North Dakota Department of Transportation

Grant Levi, P.E.
Director

Jack Dalrymple
Governor

December 8, 2015

ADDENDUM 1 – JOB 8

TO: All prospective bidders on project SOIB-SOI-4-023(019)087, Job No. 8, scheduled for the December 16, 2015 bid opening.

The following plan and proposal revisions shall be made:

Plan Revisions:
See attached summary from Jeff Lansink, PE; Houston Engineering, Inc., dated December 8, 2015 for an explanation.

Request for Proposal Revisions:
Remove and replace pages 5 to 7 of 12 of the Proposal pages located at the beginning of the Request for Proposal, with the enclosed page revised 12/8/2015.

Page 5 of 12:

Item 203 0108 TOPSOIL-BORROW AREA quantity has increased from 16,500 to 83,845 CY.

Item 251 0200 SEEDING CLASS II quantity increased from 162.05 to 180.05 ACRE.

Page 6 of 12:

Item 251 1000 WETLAND SEED quantity increased from 2.34 to 28.69 ACRE.

Item 253 0101 STRAW MULCH quantity increased from 316.17 to 334.17 ACRE.

Item 260 0100 SILT FENCE UNSUPPORTED quantity increased from 5,000 to 13,715 LF.

Item 260 0101 REMOVE SILT FENCE UNSUPPORTED quantity increased from 5,000 to 13,715 LF.

Item 261 0120 FIBER ROLLS 20IN quantity increased from 16,000 to 23,444 LF.

Item 302 0100 SALVAGED BASE COURSE quantity increased from 184,920 to 194,430 TON.

Page 7 of 12:

Item 306 0370 REMOVE & RELAY BLENDED MATERIAL quantity decreased from 58,383 to 58,382 SY.

Add the enclosed BORROW AREA LIST.

This addendum is to be incorporated into the bidder's proposal for this project.
Expedite bid files should be updated by downloading the addendum file from the Bid Express on-line bidding exchange at http://www.bidx.com/ or the Department's web page (http://www.dot.nd.gov) and load it into the Expedite program.

For CAL J. GENDREAU – CONSTRUCTION SERVICES ENGINEER
80:dch
Enclosure

HoustonEngineering Inc. | Fargo Office | P 701.237.5065 | F 701.237.5101
1401 21st Avenue North | Fargo ND 58102

December 8, 2015

Amy Beise
ND Department of Transportation
608 East Boulevard Avenue
Bismarck ND 58501

SUBJECT: Project SOIB-SOI-4-023(019)087, PCN 19376
Hwy. 23, ND 28 to County Rd 13
HE Project No. 3950_093

Amy,

The signed original plan sheets for Addendum 1 are enclosed for your use. Please see below for a brief description of the changes made.

Sec 2 Sht 1:	Revised Sec 75 from 1-16 to 1-15 Revised Sec 76 from 1-16 to 1-18 Revised Sec 77 from 1-12 to 1-14 Revised Sec 82 from 1-9 to 1-15 Revised Sec 200 from 1-169 to 1-204
Sec 4 Sht 2:	Labeled borrow sites 3, 4, & 5 as mandatory
Sec 6 Sht 2:	Added note 203-P08, 203-P09, 203-P10 & 251-P01
Sec 6 Shts 3-4:	Revised location of notes due to notes added.
Sec 8 Sht 1:	Revised 203-0108 Topsoil-Borrow Area from 16,500 CY to 83,845 CY Revised 251-0200 Seeding Class II from 162.05 Acre to 180.05 Acre Revised 251-1000 Wetland Seed from 2.34 Acre to 28.69 Acre Revised 253-0101 Straw Mulch from 316.17 Acre to 334.17 Acre Revised 260-0100 Silt Fence Unsupported and 260-0101 Remove Silt Fence Unsupported from 5,000 LF to 13,715 LF Revised 261-0120 Fiber Rolls 20IN from 16,000 LF to 23,444 LF Revised 302-0100 Salvaged Base Course from 184,920 Ton to 193,430 Ton Revised 306-0370 Remove and Relay Blended Material from 58,383 SY to 58,382
Sec 10 Sht 1:	Revised Topsoil-Borrow Area from 16,500 CY to 83,845 CY based on inclusion of mitigation site. Revised Seeding & Mulching from 8 Acres to 26 Acres

Sec 11 Sht 1:	Removed Material from Millings from Aggregate Summary Table Added Remove & Relay Blended Base Summary
Sec 11 Sht 29:	Revised Mass Diagram based on inclusion of mitigation sites
Sec 75 Sht 13:	Added Borrow Site numbers to mitigation sites
Sec 75 Sht 14:	Added Borrow Site numbers to mitigation sites. Corrected wetland numbering
Sec 75 Sht 15:	Removed Sht 15
Sec 75 Sht 16:	Revised to Sht 15 Added Borrow Site numbers to mitigation sites. Revised wetland numbering
Sec 76 Sht 17-18:	Included temporary erosion control for the mitigation sites
Sec 77 Sht 13-14:	Included permanent erosion control for the mitigation sites
Sec 82 Sht 9:	Revised "Precast Concrete Alignment Monuments" to "Alignment Monuments"
Sec 82 Sht 10-15:	Add Shts for wetland mitigation site alignment definitions
Sec 200 Sht 170-204:	Added cross Secs for wetland mitigation sites

Sincerely,

HOUSTON ENGINEERING, INC.

Jeff Lansink, P.E.

JTL:sh
Enclosure
H:\Fargo\JBN\3900\3950\11_3950_093\Deliverables\Letters\Amy Beise letter Addendum 1 12-8-15 PCN 19376.docx

Project: SOIB-SOI-4-023(019)087 (PCN-19376)

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 $$$$$	Unit Price 000	Amount $$$$$	Amount 00
001	103	0100	CONTRACT BOND	L SUM	1.				
002	103	0200	ESCROW OF BID DOCUMENTATION	L SUM	1.				
003	201	0330	CLEARING & GRUBBING	L SUM	1.				
004	202	0153	SAW BITUMINOUS SURFACING-FULL DEPTH	LF	150.				
005	202	0169	REMOVAL OF END SECTION-ALL TYPES & SIZES	EA	16.				
006	202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	2,072.				
007	203	0101	COMMON EXCAVATION-TYPE A	CY	167,377.				
008	203	0108	TOPSOIL-BORROW AREA	CY	83,845.				
009	203	0109	TOPSOIL	CY	82,762.				
010	203	0121	TOPSOIL-WETLAND	CY	11,172.				
011	203	0138	COMMON EXCAVATION-SUBCUT	CY	6,443.				
012	203	0140	BORROW-EXCAVATION	CY	459,597.				
013	203	0180	ROADWAY OBLITERATION	LF	783.				
014	216	0100	WATER	M GAL	12,151.				
015	230	0165	SUBGRADE PREPARATION-TYPE A-12IN	STA	175.200				
016	251	0200	SEEDING CLASS II	ACRE	180.050				

Project: SOIB-SOI-4-023(019)087 (PCN-19376)

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 $$$$$	Unit Price 000	Amount $$$$$	Amount 00
017	251	1000	WETLAND SEED	ACRE	28.690				
018	251	2000	TEMPORARY COVER CROP	ACRE	154.120				
019	253	0101	STRAW MULCH	ACRE	334.170				
020	255	0101	ECB TYPE 1	SY	18,241.				
021	256	0201	RIPRAP GRADE II	TON	29,046.				
022	256	0600	RIPRAP-SALVAGED	CY	175.				
023	260	0100	SILT FENCE UNSUPPORTED	LF	13,715.				
024	260	0101	REMOVE SILT FENCE UNSUPPORTED	LF	13,715.				
025	261	0112	FIBER ROLLS 12IN	LF	130,185.				
026	261	0113	REMOVE FIBER ROLLS 12IN	LF	57,066.				
027	261	0120	FIBER ROLLS 20IN	LF	23,444.				
028	262	0100	FLOTATION SILT CURTAIN	LF	14,050.				
029	262	0101	REMOVE FLOTATION SILT CURTAIN	LF	14,050.				
030	302	0100	SALVAGED BASE COURSE	TON	193,430.				
031	302	0113	AGGREGATE BASE COURSE CL 3	TON	22,955.				
032	306	0105	AGGREGATE CL 3M	TON	73,700.				

BID ITEMS

Project: SOIB-SOI-4-023(019)087 (PCN-19376)

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 $$$$$	Unit Price 000	Amount $$$$$	Amount 00
033	306	0370	REMOVE AND RELAY BLENDED MATERIAL	SY	58,382.				
034	306	0510	FULL DEPTH RECLAMATION	SY	154,867.				
035	401	0050	TACK COAT	GAL	23,000.				
036	401	0060	PRIME COAT	GAL	76,499.				
037	401	0160	BLOTTER MATERIAL CL 44	TON	1,690.				
038	430	0045	SUPERPAVE FAA 45	TON	75,248.				
039	430	1000	CORED SAMPLE	EA	355.				
040	430	5828	PG 58-28 ASPHALT CEMENT	TON	2,937.				
041	430	6434	PG 64-34 ASPHALT CEMENT	TON	1,578.				
042	702	0100	MOBILIZATION	L SUM	1.				
043	704	0100	FLAGGING	MHR	4,000.				
044	704	1000	TRAFFIC CONTROL SIGNS	UNIT	6,888.				
045	704	1052	TYPE III BARRICADE	EA	30.				
046	704	1060	DELINEATOR DRUMS	EA	300.				
047	704	1067	TUBULAR MARKERS	EA	300.				
048	704	1080	STACKABLE VERTICAL PANELS	EA	500.				

BORROW AREA LIST
North Dakota Department of Transportation, Design Division
SFN 9683 (Rev. 11-2011)

Project Control No.: 19376

Project: SOIB-SOI-NH-4-023(019)087

Type of Project: Major Rehabilitation

Borrow Area No.:1

Borrow Cu. Yd.	Entered at Station	Approximate Topsoil	Minimum Payment	Cost Per Cu. Yd.	Acreage
48,200	4745+50	12,100	$7,191	$0.40	15

Location: The south 600 feet of the east 800 feet of the SE ¼ SW ¼ and the south 700 feet of the east 800 feet of the west 1500 feet of the SE ¼ of Section 13, T-152-N, R-86-W, less existing Highway 23 right of way and that portion of the SE ¼ lying west of the farmstead drive.

Owner: Ronald and Muriel Peterson, 21500 247th Ave SW, Ryder, ND, 58779

Contractor's Responsibilities:

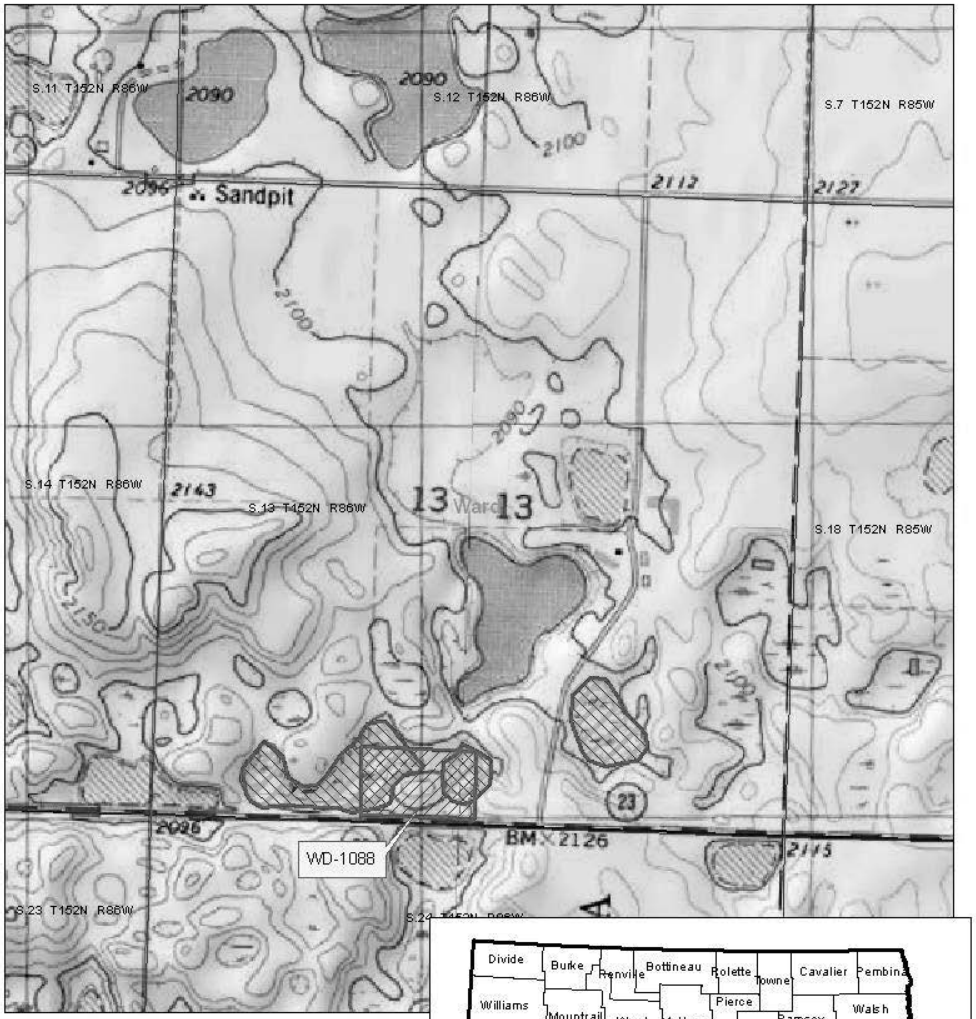
1. Make a minimum payment of $7,191 equivalent to 22 percent of the estimated 81,720 cubic yardage. After the contractor has removed the minimum quantity estimated, the contractor shall pay the grantor 80 percent of the minimum payment within 30 days after NDDOT has made payment to the contractor. The balance of the royalty payment shall be paid to the grantor within 30 days after NDDOT makes final payment to the contractor and the contractor has obtained a pit release from the grantor.
2. The contractor will contact the landowner to determine final leveling requirements. A copy of the final plan signed by the owner and contractor will be submitted to the engineer before any borrow is removed.
3. In accordance with Section 203.02E of the Standard Specifications.
4. A minimum depth of 6" topsoil will be stripped. In those areas where topsoil depth is in excess of 6", a maximum of 12" will be stripped.
5. Hard pan is to be disked prior to replacing topsoil.
6. Owner to be contacted in advance of any initial removal of borrow.
7. Pasture to be reseeded back to grass.

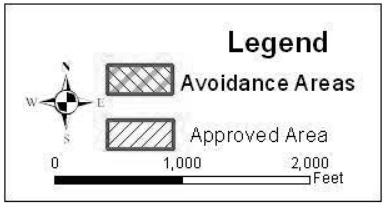
N.D. Department of Transportation Responsibilities:

1. Pay cash rent on the disturbed acreage at the rate of $50.00 per acre. If the optioned area is still being utilized for borrow after May 15 of the following year, an additional year's cash rent will be paid.
2. Make an additional rehabilitation payment on the disturbed acreage in the sum of $50.00 per acre.

Total estimated NDDOT responsibility = $1,500

NDDOT Material Source Certificate of Approval





Expires December 31st

2016

WD-1088

Pit Name: 13152086b

SESESW	S. 13	T. 152 N,	R 86	W	

County:	Ward

This location is approved for use, provided all avoidance areas shown on the map are avoided, and any Conditions listed above are complied with. NDDOT advises that all applicants (contractors or their representatives) may be subject to meeting certain legal responsibilities pursuant to one or more of the following authorities administered by the USFWS: Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703 et seq.); Endangered Species Act (ESA) (16 U.S.C. 1531 et seq.); and Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668-668d, 54 Stat. 250). It is unclear at this time what effects, if any, material source activities may have on plants, fish, and/or wildlife species protected by the above-mentioned Acts. It is the responsibility of the applicants and/or any individual conducting activities at any approved site to fulfill the requirements of these Acts.

This approval does not imply landowner permission to acquire material at this location. An agreement with the landowner is still necessary. The contractor will be responsible for any impacts to wetlands, including permitting those impacts and mitigating the loss of the wetlands. As with all projects, if cultural artifacts and/or features (e.g., stone tools, fire hearths, stone circles, burials) are encountered, provisions outlined in Section 107.04 of the Standard Specifications for Road and Bridge Construction shall be followed.

If you have any questions regarding material sources please email materialsource@nd.gov

BORROW AREA LIST
North Dakota Department of Transportation, Design Division
SFN 9683 (Rev. 11-2011)

Project Control No.: 19376

Project: SOIB -SOI-NH-4-023(019)087

Type of Project: Major Rehabilitation

Borrow Area No.:2

Borrow Cu. Yd.	Entered at Station	Approximate Topsoil	Minimum Payment	Cost Per Cu. Yd.	Acreage
45,425	4923+25	14,472	$4,542.50	$0.40	17.94

Location: The north 660 feet of the east 900 feet of the NE ¼ of Section 21 and the north 660 feet of the west 500 feet of the NW ¼ of Section 22, T-152-N, R-86-W, less existing Highway 23 right of way.

Owner: Donald and Mark Roen, 14901 247th Ave SW, Douglas, ND 58735

Contractor's Responsibilities:

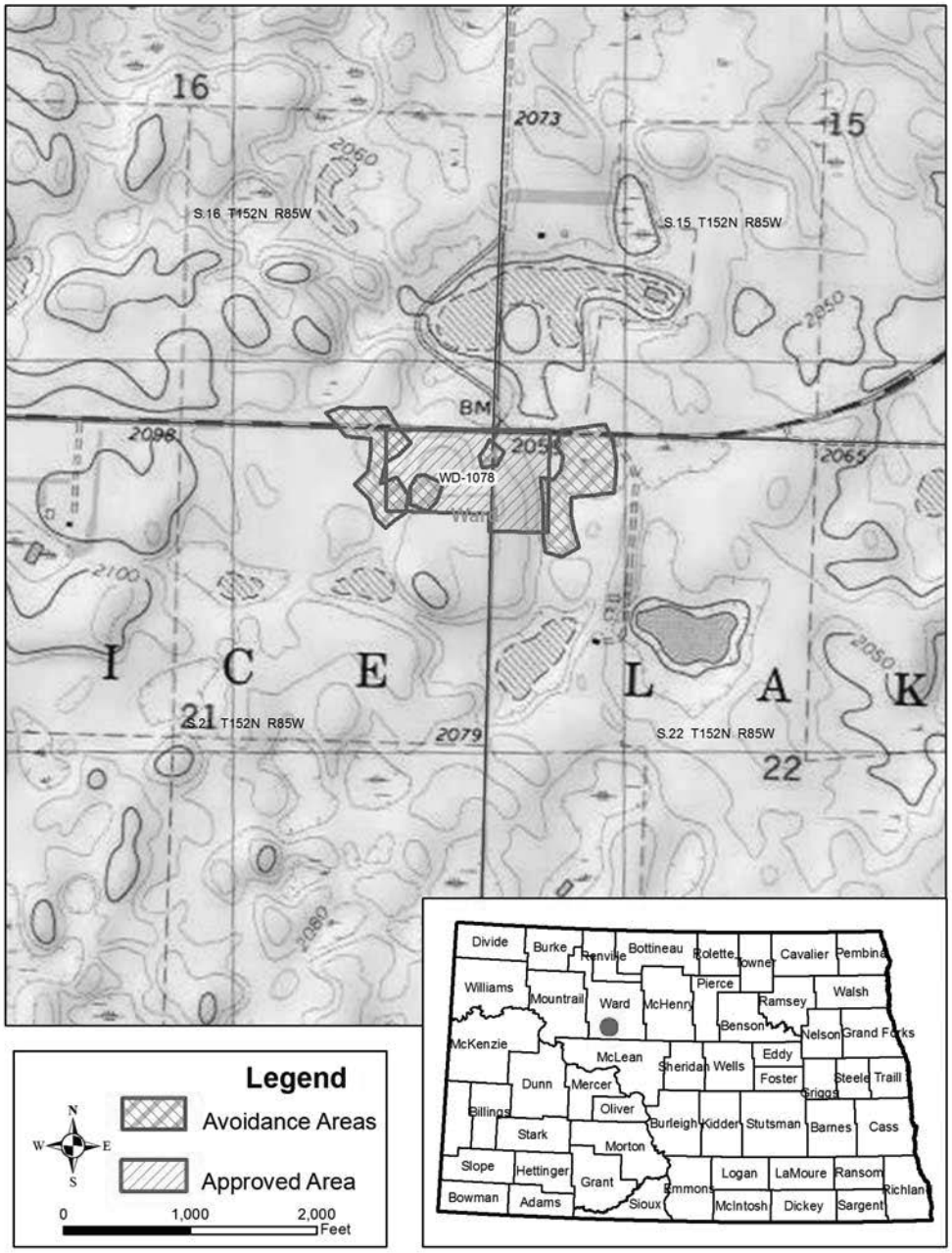
1. Make a minimum payment of $4,542.50 equivalent to 25 percent of the estimated 45,425 cubic yardage. After the contractor has removed the minimum quantity estimated, the contractor shall pay the grantor 80 percent of the minimum payment within 30 days after NDDOT has made payment to the contractor. The balance of the royalty payment shall be paid to the grantor within 30 days after NDDOT makes final payment to the contractor and the contractor has obtained a pit release from the grantor.
2. The contractor will contact the landowner to determine final leveling requirements. A copy of the final plan signed by the owner and contractor will be submitted to the engineer before any borrow is removed.
3. In accordance with Section 203.02E of the Standard Specifications.
4. A minimum depth of 6" topsoil will be stripped. In those areas where topsoil depth is in excess of 6", a maximum of 12" will be stripped.
7. All payments to be made to Mark Roen.
8. Owner to be contacted prior to utilizing this site.
9. Fence to be replaced in like condition.

N.D. Department of Transportation Responsibilities:

1. Pay cash rent on the disturbed acreage at the rate of $50.00 per acre. If the optioned area is still being utilized for borrow after May 15 of the following year, an additional year's cash rent will be paid.
2. Make an additional rehabilitation payment on the disturbed acreage in the sum of $50.00 per acre.
3. In the event that this site is unharvested, the owners are to be paid damages based on the yield of the undisturbed adjacent field and fence to be replaced.

Total estimated NDDOT responsibility = $1,794

NDDOT Material Source Certificate of Approval



Expires December 31

2018

WD-1078

S. 21 & 22, 152/85

County:	Ward

Conditions:

This location is approved for use, provided all avoidance areas shown on the map are avoided and all Conditions listed above and below are complied with.

NDDOT advises that all applicants (contractors or their representatives) may be subject to meeting certain legal responsibilities pursuant to one or more of the following authorities administered by the USFWS: Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703 et seq.); Endangered Species Act (ESA) (16 U.S.C. 1531 et seq.); and Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668-668d, 54 Stat. 250). It is the responsibility of the applicants and/or any individual conducting activities at any approved site to fulfill the requirements of these Acts. The contractor will be responsible obtaining all applicable permits outlined in Section 107 of the Standard Specifications for Road and Bridge Construction (SSRBC). Additionally, contractor will be responsible for any impacts to wetlands, including permitting those impacts and mitigating the loss of the wetlands. As with all projects, if cultural artifacts and/or features (e.g., stone tools, fire hearths, stone circles, burials) are encountered, provisions outlined in Section 107.06 of SSRBC shall be followed.

This approval does not imply landowner permission to acquire material at this location. An agreement with the landowner is still necessary. If you have any questions regarding material sources please email materialsource@nd.gov

BORROW AREA LIST
North Dakota Department of Transportation, Design Division
SFN 9683 (Rev. 11-2011)

Project Control No.: 19376

Project: SOIB-SOI-NH-4-023(019)087

Type of Project: Major Rehabilitation

Borrow Area No.:3

Borrow Cu. Yd.	Entered at Station	Approximate Topsoil	Minimum Payment	Cost Per Cu. Yd.	Acreage
108,460	5014+00	8,873	$21,692	$0.40	11

Location: The north 600 feet of the east 660 feet of the SW ¼ and the north 600 feet of the west 300 feet of the SE ¼ of Section 14, T-152-N, R-85-W lying south of Highway 23 and north of Lake Vernon.

Owner: Mark A. Roen, 14901 247th Ave SW, Douglas, ND, 58735

Contractor's Responsibilities:

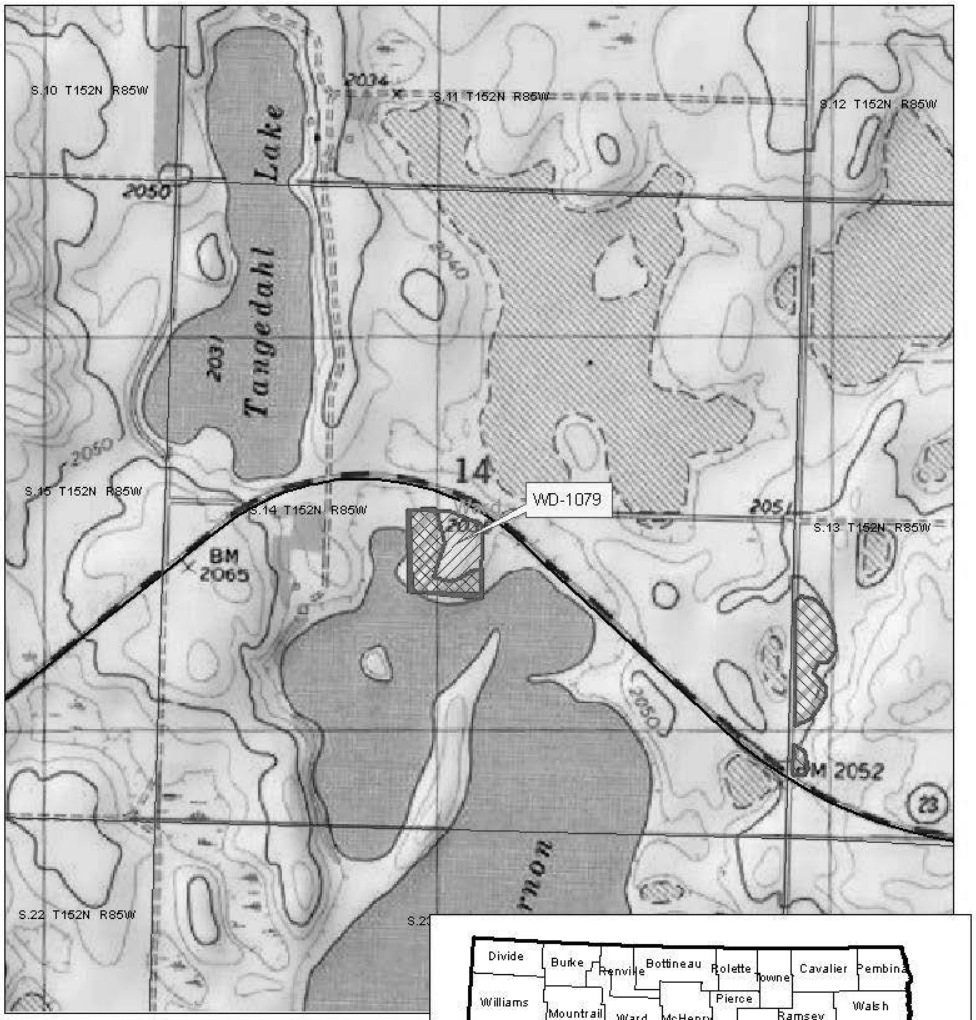
1. Make a minimum payment of $21,692 equivalent to 50 percent of the estimated 108,460 cubic yardage. After the contractor has removed the minimum quantity estimated, the contractor shall pay the grantor 80 percent of the minimum payment within 30 days after NDDOT has made payment to the contractor. The balance of the royalty payment shall be paid to the grantor within 30 days after NDDOT makes final payment to the contractor and the contractor has obtained a pit release from the grantor.
2. The contractor will contact the landowner to determine final leveling requirements. A copy of the final plan signed by the owner and contractor will be submitted to the engineer before any borrow is removed.
3. In accordance with Section 203.02E of the Standard Specifications.
4. A minimum depth of 6" topsoil will be stripped. In those areas where topsoil depth is in excess of 6", a maximum of 12" will be stripped.
5. Fence to be left in like condition, a temporary fence to be installed if cattle are present.
6. Disturbed areas to be restored and reseeded back to grass.

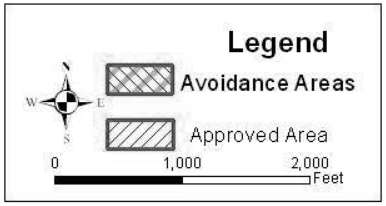
N.D. Department of Transportation Responsibilities:

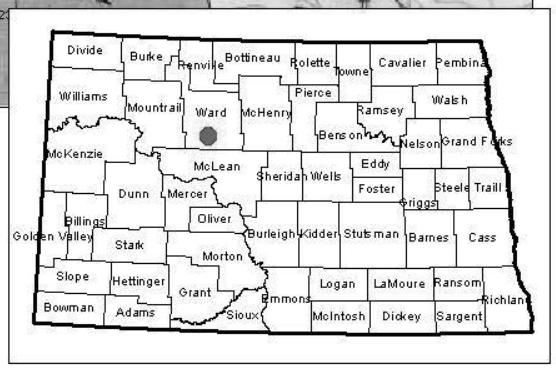
1. Pay cash rent on the disturbed acreage at the rate of $25.00 per acre. If the optioned area is still being utilized for borrow after May 15 of the following year, an additional year's cash rent will be paid.
2. Make an additional rehabilitation payment on the disturbed acreage in the sum of $25.00 per acre.

Total estimated NDDOT responsibility = $550

NDDOT Material Source Certificate of Approval







Expires December 31st

2016

WD-1079

Pit Name: 14152085

NENESW	S. 14	T. 152 N,	R 85	W	

County:	Ward

This location is approved for use, provided all avoidance areas shown on the map are avoided, and any Conditions listed above are complied with. NDDOT advises that all applicants (contractors or their representatives) may be subject to meeting certain legal responsibilities pursuant to one or more of the following authorities administered by the USFWS: Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703 et seq.); Endangered Species Act (ESA) (16 U.S.C. 1531 et seq.); and Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668-668d, 54 Stat. 250). It is unclear at this time what effects, if any, material source activities may have on plants, fish, and/or wildlife species protected by the above-mentioned Acts. It is the responsibility of the applicants and/or any individual conducting activities at any approved site to fulfill the requirements of these Acts.

This approval does not imply landowner permission to acquire material at this location. An agreement with the landowner is still necessary. The contractor will be responsible for any impacts to wetlands, including permitting those impacts and mitigating the loss of the wetlands. As with all projects, if cultural artifacts and/or features (e.g., stone tools, fire hearths, stone circles, burials) are encountered, provisions outlined in Section 107.04 of the Standard Specifications for Road and Bridge Construction shall be followed.

If you have any questions regarding material sources please email materialsource@nd.gov

BORROW AREA LIST
North Dakota Department of Transportation, Design Division
SFN 9683 (Rev. 11-2011)

Project Control No.: 19376

Project: SOIB-SOI-NH-4-023(019)087

Type of Project: Major Rehabilitation

Borrow Area No.:4

Borrow Cu. Yd.	Entered at Station	Approximate Topsoil	Minimum Payment	Cost Per Cu. Yd.	Acreage
214,215	5011+00	36,300	$21,421.50	$0.40	45

Location: All that portion of the SE ¼ of Section 14, T-152-N, R-85-W lying north of State Highway 23.

Owner: Mark A. Roen, 14901 247th Ave SW, Douglas, ND, 58735

Contractor's Responsibilities:

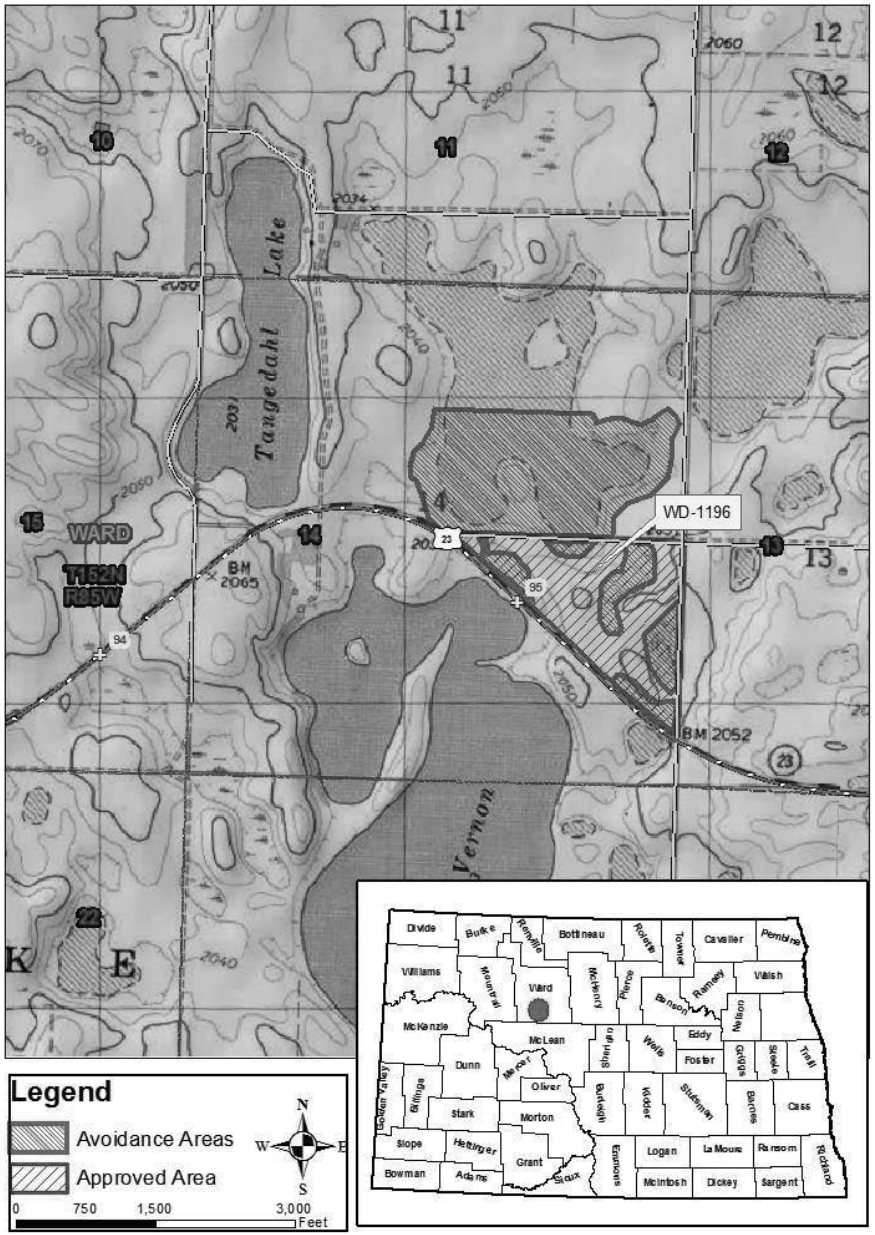
1. Make a minimum payment of $21,421.50 equivalent to 25 percent of the estimated 214,215 cubic yardage. After the contractor has removed the minimum quantity estimated, the contractor shall pay the grantor 80 percent of the minimum payment within 30 days after NDDOT has made payment to the contractor. The balance of the royalty payment shall be paid to the grantor within 30 days after NDDOT makes final payment to the contractor and the contractor has obtained a pit release from the grantor.
2. The contractor will contact the landowner to determine final leveling requirements. A copy of the final plan signed by the owner and contractor will be submitted to the engineer before any borrow is removed.
3. In accordance with Section 203.02E of the Standard Specifications.
4. A minimum depth of 6" topsoil will be stripped. In those areas where topsoil depth is in excess of 6", a maximum of 12" will be stripped.
5. All royalty payments to be made to Mark Roen.
6. Owner to be contacted prior to utilizing this site, regarding removal and restoration plans.

N.D. Department of Transportation Responsibilities:

1. Pay cash rent on the disturbed acreage at the rate of $50.00 per acre. If the optioned area is still being utilized for borrow after May 15 of the following year, an additional year's cash rent will be paid.
2. Make an additional rehabilitation payment on the disturbed acreage in the sum of $50.00 per acre.

Total estimated NDDOT responsibility = $4,500

NDDOT Material Source Certificate of Approval



Expires December 31st

2016

WD-1196

Pit Name: Roen

NESESE, NESE, NENWSE S. 14 T. 152 N, R 85 W

County: Ward

Conditions:

This location is approved for use, provided all avoidance areas shown on the map are avoided, and any Conditions listed above are complied with. NDDOT advises that all applicants (contractors or their representatives) may be subject to meeting certain legal responsibilities pursuant to one or more of the following authorities administered by the USFWS: Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703 et seq.); Endangered Species Act (ESA) (16 U.S.C. 1531 et seq.); and Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668-668d, 54 Stat. 250). It is unclear at this time what effects, if any, material source activities may have on plants, fish, and/or wildlife species protected by the above-mentioned Acts. It is the responsibility of the applicants and/or any individual conducting activities at any approved site to fulfill the requirements of these Acts.

This approval does not imply landowner permission to acquire material at this location. An agreement with the landowner is still necessary. The contractor will be responsible for any impacts to wetlands, including permitting those impacts and mitigating the loss of the wetlands. As with all projects, if cultural artifacts and/or features (e.g., stone tools, fire hearths, stone circles, burials) are encountered, provisions outlined in Section 107.04 of the Standard Specifications for Road and Bridge Construction shall be followed.

If you have any questions regarding material sources please email materialsource@nd.gov

BORROW AREA LIST
North Dakota Department of Transportation, Design Division
SFN 9683 (Rev. 11-2011)

Project Control No.: 19376

Project: SOIB-SOI-NH-4-023(019)087

Type of Project: Major Rehabilitation

Borrow Area No.:5

Borrow Cu. Yd.	Entered at Station	Approximate Topsoil	Minimum Payment	Cost Per Cu. Yd.	Acreage
38,625	5046+00	12,100	$7,725	$0.40	15

Location: The west 660 feet of the SW ¼ SW ¼ of Section 13, T-152-N, R-85-W lying north of Highway 23 right of way line.

Owner: Mark A. Roen, 14901 247th Ave SW, Douglas, ND, 58735

Contractor's Responsibilities:

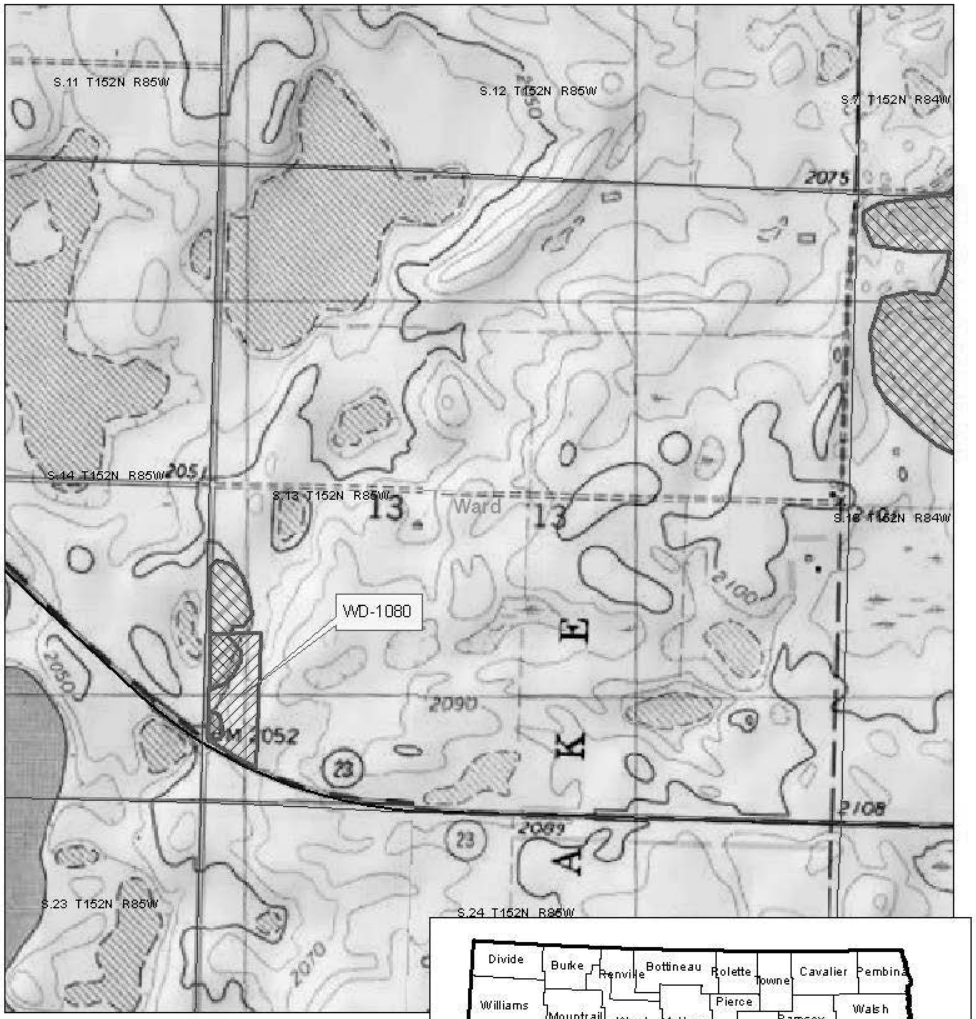
1. Make a minimum payment of $7,725 equivalent to 50 percent of the estimated 38,625 cubic yardage. After the contractor has removed the minimum quantity estimated, the contractor shall pay the grantor 80 percent of the minimum payment within 30 days after NDDOT has made payment to the contractor. The balance of the royalty payment shall be paid to the grantor within 30 days after NDDOT makes final payment to the contractor and the contractor has obtained a pit release from the grantor.
2. The contractor will contact the landowner to determine final leveling requirements. A copy of the final plan signed by the owner and contractor will be submitted to the engineer before any borrow is removed.
3. In accordance with Section 203.02E of the Standard Specifications.
4. A minimum depth of 6" topsoil will be stripped. In those areas where topsoil depth is in excess of 6", a maximum of 12" will be stripped.

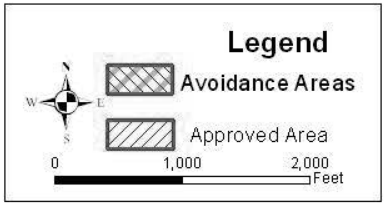
N.D. Department of Transportation Responsibilities:

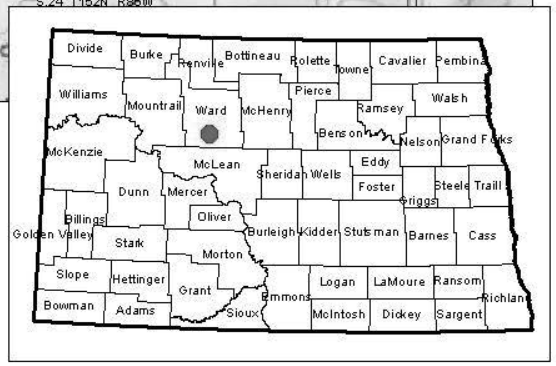
1. Pay cash rent on the disturbed acreage at the rate of $50.00 per acre. If the optioned area is still being utilized for borrow after May 15 of the following year, an additional year's cash rent will be paid.
2. Make an additional rehabilitation payment on the disturbed acreage in the sum of $50.00 per acre.
3. In the event that this site is unharvested, the owner is to be paid damages based on the yield of the adjacent undisturbed field. Topsoil is to be stripped and replaced over disturbed area.

Total estimated NDDOT responsibility = $1,500

NDDOT Material Source Certificate of Approval







Expires December 31st

2016

WD-1080

Pit Name: 13152085

NENESW	S. 13	T. 152 N,	R 85	W	

County:	Ward

This location is approved for use, provided all avoidance areas shown on the map are avoided, and any Conditions listed above are complied with. NDDOT advises that all applicants (contractors or their representatives) may be subject to meeting certain legal responsibilities pursuant to one or more of the following authorities administered by the USFWS: Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703 et seq.); Endangered Species Act (ESA) (16 U.S.C. 1531 et seq.); and Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668-668d, 54 Stat. 250). It is unclear at this time what effects, if any, material source activities may have on plants, fish, and/or wildlife species protected by the above-mentioned Acts. It is the responsibility of the applicants and/or any individual conducting activities at any approved site to fulfill the requirements of these Acts.

This approval does not imply landowner permission to acquire material at this location. An agreement with the landowner is still necessary. The contractor will be responsible for any impacts to wetlands, including permitting those impacts and mitigating the loss of the wetlands. As with all projects, if cultural artifacts and/or features (e.g., stone tools, fire hearths, stone circles, burials) are encountered, provisions outlined in Section 107.04 of the Standard Specifications for Road and Bridge Construction shall be followed.

If you have any questions regarding material sources please email materialsource@nd.gov

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SPECIAL PROVISONS

SP 3(14)	Temporary Erosion and Sediment Best Management Practices
SP 38(14)	Flexible Pavement Surface Tolerance M&B
SP 229(14)	Permissible Discount
SP 5024(14)	Permits and Environmental Considerations

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	ND	SOIB-SOI-4-023(019)087	4	2

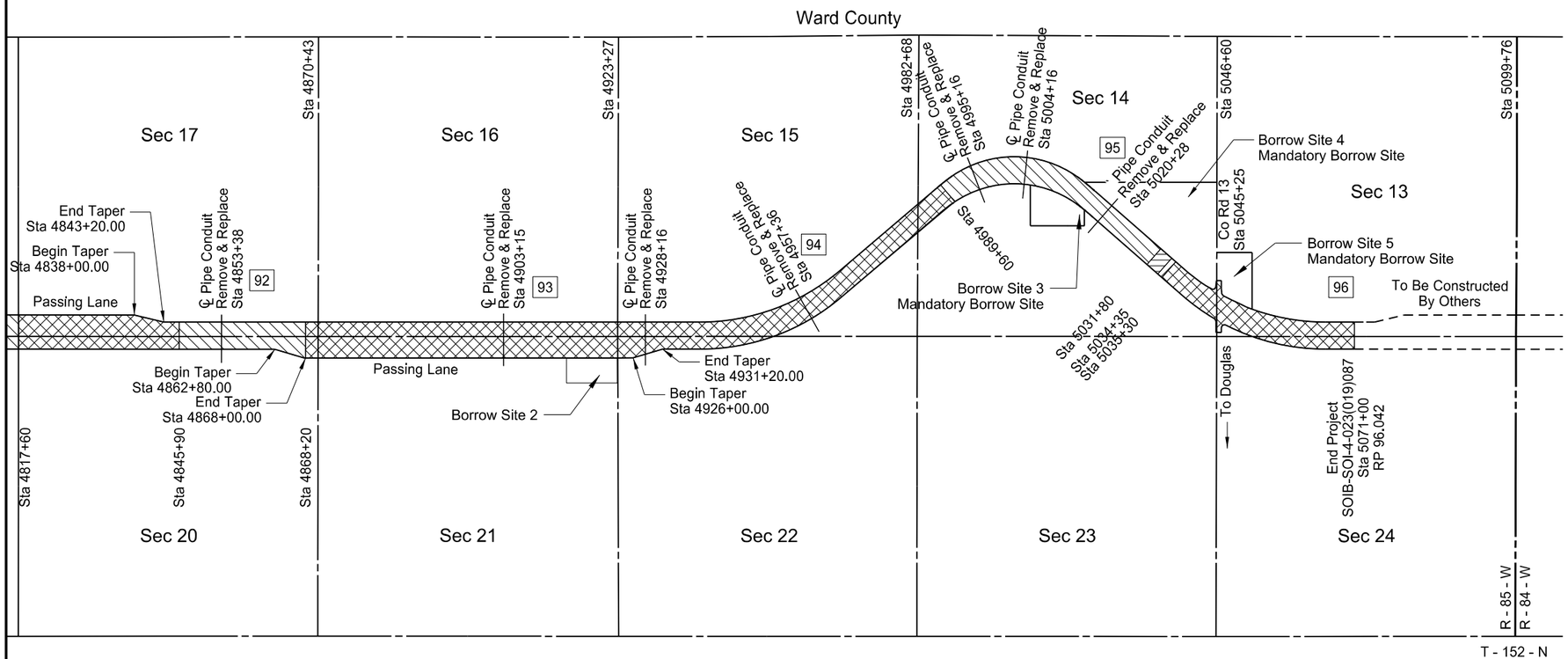
92 Reference Marker

Full Depth Reconstruction, 6" Superpave FAA 45 on 18" Salvaged Base

3' Subgrade Removal, Full Depth Reconstruction, 6" Superpave FAA 45 on 18" Salvaged Base

Full Depth Reclamation, 6" Superpave FAA 45 on 18" Blended Base

Construct Grade Raise, Full Depth Reconstruction, 6" Superpave FAA 45 on 18" Salvaged Base



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Scope of Work

ND 23 - ND 28 to County Rd 13

NOTES

203-P03 TOPSOIL: Removal quantities were developed on a basis of 4 inch depth over the disturbed areas.

203-P04 AVERAGE HAUL: Dead haul from the borrow pits to the point of entry into the mass diagram has not been included in the average haul calculations. Dead haul will not be used to calculate any haul.

203-P05 KEYWAY/BERM: A keyway/berm shall be constructed in areas where the inslope extends into the water at locations as shown on the plans. The keyway/berm shall be constructed as shown in the details and typical sections in the plans. The keyway/berm shall be removed in its entirety at pipe locations after the new pipes have been installed. In addition, the keyway/berm shall be removed to one foot below the existing water elevation after the riprap is placed. The contractor is required to remove this described embankment and will not be allowed to push the embankment into the water so it is below the water elevation. The removed embankment shall then become property of the contractor and shall be disposed of outside the highway right of way in accordance with Section 107.17.

If the contractor elects to dispose of the removed keyway/berm embankment within other areas on the project, the contractor will not be paid for this material a second time. The contractor will only be paid for borrow material removed from the borrow site.

All costs of material, dewatering, construction, removal, and disposal of the keyway, berm shall be included in the price bid for “Borrow-Excavation”. The quantity of borrow needed to construct the keyway/berm is included in the quantities for “Borrow-Excavation”.

203-P06 DISCRETIONARY SUBCUT: An additional 2,000 LF of 18” subcut has been included to be used at the Engineer’s discretion. All discretionary subcut shall be paid for as “Common Excavation-Subcut”. An additional quantity of 8,000 SY of Geosynthetic Material Type R1 has been included to be used in lieu of Subgrade Preparation-Type A-12IN at the Engineer’s discretion

203-P07 DEPARTMENT OPTIONED BORROW: Department-Optioned borrow sites shown in the plans have been approved for use by the Contractor. All borrow site agreements will expire over the duration of the project as listed below:

- Site 1 October 28, 2016
- Site 2 February 7, 2017
- Site 3 October 21, 2016
- Site 4 November 27, 2017
- Site 5 October 21, 2016

All sites must be opened prior to the dates listed above or the contracts will expire.

The remaining borrow material shall be Contractor-Furnished and shall meet all requirements as specified in Section 203 of the Standard Specifications. All costs associated for obtaining, hauling, placing and compacting borrow material shall be included in the price bid for “Borrow-Excavation”.

203-P08 BORROW SITES: Borrow sites 1 and 2 are state optioned borrow sites, and borrow sites 3, 4 & 5 are mandatory borrow sites. At a minimum, the mandatory borrow sites must be utilized with the project to construct the mitigation sites as shown in the plans. Grading requirements and restrictions for the mandatory borrow sites are as shown in the plans. Excavation volumes required to create the wetland mitigation sites are Borrow Site 3, 108,460 CY, Borrow Site 4, 214,215 CY, and Borrow Site 5, 38,625 CY. All grading required for the wetland mitigation sites shall be included in the price bid for “Borrow-Excavation”.

203-P09 BORROW SITES: Mandatory borrow sites 3, 4 and 5 shall not be excavated below the following elevations except as shown in Section 75 of the plans:

- Site 3 – 2036.50
- Site 4 – 2036.50
- Site 5 – 2036.50

203-P10 TOPSOIL-WETLAND: Strip topsoil from all permanently and temporarily impacted wetlands. Spread topsoil over all temporary wetland impacts and mitigation sites.

230-P01 SUBGRADE PREPARATION-TYPE A-12IN: Subgrade preparation Type A-12” will be required for the reconstruction areas identified in the plans.

230-P02 SUBGRADE PREPARATION: If the top of subgrade for the proposed shoulders is higher than the top of subgrade of the existing roadway, the Contractor shall match the existing subgrade elevation and install additional aggregate material to allow for subgrade drainage. All costs associated with the manipulation of the existing subgrade shall be included in the price bid for other items.

251-P01 WETLAND SEED: Seed all temporarily impacted wetlands and wetland mitigation sites.

256-P01 RIPRAP-SALVAGED: The existing 175 CY of riprap along the south edge of ND 23 near RP 95.11 shall be removed and salvaged. The salvaged material shall be reused for slope protection of the permanent grade raise. All costs associated with removing, salvaging, stockpiling and placing of riprap shall be included in the price bid for “Riprap-Salvaged”.

261-P01 EROSION CONTROL: Erosion control has been provided for placement prior to disturbing the topsoil or as indicated by the engineer. Locations are shown in the erosion control plan. 15,000 LF of 20” Fiber Rolls and 8 acres of seeding and mulching has been provided for the State Optioned Borrow Areas. An additional 2,000 LF of 12” Fiber Rolls, 1,000 LF of 20” Fiber Rolls, and 5,000 LF of Silt Fence Unsupported have been provided to be used at the engineer’s discretion.

302-P01 SURFACE TOLERANCE: The surface of the completed base shall meet specifications for Surface Tolerance Type B.

302-P02 SALVAGED BASE COURSE: A temporary aggregate wedge shall be placed at both ends of all the regrade sections to provide a smooth transition from the existing pavement to the top of the new aggregate base. Transitions shall be placed at 50 feet per inch and shall be maintained until paved. All costs to install, remove, and maintain these aggregate wedges shall not be bid separately but included in the unit price bid for “Salvaged Base Course”.

302-P03 SALVAGED BASE COURSE: An additional 23,783 tons of salvaged base course has been provided for maintaining traffic. The aggregate shall be used for temporary widening and as directed by the Engineer in the field.

302-P04 SALVAGED BASE COURSE: The Contractor shall maintain a stockpile of 500 tons of salvaged base course on the project for use in repairing the roadway to maintain traffic through the project.

302-P05 SALVAGED BASE COURSE: A vertical edge (coulter cut) shall be created in all widening areas as shown in Section 30. All costs associated with constructing the vertical edge and removing existing material shall not be paid for separately but included in the price bid for Salvaged Base Course.

401-100 TACK COAT: When MS-1 is used for tack coat, it may be diluted by the supplier or the Contractor.

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NOTES

430-P01 HOT BITUMINOUS PAVEMENT: The 5.5 inch pavement section shall be paver laid in three lifts. The bottom two lifts shall be PG 58-28 Asphalt Cement. The top lift shall be PG 64-34 Asphalt Cement.

430-P02 PAVING SEAMS: All seams must be at least 11.5' from the centerline of the roadway unless a hot seam is used. Hot seams can be located at any offset distance. A hot seam will be defined as a seam created when two pavers are paving at the same time, with no more than 300' between the pavers. The seam must be rolled in a way to join and hide the seam so it is not visible to the traveling public.

704-016 TRAFFIC CONTROL SUPERVISOR: A traffic control supervisor shall be provided on this project.

704-P01 TRAFFIC CONTROL PHASING: Traffic control was developed in two phases for the project.

Phase 1 consists of maintaining head to head traffic on the existing roadway while the Contractor widens the roadway to one side.

Phase 2a consists of head to head traffic shifted to the widened side of the roadway, while the Contractor places embankment, aggregate base and the blended base operation on the opposite half of the roadway.

Phase 2b consists of head to head traffic shifted to the side of the roadway blended in Phase 2a, while the Contractor places embankment, aggregate base and the blended base operation on the opposite half of the roadway.

Phases 2c and 2d consist of head to head traffic on one half of the roadway, while the other half is paved.

704-P02 TRAFFIC CONTROL FOR SHOULDER DROP-OFF: If the contractor is unable to make the driving lane and shoulder even at the end of the day, the contractor shall sign the shoulder and provide a 4:1 slough. When no obstructions/hazards are present on the roadway inslope, throughout the ditch bottom, and approved by the engineer a 3:1 slough may be used. No slough will be required for drop-offs of 1 1/2" or less in depth. Signing shall consist of "Shoulder Drop Off" signs (Sign No. W8-9a-48), and a supplemental plate (Sign No. W20-52-54), identifying the distance in advance of the beginning of the shoulder drop off, each mile thereafter, and at major intersections. A major intersection shall be defined as a CMC, U.S. highway, or state highway.

Stackable Vertical Panels will be placed at 50' spacing through the areas with shoulder drop-offs. Vertical panels have been provided for both shoulders for 1 mile of drop-off.

These traffic control signs and vertical panels shall be in place until the shoulder is even. These signs and vertical panels are included in the "Traffic Control Devices List" and will be measured and paid for at the contract unit price for each device. No extra compensation will be allowed for relocation due to work progression.

704-P03 TRAFFIC CONTROL DEVICES: The traffic control devices list has been developed using the layouts shown in the plans and the following layouts shown on the Standard Drawings.

D-704-2 Traffic Control For Coring of Hot Bituminous Pavement

D-704-15 Layout Type A: To be used throughout the limits of the project. Flag persons and pilot car will be required as needed.

D-704-15 Layout Type B: Temporary Bypass locations.

D-704-20 Layout Type G: Intersecting Routes.

D-704-22 and D-704-26, Layouts Type K, Type L, and Type Y for Construction Truck Hauling Material. Type M is to be used for temporary detours at centerline culvert installations.

D-704-24 Layouts Type U, Type R, and Type S for Shoulder Work.

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

D-704-27 Pavement Marking

D-704-30 Windrow Marking

D-704-56 Mobile Operation (Grinding Shoulder Rumble Strips)

704-P04 TRAFFIC CONTROL: Newly constructed passing lanes shall remain closed to traffic until all pavement marking and permanent signing is completed. Enough traffic control devices have been provided for the closure of all passing lanes within the project.

704-P05 CENTERLINE PIPE REPLACEMENT: The contractor shall have a minimum of one lane of traffic open to public travel during the replacement of all centerline pipes. If the contractor is unable to complete the centerline pipe replacement work at each location in one working day, the area shall be made traversable for two lanes of traffic with 4:1 slopes or flatter and there shall be no drop-offs greater than 2 inches or be flagged 24 hours per day. The cost to provide flaggers outside of working hours shall be at the contractor's expense. Surfacing removal has been provided to accommodate excess excavation to maintain traffic. Excess excavation is any excavation 24" below the proposed profile and outside the trench excavation limits. All costs to remove this excess excavation in order to maintain traffic and replace in accordance with ND T 180 shall not be bid separately but included in the price bid for the corresponding size of "Pipe Conduit". To maintain traffic, a fifteen foot wide driving surface shall be provided with the use of flaggers or a thirty foot wide driving surface with the use of traffic control devices (D-704-15 Type B). Minimum cover depths over the pipe will be maintained whenever traffic is allowed over the pipe. Minimum cover depths can be obtained from the North Dakota Department of Transportation Design Manual Section V-05 Appendix A.

704-P06 ALTERNATE ROUTE: An alternate route shall be paid for and installed as part of project SOIB-4-023(026)096.

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NOTES

706-P01 FIELD OFFICE: The contractor shall provide a field office which meets the following requirements:

1. The field office shall be a minimum of 450 square feet.
2. Indoor bathroom facilities
3. Air conditioner (20,000 BTU minimum)
4. Lighting (lumens required 110 foot-candles)
5. Minimum of 3 phone jacks (NDDOT to pay for phone service)
6. Heat, electric, sewer, and water hookups to be furnished by contractor, contractor to pay utility bills.
7. Cabinet space of a minimum of 32 cubic feet.
8. Counter space of a minimum of 40 square feet.
9. The floor is to be free of protrusions so that it will accommodate required office equipment.
10. Contractor furnished office equipment includes a minimum of three desks, two tables and seven chairs.
11. Scanner/printer/photocopy machine capable of 11x17 photocopies and toner to last the duration of the project. NDDOT will provide paper.
12. Minimum of 3 chairs.
13. Minimum of 3 desks.
14. Furnish and install functioning lightning rod.
15. The location of the field office shall be on, or as close to the project as possible and approved by the Engineer. Any rental fees shall be paid by contractor.
16. The field office shall be available for occupancy one week prior to the start of the project and remain available to project completion.
17. The following services will be furnished and paid for by the NDDOT or contracted Construction Engineering Consultant and requested through the Work Management System:
    1. Telephone
    2. Broadband internet service include State Network access

All requirements of the Field Office are subject to approval by the Engineer. Payment for the field office shall be under the bid item “Field Office.”

714-P01 CATTLE PASS: CL 3 or CL 5 backfill material required for the installation of the cattle pass sections and relaying of the cattle pass end sections shall not be bid separately but included in the price bid for “Cattle Pass Conc Intermed Section” and “Remove and Relay Conc Cattle Pass End Section”.

714-P02 COFFERDAMS: Cofferdams may be required to construct the centerline culverts. Upon completion of the culvert installation, the earthen material that was used for the cofferdam shall be removed and shall be considered waste material. Waste material may be used on approach inslopes if approved by the engineer or hauled to an approved site in accordance with Section 107.17 of the Standard Specifications. The Contractor shall be responsible for obtaining any permits required if constructing the cofferdams causes impacts beyond the impact area shown in Section 075 of the plans. All costs associated with completing the above described work shall be included in the price bid for “Pipe Conduit_IN”.

754-P01 REMOVE SIGNS AND SUPPORTS: Existing signs and supports designated for removal shall be removed and become property of the Contractor. All removed signs and supports shall be disposed of offsite. All costs associated with the removal and disposal of the existing signs shall not be paid for separately but included in the price bid for other items.

760-P01 GRINDING RUMBLE STRIPS: All costs for the use of additional vehicles beyond those shown in Standard Drawing D-704-56 shall be at the Contractor’s expense. A crash truck shall be included in the traffic control operation. Traffic control devices will be moved multiple times during grinding of centerline rumble strips. No additional payment will be made for movement of traffic control devices. The contractor shall fog seal the rumble strips from both directions unless proper coverage can be proven. The cost to fog seal the rumble strips shall not be paid for separately but included in the price bid for Rumble Strips.

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Revised 12/7/15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-SOI-4-023(019)087	8	1

SPEC	CODE	ITEM DESCRIPTION	UNIT	MAINLINE	TOTAL
103	0100	CONTRACT BOND	L SUM	1	1
103	0200	ESCROW OF BID DOCUMENTATION	L SUM	1	1
201	0330	CLEARING & GRUBBING	L SUM	1	1
202	0153	SAW BITUMINOUS SURFACING-FULL DEPTH	LF	150	150
202	0169	REMOVAL OF END SECTION-ALL TYPES & SIZES	EA	16	16
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	2,072	2,072
203	0101	COMMON EXCAVATION-TYPE A	CY	167,377	167,377
203	0108	TOPSOIL-BORROW AREA	CY	83,845	83,845
203	0109	TOPSOIL	CY	82,762	82,762
203	0121	TOPSOIL-WETLAND	CY	11,172	11,172
203	0138	COMMON EXCAVATION-SUBCUT	CY	6,443	6,443
203	0140	BORROW-EXCAVATION	CY	459,597	459,597
203	0180	ROADWAY OBLITERATION	LF	783	783
216	0100	WATER	M GAL	12,151	12,151
230	0165	SUBGRADE PREPARATION - TYPE A - 12IN	STA	175.2	175.2
251	0200	SEEDING CLASS II	ACRE	180.05	180.05
251	1000	WETLAND SEED	ACRE	28.69	28.69
251	2000	TEMPORARY COVER CROP	ACRE	154.12	154.12
253	0101	STRAW MULCH	ACRE	334.17	334.17
255	0101	ECB TYPE I	SY	18,241	18,241
256	0201	RIPRAP GRADE II	TON	29,046	29,046
256	0600	RIPRAP-SALVAGED	CY	175	175
260	0100	SILT FENCE UNSUPPORTED	LF	13,715	13,715
260	0101	REMOVE SILT FENCE UNSUPPORTED	LF	13,715	13,715
261	0112	FIBER ROLLS 12 IN	LF	130,185	130,185
261	0113	REMOVE FIBER ROLLS 12IN	LF	57,066	57,066
261	0120	FIBER ROLLS 20 IN	LF	23,444	23,444
262	0100	FLOTATION SILT CURTAIN	LF	14,050	14,050
262	0101	REMOVE FLOTATION SILT CURTAIN	LF	14,050	14,050
302	0100	SALVAGED BASE COURSE	TON	193,430	193,430
302	0113	AGGREGATE BASE COURSE CL 3	TON	22,955	22,955
306	0105	AGGREGATE CL 3M	TON	73,700	73,700
306	0370	REMOVE AND RELAY BLENDED MATERIAL	SY	58,382	58,382
306	0510	FULL DEPTH RECLAMATION	SY	154,867	154,867
401	0050	TACK COAT	GAL	23,000	23,000
401	0060	PRIME COAT	GAL	76,499	76,499
401	0160	BLOTTER MATERIAL CL 44	TON	1,690	1,690
430	0045	SUPERPAVE FAA 45	TON	75,248	75,248
430	1000	CORED SAMPLE	EA	355	355
430	5828	PG 58-28 ASPHALT CEMENT	TON	2,937	2,937
430	6434	PG 64-34 ASPHALT CEMENT	TON	1,578	1,578
702	0100	MOBILIZATION	L SUM	1	1
704	0100	FLAGGING	MHR	4,000	4,000
704	1000	TRAFFIC CONTROL SIGNS	UNIT	6,888	6,888
704	1052	TYPE III BARRICADE	EA	30	30
704	1060	DELINEATOR DRUMS	EA	300	300
704	1067	TUBULAR MARKERS	EA	300	300
704	1080	STACKABLE VERTICAL PANELS	EA	500	500
704	1081	VERTICAL PANELS-BACK TO BACK	EA	30	30
704	1087	SEQUENCING ARROW PANEL-TYPE C	EA	2	2

BASIS OF ESTIMATE

Seeding Class II, Temporary Cover Crop and Straw Mulching
Class II, temporary cover crop and straw mulching shall be placed from the edge of the disturbed area or riprap to the edge of the proposed shoulder.

Hot Bituminous Pavement
Superpave FAA 45 @ 2 Ton/CY

PG 58-28 Asphalt Cement @ 6.0%

PG 64-34 Asphalt Cement @ 6.0%

Salvaged Base Course and Aggregate CL 3M @ 1.875 Ton/CY

SS1H Tack Coat @ 0.05 Gal/SY/Lift

Prime Coat @ 0.25 Gal/SY First Application
- Mainline (2 - 12' lanes and 8' Shoulders) – 46,460 Ft x 40 Ft x 1 SY/9 SF = 206,489 SY
  206,489 SY x 0.25 Gal/SY = 51,622 Gal
- Auxiliary Lanes (Lanes and Tapers) – 18,976 SY x 0.25 Gal/SY = 4,744 Gal

Prime Coat @ 0.15 Gal/SY Second Application
- Mainline (2 - 12' lanes and 1' Shoulders) – 46,460 Ft x 26 Ft x 1 SY/9 SF = 134,218 SY
  134,218 SY x 0.15 Gal/SY = 20,133 Gal

Blotter Material CL 44 @ 15 LB/SY

State Optioned Borrow Pits – Erosion Control
Fiber Rolls 20 IN = **15,000 LF**
Topsoil-Borrow Area @ 6"(Including Mitigation Sites) = **83,845 CY**
Seeding & Mulching = **26 Acres**

Water
Water for compaction:
- 20 Gal/TON for Aggregates
- 15 Gal/SY for Blended Base
- 10 Gal/CY for Embankment

Water for dust palliative @ 25 MGal/Mile:
- 8.800 Miles x 25 MGal/Mile = 220 MGal

Riprap – Grade II
Riprap – Grade II @ 1.7 Ton/CY

Rumble Strips
Asphalt Shoulder
8.800 mile x 2 = **17.600 Mile**

Asphalt Centerline
8.800 mile = **8.800 Mile**

Salvaged Base Course for Traffic Service Gravel
Grade Raise Areas
Width 24', Depth 6", 14,270' Length x 2 **= 23,783 Ton**

Stockpile for Emergency Repairs = **500 Ton**

HBP Cored Samples							
	A	B	C	D			
Specification Section	Distance (Ft)÷2000	Lanes	Lifts	Sublots (A × B × C)	Quantity (D × 2)	Quantity (1 per mile)	Unit
ND Hwy 23 - Mainline (46,460 LF)							
430.04 I.2.b(1), "General"	23.23	2	3	140	280	N/A	EA
430.04 I.2.b(2), "Pavement Thickness Determination Cores"	N/A	N/A	N/A	N/A	N/A	9	EA
ND Hwy 23 - Auxiliary Lanes (20,297 LF)							
430.04 I.2.b(1), "General"	10.15	1	3	31	62	N/A	EA
430.04 I.2.b(2), "Pavement Thickness Determination Cores"	N/A	N/A	N/A	N/A	N/A	4	EA
				Total	342	13	EA

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Fencing Summary

Begin Station	End Station	Fence Remove & Reset	Fence Barbed Wire 3 Strand	Corner Assembly Barbed Wire
		LF	LF	EA
4611+90	4613+00	110	-	-
4645+70	4646+55	85	-	-
4648+00	4650+25	225	-	-
4655+00	4656+75	175	-	-
4657+00	4658+00	100	-	-
4669+75	4677+00	725	-	-
Cattle Pass 4685+98		-	577	2
4700+10	4704+05	395	-	-
4714+80	4723+35	855	-	-
4735+65	4742+75	710	-	-
Cattle Pass 4744+17		-	245	3
4763+60	4767+25	365	-	-
4857+00	4861+75	475	-	-
4865+75	4868+00	225	-	-
Cattle Pass 4886+00		-	240	2
4923+25	4923+90	65	-	-
5007+25	5012+05	480	-	-
5013+25	5014+25	100	-	-
5011+50	5013+35	185	-	-
5040+55	5046+30	575	-	-
5046+30	5046+50	20	-	-
Totals		5,870	1,062	7

Embankment at Extended Centerline Pipes

Station	Volume	
	Left	Right
4685+98	43.1	78.8
4744+17	11.7	5.3
4806+37	80.5	73.2
4820+15	114.8	17.0
4886+00	99.1	162.2
4928+16	44.9	147.6
5044+28	-	100.6
Total	394.1	584.7

Subcut Aggregate Summary

Begin Station	End Station	Subcut Depth (IN)	Aggregate CL 3 Volume (CY)	Aggregate CL 3 Mass (Ton)
4693+50	4694+90	36	1,017	3,448
5033+90	5035+30	36	1,017	3,448
Discretionary Subcut (2000 LF)		18	4,409	16,059
Totals			6,443	22,955

Aggregate Summary

Item	Aggregate CL 3M Area (SY)	Aggregate CL 3M Mass (Ton)	Aggregate CL 3 Area (SY)	Aggregate CL 3 Mass (Ton)	Salvaged Base Course Area (SY)	Salvaged Base Course Mass (Ton)
Blended Base	154,867	36,158	-	-	-	-
Widen Left	-	-	-	-	-	78,228
Widen Right	-	-	-	-	-	82,977
Reconstruction	-	37,542	-	-	-	-
Remove & Relay Blended Base	58,382	-	-	-	-	-
Section Line Approaches	-	-	-	-	-	7,118
Private Drive Approaches	-	-	-	-	-	250
Field Drives	-	-	-	-	-	574
Approach Radii	-	-	-	-	-	500
Subcut Areas	-	-	-	22,955	-	-
Temporary Traffic Control	-	-	-	-	-	23,783
Totals		73,700		22,955		193,430

Object Marker - Culvert Location Summary

Station	Location	Station	Location
4632+04	Rt	4888+67	Rt
4632+71	Lt	4903+15	Lt & Rt
4645+78	Lt & Rt	4915+86	Lt & Rt
4661+53	Rt	4922+81	Lt
4662+22	Rt	4922+97	Rt
4670+76	Lt & Rt	4923+59	Rt
4685+98	Lt & Rt	4923+61	Lt
4686+68	Lt & Rt	4928+16	Lt & Rt
4696+18	Lt & Rt	4933+05	Lt
4714+17	Lt & Rt	4933+71	Lt
4718+38	Lt & Rt	4947+10	Rt
4737+77	Lt & Rt	4947+96	Rt
4744+17	Lt & Rt	4957+36	Lt & Rt
4747+04	Rt	4968+66	Lt & Rt
4747+07	Lt	4990+57	Lt
4747+66	Rt	4991+27	Lt
4747+74	Lt	4995+16	Lt & Rt
4767+14	Lt	4998+24	Rt
4767+24	Rt	4998+90	Rt
4767+84	Rt	5004+16	Lt & Rt
4767+90	Lt	5016+29	Lt & Rt
4787+68	Lt & Rt	5020+28	Lt & Rt
4806+38	Lt & Rt	5044+28	Rt
4820+15	Lt & Rt	5044+90	Lt
4843+56	Lt & Rt	5045+58	Lt
4853+38	Lt & Rt	5046+21	Rt
4875+15	Lt & Rt	5046+94	Rt
4886+00	Lt & Rt	5061+13	Lt
4887+99	Rt	5061+84	Lt
4888+16	Lt		
4888+65	Lt	TOTAL= 85	

Riprap Placement Summary

Grade Raise	Begin Station	End Station	Rip Rap Quantity (CY)	Rip Rap Quantity (Ton)
RP 88.5	4666+60	4677+50	4,556	7,745
RP 89.5	4704+80	4720+90	3,103	5,275
RP 91	4799+60	4815+10	2,357	4,007
RP 92	4849+10	4865+30	3,602	6,123
RP 95	4999+00	5026+60	3,402	5,783
Culvert Erosion Control			66	113
Totals			17,086	29,046

Remove & Relay Blended Base

Begin Sta	End Sta	Length (Ft)	Width (Ft)	Area (SY)
4606+40	4619+25	1,285	30	4,283
4661+80	4683+40	2,160	30	7,200
4693+50	4732+90	3,940	30	13,133
4743+60	4755+60	1,200	30	4,000
4796+30	4817+60	2,130	30	7,100
4845+90	4868+20	2,230	30	7,433
4989+60	5035+30	4,570	30	15,233
Total				58,382

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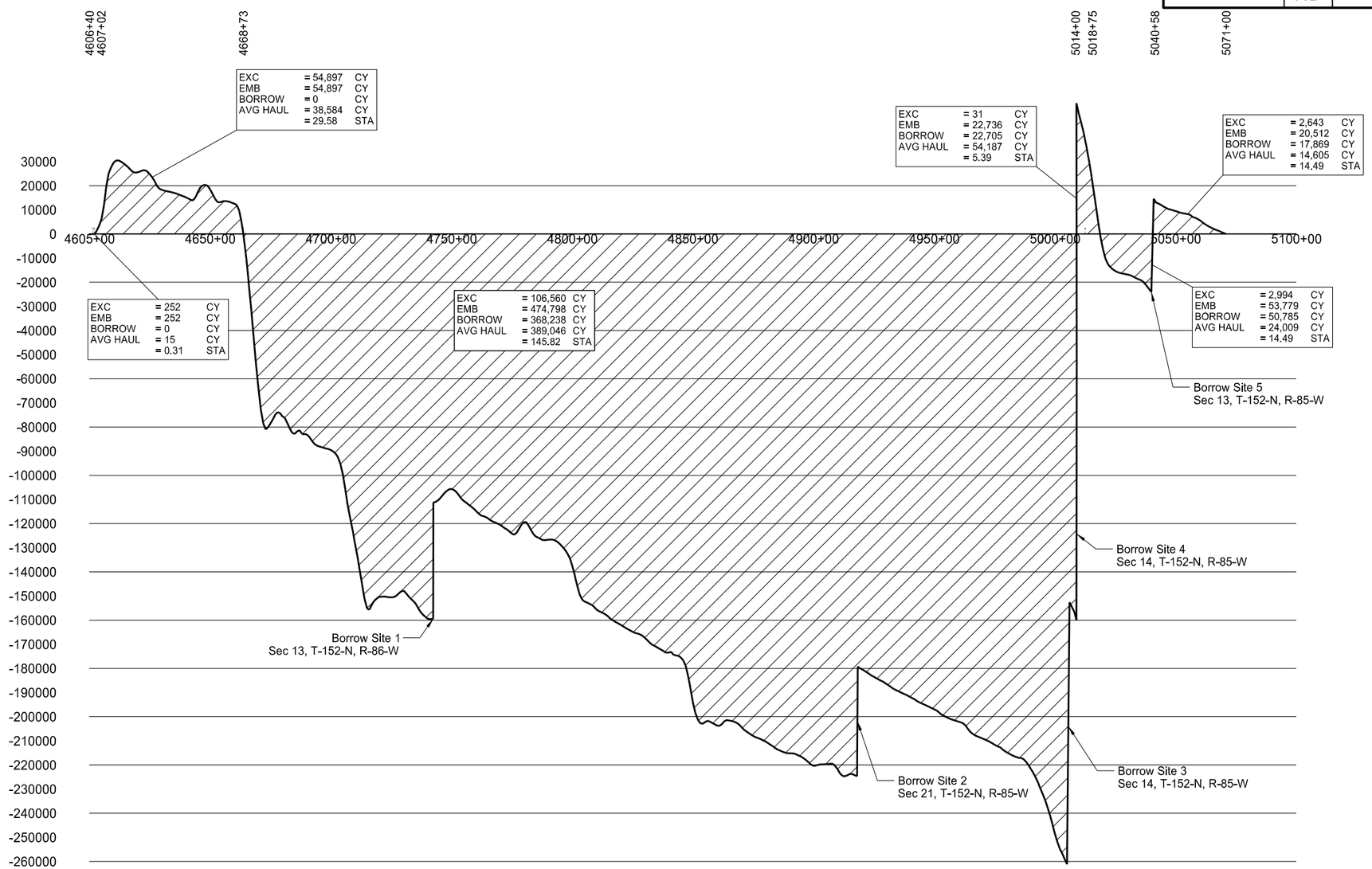
Data Tables

Aggregate Summary Table

ND 23 - ND 28 to County Rd 13

Revised 12/5/15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-SOI-4-023(019)087	11	29



PROJECT TOTALS

EXC	= 167,377	CY
EMB	= 626,974	CY
BORROW	= 459,597	CY
AVG HAUL	= 520,446	CY
	= 210.08	STA

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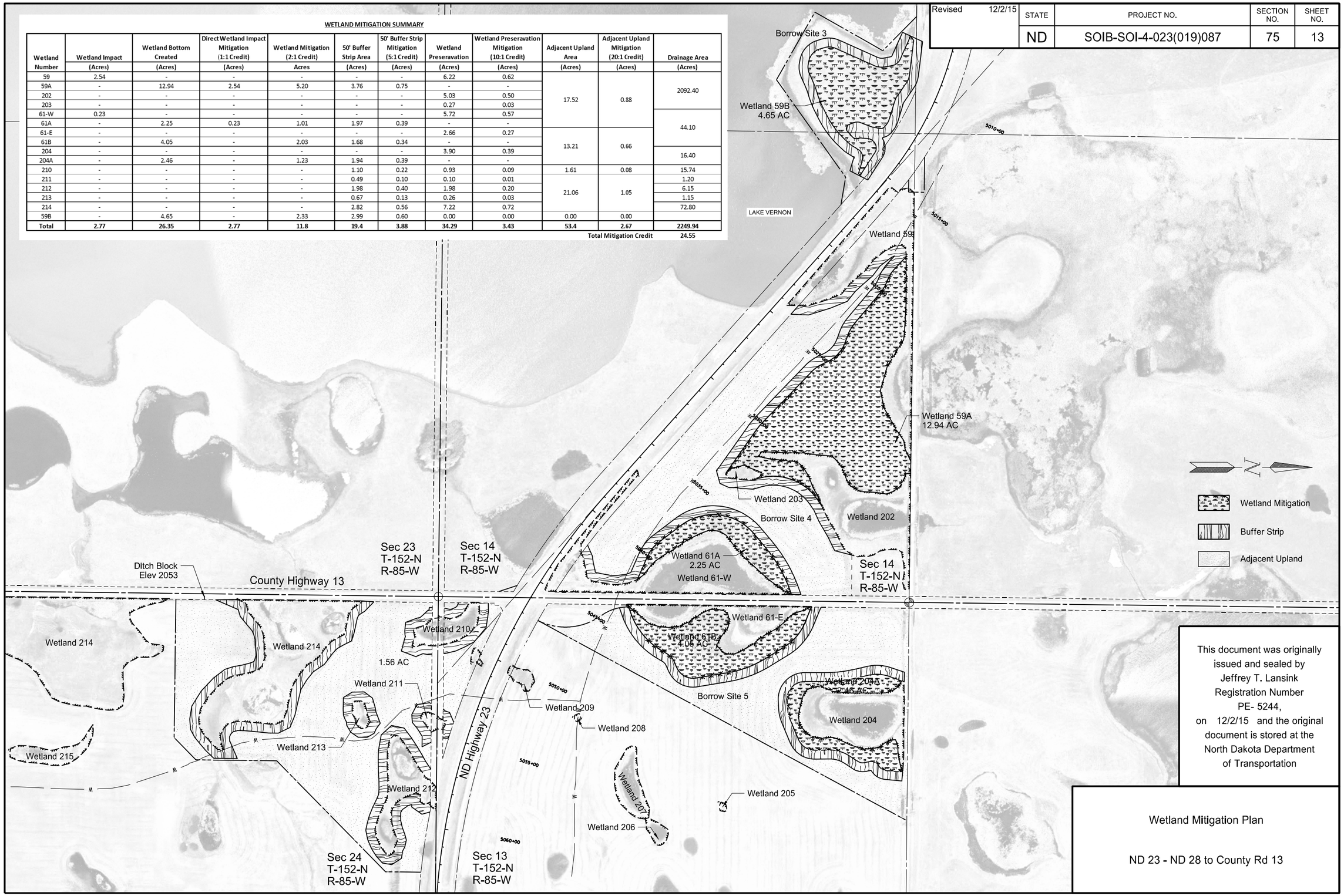
Mass Diagram

ND 23 - ND 28 to County Rd 13

Revised 12/2/15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-SOI-4-023(019)087	75	13

WETLAND MITIGATION SUMMARY

Wetland Number	Wetland Impact (Acres)	Wetland Bottom Created (Acres)	Direct Wetland Impact Mitigation (1:1 Credit) (Acres)	Wetland Mitigation (2:1 Credit) Acres	50' Buffer Strip Area (Acres)	50' Buffer Strip Mitigation (5:1 Credit) (Acres)	Wetland Preseravation (Acres)	Wetland Preseravation Mitigation (10:1 Credit) (Acres)	Adjacent Upland Area (Acres)	Adjacent Upland Mitigation (20:1 Credit) (Acres)	Drainage Area (Acres)
59	2.54	-	-	-	-	-	6.22	0.62			
59A	-	12.94	2.54	5.20	3.76	0.75	-	-			2092.40
202	-	-	-	-	-	-	5.03	0.50	17.52	0.88	
203	-	-	-	-	-	-	0.27	0.03			
61-W	0.23	-	-	-	-	-	5.72	0.57			
61A	-	2.25	0.23	1.01	1.97	0.39	-	-			44.10
61-E	-	-	-	-	-	-	2.66	0.27			
61B	-	4.05	-	2.03	1.68	0.34	-	-	13.21	0.66	
204	-	-	-	-	-	-	3.90	0.39			
204A	-	2.46	-	1.23	1.94	0.39	-	-			16.40
210	-	-	-	-	1.10	0.22	0.93	0.09	1.61	0.08	15.74
211	-	-	-	-	0.49	0.10	0.10	0.01			1.20
212	-	-	-	-	1.98	0.40	1.98	0.20	21.06	1.05	6.15
213	-	-	-	-	0.67	0.13	0.26	0.03			1.15
214	-	-	-	-	2.82	0.56	7.22	0.72			72.80
59B	-	4.65	-	2.33	2.99	0.60	0.00	0.00	0.00	0.00	
Total	**2.77**	**26.35**	**2.77**	**11.8**	**19.4**	**3.88**	**34.29**	**3.43**	**53.4**	**2.67**	**2249.94**
										Total Mitigation Credit	**24.55**



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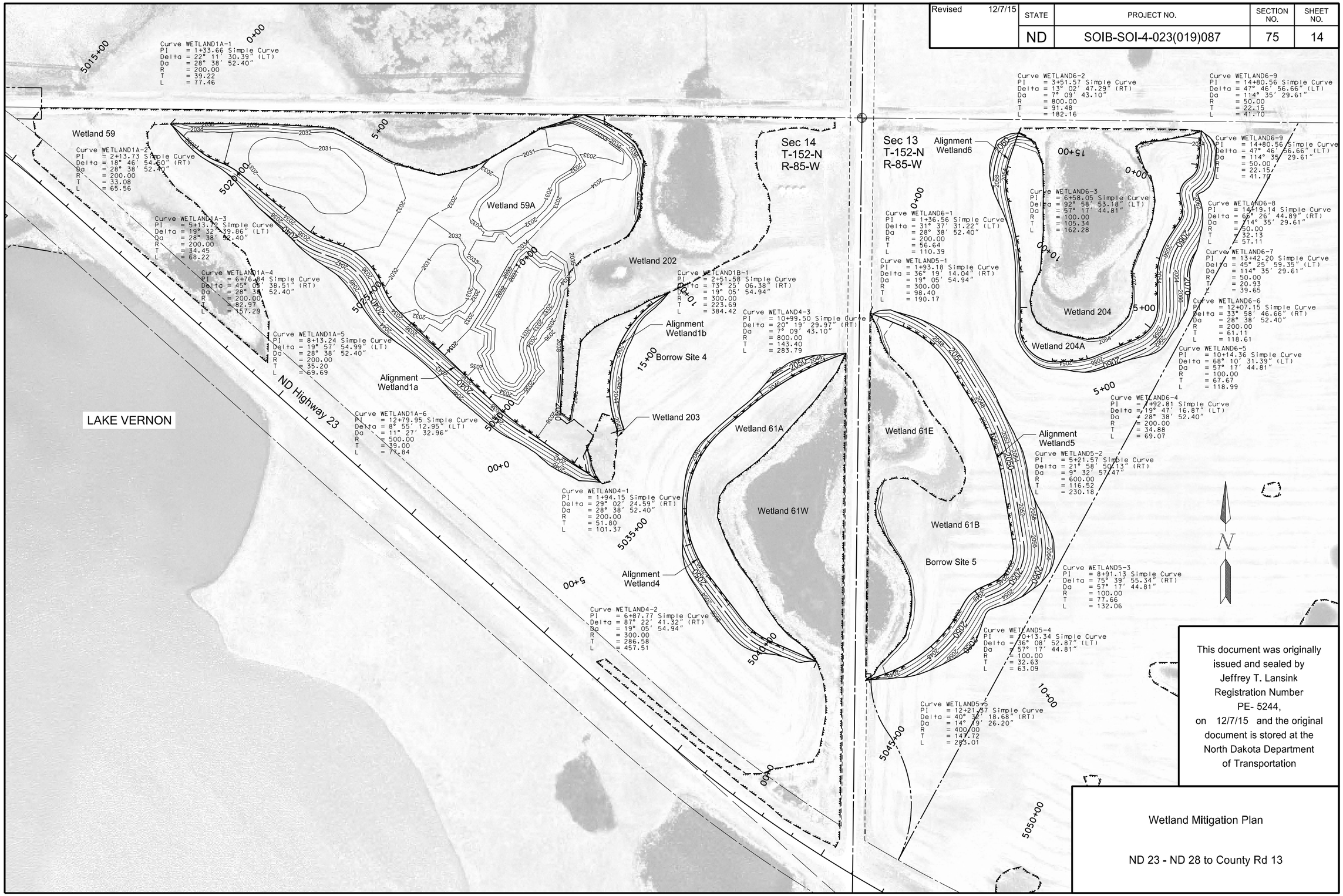
Wetland Mitigation Plan

ND 23 - ND 28 to County Rd 13

Revised 12/7/15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-SOI-4-023(019)087	75	14



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Wetland Mitigation Plan

ND 23 - ND 28 to County Rd 13

Revised 12/7/15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-SOI-4-023(019)087	75	15

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Wetland Mitigation Plan

ND 23 - ND 28 to County Rd 13

Revised 12/2/15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-SOI-4-023(019)087	76	17

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Wetland Mitigation Plan
Temporary Erosion Control

ND 23 - ND 28 to County Rd 13

Revised 12/2/15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-SOI-4-023(019)087	76	18

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Wetland Mitigation Plan
Temporary Erosion Control

ND 23 - ND 28 to County Rd 13

Revised 12/2/15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-SOI-4-023(019)087	77	13

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Wetland Mitigation Plan
Permanent Erosion Control

ND 23 - ND 28 to County Rd 13

Revised 12/2/15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-SOI-4-023(019)087	77	14

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Wetland Mitigation Plan
Permanent Erosion Control

ND 23 - ND 28 to County Rd 13

Revised 12/2/15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-SOI-4-023(019)087	82	9

Iron Pins			
Point	Sta	Offset	Description
9005	4606+71.29	426.92	IRON PIN - EX R/W
9001	4607+10.78	-466.41	IRON PIN - EX R/W
9006	4609+44.09	467.00	IRON PIN - EX R/W
9002	4609+46.82	-467.00	IRON PIN - EX R/W
9007	4611+62.03	249.75	IRON PIN - SEC LINE
9003	4611+63.06	-250.18	IRON PIN - SEC LINE
9009	4613+12.26	100.00	IRON PIN - EX R/W
9004	4613+12.84	-100.00	IRON PIN - EX R/W
9031	4634+48.85	-100.00	IRON PIN - QUARTER LINE
9033	4634+48.85	100.00	IRON PIN - QUARTER LINE
9034	4636+48.65	100.00	IRON PIN - QUARTER LINE
9032	4636+49.04	-100.00	IRON PIN - QUARTER LINE
9040	4648+17.13	100.00	IRON PIN - EX R/W
9041	4648+17.13	140.00	IRON PIN - EX R/W
9042	4648+17.13	-100.00	IRON PIN - EX R/W
9043	4648+17.13	-130.00	IRON PIN - EX R/W
9052	4660+45.12	140.00	IRON PIN - SEC LINE
9050	4660+55.12	-130.00	IRON PIN - SEC LINE
9051	4662+83.72	-100.00	IRON PIN - SEC LINE
9053	4662+86.55	100.00	IRON PIN - SEC LINE
9057	4666+00.00	100.00	IRON PIN - R/W
9058	4666+00.00	125.00	IRON PIN - R/W
9061	4669+75.00	-100.00	IRON PIN - R/W
9062	4669+75.00	-125.00	IRON PIN - R/W
9060	4677+67.12	140.00	IRON PIN - EX R/W
9064	4677+67.12	-180.00	IRON PIN - EX R/W
9059	4677+67.12	125.00	IRON PIN - R/W
9063	4677+67.12	-125.00	IRON PIN - R/W
9069	4686+50.08	-180.00	IRON PIN - QUARTER LINE
9073	4686+90.08	140.00	IRON PIN - QUARTER LINE
9070	4688+27.06	-180.00	IRON PIN - EX R/W
9071	4688+27.19	-120.00	IRON PIN - EX R/W
9076	4688+30.50	130.00	IRON PIN - EX R/W
9075	4688+30.53	140.00	IRON PIN - EX R/W
9072	4689+50.29	-120.00	IRON PIN - QUARTER LINE
9074	4689+59.86	130.00	IRON PIN - QUARTER LINE
9078	4694+17.14	-120.00	IRON PIN - EX R/W
9079	4694+17.14	-100.00	IRON PIN - EX R/W
9080	4694+17.14	130.00	IRON PIN - EX R/W
9081	4694+17.14	100.00	IRON PIN - EX R/W
9092	4712+17.15	100.00	IRON PIN - EX R/W
9093	4712+17.15	160.00	IRON PIN - EX R/W
9090	4713+15.05	160.00	IRON PIN - SEC LINE
9088	4713+60.04	-115.00	IRON PIN - SEC LINE
9102	4715+95.86	-120.00	IRON PIN - SEC LINE
9103	4716+33.97	160.00	IRON PIN - SEC LINE
9104	4723+17.14	-120.00	IRON PIN - EX R/W
9105	4723+17.14	-100.00	IRON PIN - EX R/W
9106	4723+17.14	160.00	IRON PIN - EX R/W
9107	4723+17.14	140.00	IRON PIN - EX R/W

Iron Pins			
Point	Sta	Offset	Description
9108	4739+73.11	140.00	IRON PIN - QUARTER LINE
9114	4740+13.11	-100.00	IRON PIN - QUARTER LINE
9115	4742+12.99	-100.00	IRON PIN - QUARTER LINE
9111	4742+33.27	120.00	IRON PIN - QUARTER LINE
9112	4742+50.00	100.00	IRON PIN - R/W
9113	4742+50.00	120.00	IRON PIN - R/W
9117	4766+51.19	-100.00	IRON PIN - SEC LINE
9119	4766+51.19	100.00	IRON PIN - SEC LINE
9120	4768+50.18	100.00	IRON PIN - SEC LINE
9118	4768+52.21	-100.00	IRON PIN - SEC LINE
9130	4781+17.07	-100.00	IRON PIN - EX R/W
9131	4781+17.07	-140.00	IRON PIN - EX R/W
9134	4789+75.97	-140.00	IRON PIN - QUARTER LINE
9136	4790+15.97	100.00	IRON PIN - QUARTER LINE
9137	4792+15.94	100.00	IRON PIN - QUARTER LINE
9135	4792+16.00	-100.00	IRON PIN - QUARTER LINE
9139	4816+58.30	-100.00	IRON PIN - SEC LINE
9141	4816+58.30	100.00	IRON PIN - SEC LINE
9140	4818+57.91	-100.00	IRON PIN - SEC LINE
9142	4818+58.69	100.00	IRON PIN - SEC LINE
9153	4842+99.96	-100.00	IRON PIN - QUARTER LINE
9155	4842+99.96	100.00	IRON PIN - QUARTER LINE
9156	4844+99.83	100.00	IRON PIN - QUARTER LINE
9154	4845+00.09	-100.00	IRON PIN - QUARTER LINE
9157	4857+17.17	100.00	IRON PIN - EX R/W
9158	4857+17.17	120.00	IRON PIN - EX R/W
9159	4857+17.17	-100.00	IRON PIN - EX R/W
9160	4857+17.17	-130.00	IRON PIN - EX R/W
9163	4869+13.28	-130.00	IRON PIN - SEC LINE
9165	4869+20.39	120.00	IRON PIN - SEC LINE
9166	4871+39.72	100.00	IRON PIN - SEC LINE
9164	4871+43.37	-100.00	IRON PIN - SEC LINE
9190	4895+85.27	-100.00	IRON PIN - QUARTER LINE
9192	4895+85.27	100.00	IRON PIN - QUARTER LINE
9193	4897+85.15	100.00	IRON PIN - QUARTER LINE
9191	4897+85.39	-100.00	IRON PIN - QUARTER LINE
9195	4917+17.17	100.00	IRON PIN - EX R/W
9196	4917+17.17	120.00	IRON PIN - EX R/W
9201	4922+06.80	120.00	IRON PIN - SEC LINE
9197	4922+26.80	-100.00	IRON PIN - SEC LINE
9198	4922+94.76	-150.16	IRON PIN - R/W
9203	4923+27.28	0.00	IRON PIN - SEC LINE
9199	4923+60.70	-129.91	IRON PIN - R/W
9202	4924+26.79	100.00	IRON PIN - SEC LINE
9200	4924+26.81	-100.00	IRON PIN - SEC LINE
9206	4937+84.73	-100.00	IRON PIN - PC
9208	4937+84.73	100.00	IRON PIN - PC
9209	4944+91.99	100.00	IRON PIN - EX R/W
9220	4944+91.99	100.00	IRON PIN - R/W
9221	4948+32.62	100.00	IRON PIN - R/W

Iron Pins			
Point	Sta	Offset	Description
9222	4964+73.59	-100.00	IRON PIN - PT
9224	4964+73.59	100.00	IRON PIN - PT
9229	4979+56.46	311.61	IRON PIN - SEC LINE
9230	4979+56.46	311.61	IRON PIN - SEC LINE
9233	4982+18.23	-100.00	IRON PIN - R/W
9231	4983+68.07	100.00	IRON PIN - SEC LINE
9234	4984+34.18	-351.01	IRON PIN - R/W
9235	4984+72.08	-318.40	IRON PIN - R/W
9236	4985+26.93	-382.16	IRON PIN - R/W
9237	4985+42.09	-369.12	IRON PIN - R/W
9232	4985+79.72	-311.65	IRON PIN - SEC LINE
9239	4986+71.64	-100.00	IRON PIN - TS
9241	4986+71.64	100.00	IRON PIN - TS
9243	4990+71.64	-100.00	IRON PIN - SC
9245	4990+71.64	100.00	IRON PIN - SC
9246	4994+09.88	100.00	IRON PIN - EX R/W
9260	5009+86.50	120.00	IRON PIN - EX R/W
9265	5012+90.77	-99.99	IRON PIN - R/W
9262	5013+89.47	100.00	IRON PIN - CS
9261	5013+89.47	120.00	IRON PIN - EX R/W
9264	5013+89.48	-99.99	IRON PIN - CS
9267	5014+39.47	-99.99	IRON PIN - R/W
9266	5014+43.22	-212.39	IRON PIN - R/W
9268	5014+92.63	-142.22	IRON PIN - R/W
9269	5017+89.47	100.00	IRON PIN - ST
9271	5017+89.47	-100.00	IRON PIN - ST
9272	5038+72.21	100.00	IRON PIN - PC
9274	5038+72.21	-100.00	IRON PIN - PC
9280	5043+11.08	-496.12	IRON PIN - R/W
9279	5043+22.48	-502.90	IRON PIN - R/W
9276	5045+02.80	-100.00	IRON PIN - SEC LINE
9275	5045+05.21	100.00	IRON PIN - SEC LINE
9278	5047+11.13	-100.00	IRON PIN - SEC LINE
9277	5047+28.02	133.92	IRON PIN - SEC LINE
9284	5056+18.88	100.00	IRON PIN - EX R/W
9285	5059+09.51	100.00	IRON PIN - EX R/W
9286	5066+16.77	-100.00	IRON PIN - PT
9288	5066+16.77	100.00	IRON PIN - PT
Iron Pins = 138			
R/W Markers = 138			

Alignment Monuments			
Point	Sta	Offset	Description
9010	4609+12.58	0.00	MONUMENT - SEC LINE
9035	4635+48.85	0.00	MONUMENT - QUARTER LINE
9054	4661+85.13	0.00	MONUMENT - SEC LINE
9077	4688+30.09	0.00	MONUMENT - QUARTER LINE
9100	4714+75.05	0.00	MONUMENT - SEC LINE
9116	4741+13.12	0.03	MONUMENT - QUARTER LINE
9121	4767+51.19	0.00	MONUMENT - SEC LINE
9138	4791+15.97	0.00	MONUMENT - QUARTER LINE
9143	4817+58.30	0.00	MONUMENT - SEC LINE
9152	4843+99.96	0.00	MONUMENT - QUARTER LINE
9179	4870+43.28	0.00	MONUMENT - SEC LINE
9194	4896+85.28	0.00	MONUMENT - QUARTER LINE
9242	4982+68.07	0.00	MONUMENT - SEC LINE
9281	5046+49.51	80.48	MONUMENT - SEC LINE
Monuments = 14			

Iron Pins - Centerline Location			
Point	Sta	Offset	Description
9207	4937+84.73	0.00	IRON PIN - PC
9223	4964+73.59	0.00	IRON PIN - PT
9240	4986+71.64	0.00	IRON PIN - TS
9244	4990+71.64	0.00	IRON PIN - SC
9263	5013+89.48	0.00	IRON PIN - CS
9270	5017+89.47	0.00	IRON PIN - ST
9273	5038+72.21	0.00	IRON PIN - PC
9287	5066+16.77	0.00	IRON PIN - PT
Iron Pins = 8			

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R/W Marker and Concrete Monument Locations

ND 23 - ND 28 to County Rd 13

Revised 12/2/15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-SOI-4-023(019)087	82	10

Chain WETLAND1A contains:
15000 CUR WETLAND1A-1 CUR WETLAND1A-2 CUR WETLAND1A-3 CUR WETLAND1A-4 CUR WETLAND1A-5 CUR WETLAND1A-6 15001

Beginning chain WETLAND1A description
==========

Point 15000 N 361,194.2660 E 1,720,041.0773 Sta 0+00.00

Course from 15000 to PC WETLAND1A-1 S 46° 44' 44.56" E Dist 94.4337

Curve Data
———

Curve WETLAND1A-1
P.I. Station 1+33.66 N 361,102.6790 E 1,720,138.4225
Delta = 22° 11' 30.39" (LT)
Degree = 28° 38' 52.40"
Tangent = 39.2235
Length = 77.4639
Radius = 200.0000
External = 3.8099
Long Chord = 76.9806
Mid. Ord. = 3.7387
P.C. Station 0+94.43 N 361,129.5565 E 1,720,109.8552
P.T. Station 1+71.90 N 361,088.5826 E 1,720,175.0254
C.C. N 361,275.2204 E 1,720,246.9027
Back = S 46° 44' 44.56" E
Ahead = S 68° 56' 14.95" E
Chord Bear = S 57° 50' 29.75" E

Course from PT WETLAND1A-1 to PC WETLAND1A-2 S 68° 56' 14.95" E Dist 8.7571

Curve Data
———

Curve WETLAND1A-2
P.I. Station 2+13.73 N 361,073.5480 E 1,720,214.0647
Delta = 18° 46' 54.50" (RT)
Degree = 28° 38' 52.40"
Tangent = 33.0772
Length = 65.5609
Radius = 200.0000
External = 2.7168
Long Chord = 65.2677
Mid. Ord. = 2.6804
P.C. Station 1+80.65 N 361,085.4355 E 1,720,183.1975
P.T. Station 2+46.22 N 361,052.3553 E 1,720,239.4609
C.C. N 360,898.7977 E 1,720,111.3202
Back = S 68° 56' 14.95" E
Ahead = S 50° 09' 20.45" E
Chord Bear = S 59° 32' 47.70" E

Course from PT WETLAND1A-2 to PC WETLAND1A-3 S 50° 09' 20.45" E Dist 233.0546

Curve Data
———

Curve WETLAND1A-3
P.I. Station 5+13.72 N 360,880.9666 E 1,720,444.8448
Delta = 19° 32' 39.86" (LT)
Degree = 28° 38' 52.40"
Tangent = 34.4461
Length = 68.2228
Radius = 200.0000
External = 2.9447
Long Chord = 67.8926
Mid. Ord. = 2.9019
P.C. Station 4+79.27 N 360,903.0363 E 1,720,418.3975
P.T. Station 5+47.49 N 360,869.0161 E 1,720,477.1514
C.C. N 361,056.5940 E 1,720,546.5383
Back = S 50° 09' 20.45" E
Ahead = S 69° 42' 00.30" E
Chord Bear = S 59° 55' 40.38" E

Course from PT WETLAND1A-3 to PC WETLAND1A-4 S 69° 42' 00.31" E Dist 46.3786

Curve Data
———

Curve WETLAND1A-4
P.I. Station 6+76.84 N 360,824.1417 E 1,720,598.4632
Delta = 45° 03' 38.51" (RT)
Degree = 28° 38' 52.40"
Tangent = 82.9669
Length = 157.2915
Radius = 200.0000
External = 16.5260
Long Chord = 153.2691
Mid. Ord. = 15.2647
P.C. Station 5+93.87 N 360,852.9257 E 1,720,520.6494
P.T. Station 7+51.16 N 360,748.7290 E 1,720,633.0525
C.C. N 360,665.3479 E 1,720,451.2626
Back = S 69° 42' 00.30" E
Ahead = S 24° 38' 21.79" E
Chord Bear = S 47° 10' 11.05" E

Course from PT WETLAND1A-4 to PC WETLAND1A-5 S 24° 38' 21.79" E Dist 26.8715

Curve Data
———

Curve WETLAND1A-5
P.I. Station 8+13.24 N 360,692.3065 E 1,720,658.9317
Delta = 19° 57' 54.99" (LT)
Degree = 28° 38' 52.40"
Tangent = 35.2029
Length = 69.6920
Radius = 200.0000
External = 3.0745
Long Chord = 69.3399
Mid. Ord. = 3.0279
P.C. Station 7+78.03 N 360,724.3042 E 1,720,644.2554
P.T. Station 8+47.73 N 360,667.2431 E 1,720,683.6516
C.C. N 360,807.6853 E 1,720,826.0454
Back = S 24° 38' 21.79" E
Ahead = S 44° 36' 16.78" E
Chord Bear = S 34° 37' 19.29" E

Course from PT WETLAND1A-5 to PC WETLAND1A-6 S 45° 57' 57.03" E Dist 393.2217

Curve Data
———

Curve WETLAND1A-6
P.I. Station 12+79.95 N 360,366.8108 E 1,720,994.3874
Delta = 8° 55' 12.95" (LT)
Degree = 11° 27' 32.96"
Tangent = 39.0008
Length = 77.8440
Radius = 500.0000
External = 1.5188
Long Chord = 77.7654
Mid. Ord. = 1.5142
P.C. Station 12+40.95 N 360,393.9198 E 1,720,966.3487
P.T. Station 13+18.79 N 360,344.3774 E 1,721,026.2904
C.C. N 360,753.3825 E 1,721,313.8922
Back = S 45° 57' 57.03" E
Ahead = S 54° 53' 09.98" E
Chord Bear = S 50° 25' 33.50" E

Course from PT WETLAND1A-6 to 15001 S 54° 53' 09.98" E Dist 272.8282

Point 15001 N 360,187.4457 E 1,721,249.4667 Sta 15+91.62

==========
Ending chain WETLAND1A description

Chain WETLAND1B contains:
15002 CUR WETLAND1B-1 15003

Beginning chain WETLAND1B description
==========

Point 15002 N 360,330.3731 E 1,721,297.4503 Sta 0+00.00

Course from 15002 to PC WETLAND1B-1 N 16° 33' 28.08" W Dist 27.8870

Curve Data
———

Curve WETLAND1B-1
P.I. Station 2+51.58 N 360,570.2778 E 1,721,221.7297
Delta = 73° 25' 06.38" (RT)
Degree = 19° 05' 54.94"
Tangent = 223.6882
Length = 384.4180
Radius = 300.0000
External = 74.2144
Long Chord = 358.6525
Mid. Ord. = 59.4962
P.C. Station 0+27.89 N 360,357.1037 E 1,721,289.5030
P.T. Station 4+12.31 N 360,696.0683 E 1,721,406.6977
C.C. N 360,447.9980 E 1,721,575.4019
Back = N 17° 38' 12.27" W
Ahead = N 55° 46' 54.11" E
Chord Bear = N 19° 04' 20.92" E

Course from PT WETLAND1B-1 to 15003 N 55° 46' 54.11" E Dist 44.1331

Point 15003 N 360,720.8864 E 1,721,443.1913 Sta 4+56.44

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Ending chain WETLAND1B description

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Wetland Mitigation Site
Coordinate Data

ND 23 - ND 28 to County Rd 13

Chain WETLAND4 contains:
15004 CUR WETLAND4-1 CUR WETLAND4-2 CUR WETLAND4-3 15005

Beginning chain WETLAND4 description
==========

Point 15004 N 359,683.5395 E 1,721,857.4692 Sta 0+00.00

Course from 15004 to PC WETLAND4-1 N 66° 23' 00.66" W Dist 142.3503

Curve Data
——

Curve WETLAND4-1
P.I. Station 1+94.15 N 359,761.3179 E 1,721,679.5810
Delta = 29° 02' 24.59" (RT)
Degree = 28° 38' 52.40"
Tangent = 51.7983
Length = 101.3693
Radius = 200.0000
External = 6.5988
Long Chord = 100.2877
Mid. Ord. = 6.3880
P.C. Station 1+42.35 N 359,740.5669 E 1,721,727.0411
P.T. Station 2+43.72 N 359,802.4983 E 1,721,648.1607
C.C. N 359,923.8164 E 1,721,807.1636
Back = N 66° 23' 00.66" W
Ahead = N 37° 20' 36.07" W
Chord Bear = N 51° 51' 48.37" W

Course from PT WETLAND4-1 to PC WETLAND4-2 N 37° 20' 36.07" W Dist 157.4708

Curve Data
——

Curve WETLAND4-2
P.I. Station 6+87.77 N 360,155.5227 E 1,721,378.8058
Delta = 87° 22' 41.32" (RT)
Degree = 19° 05' 54.94"
Tangent = 286.5768
Length = 457.5109
Radius = 300.0000
External = 114.8810
Long Chord = 414.4467
Mid. Ord. = 83.0703
P.C. Station 4+01.19 N 359,927.6899 E 1,721,552.6404
P.T. Station 8+58.70 N 360,339.5973 E 1,721,598.4482
C.C. N 360,109.6670 E 1,721,791.1449
Back = N 37° 20' 36.07" W
Ahead = N 50° 02' 05.25" E
Chord Bear = N 6° 20' 44.59" E

Course from PT WETLAND4-2 to PC WETLAND4-3 N 50° 02' 05.25" E Dist 97.3984

Curve Data
——

Curve WETLAND4-3
P.I. Station 10+99.50 N 360,494.2689 E 1,721,783.0061
Delta = 20° 19' 29.97" (RT)
Degree = 7° 09' 43.10"
Tangent = 143.4022
Length = 283.7904
Radius = 800.0000
External = 12.7510
Long Chord = 282.3048
Mid. Ord. = 12.5510
P.C. Station 9+56.10 N 360,402.1585 E 1,721,673.0977
P.T. Station 12+39.89 N 360,542.4682 E 1,721,918.0654
C.C. N 359,789.0108 E 1,722,186.9555
Back = N 50° 02' 05.25" E
Ahead = N 70° 21' 35.22" E
Chord Bear = N 60° 11' 50.24" E

Course from PT WETLAND4-3 to 15005 N 70° 21' 35.22" E Dist 23.0632

Point 15005 N 360,550.2201 E 1,721,939.7868 Sta 12+62.95

==========
Ending chain WETLAND4 description

Chain WETLAND5 contains:
15006 CUR WETLAND5-1 CUR WETLAND5-2 CUR WETLAND5-3 CUR WETLAND5-4 CUR WETLAND5-5 15007

Beginning chain WETLAND5 description
==========

Point 15006 N 360,663.2543 E 1,722,007.1910 Sta 0+00.00

Course from 15006 to PC WETLAND5-1 S 67° 46' 10.72" E Dist 94.7714

Curve Data
——

Curve WETLAND5-1
P.I. Station 1+93.18 N 360,590.1698 E 1,722,186.0083
Delta = 36° 19' 14.04" (RT)
Degree = 19° 05' 54.94"
Tangent = 98.4046
Length = 190.1740
Radius = 300.0000
External = 15.7269
Long Chord = 187.0058
Mid. Ord. = 14.9435
P.C. Station 0+94.77 N 360,627.3993 E 1,722,094.9181
P.T. Station 2+84.95 N 360,506.2204 E 1,722,237.3500
C.C. N 360,349.6982 E 1,721,981.4187
Back = S 67° 46' 10.72" E
Ahead = S 31° 26' 56.68" E
Chord Bear = S 49° 36' 33.70" E

Course from PT WETLAND5-1 to PC WETLAND5-2 S 31° 26' 56.68" E Dist 120.1002

Curve Data
——

Curve WETLAND5-2
P.I. Station 5+21.57 N 360,304.3564 E 1,722,360.8057
Delta = 21° 58' 50.13" (RT)
Degree = 9° 32' 57.47"
Tangent = 116.5227
Length = 230.1802
Radius = 600.0000
External = 11.2099
Long Chord = 228.7713
Mid. Ord. = 11.0043
P.C. Station 4+05.05 N 360,403.7624 E 1,722,300.0111
P.T. Station 6+35.23 N 360,189.4211 E 1,722,379.9743
C.C. N 360,090.7181 E 1,721,788.1486
Back = S 31° 26' 56.68" E
Ahead = S 9° 28' 06.55" E
Chord Bear = S 20° 27' 31.62" E

Course from PT WETLAND5-2 to PC WETLAND5-3 S 9° 28' 06.55" E Dist 178.2416

Curve Data
——

Curve WETLAND5-3
P.I. Station 8+91.13 N 359,937.0065 E 1,722,422.0713
Delta = 75° 39' 55.34" (RT)
Degree = 57° 17' 44.81"
Tangent = 77.6594
Length = 132.0610
Radius = 100.0000
External = 26.6135
Long Chord = 122.6715
Mid. Ord. = 21.0195
P.C. Station 8+13.47 N 360,013.6079 E 1,722,409.2960
P.T. Station 9+45.53 N 359,905.6636 E 1,722,351.0179
C.C. N 359,997.1573 E 1,722,310.6584
Back = S 9° 28' 06.55" E
Ahead = S 66° 11' 48.78" W
Chord Bear = S 28° 21' 51.12" W

Course from PT WETLAND5-3 to PC WETLAND5-4 S 66° 11' 48.78" W Dist 35.1759

Curve Data
——

Curve WETLAND5-4
P.I. Station 10+13.34 N 359,878.2955 E 1,722,288.9753
Delta = 36° 08' 52.87" (LT)
Degree = 57° 17' 44.81"
Tangent = 32.6348
Length = 63.0902
Radius = 100.0000
External = 5.1905
Long Chord = 62.0490
Mid. Ord. = 4.9343
P.C. Station 9+80.70 N 359,891.4668 E 1,722,318.8341
P.T. Station 10+43.79 N 359,850.0468 E 1,722,272.6338
C.C. N 359,799.9730 E 1,722,359.1936
Back = S 66° 11' 48.78" W
Ahead = S 30° 02' 55.91" W
Chord Bear = S 48° 07' 22.35" W

Course from PT WETLAND5-4 to PC WETLAND5-5 S 30° 02' 55.91" W Dist 29.8525

Curve Data
——

Curve WETLAND5-5
P.I. Station 12+21.37 N 359,696.3398 E 1,722,183.7161
Delta = 40° 32' 18.68" (RT)
Degree = 14° 19' 26.20"
Tangent = 147.7206
Length = 283.0123
Radius = 400.0000
External = 26.4052
Long Chord = 277.1459
Mid. Ord. = 24.7700
P.C. Station 10+73.65 N 359,824.2066 E 1,722,257.6855
P.T. Station 13+56.66 N 359,647.2421 E 1,722,044.3935
C.C. N 360,024.5019 E 1,721,911.4460
Back = S 30° 02' 55.91" W
Ahead = S 70° 35' 14.59" W
Chord Bear = S 50° 19' 05.25" W

Course from PT WETLAND5-5 to 15007 S 70° 35' 14.59" W Dist 53.0119

Point 15007 N 359,629.6226 E 1,721,994.3954 Sta 14+09.67

==========
Ending chain WETLAND5 description

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Wetland Mitigation Site
Coordinate Data

ND 23 - ND 28 to County Rd 13

Revised 12/2/15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-SOI-4-023(019)087	82	12

Chain WETLAND6 contains:
15008 CUR WETLAND6-1 CUR WETLAND6-2 CUR WETLAND6-3 CUR WETLAND6-4 CUR WETLAND6-
-5 CUR WETLAND6-6 CUR WETLAND6-7 CUR WETLAND6-8 CUR WETLAND6-9 15009

Beginning chain WETLAND6 description
==========

Point 15008 N 361,169.4128 E 1,722,424.3519 Sta 0+00.00

Course from 15008 to PC WETLAND6-1 S 18° 43' 10.46" W Dist 79.9221

Curve Data
———
Curve WETLAND6-1
P.I. Station 1+36.56 N 361,040.0728 E 1,722,380.5235
Delta = 31° 37' 31.22" (LT)
Degree = 28° 38' 52.40"
Tangent = 56.6421
Length = 110.3933
Radius = 200.0000
External = 7.8661
Long Chord = 108.9972
Mid. Ord. = 7.5684
P.C. Station 0+79.92 N 361,093.7185 E 1,722,398.7020
P.T. Station 1+90.32 N 360,984.8616 E 1,722,393.1744
C.C. N 361,029.5312 E 1,722,588.1221
Back = S 18° 43' 10.46" W
Ahead = S 12° 54' 20.76" E
Chord Bear = S 2° 54' 24.85" W

Course from PT WETLAND6-1 to PC WETLAND6-2 S 12° 54' 20.76" E Dist 69.7790

Curve Data
———
Curve WETLAND6-2
P.I. Station 3+51.57 N 360,827.6789 E 1,722,429.1906
Delta = 13° 02' 47.29" (RT)
Degree = 7° 09' 43.10"
Tangent = 91.4771
Length = 182.1631
Radius = 800.0000
External = 5.2131
Long Chord = 181.7698
Mid. Ord. = 5.1793
P.C. Station 2+60.09 N 360,916.8453 E 1,722,408.7594
P.T. Station 4+42.26 N 360,736.2021 E 1,722,428.9660
C.C. N 360,738.1667 E 1,721,628.9684
Back = S 12° 54' 20.76" E
Ahead = S 0° 08' 26.53" W
Chord Bear = S 6° 22' 57.12" E

Course from PT WETLAND6-2 to PC WETLAND6-3 S 0° 08' 26.53" W Dist 110.4447

Curve Data
———
Curve WETLAND6-3
P.I. Station 6+58.05 N 360,520.4142 E 1,722,428.4361
Delta = 92° 58' 53.18" (LT)
Degree = 57° 17' 44.81"
Tangent = 105.3438
Length = 162.2832
Radius = 100.0000
External = 45.2492
Long Chord = 145.0526
Mid. Ord. = 31.1528
P.C. Station 5+52.70 N 360,625.7577 E 1,722,428.6948
P.T. Station 7+14.99 N 360,525.6350 E 1,722,533.6505
C.C. N 360,625.5121 E 1,722,528.6945
Back = S 0° 08' 26.53" W
Ahead = N 87° 09' 33.35" E
Chord Bear = S 46° 21' 00.06" E

Course from PT WETLAND6-3 to PC WETLAND6-4 N 87° 09' 33.35" E Dist 42.9405

Curve Data
———
Curve WETLAND6-4
P.I. Station 7+92.81 N 360,529.4920 E 1,722,611.3794
Delta = 19° 47' 16.87" (LT)
Degree = 28° 38' 52.40"
Tangent = 34.8840
Length = 69.0732
Radius = 200.0000
External = 3.0194
Long Chord = 68.7304
Mid. Ord. = 2.9745
P.C. Station 7+57.93 N 360,527.7631 E 1,722,576.5382
P.T. Station 8+27.00 N 360,542.9139 E 1,722,643.5779
C.C. N 360,727.5174 E 1,722,566.6262
Back = N 87° 09' 33.35" E
Ahead = N 67° 22' 16.47" E
Chord Bear = N 77° 15' 54.91" E

Course from PT WETLAND6-4 to PC WETLAND6-5 N 67° 22' 16.47" E Dist 119.6871

Curve Data
———
Curve WETLAND6-5
P.I. Station 10+14.36 N 360,615.0026 E 1,722,816.5153
Delta = 68° 10' 31.39" (LT)
Degree = 57° 17' 44.81"
Tangent = 67.6738
Length = 118.9885
Radius = 100.0000
External = 20.7466
Long Chord = 112.0922
Mid. Ord. = 17.1819
P.C. Station 9+46.69 N 360,588.9646 E 1,722,754.0512
P.T. Station 10+65.67 N 360,682.6697 E 1,722,815.5655
C.C. N 360,681.2663 E 1,722,715.5753
Back = N 67° 22' 16.47" E
Ahead = N 0° 48' 14.92" W
Chord Bear = N 33° 17' 00.78" E

Course from PT WETLAND6-5 to PC WETLAND6-6 N 0° 48' 14.92" W Dist 80.3647

Curve Data
———
Curve WETLAND6-6
P.I. Station 12+07.15 N 360,824.1277 E 1,722,813.5800
Delta = 33° 58' 46.66" (RT)
Degree = 28° 38' 52.40"
Tangent = 61.1073
Length = 118.6113
Radius = 200.0000
External = 9.1270
Long Chord = 116.8807
Mid. Ord. = 8.7287
P.C. Station 11+46.04 N 360,763.0265 E 1,722,814.4376
P.T. Station 12+64.65 N 360,875.2744 E 1,722,847.0182
C.C. N 360,765.8334 E 1,723,014.4179
Back = N 0° 48' 14.92" W
Ahead = N 33° 10' 31.74" E
Chord Bear = N 16° 11' 08.41" E

Course from PT WETLAND6-6 to PC WETLAND6-7 N 33° 10' 31.74" E Dist 56.6122

Curve Data
———
Curve WETLAND6-7
P.I. Station 13+42.20 N 360,940.1792 E 1,722,889.4510
Delta = 45° 25' 59.35" (LT)
Degree = 114° 35' 29.61"
Tangent = 20.9325
Length = 39.6479
Radius = 50.0000
External = 4.2049
Long Chord = 38.6173
Mid. Ord. = 3.8787
P.C. Station 13+21.26 N 360,922.6587 E 1,722,877.9967
P.T. Station 13+60.91 N 360,960.6344 E 1,722,885.0069
C.C. N 360,950.0190 E 1,722,836.1468
Back = N 33° 10' 31.74" E
Ahead = N 12° 15' 27.61" W
Chord Bear = N 10° 27' 32.07" E

Course from PT WETLAND6-7 to PC WETLAND6-8 N 12° 15' 27.61" W Dist 26.1058

Curve Data
———
Curve WETLAND6-8
P.I. Station 14+19.14 N 361,017.5404 E 1,722,872.6434
Delta = 65° 26' 44.89" (RT)
Degree = 114° 35' 29.61"
Tangent = 32.1277
Length = 57.1122
Radius = 50.0000
External = 9.4322
Long Chord = 54.0577
Mid. Ord. = 7.9353
P.C. Station 13+87.02 N 360,986.1451 E 1,722,879.4644
P.T. Station 14+44.13 N 361,036.7909 E 1,722,898.3651
C.C. N 360,996.7605 E 1,722,928.3245
Back = N 12° 15' 27.61" W
Ahead = N 53° 11' 17.28" E
Chord Bear = N 20° 27' 54.84" E

Course from PT WETLAND6-8 to PC WETLAND6-9 N 53° 11' 17.28" E Dist 14.2828

Curve Data
———
Curve WETLAND6-9
P.I. Station 14+80.56 N 361,058.6197 E 1,722,927.5316
Delta = 47° 46' 56.66" (LT)
Degree = 114° 35' 29.61"
Tangent = 22.1478
Length = 41.6980
Radius = 50.0000
External = 4.6857
Long Chord = 40.5001
Mid. Ord. = 4.2842
P.C. Station 14+58.41 N 361,045.3490 E 1,722,909.8000
P.T. Station 15+00.11 N 361,080.6690 E 1,722,929.6181
C.C. N 361,085.3794 E 1,722,879.8405
Back = N 53° 11' 17.28" E
Ahead = N 5° 24' 20.62" E
Chord Bear = N 29° 17' 48.95" E

Course from PT WETLAND6-9 to 15009 N 5° 24' 20.62" E Dist 94.9617

Point 15009 N 361,175.2084 E 1,722,938.5643 Sta 15+95.07

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Ending chain WETLAND6 description

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Wetland Mitigation Site
Coordinate Data

ND 23 - ND 28 to County Rd 13

Revised 12/2/15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-SOI-4-023(019)087	82	13

Chain WL61B_1 contains:
501220 CUR WL61B_1-1 CUR WL61B_1-2 CUR WL61B_1-3 CUR WL61B_1-4 CUR WL61B_1-5 CUR WL61B_1-6 CUR WL61B_1-7 CUR WL61B_1-8 CUR WL61B_1-9 CUR WL61B_1-10 CUR WL61B-_1-11 501221

Beginning chain WL61B_1 description
==========

Point 501220 N 361,237.2592 E 1,718,824.6068 Sta 10+00.00

Course from 501220 to PC WL61B_1-1 S 82° 57' 55.85" E Dist 195.5980

Curve Data
——

Curve WL61B_1-1
P.I. Station 12+20.05 N 361,210.3098 E 1,719,043.0050
Delta = 27° 29' 08.62" (RT)
Degree = 57° 17' 44.81"
Tangent = 24.4566
Length = 47.9716
Radius = 100.0000
External = 2.9472
Long Chord = 47.5130
Mid. Ord. = 2.8628
P.C. Station 11+95.60 N 361,213.3050 E 1,719,018.7324
P.T. Station 12+43.57 N 361,196.4503 E 1,719,063.1555
C.C. N 361,114.0577 E 1,719,006.4858
Back = S 82° 57' 55.85" E
Ahead = S 55° 28' 47.22" E
Chord Bear = S 69° 13' 21.54" E

Course from PT WL61B_1-1 to PC WL61B_1-2 S 55° 28' 47.22" E Dist 93.4142

Curve Data
——

Curve WL61B_1-2
P.I. Station 13+52.47 N 361,134.7358 E 1,719,152.8829
Delta = 17° 36' 29.12" (LT)
Degree = 57° 17' 44.81"
Tangent = 15.4880
Length = 30.7319
Radius = 100.0000
External = 1.1923
Long Chord = 30.6111
Mid. Ord. = 1.1782
P.C. Station 13+36.98 N 361,143.5128 E 1,719,140.1218
P.T. Station 13+67.72 N 361,130.2302 E 1,719,167.7011
C.C. N 361,225.9054 E 1,719,196.7915
Back = S 55° 28' 47.22" E
Ahead = S 73° 05' 16.34" E
Chord Bear = S 64° 17' 01.78" E

Course from PT WL61B_1-2 to PC WL61B_1-3 S 73° 05' 16.34" E Dist 102.8268

Curve Data
——

Curve WL61B_1-3
P.I. Station 14+91.68 N 361,094.1679 E 1,719,286.3060
Delta = 23° 52' 21.03" (RT)
Degree = 57° 17' 44.81"
Tangent = 21.1394
Length = 41.6654
Radius = 100.0000
External = 2.2100
Long Chord = 41.3647
Mid. Ord. = 2.1622
P.C. Station 14+70.54 N 361,100.3174 E 1,719,266.0808
P.T. Station 15+12.21 N 361,080.3593 E 1,719,302.3121
C.C. N 361,004.6422 E 1,719,236.9903
Back = S 73° 05' 16.34" E
Ahead = S 49° 12' 55.31" E
Chord Bear = S 61° 09' 05.83" E

Course from PT WL61B_1-3 to PC WL61B_1-4 S 49° 12' 55.31" E Dist 13.0173

Curve Data
——

Curve WL61B_1-4
P.I. Station 15+39.60 N 361,062.4667 E 1,719,323.0520
Delta = 59° 47' 40.50" (RT)
Degree = 229° 10' 59.22"
Tangent = 14.3741
Length = 26.0903
Radius = 25.0000
External = 3.8377
Long Chord = 24.9223
Mid. Ord. = 3.3270
P.C. Station 15+25.23 N 361,071.8561 E 1,719,312.1684
P.T. Station 15+51.32 N 361,048.3370 E 1,719,320.4130
C.C. N 361,052.9269 E 1,719,295.8380
Back = S 49° 12' 55.31" E
Ahead = S 10° 34' 45.19" W
Chord Bear = S 19° 19' 05.06" E

Course from PT WL61B_1-4 to PC WL61B_1-5 S 10° 34' 45.19" W Dist 39.3624

Curve Data
——

Curve WL61B_1-5
P.I. Station 15+99.76 N 361,000.7202 E 1,719,311.5197
Delta = 10° 22' 26.14" (RT)
Degree = 57° 17' 44.81"
Tangent = 9.0778
Length = 18.1059
Radius = 100.0000
External = 0.4112
Long Chord = 18.0812
Mid. Ord. = 0.4095
P.C. Station 15+90.68 N 361,009.6437 E 1,719,313.1863
P.T. Station 16+08.78 N 360,992.2427 E 1,719,308.2734
C.C. N 361,028.0032 E 1,719,214.8861
Back = S 10° 34' 45.19" W
Ahead = S 20° 57' 11.33" W
Chord Bear = S 15° 45' 58.26" W

Course from PT WL61B_1-5 to PC WL61B_1-6 S 20° 57' 11.33" W Dist 58.6943

Curve Data
——

Curve WL61B_1-6
P.I. Station 16+86.49 N 360,919.6769 E 1,719,280.4861
Delta = 41° 37' 59.90" (LT)
Degree = 114° 35' 29.61"
Tangent = 19.0098
Length = 36.3319
Radius = 50.0000
External = 3.4918
Long Chord = 35.5379
Mid. Ord. = 3.2639
P.C. Station 16+67.48 N 360,937.4297 E 1,719,287.2841
P.T. Station 17+03.81 N 360,901.8919 E 1,719,287.1994
C.C. N 360,919.5494 E 1,719,333.9777
Back = S 20° 57' 11.33" W
Ahead = S 20° 40' 48.57" E
Chord Bear = S 0° 08' 11.38" W

Course from PT WL61B_1-6 to PC WL61B_1-7 S 20° 40' 48.57" E Dist 29.1543

Curve Data
——

Curve WL61B_1-7
P.I. Station 17+70.07 N 360,839.9032 E 1,719,310.5985
Delta = 112° 03' 24.48" (LT)
Degree = 229° 10' 59.22"
Tangent = 37.1037
Length = 48.8940
Radius = 25.0000
External = 19.7402
Long Chord = 41.4657
Mid. Ord. = 11.0305
P.C. Station 17+32.96 N 360,874.6161 E 1,719,297.4953
P.T. Station 17+81.86 N 360,865.0830 E 1,719,337.8503
C.C. N 360,883.4449 E 1,719,320.8844
Back = S 20° 40' 48.57" E
Ahead = N 47° 15' 46.95" E
Chord Bear = S 76° 42' 30.81" E

Course from PT WL61B_1-7 to PC WL61B_1-8 N 47° 15' 46.95" E Dist 42.8033

Curve Data
——

Curve WL61B_1-8
P.I. Station 18+38.05 N 360,903.2156 E 1,719,379.1208
Delta = 56° 20' 10.07" (LT)
Degree = 229° 10' 59.22"
Tangent = 13.3869
Length = 24.5813
Radius = 25.0000
External = 3.3586
Long Chord = 23.6030
Mid. Ord. = 2.9608
P.C. Station 18+24.66 N 360,894.1307 E 1,719,369.2884
P.T. Station 18+49.24 N 360,916.4350 E 1,719,377.0097
C.C. N 360,912.4927 E 1,719,352.3225
Back = N 47° 15' 46.95" E
Ahead = N 9° 04' 23.12" W
Chord Bear = N 19° 05' 41.92" E

Course from PT WL61B_1-8 to PC WL61B_1-9 N 9° 04' 23.12" W Dist 15.3870

Curve Data
——

Curve WL61B_1-9
P.I. Station 18+70.68 N 360,937.6053 E 1,719,373.6290
Delta = 13° 48' 06.96" (RT)
Degree = 114° 35' 29.61"
Tangent = 6.0515
Length = 12.0445
Radius = 50.0000
External = 0.3649
Long Chord = 12.0154
Mid. Ord. = 0.3622
P.C. Station 18+64.63 N 360,931.6295 E 1,719,374.5833
P.T. Station 18+76.67 N 360,943.6362 E 1,719,374.1279
C.C. N 360,939.5142 E 1,719,423.9577
Back = N 9° 04' 23.12" W
Ahead = N 4° 43' 43.85" E
Chord Bear = N 2° 10' 19.64" W

Course from PT WL61B_1-9 to PC WL61B_1-10 N 4° 43' 43.85" E Dist 34.4070

Curve Data
——

Curve WL61B_1-10
P.I. Station 19+29.84 N 360,996.6173 E 1,719,378.5106
Delta = 41° 07' 19.63" (RT)
Degree = 114° 35' 29.61"
Tangent = 18.7550
Length = 35.8858
Radius = 50.0000
External = 3.4018
Long Chord = 35.1205
Mid. Ord. = 3.1851
P.C. Station 19+11.08 N 360,977.9261 E 1,719,376.9644
P.T. Station 19+46.97 N 361,009.6806 E 1,719,391.9678
C.C. N 360,973.8041 E 1,719,426.7942
Back = N 4° 43' 43.85" E
Ahead = N 45° 51' 03.48" E
Chord Bear = N 25° 17' 23.66" E

Course from PT WL61B_1-10 to PC WL61B_1-11 N 45° 51' 03.47" E Dist 3.8919

Curve Data
——

Curve WL61B_1-11
P.I. Station 19+88.19 N 361,038.3927 E 1,719,421.5457
Delta = 73° 29' 23.19" (RT)
Degree = 114° 35' 29.61"
Tangent = 37.3298
Length = 64.1319
Radius = 50.0000
External = 12.3980
Long Chord = 59.8253
Mid. Ord. = 9.9346
P.C. Station 19+50.86 N 361,012.3915 E 1,719,394.7604
P.T. Station 20+14.99 N 361,020.1010 E 1,719,454.0869
C.C. N 360,976.5150 E 1,719,429.5868
Back = N 45° 51' 03.48" E
Ahead = S 60° 39' 33.33" E
Chord Bear = N 82° 35' 45.07" E

Course from PT WL61B_1-11 to 501221 S 57° 10' 30.06" E Dist 153.5390

Point 501221 N 360,936.8714 E 1,719,583.1104 Sta 21+68.53

==========
Ending chain WL61B_1 description

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Chain WL61B_2 contains:
501230 CUR WL61B_2-1 CUR WL61B_2-2 CUR WL61B_2-3 CUR WL61B_2-4 CUR WL61B_2-5 CUR WL61B_2-6 CUR WL61B_2-7 CUR WL61B_2-8 CUR WL61B_2-9 CUR WL61B_2-10 CUR WL61B_2-11 CUR WL61B_2-12 501231

Beginning chain WL61B_2 description
==========

Point 501230 N 361,219.6603 E 1,718,800.5048 Sta 10+00.00

Course from 501230 to PC WL61B_2-1 S 65° 49' 25.89" E Dist 144.0612

Curve Data
———

Curve WL61B_2-1
P.I. Station 11+75.11 N 361,147.9434 E 1,718,960.2600
Delta = 54° 43' 40.47" (RT)
Degree = 95° 29' 34.68"
Tangent = 31.0532
Length = 57.3109
Radius = 60.0000
External = 7.5596
Long Chord = 55.1569
Mid. Ord. = 6.7137
P.C. Station 11+44.06 N 361,160.6611 E 1,718,931.9305
P.T. Station 12+01.37 N 361,117.4708 E 1,718,966.2363
C.C. N 361,105.9236 E 1,718,907.3579
Back = S 65° 49' 25.89" E
Ahead = S 11° 05' 45.42" E
Chord Bear = S 38° 27' 35.66" E

Course from PT WL61B_2-1 to PC WL61B_2-2 S 11° 05' 45.42" E Dist 38.9109

Curve Data
———

Curve WL61B_2-2
P.I. Station 12+74.23 N 361,045.9769 E 1,718,980.2576
Delta = 34° 17' 58.06" (RT)
Degree = 52° 05' 13.46"
Tangent = 33.9450
Length = 65.8502
Radius = 110.0000
External = 5.1185
Long Chord = 64.8714
Mid. Ord. = 4.8909
P.C. Station 12+40.28 N 361,079.2873 E 1,718,973.7248
P.T. Station 13+06.13 N 361,014.7777 E 1,718,966.8833
C.C. N 361,058.1175 E 1,718,865.7811
Back = S 11° 05' 45.42" E
Ahead = S 23° 12' 12.64" W
Chord Bear = S 6° 03' 13.61" W

Course from PT WL61B_2-2 to PC WL61B_2-3 S 24° 04' 58.53" W Dist 234.6401

Curve Data
———

Curve WL61B_2-3
P.I. Station 15+75.68 N 360,769.2061 E 1,718,855.7959
Delta = 42° 23' 53.58" (LT)
Degree = 63° 39' 43.12"
Tangent = 34.9071
Length = 66.5990
Radius = 90.0000
External = 6.5324
Long Chord = 65.0898
Mid. Ord. = 6.0904
P.C. Station 15+40.77 N 360,800.5617 E 1,718,871.1365
P.T. Station 16+07.37 N 360,735.7069 E 1,718,865.6097
C.C. N 360,761.0096 E 1,718,951.9797
Back = S 26° 04' 11.68" W
Ahead = S 16° 19' 41.90" E
Chord Bear = S 4° 52' 14.89" W

Course from PT WL61B_2-3 to PC WL61B_2-4 S 16° 19' 41.90" E Dist 26.3599

Curve Data
———

Curve WL61B_2-4
P.I. Station 16+89.47 N 360,656.9229 E 1,718,888.6901
Delta = 63° 32' 17.86" (LT)
Degree = 63° 39' 43.12"
Tangent = 55.7353
Length = 99.8057
Radius = 90.0000
External = 15.8604
Long Chord = 94.7697
Mid. Ord. = 13.4841
P.C. Station 16+33.73 N 360,710.4102 E 1,718,873.0206
P.T. Station 17+33.54 N 360,647.1168 E 1,718,943.5559
C.C. N 360,735.7129 E 1,718,959.3906
Back = S 16° 19' 41.90" E
Ahead = S 79° 51' 59.76" E
Chord Bear = S 48° 05' 50.83" E

Course from PT WL61B_2-4 to PC WL61B_2-5 S 79° 51' 59.76" E Dist 15.8996

Curve Data
———

Curve WL61B_2-5
P.I. Station 17+76.94 N 360,639.4803 E 1,718,986.2829
Delta = 33° 59' 12.16" (LT)
Degree = 63° 39' 43.12"
Tangent = 27.5044
Length = 53.3862
Radius = 90.0000
External = 4.1089
Long Chord = 52.6069
Mid. Ord. = 3.9295
P.C. Station 17+49.44 N 360,644.3194 E 1,718,959.2075
P.T. Station 18+02.82 N 360,650.6029 E 1,719,011.4379
C.C. N 360,732.9155 E 1,718,975.0422
Back = S 79° 51' 59.76" E
Ahead = N 66° 08' 48.08" E
Chord Bear = N 83° 08' 24.16" E

Course from PT WL61B_2-5 to PC WL61B_2-6 N 66° 08' 48.08" E Dist 52.3063

Curve Data
———

Curve WL61B_2-6
P.I. Station 18+86.20 N 360,684.3195 E 1,719,087.6914
Delta = 6° 58' 19.93" (RT)
Degree = 11° 14' 04.08"
Tangent = 31.0688
Length = 62.0608
Radius = 510.0000
External = 0.9455
Long Chord = 62.0225
Mid. Ord. = 0.9437
P.C. Station 18+55.13 N 360,671.7554 E 1,719,059.2764
P.T. Station 19+17.19 N 360,693.3415 E 1,719,117.4214
C.C. N 360,205.3177 E 1,719,265.5186
Back = N 66° 08' 48.08" E
Ahead = N 73° 07' 08.01" E
Chord Bear = N 69° 37' 58.04" E

Course from PT WL61B_2-6 to PC WL61B_2-7 N 73° 07' 08.01" E Dist 6.9550

Curve Data
———

Curve WL61B_2-7
P.I. Station 19+66.16 N 360,707.5615 E 1,719,164.2806
Delta = 9° 48' 05.43" (LT)
Degree = 11° 41' 34.86"
Tangent = 42.0143
Length = 83.8236
Radius = 490.0000
External = 1.7979
Long Chord = 83.7214
Mid. Ord. = 1.7914
P.C. Station 19+24.15 N 360,695.3611 E 1,719,124.0767
P.T. Station 20+07.97 N 360,726.4280 E 1,719,201.8207
C.C. N 361,164.2467 E 1,718,981.7872
Back = N 73° 07' 08.01" E
Ahead = N 63° 19' 02.58" E
Chord Bear = N 68° 13' 05.29" E

Course from PT WL61B_2-7 to PC WL61B_2-8 N 63° 19' 02.58" E Dist 47.4877

Curve Data
———

Curve WL61B_2-8
P.I. Station 20+85.86 N 360,761.4040 E 1,719,271.4154
Delta = 7° 06' 02.27" (LT)
Degree = 11° 41' 34.86"
Tangent = 30.4016
Length = 60.7254
Radius = 490.0000
External = 0.9422
Long Chord = 60.6865
Mid. Ord. = 0.9404
P.C. Station 20+55.46 N 360,747.7522 E 1,719,244.2513
P.T. Station 21+16.18 N 360,778.3089 E 1,719,296.6836
C.C. N 361,185.5710 E 1,719,024.2178
Back = N 63° 19' 02.58" E
Ahead = N 56° 13' 00.31" E
Chord Bear = N 59° 46' 01.44" E

Course from PT WL61B_2-8 to PC WL61B_2-9 N 56° 13' 00.31" E Dist 2.1257

Curve Data
———

Curve WL61B_2-9
P.I. Station 21+74.76 N 360,810.8837 E 1,719,345.3741
Delta = 13° 08' 41.95" (LT)
Degree = 11° 41' 34.86"
Tangent = 56.4566
Length = 112.4174
Radius = 490.0000
External = 3.2417
Long Chord = 112.1710
Mid. Ord. = 3.2204
P.C. Station 21+18.31 N 360,779.4909 E 1,719,298.4504
P.T. Station 22+30.73 N 360,852.1252 E 1,719,383.9291
C.C. N 361,186.7530 E 1,719,025.9846
Back = N 56° 13' 00.31" E
Ahead = N 43° 04' 18.36" E
Chord Bear = N 49° 38' 39.33" E

Course from PT WL61B_2-9 to PC WL61B_2-10 N 43° 04' 18.36" E Dist 31.1784

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Curve Data
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Curve WL61B_2-10
P.I. Station 22+70.53 N 360,881.2028 E 1,719,411.1125
Delta = 10° 57' 01.21" (LT)
Degree = 63° 39' 43.12"
Tangent = 8.6266
Length = 17.2007
Radius = 90.0000
External = 0.4125
Long Chord = 17.1746
Mid. Ord. = 0.4106
P.C. Station 22+61.90 N 360,874.9010 E 1,719,405.2213
P.T. Station 22+79.10 N 360,888.5089 E 1,719,415.6994
C.C. N 360,936.3632 E 1,719,339.4764
Back = N 43° 04' 18.36" E
Ahead = N 32° 07' 17.15" E
Chord Bear = N 37° 35' 47.75" E

Course from PT WL61B_2-10 to PC WL61B_2-11 N 32° 07' 17.15" E Dist 49.3138

Curve Data
———

Curve WL61B_2-11
P.I. Station 23+38.99 N 360,939.2290 E 1,719,447.5425
Delta = 33° 37' 11.39" (RT)
Degree = 163° 42' 08.02"
Tangent = 10.5737
Length = 20.5372
Radius = 35.0000
External = 1.5623
Long Chord = 20.2438
Mid. Ord. = 1.4956
P.C. Station 23+28.42 N 360,930.2738 E 1,719,441.9203
P.T. Station 23+48.96 N 360,943.5733 E 1,719,457.1826
C.C. N 360,911.6638 E 1,719,471.5626
Back = N 32° 07' 17.15" E
Ahead = N 65° 44' 28.54" E
Chord Bear = N 48° 55' 52.84" E

Course from PT WL61B_2-11 to PC WL61B_2-12 N 65° 44' 28.54" E Dist 12.8717

Curve Data
———

Curve WL61B_2-12
P.I. Station 23+72.86 N 360,953.3928 E 1,719,478.9722
Delta = 34° 58' 43.46" (RT)
Degree = 163° 42' 08.02"
Tangent = 11.0283
Length = 21.3673
Radius = 35.0000
External = 1.6964
Long Chord = 21.0370
Mid. Ord. = 1.6180
P.C. Station 23+61.83 N 360,948.8617 E 1,719,468.9177
P.T. Station 23+83.19 N 360,951.3414 E 1,719,489.8080
C.C. N 360,916.9522 E 1,719,483.2977
Back = N 65° 44' 28.54" E
Ahead = S 79° 16' 48.00" E
Chord Bear = N 83° 13' 50.27" E

Course from PT WL61B_2-12 to 501231 S 73° 30' 34.23" E Dist 93.4635

Point 501231 N 360,924.8112 E 1,719,579.4271 Sta 24+76.66

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Ending chain WL61B_2 description

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Wetland Mitigation Site
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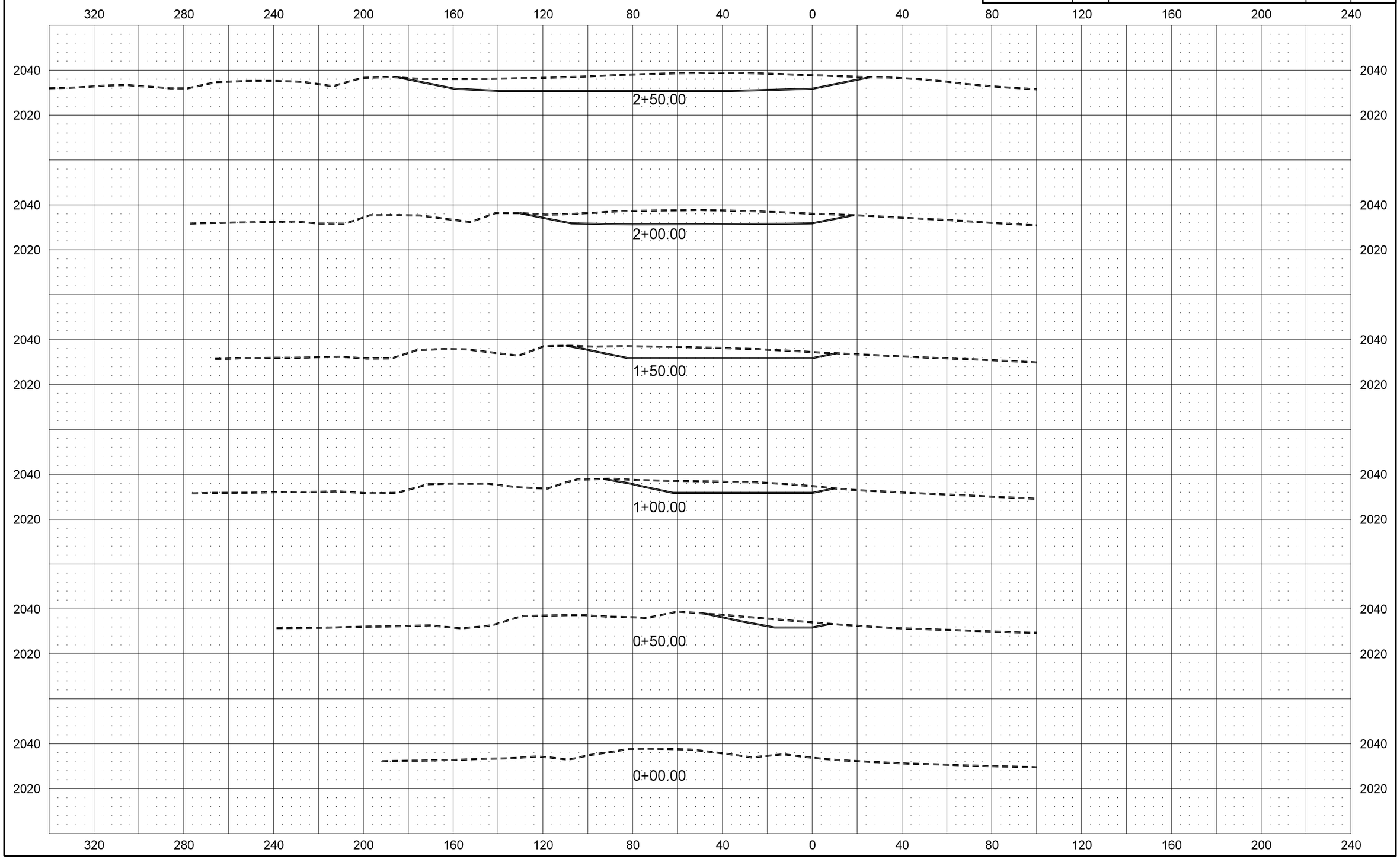
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	170

Wetland 59a



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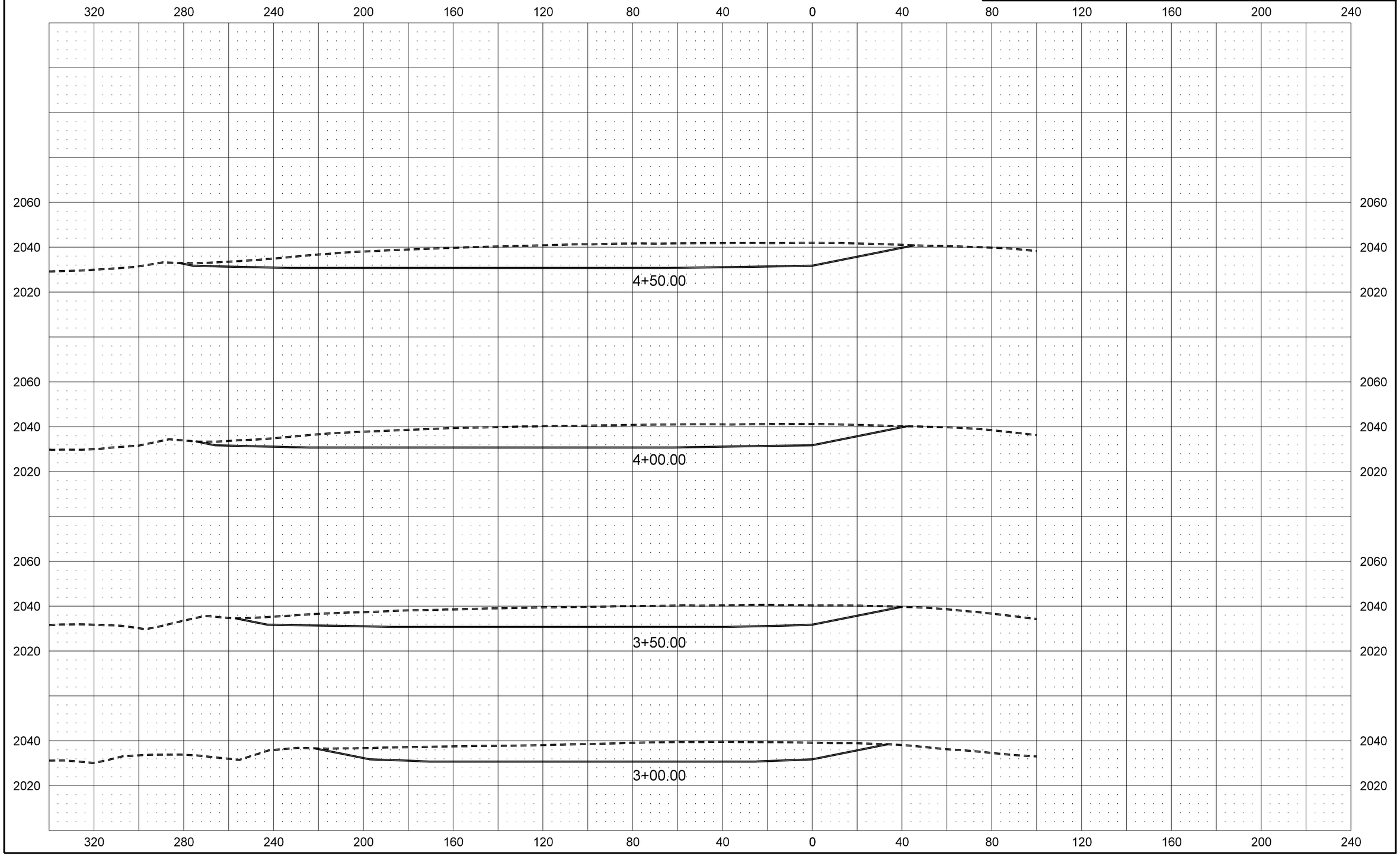

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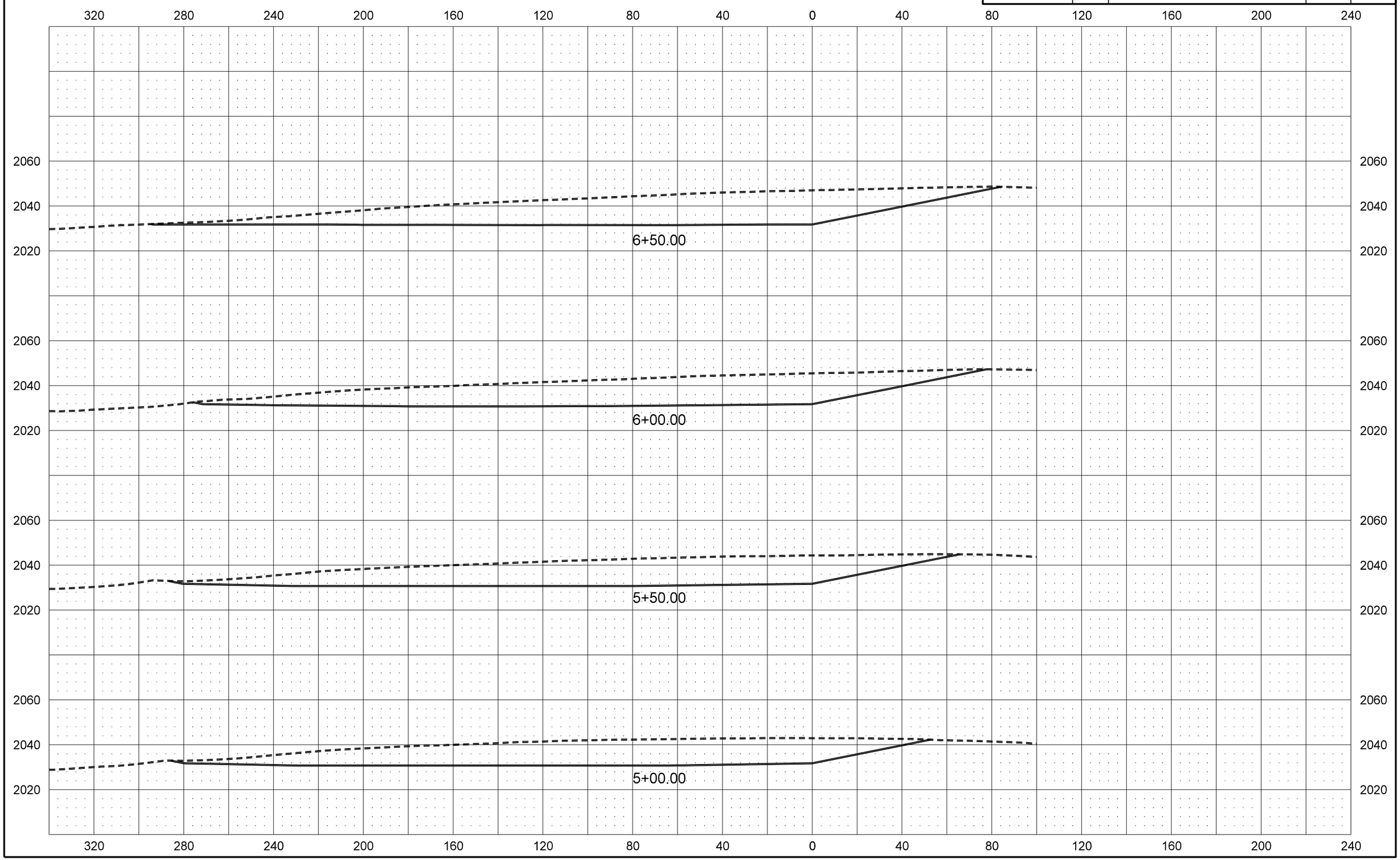

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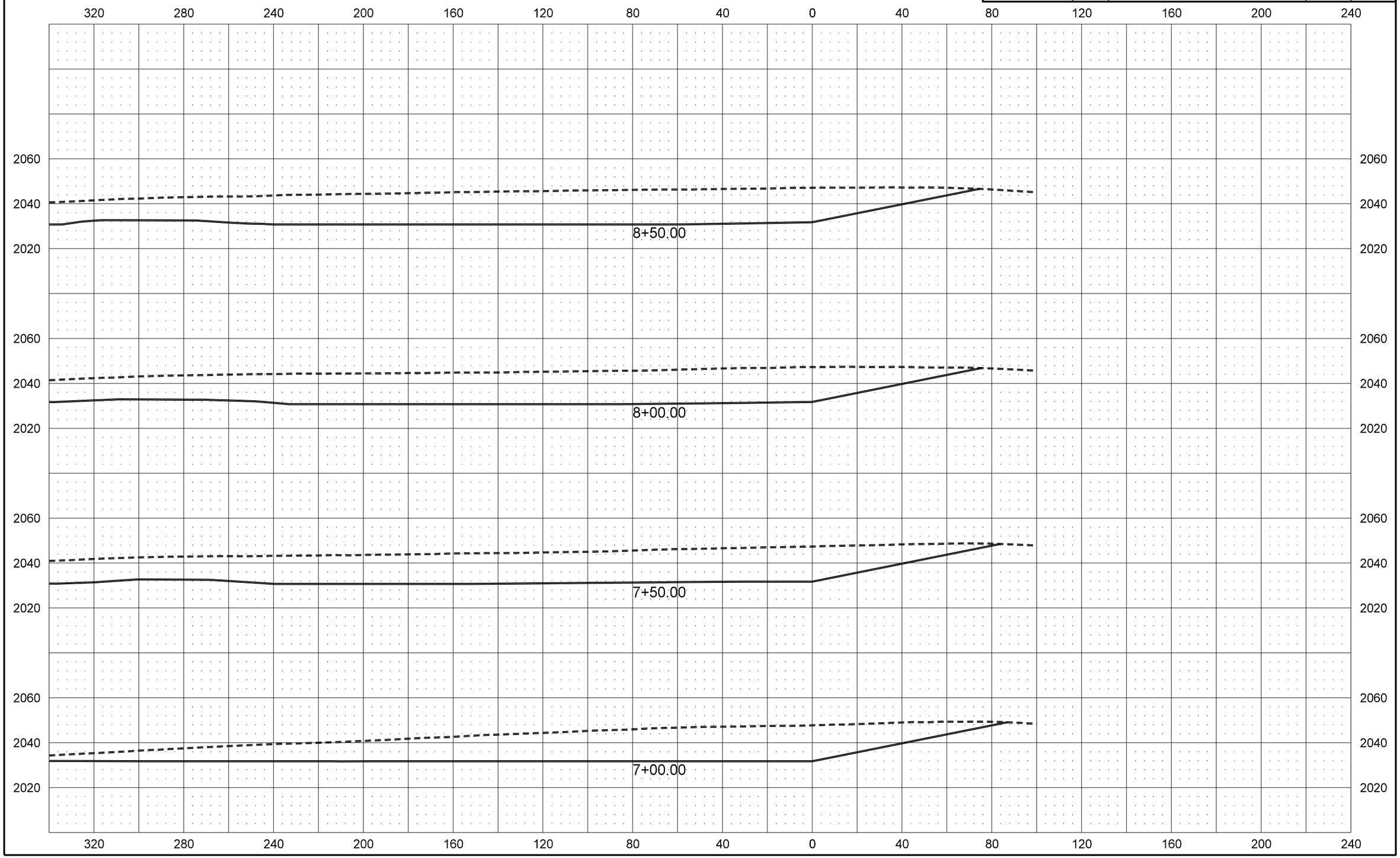

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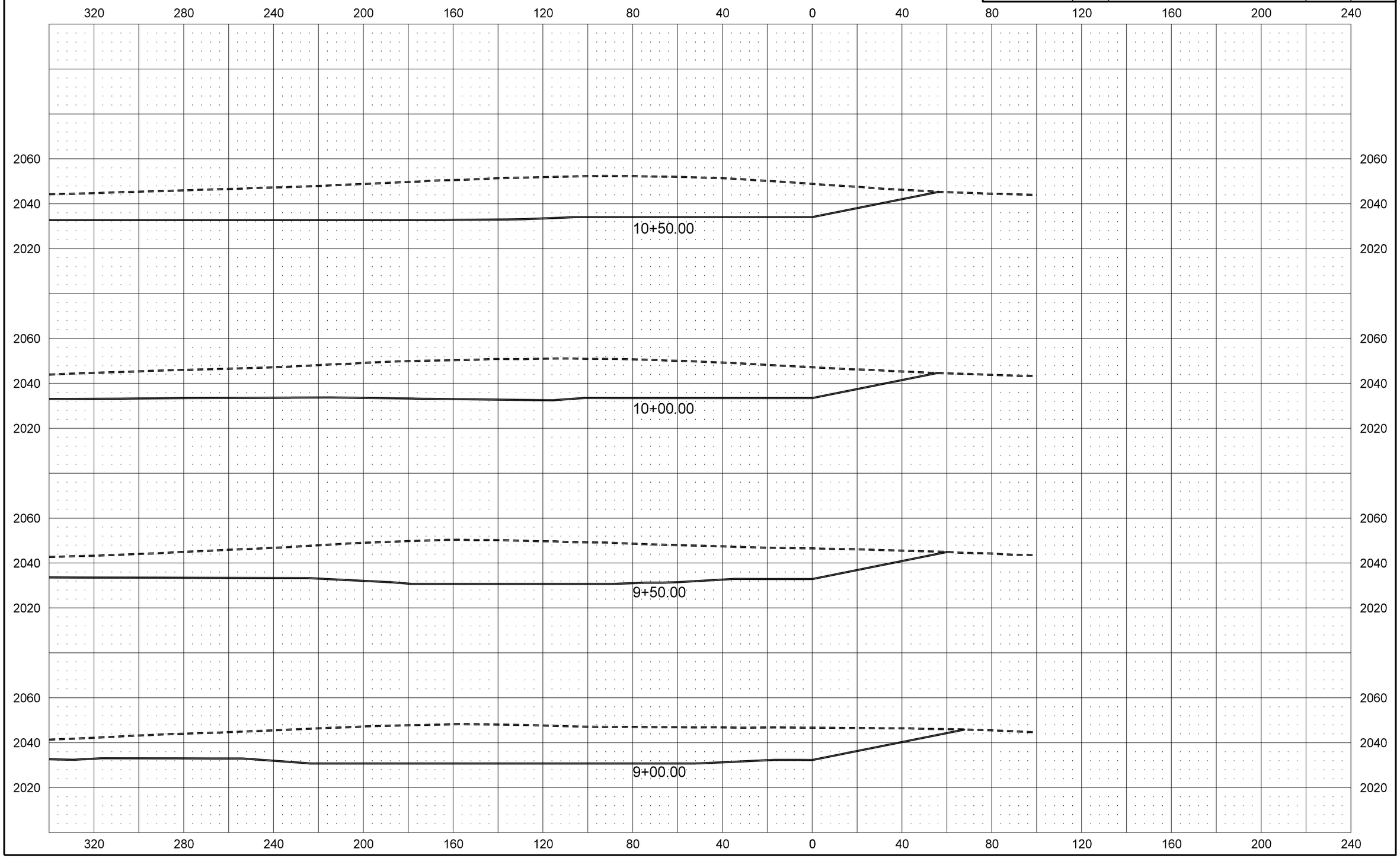

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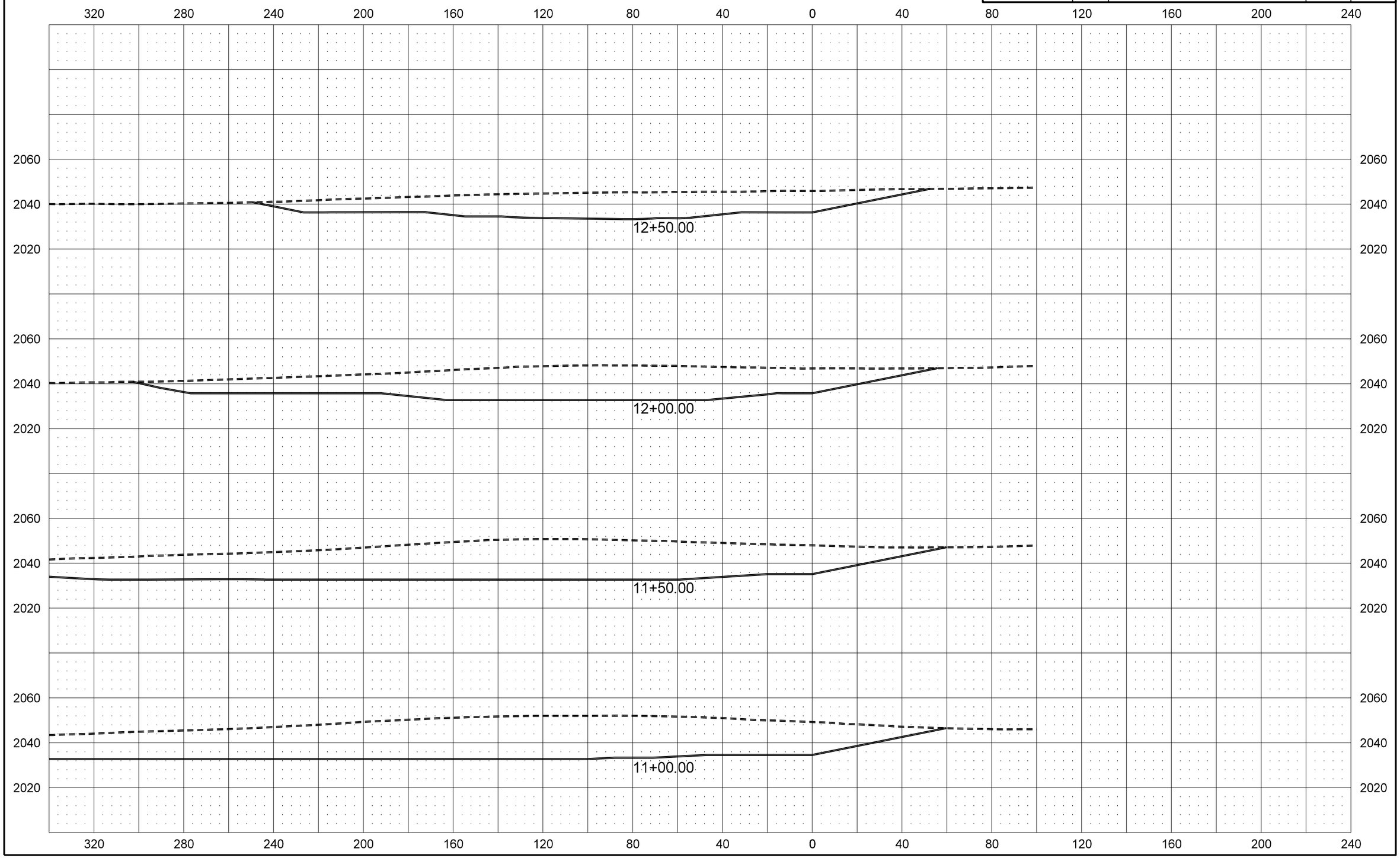

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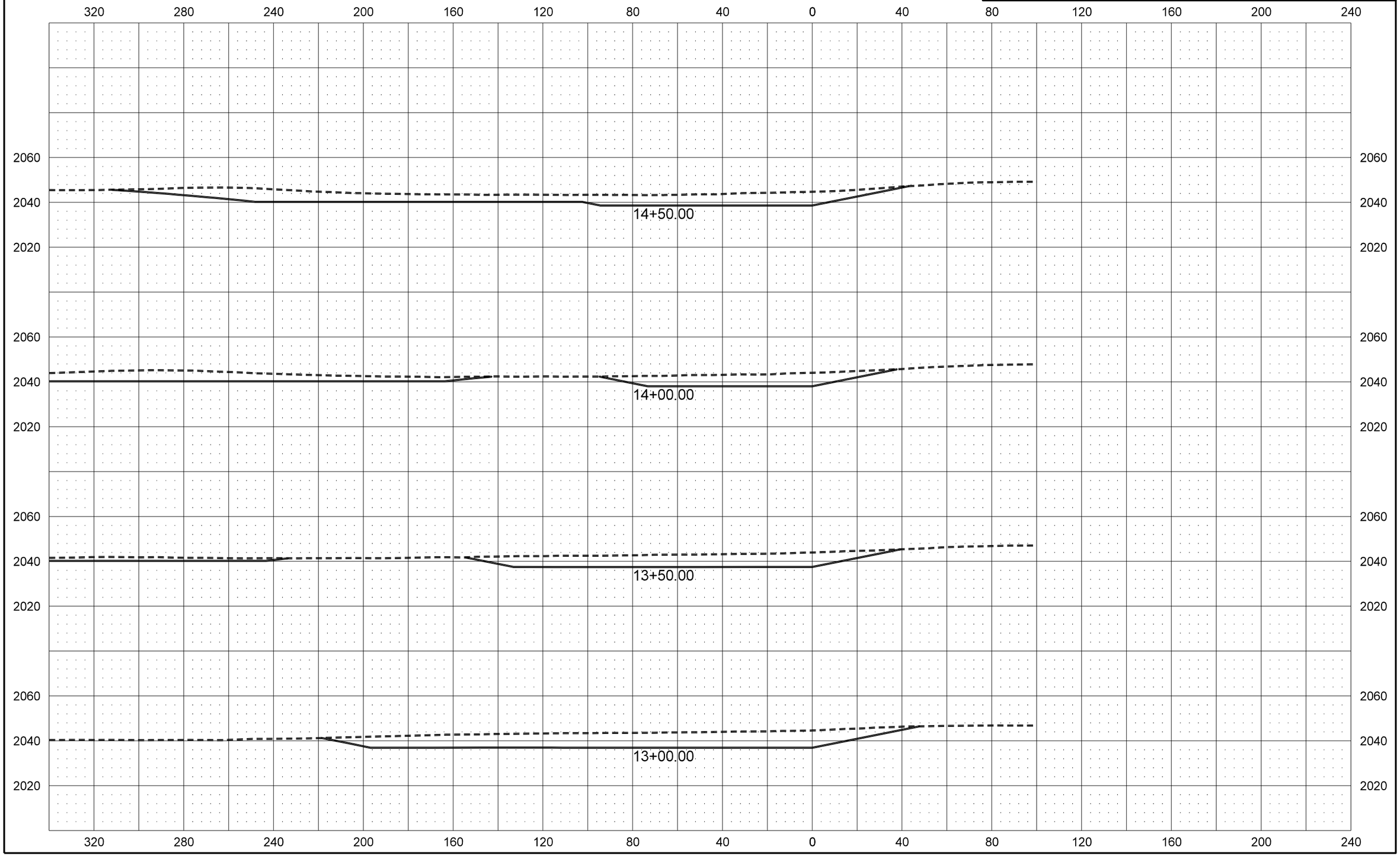
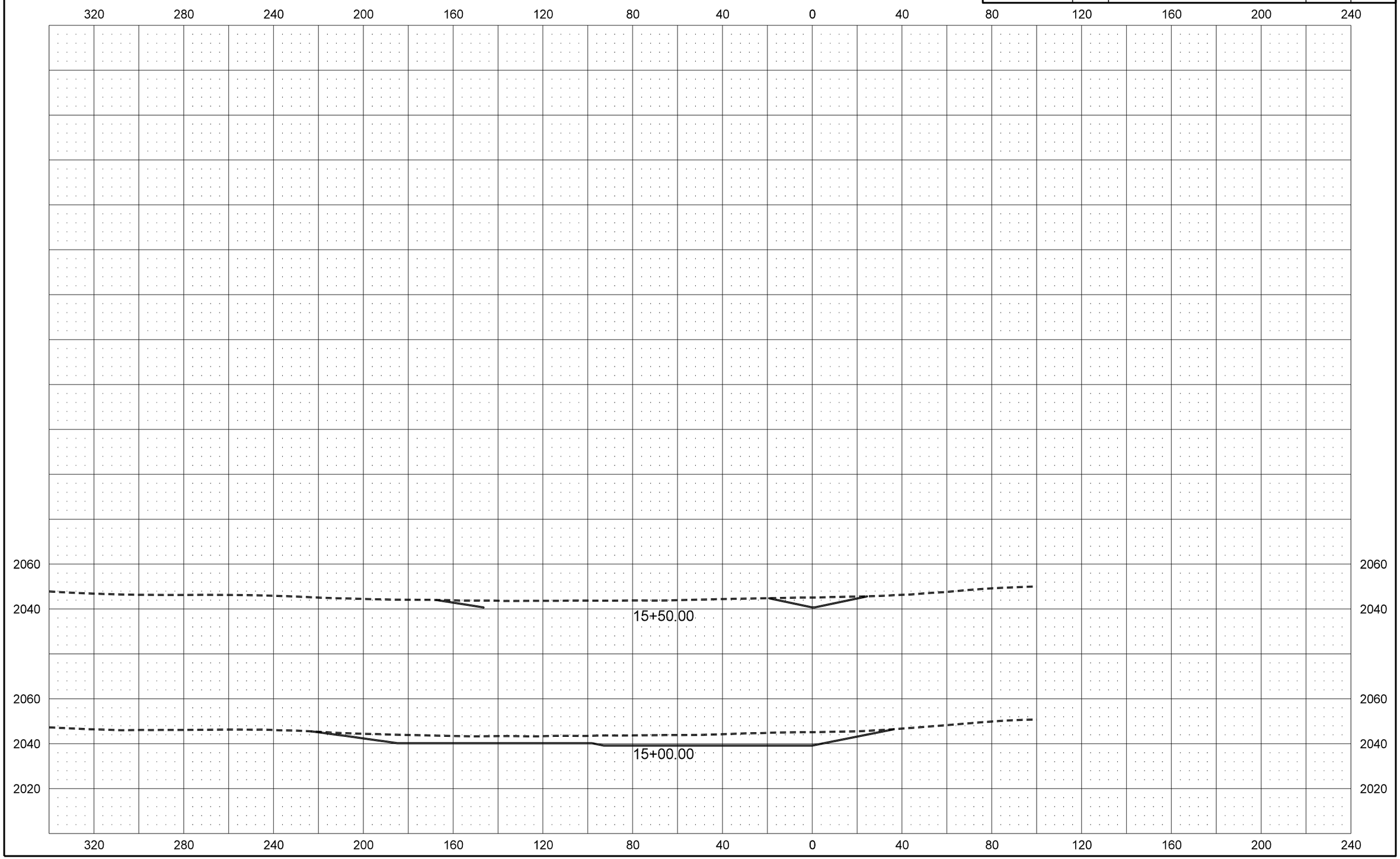
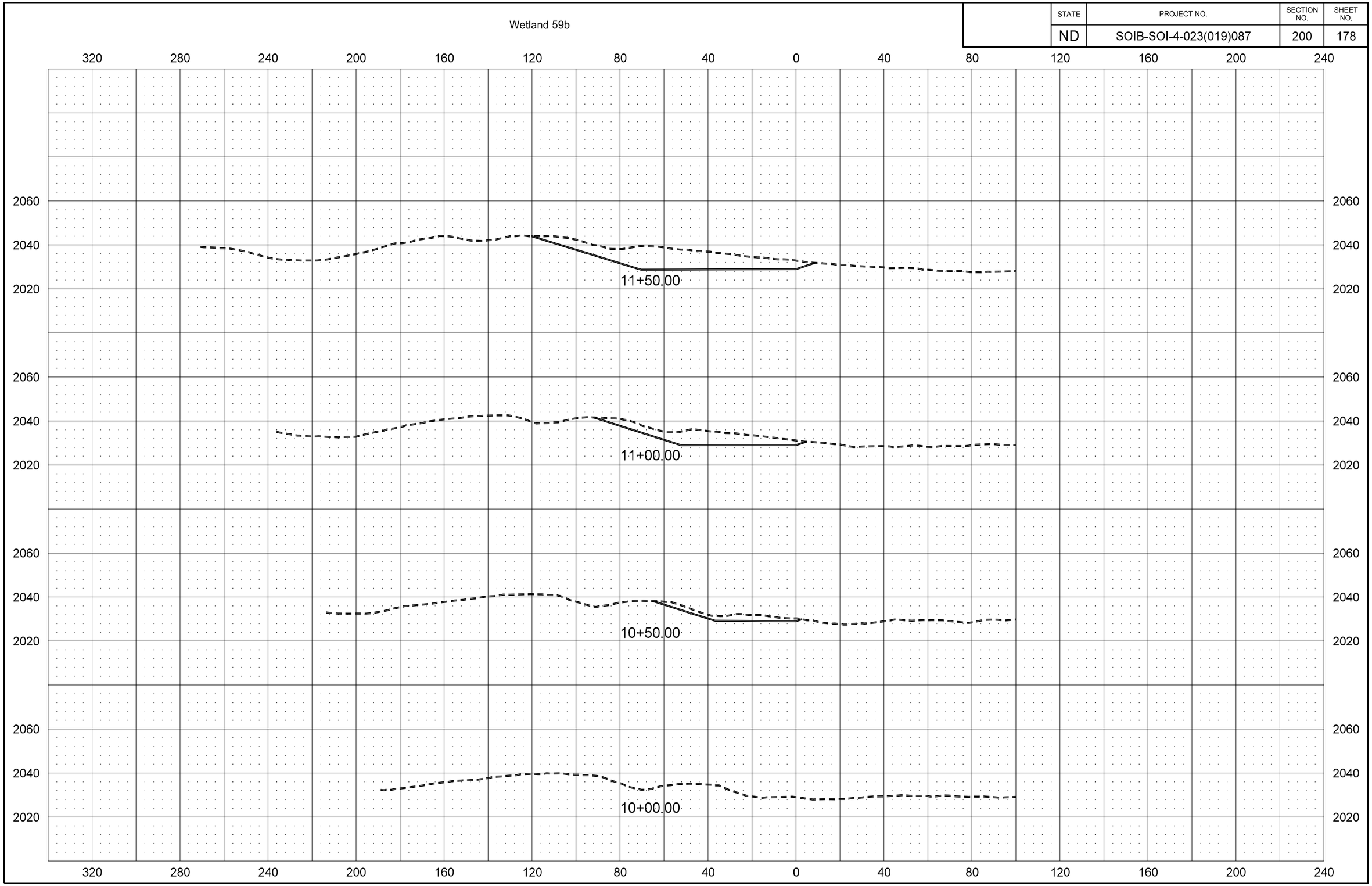


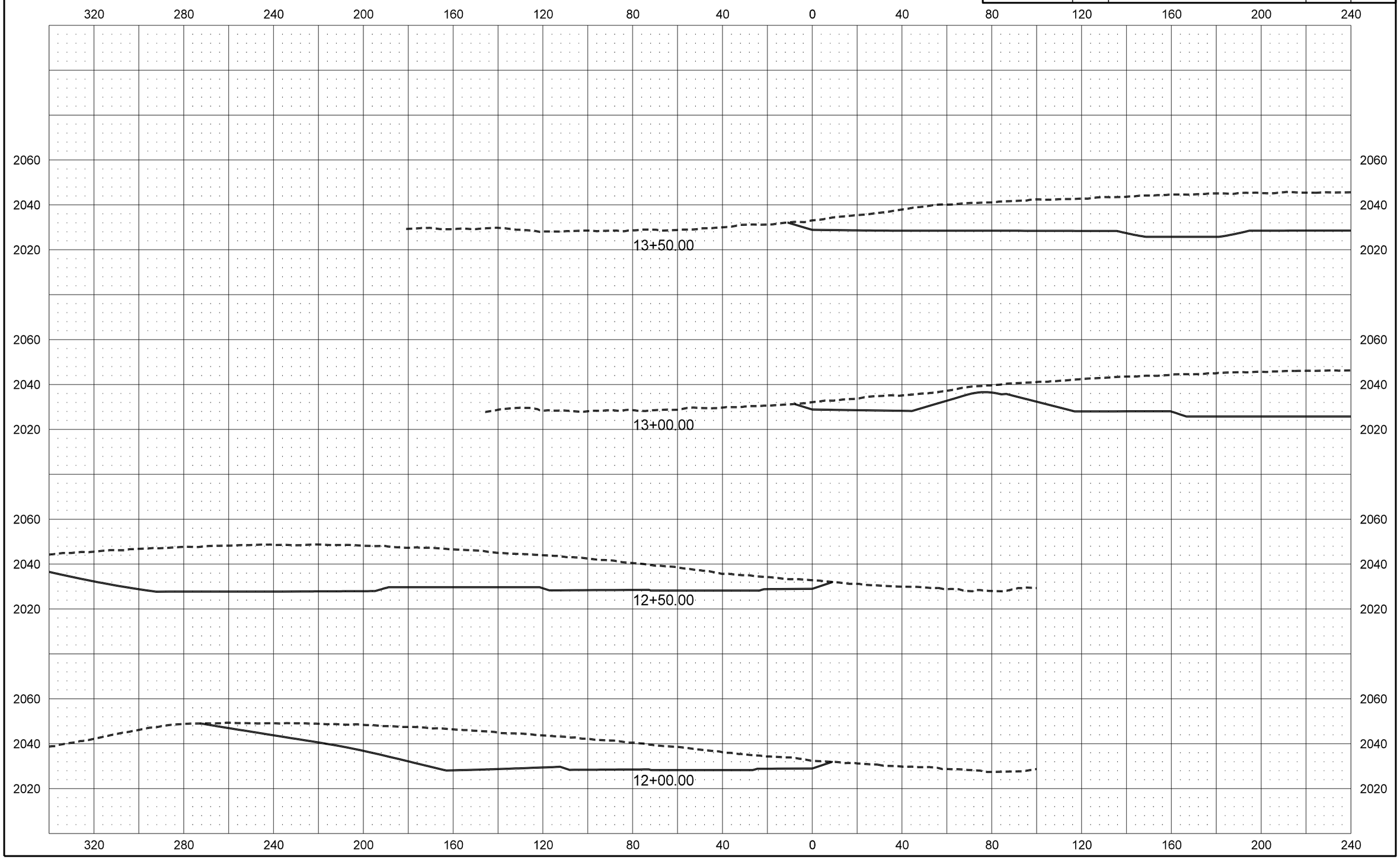
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	177



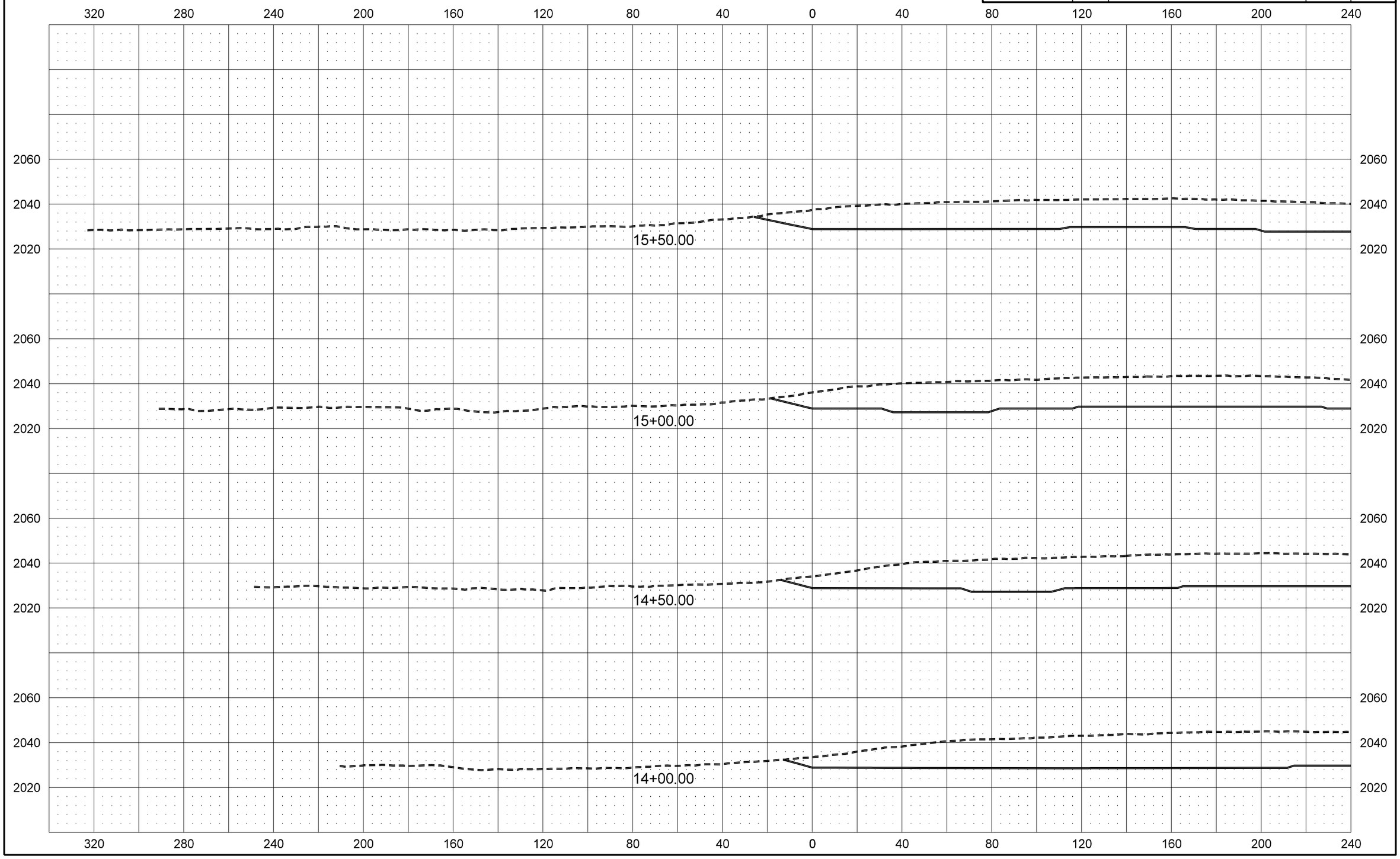
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	178



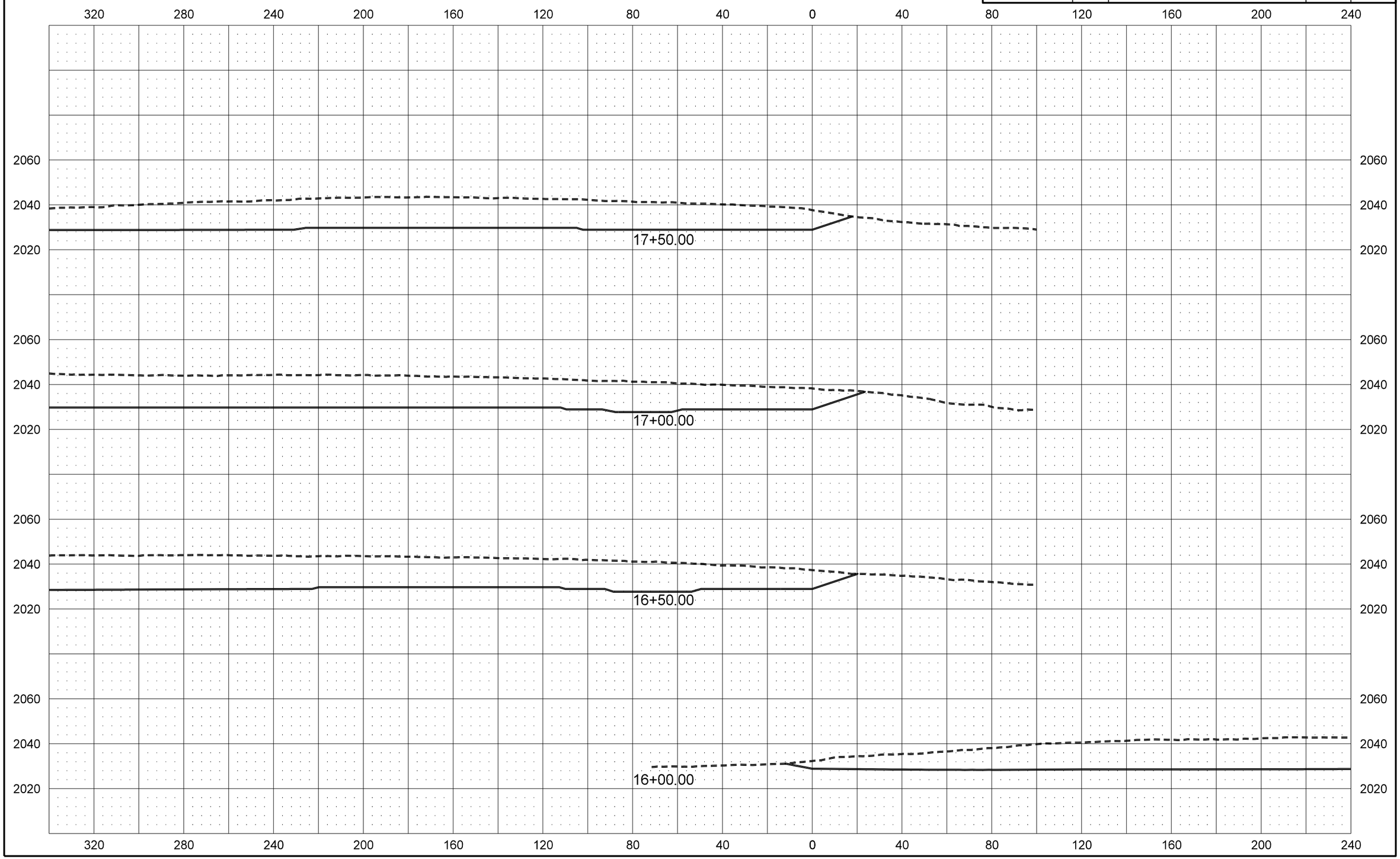
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	179



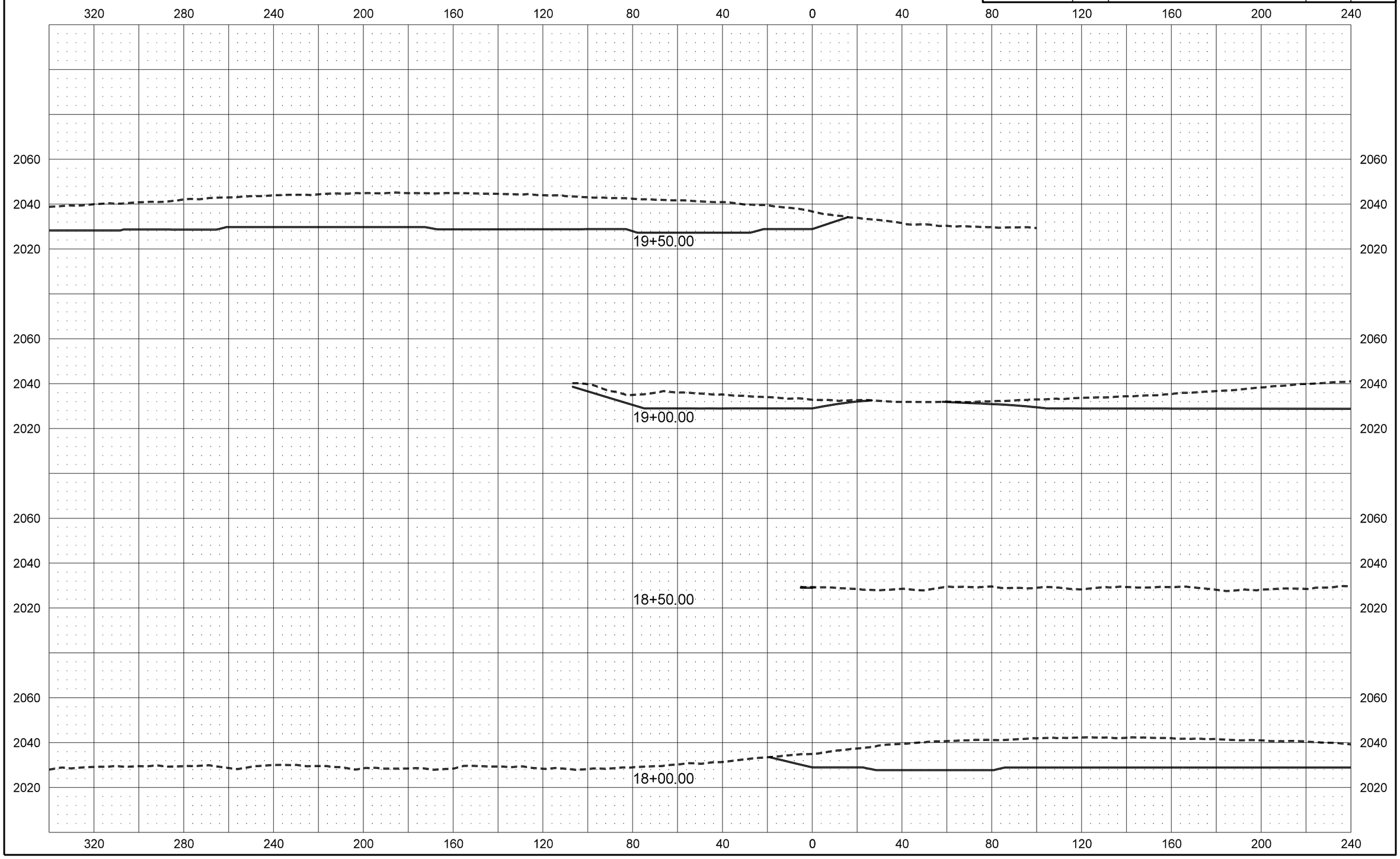
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	180



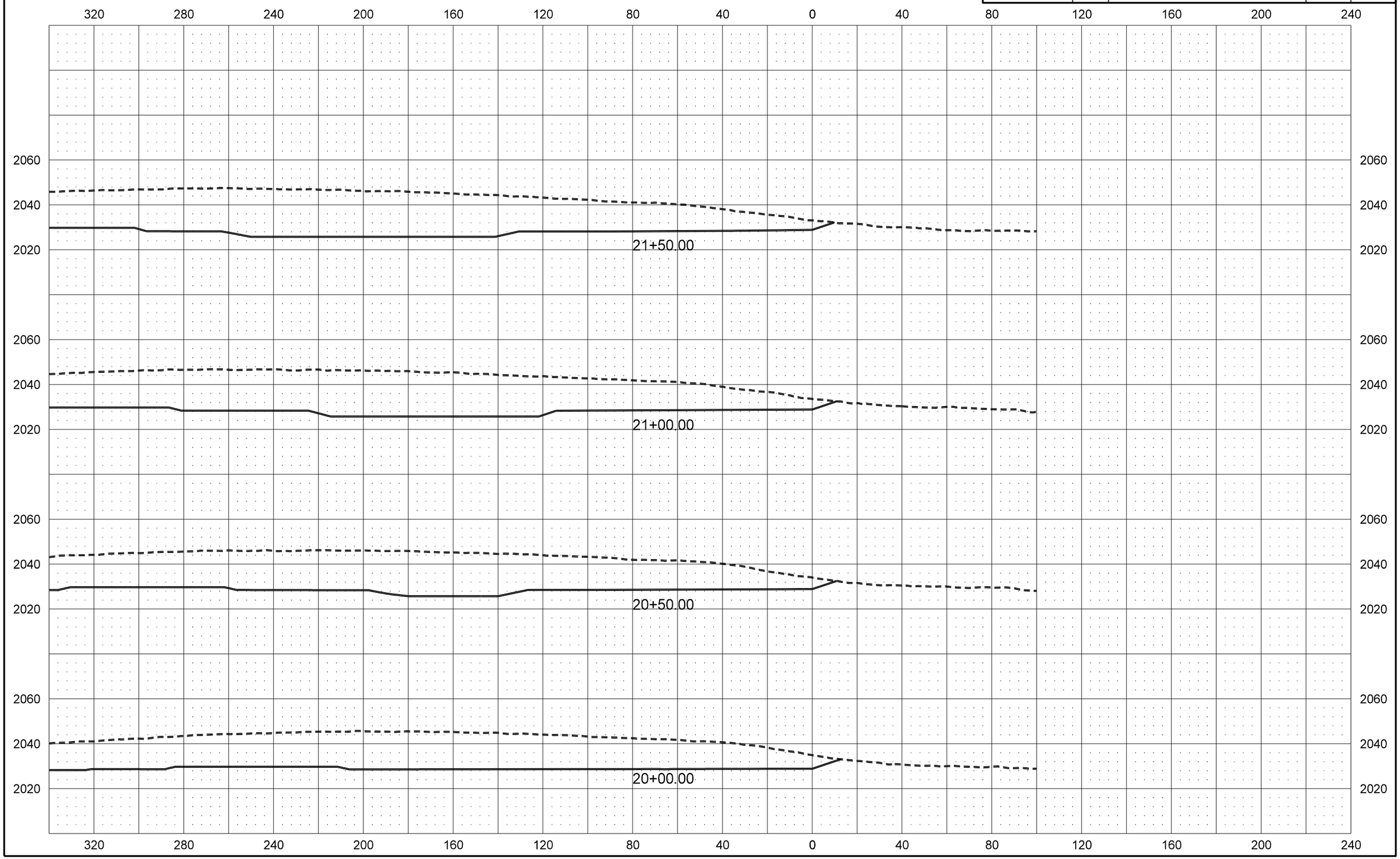
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	181



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	182



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	183



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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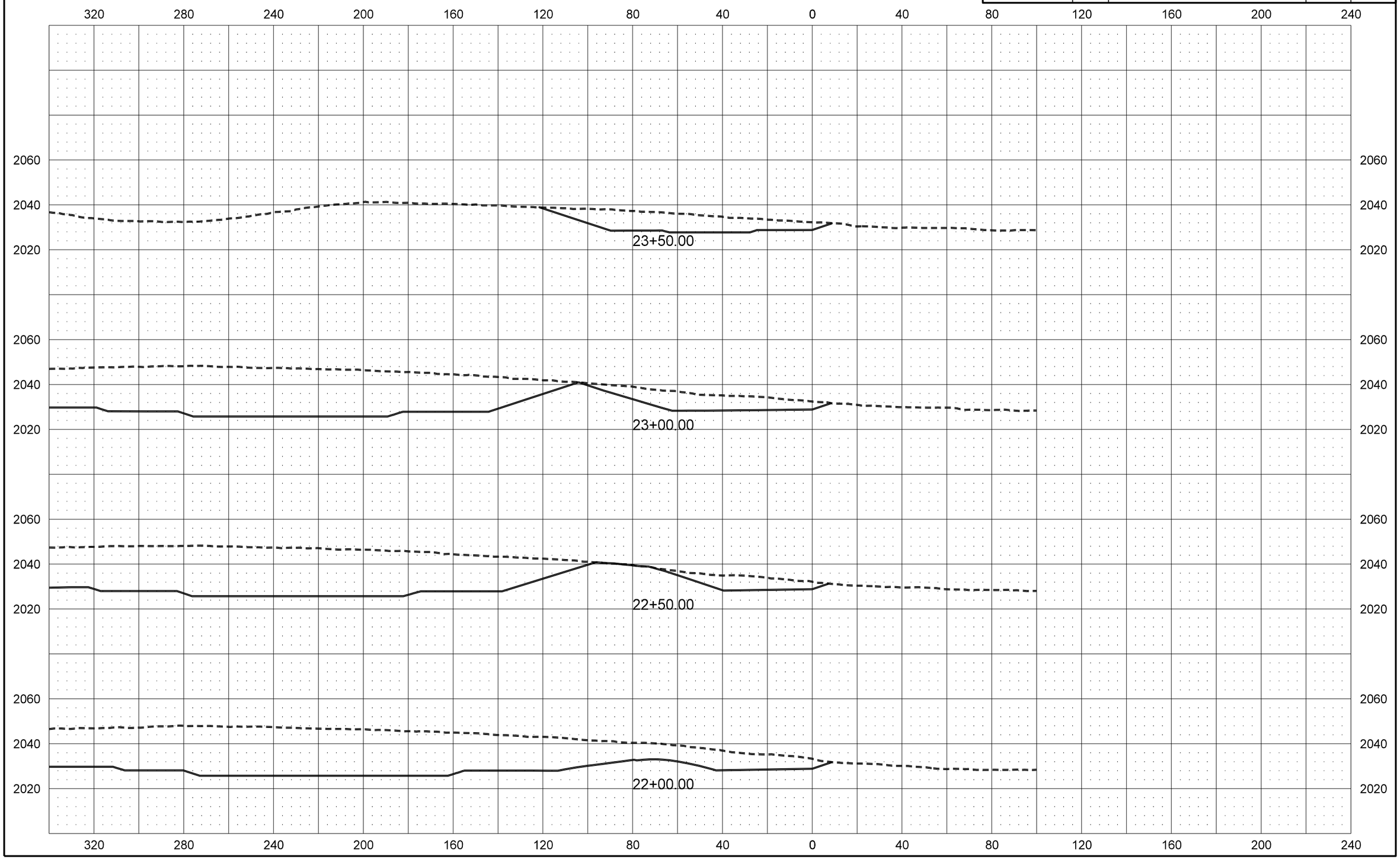

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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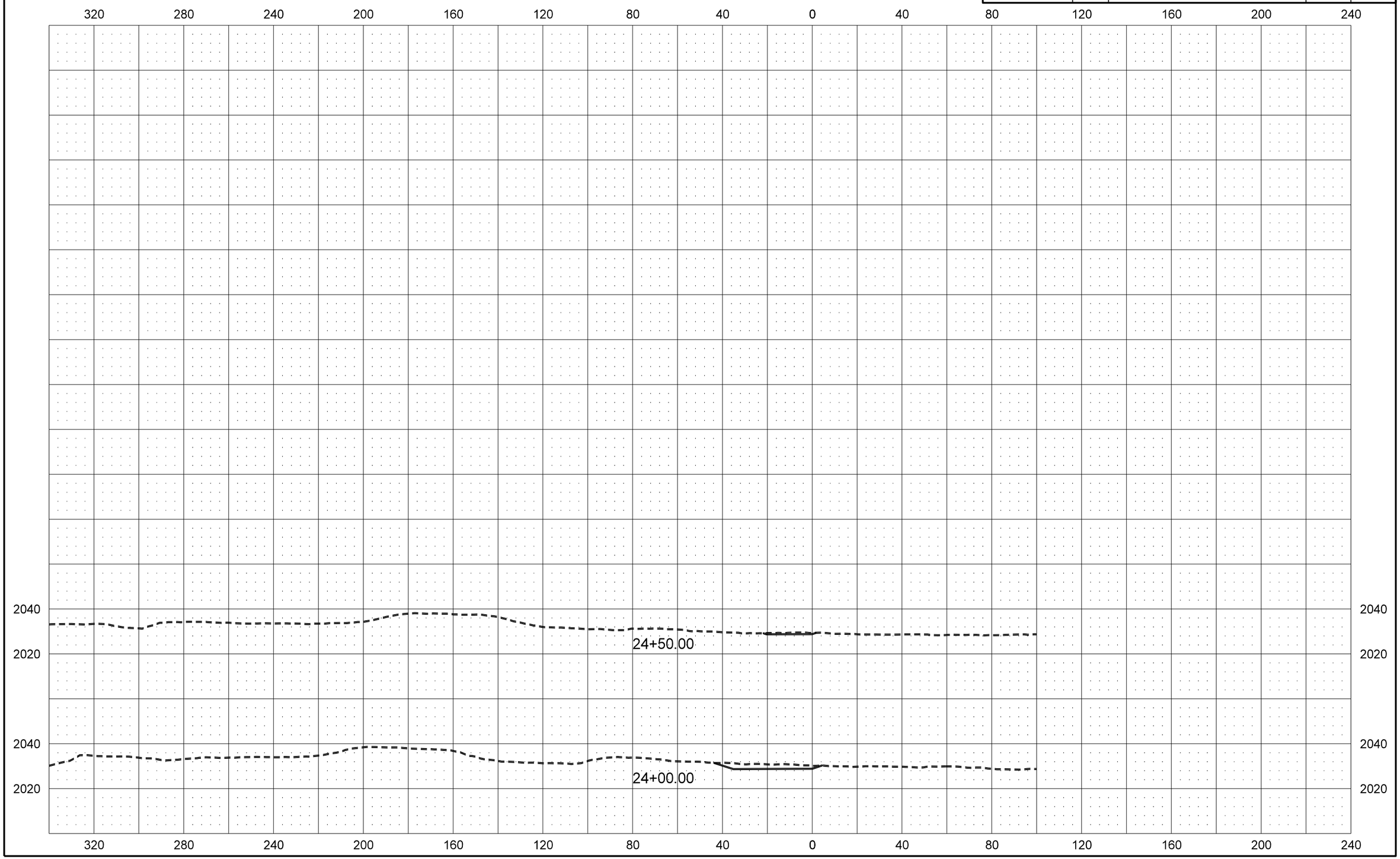
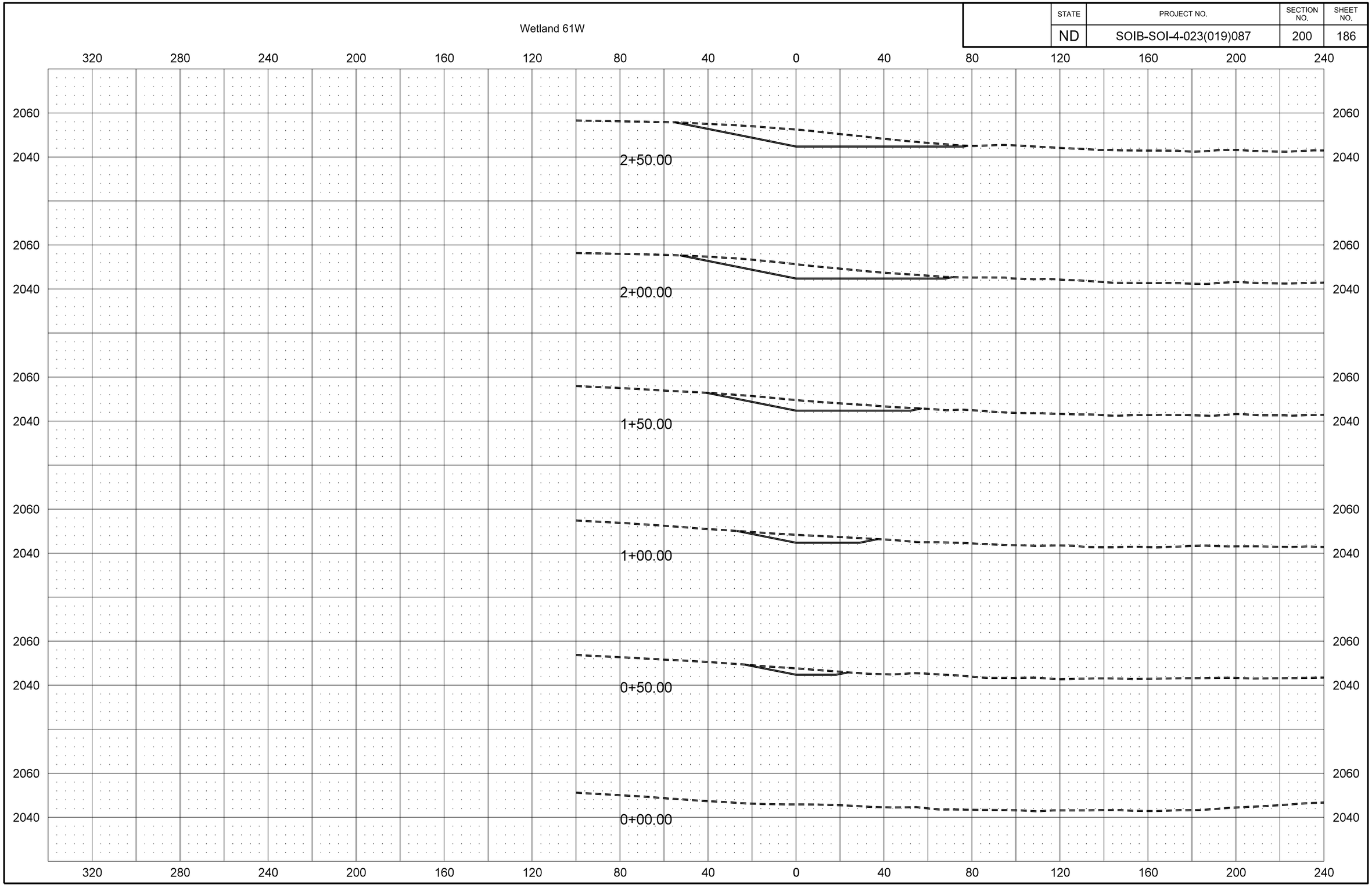
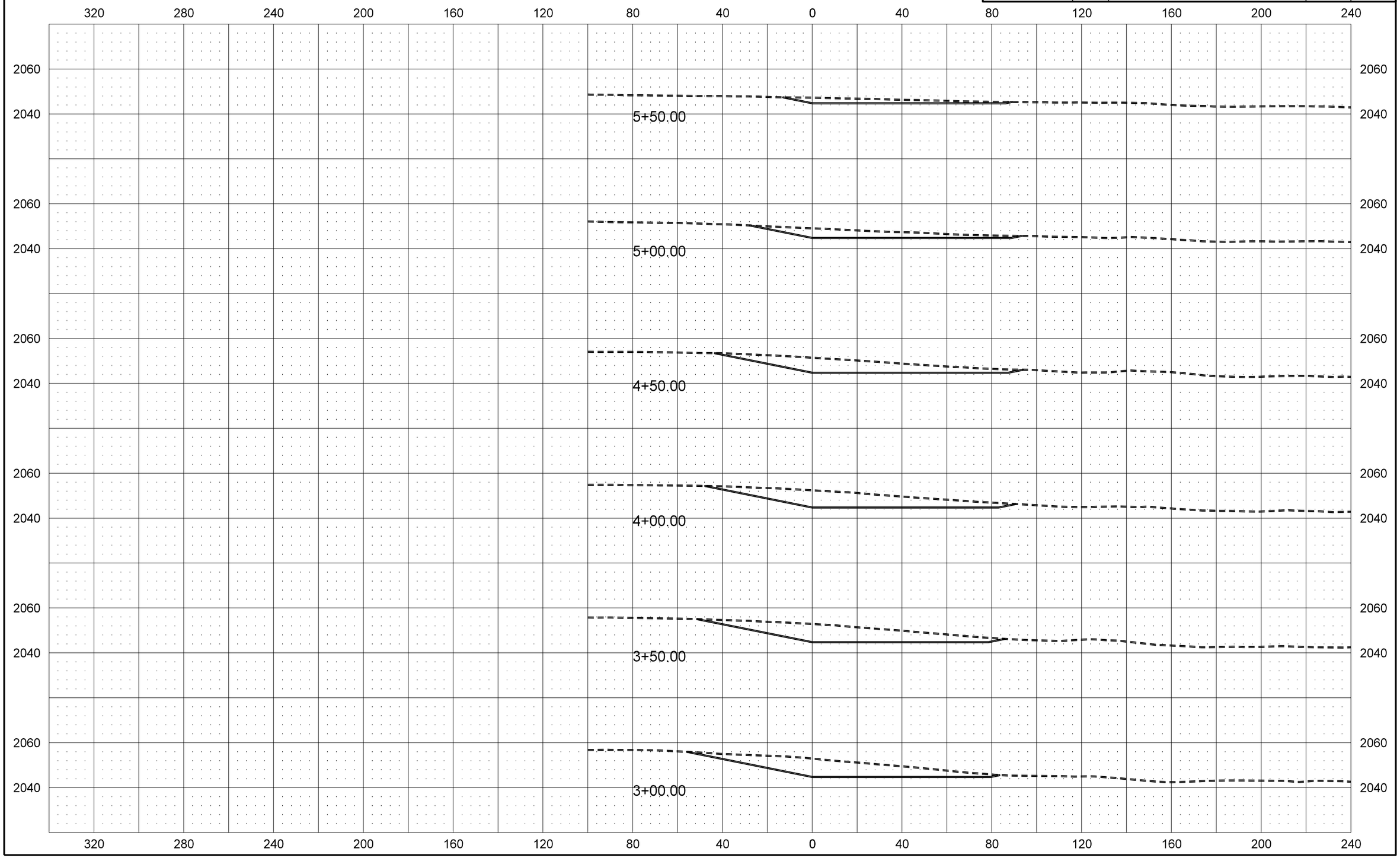


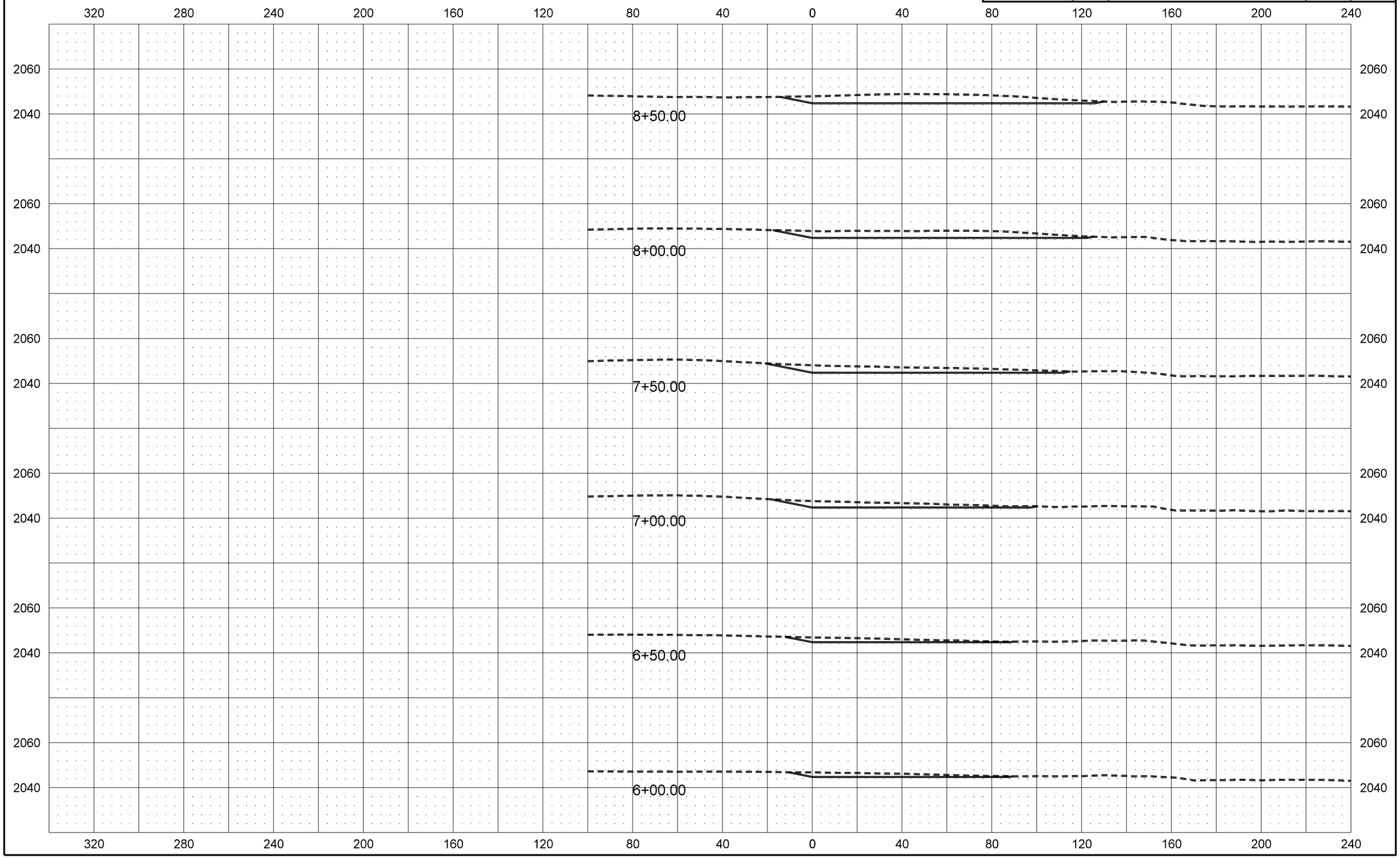
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	186



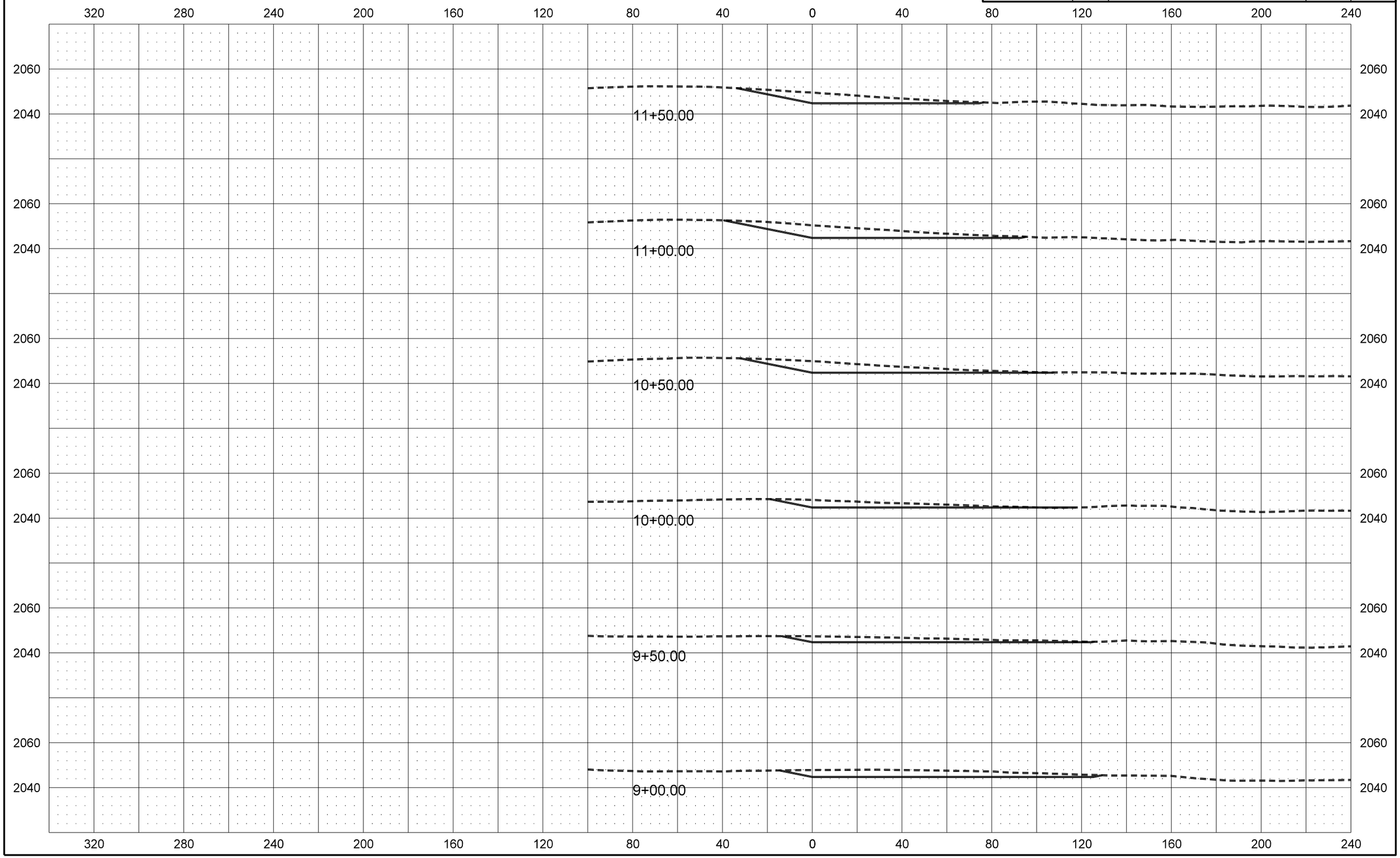
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	187



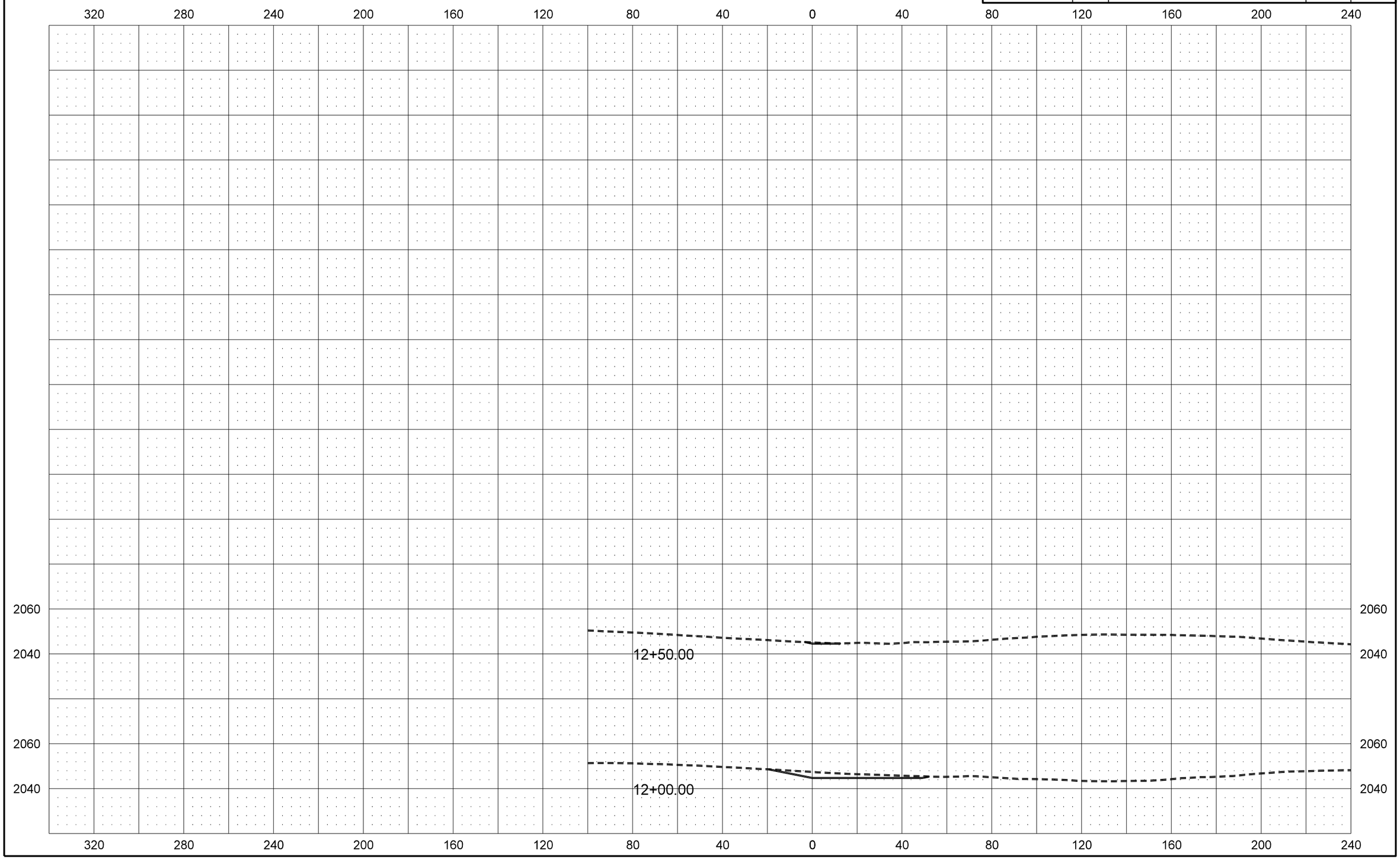
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	188



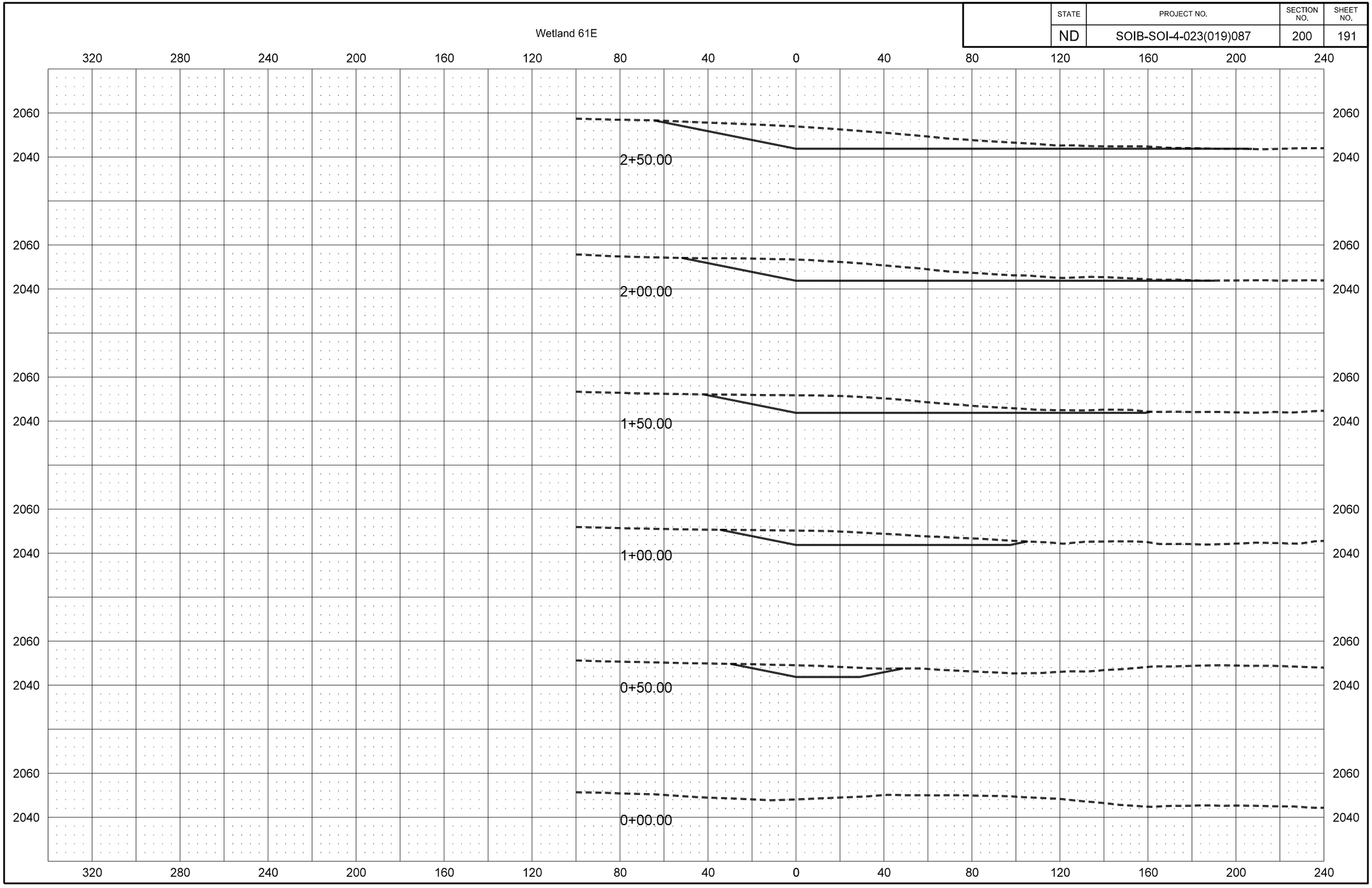
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	189



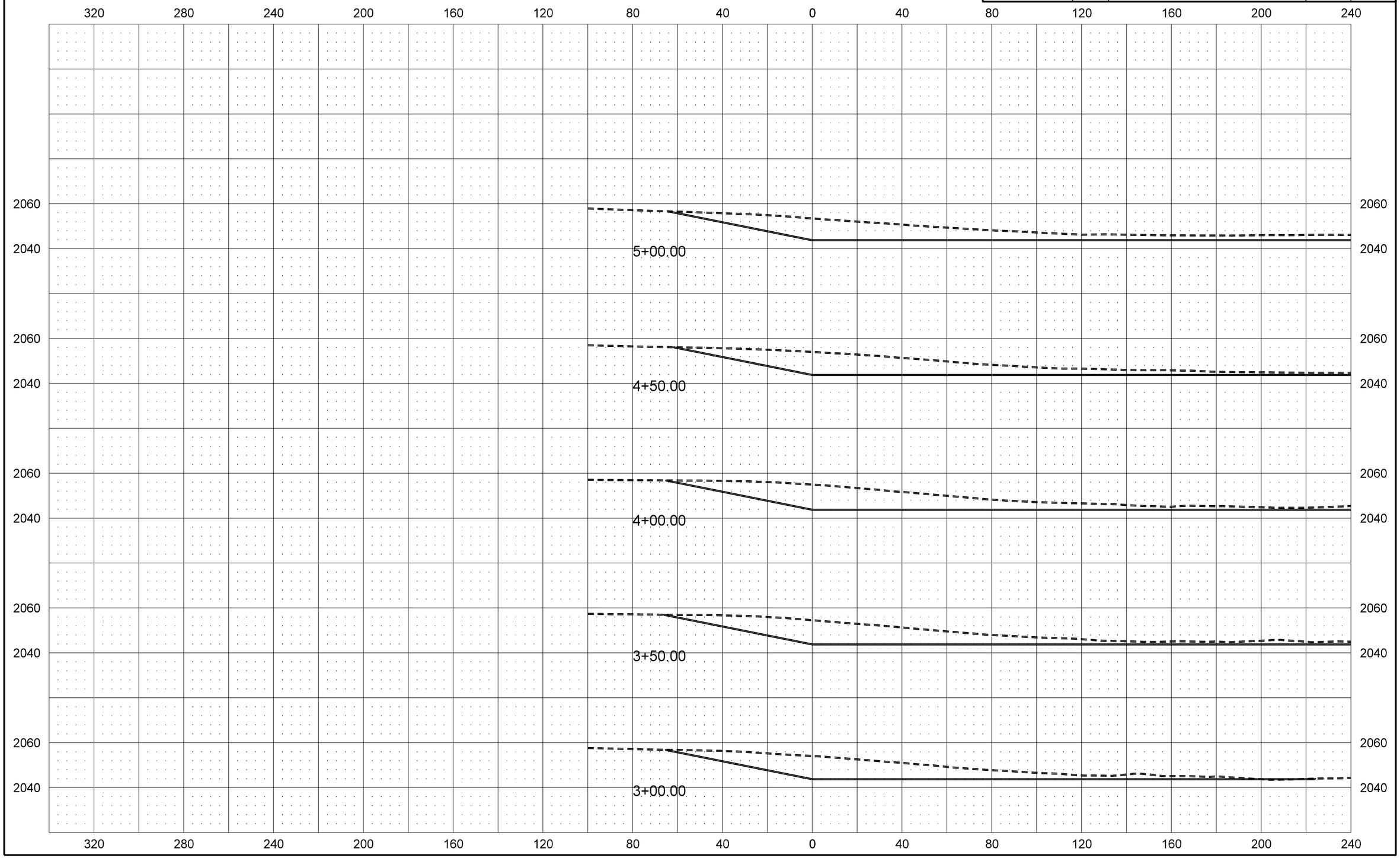
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	190



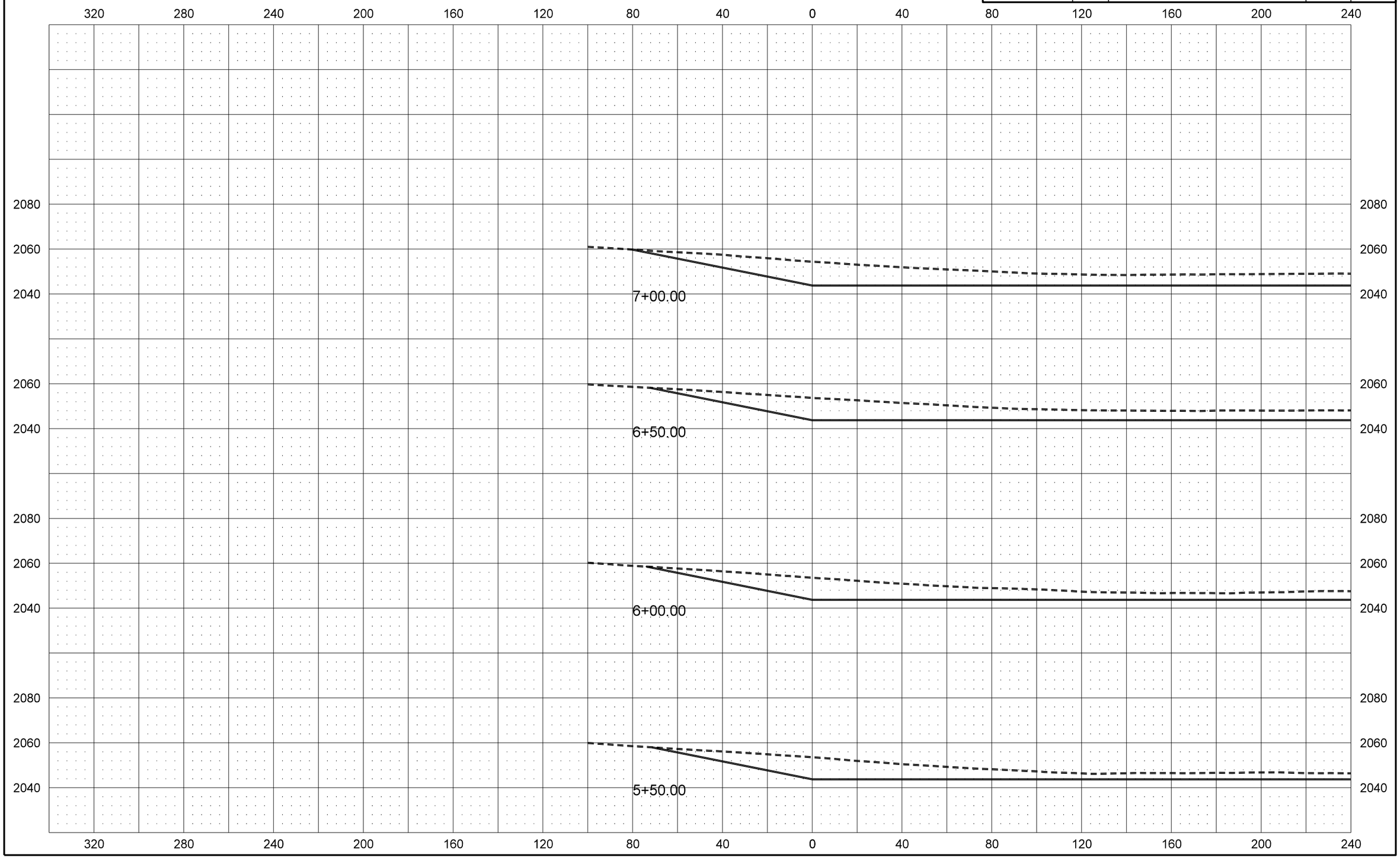
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	191



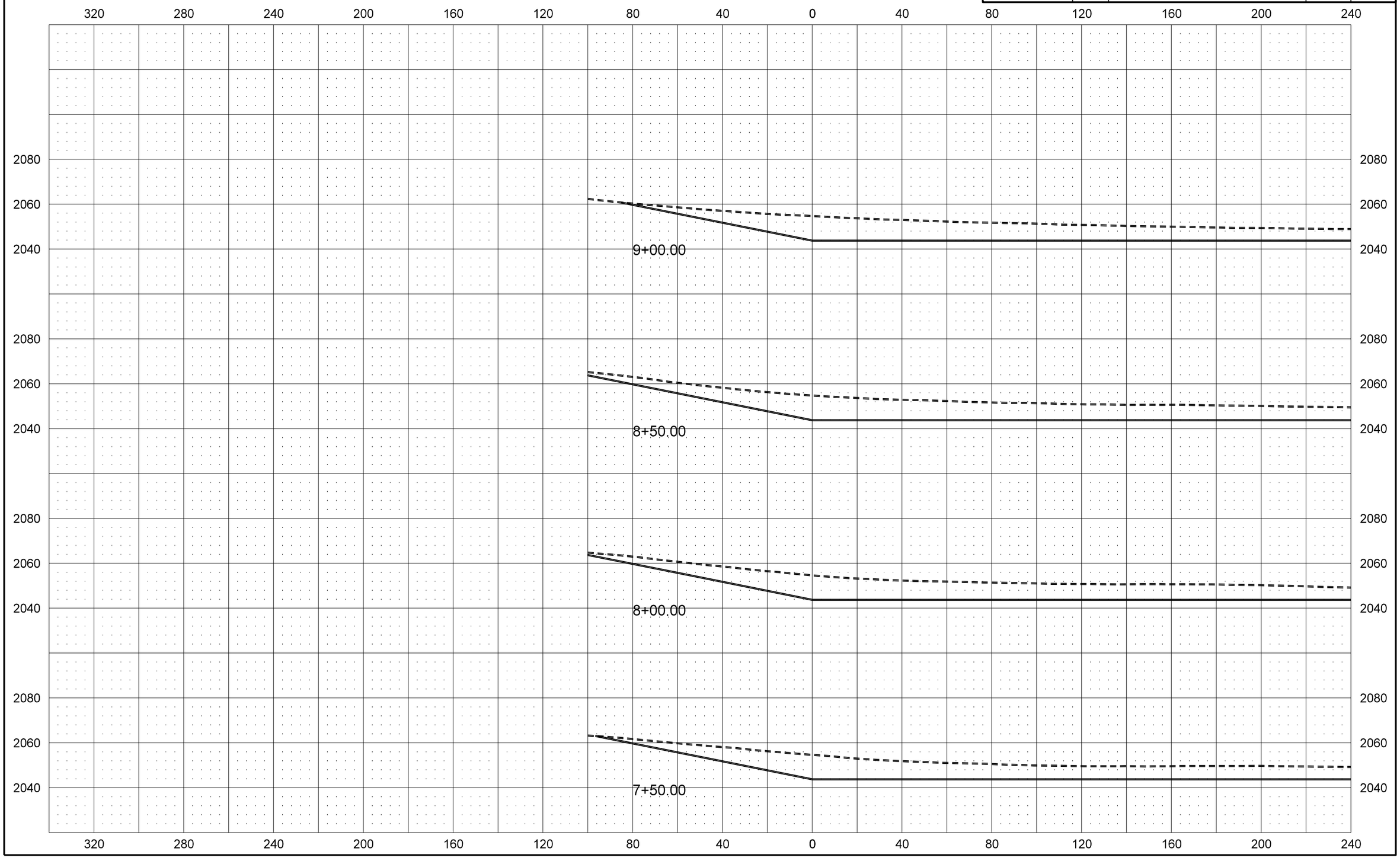
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	192



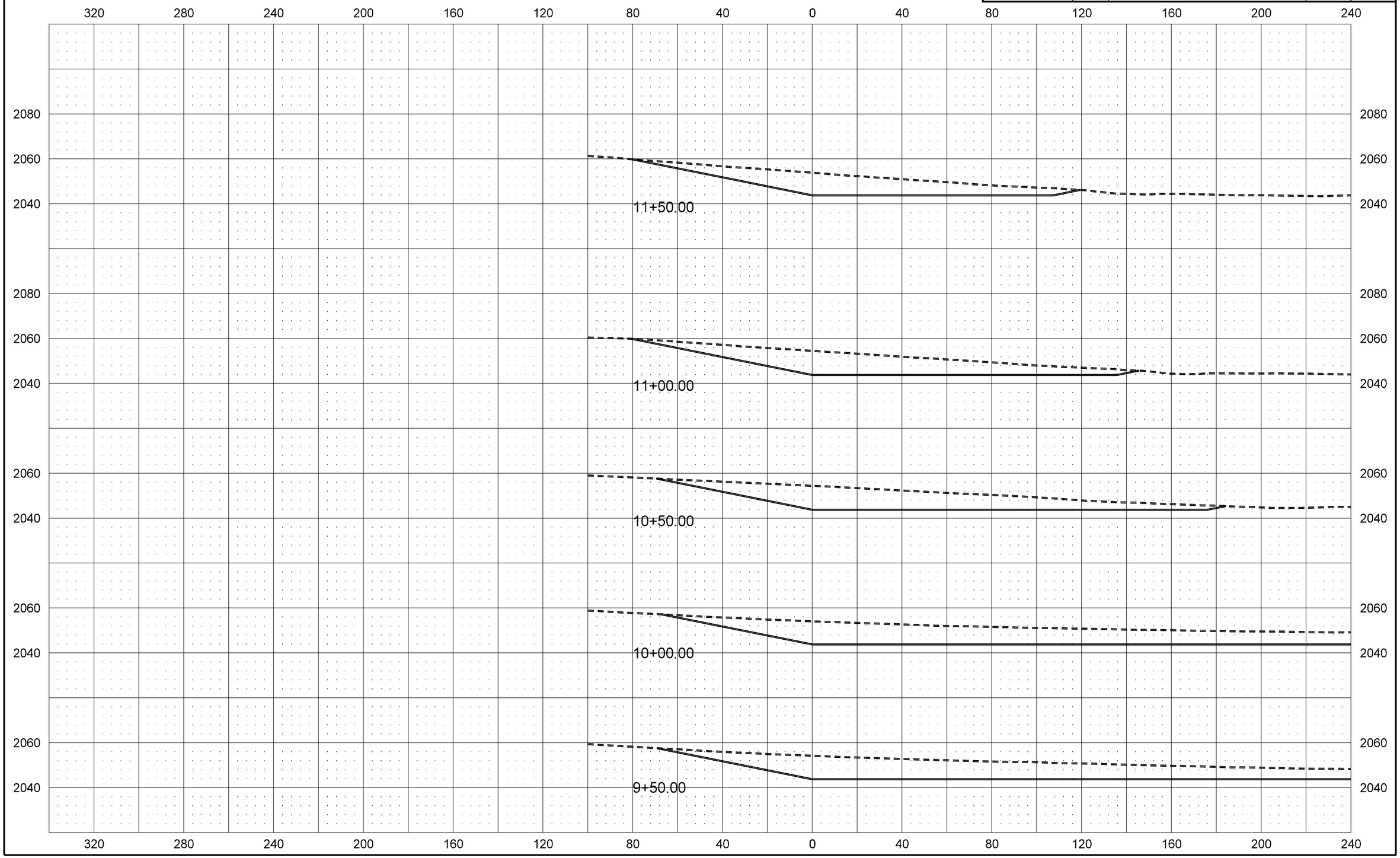
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	193



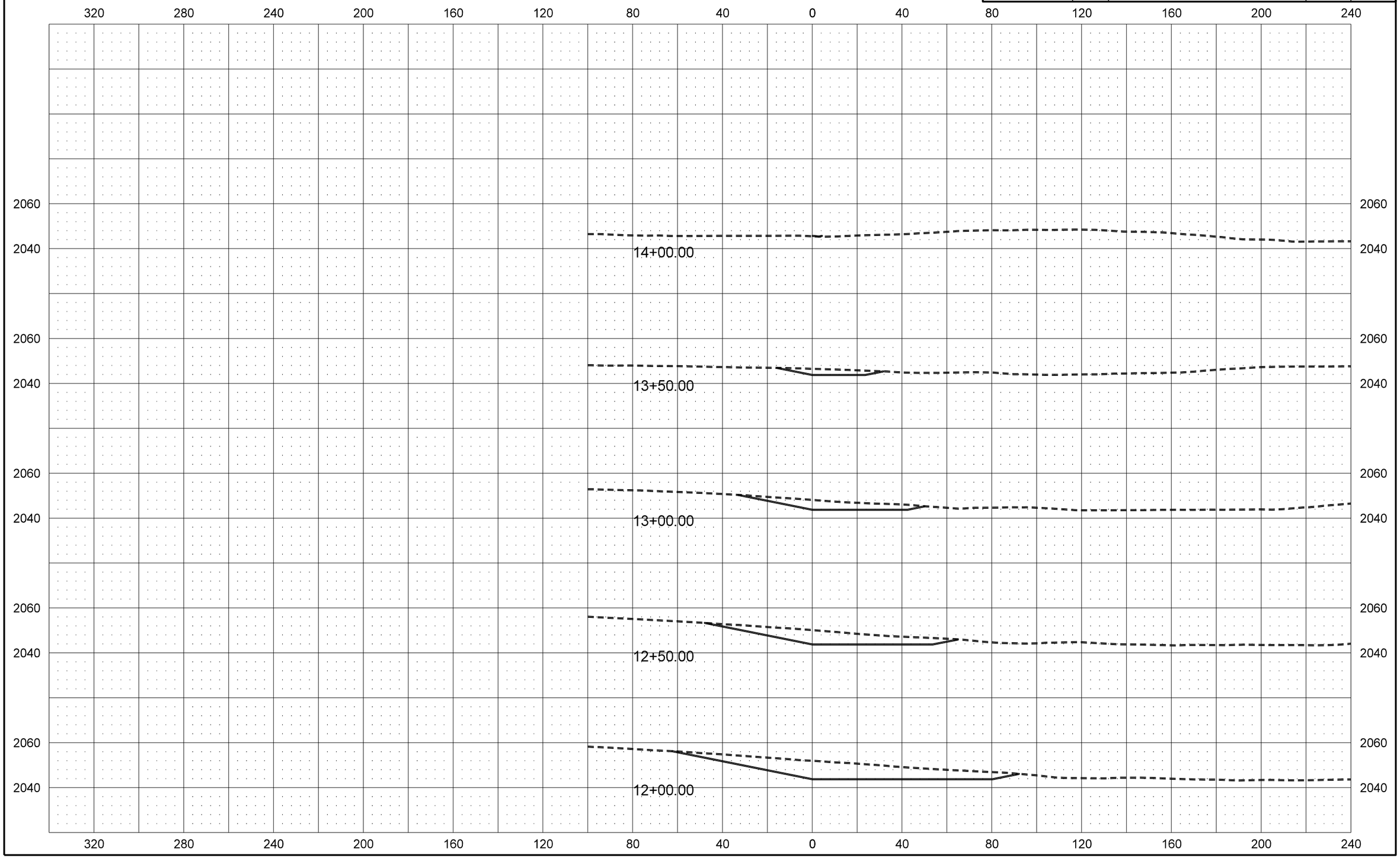
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	194



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	195

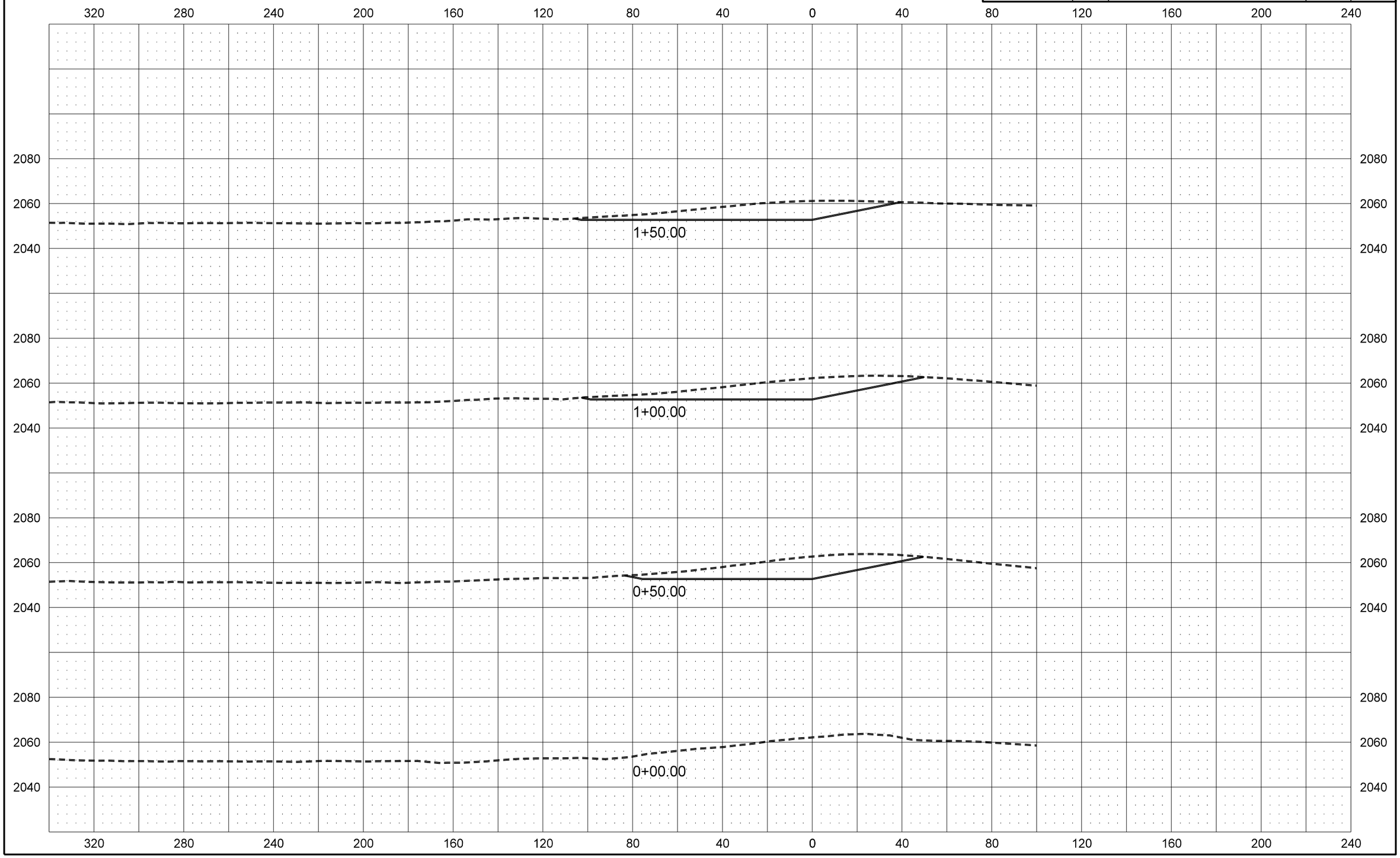


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	196



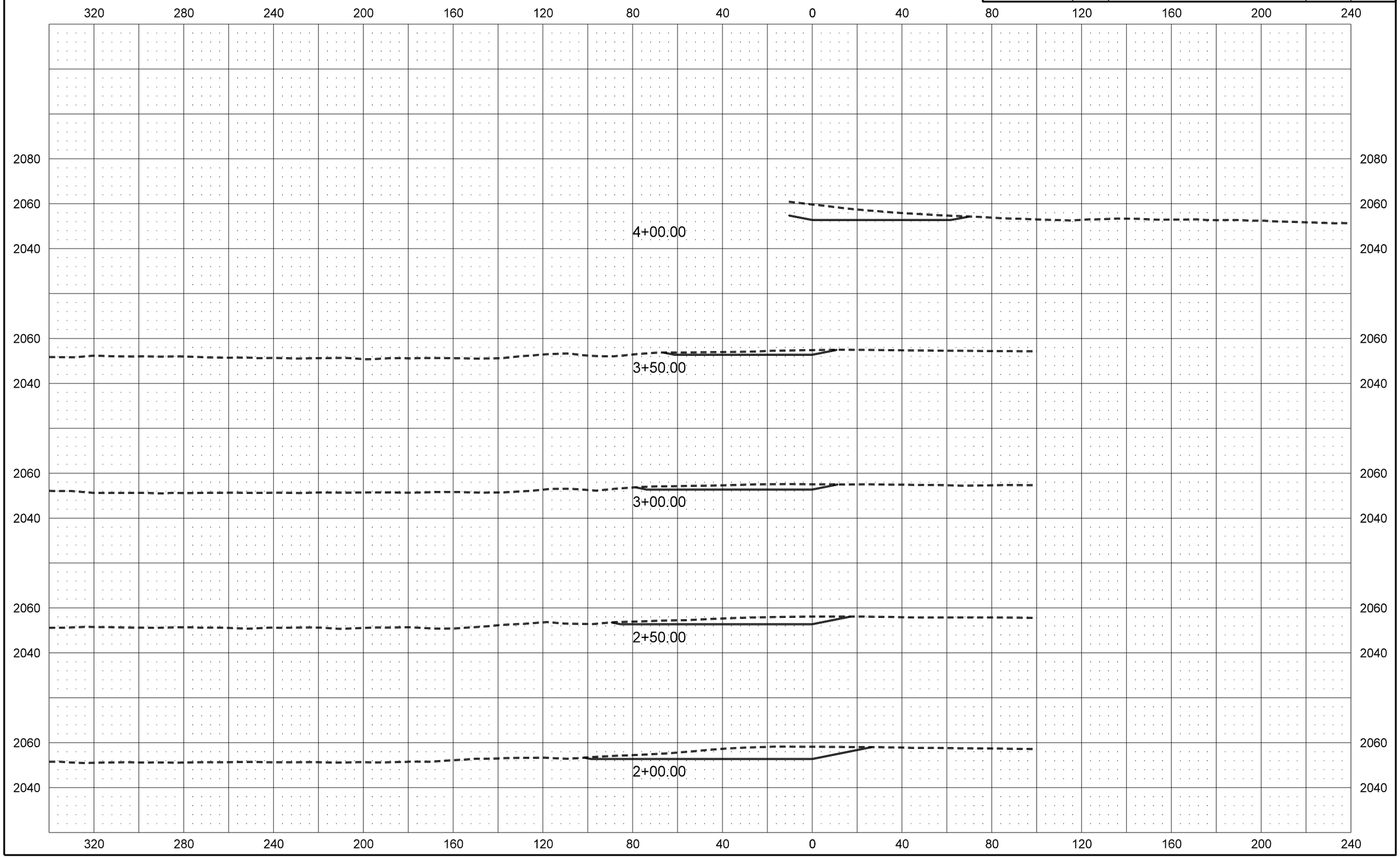
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	197

Wetland 204

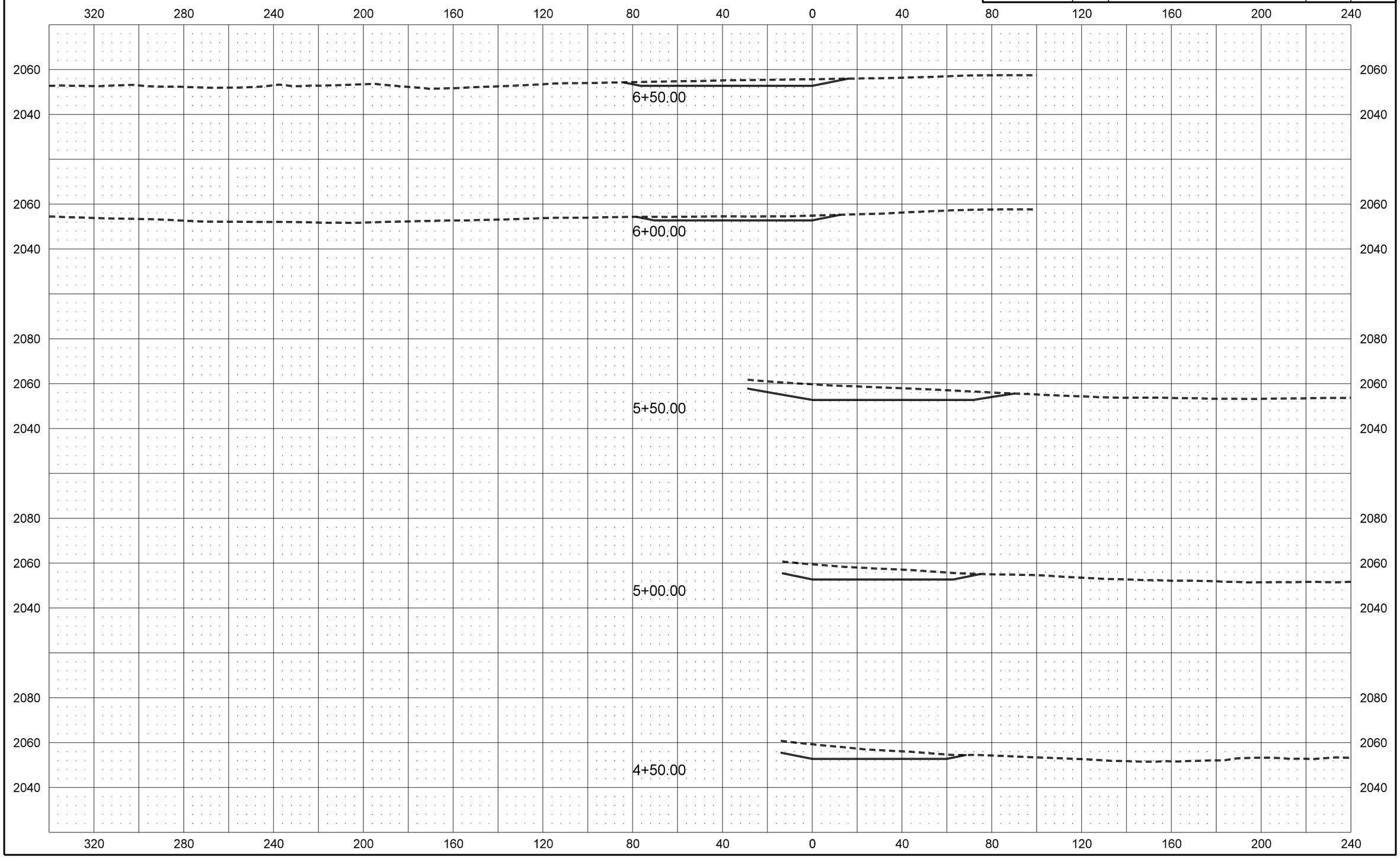


12/2/2015 3:54:01 PM aruud H:\Fargo\JBN\3900\3950\11_3950_093\CAD\Design\ND 28 to US 83\Sheets\200XS_197-204_XSEC_Wetland204_Add1.dgn

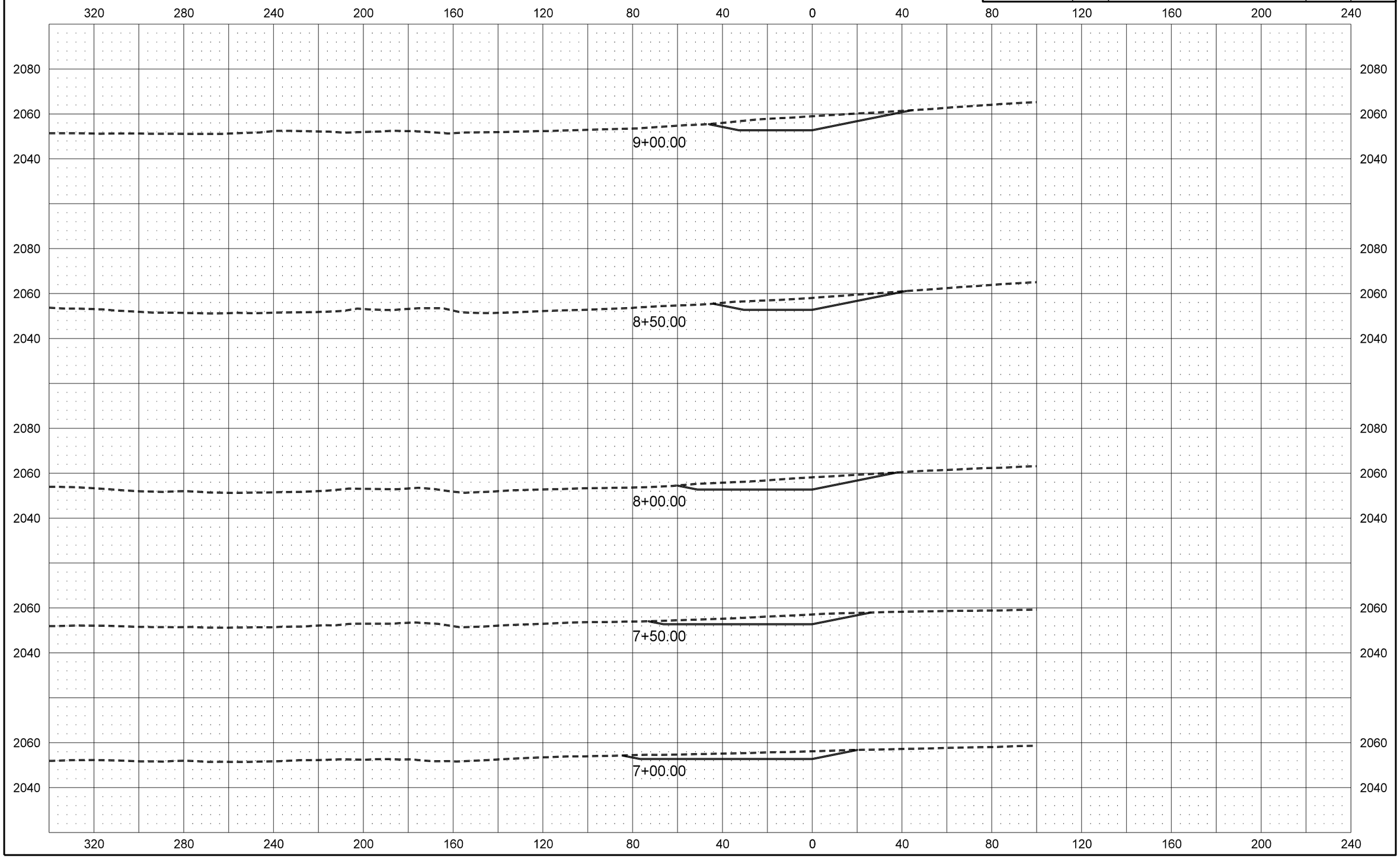
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	198



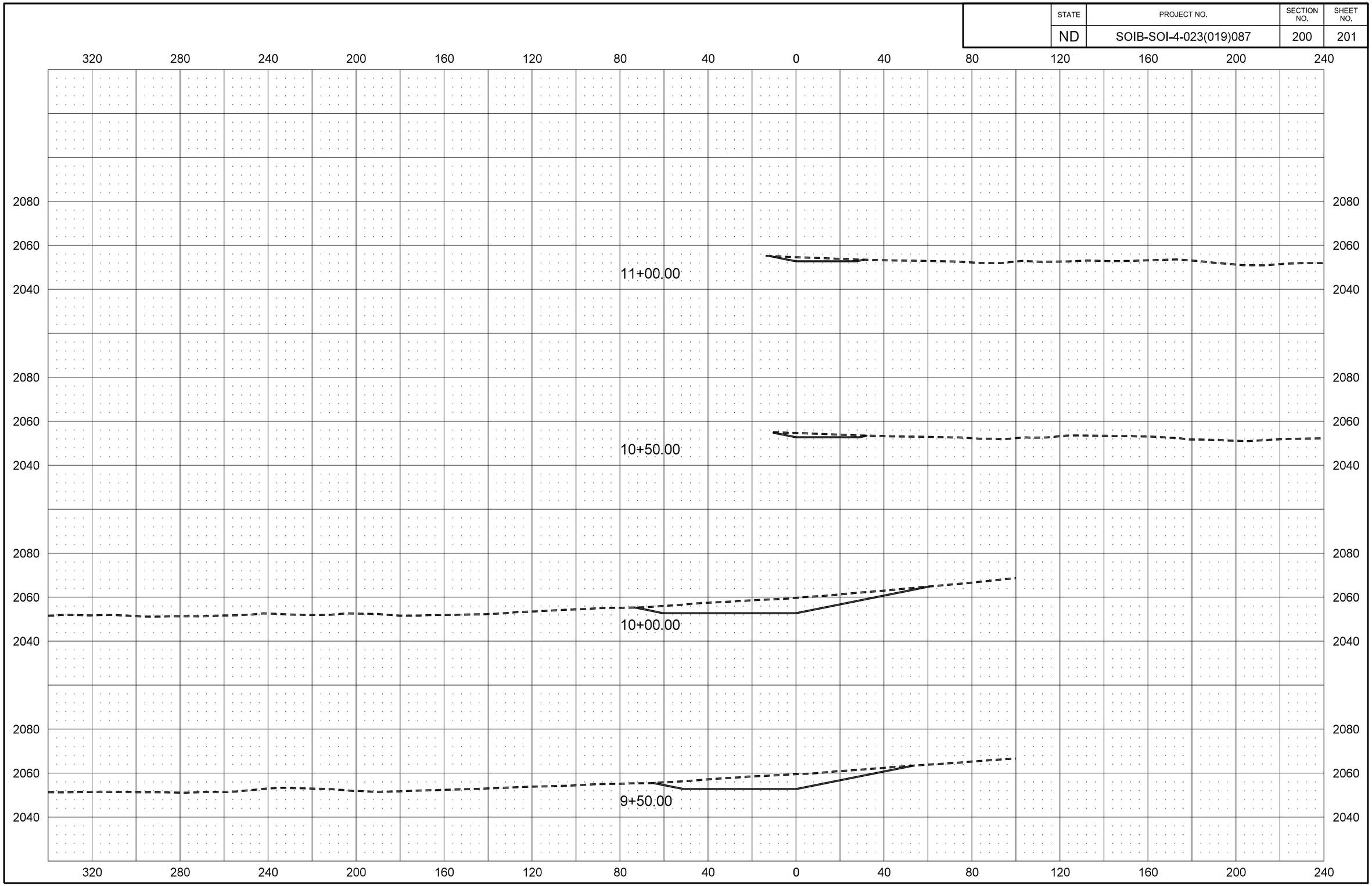
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	199



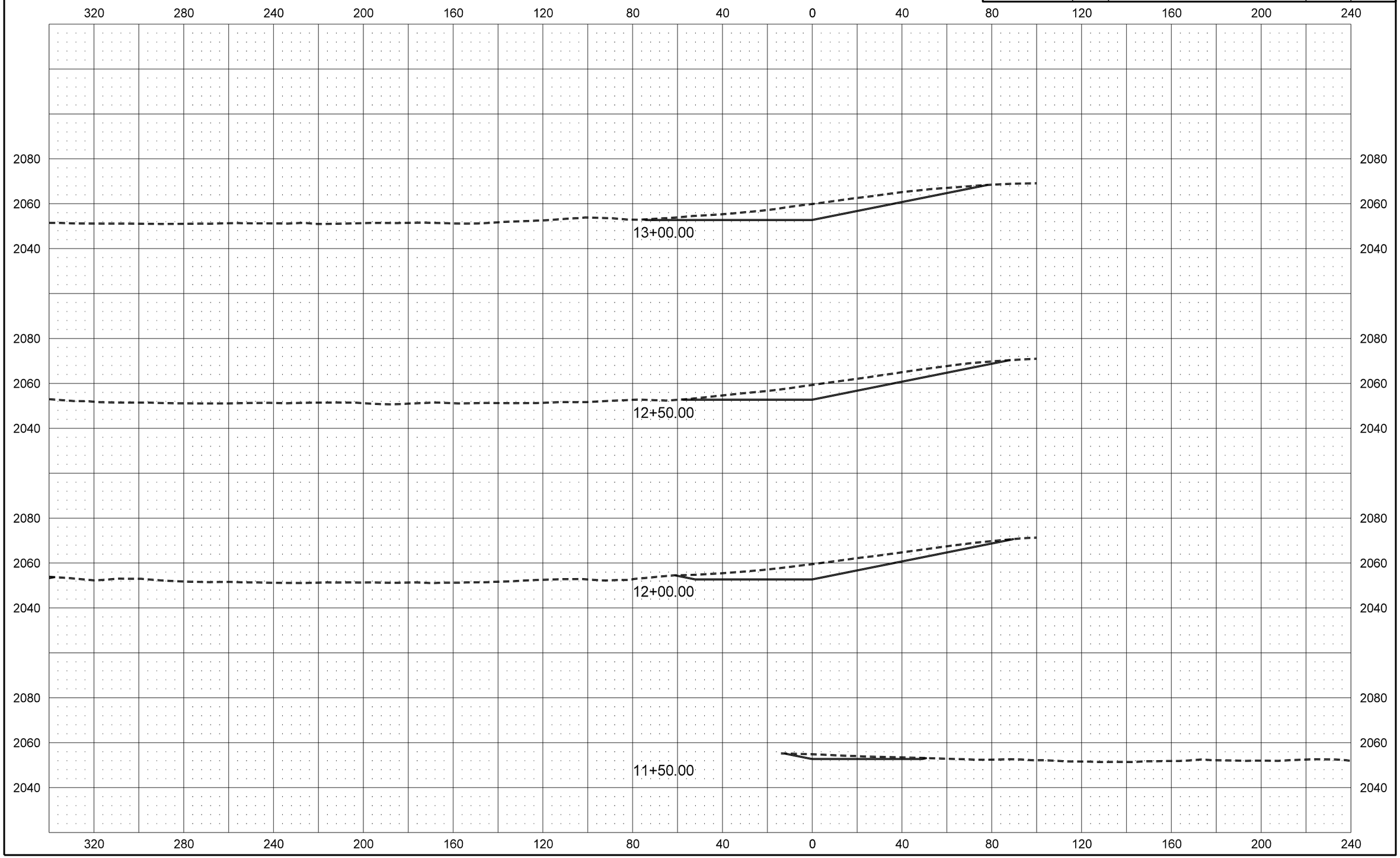
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	200



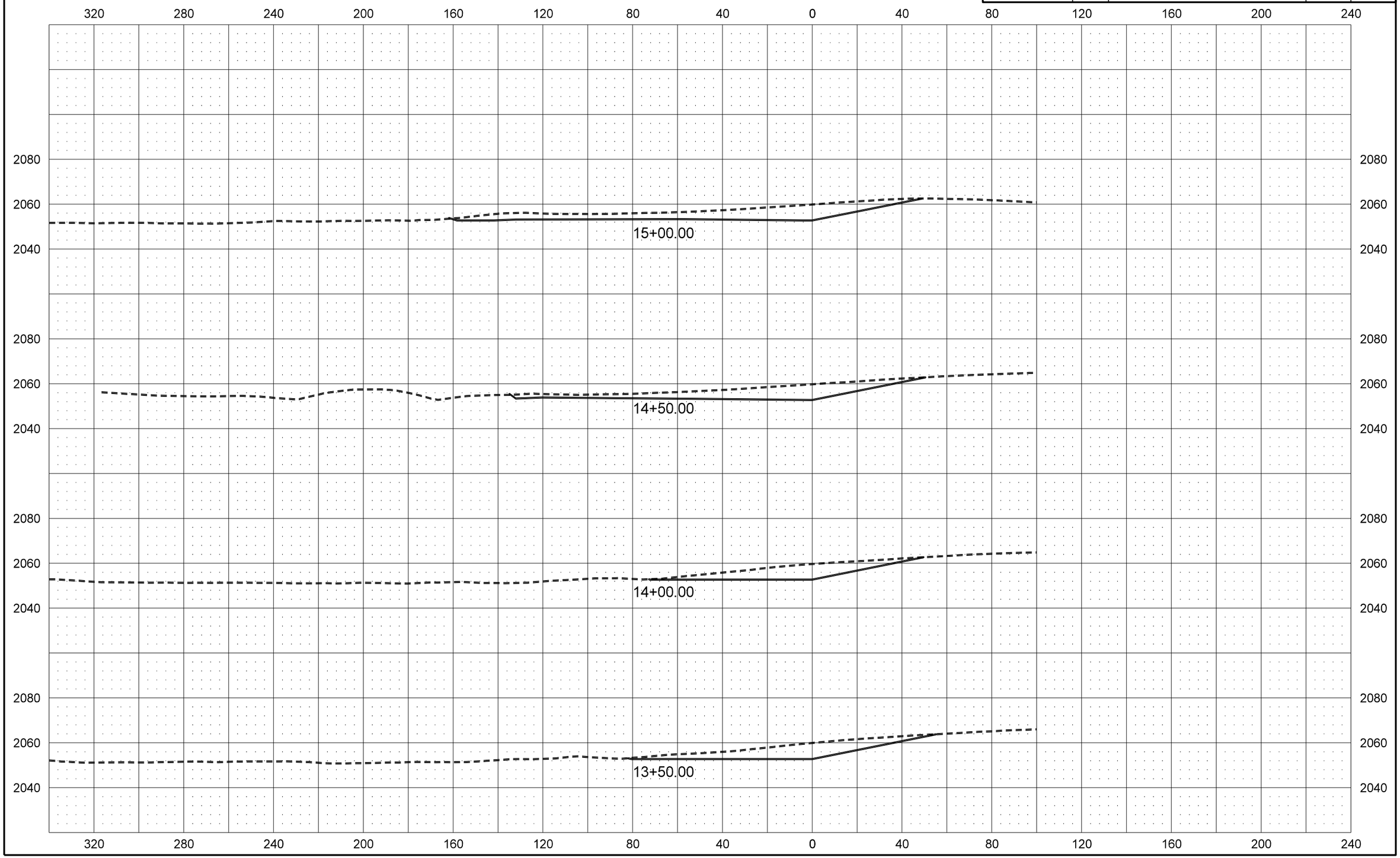
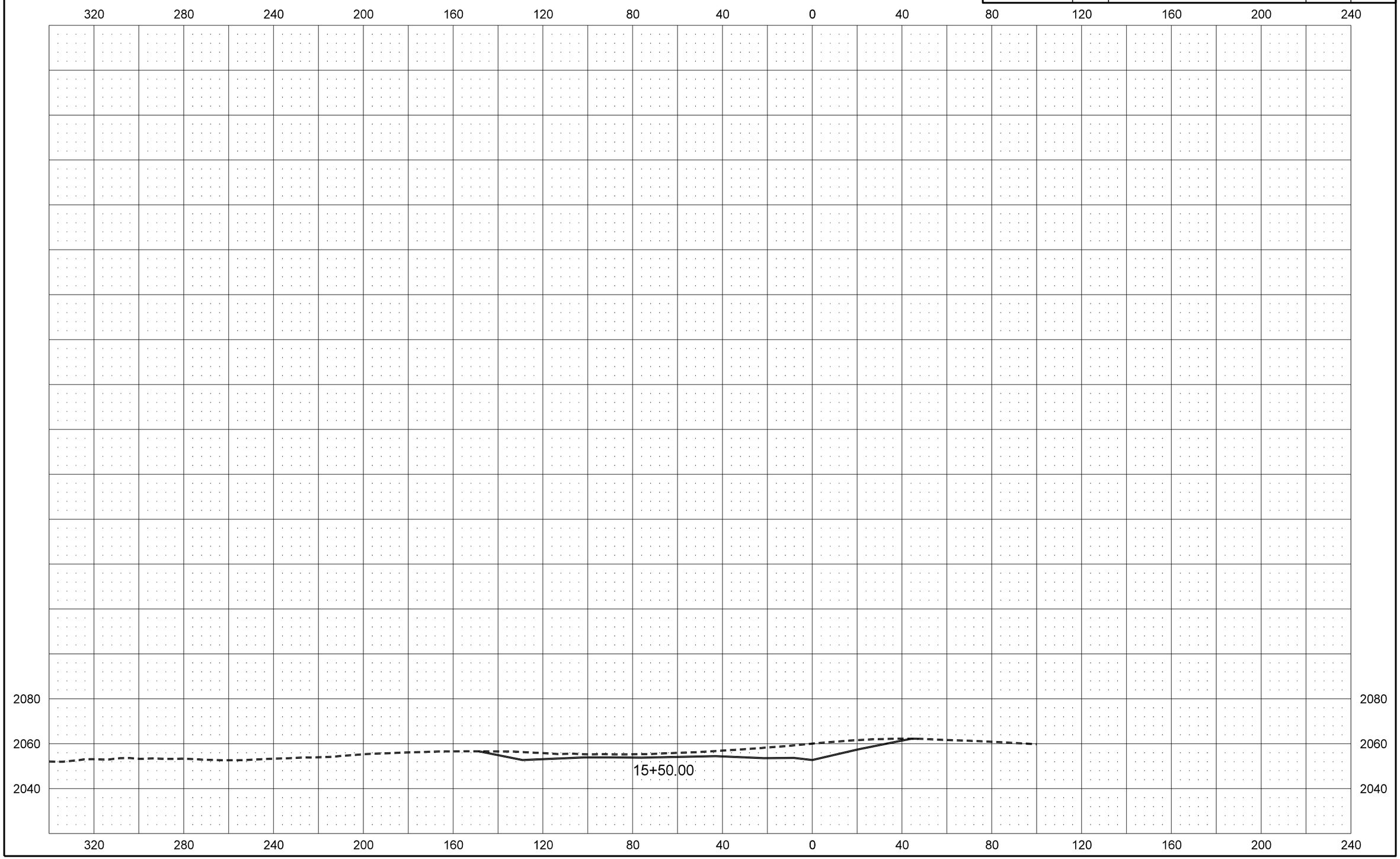
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	201



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	202



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	203



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-SOI-4-023(019)087	200	204