BASIN ELECTRIC POWER COOPERATIVE

1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA 58503-0564
PHONE: 701-223-0441
FAX: 701-557-5336

October 20, 2009

VIA HAND DELIVERY

RECEIVED
OCT 20 2009
PUBLIC SERVICE COMMISSION

Darrell Nitschke, Director of Administration
North Dakota Public Service Commission
600 East Boulevard Avenue, Dept. 408
Bismarck, ND 58505

RE: ND PSC Case No. PU-07-671 (Basin Electric Power Cooperative – Certificate of Corridor Compatibility and Route Permit for Williston to Tioga 230 kV Transmission line)

Dear Mr. Nitschke:

In compliance with the PSC order requiring Basin Electric Power Cooperative to file a map detailing proposed final transmission line structure locations on or before October 20, 2009, I have enclosed ten copies of the plan and profile drawings for the proposed Williston to Tioga 230 kV transmission line.

I have also enclosed copies of the wetland delineation and the cultural resources report for the project. Due to the volume of these studies, I have included five copies of the wetland delineation report and three copies of the cultural resource report. Please contact me if additional copies of these reports are needed.

If you have any questions regarding this letter or any of the enclosures, please contact me at 701.557.5495.

Sincerely,

Kevin L. Solie
Senior Environmental Analyst

/gmj
Enclosures

19 PU-07-671 Filed 10/20/2009 Pages: 67
Plan and Profile Drawings
Basin Electric Power Cooperative
Kevin Solie Senior Environmental Analyst

RECEIVED
OCT 20 2009
PUBLIC SERVICE COMMISSION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

Plan and Profile Drawings

Issue to North Dakota Public Service Commission
October 20, 2009

Revision #0

BASIN ELECTRIC POWER COOPERATIVE

WILLISTON SUBSTATION TO TIOGA SUBSTATION
230KV TRANSMISSION LINE
PROJECT TITLE SHEET

VICINITY MAP

LINE FEATURES:

LINE LENGTH---------- 61 MILES

RIGHT OF WAY WIDTH----------125 FEET

STRUCTURE TYPE---------- STEEL SINGLE POLE (406 STRUCTURES)

STEEL POLE SUPPLIER/FABRICATOR------ TRANSAMERICAN POWER PRODUCTS, INC.

DESIGN RULING SPAN----------800 FEET

CONDUCTOR----------1272 MCM ACSR BITTERN

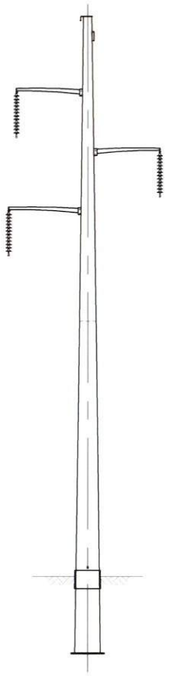
OPTICAL GROUND WIRE----------AC-71/571, .571 INCH DIAMETER, 36 FIBERS

OWNERS:

WILLISTON SUBSTATION---------- WESTERN AREA POWER ADMINISTRATION
TRANSMISSION LINE----------BASIN ELECTRIC POWER COOPERATIVE
TIOGA SUBSTATION----------MONTANA DAKOTA UTILITIES

PERMITTING AUTHORITY---------- ND PUBLIC SERVICE COMMISSION

ENVIRONMENTAL ASSESSMENT---------- WESTERN AREA POWER ADMINISTRATION



TANGENT STRUCTURES

ANGLE STRUCTURES

REV.	DESCRIPTION	DRWN	DSGN	APPD	DATE
0	ISSUED	A. BURGARD	C. BAUER		10/13/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION/UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION
CONTRACT/DESIGNATION:

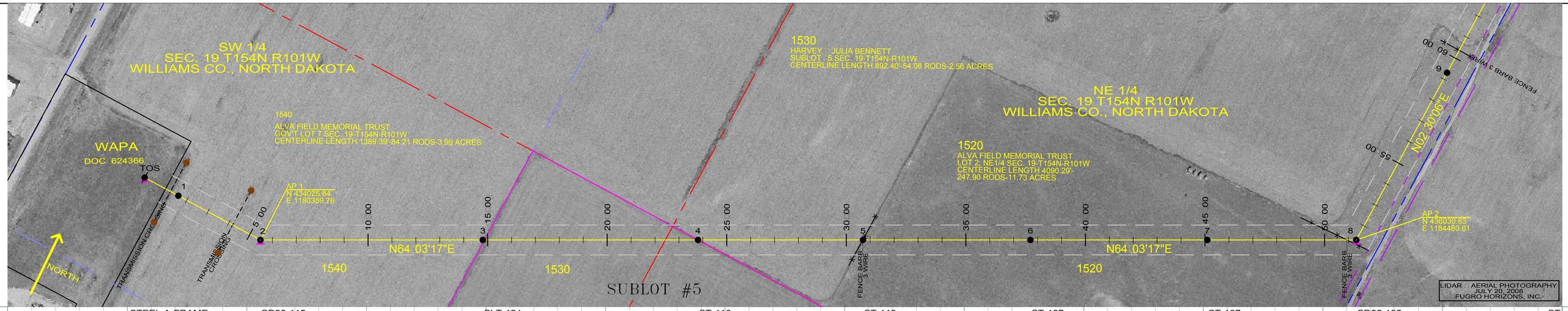
TITLE SHEET

BASIN ELECTRIC POWER COOPERATIVE
A Touchstone Energy® Cooperative

DESIGN BY	C. BAUER	10/13/09
DRAWN BY	A. BURGARD	10/13/09
DESIGN CHK		
DRAFT CHK	L. FROEHLICH	10/13/09
APPROVED	D. MARTHALLER	10/13/09

SCALE: NONE
VENDOR/ORIGINATED FROM:
VENDOR DRAWING NO. ORIGINAL REV
BASIN DRAWING NO. 296-000-T1-001
REV. NO. 0

7/01/2008



STEEL A-FRAME
STA 0+00.00
HT ADJUST 54.50
TOS

ST-118
STA 1+60.00
1

SD38-115
STA 5+50.00
HT ADJUST 1.50
2
AP 1

SLT-124
STA 14+80.00
3

ST-118
STA 23+80.00
4

ST-113
STA 30+70.00
5

ST-107
STA 37+70.00
6

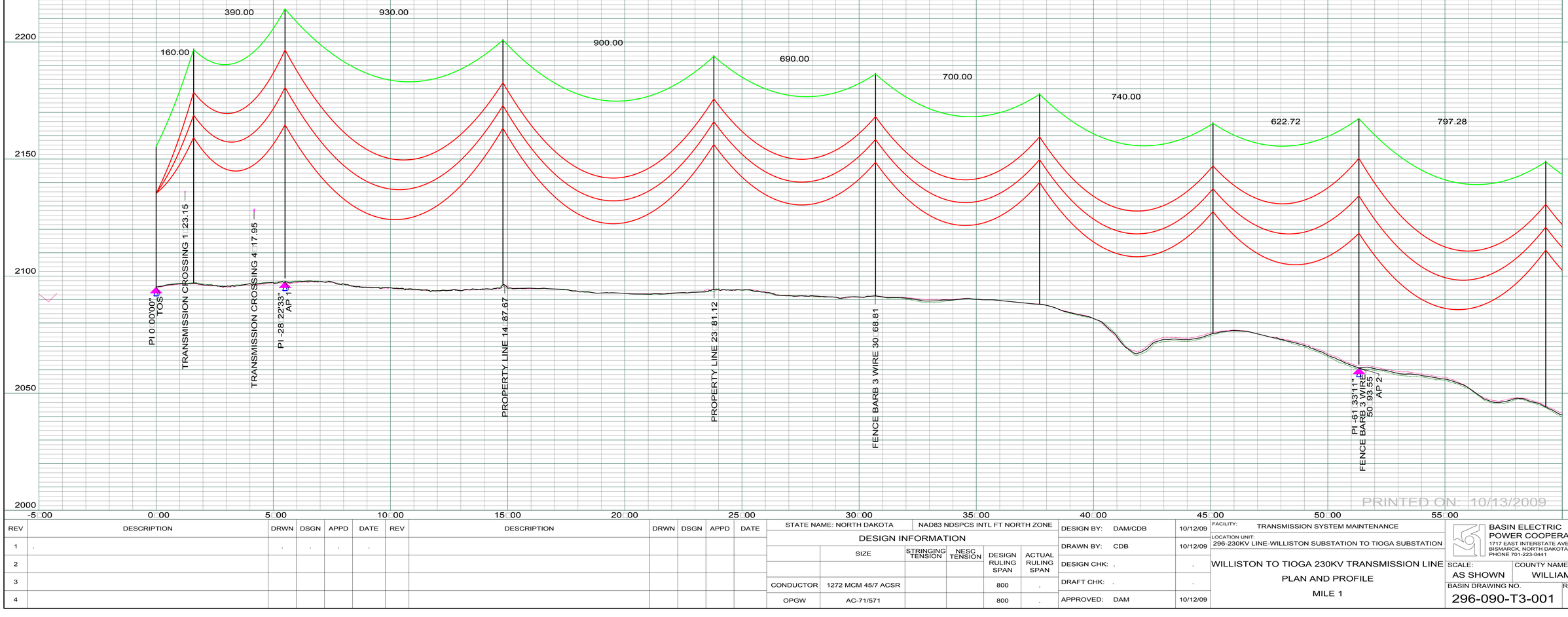
ST-107
STA 45+10.00
7

SD65-105
STA 51+32.72
HT ADJUST 1.50
8
AP 2

ST-
STA
9

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE



PRINTED ON: 10/13/2009

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2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

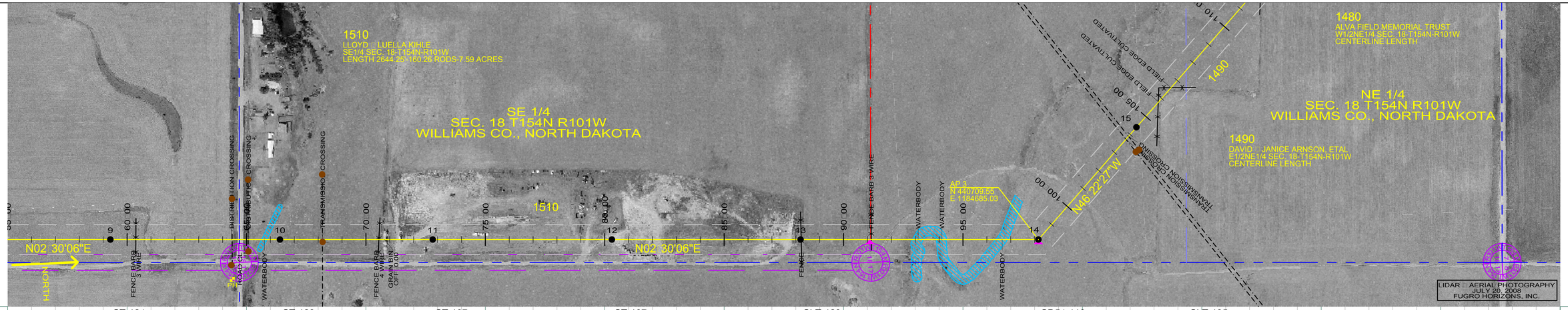
DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE
PLAN AND PROFILE
MILE 1

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN
COUNTY NAME: WILLIAMS
BASIN DRAWING NO.: 296-090-T3-001
REV.: 0



ST-124
STA 59+30.00
9

ST-129
STA 66+40.00
10

ST-107
STA 72+80.00
11

ST-107
STA 80+30.00
12

SLT-129
STA 88+20.00
13

SD54-110
STA 98+15.90
HT ADJUST 1.50
14
AP 3

SLT-135
STA 104+40.00
15

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE

797.28
710.00
640.00
750.00
790.00
995.90
624.10

FENCE BARB 3 WIRE 60+36.66
DISTRIBUTION CROSSING 64+37.62
ROAD CL 64+71.78
DISTRIBUTION CROSSING 65+07.76
WATERBODY 65+74.89
TRANSMISSION CROSSING 68+18.53
FENCE BARB 4 WIRE 70+54.53
GRAIN BIN
FENCE 88+23.24
AP RE-ROUTE 12+16.08
FENCE BARB 3 WIRE 91+15.85
WATERBODY 93+12.34
WATERBODY 94+11.57
WATERBODY 96+63.99
PI -48.52'33"
AP 3
TRANSMISSION CROSSING 103+73.19
TRANSMISSION CROSSING 103+89.53
FIELD EDGE CULTIVATED 105+80.93
FIELD EDGE CULTIVATED 106+59.40

PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2					
3					
4					

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

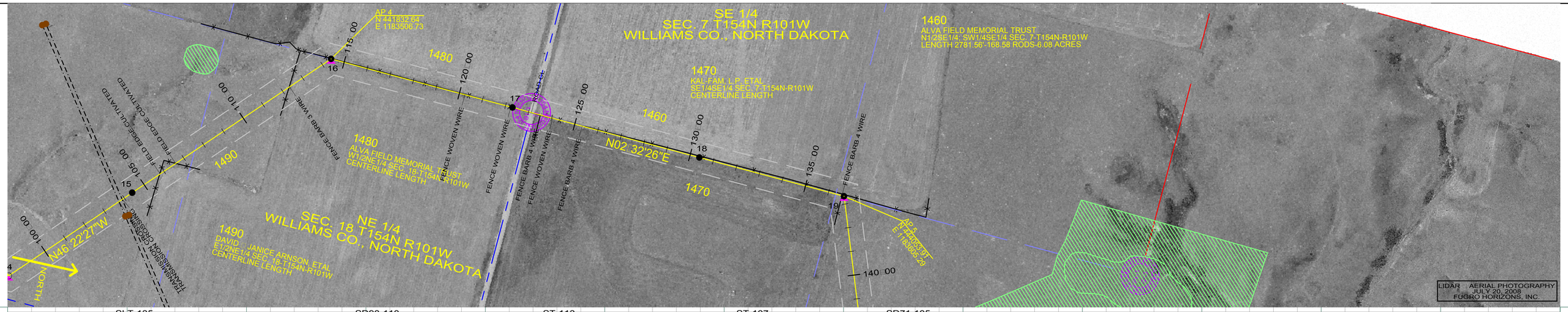
DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE
PLAN AND PROFILE
MILE 1 □ 2

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN
COUNTY NAME: WILLIAMS
BASIN DRAWING NO.: 296-090-T3-002
REV.: 0



SLT-135
STA 104+40.00
15

SD90-110
STA 114+43.70
HT ADJUST 1.50
16
AP 4

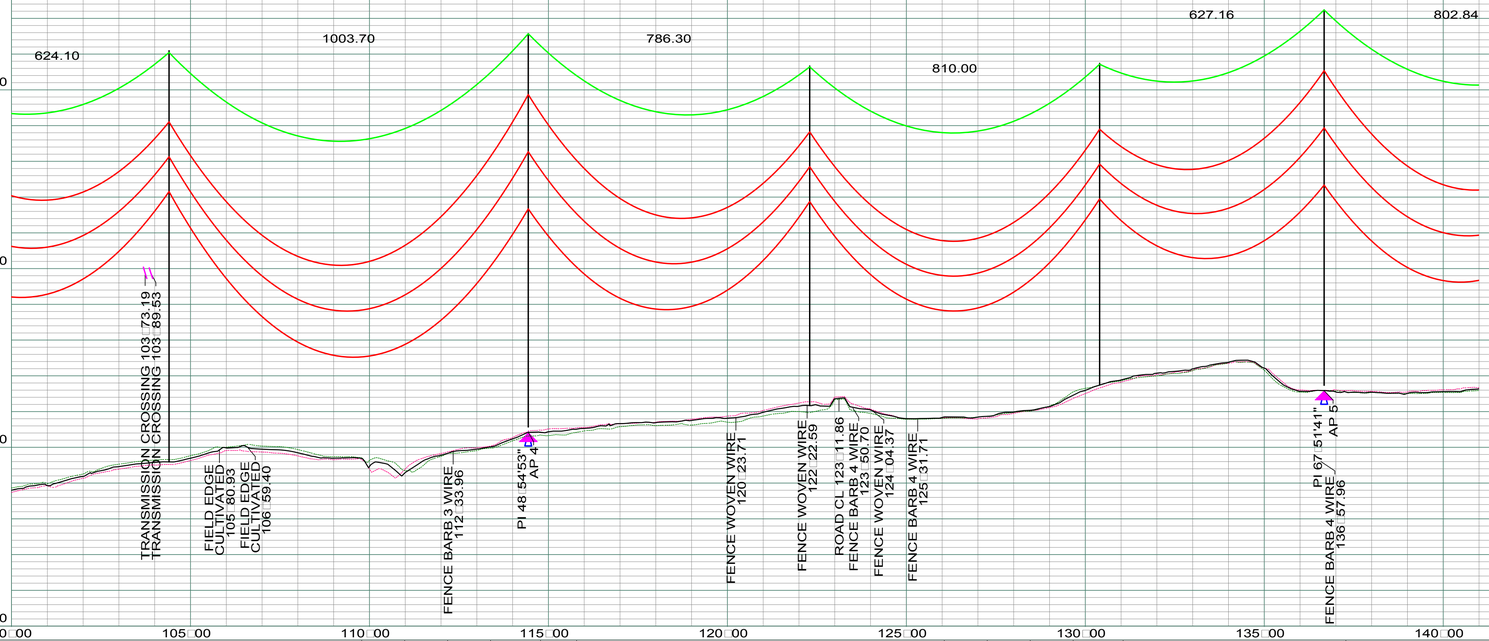
ST-113
STA 122+30.00
17

ST-107
STA 130+40.00
18

SD71-105
STA 136+67.16
HT ADJUST 1.50
19
AP 5

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE



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2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

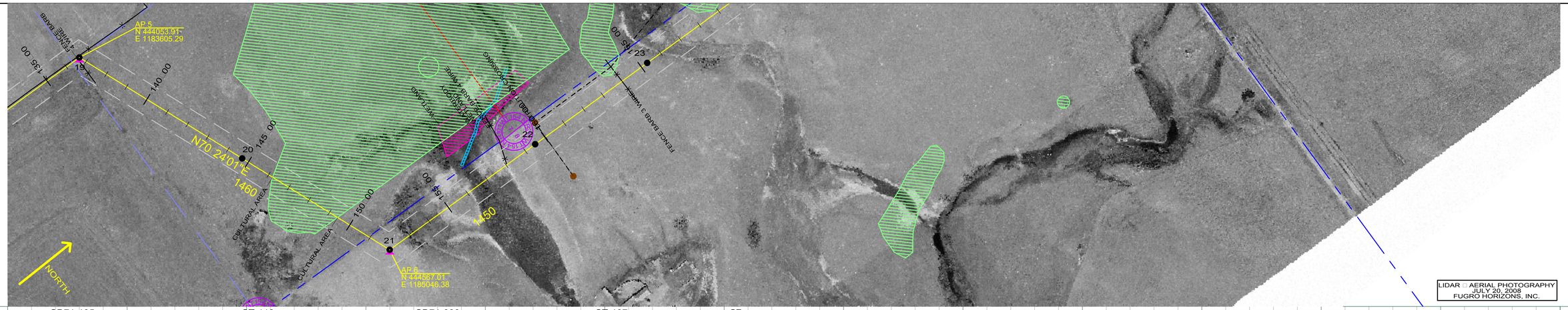
DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE
PLAN AND PROFILE
MILE 1 □ 2

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE:	COUNTY NAME:
AS SHOWN	WILLIAMS
BASIN DRAWING NO.	REV.
296-090-T3-003	0



SD71-105
STA 136 67.16
HT ADJUST 1.50
19
AP 5

ST-118
STA 144 70.00
20

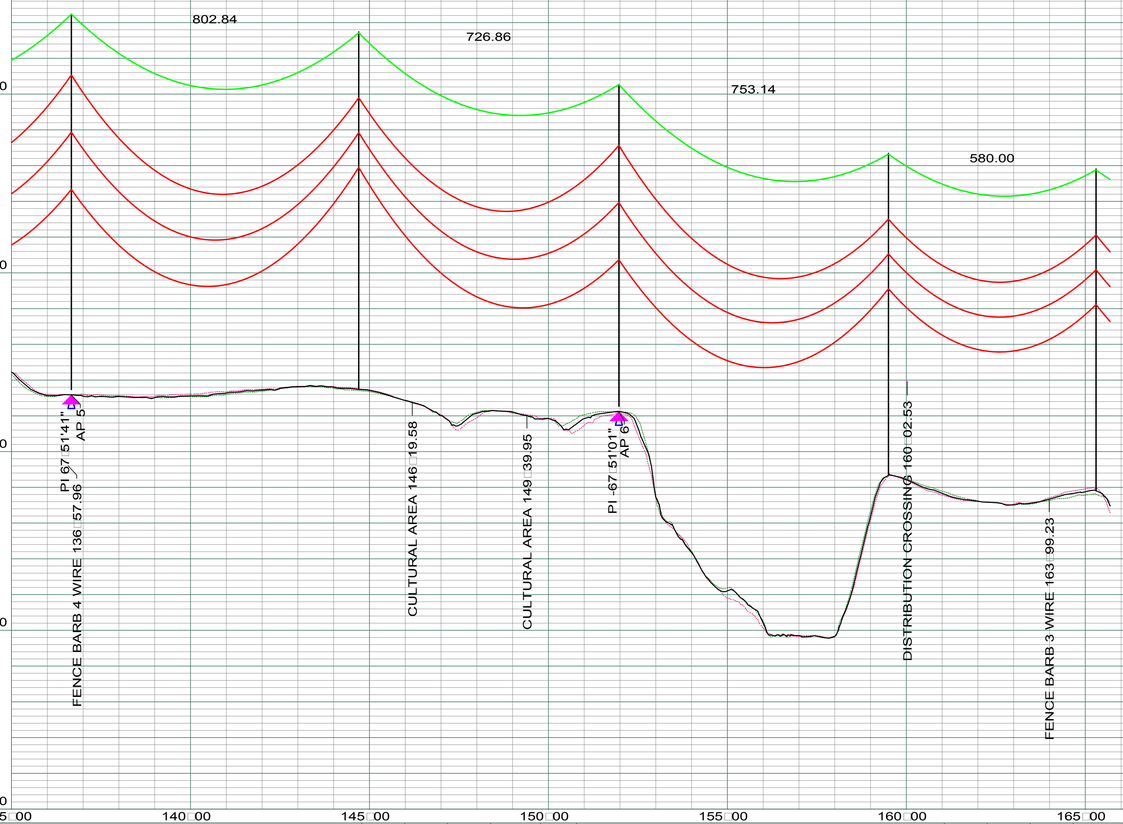
SD71-090
STA 151 96.86
HT ADJUST 1.50
21
AP 6

ST-107
STA 159 50.00
22

ST
ST
23

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE



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4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

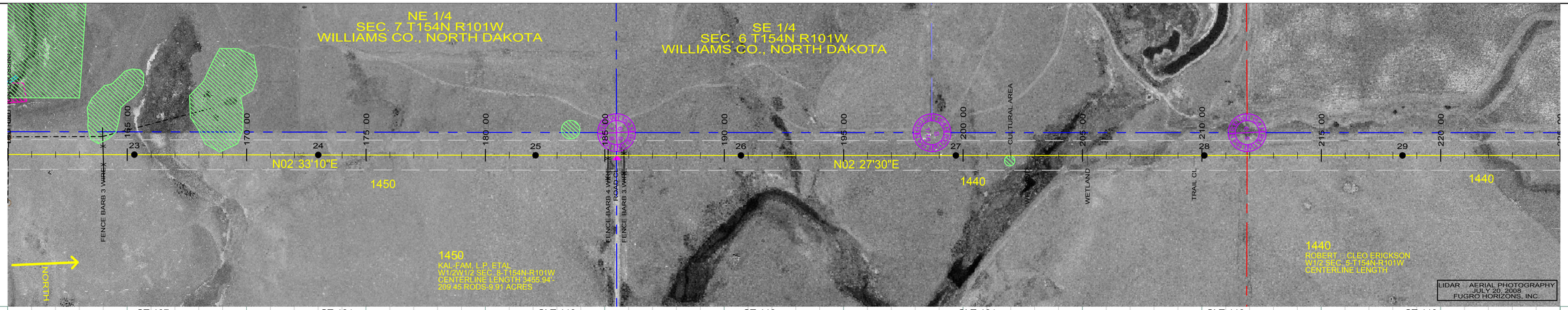
DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

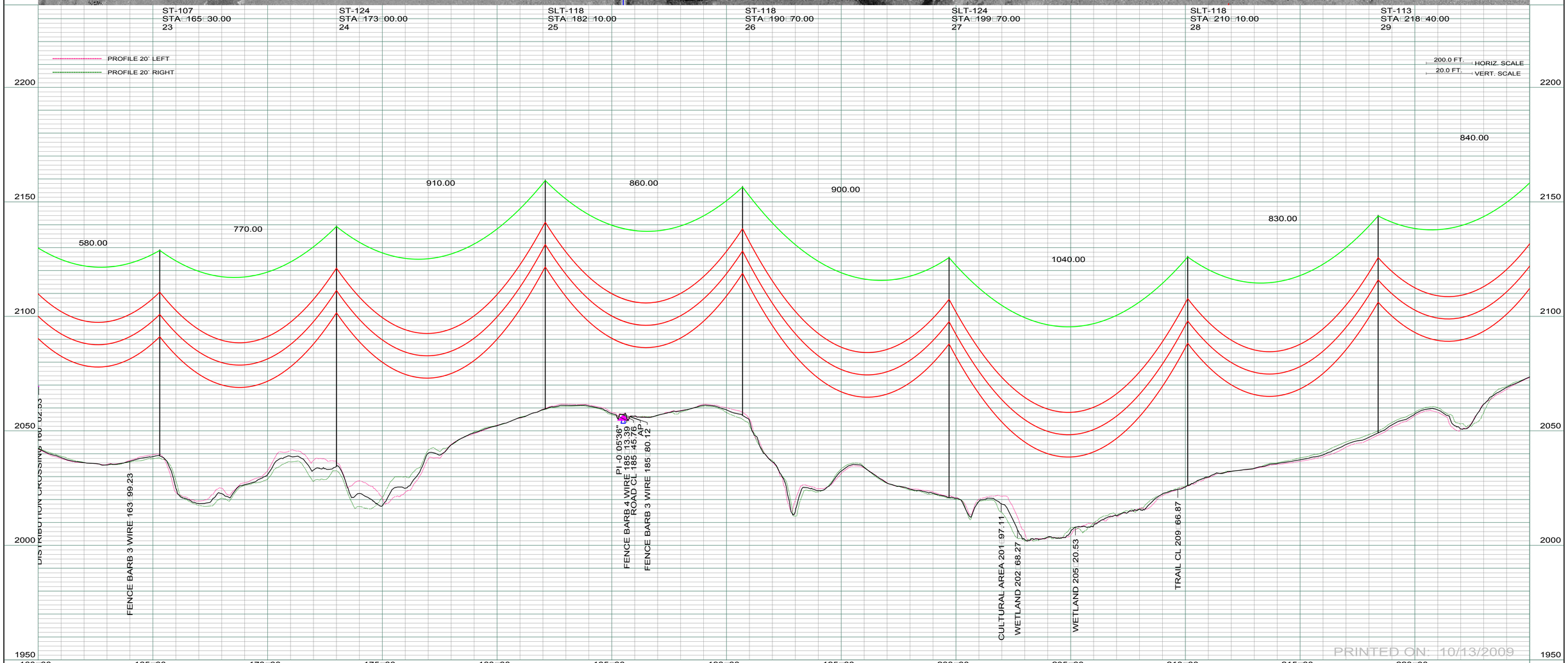
FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE
PLAN AND PROFILE
MILE 2 □ 3

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN
COUNTY NAME: WILLIAMS
BASIN DRAWING NO.: 296-090-T3-004
REV.: 0





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3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

PLAN AND PROFILE

MILE 3 □ 4

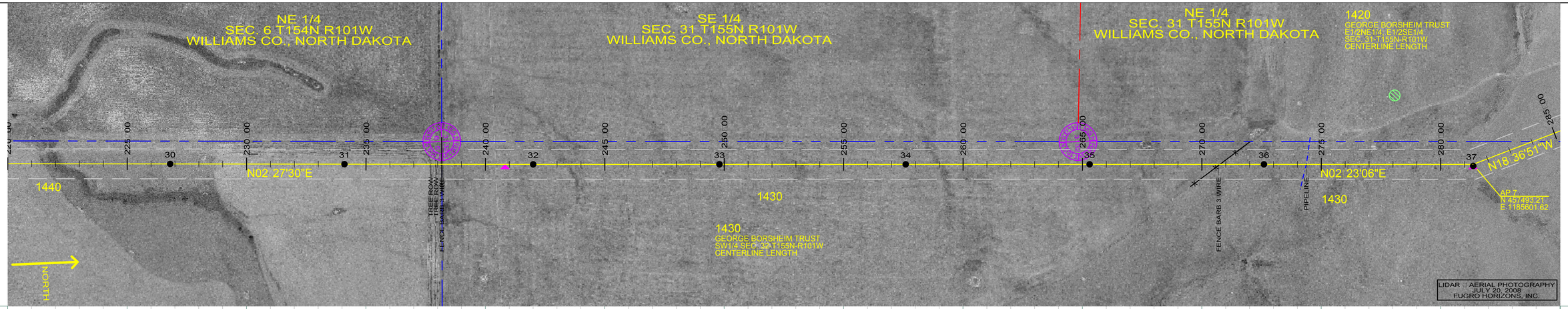
BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

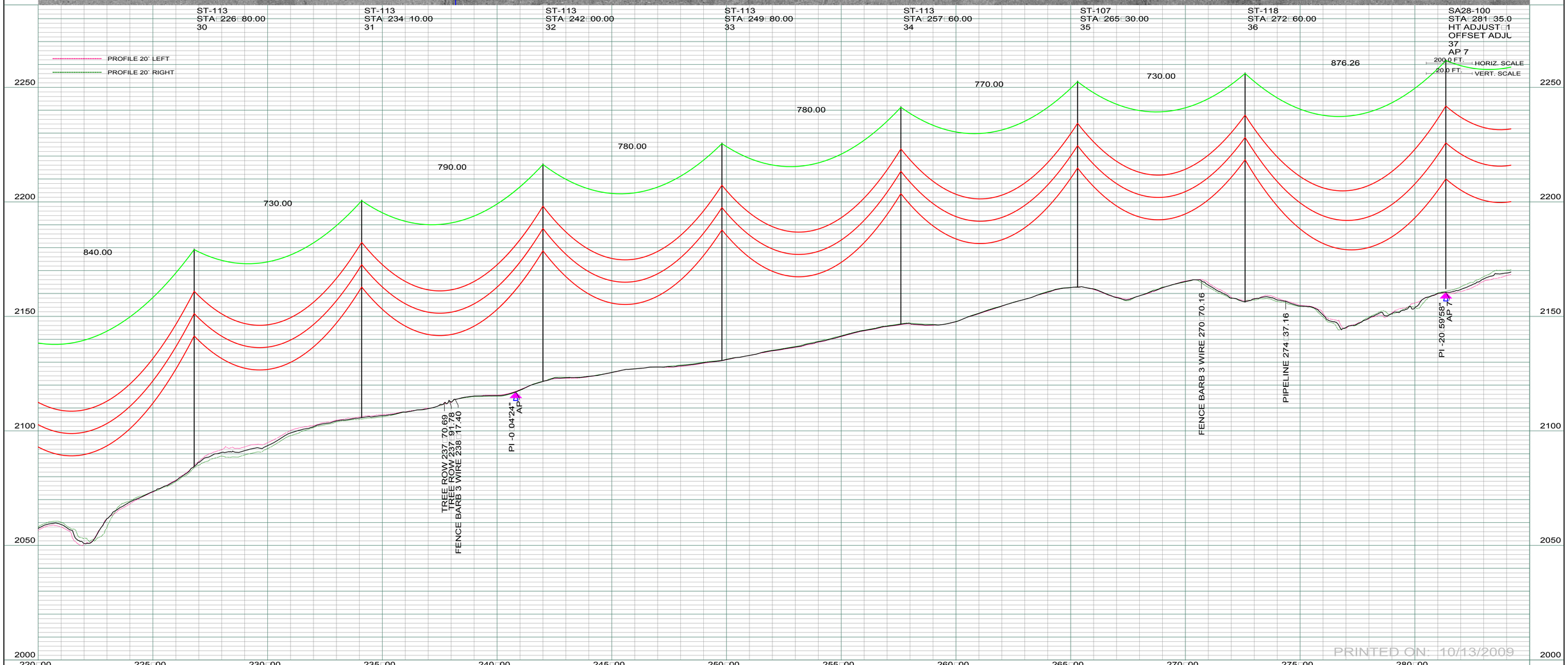
SCALE: AS SHOWN

COUNTY NAME: WILLIAMS

BASIN DRAWING NO.: 296-090-T3-005

REV.: 0





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3											
4											

STATE NAME: NORTH DAKOTA — NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

PLAN AND PROFILE

MILE 4 □ 5

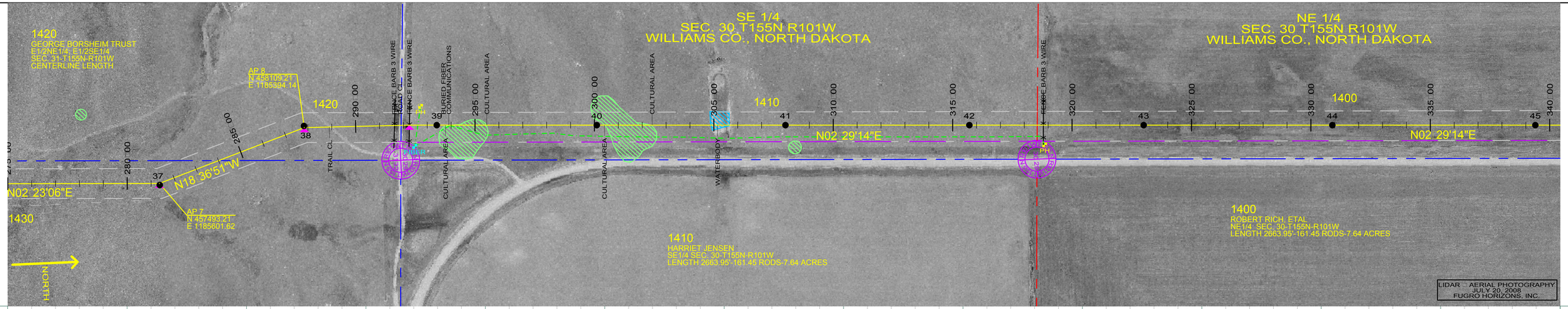
BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

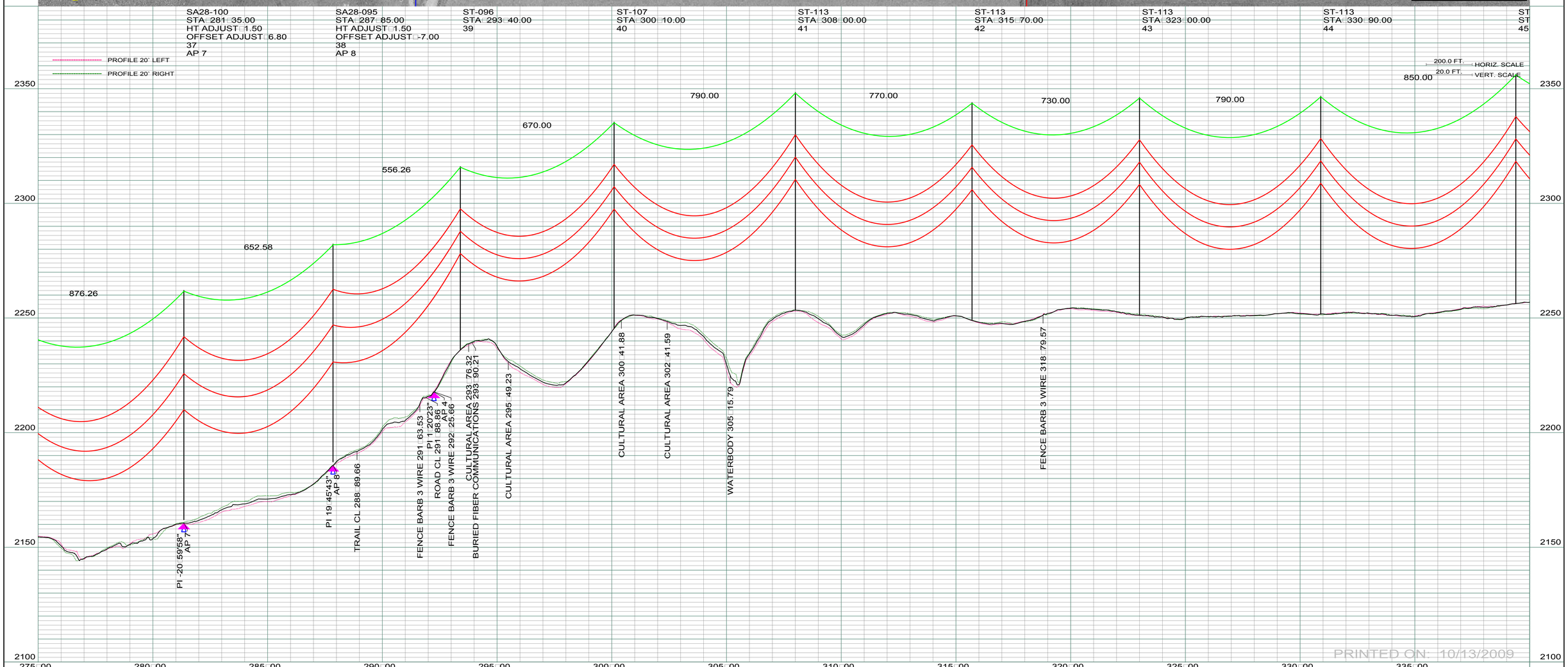
SCALE: AS SHOWN

COUNTY NAME: WILLIAMS

BASIN DRAWING NO.: 296-090-T3-006

REV.: 0





PRINTED ON: 10/13/2009

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3					
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REV	DESCRIPTION	DRWN	DSGN	APPD	DATE

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

PLAN AND PROFILE

MILE 5 □ 6

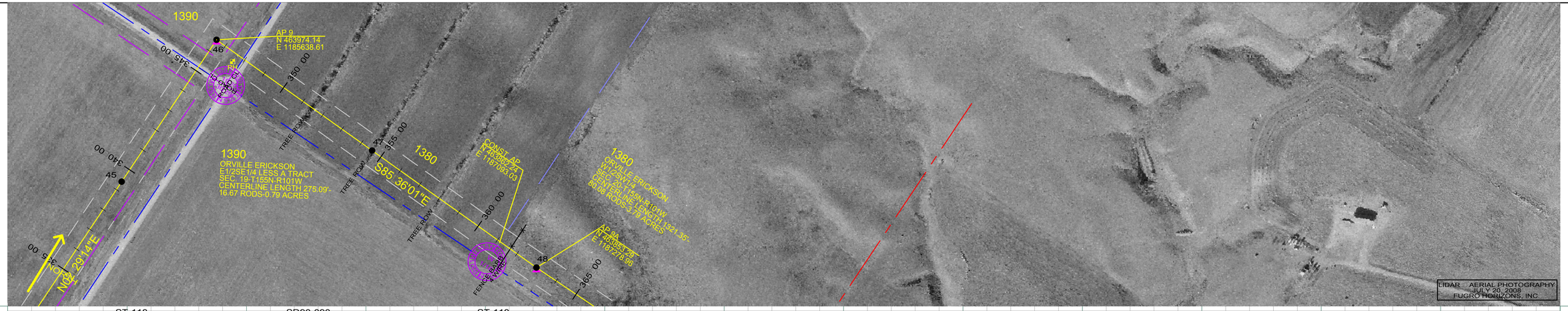
BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN

COUNTY NAME: WILLIAMS

BASIN DRAWING NO.: 296-090-T3-007

REV.: 0



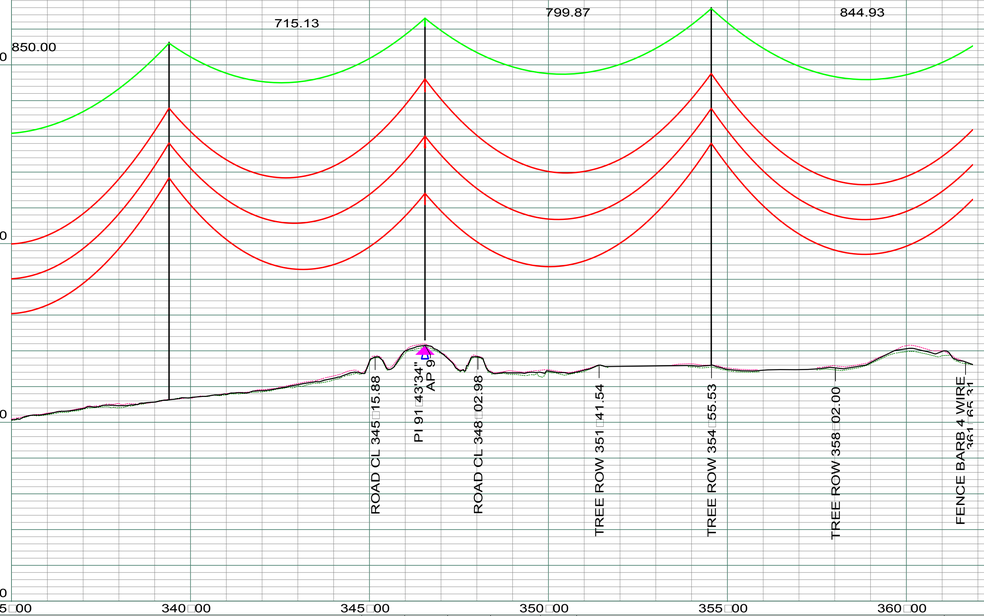
ST-118
STA: 339+40.00
45

SD90-090
STA: 346+55.13
HT ADJUST 1.50
46
AP 9

ST-118
STA: 354+55.00
47

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE



PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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3					
4					

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

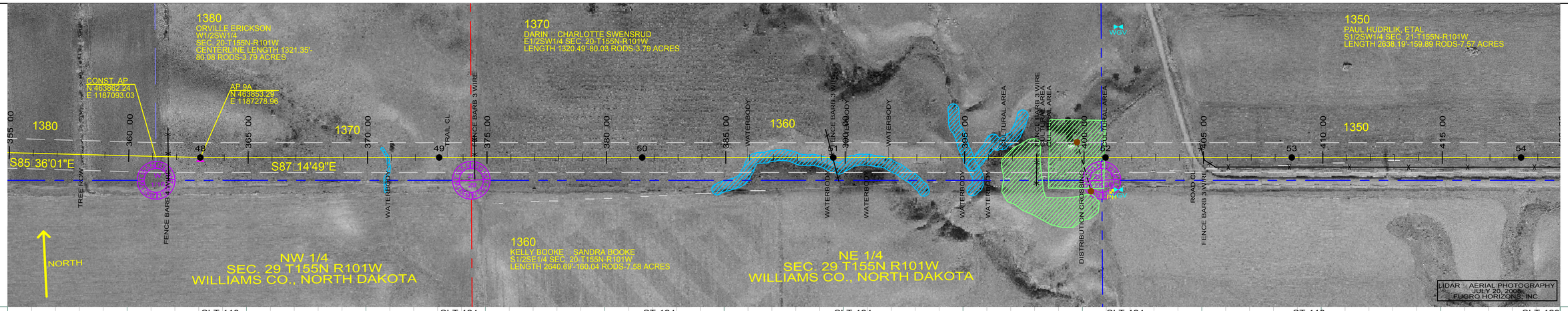
FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

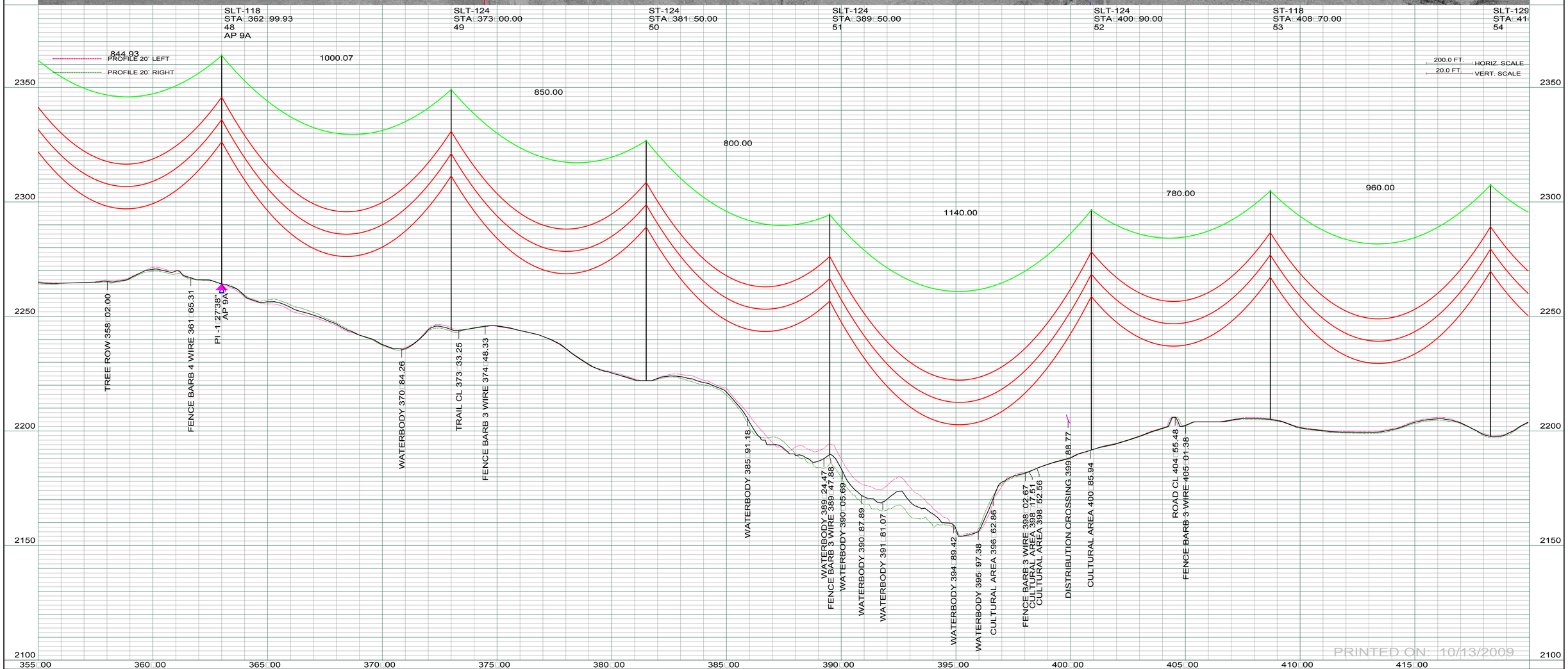
WILLISTON TO TIOGA 230KV TRANSMISSION LINE
PLAN AND PROFILE
MILE 6 □ 7

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE:	COUNTY NAME:
AS SHOWN	WILLIAMS

BASIN DRAWING NO.	REV.
296-090-T3-008	0





REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
1	-										
2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

PLAN AND PROFILE

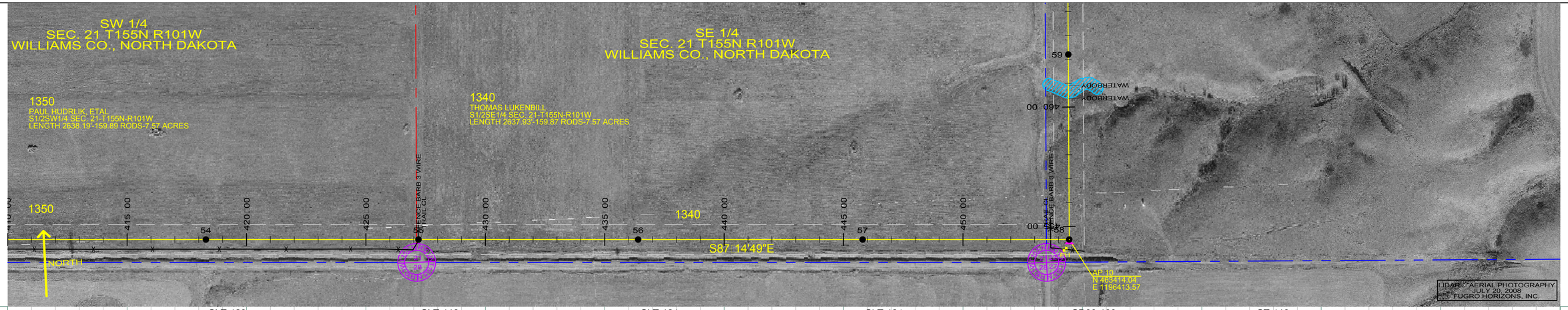
MILE 7 □ 8

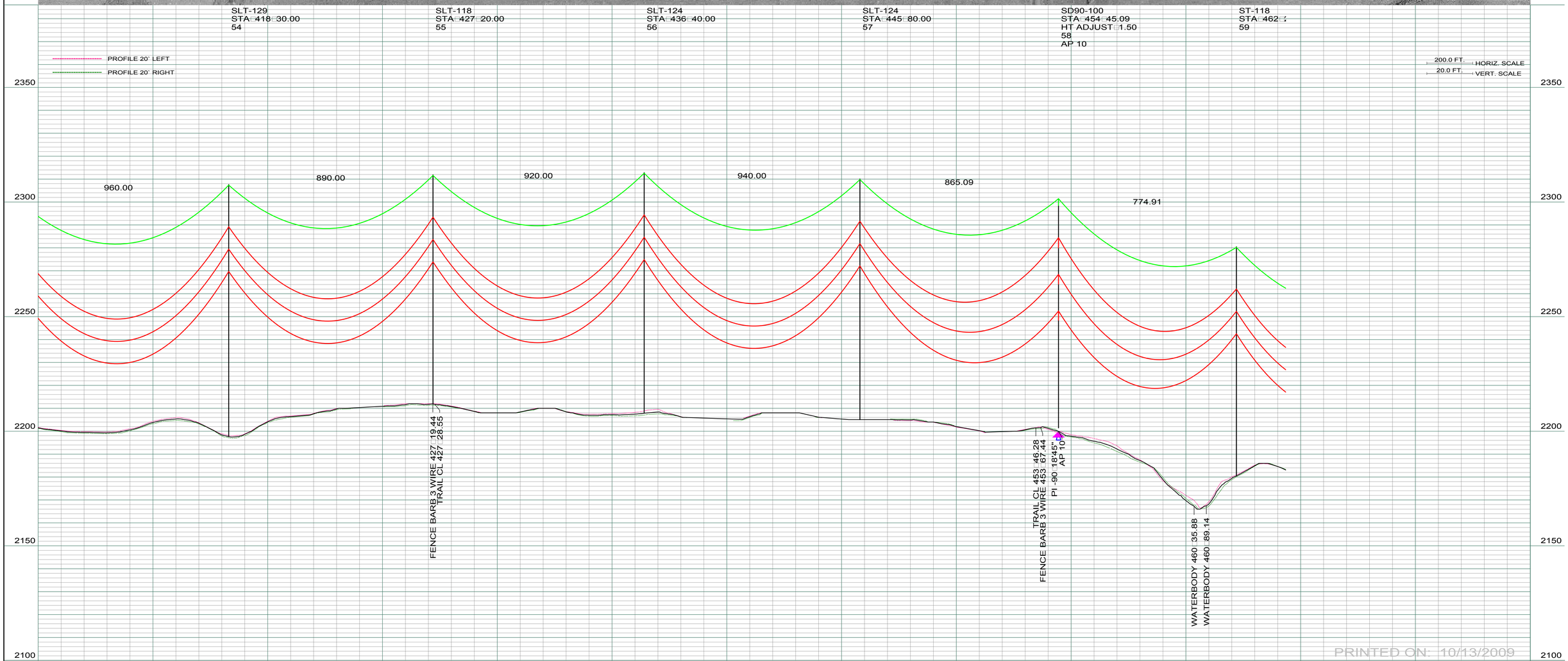
BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE:	COUNTY NAME:
AS SHOWN	WILLIAMS

BASIN DRAWING NO.: 296-090-T3-009

REV.: 0





PRINTED ON: 10/13/2009

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2											
3											
4											

STATE NAME: NORTH DAKOTA — NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

PLAN AND PROFILE

MILE 8 □ 9

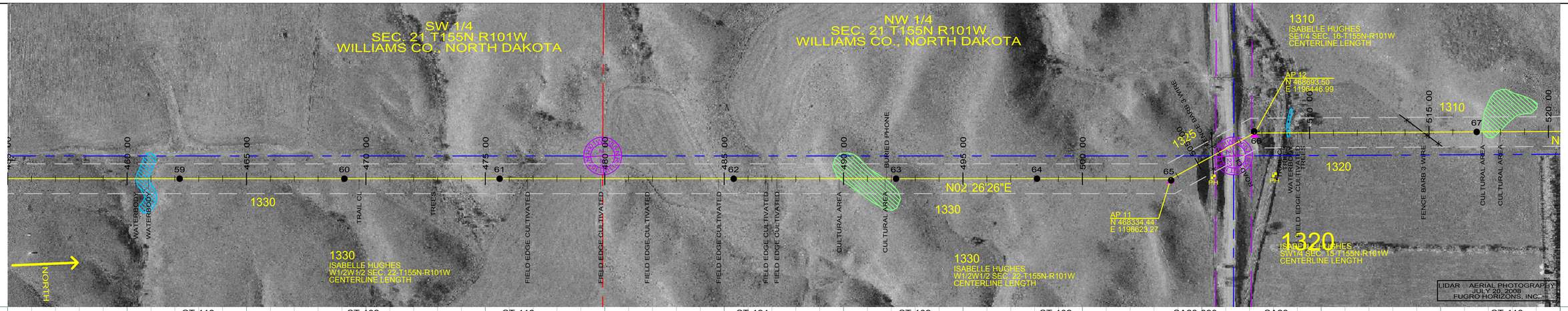
BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

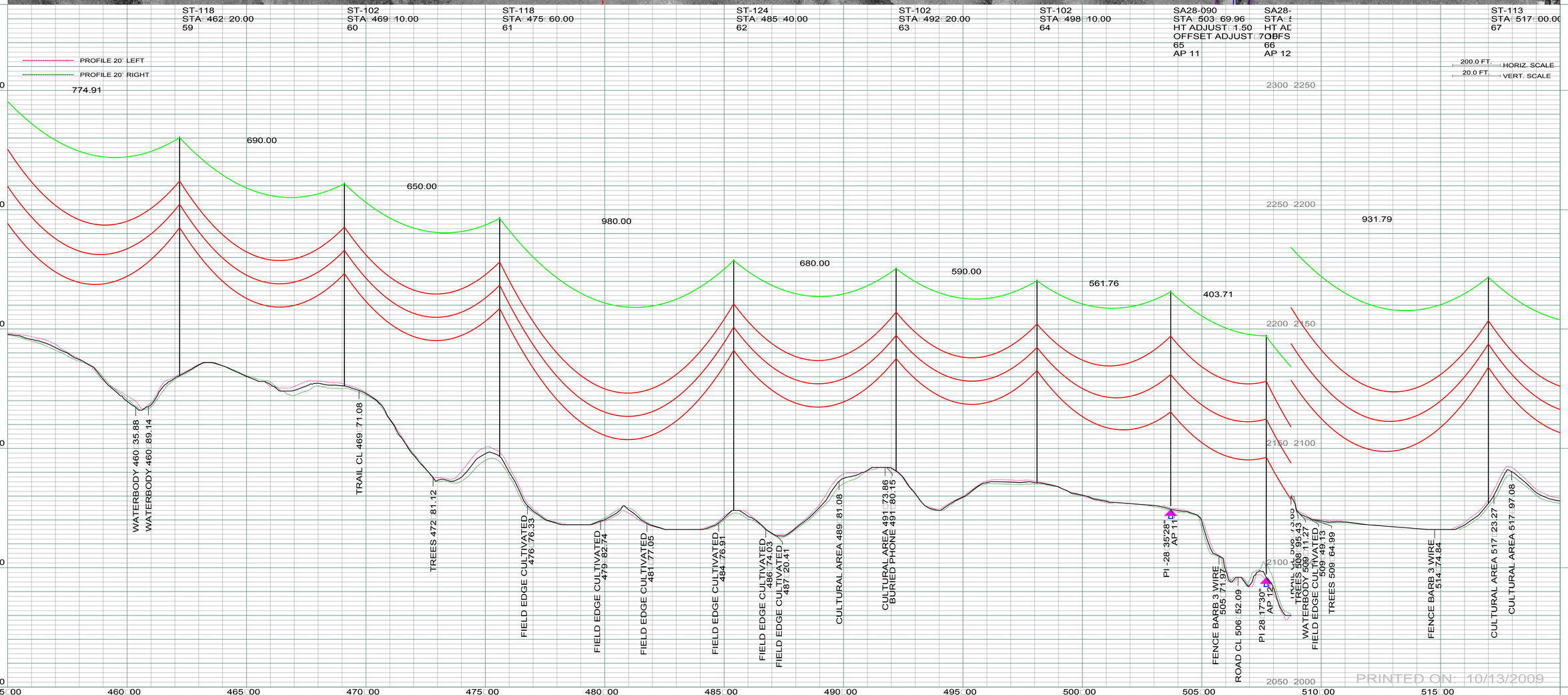
SCALE: AS SHOWN

COUNTY NAME: WILLIAMS

BASIN DRAWING NO.: 296-090-T3-010

REV.: 0





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2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

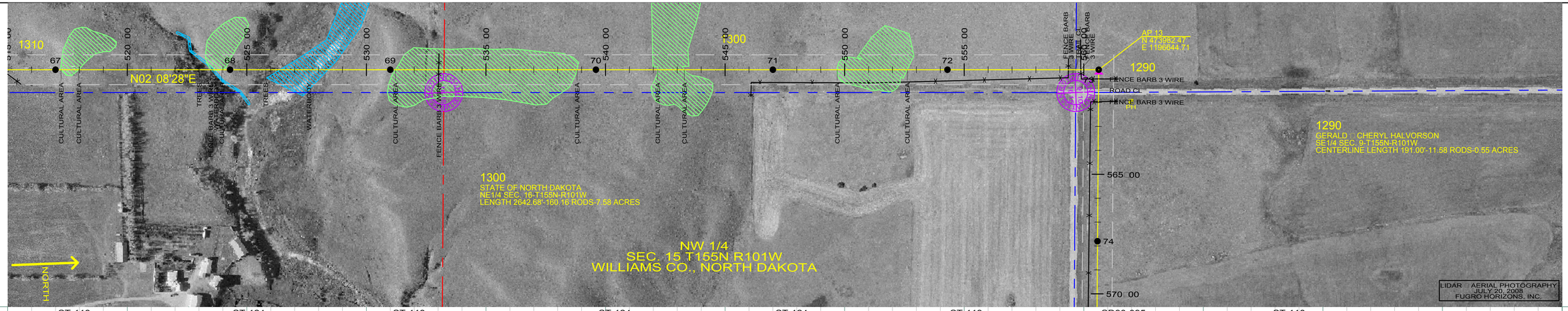
PLAN AND PROFILE

MILE 9 □ 9

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN | COUNTY NAME: WILLIAMS

BASIN DRAWING NO.: 296-090-T3-011 | REV.: 0



ST-113
STA 517 00.00
67

ST-124
STA 524 30.00
68

ST-113
STA 531 00.00
69

ST-124
STA 539 60.00
70

ST-124
STA 547 00.00
71

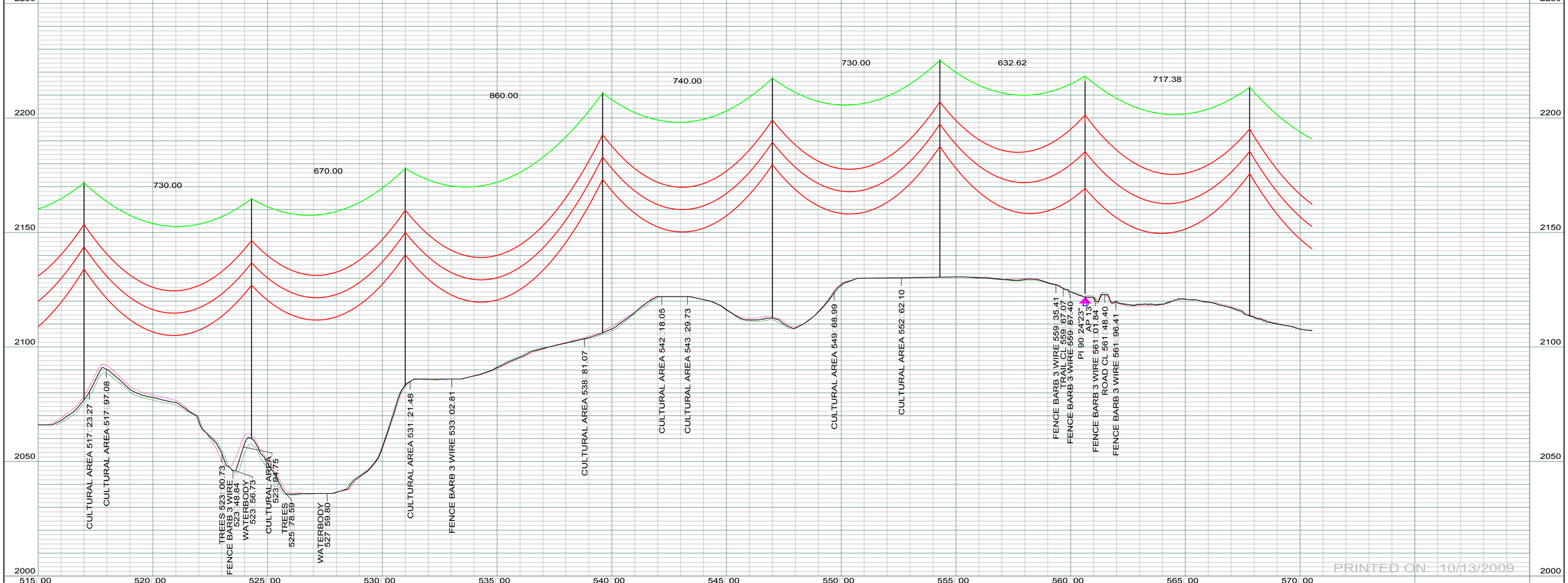
ST-113
STA 554 30.00
72

SD90-095
STA 560 62.62
HT ADJUST 1.50
73
AP 13

ST-118
STA 567 80.(
74

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE



PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

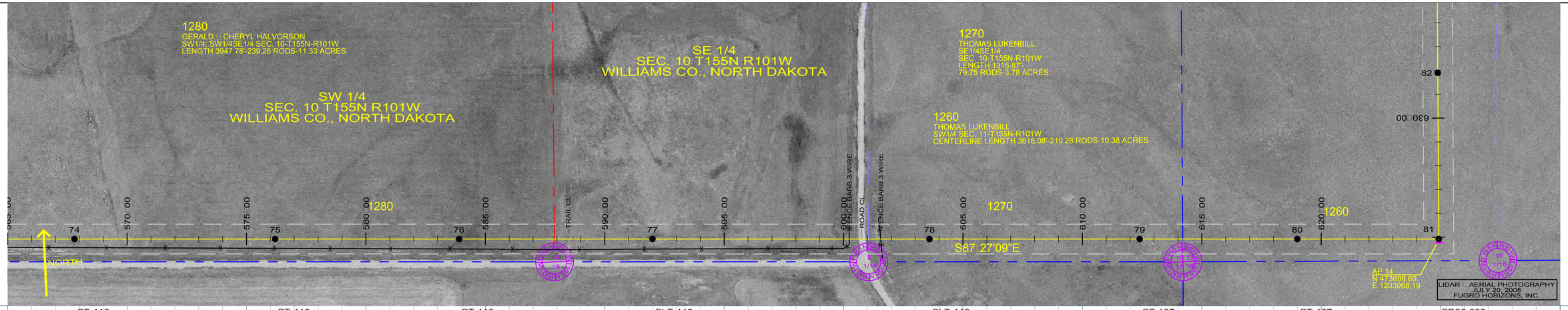
PLAN AND PROFILE

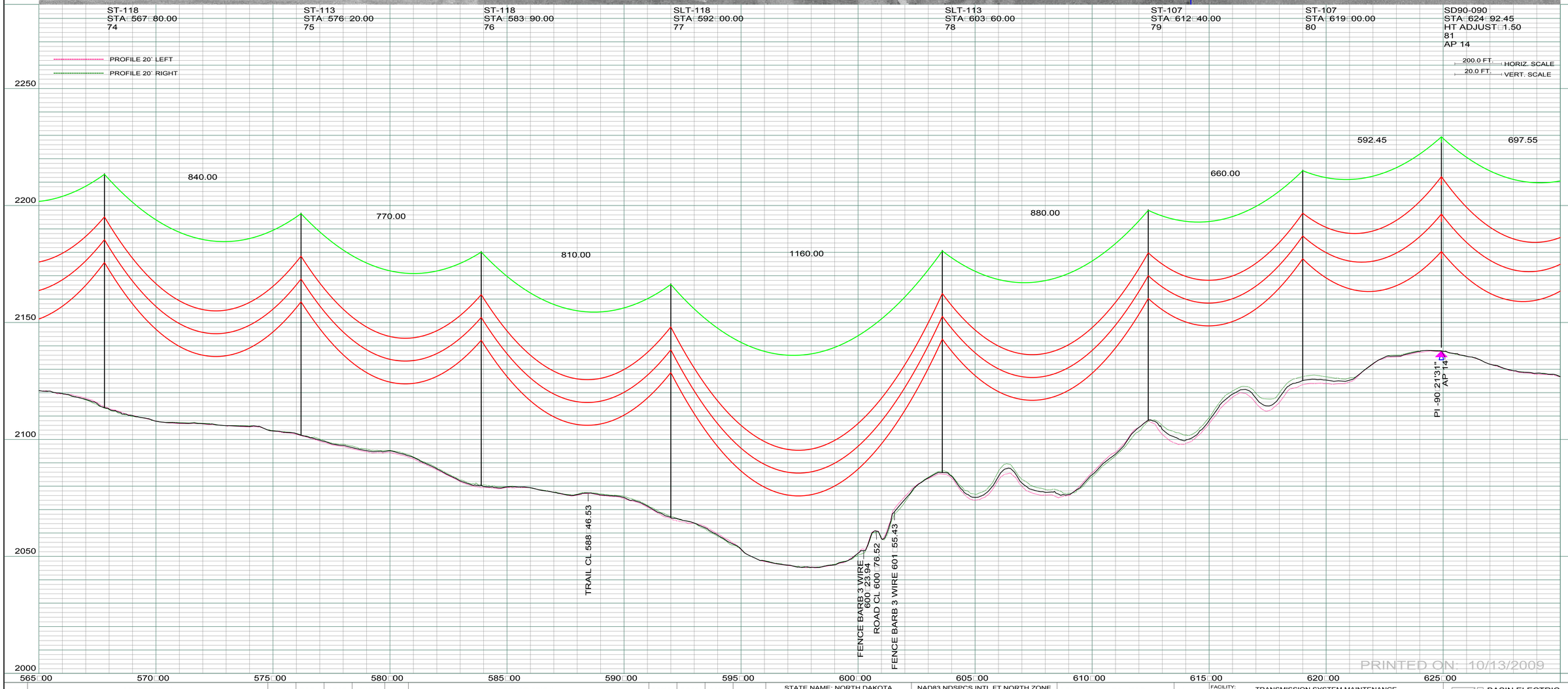
MILE 9 □ 10

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE:	COUNTY NAME:
AS SHOWN	WILLIAMS

BASIN DRAWING NO.	REV.
296-090-T3-012	0





REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

PLAN AND PROFILE

MILE 10 □ 11

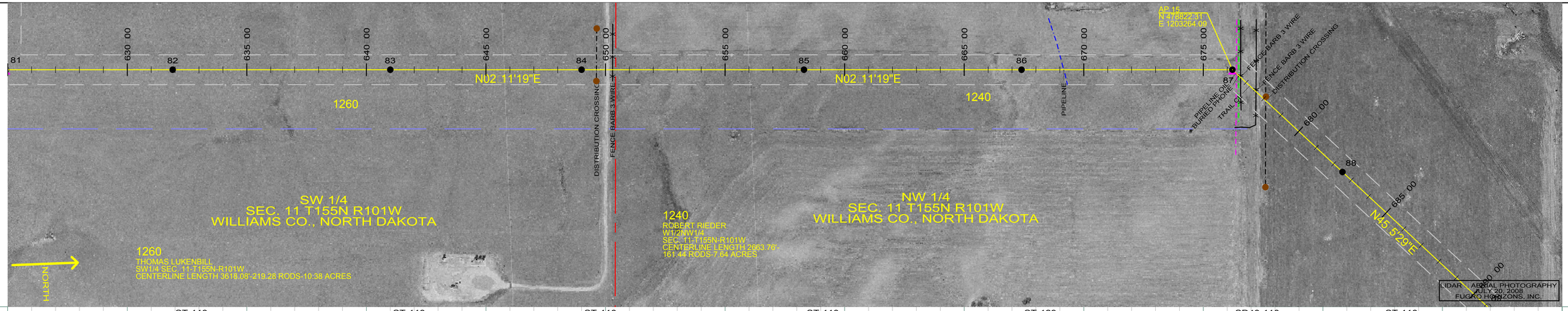
BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

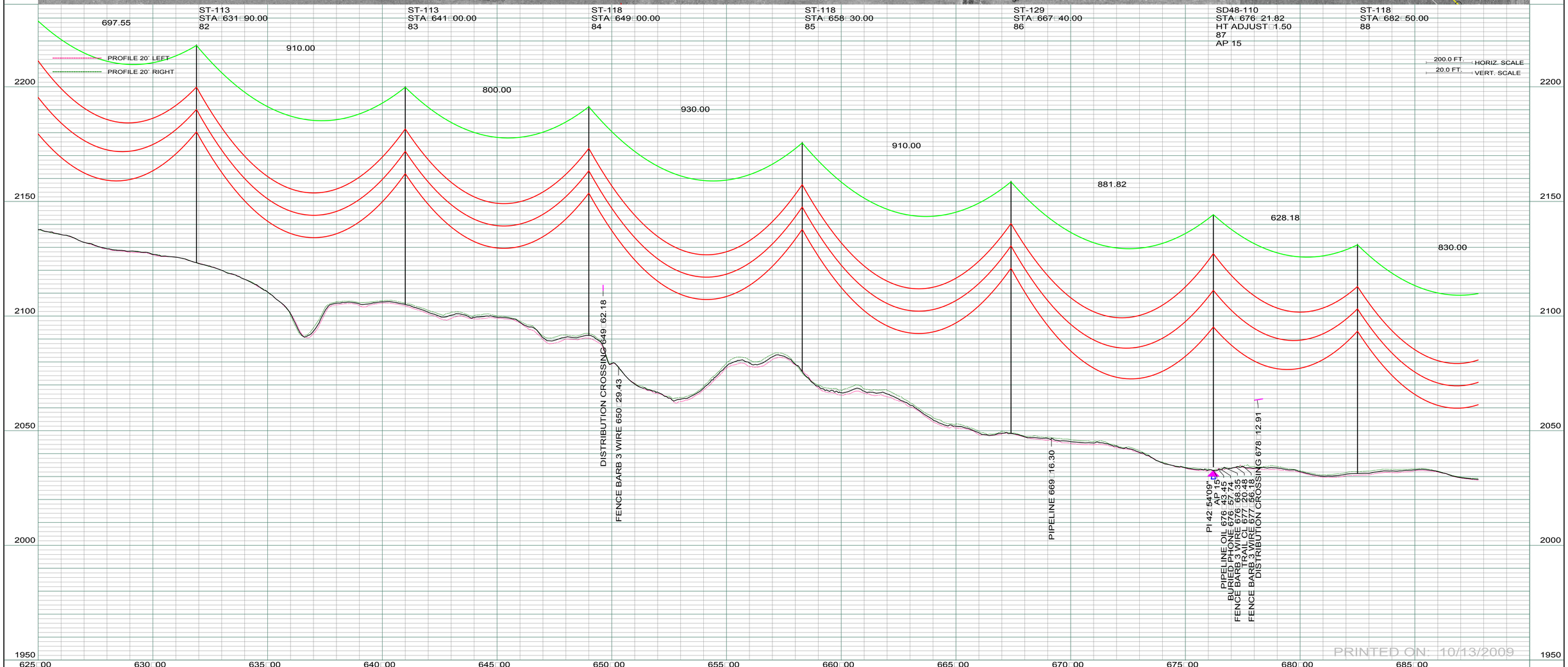
SCALE: AS SHOWN

COUNTY NAME: WILLIAMS

BASIN DRAWING NO. 296-090-T3-013

REV. 0





PRINTED ON: 10/13/2009

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2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

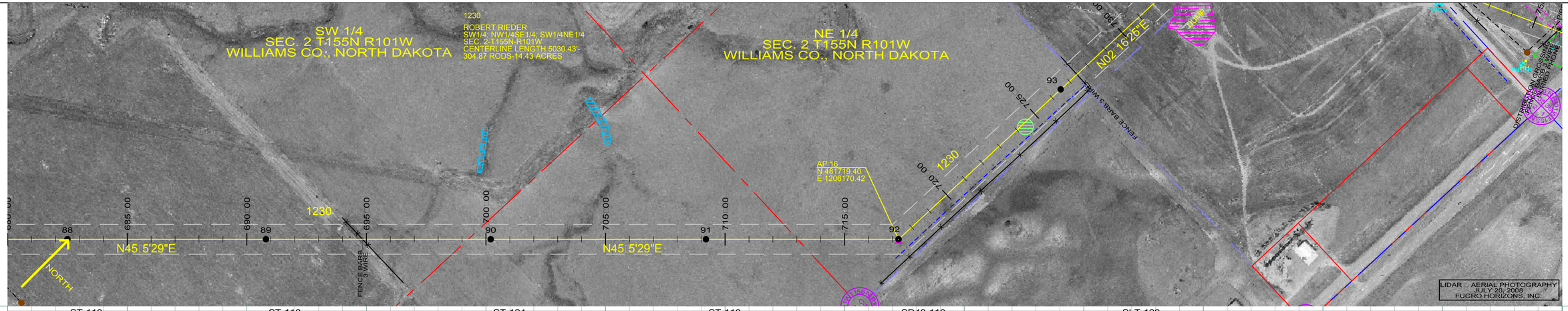
PLAN AND PROFILE

MILE 11 □ 12

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE:	COUNTY NAME:
AS SHOWN	WILLIAMS

BASIN DRAWING NO.	REV.
296-090-T3-014	0



ST-118
STA 682+50.00
88

ST-118
STA 690+80.00
89

ST-124
STA 700+20.00
90

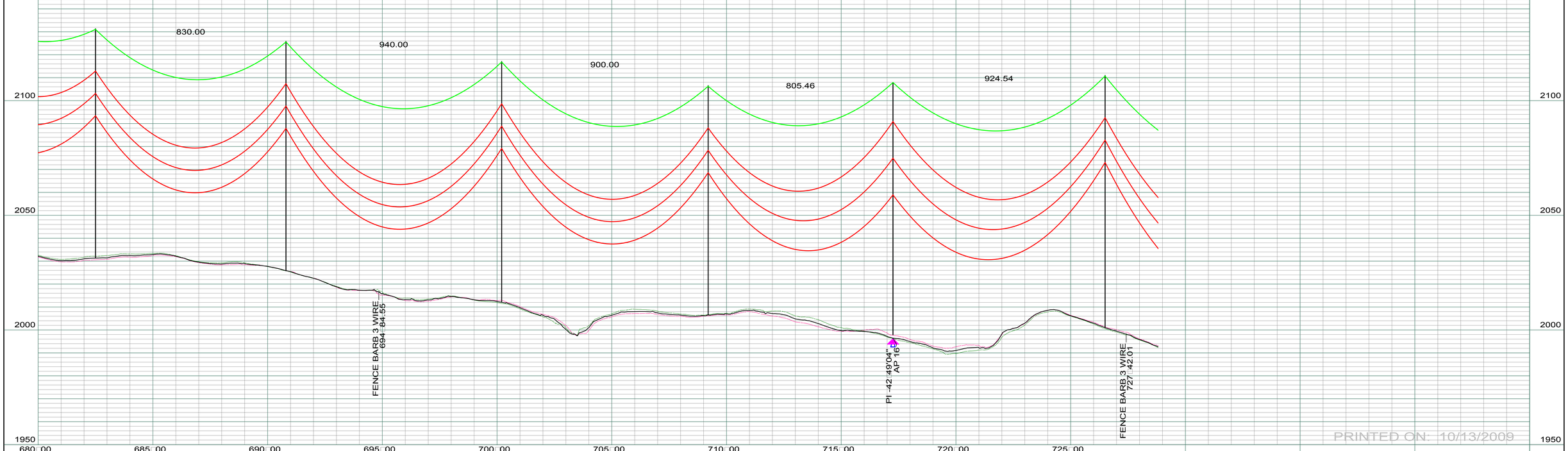
ST-118
STA 709+20.00
91

SD48-110
STA 717+25.46
HT ADJUST 1.50
92
AP 16

SLT-129
STA 726+5
93

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE



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REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2											
3											
4											

STATE NAME: NORTH DAKOTA — NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

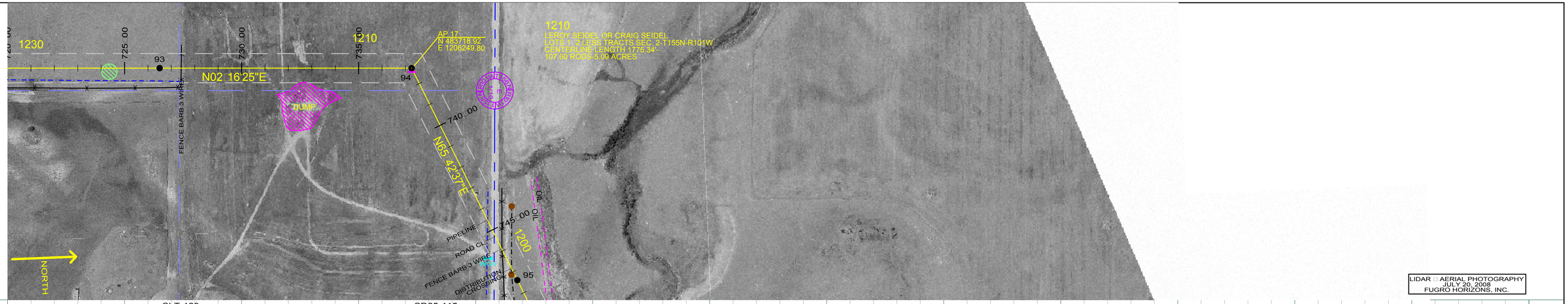
FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE
PLAN AND PROFILE
MILE 12 □ 12

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE:	COUNTY NAME:
AS SHOWN	WILLIAMS

BASIN DRAWING NO.	REV.
296-090-T3-015	0



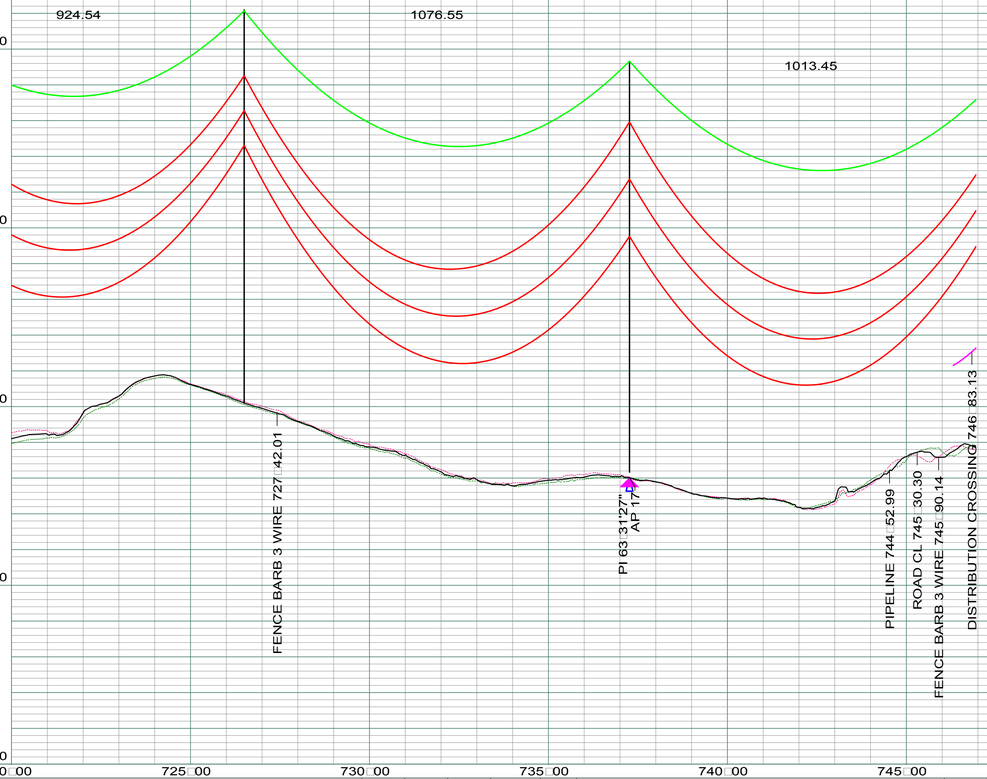
LIDAR □ AERIAL PHOTOGRAPHY
JULY 20, 2008
FUGRO HORIZONS, INC.

SLT-129
STA 726 50.00
93

SD65-115
STA 737 26.55
HT ADJUST 1.50
94
AP 17

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE



PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

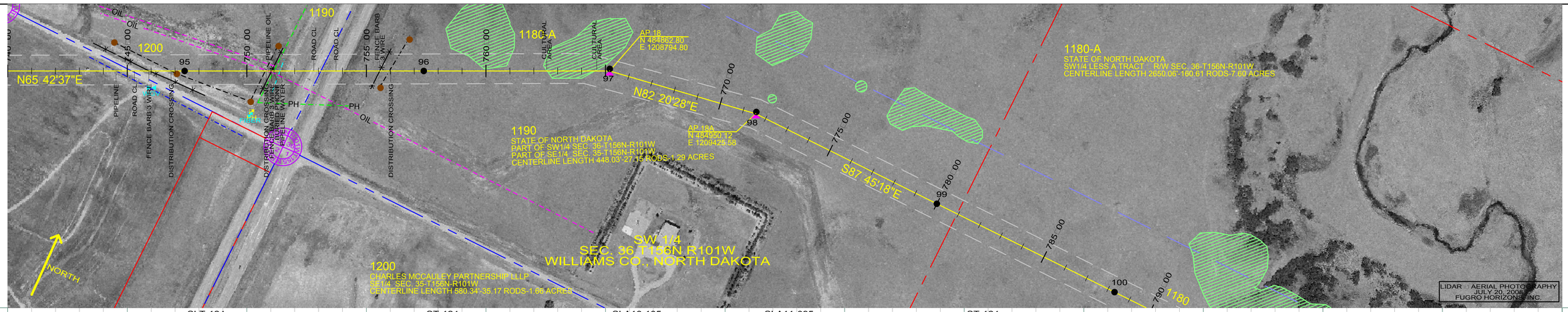
DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

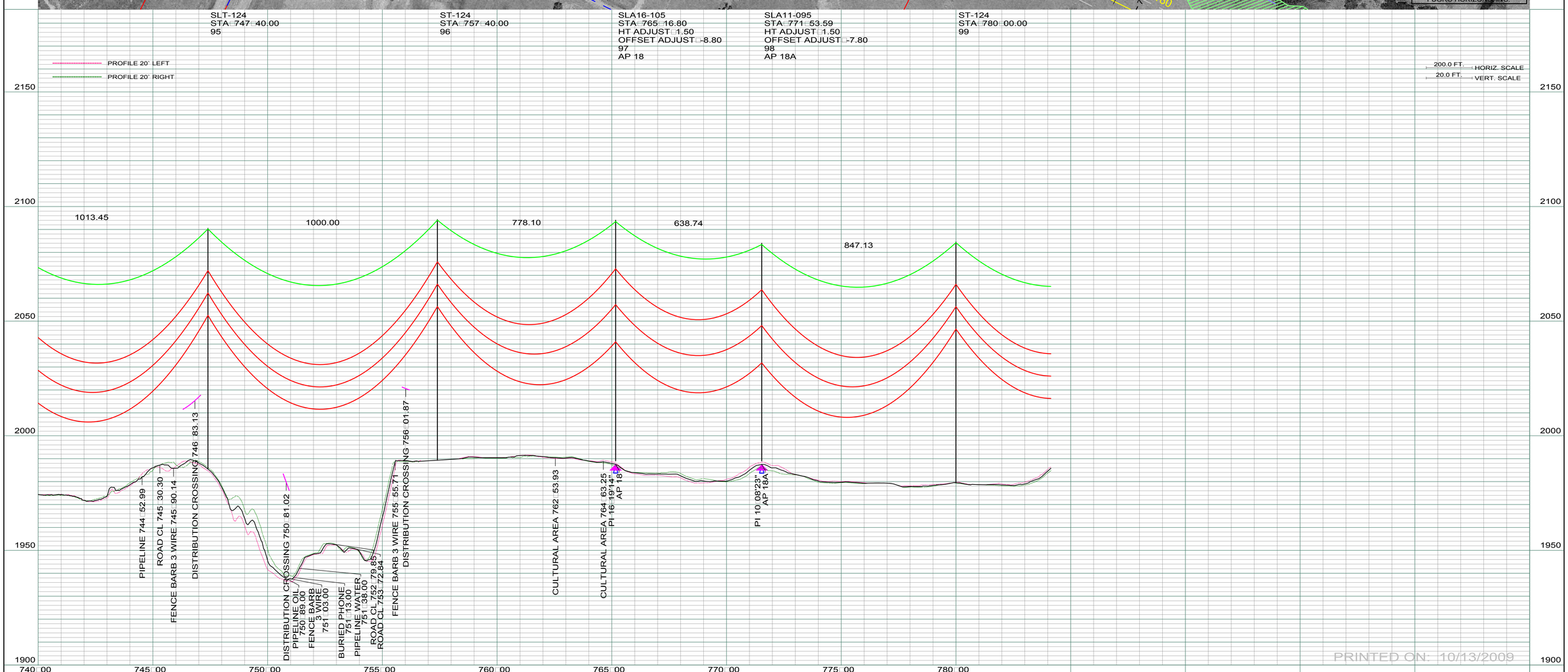
FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE
PLAN AND PROFILE
MILE 12 □ 13

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN
COUNTY NAME: WILLIAMS
BASIN DRAWING NO.: 296-090-T3-016
REV.: 0





PRINTED ON: 10/13/2009

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3					
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REV	DESCRIPTION	DRWN	DSGN	APPD	DATE

STATE NAME: NORTH DAKOTA — NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

PLAN AND PROFILE

MILE 13 - 14

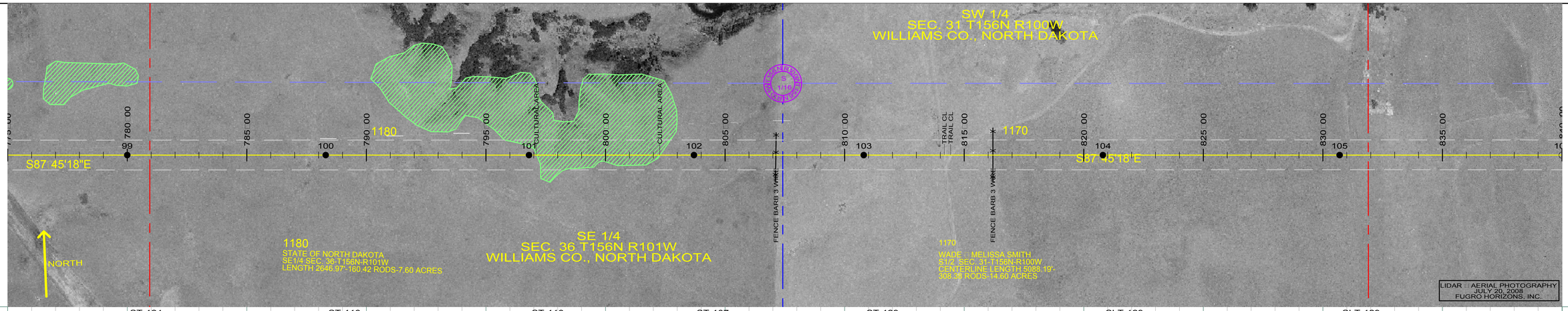
BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

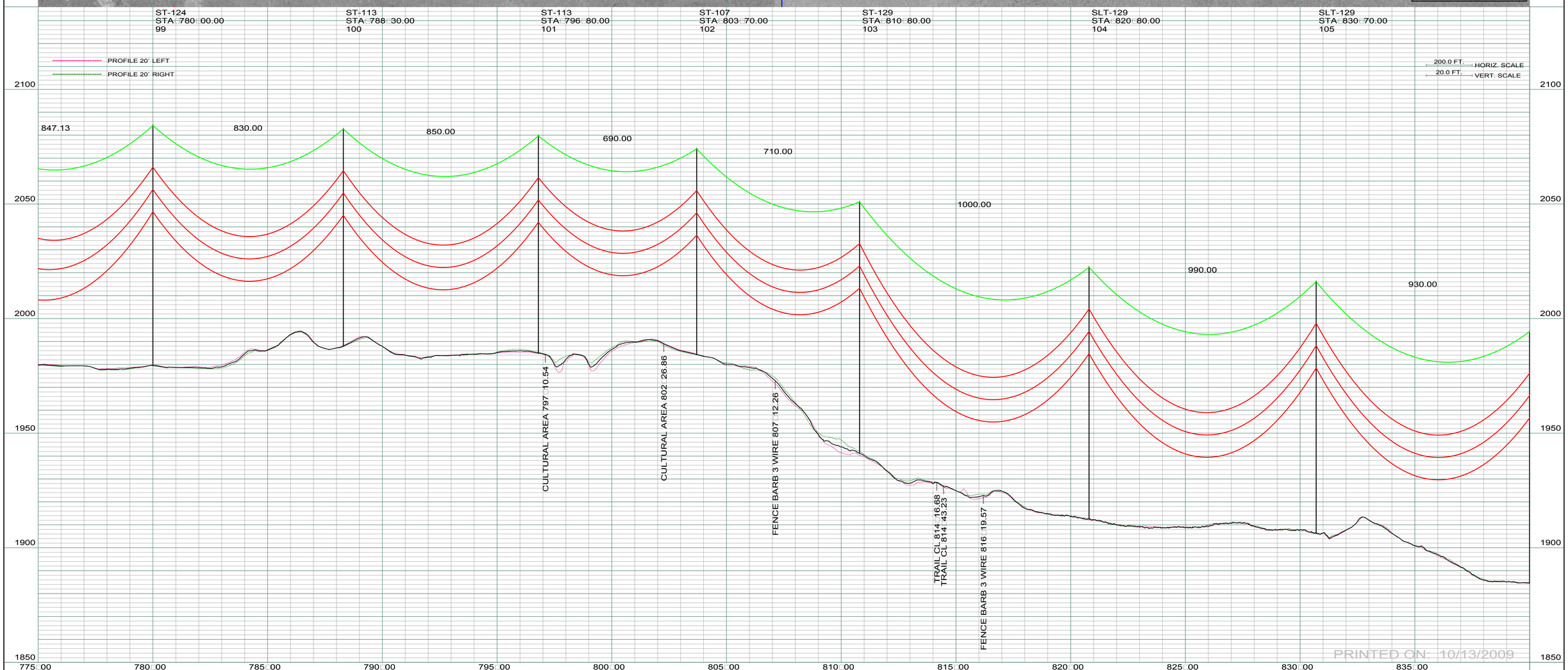
SCALE: AS SHOWN

COUNTY NAME: WILLIAMS

BASIN DRAWING NO.: 296-090-T3-017

REV.: 0





REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

PLAN AND PROFILE

MILE 14 □ 14

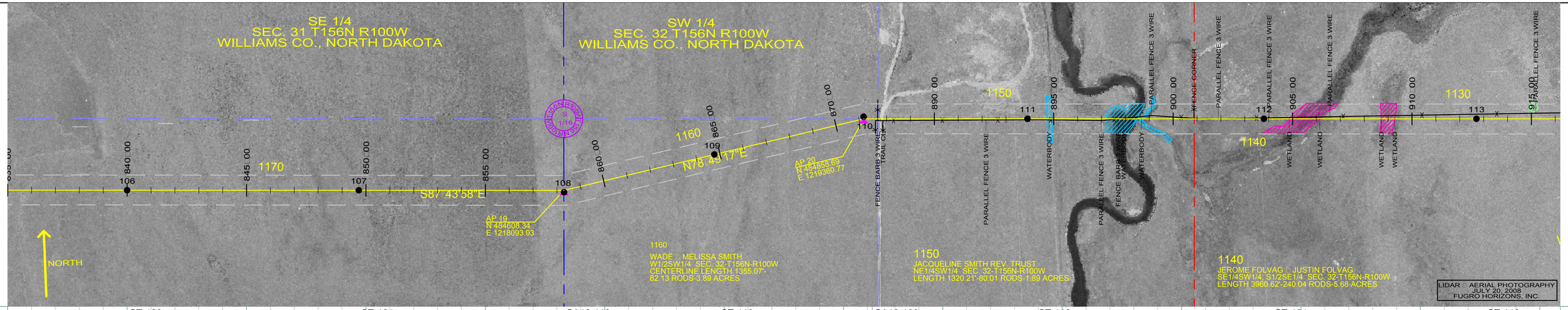
BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN

COUNTY NAME: WILLIAMS

BASIN DRAWING NO.: 296-090-T3-018

REV.: 0



ST-129
STA 840+00.00
106

ST-124
STA 849+70.00
107

SA16-110
STA 858+28.68
HT ADJUST 1.50
OFFSET ADJUST 7.70
108
AP 19

ST-118
STA 864+76.51
109

SA16-100
STA 887+04.77
HT ADJUST 1.50
OFFSET ADJUST -9.00
110
AP 20

ST-118
STA 893+90.00
111

ST-124
STA 903+80.00
112

ST-113
STA 912+70.00
113

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE

930.00

970.00 859.61 648.78 644.63 686.34 990.00 890.00

PI -13°26'12"
AP 19

STATION EQUATION
871+20.02 BACK
STATION EQUATION
887+04.77 AHEAD

PI 13°24'53"
AP 20

FENCE BARB 3 WIRE 887+62.47
TRAIL CL 887+74.17
PARALLEL FENCE 3 WIRE 892+16.27
WATERBODY 894+80.69
PARALLEL FENCE 3 WIRE 896+98.25
FENCE BARB 3 WIRE 897+69.70
WATERBODY 897+88.57
WATERBODY 898+67.18
PARALLEL FENCE 3 WIRE 899+06.53
FENCE CORNER 900+87.03
PARALLEL FENCE 3 WIRE 901+89.54
PARALLEL FENCE 3 WIRE 904+01.68
WETLAND 904+85.98
WETLAND 906+13.72
PARALLEL FENCE 3 WIRE 906+56.01
WETLAND 908+71.21
WETLAND 909+27.98
PARALLEL FENCE 3 WIRE 915+18.24

2050 2000 1950 1900 1850 1800

835+00 840+00 845+00 850+00 855+00 860+00 865+00 870+00 890+00 895+00 900+00 905+00 910+00 915+00

PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
1	-	-	-	-	-						
2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

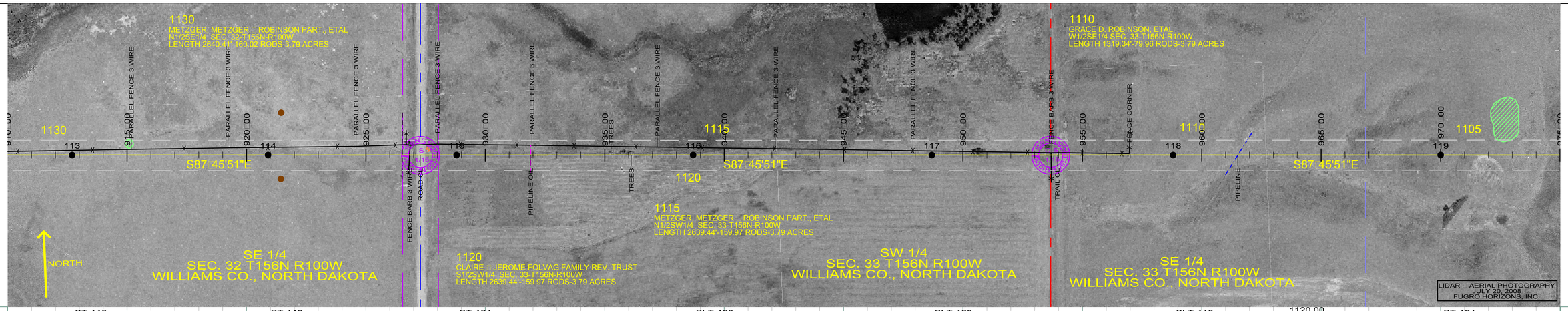
WILLISTON TO TIOGA 230KV TRANSMISSION LINE

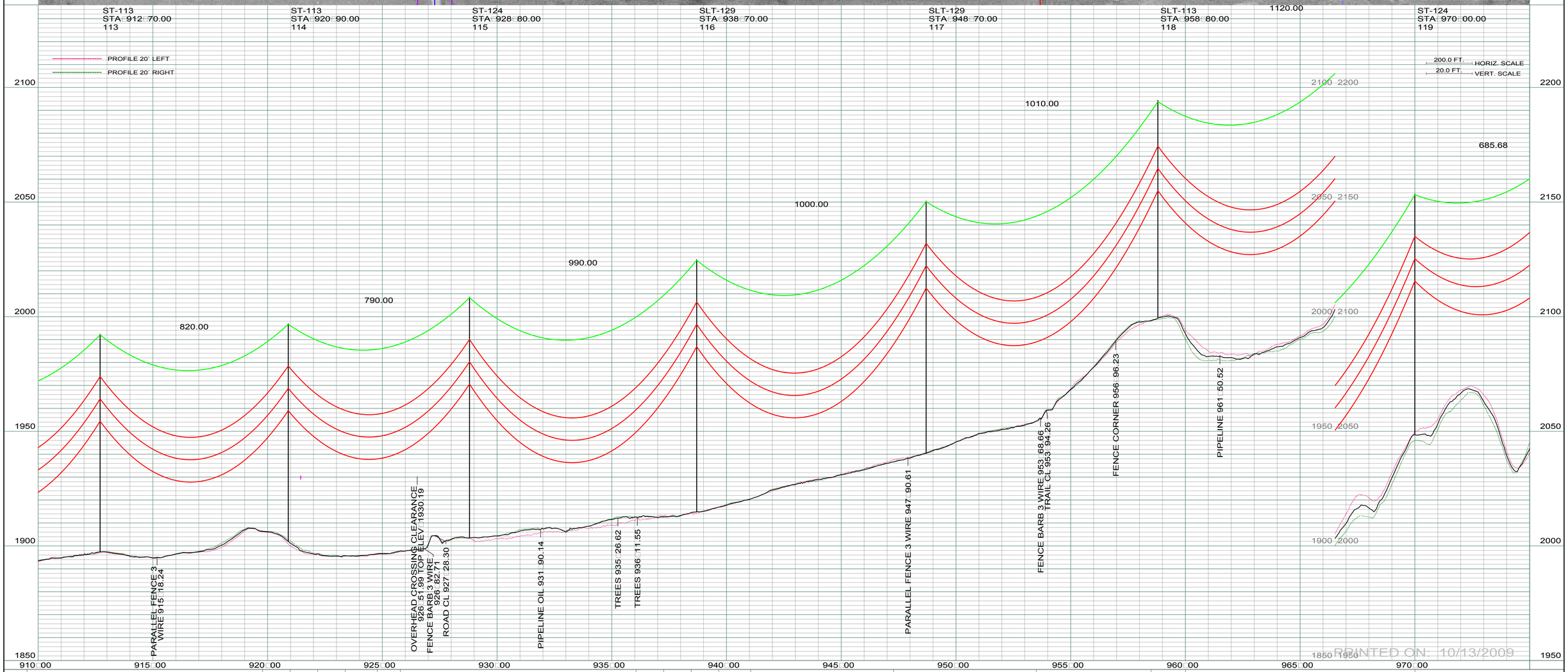
PLAN AND PROFILE

MILE 14 □ 15

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN
COUNTY NAME: WILLIAMS
BASIN DRAWING NO.: 296-090-T3-019
REV.: 0





PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2											
3											
4											

STATE NAME: NORTH DAKOTA — NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

PLAN AND PROFILE

MILE 15 □ 16

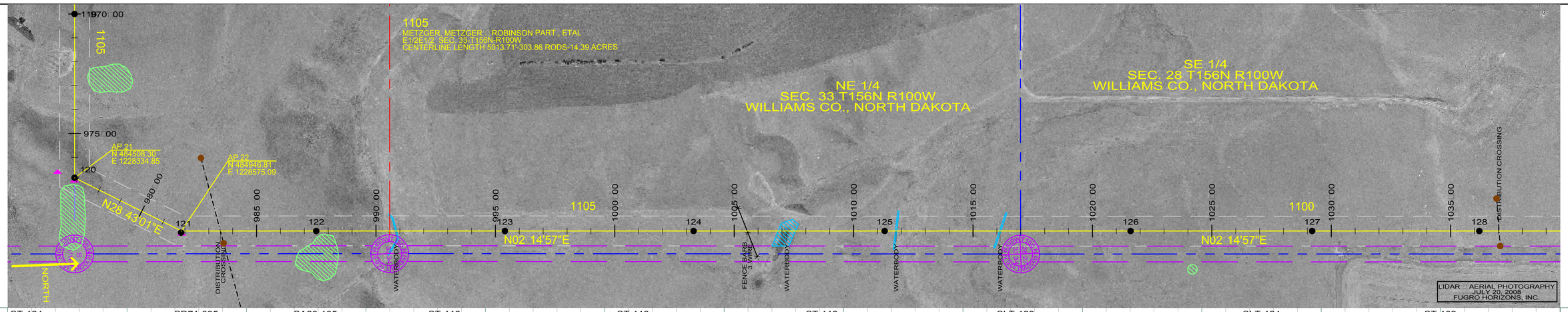
BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN

COUNTY NAME: WILLIAMS

BASIN DRAWING NO. 296-090-T3-020

REV. 0



ST-124
STA 970+00.00
119

SD71-095
STA 976+85.68
HT ADJUST 1.50
120
AP 21

SA28-105
STA 981+85.68
HT ADJUST 1.50
OFFSET ADJUST 7.05
121
AP 22

ST-118
STA 987+50.00
122

ST-113
STA 995+40.00
123

ST-118
STA 1003+30.00
124

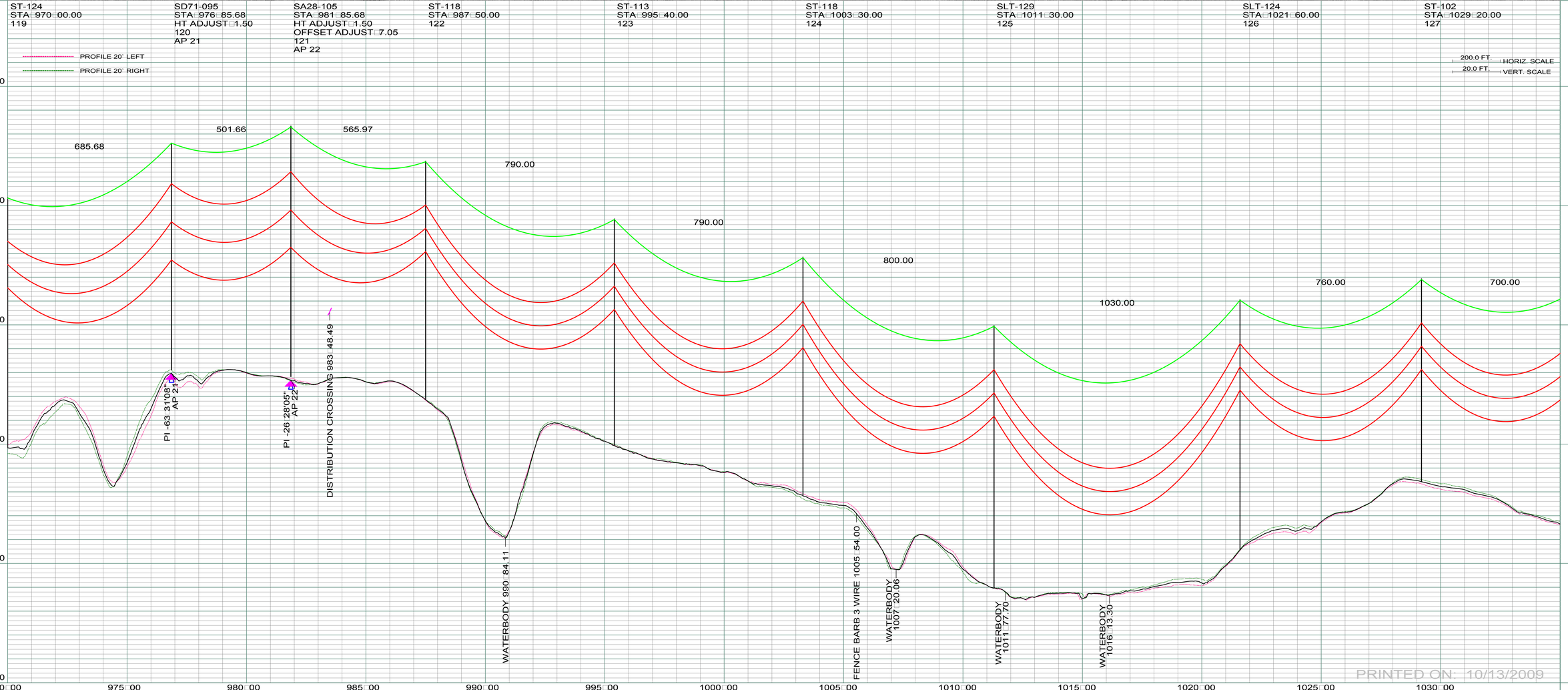
SLT-129
STA 1011+30.00
125

SLT-124
STA 1021+60.00
126

ST-102
STA 1029+20.00
127

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE



PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

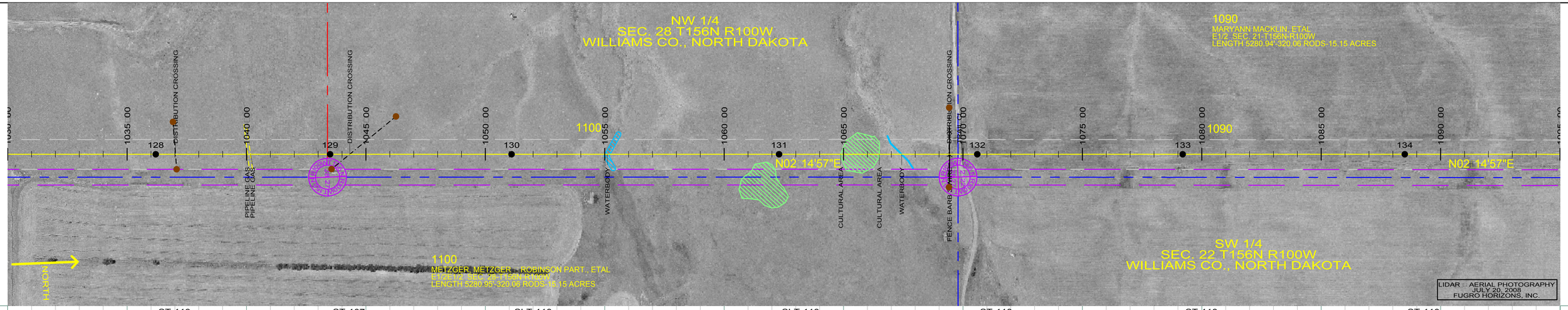
WILLISTON TO TIOGA 230KV TRANSMISSION LINE

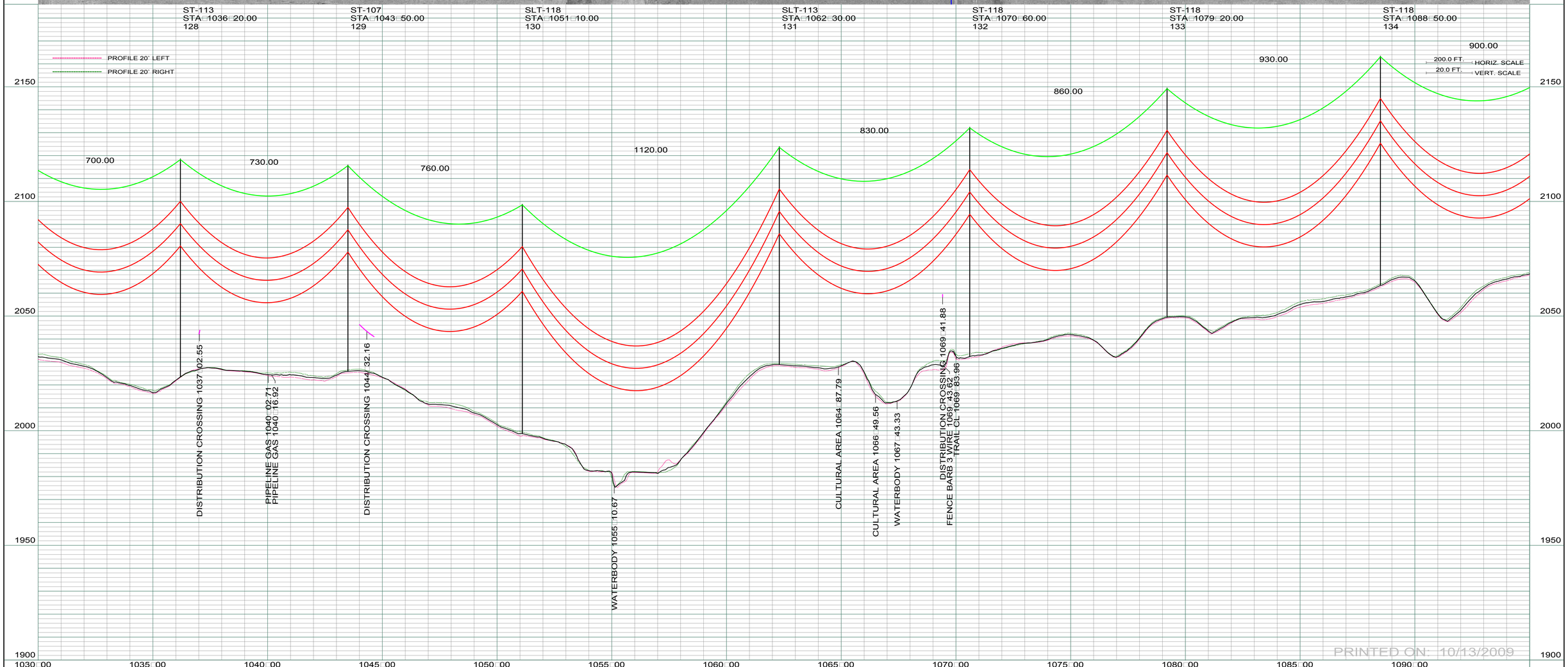
PLAN AND PROFILE

MILE 16 □ 16

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN
COUNTY NAME: WILLIAMS
BASIN DRAWING NO.: 296-090-T3-021
REV.: 0





PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

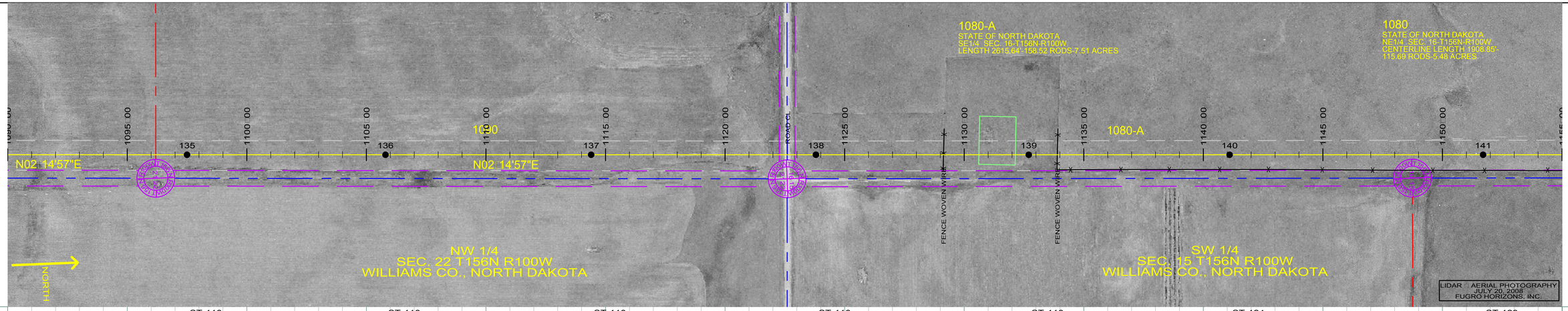
PLAN AND PROFILE

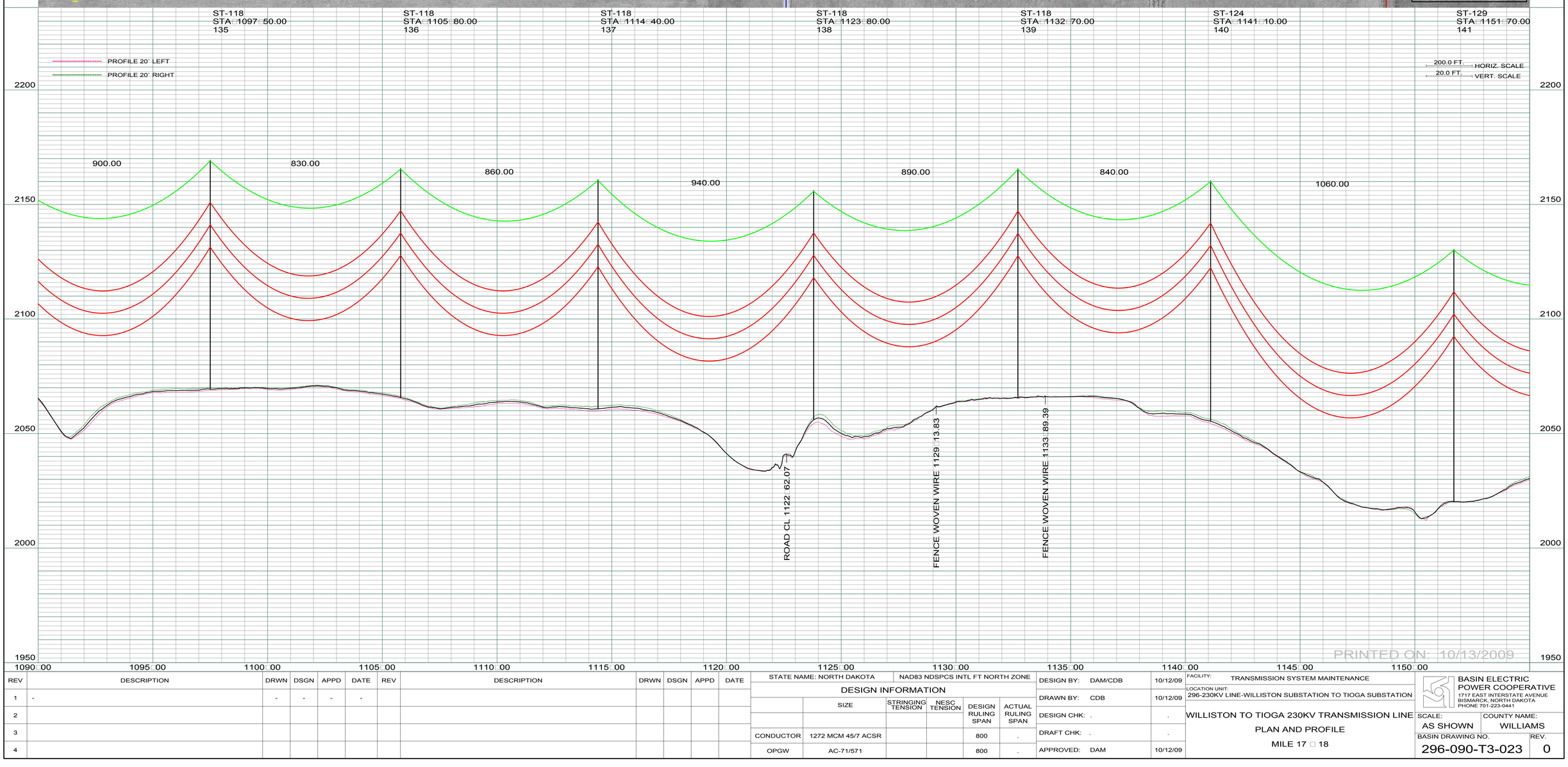
MILE 16 □ 17

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN | COUNTY NAME: WILLIAMS

BASIN DRAWING NO.: 296-090-T3-022 | REV.: 0





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2					
3					
4					

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE

STATE NAME: NORTH DAKOTA — NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

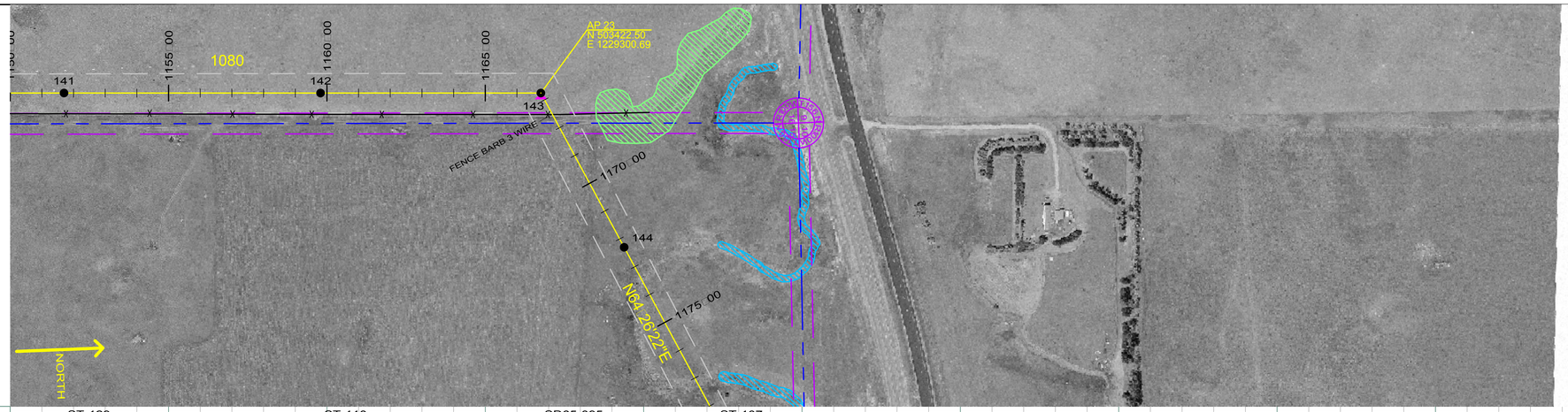
WILLISTON TO TIOGA 230KV TRANSMISSION LINE

PLAN AND PROFILE

MILE 17 □ 18

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE:	COUNTY NAME:
AS SHOWN	WILLIAMS
BASIN DRAWING NO.	REV.
296-090-T3-023	0



LIDAR □ AERIAL PHOTOGRAPHY
JULY 20, 2008
FUGRO HORIZONS, INC.

ST-129
STA 1151 70.00
141

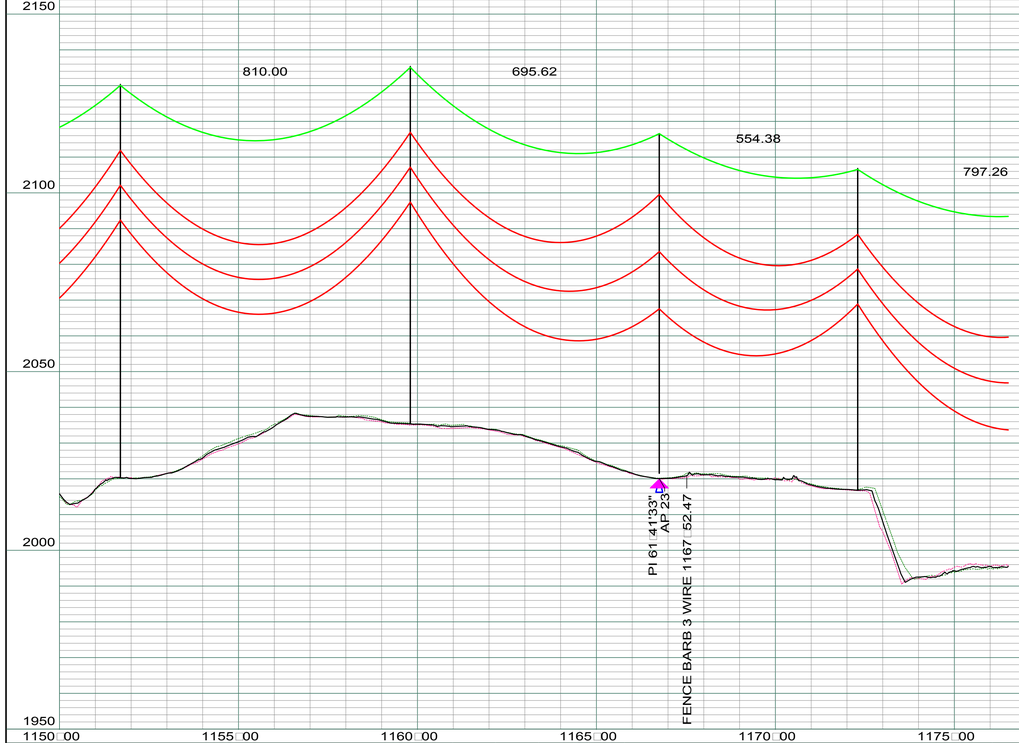
ST-118
STA 1159 80.00
142

SD65-095
STA 1166 75.62
HT ADJUST 1.50
143
AP 23

ST-107
STA 1172 30.00
144

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE



PRINTED ON: 10/13/2009

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2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

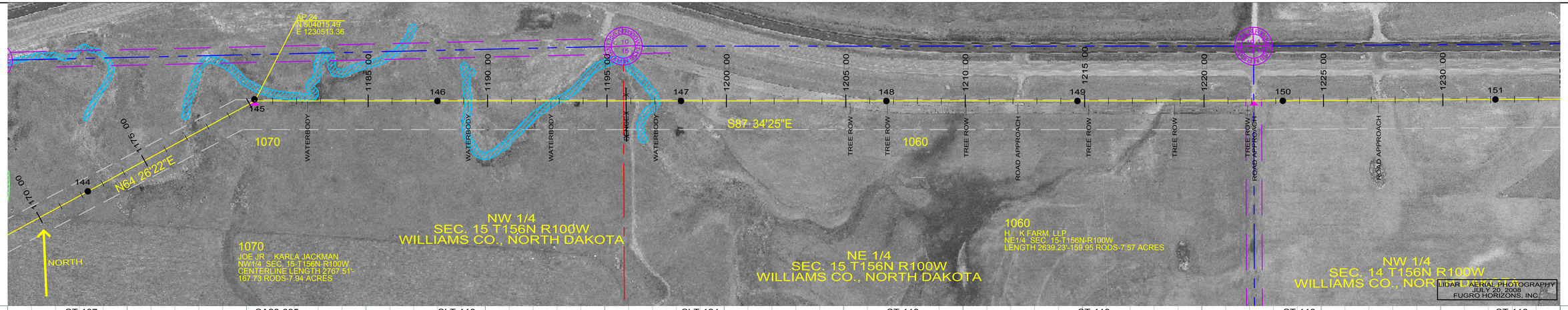
FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

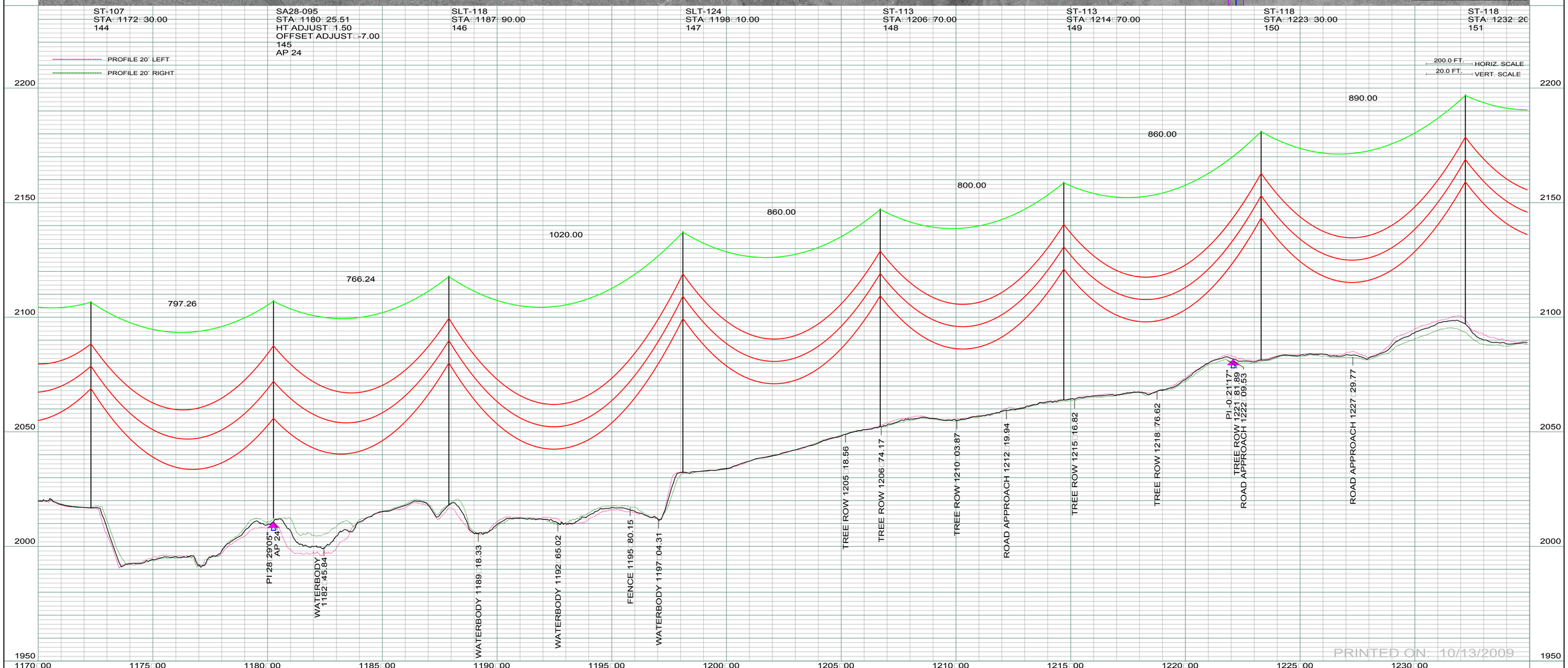
WILLISTON TO TIOGA 230KV TRANSMISSION LINE
PLAN AND PROFILE
MILE 18 □ 19

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE:	COUNTY NAME:
AS SHOWN	WILLIAMS

BASIN DRAWING NO.	REV.
296-090-T3-024	0





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2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

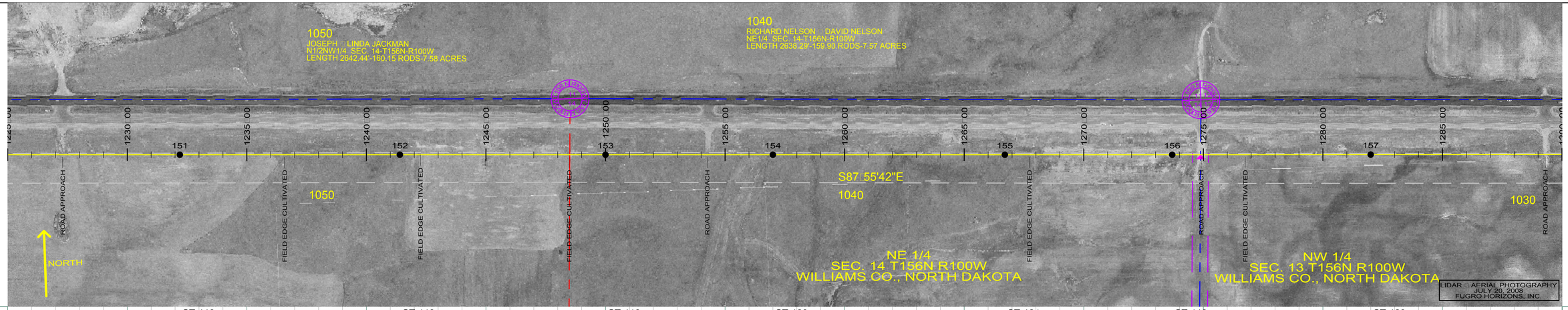
PLAN AND PROFILE

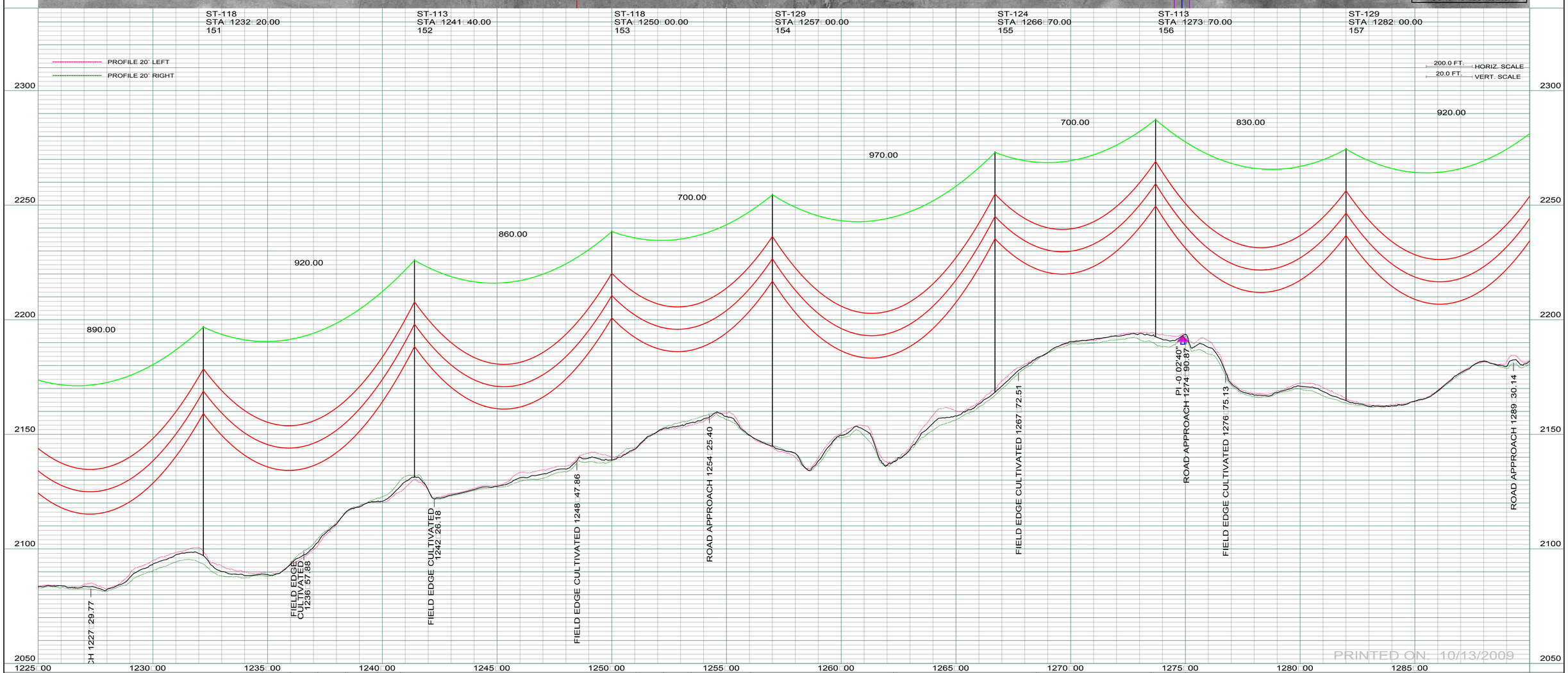
MILE 19 □ 20

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN | COUNTY NAME: WILLIAMS

BASIN DRAWING NO.: 296-090-T3-025 | REV.: 0





REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

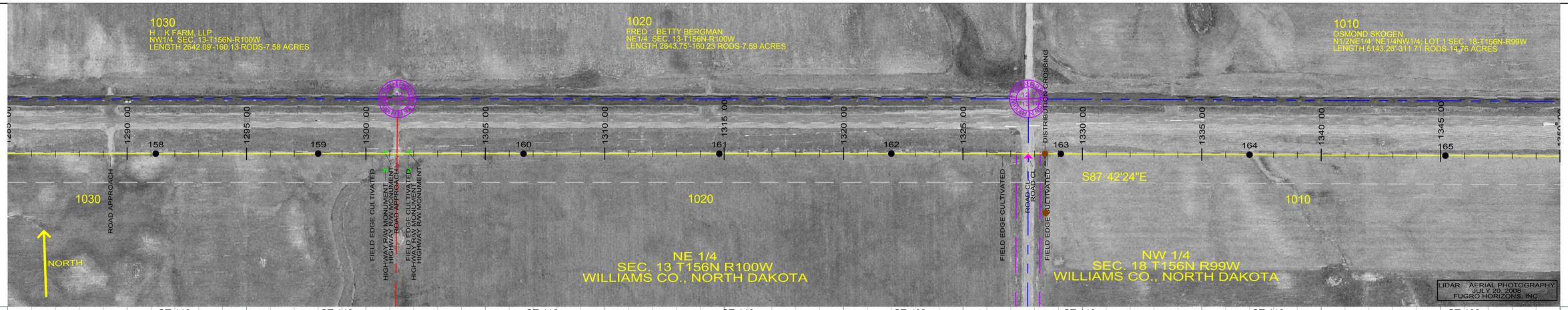
PLAN AND PROFILE

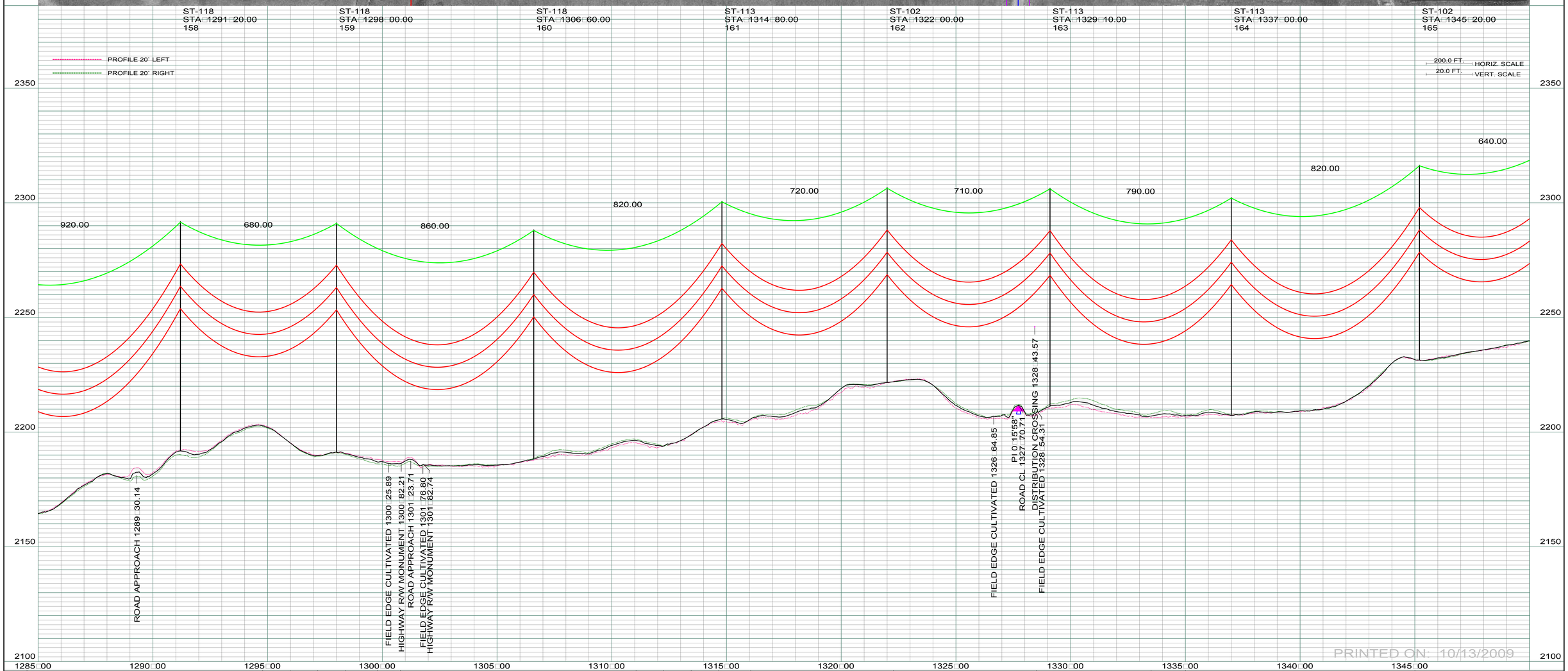
MILE 20 □ 21

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE:	COUNTY NAME:
AS SHOWN	WILLIAMS

BASIN DRAWING NO.	REV.
296-090-T3-026	0





REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

PLAN AND PROFILE

MILE 21 □ 22

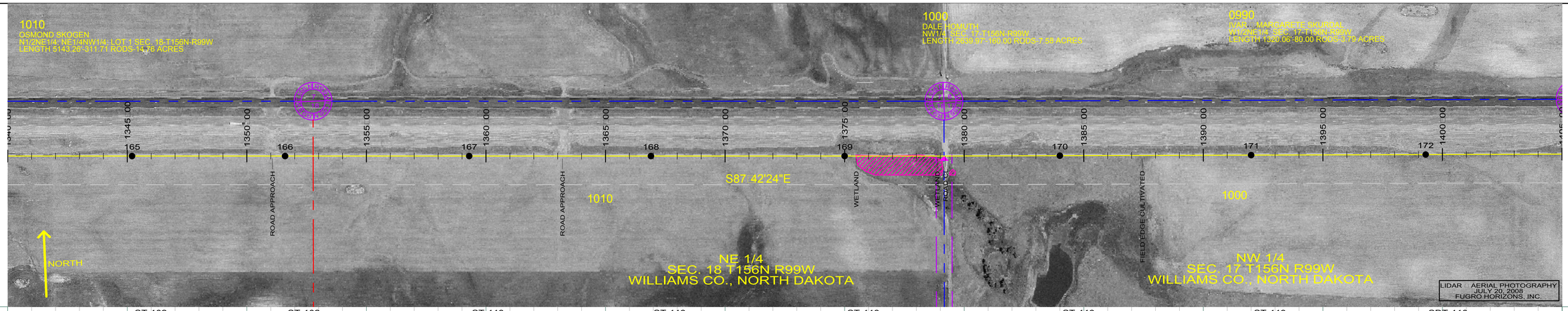
BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

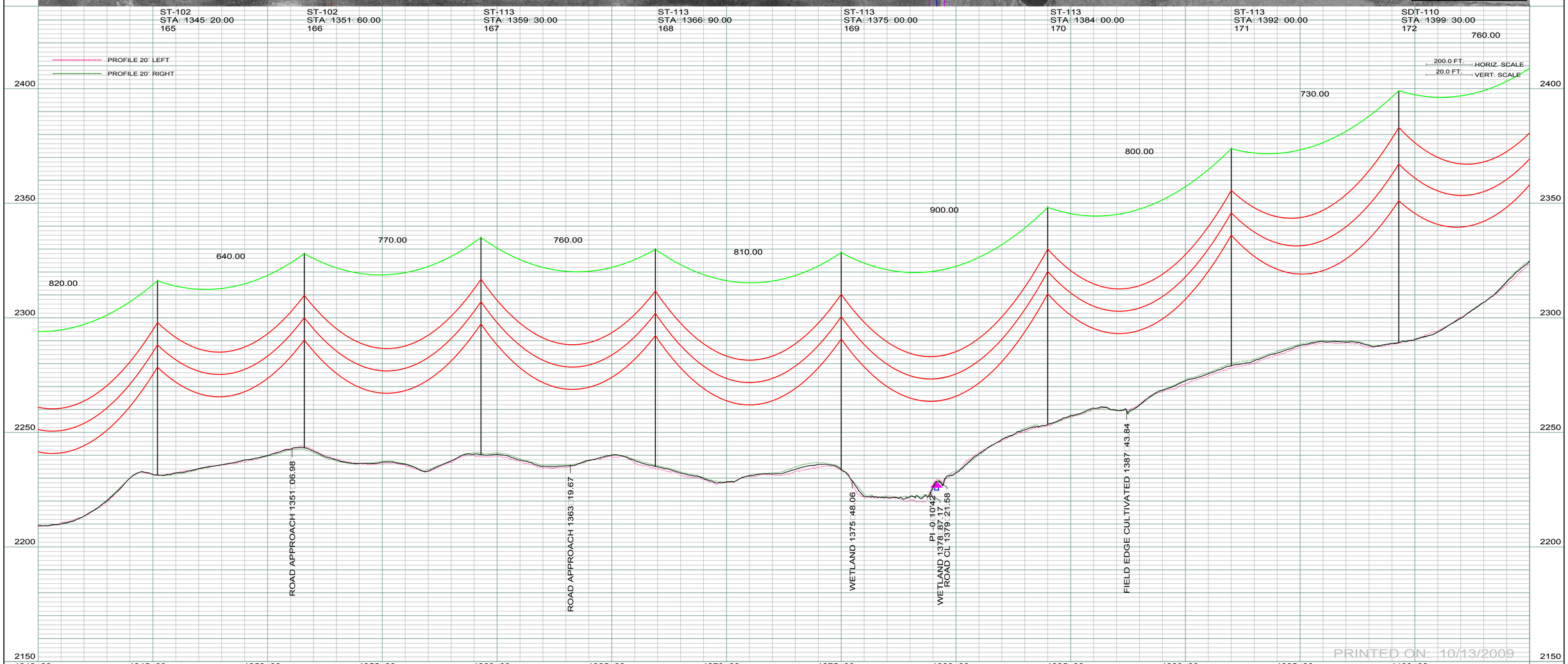
SCALE: AS SHOWN

COUNTY NAME: WILLIAMS

BASIN DRAWING NO.: 296-090-T3-027

REV.: 0





REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2											
3											
4											

STATE NAME: NORTH DAKOTA — NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

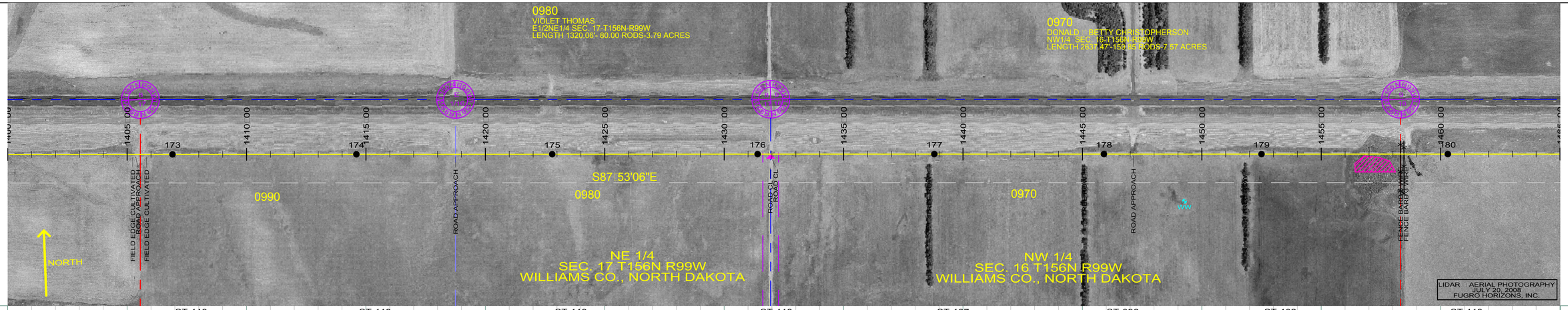
WILLISTON TO TIOGA 230KV TRANSMISSION LINE

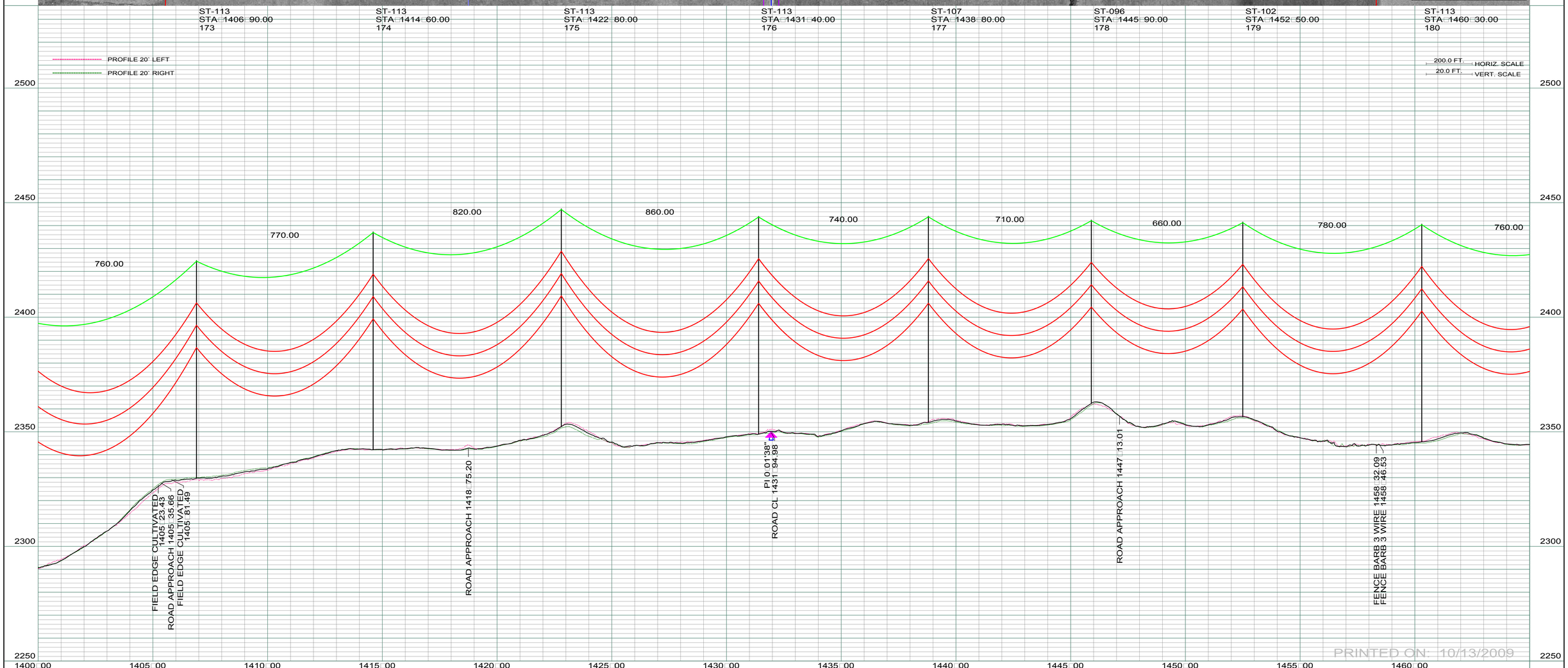
PLAN AND PROFILE

MILE 22 □ 23

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE:	COUNTY NAME:
AS SHOWN	WILLIAMS
BASIN DRAWING NO.	REV.
296-090-T3-028	0





PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

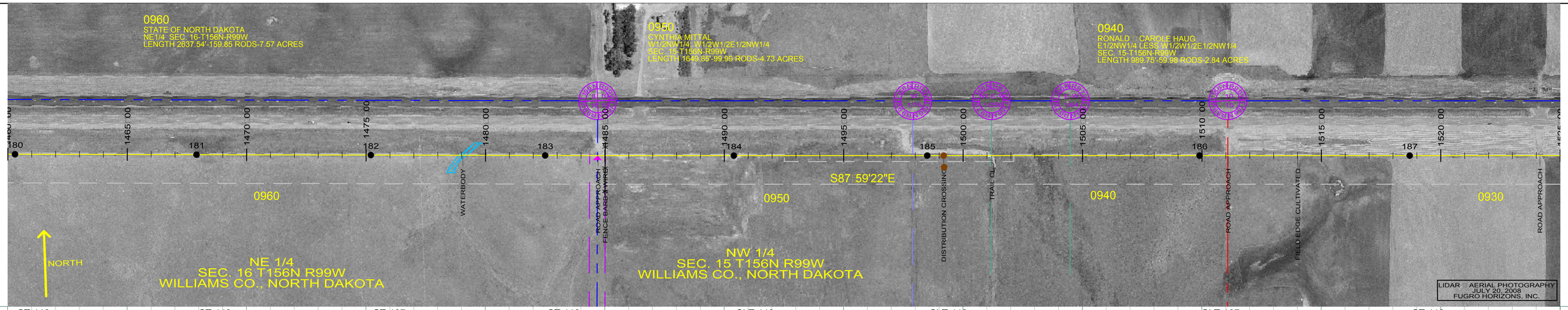
PLAN AND PROFILE

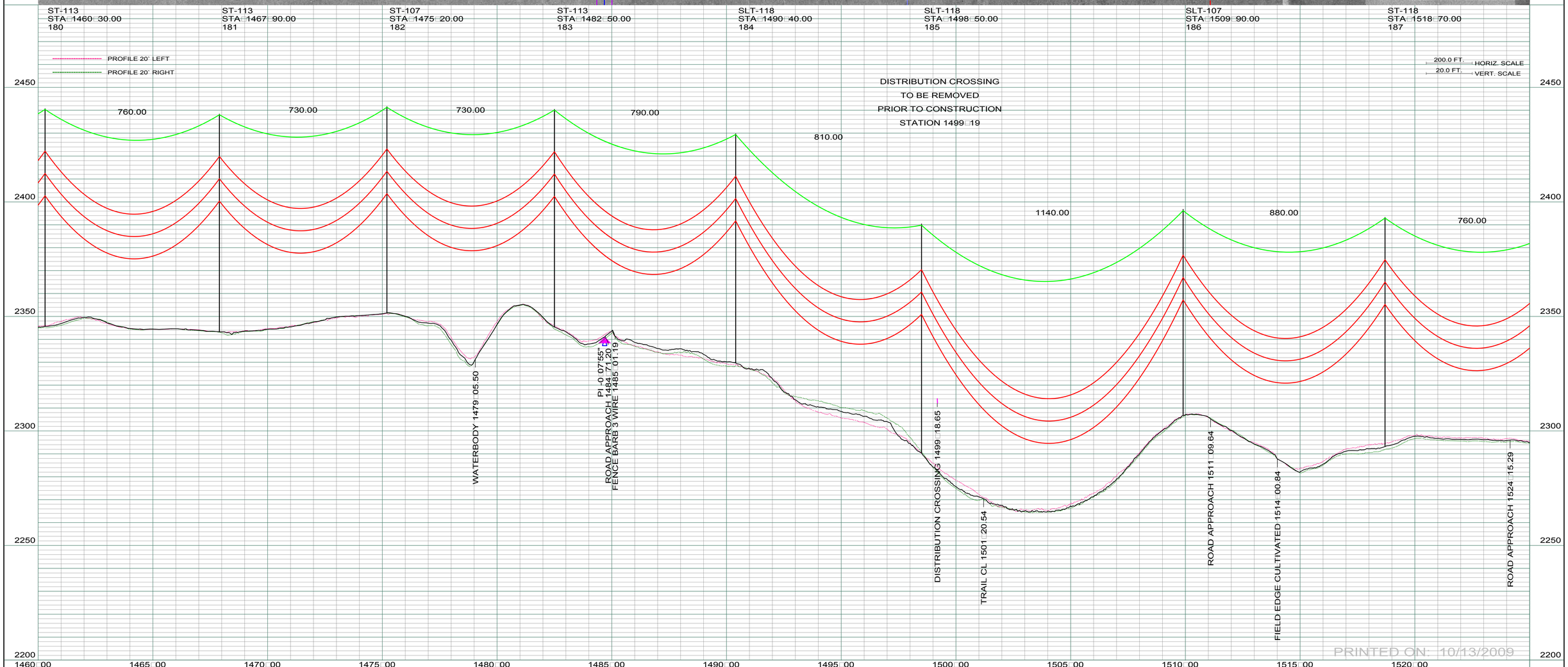
MILE 23 □ 24

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN | COUNTY NAME: WILLIAMS

BASIN DRAWING NO.: 296-090-T3-029 | REV.: 0





REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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3					
4					

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

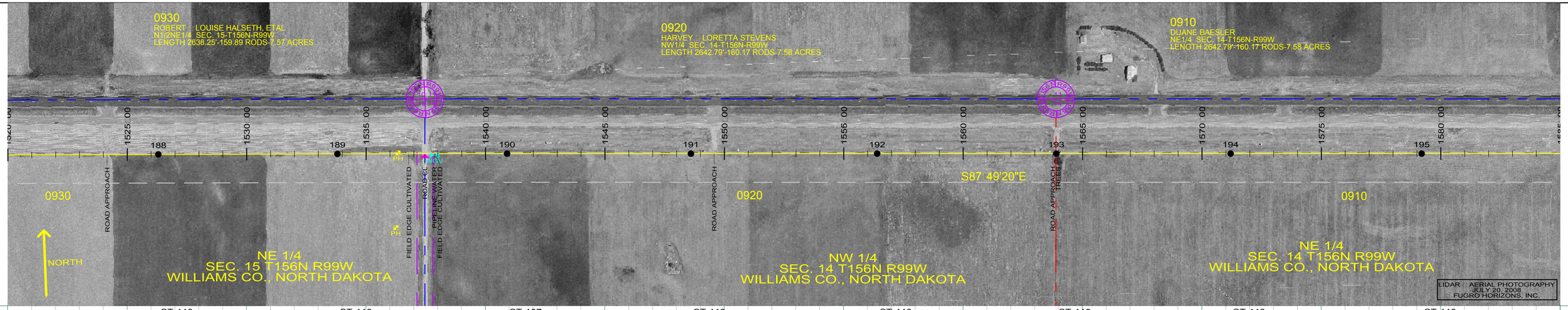
PLAN AND PROFILE

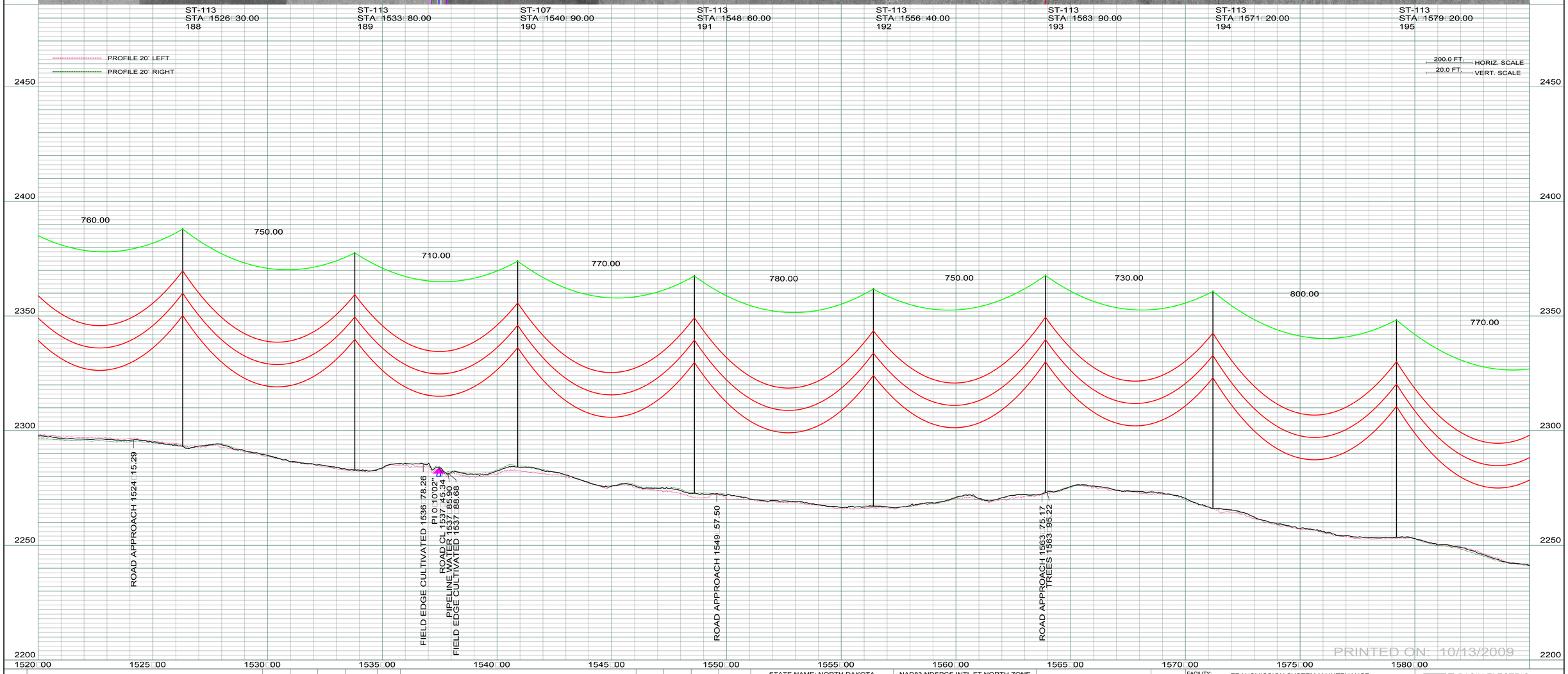
MILE 24 □ 25

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE:	COUNTY NAME:
AS SHOWN	WILLIAMS

BASIN DRAWING NO.	REV.
296-090-T3-030	0





REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2					
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4					

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

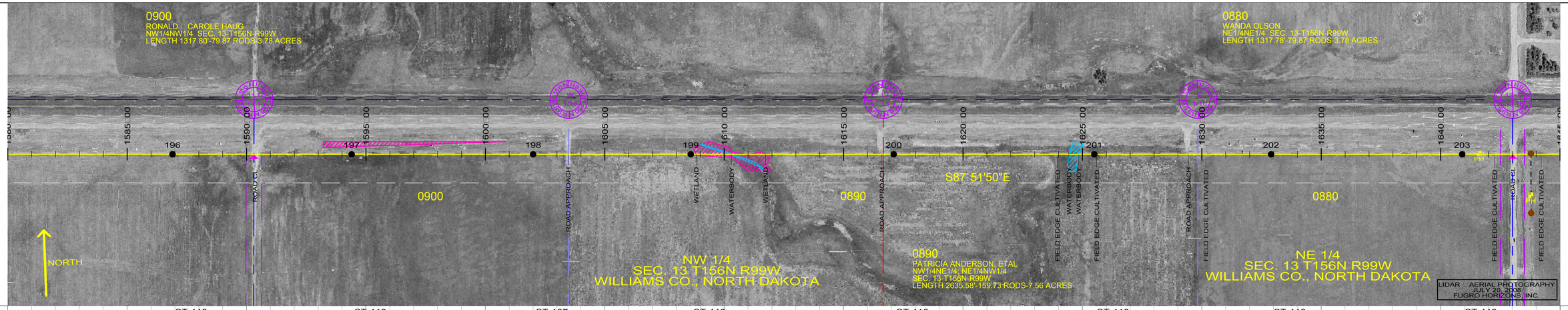
PLAN AND PROFILE

MILE 25 □ 26

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE:	COUNTY NAME:
AS SHOWN	WILLIAMS

BASIN DRAWING NO.	REV.
296-090-T3-031	0



ST-113 STA 1586+90.00 196 | ST-113 STA 1594+40.00 197 | ST-107 STA 1602+00.00 198 | ST-113 STA 1608+60.00 199 | ST-118 STA 1617+10.00 200 | ST-118 STA 1625+50.00 201 | ST-113 STA 1632+90.00 202 | ST-113 STA 1640+90.00 203

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE

770.00 750.00 760.00 660.00 850.00 840.00 740.00 800.00 760.00

PI -0 02'30" 1590+35.30
ROAD CL 1590+35.30
ROAD APPROACH 1603+46.22
WETLAND 1608+82.67
WATERBODY 1610+30.72
WETLAND 1611+72.81
ROAD APPROACH 1616+59.73
FIELD EDGE CULTIVATED 1623+94.96
WATERBODY 1624+43.26
WATERBODY 1624+83.93
FIELD EDGE CULTIVATED 1625+59.42
ROAD APPROACH 1629+44.02
FIELD EDGE CULTIVATED 1630+16.68
FIELD EDGE CULTIVATED 1642+25.20
PI 0 03'00"
ROAD CL 1643+02.06
FIELD EDGE CULTIVATED 1644+21.27

PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
1	-	-	-	-	-						
2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

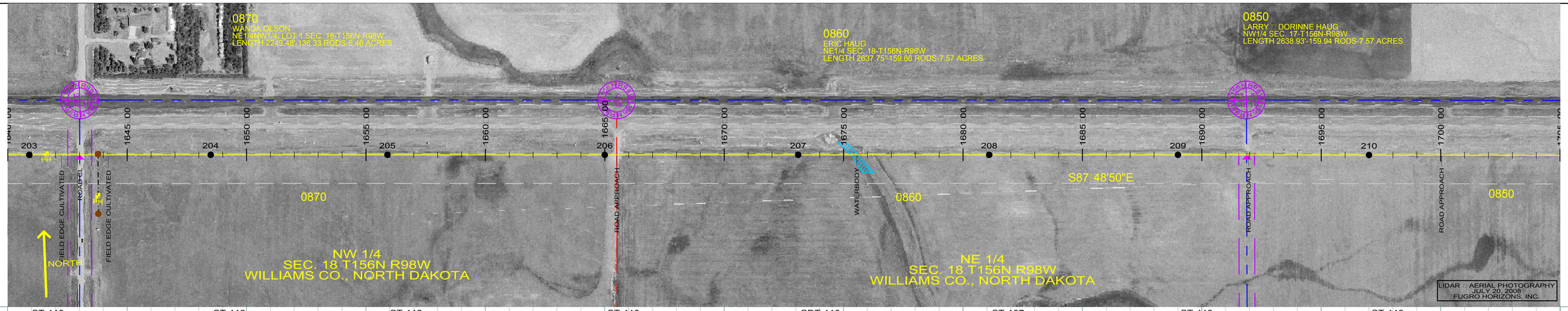
DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

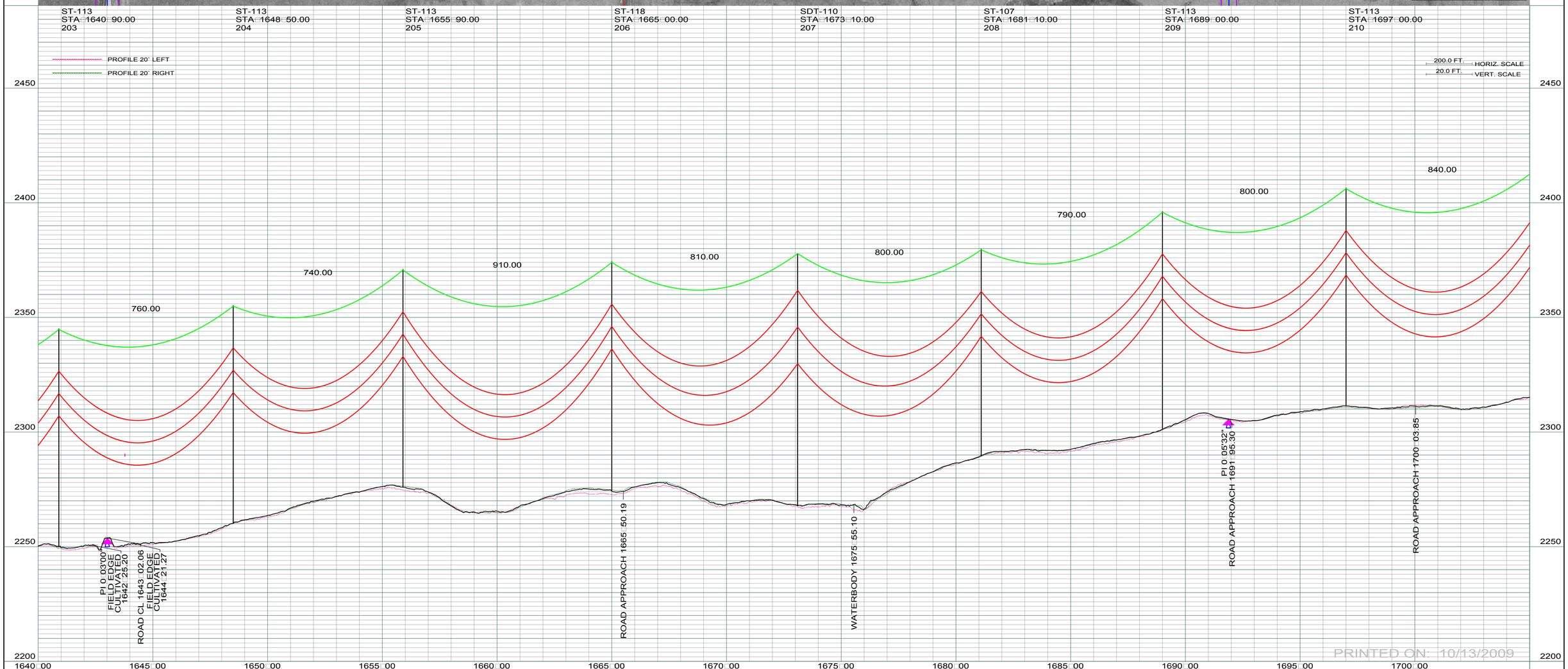
FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE
PLAN AND PROFILE
MILE 26 □ 27

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN
COUNTY NAME: WILLIAMS
BASIN DRAWING NO.: 296-090-T3-032
REV.: 0





REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

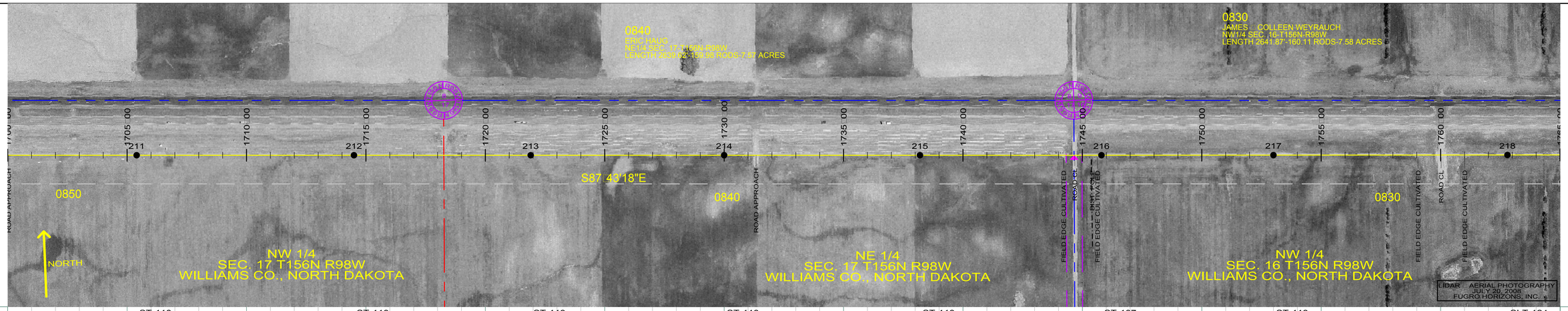
PLAN AND PROFILE

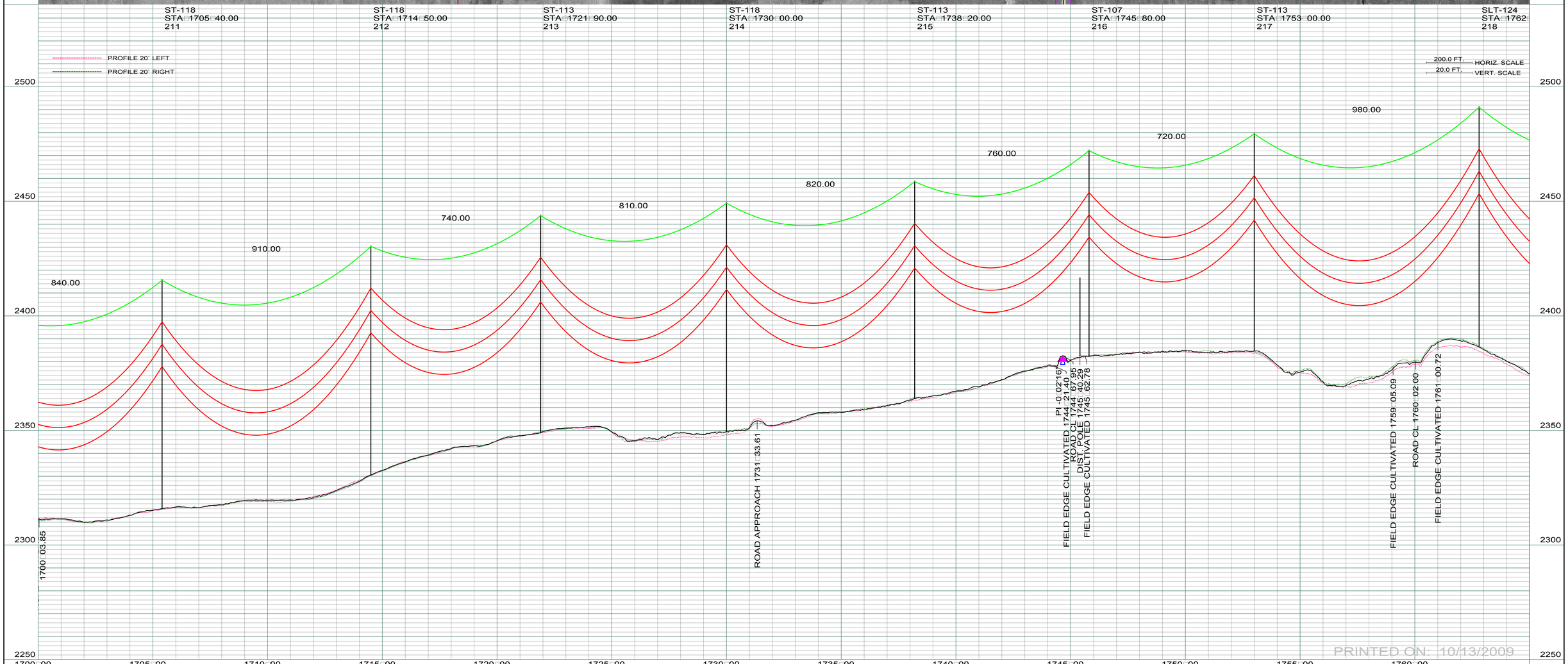
MILE 27 – 28

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN | COUNTY NAME: WILLIAMS

BASIN DRAWING NO. 296-090-T3-033 | REV. 0





REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2											
3											
4											

STATE NAME: NORTH DAKOTA — NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

PLAN AND PROFILE

MILE 28 □ 30

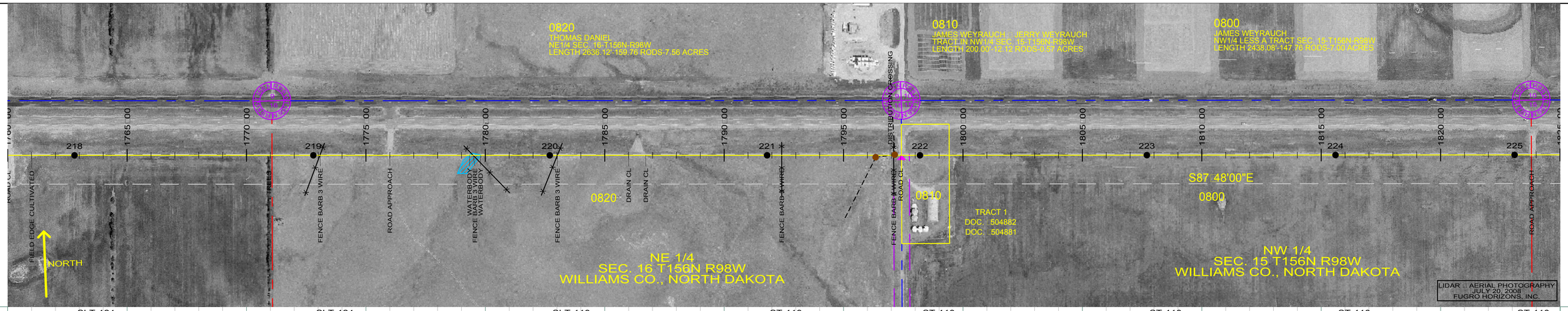
BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

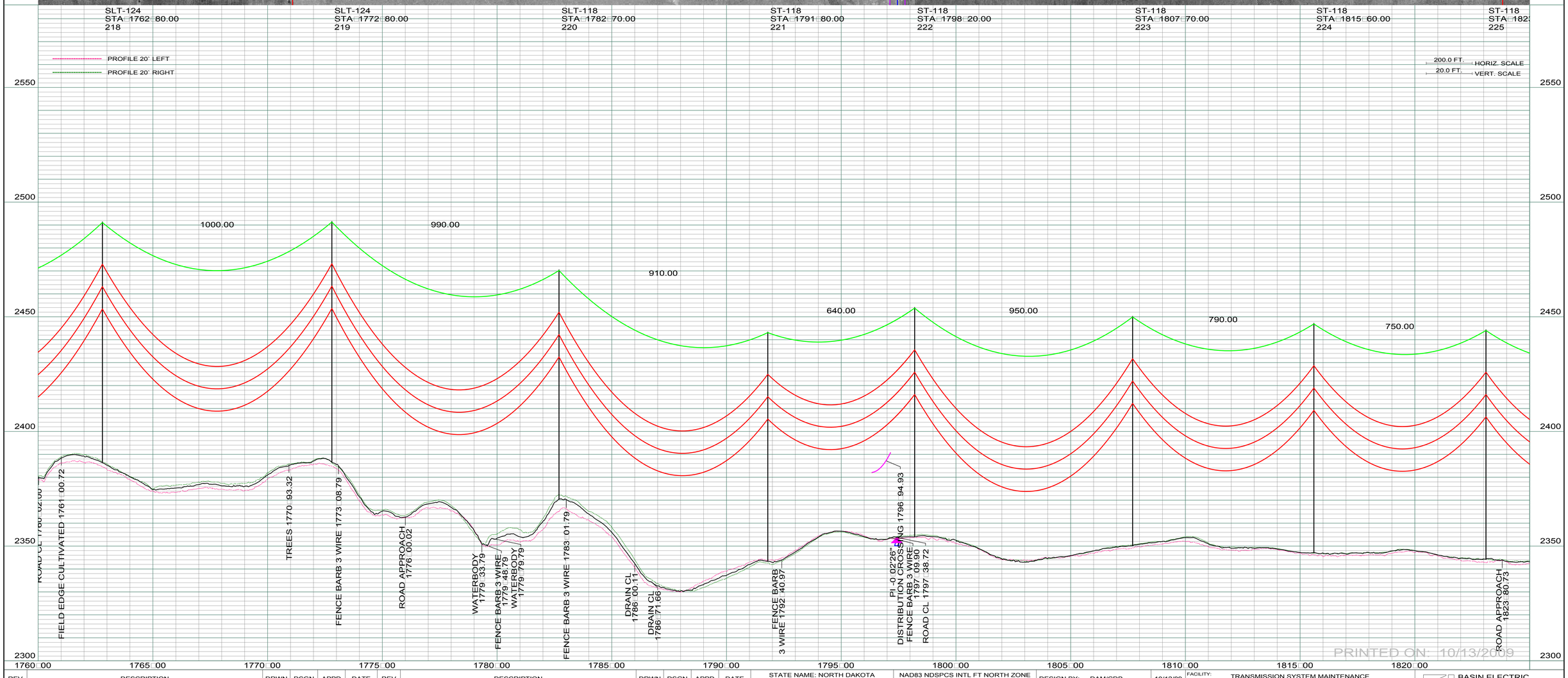
SCALE: AS SHOWN

COUNTY NAME: WILLIAMS

BASIN DRAWING NO.: 296-090-T3-034

REV.: 0





REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

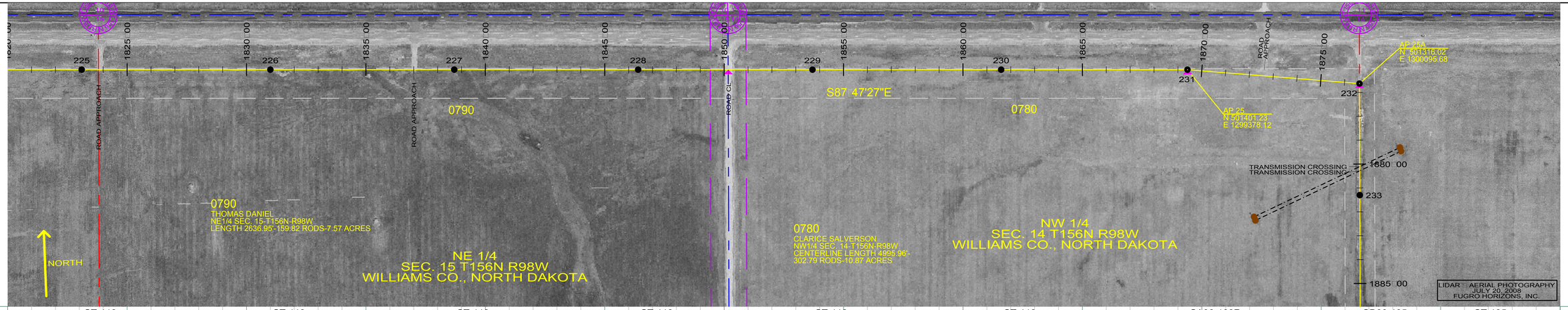
PLAN AND PROFILE

MILE 29 □ 31

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE:	COUNTY NAME:
AS SHOWN	WILLIAMS

BASIN DRAWING NO.	REV.
296-090-T3-035	0



ST-118
STA 1823+10.00
225

ST-118
STA 1831+00.00
226

ST-118
STA 1838+70.00
227

ST-118
STA 1846+40.00
228

ST-118
STA 1853+70.00
229

ST-113
STA 1861+60.00
230

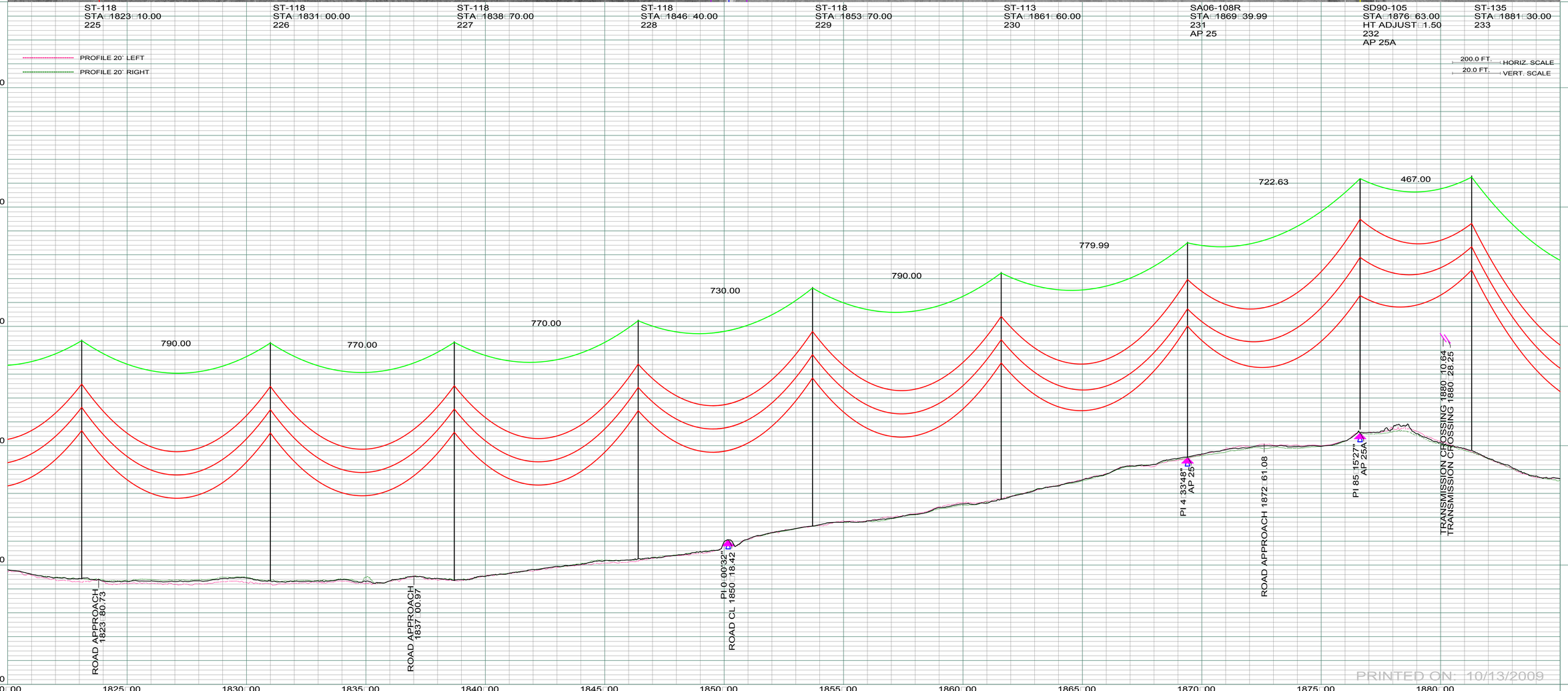
SA06-108R
STA 1869+39.99
231
AP 25

SD90-105
STA 1876+63.00
HT ADJUST +1.50
232
AP 25A

ST-135
STA 1881+30.00
233

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE



PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

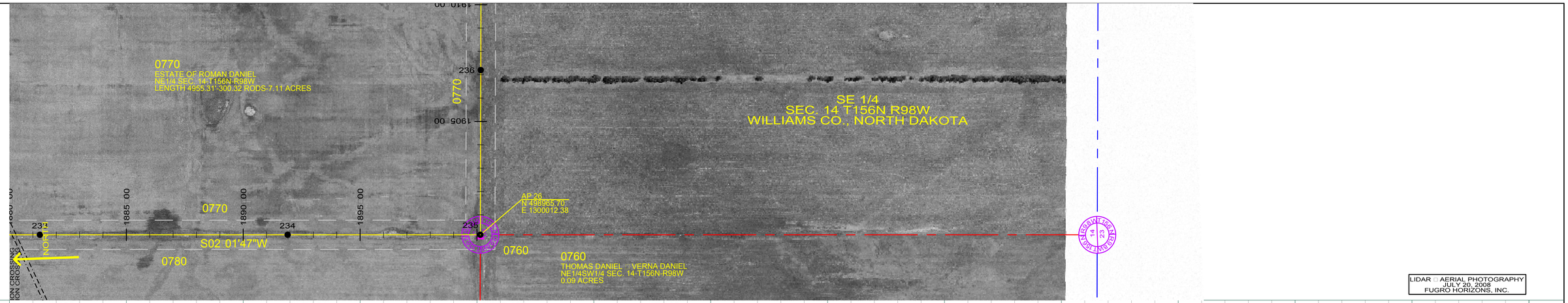
WILLISTON TO TIOGA 230KV TRANSMISSION LINE

PLAN AND PROFILE

MILE 31 □ 32

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN
COUNTY NAME: WILLIAMS
BASIN DRAWING NO.: 296-090-T3-036
REV.: 0



ST-135
STA 1881+30.00
233

SLT-124
STA 1891+90.00
234

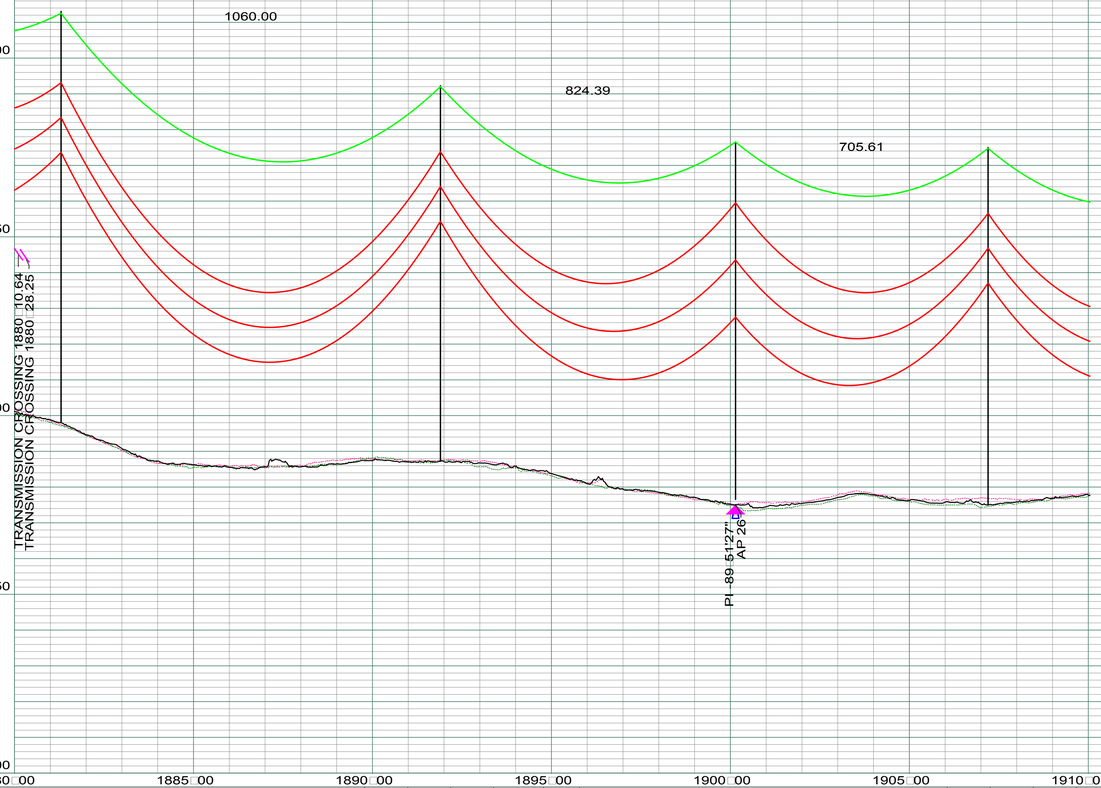
SD90-100
STA 1900+14.39
HT ADJUST 1.50
235
AP 26

ST-118
STA 1907+20.
236

PROFILE 20' LEFT

PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE



PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

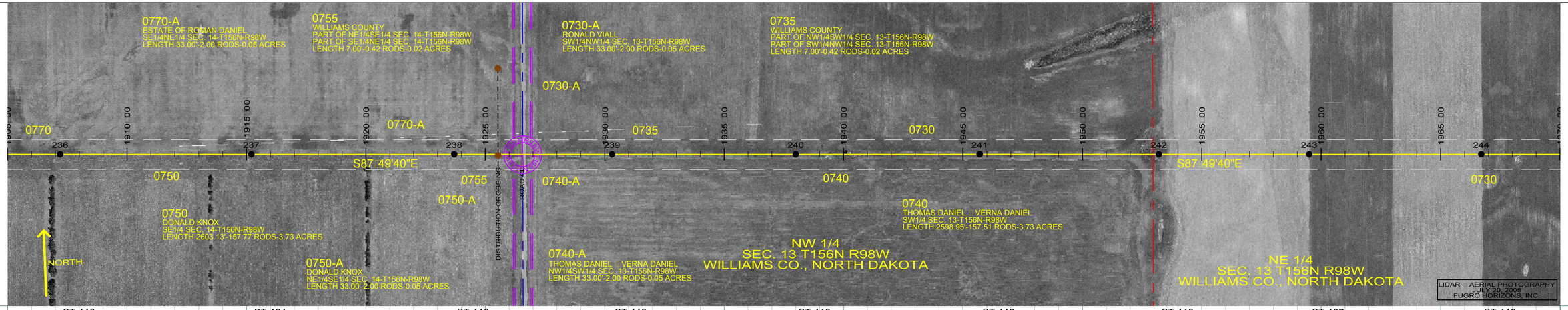
WILLISTON TO TIOGA 230KV TRANSMISSION LINE

PLAN AND PROFILE

MILE 32 □ 33

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

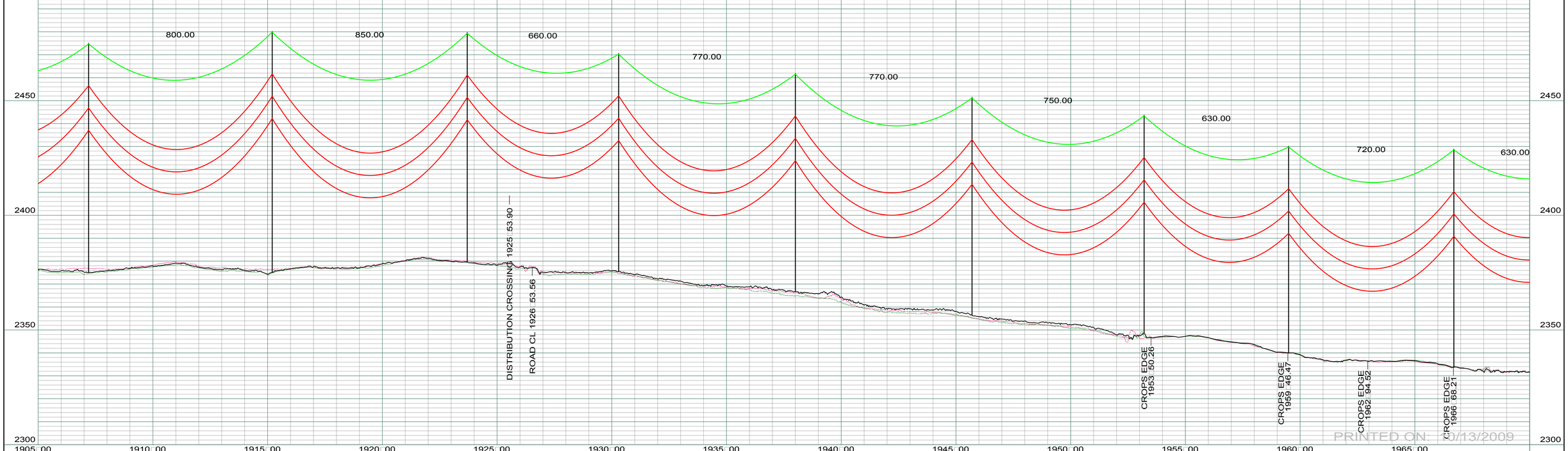
SCALE:	COUNTY NAME:
AS SHOWN	WILLIAMS
BASIN DRAWING NO.	REV.
296-090-T3-037	0



ST-118 STA 1907 20.00 236
ST-124 STA 1915 20.00 237
ST-118 STA 1923 70.00 238
ST-113 STA 1930 30.00 239
ST-113 STA 1938 00.00 240
ST-113 STA 1945 70.00 241
ST-113 STA 1953 20.00 242
ST-107 STA 1959 50.00 243
ST-113 STA 1966 70.00 244

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE



PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

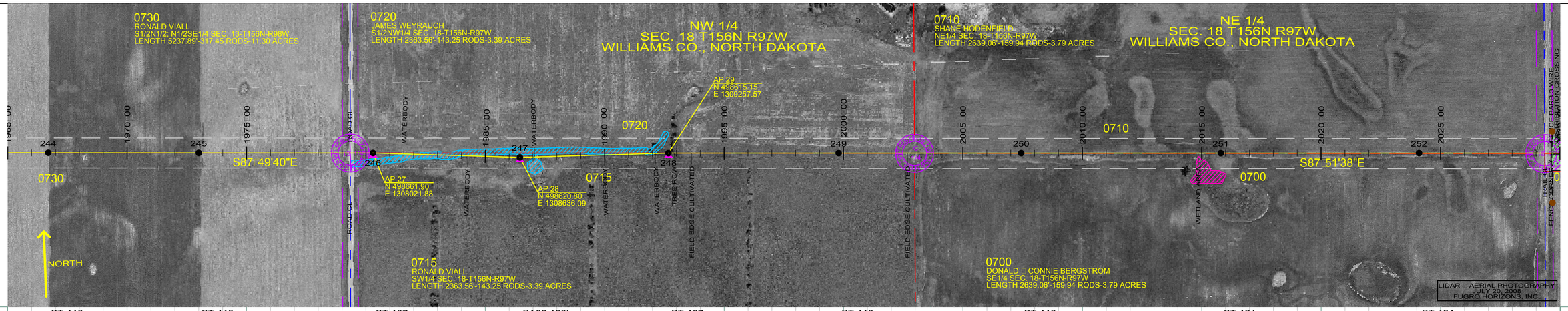
DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE
PLAN AND PROFILE
MILE 33 □ 34

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN
COUNTY NAME: WILLIAMS
BASIN DRAWING NO. 296-090-T3-038
REV. 0



ST-113
STA 1966 70.00
244

ST-113
STA 1973 00.00
245

ST-107
STA 1980 29.64
246
AP 27

SA06-108L
STA 1986 45.23
247
AP 28

ST-107
STA 1992 66.73
248
AP 29

ST-113
STA 1999 80.00
249

ST-113
STA 2007 44.07
250

ST-124
STA 2015 80.00
251

ST-124
STA 2024 10.00
252

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE

630.00
729.64
615.58
621.50
713.27
764.07
835.93
830.00
820.00

CROPS EDGE 1966 68.21
CROPS EDGE 1973 01.97
CROPS EDGE 1978 92.04
ROAD CL 1979 32.17
PI 1 39'22"
AP 27
WATERBODY 1981 58.37
WATERBODY 1984 27.47
PI -3 18'27"
AP 28
WATERBODY 1987 06.48
WATERBODY 1989 98.01
WATERBODY 1992 11.85
PI 1 37'07"
AP 29
TREE ROW 1992 90.73
FIELD EDGE CULTIVATED 1993 64.06
FIELD EDGE CULTIVATED 2002 68.60
WETLAND AREA 2014 85.35
TRAIL CL 2029 35.73
FENCE CORNER 2029 62.89
FENCE CROSSING 2029 83.02

2500
2450
2400
2350
2300
2250

1965 00
1970 00
1975 00
1980 00
1985 00
1990 00
1995 00
2000 00
2005 00
2010 00
2015 00
2020 00
2025 00

PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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3					
4					

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

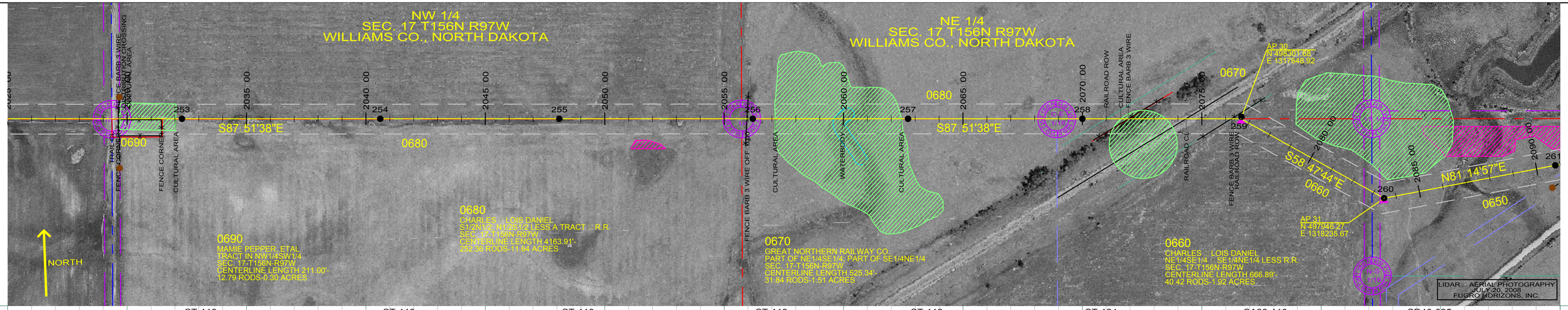
PLAN AND PROFILE

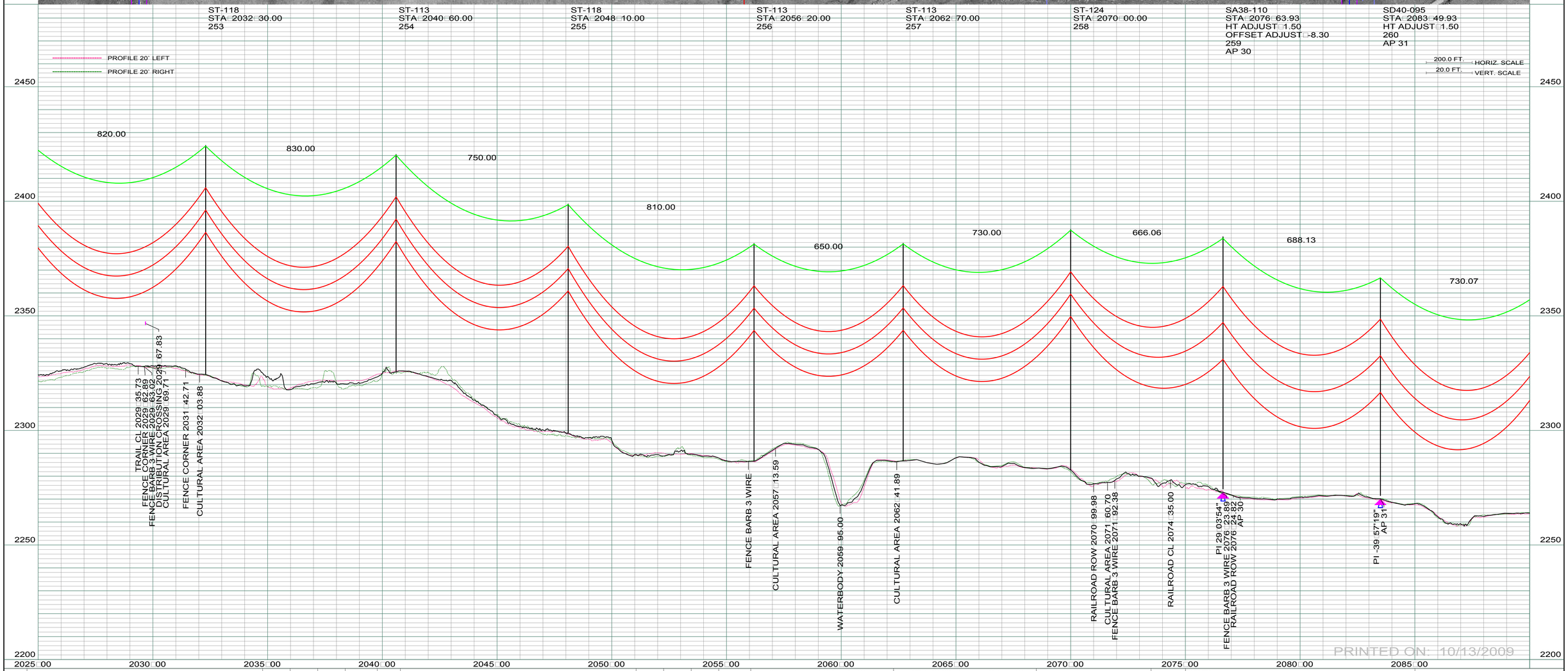
MILE 34 □ 35

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE:	COUNTY NAME:
AS SHOWN	WILLIAMS

BASIN DRAWING NO.	REV.
296-090-T3-039	0





REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
1	-	-	-	-	-						
2											
3											
4											

STATE NAME: NORTH DAKOTA — NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

PLAN AND PROFILE

MILE 35 □ 36

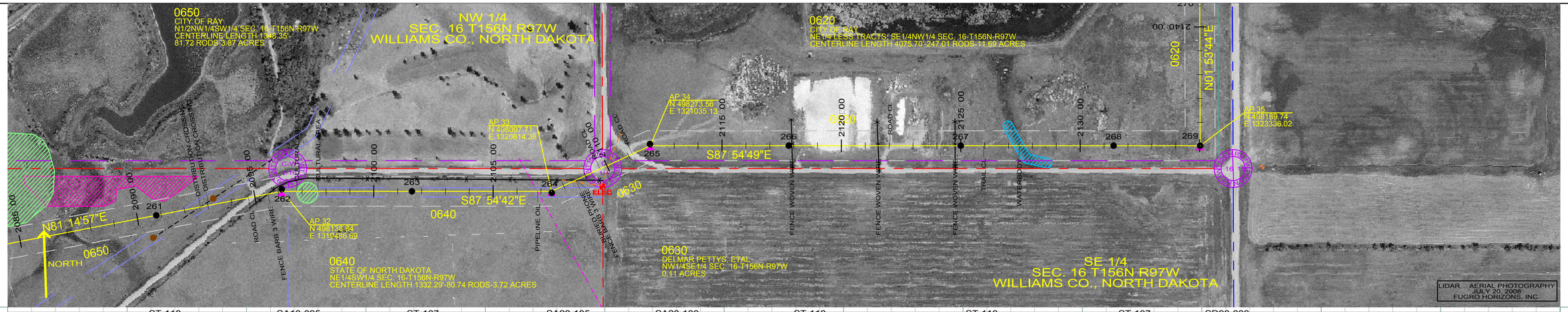
BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN

COUNTY NAME: WILLIAMS

BASIN DRAWING NO.: 296-090-T3-040

REV.: 0



ST-118
STA 2090+80.00
261

SA10-095
STA 2096+15.69
HT ADJUST 1.50
OFFSET ADJUST -9.00
262
AP 32

ST-107
STA 2101+60.00
263

SA28-105
STA 2107+44.13
HT ADJUST 1.50
OFFSET ADJUST 6.80
264
AP 33

SA28-100
STA 2112+00.15
HT ADJUST 1.50
OFFSET ADJUST -7.10
265
AP 34

ST-118
STA 2117+80.00
266

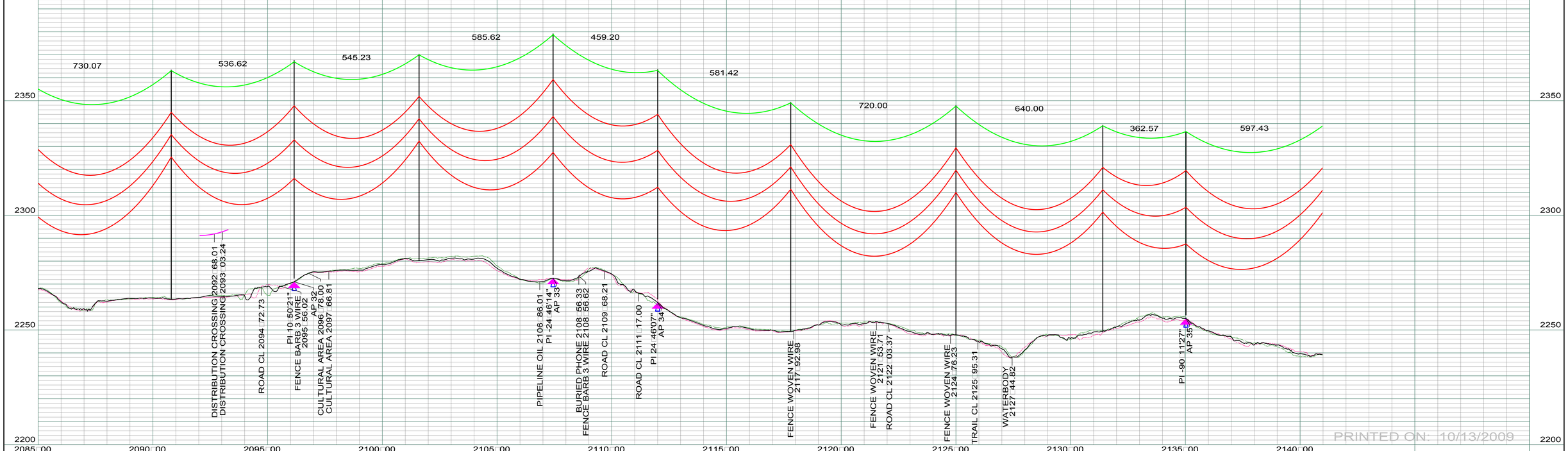
ST-118
STA 2125+00.00
267

ST-107
STA 2131+40.00
268

SD90-080
STA 2135+02.57
HT ADJUST 1.50
269
AP 35

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE



PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
1	-	-	-	-	-						
2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

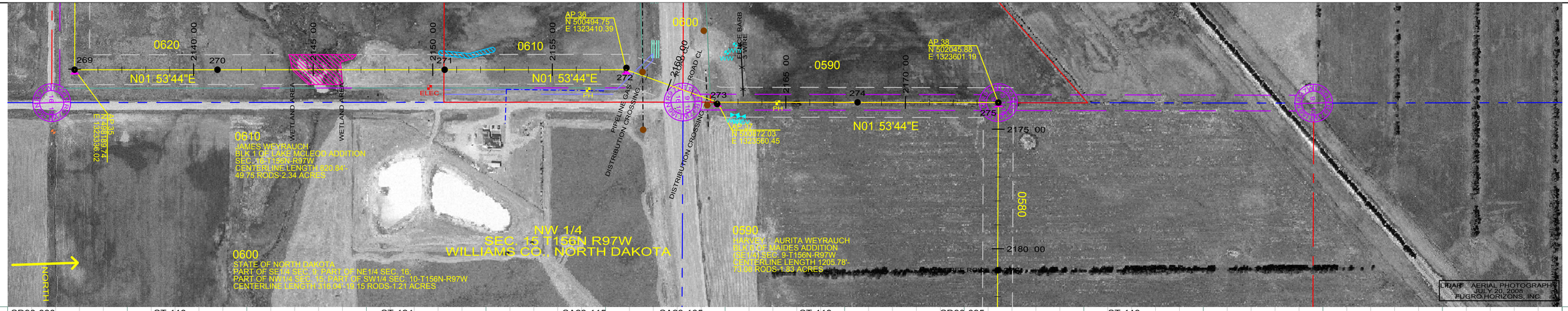
DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE
PLAN AND PROFILE
MILE 35 □ 37

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN
COUNTY NAME: WILLIAMS
BASIN DRAWING NO. 296-090-T3-041
REV. 0



SD90-080
STA 2135 02.57
HT ADJUST 1.50
269
AP 35

ST-118
STA 2141 00.00
270

ST-124
STA 2150 50.00
271

SA23-115
STA 2158 08.77
HT ADJUST 1.50
OFFSET ADJUST -7.80
272
AP 36

SA23-105
STA 2162 14.16
HT ADJUST 1.50
OFFSET ADJUST 7.80
273
AP 37

ST-118
STA 2168 00.00
274

SD90-095
STA 2173 88.71
HT ADJUST 1.50
275
AP 38

ST-113
STA 21
276

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE

760.10
408.28
587.21
588.71
701.29
597.43
950.00

AP 35
WETLAND AREA 2144 12.53
WETLAND AREA 2146 18.33
PIPELINE GAS 2158 40.25
PI 19 32'21"
AP 36
DISTRIBUTION CROSSING 2158 81.82
ROAD CL 2160 14.40
ROAD CL 2160 72.09
PI -19 26'50"
DISTRIBUTION CROSSING 2161 65.58
AP 37
PI 90 09'28"
AP 38
TREE ROW 2180 89.12

2400
2350
2300
2250
2200
2150

2135 00
2140 00
2145 00
2150 00
2155 00
2160 00
2165 00
2170 00
2175 00
2180 00

PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
1	-	-	-	-	-						
2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

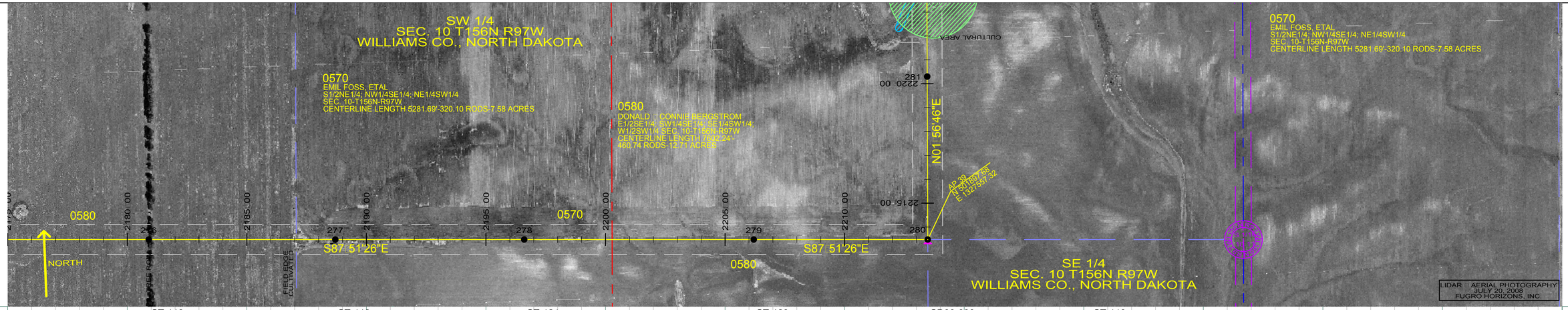
DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE
PLAN AND PROFILE
MILE 37 □ 38

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN
COUNTY NAME: WILLIAMS
BASIN DRAWING NO.: 296-090-T3-042
REV.: 0



ST-113
STA 2180+90.00
276

ST-118
STA 2188+70.00
277

ST-124
STA 2196+60.00
278

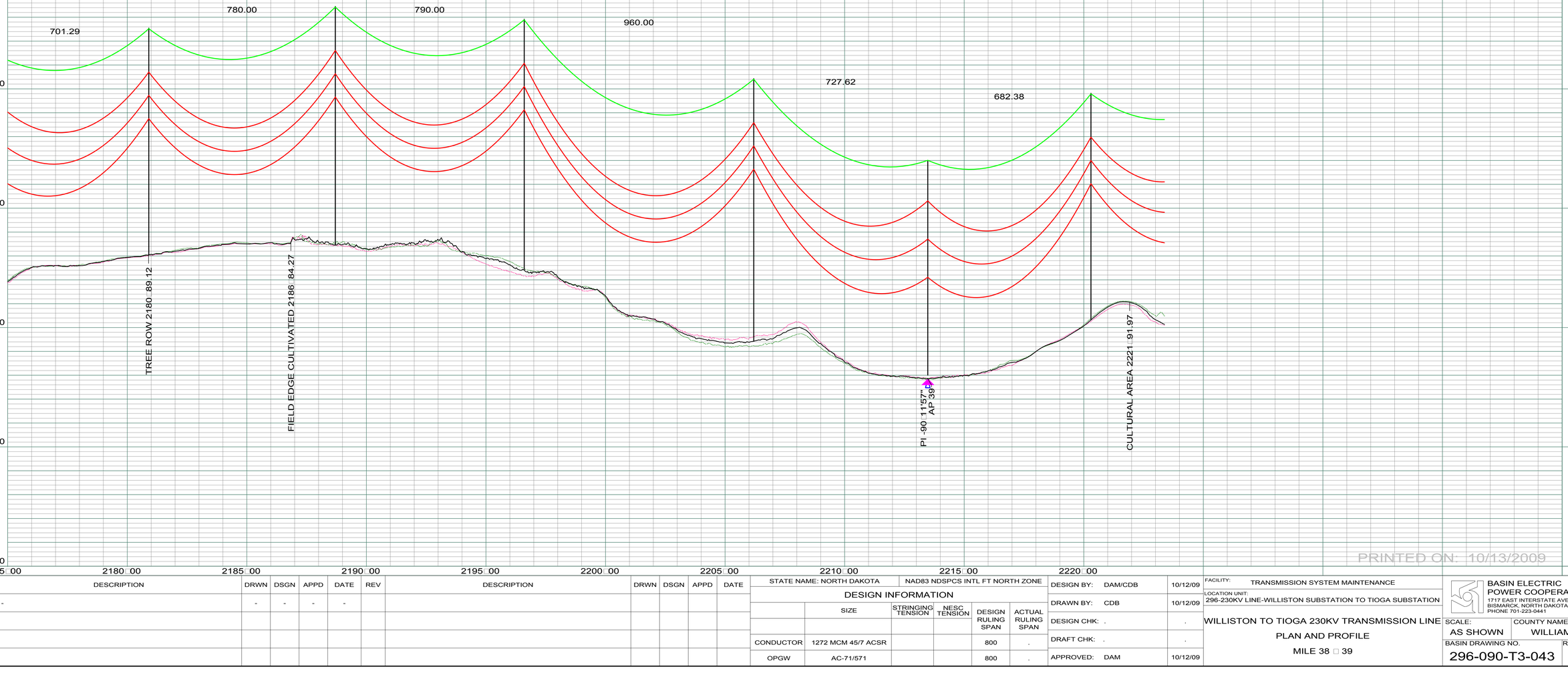
ST-129
STA 2206+20.00
279

SD90-090
STA 2213+47.62
HT ADJUST 1.50
280
AP 39

ST-113
STA 2220+30.0
281

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE



PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2					
3					
4					

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

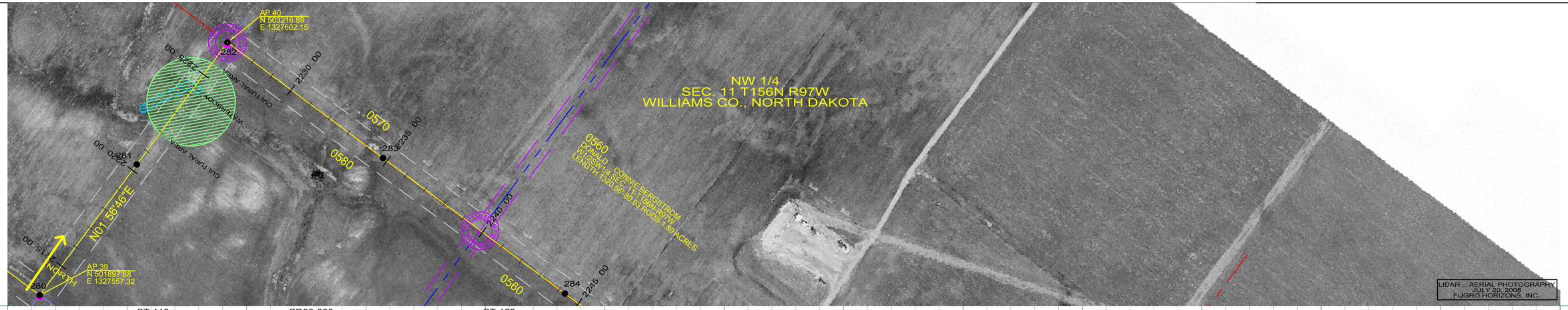
DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE
PLAN AND PROFILE
MILE 38 □ 39

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN
COUNTY NAME: WILLIAMS
BASIN DRAWING NO.: 296-090-T3-043
REV.: 0



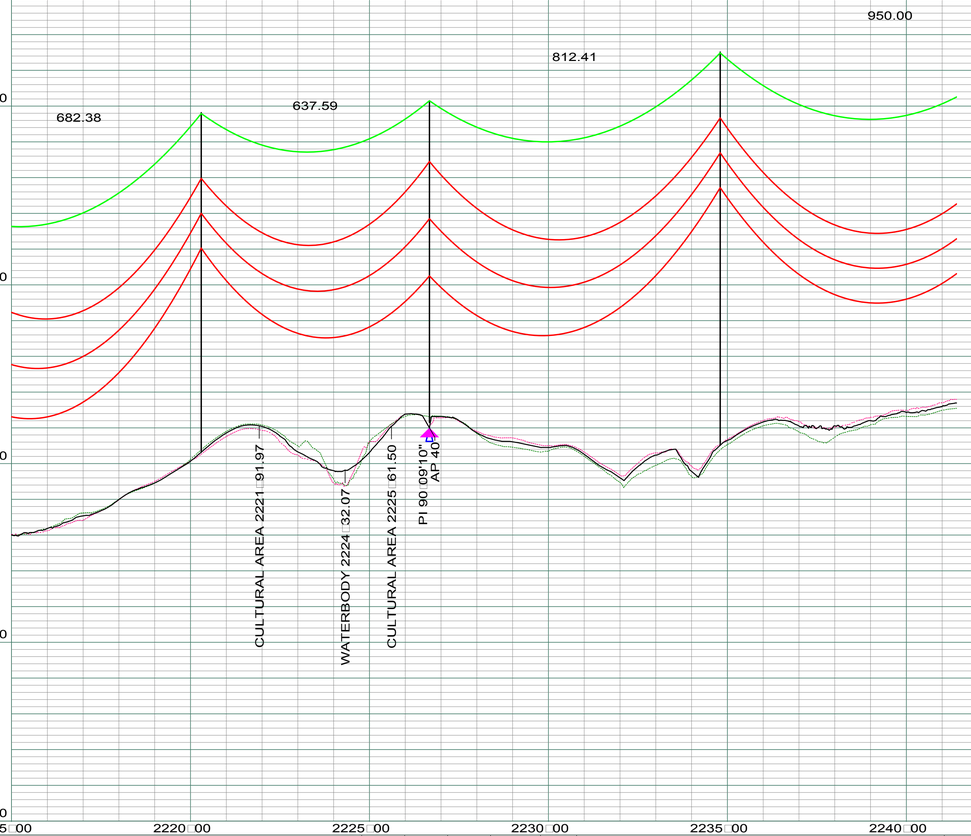
ST-113
STA 2220 30.00
281

SD90-090
STA 2226 67.59
HT ADJUST 1.50
282
AP 40

ST-129
STA 2234 80.00
283

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE



PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2					
3					
4					

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

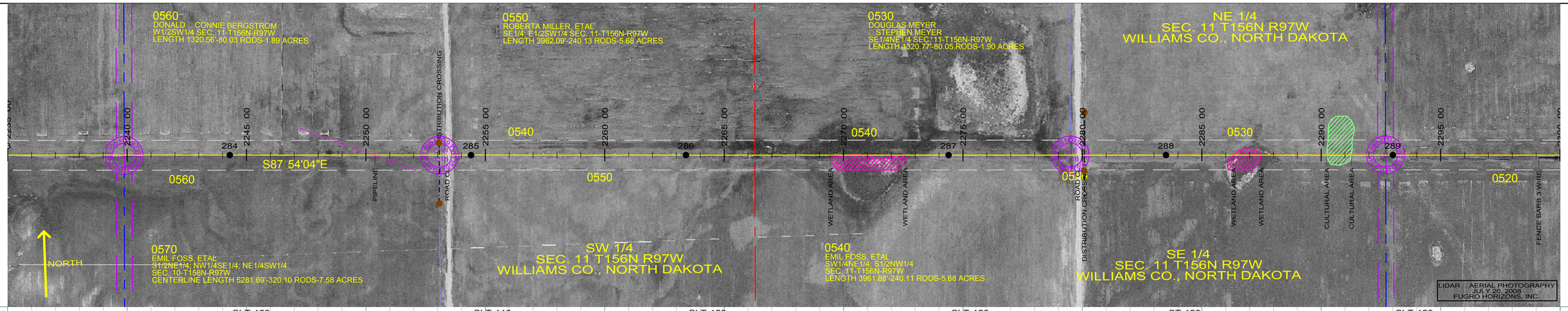
WILLISTON TO TIOGA 230KV TRANSMISSION LINE

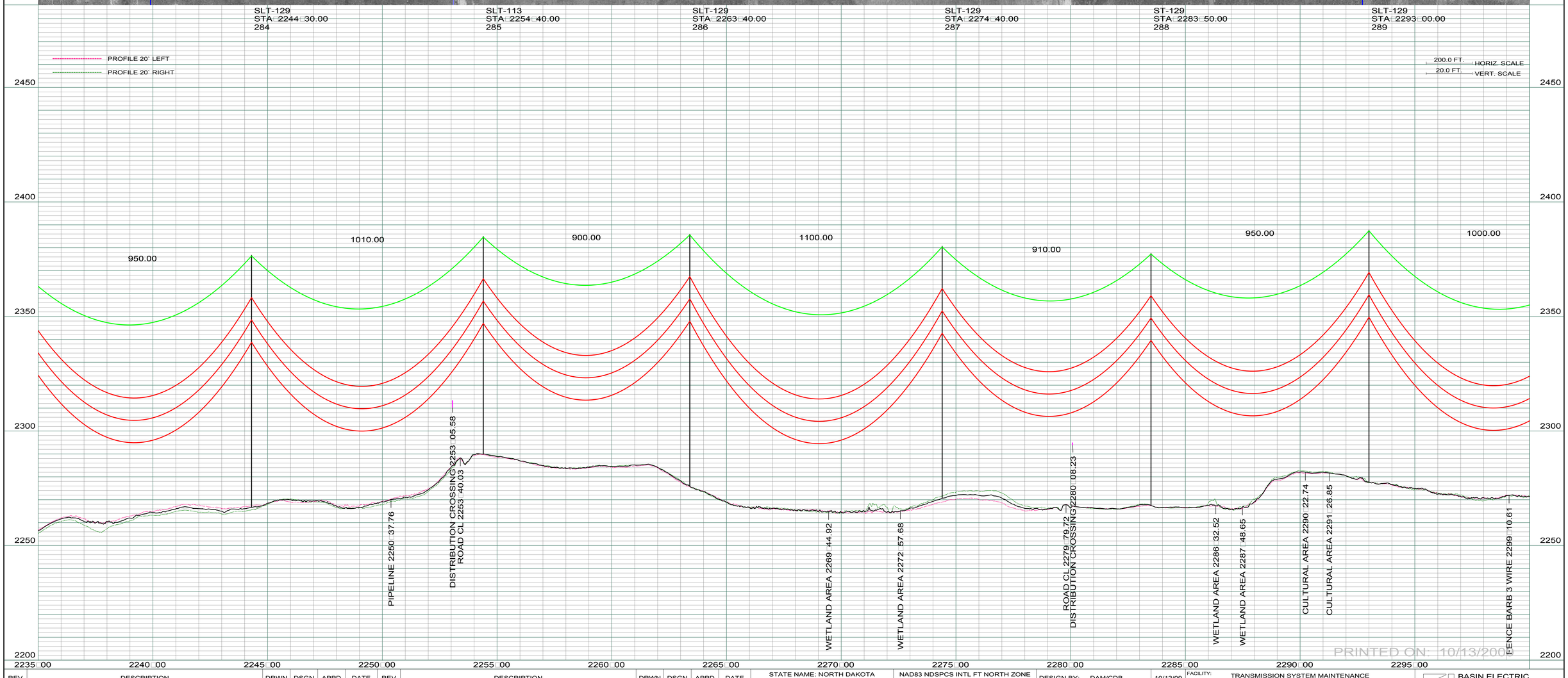
PLAN AND PROFILE

MILE 39 □ 40

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN
COUNTY NAME: WILLIAMS
BASIN DRAWING NO.: 296-090-T3-044
REV.: 0





REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
1	-	-	-	-	-						
2											
3											
4											

STATE NAME: NORTH DAKOTA — NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

PLAN AND PROFILE

MILE 40 □ 41

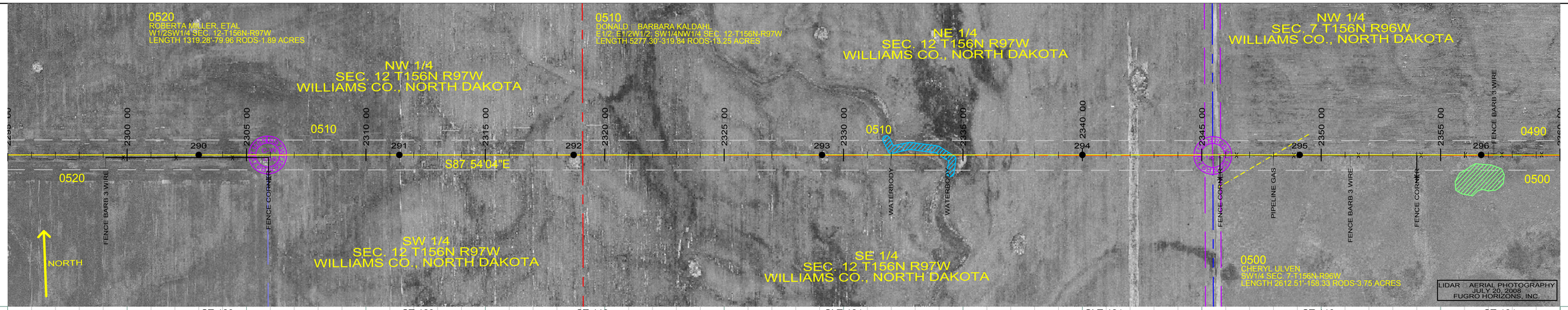
BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

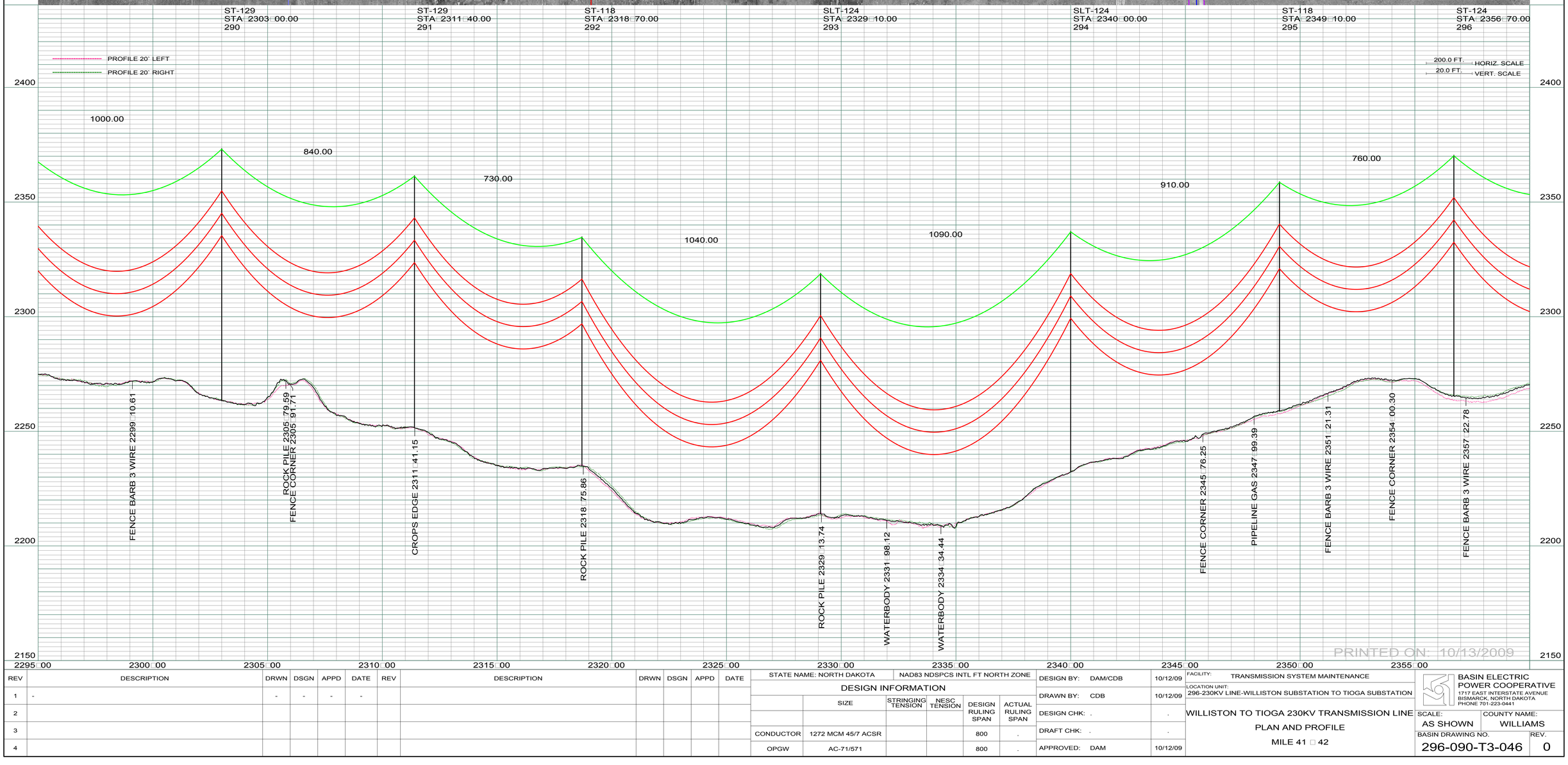
SCALE: AS SHOWN

COUNTY NAME: WILLIAMS

BASIN DRAWING NO.: 296-090-T3-045

REV.: 0





REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
1	-	-	-	-	-
2					
3					
4					

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

PLAN AND PROFILE

MILE 41 □ 42

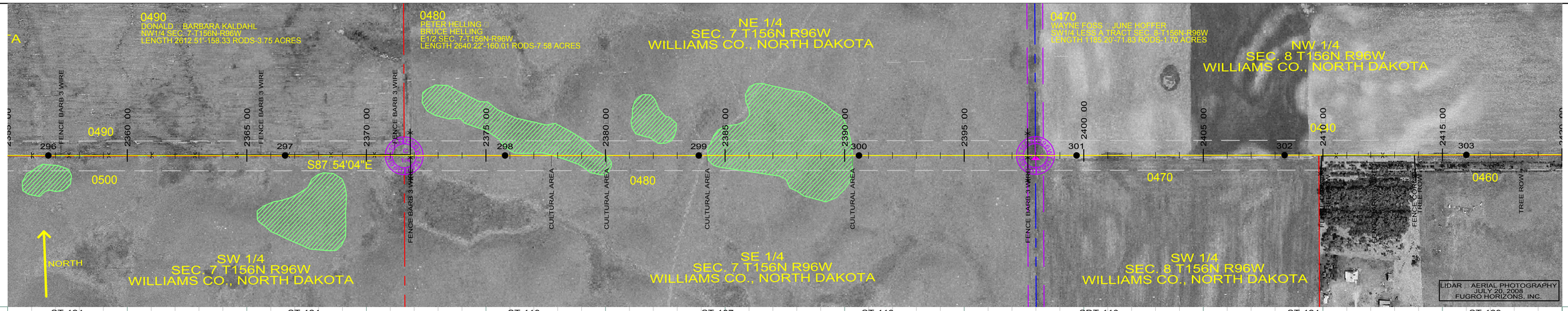
BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

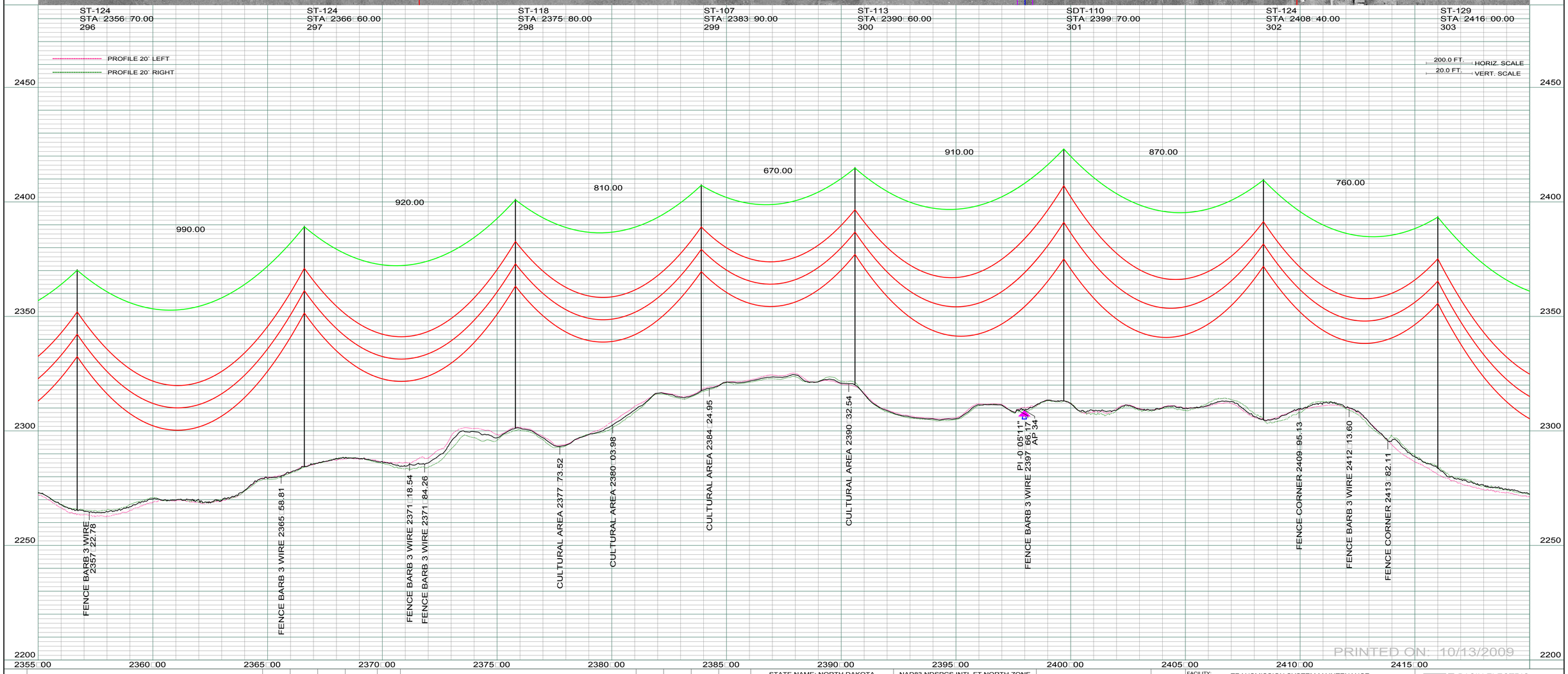
SCALE: AS SHOWN

COUNTY NAME: WILLIAMS

BASIN DRAWING NO.: 296-090-T3-046

REV.: 0





REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
1	-	-	-	-	-						
2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

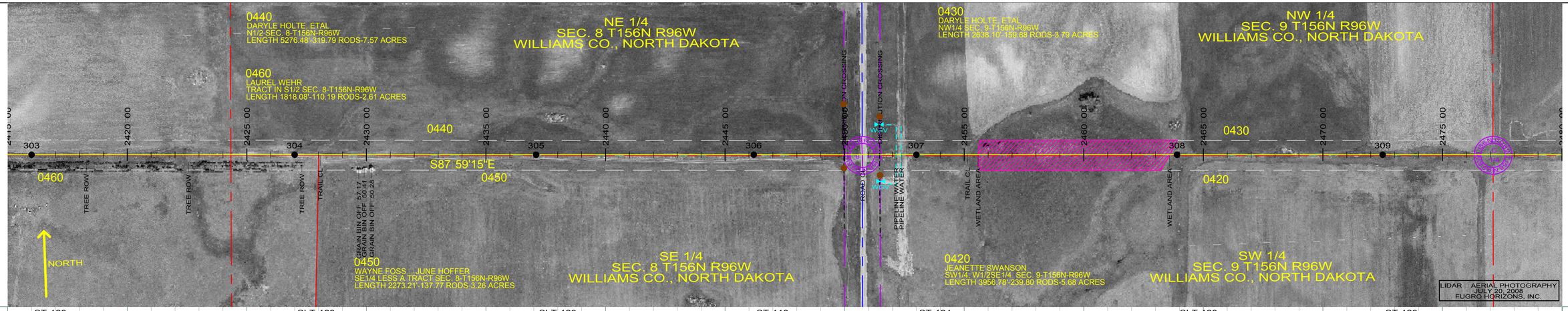
PLAN AND PROFILE

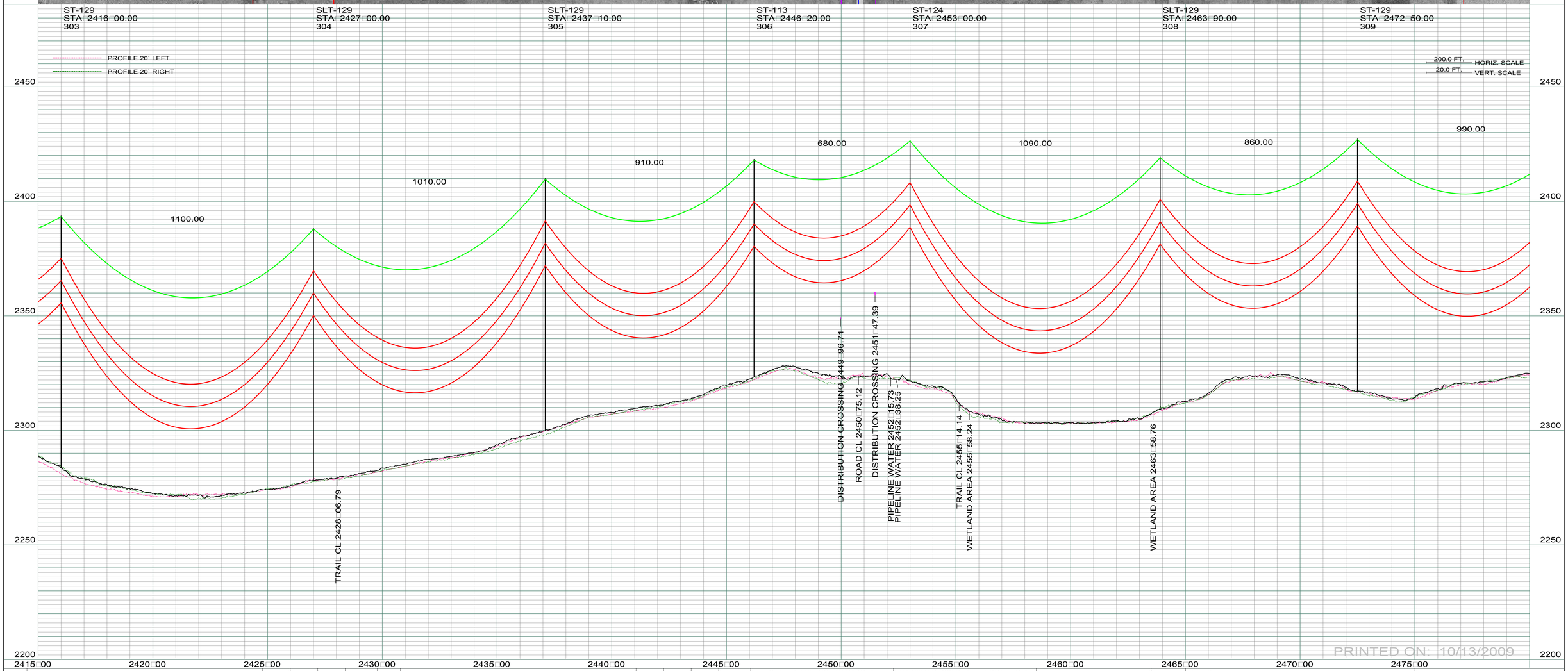
MILE 41 □ 43

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE:	COUNTY NAME:
AS SHOWN	WILLIAMS

BASIN DRAWING NO.	REV.
296-090-T3-047	0





REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
1	-	-	-	-	-						
2											
3											
4											

STATE NAME: NORTH DAKOTA — NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

PLAN AND PROFILE

MILE 43 □ 44

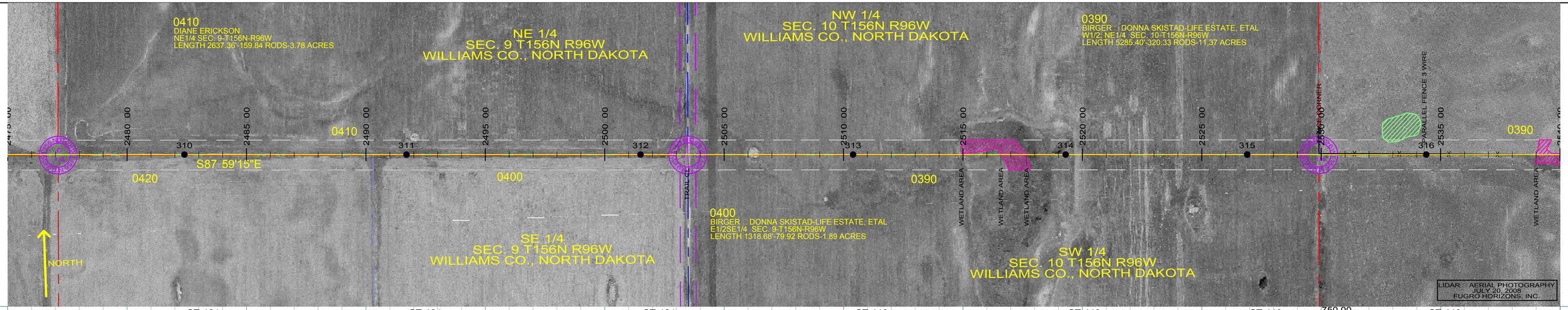
BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

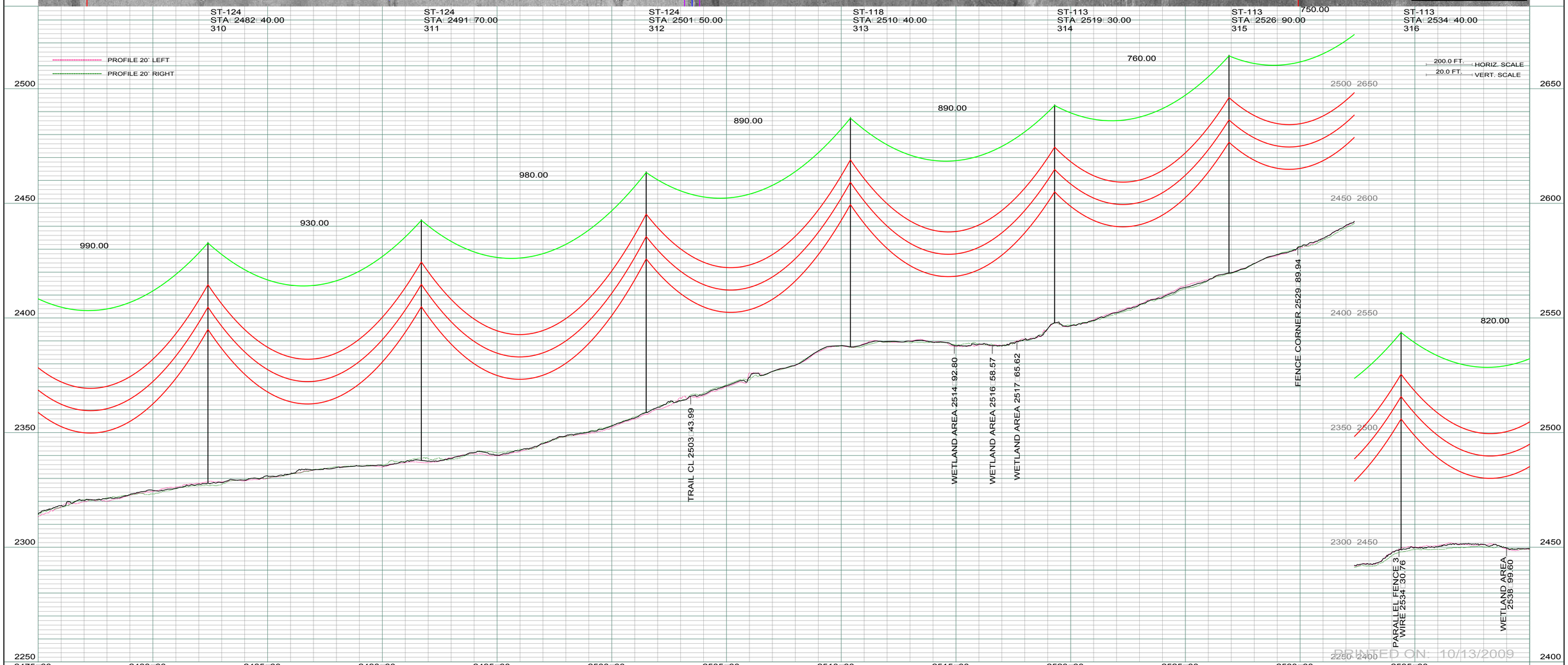
SCALE: AS SHOWN

COUNTY NAME: WILLIAMS

BASIN DRAWING NO. 296-090-T3-048

REV. 0





PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
1	-	-	-	-	-
2					
3					
4					

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

PLAN AND PROFILE

MILE 44 □ 45

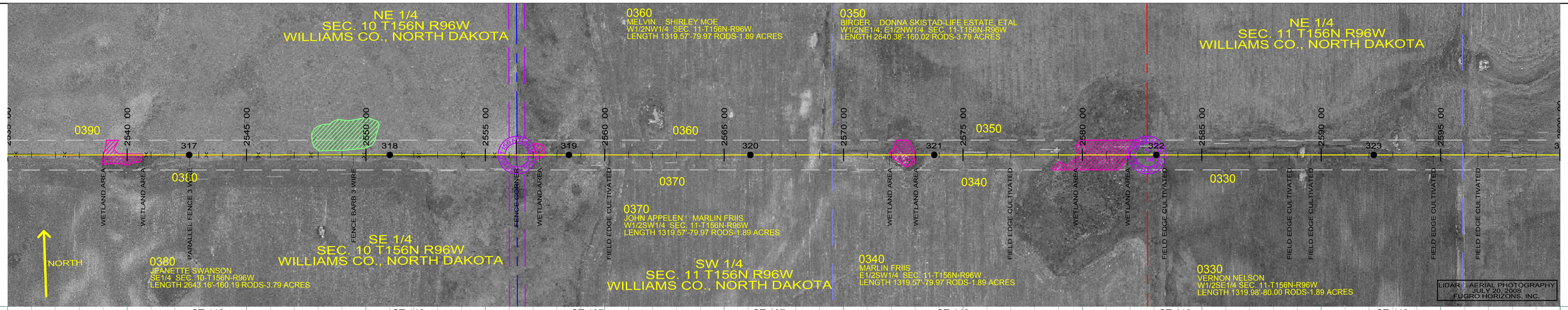
BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN

COUNTY NAME: WILLIAMS

BASIN DRAWING NO.: 296-090-T3-049

REV.: 0



REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
1	-	-	-	-	-						
2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

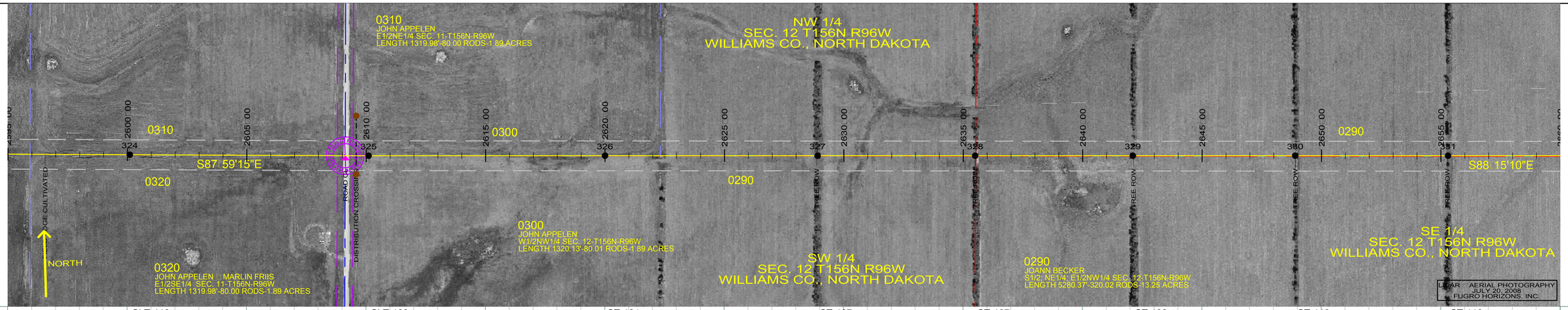
PLAN AND PROFILE

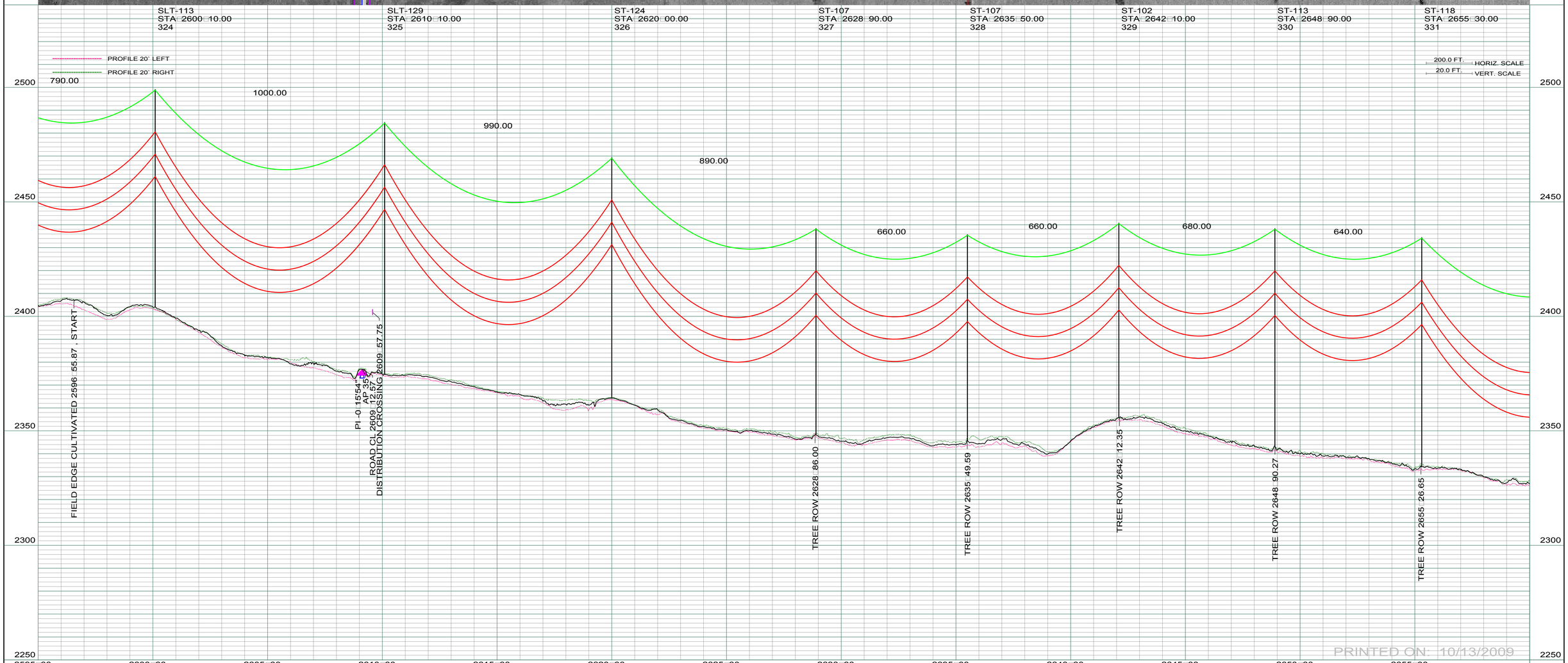
MILE 45 □ 46

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN | COUNTY NAME: WILLIAMS

BASIN DRAWING NO.: 296-090-T3-050 | REV.: 0





PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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3					
4					

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE

STATE NAME: NORTH DAKOTA — NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

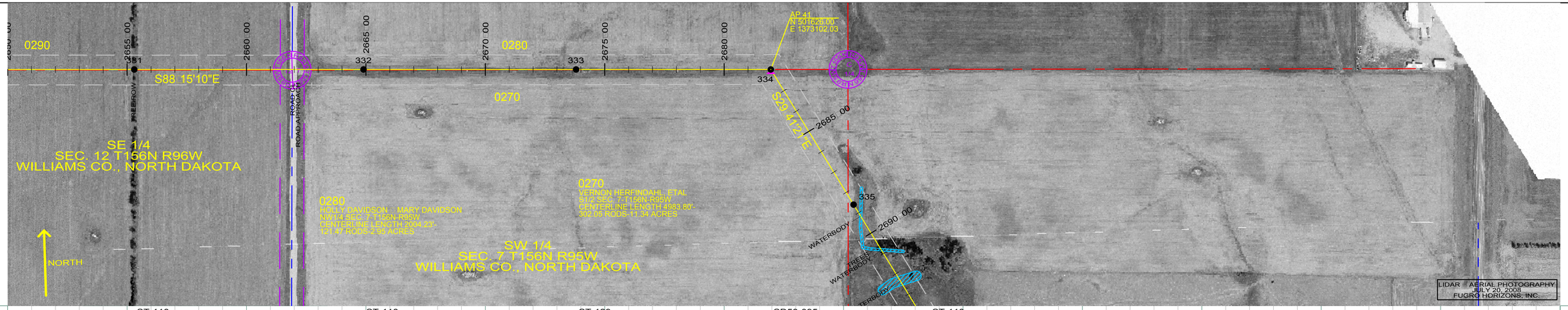
WILLISTON TO TIOGA 230KV TRANSMISSION LINE

PLAN AND PROFILE

MILE 46 □ 47

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE:	COUNTY NAME:
AS SHOWN	WILLIAMS
BASIN DRAWING NO.	REV.
296-090-T3-051	0



ST-118
STA 2655 30.00
331

ST-118
STA 2664 90.00
332

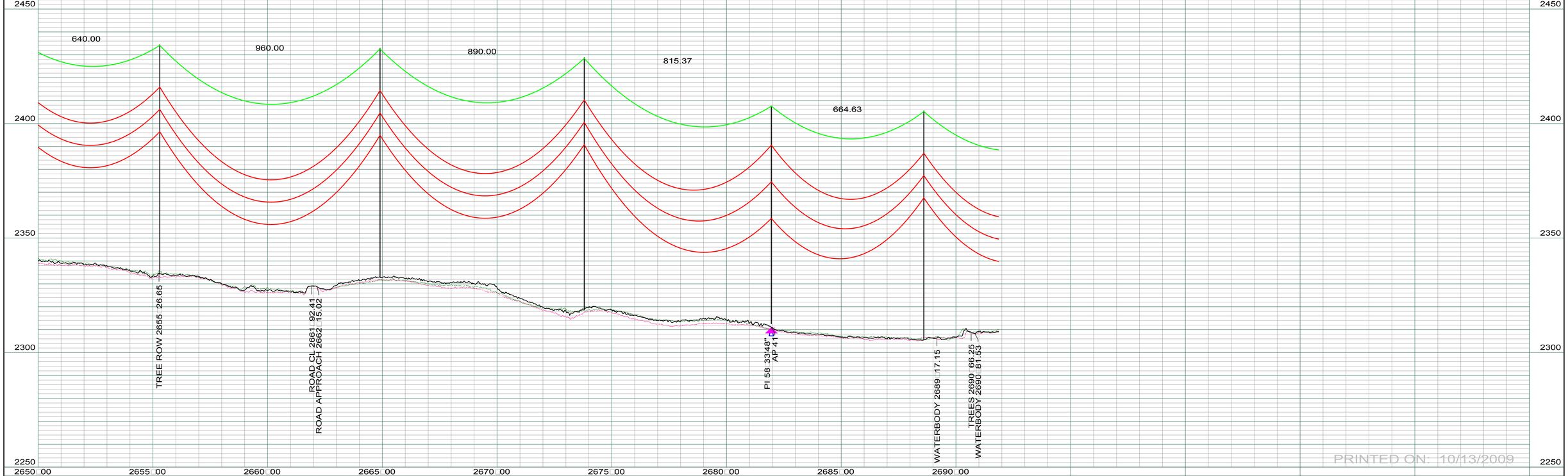
ST-129
STA 2673 80.00
333

SD58-095
STA 2681 95.37
HT ADJUST 1.50
334
AP 41

ST-118
STA 2688 60.00
335

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE



PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
1	-	-	-	-	-						
2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE
PLAN AND PROFILE
MILE 47 □ 48

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE:	COUNTY NAME:
AS SHOWN	WILLIAMS

BASIN DRAWING NO.	REV.
296-090-T3-052	0

ST-118
STA 2688+60.00
335

ST-113
STA 2696+10.00
336

ST-107
STA 2703+70.00
337

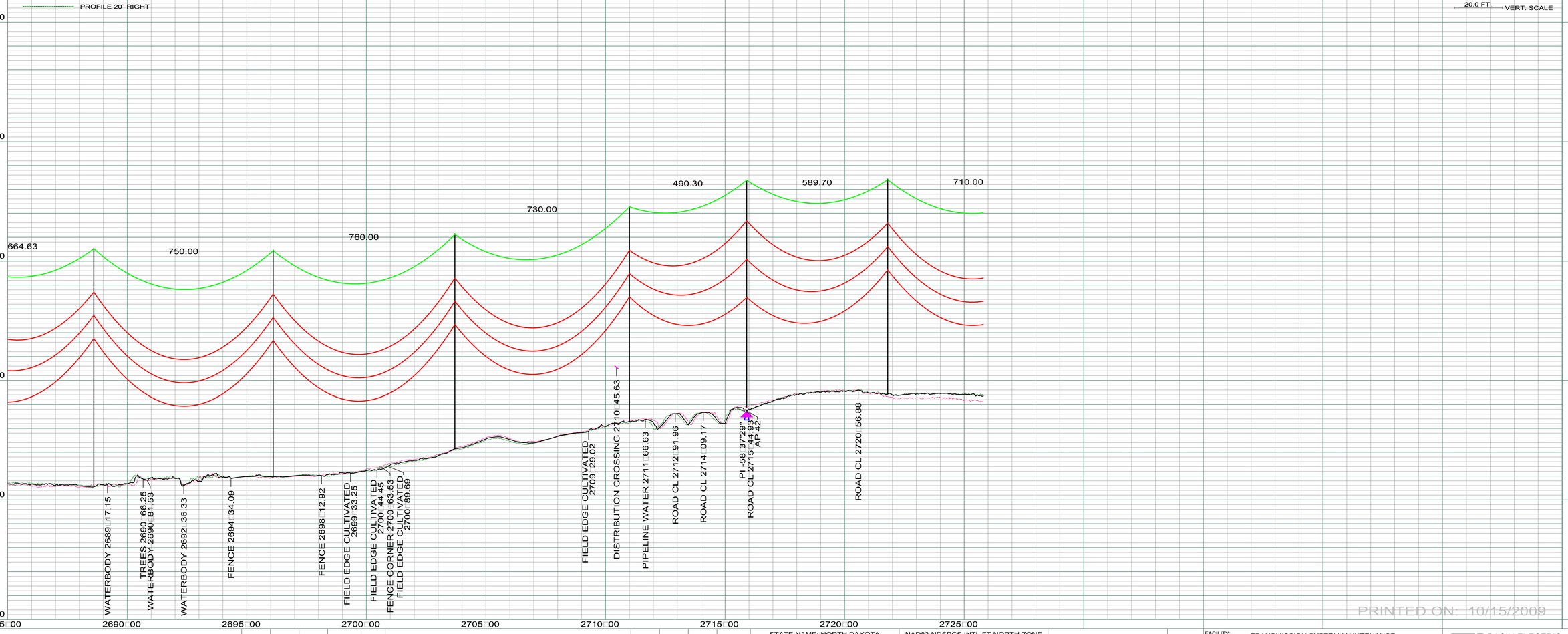
ST-107
STA 2711+00.00
338

SD58-095
STA 2715+90.30
HT ADJUST 1.50
339
AP 42

ST-107
STA 2721+80.00
340

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE



PRINTED ON: 10/15/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

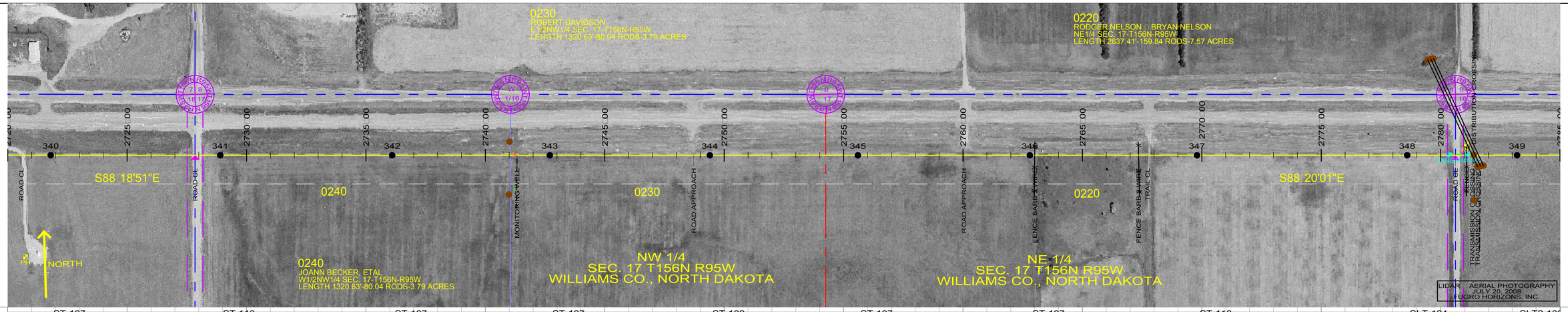
FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE
PLAN AND PROFILE
MILE 48 □ 49

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE:	COUNTY NAME:
AS SHOWN	WILLIAMS

BASIN DRAWING NO. 296-090-T3-053 | REV. 0

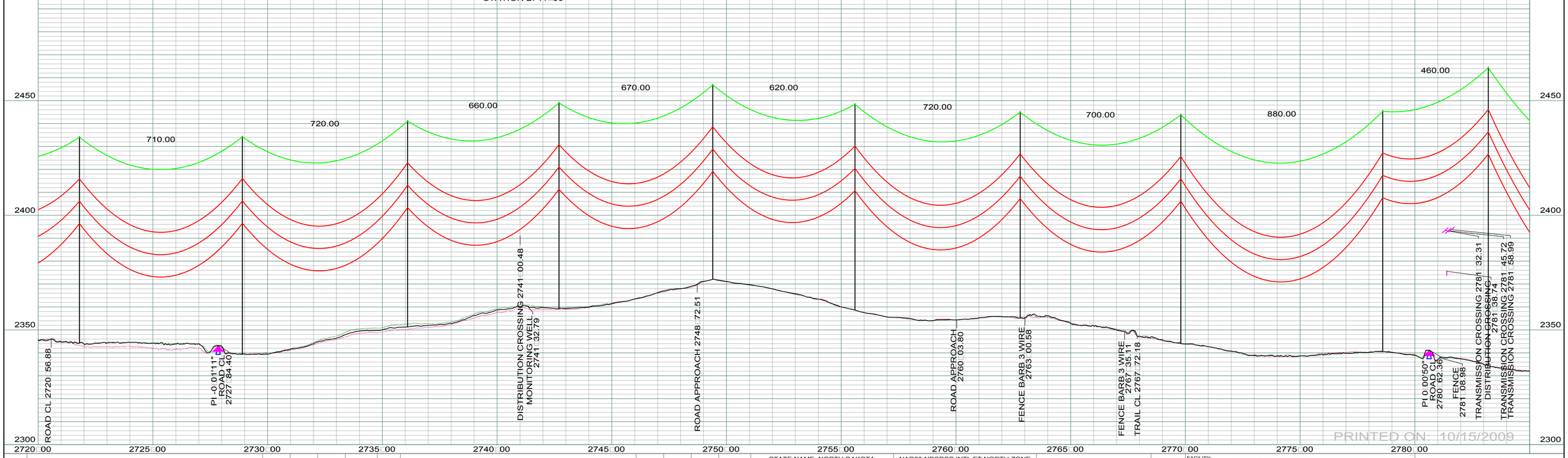


ST-107 STA 2721 80.00 340
ST-113 STA 2728 90.00 341
ST-107 STA 2736 10.00 342
ST-107 STA 2742 70.00 343
ST-102 STA 2749 40.00 344
ST-107 STA 2755 60.00 345
ST-107 STA 2762 80.00 346
ST-118 STA 2769 80.00 347
SLT-124 STA 2778 60.00 348
SLT2-130 STA 278 349

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE

DISTRIBUTION CROSSING
TO BE REMOVED
PRIOR TO CONSTRUCTION
STATION 2741 00



PRINTED ON: 10/15/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

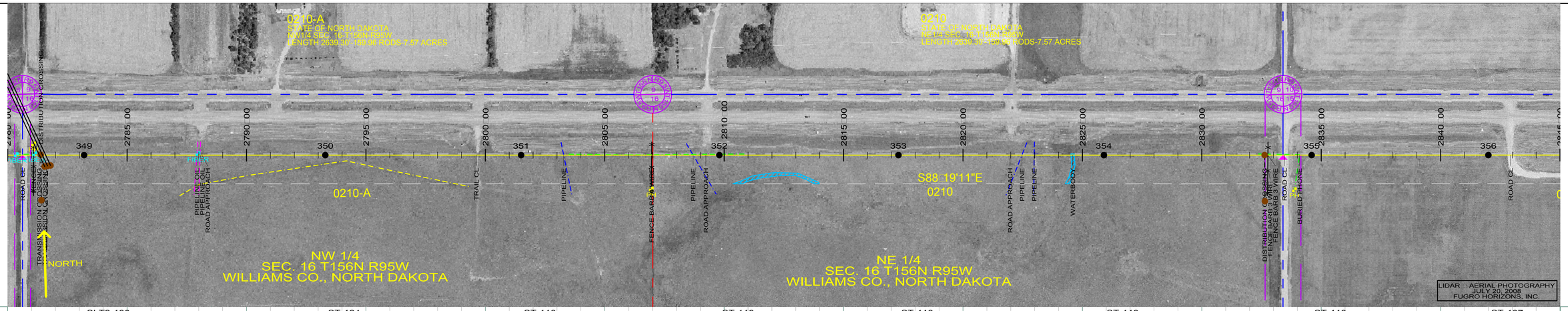
DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

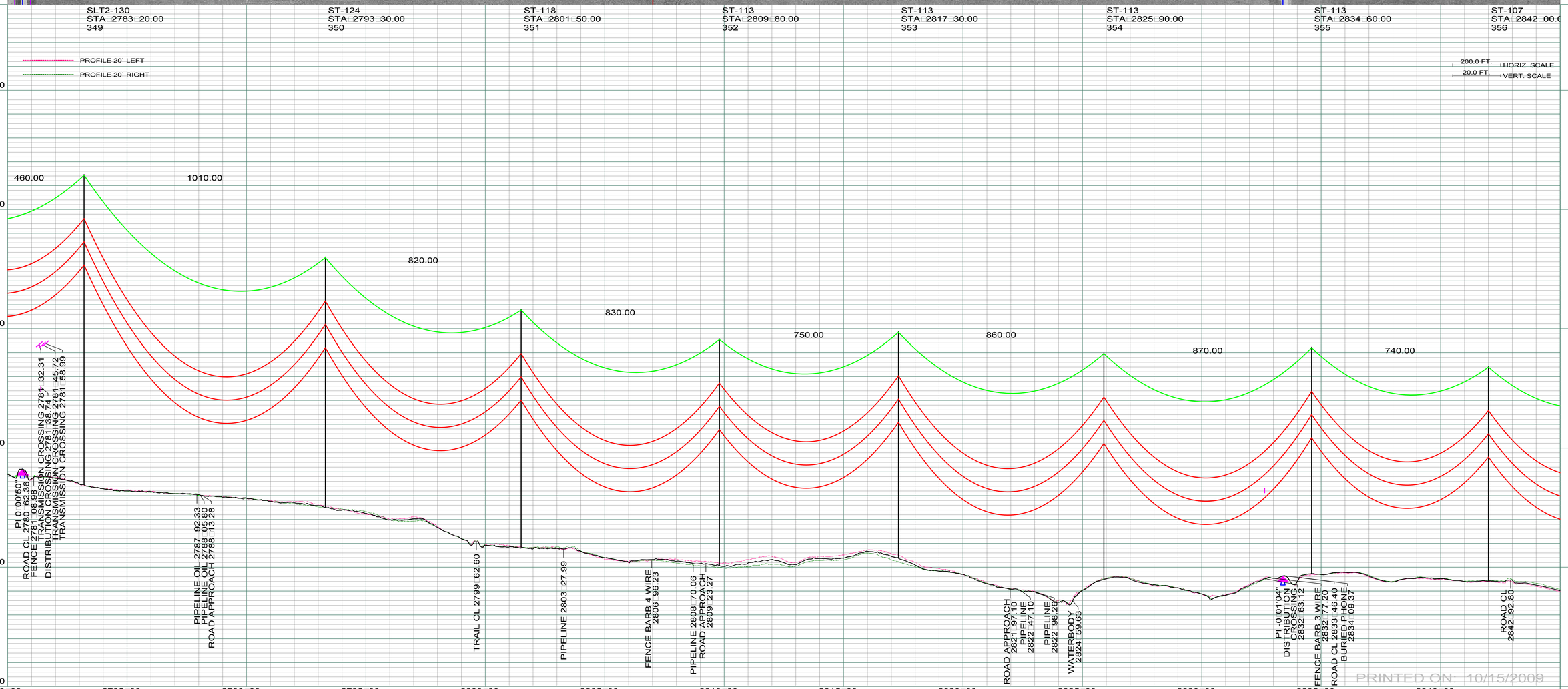
FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE
PLAN AND PROFILE
MILE 49 □ 50

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN
COUNTY NAME: WILLIAMS
BASIN DRAWING NO.: 296-090-T3-054
REV.: 0





REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2											
3											
4											

STATE NAME: NORTH DAKOTA — NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

PLAN AND PROFILE

MILE 50 □ 51

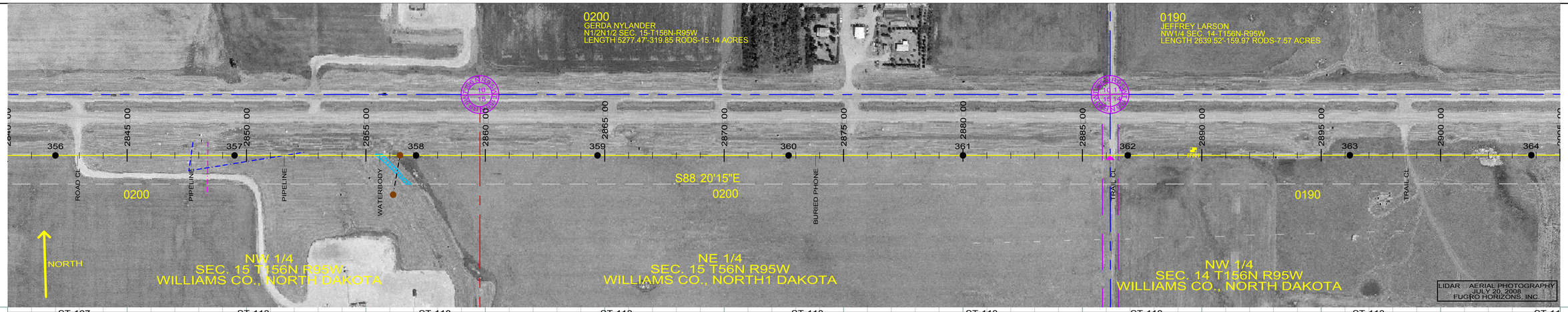
BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN

COUNTY NAME: WILLIAMS

BASIN DRAWING NO.: 296-090-T3-055

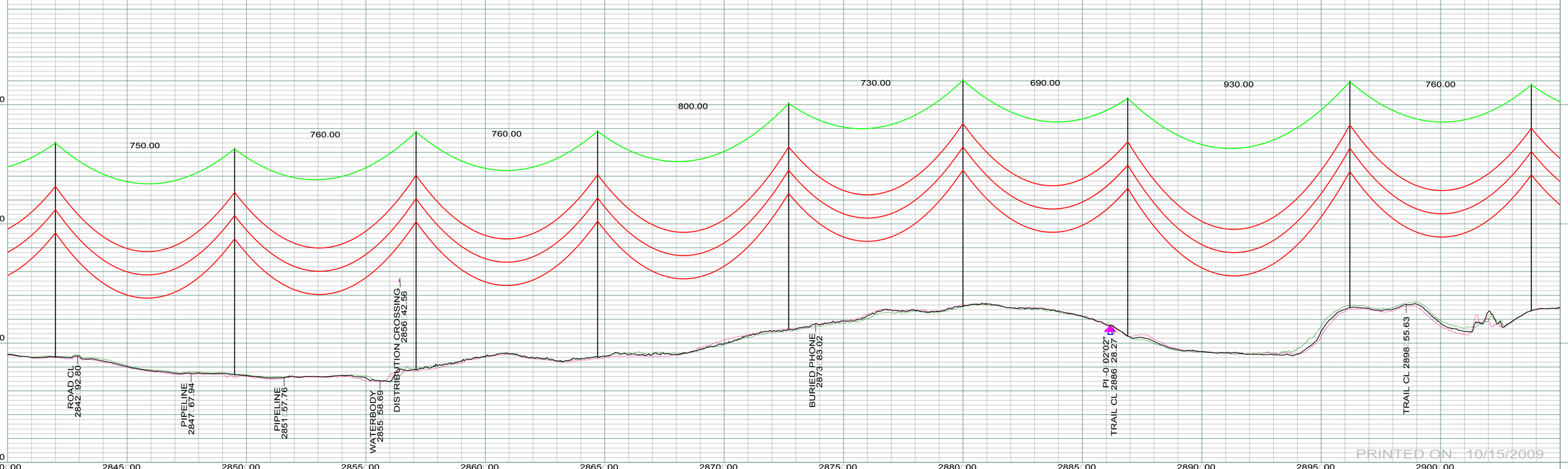
REV.: 0



ST-107 STA 2842+00.00 356 | ST-113 STA 2849+50.00 357 | ST-118 STA 2857+10.00 358 | ST-113 STA 2864+70.00 359 | ST-113 STA 2872+70.00 360 | ST-113 STA 2880+00.00 361 | ST-118 STA 2886+90.00 362 | ST-113 STA 2896+20.00 363 | ST-11 STA 364

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE



PRINTED ON: 10/15/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

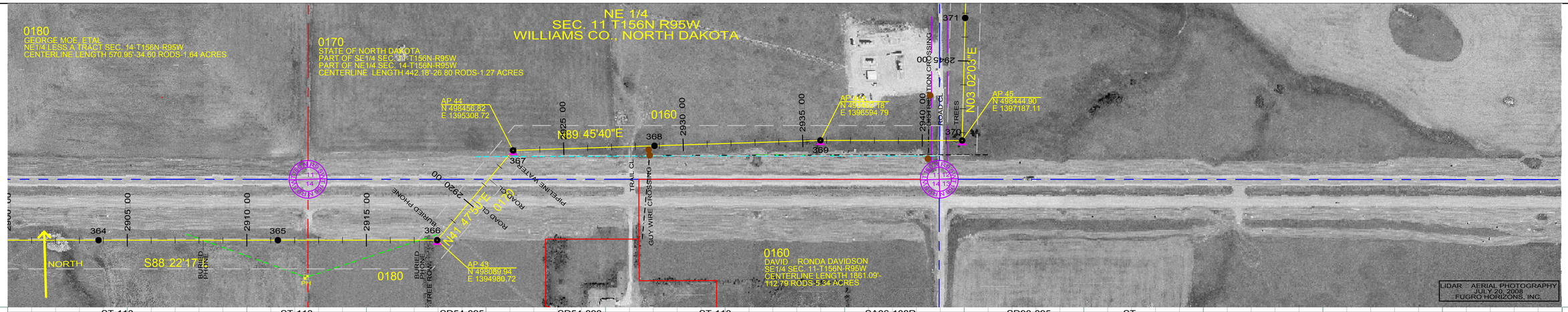
DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE
PLAN AND PROFILE
MILE 51 □ 52

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN | COUNTY NAME: WILLIAMS
BASIN DRAWING NO.: 296-090-T3-056 | REV.: 0



ST-113
STA 2903 80.00
364

ST-113
STA 2911 30.00
365

SD54-095
STA 2917 96.02
HT ADJUST 1.50
366
AP 43

SD54-090
STA 2922 88.15
HT ADJUST 1.50
367
AP 44

ST-113
STA 2928 80.00
368

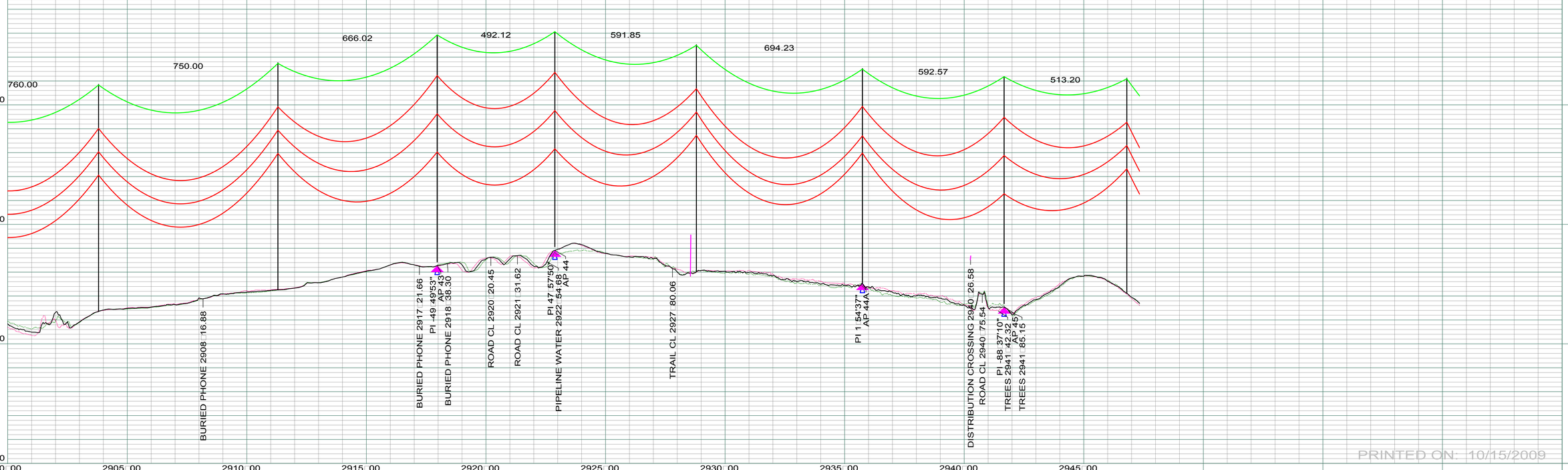
SA06-108R
STA 2935 74.23
369
AP 44A

SD90-095
STA 2941 66.80
HT ADJUST 1.50
370
AP 45

ST-
STA
371

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE



PRINTED ON: 10/15/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

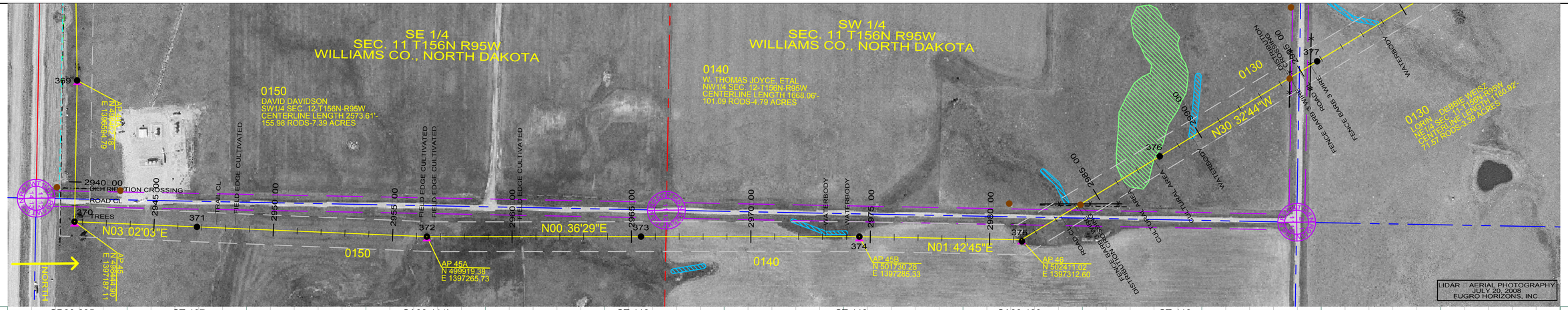
DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE
PLAN AND PROFILE
MILE 52 □ 53

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE:	COUNTY NAME:
AS SHOWN	WILLIAMS
BASIN DRAWING NO.	REV.
296-090-T3-057	0



SD90-095
STA 2941 66.80
HT ADJUST 1.50
370
AP 45

ST-107
STA 2946 80.00
371

SA06-114L
STA 2956 43.37
372
AP 45A

ST-118
STA 2965 40.00
373

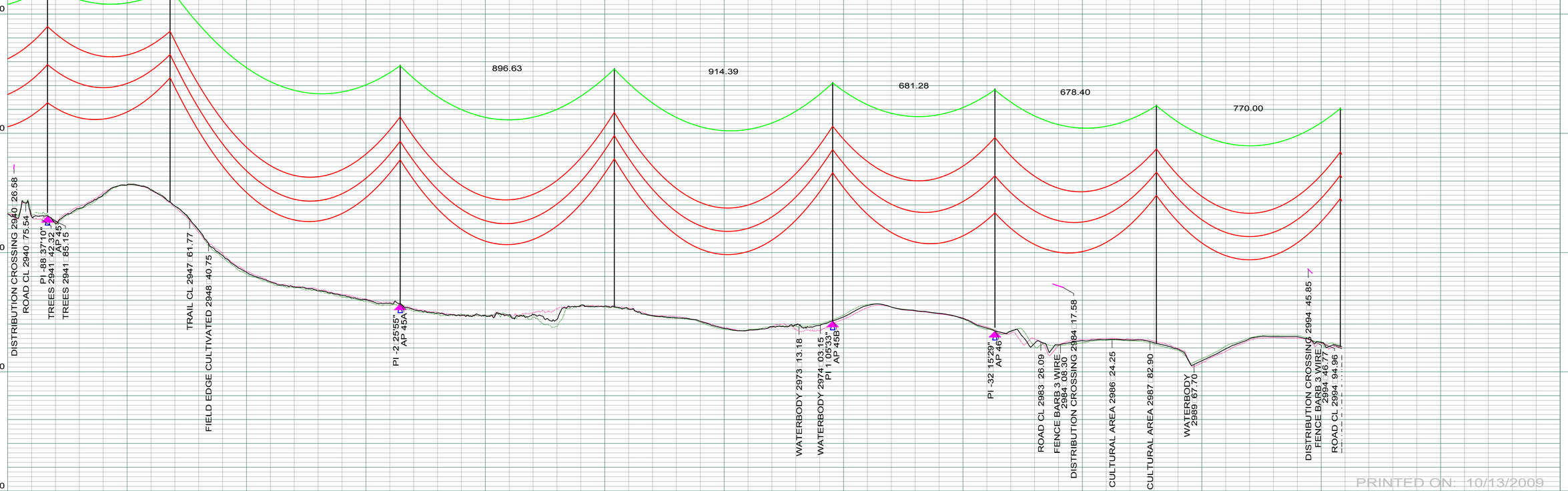
ST-118
STA 2974 54.39
374
AP 45B

SA38-100
STA 2981 33.63
HT ADJUST 1.50
OFFSET ADJUST 7.20
375
AP 46

ST-118
STA 2988 10.00
376

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE



PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
1	-	-	-	-	-						
2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

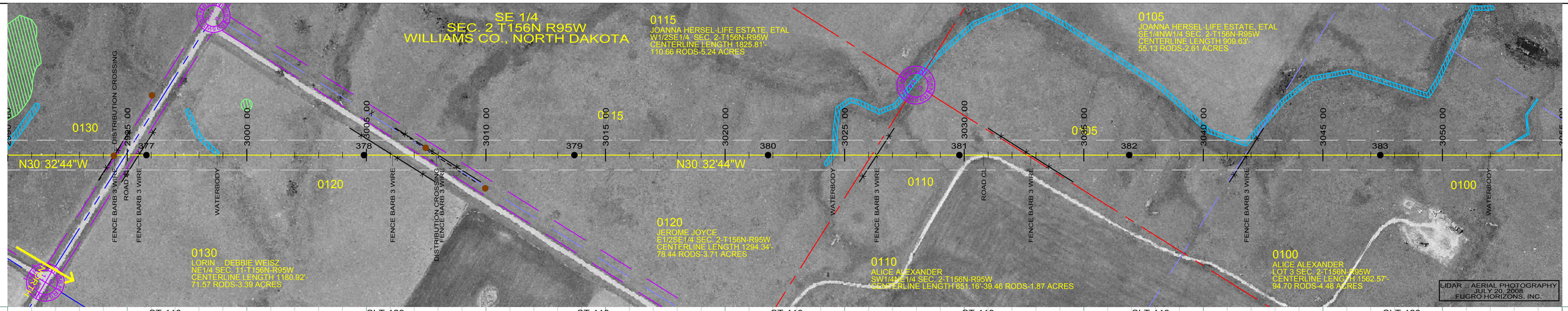
WILLISTON TO TIOGA 230KV TRANSMISSION LINE

PLAN AND PROFILE

MILE 53 □ 54

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN
COUNTY NAME: WILLIAMS
BASIN DRAWING NO.: 296-090-T3-058
REV.: 0



ST-118
STA 2995+80.00
377

SLT-129
STA 3004+90.00
378

ST-118
STA 3013+70.00
379

ST-113
STA 3021+80.00
380

ST-113
STA 3029+80.00
381

SLT-113
STA 3036+90.00
382

SLT-129
STA 3047+40.00
383

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE

2400
2350
2300
2250
2200
2150

770.00
910.00
880.00
810.00
800.00
710.00
1050.00
900.00

DISTRICT CROSSING 2994+45.85
FENCE BARB 3 WIRE 2994+59.77
ROAD CL 2994+94.90
FENCE BARB 3 WIRE 2995+48.20
WATERBODY 2998+75.70
FENCE BARB 3 WIRE 3006+09.50
DISTRICT CROSSING 3007+92.69
FENCE BARB 3 WIRE 3007+99.89
WATERBODY 3024+49.98
FENCE BARB 3 WIRE 3026+34.11
ROAD CL 3030+81.46
FENCE BARB 3 WIRE 3032+78.23
FENCE BARB 3 WIRE 3041+80.54
WATERBODY 3051+93.47

2990+00
2995+00
3000+00
3005+00
3010+00
3015+00
3020+00
3025+00
3030+00
3035+00
3040+00
3045+00
3050+00

PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
1	-	-	-	-	-						
2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

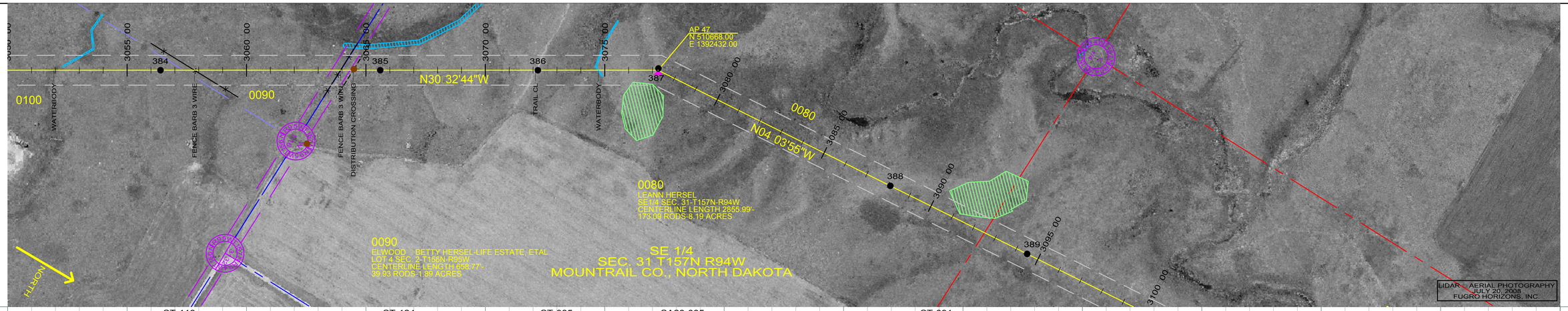
DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE
PLAN AND PROFILE
MILE 54 □ 55

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE:	COUNTY NAME:
AS SHOWN	MOUNTRAIL
BASIN DRAWING NO.	REV.
296-090-T3-059	0



ST-113
STA 3056+40.00
384

ST-124
STA 3065+60.00
385

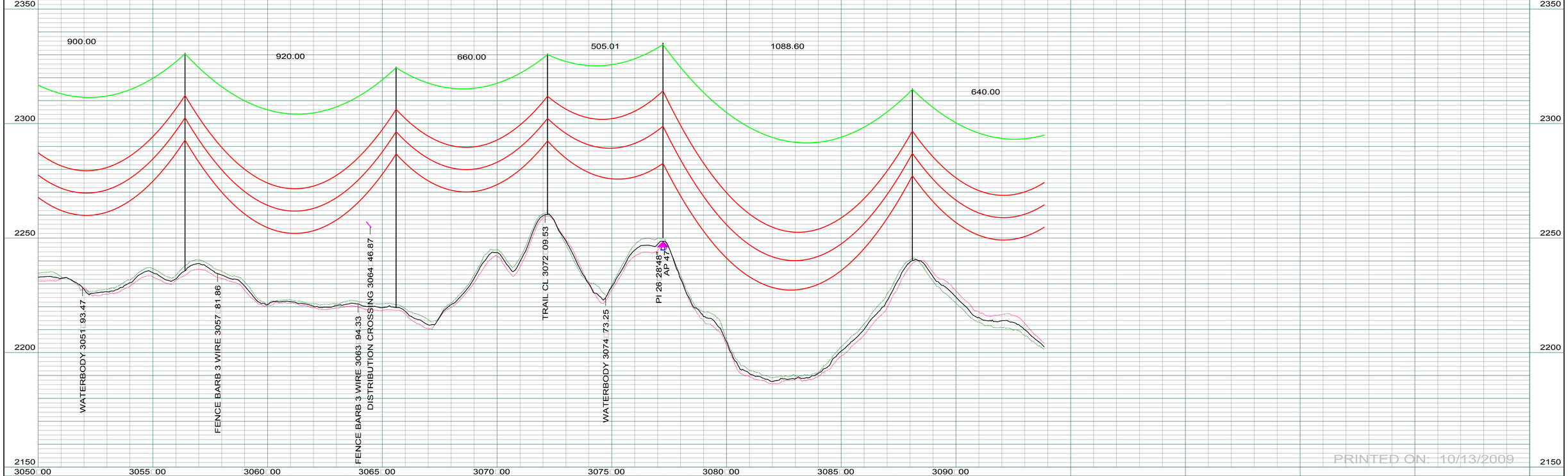
ST-085
STA 3072+20.00
386

SA28-085
STA 3077+23.19
HT ADJUST 1.50
OFFSET ADJUST -7.70
387
AP 47

ST-091
STA 3088+10.00
388

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE



PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2											
3											
4											

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

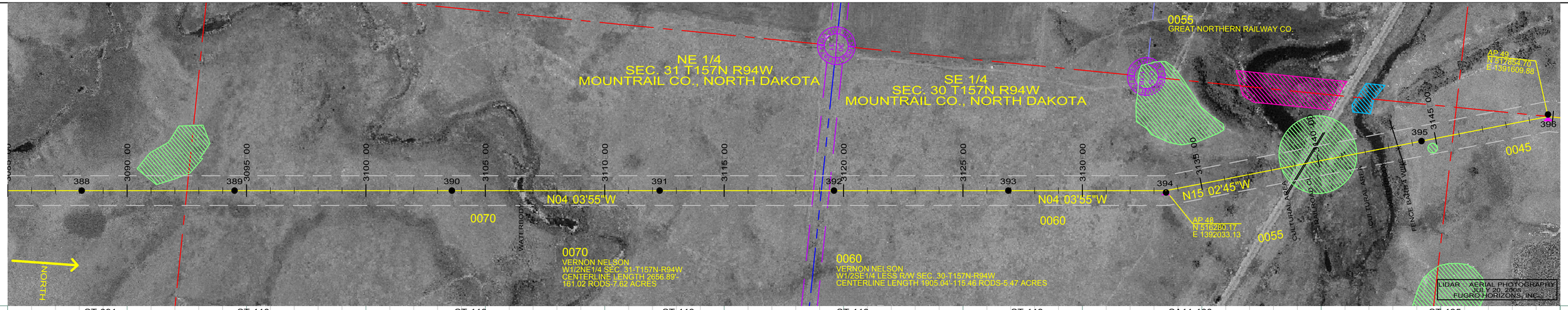
DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

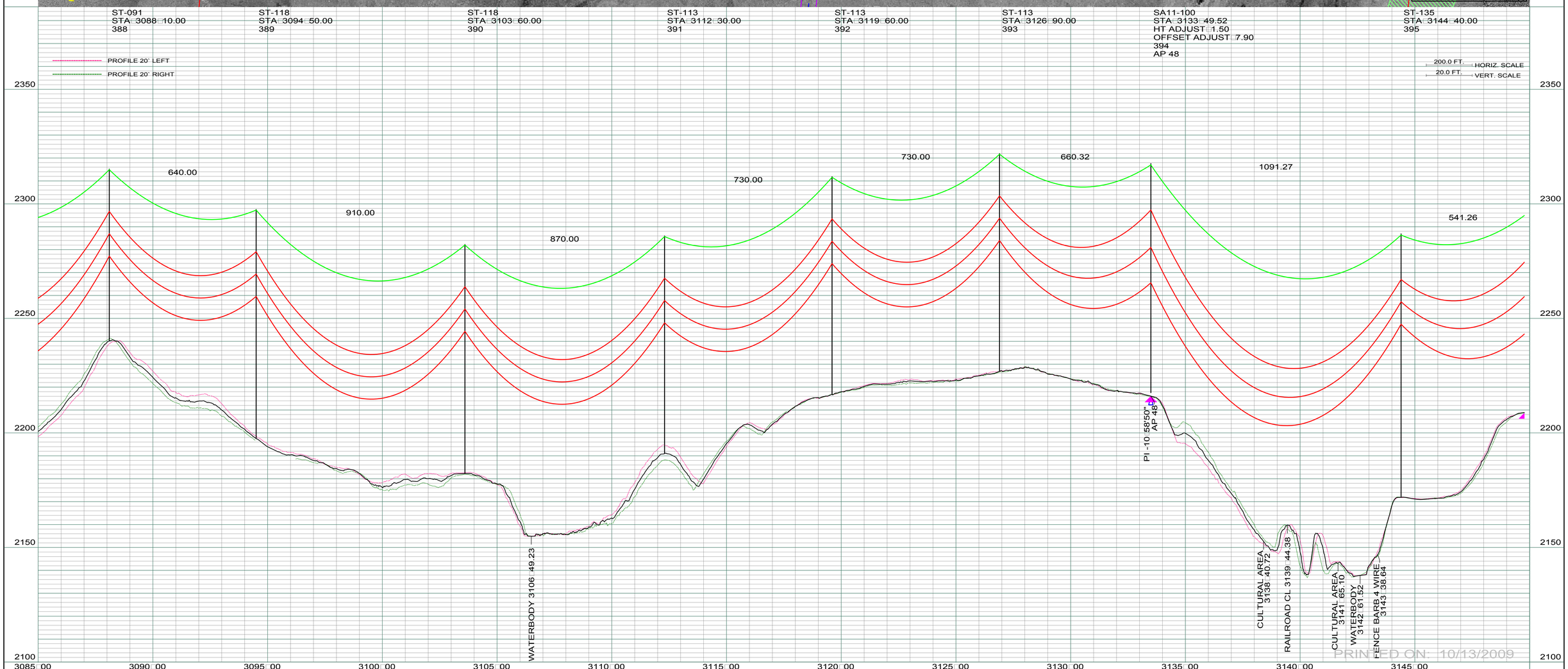
FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE
PLAN AND PROFILE
MILE 55 □ 56

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN
COUNTY NAME: MOUNTRAIL
BASIN DRAWING NO.: 296-090-T3-060
REV.: 0





PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
1	-	-	-	-	-
2					
3					
4					

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE

STATE NAME: NORTH DAKOTA — NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE

LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE

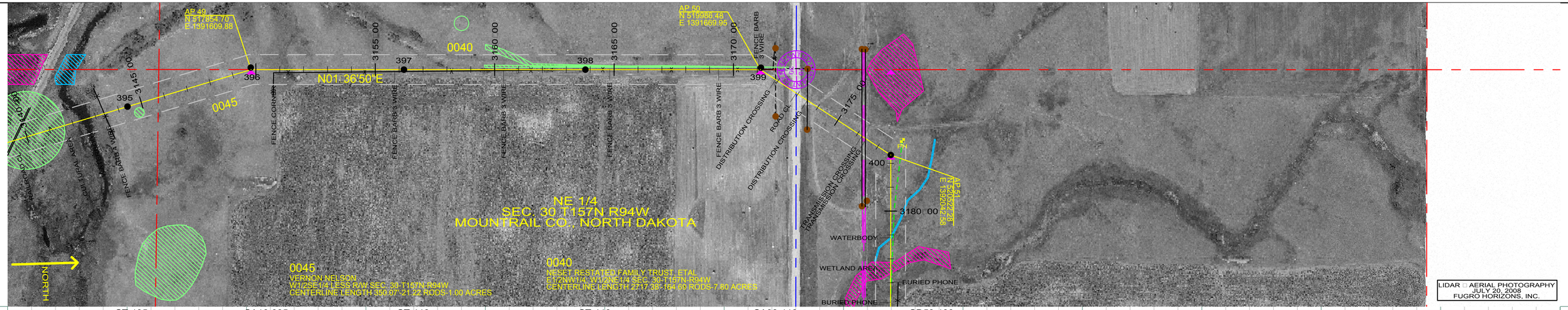
PLAN AND PROFILE

MILE 56 □ 57

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE:	COUNTY NAME:
AS SHOWN	MOUNTRAIL

BASIN DRAWING NO.	REV.
296-090-T3-061	0



ST-135
STA 3144 40.00
395

SA16-085
STA 3149 79.94
HT ADJUST 1.50
OFFSET ADJUST -8.70
396
AP 49

ST-113
STA 3156 20.00
397

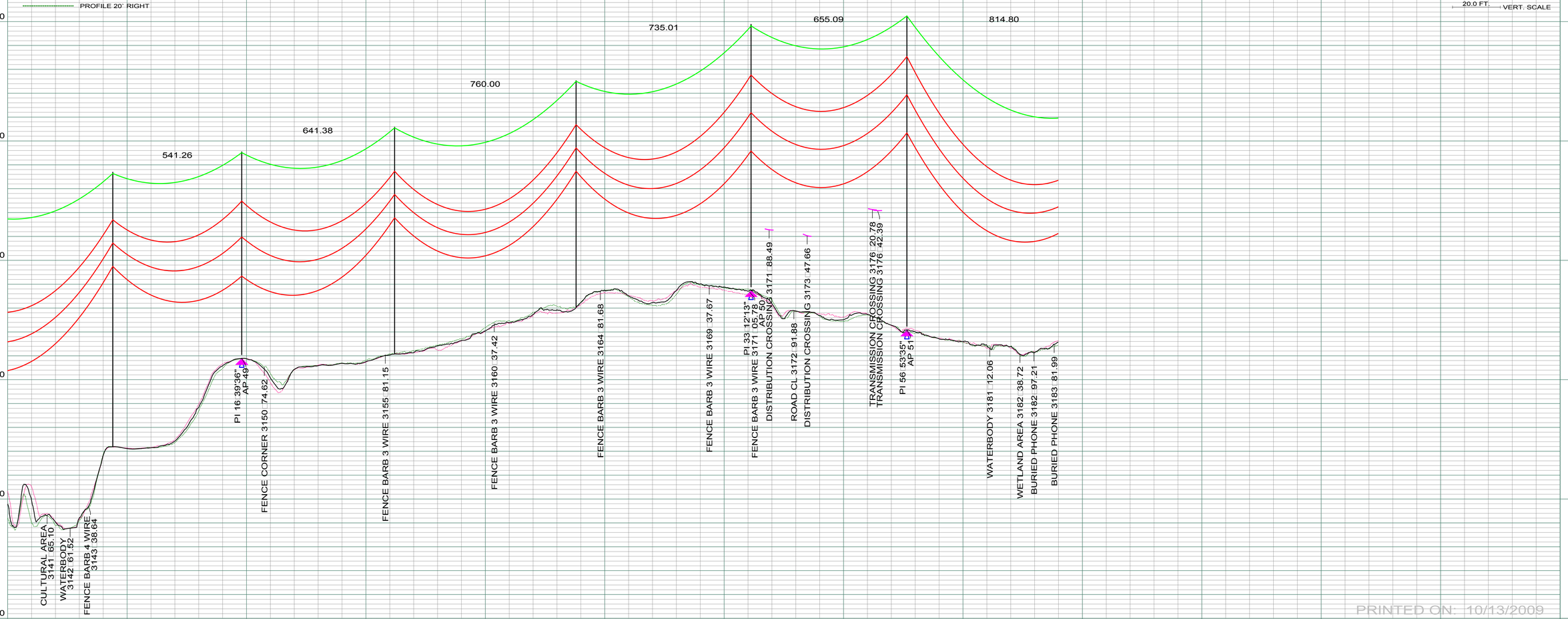
ST-113
STA 3163 80.00
398

SA38-110
STA 3171 12.56
HT ADJUST 1.50
OFFSET ADJUST -8.40
399
AP 50

SD58-130
STA 3177 65.20
HT ADJUST 1.50
400
AP 51

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE



PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
1	-	-	-	-	-
2					
3					
4					

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

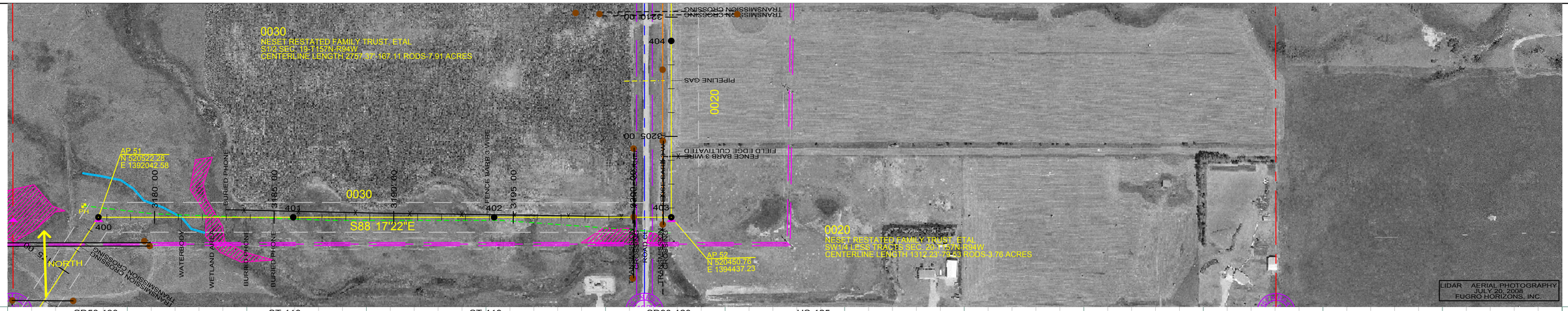
DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE
PLAN AND PROFILE
MILE 57 □ 58

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN
COUNTY NAME: MOUNTRAIL
BASIN DRAWING NO.: 296-090-T3-062
REV.: 0



SD58-130
STA 3177+65.20
HT ADJUST 1.50
400
AP 51

ST-118
STA 3185+80.00
401

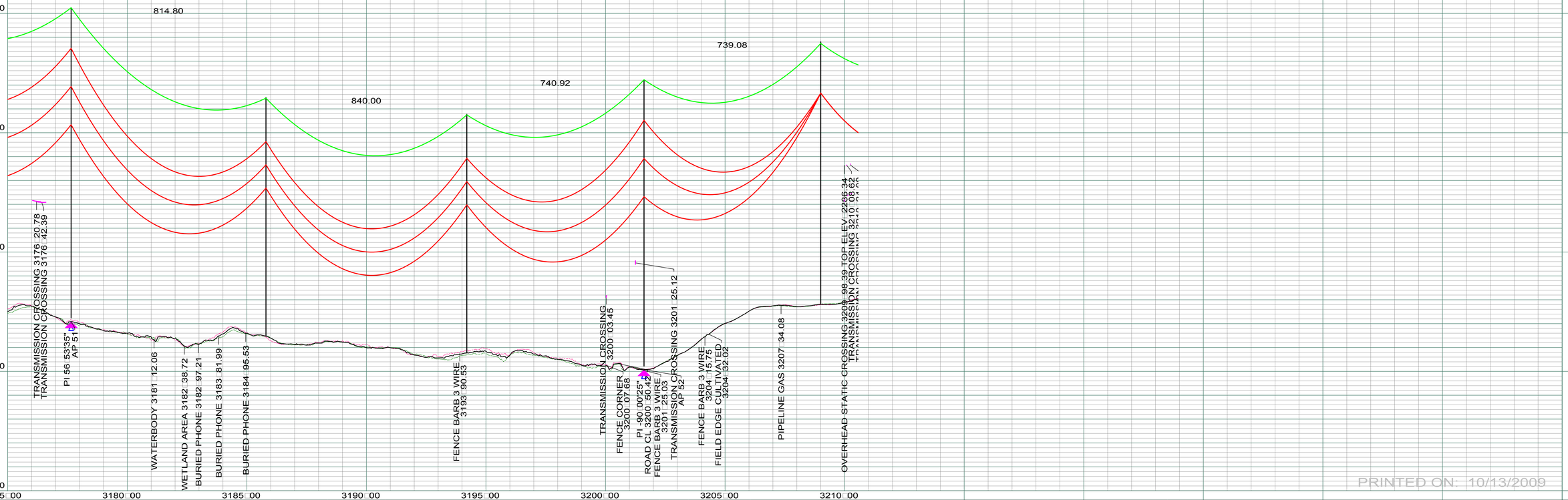
ST-118
STA 3194+20.00
402

SD90-120
STA 3201+60.92
HT ADJUST 1.50
403
AP 52

HS-125
STA 3209+00
404

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE



PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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2					
3					
4					

STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

DESIGN INFORMATION

	SIZE	STRINGING TENSION	NESC TENSION	DESIGN RULING SPAN	ACTUAL RULING SPAN
CONDUCTOR	1272 MCM 45/7 ACSR			800	.
OPGW	AC-71/571			800	.

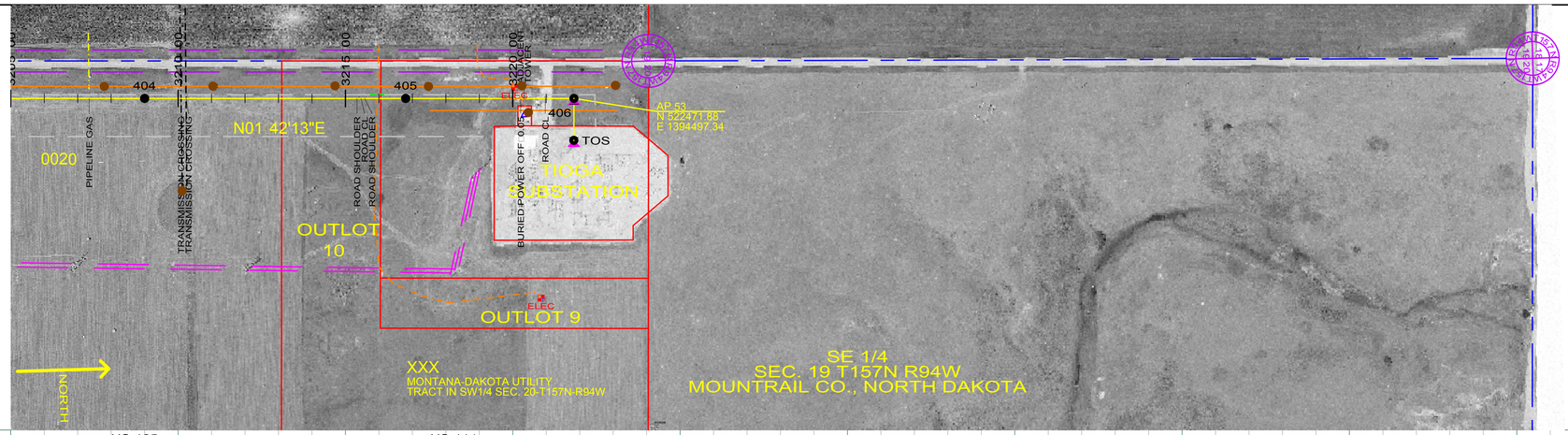
DESIGN BY:	DAM/CDB	10/12/09
DRAWN BY:	CDB	10/12/09
DESIGN CHK:	.	.
DRAFT CHK:	.	.
APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE
PLAN AND PROFILE
MILE 58 □ 59

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN
COUNTY NAME:
BASIN DRAWING NO.: 296-090-T3-063
REV.: 0



LIDAR □ AERIAL PHOTOGRAPHY
JULY 20, 2008
FUGRO HORIZONS, INC.

HS-125
STA 3209 00.00
404

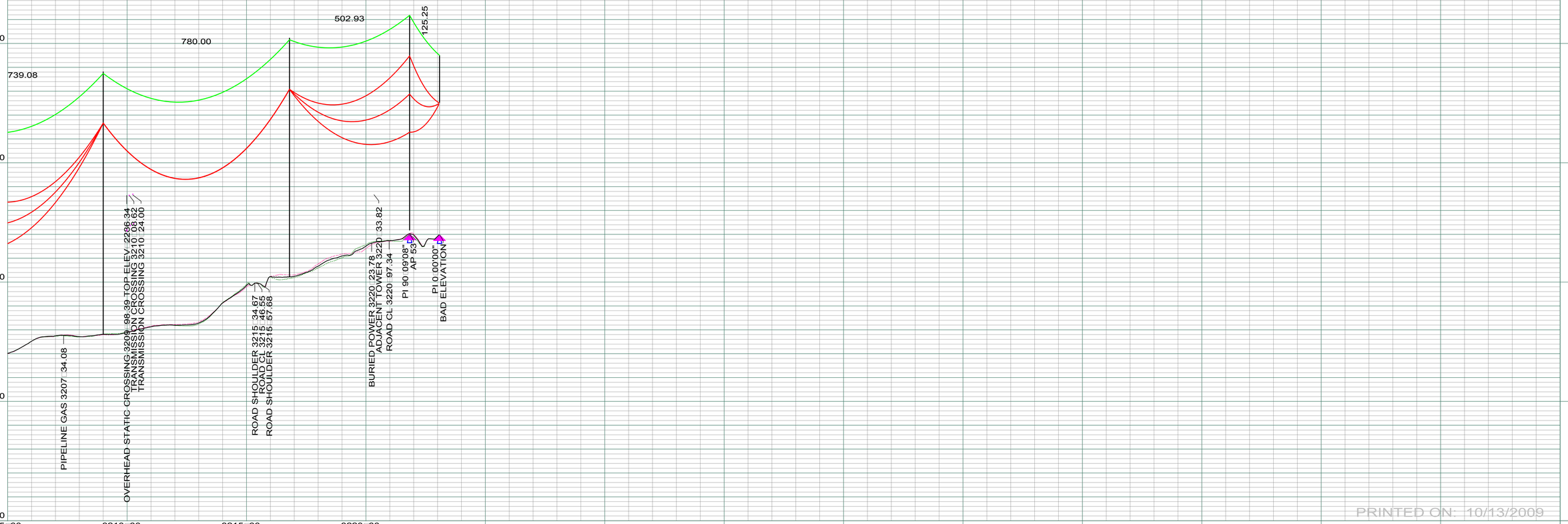
HS-114
STA 3216 80.00
405

SD90-090
STA 3221 82.93
HT ADJUST 1.50
406
AP 53

STEEL A-FRAME
STA 3223 08.18
HT ADJUST 54.5(
TOS

PROFILE 20' LEFT
PROFILE 20' RIGHT

200.0 FT. HORIZ. SCALE
20.0 FT. VERT. SCALE



PRINTED ON: 10/13/2009

REV	DESCRIPTION	DRWN	DSGN	APPD	DATE	REV	DESCRIPTION	DRWN	DSGN	APPD	DATE
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STATE NAME: NORTH DAKOTA | NAD83 NDSPCS INTL FT NORTH ZONE

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APPROVED:	DAM	10/12/09

FACILITY: TRANSMISSION SYSTEM MAINTENANCE
LOCATION UNIT: 296-230KV LINE-WILLISTON SUBSTATION TO TIOGA SUBSTATION

WILLISTON TO TIOGA 230KV TRANSMISSION LINE
PLAN AND PROFILE
MILE 59 □ 60

BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA
PHONE 701-223-0441

SCALE: AS SHOWN
COUNTY NAME:
BASIN DRAWING NO.: 296-090-T3-064
REV.: 0