NORTH Dakota | Transportation
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November 4, 2020

ADDENDUM 1 – JOB 3

TO: All prospective bidders on Project IM-8-029(135)088, Job No. 3 scheduled for the November 13, 2020 bid opening.

The following plans and request for proposal revision shall be made:

Plan Revisions:
See attached summaries from Kirk Hoff, P.E. dated November 4, 2020 for an explanation.

Request for Proposal Revisions:
Remove and replace pages 5 thru 13 of 15 of the Proposal pages located at the beginning of the Request for Proposal with pages revised 11/4/2020.

Bid Item Changes are summarized in the Plan Addendum Summary and Approval.

This addendum is to be incorporated into the bidder's proposal for this project. AASHTOWare Project Bids files should be updated by downloading the addendum file from the Bid Express on-line bidding exchange at http://www.bidx.com/ and load it into the AASHTOWare Project Bids program.

PHILLIP MURDOFF, P.E. – CONSTRUCTION SERVICES ENGINEER
80: dch
Enclosure

PLAN ADDENDUM SUMMARY AND APPROVAL

PROJECT INFORMATION			
Project: IM-8-029(135)088			**PCN:** 18988
Location: I-29 Hunter Separation to North of Blanchard Interchange			
Date: 11/2/2020	**Lead Designer:** Sam Welch		
Bid Opening Date: 11/13/2020	**JOB#:** 3	**Addendum#:** 1	

PLAN SHEET CHANGES		
Section	**Sheet**	**Description**
6	1	Revised plan note 202-P01 to include 1" of bituminous base.
6	2	Revised plan note 302-P01 to 302-P02 due to duplicate number.
8	1	Revised quantity for items 202-0021 and 202-0136.
11	1	Revised quantities in the pavement removals summary table.
30	8 - 10	Added description for the 1" bit base to be included in the pavement removal item.
40	1-19	Moved the 1" mainline base aggr measured quantity from the Remove Aggregate Base & Surfacing to the Removal of Pavement bid item.
51	1-2	Added Steel Pipe Corrugations or Spiral Ribs and Steel Pipe Minimum Thickness pipe requirements for the Pipe Conduit – Approach options.
110	2	Added 4 multi-directional bases to the summary.

CHANGES MADE TO BID ITEMS FOR JOB					
Spec	**Code**	**Description**	**Unit**	**Previous Quantity**	**Revised Quantity**
202	0021	REMOVE AGGREGATE BASE & SURFACING	TON	125,138	116,173
202	0136	REMOVAL OF PAVEMENT	TON	95,717	104,682

SUPPLEMENTAL DESIGN DATA CHANGES
Description
The Existing Continuous Reinforcement.pdf was updated to show the as built information.

APPROVAL

Should the revisions described above be processed as a plan addendum?

X Yes _____ No

Kirk J. Hoff /s/

Kirk J. Hoff, P.E. – Design Engineer

11/4/2020

Date

Project: IM-8-029(135)088 (PCN-18988)

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

Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
001	103	0100	CONTRACT BOND	L SUM	1.				
002	201	0330	CLEARING & GRUBBING	L SUM	1.				
003	202	0021	REMOVE AGGREGATE BASE & SURFACING	TON	116,173.				
004	202	0101	REMOVAL OF CONCRETE	EA	2.				
005	202	0105	REMOVAL OF STRUCTURE	L SUM	1.				
006	202	0136	REMOVAL OF PAVEMENT	TON	104,682.				
007	202	0169	REMOVAL OF END SECTION-ALL TYPES & SIZES	EA	103.				
008	202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	5,949.				
009	202	0312	REMOVE EXISTING FENCE	LF	69,171.				
010	202	0350	REMOVAL OF TEMPORARY BYPASS	EA	8.				
011	203	0101	COMMON EXCAVATION-TYPE A	CY	89,396.				
012	203	0109	TOPSOIL	CY	70,972.				
013	203	0113	COMMON EXCAVATION-WASTE	CY	20,407.				
014	210	0050	BOX CULVERT EXCAVATION	EA	1.				
015	210	0210	FOUNDATION FILL	CY	3,500.				
016	210	0405	FOUNDATION PREPARATION-BOX CULVERT	EA	1.				

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						$$$$$	000	$$$$$	00
017	216	0100	WATER	M GAL	2,876.				
018	220	0100	PREPARE STOCKPILE SITE	L SUM	1.				
019	220	0200	RESTORE STOCKPILE SITE	L SUM	1.				
020	251	0200	SEEDING CLASS II	ACRE	127.100				
021	251	1000	WETLAND SEED	ACRE	1.600				
022	251	2000	TEMPORARY COVER CROP	ACRE	120.600				
023	253	0101	STRAW MULCH	ACRE	247.700				
024	255	0102	ECB TYPE 2	SY	3,210.				
025	256	0100	RIPRAP GRADE I	CY	114.				
026	256	0200	RIPRAP GRADE II	CY	299.				
027	260	0100	SILT FENCE UNSUPPORTED	LF	66,293.				
028	260	0101	REMOVE SILT FENCE UNSUPPORTED	LF	66,293.				
029	261	0112	FIBER ROLLS 12IN	LF	85,115.				
030	261	0113	REMOVE FIBER ROLLS 12IN	LF	9,870.				
031	302	0101	SALVAGED BASE COURSE	CY	93,144.				
032	401	0050	TACK COAT	GAL	8,063.				

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						$$$$$	000	$$$$$	00
033	401	0060	PRIME COAT	GAL	91,721.				
034	401	0160	BLOTTER MATERIAL CL 44	TON	2,163.				
035	411	0100	MILLING PAVEMENT SURFACE	TON	1,112.				
036	430	0042	SUPERPAVE FAA 42	TON	18,381.				
037	430	1000	CORED SAMPLE	EA	43.				
038	430	2000	PATCHING	TON	500.				
039	430	5803	PG 58S-28 ASPHALT CEMENT	TON	1,088.				
040	550	0302	8.5IN NON-REINF CONCRETE PVMT CL AE-DOWELED	SY	247,189.				
041	602	1131	CLASS AE-3 CONCRETE-BOX CULVERT	CY	680.200				
042	602	1135	BRIDGE APPROACH SLAB-REMOVE & REPLACE	SY	168.800				
043	602	1250	PENETRATING WATER REPELLENT TREATMENT	SY	1,010.				
044	602	2000	REMOVE AND RESET ANCHOR BOLTS	EA	21.				
045	602	2105	CURB REPAIR	SF	623.700				
046	612	0114	REINFORCING STEEL-GRADE 60-BOX CULVERT	LBS	129,173.				
047	624	3002	DOUBLE BOX BEAM RAIL RETROFIT - E-RAIL	LF	343.900				
048	650	0805	DECK SPALL REPAIR	SF	18.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
049	702	0100	MOBILIZATION	L SUM	1.				
050	704	0100	FLAGGING	MHR	2,000.				
051	704	1000	TRAFFIC CONTROL SIGNS	UNIT	11,548.				
052	704	1045	ATTENUATION DEVICE-TYPE B-75	EA	2.				
053	704	1048	PORTABLE RUMBLE STRIPS	EA	2.				
054	704	1052	TYPE III BARRICADE	EA	45.				
055	704	1060	DELINEATOR DRUMS	EA	316.				
056	704	1067	TUBULAR MARKERS	EA	246.				
057	704	1070	DELINEATOR	EA	437.				
058	704	1072	FLEXIBLE DELINEATORS	EA	845.				
059	704	1081	VERTICAL PANELS-BACK TO BACK	EA	6.				
060	704	1087	SEQUENCING ARROW PANEL-TYPE C	EA	6.				
061	704	1088	SEQUENCING ARROW PANEL-TYPE C-CROSSOVER	EA	2.				
062	704	1090	FLASHING BEACON	EA	2.				
063	704	1500	OBLITERATION OF PAVEMENT MARKING	SF	7,970.				
064	704	3510	PRECAST CONCRETE MED BARRIER-STATE FURNISHED	EA	80.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
065	706	0400	FIELD OFFICE	EA	1.				
066	706	0500	AGGREGATE LABORATORY	EA	1.				
067	706	0550	BITUMINOUS LABORATORY	EA	1.				
068	706	0600	CONTRACTOR'S LABORATORY	EA	1.				
069	709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	408,288.				
070	709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	586.				
071	710	0100	TEMPORARY BYPASS	EA	4.				
072	714	0820	PIPE CONC REINF 30IN CL III	LF	8.				
073	714	4105	PIPE CONDUIT 24IN	LF	2,077.				
074	714	4106	PIPE CONDUIT 24IN-APPROACH	LF	286.				
075	714	4110	PIPE CONDUIT 30IN	LF	1,647.				
076	714	4113	PIPE CONDUIT 30IN-APPROACH	LF	36.				
077	714	4120	PIPE CONDUIT 42IN	LF	105.				
078	714	4125	PIPE CONDUIT 48IN	LF	518.				
079	714	4135	PIPE CONDUIT 60IN	LF	204.				
080	714	4140	PIPE CONDUIT 66IN	LF	102.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
081	714	4229	PIPE CONDUIT ARCH 58IN X 36IN	LF	1,416.				
082	714	4236	PIPE CONDUIT ARCH 73IN X 45IN	LF	382.				
083	714	7030	PIPE PVC 12IN	LF	420.				
084	714	7036	PIPE PVC 18IN	LF	530.				
085	714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES	EA	3.				
086	714	9912	FLAP GATE 24IN	EA	3.				
087	720	0110	RIGHT OF WAY MARKERS	EA	23.				
088	720	0125	ALIGNMENT MONUMENTS	EA	28.				
089	720	0130	IRON PIN R/W MONUMENTS	EA	26.				
090	720	0135	IRON PIN REFERENCE MONUMENTS	EA	12.				
091	752	0126	FENCE SMOOTH WIRE 3 STRAND-STEEL POST	LF	69,662.				
092	752	0993	FENCE TERMINAL	EA	23.				
093	752	2100	VEHICLE GATE	EA	1.				
094	752	2996	CORNER ASSEMBLY-STEEL POST	EA	26.				
095	752	3996	DOUBLE BRACE ASSEMBLY-STEEL POST	EA	38.				
096	754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	83.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
097	754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	28.				
098	754	0150	DELINEATORS-TYPE A	EA	166.				
099	754	0160	DELINEATORS-TYPE B	EA	57.				
100	754	0166	DELINEATORS-TYPE E	EA	14.				
101	754	0168	DELINEATORS-TYPE D	EA	9.				
102	754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	182.				
103	754	0210	GALV STEEL POST-STANDARD PIPE	LF	226.				
104	754	0214	GALV STEEL POSTS-W-SHAPE POSTS(TWO OR MORE)	LF	982.				
105	754	0534	PANEL FOR SIGNS-TYPE IV REFLECTIVE SHEETING	SF	992.				
106	754	0556	INTERSTATE MILE POSTS-TYPE B	EA	11.				
107	754	0557	INTERSTATE MILE POSTS-TYPE C	EA	2.				
108	754	0592	RESET SIGN PANEL	EA	13.				
109	754	0801	OBJECT MARKERS - TYPE I	EA	2.				
110	754	0803	OBJECT MARKERS - TYPE III	EA	2.				
111	754	0805	OBJECT MARKERS - CULVERTS	EA	128.				
112	754	1100	CLASS AE CONCRETE-SIGN FOUNDATIONS	CY	6.300				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
113	754	1104	REMOVE SIGN FOUNDATION	EA	40.				
114	760	0001	RUMBLE STRIPS - CONCRETE SHOULDER	MILE	26.520				
115	762	0200	RAISED PAVEMENT MARKERS	EA	31,001.				
116	762	1104	PVMT MK PAINTED 4IN LINE	LF	350,592.				
117	762	1108	PVMT MK PAINTED 8IN LINE	LF	4,066.				
118	762	1124	PVMT MK PAINTED 24IN LINE	LF	42.				
119	762	1140	PVMT MK PAINTED CURB TOP & FACE	LF	95.				
120	764	0131	W-BEAM GUARDRAIL	LF	1,020.				
121	764	0145	W-BEAM GUARDRAIL END TERMINAL	EA	18.				
122	764	0151	REMOVE W-BEAM GUARDRAIL & POSTS	LF	983.				
123	764	1050	RESET W-BEAM GUARDRAIL	LF	350.				
124	764	2081	REMOVE END TREATMENT & TRANSITION	EA	4.				
125	900	1000	TEMPORARY STREAM DIVERSION	EA	1.				
126	930	8230	SHORING	EA	2.				
127	930	8644	SILICONE SEALANT	LF	66.				
128	930	8686	AGGREGATE SLOPE PROTECTION	SY	955.				

BID ITEMS

Project: IM-8-029(135)088 (PCN-18988)

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
129	**930**	**9612**	**SPALL REPAIR**	**SF**	**24.**				
130	**930**	**9639**	**APPROACH SLAB LIP REPAIR**	**LF**	**76.**				
			TOTAL SUM BID						

Revised: 11/2/20

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	6	1

NOTES

100-P01 STATIONING: The stationing used in the plans is based off SCL_HWY029 Median Alignment, unless stated otherwise.

105-P01 UTILITIES: No utility relocations or adjustments are planned. All utilities on the project need to be protected and remain in existing location.

107-300 CONSTRUCTION TRAFFIC ACCESS: Access areas within the right of way only at interchanges. The Engineer may allow temporary access at other locations.

To obtain temporary access, provide an access plan containing the following information:

•A traffic control plan;
•A traffic impact analysis;
•A safety analysis;
•A COA; and
•An environmental impact analysis.

To be considered for approval, the following minimum conditions must be met in the access plan:

•Construction traffic will not be allowed to cross the interstate median or lanes of traffic being used by the public at grade;
•The access plan must show that there will be methods in place, at all times, to prevent public traffic from using the access;
•A plan to restore the area disturbed by the access, including right of way fences, to preexisting or better condition.

All work necessary to provide the access plan, comply with the plan, and to restore the area to its pre-exiting condition must be completed at no additional cost to the Department.

107-P01 HEIGHT RESTRICTION FOR CONSTRUCTION EQUIPMENT: Between RP 100 and RP 102, equipment is restricted to a height of 35 feet or less due to Hillsboro Municipal Airport restrictions. Equipment height will be measured from the centerline of the roadway and will include the extended box height of end dumps.

108-100 WEEKLY PLANNING & REPORTING MEETING: A weekly planning and reporting meeting is required.

201-P01 CLEARING AND GRUBBING: Along with clearing, grubbing, removing, and disposal of vegetation and debris, there are three mature trees of unknown diameter that will need to be removed. Include all work associated with removal of the trees in the price bid for “Clearing and Grubbing.”

202-P01 REMOVAL OF PAVEMENT: Removal of pavement consists of removing and salvaging concrete pavement, reinforced concrete pavement, doweled jointed pavement, and approximately 1” bituminous base underneath the concrete.

Do not stockpile concrete chunks, rebar, or fabric on the highway right of way. Include the cost for removal of reinforcing steel in the price bid for “Removal of Pavement.”

The existing continuous reinforcement details are included in the supplemental data.

202-P02 REMOVE AGGREGATE BASE & SURFACING: The existing bituminous pavement thicknesses are averages based on previous construction plans and maintenance data. Actual thicknesses may vary.

202-P03 REMOVAL OF TEMPORARY BYPASS: Remove the temporary ramp connections and ramp connection detours when no longer needed to maintain traffic.

This work consists of:

1. Saw cutting the pavement to be removed at the edge of the finished shoulder.
2. Constructing an aggregate slough at the edge of the saw cut.
3. Shaping the median foreslopes to 6:1 and placing topsoil. This includes the topsoil stockpiled in the Interstate median and on the backslope.
4. Removal, hauling, and disposal of all materials.
5. Reshaping existing slopes on ditch blocks as shown on the Ditch Block Detail.

Include all labor and equipment costs for removing, hauling, and disposing off materials, removal and replacement of topsoil, and shaping of median slopes, foreslopes, 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.

203-360 COMPACTION AND DENSITY CONTROL: Compact material as specified in Section 203.04 E.2.b, "ND T-99".

Manipulate embankment material with disking equipment.

203-P01 TOPSOIL: There will be excess topsoil in the interstate median due to the fact that the median crossovers and ramp connections will remain in-place after the project is complete. Excess topsoil will remain property of the NDDOT. Stockpile excess topsoil in the Grandin Interchange and Blanchard Interchange ramp quadrants.

The Engineer will approve the stockpile location and boundary of the excess topsoil stockpile prior to placement. Do not stockpile excess topsoil within the ditch bottom or wetlands.

203-P02 CONTRACTOR FURNISHED PROCTORS: Determine the optimum moisture and density, as specified in ND T 99, for each type of material encountered that requires compaction control.

Perform a multi-point test using a minimum of 4 points. Submit the results to the Engineer along with a split sample of each material.

The Engineer will perform comparison tests using the same procedure on the split sample. The Engineer’s results will be used for determining in place density of material.

The cost of testing will not be paid for separately but to be included in the bid price for “Common Excavation-Type A”.

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
11/02/20
NORTH DAKOTA

Revised: 11/2/20

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	6	2

NOTES

261-P01 TEMPORARY EROSION CONTROL WITHIN WETLANDS: Fiber rolls and silt fence have been provided for placement at the back-side of earthen berm at the perimeter of the work area at wetlands. If there is no standing water within the adjacent wetland, immediate temporary seeding and mulching of the earthen berm may replace the fiber roll. If seed/mulch is not immediately applied, fiber rolls or silt fence are required. Fiber rolls will still be required at the weirs within the berm.

If there is standing water where the installation will occur, silt fence is required.

Temporary seed mix and mulch for this use will be paid for as “Temporary Cover Crop” and “Straw Mulch”.

261-P02 PERMANENT FIBER ROLLS: If fiber rolls are to remain on the project, use fiber rolls that are composed of 100 percent biodegradable jute netting that has a life expectancy between 6 to 12 months.

302-115 BASE COURSE: Trim base course as specified in 302.04 C.2, "Surface Tolerance Type C."

302-P01 HAULING: The shoulder of northbound I-29 can be used as a haul route. Do not drive on the base course and/or geosynthetic material, except when the haul vehicle is dumping. When dumping, the haul vehicle is allowed to drive on the base course in the immediate vicinity of where the load is dumped. Re-establish subgrade surface tolerance per contract requirements prior to placement of the salvaged base course.

302-P02 CONTRACTOR FURNISHED PROCTORS: Determine the optimum moisture and density, as specified in ND T 180 Method A or D, for aggregate for pipe.

Perform a multi-point test using a minimum of 5 points. Submit the results to the Engineer along with a split sample of each material.

The Engineer will perform comparison tests using the same procedure on the split sample. The Engineer’s results will be used for determining in place density of material.

The cost of testing will not be paid for separately but to be included in the bid price for the applicable size for Pipe Conduit pay items.

401-P01 TRIMMING AND PRIME: Prime shoulders within one mile or within 48 hours of the trimming operations unless HMA paving is to take place within 24 hours of trimming.

430-P01 MAINTENANCE OF TRAVELED ROADWAY USING HOT MIX ASPHALT: 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 as directed by the Engineer. Compact patched areas in accordance with Section 430.04 I.3 of the Standard Specifications. Include all cost of equipment, labor, and materials, including asphalt cement and tack coat in the unit price bid for "Patching".

Provide a traffic control plan that minimizes disruption to traffic. Necessary traffic control devices and flagging will be paid for under the normal contract bid item.

Additionally, the contractor will be required to perform an initial inspection of the roadway, used by the traveling public before construction begins, and make all repairs in accordance with the above requirements or as directed by the Engineer.

A quantity of 500 Tons of "Patching" has been provided for this purpose.

430-P02 CROSSROAD PAVING: Mill and overlay crossroads as close to the existing guardrail as possible without damaging the guardrail. Any repairs needed to fix the damaged guardrail will be at the Contractor’s expense. It is estimated that milling and paving would end approximately 1 foot from the guardrail.

550-P01 CONCRETE PAVEMENT: The Department will waive the requirement to place the reinforcing steel, tie bars and dowel bar assemblies a minimum of 2,000 feet ahead of the paving operation as stated in Sections 550.04 E.1 and 550.04 G.2 and allow the use of the roadway as a haul road at the Contractor’s request, provided the following conditions are met:

- Repair all damaged areas.
- Provide an additional trimmer in advance of the paving operation.
- Construct the finished surface to within 0.10 feet of the proposed elevation with the first pass of trimming equipment.
- Construct the finished surface to the specified surface tolerance prior to the placement of reinforcing steel, tie bars and dowel bar assemblies.
- Place the reinforcing steel and tie bars on approved supports securely, properly and accurately in advancing of the paving operation.

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

704-200 PRECAST CONCRETE MEDIAN BARRIERS – STATE FURNISHED: Obtain 80 barriers for use at the median crossovers from the NDDOT Maintenance Storage Yard at Casselton, ND (15482 37th St SE). Return barriers to the NDDOT Casselton Maintenance Storage Yard.

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

704-300 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".

704-301 SEQUENCING ARROW PANEL – TYPE C – CROSSOVER: Provide solar powered arrow panels that meet the requirements

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE 11/02/20
NORTH DAKOTA

NOTES

of the MUTCD and ITE and that 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 "Sequencing Arrow Panel – Type C – Crossover".

704-P01 OBLITERATION OF PAVEMENT MARKINGS: Obliterate the white centerline marking and white and yellow edge lines at the begin and end project locations where the roadway alignment is changed.

Mask the dashed white centerline markings throughout the two-lane, two-way area, designated for obliteration, as specified in Section 704.04 N.2, "Masking" of the Standard Specifications.

Include the cost of all equipment, material, and labor, including the removal of tape, if used, in the unit price bid for "Obliteration of Pavement Marking."

704-P02 TRAFFIC CONTROL: The traffic control devices list has been developed using traffic control signing layouts (shown in Section 100 of the plans) and Standard Drawings listed below:

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

D-704-22 and D-704-26, Layouts Type K, Type L, and Type Y 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-704-35, for masking of the SB centerline and yellow edge line pavement marking, culvert work in the median, mainline guardrail installation, slope protection removal and replacement, and removal of the ramp connections and ramp connection detours.

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

D-704-45 for construction traffic to access the closed north bound roadway.

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

704-P03 TUBULAR MARKERS: Salvage existing double and triple-weighted tubular markers located at existing median crossovers and ramp connections. (There are total of 209 double-weighted and 40 triple-weighted tubular markers.) Remove just prior to changing the traffic flow and salvage for reuse after the northbound roadway reconstruction and the construction of the new temporary ramp connections in preparation for future southbound I-29 reconstruction.

Upon completion of the northbound reconstruction project, reset salvaged weighted tubular markers at 5’ spacing block off the median crossovers and ramp connections.

Include the cost incurred for removal, salvaging, and resetting the existing 249 tubular markers in the unit price bid for additional 246 “Tubular Markers” that will be set.

704-P04 TRAFFIC CONTROL PHASING: The Contractor is responsible for removing and resetting devices for each phase of construction. The cost associated with removing and resetting each traffic control device is included in the price bid for the respective traffic control device. The traffic control details, as indicated in the plans, have been developed based on the premise that this project will be constructed as follows.

Mill and overlay the northbound Elm River rest area while the northbound roadway is closed for the reconstruction.

Mill and overlay of the interchange ramps and crossroads will be performed with traffic being switched between the left and right sides of the ramps and crossroads. This work can take place at any time during the project.

The construction phasing plan is listed below:

Phase 1: Close the outside lane of southbound I-29.

- Install W-beam guardrail and end terminals at South Branch Elm River (west side of 0029-092.672L) and North Branch Elm River (west side of 0029-098.519L). Use separate lane closure for each location.

Phase 2: Close the inside lane of southbound I-29.

- Install W-beam guardrail and end terminals at South Branch Elm River (east side of 0029 092.672L) and North Branch Elm River (east side of 0029-098.519L).
- Obliterate existing pavement marking and install new temporary traffic control striping.

Phase 3: Close northbound I-29, implement head to head traffic on southbound I-29.

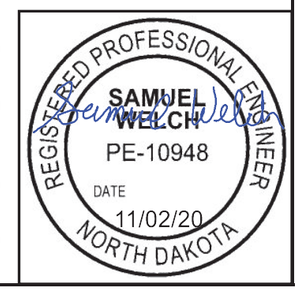
- Activate the temporary ramp connections and median crossovers for the reconstruction of northbound I-29.
- Reconstruct northbound I-29.

Phase 4: Return northbound traffic to its normal flow.

- Install temporary pavement marking on I-29 northbound.
- Close the inside lane of southbound and northbound I-29.
- Remove temporary guardrail and end terminals at South Branch Elm River (east side of 0029-092.672L) and North Branch Elm River east side of 0029-098.519L).
- Remove NB temporary ramp connections within the interstate median.
- Move the embankment within the median to reuse for the construction of the SB temporary ramp connections.
- Install permanent pavement marking on I-29 southbound.

Phase 5: Close the outside lanes of northbound and southbound I-29.

- Remove remaining northbound temporary ramp connections.
- Remove temporary guardrail and end terminals at South Branch Elm River (west side of 0029-092.672L) and North Branch Elm River (west side of 0029-098.519L).
- Finish construction of the SB temporary ramp connections.
- Install tubular markers at the temporary ramp connections and median crossovers.



NOTES

- Install permanent pavement marking on I-29 northbound.

704-P05 TRAFFIC CONTROL FOR HMA MILL AND OVERLAYS: Provide traffic control consisting of a temporary lane closure and flagging.

For estimating purposes, the traffic control device list is based on the following list:
1. Standard D-704-22, Types K and L;
2. Standard D-704-26, Types BB, EE, and Y;
3. Standard D-704-15, Type A.
4. Section 100 sheets.

If all or portions of the lane closure are removed and uneven lanes exist, provide traffic control as specified in Section 704.04 O, "Traffic Control for Uneven Pavement".

Complete work in a manner such that lane closures can safely be removed if no work is to take place for more than 3 consecutive days. Remove lane closures if no work is to take place for more than 3 consecutive days.

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

1. Minimum total area of 800 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. DSL broadband internet and a router that broadcasts Wi-Fi and will allow for hard wiring of a computer.
9. 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.

Place the field office on the project, or as close to the project as possible. The Contractor is responsible for furnishing the office equipment and 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.

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.

709-P01 GEOSYNTHETIC GEOGRID – TYPE G: Place geosynthetic geogrid type G on top of the existing subgrade without disturbing or scarifying the subgrade. Place a minimum of 8 inches of base material over the geogrid prior to compacting the base material.

710-P01 INTERCHANGE RAMP CONNECTION DETOURS: Route public ramp traffic around gap paving areas with ramp connection detours during the gap reconstruction and paving at ramp connections. Include all costs for embankment, salvaged base course, drainage items, and water to construct and maintain ramp connection detours in the unit price bid for “Temporary Bypass.”

714-P01 PIPE WORK: Provide dewatering if necessary according to site conditions. Include all costs associated with dewatering in the price bid for pipe installation.

714-P02 TEMPORARY PIPE CONNECTIONS: Use mortar for making temporary pipe connections in accordance with section 714.03 A of the standard specifications. Include all costs for labor, materials, and equipment used for grouting the temporary pipe connections in the unit price bid for pipe items.

714-P03 REDUCER PIPE SECTIONS: Pipe reducer sections are called out in Section 51 Allowable Pipe List. Include the cost for reducer sections in the price bid for the applicable size Pipe Conduit pay items.

714-P04 FLAP GATE 24 IN: Install flap gates manufactured by Fontaine, Watermain Industries, Hydro Gate, or an approved equal.

Install flap gates at locations shown in the plans in accordance with the manufacturer’s recommendations to ensure a positive seat. The gates need to be designed to withstand a seating head of 10 feet of water. Submit shop drawings for flap gates to the Engineer for review.

752-P01 FENCE SMOOTH WIRE 3 STRAND – STEEL POST: Install the top and bottom wires in accordance with Standard Drawing D-752-1. Evenly space the third wire in between the top and bottom wires. Include the cost of all equipment, material, and labor to install the fence in the price bid for “Fence Smooth Wire 3 Strand – Steel Post", “Corner Assembly Steel Post”, and “Double Brace Assembly - Steel Post.”

754-P01 DELINEATOR: Approximately 8 delineator posts may need to be removed to accommodate the southbound temporary ramp connections on this project. Include all cost to remove any delineator posts in the price bid for other items.

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

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
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ESTIMATE OF QUANTITIES

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SPEC	CODE	ITEM DESCRIPTION	UNIT	MAINLINE	TOTAL
103	0100	CONTRACT BOND	L SUM	1	1
201	0330	CLEARING & GRUBBING	L SUM	1	1
202	0021	REMOVE AGGREGATE BASE & SURFACING	TON	116,173	116,173
202	0101	REMOVAL OF CONCRETE	EA	2	2
202	0105	REMOVAL OF STRUCTURE	L SUM	1	1
202	0136	REMOVAL OF PAVEMENT	TON	104,682	104,682
202	0169	REMOVAL OF END SECTION-ALL TYPES & SIZES	EA	103	103
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	5,949	5,949
202	0312	REMOVE EXISTING FENCE	LF	69,171	69,171
202	0350	REMOVAL OF TEMPORARY BYPASS	EA	8	8
203	0101	COMMON EXCAVATION-TYPE A	CY	89,396	89,396
203	0109	TOPSOIL	CY	70,972	70,972
203	0113	COMMON EXCAVATION-WASTE	CY	20,407	20,407
210	0050	BOX CULVERT EXCAVATION	EA	1	1
210	0210	FOUNDATION FILL	CY	3,500	3,500
210	0405	FOUNDATION PREPARATION-BOX CULVERT	EA	1	1
216	0100	WATER	M GAL	2,876	2,876
220	0100	PREPARE STOCKPILE SITE	L SUM	1	1
220	0200	RESTORE STOCKPILE SITE	L SUM	1	1
251	0200	SEEDING CLASS II	ACRE	127.1	127.1
251	1000	WETLAND SEED	ACRE	1.6	1.6
251	2000	TEMPORARY COVER CROP	ACRE	120.6	120.6
253	0101	STRAW MULCH	ACRE	247.7	247.7
255	0102	ECB TYPE 2	SY	3,210	3,210
256	0100	RIPRAP GRADE I	CY	114	114
256	0200	RIPRAP GRADE II	CY	299	299
260	0100	SILT FENCE UNSUPPORTED	LF	66,293	66,293
260	0101	REMOVE SILT FENCE UNSUPPORTED	LF	66,293	66,293
261	0112	FIBER ROLLS 12IN	LF	85,115	85,115
261	0113	REMOVE FIBER ROLLS 12IN	LF	9,870	9,870
302	0101	SALVAGED BASE COURSE	CY	93,144	93,144
401	0050	TACK COAT	GAL	8,063	8,063
401	0060	PRIME COAT	GAL	91,721	91,721

ESTIMATE NUMBER: 20810 ESTIMATE TYPE: FINAL FINALIZED: Y RUN DATE: 11/02/2020 TIME: 09:51:43

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PAVEMENT REMOVALS SUMMARY

Location	Removal of Pavement	Remove Aggregate Base & Surfacing		Milling Pavement Surface
	Concrete	Aggregate Base	Asphalt	
	(TON)	(TON)	(TON)	(TON)
	A	B	C	D
Sta 4660+65 to Sta 5360+65 (I-29 Northbound Mainline)	104,657	25,688	90,430	–
Hunter Separation Crossroad Mill and Overlay Area	–	–	–	169
SE Grandin Interchange Ramp Mill and Overlay Area	–	–	–	144
Grandin Interchange Crossroad Mill and Overlay Area	–	–	–	248
NE Grandin Interchange Ramp Mill and Overlay Area	–	–	–	156
Galesburg Separation Crossroad Mill and Overlay Area	–	–	–	177
Kelso Separation Crossroad Mill and Overlay Area	–	–	–	161
Elm River Rest Area Overlay Area	–	–	–	57
Guardrail Surfacing Locations	25	–	–	–
Emergency Median Crossover Locations	–	55	–	–
Grandin SW Temporary Ramp Connection	–	–	–	–
Grandin NW Temporary Ramp Connection	–	–	–	–
Blanchard SW Temporary Ramp Connection	–	–	–	–
Blanchard NW Temporary Ramp Connection	–	–	–	–
TOTALS =	**104,682**	**25,743**	**90,430**	**1,112**

REQUIRED SALVAGED BASE COURSE SUMMARY

Salvaged Base Course Required
(TON)
E
169,074
–
–
–
–
–
–
1,545
161
1,037
885
1,076
866
174,644

Note: Salvaged base course is paid for by the CY.

EARTHWORK SUMMARY

Location	Common Excavation - Type A (CY)	Embankment (CY)	Embankment Above Subgrade (CY)	Common Excavation - Waste (CY)	Topsoil from Stripping (CY)
	Pay Item			Pay Item	Pay Item
	A	B	C	D = A - (B + C)	E
Sta 4660+65 to Sta 5360+65 (I-29 Northbound Mainline Reconstruction)	78,697	47,260	14,736	16,701	67,785
Grandin & Blanchard Interchange - Southbound Temporary Ramp Connections	5,600	6,993	0	-1,393	*
Onsite Wetland Mitigation: Ditch Shifts 1 to 14 and Mitigation Sites 1 to 5	5,099	0	0	5,099	3,187
TOTALS	**89,396**	**54,253**	**14,736**	**20,407**	**70,972**

Note 1: Quantity shown for embankment has been increased by 25% to account for shrinkage.
Note 2: Wetland mitigation excavation material is not to be used as roadway embankment.
*Topsoil quantity for the Ramp Connections is included in the mainline topsoil quantity.

REGISTERED PROFESSIONAL ENGINEER
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Salvaged Base Course Summary and Earthwork Summary

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

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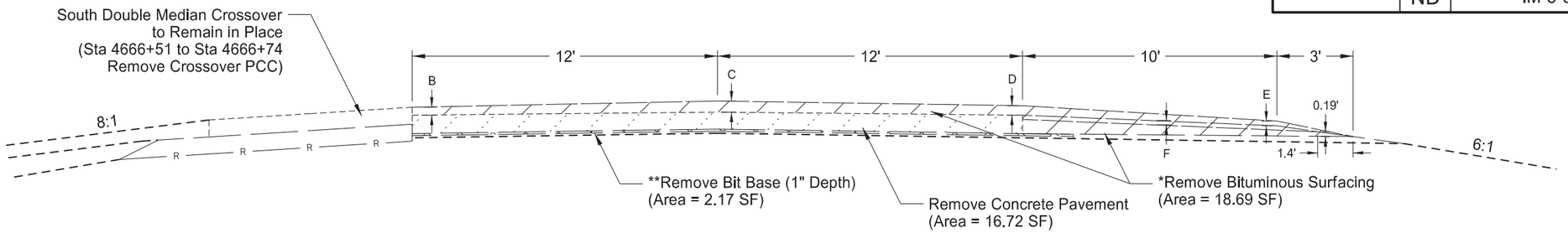
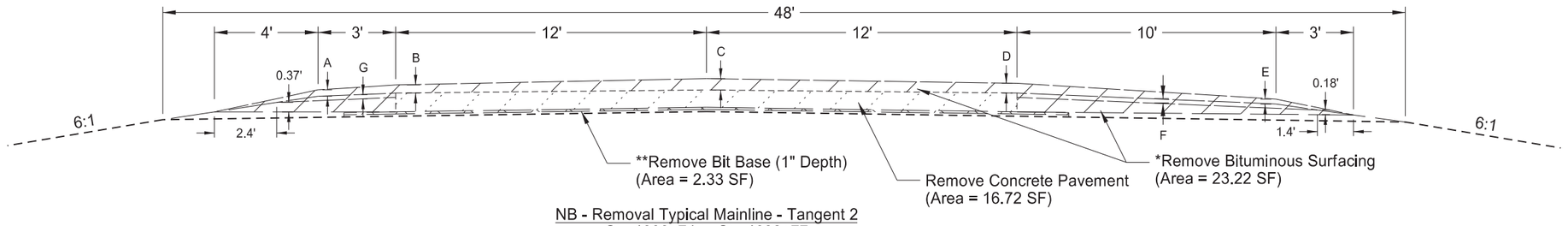
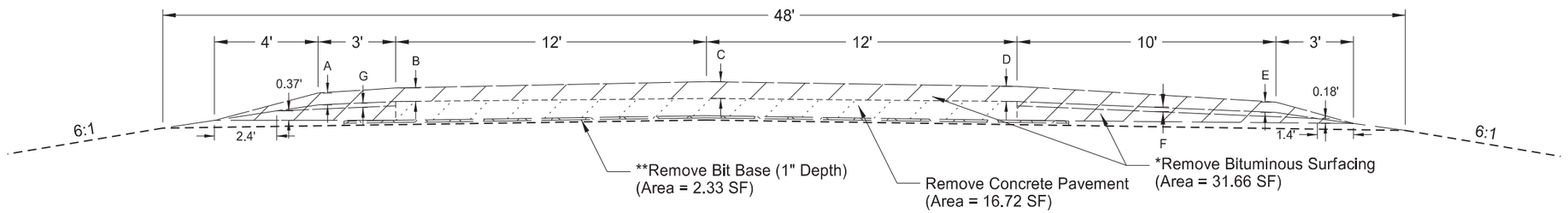


NB - Removal Typical Mainline - Tangent 1
Sta 4660+65 to Sta 4666+74



NB - Removal Typical Mainline - Tangent 2
Sta 4666+74 to Sta 4682+77
Sta 4693+49 to Sta 4712+14
Sta 4726+18 to Sta 4790+36
Sta 4808+12 to Sta 4828+99
Sta 4853+00 to Sta 4859+48
Sta 4876+07 to Sta 4892+66
Sta 4894+36 to Sta 4905+18
Sta 4924+51 to Sta 4994+07
Sta 5007+64 to Sta 5103+33
Sta 5119+36 to Sta 5191+23
Sta 5205+25 to Sta 5209+91
Sta 5232+75 to Sta 5248+18

LOCATIONS	Asphalt Depth Variables (inches)						
	"A"	"B"	"C"	"D"	"E"	"F"	"G"
NB - Removal Typical Mainline - Tangent 1	0	3.75	5.25	4.5	2.25	2	0
NB - Removal Typical Mainline - Tangent 2	3	3.75	5.25	4.5	2.25	2	2
NB - Removal Typical Mainline - Tangent 3	5.5	6.25	7.75	7	4.75	2	2



NB - Removal Typical Mainline - Tangent 3
Sta 4859+48 to Sta 4876+07

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Note: Actual depths may vary.

*Removal to be included in the bid item "Remove Aggregate Base & Surfacing."

**Removal to be included in the bid item "Removal of Pavement."

Removal Typical Sections
Tangent 1 to 3

PCC Pavement Reconstruction
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Hunter Separation to North of Blanchard Interchange

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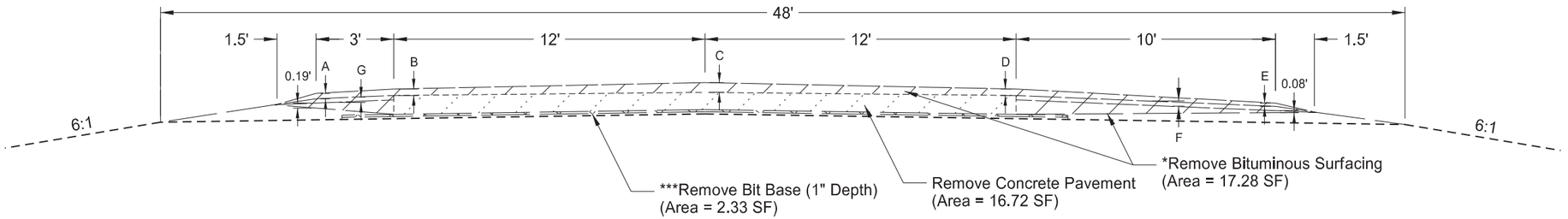
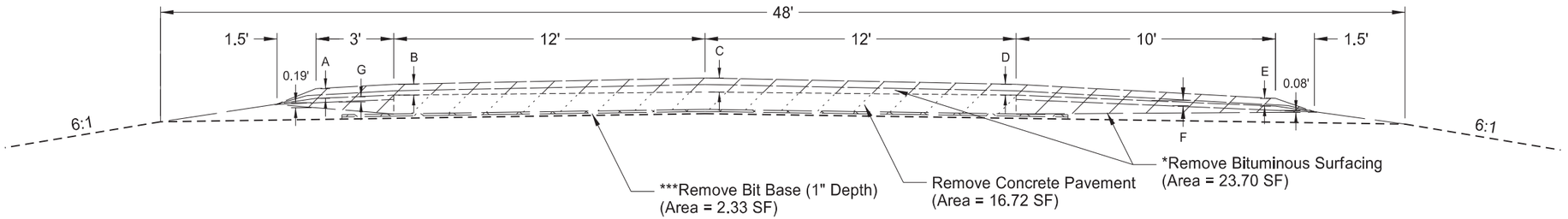
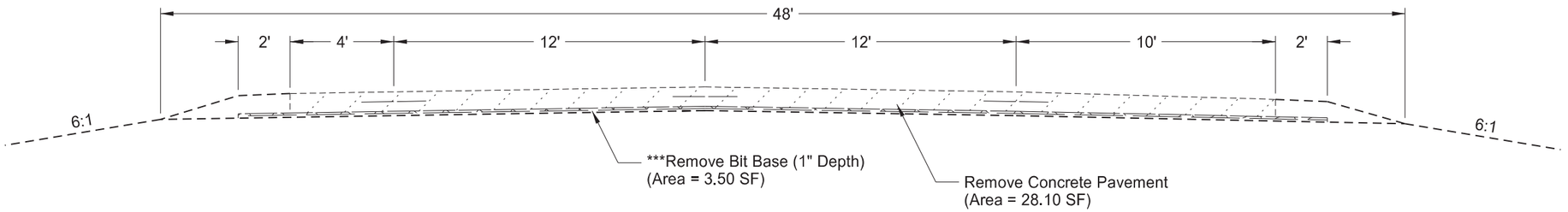


NB - Removal Typical Mainline - Tangent 4
Sta 5248+18 to Sta 5257+86



NB - Removal Typical Mainline - Tangent 5
Sta 5257+86 to Sta 5293+27



NB - Removal Typical Mainline - Tangent 6
Sta 5293+27 to Sta 5360+65**

NB Double Median Crossover to Remain in Place
Sta 5355+22 to Sta 5360+65

LOCATIONS	Asphalt Depth Variables (inches)						
	"A"	"B"	"C"	"D"	"E"	"F"	"G"
NB - Removal Typical Mainline - Tangent 4	2.5	3	4.5	3	1.5	2	2
NB - Removal Typical Mainline - Tangent 5	4.5	5	6.5	5	3.5	2	2

Note: Actual depths may vary.
*Removal to be included in the bid item "Remove Aggregate Base & Surfacing."
**Existing 3% superelevated LT curve from PC Sta. 5329+93 to PT Sta. 5343+71 included in station range.
***Removal to be included in the bid item "Removal of Pavement."

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Removal Typical Sections
Tangent 4 to 6

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

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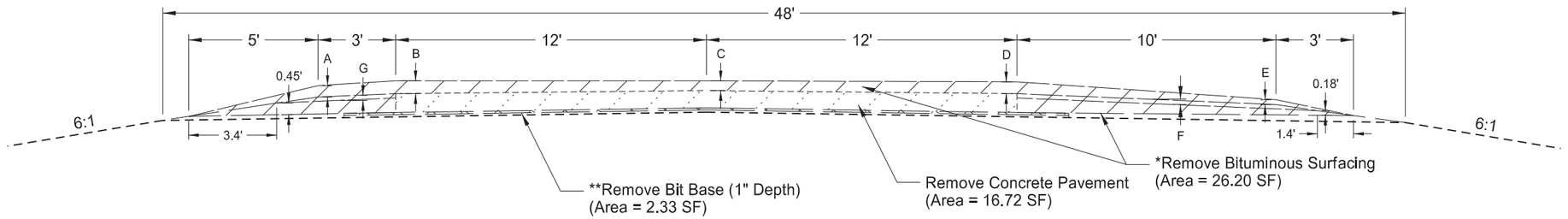
	ND	IM-8-029(135)088	30	10

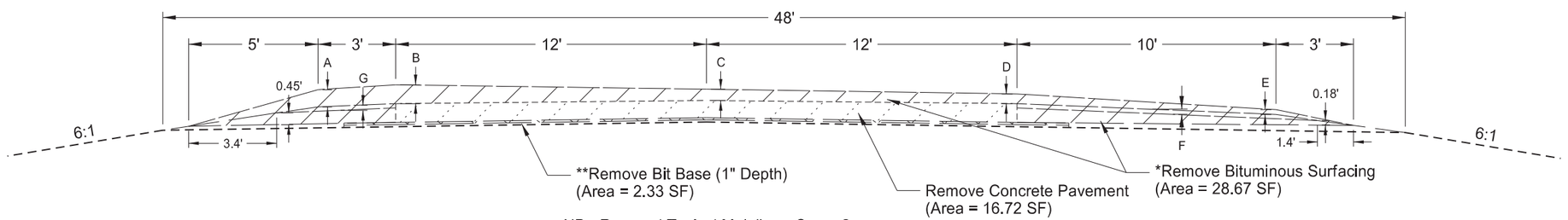


NB - Removal Typical Mainline - Curve 1

TS	ST
Sta 4682+77 to Sta 4693+49	

PC	PT
Sta 4712+14 to Sta 4726+18	
Sta 4790+36 to Sta 4808+12	
Sta 4905+18 to Sta 4924+51	
Sta 4994+07 to Sta 5007+64	
Sta 5103+33 to Sta 5119+36	
Sta 5209+91 to Sta 5232+75	

LOCATIONS	Asphalt Depth Variables (inches)						
	"A"	"B"	"C"	"D"	"E"	"F"	"G"
NB - Removal Typical Mainline - Curve 1	5.25	6	4.5	5.5	2.25	2	2
NB - Removal Typical Mainline - Curve 2	8	8.75	5.25	4.5	2.25	2	2



NB - Removal Typical Mainline - Curve 2

PC	PT
Sta 4828+99 to Sta 4853+00	
Sta 5191+23 to Sta 5205+25	

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Note: Actual depths may vary.
*Removal to be included in the bid item "Remove Aggregate Base & Surfacing."
**Removal to be included in the bid item "Removal of Pavement."

Removal Typical Sections
Horizontal Curves

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

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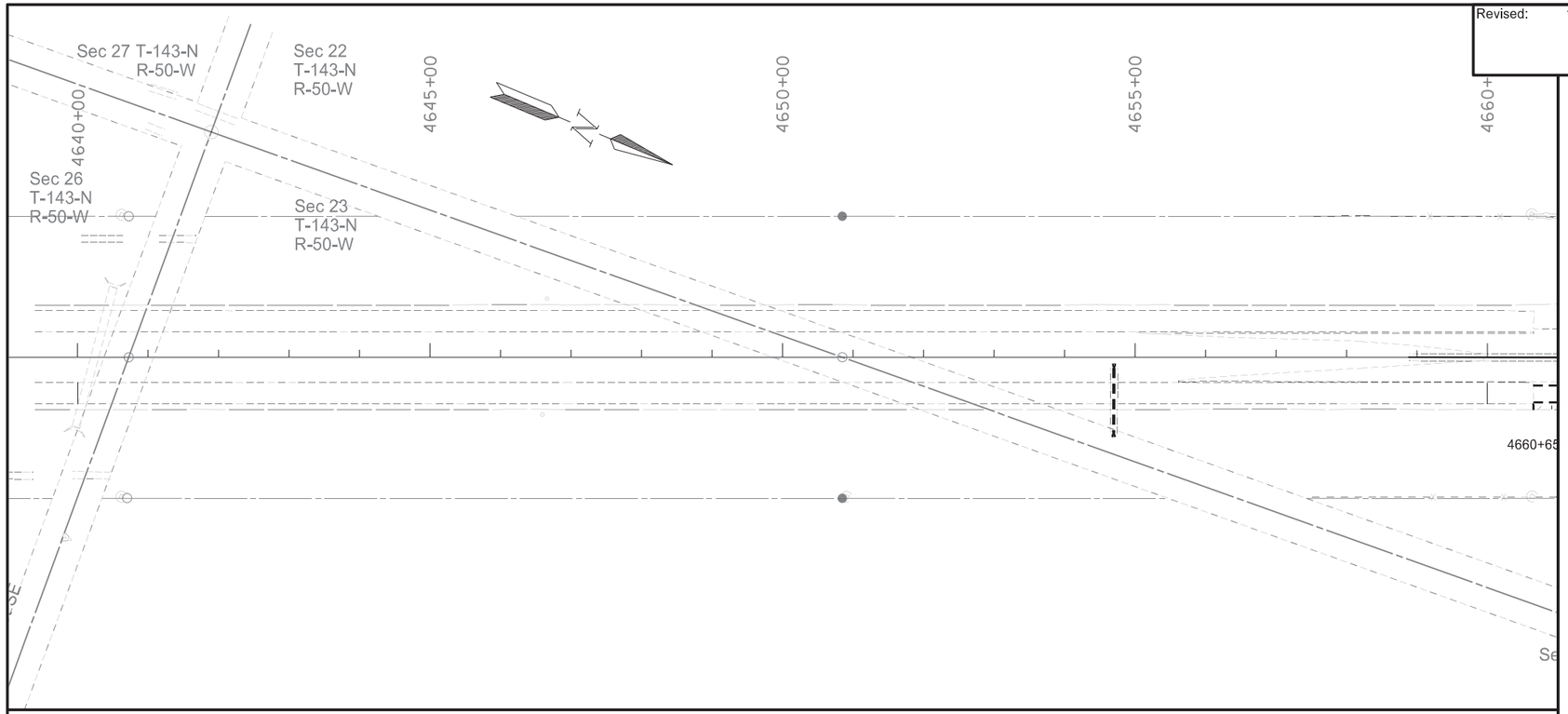

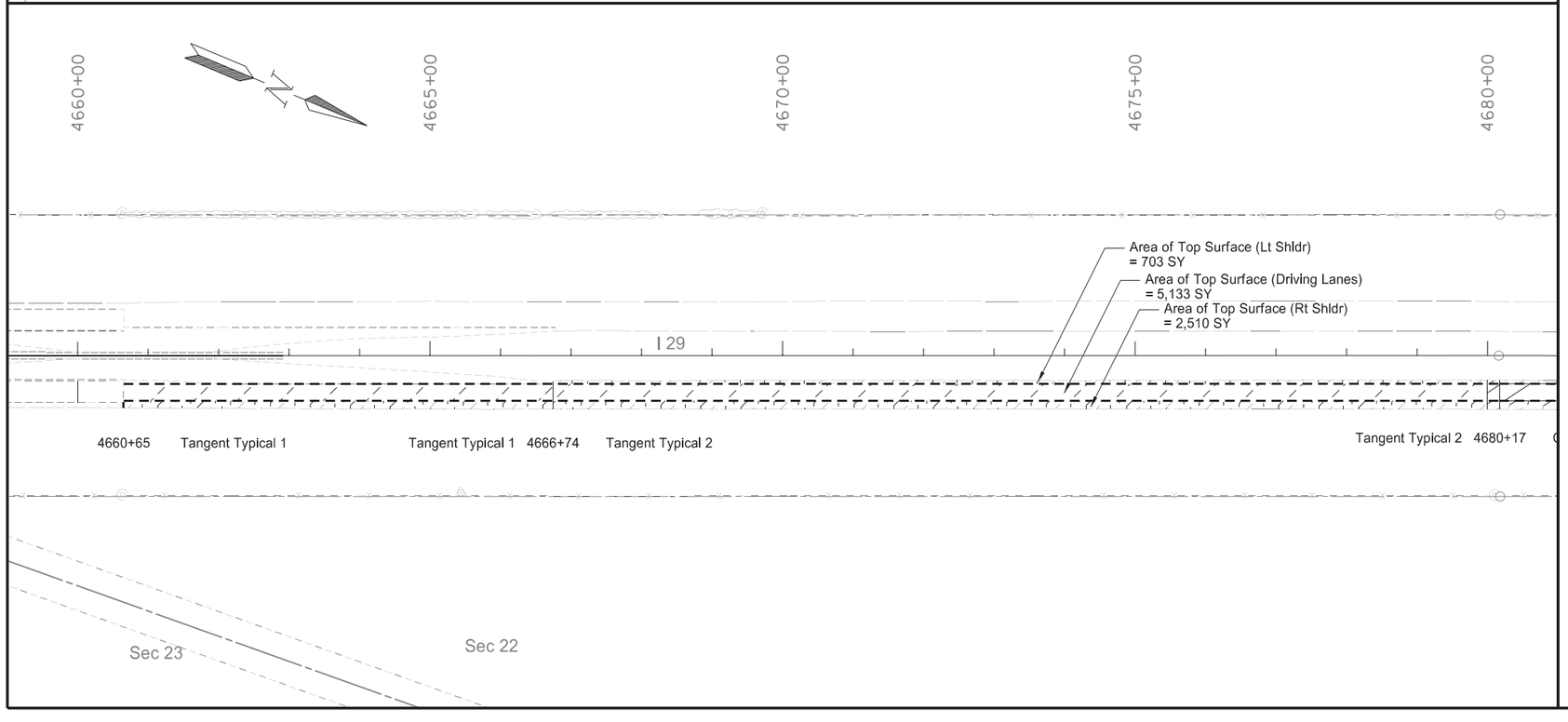

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 4666+74 to Sta 4680+00		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	191
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	248
		Sta 4660+65 to Sta 4680+00		
		Mainline Asphalt (Avg. Depth = 0.38')	TON	1300
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	489
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	785
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 4660+65 to Sta 4680+00		
		Mainline Concrete (8" Depth)	TON	2281
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	215

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

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Removal Sheet
Sta 4640+00 to Sta 4680+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

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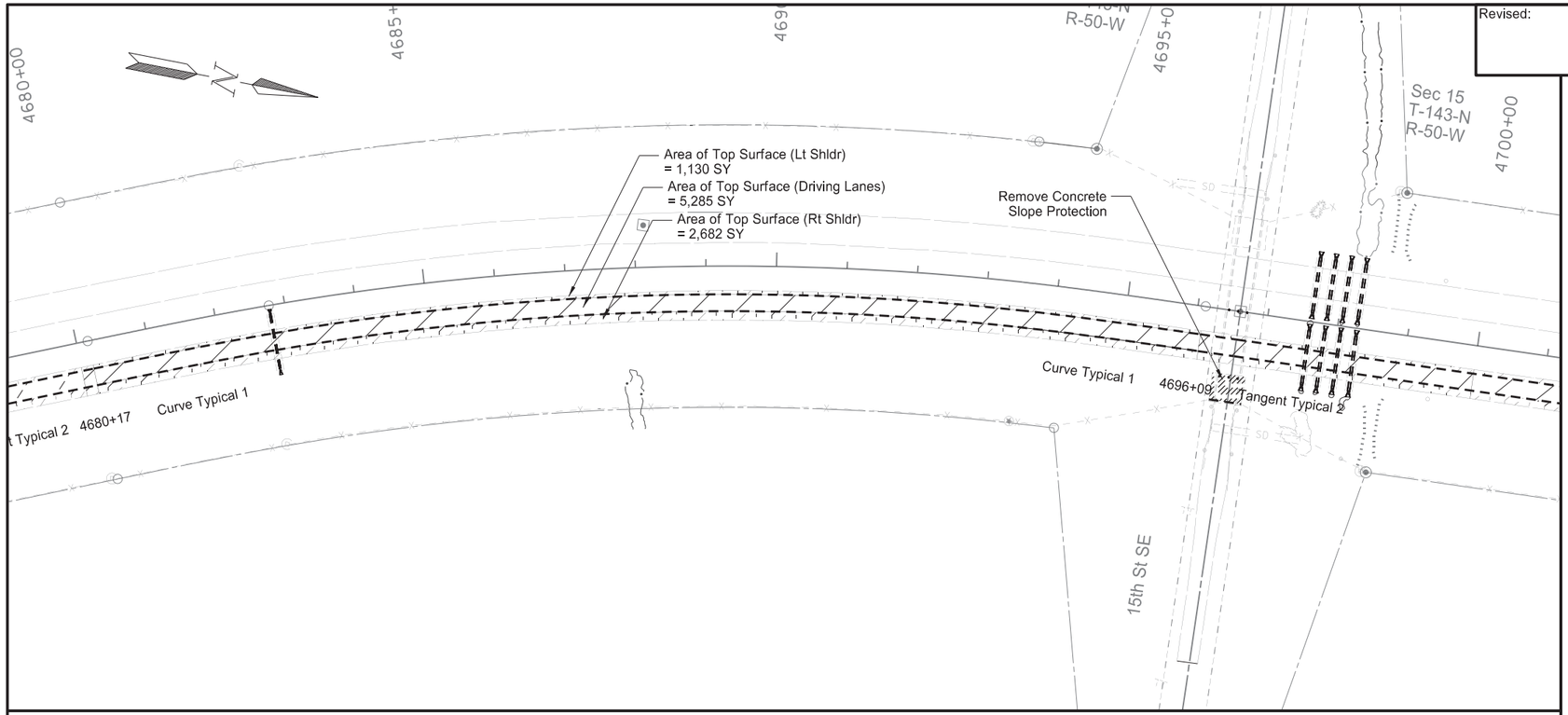

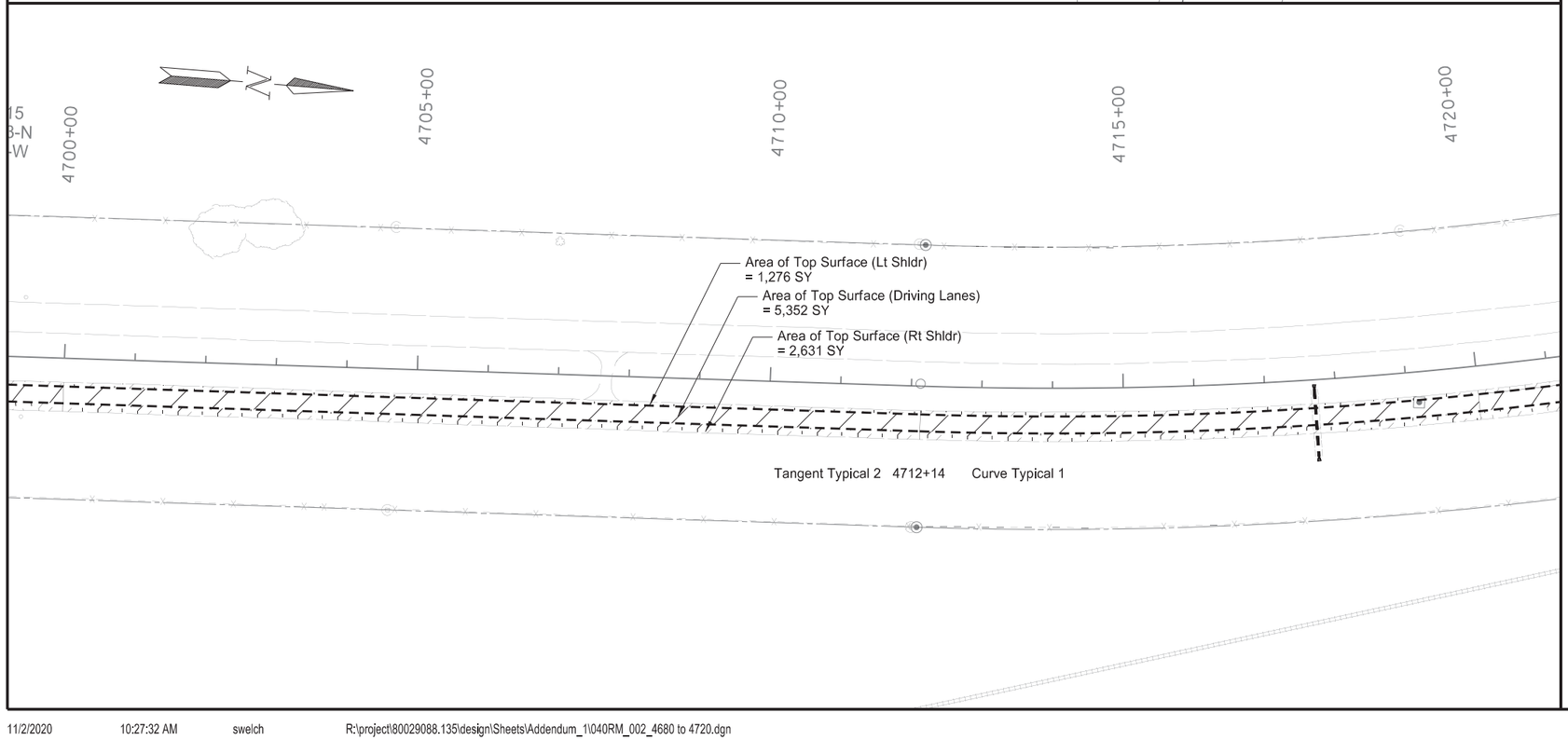

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 4680+00 to Sta 4720+00 (Tangent Sections)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	267
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	348
		Mainline Asphalt (Avg. Depth = 0.38')	TON	1096
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	412
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	661
		Sta 4680+00 to Sta 4720+00 (Curve Sections)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	430
		Lt Shoulder Asphalt (Avg. Depth = 0.64')	TON	729
		Mainline Asphalt (Avg. Depth = 0.44')	TON	1852
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	622
		Rt Shoulder Asphalt (Avg. Depth = 0.49')	TON	1084
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 4680+00 to Sta 4720+00		
		Mainline Concrete (8" Depth)	TON	4728
		Sta 4680+00 to Sta 4720+00 (Tangent Sections)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	180
		Sta 4680+00 to Sta 4720+00 (Curve Sections)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	263

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.
Note 4: See section 170 for slope protection removal.

REGISTERED PROFESSIONAL ENGINEER
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NORTH DAKOTA

Removal Sheet
Sta 4680+00 to Sta 4720+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
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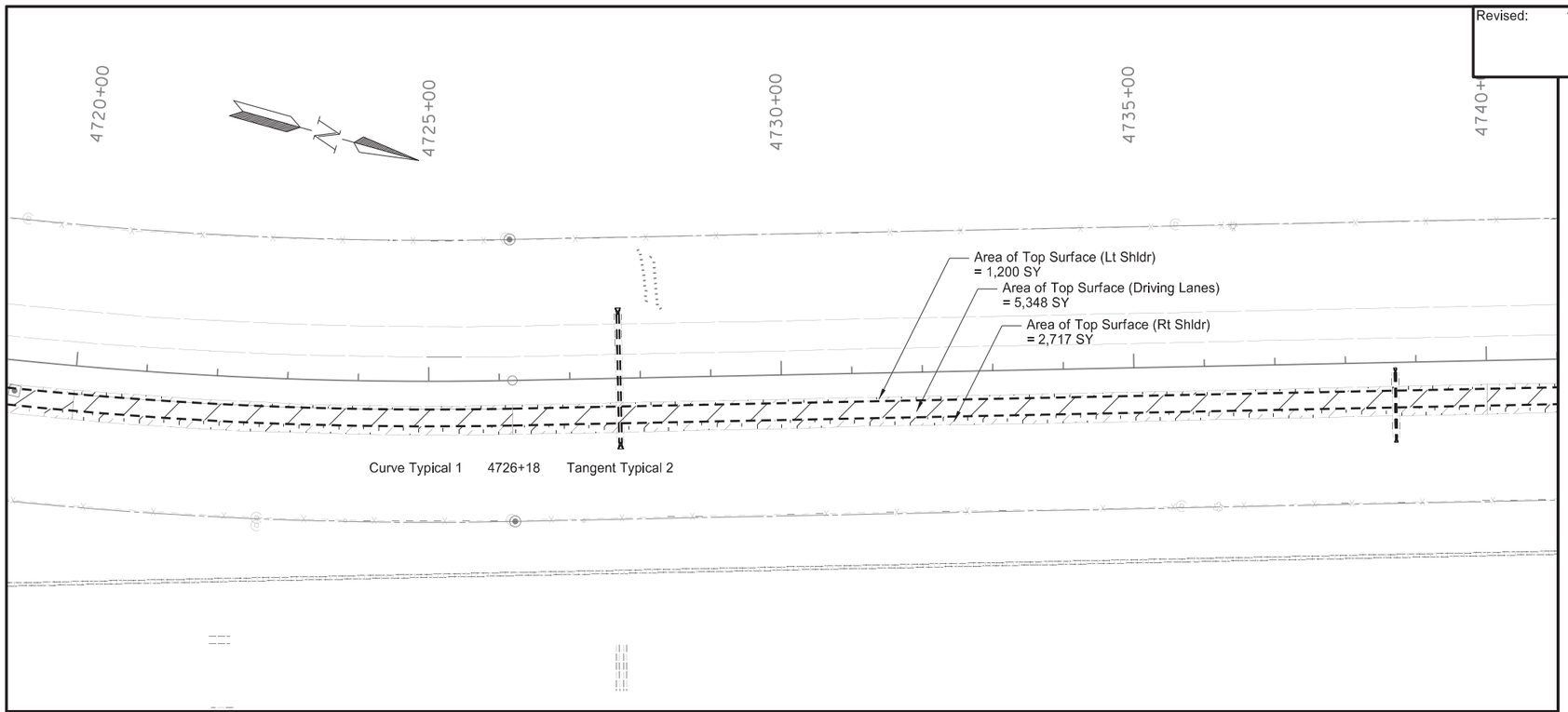

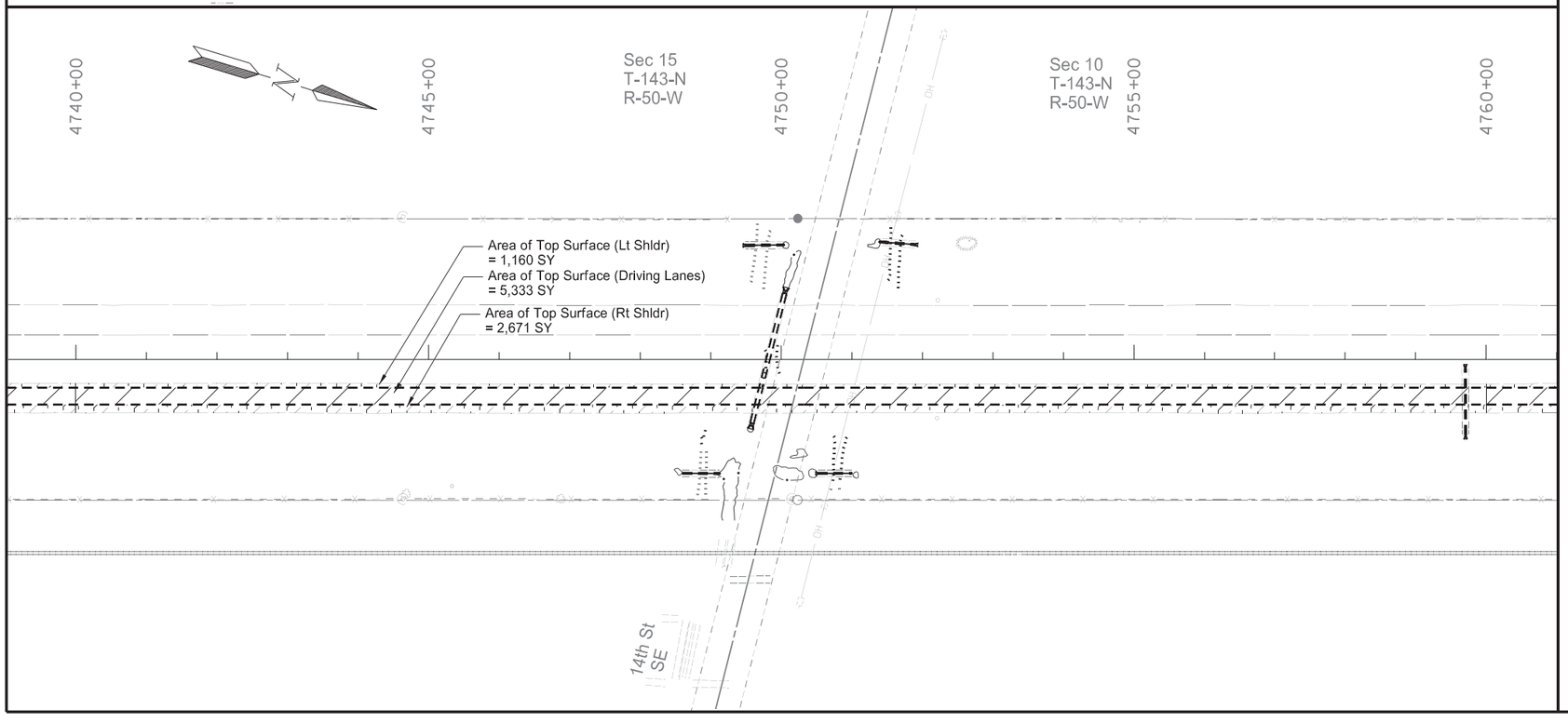

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	**0021**	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 4720+00 to Sta 4760+00 (Tangent Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	534
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	696
		Mainline Asphalt (Avg. Depth = 0.38')	TON	2285
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	883
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	1418
		Sta 4720+00 to Sta 4760+00 (Curve Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	111
		Lt Shoulder Asphalt (Avg. Depth = 0.64')	TON	188
		Mainline Asphalt (Avg. Depth = 0.44')	TON	488
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	165
		Rt Shoulder Asphalt (Avg. Depth = 0.49')	TON	288
202	**0136**	**REMOVAL OF PAVEMENT**		
		Sta 4720+00 to Sta 4760+00		
		Mainline Concrete (8" Depth)	TON	4747
		Sta 4720+00 to Sta 4760+00 (Tangent Section)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	376
		Sta 4720+00 to Sta 4760+00 (Curve Section)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	69

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

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Removal Sheet
Sta 4720+00 to Sta 4760+00

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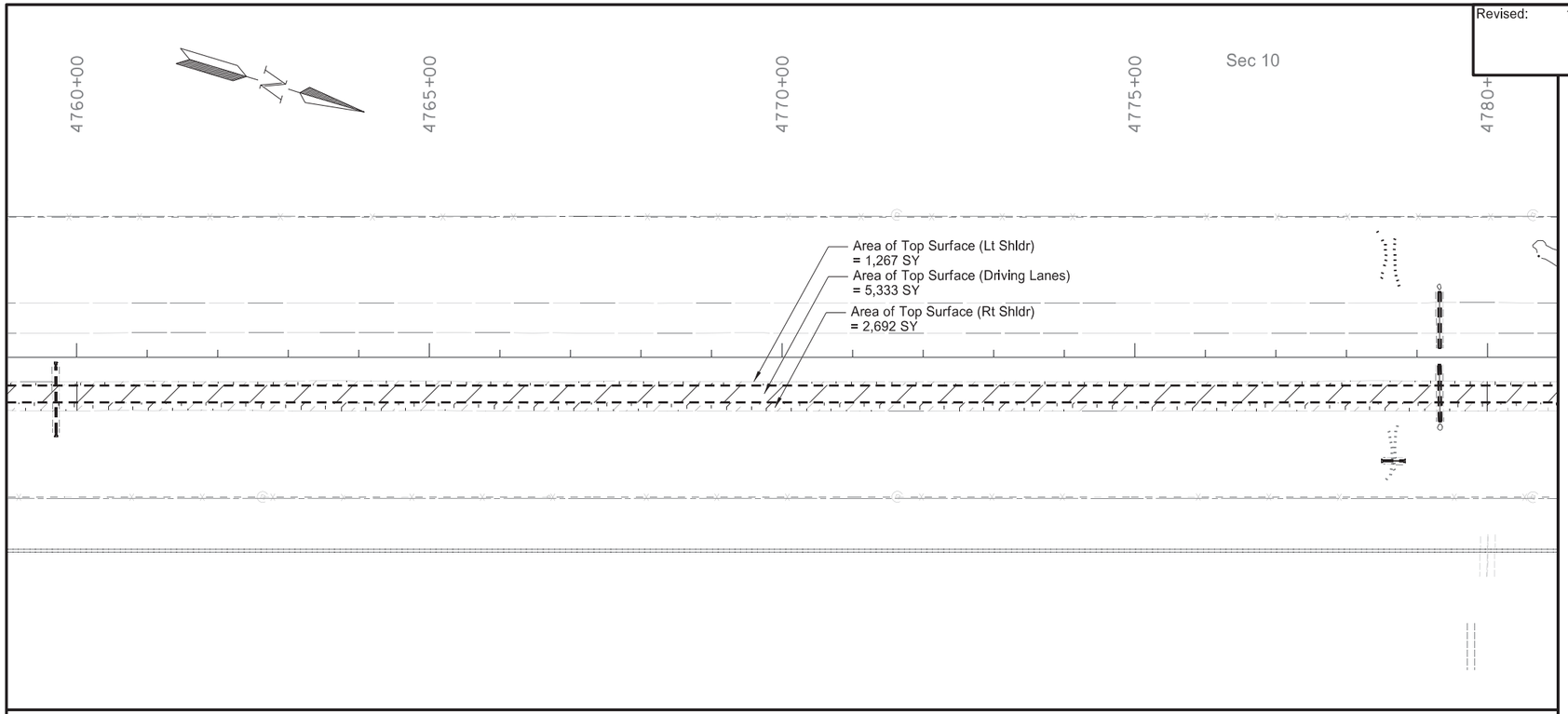

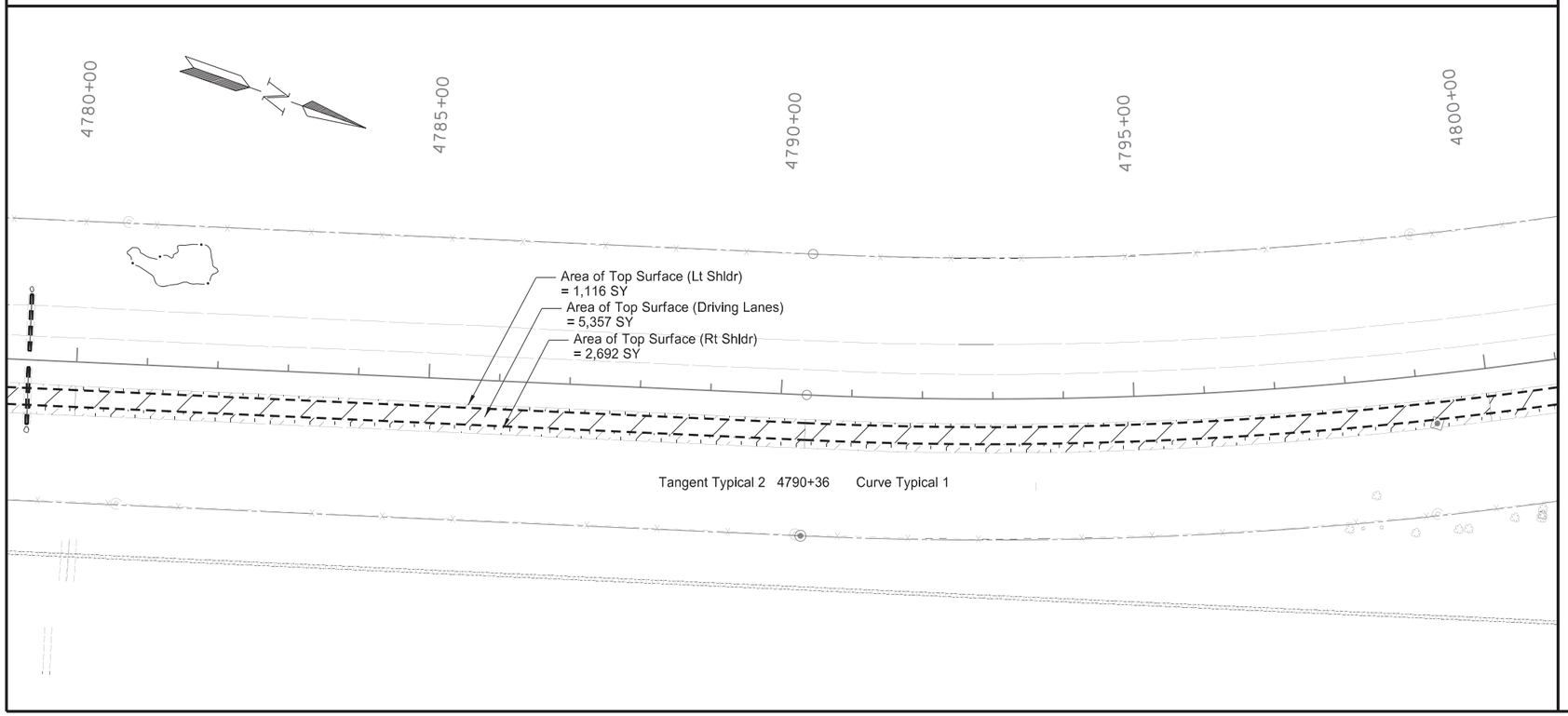

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 4760+00 to Sta 4800+00 (Tangent Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	504
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	656
		Mainline Asphalt (Avg. Depth = 0.38')	TON	2051
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	791
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	1271
		Sta 4760+00 to Sta 4800+00 (Curve Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	153
		Lt Shoulder Asphalt (Avg. Depth = 0.64')	TON	260
		Mainline Asphalt (Avg. Depth = 0.44')	TON	761
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	256
		Rt Shoulder Asphalt (Avg. Depth = 0.49')	TON	446
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 4760+00 to Sta 4800+00		
		Mainline Concrete (8" Depth)	TON	4751
		Sta 4760+00 to Sta 4800+00 (Tangent Section)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	337
		Sta 4760+00 to Sta 4800+00 (Curve Section)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	108

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

REGISTERED PROFESSIONAL ENGINEER
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Removal Sheet
Sta 4760+00 to Sta 4800+00

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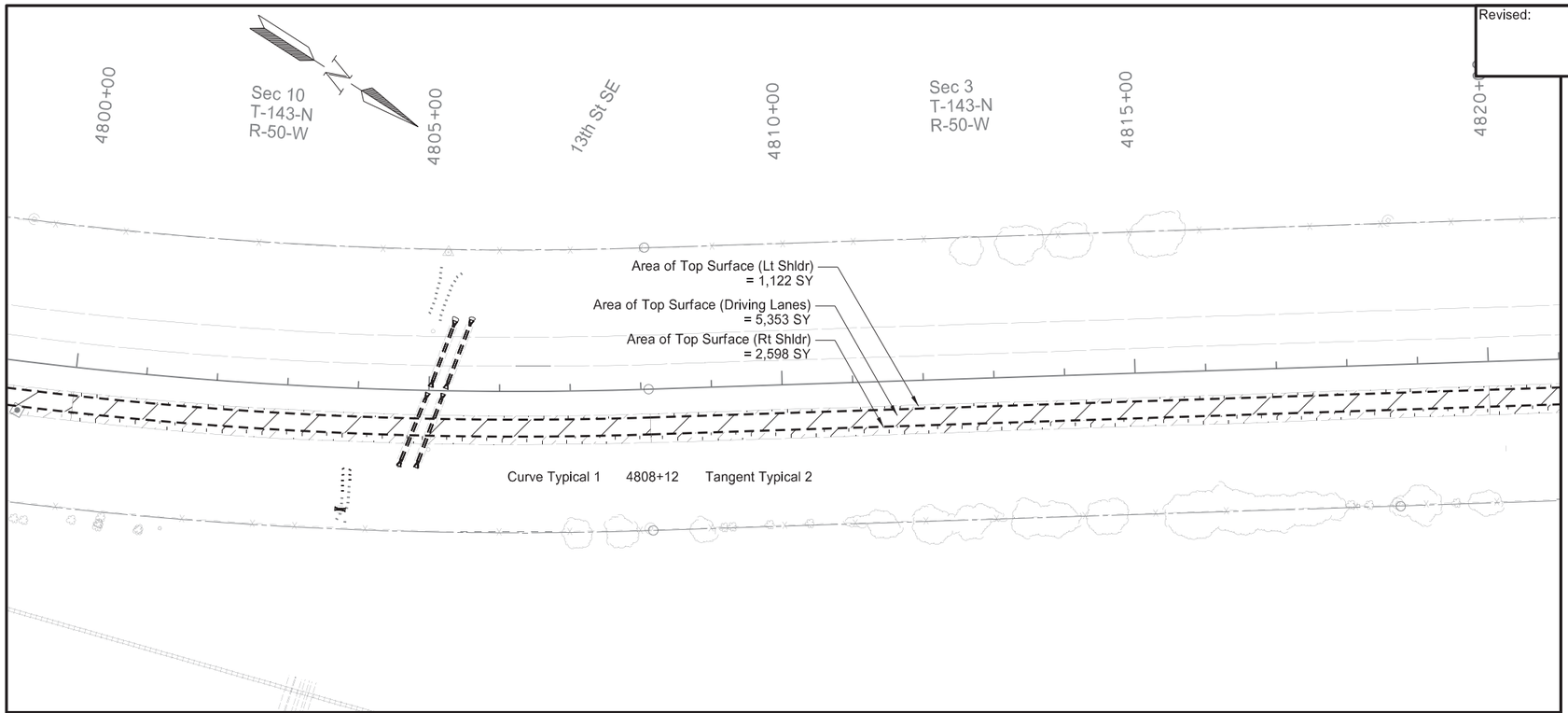
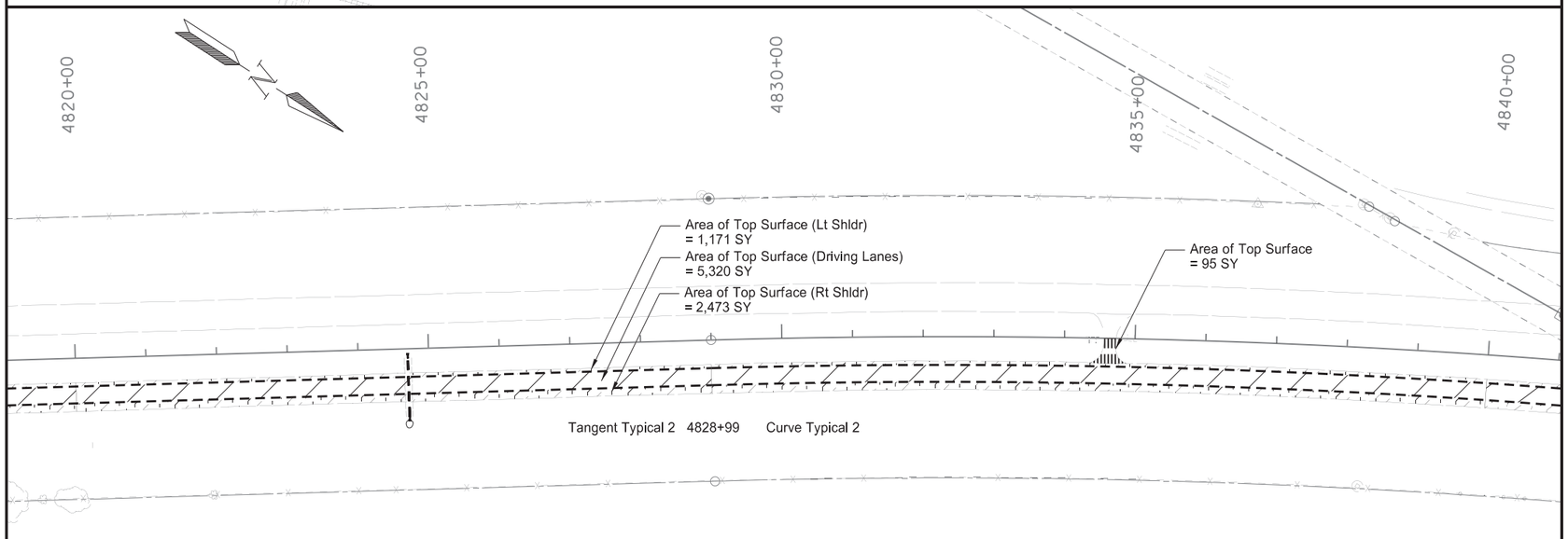
	ND	IM-8-029(135)088	40	5





SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 4800+00 to Sta 4808+12 (Curve Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	145
		Lt Shoulder Asphalt (Avg. Depth = 0.64')	TON	246
		Mainline Asphalt (Avg. Depth = 0.44')	TON	641
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	207
		Rt Shoulder Asphalt (Avg. Depth = 0.49')	TON	361
		Sta 4808+12 to Sta 4828+99 (Tangent Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	314
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	409
		Mainline Asphalt (Avg. Depth = 0.38')	TON	1410
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	519
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	833
		Sta 4828+99 to Sta 4840+00 (Curve Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	201
		Lt Shoulder Asphalt (Avg. Depth = 0.86')	TON	464
		Mainline Asphalt (Avg. Depth = 0.51')	TON	994
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	263
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	422
		Emergency Crossover - Sta 4834+64	TON	8
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 4800+00 to Sta 4840+00		
		Mainline Concrete (8" Depth)	TON	4744
		Sta 4800+00 to Sta 4808+12 (Curve Section)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	91
		Sta 4808+12 to Sta 4828+99 (Tangent Section)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	232
		Sta 4828+99 to Sta 4840+00 (Curve Section)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	122

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

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Removal Sheet
Sta 4800+00 to Sta 4840+00

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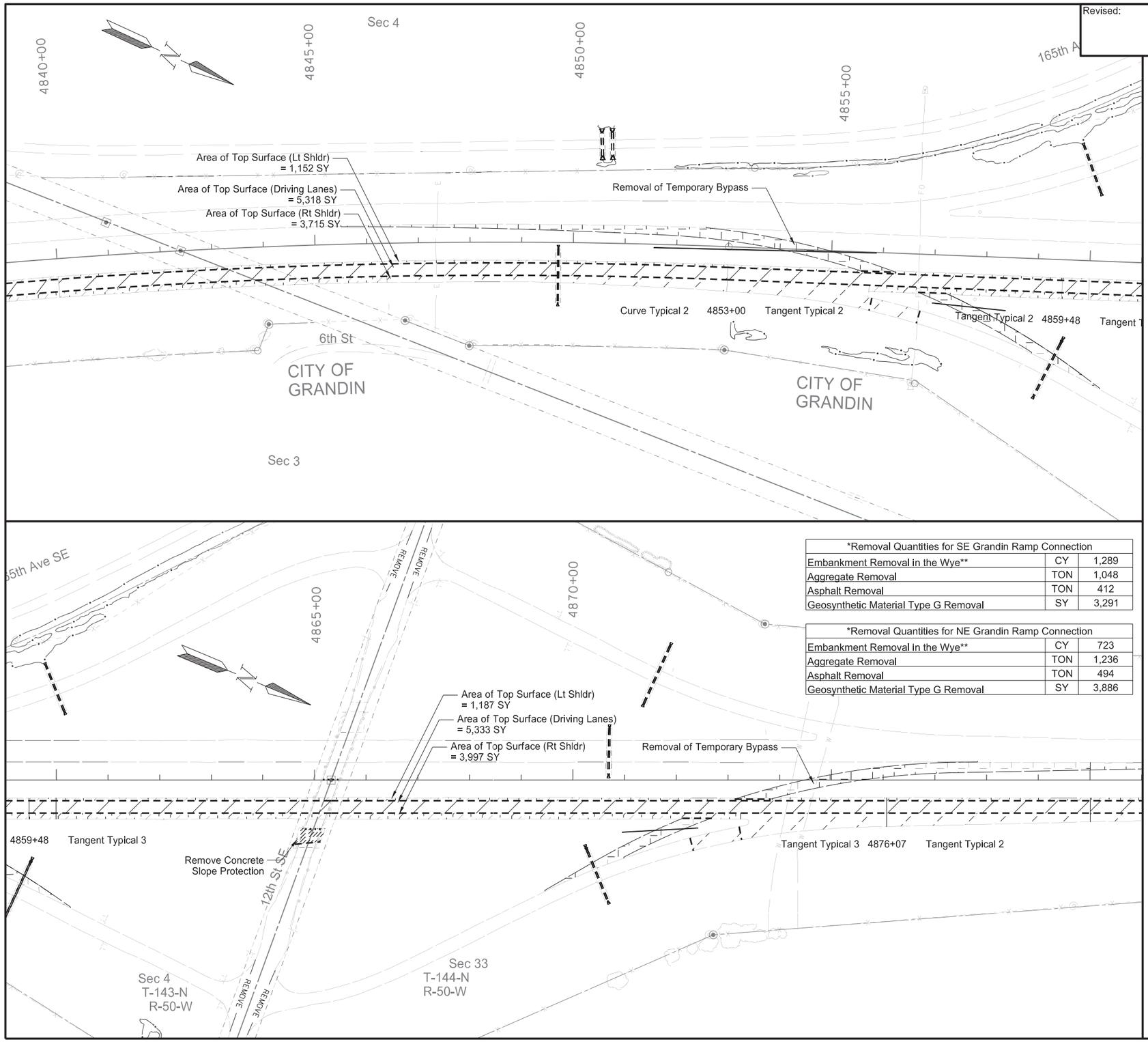
	ND	IM-8-029(135)088	40	6



*Removal Quantities for SE Grandin Ramp Connection		
Embankment Removal in the Wye**	CY	1,289
Aggregate Removal	TON	1,048
Asphalt Removal	TON	412
Geosynthetic Material Type G Removal	SY	3,291

*Removal Quantities for NE Grandin Ramp Connection		
Embankment Removal in the Wye**	CY	723
Aggregate Removal	TON	1,236
Asphalt Removal	TON	494
Geosynthetic Material Type G Removal	SY	3,886

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 4840+00 to Sta 4853+00 (Curve Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	232
		Lt Shoulder Asphalt (Avg. Depth = 0.86')	TON	536
		Mainline Asphalt (Avg. Depth = 0.51')	TON	1552
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	166
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	263
		Sta 4853+00 to Sta 4859+48 (Tangent 2 Sections)		
		Sta 4876+07 to Sta 4880+00		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	163
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	212
		Mainline Asphalt (Avg. Depth = 0.38')	TON	1257
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	103
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	163
		Sta 4859+48 to Sta 4876+07 (Tangent 3 Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	260
		Lt Shoulder Asphalt (Avg. Depth = 0.66')	TON	504
		Mainline Asphalt (Avg. Depth = 0.58')	TON	2233
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	349
		Rt Shoulder Asphalt (Avg. Depth = 0.66')	TON	826
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 4800+00 to Sta 4840+00		
		Mainline Concrete and Ramp Taper (8" Depth)	TON	6800
		Sta 4840+00 to Sta 4853+00 (Curve Section)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	190
		Sta 4853+00 to Sta 4859+48 (Tangent 2 Sections)		
		Sta 4876+07 to Sta 4880+00		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	207
		Sta 4859+48 to Sta 4876+07 (Tangent 3 Section)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	241
202	0350	**REMOVAL OF TEMPORARY BYPASS**		
		SE Grandin Ramp Connection	EA	1
		Sta 4845+51 to Sta 4860+28		
		NE Grandin Ramp Connection	EA	1
		Sta 4869+45 to Sta 4887+33		

*For informational purposes only. Included in the price bid for "Removal of Temporary Bypass."
**Embankment removal quantity excludes the quantity in the median.

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths are based off of existing typical sections.
Note 3: See Section 60 for pipe removal quantities.
Note 4: See section 170 for slope protection removal.

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Removal Sheet
Sta 4840+00 to Sta 4880+00

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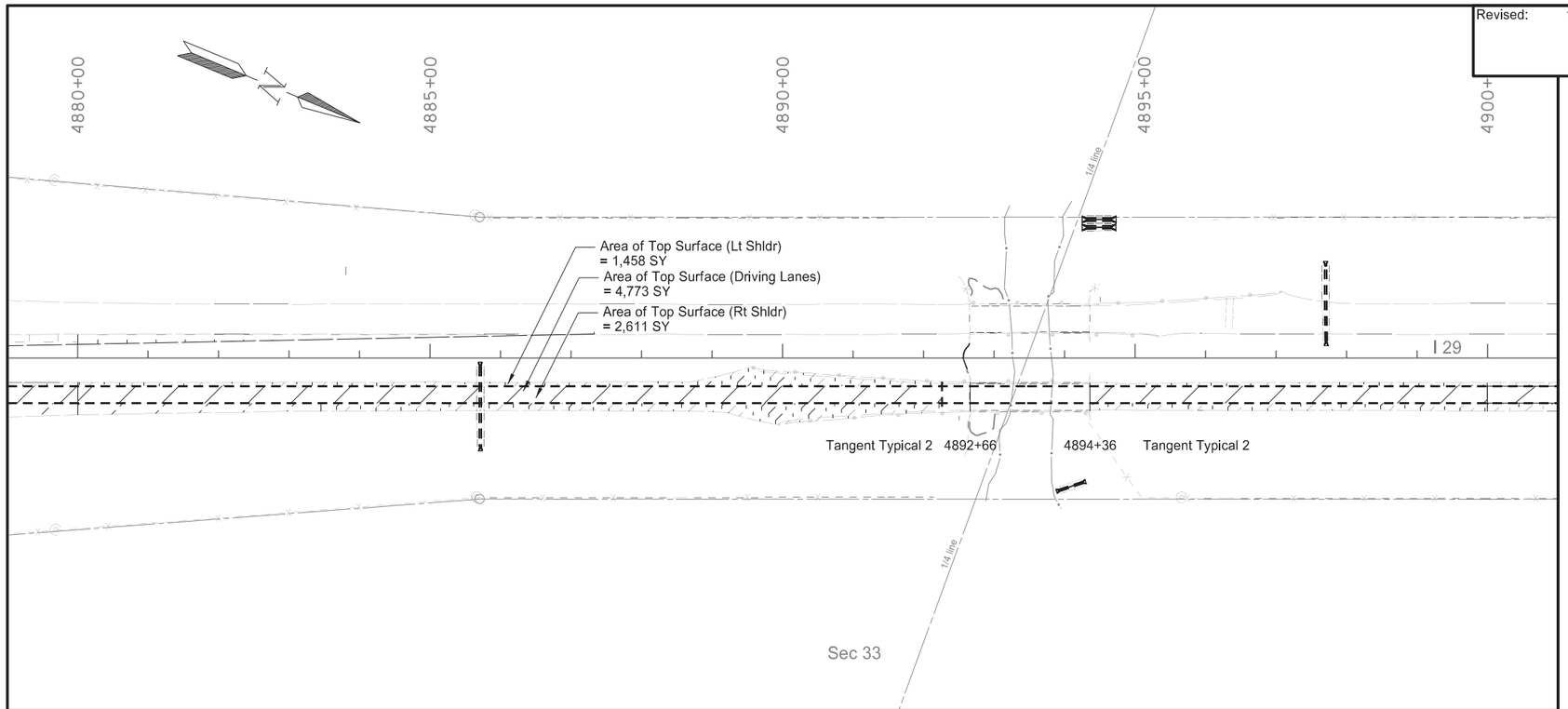

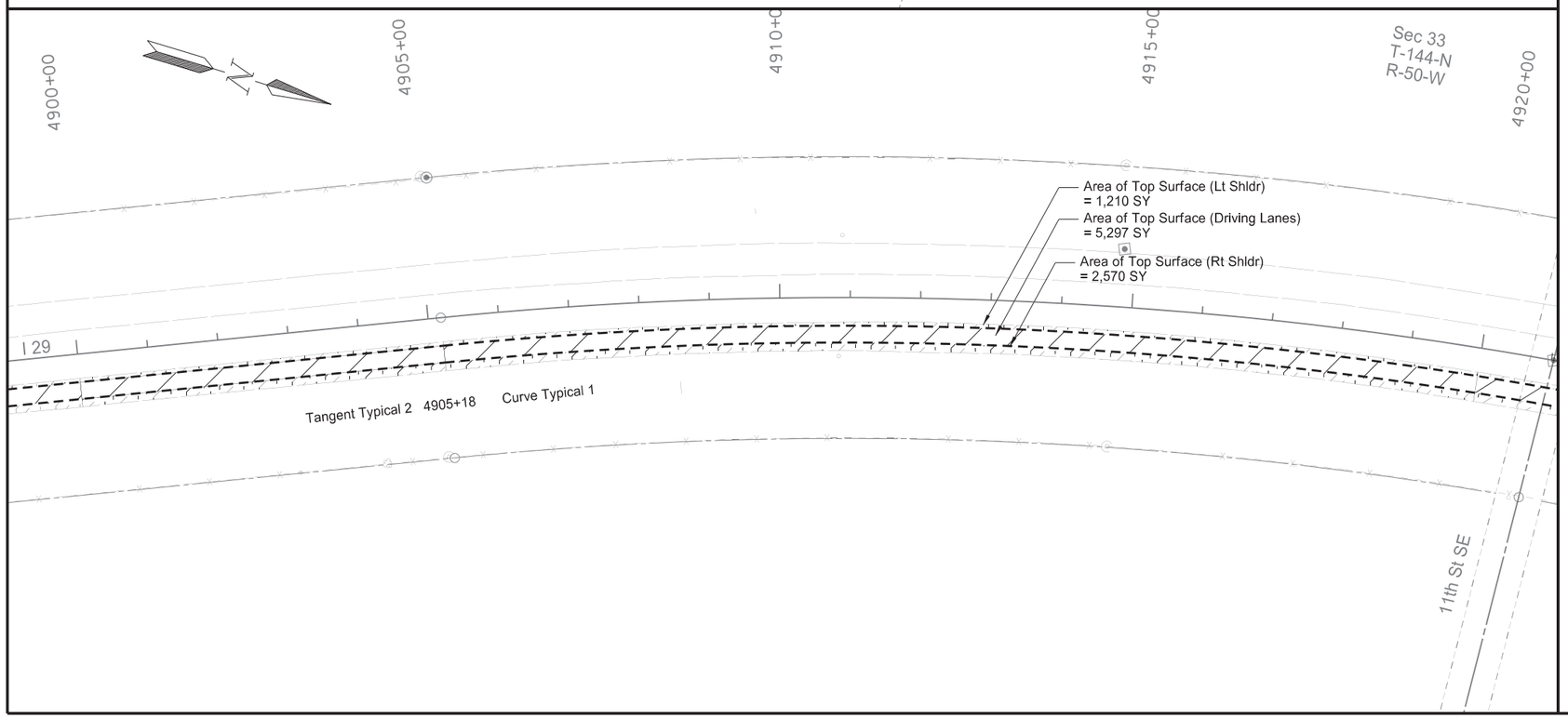

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 4880+00 to Sta 4905+18 (Tangent Sections)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	458
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	596
		Mainline Asphalt (Avg. Depth = 0.38')	TON	1693
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	537
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	861
		Sta 4905+18 to Sta 4920+00 (Curve Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	275
		Lt Shoulder Asphalt (Avg. Depth = 0.64')	TON	465
		Mainline Asphalt (Avg. Depth = 0.44')	TON	1149
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	372
		Rt Shoulder Asphalt (Avg. Depth = 0.49')	TON	648
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 4880+00 to Sta 4920+00		
		Mainline Concrete and Ramp Taper (8" Depth)	TON	4711
		Sta 4880+00 to Sta 4905+18 (Tangent Sections)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	279
		Sta 4905+18 to Sta 4920+00 (Curve Section)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	163

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

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Removal Sheet
Sta 4880+00 to Sta 4920+00

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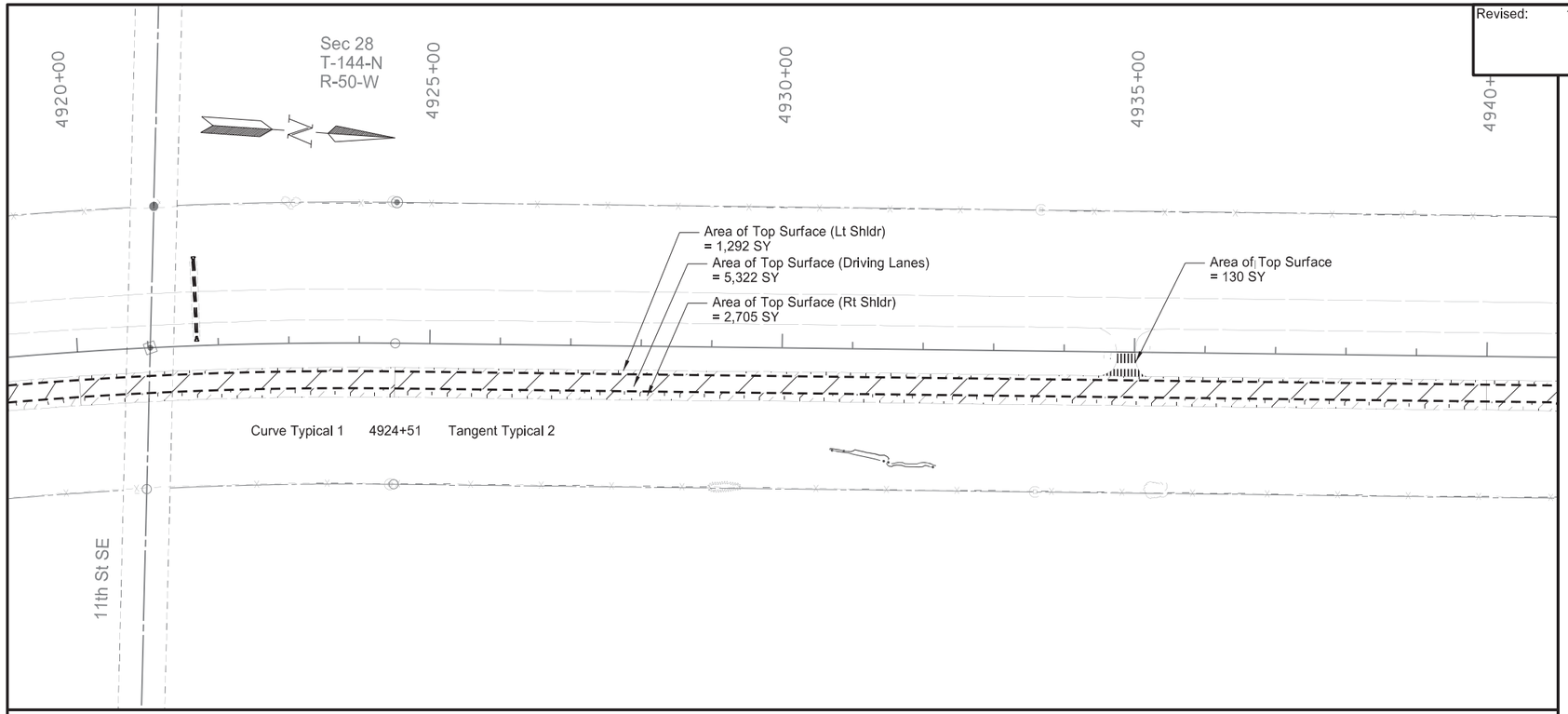

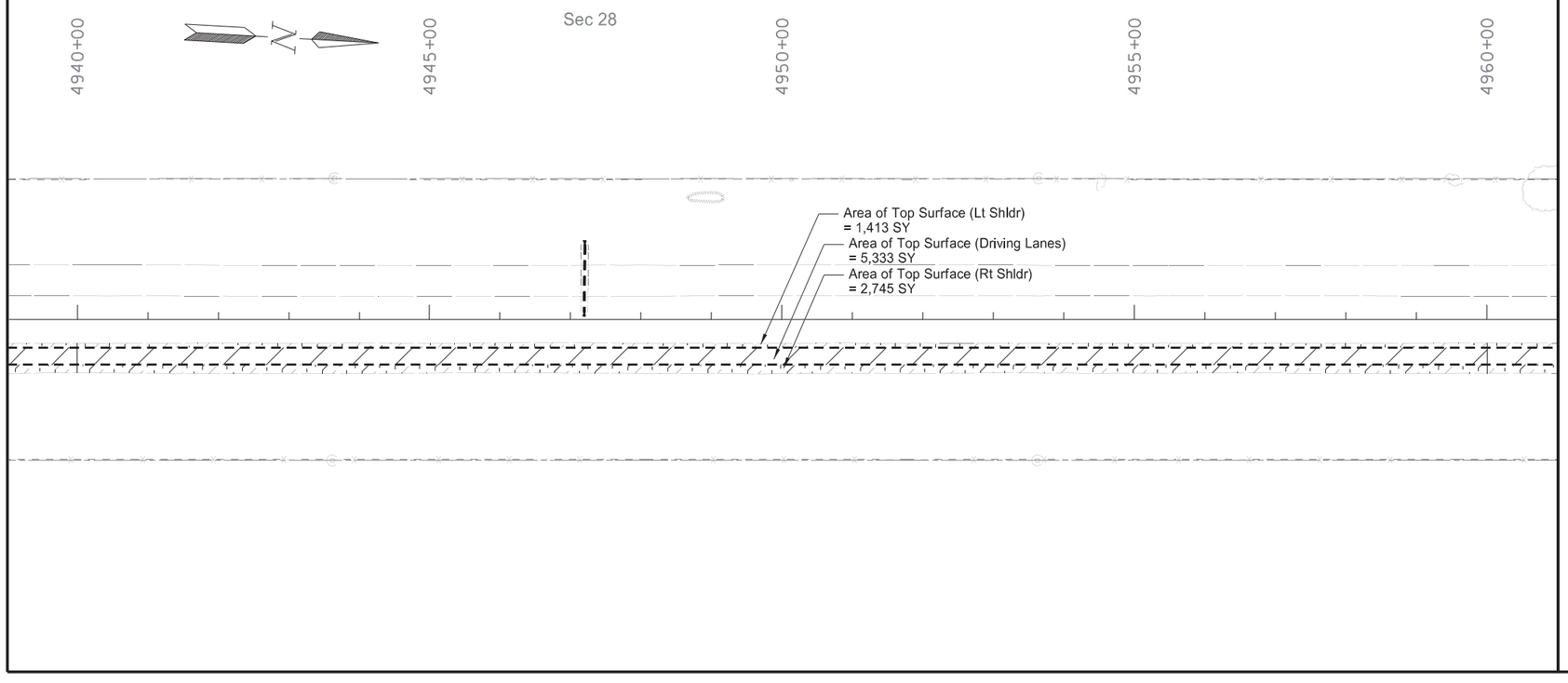

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 4924+51 to Sta 4960+00 (Tangent Sections)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	638
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	830
		Mainline Asphalt (Avg. Depth = 0.38')	TON	2398
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	940
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	1510
		Emergency Crossover - Sta 4934+88	TON	11
		Sta 4920+00 to Sta 4924+51 (Curve Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	83
		Lt Shoulder Asphalt (Avg. Depth = 0.64')	TON	140
		Mainline Asphalt (Avg. Depth = 0.44')	TON	350
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	119
		Rt Shoulder Asphalt (Avg. Depth = 0.49')	TON	208
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 4920+00 to Sta 4960+00		
		Mainline Concrete (8" Depth)	TON	4736
		Sta 4924+51 to Sta 4960+00 (Tangent Sections)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	394
		Sta 4920+00 to Sta 4924+51 (Curve Section)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	50

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

REGISTERED PROFESSIONAL ENGINEER
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Removal Sheet
Sta 4920+00 to Sta 4960+00

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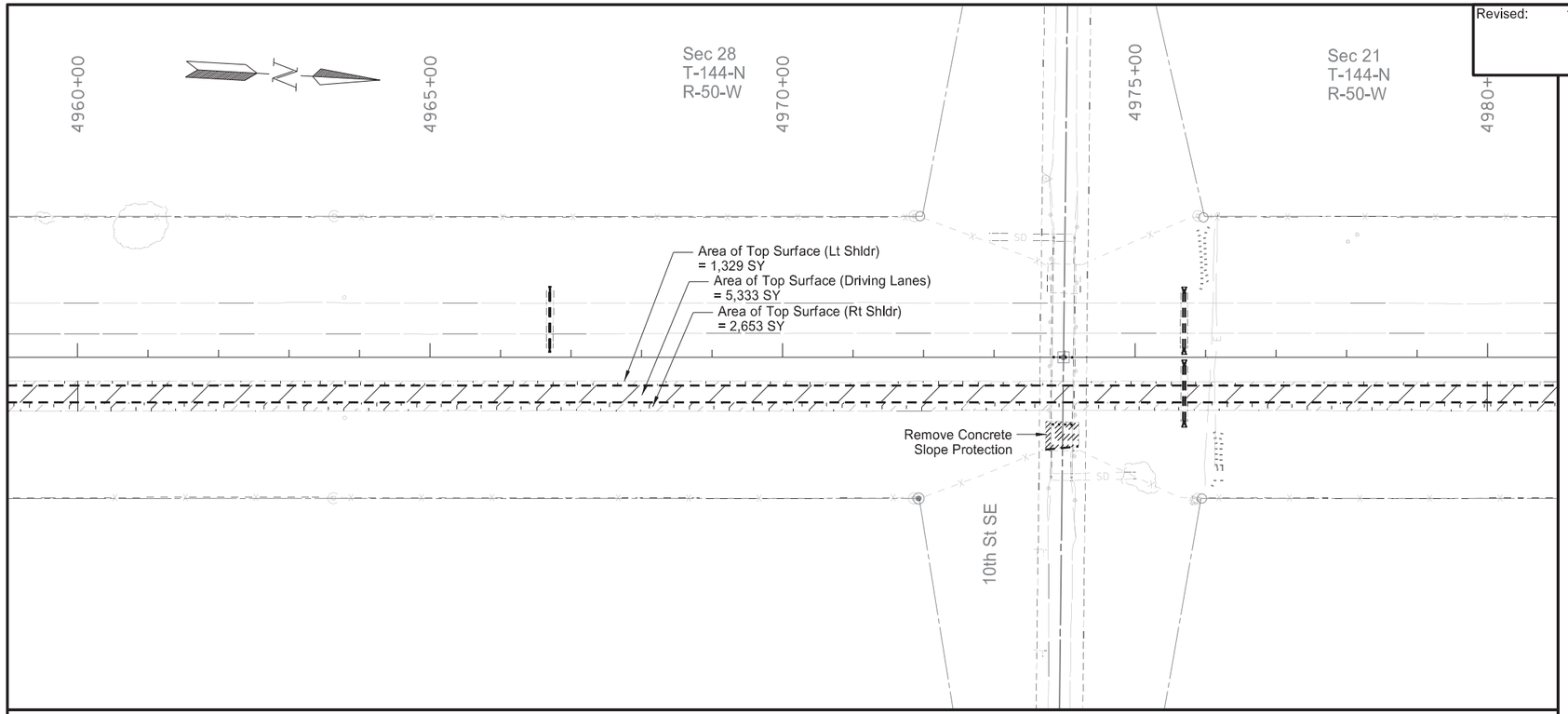

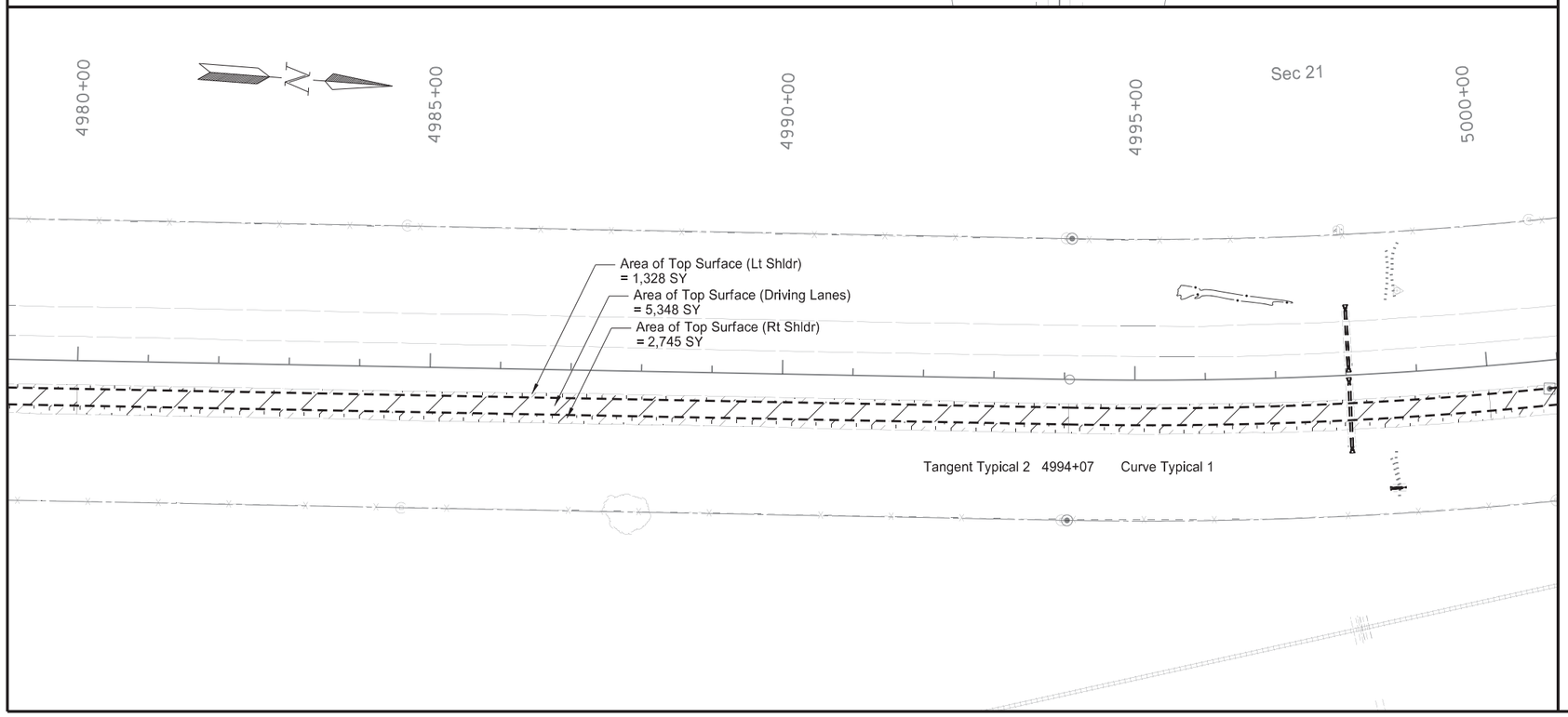

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 4960+00 to Sta 4994+07 (Tangent Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	600
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	781
		Mainline Asphalt (Avg. Depth = 0.38')	TON	2302
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	883
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	1419
		Sta 4994+07 to Sta 5000+00 (Curve Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	113
		Lt Shoulder Asphalt (Avg. Depth = 0.64')	TON	192
		Mainline Asphalt (Avg. Depth = 0.44')	TON	468
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	166
		Rt Shoulder Asphalt (Avg. Depth = 0.49')	TON	290
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 4960+00 to Sta 5000+00		
		Mainline Concrete (8" Depth)	TON	4747
		Sta 4960+00 to Sta 4994+07 (Tangent Section)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	379
		Sta 4994+07 to Sta 5000+00 (Curve Section)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	66

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.
Note 4: See section 170 for slope protection removal.

REGISTERED PROFESSIONAL ENGINEER
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Removal Sheet
Sta 4960+00 to Sta 5000+00

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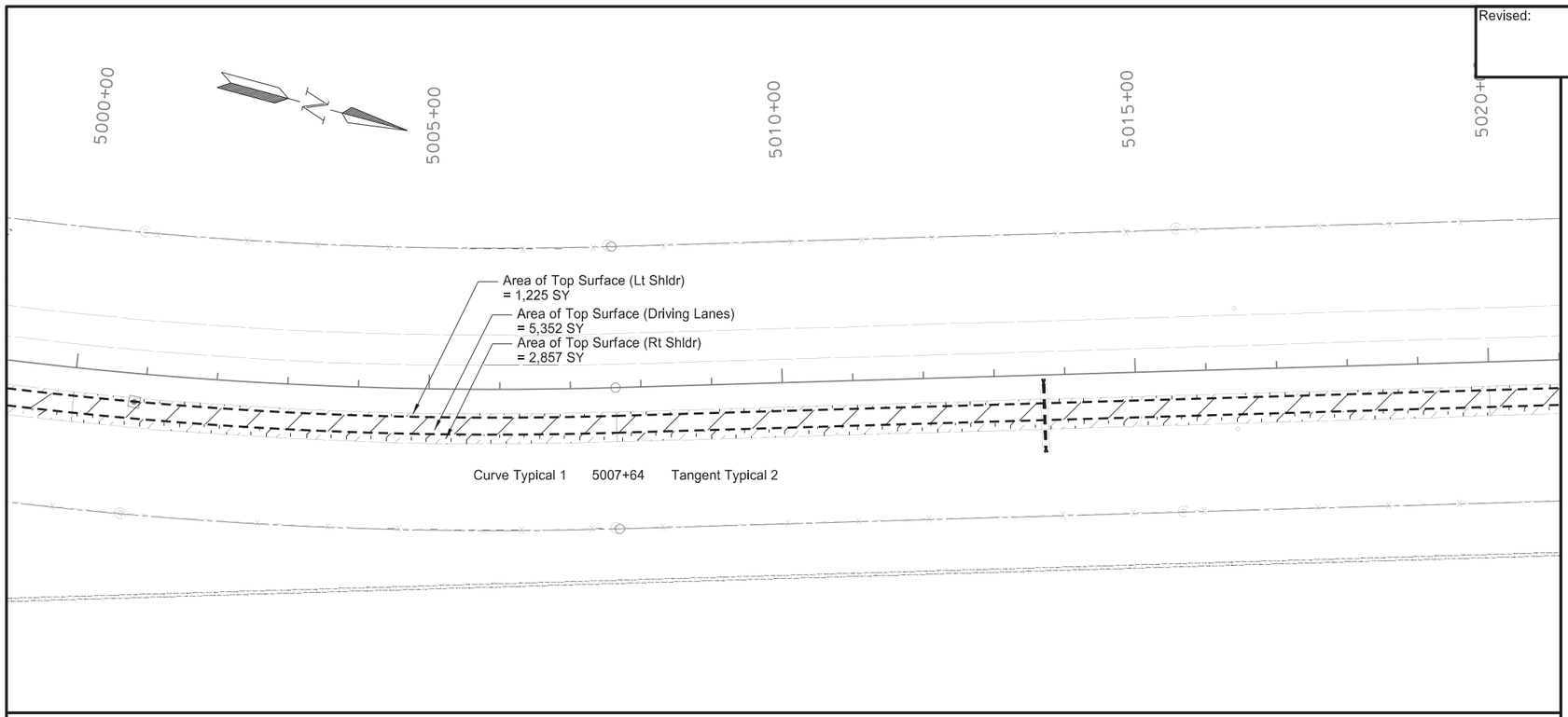

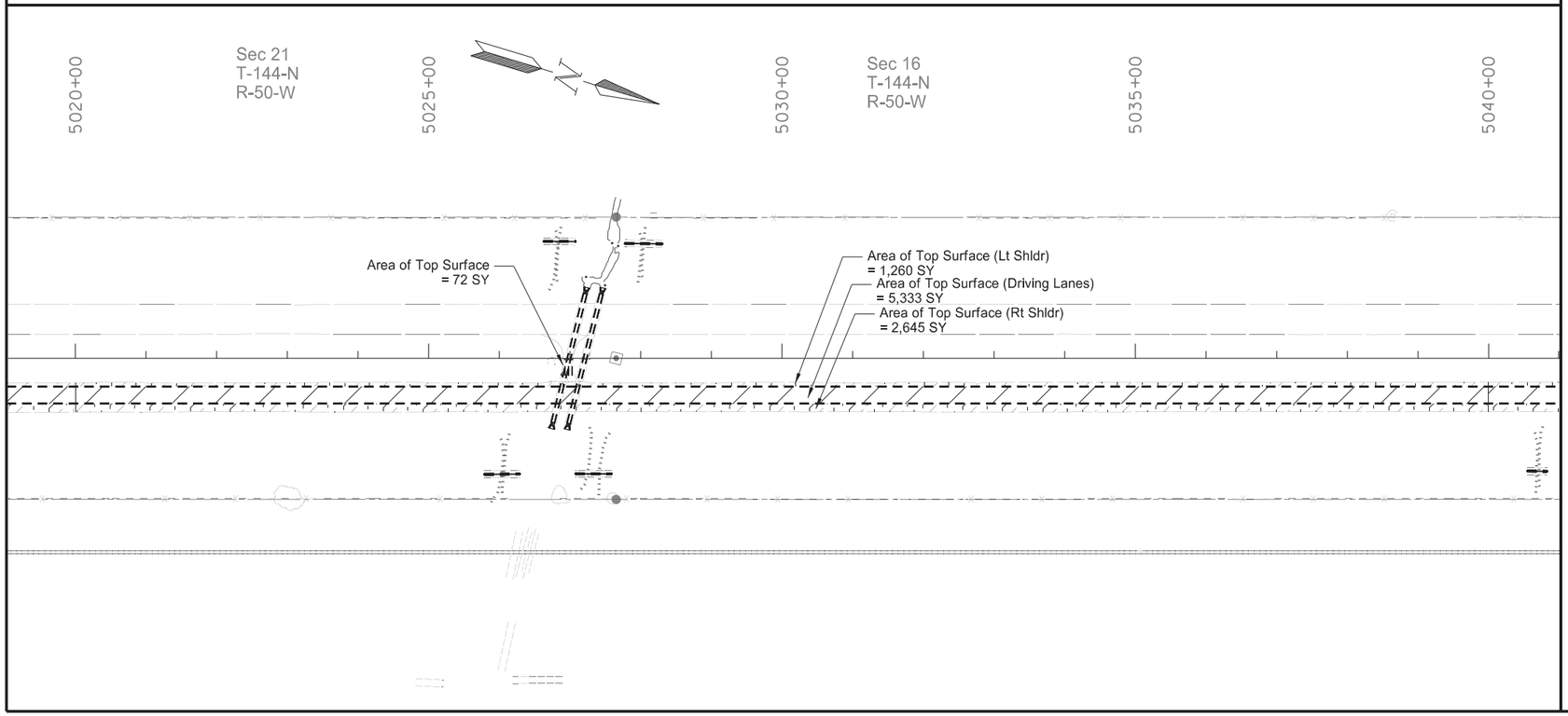

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	**0021**	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 5007+64 to Sta 5040+00 (Tangent Sections)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	536
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	697
		Mainline Asphalt (Avg. Depth = 0.38')	TON	2186
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	856
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	1375
		Emergency Crossover - Sta 5026+97	TON	6
		Sta 5000+00 to Sta 5007+64 (Curve Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	143
		Lt Shoulder Asphalt (Avg. Depth = 0.64')	TON	241
		Mainline Asphalt (Avg. Depth = 0.44')	TON	603
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	213
		Rt Shoulder Asphalt (Avg. Depth = 0.49')	TON	371
202	**0136**	**REMOVAL OF PAVEMENT**		
		Sta 5000+00 to Sta 5040+00		
		Mainline Concrete (8" Depth)	TON	4749
		Sta 5007+64 to Sta 5040+00 (Tangent Sections)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	360
		Sta 5000+00 to Sta 5007+64 (Curve Section)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	86

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

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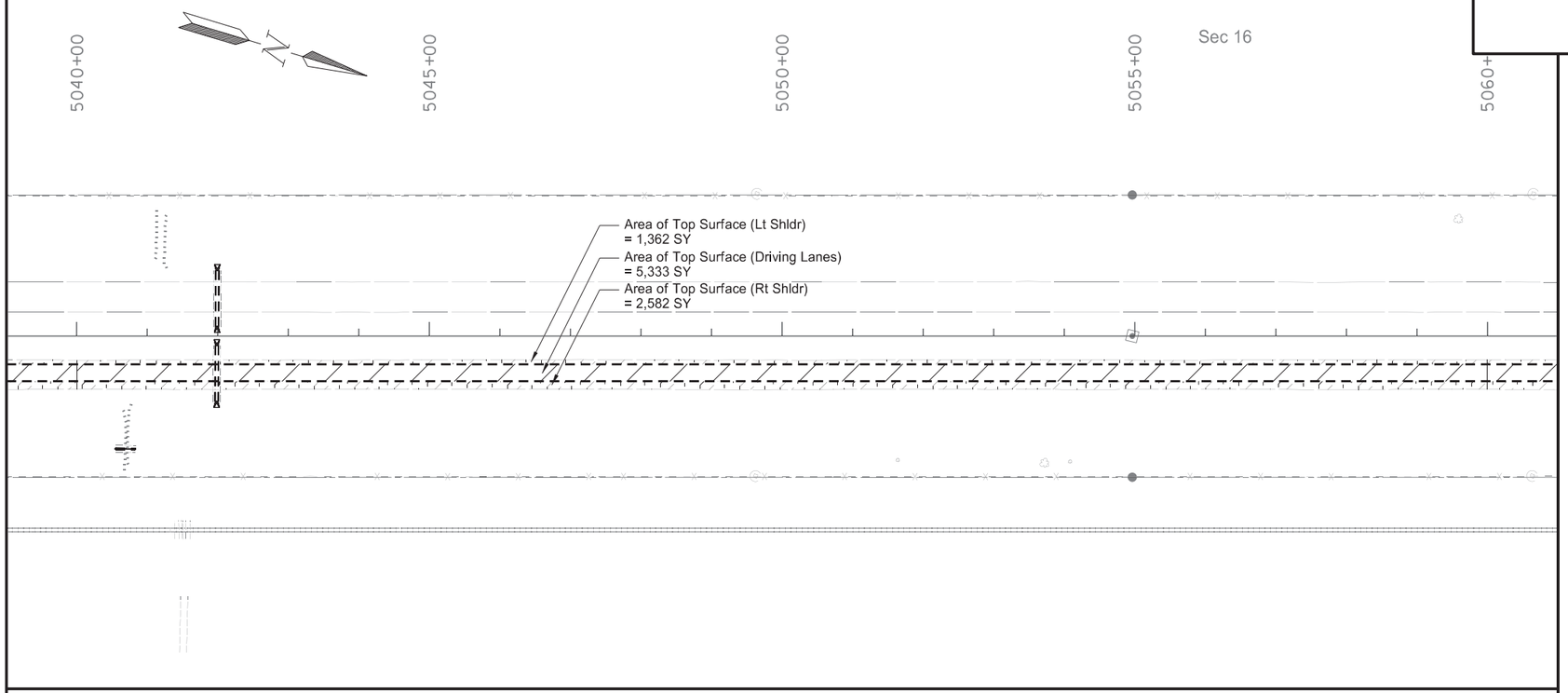

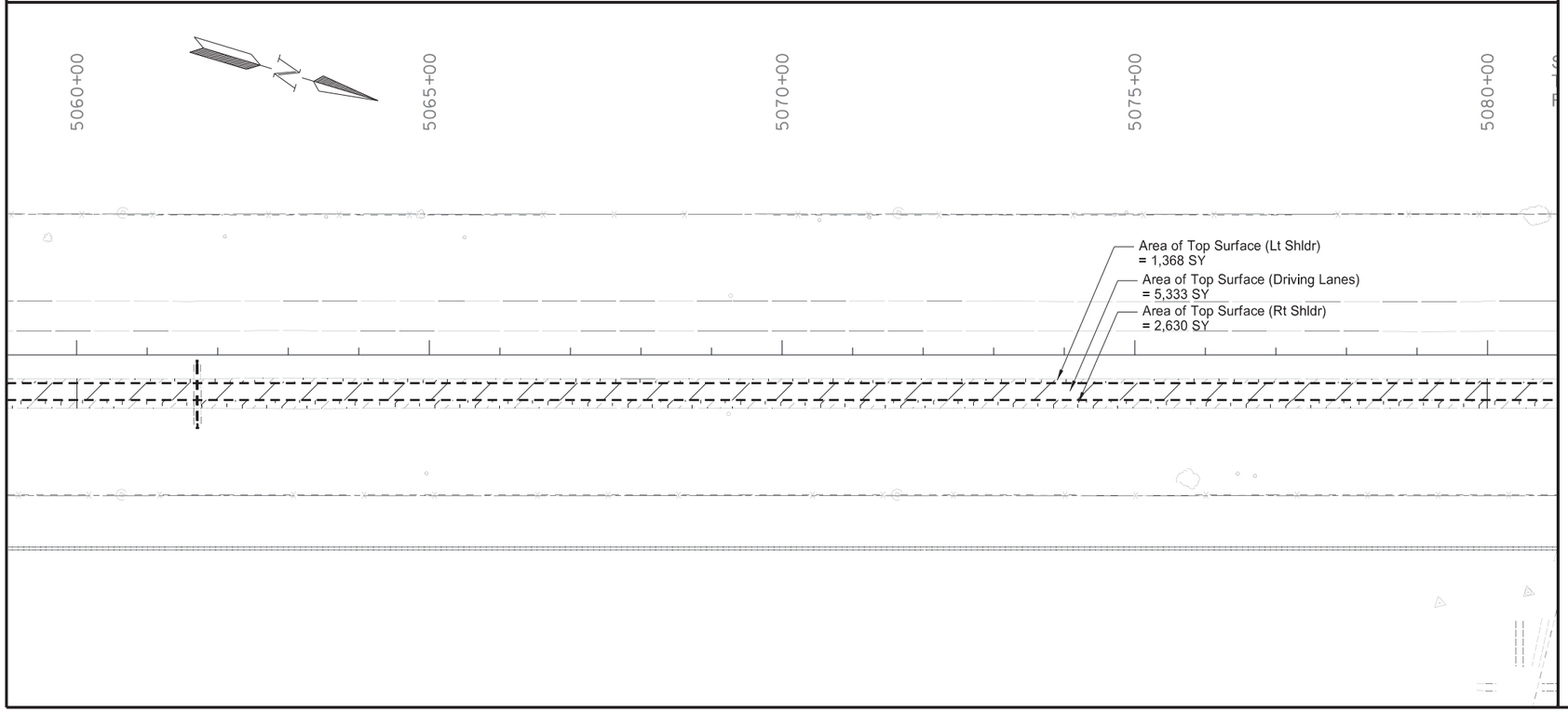

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 5040+00 to Sta 5080+00 (Tangent Sections)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	716
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	932
		Mainline Asphalt (Avg. Depth = 0.38')	TON	2702
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	1015
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	1630
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 5040+00 to Sta 5080+00		
		Mainline Concrete (8" Depth)	TON	4741
		Sta 5040+00 to Sta 5080+00 (Tangent Sections)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	444

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
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Removal Sheet
Sta 5040+00 to Sta 5080+00

PCC Pavement Reconstruction
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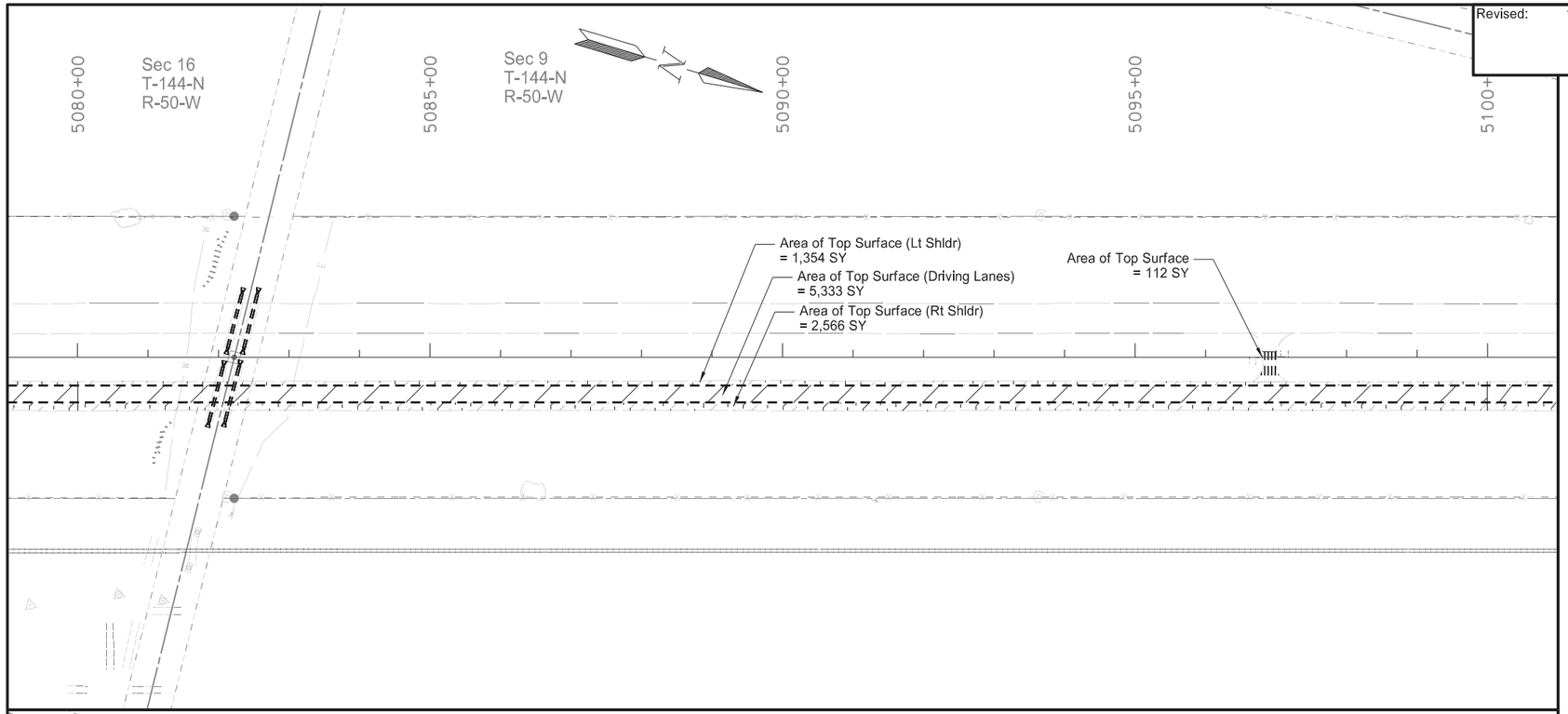
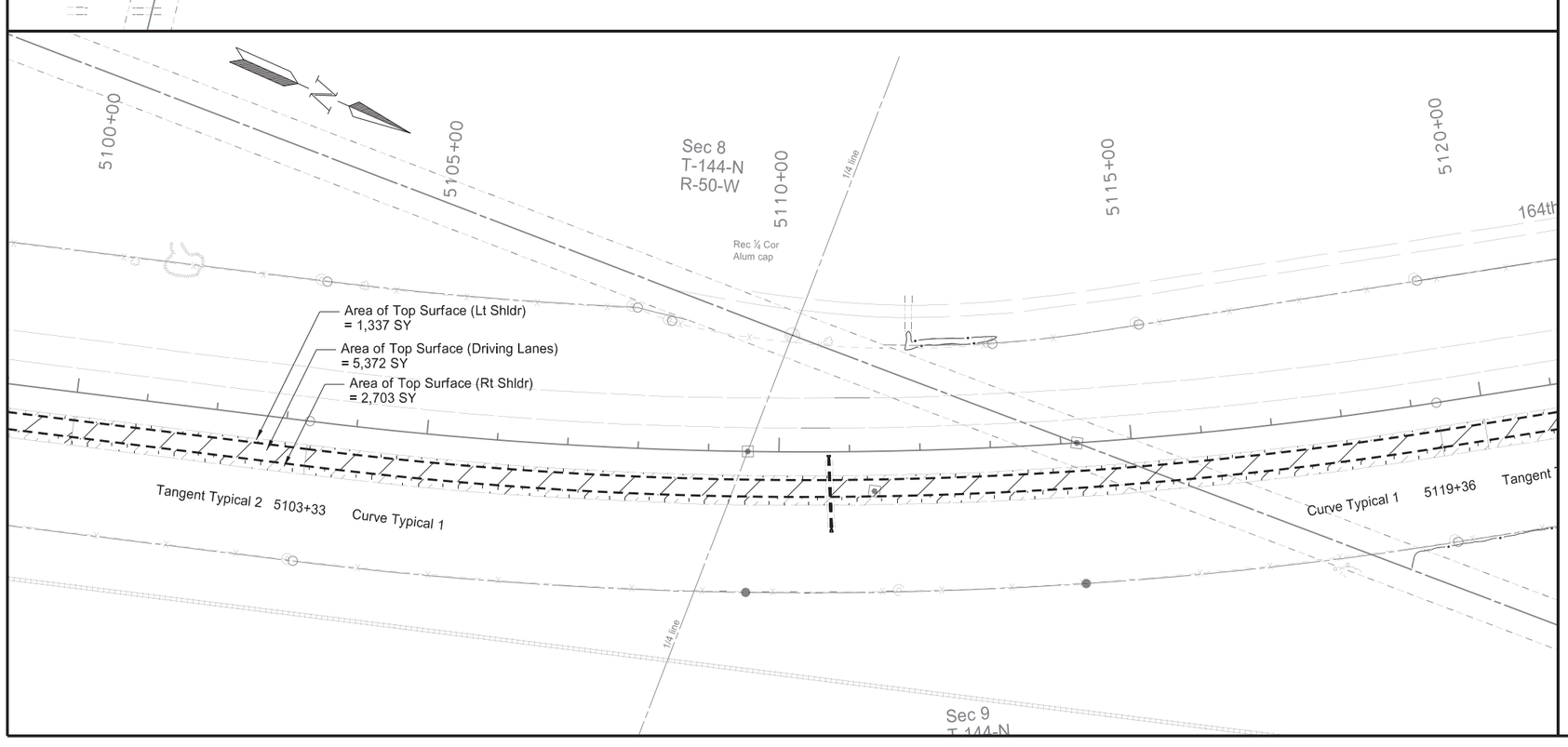
	ND	IM-8-029(135)088	40	12





SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 5080+00 to Sta 5120+00 (Tangent Sections)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	425
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	553
		Mainline Asphalt (Avg. Depth = 0.38')	TON	1619
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	605
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	971
		Emergency Crossover - Sta 5096+90	TON	9
		Sta 5103+33 to Sta 5119+36 (Curve Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	323
		Lt Shoulder Asphalt (Avg. Depth = 0.64')	TON	547
		Mainline Asphalt (Avg. Depth = 0.44')	TON	1265
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	421
		Rt Shoulder Asphalt (Avg. Depth = 0.49')	TON	735
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 5080+00 to Sta 5120+00		
		Mainline Concrete (8" Depth)	TON	4758
		Sta 5080+00 to Sta 5120+00 (Tangent Sections)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	266
		Sta 5103+33 to Sta 5119+36 (Curve Section)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	180

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

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Removal Sheet
Sta 5080+00 to Sta 5120+00

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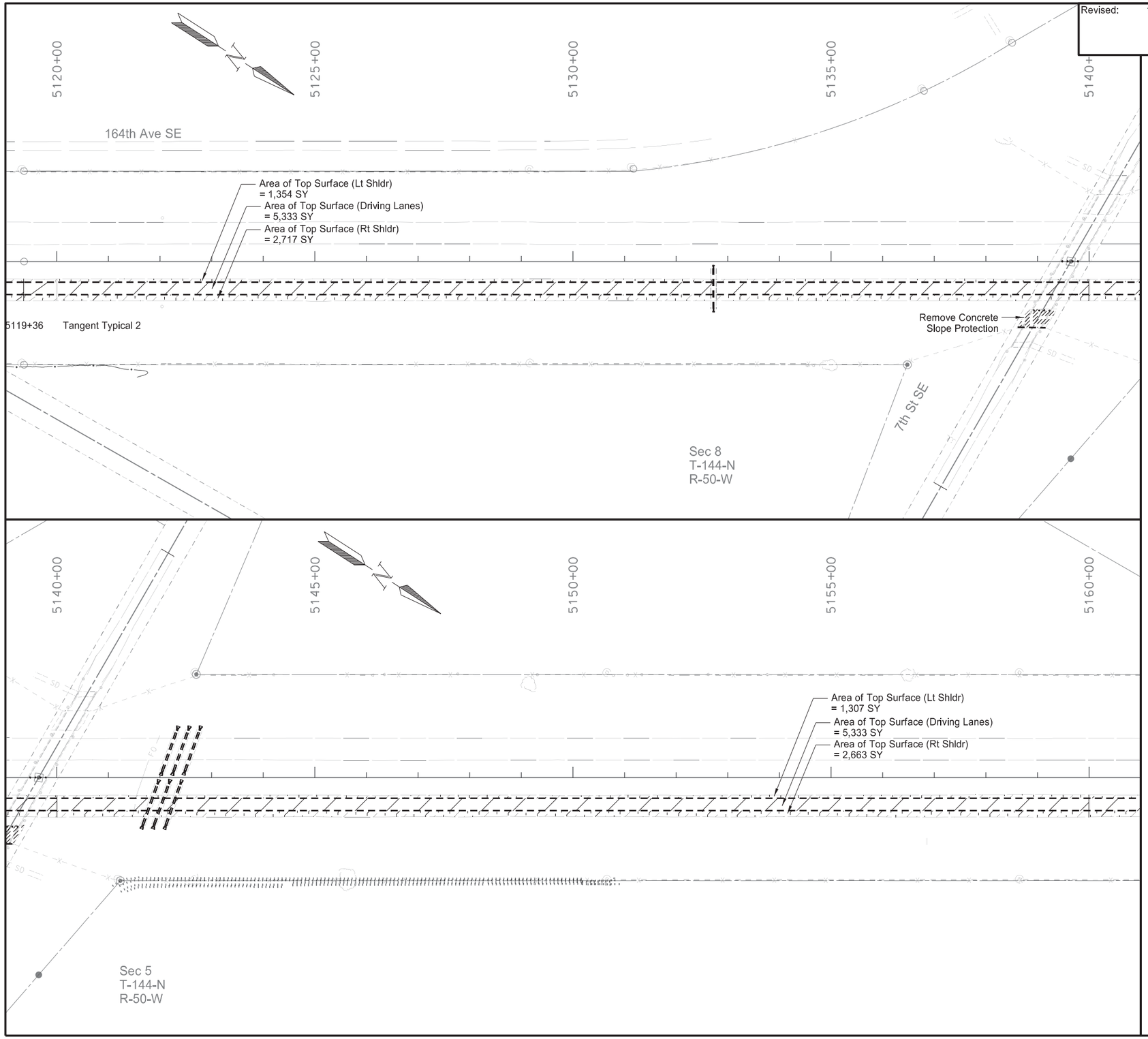
	ND	IM-8-029(135)088	40	13



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 5120+00 to Sta 5160+00 (Tangent Sections)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	700
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	911
		Mainline Asphalt (Avg. Depth = 0.38')	TON	2702
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	1046
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	1680
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 5120+00 to Sta 5160+00		
		Mainline Concrete (8" Depth)	TON	4741
		Sta 5120+00 to Sta 5160+00 (Tangent Sections)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	444

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.
Note 4: See section 170 for slope protection removal.

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Removal Sheet
Sta 5120+00 to Sta 5160+00

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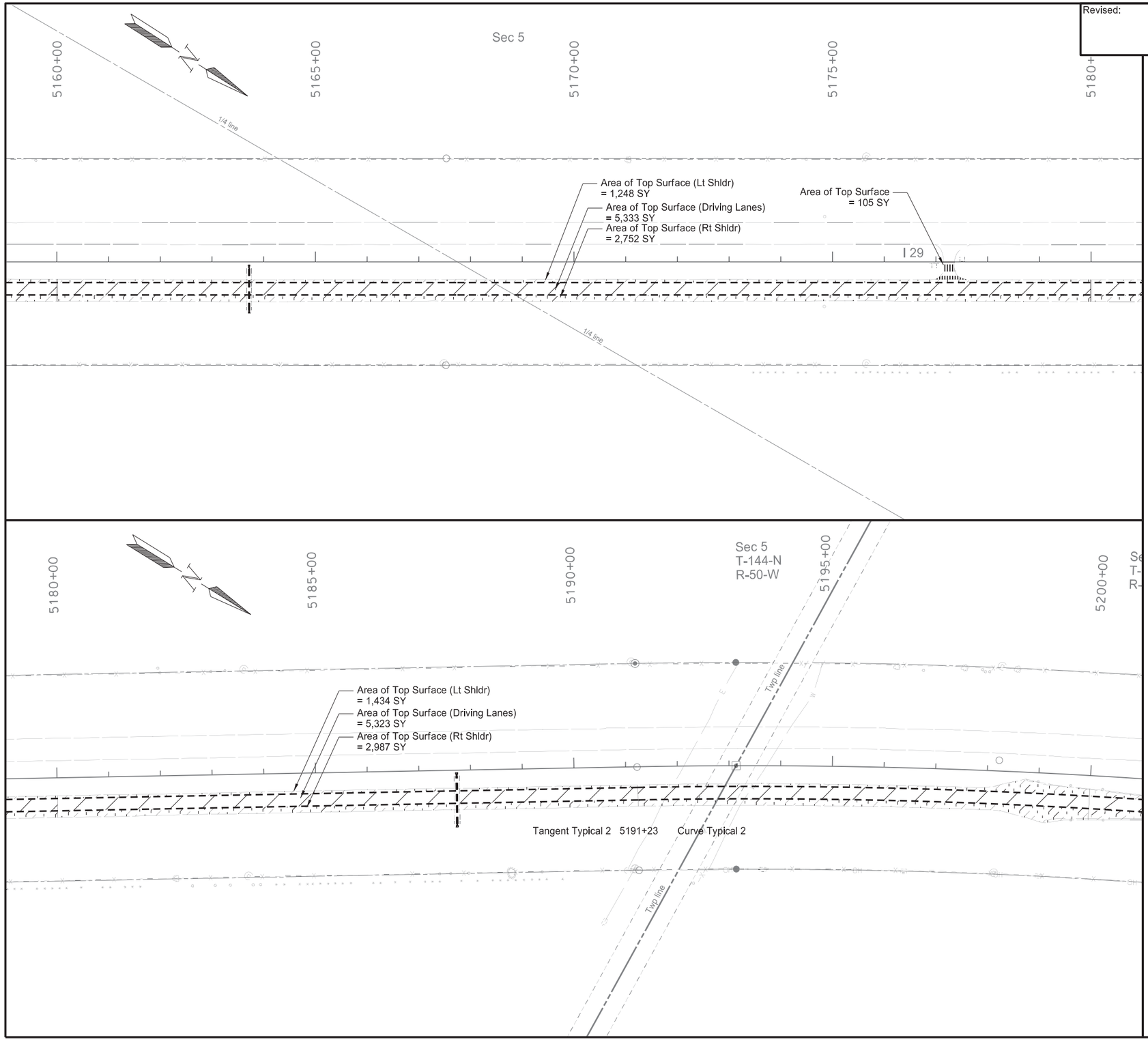
Revised: 11/2/20	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	40	14



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 5160+00 to Sta 5191+23 (Tangent Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	502
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	653
		Mainline Asphalt (Avg. Depth = 0.38')	TON	2110
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	838
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	1346
		Emergency Crossover - Sta 5177+25	TON	9
		Sta 5191+23 to Sta 5200+00 (Curve Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	230
		Lt Shoulder Asphalt (Avg. Depth = 0.86')	TON	527
		Mainline Asphalt (Avg. Depth = 0.51')	TON	792
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	275
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	443
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 5160+00 to Sta 5200+00		
		Mainline Concrete (8" Depth)	TON	4736
		Sta 5160+00 to Sta 5191+23 (Tangent Section)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	347
		Sta 5191+23 to Sta 5200+00 (Curve Section)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	97

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

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Removal Sheet
Sta 5160+00 to Sta 5200+00

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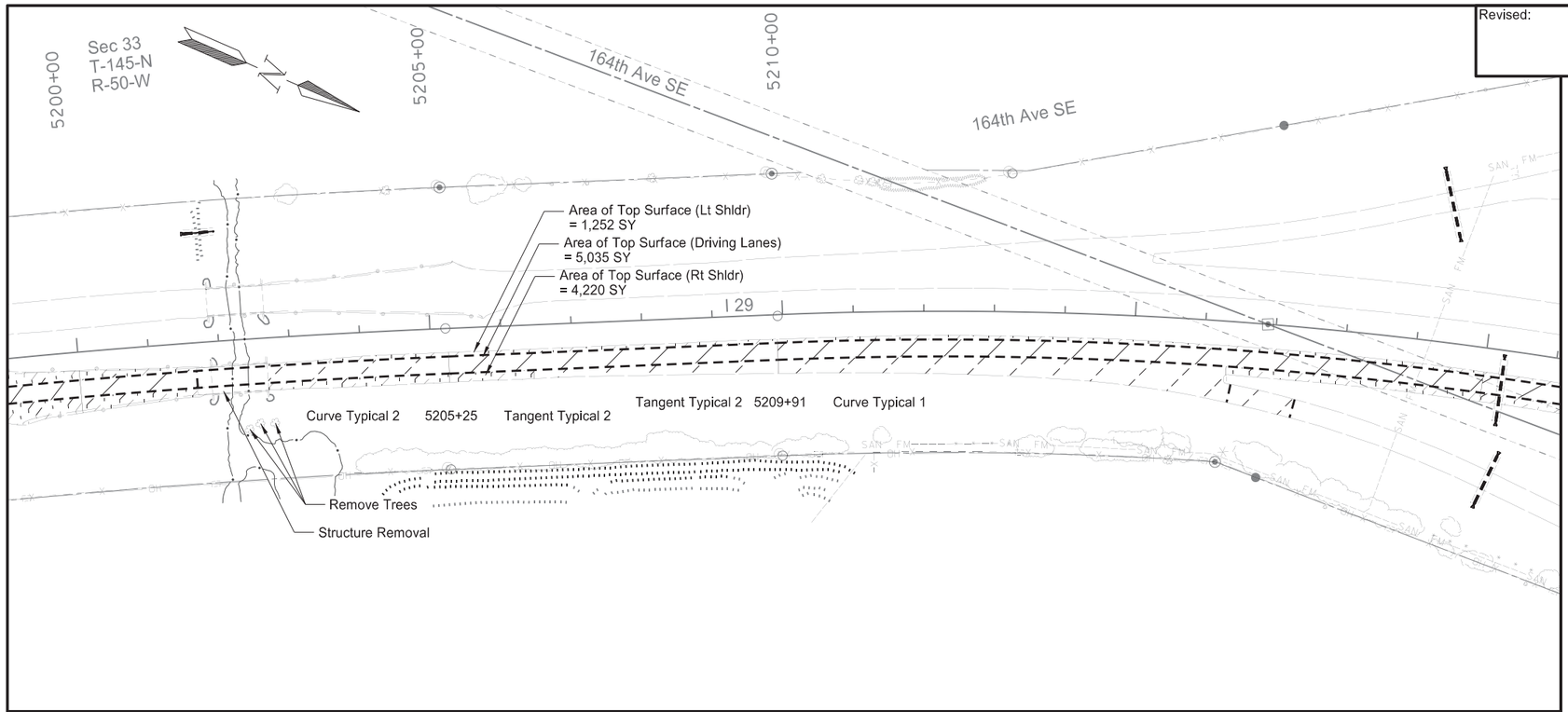
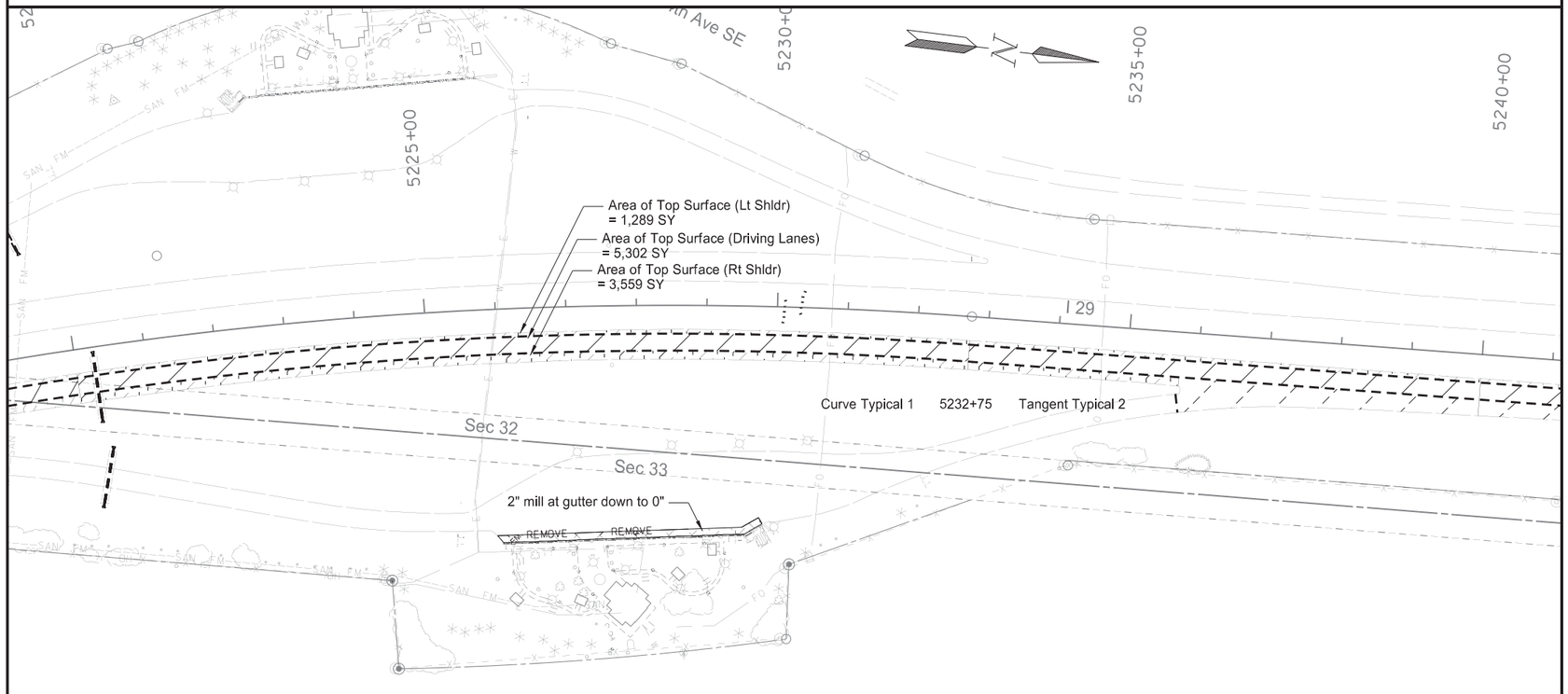
	ND	IM-8-029(135)088	40	15





SPEC	CODE	BID ITEM	UNIT	QUANTITY
		REMOVAL OF TREES*		
		Sta 5202+36 - 128' Rt		
		Sta 5202+52 - 120' Rt		
		Sta 5202+73 - 121' Rt		
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 5200+00 to Sta 5205+25 (Curve 2 Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	96
		Lt Shoulder Asphalt (Avg. Depth = 0.86')	TON	220
		Mainline Asphalt (Avg. Depth = 0.51')	TON	383
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	127
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	205
		Sta 5205+25 to Sta 5209+91 (Tangent 2 Sections)		
		Sta 5232+75 to Sta 5240+00		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	209
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	272
		Mainline Asphalt (Avg. Depth = 0.38')	TON	1316
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	117
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	185
		Sta 5209+91 to Sta 5232+75 (Curve 1 Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	433
		Lt Shoulder Asphalt (Avg. Depth = 0.64')	TON	733
		Mainline Asphalt (Avg. Depth = 0.44')	TON	2457
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	438
		Rt Shoulder Asphalt (Avg. Depth = 0.49')	TON	760
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 5200+00 to Sta 5240+00		
		Mainline Concrete and Ramp Taper (8" Depth)	TON	6531
		Sta 5200+00 to Sta 5205+25 (Curve 2 Section)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	47
		Sta 5205+25 to Sta 5209+91 (Tangent 2 Sections)		
		Sta 5232+75 to Sta 5240+00		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	216
		Sta 5209+91 to Sta 5232+75 (Curve 1 Section)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	349

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See Section 60 for pipe removal quantities.
Note 4: See section 170 for structure removal.

*Included in the pay item for Clearing and Grubbing.

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Removal Sheet
Sta 5200+00 to Sta 5240+00

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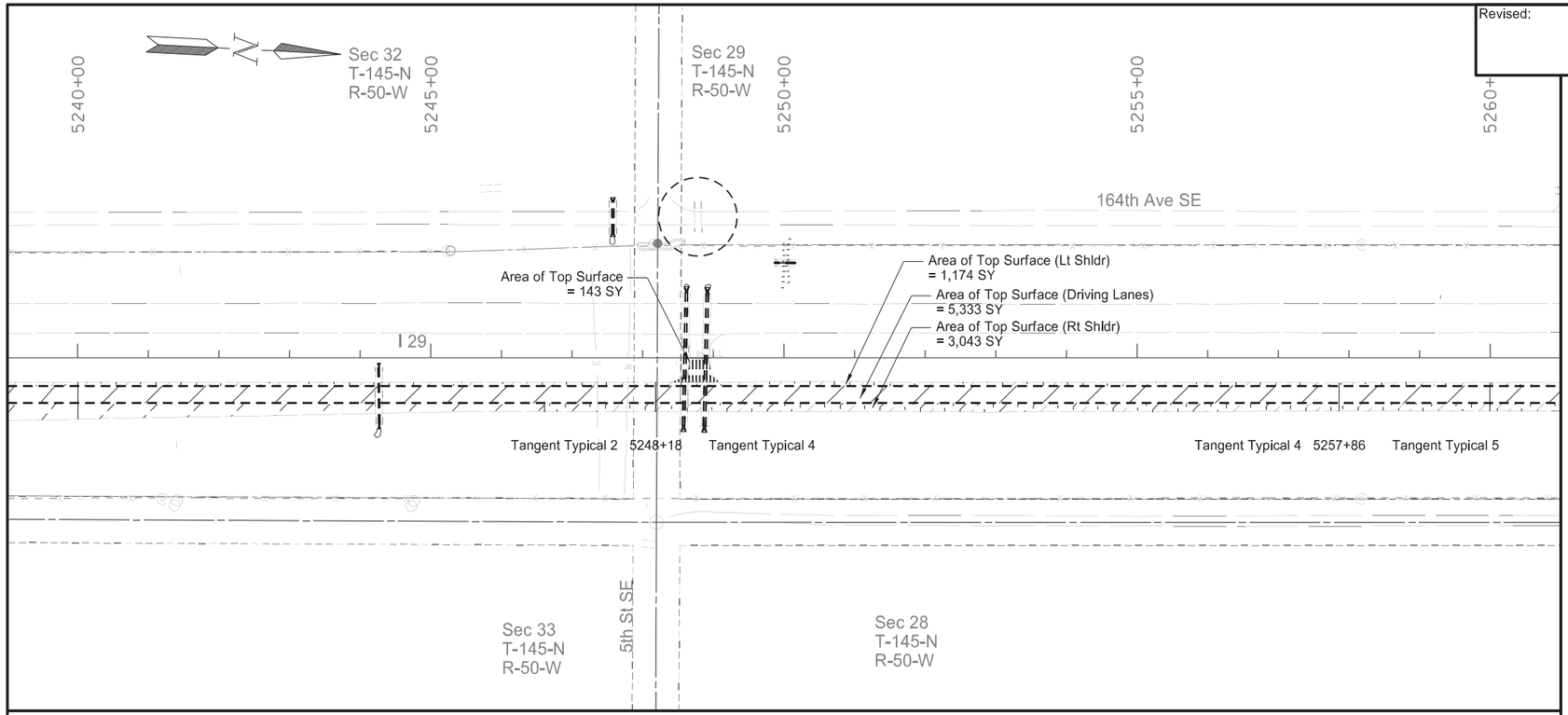

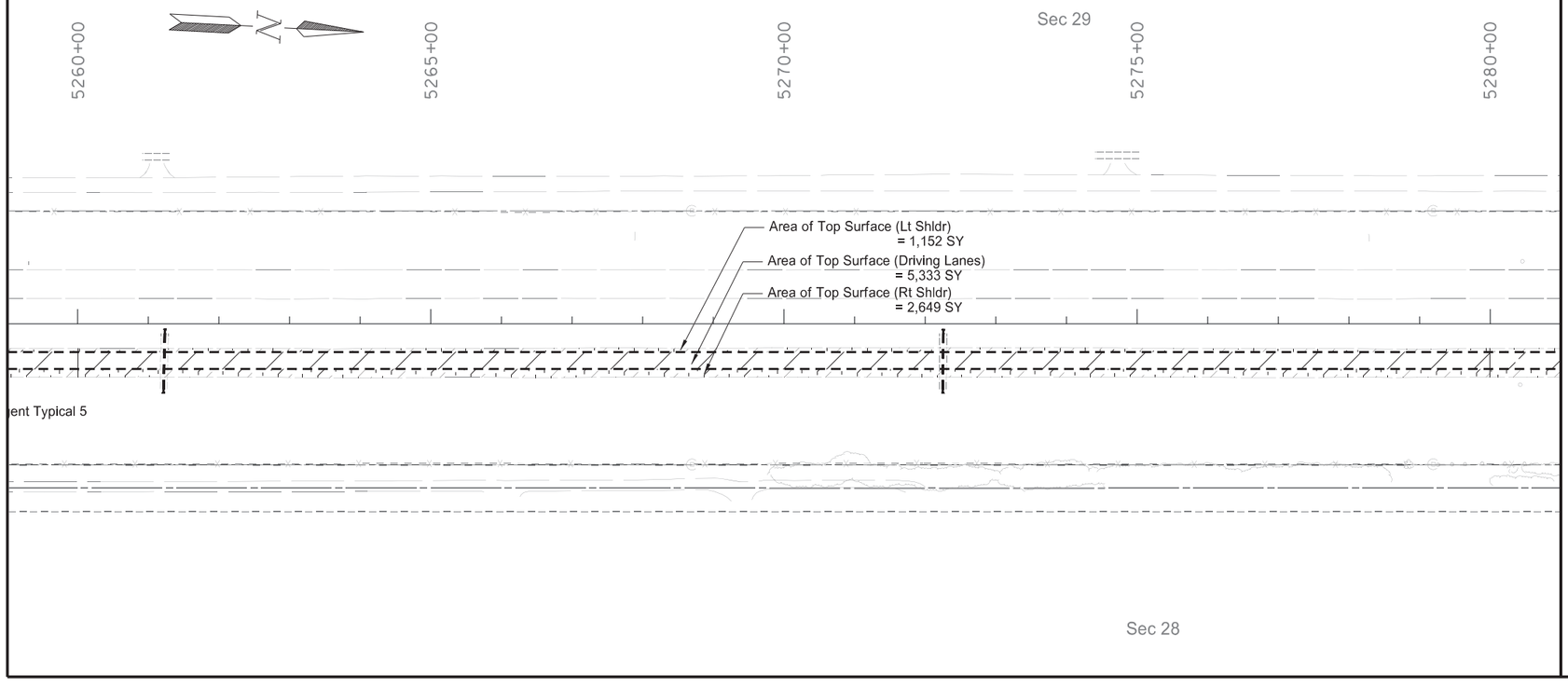

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 5240+00 to Sta 5248+18 (Tangent 2 Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	127
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	165
		Mainline Asphalt (Avg. Depth = 0.38')	TON	865
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	50
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	78
		Sta 5248+18 to Sta 5257+86 (Tangent 4 Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.38')	TON	124
		Lt Shoulder Asphalt (Avg. Depth = 0.40')	TON	166
		Mainline Asphalt (Avg. Depth = 0.29')	TON	499
		Rt Shoulder Aggregate (Avg. Depth = 0.32')	TON	222
		Rt Shoulder Asphalt (Avg. Depth = 0.35')	TON	316
		Emergency Crossover - Sta 5248+78	TON	12
		Sta 5257+86 to Sta 5280+00 (Tangent 5 Sections)		
		Lt Shoulder Aggregate (Avg. Depth = 0.38')	TON	273
		Lt Shoulder Asphalt (Avg. Depth = 0.56')	TON	511
		Mainline Asphalt (Avg. Depth = 0.46')	TON	1811
		Rt Shoulder Aggregate (Avg. Depth = 0.32')	TON	492
		Rt Shoulder Asphalt (Avg. Depth = 0.52')	TON	1032
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 5240+00 to Sta 5280+00		
		Mainline Concrete and Ramp Taper (8" Depth)	TON	5289
		Sta 5240+00 to Sta 5248+18 (Tangent 2 Section)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	142
		Sta 5248+18 to Sta 5257+86 (Tangent 4 Section)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	108
		Sta 5257+86 to Sta 5280+00 (Tangent 5 Sections)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	246

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

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Removal Sheet
Sta 5240+00 to Sta 5280+00

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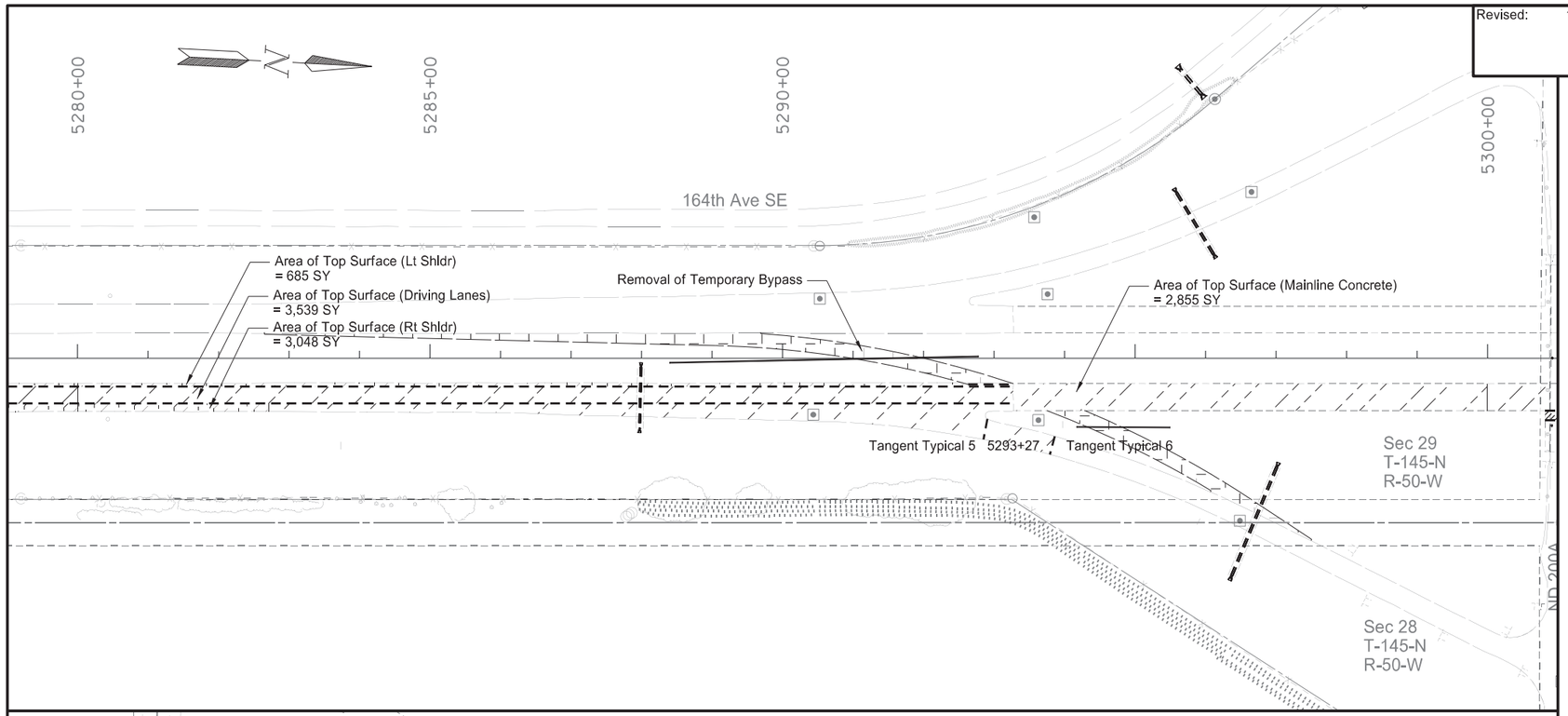
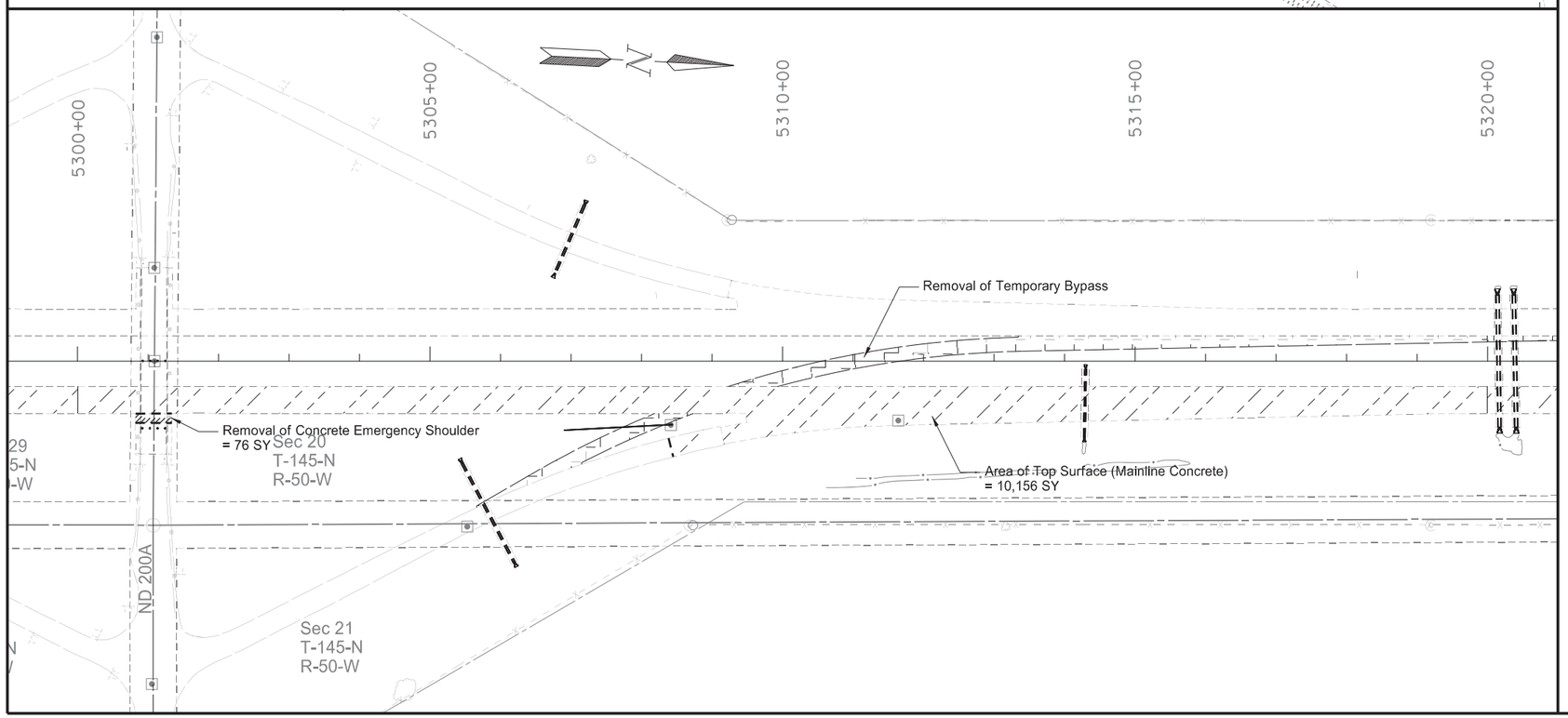
	ND	IM-8-029(135)088	40	17





SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 5280+00 to Sta 5293+27 (Tangent 5 Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.38')	TON	152
		Lt Shoulder Asphalt (Avg. Depth = 0.56')	TON	283
		Mainline Asphalt (Avg. Depth = 0.46')	TON	1913
		Rt Shoulder Aggregate (Avg. Depth = 0.32')	TON	70
		Rt Shoulder Asphalt (Avg. Depth = 0.52')	TON	132
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 5280+00 to Sta 5293+27 (Tangent 5 Section)		
		Mainline Concrete and Ramp Taper (8" Depth)	TON	2772
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	295
		Sta 5293+27 to Sta 5320+00 (Tangent 6 Section)		
		Mainline Concrete and Ramp Taper (9" Depth)	TON	6505
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	582
		Sta 5300+82 to Sta 5301+33		
		Emergency Shoulder Concrete (6" Depth)	TON	25
202	0350	**REMOVAL OF TEMPORARY BYPASS**		
		SE Blanchard Ramp Connection	EA	1
		Sta 5282+65 to Sta 5297+51		
		NE Blanchard Ramp Connection	EA	1
		Sta 5305+66 to Sta 5232+40		

*Removal Quantities for SE Blanchard Ramp Connection		
Embankment Removal in the Wye**	CY	1,681
Aggregate Removal	TON	1,062
Asphalt Removal	TON	490
Geosynthetic Material Type G Removal	SY	3,326

*Removal Quantities for NE Blanchard Ramp Connection		
Embankment Removal in the Wye**	CY	543
Aggregate Removal	TON	1,193
Asphalt Removal	TON	548
Geosynthetic Material Type G Removal	SY	3,734

*For informational purposes only. Included in the price bid for "Removal of Temporary Bypass."
**Embankment removal quantity excludes the quantity in the median.

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

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Removal Sheet
Sta 5280+00 to Sta 5320+00

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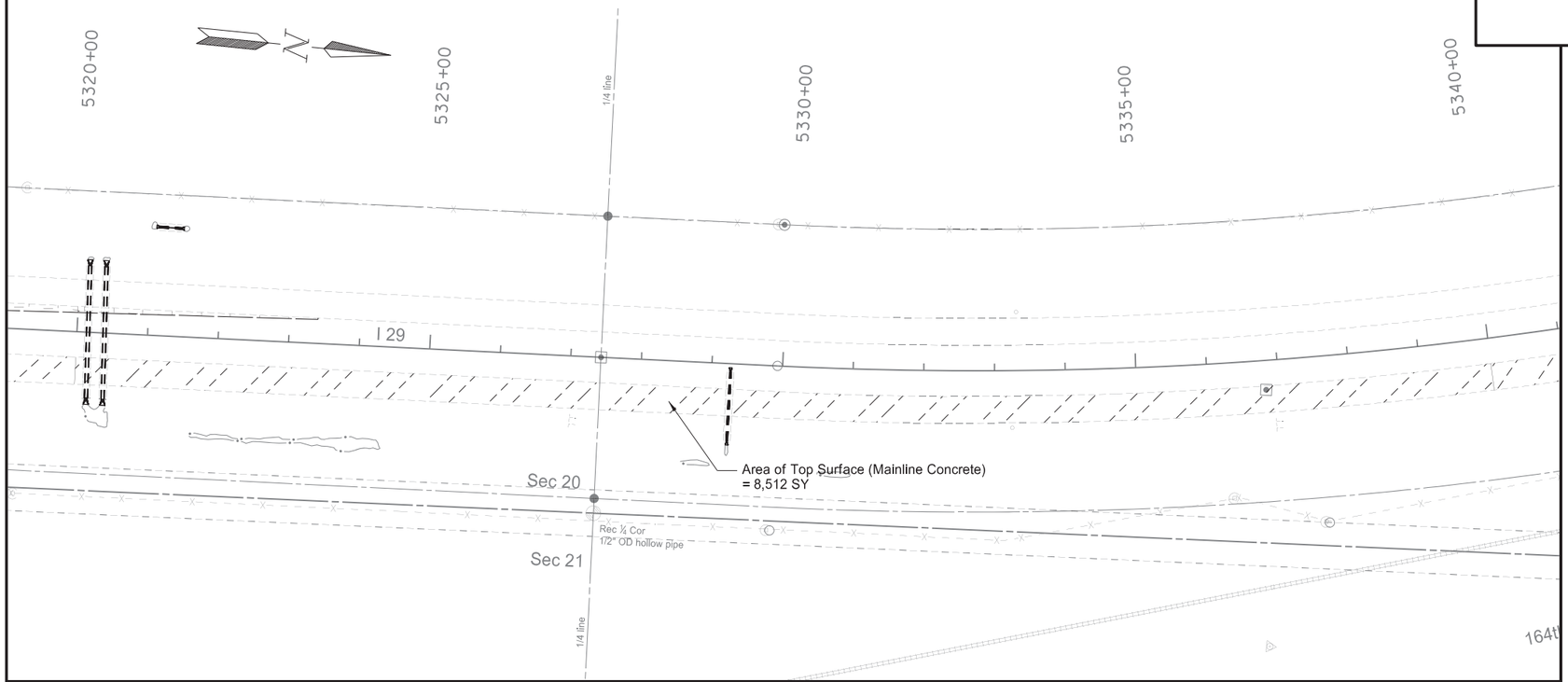
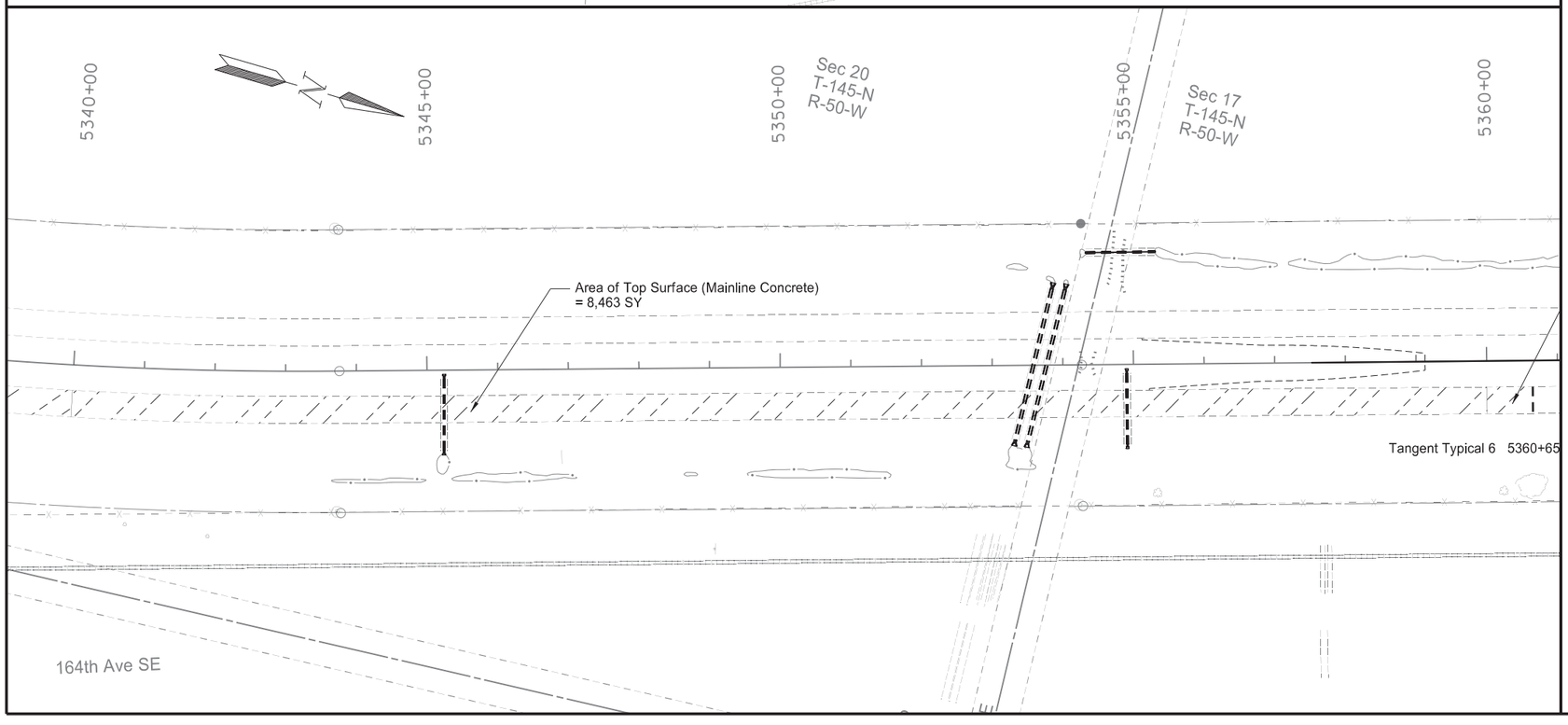
	ND	IM-8-029(135)088	40	18





SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0136	REMOVAL OF PAVEMENT		
		Sta 5320+00 to Sta 5360+00 (Tangent 6 Section)		
		Mainline Concrete and Ramp Taper (9" Depth)	TON	8488
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	781

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

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Removal Sheet
Sta 5320+00 to Sta 5360+00

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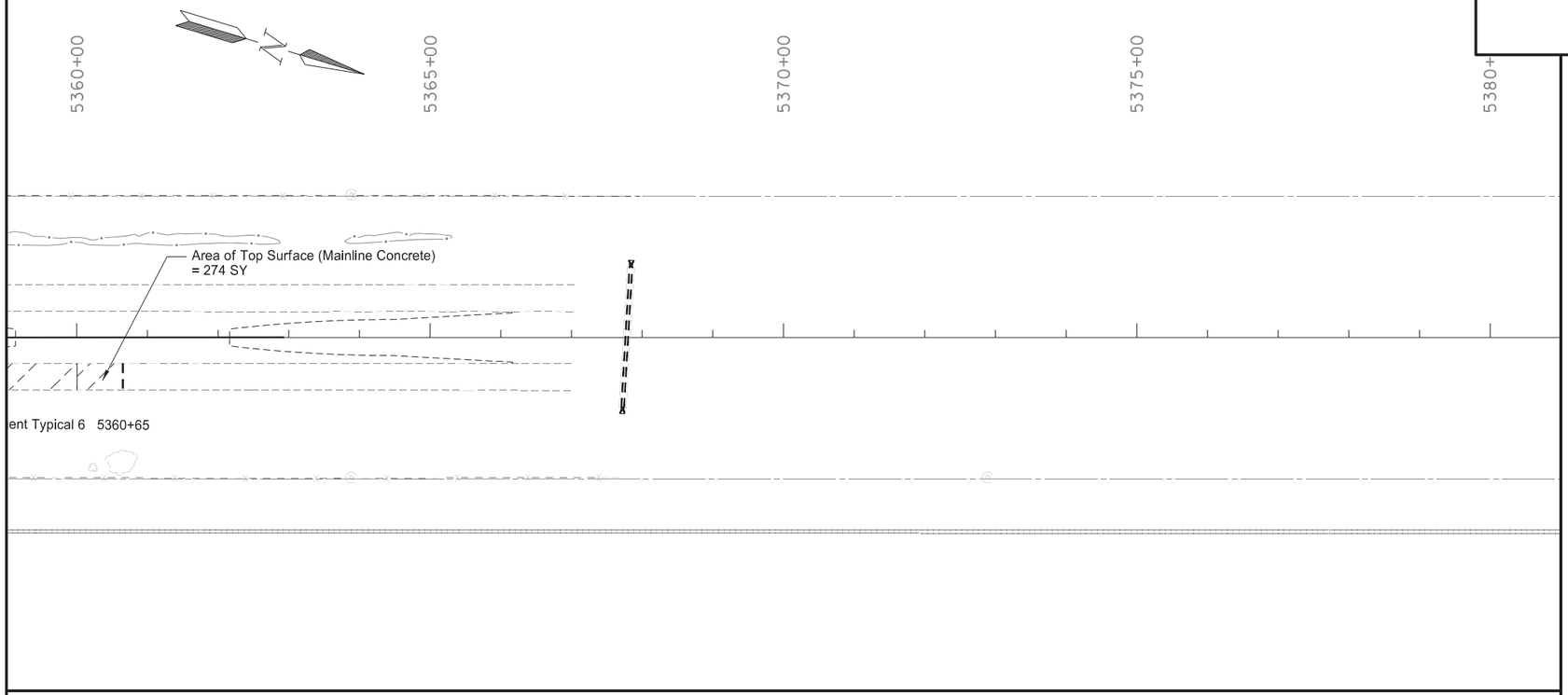
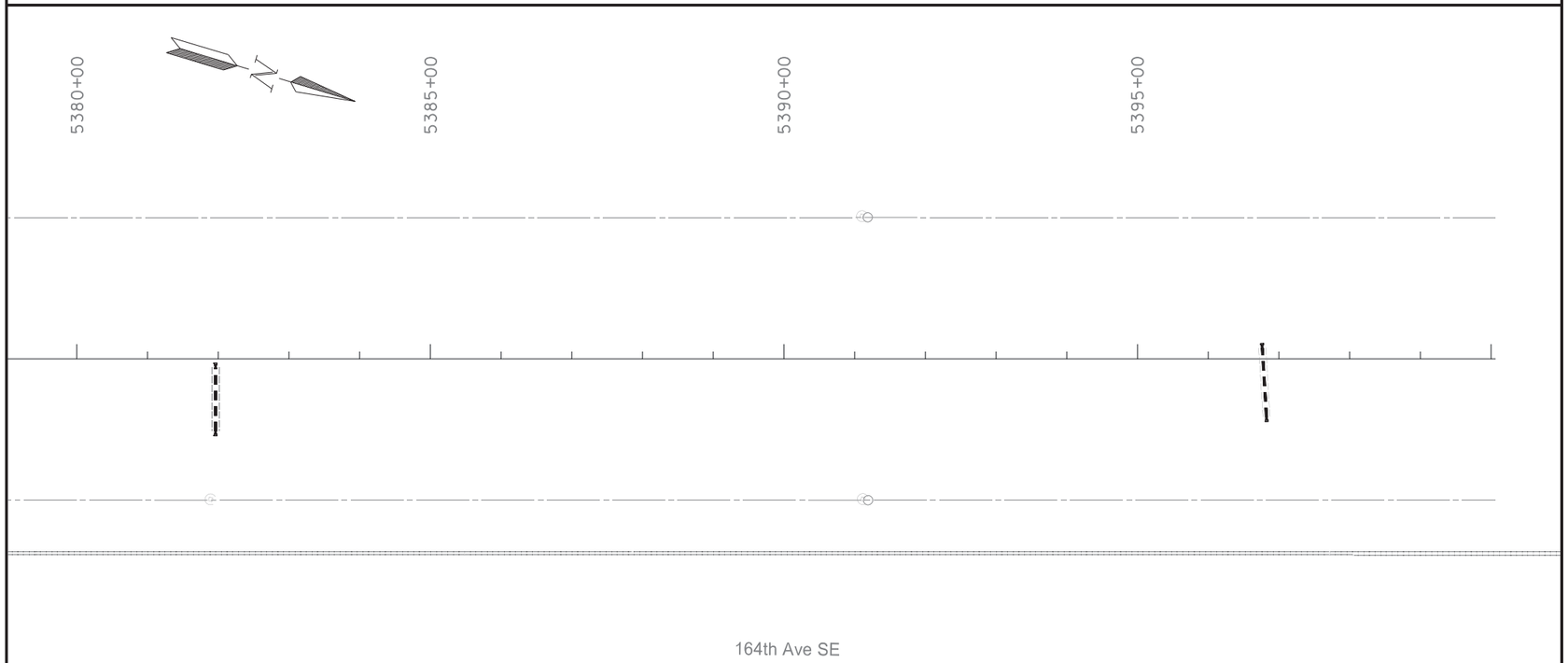
	ND	IM-8-029(135)088	40	19





SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0136	REMOVAL OF PAVEMENT		
		Sta 5360+00 to Sta 5360+65 (Tangent 6 Section)		
		Mainline Concrete and Ramp Taper (9" Depth)	TON	137
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	13

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

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Removal Sheet
Sta 5360+00 to Sta 5400+00

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Begin Station / Location	Begin Offset	End Station / Location	End Offset	Pipe Installation (Pay Item)			Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	Geosynthetic Material - Type G (Pay Item)	(*) End Sections		Applicable Backfill
				In	Bid Item	LF		In	Type		In	SY	Begin EA	End EA	
4682+78	4.5' Rt	4682+78	99.5' Rt	24	Pipe Conduit	95	Reinforced Concrete Pipe - Class III **(barrel length = 90 LF)**	24				174	FES	FES	Sheet 20-4
4697+48	6.0' Rt	4697+48	105' Rt	24	Pipe Conduit	99	Reinforced Concrete Pipe - Class III **(barrel length = 94 LF)**	24				182	FES	FES	Sheet 20-4
4697+79	6.0' Rt	4697+79	98' Rt	58x36	Pipe Conduit	92	Reinforced Concrete Pipe - Class III **(barrel length = 86 LF)**	58x36				464	FES	FES	Sheet 20-4
4697+89	6.0' Rt	4697+89	98' Rt	58x36	Pipe Conduit	92	Reinforced Concrete Pipe - Class III **(barrel length = 86 LF)**	58x36					FES	FES	
4697+99	6.0' Rt	4697+99	98' Rt	58x36	Pipe Conduit	92	Reinforced Concrete Pipe - Class III **(barrel length = 86 LF)**	58x36					FES	FES	
4698+09	6.0' Rt	4698+09	98' Rt	58x36	Pipe Conduit	92	Reinforced Concrete Pipe - Class III **(barrel length = 86 LF)**	58x36					FES	FES	
4699+14	9.5' Rt	4698+14	103' Rt	24	Pipe Conduit	94	Reinforced Concrete Pipe - Class III **(barrel length = 90 LF)**	24				172	TES	FES	Sheet 20-4
4717+70	12.1' Rt	4717+70	120.7' Rt	30	Pipe Conduit	109	Reinforced Concrete Pipe - Class III **(barrel length = 106 LF)**	30				235	TES	FES	Sheet 20-4
4727+70	0' Rt	4727+70	104.9' Rt	42	Pipe Conduit	105	Reinforced Concrete Pipe - Class III **(barrel length = 102 LF)**	42				306		FES	Sheet 20-4
4738+70	12.1' Rt	4738+70	109.5' Rt	24	Pipe Conduit	98	Reinforced Concrete Pipe - Class III **(barrel length = 94 LF)**	24				180	TES	FES	Sheet 20-4
4748+61	161.6' Rt	4749+13	161.9' Rt	24	Pipe Conduit - Approach	52	Reinforced Concrete Pipe - Class III **(barrel length = 52 LF)**	24					FES	FG	Specification 714.04A
							Corrugated Steel Pipe	24	Z, A, P	2	0.064				
							Spiral Steel Pipe	24	P	3/4, 1	0.064				
4749+82	0' Rt	4749+57	99.1' Rt	66	Pipe Conduit	102	Reinforced Concrete Pipe - Class III **(barrel length = 100 LF) (Includes a 4' - 66" to 60" Reducer)**	66				424	66" to 60" Reducer	FES	Sheet 20-4
4750+52	161.7' Rt	4751+00	161.6' Rt	24	Pipe Conduit - Approach	48	Reinforced Concrete Pipe - Class III **(barrel length = 48 LF)**	24					FG	FES	Specification 714.04A
							Corrugated Steel Pipe	24	Z, A, P	2	0.064				
							Spiral Steel Pipe	24	P	3/4, 1	0.064				
4759+70	12.1' Rt	4759+70	109.5' Rt	24	Pipe Conduit	98	Reinforced Concrete Pipe - Class III **(barrel length = 94 LF)**	24				180	TES	FES	Sheet 20-4
4778+53	146.9' Rt	4778+81	147.0' Rt	24	Pipe Conduit - Approach	28	Reinforced Concrete Pipe - Class III **(barrel length = 28 LF)**	24					FES	FES	Specification 714.04A
							Corrugated Steel Pipe	24	Z, A, P	2	0.064				
							Spiral Steel Pipe	24	P	3/4, 1	0.064				
4778+96	5.9' Rt	4778+96	109.1' Rt	30	Pipe Conduit	103	Reinforced Concrete Pipe - Class III **(barrel length = 100 LF)**	30				221	FES	FES	Sheet 20-4
4779+32	5.8' Rt	4779+32	100.2' Rt	73x45	Pipe Conduit	94	Reinforced Concrete Pipe - Class III **(barrel length = 88 LF)**	73x45				298	FES	FES	Sheet 20-4
4779+66	7.5' Rt	4779+66	108.1' Rt	30	Pipe Conduit	101	Reinforced Concrete Pipe - Class III **(barrel length = 98 LF)**	30				216	TES	FES	Sheet 20-4
4803+00	13.5' Rt	4803+00	118.1' Rt	30	Pipe Conduit	105	Reinforced Concrete Pipe - Class III **(barrel length = 102 LF)**	30				226	TES	FES	Sheet 20-4
4803+77	171.7' Rt	4803+85	172.3' Rt	24	Pipe Conduit - Approach	8	Reinforced Concrete Pipe - Class III **(barrel length = 8 LF)**	24					FES	FES	Specification 714.04A
							Corrugated Steel Pipe	24	Z, A, P	2	0.064				
							Spiral Steel Pipe	24	P	3/4, 1	0.064				
4804+98	5.9' Rt	4804+59	112.8' Rt	58x36	Pipe Conduit	114	Reinforced Concrete Pipe - Class III **(barrel length = 108 LF)**	58x36				488	FES	FES	Sheet 20-4
4805+09	5.9' Rt	4804+69	114.7' Rt	58x36	Pipe Conduit	116	Reinforced Concrete Pipe - Class III **(barrel length = 110 LF)**	58x36					FES	FES	
4805+20	5.9' Rt	4804+79	116.4' Rt	58x36	Pipe Conduit	118	Reinforced Concrete Pipe - Class III **(barrel length = 112 LF)**	58x36					FES	FES	
4805+52	4.9' Rt	4805+52	118.1' Rt	30	Pipe Conduit	113	Reinforced Concrete Pipe - Class III **(barrel length = 110 LF)**	30				245	FES	FES	Sheet 20-4
4824+70	5.5' Rt	4824+70	100.5' Rt	24	Pipe Conduit	95	Reinforced Concrete Pipe - Class III **(barrel length = 90 LF)**	24				174	FES	FES	Sheet 20-4
4849+71	6.0' Lt	4849+71	117.2' Rt	30	Pipe Conduit	123	Reinforced Concrete Pipe - Class III **(barrel length = 120 LF)**	30				269	FES	FES	Sheet 20-4
4855+10	3.1' Lt	4857+70	7.3' Rt	18	Pipe PVC 18IN	260	Polyvinyl Chloride (PVC)	18							N/A
4858+44	93.1' Lt	4859+63	104' Lt	12	Pipe PVC 12IN	120	Polyvinyl Chloride (PVC)	12							N/A
4872+54	103.7' Lt	4873+53	95.7' Lt	12	Pipe PVC 12IN	100	Polyvinyl Chloride (PVC)	12							N/A
4885+71	6.1' Rt	4885+71	127.2' Rt	30	Pipe Conduit	121	Reinforced Concrete Pipe - Class III **(barrel length = 118 LF)**	30				265	FES	FES	Sheet 20-4
4893+93	187.8' Rt	4894+27	176.3' Rt	30	Pipe Conduit - Approach	36	Reinforced Concrete Pipe - Class III **(barrel length = 36 LF)**	30					FES	FES	Specification 714.04A
							Corrugated Steel Pipe	30	Z, A, P	2	0.064				
							Spiral Steel Pipe	30	P	3/4, 1	0.064				
4975+38	8.5' Rt	4975+38	96.5' Rt	24	Pipe Conduit	88	Reinforced Concrete Pipe - Class III **(barrel length = 86 LF)**	24				159	TES	TES	Sheet 20-4
4975+70	5.9' Rt	4975+70	98.1' Rt	58x36	Pipe Conduit	92	Reinforced Concrete Pipe - Class III **(barrel length = 86 LF)**	58x36				198	FES	FES	Sheet 20-4
4976+50	9.5' Rt	4976+50	99' Rt	24	Pipe Conduit	89	Reinforced Concrete Pipe - Class III **(barrel length = 86 LF)**	24				190	TES	FES	Sheet 20-4
4997+74	2.9' Rt	4997+74	120.1' Rt	30	Pipe Conduit	117	Reinforced Concrete Pipe - Class III **(barrel length = 114 LF)**	30				255	FES	FES	Sheet 20-4
4998+04	5.9' Rt	4998+04	118.1' Rt	58x36	Pipe Conduit	112	Reinforced Concrete Pipe - Class III **(barrel length = 106 LF)**	58x36				247	FES	FES	Sheet 20-4
4998+29	2.9' Rt	4998+29	120.2' Rt	30	Pipe Conduit	117	Reinforced Concrete Pipe - Class III **(barrel length = 114 LF)**	30				255	FES	FES	Sheet 20-4
4998+57	163.8' Rt	4998+75	163.5' Rt	24	Pipe Conduit - Approach	18	Reinforced Concrete Pipe - Class III **(barrel length = 18 LF)**	24					FES	FG	Specification 714.04A
							Corrugated Steel Pipe	24	Z, A, P	2	0.064				
							Spiral Steel Pipe	24	P	3/4, 1	0.064				

Coatings: **Z** = Zinc
A = Aluminum
P = Polymeric (over Zinc or Aluminum)

Corrugations: **2** = 2-2/3"x1/2"
3 = 3"x1"
5 = 5"x1"

Spiral Ribs: **3/4** = 3/4"x3/4"@7-1/2"
1 = 3/4"x1"@11-1/2"

(*) End sections are measured and paid for separately for pipe extensions.
FES = Flared End Section
TES = Traversable End Section
FG = Flap Gate

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE 11/02/20
NORTH DAKOTA

Allowable Pipe List

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

Revised: 11/2/20	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	51	2

Begin Station / Location	Begin Offset	End Station / Location	End Offset	Pipe Installation (Pay Item)			Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	Geosynthetic Material - Type G (Pay Item)	(*) End Sections		Applicable Backfill
													Begin	End	
				In	Bid Item	LF		In	Type		In	SY	EA	EA	
5013+70	9.0' Rt	5013+70	107.7' Rt	30	Pipe Conduit	99	Reinforced Concrete Pipe - Class III **(barrel length = 96 LF)**	30				211	TES	FES	Sheet 20-4
5025+79	164.3' Rt	5026+29	163.9' Rt	24	Pipe Conduit - Approach	50	Reinforced Concrete Pipe - Class III **(barrel length = 50 LF)**	24					FES	FES	Specification 714.04A
							Corrugated Steel Pipe	24	Z, A, P	2	0.064				
							Spiral Steel Pipe	24	P	3/4, 1	0.064				
5026+98	0.0' Rt	5026+74	98.3' Rt	60	Pipe Conduit	101	Reinforced Concrete Pipe - Class III **(barrel length = 98 LF) (Includes a 4' - 60" to 54" Reducer)**	60				638		FES	Sheet 20-4
5027+21	0.0' Rt	5026+96	100.1' Rt	60	Pipe Conduit	103	Reinforced Concrete Pipe - Class III **(barrel length = 100 LF) (Includes a 4' - 60" to 54" Reducer)**	60						FES	
5027+08	163.5' Rt	5027+60	163.7' Rt	24	Pipe Conduit - Approach	52	Reinforced Concrete Pipe - Class III **(barrel length = 52 LF)**	24					FES	FES	Specification 714.04A
							Corrugated Steel Pipe	24	Z, A, P	2	0.064				
							Spiral Steel Pipe	24	P	3/4, 1	0.064				
5040+54	159.7' Rt	5040+84	160.2' Rt	24	Pipe Conduit - Approach	30	Reinforced Concrete Pipe - Class III **(barrel length = 30 LF)**	24					FES	FES	Specification 714.04A
							Corrugated Steel Pipe	24	Z, A, P	2	0.064				
							Spiral Steel Pipe	24	P	3/4, 1	0.064				
5041+98	5.8' Rt	5041+98	98.2' Rt	48	Pipe Conduit	92	Reinforced Concrete Pipe - Class III **(barrel length = 88 LF)**	48				274	FES	FES	Sheet 20-4
5061+70	5.5' Rt	5061+70	102.5' Rt	24	Pipe Conduit	97	Reinforced Concrete Pipe - Class III **(barrel length = 92 LF)**	24				178	FES	FES	Sheet 20-4
5080+80	13.5' Rt	5080+80	101" Rt	24	Pipe Conduit	88	Reinforced Concrete Pipe - Class III **(barrel length = 84 LF)**	24				159	TES	FES	Sheet 20-4
5082+08	5.9' Rt	5081+84	99.0' Rt	73x45	Pipe Conduit	96	Reinforced Concrete Pipe - Class III **(barrel length = 90 LF)**	73x45				511	FES	FES	Sheet 20-4
5082+19	5.9' Rt	5081+95	99.0' Rt	73x45	Pipe Conduit	96	Reinforced Concrete Pipe - Class III **(barrel length = 90 LF)**	73x45					FES	FES	
5082+30	5.9' Rt	5082+07	99.0' Rt	73x45	Pipe Conduit	96	Reinforced Concrete Pipe - Class III **(barrel length = 90 LF)**	73x45					FES	FES	
5082+72	6.1' Rt	5082+47	100' Rt	24	Pipe Conduit	97	Reinforced Concrete Pipe - Class III **(barrel length = 92 LF)**	24				178	FES	FES	Sheet 20-4
5110+71	10.5' Rt	5110+71	117.2' Rt	30	Pipe Conduit	107	Reinforced Concrete Pipe - Class III **(barrel length = 104 LF)**	30				231	TES	FES	Sheet 20-4
5132+72	5.5' Rt	5132+72	98.5' Rt	24	Pipe Conduit	93	Reinforced Concrete Pipe - Class III **(barrel length = 88 LF)**	24				170	FES	FES	Sheet 20-4
5140+75	6.0' Rt	5140+75	99.0' Rt	24	Pipe Conduit	93	Reinforced Concrete Pipe - Class III **(barrel length = 88 LF)**	24				170	FES	FES	Sheet 20-4
5142+08	6.0' Rt	5141+75	98.2' Rt	58x36	Pipe Conduit	98	Reinforced Concrete Pipe - Class III **(barrel length = 92 LF)**	58x36				403	FES	FES	Sheet 20-4
5142+19	6.0' Rt	5141+86	98.2' Rt	58x36	Pipe Conduit	98	Reinforced Concrete Pipe - Class III **(barrel length = 92 LF)**	58x36					FES	FES	
5142+30	6.0' Rt	5141+96	98.2' Rt	58x36	Pipe Conduit	98	Reinforced Concrete Pipe - Class III **(barrel length = 92 LF)**	58x36					FES	FES	
5142+78	11.5' Rt	5142+78	99.0' Rt	24	Pipe Conduit	88	Reinforced Concrete Pipe - Class III **(barrel length = 84 LF)**	24				159	TES	FES	Sheet 20-4
5163+71	5.5' Rt	5163+71	98.5' Rt	24	Pipe Conduit	93	Reinforced Concrete Pipe - Class III **(barrel length = 88 LF)**	24				170	FES	FES	Sheet 20-4
5187+73	11.0' Rt	5187+73	106.5' Rt	24	Pipe Conduit	96	Reinforced Concrete Pipe - Class III **(barrel length = 92 LF)**	24				176	TES	FES	Sheet 20-4
5206+60	5.5' Rt	5206+60	100.5' Rt	24	Pipe Conduit	95	Reinforced Concrete Pipe - Class III **(barrel length = 90 LF)**	24				174	FES	FES	Sheet 20-4
5220+27	5.6' Rt	5220+27	104.5' Rt	24	Pipe Conduit	99	Reinforced Concrete Pipe - Class III **(barrel length = 94 LF)**	24				182	FES	FES	Sheet 20-4
5244+26	11.0' Rt	5244+26	101.0' Rt	24	Pipe Conduit	90	Reinforced Concrete Pipe - Class III **(barrel length = 88 LF)**	24				164	TES	TES	Sheet 20-4
5248+60	0.0' Rt	5248+58	100.9' Rt	58x36	Pipe Conduit	101	Reinforced Concrete Pipe - Class III **(barrel length = 98 LF)**	58x36				541		FES	Sheet 20-4
5248+89	0.0' Rt	5248+87	100.9' Rt	58x36	Pipe Conduit	101	Reinforced Concrete Pipe - Class III **(barrel length = 98 LF)**	58x36						FES	
5261+22	5.5' Rt	5261+22	98.5' Rt	24	Pipe Conduit	93	Reinforced Concrete Pipe - Class III **(barrel length = 88 LF)**	24				170	FES	FES	Sheet 20-4
5272+25	5.5' Rt	5272+25	98.5' Rt	24	Pipe Conduit	93	Reinforced Concrete Pipe - Class III **(barrel length = 88 LF)**	24				170	FES	FES	Sheet 20-4
5287+98	1.0' Lt	5287+98	105.0' Rt	24	Pipe Conduit	106	Reinforced Concrete Pipe - Class III **(barrel length = 104 LF)**	24				197	TES	TES	Sheet 20-4
5290+43	1.0' Lt	5293+12	13.6' Rt	18	Pipe PVC 18IN	270	Polyvinyl Chloride (PVC)	18							N/A
5294+13	91.0' Lt	5295+03	99.9' Lt	12	Pipe PVC 12IN	90	Polyvinyl Chloride (PVC)	12							N/A
5306+74	116.8' Lt	5306+77	124.2' Lt	30	Pipe Conc. Reinf. CL III (Extension)	8	Reinforced Concrete Pipe - Class III **(barrel length = 8 LF)**	30					Remove & Relay		Sheet 20-5
5306+97	101.0' Lt	5308+07	93.7' Lt	12	Pipe PVC 12IN	110	Polyvinyl Chloride (PVC)	12							N/A
5314+29	3.3' Lt	5314+29	115.3' Rt	30	Pipe Conduit	119	Reinforced Concrete Pipe - Class III **(barrel length = 116 LF)**	30				260	TES	FES	Sheet 20-4
5320+16	0.0' Rt	5320+17	100.2' Rt	48	Pipe Conduit	100	Reinforced Concrete Pipe - Class III **(barrel length = 98 LF)**	48				573		FES	Sheet 20-4
5320+39	0.0' Rt	5320+41	100.2' Rt	48	Pipe Conduit	100	Reinforced Concrete Pipe - Class III **(barrel length = 98 LF)**	48						FES	
5329+26	11.6' Rt	5329+26	110.2' Rt	30	Pipe Conduit	99	Reinforced Concrete Pipe - Class III **(barrel length = 96 LF)**	30				211	TES	FES	Sheet 20-4
5345+24	9.6' Rt	5345+24	118.2' Rt	30	Pipe Conduit	109	Reinforced Concrete Pipe - Class III **(barrel length = 106 LF)**	30				235	TES	FES	Sheet 20-4
5353+59	0.0' Rt	5353+31	108.8' Rt	48	Pipe Conduit	112	Reinforced Concrete Pipe - Class III **(barrel length = 110 LF) (Includes a 4' - 48" to 42" Reducer)**	48				581		FES	Sheet 20-4
5353+77	0.0' Rt	5353+49	110.7' Rt	48	Pipe Conduit	114	Reinforced Concrete Pipe - Class III **(barrel length = 112 LF) (Includes a 4' - 48" to 42" Reducer)**	48						FES	
5354+90	11.6' Rt	5354+90	116.2' Rt	30	Pipe Conduit	105	Reinforced Concrete Pipe - Class III **(barrel length = 102 LF)**	30				226	TES	FES	Sheet 20-4

Coatings: **Z =** Zinc
A = Aluminum
P = Polymeric (over Zinc or Aluminum)

Corrugations: **2 =** 2-2/3"x1/2"
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5 = 5"x1"

Spiral Ribs: **3/4 =** 3/4"x3/4"@7-1/2"
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(*) End sections are measured and paid for separately for pipe extensions.
FES = Flared End Section
TES = Traversable End Section
FG = Flap Gate

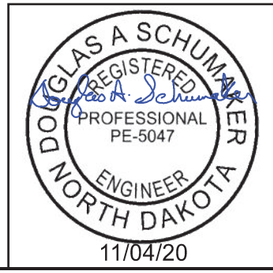
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE 11/02/20
NORTH DAKOTA

Allowable Pipe List

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

Revised 11/2/20	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	N.D.	IM-8-029(135)088	110	2

Station / RP	Sign / Assembly No.	Flat Sheet For Signs IV SF	Flat Sheet For Signs XI SF	Panel For Signs IV SF	Panel For Signs XI SF	Overlay Panel IV SF	Overlay Panel XI SF	Vert Clear-ance FT	Galv Steel Sheet Standard Pipe 1st LF	Galv Steel Sheet Standard Pipe 2nd LF	Size	Galv Steel Post W-Shape Posts 1st LF	2nd LF	3rd LF	Max Post Len LF	Post Space FT	Revise Fuse Joint EA	Std Pipe Fdn Dia FT	Std Pipe Fdn Dep FT	Std Pipe Fdn Vol CY	W-Shape Pile LF	Remove Sign Fdns Conc Fdn EA	Remove Sign Fdns W-Shape Pile EA	Reset Sign Panel EA	Reset Sign Support EA	Stub Post EA	Multi Dir Base EA	Comments
I-94																												
4793+61 Rt								7.0			W6x20	21.4	21.4		26.5	6.0					28		2	1				
4820+21 Rt								7.0			W4x13	19.4	19.4		22.8	4.0					28	2		1				
4846+40 Rt								7.0			W6x20	21.9	21.9		25.1	6.0					28		2	1				
4892+50 Rt	SN 2			13.0				7.0			W4x13	14.4	15.2		46.1	3.3					28	2						
4908+54 Rt	SN 3			140.0				7.0			W8x24	22.9	22.9		24.1	8.8					28		2					
5156+86 Rt	SN 4			84.5				7.0			W6x20	21.4	21.4		24.6	6.5					28	2						
5205+22 Rt	SN 5			84.5				7.0			W6x20	21.4	21.4		24.6	6.5					28	2						
5216+34 Rt	SN 6			74.8				7.0			W6x20	21.4	21.4		27.5	5.8					28	2						
5241+40 Rt	SN 7&9			237.5				7.0			W10x39	29.9	29.9		36.4	7.0					28		2					
5283+73 Rt	SN 8&9			258.5				7.0			W10x39	31.4	31.4		34.5	7.0					28		2					
5327+02 Rt								7.0	16.2		3.5				16.6			1.3	6.0	0.3		1		1				
5336+95 Rt								7.0	17.1		5.0				23.7			1.8	7.0	0.6		1		1				
5346+90 Rt								7.0			W5x16	19.9	19.9		24.3	5.3					28		2	1				
Sub Total				892.8				**Total**	33.3			**Total**	491.6							0.9	308	12	12	6	0	0	0	
Exit 92																												
10+18 Lt								7.0	17.0	17.0	5.0				19.8	4.3		1.8	7.5	1.3		2		1				
12+28 Rt	SN 1			14.0				7.0			W4x13	13.4	14.2		42.9	3.5					28	2						
14+58 Lt								7.0	13.9		3.5				21.2			1.3	5.0	0.3		1		1				
14+72 Rt	S.A.A	16.9						7.0	18.1		4.0				18.1			1.3	7.5	0.4								
17+15 Lt								7.0	16.4		5.0				23.7			1.8	7.0	0.6		1		1			1	
17+26 Rt								7.0	16.4		5.0				23.7			1.8	7.0	0.6		1		1			1	
Sub Total		16.9		14.0				**Total**	98.8			**Total**	27.6							3.2	28	7	0	4	0	0	2	
Exit 100																												
10+07 Lt	SN 10			40.0				7.0	16.4	16.4	4.0				17.1	4.0		1.3	7.0	0.7		2						
12+33 Rt								7.0			W4x13	15.0	16.2		23.8	4.8					28		2	1				
14+53 Lt								7.0	13.9		3.5				21.2			1.3	5.0	0.3		1		1				
14+95 Rt	S.A.B			44.8				7.0			W4x13	19.2	20.2		21.5	3.8					28	1						
16+14 Rt	S.A.C	10.7						7.0	15.6		3.5				19.5			1.3	5.5	0.3		1						
16+99 Lt								7.0	16.4		5.0				23.7			1.8	7.0	0.6		1		1			1	
17+33 Rt	S.A.D		13.3					7.0	15.4		4.0				19.7			1.3	6.5	0.3		1					1	
Sub Total		10.7	13.3	84.8				**Total**	94.1			**Total**	70.6							2.2	56	7	2	3	0	0	2	
Grand Total		**27.6**	**13.3**	**991.6**				**Total**	**226.2**			**Total**	**589.8**							**6.3**	**392**	**26**	**14**	**13**	**0**	**0**	**4**	



Sign Summary
Round Steel Pipe & W-Shape

Hunter sep to near Blanchard NB

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