DESIGN DATA				
Traffic	Average Daily			Max. Hr.
Current 2015	Pass: 1,650	Trucks: 690	Total: 2,340	235
Forecast 2035	Pass: 2,460	Trucks: 1,030	Total: 3,490	350
Clear Zone Dist.: 32' in ND; 30' in SD		Design Speed: 75 MPH in ND; 80 MPH in SD		
Minimum Sight Dist. for Stopping: 820' in ND 910' in SD		Bridges: N/A		
Full Control of Access, No Point of Access Other Than at Interchange Ramps				
Pavement Design Life: 20 years				
Design Accumulated One-way flexible ESALs: 6,030,607				

STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	19711	1	1

JOB # 17
NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

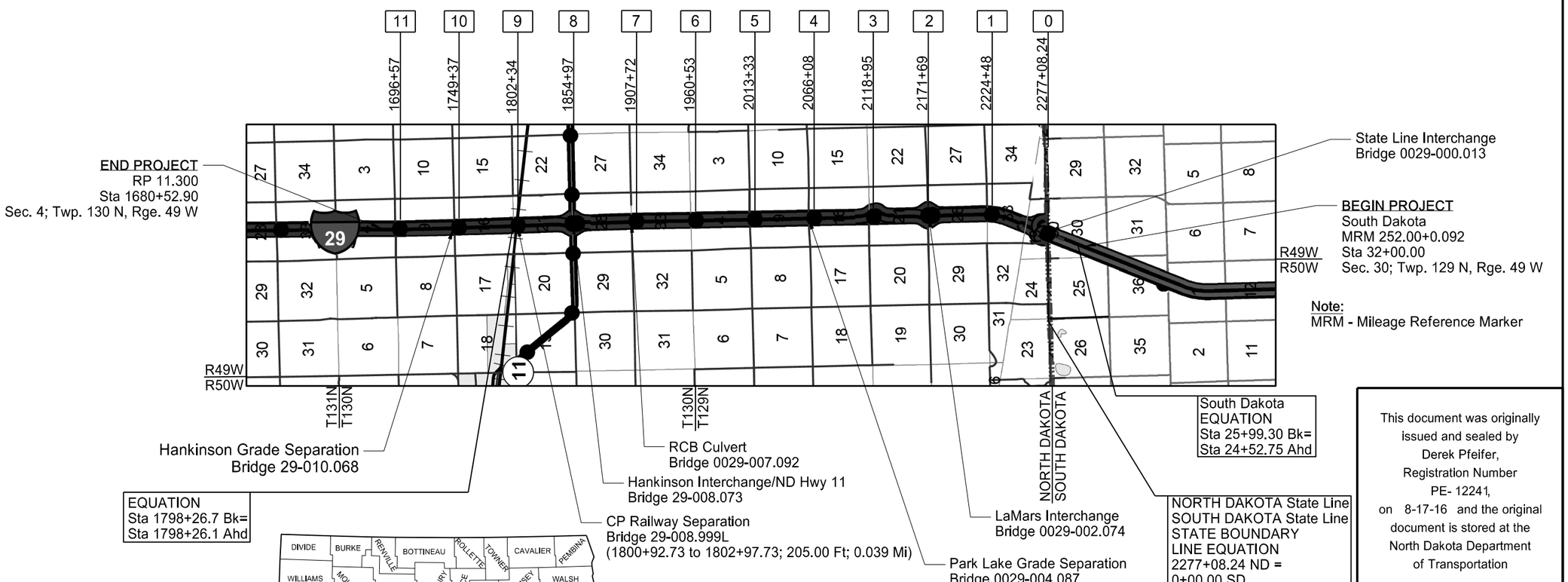
IM-8-029(151)000
Southbound Roadway

Richland County in ND & Roberts County in SD
South of State Line North 11.3 Miles

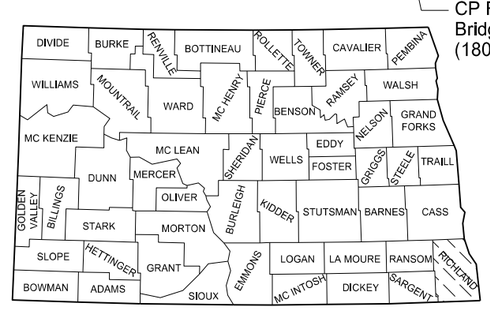
Grade Lowering and PCC Pavement Reconstruction Under Structures, Crack and Seat, Milling Pavement Surface, Hot Mix Asphalt, Stone Matrix Asphalt, Bridge Deck Replacement, Guardrail, Pavement Marking, and Incidentals

GOVERNING SPECIFICATIONS:
2014 Standard Specifications adopted by the North Dakota Department of Transportation and the Supplemental Specifications effective on the date the project is advertised.

PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
IM-8-029(151)000	11.932	11.932
ND Portion	11.298	11.298
SD Portion	0.634	0.634



Note:
MRM - Mileage Reference Marker



STATE COUNTY MAP

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DESIGNERS

Jeff Nuelle /s/

Douglas Schumaker /s/

APPROVED DATE 8-18-16

Roger Weigel /s/
for OFFICE OF PROJECT DEVELOPMENT
ND DEPARTMENT OF TRANSPORTATION

I hereby certify that the attached plans were prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the state of ND.

APPROVED DATE 8-18-16

James Douglas Rath /s/
NDDOT DESIGN DIVISION

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60	1 - 6	Plan & Profile
75	1 - 11	Wetland Impacts
76	1 - 11	Temporary Erosion Control
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82	1	Survey Data Layouts
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Number	Description
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SP 0004(14)	Federal Migratory Bird Treaty Act
SP 334(14)	Hot Mix Asphalt - SMA
SP 335(14)	Flexible Pavement Surface Tolerance
SP 336(14)	Crack and Seat
SP 337(14)	Railroad Requirements
SP 338(14)	Tribal Employment Rights Ordinance (TERO)
SP 5124(14)	Permits and Environmental Considerations

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D-255-2	Erosion And Siltation Control - Erosion Control Blanket Installation
D-256-1	Erosion And Siltation Controls
D-260-1	Erosion And Siltation Controls - Silt Fence
D-261-1	Erosion Control - Fiber Roll Placement Details
D-550-2	Longitudinal Joint Details
D-550-3	Transverse Contraction Joint Details
D-704-1	Attenuation Device
D-704-2	Traffic Control For Coring Of Hot Bituminous Pavement
D-704-5	Contractor Sign Detail
D-704-7	Breakaway Systems For Construction Zone Signs - Perforated Tube
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D-704-9	Construction Sign Details - Terminal And Guide Signs
D-704-10	Construction Sign Details - Regulatory Signs
D-704-11	Construction Sign Details - Warning Signs
D-704-12	Shoulder Closure Tapers
D-704-13	Barricade And Channelizing Device Details
D-704-14	Construction Sign Punching And Mounting Details
D-704-15	Road Closure Layouts
D-704-22	Construction Truck And Temporary Detour Layouts
D-704-24	Shoulder Closures And Bridge Painting Layouts
D-704-26	Miscellaneous Sign Layouts
D-704-27	Traffic Control Plan For Moving Operations
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D-704-38	Traffic Control System-Median Crossover (800 Ft Transition)-55 Mph Speed Limit Or Greater
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D-704-49	Construction Sign And Barricade Location Details Construction Traffic Median Crossing
D-704-50	Portable Sign Support Assembly
D-704-51	Portable Precast Concrete Median Barrier (Temporary Usage)
D-704-56	Mobile Operation - Grinding Shoulder Rumble Strips
D-706-1	Bituminous Laboratory
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D-722-7	Precast Concrete Median Drain
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D-754-21	Reflectorized Delineators
D-754-22A	Typical Interchange Delineation
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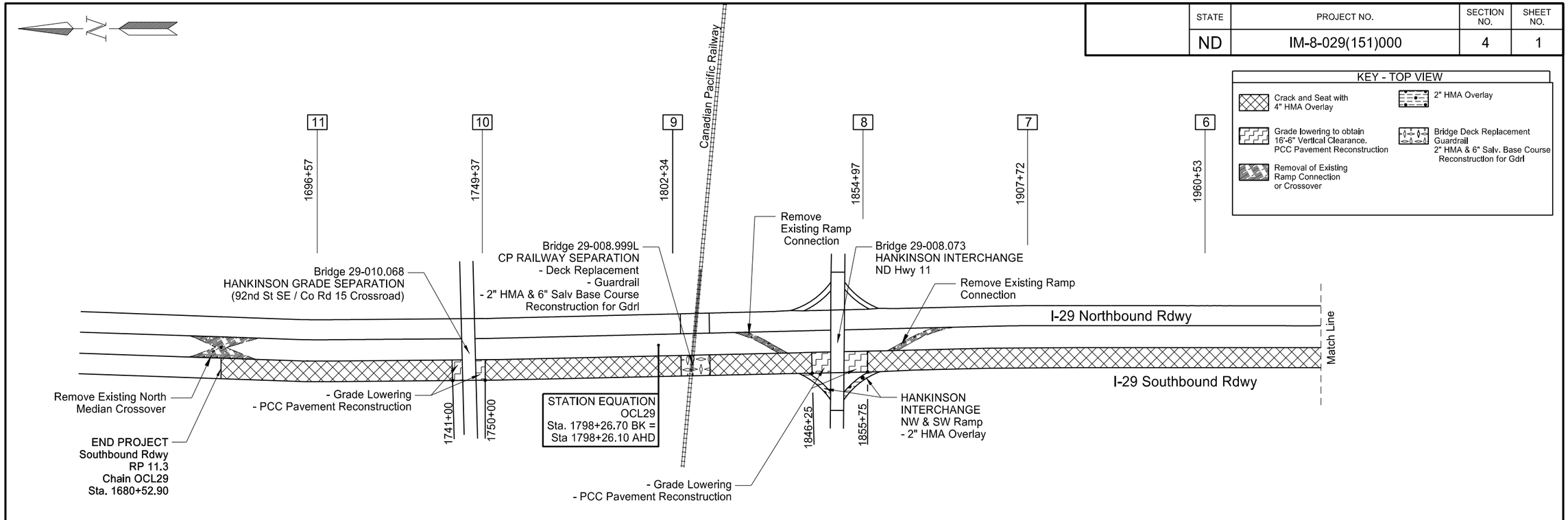

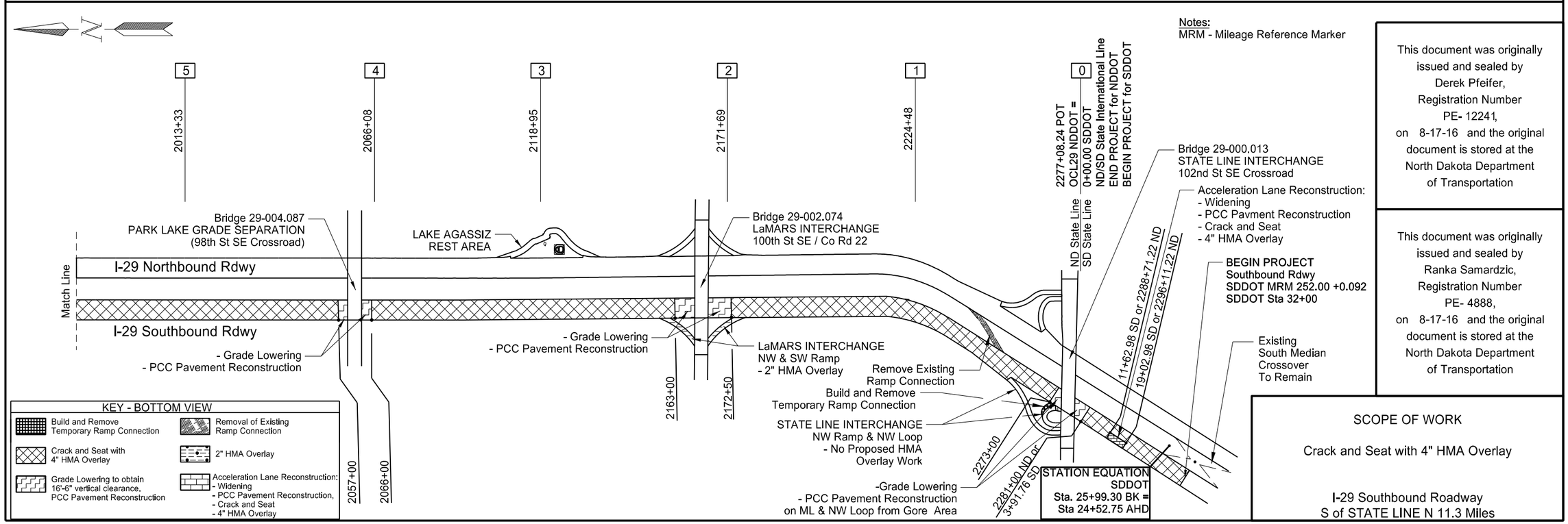

Notes:
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SCOPE OF WORK

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

NOTES

100-P01 COORDINATION: Contact SDDOT Watertown Area Office at (605)882-5166 to make sure the project is in the SD511 Safetravelusa.com system with all applicable restrictions.

105-P01 The Contractor will not be allowed to use Lake Agassiz Rest Area as a staging area.

107-P01 LAWS TO BE OBSERVED: A portion of this project lies within the exterior boundaries of an Indian Reservation in South Dakota. Review laws and ordinances pertaining to the work contained within the boundaries of the reservation.

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

202-P01 REMOVAL OF INLETS AT CP RAIL SEPARATION: Two existing curb inlets are located on the south side - one near each bridge corner. Remove the curb inlets.

This pair of inlets consists of a 4' long, 30" RCP, and a 5' long, 30" RCP, resting on 6" thick concrete bases, with inlet castings and grates. The inlets are connected with a 15" diameter corrugated steel pipe and drained by a 15" diameter corrugated steel outlet pipe and end section.

Remove the outlet pipe end section. Cap the pipe outlet end with concrete and cover with earth. Remove the drain frames, grates, and risers. Cap the 15" diameter corrugated steel pipe ends with concrete. Backfill the remaining hole with earth. Place the backfill and thoroughly compact in 6-inch layers using a mechanical tamper with an appropriate sized tamping head. Use concrete caps with a minimum thickness of 9 inches. Seed the disturbed areas that are not to be paved.

Include the costs for all labor, equipment and materials required to remove the inlets in the price bid for the item "Removal of Inlets".

202-P02 REMOVAL OF TEMPORARY BYPASS: Remove the temporary ramp connections after the southbound roadway is open to traffic.

Shape the median slopes to a 6:1 slope, reshape existing slopes on ditch blocks as shown on Ditch Block detail, place topsoil, seed, and mulch.

Include all labor and equipment costs for removing, hauling, and disposing of materials and PVC pipe, removal and replacement of topsoil, and shaping of median slopes and ditch block slopes in the unit price bid for "Removal of Temporary Bypass".

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

203-P01 COMMON EXCAVATION TYPE A: Dispose of excess common excavation as specified in Section 107.17, Removed Material. Include the cost of hauling and disposing of excess common excavation in the contract unit price for "Common Excavation - Type A".

203-P02 SUBCUT: Subcut area the Engineer determines too wet or unstable to subgrade prep. Quantities for 100 feet of 18" subcut have been included, to be used at the discretion of the Engineer.

230-P01 SHOULDER PREPARATION: In addition to work described in Section 230.04 B of the Standard Specifications, till or disk the foreslope approximately 6 feet wide starting at the edge of the shoulder. Complete this work just prior to overlay to eliminate a need for temporary stabilization. Make sure the tilled material abuts the existing pavement edge before overlay placement.

Provide a smooth transition between the top of the pavement slough and existing foreslope after the bituminous pavement has been placed on the shoulders. Remove or rework all chunks, rock, and lumps of sod or dirt to allow a smooth transition. Include all costs of labor, materials, and equipment to perform this work in the unit price bid for "Shoulder Preparation."

253-P01 MULCH: Use straw mulch over the seedbed for temporary seeding application.

Use hydraulic mulch over the seedbed for permanent seeding application. Apply seeding as specified in Section 251.03 and 251.04.

Apply hydraulic mulch with the following modifications:

- Eliminate combining the seed mixture with the mulch
- Eliminate the temporary care maintenance.

302-P01 TRIMMING BASE COURSE IN RECONSTRUCTION AREAS: Use Surface Tolerance Type B for the Salvaged Base Course. Incorporate excess material removed by the trimming operation from the high points into the salvaged base course.

411-P01 MILLED MATERIAL: All bituminous material milled from this project that is not incorporated back in the project will become the property of the NDDOT. Deliver and stockpile milled material at the NDDOT yard located at the SW quadrant of Hankinson/ND 11 interchange.

Contact the Engineer prior to disposing any millings at the site. The Certificate of Approval is available on the NDDOT website.

Include all costs for labor and equipment to mill and haul the material to the NDDOT yard in the unit price bid for "Milling Pavement Surface."

430-P01 MAINTENANCE OF TRAVELED ROADWAY USING HOT ASPHALT MIX: The contractor will be fully responsible for monitoring the condition of the traveled roadway, crossovers and ramp connections within the limits of the project.

Patch with an approved mix any areas that have subsided more than one inch from the adjacent pavement, any rutting, sponginess and/or breakups. Compact patched areas in accordance with Section 430.04 I.3 of the Standard Specifications. Include the costs for the equipment, labor, and materials (including asphalt cement) in the unit price bid for "Patching".

Traffic control and flagging will be paid for under the normal contract bid items.

Additionally, the contractor will be required to perform an initial inspection of the roadway, used by the traveling public before

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NOTES

construction begins, and make all repairs in accordance with the above requirements or as directed by the Engineer. A quantity of 100 Tons of “Patching” has been provided for this purpose.

430-P02 HOT MIX ASPHALT OVERLAY (HMA): Place the first 2” of hot mix asphalt within one week of cracking the pavement.

Use approximately 1/2" of the 2” hot mix asphalt for a scratch course before the asphalt overlay is applied. Paver-lay the scratch course across the full width of the lanes and shoulders. Compact the material according to Section 430.04 I.3, “Ordinary Compaction”. Include all costs associated with scratch course in the bid price for "Superpave FAA 45” and “PG 58-28 Asphalt Cement”.

550-P01 CONCRETE PAVEMENT: The development of a maturity curve, as specified in Section 550.04 B, "Mix Design", will not be required.

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

704-200 PRECAST CONCRETE MEDIAN BARRIERS – STATE FURNISHED: Obtain 79 barriers from the Lake Agassiz Rest Area. Return barriers to the Fargo District Storage Yard at Casselton.

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

704-300 FLASHING BEACON: Provide solar powered flashing beacons that meet the requirements of the MUTCD and ITE. Provide beacons that are visible for a distance of 0.25 miles (1,320 feet) and are capable of operating for 20 days without a solar charge.

Include all costs for materials, equipment, labor, and incidentals in the contract unit price for "Flashing Beacon".

704-P01 TRAFFIC CONTROL: The contractor will be required to maintain traffic at all times. The Traffic Control Devices has been developed using the following layouts on the Standard Drawings for Traffic Control:

D-704-2, for coring hot bituminous pavement

D-704-15, Layout Type A for paving on the ramps.

D-704-22, Layouts Type K and L for trucks entering and exiting the roadway as needed.

D-704-24, Layout Type T for mobile operation on shoulder as needed.

D-704-26, Layouts Type BB and EE, as needed.

D-704-27, for pavement marking.

D-704-35, for mainline guardrail installation and removal of the west ramp connections.

D-704-38, 39, Traffic Control Systems Median Crossover 55 mph speed limit or greater.

D-704-49 for exiting and entering median when removing ramp connections

D-704-56 for grinding shoulder rumble strips

704-P02 TRAFFIC CONTROL PHASING FOR NW LOOP RAMP AT STATE LINE INTERCHANGE: Complete the proposed work as described below.

PHASE 1: Build a temporary connection in the gore area as shown in the plans.

PHASE 2: Route traffic on the temporary connection and passing lane as shown in Section 100 of the plans. Remove pavement from the 6' right shoulder, 12' acceleration lane, and 12' driving lane. Remove base material and subgrade to required elevations. Construct a temporary wedge with a foreslope of 4:1 or flatter along the lane carrying traffic. Complete subgrade preparation. Place salvaged base course to required elevation. Construct temporary connection for the next phase as shown in Section 20.

PHASE 3: Route traffic onto salvaged base course as shown in Section 100 of the plans. Remove pavement from the median shoulder and 12' passing lane. Remove base material and subgrade to required elevations. Complete subgrade preparation. Place salvaged base course on 4' median shoulder, 12' passing lane, and 12' driving lane. Trim to required elevation. Pave median shoulder, passing lane, and driving lane. Cure concrete, saw and seal joints. Place embankment along median shoulder. Construct temporary connections for the next phase as shown in Section 20.

PHASE 4: Route traffic onto temporary connection and new concrete pavement as shown in Section 100. Remove temporary ramps adjacent to acceleration lane and right shoulder. Trim salvaged base course on 12' acceleration lane and 6' right shoulder. Pave the acceleration lane and its shoulder. Cure concrete, saw and seal joints. Place embankment along the right shoulder.

704-P03 TRAFFIC CONTROL (NORTH MEDIAN CROSSOVER AND RAMP CONNECTIONS): There are existing triple-weighted tubular markers at the north median crossover and at the ramp connections (total of approximately 101 EA). Remove these tubular markers just prior to changing the traffic flow and salvage for reset after completion of the project.

Include the cost incurred for this work in the traffic control items.

704-P04 MEDIAN CROSSOVER AND RAMP CONNECTIONS REMOVAL: For exiting and entering median when removing ramp connections and north median crossover, use standard drawing D-704-49 in conjunction with one lane closures. If trucks will be entering or exiting roadway from the 10 foot shoulder, Trucks Entering Highway (W8-53-48) or Trucks Exiting Highway (W8-56-48) signs should be used respectively. Scrapers will not be allowed on interstate roadway with public traffic.

704-P05 STATE ROUTE MARKERS: Provide State Route Marker signs for temporary traffic control. Upon completion, these signs will

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become property of the State. Stockpile signs within the project limits. The Engineer will arrange to have the stockpiled signs removed from the project site.

Include the price of furnishing, installing, maintenance, stockpiling and other incidentals in the contract unit price for “Traffic Control Signs”.

706-P01 FIELD OFFICE: Provide a field office which meets the following requirements:

1. Minimum total area of 440 square feet
2. Indoor bathroom facilities and supplies with weekly cleaning services
3. Hookups for heat, electricity, sewer, and potable water.
4. Minimum cabinet space of 32 cubic feet
5. Minimum counter space of 40 square feet
6. Air conditioner with a minimum of 20,000 BTUs
7. Lighting with a minimum of 110 foot-candles
8. Photocopy/Printer with scanning capabilities capable of 11x17 photocopies and toner to last the duration of the project. Other features to include digital copying and scanning. Copier/printer machine with operating software compatible with that used by the NDDOT.

   Supply a photocopier with enough toner to last the length of the project and with the following capabilities:
   a. Printing;
   b. Scanning; and
   c. Producing 11 x 17 photocopies and prints.

Place the field office on the project, or as close to the project as possible. The Contractor is responsible for the pay for the following:
- Rental fees;
- Heating;
- Electrical;
- Sewer, and
- Potable water.

Make the field office available for occupancy one week before the start of the project. The Engineer will approve the location and the condition of the office. Do not remove the field office until the Engineer releases the field office.

The Engineer is responsible for the following items:
- Furnishing office equipment;
- Supplying paper; and
- Supplying and paying for internet service.

All requirements of the Field Office are subject to approval by the Engineer. Include the costs for the field office in the bid item "Field Office".

Schedule for Payments:
- 25% when set up on site.
- 50% when 30% of the work is complete.
- 75% when 60% of the work is complete.
- 100% when project is complete.

706-P02 BITUMINOUS LABORATORY: Replace 706.02 C, Number 8, with the following: A forced draft oven with an interior capacity of 6 cubic feet and that is capable of maintaining a temperature range from 250°F to 350°F ±5°F.

910-P01 CONTROLLED DENSITY BACKFILL: Place controlled density backfill in the pipes located at Sta 1747+14 and Sta 1747+28, as shown in the plans.

Provide a backfill that meets the requirements of Table 1 for one cubic yard:

Table 1	
Mix Design	
Cement	100 lbs
Flyash	300 lbs
Fine Aggregate	2600 lbs
Water	70 gals

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NOTES

SECTION 100

764-P01 TRAFFIC CONTROL AT SOUTH MEDIAN CROSSOVER: There is a crossover closure at the south median crossover in South Dakota. Remove this crossover closure just prior to changing the traffic flow and salvage it for reset after completion of this project.

Include all costs to remove and replace the crossover closure, including materials, backfilling holes, placing 8” asphalt in the top of the holes in the crossover pavement to match the surrounding surface, labor, and equipment in the contract unit price per linear foot for “Remove 3-Cable Guardrail & Posts” and “Reset 3-Cable Guardrail”.

SECTION 130

748-P01 CURB & GUTTER – TYPE 1 SPECIAL: Install curb and gutter at the entrance end of the Southbound CP Railway Separation, RP 8.999, in accordance with Standard Drawing D-748-1, except for height transitions provided for a distance of 3 feet at each end, as shown on Standard Drawing D-764-9.

Include all costs for constructing the curb and gutter as described above in the contract unit price bid for the item “Curb & Gutter – Type 1 Special.”

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ENVIRONMENTAL NOTES

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

EN-1 PERMANENT WETLAND IMPACT: The project results in 0.01 acres of permanent impacts to assumed USACE jurisdictional waters in South Dakota. Unavoidable impact will be mitigated in Vollrath 16/17 mitigation bank.

EN-2 TEMPORARY WETLAND IMPACT: Temporary impact areas within wetlands and or other waters are incorporated into the plans for this project. Remove temporary fill placed and sedimentation in wetlands or other waters. Restore these wetlands to preconstruction contours.

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ESTIMATE OF QUANTITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	8	1

SPEC	CODE	ITEM DESCRIPTION	UNIT	ND SEGMENT	SD SEGMENT	TOTAL
103	0100	CONTRACT BOND	L SUM	0.93	0.07	1
107	0100	RAILWAY PROTECTION INSURANCE	L SUM	1		1
202	0111	REMOVAL OF CONCRETE	L SUM	1		1
202	0114	REMOVAL OF CONCRETE PAVEMENT	SY	17,535	2,874	20,409
202	0128	REMOVE AGGREGATE BASE	TON	298		298
202	0135	REMOVAL OF BITUMINOUS SURFACING	TON	115		115
202	0169	REMOVAL OF END SECTION-ALL TYPES & SIZES	EA	1		1
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	115		115
202	0230	REMOVAL OF INLETS	EA	2		2
202	0350	REMOVAL OF TEMPORARY BYPASS	EA	5		5
203	0101	COMMON EXCAVATION-TYPE A	CY	5,362	1,239	6,601
203	0109	TOPSOIL	CY	3,623	608	4,231
203	0138	COMMON EXCAVATION-SUBCUT	CY	482		482
203	0140	BORROW-EXCAVATION	CY	661		661
216	0100	WATER	M GAL	531	49	580
230	0125	SHOULDER PREPARATION	MILE	20.5	1.2	21.7
230	0320	SUBGRADE PREPARATION-TYPE C-12IN	STA	42.6	11.1	53.7
251	0200	SEEDING CLASS II	ACRE	37.6	2.1	39.7
251	2000	TEMPORARY COVER CROP	ACRE	37.5	2.1	39.6
253	0101	STRAW MULCH	ACRE	37.5	2.1	39.6
253	0201	HYDRAULIC MULCH	ACRE	37.6	2.1	39.7
255	0102	ECB TYPE 2	SY	48	24	72
255	0202	TRM TYPE 2	SY	147		147
261	0112	FIBER ROLLS 12IN	LF	8,813	2,242	11,055
261	0113	REMOVE FIBER ROLLS 12IN	LF	4,424	1,121	5,545
302	0100	SALVAGED BASE COURSE	TON	10,936	1,478	12,414
401	0050	TACK COAT	GAL	24,396	1,434	25,830
401	0070	FOG SEAL	GAL	6,214	284	6,498
411	0100	MILLING PAVEMENT SURFACE	TON	242		242
411	0110	MILLING PCC PAVEMENT	SY	7,455	1,688	9,143
430	0045	SUPERPAVE FAA 45	TON	34,576	2,046	36,622
430	0200	HOT MIX ASPHALT - STONE MATRIX ASPHALT	TON	19,099	1,124	20,223
430	1000	CORED SAMPLE	EA	123	7	130

ESTIMATE OF QUANTITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	8	2

SPEC	CODE	ITEM DESCRIPTION	UNIT	ND SEGMENT	SD SEGMENT	TOTAL
430	2000	PATCHING	TON	95	5	100
430	5828	PG 58-28 ASPHALT CEMENT	TON	975.1	62.5	1,037.6
430	6428	PG 64-28 ASPHALT CEMENT	TON	1,099.1	62.2	1,161.3
430	6434	PG 64-34 ASPHALT CEMENT	TON	1,146.2	68.6	1,214.8
550	0105	6IN NON-REINF CONCRETE PAVEMENT CL AE	SY	3,471	488	3,959
550	0305	9IN NON-REINF CONCRETE PVMT CL AE-DOWELED	SY	14,522	2,688	17,210
550	0968	PCC PAVEMENT CRACKING & SEATING	SY	233,464	14,488	247,952
602	0130	CLASS AAE-3 CONCRETE	CY	283.1		283.1
602	1135	BRIDGE APPROACH SLAB-REMOVE & REPLACE	SY	187.4		187.4
602	1250	PENETRATING WATER REPELLENT TREATMENT	SY	911		911
612	0115	REINFORCING STEEL-GRADE 60	LBS	1,226		1,226
612	0116	REINFORCING STEEL-GRADE 60-EPOXY COATED	LBS	79,826		79,826
702	0100	MOBILIZATION	L SUM	0.93	0.07	1
704	0100	FLAGGING	MHR	100		100
704	1000	TRAFFIC CONTROL SIGNS	UNIT	7,748		7,748
704	1045	ATTENUATION DEVICE-TYPE B-75	EA	2		2
704	1052	TYPE III BARRICADE	EA	51		51
704	1060	DELINEATOR DRUMS	EA	554		554
704	1067	TUBULAR MARKERS	EA	155		155
704	1070	DELINEATOR	EA	365		365
704	1072	FLEXIBLE DELINEATORS	EA	749		749
704	1081	VERTICAL PANELS-BACK TO BACK	EA	26		26
704	1087	SEQUENCING ARROW PANEL-TYPE C	EA	2		2
704	1088	SEQUENCING ARROW PANEL-TYPE C-CROSSOVER	EA	2		2
704	1090	FLASHING BEACON	EA	2		2
704	1500	OBLITERATION OF PAVEMENT MARKING	SF	7,202		7,202
704	3510	PRECAST CONCRETE MED BARRIER-STATE FURNISHED	EA	79		79
706	0400	FIELD OFFICE	EA	0.93	0.07	1
706	0500	AGGREGATE LABORATORY	EA	0.93	0.07	1
706	0550	BITUMINOUS LABORATORY	EA	0.93	0.07	1
706	0600	CONTRACTOR'S LABORATORY	EA	0.93	0.07	1
708	1530	INLET PROTECTION-FIBER ROLL 6IN	EA	4		4
708	1532	REMOVAL INLET PROTECTION-FIBER ROLL 6IN	EA	2		2

ESTIMATE OF QUANTITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	8	3

SPEC	CODE	ITEM DESCRIPTION	UNIT	ND SEGMENT	SD SEGMENT	TOTAL
709	0151	GEOSYNTHETIC MATERIAL TYPE R1	SY	945		945
714	0615	PIPE CONC REINF 24IN CL III	LF	6	8	14
714	3020	END SECT-CONC REINF 24IN	EA	2		2
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES	EA		1	1
722	4580	RESET PRECAST CONCRETE MEDIAN DRAIN	EA	2		2
748	0141	CURB & GUTTER-TYPE 1 SPECIAL	LF	40		40
754	0162	REMOVE & RESET DELINEATORS	EA	161	6	167
754	0596	RESET MILE POST	EA	11		11
754	0805	OBJECT MARKERS - CULVERTS	EA		1	1
760	0001	RUMBLE STRIPS - CONCRETE SHOULDER	MILE	1.56	0.14	1.7
760	0005	RUMBLE STRIPS - ASPHALT SHOULDER	MILE	20.91	1.19	22.1
762	0113	EPOXY PVMT MK 4IN LINE	LF	258,886	15,008	273,894
762	0115	EPOXY PVMT MK 8IN LINE	LF	6,208		6,208
762	0117	EPOXY PVMT MK 24IN LINE	LF	360		360
762	0200	RAISED PAVEMENT MARKERS	EA	29,271		29,271
762	1104	PVMT MK PAINTED 4IN LINE	LF	59,753		59,753
762	1305	PREFORMED PATTERNED PVMT MK 4IN LINE-GROOVED	LF	29,928	4,422	34,350
764	0131	W-BEAM GUARDRAIL	LF	104		104
764	0145	W-BEAM GUARDRAIL END TERMINAL	EA	2		2
764	0151	REMOVE W-BEAM GUARDRAIL & POSTS	LF	558		558
764	1010	RESET 3-CABLE GUARDRAIL	LF		156	156
764	1050	RESET W-BEAM GUARDRAIL	LF	338		338
764	2020	REMOVE 3-CABLE GUARDRAIL & POSTS	LF		156	156
764	2081	REMOVE END TREATMENT & TRANSITION	EA	4		4
910	0565	CONTROLLED DENSITY BACKFILL	CY	17		17
930	7012	ROADWAY CANOPY	L SUM	1		1

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	10	1

SURFACING - PCC CRACKING AND SEATING, HMA OVERLAY

				I-29 Southbound Roadway Tangent Section 37' Wide Roadway Section				I-29 Southbound Roadway South Dakota: 38' Wide Roadway Section				I-29 Southbound Roadway Curve Section 37' Wide Roadway Section				I-29 Southbound Rdwy with Acceleration Lane South Dakota: 46' Wide Roadway Section				I-29 Sorthbound Roadway with Acceleration Lane Taper South Dakota: 46' to 38' Wide Roadway Section				
				Sta 1682+52.90 to Sta 1741+00 Sta 1750+00 to Sta 1792+90.33 Sta 1808+97.73 to Sta 1846+25 Sta 1855+75 to Sta 2057+00 Sta 2066+00 to Sta 2163+00 Sta 2172+50 to Sta 2216+05.78 Sta 2241+05.94 to Sta 2273+00.00				Sta 19+02.98 to 25+99.3 BK= Sta 24+52.75 AHD to Sta 30+00				Sta 2216+05.78 to Sta 2241+05.94				Sta 3+91.76 to Sta 15+02.92				Sta 15+02.92 to Sta 19+02.98				
				Total Stations = 512.40				Total Stations = 12.44				Total Stations = 25.00				Total Stations = 11.11				Location = 400.06 ft				
SPEC	CODE	BID ITEM	UNIT	Width (ft)	Depth (in)	Quantity per Station	SubTotal	Width (ft)	Depth (in)	Quantity per Station	SubTotal	Width (ft)	Depth (in)	Quantity per Station	SubTotal	Width (ft)	Depth (in)	Quantity per Station	SubTotal	Area (SY or CY)	Width (ft)	Depth (in)	Quantity per Location	SubTotal
230	0125	SHOULDER PREPARATION	MILE	--	--	0.0379	19.409	–	–	0.0379	0.471	--	--	0.0379	0.947	--	--	0.0379	0.421	SY =889.02	10 per side	--	0.152	0.152
401	0050	TACK COAT @ 0.05 GAL/SY	GAL	37.84	--	42.2	21,623	38.83	–	43.2	537	37.84	--	42.2	1,055	46.86	--	52.2	580	SY= 1866.95	46 to 38	--	186.6	188
401	0070	FOG SEAL @ 0.10 GAL/SY	GAL	10	--	11.2	5,739	10	–	11.2	139	10	--	11.2	280	6	--	6.7	74	SY=266.71	6	--	26.7	27
430	0045	SUPERPAVE FAA 45 @ 2 TON/CY	TON	27	2	33.7	17,266	28	2	34.9	434	37	2	33.7	843	28	2	34.9	388	CY=69.86	28	2	139.7	140
430	0045	SUPERPAVE FAA 45 @ 2 TON/CY	TON	10	4	24.7	12,655	10	4	24.7	307	10	4	24.7	618	18	4	44.5	494	CY=69.16	18 to 10	4	138.3	139
430	0200	HOT MIX ASPHALT- STONE MATRIX ASPHALT	TON	27	2	34.4	17,626	28	2	35.6	443	37	2	34.4	861	28	2	35.6	396	CY=71.25	28	2	142.5	143
430	5828	PG 58-28 ASPHALT CEMENT @ 6.0% OF HMA	TON	10	4	1.5	759	10	4	1.5	19	10	4	1.5	37	18	4	2.7	30	CY=69.16	18 to 10	4	8.3	9
430	6428	PG 64-28 ASPHALT CEMENT @ 6.0% OF HMA	TON	27	2	2.0	1,036	28	2	2.1	26	27	2	2.0	51	28	2	2.1	23	CY=69.86	28	2	8.4	9
430	6434	PG 64-34 ASPHALT CEMENT @ 6.0% OF HMA	TON	27	2	2.1	1,058	28	2	2.1	27	27	2	2.1	52	28	2	2.1	24	CY=71.25	28	2	8.5	9
550	0968	PCC PAVEMENT CRACKING & SEATING	SY	37	--	411.2	210,699	38	–	422.3	5,253	37	--	411.2	10,280	46	--	511.2	5,679	SY = 1866.95	46 to 38	--	1866.9	1,867

SURFACING - PAVEMENT TRANSITIONS

				I-29 Northbound Roadway Tangent Section 37' Wide Section (2" Overlay to 2" Mill Transition)				I-29 Northbound Roadway South Dakota Section 38' Wide Section (2" Overlay to 2" Mill Transition)				I-29 Northbound Roadway Tangent Section 37' Wide Section (4" Overlay to 2" Mill Transition)				I-29 Northbound Roadway South Dakota Section 38' Wide Section (4" Overlay to 2" Mill Transition)			
				Sta 1678+52.90 to Sta 1680+52.90				Sta 32+00 to Sta 34+00				Sta 1680+52.90 to Sta 1682+52.90				Sta 30+00 to Sta 32+00			
				Total Stations = 2.00				Total Stations = 2.00				Total Stations = 2.00				Total Stations = 2.00			
SPEC	CODE	BID ITEM	UNIT	Width (ft)	Depth (in)	Quantity per Station	SubTotal	Width (ft)	Depth (in)	Quantity per Station	SubTotal	Width (ft)	Depth (in)	Quantity per Station	SubTotal	Width (ft)	Depth (in)	Quantity per Station	SubTotal
230	0125	SHOULDER PREPARATION	MILE	--	--	0.0379	0.076	–	–	0.0379	0.076	--	--	0.0379	0.076	--	--	0.0379	0.076
401	0050	TACK COAT @ 0.05 GAL/SY	GAL	37.84	--	21.1	42	38.83	–	21.6	43	37.84	--	42.2	84	38.83	--	43.2	86
401	0070	FOG SEAL @ 0.10 GAL/SY	GAL	10	--	11.2	22	10	–	11.2	22	10	--	11.2	22	10	--	11.2	22
411	0110	MILLING PCC PAVEMENT	SY	37	2	411	822	38	2	422	844	37	2	411	822	38	2	422	844
430	0045	SUPERPAVE FAA 45 @ 2 TON/CY	TON	--	--	--	–	–	–	--	--	27	2	33.8	68	28	2	34.9	70
430	0045	SUPERPAVE FAA 45 @ 2 TON/CY	TON	10	2	12.3	25	10	2	12.3	25	10	4	24.5	49	10	4	24.7	49
430	0200	HOT MIX ASPHALT - STONE MATRIX ASPHALT	TON	27	2	34.4	69	28	2	35.6	71	27	2	34.4	69	28	2	35.6	71
430	5828	PG 58-28 ASPHALT CEMENT @ 6.0% OF HMA	TON	10	2	0.7	1.5	10	2	0.7	1.5	10	4	1.5	2.9	10	4	1.5	3.0
430	6428	PG 64-28 ASPHALT CEMENT @ 6.0% OF HMA	TON	--	--	--	–	–	–	--	--	27	2	2.0	4.1	28	2	2.1	4.2
430	6434	PG 64-34 ASPHALT CEMENT @ 6.0% OF HMA	TON	27	2	2.1	4.1	28	2	2.1	4.3	27	2	2.1	4.1	28	2	2.1	4.3
550	0968	PCC PAVEMENT CRACKING & SEATING	SY	37	--	411.2	822.4	38	–	422.3	844.6	37	--	411.2	822.4	38	--	422.3	844.6

SURFACING - PCC RECONSTRUCTION

				I-29 Southbound Roadway 38' Wide Roadway Section				I-29 SB Rdwy, Accel. Lane, NW Loop Ramp: Variable Width Rdwy Section - North Dakota Side			I-29 Southbound Roadway with Acceleration LN 46' Wide Roadway Section - South Dakota Side			I-29 Southbound Roadway Acceleration Lane 18' to 10' Wide Reconstruction - SD Side		
				Sta 1741+00 to Sta 1750+00 Sta 1846+25 to Sta 1855+75 Sta 2057+00 to Sta 2066+00 Sta 2163+00 to Sta 2172+50				Sta 2273+00.00 to Sta 2277+08.24/0+00.00 2277+08.24/0+00.00 to 2277+30.41/0+22.17 - (Int. Pt. of CL SB Rdwy & State Boundary Line) Includes: SB Rdwy, Accel. LN, SLI NW Loop Ramp			Sta 2277+30.41/0+22.17(Int. Pt. of CL SB Rdwy & State Boundary Line) to Sta 2281+00.00/3+91.76			Sta 2288+71.22 - 64' Rt. /11+62.98 - 64' Rt SD to Sta 2296+11.22 - 64' Rt / 19+02.98 - 64' Rt. SD		
				Total Stations = 37.00				Location = 430.41 ft			Location = 369.59 ft			Location = 740.00 ft		
SPEC	CODE	BID ITEM	UNIT	Width (ft)	Depth (in)	Quantity per Station	SubTotal	Area (SY or CY)	Quantity per Location	SubTotal	Area (SY or CY)	Quantity per Location	SubTotal	Area (SY or CY)	Quantity per Location	SubTotal
202	0114	REMOVAL OF CONCRETE PAVEMENT	SY	37	--	411.1	15,211.111	SY = 2,323.57	2,323.6	2,323.6	SY = 1,873.73	1,873.7	1,873.7	SY= 1,000.03	1,000.0	1,000.0
302	0100	SALVAGED BASE COURSE @ 1.875 TON/CY	TON	42	Var.	220.7	8,164.5	CY = 606.86	1,137.9	1137.9	CY = 484.19	907.9	907.9	CY = 303.86	569.7	569.7
550	0105	6IN NON-REINF CONCRETE PAVEMENT CL AE	SY	8	6.0	88.9	3,288.9	SY = 181.96	182.0	182.0	SY = 158.95	159.0	159.0	SY = 328.92	328.9	328.9
550	0305	9IN NON-REINF CONCRETE PVMT CL AE-DOWELED	SY	30	9.0	333.3	12,333.3	SY = 2,188.70	2,188.7	2,188.7	SY = 1,714.78	1,714.8	1,714.8	SY = 973.27	973.3	973.3

This document was originally issued and sealed by Derek Pfeifer, Registration Number PE-12241, on 8-17-16 and the original document is stored at the North Dakota Department of Transportation

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Basis of Estimate
Surfacing: Pavement Transitions, PCC Pavement Reconstruction, and PCC Crack and Seat

Crack and Seat with 4" HMA Overlay
I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	10	2

MATERIALS

SALVAGED BASE COURSE @ 1.5 TON/CY + 25% = 1.875 TON/CY
TACK COAT @ 0.05 GAL/SY
FOG SEAL @ 0.10 GAL/SY
SUPERPAVE FAA 45 @ 2.0 TON/CY
HMA - SMA @ 2.0 TON/CY
PG 58-28 ASPHALT CEMENT @ 6.0% of SUPERPAVE FAA 45
PG 64-34 ASPHALT CEMENT @ 6.0% of HMA - SMA
PG 64-28 ASPHALT CEMENT @ 6.0% of SUPERPAVE FAA 45

216-0100 WATER:
Water for Compaction:
20 Gal/Ton for Salvaged Base Course
10 Gal/CY for Embankment

Water for Dust Palliative:
25 MGal/Mile

REMOVAL OF PAVEMENT AND BASE COURSE
Removal of Bituminous Surfacing @ 1.875 TON/CY
Milling Pavement Surface @ 2 TON/CY
Removal of Concrete Pavement @ 2 TON/CY
Remove Aggregate Base @ 1.5 TON/CY

SEEDING AND MULCHING FOR SHOULDER PREPARATION LOCATIONS

For all other locations - See Section 76 & 77 Sheet quantities
North Dakota:
251-0200: SEEDING CLASS II = 24.5 ACRES
251-2000: TEMPORARY COVER CROP = 24.5 ACRES
253-0101: STRAW MULCH = 24.5 ACRES
253-0201: HYDRAULIC MULCH = 24.5 ACRES
South Dakota:
251-0200: SEEDING CLASS II = 1.4 ACRES
251-2000: TEMPORARY COVER CROP = 1.4 ACRES
253-0101: STRAW MULCH = 1.4 ACRES
253-0201: HYDRAULIC MULCH = 1.4 ACRES

SECTION 110
754-0162 Remove & Reset Delineator EA 167
754-0596 Reset Mile Post EA 11

430-1000 CORED SAMPLE: Mainline in North Dakota							
	A	B	C	D			
Specification Section	Lanes	Lifts	Distance (Feet)	Sublots (A x B x C) ÷ 2000	Quantity (D x 2)	Quantity (1 per mile)	Unit
430.04 I.2.b(1), "General"	2	1	55503	56	112	N/A	EA
430.04 I.2.b(2) "Pavement Thickness Determination Cores"					N/A	11	EA
				Total =	112	11	EA

430-1000 CORED SAMPLE: Mainline in South Dakota							
	A	B	C	D			
Specification Section	Lanes	Lifts	Distance (Feet)	Sublots (A x B x C) ÷ 2000	Quantity (D x 2)	Quantity (1 per mile)	Unit
430.04 I.2.b(1), "General"	2	1	3155	3	6	N/A	EA
430.04 I.2.b(2) "Pavement Thickness Determination Cores"					N/A	1	EA
				Total =	6	1	EA

	SPEC	CODE	BID ITEM	UNIT	QUANTITY
ND	760	0001	RUMBLE STRIPS - CONCRETE SHOULDER	MILE	1.56
SD	760	0001	RUMBLE STRIPS - CONCRETE SHOULDER	MILE	0.14
ND	760	0005	RUMBLE STRIPS - ASPHALT SHOULDER	MILE	20.91
SD	760	0005	RUMBLE STRIPS - ASPHALT SHOULDER	MILE	1.19

ND SB Rdwy White Edge Lines - Epoxy Pvmt Mk 4IN Line		
Location - I29	Basis	Quantity (LF)
1678+52.90 to 2273+16.27	5,280 LF/mile	54,133
	Subtotal	54,133

ND: SB Rdwy Yellow Edge Lines - Epoxy Pvmt Mk 4IN Line		
Location - I29	Basis	Quantity (LF)
1678+52.90 to 2277+25.29	5,280 LF/mile	59,873
	Subtotal	59,873

ND: NB Rdwy White Edge Lines - Epoxy Pvmt Mk 4IN Line		
Location - I29	Basis	Quantity (LF)
1678+52.90 to 2269+51.53	5,280 LF/mile	52,448
	Subtotal	52,448

ND: NB Rdwy Yellow Edge Lines - Epoxy Pvmt Mk 4IN Line		
Location - I29	Basis	Quantity (LF)
1678+52.90 to 2276+91.17	5,280 LF/mile	59,099
	Subtotal	59,099

ND: NB & SB Rdwys - ND 11, Rest Area, Lamars, & State LIne EXIT TAPERED Ramps	
Epoxy Pvmt Mk Basis of Estimate for 6 - Exit Tapered Ramps	
8" White Channel Line(Epoxy Pvmt Mk 8IN Line)	6 x 580 LF/Ramp = 3,480 LF
24" White Stop Line(Epoxy Pvmt Mk 24IN Line)	5 x 60 LF/Ramp = 300 LF
4" White Dotted Line(Epoxy Pvmt Mk 4IN Line)	6 x 148 LF/Ramp = 888 LF
4" White Edge Line(Epoxy Pvmt Mk 4IN Line)	6 x 1,115 LF/Ramp = 6,690 LF
4" Yellow Edge Line(Epoxy Pvmt Mk 4IN Line)	6 x 1,075 LF/Ramp = 6,450 LF

ND: NB & SB Rdwys - ND 11, Rest Area, Lamars, & State Line ENTRANCE TAPERED Ramps	
Epoxy Pvmt Mk Basis of Estimate for 6 - Entrance Ramps	
8" White Channel Line(Epoxy Pvmt Mk 8IN Line)	6 x 390 LF/Ramp = 2,340 LF
4" White Dotted Line(Epoxy Pvmt Mk 4IN Line)	6 x 258 LF/Ramp =1,548 LF
4" White Edge Line(Epoxy Pvmt Mk 4IN Line)	6 x 1,270 LF/Ramp = 7,620 LF
4" Yellow Edge Line(Epoxy Pvmt Mk 4IN Line)	6 x 1,075 LF/Ramp = 6,450 LF

ND: SB Rdwy State Line, NW ENTRANCE RAMP with PARRALEL ACCELERATION LANE	
Epoxy Pvmt Mk Basis of Estimate for ND Side	
8" White Channel Line(Epoxy Pvmt Mk 8IN Line)	388 LF/Ramp = 388 LF ND Side
4" White Dotted Line(Epoxy Pvmt Mk 4IN Line)	576 LF/Ramp = 56 LF ND Side
4" White Edge Line(Epoxy Pvmt Mk 4IN Line)	2,481 LF/Ramp = 410 LF ND Side
4" Yellow Edge Line(Epoxy Pvmt Mk 4IN Line)	1,075 LF/Ramp = 1,075 LF ND Side

SD: SB Rdwy State Line, NW ENTRANCE RAMP with PARRALEL ACCELERATION LANE	
Epoxy Pvmt Mk Basis of Estimate for SD Side	
4" White Dotted Line(Epoxy Pvmt Mk 4IN Line)	576 LF/Ramp = 520 LF SD Side
4" White Edge Line(Epoxy Pvmt Mk 4IN Line)	2,481 LF/Ramp = 2,071 LF SD Side

ND: NB Rdwy State Line, NE EXIT RAMP with PARRALEL DECELERATION LANE	
Epoxy Pvmt Mk Basis of Estimate for ND Side	
8" White Channel Line(Epoxy Pvmt Mk 8IN Line)	396 LF/Ramp = 396 LF ND Side
4" White Dotted Line(Epoxy Pvmt Mk 4IN Line)	258 LF/Ramp = 132 LF ND Side
4" White Edge Line(Epoxy Pvmt Mk 4IN Line)	1115 LF/Ramp = 939 LF ND Side
4" Yellow Edge Line(Epoxy Pvmt Mk 4IN Line)	1075 LF/Ramp = 1,075 LF ND Side
24" White Stop Line(Epoxy Pvmt Mk 24IN Line)	60 LF/Ramp = 60 LF ND Side

SD: NB Rdwy State Line, NE EXIT RAMP with PARRALEL DECELERATION LANE	
Epoxy Pvmt Mk Basis of Estimate for SD Side	
4" White Dotted Line(Epoxy Pvmt Mk 4IN Line)	258 LF/Ramp = 126 LF SD Side
4" White Edge Line(Epoxy Pvmt Mk 4IN Line)	1,115 LF/Ramp = 176 LF SD Side

Pavement Marking Summary North Dakota				
Spec	Code	Description	Unit	Quantity
762	0113	Epoxy Pvmt Mk 4IN Line	LF	258,886
762	0115	Epoxy Pvmt Mk 8IN Line	LF	6,208
762	0117	Epoxy Pvmt Mk 24IN Line	LF	360
762	1305	Preformed Patterned Pvmt Mk 4IN Line - Grooved	LF	29,928

Note: See 762-1104 Quantities on sheet 100-1

Pavement Marking Summary South Dakota				
Spec	Code	Description	Unit	Quantity
762	0113	Epoxy Pvmt Mk 4in Line	LF	15,008
762	1305	Preformed Patterned Pvmt Mk 4IN Line - Grooved	LF	4,422

ND: SB Rdwy CL White Skip - Preformed Patterned Pvmt Mk 4IN Line Grooved		
Location - ND I-29	Basis	Quantity (LF)
1678+52.90 to 2277+30.41	1,320 LF/mile	14,970
	Subtotal	14,970

SD: SB Rdwy CL White Skip - Preformed Patterned Pvmt Mk 4IN Line Grooved		
Location - ND I-29	Basis	Quantity (LF)
0+22.17 to 34+00	1,320 LF/mile	881
	Subtotal	881

SD: SB Rdwy White Edge Lines - Epoxy Pvmt Mk 4IN Line		
Location - SD I-29	Basis	Quantity (LF)
21+02.92 to 34+00	5,280 LF/mile	1,444

SD: SB Rdwy Yellow Edge Lines - Epoxy Pvmt Mk 4IN Line		
Location - SD I-29	Basis	Quantity (LF)
0+17.05 to 34+00	5,280 LF/mile	3,530

ND: NB Mainline CL White Skip - Preformed Patterned Pvmt Mk 4IN Line Grooved		
Location - ND I-29	Basis	Quantity (LF)
1678+52.90 to 2276+86.05	1,320 LF/mile	14,958
	Subtotal	14,958

SD: NB Mainline CL White Skip - Preformed Patterned Pvmt Mk 4IN Line Grooved		
Location - ND I-29	Basis	Quantity (LF)
2276+86.05 to 34+00	1,320 LF/mile	892
	Subtotal	892

SD: NB Rdwy White Edge Lines - Epoxy Pvmt Mk 4IN Line		
Location - SD I-29	Basis	Quantity (LF)
2276+77.38 to 34+00	5,280 LF/mile	3,577

SD: NB Rdwy Yellow Edge Lines - Epoxy Pvmt Mk 4IN Line		
Location - SD I-29	Basis	Quantity (LF)
2276+91.17 to 34+00	5,280 LF/mile	3,564

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Basis of Estimate
Materials, Water, Pavement and Base Crse Removal, Seeding, Mulching, Coring, Rumble Strips, and Pvmt Marking
Crack and Seat with 4" HMA Overlay
I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	11	1

HANKINSON SEPARATION GRADE LOWERING

Station	End Area (SF)		Volume (CY)		
	Exca	*Fill	Exca	*Fill	Mass Ordinate
1741+00.00	19.683	26.373	0	0	0
1741+50.00	17.068	28.478	34.029	63.485	-29
1742+00.00	22.452	27.497	36.593	64.786	-58
1742+50.00	25.511	26.784	44.41	62.825	-76
1743+00.00	34.402	18.154	55.475	52.012	-73
1743+50.00	38.919	12.758	67.89	35.778	-40
1744+00.00	41.572	12.974	74.529	29.782	4
1744+50.00	44.426	10.855	79.628	27.58	56
1745+00.00	41.588	7.72	79.643	21.499	114
1745+50.00	29.497	5.001	65.819	14.723	166
1746+00.00	35.05	7.281	59.766	14.215	211
1746+50.00	29.724	9.858	59.976	19.837	251
1747+00.00	29.548	7.281	54.881	19.837	286
1747+14.55	29.729	7.31	15.972	4.914	297
1747+28.00	28.991	7.281	14.626	4.543	307
1747+50.00	22.753	7.285	21.081	7.418	321
1748+00.00	13.782	16.036	33.829	26.992	328
1748+50.00	8.342	29.48	20.485	52.681	296
1749+00.00	8.127	30.283	15.249	69.17	242
1749+50.00	12.368	26.765	18.977	66.028	195
1750+00.00	15.232	21.006	25.556	55.29	165
			Volume (CY)		
			Exca	*Fill	Mass Ordinate
Totals			878	713	165

*Fill quantities have been increased by 25% to account for shrinkage.

PARK LAKE SEPARATION GRADE LOWERING

Station	End Area (SF)		Volume (CY)		
	Exca	*Fill	Exca	*Fill	Mass Ordinate
2057+00.00	20	12.998	0	0	0
2057+50.00	14.321	11.547	31.779	28.409	3
2058+00.00	13.099	11.281	25.389	26.421	2
2058+50.00	17.78	9.731	28.592	24.319	7
2059+00.00	23.77	7.451	38.472	19.887	25
2059+50.00	30.062	7.281	49.844	17.051	58
2060+00.00	41.874	7.281	66.607	16.854	108
2060+50.00	38.068	7.281	74.02	16.854	165
2061+00.00	32.623	4.203	65.455	13.292	217
2061+50.00	29.433	4.201	57.459	9.727	265
2062+00.00	34.042	8.985	58.773	15.262	308
2062+50.00	36.201	8.091	65.04	19.764	354
2063+00.00	38.365	8.461	69.043	19.157	403
2063+50.00	37.731	10.183	70.459	21.579	452
2064+00.00	32.325	13.437	64.867	27.338	490
2064+50.00	25.283	16.458	53.341	34.601	509
2065+00.00	22.515	18.795	44.257	40.802	512
2065+50.00	22.01	19.941	41.227	44.833	508
2066+00.00	17.512	20.559	36.594	46.875	498
			Volume (CY)		
			Exca	*Fill	Mass Ordinate
Totals			941	443	498

*Fill quantities have been increased by 25% to account for shrinkage.

STATE LINE INTERCHANGE GRADE LOWERING

Station	End Area (SF)		Volume (CY)		
	Exca	*Fill	Exca	*Fill	Mass Ordinate
2273+00.00	14.985	23.756	0	0	0
2273+16.27	13.66	18.742	8.631	16.006	-7
2273+27.52	25.338	17.268	8.125	9.378	-9
2273+39.58	27.344	16.044	11.766	9.3	-6
2273+50.00	39.487	17.688	12.896	8.136	-1
2273+68.27	29.235	14.903	23.251	13.783	8
2273+76.72	27.051	13.439	8.808	5.544	11
2274+00.00	26.902	7.666	23.26	11.373	23
2274+50.00	27.548	7.998	50.417	18.13	56
2275+00.00	36.884	9.908	59.659	20.725	94
2275+32.54	39.975	8.15	46.315	13.602	127
2275+50.00	45.576	7.281	27.661	6.237	149
2276+00.00	65.811	7.294	103.136	16.869	235
2276+50.00	59.684	4.204	116.199	13.308	338
2277+00.00	62.927	4.204	113.529	9.731	442
2277+50.00	69.7	4.204	122.803	9.731	555
2278+00.00	76.524	6.364	135.393	12.231	678
2278+50.00	72.922	6.448	138.376	14.829	801
2279+00.00	53.83	8.462	117.363	17.257	901
2279+50.00	42.989	11.125	89.647	22.67	968
2280+00.00	31.012	13.955	68.519	29.028	1008
2280+50.00	23.359	13.863	50.344	32.197	1026
2281+00.00	20.417	13.937	40.533	32.176	1034
			Volume (CY)		
			Exca	*FIll	Mass Ordinate
Totals			1377	342	1034

*Fill quantities have been increased by 25% to account for shrinkage.

HANKINSON INTERCHANGE GRADE LOWERING

Station	End Area (SF)		Volume (CY)		
	Exca	*Fill	Exca	*Fill	Mass Ordinate
1846+25.00	19.612	10.271	0	0	0
1846+50.00	21.48	8.079	19.024	10.619	8
1847+00.00	22.997	7.916	41.182	18.513	31
1847+50.00	29.803	7.585	48.889	17.941	62
1848+00.00	41.504	7.281	66.025	17.206	111
1848+50.00	53.382	7.281	87.857	16.854	182
1849+00.00	61.796	7.281	106.646	16.854	272
1849+50.00	65.498	7.281	117.865	16.854	373
1850+00.00	61.417	7.281	117.514	16.854	473
1850+50.00	58.151	7.324	110.711	16.904	567
1851+00.00	40.212	4.399	91.077	13.568	645
1851+50.00	52.384	7.281	85.737	13.519	717
1852+00.00	53.432	7.281	97.978	16.854	798
1852+50.00	56.349	7.281	101.649	16.854	883
1853+00.00	55.137	7.281	103.228	16.854	969
1853+50.00	47.625	7.281	95.15	16.854	1047
1854+00.00	38.518	7.281	79.762	16.854	1110
1854+50.00	31.108	7.281	64.469	16.854	1158
1855+00.00	23.801	9.764	50.842	19.728	1189
1855+50.00	19.336	16.017	39.942	29.839	1199
1855+75.00	17.441	18.532	17.026	19.994	1196
			Volume (CY)		
			Exca	*Fill	Mass Ordinate
Totals			1543	346	1196

*Fill quantities have been increased by 25% to account for shrinkage.

LAMARS INTERCHANGE GRADE LOWERING

Station	End Area (SF)		Volume (CY)		
	Exca	*Fill	Exca	*Fill	Mass Ordinate
2163+00.00	17.968	24.921	0	0	0
2163+50.00	20.542	25.292	35.657	58.117	-22
2164+00.00	25.04	16.612	42.206	48.5	-29
2164+50.00	30.551	11.011	51.473	31.971	-9
2165+00.00	39.527	7.281	64.887	21.171	34
2165+50.00	47.898	7.281	80.949	16.854	99
2166+00.00	49.707	7.281	90.375	16.854	172
2166+50.00	52.024	7.281	94.195	16.854	249
2167+00.00	48.342	8.262	92.931	17.99	324
2167+50.00	38.697	4.204	80.592	14.428	391
2168+00.00	48.198	7.281	80.458	13.293	458
2168+50.00	47.831	10.789	88.916	20.914	526
2169+00.00	49.984	10.505	90.569	24.646	592
2169+50.00	51.522	7.281	93.987	20.586	665
2170+00.00	45.316	7.281	89.665	16.854	738
2170+50.00	32.654	10.82	72.194	20.95	789
2171+00.00	23.094	15.644	51.619	30.63	810
2171+50.00	18.691	23.839	38.69	45.698	803
2172+00.00	19.313	22.253	35.189	53.347	785
2172+50.00	20.191	21.066	36.578	50.138	771
			Volume (CY)		
			Exca	*Fill	Mass Ordinate
Totals			1311	540	771

*Fill quantities have been increased by 25% to account for shrinkage.

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Earthwork Summary Data Tables

Crack and Seat with 4" HBP Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	11	2

EARTHWORK SUMMARY

	Location	Common Excavation - Type A (CY)	Embankment (CY)	Excess Excavation (CY)	Borrow Excavation (CY)	Topsoil - From Stripping (CY)
		Pay Item			Pay Item	Pay Item
		A	B	C = A - B	D	E
North Dakota PCC Reconstruction/Grade Lowering/Temporary Ramp Connection	1. Hankinson Grade Separation (Sta 1741+00 to Sta 1750+00)	879	714	165	0	982
	2. Hankinson Interchange (Sta 1846+25 to Sta 1855+75)	1,543	350	1,193	0	577
	3. Park Lake Grade Separation (Sta 2057+00 to Sta 2066+00)	940	443	497	0	721
	4. LaMars Interchange (Sta 2163+00 to Sta 2172+50)	1,309	541	768	0	802
	5. NW Loop Ramp State Line Interchange Work Zone Traffic Control Temporary Ramp Connection (Sta 0+32.94 to Sta 2+89.25)	0	661	661	661	235
	6. ND Side - State Line Interchange (Sta 2273+00 to Sta 2277+30.41)	691	164	527	0	255
ND TOTALS 1 thru 6		**5,362**	**2,873**	**3,811**	**661**	**3,572**
South Dakota PCC Reconstruction/Grade Lowering	7. SD Side - State Line Interchange (Sta 2277+30.41 to Sta 2281+00.00)	687	178	509	0	260
South Dakota Acceleration Lane Reconstruction	8. SD Side-State Line Interchange Acceleration Lane Reconstruction (Sta 2288+71.22 to Sta 2296+11.22) See Note 2.	552	123	429	0	348
SD TOTALS 7 thru 8		**1,239**	**301**	**938**	**0**	**608**
TOTALS 1 thru 8		**6,601**	**3,174**	**4,749**	**661**	**4,180**

EARTHWORK SUMMARY NOTES:

Note 1: 25 percent additional volume is included for shrinkage in embankment.

Note 2: Quantities for Location 8 were calculated using existing typical section. No survey was available within the acceleration lane reconstruction area.

Note 3: 661 CY of embankment for Location 5 may be obtained from excess excavation from Locations 1-4 if available when needed.

SALVAGED BASE COURSE SUMMARY

Location	Removal of Concrete Pavement (TON)	Remove Aggregate Base (TON)	Available Salvaged Base Course (TON)	Required Salvaged Base Course (TON)	Aggregate Base Course Cl 5 Additional Material Required (TON)
	A	B	C = A+B	D	E = D - C
North Dakota Locations 1-6					
(1.) Hankinson Grade Separation Bridge 29-010.068	1,850.0	0.0	1,850.0	1,986.0	136.0
(Grade Lowering & Reconstruction)					
(2.) CP Railway Separation Bridge 29-008.999L	0.0	259.8	259.8	346.6	86.8
(Guardrail Lt. & Rt.)					
(3.) Hankinson Interchange Bridge 29-008.073	1,952.8	0.0	1,952.8	2,096.3	143.5
(Grade Lowering & Reconstruction)					
(4.) Park Lake Grade Separation Bridge 29-004.087	1,850.0	0.0	1,850.0	1,986.0	136.0
(Grade Lowering & Reconstruction)					
(5.) Lamars Interchange Bridge 29-002.074	1,952.8	0.0	1,952.8	2,096.3	143.5
(Grade Lowering & Reconstruction)					
(6.) ND Side - State Line Interchange Bridge 29-000.013	1,161.8	0.0	1,161.8	1,137.9	-23.9
(Includes SB Rdwy, NW Loop Ramp, Acceleration Lane:					
Grade Lowering & Reconstruction)					
(7.) SB Rdwy Surfacing between Shldr. & Bridge Slope Protection for	0.0	37.8	37.8	45.8	8.0
Bridges: 29-010.068, 29-008.073, 29-004.087, 29-002.074, 29-000.013)					
(8.) Temporary Ramp Connection for Work Zone Traffic Control NW Loop	0.0	0.0	0.0	182.0	182.0
Ramp State Line Interchange					
(9.) Temporary Ramps for Work Zone Traffic Control at NW Loop Ramp	0.0	0.0	0.0	258.0	258.0
State Line Interchange					
ND TOTAL 1 thru 9 =	8,767.4	297.6	9,065.0	10,134.8	1,069.8
South Dakota Locations 7-8					
(10.) SD Side - State Line Interchange Bridge 29-000.013	936.4	0.0	936.4	907.9	-28.5
(Includes SB Rdwy and Acceleration Lane:					
Grade Lowering & Reconstruction)					
(11.) SD Side - Southbound Roadway Acceleration Lane	447.6	0.0	447.6	569.7	122.1
(18' to 10' Wide Reconstruction)					
SD TOTAL 10 thru 11 =	1,384.0	0.0	1,384.0	1,477.6	93.6
TOTALS 1 thru 11 =	10,151.4	297.6	10,449.0	11,612.4	1,163.4

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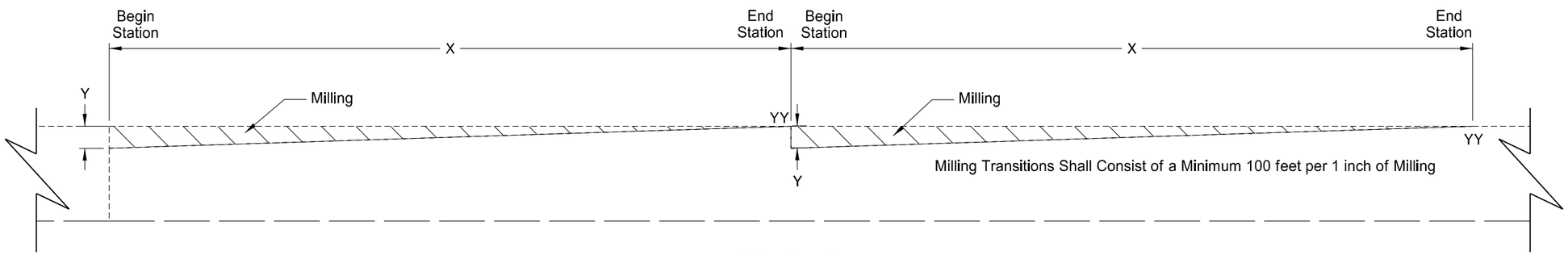
Earthwork Summary & Salvaged Base Course Summary

Crack and Seat with 4" HBP Overlay

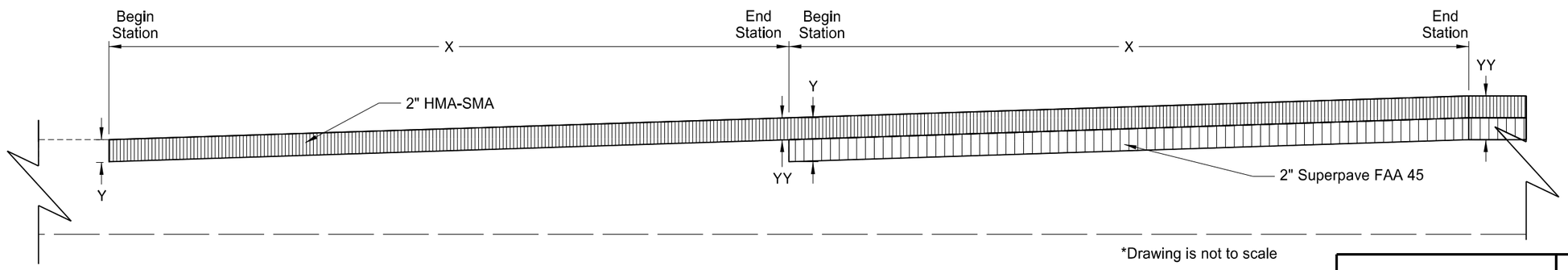
I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	20	1



Milling Transition

Project Beginning and End				
X	Begin Station	Y	End Station	YY
200 ft.	1678+52.9	2 in.	1680+52.9	0 in.
200 ft.	1680+52.9	2 in.	1682+52.9	0 in.
200 ft.	34+00	2 in.	32+00	0 in.
200 ft.	32+00	2 in.	30+00	0 in.



*Drawing is not to scale

Paving Transition

Project Beginning and End				
X	Begin Station	Y	End Station	YY
200 ft.	1678+52.9	2 in.	1680+52.9	2 in.
200 ft.	1680+52.9	4 in.	1682+52.9	4 in.
200 ft.	34+00	2 in.	32+00	2 in.
200 ft.	32+00	4 in.	30+00	4 in.

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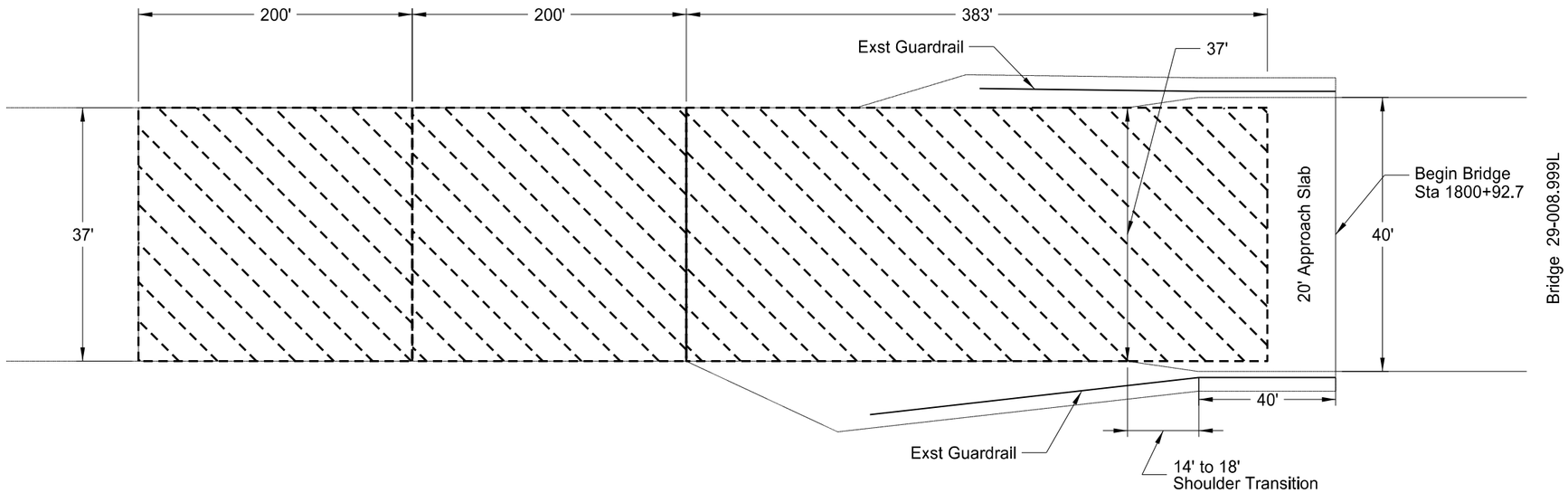
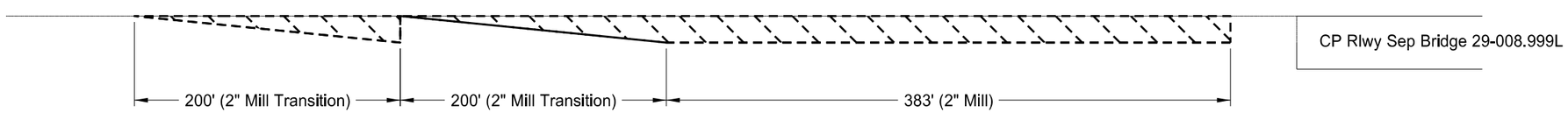
Milling and Paving Transitions
at Begin and End of Project

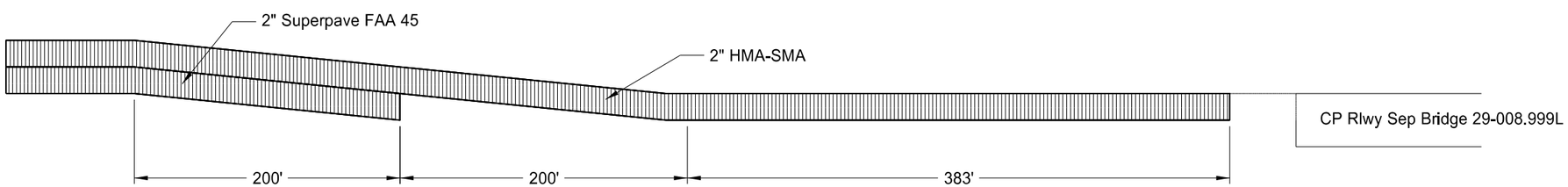
Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	20	2







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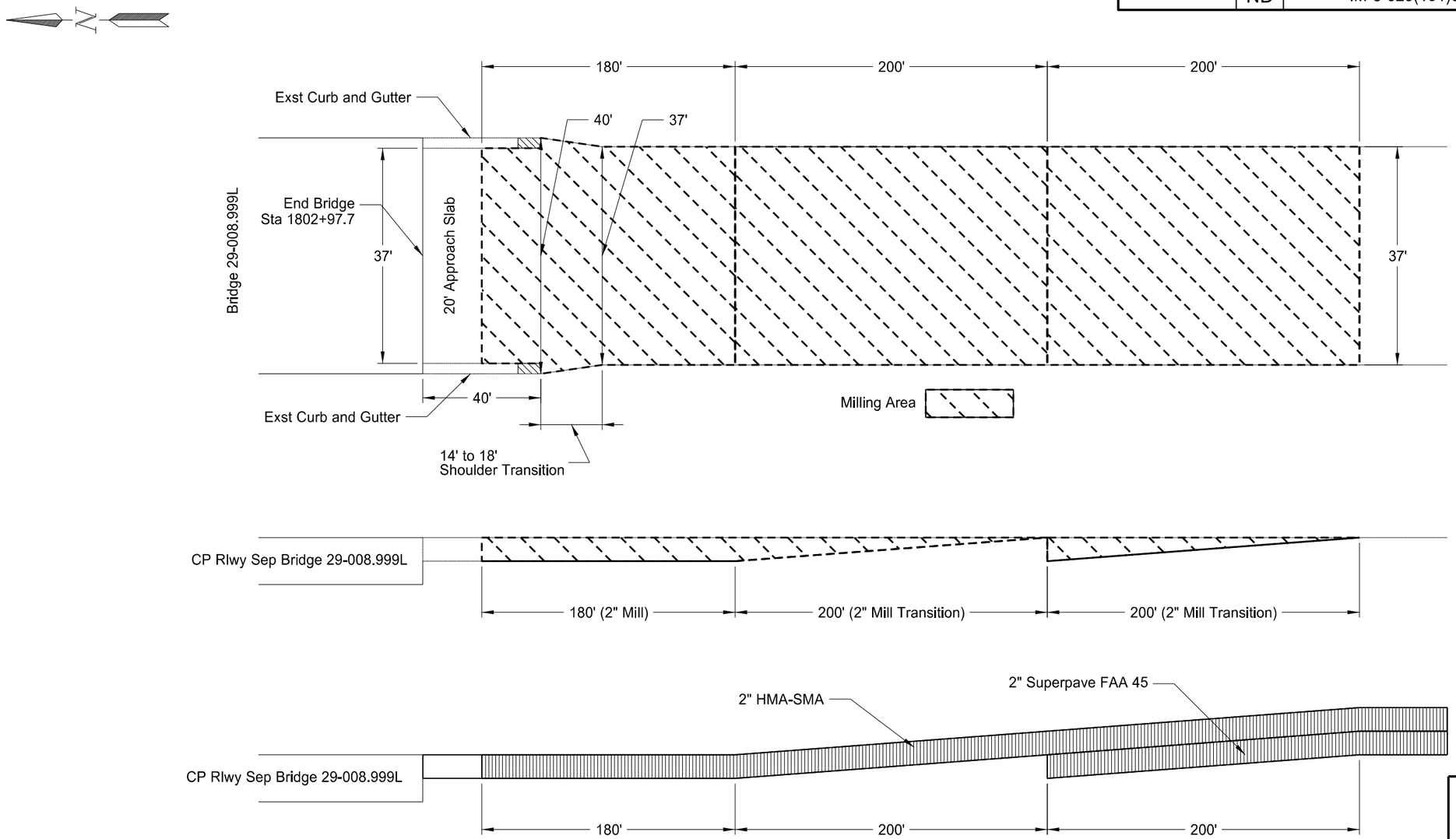
Milling and Paving Transitions
CP Railway Separation North Bridge End

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

*Drawing is not to scale

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	20	3



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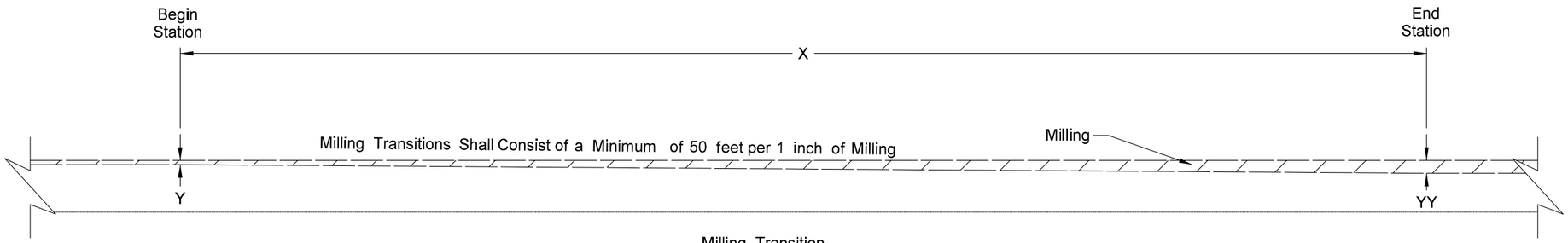
*Drawing is not to scale.

Milling and Paving Transitions
CP Railway Separation South Bridge End

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	20	4



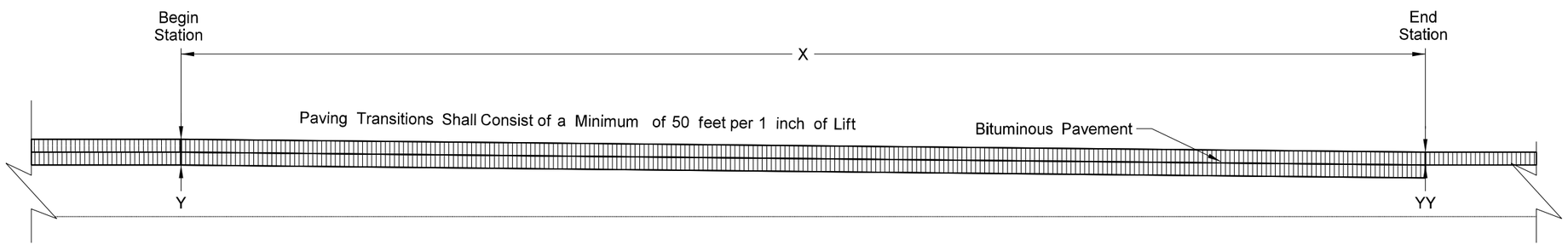
Milling Transition

Hankinson Milling Transitions

	X	Begin Station	Y	End Station	YY
NW Ramp	100 ft.	8+82.10	0 in.	9+82.10	2 in.
NW Ramp	100 ft.	18+42.15	0 in.	19+42.15	2 in.
SW Ramp	100 ft.	0+30.98	2 in.	1+30.98	0 in.
SW Ramp	100 ft.	10+14.95	2 in.	11+14.95	0 in.

LaMars Milling Transitions

	X	Begin Station	Y	End Station	YY
NW Ramp	100 ft.	8+82.10	0 in.	9+82.10	2 in.
NW Ramp	100 ft.	17+50.8	0 in.	18+50.8	2 in.
SW Ramp	100 ft.	1+02.35	2 in.	2+02.35	0 in.
SW Ramp	100 ft.	10+25.82	2 in.	11+25.82	0 in.



Paving Transition

*Drawing is not to scale.

Hankinson Paving Transitions

	X	Begin Station	Y	End Station	YY
NW Ramp	100 ft.	8+82.10	4 in.	9+82.10	4 in.
NW Ramp	100 ft.	18+42.15	2 in.	19+42.15	2 in.
SW Ramp	100 ft.	0+30.98	2 in.	1+30.98	2 in.
SW Ramp	100 ft.	10+14.95	4 in.	11+14.95	4 in.

LaMars Paving Transitions

	X	Begin Station	Y	End Station	YY
NW Ramp	100 ft.	8+82.10	4 in.	9+82.10	4 in.
SW Ramp	100 ft.	17+50.8	2 in.	18+50.8	2 in.
NW Ramp	100 ft.	1+02.35	2 in.	2+02.35	2 in.
SW Ramp	100 ft.	10+25.82	4 in.	11+25.82	4 in.

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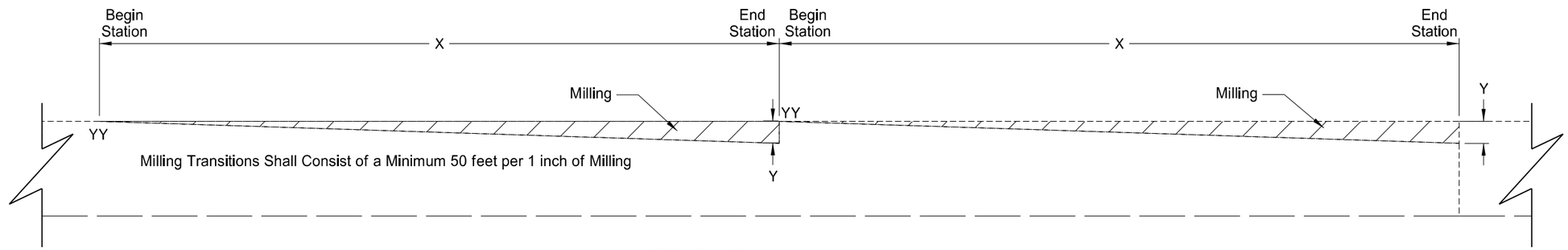
Milling and Paving Transitions
Hankinson and LaMars Intchg Ramps

Crack and Seat with 4" HMA Overlay

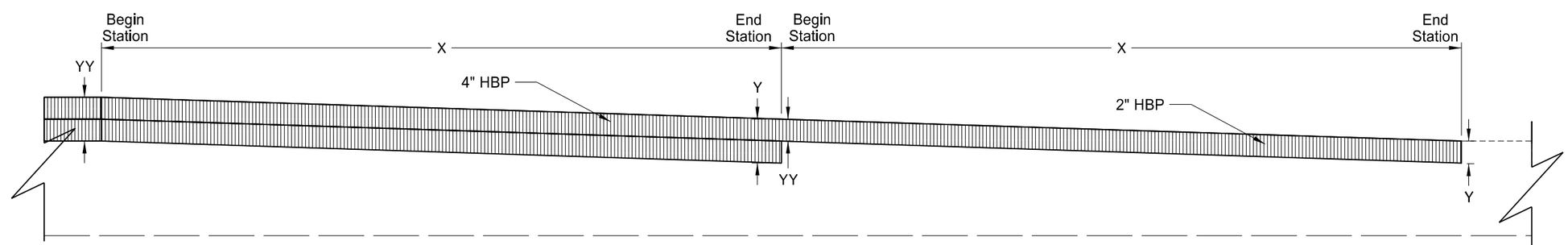
I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	20	5



Milling Transition

	X	Begin Station	YY	End Station	Y
NW Ramp	100 ft.	8+87	0 in.	9+87	2 in.
	100 ft.	9+87	0 in.	10+87	2 in.



*Drawing is not to scale

Paving Transition

	X	Begin Station	YY	End Station	Y
NW Ramp	100 ft.	8+87	4 in.	9+87	4 in.
	100 ft.	9+87	2 in.	10+87	2 in.

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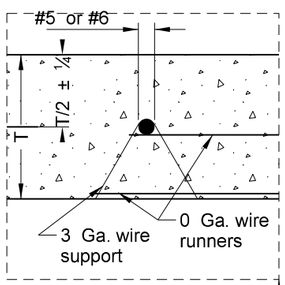
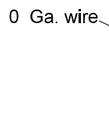
Milling and Paving Transitions
State Line Interchange NW Ramp

Crack and Seat with 4" HBP Overlay

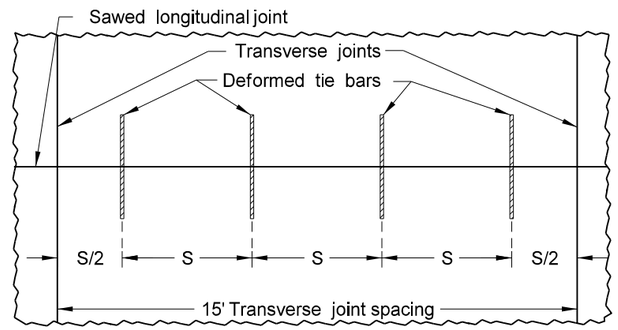
I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

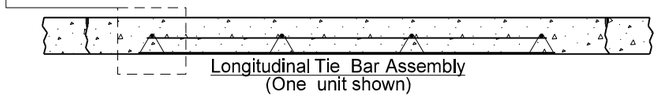
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	20	6



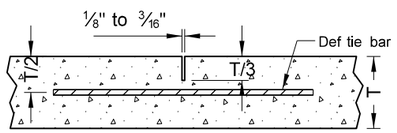


Steel stake

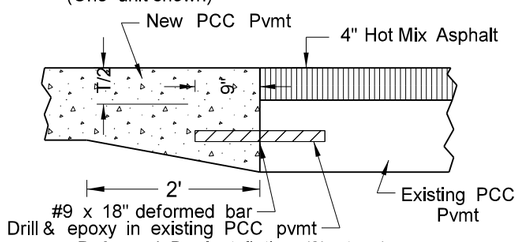




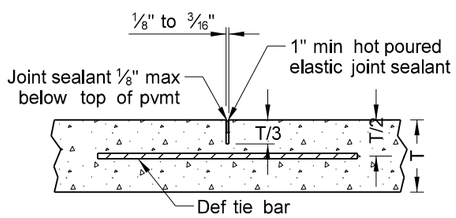
Longitudinal Tie Bar Assembly
(One unit shown)



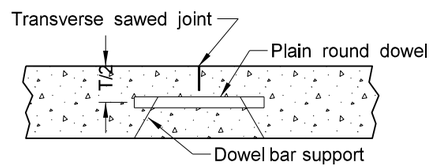
Longitudinal Joint Sawing Detail
(sawed and tied joints)



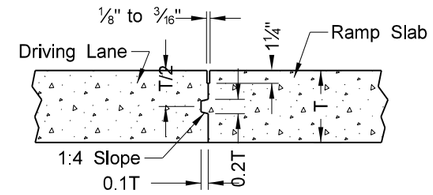
Deformed Bar Installation (2' c to c)
(Transverse Joints)



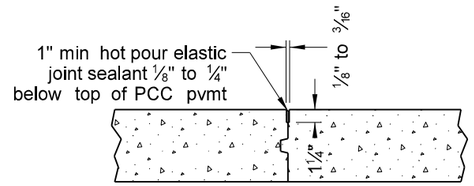
Longitudinal Joint Sealing Detail
(sawed and tied joints)



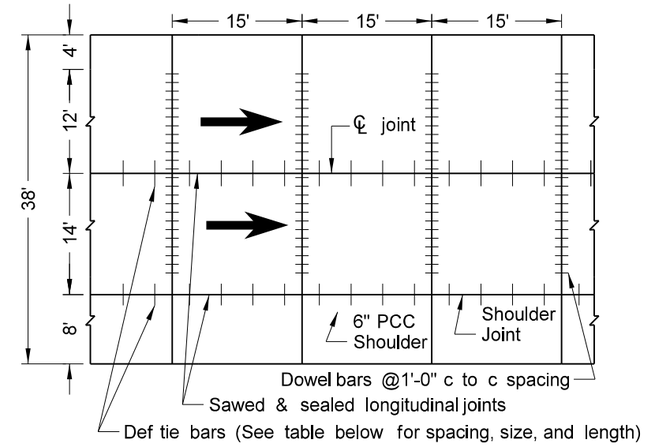
Doweled Transverse Joint



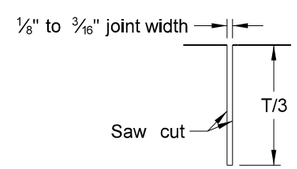
Longitudinal Joint Sawing Detail
(at ramps - non-tied keyed joints)



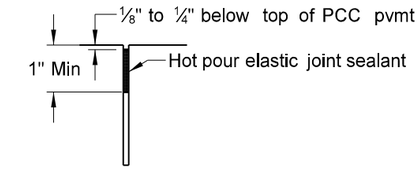
Longitudinal Joint Sealing Detail
(non-tied keyed joints)



Mainline Joints
15' joint spacing



Transverse Joint Sawing



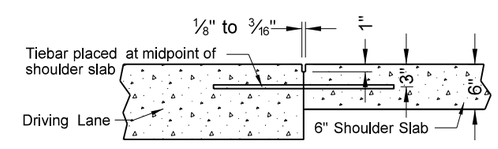
Transverse Joint Sealing

Notes:

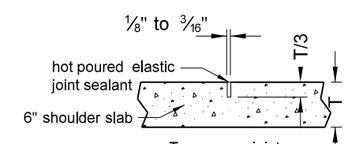
1. S = Tiebar spacing
2. T = Pavement thickness
3. Place dowels in ramp tapers also.
4. Place no tie bar within 15" of a transverse joint.

Grade 40 Longitudinal Joint Tie Bars																
PCC Depth	6"	8"	8 1/2"	9"	9 1/2"	10"	10 1/2"	11"	11 1/2"	12"	12 1/2"	13"	13 1/2"	14"	14 1/2"	15"
Mainline Centerline																
Bar Size x Length (S=30")		#5 x 30"							#6 x 36"							
Bar Size x Length (S=45")		#6 x 36"								Grade 60 Required						
Ramp/Loop Centerline																
Bar Size x Length (S=30")		#4 x 24"		#5 x 30"										#6 x 36"		
Bar Size x Length (S=45")		#5 x 30"				#6 x 36"								Grade 60 Required		
8' Shoulder Joint																
Bar Size x Length (S=45")	#4 x 24"															

Grade 60 Longitudinal Joint Tie Bars																
PCC Depth	6"	8"	8 1/2"	9"	9 1/2"	10"	10 1/2"	11"	11 1/2"	12"	12 1/2"	13"	13 1/2"	14"	14 1/2"	15"
Mainline Centerline																
Bar Size x Length (S=30")		#4 x 36"						#5 x 42"								
Bar Size x Length (S=45")		#5 x 42"								#6 x 48"						
Ramp/Loop Centerline																
Bar Size x Length (S=30")		#4 x 36"											#5 x 42"			
Bar Size x Length (S=45")		#4 x 36"		#5 x 42"										#6 x 48"		
8' Shoulder Joint																
Bar Size x Length (S=45")	#3 x 30"															



Longitudinal shoulder construction joint
(tied joint)



Transverse joint
(non-doweled wide shoulder joints)

Transverse Joint Dowel Bars

Joint Location	Dia x Length
ML	1 1/4" x 18"

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PCC Pavement Joint Details

Crack and Seat with HBP Overlay

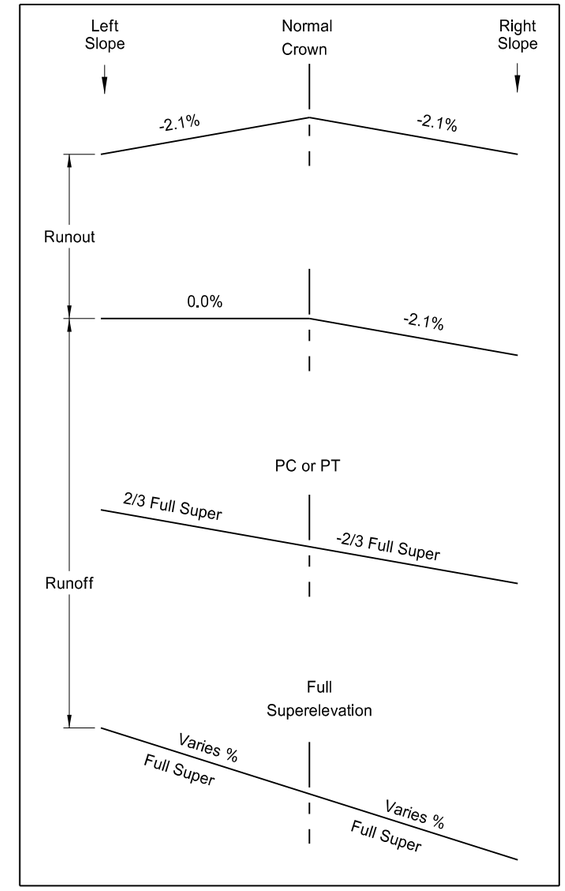
I-29 Southbound Roadway
South of State Line North 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	20	7

T.S. Station	2216+05.78
S.C. Station	2218+05.78
P.C. Station	2218+05.78
P.I. Station	2228+71.62
Delta =	23° 00' 19.00" (RT)
Degree =	1° 00' 01.00"
Tangent =	1061.9982
Length =	2100.1543
Radius =	5,728.6500
External =	97.6070
P.T. Station	2239+05.94
C.S. Station	2239+05.94
S.T. Station	2241+05.94

Station	Left Slope	Right Slope
TS - 94'	-2.1	-2.1
TS	0.0	-2.1
SC	3.8	-3.8
CS	3.8	-3.8
ST	0.0	-2.1
ST + 106'	-2.1	-2.1

Note: TS-94' and ST+106' match old plan stations for Runout



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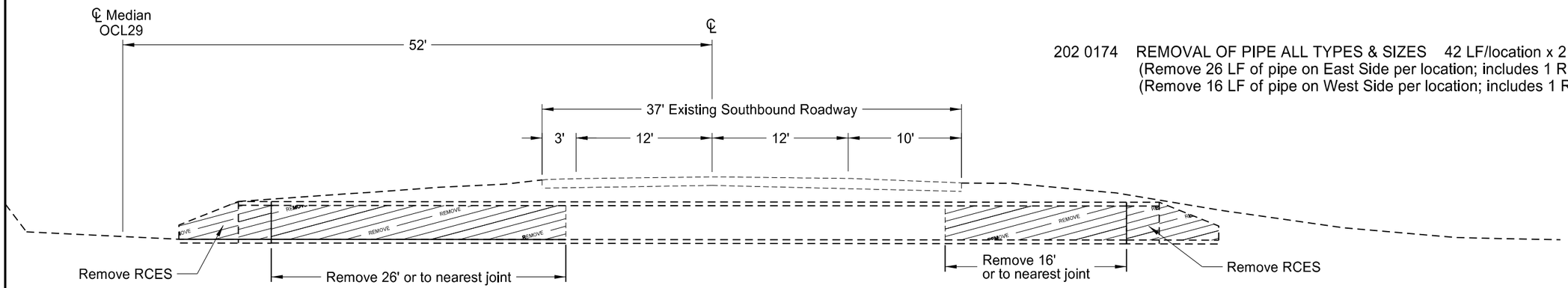
Note: Calculations based on AASHTO method five. A design speed of 75 mph and maximum superelevation of 6% were used.

Superelevation Table

Crack and Seat with 4" HBP Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

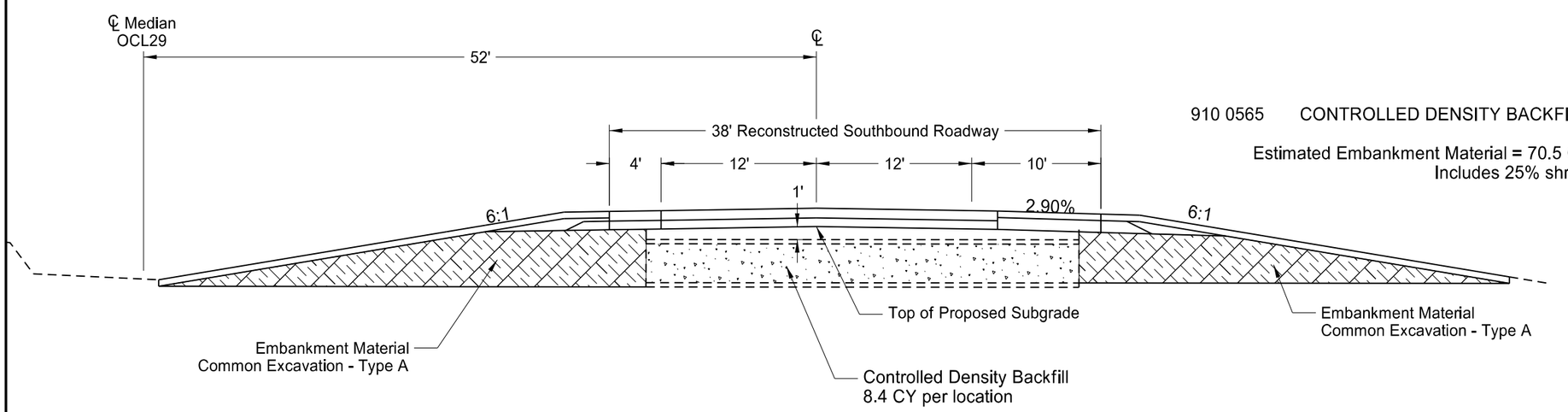
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	20	8



202 0174 REMOVAL OF PIPE ALL TYPES & SIZES 42 LF/location x 2 locations = 84 LF
(Remove 26 LF of pipe on East Side per location; includes 1 RCES)
(Remove 16 LF of pipe on West Side per location; includes 1 RCES)

REMOVAL SECTION

Sta 1747+14 Rt. and 1747+28 Rt.
Existing 36" x 74' RCP with 2 RCES per location



910 0565 CONTROLLED DENSITY BACKFILL 8.4 CY/location x 2 locations = 16.8 CY

Estimated Embankment Material = 70.5 CY/location x 2 locations = 141.0 CY
Includes 25% shrinkage factor

PROPOSED SECTION

1747+14 Rt. and 1747+28 Rt.
Remaining 36" x 32' RCP per location

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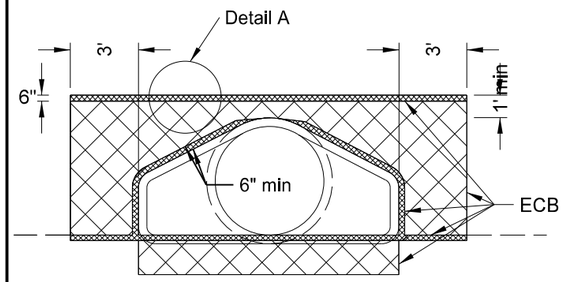
Centerline Pipe Removal and Abandonment Detail
Near Hankinson Grade Separation

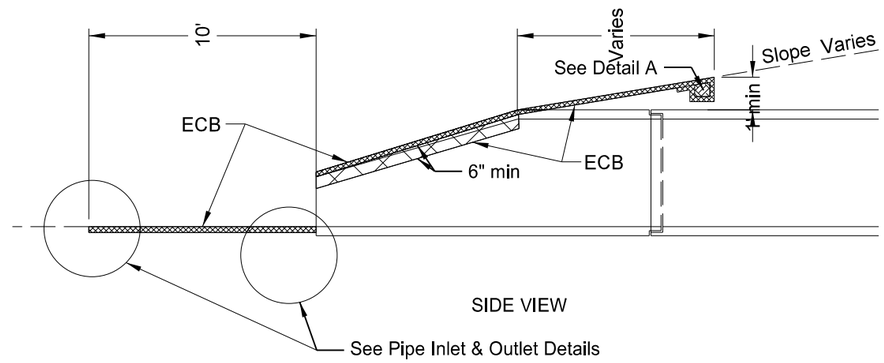
Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

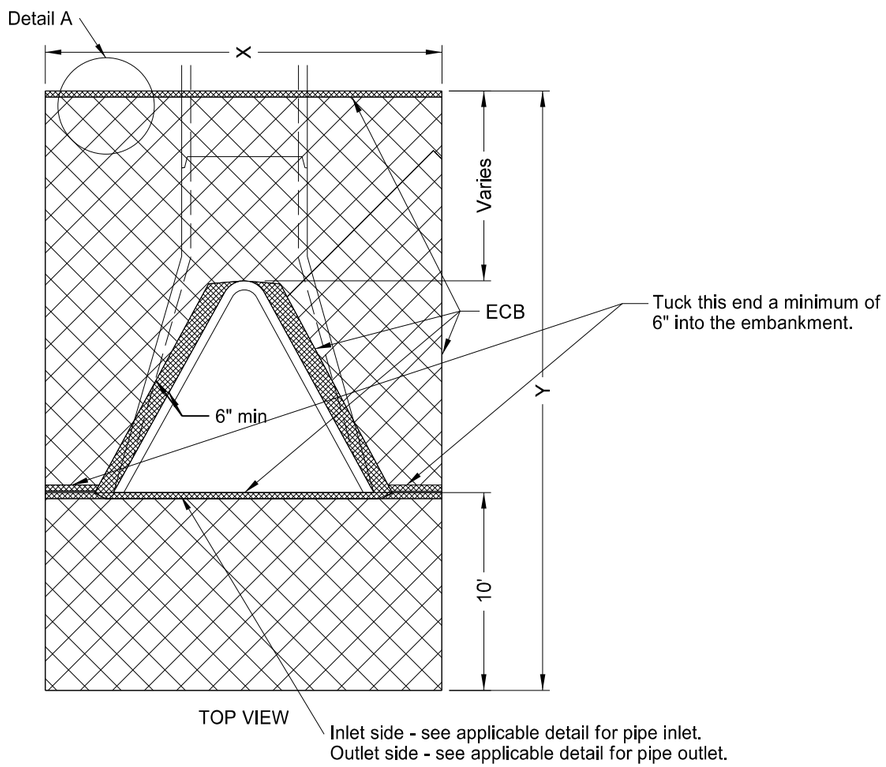
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	20	9



FRONT VIEW

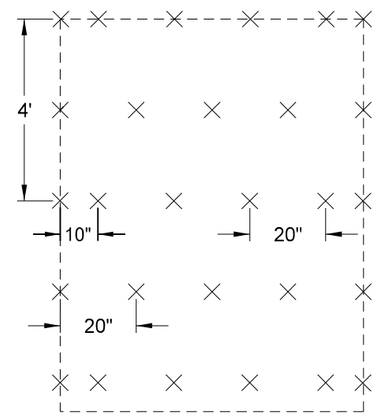


SIDE VIEW



TOP VIEW

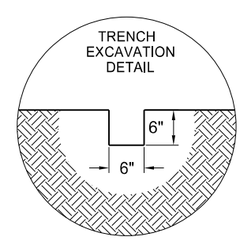
NOTE: Tuck the ECB a minimum of 6" into the embankment (against the flared end section) around the opening of the flared end section.

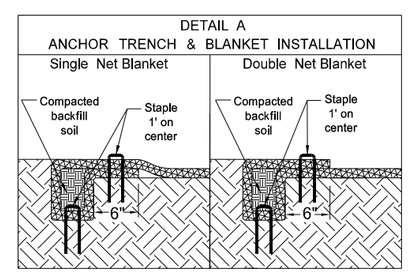


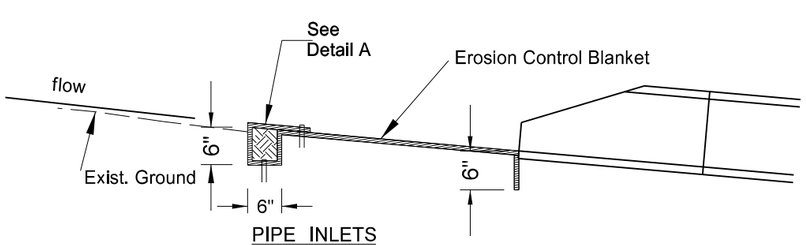
STAPLE PATTERN

DIA	X	Y	Surface area to be protected	ECB
In	Ft	Ft	SF	SY
15	9.0	20.0	176.0	20
18	9.5	20.7	190.7	21
21	9.5	21.0	190.9	21
24	10.5	21.6	214.1	24
30	11.6	22.5	241.5	27
36	12.7	23.3	268.8	30
42	13.3	23.3	279.7	31
48	13.8	24.0	293.2	33
54	14.5	23.4	300.6	33
60	15.0	23.0	307.5	34
66	15.6	24.0	325.6	36
72	16.2	24.5	340.6	38

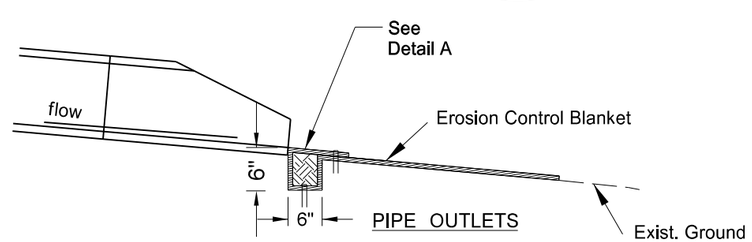
Note: - Quantities based on 8:1 slope.
- Quantities for each culvert are shown on the section 77 sheets.







PIPE INLETS



PIPE OUTLETS

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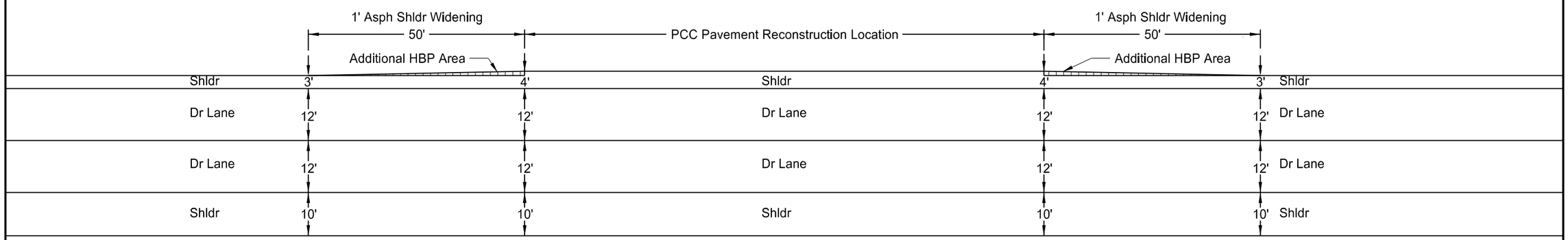
Erosion Control at Culvert End Sections

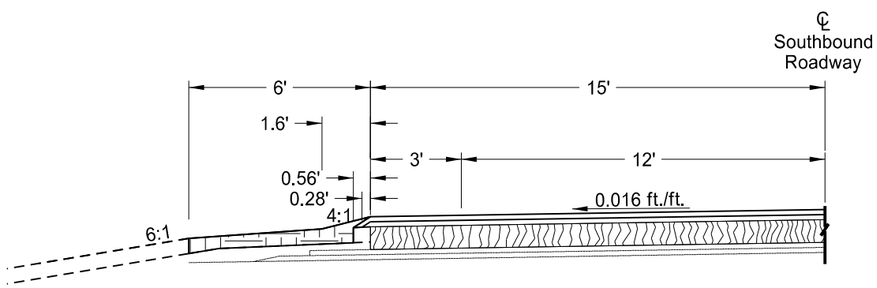
Crack and Seat with 4" HBP Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

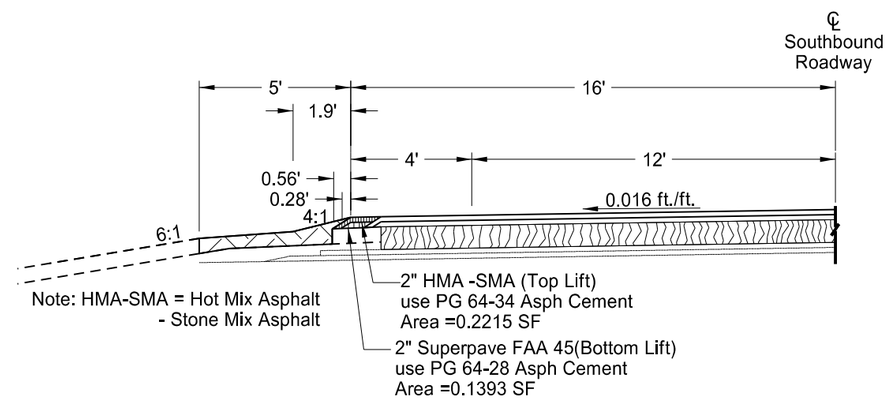
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	20	10



PLAN VIEW - SOUTHBOUND ROADWAY



PROPOSED TYPICAL WITH 3' SHOULDER - SOUTHBOUND ROADWAY



PROPOSED TYPICAL WITH 4' SHOULDER - SOUTHBOUND ROADWAY

LOCATION: 1740+50.00 - 37' Rt. to 1741+00.00 - 36' Rt.

SPEC	CODE	BID ITEM	UNIT	QUANTITY
401	0050	TACK COAT	GAL	0.23
430	0045	SUPERPAVE FAA 45	TON	0.21
430	0200	HOT MIX ASPHALT - STONE MATRIX ASPHALT	TON	0.45
430	6428	PG 64-28 ASPHALT CEMENT	TON	0.01
430	6434	PG 64-34 ASPHALT CEMENT	TON	0.03

LOCATION: 1750+00.00 - 36' Rt. to 1750+50.00 - 37' Rt.

SPEC	CODE	BID ITEM	UNIT	QUANTITY
401	0050	TACK COAT	GAL	0.23
430	0045	SUPERPAVE FAA 45	TON	0.21
430	0200	HOT MIX ASPHALT - STONE MATRIX ASPHALT	TON	0.45
430	6428	PG 64-28 ASPHALT CEMENT	TON	0.01
430	6434	PG 64-34 ASPHALT CEMENT	TON	0.03

LOCATION: 1845+75.00 - 37' Rt. to 1846+25.00 - 36' Rt.

SPEC	CODE	BID ITEM	UNIT	QUANTITY
401	0050	TACK COAT	GAL	0.23
430	0045	SUPERPAVE FAA 45	TON	0.21
430	0200	HOT MIX ASPHALT - STONE MATRIX ASPHALT	TON	0.45
430	6428	PG 64-28 ASPHALT CEMENT	TON	0.01
430	6434	PG 64-34 ASPHALT CEMENT	TON	0.03

LOCATION: 1855+75.00 - 36' Rt. to 1856+25.00 - 37' Rt.

SPEC	CODE	BID ITEM	UNIT	QUANTITY
401	0050	TACK COAT	GAL	0.23
430	0045	SUPERPAVE FAA 45	TON	0.21
430	0200	HOT MIX ASPHALT - STONE MATRIX ASPHALT	TON	0.45
430	6428	PG 64-28 ASPHALT CEMENT	TON	0.01
430	6434	PG 64-34 ASPHALT CEMENT	TON	0.03

LOCATION: 2056+50.00 - 37' Rt. to 2057+00.00 - 36' Rt.

SPEC	CODE	BID ITEM	UNIT	QUANTITY
401	0050	TACK COAT	GAL	0.23
430	0045	SUPERPAVE FAA 45	TON	0.21
430	0200	HOT MIX ASPHALT - STONE MATRIX ASPHALT	TON	0.45
430	6428	PG 64-28 ASPHALT CEMENT	TON	0.01
430	6434	PG 64-34 ASPHALT CEMENT	TON	0.03

LOCATION: 2066+00.00 - 36' Rt. to 2066+50.00 - 37' Rt.

SPEC	CODE	BID ITEM	UNIT	QUANTITY
401	0050	TACK COAT	GAL	0.23
430	0045	SUPERPAVE FAA 45	TON	0.21
430	0200	HOT MIX ASPHALT - STONE MATRIX ASPHALT	TON	0.45
430	6428	PG 64-28 ASPHALT CEMENT	TON	0.01
430	6434	PG 64-34 ASPHALT CEMENT	TON	0.03

LOCATION: 2162+50.00 - 37' Rt. to 2163+00.00 - 36' Rt.

SPEC	CODE	BID ITEM	UNIT	QUANTITY
401	0050	TACK COAT	GAL	0.23
430	0045	SUPERPAVE FAA 45	TON	0.21
430	0200	HOT MIX ASPHALT - STONE MATRIX ASPHALT	TON	0.45
430	6428	PG 64-28 ASPHALT CEMENT	TON	0.01
430	6434	PG 64-34 ASPHALT CEMENT	TON	0.03

LOCATION: 2172+50.00 - 36' Rt. to 2173+00.00 - 37' Rt.

SPEC	CODE	BID ITEM	UNIT	QUANTITY
401	0050	TACK COAT	GAL	0.23
430	0045	SUPERPAVE FAA 45	TON	0.21
430	0200	HOT MIX ASPHALT - STONE MATRIX ASPHALT	TON	0.45
430	6428	PG 64-28 ASPHALT CEMENT	TON	0.01
430	6434	PG 64-34 ASPHALT CEMENT	TON	0.03

LOCATION: 2272+50.00 - 37' Rt. to 2273+00.00 - 36' Rt.

SPEC	CODE	BID ITEM	UNIT	QUANTITY
401	0050	TACK COAT	GAL	0.23
430	0045	SUPERPAVE FAA 45	TON	0.21
430	0200	HOT MIX ASPHALT - STONE MATRIX ASPHALT	TON	0.45
430	6428	PG 64-28 ASPHALT CEMENT	TON	0.01
430	6434	PG 64-34 ASPHALT CEMENT	TON	0.03

Note: No shoulder widening is needed at 2281+00 Rt. (ND) or 3+91.76 Rt. (SD). The existing shoulder width is already 4'.

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Asphalt Shoulder Widening Detail
at PCC Pavement Reconstruction Locations

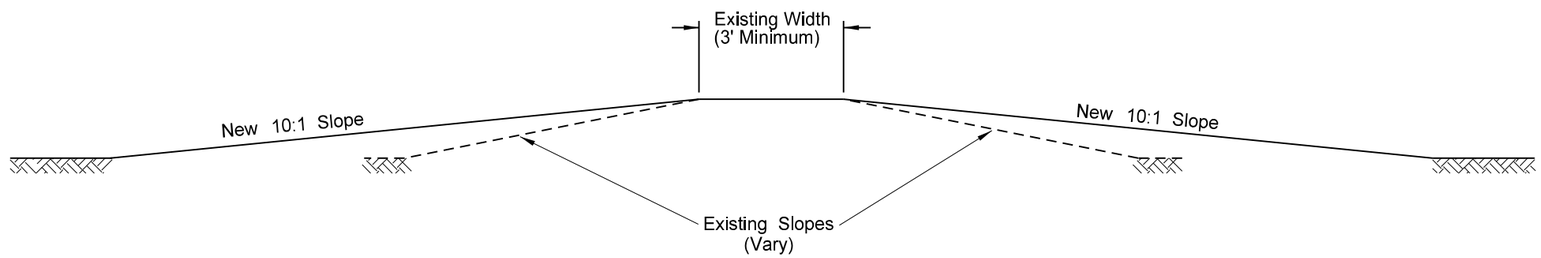
Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	20	11

	*Ditch Block Slope Flattening	
	Quantity	
Location	AHD	BK
1679+13	1	1
1813+18	1	1

*NOTE:
Include the cost for Ditch Block Slope Flattening shown above in the price bid for "202 0350 Removal Of Temporary Bypass."



Ditch Block Slope Flattening Detail

Note: When existing ditch block slopes are steeper than 8:1, flatten them to 10:1.

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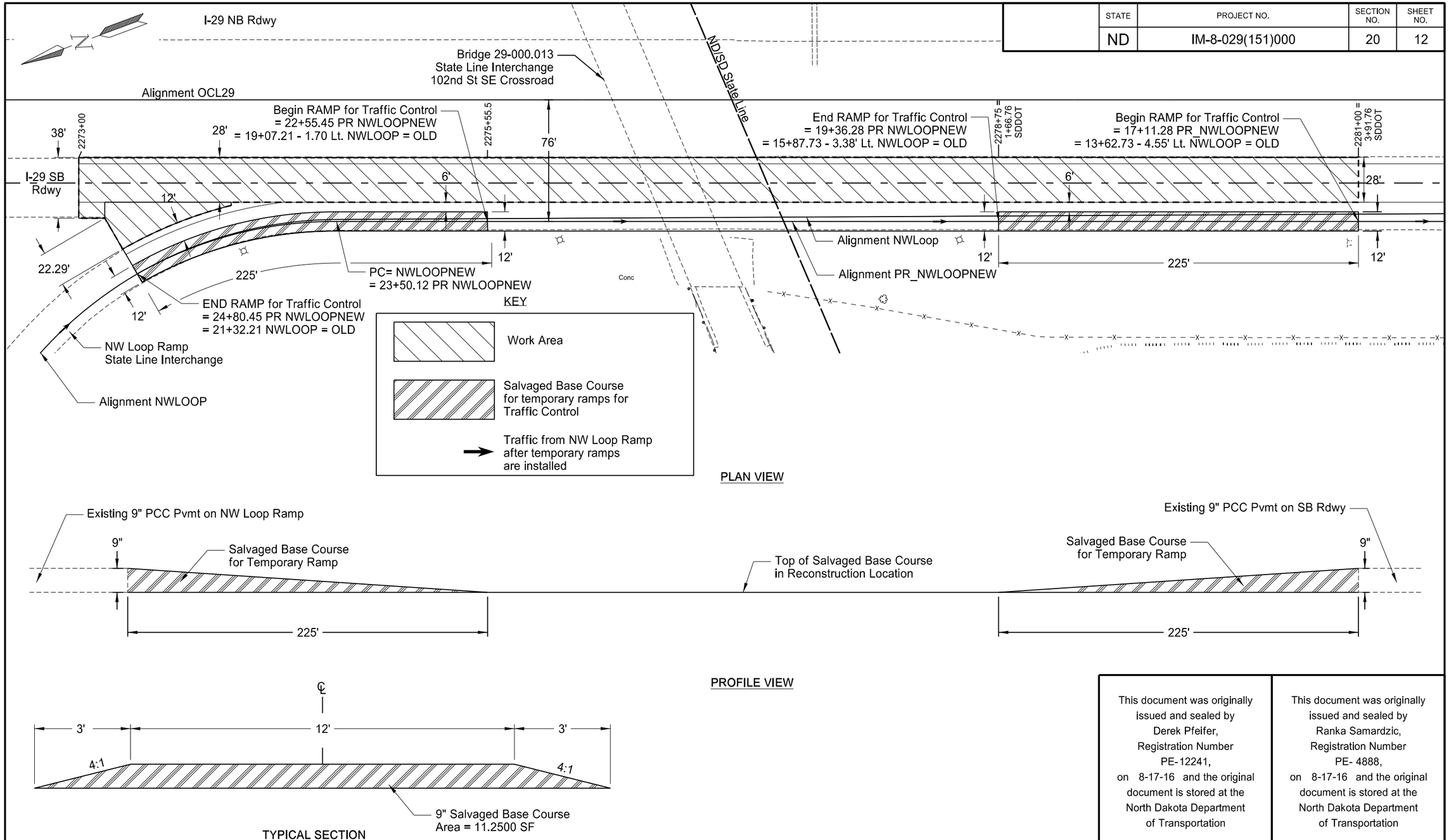
Ditch Block Detail

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	20	12



24+80.45 PR_NWLOOPNEW or 21+32.21 NWLOOP = OLD
17+11.28 PR_NWLOOPNEW or 13+62.73 - 4.55' Lt. NWLOOP = OLD or 2281+00 - 76' Rt. OCL29

SPEC	CODE	BID ITEM	UNIT	QUANTITY
302	100	**Salvaged Base Course**		
		17+11.28 to 19+36.28 (PR_ NWLoopNew)	Ton	88
		22+55.45 to 24+80.45 (PR_NWLoopNew)	Ton	88

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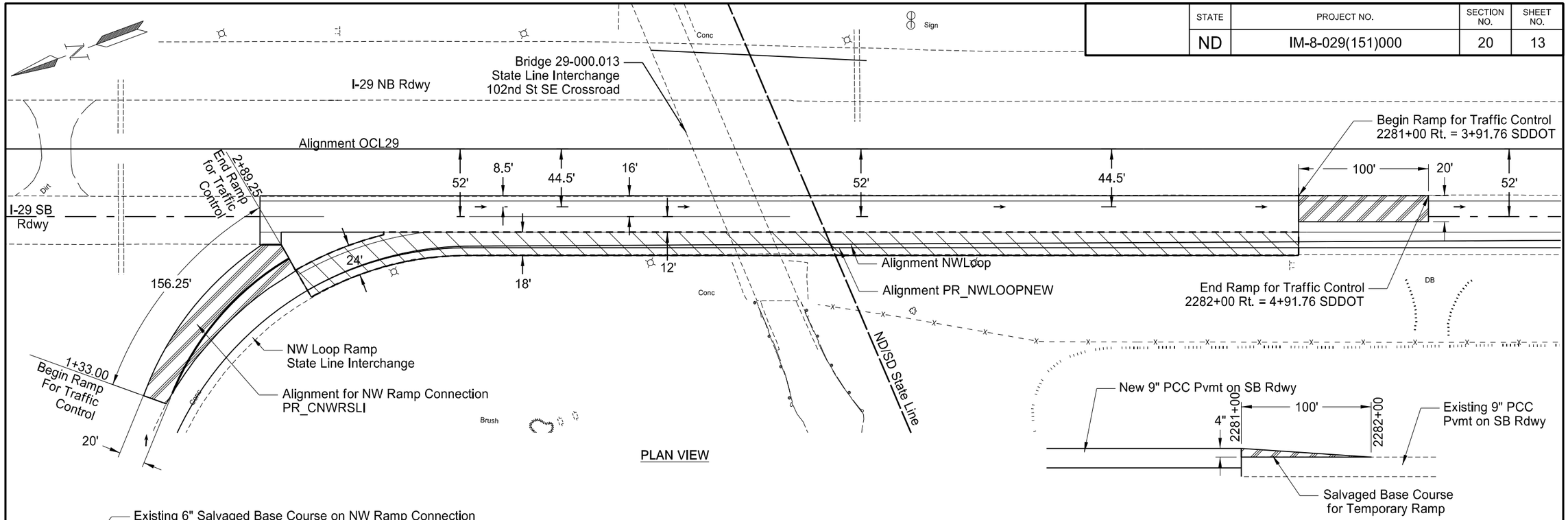
Temporary Ramp Detail for Traffic Control after Salvaged Base Course is installed on Rt Side of Rdwy at NW Loop Ramp State Line Interchange

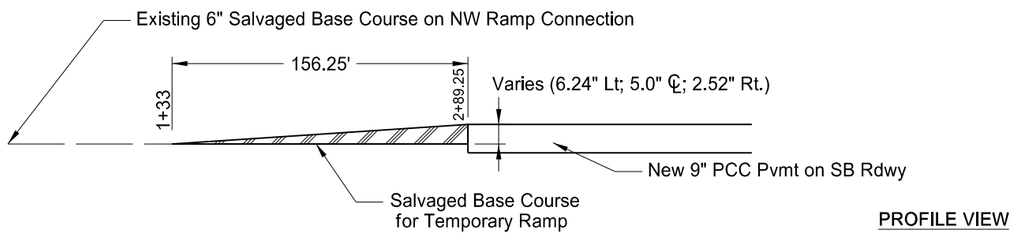
Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

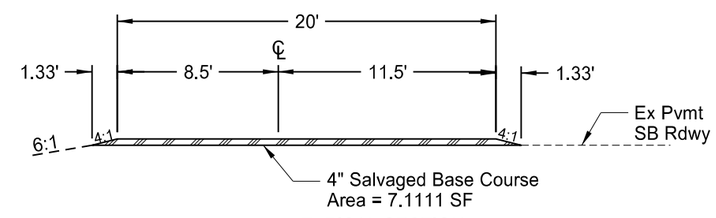
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	20	13



PLAN VIEW

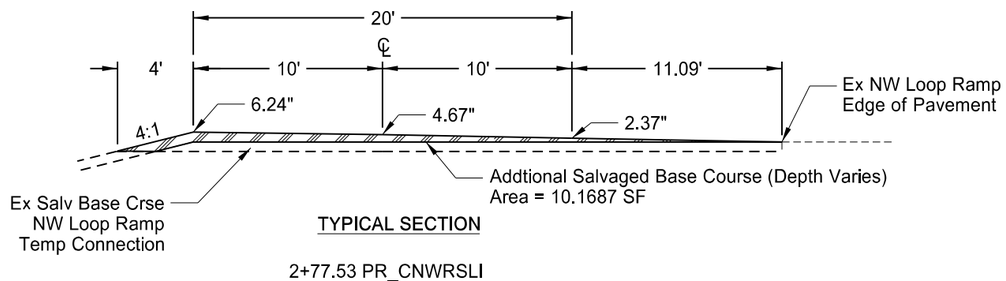


PROFILE VIEW



TYPICAL SECTION

2281+.00 - 44.5' Rt. OCL29



TYPICAL SECTION

2+77.53 PR_CNWRSLI

KEY

- Work Area
- Salvaged Base Course for temporary ramps for Traffic Control
- → Traffic from NW Loop Ramp after temporary ramps are installed

SPEC	CODE	BID ITEM	UNIT	QUANTITY
302	100	**Salvaged Base Course**		
		1+33 to 2+89.25 (PR_ CNWRSLI)	Ton	57
		2281+00 to 2282+00 (OCL29)	Ton	25

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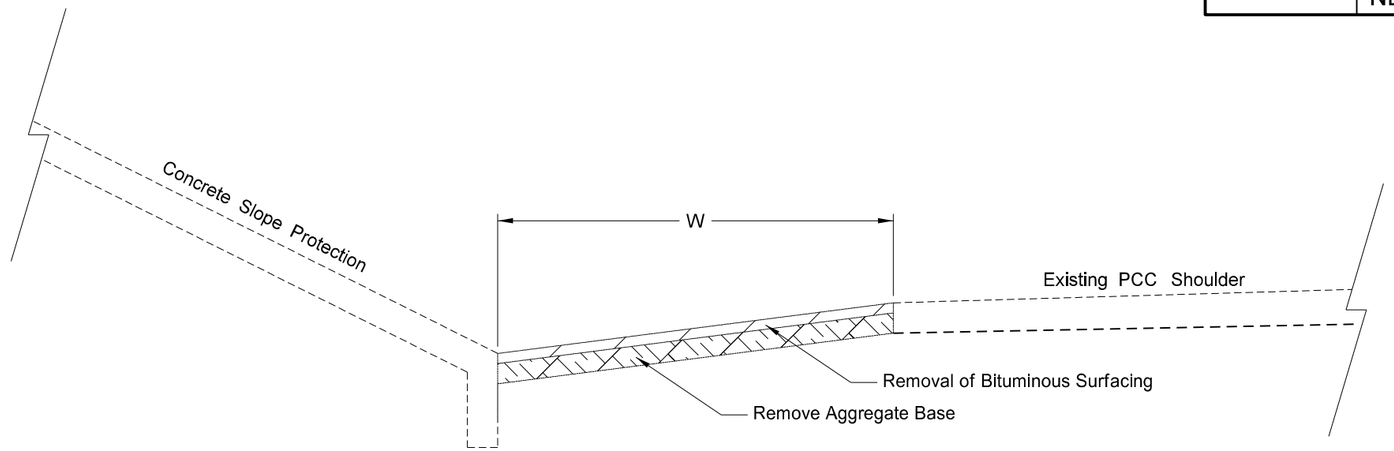
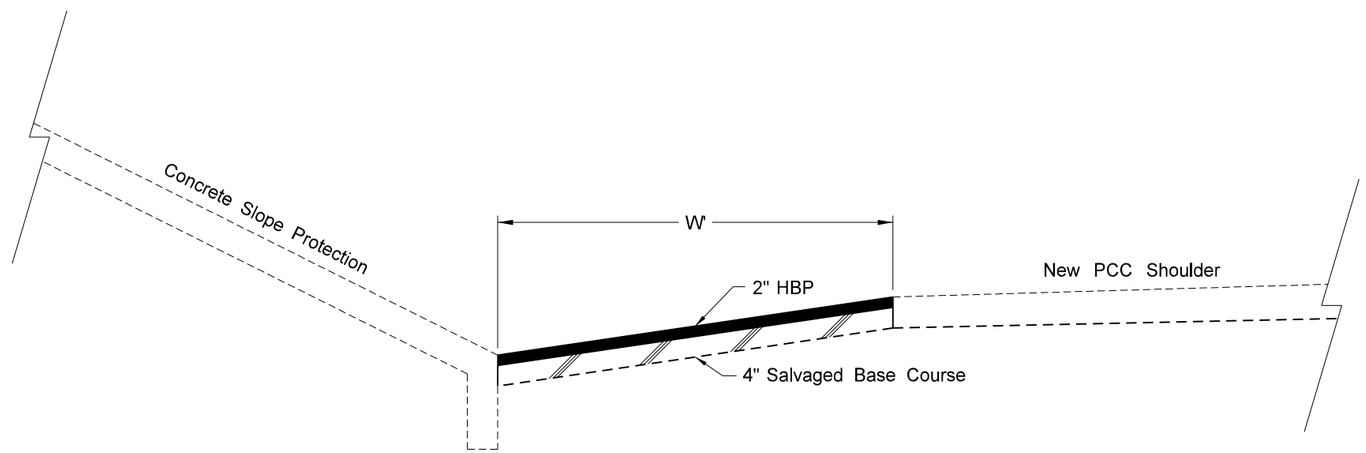
Temporary Ramp Detail for Traffic Control after Conc Pvmt is installed on 4' Shldr, Dr Lanes and Gore at NW Loop Ramp State Line Interchange

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	20	14





SPEC	CODE	BID ITEM	UNIT	HANKINSON SEPARATION	HANKINSON INTERCHANGE	PARK LAKE SEPARATION	LAMARS INTERCHANGE	STATE LINE INTERCHANGE
202	0123	REMOVE AGGREGATE BASE	TON	8.6	8.6	8.6	8.6	3.4
202	0135	REMOVAL OF BITUMINOUS SURFACING	TON	5.3	5.3	5.3	5.3	2.1
302	0100	SALVAGED BASE COURSE @ 1.875 TON/CY	TON	10.4	10.4	10.4	10.4	4.2
401	0050	TACK COAT @ 0.05 GAL/SY	GAL	2.5	2.5	2.2	2.5	1
430	0045	SUPERPAVE FAA 45 @ 2 TON/CY	TON	5.6	5.6	5.6	5.6	2.2
430	5828	PG 58-28 ASPHALT CEMENT @ 6.0% of HMA	TON	0.34	0.34	0.34	0.34	0.13

	HANKINSON SEPARATION	HANKINSON INTERCHANGE	PARK LAKE SEPARATION	LAMARS INTERCHANGE	STATE LINE INTERCHANGE
W	10'	10'	10'	10'	4'

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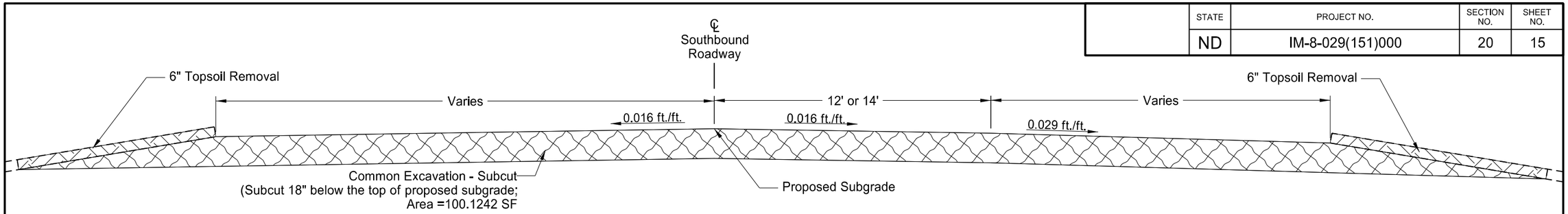
Surfacing between Shoulder & Bridge Slope Protection

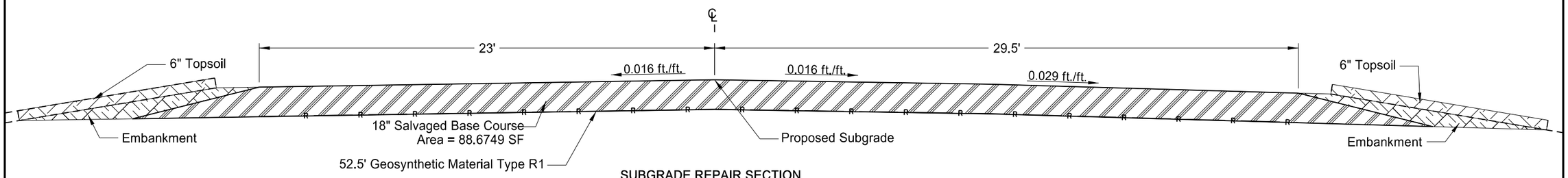
Crack and Seat with 4" HBP Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

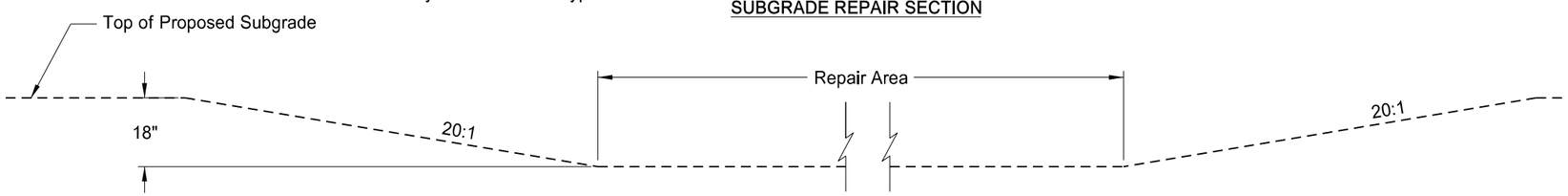
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	20	15



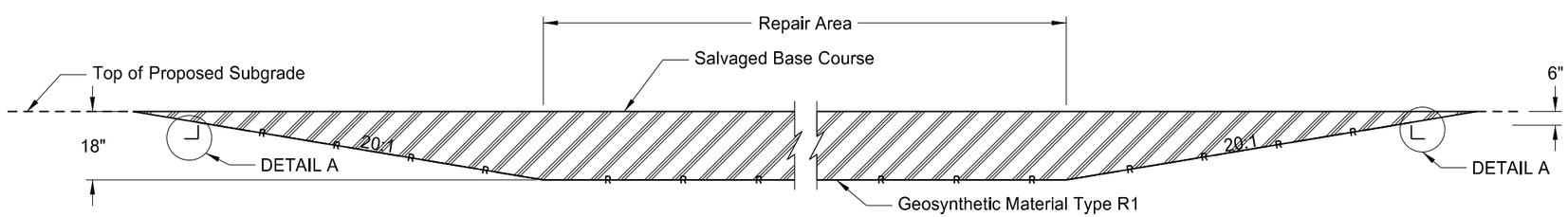
SUBCUT SECTION



SUBGRADE REPAIR SECTION

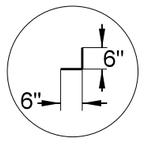


SUBCUT PROFILE VIEW



SUBGRADE REPAIR PROFILE VIEW

DETAIL A



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ESTIMATED QUANTITIES

SPEC	CODE	BID ITEM	UNIT	DISCRETIONARY SUBCUT REPAIR SUMMARY
203	0109	TOPSOIL	CY	51
203	0138	COMMON EXCAVATION - SUBCUT	CY	482
216	0100	WATER	M GAL	17
302	0100	SALVAGED BASE COURSE	TON	801
709	0151	GEOSYNTHETIC MATERIAL TYPE R1	SY	945

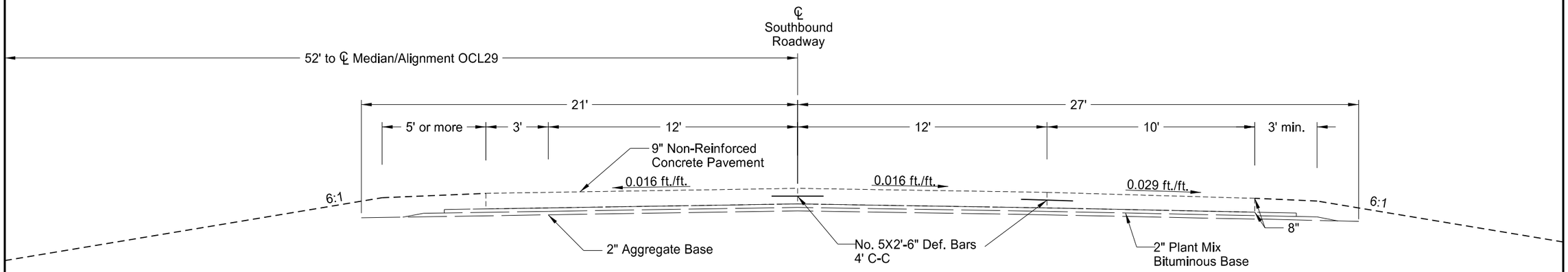
Note: 100 linear feet of discretionary subcut has been provided in the quantities to be used as directed by the engineer.

Discretionary Subcut Repair Detail
in PCC Pavement Reconstruction Locations

Crack and Seat with 4" HBP Overlay

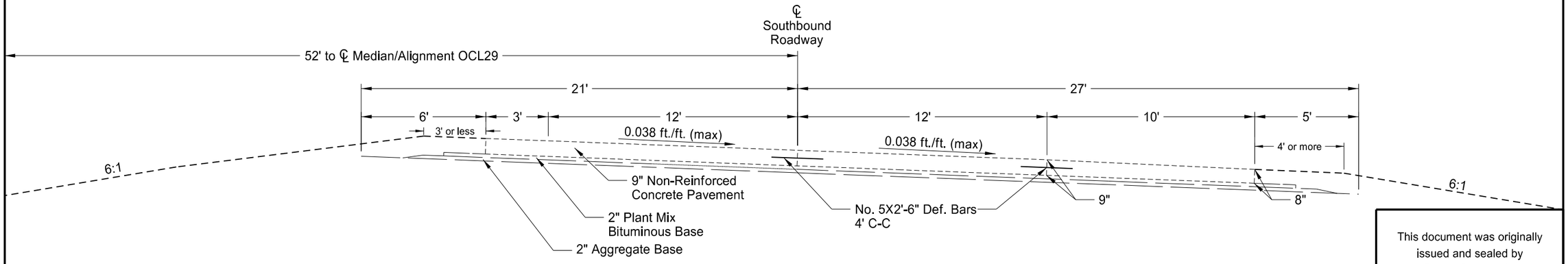
I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	30	1



I-29 Southbound Roadway

Sta 1680+52.90(End Project) to Sta 1798+26.70 BK =
Sta 1798+26.10 AHD to Sta 1800+92.73(Begin Bridge)
Sta 1802+97.73(End Bridge) to 2216+05.78(TS Curve)
Sta 2241+05.94(ST Curve) to Sta 2273+16.27(Begin Gore NW Loop State Line Interchange)



I-29 Southbound Roadway
Curve Section

Sta 2216+05.78 (TS) to 2241+05.94 (ST)

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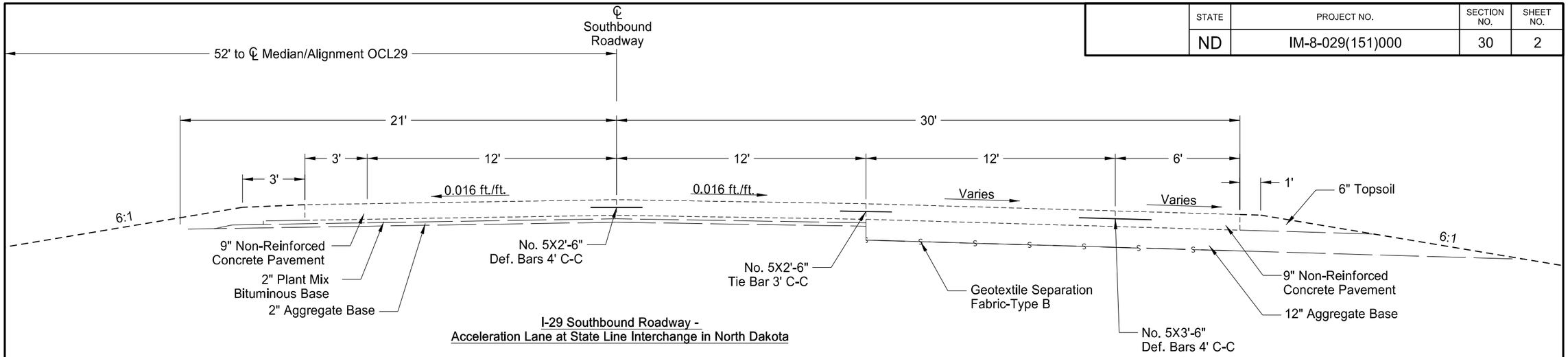
Existing Typical Sections
I-29 SB: Tangent & Curve in ND

Crack and Seat with 4" HBP Overlay

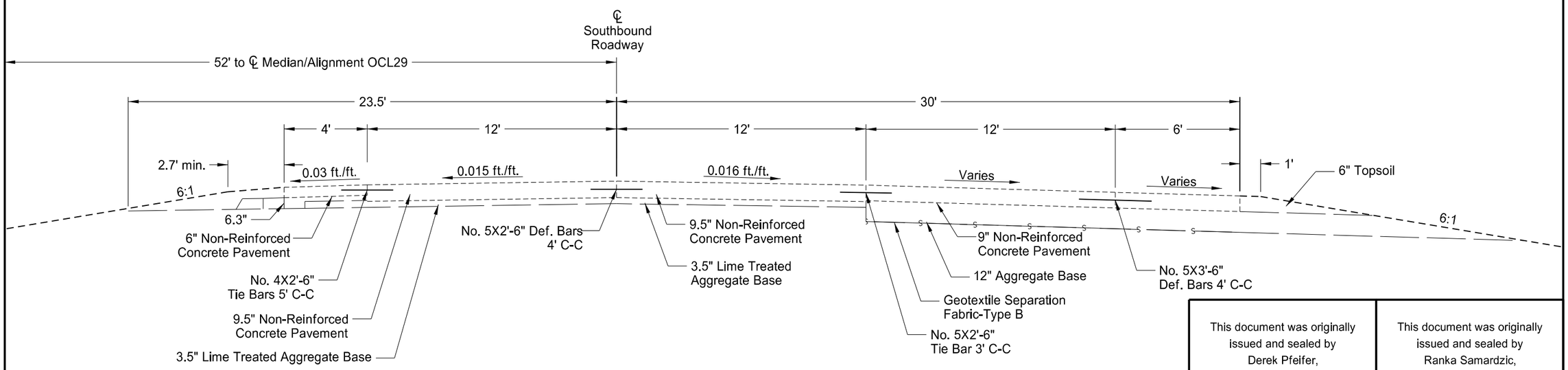
I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	30	2



I-29 Southbound Roadway -
Acceleration Lane at State Line Interchange in North Dakota

Width Varies from NW Loop - Sta 2273+16.27 to Sta 2274+61.16
Sta 2274+61.16 to Sta 2277+08.24 ND =
Sta 0+00.00 SD to 0+22.17 SD(Intersection Location of ℄ SB Rdwy with ND/SD State Boundary Line)



I-29 Southbound Roadway -
Acceleration Lane at State Line Interchange in South Dakota

Sta 0+22.17 SD(Intersection Location of ℄ SB Rdwy with ND/SD State Boundary Line) to 11+62.98 SD
Width Varies from Sta 11+62.98 SD to Sta 15+63.04 SD - Shldr Taper from Acceleration Lane

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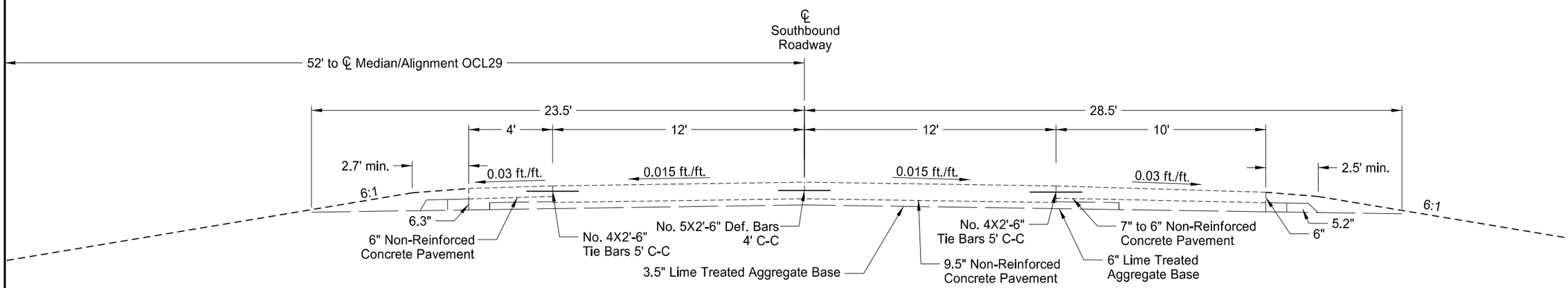
Existing Typical Sections
I-29 SB: Acceleration Lane in ND & SD

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	30	3



I-29 Southbound Roadway
in South Dakota

Sta 15+63.04 SD to 25+99.3 BK =
Sta 24+52.75 AHD to 32+00 (Begin Project)

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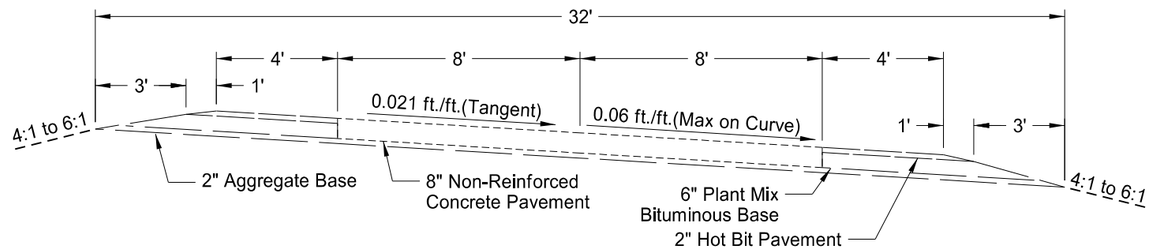
Existing Typical Sections
I-29 SB: Tangent in SD

Crack and Seat with 4" HBP Overlay

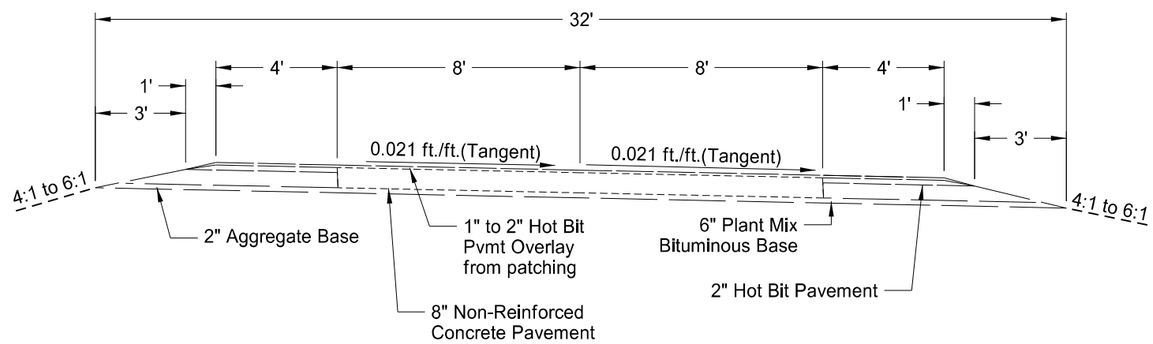
I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	30	4



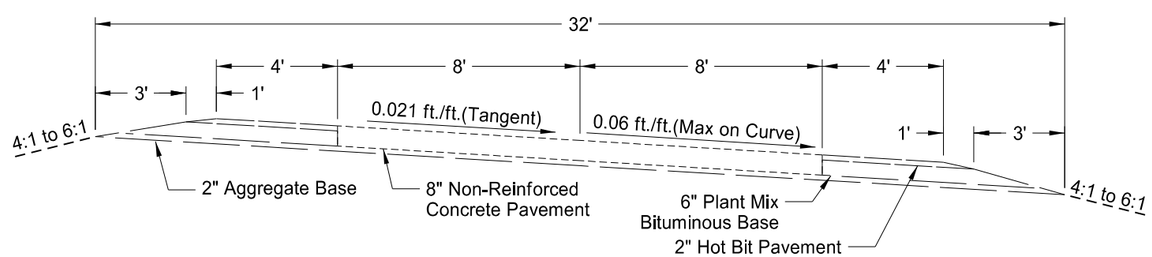
NW Ramp

Hankinson Interchange: Sta 8+82.10 to Sta 16+50.70
LaMars Interchange: Sta 8+82.10 to Sta 18+50.80



NW Ramp

Hankinson Interchange: Sta 16+50.70 to Sta 18+58.80



SW Ramp

Hankinson Interchange: Sta 0+99.62 to Sta 11+14.95
LaMars Interchange: Sta 1+02.35 to Sta 11+25.82

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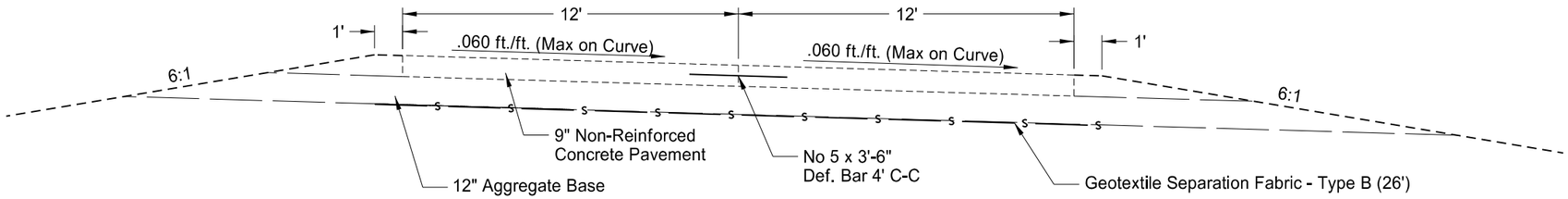
Existing Typical Sections
NW & SW Ramps at Hankinson Interchange
and LaMars Interchange

Crack and Seat with 4" HBP Overlay

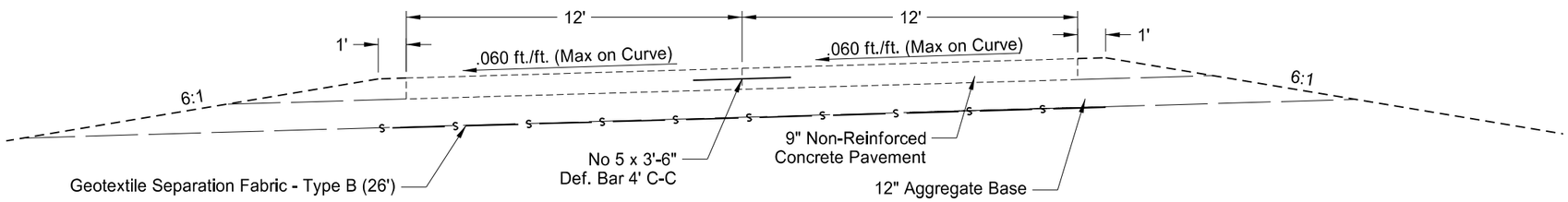
I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	30	5



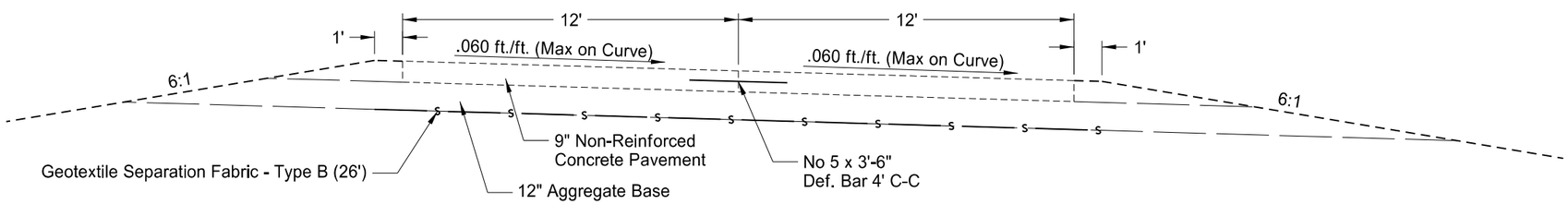
State Line NW Ramp

Sta 8+87.00 to Sta 14+92



State Line NW Ramp

Sta 14+92 to Sta 22+86



State Line NW Loop Ramp

Sta 21+32.21 to Sta 27+18.44

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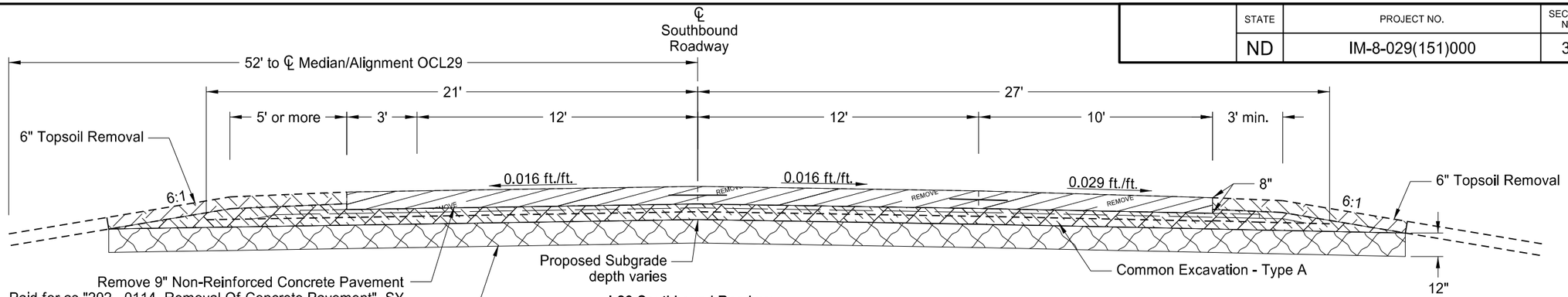
Existing Typical Sections
NW Ramp and NW Loop Ramp
at State Line Interchange

Crack and Seat with 4" HBP Overlay

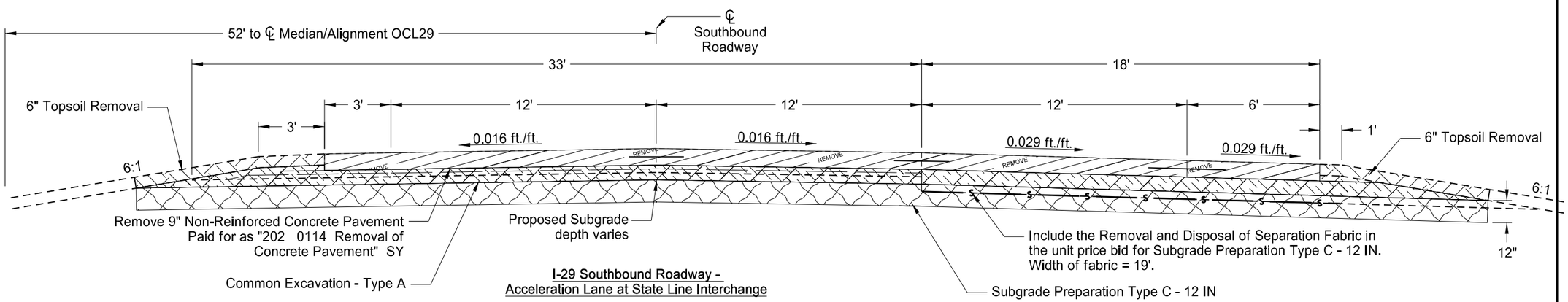
I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	30	6



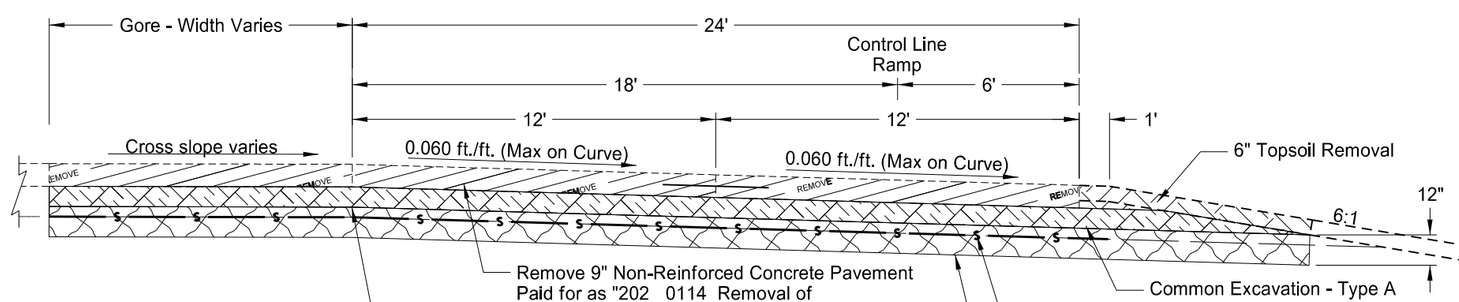
I-29 Southbound Roadway

Sta 1741+00 to Sta 1750+00
Sta 1846+25 to Sta 1855+75
Sta 2057+00 to Sta 2066+00
Sta 2163+00 to Sta 2172+50
Sta 2273+00 to Stat 2273+16.27
Width Varies from NW Loop State Line Interchange - Sta 2273+16.27 to Sta 2274+61.16



I-29 Southbound Roadway - Acceleration Lane at State Line Interchange

Sta 2274+61.16 to 2277+08.24 Bk ND = 0+00.00 SD
Sta 0+00.00 SD to 0+22.17 SD(Intersection Location of ℄ SB Rdwy with ND/SD State Boundary Line)



NW Loop Ramp - State Line Interchange

Width Varies from Sta 20+01.56 to Sta 20+63.77
Sta 20+63.77 to Sta 21+32.21

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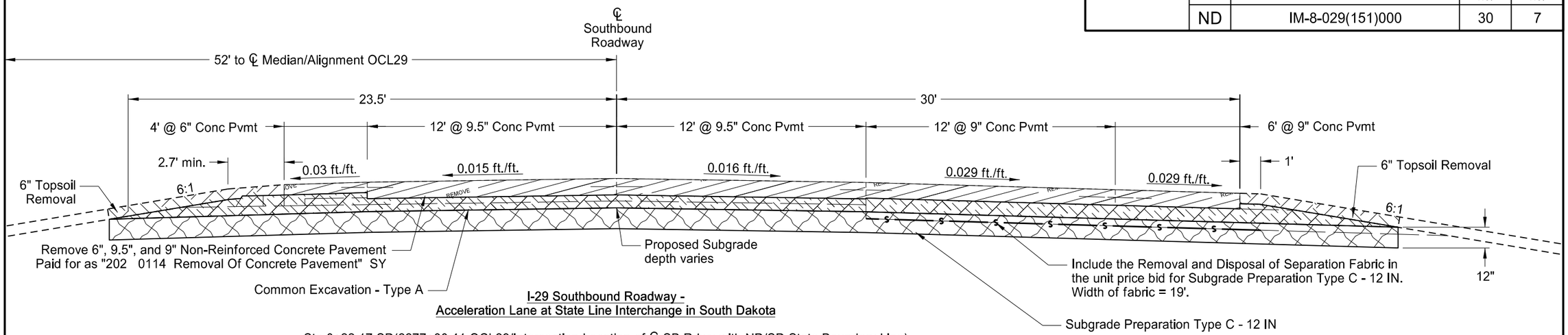
Removal Typical Sections
I-29 SB & NW Loop Ramp State Line Interchange:
PCC Pavement Reconstruction Locations
in North Dakota
Crack and Seat with 4" HBP Overlay

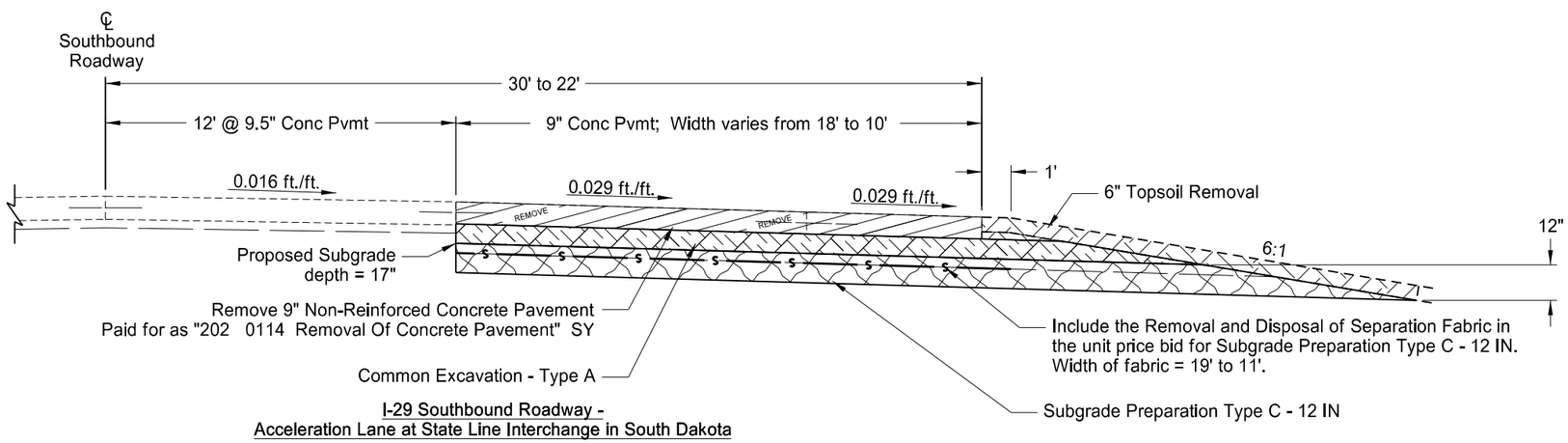
I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	30	7



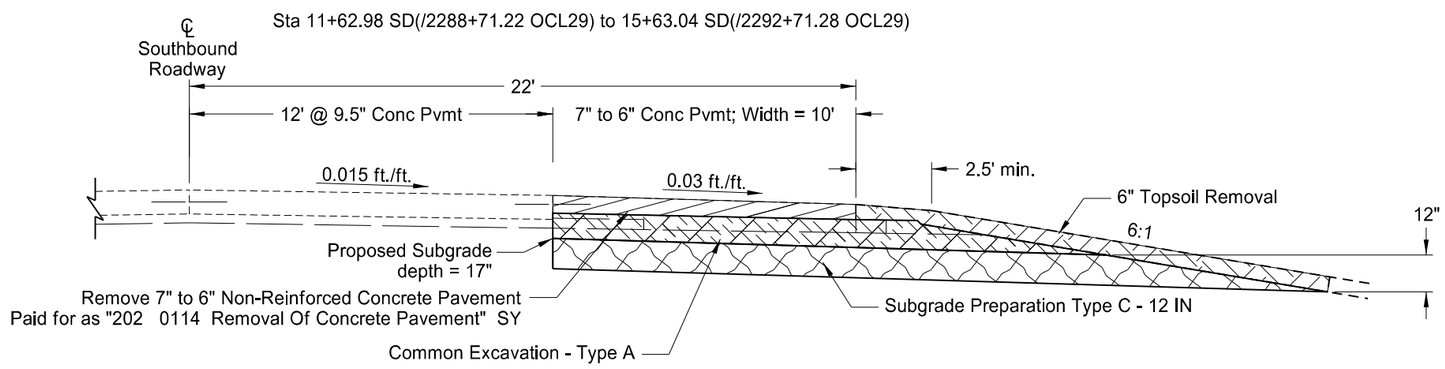
I-29 Southbound Roadway -
Acceleration Lane at State Line Interchange in South Dakota

Sta 0+22.17 SD(2277+30.41 OCL29/Intersection Location of ℄ SB Rdwy with ND/SD State Boundary Line)
to 3+91.76 SD(/2281+00 OCL29)



I-29 Southbound Roadway -
Acceleration Lane at State Line Interchange in South Dakota

Sta 11+62.98 SD(/2288+71.22 OCL29) to 15+63.04 SD(/2292+71.28 OCL29)



I-29 Southbound Roadway
in South Dakota

Sta 15+63.04 SD(2292+71.28 OCL29) to 19+02.98 SD(2296+11.22 OCL29)

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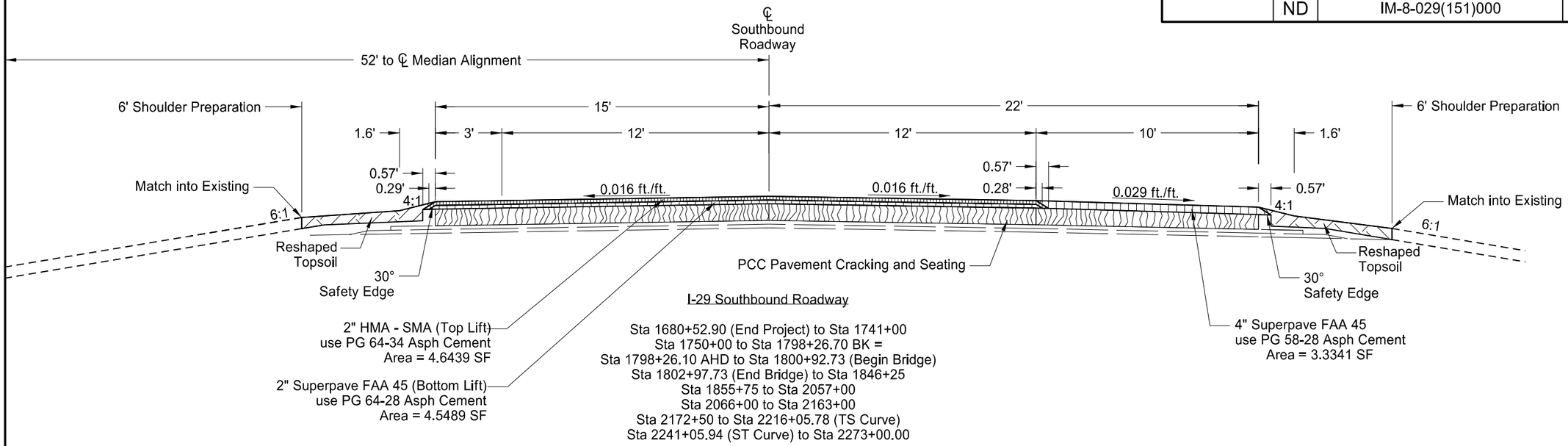
Removal Typical Sections
I-29 SB: PCC Pavement Reconstruction Locations in South Dakota

Crack and Seat with 4" HBP Overlay

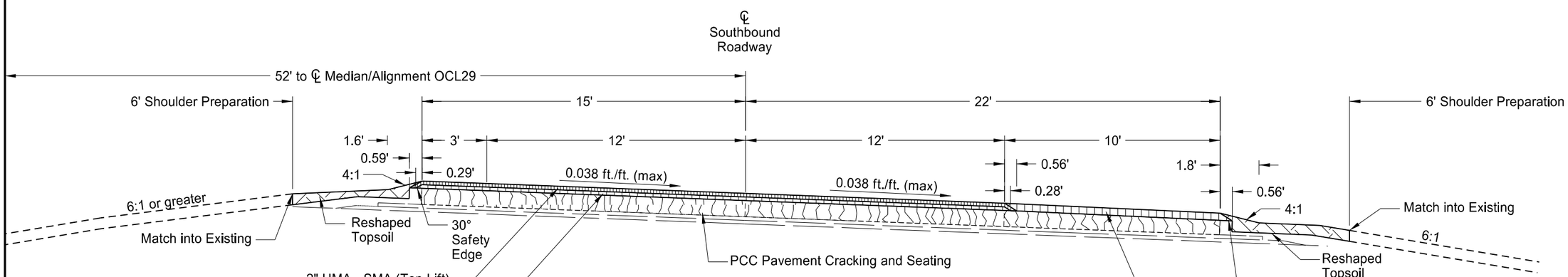
I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	30	8



I-29 Southbound Roadway

Sta 1680+52.90 (End Project) to Sta 1741+00
Sta 1750+00 to Sta 1798+26.70 BK =
Sta 1798+26.10 AHD to Sta 1800+92.73 (Begin Bridge)
Sta 1802+97.73 (End Bridge) to Sta 1846+25
Sta 1855+75 to Sta 2057+00
Sta 2066+00 to Sta 2163+00
Sta 2172+50 to Sta 2216+05.78 (TS Curve)
Sta 2241+05.94 (ST Curve) to Sta 2273+00.00



I-29 Southbound Roadway
Curve Section

Sta 2216+05.78 (TS) to 2241+05.94 (ST)

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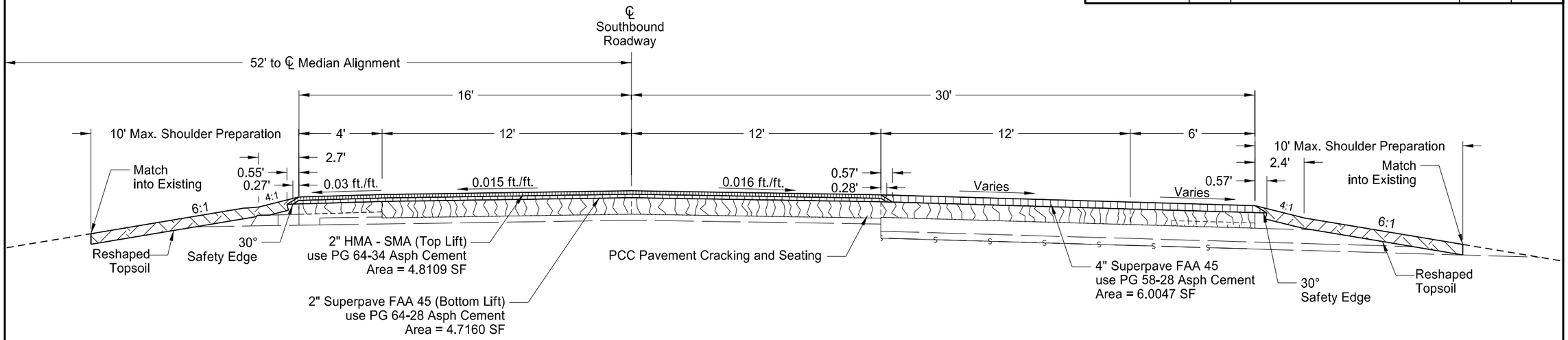
Note: HMA-SMA = Hot Mix Asphalt - Stone Matrix Asphalt

Proposed Typical Sections
I-29 SB Tangent & Curve in ND

Crack and Seat with 4" HBP Overlay

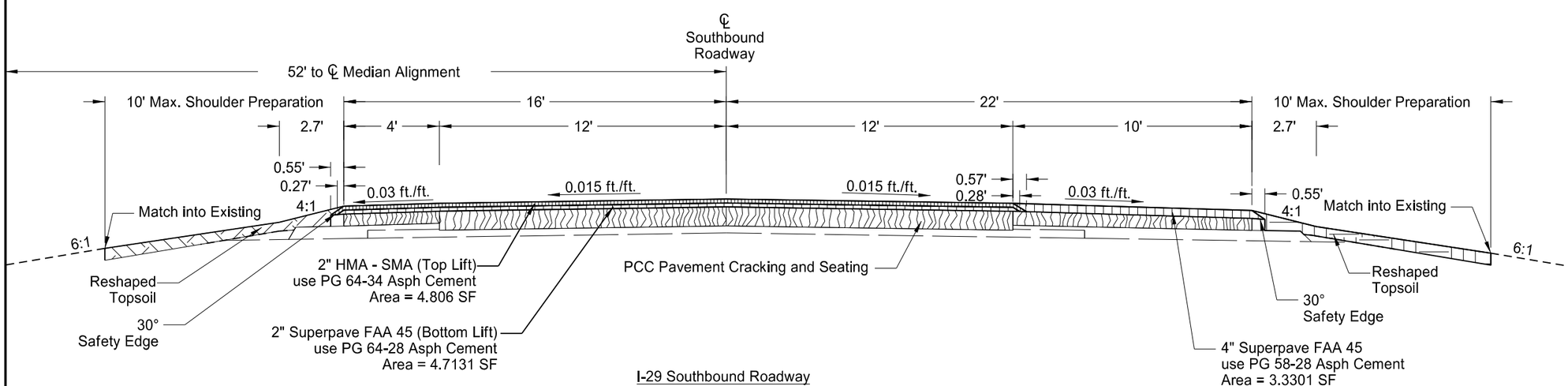
I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	30	9



I-29 Southbound Roadway -
Acceleration Lane at State Line Interchange in South Dakota

Sta 3+91.76 SD to 15+02.92 SD
Width Varies from Sta 15+02.92 SD to Sta 19+02.98 SD - Shldr Taper from Acceleration Lane



I-29 Southbound Roadway
in South Dakota

Sta 19+02.98 SD to Sta 25+99.3 BK =
Sta 24+52.75 AHD to Sta 32+00 (Begin Project)

Note: HMA-SMA = Hot Mix Asphalt - Stone Matrix Asphalt

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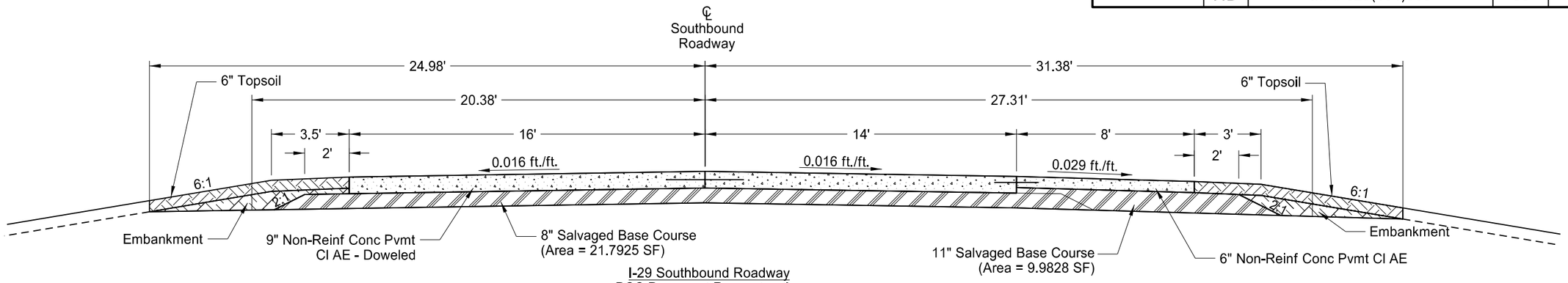
Proposed Typical Sections
I-29 SB Acceleration Lane & Tangent in SD

Crack and Seat with 4" HBP Overlay

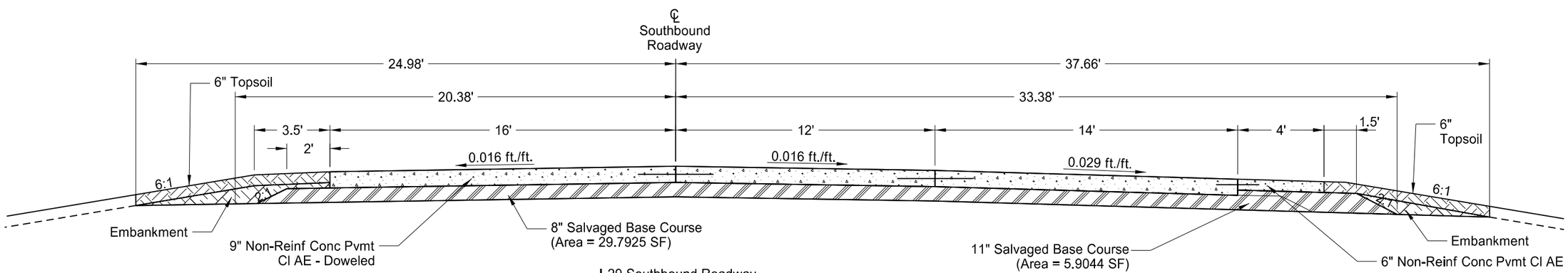
I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	30	10



I-29 Southbound Roadway
PCC Pavement Reconstruction

Sta 1741+00 to Sta 1750+00
Sta 1846+25 to Sta 1855+75
Sta 2057+00 to Sta 2066+00
Sta 2163+00 to Sta 2172+50
Sta 2273+00 to Sta 2273+16.27
Width varies Sta 2273+16.27 to Sta 2274+61.16 from NW Loop Ramp State Line Interchange



I-29 Southbound Roadway
PCC Pavement Reconstruction

Sta 2274+61.16 to Sta 2277+08.24 ND = Sta 0+00.00 SD
Sta 0+00.00 SD to Sta 0+22.17 SD(Intersection Location of ℄ SB Rdwy with ND/SD State Boundary Line)

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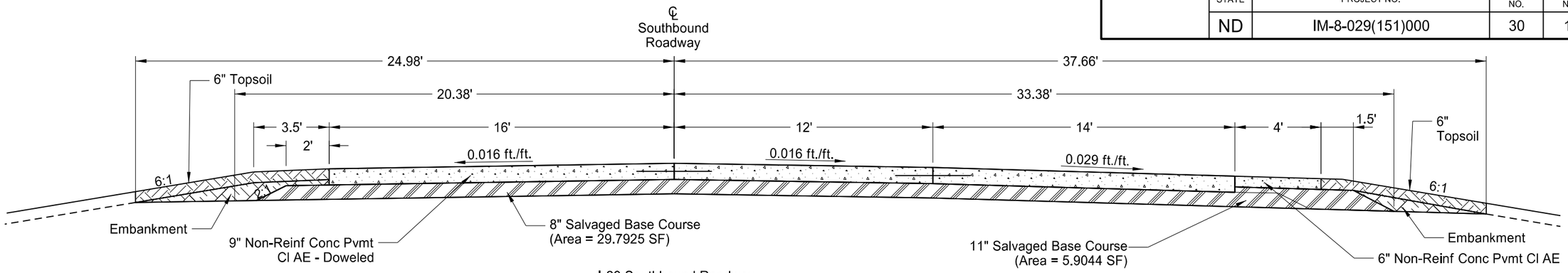
Proposed Typical Sections
I-29 SB: PCC Pavement Reconstruction Locations in ND

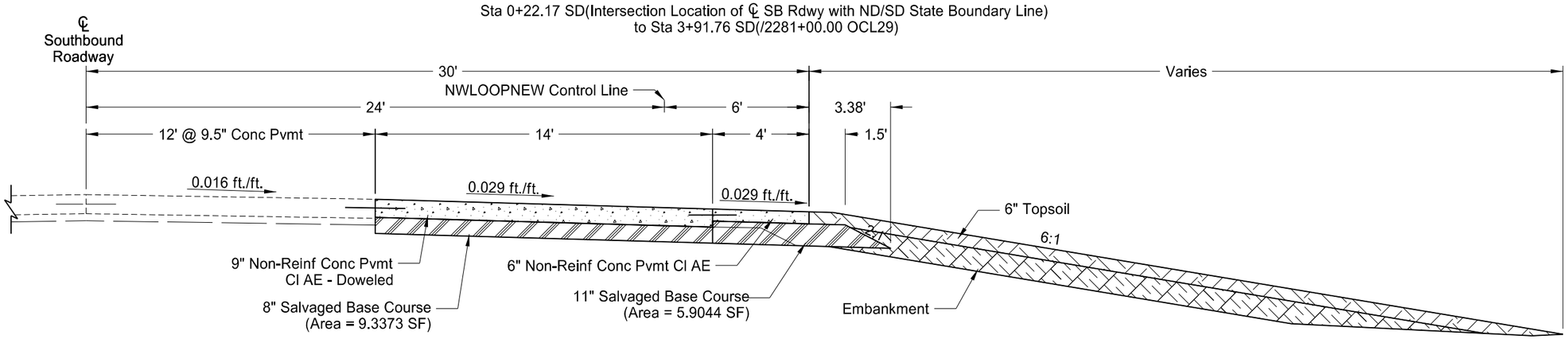
Crack and Seat with 4" HBP Overlay
I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	30	11



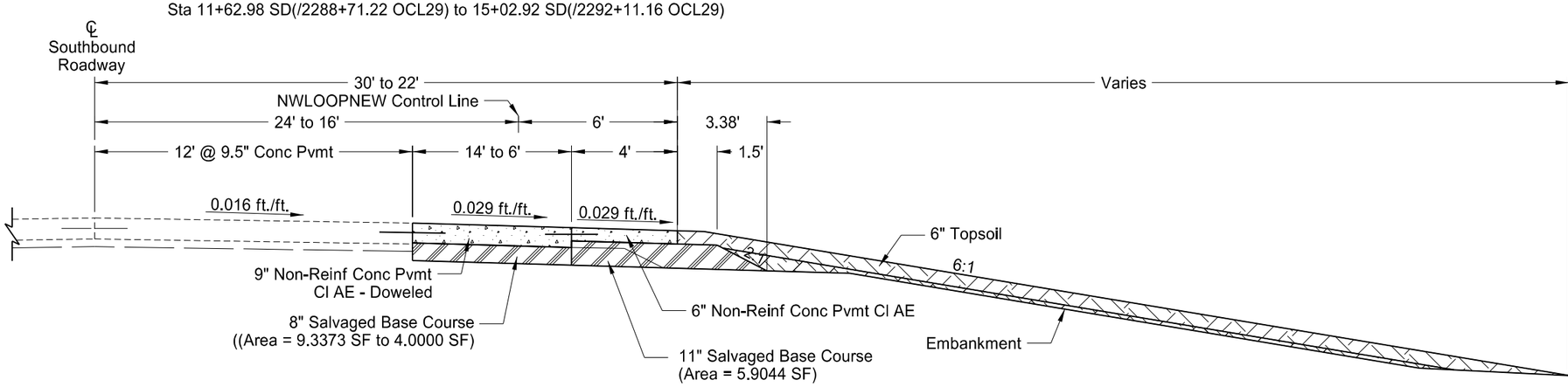
I-29 Southbound Roadway
PCC Pavement Reconstruction

Sta 0+22.17 SD(Intersection Location of ℄ SB Rdwy with ND/SD State Boundary Line)
to Sta 3+91.76 SD(/2281+00.00 OCL29)



I-29 Southbound Roadway -
Acceleration Lane at State Line Interchange in South Dakota

Sta 11+62.98 SD(/2288+71.22 OCL29) to 15+02.92 SD(/2292+11.16 OCL29)



I-29 Southbound Roadway -
Acceleration Lane at State Line Interchange in South Dakota

Sta 15+02.92 SD(/2292+11.16 OCL29) to Sta 19+02.98 SD(2296+11.22 OCL29)

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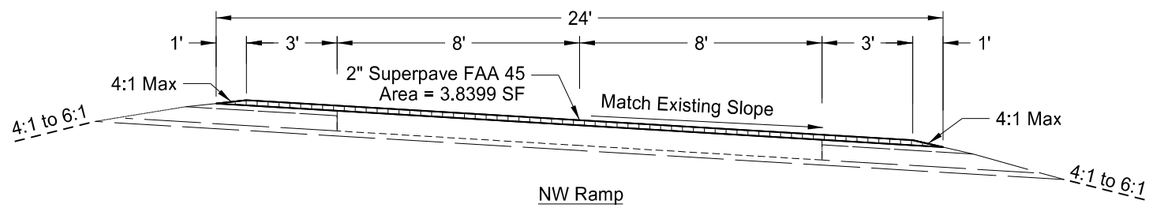
Proposed Typical Sections
I-29 SB: PCC Pavement Reconstruction Locations in SD

Crack and Seat with 4" HBP Overlay
I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

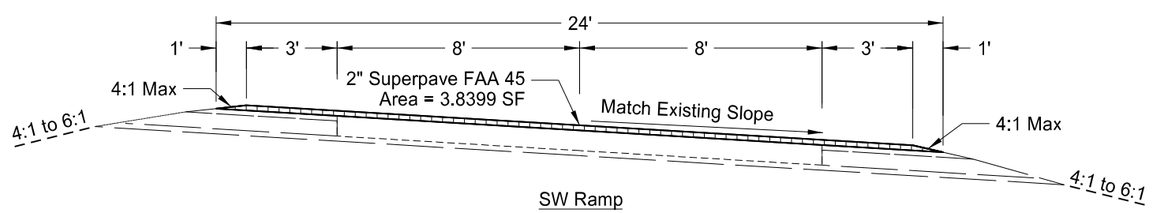
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	30	12



NW Ramp

Hankinson Interchange: Sta 9+82.10 to Sta 18+71.65
Width Varies from Sta 18+71.65 to Sta 19+42.15

LaMars Interchange: Sta 9+82.10 to Sta 18+50.80



SW Ramp

Hankinson Interchange: Width Varies from Sta 0+30.98 to Sta 0+96.33
Sta 0+96.33 to Sta 10+14.95

LaMars Interchange: Sta 1+02.35 to Sta 10+25.82

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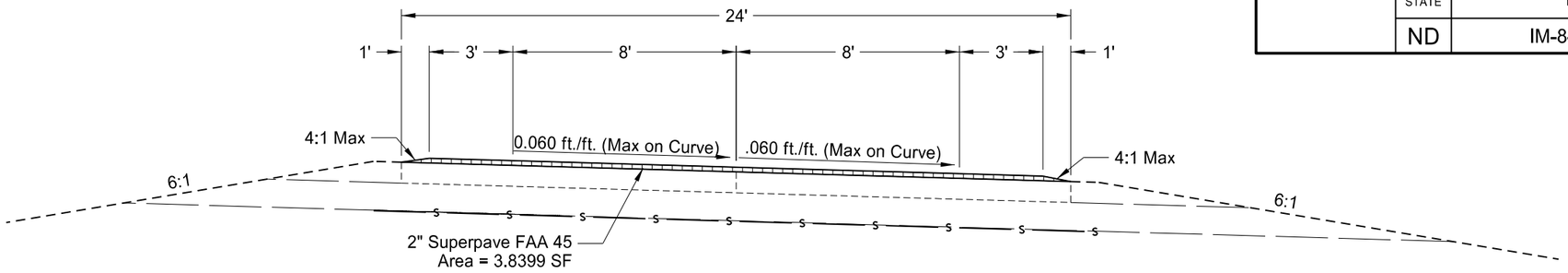
Proposed Typical Sections
NW & SW Ramps at Hankinson Interchange
and LaMars Interchange

Crack and Seat with 4" HBP Overlay

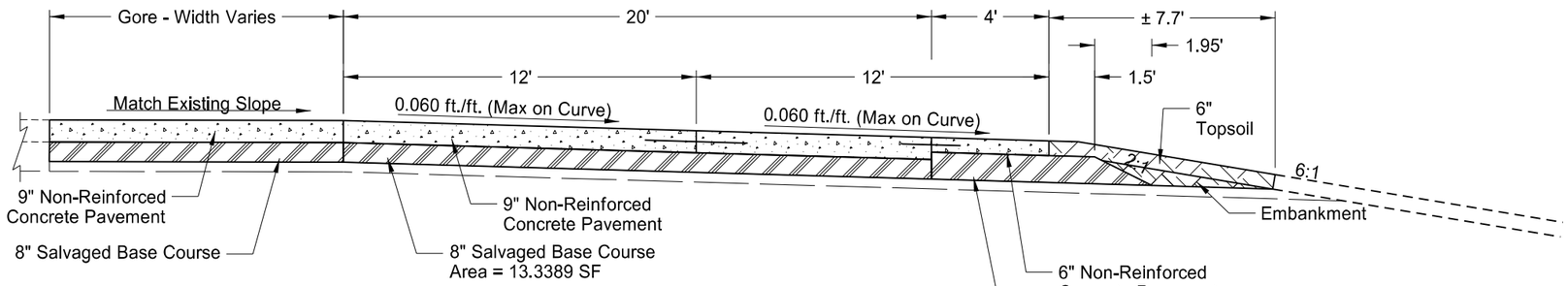
I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	30	13

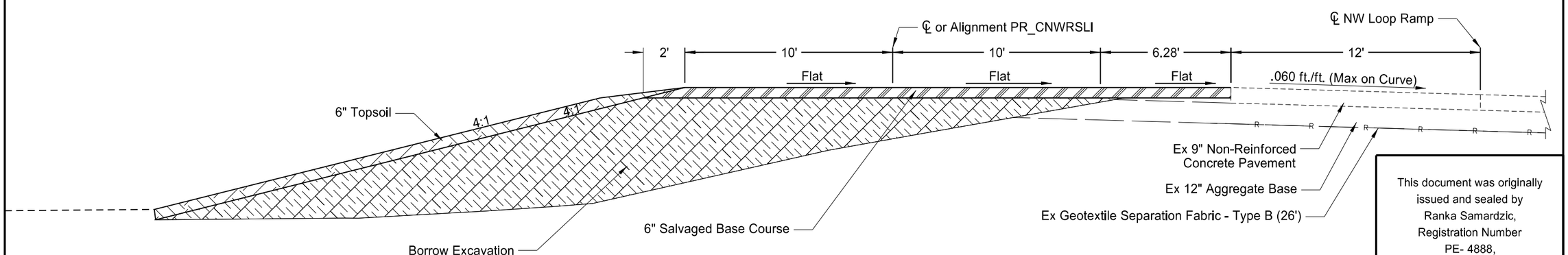


State Line NW Ramp

Sta 9+87.00 to Sta 10+87.00



State Line NW Loop Ramp
PCC Pavement Reconstruction
Width Varies from Sta 20+01.56 to Sta 20+63.77
Sta 20+63.77 to Sta 21+32.21



State Line NW Loop Ramp Temporary Connection

Sta 2+00 - Alignment PR_CNWRSLI

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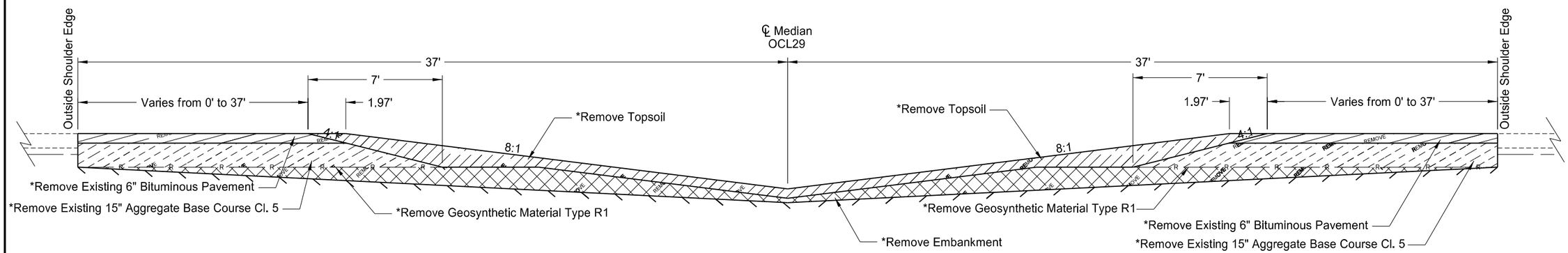
Proposed Typical Sections
NW Ramp, NW Loop Ramp, NW Loop Ramp
Temporary Connection for State Line Interchange

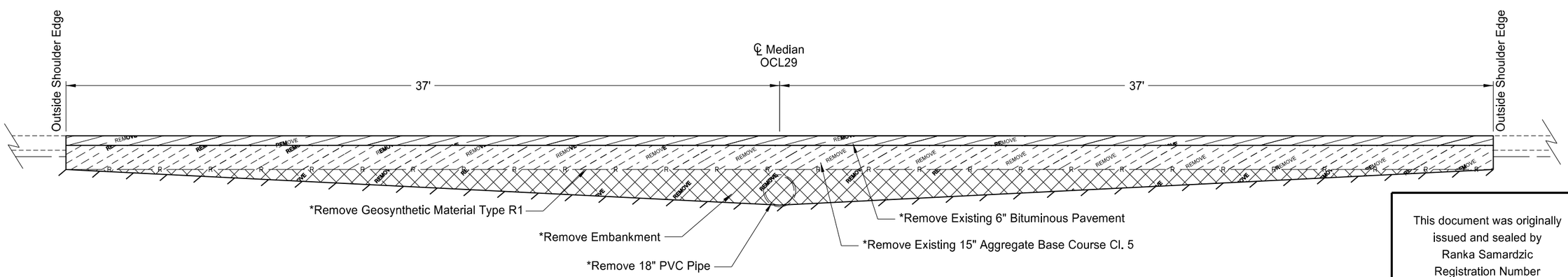
Crack and Seat with 4" HBP Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	30	14



North Median Crossover Removal Typical Section
Sta. 1675+49+64 to Sta. 1679+79.45
Sta. 1681+25.84 to Sta. 1686+57+15



North Median Crossover Removal Typical Section
Sta. 1679+79.45 to Sta. 1681+25.84

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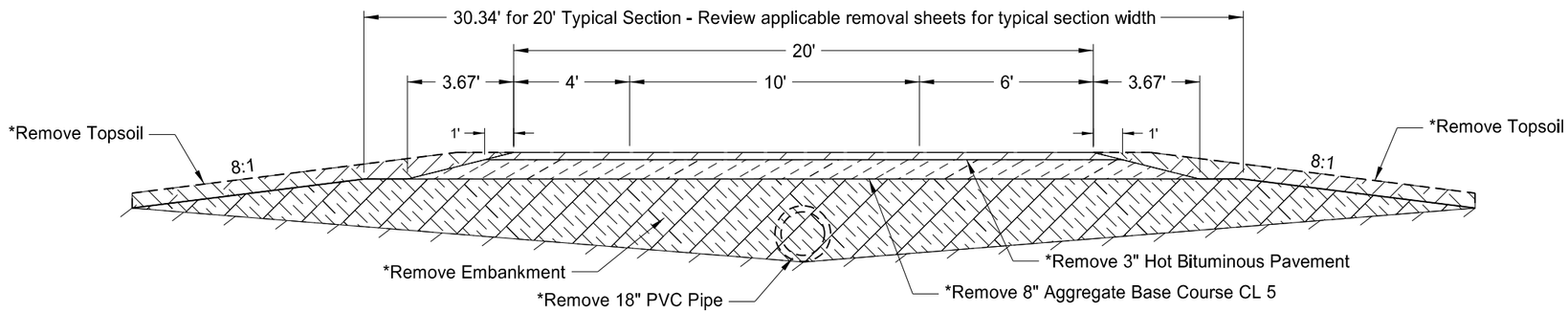
*Not a Bid Item. Included in Bid Item "Removal of Temporary Bypass".

North Median Crossover
Removal Typical Sections

Crack and Seat with 4" HBP Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Mi

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	30	15



Ramp Connections Removal Typical Section

NW Ramp Connection Hankinson Interchange: Sta 1811+79.85 to Sta 1824+35.04
SW Ramp Connection Hankinson Interchange: Sta 1879+45.94 to Sta 1895+50.13
NW Ramp Connection State Line Interchange: Sta 2241+05.79 to Sta 2253+60.22

Note: Typical section width varies. See applicable removal sheet.

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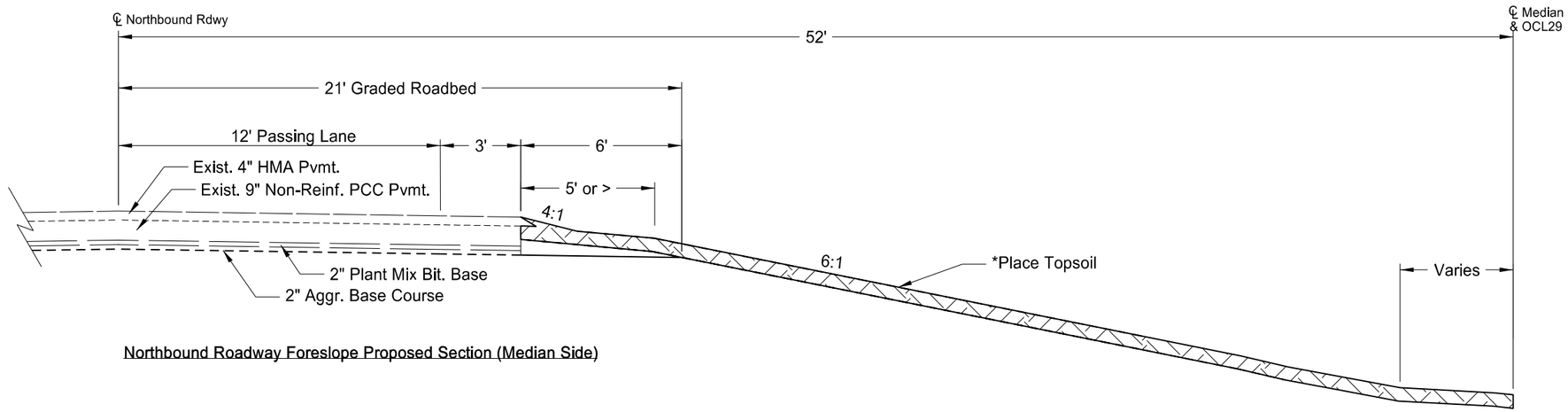
*Not a Bid Item. Included in Bid Item "Removal of Temporary Bypass".

Ramp Connections Removal Typical Section

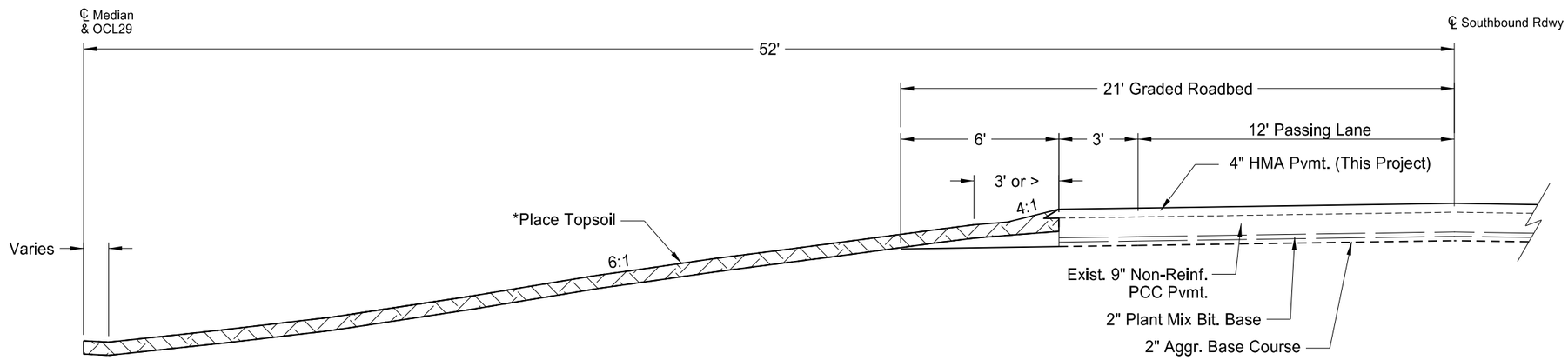
Crack and Seat with 4" HBP Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	30	16



Northbound Roadway Foreslope Proposed Section (Median Side)



Southbound Roadway Foreslope Proposed Section (Median Side)

*Placement of Topsoil to be included in the unit price bid for "202 0350 Removal of Temporary Bypass" EA.

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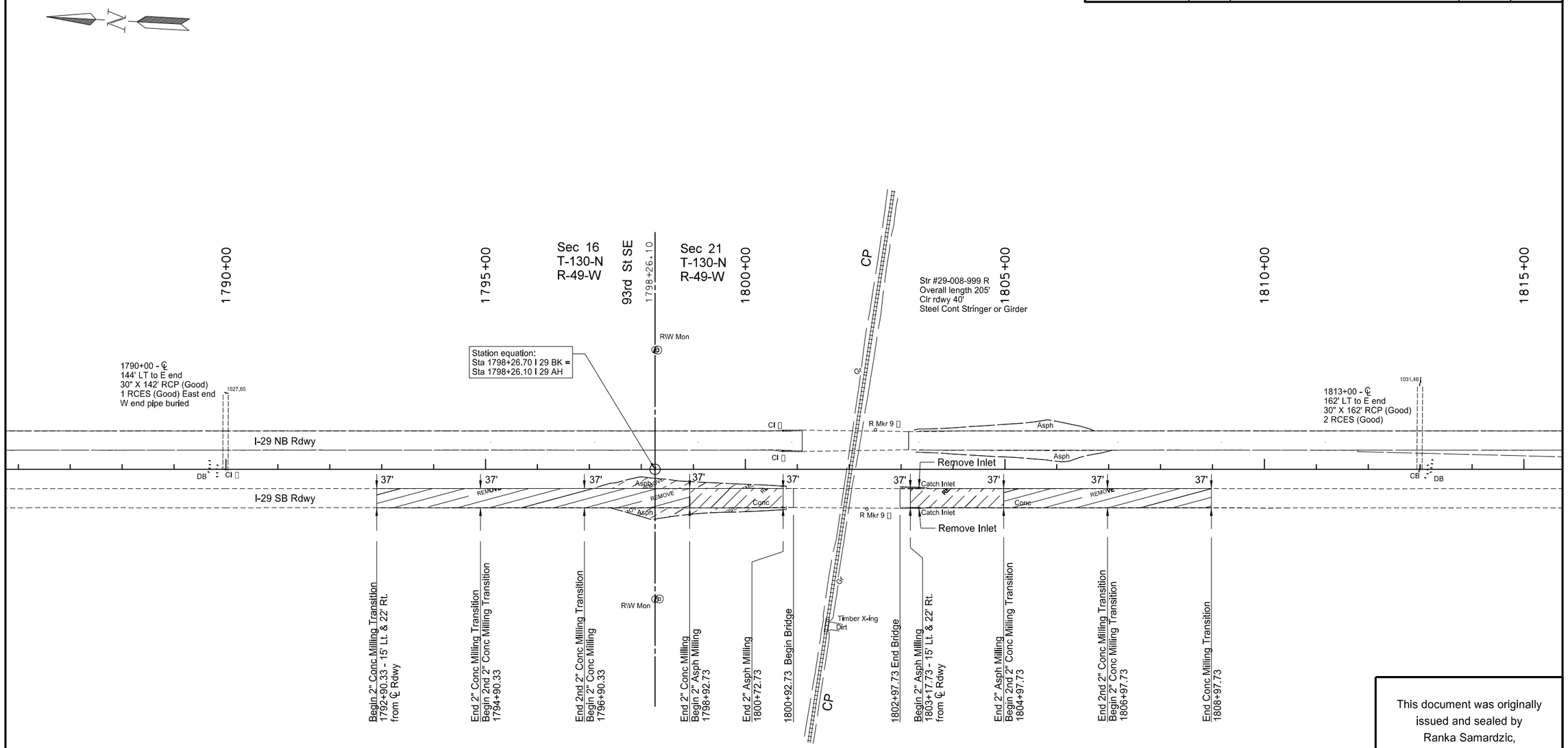
Proposed Typical Sections
for Mainline Median Foreslope after
Removal of Ramp Connections
& North Median Crossover

Crack and Seat with 4" HBP Overlay
I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	40	1



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0230	**Removal Of Inlets**		
		1803+34 - 36' Rt	EA	1
		1803+34 - 74' Rt.	EA	1

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0128	**Remove Aggregate Base**		
		CP RR Guardrail 1796+90.33 to 1800+92.7	Ton	118.8
		CP RR Guardrail 1796+90.33 to 1800+92.7	Ton	141.0

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0135	**Removal of Bituminous Surfacing**		
		CP RR Guardrail 1796+90.33 to 1800+92.7	Ton	41.5
		CP RR Guardrail 1796+90.33 to 1800+92.7	Ton	49.9

SPEC	CODE	BID ITEM	UNIT	QUANTITY
411	0100	**Milling Pavement Surface**		
		I-29 SB 1798+92.73 to 1800+72.73	Ton	82
		I-29 SB 1803+17.73 to 1804+97.73	Ton	82

SPEC	CODE	BID ITEM	UNIT	QUANTITY
411	0110	**MIlling PCC Pavement**		
		I-29 SB 1792+90.33 to 1798+26.70 Bk	SY	2,205
		I-29 SB 1798+26.10 AHD to 1798+92.7	SY	274
		I-29 SB 1804+97.73 to 1808+97.73	SY	1,644

KEY

REMOVE — Mill Conc

Mill Asph

Guardrail Removal

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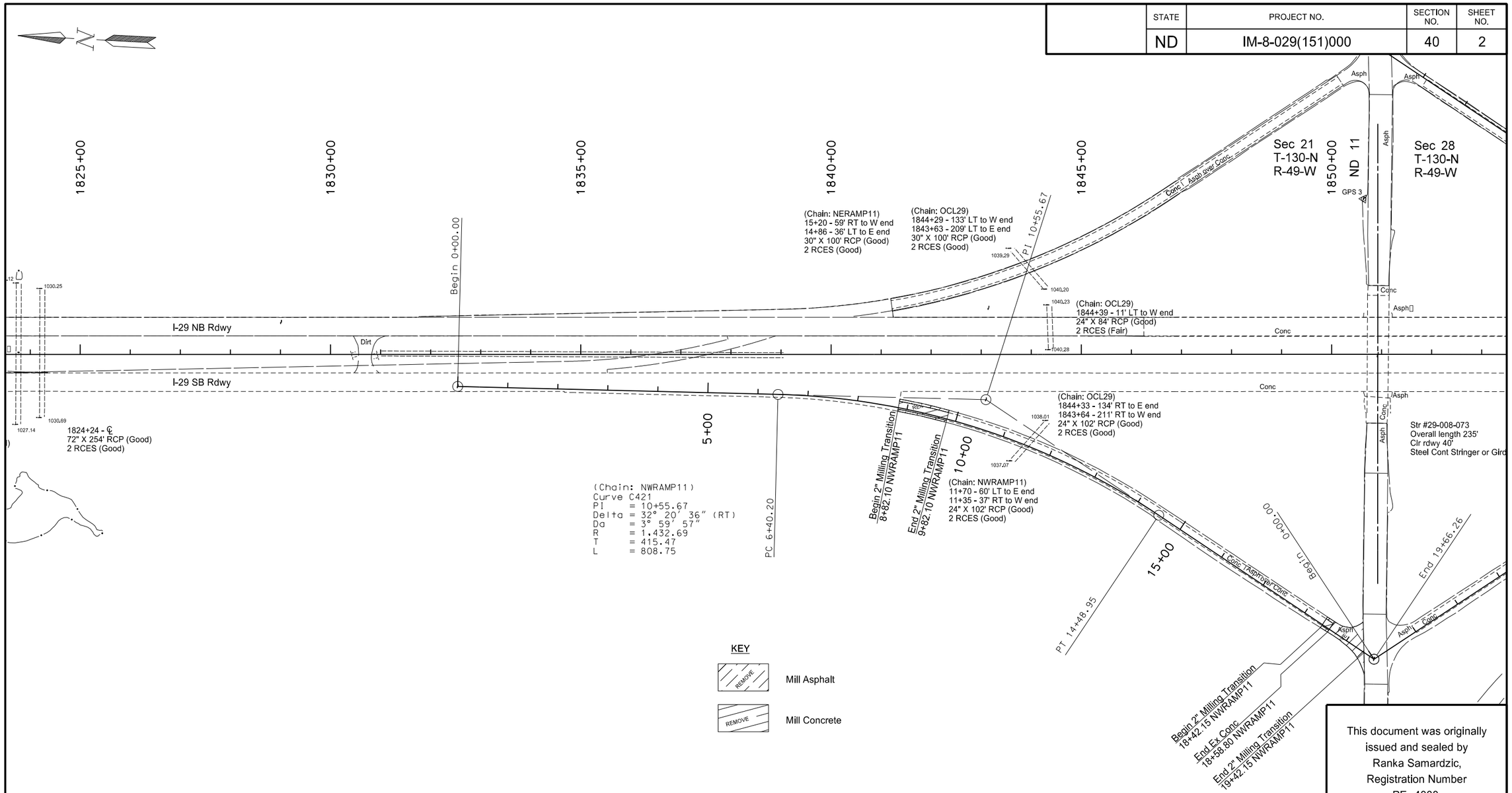
Removal Layout for Bridge 29-008.999L
at CP Railway Separation

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	40	2



KEY

REMOVE — Mill Asphalt

REMOVE — Mill Concrete

SPEC	CODE	BID ITEM		UNIT	QUANTITY
411	0100	**Milling Pavement Surface**			
		NW Ramp	8+82.10 to 9+82.10	Ton	5
		NW Ramp	18+42.15 to 19+42.15	Ton	20

SPEC	CODE	BID ITEM		UNIT	QUANTITY
411	0110	**Milling PCC Pavement**			
		NW Ramp	8+82.10 to 9+82.10	SY	178
		NW Ramp	18+42.15 to 18+58.80	SY	30

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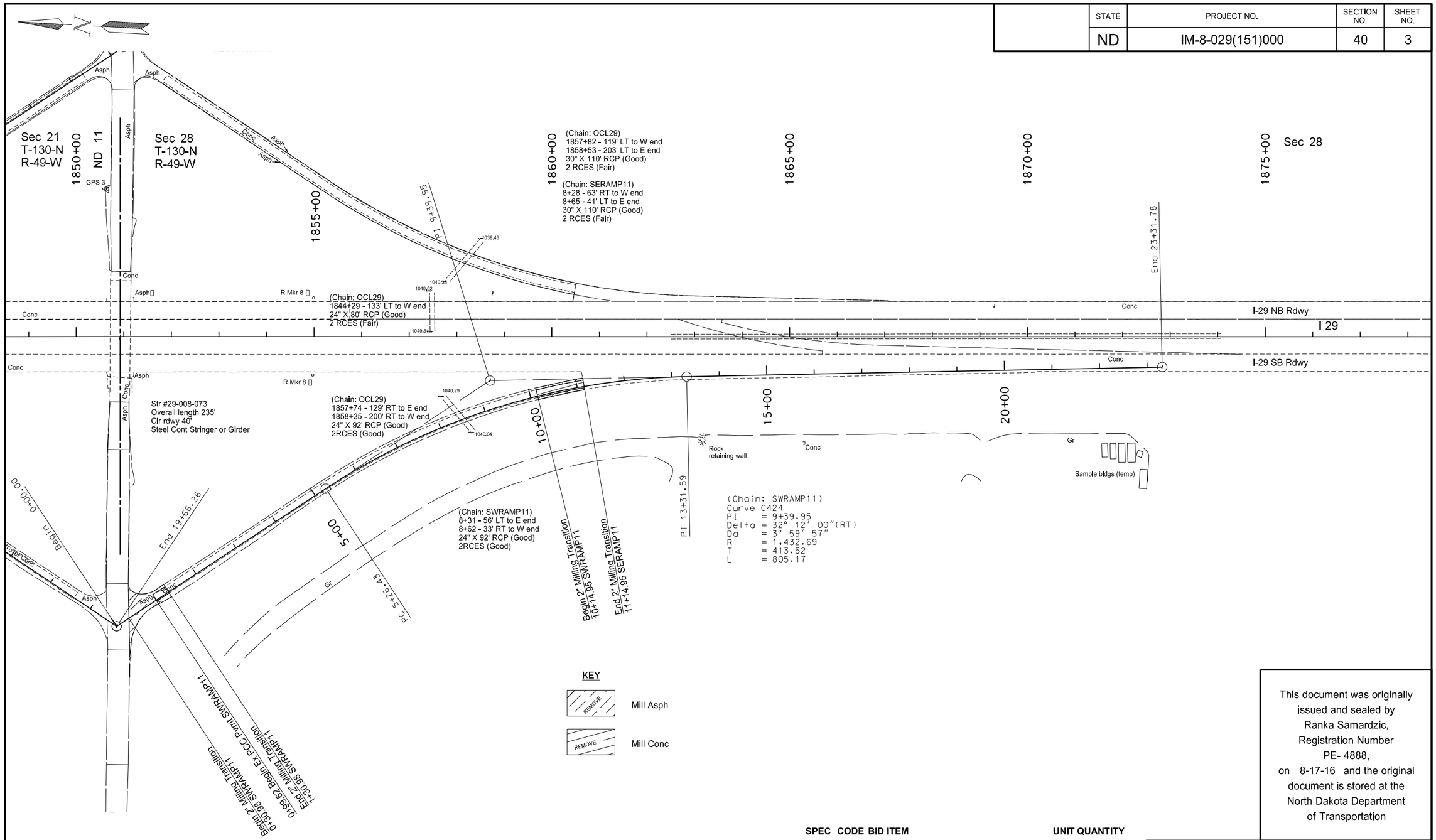
Milling Layout for Existing Concrete NW Ramp at Hankinson Interchange

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	40	3



SPEC	CODE	BID ITEM		UNIT	QUANTITY
411	0100	**Milling Pavement Surface**			
		SW Ramp	0+30.98 to 1+30.98	Ton	22
		SW Ramp	10+14.95 to 11+14.95	Ton	6

SPEC	CODE	BID ITEM		UNIT	QUANTITY
411	0110	**Milling PCC Pavement**			
		SW Ramp	0+99.62 to 1+30.98	SY	56
		SW Ramp	10+14.95 to 11+14.95	SY	178

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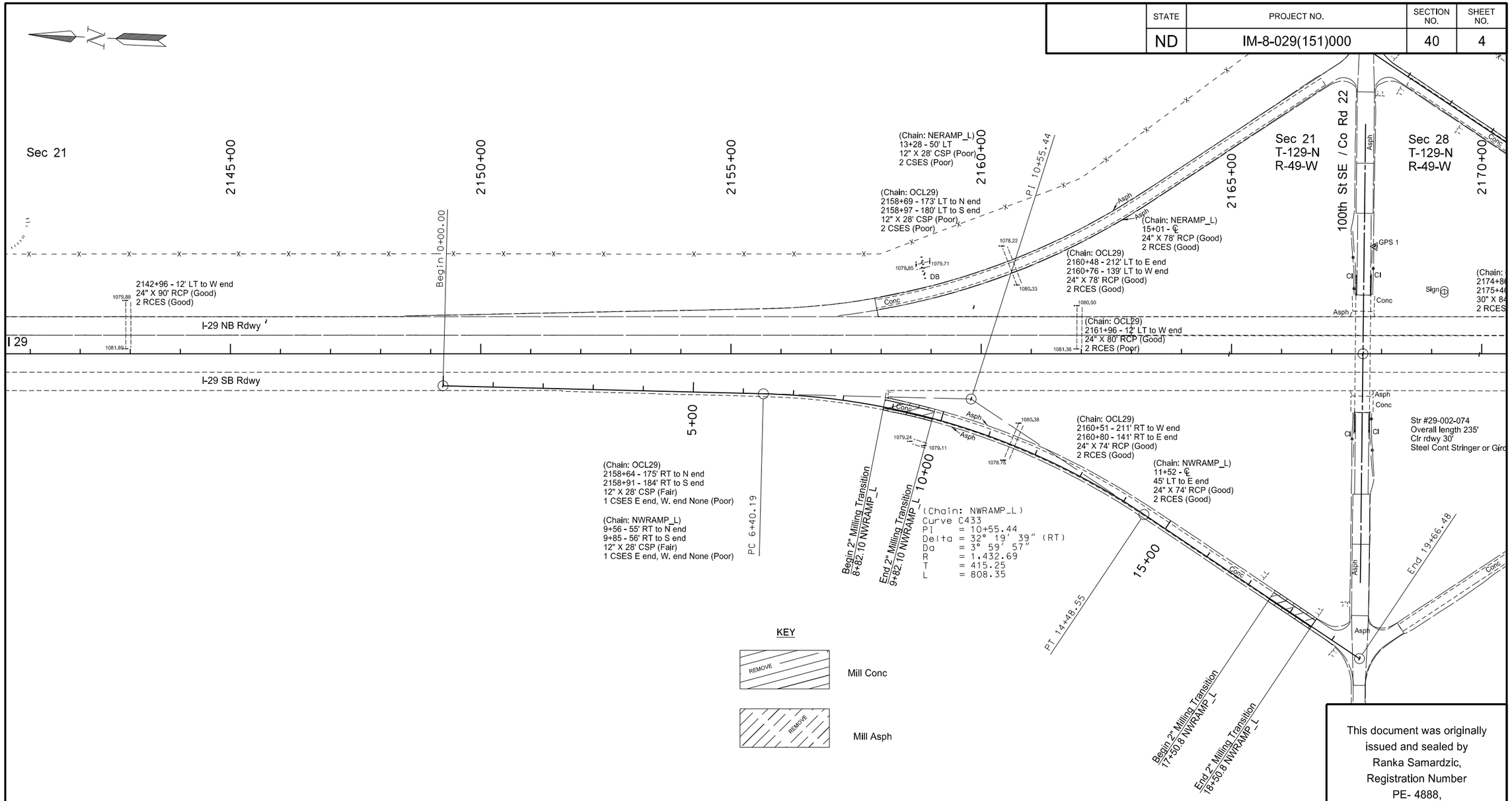
Milling Layout for Existing Concrete SW Ramp at Hankinson Interchange

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	40	4



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SPEC	CODE	BID ITEM	UNIT	QUANTITY
411	0100	**Milling Pavement Surface**		
		NW Ramp 8+82.10 to 9+82.10	Ton	6
		NW Ramp 17+50.80 to 18+50.80	Ton	6

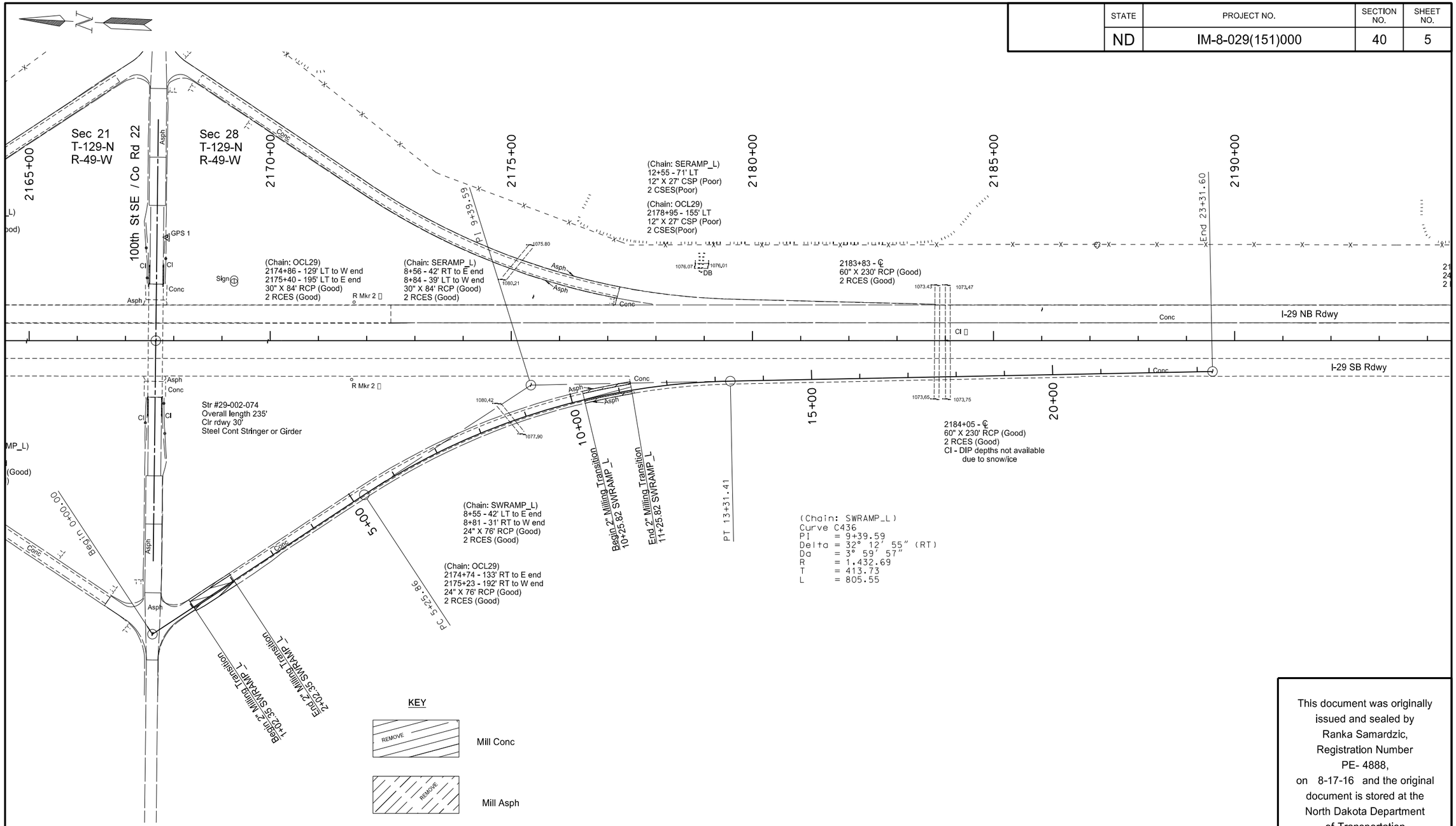
SPEC	CODE	BID ITEM	UNIT	QUANTITY
411	0110	**Milling PCC Pavement**		
		NW Ramp 8+82.10 to 9+82.10	SY	178
		NW Ramp 17+50.80 to 18+50.80	SY	178

Milling Layout for Existing Concrete NW Ramp at LaMars Interchange

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	40	5



(Chain: SWRAMP_L)
Curve C436
PI = 9+39.59
Delta = 32° 12' 55" (RT)
Da = 3° 59' 57"
R = 1,432.69
T = 413.73
L = 805.55

SPEC	CODE	BID ITEM	UNIT	QUANTITY
411	0100	**Milling Pavement Surface**		
		SW Ramp 1+02.35 to 2+02.35	Ton	7
		SW Ramp 10+25.82 to 11+25.82	Ton	6

SPEC	CODE	BID ITEM	UNIT	QUANTITY
411	0110	**Milling PCC Pavement**		
		SW Ramp 1+02.35 to 2+02.35	SY	178
		SW Ramp 10+25.82 to 11+25.82	SY	178

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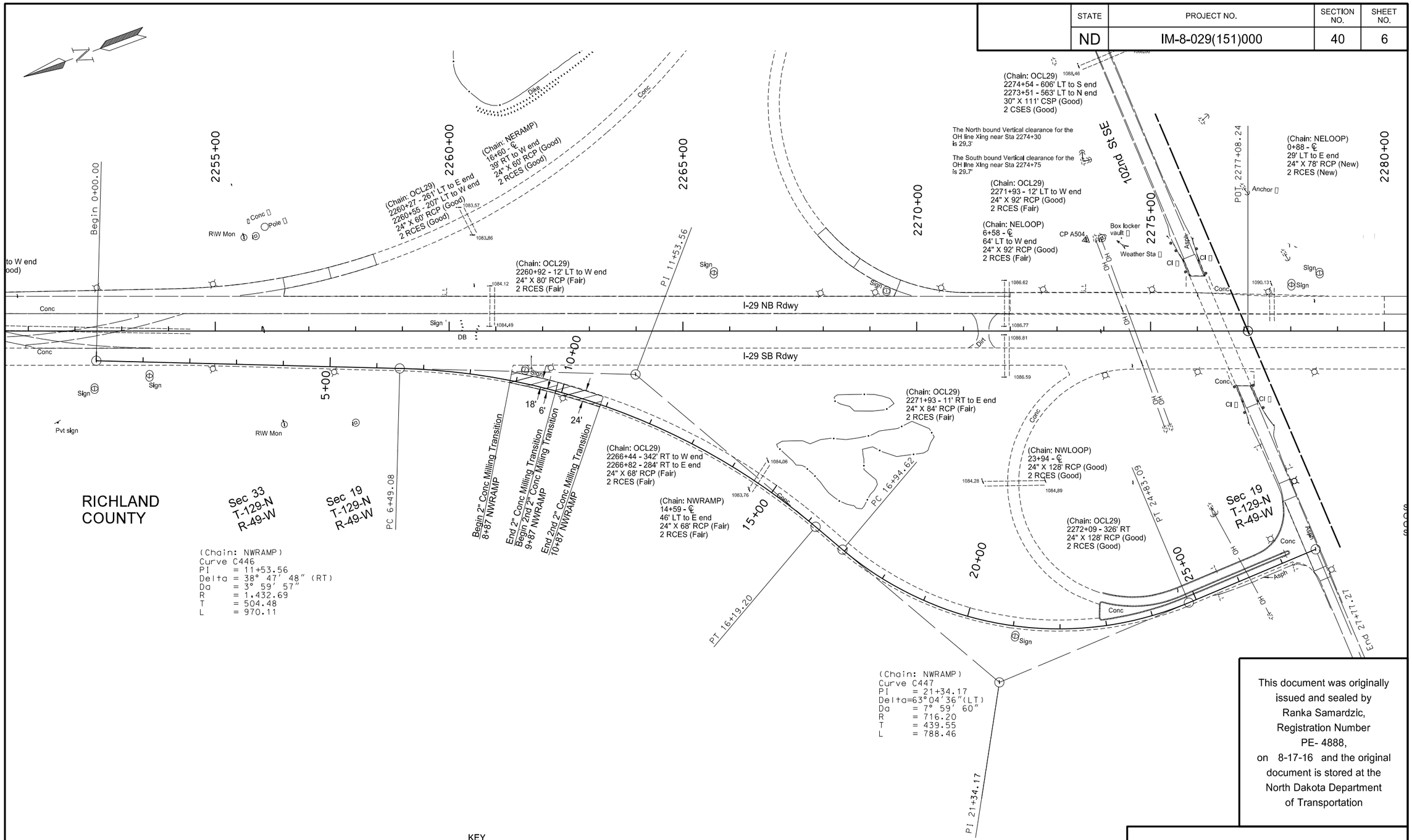
Milling Layout for Existing Concrete SW Ramp at LaMars Interchange

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	40	6



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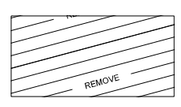

Mill Conc

SPEC	CODE	BID ITEM	UNIT	QUANTITY
411	0110	**Milling PCC Pavement**		
		NW Ramp 8+87 to 9+87	SY	267
		NW Ramp 9+87 to 10+87	SY	267

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Milling Layout for Existing Concrete NW Ramp at State Line Interchange

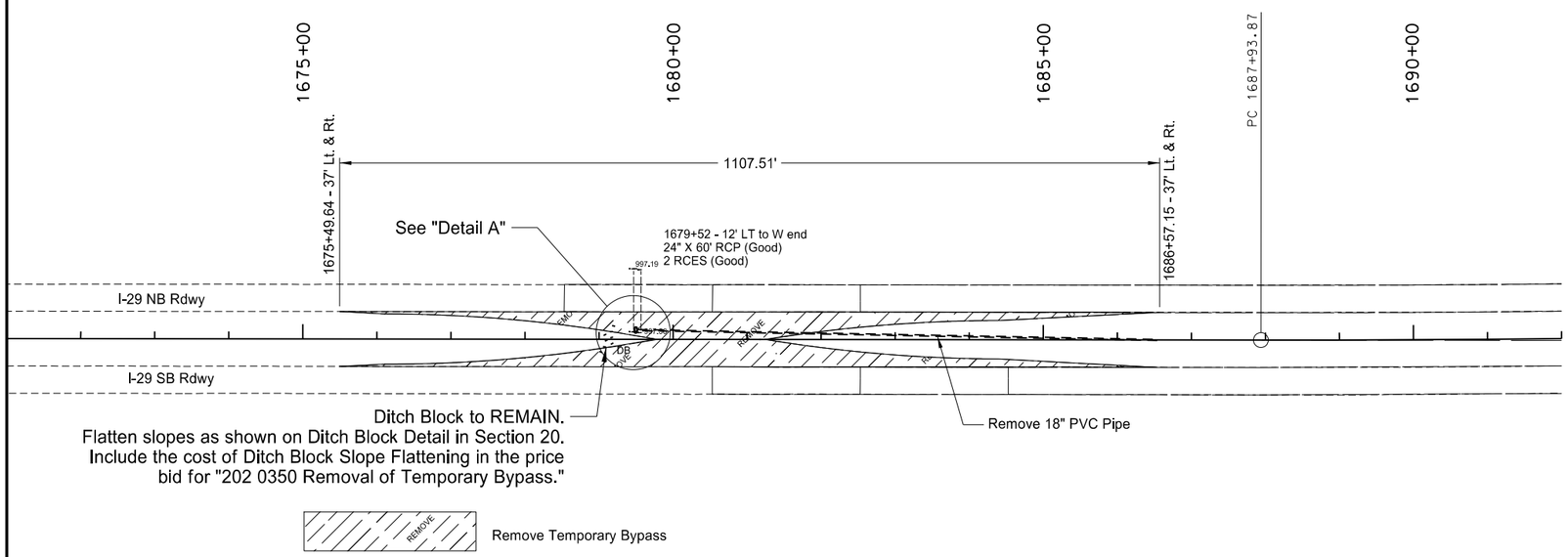
Crack and Seat with 4" HMA Overlay

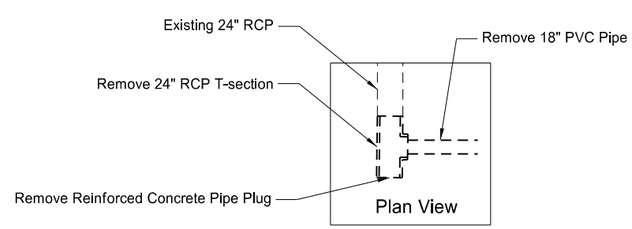
I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	40	7

SPEC	CODE	BID ITEM		UNIT QUANTITY
202	0174	**Removal Of Pipe - All Types & Sizes**		
		1679+52(Includes T-Sect RCP - 6 LF & 1 Conc Plug)	LF	6
202	0350	**Removal Of Temporary Bypass**		
		NMC: Sta 1675+49.64 to 1686+57.15 (37' Lt. & Rt.)	EA	1

Estimated Removal Quantities for Bypass(Not A Pay Item)		
Bituminous Surfacing Removal	Ton	1334
Aggregate Base Course Removal	Ton	3880
Removal of 18" PVC Pipe	LF	702
Embankment Removal	CY	4148
Topsoil	CY	1508
Geosynthetic Material Type R1	SY	5495





Detail A

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Removal Layout for North Median Crossover at End Project

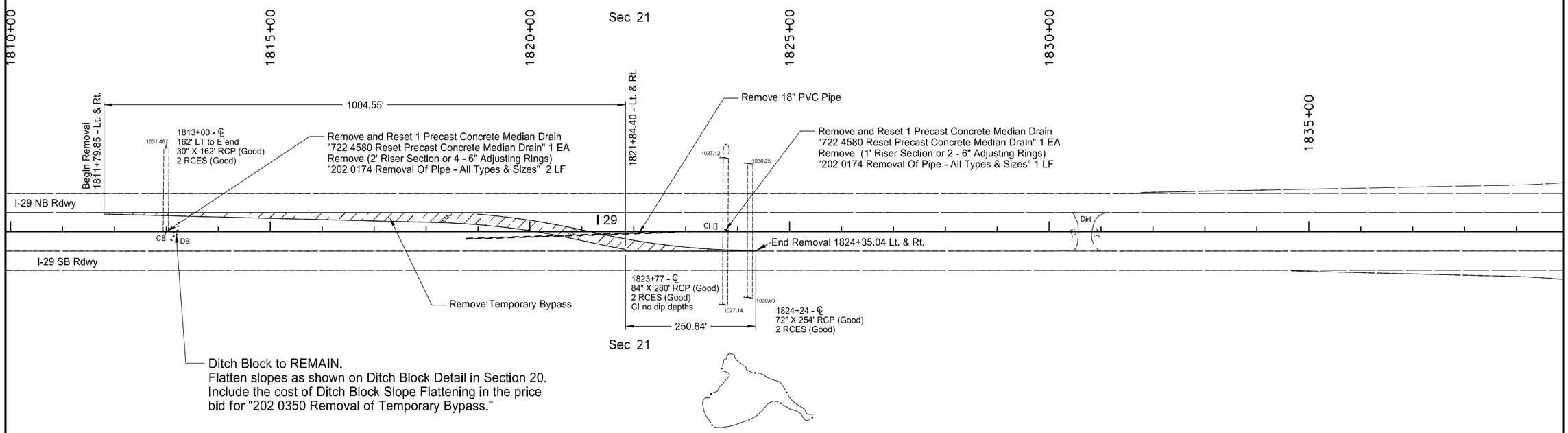
Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	40	8

SPEC	CODE	BID ITEM		UNIT QUANTITY
202	0174	**Removal Of Pipe - All Types & Sizes**		
		1813+00 CL (2' Riser Section or 4 - 6" Adjusting Rings)	LF	2
		1823+77 CL (1' Riser Section or 2 - 6" Adjusting Rings)	LF	1
202	0350	**Removal Of Temporary Bypass**		
		NWRC: Sta Sta 1811+79.85 to 1824+35.04(Lt. & Rt.)	EA	1

Estimated Removal Quantities for Bypass(Not A Pay Item)		
Bituminous Surfacing Removal	Ton	301
Aggregate Base Course Removal	Ton	935
Removal of 18" PVC Pipe	LF	402
Embankment Removal	CY	5816
Topsoil	CY	1235



REMOVE — Remove Temporary Bypass

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Removal Layout for NW Ramp Connection at Hankinson Interchange

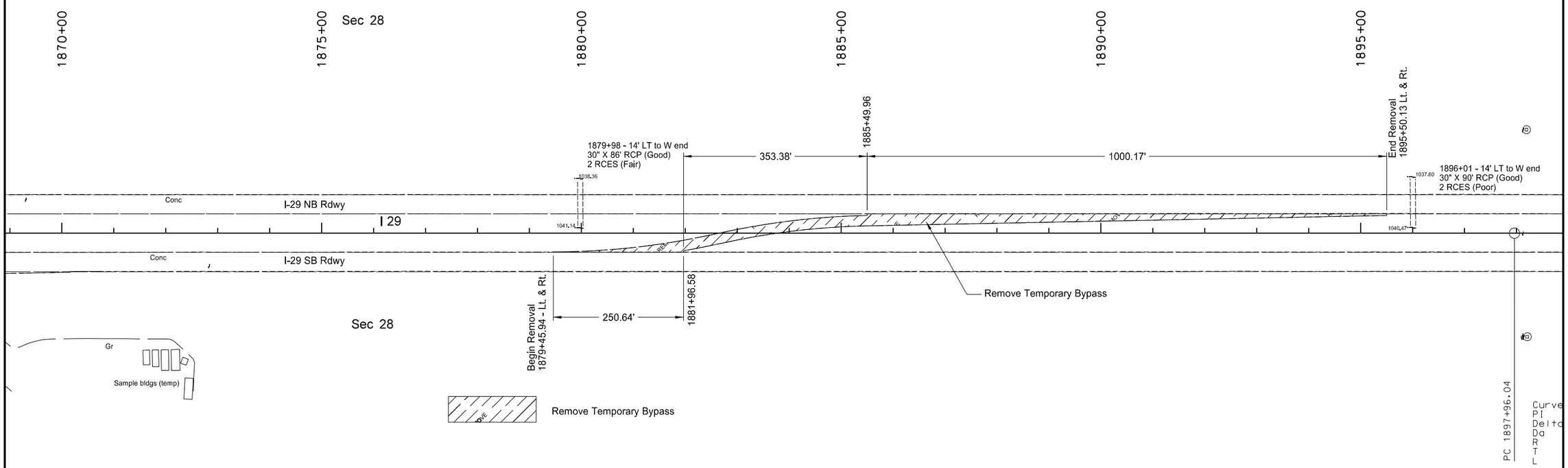
Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	40	9

SPEC	CODE	BID ITEM		UNIT QUANTITY
202	0350	**Removal Of Temporary Bypass**		
		SWRC: Sta 1879+45.94 to 1895+50.13 (Lt. & Rt.)	EA	1

Estimated Removal Quantities for Bypass (Not A Pay Item)		
Bituminous Surfacing Removal	Ton	439
Aggregate Base Course Removal	Ton	1239
Embankment Removal	CY	6063
Topsoil	CY	1802



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Removal Layout for SW Ramp Connection at Hankinson Interchange

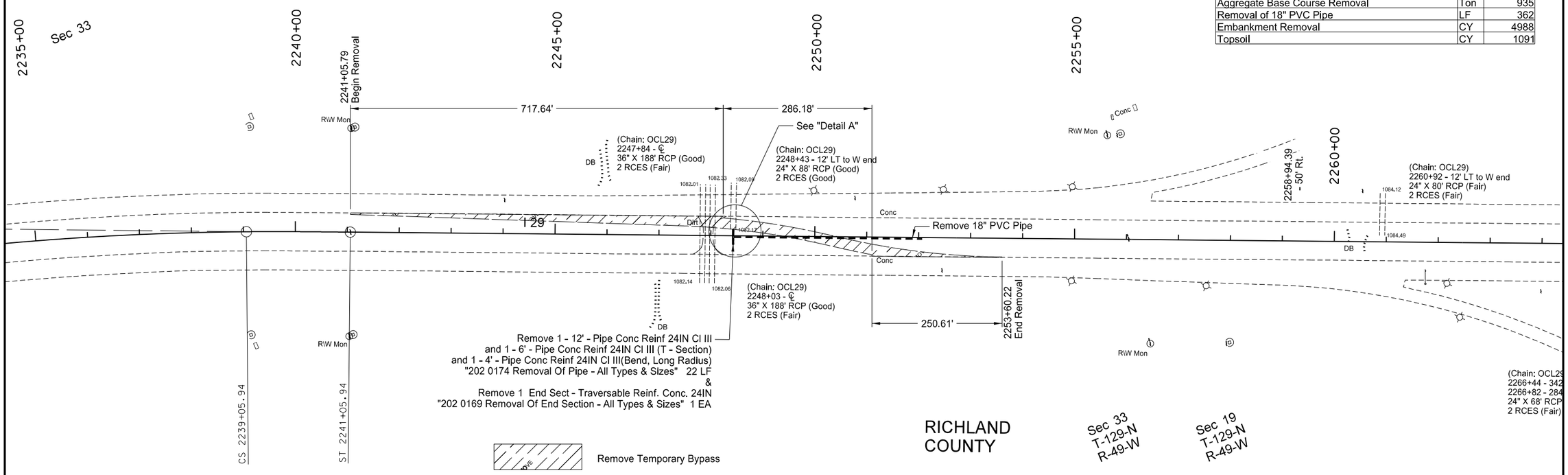
Crack and Seat with 4" HMA Overlay

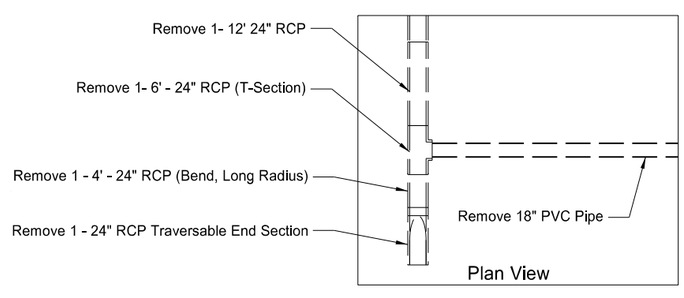
I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	40	10

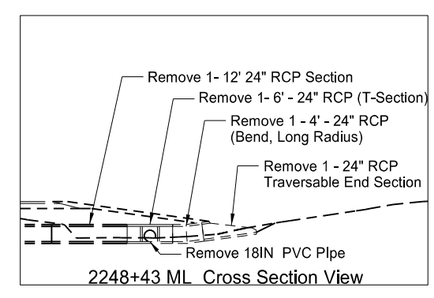
SPEC	CODE	BID ITEM		UNIT QUANTITY
202	0169	**Removal Of End Section - All Types & Sizes**		
		2248+43 Rt. (24" RCP Traversable End Section)	EA	1
202	0174	**Removal Of Pipe - All Types & Sizes**		
		2248+43 Lt. & Rt.(24" RCP - Sect., T-Sect., & Bend)	LF	22
202	0350	**Removal Of Temporary Bypass**		
		NWRC;Sta 2241+05.79 to 2253+60.22-Lt. & Rt.	EA	1

Estimated Removal Quantities for Bypass(Not A Pay Item)		
Bituminous Surfacing Removal	Ton	301
Aggregate Base Course Removal	Ton	935
Removal of 18" PVC Pipe	LF	362
Embankment Removal	CY	4988
Topsoil	CY	1091





Detail A



Detail A

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Removal Layout for NW Ramp Connection at State Line Interchange

Crack and Seat with 4" HMA Overlay

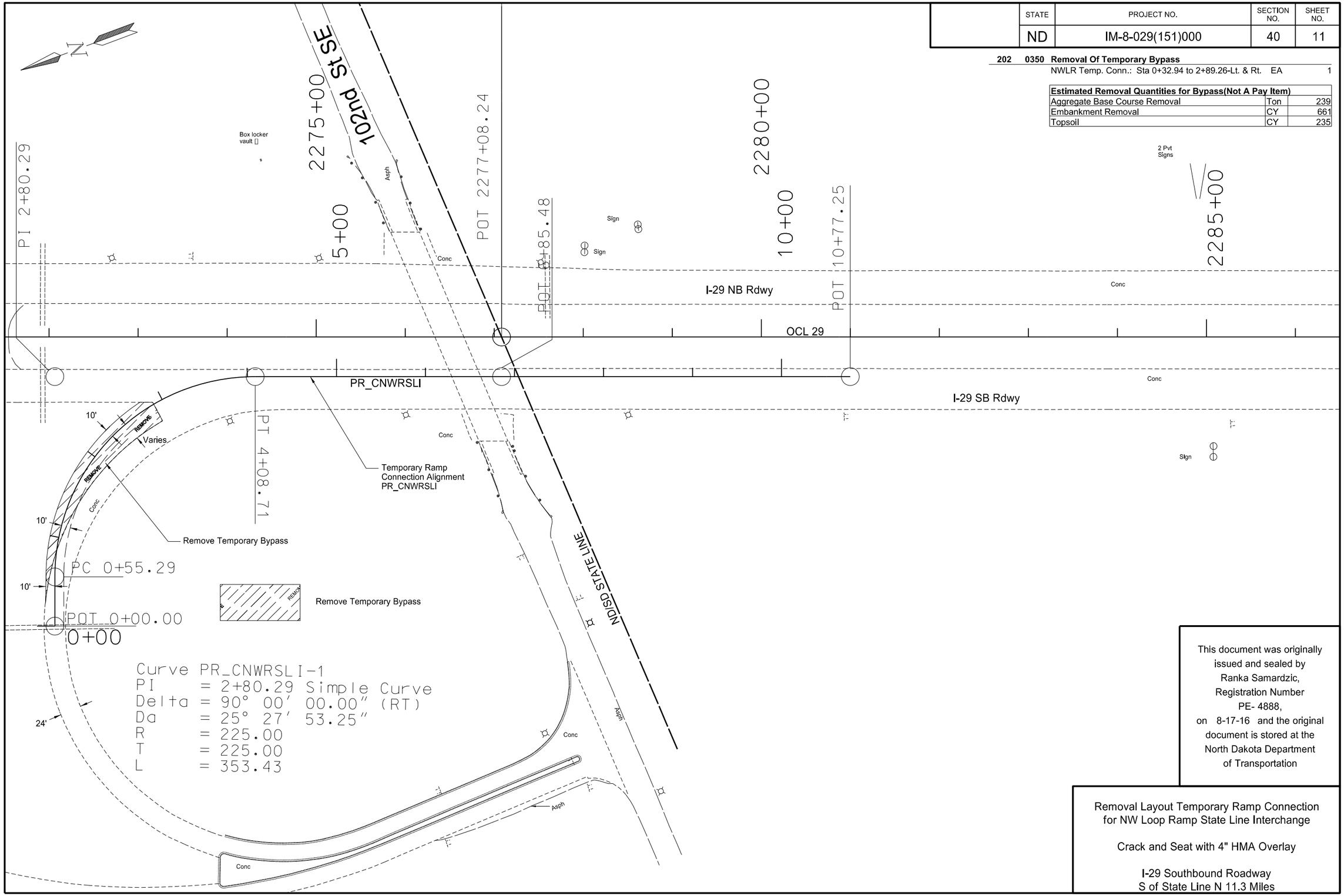
I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	40	11

202 0350 Removal Of Temporary Bypass

NWLR Temp. Conn.: Sta 0+32.94 to 2+89.26-Lt. & Rt. EA 1

Estimated Removal Quantities for Bypass(Not A Pay Item)		
Aggregate Base Course Removal	Ton	239
Embankment Removal	CY	661
Topsoil	CY	235



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Removal Layout Temporary Ramp Connection for NW Loop Ramp State Line Interchange

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of State Line N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	51	1

Begin Station / Location	Begin Offset	End Station / Location	End Offset	Pipe Installation (Pay Item)			Allowable Material	Required Diameter	End Section - Conc Reinf 24in (Pay Item)		Reset Precast Concrete Median Drain (Pay Item)	Remove & Relay End Section - All Types & Sizes (Pay Item)
				In	Bid Item	LF		In	Begin EA	End EA	EA	EA
1679+52	17' Lt	1679+52	11' Lt	24	PIPE CONC REINF 24IN CL III	6	Reinforced Concrete Pipe - Class **III (barrel length = 6 LF)**	24		1		
1813+00	CL	1813+00	CL	--	--	--	--	--			1	
1823+77	CL	1823+77	CL	--	--	--	--	--			1	
2248+43	12' Lt	2248+43	6' Lt	--	--	--	--	--		1		
South Dakota 2292+10/ SD 15+01.76	90' Rt	South Dakota 2292+10/ SD 15+01.76	98' Rt	24	PIPE CONC REINF 24IN CL III	8	Reinforced Concrete Pipe - Class **III (barrell length = 8 LF)**	24				1

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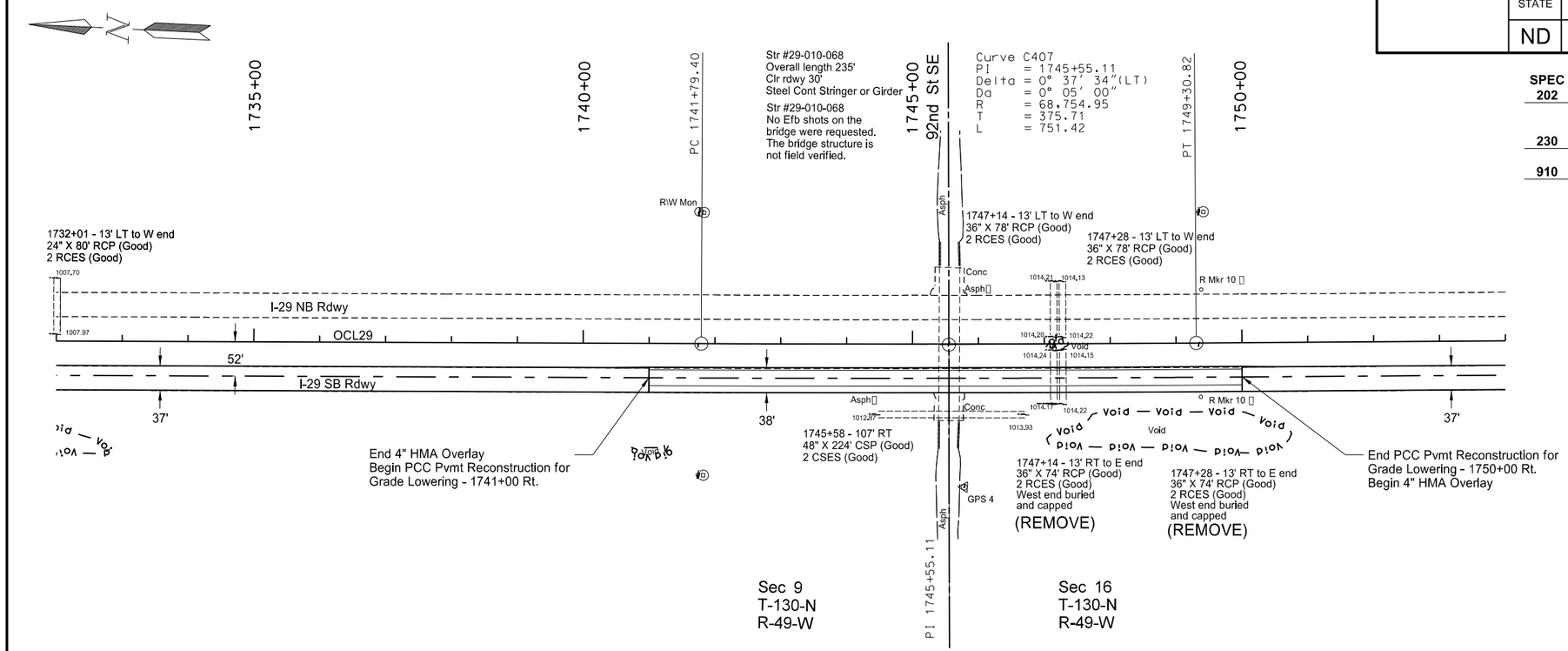
Allowable Pipe List

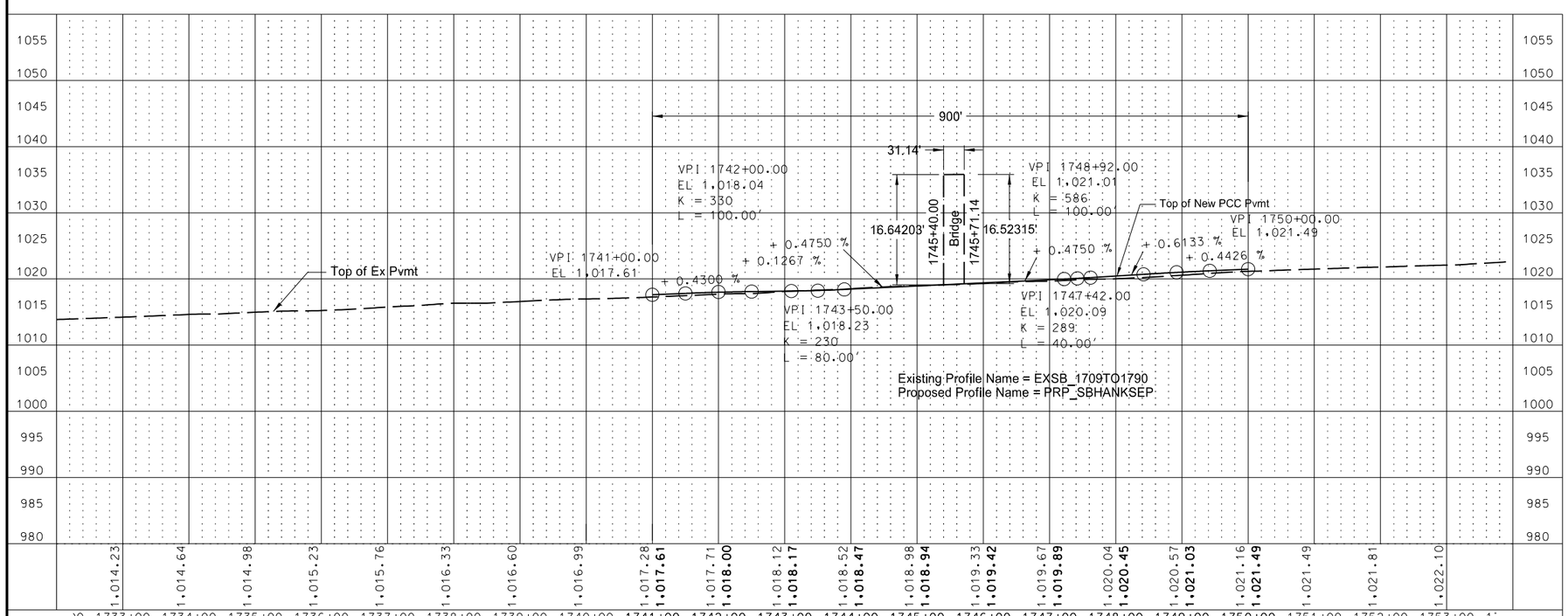
Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	60	1

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0174	**REMOVAL OF PIPE - ALL TYPES AND SIZES**		
		1747+14 Rt.	LF	42
		1747+28 Rt.	LF	42
230	0320	**SUBGRADE PREPARATION TYPE C - 12 IN**		
		1741+00 Rt. to 1750+00 Rt.	Sta	9
910	0565	**CONTROLLED DENSITY BACKFILL**		
		1747+14 Rt.	CY	8.4
		1747+28 Rt.	CY	8.4





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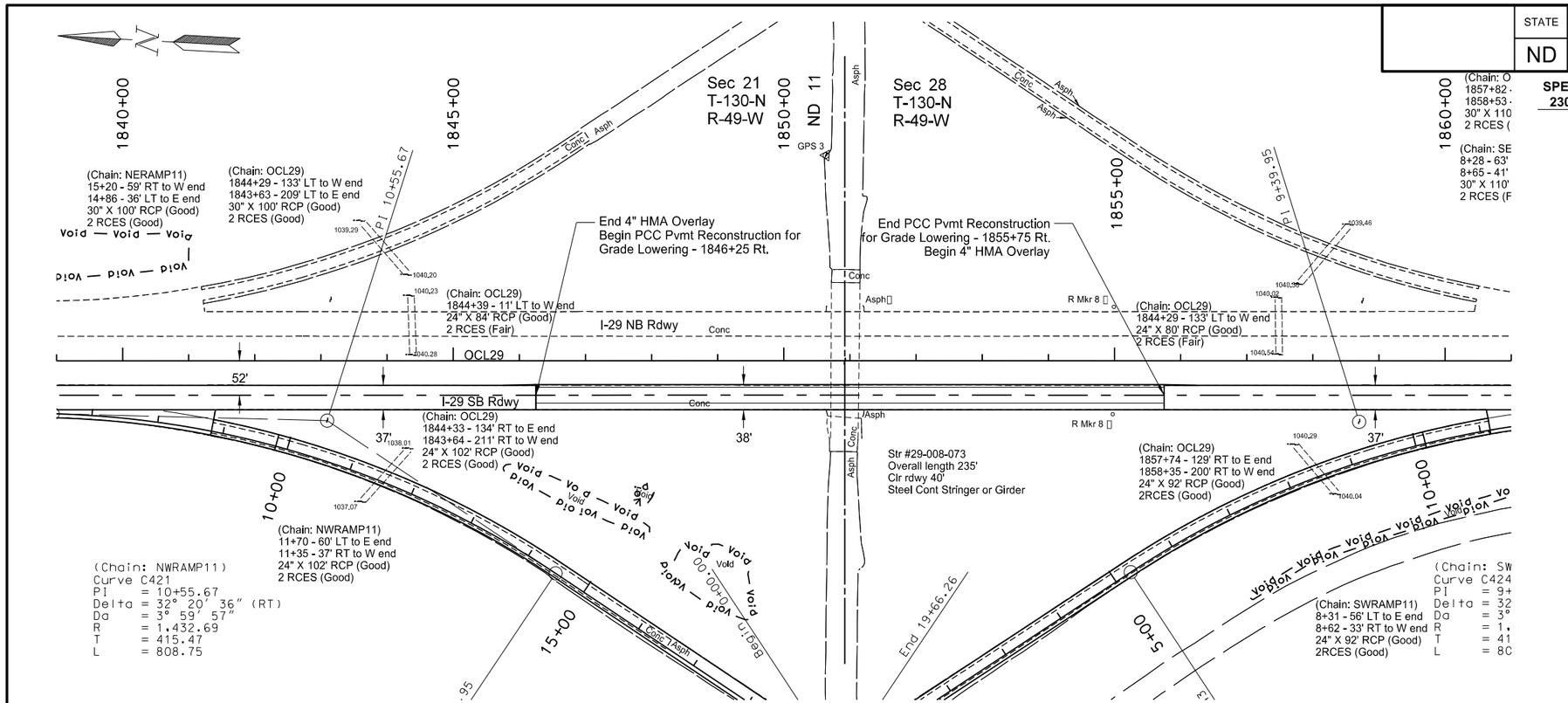
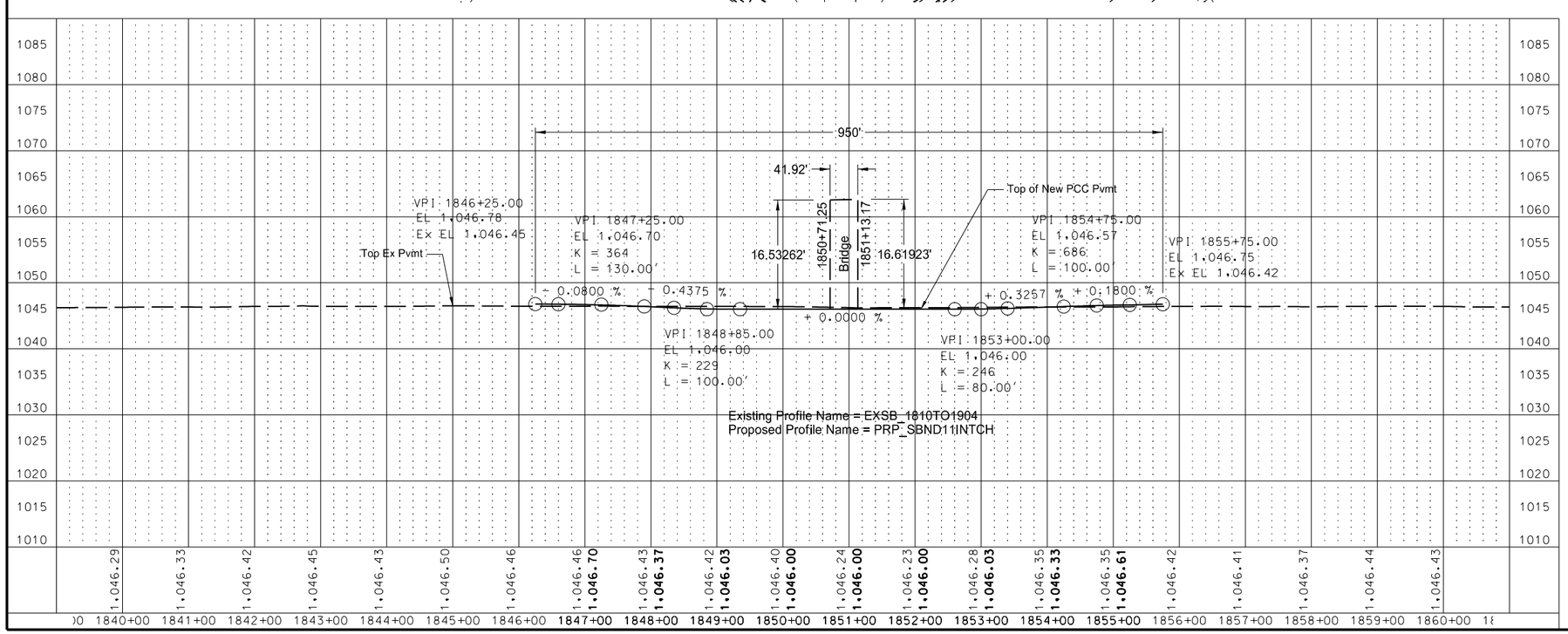
Plan and Profile
Grade Lowering for Hankinson Grade Separation
1741+00 to 1750+00

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	60	2

SPEC	CODE	BID ITEM	UNIT	QUANTITY
230	0320	SUBGRADE PREPARATION TYPE C - 12 IN		
		1846+25 Rt. to 1855+75 Rt.	Sta	9.5





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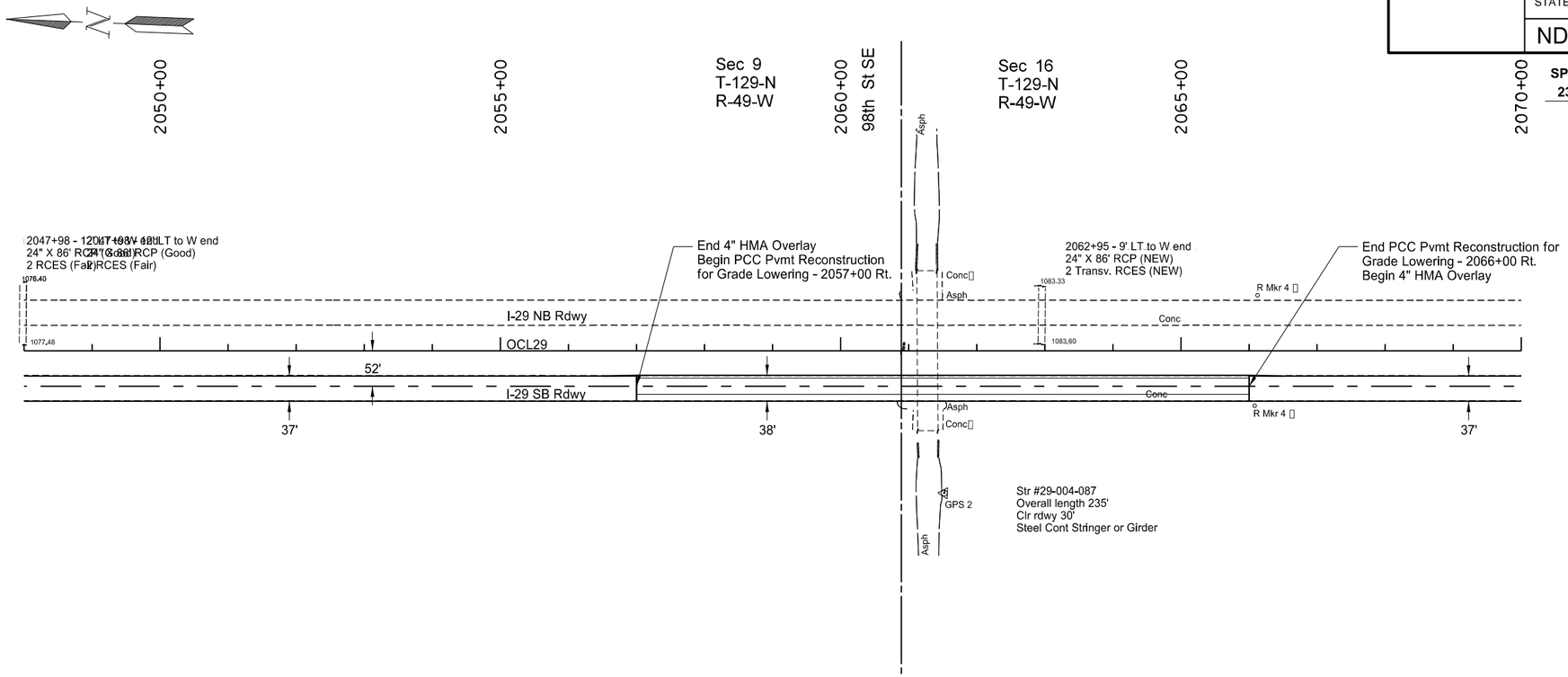
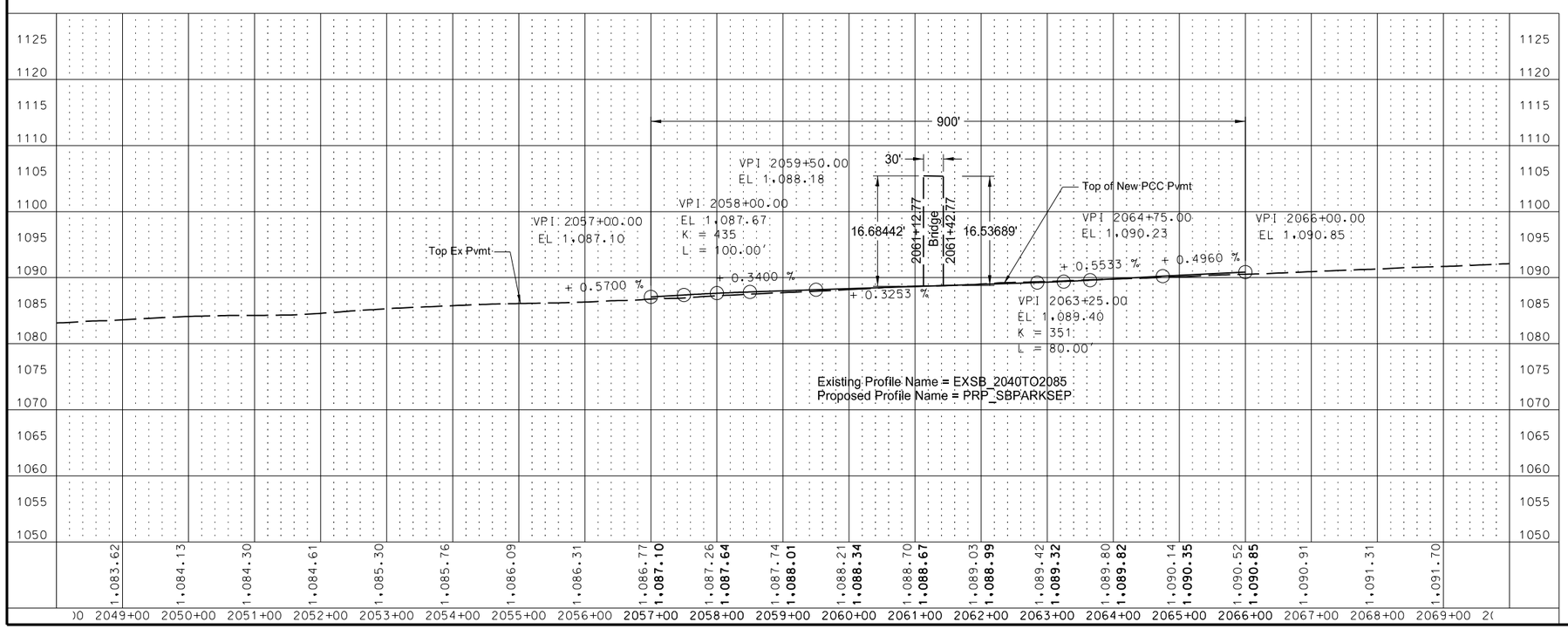
Plan and Profile
Grade Lowering for ND 11 Hankinson Interchange
1846+25 to 1855+75

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	60	3

SPEC	CODE	BID ITEM	UNIT	QUANTITY
230	0320	SUBGRADE PREPARATION TYPE C - 12 IN		
		2057+00 Rt. to 2066+00 Rt.	Sta	9





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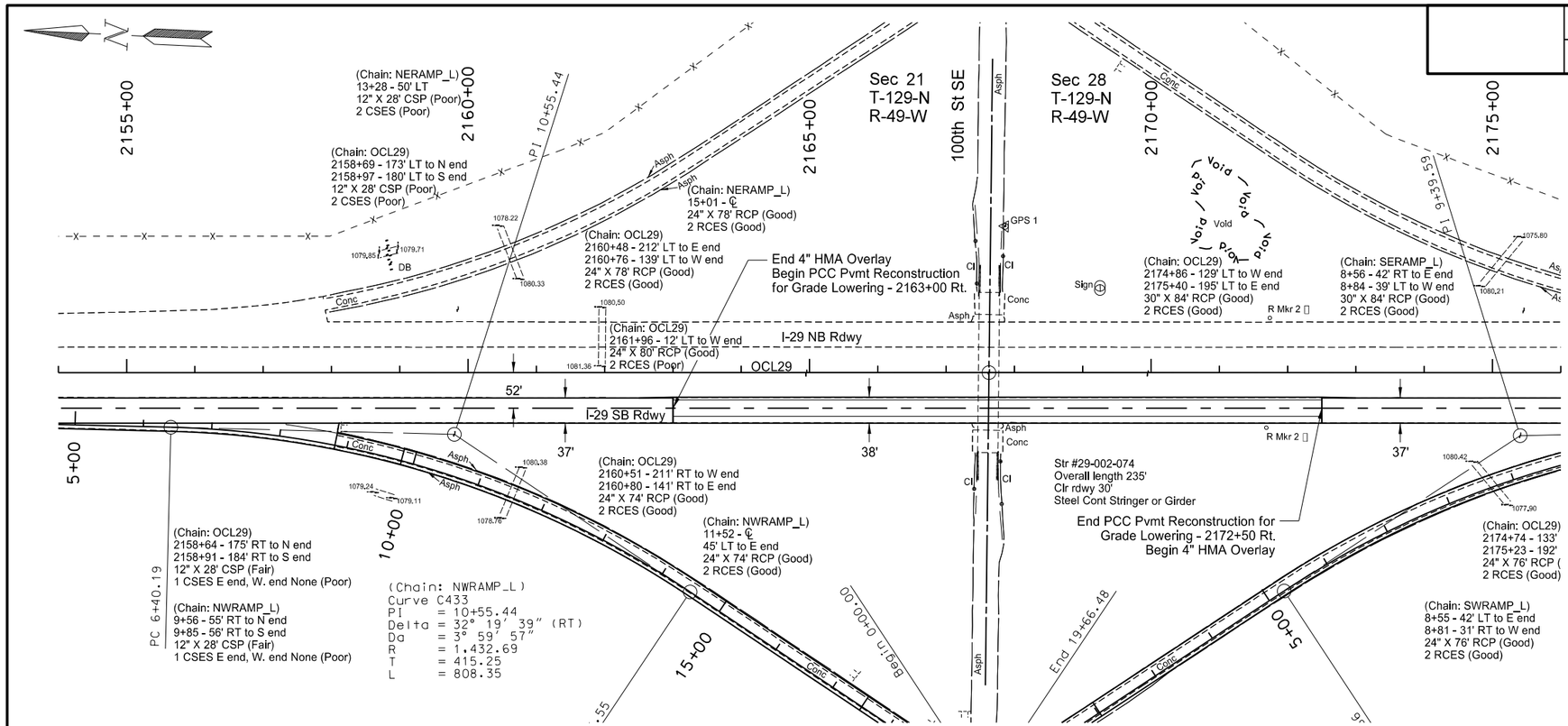
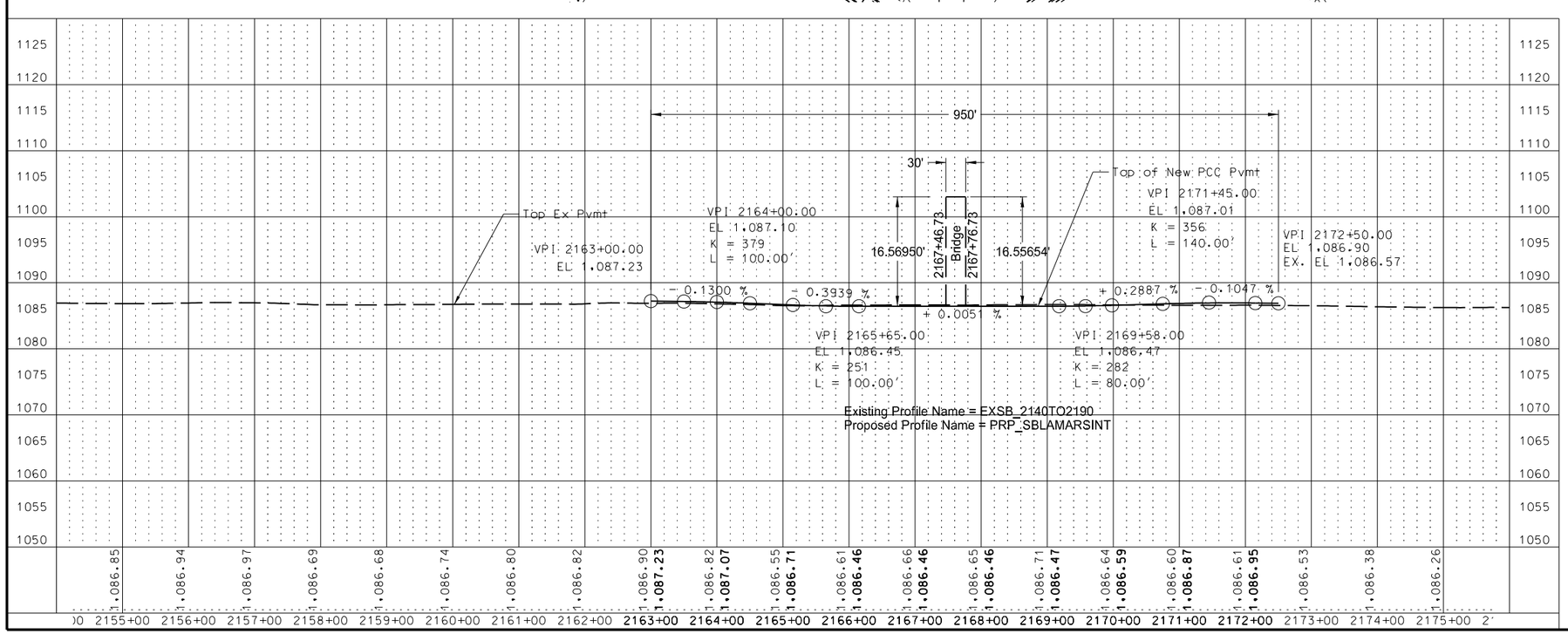
Plan and Profile
Grade Lowering for Park Lake Grade Separation
2057+00 to 2066+00

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	60	4

SPEC	CODE	BID ITEM	UNIT	QUANTITY
230	0320	SUBGRADE PREPARATION TYPE C - 12 IN		
		2163+00 Rt. to 2172+50 Rt.	Sta	9.5





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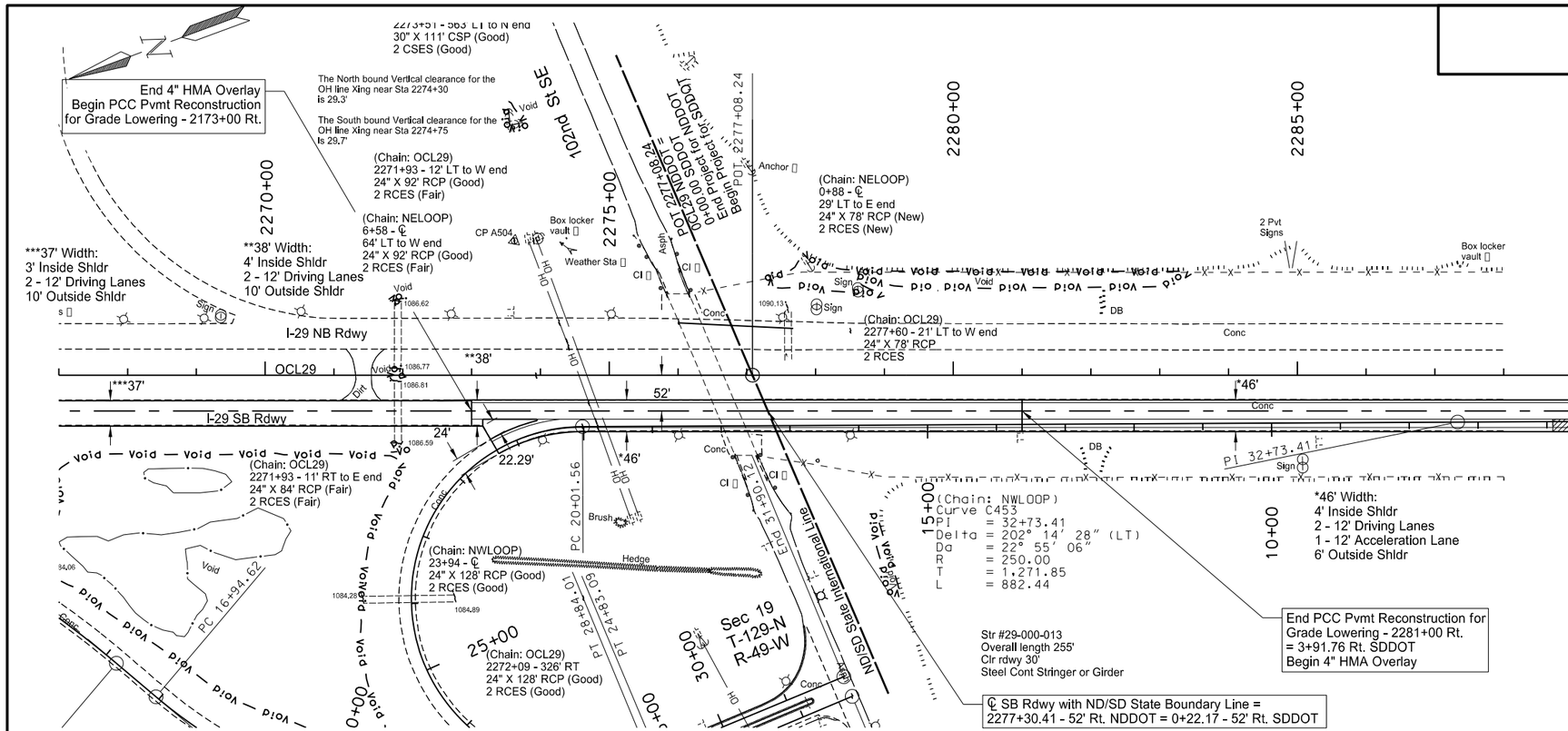
Plan and Profile
Grade Lowering for LaMars Interchange
2163+00 to 2172+50

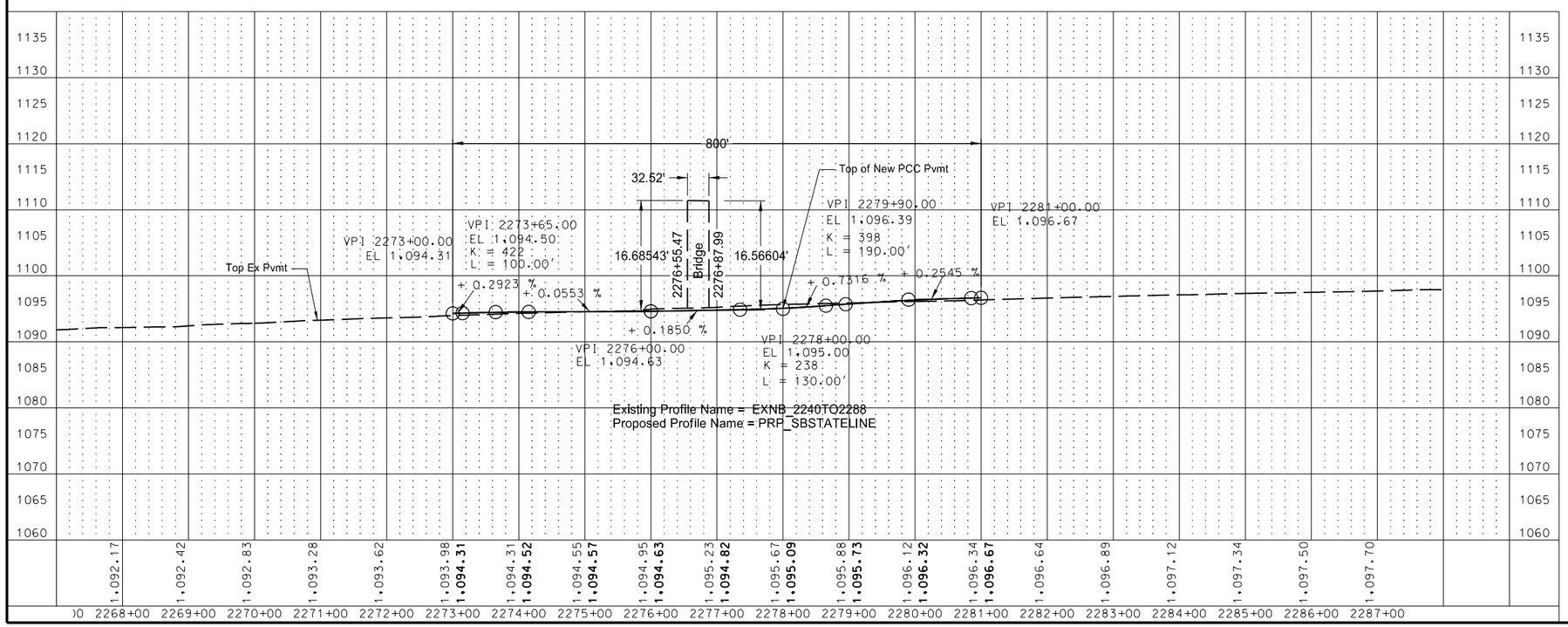
I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	60	5

SPEC	CODE	BID ITEM		UNIT QUANTITY
230	0320	SUBGRADE PREPARATION TYPE C - 12 IN		
		*2273+00 Rt. to 2277+30.41 Rt.	Sta	4.3
		20+01.56 to 21+32.21 (NW Loop)	Sta	1.3
		*2277+30.41 Rt. to 2281+00 Rt. (S. Dakota) or 0+22.17 to 3+91.76 SDDOT	Sta	3.7

*Note: Includes NW Loop Ramp Acceleration Lane & Shldr.





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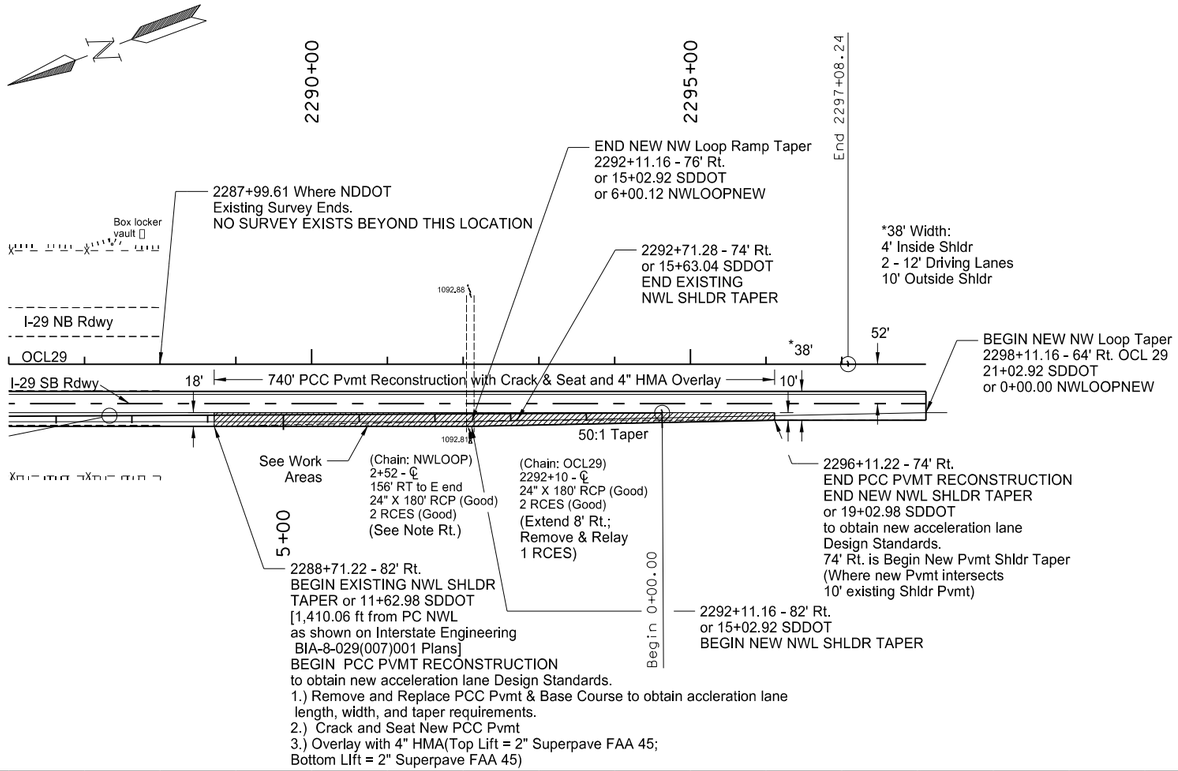
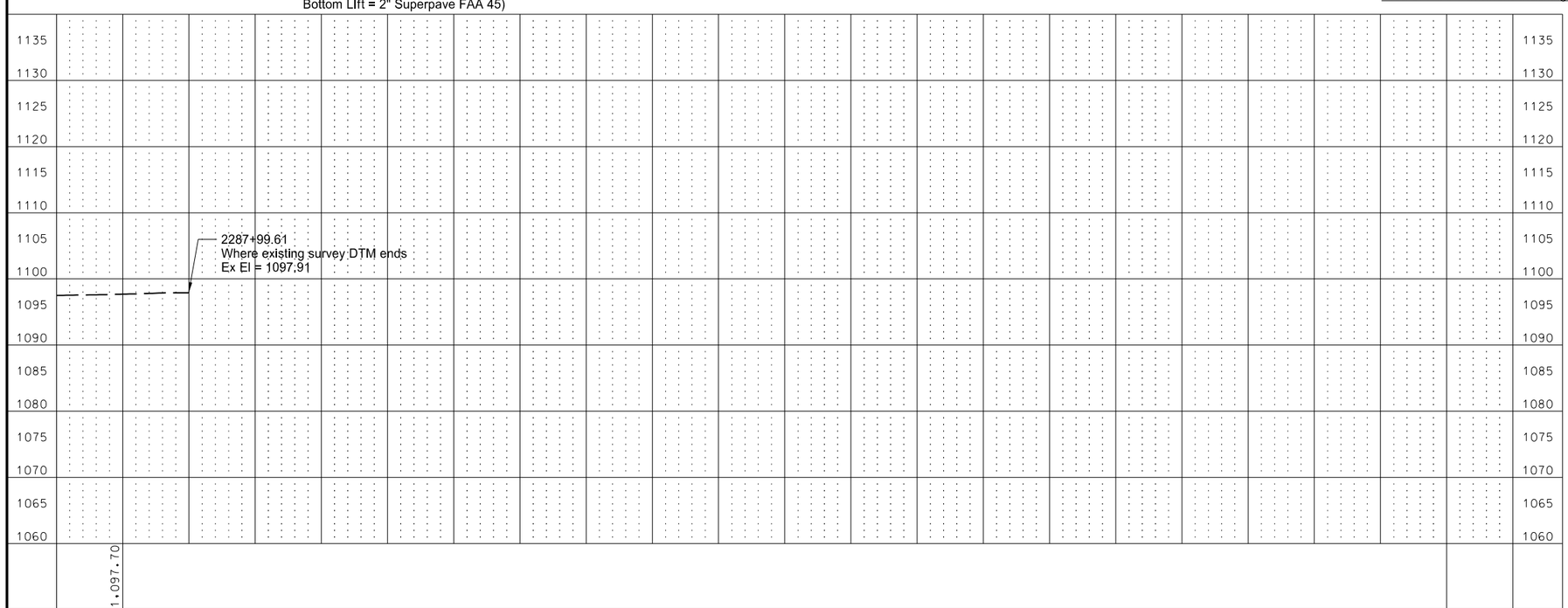
Plan and Profile
Grade Lowering for State Line Interchange
2273+00 to 2281+00

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

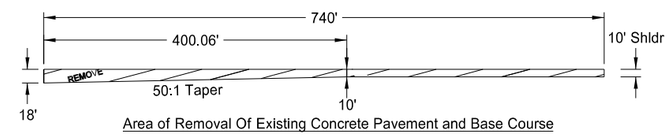
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	60	6



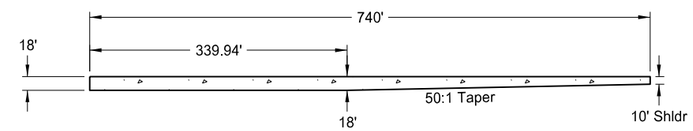


SPEC	CODE	BID ITEM	UNIT	QUANTITY
230	0320	**SUBGRADE PREPARATION TYPE C - 12 IN**		
		2288+71.22 Rt. to 2296+11.22 Rt.-S. Dakota or 11+62.98 Rt. to 19+02.98 Rt. SDDOT	Sta	7.4
714	0615	**PIPE CONC REINF 24IN CL III**		
		2292+10 - 90.1' Rt. to 98.1' Rt.-S. Dakota or 15+01.76 - 90.1' Rt. to 98.1' Rt. SDDOT	LF	8
714	9660	**REMOVE & RELAY END SECTION - ALL TYPES & SIZES**		
		2292+10 - 92.6' Rt to 98.1' Rt. -S. Dakota or 15+01.76 - 92.6' Rt. to 98.1' Rt. SDDOT	EA	1
754	0805	**OBJECT MARKERS - CULVERTS**		
		2292+10 Rt. (South Dakota) or 15+01.76 Rt. SDDOT	EA	1

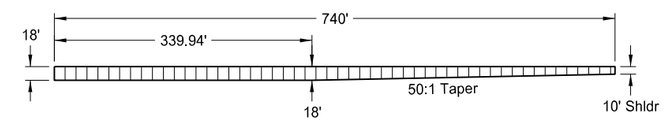
WORK AREAS



Area of Removal Of Existing Concrete Pavement and Base Course



Area of New 9" Non-Reinf PCC Pavement and 8" Salvaged Base Course



Area of PCC Pavement Cracking & Seating and 4" HMA Overlay

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Plan and Profile
NW Loop Ramp State Line Interchange
Acceleration Lane Reconstruction
2288+71.22 - 64' Rt. to 2296+11.22 - 64' Rt.

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	75	1

Wetland Impact Table

Wetland Number	Location	Wetland Feature	USACE Jurisdictional Wetlands[1]	Wetland Impacts Acre(s)		USFWS Easement Impacts Acre(s)		Wetland Mitigation												
								Mitigation Required			USACE/11990 Bank		11990 Bank		USFWS Bank		Onsite			
				Temp.	Perm.	Temp.	Perm.	EO 11990	USACE	USFWS	Location	Acre(s)	Location	Acre(s)	Location	Acre(s)	Mitigation Location; Ratio	Acre(s)	Constructed Site #	Constructed Size Acre(s)
1A	T129N, R49W, Section 19	Artificial	Yes	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	N/A	N/A
1B	T129N, R49W, Section 19	Artificial	Yes	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1C	T129N, R49W, Section 19	Artificial	Yes	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1D	T129N, R49W, Section 19	Natural	Yes	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1E	T129N, R49W, Section 33	Artificial	Yes	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1F	T129N, R49W, Section 33	Natural	Yes	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Wetlands Mitigation and Environmental

1G	T129N, R49W, Section 33	Artificial	Yes	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1H	T129N, R49W, Section 33	Artificial	Yes	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1I	T129N, R49W, Section 28	Natural	Yes	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2A	T129N, R49W, Section 28	Artificial	No	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2B	T129N, R49W, Section 28	Natural	No	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2C	T129N, R49W, Section 28	Artificial	No	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3A	T129N, R49W, Section 21	Artificial	No	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3B	T129N, R49W, Section 21	Artificial	No	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Wetlands Mitigation and Environmental

3C	T129N, R49W, Section 16	Artificial	No	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	T129N, R49W, Section 16	Artificial	No	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	T129N, R49W, Section 9	Artificial	No	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	T129N, R49W, Section 9	Artificial	No	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	T129N, R49W, Section 9	Artificial	No	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	T129N, R49W, Section 9	Artificial	No	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9A	T129N, R49W, Section 4	Artificial	Yes	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9B	T130N, R49W, Section 33	Artificial	Yes	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Wetlands Mitigation and Environmental

10	T130N, R49W, Section 28	Artificial	No	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11	T130N, R49W, Section 21	Artificial	No	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12A	T130N, R49W, Section 21	Artificial	Yes	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12B	T130N, R49W, Section 21	Natural	Yes	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12C	T130N, R49W, Section 21	Artificial	Yes	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13	T130N, R49W, Section 16	Artificial	No	**0.19**	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14	T130N, R49W, Section 9	Artificial	Yes	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14a In SD	T129N, R49W, Section 30	Natural	Yes	**0.34**	**0.01**	0.00	0.00	No	Yes	No	Vollrath 16/17	**0.01**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Wetlands Mitigation and Environmental

14b In SD	T129N, R49W, Section 30	Natural	Yes	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14c In SD	T129N, R49W, Section 30	Artificial	Yes	0.00	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14d In SD	T129N, R49W, Section 30	Artificial	Yes	**0.01**	0.00	0.00	0.00	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			TOTALS =	**0.54**	**0.01**	**0.00**	**0.0**					**0.01**		N/A		N/A		N/A		N/A

[1] A wetland Jurisdictional Determination was issued by the USACE on 11/29/2013; NWO-2013-2329-BIS.

[2] 1199 Mitigation requirements - All impacts to natural wetlands (natural/jurisdictional and natural/non-jurisdictional), regardless of size, as well as impacts greater than 0.10 acre to wetlands require mitigation.
USACE Mitigation Requirements – All jurisdictional impacts greater than 0.10 acre to each resource (cumulative. Eg. 1a ,1b,1c. etc.) requires mitigation. Other Water impact greater than 300 linear feet requires mitigation.

[3] All artificial/non-jurisdictional, deep water (impacts greater than 6.6 feet), Other Waters less than 300 linear feet (determined by the USACE on a case by case), and temporary impacts do not require mitigation.

Summary Impact Table			
Total Permanent Impact Summary		**Temporary Impacts and additional information**	
Wetland Type	**Total (Acres)**	**Wetland Type**	**Total (Acres/Lf)**
Natural/JD	**0.01**	**Temporary JD**	**0.35**
Natural/Non-JD	0.00	**Non-JD Temporary**	**0.19**
Artificial/JD	0.00	**Permanent JD > 0.10**	0.00
Artificial /Non-JD	0.00	**Permanent OW**	0.00.
Total	**0.01**	**Temporary OW**	0.00

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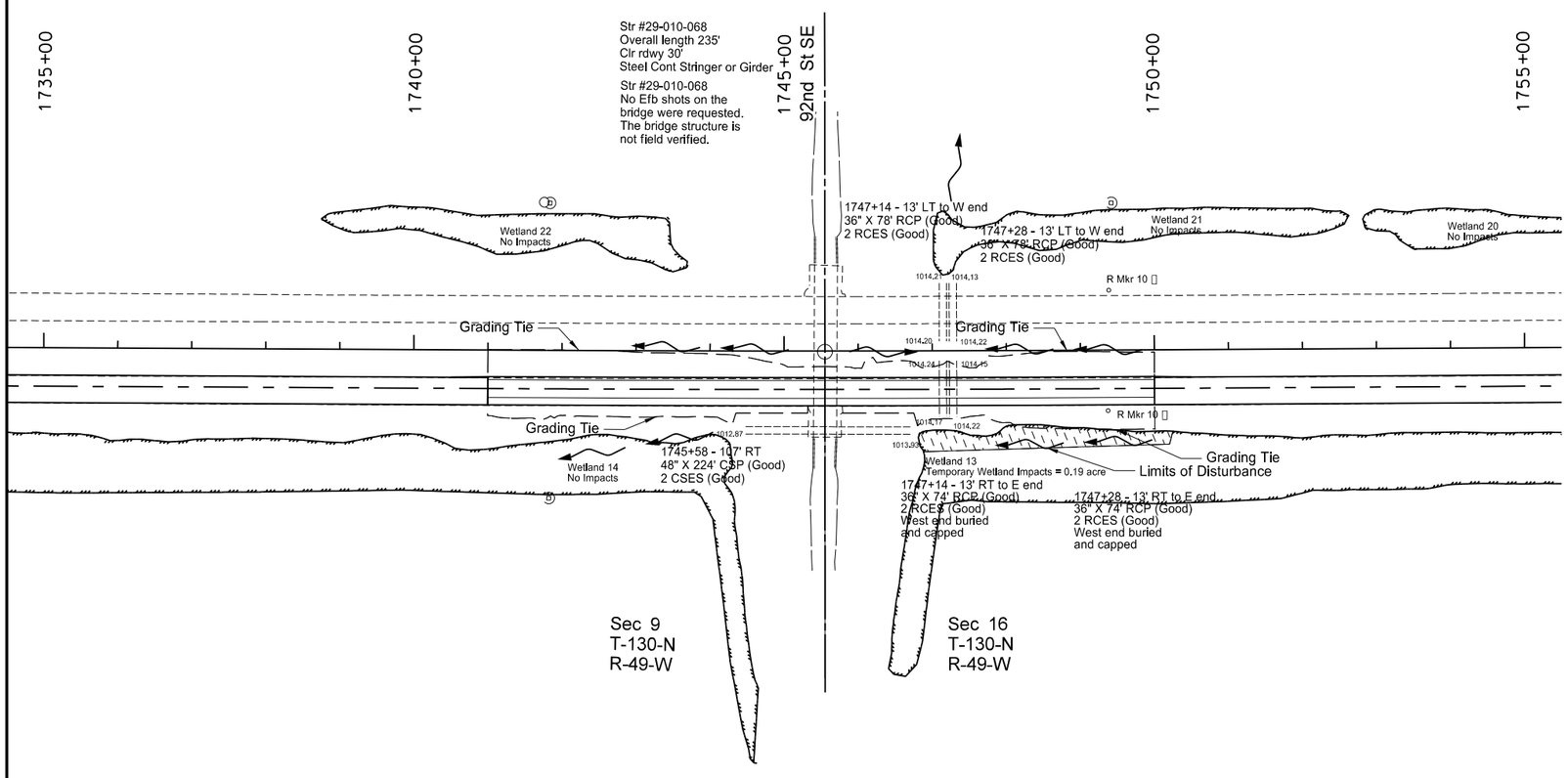
Wetlands Mitigation and Environmental

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	75	6

Temporary Wetland Impact



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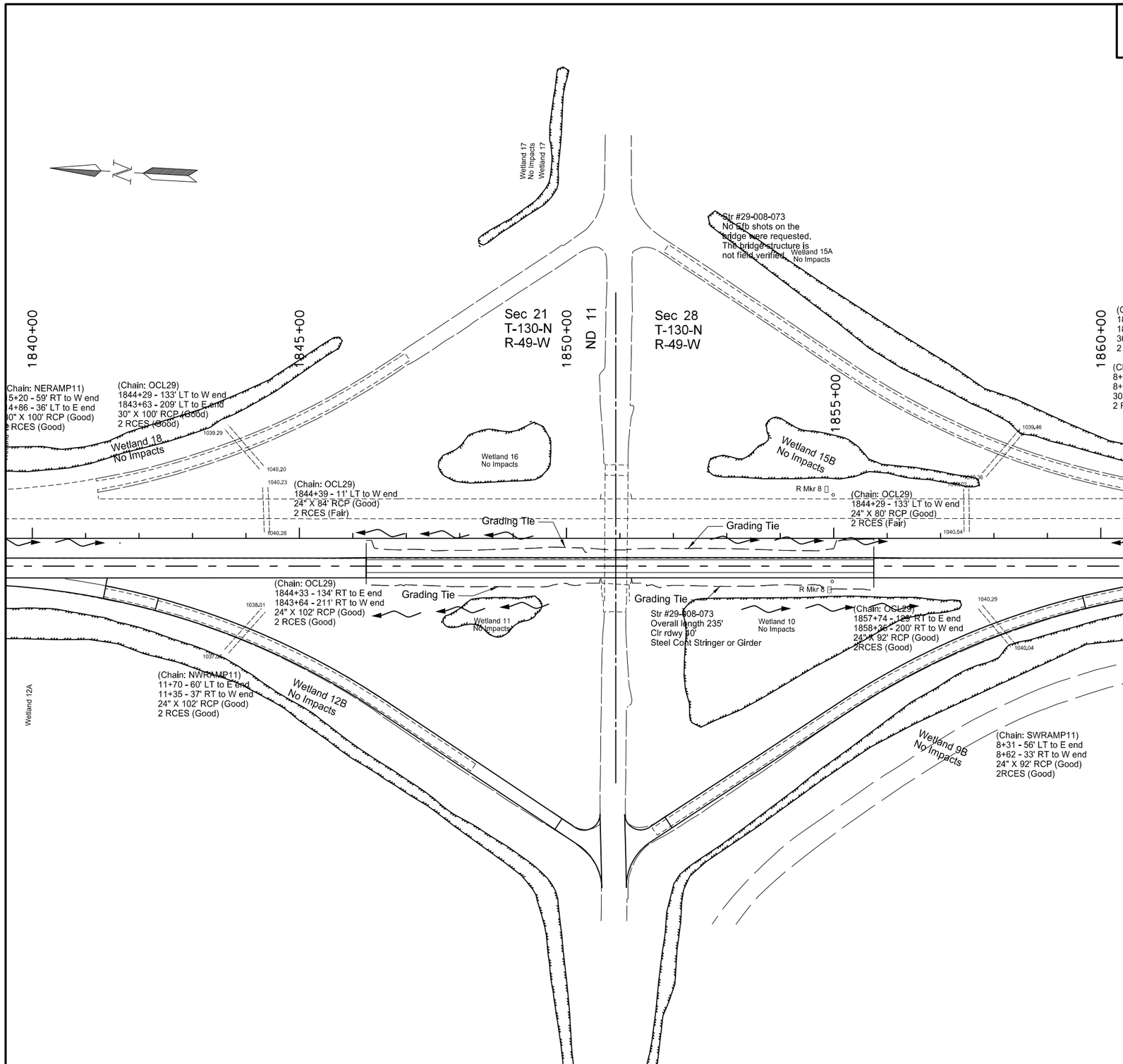
Wetland Impact Sheets
at Hankinson Separation

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	75	7



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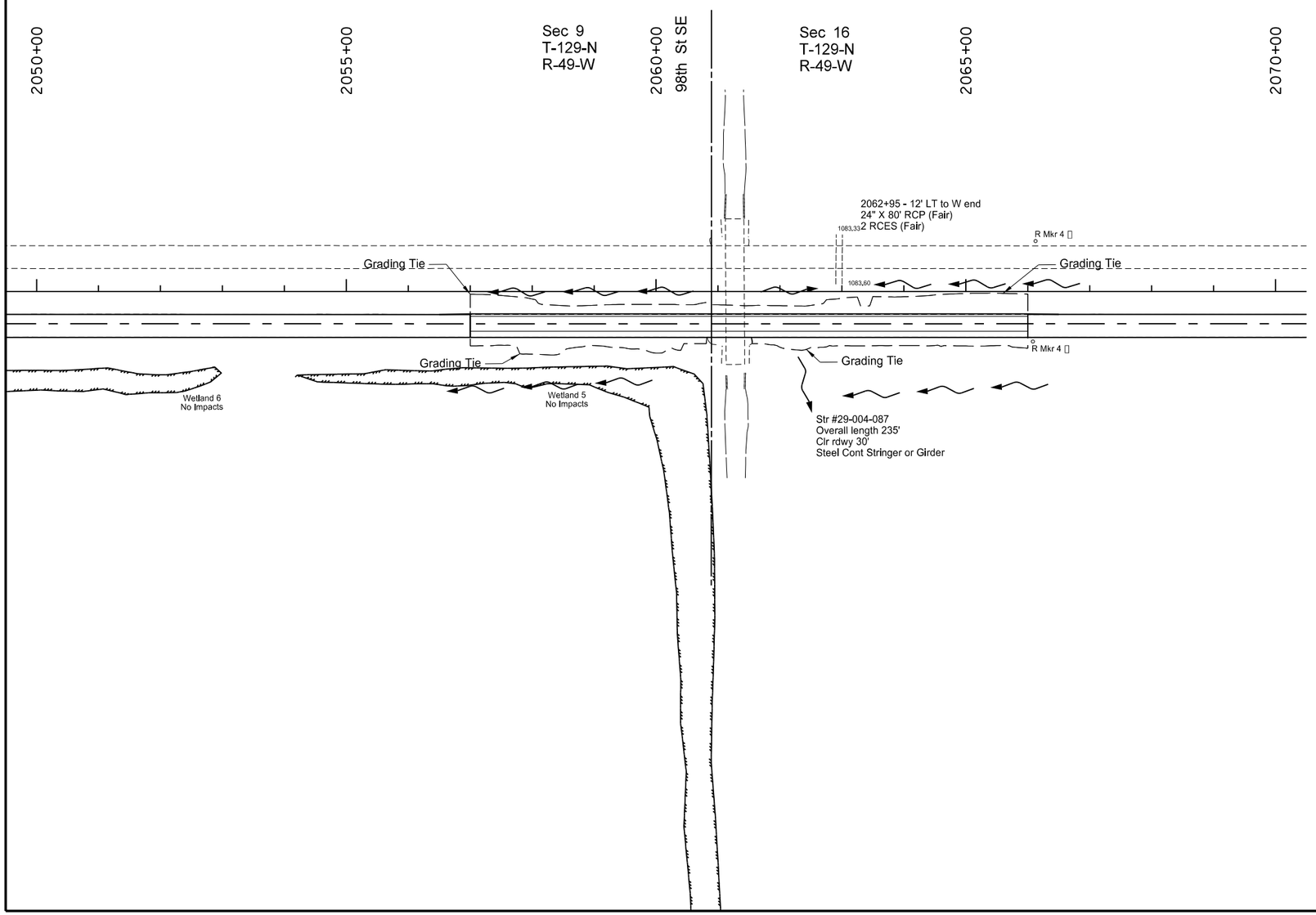
Wetland Impact Sheets
at Hankinson Interchange

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	75	8



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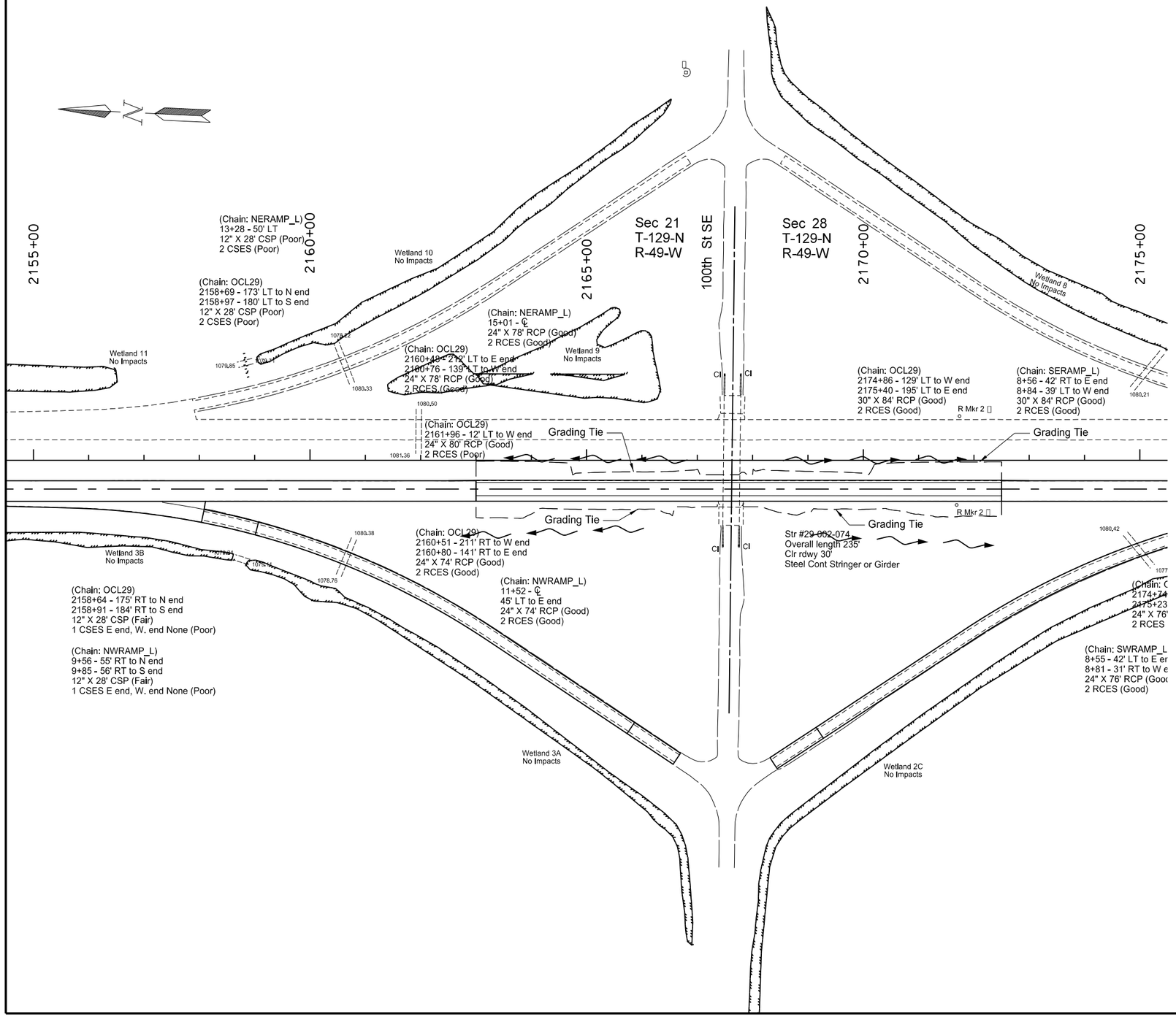
Wetland Impact Sheets
at Park Lake Separation

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	75	9



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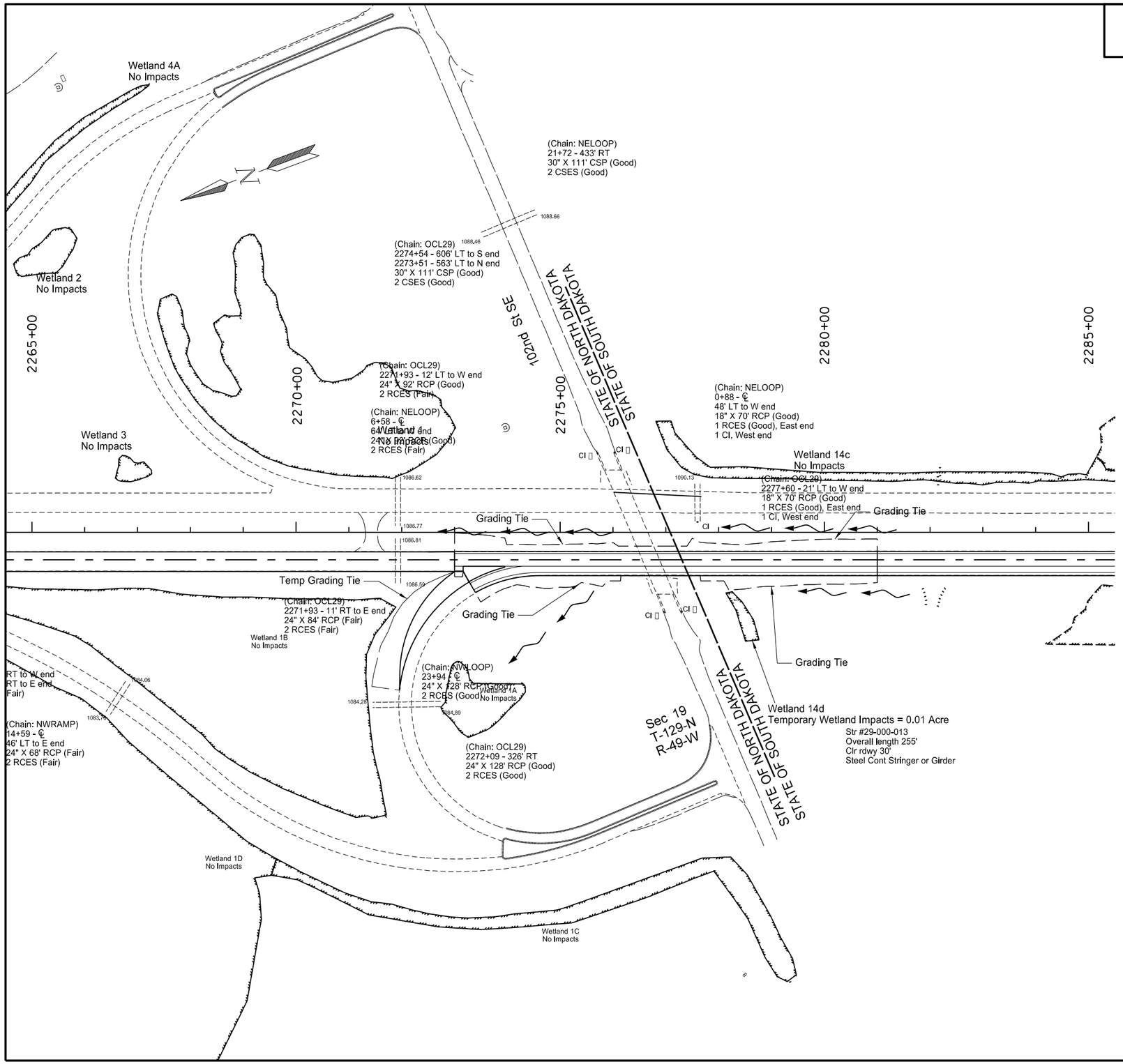
Wetland Impact Sheets
at LaMars Interchange

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	75	10



Temporary Wetland Impact

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Wetland Impact Sheets
at State Line Interchange

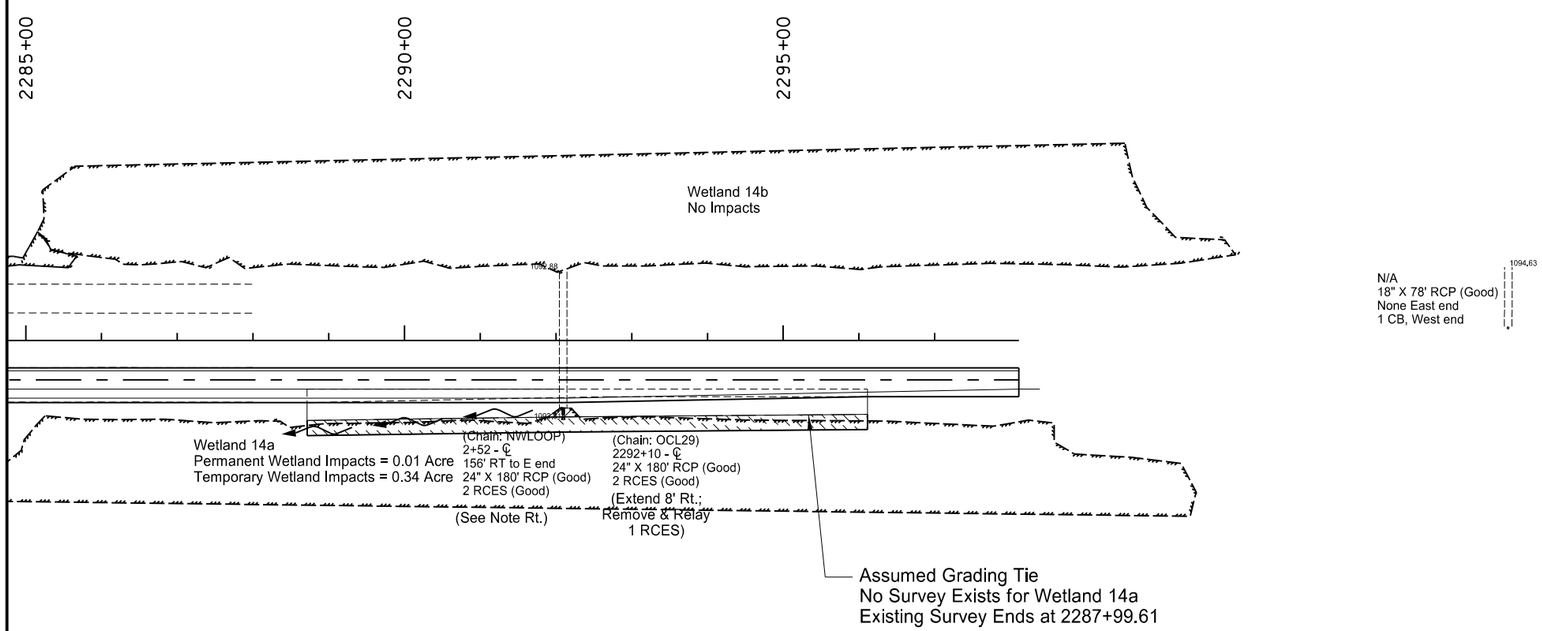
Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	75	11

Permanent Wetland Impact

Temporary Wetland Impact



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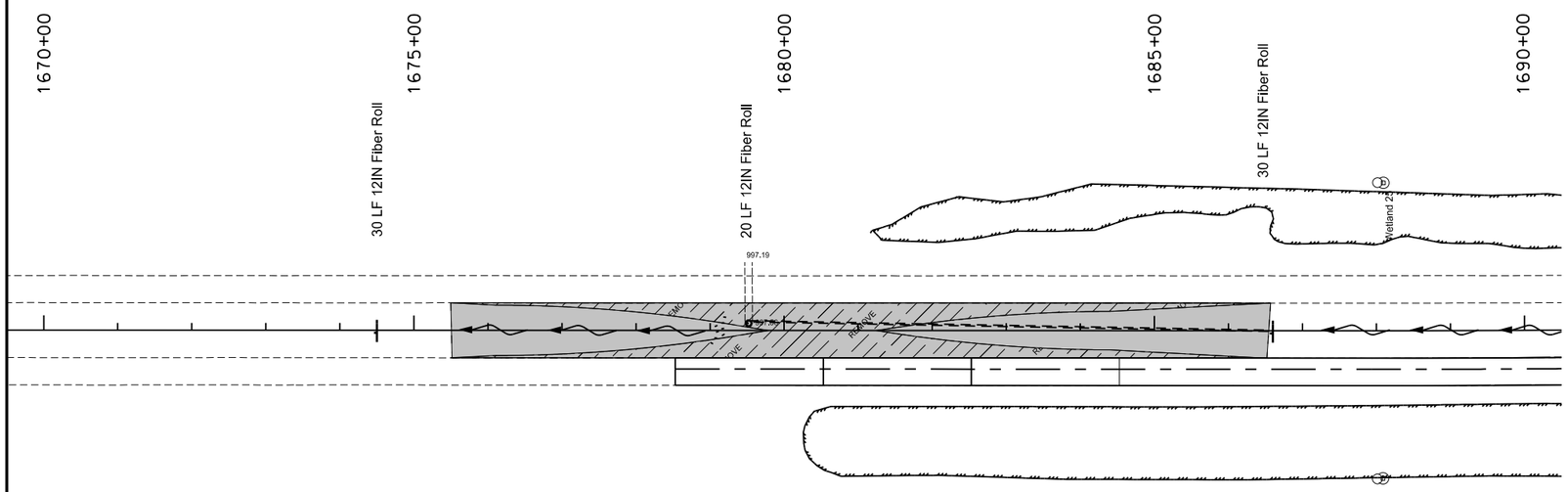
Wetland Impact Sheets
at State Line Interchange in SD

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	76	1

SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	2000	**TEMPORARY COVER CROP**		
		North Double Median Crossover Removal	ACRE	1.88
253	0101	**STRAW MULCH**		
		North Double Median Crossover Removal	ACRE	1.88
261	0112	**FIBER ROLLS 12IN**		
		1674+50 - Median Ditch	LF	30
		1679+52 - CL (Existing 24" Pipe Inlet)	LF	25
		1686+60 - Median Ditch	LF	30
261	0113	**REMOVE FIBER ROLLS 12IN**		
		1674+50 - Median Ditch	LF	30
		1679+52 - CL (Existing 24" Pipe Inlet)	LF	25
		1686+60 - Median Ditch	LF	30



RICHLAND
COUNTY

LEGEND

Fiber Rolls

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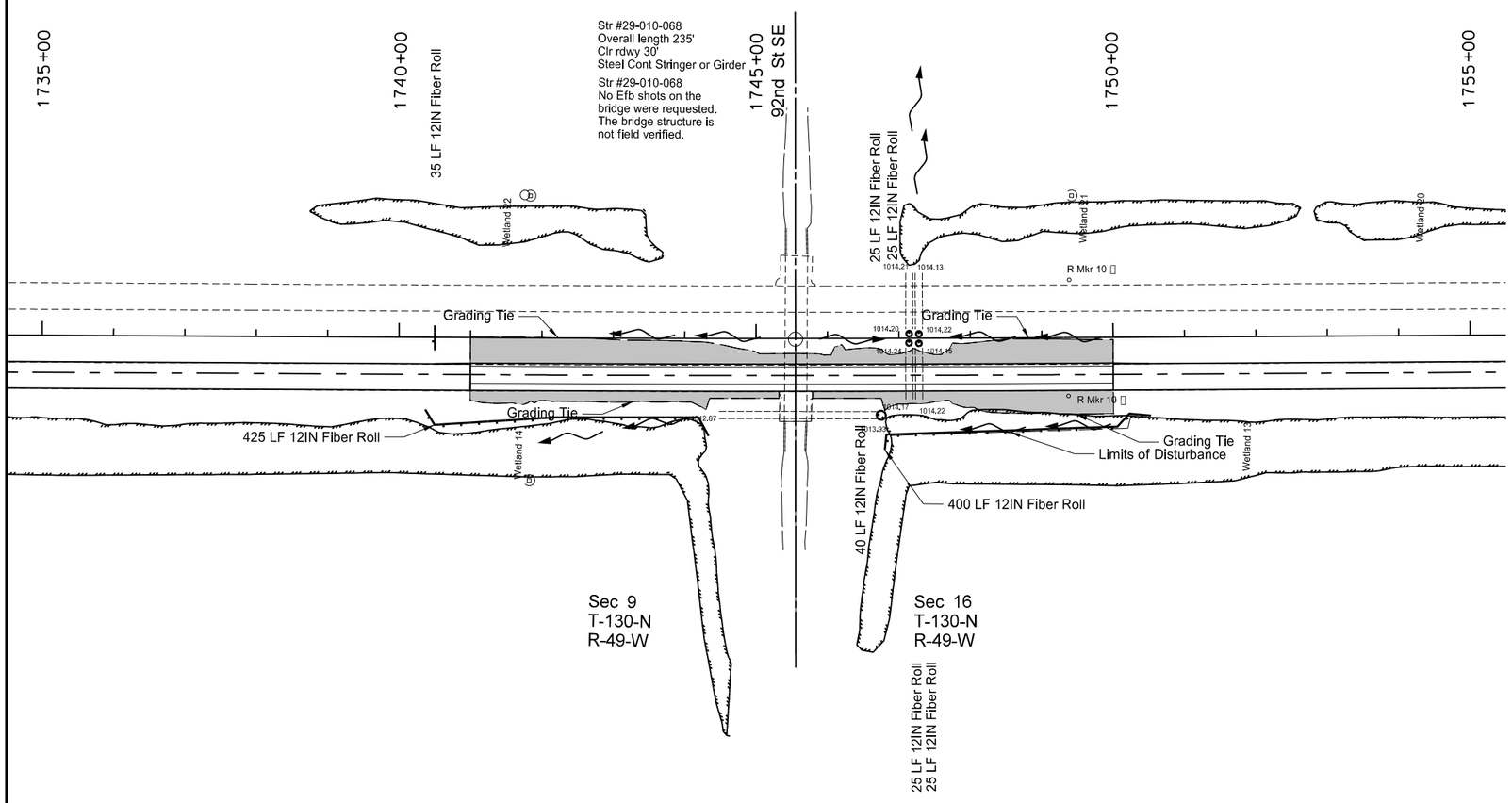
Temporary Sediment and Erosion Control Sheets
at North Median Crossover Removal

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	76	2



Hankinson Separation

SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	2000	**TEMPORARY COVER CROP**		
		Hankinson Separation - Median	ACRE	0.59
		Hankinson Separation - Rt	ACRE	0.37
253	0101	**STRAW MULCH**		
		Hankinson Separation - Median	ACRE	0.59
		Hankinson Separation - Rt	ACRE	0.37
261	0112	**FIBER ROLLS 12IN**		
		1740+37 to 1744+34 - Protecting Wetland 14	LF	425
		1740+50 - Median Ditch	LF	35
		1746+70 - 108' Rt (Existing 48" CSP Pipe Inlet)	LF	40
		1746+80 to 1750+52 - Protecting Wetland 13	LF	400
		1747+14 - 13' Lt (Existing 36" RCP Pipe Inlet)	LF	25
		1747+14 - 13' Rt (Existing 36" RCP Pipe Inlet)	LF	25
		1747+28 - 13' Lt (Existing 36" RCP Pipe Inlet)	LF	25
		1747+28 - 13' Rt (Existing 36" RCP Pipe Inlet)	LF	25
261	0113	**REMOVE FIBER ROLLS 12IN**		
		1740+37 to 1744+34 - Protecting Wetland 14	LF	425
		1740+50 - Median Ditch	LF	35
		1746+70 - 108' Rt (Existing 48" CSP Pipe Inlet)	LF	40
		1746+80 to 1750+52 - Protecting Wetland 13	LF	400
		1747+14 - 13' Lt (Existing 36" RCP Pipe Inlet)	LF	25
		1747+14 - 13' Rt (Existing 36" RCP Pipe Inlet)	LF	25
		1747+28 - 13' Lt (Existing 36" RCP Pipe Inlet)	LF	25
		1747+28 - 13' Rt (Existing 36" RCP Pipe Inlet)	LF	25

LEGEND

Fiber Rolls

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Temporary Sediment and Erosion Control Sheets at Hankinson Separation

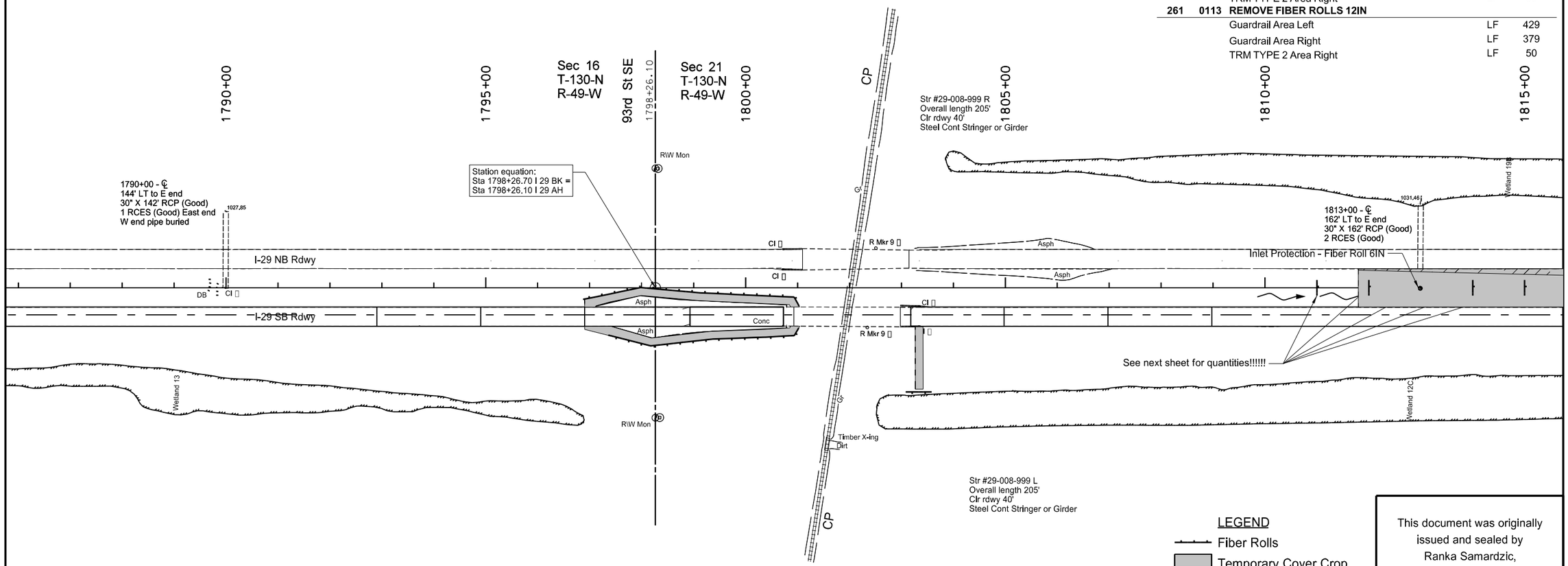
Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	76	3

SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	2000	**TEMPORARY COVER CROP**		
		Guardrail Area Left	ACRE	0.15
		Guardrail Area Right	ACRE	0.14
		TRM TYPE 2 Area Right	ACRE	0.04
253	0101	**STRAW MULCH**		
		Guardrail Area Left	ACRE	0.15
		Guardrail Area Right	ACRE	0.14
		TRM TYPE 2 Area Right	ACRE	0.04
261	0112	**FIBER ROLLS 12IN**		
		Guardrail Area Left	LF	429
		Guardrail Area Right	LF	379
		TRM TYPE 2 Area Right	LF	50
261	0113	**REMOVE FIBER ROLLS 12IN**		
		Guardrail Area Left	LF	429
		Guardrail Area Right	LF	379
		TRM TYPE 2 Area Right	LF	50

#13: Sta 1790+00 The west end of the pipe is buried and we could not locate the pipe last fall.



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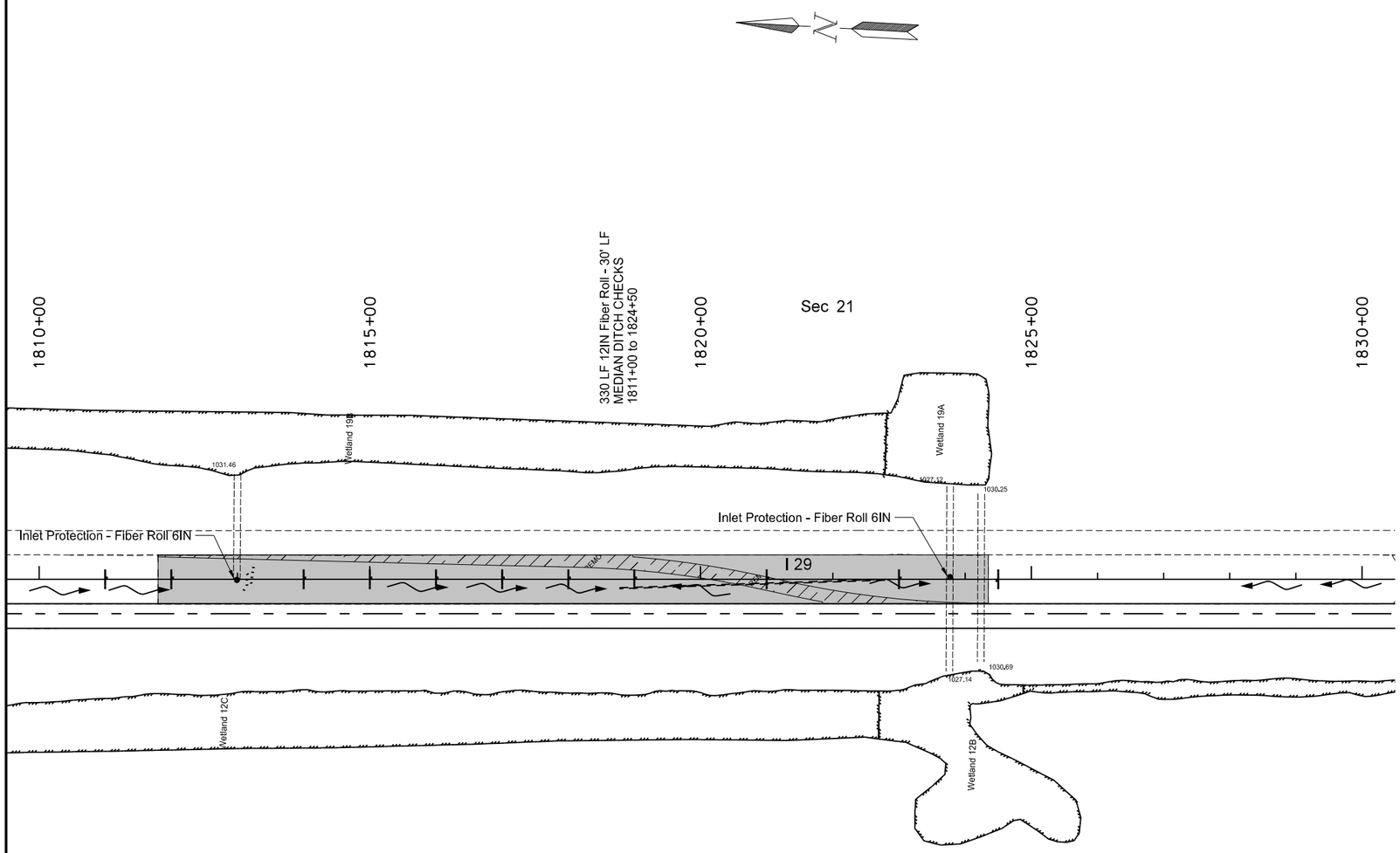
Temporary Sediment and Erosion Control Sheets at CP Railway Separation

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	76	4



SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	**2000**	**TEMPORARY COVER CROP**		
		NWRC at Hankinson Interchange Removal	ACRE	2.13
253	**0101**	**STRAW MULCH**		
		NWRC at Hankinson Interchange Removal	ACRE	2.13
261	**0112**	**FIBER ROLLS 12IN**		
		1811+00 - Median Ditch	LF	30
		1812+00 - Median Ditch	LF	30
		1814+00 - Median Ditch	LF	30
		1815+00 - Median Ditch	LF	30
		1816+00 - Median Ditch	LF	30
		1817+00 - Median Ditch	LF	30
		1818+00 - Median Ditch	LF	30
		1819+00 - Median Ditch	LF	30
		1821+00 - Median Ditch	LF	30
		1823+00 - Median Ditch	LF	30
		1824+50 - Median Ditch	LF	30
261	**0113**	**REMOVE FIBER ROLLS 12IN**		
		1811+00 - Median Ditch	LF	30
		1812+00 - Median Ditch	LF	30
		1814+00 - Median Ditch	LF	30
		1815+00 - Median Ditch	LF	30
		1816+00 - Median Ditch	LF	30
		1817+00 - Median Ditch	LF	30
		1818+00 - Median Ditch	LF	30
		1819+00 - Median Ditch	LF	30
		1821+00 - Median Ditch	LF	30
		1823+00 - Median Ditch	LF	30
		1824+50 - Median Ditch	LF	30
708	**1530**	**INLET PROTECTION - FIBER ROLL 6IN**		
		1812+99 - 1' Rt	EA	1
		1823+77 - 4' Lt	EA	1
708	**1532**	**REMOVE INLET PROTECTION - FIBER ROLL 6IN**		
		1812+99 - 1' Rt	EA	1
		1823+77 - 4' Lt	EA	1

LEGEND

Fiber Rolls

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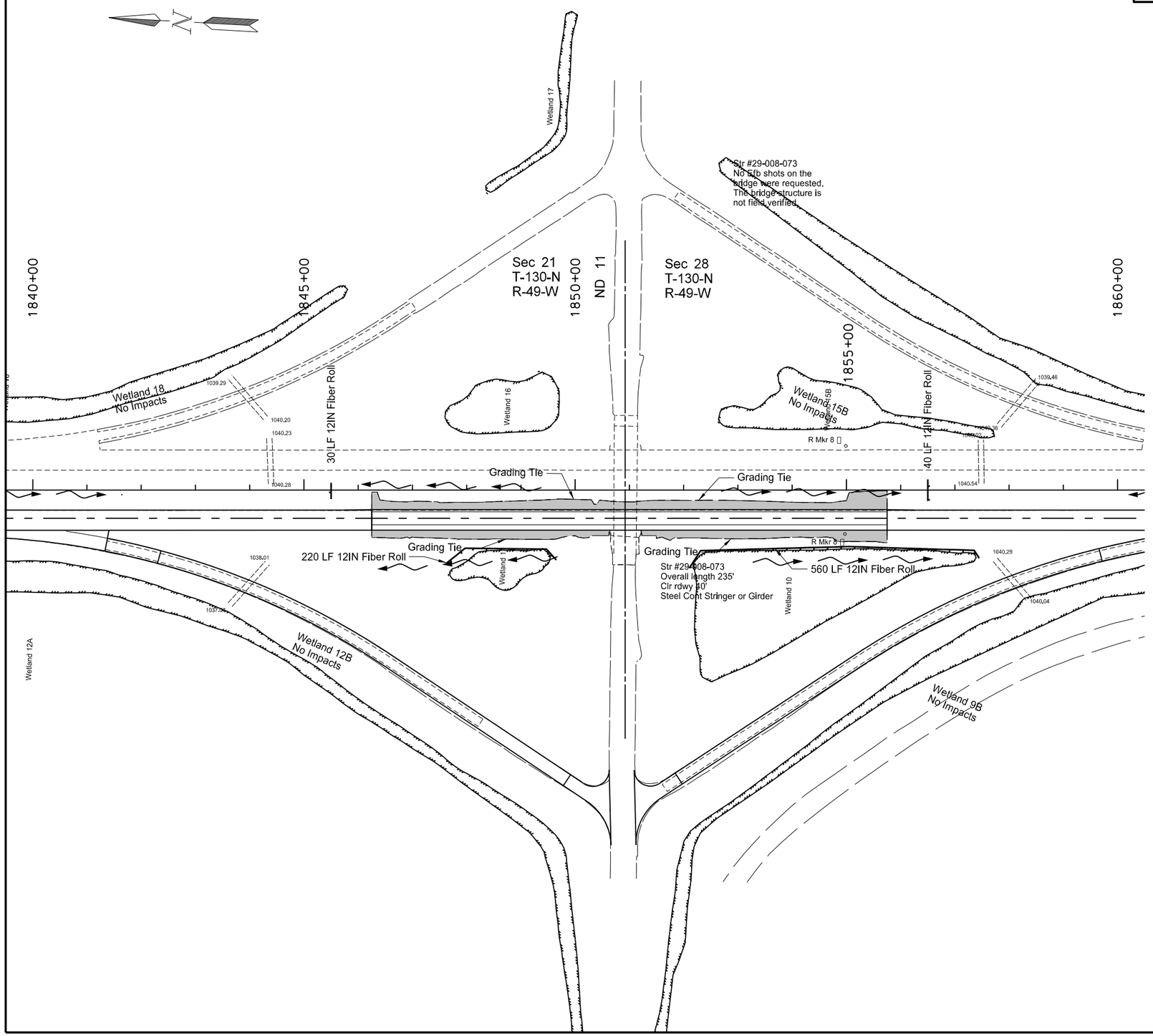
Temporary Sediment and Erosion Control Sheets at Hankison Interchange NWRC Removal

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	76	5



SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	2000	**TEMPORARY COVER CROP**		
		Hankinson Interchange - Median	ACRE	0.38
		Hankinson Interchange - Rt	ACRE	0.32
253	0201	**STRAW MULCH**		
		Hankinson Interchange - Median	ACRE	0.38
		Hankinson Interchange - Rt	ACRE	0.32
261	0112	**FIBER ROLLS 12IN**		
		1845+50 - Median Ditch	LF	30
		1847+64 to 1849+65 - Protecting Wetland 11	LF	220
		1852+10 to 1857+45 - Protecting Wetland 10	LF	560
		1856+50 - Median Ditch	LF	40
261	0113	**REMOVE FIBER ROLLS 12IN**		
		1845+50 - Median Ditch	LF	30
		1847+64 to 1849+65 - Protecting Wetland 11	LF	220
		1852+10 to 1857+45 - Protecting Wetland 10	LF	560
		1856+50 - Median Ditch	LF	40

LEGEND

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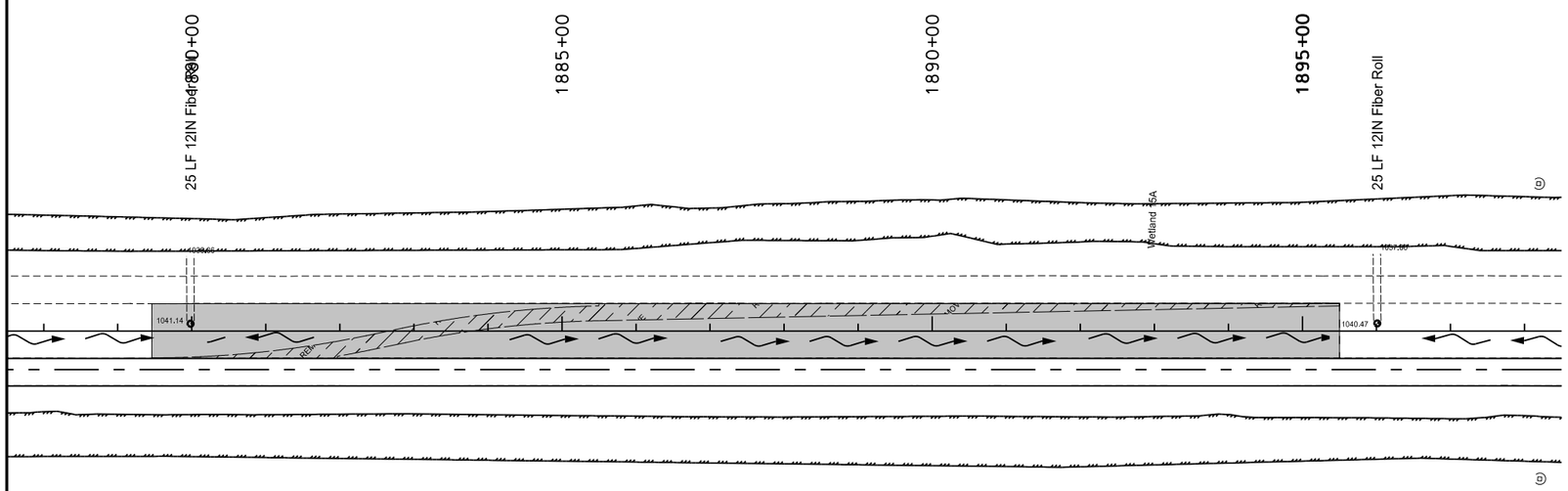
Temporary Sediment and Erosion Control Sheets at Hankinson Interchange

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	76	6

SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	2000	**TEMPORARY COVER CROP**		
		SWRC at Hankinson Interchange Removal	ACRE	2.74
253	0101	**STRAW MULCH**		
		SWRC at Hankinson Interchange Removal	ACRE	2.74
261	0112	**FIBER ROLLS 12IN**		
		1879+98 - 14' Lt (Existing 30" RCP Pipe Inlet)	LF	25
		1896+01 - 14' Lt (Existing 30" RCP Pipe Inlet)	LF	25
261	0113	**REMOVE FIBER ROLLS 12IN**		
		1879+98 - 14' Lt (Existing 30" RCP Pipe Inlet)	LF	25
		1896+01 - 14' Lt (Existing 30" RCP Pipe Inlet)	LF	25



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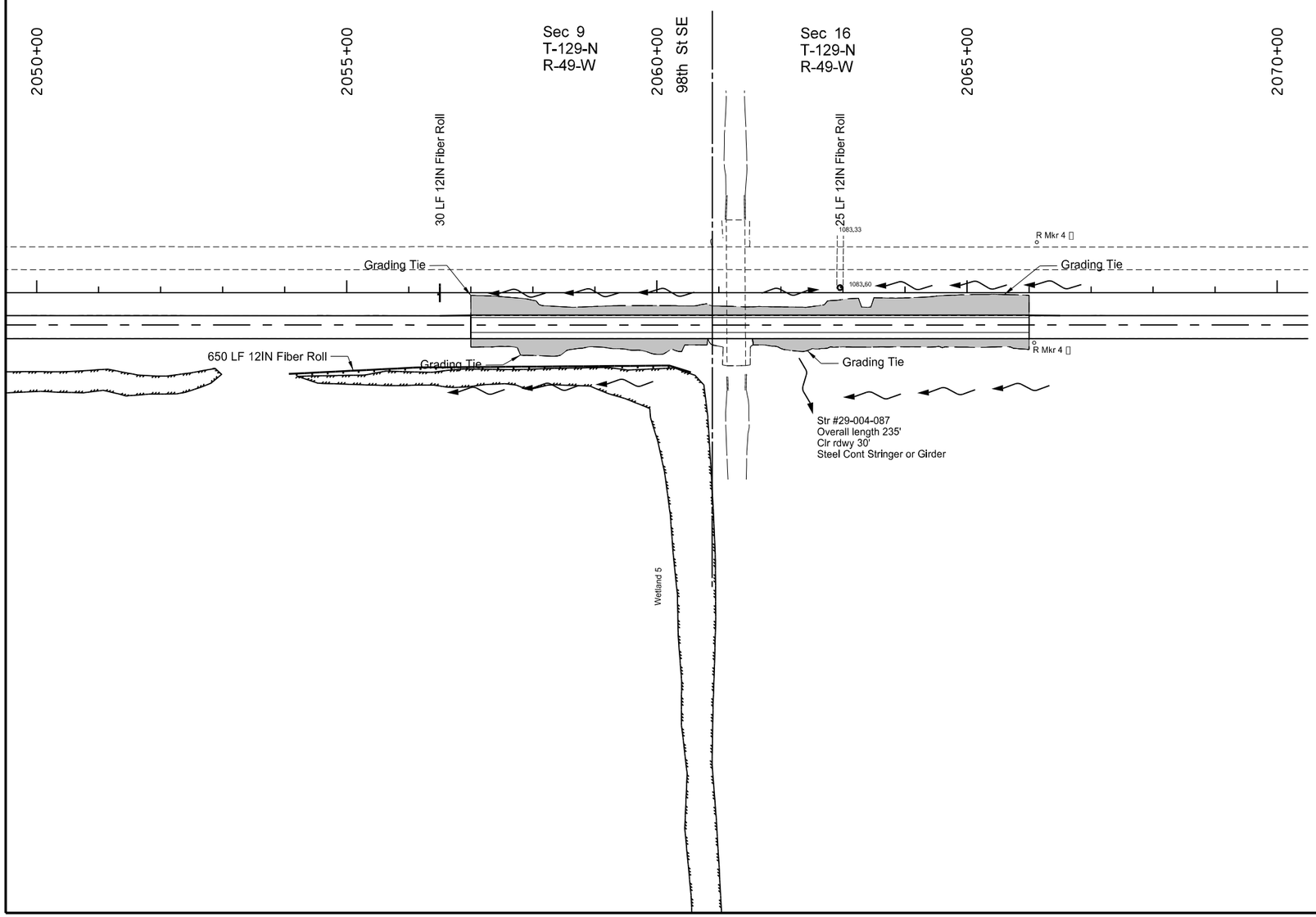
Temporary Sediment and Erosion Control Sheets at Hankison Interchange SWRC Removal

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	76	7

SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	2000	**TEMPORARY COVER CROP**		
		Park Lake Separation - Median	ACRE	0.45
		Park Lake Separation - Rt	ACRE	0.31
253	0101	**STRAW MULCH**		
		Park Lake Separation - Median	ACRE	0.45
		Park Lake Separation - Rt	ACRE	0.31
261	0112	**FIBER ROLLS 12IN**		
		2054+07 to 2060+55 - Protecting Wetland 5	LF	650
		2056+50 - Median Ditch	LF	30
		2062+95 - 12' Lt (Existing 24" RCP Pipe Inlet)	LF	25
261	0113	**REMOVE FIBER ROLLS 12IN**		
		2054+07 to 2060+55 - Protecting Wetland 5	LF	650
		2056+50 - Median Ditch	LF	30
		2062+95 - 12' Lt (Existing 24" RCP Pipe Inlet)	LF	25



LEGEND

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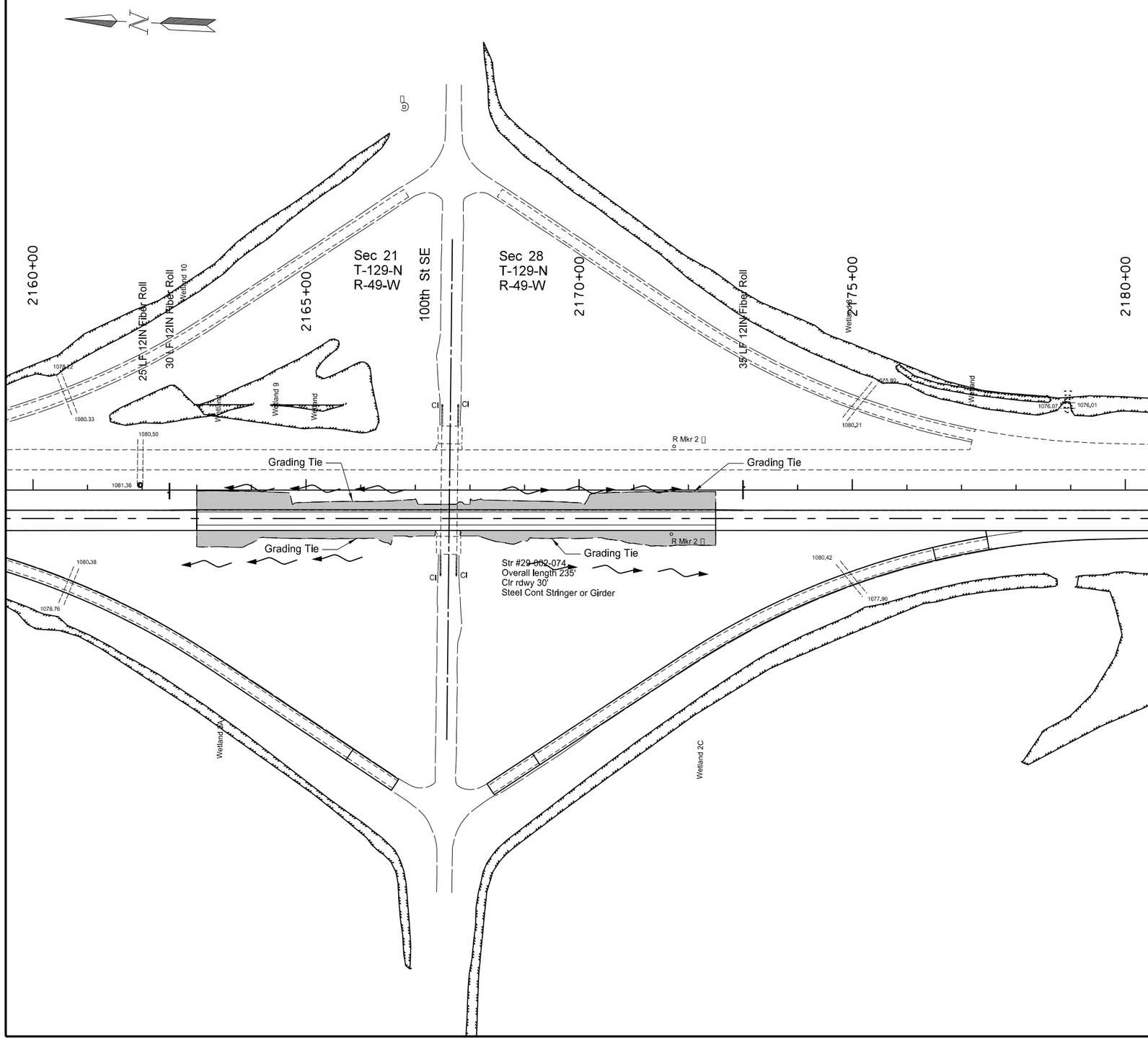
Temporary Sediment and Erosion Control Sheets at Park Lake Separation

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	76	8



251	**2000**	**TEMPORARY COVER CROP**		
		LaMars Interchange - Median	ACRE	0.49
		LaMars Interchange - Rt	ACRE	0.39
253	**0101**	**STRAW MULCH**		
		LaMars Interchange - Median	ACRE	0.49
		LaMars Interchange - Rt	ACRE	0.39
261	**0112**	**FIBER ROLLS 12IN**		
		2161+96 - 9' Lt (Existing 24" RCP Pipe Inlet)	LF	25
		2162+50 - Median Ditch	LF	30
		2173+00 - Median Ditch	LF	35
261	**0113**	**REMOVE FIBER ROLLS 12IN**		
		2161+96 - 9' Lt (Existing 24" RCP Pipe Inlet)	LF	25
		2162+50 - Median Ditch	LF	30
		2173+00 - Median Ditch	LF	35

LEGEND

Fiber Rolls

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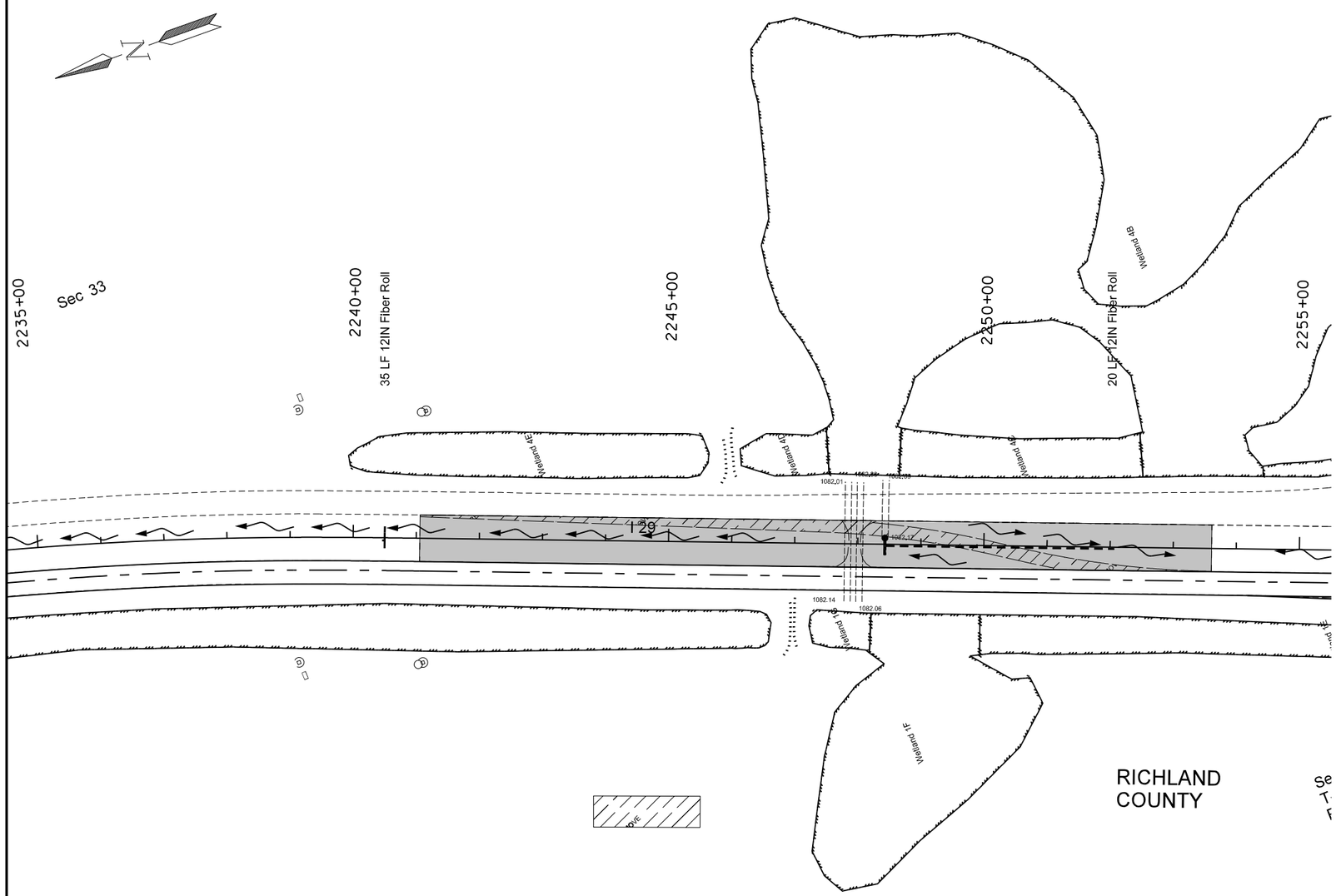
Temporary Sediment and Erosion Control Sheets at LaMars Interchange

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	76	9



SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	2000	**TEMPORARY COVER CROP**		
		NWRC at State Line Interchange Removal	ACRE	2.14
253	0101	**STRAW MULCH**		
		NWRC at State Line Interchange Removal	ACRE	2.14
261	0112	**FIBER ROLLS 12IN**		
		2240+50 - Median Ditch	LF	35
		2248+43 - 10' Lt (Existing 24" RCP Pipe Inlet)	LF	25
261	0113	**REMOVE FIBER ROLLS 12IN**		
		2240+50 - Median Ditch	LF	35
		2248+43 - 10' Lt (Existing 24" RCP Pipe Inlet)	LF	25

LEGEND

Fiber Rolls

Temporary Cover Crop

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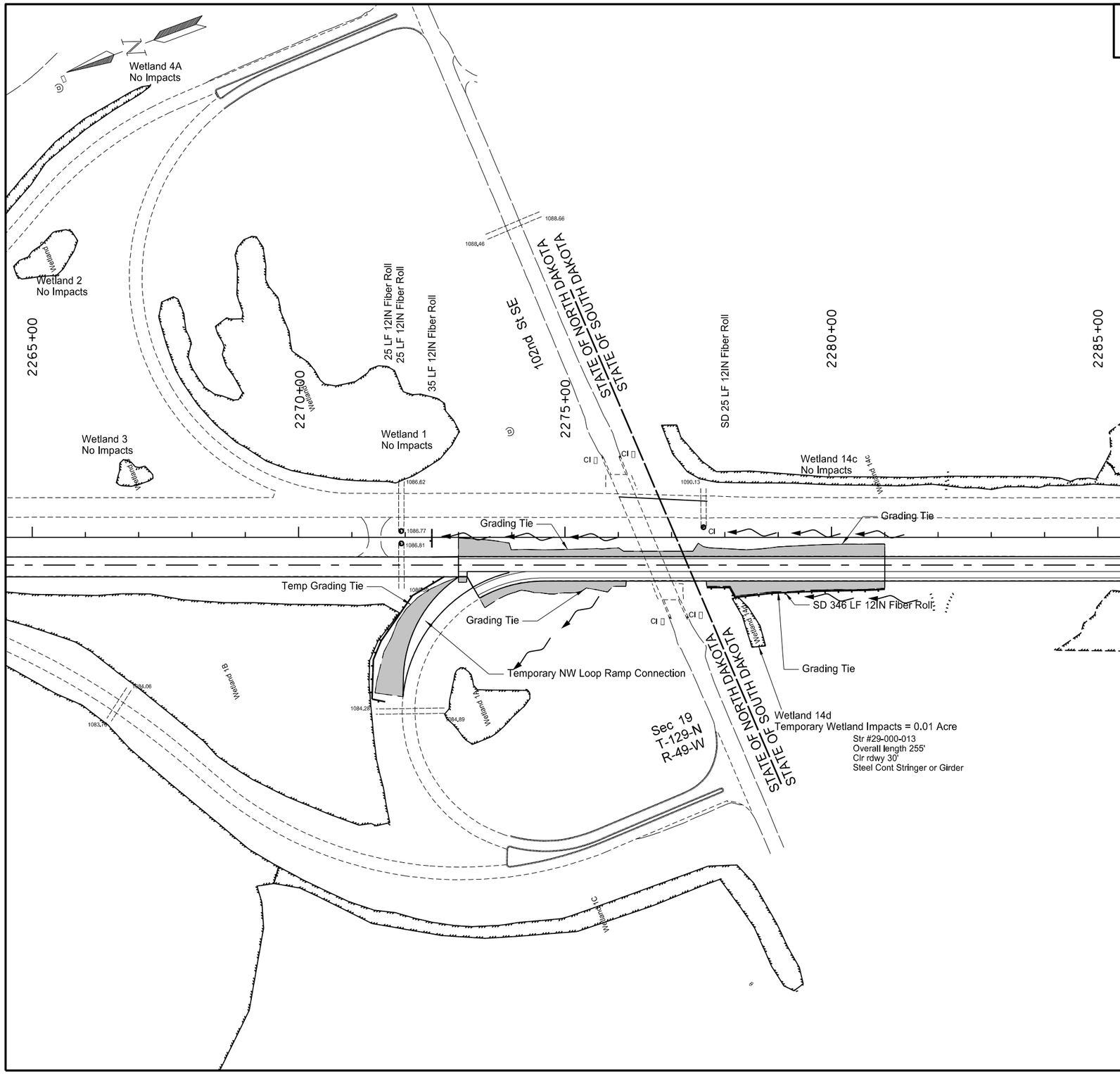
Temporary Sediment and Erosion Control Sheets at State Line Interchange NWRC Removal

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	76	10



SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	2000	**TEMPORARY COVER CROP**		
		Temporary NW Loop Ramp Connection	ACRE	0.19
		ND Side - State Line Interchange - Median	ACRE	0.16
		SD Side - State Line Interchange - Median	ACRE	0.16
		ND Side - State Line Interchange - Rt	ACRE	0.12
		SD Side - State Line Interchange - Rt	ACRE	0.14
253	0101	**STRAW MULCH**		
		Temporary NW Loop Ramp Connection	ACRE	0.19
		ND Side - State Line Interchange - Median	ACRE	0.16
		SD Side - State Line Interchange - Median	ACRE	0.16
		ND Side - State Line Interchange - Rt	ACRE	0.12
		SD Side - State Line Interchange - Rt	ACRE	0.14
261	0112	**FIBER ROLLS 12IN**		
		Temporary NW Loop Ramp Connection	LF	311
		2271+93 - 12' Lt (Existing 24" RCP Pipe Inlet)	LF	25
		2271+93 - 12' Rt (Existing 24" RCP Pipe Inlet)	LF	25
		2272+50 - Median Ditch	LF	35
		SD - 2277+60 - 20' Lt.(Existing 24" RCP Pipe Inlet)	LF	25
		SD - 2277+66 Rt.to 2281+00 Rt.(Wetland 14d Protect.)	LF	346
261	0113	**REMOVE FIBER ROLLS 12IN**		
		Temporary NW Loop Ramp Connection	LF	311
		2271+93 - 12' Lt (Existing 24" RCP Pipe Inlet)	LF	25
		2271+93 - 12' Rt (Existing 24" RCP Pipe Inlet)	LF	25
		2272+50 - Median Ditch	LF	35
		SD - 2277+60 - 20' Lt.(Existing 24" RCP Pipe Inlet)	LF	25
		SD - 2277+66 Rt.to 2281+00 Rt.(Wetland 14d Protect.)	LF	346

LEGEND

Fiber Rolls

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Temporary Sediment and Erosion Control Sheets at State Line Interchange

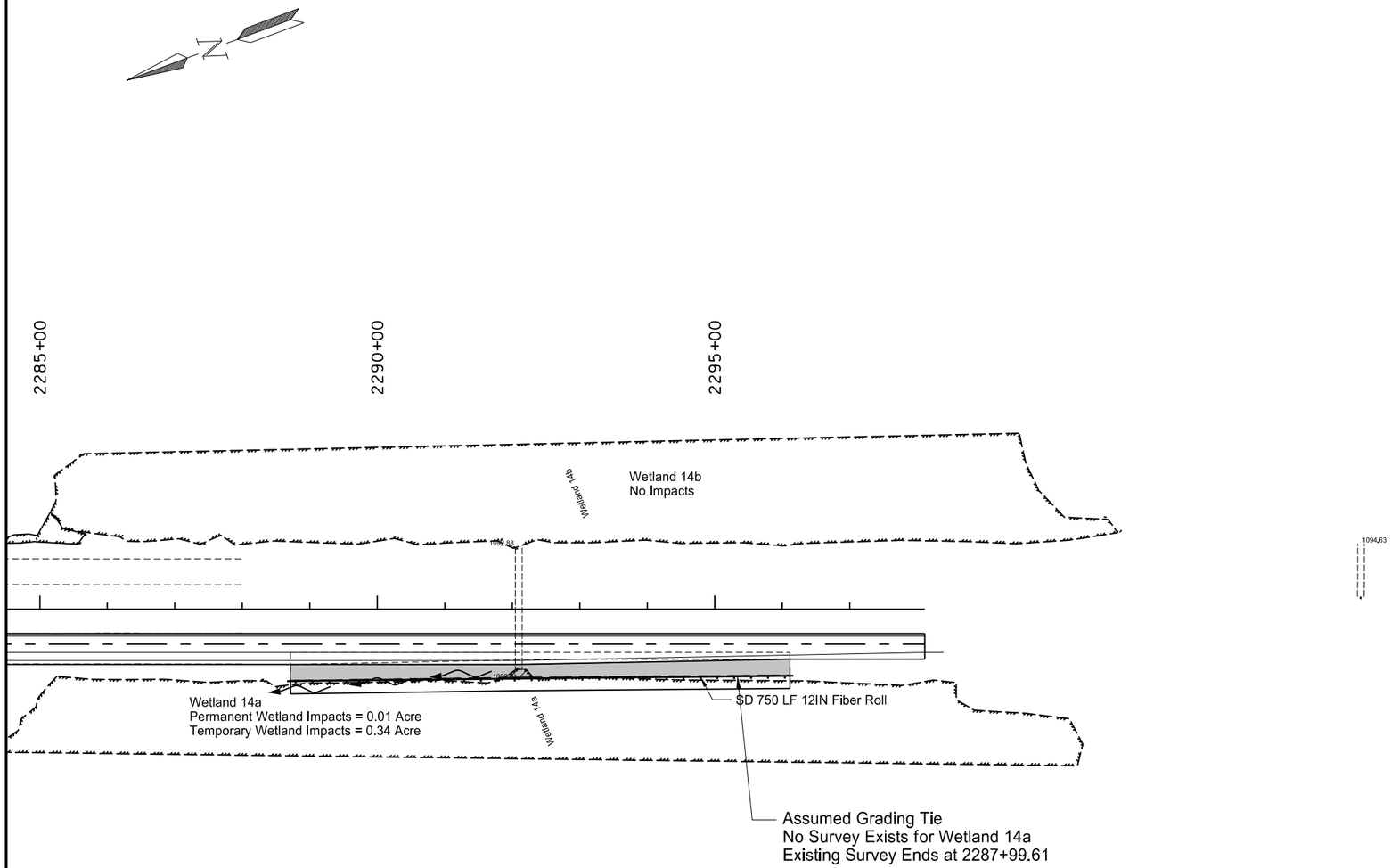
Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	76	11

SD - State Line Interchange Acceleration Lane

SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	**2000**	**TEMPORARY COVER CROP**		
		SD- State Line Interchange Acceleration Lane - Rt	ACRE	0.36
253	**0101**	**STRAW MULCH**		
		SD- State Line Interchange Acceleration Lane - Rt	ACRE	0.36
261	**0112**	**FIBER ROLLS 12IN**		
		SD - 2288+66-Rt.to2296+16-Rt.(Wetland 14A Protect.)	LF	750
261	**0113**	**REMOVE FIBER ROLLS 12IN**		
		SD - 2288+66-Rt.to2296+16-Rt.(Wetland 14A Protect.)	LF	750



LEGEND

Fiber Rolls

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Temporary Sediment and Erosion Control Sheets at State Line Interchange Acceleration Lane

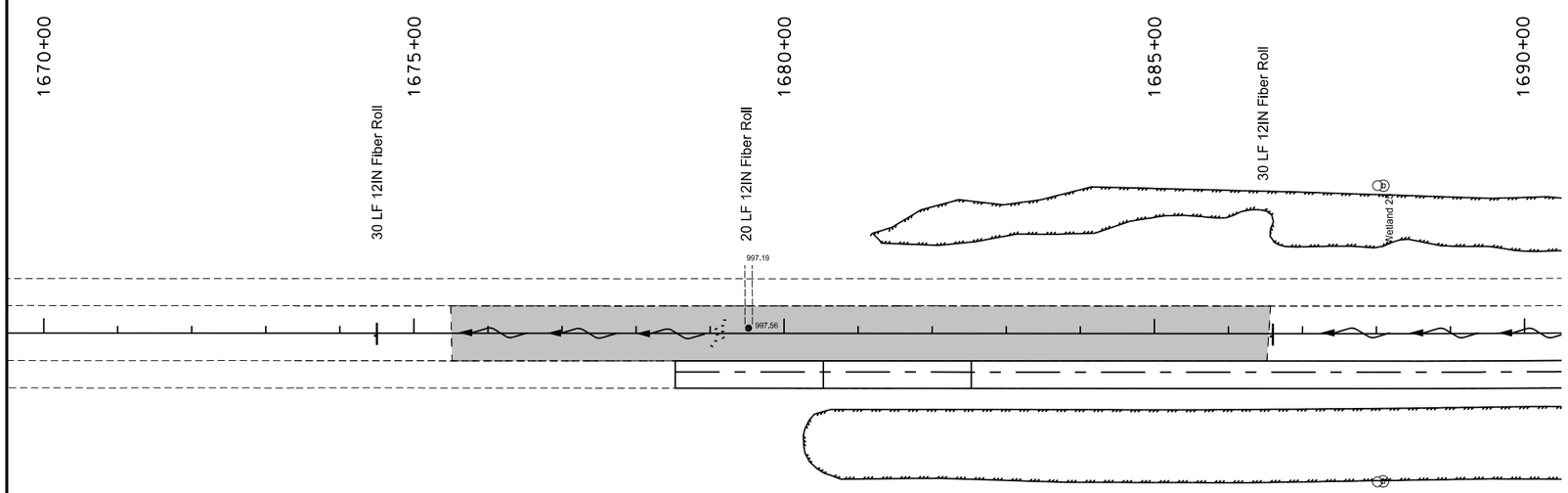
Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	77	1

North Median Crossover Removal

SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	**0200**	**SEEDING CLASS II**		
		North Double Median Crossover Removal	ACRE	1.88
253	**0201**	**HYDRAULIC MULCH**		
		North Double Median Crossover Removal	ACRE	1.88
255	**0102**	**ECB TYPE 2**		
		1679+52 - 24" RCP (Median)	SY	24
261	**0112**	**FIBER ROLLS 12IN**		
		1674+50 - Median Ditch	LF	30
		1679+52 - Median (New 24" RCP Pipe Inlet)	LF	25
		1686+60 - Median Ditch	LF	30



RICHLAND
COUNTY

LEGEND
Fiber Rolls
Seeding and Mulch

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Permanent Sediment and Erosion Control Sheets at North Median Crossover Removal

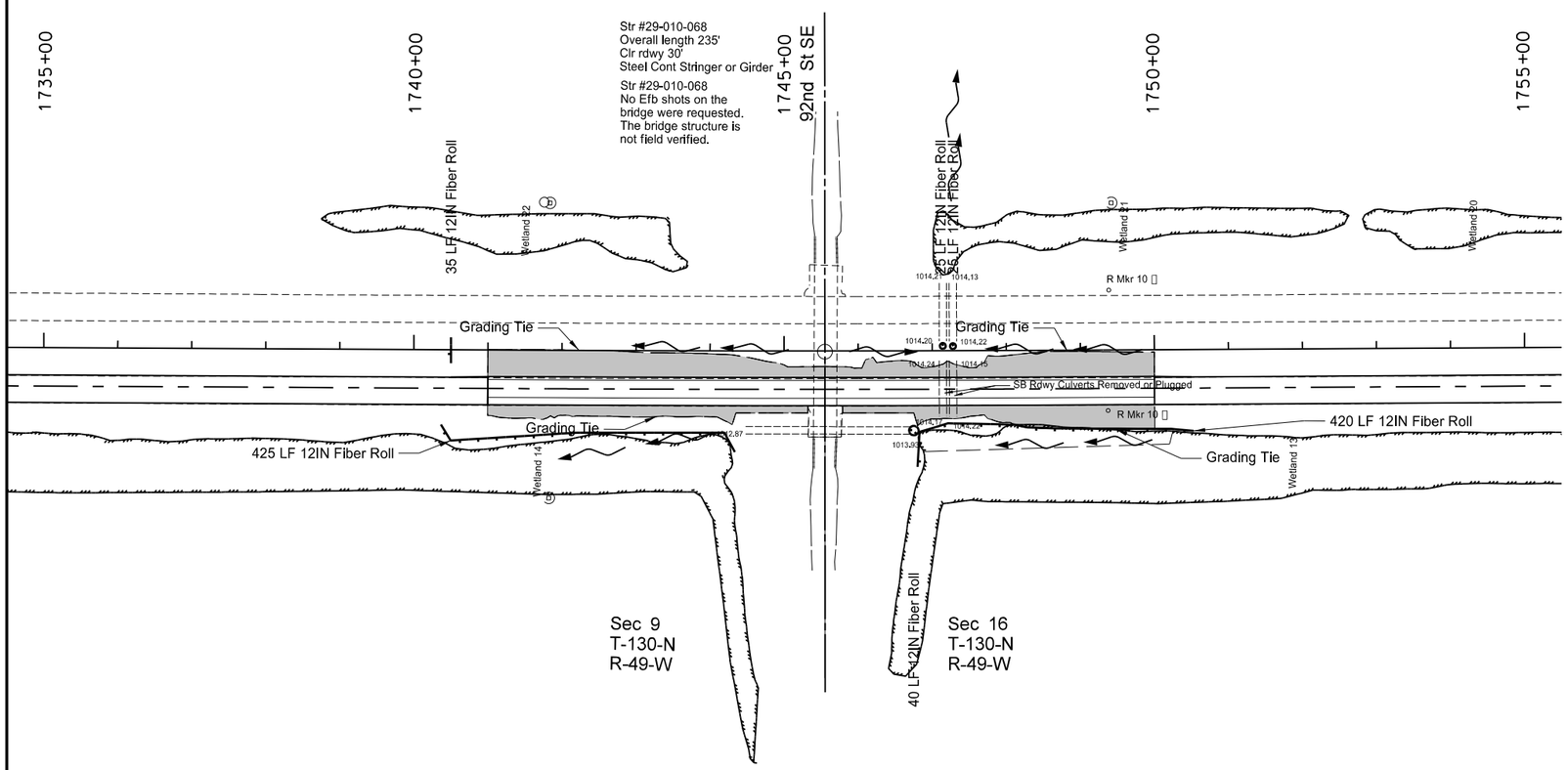
Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	77	2

Hankinson Separation

SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	0200	**SEEDING CLASS II**		
		Hankinson Separation - Median	ACRE	0.59
		Hankinson Separation - Rt	ACRE	0.37
253	0201	**HYDRAULIC MULCH**		
		Hankinson Separation - Median	ACRE	0.59
		Hankinson Separation - Rt	ACRE	0.37
261	0112	**FIBER ROLLS 12IN**		
		1740+37 to 1744+34 - Protecting Wetland 14	LF	425
		1740+50 - Median Ditch	LF	35
		1746+70 - 108' Rt (Existing 48" CSP Pipe Inlet)	LF	40
		1747+14 - 13' Lt (Existing 36" RCP Pipe Inlet)	LF	25
		1747+28 - 13' Lt (Existing 36" RCP Pipe Inlet)	LF	25
		1746+80 to 1750+52 - Protecting Wetland 13	LF	420



LEGEND

Fiber Rolls

Seeding and Mulch

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Permanent Sediment and Erosion Control Sheets at Hankinson Separation

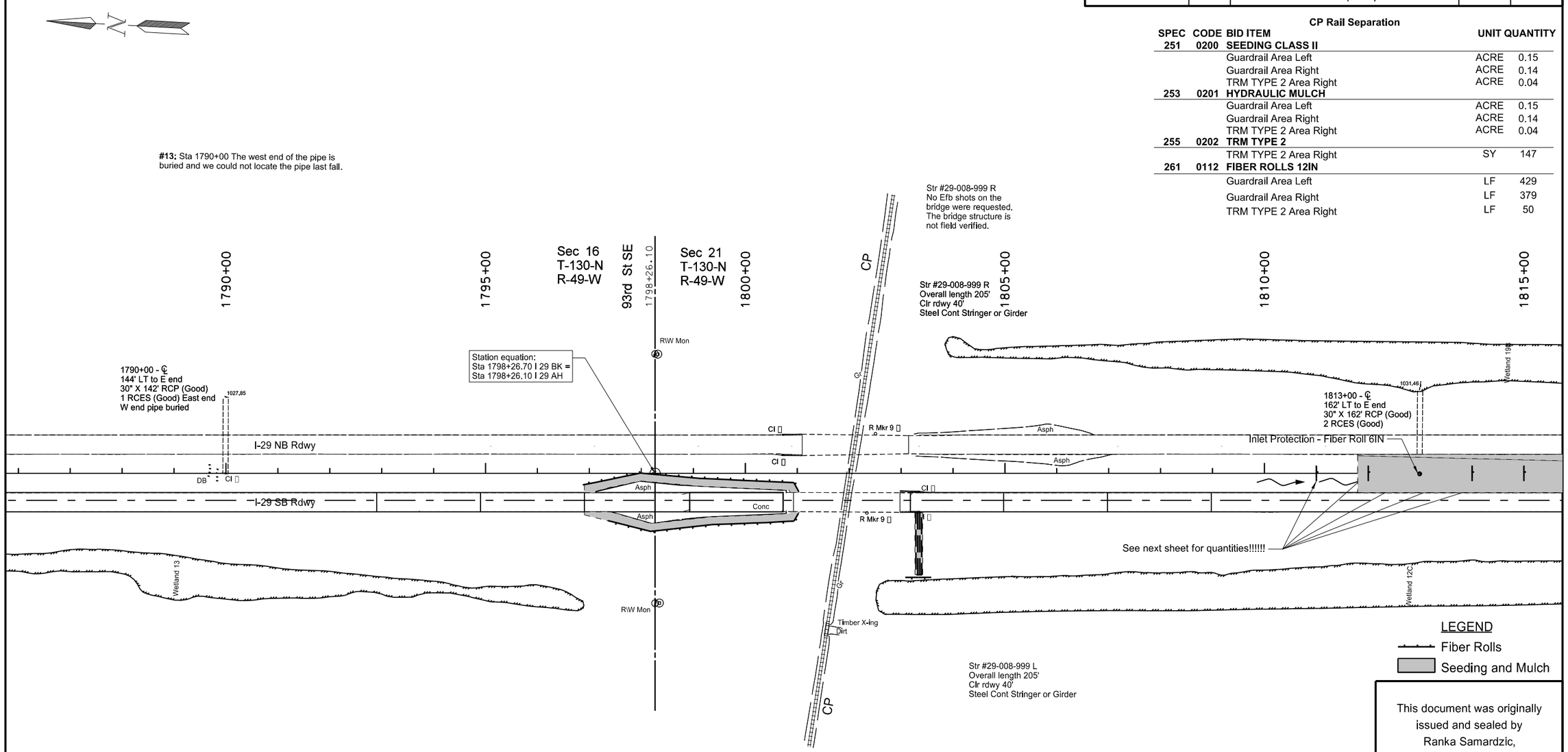
Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	77	3

CP Rail Separation

SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	0200	**SEEDING CLASS II**		
		Guardrail Area Left	ACRE	0.15
		Guardrail Area Right	ACRE	0.14
		TRM TYPE 2 Area Right	ACRE	0.04
253	0201	**HYDRAULIC MULCH**		
		Guardrail Area Left	ACRE	0.15
		Guardrail Area Right	ACRE	0.14
		TRM TYPE 2 Area Right	ACRE	0.04
255	0202	**TRM TYPE 2**		
		TRM TYPE 2 Area Right	SY	147
261	0112	**FIBER ROLLS 12IN**		
		Guardrail Area Left	LF	429
		Guardrail Area Right	LF	379
		TRM TYPE 2 Area Right	LF	50



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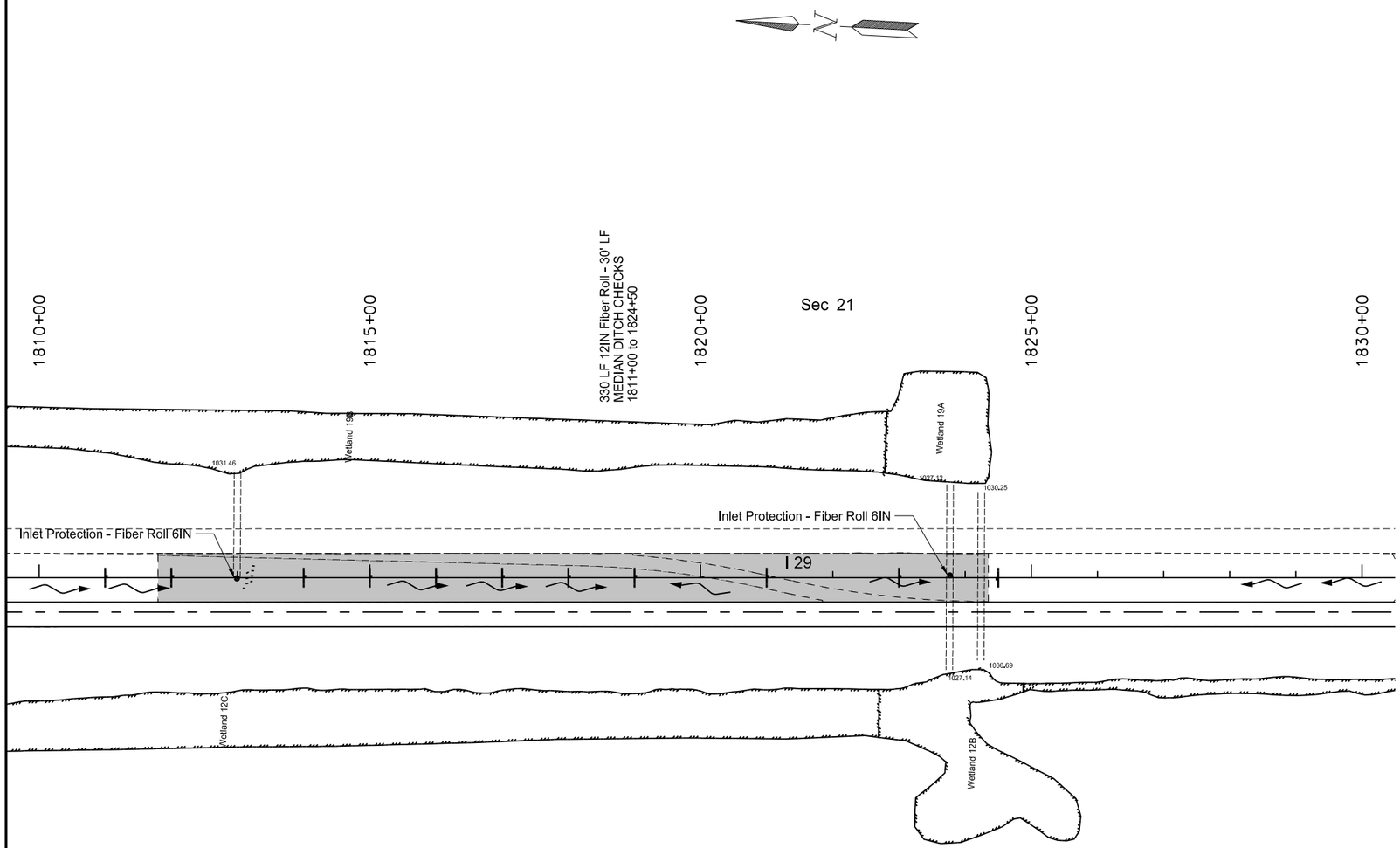
Temporary Sediment and Erosion Control Sheets at CP Railway Separation

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	77	4



NWRC Hankinson Interchange

SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	**0200**	**SEEDING CLASS II**		
		NWRC at Hankinson Interchange Removal	ACRE	2.13
253	**0201**	**HYDRAULIC MULCH**		
		NWRC at Hankinson Interchange Removal	ACRE	2.13
261	**0112**	**FIBER ROLLS 12IN**		
		1811+00 - Median Ditch	LF	30
		1812+00 - Median Ditch	LF	30
		1814+00 - Median Ditch	LF	30
		1815+00 - Median Ditch	LF	30
		1816+00 - Median Ditch	LF	30
		1817+00 - Median Ditch	LF	30
		1818+00 - Median Ditch	LF	30
		1819+00 - Median Ditch	LF	30
		1821+00 - Median Ditch	LF	30
		1823+00 - Median Ditch	LF	30
		1824+50 - Median Ditch	LF	30
708	**1530**	**INLET PROTECTION - FIBER ROLL 6IN**		
		1812+99 - 1' Rt	EA	1
		1823+77 - 4' Lt	EA	1

LEGEND

Fiber Rolls

Seeding and Mulch

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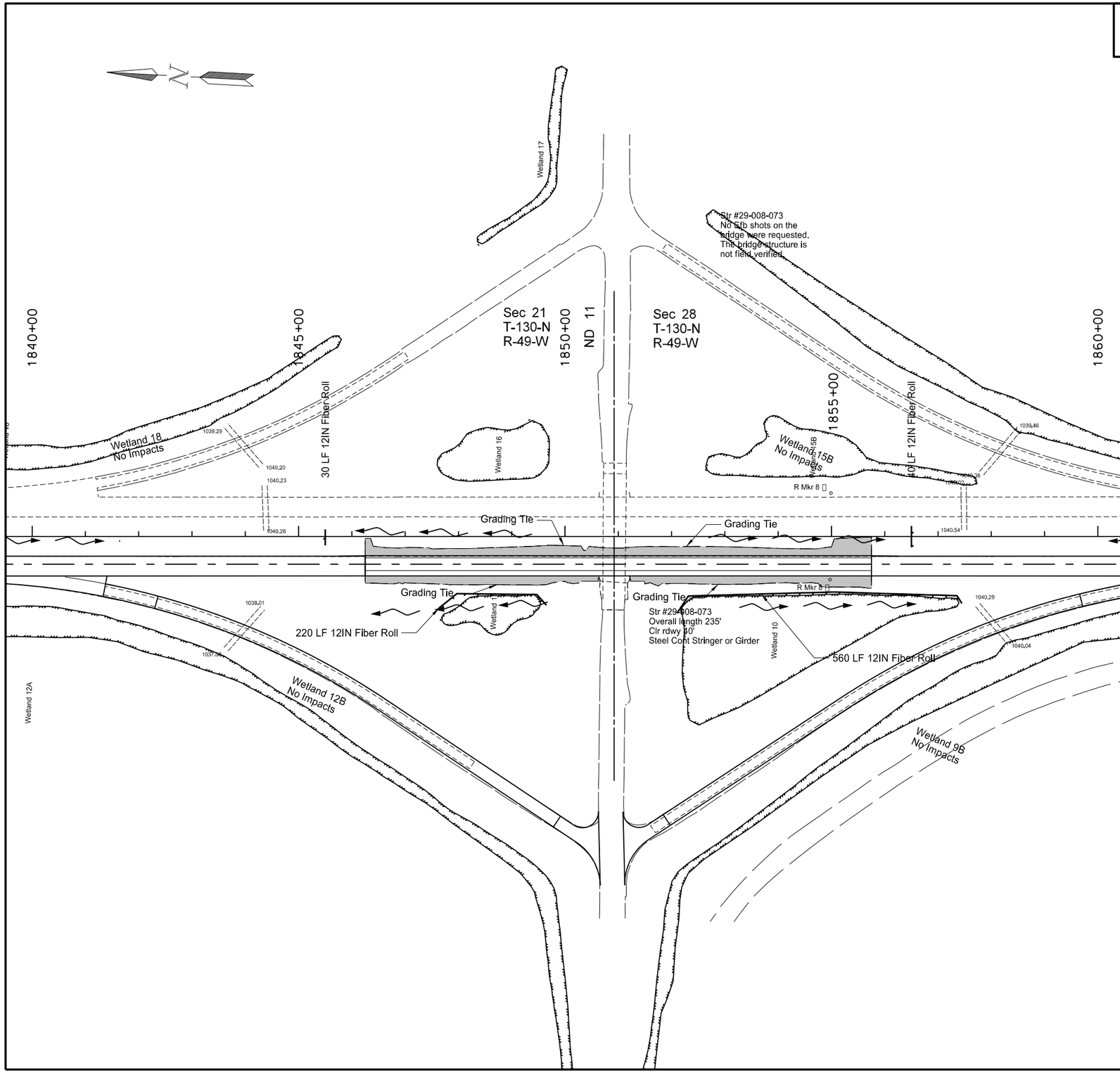
Permanent Sediment and Erosion Control Sheets at Hankison Interchange NWRC Removal

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	77	5



Hankinson Interchange

SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	0200	**SEEDING CLASS II**		
		Hankinson Interchange - Median	ACRE	0.38
		Hankinson Interchange - Rt	ACRE	0.32
253	0201	**HYDRAULIC MULCH**		
		Hankinson Interchange - Median	ACRE	0.38
		Hankinson Interchange - Rt	ACRE	0.32
261	0112	**FIBER ROLLS 12IN**		
		1845+50 - Median Ditch	LF	30
		1847+64 to 1849+65 - Protecting Wetland 11	LF	220
		1852+10 to 1857+45 - Protecting Wetland 10	LF	560
		1856+50 - Median Ditch	LF	40

LEGEND

Fiber Rolls

Seeding and Mulch

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Permanent Sediment and Erosion Control Sheets at Hankinson Interchange

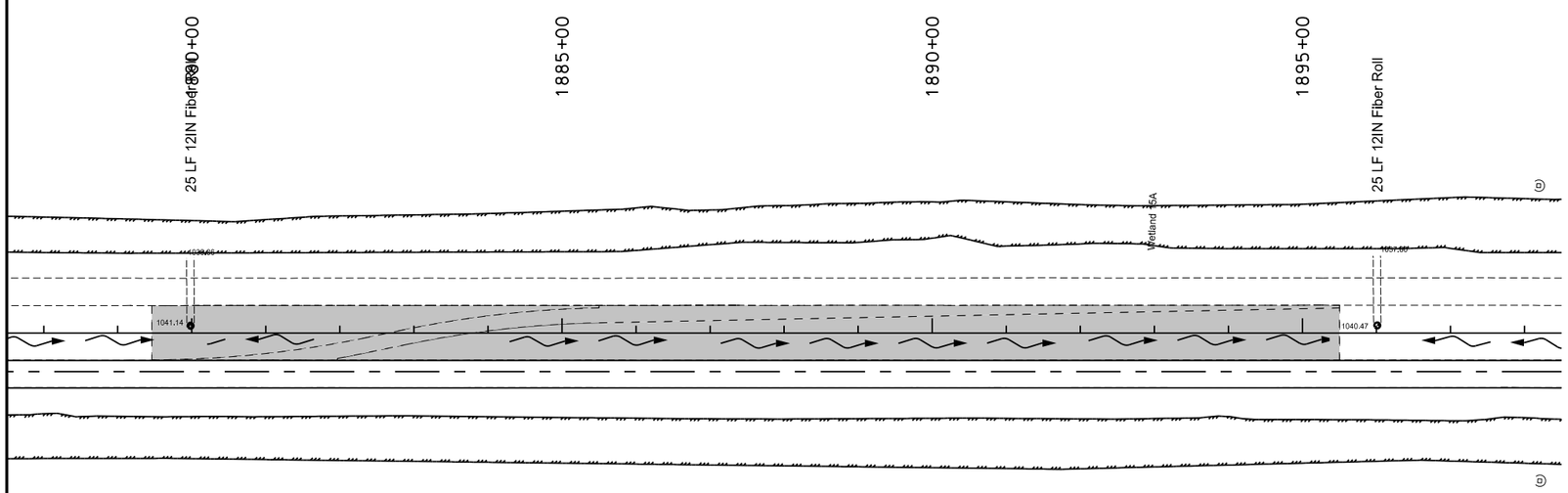
Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	77	6

SWRC Hankinson Interchange

SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	**0200**	**SEEDING CLASS II**		
		SWRC at Hankinson Interchange Removal	ACRE	2.74
253	**0201**	**HYDRAULIC MULCH**		
		SWRC at Hankinson Interchange Removal	ACRE	2.74
261	**0112**	**FIBER ROLLS 12IN**		
		1879+98 - 14' Lt (Existing 30" RCP Pipe Inlet)	LF	25
		1896+01 - 14' Lt (Existing 30" RCP Pipe Inlet)	LF	25



LEGEND

Fiber Rolls

Seeding and Mulch

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Permanent Sediment and Erosion Control Sheets at Hankison Interchange SWRC Removal

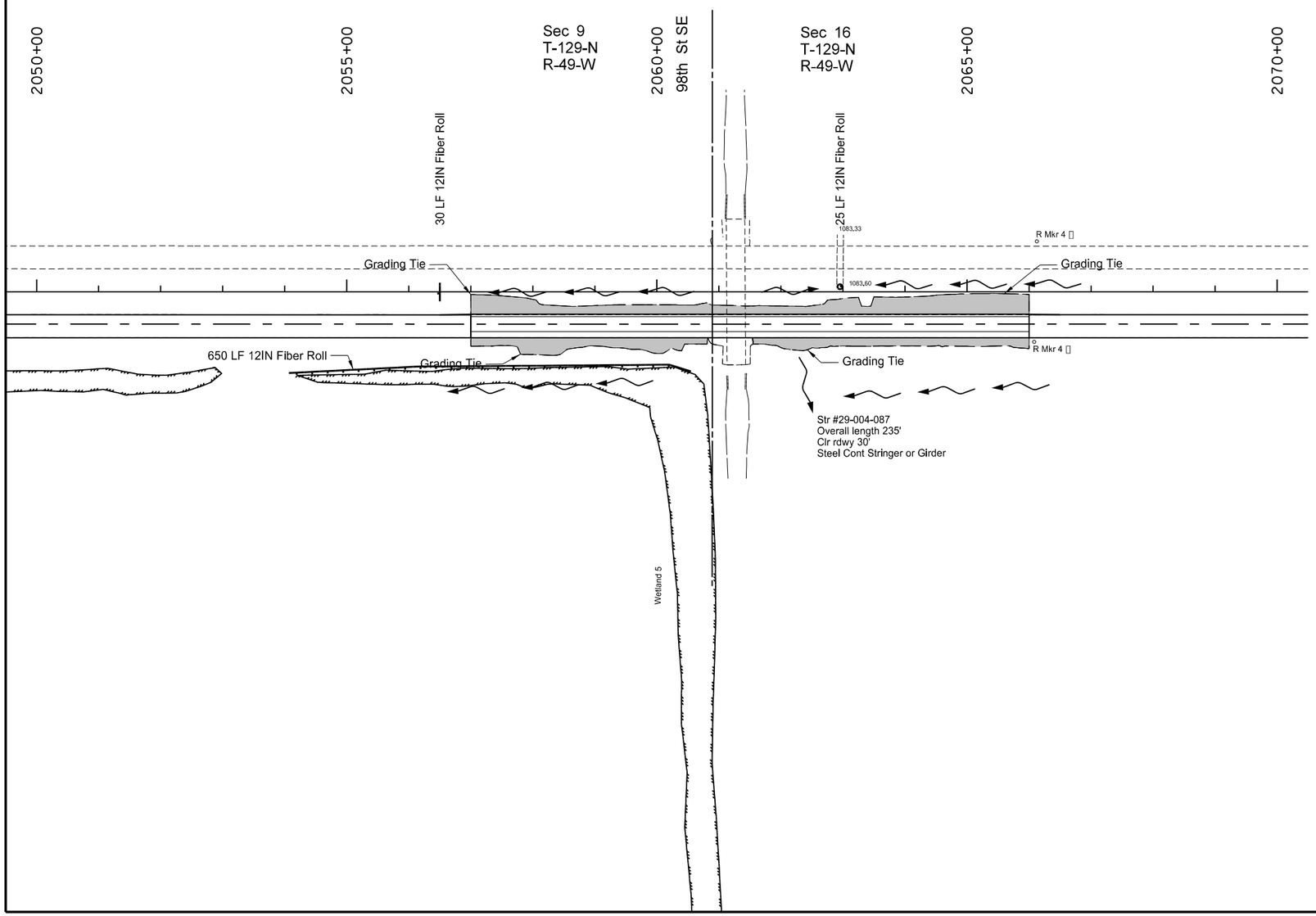
Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	77	7

Park Lake Separation

SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	**0200**	**SEEDING CLASS II**		
		Park Lake Separation - Median	ACRE	0.45
		Park Lake Separation - Rt	ACRE	0.31
253	**0201**	**HYDRAULIC MULCH**		
		Park Lake Separation - Median	ACRE	0.45
		Park Lake Separation - Rt	ACRE	0.31
261	**0112**	**FIBER ROLLS 12IN**		
		2054+07 to 2060+55 - Protecting Wetland 5	LF	650
		2056+50 - Median Ditch	LF	30
		2062+95 - 12' Lt (Existing 24" RCP Pipe Inlet)	LF	25



LEGEND

Fiber Rolls

Seeding and Mulch

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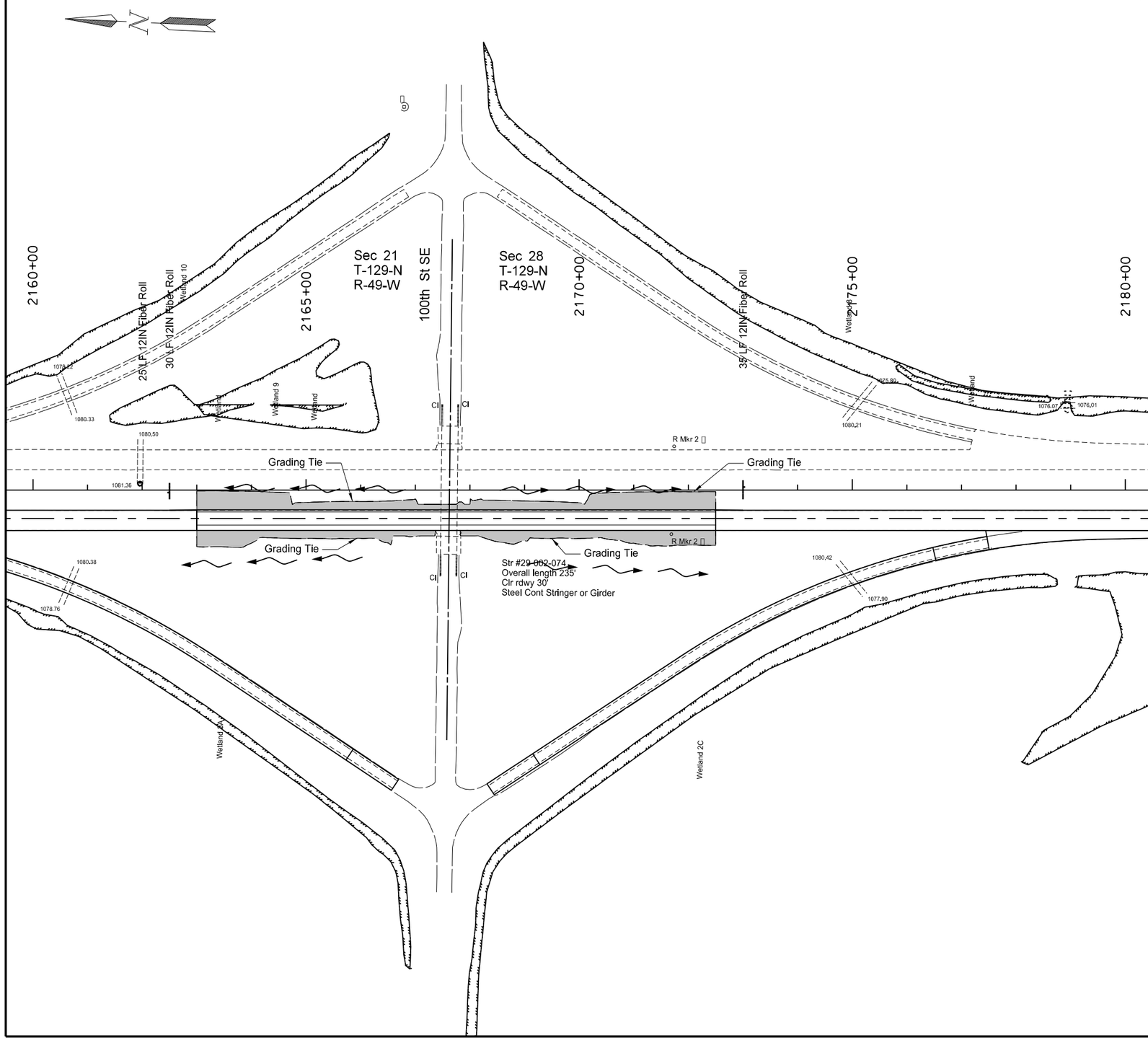
Permanent Sediment and Erosion Control Sheets at Park Lake Separation

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	77	8



LaMars Interchange

SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	0200	**SEEDING CLASS II**		
		LaMars Interchange - Median	ACRE	0.49
		LaMars Interchange - Rt	ACRE	0.39
253	0201	**HYDRAULIC MULCH**		
		LaMars Interchange - Median	ACRE	0.49
		LaMars Interchange - Rt	ACRE	0.39
261	0112	**FIBER ROLLS 12IN**		
		2161+96 - 9' Lt (Existing 24" RCP Pipe Inlet)	LF	25
		2162+50 - Median Ditch	LF	30
		2173+00 - Median Ditch	LF	35

LEGEND

Fiber Rolls

Seeding and Mulch

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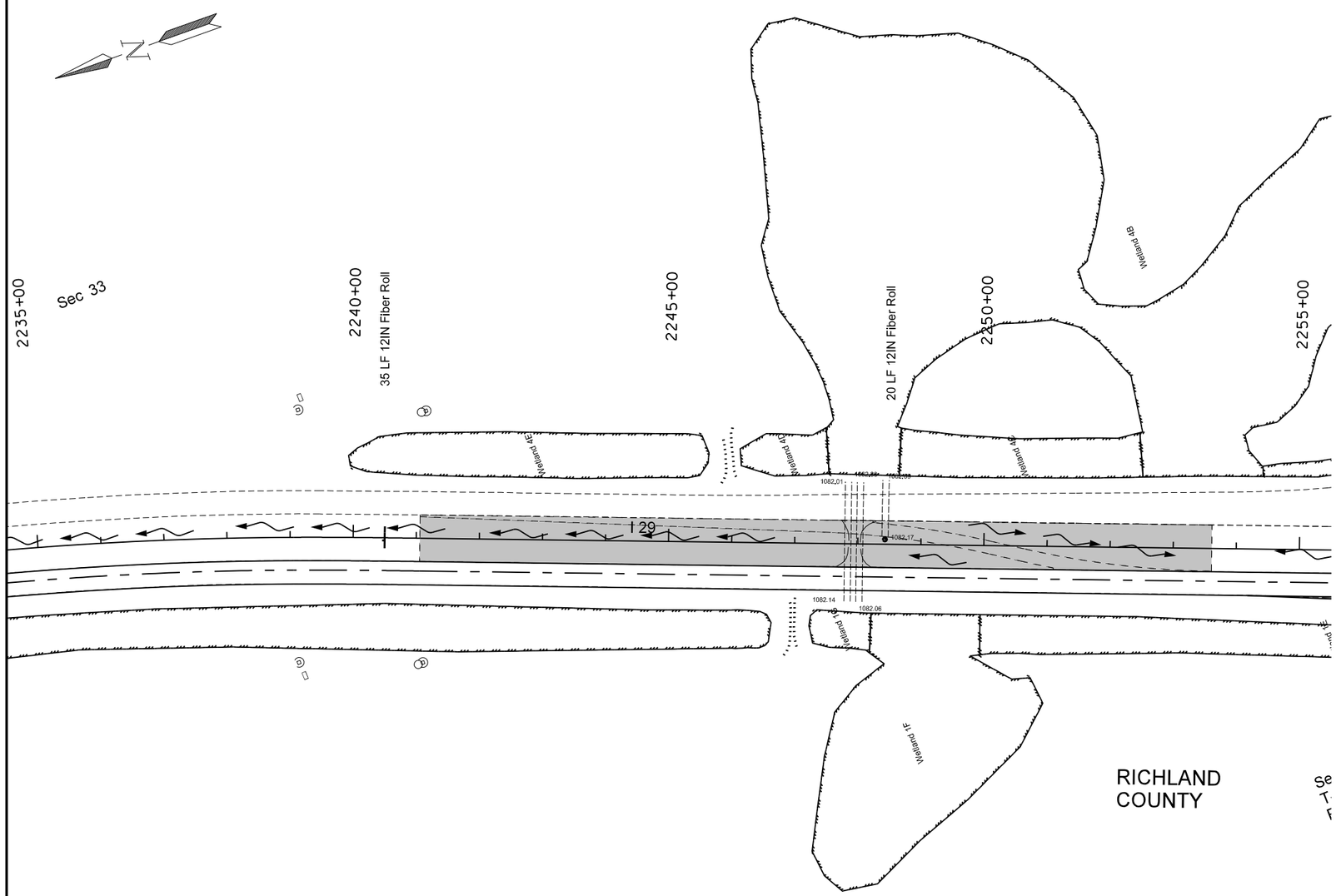
Permanent Sediment and Erosion Control Sheets at LaMars Interchange

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	77	9



NWRC State Line Interchange

SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	**0200**	**SEEDING CLASS II**		
		NWRC at State Line Interchange Removal	ACRE	2.14
253	**0201**	**HYDRAULIC MULCH**		
		NWRC at State Line Interchange Removal	ACRE	2.14
255	**0102**	**ECB TYPE 2**		
		2248+43 - 24" RCP (Median)	SY	24
261	**0112**	**FIBER ROLLS 12IN**		
		2240+50 - Median Ditch	LF	35
		2248+43 - Median (New 24" RCP Pipe Inlet)	LF	20

LEGEND

Fiber Rolls

Seeding and Mulch

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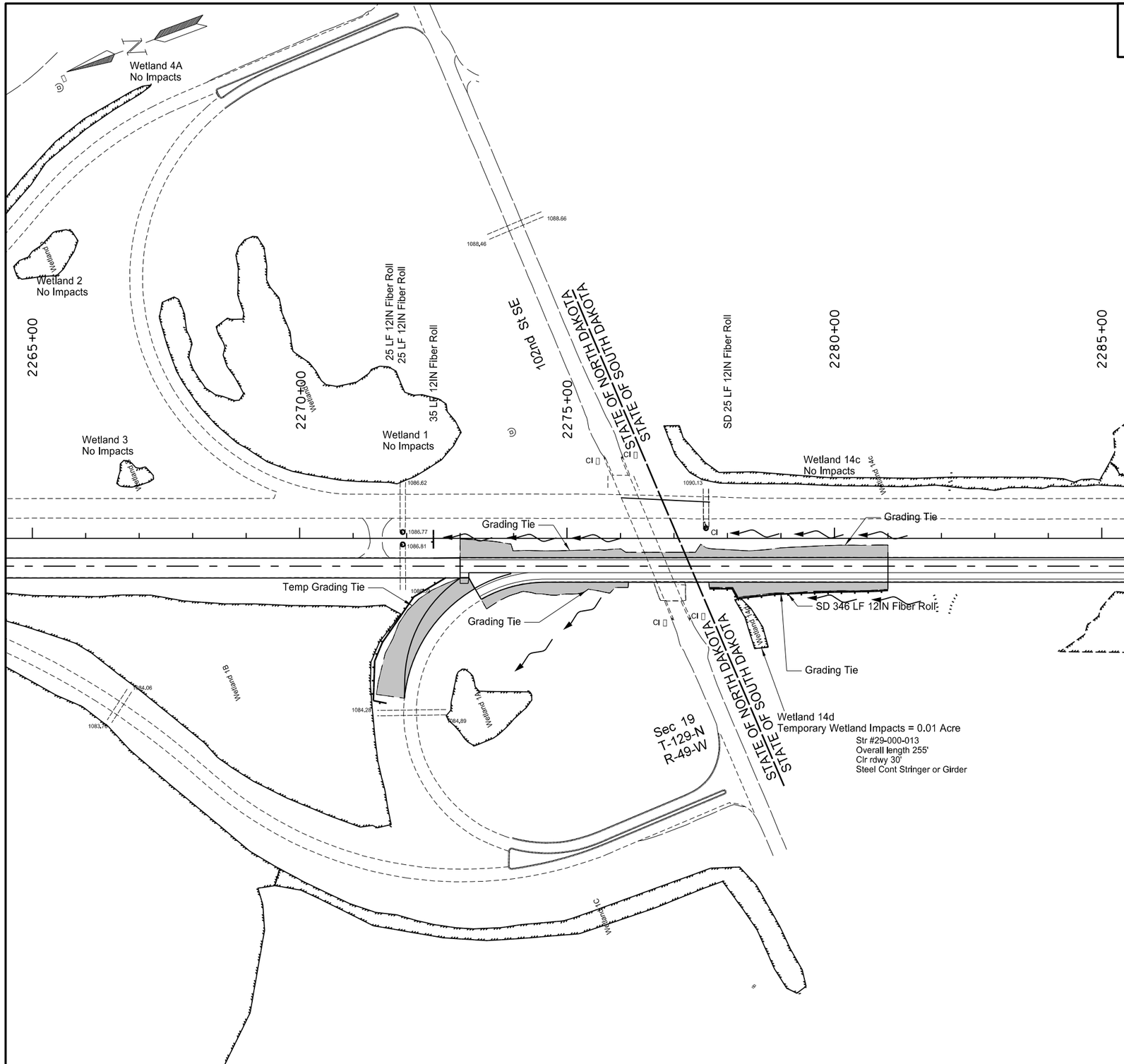
Permanent Sediment and Erosion Control Sheets at State Line Interchange NWRC Removal

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	77	10



State Line Interchange

SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	**0200**	**SEEDING CLASS II**		
		Temporary NW Loop Ramp Connection	ACRE	0.31
		ND Side - State Line Interchange - Median	ACRE	0.16
		SD Side - State Line Interchange - Median	ACRE	0.16
		ND Side - State Line Interchange - Rt	ACRE	0.12
		SD Side - State Line Interchange - Rt	ACRE	0.14
253	**0201**	**HYDRAULIC MULCH**		
		Temporary NW Loop Ramp Connection	ACRE	0.31
		ND Side - State Line Interchange - Median	ACRE	0.16
		SD Side - State Line Interchange - Median	ACRE	0.16
		ND Side - State Line Interchange - Rt	ACRE	0.12
		SD Side - State Line Interchange - Rt	ACRE	0.14
261	**0112**	**FIBER ROLLS 12IN**		
		Temporary NW Loop Ramp Connection	LF	311
		2271+93 - 12' Lt (Existing 24" RCP Pipe Inlet)	LF	25
		2271+93 - 12' Rt (Existing 24" RCP Pipe Inlet)	LF	25
		2272+50 - Median Ditch	LF	35
		SD - 2277+60 - 20' Lt.(Existing 24" RCP Pipe Inlet)	LF	25
		SD - 2277+66 Rt.to 2281+00 Rt.(Wetland 14d Protect.)	LF	346

LEGEND

Fiber Rolls

Seeding and Mulch

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Permanent Sediment and Erosion Control Sheets at State Line Interchange

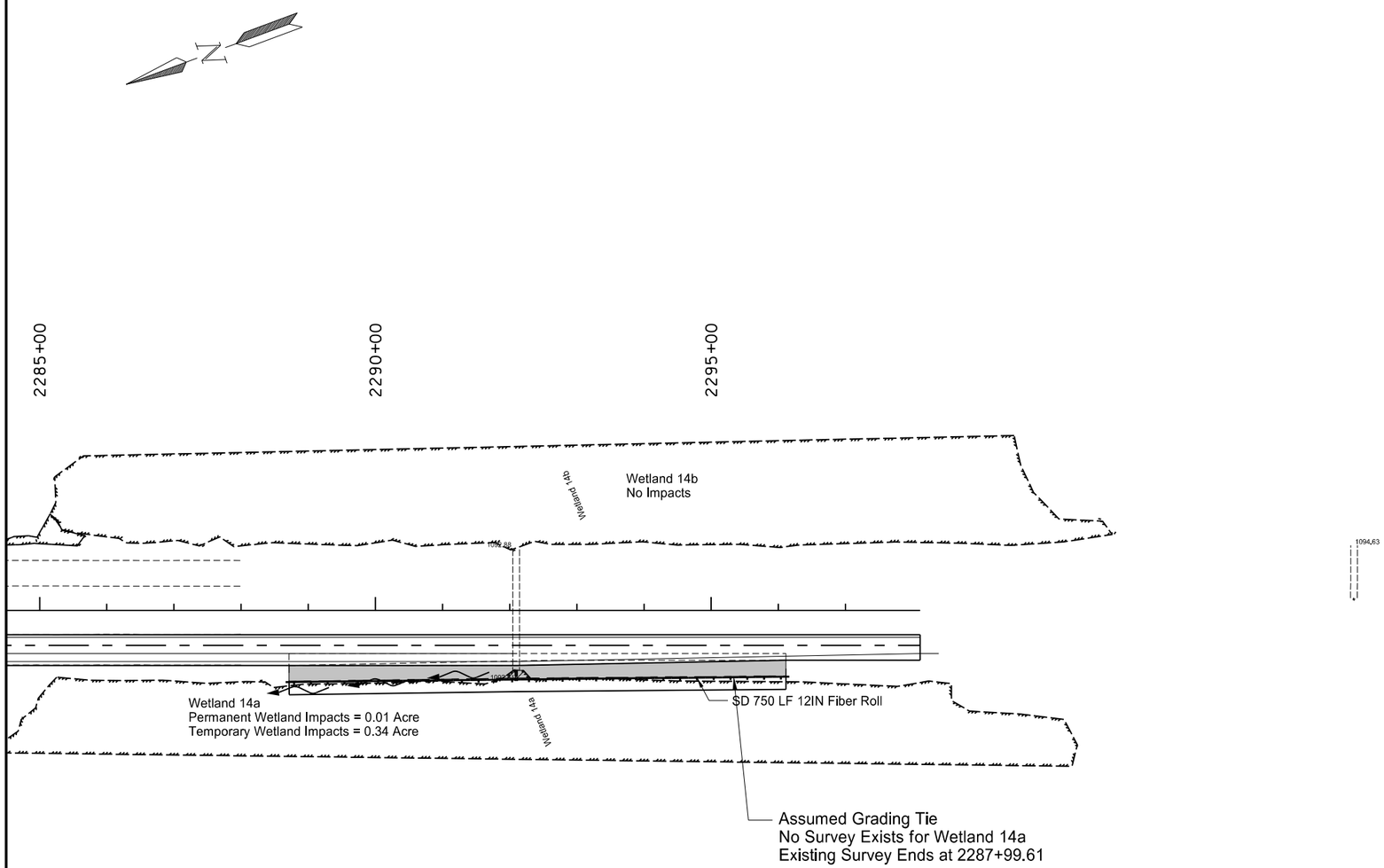
Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	77	11

State Line Interchange Acceleration Lane

SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	**0200**	**SEEDING CLASS II**		
		State Line Interchange Acceleration Lane - Rt	ACRE	0.36
253	**0101**	**STRAW MULCH**		
		State Line Interchange Acceleration Lane - Rt	ACRE	0.72
255	**0102**	**ECB TYPE 2**		
		2292+10 - 24" RCP (Rt)	SY	24
261	**0112**	**FIBER ROLLS 12IN**		
		SD - 2288+66-Rt.to2296+16-Rt.(Wetland 14A Protect.)	LF	750



LEGEND

Fiber Rolls

Seeding and Mulch

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Permanent Sediment and Erosion Control Sheets at State Line Interchange Acceleration Lane

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

PRELIMINARY SURVEY COORDINATE AND CURVE DATA - STATE LINE NORTH 11.3 MILES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	81	1

HORIZONTAL ALIGNMENT

PNT	STATION	NORTHING	EASTING
ND 29			
State Line North 11.3 Miles			
(Chain: OCL29) Office Created Alignment			
Begin	1640+14.50	183,148.03	2,897,913.78
PC	1654+89.78	181,673.51	2,897,961.17
PI C409	1660+01.71	181,161.85	2,897,977.62
PT	1665+13.62	180,649.97	2,897,984.92
PC	1687+93.87	178,369.94	2,898,017.43
PI C408	1692+96.82	177,867.05	2,898,024.61
PT	1697+99.69	177,364.58	2,898,046.49
PC	1741+79.40	172,989.02	2,898,237.03
PI C407	1745+55.11	172,613.66	2,898,253.37
PT	1749+30.82	172,238.51	2,898,273.82
POT 93rd St SE	1798+26.70 I 29 BK 1798+26.10 I 29 AH	167,349.88	2,898,540.26
POT ND 11	1850+92.24	162,091.55	2,898,826.84
PC	1897+96.04	157,394.68	2,899,082.19
PI C405	1903+52.70	156,838.84	2,899,112.41
PT	1909+09.33	156,282.59	2,899,133.62
POT 96th St SE	1956+35.17	151,560.18	2,899,313.73
POT 97th St SE	2008+30.91	146,368.20	2,899,511.24
POT 98th St SE	2060+89.24	141,113.66	2,899,710.83
PC	2111+65.35	136,041.22	2,899,904.03
PI C403	2114+59.71	135,747.08	2,899,915.24
PT	2117+54.06	135,453.05	2,899,928.96
POT 100th St SE	2167+62.69	130,449.85	2,900,162.44
TS	2216+05.78	125,612.01	2,900,387.81
SC	2218+05.78	125,412.18	2,900,395.95
PI SCS30030	2228+71.62	124,347.54	2,900,446.71
CS	2239+05.94	123,348.55	2,900,075.18
ST	2241+05.94	123,160.62	2,900,006.76
POT	2277+08.24	119,782.90	2,898,754.75
End	2297+08.24	117,907.58	2,898,059.63

CURVE DATA

ARC DEFINITION	
C409 PI STA= 1660+01.71	SCS30030
Delta = 1° 01′ 26″ RT	PI STA= 2228+71.62
D_a = 0° 06′ 00″	Delta = 23° 00′ 19″ (RT)
R = 57,295.80′	D_a = 1° 00′ 01″
T = 511.93′	R = 5,728.65
L = 1,023.84′	L_s = 200.00
C408	S_c = 1° 00′ 01″
PI STA= 1692+96.82	T_s = 1,265.84
Delta = 1° 40′ 35″ LT	L = 2,100.15
D_a = 0° 10′ 00″	
R = 34,377.50′	
T = 502.94′	
L = 1,005.82′	
C407	
PI STA=1745+55.11	
Delta =0° 37′ 34″ LT	
D_a =0° 05′ 00″	
R =68,754.95′	
T =375.71′	
L =751.42′	
C405	
PI STA= 1903+52.70	
Delta = 0° 55′ 40″ RT	
D_a = 0° 05′ 00″	
R = 68,754.95′	
T = 556.65′	
L = 1,113.28′	
C403	
PI STA=2114+59.71	
Delta =0° 29′ 26″ LT	
D_a =0° 05′ 00″	
R =68,754.95′	
T =294.35′	
L =588.71′	

REF MARKERS(Derived from aerial imagery)

R Mkr#	Northing	Easting	Station	Offset
1	124777.47	2900296.05	2224+45	- 81′ LT
1	124766.83	2900459.77	2224+48	- 83′ RT
2	130040.38	2900100.75	2171+74	- 80′ LT
2	130042.72	2900261.54	2171+69	- 81′ RT
3	135308.22	2899856.33	2118+95	- 83′ LT
3	135315.98	2900018.50	2118+95	- 79′ RT
4	140591.94	2899650.00	2066+13	- 82′ LT
4	140593.81	2899812.20	2066+08	- 81′ RT
5	145863.74	2899446.70	2013+33	- 81′ LT
5	145869.09	2899610.95	2013+33	- 84′ RT
6	151139.02	2899245.35	1960+57	- 82′ LT
6	151141.75	2899411.68	1960+53	- 84′ RT
7	156416.61	2899047.68	1907+77	- 83′ LT
7	156418.38	2899211.12	1907+72	- 81′ RT
8	161682.68	2898768.16	1854+99	- 81′ LT
8	161689.73	2898930.27	1854+97	- 81′ RT
9	166938.17	2898486.31	1802+51	- 76′ LT
9	166930.03	2898639.69	1802+34	- 76′ RT
10	172227.76	2898192.56	1749+39	- 81′ LT
10	172234.81	2898355.17	1749+37	- 82′ RT
11	177504.41	2897960.32	1696+59	- 81′ LT
11	177507.98	2898121.75	1696+57	- 80′ RT

SURVEY CONTROL POINTS

PNT	NORTHING	EASTING	ELEV	STATION	OFFSET	CONTROL POINT DESCRIPTION
						PRIMARY CONTROL
						ND 29 (Chain: OCL29)
GPS 1	130436.13	2900377.46	1105.79	2167+86	- 214′ LT	
						#6 Rebar
GPS 2	141042.89	2899504.59	1107.75	2061+52	- 209′ RT	
						#6 Rebar
GPS 3	162136.84	2899135.31	1065.45	1850+64	- 310′ LT	
						#6 Rebar
GPS 4	172580.06	2898038.66	1037.88	1745+78	- 217′ RT	
						#6 Rebar
						SECONDARY CONTROL
						ND 29 (Chain: OCL29)
RTK40200	135221.30	2900142.07	1084.88	2119+95	-202′LT	
RTK40201	135523.44	2900107.24	1084.32	2116+92	-181′LT	
CP A504	120039.47	2899058.17	1088.98	2273+62	-195′LT	

NOTES: Station and offset data was calculated from the OCL29 design alignment.

Date Survey Completed 4/08/2014

☐ Assumed Coordinates

☒ All coordinates on this sheet are Richland County ground coordinates. They are derived from the "North Dakota Coordinate System of 1983", NAD83(CORS96). South Zone Combination Factor (cf) = 0.9999345

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

INITIALIZING BENCH MARK
NDGPS Stations (OPUS)

☒ NAVD-88
☐ NGVD-29

☐ GEOID 09 ☐ _____
☒ GEOID 12A

This document was originally issued and sealed by Robert D. Zahn Registration Number LS-3659 , on 8/12/15 and the original document is stored at the North Dakota Department of Transportation

PRELIMINARY SURVEY COORDINATE AND CURVE DATA - STATE LINE NORTH 11.3 MILES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	81	2

HORIZONTAL ALIGNMENT

PNT	STATION	NORTHING	EASTING
(Chain: NERAMP11) Office Created Alignment			
POT	0+00.00	164,282.98	2,898,771.50
PC	10+00.22	163,285.54	2,898,845.89
PI C427	14+13.71	162,873.19	2,898,876.65
PT	18+05.33	162,540.64	2,899,122.39
POT	23+31.85	162,117.18	2,899,435.30
(Chain: SERAMP11) Office Created Alignment			
POT	0+00.00	162,117.18	2,899,435.30
PC	5+17.41	161,672.11	2,899,171.44
PI C430	9+32.85	161,314.75	2,898,959.59
PT	13+26.11	160,899.49	2,898,971.77
POT	19+66.34	160,259.53	2,898,990.54
(Chain: SWRAMP11) Office Created Alignment			
POT	0+00.00	162,065.91	2,898,218.38
PC	5+26.43	161,642.50	2,898,531.20
PI C424	9+39.95	161,309.91	2,898,776.93
PT	13+31.59	160,897.53	2,898,807.63
POT	23+31.78	159,900.10	2,898,881.89
(Chain: NWRAMP11) Office Created Alignment			
POT	0+00.00	163,923.54	2,898,662.90
PC	6+40.20	163,283.61	2,898,681.75
PI C421	10+55.67	162,868.33	2,898,693.99
PT	14+48.95	162,510.92	2,898,482.15
POT	19+66.26	162,065.91	2,898,218.38

CURVE DATA

ARC DEFINITION

C427	C439
PI STA= 14+13.71	PI STA= 14+13.93
Delta = 32° 11′ 52″ LT	Delta = 32° 12′ 50″ LT
D_a = 3° 59′ 57″	D_a = 3° 59′ 57″
R = 1,432.69′	R = 1,432.69′
T = 413.49′	T = 413.71′
L = 805.11′	L = 805.52′
C430	**C442**
PI STA= 9+32.85	PI STA= 9+33.23
Delta = 32° 20′ 29″ LT	Delta = 32° 19′ 34″ LT
D_a = 3° 59′ 57″	D_a = 3° 59′ 57″
R = 1,432.69′	R = 1,432.69′
T = 415.44′	T = 415.23′
L = 808.70′	L = 808.32′
C424	**C436**
PI STA= 9+39.95	PI STA= 9+39.59
Delta = 32° 12′ 00″ RT	Delta = 32° 12′ 55″ RT
D_a = 3° 59′ 57″	D_a = 3° 59′ 57″
R = 1,432.69′	R = 1,432.69′
T = 413.52′	T = 413.73′
L = 805.17′	L = 805.55′
C421	**C433**
PI STA= 10+55.67	PI STA= 10+55.44
Delta = 32° 20′ 36″ RT	Delta = 32° 19′ 39″ RT
D_a = 3° 59′ 57″	D_a = 3° 59′ 57″
R = 1,432.69′	R = 1,432.69′
T = 415.47′	T = 415.25′
L = 808.75′	L = 808.35′

REFERENCE MARKERS

R Mkr#	Northing	Easting	Station	Offset

HORIZONTAL ALIGNMENT

PT	STATION	NORTHING	EASTING
(Chain: NERAMP_L) Office Created Alignment			
POT	0+00.00	132,641.96	2,900,124.21
PC	10+00.21	131,643.96	2,900,190.80
PI C439	14+13.93	131,231.17	2,900,218.34
PT	18+05.73	130,896.60	2,900,461.70
POT	23+31.65	130,471.29	2,900,771.06
(Chain: SERAMP_L) Office Created Alignment			
POT	0+00.00	130,471.29	2,900,771.06
PC	5+17.99	130,027.71	2,900,503.57
PI C442	9+33.23	129,672.13	2,900,289.14
PT	13+26.31	129,256.99	2,900,298.10
POT	19+66.52	128,616.92	2,900,311.89
(Chain: SWRAMP_L) Office Created Alignment			
POT	0+00.00	130,428.42	2,899,553.82
PC	5+25.86	130,003.14	2,899,863.12
PI C436	9+39.59	129,668.55	2,900,106.47
PT	13+31.41	129,255.73	2,900,133.98
POT	23+31.60	128,257.75	2,900,200.49
(Chain: NWRAMP_L) Office Created Alignment			
POT	0+00.00	132,282.77	2,900,012.83
PC	6+40.19	131,642.73	2,900,026.68
PI C433	10+55.44	131,227.58	2,900,035.67
PT	14+48.55	130,871.96	2,899,821.25
POT	19+66.48	130,428.42	2,899,553.82

SURVEY CONTROL POINTS

PNT	NORTHING	EASTING	ELEV	STATION	OFFSET	CONTROL POINT DESCRIPTION

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

INITIALIZING BENCH MARK
NDGPS Stations (OPUS)

- ☒ NAVD-88
- ☐ NGVD-29
- ☐ GEOID 09 ☐ _____
- ☒ GEOID 12A

NOTES:

Date Survey Completed 4/08/2014

☐ Assumed Coordinates

☒ All coordinates on this sheet are Richland County ground coordinates. They are derived from the "North Dakota Coordinate System of 1983", NAD83(CORS96). South Zone Combination Factor (cf) = 0.9999345

This document was originally issued and sealed by Robert D. Zahn Registration Number LS- 3659, on 8/12/15 and the original document is stored at the North Dakota Department of Transportation

PRELIMINARY SURVEY COORDINATE AND CURVE DATA - STATE LINE NORTH 11.3 MILES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	81	3

HORIZONTAL ALIGNMENT

PNT	STATION	NORTHING	EASTING
(Chain: NERAMP) Office Created Alignment			
POT	0+00.00	122,860.29	2,899,963.69
PC	10+08.96	121,907.41	2,899,632.00
PI C455	16+51.58	121,300.50	2,899,420.75
PT	22+17.12	120,739.13	2,899,733.52
PC	22+74.04	120,689.41	2,899,761.22
PI C456	24+43.43	120,541.44	2,899,843.66
PT	26+06.70	120,372.21	2,899,851.08
POT	30+92.60	119,886.78	2,899,872.37
(Chain: NELOOP) Office Created Alignment			
POT	0+00.00	119,627.06	2,898,765.24
POT	2+50.20	119,856.99	2,898,863.89
PC	7+40.20	120,316.60	2,899,033.75
PI C460	27+74.09	122,224.37	2,899,738.83
PT	18+65.14	120,192.43	2,899,827.93
POT	21+72.45	119,885.42	2,899,841.40
		(Chain: NWLOOP)	
POT	0+00.00	118,160.17	2,898,084.66
PC	20+01.56	120,040.56	2,898,770.49
PI C453	32+73.41	118,845.71	2,898,334.69
PT	28+84.01	120,116.62	2,898,285.81
POT	31+90.12	119,810.73	2,898,297.58
		(Chain: NWRAMP)	
POT	0+00.00	122,114.20	2,899,551.03
PC	6+49.08	121,511.50	2,899,310.08
PI C446	11+53.56	121,043.06	2,899,122.80
PT	16+19.20	120,795.32	2,898,683.34
PC	16+94.62	120,758.28	2,898,617.64
PI C447	21+34.17	120,542.42	2,898,234.74
PT	24+83.09	120,103.29	2,898,253.83
POT	27+77.27	119,809.38	2,898,266.61

CURVE DATA

ARC DEFINITION

C455	C446
PI STA= 16+51.58	PI STA= 11+53.56
Delta = 48° 18′ 59″ LT	Delta = 38° 47′ 48″ RT
D_a = 3° 59′ 57″	D_a = 3° 59′ 57″
R = 1,432.69′	R = 1,432.69′
T = 642.62′	T = 504.48′
L = 1,208.16′	L = 970.11′
C456	**C447**
PI STA= 24+43.43	PI STA= 21+34.17
Delta = 26° 36′ 48″ RT	Delta = 63° 04′ 36″ LT
D_a = 8° 00′ 00″	D_a = 8° 00′ 00″
R = 716.20′	R = 716.20′
T = 169.39′	T = 439.55′
L = 332.67′	L = 788.46′
C460	
PI STA=27+74.09	
Delta =157° 12′ 20″ RT	
D_a =13° 58′ 28″	
R =410.00′	
T =2,033.89′	
L =1,124.94′	
C453	
PI STA=32+73.41	
Delta =202° 14′ 28″ LT	
D_a =22° 55′ 06″	
R =250.00′	
T =1,271.85′	
L =882.44′	

REFERENCE MARKERS

R Mkr#	Northing	Easting	Station	Offset

SURVEY CONTROL POINTS

PNT	NORTHING	EASTING	ELEV	STATION	OFFSET	CONTROL POINT DESCRIPTION

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

NOTES:

Date Survey Completed 4/08/2014

☐ Assumed Coordinates

☒ All coordinates on this sheet are Richland County ground coordinates. They are derived from the "North Dakota Coordinate System of 1983", NAD83(CORS96). South Zone Combination Factor (cf) = 0.9999345

INITIALIZING BENCH MARK
NDGPS Stations (OPUS)

☒ NAVD-88
☐ NGVD-29
☐ GEOID 09 ☐ _____
☒ GEOID 12A

This document was originally issued and sealed by Robert D. Zahn Registration Number LS- 3659, on 8/12/15 and the original document is stored at the North Dakota Department of Transportation

OFFICE LOCATION FOR TEMPORARY RAMP CONNECTION FOR NW LOOP RAMP STATE LINE INTERCHANGE

Chain PR CNWRSLI contains:
8600 CUR PR_CNWRSLI-1 8601 8602

Beginning chain PR_CNWRSLI description
==========

Point 8600 N 120,366.2662 E 2,898,624.6028 Sta 0+00.00

Course from 8600 to PC PR CNWRSLI-1 S 69° 39' 42.83" E Dist 55.2852

Curve Data

Curve PR CNWRSLI-1
P.I. Station 2+80.29 N 120,268.8504 E 2,898,887.4145
Delta = 90° 00' 00.00" (RT)
Degree = 25° 27' 53.25"
Tangent = 225.0000
Length = 353.4292
Radius = 225.0000
External = 93.1981
Long Chord = 318.1981
Mid. Ord. = 65.9010
P.C. Station 0+55.29 N 120,347.0513 E 2,898,676.4415
P.T. Station 4+08.71 N 120,057.8774 E 2,898,809.2137
C.C. N 120,136.0782 E 2,898,598.2406
Back = S 69° 39' 42.83" E
Ahead = S 20° 20' 17.17" W
Chord Bear = S 24° 39' 42.83" E

Course from PT PR CNWRSLI-1 to 8601 S 20° 20' 17.17" W Dist 276.7696

Point 8601 N 119,798.3622 E 2,898,713.0198 Sta 6+85.48

Course from 8601 to 8602 S 20° 20' 17.17" W Dist 391.7639

Point 8602 N 119,431.0216 E 2,898,576.8587 Sta 10+77.25

==========
Ending chain PR_CNWRSLI description

OFFICE LOCATION FOR NEW NW LOOP RAMP STATE LINE INTERCHANGE

Chain PR_NWLOOPNEW contains:
8700 8701 8702 8703 CUR PR NWLOOPNEW-1

Beginning chain PR_NWLOOPNEW description
==========

Point 8700 N 117,833.3162 E 2,897,963.8448 Sta 0+00.00

Course from 8700 to 8701 N 19° 11' 32.43" E Dist 600.1210

Point 8701 N 118,400.0826 E 2,898,161.1288 Sta 6+00.12

Course from 8701 to 8702 N 20° 20' 17.17" E Dist 1,111.1590

Point 8702 N 119,441.9697 E 2,898,547.3224 Sta 17+11.28

Course from 8702 to 8703 N 20° 20' 17.17" E Dist 391.7639

Point 8703 N 119,809.3103 E 2,898,683.4836 Sta 21+03.04

Course from 8703 to PC PR NWLOOPNEW-1 N 20° 20' 17.17" E Dist 247.0771

Curve Data

Curve PR NWLOOPNEW-1
P.I. Station 24+16.81 N 120,103.4237 E 2,898,792.7828
Delta = 29° 57' 13.67" (LT)
Degree = 22° 59' 01.17"
Tangent = 66.6891
Length = 130.3265
Radius = 249.2892
External = 8.7661
Long Chord = 128.8474
Mid. Ord. = 8.4683
P.C. Station 23+50.12 N 120,040.9841 E 2,898,769.3576
P.T. Station 24+80.45 N 120,169.2193 E 2,898,781.9030
C.C. N 120,128.5497 E 2,898,535.9537
Back = N 20° 33' 52.02" E
Ahead = N 9° 23' 21.65" W
Chord Bear = N 5° 35' 15.18" E

==========
Ending chain PR_NWLOOPNEW description

Note: PT 24+80.45 PR_NWLOOPNEW(OFFICE LOCATION ALIGNMENT)
= 21+32.21 NWLOOP(FIELD SURVEY ALIGNMENT)
PT 24+80.45 is a point on CURVE C453 on Field Survey Alignment NWLOOP

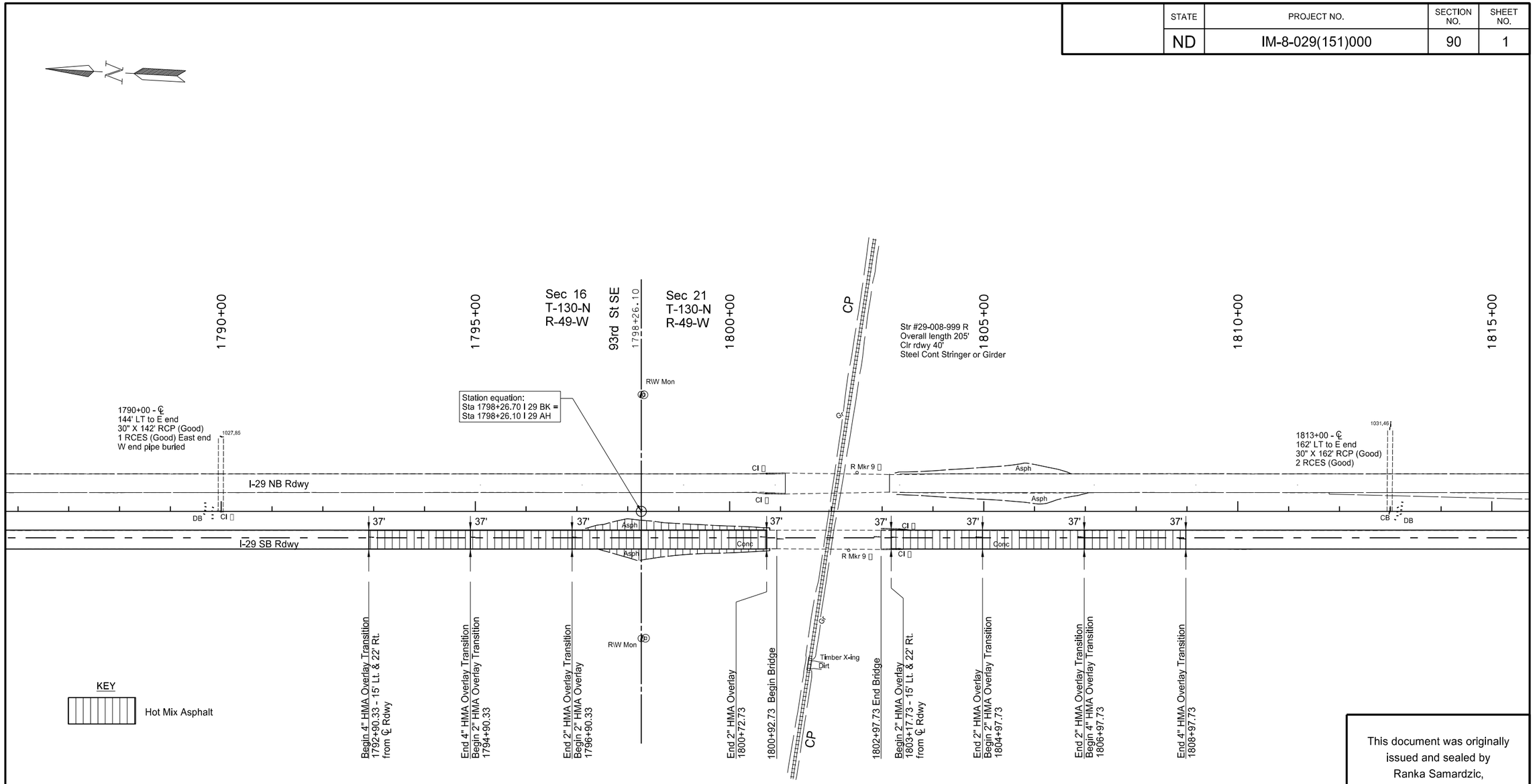
This document was originally issued and sealed by Derek Pfeifer, Registration Number PE-12241, on 8-17-16 and the original document is stored at the North Dakota Department of Transportation

This document was originally issued and sealed by Ranka Samardzic, Registration Number PE- 4888, on 8-17-16 and the original document is stored at the North Dakota Department of Transportation

ALIGNMENT DESCRIPTIONS
Temporary Ramp Connection NW Loop Ramp and Proposed NW Loop Ramp at State Line Interchange

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	90	1



SPEC	CODE	BID ITEM		UNIT	QUANTITY
401	0050	**Tack Coat**			
		CP Sep	1792+90.33 to 1800+72.73	Gal	202
		CP Sep	1803+17.73 to 1808+97.73	Gal	160
401	0070	**Fog Seal**			
		CP Sep	1792+90.33 to 1800+72.73	Gal	87
		CP Sep	1803+17.73 to 1808+97.73	Gal	64
430	0045	**Superpave FAA 45**			
		CP Sep	1792+90.33 to 1800+72.73	Ton	189
		CP Sep	1803+17.73 to 1808+97.73	Ton	164
430	0200	**Hot Mix Asphalt - Stone Matrix Asphalt**			
		CP Sep	1792+90.33 to 1800+72.73	Ton	269
		CP Sep	1803+17.73 to 1808+97.73	Ton	200

SPEC	CODE	BID ITEM		UNIT	QUANTITY
430	5828	**PG 58-28 Asphalt Cement**			
		CP Sep	1792+90.33 to 1800+92.73	Ton	7
		CP Sep	1803+17.73 to 1808+97.73	Ton	6
430	6428	**PG 64-28 Asphalt Cement**			
		CP Sep	1792+90.33 to 1794+90.33	Ton	4
		CP Sep	1806+97.73 to 1808+97.73	Ton	4
430	6434	**PG 64-34 Asphalt Cement**			
		CP Sep	1792+90.33 to 1800+72.73	Ton	16
		CP Sep	1803+17.73 to 1808+97.73	Ton	12
550	0968	**PCC Cracking and Seating**			
		CP Sep	1792+90.33 to 1800+72.73	SY	3219.0
		CP Sep	1803+17.73 to 1808+97.73	SY	2388.4

SPEC	CODE	BID ITEM		UNIT	QUANTITY
302	0100	**Salvaged Base Course**			
		CP Sep Guardrail	1796+90.33 to 1800+92.73 Rt	Ton	146.4
		CP Sep Guardrail	1796+90.33 to 1800+92.73 Lt	Ton	200.2
401	0050	**Tack Coat**			
		CP Sep Guardrail	1796+90.33 to 1800+92.73 Rt	Gal	20.7
		CP Sep Guardrail	1796+90.33 to 1800+92.73 Lt	Gal	28.8
430	0045	**Superpave FAA 45**			
		CP Sep Guardrail	1796+90.33 to 1800+92.73 Rt	Ton	43.8
		CP Sep Guardrail	1796+90.33 to 1800+92.73 Lt	Ton	61.6
430	5828	**PG 58-28 Asphalt Cement**			
		CP Sep Guardrail	1796+90.33 to 1800+92.73 Rt	Ton	2.63
		CP Sep Guardrail	1796+90.33 to 1800+92.73 Lt	Ton	3.7

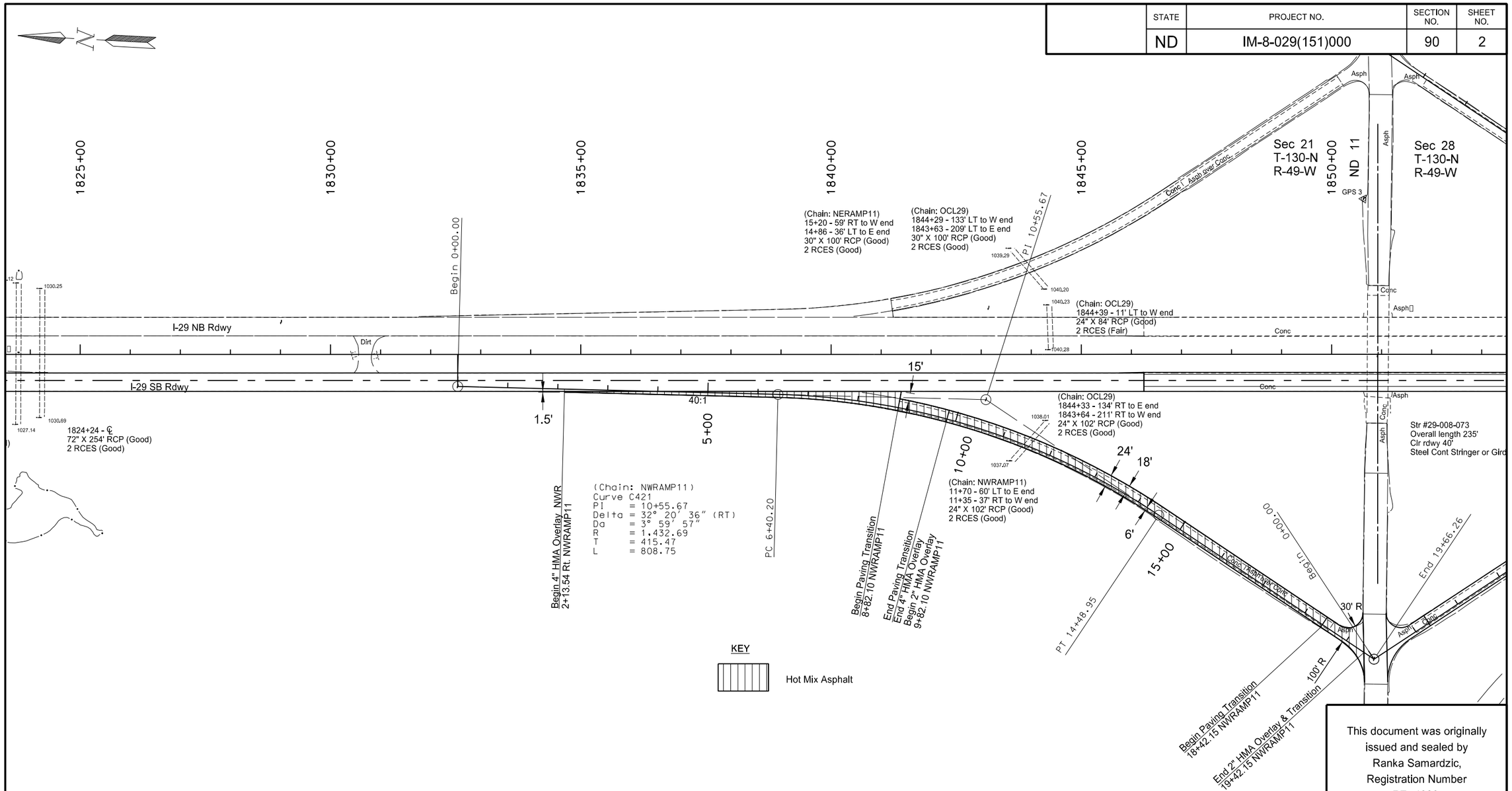
This document was originally issued and sealed by Ranka Samardzic, Registration Number PE- 4888, on 8-17-16 and the original document is stored at the North Dakota Department of Transportation

Paving Layout for Bridge 29-008.999L
at CP Railway Separation

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	90	2



KEY

Hot Mix Asphalt

SPEC	CODE	BID ITEM		UNIT	QUANTITY
401	0050	**Tack Coat**			
		NW Ramp	2+13.54 to 19+42.15	Gal	252
430	0045	**Superpave FAA 45**			
		NW Ramp	2+13.54 to 19+42.15	Ton	551
430	5828	**PG 58-28 Asphalt Cement**			
		NW Ramp	2+13.54 to 19+42.15	Ton	33.1
550	0968	**PCC Pavement Cracking and Seating**			
		NW Ramp	2+13.54 to 8+82.10	SY	913.4

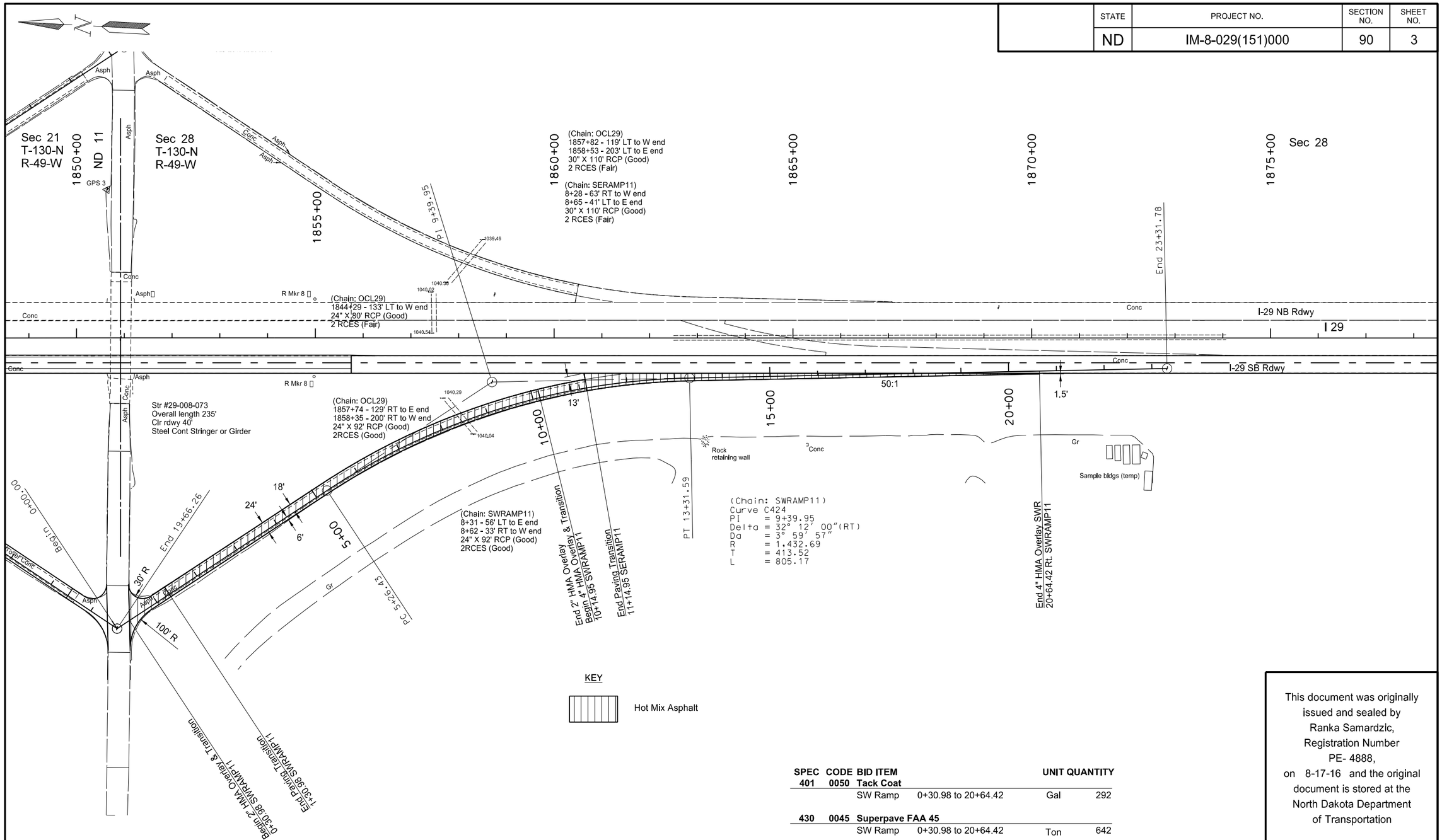
This document was originally issued and sealed by Ranka Samardzic, Registration Number PE- 4888, on 8-17-16 and the original document is stored at the North Dakota Department of Transportation

Paving Layout for NW Ramp
at Hankinson Interchange

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	90	3



SPEC	CODE	BID ITEM		UNIT	QUANTITY
401	0050	**Tack Coat**			
		SW Ramp	0+30.98 to 20+64.42	Gal	292
430	0045	**Superpave FAA 45**			
		SW Ramp	0+30.98 to 20+64.42	Ton	642
430	5828	**PG 58-28 Asphalt Cement**			
		SW Ramp	0+30.98 to 20+64.42	Ton	38.5
550	0968	**PCC Pavement Cracking and Seating**			
		SW Ramp	11+14.95 to 20+64.42	SY	1280.7

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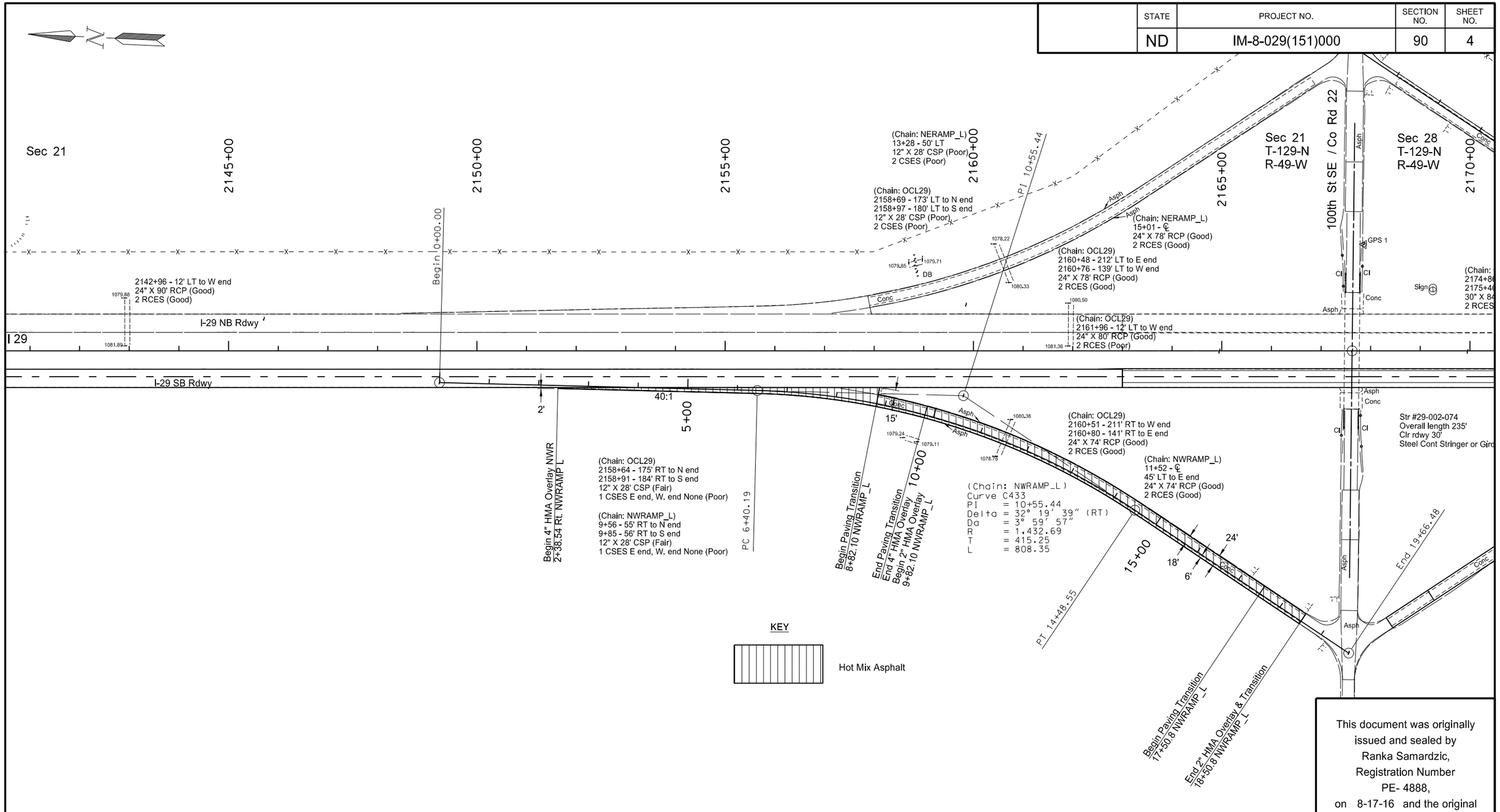
Paving Layout for SW Ramp
at Hankinson Interchange

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	90	4



SPEC	CODE	BID ITEM		UNIT	QUANTITY
401	0050	**Tack Coat**			
		NW Ramp	2+38.54 to 18+50.8	Gal	233
430	0045	**Superpave FAA 45**			
		NW Ramp	2+38.54 to 18+50.8	Ton	509
430	5828	**PG 58-28 Asphalt Cement**			
		NW Ramp	2+38.54 to 18+50.8	Ton	30.5
550	0968	**PCC Pavement Cracking and Seating**			
		NW Ramp	2+38.54 to 8+82.10	SY	904.5

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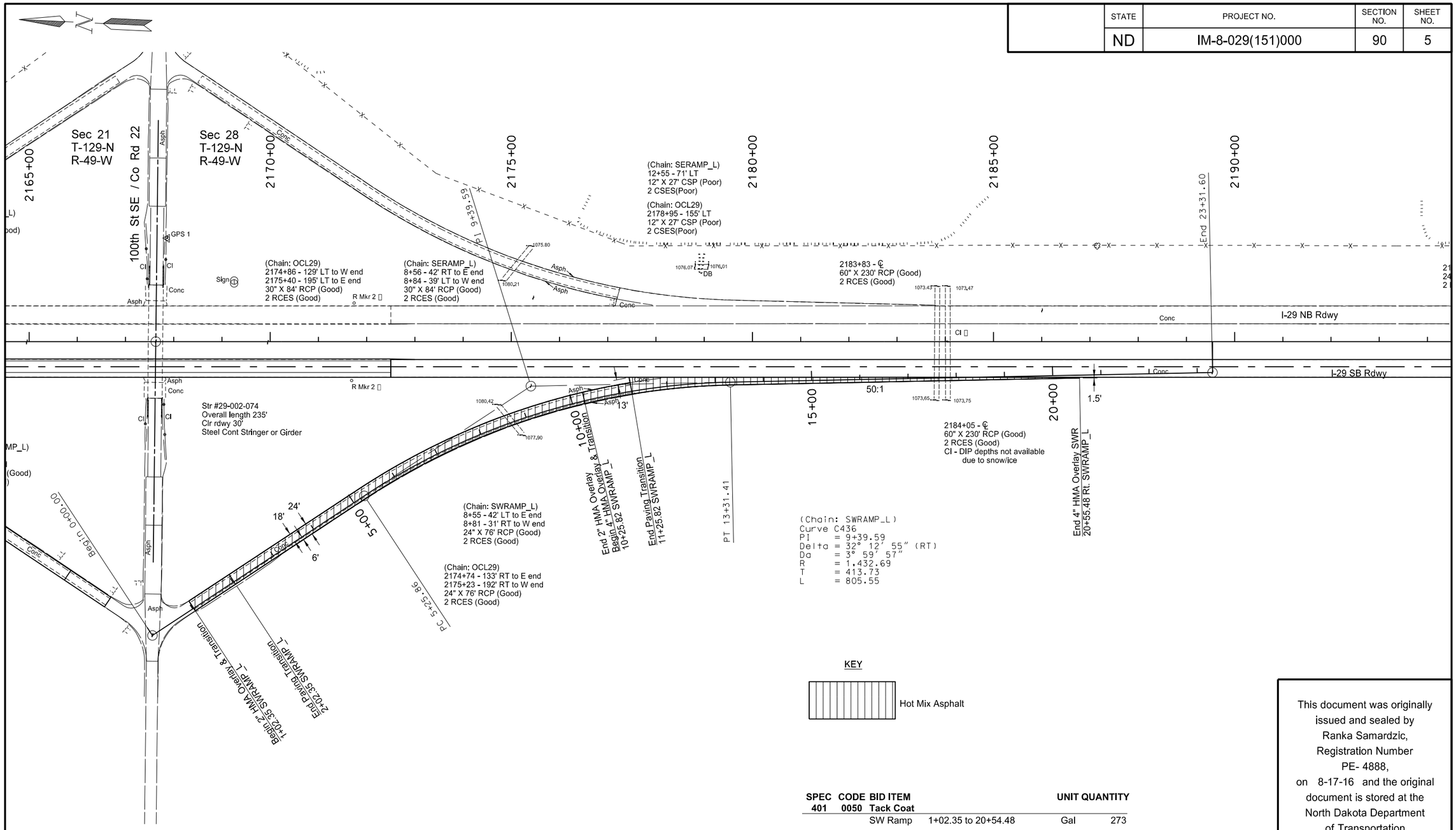
Paving Layout for NW Ramp
at LaMars Interchange

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	90	5



KEY

Hot Mix Asphalt

SPEC	CODE	BID ITEM		UNIT	QUANTITY
401	0050	**Tack Coat**			
		SW Ramp	1+02.35 to 20+54.48	Gal	273
430	0045	**Superpave FAA 45**			
		SW Ramp	1+02.35 to 20+54.48	Ton	600
430	5828	**PG 58-28 Asphalt Cement**			
		SW Ramp	1+02.35 to 20+54.48	Ton	36.0
550	0968	**PCC Pavement Cracking and Seating**			
		SW Ramp	11+25.82 to 20+54.48	SY	1234.8

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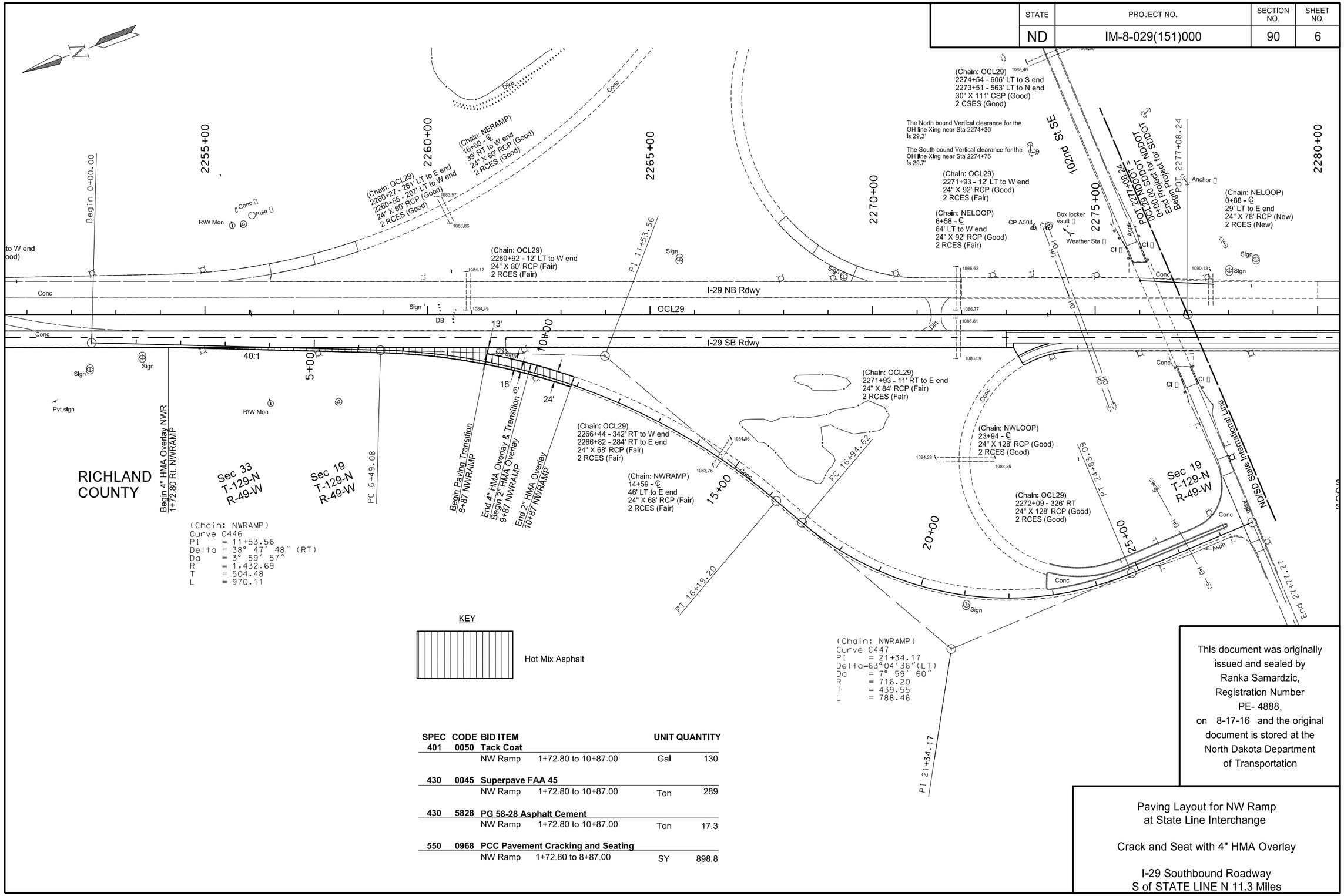
Paving Layout for SW Ramp
at LaMars Interchange

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	90	6



SPEC	CODE	BID ITEM		UNIT	QUANTITY
401	0050	**Tack Coat**			
		NW Ramp	1+72.80 to 10+87.00	Gal	130
430	0045	**Superpave FAA 45**			
		NW Ramp	1+72.80 to 10+87.00	Ton	289
430	5828	**PG 58-28 Asphalt Cement**			
		NW Ramp	1+72.80 to 10+87.00	Ton	17.3
550	0968	**PCC Pavement Cracking and Seating**			
		NW Ramp	1+72.80 to 8+87.00	SY	898.8

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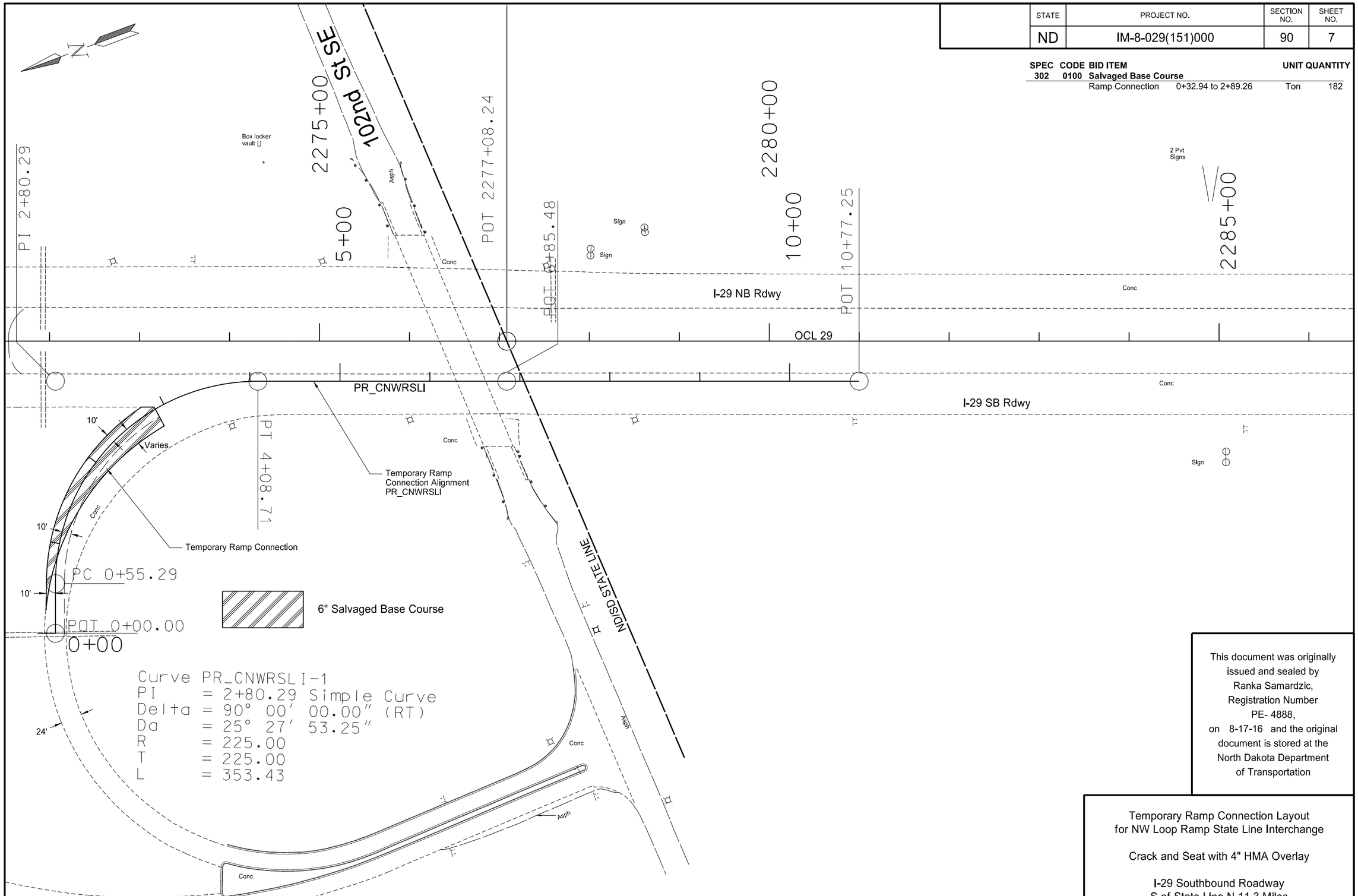
Paving Layout for NW Ramp
at State Line Interchange

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	90	7

SPEC	CODE	BID ITEM		UNIT	QUANTITY
302	0100	Salvaged Base Course			
		Ramp Connection	0+32.94 to 2+89.26	Ton	182



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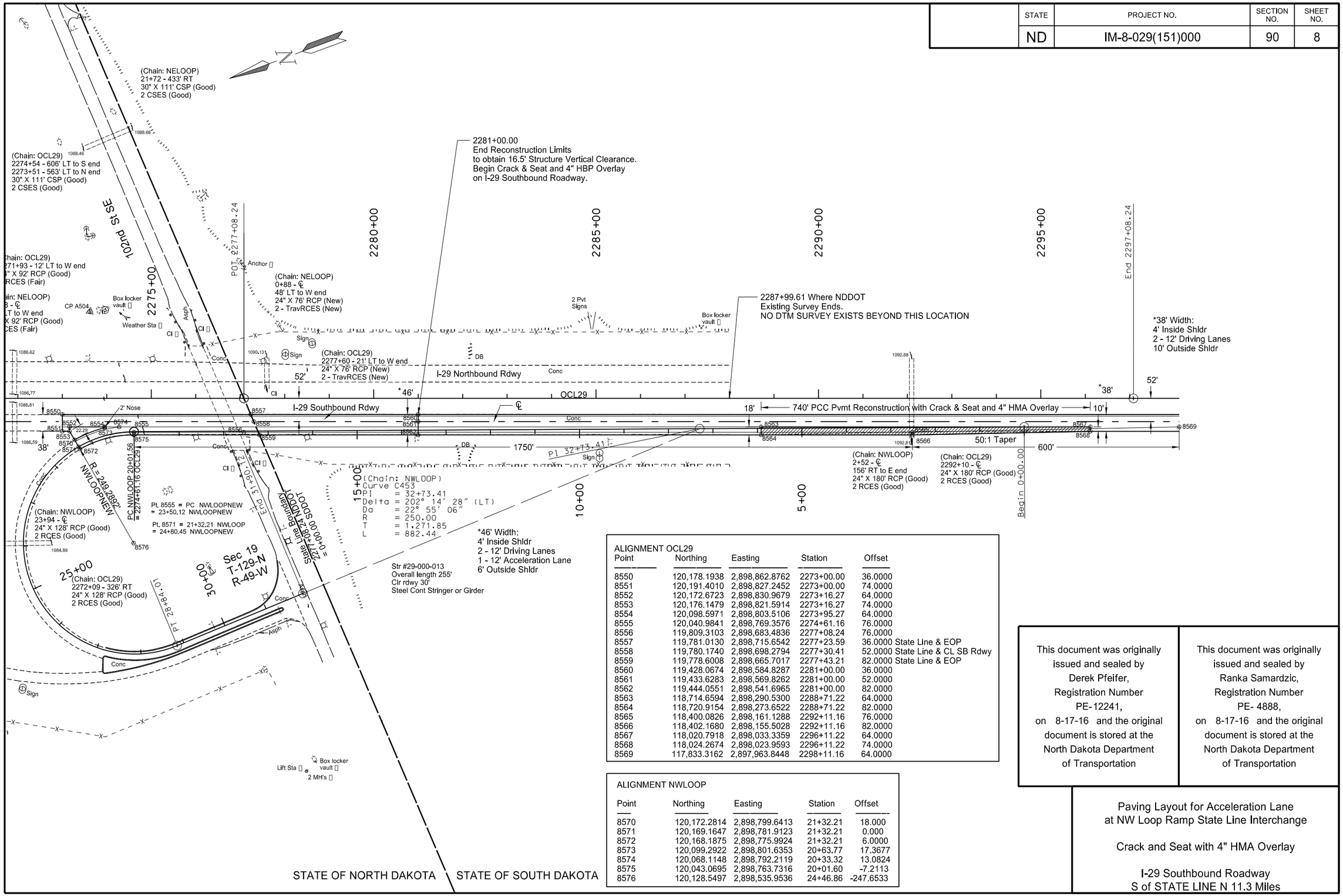
Temporary Ramp Connection Layout
for NW Loop Ramp State Line Interchange

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of State Line N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	90	8



ALIGNMENT OCL29

Point	Northing	Easting	Station	Offset	
8550	120,178.1938	2,898,862.8762	2273+00.00	36.0000	
8551	120,191.4010	2,898,827.2452	2273+00.00	74.0000	
8552	120,172.6723	2,898,830.9679	2273+16.27	64.0000	
8553	120,176.1479	2,898,821.5914	2273+16.27	74.0000	
8554	120,098.5971	2,898,803.5106	2273+95.27	64.0000	
8555	120,040.9841	2,898,769.3576	2274+61.16	76.0000	
8556	119,809.3103	2,898,683.4836	2277+08.24	76.0000	
8557	119,781.0130	2,898,715.6542	2277+23.59	36.0000	State Line & EOP
8558	119,780.1740	2,898,698.2794	2277+30.41	52.0000	State Line & CL SB Rdwy
8559	119,778.6008	2,898,665.7017	2277+43.21	82.0000	State Line & EOP
8560	119,428.0674	2,898,584.8287	2281+00.00	36.0000	
8561	119,433.6283	2,898,569.8262	2281+00.00	52.0000	
8562	119,444.0551	2,898,541.6965	2281+00.00	82.0000	
8563	118,714.6594	2,898,290.5300	2288+71.22	64.0000	
8564	118,720.9154	2,898,273.6522	2288+71.22	82.0000	
8565	118,400.0826	2,898,161.1288	2292+11.16	76.0000	
8566	118,402.1680	2,898,155.5028	2292+11.16	82.0000	
8567	118,020.7918	2,898,033.3359	2296+11.22	64.0000	
8568	118,024.2674	2,898,023.9593	2296+11.22	74.0000	
8569	117,833.3162	2,897,963.8448	2298+11.16	64.0000	

ALIGNMENT NWLOOP

Point	Northing	Easting	Station	Offset
8570	120,172.2814	2,898,799.6413	21+32.21	18.000
8571	120,169.1647	2,898,781.9123	21+32.21	0.000
8572	120,168.1875	2,898,775.9924	21+32.21	6.0000
8573	120,099.2922	2,898,801.6353	20+63.77	17.3677
8574	120,068.1148	2,898,792.2119	20+33.32	13.0824
8575	120,043.0695	2,898,763.7316	20+01.60	-7.2113
8576	120,128.5497	2,898,535.9536	24+46.86	-247.6533

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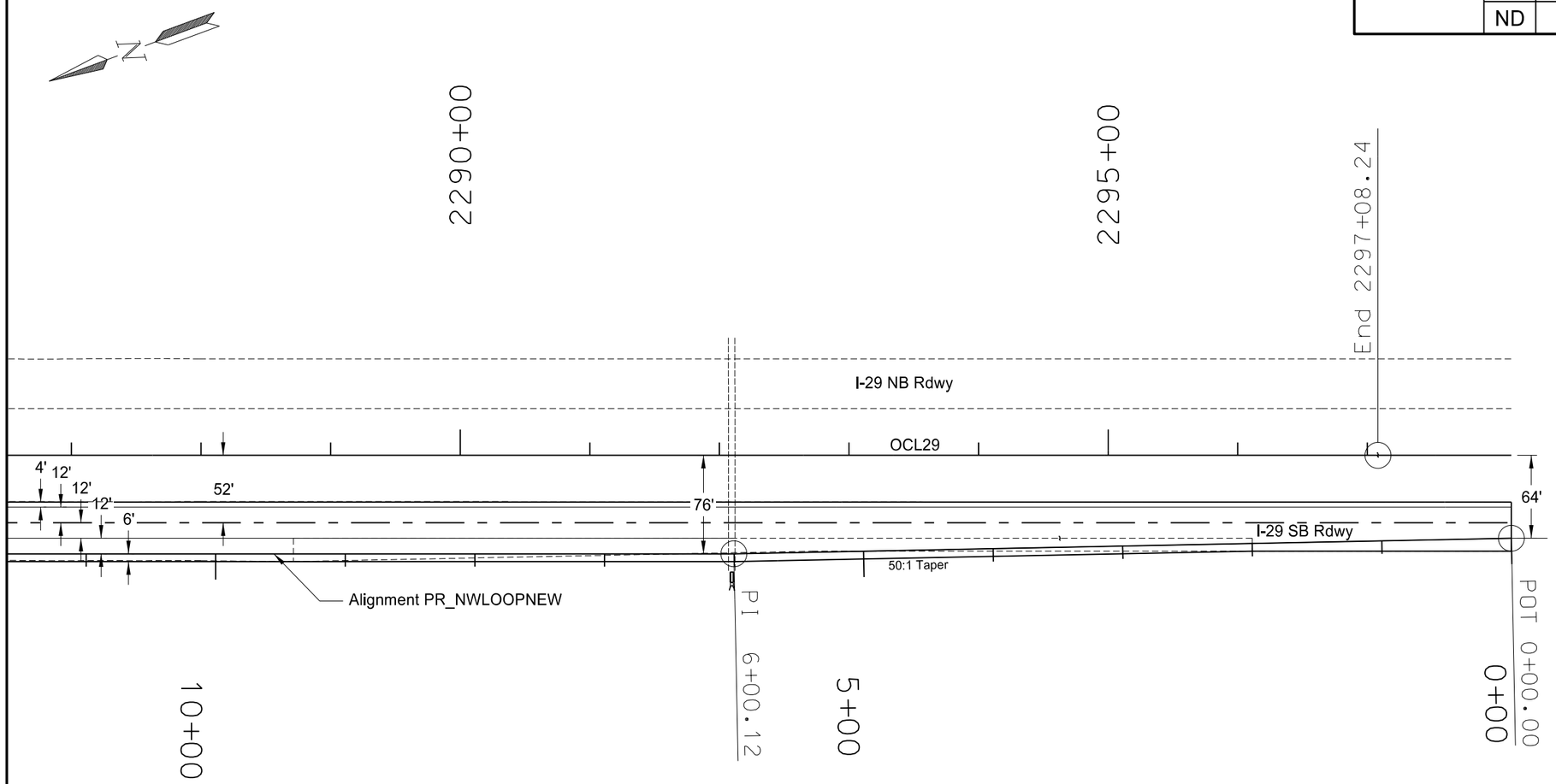
Paving Layout for Acceleration Lane
at NW Loop Ramp State Line Interchange

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	90	9



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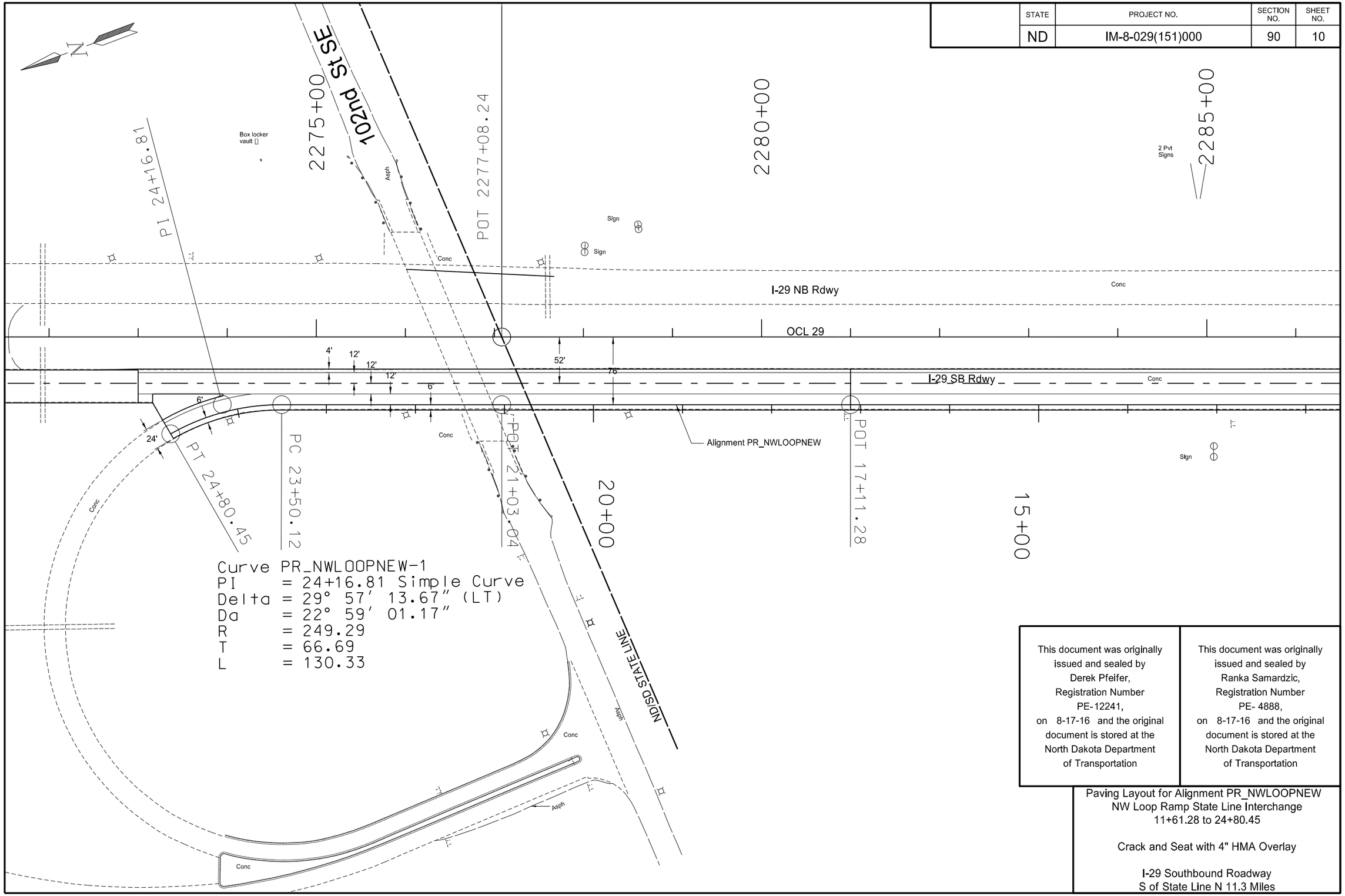
Paving Layout for Alignment PR_NWLOOPNEW
NW Loop Ramp State Line Interchange
0+00 to 11+61.28

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of State Line N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	90	10



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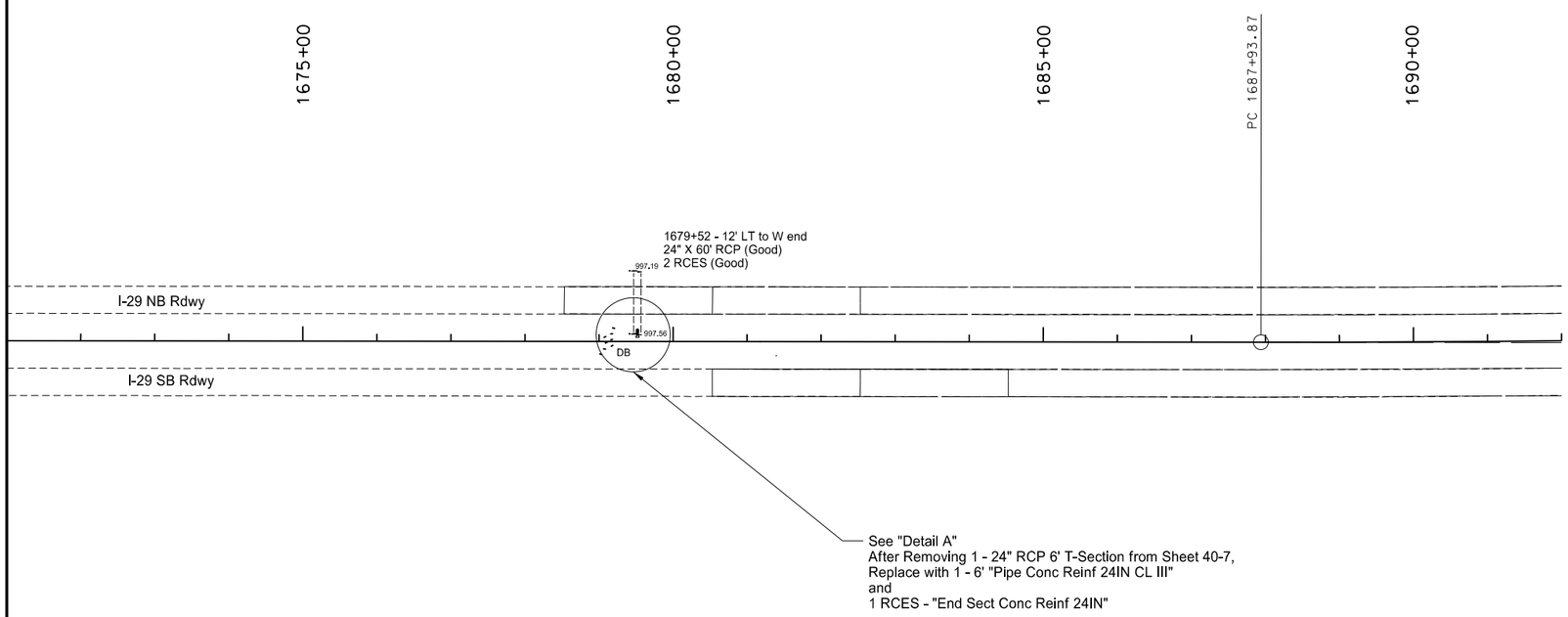
Paving Layout for Alignment PR_NWLOOPNEW
NW Loop Ramp State Line Interchange
11+61.28 to 24+80.45

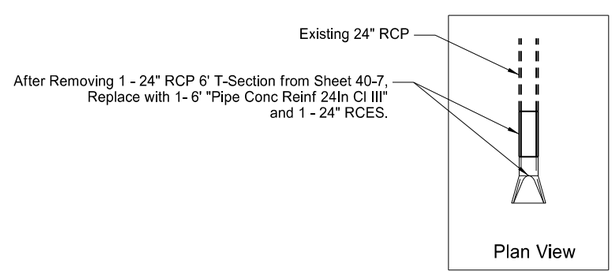
Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of State Line N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	90	11

SPEC	CODE	BID ITEM	UNIT	QUANTITY
714	0615	**PIPE CONC REINF 24IN CL III**		
		1679+52 - Lt.	LF	6
714	3020	**END SECT - CONC REINF 24IN**		
		1679+52 - Lt.	EA	1





Detail A

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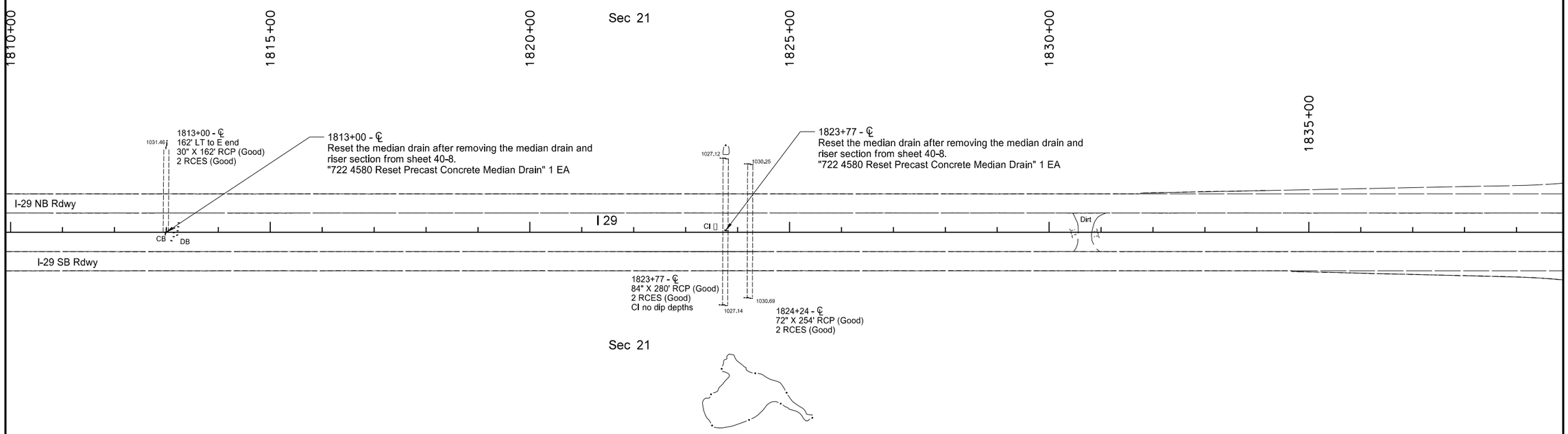
Pipe Installation Layout for Removal of North Median Crossover at End Project

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	90	12

SPEC	CODE	BID ITEM	UNIT	QUANTITY
722	4580	RESET PRECAST CONCRETE MEDIAN DRAIN		
		1813+00 CL Reset Median Drain	EA	1
		1823+77 CL Reset Median Drain	EA	1



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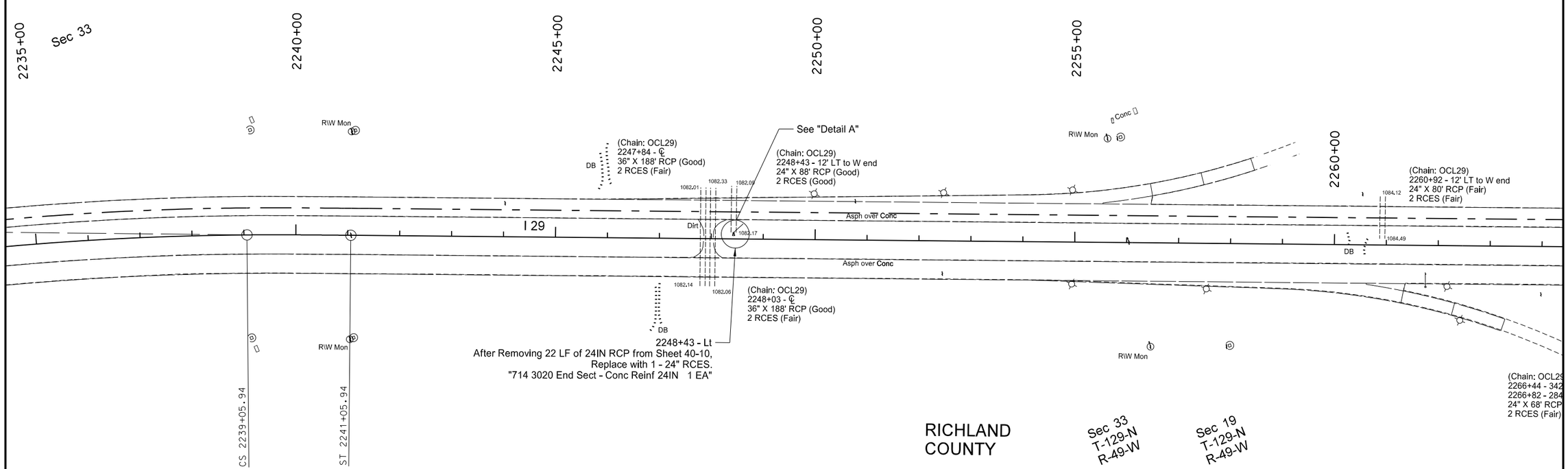
Reset Median Drain Layout from Removal of NW Ramp Connection at Hankinson Interchange

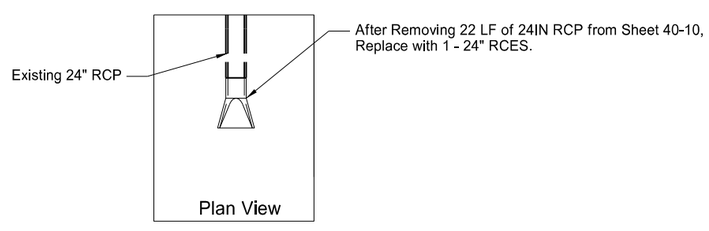
Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	90	13

SPEC	CODE	BID ITEM	UNIT	QUANTITY
714	3020	END SECT - CONC REINF 24IN		
		2248+43 - Lt.	EA	1





Detail A

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Pipe Installation Layout from Removal of NW Ramp Connection at State Line Interchange

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
D3-36	36"x6"	STREET NAME SIGN (Sign and installation only)		6	
G20-1-60	60"x24"	ROAD WORK NEXT __ MILES		34	
G20-1b-60	60"x24"	WORK IN PROGRESS/ NO WORK IN PROGRESS (Sign and installation only)		26	
G20-2-48	**48"x24"**	**END ROAD WORK**	**13**	**19**	**247**
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)		18	
G20-10-108	**108"x48"**	**CONTRACTOR SIGN**	**2**	**64**	**128**
G20-50a-72	72"x36"	ROAD WORK NEXT __ MILES RT & LT ARROWS		37	
G20-52a-72	72"x24"	ROAD WORK NEXT __ MILES RT or LT ARROW		30	
G20-55-96	**96"x48"**	**SPEED LIMIT ENFORCED - MINIMUM FEE $80 WHEN WORKERS PRESENT**	**8**	**59**	**472**
M1-1-24	24"x24"	INTERSTATE ROUTE MARKER (Post and installation only)		10	
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)		10	
M1-4-24	24"x24"	U.S. ROUTE MARKER (Post and installation only)		10	
M1-5-24	24"x24"	STATE ROUTE MARKER (Post and installation only)		10	
M3-1-24	24"x12"	NORTH (Mounted on route marker post)		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	
M3-3-36	36"x18"	SOUTH (Mounted on route marker post)		10	
M3-4-24	24"x12"	WEST (Mounted on route marker post)		7	
M4-8-24	24"x12"	DETOUR (Mounted on route marker post)		7	
M4-8-36	36"x18"	DETOUR (Mounted on route marker post)		10	
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT		15	
M4-10-48	48"x18"	DETOUR ARROW RIGHT or LEFT		23	
M5-1-21	21"x15"	ARROW AHD AND RT or LT(Mounted on route marker post)		7	
M5-2-21	21"x15"	ARROW AHD UP & RT or LT (Mounted on route marker post)		7	
M5-2-30	**30"x15"**	**ARROW AHD UP & RT or LT (Mounted on route marker post)**	**1**	**8**	**8**
M6-1-21	21"x15"	ARROW RT or LT (Mounted on route marker post)		7	
M6-1-30	30"x15"	ARROW RT or LT (Mounted on route marker post)		8	
M6-2-21	21"x15"	ARROW UP & RT or LT (Mounted on route marker post)		7	
M6-2-30	**30"x15"**	**ARROW UP & RT or LT (Mounted on route marker post)**	**1**	**8**	**8**
M6-3-21	21"x15"	ARROW AHD (Mounted on route marker post)		7	
R1-1-48	**48"x48"**	**STOP**	**4**	**32**	**128**
R1-1a-18	**18"x18"**	**STOP and SLOW PADDLE Back to Back**	**4**	**5**	**20**
R1-2-60	**60"x60"**	**YIELD**	**2**	**29**	**58**
R2-1-48	**48"x60"**	**SPEED LIMIT __**	**26**	**39**	**1014**
R2-1a-24	**24"x18"**	**MINIMUM FEE $80 (Mounted on Speed Limit post)**	**8**	**10**	**80**
R3-7-48	48"x48"	LEFT or RIGHT LANE MUST TURN LEFT or RIGHT		35	
R4-1-48	**48"x60"**	**DO NOT PASS**	**10**	**39**	**390**
R4-7-48	**48"x60"**	**KEEP RIGHT SYMBOL**	**2**	**39**	**78**
R5-1-48	48"x48"	DO NOT ENTER		35	
R6-1-36	36"x12"	ONE WAY RIGHT or LEFT		13	
R7-1-12	12"x18"	NO PARKING		11	
R10-6-24	24"x36"	STOP HERE ON RED		16	
R11-2-48	**48"x30"**	**ROAD CLOSED**	**11**	**28**	**308**
R11-2a-48	48"x30"	STREET CLOSED		28	
R11-3a-60	60"x30"	ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY		31	
R11-3c-60	60"x30"	STREET CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY		31	
R11-4a-60	60"x30"	STREET CLOSED TO THRU TRAFFIC		31	
W1-3-48	48"x48"	RIGHT or LEFT SHARP REVERSE CURVE ARROW		35	
W1-4-48	**48"x48"**	**RIGHT or LEFT REVERSE CURVE ARROW**	**4**	**35**	**140**
W1-4b-48	48"x48"	DOUBLE RIGHT or LEFT REVERSE CURVE ARROW		35	
W1-6-48	**48"x24"**	**LARGE ARROW**	**1**	**26**	**26**
W3-1-48	48"x48"	STOP AHEAD SYMBOL		35	
W3-3-48	48"x48"	SIGNAL AHEAD SYMBOL		35	
W3-4-48	**48"x48"**	**BE PREPARED TO STOP**	**2**	**35**	**70**
W3-5-48	**48"x48"**	**SPEED REDUCTION AHEAD**	**6**	**35**	**210**
W4-2-48	**48"x48"**	**RIGHT or LEFT LANE TRANSITION SYMBOL**	**12**	**35**	**420**
W5-1-48	48"x48"	ROAD NARROWS		35	
W5-4-48	**48"x48"**	**RAMP NARROWS**	**3**	**35**	**105**
W5-8-48	**48"x48"**	**THRU TRAFFIC RIGHT LANE**	**1**	**35**	**35**
W5-9-48	**48"x48"**	**ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW**	**1**	**35**	**35**
W6-3-48	**48"x48"**	**TWO WAY TRAFFIC SYMBOL**	**28**	**35**	**980**
W8-1-48	**48"x48"**	**BUMP**	**1**	**35**	**35**
W8-3-48	48"x48"	PAVEMENT ENDS		35	
W8-7-48	48"x48"	LOOSE GRAVEL		35	
W8-9a-48	48"x48"	SHOULDER DROP-OFF		35	
W8-11-48	48"x48"	UNEVEN LANES		35	
W8-12-48	48"x48"	NO CENTER STRIPE		35	
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY		35	
W8-54-48	**48"x48"**	**TRUCKS ENTERING AHEAD or __ FT.**	**2**	**35**	**70**
W8-55-48	**48"x48"**	**TRUCKS CROSSING AHEAD or __ FT.**	**2**	**35**	**70**
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY		35	
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL		35	
W12-2-48	48"x48"	LOW CLEARANCE SYMBOL		35	
W13-1-24	**24"x24"**	**__ MPH ADVISORY SPEED PLATE (Mounted on warning sign post)**	**2**	**11**	**22**
W13-4-36	**36"x36"**	**ON RAMP**	**4**	**15**	**60**
W13-4-48	**48"x60"**	**RAMP ARROW**	**1**	**39**	**39**
W14-3-48	48"x36"	NO PASSING ZONE		23	
W20-1-48	**48"x48"**	**ROAD WORK AHEAD or _FT or _ MILE**	**22**	**35**	**770**
W20-2-48	48"x48"	DETOUR AHEAD or __ FT		35	
W20-3-48	48"x48"	ROAD or STREET CLOSED AHEAD or __ FT.		35	
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or __ FT.		35	
W20-5-48	**48"x48"**	**RIGHT or LEFT LANE CLOSED AHEAD or __ FT.**	**20**	**35**	**700**

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
W20-7a-48	**48"x48"**	**FLAGGING SYMBOL**	**4**	**35**	**140**
W20-7k-24	24"x18"	__ FEET (Mounted on warning sign post)		10	
W20-8-48	48"x48"	STREET CLOSED		35	
W20-51-48	48"x48"	EQUIPMENT WORKING		35	
W20-52-54	**54"x12"**	**NEXT __ MILES (Mounted on warning sign post)**	**31**	**12**	**372**
W21-1a-48	48"x48"	WORKERS SYMBOL		35	
W21-2-48	48"x48"	FRESH OIL		35	
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or __ FT		35	
W21-5-48	**48"x48"**	**SHOULDER WORK**	**2**	**35**	**70**
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED		35	
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or __ FT.		35	
W21-6a-48	48"x48"	SURVEY CREW AHEAD		35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or __ FT.		35	
W21-51-48	48"x48"	MATERIAL ON ROADWAY		35	
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK		35	
	24"x24"	TAKE TURNS (6" D letters) (Mounted on stop sign post)		11	

SPECIAL SIGNS

Consign 3	**60"x30"**	**EXIT 1**	**2**	**31**	**62**
Consign 4	**54"x54"**	**EXIT 8 UP-RIGHT ARROW**	**1**	**40**	**40**
Consign 5	**90"x84"**	**HANKINSON-FAIRMONT UP-RIGHT ARROW**	**1**	**83**	**83**
Consign 6	**90"x78"**	**HANKINSON - FAIRMONT - 1 MILE**	**1**	**79**	**79**
Consign 7	**60"x30"**	**EXIT 8**	**2**	**31**	**62**
Consign 8	**54"x54"**	**EXIT 1 UP-RIGHT ARROW**	**1**	**40**	**40**
Consign 1	**60"x54"**	**RICHLAND COUNTY 1E - 1 MILE**	**1**	**42**	**42**
Consign 2	**36"x54"**	**RICHLAND COUNTY 1E**	**1**	**32**	**32**

SPEC & CODE

704-1000	**TRAFFIC CONTROL SIGNS**	**TOTAL UNITS**	**7748**

SPEC & CODE	DESCRIPTION	UNIT	QUANTITY
704-0100	**FLAGGING**	**MHR**	**100**
704-1041	ATTENUATION DEVICE-TYPE B-55	EACH	
704-1043	ATTENUATION DEVICE-TYPE B-65	EACH	
704-1044	ATTENUATION DEVICE-TYPE B-70	EACH	
704-1045	**ATTENUATION DEVICE-TYPE B-75**	**EACH**	**2**
704-1050	TYPE I BARRICADES	EACH	
704-1051	TYPE II BARRICADES	EACH	
704-1052	**TYPE III BARRICADES**	**EACH**	**51**
704-1060	**DELINEATOR DRUMS**	**EACH**	**554**
704-1065	TRAFFIC CONES	EACH	
704-1067	**TUBULAR MARKERS**	**EACH**	**155**
704-1070	**DELINEATOR**	**EACH**	**365**
704-1072	**FLEXIBLE DELINEATORS**	**EACH**	**749**
704-1081	**VERTICAL PANELS - BACK TO BACK**	**EACH**	**26**
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**
704-1088	**SEQUENCING ARROW PANEL - TYPE C - CROSSOVER**	**EACH**	**2**
704-1090	**FLASHING BEACON**	**EACH**	**2**
704-1095	TYPE B FLASHERS	EACH	
704-1500	**OBLITERATION OF PVMT MK**	**SF**	**7202**
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF	
704-3510	**PRECAST CONCRETE MED BARRIER - STATE FURNISHED**	**EACH**	**79**
762-0200	**RAISED PAVEMENT MARKERS**	**EACH**	**29271**
762-0420	SHORT TERM 4IN LINE - TYPE R	LF	
762-0430	SHORT TERM 4IN LINE - TYPE NR	LF	
762-1104	**PVMT MK PAINTED 4IN LINE**	**LF**	**59753**
772-2110	FLASHING BEACON - POST MOUNTED	EACH	

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

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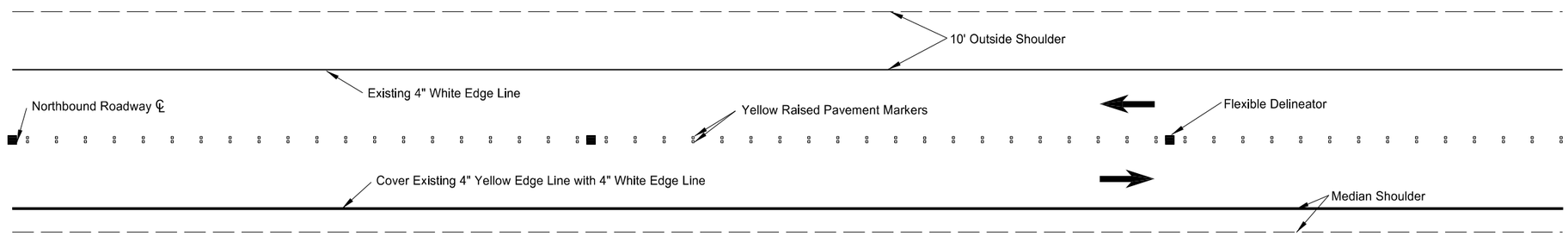
Traffic Control Devices List

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	100	2



TWO-WAY TRAFFIC ON A SINGLE TWO-LANE ROADWAY:

Center Line has been obliterated
Flexible Delineators installed @ 100' centers
Two rows of Yellow Raised Pavement markers installed @ 5' centers - 4" Between
Median 4" Yellow Edge line covered by placing 4" White Edge Line on top.

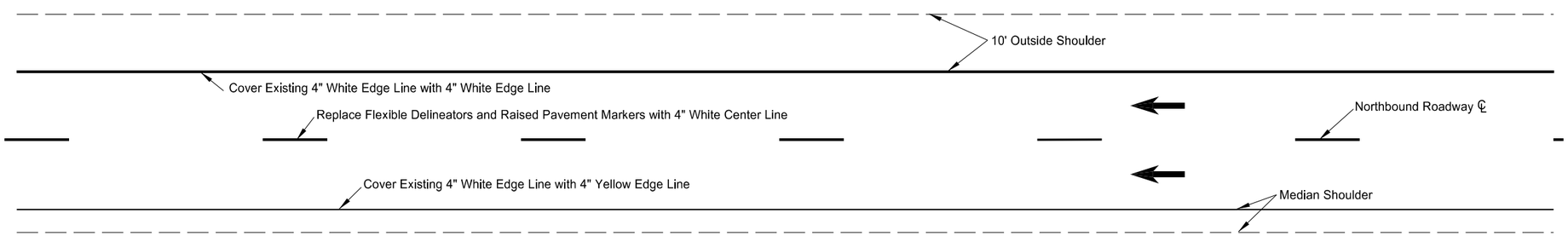
FLEXIBLE DELINEATORS @ 100' CENTERS
Sta 1681+52.90 to 1798+26.70 Bk = 1798+26.10 to 2277+08.24 Bk = 0+00.00 Ahd to 25+99.30 Bk = 24+52.75 Ahd to 30+50.00 629 EA

RAISED PAVEMENT MARKERS @ 5' CENTERS (℄ Dbl Yellow)
Sta 1681+52.90 to 1798+26.70 Bk = 1798+26.10 to 2277+08.24 Bk = 0+00.00 Ahd to 25+99.30 Bk = 24+52.75 Ahd to 30+50.00 25,104 EA

*PAVEMENT MK PAINTED 4IN LINE (Median White Edge Line)
Sta 1681+52.90 to 1798+26.70 Bk = 1798+26.10 to 2277+08.24 Bk = 0+00.00 Ahd to 25+99.30 Bk = 24+52.75 Ahd to 30+50.00 59,753 LF

OBLITERATION OF PVMT MK (℄ Skips)
Sta 1681+52.90 to 1798+26.70 Bk = 1798+26.10 to 2277+08.24 Bk = 0+00.00 Ahd to 25+99.30 Bk = 24+52.75 Ahd to 30+50.00 5,229 SF

*Provide 3 gaps in pavement marking (1000 LF each) to accommodate ramp connection traffic.



TO RETURN TRAFFIC TO NORMAL FOUR LANE DIVIDED OPERATION

Remove Flexible Delineators and Raised Pavement Markers.
Place 4" White Center Line.
Place 4" Yellow Edge Line over Median 4" White Edge Line.
Place 4" White Edge Line over Outside 4" White Edge Line.

Note: See Section 10 for pavement marking quantities for northbound roadway.

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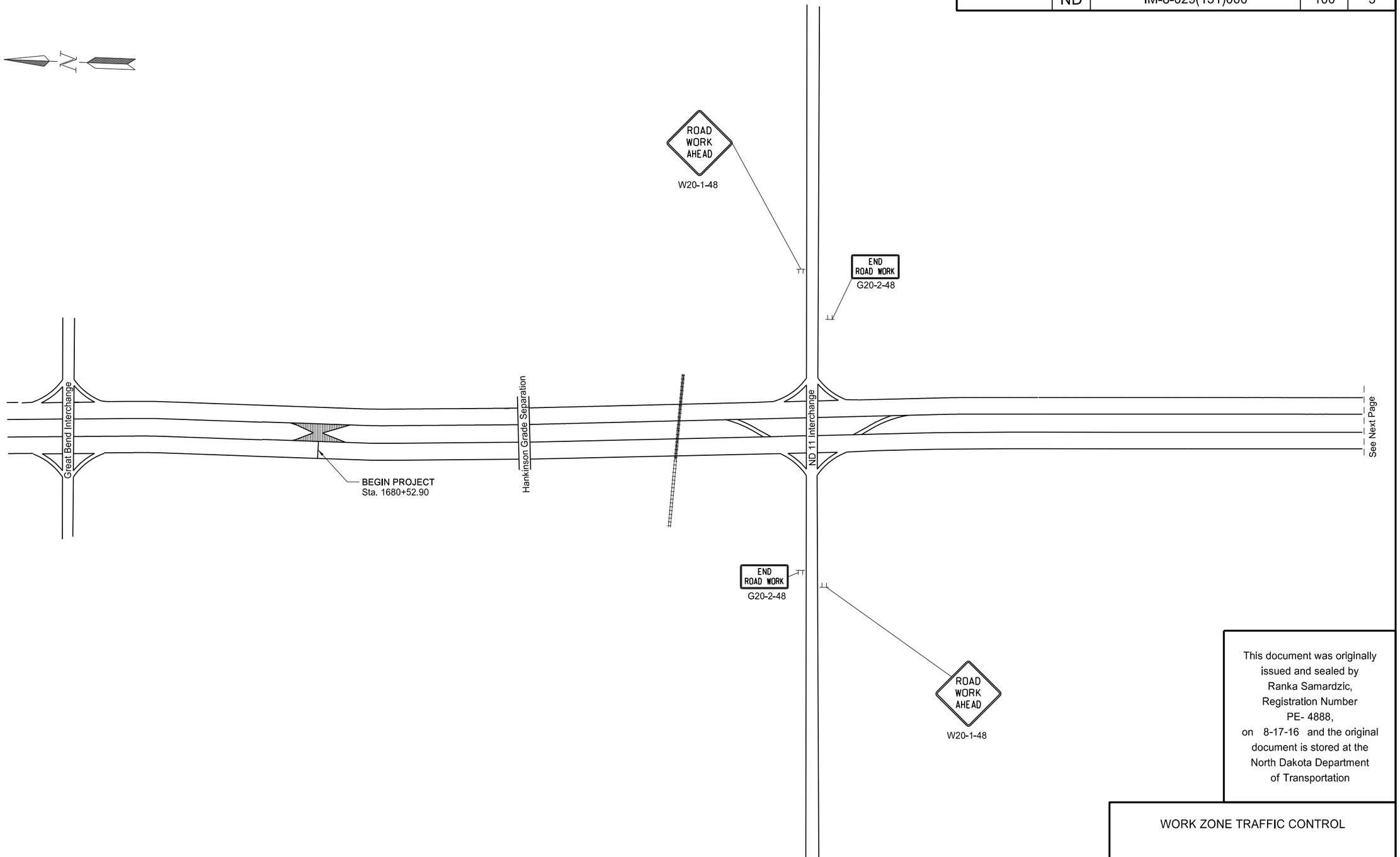
TRAFFIC CONTROL FOR TWO-WAY INTERSTATE TRAFFIC ON ONE ROADWAY

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	100	3



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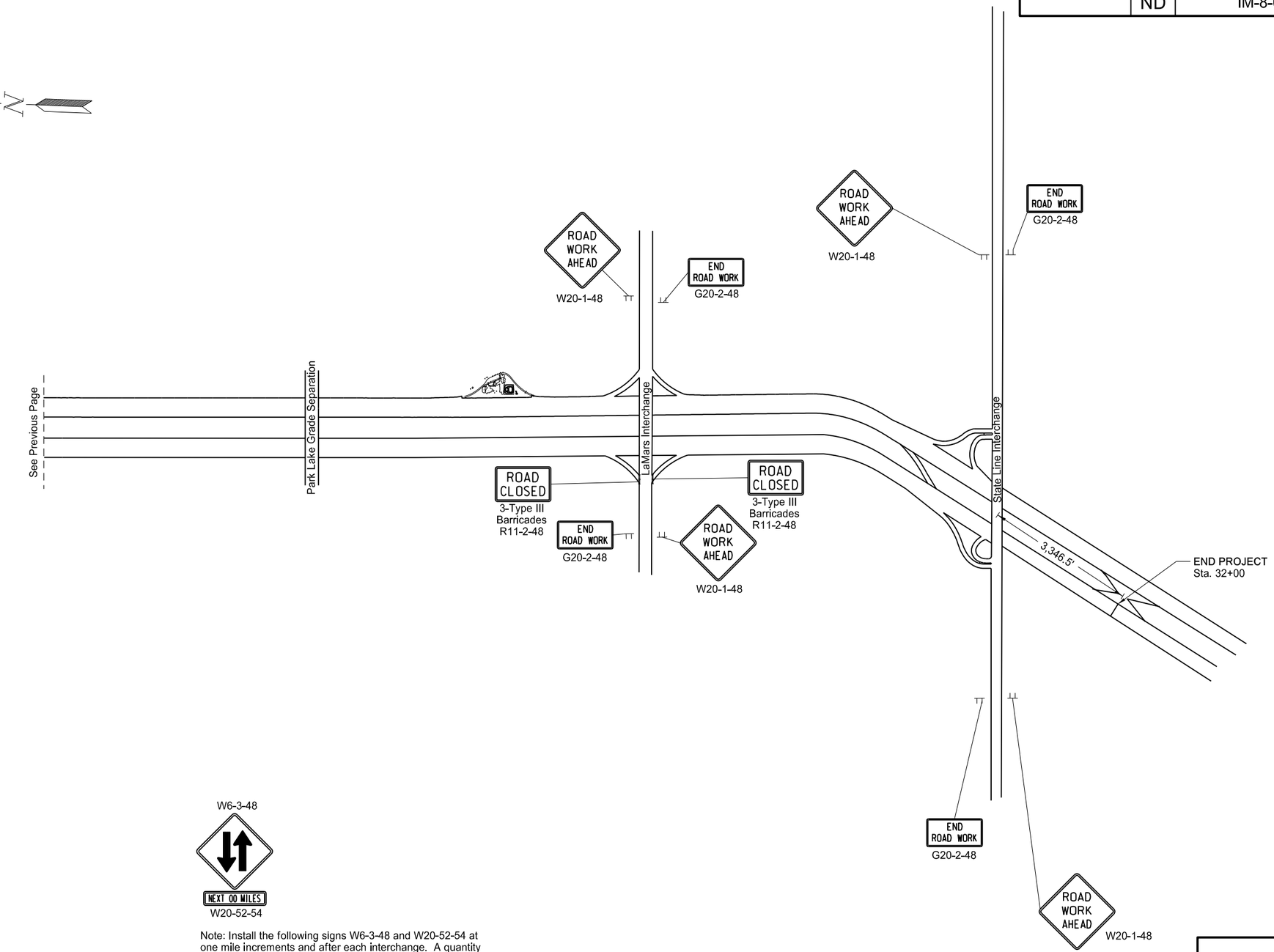
WORK ZONE TRAFFIC CONTROL

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	100	4



Note: Install the following signs W6-3-48 and W20-52-54 at one mile increments and after each interchange. A quantity of 26 has been provided for each sign on the traffic control devices list.

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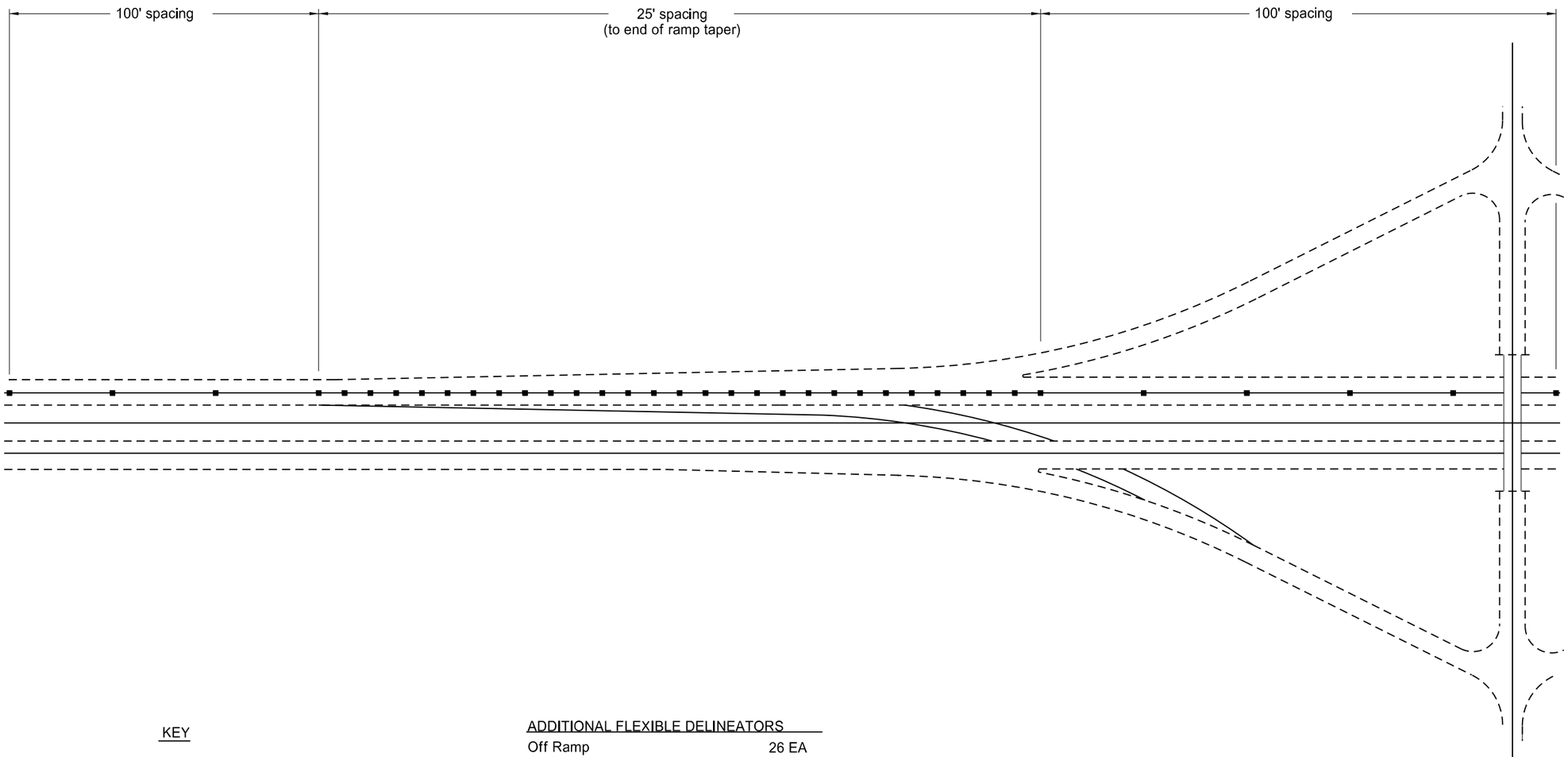
WORK ZONE TRAFFIC CONTROL

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	100	5



KEY

■ FLEXIBLE DELINEATOR

ADDITIONAL FLEXIBLE DELINEATORS	
Off Ramp	26 EA
On Ramp	40 EA
TOTAL PER INTERCHANGE	66 EA

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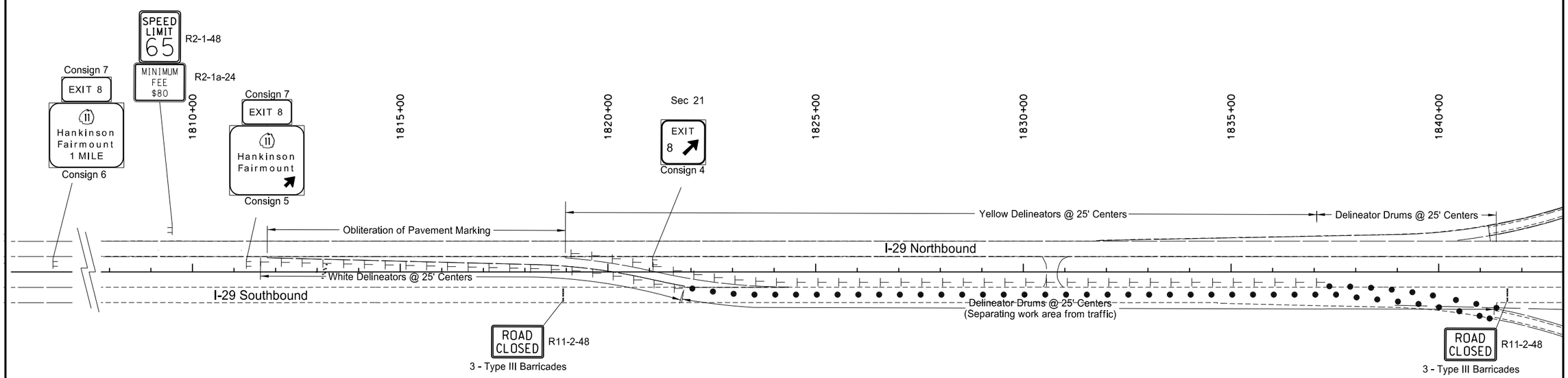
MAINLINE TRAFFIC CONTROL AT RAMPS

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	100	6



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DELINEATOR DRUMS
95 EA

DELINEATORS
White 42 EA
Yellow 73 EA

RAISED PAVEMENT MARKERS @ 5' CENTERS
White 595 EA
Yellow 452 EA

OBLITERATION OF PAVEMENT MARKING (Northbound Edge Line)
240 SF

TYPE III BARRICADES
6 EA

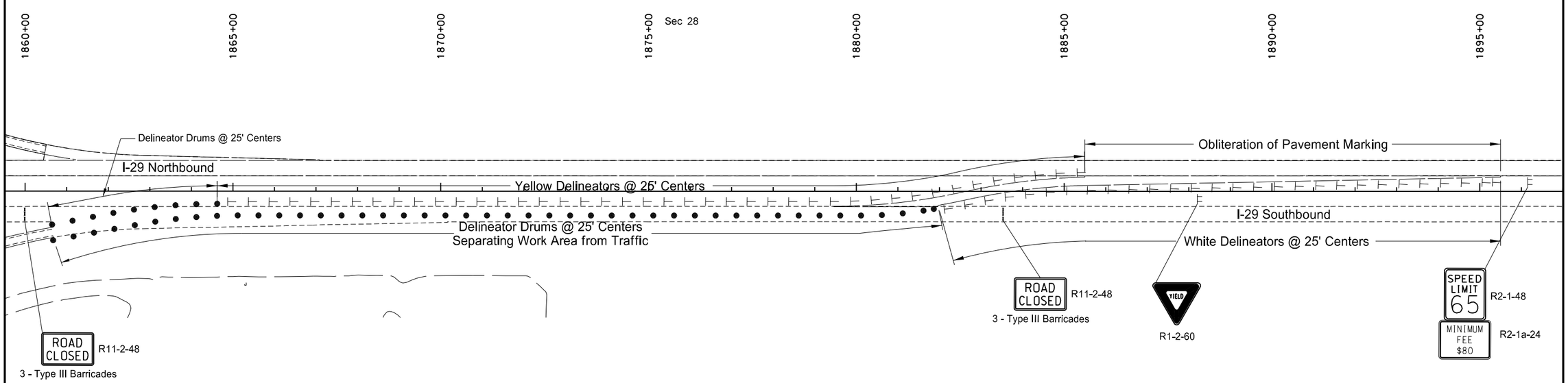
Note: This traffic control plan layout is to be used when traffic is using the east lane of the southbound roadway.
Adjust the traffic control plan accordingly when traffic is using the west lane of the southbound roadway.

RAMP CONNECTION WORK ZONE SIGN LAYOUT
ND 11 Interchange NW Ramp

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of State Line N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	100	7



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DELINEATOR DRUMS
103 EA

DELINEATORS
White 54 EA
Yellow 83 EA

RAISED PAVEMENT MARKERS @ 5' CENTERS
White 700 EA
Yellow 500 EA

OBLITERATION OF PAVEMENT MARKING (Northbound Edge Line)
334 SF

TYPE III BARRICADES
6 EA

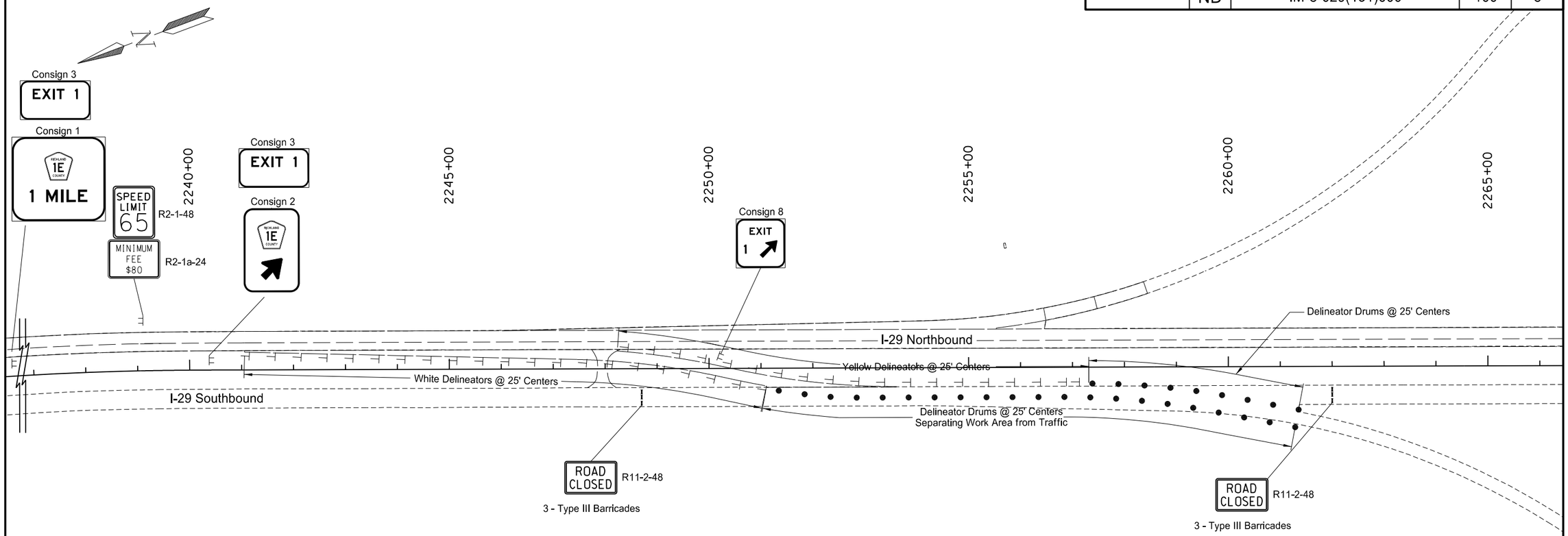
Note: This traffic control plan layout is to be used when traffic is using the east lane of the southbound roadway.
Adjust the traffic control plan accordingly when traffic is using the west lane of the southbound roadway.

RAMP CONNECTION WORK ZONE SIGN LAYOUT
ND 11 Interchange SW Ramp

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of State Line N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	100	8



DELINEATOR DRUMS
58 EA

DELINEATORS
White 41 EA
Yellow 36 EA

RAISED PAVEMENT MARKERS @ 5' CENTERS
White 408 EA
Yellow 266 EA

OBLITERATION OF PAVEMENT MARKING (Northbound Edge Line)
240 SF

TYPE III BARRICADES
6 EA

Note: This traffic control plan layout is to be used when traffic is using the east lane of the southbound roadway. Adjust the traffic control plan accordingly when traffic is using the west lane of the southbound roadway.

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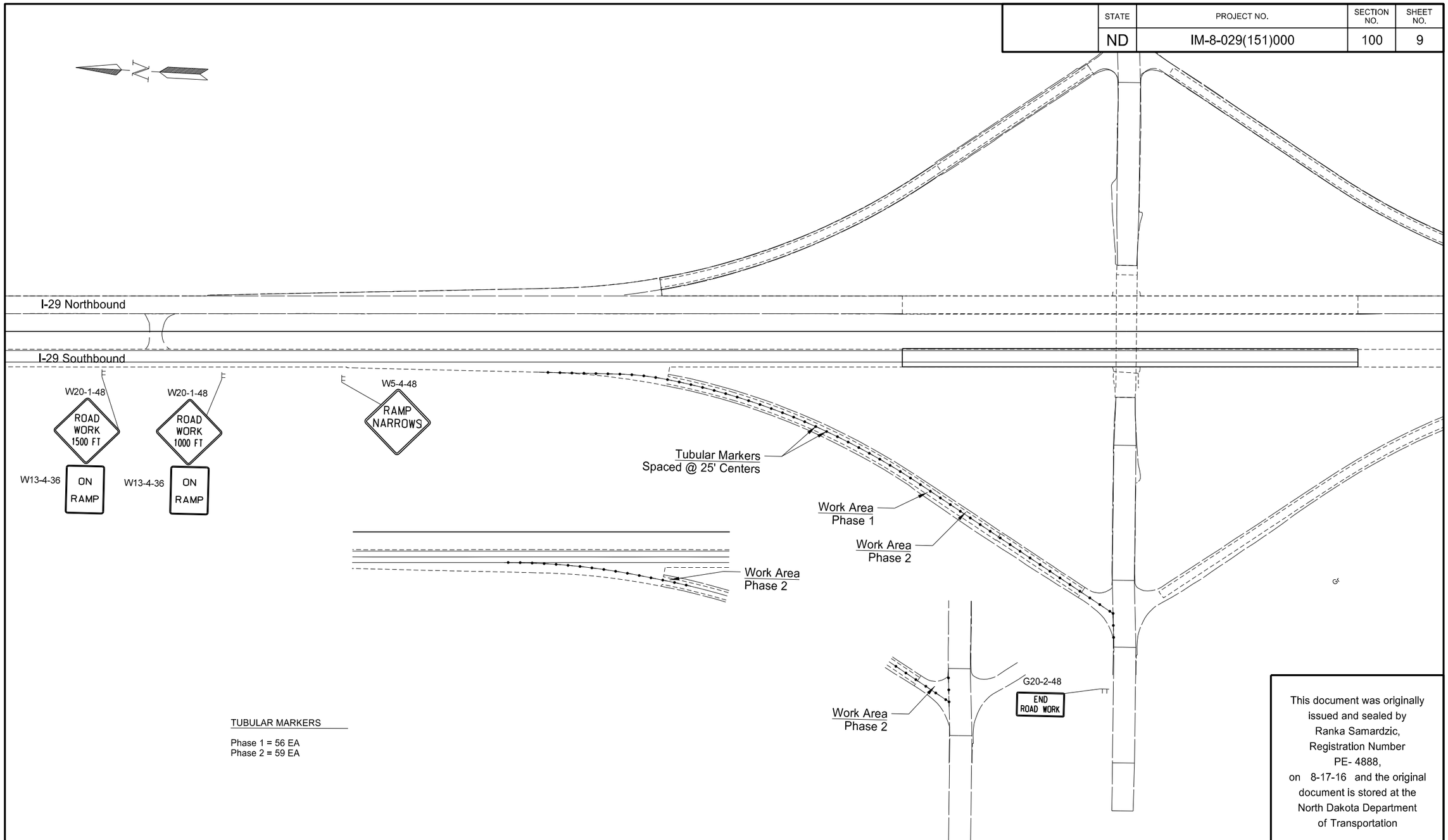
RAMP CONNECTION WORK ZONE SIGN LAYOUT
State Line Interchange NW Ramp

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of State Line N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	100	9



TUBULAR MARKERS

Phase 1 = 56 EA
Phase 2 = 59 EA

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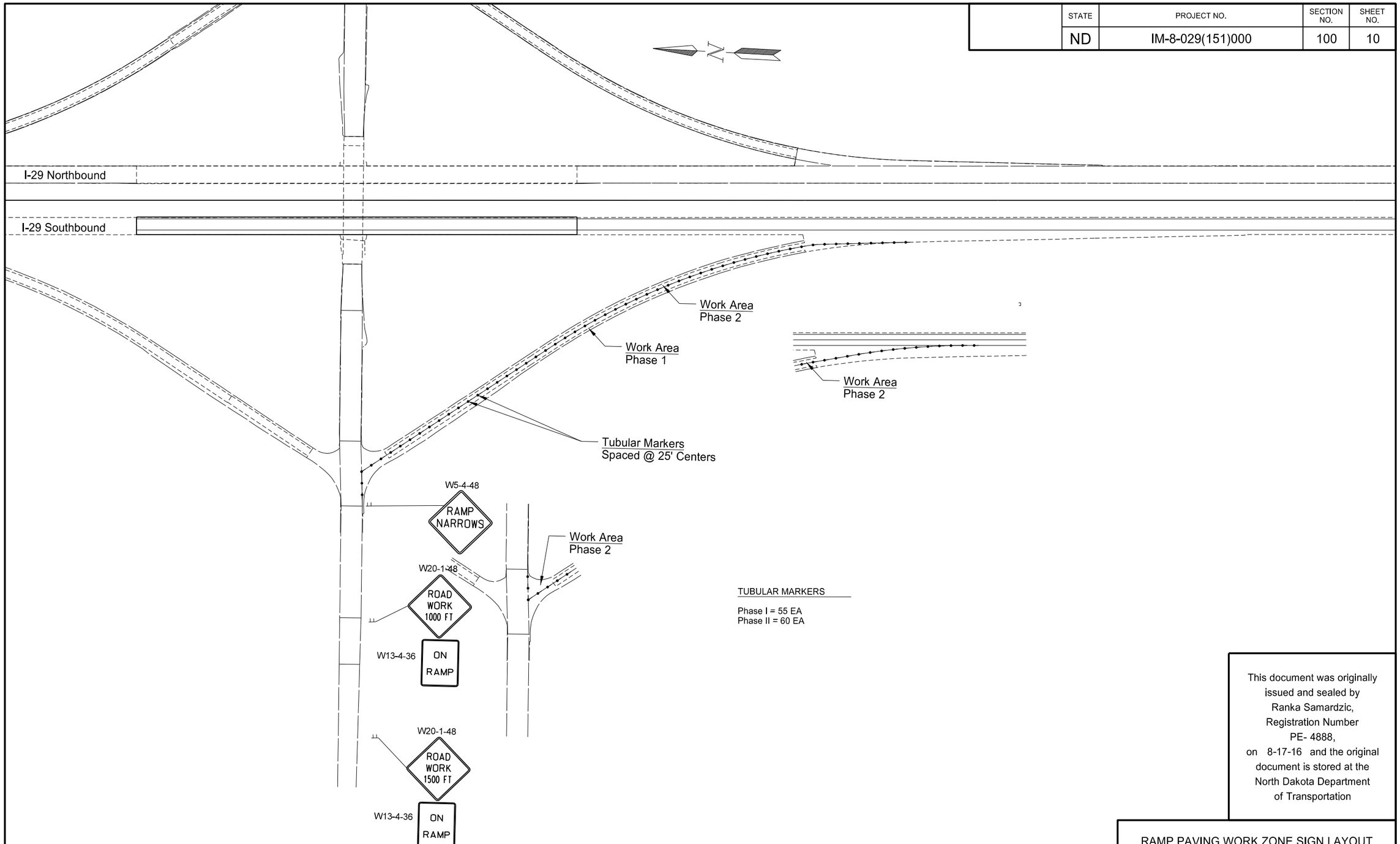
RAMP PAVING WORK ZONE SIGN LAYOUT
ND 11 Interchange NW Ramp

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of State Line N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	100	10



TUBULAR MARKERS

Phase I = 55 EA
Phase II = 60 EA

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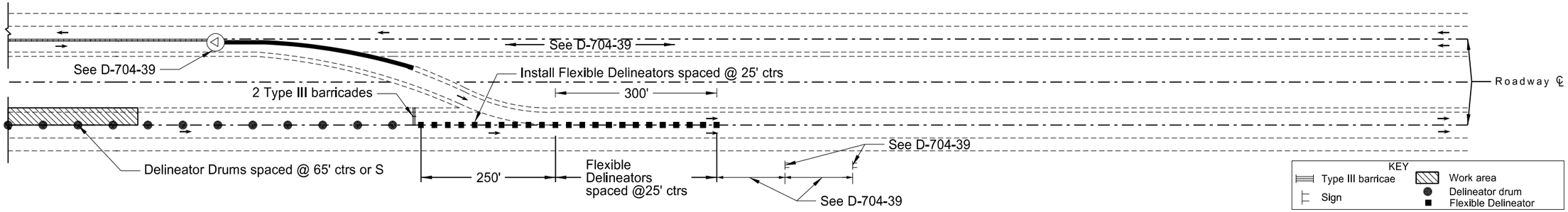
RAMP PAVING WORK ZONE SIGN LAYOUT
ND 11 Interchange SW Ramp

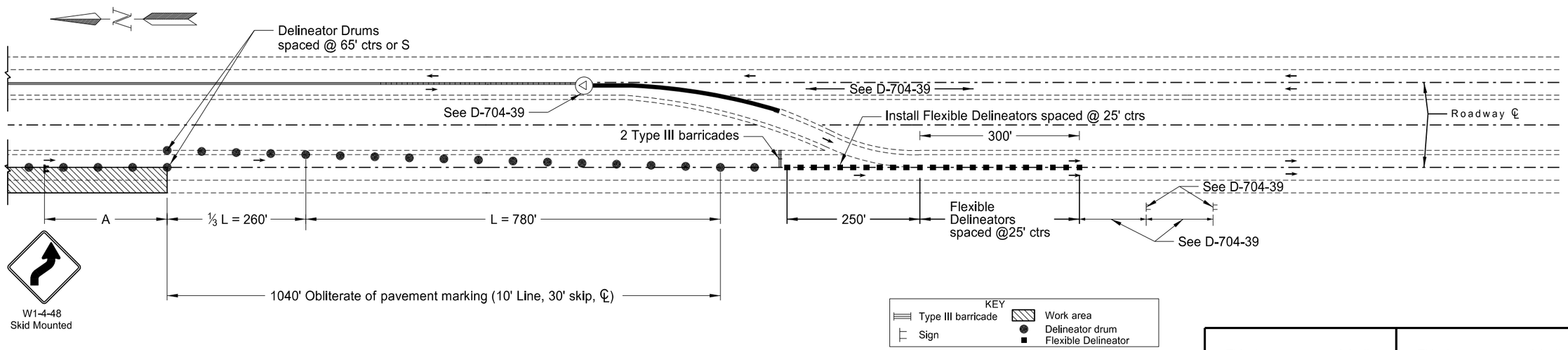
Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of State Line N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	100	11



LAYOUT FOR INSIDE SHOULDER AND PASSING LANE WORK AT BEGIN PROJECT
Merging traffic coming from NW Loop - State Line Interchange
Refer to D-704-39 for all other details



LAYOUT FOR OUTSIDE SHOULDER & DRIVING LANE AT BEGIN PROJECT
Merging traffic coming from NW Loop - State Line Interchange
Refer to D-704-39 for all other details

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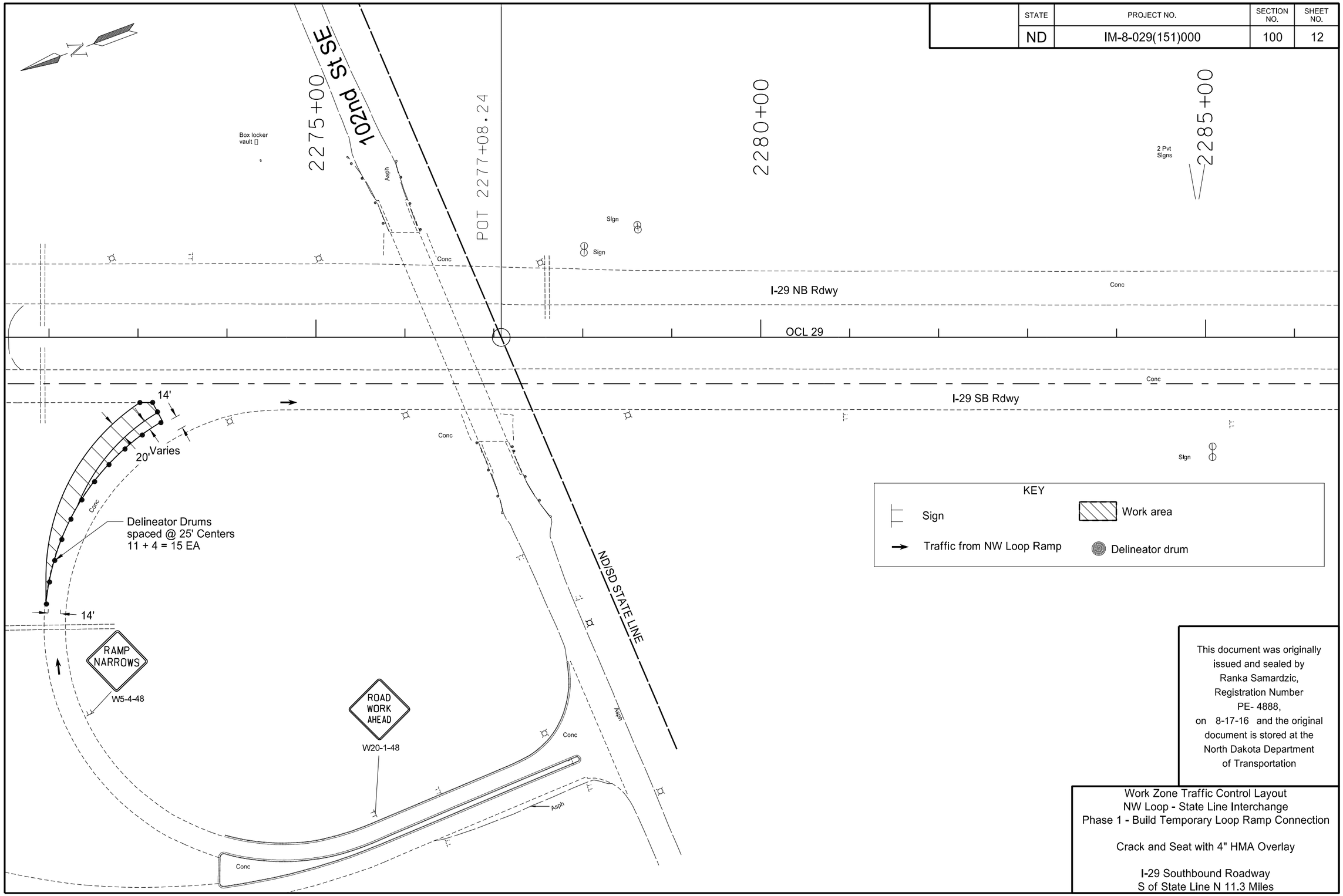
Traffic Control Layout for the South Project End

I-29 Southbound Roadway
South of State Line North 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	100	12



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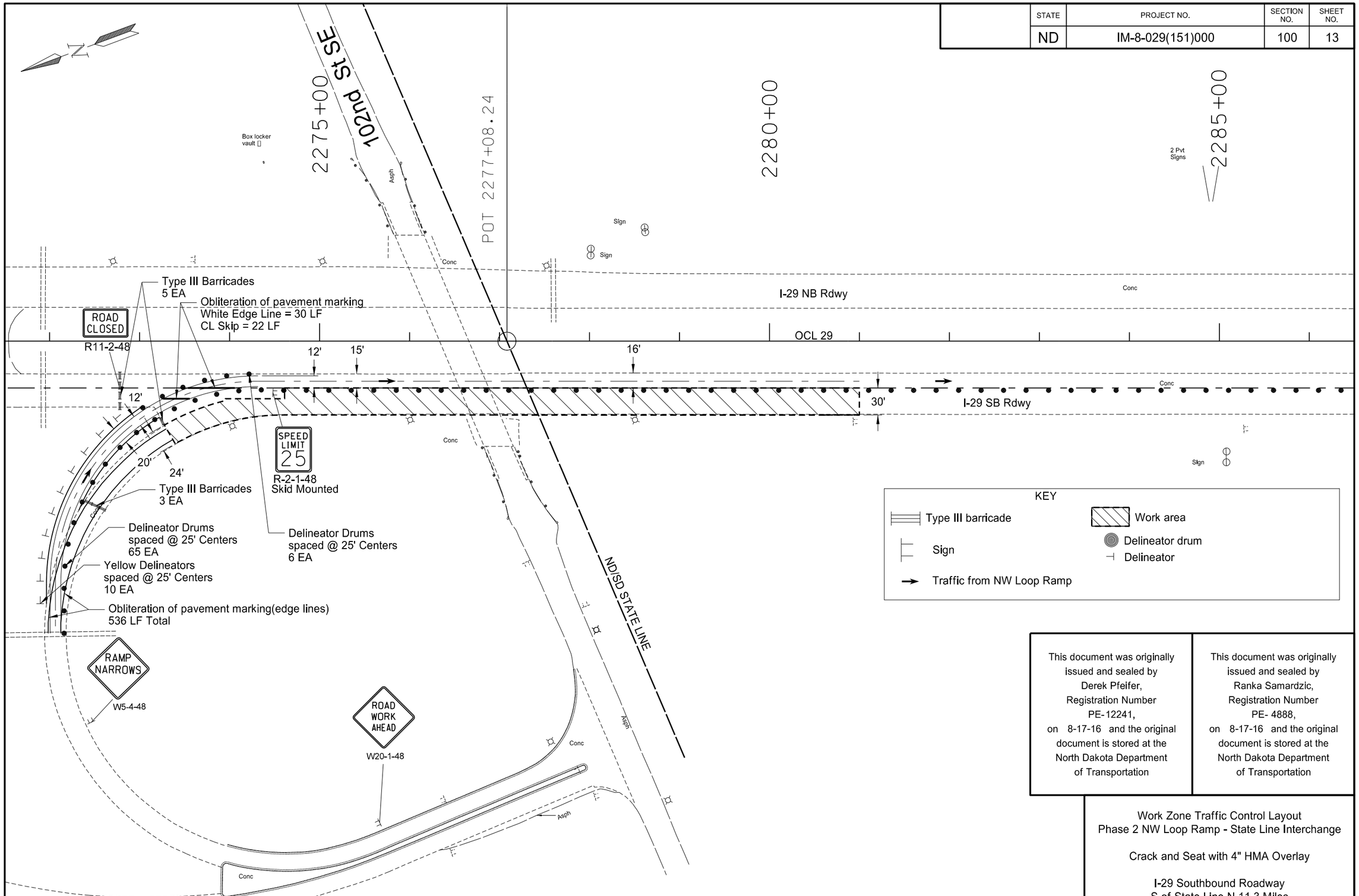
Work Zone Traffic Control Layout
NW Loop - State Line Interchange
Phase 1 - Build Temporary Loop Ramp Connection

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of State Line N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	100	13



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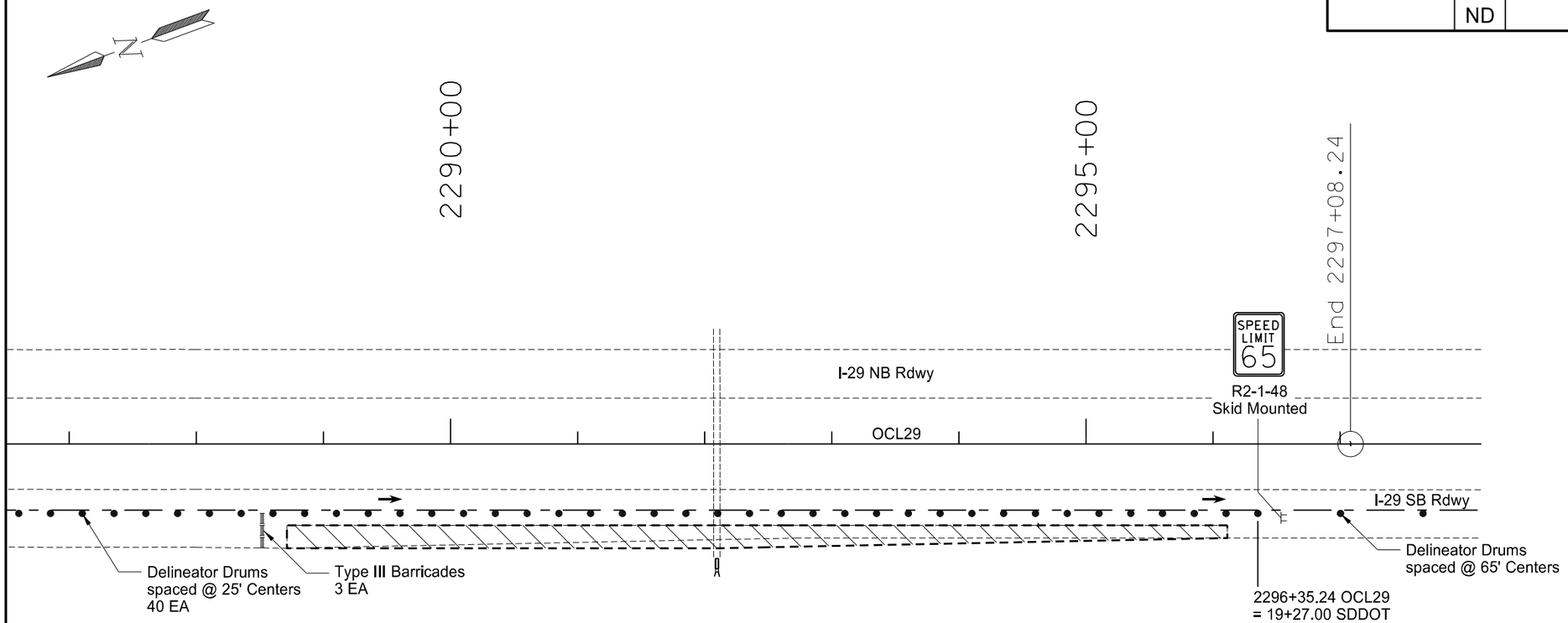
Work Zone Traffic Control Layout
Phase 2 NW Loop Ramp - State Line Interchange

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of State Line N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	100	14



KEY

- Sign
- Traffic from NW Loop Ramp
- Type III barricade
- Work area
- Delineator drum

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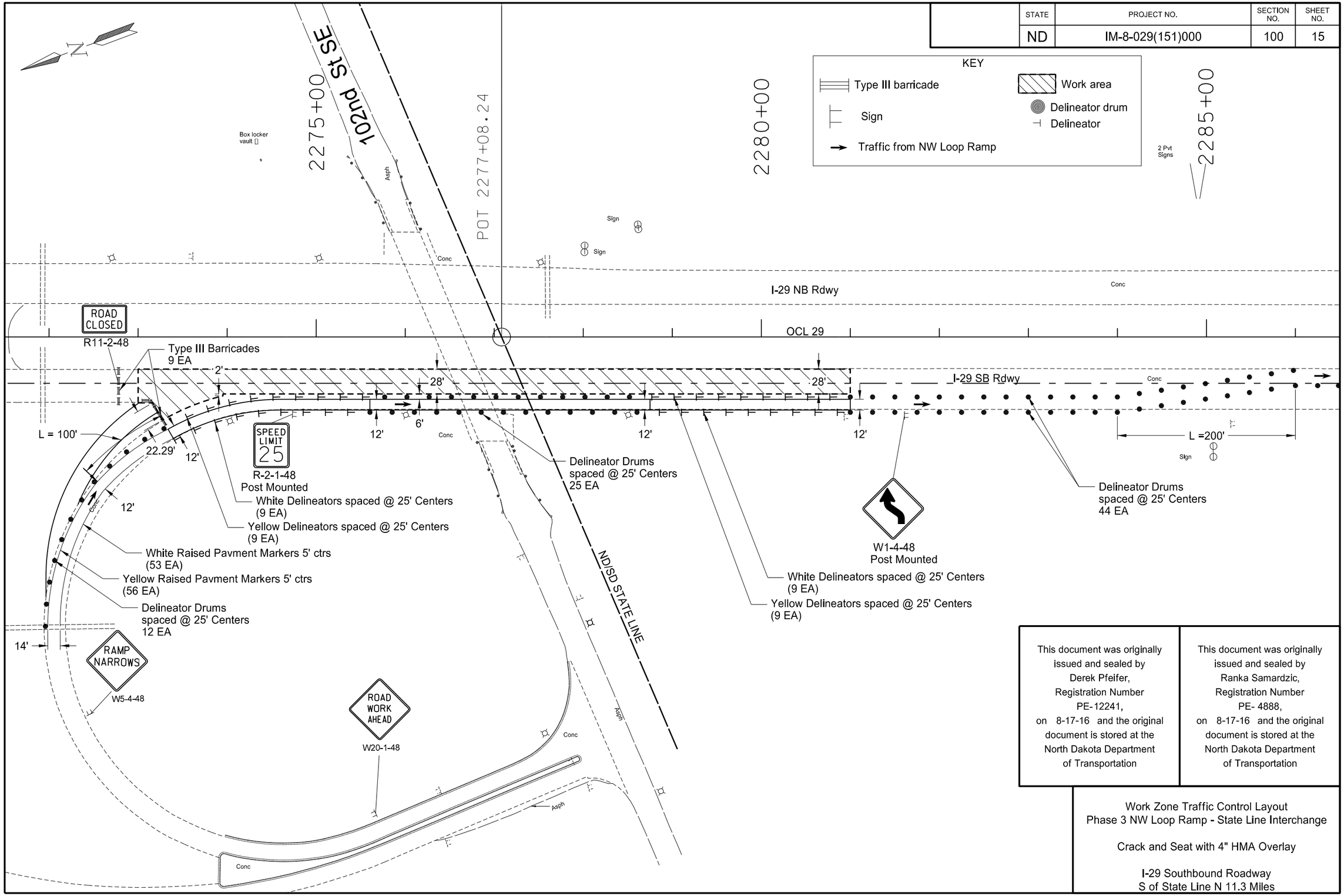
Work Zone Traffic Control Layout
Phase 2 NW Loop Ramp - State Line Interchange

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of State Line N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	100	15



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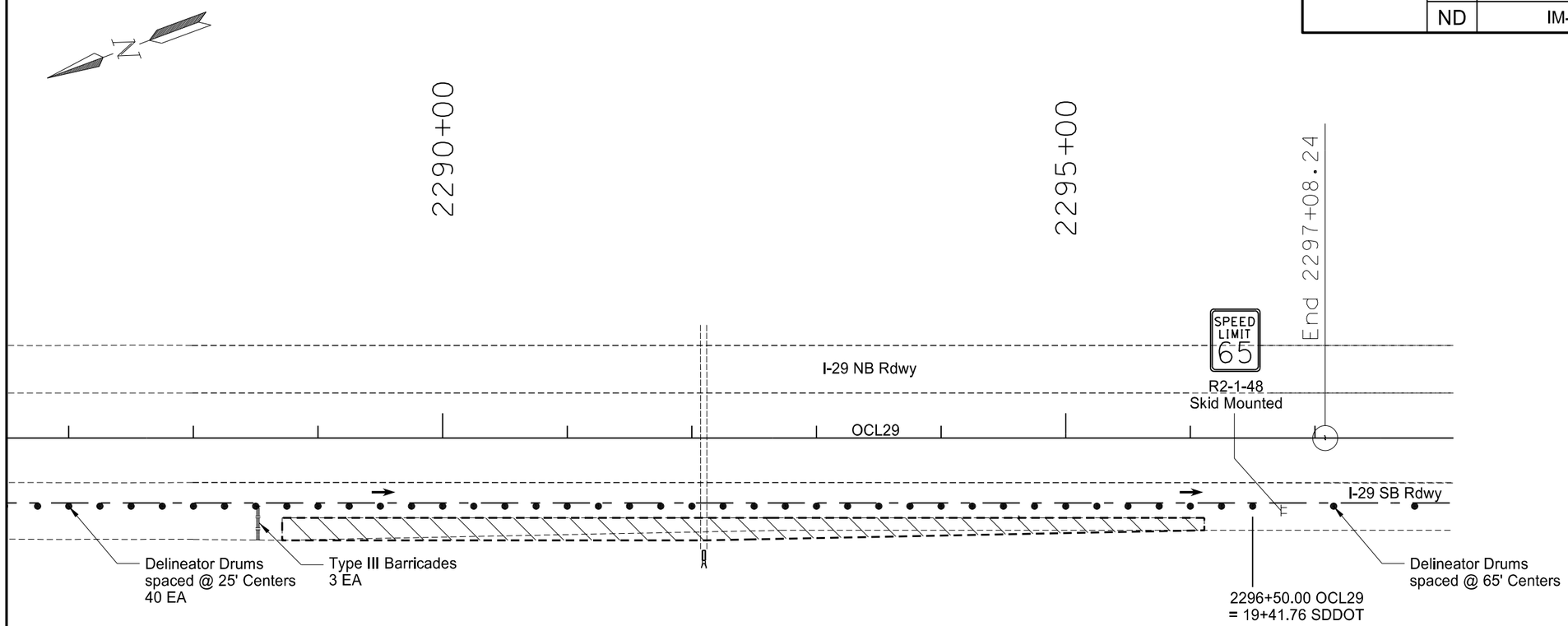
Work Zone Traffic Control Layout
Phase 3 NW Loop Ramp - State Line Interchange

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of State Line N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	100	16



KEY

- Sign
- Traffic from NW Loop Ramp
- Type III barricade
- Work area
- Delineator drum

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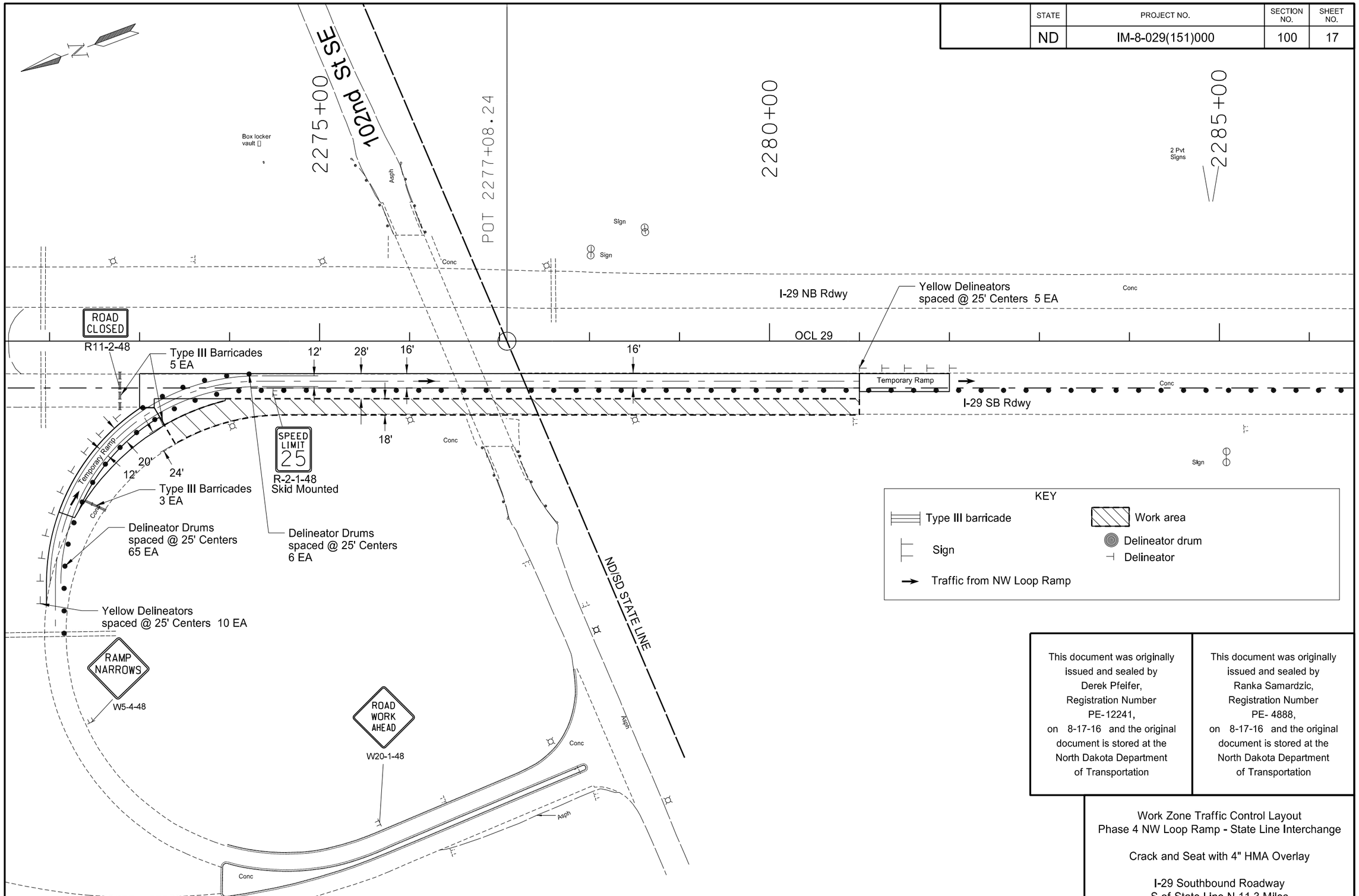
Work Zone Traffic Control Layout
Phase 3 NW Loop Ramp - State Line Interchange

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of State Line N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	100	17



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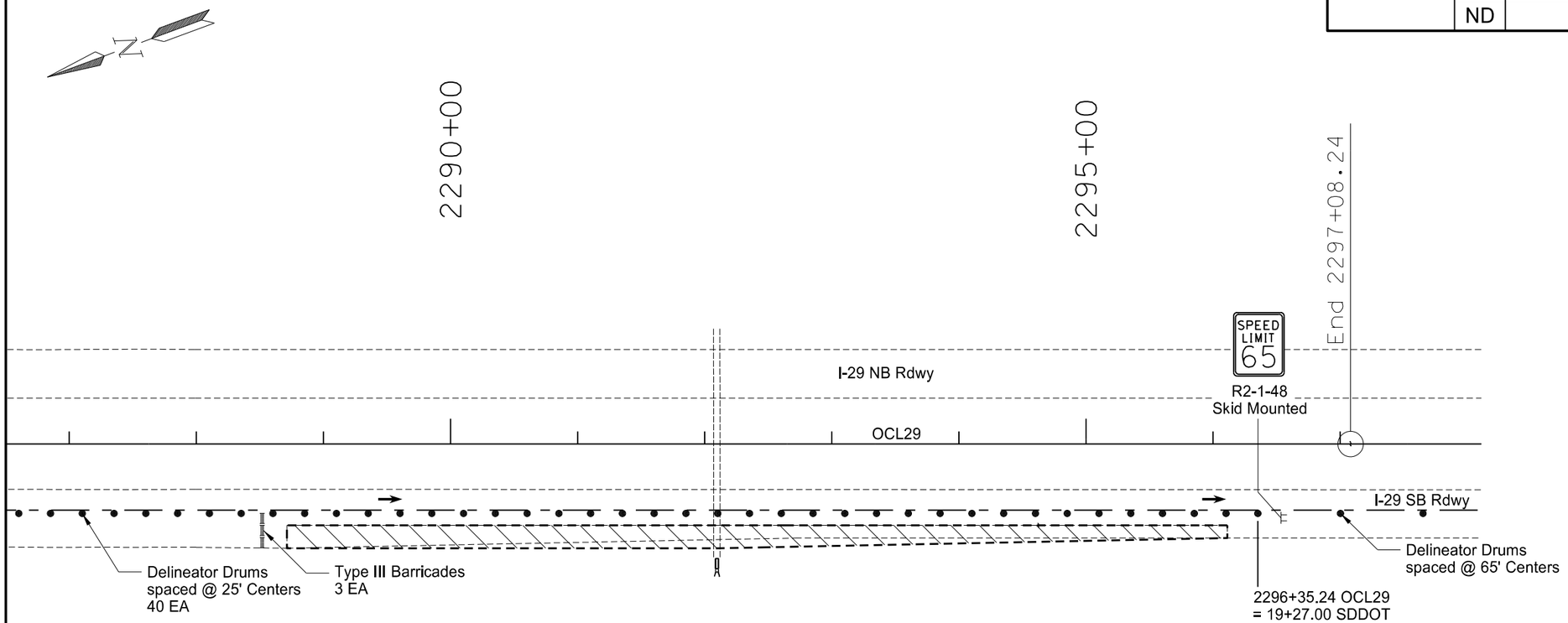
Work Zone Traffic Control Layout
Phase 4 NW Loop Ramp - State Line Interchange

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of State Line N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	100	18



KEY

- Sign
- Traffic from NW Loop Ramp
- Type III barricade
- Work area
- Delineator drum

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Work Zone Traffic Control Layout
Phase 4 NW Loop Ramp - State Line Interchange

Crack and Seat with 4" HMA Overlay

I-29 Southbound Roadway
S of State Line N 11.3 Miles

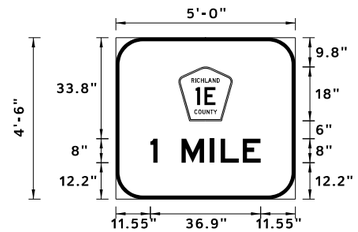
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	100	19

SIGN NUMBER	Consign 1
WIDTH x HEIGHT	5'-0" x 4'-6"
BORDER WIDTH	1.25" (inset 0")
CORNER RADIUS	9"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
M1_6_2	21.1	26.2	17.9	18	0

STATION(S): none

AREA: 22.5 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Const_Guide.ssl

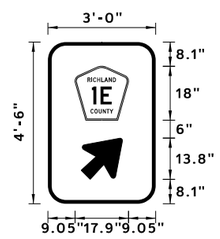
LETTER POSITION (X)					LENGTH	SIZE	SERIES
1	M	I	L	E	36.9	8	E 2000
11.6	22	31.6	35.1	42.4			

SIGN NUMBER	Consign 2
WIDTH x HEIGHT	3'-0" x 4'-6"
BORDER WIDTH	1.25" (inset 0")
CORNER RADIUS	6"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR:

SYMBOL	X	Y	WID	HT	ANGLE
M1_6_2	9.1	27.9	17.9	18	0
ND_8IN_TYPE B	11.1	8.1	15.1	17	315

STATION(S): none

AREA: 13.5 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Const_Guide.ssl

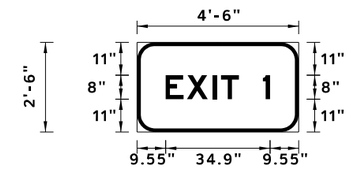
LETTER POSITION (X)	LENGTH	SIZE	SERIES

SIGN NUMBER	Consign 3
WIDTH x HEIGHT	4'-6" x 2'-6"
BORDER WIDTH	1.25" (inset 0")
CORNER RADIUS	6"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S): none

AREA: 11.3 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Const_Guide.ssl

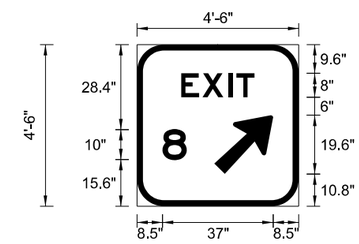
LETTER POSITION (X)					LENGTH	SIZE	SERIES
E	X	I	T	1	34.9	8	E 2000
9.6	16.7	25.2	28	42			

SIGN NUMBER	Consign 4
WIDTH x HEIGHT	4'-6" x 4'-6"
BORDER WIDTH	2" (inset 0")
CORNER RADIUS	9"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
ARGORE	25.9	10.8	15.1	24.9	45

STATION(S): none

AREA: 20.3 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Const_Gore.ssl

LETTER POSITION (X)				LENGTH	SIZE	SERIES
E	X	I	T	24.5	8	E 2000
14.8	21.9	30.4	33.2			
8				8.1	10	E 2000
8.5						

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Construction Signing

I-29 Northbound Roadway

S of State Line N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	100	20

SIGN NUMBER	Consign 5
WIDTH x HEIGHT	7'-6" x 7'-0"
BORDER WIDTH	1.25" (inset 0")
CORNER RADIUS	12"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
M1-5_GS2	36	56.9	18	18	0
AREXIT	64.2	9.1	15.1	17	45

STATION(S): none

AREA: 52.5 Sq.Ft.

Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Const_Guide.ssl

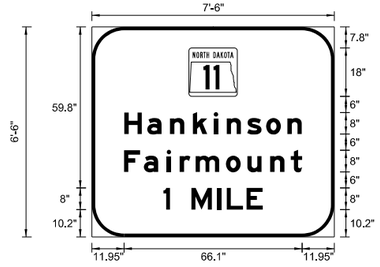
LETTER POSITION (X)									LENGTH	SIZE	SERIES
H	a	n	k	i	n	s	o	n	65.8	8/6	EM 2000
12.1	20.6	29	37.5	45.3	50.1	57.7	64.7	72.6			
F	a	i	r	m	o	u	n	t	66.1	8/6	EM 2000
12	19.3	27.8	32.6	38.5	49.8	57.7	66.2	73.9			

SIGN NUMBER	Consign 6
WIDTH x HEIGHT	7'-6" x 6'-6"
BORDER WIDTH	1.25" (inset 0")
CORNER RADIUS	12"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
M1-5_GS2	36	52.2	18	18	0

STATION(S): none

AREA: 48.8 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Const_Guide.ssl

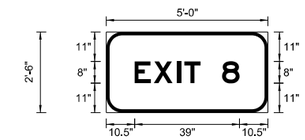
LETTER POSITION (X)									LENGTH	SIZE	SERIES
H	a	n	k	i	n	s	o	n	65.8	8/6	EM 2000
12.1	20.6	29	37.5	45.3	50.1	57.7	64.7	72.6			
F	a	i	r	m	o	u	n	t	66.1	8/6	EM 2000
12	19.3	27.8	32.6	38.5	49.8	57.7	66.2	73.9			
1	M	I	L	E					36.9	8	E 2000
26.6	37	46.6	50.1	57.5							

SIGN NUMBER	Consign 7
WIDTH x HEIGHT	5'-0" x 2'-6"
BORDER WIDTH	1.25" (inset 0")
CORNER RADIUS	6"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S): none

AREA: 12.5 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Const_Guide.ssl

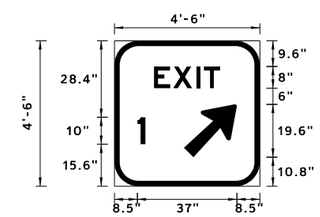
LETTER POSITION (X)									LENGTH	SIZE	SERIES
E	X	I	T	8					39	8	E 2000
10.5	17.6	26.2	29	43							

SIGN NUMBER	Consign 8
WIDTH x HEIGHT	4'-6" x 4'-6"
BORDER WIDTH	2" (inset 0")
CORNER RADIUS	9"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
ARGORE	25.9	10.8	15.1	24.9	45

STATION(S): none

AREA: 20.3 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Const_Gore.ssl

LETTER POSITION (X)									LENGTH	SIZE	SERIES
E	X	I	T						24.5	8	E 2000
14.8	21.9	30.4	33.2								
1									3	10	E 2000
8.5											

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Construction Signing

I-29 Northbound Roadway

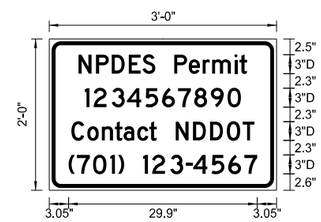
S of State Line N 11.3 Miles

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(159)000	100	21

SIGN NUMBER	NPDES Permit
WIDTH x HEIGHT	3'-0" x 2'-0"
BORDER WIDTH	0.63" (inset 0.38")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: Diamond Grade
	COLOR: Fluorescent Orange
LEGEND/BORDER	TYPE: Non-reflective
	COLOR: Black

SYMBOL	X	Y	WID	HT	ANGLE

AREA: 6.0 Sq.Ft.



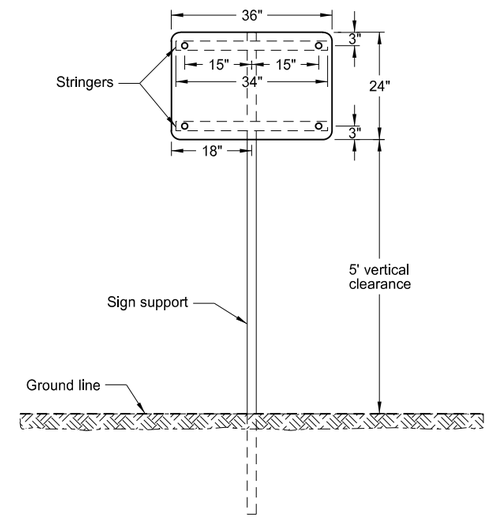
Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

LETTER POSITION (X)																			LENGTH	SIZE	SERIES
N	P	D	E	S		P	e	r	m	i	t								26.7	3/2.3	D 2000
4.7	7.4	9.9	12.6	14.8	16.8	19.8	22.1	24.3	25.8	29.3	30.2										
1	2	3	4	5	6	7	8	9	0		See	Note								3	D 2000
C	o	n	t	a	c	t		N	D	D	O	T							29	3/2.3	D 2000
3.5	6	8.3	10.4	11.8	13.9	15.8	17	20	22.8	25.5	28.1	30.6									
(	7	0	1	)		1	2	3	-	4	5	6	7		See	Note				3	D 2000

Note: Obtain permit number from the NPDES permit.
Obtain phone number from the NDDOT District Office.

Place one sign at the south end of the project. Place one sign at the north end of the former Native American Reservation Boundary at 2256+10.7. Place signs 60' from roadway centerline, on the right hand side visible to traffic entering the project.



NPDES Permit Sign
at construction site

This document was originally issued and sealed by Derek Pfeifer, Registration Number PE- 12241, on 8-17-16 and the original document is stored at the North Dakota Department of Transportation

This document was originally issued and sealed by Ranka Samardzic, Registration Number PE- 4888, on 8-17-16 and the original document is stored at the North Dakota Department of Transportation

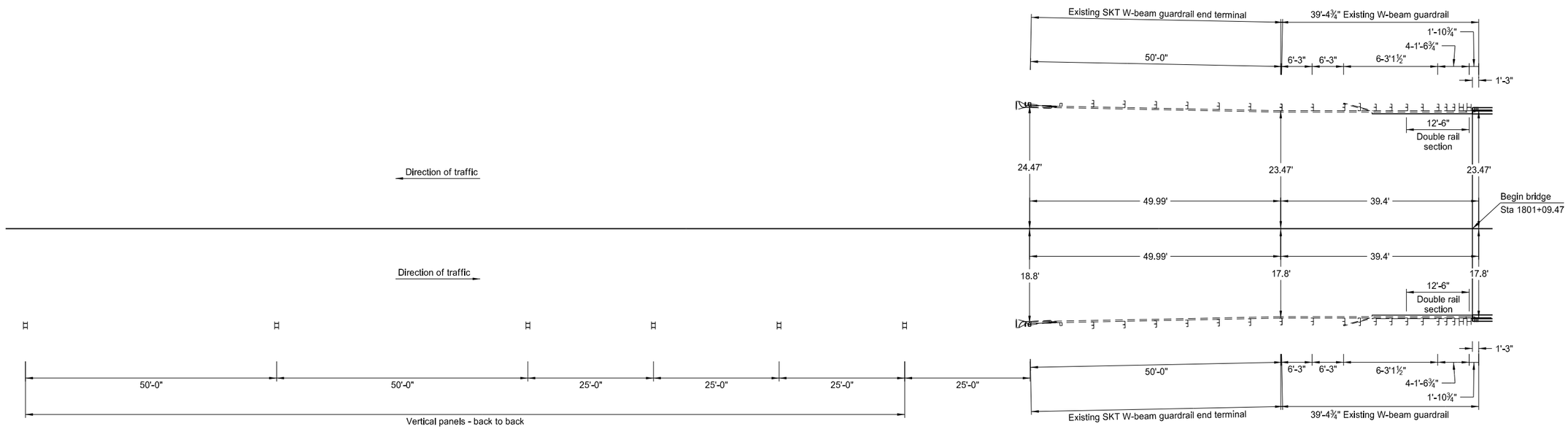
NPDES Permit Sign

Crack and Seat with 4" HBP Overlay

I-29 Southbound Roadway
S of STATE LINE N 11.3 Miles

23 USC § 409 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	100	22



Remove end treatment & transition (A)
2 ea

Remove W-beam guardrail & posts (A)
78.8 LF

Vertical panels - back to back
6 ea

(A) While there is two-way traffic the existing guardrail will remain in place. Remove the existing guardrail after the southbound roadway is opened to traffic.

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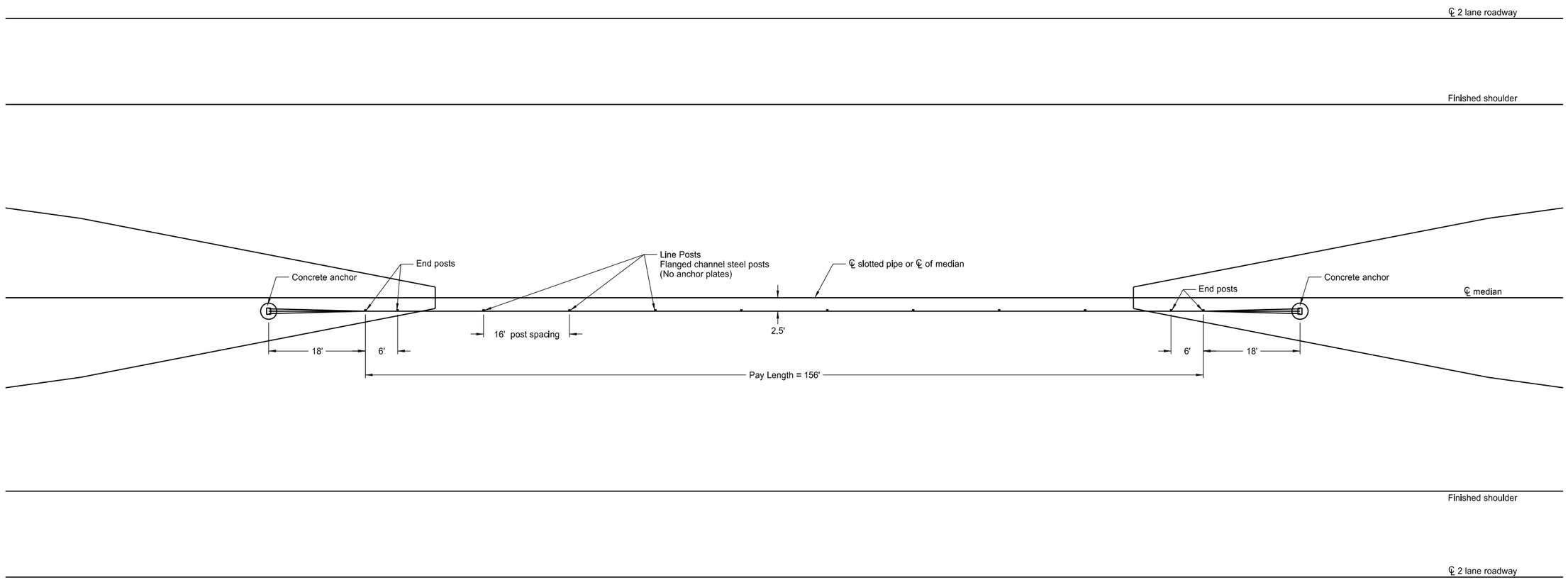
Vertical Panel and W-Beam Guardrail Layout
For Two-Way Traffic Operation

CP Railway Separation
RP 8.999
Northbound Roadway

I-29

23 USC § 409 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	100	23



Remove 3-cable guardrail & posts
156 LF

Reset 3-cable guardrail
156 LF

This document was originally issued and sealed by Derek Pfeifer, Registration Number PE- 12241, on 08/17/16 and the original document is stored at the North Dakota Department of Transportation

This document was originally issued and sealed by Douglas A. Schumaker, Registration Number PE- 5047, on 08/17/16 and the original document is stored at the North Dakota Department of Transportation

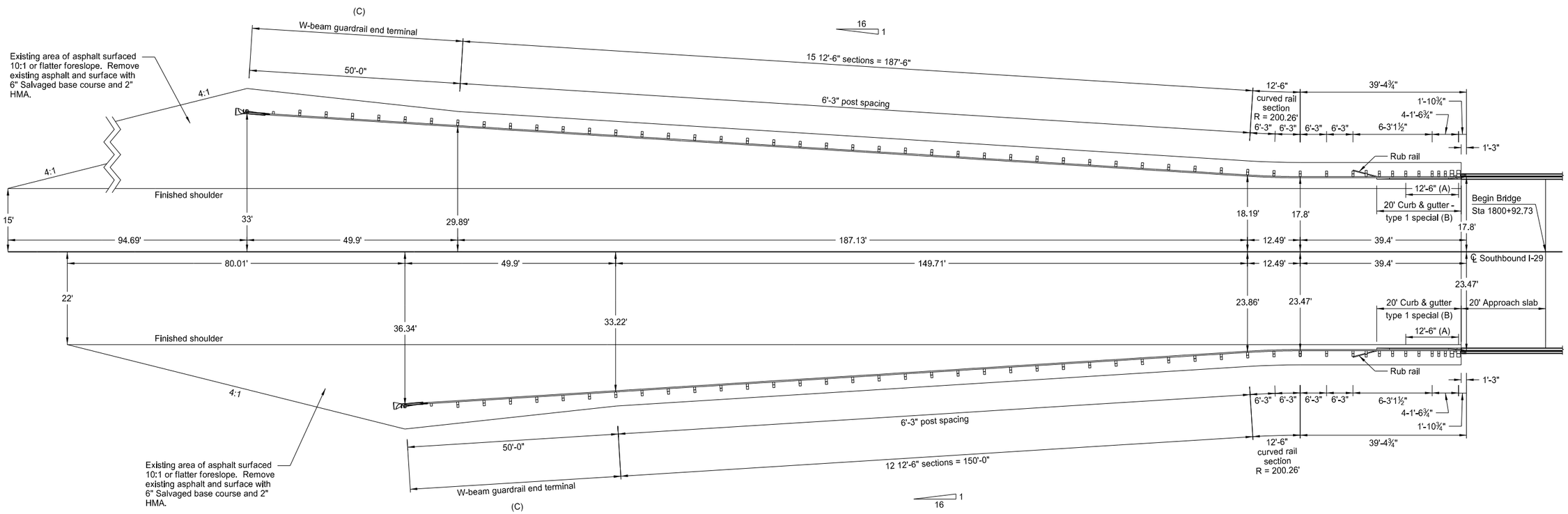
Remove & Reset 3-Cable Guardrail
For Two-Way Traffic Operation

Sta 32+00
South Median Crossover

I-29

23 USC § 409 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	130	1



(A) Double rail section.

(B) Install curb and gutter in accordance with Standard Drawing D-748-1, except for height transitions provided for a distance of 3 feet at each end, as shown on Standard Drawing D-764-9.

The curb and gutter will be measured and paid for by the linear foot as "Curb & gutter - type I special".

(C) Install either a FLEAT or a Slotted Rail Terminal at this location.

If a FLEAT is installed, install the end terminal as shown above.

If a Slotted Rail Terminal is installed, install it with the offset as shown on Standard D-764-7. Additional guardrail embankment required is at the contractor's expense.

This document was originally issued and sealed by Douglas A. Schumaker, Registration Number PE- 5047, on 08/17/16 and the original document is stored at the North Dakota Department of Transportation

W-Beam Guardrail Layout

CP Railway Separation
RP 8.999
Southbound Roadway

I-29

23 USC § 409 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	130	2

W-BEAM GUARDRAIL SUMMARY OF QUANTITIES

W-BEAM GUARDRAIL AT BRIDGE ENDS

LOCATION	(A) TERM-INAL CON-NECTOR	(A) 5/8" Ø x 22" LONG GUARD-RAIL BOLT	(A) 5/8" Ø x 20" LONG GUARD-RAIL BOLT	(A) 7/8" Ø x 11" LONG H.S. HEX HEAD BOLT	(A) 5/8" Ø x 18" LONG GUARD-RAIL BOLT	(A) 6"x 8" x 14" WOOD OFF-SET BLOCK	(A) 6"x 8" x 6' TIMBER POST	(A) 5/8" Ø x 1 1/4" LONG GUARD-RAIL BOLT	(A) 12'-6" DOUBLE RAIL SECTION	(A) 12'-6" STRAIGHT RAIL SECTION	(A) 12'-6" CURVED RAIL SECTION	(A) 5/8" Ø x 13" LONG HEX HEAD BOLT	(A) 1/2" Ø x 4" LONG LAG SCREW	(A) 6" x 8" x 7'-0" TIMBER POSTS	(A) RUB RAIL END SHOE	(A) C 6 x 8.2 x 14'-6 1/4" RUB RAIL SECTION	(A) C 6 x 8.2 x 12'-7" BENT RUB RAIL SECTION	(A) 5/8" Ø x 1 1/2" LONG GUARD-RAIL BOLT	(A) 7 3/4" x 4 ½" x 3/8" RUB RAIL SPLICE PLATE	(A) 10"x 10" x 8'-0" TIMBER POST	(A) 10"x 8" x 21" TAPERED TIMBER BLOCK	(A) 6"x 8" x 21" TIMBER BLOCK	(A) 6"x 9 3/4" x 14" TIMBER BLOCK	(A) REFL-ECTOR-IZED PLATES
	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
Sta 1800+22.09 to 1800+73.98 Rt	1	2	10	4	12	5	10	40	1	2	1	2	1	3	1	1	1	4	1	2	2	7	1	7
Sta 1800+22.09 to 1800+73.98 Rt Mdn	1	2	10	4	12	5	10	40	1	2	1	2	1	3	1	1	1	4	1	2	2	7	1	7
TOTAL	2	4	20	8	24	10	20	80	2	4	2	4	2	6	2	2	2	8	2	4	4	14	2	14

W-beam guardrail

Sta 1800+22.09 to 1800+73.98 Rt	51.9	LF
Sta 1800+22.09 to 1800+73.98 Rt Mdn	51.9	LF
Total	103.8	LF

Reset W-beam guardrail

Sta 1798+72.38 to 1800+22.09 Rt	150	LF
Sta 1798+34.96 to 1800+22.09 Rt Mdn	187.5	LF
Total	337.5	LF

(A) Include these items in the contract unit price bid for "W-Beam Guardrail".

W-beam guardrail end terminal

Sta 1798+22.48 to 1798+72.38 Rt	1	ea
Sta 1797+85.06 to 1798+34.96 Rt Mdn	1	ea
Total	2	ea

Remove end treatment & transition

Sta 1798+21.86 to 1798+58.73 Rt	1	ea
Sta 1797+96.91 to 1798+33.78 Rt Mdn	1	ea
Total	2	ea

Remove W-beam guardrail & posts

Sta 1798+58.73 to 1800+85.23 Rt	226.9	LF
Sta 1798+33.78 to 1800+92.73 Rt Mdn	251.9	LF
Total	478.8	LF

Curb & gutter - type 1 special

Sta 1800+52.73 to 1800+72.73 Rt	20	LF
Sta 1800+52.73 to 1800+72.73 Rt Mdn	20	LF
Total	40	LF

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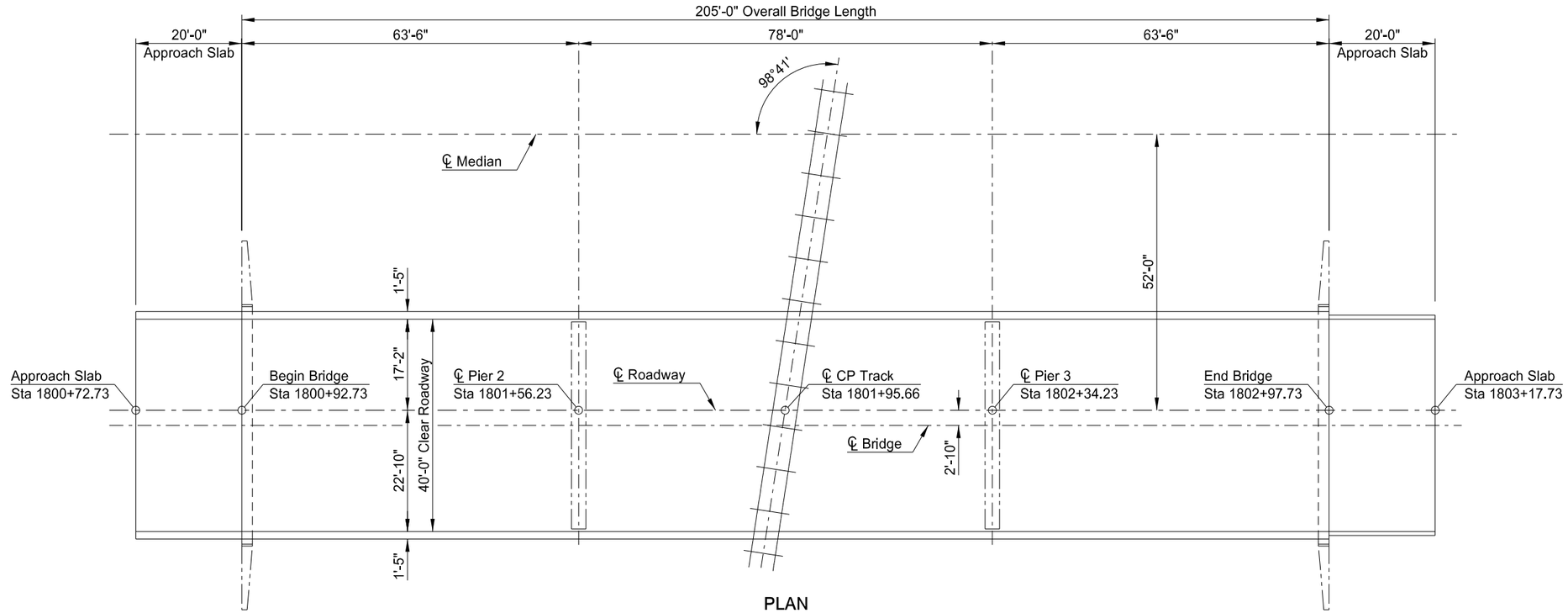
W-Beam Guardrail Quantities

CP Railway Separation
RP 8.999
Southbound Roadway

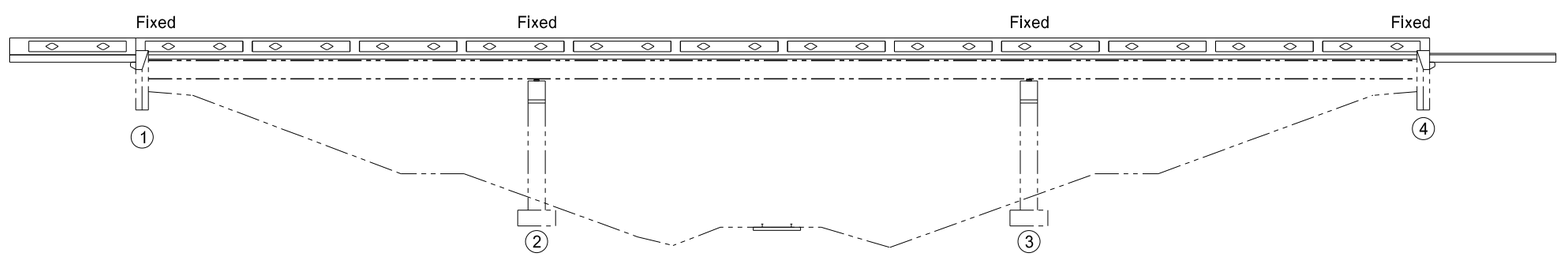
I-29

23 U.S.C. 409
NDDOT Reserves All Objections

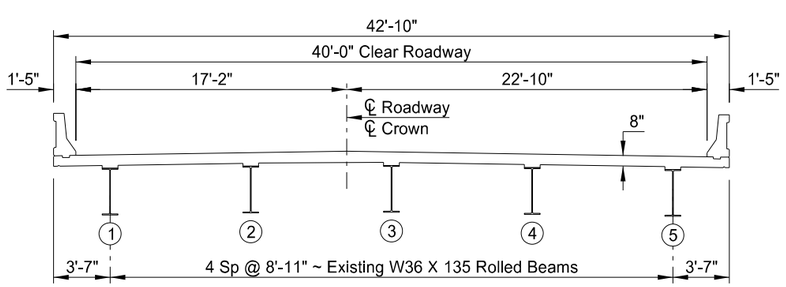
BRIDGE CODE		STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
X171		ND	IM-8-029(151)000	170	1



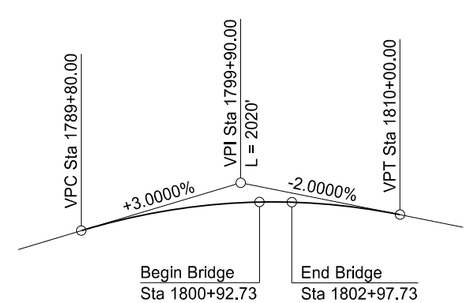
PLAN



ELEVATION



TYPICAL SECTION



EXISTING VERTICAL CURVE DATA

This document was originally issued and sealed by Brian W. Raschke, Registration Number PE 4361, on 08/16/16 and the original document is stored at the North Dakota Department of Transportation

DESIGN STRENGTHS:

f'c = 4,000 psi ~ Class AAE-3 Concrete
fy = 60,000 psi ~ Reinforcing Steel

Load Factor Design

SPECIAL PROVISIONS	
SP 4(14)	MIGRATORY BIRD TREATY ACT
SP 337(14)	RAILROAD REQUIREMENTS

STANDARD DRAWINGS
D-900-1

F.W.S. 15 PSF

HS 25 DESIGN LOADING

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

CANADIAN PACIFIC RAILWAY SEPARATION

BRIDGE LAYOUT

PROJECT: IM-8-029(151)000
STATION: 1801+95.23
RICHLAND COUNTY

08/16/16 — DATE
Terrence R. Udland — BRIDGE ENGINEER

NOTES

100 SCOPE OF WORK: This project consists of removing and replacing the concrete deck on a 3-span, steel rolled beam bridge with an overall length of 205'-0". The clear roadway width will remain 40'-0". The approach slabs will be removed and replaced at each end of the bridge.

100 GENERAL: Include the cost of furnishing and placing concrete inserts, rebar couplers, silicone sealant, waterproof membrane, and other miscellaneous items in the price bid for Class AAE-3 concrete.

107 RAILROAD PROTECTIVE LIABILITY INSURANCE: This project crosses the Canadian Pacific Railway at RP 202.52. The type of work that will be performed within the railroad right of way is bridge deck replacement. Direct inquiries regarding protective liability insurance to:

Jim Krieger, PE
Manager Public Works – Southern Region
Canadian Pacific Railroad
120 South 6th Street, Suite 900
Minneapolis, MN 55402
612-330-4555 off.
jim_krieger@cpr.ca

Obtain information regarding crossing number DOT 695104B from the Federal Railroad Administration website: http://safetydata.fra.dot.gov/Officeofsafety/.

107 HAZARDOUS MATERIAL: The existing structural steel is painted with lead-based paint. Remove and dispose of any loose and peeling paint found on the existing structural steel according to the North Dakota Department of Health's management of lead-based paint debris.

202 REMOVAL OF CONCRETE: Remove the concrete in a manner that prevents damage to the remaining structure. Include the superstructure removal in the contract unit price for "Removal of Concrete." The existing concrete deck and approach slabs have a 1.5" asphalt overlay.

602 FALSEWORK: Brace exterior steel beams at a maximum of 10'-0" spacing to prevent rotation. Design the strength of the bracing to be dependent on the forces induced by the weight of the concrete, forms, equipment, and workers. Assume that the diaphragms will not carry any of the load in the design. Submit a bracing plan and design, stamped by a Professional Engineer, to the Engineer for review.

602 ENDWALLS: Place the endwall concrete before the deck cantilever is formed.

602 BRIDGE DECK AND APPROACH SLAB CURING: Do not cover the wet cure burlap with a waterproof material such as polyethylene during the curing period.

602 SURFACE FINISH "D": Apply Surface Finish "D" to the outside edges of the deck, the exposed endwall areas outside of the exterior beams, and on all bridge and approach slab barrier surfaces. Use brown surface finish, color number 30475 meeting Federal Standard 595B, for the back face of the barriers, including the diamond surfaces but excluding the recessed areas, and the outside edges of the deck. Use gray surface finish, color number 36424 meeting Federal Standard 595B, for all other surfaces.

Submit to the Engineer a 3" x 5" color chip card for color number 30475 with a declaration of conformity.

602 LONGITUDINAL GROOVING: After the curing of the deck and approach slabs is complete and before the penetrating water repellent is applied, cut in longitudinal grooves into the deck and approach slabs using a mechanical cutting device. Perform any required surface correction grinding to the deck prior to grooving it. Cut grooves that are 1/8 inch in width (±1/64 inch) and 3/16 inch in depth (±1/16 inch). Space grooves at ¾ inch center to center. Stop the grooving 2 feet from the face of the barrier/curb and 6 inches from the beginning and end of the deck and approach slabs. Include the price for grooving in the bid item "Class AAE-3 Concrete."

900 ELEVATION CHECK POINTS: Place eight bolts on the top of the barrier to serve as elevation check points. Include the cost for this item in the unit price bid for Class AAE-3 concrete.

930 ROADWAY CANOPY: A canopy is required to be constructed above the railroad under the structure to protect traffic from falling material. The canopy is an added safeguard and does not relieve the Contractor from any responsibility for the safety of the public.

Submit the canopy details, including materials that will be used, to the Engineer for review. The canopy will provide a minimum vertical clearance of 22'-0" above the railroad tracks. The canopy will be extended a minimum distance of 5'-0" beyond the outside edge of deck of the structure and a minimum distance of 5'-0" beyond the edge of the railroad tracks beneath the structure.

Construct the canopy before removing the concrete superstructure. The canopy will also be in place before installing forming for the new deck and remain in place until after the new superstructure is complete. The canopy may be supported from the ground or suspended from the beams. Complete the installation of the canopy in a minimum amount of time and with the least inconvenience to the public and the railroad.

Once the bridge superstructure is completed, remove the canopy. Roadway canopy will be paid for at the contract unit price for "Roadway Canopy." Payment for "Roadway Canopy" includes the construction, maintenance, and removal of the canopy system.

930 RAILROAD FLAGGING: Provide a minimum of at least thirty (30) working days notice to the Railways Roadmaster, at telephone (701) 223-9282, in advance of when flagging services will be required to bulletin the flagger's position and provide five (5) working days notice to the Roadmaster to abolish the position per union requirements.

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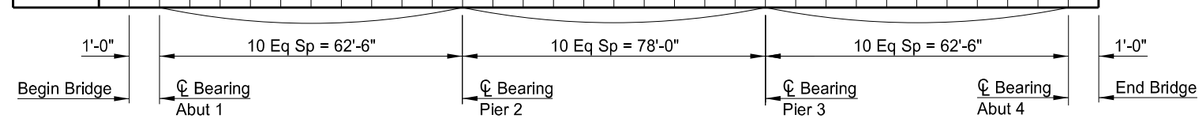
NOTES:

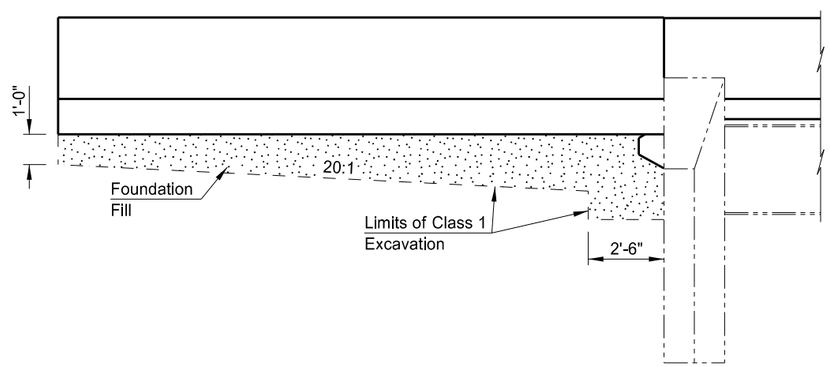
The Dead Load Deflections shown are from the deck concrete dead load only. Calculate the Screed Elevations by taking elevations on top of the existing deck, at tenth points along ℄ Roadway, prior to any deck removal. Subtract 0.2344' from each tenth point elevation for Beam 1, 0.0951' for Beam 2, 0.0443' for Beam 3, 0.1836' for Beam 4, 0.3229' for Beam 5, and then add the Dead Load Deflections shown to obtain the Screed Elevations. Take elevations at locations indicated in the Dead Load Deflections table.

Prior to deck placement submit the ℄ Roadway elevations, calculated Screed Elevations and riser dimensions to the Bridge Division for review to see if any adjustments need to be made to the bridge profile. Allow the Bridge Division 3 days for review.

BEAMS 1 - 5 (FEET)																																
	0.000	0.000	0.017	0.031	0.040	0.044	0.042	0.034	0.024	0.013	0.003	0.000	0.006	0.019	0.033	0.045	0.049	0.045	0.033	0.019	0.006	0.000	0.003	0.013	0.024	0.034	0.042	0.044	0.040	0.031	0.017	0.000	0.000



DEAD LOAD DEFLECTIONS



DETAIL AT ABUTMENT

NOTE:

Include the cost of the Class I excavation required to construct the endwall and approach slab and the cost to furnish and place the foundation fill in the pay item "Bridge Approach Slab-Remove & Replace."

BRIDGE BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
107	0100	RAILWAY PROTECTION INSURANCE	L SUM	1
202	0111	REMOVAL OF CONCRETE	L SUM	1
602	0130	CLASS AAE-3 CONCRETE	CY	283.1
602	1135	BRIDGE APPROACH SLAB-REMOVE & REPLACE	SY	187.4
602	1250	PENETRATING WATER REPELLENT TREATMENT	SY	911
612	0115	REINFORCING STEEL-GRADE 60	LBS	1,226
612	0116	REINFORCING STEEL-GRADE 60-EPOXY COATED	LBS	79,826
930	7012	ROADWAY CANOPY	L SUM	1

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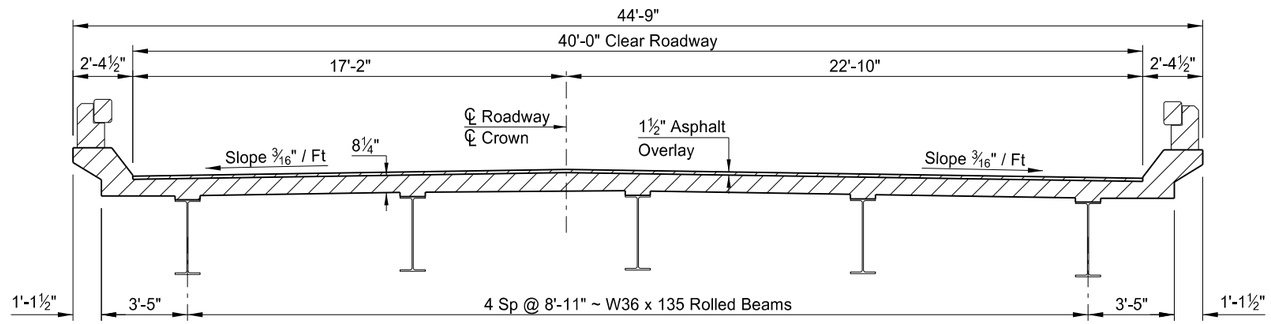
CANADIAN PACIFIC RAILWAY SEPARATION

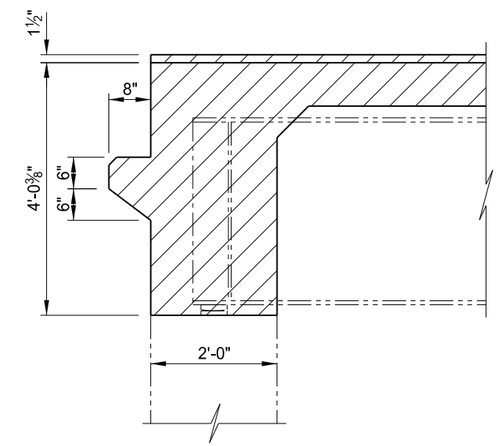
DEAD LOAD DEFLECTIONS, DETAIL AT ABUTMENT & BID ITEM QUANTITIES

23 U.S.C. 409
NDDOT Reserves All Objections

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	170	4

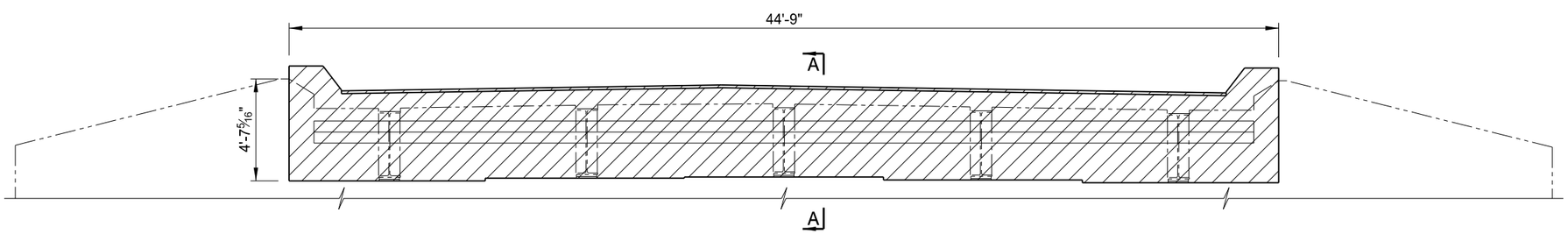


EXISTING SLAB SECTION



A-A

The hatched areas indicate concrete and asphalt to be removed. Carefully remove concrete to ensure no damage is done to the existing reinforcing steel and stud shear connectors on top of beams that are to remain in place. Sand blast clean the exposed existing reinforcing bars from any rust scale.



EXISTING ENDWALL ELEVATION

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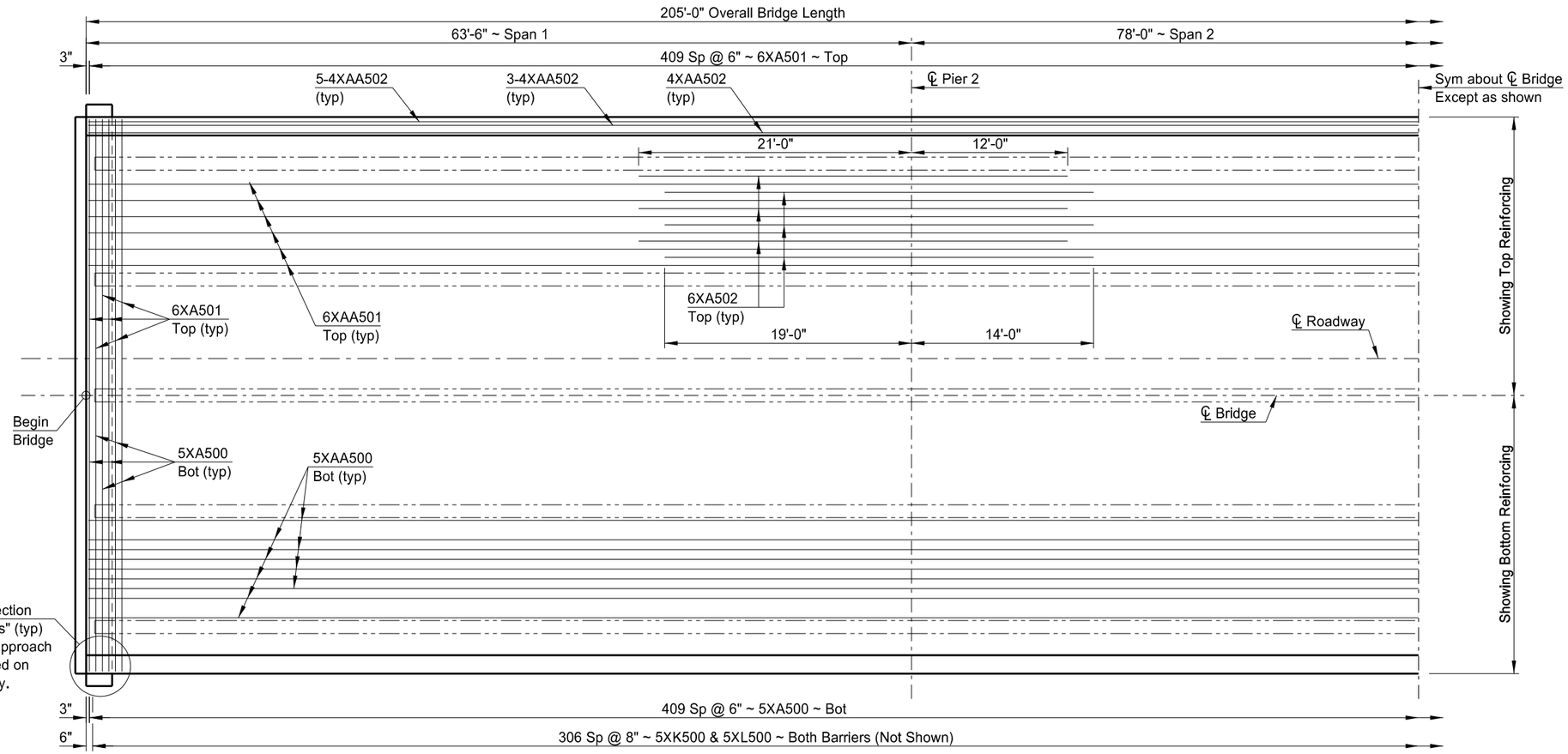
CANADIAN PACIFIC RAILWAY SEPARATION

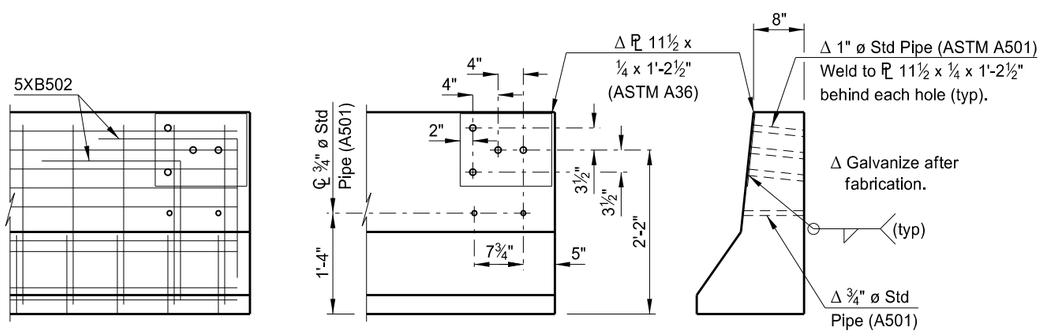
CONCRETE REMOVAL DETAILS

23 U.S.C. 409
NDDOT Reserves All Objections

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	170	5



HALF PLAN



SHOWING REINFORCING

SHOWING DIMENSIONS

(SHOWING FRONT FACE)
CONNECTION PLATE DETAILS

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QUANTITIES

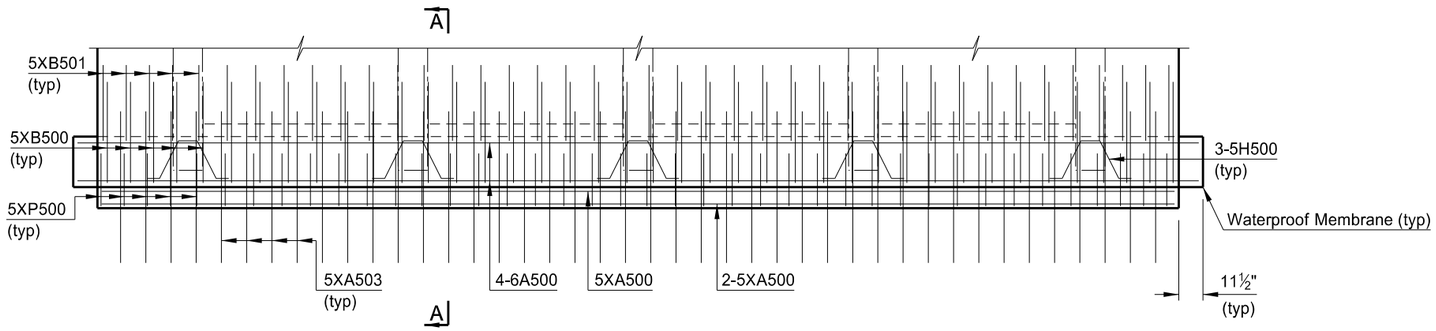
SEE DWG 29-008.999L-7

CANADIAN PACIFIC RAILWAY SEPARATION

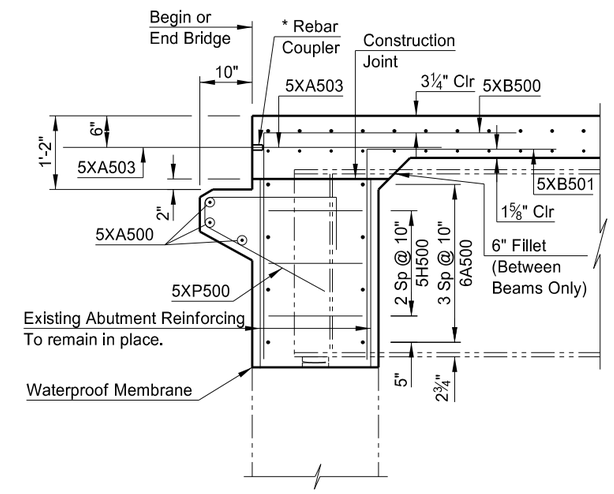
HALF SLAB LAYOUT

23 U.S.C. 409
NDDOT Reserves All Objections

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	170	6

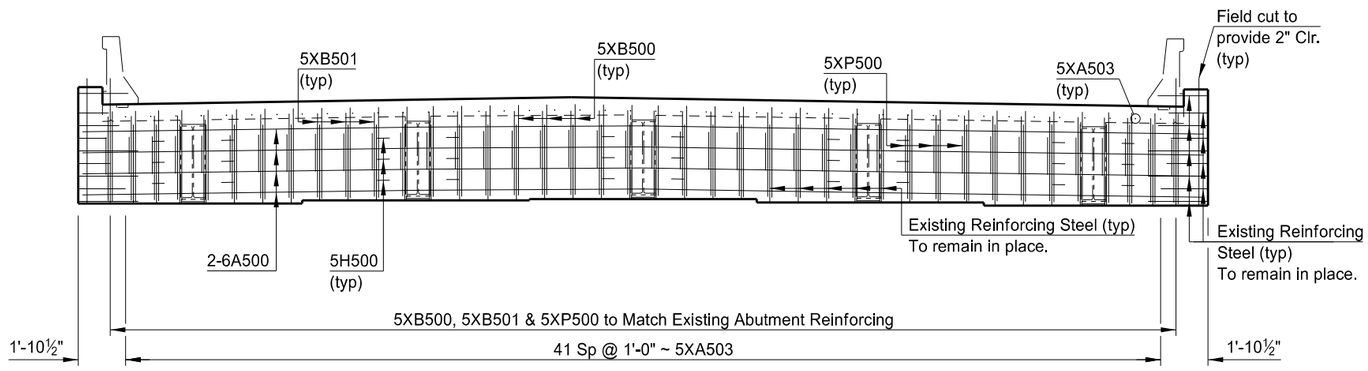


PLAN



A-A

* Use approved mechanical connectors for the couplers capable of developing 125% of the reinforcing steel specified yield strength. Provide epoxy coated couplers according to Section 836.02 A and repair any damaged epoxy coating according to Section 612.04 E.



(APPROACH LIP NOT SHOWN)

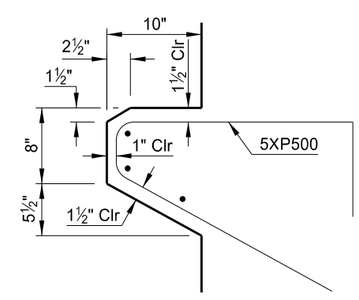
ELEVATION

NOTE:

Do not install the 5XA503 bars into the approach slab until all of the foundation fill is in place.

NOTE:

Use waterproof membrane that meets the requirements of Section 602.03 B. Center the waterproof membrane (1'-0" minimum width) on the joint.



APPROACH LIP DETAIL

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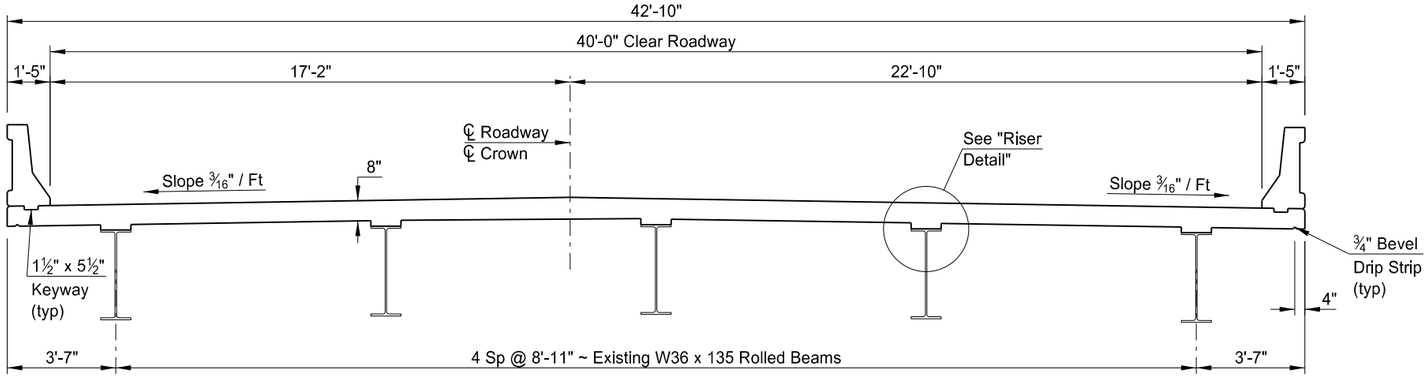
QUANTITIES
SEE DWG 29-008.999L-7

CANADIAN PACIFIC RAILWAY SEPARATION

ENDWALL DETAILS

23 U.S.C. 409
NDDOT Reserves All Objections

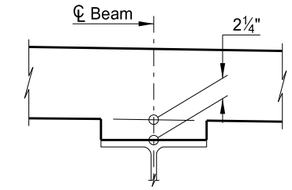
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	170	7



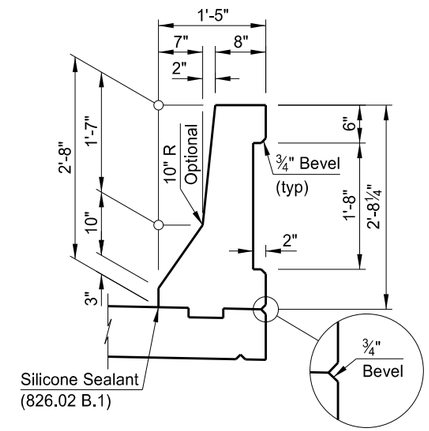
(SHOWING DIMENSIONS)

SLAB SECTION

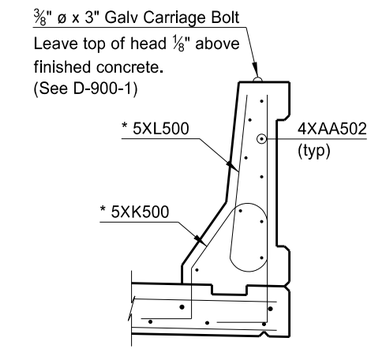
The 2¼" dimension shown is located at the supports. Adjust the riser to maintain the 8" slab thickness.



RISER DETAIL



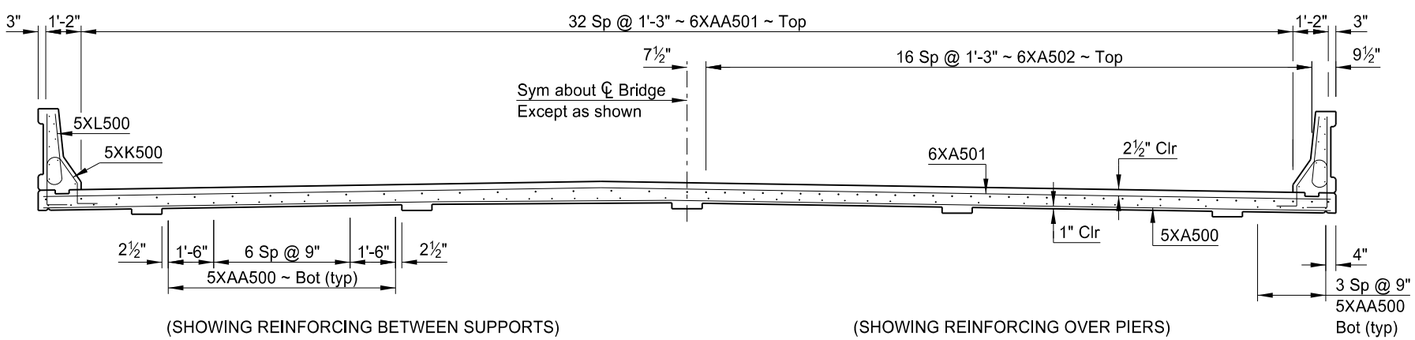
SHOWING DIMENSIONS



* Provide a 1½" clearance from the front face to the barrier reinforcing.

SHOWING REINFORCING

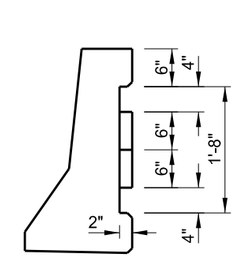
BARRIER DETAIL



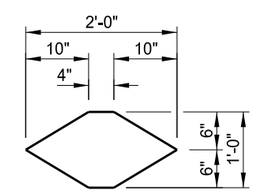
(SHOWING REINFORCING BETWEEN SUPPORTS)

(SHOWING REINFORCING OVER PIERS)

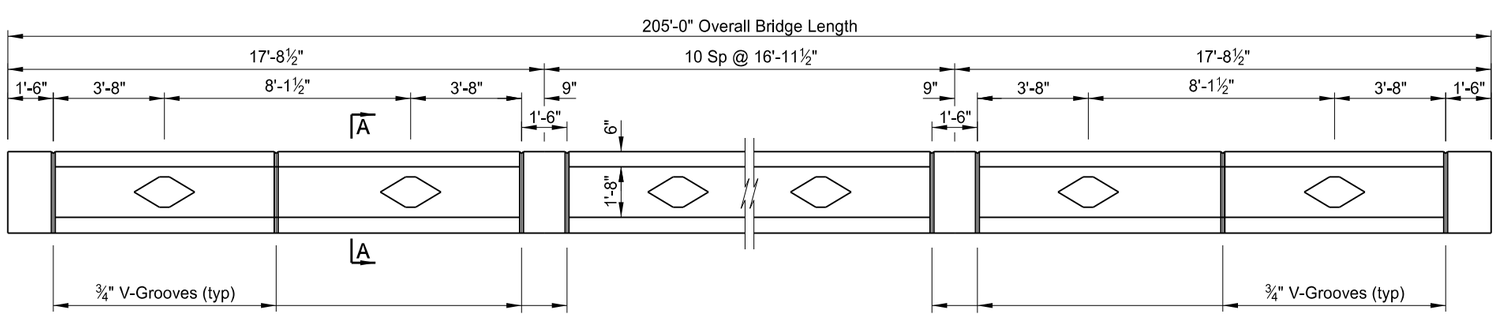
SLAB SECTION



A-A



DIAMOND DETAIL



(SHOWING DIMENSIONS ~ BACK FACE)

BARRIER ELEVATION

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QUANTITIES	
CLASS AAE-3 CONCRETE	283.1 CY
REINFORCING STEEL	1,226 LBS
REINFORCING STEEL (EPOXY)	79,826 LBS

CANADIAN PACIFIC RAILWAY SEPARATION

SLAB SECTION

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	170	8

BILL OF REINFORCING STEEL, GRADE 60

LETTER PREFIX OF BAR MARK DENOTES SHAPE ~ SEE BAR DETAILS

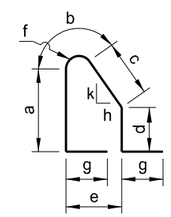
LOCATION	SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS a	b	c	d	e	f	g	h	k

LOCATION		SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS a	b	c	d	e	f	g	h	k
SUPERSTRUCTURE	REGULAR	6	A500	16	44'-5"		44'-5"							
		5	H500	30	5'-1"	6"	1'-8"	9"					6	12
	EPOXY	5	XA500	416	42'-6"		42'-6"							
		6	XA501	410	42'-6"		42'-6"							
		6	XA502	68	33'-0"		33'-0"							
		5	XA503	168	3'-0"		3'-0"							
		5	XB500	80	7'-7"		3'-7"	4'-0"						
		5	XB501	80	6'-4"		3'-4"	3'-0"						
		5	XB502	4	3'-8"		1'-10"	1'-10"						
		5	XK500	614	4'-11"	1'-4"	8"	11"	8"	1'-0"	2.5"	8"	8.5	12
		5	XL500	614	5'-0"	3"	2'-2"	8"	2'-2"		2.5"		1.25	12
		5	XP500	80	5'-6"	5"	2'-1"	2'-2"			1.25"	10"	12	6.5
		5	XAA500	44	211'-5"		60'-0"	2'-3"	31'-5"	3		204'-8"		
		6	XAA501	35	211'-5"		60'-0"	2'-3"	31'-5"	3		204'-8"		
		4	XAA502	18	209'-2"		60'-0"	1'-6"	29'-2"	3		204'-8"		

23 U.S.C. 409
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.



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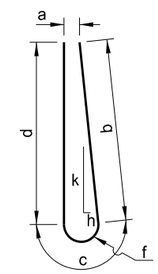

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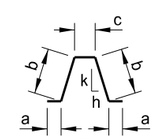

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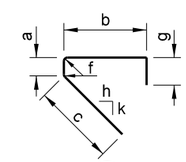
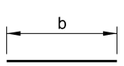
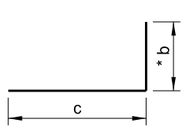


P

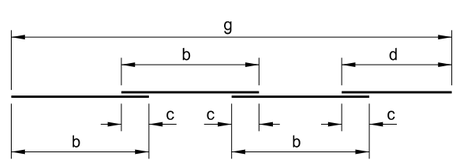


A



B

* b = Vertical Leg for XB500 and XB501



c = Lap Splice (typ)
e = # of "b" Length Pieces in a Set
Total Length per Set = e x b + d

AA

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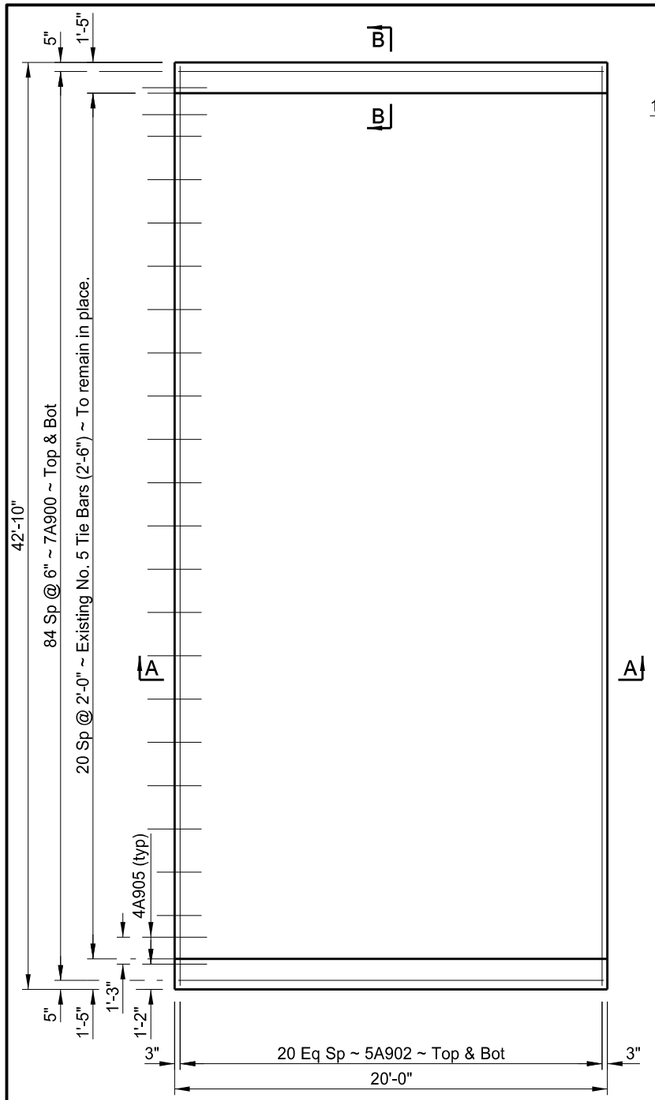
CANADIAN PACIFIC RAILWAY SEPARATION

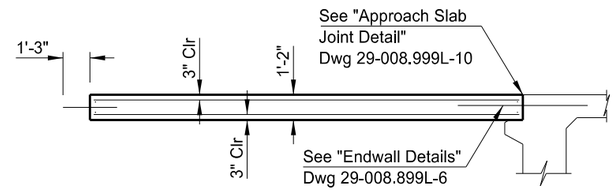
REINFORCING BAR LIST & DETAILS

23 U.S.C. 409
NDDOT Reserves All Objections

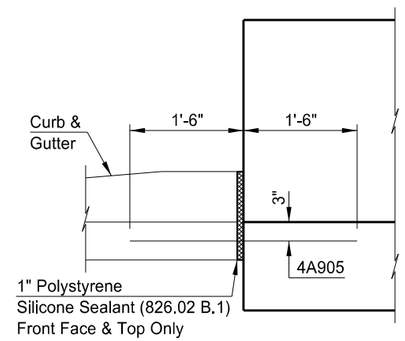
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	170	9



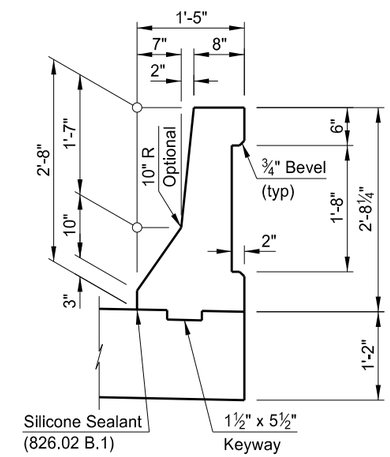
PLAN



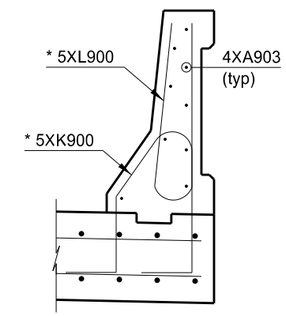
A-A



DETAIL "A"



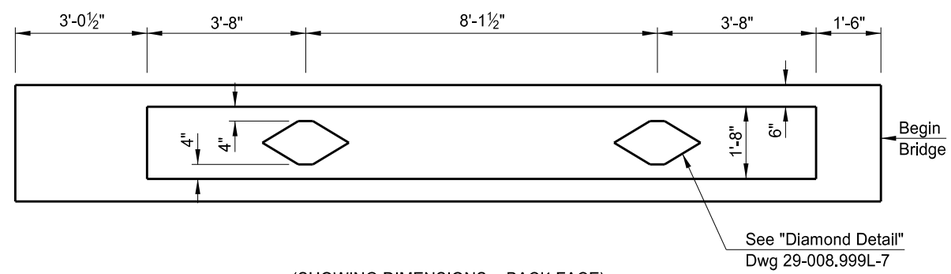
SHOWING DIMENSIONS



* Provide a 1½" clearance from the front face to the barrier reinforcing.

SHOWING REINFORCING

B-B



(SHOWING DIMENSIONS ~ BACK FACE)

BARRIER ELEVATION

SKEW ANGLE = 0°

BAR LIST

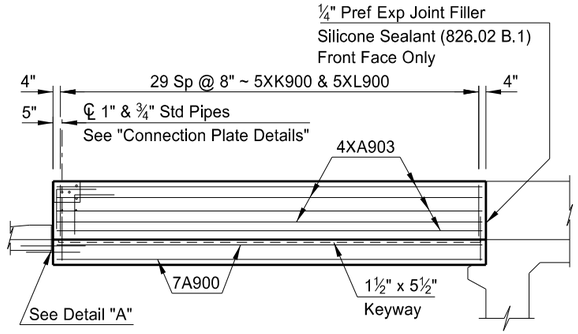
SIZE	MARK	NO.	LENGTH
7	A900	170	19'-8"
5	A902	42	42'-6"
4	XA903	18	19'-8"
4	A905	4	3'-0"
5	XB900	4	3'-8"
5	XK900	60	5'-7"
5	XL900	60	5'-0"

ESTIMATED MATERIAL QUANTITIES

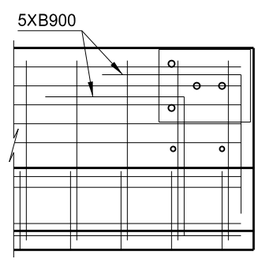
REINFORCING STEEL (LBS)	CONCRETE (CY)
9,618	40.4

NOTE:

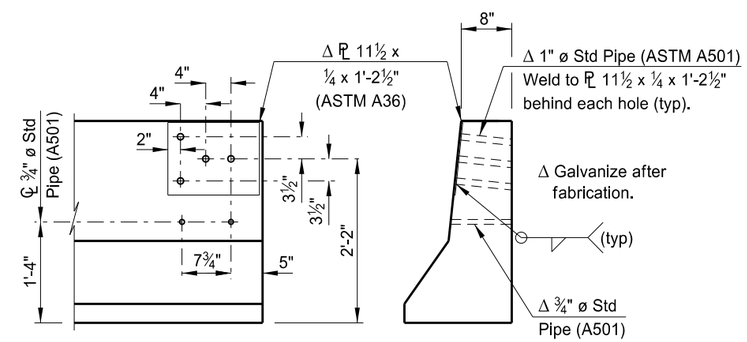
See Dwg 29-008.999L-10 for "Notes" and "Bent Bar Details."



ELEVATION



SHOWING REINFORCING



SHOWING DIMENSIONS

(SHOWING FRONT FACE)

CONNECTION PLATE DETAILS

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QUANTITIES

APPROACH SLAB	95.2 SY

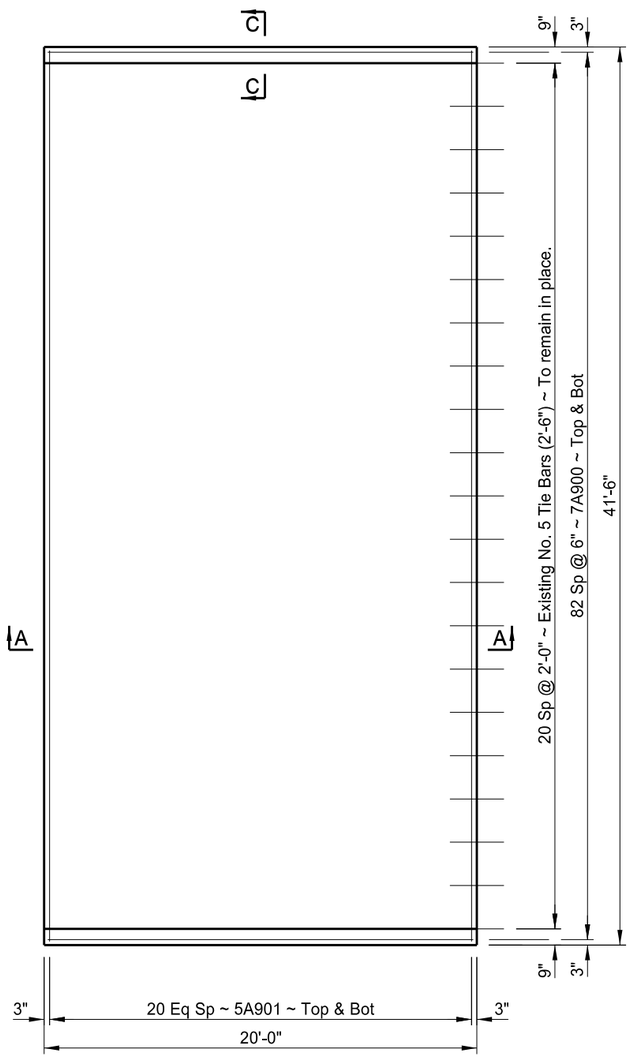
CANADIAN PACIFIC RAILWAY SEPARATION

(APPROACH END)

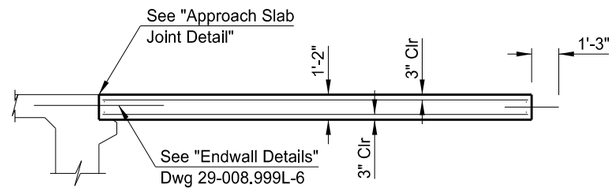
APPROACH SLAB DETAILS

23 U.S.C. 409
NDDOT Reserves All Objections

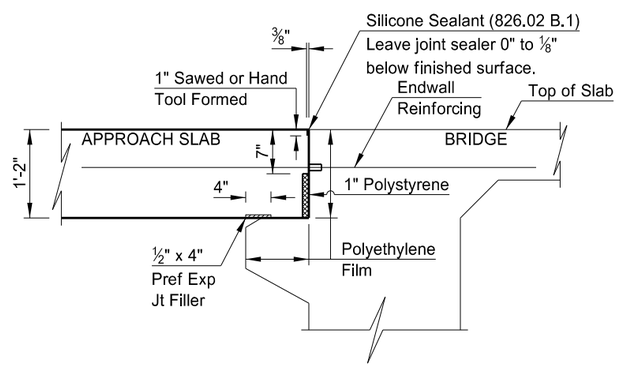
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	170	10



PLAN



A-A



APPROACH SLAB JOINT DETAIL

NOTES:

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, barriers and curbs in the pay item "Bridge Approach Slab-Remove & Replace." Use Class AE-3 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.

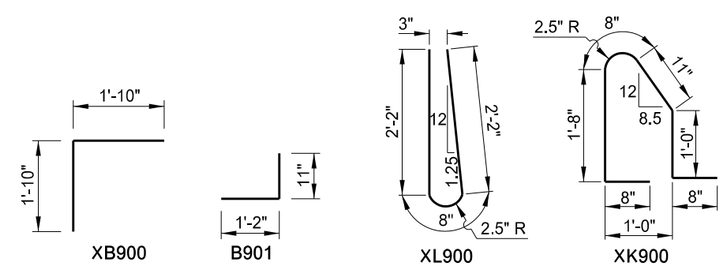
SKEW ANGLE = 0°

BAR LIST

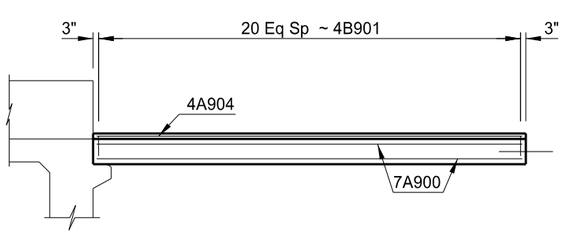
SIZE	MARK	NO.	LENGTH
7	A900	166	19'-8"
5	A901	42	41'-2"
4	A904	2	19'-8"
4	B901	42	2'-1"

ESTIMATED MATERIAL QUANTITIES

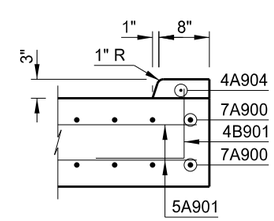
REINFORCING STEEL (LBS)	CONCRETE (CY)
8,561	36.1



BENT BAR DETAILS



ELEVATION



C-C

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QUANTITIES	
APPROACH SLAB	92.2 SY

CANADIAN PACIFIC RAILWAY SEPARATION

(EXIT END)

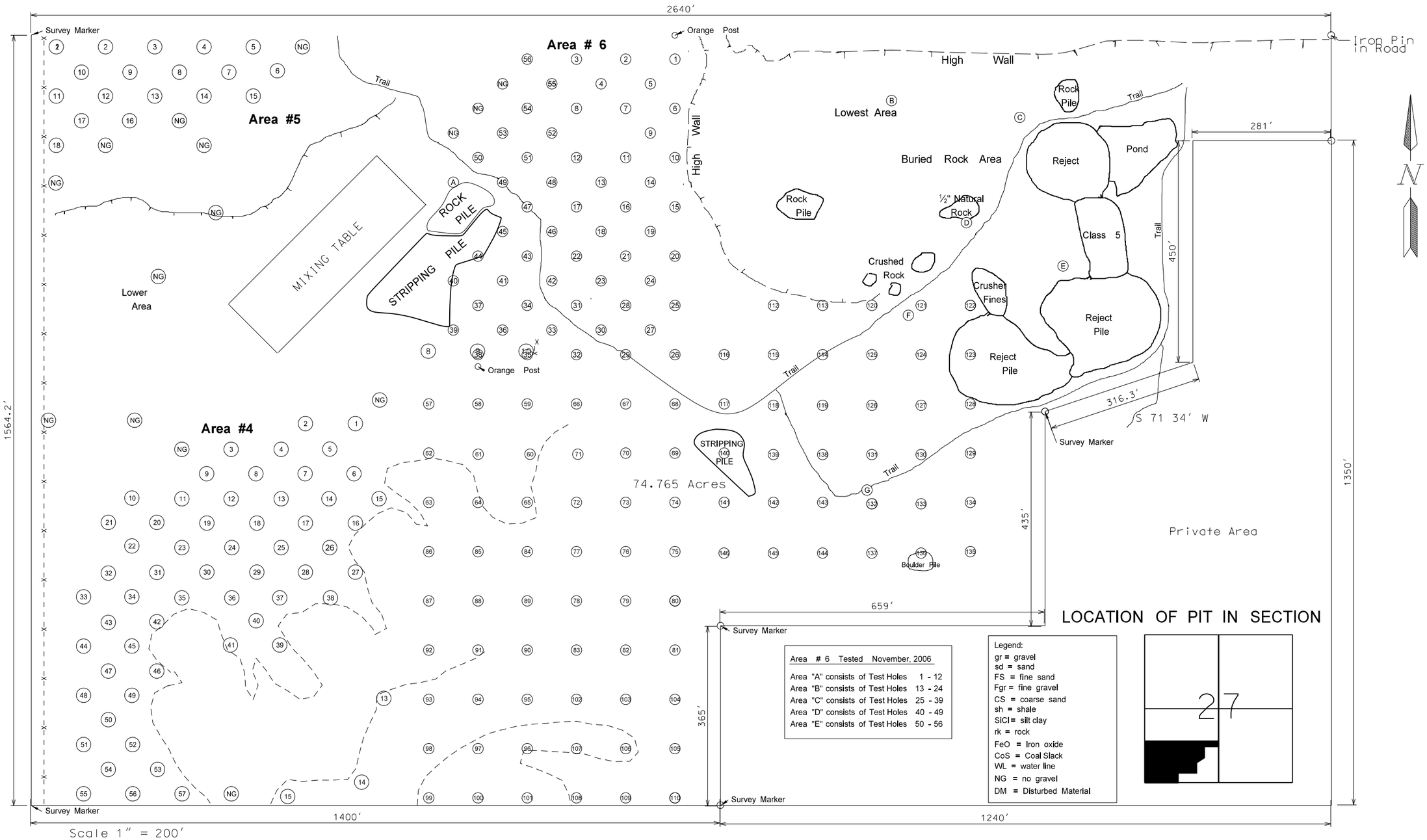
APPROACH SLAB DETAILS

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	180	1

TEST HOLE PLAT

Location: S1/2SW1/4 27-130-50 (areas 4,5,6) County: Richland

Ownership: State Owned



Area # 6 Tested November, 2006

Area "A" consists of Test Holes 1 - 12
Area "B" consists of Test Holes 13 - 24
Area "C" consists of Test Holes 25 - 39
Area "D" consists of Test Holes 40 - 49
Area "E" consists of Test Holes 50 - 56

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

LOCATION OF PIT IN SECTION

7/11/2016 10:08:03 AM

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	**IM-8-029(151)000**	**180**	**2**

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
AREA 6 DRILLED IN NOVEMBER 2006							
1	2.0	3.0 CS	0	2	9	16	+
		1.0 FS Si Cl					
		1.0 CS					
		3.0 FS					
		1.0 sd					
		3.0 Fgr					
		3.0 gr					
		3.0 FS					
2	4.0	1.0 Fgr	0	2	9	17	+ Cave
		4.0 sd					
		5.0 CS sh					
		2.0 Fgr sh					
3	2.0	6.0 sd	0	7	15	24	+
		4.0 Fgr					
		2.0 sd					
		1.0 Fgr					
		2.0 sd sh					
		3.0 gr Si Cl					
4	8.0	2.0 Fgr	0	9	18	30	+
		2.0 gr					
		2.0 sd					
		4.0 Fgr					
		1.0 gr Si Cl					
		1.0 gr					
5	15.0	2.0 sd	0	7	15	24	+
		2.0 gr					
		1.0 Fgr sh					
6	0.5	1.5 Fgr sh	0	1	8	18	+
		2.0 FS Si Cl					
		3.0 FS					
		3.0 Fgr					
		3.0 gr					
		4.0 FS					
		1.0 CS sh					
		2.0 Fgr sh					
7	1.0	2.0 Fgr	0	3	12	20	+
		7.0 FS					
		1.0 sd					
		5.0 gr					
		1.0 FS					
		3.0 gr					
8	4.0	4.0 Fgr	0	9	21	34	+
		1.0 gr					
		3.0 sd					
		4.0 Fgr sh					
		4.0 gr sh					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
9	0.5	6.5 FS Si Cl	0	2	9	17	+
		3.0 sd					
		2.0 Fgr					
		4.0 FS					
		1.0 CS sh					
		3.0 Fgr sh					
10	0.5	2.5 sd	0	5	10	17	+
		5.0 FS					
		2.0 gr sh					
		3.0 Fgr sh					
		7.0 sd sh					
11	0.5	0.5 sd	0	14	24	34	+
		2.0 gr					
		2.5 FS					
		2.5 Fgr					
		5.0 gr					
		2.0 sd sh					
		2.0 Fgr					
		3.0 FS sh					
12	0.5	3.5 gr	0	6	14	23	+
		5.0 FS					
		2.0 gr					
		3.0 Fgr					
		5.0 gr					
		1.0 sd					
13	0.5	3.5 gr	1	8	20	30	+
		3.0 FS					
		2.0 gr					
		1.0 sd					
		5.0 gr					
		5.0 sd					
14	0.5	1.5 gr	0	7	16	26	+
		1.0 sd					
		3.0 FS					
		2.0 Fgr					
		1.0 gr Si Cl					
		6.0 Fgr					
		5.0 sd					
15	0.5	2.5 gr sh	0	3	12	24	+
		2.0 Fgr					
		1.0 gr					
		6.0 CS					
		4.0 sd					
		1.0 Fgr					
		1.0 FS					
		2.0 gr					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
16	1.0	6.0 Fgr	0	2	9	18	+
		2.0 Fgr sh					
		1.0 sd sh					
		1.0 Fgr					
		3.0 FS Si Cl					
		2.0 sd					
		4.0 Fgr sh					
17	0.5	3.0 gr	1	11	22	34	+
		1.5 Fgr					
		1.0 gr					
		2.0 Fgr					
		2.0 FS Si Cl					
		2.0 Fgr					
		6.5 gr					
		1.5 sd					
18	0.5	1.5 sd	0	2	8	14	+
		4.0 FS					
		5.0 Fgr					
		7.0 sd sh					
		2.0 gr					
19	0.5	2.5 sd	1	13	23	34	+Cave
		9.0 gr					
		2.0 Fgr					
		2.0 sd					
20	9.0	6.0 Fgr	0	4	14	26	+
		3.0 gr					
		2.0 Fgr					
21	0.5	1.0 sd	3	16	27	39	+
		4.0 gr					
		2.5 FS					
		12.0 gr					
22	0.5	0.5 gr	1	5	12	20	+
		4.0 FS					
		1.0 Fgr					
		2.5 gr					
		7.5 sd					
		1.0 Fgr					
		1.0 sd					
		2.0 gr					
23	0.5	3.5 sd	0	9	18	24	+
		3.0 FS					
		4.0 gr					
		4.0 Fgr					
		5.0 sd sh					
24	0.5	3.5 gr	0	4	14	21	+ Cave
		3.0 CS					
		1.0 Fgr					
		5.0 FS Si Cl					
		2.0 sd					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
25	8.0	3.0 Fgr	0	1	6	15	+
		2.0 sd sh					
		1.0 gr					
		4.0 FS					
		2.0 sd					
26	7.0	3.0 sd	0	2	8	20	+ cave
		4.5 Fgr					
		2.0 FS SiCl					
		2.0 gr SiCl					
27	6.0	4.0 sd	1	5	13	26	+
		5.0 Fgr					
		2.0 gr					
		1.0 Fgr					
		2.0 CS sh					
28	1.0	6.0 gr	1	9	19	27	+
		10.0 sd					
		3.0 gr					
29	2.0	3.0 gr	0	4	10	20	+
		7.0 sd					
		1.0 Fgr					
		1.0 gr					
		2.0 CS					
		1.0 gr					
		1.0 CS					
		2.0 Fgr					
30	3.0	5.0 gr	1	8	16	26	+
		3.0 sd					
		1.0 sd SiCl					
		4.0 sd sh					
		4.0 gr					
31	0.5	2.5 gr	2	13	25	40	+ cave
		5.0 Fgr					
		6.0 gr					
32	4.0	3.0 Fgr	0	5	16	27	+
		8.0 gr					
		2.0 CS					
		3.0 sd					

RANGE	**50**	**TWP**	**130**	**SEC**	**S1/2 SW1/4 27**
COUNTY	**Richland**				**Nov-06**
PROSPECTED BY	**Volk / Dalzell**				
INSPECTED & APPROVED	**Carter**				

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	**IM-8-029(151)000**	**180**	**3**

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
33	0.5	3.5 sd	1	9	17	30	+
		4.0 gr					
		1.0 sd					
		1.0 Fgr					
		1.0 gr					
		1.0 Fgr SiCl					
		2.0 Fgr					
		2.0 sd					
		2.0 FS					
		1.0 FS SiCl					
		1.0 sd sh					
34	0.5	3.5 CS	1	6	16	27	+
		1.5 Fgr					
		2.5 FS					
		3.0 gr					
		2.0 Fgr					
		3.0 CS					
		1.5 gr					
		2.5 CS					
35	1.0	1.0 sd	0	8	19	32	+
		1.0 gr					
		1.0 sd					
		2.0 Fgr					
		1.0 sd					
		10.0 gr					
		1.5 Fgr					
		1.5 sd					
36	0.5	1.5 Fgr	1	11	20	33	+
		1.0 sd sh					
		3.0 Fgr sh					
		5.0 gr					
		2.0 Fgr					
		1.0 sd					
		2.0 Fgr					
		4.0 sd					
37	0.5	3.5 sd	0	2	9	20	+
		6.0 Fgr					
		3.0 FS SiCl					
		4.0 Fgr sh					
		3.0 sd					
38	1.0	1.0 sd	2	11	23	37	+
		1.0 gr SiCl					
		11.0 Fgr					
		6.0 gr					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
39	3.0	1.0 Fgr	0	7	16	30	+
		3.5 gr					
		2.5 Fgr					
		1.0 gr					
		2.0 sd					
		1.0 gr					
		1.0 Fgr					
		1.5 FS					
		1.5 Fgr					
		2.0 CS					
40	2.0	8.0 sd	0	5	13	24	+
		1.0 CS					
		6.0 Fgr					
		1.0 sd					
		1.0 gr					
		1.0 sd					
41	0.5	0.5 sd	0	3	8	15	+
		2.0 Fgr					
		1.0 sd					
		3.0 FS SiCl					
		3.0 sd sh					
		5.0 gr					
		2.0 sd sh					
		3.0 sd					
42	0.5	0.5 FS	0	7	14	24	+
		1.0 CS					
		2.0 gr					
		1.0 sd CoS					
		3.0 FS SiCl					
		4.0 gr					
		4.0 sd CoS					
		1.0 Fgr					
		2.0 CS					
		1.0 Fgr					
43	0.5	2.5 Fgr	1	10	21	33	+
		1.0 gr					
		1.0 FS					
		5.0 gr					
		3.0 Fgr					
		7.0 sd					
44	6.0	9.5 gr	0	11	27	44	+ cave
		0.5 FS					
45	0.5	3.5 sd	0	0	6	14	+
		2.0 FS SiCl					
		2.0 Fgr					
		1.0 CS					
		1.0 sd SiCl					
		3.0 CS					
		4.0 sd					
		1.0 Fgr					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
45		2.0 gr					
46	0.5	2.5 Fgr	0	2	11	22	+
		1.0 gr					
		2.0 sd					
		3.0 FS SiCl					
		1.0 sd sh					
		4.0 gr					
		3.0 FS SiCl					
		3.0 Fgr					
47	0.5	2.5 FS	0	4	14	25	+
		3.0 Fgr					
		2.0 sd					
		1.0 CS					
		5.0 gr					
		1.0 sd					
		1.0 CS					
		3.0 sd					
48	0.5	0.5 gr	0	5	17	28	+
		2.0 FS Si Cl					
		2.0 FS sh					
		3.0 Fgr					
		2.0 FS					
		7.0 Fgr sh					
		1.0 sd					
		2.0 Fgr					
49	6.0	2.0 Fgr	0	4	12	22	+
		2.0 sd					
		2.0 Fgr					
		5.0 sd					
		2.0 gr					
		1.0 CS					
50	14.0	2.0 gr	2	8	14	22	+
		4.0 sd					
51	13.0	4.0 Fgr	0	6	14	26	+
		1.0 gr					
		1.0 Fgr					
		1.0 sd					
52	9.0	5.0 Fgr	1	11	24	38	+
		6.0 gr					
53	12.0	1.0 sd	0	2	11	25	+
		6.0 Fgr					
		1.0 sd sh					
54	5.0	3.0 Fgr	0	0	5	11	+
		4.0 sd					
		1.5 Fgr					
		1.5 CS					
		1.0 sd					
		1.0 Fgr					
		3.0 sd					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
55	5.0	2.0 gr	0	10	21	34	+
		1.0 sd					
		10.0 Fgr					
		2.0 sd					
56	7.0	4.0 Fgr	0	7	18	32	+
		2.0 gr					
		7.0 Fgr					
A	17.0	1.0 sd	0	4	12	18	+
		2.0 Fgr					
B	0.0	2.0 sd					+WL 2.0
C	0.0	5.0 Fgr (DM)	0	8	16	24	rk
		1.0 gr					
		1.0 gr Si Cl					
		3.0 FS Si Cl					
D	0.0	4.0 sd (DM)	0	0	3	6	rk
E	0.0	3.0 gr (DM)	0	2	8	15	+
		4.0 sd (DM)					
		3.0 Fgr Si Cl					
		2.0 sd Si Cl					
		1.0 sd sh					
		3.0 Fgr sh					
		1.0 FS					
		1.0 gr sh					
		2.0 FS					
F	0.0	7.0 Fgr (DM)	1	11	25	42	+ CAVE
		1.0 Fgr					
		9.0 gr					
G	0.0	7.0 sd (DM)					
		2.0 Si Cl (DM)					
		3.0 gr					
		4.0 Fgr					
		3.0 gr sh					
		1.0 sd					

RANGE	**50**	**TWP**	**130**	**SEC**	**S1/2 SW1/4 27**
COUNTY	**Richland**				**Nov-06**
PROSPECTED BY	**Volk / Dalzell**				
INSPECTED & APPROVED	**Carter**				

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	**IM-8-029(151)000**	**180**	**4**

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
		AREA 1					
1	1.0	10.0 gr	1	2	5	34	sd
		2.0 FS					
		3.0 gr					
2	1.0	7.0 gr	0	1	2	18	+ gr
		2.0 FS					
		2.0 gr					
		2.0 sd					
		1.0 gr					
3	3.0	10.0 gr	1	2	3	29	+ caving
4	1.0	2.0 gr	0	2	3	23	sd
		4.0 sd					
		3.0 gr					
5	2.0	18.0 gr	0	4	7	34	+ gr
6	1.0	19.0 gr	0	1	4	33	+ gr
7	4.0	10.0 gr	1	5	8	39	+ caving
8	5.0	2.0 gr	2	4	6	29	+ gr
		1.0 sd					
		2.0 FS					
		10.0 gr					
9	1.0	16.0 gr	2	6	9	36	sd
10	1.0	6.0 gr	0	4	7	32	+ gr
		2.0 cs					
		11.0 gr					
11	4.0	15.0 gr	3	11	17	45	FS
12	1.0	9.0 gr	2	6	8	26	sd
		1.0 sd					
		2.0 gr					
		AREA 3					
1	1.0	11.0 gr	0	2	7	26	+ sd
		1.0 sd					
		3.0 gr					
		4.0 sd					
2	1.5	8.5 sd	0	1	5	18	+ caving
		7.0 gr					
3	1.0	4.0 gr	0	4	10	38	+ caving
		2.0 sd					
		10.0 gr					
4	1.0	6.0 gr	0	0	3	19	+ caving
		2.0 sd					
		8.0 gr					
5	2.5	8.5 gr	0	3	8	32	+ gr
		3.0 sd					
		6.0 gr					
6	1.5	5.5 gr	0	3	6	32	+ caving
		2.0 sd					
		9.0 gr					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
7	1.0	4.0 gr	0	4	8	31	+ gr
		1.0 sd					
		14.0 gr					
8	1.0	8.0 gr	0	2	6	28	+ gr
		2.0 sd					
		9.0 gr					
9	5.0	14.0 gr	0	8	14	36	+ caving
10	1.5	6.5 gr	0	2	4	23	clay
11	1.5	7.5 gr	0	3	8	25	+ gr
		2.0 sd					
		9.0 gr					
12	0.5	10.5 gr	0	1	3	17	+ gr
		1.0 sd					
		8.0 gr					
13	0.5	19.5 gr	0	1	3	22	+ gr
14	2.0	11.0 gr	0	0	2	22	+ sd
		7.0 sd					
15	2.0	7.0 sd & gr	0	1	3	25	+ gr
		3.0 FS					
		8.0 gr					
		AREA 4					
1	4.5	13.5 sd & gr	0	0	2	19	+ caving
2	7.0	4.0 gr	0	0	1	20	+ gr
		6.0 sd					
		3.0 gr					
3	9.0	4.0 FS	0	1	6	27	+ gr
		4.0 sd					
		3.0 gr					
4	3.0	3.0 gr	0	0	0	8	gr
		14.0 sd					
5	3.0	6.0 gr	0	0	0	10	+ sd
		9.0 sd					
6	1.0	13.0 gr	0	3	8	33	+ caving
		2.0 sd					
7	2.5	7.0 gr	0	0	2	23	+ sd & gr
		5.0 FS					
		5.0 sd & gr					
8	2.0	3.0 gr	0	0	3	22	+ gr
		6.0 sd					
		4.0 gr					
9	6.0	13.0 sd	0	0	0	6	+ gr
		1.0 gr					
10	6.5	1.5 FS	0	0	0	16	+ gr
		12.0 gr					
11	3.0	5.0 gr	0	1	4	33	FSSi Cl
12	4.5	7.5 gr	0	2	7	24	+ caving
13	2.0	14.0 gr	0	3	8	30	FSSi Cl
14	3.0	12.0 0.0	0	1	7	34	+ caving
15	0.5	19.5 gr	0	1	4	23	+ gr

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
16	1.0	19.0 gr	0	1	4	20	+ gr
17	1.5	5.5 sd & gr	0	3	5	23	+ gr
		3.0 sd					
		10.0 gr					
18	1.5	12.5 gr	0	2	5	24	+ gr
		3.0 sd					
		3.0 gr					
19	1.5	9.0 gr	0	3	6	23	+ caving
		5.5 sd					
20	1.5	8.5 sd & gr	0	0	2	23	FS
21	9.0	2.0 FS	0	0	3	17	+ gr
		9.0 gr					
22	1.0	12.0 gr	0	0	4	27	FS
23	1.5	18.5 gr	0	1	5	25	+ gr
24	2.5	17.5 gr	0	1	3	22	+ gr
25	2.0	18.0 gr	0	0	4	28	+ gr
26	2.0	15.0 sd & gr	0	2	4	18	FS Si Cl
27	1.0	3.5 gr	0	4	7	20	+ caving
		3.5 sd					
		4.0 FS					
		4.0 sd					
		3.0 gr					
28	3.5	14.5 gr	0	0	2	23	+ caving
29	1.0	19.0 gr	0	0	1	23	+ gr
30	1.5	18.5 gr	0	0	2	20	+ gr
31	2.0	15.0 gr	0	3	7	30	+ gr
		3.0 sd					
32	1.5	12.5 gr	0	3	6	25	FS
		2.0 sd					
33	2.0	15.0 gr	0	0	3	22	+ sd
		3.0 sd					
34	1.0	19.0 gr	0	0	3	30	+ gr
35	1.0	19.0 gr	0	2	6	28	+ gr
36	1.5	18.5 sd & gr	0	0	2	15	+ sd & gr
37	2.0	16.0 gr	0	0	2	13	FSSi Cl
38	1.5	10.5 sd	0	5	7	20	FSSi Cl
		7.0 gr					
39	1.5	10.5 sd	0	3	5	19	+ gr
		8.0 gr					
40	1.5	13.5 gr	0	0	0	14	+ caving
		5.0 sd					
41	1.5	8.0 gr	0	1	2	19	FSSi Cl
		4.0 sd					
42	2.0	18.0 sd & gr	0	1	6	27	+ sd & gr
43	1.5	18.5 sd & gr	0	0	3	21	+ sd & gr
44	2.0	18.0 gr	0	1	2	20	+ gr
45	1.0	13.0 gr	0	0	2	24	+ gr
		3.0 sd					
		4.0 gr					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
46	2..0	4.0 gr	0	1	5	24	+ gr
		2.0 sd					
		10.0 gr					
47	1.5	10.0 gr	0	0	2	24	+ gr
		2.0 sd					
		6.0 gr					
48	1.0	19.0 gr	0	1	3	25	+ gr
49	1.0	9.0 gr	0	0	4	21	+ gr
		3.0 sd					
		7.0 gr					
50	2.0	5.0 gr	0	0	3	19	+ sd
		5.0 sd					
		5.0 gr					
		3.0 sd					
51	4.0	6.0 gr	0	1	3	21	sd
		3.0 sd					
		5.0 gr					
		2.0 sd					
52	4.0	1.0 gr	0	2	2	22	+ gr
		4.0 sd					
		3.0 gr					
		3.0 sd					
		5.0 gr					
53	4.0	7.0 gr	0	1	3	18	+ gr
		2.0 sd					
		7.0 gr					
54	4.0	4.0 sd	0	0	3	19	Si Cl
		2.0 gr					
		4.0 sd					
		2.0 gr					
		2.0 sd					
55	6.0	4.0 sd	0	0	1	13	Si Cl
		8.0 gr					
56	3.5	8.5 gr	0	0	2	24	+ gr
		2.0 sd					
		2.0 FS Si Cl					
		4.0 gr					
57	4.0	7.0 sd	0	0	0	13	caving
		6.0 gr					

RANGE **50** **TWP** **130** **SEC.** **S1/2 SW1/4 27**

COUNTY **Richland** **Nov-06**

PROSPECTED BY **Volk / Dalzell**

INSPECTED & APPROVED **Carter**

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	180	5

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
		AREA 5					
1	2.0	16.0 gr	0	0	2	20	FS Si Cl
2	2.0	16.0 gr	0	3	6	28	+ sd
		2.0 sd					
3	8.0	7.0 gr	0	0	3	32	+ caving
4	3.0	4.0 gr	0	0	1	12	+ gr
		2.0 FS					
		5.0 sd					
		6.0 gr					
5	4.0	2.0 sd	0	3	8	29	+ gr
		2.0 gr					
		1.0 sd					
		11.0 gr					
6	11.0	9.0 gr	0	2	4	22	+ gr
7	6.0	14.0 gr	0	1	5	27	+ gr
8	5.0	4.0 FS	0	1	3	21	+ sd
		7.0 gr					
		4.0 sd					
9	1.0	10.0 gr	0	0	3	28	+ gr
		6.0 FS					
		1.0 gr					
		2.0 FS					
10	1.0	16.0 gr	0	4	8	31	+ FS
		3.0 FS					
11	4.0	6.0 gr	0	2	4	23	+ gr
		5.0 FS					
		5.0 gr					
12	3.0	6.0 gr	0	1	3	23	+ gr
		3.0 sd					
		3.0 gr					
		3.0 sd					
		2.0 gr					
13	6.0	13.0 gr	0	0	3	26	+ gr
14	9.0	7.0 gr	0	1	7	31	+ gr
		1.0 sd					
		3.0 gr					
15	12.5	7.5 sd & gr	0	0	1	13	+ sd & gr
16	9.0	11.0 gr	0	0	1	20	+ gr
17	6.0	2.0 FS	0	0	3	28	+ gr
		12.0 gr					
18	7.0	13.0 gr	0	0	1	20	+ gr

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole

RANGE 50 **TWP** 130 **SEC.** S1/2 SW1/4 27

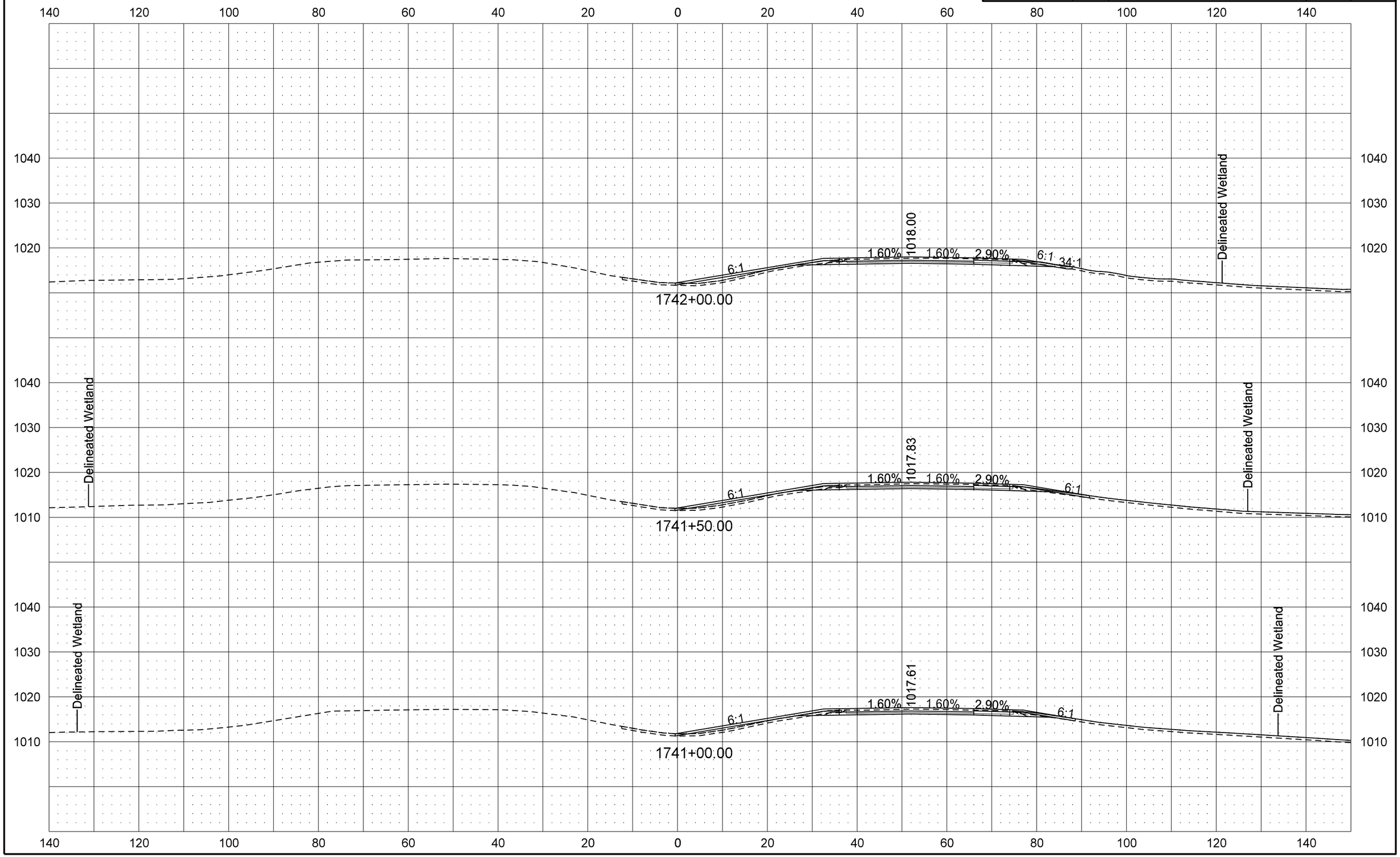
COUNTY Richland Nov-06

PROSPECTED BY Volk / Dalzell

INSPECTED & APPROVED Carter

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	200	1

HANKINSON SEPARATION GRADE LOWERING CROSS SECTIONS



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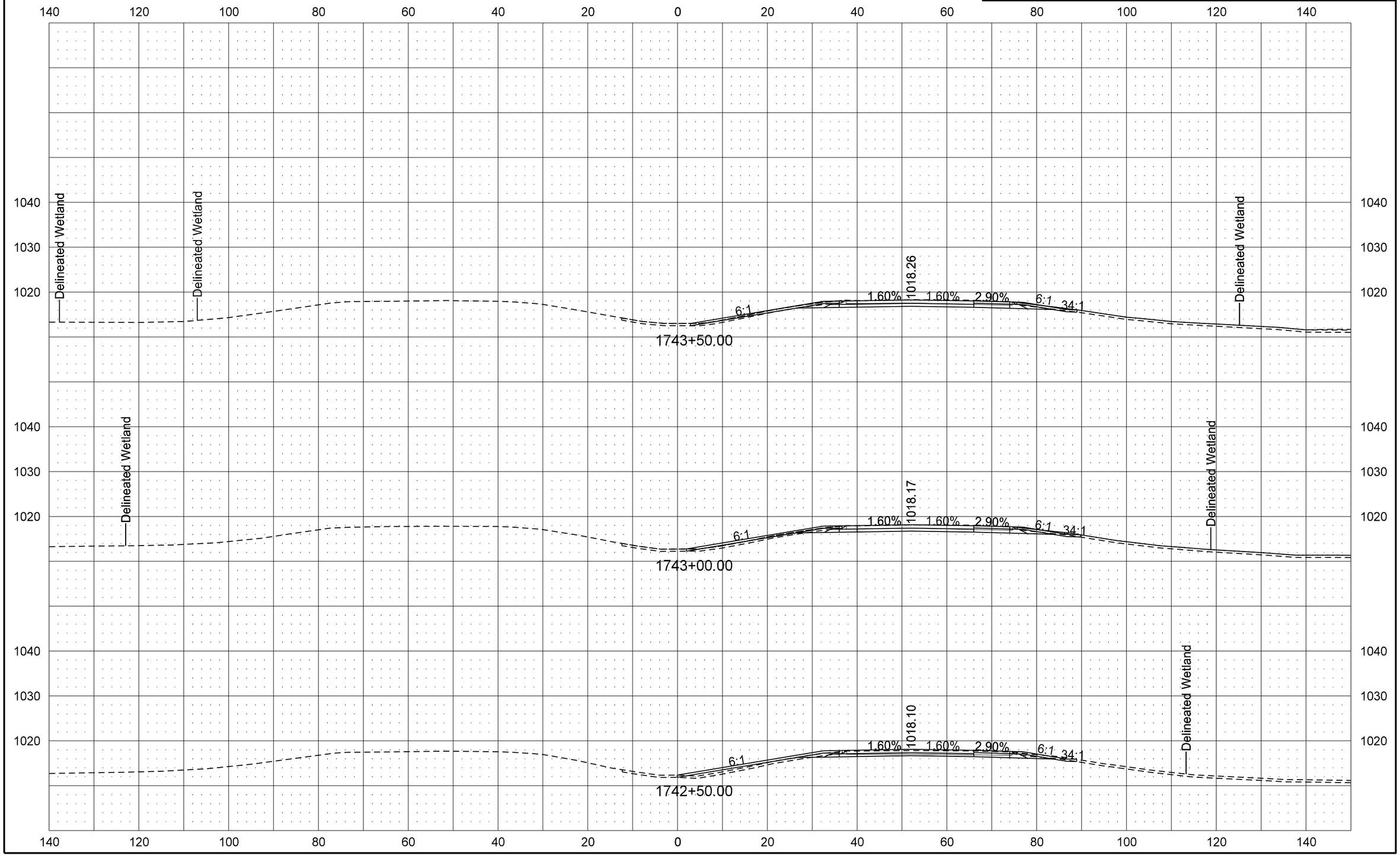
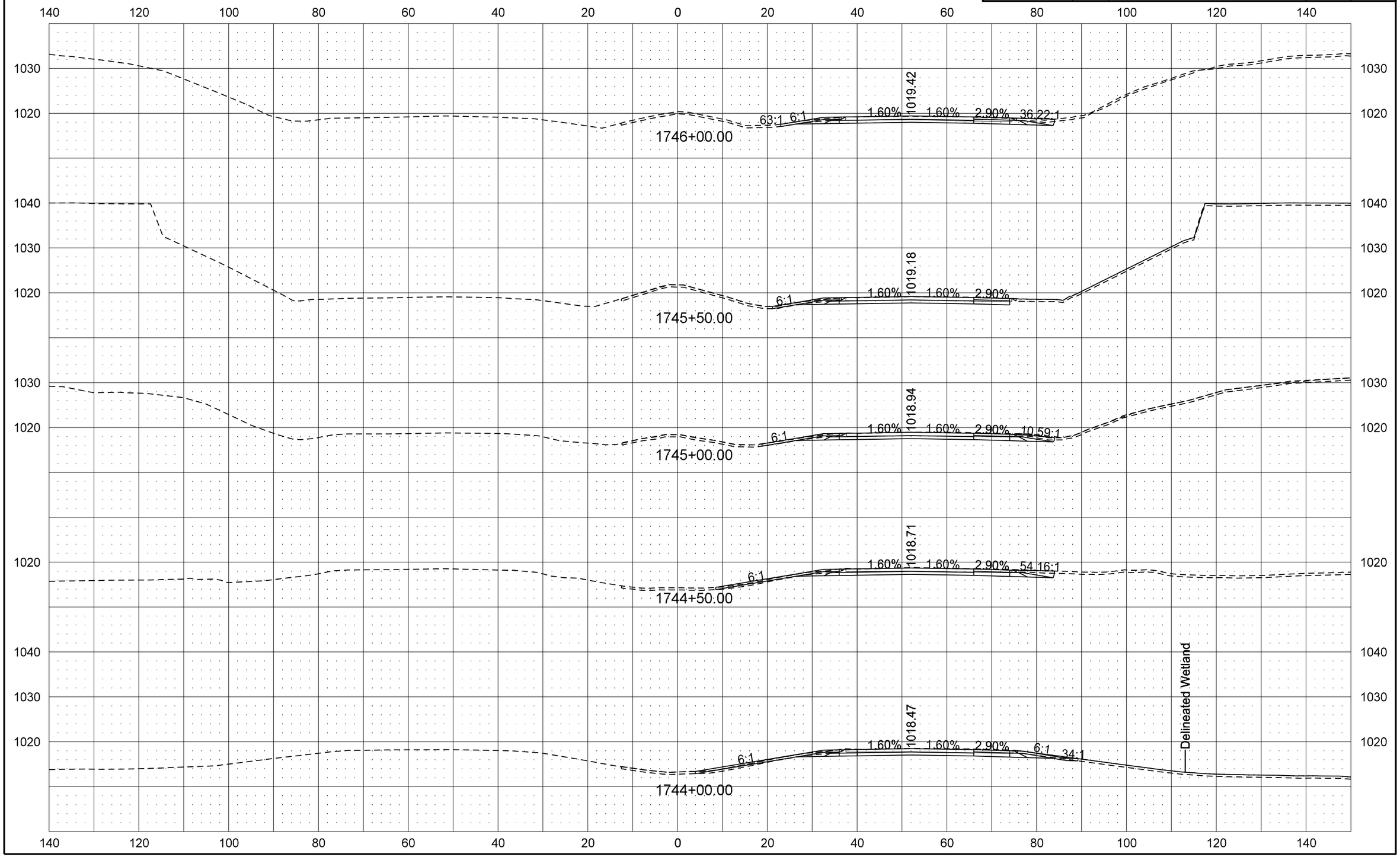
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	200	2

HANKINSON SEPARATION GRADE LOWERING CROSS SECTIONS



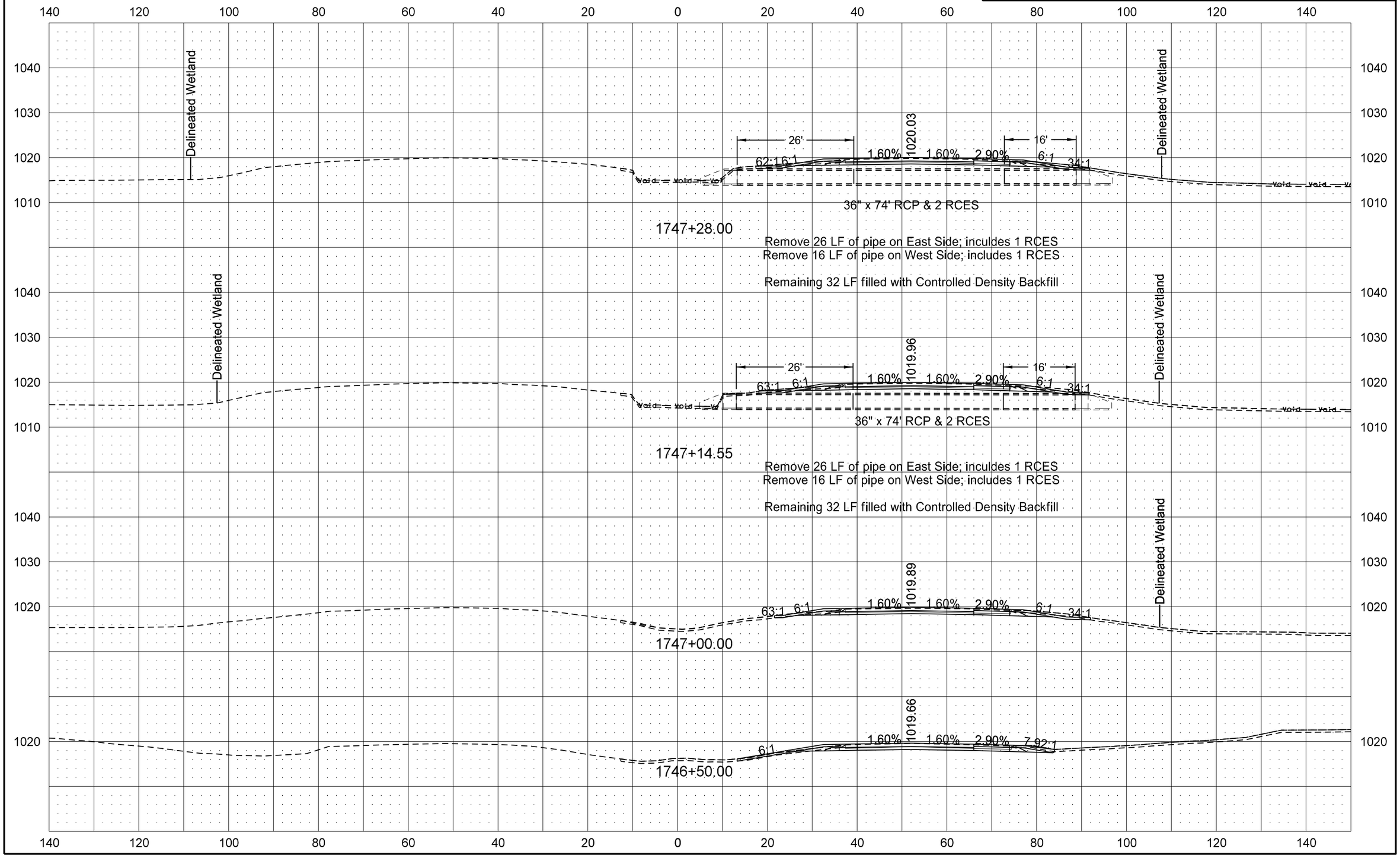
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	200	3

HANKINSON SEPARATION GRADE LOWERING CROSS SECTIONS



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	200	4

HANKINSON SEPARATION GRADE LOWERING CROSS SECTIONS



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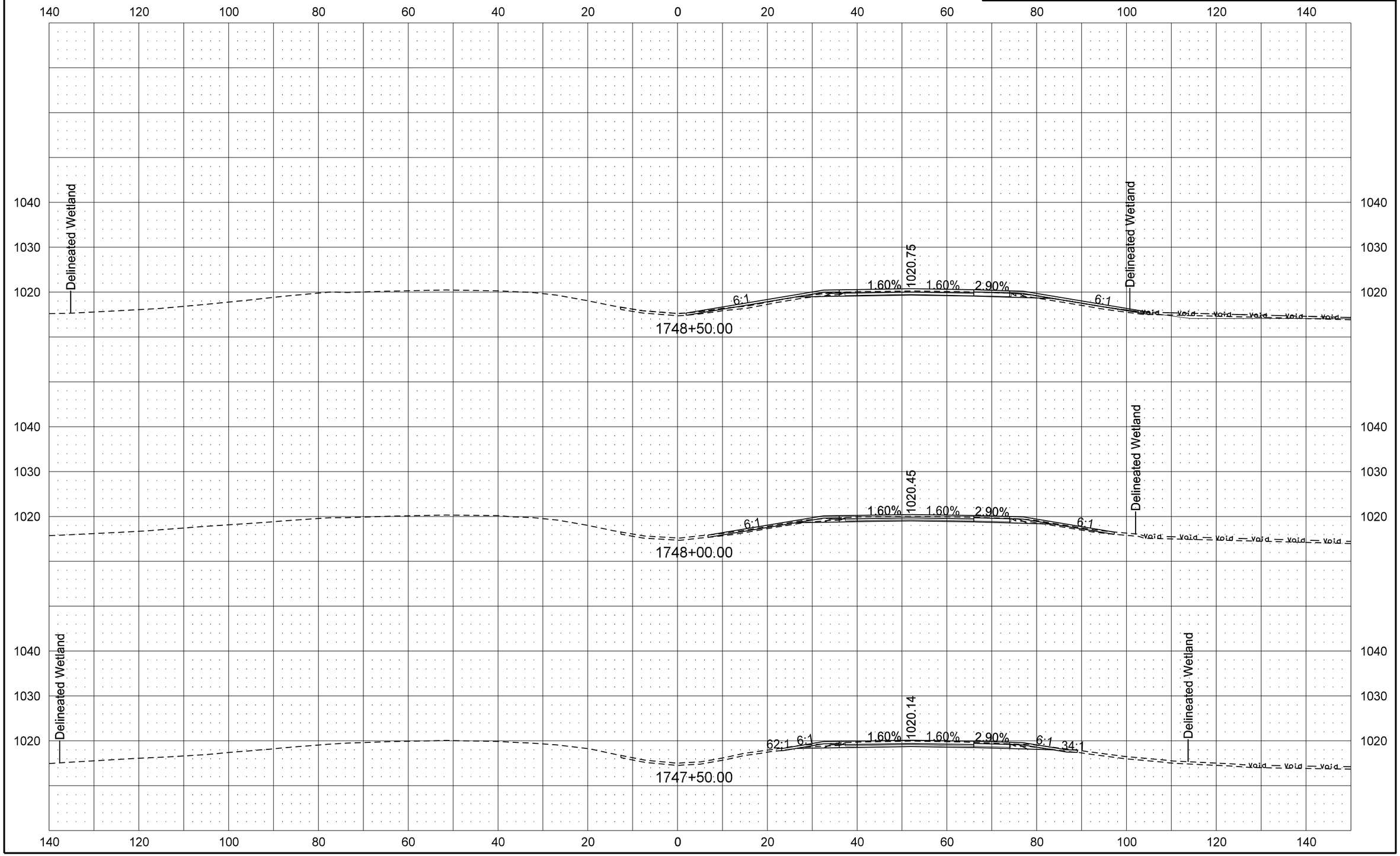
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	200	5

HANKINSON SEPARATION GRADE LOWERING CROSS SECTIONS



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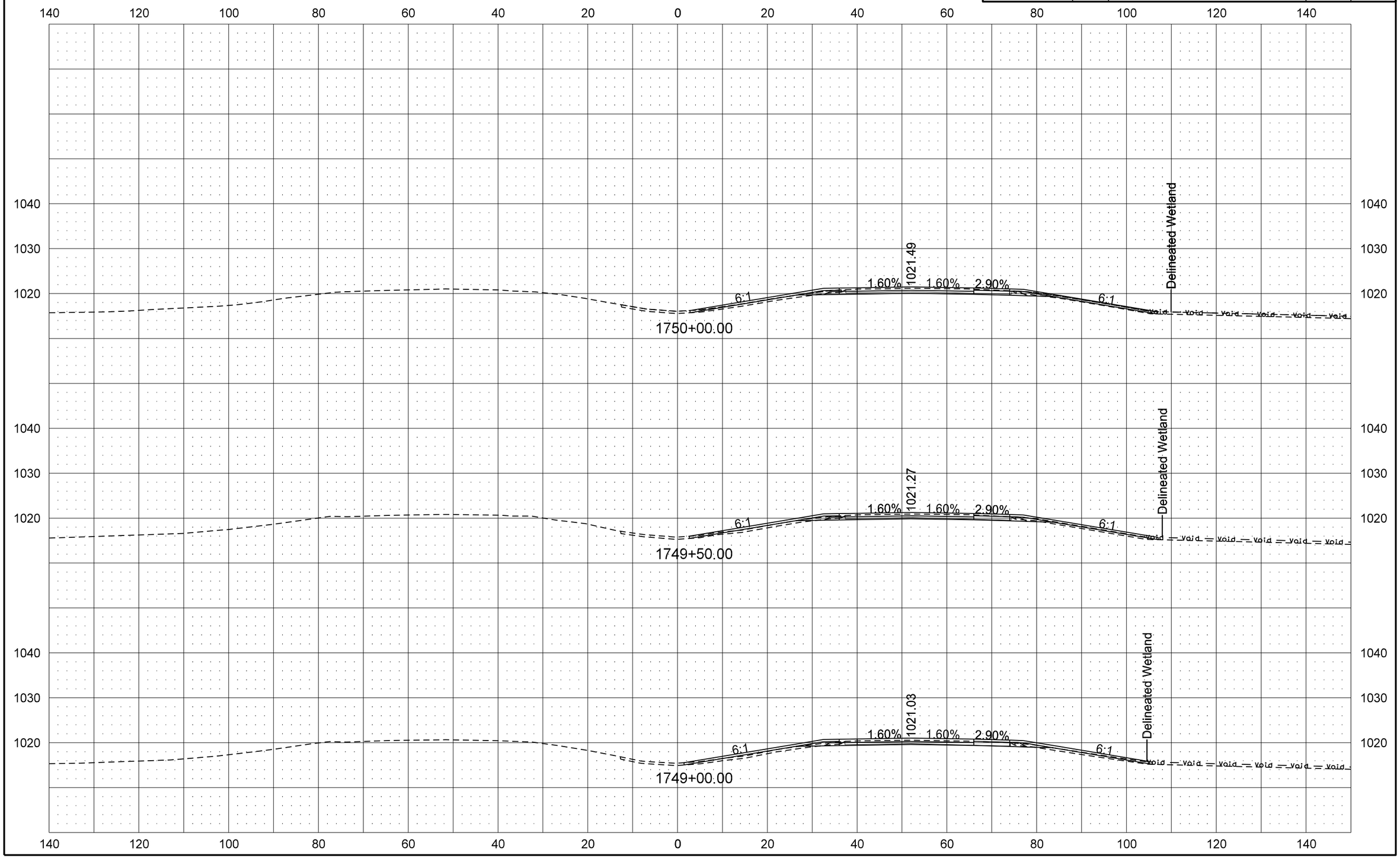
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	200	6

HANKINSON SEPARATION GRADE LOWERING CROSS SECTIONS



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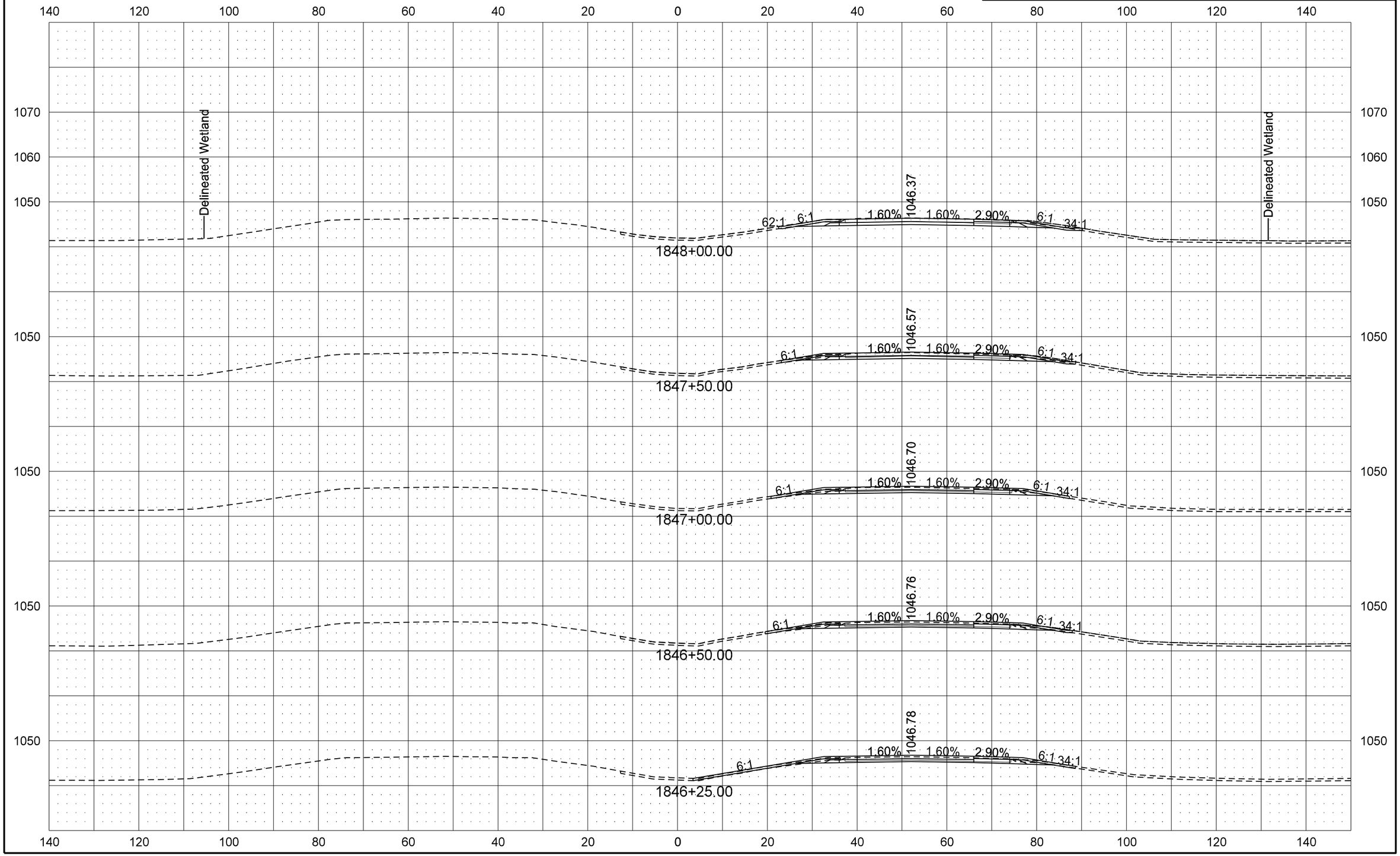
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	200	7

HANKINSON INTERCHANGE GRADE LOWERING CROSS SECTIONS



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	200	8

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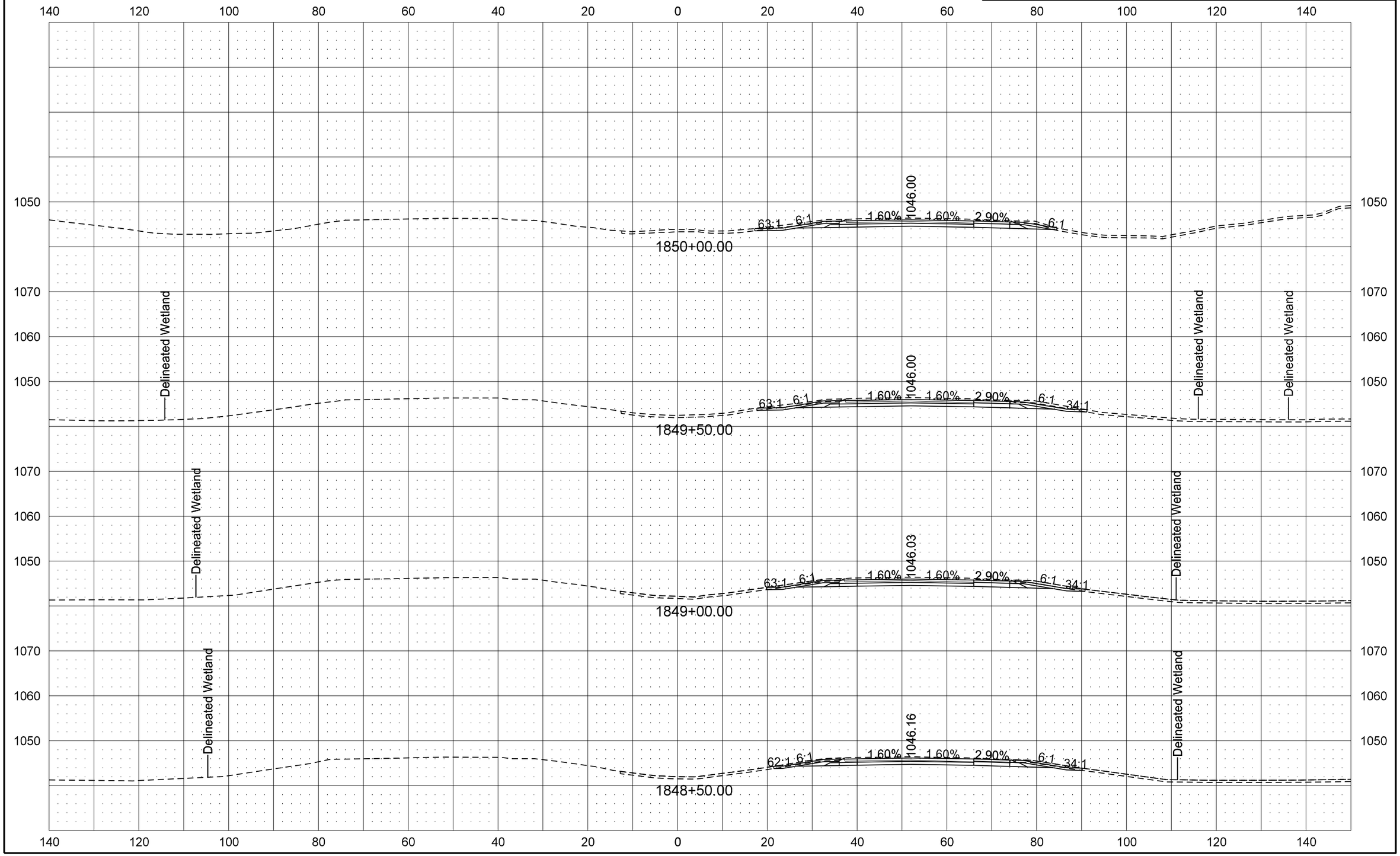

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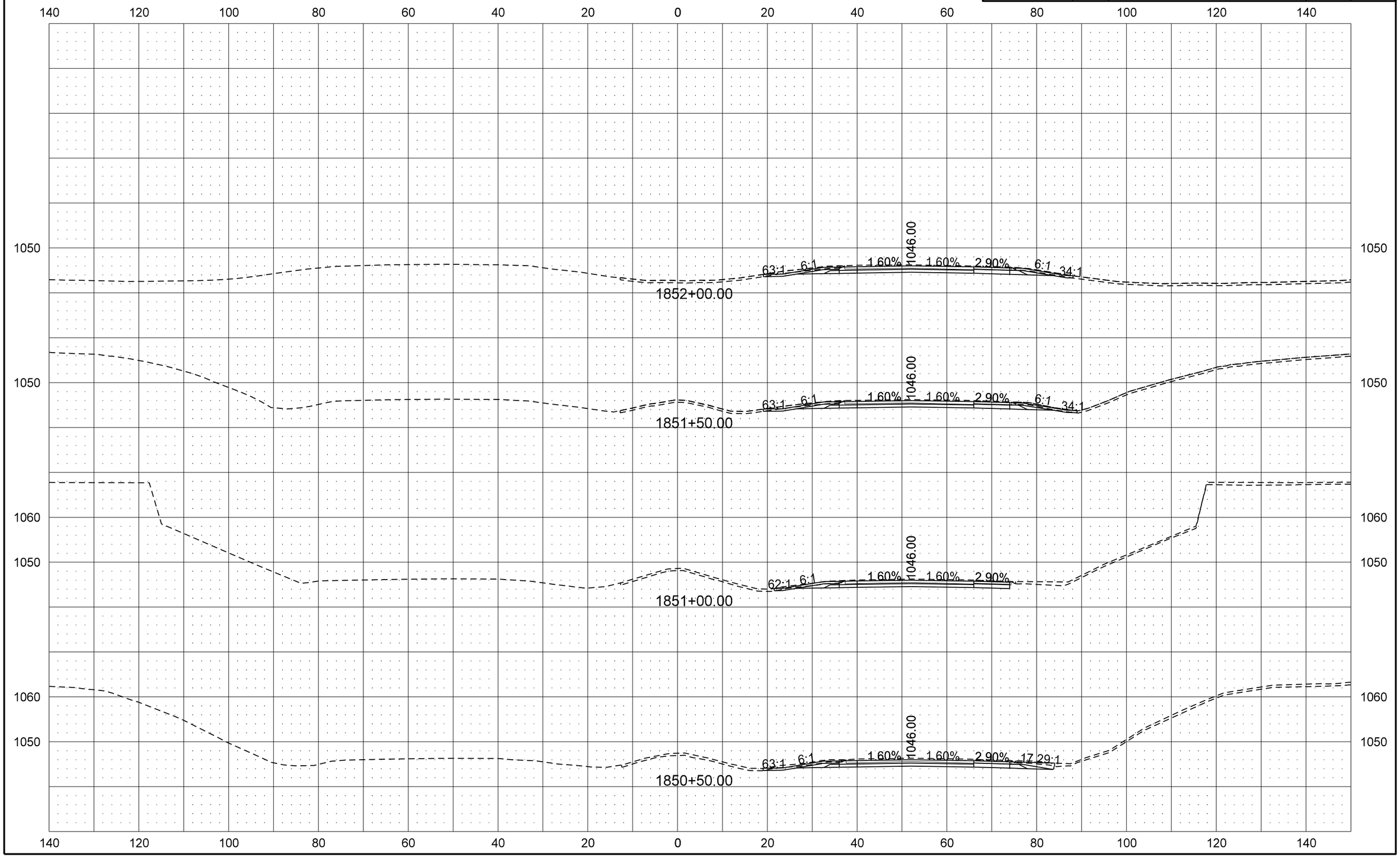
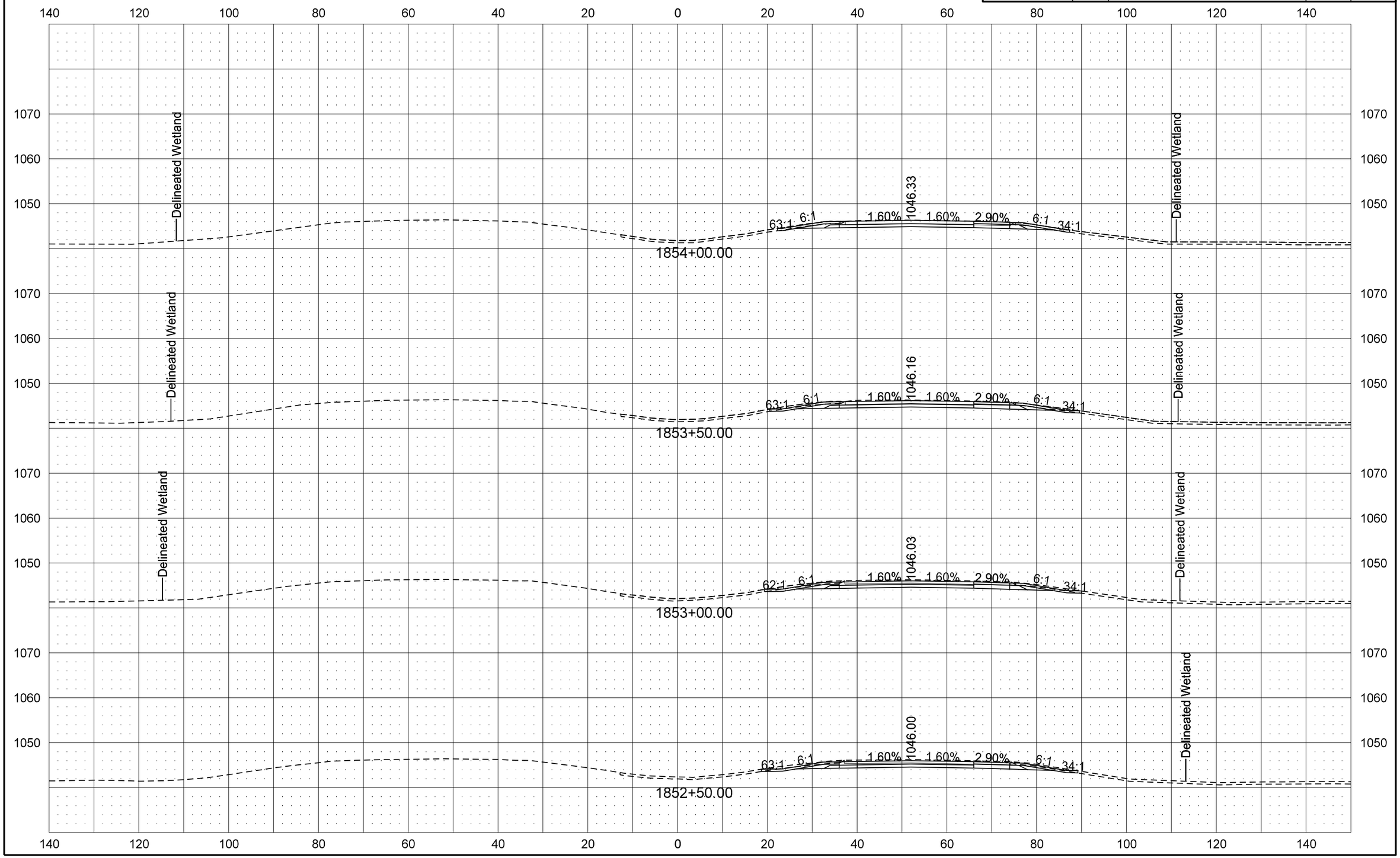
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	200	9

HANKINSON INTERCHANGE GRADE LOWERING CROSS SECTIONS



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	200	10

HANKINSON INTERCHANGE GRADE LOWERING CROSS SECTIONS



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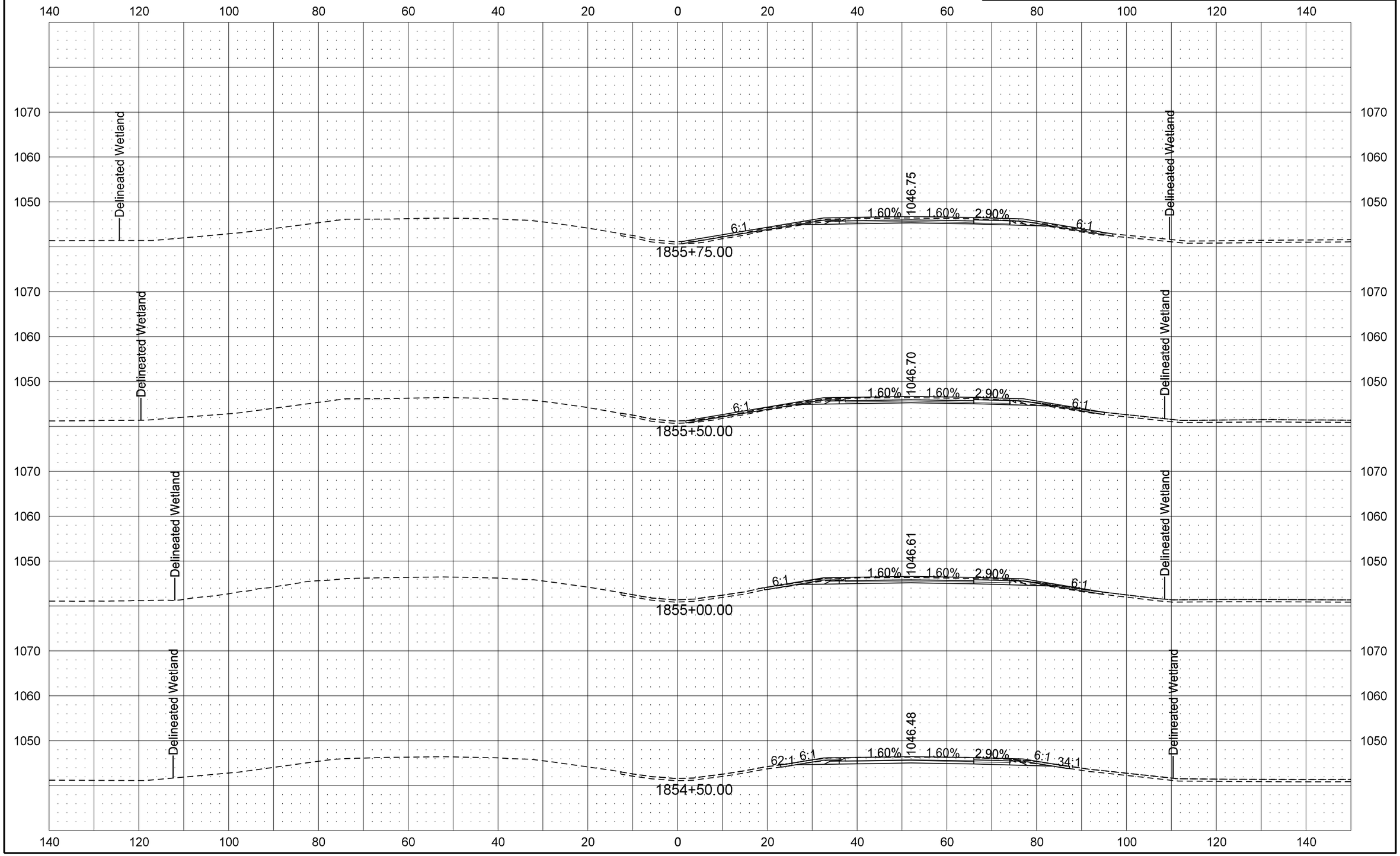
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	200	11

HANKINSON INTERCHANGE GRADE LOWERING CROSS SECTIONS



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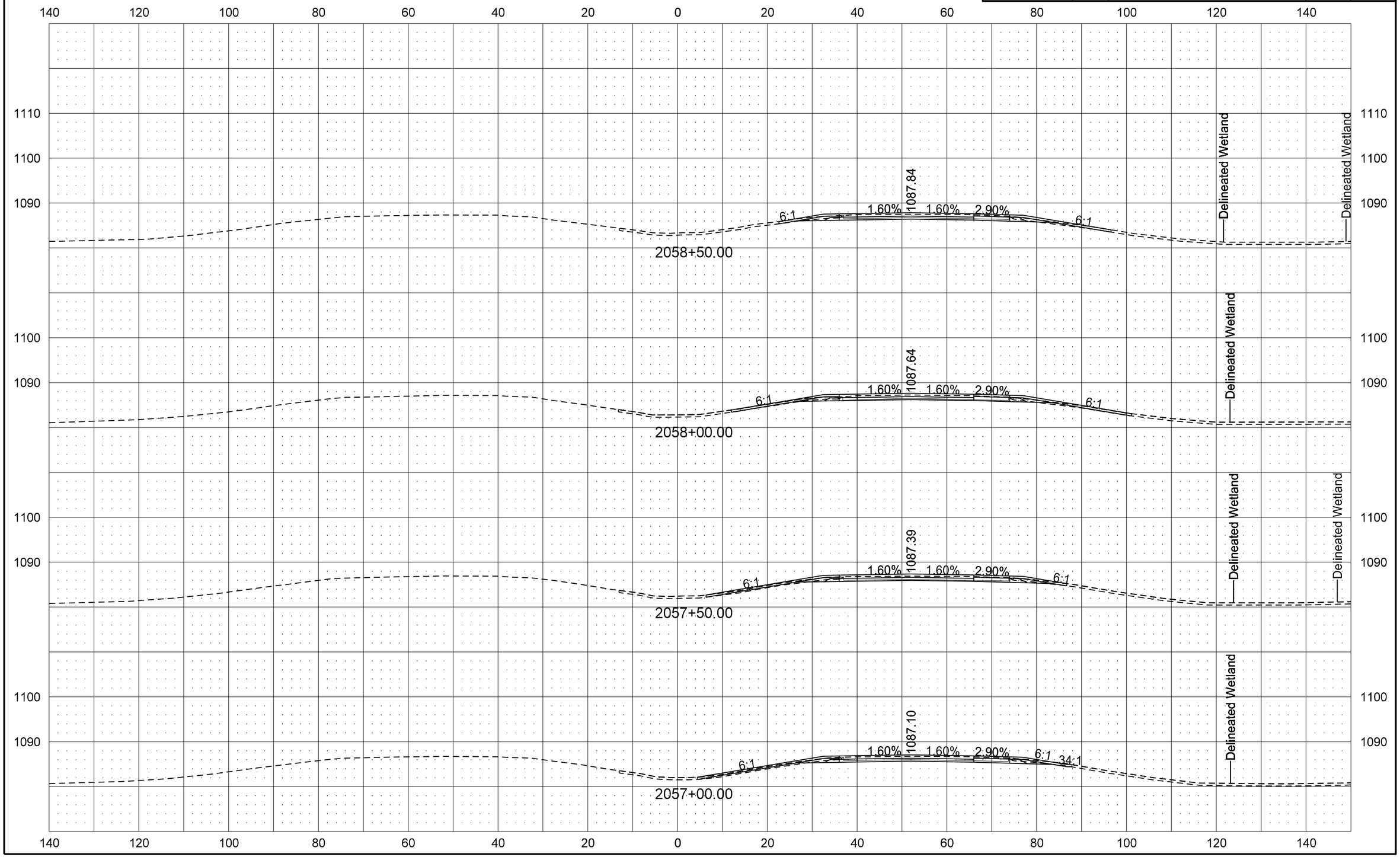
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	200	12

PARK LAKE SEPARATION GRADE LOWERING CROSS SECTIONS



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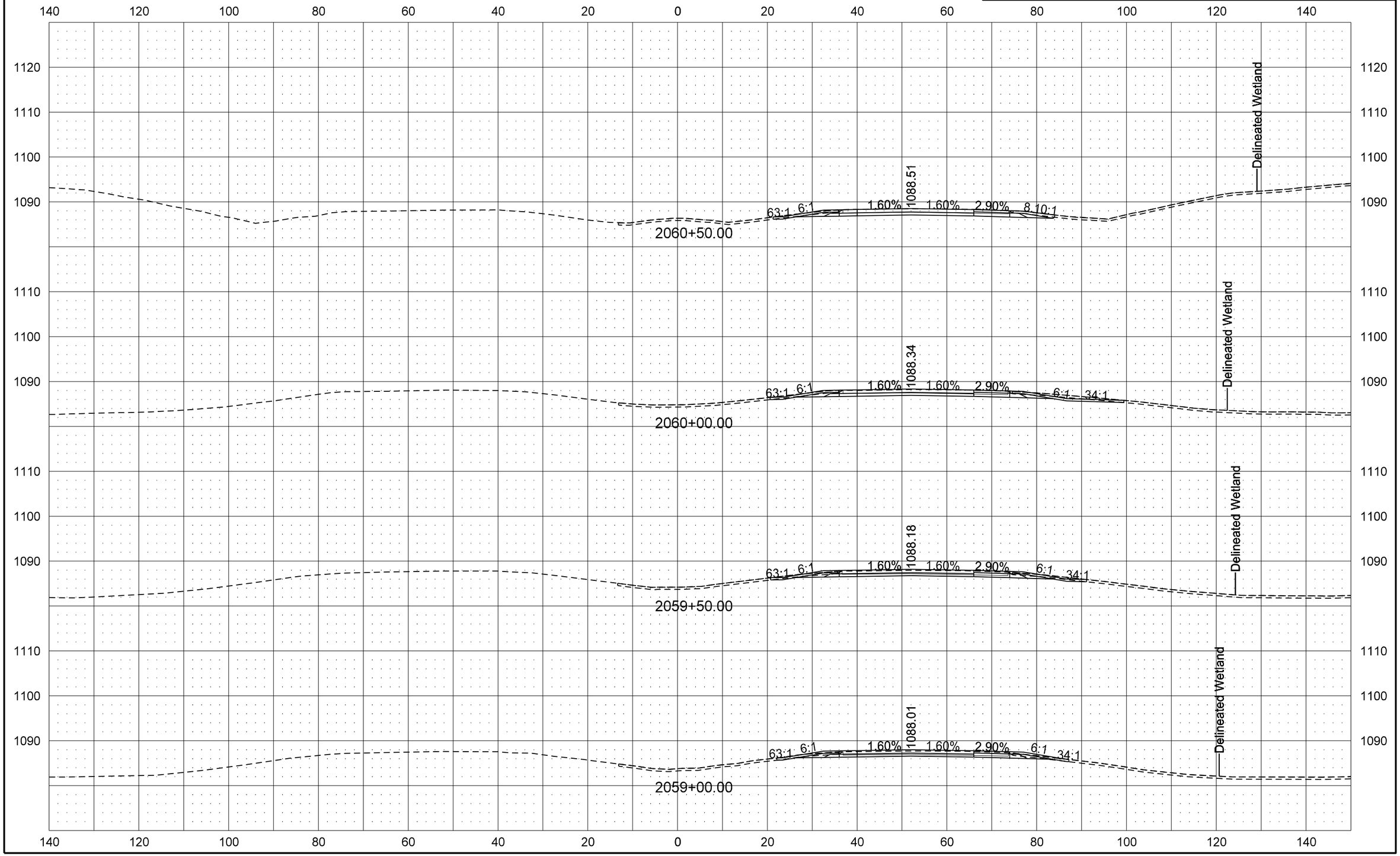
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	200	13

PARK LAKE SEPARATION GRADE LOWERING CROSS SECTIONS



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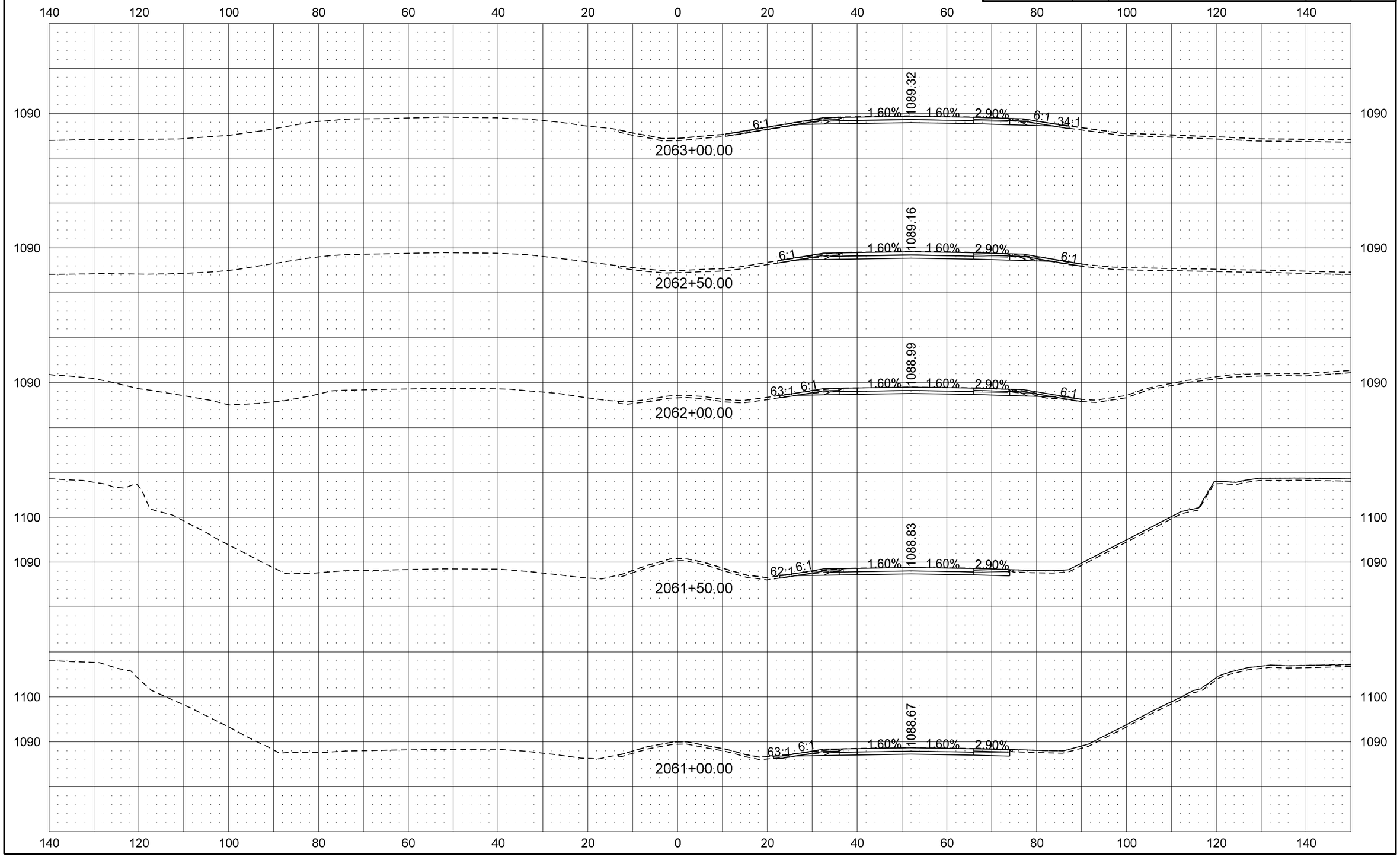
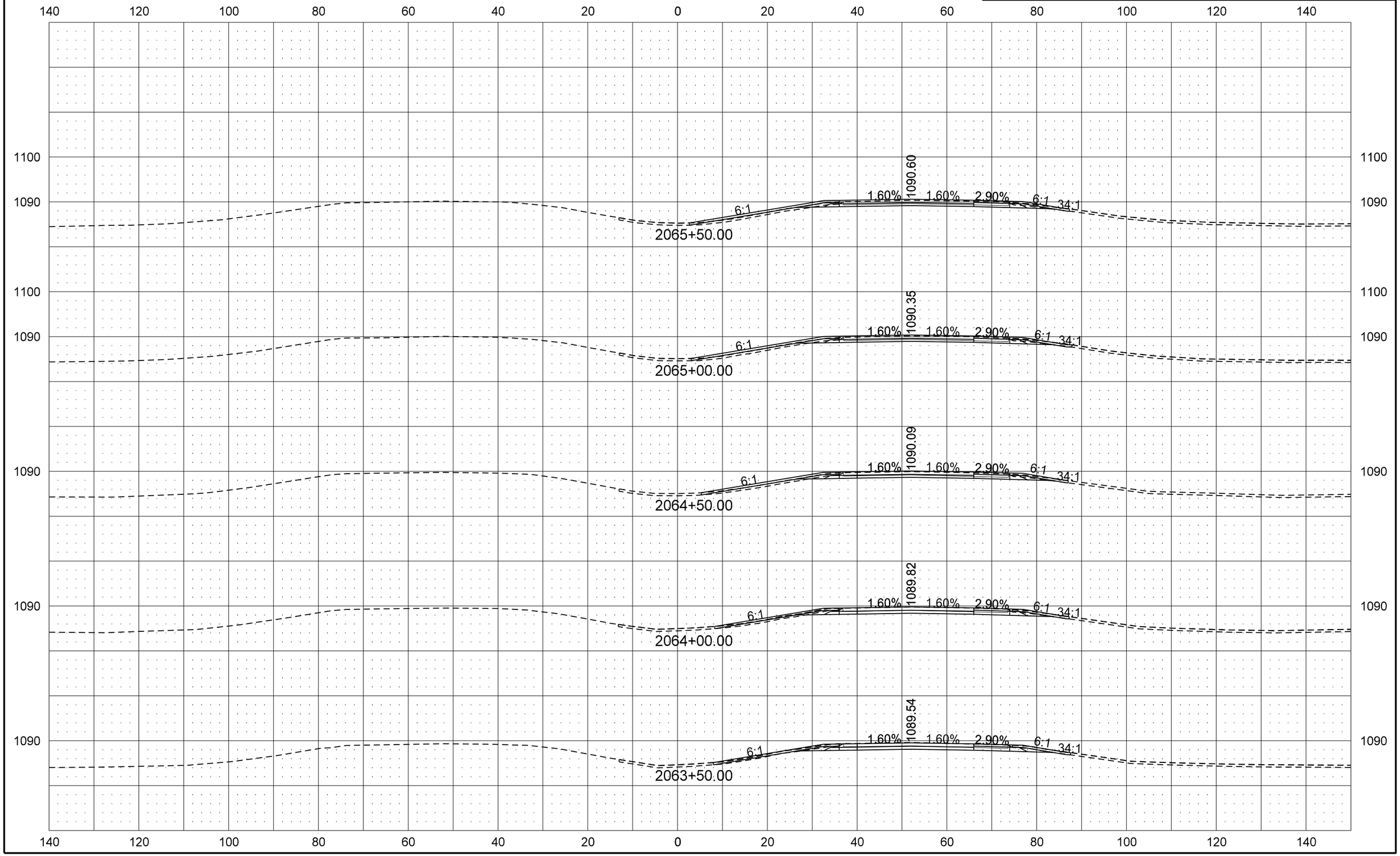
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	200	14

PARK LAKE SEPARATION GRADE LOWERING CROSS SECTIONS



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	200	15

PARK LAKE SEPARATION GRADE LOWERING CROSS SECTIONS



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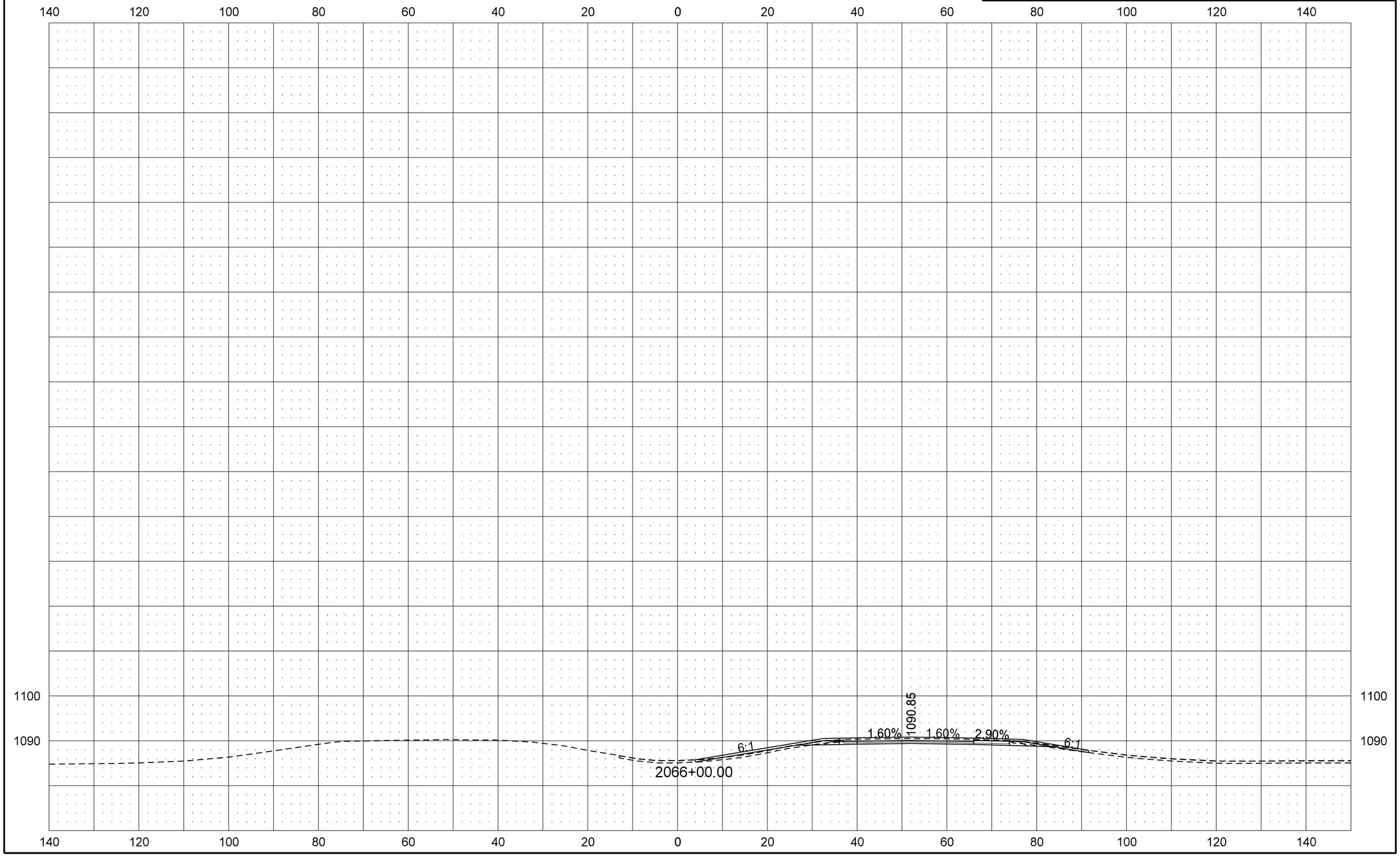
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	200	16

PARK LAKE SEPARATION GRADE LOWERING CROSS SECTIONS



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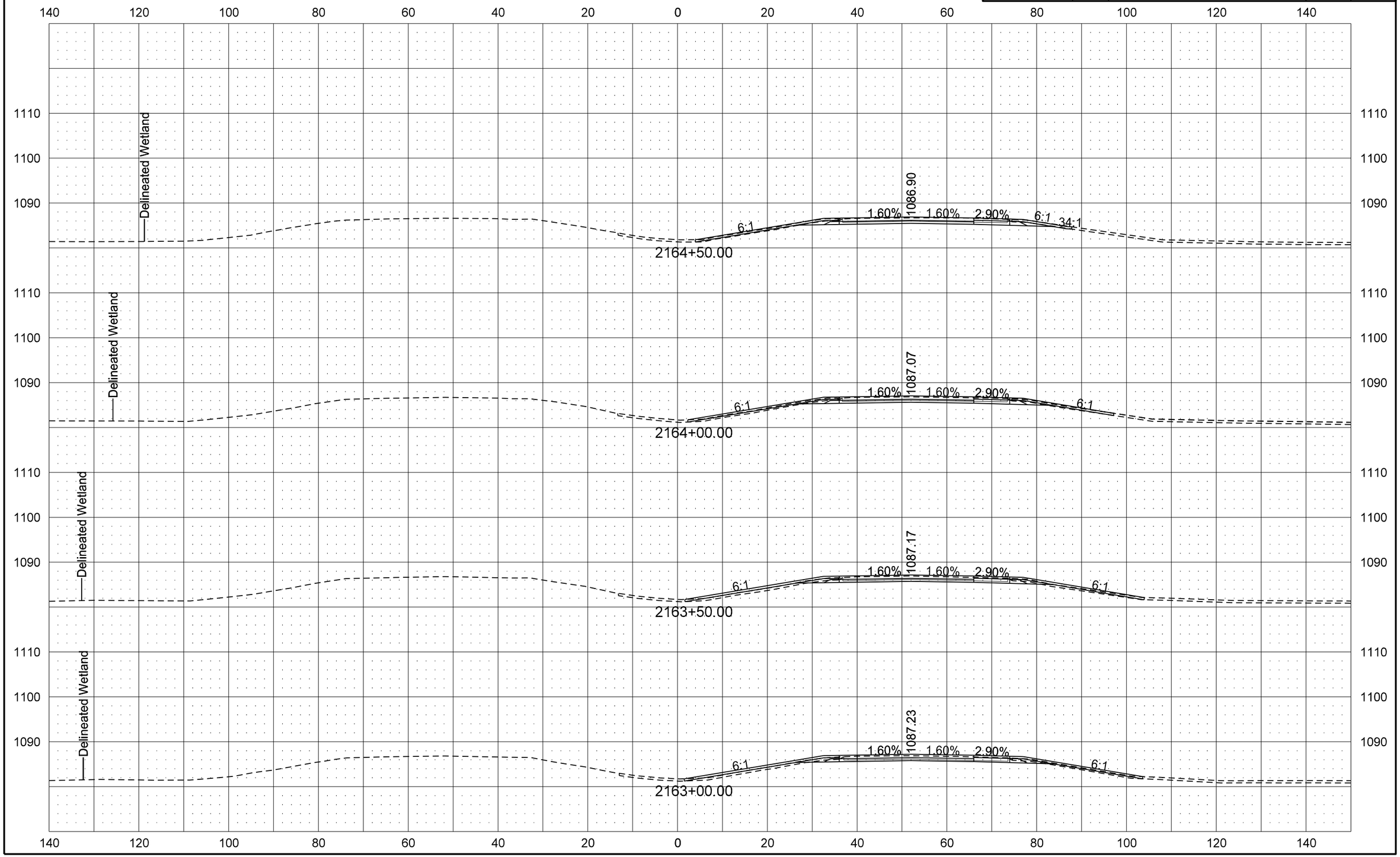
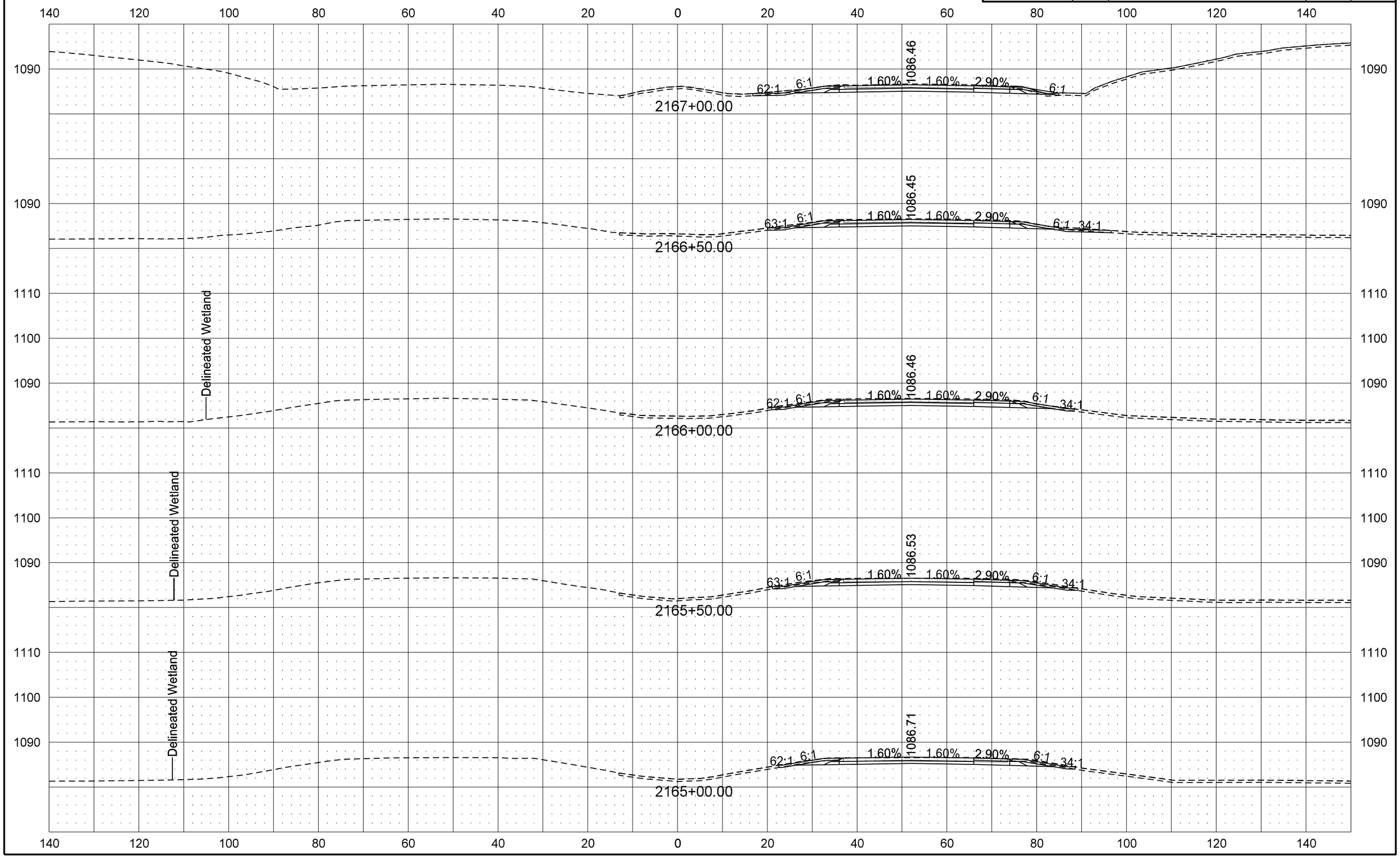
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	200	17

LAMARS INTERCHANGE GRADE LOWERING CROSS SECTIONS



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	200	18

LAMARS INTERCHANGE GRADE LOWERING CROSS SECTIONS



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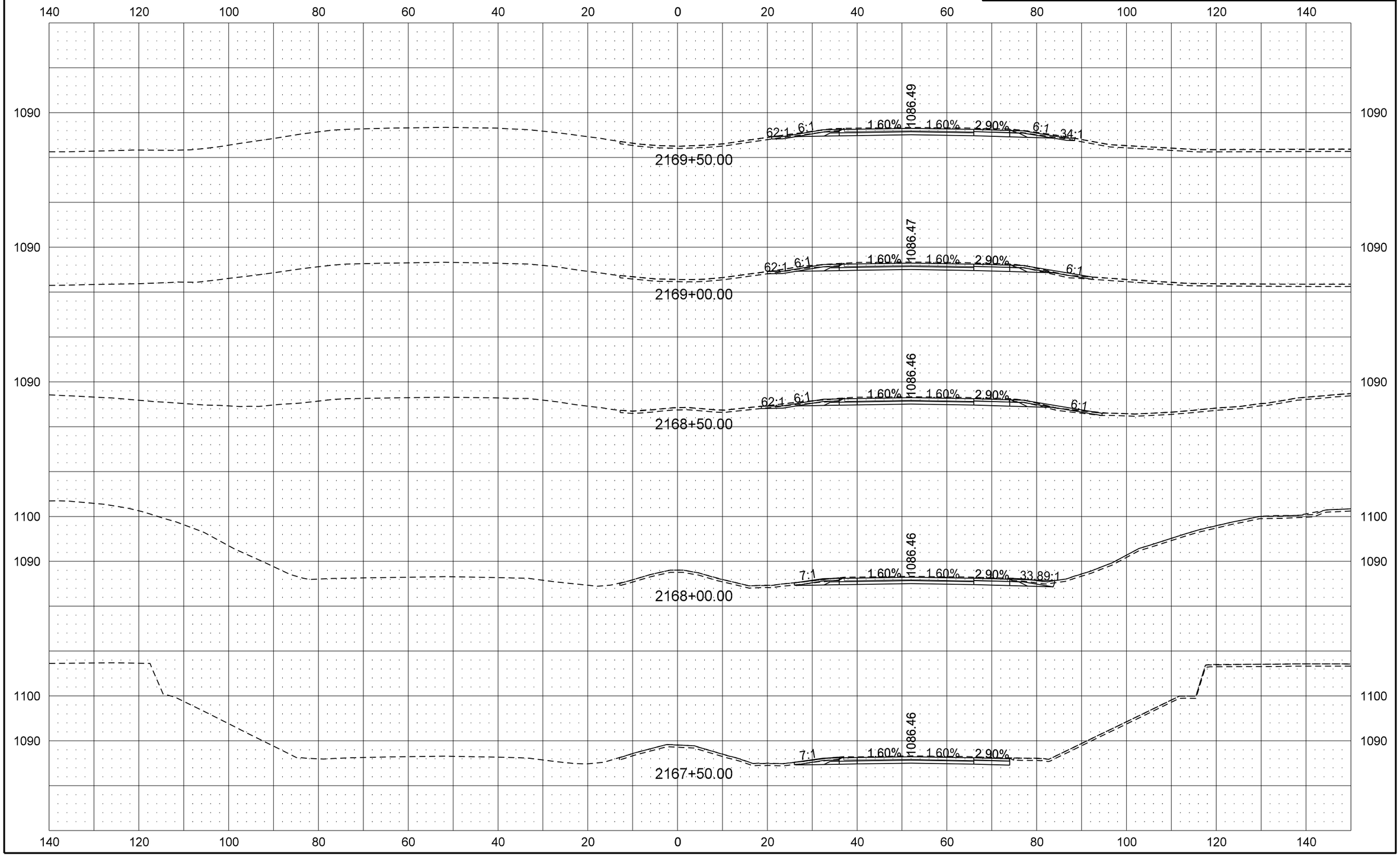
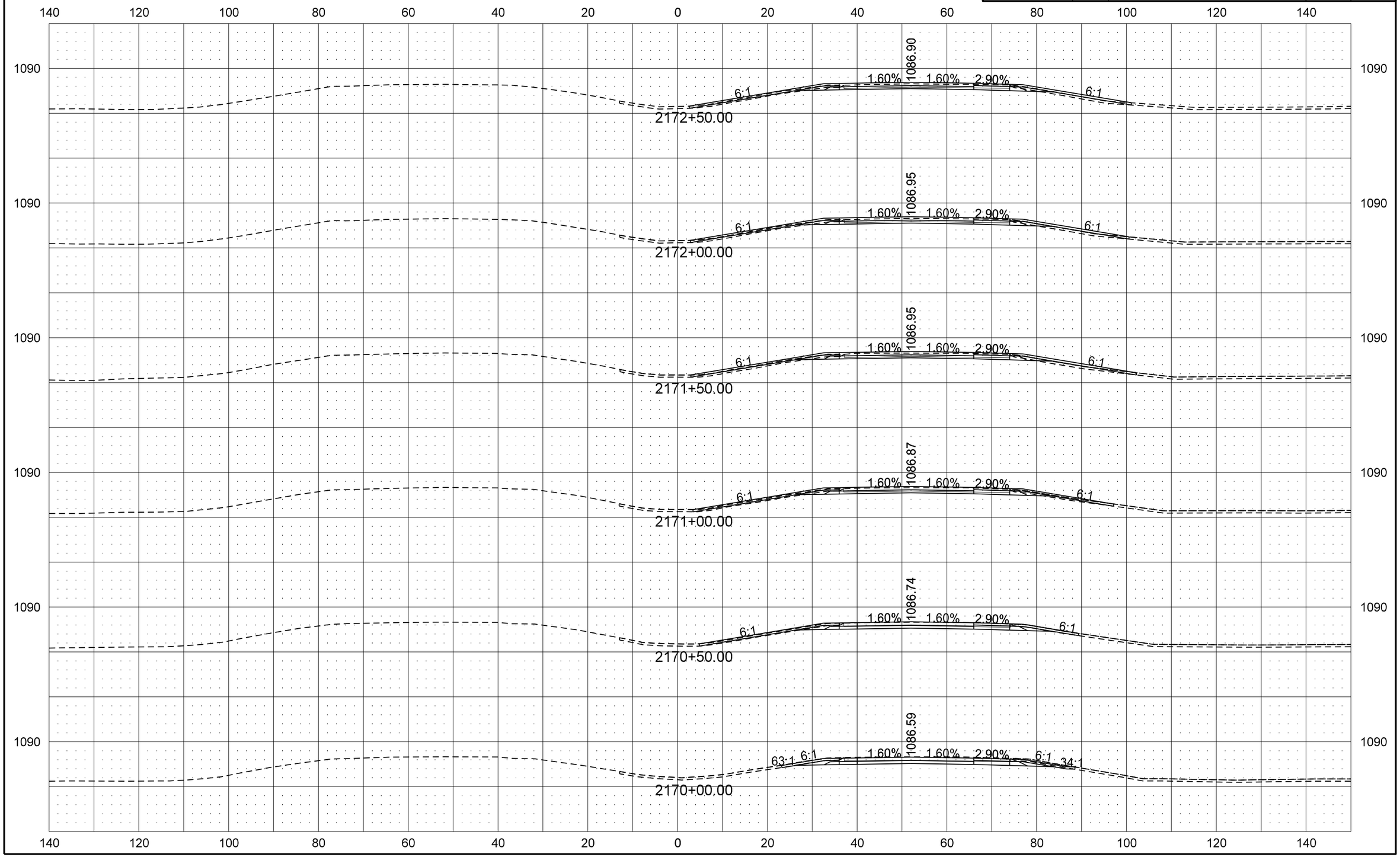
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	200	19

LAMARS INTERCHANGE GRADE LOWERING CROSS SECTIONS



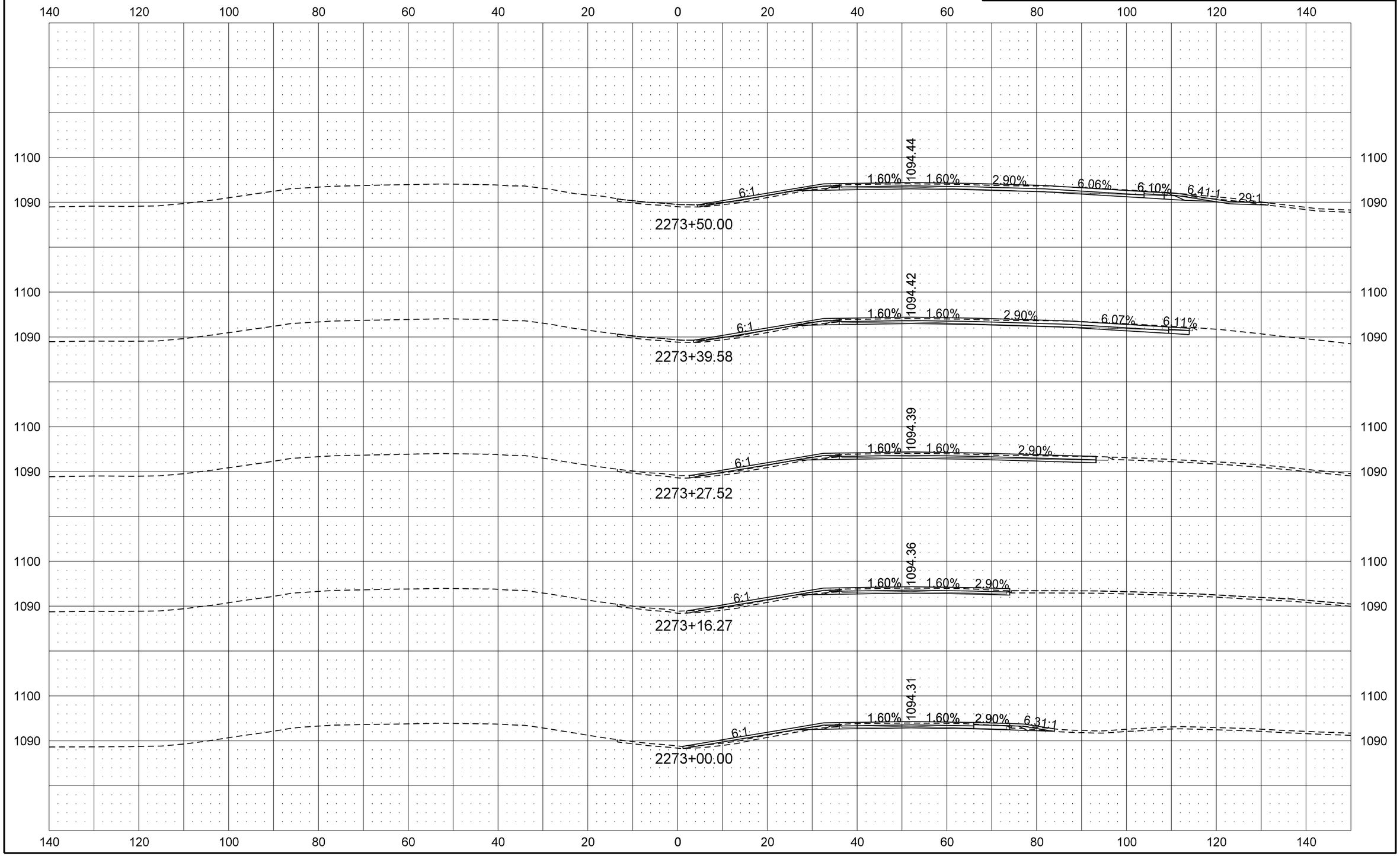
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	200	20

LAMARS INTERCHANGE GRADE LOWERING CROSS SECTIONS



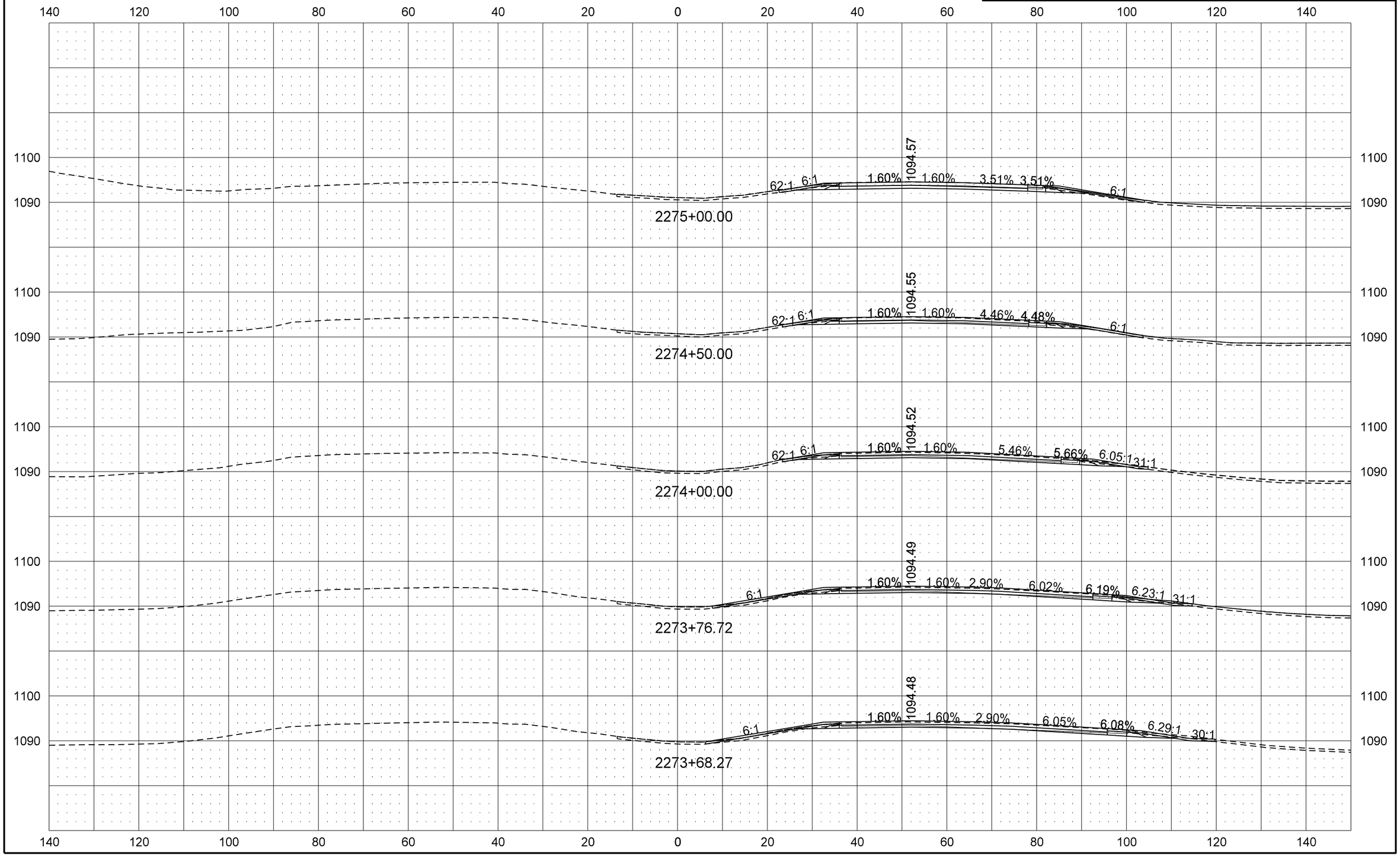
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	200	21

STATE LINE INTERCHANGE GRADE LOWERING CROSS SECTIONS



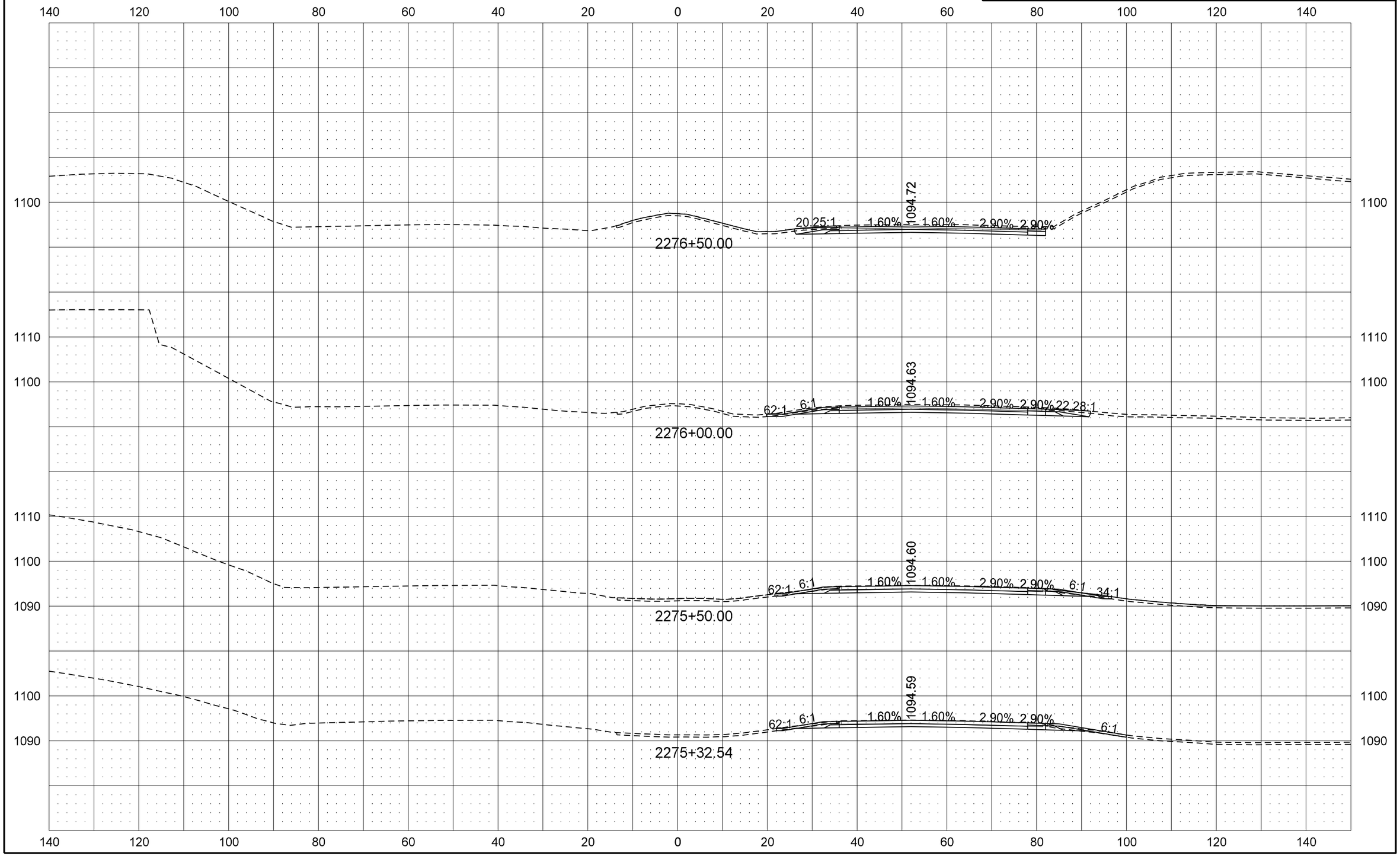
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	200	22

STATE LINE INTERCHANGE GRADE LOWERING CROSS SECTIONS



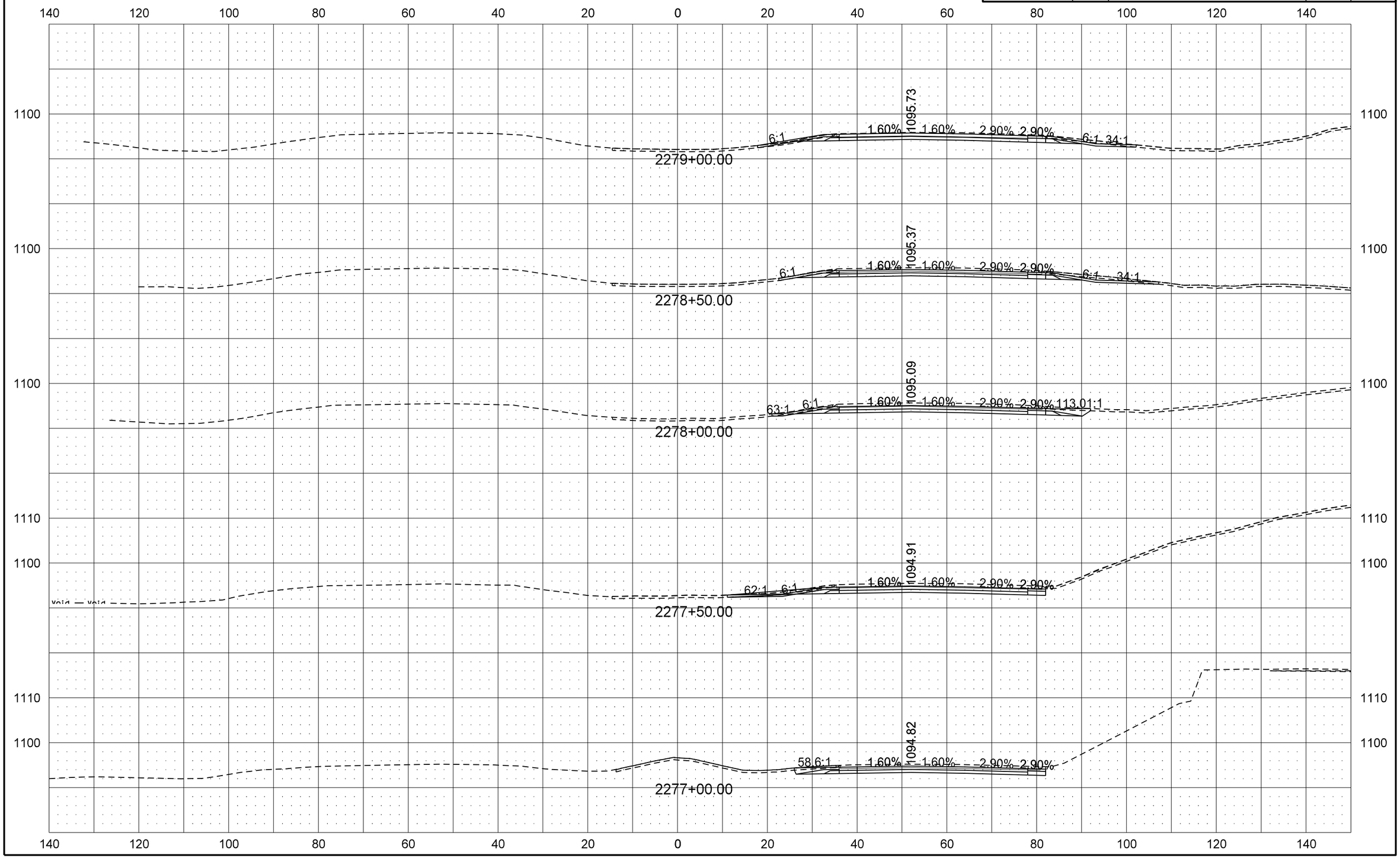
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	200	23

STATE LINE INTERCHANGE GRADE LOWERING CROSS SECTIONS



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	200	24

STATE LINE INTERCHANGE GRADE LOWERING CROSS SECTIONS



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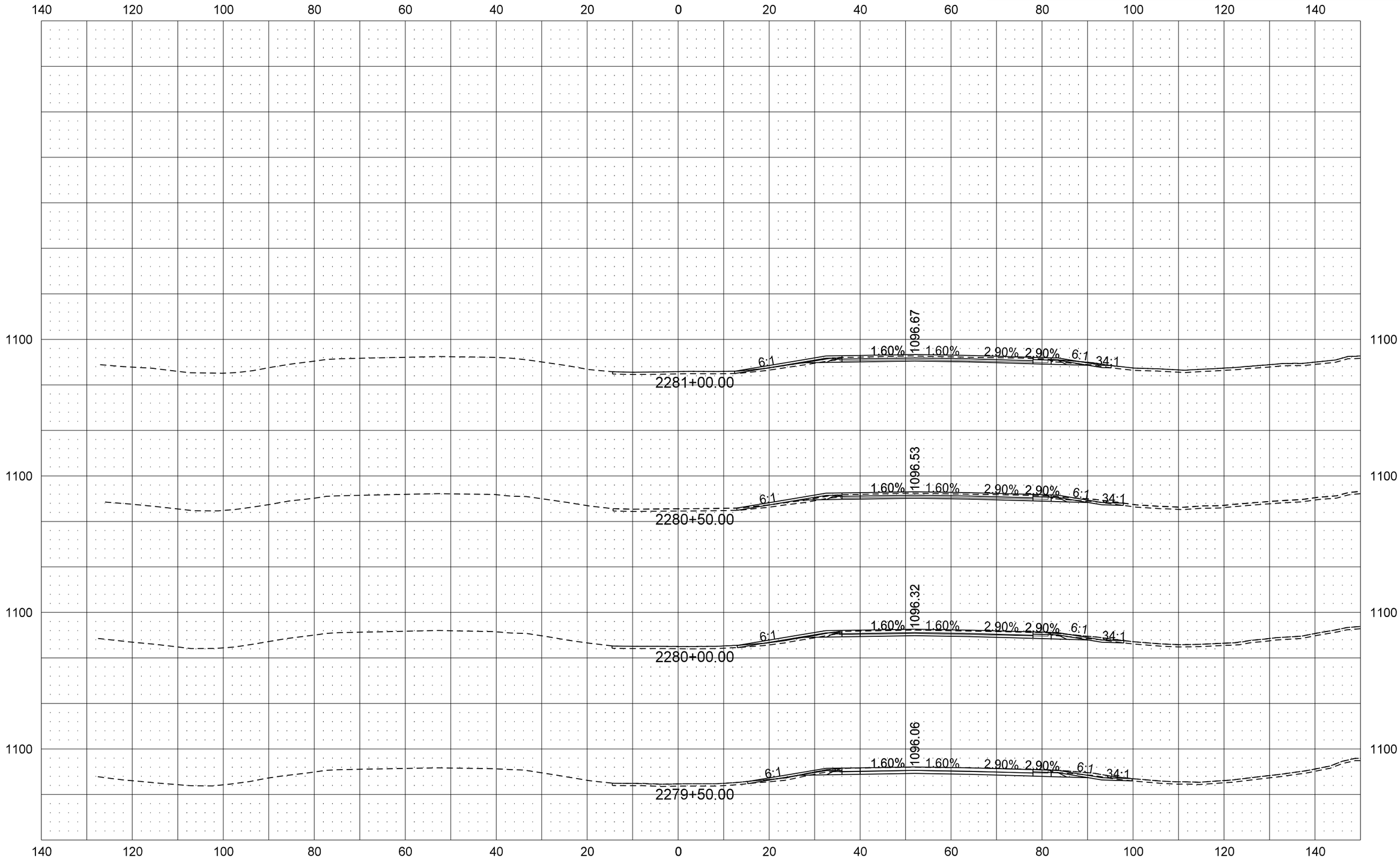
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(151)000	200	25

STATE LINE INTERCHANGE GRADE LOWERING CROSS SECTIONS



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