							
		7	XA304	12	16'-9"		16'-9"							
		7	XA305	8	15'-11"		15'-11"							
		7	XB300	143	8'-4"		7'-2"	1'-2"						
		6	XB301	96	6'-9"		5'-9"	1'-0"						
		6	XC300	96	9'-0"		2'-9"	3'-6"	2'-9"					
		6	XC301	96	7'-6"		2'-9"	2'-0"	2'-9"					
		5	XC302	18	14'-2"		6'-6"	1'-2"	6'-6"					
		5	XC303	19	15'-0"		6'-11"	1'-2"	6'-11"					
		6	XC304	22	7'-4"		2'-0"	3'-4"	2'-0"					
		5	XC305	50	9'-0"		3'-6"	2'-0"	3'-6"					
		5	XC306	40	11'-2"		3'-6"	4'-2"	3'-6"					
		5	XC307	10	4'-4"		1'-6"	1'-4"	1'-6"					
		5	XN300	13	13'-8"	3'-5"	2'-11"	6"					0	12
		6	XR300	11	7'-8"	10"	3'-2"	3'-8"					12	12
		6	XAA300	25	104'-11"		54'-4"	3'-9"	50'-7"	1		101'-2"		

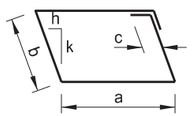
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

NOTES:

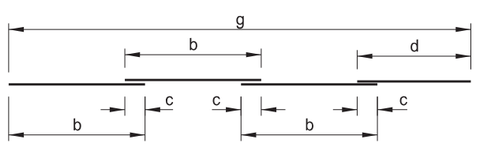
1. Verify the quantity, size, and shape of the bar reinforcement against the structure drawings and immediately notify the Engineer of any discrepancies. Discrepancies in the bar list will not be cause for adjustment of the contract unit price.
2. All dimensions are out to out of bars.
3. Nominal length of each bent bar or cut bar is the sum total of the detailing dimensions for that bar, unless otherwise noted.
4. Turn adjacent "AA" bars end for end so that the splice locations are staggered.
5. An "X" preceding a bar designation indicates an epoxy coated bar.



R

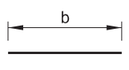


N

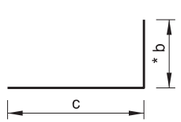


AA

c = Lap Splice (typ)
e = # of "b" Length Pieces in a Set
Total Length per Set = e x b + d

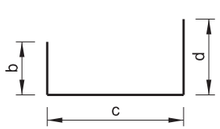


A



B

* b = Vertical Leg



C

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

REINFORCING BAR LIST & DETAILS

DRAWING NO. 0297-000.303-49

LOCATION		SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS								
						a	b	c	d	e	f	g	h	k
PIER	REGULAR	8	C200	91	15'-8"		2'-9"	10'-2"	2'-9"					
		7	C201	91	15'-8"		2'-9"	10'-2"	2'-9"					
		7	C202	22	8'-1"		2'-9"	2'-7"	2'-9"					
		7	AA200	26	93'-10"		46'-11"	3'-7"		2		90'-2"		
	EPOXY	9	XA200	168	12'-4"		12'-4"							
		9	XA201	168	11'-4"		11'-4"							
		8	XA202	7	46'-0"		46'-0"							
		4	XA203	2	60'-0"		60'-0"							
		8	XB200	182	8'-11"		1'-4"	7'-7"						
		9	XB201	168	9'-9"		1'-7"	8'-2"						
		7	XB202	32	7'-0"		1'-2"	5'-10"						
		8	XC200	91	16'-10"		6'-10"	3'-2"	6'-10"					
		7	XC201	16	9'-8"		3'-4"	3'-0"	3'-4"					
		5	XC203	4	5'-6"		1'-3"	3'-0"	1'-3"					
		5	XD200	18	5'-8"		3'-0"	2'-8"					12	12
		5	XF200	140	6'-0"	1'-2"	3'-8"				1'-2"			
		9	XMA200	14	16'-5"		15'-2"							
		8	XMA201	14	33'-11"		33'-0"							
		5	XN200	5	14'-8"	3'-2"	3'-8"	6"					0	12
		5	XN201	16	12'-8"	2'-2"	3'-8"	6"					0	12
		5	XN202	26	13'-0"	2'-2"	3'-10"	6"					0	12
		5	XN203	4	15'-4"	3'-2"	4'-0"	6"					0	12
		5	XN204	40	13'-4"	2'-2"	4'-0"	6"					0	12
		5	XN205	10	15'-10"	3'-2"	4'-3"	6"					0	12
		5	XN206	20	13'-10"	2'-2"	4'-3"	6"					0	12
		5	XN207	26	14'-2"	2'-2"	4'-5"	6"					0	12
		5	XN208	7	16'-2"	3'-2"	4'-5"	6"					0	12
		5	XN209	1	16'-8"	3'-2"	4'-8"	6"					0	12
		5	XN210	20	14'-8"	2'-2"	4'-8"	6"					0	12
		5	XN211	5	15'-2"	3'-2"	3'-11"	6"					0	12
		5	XN212	16	13'-2"	2'-2"	3'-11"	6"					0	12
		5	XN213	70	15'-0"	4'-8"	2'-4"	6"					0	12
		5	XSN200	1	23'-10"	3'-2"	1'-10"	6"	2'-9"	1				
		5	XSN201	1	25'-2"	3'-2"	2'-2"	6"	3'-1"	1				
		7	XAA200	16	94'-6"		47'-3"	4'-4"		2		90'-2"		
		8	XAA201	7	102'-4"		51'-2"	4'-9"		2		97'-7"		
		4	XAA202	2	101'-10"		50'-11"	2'-6"		2		99'-3"		
		4	XAA203	2	103'-4"		51'-8"	2'-6"		2		100'-9"		

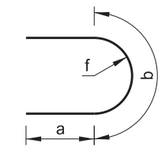
LOCATION		SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS							
						a	b	c	d	e	f	k	
PILLARS	EPOXY	7	XA400	32	7'-10"		7'-9"						
		7	XA401	32	9'-10"		9'-10"						
		7	XA402	16	12'-6"		12'-6"						
		7	XA403	16	14'-6"		14'-6"						
		5	XN400	26	12'-8"	2'-11"	2'-11"	6"				0	12
		5	XN401	2	14'-8"	3'-5"	3'-5"	6"				0	12
		5	XN402	36	13'-8"	3'-5"	2'-11"	6"				0	12
		5	XN403	4	15'-8"	3'-11"	3'-5"	6"				0	12

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	50

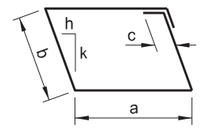
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

NOTES:

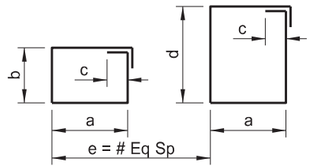
1. Verify the quantity, size, and shape of the bar reinforcement against the structure drawings and immediately notify the Engineer of any discrepancies. Discrepancies in the bar list will not be cause for adjustment of the contract unit price.
2. All dimensions are out to out of bars.
3. Nominal length of each bent bar or cut bar is the sum total of the detailing dimensions for that bar, unless otherwise noted.
4. Turn adjacent "AA" bars end for end so that the splice locations are staggered.
5. An "X" preceding a bar designation indicates an epoxy coated bar.



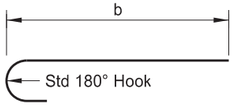
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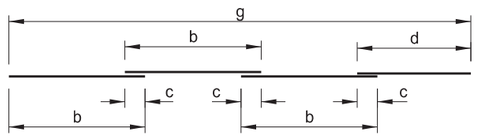
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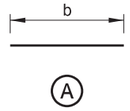
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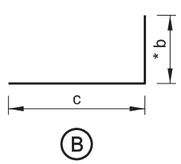
MA



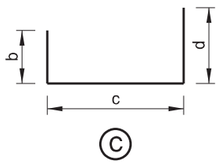
AA



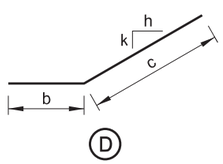
A



B



C



D

c = Lap Splice (typ)
e = # of "b" Length Pieces in a Set
Total Length per Set = e x b + d

* b = Vertical Leg



ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

REINFORCING BAR LIST & DETAILS

DRAWING NO. 0297-000.303-50

BILL OF REINFORCING STEEL, GRADE 60

LETTER PREFIX OF BAR MARK DENOTES SHAPE ~ SEE BAR DETAILS

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	51

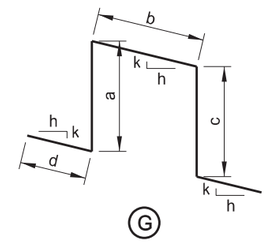
LOCATION	SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS a	b	c	d	e	f	g	h	k
SUPERSTRUCTURE EPOXY	5	XA500	335	53'-8"		53'-8"							
	5	XA501	335	43'-11"		43'-11"							
	5	XA502	335	48'-8"		48'-8"							
	5	XA503	335	48'-6"		48'-6"							
	6	XA504	94	34'-0"		34'-0"							
	6	XA505	94	53'-0"		53'-0"							
	7	XA506	89	23'-0"		23'-0"							
	7	XA507	28	50'-3"		50'-3"							
	7	XA508	28	48'-7"		48'-7"							
	6	XA509	20	49'-7"		49'-7"							
	6	XA510	20	48'-7"		48'-7"							
	4	XA511	18	6'-7"		6'-7"							
	7	XA512	18	6'-11"		6'-11"							
	6	XA513	18	6'-11"		6'-11"							
	7	XA514	20	7'-9"		7'-9"							
	7	XA515	20	9'-9"		9'-9"							
	7	XB500	40	5'-11"		4'-9"	1'-2"						
	6	XB501	216	6'-8"		3'-0"	3'-8"						
	5	XC500	150	8'-5"		3'-10"	9"	3'-10"					
	5	XC501	66	9'-7"		4'-5"	9"	4'-5"					
	5	XC502	156	8'-10"		2'-6"	2'-8"	3'-8"					
	5	XC503	156	6'-0"		1'-8"	2'-8"	1'-8"					
	5	XC504	60	4'-10"		1'-8"	1'-6"	1'-8"					
	7	XC505	20	6'-0"		1'-9"	2'-6"	1'-9"					
	4	XC506	80	4'-2"		6"	3'-2"	6"					
	6	XC507	10	6'-6"		1'-9"	3'-0"	1'-9"					
	6	XD500	144	4'-5"		10"	3'-7"					12	12
	4	XF500	68	9'-11"	4'-8"	7"				2.25"			
	5	XG500	69	13'-4"	4'-1"	3'-2"	4'-1"	1'-0"				12	0
	5	XH500	8	11'-10"	2'-9"	1'-6"	3'-4"					12	12
	5	XK500	410	5'-6"	1'-6"	10"			1'-0"		10"	2	12
	5	XK501	205	5'-6"	1'-6"	10"			10"		10"	0	12
	5	XL500	410	6'-7"		2'-7"	9"	2'-8"		2.375"		2	12

LOCATION	SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS a	b	c	d	e	f	g	h	k
SUPERSTRUCTURE EPOXY	5	XN500	205	7'-4"	10"	2'-4"	6"					0	12
	5	XN501	36	9'-6"	1'-4"	2'-11"	6"					0	12
	5	XN502	4	11'-6"	1'-10"	3'-5"	6"					0	12
	5	XAA500	101	204'-0"		60'-0"	3'-0"	24'-0"	3		195'-0"		
	6	XAA501	95	206'-3"		60'-0"	3'-9"	26'-3"	3		195'-0"		
	4	XAA502	26	202'-6"		60'-0"	2'-6"	22'-6"	3		195'-0"		
	5	XMA500	602	5'-1"		4'-6"							
	6	XMA501	216	3'-8"		3'-0"							

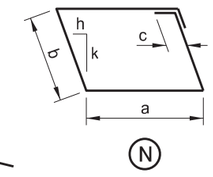
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

NOTES:

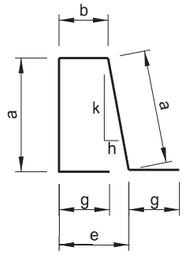
1. Verify the quantity, size, and shape of the bar reinforcement against the structure drawings and immediately notify the Engineer of any discrepancies. Discrepancies in the bar list will not be cause for adjustment of the contract unit price.
2. All dimensions are out to out of bars.
3. Nominal length of each bent bar or cut bar is the sum total of the detailing dimensions for that bar, unless otherwise noted.
4. Turn adjacent "AA" bars end for end so that the splice locations are staggered.
5. The "f" dimension indicates the inside radius unless otherwise noted.
6. An "X" preceding a bar designation indicates an epoxy coated bar.



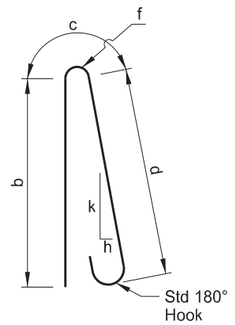
G



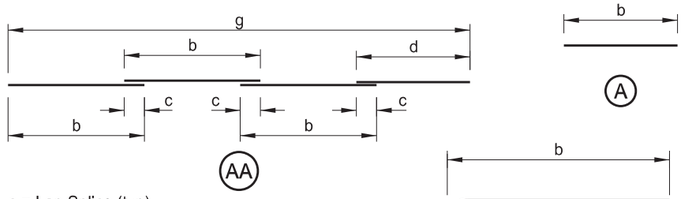
N



K



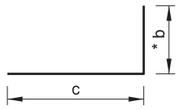
L



AA

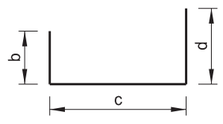
c = Lap Splice (typ)
e = # of "b" Length Pieces in a Set
Total Length per Set = e x b + d

A

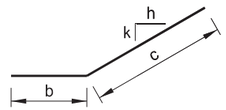


B

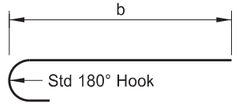
* b = Vertical Leg for XB500 and XB501



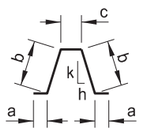
C



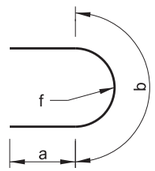
D



MA



H



F



ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

REINFORCING BAR LIST & DETAILS

DRAWING NO. 0297-000.303-51

BILL OF REINFORCING STEEL, GRADE 60

LETTER PREFIX OF BAR MARK DENOTES SHAPE ~ SEE BAR DETAILS

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	52

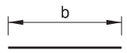
LOCATION		SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS								
						a	b	c	d	e	f	g	h	k
SOUTHWEST RETAINING WALL	REGULAR	6	A700	22	16'-6"		16'-6"							
		6	A701	22	8'-10"		8'-10"							
		7	A702	18	29'-8"		29'-8"							
		6	D700	22	7'-0"		3'-6"	3'-6"					12	1.5
		7	D701	18	7'-0"		3'-6"	3'-6"					10	12
		7	W700	51	11'-10"			10'-2"						
		6	W701	27	11'-6"			10'-2"						
		6	W702	60	9'-0"			7'-8"						
		5	W703	31	8'-10"			7'-8"						
	EPOXY	8	XA700	51	16'-5"		16'-5"							
		5	XA702	27	16'-5"		16'-5"							
		5	XA704	91	10'-5"		10'-5"							
		5	XA706	34	16'-4"		16'-4"							
		5	XA707	34	8'-10"		8'-10"							
		5	XA708	22	29'-8"		29'-8"							
		8	XB700	51	8'-3"		6'-9"	1'-6"						
		5	XB701	27	5'-5"		4'-5"	1'-0"						
		5	XB702	91	4'-11"		3'-11"	1'-0"						
		5	XC700	58	4'-4"		1'-6"	1'-4"	1'-6"					
		5	XD700	34	6'-0"		3'-0"	3'-0"					12	1.5

LOCATION		SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS								
						a	b	c	d	e	f	g	h	k
SOUTHEAST RETAINING WALL	REGULAR	6	A700	22	16'-6"		16'-6"							
		6	A701	22	8'-10"		8'-10'							
		7	A703	18	24'-8"		24'-8"							
		6	D700	22	7'-0"		3'-6"	3'-6"					12	1.5
		7	D701	16	7'-0"		3'-6"	3'-6"					10	12
		7	W700	51	11'-10"			10'-2"						
		6	W701	27	11'-6"			10'-2"						
		6	W702	50	9'-0"			7'-8"						
		5	W703	26	8'-10"			7'-8"						
	EPOXY	8	XA701	51	15'-8"		15'-8"							
		5	XA703	27	15'-8"		15'-8"							
		5	XA705	76	10'-4"		10'-4"							
		5	XA706	32	16'-4"		16'-4"							
		5	XA707	32	8'-10"		8'-10"							
		5	XA709	22	24'-8"		24'-8"							
		8	XB700	51	8'-3"		6'-9"	1'-6"						
		5	XB701	27	5'-5"		4'-5"	1'-0"						
		5	XB702	76	4'-11"		3'-11"	1'-0"						
		5	XC700	53	4'-4"		1'-6"	1'-4"	1'-6"					
		5	XD700	32	6'-0"		3'-0"	3'-0"					12	1.5

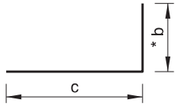
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

NOTES:

1. Verify the quantity, size, and shape of the bar reinforcement against the structure drawings and immediately notify the Contracting Officer of any discrepancies. Discrepancies in the bar list will not be cause for adjustment of the contract unit price.
2. All dimensions are out-to-out of bars.
3. Nominal length of each bent bar or cut bar is the sum total of the detaling dimensions for that bar, unless otherwise noted.
4. An "X" preceding a bar designation indicated an epoxy coated bar.

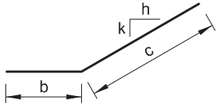


(A)

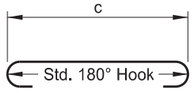


(B)

* b = Vertical Leg for XB700, XB701, and XB702



(D)



(W)

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

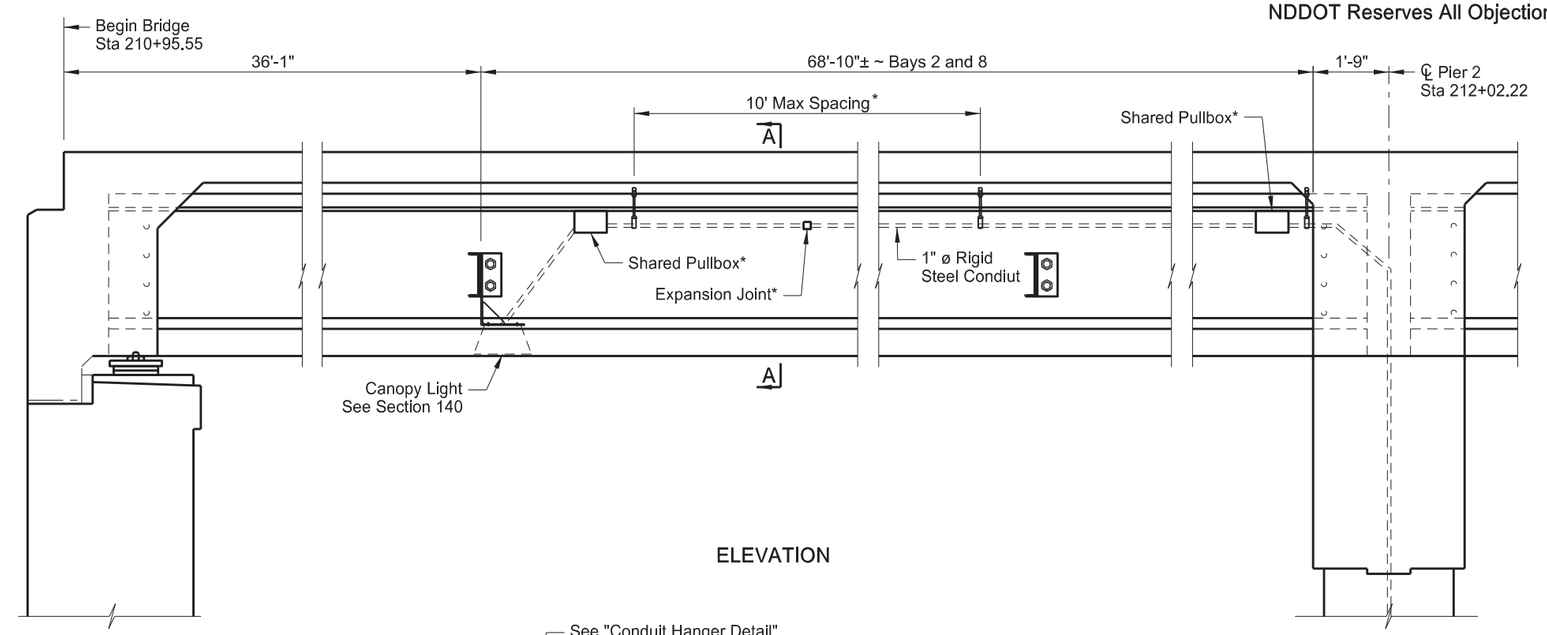
ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

REINFORCING BAR LIST & DETAILS

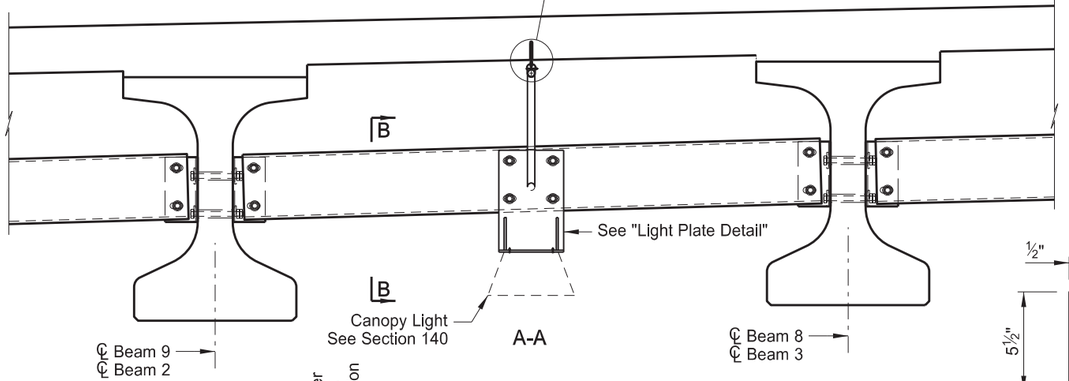
DRAWING NO. 0297-000.303-52

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

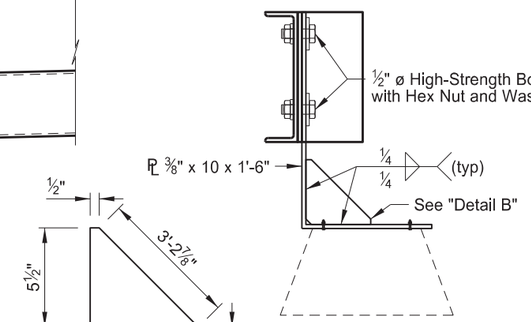
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	53



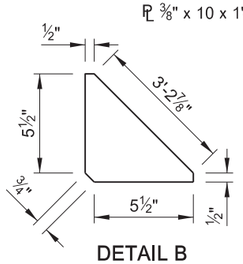
ELEVATION



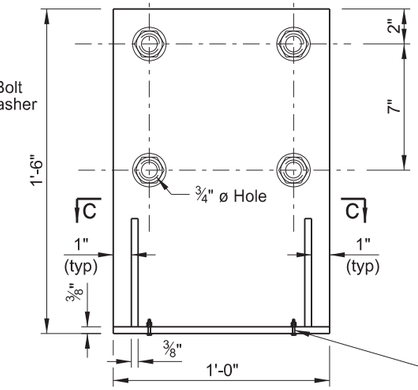
A-A



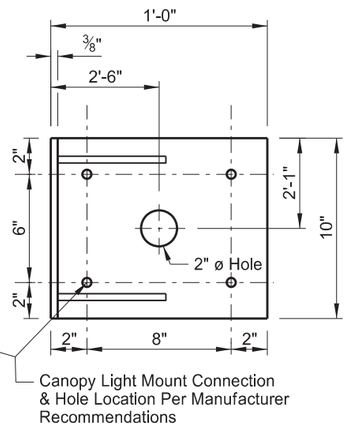
B-B



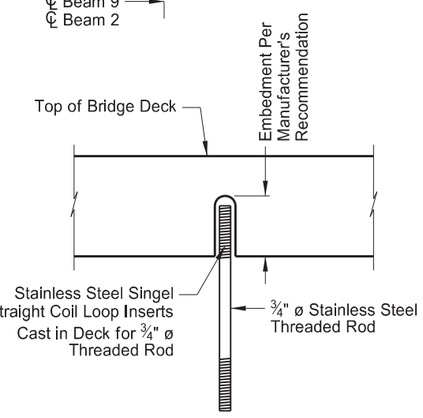
DETAIL B



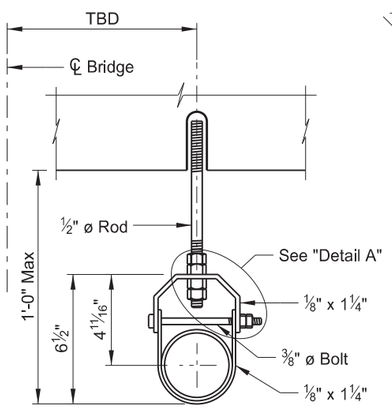
LIGHT PLATE DETAIL



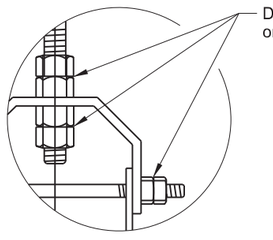
C-C



THREADED ROD INSTALLATION
ANCHOR DETAIL



CONDUIT HANGER DETAIL



DETAIL A

NOTES:

Light Plate will use AASHTO M 270 Grade 36 structural steel. Supply high tensile strength bolts, nuts, and washers in accordance with Section 834.03. All structural steel and hardware to be galvanized surface finish only in accordance with Section 854.

* Design the bridge mounted conduit system and submit work drawings and sealed calculations to the Engineer for approval.

Locate conduit hangers, expansion devices, and braced anchor points per manufacturer's recommendations.

Hanger Manufacturers:
1. Condux
2. Osburn Associates, Inc.
3. Unistrut

All costs for design, materials, and installation, including inserts in deck, intermediate conduit hangers, braced anchor points, expansion devices, hanging conduit, hanging pullboxes, shall be included in the bid price for "Lighting System Type B."

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

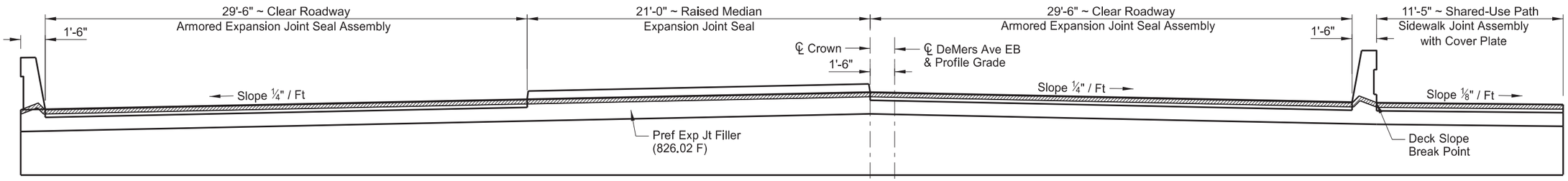
ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

CONDUIT HANGER DETAILS

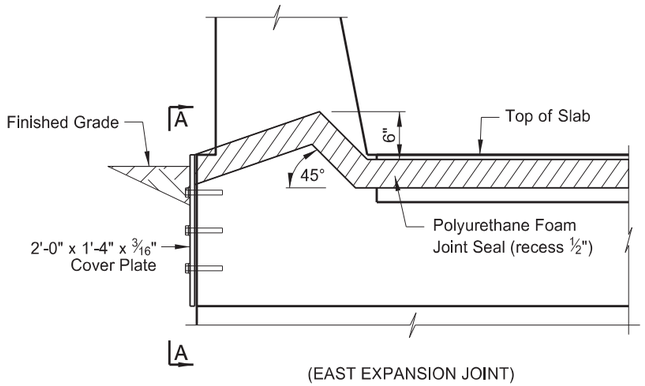
DRAWING NO. 0297-000.303-53

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

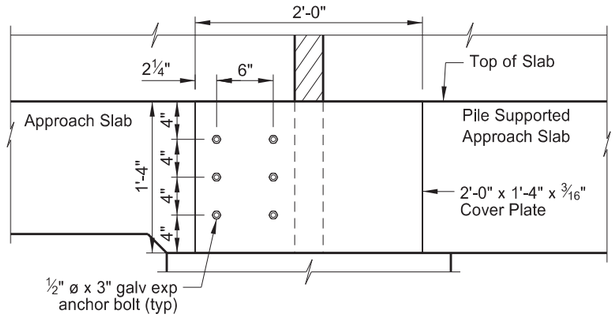
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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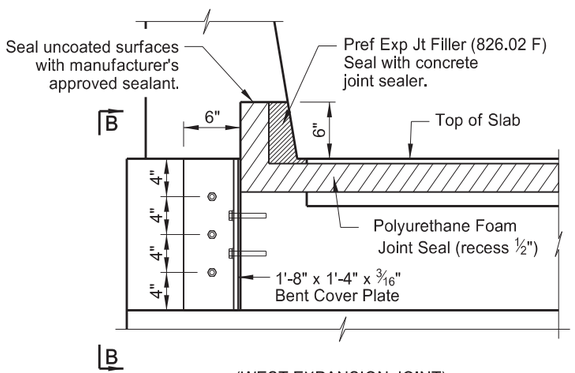
EXPANSION JOINT ELEVATION



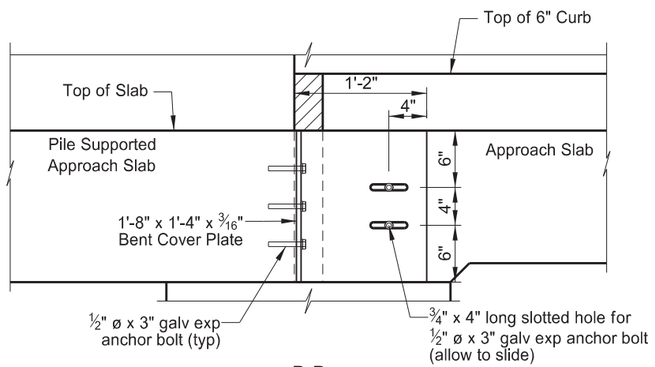
(EAST EXPANSION JOINT)
EXTERIOR BARRIER
CROSS SECTION



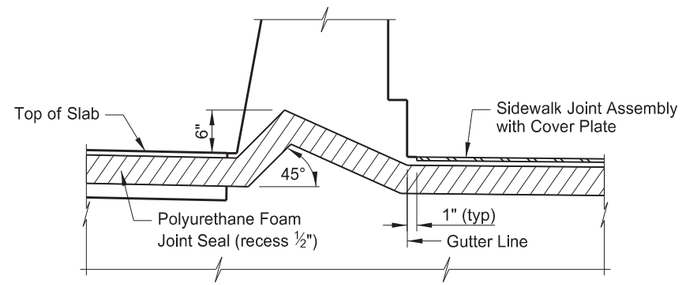
A-A



(WEST EXPANSION JOINT)
EXTERIOR BARRIER
CROSS SECTION



B-B



INTERIOR BARRIER
CROSS SECTION

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

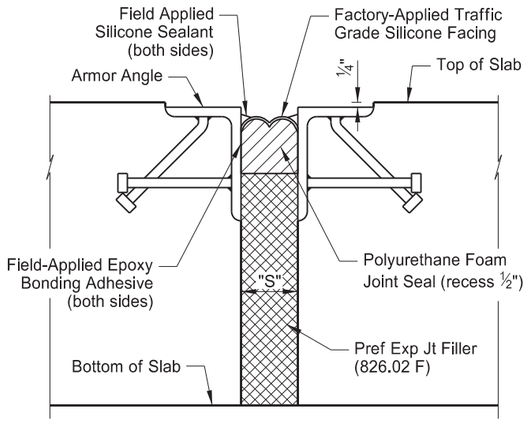
BARRIER EXPANSION JOINT DETAILS

DRAWING NO. 0297-000.303-54

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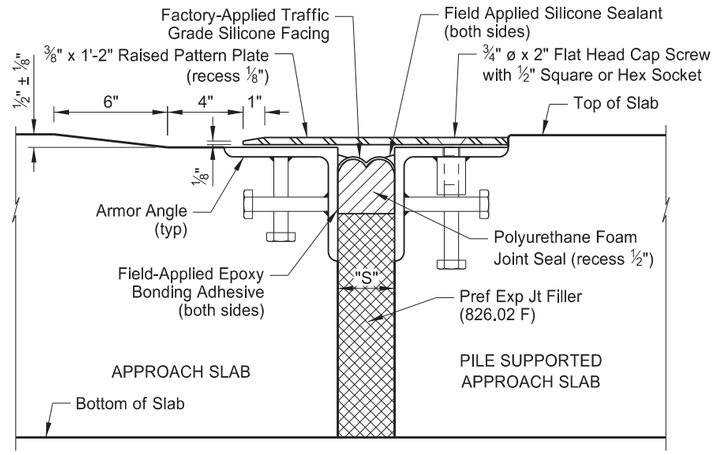
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	55

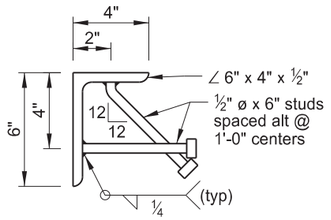


ARMORED EXPANSION JOINT ASSEMBLY

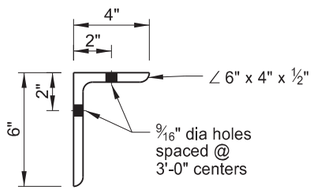
SET GAP TABLE	
DIM "S"	
Temp (°F)	Approach Slab
20	3¼"
30	3⅛"
40	3⅛"
50	3"
60	2⅞"
70	2⅞"
80	2¾"



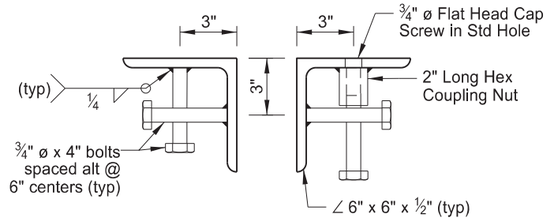
SIDEWALK JOINT ASSEMBLY



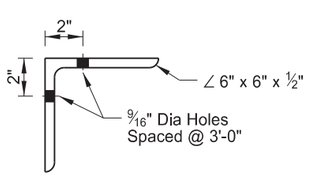
ARMOR ANGLE



9/16" DRILLED HOLES



ARMOR ANGLE



9/16" DRILLED HOLES

NOTES:

1. Provide structural steel for the armored expansion joint system and the sidewalk joint assemblies meeting ASTM A709, Grade 36.
2. Provide raised pattern plate in accordance with ASTM A786, Grade 50.
3. Galvanize all components after fabrication according to Section 854.
4. Splices are permitted. Weld spliced ends. Coat weld splices or damaged coating areas with galvanized paint according to Section 854.
5. Countersink cap screws 1/16" below top of plate. Apply an all purpose lithium based grease to the screw threads.
6. Dimensions shown are required to comply with A.D.A. Standards.
7. Verify the joint opening is uniform and per plan dimensions, and that the substrate is appropriately prepared per product manufacturer's recommendations. Supply a joint material that is designed by the manufacturer to fit the field measured joint opening.
8. Include the cost of furnishing and placing the expansion joint assemblies, sidewalk joint assemblies, and cover plates in the bid item for "3 in Expansion Joint".



QUANTITIES	
3 IN EXPANSION JOINT	187.8 LF

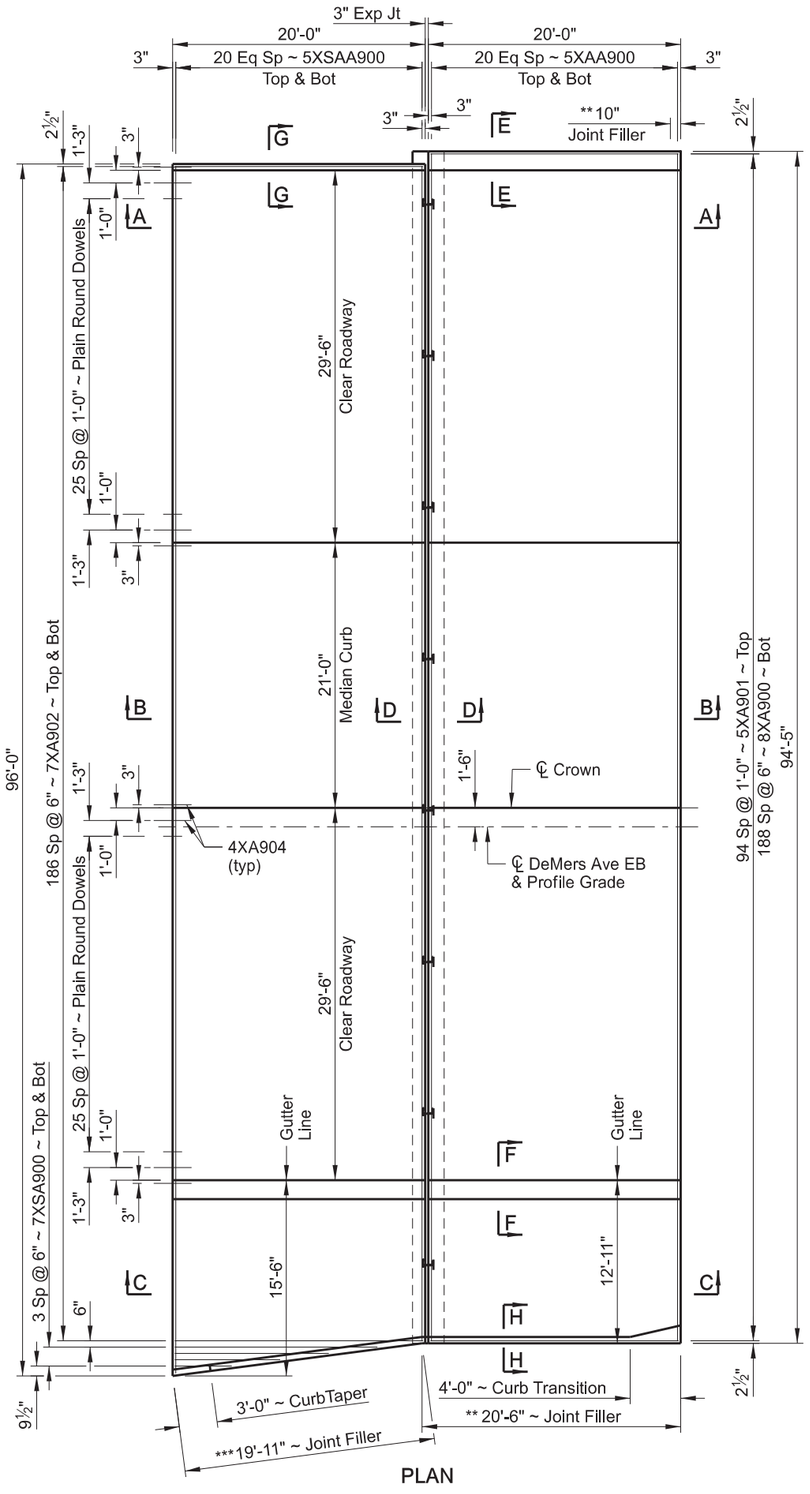
ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

EXPANSION JOINT DETAILS

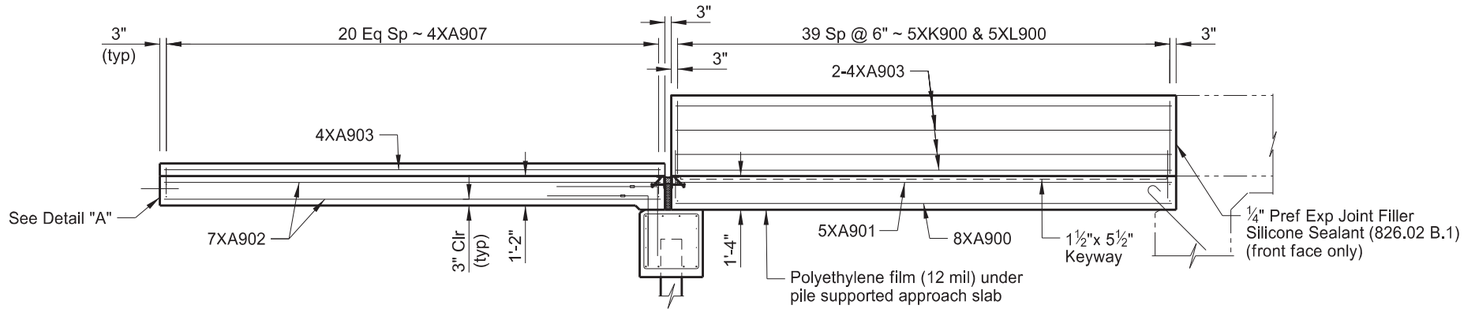
DRAWING NO.	0297-000.303-55

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

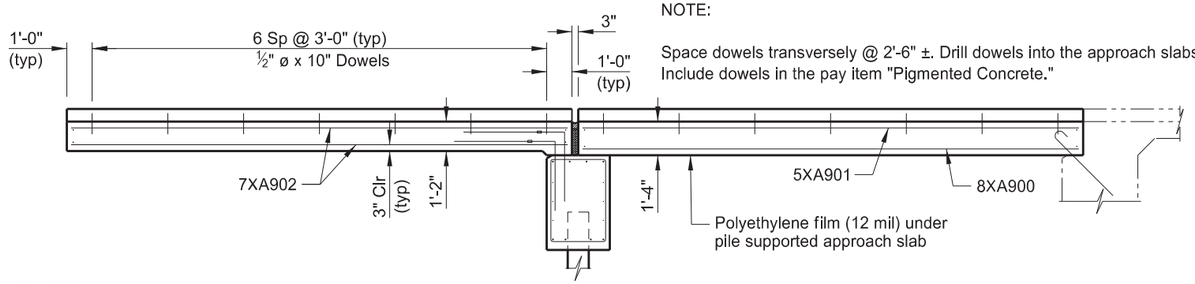
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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PLAN



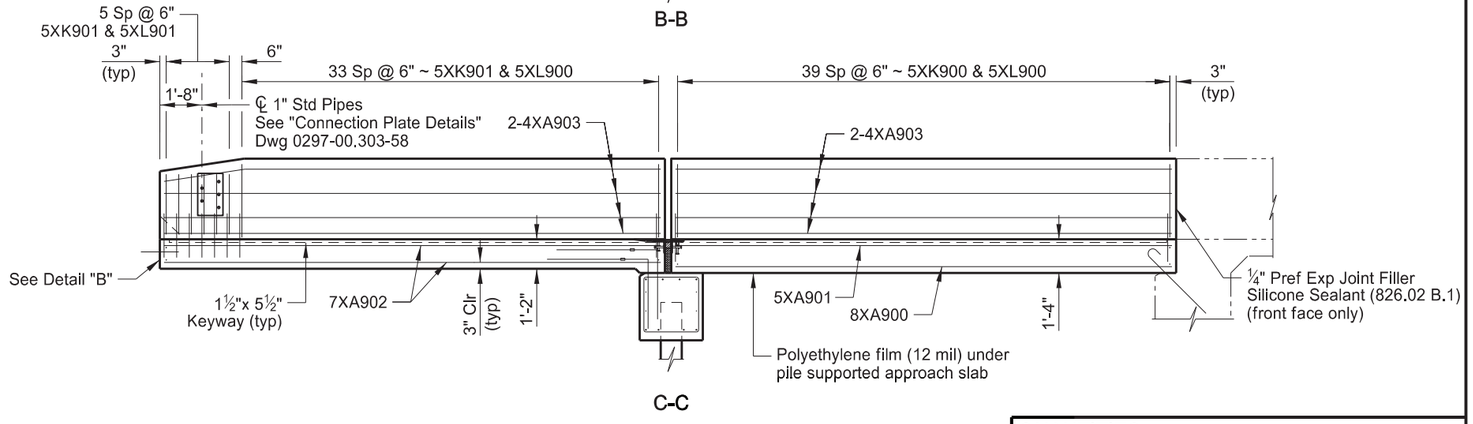
A-A



B-B

NOTE:

Space dowels transversely @ 2'-6" ±. Drill dowels into the approach slabs. Include dowels in the pay item "Pigmented Concrete."



C-C

** 1½" x 16" Pref Exp Joint Filler
Place between approach slab and abutment wing.

*** 1½" x 14" Pref Exp Joint Filler
Place between approach slab and abutment wing.

REGISTERED PROFESSIONAL ENGINEER
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NORTH DAKOTA

QUANTITIES

SEE DWG 0297-000.303-58

ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

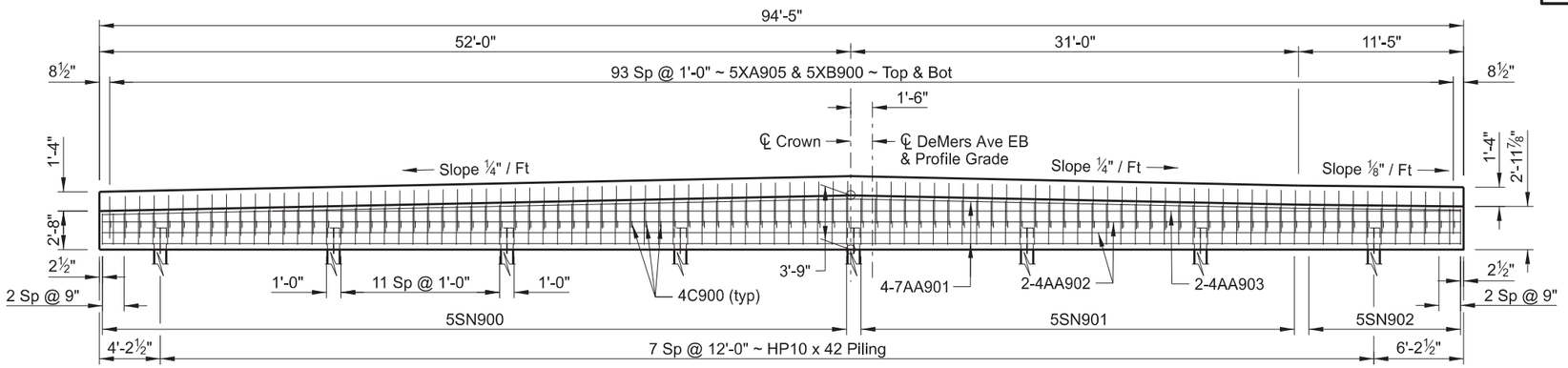
(WEST END)

APPROACH SLAB DETAILS

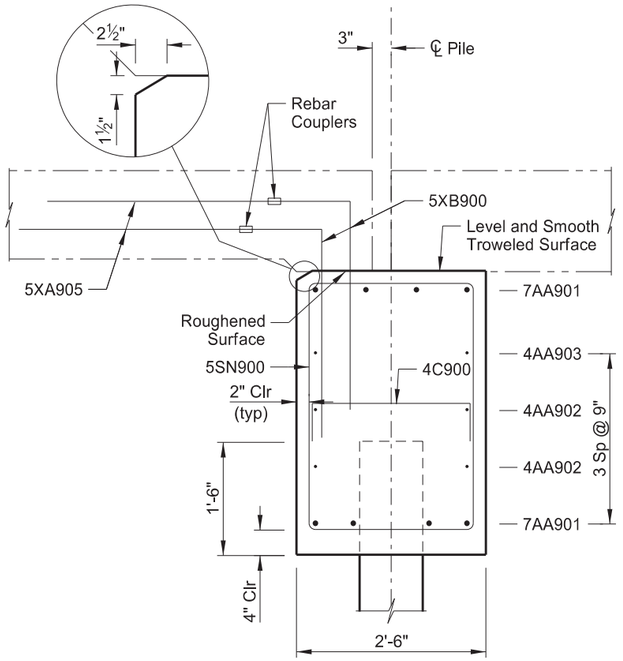
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

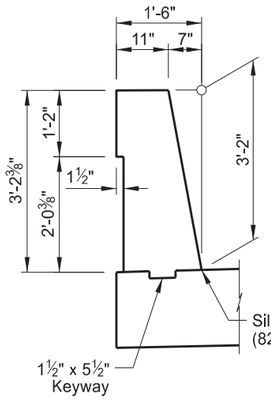
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	57



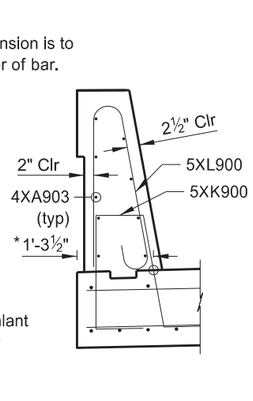
FOOTING ELEVATION



D-D

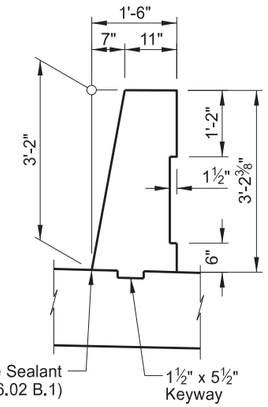


SHOWING DIMENSIONS

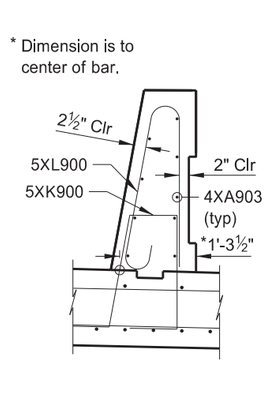


SHOWING REINFORCING

E-E

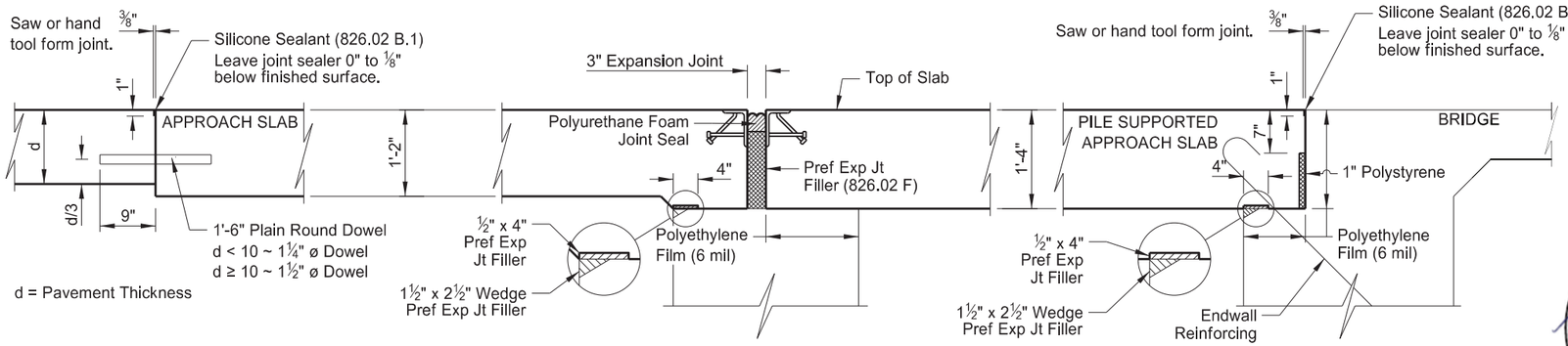


SHOWING DIMENSIONS



SHOWING REINFORCING

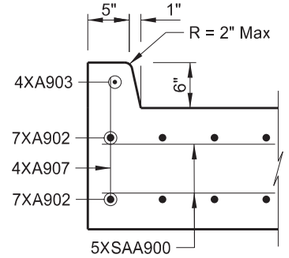
F-F



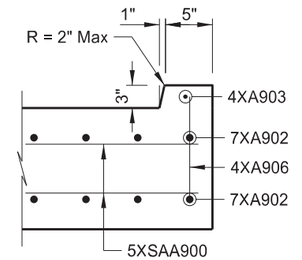
JOINT DETAIL A

APPROACH SLAB JOINT DETAIL B

APPROACH SLAB JOINT DETAIL C



G-G



H-H

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES

SEE DWG 0297-000.303-58

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

(WEST END)

APPROACH SLAB DETAILS

DRAWING NO. 0297-000.303-57

SKEW ANGLE = 0°			
BAR LIST - ONE SLAB			
SIZE	MARK	NO.	LENGTH
8	XA900	189	19'-8"
5	XA901	95	19'-8"
7	XA902	374	19'-8"
4	XA903	25	19'-8"
4	XA904	8	3'-0"
5	XA905	188	3'-0"
4	XA906	42	1'-2"
4	XA907	21	1'-4"
5	XB900	188	3'-9"
4	XC900	94	3'-2"
5	XK900	80	6'-6"
5	XK901	40	6'-2"
5	XL900	114	6'-7"
5	XL901	6	5'-7"

			c	d	g
5	XAA900	42	97'-4"	3'-3"	37'-4"	94'-1"
7	XAA901	8	98'-4"	4'-3"	38'-4"	94'-1"
4	XAA902	4	96'-7"	2'-6"	36'-7"	94'-1"
4	XAA903	2	84'-9"	2'-6"	24'-9"	82'-3"
7	XSA900	2	41'-0"			

			a	b	c	d	e
5	XSN900	1	565'-4"	2'-2"	2'-2"	6"	3'-2"	52
5	XSN901	1	343'-7"	2'-2"	2'-7"	6"	3'-2"	30
5	XSN902	1	124'-0"	2'-2"	2'-5"	6"	2'-7"	11
5	XSAA900	2	2,049'-3"					

ESTIMATED MATERIAL QUANTITIES		
REINFORCING STEEL (LBS)	CONCRETE (CY)	PIGMENTED CONCRETE (CY)
42,188	212.6	15.6

NOTES:

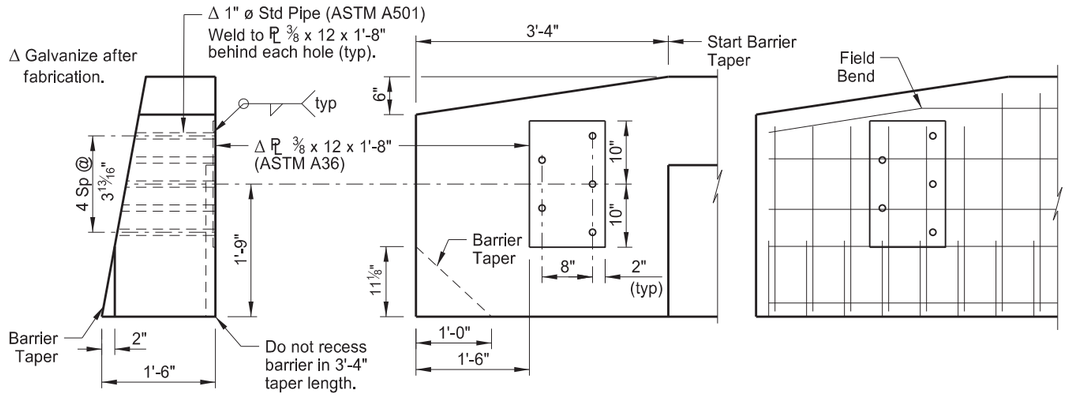
Couple the 5XA905 bars to the 5XB900 bars extending out of the approach slab footing. Use approved mechanical connectors for the couplers capable of developing 125% of the reinforcing steel specified yield strength.

The estimated material quantities shown are for information purposes only. Include the concrete, reinforcing bars, polyethylene film, preformed joint filler, polystyrene, silicone sealant, connection plates and pipes, and labor required to build the approach slabs and barriers in the pay items "Concrete Bridge Approach Slab" and "Pile Supported Approach Slab." Include the dowel bars in the concrete pavement pay item. Use Class AE concrete and Grade 60 reinforcing steel. Provide reinforcing steel that meets the requirements of Section 612. Use polyethylene film that meets the requirements of ASTM C171.

The bar marks beginning with an "X" indicate an epoxy coated bar. The dimensions shown in the "Bent Bar Details" are out to out. Radius values shown indicate the inside bend radius.

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

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ND	RCE-FTF-NHU-SU-6-297(014)000	170a	58

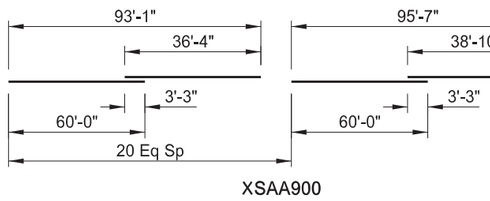


SHOWING DIMENSIONS

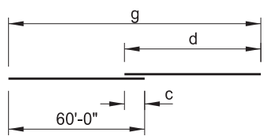
SHOWING REINFORCING

(SHOWING BACK FACE)

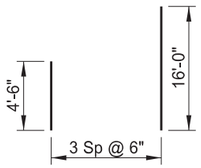
CONNECTION PLATE DETAILS



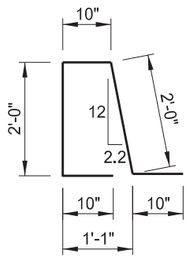
XSAA900



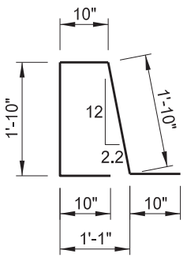
XAA900 - XAA903



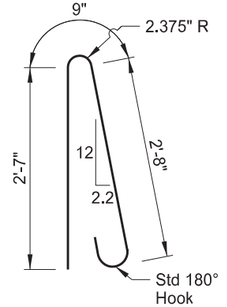
XSA900



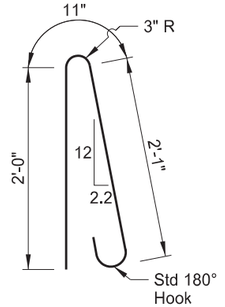
XK900



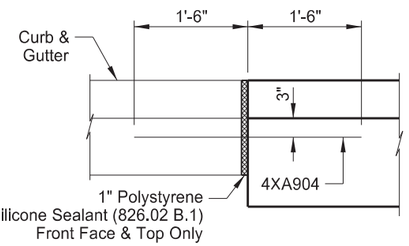
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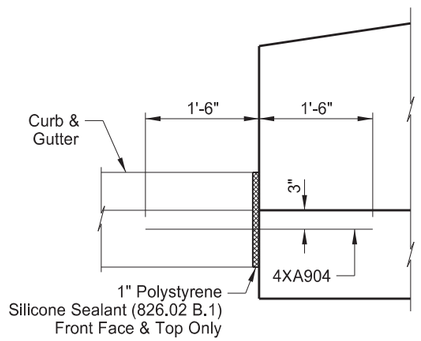
XL900



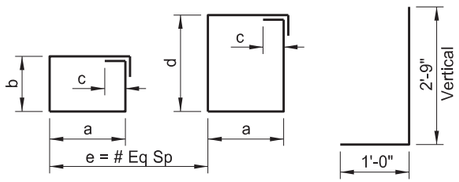
XL901



DETAIL "A"



DETAIL "B"



XSN900 - XSN902 XB900

BENT BAR DETAILS

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES	
CONCRETE BRIDGE APPROACH SLAB	210.4 SY
PILE SUPPORTED APPROACH SLAB	209.8 SY
PIGMENTED CONCRETE	93.3 SY

ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

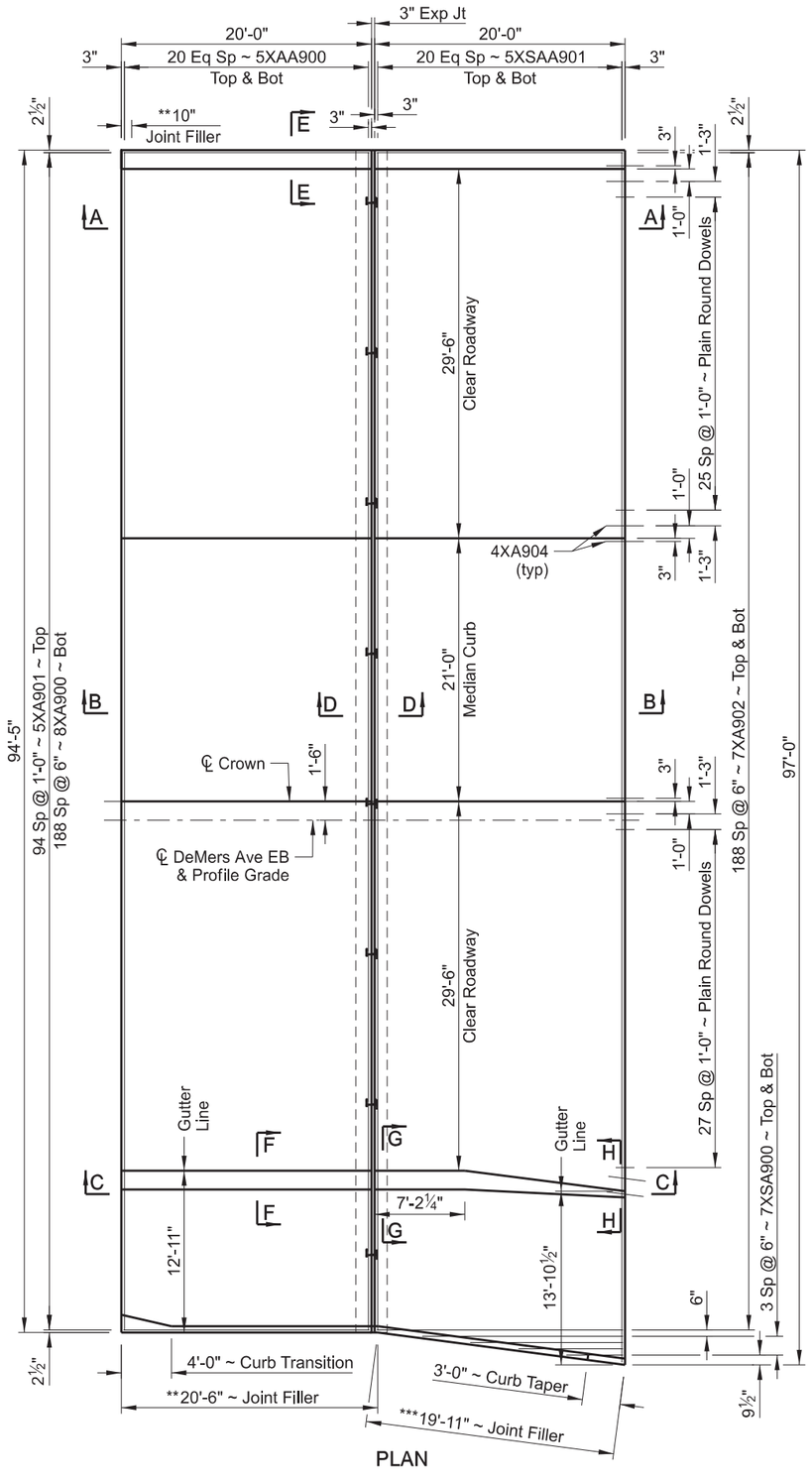
(WEST END)

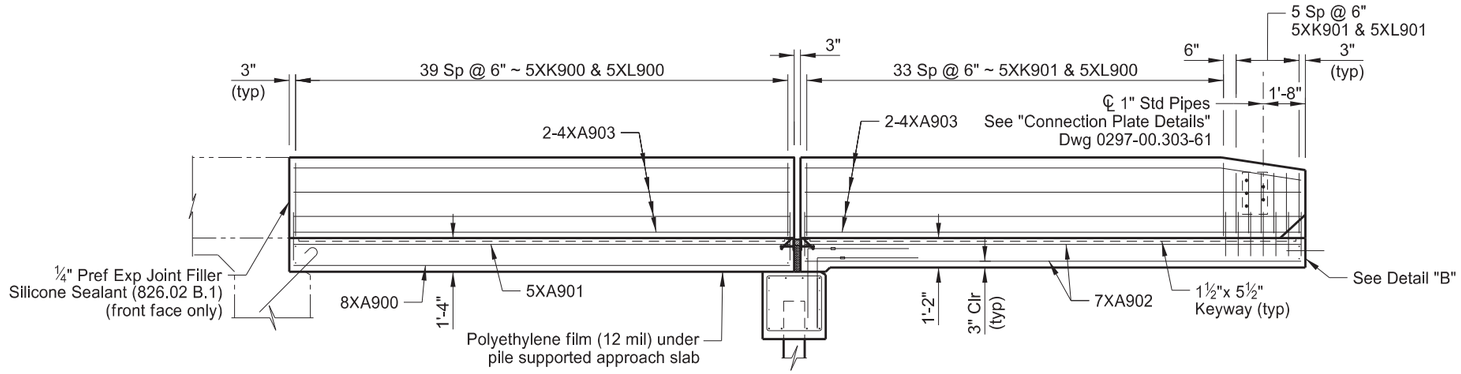
APPROACH SLAB DETAILS

DRAWING NO. 0297-000.303-58

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	59

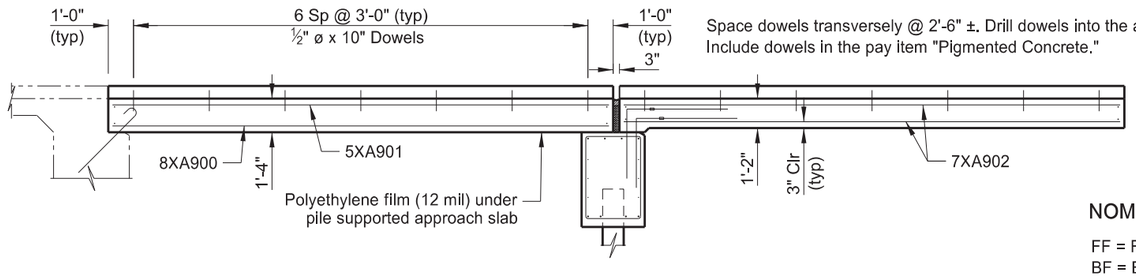




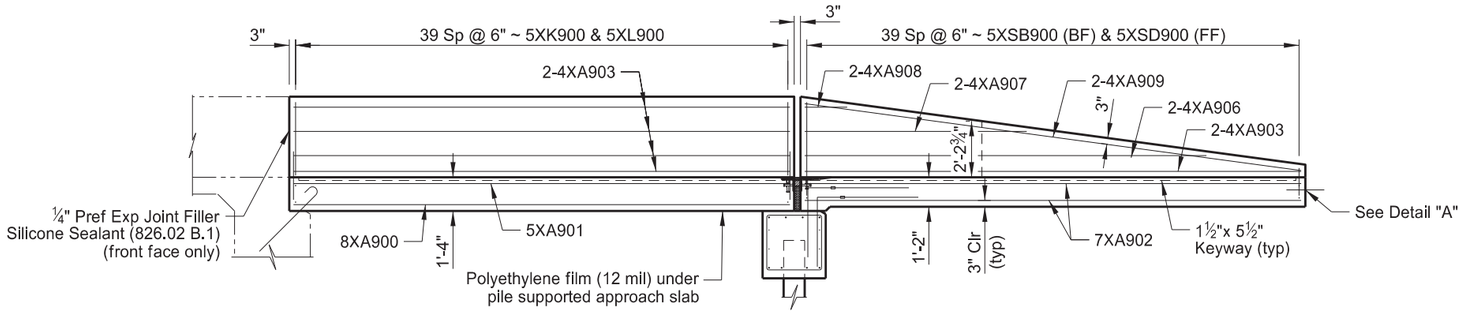
A-A

NOTE:

Space dowels transversely @ 2'-6" ±. Drill dowels into the approach slabs. Include dowels in the pay item "Pigmented Concrete."



B-B



C-C

NOMENCLATURE:

FF = Front Face
BF = Back Face

** 1½" x 16" Pref Exp Joint Filler
Place between approach slab and abutment wing.

*** 1½" x 14" Pref Exp Joint Filler
Place between approach slab and abutment wing.

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES

SEE DWG 0297-000.303-61

ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

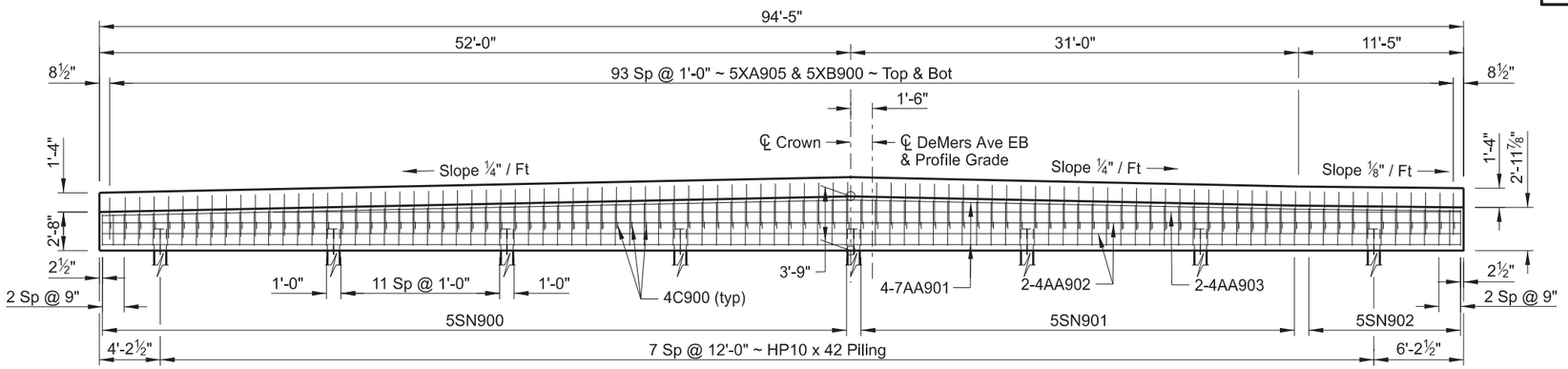
(EAST END)

APPROACH SLAB DETAILS

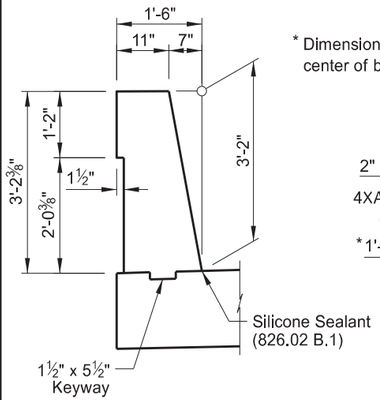
DRAWING NO. 0297-000.303-59

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	60



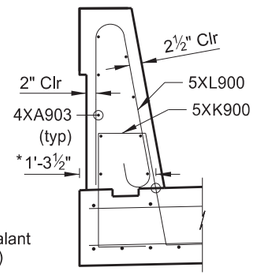
FOOTING ELEVATION



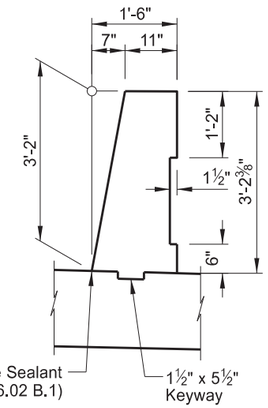
SHOWING DIMENSIONS

E-E

* Dimension is to center of bar.



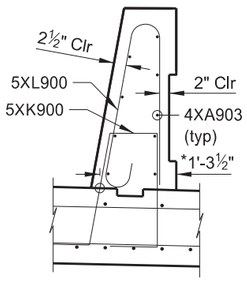
SHOWING REINFORCING



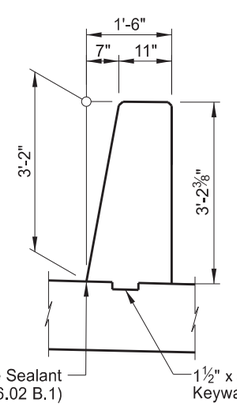
SHOWING DIMENSIONS

F-F

* Dimension is to center of bar.

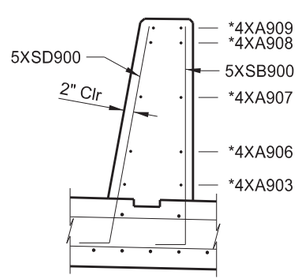


SHOWING REINFORCING



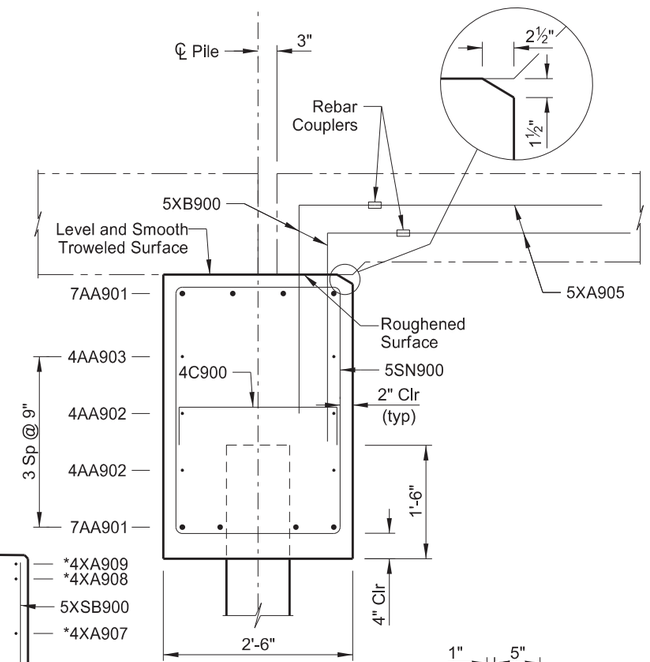
SHOWING DIMENSIONS

G-G

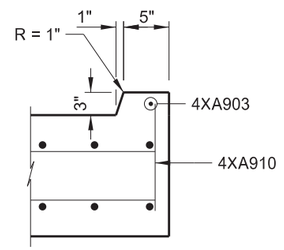


*Field bend as required

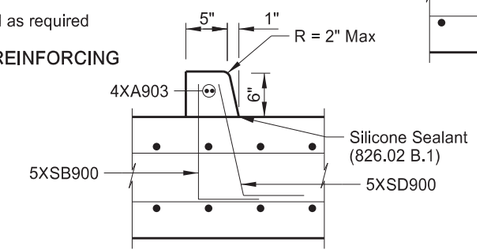
SHOWING REINFORCING



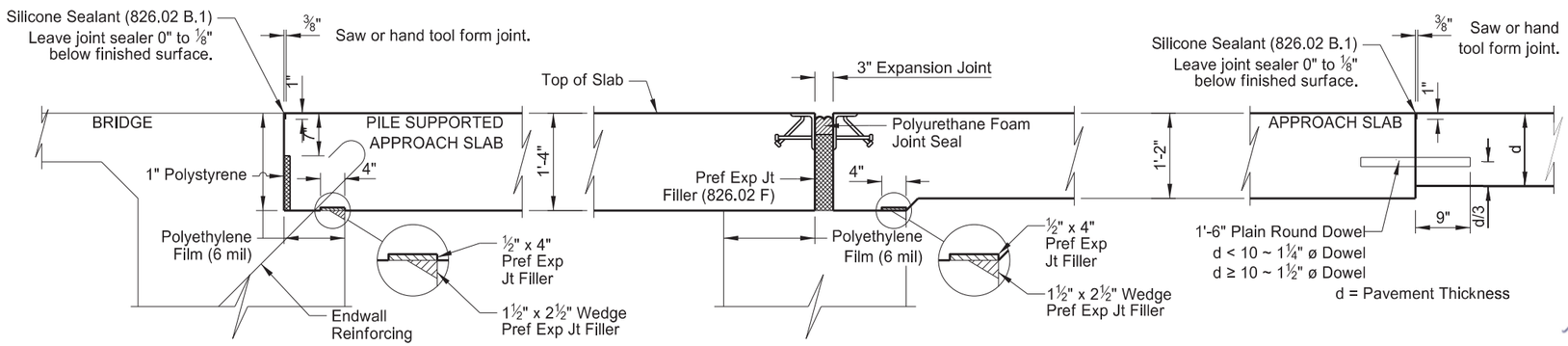
D-D



I-I



H-H



APPROACH SLAB JOINT DETAIL A

APPROACH SLAB JOINT DETAIL B

JOINT DETAIL C

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES

SEE DWG 0297-000.303-61

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

(EAST END)

APPROACH SLAB DETAILS

DRAWING NO. 0297-000.303-60

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KHC AMK

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	61

SKEW ANGLE = 0°

BAR LIST - ONE SLAB

SIZE	MARK	NO.	LENGTH
8	XA900	189	19'-8"
5	XA901	95	19'-8"
7	XA902	378	19'-8"
4	XA903	28	19'-8"
4	XA904	8	3'-0"
5	XA905	188	3'-0"
4	XA906	2	15'-11"
4	XA907	2	8'-9"
4	XA908	2	1'-8"
4	XA909	2	19'-10"
4	XA910	42	1'-2"
5	XB900	188	3'-9"
4	XC900	94	3'-2"
5	XK900	80	6'-6"
5	XK901	40	6'-2"
5	XL900	114	6'-7"
5	XL901	6	5'-7"

SIZE	MARK	NO.	LENGTH	c	d	g
5	XAA900	42	97'-4"	3'-3"	37'-4"	94'-1"
7	XAA901	8	98'-4"	4'-3"	38'-4"	94'-1"
4	XAA902	4	96'-7"	2'-6"	36'-7"	94'-1"
4	XAA903	2	84'-9"	2'-6"	24'-9"	82'-3"
7	XSA900	2	41'-0"			
5	XSB900	1	126'-8"			
5	XSD900	1	126'-8"			

SIZE	MARK	NO.	LENGTH	a	b	c	d	e
5	XSN900	1	565'-4"	2'-2"	2'-2"	6"	3'-2"	52
5	XSN901	1	343'-7"	2'-2"	2'-7"	6"	3'-2"	30
5	XSN902	1	124'-0"	2'-2"	2'-5"	6"	2'-7"	11
5	XSAA901	2	2,070'-3"					

ESTIMATED MATERIAL QUANTITIES

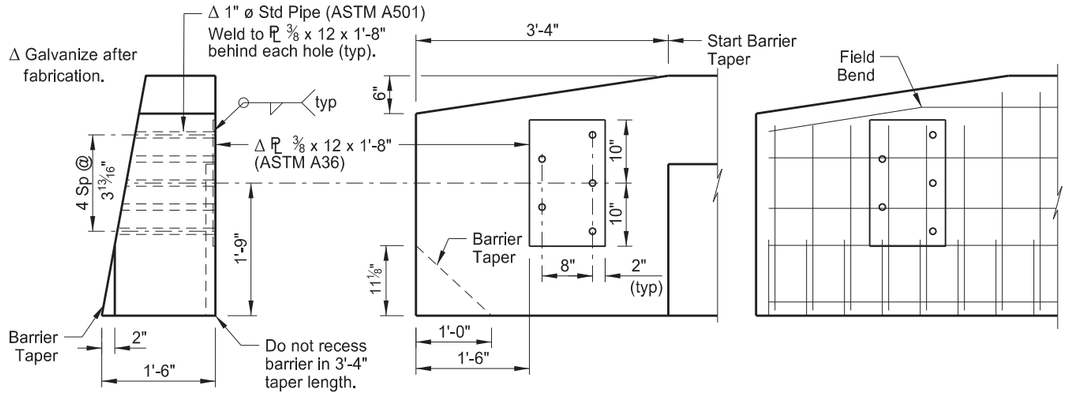
REINFORCING STEEL (LBS)	CONCRETE (CY)	PIGMENTED CONCRETE (CY)
42,757	214.9	15.6

NOTES:

Couple the 5XA905 bars to the 5XB900 bars extending out of the approach slab footing. Use approved mechanical connectors for the couplers capable of developing 125% of the reinforcing steel specified yield strength.

The estimated material quantities shown are for information purposes only. Include the concrete, reinforcing bars, polyethylene film, preformed joint filler, polystyrene, silicone sealant, connection plates and pipes, and labor required to build the approach slabs and barriers in the pay items "Concrete Bridge Approach Slab" and "Pile Supported Approach Slab." Include the dowel bars in the concrete pavement pay item. Use Class AE concrete and Grade 60 reinforcing steel. Provide reinforcing steel that meets the requirements of Section 612. Use polyethylene film that meets the requirements of ASTM C171.

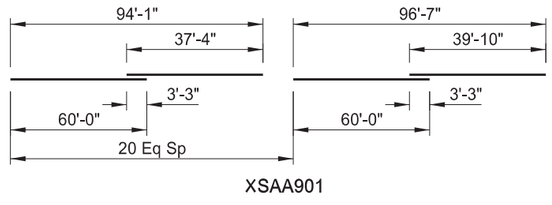
The bar marks beginning with an "X" indicate an epoxy coated bar. The dimensions shown in the "Bent Bar Details" are out to out. Radius values shown indicate the inside bend radius.



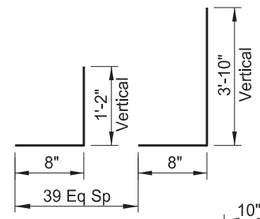
SHOWING DIMENSIONS SHOWING REINFORCING

(SHOWING BACK FACE)

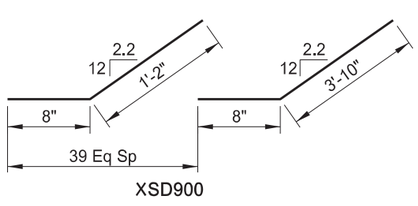
CONNECTION PLATE DETAILS



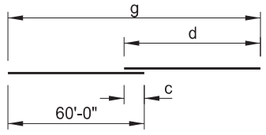
XSAA901



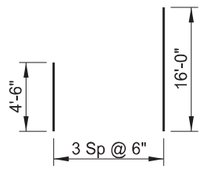
XSB900



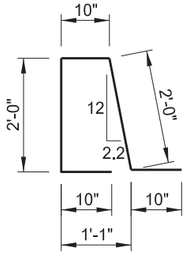
XSD900



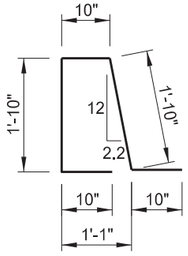
XAA900 - XAA903



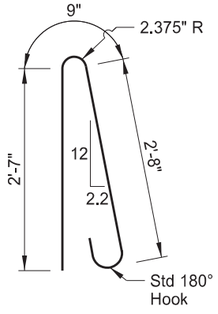
XSA900



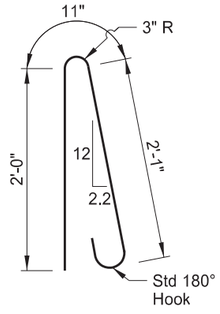
XK900



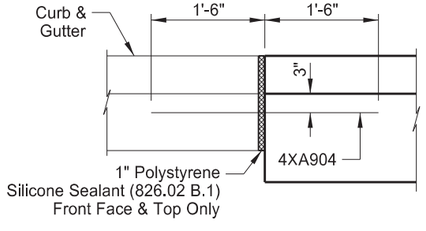
XK901



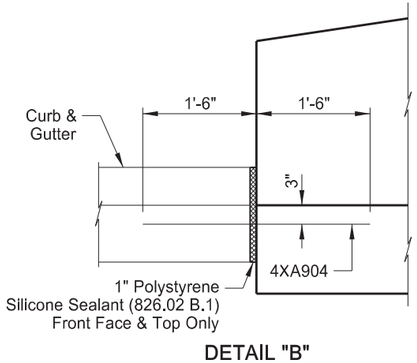
XL900



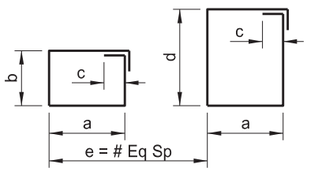
XL901



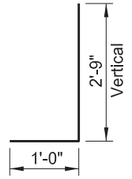
DETAIL "A"



DETAIL "B"



XSN900 - XSN902



XB900

BENT BAR DETAILS

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

QUANTITIES

APPROACH SLAB	212.7 SY
PILE SUPPORTED APPROACH SLAB	209.8 SY
PIGMENTED CONCRETE	93.3 SY

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

(EAST END)

APPROACH SLAB DETAILS

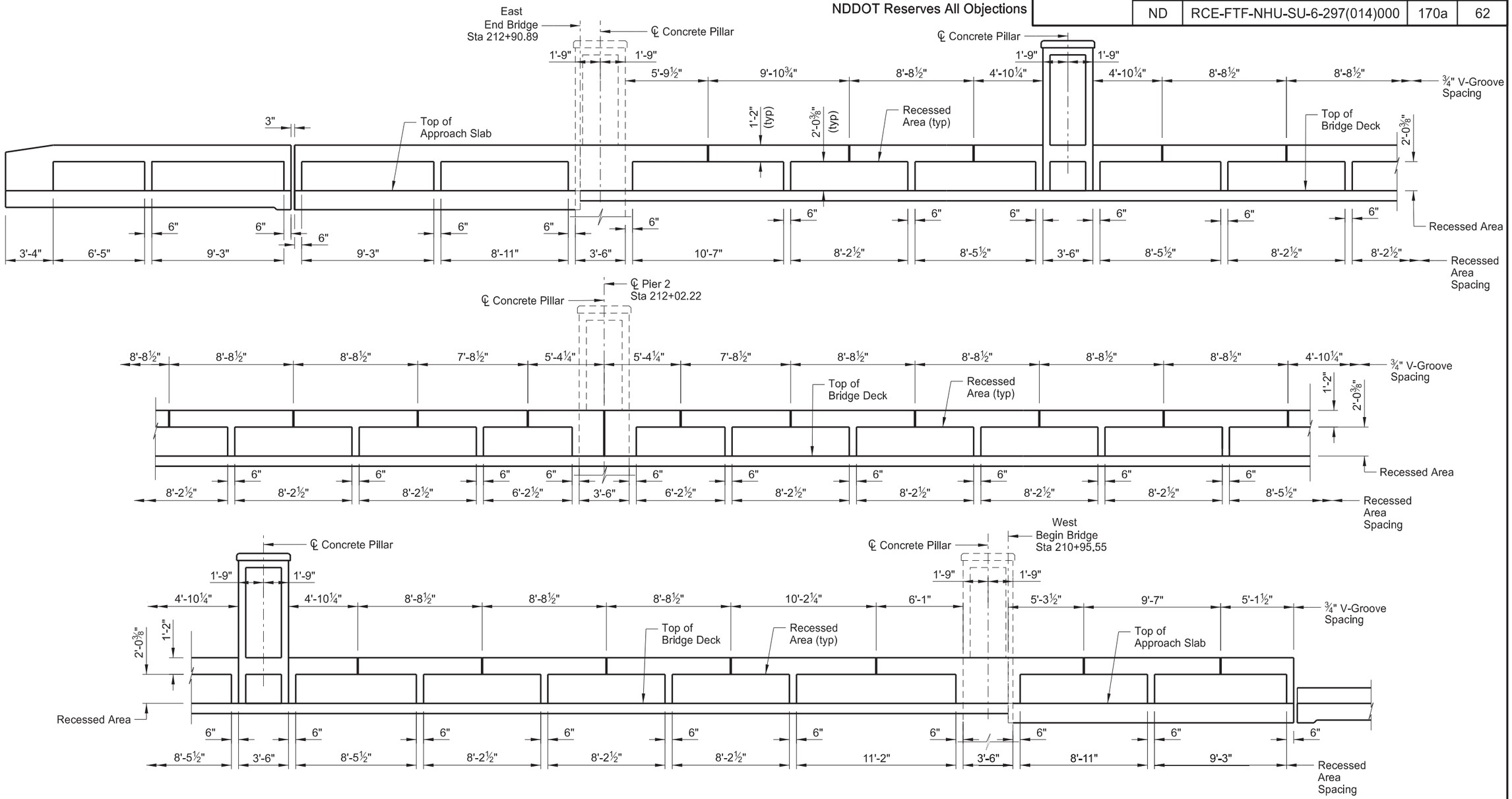
DRAWING NO.	0297-000.303-61

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KHC AMK

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	62



NOTE:

Abutment and Pier Pillars Hidden for Clarity.

(SHOWING RECESSED AREA ~ BACK FACE)
NORTH ROADWAY BARRIER ELEVATION

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

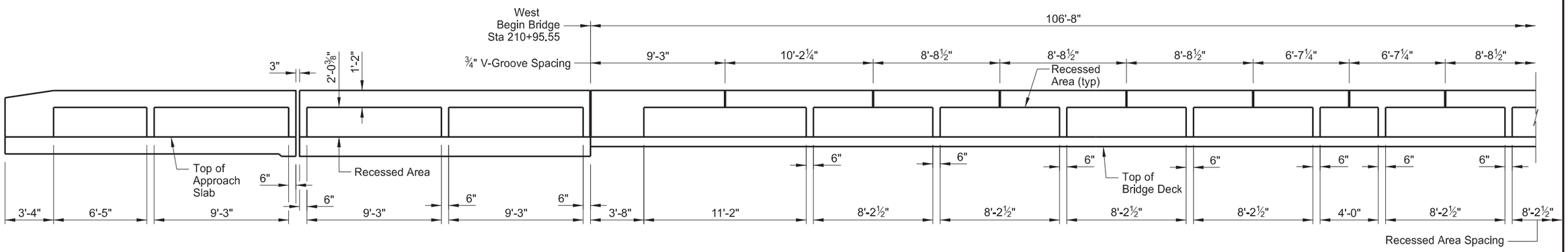
ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

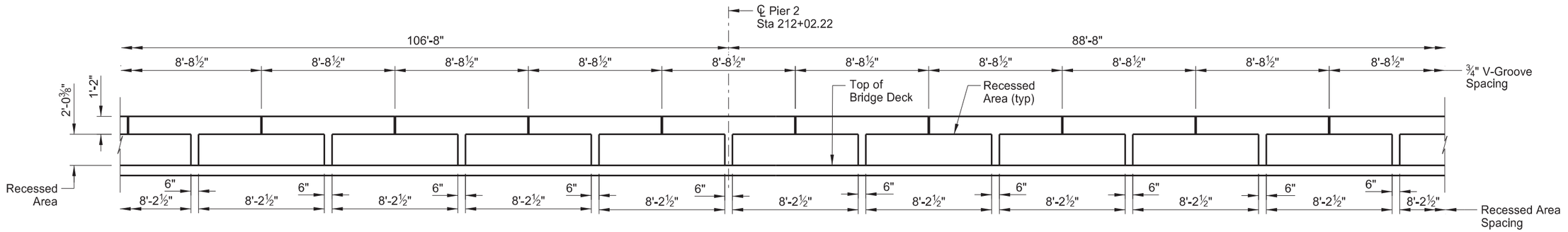
BARRIER & PEDESTRIAN WALL
RECESSED AREA DETAILS

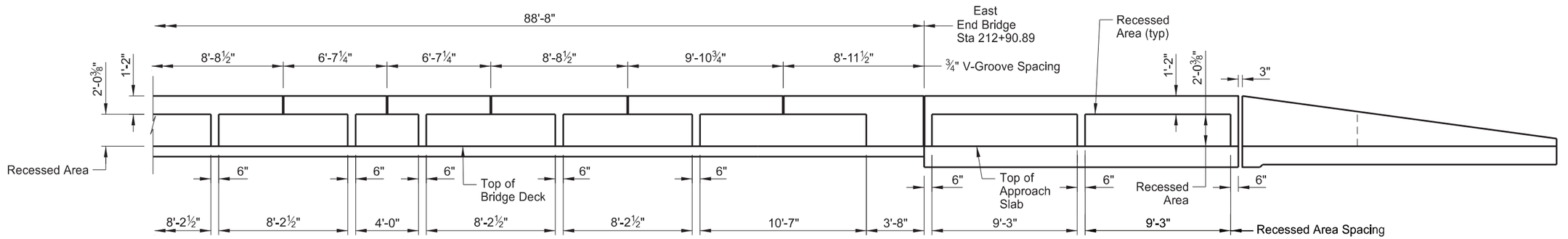
DRAWING NO. 0297-000.303-62

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	63







NOTE:

Railing not shown for clarity.

(SHOWING RECESSED AREA ~ BACK FACE)

SOUTH ROADWAY BARRIER ELEVATION

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

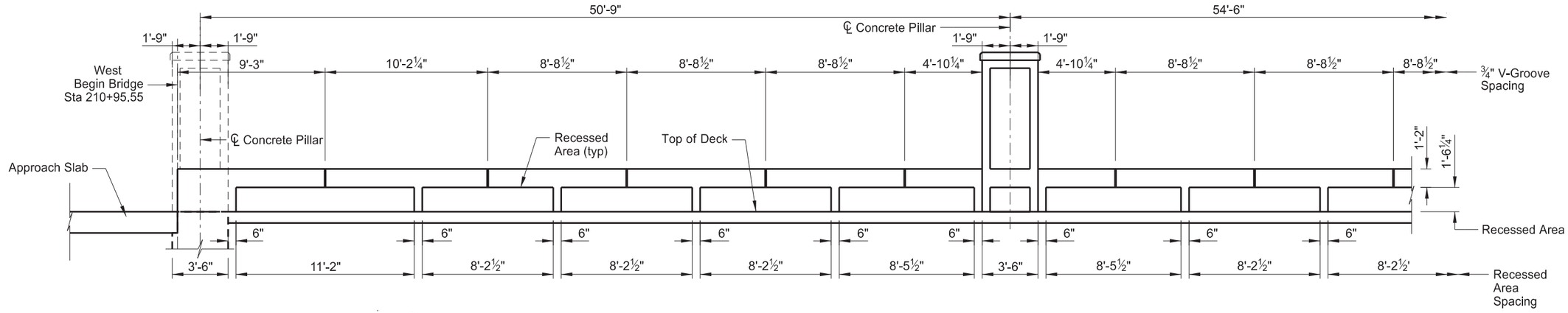
ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

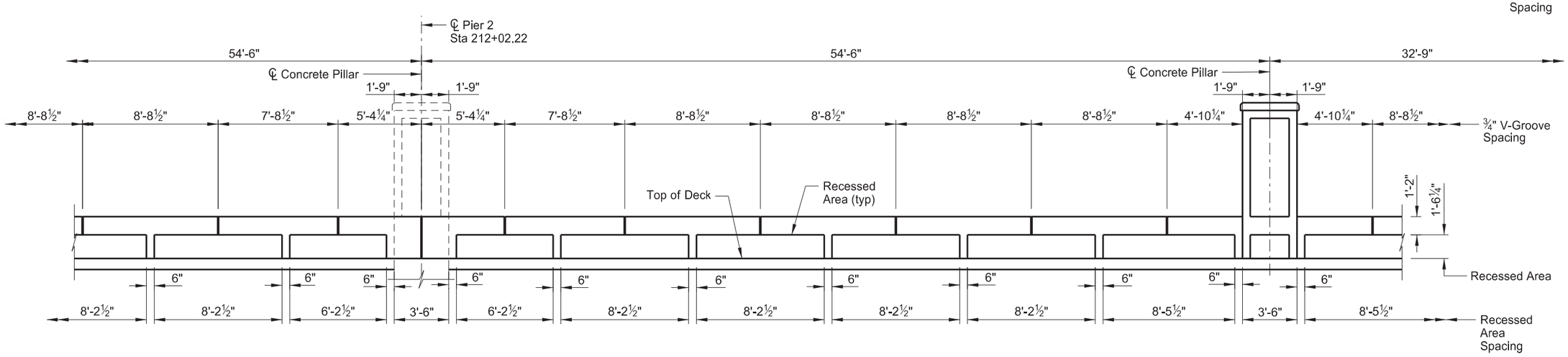
BARRIER & PEDESTRIAN WALL
RECESSED AREA DETAILS

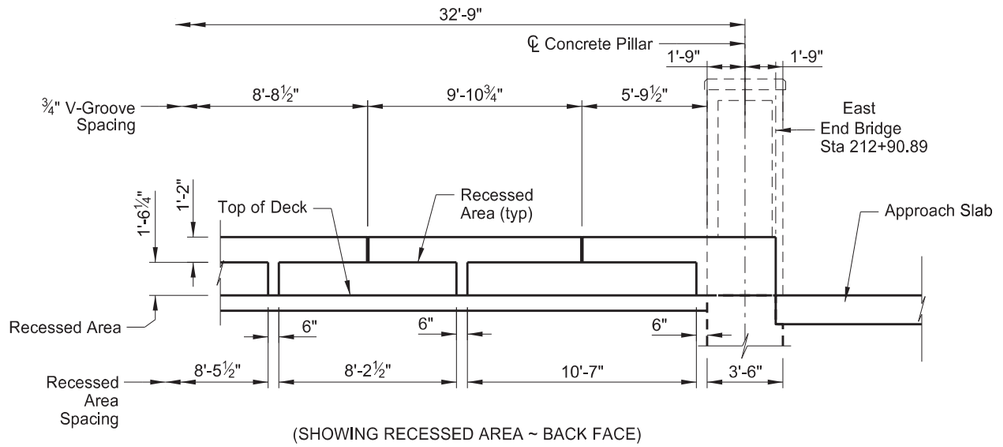
DRAWING NO. 0297-000.303-63

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	64







(SHOWING RECESSED AREA ~ BACK FACE)

PEDESTRIAN WALL ELEVATION

NOTES:

Railing not shown for clarity.

Match recessed area locations for front face.

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

BARRIER & PEDESTRIAN WALL
RECESSED AREA DETAILS

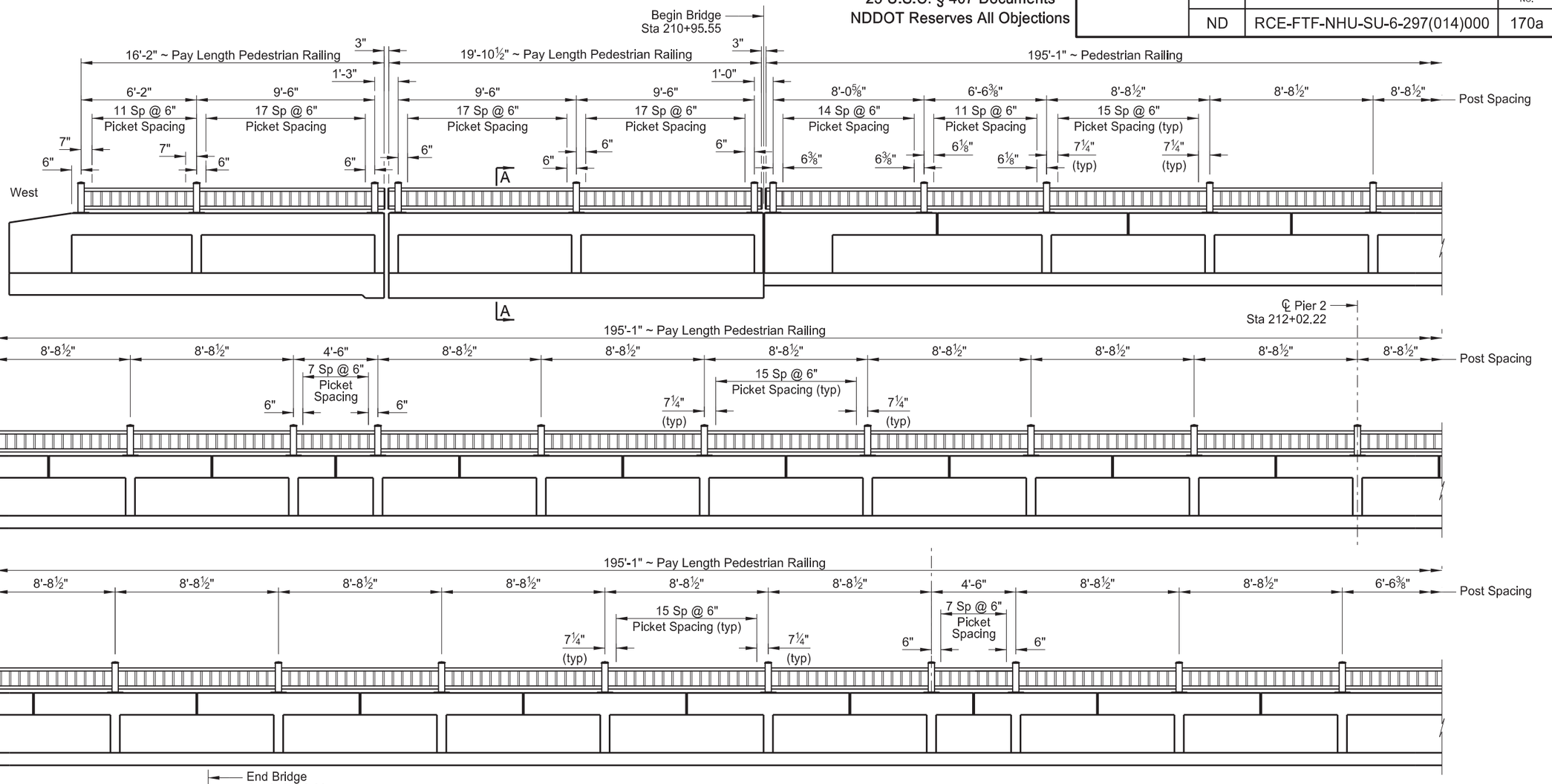
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	65



(SOUTH SHARED-USE PATH RAILING)
PEDESTRIAN RAILING ELEVATION

NOTE:

See Dwg 0297-000.303-72 for Section A-A

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

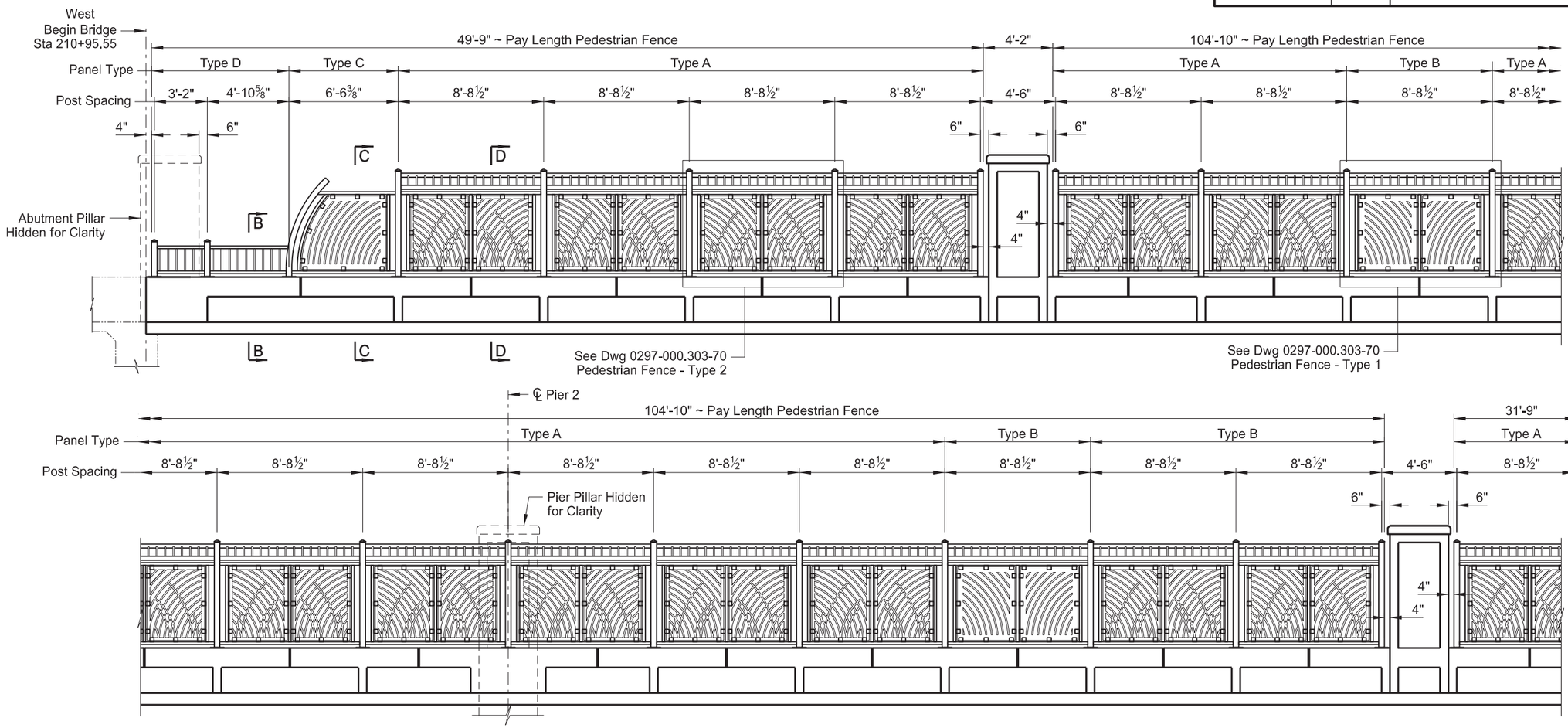
PEDESTRIAN RAILING DETAILS

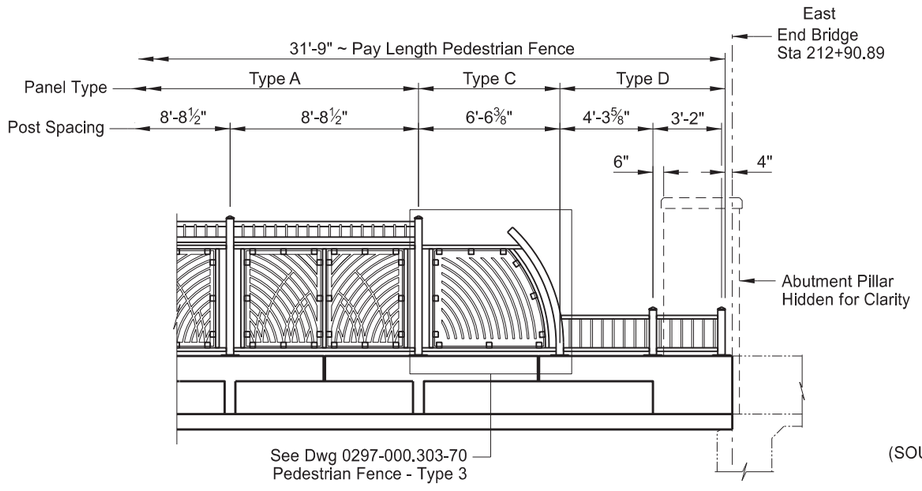
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	66





(SOUTH SHARED-USE PATH PEDESTRIAN FENCE)
PEDESTRIAN FENCE ELEVATION

NOTE:

See Dwg 0297-000.303-72 for Sections B-B to D-D

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

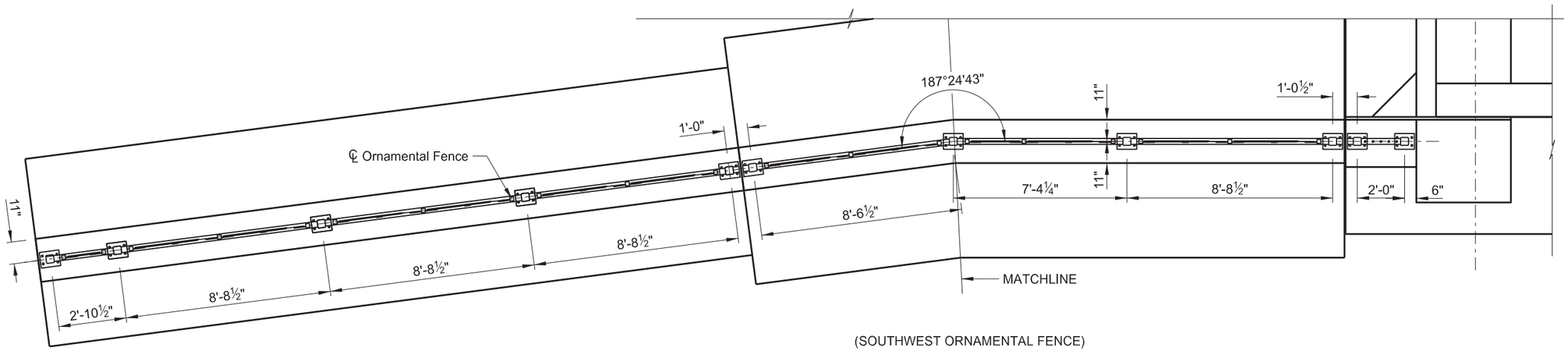
PEDESTRIAN FENCE DETAILS

DRAWING NO. 0297-000.303-66

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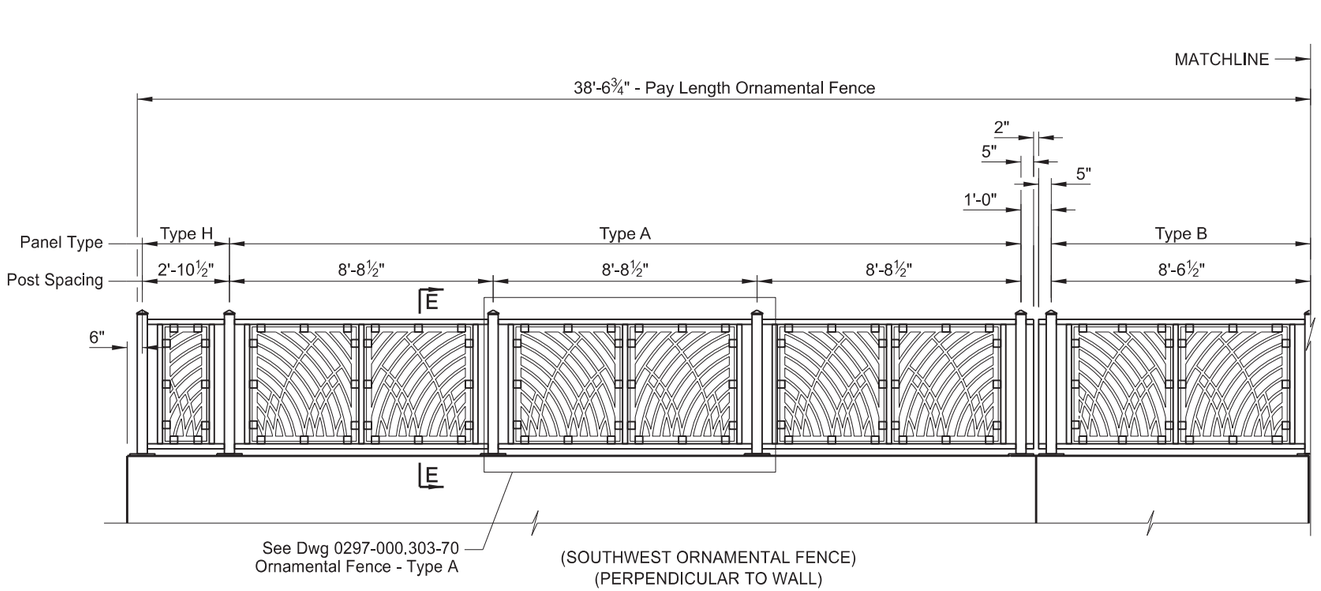
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	67



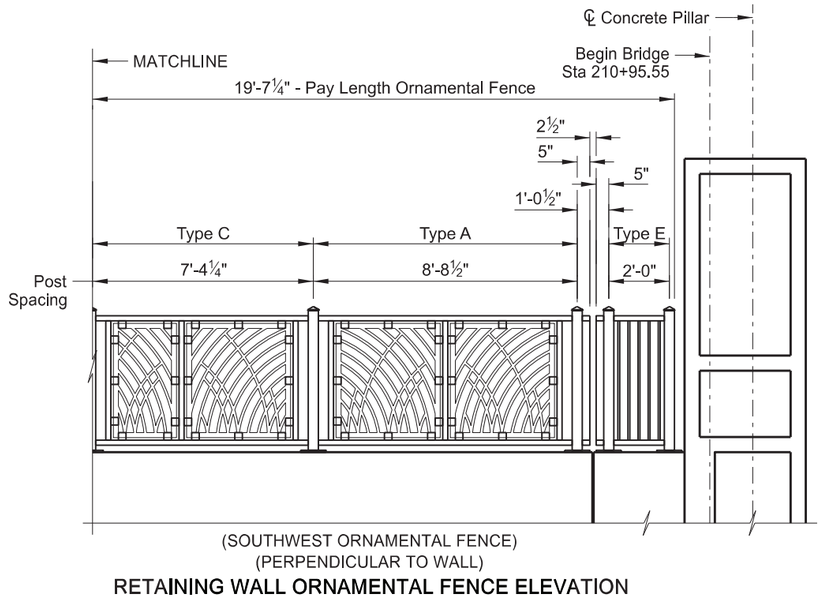
(SOUTHWEST ORNAMENTAL FENCE)

RETAINING WALL ORNAMENTAL FENCE PLAN



(SOUTHWEST ORNAMENTAL FENCE)
(PERPENDICULAR TO WALL)

RETAINING WALL ORNAMENTAL FENCE ELEVATION



(SOUTHWEST ORNAMENTAL FENCE)
(PERPENDICULAR TO WALL)

RETAINING WALL ORNAMENTAL FENCE ELEVATION

NOTE:

See Dwg 0297-000.303-72 for Section E-E

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

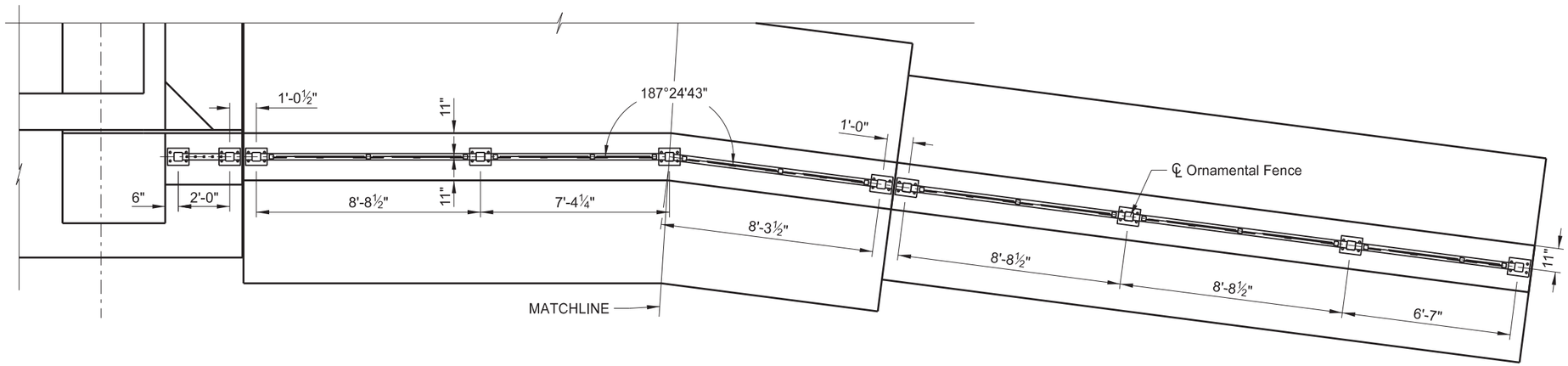
ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

SOUTHWEST RETAINING WALL
ORNAMENTAL FENCE DETAILS

DRAWING NO. 0297-000.303-67

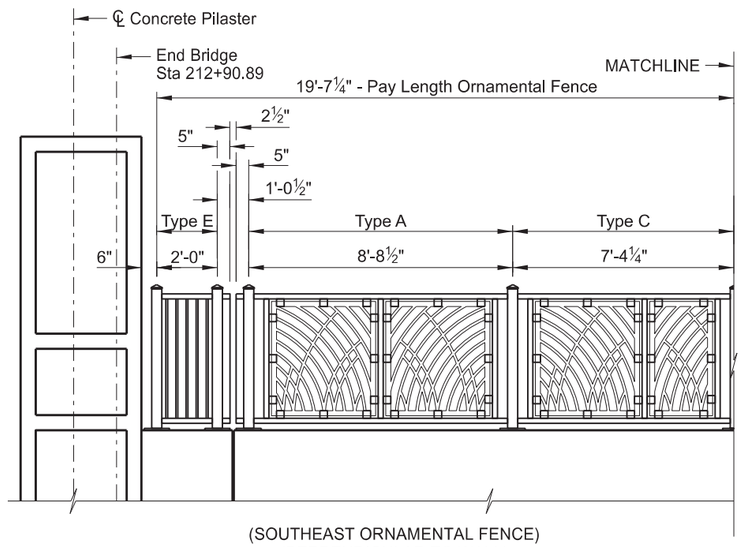
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	68



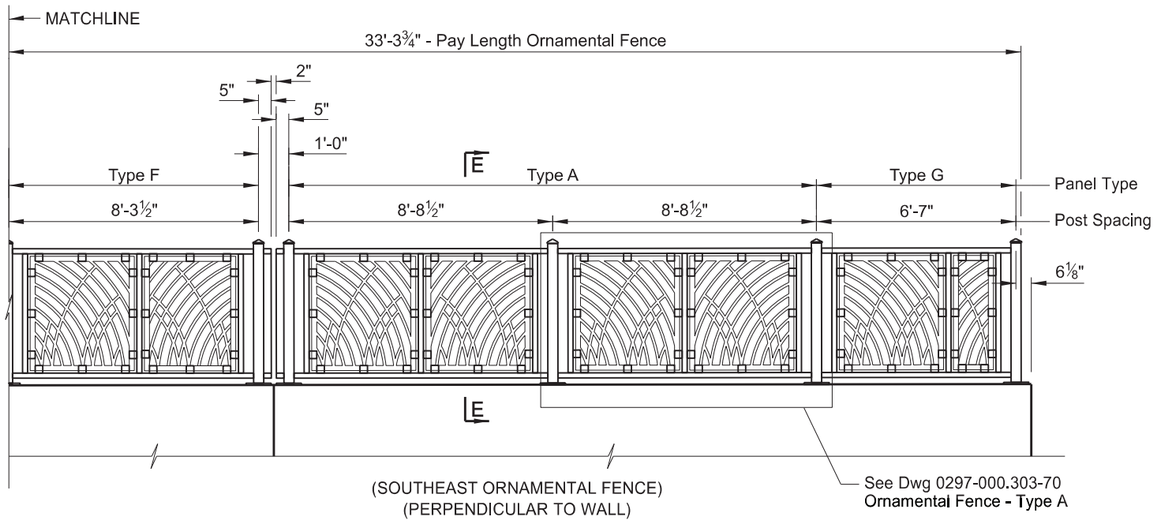
(SOUTHEAST ORNAMENTAL FENCE)

RETAINING WALL ORNAMENTAL FENCE PLAN



(SOUTHEAST ORNAMENTAL FENCE)
(PERPENDICULAR TO WALL)

RETAINING WALL ORNAMENTAL FENCE ELEVATION



(SOUTHEAST ORNAMENTAL FENCE)
(PERPENDICULAR TO WALL)

RETAINING WALL ORNAMENTAL FENCE ELEVATION



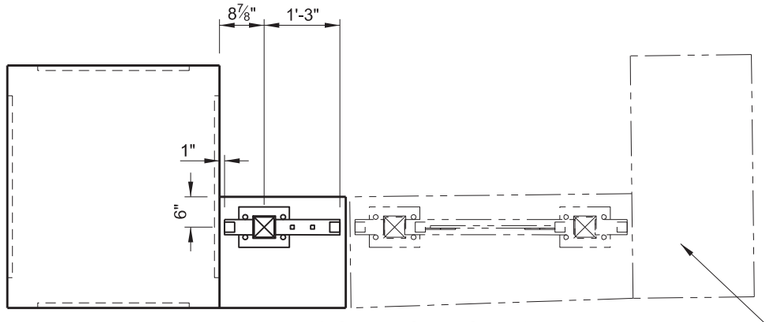
ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

SOUTHEAST RETAINING WALL
ORNAMENTAL FENCE DETAILS

DRAWING NO. 0297-000.303-68

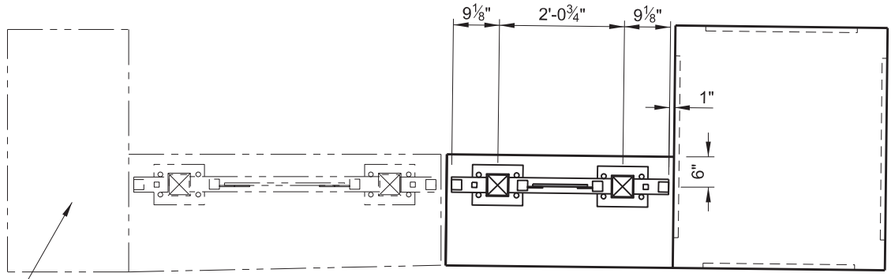
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	69



(NORTHWEST WINGWALL)

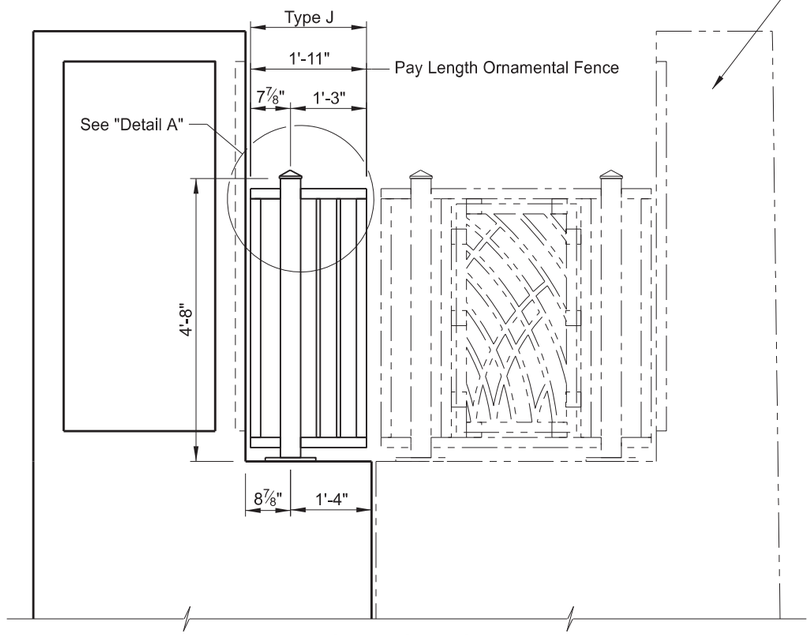
ABUTMENT 1
PLAN



(NORTHEAST WINGWALL)

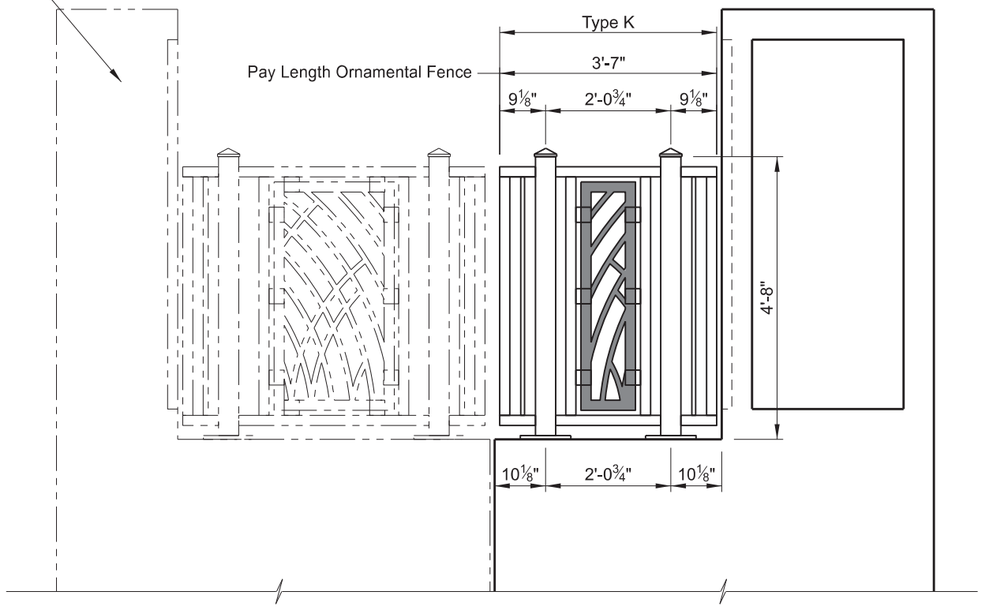
ABUTMENT 3
PLAN

Railroad Bride Railing
(See Section 170b for Details)



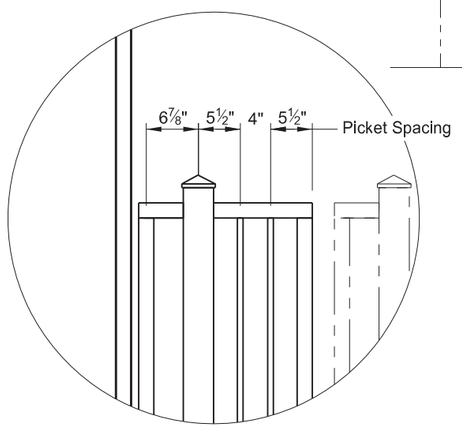
(NORTHWEST WINGWALL)

ABUTMENT 1
ELEVATION



(NORTHEAST WINGWALL)

ABUTMENT 3
ELEVATION



DETAIL A

NOTE:

Digital CAD templates will be provided by engineer for fabrication of laser cut panels prior to work drawings submittal.

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

NORTHWEST AND NORTHEAST WINGWALL
ORNAMENTAL FENCE DETAILS

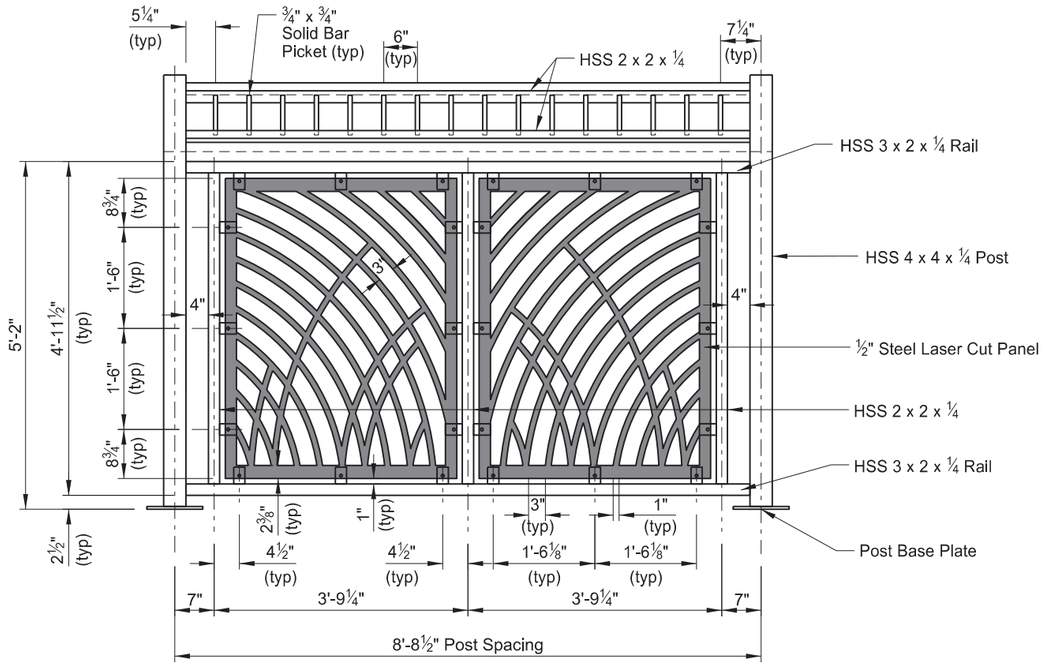
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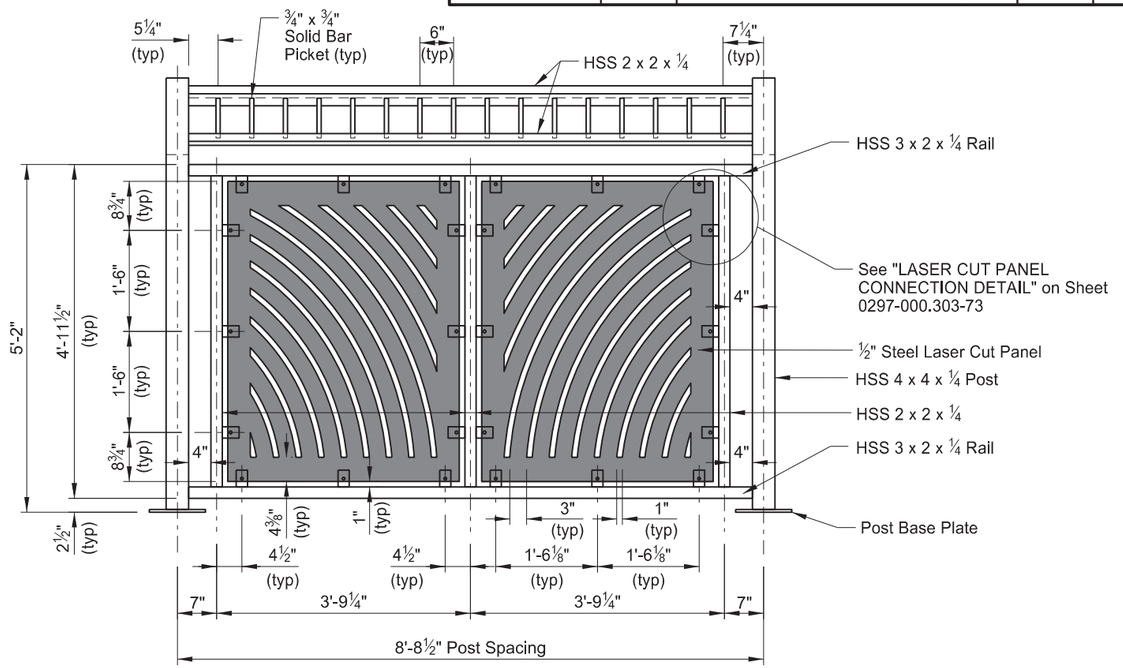
APD WJK

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

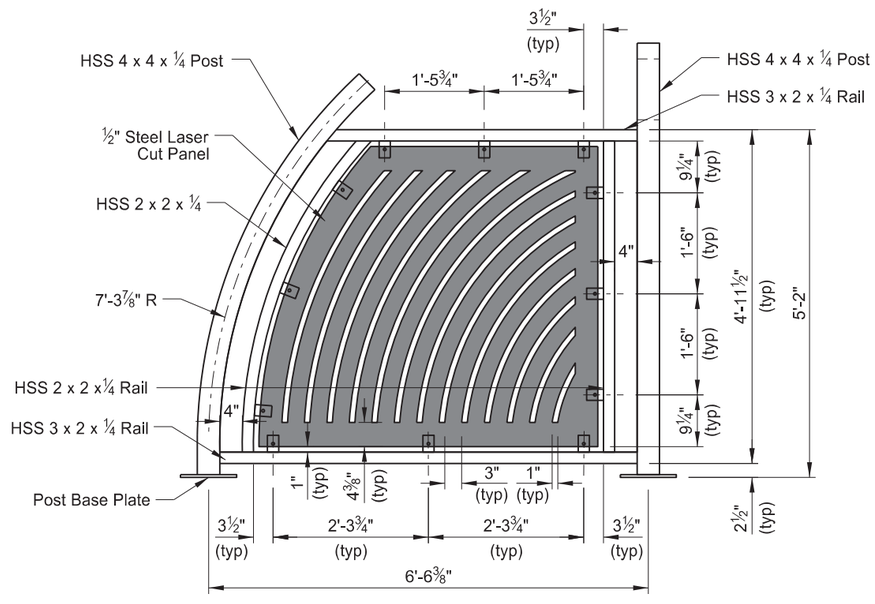
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	70



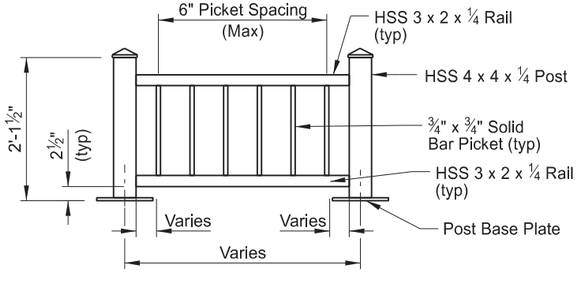
PEDESTRIAN FENCE PANEL - TYPE A



PEDESTRIAN FENCE PANEL - TYPE B



PEDESTRIAN FENCE PANEL - TYPE C



PEDESTRIAN RAILING PANEL - TYPE D

NOTE:

Digital CAD templates will be provided by engineer for fabrication of laser cut panels prior to work drawings submittal.

QUANTITIES
SEE DWG 0297-000.303-72

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

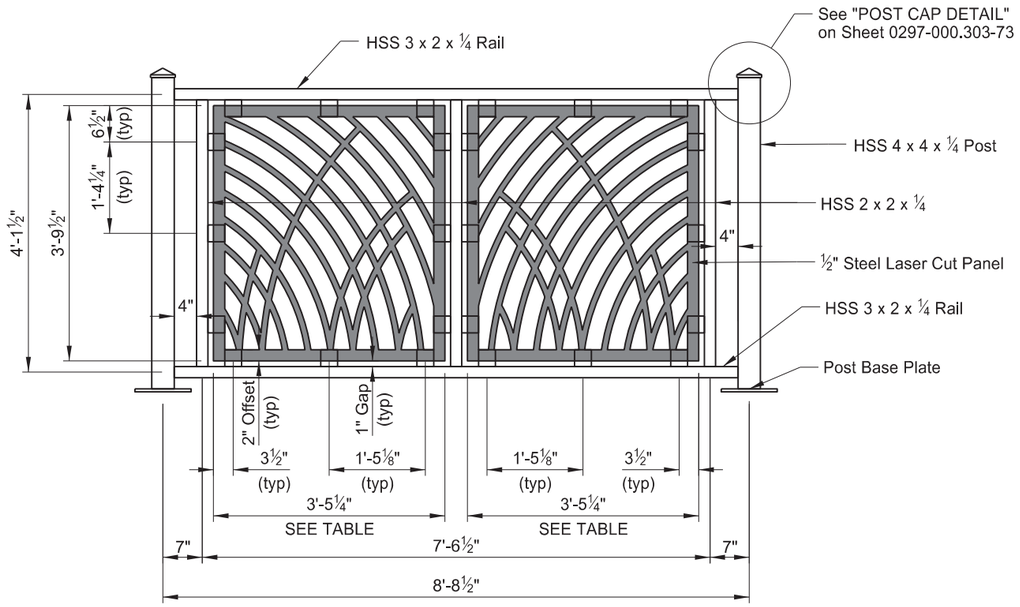
PEDESTRIAN FENCE DETAILS

DRAWING NO.	0297-000.303-70

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

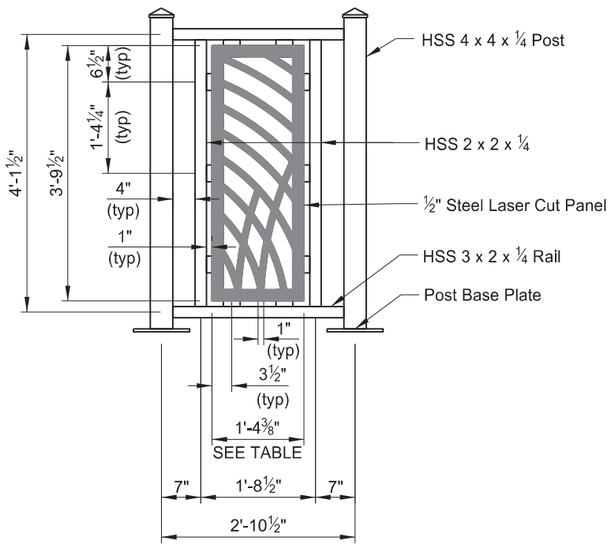
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	71



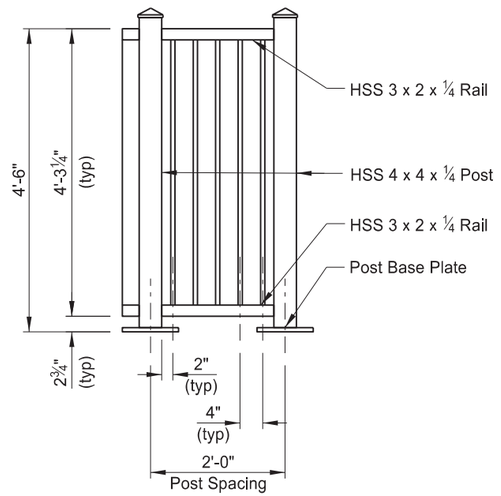
ORNAMENTAL FENCE PANEL

PANEL TYPE	POST TO POST SPACING	PANEL WIDTH 1	PANEL WIDTH 2
TYPE A	8'-8½"	3'-5¼"	3'-5¼"
TYPE B	8'-6½"	3'-5¼"	3'-3¼"
TYPE F	8'-3½"	3'-5¼"	3'-0¼"
TYPE C	7'-4¼"	3'-5¼"	2'-1"
TYPE G	6'-7"	3'-5¼"	1' 3¾"

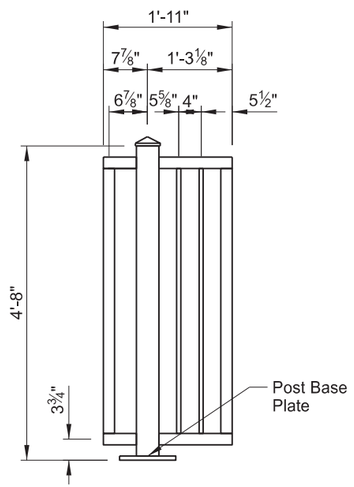


ORNAMENTAL FENCE PANEL

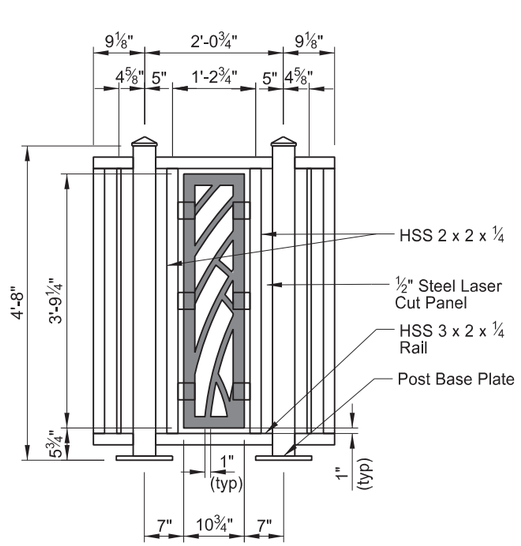
PANEL TYPE	POST TO POST SPACING	PANEL WIDTH
TYPE H	2'-10½"	1' 4⅜"



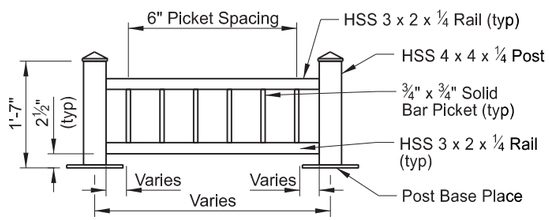
ORNAMENTAL FENCE PANEL - TYPE E



ORNAMENTAL FENCE PANEL - TYPE J



ORNAMENTAL FENCE PANEL - TYPE K



PEDESTRIAN RAILING

NOTE:

Digital CAD templates will be provided by engineer for fabrication of laser cut panels prior to work drawings submittal.

QUANTITIES
SEE DWG 0297-000.303-72

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

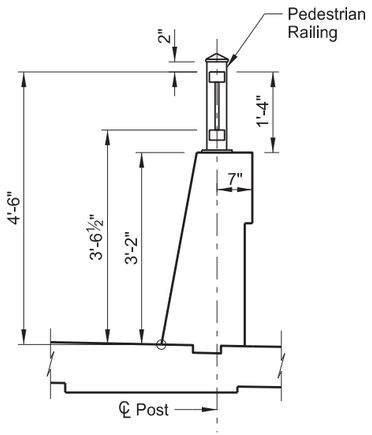
PEDESTRIAN & ORNAMENTAL FENCE & RAILING DETAILS

DRAWING NO.	0297-000.303-71

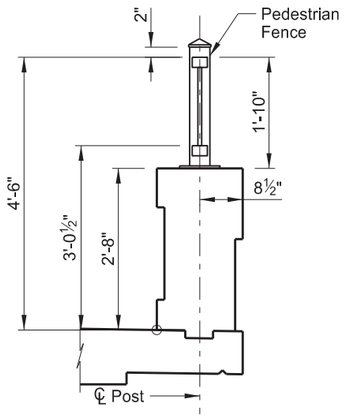
REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

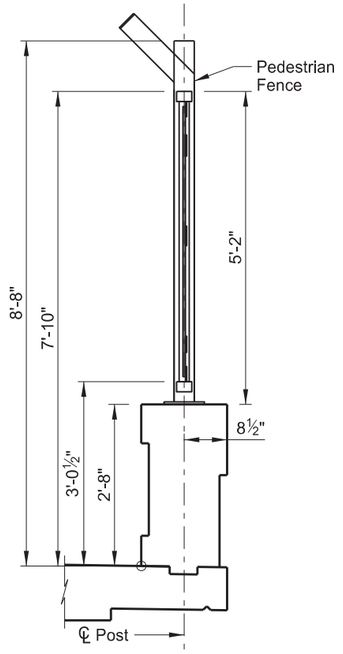
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	72



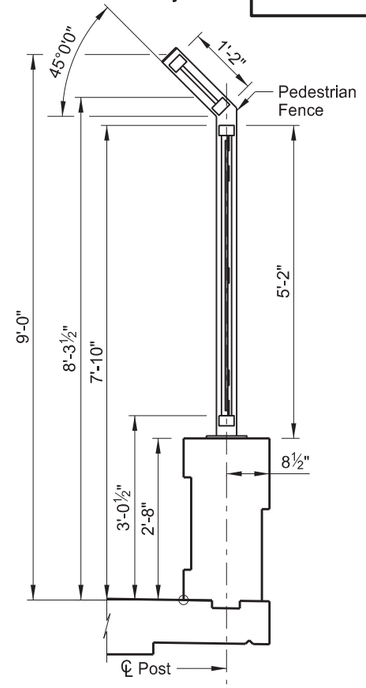
A-A



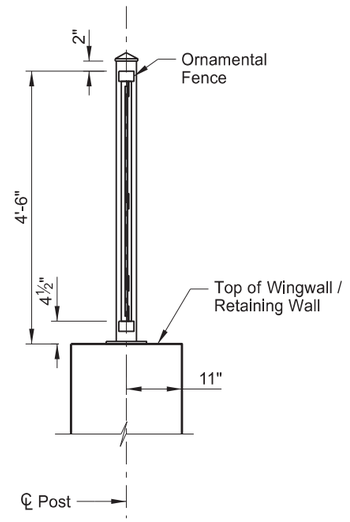
B-B



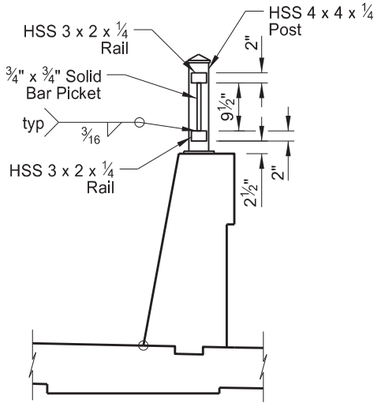
C-C



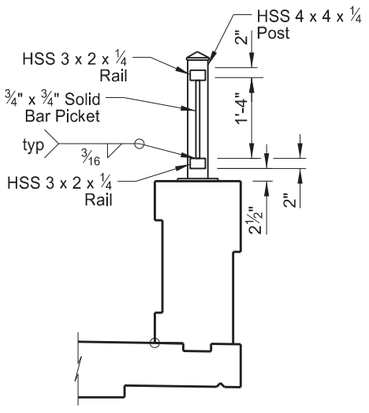
D-D



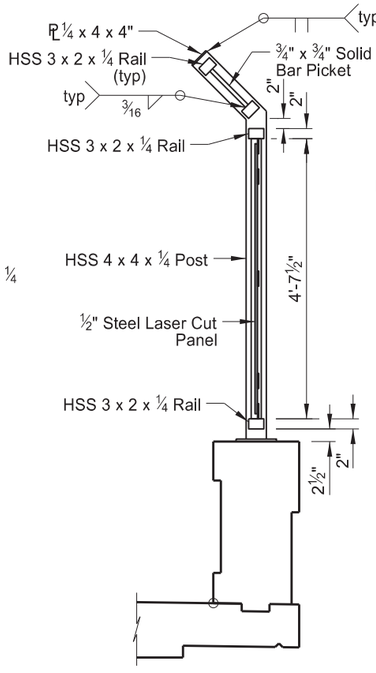
E-E



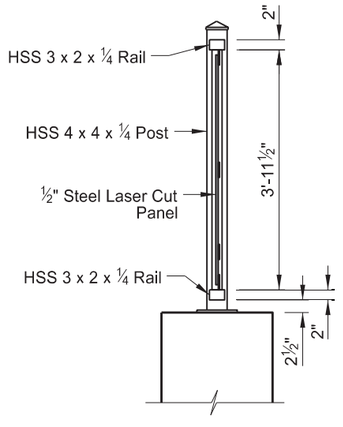
PEDESTRIAL RAILING DETAIL



PEDESTRIAN FENCE DETAIL



PEDESTRIAN FENCE DETAIL



ORNEMENTAL FENCE DETAIL

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

PEDESTRIAN & ORNAMENTAL
FENCE & RAILING DETAILS

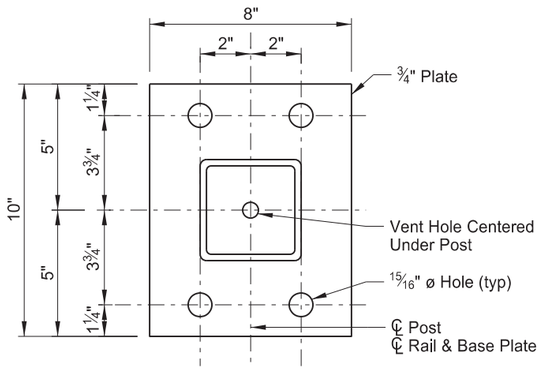
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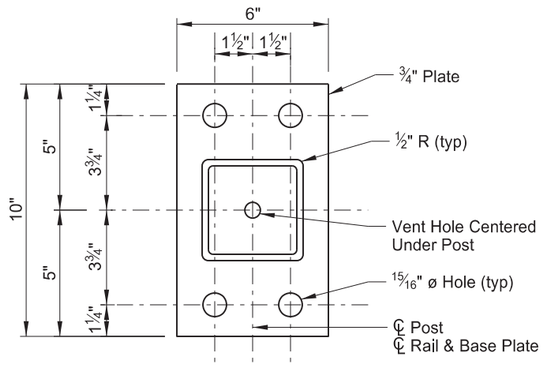
APD WJK

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

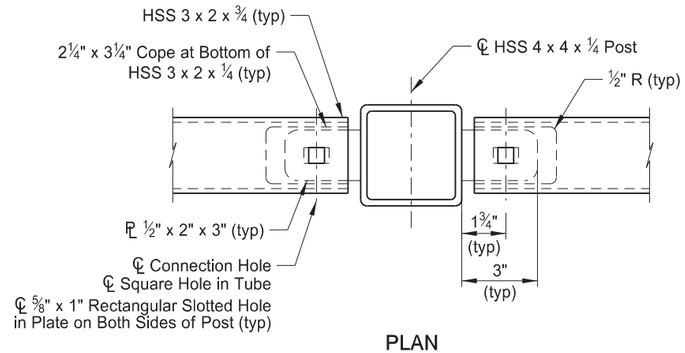
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	73



(PEDESTRIAN & ORNAMENTAL FENCE)
BASE PLATE PLAN



(PEDESTRIAN RAILING)
BASE PLATE PLAN



PLAN
CONNECTION DETAIL

NOTES:

Provide anchorage, post, and rail plates that meet ASTM A36. Provide posts and rails that meet ASTM A500 Grade B. Galvanize all steel elements after fabrication according to Section 854 of Standard Specifications and then pain according to Special Provision 396(24). Use Red Brown, Walnut Brown finish coat, color number 30108 meeting Aerospace Material Specification (AMS) Standard 595. Galvanize the bolts, nuts, washers, and anchor bolts and field paint the exposed top of exposed anchor hardware after installation.

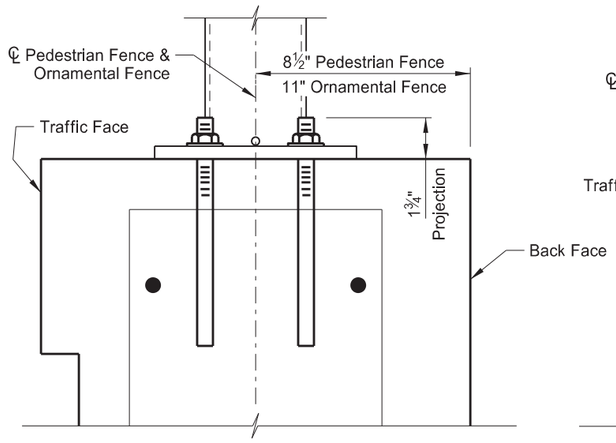
Drill ½" ø maximum vent holes on the underside of rail tubes as necessary to facilitate galvanizing. Drill vent hole in the rail post within 2" of the underside of the cap, on the non-traffic side of the post as necessary to facilitate galvanizing.

Provide a pyramid top style steel cap welded to top of posts as shown with a surface finish of 1000 micro-inch, or smoother, prior to galvanizing.

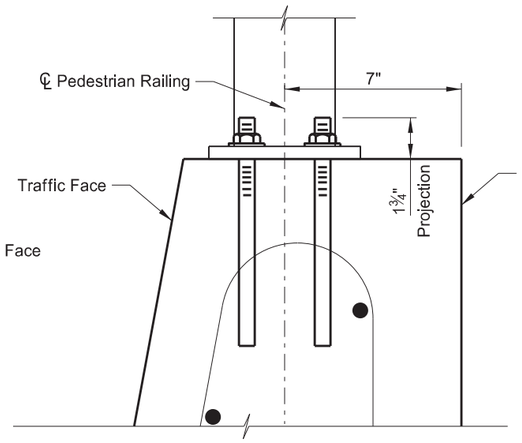
Use anchor bolts meeting ASTM F1554, Grade 36. Epoxy anchorage with ⅝" ø anchor bolts or place them in concrete at time of pouring. Provide an adhesive with a minimum characteristic bond strength in uncracked concrete of 1.5 ksi. Provide a minimum embendment of 6" regardless of characteristic bond strength. Ensure hex nut is in contact with the adjacent surface and torque to 60 foot-pounds.

Fabricate horizontal railing to be parallel to the slope of the top of the pedestrian wall and barrier. Fabricate posts and pickets to be vertical.

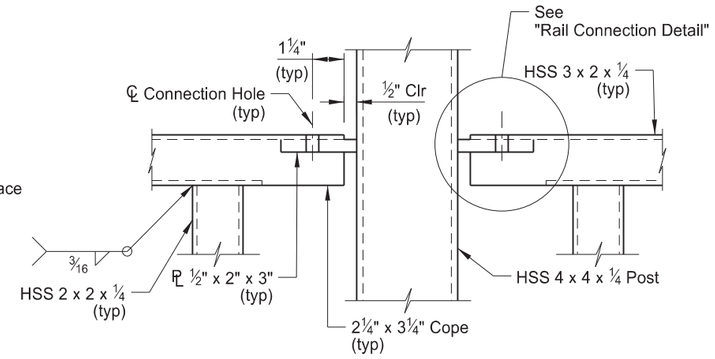
Fabricator shall assemble all panels on posts in shop to ensure accuracy of connections.



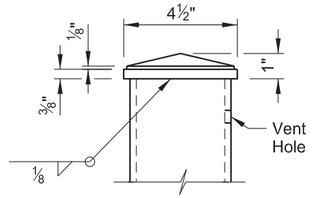
(PEDESTRIAN & ORNAMENTAL FENCE)
ELEVATION
BASE PLATE ANCHOR DETAIL



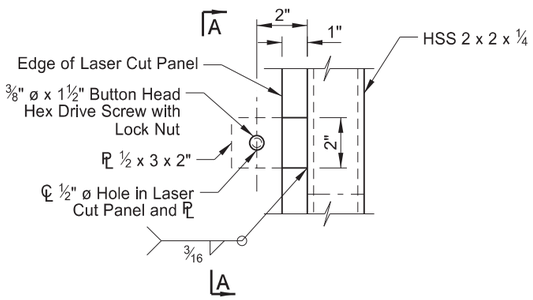
(PEDESTRIAN RAILING)
ELEVATION
BASE PLATE ANCHOR DETAIL



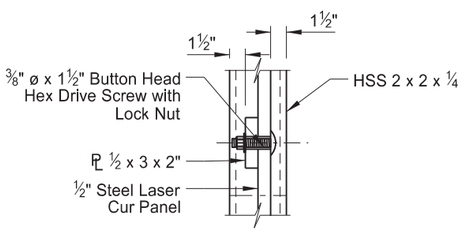
ELEVATION
CONNECTION DETAIL



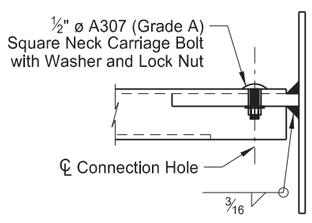
POST CAP DETAIL



LASER CUT PANEL CONNECTION DETAIL



A-A



RAIL CONNECTION DETAIL

QUANTITIES	
PEDESTRIAN RAILING	251.0 LF
PEDESTRIAN FENCE	186.3 LF
ORNAMENTAL FENCE	116.6 LF

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

PEDESTRIAN & ORNAMENTAL FENCE & RAILING DETAILS

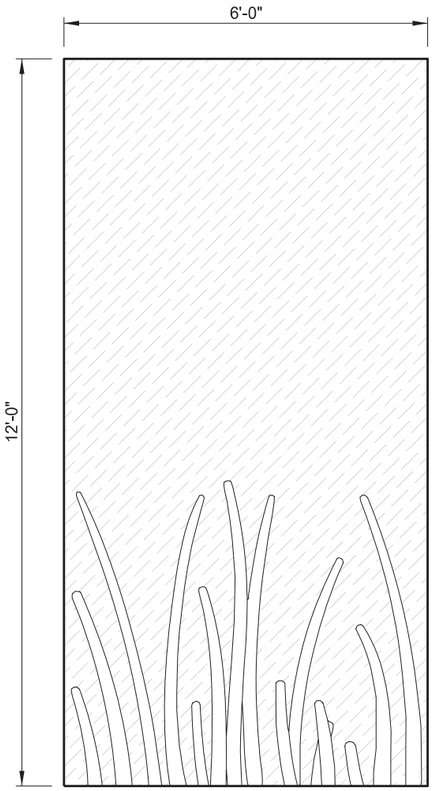
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REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

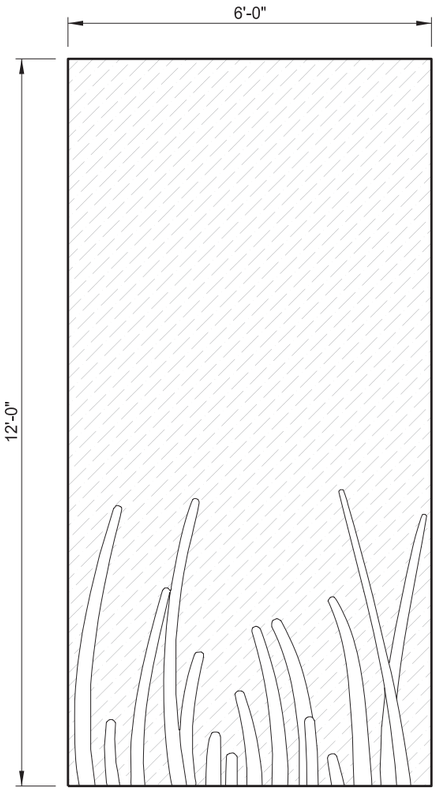
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

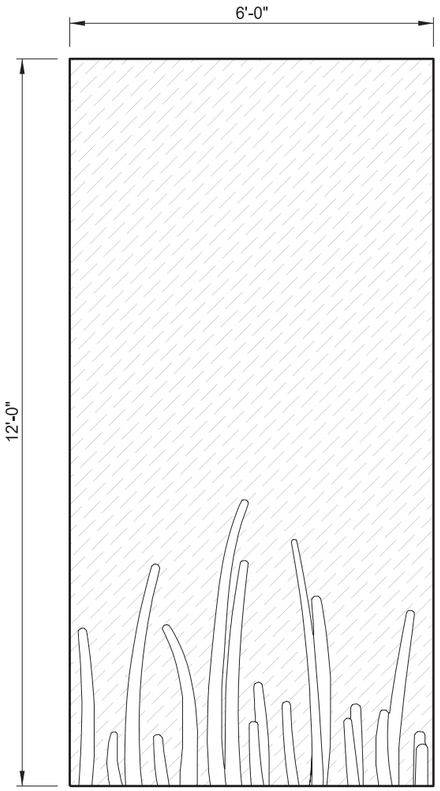
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	74



FORMLINER PATTERN - TYPE A



FORMLINER PATTERN - TYPE B



FORMLINER PATTERN - TYPE C

LEGEND - ARCHITECTURAL SURFACE FINISHES

Edge of Formliner Pattern (Type A, B, C)

1" Relief: Tex-Cote Chamois T-125
or approved equal

2" Relief: Tex-Cote Sandalwood T-114
or approved equal

Formliner point of beginning

VIF — Verify in Field

NOTES:

1. Drawings show design intent for bidding only. Submit work drawings for review and approval by the engineer and landscape architect of record prior to installation.

2. Work drawings shall include but not limited to the following:

   2.1 Form tie locations
   2.2 End locations and other special conditions
   2.3 Panel sizes, joint locations, joint widths, reveal and false-joint locations and dimensions
   2.4 Elevations, sections and details of assembly components
   2.5 Attachment details
   2.6 Indicate locations, configurations, typical details, connections, and expansion joints

3. Submit manufacturer's data sheets on each product to be used including printed product data and installation guideline for formliner system.

4. Basis-of-design formliner pattern:
   "Tallgrass Prairie" Custom Pattern
   or approved equal by the engineer and landscape architect of record. Digital graphic patterns for formliner pattern types available as electronic reference document.

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

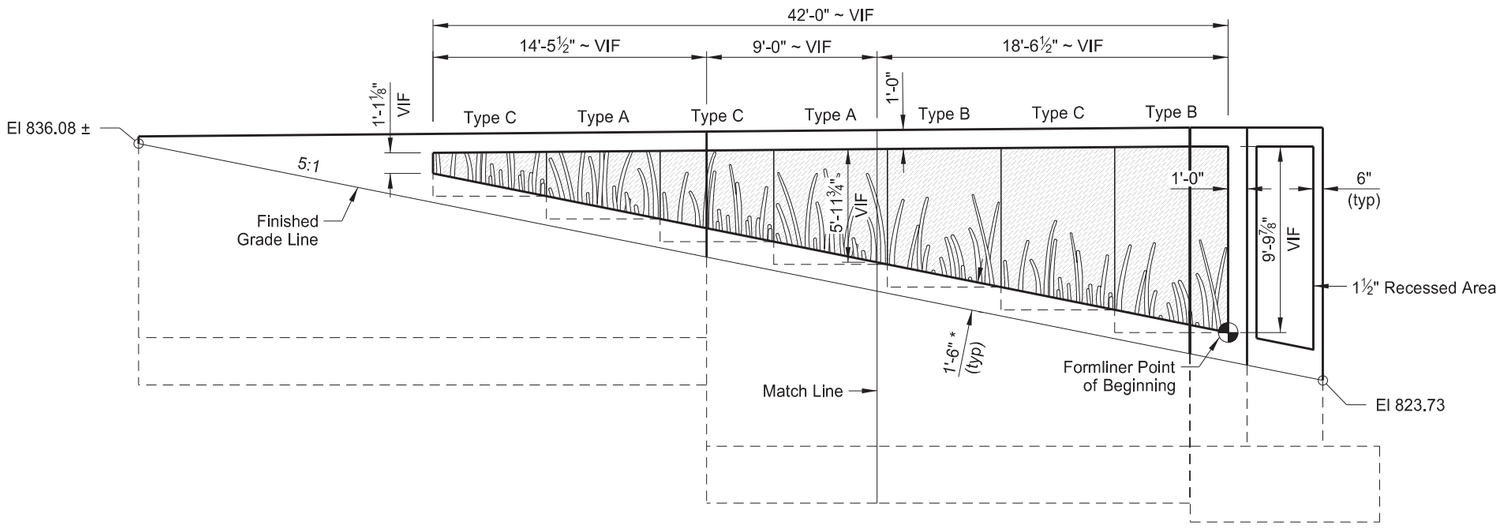
ND HWY 297 (DEMERS AVE) & 42ND STREET
GRADE SEPARATION

FORMLINER PATTERNS

DRAWING NO. 0297-000.303-74

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

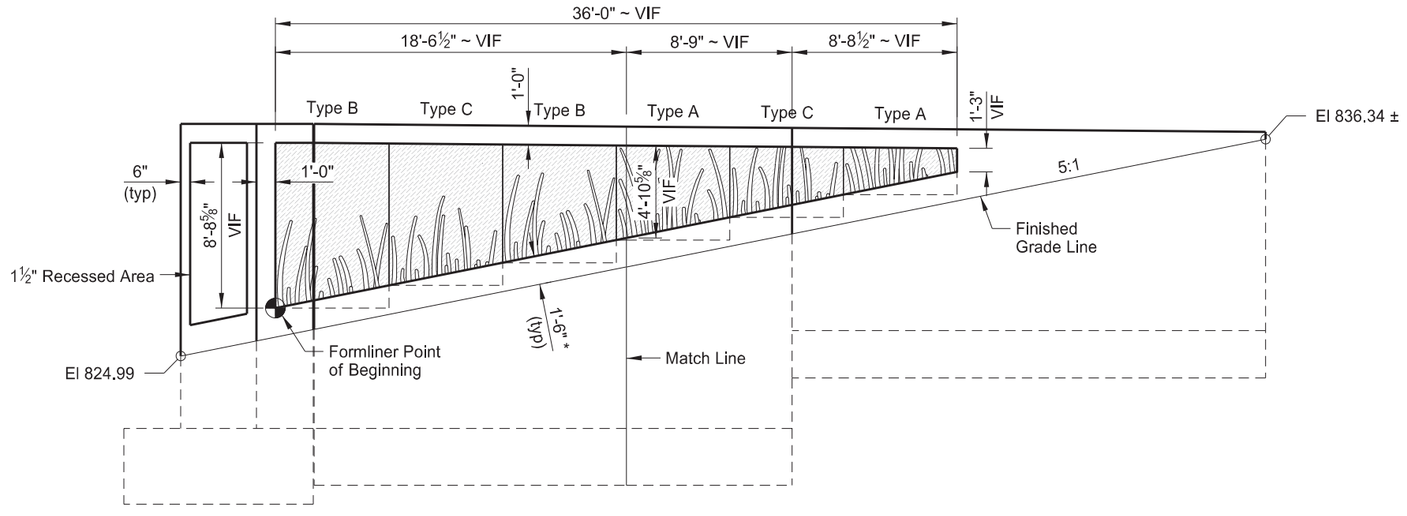
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	75



* Field modify bottom of formliner as required to maintain 1'-6" offset from finished grade.

(LOOKING NORTH)

SOUTHWEST RETAINING WALL



(LOOKING NORTH)

SOUTHEAST RETAINING WALL

NOTE:

VIF = Verify in Field

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

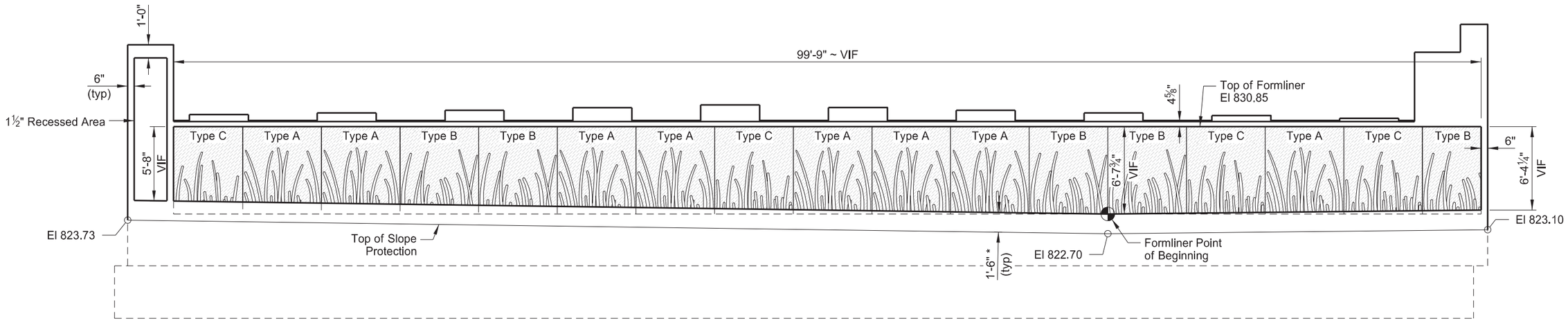
ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

FORMLINER LAYOUTS

DRAWING NO. 0297-000.303-75

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

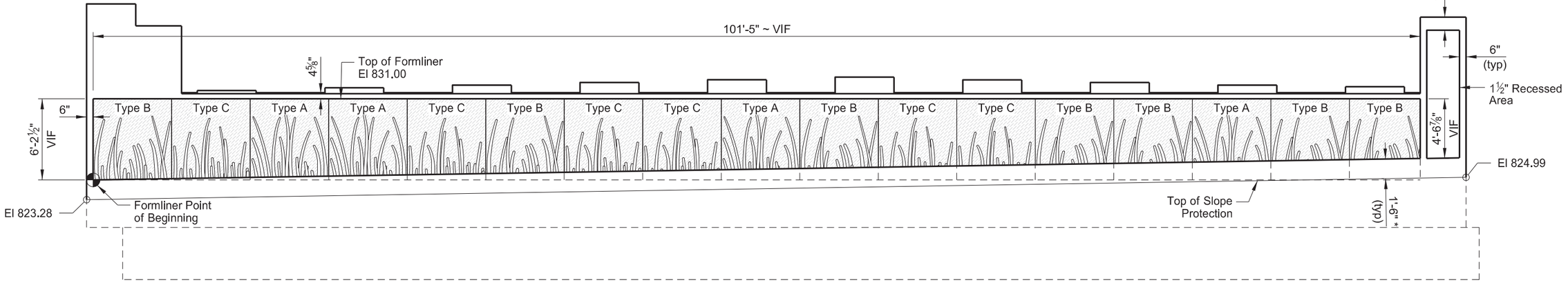
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	76



(LOOKING WEST)

ABUTMENT 1

* Field modify bottom of formliner as required to maintain 1'-6" offset from finished grade.



(LOOKING EAST)

ABUTMENT 3

NOTE:

VIF = Verify in Field

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

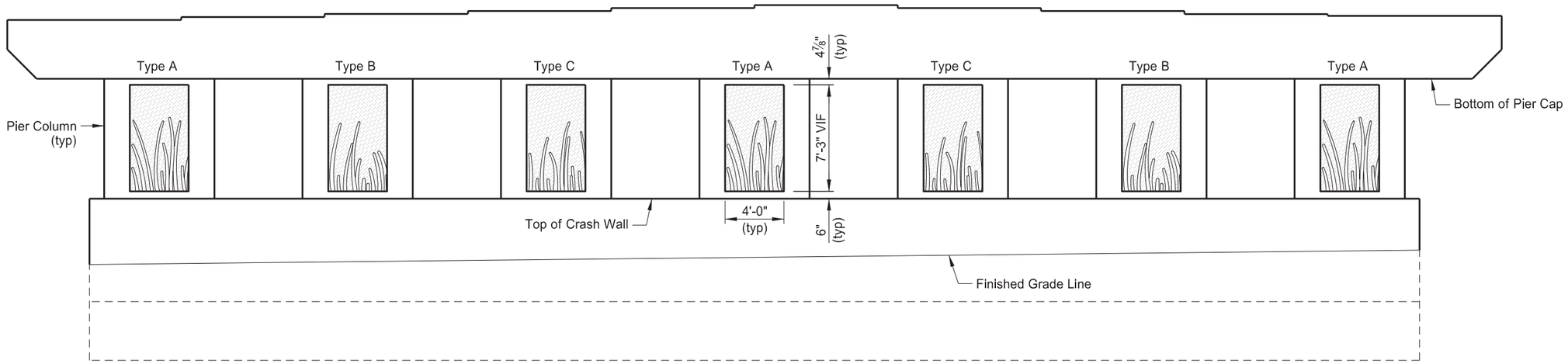
FORMLINER LAYOUTS

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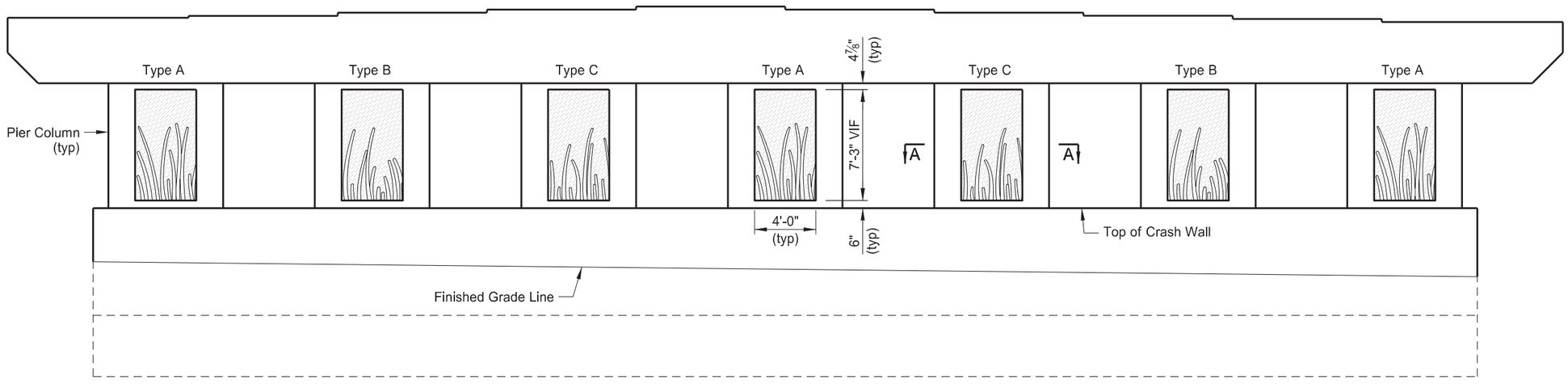
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170a	77



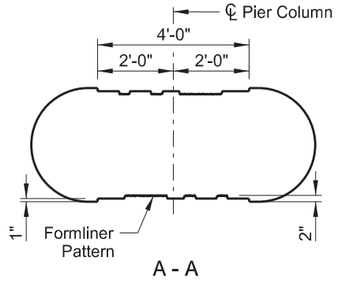
(LOOKING EAST)

PIER 2



(LOOKING WEST)

PIER 2



A - A

NOTES:

Proud face of pattern at 1" relief from surrounding concrete.

Deepest relief of pattern at 2" relief from surrounding concrete.

VIF = Verify in Field

REGISTERED PROFESSIONAL ENGINEER
WESLEY J. KELLER
PE-27400
DATE 1/29/2026
NORTH DAKOTA

ND HWY 297 (DEMERS AVE) & 42ND STREET GRADE SEPARATION

FORMLINER LAYOUTS

DRAWING NO. 0297-000.303-77

Docusign Envelope ID: 27D82164-F634-425C-9AE0-FB21B5C8117F

BRIDGE CODE		STATE	PROJECT NO.	SECTION NO.	SHEET NO.
X631		ND	RCE-FTF-NHU-SU-6-297(014)000	170b	1

Temporary Track Shoofly not shown for clarity
(See Section No. 170c for more details)

N

Boring BR-1
Sta 923+04.15
~ 99.33' Rt (Main 1)

DESIGN STRENGTHS:

f'c = 4,000 psi ~ AE Concrete
f'c = 5,000 psi ~ Prestressed Concrete Fascia Girder
fy = 60,000 psi ~ Reinforcing Steel
fy = 50,000 psi ~ Structural Steel

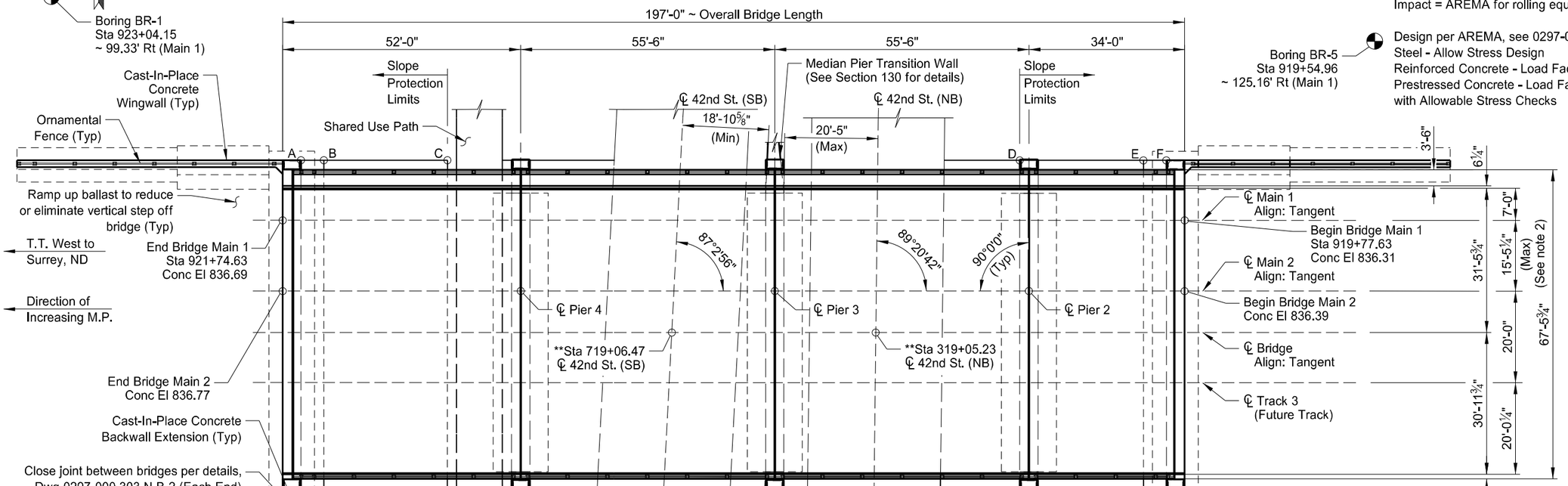
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

DESIGN:

Live Load = Cooper E-80 or 100 kip (4 Axle) Alternate
Impact = AREMA for rolling equipment without hammer blow

Design per AREMA, see 0297-000.303 N B-5 for more information:
Steel - Allow Stress Design
Reinforced Concrete - Load Factor Design
Prestressed Concrete - Load Factor Design
with Allowable Stress Checks

Boring BR-5
Sta 919+54.96
~ 125.16' Rt (Main 1)



PLAN

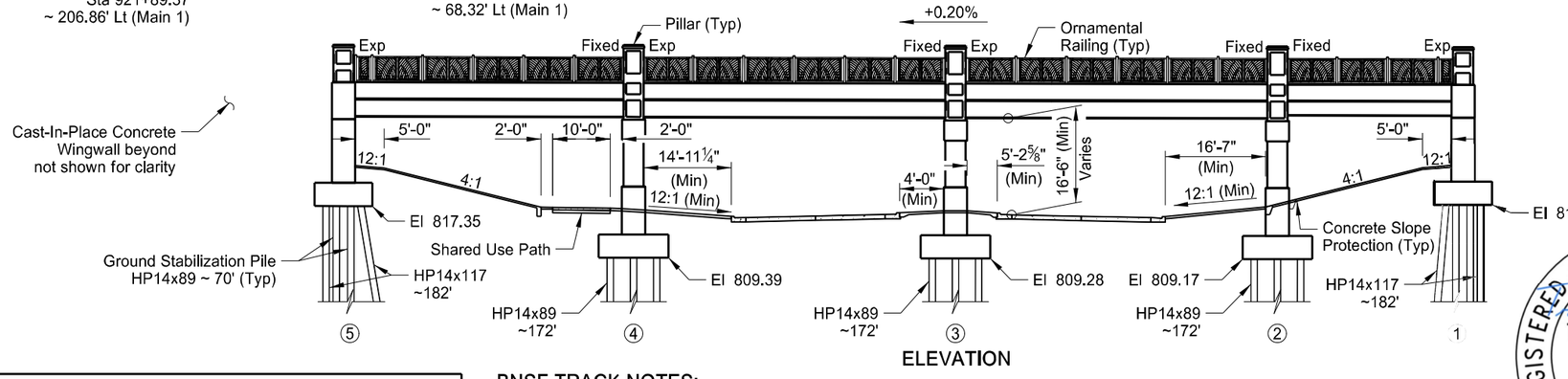
T.T. East to Cass Lake, MN

TOP OF SLOPE PROTECTION ELEVATIONS	
A	824.75
B	824.34
C	817.59
D	816.95
E	823.70
F	824.11
G	823.10
H	822.68
I	815.95
J	816.09
K	822.86
L	823.28

Boring BR-2
Sta 921+89.37
~ 206.86' Lt (Main 1)

Boring BR-3
Sta 921+64.54
~ 68.32' Lt (Main 1)

Boring BR-4
Sta 919+92.97
~ 202.50' Lt (Main 1)



ELEVATION

SURVEY CONTROL POINTS			
POINT	NORTHING	EASTING	ELEVATION
CP 5113	353,577.57	2,805,617.91	835.69
CP 5115	353,577.80	2,805,013.34	836.81

BNSF TRACK NOTES:

1. Stationing established from Main Track 1 based on information from Section 60. **Stationing denotes roadway stationing based on information from Section 60.
2. Main Track 1 and Main Track 2 spacing varies minimally over length of bridge. Maximum proposed spacing of 15'-5¼" was used for geometric design.

SPECIAL PROVISIONS	
SP 396(24)	PAINTING OVER GALVANIZED STEEL
SP 599(24)	WATERPROOFING
SP 416(24)	ARCHITECTURAL FORMLINER
SP 679(24)	DEWATERING

BNSF Grand Forks Subdivision
LS 32, MP 110.067

Over 42nd Street

BRIDGE LAYOUT

REGISTERED PROFESSIONAL ENGINEER
TRAVIS M. SCHAFER
PE-40826
DATE 01/29/26
NORTH DAKOTA

ND DEPARTMENT OF TRANSPORTATION
BRIDGE DIVISION

Jason Thorenson
01/29/26

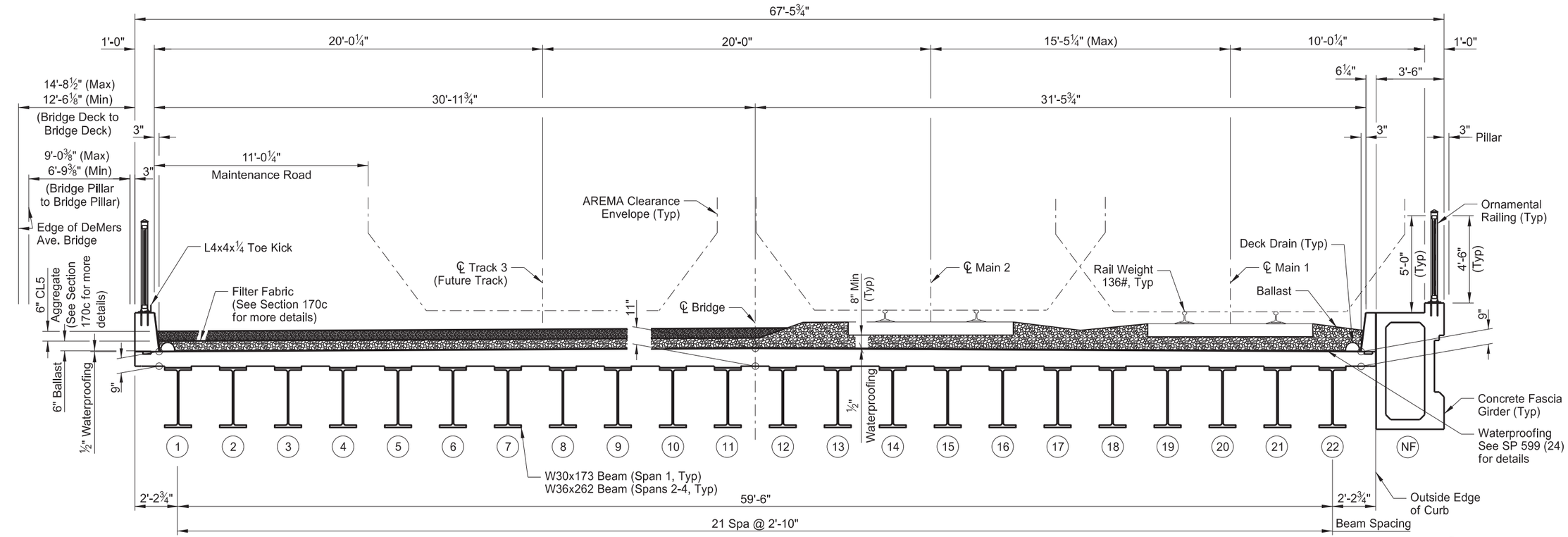
SITE 2 | DRAWING NO. 0297-000.303 N B-1

olsson

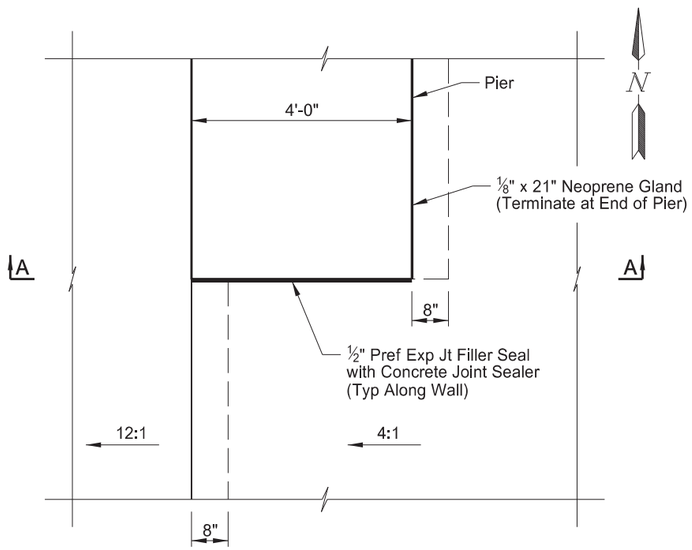
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

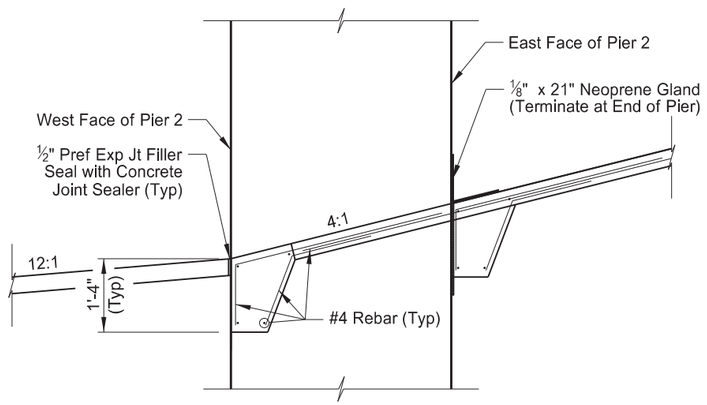
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	2



TYPICAL SECTION



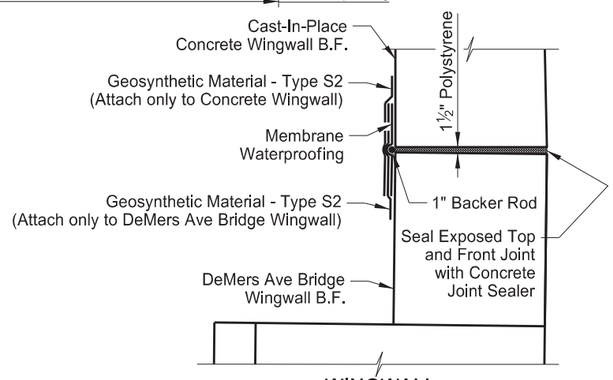
SLOPE PROTECTION PLAN AT PIER 2



A-A

NOTE:

Membrane waterproofing system per Section 602.03 B. except the strip shall be 24" wide to allow movement. Membrane placement shall be such that a 1" wrinkle in the membrane will be formed over the joint opening. Include the cost in the bid item, "BRIDGE SUBSTRUCTURE CONCRETE."



WINGWALL JOINT DETAIL
(West Abutments Shown, East Abutments and North Wingwalls Similar)

REGISTERED PROFESSIONAL ENGINEER
TRAVIS M. SCHAFER
PE-40826
Digitally signed by Travis Schafer
DATE Date: 2026.01.29 11:01:25-06'00'
NORTH DAKOTA

BNSF Grand Forks Subdivision
LS 32, MP 110.067

Over 42nd Street

TYPICAL SECTION

DRAWING NO. 0297-000.303 N B-2

STRUCTURAL NOTES

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	3

100 SCOPE OF WORK: This project consists of building a four span rolled steel beam bridge with an overall bridge length of 197'-0" and a cast in place concrete deck width of 63'-11½".

100 GENERAL: Include the cost of furnishing and placing preformed expansion joint filler, concrete inserts, rebar couplers, silicone sealant, waterproof membrane, and other miscellaneous items in the price bid for the appropriate concrete bid items.

100 GENERAL: The Contractor is responsible for calling 1-800-533-2891 for BNSF Telecom and 1-800-832-5452 for BNSF Signal to arrange a BNSF underground cable locate. BNSF form "Underground Cable Location & Acknowledge" will be completed by a BNSF representative and a copy provided to the contractor. The contractor shall provide a copy to NDDOT and the engineer and must have this completed form in possession at the job site at all times.

100 GENERAL: The Contractor must follow the construction sequencing found in Section 6, unless an alternative construction schedule is submitted to and approved by the Engineer.

105 WORK DRAWINGS: Submit the following work drawings to the Engineer for review.

1. Structural Steel
2. Prestressed Concrete Fascia Girders
3. Bearings
4. Ornamental Railing
5. Architectural Form Liner
6. Deck Drains

210 EXCAVATION: "Class 1 Excavation - Site 2" required for the BNSF Underpass Bridge includes all excavation required for bridge substructures, retaining walls, and pier crash & transition walls as shown in the plans. "Class 1 Excavation - Site 2" quantity includes all material below proposed subgrade of BNSF main lines, 42nd Ave, and slope paving subgrades. See Section 60 for additional details. Estimated quantity of 4,635 cubic yards provided for informational purposes only. Include the excavation costs as described above in the lump sum bid item, "Class 1 Excavation - Site 2".

210 FOUNDATION PREPARATION: If the Contractor elects to implement cofferdams or other independent shoring system for abutment, pier and/or retaining wall foundation construction, include the price of shoring in the lump sum cost of "Foundation Preparation - Site 2". The shoring is to be designed by the Contractor in accordance with the joint BNSF/UPRR Guidelines for Temporary Shoring published December 7, 2021. Include all work associated with dewatering for the BNSF Underpass Bridge construction in the lump sum price for "Foundation Preparation - Site 2". All dewatering work to adhere to SP 679(24).

210 FOUNDATION FILL: Provide foundation fill meeting the requirements of Section 816.02, Class 5 and compact to a minimum of 95% of the maximum dry density determined in accordance with the Standard Proctor compaction test (ASTM D698).

602 BRIDGE CONCRETE: Supply AE Portland Cement Concrete using well graded or optimized aggregates as specified in Section 802.02 B. Design a mix that meets Section 802 and will attain a minimum compressive strength of 4,000 psi at 28-days with the exception of fly ash as noted in section 602 notes.

The Engineer will verify the mix design using materials that are to be used on the project. Supply samples of materials as specified in the table below. Provide additional materials upon request.

Material	Sample Size
Cement	100 lbs
SCM	35 lbs
Aggregate	1000 lbs
Admixtures	½ pint each

Deliver the samples and the mix design, including the test results, to the Materials and Research Division a minimum of 14 calendar days before placing concrete. Attach a tag to all samples identifying the Department's project number and the type of material. On the day the material is delivered, provide the Engineer with a copy of the mix design and test results, and notify the Engineer the samples have been delivered.

602 WEATHER LIMITATIONS: The conditions of cold weather concreting exist when the air temperature has fallen to, or is expected to fall below, 40°F at any time in the curing period. All concrete work meeting these conditions is to be constructed in accordance with 602.04 C.4 "Weather Limitations", ACI 306R-16, and will require submittal of a cold weather concrete protection plan accepted by the NDDOT Bridge Division before placement of concrete. The Engineer's acceptance of the plan does not relieve the Contractor of the obligation to remove and replace concrete that is damaged due to not maintaining concrete temperature within the required range during the curing period or from exceeding the required rate of temperature reduction.

Submit a cold weather concrete protection plan in accordance with 602.04 C.4 "Weather Limitations" including, but not limited to, the following provisions for maintaining required curing temperatures:

1. Preheat the forms, in-place concrete, reinforcement bars, and items including the top flanges of beams to a minimum of 40°F when the temperatures of these surface areas are below freezing before placing concrete. Do not apply flames directly to concrete or steel.
2. Provide insulated forms, insulation, or heating and housing facilities to maintain a concrete surface temperature of between 50°F and 90°F during the curing period.
3. Protect all exposed concrete surfaces within the heated enclosures from drying and carbonation throughout the curing period. Vent the heated enclosures to prevent the buildup of carbon dioxide. Ensure a reasonably uniform temperature throughout the enclosure.
4. Keep the forms, insulation, and housing enclosure in place until the completion of the curing period as defined in 602.04 F.1.
5. Provide a concrete temperature monitoring system for all cold weather concrete work performed. Monitor temperatures hourly throughout the curing period and provide written documentation to the Engineer.
6. Gradually discontinue the use of cold weather protection so the rate of temperature reduction adjacent to the concrete surfaces does not exceed 20°F during any 12 hour period until the surface temperature reaches the ambient air temperature.

602 FLY ASH: For all concrete, incorporate 12% (min.) to 15% (max.) fly ash by weight.

602 CONCRETE AGGREGATE TESTING: In addition to aggregate testing in Section 802 of the Standard Specifications for Road and Bridge Construction, AASHTO T 303 will be conducted. The contractor must have coarse and fine aggregates used in concrete be tested for alkali silica reactivity by an independent lab. If the average of the test results show an expansion greater than 0.10 percent then the aggregate will not be allowed for use on the project. Test results must be given to the engineer at least 30 calendar days before the aggregate is used on the project.

The aggregate tested must be from the stockpiled material used for the project.

REGISTERED PROFESSIONAL ENGINEER
TRAVIS M. SCHAFER
PE-40826
Digitally signed by Travis Schafer
DATE Date: 2026.01.29 11:01:28-06'00'
NORTH DAKOTA

BNSF Grand Forks Subdivision
LS 32, MP 110.067

Over 42nd Street

STRUCTURAL NOTES

DRAWING NO. 0297-000.303 N B-3

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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602 CONCRETE COARSE AGGREGATE SIZE: The mix design for the concrete deck shall use size 5 coarse aggregate in accordance with 802.02 B.2 "Coarse Aggregate".

602 FORMLINERS: Include the cost to provide and install the form liners in the price bid for the appropriate concrete bid items.

602 REMOVAL OF FORMS: Leave deck slab forms in place for a minimum of 1 day after completion of the curing period and the bridge deck concrete has reached 70 percent of the required design strength.

602 SPECIAL SURFACE FINISH: Clean the surfaces that are to receive the Tex-Cote surface finish using sandblasting, shot blasting, or water-washing equipment to remove all dirt, grease, oil, efflorescence, and laitance. Ensure any curing compounds and release agents have been completely removed from the surfaces to receive the Tex-Cote surface finish.

Apply Tex-Cote XL 70 Bridge Cote with Silane to the areas listed below. Apply the surface finish in accordance with the manufacturer's recommended application procedures to attain a dry film thickness of 15 mils. Do not apply Tex-Cote special surface finish to any form liner areas.

All exposed substructure and retaining walls surfaces
Outside edges of the bridge deck
Underside of the bridge deck overhang
Outside and bottom surfaces of the fascia beams
All exposed ballast curb surfaces

Apply the surface finish in accordance with the manufacturer's recommended application procedures to attain a dry film thickness of 15 mils. Do not apply Tex-Cote special surface finish to any form liner areas.

Finish the surface with a uniform texture, color, and appearance free from fins, projections, cavities, and porous areas. Use a sand textured finish. Use Tex-Cote "Sandalwood T-114" standard decorative finish color for all surfaces. Submit to the Engineer a Tex-Cote color chip card with a declaration of conformity along with a 1'x1' sample of each surface finish.

Include all special surface finish costs in the price bid for the appropriate concrete bid items.

602 DECK PLACEMENT: Do not place deck concrete until the entire deck is formed. Place the deck concrete at a minimum rate of 25 CY per hour.

602 BRIDGE DECK CURING: Cure the bridge deck with the wet-cure method. No work is to be done on the bridge deck while the wet cure is in progress, including forming the ballast curbs. No vehicles or equipment not required in the curing process may be on the bridge deck. Do not cover the wet cure burlap with a waterproof material such as polyethylene during the curing period.

602 PENETRATING WATER REPELLENT TREATMENT: Apply penetrating water repellent to the bridge abutment and pier seats.

602 WATER WASHING EQUIPMENT: In addition to the water-washing equipment listed in Section 602.02 D, a cold water pressure washer that provides a minimum nozzle pressure of 3,000 psi may be used.

616 PAINT AND PAINTING: Paint structural steel color No. 30108 (Red Brown, Walnut Brown) in accordance with AMS-STD-595. Include the price of paint and painting of steel superstructure in the lump cost of "Structural Steel".

616 STRUCTURAL STEEL: Include the cost of fabricating, furnishing, and erecting the steel girders and diaphragms in the lump sum bid for this item. Include the cost for fabricating and furnishing the bearing stiffeners, and intermediate stiffeners in the lump sum bid for this item. The estimated weight of steel is 1,151,124 lbs and does not include weight of welds, bolts, studs or deductions for holes.

Steel for the superstructure, as indicated on the bridge plans, will be supplied by the Contractor. Include the cost of loading, hauling, unloading, and erecting the structural steel in the lump sum bid for this item. The Contractor must take care not to damage the steel during the loading, hauling, unloading and erecting operations. Repair to damaged steel during the loading, hauling, unloading, or erecting operations will be at the Contractor's expense.

Perform the Charpy V-notch toughness test on all main load carrying members subject to tensile stress indicated by Δ on Dwg 0297-000.303 N B-39 and Dwg 0297-000.303 N B-40. Meet the requirements of AREMA Table 15-9-2 for Zone 3.

Contractor shall utilize AISC certified steel fabricator for all structural steel.

Use weld metal equivalent to the base metal in strength, corrosion resistance and weathering appearance. Clean all surfaces per SSPC-SP6. Follow AREMA standards for fabrication and workmanship.

The mechanical properties and installation of the stud shear connectors will conform to the latest AREMA Manual and AASHTO/AWS D1.5 Bridge Welding Code, Section 9.

Perform stud bend tests as prescribed in AREMA Section 15.1.7.9.3.3. No more than 500 studs should be welded without the welds being field bend tested according to the specified procedure. The Contractor may leave in the bent position tested studs that show no sign of failure, as determined by the Engineer.

616 STRUCTURAL STEEL INSPECTION: An independent fabrication inspector is required. At least 10 weeks prior to the start of fabrication, provide the Engineer with a list of the steel fabricators that will supply structural steel for the project. Include the names and addresses of the fabrication facilities for all structural steel members to be fabricated. NDDOT shall solicit and pay for independent inspector and confirm selected inspector is acceptable to BNSF.

622 PILING: Drive piling using a diesel hammer meeting the minimum specifications listed below for each substructure unit. The operating energy is the energy a hammer is capable of producing during pile driving under actual project conditions, and shall be estimated to be no greater than 90% of the hammer's maximum rated energy as specified in the manufacturer's literature. Submit specifications for all pile hammers proposed for use on the project to the Engineer for review at least 14 calendar days prior to beginning of pile driving operations.

Abutment Piling:	Minimum Ram Weight = 9,500 lbs
	Minimum Operating Energy = 60,000 foot-pounds
Pier Piling:	Minimum Ram Weight = 9,500 lbs
	Minimum Operating Energy = 60,000 foot-pounds

Run the hammer at an energy that produces a penetration at bearing between 1/2" and 3 inches in the last 10 blows.

REGISTERED PROFESSIONAL ENGINEER
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BNSF Grand Forks Subdivision
LS 32, MP 110.067

Over 42nd Street

STRUCTURAL NOTES

DRAWING NO. 0297-000.303 N B-4

STRUCTURAL NOTES

622 GROUND STABILIZATION PILING: Ground stabilization piling will not be measured for payment and will be paid at plan quantity. If piling is driven deeper than plan depth, no price adjustment will be considered.

752 ORNAMENTAL RAILING: Paint the ornamental fences after fabrication in accordance with SP 396 (24). Use the paint color No. 30108 (Red Brown, Walnut Brown) in accordance with AMS-STD-595. Include all costs associated with fabrication, assembly, galvanizing, painting and installation of the railings (including anchors) in the unit price bid for "Ornamental Fence". Provide Public Works two additional sections of Ornamental Fence Panel - Type A for later use in the event of damage.

930 ELASTOMERIC BEARING PAD: The reinforcing elastomeric bearing pads will meet the requirements of AREMA Manual for Railway Engineering and meet the requirements of ASTM D2137 using -40°C. The elastomeric material will have hardness of 60 durometer.

980 BALLAST: Reference Section 170c for specifications, notes and quantities for ballast, filter fabric, and CL5 aggregate.

DESIGN LOAD:

Live Load = Cooper E-80 or 100 kip (4 Axle) Alternate
Impact = AREMA for rolling equipment without hammer blow
Other Loads = AREMA
Maximum Ballast Depth = 30 inches (Ballast curb accomodates 24" of ballast. If additional ballast is pursued, curb modifications may be required.)

DESIGN GUIDELINE:

AREMA 2024 Manual for Railway Engineering.
All welding will be in accordance with the AREMA Manual and the ANSI/AASHTO/AWS D1.5-2020 Bridge Welding Code.

DESIGN STRESSES:

Design stresses for the following materials are in accordance with the AREMA Manual.
Structural steel in accordance with AREMA, Chapter 15 "Steel Structures", ASTM A709 GR. 50 T3, Fy = 50,000 PSI.
Reinforced concrete and reinforcing steel in accordance with AREMA, Chapter 8 "Concrete Structures and Foundations", ASTM A615 Fy = 60,000 PSI.
Steel Piling in accordance with ASTM A572 GR. 50 Fy = 50,000 PSI

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BRIDGE BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
210	0103	CLASS 1 EXCAVATION-SITE 2	L SUM	1
210	0203	FOUNDATION PREPARATION-SITE 2	L SUM	1
210	0210	FOUNDATION FILL	CY	2,540
258	0100	CONCRETE SLOPE PROTECTION	SY	551
602	0500	BRIDGE SUBSTRUCTURE CONCRETE	CY	1,504.6
602	1120	SUPERSTRUCTURE CONCRETE	CY	420.3
602	1250	PENETRATING WATER REPELLENT TREATMENT	SY	123.6
604	9550	PRESTRESSED CONCRETE FASCIA GIRDER	LF	192
612	0115	REINFORCING STEEL-GRADE 60	LBS	108,093
612	0116	REINFORCING STEEL-GRADE 60-EPOXY COATED	LBS	250,185
616	5890	STRUCTURAL STEEL	L SUM	1
616	7000	A36 STEEL-ROLLED	LBS	9,605
622	0068	STEEL PILING HP 14 X 89	LF	24,071
622	0076	STEEL PILING HP 14 X 117	LF	10,920
622	0268	GROUND STABILIZATION PILING 14 X 89	LF	3,976
752	0850	ORNAMENTAL FENCE	LF	527
770	9402	LIGHTING SYSTEM (AESTHETIC)	L SUM	0.5
930	3051	BEARINGS - TYPE I	EA	44
930	3052	BEARINGS - TYPE II	EA	44
930	9535	DECK DRAINAGE SYSTEM	L SUM	1
930	9537	ABUTMENT UNDERDRAIN SYSTEM	EA	2

NOTES:

1. A36 steel-rolled bid item includes toe kick angles and steel apron plates.
2. All apron plates and hardware to be galvanized surface finish only. Galvanize all apron plates and hardware in accordance with Section 854.
3. Quantity of Ornamental Fence includes additional panels as depicted in Note 752.
4. Provide deck waterproofing system conforming to SP 599(24). Include all material and work in the unit bid item, "SUPERSTRUCTURE CONCRETE".

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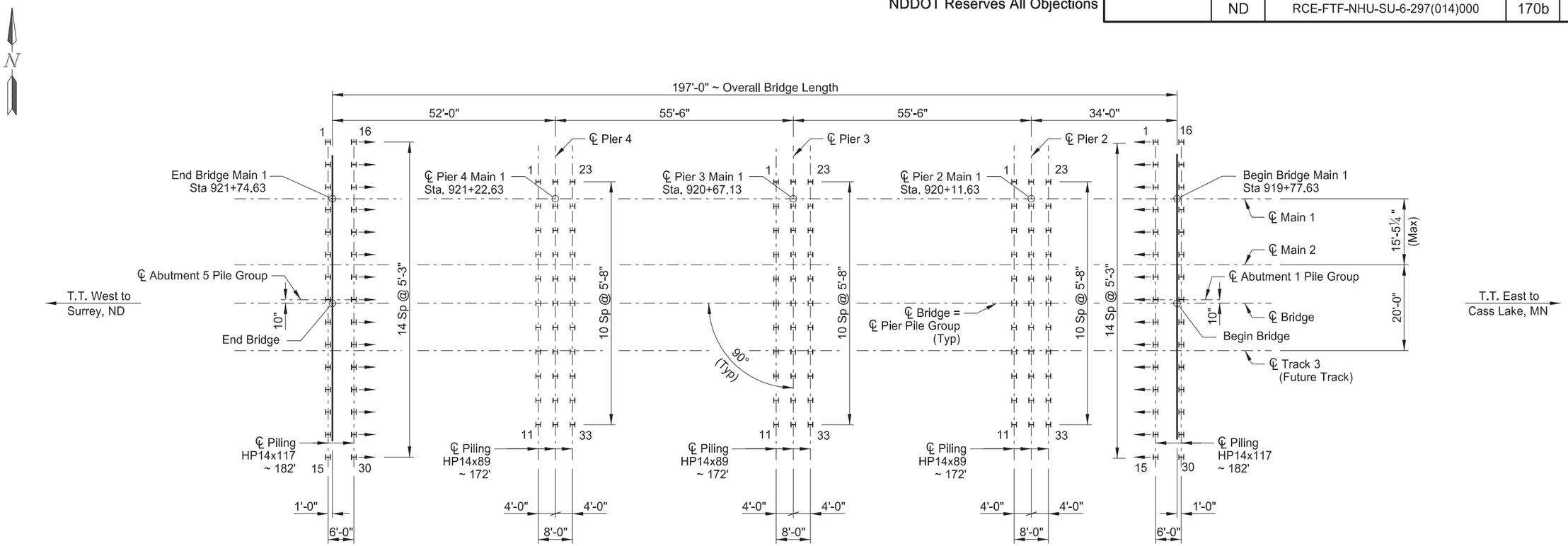
Over 42nd Street

STRUCTURAL NOTES &
BID ITEM QUNATITIES

DRAWING NO. 0297-000.303 N B-5

23 U.S.C. § 407 Documents
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PILING LAYOUT

Drive HP14x117 bridge piles to 160 tons. (Abut 1: 1-30, Abut 5: 1-30)
Drive HP14x89 bridge piles to 160 tons. (Pier 2: 1-33, Pier 3: 1-33, Pier 4: 1-33)

℄ BRIDGE COORDINATES		
LOCATION	NORTHING	EASTING
Begin Bridge	353,615.62	2,805,229.21
End Bridge	353,607.49	2,805,032.38

FOUNDATION PILE COORDINATES							
	PILE	NORTHING	EASTING		PILE	NORTHING	EASTING
ABUT 1	1	353,652.97	2,805,222.66	PIER 4	1	353,637.78	2,805,079.17
	15	353,579.53	2,805,225.69		11	353,581.17	2,805,081.51
	16	353,653.22	2,805,228.65		23	353,638.12	2,805,087.16
	30	353,579.78	2,805,231.68		33	353,581.50	2,805,089.50
PIER 2	1	353,642.67	2,805,190.07	ABUT 5	1	353,645.00	2,805,029.83
	11	353,585.75	2,805,192.41		15	353,571.57	2,805,032.86
	23	353,642.70	2,805,198.07		16	353,645.25	2,805,035.82
	33	353,586.08	2,805,200.41		30	353,571.82	2,805,038.85
PIER 3	1	353,640.08	2,805,134.62				
	11	353,583.46	2,805,136.96				
	23	353,640.41	2,805,142.61				
	33	353,583.79	2,805,144.95				

NOTES:

1. For double acting or single acting diesel hammers, calculate the safe bearing value of piles by the following formula:

$$P = \frac{3.5E}{S + 0.2} \times \frac{W + 0.2M}{W + M}$$

Where:
P = Safe bearing value, in pounds.
W = Weight of striking parts (ram), in pounds.
M = Weight of parts being driven, in pounds. Includes pile weight, anvil (if any), driving cap, etc.
E = Energy per blow, in foot-pounds.
S = Average penetration of pile in inches per blow for last ten blows.

For single acting hammers, calculate E by multiplying observed stroke (ft) and W (lbs).

2. Arrow indicates direction of pile batter.
Pile batter is 1:12 at locations shown at Abut 1.
Pile batter is 2:12 at locations shown at Abut 5.

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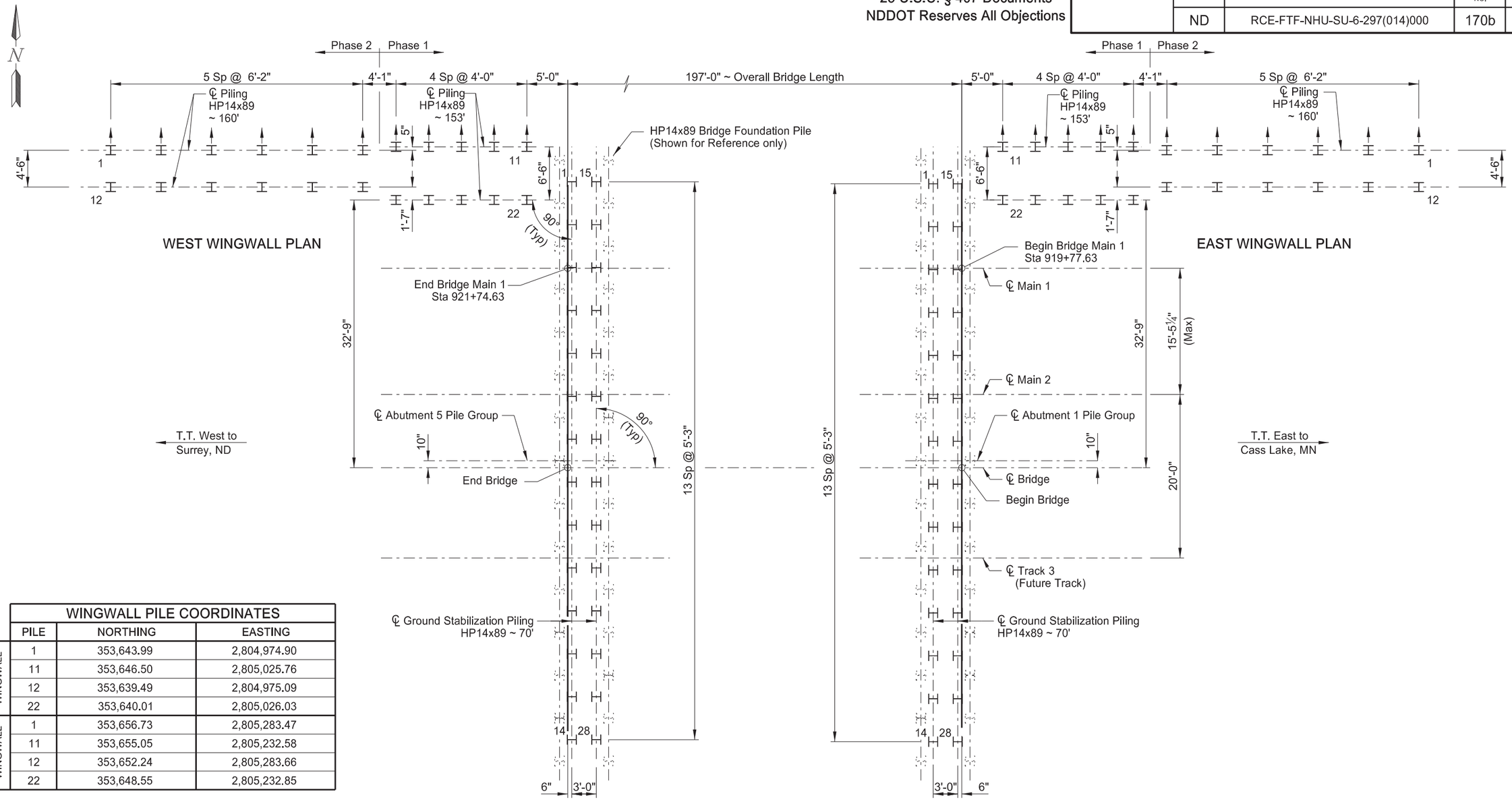
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PILING LAYOUT

DRAWING NO. 0297-000.303 N B-6

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WINGWALL PILE COORDINATES			
	PILE	NORTHING	EASTING
WEST WINGWALL	1	353,643.99	2,804,974.90
	11	353,646.50	2,805,025.76
	12	353,639.49	2,804,975.09
	22	353,640.01	2,805,026.03
EAST WINGWALL	1	353,656.73	2,805,283.47
	11	353,655.05	2,805,232.58
	12	353,652.24	2,805,283.66
	22	353,648.55	2,805,232.85

GROUND STABILIZATION PILE COORDINATES			
	PILE	NORTHING	EASTING
ABUT 1	1	353,650.41	2,805,224.26
	14	353,582.22	2,805,227.08
	15	353,650.53	2,805,227.26
	28	353,582.34	2,805,230.08
ABUT 5	1	353,642.44	2,805,031.43
	14	353,574.25	2,805,034.25
	15	353,642.57	2,805,034.43
	28	353,574.38	2,805,037.25

PILING LAYOUT

Drive HP14x89 ground stabilization piles to a tip elev. of 747.00 (or lower). (Abut 1: 1-28, Abut 5: 1-28)
Drive HP14x89 wingwall piles to 97 tons.

NOTES:

1. Arrow indicates direction of wingwall pile batter. Wingwall pile batter is 3:12 at locations shown.

2. Phase 1 piles and concrete placement must be completed and backfilled to bottom of Phase 2 concrete footing prior to driving Phase 2 piles and concrete placement.

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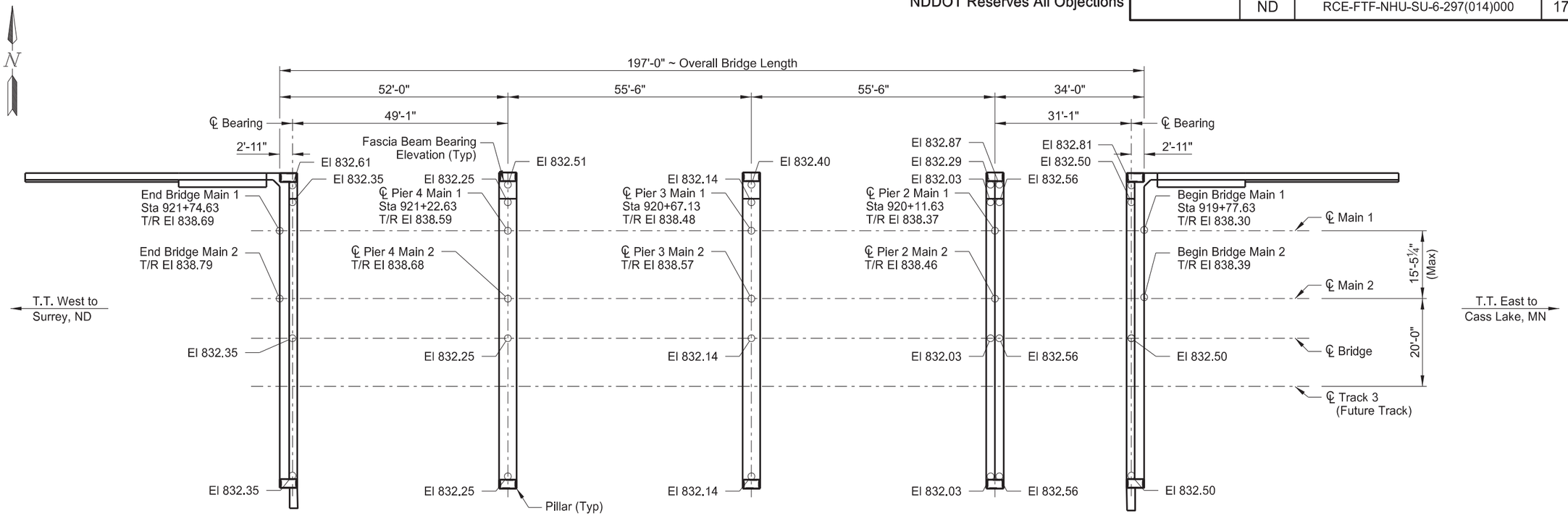
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PILING LAYOUT

DRAWING NO. 0297-000.303 N B-7

23 U.S.C. § 407 Documents
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BEARING ELEVATIONS

Elevations shown are top of finished concrete.

NOTE:

T/R = Top of Rail

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Over 42nd Street

BEARING ELEVATIONS

DRAWING NO. 0297-000.303 N B-8

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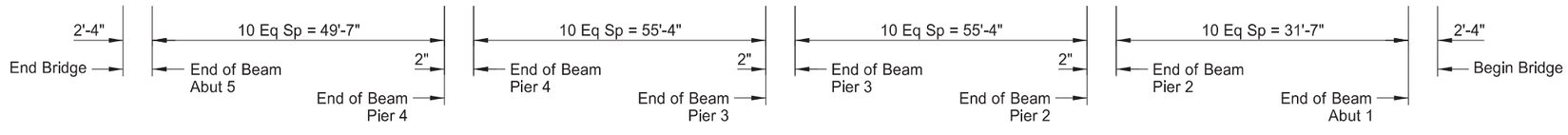
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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℄ BRIDGE (Crown)	℄ BEAM 12	℄ BEAM 13	℄ BEAM 14	℄ BEAM 15	℄ BEAM 16	℄ BEAM 17	℄ BEAM 18	℄ BEAM 19	℄ BEAM 20	℄ BEAM 21	℄ BEAM 22
836.83	836.82	836.81	836.79	836.78	836.76	836.75	836.73	836.72	836.70	836.68	836.67
836.83	836.82	836.80	836.79	836.77	836.76	836.74	836.74	836.73	836.72	836.71	836.66
836.82	836.82	836.80	836.80	836.77	836.75	836.74	836.74	836.73	836.73	836.71	836.66
836.82	836.81	836.80	836.80	836.77	836.75	836.74	836.75	836.74	836.74	836.72	836.67
836.82	836.81	836.80	836.78	836.76	836.75	836.74	836.75	836.74	836.74	836.72	836.67
836.81	836.80	836.79	836.77	836.76	836.74	836.73	836.75	836.74	836.74	836.72	836.67
836.80	836.80	836.78	836.77	836.75	836.73	836.72	836.74	836.73	836.73	836.71	836.66
836.79	836.78	836.77	836.75	836.74	836.72	836.71	836.73	836.72	836.72	836.70	836.65
836.78	836.77	836.76	836.74	836.72	836.71	836.69	836.72	836.71	836.71	836.69	836.64
836.76	836.75	836.74	836.72	836.71	836.69	836.68	836.71	836.70	836.70	836.68	836.63
836.74	836.74	836.72	836.71	836.69	836.68	836.66	836.70	836.69	836.69	836.67	836.63
836.73	836.72	836.70	836.69	836.67	836.66	836.64	836.69	836.68	836.68	836.66	836.62
836.73	836.72	836.70	836.69	836.67	836.66	836.64	836.68	836.68	836.67	836.66	836.62
836.73	836.72	836.71	836.71	836.68	836.66	836.64	836.68	836.68	836.68	836.67	836.62
836.73	836.72	836.71	836.70	836.68	836.66	836.64	836.68	836.68	836.68	836.67	836.62
836.72	836.71	836.70	836.69	836.67	836.65	836.64	836.68	836.68	836.68	836.67	836.62
836.71	836.70	836.69	836.68	836.66	836.64	836.63	836.68	836.68	836.68	836.67	836.62
836.70	836.69	836.68	836.66	836.65	836.63	836.62	836.68	836.68	836.68	836.67	836.62
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836.68	836.66	836.64	836.62	836.61	836.59	836.58	836.66	836.65	836.65	836.64	836.61
836.66	836.65	836.63	836.62	836.59	836.57	836.56	836.65	836.63	836.63	836.61	836.59
836.64	836.63	836.62	836.60	836.59	836.57	836.56	836.65	836.63	836.63	836.61	836.59
836.62	836.61	836.59	836.58	836.56	836.55	836.53	836.64

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℄ BEAM 1	℄ BEAM 2	℄ BEAM 3	℄ BEAM 4	℄ BEAM 5	℄ BEAM 6	℄ BEAM 7	℄ BEAM 8	℄ BEAM 9	℄ BEAM 10	℄ BEAM 11	℄ BRIDGE (Crown)
836.67	836.68	836.70	836.72	836.73	836.75	836.76	836.78	836.79	836.81	836.82	836.83
836.66	836.68	836.70	836.70	836.73	836.74	836.76	836.77	836.79	836.80	836.82	836.83
836.66	836.68	836.69	836.71	836.72	836.74	836.76	836.77	836.79	836.80	836.82	836.82
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836.66	836.67	836.69	836.70	836.72	836.73	836.75	836.76	836.78	836.80	836.81	836.82
836.65	836.67	836.68	836.68	836.71	836.73	836.74	836.76	836.77	836.79	836.80	836.81
836.64	836.66	836.67	836.67	836.70	836.72	836.73	836.75	836.77	836.78	836.80	836.80
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836.62	836.63	836.65	836.65	836.68	836.69	836.71	836.72	836.74	836.76	836.77	836.78
836.60	836.62	836.63	836.63	836.66	836.68	836.69	836.71	836.72	836.74	836.75	836.76
836.58	836.60	836.61	836.61	836.65	836.66	836.68	836.69	836.71	836.72	836.74	836.74
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836.57	836.58	836.60	836.60	836.61	836.64	836.66	836.67	836.69	836.71	836.72	836.73
836.57	836.58	836.60	836.61	836.63	836.64	836.66	836.67	836.69	836.71	836.72	836.73
836.57	836.58	836.60	836.61	836.63	836.64	836.66	836.68	836.69	836.72	836.73	836.73
836.56	836.58	836.60	836.61	836.63	836.64	836.66	836.67	836.69	836.70	836.72	836.73
836.55	836.57	836.58	836.59	836.61	836.64	836.65	836.67	836.68	836.70	836.71	836.72
836.54	836.55	836.57	836.58	836.60	836.63	836.64	836.66	836.67	836.69	836.70	836.71
836.52	836.54	836.55	836.57	836.58	836.62	836.63	836.65	836.66	836.68	836.69	836.70
836.50	836.52	836.53	836.55	836.56	836.58	836.59	836.61	836.62	836.64	836.65	836.66
836.48	836.49	836.51	836.52	836.54	836.56	836.57	836.59	836.60	836.62	836.63	836.64
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836.27	836.29	836.31	836.32	836.33	836.33	836.34	836.36	836.38	836.40	836.41	836.43



Beam 1 is the South beam.

SCREED ELEVATIONS

REGISTERED PROFESSIONAL ENGINEER
TRAVIS M. SCHAFER
PE-40826
Digitally signed by Travis Schafer
DATE Date: 2026.01.29 11:01:46-06'00'
NORTH DAKOTA

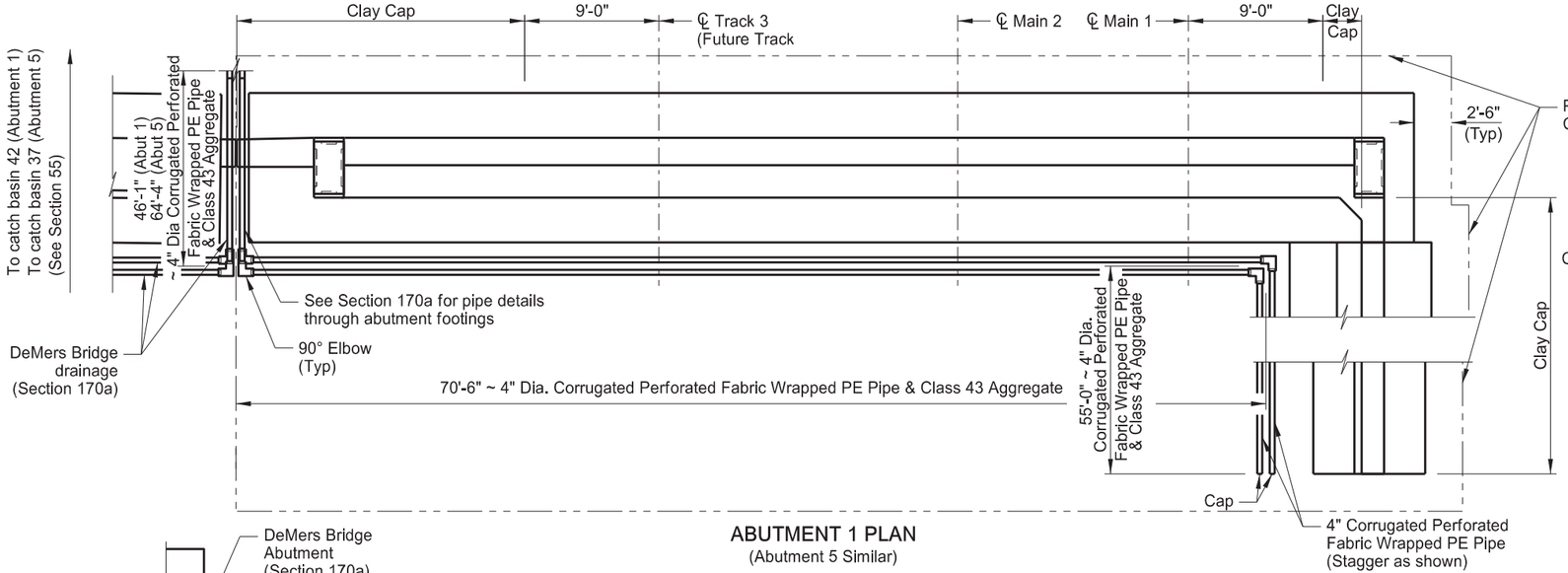
BNSF Grand Forks Subdivision
LS 32, MP 110.067

Over 42nd Street

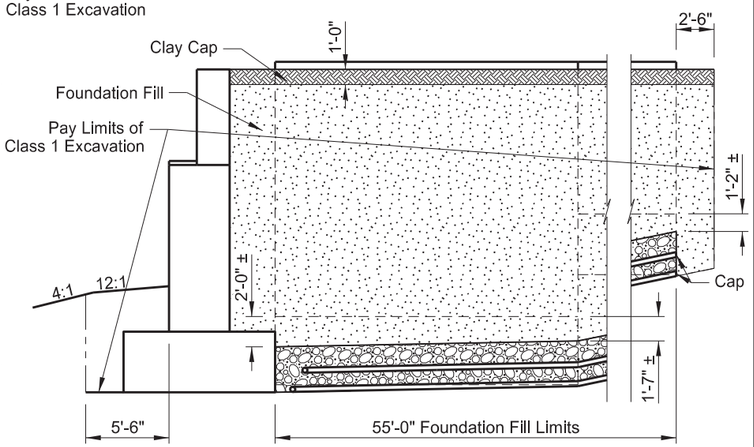
SCREED ELEVATIONS

DRAWING NO. 0297-000.303 N B-10

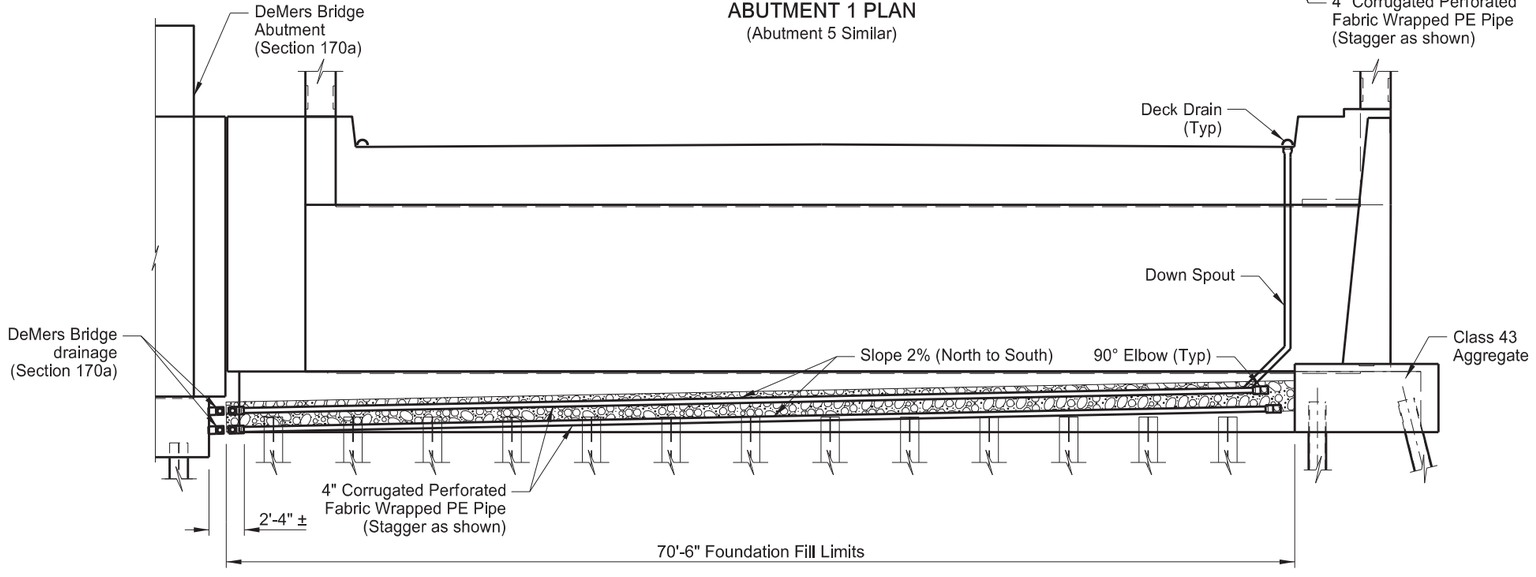
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	ND	RCE-FTF-NHU-SU-6-297(014)000	170b	11



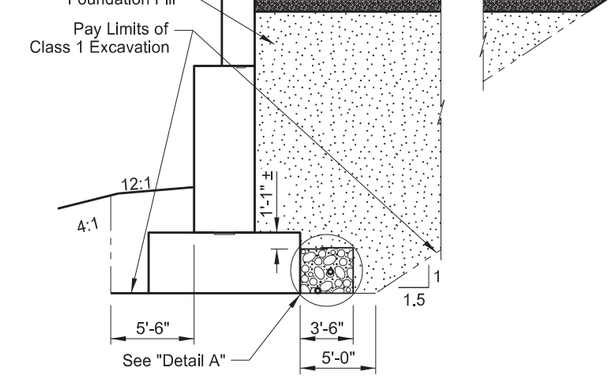
ABUTMENT 1 PLAN
(Abutment 5 Similar)



DETAIL NEAR WINGWALL AT ABUTMENT 1



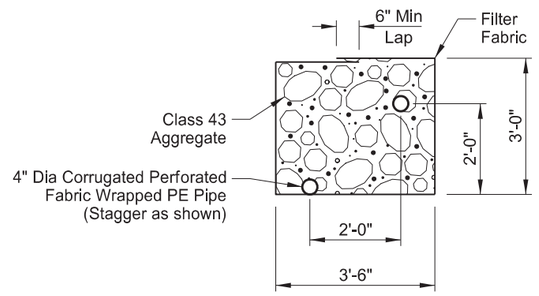
BACK FACE OF ABUTMENT 1
(Abutment 5 Similar)



DETAIL AT ℄ BRIDGE AT ABUTMENT 1
Abutment 1 Shown, Wingwall Similar

NOTES:

1. Use corrugated perforated fabric wrapped PE pipe that meets the requirements of Section 830.03 A.4. Provide fabric wrapping for the pipe the meets the requirements of Section 858.01 for D3 or D4 drainage fabric. Provide aggregate that meets the requirements of Section 816.03, Class 43. Provide foundation fill that meets the requirements of Section 210.
2. Include the cost to furnish and place aggregate and corrugated perforated pipe in the unit price bid item "Abutment Underdrain System".
3. The cost to furnish and place foundation fill shall be included in the unit price bid item "Foundation Fill".
4. Outlet Abutment 1 underdrains to catch basin 42. Outlet Abutment #5 underdrains to catch basin 37.
5. For additional deck drain and down spout details, see 0297-000.303 N B-55.



DETAIL "A"

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NORTH DAKOTA

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LS 32, MP 110.067

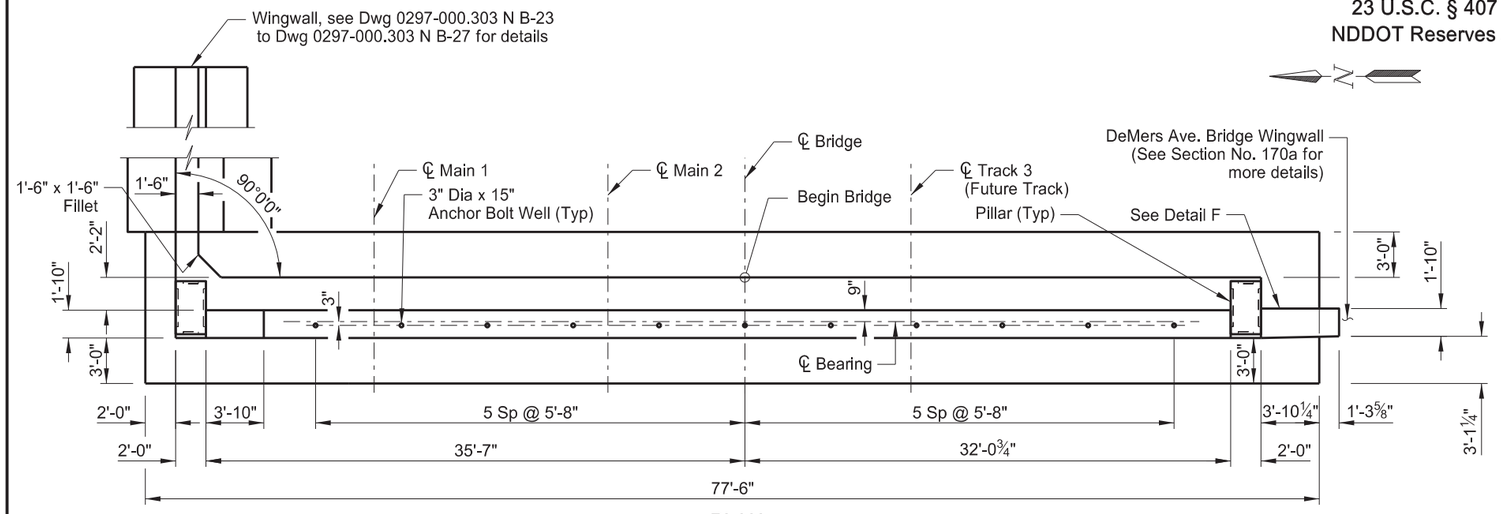
Over 42nd Street

ABUTMENT 1 & 5 UNDERDRAIN & EXCAVATION DETAILS

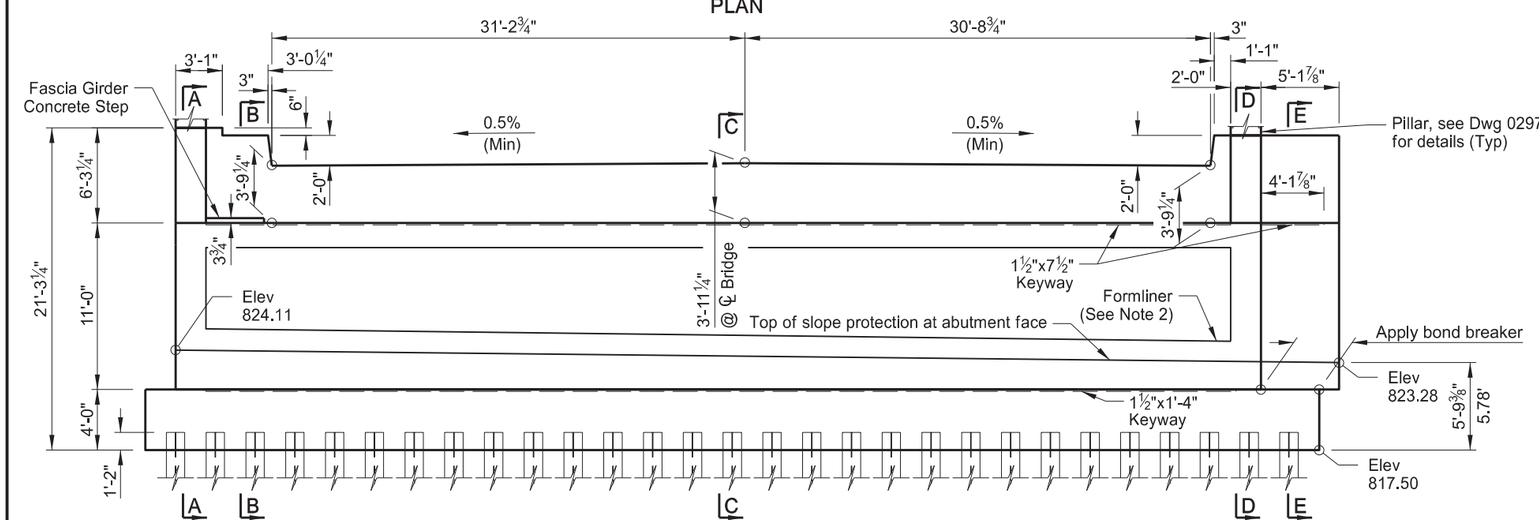
DRAWING NO.	0297-000.303 N B-11

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

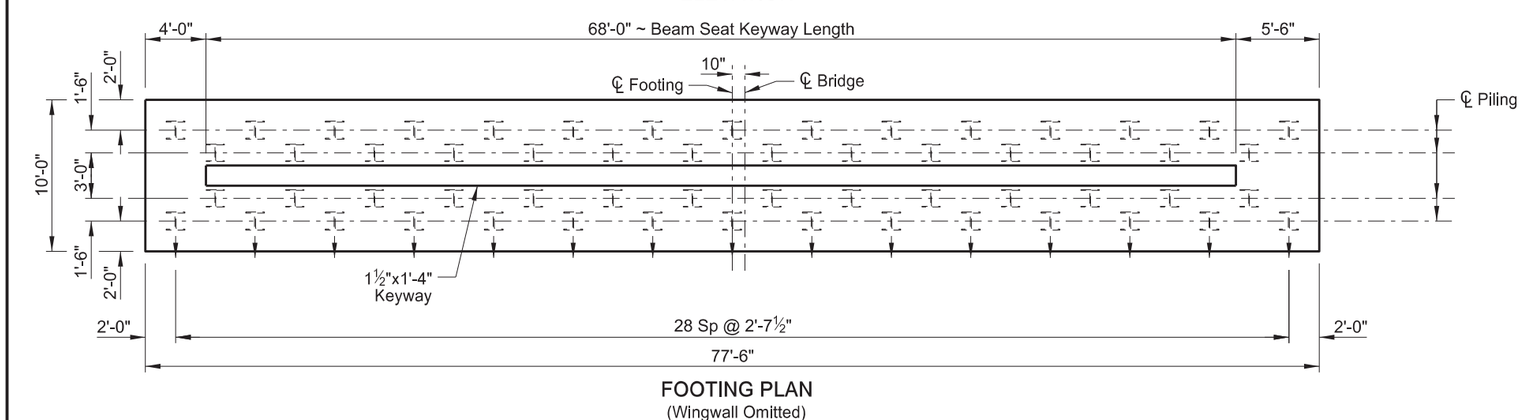
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	12



PLAN



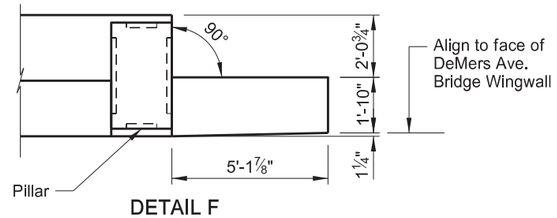
ELEVATION



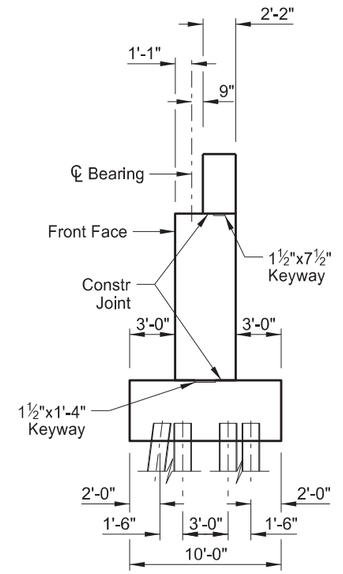
FOOTING PLAN
(Wingwall Omitted)

NOTES:

1. See Dwg 0297-000.303 N B-16 for Sections A-A, B-B, C-C, D-D and E-E.
2. See Dwg 297-000.303-62 through 67 for "Formliner Details".
3. See Dwg 297-000.303-2 for "Wingwall Joint Detail."
4. Anchor bolt wells shall be formed with 3" I.D. corrugated steel prestressing duct at locations shown on plans, which shall remain in the concrete.
5. Minimally adjust reinforcing as required to clear anchor bolt wells.



DETAIL F



SECTION AT ℄ BRIDGE

REGISTERED PROFESSIONAL ENGINEER
TRAVIS M. SCHAFER
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DATE Date: 2026.01.29 11:01:51-06'00'
NORTH DAKOTA

BNSF Grand Forks Subdivision
LS 32, MP 110.067

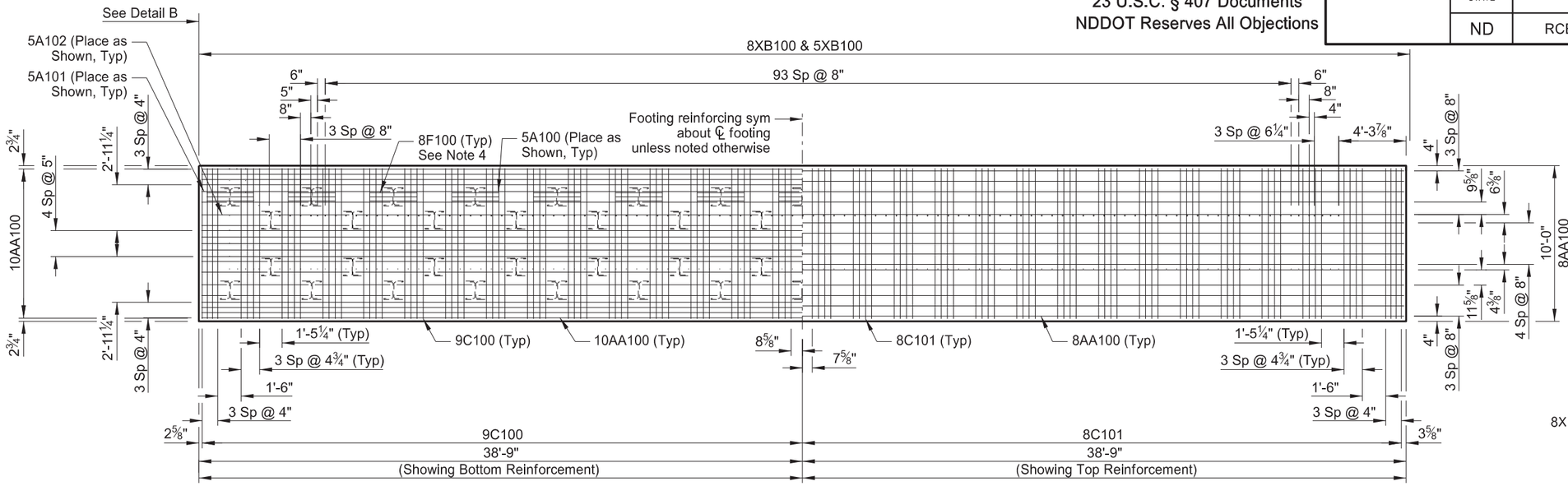
Over 42nd Street

ABUTMENT 1 DETAILS

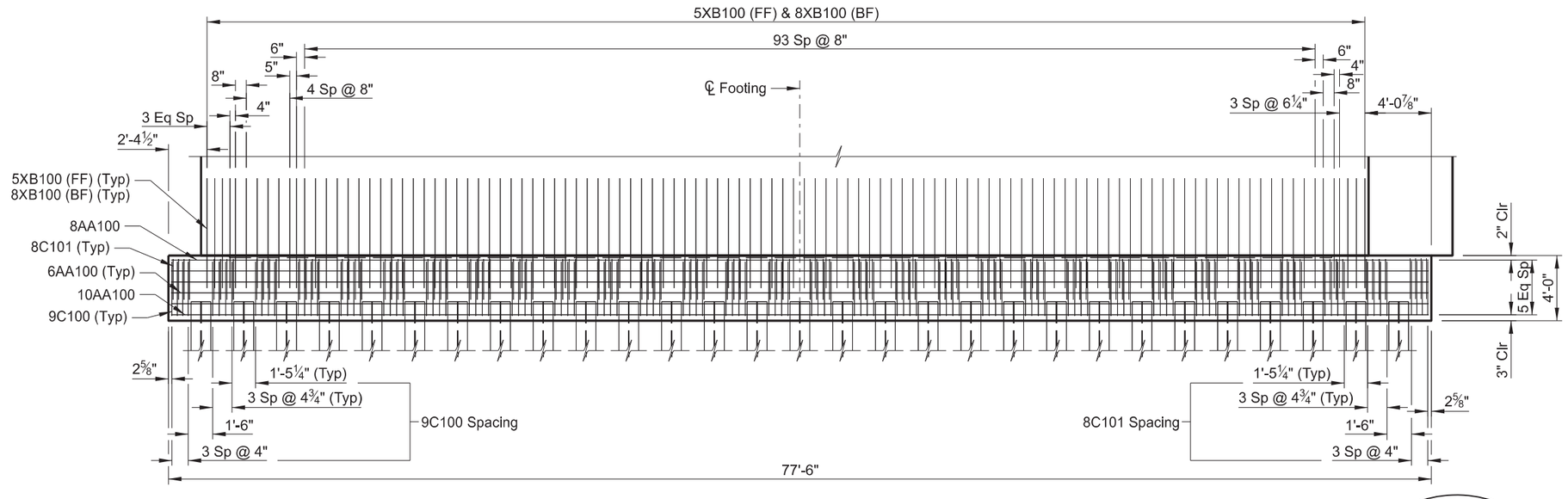
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

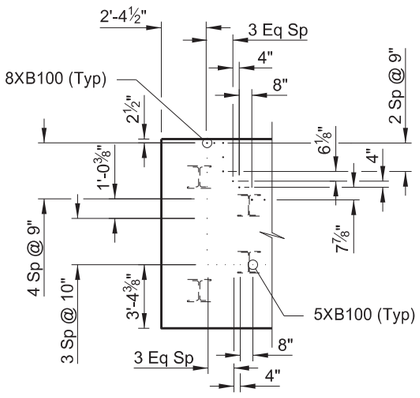
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	13



FOOTING PLAN



FOOTING ELEVATION



DETAIL "B"

NOTES:

1. All reinforcing steel will have a concrete cover of 2" unless otherwise noted.
2. FF = Front Face, BF = Back Face
3. Contractor to field verify all reinforcing spacing prior to concrete placement. Contractor shall minimally adjust spacing as required to clear obstructions or lap or tie bars.
4. See Dwg 0197-000.303 N B-25 for Pile Anchorage Details.

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BNSF Grand Forks Subdivision
LS 32, MP 110.067

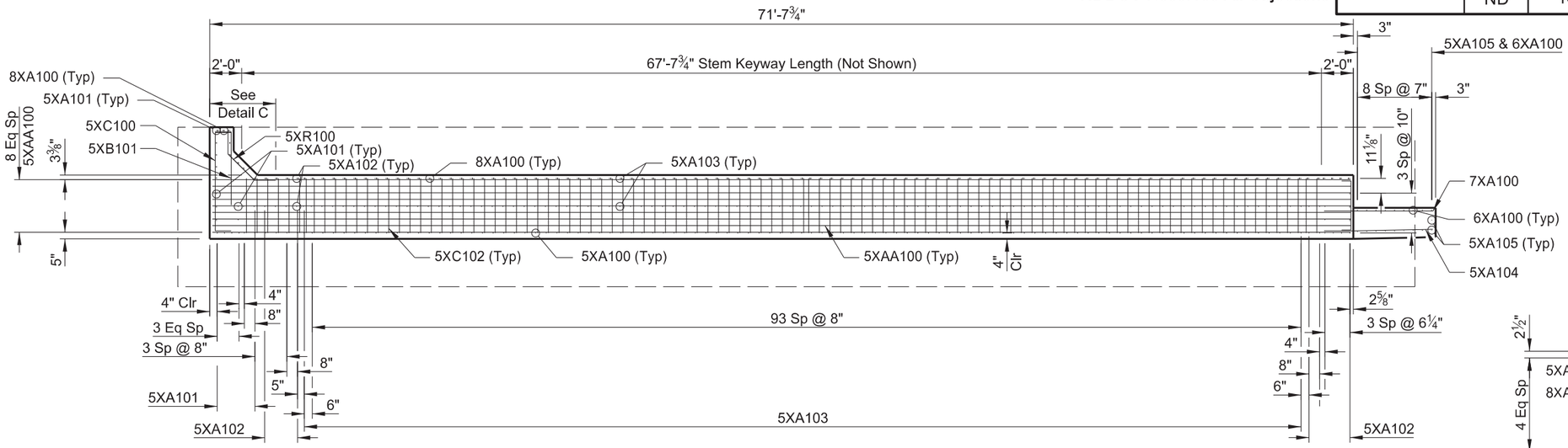
Over 42nd Street

ABUTMENT 1 FOOTING DETAILS
(Showing Reinforcing)

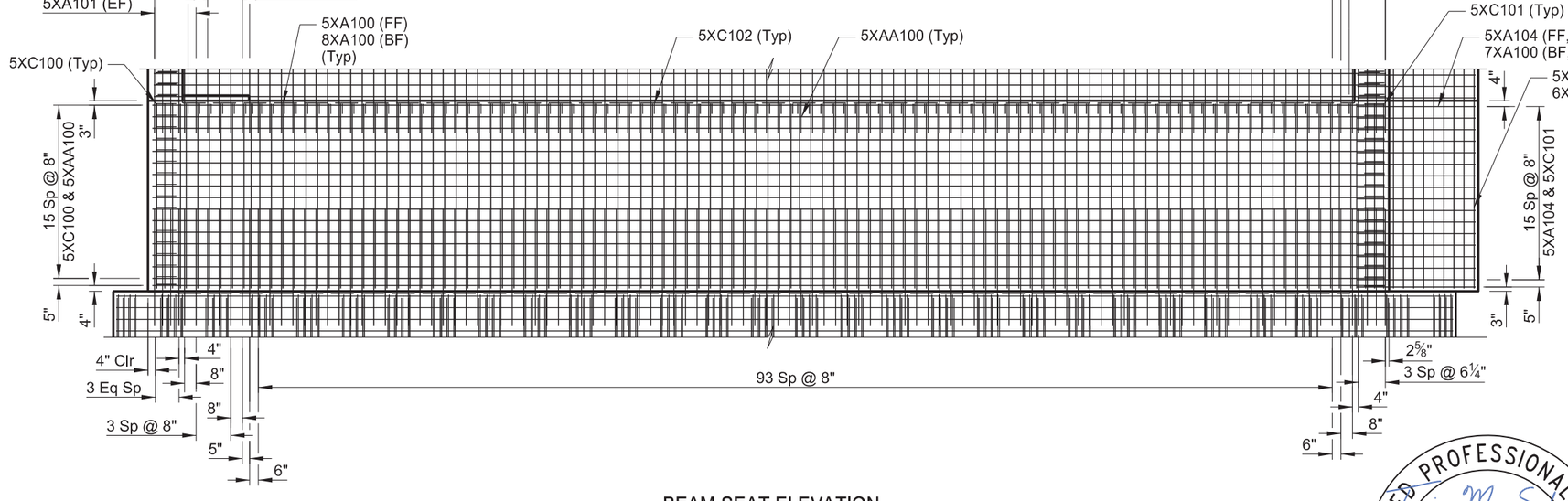
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

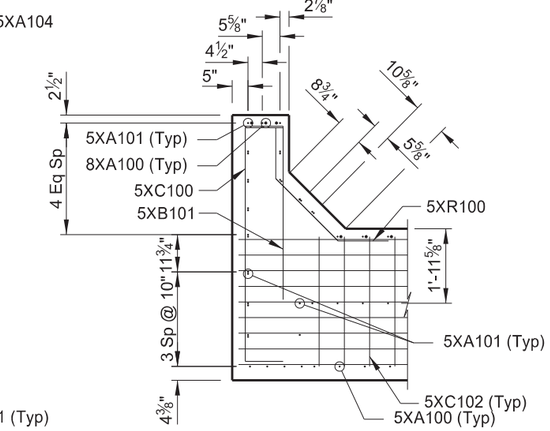
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	14



BEAM SEAT PLAN



BEAM SEAT ELEVATION



DETAIL "C"

NOTES:

1. All reinforcing steel will have a concrete cover of 2" unless otherwise noted.
2. FF = Front Face, BF = Back Face, EF = Each Face
3. Contractor to field verify all reinforcing spacing prior to concrete placement. Contractor shall minimally adjust spacing as required to clear obstructions or lap or tie bars.

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DATE Date: 2026.01.29 11:01:57-06'00'
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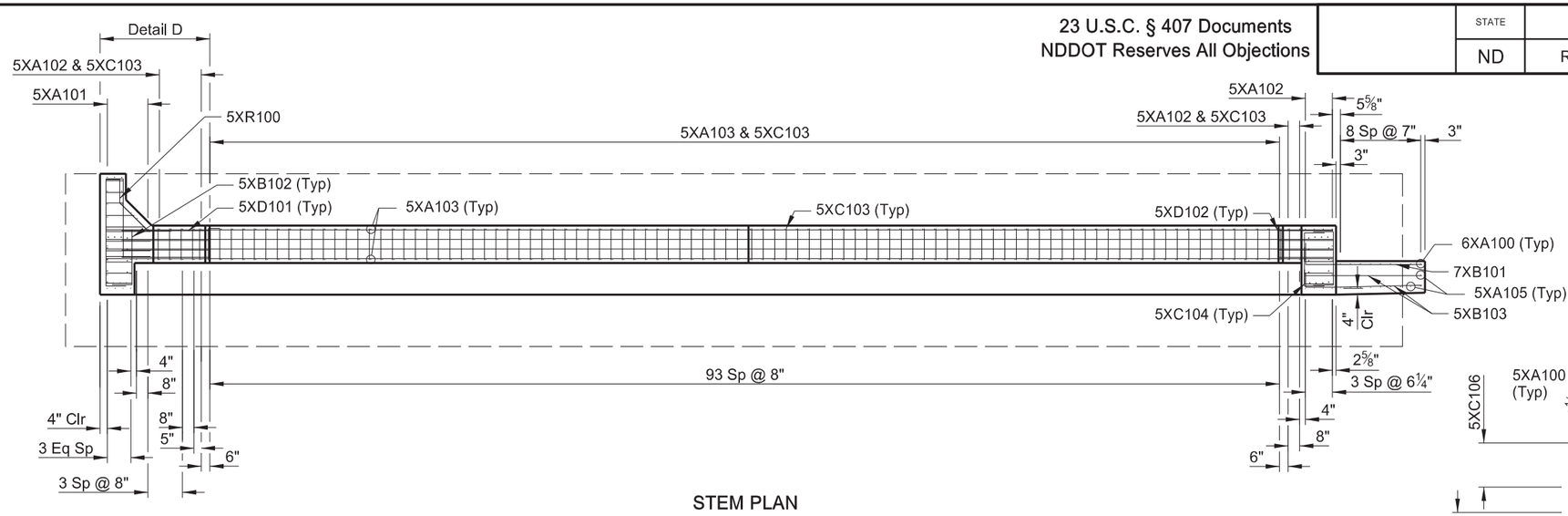
Over 42nd Street

ABUTMENT 1 BEAM SEAT DETAILS
(Showing Reinforcing)

DRAWING NO. 0297-000.303 N B-14

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

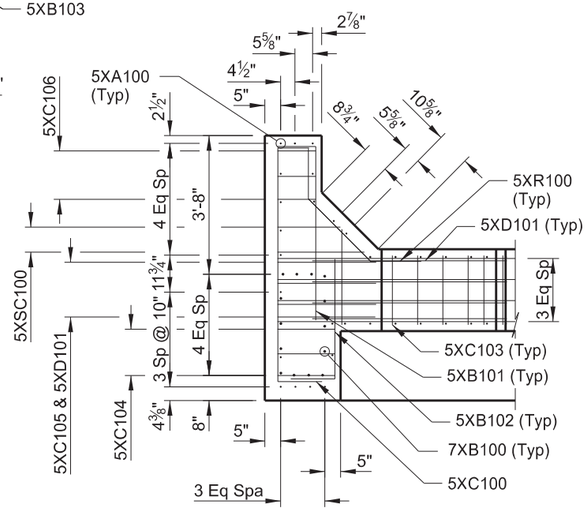
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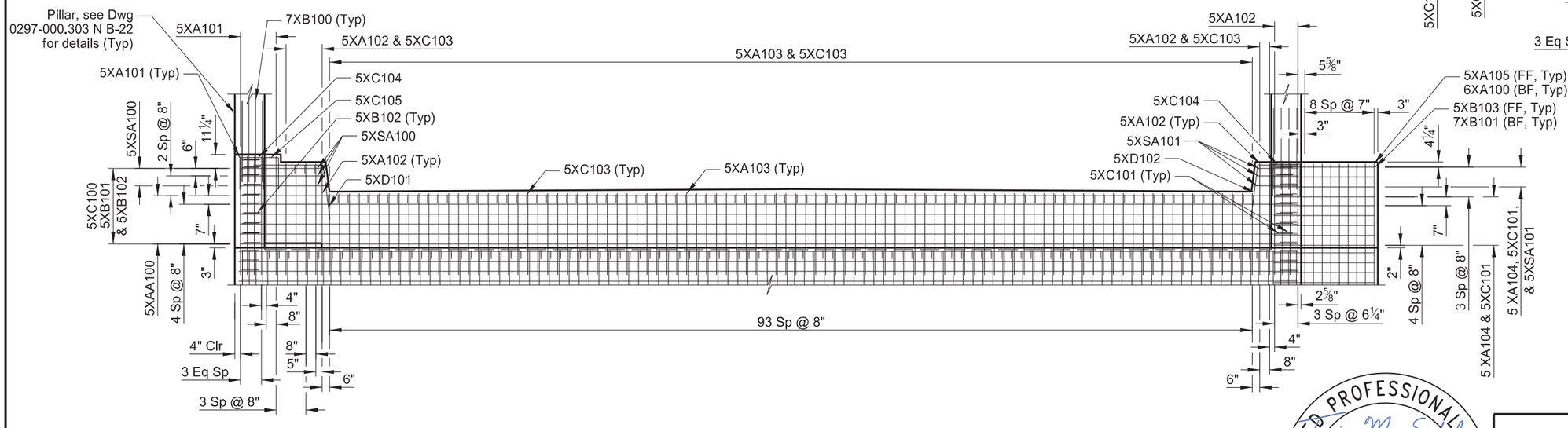
STEM PLAN

NOTES:

1. All reinforcing steel will have a concrete cover of 2" unless otherwise noted.
2. FF = Front Face, BF = Back Face
3. Contractor to field verify all reinforcing spacing prior to concrete placement. Contractor shall minimally adjust spacing as required to clear obstructions or lap or tie bars.



DETAIL "D"



STEM ELEVATION

REGISTERED PROFESSIONAL ENGINEER
TRAVIS M. SCHAFER
PE-40826
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DATE Date: 2026.01.29 11:01:59-06'00'
NORTH DAKOTA

BNSF Grand Forks Subdivision
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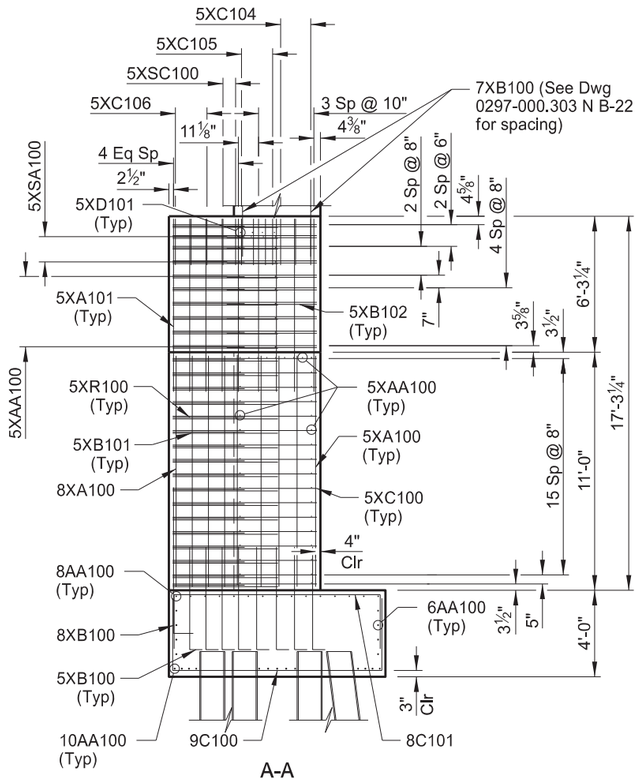
Over 42nd Street

ABUTMENT 1 STEM DETAILS
(Showing Reinforcement)

DRAWING NO. 0297-000.303 N B-15

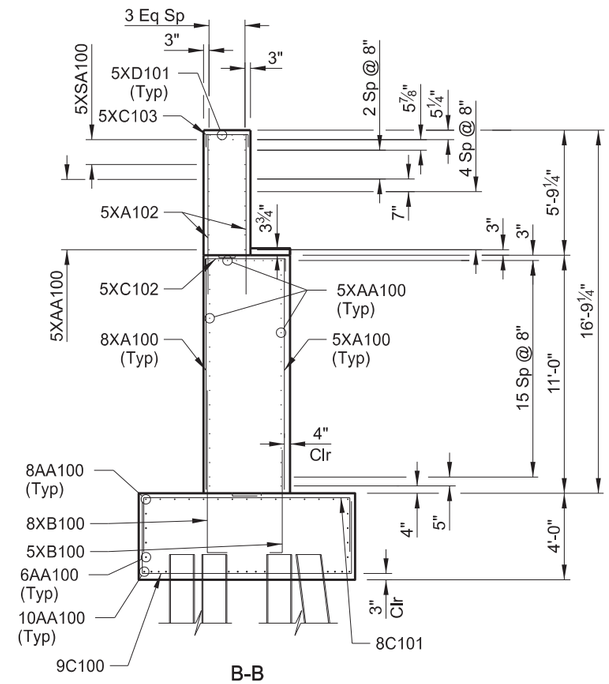
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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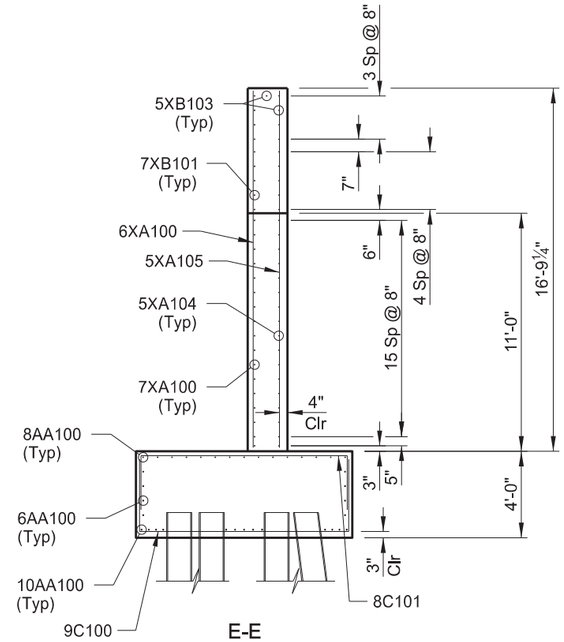


A-A

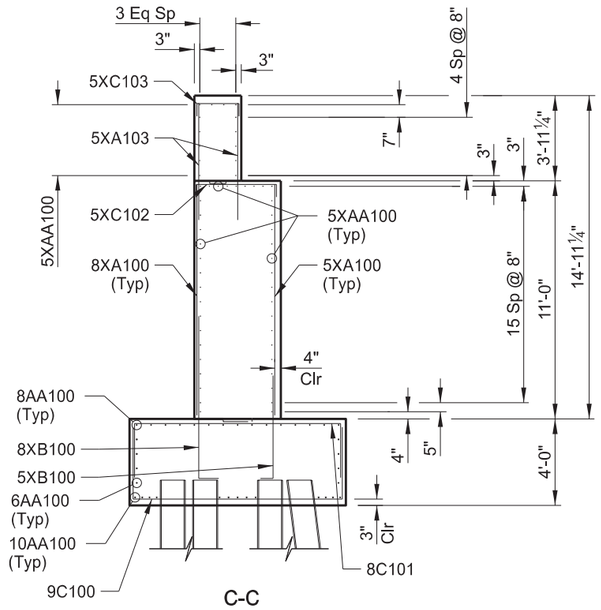
(Wingwall not shown for clarity, see Dwg 0297-000.303 N B-23 for details)



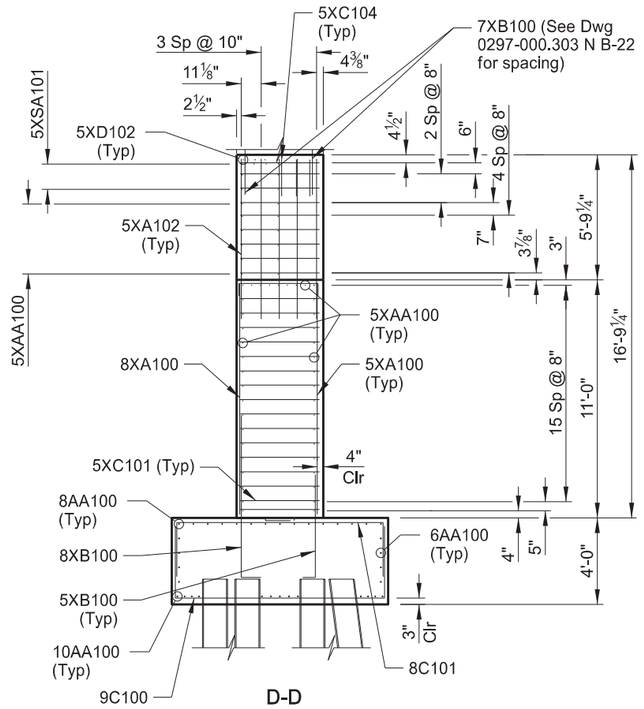
B-B



E-E



C-C



D-D

NOTES:

1. All reinforcing steel will have a concrete cover of 2" unless otherwise noted.
2. Contractor to field verify all reinforcing spacing prior to concrete placement. Contractor shall minimally adjust spacing as required to clear obstructions or lap or tie bars.

QUANTITIES	Abutment 1
BRIDGE SUBSTRUCTURE CONCRETE	269.5 CY
REINFORCING STEEL	21,450 LBS
REINFORCING STEEL (EPOXY)	17,046 LBS

REGISTERED PROFESSIONAL ENGINEER
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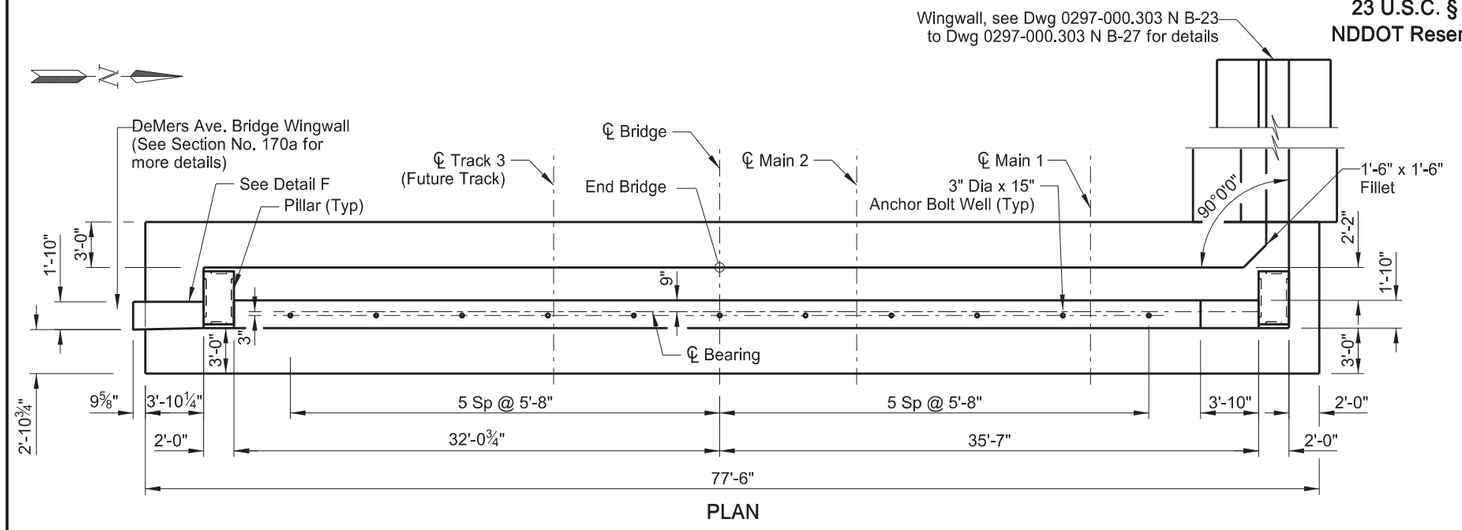
Over 42nd Street

ABUTMENT 1 DETAILS
(Showing Reinforcing)

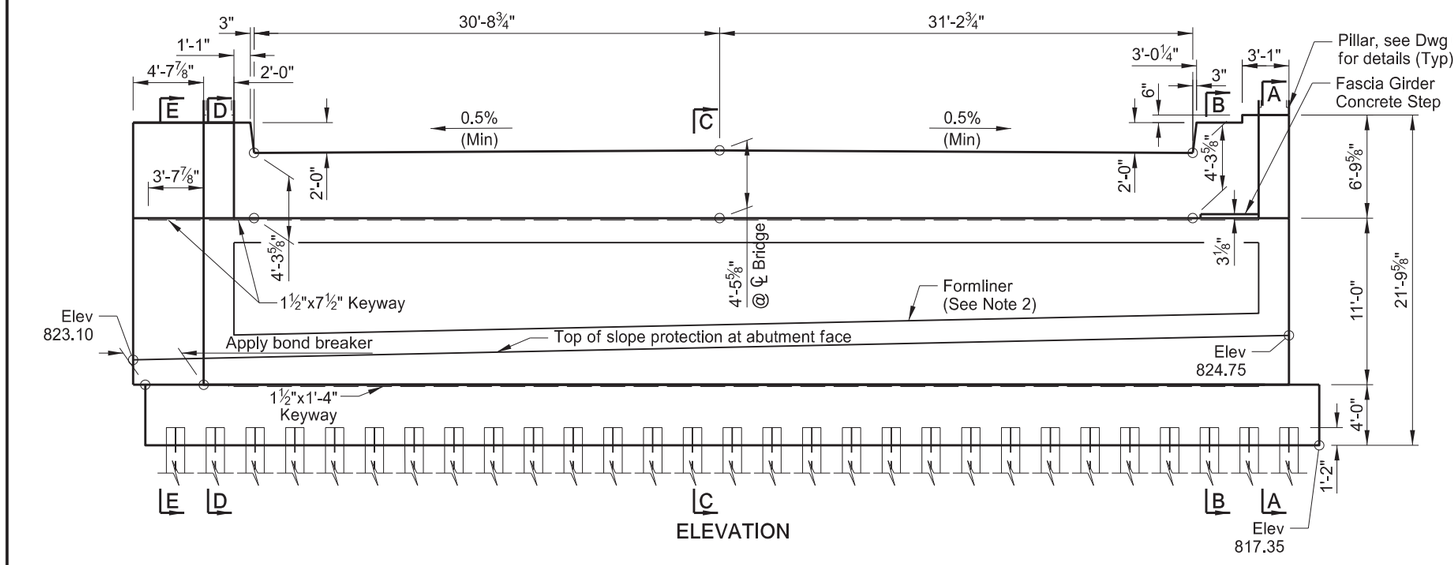
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23 U.S.C. § 407 Documents
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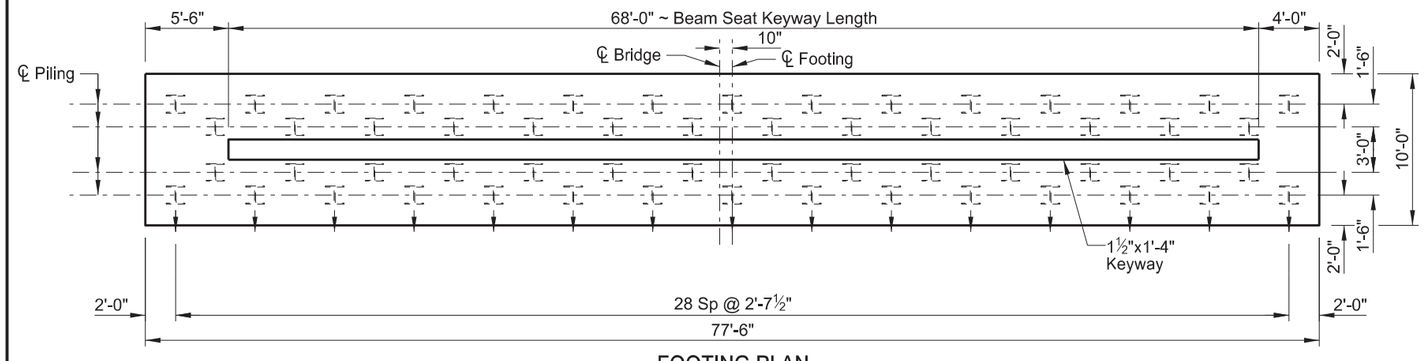
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PLAN



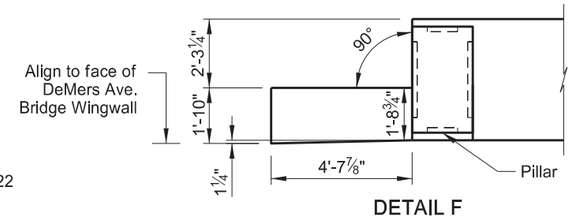
ELEVATION



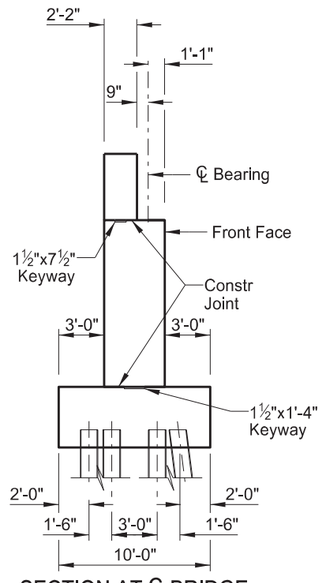
FOOTING PLAN
(Wingwall Omitted)

NOTES:

1. See Dwg 0297-000.303 N B-21 for Sections A-A, B-B, C-C, D-D and E-E.
2. See Dwg 297-000.303-62 through 67 for "Formliner Details."
3. See Dwg 297-000.303-2 for "Wingwall Joint Detail."
4. Anchor bolt wells shall be formed with 3" I.D. corrugated steel prestressing duct at locations shown on plans, which shall remain in the concrete.
5. Minimally adjust reinforcing as required to clear anchor bolt wells.



DETAIL F



SECTION AT ℄ BRIDGE

REGISTERED PROFESSIONAL ENGINEER
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PE-40826
Digitally signed by Travis Schafer
DATE Date: 2026.01.29 11:02:05-06'00'
NORTH DAKOTA

BNSF Grand Forks Subdivision
LS 32, MP 110.067

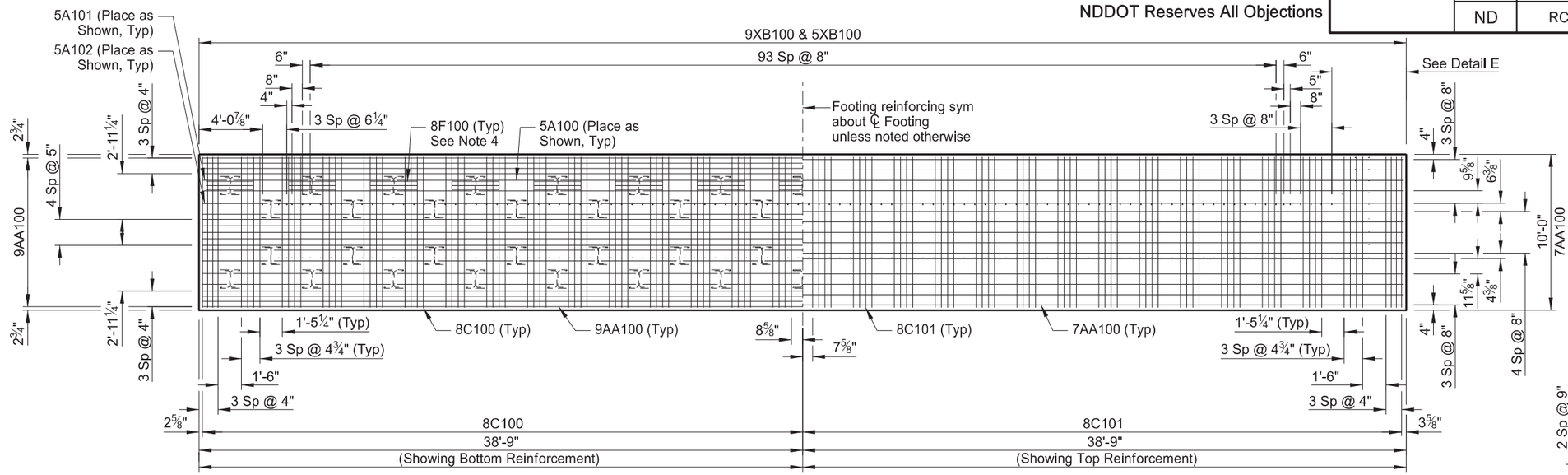
Over 42nd Street

ABUTMENT 5 DETAILS

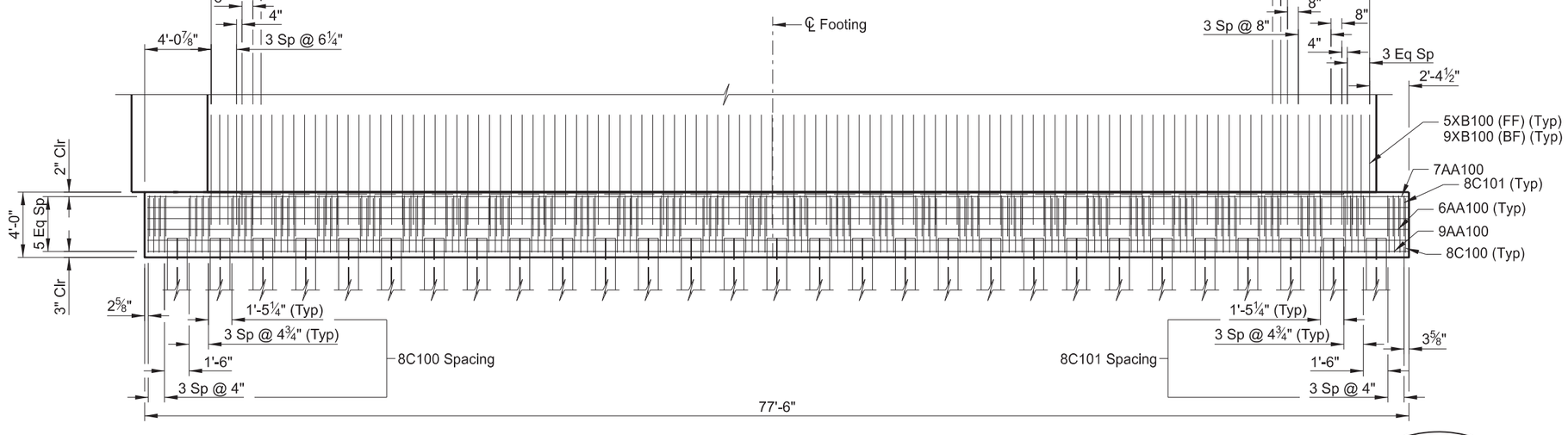
DRAWING NO. 0297-000.303 N B-17

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

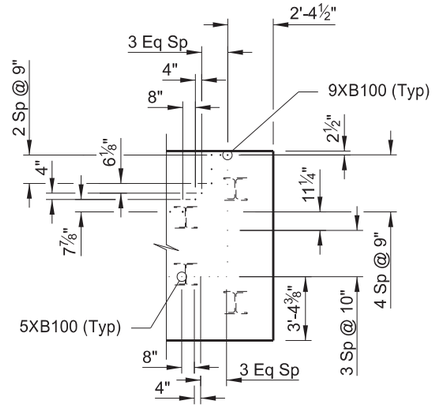
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	18



FOOTING PLAN



FOOTING ELEVATION



DETAIL "E"

NOTES:

1. All reinforcing steel will have a concrete cover of 2" unless otherwise noted.
2. FF = Front Face, BF = Back Face
3. Contractor to field verify all reinforcing spacing prior to concrete placement. Contractor shall minimally adjust spacing as required to clear obstructions or lap or tie bars.
4. See Dwg 0297-000.303 N B-25 for Pile Anchorage details.

REGISTERED PROFESSIONAL ENGINEER
TRAVIS M. SCHAFER
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DATE Date: 2026.01.29 11:02:08-06'00'
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BNSF Grand Forks Subdivision
LS 32, MP 110.067

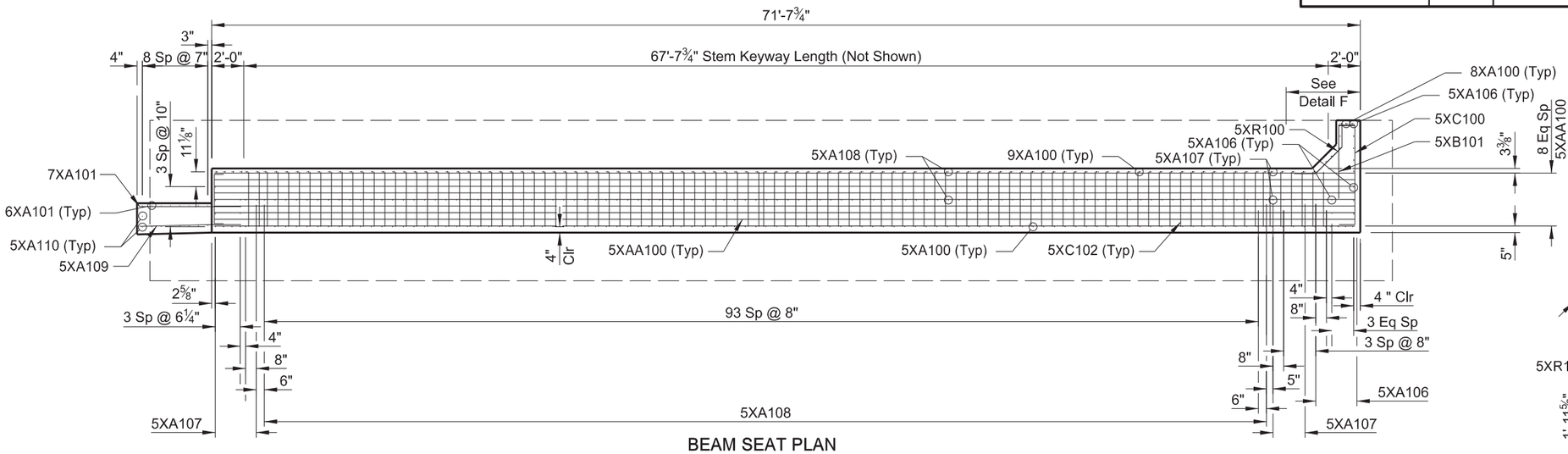
Over 42nd Street

ABUTMENT 5 FOOTING DETAILS
(SHOWING REINFORCING)

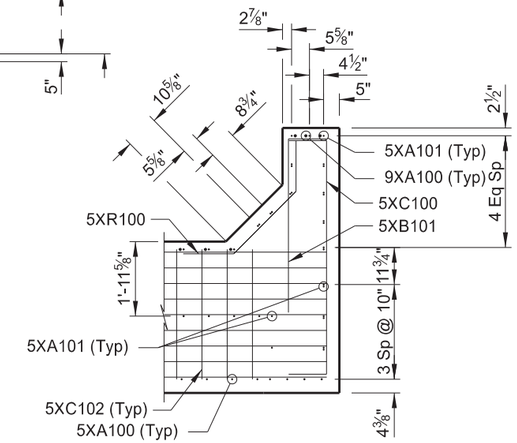
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

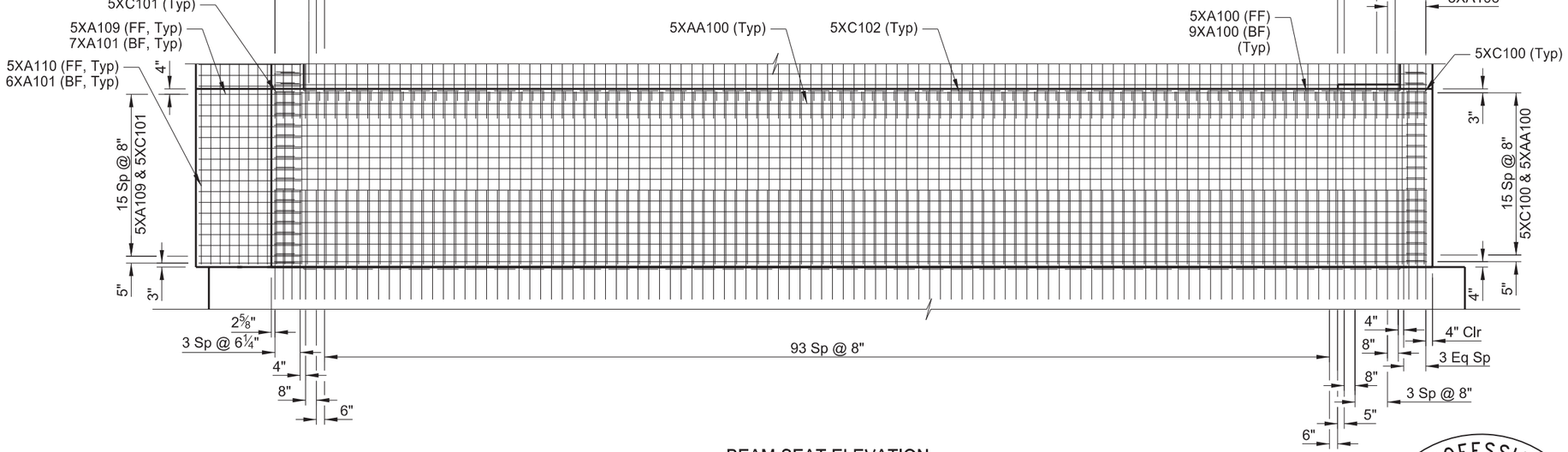
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	19



BEAM SEAT PLAN



DETAIL "F"



BEAM SEAT ELEVATION

NOTES:

1. All reinforcing steel will have a concrete cover of 2" unless otherwise noted.
2. FF= Front Face, BF = Back Face, EF = Each Face
3. Contractor to field verify all reinforcing spacing prior to concrete placement. Contractor shall minimally adjust spacing as required to clear obstructions or lap or tie bars.

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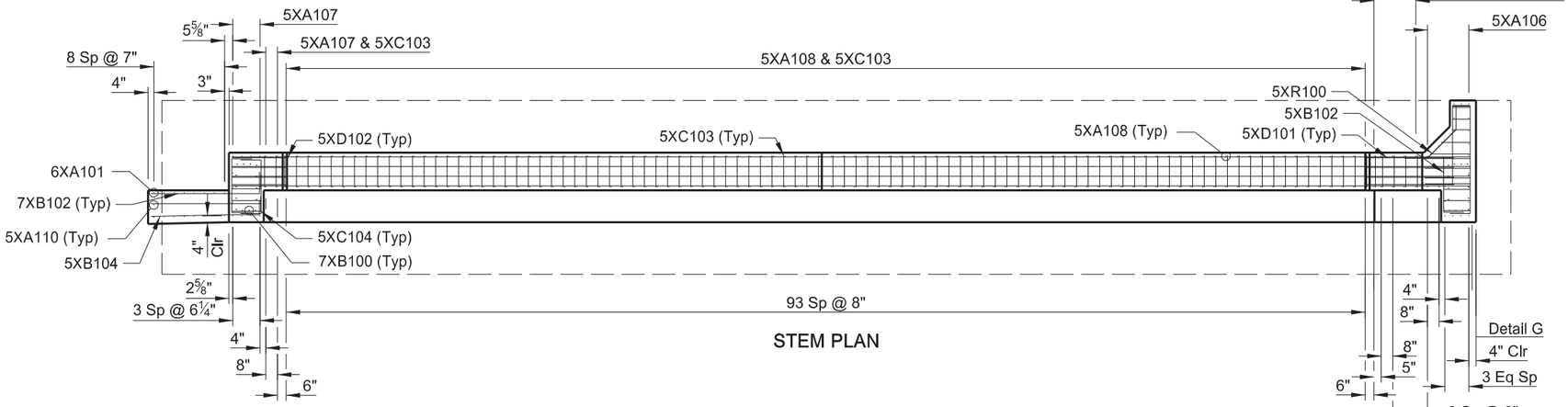
Over 42nd Street

ABUTMENT 5 BEAM SEAT DETAILS
(Showing Reinforcing)

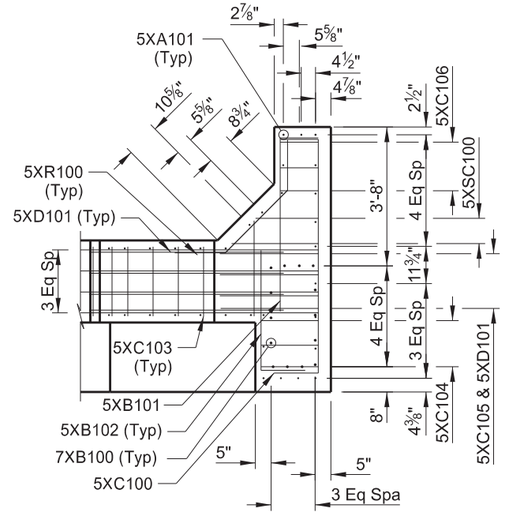
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

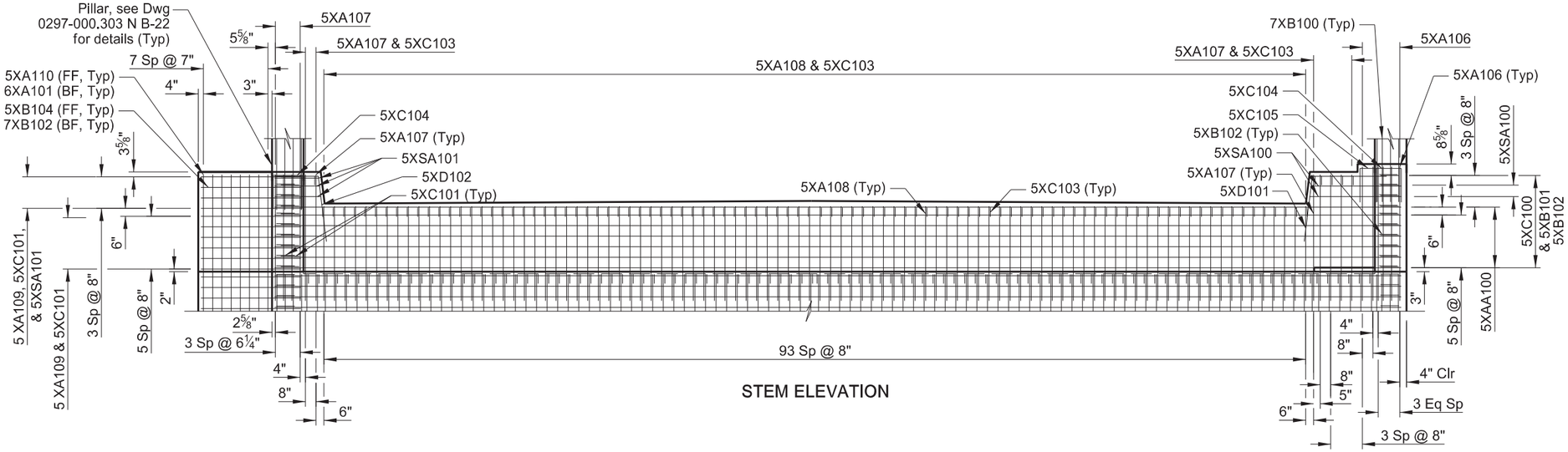
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	20



STEM PLAN



DETAIL "G"



STEM ELEVATION

NOTES:

1. All reinforcing steel will have a concrete cover of 2" unless otherwise noted.
2. FF= Front Face, BF = Back Face
3. Contractor to field verify all reinforcing spacing prior to concrete placement. Contractor shall minimally adjust spacing as required to clear obstructions or lap or tie bars.

REGISTERED PROFESSIONAL ENGINEER
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LS 32, MP 110.067

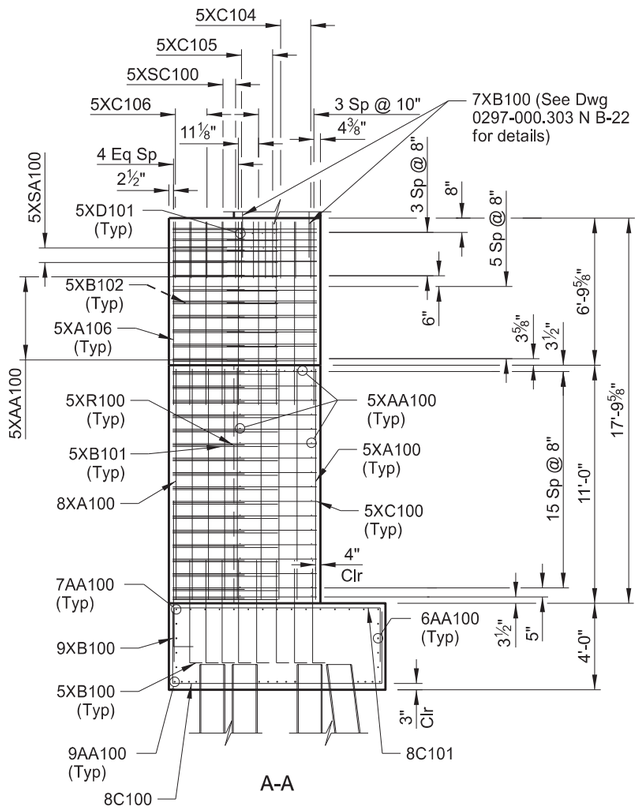
Over 42nd Street

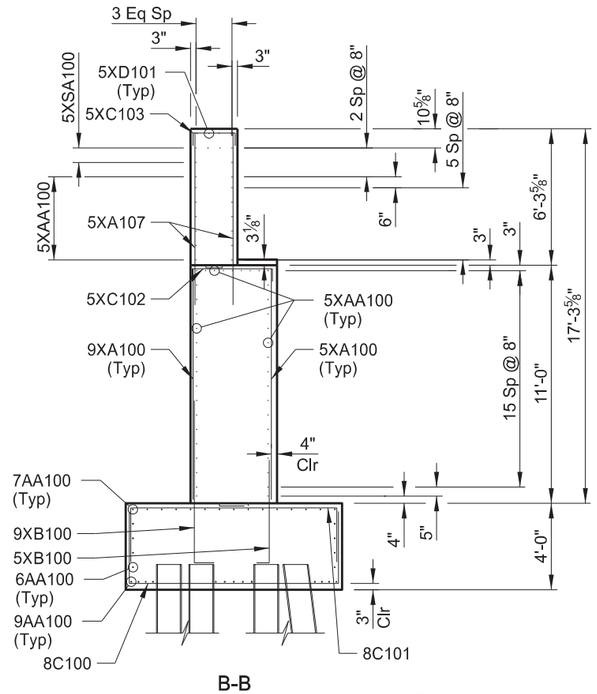
ABUTMENT 5 STEM DETAILS
(Showing Reinforcement)

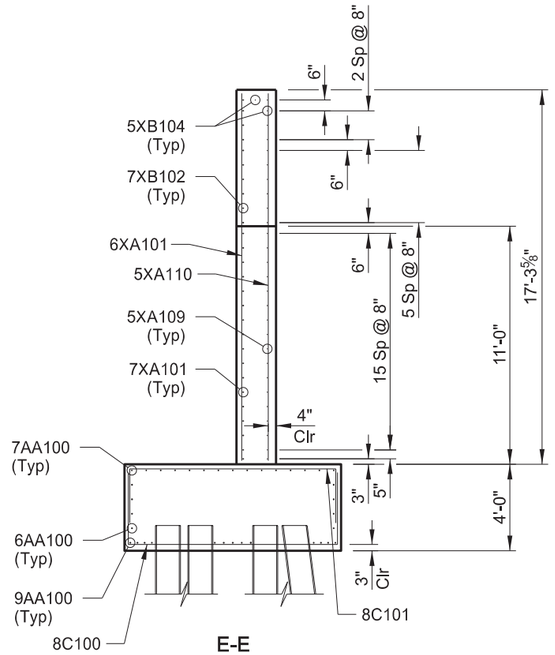
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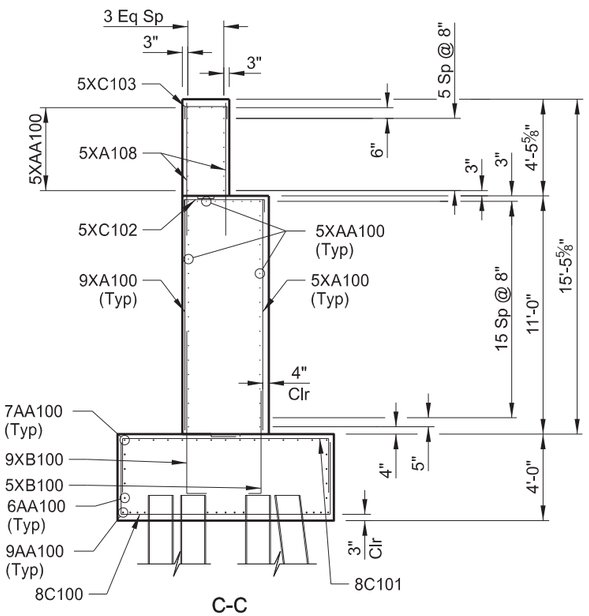
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

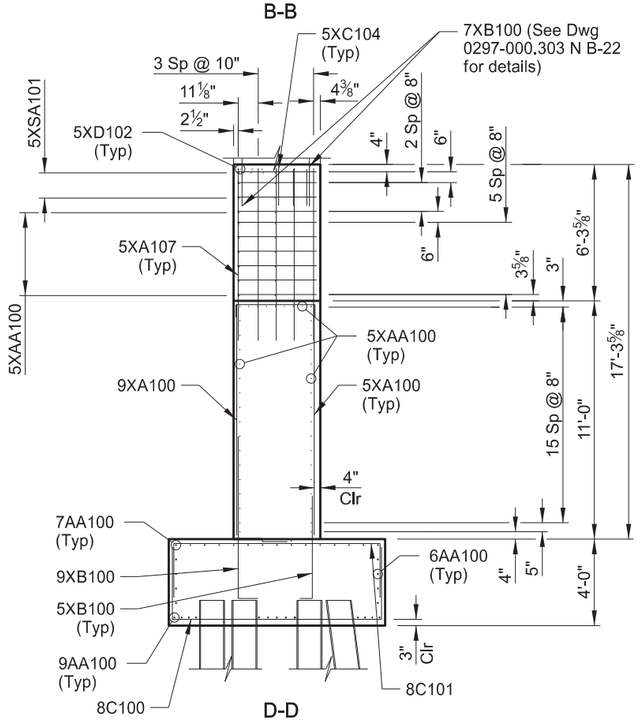
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	21











NOTES:

1. All reinforcing steel will have a concrete cover of 2" unless otherwise noted.
2. Contractor to field verify all reinforcing spacing prior to concrete placement. Contractor shall minimally adjust spacing as required to clear obstructions or lap or tie bars.

QUANTITIES	Abutment 5
BRIDGE SUBSTRUCTURE CONCRETE	266.6 CY
REINFORCING STEEL	18,199 LBS
REINFORCING STEEL (EPOXY)	19,474 LBS

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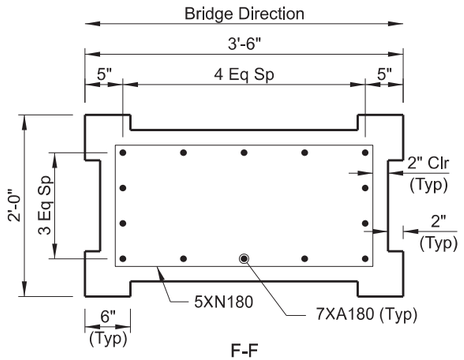
Over 42nd Street

ABUTMENT 5 DETAILS
(Showing Reinforcing)

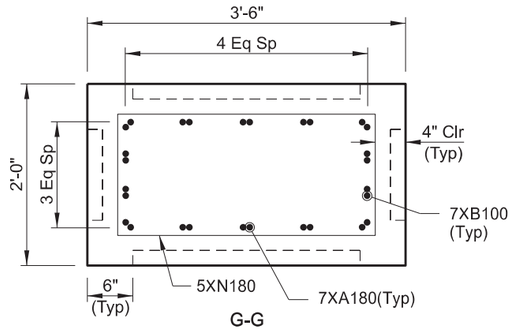
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

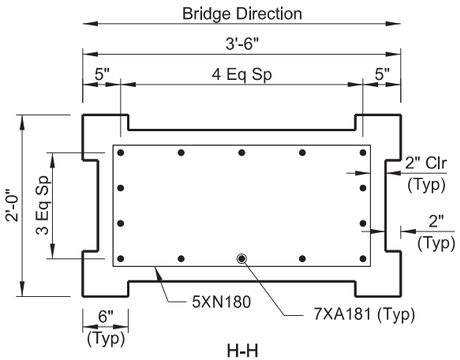
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ND	RCE-FTF-NHU-SU-6-297(014)000	170b	22



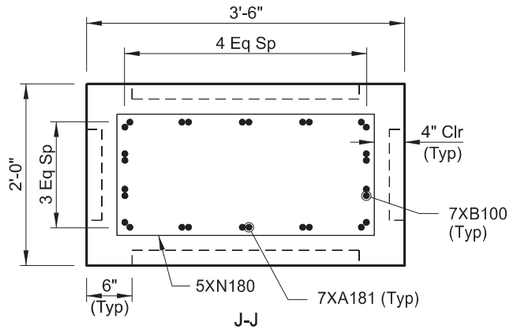
F-F



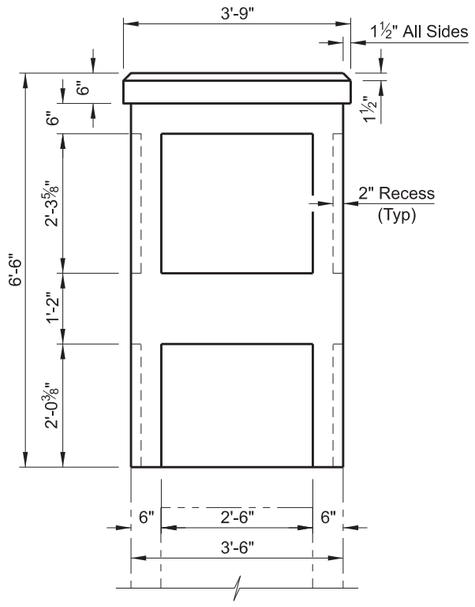
G-G



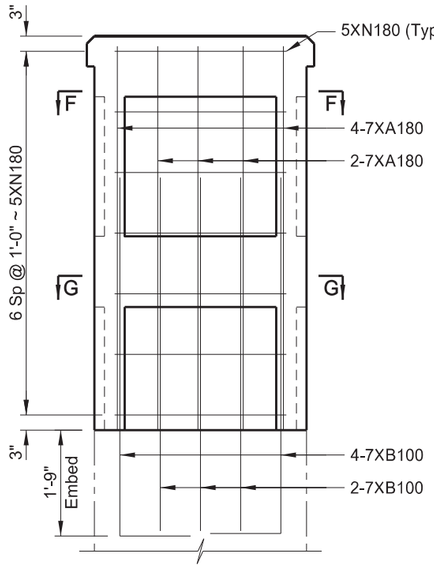
H-H



J-J

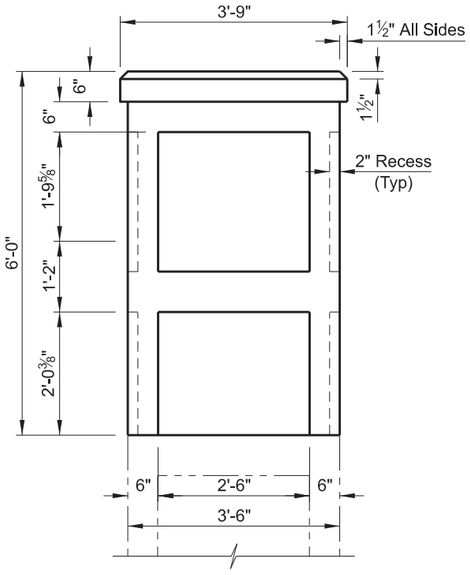


(END VIEW & ELEVATION)
SHOWING DIMENSIONS

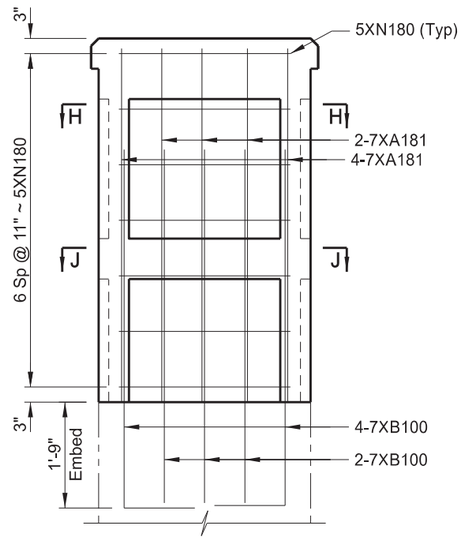


(END VIEW & ELEVATION)
SHOWING REINFORCING

SOUTH ABUTMENT PILLAR DETAIL



(END VIEW & ELEVATION)
SHOWING DIMENSIONS



(END VIEW & ELEVATION)
SHOWING REINFORCING

NORTH ABUTMENT PILLAR DETAIL

QUANTITIES	South Abutment Pillar
BRIDGE SUBSTRUCTURE CONCRETE	3.4 CY
REINFORCING STEEL	0 LBS
REINFORCING STEEL (EPOXY)	499 LBS

QUANTITIES	North Abutment Pillar
BRIDGE SUBSTRUCTURE CONCRETE	3.1 CY
REINFORCING STEEL	0 LBS
REINFORCING STEEL (EPOXY)	471 LBS

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BNSF Grand Forks Subdivision
LS 32, MP 110.067

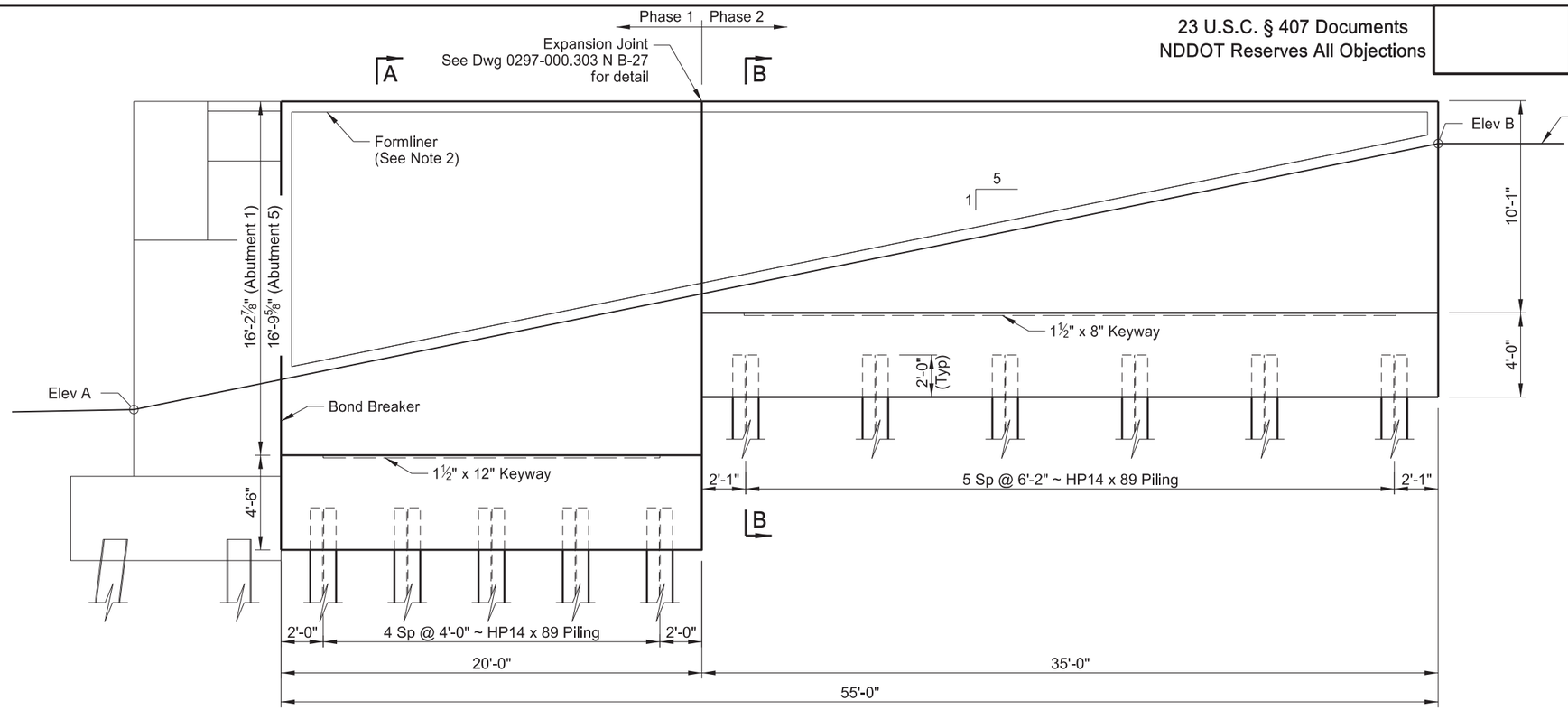
Over 42nd Street

ABUTMENT PILLAR DETAILS

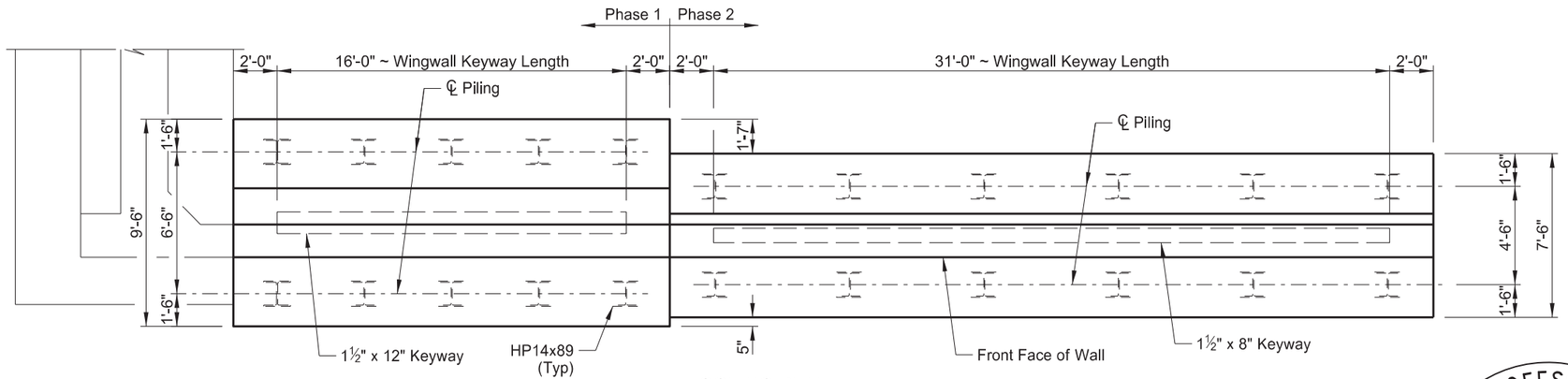
DRAWING NO. 0297-000.303 N B-22

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	23



ELEVATION
(ABUTMENT 5 SHOWN, ABUTMENT 1 SIMILAR)



FOOTING PLAN
(ABUTMENT 5 SHOWN, ABUTMENT 1 SIMILAR)

NOTES:

1. See Dwg 0297-000.303 N B-24 for Sections A-A and B-B.
2. See Dwg 297-000.303-62 through 67 for "Formliner Details."
3. See Dwg 0297-000.303 N B-25 for Pile Anchorage Detail.
4. Phase 1 piles and concrete placement must be completed and backfilled to bottom of Phase 2 concrete footing prior to driving Phase 2 piles and concrete placement.
5. Slope finished grade away from wingwall face at 2% (min.).

Location	Elev A	Elev B
Abut 1	824.11	836.51
Abut 5	724.75	737.15

REGISTERED PROFESSIONAL ENGINEER
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BNSF Grand Forks Subdivision
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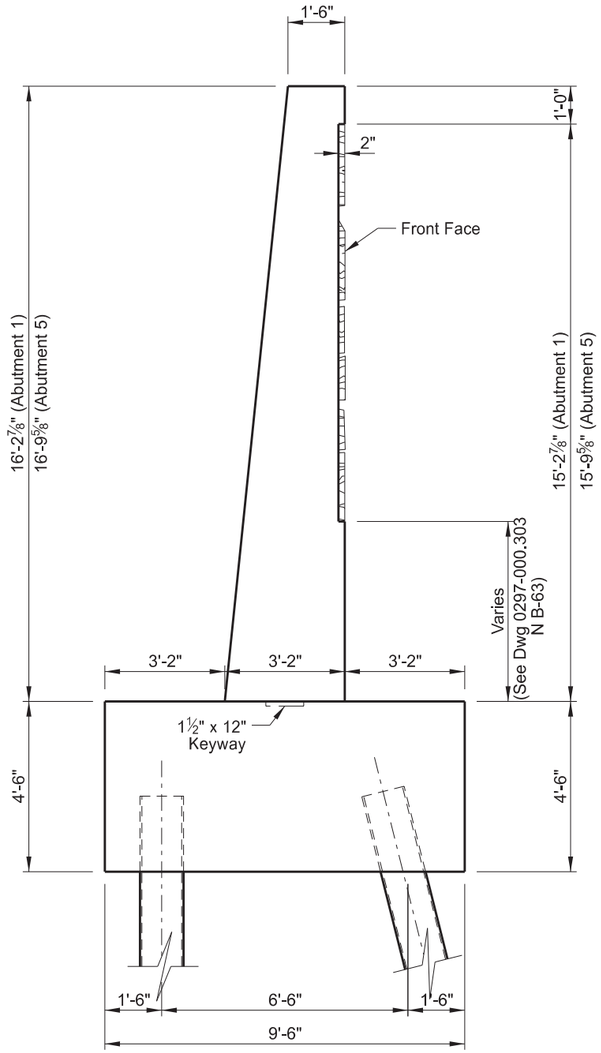
NORTH WINGWALL DETAILS

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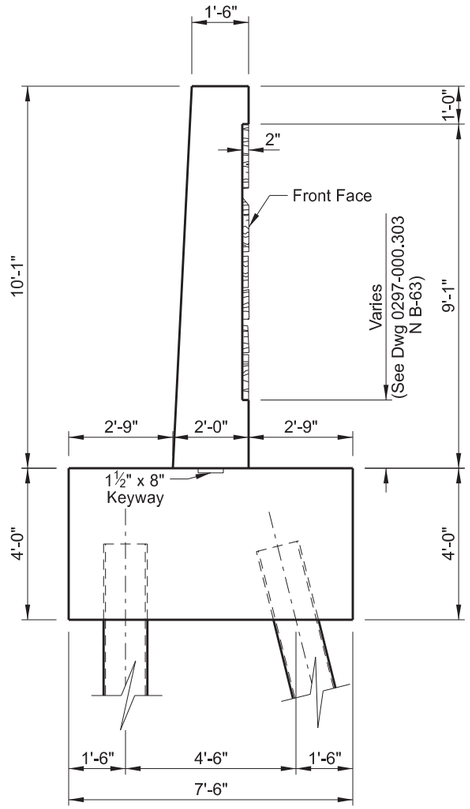
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	24



A-A



B-B

REGISTERED PROFESSIONAL ENGINEER
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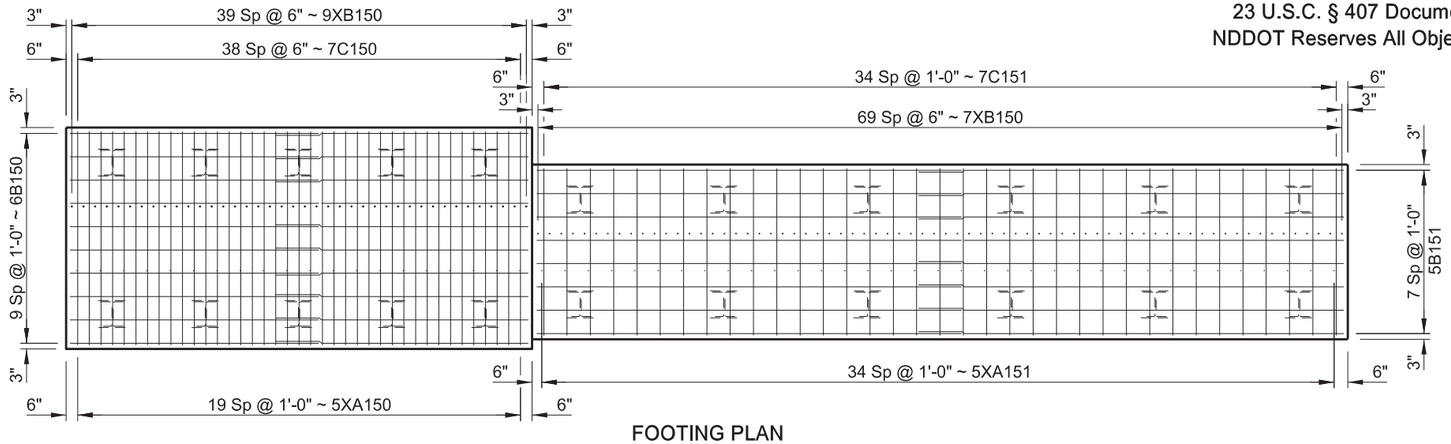
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NORTH WINGWALL DETAILS

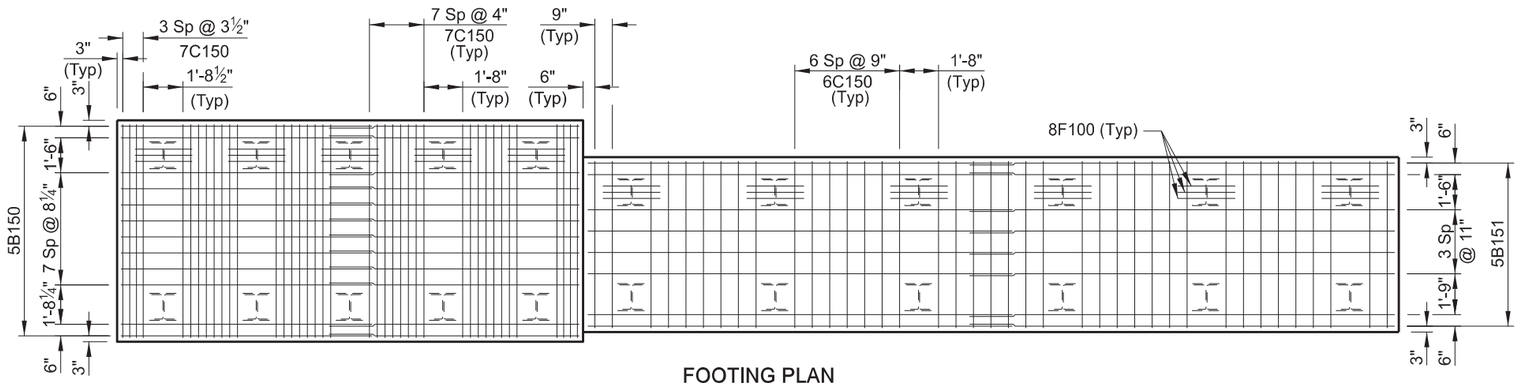
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

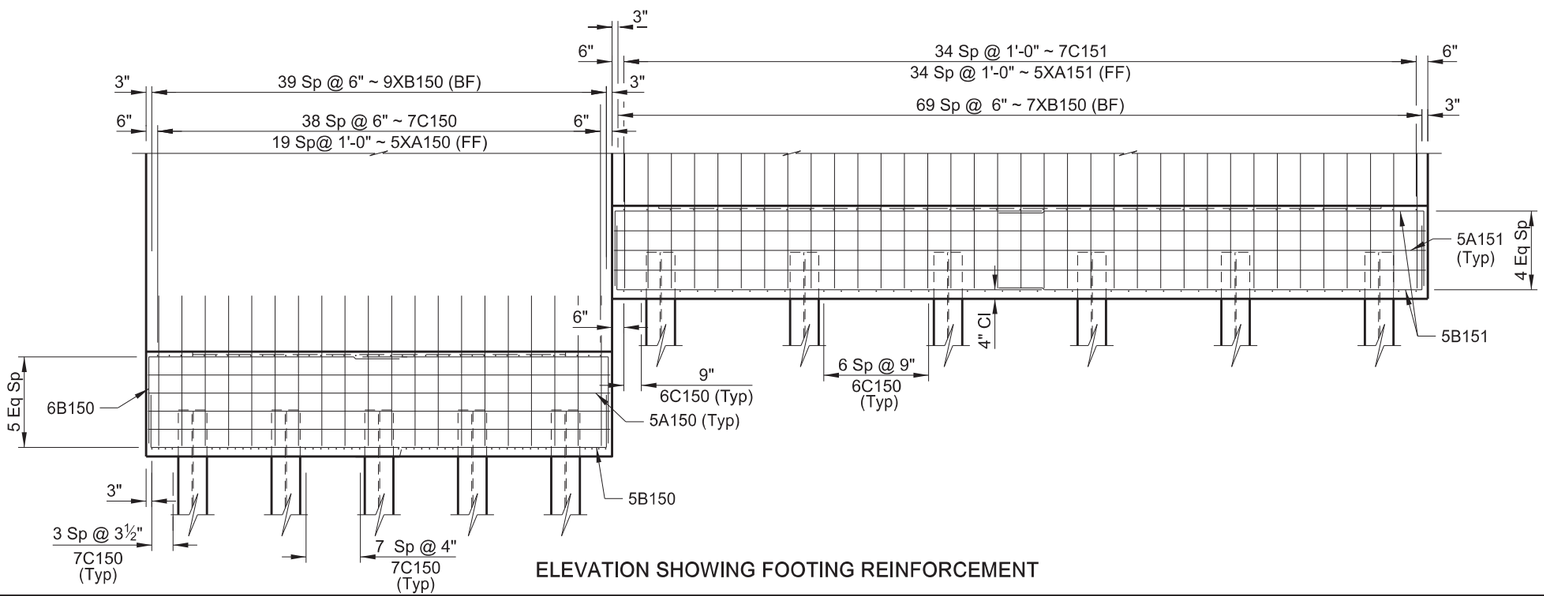
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	25



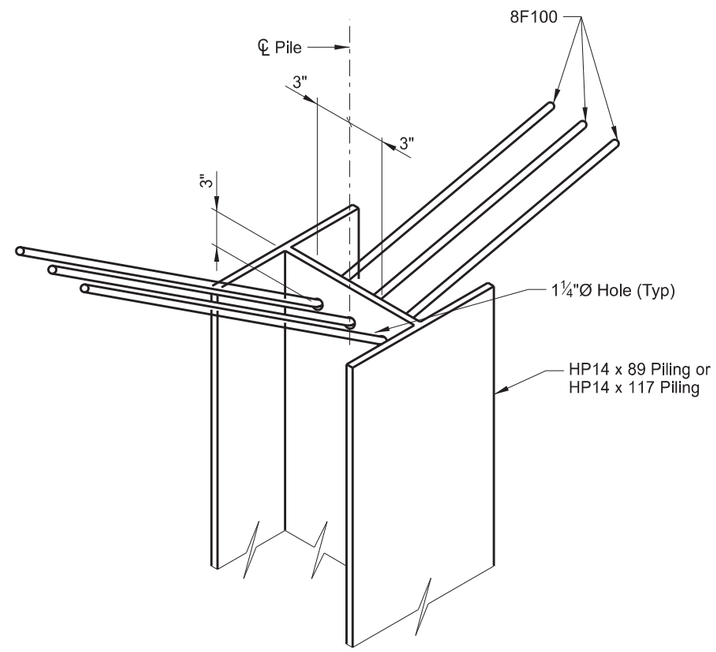
FOOTING PLAN
(Showing top reinforcing)



FOOTING PLAN
(Showing bottom reinforcing)



ELEVATION SHOWING FOOTING REINFORCEMENT



TYPICAL PILE ANCHORAGE DETAIL

NOTES:

1. All reinforcing steel will have a concrete cover of 2" unless otherwise noted.
2. FF = Front Face, BF = Back Face & EF = Each Face

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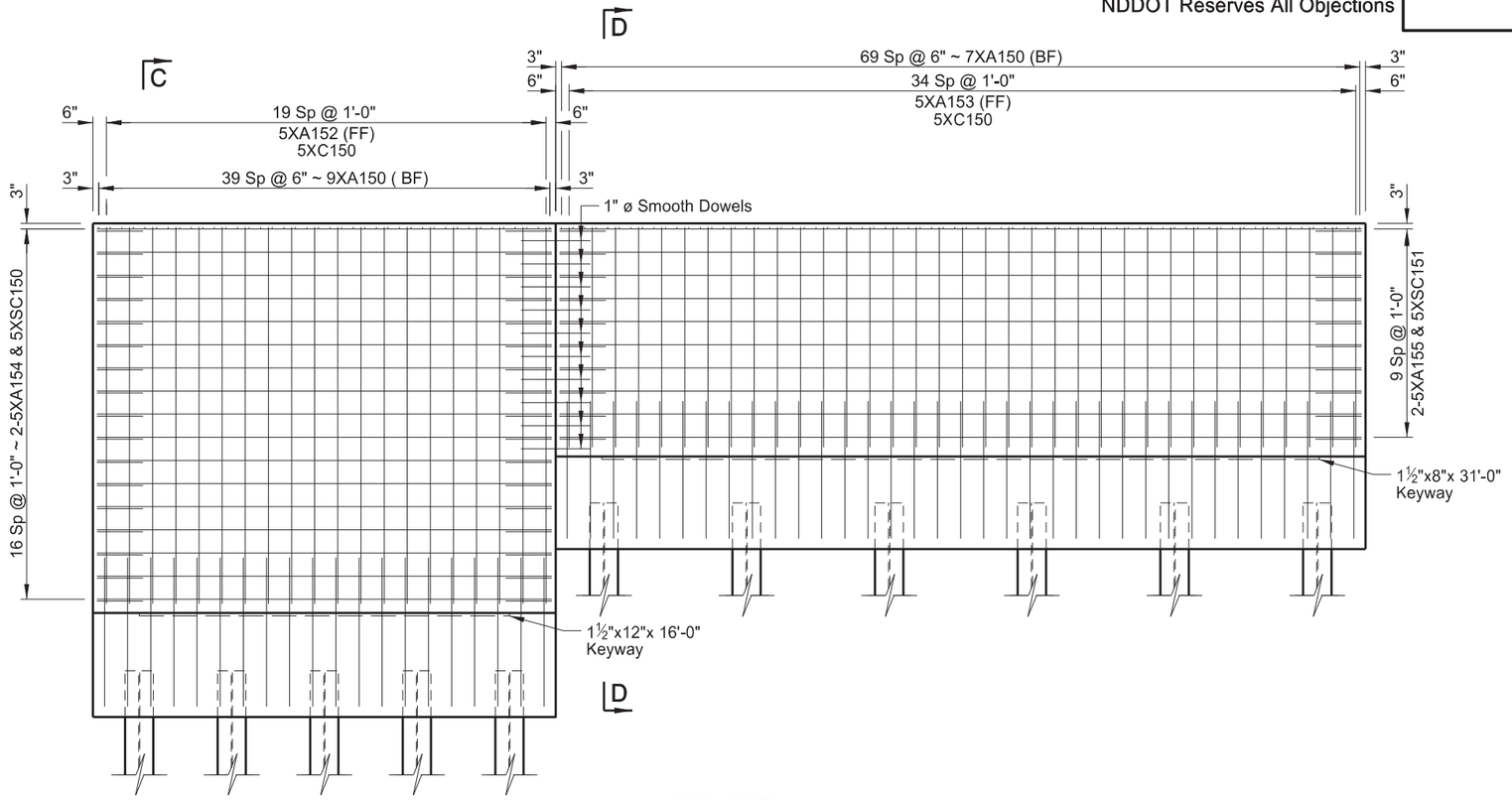
Over 42nd Street

NORTH WINGWALL FOOTING DETAILS
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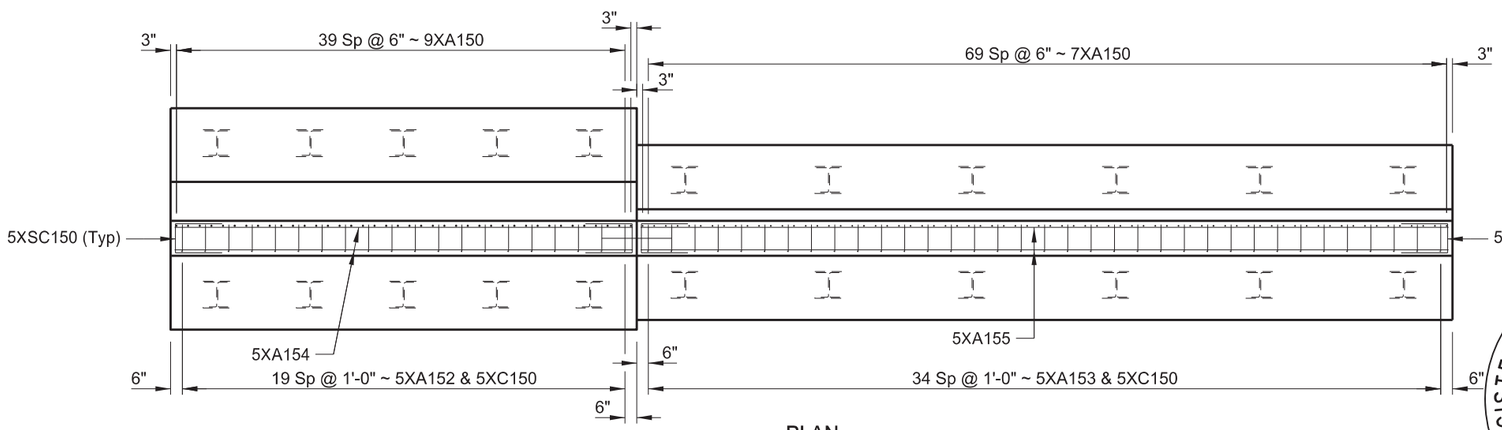
DRAWING NO. 0297-000.303 N B-25

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	26



ELEVATION



PLAN

NOTES:

1. All reinforcing steel will have a concrete cover of 2" unless otherwise noted.
2. FF = Front Face, BF = Back Face & EF = Each Face

QUANTITIES	North Wingwall (Abutment 1)
BRIDGE SUBSTRUCTURE CONCRETE	118.2 CY
REINFORCING STEEL	6,952 LBS
REINFORCING STEEL (EPOXY)	9,468 LBS

QUANTITIES	North Wingwall (Abutment 5)
BRIDGE SUBSTRUCTURE CONCRETE	119.8 CY
REINFORCING STEEL	6,952 LBS
REINFORCING STEEL (EPOXY)	9,468 LBS

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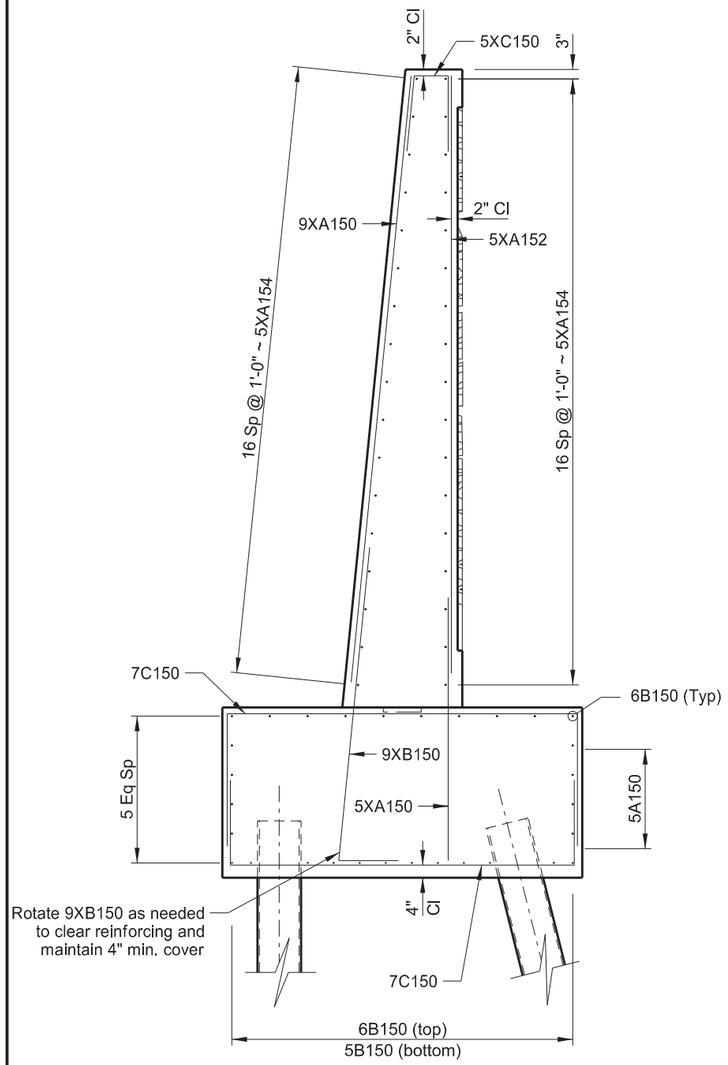
Over 42nd Street

NORTH WINGWALL STEM DETAILS
(Showing Reinforcing)

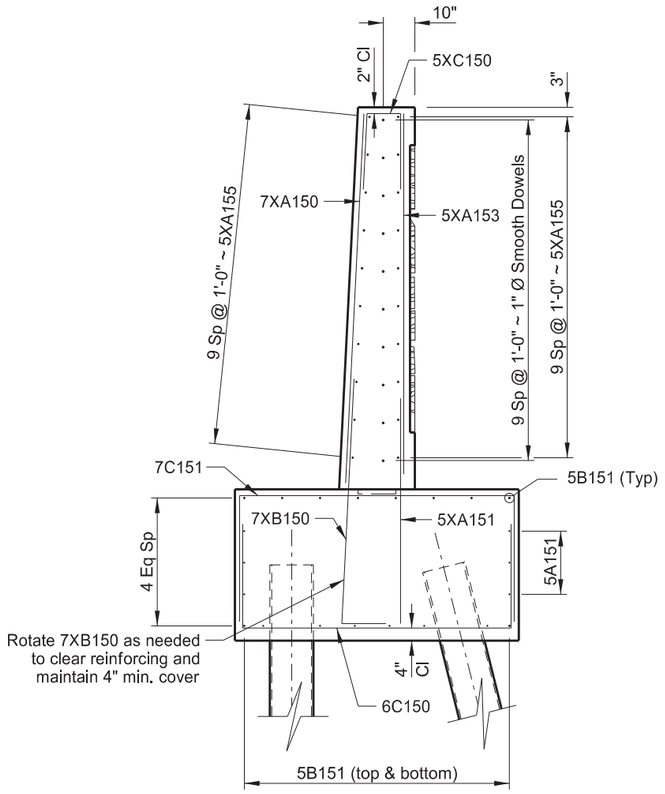
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

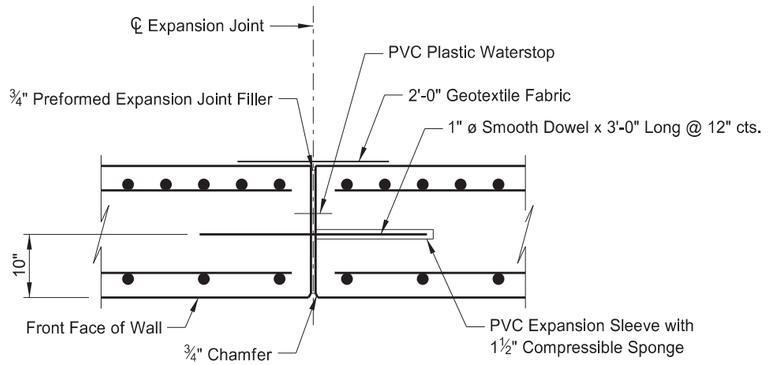
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	27



C-C



D-D



WALL EXPANSION JOINT DETAIL

NOTES:

1. All reinforcing steel will have a concrete cover of 2" unless otherwise noted.
2. See Dwg 0297-000.303 N B-26 for Sections C-C and D-D locations.

REGISTERED PROFESSIONAL ENGINEER
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DATE Date: 2026.01.29 11:02:32-06'00'
NORTH DAKOTA

BNSF Grand Forks Subdivision
LS 32, MP 110.067

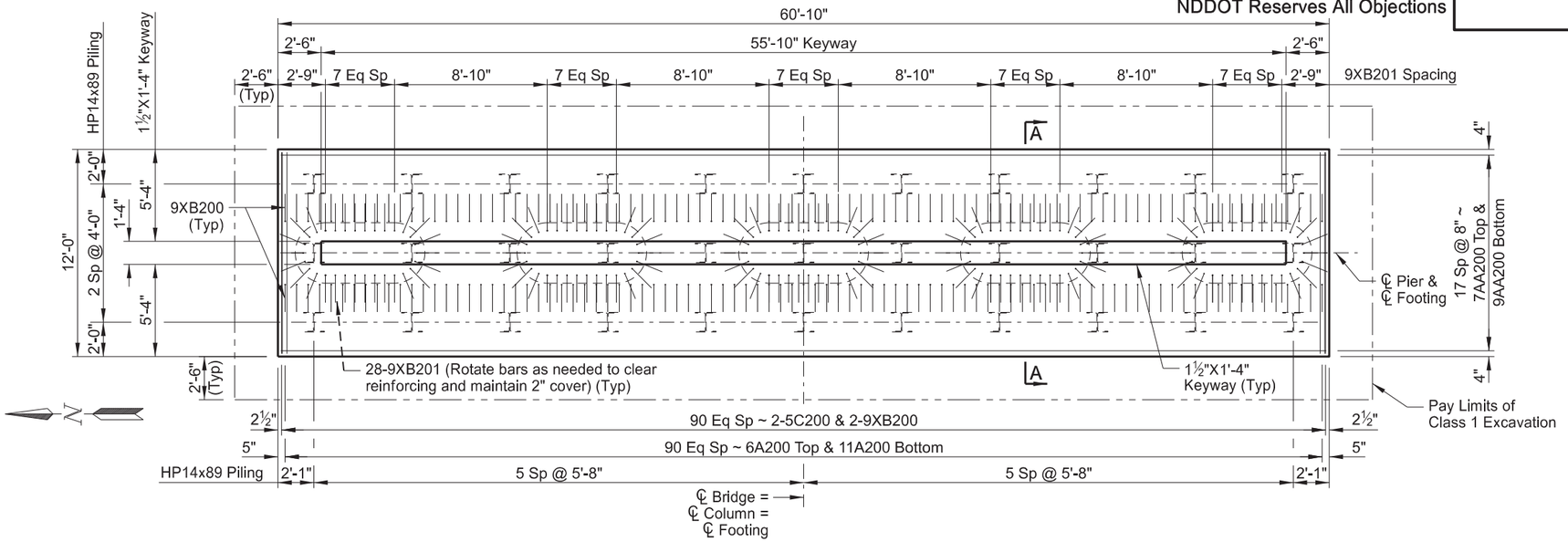
Over 42nd Street

NORTH WINGWALL DETAILS
(Showing Reinforcing)

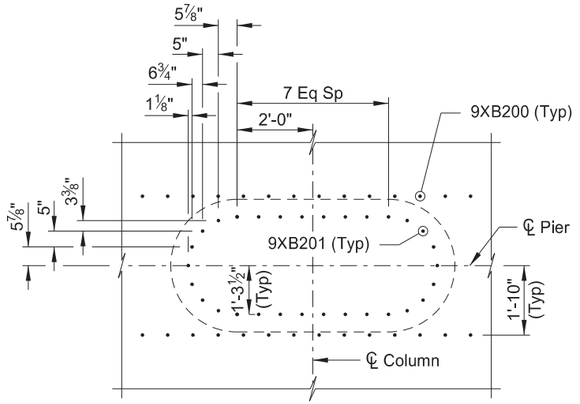
DRAWING NO. 0297-000.303 N B-27

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

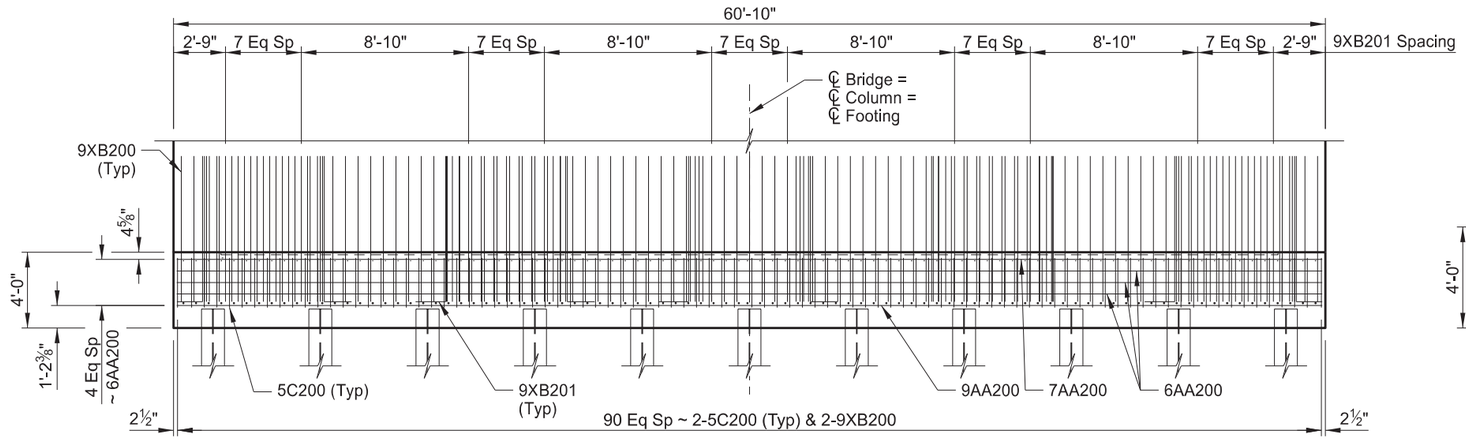
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	28



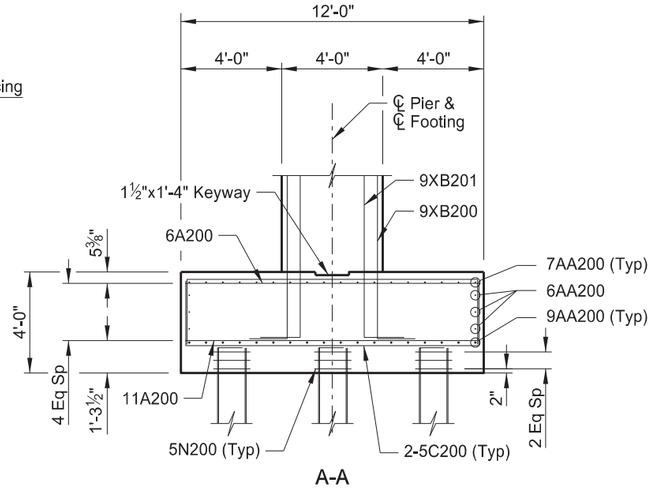
FOOTING PLAN



COLUMN DOWEL DETAIL



FOOTING ELEVATION



A-A

NOTES:

1. For spacing of 9XB201 in rounded portion, see Dwg 0297-000.303 N B-30.
2. All reinforcing steel will have a concrete cover of 2" unless noted otherwise.
3. Contractor to field verify all reinforcing spacing prior to concrete placement. Contractor shall minimally adjust spacing as required to clear obstructions or lap or tie bars.

REGISTERED PROFESSIONAL ENGINEER
TRAVIS M. SCHAFER
PE-40826
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NORTH DAKOTA

BNSF Grand Forks Subdivision
LS 32, MP 110.067

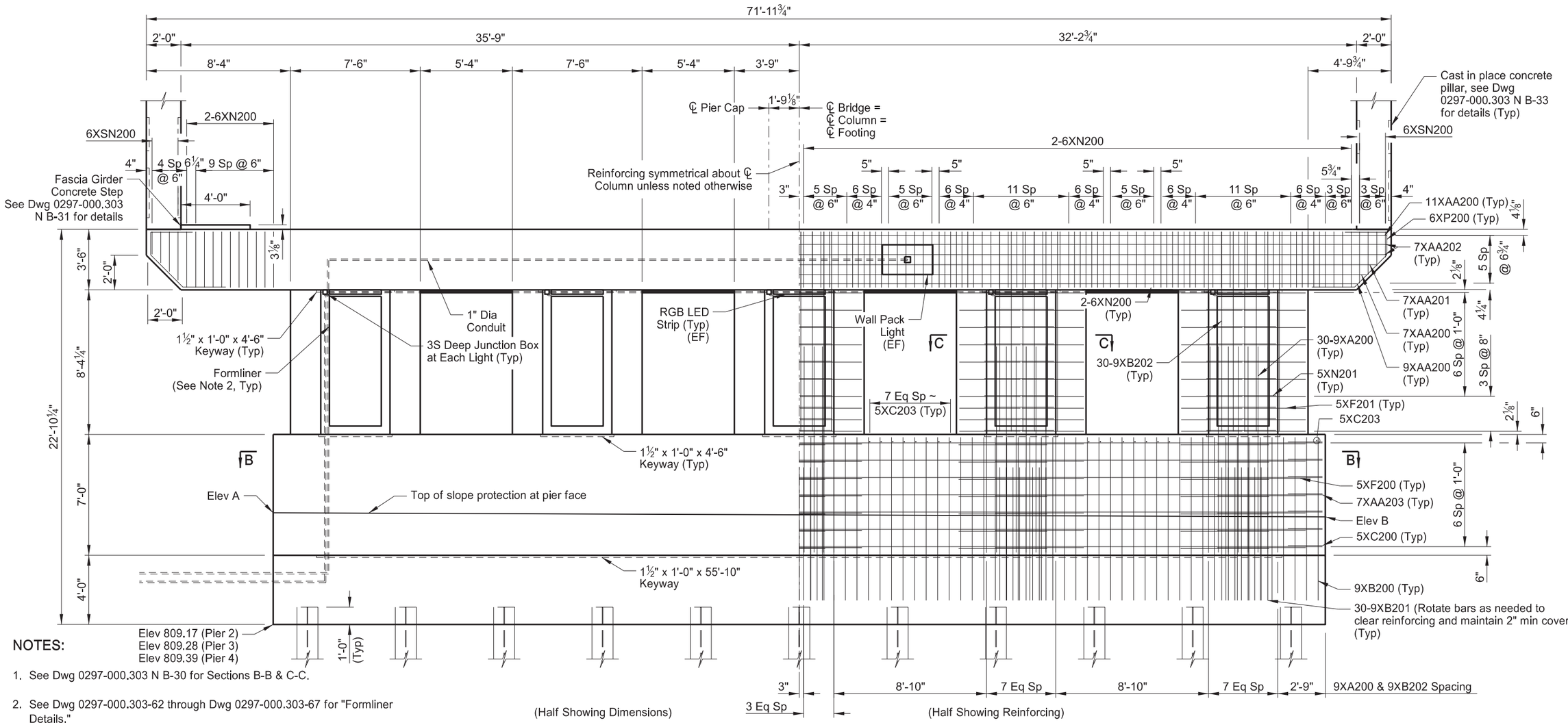
Over 42nd Street

PIER FOOTING DETAILS

DRAWING NO. 0297-000.303 N B-28

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	29



PIER 3 ELEVATION

(Pier 2 & 4 Similar)
(Looking East)
Bars located in rounded portions of columns not shown for clarity

NOTES:

1. See Dwg 0297-000.303 N B-30 for Sections B-B & C-C.
2. See Dwg 0297-000.303-62 through Dwg 0297-000.303-67 for "Formliner Details."
3. See Dwg 0297-000.303 N B-31 for fascia girder concrete step details.
4. All reinforcing steel will have a concrete cover of 2" unless noted otherwise.
5. Contractor to field verify all reinforcing spacing prior to concrete placement. Contractor shall minimally adjust spacing as required clear obstructions or lap or tie bars.
6. EF = Each Face
7. For additional lighting/electrical details, see Section 140.

Location	El A		El B	
	West	East	West	East
Pier 2	816.87	817.87	816.19	817.19
Pier 3	816.28	816.30	815.87	815.60
Pier 4	817.17	816.97	815.87	815.78

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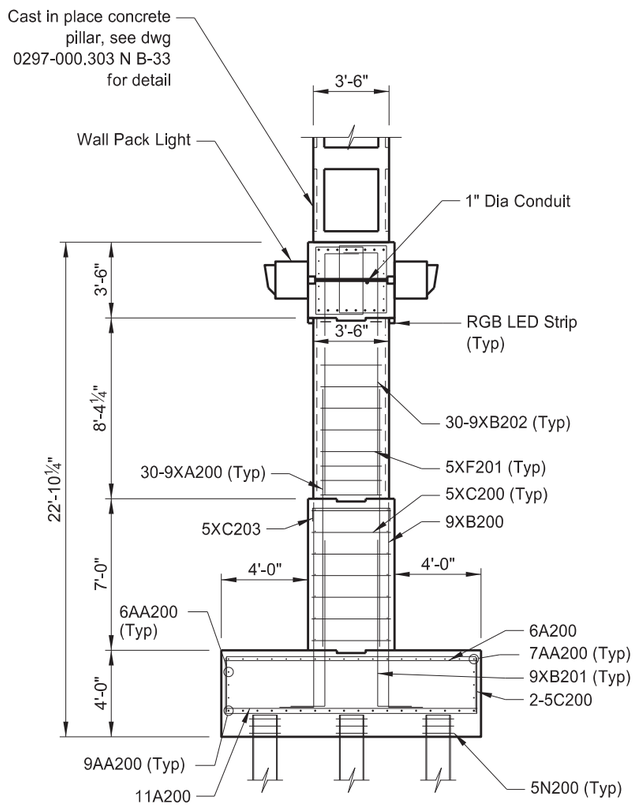
Over 42nd Street

PIER DETAILS

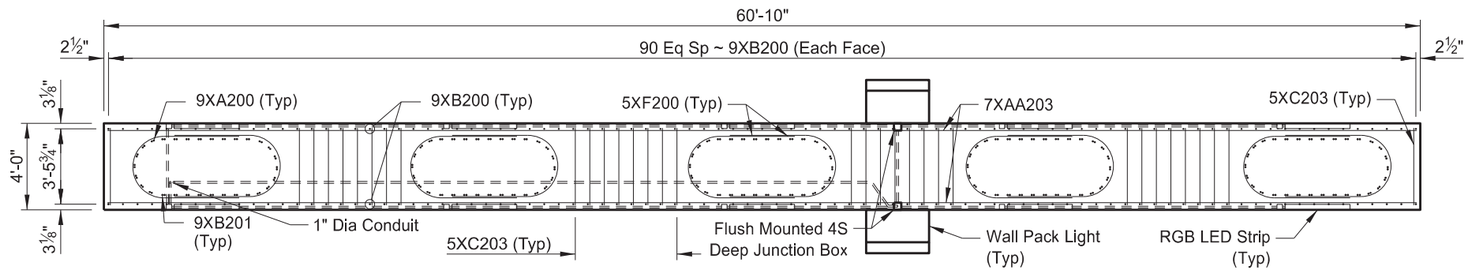
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

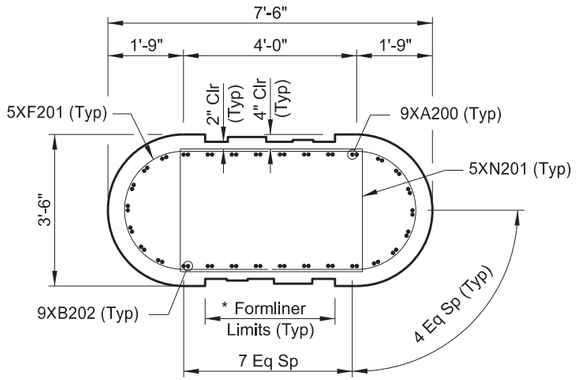
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	30



END VIEW



B-B



C-C
* See Note 2

NOTES:

1. See Dwg 0297-000.303 N B-29 for location of Sections B-B, C-C.
2. All reinforcing steel will have a concrete cover of 2" unless noted otherwise.
3. Contractor to field verify all reinforcing spacing prior to concrete placement. Contractor shall minimally adjust spacing as required to clear obstructions or lap or tie bars.
4. For additional lighting/electrical details, see Section 140.

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TRAVIS M. SCHAFER
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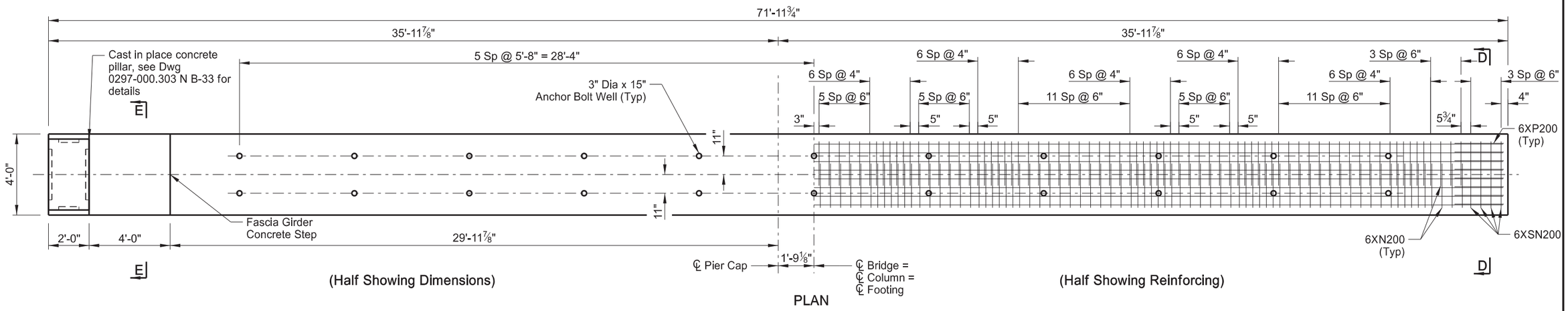
Over 42nd Street

PIER DETAILS

DRAWING NO.	0297-000.303 N B-30

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

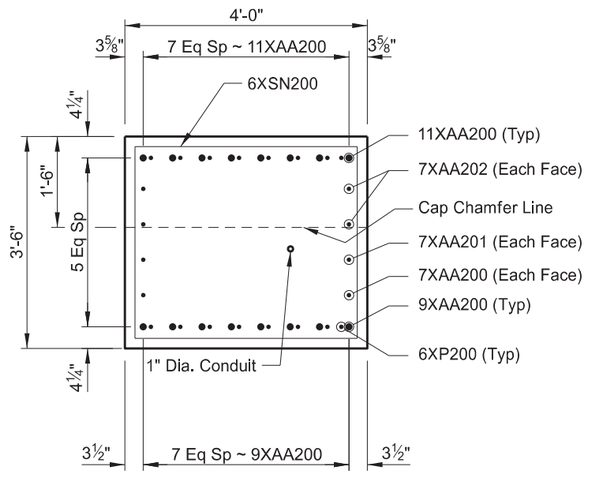
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	31



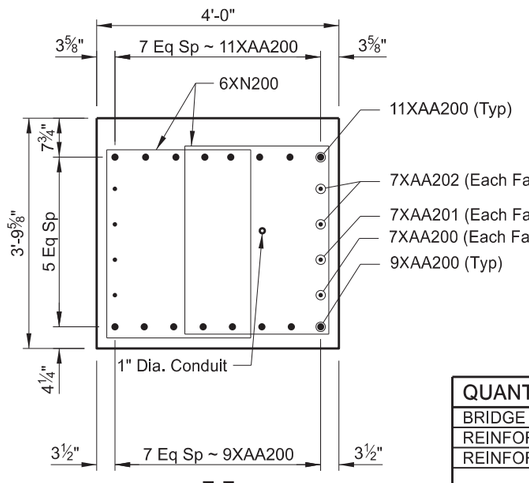
(Half Showing Dimensions)

PLAN

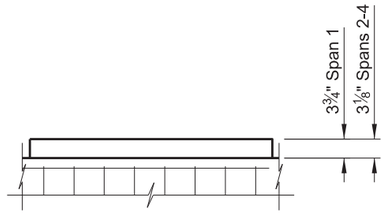
(Half Showing Reinforcing)



D-D



E-E



FASCIA GIRDER CONCRETE STEP DETAIL - ELEVATION

NOTES:

1. All reinforcing steel will have a concrete cover of 2" unless noted otherwise.
2. Contractor to field verify all reinforcing spacing prior to concrete placement. Contractor shall minimally adjust spacing as required to clear obstruction or lap or tie bars.

QUANTITIES	Pier 2
BRIDGE SUBSTRUCTURE CONCRETE	245.3 CY
REINFORCING STEEL	18,180 LBS
REINFORCING STEEL (EPOXY)	43,318 LBS

QUANTITIES	Pier 3
BRIDGE SUBSTRUCTURE CONCRETE	242.6 CY
REINFORCING STEEL	18,180 LBS
REINFORCING STEEL (EPOXY)	43,024 LBS

QUANTITIES	Pier 4
BRIDGE SUBSTRUCTURE CONCRETE	242.6 CY
REINFORCING STEEL	18,180 LBS
REINFORCING STEEL (EPOXY)	43,024 LBS

REGISTERED PROFESSIONAL ENGINEER
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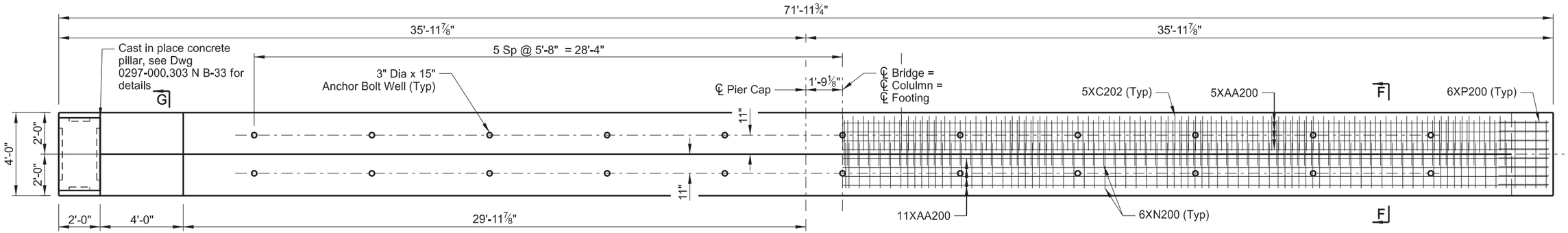
Over 42nd Street

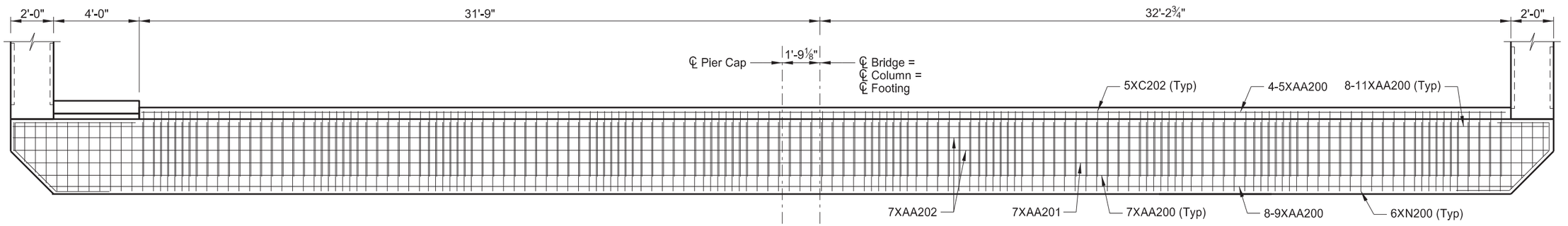
PIER CAP DETAILS

DRAWING NO. 0297-000.303 N B-31

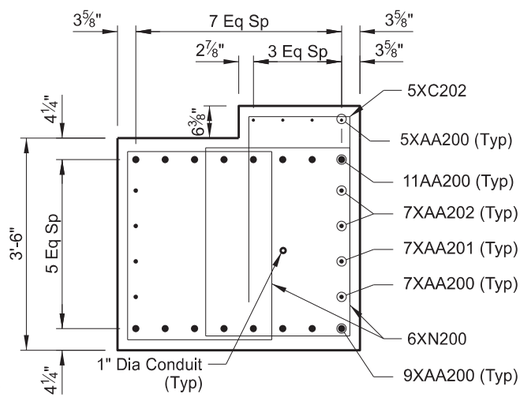
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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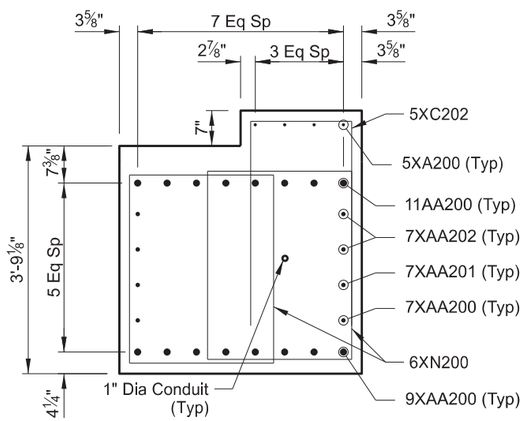




ELEVATION



F-F



G-G

NOTES:

1. All reinforcing steel will have a concrete cover of 2" unless noted otherwise.
2. Contractor to field verify all reinforcing spacing prior to concrete placement. Contractor shall minimally adjust spacing as required to clear obstructions or lap or tie bars.

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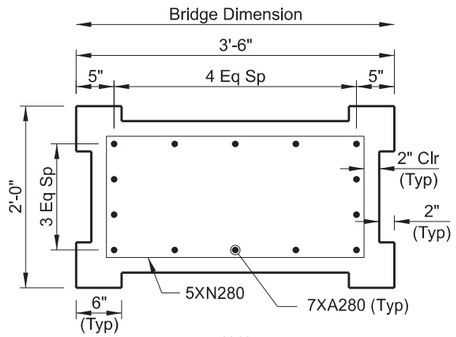
Over 42nd Street

PIER 2 CAP DETAILS

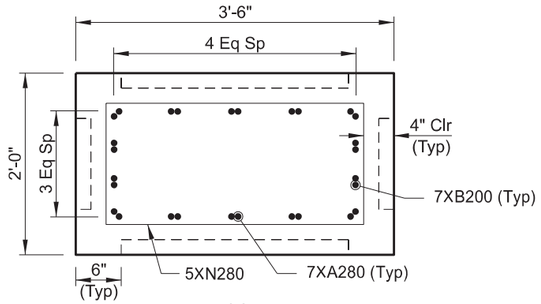
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

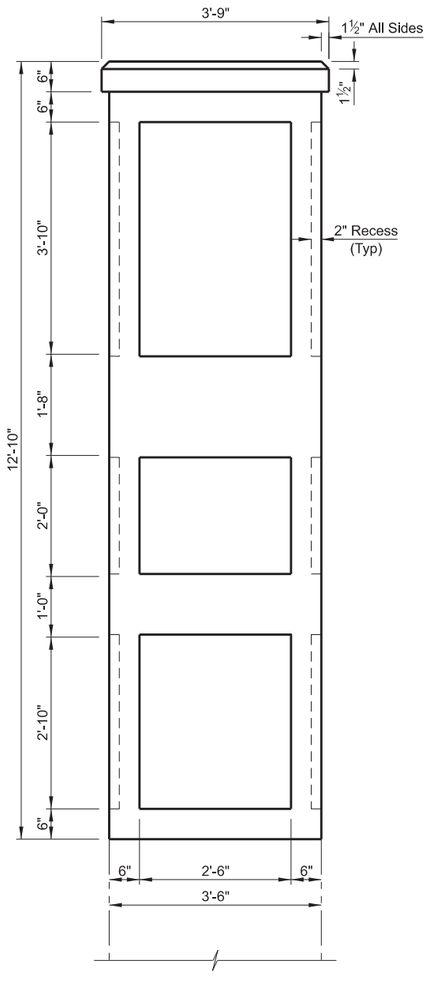
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ND	RCE-FTF-NHU-SU-6-297(014)000	170b	33



H-H

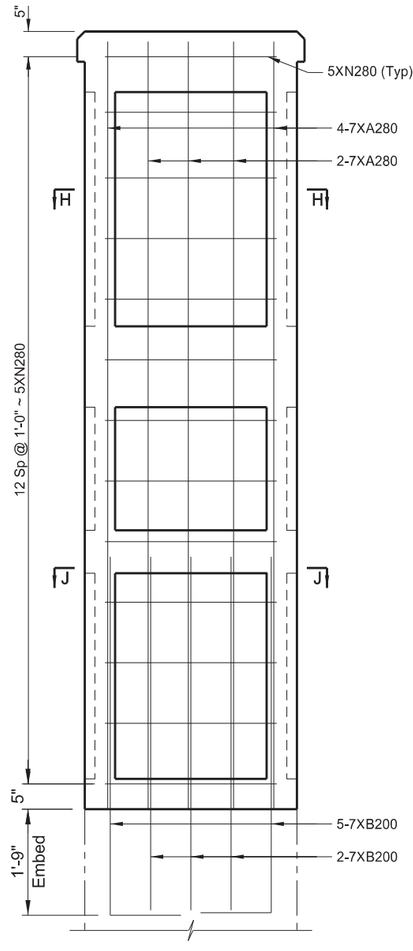


J-J



(END VIEW & ELEVATION)

SHOWING DIMENSIONS



(END VIEW & ELEVATION)

SHOWING REINFORCING

PIER PILLAR DETAIL

QUANTITIES	Pier Pillar
BRIDGE SUBSTRUCTURE CONCRETE	20.0 CY
REINFORCING STEEL	0 LBS
REINFORCING STEEL (EPOXY)	2,960 LBS

REGISTERED PROFESSIONAL ENGINEER
NORTH DAKOTA
TRAVIS M. SCHAFER
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LS 32, MP 110.067

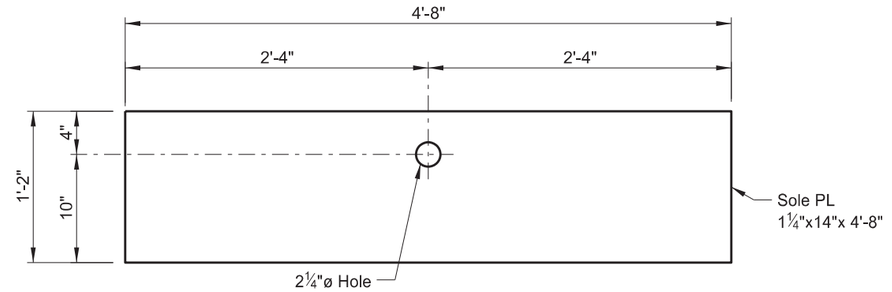
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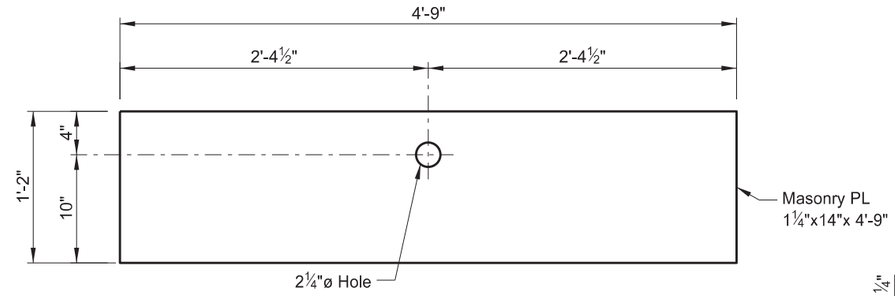
PIER PILLAR DETAILS

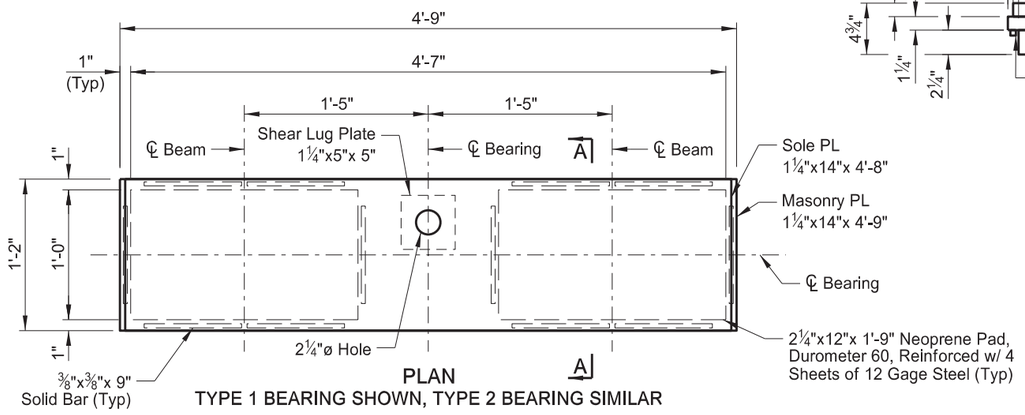
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23 U.S.C. § 407 Documents
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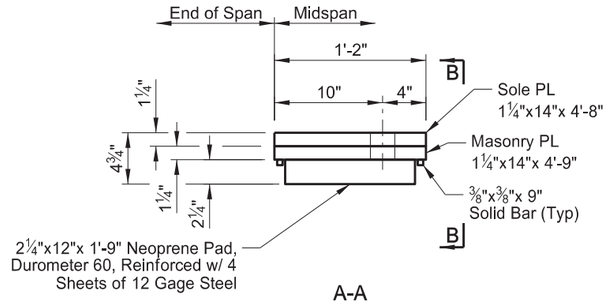
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ND	RCE-FTF-NHU-SU-6-297(014)000	170b	34



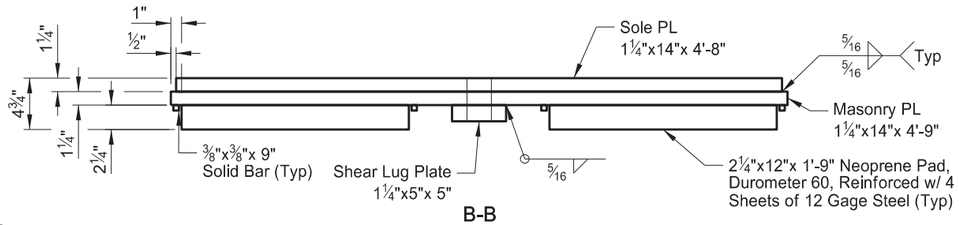




PLAN
TYPE 1 BEARING SHOWN, TYPE 2 BEARING SIMILAR



A-A
TYPE 1 BEARING SHOWN, TYPE 2 BEARING SIMILAR

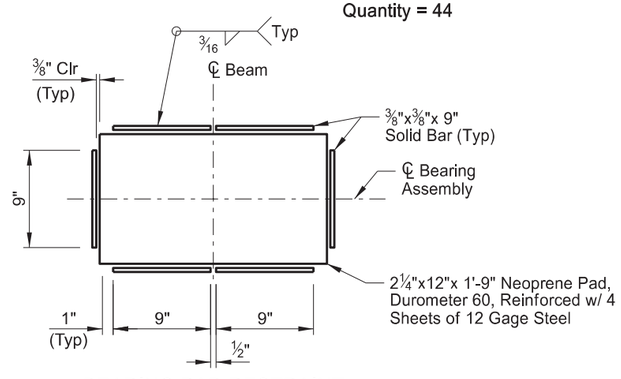


B-B
TYPE 1 BEARING SHOWN, TYPE 2 BEARING SIMILAR

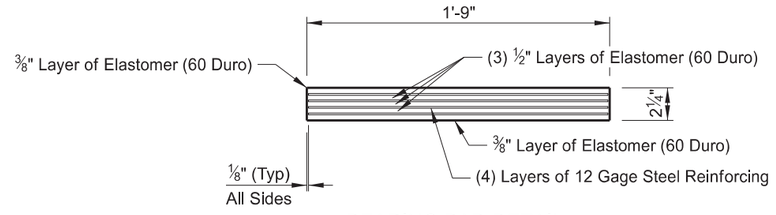
NOTES:

1. Permanently mark the top plate of all bearings before shipping. Include the bearing location and direction arrows on the bearings. Install bearings so that the direction arrow is pointing up station and visible.
2. TYPE 1: Fixed Plate Bearing Assembly
   TYPE 2: Expansion Plate Bearing Assembly
3. Use the bearing heights as shown.
4. Include the price of (1) sole plate, (1) masonry plate, (2) neoprene pads and (1) threaded rod in the cost of each bearing "TYPE".

BEARING - TYPE 1
Quantity = 44



BEARING PAD RESTRAINT



BEARING PAD DETAIL

REGISTERED PROFESSIONAL ENGINEER
NORTH DAKOTA
TRAVIS M. SCHAFER
PE-40826
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DATE Date: 2026.01.29 11:02:51-06'00'

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LS 32, MP 110.067

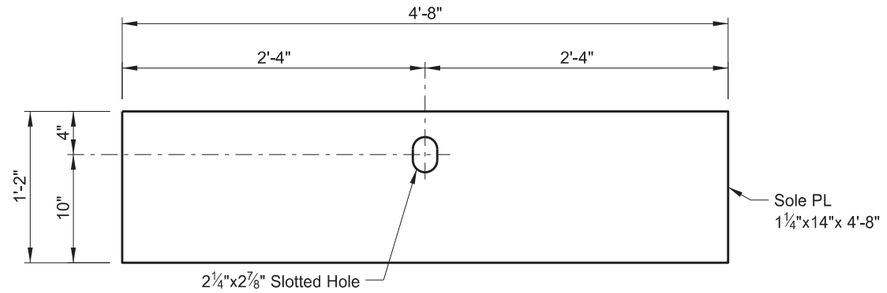
Over 42nd Street

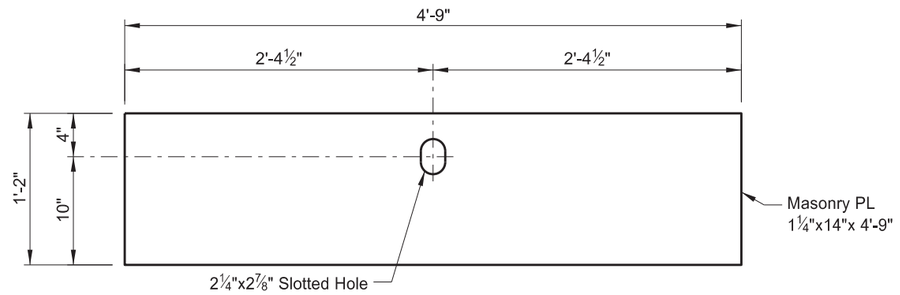
BEARING DETAILS

DRAWING NO. 0297-000.303 N B-34

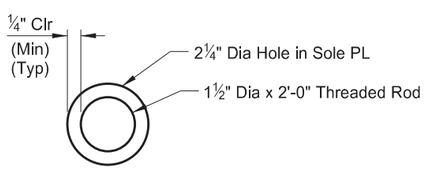
23 U.S.C. § 407 Documents
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	35





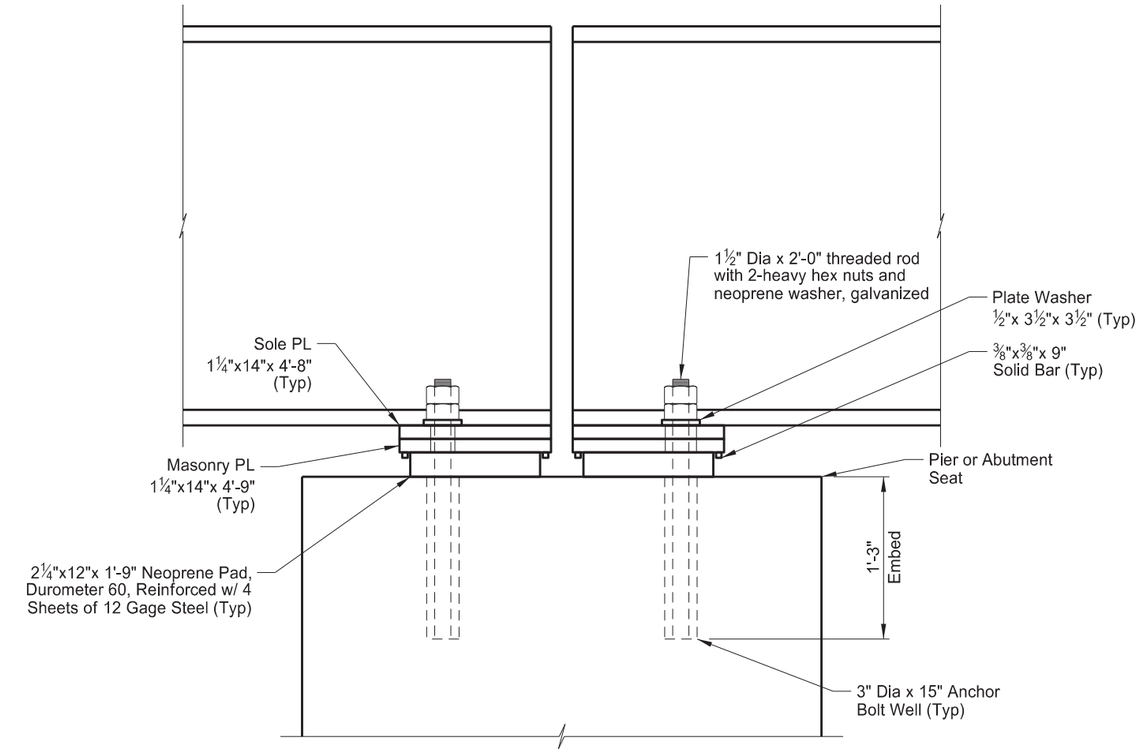
BEARING - TYPE 2
Quantity = 44



ANCHOR ROD INSTALLATION DETAIL
TYPE 1 BEARING SHOWN, TYPE 2 BEARING SIMILAR

NOTES:

1. Conform to ASTM F1554, Grade 55, requirements for anchor rods.
2. Conform to ASTM A307 for all hex nuts, washers, and miscellaneous hardware.
3. Reference Dwg 0297-000.303 N B-35 for additional bearing assembly details.



BEAM CONNECTION DETAIL

REGISTERED PROFESSIONAL ENGINEER
TRAVIS M. SCHAFER
PE-40826
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DATE Date: 2026.01.29 11:02:54-06'00'
NORTH DAKOTA

BNSF Grand Forks Subdivision
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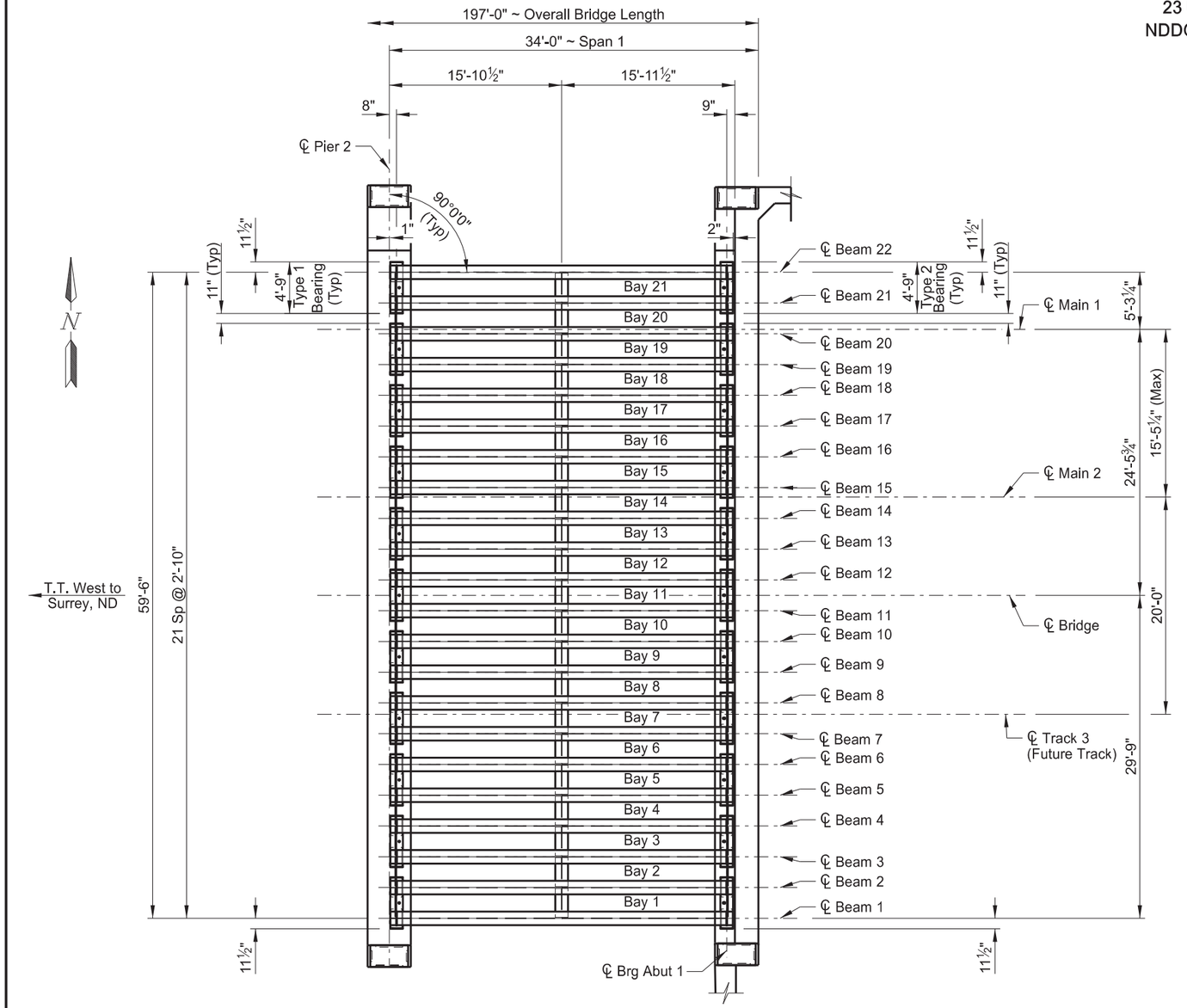
Over 42nd Street

BEARING DETAILS

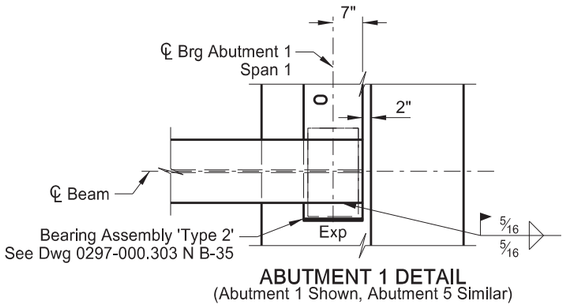
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23 U.S.C. § 407 Documents
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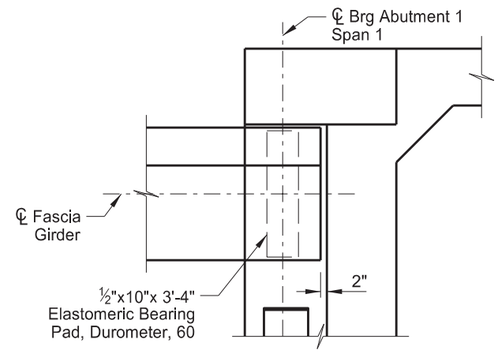
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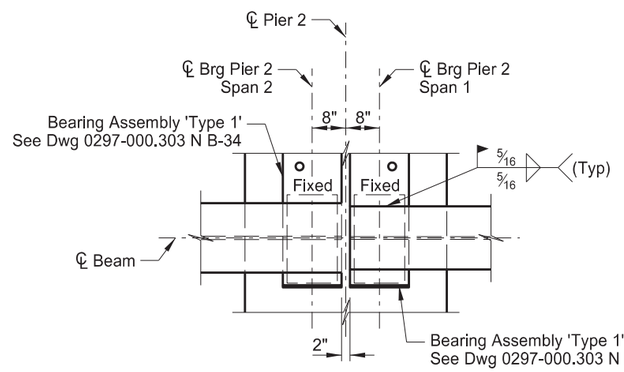
FRAMING PLAN



ABUTMENT 1 DETAIL
(Abutment 1 Shown, Abutment 5 Similar)



ABUTMENT FASCIA GIRDER DETAIL
(Abutment 1 Shown, Abutment 5 Similar)



PIER 2 DETAIL

NOTES:

1. See Dwg 0297-000.303 N B-37 for Span 2 Framing Plan and for Pier Fascia Girder Detail.
2. See Dwg 0297-000.303 N B-39 through Dwg 0297-000.303 N B-42 for Beam End Details.
3. Fascia Girders not shown for clarity in framing plan.

REGISTERED PROFESSIONAL ENGINEER
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DATE Date: 2026.01.29 11:02:57-06'00'
NORTH DAKOTA

BNSF Grand Forks Subdivision
LS 32, MP 110.067

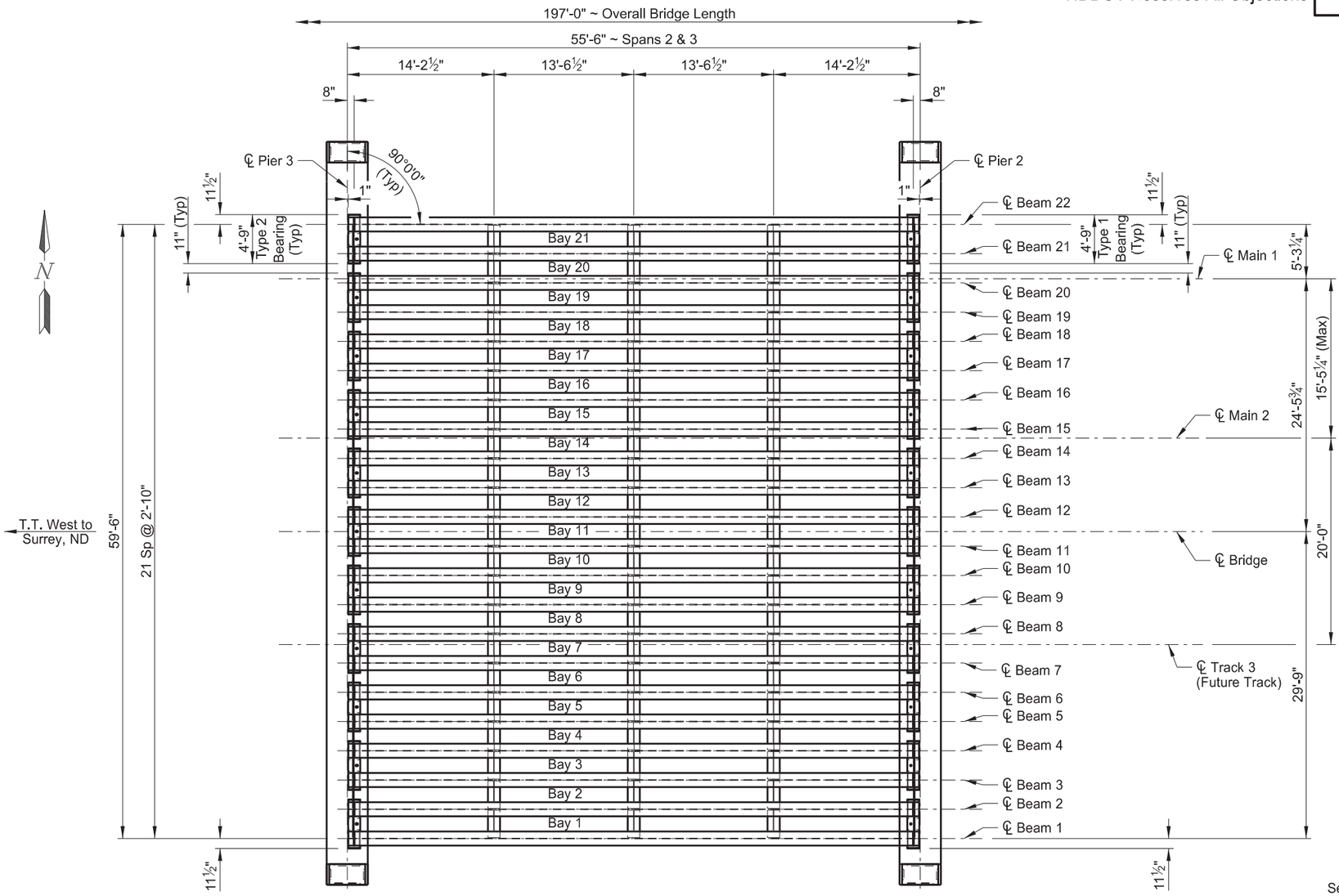
Over 42nd Street

FRAMING PLAN SPAN 1

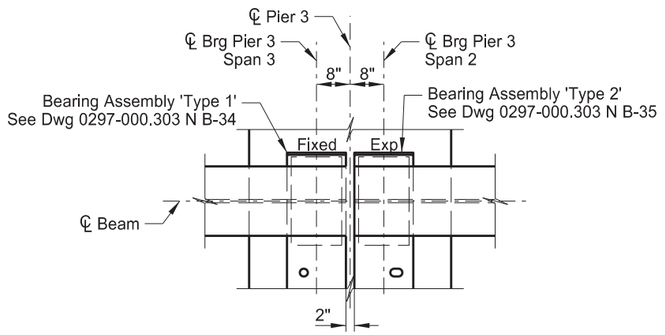
DRAWING NO. 0297-000.303 N B-36

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

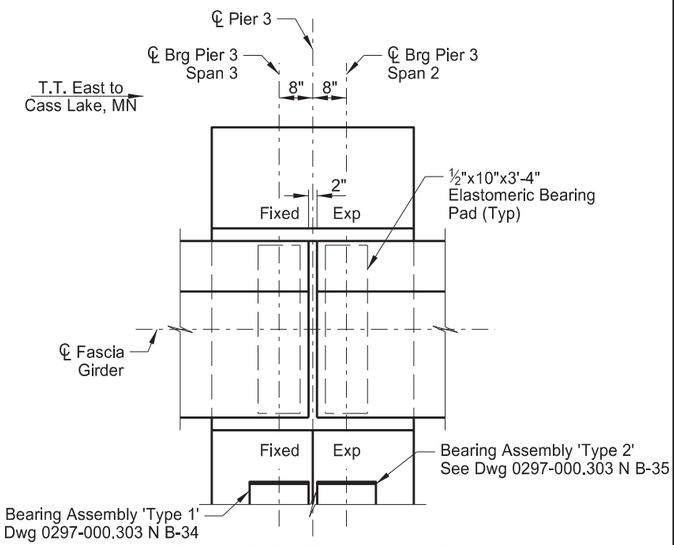
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	37



FRAMING PLAN



PIER 3 DETAIL
(Pier 3 Shown, Pier 4 Similar)



PIER FASCIA GIRDER DETAIL
(Pier 3 shown, Pier 2 & 4 Similar)

NOTES:

1. Span 2 shown, Span 3 similar.
2. See Dwg 0297-000.303 N B-37 for Span 2 Framing Plan and for Pier Fascia Girder Detail.
3. See Dwg 0297-000.303 N B-39 through Dwg 0297-000.303 N B-42 for Beam End Details.
4. Fascia Girders not shown for clarity in framing plan.

REGISTERED PROFESSIONAL ENGINEER
TRAVIS M. SCHAFER
PE-40826
Digitally signed by Travis Schafer
DATE Date: 2026.01.29 11:03:00-06'00'
NORTH DAKOTA

BNSF Grand Forks Subdivision
LS 32, MP 110.067

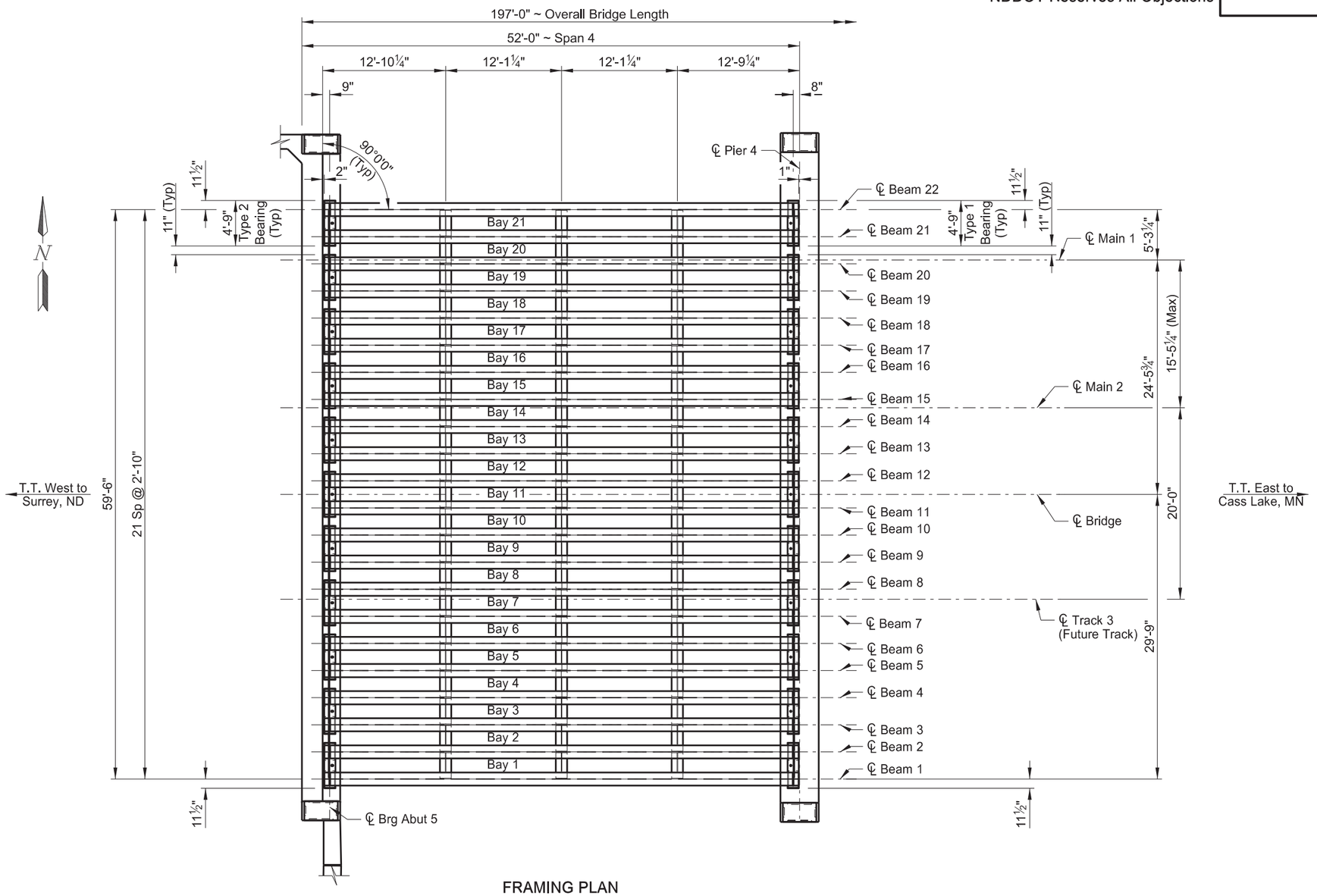
Over 42nd Street

FRAMING PLAN SPAN 2 & 3

DRAWING NO. 0297-000.303 N B-37

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	38



FRAMING PLAN

NOTES:

1. See Dwg 0297-000.303 N B-37 for Span 3 Framing Plan and for Pier Fascia Girder Detail.
2. See Dwg 0297-000.303 N B-39 through Dwg 0297-000.303 N B-42 for Beam End Details.
3. Fascia Girders not shown for clarity in framing plan.

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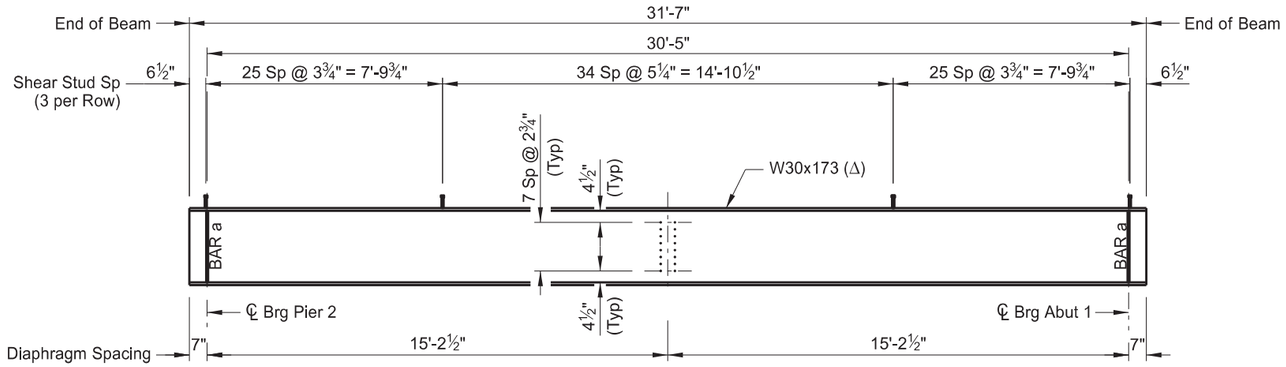
Over 42nd Street

FRAMING PLAN SPAN 4

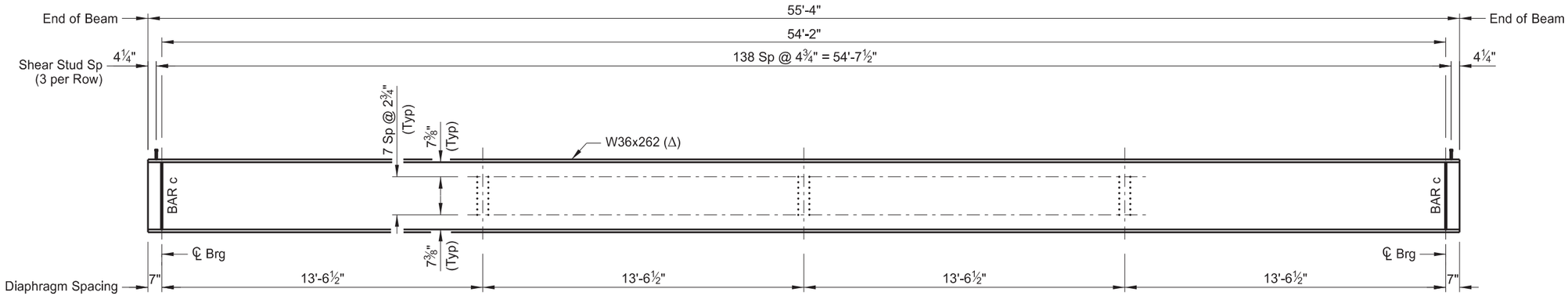
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	39



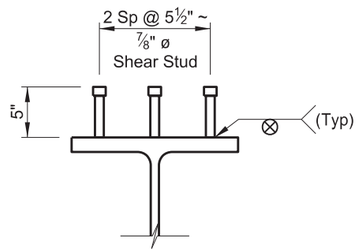
SPAN 1 BEAM 1 ELEVATION



SPAN 2 & 3 BEAM 1 ELEVATION

NOTES:

1. The Beam elevation details shown represent Beam No. 1 in a 22 Beam bridge. Other Beams are similar. Fabricate other Beams in accordance with Dwgs 0297-000.303 N B-36 thru 0297-000.303 N B-42.
2. Perform the Charpy V-notch toughness test on all main load carrying members subject to tensile stress indicated by Δ. Meet the requirements of AREMA Table 15-1-2 for Zone 3.
3. All dimensions shown are horizontal.
4. South face of Beam shown, north face similar.
5. For exterior beams, use STIFFENERS a or c. For interior beams, use STIFFENERS b or d.
6. Place the natural camber in the up position.
7. The bottom flanges of the beams must be square with the vertical axis at both ends of the beams to provide uniform bearing on the sole plate.
8. All holes are $^{15}/_{16}$" Dia unless noted otherwise.



SHEAR STUD DETAIL

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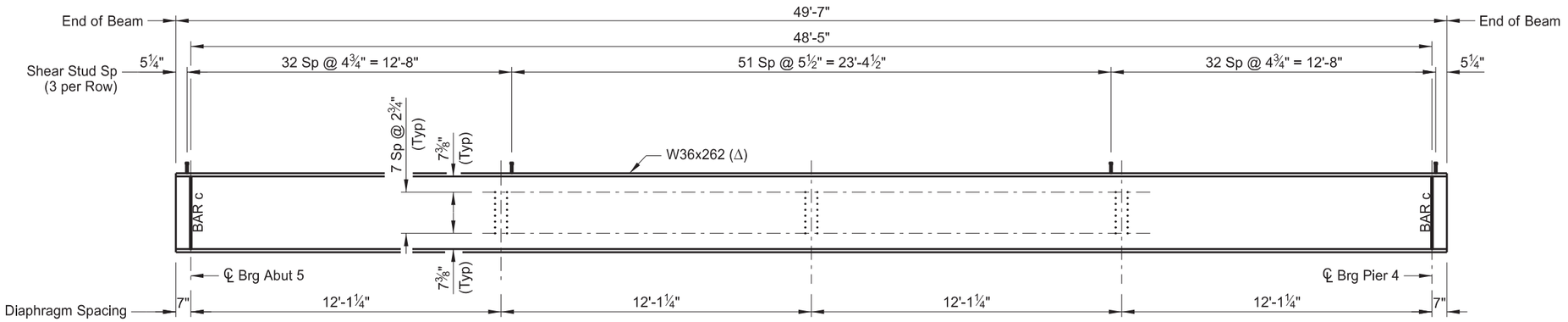
Over 42nd Street

BEAM ELEVATION SPAN 1, 2 & 3

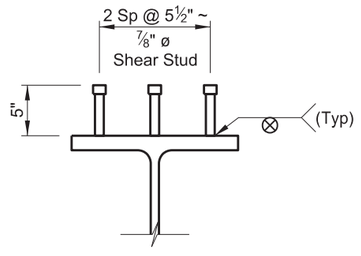
DRAWING NO. 0297-000.303 N B-39

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	40



SPAN 4 BEAM 1 ELEVATION



SHEAR STUD DETAIL

NOTES:

1. The Beam elevation details shown represent Beam No. 1 in a 22 Beam bridge. Other Beams are similar. Fabricate other Beams in accordance with Dwgs 0297-000.303 N B-36 thru 0297-000.303 N B-42.
2. Perform the Charpy V-notch toughness test on all main load carrying members subject to tensile stress indicated by Δ. Meet the requirements of AREMA Table 15-1-2 for Zone 3.
3. All dimensions shown are horizontal.
4. South face of Beam shown, north face similar.
5. For exterior beams, use STIFFENERS a or c. For interior beams, use STIFFENERS b or d.
6. Place the natural camber in the up position.
7. The bottom flanges of the beams must be square with the vertical axis at both ends of the beams to provide uniform bearing on the sole plate.
8. All holes are $^{15}/_{16}$" Dia unless noted otherwise.

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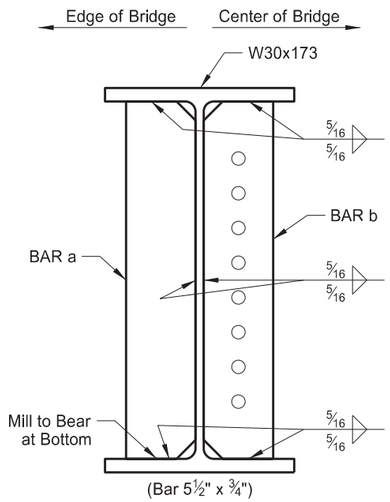
Over 42nd Street

BEAM ELEVATION SPAN 4

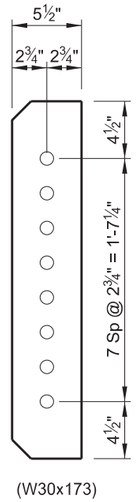
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

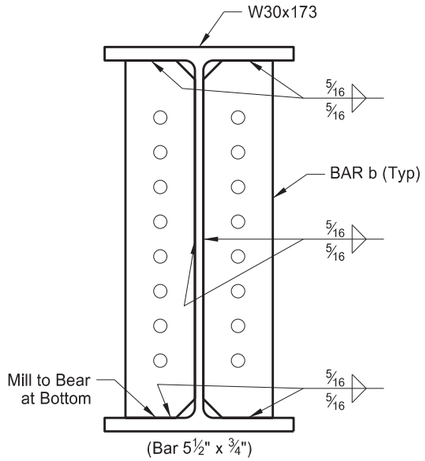
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	41



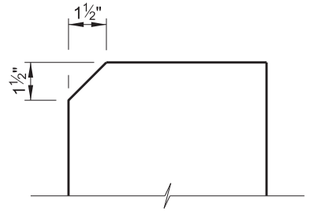
STIFFENER a



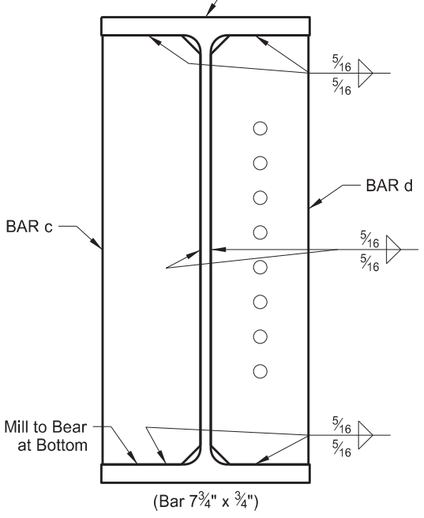
BAR b DETAIL
(BAR a similar, except without bolt holes)



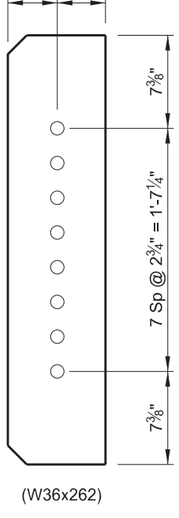
STIFFENER b



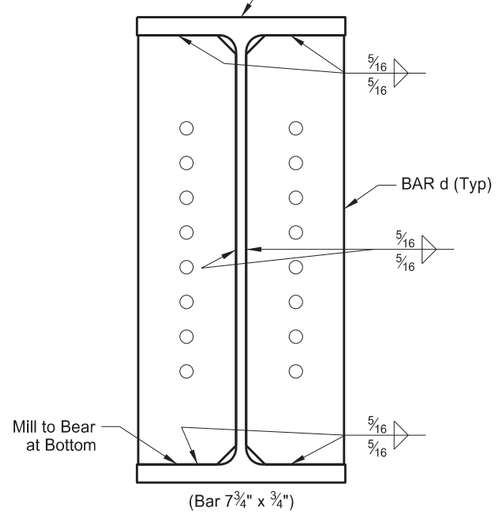
STIFFENER CLIP DETAIL



STIFFENER c



BAR d DETAIL
(BAR c similar, except without bolt holes)



STIFFENER d

NOTES:

1. Span 2 beam shown, Spans 3 & 4 similar for STIFFENER c & d.
2. See Dwg 0297-000.303 N B-39 and Dwg 0297-000.303 N B-40 for STIFFENER locations.
3. For exterior beams, use STIFFENERS a or c. For interior beams, use STIFFENERS b or d.
4. All holes are 15/16" Dia unless noted otherwise.

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LS 32, MP 110.067

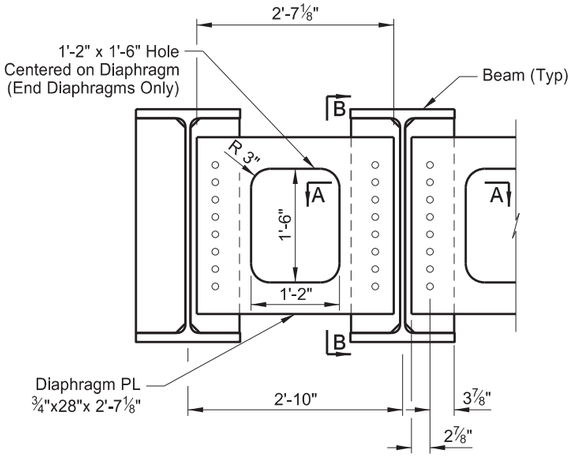
Over 42nd Street

STIFFENER DETAILS

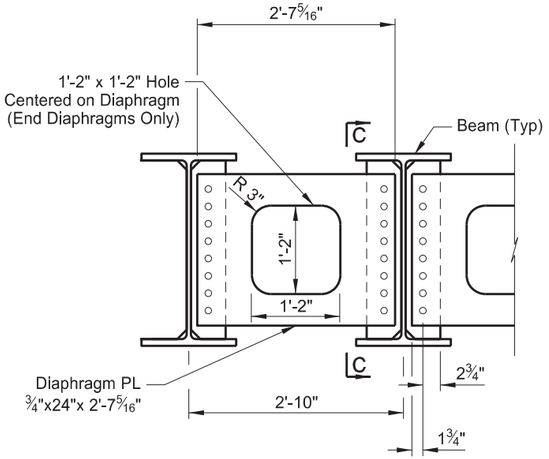
DRAWING NO. 0297-000.303 N B-41

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

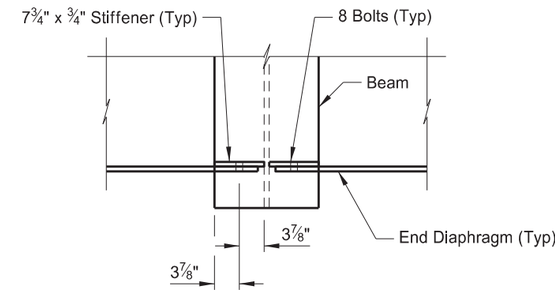
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	ND	RCE-FTF-NHU-SU-6-297(014)000	170b	42



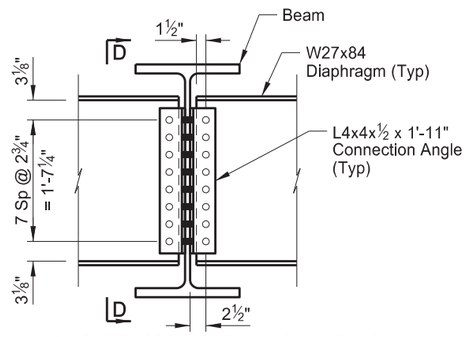
SPAN 2-4 END DIAPHRAGM DETAIL
(Beam Bay 1 Shown; Bays 2-21 Similar)



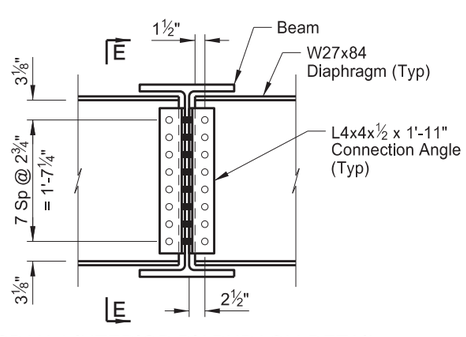
SPAN 1 END DIAPHRAGM DETAIL
(Beam Bay 1 Shown; Bays 2-21 Similar)



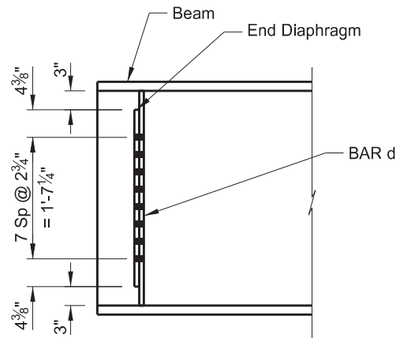
A-A
(Span 2 shown, Spans 1, 3 & 4 similar)



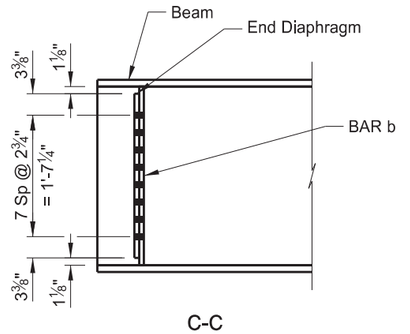
SPAN 2-4 INTERIOR DIAPHRAGM DETAIL



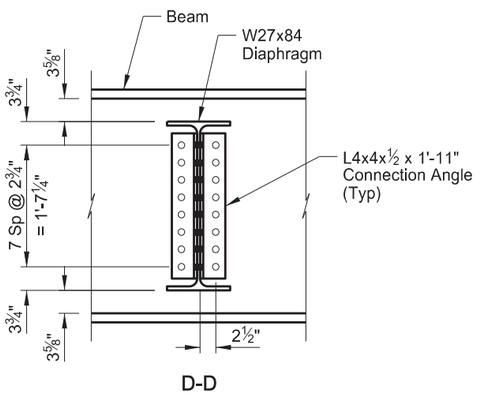
SPAN 1 INTERIOR DIAPHRAGM DETAIL



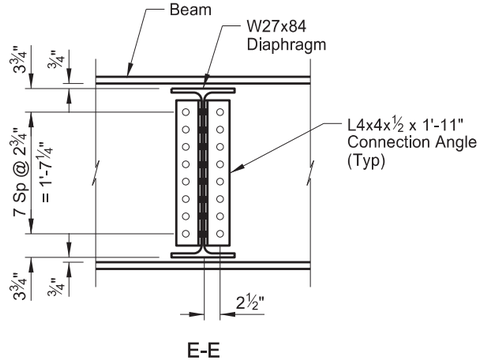
B-B



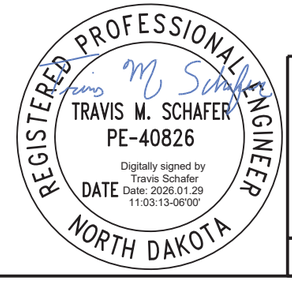
C-C



D-D



E-E



BNSF Grand Forks Subdivision
LS 32, MP 110.067

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DIAPHRAGM DETAILS

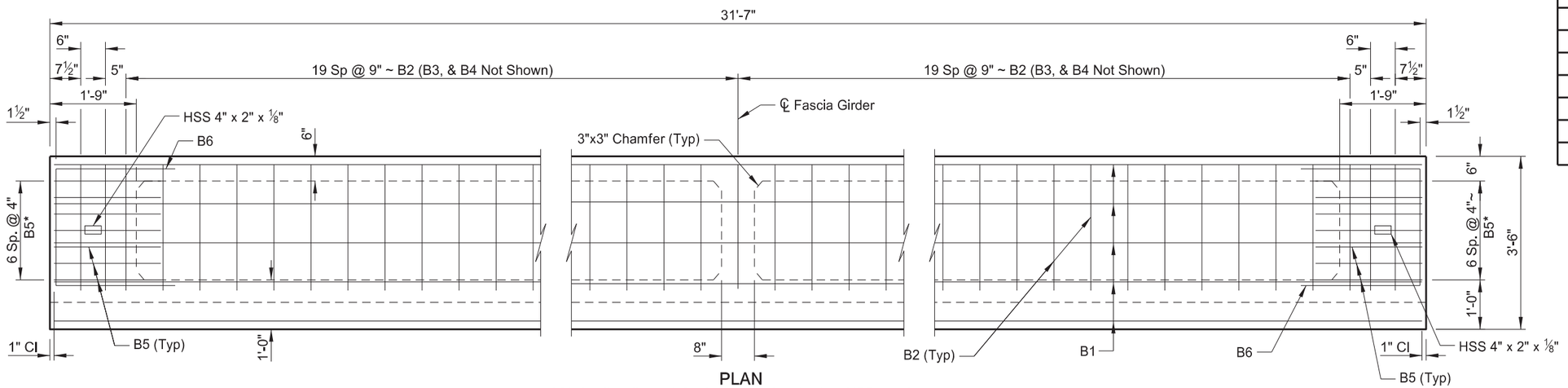
DRAWING NO.	0297-000.303 N B-42

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

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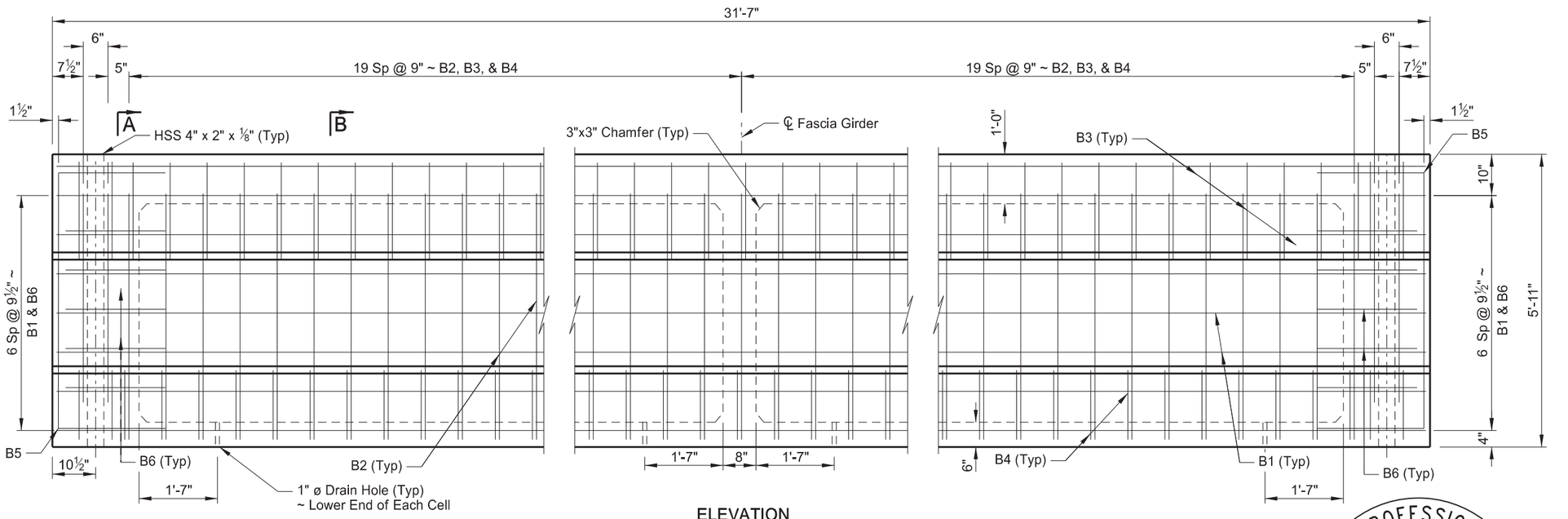
BAR LIST ~ ONE BEAM

MARK	SIZE	NO.	LENGTH	SHAPE
B1	4	27	31'-3"	STR
B2	4	43	17'-2"	BENT
B3	4	43	3'-10"	BENT
B4	4	43	4'-3"	BENT
B5	4	14	9'-6"	BENT
B6	4	10	7'-7"	BENT

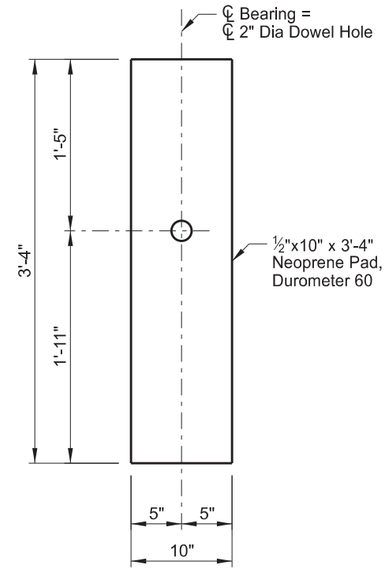


PLAN

* Minimally adjust reinforcing as required to clear HSS member.



ELEVATION



ELASTOMERIC BEARING PAD DETAIL

NOTES:

1. Aesthetics details omitted for clarity.
2. See Dwg 0297-000.303 N B-46 for Sections A-A and B-B.
3. See Dwg 0297-000.303 N B-48 for Bent Bar Details and Dowel Bar Installation Details.

REGISTERED PROFESSIONAL ENGINEER
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BNSF Grand Forks Subdivision
LS 32, MP 110.067

Over 42nd Street

PRESTRESSED CONCRETE FASCIA GIRDERS (SPAN 1)

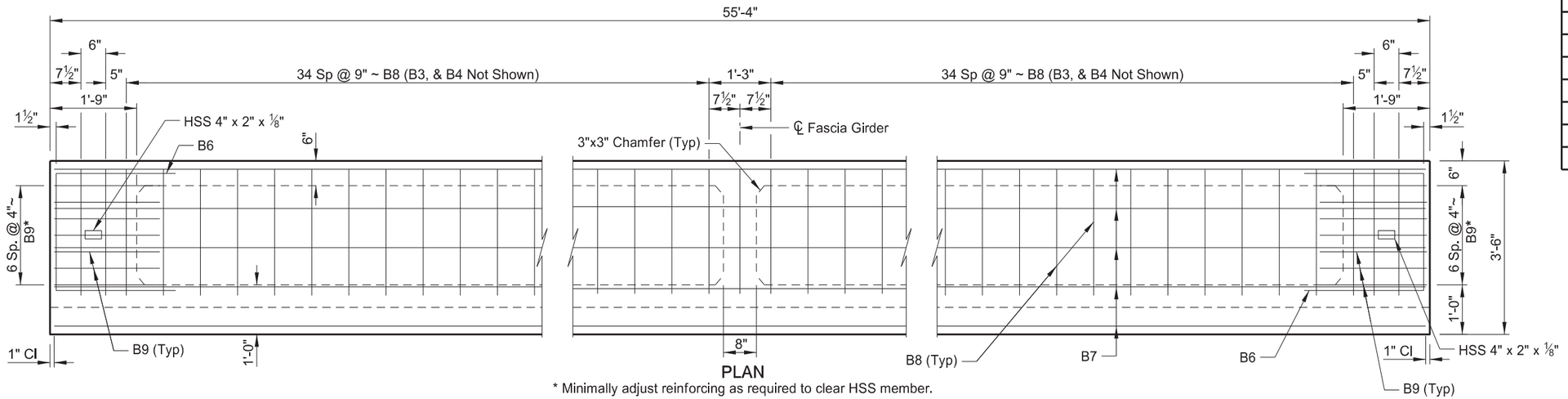
DRAWING NO. 0297-000.303 N B-43

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	44

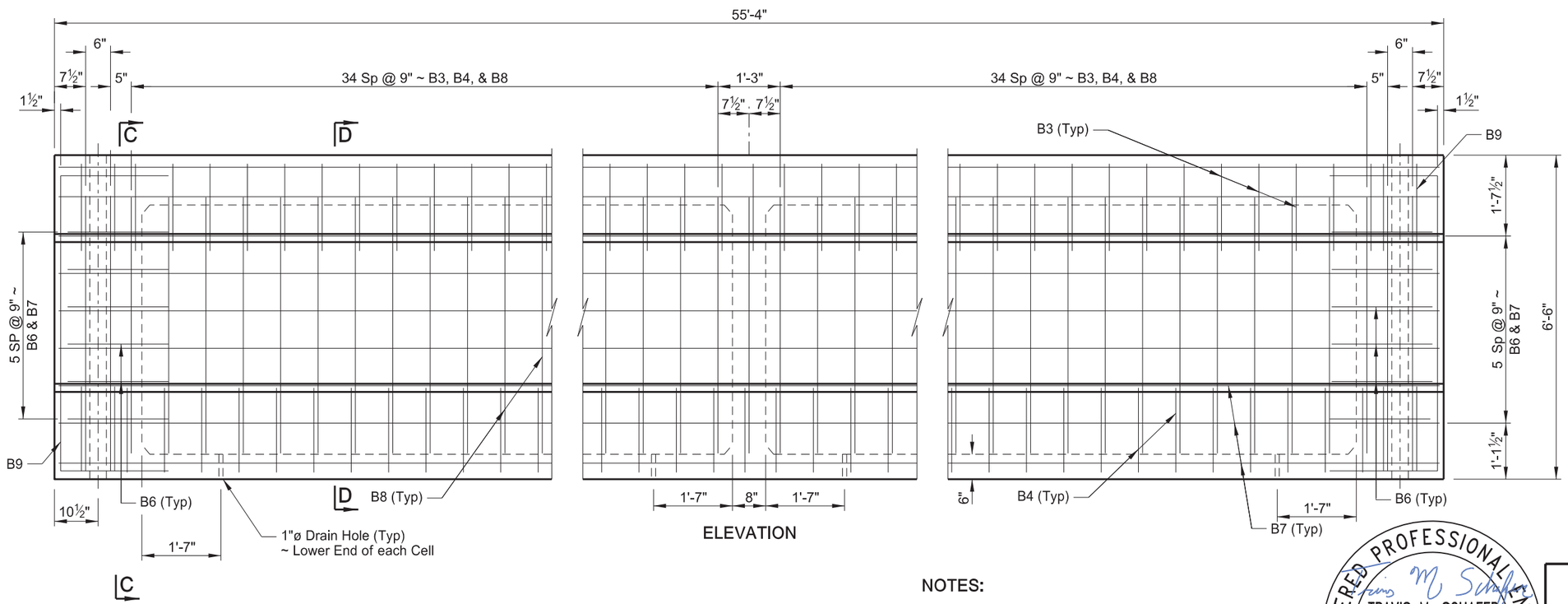
BAR LIST ~ ONE BEAM

MARK	SIZE	NO.	LENGTH	SHAPE
B3	4	75	3'-10"	BENT
B4	4	75	4'-3"	BENT
B6	4	12	7'-7"	BENT
B7	4	29	55'-0"	STR
B8	4	75	18'-4"	BENT
B9	4	14	10'-1"	BENT



PLAN

* Minimally adjust reinforcing as required to clear HSS member.



ELEVATION

NOTES:

1. Aesthetics details omitted for clarity.
2. See Dwg 0297-000.303 N B-47 for Sections C-C and D-D.
3. See Dwg 0297-000.303 N B-48 for Bent Bar Details and Dowel Bar Installation Details.

REGISTERED PROFESSIONAL ENGINEER
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LS 32, MP 110.067

Over 42nd Street

PRESTRESSED CONCRETE
FASCIA GIRDERS (SPANS 2 & 3)

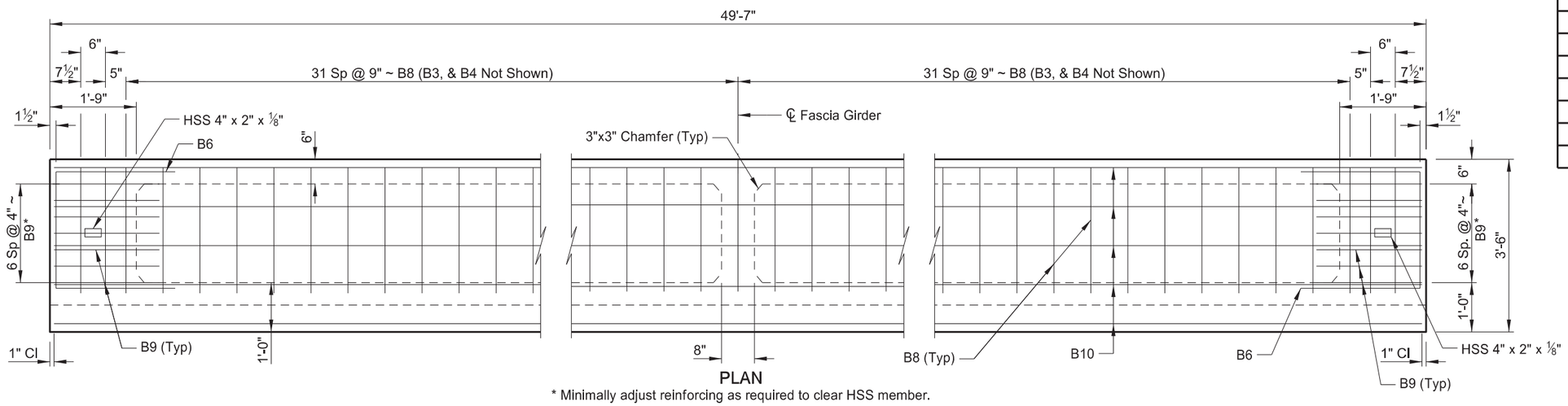
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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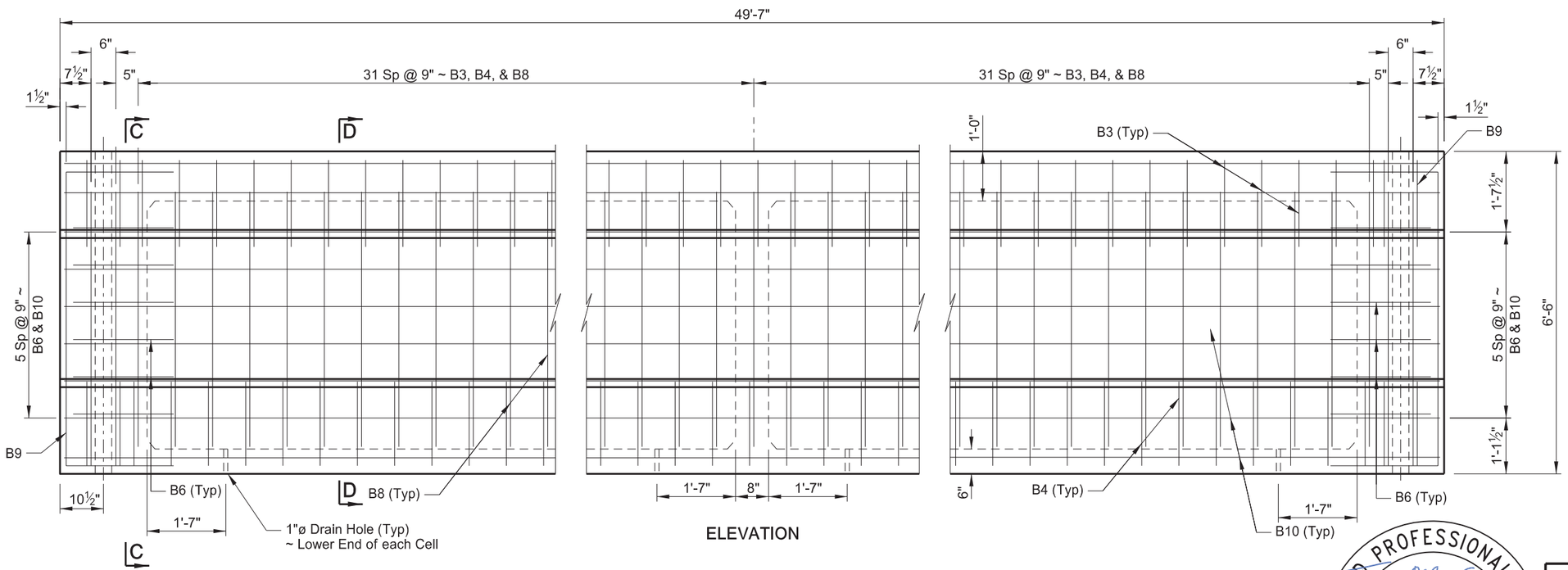
BAR LIST ~ ONE BEAM

MARK	SIZE	NO.	LENGTH	SHAPE
B3	4	67	3'-10"	BENT
B4	4	67	4'-3"	BENT
B6	4	12	7'-7"	BENT
B8	4	67	18'-4"	BENT
B9	4	14	10'-1"	BENT
B10	4	29	49'-3"	STR



PLAN

* Minimally adjust reinforcing as required to clear HSS member.



ELEVATION

NOTES:

1. Aesthetics details omitted for clarity.
2. See Dwg 0297-000.303 N B-47 for Sections C-C and D-D.
3. See Dwg 0297-000.303 N B-48 for Bent Bar Details and Dowel Bar Installation Details.

REGISTERED PROFESSIONAL ENGINEER
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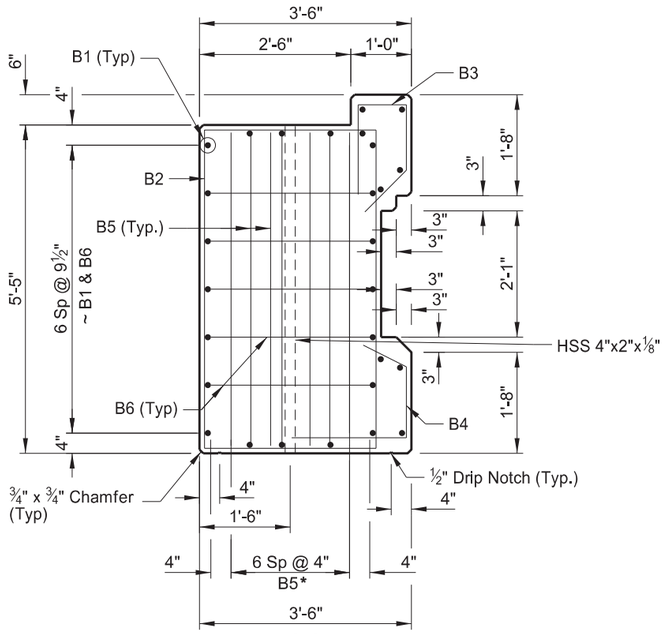
Over 42nd Street

PRESTRESSED CONCRETE
FASCIA GIRDERS (SPAN 4)

DRAWING NO. 0297-000.303 N B-45

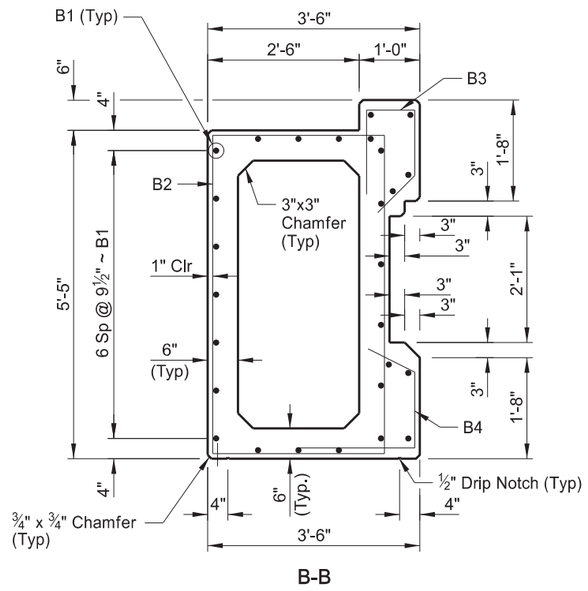
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	46

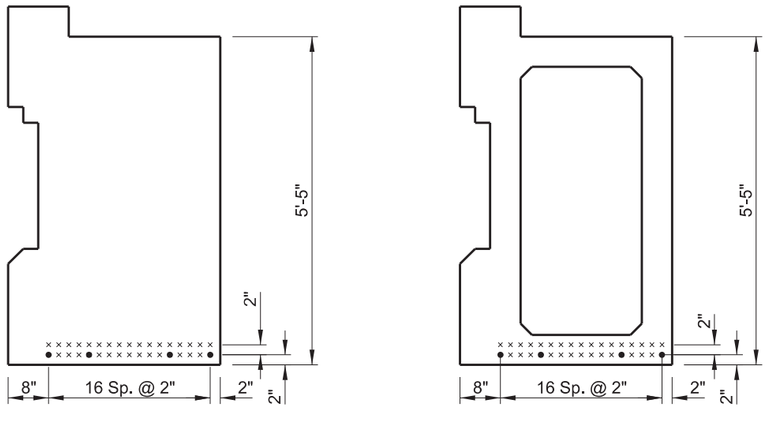


A-A

* Minimally adjust reinforcing as required to clear HSS member.



B-B



END VIEW SECTION @ CL

PRESTRESSING STRAND LAYOUT (SPAN 1)

KEY:
- × Vacant Strand Location
- • Filled Strand Location (Bonded)

BEAM SECTION DATA (SPAN 1)		
Beam Wt = 1,488.6 lbs/ft + 5,624 lbs for End Blocks		
Beam Length	31.58	ft
Total Beam Weight	26.4	tons
Cross Sectional Area at End Span	2,637	in^2
Cross Sectional Area At Midspan	1,383	in^2
C.G. from Bottom of Beam At Midspan	32.50	in
Moment of Inertia at Midspan (I)	537,839	in^4
Section Modulus at Midspan (SB)	16,549	in^3

MINIMUM CONCRETE COMPRESSIVE STRENGTH		
Detensioning Strength (f'ci)	4.00	ksi
Acceptance Strength (f'c)	5.00	ksi

PRESTRESSING STRAND DATA			
0.60" Diameter - Grade 270 Prestressing Strands			
Initial Prestress = 0.75 * fpu			
	Number	Y Distance (inches)	
		Midspan	End Span
Straight Strands	4	2.00	2.00
Draped Strands	0	0.00	0.00
Total Strands	4	2.00	2.00

PRESTRESS LOSSES		
Elastic Shortening Loss	2.67	ksi
Long Term Losses	14.39	ksi
Total Losses	17.06	ksi

PRESTRESS FORCES		
Initial Prestress Force	175.8	kips
Final P/S Force after Losses	161.0	kips

NOTES:

1. Materials and Construction Requirements shall conform to NDDOT Standard Specifications for Road and Bridge Construction, Section 604.
2. Include the cost to provide the dowels, grout and neoprene seal in the unit price bid for "Prestressed Concrete Fascia Girder".
3. End drip notch 3' before face of substructure.
4. See Dwg 0297-000.303-N B-43 for Section A-A through B-B locations.
5. At least 14 days prior to the forming and pouring of any beams, the contractor will submit work drawings to the Engineer for review. The work drawings will include the total initial prestress force and the losses in the prestress due to elastic shortening, shrinking, or creeping of concrete and the relaxation of steel stress as determined by the contractor for their method of stressing.
6. Show strand layout, pull down locations, tensioning forces, elongation and any proposed changes in reinforcing steel in the work drawings.
7. Pour girders in all steel forms.
8. All reinforcing steel will have a concrete cover of 1" unless otherwise noted.
9. Top of girders to have a broom (sidewalk) finish.
10. Minor changes to the shape of the girder and to the reinforcing steel may be made to accommodate the forms of various contractors and their construction methods with the approval of the Engineer.
11. Provide handling hooks or devices as required by the contractor. Hooks or devices provided will be subject to approval of the Engineer and will be installed within 4'-0" of the end of the girder. Lifting devices shall be removed with any annulus spaces grouted smooth following erection. Provide blockouts at prestressing strands. Cut strands back 2" into concrete and patch blockout.

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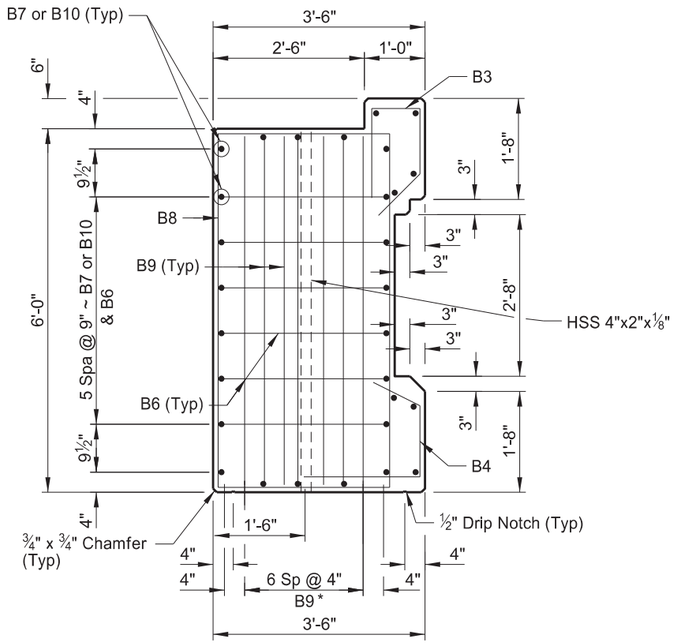
Over 42nd Street

PRESTRESSED CONCRETE FASCIA GIRDER DETAILS

DRAWING NO. 0297-000.303 N B-46

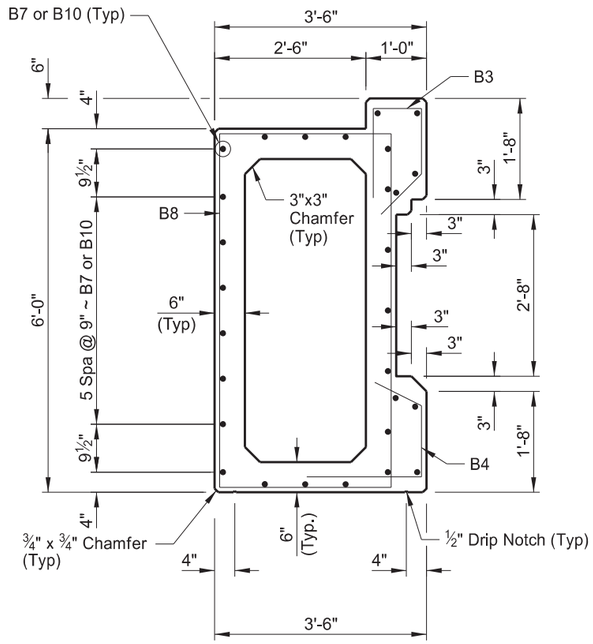
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	47



C-C

* Minimally adjust reinforcing as required to clear HSS member.



D-D

BEAM SECTION DATA (SPANS 2 & 3)		
Beam Wt = 1,579.1 lbs/ft + 6,378 lbs for End Blocks		
Beam Length	55.33	ft
Total Beam Weight	46.9	tons
Cross Sectional Area at End Span	2,889	in^2
Cross Sectional Area At Midspan	1,467	in^2
C.G. from Bottom of Beam At Midspan	36.00	in
Moment of Inertia at Midspan (I)	702,896	in^4
Section Modulus at Midspan (SB)	19,525	in^3

MINIMUM CONCRETE COMPRESSIVE STRENGTH		
Detensioning Strength (f'ci)	4.00	ksi
Acceptance Strength (f'c)	5.00	ksi

PRESTRESSING STRAND DATA			
0.60" Diameter - Grade 270 Prestressing Strands			
Initial Prestress = 0.75 * fpu			
	Number	Y Distance (inches)	
		Midspan	End Span
Straight Strands	6	2.00	2.00
Draped Strands	0	0.00	0.00
Total Strands	6	2.00	2.00

PRESTRESS LOSSES		
Elastic Shortening Loss	2.38	ksi
Long Term Losses	13.55	ksi
Total Losses	15.93	ksi

PRESTRESS FORCES		
Initial Prestress Force	263.7	kips
Final P/S Force after Losses	242.9	kips

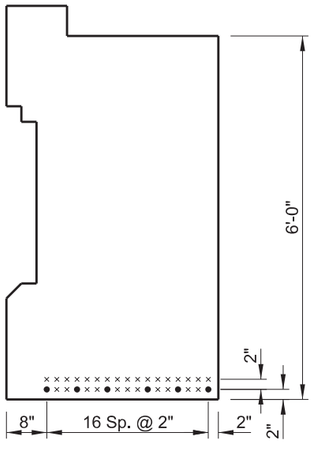
BEAM SECTION DATA (SPAN 4)		
Beam Wt = 1,579.1 lbs/ft + 6,378 lbs for End Blocks		
Beam Length	49.58	ft
Total Beam Weight	42.4	tons
Cross Sectional Area at End Span	2,889	in^2
Cross Sectional Area At Midspan	1,467	in^2
C.G. from Bottom of Beam At Midspan	36.00	in
Moment of Inertia at Midspan (I)	702,896	in^4
Section Modulus at Midspan (SB)	19,525	in^3

MINIMUM CONCRETE COMPRESSIVE STRENGTH		
Detensioning Strength (f'ci)	4.00	ksi
Acceptance Strength (f'c)	5.00	ksi

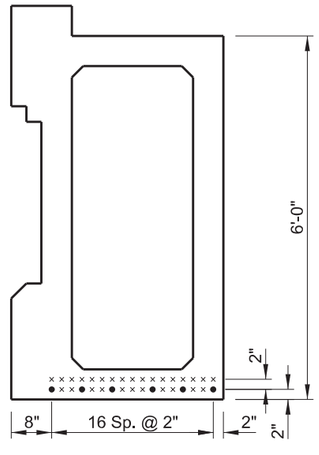
PRESTRESSING STRAND DATA			
0.60" Diameter - Grade 270 Prestressing Strands			
Initial Prestress = 0.75 * fpu			
	Number	Y Distance (inches)	
		Midspan	End Span
Straight Strands	6	2.00	2.00
Draped Strands	0	0.00	0.00
Total Strands	6	2.00	2.00

PRESTRESS LOSSES		
Elastic Shortening Loss	2.9	ksi
Long Term Losses	14.42	ksi
Total Losses	17.35	ksi

PRESTRESS FORCES		
Initial Prestress Force	263.7	kips
Final P/S Force after Losses	241.1	kips



END VIEW



SECTION @ CL

PRESTRESSING STRAND LAYOUT (SPANS 2-4)

KEY:
- × Vacant Strand Location
- • Filled Strand Location (Bonded)

NOTES:

1. See Dwg 0297-000.303 N B-46 for additional notes.
2. See Dwg 0297-000.303 N B-44-45 for Section C-C through Section D-D locations.

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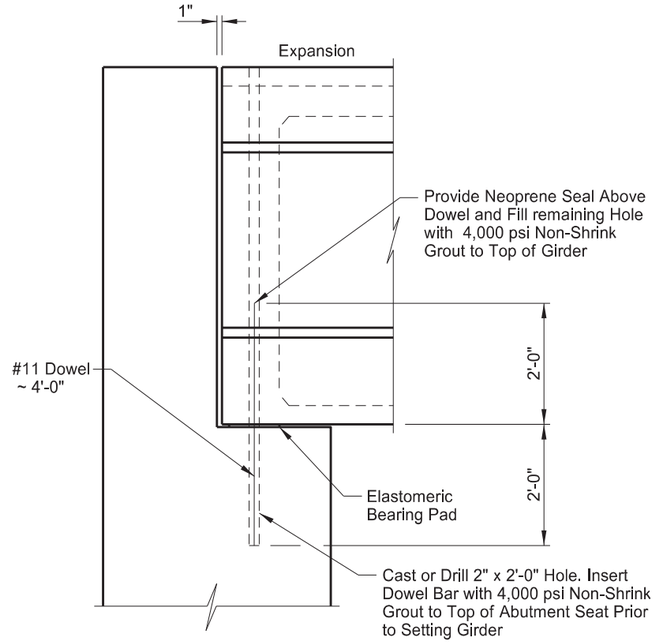
Over 42nd Street

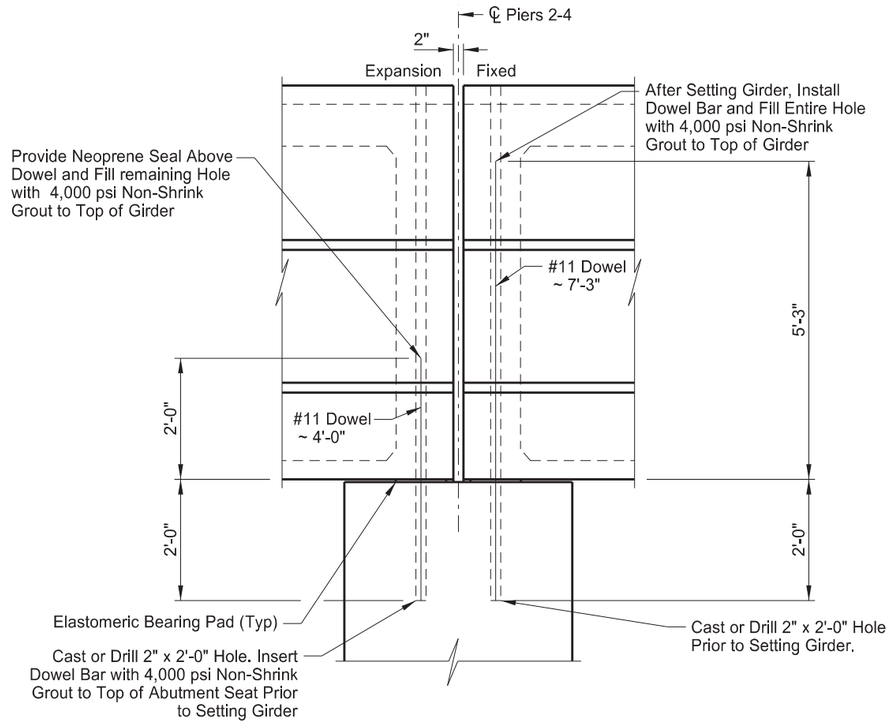
PRESTRESSED CONCRETE FASCIA GIRDER DETAILS

DRAWING NO. 0297-000.303 N B-47

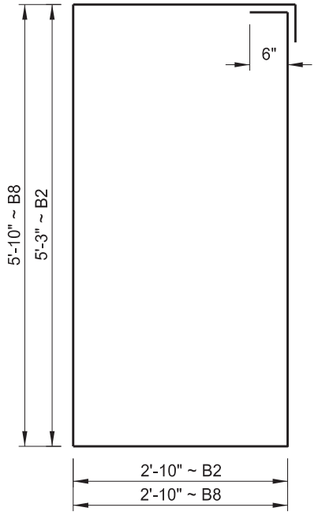
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	48

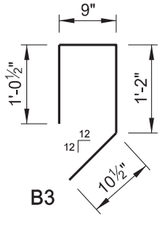




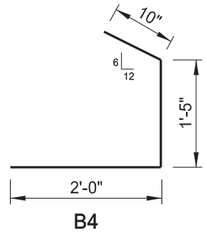
DOWEL BAR INSTALLATION AT ABUTMENTS 1 & 5



B2 & B8



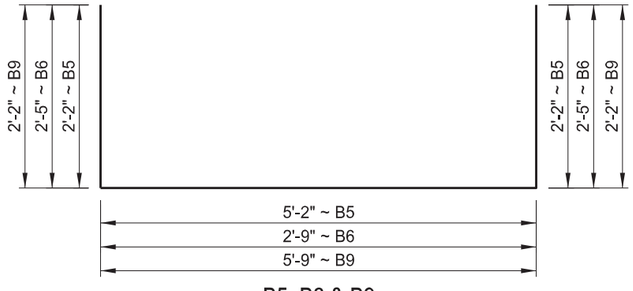
B3



B4

DOWEL BAR INSTALLATION AT PIERS 2-4

(Pier 3 Shown, Piers 2 & 4 Similar)



B5, B6 & B9

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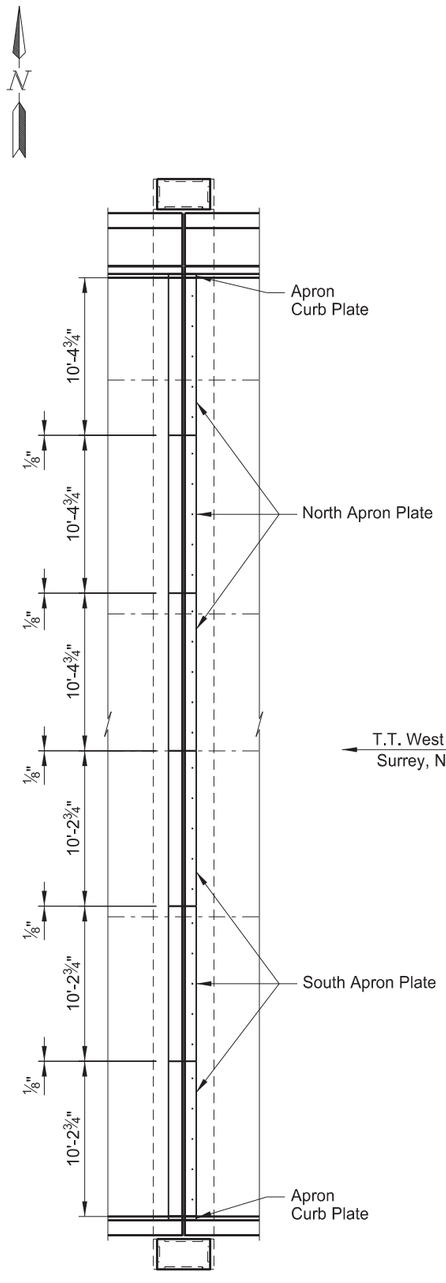
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PRESTRESSED CONCRETE FASCIA GIRDER DETAILS

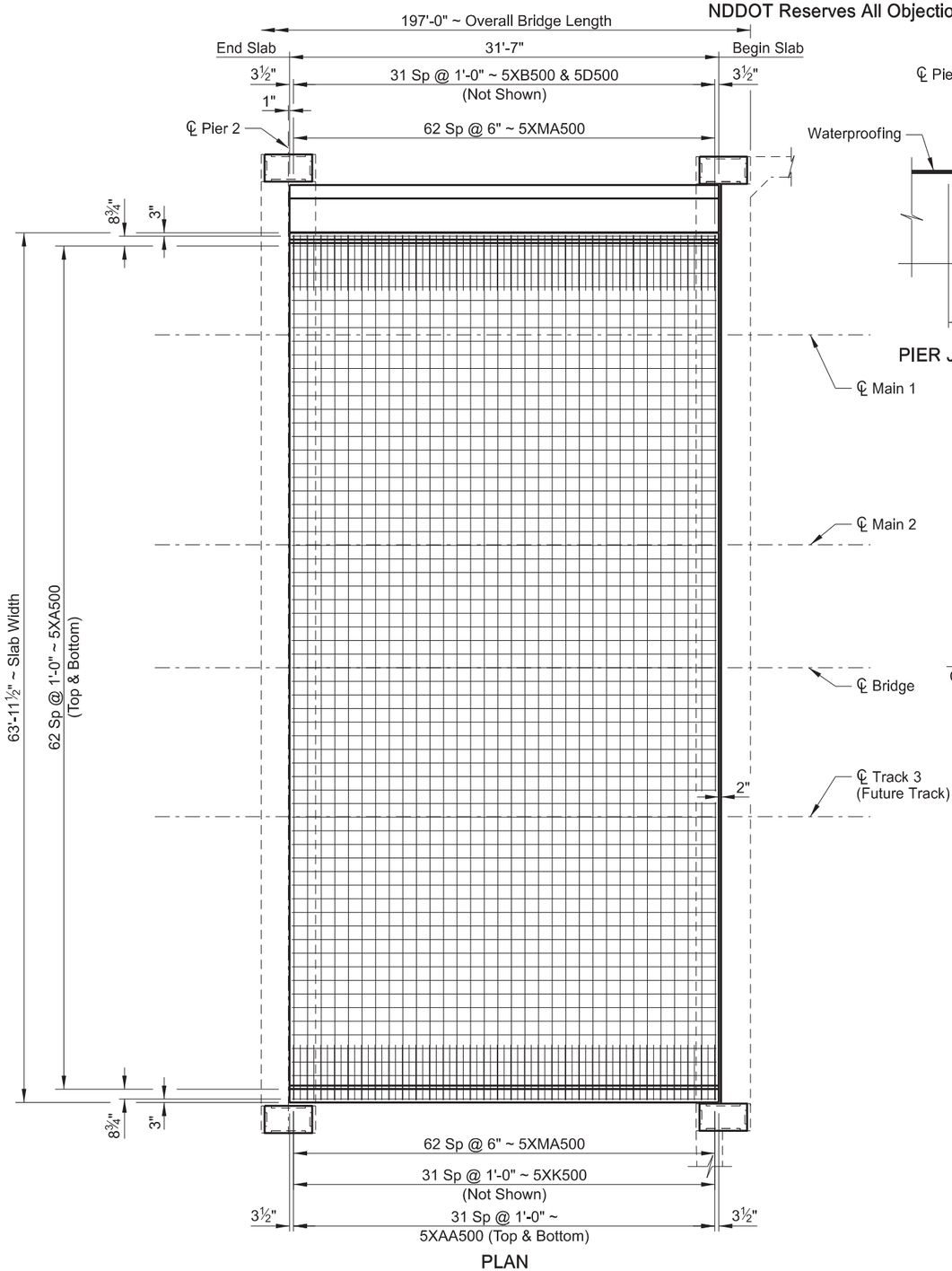
DRAWING NO. 0297-000.303 N B-48

23 U.S.C. § 407 Documents
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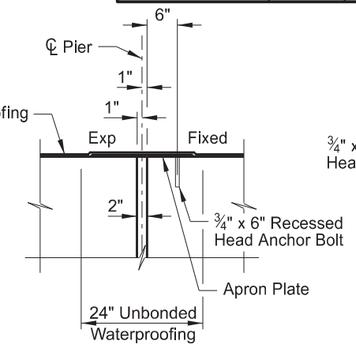
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	49



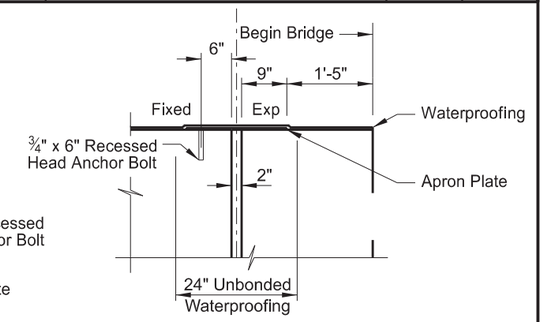
APRON PLATE LAYOUT
(Pier 2 Shown, Other Locations Similar)



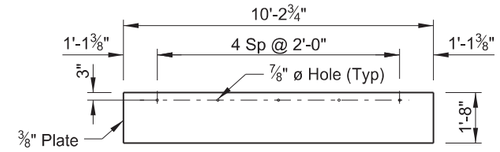
PLAN



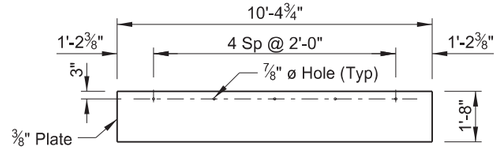
PIER JOINT SEAL DETAIL



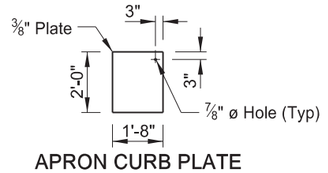
ABUTMENT JOINT SEAL DETAIL



SOUTH APRON PLATE
Galvanize after fabrication
15 Req'd



NORTH APRON PLATE
Galvanize after fabrication
15 Req'd



APRON CURB PLATE
Galvanize after fabrication
10 Req'd

QUANTITIES	Concrete Slab (Span 1)
SUPERSTRUCTURE CONCRETE	69.2 CY
REINFORCING STEEL	0 LBS
REINFORCING STEEL (EPOXY)	10,055 LBS

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LS 32, MP 110.067

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SLAB LAYOUT SPAN 1

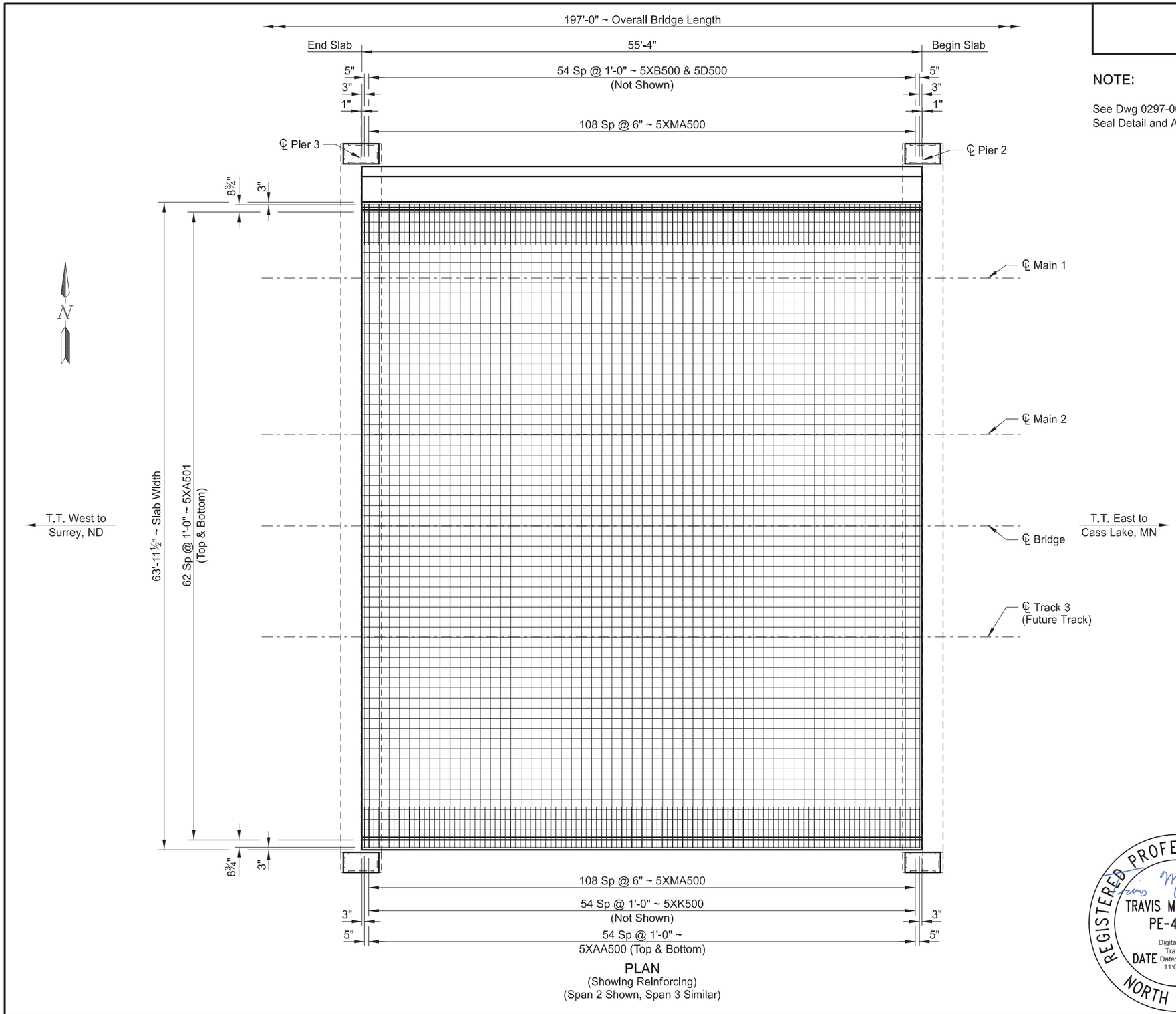
DRAWING NO. 0297-000.303 N B-49

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170b	50

NOTE:

See Dwg 0297-000.303 N B-49 for Pier Joint Seal Detail and Apron Plate Details.

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections



PLAN
(Showing Reinforcing)
(Span 2 Shown, Span 3 Similar)

QUANTITIES	Concrete Slab (Span 2)
SUPERSTRUCTURE CONCRETE	121.3 CY
REINFORCING STEEL	0 LBS
REINFORCING STEEL (EPOXY)	17,800 LBS

QUANTITIES	Concrete Slab (Span 3)
SUPERSTRUCTURE CONCRETE	121.3 CY
REINFORCING STEEL	0 LBS
REINFORCING STEEL (EPOXY)	17,800 LBS

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Over 42nd Street

SLAB LAYOUT SPAN 2 & 3

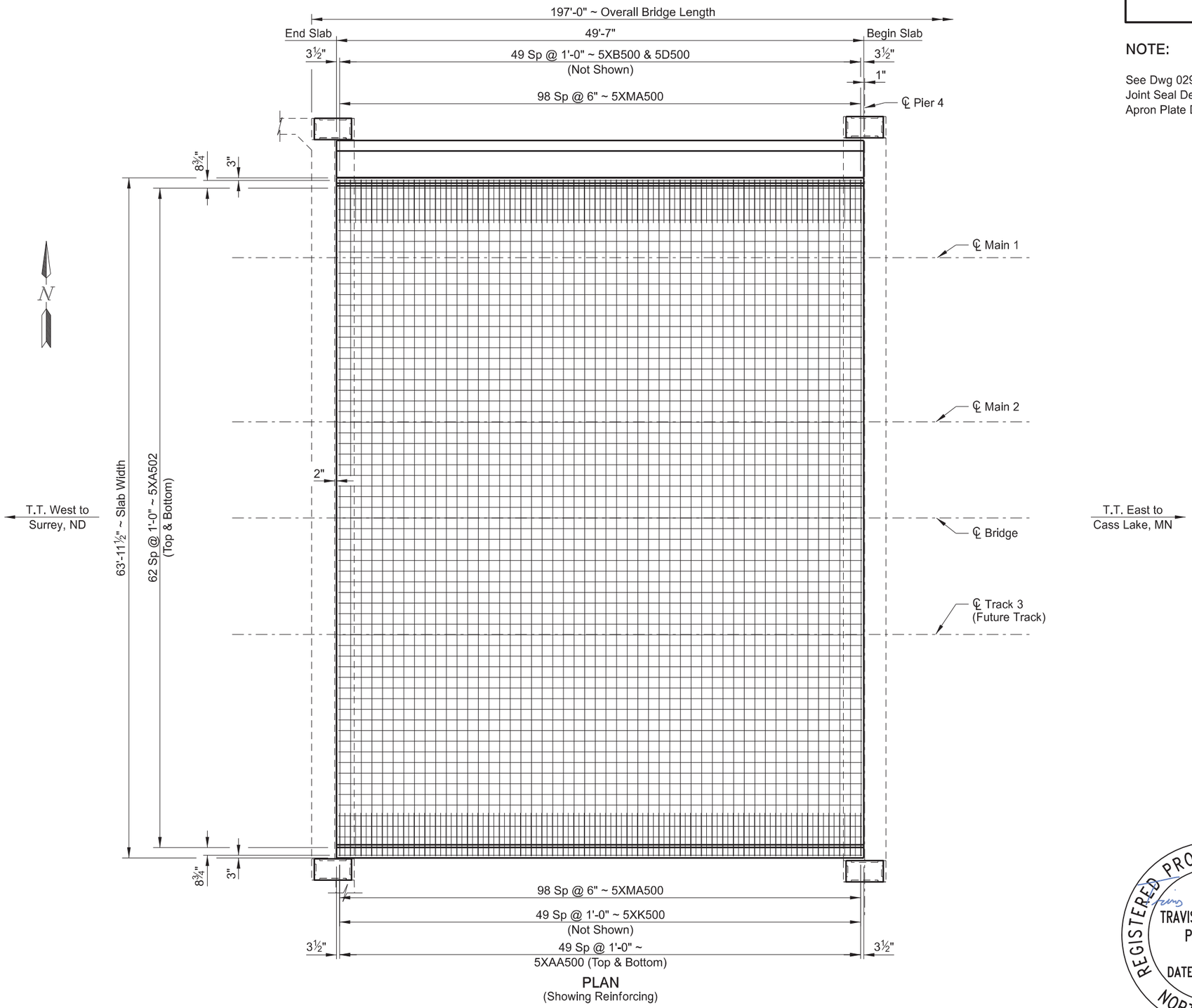
DRAWING NO.	0297-000.303 N B-50

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170b	51

NOTE:

See Dwg 0297-000.303 N B-49 for Abutment Joint Seal Detail, Pier Joint Seal Detail and Apron Plate Details.

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections



PLAN
(Showing Reinforcing)

REGISTERED PROFESSIONAL ENGINEER
TRAVIS M. SCHAFER
PE-40826
Digitally signed by Travis Schafer
DATE Date: 2026.01.29 11:03:41-06'00'
NORTH DAKOTA

QUANTITIES	Concrete Slab (Span 4)
SUPERSTRUCTURE CONCRETE	108.7 CY
REINFORCING STEEL	0 LBS
REINFORCING STEEL (EPOXY)	15,778 LBS

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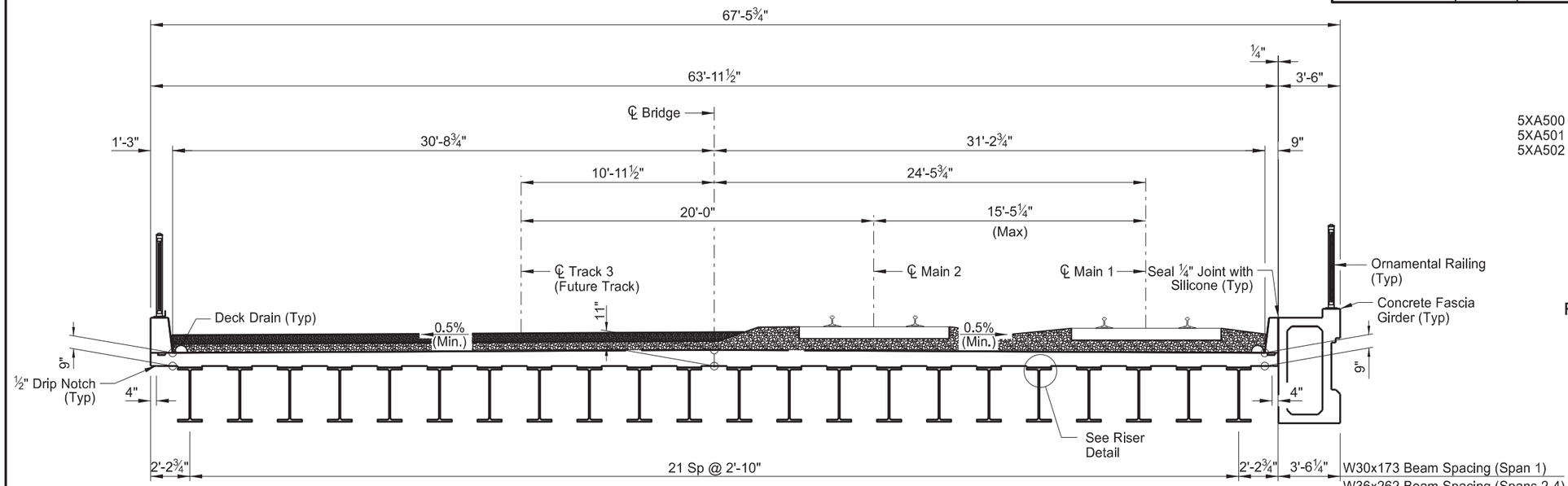
Over 42nd Street

SLAB LAYOUT SPAN 4

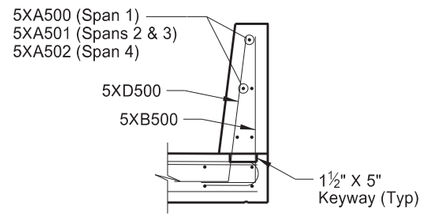
DRAWING NO. 0297-000.303 N B-51

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170b	52

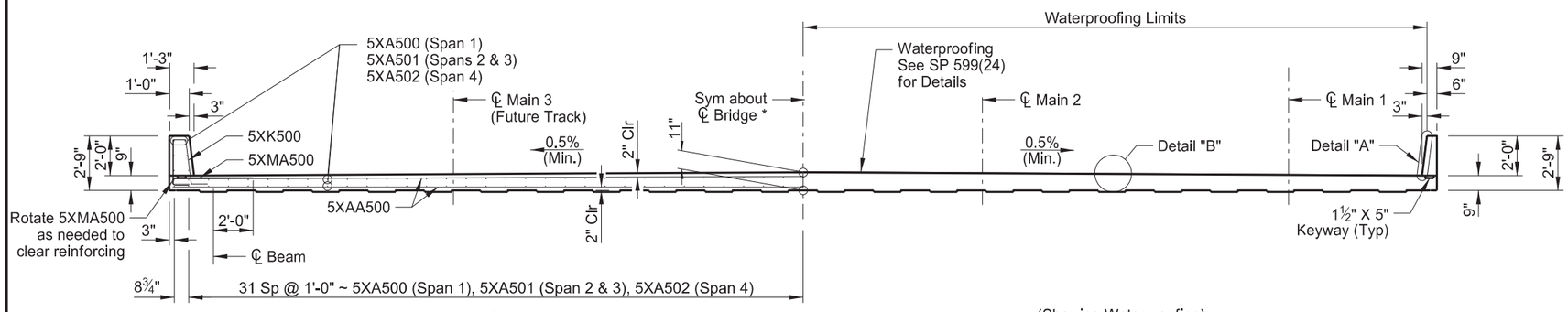
23 U.S.C. § 407 Documents
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SLAB SECTION
(Showing Dimensions)



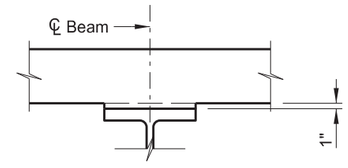
RIGHT BALLAST CURB DETAIL
(Showing Reinforcing)



(Showing Reinforcing)

(Showing Waterproofing)

SLAB SECTION
* Except ballast curb. See Right Ballast Curb Detail for reinforcing

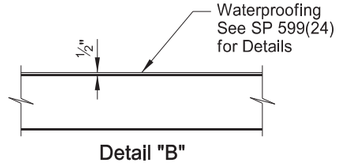


The 1" dimension shown is located at the supports. The anticipated midspan riser is dependent on the natural camber of the beams. Adjust the riser to maintain the slab thickness.

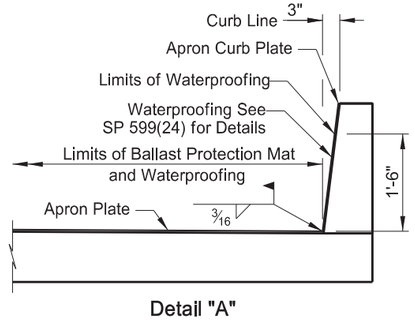
RISER DETAIL

NOTES:

1. Span 2 Shown, Span 1, 3 & 4 similar.
2. Construct v- grooves that are ¾" wide and ¾" deep in all faces of the ballast curb at equal spaces per slab not exceeding 10-foot spacing.
3. Provide deck waterproofing system conforming to SP 599(24). Include all material and work in the unit bid item, "SUPERSTRUCTURE CONCRETE".



Detail "B"



Detail "A"

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11:03:45-06'00'
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BNSF Grand Forks Subdivision
LS 32, MP 110.067

Over 42nd Street

SLAB SECTION

DRAWING NO. 0297-000.303 N B-52

BILL OF REINFORCING STEEL, GRADE 60

LETTER PREFIX OF BAR MARK DENOTES SHAPE ~ SEE BAR DETAILS

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	53

LOCATION		SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS a	b	c	d	e	f	g	h	k
ABUTMENT 1	REGULAR	5	A100	108	4'-6"		4'-6"							
		5	A101	8	1'-7"		1'-7"							
		5	A102	8	4'-2"		4'-2"							
		10	AA100	13	83'-6"		60'-0"	6'-4"	23'-6"	1		77'-2"		
		8	AA100	15	81'-7"		60'-0"	4'-5"	21'-7"	1		77'-2"		
		6	AA100	8	80'-6"		60'-0"	3'-4"	20'-6"	1		77'-2"		
		9	C100	120	16'-4"		3'-4"	9'-8"	3'-4"					
		8	C101	120	14'-8"		2'-6"	9'-8"	2'-6"					
		8	F100	45	5'-2½"	2'-1"	1'-0½"				4"			
		5	XAA100	55	74'-7"		60'-0"	3'-4"	14'-7"	1		71'-3"		
		8	XA100	113	10'-8"		10'-8"							
		7	XA100	17	8'-7"		8'-7"							
		6	XA100	9	16'-5"		16'-5"							
		5	XA100	121	10'-8"		10'-8"							
		5	XA101	23	8'-0"		8'-0"							
		5	XA102	27	7'-6"		7'-6"							
		5	XA103	188	5'-6"		5'-6"							
		5	XA104	17	7'-9"		7'-9"							
		5	XA105	10	16'-5"		16'-5"							
	EPOXY	8	XB100	113	9'-0"		7'-7"	1'-5"						
		7	XB100	28	6'-4"		5'-1"	1'-3"						
		7	XB101	9	8'-0"		6'-9"	1'-3"						
		5	XB100	121	5'-10"		5'-0"	10"						
		5	XB101	27	5'-5"		4'-7"	10"						
		5	XB102	10	4'-1"		3'-3"	10"						
		5	XB103	10	7'-7"		6'-9"	10"						
		5	XC100	27	7'-10"		10"	6'-2"	10"					
		5	XC101	35	4'-9"		10"	3'-1"	10"					
		5	XC102	103	5'-4"		10"	3'-8"	10"					
		5	XC103	101	3'-6"		10"	1'-10"	10"					
		5	XC104	6	3'-2"		10"	1'-6"	10"					
		5	XC105	4	7'-3"		2'-4"	2'-7"	2'-4"					
		5	XC106	3	2'-8"		10"	1'-0"	10"					
		5	XD101	4	8'-10"		4'-8"	4'-2"					1.5	12
		5	XD102	4	6'-11"		2'-9"	4'-2"					1.5	12
		5	XR100	26	5'-0"	5'-7" 2'-9"	1'-4"	2'-4"	1'-4"				1	1
		5	XSA100	2	17'-0"	1'-10"	5'-9"			2				
		5	XSA101	2	8'-6"		2'-11"			2				
		5	XSC100	1	7'-8"		10"	10"	2'-6"	1				
ABUT PILLARS		7	XA180	28	6'-2"		6'-2"							
		7	XA181	28	5'-8"		5'-8"							
		5	XN180	28	10'-0"	2'-10"	1'-4"	10"						

LOCATION		SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS a	b	c	d	e	f	g	h	k
ABUTMENT 5	REGULAR	5	A100	108	4'-6"		4'-6"							
		5	A101	8	1'-7"		1'-7"							
		5	A102	8	4'-2"		4'-2"							
		9	AA100	13	82'-2"		60'-0"	5'-0"	22'-2"	1		77'-2"		
		7	AA100	15	81'-1"		60'-0"	3'-11"	21'-1"	1		77'-2"		
		6	AA100	8	80'-6"		60'-0"	3'-4"	20'-6"	1		77'-2"		
		8	C100	120	16'-4"		3'-4"	9'-8"	3'-4"					
		8	C101	120	14'-8"		2'-6"	9'-8"	2'-6"					
		8	F100	45	5'-2½"	2'-1"	1'-0½"				4"			
		5	XAA100	57	74'-7"		60'-0"	3'-4"	14'-7"	1		71'-3"		
		9	XA100	113	10'-8"		10'-8"							
		7	XA101	17	8'-1"		8'-1"							
		6	XA101	8	17'-0"		17'-0"							
		5	XA100	121	10'-8"		10'-8"							
		5	XA106	23	8'-6"		8'-6"							
		5	XA107	27	8'-0"		8'-0"							
		5	XA108	188	6'-0"		6'-0"							
		5	XA109	17	7'-9"		7'-9"							
		5	XA110	9	17'-0"		17'-0"							
	EPOXY	9	XB100	113	10'-5"		8'-10"	1'-7"						
		7	XB100	28	6'-4"		5'-1"	1'-3"						
		7	XB102	10	7'-6"		6'-3"	1'-3"						
		5	XB100	121	5'-10"		5'-0"	10"						
		5	XB101	28	5'-5"		4'-7"	10"						
		5	XB102	10	4'-1"		3'-3"	10"						
		5	XB104	11	7'-1"		6'-3"	10"						
		5	XC100	27	7'-10"		10"	6'-2"	10"					
		5	XC101	37	4'-9"		10"	3'-1"	10"					
		5	XC102	103	5'-4"		10"	3'-8"	10"					
		5	XC103	101	3'-6"		10"	1'-10"	10"					
		5	XC104	6	3'-2"		10"	1'-6"	10"					
		5	XC105	4	7'-3"		2'-4"	2'-7"	2'-4"					
		5	XC106	3	2'-8"		10"	1'-0"	10"					
		5	XD101	4	8'-10"		4'-8"	4'-2"					1.5	12
		5	XD102	4	6'-11"		2'-9"	4'-2"					1.5	12
		5	XR100	27	5'-0"	5'-7"	1'-4"	2'-4"	1'-4"				1	1
		5	XSA100	2	17'-0"	2'-9"	5'-9"			2				
		5	XSA101	2	8'-6"	1'-10"	2'-11"			2				
		5	XSC100	1	7'-8"		10"	10"	2'-6"	1				

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NOTE:

See Dwg 0297-000.303 N B-54 for bar notes and bar details.

REGISTERED PROFESSIONAL ENGINEER
TRAVIS M. SCHAFER
PE-40826
Digitally signed by Travis Schafer
DATE Date: 2026.01.29 11:03:48-06'00'
NORTH DAKOTA

BNSF Grand Forks Subdivision
LS 32, MP 110.067

Over 42nd Street

REINFORCING BAR LIST & DETAILS

DRAWING NO. 0297-000.303 N B-53

BILL OF REINFORCING STEEL, GRADE 60

LETTER PREFIX OF BAR MARK DENOTES SHAPE ~ SEE BAR DETAILS

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	54

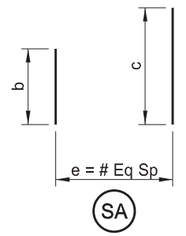
LOCATION		SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS a	b	c	d	e	f	g	h	k
PIERS	REGULAR	9	AA200	54	65'-6"		60'-0"	5'-0"	5'-6"	1		60'-6"		
		7	AA200	54	64'-6"		60'-0"	4'-0"	4'-6"	1		60'-6"		
		6	AA200	18	63'-10"		60'-0"	3'-4"	3'-10"	1		60'-6"		
		11	A200	273	11'-8"		11'-8"							
		6	A200	273	11'-8"		11'-8"							
		5	C200	546	16'-10"		2'-7"	11'-8"	2'-7"					
		5	N200	297	7'-8"	1'-6"	1'-6"	10"						
	EPOXY	11	XAA200	24	80'-9"		60'-0"	9'-1"	20'-9"	1		71'-7"		
		9	XAA200	24	72'-11"		60'-0"	5'-4"	12'-11"	1		67'-7"		
		7	XAA200	6	73'-11"		60'-0"	4'-8"	13'-11"	1		69'-3"		
		7	XAA201	6	75'-1"		60'-0"	4'-8"	15'-1"	1		70'-5"		
		7	XAA202	12	76'-3"		60'-0"	4'-8"	16'-3"	1		71'-7"		
		7	XAA203	42	65'-2"		60'-0"	4'-8"	5'-2"	1		60'-6"		
		5	XAA200	4	67'-0"		60'-0"	3'-4"	7'-0"	1		63'-8"		
		9	XA200	450	12'-3"		12'-3"							
		5	XA200	4	3'-8"		3'-8"							
		9	XB200	546	11'-0"		9'-5"	1'-7"						
		9	XB201	450	9'-8"		8'-1"	1'-7"						
		9	XB202	450	12'-7"		11'-0"	1'-7"						
		7	XB200	84	6'-4"		5'-1"	1'-3"						
		5	XC200	42	5'-4"		10"	3'-8"	10"					
		5	XC202	157	7'-4"		1'-10"	3'-8"	1'-10"					
		5	XC203	102	5'-4"		10"	3'-8"	10"					
		5	XF200	210	11'-5½"	3'-6"	4'-5½"				1'-5"			
		5	XF201	300	8'-3½"	1'-11"	4'-5½"				1'-5"			
		6	XP200	48	7'-8"	1'-3"	2'-6"	2'-8"				2'-6"	1	1
		6	XN200	942	13'-2"	2'-5"	3'-2"	1'-0"					0	1
		5	XN201	150	15'-8"	2'-10"	4'-0"	1'-0"					0	1
		6	XSN200	6	55'-4"	3'-8"	1'-6"	3'-0"	3'-8"	1'-0"				
PIER PILLARS		7	XA280	84	12'-6"		12'-6"							
		5	XN280	78	10'-0"	2'-10"	1'-4"	10"						

LOCATION		SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS a	b	c	d	e	f	g	h	k
NORTH WINGWALLS	REGULAR	5	A150	16	19'-8"		19'-8"							
		5	A151	12	34'-8"		34'-8"							
		6	B150	40	15'-6"		11'-6"	4'-0"						
		5	B150	48	13'-7"		10'-10"	2'-9"						
		5	B151	64	22'-0"		18'-9"	3'-3"						
		7	C150	158	17'-2"		4'-0"	9'-2"	4'-0"					
		7	C151	70	13'-10"		3'-4"	7'-2"	3'-4"					
		6	C150	78	13'-10"		3'-4"	7'-2"	3'-4"					
		8	F100	66	5'-10½"	2'-1"	1'-0½"				4"			
	EPOXY	9	XA150	80	16'-0"		16'-0"							
		7	XA150	140	9'-7"		9'-7"							
		5	XA150	40	7'-6"		7'-6"							
		5	XA151	70	6'-5"		6'-5"							
		5	XA152	40	16'-0"		16'-0"							
		5	XA153	70	9'-7"		9'-7"							
		5	XA154	68	19'-8"		19'-8"							
		5	XA155	40	34'-8"		34'-8"							
		9	XB150	80	12'-2"		10'-7"	1'-7"						
		7	XB150	140	9'-1"		7'-10"	1'-3"						
		5	XC150	110	2'-8"		10"	1'-0"	10"					
		5	XSC150	4	99'-10"	2'-8"	2'-0"	2'-0"	1'-1"	16				
		5	XSC151	4	52'-11"	1'-6"	2'-0"	2'-0"	1'-1"	9				
SUPERSTRUCTURE		5	XAA500	392	66'-4"		60'-0"	2'-5"	6'-4"	1		63'-11"		
		5	XA500	141	31'-3"		31'-3"							
		5	XA501	282	55'-0"		55'-0"							
		5	XA502	141	49'-3"		49'-3"							
		5	XB500	196	2'-10"		2'-3"	7"						
		5	XD500	196	2'-10"		2'-3"	7"					1	8
		5	XK500	196	6'-10"	2'-3"	8"			11"		10"	1.5	12
		5	XMA500	768	4'-8"		4'-1"							

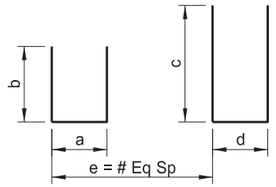
23 U.S.C. 409
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NOTES:

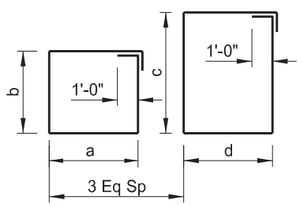
1. All dimensions are out to out of bars.
2. Nominal length of each bent bar or cut bar is the sum total of the detailing dimensions for that bar, unless otherwise noted.
3. Turn adjacent "AA" bars end for end so that the splice locations are staggered.
4. The "f" dimension indicates the inside radius unless otherwise noted.
5. An "X" preceding a bar designation indicates an epoxy coated bar.



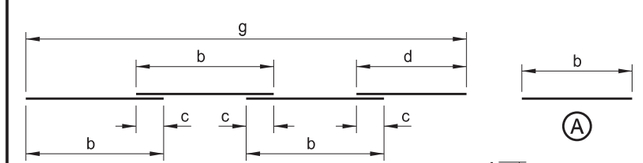
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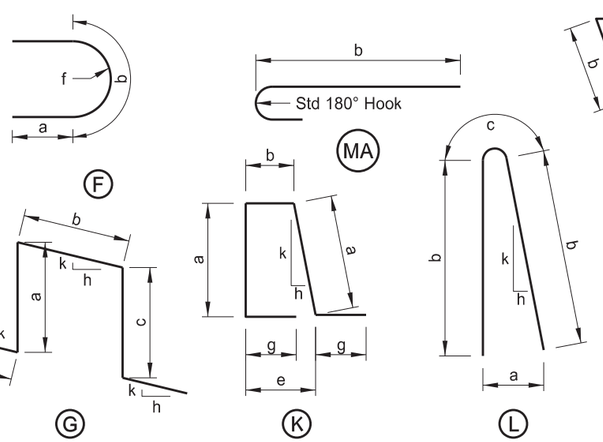


SC



SN





REGISTERED PROFESSIONAL ENGINEER
TRAVIS M. SCHAFER
PE-40826
DATE
Digitally signed by Travis Schafer
Date: 2026.01.29 11:03:52-06'00'
NORTH DAKOTA

BNSF Grand Forks Subdivision
LS 32, MP 110.067

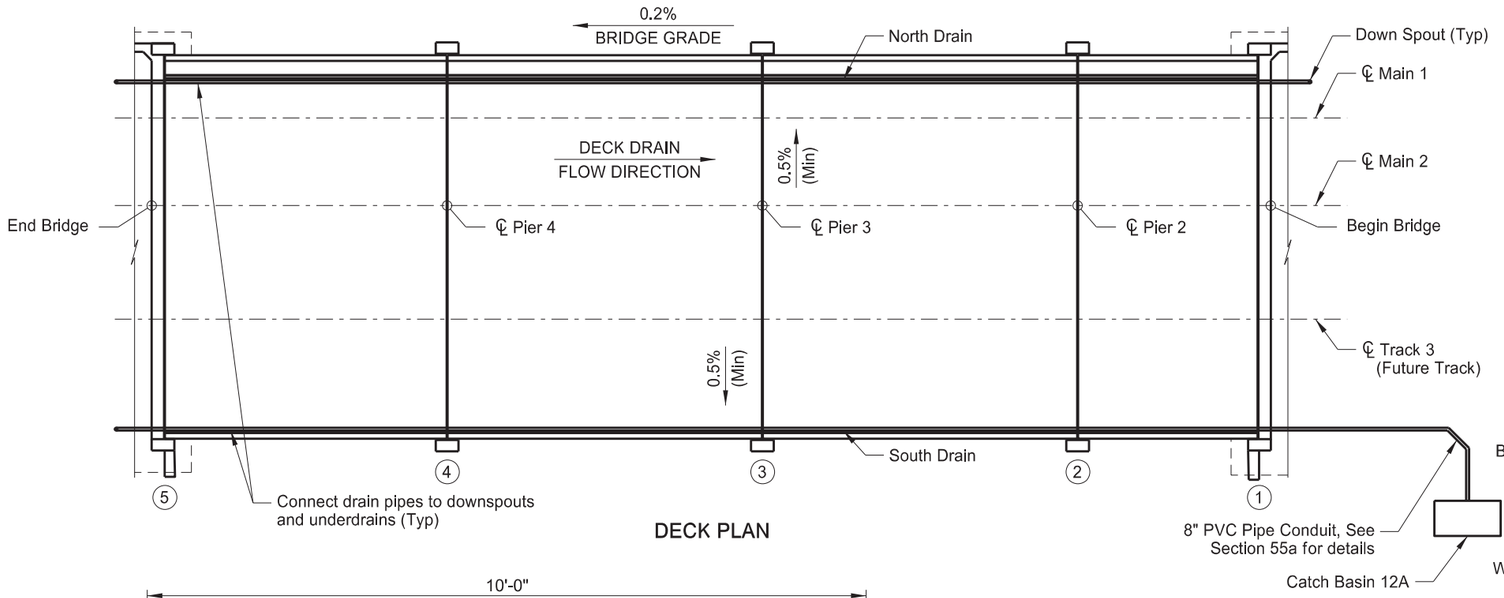
Over 42nd Street

REINFORCING BAR LIST & DETAILS

DRAWING NO. 0297-000.303 N B-54

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

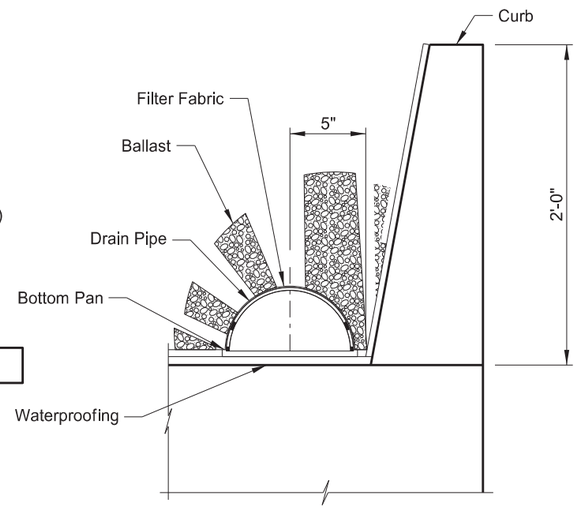
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	55



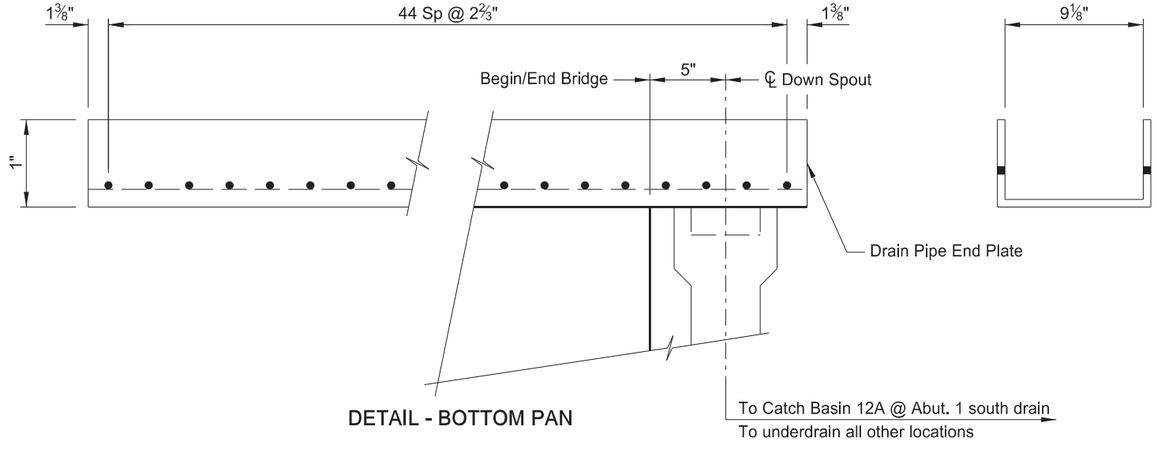
DECK PLAN

NOTE:

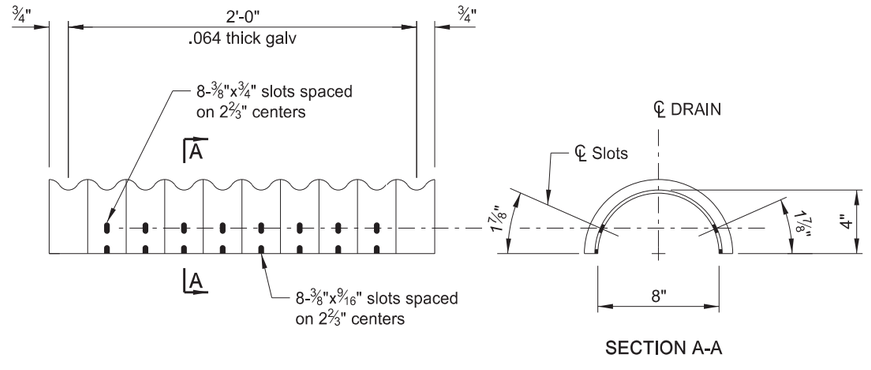
Lap drain pipe one corrugation (min) at each end.



LOCATION OF DRAIN PIPE



DETAIL - BOTTOM PAN



SECTION A-A

DETAIL - DRAIN PIPE

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TRAVIS M. SCHAFER
PE-40826
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Over 42nd Street

DECK DRAIN DETAILS

DRAWING NO. 0297-000.303 N B-55

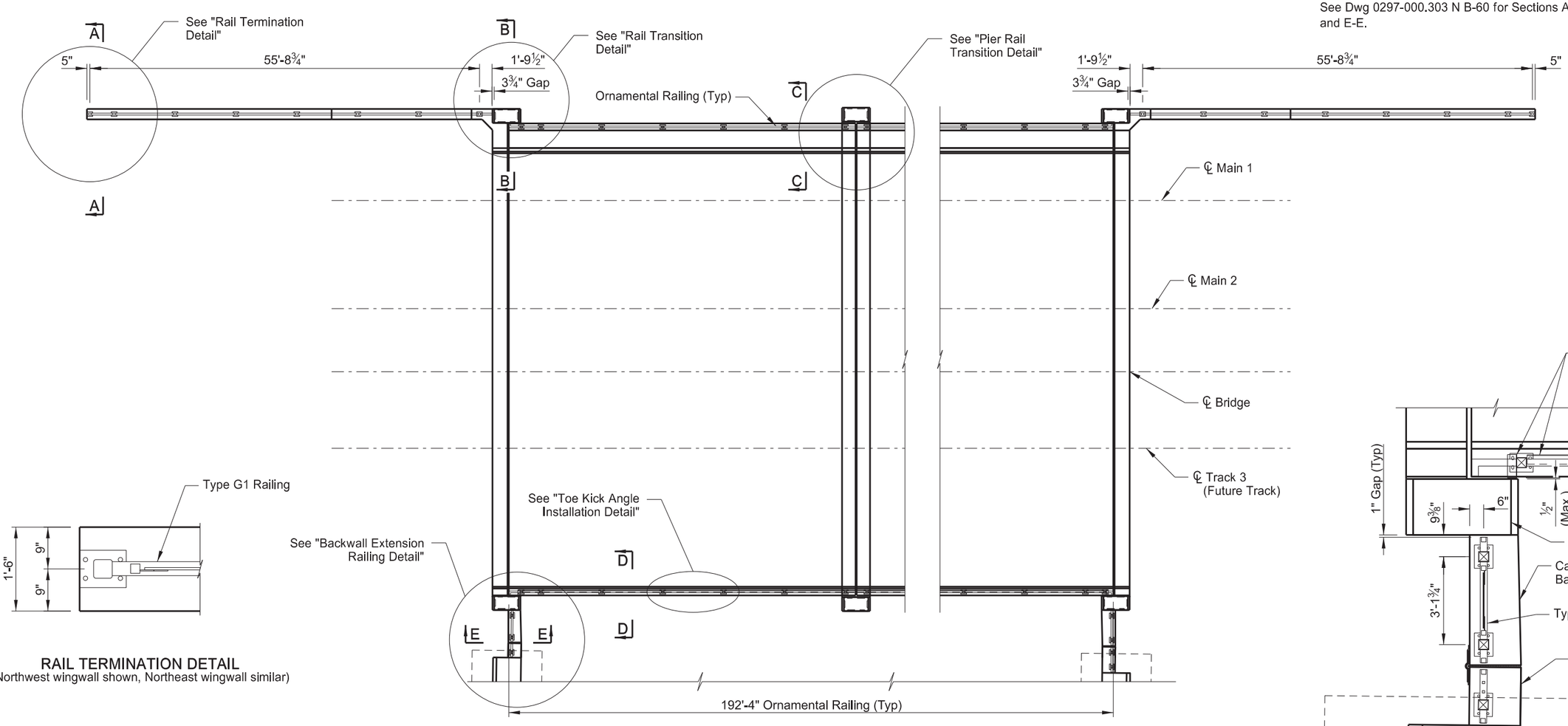
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	56

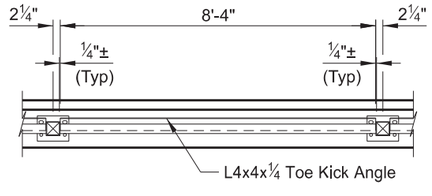
NOTE:

See Dwg 0297-000.303 N B-60 for Sections A-A, B-B, C-C, D-D and E-E.

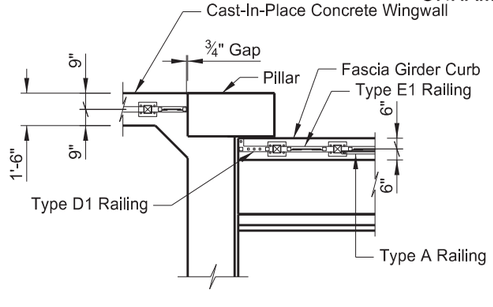


ORNAMENTAL RAILING PLAN

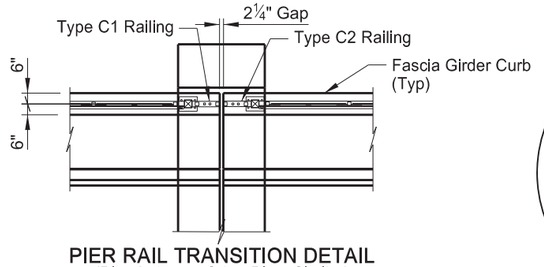
RAIL TERMINATION DETAIL
(Northwest wingwall shown, Northeast wingwall similar)



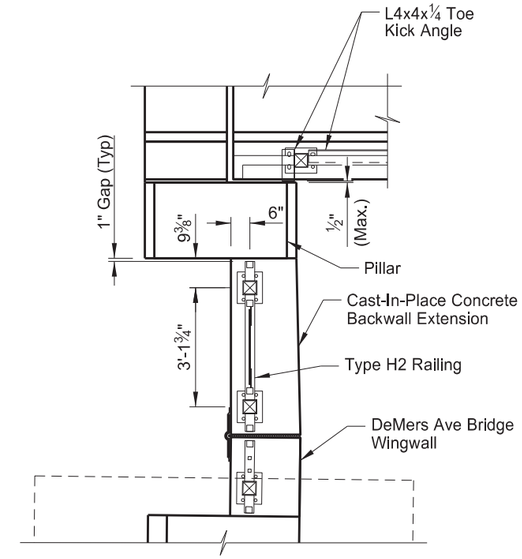
TOE KICK ANGLE INSTALLATION DETAIL



RAIL TRANSITION DETAIL



PIER RAIL TRANSITION DETAIL
(Pier 4 shown, Other Piers Similar)



BACKWALL EXTENSION RAILING DETAIL

REGISTERED PROFESSIONAL ENGINEER
TRAVIS M. SCHAFER
PE-40826
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LS 32, MP 110.067

Over 42nd Street

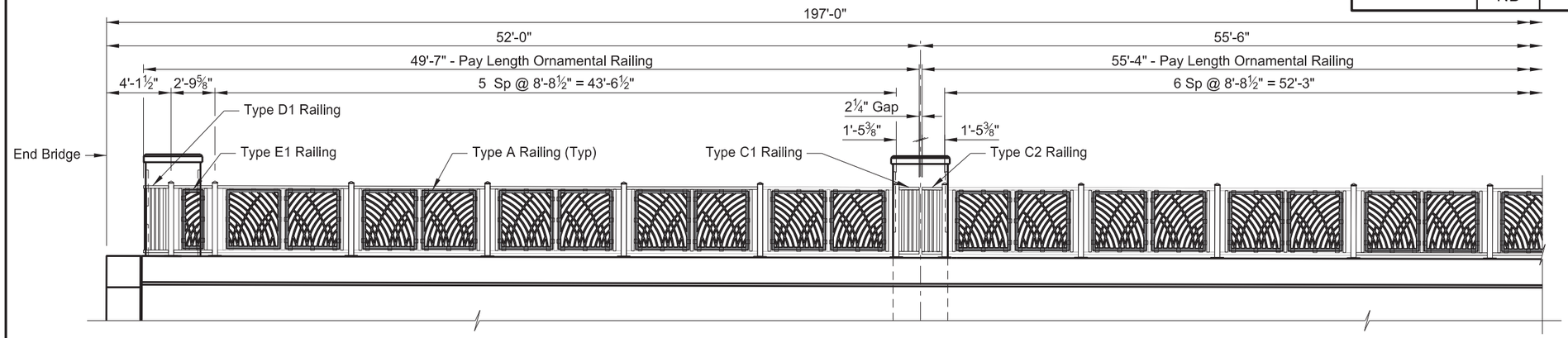
ORNAMENTAL FENCE PLAN

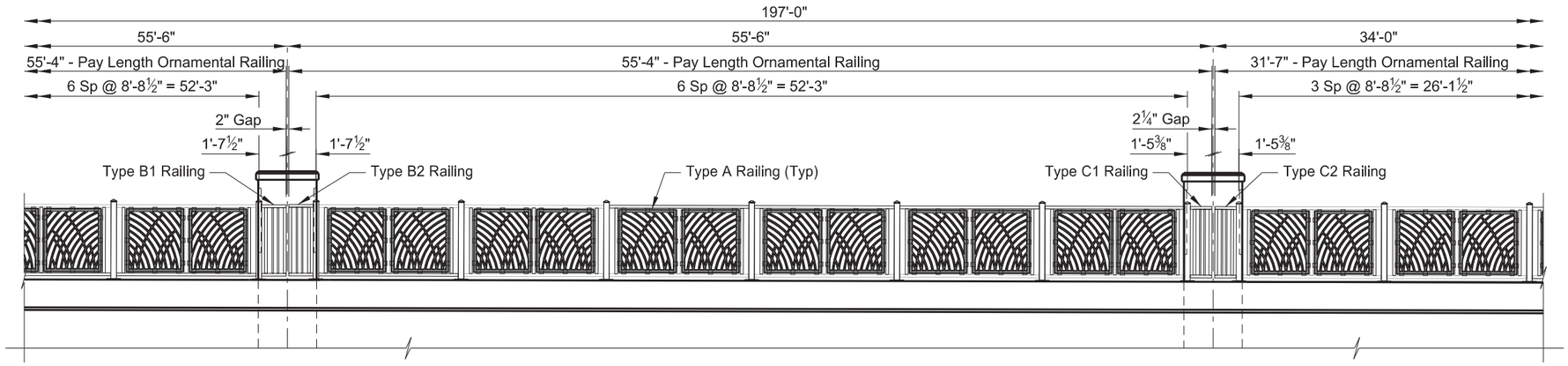
DRAWING NO. 0297-000.303 N B-56

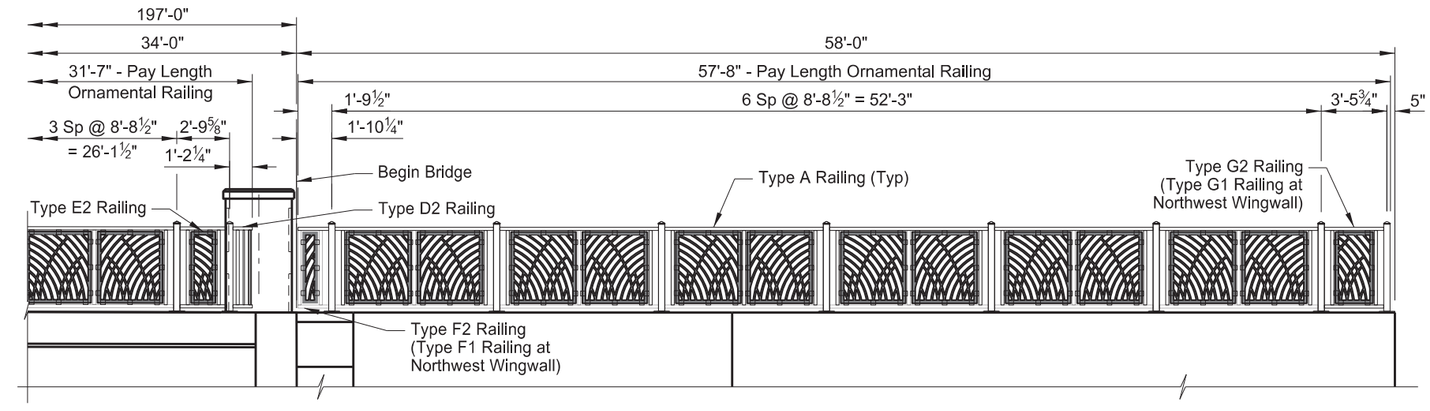
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23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	57







PEDESTRIAN FENCE AND RAILING ELEVATION

(Looking North)
(North Elevation shown, South Elevation similar)
(Northeast Wingwall shown, Northwest Wingwall similar

REGISTERED PROFESSIONAL ENGINEER
TRAVIS M. SCHAFER
PE-40826
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DATE Date: 2026.01.29 11:04:01-06'00'
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LS 32, MP 110.067

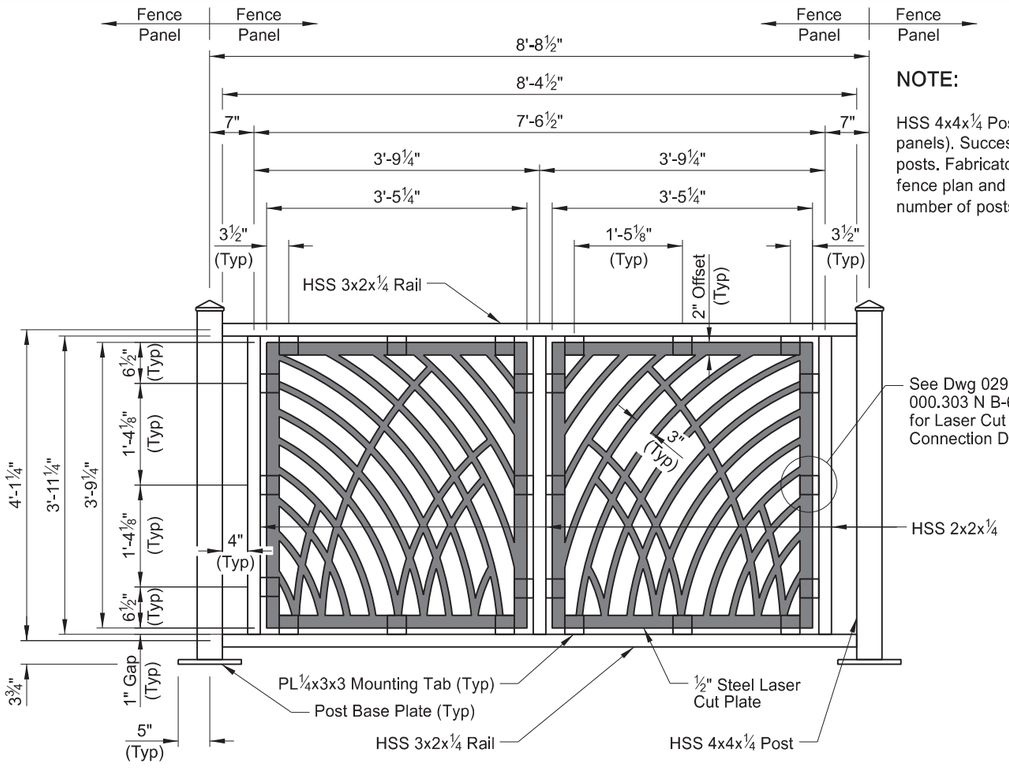
Over 42nd Street

ORNAMENTAL FENCE ELEVATION

DRAWING NO. 0297-000.303 N B-57

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

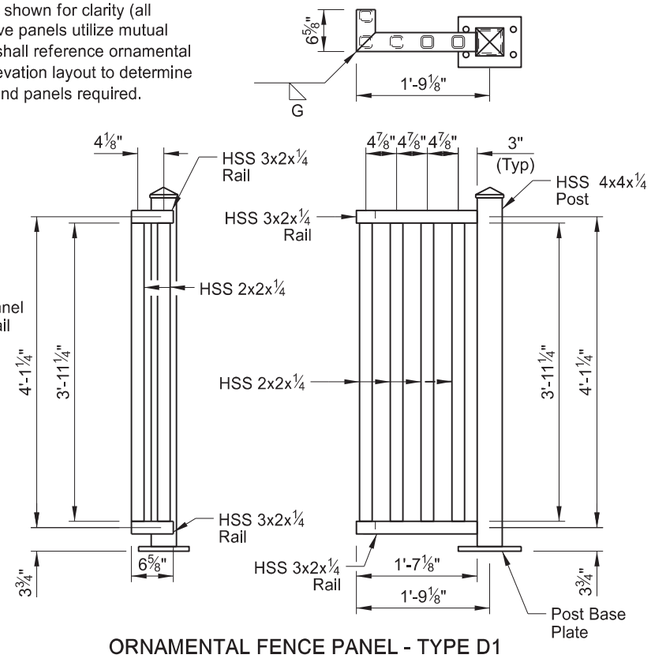
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	58



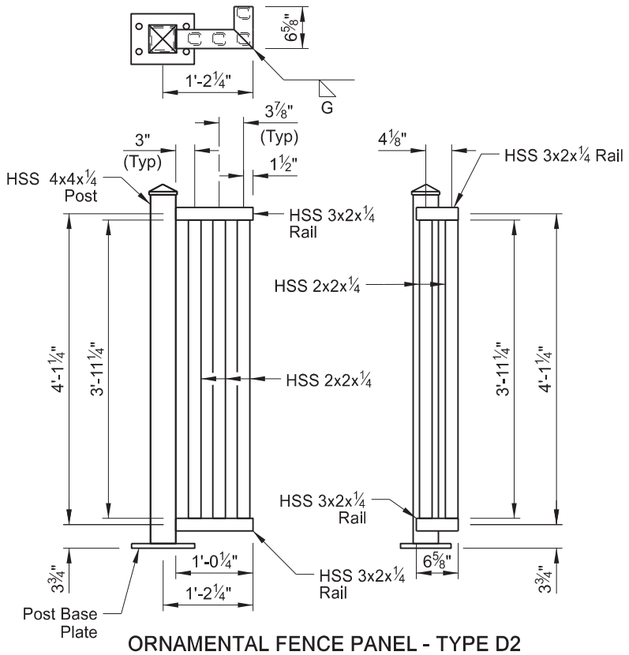
ORNAMENTAL FENCE PANEL - TYPE A

NOTE:

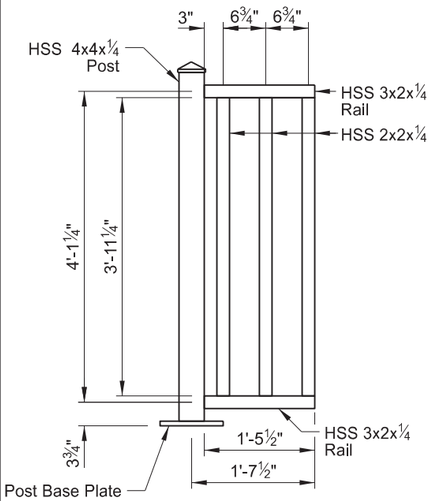
HSS 4x4x¼ Posts shown for clarity (all panels). Successive panels utilize mutual posts. Fabricator shall reference ornamental fence plan and elevation layout to determine number of posts and panels required.



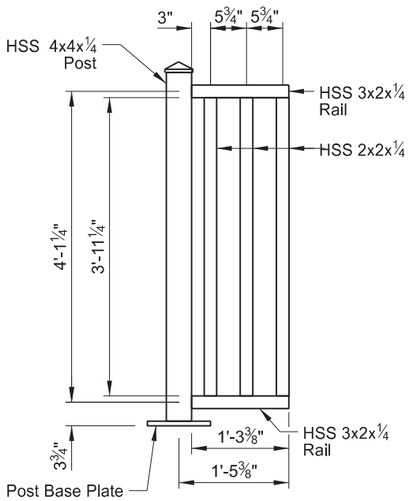
ORNAMENTAL FENCE PANEL - TYPE D1



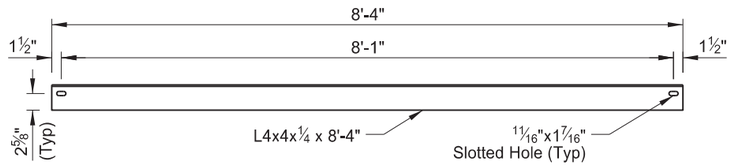
ORNAMENTAL FENCE PANEL - TYPE D2



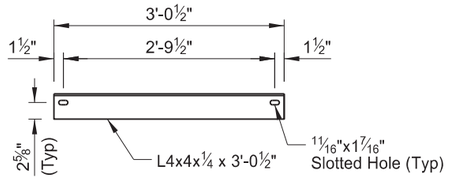
ORNAMENTAL FENCE PANEL - TYPE B1
(Panel B1 Shown, Panel B2 Opposite Hand)



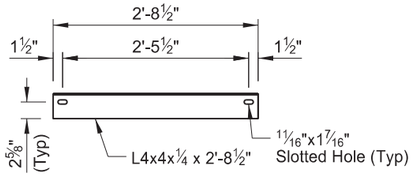
ORNAMENTAL FENCE PANEL - TYPE C1
(Panel C1 Shown, Panel C2 Opposite Hand)



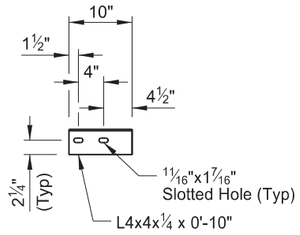
TOE KICK ANGLE - TYPE A
20 Req'd



TOE KICK ANGLE - TYPE B
1 Req'd



TOE KICK ANGLE - TYPE C
2 Req'd



TOE KICK ANGLE - TYPE D1
(Angle D1 Shown, Angle D2 Opposite Hand)
1 Req'd (Ea)

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LS 32, MP 110.067

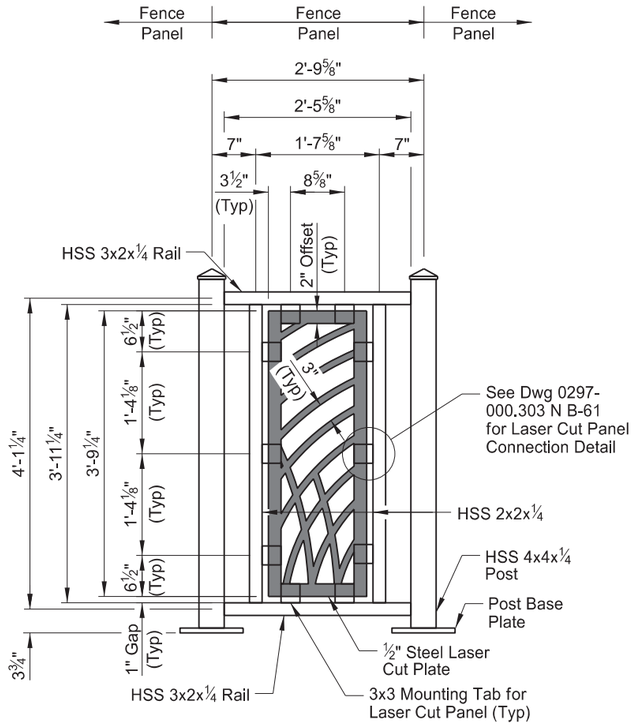
Over 42nd Street

ORNAMENTAL FENCE DETAILS

DRAWING NO. 0297-000.303 N B-58

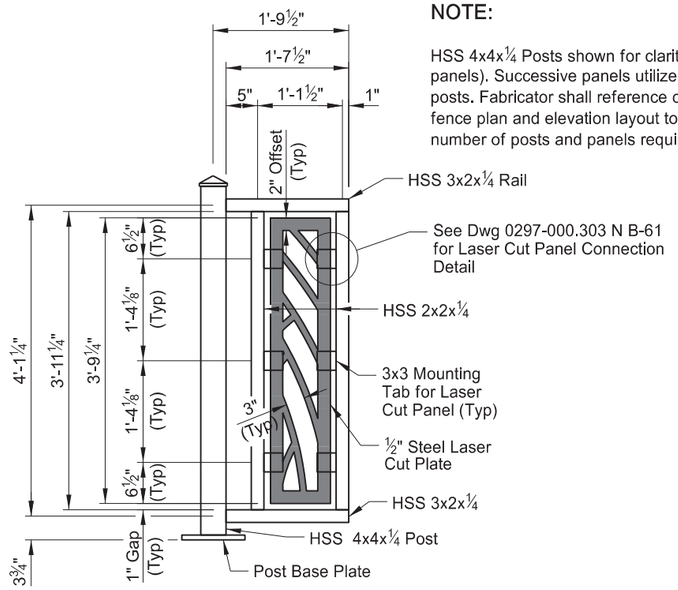
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

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ND	RCE-FTF-NHU-SU-6-297(014)000	170b	59



ORNAMENTAL FENCE PANEL - TYPE E1

(Panel E1 Shown, Panel E2 Opposite Hand)

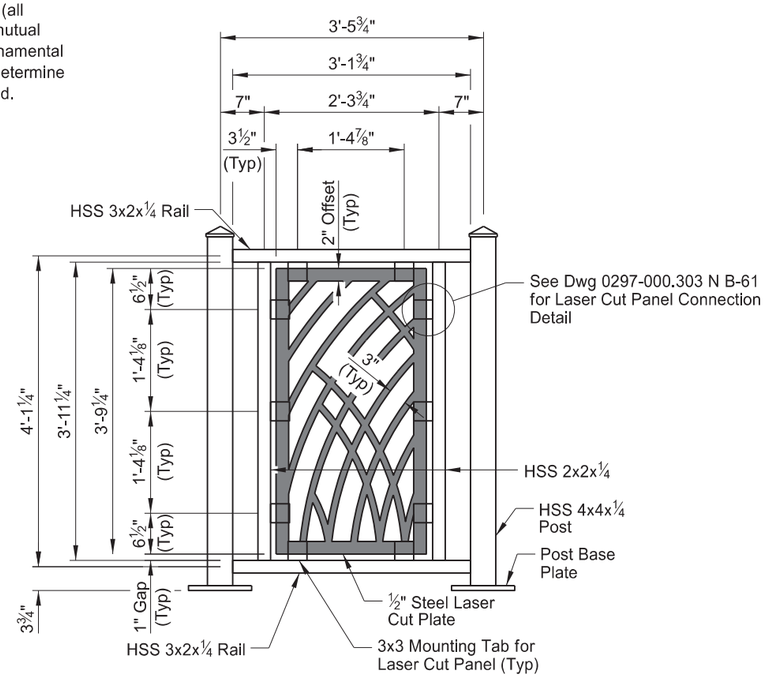


NOTE:

HSS 4x4x¼ Posts shown for clarity (all panels). Successive panels utilize mutual posts. Fabricator shall reference ornamental fence plan and elevation layout to determine number of posts and panels required.

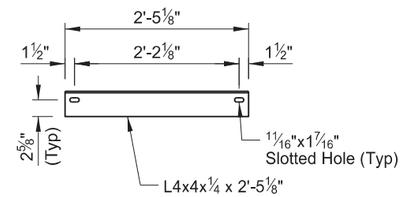
ORNAMENTAL FENCE PANEL - TYPE F1

(Panel F1 Shown, Panel F2 Opposite Hand)



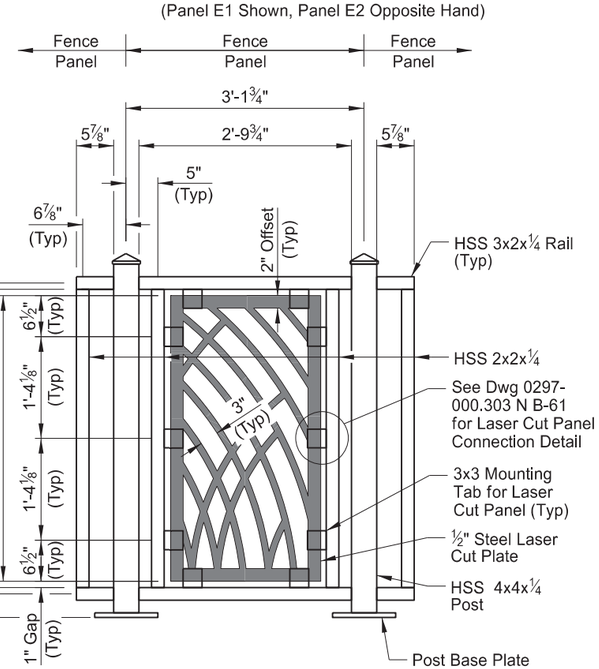
ORNAMENTAL FENCE PANEL - TYPE G1

(Panel G1 Shown, Panel G2 Opposite Hand)

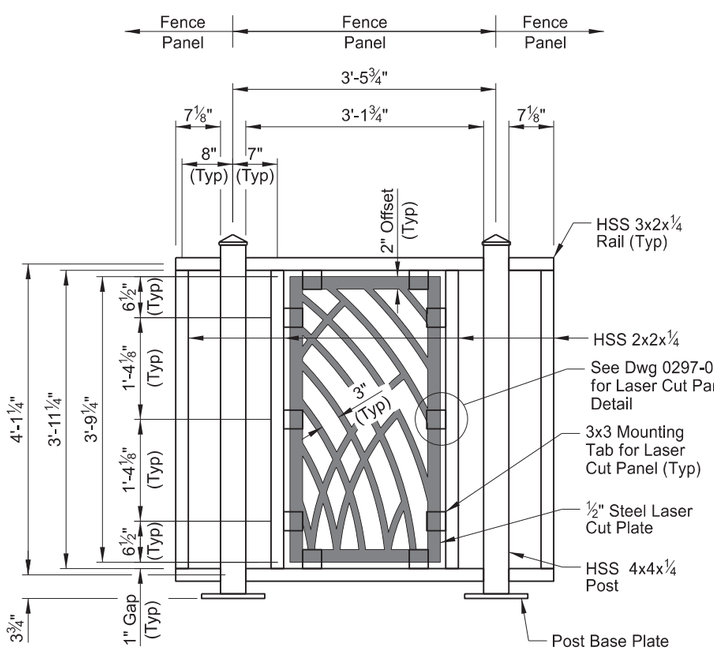


TOE KICK ANGLE - TYPE E

2 Req'd



ORNAMENTAL FENCE PANEL - TYPE H1



ORNAMENTAL FENCE PANEL - TYPE H2



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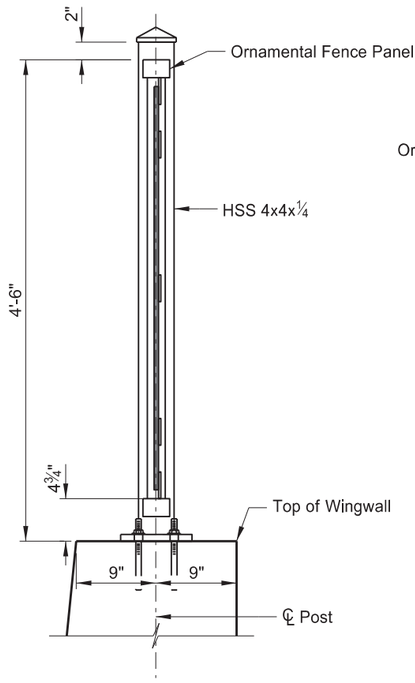
Over 42nd Street

ORNAMENTAL FENCE DETAILS

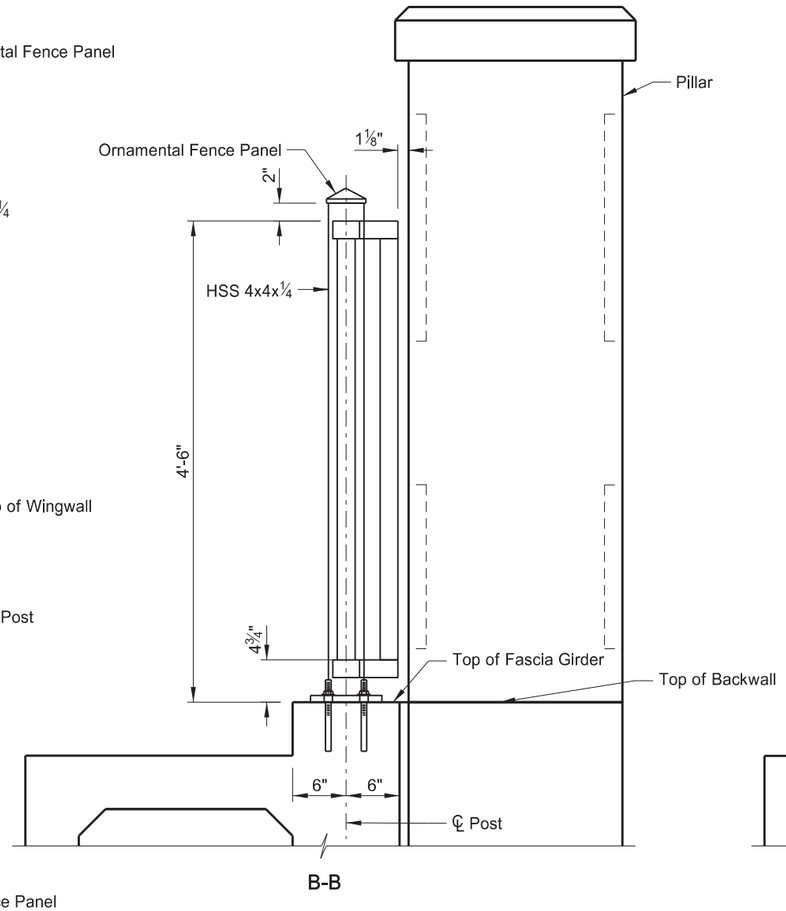
DRAWING NO. 0297-000.303 N B-59

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

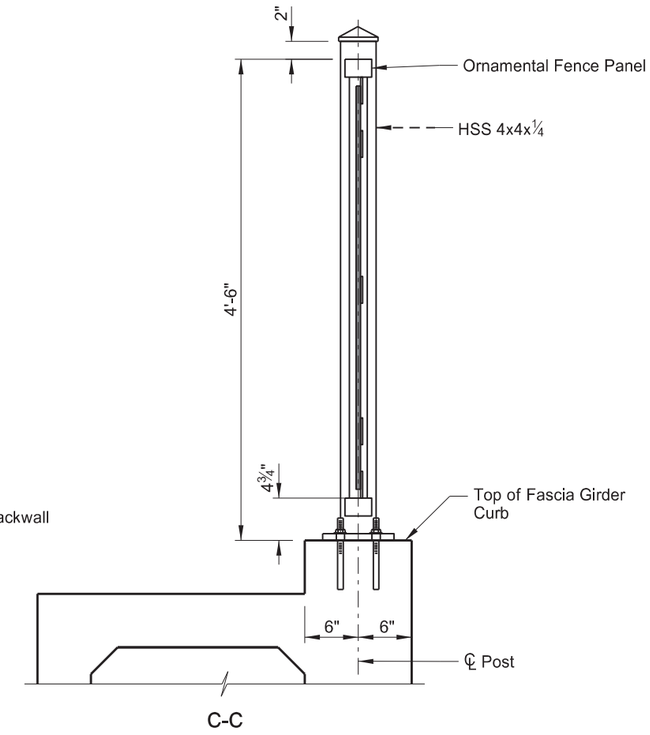
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	60



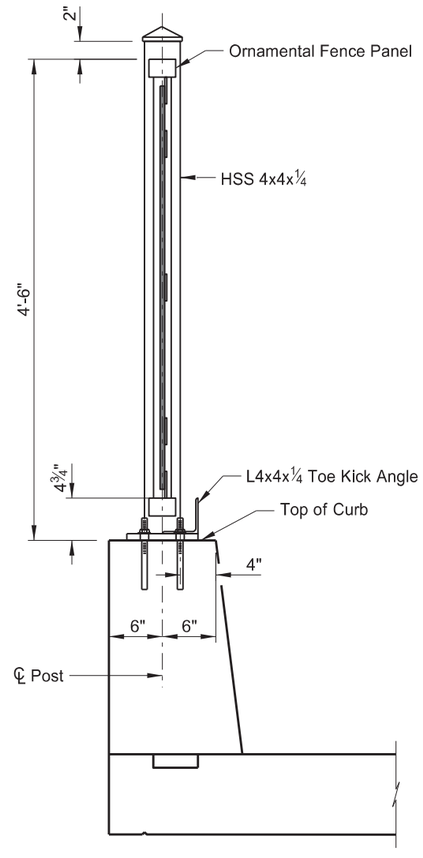
A-A



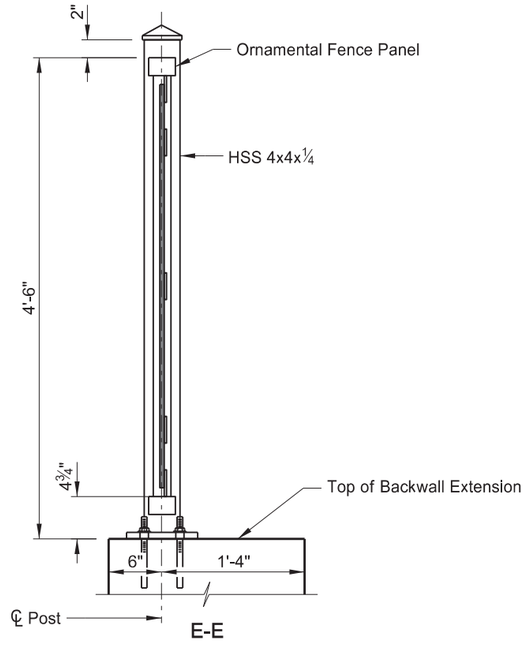
B-B



C-C



D-D



E-E

REGISTERED PROFESSIONAL ENGINEER
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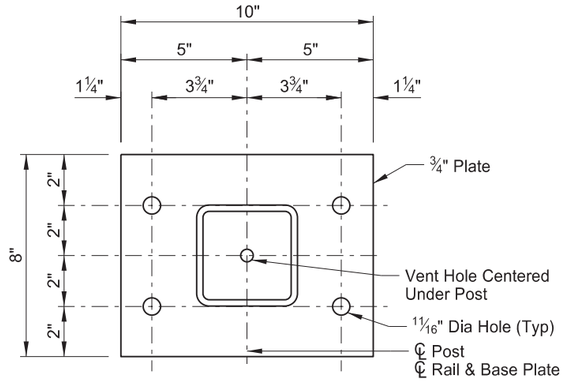
Over 42nd Street

ORNAMENTAL FENCE DETAILS

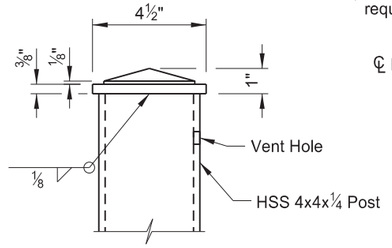
DRAWING NO. 0297-000.303 N B-60

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

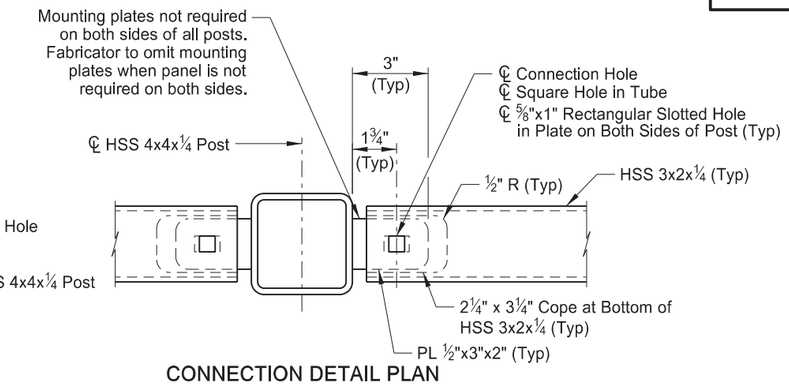
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	61



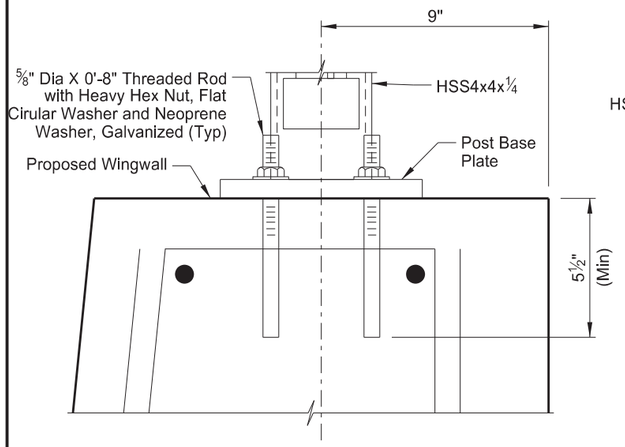
BASE PLATE PLAN



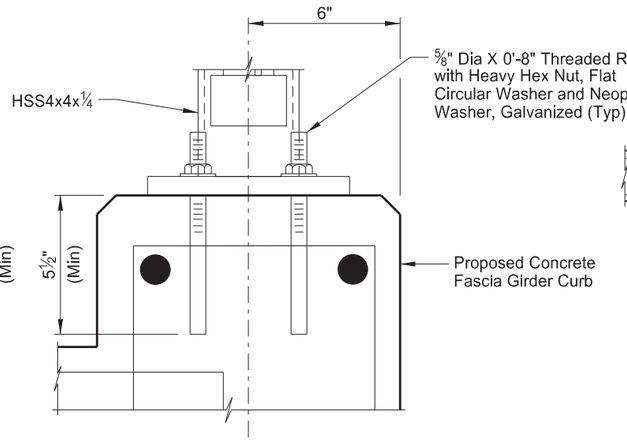
POST CAP DETAIL



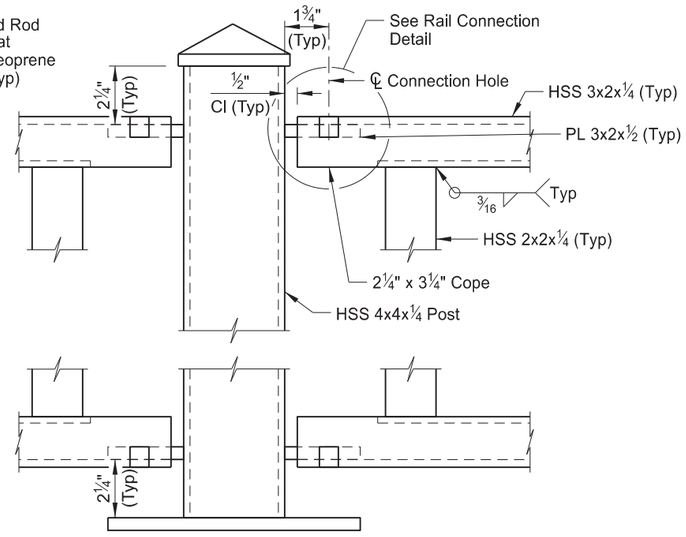
CONNECTION DETAIL PLAN



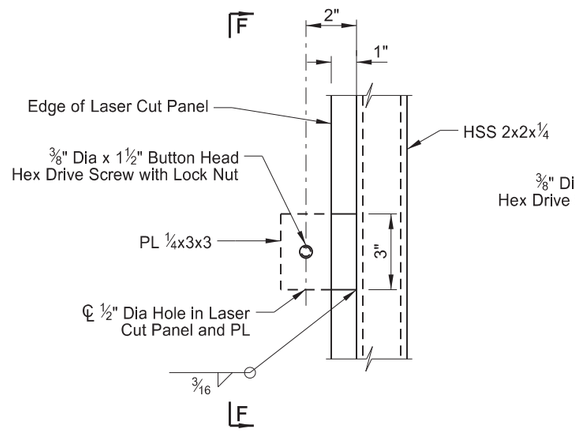
BASE PLATE ANCHOR DETAIL
Wingwall connection shown



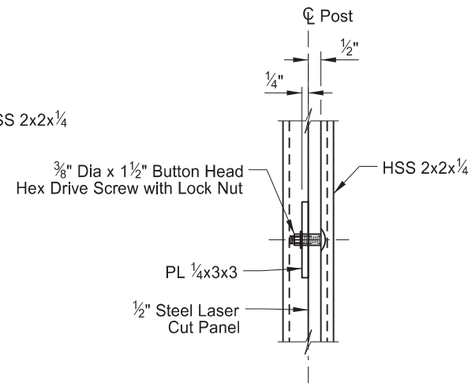
BASE PLATE ANCHOR DETAIL
Fascia Girder connection shown, curb connection similar



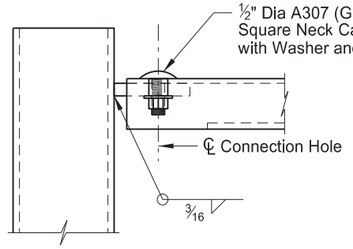
CONNECTION DETAIL ELEVATION



LASER CUT PANEL CONNECTION DETAIL
HSS 2x2x¼ connection shown, HSS 3x2x¼ Rail connection similar



F-F



RAIL CONNECTION DETAIL

NOTES:

Provide anchorage, post, and rail plates that meet ASTM A36. Provide posts and rails that meet ASTM A500 Grade B. Galvanize all steel elements after fabrication according to Section 854 of Standard Specifications and then paint according to Special Provision 396(24). Use Red Brown, Walnut Brown finish coat, color number 30108 meeting Aerospace Material Specification (AMS) Standard 595. Galvanize the bolts, nuts, washers, and anchor bolts and field paint the exposed top of exposed anchor hardware after installation.

Drill ½" ø maximum vent holes on the underside of rail tubes as necessary to facilitate galvanizing. Drill vent hole in the rail post within 2" of the underside of the cap, on the non-traffic side of the post as necessary to facilitate galvanizing.

Provide a pyramid top style steel cap welded to top of posts as shown with a surface finish of 1000 micro-inch, or smoother, prior to galvanizing.

Use anchor bolts meeting ASTM F1554, Grade 36. Epoxy anchorage with ⅝" ø anchor bolts or place them in concrete at time of pouring. Provide an adhesive with a minimum characteristic bond strength in uncracked concrete of 1.5 ksi. Provide a minimum embedment of 5½" regardless of characteristic bond strength. Ensure hex nut is in contact with the adjacent surface and torque to 60 foot-pounds.

Fabricate horizontal railing to be parallel to the slope of the top of the concrete surface. Fabricate posts and pickets to be vertical.

Fabricator shall assemble all panels on posts in shop to ensure accuracy of connections.

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BNSF Grand Forks Subdivision
LS 32, MP 110.067

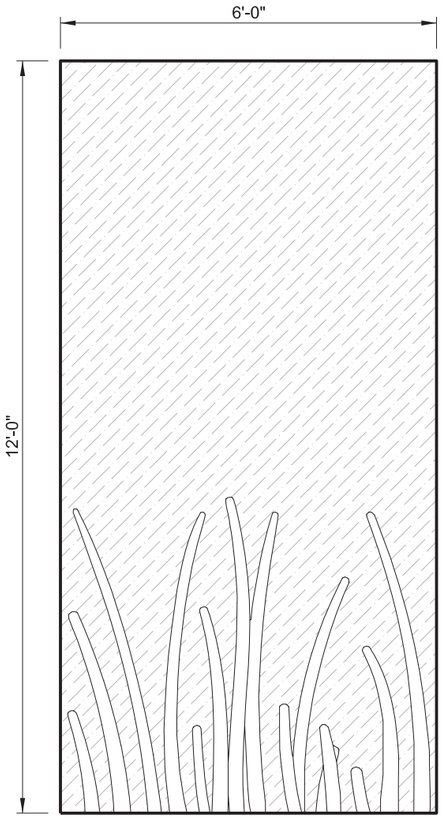
Over 42nd Street

ORNAMENTAL FENCE DETAILS

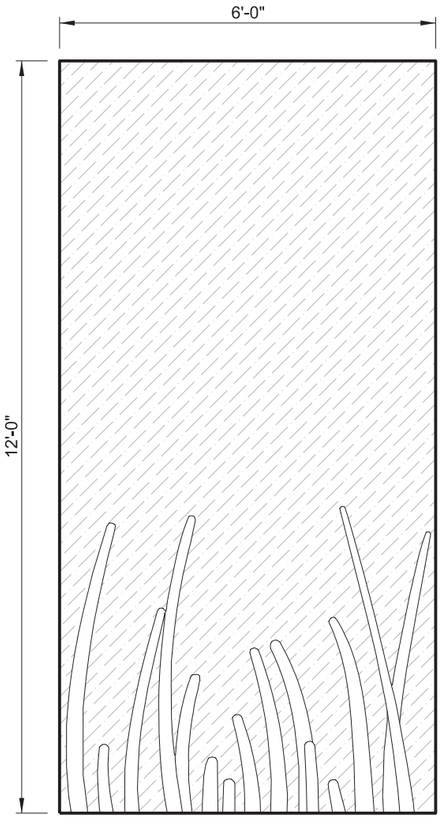
DRAWING NO. 0297-000.303 N B-61

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

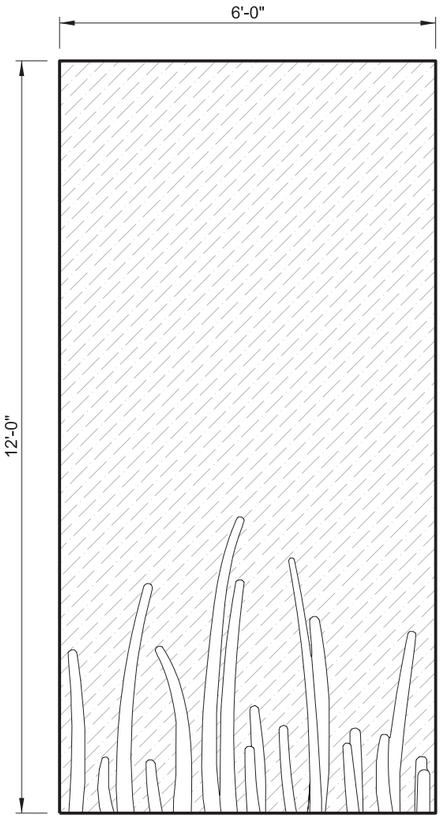
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	62



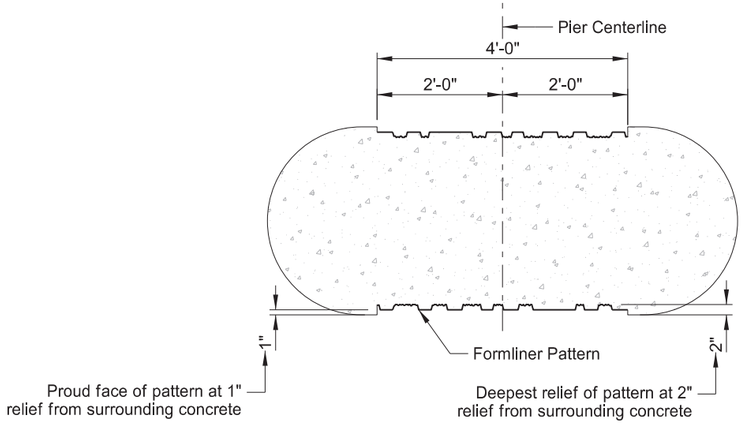
FORMLINER PATTERN - TYPE A



FORMLINER PATTERN - TYPE B



FORMLINER PATTERN - TYPE C



BRIDGE COLUMN PLAN DETAIL

LEGEND - ARCHITECTURAL SURFACE FINISHES

- EDGE OF FORMLINER PATTER (TYPE A, B, C)
- 1" RELIEF: TEX-COTE CHAMOIS T-125, OR APPROVED EQUAL
- 2" RELIEF: TEX-COTE SANDALWOOD T-114, OR APPROVED EQUAL
- FORMLINER POINT OF BEGINNING
- V.I.F. VERIFY IN FIELD

NOTES:

1. Drawings show design intent for bidding only. Submit work drawings for review and approval by the engineer and landscape architect of record prior to installation.

2. Work drawings shall include but not be limited to the following:
   - 2.1. Form tie Locations
   - 2.2. End locations and other special conditions
   - 2.3. Panel sizes, joint locations, joint widths, reveal and false-joint locations and dimensions
   - 2.4. Elevations, sections and details of assembly components
   - 2.5. Attachment details
   - 2.6. Indicate locations, configurations, typical details, connections, and expansion joints.

3. Submit Manufacturer's data sheets on each product to be used including printed product data and installation guideline for formliner system.

4. Basis-of-design Formliner pattern:
   "Tallgrass Prairie" Custom Pattern
   or equal approved by engineer and landscape architect of record. Digital graphic patterns for Formliner pattern types available as electronic reference document.

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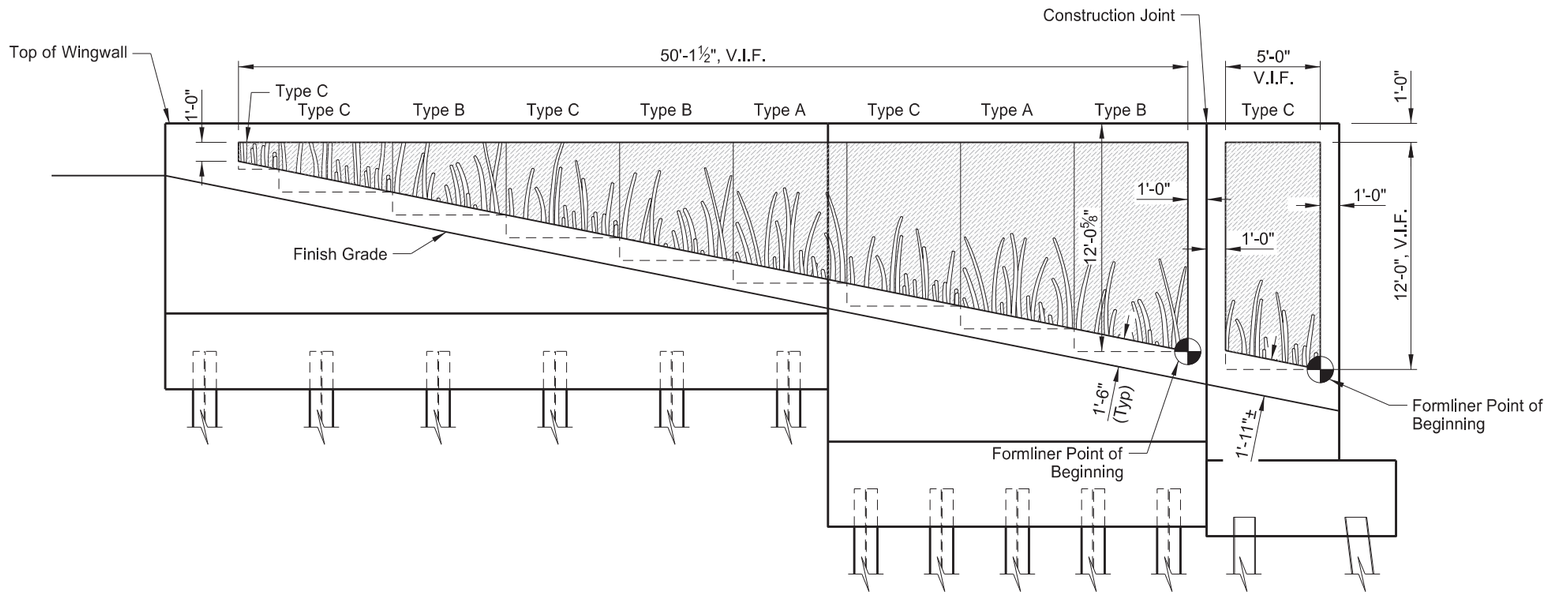
Over 42nd Street

FORMLINER PATTERNS

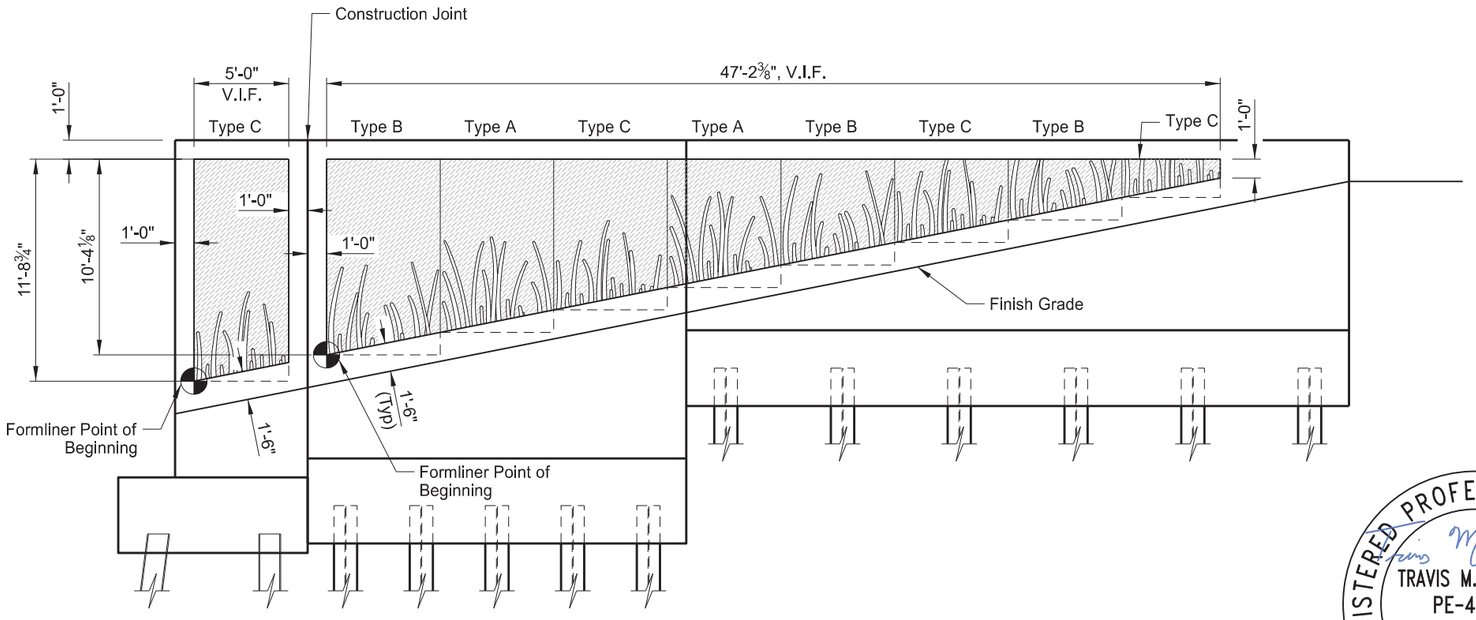
DRAWING NO. 0296-000.303 N B-62

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	63



ABUTMENT 1 NORTH WINGWALL FORMLINER LAYOUT



ABUTMENT 5 NORTH WINGWALL FORMLINER LAYOUT

NOTES:

1. V.I.F. = Verify in Field
2. * Field modify bottom of formliner as required to maintain offset from finished grade.

REGISTERED PROFESSIONAL ENGINEER
TRAVIS M. SCHAFER
PE-40826
Digitally signed by Travis Schafer
DATE Date: 2026.01.29 11:04:19-06'00'
NORTH DAKOTA

BNSF Grand Forks Subdivision
LS 32, MP 110.067

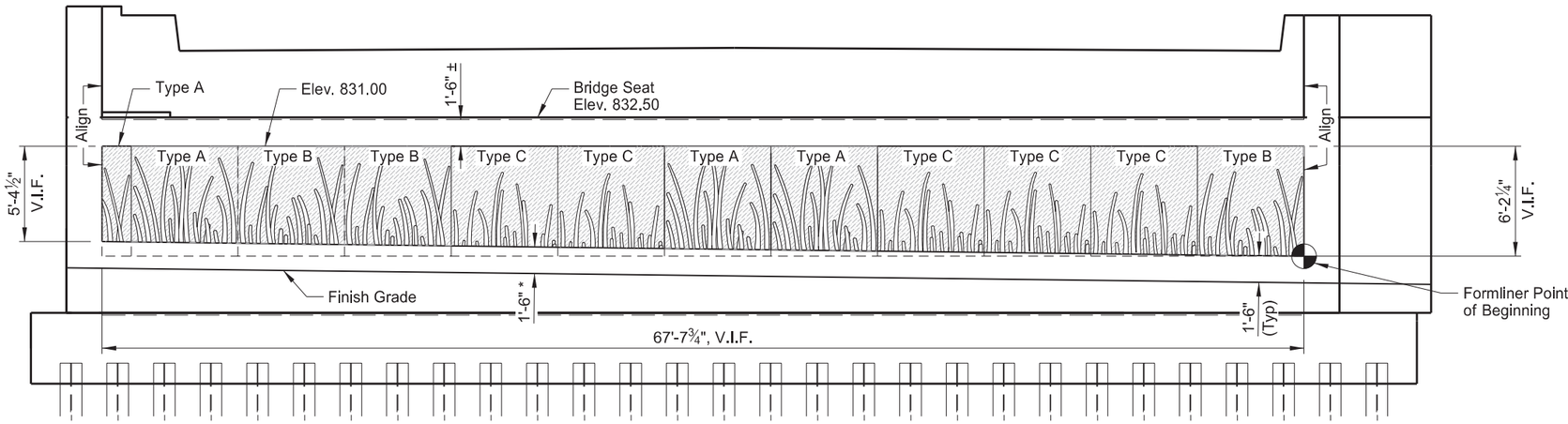
Over 42nd Street

FORMLINER LAYOUTS

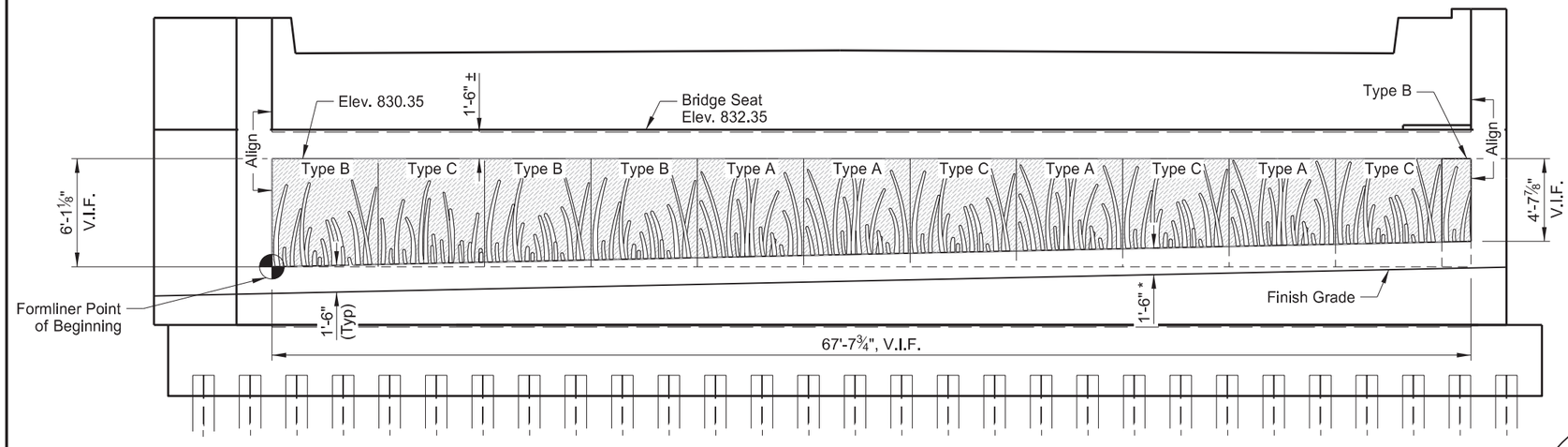
DRAWING NO. 0297-000.303 N B-63

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

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ND	RCE-FTF-NHU-SU-6-297(014)000	170b	64



ABUTMENT 1 FORMLINER LAYOUT



ABUTMENT 5 FORMLINER LAYOUT

NOTES:

1. V.I.F. = Verify in Field

2. * Field modify bottom of formliner as required to maintain offset from finished grade.

REGISTERED PROFESSIONAL ENGINEER
TRAVIS M. SCHAFER
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DATE Date: 2026.01.29 11:04:22-06'00'
NORTH DAKOTA

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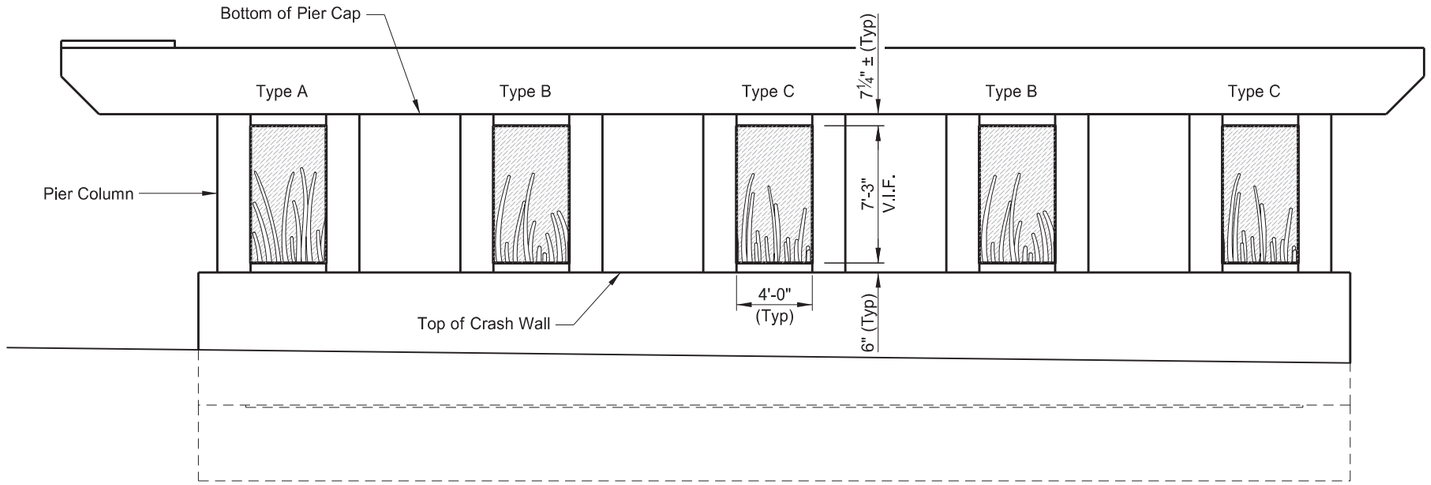
Over 42nd Street

FORMLINER LAYOUTS

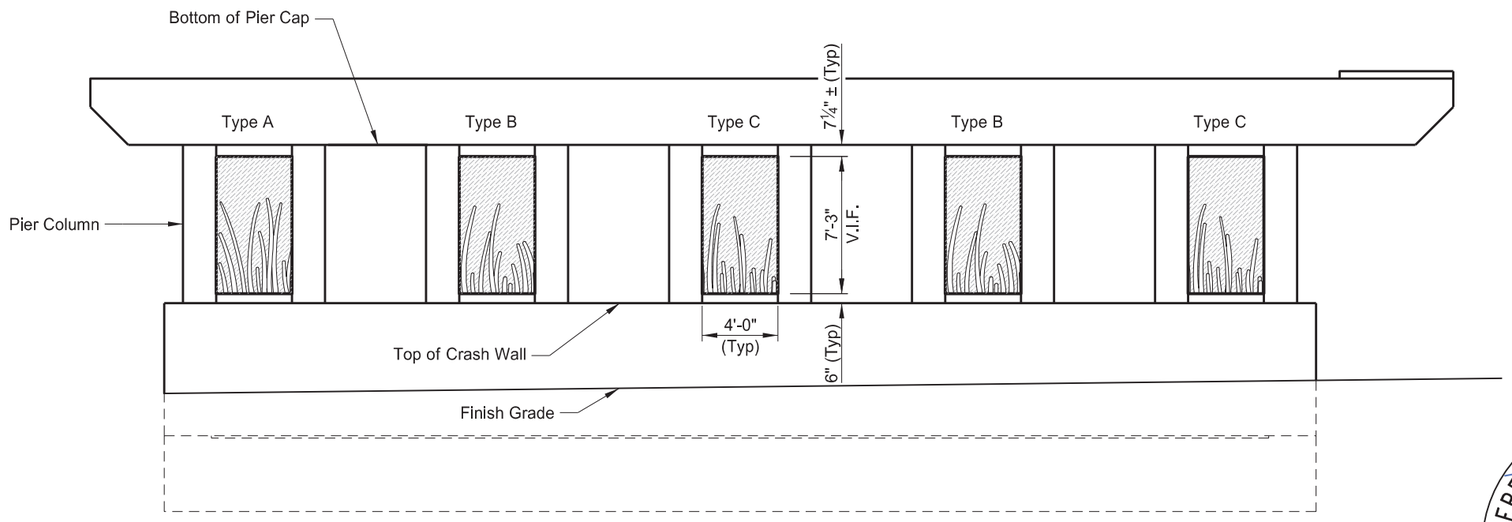
DRAWING NO. 0297-000.303 N B-64

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	65



PIER 4
(LOOKING EAST)



PIER 4
(LOOKING WEST)

NOTE:

V.I.F. = Verify in Field

REGISTERED PROFESSIONAL ENGINEER
TRAVIS M. SCHAFER
PE-40826
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DATE Date: 2026.01.29 11:04:25-06'00'
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BNSF Grand Forks Subdivision
LS 32, MP 110.067

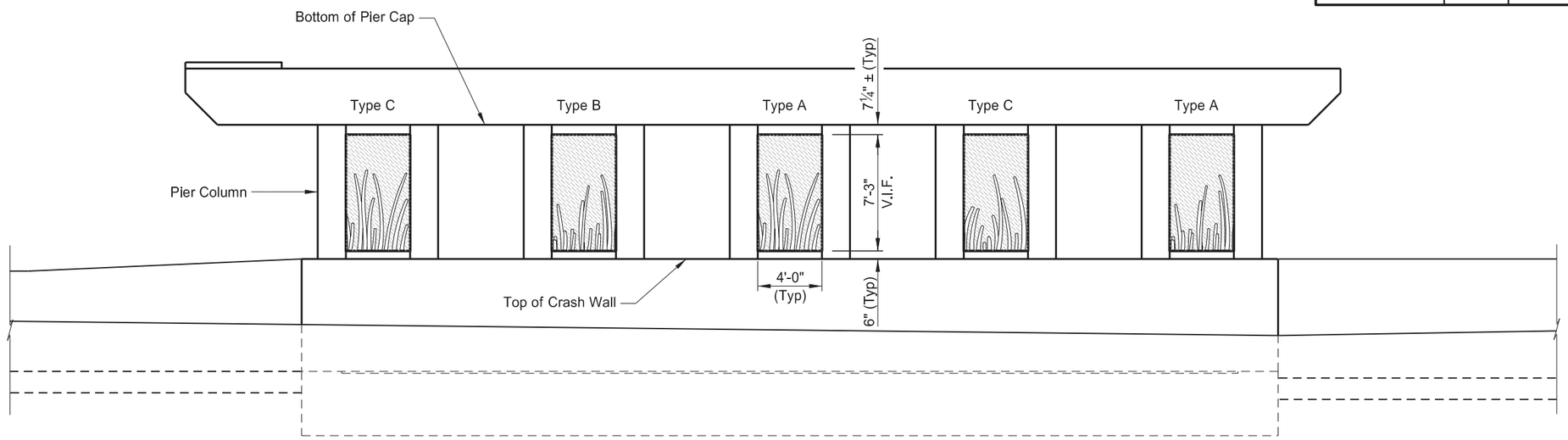
Over 42nd Street

FORMLINER LAYOUTS

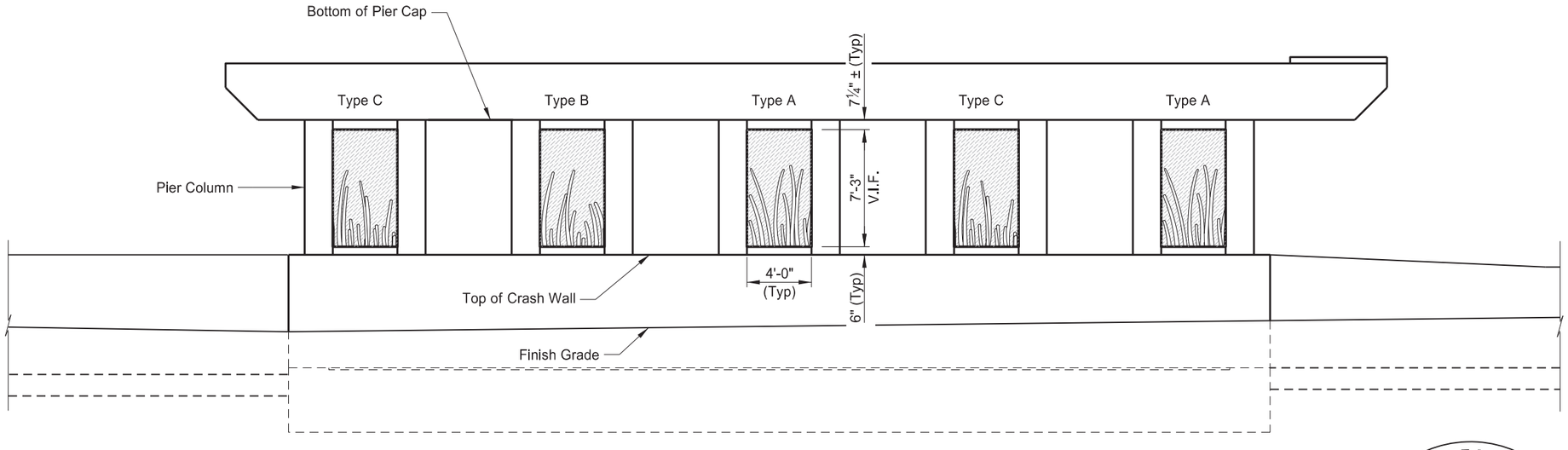
DRAWING NO. 0297-000.303 N B-65

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170b	66



PIER 3
(LOOKING EAST)



PIER 3
(LOOKING WEST)

NOTE:

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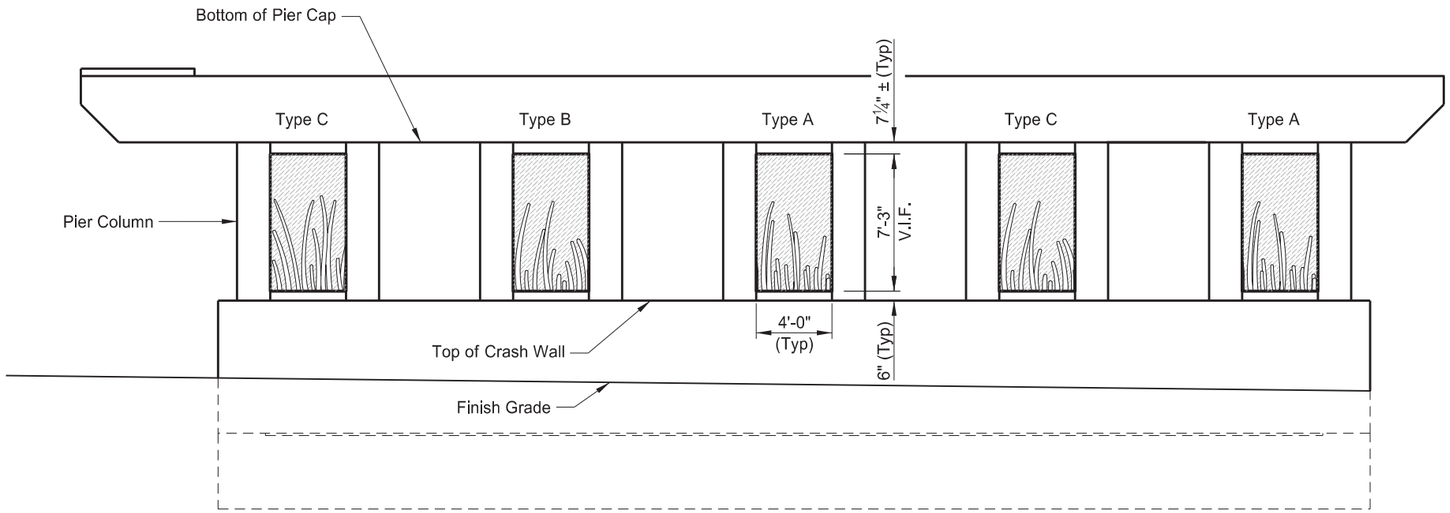
Over 42nd Street

FORMLINER LAYOUTS

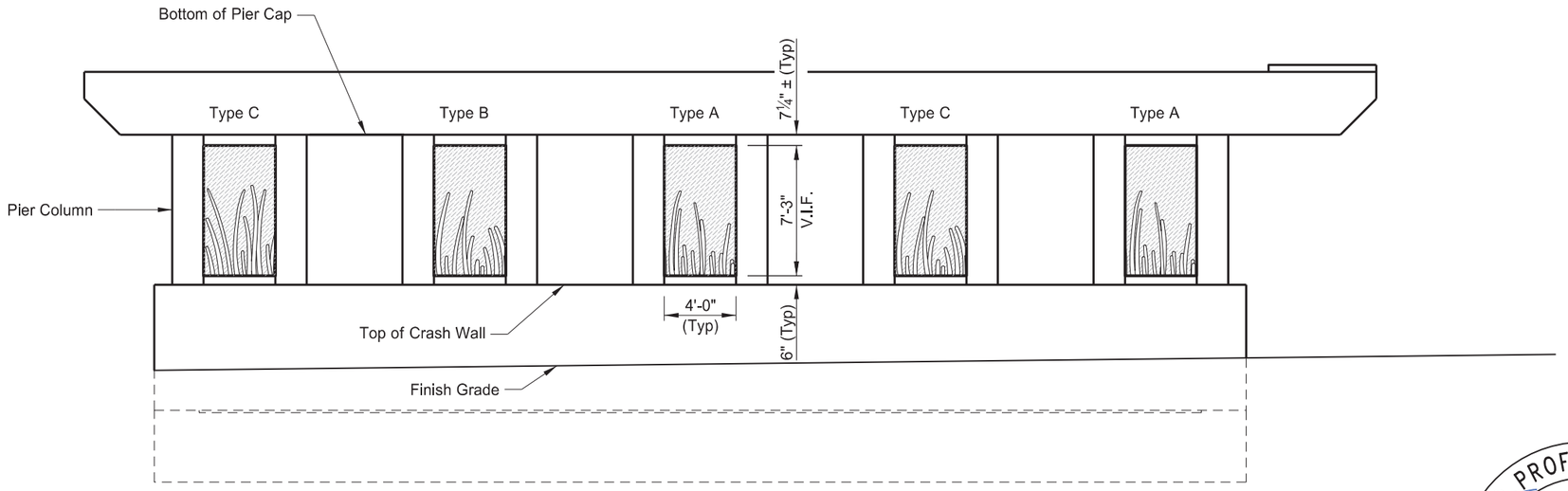
DRAWING NO. 0297-000.303 N B-66

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170b	67



PIER 2
(LOOKING EAST)



PIER 2
(LOOKING WEST)

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Over 42nd Street

FORMLINER LAYOUTS

DRAWING NO. 0297-000.303 N B-67

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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NOTES

GENERAL NOTES

105-P02 ORDER OF OPERATION – SHOOFLY & MAINLINE RAILROAD CONSTRUCTION: The Rail Phasing Plan, see sheets 57-61 in plan section 170c, has been developed based on the premise that the railroad shoofly, railroad bridge, and railroad mainline tracks will be constructed as follows. Coordinate all construction activities with BNSF, including work performed by BNSF. The Rail Phasing Plan is listed below.

Rail Phase 1: Includes identification, removal, relocation, or protect-in-place utilities impacted by the proposed shoofly work as described in the utility conflict plans.

Rail Phase 2: Coincides with Traffic Control Phase 1a, includes BNSF removing a segment of Track 3 to allow clearance for stick signals.

With the exception of the cantilever signal and 42nd Street areas, construction of the shoofly trackbed may occur concurrently with the above work. After the rail signal work is complete and the foundations removed, construct the remaining east end of the shoofly trackbed.

Rail Phase 3: Coincides with Traffic Control Phase 1b, includes removal of required 42nd Street pavement and curb and gutter to construct the remaining shoofly trackbed. BNSF will remove the existing 42nd Street rail signals, overhead structure, crossing arms, and bungalow. Contractor to remove the foundations for the rail signals, overhead structure, crossing arms, and bungalow. Additionally, BNSF will install two new stick signals east of the existing cantilever signal. After the new signals are constructed, BNSF will remove the cantilever signal structure. Contractor to remove the cantilever signal foundation.

Once the shoofly trackbed is complete, BNSF will construct the shoofly tracks up to the 9’ clearance points on each end.

Rail Phase 4: Coincides with Traffic Control Phase 2, includes the tie-in of the shoofly tracks into the mainline tracks by BNSF. Main 1 will be tied in first. BNSF will cut, realign, and tie-in to the new shoofly track, then traffic will be diverted to the new shoofly. The tie-in work will happen at both ends of the shoofly concurrently. Main 1 rail traffic will be routed to the new shoofly track and BNSF will begin to tie Main 2 to the shoofly in the same manner as Main 1. BNSF is anticipating one week for each track tie-in.

BNSF will remove the remainder of the existing mainline track and crossing surfaces and the Contractor will remove and dispose of the ballast.

Install temporary shoring (designed and installed by the Contractor) for the railroad bridge construction.

Contractor to Install temporary safety fence.

Rail Phase 5: Includes construction of the railroad bridge.

Rail Phase 6: BNSF will remove the remaining portion of Track 3 East of the stick signals. Contractor will construct the new mainline trackbed. After the railroad bridge and trackbed are constructed, BNSF will construct new mainline tracks up to the 9’ clearance points on each end of the shoofly.

Rail Phase 7: Coincides with Traffic Control Phase 3, includes cutting the tracks from the shoofly and tying them into the permanent mainline alignments by BNSF, starting with Main 2 then moving to Main 1. BNSF will remove portions of the shoofly tracks as needed for tie-in to Main 2 and Main 1.

Rail Phase 8: Includes removal of the remainder of the shoofly tracks by BNSF. Contractor to remove the shoofly ballast, trackbed and dispose, and restore the shoofly area to preconstruction conditions, unless otherwise noted in the plans. Remove all temporary shoring system components. Reconstruct Track 3 on new alignment using salvaged rail, ties, and subballast from the shoofly.

Rail Phase 9: Includes construction of the south, northeast and northwest access roads using salvaged subballast from the shoofly. Portions of the access roads not parallel to tracks can be built at any time throughout the construction process. Coordinate with BNSF to provide flagging for work adjacent to any live track, as required in the Railroad Requirements Special Provision.

105-P03 TEMPORARY SHORING: When performing excavations for railroad construction, adhere to the BNSF “Guidelines for Temporary Shoring” (2021)

107-P01 RAILROAD CONSTRUCTION: Conduct all work to be performed within the railroad right-of-way per the requirements set forth in the Railroad Requirements Special Provision and agreements between NDDOT and BNSF.

202-P04 REMOVAL OF FOUNDATIONS-ALL SIZES: Remove concrete foundations for the railroad equipment removed by BNSF including cantilever signal (1 each), 42nd Street signals (1 each), overhead structure (4 each), crossing arms (3 each), and bungalow (1 each).

Include all costs of labor, equipment, and materials needed to remove and dispose of concrete foundations in the unit price bid for “Removal of Foundations-All Sizes”.

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NOTES

202-P05 REMOVE AGGREGATE BASE: Upon removal of the mainline tracks by BNSF, remove the existing mainline track ballast and aggregate subballast and dispose. Upon removal of the shoofly tracks by BNSF, remove the shoofly track ballast and dispose.

Include all costs of labor, equipment, and materials to remove and dispose mainline track ballast and aggregate subballast and to remove and dispose the shoofly track ballast in the unit price bid for “Remove Aggregate Base”.

203-P04 SUBGRADE AND RAILROAD EMBANKMENT FOUNDATION PREPARATION (BNSF Mainline Design Guidelines for Track Projects – Revised October 2023):

1. Railroad Embankment Foundation Preparation: Following stripping operations, proof roll the ground surface of all areas to receive embankment prior to commencement of fill placement. Proof rolling includes a minimum of two passes using a fully loaded, tandem-axle dump truck, or similar rubber-tired equipment weighing at least 20 tons, under the Engineer’s observation of soil deflection beneath the equipment. Areas of instability, including 0.5 inch or greater deflection, signs of pumping, or cracking indicate failed proof rolling. Scarify and condition, to the full width of the embankment area, failing proof roll areas to a minimum of 12 inches and recompact per the Railroad Embankment specifications.

Include all costs of labor, equipment, and materials in the unit price bid for “Subgrade Preparation-Type A”.

203-P05 RAILROAD EMBANKMENT: For railroad embankment construction, follow the requirements of Standard Specification Section 203.04 and the following modified compaction requirements:

1. Compact embankment material to a density of not less than 95% of the maximum standard laboratory density and maintain moisture content not more than 4.0 percentage points above the optimum moisture content, unless otherwise specified on the drawings. Determine the laboratory density and optimum moisture content in accordance with NDDOT Standard Specification Section 203.04.G.2.b.

302-P03 AGGREGATE BASE COURSE CL 5 – RAILROAD RELATED WORK: Delete the first sentence of NDDOT Standard Specification 302.03.

Substitution of Salvaged Base Course in lieu of Aggregate Base Course CL 5 not permitted for any construction on the railroad shoofly tracks, mainline tracks, or the railroad access roads.

302-P04 SALVAGE & RELAY AGGREGATE SURFACE COURSE: Upon the removal portion of the shoofly track ballast, remove, salvage, and relay the aggregate base course Class 5 (shoofly subballast) from the shoofly trackbed and construct the access roads and Track 3 with the salvaged aggregate material.

Include all costs of labor, equipment, and materials to remove, transport, and relay the aggregate base course Class 5 in the unit price bid for “Salvage & Relay Aggregate Surface Course”.

709-P01 GEOSYNTHETIC MATERIAL TYPE R2: Provide high performance geosynthetic material for use in construction of the access roads and the shoofly trackbed meeting the following specifications:

High-modulus double layer woven (patented) geosynthetic, providing a wide-ranging solution for moisture management, reinforcement, confinement, separation, filtration, high water flow, and product identification to maximize roadway reinforcement and stabilization performance.

Material construction features:
- Fibrillated polypropylene yarns for enhanced tensile strength (high tenacity)
- Colored anti-clogging yarns for filtration benefits
- Colored wicking yarns for passive moisture management and an anti-capillary break
- Performance and mechanical properties below:

Hydraulic Performance Properties	**Test Method**	**Unit**	**Measured Value**
Vertical Capillary Wicking Rise	GRI[1] GS27	in	4.0 after 10 min
Specific Surface Area of Wicking Yarns (minimum)	Calculated	in^2/oz	65
			MARV[2]
Hydraulic Flow Rate	ASTM D4491	$gal/min/ft^2$	75
Permittivity	ASTM D4491	sec^{-1}	0.9
			MRV[3]
Apparent Opening Size, AOS (Maximum Roll Value)	ASTM D4751	mm (US Sieve)	0.425 (40)
Mechanical Properties	**Test Method**	**Unit**	**Minimum Design Value**
Tensile Strength @ 2% Strain (MARV)[2]	ASTM D4595	lb/ft	480

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Tensile Strength @ 5% Strain (MARV)[2]	ASTM D4595	lb/ft	1,440
CRR Puncture Strength (MARV)[2]	ASTM D6241	lb	1,950
Grab Tensile (MARV)[2]	ASTM D4632	lb	600
			Minimum Test Value
UV Resistance (at 500 hours exposure)	ASTM D4355	% strength retained	90

[1] Geosynthetic Research Institute
[2] Minimum Average Roll Value (MARV)
[3] Maximum Roll Value (MRV)

Geosynthetic material to be compliant with the Build America, Buy America (BABA) Act.

709-P02 GEOSYNTHETIC MATERIAL TYPE RG: Provide high performance composite geosynthetic filter-grid material for use in construction of the mainline trackbed meeting the following specifications:

Composite geosynthetic geogrid material manufactured from a coextruded, composite polymer sheet consisting of integrally formed geometries; hexagonal, trapezoidal, and triangular shaped; bonded with a nonwoven geotextile, providing confinement, separation, and filtration. Uniaxial and biaxial type grids not acceptable.

Material construction features:
- Thermally bond the needle punched nonwoven geotextile to the geogrid at a PEAS audited manufacturing facility
- Performance and mechanical properties below:

Material Properties		**Unit**	**Minimum Value**
Rib Shape		-	Rectangular
Continuous Parallel Rib Pitch		in	3.2
Rib Aspect Ratio		-	> 1.0
Node Thickness		in	0.14
Durability Properties	**Test Method**	**Unit**	**Minimum Test Value**
Resistance to Chemical Degradation	EPA 9090	% strength retained	100
UV and Weathering Resistance (at 500 hours exposure)	ASTM D4355	% strength retained	90
Identification Properties for Geotextile	**Test Method**	**Unit**	**Minimum Design Value**
Grab Tensile Strength[1]	ASTM D4632	lb	160
Grab Elongation[1]	ASTM D4632	% min	50
Trapezoid Tear Strength[1]	ASTM D4533	lb	60
CRR Puncture Resistance[1]	ASTM D6241	lb	410
Permittivity[1]	ASTM D4491	sec^{-1}	1.5
Water Flow[1]	ASTM D4491	gpm/ft^2	110
Apparent Opening Size, AOS[1]	ASTM D4751	mm (US Sieve)	0.212 (70)
UV Resistance[1] (at 500 hours exposure)	ASTM D4355	% strength retained	70
Material weight (nominal)		oz/sy	6.0

[1] Minimum Average Roll Value (MARV)

Geosynthetic material to be compliant with the Build America, Buy America (BABA) Act.

980-P01 RAILROAD SUB-BALLAST: Place railroad subballast on geosynthetic material overlaying the finished subgrade as shown on the plans, providing a finished trackbed surface such that preservative fibers on the bottom side of the railroad ties are not penetrated or damaged during track construction. Ballast placement and track construction to be performed by BNSF.

For all subballast material on the project, use NDDOT Aggregate Base Course CL 5 as specified in NDDOT Standard Specification 816.02. Acceptance of the Railroad-Subballast gradation must meet the requirements of NDDOT Standard Specification 816.02.

Trim aggregate base course for the railroad subballast as specified in NDDOT Standard Specification 302.04.C.2, "Surface Tolerance Type B".

Place subballast in accordance with NDDOT Standard Specification 302.04 B. for the full width of the cross section. Compact each lift of subballast to a density as specified by NDDOT Standard Specification 203.04.G.2.b with a moisture content at the time of compaction not less than 2.0 percentage points below, nor more than 3.0 percentage points above the optimum moisture content.

When preparing for subballast placement, take care not to disturb the finished subgrade surface. See the typical sections and cross-sections for proposed limits of subballast placement.



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BASIS OF ESTIMATE

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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Spec	Code	Description	Application Rate	Alignment	Begin Station	End Station	Area (SF)	Track Length (LF)	Volume (CY)	Total (TON)
202	0128	Remove Aggregate Base	1.62 TON/CY (Ballast Removal)	Main 1	905+96.52	911+30.23	8.48	533.71	167.62	272
					911+30.23	917+63.16	38.88	632.93	911.42	1476
					917+63.16	920+48.08	25.08	284.92	264.66	429
					921+61.84	928+56.19	25.08	694.35	644.97	1045
			1.875 TON/CY (Subballast Removal)	Main 1	905+96.52	911+30.23	19.34	533.71	382.29	717
					911+30.23	913+26.38	19.34	196.15	140.50	263
					913+26.38	917+63.16	60.18	436.78	973.53	1825
					917+63.16	920+48.08	45.18	284.92	476.77	894
					921+61.84	926+49.14	45.18	487.30	815.42	1529
			1.62 TON/CY (Ballast Removal)	Main 1 Shoofly	913+26.33	914+80.57	44.08	154.24	251.81	408
					914+80.57	916+81.85	28.57	201.28	212.98	345
					916+81.85	923+10.92	44.08	629.07	1027.02	1664
					923+10.92	925+12.39	28.57	201.47	213.19	345
					925+12.39	926+65.16	44.08	152.77	249.41	404
									Total	11616

Spec	Code	Description	Application Rate	Alignment	Begin Station	End Station	Length (LF)	Volume (CY)	Total (TON)
202	0128	Remove Aggregate Base	1.62 TON/CY (Ballast Removal)	South Access Road	0+00.00	1+46.19	146.19	6	10
				NE Access Road	0+60.68	9+62.57	901.89	112	182
			1.875 TON/CY (Subballast Removal)	South Access Road	0+00.00	1+46.19	146.19	26	49
				NE Access Road	0+60.68	9+62.57	901.89	502	941
									Total 1182

Spec	Code	Description	Alignment	Begin Station	End Station	Length (STA)
230	0165	Subgrade Preparation-Type A-12IN	Main 1 Shoofly	913+26.33	926+65.16	13+38.83
			Main 1	913+26.38	917+63.08	4+36.70
				917+63.08	919+77.63	2+14.55
				921+74.63	926+49.14	4+74.51
			NW Access Road	0+17.70	4+51.60	4+33.90
			South Access Road	0+00.00	1+92.77	1+92.77
			South Access Road	3+89.77	6+52.11	2+62.34
			NE Access Road	0+22.52	14+70.75	14+48.23
						Total 48+00

Spec	Code	Description	Alignment	Begin Station	End Station	Width (LF)	Track Length (LF)	Total (SY)
709	0152	Geosynthetic Material Type R2	Main 1 Shoofly	913+26.33	917+59.00	47.38	432.67	2278
				917+59.00	919+29.00	72.5	170.00	1370
				919+29.00	923+10.92	61.25	381.92	2600
				923+10.92	923+53.08	48.75	42.16	229
				923+53.08	926+65.16	47.38	312.08	1643
			Main 1	919+77.63	921+74.63	62.21	197.00	1362
								Total 9482

Spec	Code	Description	Alignment	Area (SF)	Area (SY)
709	0152	Geosynthetic Material Type R2	NW Access Road	9302	1034
			South Access Road	7545	838
			NE Access Road	33982	3776
				Total	5648

Spec	Code	Description	Alignment	Begin Station	End Station	Width (LF)	Track (LF)	Area (SY)
709	0110	Geosynthetic Material Type RG	Track 3	2905+96.40	2911+30.26	25.82	533.86	1532
			Main 1	911+30.23	913+26.38	25.82	196.15	563
			Main 1	913+26.38	917+63.16	68.03	436.78	3302
			Main 1	917+63.16	919+77.63	50.78	214.47	1210
				921+74.63	926+49.14	50.78	474.51	2677
							Total	9283

Spec	Code	Description	Application Rate	Alignment	Begin Station	End Station	Area (SF)	Track Length (LF)	Total (CY)	Total (TON)	
980	510	Railroad Sub-Ballast	1.875 TON/CY	Main 1 Shoofly	913+26.33	917+59.00	57.64	432.67	923.67	1732	
					917+59.00	919+29.00	90.97	170.00	572.77	1074	
					919+29.00	923+53.08	74.31	424.08	1167.16	2188	
					923+53.08	926+65.16	57.64	312.08	666.23	1249	
				Main 1	913+26.38	917+63.16	71.86	436.78	1162.48	2180	
					919+77.63	921+74.63	57.20	197.00	417.35	783	
					917+63.09	919+77.63	82.16	214.54	652.84	1224	
					921+74.63	926+49.14	82.16	474.51	1443.92	2707	
				Track 3	2905+96.40	2907+94.00	41.57	197.60	304.23	570	*
									Total	13707	

*The remaining quantity of 'Railroad Sub-Ballast' required for Track 3 shall be furnished from the 'Salvage & Relay Aggregate Surface Course' item.

Spec	Code	Description	Application Rate	Alignment	Begin Station	End Station	Area (SF)	Track Length (LF)	Total (CY)	Total (TON)
302	0401	Salvage & Relay Aggregate Surface Course	1.875 TON/CY (Subballast Removal)	Main 1 Shoofly	913+26.33	917+59.00	57.64	432.67	923.67	1732
					917+59.00	919+29.00	90.97	170.00	572.77	1074
					919+29.00	923+53.08	74.31	424.08	1167.16	2188
					923+53.08	926+65.16	57.64	312.08	666.23	1249
									Total	6243

Basis of Estimate

BNSF Grand Forks Subdivision
LS 32 MP 110.067

ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

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BASIS OF ESTIMATE

Notes:
1. This sheet is for information only and includes removal, realignment and installation of track by BNSF. See notes in typical sections for work done by contractor.
2. Beginning and end stationing for track removals and rail quantities correspond to the 9' clearance point for each track.
3. Quantities are for linear feet of track.

Track Removals			
Track	Begin Station	End Station	Length (LF)
Main 1 Shoofly	913+26.33	926+65.16	1339
Main 2 Shoofly	1913+27.40	1926+64.81	1337
		Total	2676

Track Removals			
Track	Begin Station	End Station	Length (LF)
Main 1	913+26.38	926+49.14	1323
Main 2	1913+26.39	1926+49.15	1323
Track 3	2905+96.40	2917+63.16	1167
		Total	3812

Rail			
Track	Begin Station	End Station	Length (LF)
Main 1 Shoofly	913+26.33	926+65.16	1339
Main 2 Shoofly	1913+27.40	1926+64.81	1337
		Total	2676

Rail			
Track	Begin Station	End Station	Length (LF)
Main 1	913+26.38	926+49.14	1323
Main 2	1913+26.39	1926+49.15	1323
		Total	2646

Track Re-Alignment			
Track	Begin Station	End Station	Length (LF)
Track 3	2905+96.40	2917+63.14	1167

Basis of Estimate

BNSF Grand Forks Subdivision
LS 32 MP 110.067

ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

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Earthwork Summary					
Location	Cut (CY)	Required Embankment (CY)[1]	Excess Material (CY)	Common Excavation - Type A (CY)	Common Excavation - Waste (CY)[2]
				Pay Item	Pay Item
	(A)	(B)	(C) = (A)-(B)	(B)	(D)
RR Shoofly Installation	10,030	1,330	8,700	1,330	1,692
RR Mainline Installation	1,518	47	1,471	47	1,518
NW Access Road	83	110	-27	110	83
NE Access Road	0	2,680	-2,680	2,680	0
South Access Road	0	90	-90	90	0
RR Shoofly Restoration (Outside 42nd Roadway Limits)	575	4,656	-4,081	4,656	0
Totals	12,206	8,913	3,293	8,913	3,293

1. An additional volume of 25% to allow for shrinkage is included in all embankment volumes.
2. Portions of existing cut material from the RR shoofly, mainline, and access roads is anticipated to contain contaminated materials and shall be disposed of according to the Special Provisions. Additional embankment material may be required from adjacent sources such as the bridge excavation and roadway
3. See Section 11 Earthwork Summary for overall quantities

Earthwork Summary
Railroad and Access Road

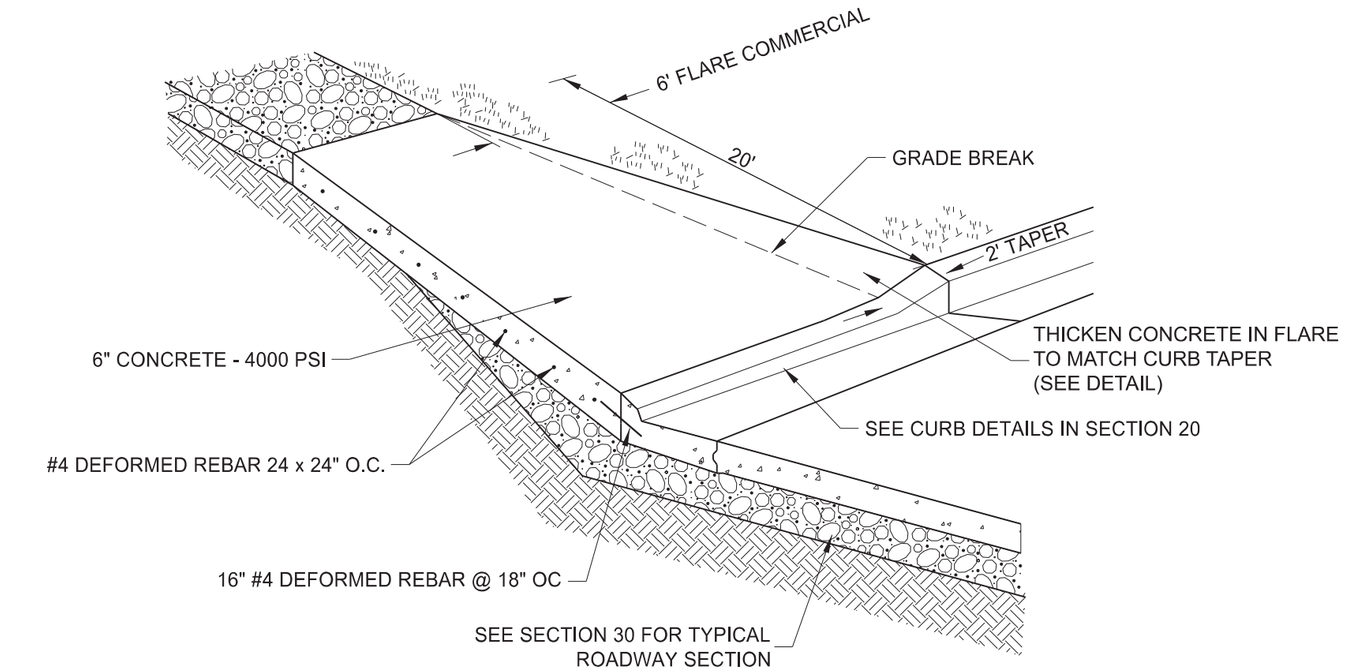
BNSF Grand Forks Subdivision
LS 32 MP 110.067

ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

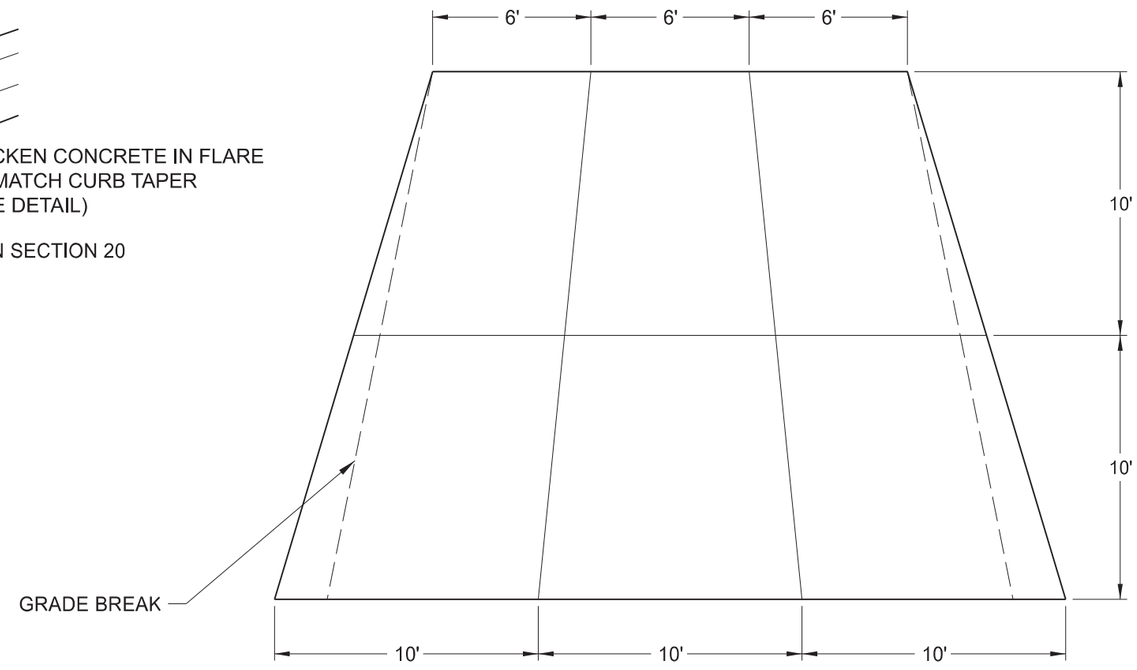
Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
TRENT J. BERG
PE-9458
DATE
NORTH DAKOTA
12/19/2025

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	7



DRIVEWAY FLARE DETAIL



DRIVEWAY CONTRACTION JOINTS DETAIL

NOTES:

1. COMMERCIAL D/W 18' MAX @ ACCESS ROAD CONNECTION
   30' MAX @ STREET
2. WHEN NECESSARY TO REMOVE EXISTING CURB, IT SHALL BE SAWCUT TO FULL DEPTH OR REMOVED TO AN EXISTING JOINT.
3. CONTRACTION JOINTS SHALL BE PROVIDED IN DRIVEWAY APPROACHES. NO PANEL SHALL EXCEED 12' BY 12'.
4. DRIVEWAY APRON SHALL BE REINFORCED WITH NO. 4 BAR SPACED @ 24" X 24" O.C.

General Details
Typical Access Road Driveway

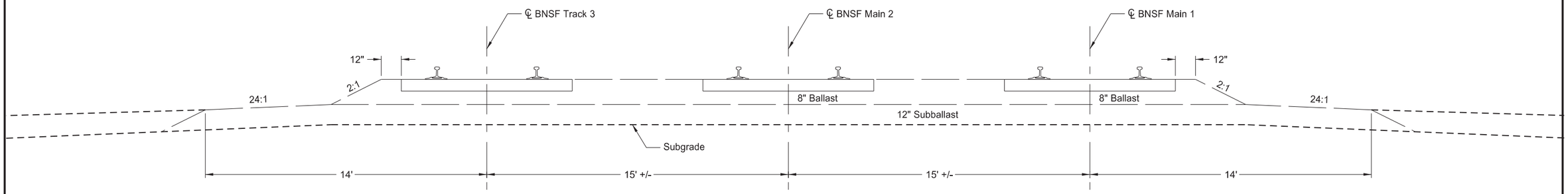
BNSF Grand Forks Subdivision
LS 32 MP 110.067

ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

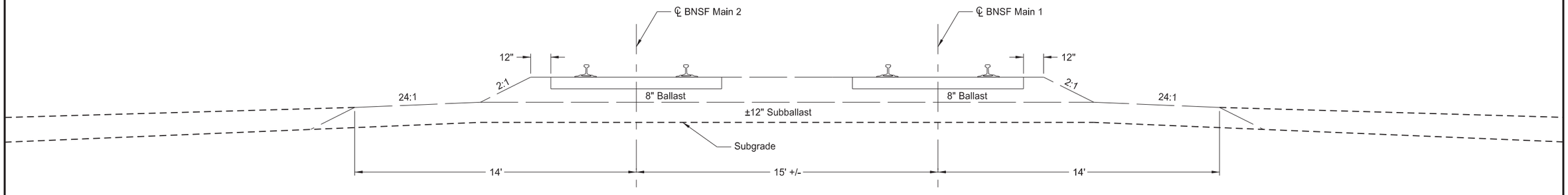
Grand Forks, ND

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Existing Triple Track Typical Section
Sta 905+53.08 To Sta 917+67.74 (Align: Main 1)



Existing Double Track Typical Section
Sta 917+64.74 To Sta 931+33.64 (Align: Main 1)

Existing Typical Sections
Existing Mainline

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LS 32 MP 110.067

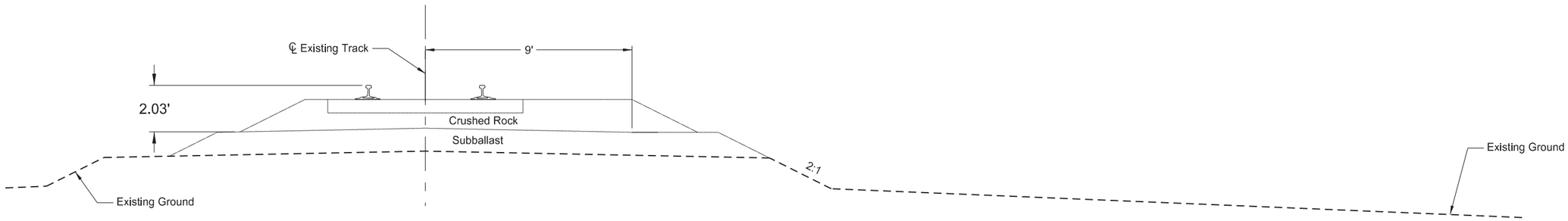
ND 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
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NORTH DAKOTA
12/19/2025

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	9



Existing Access Road Typical Section
Sta 0+89.03 To Sta 9+09.67 (Align: NE Access Road)
Sta 10+49.75 To Sta 14+00.75 (Align: NE Access Road)
Sta 0+00.00 To Sta 1+92.77, Sta 3+87.61 To Sta 6+52.11 (Align: South Access Road)

Existing Typical Sections
Existing Access Roads

BNSF Grand Forks Subdivision
LS 32 MP 110.067

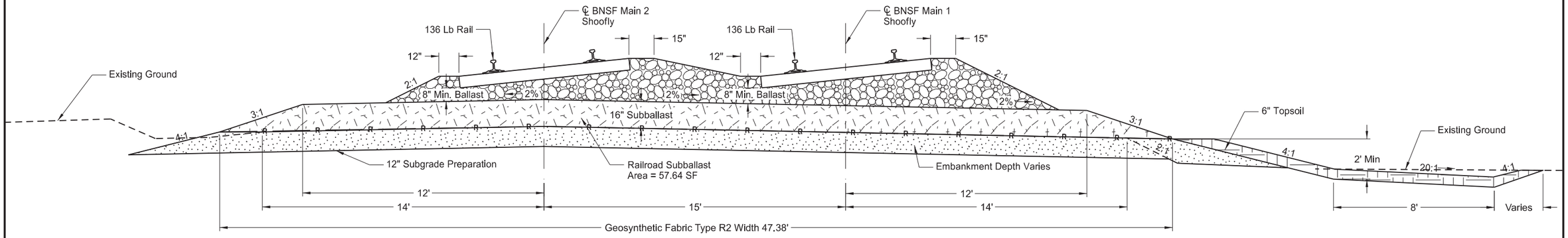
ND 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

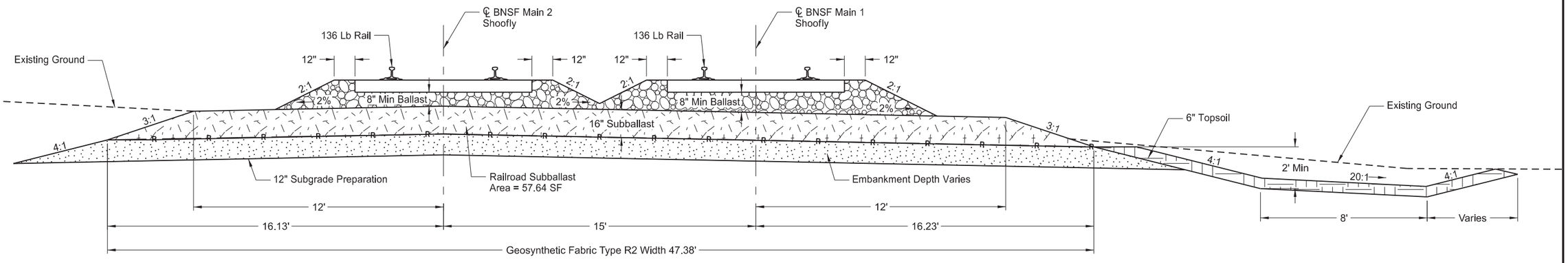
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12/19/2025

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	10

Note:
1. BNSF to furnish and install ballast, ties, and rail.
2. Contractor to install subballast, geotextile fabric, and perform embankment/excavation.
3. Shoofly quantity starts at 9' clearance point
4. See Sections 76 & 77 for temporary and permanent erosion control.



Proposed Double Track On Curves Typical Section
Sta 913+26.33 To Sta 914+80.57 (Align: Main 1 Shoofly)
Sta 916+81.85 To Sta 917+59.00 (Align: Main 1 Shoofly)
Sta 925+12.39 To Sta 926+65.16 (Align: Main 1 Shoofly)



Proposed Double Track Tangent Typical Section
Sta 914+80.57 To Sta 916+81.85 (Align: Main 1 Shoofly)
Sta 923+53.08 To Sta 925+12.39 (Align: Main 1 Shoofly)

Typical Sections
Proposed Shoofly

BNSF Grand Forks Subdivision
LS 32 MP 110.067

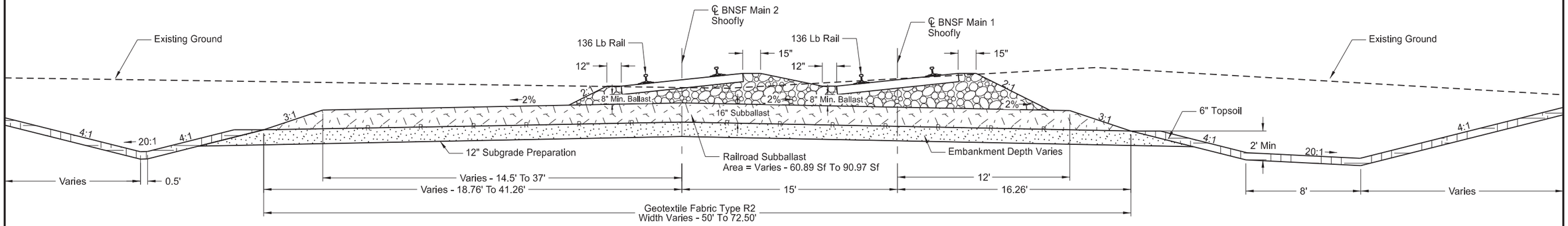
ND 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

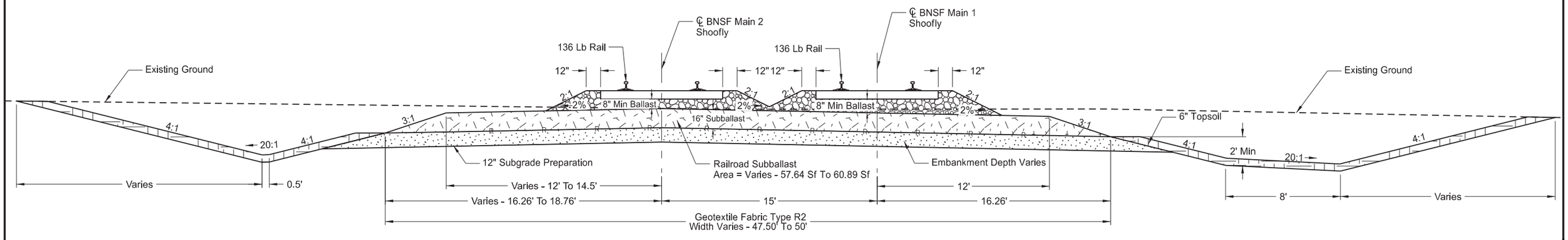
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12/19/2025

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	11

Note:
1. BNSF to furnish and install ballast, ties, and rail.
2. Contractor to install subballast, geotextile fabric, and perform embankment/excavation.
3.Shoofly quantity starts at 9' clearance point.
4. See Sections 76 & 77 for temporary and permanent erosion control.



Proposed Double Track On Curves Typical Section
Sta 917+59.00 To Sta 923+10.92 (Align: Main 1 Shoofly)



Proposed Double Track Tangent Typical Section
Sta 923+10.92 To Sta 923+53.08 (Align: Main 1 Shoofly)

Typical Sections
Proposed Shoofly

BNSF Grand Forks Subdivision
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ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

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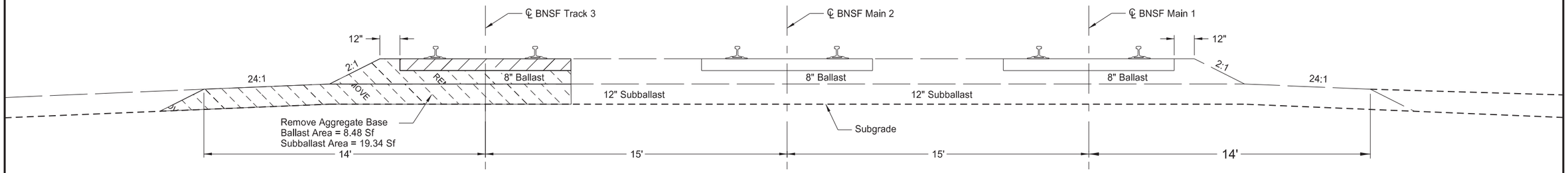
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	12

Note:
1. BNSF to remove existing rail and ties.
2. Contractor to remove existing ballast, subballast, topsoil, and subgrade.

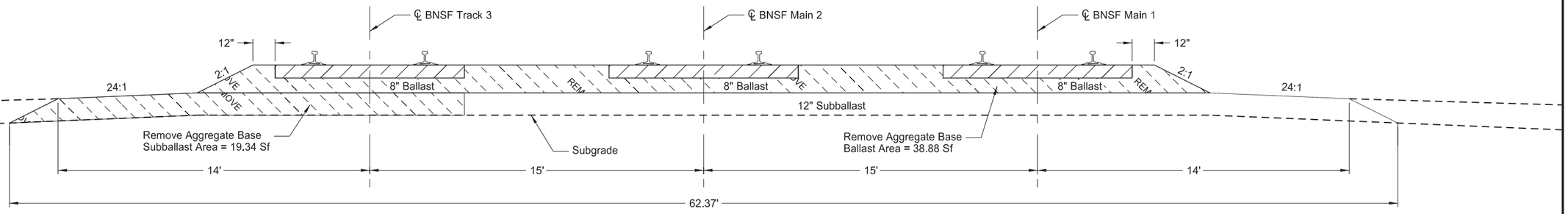
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BNSF Removal Area

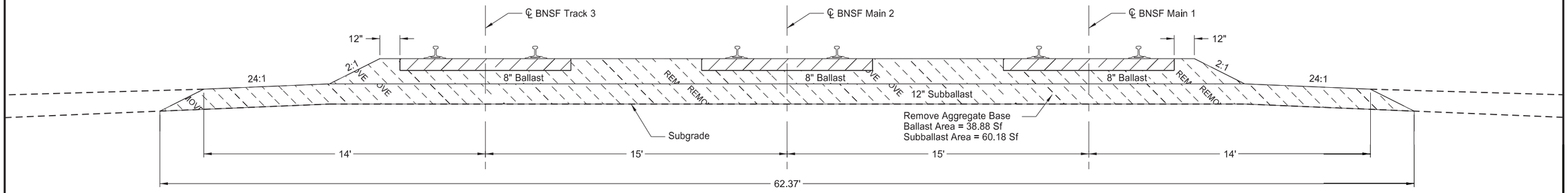
Contractor Removal Area (Remove Aggregate Base)



Triple Track Removal Typical Section
Sta 905+96.52 To Sta 911+30.23 (Align: Main 1)



Triple Track Removal Typical Section
Sta 911+30.23 To Sta 913+26.38 (Align: Main 1)



Triple Track Removal Typical Section
Sta 913+26.38 To Sta 917+63.16 (Align: Main 1)

Removal Typical Sections
Existing Mainline

BNSF Grand Forks Subdivision
LS 32 MP 110.067

ND 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
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12/19/2025

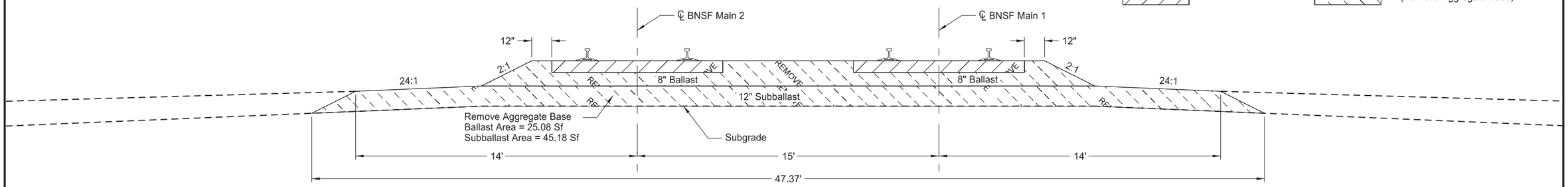
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	13

Note:
1. BNSF to remove existing rail and ties.
2. Contractor to remove existing ballast, subballast, topsoil, and subgrade.

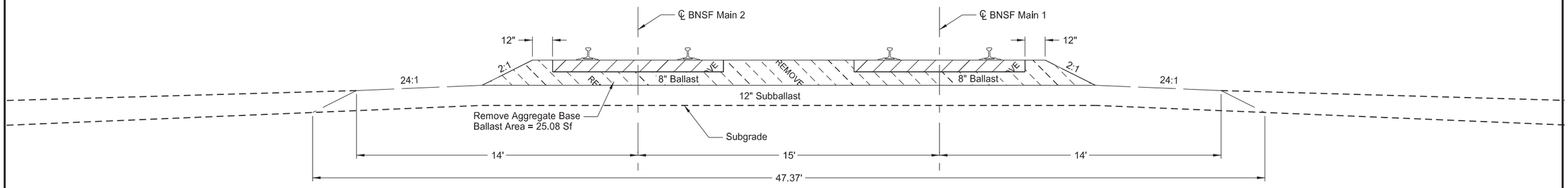
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BNSF Removal Area

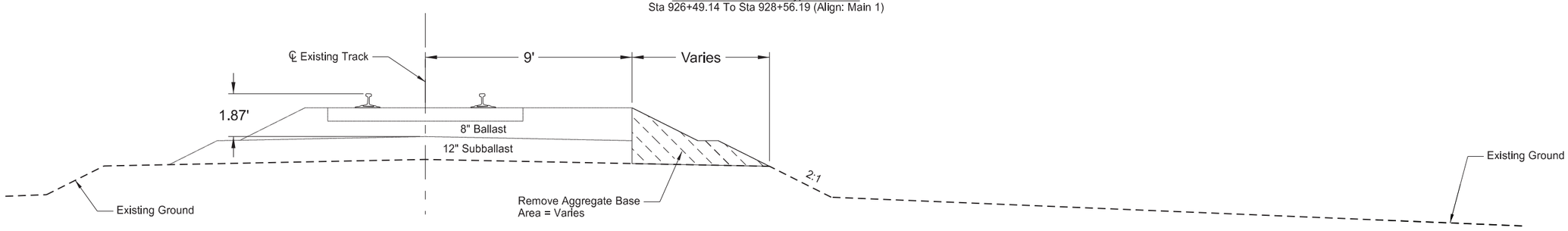
Contractor Removal Area (Remove Aggregate Base)



Double Track Removal Typical Section
Sta 917+63.16 To Sta 920+48.08 (Align: Main 1)
Sta 921+61.84 To Sta 926+49.14 (Align: Main 1)



Double Track Removal Typical Section
Sta 926+49.14 To Sta 928+56.19 (Align: Main 1)



Access Road Removal Typical Section
Sta 0+00 To 1+46.19 (Align: South Access Road)
Sta 0+60.68 To Sta 9+62.57 (Align: NE Access Road)

Removal Typical Sections
Existing Mainline & Access Roads

BNSF Grand Forks Subdivision
LS 32 MP 110.067

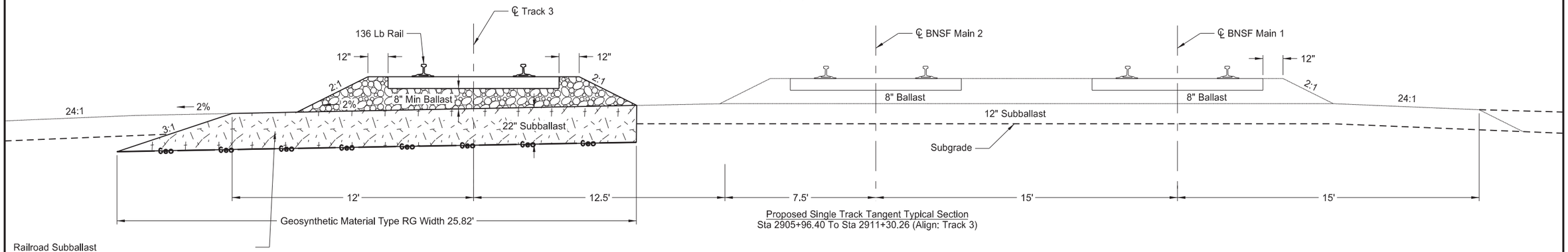
ND 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

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12/19/2025

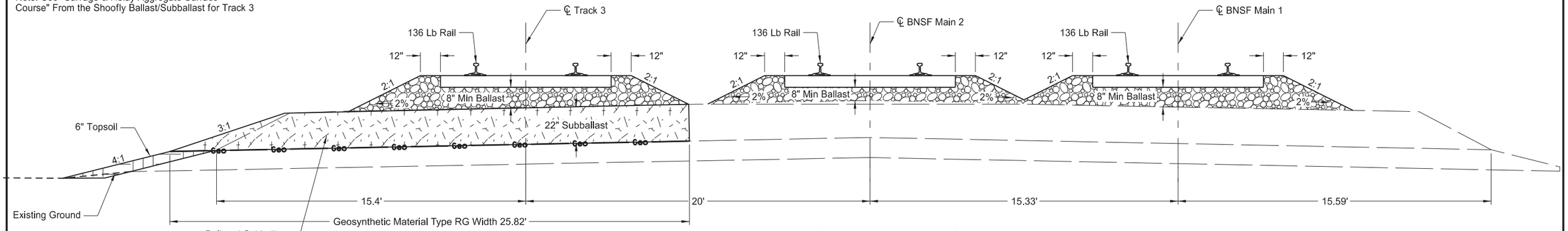
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	14

Note:
1. BNSF to furnish and install ballast, ties, and rail.
2. Contractor to furnish and install subballast, geotextile fabric, and perform embankment/excavation.
3. Shoofly quantity starts at 9' clearance point
4. See Sections 76 & 77 for temporary and permanent erosion control.



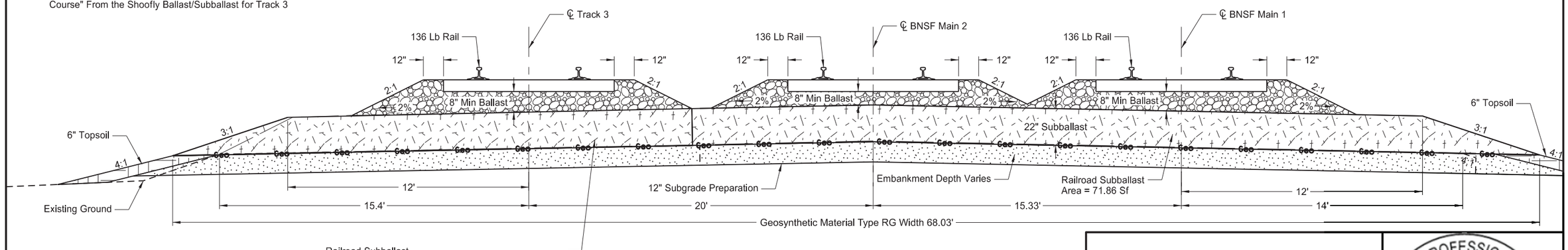
Railroad Subballast
Area = 41.57 Sf
Note: Use "Salvage & Relay Aggregate Surface Course" From the Shoofly Ballast/Subballast for Track 3

Proposed Single Track Tangent Typical Section
Sta 2905+96.40 To Sta 2911+30.26 (Align: Track 3)



Railroad Subballast
Area = 41.57 Sf
Note: Use "Salvage & Relay Aggregate Surface Course" From the Shoofly Ballast/Subballast for Track 3

Proposed Triple Track Tangent Typical Section
Sta 911+30.23 To Sta 913+26.38 (Align: Main 1)



Railroad Subballast
Area = 41.64 Sf
Note: Use "Salvage & Relay Aggregate Surface Course" From the Shoofly Ballast/Subballast for Track 3

Proposed Triple Track Tangent Typical Section
Sta 913+26.38 To Sta 917+63.16 (Align: Main 1)

Typical Sections
Proposed Mainline

BNSF Grand Forks Subdivision
LS 32 MP 110.067

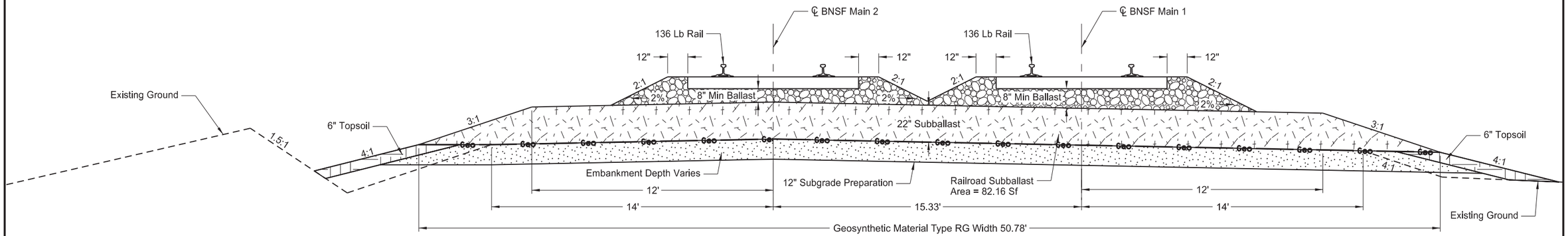
ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

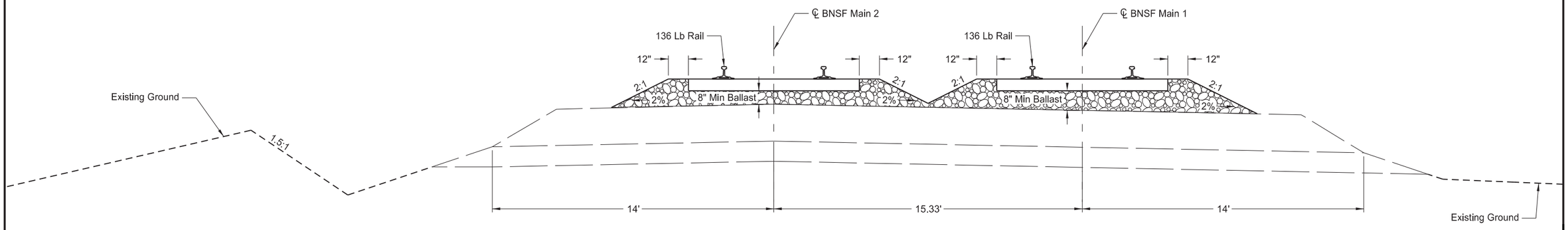
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NORTH DAKOTA
12/19/2025

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	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	15

Note:
1. BNSF to furnish and install ballast, ties, and rail.
2. Contractor to furnish and install subballast, geotextile fabric, and perform embankment/excavation.
3. Shoofly quantity starts at 9' clearance point
4. See Sections 76 & 77 for temporary and permanent erosion control.



Proposed Double Track Tangent Typical Section
Sta 917+63.16 To Sta 919+77.63 (Align: Main 1)
Sta 921+74.63 To Sta 926+49.14 (Align: Main 1)



Proposed Double Track Tangent Typical Section
Sta 926+49.14 To Sta 928+56.19 (Align: Main 1)

Typical Sections
Proposed Mainline

BNSF Grand Forks Subdivision
LS 32 MP 110.067

ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

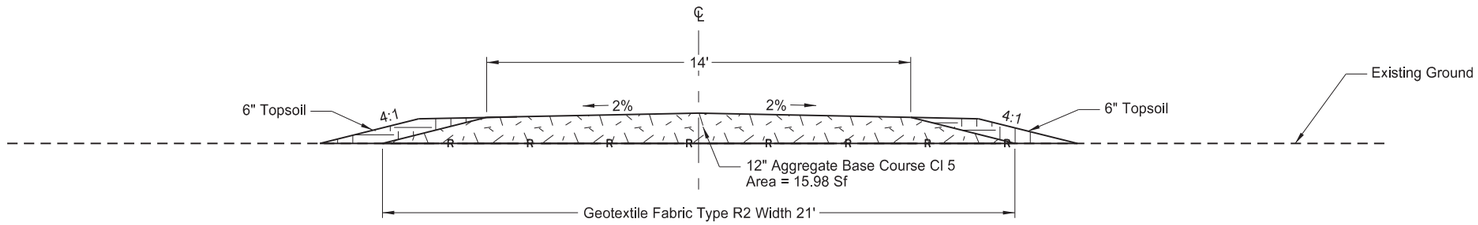
Grand Forks, ND

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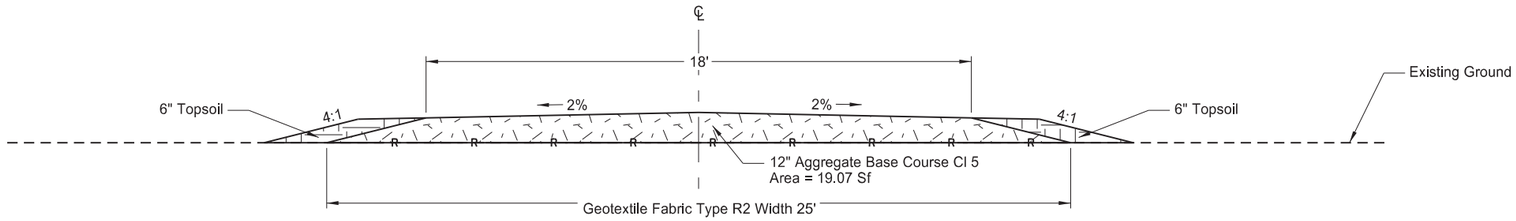
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	16

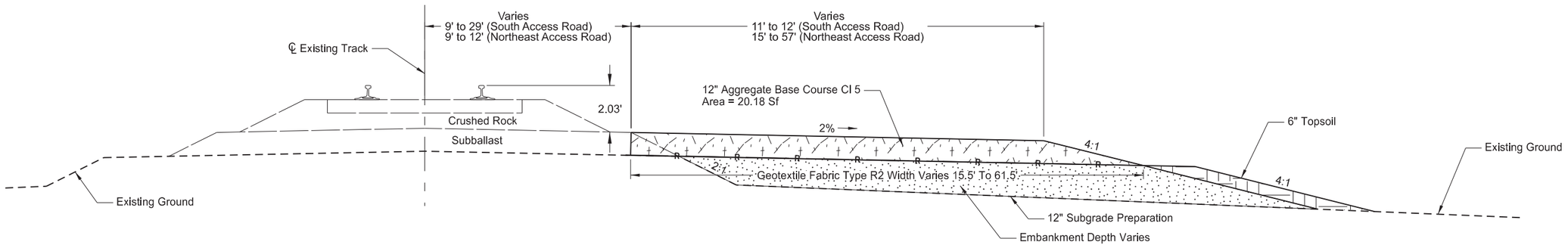
Note:
1. See Sections 76 & 77 for temporary and permanent erosion control.



Access Road Typical Section
Sta 0+17.70 To Sta 4+51.60 (Align: NW Access Road)



Access Road Typical Section
Sta 0+22.52 To Sta 0+89.03 (Align: NE Access Road)
Sta 9+09.67 To Sta 10+49.75 (Align: NE Access Road)



Access Road Typical Section
Sta 0+89.03 To Sta 9+09.67 (Align: NE Access Road)
Sta 10+49.75 To Sta 14+00.75 (Align: NE Access Road)
Sta 0+00.00 To Sta 1+92.77, Sta 3+87.61 to Sta 6+52.11 (Align: South Access Road)

Note: Use "Salvage & Relay Aggregate Surface Course"
From the Shoofly Ballast/Subballast for Access Roads

Typical Sections
Proposed Access Roads

BNSF Grand Forks Subdivision
LS 32 MP 110.067

ND Hwy 297 (DeMers Ave) & 42nd Street
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	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	17

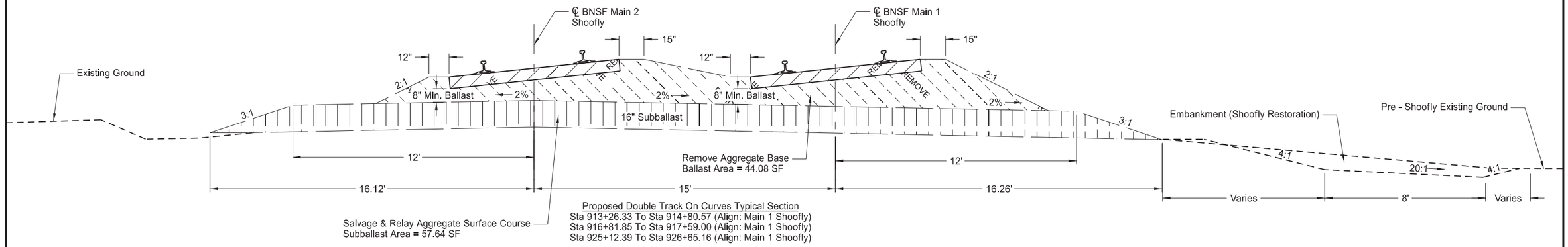
Note:
1. BNSF to remove existing rail and ties.
2. Contractor to remove existing ballast, subballast, topsoil, and subgrade.

Legend:

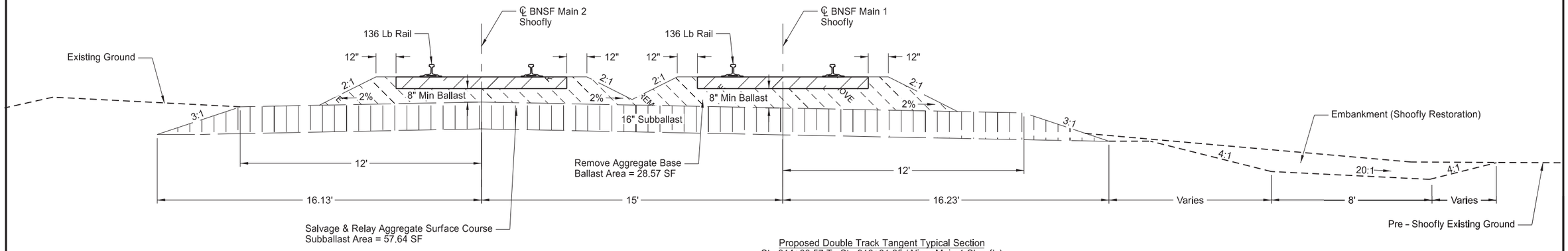
BNSF Removal Area

Contractor Removal Area (Remove Aggregate Base)

Contractor Removal Area (Salvage & Relay Aggregate - Surface Course for Access Roads and Track 3 Subballast)



Proposed Double Track On Curves Typical Section
Sta 913+26.33 To Sta 914+80.57 (Align: Main 1 Shoofly)
Sta 916+81.85 To Sta 917+59.00 (Align: Main 1 Shoofly)
Sta 925+12.39 To Sta 926+65.16 (Align: Main 1 Shoofly)



Proposed Double Track Tangent Typical Section
Sta 914+80.57 To Sta 916+81.85 (Align: Main 1 Shoofly)
Sta 923+53.08 To Sta 925+12.39 (Align: Main 1 Shoofly)

Removal Typical Sections
Shoofly Removal and Restoration

BNSF Grand Forks Subdivision
LS 32 MP 110.067

ND 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

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12/19/2025

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	18

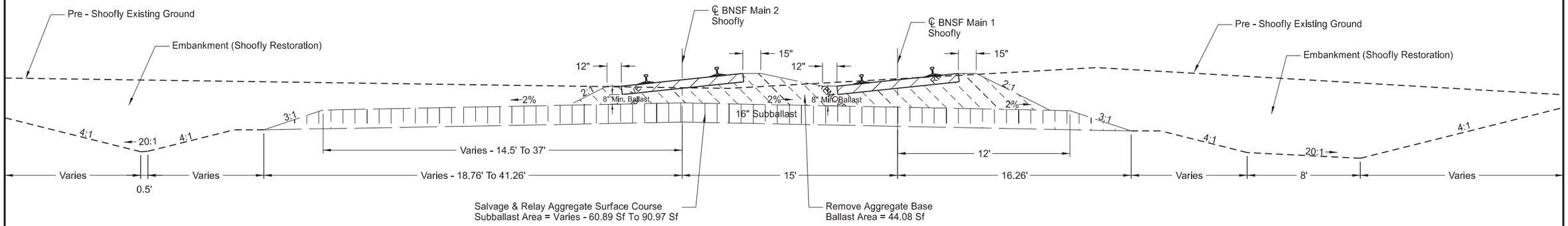
Note:
1. BNSF to remove existing rail and ties.
2. Contractor to remove existing ballast, subballast, topsoil, and subgrade.

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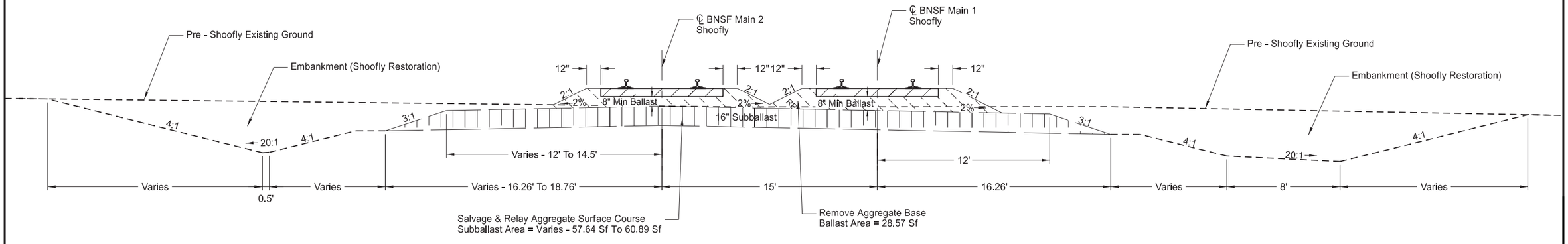
BNSF Removal Area

Contractor Removal Area (Remove Aggregate Base)

Contractor Removal Area (Salvage & Relay Aggregate Surface Course for Access Roads and Track 3)



Proposed Double Track On Curves Typical Section
Sta 917+59.00 To Sta 923+10.92 (Align: Main 1 Shoofly)



Proposed Double Track Tangent Typical Section
Sta 923+10.92 To Sta 923+53.08 (Align: Main 1 Shoofly)

Removal Typical Sections
Shoofly Removal and Restoration

BNSF Grand Forks Subdivision
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170c	19

SPEC	CODE	BID ITEM	QTY	UNIT
202	0128	REMOVE AGGREGATE BASE Sta 905+96.52 to Sta 921+94.84	6030	TON
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES Sta 917+22 - 22' Rt to Sta 917+22 - 30' Rt	8	LF
202	0286	REMOVAL OF FOUNDATIONS-ALL SIZES	1	LSUM

910+00

Removal of Foundations - All Sizes.
To be removed by Contractor.
BNSF to remove cantilever structure.

Begin Removal of Main 1 and Main 2
Sta 911+30.23 (Align: Main 1)

Begin Removal of Track 3
Sta 905+96.52 (Align: Main 1)

DeMers Ave

N 42nd St

920+00

915+00

Removal of Foundations - All Sizes.
To be removed by Contractor.
BNSF will remove signals and
associated structures.

Removal of Pipe All Types and Sizes

Removal of Main 1 and Main 2
End Removal of Track 3
Sta 917+63.09 (Align: Main 1)

Rail, ties, and concrete crossing panels
to be removed by BNSF. Ballast and
trackbed to be removed by contractor.

DeMers Ave

Note:
1. BNSF to remove rails and ties.
2. Contractor to remove ballast, subballast, and subgrade.
3. See Sheet Number 12-13 for Removal Typical Sections.

Mainline Track Removal Area

Removal of Foundations - All Sizes

Removal of Pipe All Types and Sizes

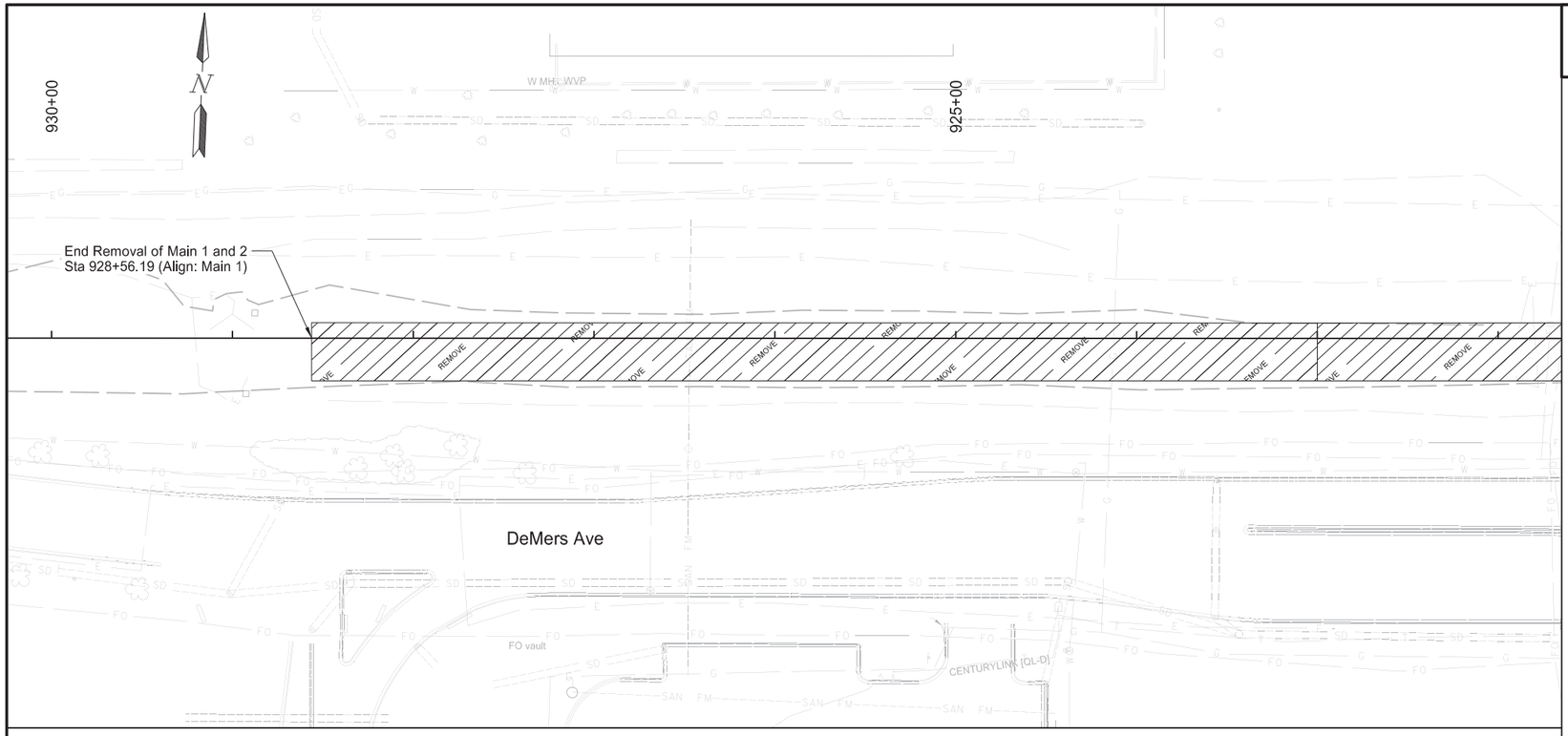
Removals

BNSF Grand Forks Subdivision
LS 32 MP 110.067

ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
TRENT J. BERG
PE-9458
DATE
NORTH DAKOTA
12/19/2025



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	20

SPEC	CODE	BID ITEM	QTY	UNIT
202	0128	REMOVE AGGREGATE BASE Sta 921+94.84 to Sta 928+56.19	2420	TON

Note:
1. BNSF to remove rails and ties.
2. Contractor to remove ballast, subballast, and subgrade.
3. See Sheet Number 12-13 for Removal Typical Sections.

REMOVE Mainline Track Removal Area

Removals

BNSF Grand Forks Subdivision
LS 32 MP 110.067

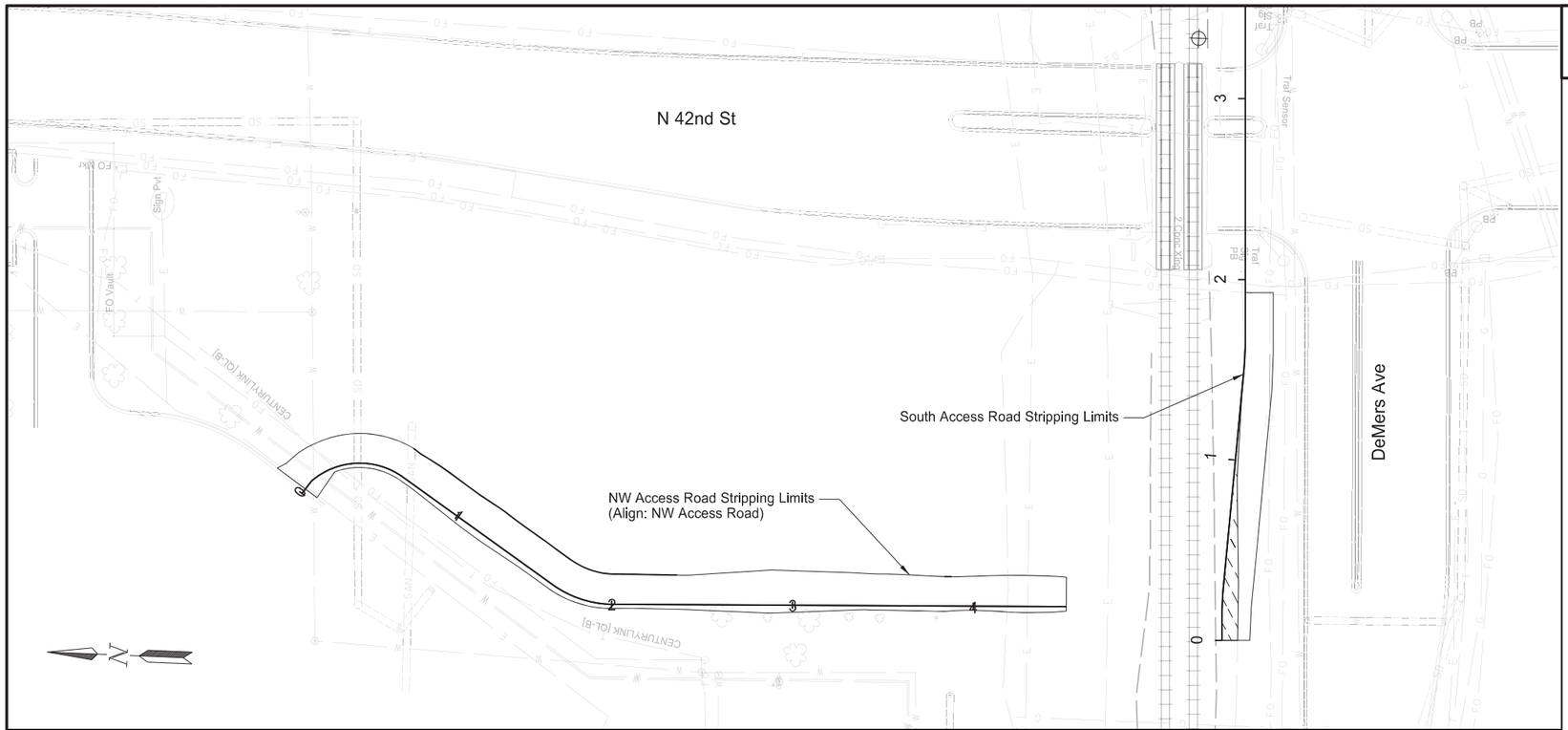
ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

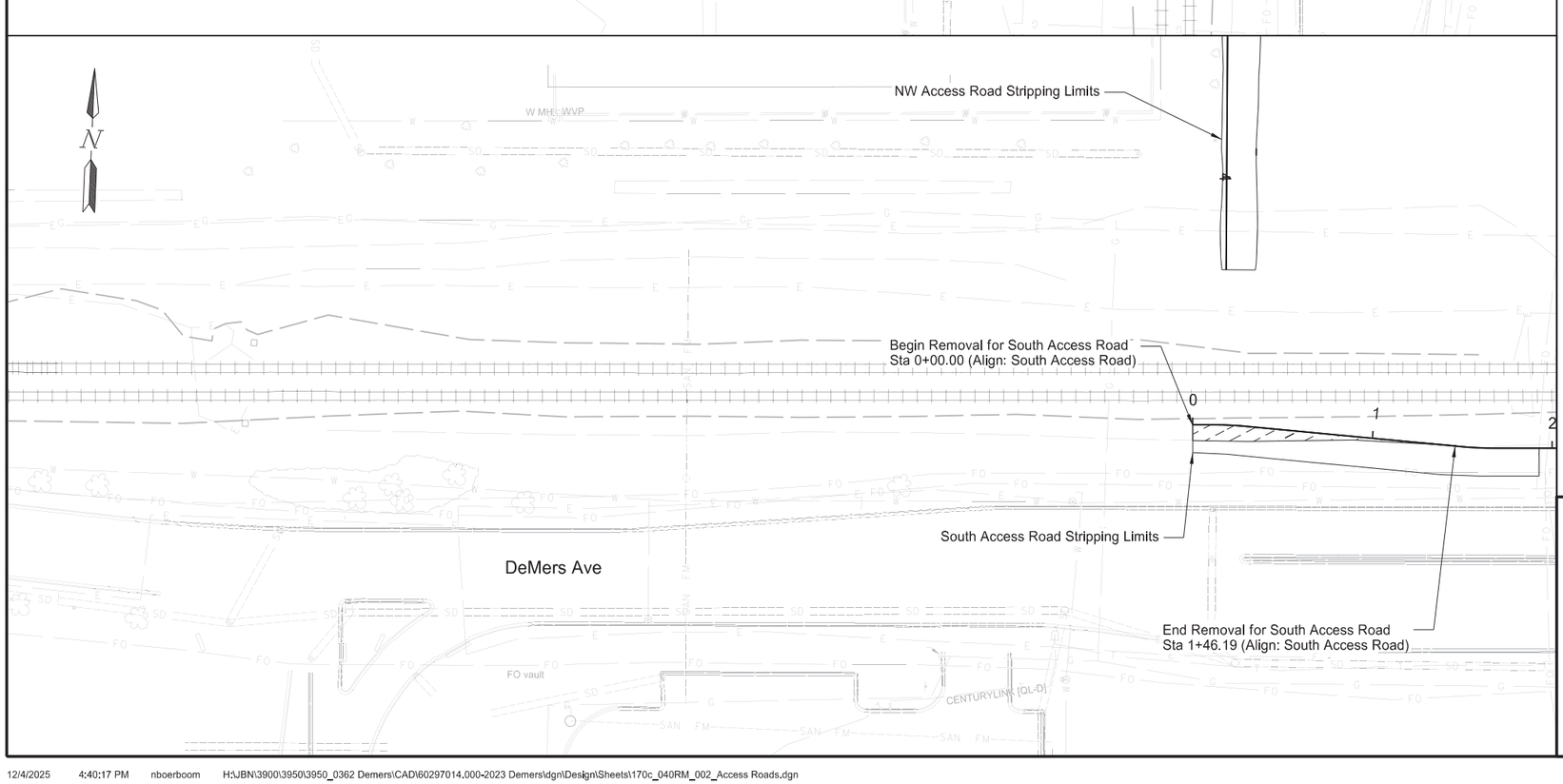
Grand Forks, ND

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	21

SPEC	CODE	BID ITEM	QTY	UNIT
202	0128	REMOVE AGGREGATE BASE		
		Sta 0+00.00 to Sta 1+46.19	59	TON





Note:
1. BNSF to remove rails and ties.
2. Contractor to remove ballast, subballast, and subgrade.
3. See Sheet Number 13 for Removal Typical Sections.

REMOVE — South Access Road Removal Area

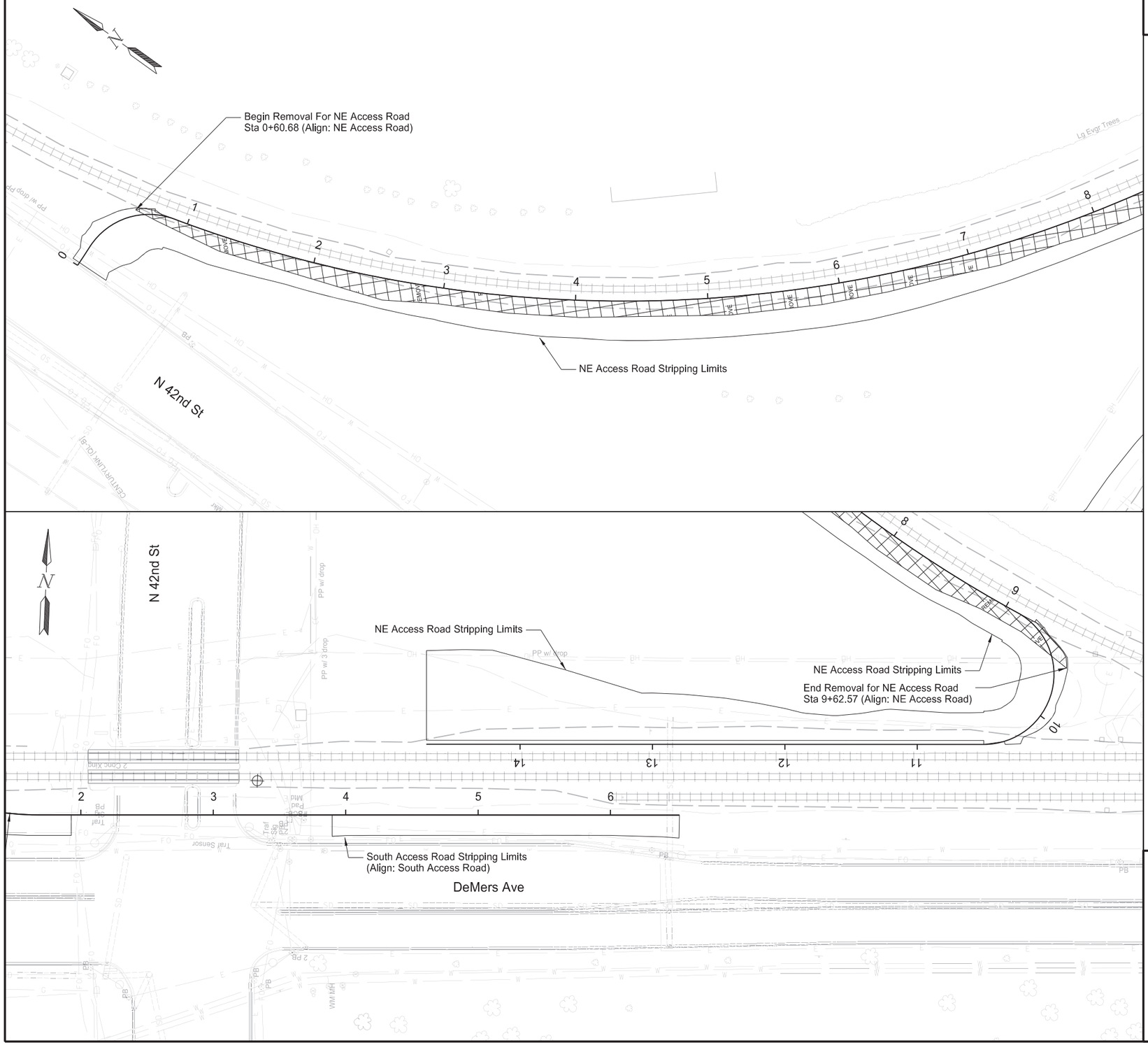
Removals

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	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	22

SPEC	CODE	BID ITEM	QTY	UNIT
202	0128	REMOVE AGGREGATE BASE Sta 0+60.68 to Sta 9+62.57	1123	TON

Note:
1. BNSF to remove rails and ties.
2. Contractor to remove ballast, subballast, and subgrade.
3. See Sheet Number 13 for Removal Typical Sections.

NE Access Road Removal Area

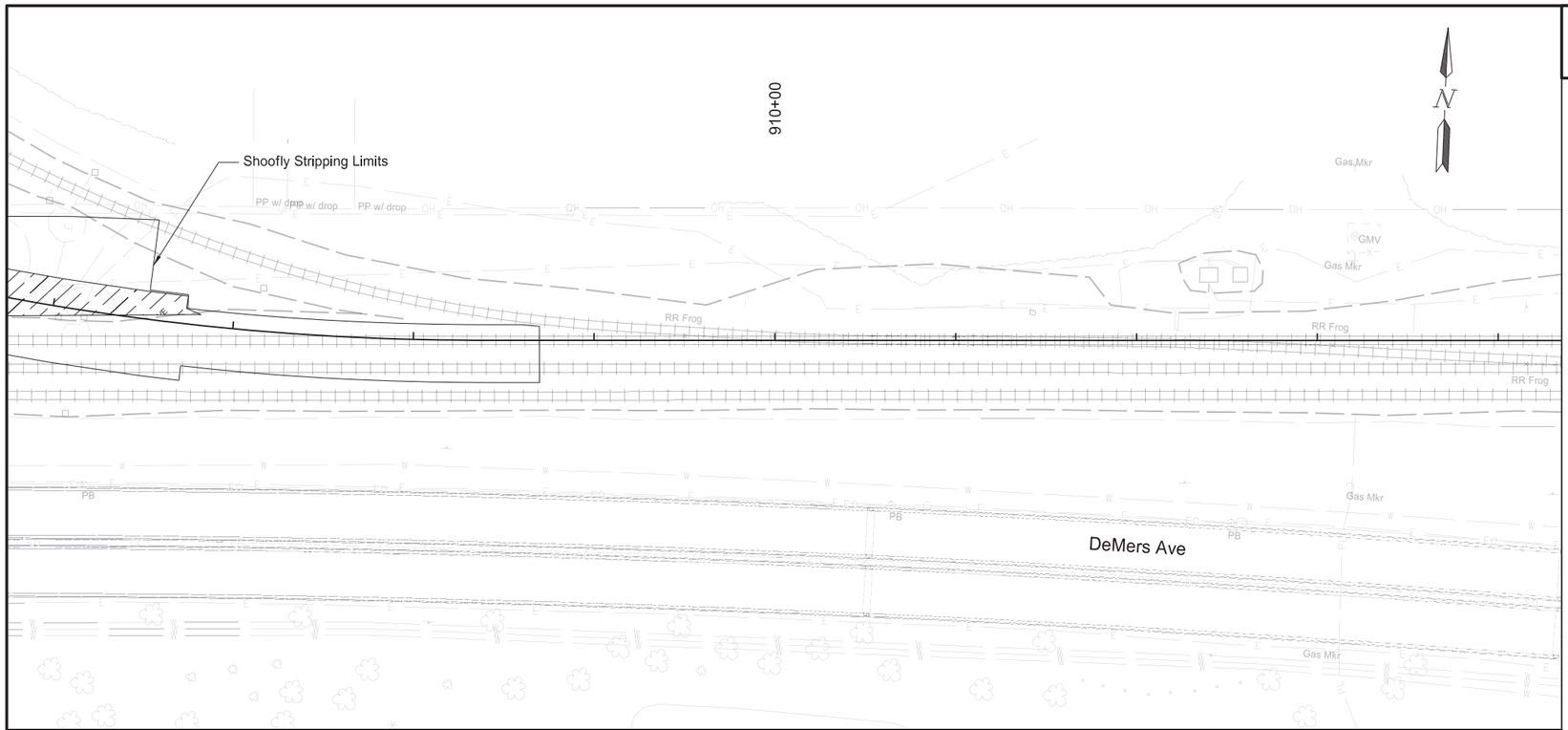
Removals

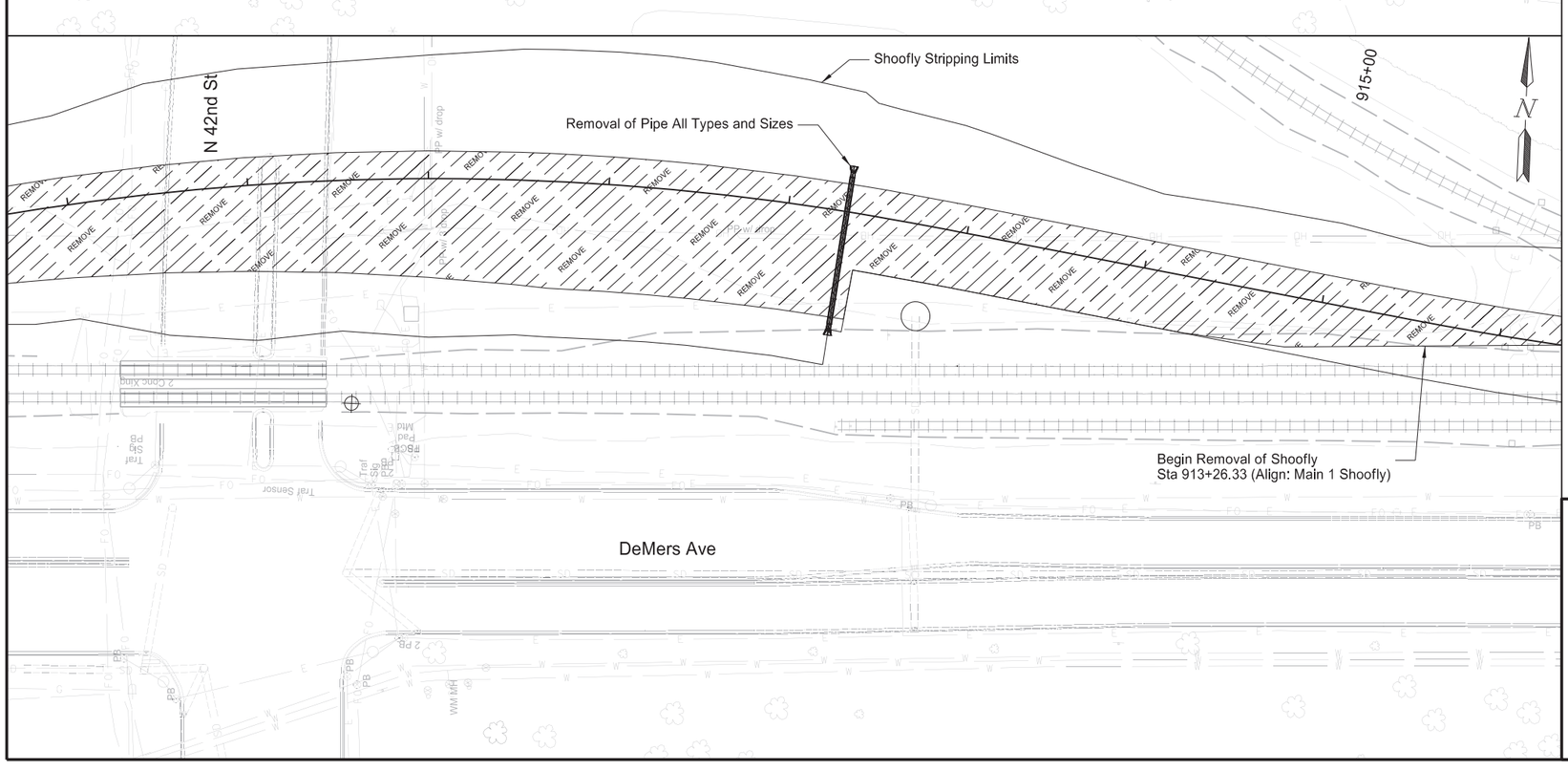
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ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	23

SPEC	CODE	BID ITEM	QTY	UNIT
202	0128	REMOVE AGGREGATE BASE Sta 911+25.86 to Sta 922+03.89	1848	TON
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES Sta 917+67 - 69 Lt to Sta 917+68 - 25 Rt	94	LF
302	0401	SALVAGE & RELAY AGGREGATE SURFACE COURSE Sta 911+25.86 to Sta 922+03.89	4320	TON

Note:
1. BNSF to remove rails and ties.
2. Contractor to remove ballast, subballast, and subgrade.
3. See Sheet Number 17-18 for Removal Typical Sections.

Shoofly Removal Area

Removal of Pipe All Types and Sizes

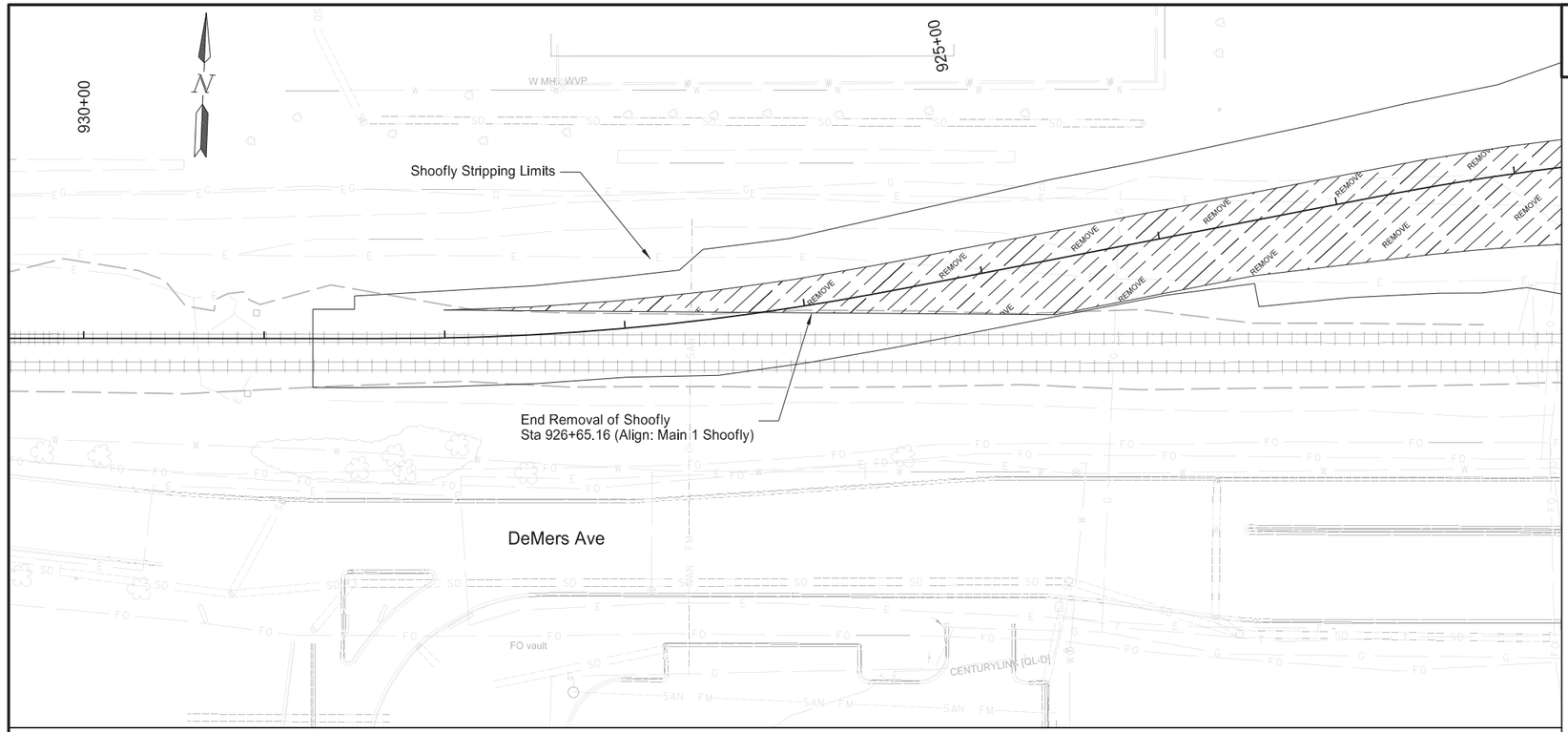
Removals

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	24

SPEC	CODE	BID ITEM	QTY	UNIT
202	0128	REMOVE AGGREGATE BASE Sta 922+03.89 to Sta 926+65.16	770	TON
302	0401	SALVAGE & RELAY AGGREGATE SURFACE COURSE Sta 922+03.89 to Sta 926+65.16	2292	TON

Note:
1. BNSF to remove rails and ties.
2. Contractor to remove ballast, subballast, and subgrade.
3. See Sheet Number 17-18 for Removal Typical Sections.

REMOVE Shoofly Removal Area

Removals

BNSF Grand Forks Subdivision
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ND Hwy 297 (DeMers Ave) & 42nd Street
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	25

Alignment	Begin Station / Location	Begin Offset	End Station / Location	End Offset	Pipe Installation (Pay Item)			Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	Geosythetic Material - Type G (Pay Item)	(*) End Sections		Applicable Backfill
					In	Bid Item	LF		In	Type		In	SY	Begin	End	
NE Access Road	0+24	23' Rt	0+25	4' Lt	15	Pipe Conduit 15in - Storm Drain	27	Reinforced Concrete Pipe - Class III	15	Z, A, P	2	0.064	-	TES	TES	D-714-26
								Corrugated Steel Pipe								
								Spiral Rib Steel Pipe			3/4, 1	0.172				
NE Access Road	9+57	11' Lt	9+73	26' Rt	15	Pipe Conduit 15in - Storm Drain	39	Reinforced Concrete Pipe - Class III	15	Z, A, P	2	0.064	-	TES	TES	D-714-26
								Corrugated Steel Pipe								
								Spiral Rib Steel Pipe		Z, A, P	3/4, 1	0.172				
Main 1 Shoofly	917+68	22' Rt	917+67	65' Lt	18	Pipe Conc Reinf 18in Cl V	94	Reinforced Concrete Pipe - Class V (barrel length = 82LF)	18					FES	FES	D-714-27

Corrugations: 2 = 2-2/3"x1/2"
3 = 3"x1"
5 = 5"x1"

Coatings: Z = Zinc
A = Aluminum
P = Polymeric (over Zinc or Aluminum)

Spiral Ribs: 3/4 = 3/4"x3/4"@7-1/2"
1= 3/4"x1"@11-1/2"

(*) End sections are measured and paid for separately for pipe extensions.
FES = Flared End Section
TES = Traversable End Section

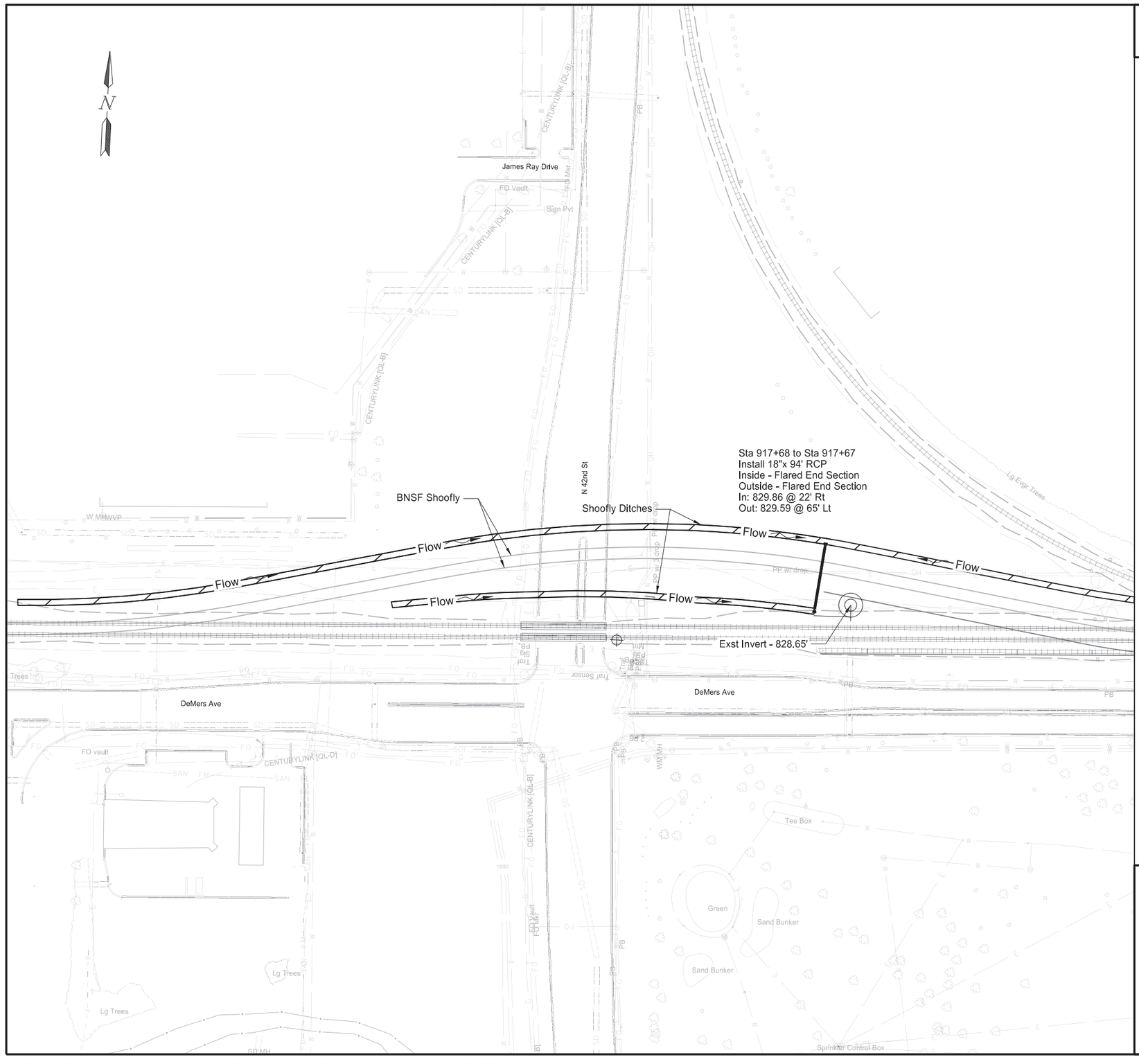
Allowable Pipe List

BNSF Grand Forks Subdivision
LS 32 MP 110.067

ND Hwy 297 (DeMers Ave) & 42nd Street
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	26

SPEC	CODE	BID ITEM	QTY	UNIT
714	0330	PIPE CONC REINF 18IN CL V Sta 917+68 - 22' Rt to Sta 917+67 - 65' Lt	94	LF

Note:
1. Station & offsets are based on Alignment Main 1 Shoofly
2. Tie all pipe joints under the track embankment

Hatched area indicates shoofly ditches.

Shoofly Drainage Layout

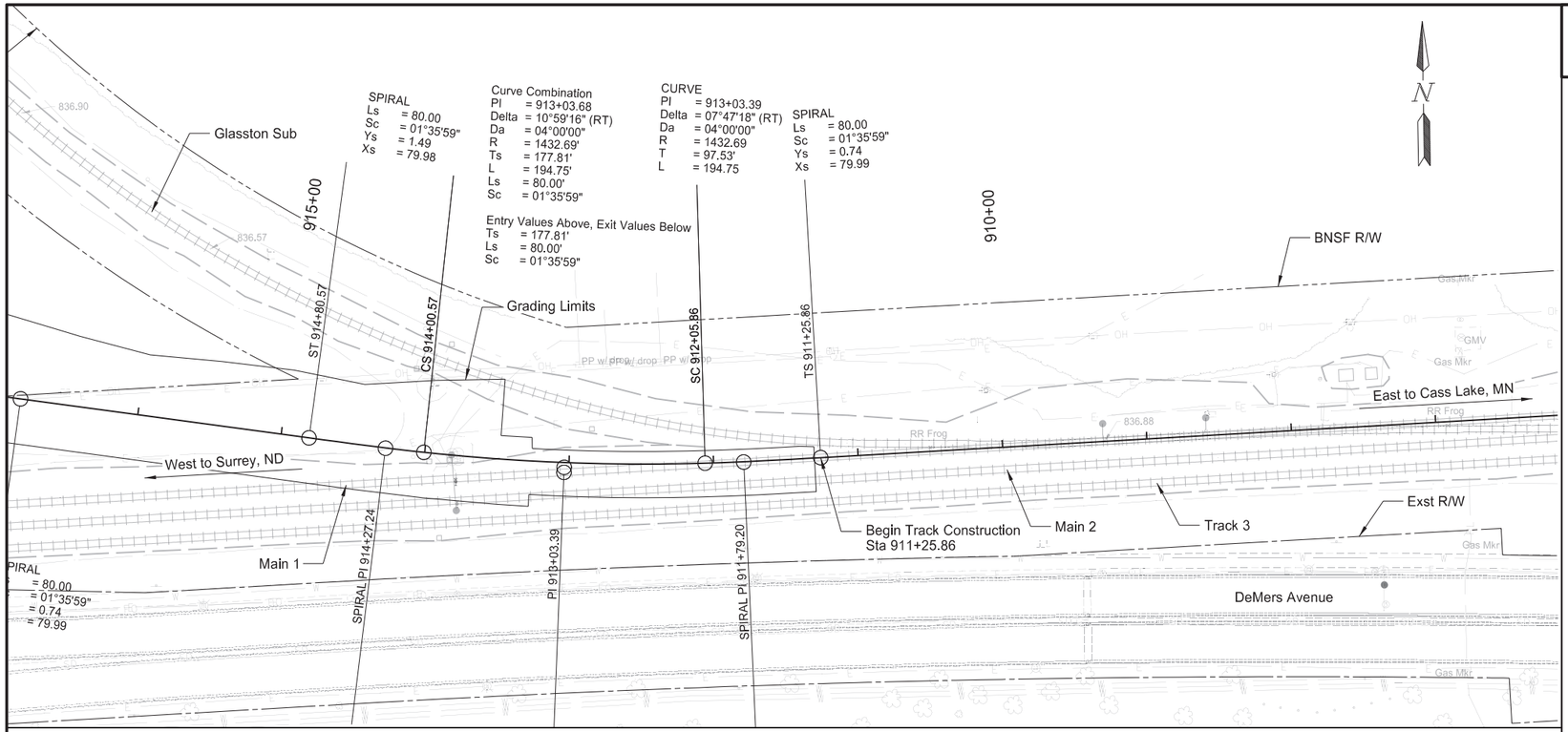
BNSF Grand Forks Subdivision
LS 32 MP 110.067

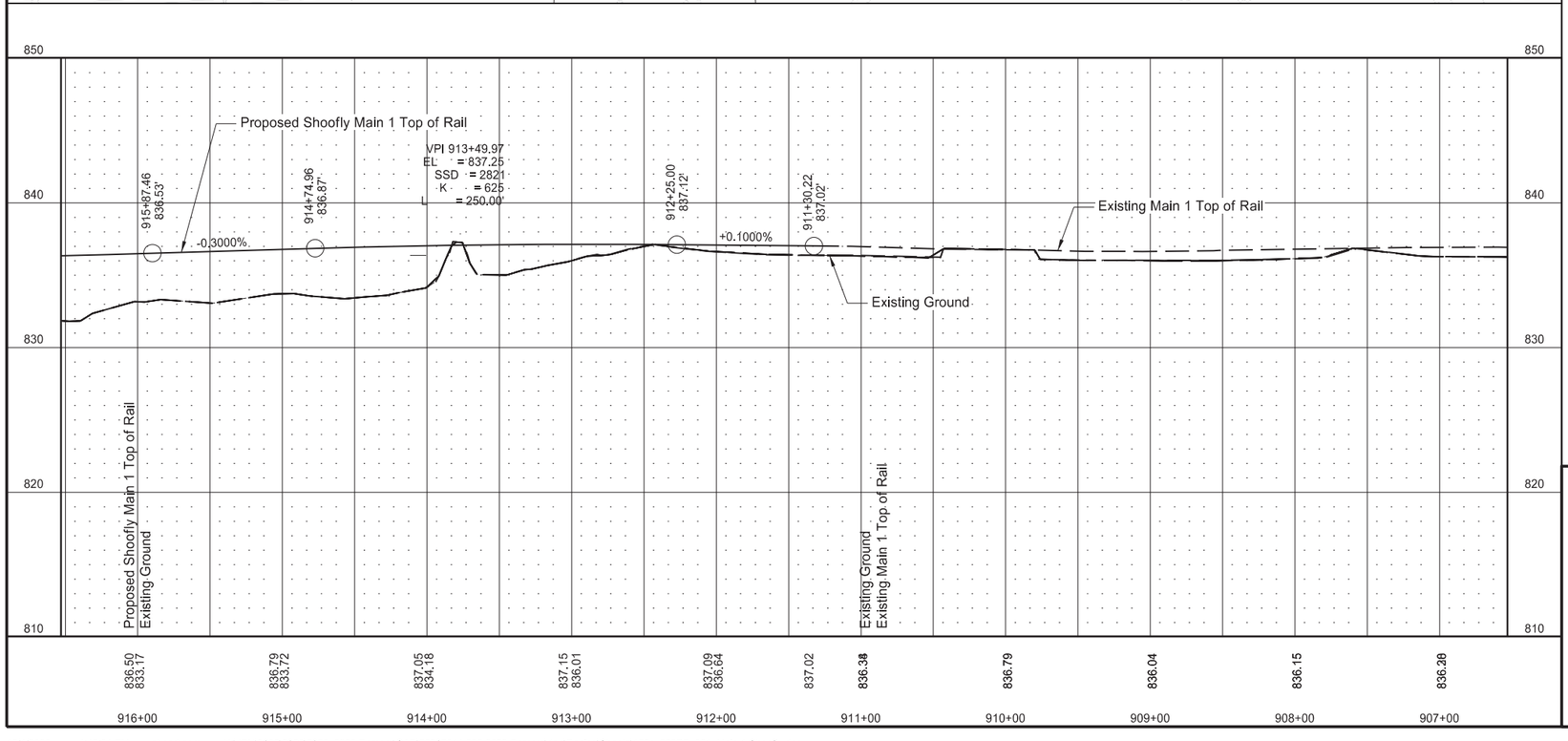
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Plan and Profile
Proposed Shoofly - Main 1 Top of Rail

BNSF Grand Forks Subdivision
LS 32 MP 110.067

ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

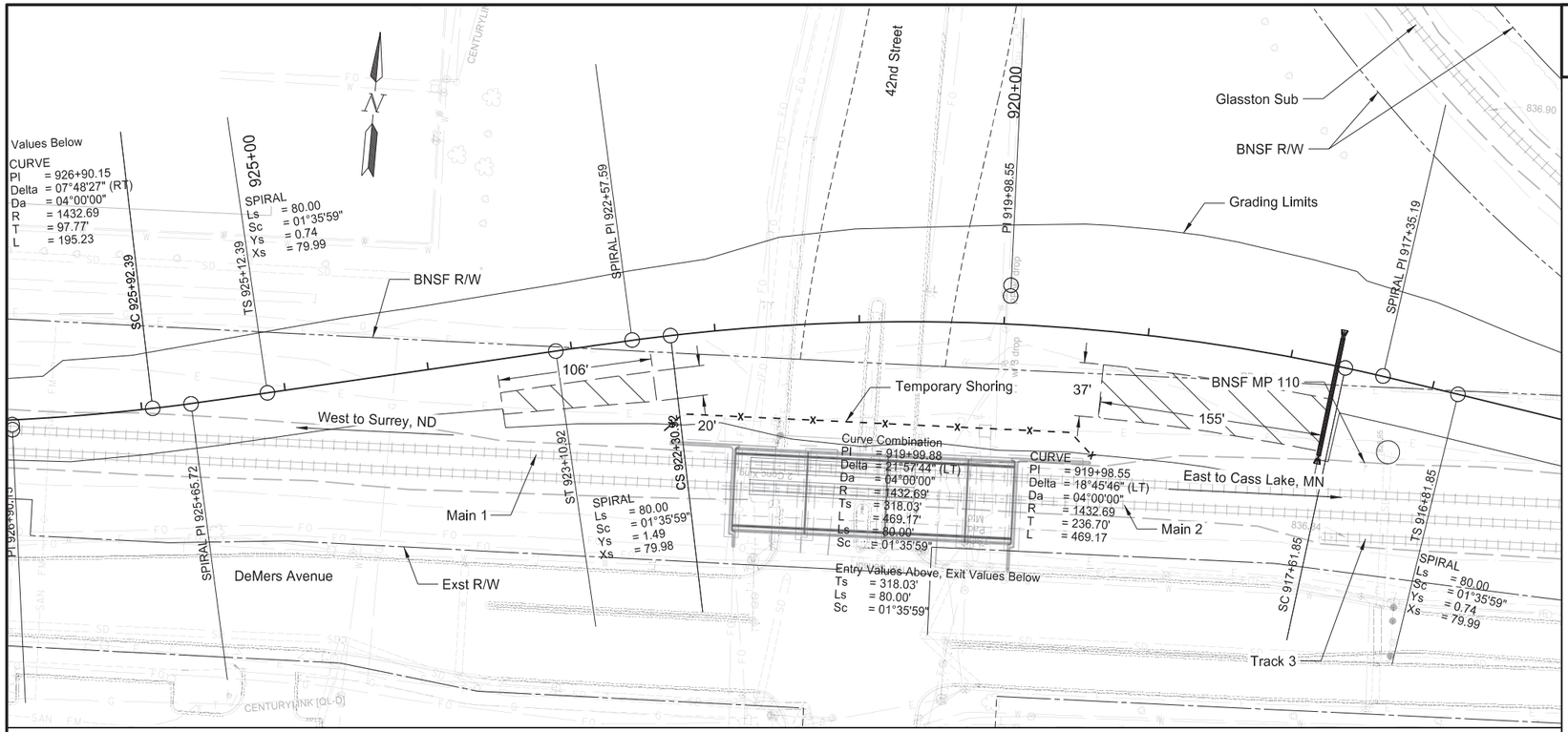
Grand Forks, ND

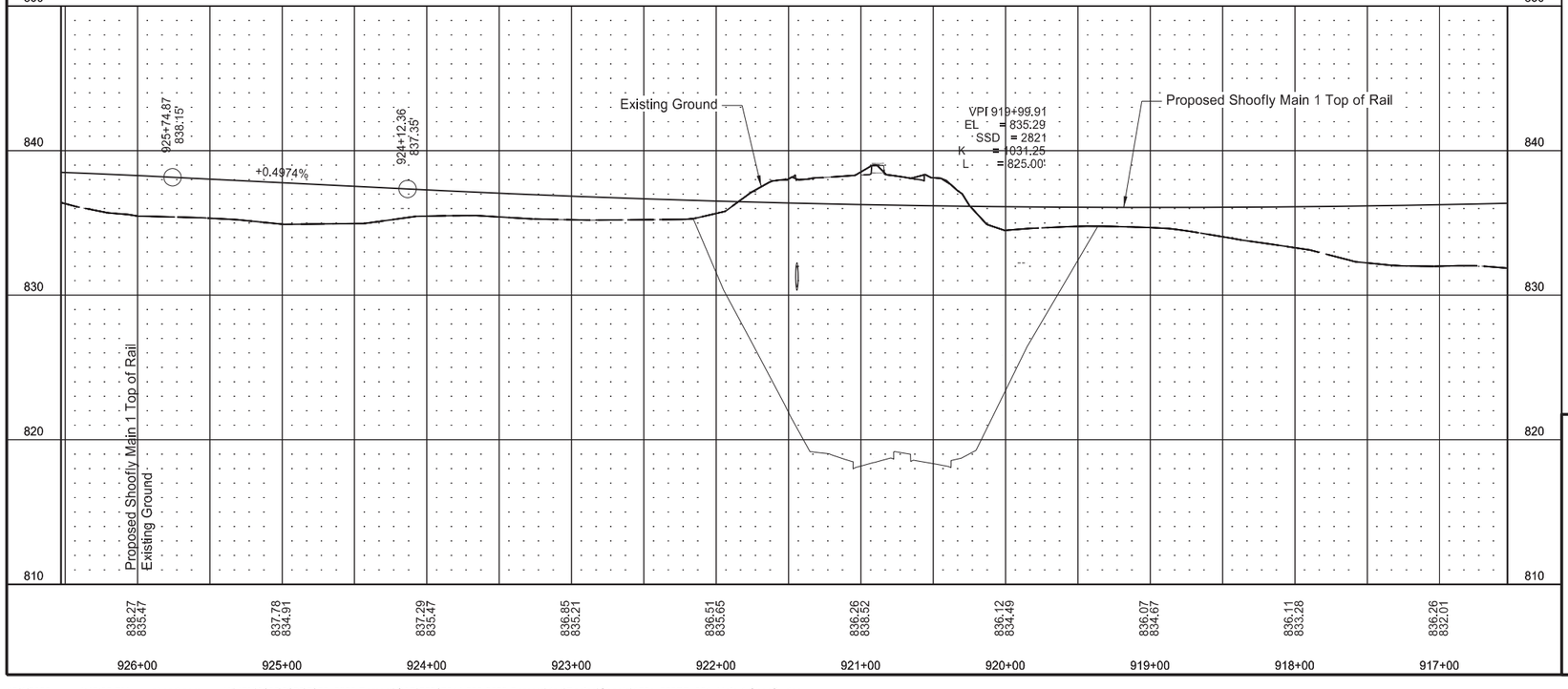
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Note:
Temporary shoring shown for reference only. Temporary shoring to be located at least 15' from the nearest track centerline. All design and construction of the temporary shoring will be the responsibility of the contractor.

BNSF Track Staging Area





Plan and Profile
Proposed Shoofly - Main 1 Top of Rail

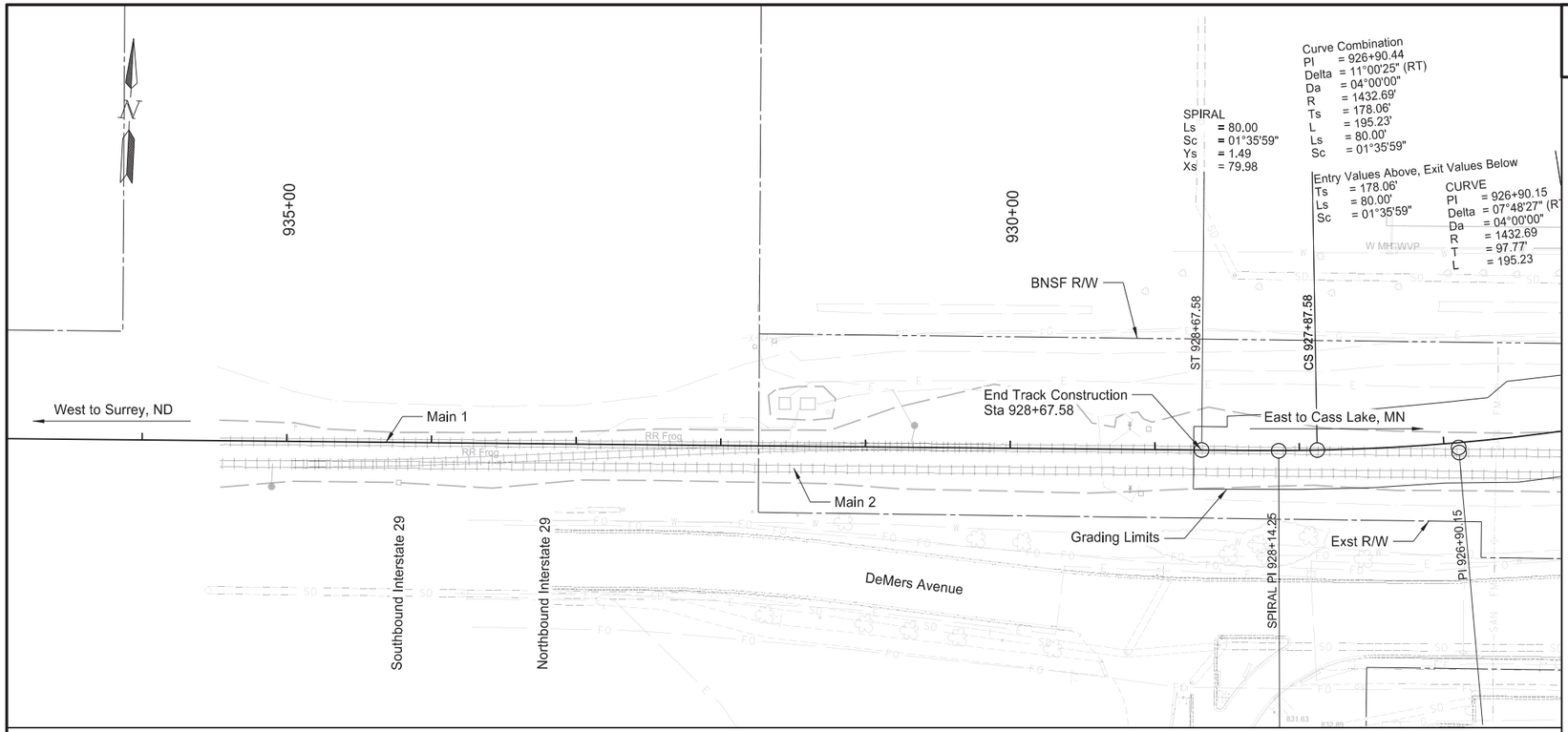
BNSF Grand Forks Subdivision
LS 32 MP 110.067

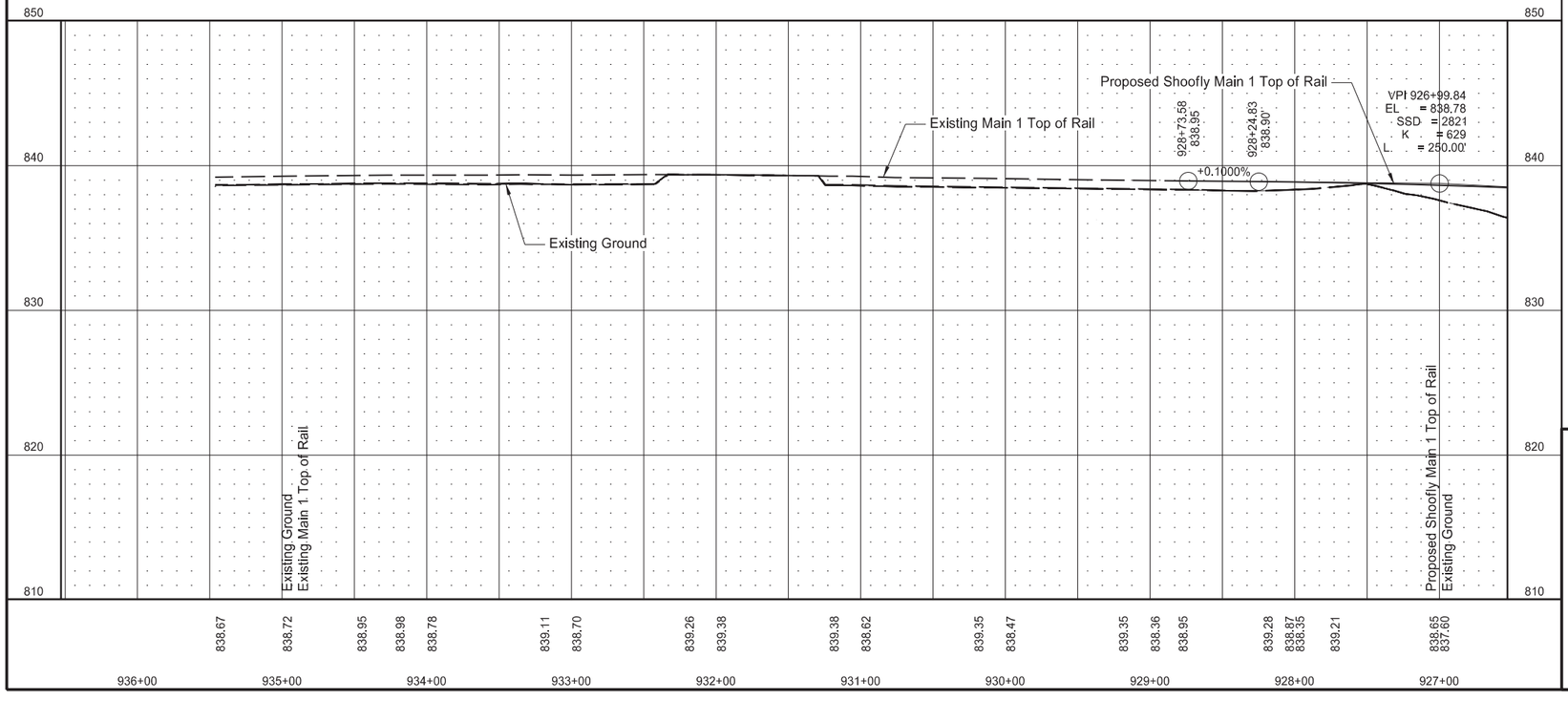
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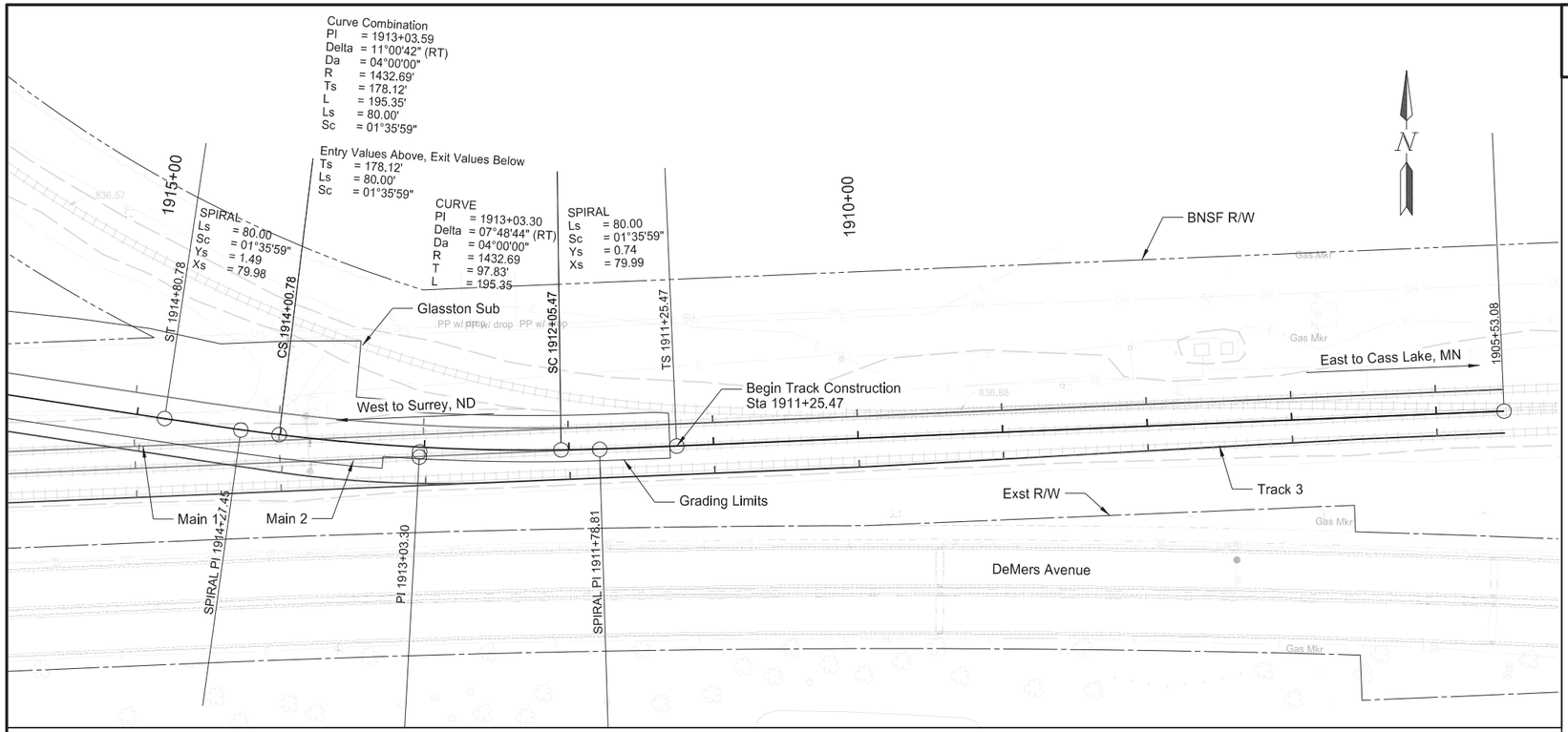
Plan and Profile
Proposed Shoofly - Main 1 Top of Rail

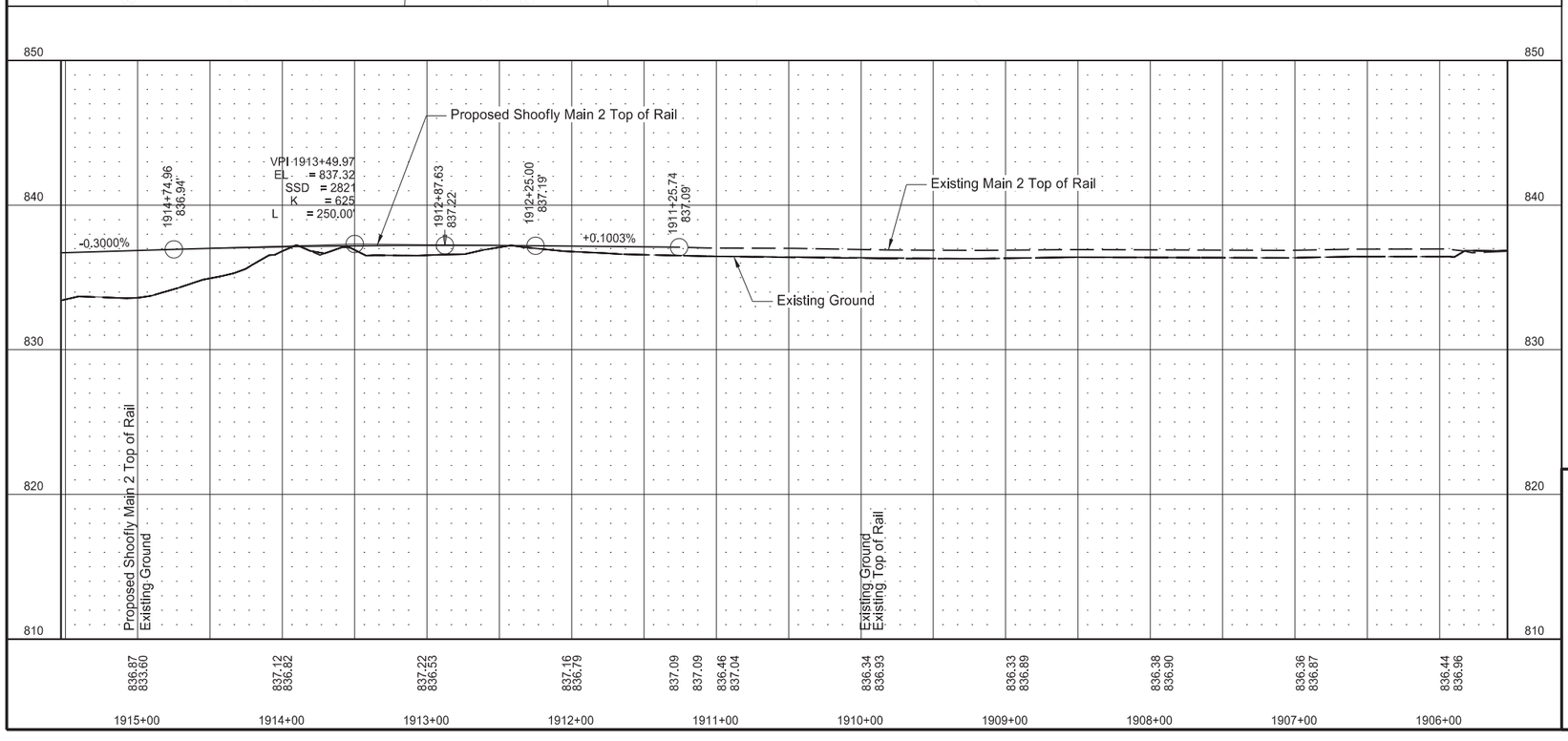
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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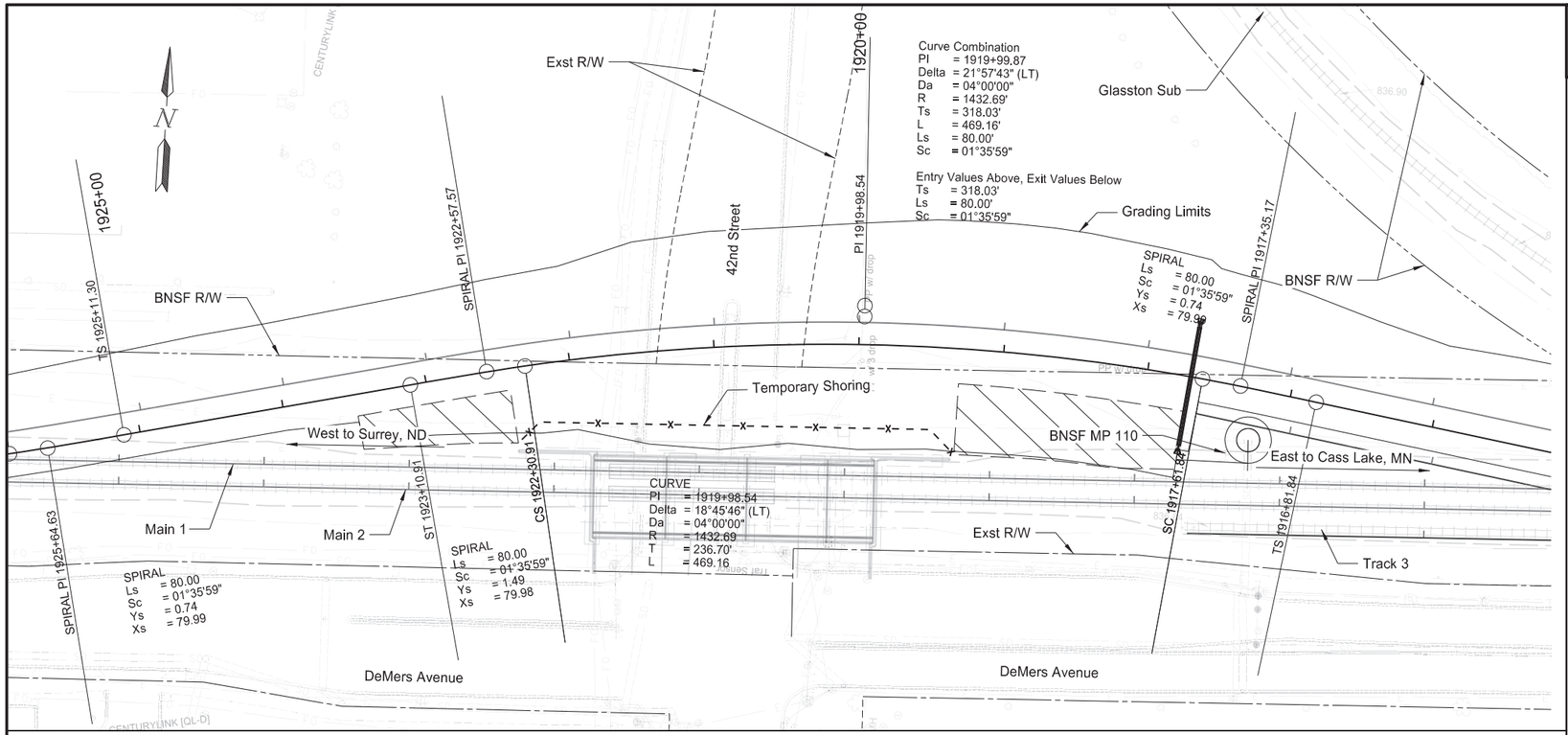
Plan and Profile
Proposed Shoofly - Main 2 Top of Rail

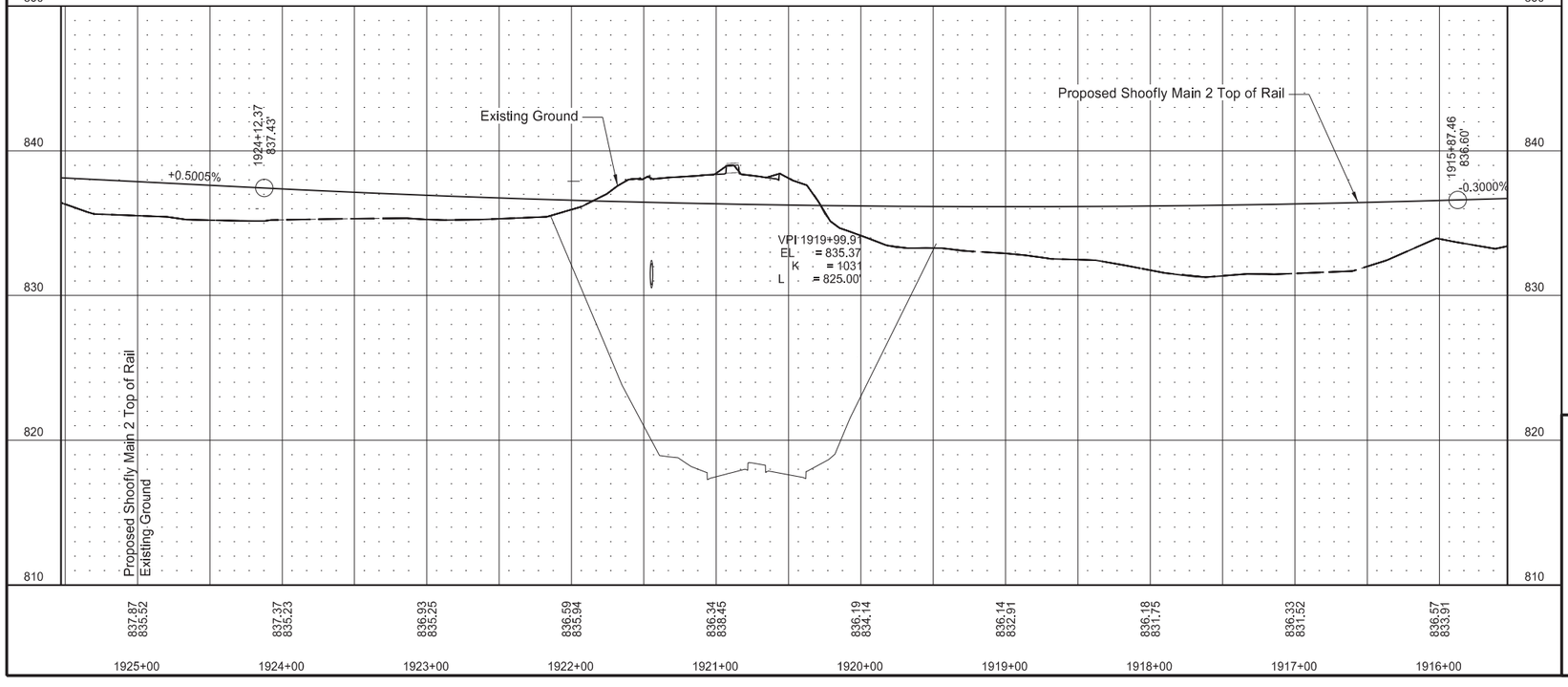
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Note:
Temporary shoring shown for reference only. Temporary shoring to be located at least 15' from the nearest track centerline. All design and construction of the temporary shoring will be the responsibility of the contractor.

BNSF Track Staging Area

Plan and Profile
Proposed Shoofly - Main 2 Top of Rail

BNSF Grand Forks Subdivision
LS 32 MP 110.067

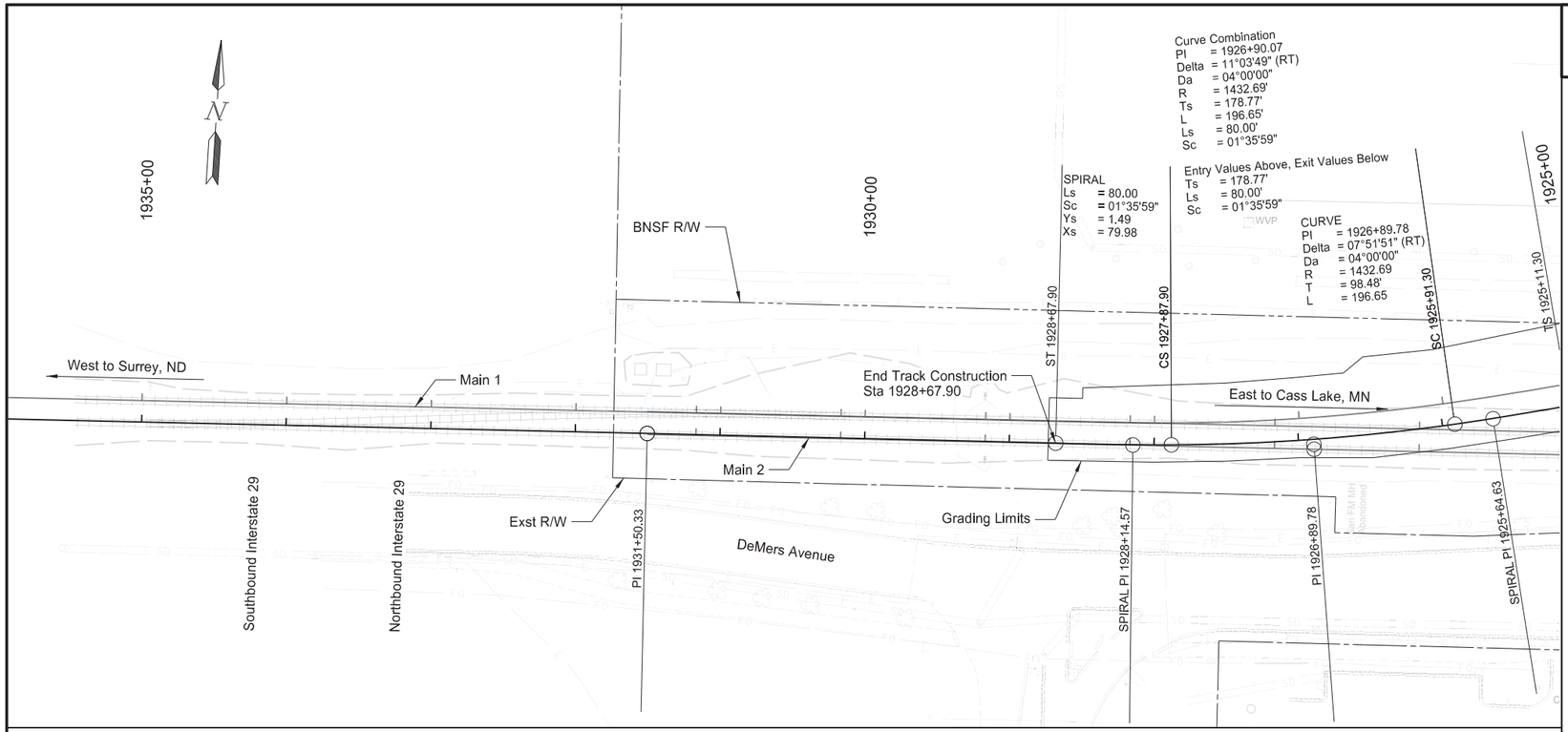
ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

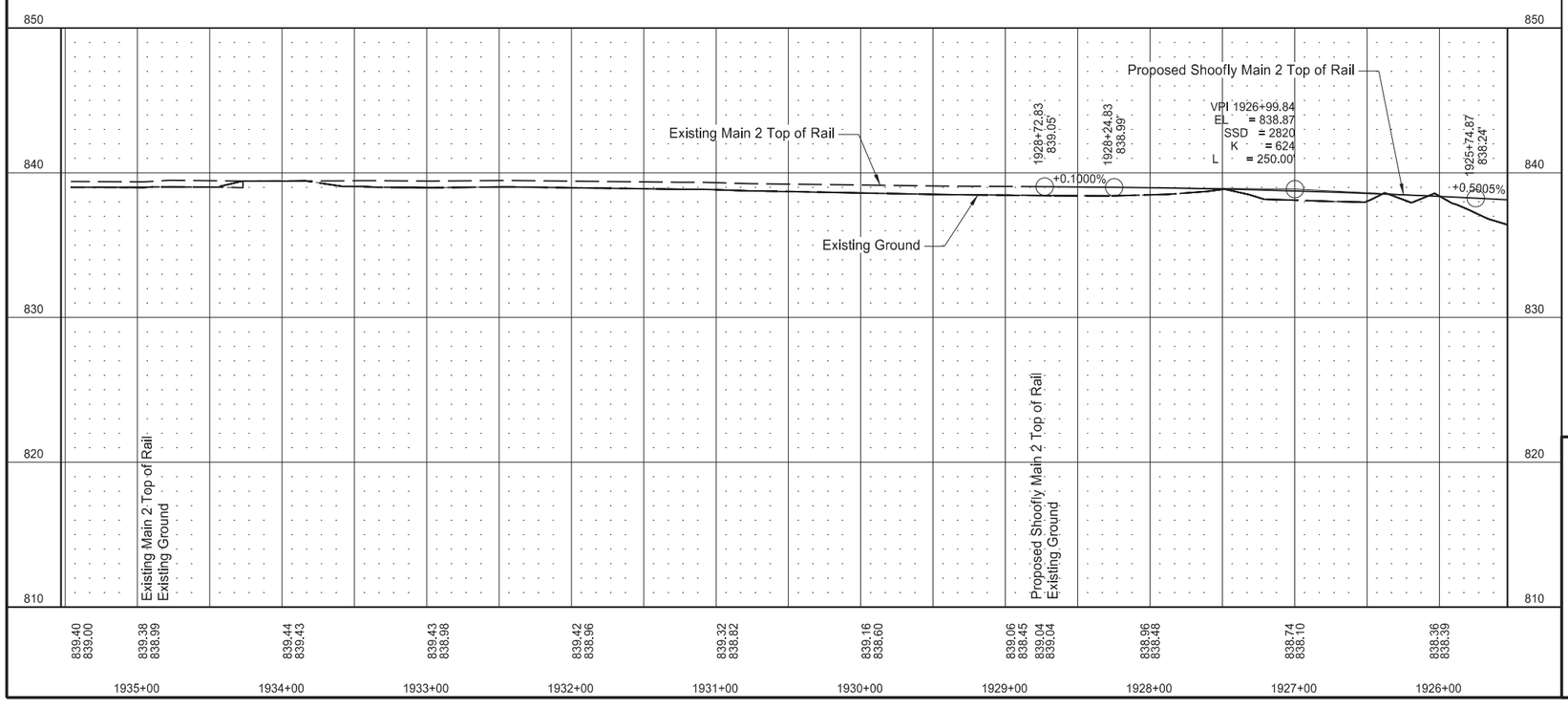
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170c	32





Plan and Profile
Proposed Shoofly - Main 2 Top of Rail

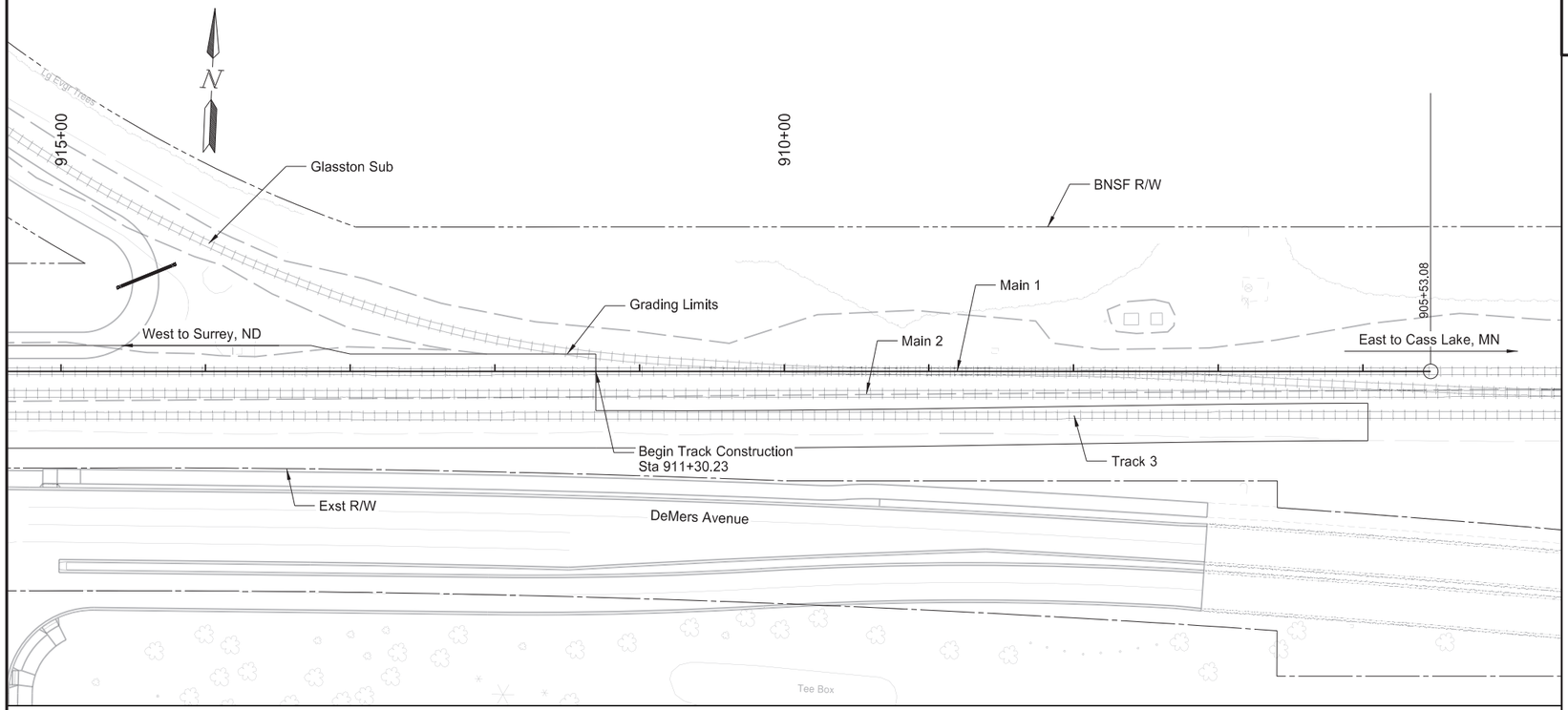
BNSF Grand Forks Subdivision
LS 32 MP 110.067

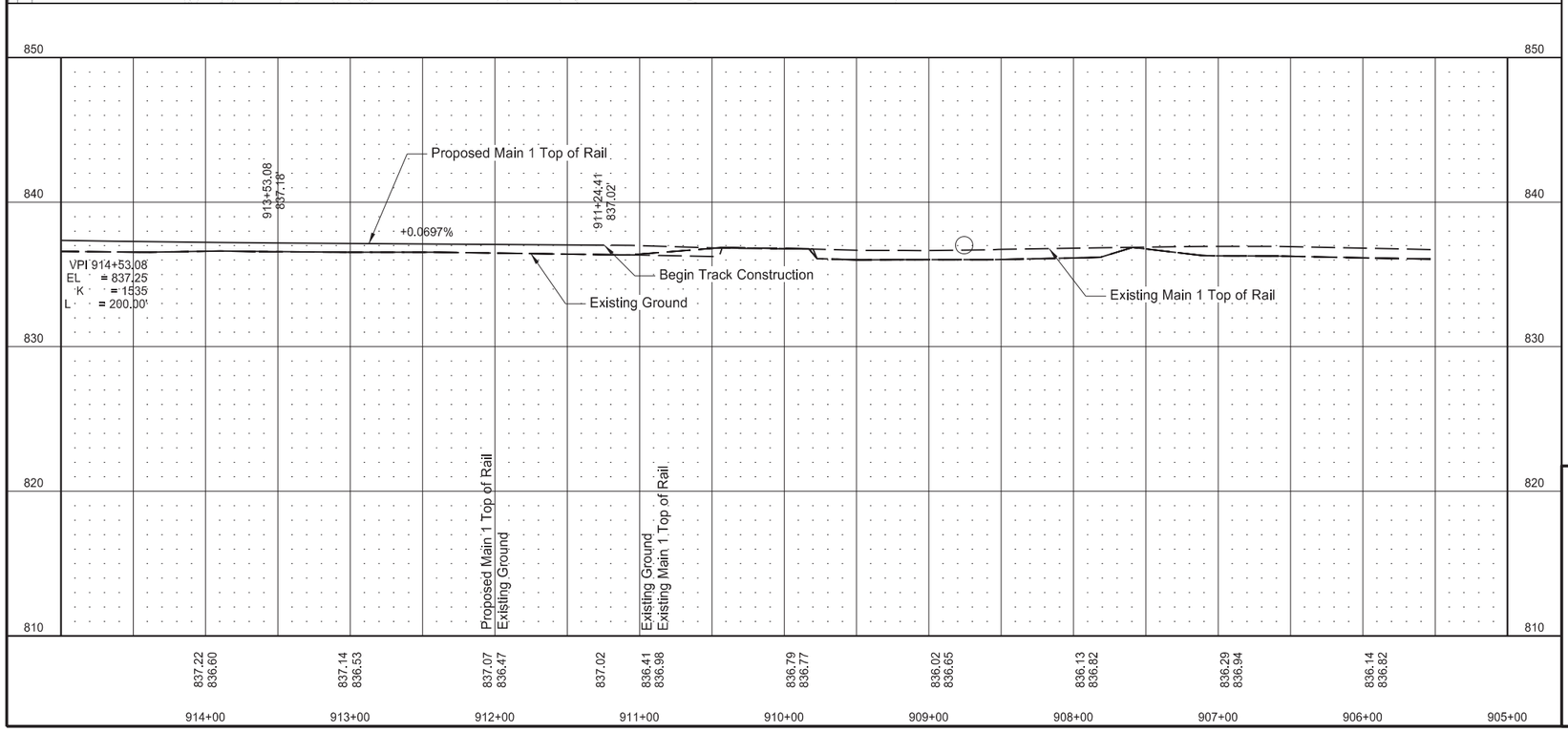
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Grade Separation

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ND	RCE-FTF-NHU-SU-6-297(014)000	170c	33





Note: See Sheet Numbers 4 & 5 for estimate of quantities

Plan and Profile
Proposed Main 1 Top of Rail

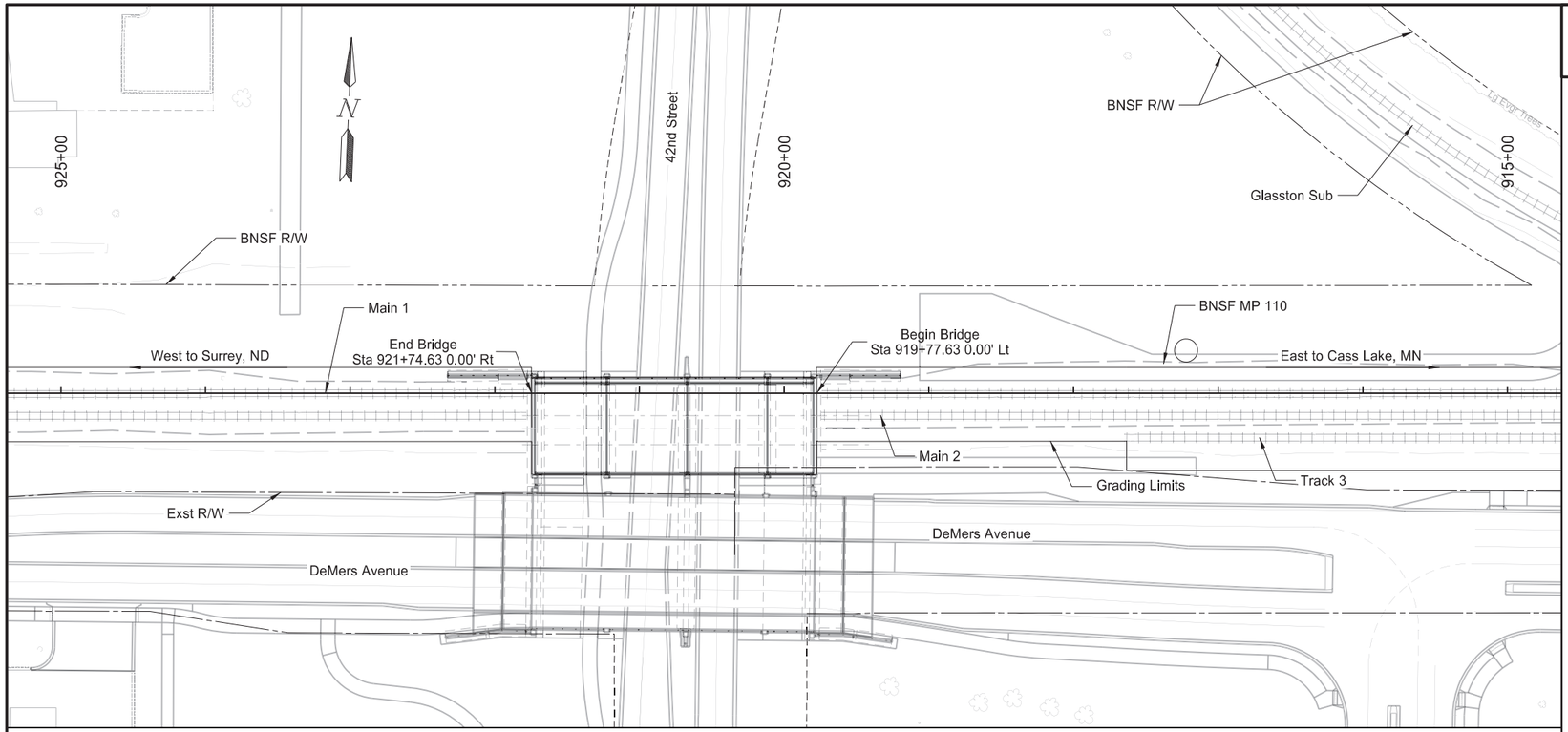
BNSF Grand Forks Subdivision
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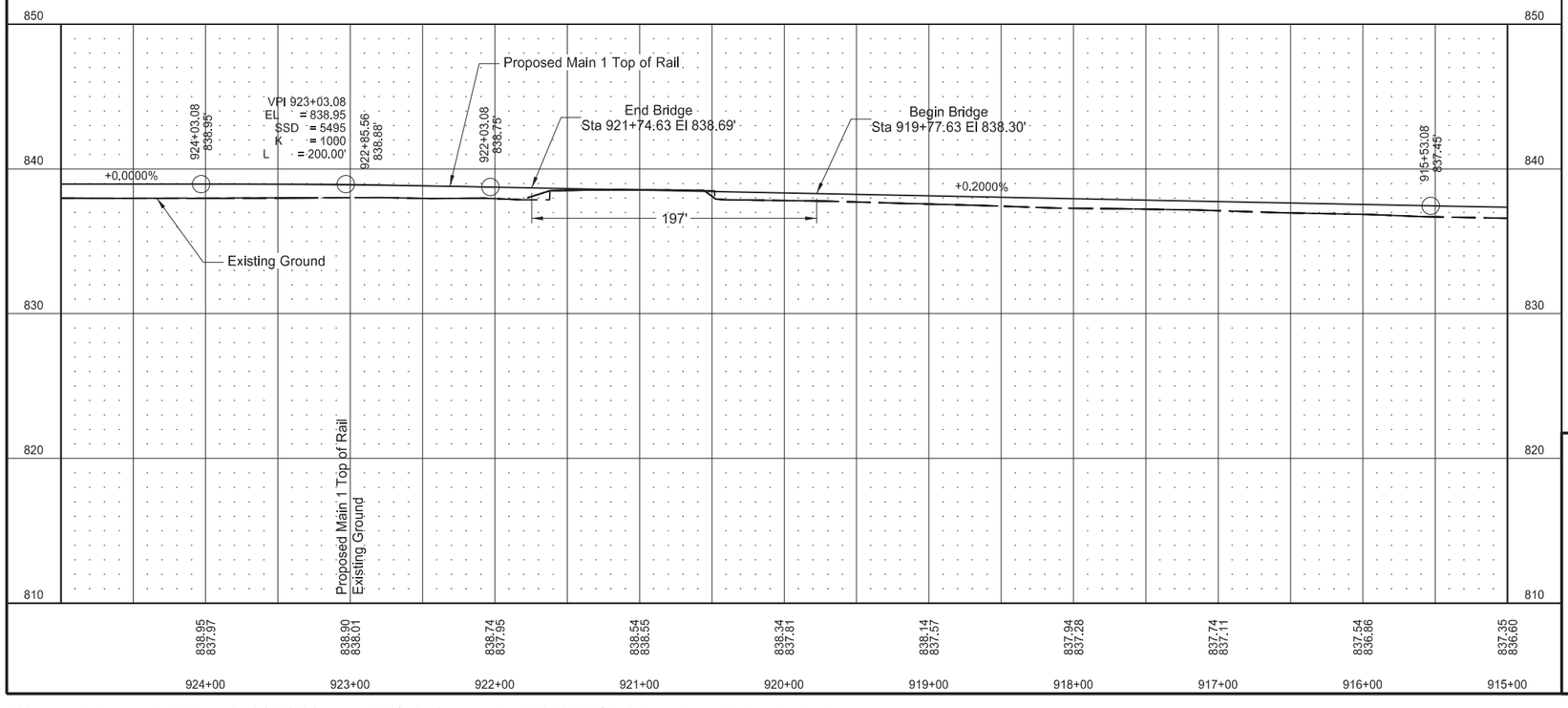
ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	34

Note: See Sheet Numbers 4 & 5 for estimate of quantities

Plan and Profile
Proposed Main 1 Top of Rail

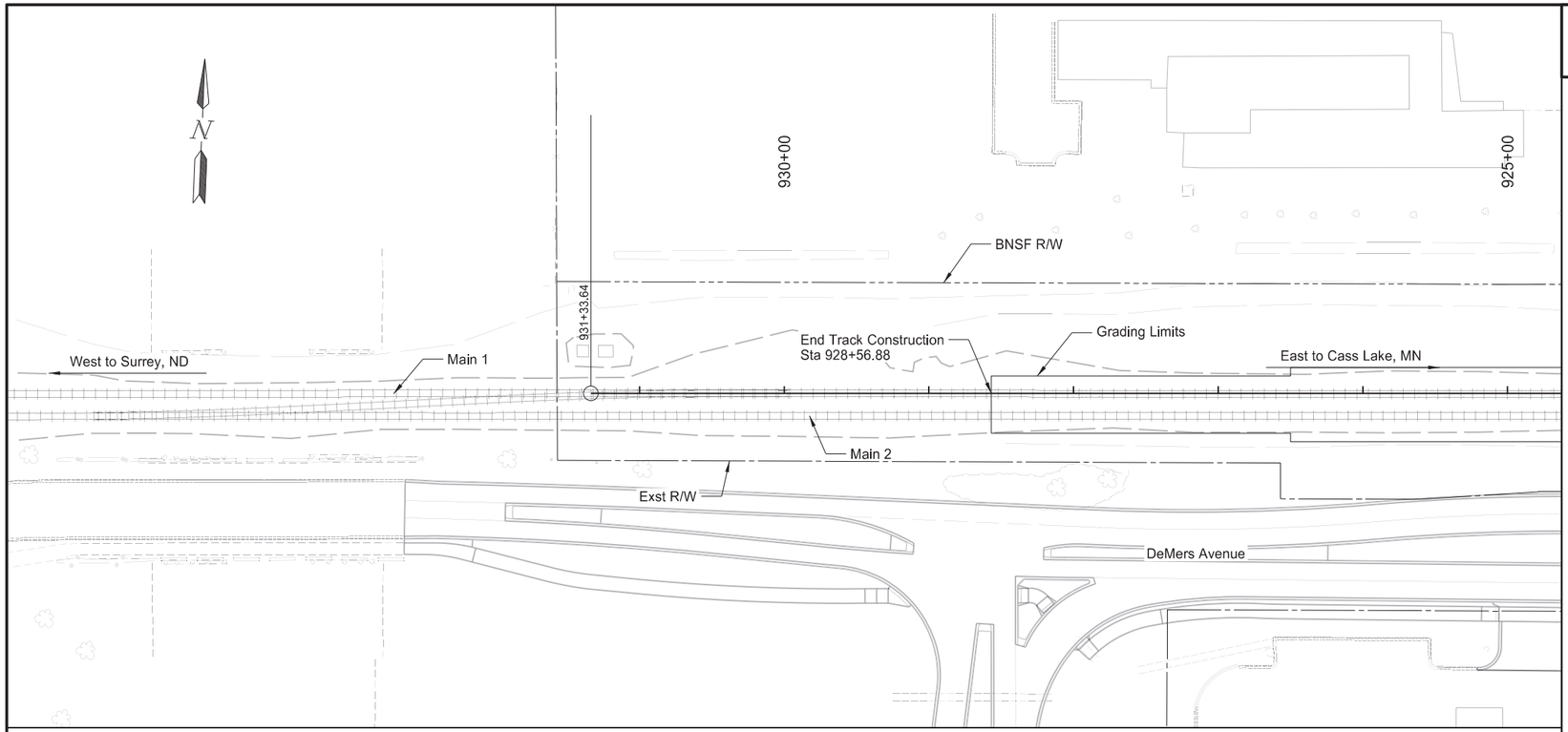
BNSF Grand Forks Subdivision
LS 32 MP 110.067

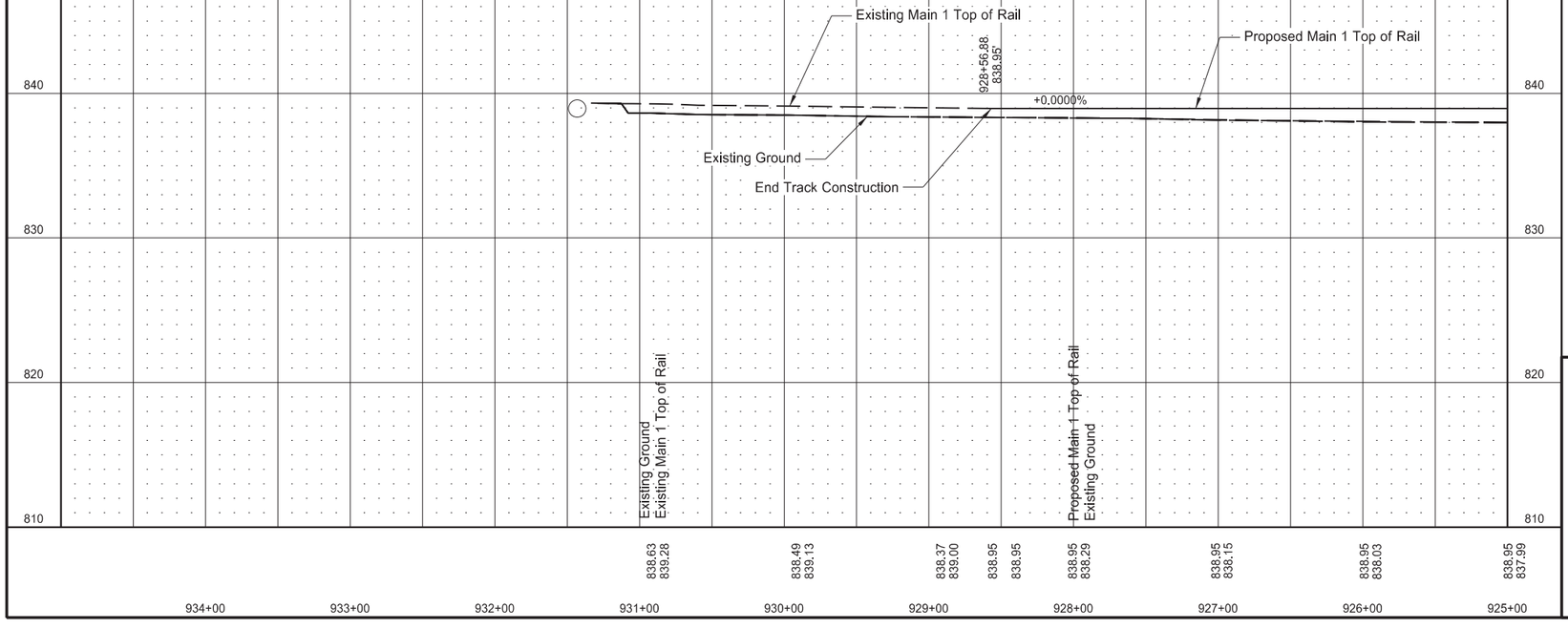
ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

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Note: See Sheet Numbers 4 & 5 for estimate of quantities

Plan and Profile
Proposed Main 1 Top of Rail

BNSF Grand Forks Subdivision
LS 32 MP 110.067

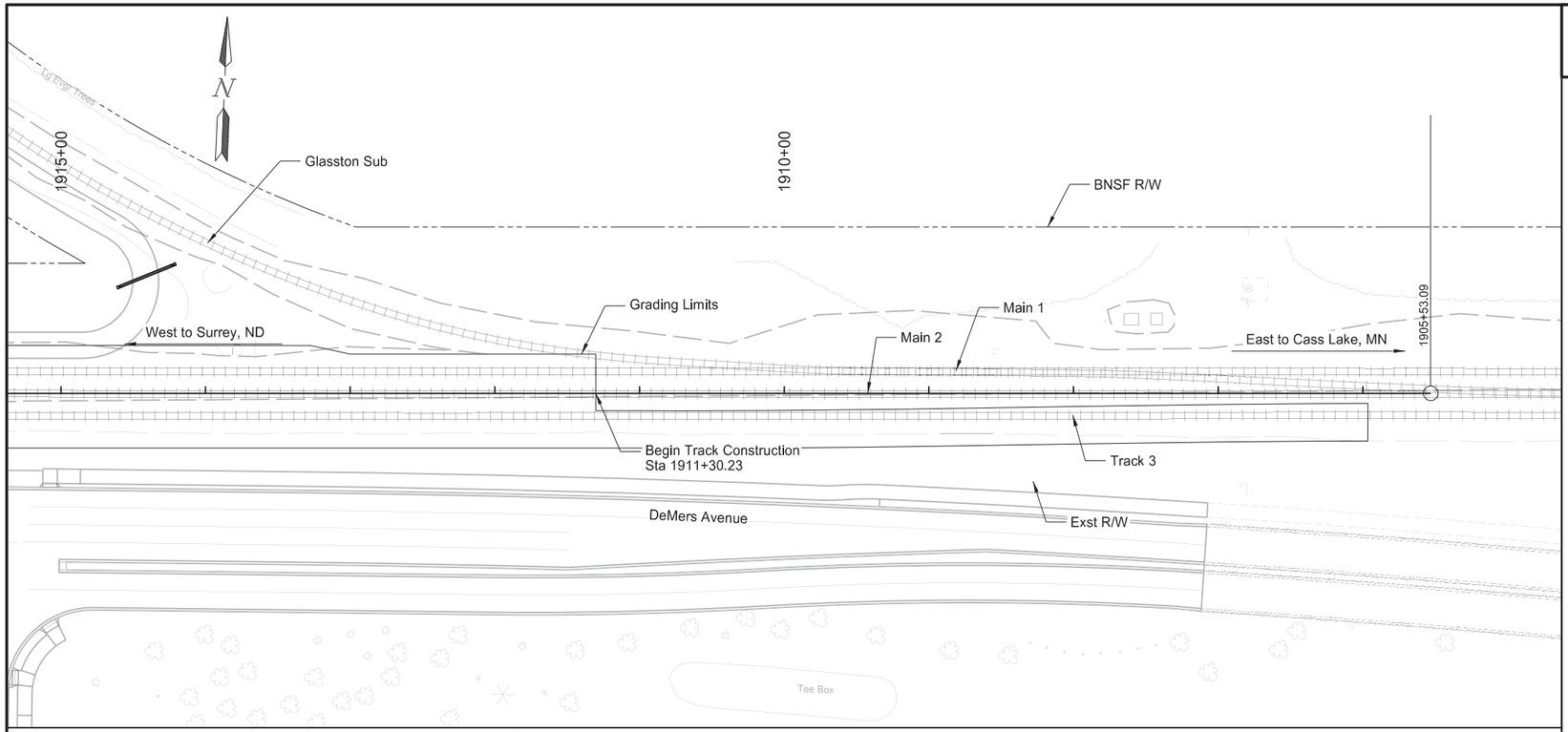
ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

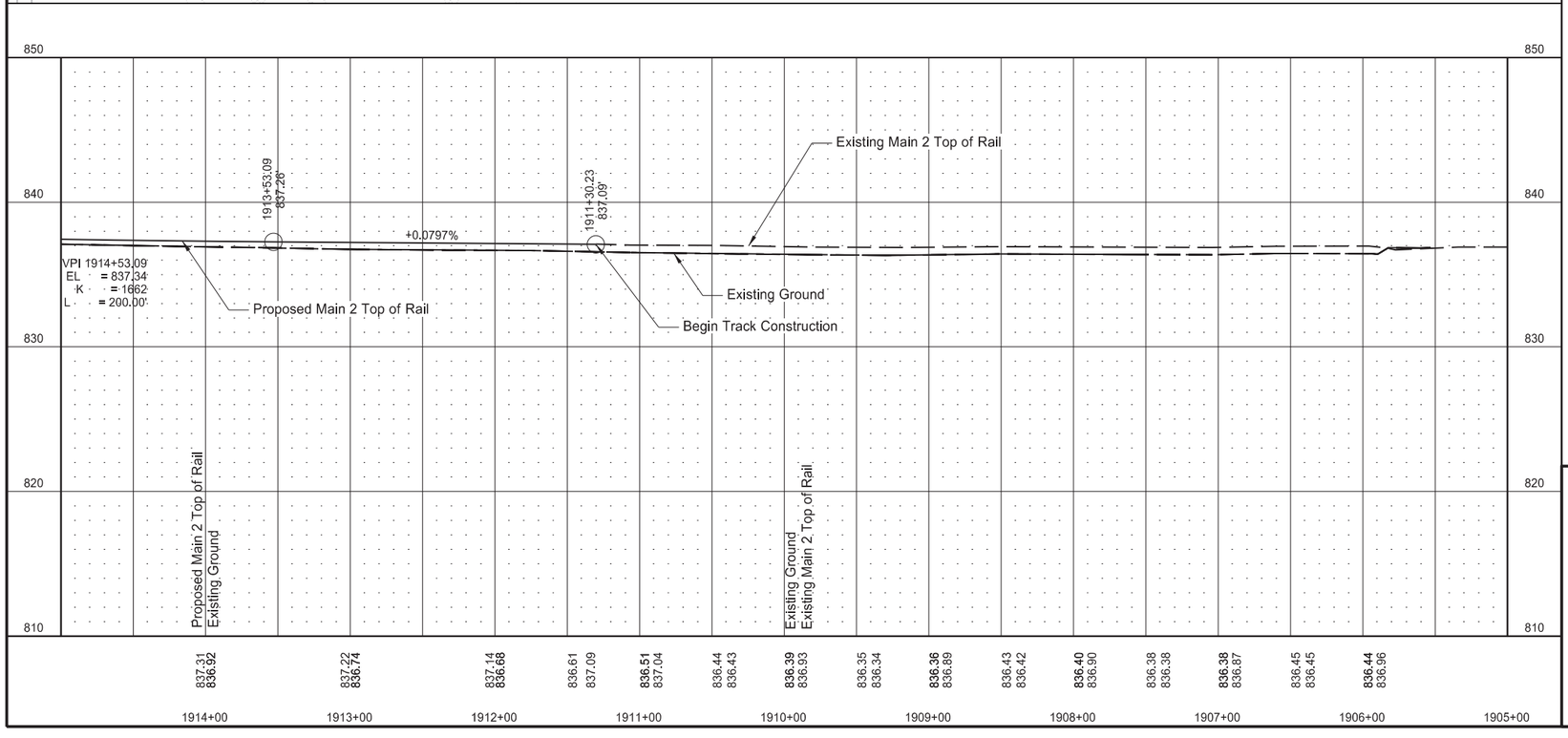
Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
TRENT J. BERG
PE-9458
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NORTH DAKOTA
12/19/2025

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170c	36





Note: See Sheet Numbers 4 & 5 for estimate of quantities

Plan and Profile
Proposed Main 2 Top of Rail

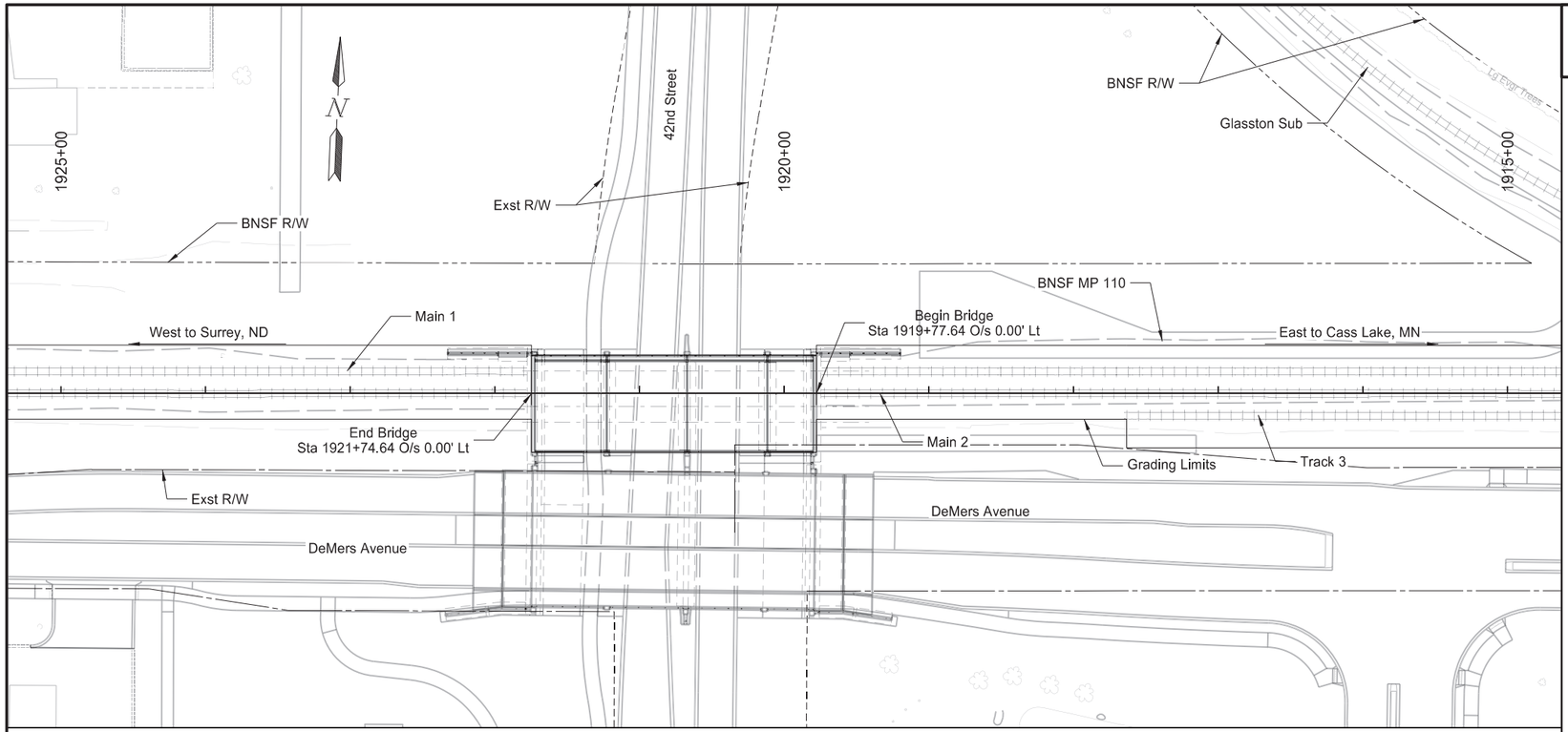
BNSF Grand Forks Subdivision
LS 32 MP 110.067

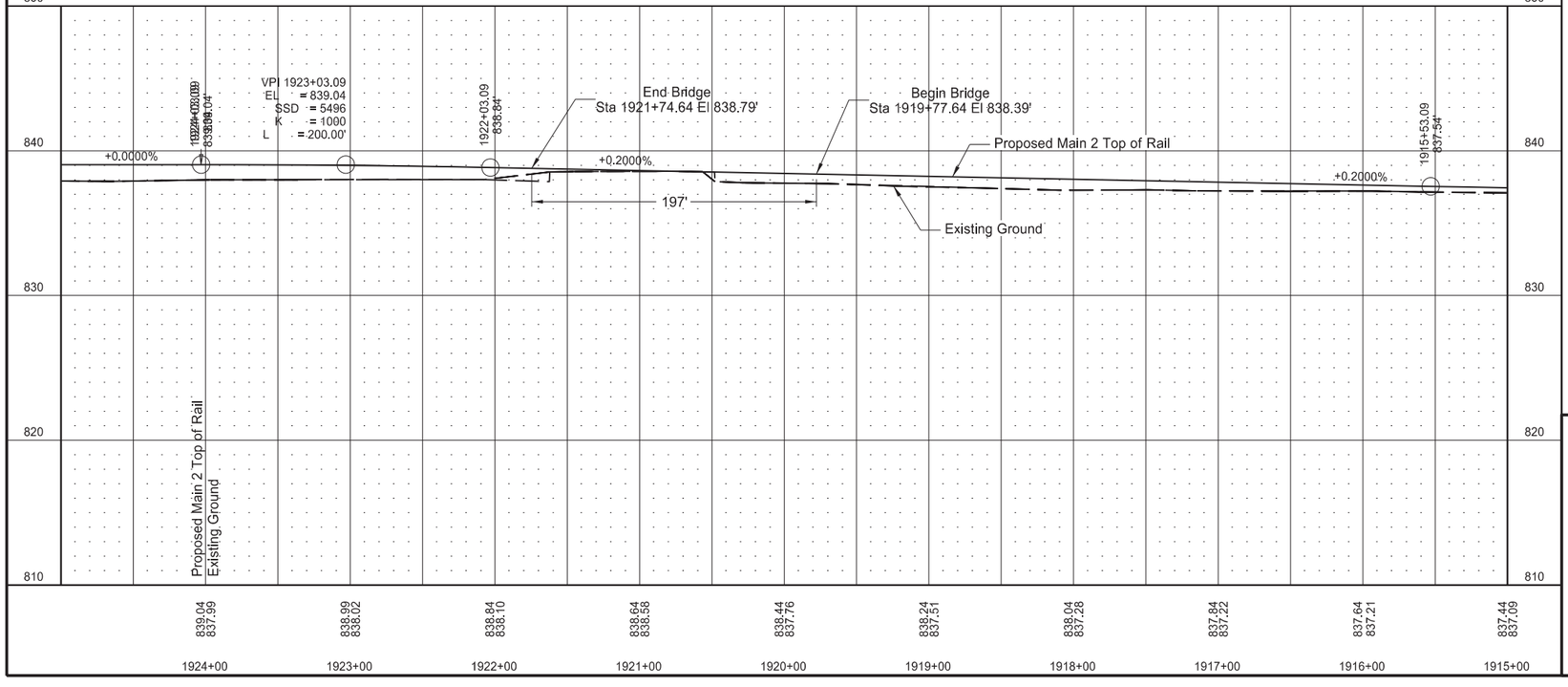
ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170c	37

Note: See Sheet Numbers 4 & 5 for estimate of quantities

Plan and Profile
Proposed Main 2 Top of Rail

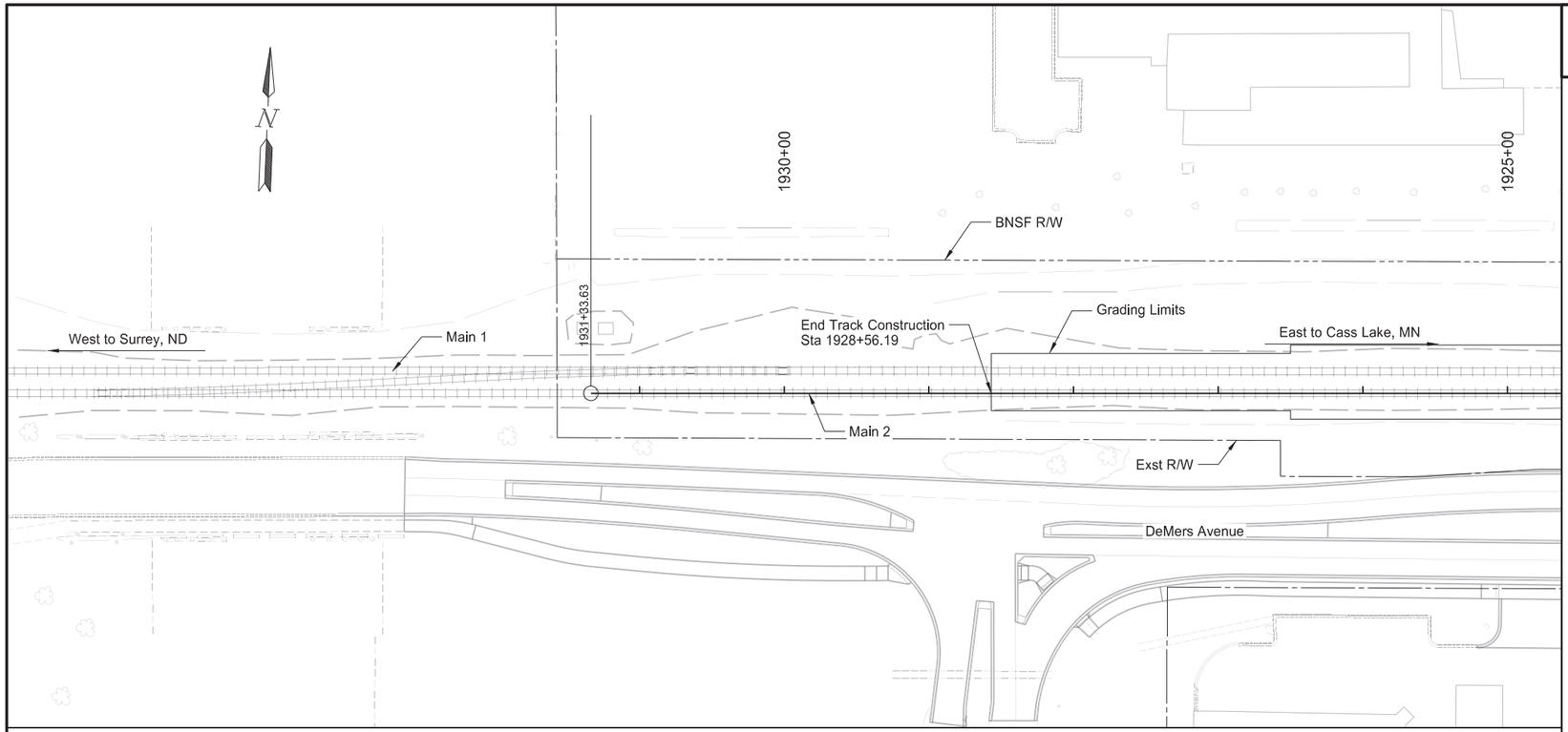
BNSF Grand Forks Subdivision
LS 32 MP 110.067

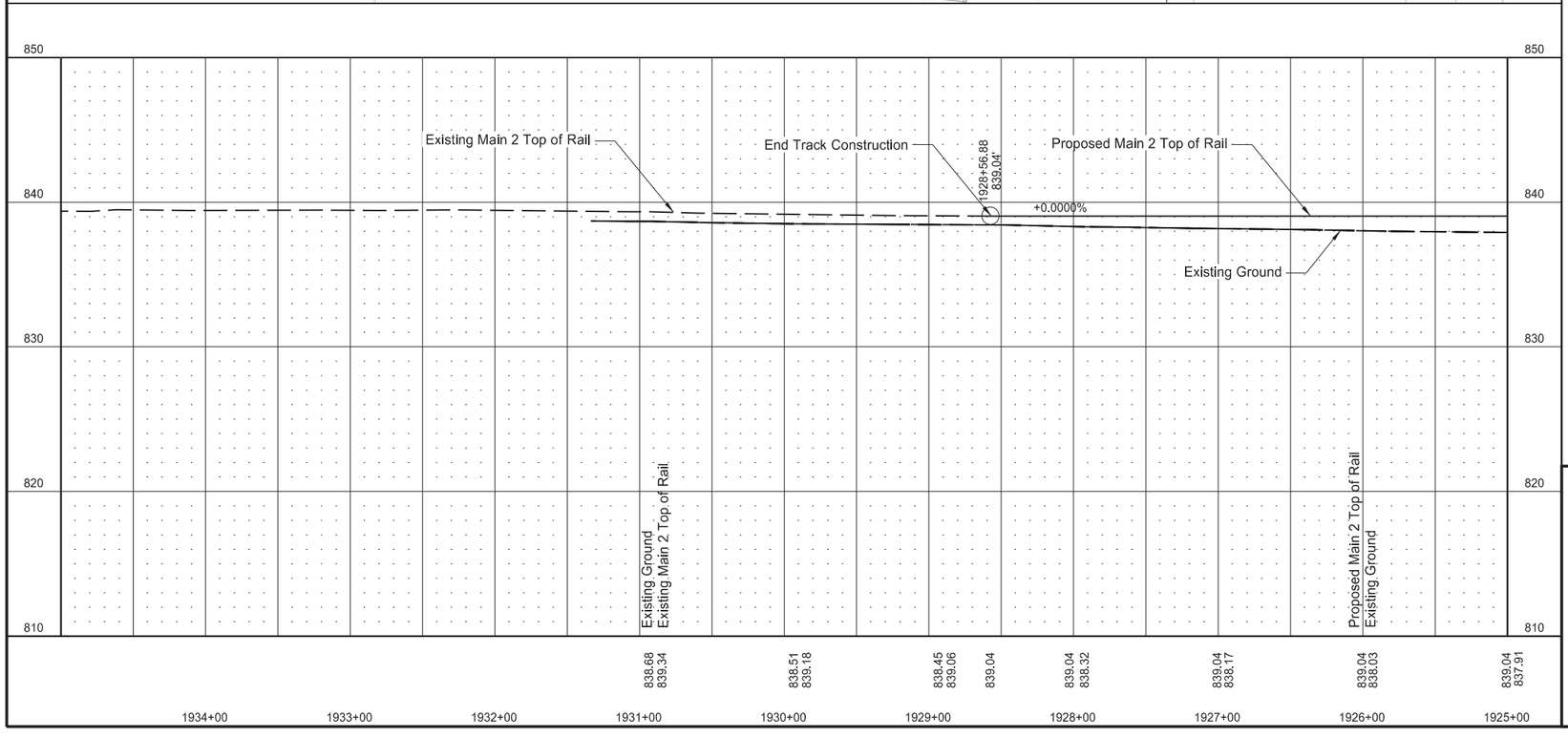
ND Hwy 297 (DeMers Ave) & 42nd Street
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170c	38





Plan and Profile
Proposed Main 2 Top of Rail

BNSF Grand Forks Subdivision
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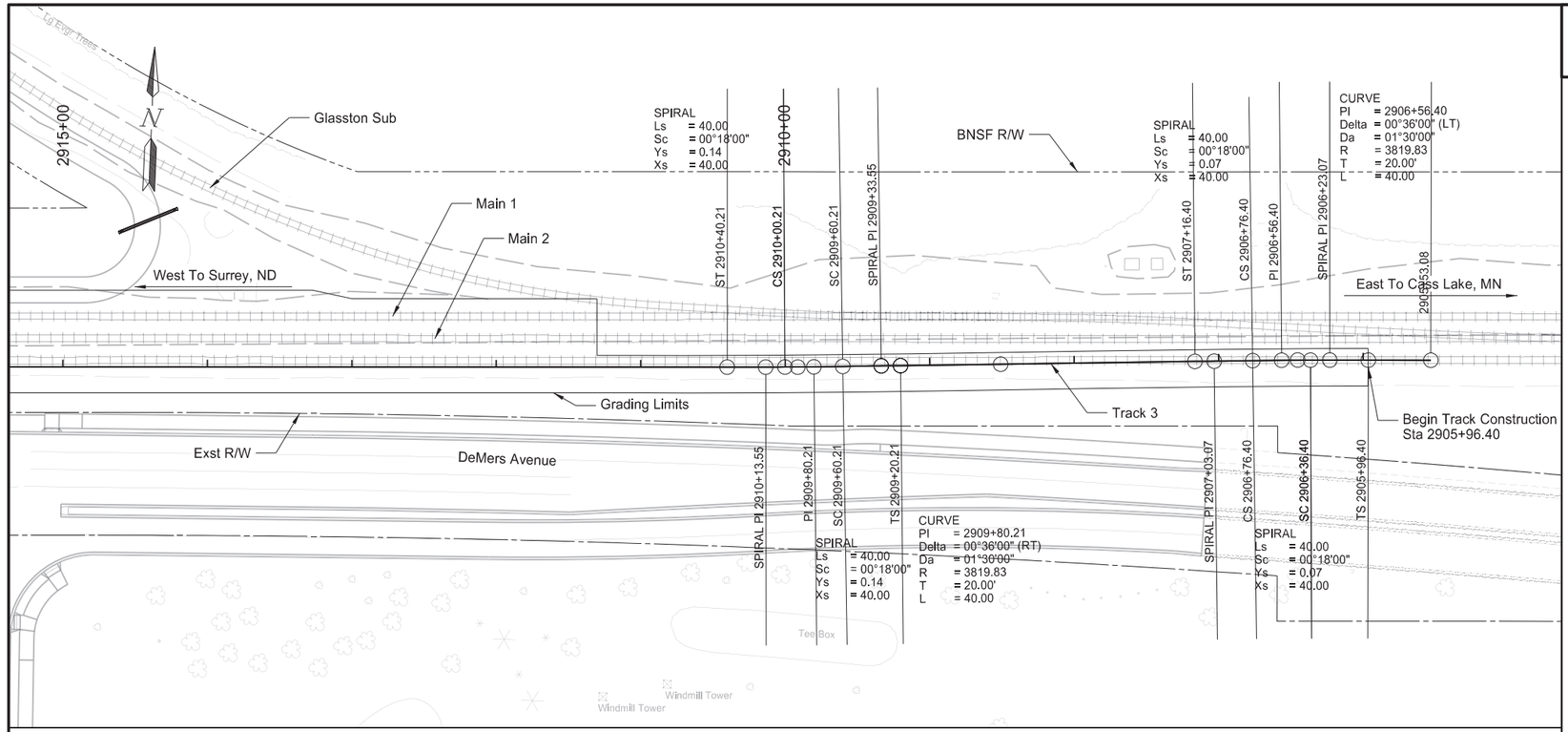
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Grade Separation

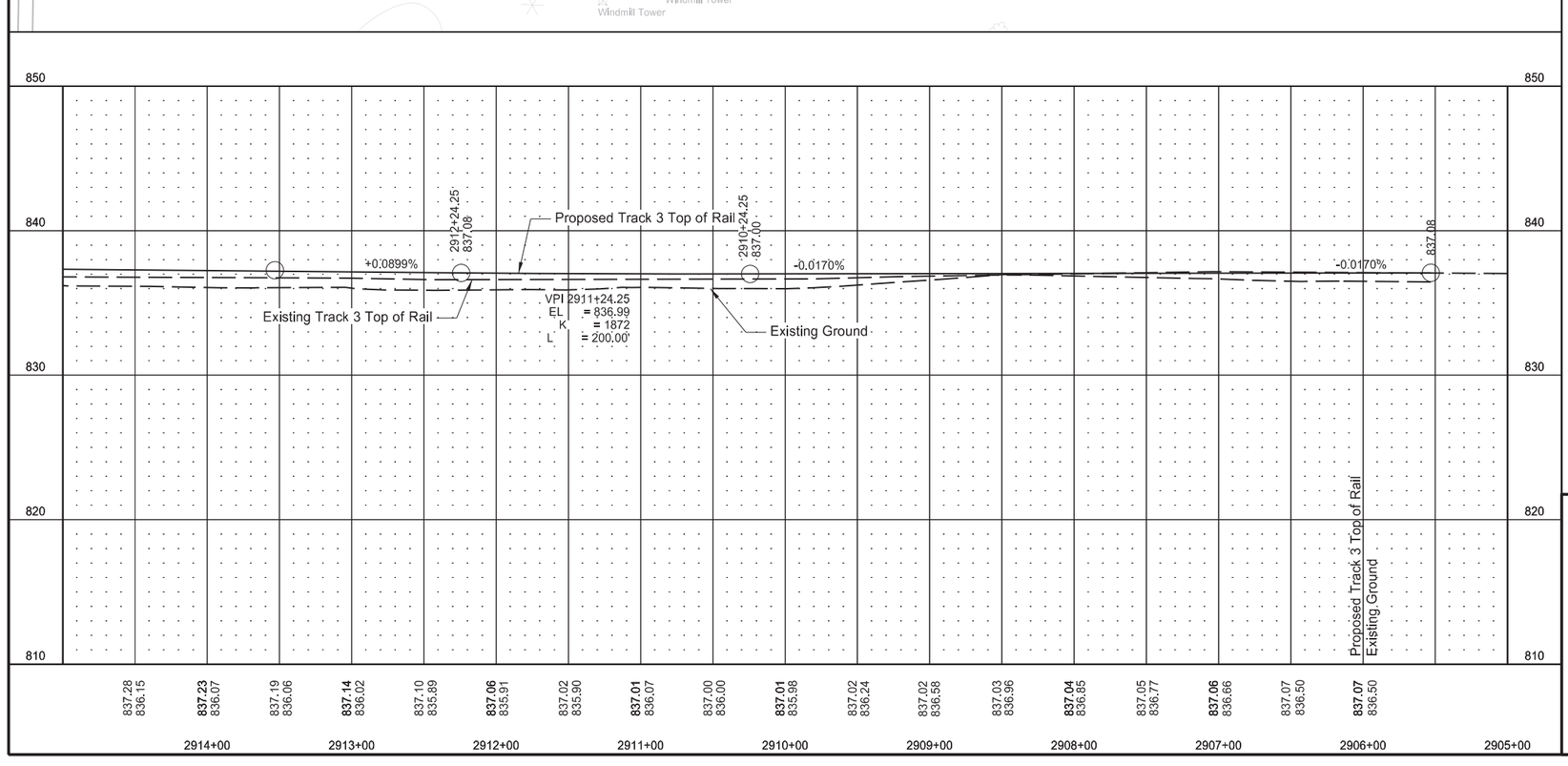
Grand Forks, ND

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170c	39





Note: See Sheet Numbers 4 & 5 for estimate of quantities

Plan and Profile
Proposed Track 3 Top of Rail

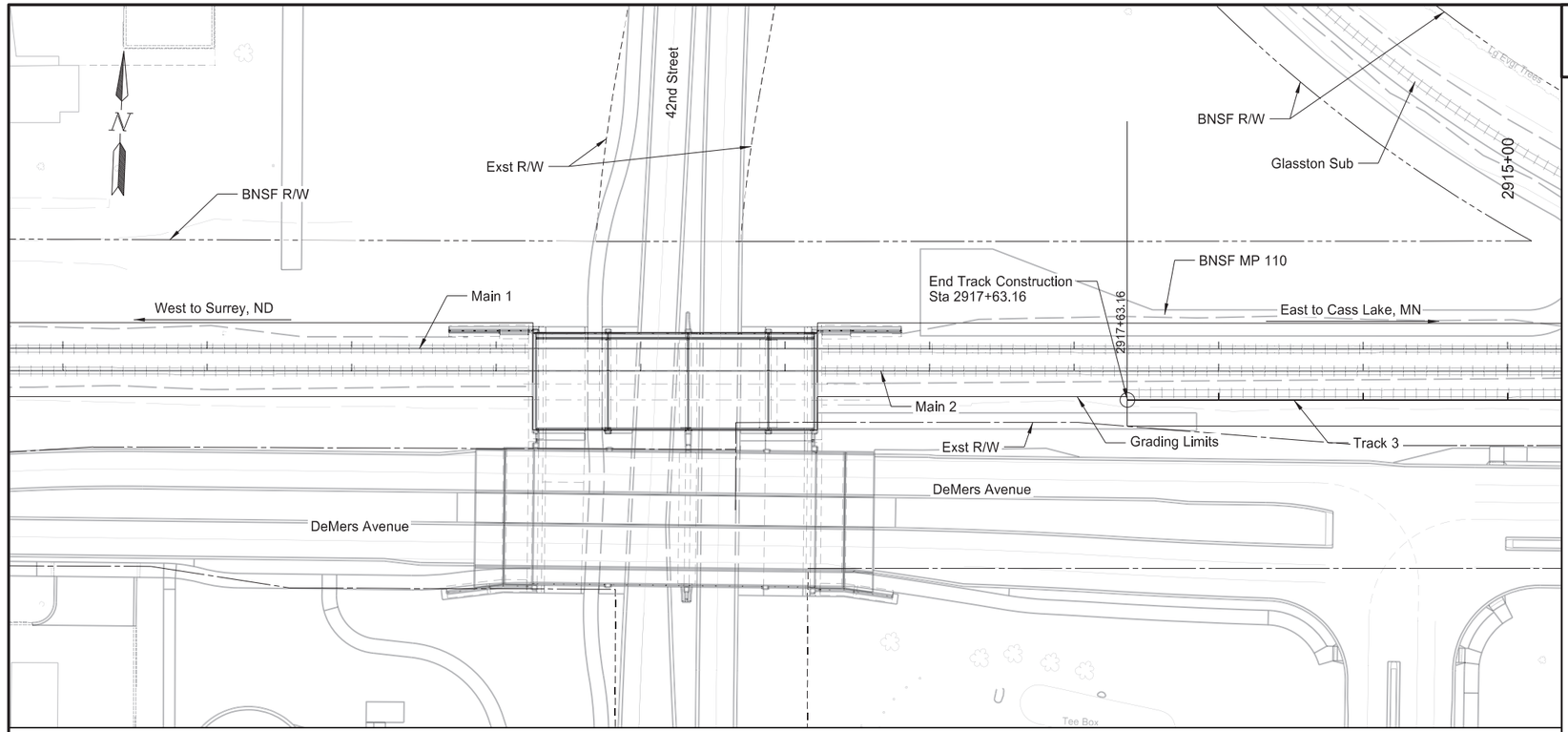
BNSF Grand Forks Subdivision
LS 32 MP 110.067

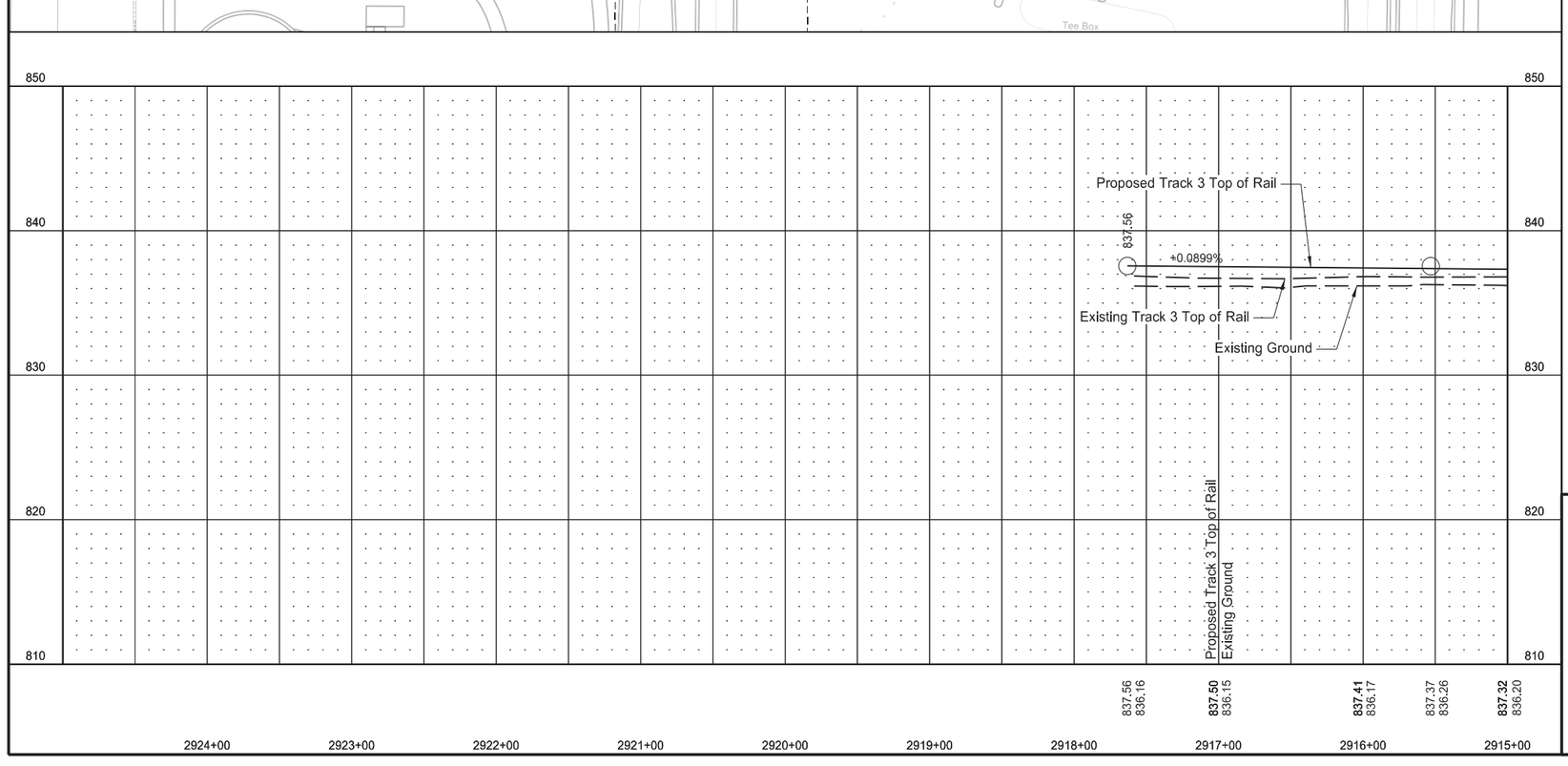
ND Hwy 297 (DeMers Ave) & 42nd Street
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170c	40





Note: See Sheet Numbers 4 & 5 for estimate of quantities

Plan and Profile
Proposed Track 3 Top of Rail

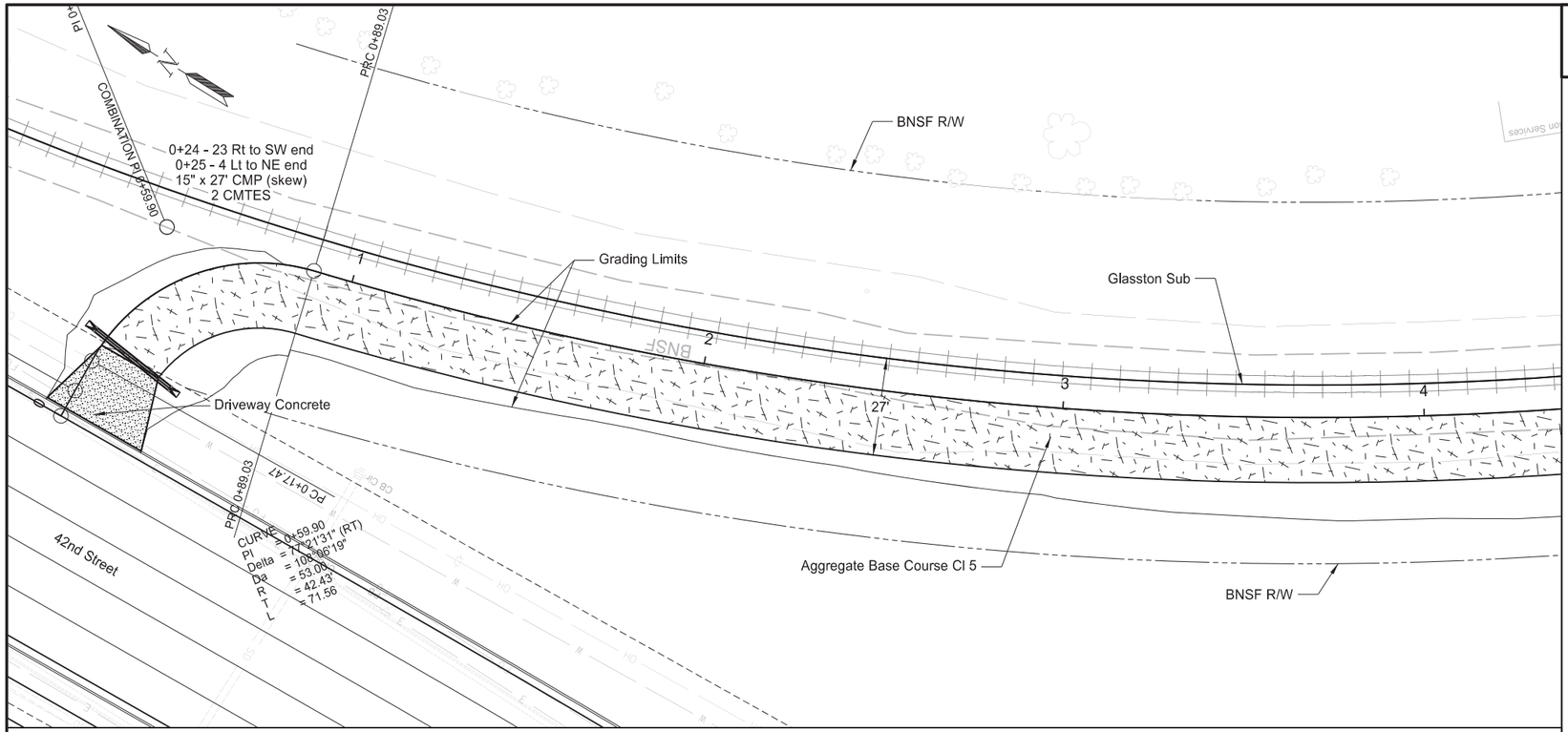
BNSF Grand Forks Subdivision
LS 32 MP 110.067

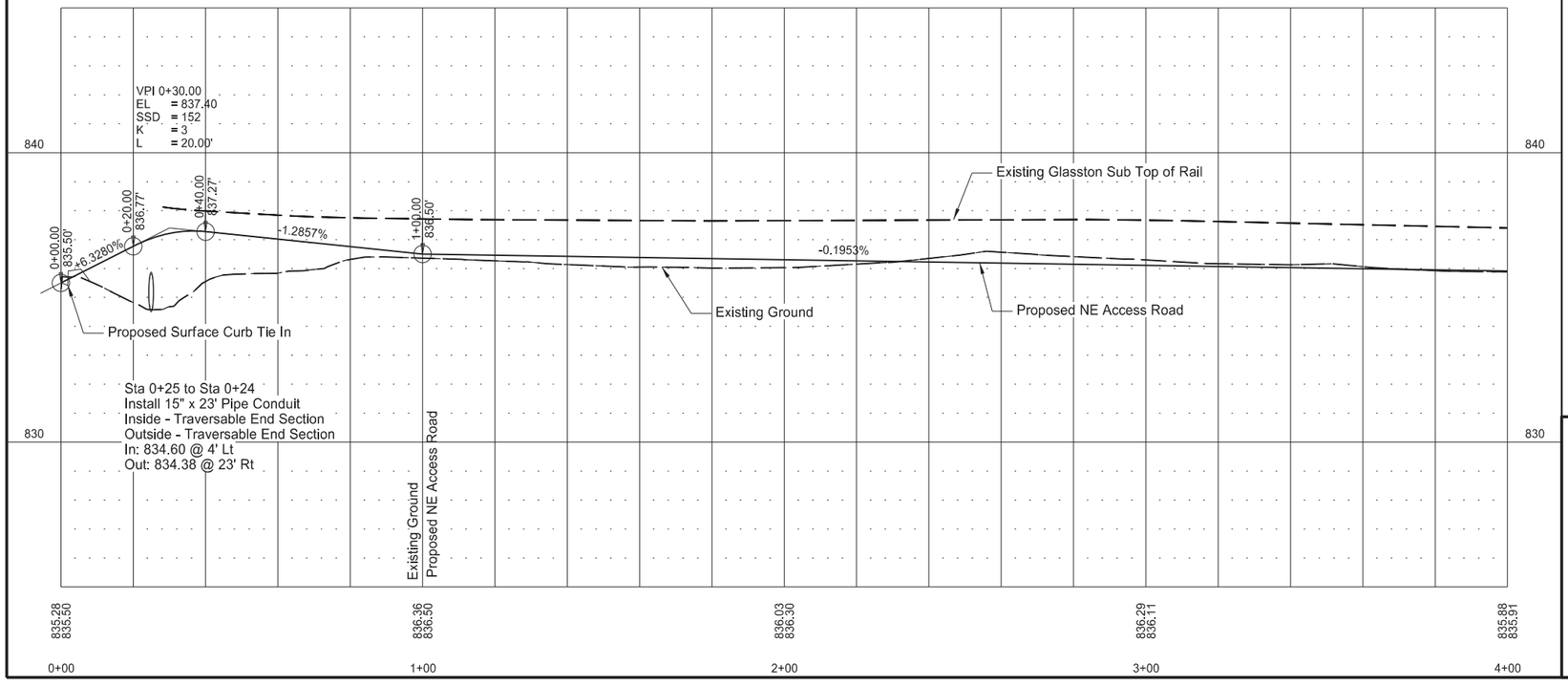
ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	41

SPEC	CODE	BID ITEM	QTY	UNIT
714	5010	PIPE CORR STEEL ,064IN 15IN Sta 0+25 - 4' Lt to Sta 0+24 - 23' Rt	27	LF

Note: See Sheet Numbers 4 & 5 for estimate of quantities

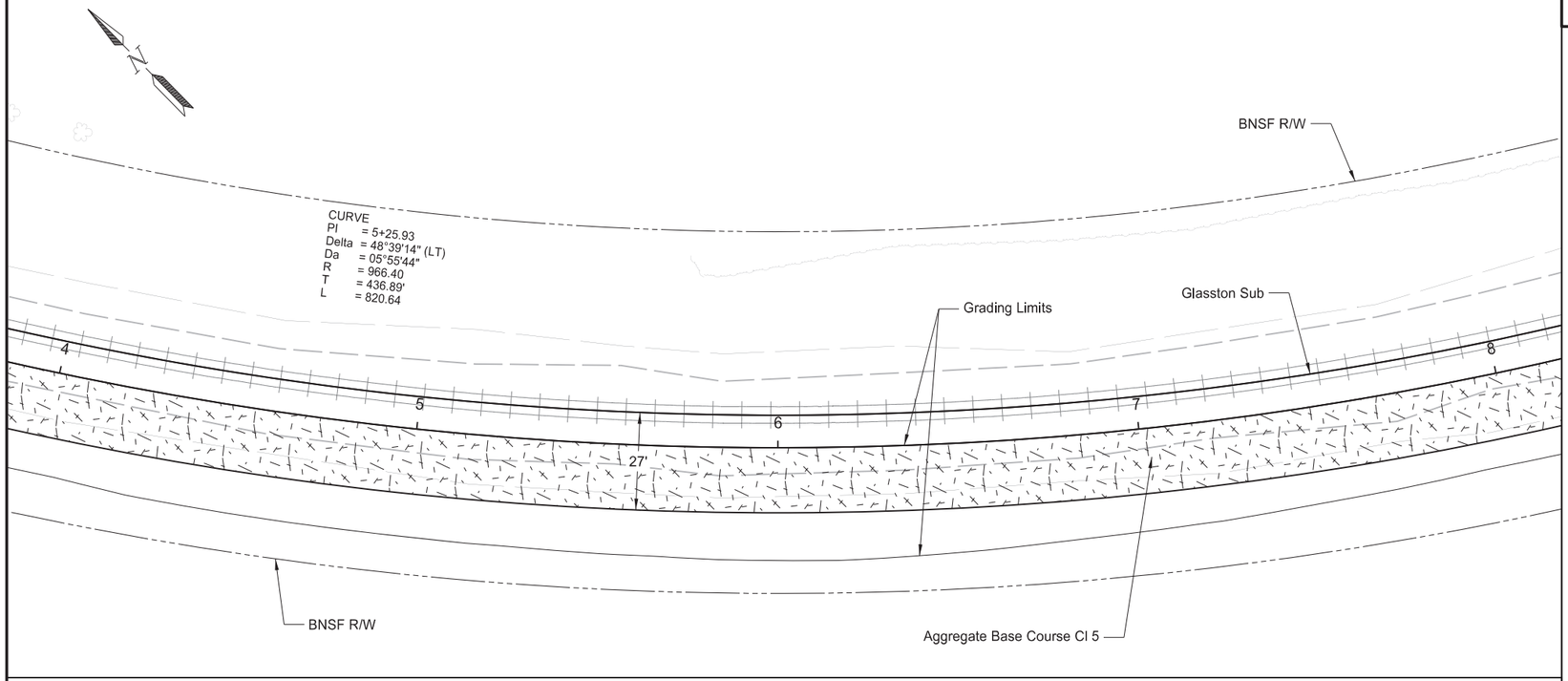
Plan and Profile
Proposed NE Access Road

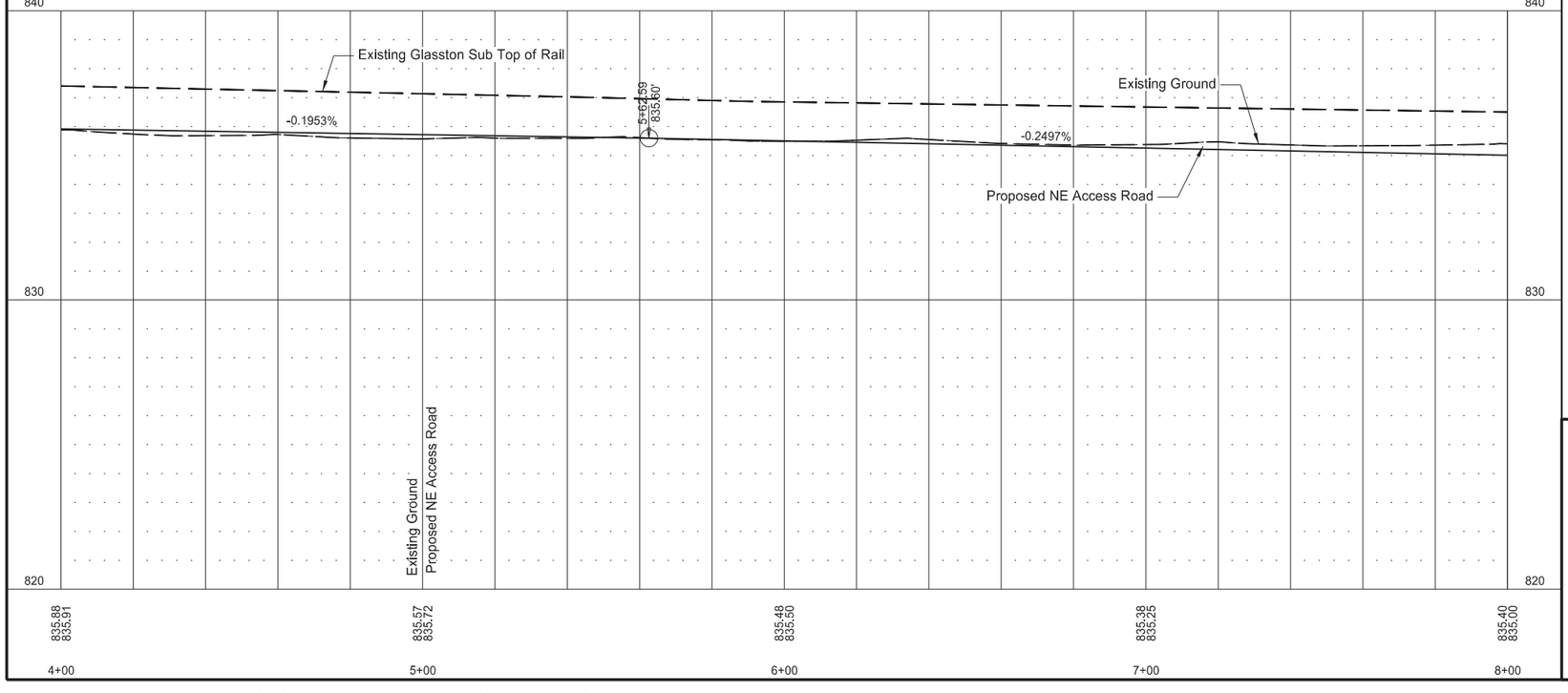
BNSF Grand Forks Subdivision
LS 32 MP 110.067

ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	42

Note: See Sheet Numbers 4 & 5 for estimate of quantities

Plan and Profile
Proposed NE Access Road

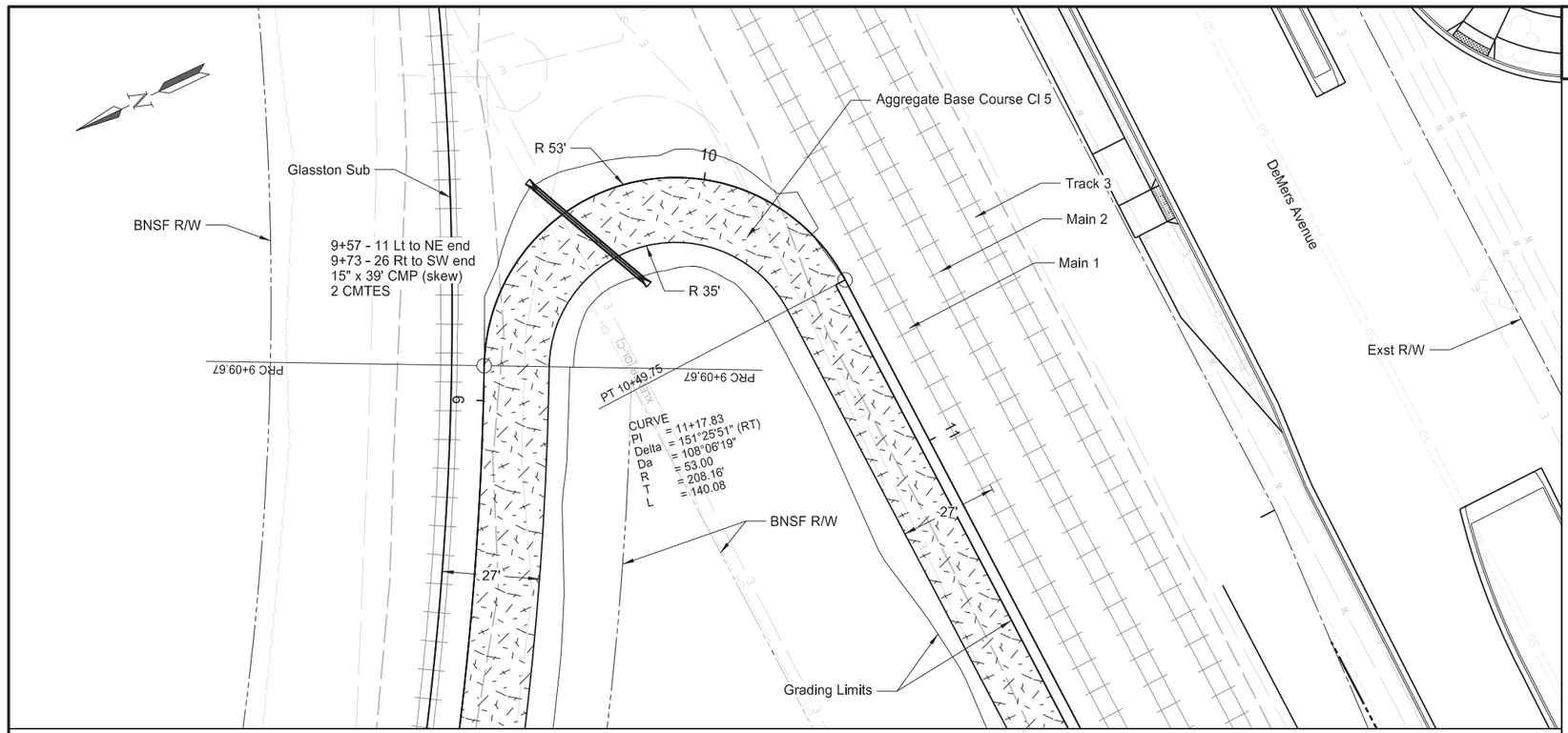
BNSF Grand Forks Subdivision
LS 32 MP 110.067

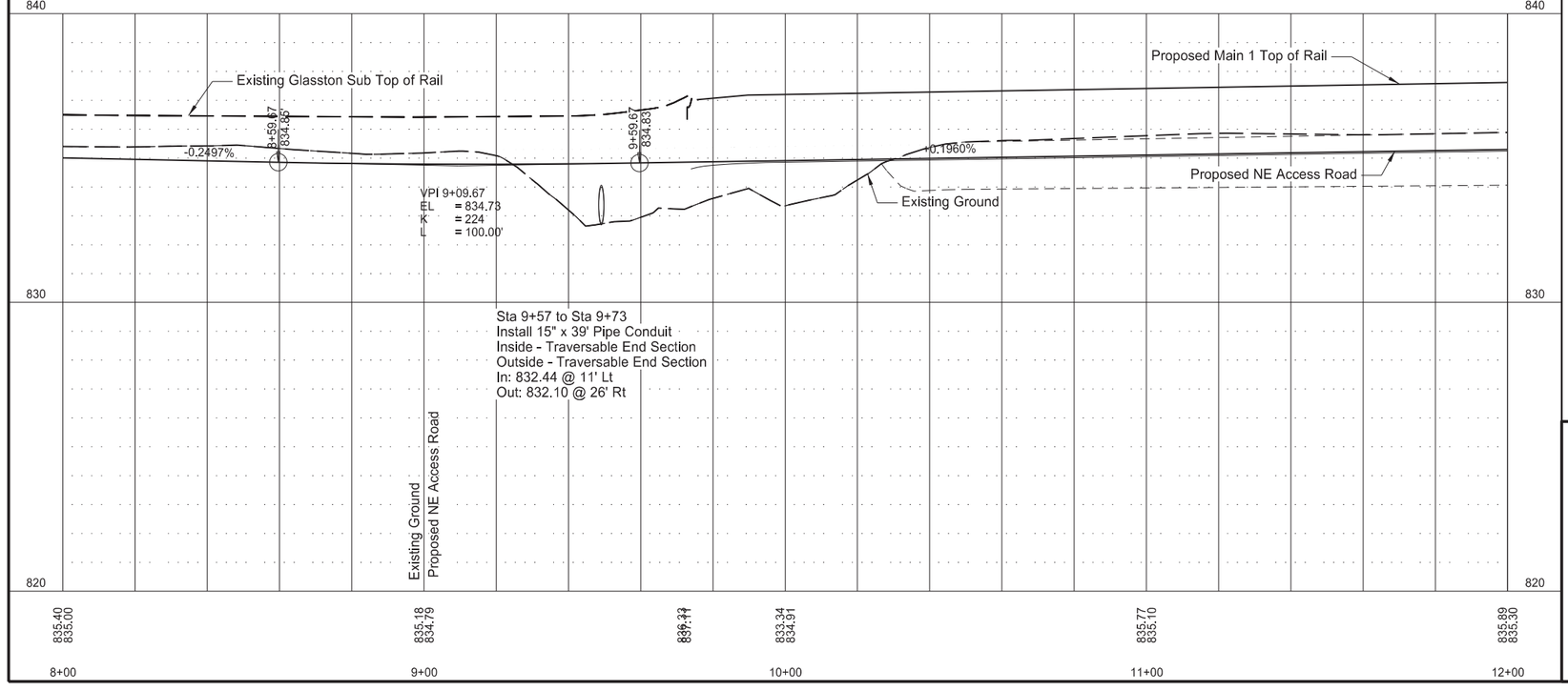
ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170c	43

SPEC	CODE	BID ITEM	QTY	UNIT
714	5010	PIPE CORR STEEL ,064IN 15IN Sta 9+57 - 11' Lt to Sta 9+73 - 26' Rt	39	LF

Note: See Sheet Numbers 4 & 5 for estimate of quantities

Plan and Profile
Proposed NE Access Road

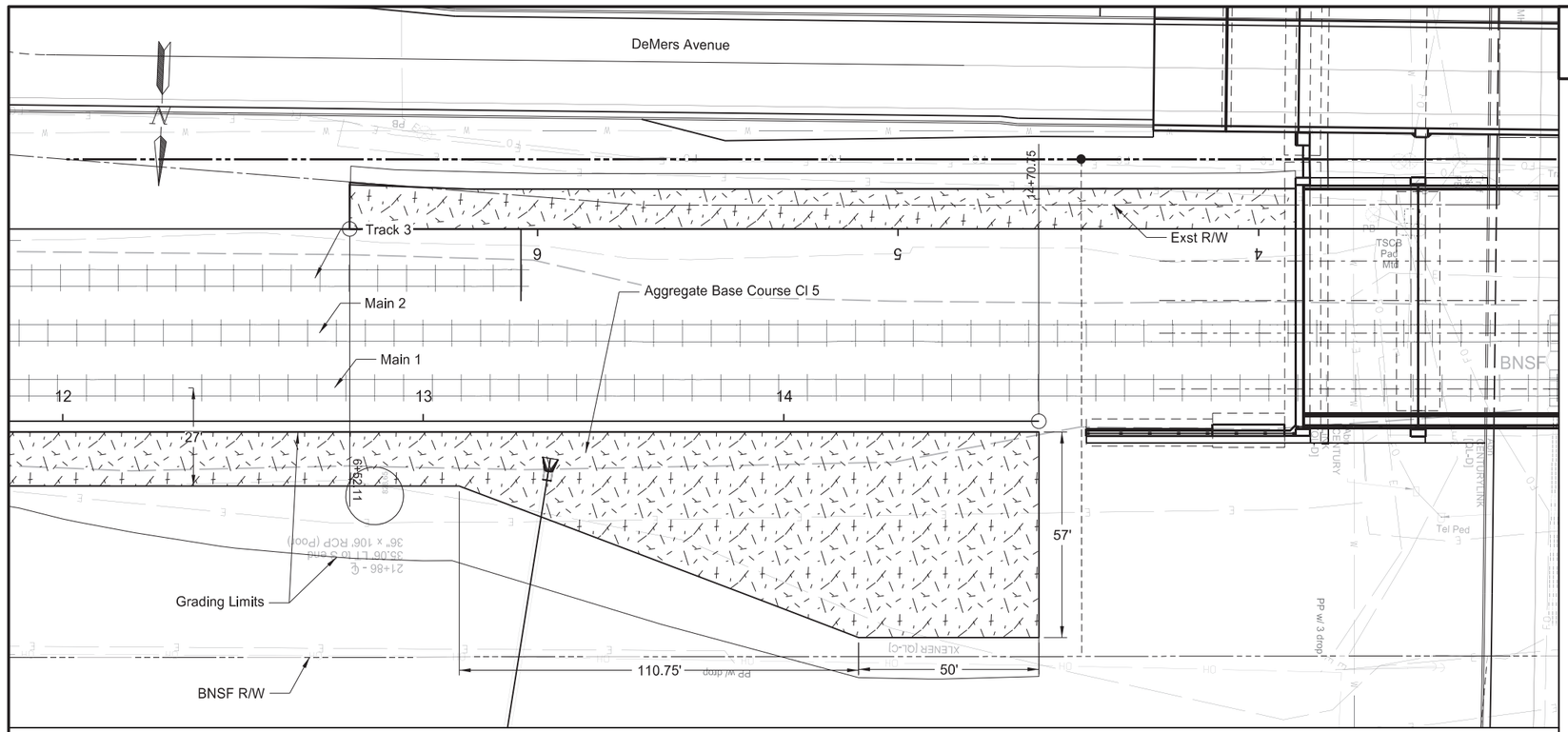
BNSF Grand Forks Subdivision
LS 32 MP 110.067

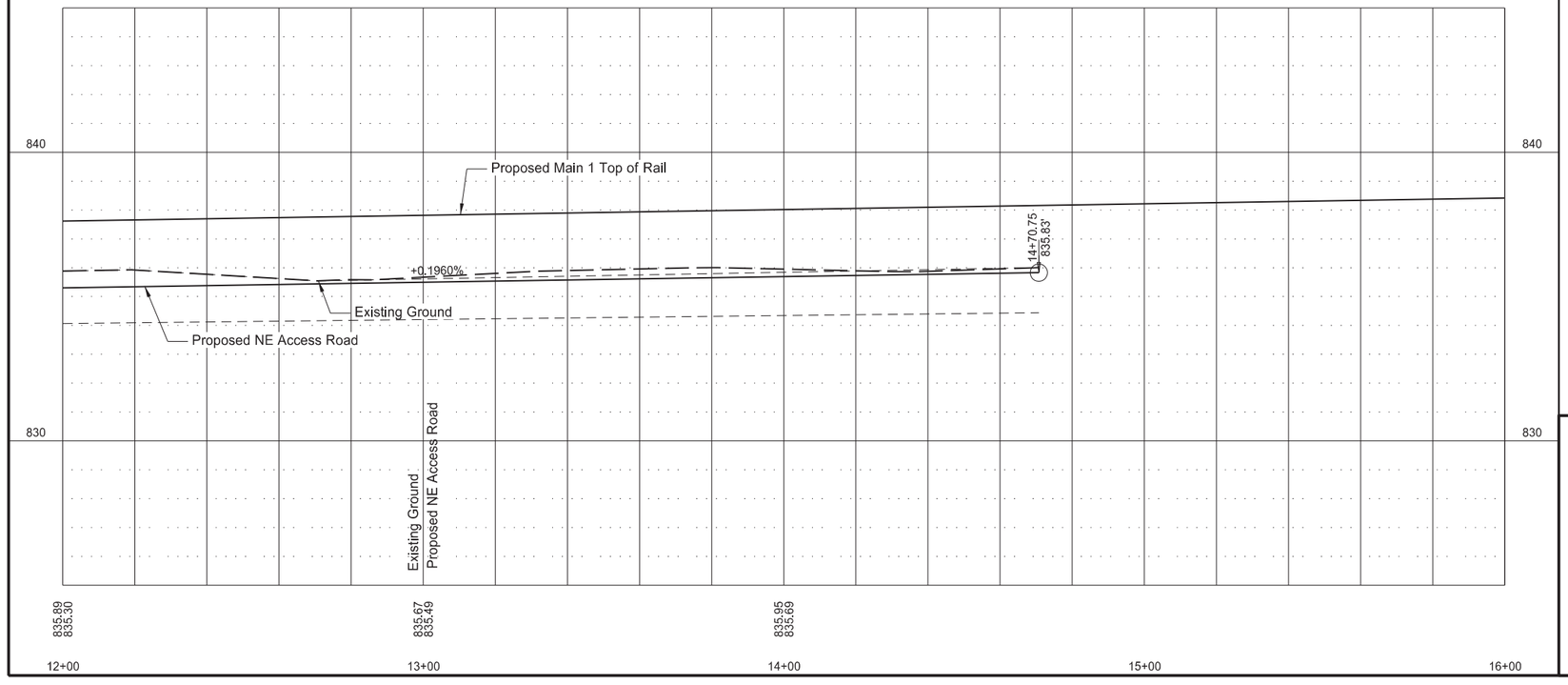
ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	170c	44

Note: See Sheet Numbers 4 & 5 for estimate of quantities

Plan and Profile
Proposed NE Access Road

BNSF Grand Forks Subdivision
LS 32 MP 110.067

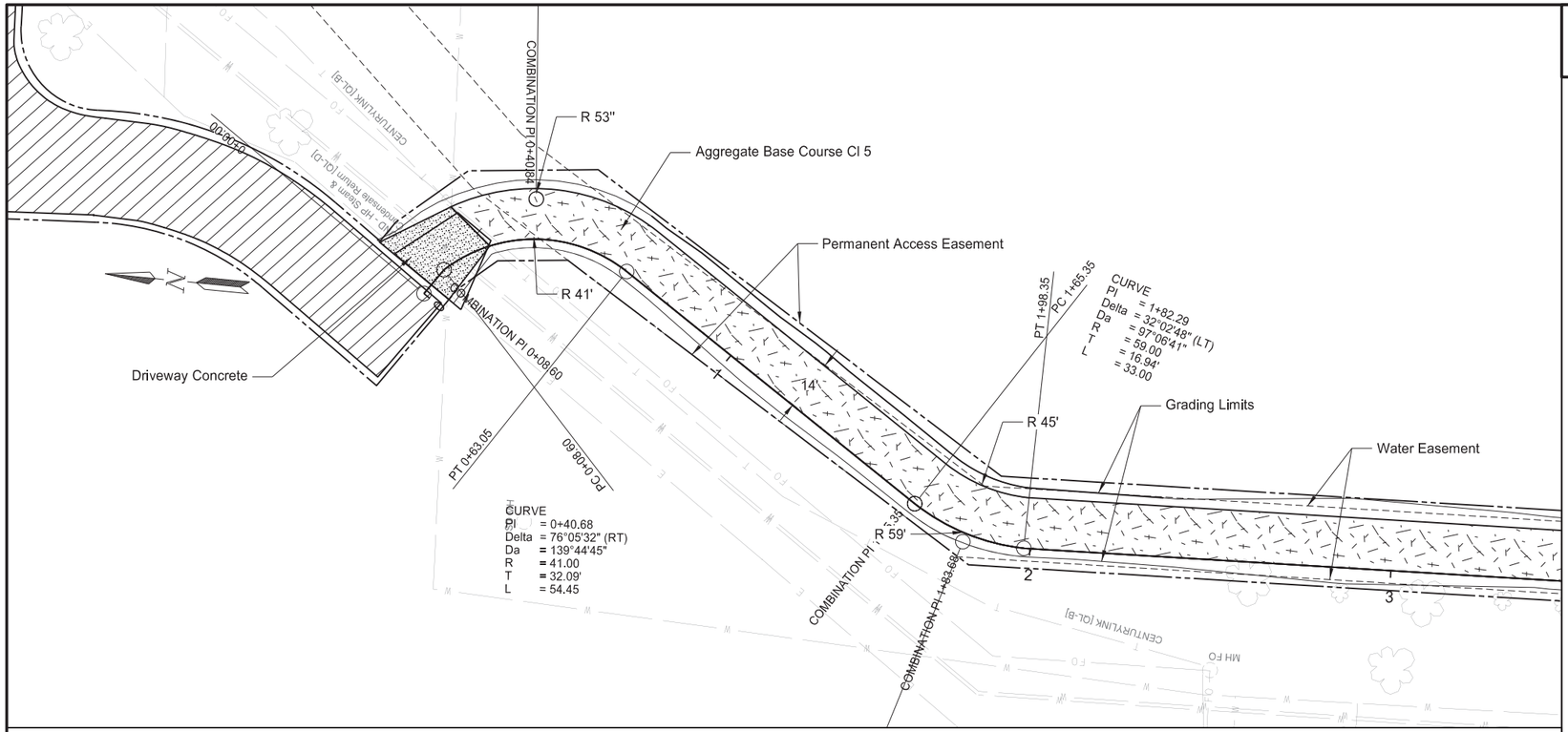
ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

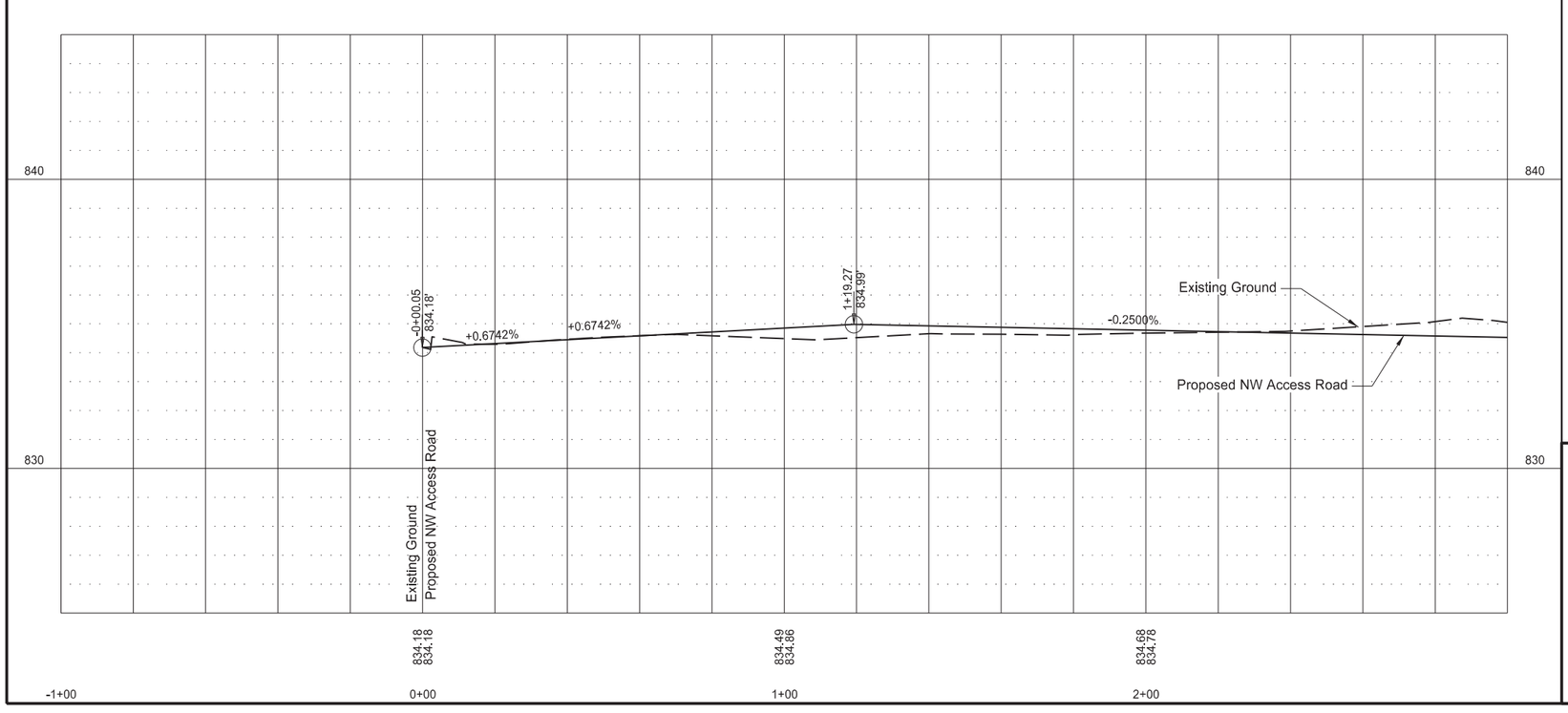
Grand Forks, ND

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-CPU-6-297(014)000	170c	45





Note: See Sheet Numbers 4 & 5 for estimate of quantities

Plan and Profile
Proposed NW Access Road

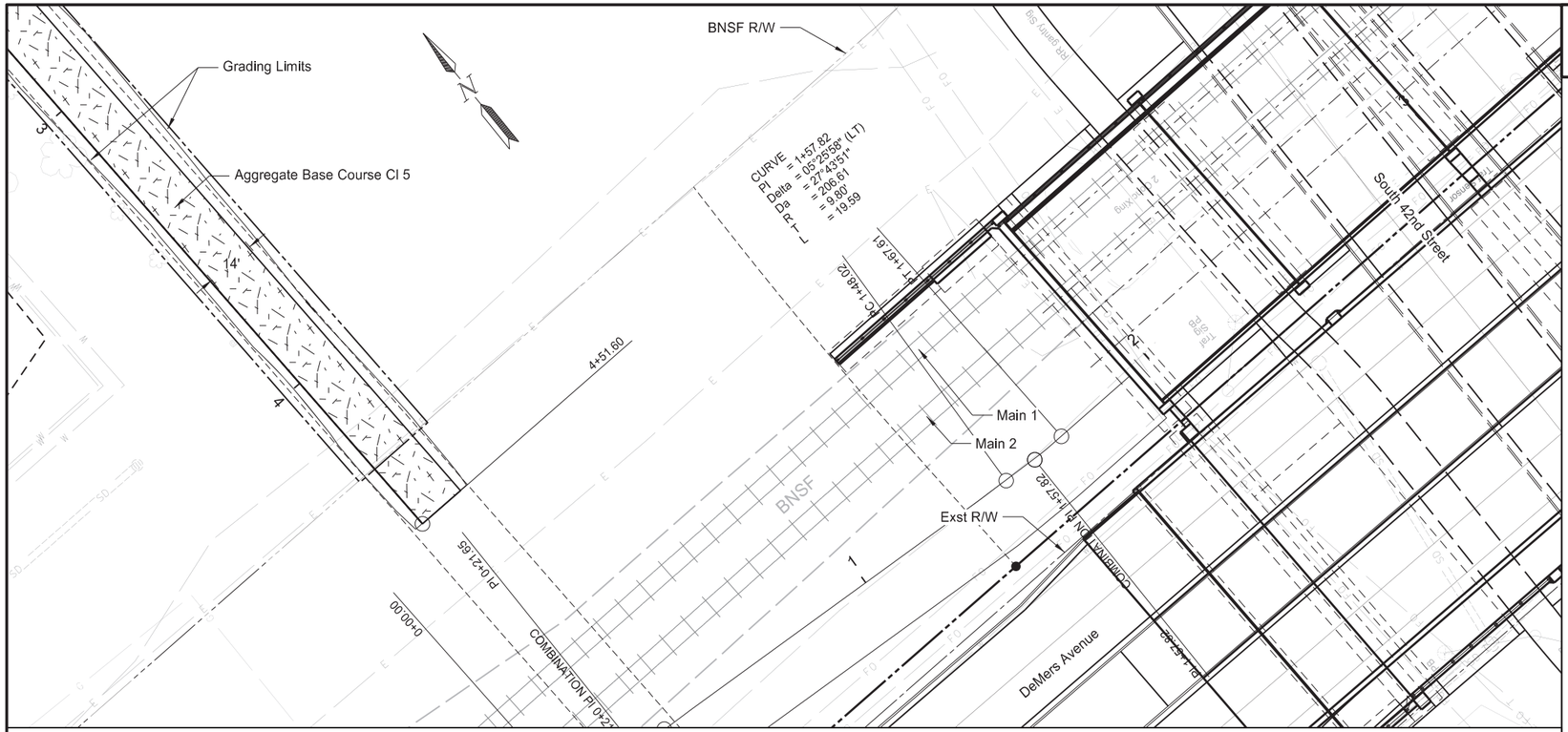
BNSF Grand Forks Subdivision
LS 32 MP 110.067

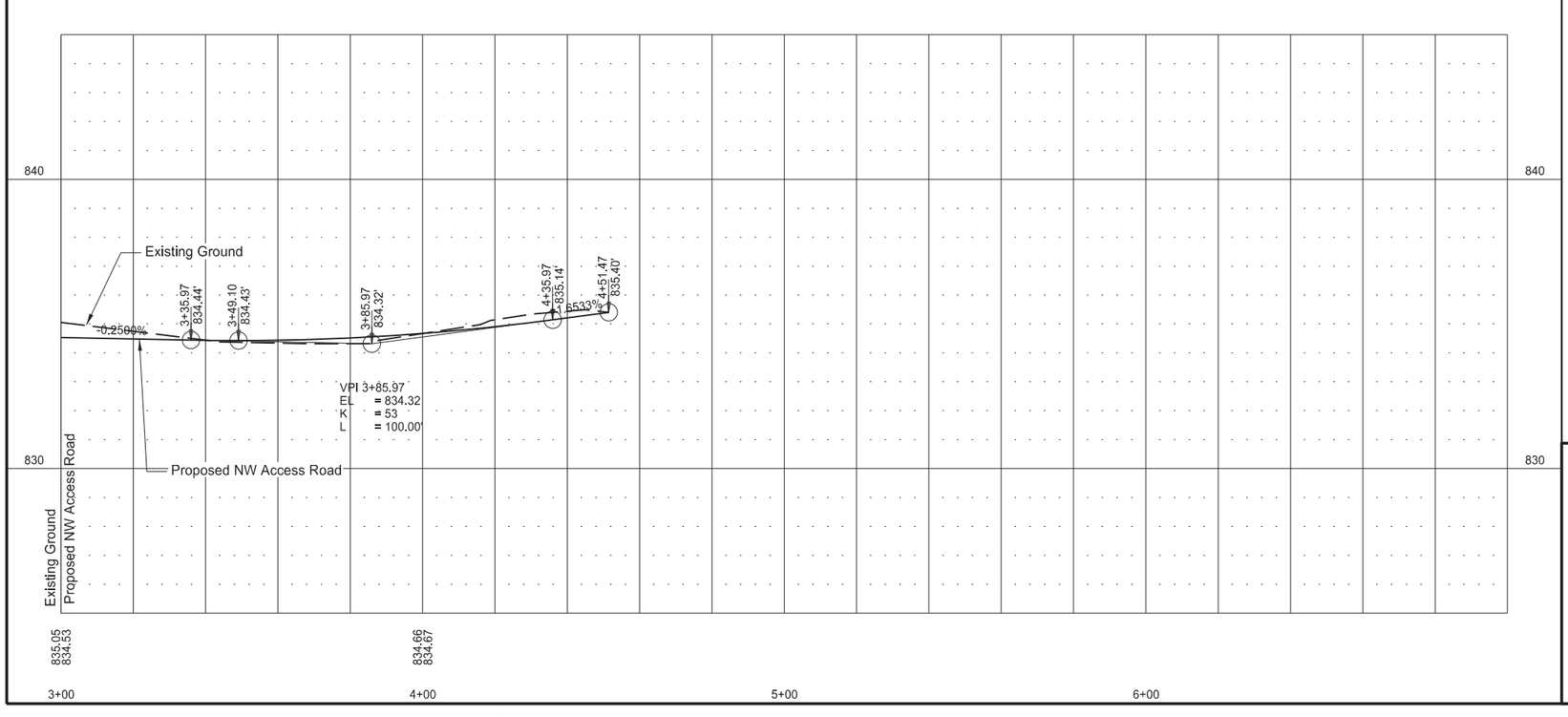
ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-CPU-6-297(014)000	170c	46

Note: See Sheet Numbers 4 & 5 for estimate of quantities

Plan and Profile
Proposed NW Access Road

BNSF Grand Forks Subdivision
LS 32 MP 110.067

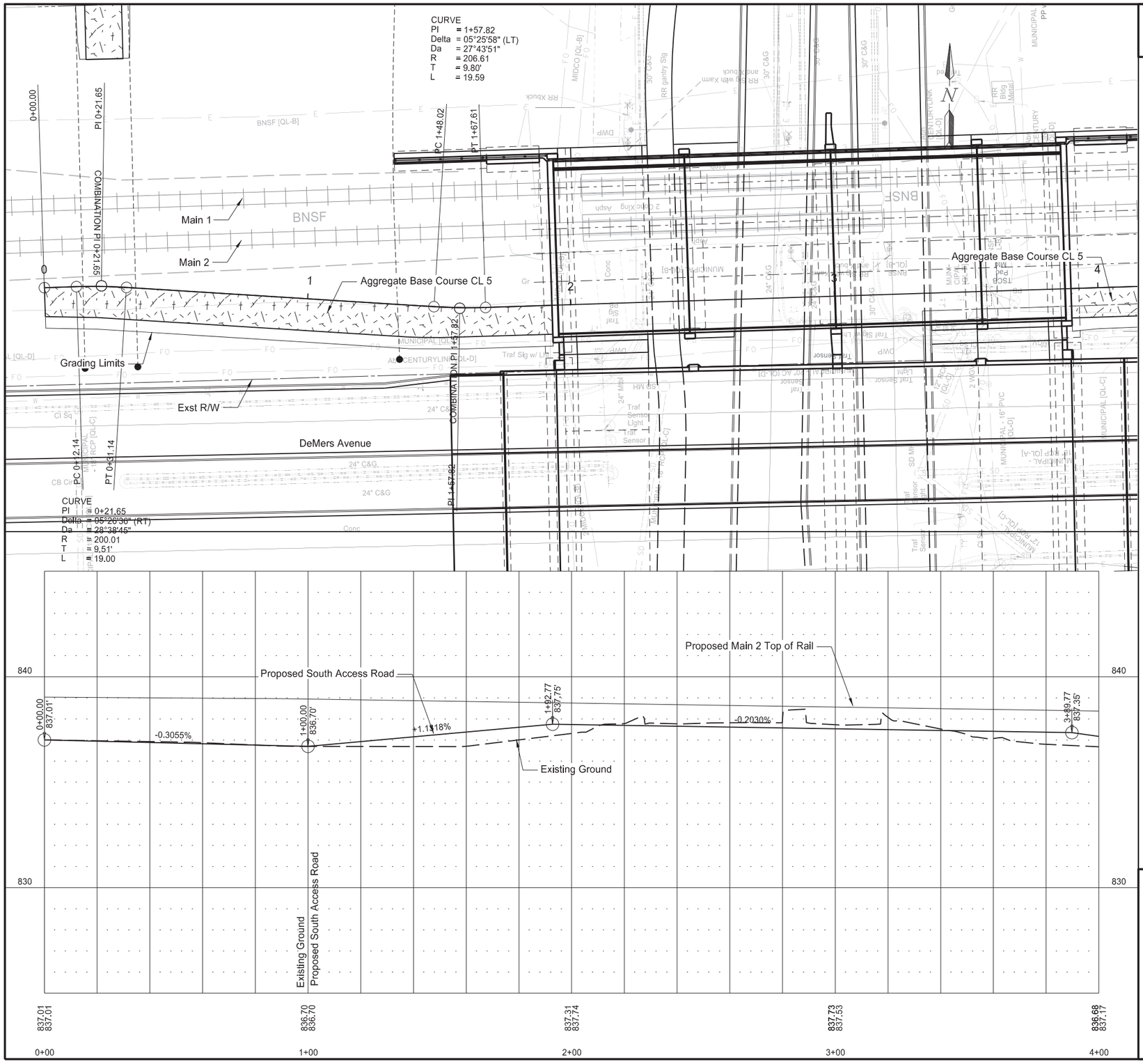
ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-CPU-6-297(014)000	170c	47



Note: See Sheet Numbers 4 & 5 for estimate of quantities

Plan and Profile
Proposed South Access Road

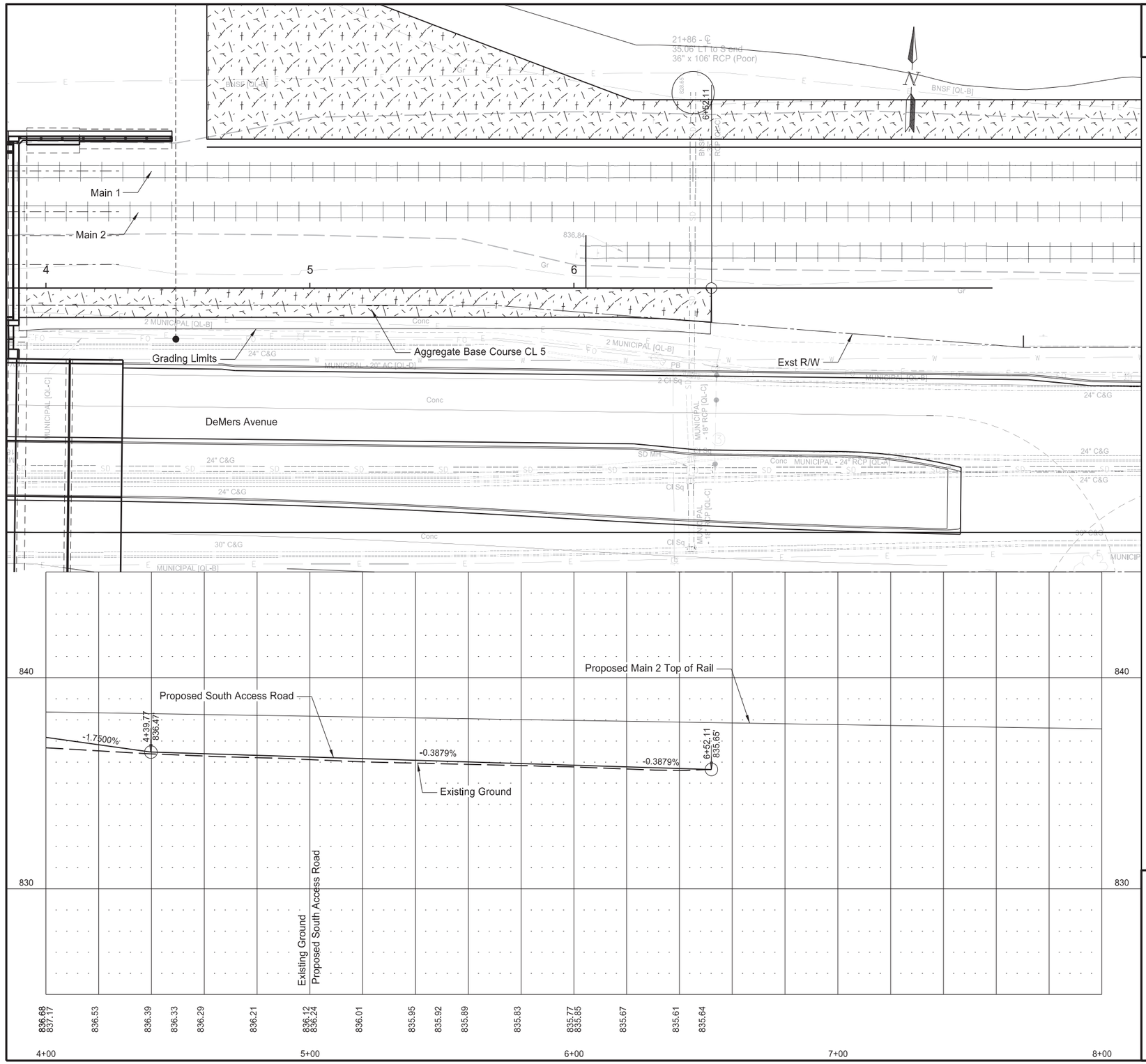
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ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-CPU-6-297(014)000	170c	48



Note: See Sheet Numbers 4 & 5 for estimate of quantities

Plan and Profile
Proposed South Access Road

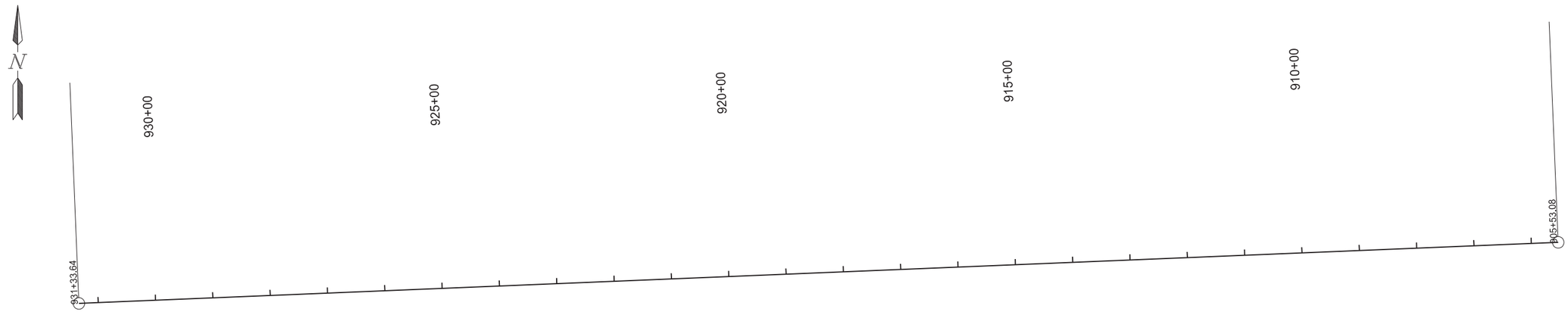
BNSF Grand Forks Subdivision
LS 32 MP 110.067

ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	49



Alignment Name: Main 1
Alignment Description:
Alignment Style: Alignment\Horizontal\Large Scale\Alignment 4

		Station	Northing	Easting
Element: Linear				
START	(START)	90553.078 R1	353698.868	2806651.538
END	(END)	93133.637 R1	353592.373	2804073.177
	Tangential Direction:	S87.635°W		
	Tangential Length:	2580.56		

Survey Data Layout
Main 1

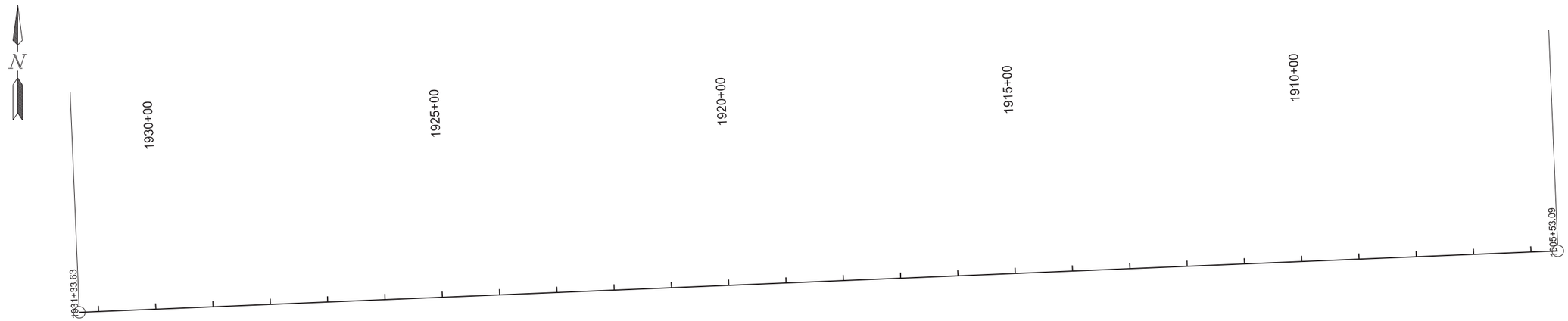
BNSF Grand Forks Subdivision
LS 32 MP 110.067

ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	50



Alignment Name: Main 2
Alignment Description:
Alignment Style: Alignment\Horizontal\Large Scale\Alignment 5

		Station	Northing	Easting
Element: Linear				
START	(Main 2 Shoofly)	190553.088 R1	353683.88	2806652.154
END	(END)	193133.629 R1	353576.687	2804073.84
	Tangential Direction:	S87.619°W		
	Tangential Length:	2580.541		

Survey Data Layout
Main 2

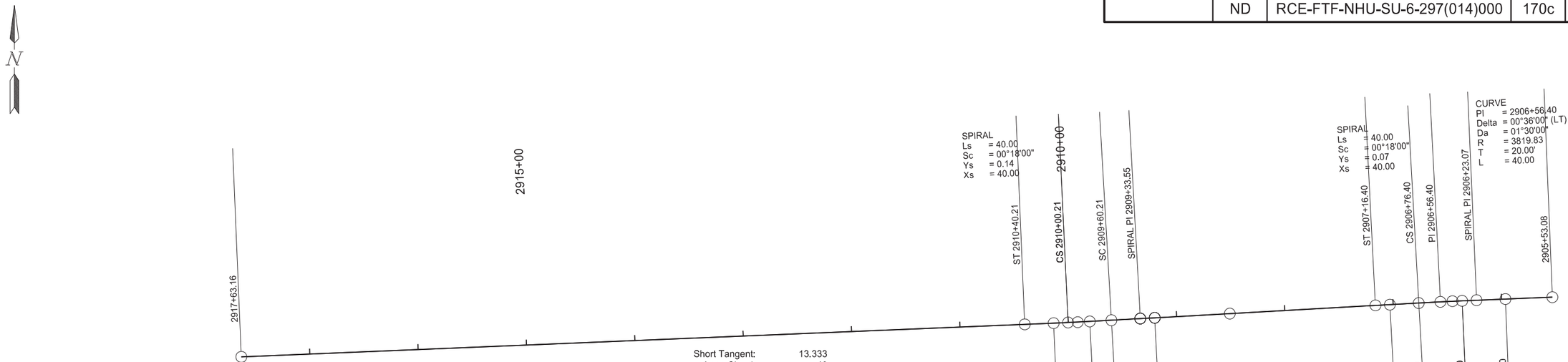
BNSF Grand Forks Subdivision
LS 32 MP 110.067

ND Hwy 297 (DeMers Ave) & 42nd Street
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	51



Alignment Name: Track 3
Alignment Description:
Alignment Style: Alignment\Horizontal\Large Scale\Alignment 6

		Station	Northing	Easting
Element: Linear				
START	(START)	290553.080 R1	353668.682	2806652.792
TS	(TS)	290596.403 R1	353666.948	2806609.503
	Tangential Direction:	S87.705°W		
	Tangential Length:	43.323		
Element: Clothoid				
TS	(TS)	290596.373 R1	353666.949	2806609.533
SPI	(SPI)	290623.070 R1	353665.881	2806582.888
SC	(SC)	290636.403 R1	353665.277	2806569.568
	Entrance Radius:	0		
	Exit Radius:	3819.83		
	Length:	40		
	Angle:	0.3 Left		
	Constant:	390.888		
	Long Tangent:	26.667		
	Short Tangent:	13.333		
	Long Chord:	40		
	Xs:	40		
	Ys:	0.07		
	P:	0.017		
	K:	20		
	Tangent Direction:	S87.705°W		
	Radial Direction:	N2.295°W		
	Chord Direction:	S87.605°W		
	Radial Direction:	N2.595°W		
	Tangent Direction:	S87.405°W		
Element: Circular				
SC	(SC)	290636.403 R1	353665.277	2806569.568
COMBINATION	(COMBINATION PI)	290656.403 R1	353664.372	2806549.588
CC	(CC)		349849.364	2806742.496
CS	(CS)	290676.403 R1	353663.257	2806529.619
	Radius:	3819.83		
	Delta:	0.6 Left		
	Degree of Curvature (Chord):	1.5		
	Length:	40		
	Chorded Length:	40		
	Tangent:	20		
	Chord:	40		
	Middle Ordinate:	0.052		
	External:	0.052		
	Back Tangent Direction:	S87.405°W		
	Back Radial Direction:	N2.595°W		
	Chord Direction:	S87.105°W		
	Ahead Radial Direction:	N3.195°W		
	Ahead Tangent Direction:	S86.805°W		
Element: Clothoid				
CS	(CS)	290676.403 R1	353663.257	2806529.619
SPI	(SPI)	290703.070 R1	353661.771	2806502.994
ST	(ST)	290716.403 R1	353661.098	2806489.677
	Entrance Radius:	0		
	Exit Radius:	3819.83		
	Length:	40		
	Angle:	0.3 Right		
	Constant:	390.888		
	Long Tangent:	26.667		
	Short Tangent:	13.333		
	Long Chord:	40		
	Xs:	40		
	Ys:	0.07		
	P:	0.017		
	K:	20		
	Tangent Direction:	S86.805°W		
	Radial Direction:	N3.195°W		
	Chord Direction:	S86.905°W		
	Radial Direction:	N2.895°W		
	Tangent Direction:	S87.105°W		
Element: Linear				
ST	(Align11)	290716.403 R1	353661.098	2806489.677
TS	(Align7)	290920.214 R1	353649.634	2806286.19
	Tangential Direction:	S86.776°W		
	Tangential Length:	203.811		
Element: Clothoid				
TS	(TS)	290920.214 R1	353649.634	2806286.19
SPI	(SPI)	290933.547 R1	353648.941	2806272.874
SC	(SC)	290960.214 R1	353647.416	2806246.251
	Entrance Radius:	3819.83		
	Exit Radius:	0		
	Length:	40		
	Angle:	0.3 Left		
	Constant:	390.888		
	Long Tangent:	26.667		
	Short Tangent:	13.333		
	Long Chord:	40		
	Xs:	40		
	Ys:	0.07		
	P:	0.017		
	K:	20		
	Tangent Direction:	S87.021°W		
	Radial Direction:	N2.979°W		
	Chord Direction:	S86.821°W		
	Radial Direction:	N3.279°W		
	Tangent Direction:	S86.721°W		
Element: Circular				
SC	(SC)	290960.214 R1	353647.416	2806246.251
COMBINATION	(COMBINATION PI)	290980.214 R1	353646.272	2806226.284
CC	(CC)		357460.994	2806027.794
CS	(CS)	291000.213 R1	353645.338	2806206.305
	Radius:	3819.83		
	Delta:	0.6 Right		
	Degree of Curvature (Chord):	1.5		
	Length:	40		
	Chorded Length:	40		
	Tangent:	20		
	Chord:	40		
	Middle Ordinate:	0.052		
	External:	0.052		
	Back Tangent Direction:	S86.721°W		
	Back Radial Direction:	N3.279°W		
	Chord Direction:	S87.021°W		
	Ahead Radial Direction:	N2.679°W		
	Ahead Tangent Direction:	S87.321°W		
Element: Clothoid				
CS	(CS)	291000.213 R1	353645.338	2806206.305
SPI	(SPI)	291013.547 R1	353644.715	2806192.987
ST	(ST)	291040.213 R1	353643.608	2806166.343
	Entrance Radius:	3819.83		
	Exit Radius:	0		
	Length:	40		
	Angle:	0.3 Right		
	Constant:	390.888		
	Long Tangent:	26.667		
	Short Tangent:	13.333		
	Long Chord:	40		
	Xs:	40		
	Ys:	0.07		
	P:	0.017		
	K:	20		
	Tangent Direction:	S87.321°W		
	Radial Direction:	N2.679°W		
	Chord Direction:	S87.521°W		
	Radial Direction:	N2.379°W		
	Tangent Direction:	S87.621°W		
Element: Linear				
ST	(ST)	291040.213 R1	353643.608	2806166.343
END	(END)	291763.158 R1	353613.604	2805444.022
	Tangential Direction:	S87.621°W		
	Tangential Length:	722.944		

Survey Data Layout
Track 3

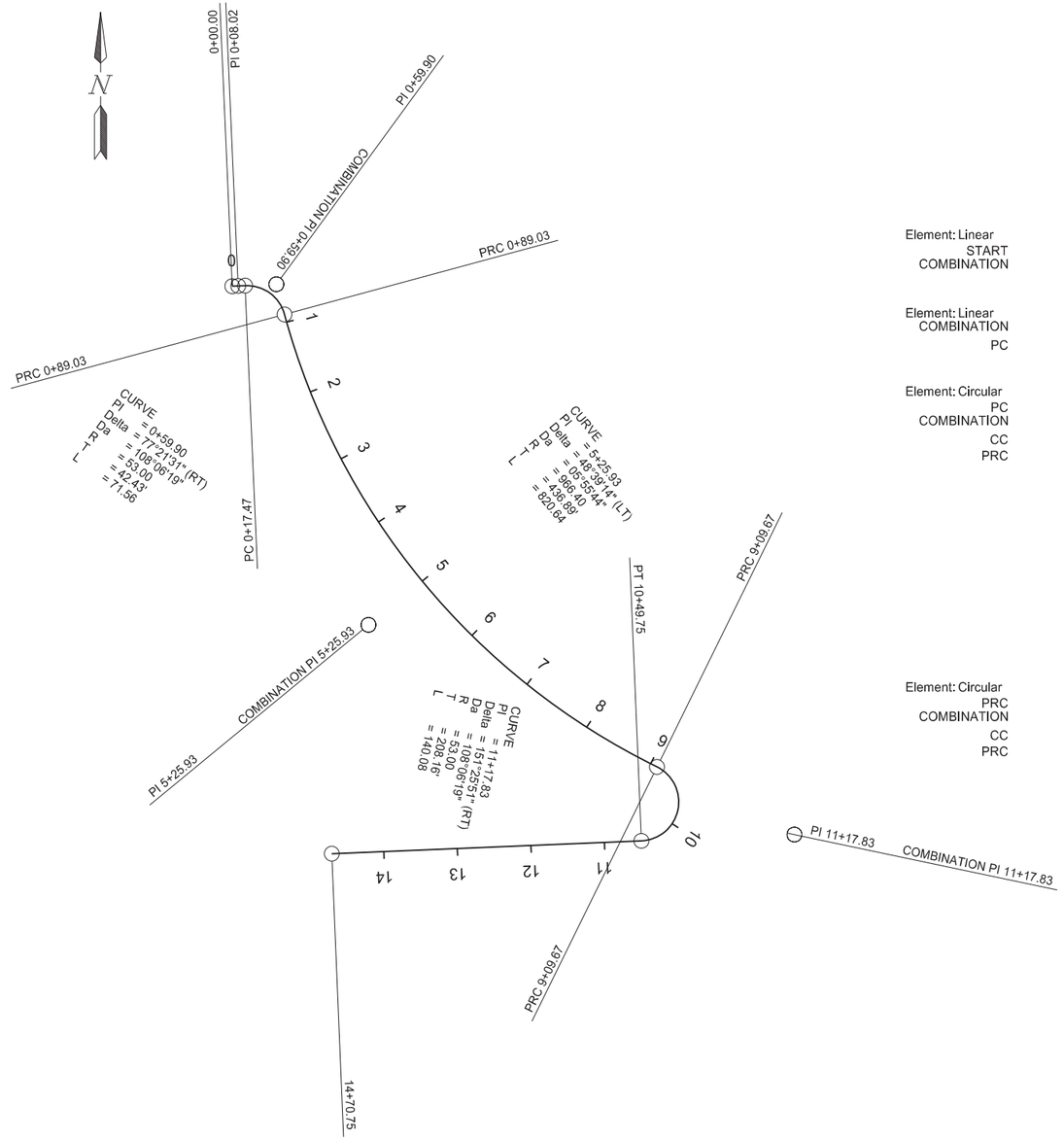
BNSF Grand Forks Subdivision
LS 32 MP 110.067

ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
TRENT J. BERG
PE-9458
DATE
NORTH DAKOTA
12/19/2025

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	52



Element: Linear
START
COMBINATION

Element: Linear
COMBINATION
PC

Element: Circular
PC
COMBINATION
CC
PRC

Element: Circular
PRC
COMBINATION
CC
PT

Element: Linear
PT
END

Alignment Name: NE Access Road
Alignment Description:
Alignment Style: Alignment\Horizontal\Small Scale\Alignment 2 S

	Station	Northing	Easting
(START)	0	354422.876	2805163.777
(COMBINATION PI)	8.019	354423.226	2805171.789
Tangential Direction:	N87.499°E		
Tangential Length:	8.019		
(COMBINATION PI)	8.019	354423.226	2805171.789
(PC)	17.475	354423.638	2805181.236
Tangential Direction:	N87.499°E		
Tangential Length:	9.456		
(PC)	17.475	354423.638	2805181.236
(COMBINATION PI)	59.904	354425.49	2805223.625
(CC)		354370.689	2805183.548
(PRC)	89.033	354384.533	2805234.708
Radius:	53		
Delta:	77.359 Right		
Degree of Curvature (Arc):	108.105		
Length:	71.559		
Tangent:	42.43		
Chord:	66.246		
Middle Ordinate:	11.625		
External:	14.892		
Back Tangent Direction:	N87.499°E		
Back Radial Direction:	S2.501°E		
Chord Direction:	S53.822°E		
Ahead Radial Direction:	S74.858°W		
Ahead Tangent Direction:	S15.142°E		
(NE Access Road4)	89.033	354384.533	2805234.708
(COMBINATION PI)	525.926	353962.81	2805348.831
(CC)		354636.971	2806167.554
(PRC)	909.67	353769.892	2805740.823
Radius:	966.399		
Delta:	48.654 Left		
Degree of Curvature (Arc):	5.929		
Length:	820.636		
Tangent:	436.892		
Chord:	796.201		
Middle Ordinate:	85.807		
External:	94.168		
Back Tangent Direction:	S15.142°E		
Back Radial Direction:	S74.858°W		
Chord Direction:	S39.469°E		
Ahead Radial Direction:	S26.204°W		
Ahead Tangent Direction:	S63.796°E		
(PRC)	909.67	353769.892	2805740.823
(COMBINATION PI)	1117.831	353677.974	2805927.591
(CC)		353722.339	2805717.42
(PT)	1049.747	353669.384	2805719.607
Radius:	53		
Delta:	151.431 Right		
Degree of Curvature (Arc):	108.105		
Length:	140.077		
Tangent:	208.161		
Chord:	102.723		
Middle Ordinate:	39.923		
External:	161.803		
Back Tangent Direction:	S63.796°E		
Back Radial Direction:	S26.204°W		
Chord Direction:	S11.919°W		
Ahead Radial Direction:	N2.365°W		
Ahead Tangent Direction:	S87.635°W		
(NE Access Road6)	1049.747	353669.384	2805719.607
(END)	1470.754	353652.01	2805298.958
Tangential Direction:	S87.635°W		
Tangential Length:	421.007		

Survey Data Layout
NE Access Road

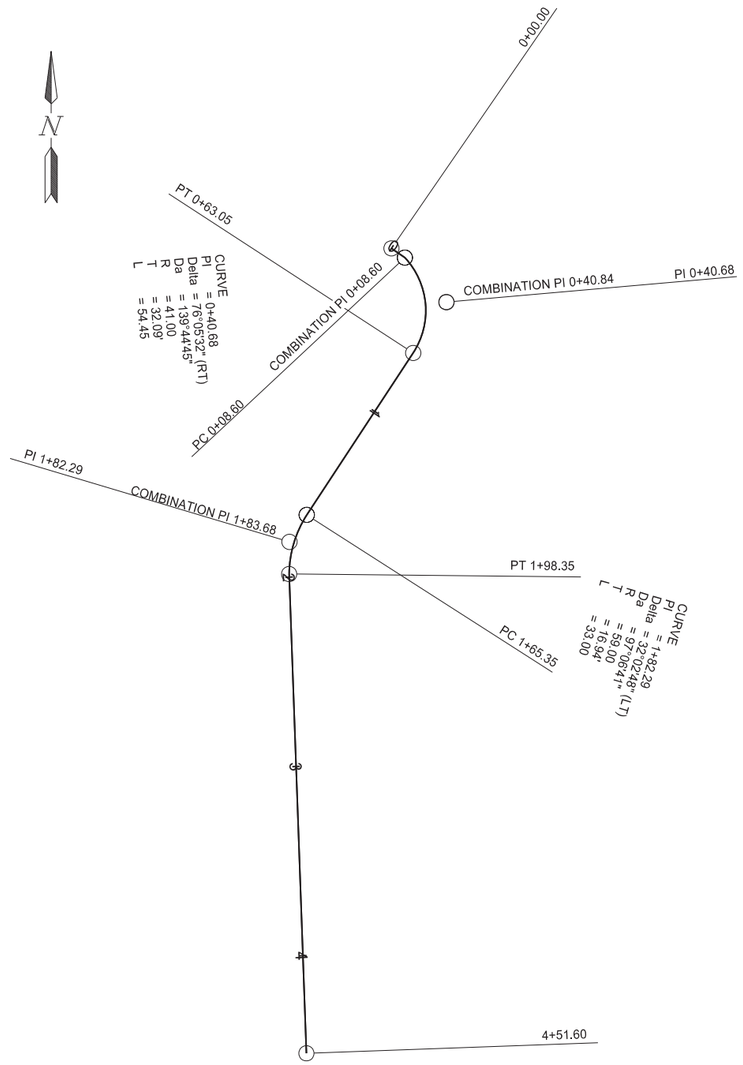
BNSF Grand Forks Subdivision
LS 32 MP 110.067

ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
TRENT J. BERG
PE-9458
DATE
NORTH DAKOTA
12/19/2025

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	53



Alignment Name: NW Access Road2
Alignment Description:
Alignment Style: Alignment\Horizontal\Small Scale\Alignment 5

		Station	Northing	Easting
Element: Linear				
START	(START)	0	354104.214	2804900.57
PC	(PC)	8.599	354099.334	2804907.65
	Tangential Direction:	S55.428°E		
	Tangential Length:	8.599		
Element: Circular				
PC	(PC)	8.599	354099.334	2804907.65
COMBINATION	(COMBINATION PI)	40.685	354075.885	2804929.551
CC	(CC)		354071.349	2804877.686
PT	(PT)	63.049	354048.99	2804912.054
	Radius:	41		
	Delta:	76.092 Right		
	Degree of Curvature (Arc):	139.746		
	Length:	54.45		
	Tangent:	32.086		
	Chord:	50.536		
	Middle Ordinate:	8.712		
	External:	11.062		
	Back Tangent Direction:	S43.045°E		
	Back Radial Direction:	S46.955°W		
	Chord Direction:	S4.999°E		
	Ahead Radial Direction:	N56.953°W		
	Ahead Tangent Direction:	S33.047°W		
Element: Linear				
PT	(PT)	63.049	354048.99	2804912.054
PC	(PC)	165.351	353963.509	2804855.854
	Tangential Direction:	S33.323°W		
	Tangential Length:	102.301		
Element: Circular				
PC	(PC)	165.351	353963.509	2804855.854
COMBINATION	(COMBINATION PI)	182.295	353949.243	2804846.711
CC	(CC)		353931.675	2804905.529
PT	(PT)	198.351	353932.3	2804846.532
	Radius:	59		
	Delta:	32.047 Left		
	Degree of Curvature (Arc):	97.111		
	Length:	33		
	Tangent:	16.944		
	Chord:	32.572		
	Middle Ordinate:	2.292		
	External:	2.385		
	Back Tangent Direction:	S32.653°W		
	Back Radial Direction:	N57.347°W		
	Chord Direction:	S16.630°W		
	Ahead Radial Direction:	N89.394°W		
	Ahead Tangent Direction:	S0.606°W		
Element: Linear				
PT	(PT)	198.351	353932.25	2804846.532
END	(END)	451.595	353679.169	2804855.653
	Tangential Direction:	S2.064°E		
	Tangential Length:	253.245		

Survey Data Layout
NW Access Road

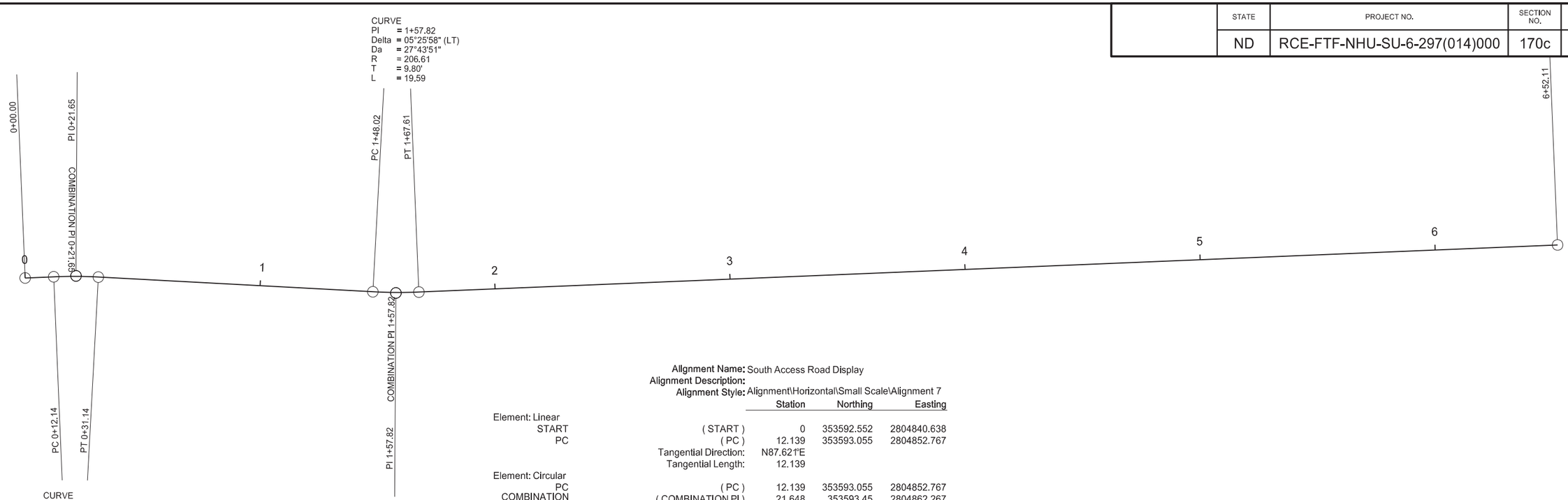
BNSF Grand Forks Subdivision
LS 32 MP 110.067

ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

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DATE
NORTH DAKOTA
12/19/2025

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	54



Allgnment Name: South Access Road Display
Alignment Description:
Alignment Style: Alignment\Horizontal\Small Scale\Alignment 7

		Station	Northing	Easting
Element: Linear				
START	(START)	0	353592.552	2804840.638
PC	(PC)	12.139	353593.055	2804852.767
	Tangential Direction:	N87.621°E		
	Tangential Length:	12.139		
Element: Circular				
PC	(PC)	12.139	353593.055	2804852.767
COMBINATION	(COMBINATION PI)	21.648	353593.45	2804862.267
CC	(CC)		353393.213	2804861.069
PT	(PT)	31.142	353592.942	2804871.761
	Radius:	200.014		
	Delta:	5.443 Right		
	Degree of Curvature (Arc):	28.646		
	Length:	19.002		
	Tangent:	9.508		
	Chord:	18.995		
	Middle Ordinate:	0.226		
	External:	0.226		
	Back Tangent Direction:	N87.621°E		
	Back Radial Direction:	S2.379°E		
	Chord Direction:	S89.657°E		
	Ahead Radial Direction:	S3.064°W		
	Ahead Tangent Direction:	S86.936°E		
Element: Linear				
PT	(PT)	31.142	353592.942	2804871.761
PC	(PC)	148.016	353586.694	2804988.469
	Tangential Direction:	S86.936°E		
	Tangential Length:	116.874		
Element: Circular				
PC	(PC)	148.016	353586.694	2804988.469
COMBINATION	(COMBINATION PI)	157.819	353586.17	2804998.258
CC	(CC)		353793.013	2804999.514
PT	(PT)	167.607	353586.575	2805008.052
	Radius:	206.614		
	Delta:	5.433 Left		
	Degree of Curvature (Arc):	27.731		
	Length:	19.591		
	Tangent:	9.803		
	Chord:	19.584		
	Middle Ordinate:	0.232		
	External:	0.232		
	Back Tangent Direction:	S86.936°E		
	Back Radial Direction:	S3.064°W		
	Chord Direction:	S89.652°E		
	Ahead Radial Direction:	S2.368°E		
	Ahead Tangent Direction:	N87.632°E		
Element: Linear				
PT	(PT)	167.607	353586.575	2805008.052
END	(END)	652.114	353606.598	2805492.146
	Tangential Direction:	N87.632°E		
	Tangential Length:	484.507		

Survey Data Layout
South Access Road

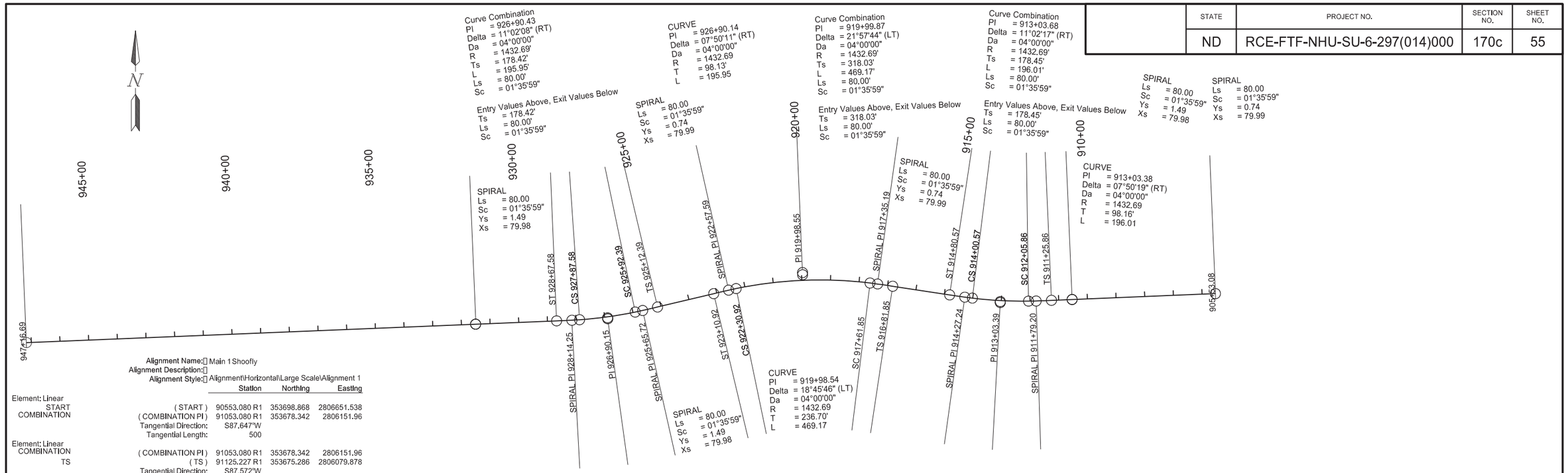
BNSF Grand Forks Subdivision
LS 32 MP 110.067

ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
TRENT J. BERG
PE-9458
DATE
NORTH DAKOTA
12/19/2025

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	55



Alignment Name: Main 1 Shoofly
Alignment Description:
Alignment Style: Alignment\Horizontal\Large Scale\Alignment 1

		Station	Northing	Easting
Element: Linear				
START	(START)	90553.080 R1	353698.868	2806651.538
COMBINATION	(COMBINATION PI)	91053.080 R1	353678.342	2806151.96
	Tangential Direction:	S87.647°W		
	Tangential Length:	500		
Element: Linear				
COMBINATION	(COMBINATION PI)	91053.080 R1	353678.342	2806151.96
TS	(TS)	91125.227 R1	353675.286	2806079.878
	Tangential Direction:	S87.572°W		
	Tangential Length:	72.147		
Element: Clothoid				
TS	(TS)	91125.227 R1	353675.286	2806079.878
SPI	(SPI)	91178.562 R1	353673.026	2806026.59
SC	(SC)	91205.227 R1	353672.641	2805999.924
	Entrance Radius:	0		
	Exit Radius:	1432.69		
	Length:	80		
	Angle:	1.6 Right		
	Constant:	338.549		
	Long Tangent:	53.336		
	Short Tangent:	26.669		
	Long Chord:	79.997		
	Xs:	79.994		
	Ys:	0.744		
	P:	0.186		
	K:	39.999		
	Tangent Direction:	S87.572°W		
	Radial Direction:	N2.428°W		
	Chord Direction:	S88.105°W		
	Radial Direction:	N0.828°W		
	Tangent Direction:	S89.172°W		
Element: Circular				
SC	(SC)	91205.227 R1	353672.641	2805999.924
COMBINATION	(COMBINATION PI)	91303.383 R1	353671.222	2805901.778
CC	(CC)		355105.181	2805979.211
CS	(CS)	91401.193 R1	353683.201	2805804.356
	Radius:	1432.69		
	Delta:	7.839 Right		
	Degree of Curvature (Chord):	4		
	Length:	196.006		
	Chorded Length:	195.966		
	Tangent:	98.156		
	Chord:	195.853		
	Middle Ordinate:	3.351		
	External:	3.358		
	Back Tangent Direction:	S89.172°W		
	Back Radial Direction:	N0.828°W		
	Chord Direction:	N86.909°W		
	Ahead Radial Direction:	N7.010°E		
	Ahead Tangent Direction:	N82.990°W		
Element: Clothoid				
CS	(CS)	91401.193 R1	353683.201	2805804.356
SPI	(SPI)	91427.861 R1	353686.456	2805777.887
ST	(ST)	91481.193 R1	353694.441	2805725.153
	Entrance Radius:	1432.69		
	Exit Radius:	0		
	Length:	80		
	Angle:	1.6 Right		
	Constant:	338.549		
	Long Tangent:	53.336		
	Short Tangent:	26.669		
	Long Chord:	79.997		
	Xs:	79.994		
	Ys:	0.744		
	P:	0.186		
	K:	39.999		

		Station	Northing	Easting
	Tangent Direction:	N82.990°W		
	Radial Direction:	N7.010°E		
	Chord Direction:	N81.923°W		
	Radial Direction:	N8.610°E		
	Tangent Direction:	N81.390°W		
Element: Linear				
ST	(ST)	91481.193 R1	353694.441	2805725.153
TS	(TS)	91681.840 R1	353724.479	2805526.767
	Tangential Direction:	N81.390°W		
	Tangential Length:	200.647		
Element: Clothoid				
TS	(TS)	91681.840 R1	353724.479	2805526.767
SPI	(SPI)	91735.175 R1	353732.464	2805474.032
SC	(SC)	91761.840 R1	353735.718	2805447.563
	Entrance Radius:	0		
	Exit Radius:	1432.69		
	Length:	80		
	Angle:	1.6 Left		
	Constant:	338.549		
	Long Tangent:	53.336		
	Short Tangent:	26.669		
	Long Chord:	79.997		
	Xs:	79.994		
	Ys:	0.744		
	P:	0.186		
	K:	39.999		
	Tangent Direction:	N81.390°W		
	Radial Direction:	N8.610°E		
	Chord Direction:	N81.923°W		
	Radial Direction:	N7.010°E		
	Tangent Direction:	N82.990°W		
Element: Circular				
SC	(SC)	91761.840 R1	353735.718	2805447.563
COMBINATION	(COMBINATION PI)	91998.542 R1	353764.607	2805212.631
CC	(CC)		352313.739	2805272.708
CS	(CS)	92230.910 R1	353716.394	2804980.891
	Radius:	1432.69		
	Delta:	18.763 Left		
	Degree of Curvature (Chord):	4		
	Length:	469.166		
	Chorded Length:	469.071		
	Tangent:	236.702		
	Chord:	467.072		
	Middle Ordinate:	19.162		
	External:	19.422		
	Back Tangent Direction:	N82.990°W		
	Back Radial Direction:	N7.010°E		
	Chord Direction:	S87.629°W		
	Ahead Radial Direction:	N11.753°W		
	Ahead Tangent Direction:	S78.247°W		
Element: Clothoid				
CS	(CS)	92230.910 R1	353716.394	2804980.891
SPI	(SPI)	92257.579 R1	353710.962	2804954.781
ST	(ST)	92310.910 R1	353698.645	2804902.887
	Entrance Radius:	1432.69		
	Exit Radius:	0		

		Station	Northing	Easting
	Length:	80		
	Angle:	1.6 Left		
	Constant:	338.549		
	Long Tangent:	53.336		
	Short Tangent:	26.669		
	Long Chord:	79.997		
	Xs:	79.994		
	Ys:	0.744		
	P:	0.186		
	K:	39.999		
	Tangent Direction:	S78.247°W		
	Radial Direction:	N11.753°W		
	Chord Direction:	S77.181°W		
	Radial Direction:	N13.352°W		
	Tangent Direction:	S76.648°W		
Element: Linear				
ST	(ST)	92310.910 R1	353698.645	2804902.887
TS	(TS)	92512.014 R1	353652.203	2804707.22
	Tangential Direction:	S76.648°W		
	Tangential Length:	201.103		
Element: Clothoid				
TS	(TS)	92512.014 R1	353652.203	2804707.22
SPI	(SPI)	92565.349 R1	353639.886	2804655.326
SC	(SC)	92592.014 R1	353634.454	2804629.217
	Entrance Radius:	0		
	Exit Radius:	1432.69		
	Length:	80		
	Angle:	1.6 Right		
	Constant:	338.549		
	Long Tangent:	53.336		
	Short Tangent:	26.669		
	Long Chord:	79.997		
	Xs:	79.994		
	Ys:	0.744		
	P:	0.186		
	K:	39.999		
	Tangent Direction:	S76.648°W		
	Radial Direction:	N13.352°W		
	Chord Direction:	S77.181°W		
	Radial Direction:	N11.753°W		
	Tangent Direction:	S78.247°W		
Element: Circular				
SC	(SC)	92592.014 R1	353634.454	2804629.217
COMBINATION	(COMBINATION PI)	92690.141 R1	353614.467	2804533.147
CC	(CC)		355037.11	2804337.399
CS	(CS)	92787.922 R1	353607.765	2804435.249
	Radius:	1432.69		
	Delta:	7.836 Right		
	Degree of Curvature (Chord):	4		
	Length:	195.948		
	Chorded Length:	195.908		
	Tangent:	98.127		
	Chord:	195.795		
	Middle Ordinate:	3.349		
	External:	3.356		
	Back Tangent Direction:	S78.247°W		

		Station	Northing	Easting
	Back Radial Direction:	N11.753°W		
	Chord Direction:	S82.166°W		
	Ahead Radial Direction:	N3.916°W		
	Ahead Tangent Direction:	S86.084°W		
Element: Clothoid				
CS	(CS)	92787.922 R1	353607.765	2804435.249
SPI	(SPI)	92814.590 R1	353605.944	2804408.643
ST	(ST)	92867.922 R1	353603.788	2804355.351
	Entrance Radius:	1432.69		
	Exit Radius:	0		
	Length:	80		
	Angle:	1.6 Right		
	Constant:	338.549		
	Long Tangent:	53.336		
	Short Tangent:	26.669		
	Long Chord:	79.997		
	Xs:	79.994		
	Ys:	0.744		
	P:	0.186		
	K:	39.999		
	Tangent Direction:	S86.084°W		
	Radial Direction:	N3.916°W		
	Chord Direction:	S87.150°W		
	Radial Direction:	N2.317°W		
	Tangent Direction:	S87.683°W		
Element: Linear				
ST	(ST)	92867.922 R1	353603.788	2804355.351
COMBINATION	(COMBINATION PI)	93150.326 R1	353592.373	2804073.177
	Tangential Direction:	S87.683°W		
	Tangential Length:	282.405		
Element: Linear				
COMBINATION	(COMBINATION PI)	93150.326 R1	353592.373	2804073.177
END	(END)	94716.667 R1	353528.044	2802508.158
	Tangential Direction:	S87.646°W		
	Tangential Length:	1566.34		

Survey Data Layout
Shoofly Main 1

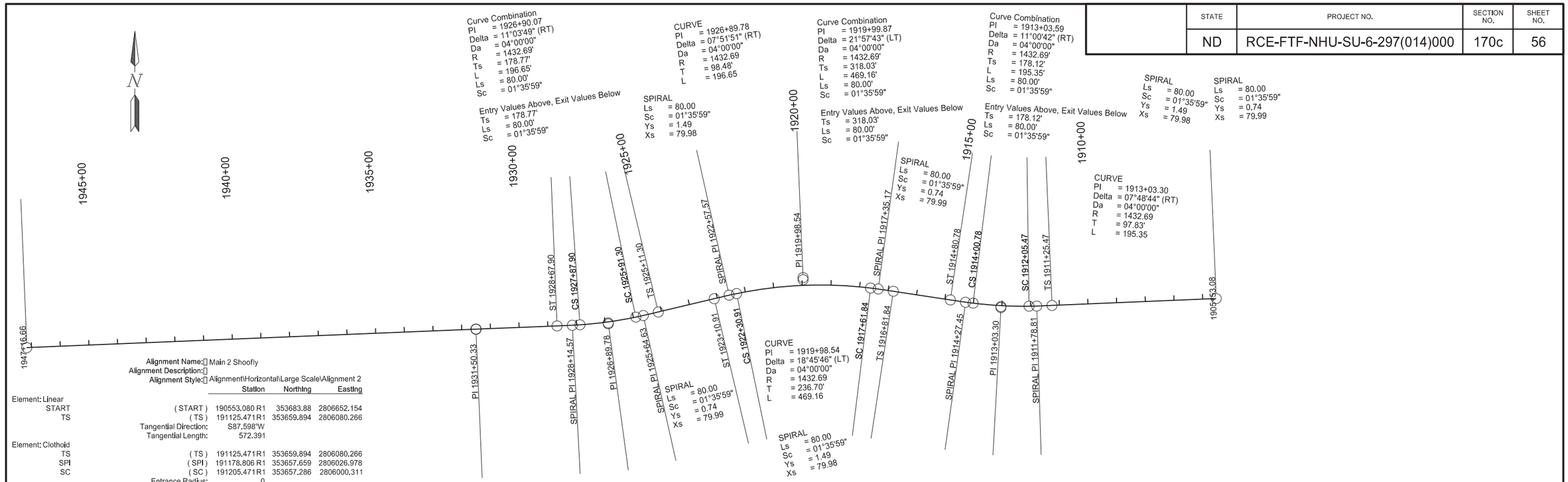
BNSF Grand Forks Subdivision
LS 32 MP 110.067

ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
TRENT J. BERG
PE-9458
DATE
NORTH DAKOTA
12/19/2025

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	56



Alignment Name: Main 2 Shoofly
Alignment Description:
Alignment Style: Alignment\Horizontal\Large Scale\Alignment 2

		Station	Northing	Easting
Element: Linear				
START	(START)	190553.080 R1	353683.88	2806652.154
TS	(TS)	191125.471 R1	353659.894	2806080.266
	Tangential Direction:	S87.598°W		
	Tangential Length:	572.391		
Element: Clothoid				
TS	(TS)	191125.471 R1	353659.894	2806080.266
SPI	(SPI)	191178.806 R1	353657.659	2806026.978
SC	(SC)	191205.471 R1	353657.286	2806000.311
	Entrance Radius:	0		
	Exit Radius:	1432.69		
	Length:	80		
	Angle:	1.6 Right		
	Constant:	338.549		
	Long Tangent:	53.336		
	Short Tangent:	26.669		
	Long Chord:	79.997		
	Xs:	79.994		
	Ys:	0.744		
	P:	0.186		
	K:	39.999		
	Tangent Direction:	S87.598°W		
	Radial Direction:	N2.402°W		
	Chord Direction:	S88.132°W		
	Radial Direction:	N0.802°W		
	Tangent Direction:	S89.198°W		
Element: Circular				
SC	(SC)	191205.471 R1	353657.286	2806000.311
COMBINATION	(COMBINATION PI)	191303.296 R1	353655.917	2805902.496
CC	(CC)		355089.835	2805980.257
CS	(CS)	191400.779 R1	353667.856	2805805.401
	Radius:	1432.69		
	Delta:	7.812 Right		
	Degree of Curvature (Chord):	4		
	Length:	195.348		
	Chorded Length:	195.308		
	Tangent:	97.825		
	Chord:	195.196		
	Middle Ordinate:	3.328		
	External:	3.336		
	Back Tangent Direction:	S89.198°W		
	Back Radial Direction:	N0.802°W		
	Chord Direction:	N86.896°W		
	Ahead Radial Direction:	N7.010°E		
	Ahead Tangent Direction:	N82.990°W		
Element: Clothoid				
CS	(CS)	191400.779 R1	353667.856	2805805.401
SPI	(SPI)	191427.448 R1	353671.111	2805778.932
ST	(ST)	191480.779 R1	353679.095	2805726.198
	Entrance Radius:	1432.69		
	Exit Radius:	0		
	Length:	80		
	Angle:	1.6 Right		
	Constant:	338.549		
	Long Tangent:	53.336		
	Short Tangent:	26.669		
	Long Chord:	79.997		
	Xs:	79.994		
	Ys:	0.744		
	P:	0.186		
	K:	39.999		
	Tangent Direction:	N82.990°W		
	Radial Direction:	N7.010°E		
	Chord Direction:	N81.923°W		
	Radial Direction:	N8.610°E		
	Tangent Direction:	N81.390°W		

Element: Linear				
ST	(ST)	191480.779 R1	353679.095	2805726.198
TS	(TS)	191681.839 R1	353709.195	2805527.404
	Tangential Direction:	N81.390°W		
	Tangential Length:	201.06		
Element: Clothoid				
TS	(TS)	191681.839 R1	353709.195	2805527.404
SPI	(SPI)	191735.174 R1	353717.18	2805474.669
SC	(SC)	191761.839 R1	353720.435	2805448.2
	Entrance Radius:	0		
	Exit Radius:	1432.69		
	Length:	80		
	Angle:	1.6 Left		
	Constant:	338.549		
	Long Tangent:	53.336		
	Short Tangent:	26.669		
	Long Chord:	79.997		
	Xs:	79.994		
	Ys:	0.744		
	P:	0.186		
	K:	39.999		
	Tangent Direction:	N81.390°W		
	Radial Direction:	N8.610°E		
	Chord Direction:	N81.923°W		
	Radial Direction:	N7.010°E		
	Tangent Direction:	N82.990°W		
Element: Circular				
SC	(SC)	191761.839 R1	353720.435	2805448.2
COMBINATION	(COMBINATION PI)	191998.539 R1	353749.324	2805213.269
CC	(CC)		352298.455	2805273.344
CS	(CS)	192230.906 R1	353701.112	2804981.531
	Radius:	1432.69		
	Delta:	18.763 Left		
	Degree of Curvature (Chord):	4		
	Length:	469.163		
	Chorded Length:	469.067		
	Tangent:	236.7		
	Chord:	467.069		
	Middle Ordinate:	19.162		
	External:	19.421		
	Back Tangent Direction:	N82.990°W		
	Back Radial Direction:	N7.010°E		
	Chord Direction:	S87.629°W		
	Ahead Radial Direction:	N11.752°W		
	Ahead Tangent Direction:	S78.248°W		
Element: Clothoid				
CS	(CS)	192230.906 R1	353701.112	2804981.531
SPI	(SPI)	192257.575 R1	353695.68	2804955.421
ST	(ST)	192310.906 R1	353683.363	2804903.527
	Entrance Radius:	1432.69		
	Exit Radius:	0		
	Length:	80		
	Angle:	1.6 Left		
	Constant:	338.549		
	Long Tangent:	53.336		
	Short Tangent:	26.669		

	Long Chord:	79.997		
	Xs:	79.994		
	Ys:	0.744		
	P:	0.186		
	K:	39.999		
	Tangent Direction:	S78.248°W		
	Radial Direction:	N11.752°W		
	Chord Direction:	S77.181°W		
	Radial Direction:	N13.352°W		
	Tangent Direction:	S76.648°W		
Element: Linear				
ST	(ST)	192310.906 R1	353683.363	2804903.527
TS	(TS)	192511.298 R1	353637.086	2804708.552
	Tangential Direction:	S76.648°W		
	Tangential Length:	200.392		
Element: Clothoid				
TS	(TS)	192511.298 R1	353637.086	2804708.552
SPI	(SPI)	192564.633 R1	353624.769	2804656.658
SC	(SC)	192591.298 R1	353619.337	2804630.549
	Entrance Radius:	0		
	Exit Radius:	1432.69		
	Length:	80		
	Angle:	1.6 Right		
	Constant:	338.549		
	Long Tangent:	53.336		
	Short Tangent:	26.669		
	Long Chord:	79.997		
	Xs:	79.994		
	Ys:	0.744		
	P:	0.186		
	K:	39.999		
	Tangent Direction:	S76.648°W		
	Radial Direction:	N13.352°W		
	Chord Direction:	S77.181°W		
	Radial Direction:	N11.752°W		
	Tangent Direction:	S78.248°W		
Element: Circular				
SC	(SC)	192591.298 R1	353619.337	2804630.549
COMBINATION	(COMBINATION PI)	192689.776 R1	353599.279	2804534.135
CC	(CC)		355021.993	2804338.735
CS	(CS)	192787.904 R1	353592.601	2804435.884
	Radius:	1432.69		
	Delta:	7.864 Right		
	Degree of Curvature (Chord):	4		
	Length:	196.646		
	Chorded Length:	196.606		
	Tangent:	98.478		
	Chord:	196.492		
	Middle Ordinate:	3.373		
	External:	3.381		
	Back Tangent Direction:	S78.248°W		
	Back Radial Direction:	N11.752°W		
	Chord Direction:	S82.180°W		
	Ahead Radial Direction:	N3.888°W		
	Ahead Tangent Direction:	S86.112°W		
Element: Clothoid				
CS	(CS)	192787.904 R1	353592.601	2804435.884
SPI	(SPI)	192814.573 R1	353590.793	2804409.277
ST	(ST)	192867.904 R1	353588.663	2804355.984
	Entrance Radius:	1432.69		
	Exit Radius:	0		
	Length:	80		
	Angle:	1.6 Right		
	Constant:	338.549		
	Long Tangent:	53.336		
	Short Tangent:	26.669		
	Long Chord:	79.997		
	Xs:	79.994		
	Ys:	0.744		
	P:	0.186		
	K:	39.999		
	Tangent Direction:	S86.112°W		
	Radial Direction:	N3.888°W		
	Chord Direction:	S87.178°W		
	Radial Direction:	N2.288°W		
	Tangent Direction:	S87.712°W		
Element: Linear				
ST	(ST)	192867.904 R1	353588.663	2804355.984
COMBINATION	(COMBINATION PI)	193150.331 R1	353577.385	2804073.782
	Tangential Direction:	S87.712°W		
	Tangential Length:	282.427		
Element: Linear				
COMBINATION	(COMBINATION PI)	193150.331 R1	353577.385	2804073.782
END	(END)	194716.661 R1	353513.057	2802508.774
	Tangential Direction:	S87.646°W		
	Tangential Length:	1566.33		

Survey Data Layout
Shoofly Main 2

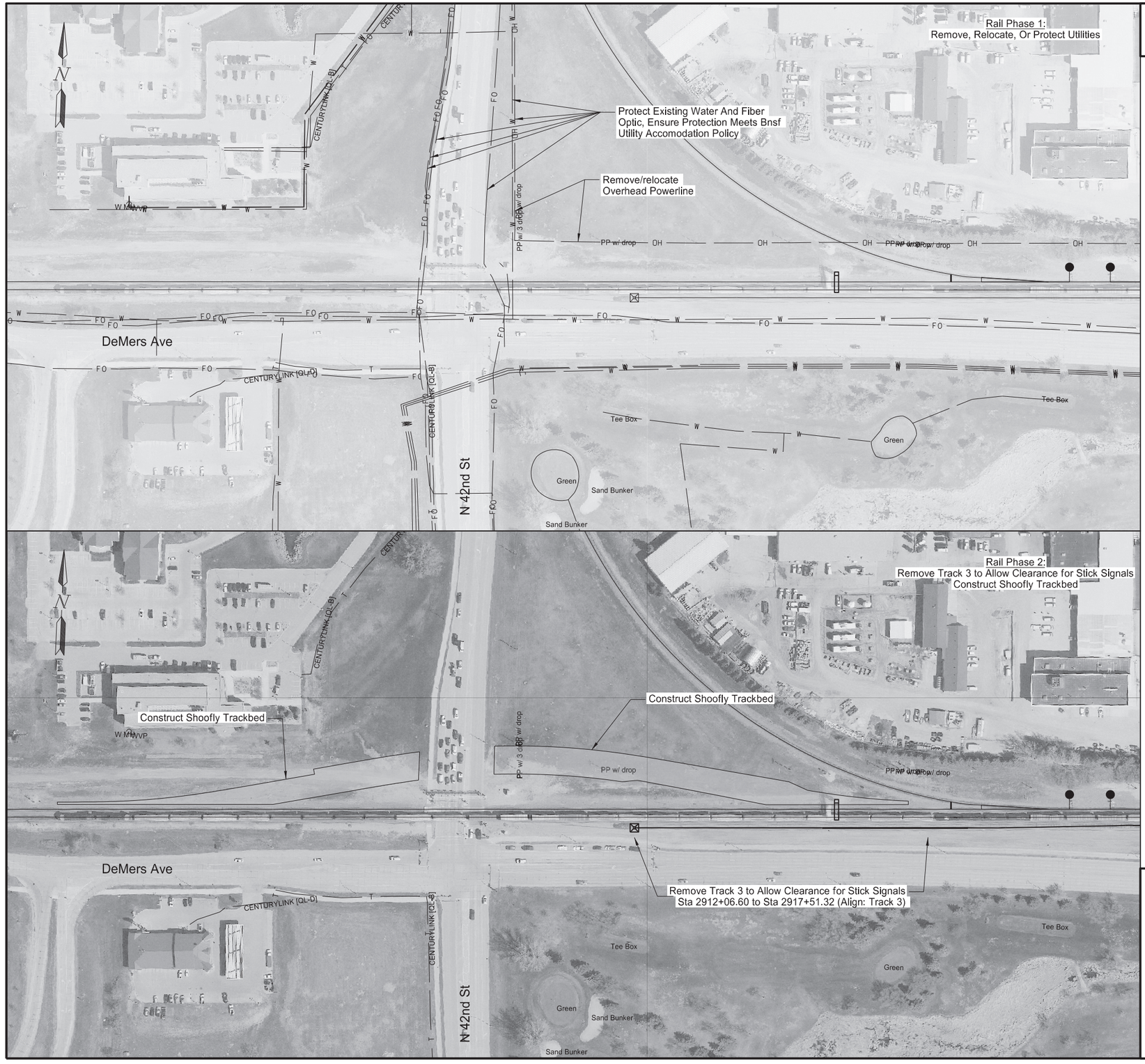
BNSF Grand Forks Subdivision
LS 32 MP 110.067

ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
TRENT J. BERG
PE-9458
DATE
NORTH DAKOTA
12/19/2025

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	57



Rail Phasing Plan
Rail Phase 1 & 2

BNSF Grand Forks Subdivision
LS 32 MP 110.067

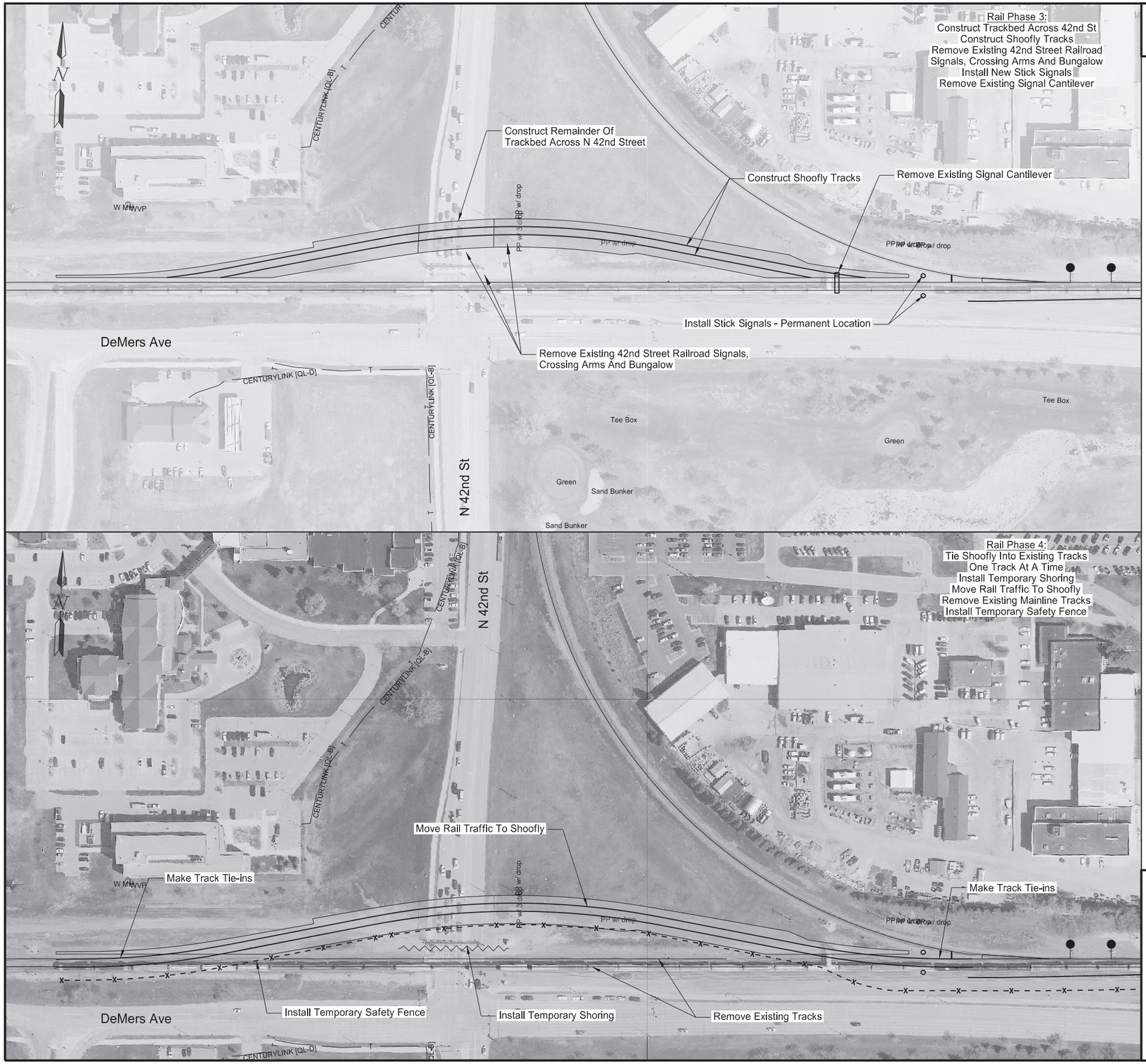
ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
TRENT J. BERG
PE-9458
DATE
NORTH DAKOTA
12/19/2025

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	58

SPEC	CODE	BID ITEM	QTY	UNIT
752	0911	TEMPORARY SAFETY FENCE	2342	LF



Note:
The following is to be completed by BNSF.
1. Construct shoofly tracks on completed trackbed
2. Tie shoofly into existing tracks one track at a time
3. Move rail traffic to shoofly
4. Remove existing mainline tracks
5. Remove existing 42nd Street Railroad signals, crossing arms and Bungalow
6. Install New Stick Signals
7. Remove Existing Signal Cantilever

Rail Phasing Plan
Rail Phase 3 & 4

BNSF Grand Forks Subdivision
LS 32 MP 110.067

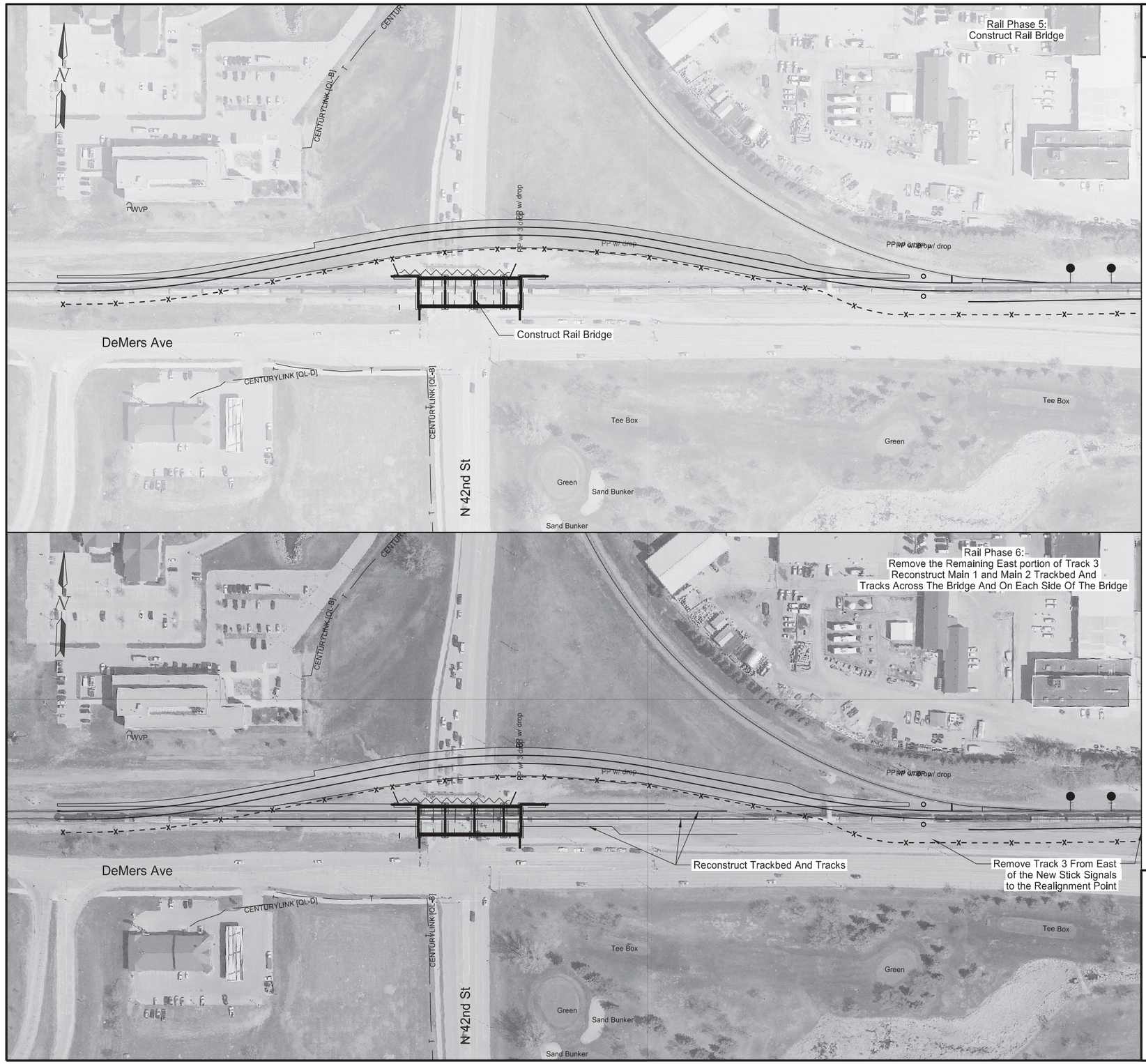
ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
TRENT J. BERG
PE-9458
DATE
NORTH DAKOTA
12/19/2025

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	59



Note:
The following is to be completed by BNSF.
1. Reconstruct Main 1 and Main 2 trackbed and tracks across the bridge and on each side of the bridge.
2. Remove Track 3 From East of the New Stick Signals to the Realignment Point

Rail Phasing Plan
Rail Phase 5 & 6

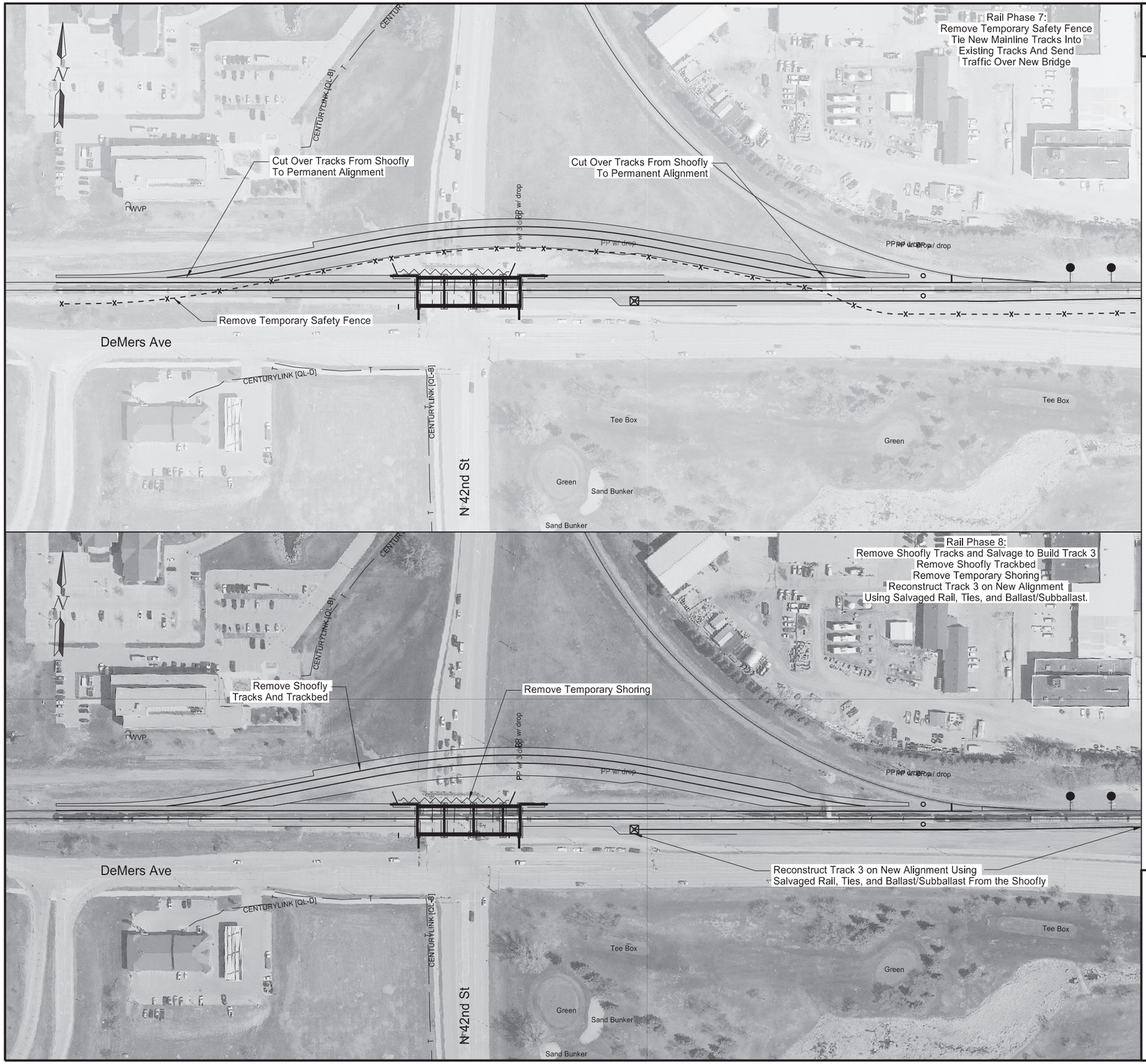
BNSF Grand Forks Subdivision
LS 32 MP 110.067

ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
TRENT J. BERG
PE-9458
DATE
NORTH DAKOTA
12/19/2025

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	60

Note:
The following is to be completed by BNSF.
1. Tie Shoofy Main 1 and 2 into permanent Main 1 and 2
2. Remove Shoofly Tracks
3. Construct Track 3 on completed trackbed

Rail Phasing Plan
Rail Phase 7 & 8

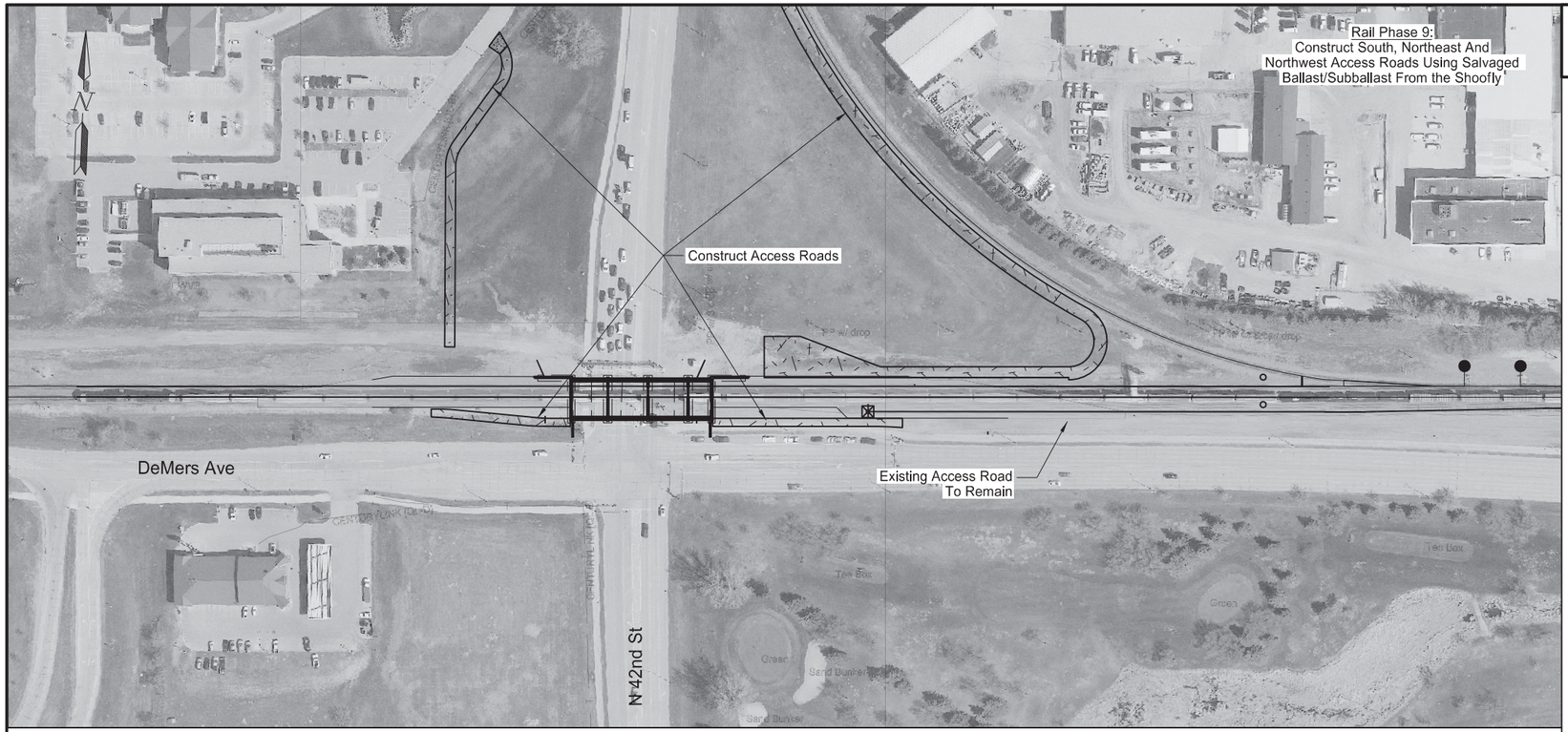
BNSF Grand Forks Subdivision
LS 32 MP 110.067

ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
TRENT J. BERG
PE-9458
DATE
NORTH DAKOTA
12/19/2025

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	170c	61

Rail Phasing Plan
Rail Phase 9

BNSF Grand Forks Subdivision
LS 32 MP 110.067

ND Hwy 297 (DeMers Ave) & 42nd Street
Grade Separation

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
TRENT J. BERG
PE-9458
DATE
NORTH DAKOTA
12/19/2025

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	RCE-FTF-NHU-SU-6-297(014)000	175	1

Contaminated Soil. Diesel Range Organics & Lead at 0-5 ft deep.
Excavate and Dispose offsite. Pay Item 202 0288 Excavation & Disposal of Contaminated Soil.

Arsenic & Barium at 7.5-10 ft deep.
Material cannot leave site.

Unsuitable Soil. (Heavy Metals of Arsenic, Barium, Lead)
Reuse on-site where possible. See section 11.

Notes:
1. Contaminated material leaving the site must be disposed of per SP 392(24).
2. Excavated spoil for trenched utilities must be returned to trench.
3. 202 0288 Excavation & Disposal of Contaminated Soil quantity based on 7,350 SF x 5 FT = 1,361 CY.

N

N 42nd St

I-29 SB

I-29 NB

I-29 On Ramp

I-29 Exit Ramp

S 42nd St

S 43rd St

7th Ave S

BNSF RR

ND 297 (DeMers Ave)

Ray Richards Golf Course

SB R-6, 15'
SB R-7, 15'
SB 05
SB 04
SB R-8, 25'
SB R-9, 35'
SB 03
202 0288 Excavation & Disposal of Contaminated Soil
SB BR-5, 180'
SB RR-35, 25'
SB RR-36, 25'
SB BR-1, 230'
SB RR-34, 15'
SB R-19, 15'
SB 02
SB R-14, 75'
SB 01
SB R-15, 50'
SB R-11, 15'
SB R-16, 20'
SB R-18, 15'
SB R-20, 15'
SB R-13, 25'
SB BR-4, 230'
SB R-10, 15'
SB R-12, 25'
SB R-17, 20'
SB RR-37, 25'
SB RR-38, 15'
SB RR-39, 15'
SB BR-3, 75'
SB BR-2, 180'
SB R-21, 35'
SB R-33, 15'
SB R-22, 25'
SB R-23, 20'
SB R-32, 15'
SB R-30, 15'
SB R-31, 15'
SB R-29, 15'
SB R-24, 15'
SB R-28, 15'
SB R-25, 20'
SB R-26, 15'
SB R-27, 15'

Soil Boring Logs

Soil Boring Locations
Contaminated & Unsuitable Soil

ND (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8256
DATE 2025.12.19 12:41:06 -06'00'
NORTH DAKOTA

12/5/2025 12:30:14 PM ryan.genz H:\NDDOT\24M000368000\CAD\ORD\NDDOT-24M000368000\Plan\175SB_001.dgn

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	175	2

olsson

BOREHOLE REPORT NO. BR-1 — Sheet 1 of 11

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
835	**APPROX. SURFACE ELEV. (ft)**835.0		0								
	ROOT ZONE 0.4'										
	FILL										
	Lean clay (CL): Stiff, brownish gray, very moist, trace fine sand			SS 1		4-4-5 N=9		25.3			
830	*Lean clay (CL): Firm, light brown to light gray, very moist, trace iron staining, trace fine sand*		5	U 2	CL		0.8*	25.2	97.0	32/11	P-200 = 90.7% *UU Compressive Strength
	6.0'										
	GLACIOLACUSTRINE DEPOSITS										
	~~*Lean clay (CL): Soft, brownish gray, wet, trace fine sand*~~			SS 3		2-2-2 N=4					
	8.5'										
825	*Lean to fat clay (CL/CH): Firm, brownish gray, wet, trace fine sand*		10	U 4	CL/CH			38.0		46/15	P-200 = 92.7%
	13.5'										
820	*Fat clay (CH): Firm, brownish gray, wet, trace fine sand, trace iron staining*		15	SS 5	CH	2-3-3 N=6		40.3		66/42	P-200 = 98.5%
815	*Fat clay (CH): Firm, gray, wet, trace fine sand* 20.0'		20	U 6	CH		1.5*	41.1	80.0	59/36	P-200 = 98.7% *UU Compressive Strength
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS			
WD	▽ 7.0 ft	STARTED: 7/11/24	FINISHED: 7/15/24
IAD	▼ Not Performed	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	▽ Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER
		METHOD: HOLLOW STEM AUGER / ROTARY WASH	

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

olsson

BOREHOLE REPORT NO. BR-1 — Sheet 2 of 11

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
815	***GLACIOLACUSTRINE DEPOSITS***		20								
	Fat clay (CH): Firm, gray, wet		25	SS 7		2-2-3 N=5		52.0			
810	28.5'										
	Lean to fat clay (CL/CH): Firm, gray, wet		30	U 8	CL/CH		1.2*	44.2	74.9	48/26	*UU Compressive Strength
805	33.5'										
800	*Fat clay (CH): Firm, gray, wet*		35	SS 9		1-2-3 N=5		43.0			
795	*Fat clay (CH): Soft, gray, wet*		40	U 10			0.3*	51.7	64.9		*UU Compressive Strength
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS			
WD	▽ 7.0 ft	STARTED: 7/11/24	FINISHED: 7/15/24
IAD	▼ Not Performed	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	▽ Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER
		METHOD: HOLLOW STEM AUGER / ROTARY WASH	

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

olsson

BOREHOLE REPORT NO. BR-1 — Sheet 3 of 11

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
795	***GLACIOLACUSTRINE DEPOSITS***		40								
	Fat clay (CH): Soft, gray, wet		45	SS 11	CH	0-1-1 N=2		80.6		133/100	
790											
	Fat clay (CH): Soft, gray, wet		50	SS 12		0-1-1 N=2		80.6			
785											
	Fat clay (CH): Soft, gray, wet		55	SS 13		0-1-1 N=2		73.9			
780											
	Fat clay (CH): Soft, gray, wet 60.0'		60	SS 14		0-1-1 N=2					
775	***CONTINUED NEXT PAGE***										

WATER LEVEL OBSERVATIONS			
WD	▽ 7.0 ft	STARTED: 7/11/24	FINISHED: 7/15/24
IAD	▼ Not Performed	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	▽ Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER
		METHOD: HOLLOW STEM AUGER / ROTARY WASH	

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

NOTE:

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Soil Boring Logs

Soil Boring BR-1

ND (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-2016
DATE: 2025.12.19 12:41:19 -06'00'
NORTH DAKOTA

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	175	3

BOREHOLE REPORT NO. BR-1 — Sheet 4 of 11

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Split Spoon; Shelby Tube; Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
775	***GLACIOLACUSTRINE DEPOSITS***		60								
	Driller's Note: No shelby tube sample recovery, chased with split-spoon sampler.										
770	*Fat clay (CH): Soft, gray, wet*		65	U/SS 15		1-1-1 N=2		85.8			
765	*Fat clay (CH): Very soft, gray, wet*		70	SS 16		0-0-1 N=1					
	73.5'										
760	*Fat clay with gravel (CH): Stiff, gray, wet, trace fine sand*		75	SS 17		19-7-6 N=13		27.0			
	78.5'										
755	*Fat clay (CH): Soft, gray, wet, trace fine gravel*		80	SS 18		1-2-1 N=3					
	80.0'										

CONTINUED NEXT PAGE

WATER LEVEL OBSERVATIONS			
WD	▽ 7.0 ft		
IAD	▼ Not Performed		
AD	▽ Not Performed		

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

STARTED:	7/11/24	FINISHED:	7/15/24
DRILL CO.:	OLSSON	DRILL RIG:	ATV
DRILLER:	INTERSTATE	LOGGED BY:	T. KOKJER
METHOD:	HOLLOW STEM AUGER / ROTARY WASH		

BOREHOLE REPORT NO. BR-1 — Sheet 5 of 11

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Split Spoon; Shelby Tube; Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
755	***GLACIOLACUSTRINE DEPOSITS***		80								
750	*Fat clay (CH): Soft, gray, wet, trace fine gravel*		85	SS 19		1-2-1 N=3					
745	*Fat clay (CH): Soft, gray, wet, trace fine gravel*		90	SS 20		1-2-1 N=3					
740	*Fat clay (CH): Firm, gray, wet, trace fine gravel*		95	U 21	CH		0.9*	29.1	96.4	72/43	*UU Compressive Strength
735	*Fat clay (CH): Soft, gray, wet, trace fine gravel*		100	SS 22		1-2-2 N=4					
	100.0'										

CONTINUED NEXT PAGE

WATER LEVEL OBSERVATIONS			
WD	▽ 7.0 ft		
IAD	▼ Not Performed		
AD	▽ Not Performed		

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

STARTED:	7/11/24	FINISHED:	7/15/24
DRILL CO.:	OLSSON	DRILL RIG:	ATV
DRILLER:	INTERSTATE	LOGGED BY:	T. KOKJER
METHOD:	HOLLOW STEM AUGER / ROTARY WASH		

BOREHOLE REPORT NO. BR-1 — Sheet 6 of 11

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Split Spoon; Shelby Tube; Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
735	***GLACIOLACUSTRINE DEPOSITS***		100								
730	*Fat clay (CH): Stiff, gray, wet, trace fine sand*		105	SS 23		5-5-5 N=10					
725	*Fat clay (CH): Soft, gray, wet*		110	SS 24		1-2-2 N=4		32.2			
720	***Driller's Note: No shelby tube sample recovery, chased with split-spoon sampler. No split-spoon sample recovery.***		115	U/SS 25		1-2-3 N=5					
715	***Driller's Note: No sample recovery.***		120	SS 26		3-4-4 N=8					
	120.0'										

CONTINUED NEXT PAGE

WATER LEVEL OBSERVATIONS			
WD	▽ 7.0 ft		
IAD	▼ Not Performed		
AD	▽ Not Performed		

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

STARTED:	7/11/24	FINISHED:	7/15/24
DRILL CO.:	OLSSON	DRILL RIG:	ATV
DRILLER:	INTERSTATE	LOGGED BY:	T. KOKJER
METHOD:	HOLLOW STEM AUGER / ROTARY WASH		

NOTE:

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Soil Boring Logs

Soil Boring BR-1

ND (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.19 12:41:32 -06'00'
NORTH DAKOTA

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	175	4

BOREHOLE REPORT NO. BR-1 — Sheet 7 of 11

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Split Spoon; Shelby Tube; Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
715	***GLACIOLACUSTRINE DEPOSITS***		120								
710	***Driller's Note: No sample recovery.***		125	SS 27		2-3-4 N=7					
705	***Driller's Note: No sample recovery.***		130	SS 28		2-2-3 N=5					
700	*Fat clay (CH): Firm, gray, wet*		135	SS 29		3-3-4 N=7		52.1			
695	*Fat clay (CH): Stiff, gray, wet, trace fine gravel* **140.0'**		140	SS 30		3-5-10 N=15		49.2			P-200 = 86.3%

CONTINUED NEXT PAGE

WATER LEVEL OBSERVATIONS			
WD	▽ 7.0 ft		
IAD	▼ Not Performed		
AD	▽ Not Performed		

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

STARTED:	7/11/24	FINISHED:	7/15/24
DRILL CO.:	OLSSON	DRILL RIG:	ATV
DRILLER:	INTERSTATE	LOGGED BY:	T. KOKJER
METHOD:	HOLLOW STEM AUGER / ROTARY WASH		

BOREHOLE REPORT NO. BR-1 — Sheet 8 of 11

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Split Spoon; Shelby Tube; Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
695	***GLACIOLACUSTRINE DEPOSITS*** **143.5'**		140								
690	***GLACIAL OUTWASH*** *Poorly graded sand (SP): Very dense, gray, wet, mostly fine to coarse sand*		145	SS 31		50/6"					
685	*Poorly graded sand (SP): Very dense, gray, wet, mostly fine to coarse sand* **149.5'** *Clayey sand (SC): Very dense, gray, wet, mostly fine to coarse sand, trace fine gravel*		150	SS 32		4-21-40 N=61		21.8			P-200 = 35.5%
680	*Clayey sand (SC): Very dense, gray, wet, mostly fine to coarse sand, trace fine gravel* **158.0'**		155	SS 33		4-50/3"		22.2			P-200 = 40.6%
675	***GLACIAL TILL*** *Sandy fat clay (CH): Hard, gray, wet, some fine to coarse sand, trace fine gravel* **160.0'**		160	SS 34		38-13-25 N=38		20.1			P-200 = 68.1%

CONTINUED NEXT PAGE

WATER LEVEL OBSERVATIONS			
WD	▽ 7.0 ft		
IAD	▼ Not Performed		
AD	▽ Not Performed		

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

STARTED:	7/11/24	FINISHED:	7/15/24
DRILL CO.:	OLSSON	DRILL RIG:	ATV
DRILLER:	INTERSTATE	LOGGED BY:	T. KOKJER
METHOD:	HOLLOW STEM AUGER / ROTARY WASH		

BOREHOLE REPORT NO. BR-1 — Sheet 9 of 11

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Split Spoon; Shelby Tube; Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
675	***GLACIAL TILL***		160								
670	*Sandy fat clay (CH): Hard, gray, wet, some fine to coarse sand, trace fine gravel*		165	SS 35		18-24-33 N=57		68.9			
665	*Sandy fat clay (CH): Hard, gray, wet, some fine to coarse sand, trace fine gravel*		170	SS 36		13-17-23 N=40					
660	*Fat clay (CL): Hard, gray, wet, trace fine gravel* **173.5'**		175	SS 37		13-18-19 N=37		18.3			
655	*Fat clay (CL): Hard, gray, wet* **180.0'**		180	SS 38		10-15-20 N=35					

CONTINUED NEXT PAGE

WATER LEVEL OBSERVATIONS			
WD	▽ 7.0 ft		
IAD	▼ Not Performed		
AD	▽ Not Performed		

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

STARTED:	7/11/24	FINISHED:	7/15/24
DRILL CO.:	OLSSON	DRILL RIG:	ATV
DRILLER:	INTERSTATE	LOGGED BY:	T. KOKJER
METHOD:	HOLLOW STEM AUGER / ROTARY WASH		

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Soil Boring Logs

Soil Boring BR-1

ND (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.19 12:41:44 -06'00'
NORTH DAKOTA

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	175	5

olsson

BOREHOLE REPORT NO. BR-1 — Sheet 10 of 11

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

☒ Split Spoon ■ Shelby Tube ☒ Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
655	***GLACIAL TILL***		180								
650	*Fat clay (CL): Hard, gray, wet, trace fine gravel*		185	SS 39		13-18-25 N=43		23.9			
645	*Fat clay (CL): Hard, gray, wet, trace fine gravel*		190	SS 40		20-36-50/5"					
640	*Fat clay (CL): Hard, gray, wet, trace fine gravel*		195	SS 41		21-50/5"		11.8			
635	*Fat clay (CL): Hard, gray, wet, trace fine gravel*		200	SS 42		25-40-50/4"					
	200.0'										
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS			
WD	▽ 7.0 ft	STARTED: 7/11/24	FINISHED: 7/15/24
IAD	▼ Not Performed	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	▽ Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER
		METHOD: HOLLOW STEM AUGER / ROTARY WASH	

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

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BOREHOLE REPORT NO. BR-1 — Sheet 11 of 11

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

☒ Split Spoon ■ Shelby Tube ☒ Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
635	***GLACIAL TILL***		200								
630	*Fat clay (CL): Hard, gray to reddish brown, wet, trace fine gravel*		205	SS 43		22-43-50/5"		18.2			
625	***Driller's Note: No sample recovery.***		210	SS 44		24-38-50 N=88					
	210.0'										
	<<C>><<B>><<I>><<C>>										

WATER LEVEL OBSERVATIONS			
WD	▽ 7.0 ft	STARTED: 7/11/24	FINISHED: 7/15/24
IAD	▼ Not Performed	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	▽ Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER
		METHOD: HOLLOW STEM AUGER / ROTARY WASH	

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

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Soil Boring Logs

Soil Boring BR-1

ND (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.19 12:42:10 -06'00'
NORTH DAKOTA

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	175	6

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BOREHOLE REPORT NO. BR-2 — Sheet 1 of 9

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Split Spoon; Shelby Tube; No Recovery; Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
835	**APPROX. SURFACE ELEV. (ft)**835.0		0								
	ROOT ZONE 0.5'										
	FILL										
	Lean clay (CL): Stiff, brown, moist, trace roots			SS 1		4-6-5 N=11		24.1			
	3.5'										
830	***GLACIOLACUSTRINE DEPOSITS***		5	U 2	CL		1.3*	26.7	96.6	40/20	P-200 = 95.4% *UU Compressive Strength
	Lean clay (CL): Stiff, grayish brown, very moist, trace fine gravel.										
	Lean clay (CL): Firm, grayish brown, moist, trace fine gravel			SS 3		2-2-3 N=5		22.9			
	▼ 8.5'										
825	*Fat clay (CL): Firm, grayish brown, wet, trace fine gravel*		10	U 4	CH		0.7*	39.4	83.9	54/32	P-200 = 88.5% *UU Compressive Strength
	13.5'										
820	*Poorly graded sand with silt and gravel (SP-SM): Loose, dark gray, wet, mostly fine to coarse sand, trace fine gravel*		15	SS 5		6-4-2 N=6		13.7			P-200 = 5.9%
	18.9'										
815	*Fat clay (CH): Firm, gray, wet, trace iron staining, trace fine sand* 20.0'		20	U 6	CH		0.9*	43.1	74.8	51/29	P-200 = 99.2% *UU Compressive Strength

CONTINUED NEXT PAGE

WATER LEVEL OBSERVATIONS			
WD	▽ Not Performed	STARTED: 7/9/24	FINISHED: 7/10/24
IAD	▼ 8.0 ft	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	▽ Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER
		METHOD: HOLLOW STEM AUGER / ROTARY WASH	

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

olsson

BOREHOLE REPORT NO. BR-2 — Sheet 2 of 9

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Split Spoon; Shelby Tube; No Recovery; Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
815	***GLACIOLACUSTRINE DEPOSITS***		20								
	Fat clay (CH): Soft, gray, wet		25	SS 6		2-2-2 N=4		52.3			
810	28.5'										
	Lean to fat clay (CL/CH): Soft, gray, wet, trace fine sand		30	U 7	CL/CH		0.8*	59.1	68.8	45/26	P-200 = 99.8% *UU Compressive Strength
805	33.5'										
	Fat clay (CH): Soft, gray, wet		35	SS 8		1-2-3 N=5		43.6			
800											
	Fat clay (CH): Soft, gray, wet, trace fine sand 40.0'		40	U 9			0.9*	57.4	67.4		P-200 = 99.9% *UU Compressive Strength
795											

CONTINUED NEXT PAGE

WATER LEVEL OBSERVATIONS			
WD	▽ Not Performed	STARTED: 7/9/24	FINISHED: 7/10/24
IAD	▼ 8.0 ft	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	▽ Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER
		METHOD: HOLLOW STEM AUGER / ROTARY WASH	

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

olsson

BOREHOLE REPORT NO. BR-2 — Sheet 3 of 9

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Split Spoon; Shelby Tube; No Recovery; Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
795	***GLACIOLACUSTRINE DEPOSITS***		40								
	Fat clay (CH): Soft, gray, wet		45	SS 10		1-1-1 N=2		82.1			
790											
	Driller's Note: No sample recovery.		50	NR 11							
785											
	Driller's Note: No sample recovery.		55	NR 12		0-0-1 N=1					
780											
	Fat clay (CH): Soft, gray, wet 60.0'		60	SS 13		0-1-1 N=2		82.2			
775											

CONTINUED NEXT PAGE

WATER LEVEL OBSERVATIONS			
WD	▽ Not Performed	STARTED: 7/9/24	FINISHED: 7/10/24
IAD	▼ 8.0 ft	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	▽ Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER
		METHOD: HOLLOW STEM AUGER / ROTARY WASH	

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

NOTE:

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Soil Boring Logs

Soil Boring BR-2

ND (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9206
DATE 2025.12.19 12:42:28 -06'00'
NORTH DAKOTA

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	175	7

olsson

BOREHOLE REPORT NO. BR-2 — Sheet 4 of 9

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Split Spoon; Shelby Tube; No Recovery; Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
775	***GLACIOLACUSTRINE DEPOSITS***		60								
770	*Fat clay (CH): Very soft, gray, wet*		65	SS 14		0-0-1 N=1					
765	*Fat clay (CH): Soft, gray, wet*		70	SS 15		0-1-2 N=3		51.9			
760	*Fat clay (CH): Soft, gray, wet, trace fine gravel*		75	SS 16		0-2-2 N=4					
755	***Driller's Note: No sample recovery.*** ***80.0'***		80	NR 17							
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS	
WD	Not Performed
IAD	8.0 ft
AD	Not Performed

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

STARTED:	7/9/24	FINISHED:	7/10/24
DRILL CO.:	OLSSON	DRILL RIG:	ATV
DRILLER:	INTERSTATE	LOGGED BY:	T. KOKJER
METHOD:	HOLLOW STEM AUGER / ROTARY WASH		

olsson

BOREHOLE REPORT NO. BR-2 — Sheet 5 of 9

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Split Spoon; Shelby Tube; No Recovery; Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
755	***GLACIOLACUSTRINE DEPOSITS***		80								
750	*Fat clay (CH): Firm, gray, wet*		85	SS 18		2-2-3 N=5		33.6			
745	*Fat clay (CH): Firm, gray, wet, trace fine gravel*		90	SS 19		2-3-2 N=5					
740	*Fat clay (CH): Firm, gray, wet, trace fine gravel*		95	SS 20		2-2-3 N=5		28.5			
735	***98.5'*** *Fat clay with gravel (CH): Firm, gray, wet, little fine gravel* ***100.0'***		100	SS 21		2-3-2 N=5					
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS	
WD	Not Performed
IAD	8.0 ft
AD	Not Performed

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

STARTED:	7/9/24	FINISHED:	7/10/24
DRILL CO.:	OLSSON	DRILL RIG:	ATV
DRILLER:	INTERSTATE	LOGGED BY:	T. KOKJER
METHOD:	HOLLOW STEM AUGER / ROTARY WASH		

olsson

BOREHOLE REPORT NO. BR-2 — Sheet 6 of 9

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Split Spoon; Shelby Tube; No Recovery; Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
735	***GLACIOLACUSTRINE DEPOSITS***		100								
	103.5'										
730	*Fat clay (CH): Firm, gray, wet, trace fine gravel*		105	SS 22		2-3-4 N=7		27.1			
725			110								
720	*Fat clay (CH): Firm, gray, wet, trace fine gravel*		115	SS 23		3-4-4 N=8					
715	***Driller's Note: No shelby tube sample recovery, chased with split-spoon sampler.*** ***120.0'***		120	U/SS 24		3-4-4 N=8		26.9			
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS	
WD	Not Performed
IAD	8.0 ft
AD	Not Performed

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

STARTED:	7/9/24	FINISHED:	7/10/24
DRILL CO.:	OLSSON	DRILL RIG:	ATV
DRILLER:	INTERSTATE	LOGGED BY:	T. KOKJER
METHOD:	HOLLOW STEM AUGER / ROTARY WASH		

NOTE:

The boring data shown is for owner's design and estimating purposes only. The boring logs are only representative of exact location from which the samples were taken and interpretation between sample locations is discouraged. The owner assumes no responsibility if the soil conditions encountered during construction differ from those shown.

Soil Boring Logs

Soil Boring BR-2

ND (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9296
DATE: 2025.12.12 12:42:41 -06'00'
NORTH DAKOTA

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	175	8

BOREHOLE REPORT NO. BR-2 — Sheet 7 of 9

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Split Spoon; Shelby Tube; No Recovery; Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
715	***GLACIOLACUSTRINE DEPOSITS***		120								
710	*Fat clay (CH): Firm, gray, wet*		125	SS 25		2-3-4 N=7					
705	*Fat clay (CH): Firm, gray, wet*		130	SS 26		1-2-3 N=5		33.2			
700	*Fat clay (CH): Firm, gray, wet*		135	SS 27		0-3-4 N=7					
695	*Fat clay (CH): Very stiff, gray, wet, trace fine sand* ***140.0'***		140	SS 28		3-3-13 N=16		53.5			P-200 = 95.1%
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS			
WD	Not Performed	STARTED: 7/9/24	FINISHED: 7/10/24
IAD	8.0 ft	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER
		METHOD: HOLLOW STEM AUGER / ROTARY WASH	

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

BOREHOLE REPORT NO. BR-2 — Sheet 8 of 9

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Split Spoon; Shelby Tube; No Recovery; Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
695	***GLACIOLACUSTRINE DEPOSITS*** ***143.5'***		140								
690	***GLACIAL OUTWASH*** *Sandy fat clay with gravel (CH): Very stiff, gray, wet, some fine to coarse sand, few fine gravel*		145	SS 29		11-13-16 N=29		18.3			P-200 = 59.5%
685	*Sandy fat clay with gravel (CH): Hard, gray, wet, some fine to coarse sand, few fine gravel*		150	SS 30		9-13-20 N=33		18.5			P-200 = 53.7%
680	*Sandy fat clay with gravel (CH): Very stiff, gray, wet, some fine to coarse sand, few fine gravel*		155	SS 31		8-12-14 N=26					
675	***158.5'*** *Fat clay with sand (CH): Hard, gray, wet, little fine to coarse sand* ***160.0'***		160	SS 32		8-26-50/5"					
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS			
WD	Not Performed	STARTED: 7/9/24	FINISHED: 7/10/24
IAD	8.0 ft	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER
		METHOD: HOLLOW STEM AUGER / ROTARY WASH	

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

BOREHOLE REPORT NO. BR-2 — Sheet 9 of 9

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Split Spoon; Shelby Tube; No Recovery; Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
675	***GLACIAL OUTWASH*** ***163.5'***		160								
670	*Poorly graded sand (SP): Very dense, gray, wet, mostly fine to coarse sand, trace fine gravel* ***165.0'***		165	SS 33		50		16.3			
665	***GLACIAL TILL*** *Fat clay (CH): Hard, gray, wet, trace fine gravel*		170	SS 34		11-16-19 N=35					
660	*Fat clay (CH): Very stiff, gray, wet*		175	SS 35		8-12-15 N=27		33.3			
655	*Fat clay (CH): Hard, gray, wet* ***180.0'***		180	SS 36		10-14-18 N=32					
	<<C>><<B>><<I>><<C>>										

WATER LEVEL OBSERVATIONS			
WD	Not Performed	STARTED: 7/9/24	FINISHED: 7/10/24
IAD	8.0 ft	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER
		METHOD: HOLLOW STEM AUGER / ROTARY WASH	

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

NOTE:

The boring data shown is for owner's design and estimating purposes only. The boring logs are only representative of exact location from which the samples were taken and interpretation between sample locations is discouraged. The owner assumes no responsibility if the soil conditions encountered during construction differ from those shown.

Soil Boring Logs

Soil Boring BR-2

ND (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9216
DATE 2025.12.19 12:42:53 -06'00'
NORTH DAKOTA

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	175	9

olsson

BOREHOLE REPORT NO. BR-3 — Sheet 1 of 9

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	APPROX. SURFACE ELEV. (ft)837.0		0								
	ROOT ZONE 0.4'										
	FILL										
835	*Sandy lean clay (CL): Stiff, light brown, slightly moist*			SS 1	CL	4-5-10 N=15		13.6		33/11	P-200 = 67.4%
	3.5'										
	Lean clay (CL): Hard, light brown, moist, trace fine gravel		5	U 2			4.0*	19.0	108.0		*UU Compressive Strength
830	*Lean clay (CL): Very stiff, light brown, very moist*			SS 3		8-10-11 N=21		27.1			
	8.5'										
	GLACIOLACUSTRINE DEPOSITS										
	Lean to fat clay (CL/CH): Firm, light brown, very moist		10	U 4	CL		0.8*	34.3	86.8	45/26	*UU Compressive Strength
825											
	Lean to fat clay (CL/CH): Firm, light gray, very moist, trace iron staining		15	SS 5		2-4-4 N=8		39.6			
820											
	18.5'										
	Fat clay (CH): Firm, light gray, very moist		20	U 6			1.1*	35.1	83.3		*UU Compressive Strength
	20.0'										
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS
WD ▽ 23.5 ft
IAD ▼ Not Performed
AD ▽ Not Performed

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

STARTED: 7/19/24 FINISHED: 7/19/24
DRILL CO.: OLSSON DRILL RIG: ATV
DRILLER: INTERSTATE LOGGED BY: T. KOKJER
METHOD: HOLLOW STEM AUGER / ROTARY WASH

olsson

BOREHOLE REPORT NO. BR-3 — Sheet 2 of 9

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	GLACIOLACUSTRINE DEPOSITS		20								
815											
	Fat clay (CH): Firm, gray, wet		25	SS 7		1-2-3 N=5		51.2			
810											
	Fat clay (CH): Soft, gray, wet		30	U 8	CH			51.5	71.3	72/46	P-200 = 99.7%
805											
	Fat clay (CH): Soft, gray, wet		35	SS 9		1-1-2 N=3		36.8			
800											
	Fat clay (CH): Soft, gray, wet 40.0'		40	U 10			0.4*	41.5	79.1		*UU Compressive Strength
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS
WD ▽ 23.5 ft
IAD ▼ Not Performed
AD ▽ Not Performed

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

STARTED: 7/19/24 FINISHED: 7/19/24
DRILL CO.: OLSSON DRILL RIG: ATV
DRILLER: INTERSTATE LOGGED BY: T. KOKJER
METHOD: HOLLOW STEM AUGER / ROTARY WASH

olsson

BOREHOLE REPORT NO. BR-3 — Sheet 3 of 9

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	GLACIOLACUSTRINE DEPOSITS		40								
795											
	Fat clay (CH): Firm, gray, wet		45	SS 11		1-2-3 N=5					
790											
	Fat clay (CH): Soft, gray, wet		50	SS 12		0-1-2 N=3					
785											
	Fat clay (CH): Firm, gray, wet		55	U 13			0.9	73.3	56.5		
780											
	Fat clay (CH): Very soft, gray, wet 60.0'		60	SS 14		0-0-1 N=1					
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS
WD ▽ 23.5 ft
IAD ▼ Not Performed
AD ▽ Not Performed

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

STARTED: 7/19/24 FINISHED: 7/19/24
DRILL CO.: OLSSON DRILL RIG: ATV
DRILLER: INTERSTATE LOGGED BY: T. KOKJER
METHOD: HOLLOW STEM AUGER / ROTARY WASH

NOTE:

The boring data shown is for owner's design and estimating purposes only. The boring logs are only representative of exact location from which the samples were taken and interpretation between sample locations is discouraged. The owner assumes no responsibility if the soil conditions encountered during construction differ from those shown.

Soil Boring Logs

Soil Boring BR-3

ND (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-8276
DATE 2025.12.19 12:43:05 -06'00'
NORTH DAKOTA

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	175	10

BOREHOLE REPORT NO. BR-3 — Sheet 4 of 9

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	GLACIOLACUSTRINE DEPOSITS		60								
775											
	Fat clay (CH): Very soft, gray, wet		65	SS 15		0-0-1 N=1					
770											
	Fat clay (CH): Very soft, gray, wet		70	SS 16		0-0-1 N=1		58.5			
765											
	Fat clay (CH): Soft, gray, wet		75	SS 17		3-3-1 N=4					
760											
	Driller's Note: No sample recovery.		80	SS 18		0-0-1 N=1					
	80.0'										
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS
WD ▽ 23.5 ft
IAD ▼ Not Performed
AD ▽ Not Performed

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

STARTED: 7/19/24 FINISHED: 7/19/24
DRILL CO.: OLSSON DRILL RIG: ATV
DRILLER: INTERSTATE LOGGED BY: T. KOKJER
METHOD: HOLLOW STEM AUGER / ROTARY WASH

BOREHOLE REPORT NO. BR-3 — Sheet 5 of 9

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	GLACIOLACUSTRINE DEPOSITS		80								
755											
	Fat clay (CH): Soft, gray, wet		85	SS 19		0-1-1 N=2					
750											
	Fat clay (CH): Soft, gray, wet		90	SS 20		0-1-1 N=2		30.7			
745											
	Fat clay (CH): Soft, gray, wet		95	SS 21		1-1-2 N=3					
740											
	Driller's Note: No sample recovery.		100	SS 22		1-2-2 N=4					
	100.0'										
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS
WD ▽ 23.5 ft
IAD ▼ Not Performed
AD ▽ Not Performed

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

STARTED: 7/19/24 FINISHED: 7/19/24
DRILL CO.: OLSSON DRILL RIG: ATV
DRILLER: INTERSTATE LOGGED BY: T. KOKJER
METHOD: HOLLOW STEM AUGER / ROTARY WASH

BOREHOLE REPORT NO. BR-3 — Sheet 6 of 9

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	GLACIOLACUSTRINE DEPOSITS		100								
735											
	Fat clay (CH): Firm, gray, wet		105	SS 23		1-2-3 N=5		30.0			
730											
	Fat clay (CH): Firm, gray, wet		110	SS 24		2-2-4 N=6					
725											
	Fat clay (CH): Firm, gray, wet		115	SS 25		1-2-3 N=5		32.7			
720											
	Fat clay (CH): Firm, gray, wet		120	SS 26		2-2-4 N=6					
	120.0'										
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS
WD ▽ 23.5 ft
IAD ▼ Not Performed
AD ▽ Not Performed

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

STARTED: 7/19/24 FINISHED: 7/19/24
DRILL CO.: OLSSON DRILL RIG: ATV
DRILLER: INTERSTATE LOGGED BY: T. KOKJER
METHOD: HOLLOW STEM AUGER / ROTARY WASH

NOTE:

The boring data shown is for owner's design and estimating purposes only. The boring logs are only representative of exact location from which the samples were taken and interpretation between sample locations is discouraged. The owner assumes no responsibility if the soil conditions encountered during construction differ from those shown.

Soil Boring Logs

Soil Boring BR-3

ND (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.19 12:43:17 -06'00'
NORTH DAKOTA

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	175	11

olsson

BOREHOLE REPORT NO. BR-3 — Sheet 7 of 9

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Split Spoon ☒ Shelby Tube ■

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	GLACIOLACUSTRINE DEPOSITS		120								
715											
	Fat clay (CH): Soft, gray, wet		125	SS 27		1-1-3 N=4					
710											
	Fat clay (CH): Soft, gray, wet		130	SS 28		1-1-1 N=2		54.6			
705											
	Fat clay (CH): Soft, gray, wet		135	SS 29		0-1-2 N=3					
700											
	Fat clay (CH): Soft, gray, wet		140	SS 30		0-2-2 N=4					
	140.0'										
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS			
WD	▽ 23.5 ft	STARTED: 7/19/24	FINISHED: 7/19/24
IAD	▼ Not Performed	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	▽ Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER
		METHOD: HOLLOW STEM AUGER / ROTARY WASH	

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

olsson

BOREHOLE REPORT NO. BR-3 — Sheet 8 of 9

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Split Spoon ☒ Shelby Tube ■

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	GLACIOLACUSTRINE DEPOSITS		140								
695											
	Fat clay (CH): Firm, gray, wet		145	SS 31		1-1-7 N=8		54.1			
690											
	148.5'										
	GLACIAL OUTWASH		150	SS 32		10-17-24 N=41		17.2			
	Sandy fat clay (CH): Hard, gray, wet, some fine to coarse sand, trace fine gravel										
685											
	Sandy fat clay (CH): Hard, gray, wet, some fine to coarse sand, trace fine gravel		155	SS 33		13-17-21 N=38		12.6			
680											
	Sandy fat clay (CH): Hard, gray, wet, some fine to coarse sand, trace fine gravel		160	SS 34		11-15-28 N=43					
	160.0'										
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS			
WD	▽ 23.5 ft	STARTED: 7/19/24	FINISHED: 7/19/24
IAD	▼ Not Performed	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	▽ Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER
		METHOD: HOLLOW STEM AUGER / ROTARY WASH	

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

olsson

BOREHOLE REPORT NO. BR-3 — Sheet 9 of 9

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Split Spoon ☒ Shelby Tube ■

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	GLACIAL OUTWASH		160								
675											
	163.5'										
	GLACIAL TILL										
	Fat clay (CH): Hard, gray, wet, trace gravel		165	SS 35		6-13-19 N=32		11.0			
670											
	Fat clay (CH): Very stiff, gray, wet, trace gravel		170	SS 36		6-8-11 N=19					
665											
	Fat clay (CH): Hard, gray, wet, trace gravel		175	SS 37		12-31-23 N=54					
660											
	Fat clay (CH): Very stiff, gray, wet, trace gravel		180	SS 38		9-11-14 N=25					
	180.0'										
	<<C>><<B>><<A>><<C>>										

WATER LEVEL OBSERVATIONS			
WD	▽ 23.5 ft	STARTED: 7/19/24	FINISHED: 7/19/24
IAD	▼ Not Performed	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	▽ Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER
		METHOD: HOLLOW STEM AUGER / ROTARY WASH	

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

NOTE:

The boring data shown is for owner's design and estimating purposes only. The boring logs are only representative of exact location from which the samples were taken and interpretation between sample locations is discouraged. The owner assumes no responsibility if the soil conditions encountered during construction differ from those shown.

Soil Boring Logs

Soil Boring BR-3

ND (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9296
DATE: 2025.12.19 12:43:30 -06'00'
NORTH DAKOTA

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	175	12

olsson

BOREHOLE REPORT NO. BR-4 — Sheet 1 of 11

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Shelby Tube ☒ Split Spoon ◪ Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	APPROX. SURFACE ELEV. (ft)834.5		0								
	ROOT ZONE 0.5'										
	GLACIOLACUSTRINE DEPOSITS										
	Lean clay (CL): Soft, light brown, moist			U 1							
	3.5'										
830	*Fat clay (CH): Soft, brown, very moist, trace fine gravel*		5	SS 2		2-1-3 N=4		57.6			
	6.0'										
	Lean clay (CL): Firm, grayish brown, wet, trace iron staining, trace fine sand			U 3			0.7	30.3	91.5		P-200 = 99.4%
	8.5'										
825	*Fat clay (CH): Firm, light grayish brown, wet, trace iron staining*		10	SS 4		2-3-4 N=7		47.3			
820	*Fat clay (CH): Firm, light gray, wet, trace iron staining, trace fine sand*		15	U 5	CH		0.9*	42.2	77.8	82/50	P-200 = 99.7% *UU Compressive Strength
815	*Fat clay (CH): Firm, gray, wet* 20.0'		20	SS 6		1-2-3 N=5		47.6			
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS			
WD	▽ 5.2 ft	STARTED: 7/10/24	FINISHED: 7/11/24
IAD	▼ Not Performed	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	▽ Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

METHOD: HOLLOW STEM AUGER / ROTARY WASH

olsson

BOREHOLE REPORT NO. BR-4 — Sheet 2 of 11

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Shelby Tube ☒ Split Spoon ◪ Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	GLACIOLACUSTRINE DEPOSITS		20								
810	*Fat clay (CH): Firm, gray, wet, trace fine sand*		25	U 7	CH			51.0	72.8	72/43	P-200 = 99.8%
805	*Fat clay (CH): Soft, gray, wet*		30	SS 8		1-1-2 N=3		36.4			
800	*Fat clay (CH): Firm, gray, wet*		35	U 9	CH		1.2*	38.6	81.7	57/35	P-200 = 100.0% *UU Compressive Strength
795	*Fat clay (CH): Firm, gray, wet* 40.0'		40	SS 10		1-2-3 N=5		45.4			
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS			
WD	▽ 5.2 ft	STARTED: 7/10/24	FINISHED: 7/11/24
IAD	▼ Not Performed	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	▽ Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

METHOD: HOLLOW STEM AUGER / ROTARY WASH

olsson

BOREHOLE REPORT NO. BR-4 — Sheet 3 of 11

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Shelby Tube ☒ Split Spoon ◪ Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	GLACIOLACUSTRINE DEPOSITS		40								
790	*Fat clay (CH): Very soft, gray, wet*		45	SS 11		0-0-1 N=1					
785	*Fat clay (CH): Very soft, gray, wet*		50	SS 12		0-0-1 N=1		75.7			
780	*Fat clay (CH): Very soft, gray, wet*		55	SS 13		0-0-1 N=1					
775	*Fat clay (CH): Soft, gray, wet, trace fine sand* 60.0'		60	U 14			0.8*	73.7	56.9		P-200 = 99.6% *UU Compressive Strength
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS			
WD	▽ 5.2 ft	STARTED: 7/10/24	FINISHED: 7/11/24
IAD	▼ Not Performed	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	▽ Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

METHOD: HOLLOW STEM AUGER / ROTARY WASH

NOTE:

The boring data shown is for owner's design and estimating purposes only. The boring logs are only representative of exact location from which the samples were taken and interpretation between sample locations is discouraged. The owner assumes no responsibility if the soil conditions encountered during construction differ from those shown.

Soil Boring Logs

Soil Boring BR-4

ND (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.19 12:43:42 -06'00'
NORTH DAKOTA

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	175	13

BOREHOLE REPORT NO. BR-4 — Sheet 4 of 11

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Shelby Tube ☒ Split Spoon ⧓ Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	GLACIOLACUSTRINE DEPOSITS		60								
770	*Fat clay (CH): Very soft, gray, wet*		65	SS 15		0-0-1 N=1					
765	*Fat clay (CH): Soft, gray, wet, trace fine gravel*		70	SS 16		0-1-1 N=2		18.8			
760	*Fat clay (CH): Soft, gray, wet, trace fine gravel*		75	SS 17		0-1-1 N=2					
755	*Fat clay (CH): Soft, gray, wet, trace fine gravel*		80	SS 18		3-2-2 N=4					
	80.0'										
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS			
WD	▽ 5.2 ft	STARTED: 7/10/24	FINISHED: 7/11/24
IAD	▼ Not Performed	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	▽ Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

METHOD: HOLLOW STEM AUGER / ROTARY WASH

BOREHOLE REPORT NO. BR-4 — Sheet 5 of 11

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Shelby Tube ☒ Split Spoon ⧓ Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	GLACIOLACUSTRINE DEPOSITS		80								
750	*Fat clay (CH): Soft, gray, wet*		85	SS 19		2-2-2 N=4		19.6			
745	***Driller's Note: No shelby tube sample recovery, chased with split-spoon sampler.*** *Fat clay (CH): Soft, gray, wet, trace fine gravel*		90	U/SS 20		2-2-2 N=4					
740	*Fat clay (CH): Firm, gray, wet*		95	SS 21		1-2-3 N=5					
735	*Fat clay (CH): Firm, gray, wet, trace fine gravel*		100	SS 22		1-2-3 N=5		26.5			
	100.0'										
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS			
WD	▽ 5.2 ft	STARTED: 7/10/24	FINISHED: 7/11/24
IAD	▼ Not Performed	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	▽ Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

METHOD: HOLLOW STEM AUGER / ROTARY WASH

BOREHOLE REPORT NO. BR-4 — Sheet 6 of 11

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Shelby Tube ☒ Split Spoon ⧓ Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	GLACIOLACUSTRINE DEPOSITS		100								
730	*Fat clay (CH): Firm, gray, wet*		105	SS 23		2-2-4 N=6					
725	***Driller's Note: No shelby tube sample recovery, chased with split-spoon sampler.*** *Fat clay (CH): Soft, gray, wet, trace fine gravel*		110	U/SS 24		0-1-2 N=3		27.8			
720	***Driller's Note: No sample recovery.***		115	SS 25		2-3-4 N=7					
715	***Driller's Note: No sample recovery.***		120	SS 26		2-3-4 N=7					
	120.0'										
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS			
WD	▽ 5.2 ft	STARTED: 7/10/24	FINISHED: 7/11/24
IAD	▼ Not Performed	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	▽ Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

METHOD: HOLLOW STEM AUGER / ROTARY WASH

NOTE:

The boring data shown is for owner's design and estimating purposes only. The boring logs are only representative of exact location from which the samples were taken and interpretation between sample locations is discouraged. The owner assumes no responsibility if the soil conditions encountered during construction differ from those shown.

Soil Boring Logs

Soil Boring BR-4

ND (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.19 12:43:54 -06'00'
NORTH DAKOTA

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	175	14

olsson

BOREHOLE REPORT NO. BR-4 — Sheet 7 of 11

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Shelby Tube ☒ Split Spoon ⧓ Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	GLACIOLACUSTRINE DEPOSITS		120								
710	*Fat clay (CH): Firm, gray, wet, trace fine gravel*		125	SS 27		1-2-3 N=5		49.0			
705	*Fat clay (CH): Firm, gray, wet*		130	SS 28		1-2-3 N=5					
700	*Fat clay (CH): Firm, gray, wet*		135	SS 29		1-3-3 N=6					
695	*Fat clay (CH): Firm, gray, wet*		140	SS 30		2-3-3 N=6		76.6			
	140.0										
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS			
WD	▽ 5.2 ft	STARTED: 7/10/24	FINISHED: 7/11/24
IAD	▼ Not Performed	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	▽ Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER
		METHOD: HOLLOW STEM AUGER / ROTARY WASH	

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

olsson

BOREHOLE REPORT NO. BR-4 — Sheet 8 of 11

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Shelby Tube ☒ Split Spoon ⧓ Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	GLACIOLACUSTRINE DEPOSITS		140								
	143.5										
690	***GLACIAL OUTWASH***										
	Clayey gravel (GC): Very dense, gray, wet, mostly fine gravel		145	SS 31		50-26-39 N=65					
685	*Clayey gravel (GC): Very dense, gray, wet, mostly fine gravel, trace fine sand*		150	SS 32		14-32-50/3"		23.2			P-200 = 47.6%
	153.5										
680	*Clayey sand (SC): Very dense, gray, wet, mostly fine sand*		155	SS 33		27-50/5"		20.5			P-200 = 46.6%
	158.5										
675	***GLACIAL TILL***										
	Fat clay (CH): Very stiff, gray, wet, trace fine sand		160	SS 34		5-9-12 N=21		36.9			P-200 = 85.3%
	160.0										
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS			
WD	▽ 5.2 ft	STARTED: 7/10/24	FINISHED: 7/11/24
IAD	▼ Not Performed	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	▽ Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER
		METHOD: HOLLOW STEM AUGER / ROTARY WASH	

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

olsson

BOREHOLE REPORT NO. BR-4 — Sheet 9 of 11

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Shelby Tube ☒ Split Spoon ⧓ Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	GLACIAL TILL		160								
670	***Driller's Note: No sample recovery.***		165	SS 35		5-8-10 N=18					
665	*Fat clay (CH): Very stiff, gray, wet*		170	SS 36		8-11-11 N=22		56.5			
660	*Fat clay (CH): Very stiff, gray, wet*		175	SS 37		9-12-14 N=26					
655	*Fat clay (CH): Very stiff, gray, wet*		180	SS 38		6-12-14 N=26		25.2			
	180.0										
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS			
WD	▽ 5.2 ft	STARTED: 7/10/24	FINISHED: 7/11/24
IAD	▼ Not Performed	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	▽ Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER
		METHOD: HOLLOW STEM AUGER / ROTARY WASH	

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

NOTE:

The boring data shown is for owner's design and estimating purposes only. The boring logs are only representative of exact location from which the samples were taken and interpretation between sample locations is discouraged. The owner assumes no responsibility if the soil conditions encountered during construction differ from those shown.

Soil Boring Logs

Soil Boring BR-4

ND (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE:2025.12.19 12:44:06 -06'00'
NORTH DAKOTA

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	175	15

olsson | **BOREHOLE REPORT NO. BR-4** | **Sheet 10 of 11**

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Shelby Tube ☒ Split Spoon ◪ Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	GLACIAL TILL		180								
	183.5'										
650	*Fat clay with gravel (CH): Hard, gray, wet*		185	SS 39		20-34-37 N=71					
645	*Fat clay with gravel (CH): Hard, gray, wet*		190	SS 40		26-38-50/4"		10.4			
640	*Fat clay with gravel (CH): Hard, gray, wet*		195	SS 41		14-34-50 N=84					
635	*Fat clay with gravel (CH): Hard, gray, wet*			SS 42		37-50/6"		9.8			
	200.0'		200								

CONTINUED NEXT PAGE

WATER LEVEL OBSERVATIONS			
WD	▽ 5.2 ft	STARTED: 7/10/24	FINISHED: 7/11/24
IAD	▼ Not Performed	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	▽ Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER
		METHOD: HOLLOW STEM AUGER / ROTARY WASH	

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

olsson | **BOREHOLE REPORT NO. BR-4** | **Sheet 11 of 11**

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Shelby Tube ☒ Split Spoon ◪ Shelby Tube/Split Spoon

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	GLACIAL TILL		200								
	203.5'										
630	*Clayey sand (SC): Very dense, gray, wet, mostly fine sand*		205	SS 43		50/3"		17.9			P-200 = 29.0%
	205.0'										

<<C>><<B>><<I>><<C>>

WATER LEVEL OBSERVATIONS			
WD	▽ 5.2 ft	STARTED: 7/10/24	FINISHED: 7/11/24
IAD	▼ Not Performed	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	▽ Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER
		METHOD: HOLLOW STEM AUGER / ROTARY WASH	

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

NOTE:

The boring data shown is for owner's design and estimating purposes only. The boring logs are only representative of exact location from which the samples were taken and interpretation between sample locations is discouraged. The owner assumes no responsibility if the soil conditions encountered during construction differ from those shown.

Soil Boring Logs

Soil Boring BR-4

ND (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.19 12:44:18 -06'00'
NORTH DAKOTA

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	175	16

olsson

BOREHOLE REPORT NO. BR-5 — Sheet 1 of 9

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Shelby Tube; Split Spoon; Shelby Tube/Split Spoon; No Recovery

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	APPROX. SURFACE ELEV. (ft)836.0		0								
	ROOT ZONE 0.4'										
835	***FILL***										
	Lean clay (CL): Firm, dark brown to yellowish brown, moist			U 1	CL		0.8	23.8	92.2	41/20	
	Lean clay (CL): Stiff, dark brown, very moist		5	SS 2		3-4-5 N=9		36.0			
830	***GLACIOLACUSTRINE DEPOSITS*** 6.0'										
	Lean clay (CL): Firm, yellowish brown, very moist, trace fine sand			U 3	CL			26.1	98.7	30/10	P-200 = 99.5%
	8.5'		10	SS 4		2-3-4 N=7		35.4			
825	*Fat clay (CH): Firm, light brown, very moist*										
	Fat clay (CH): Firm, gray to light brown, very moist, trace iron staining		15	U 5	CH		1.5*	38.8	82.0	63/33	P-200 = 97.4% *UU Compressive Strength
820	▽										
	Fat clay (CH): Firm, light gray, wet, trace iron staining 20.0'		20	SS 6		2-3-3 N=6		51.3			
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS			
WD	▽ 18.5 ft	STARTED: 7/11/24	FINISHED: 7/16/24
IAD	▼ Not Performed	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	▽ Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER
		METHOD: HOLLOW STEM AUGER / ROTARY WASH	

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

olsson

BOREHOLE REPORT NO. BR-5 — Sheet 2 of 9

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Shelby Tube; Split Spoon; Shelby Tube/Split Spoon; No Recovery

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
			20								
815	***GLACIOLACUSTRINE DEPOSITS***										
	Fat clay (CH): Firm, light gray, wet, trace iron staining		25	U 7	CH		0.6*	46.1	74.2	61/39	P-200 = 100.0% *UU Compressive Strength
810	*Fat clay (CH): Soft, gray, wet*		30	SS 8		1-1-2 N=3		44.6			
805	***Driller's Note: No shelby tube sample recovery, chased with split-spoon sampler.***										
	Fat clay (CH): Soft, gray, wet		35	U/SS 9		1-1-2 N=3		49.2			
800	*Fat clay (CH): Firm, gray, wet* 40.0'		40	SS 10		2-3-4 N=7		45.9			
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS			
WD	▽ 18.5 ft	STARTED: 7/11/24	FINISHED: 7/16/24
IAD	▼ Not Performed	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	▽ Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER
		METHOD: HOLLOW STEM AUGER / ROTARY WASH	

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

olsson

BOREHOLE REPORT NO. BR-5 — Sheet 3 of 9

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Shelby Tube; Split Spoon; Shelby Tube/Split Spoon; No Recovery

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
			40								
795	***GLACIOLACUSTRINE DEPOSITS***										
	Fat clay (CH): Firm, gray, wet		45	SS 11		2-2-3 N=5		77.1			
790	*Fat clay (CH): Soft, gray, wet, trace fine sand*		50	U 12			0.3*	64.6	64.0		P-200 = 99.7% *UU Compressive Strength
785	*Fat clay (CH): Very soft, gray, wet*		55	SS 13		0-0-1 N=1		82.4			
780	*Fat clay (CH): Very soft, gray, wet* 60.0'		60	SS 14		0-0-1 N=1					
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS			
WD	▽ 18.5 ft	STARTED: 7/11/24	FINISHED: 7/16/24
IAD	▼ Not Performed	DRILL CO.: OLSSON	DRILL RIG: ATV
AD	▽ Not Performed	DRILLER: INTERSTATE	LOGGED BY: T. KOKJER
		METHOD: HOLLOW STEM AUGER / ROTARY WASH	

OLSSON, INC.
1101 LIBRA DRIVE, STE 2
LINCOLN, NEBRASKA 68512

NOTE:

The boring data shown is for owner's design and estimating purposes only. The boring logs are only representative of exact location from which the samples were taken and interpretation between sample locations is discouraged. The owner assumes no responsibility if the soil conditions encountered during construction differ from those shown.

Soil Boring Logs

Soil Boring BR-5

ND (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.19 12:44:30 -06'00'
NORTH DAKOTA

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	175	17

olsson | **BOREHOLE REPORT NO. BR-5** | **Sheet 4 of 9**

PROJECT NAME: **ND Highway 297 & 42nd Street Grade Separation**
CLIENT: **Bolton & Menk, Inc.**
PROJECT NUMBER: **023-07435**
LOCATION: **Grand Forks, North Dakota**

Shelby Tube | Split Spoon | Shelby Tube/Split Spoon | No Recovery

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
775	***GLACIOLACUSTRINE DEPOSITS***		60								
	Fat clay (CH): Soft, gray, wet		65	SS 15		0-1-1 N=2		58.1			
770	*Fat clay (CH): Soft, gray, wet*		70	SS 16		0-1-1 N=2					
765	*Fat clay (CH): Soft, gray, wet*		75	SS 17		0-1-1 N=2		49.5			
760	*Fat clay (CH): Soft, gray, wet*		80	U/SS 18		0-1-1 N=2					
	80.0'										
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS			
WD	▽ 18.5 ft	**OLSSON, INC.** **1101 LIBRA DRIVE, STE 2** **LINCOLN, NEBRASKA 68512**	STARTED: 7/11/24 FINISHED: 7/16/24 DRILL CO.: OLSSON DRILL RIG: ATV DRILLER: INTERSTATE LOGGED BY: T. KOKJER METHOD: HOLLOW STEM AUGER / ROTARY WASH
IAD	▼ Not Performed		
AD	▽ Not Performed		

olsson | **BOREHOLE REPORT NO. BR-5** | **Sheet 5 of 9**

PROJECT NAME: **ND Highway 297 & 42nd Street Grade Separation**
CLIENT: **Bolton & Menk, Inc.**
PROJECT NUMBER: **023-07435**
LOCATION: **Grand Forks, North Dakota**

Shelby Tube | Split Spoon | Shelby Tube/Split Spoon | No Recovery

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
755	***GLACIOLACUSTRINE DEPOSITS***		80								
	Driller's Note: No shelby tube sample recovery, chased with split-spoon sampler. *Fat clay (CH): Soft, gray, wet*		85	SS 19		1-1-2 N=3					
750	*Fat clay (CH): Soft, gray, wet*		90	SS 20		0-1-2 N=3		28.8			
745	*Fat clay (CH): Soft, gray, wet*		95	SS 21		1-2-2 N=4					
740	***Driller's Note: No sample recovery.***		100	NR 22		3-3-3 N=6					
	100.0'										
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS			
WD	▽ 18.5 ft	**OLSSON, INC.** **1101 LIBRA DRIVE, STE 2** **LINCOLN, NEBRASKA 68512**	STARTED: 7/11/24 FINISHED: 7/16/24 DRILL CO.: OLSSON DRILL RIG: ATV DRILLER: INTERSTATE LOGGED BY: T. KOKJER METHOD: HOLLOW STEM AUGER / ROTARY WASH
IAD	▼ Not Performed		
AD	▽ Not Performed		

olsson | **BOREHOLE REPORT NO. BR-5** | **Sheet 6 of 9**

PROJECT NAME: **ND Highway 297 & 42nd Street Grade Separation**
CLIENT: **Bolton & Menk, Inc.**
PROJECT NUMBER: **023-07435**
LOCATION: **Grand Forks, North Dakota**

Shelby Tube | Split Spoon | Shelby Tube/Split Spoon | No Recovery

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
735	***GLACIOLACUSTRINE DEPOSITS***		100								
	Fat clay (CH): Firm, gray, wet, trace fine gravel		105	SS 23		3-3-3 N=6		30.2			
730	***Driller's Note: No shelby tube sample recovery, chased with split-spoon sampler.*** *Fat clay (CH): Firm, gray, wet*		110	U/SS 24		2-3-4 N=7					
725	***Driller's Note: No sample recovery.***		115	NR 25		2-3-3 N=6					
720	***Driller's Note: No sample recovery.***		120	NR 26		3-4-4 N=8					
	120.0'										
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS			
WD	▽ 18.5 ft	**OLSSON, INC.** **1101 LIBRA DRIVE, STE 2** **LINCOLN, NEBRASKA 68512**	STARTED: 7/11/24 FINISHED: 7/16/24 DRILL CO.: OLSSON DRILL RIG: ATV DRILLER: INTERSTATE LOGGED BY: T. KOKJER METHOD: HOLLOW STEM AUGER / ROTARY WASH
IAD	▼ Not Performed		
AD	▽ Not Performed		

NOTE:

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Soil Boring Logs

Soil Boring BR-5

ND (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9276
DATE: 2025.12.19 12:44:43 -06'00'
NORTH DAKOTA

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	RCE-FTF-NHU-SU-6-297(014)000	175	18

BOREHOLE REPORT NO. BR-5 — Sheet 7 of 9

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Shelby Tube; Split Spoon; Shelby Tube/Split Spoon; No Recovery

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
715	***GLACIOLACUSTRINE DEPOSITS***		120								
	Driller's Note: No sample recovery.		125	NR 27		2-2-3 N=5					
710	*Fat clay (CH): Firm, gray, wet*		130	SS 28		0-3-4 N=7		58.4			
705	*Fat clay (CH): Firm, gray, wet*		135	SS 29		0-2-3 N=5					
700	*Fat clay (CH): Firm, gray, wet*		140	SS 30		3-4-3 N=7		53.3			
	140.0'										
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS		OLSSON, INC. 1101 LIBRA DRIVE, STE 2 LINCOLN, NEBRASKA 68512	STARTED: 7/11/24	FINISHED: 7/16/24
WD	▽ 18.5 ft		DRILL CO.: OLSSON	DRILL RIG: ATV
IAD	▼ Not Performed		DRILLER: INTERSTATE	LOGGED BY: T. KOKJER
AD	▽ Not Performed		METHOD: HOLLOW STEM AUGER / ROTARY WASH	

BOREHOLE REPORT NO. BR-5 — Sheet 8 of 9

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Shelby Tube; Split Spoon; Shelby Tube/Split Spoon; No Recovery

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
695	***GLACIOLACUSTRINE DEPOSITS***		140								
	143.5'										
	GLACIAL OUTWASH										
690	*Fat clay with gravel (CL): Very stiff, gray, wet*		145	SS 31		4-7-20 N=27					
	Fat clay with gravel (CL): Hard, gray, wet		150	SS 32		38-38-39 N=77		13.5			
685	***153.5'***										
	Fat clay (CH): Stiff, gray, wet, trace coarse gravel		155	SS 33		31-4-10 N=14					
680	*Fat clay (CH): Hard, gray, wet, trace fine gravel, trace fine sand*		160	SS 34		13-17-20 N=37		26.2			P-200 = 92.2%
	160.0'										
	CONTINUED NEXT PAGE										

WATER LEVEL OBSERVATIONS		OLSSON, INC. 1101 LIBRA DRIVE, STE 2 LINCOLN, NEBRASKA 68512	STARTED: 7/11/24	FINISHED: 7/16/24
WD	▽ 18.5 ft		DRILL CO.: OLSSON	DRILL RIG: ATV
IAD	▼ Not Performed		DRILLER: INTERSTATE	LOGGED BY: T. KOKJER
AD	▽ Not Performed		METHOD: HOLLOW STEM AUGER / ROTARY WASH	

BOREHOLE REPORT NO. BR-5 — Sheet 9 of 9

PROJECT NAME: ND Highway 297 & 42nd Street Grade Separation
CLIENT: Bolton & Menk, Inc.
PROJECT NUMBER: 023-07435
LOCATION: Grand Forks, North Dakota

Shelby Tube; Split Spoon; Shelby Tube/Split Spoon; No Recovery

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
675	***GLACIAL OUTWASH***		160								
	163.5'										
	Clayey sand (SC): Very dense, gray, wet, mostly fine to medium sand, trace coarse sand and fine gravel		165	SS 35		50/4"		13.8			P-200 = 21.4%
670	***168.5'***										
	GLACIAL TILL										
	Fat clay with sand (CH): Hard, gray, wet		170	SS 36		23-40-50/5"		24.3			P-200 = 85.0%
665	***173.5'***										
	Fat clay (CH): Very stiff, gray, wet		175	SS 37		4-10-9 N=19		36.8			
660	*Fat clay (CH): Hard, gray, wet*		180	SS 38		9-13-18 N=31					
	180.0'										
	<<C>><<B>><<\>><<C>>										

WATER LEVEL OBSERVATIONS		OLSSON, INC. 1101 LIBRA DRIVE, STE 2 LINCOLN, NEBRASKA 68512	STARTED: 7/11/24	FINISHED: 7/16/24
WD	▽ 18.5 ft		DRILL CO.: OLSSON	DRILL RIG: ATV
IAD	▼ Not Performed		DRILLER: INTERSTATE	LOGGED BY: T. KOKJER
AD	▽ Not Performed		METHOD: HOLLOW STEM AUGER / ROTARY WASH	

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Soil Boring Logs

Soil Boring BR-5

ND (DeMers Ave) & 42nd St Grade Separation

Grand Forks County

Grand Forks, ND

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER S. DAHL
PE-9296
DATE 2025.12.19 12:45:16 -06'00'
NORTH DAKOTA