This electronic collection of documents is provided for the convenience of the user and is Not a Certified Document –

The documents contained herein were originally issued and sealed by the individuals whose names and license numbers appear on each page, on the dates appearing with their signature on that page.
This file or an individual page shall not be considered a certified document.

PROJECT W-5205E

CONTRACT DE00130

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5205E	1	

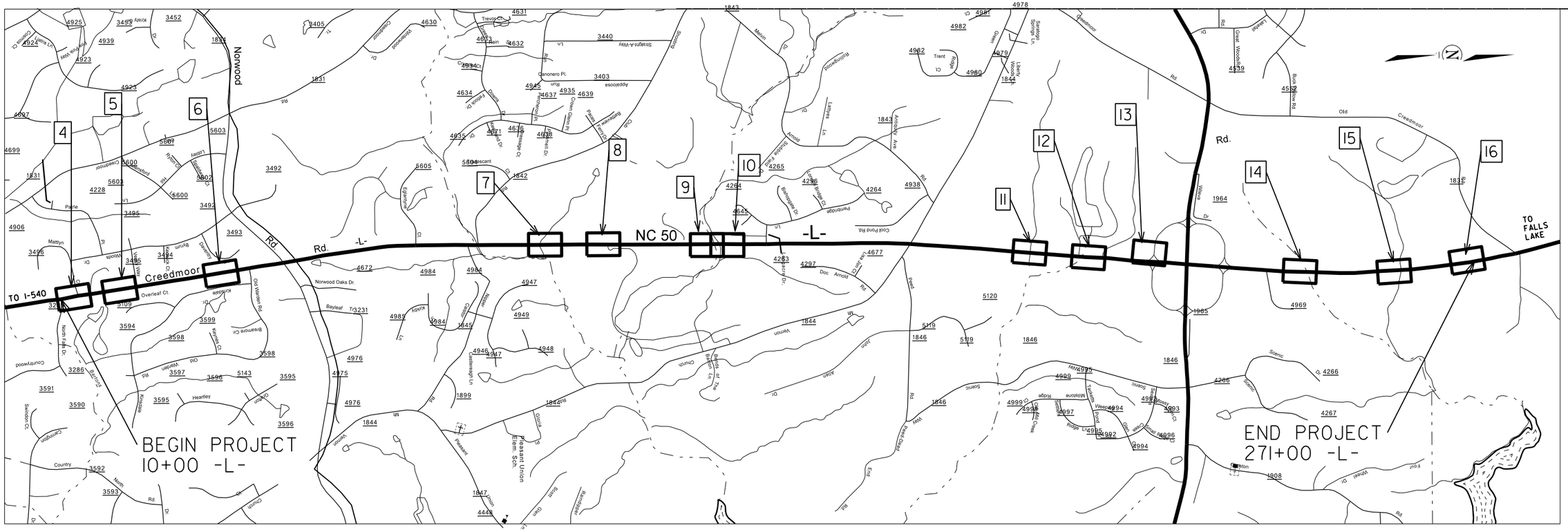
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
45335.1.5	HSIP-0050(13)	P.E.
45335.2.5	HSIP-0050(13)	ROW
45335.3.5	HSIP-0050(13)	CONST.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE COUNTY

LOCATION: ON NC 50 BETWEEN I-540 AND SR 1831 (OLD CREEDMOOR RD)

TYPE OF WORK: GRADING, GUARDRAIL INSTALLATION AND HIGH TENSION CABLE GUIDERAIL INSTALLATION



GRAPHIC SCALES

20 10 0 20 40

PLANS

DESIGN DATA

ADT 2013 = 24000

V = 55 MPH

PROJECT LENGTH

Length Roadway Project W-5205E = 4.94 Miles

Prepared in the Office of:

DIVISION OF HIGHWAYS

2612 N. Duke St., Durham, NC 27704

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE

LETTING DATE:

B.J.UPSHAW, P.E.
PROJECT ENGINEER

T.L.MANN, P.E.
PROJECT DESIGN ENGINEER

DIVISION DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030459 ENGINEER BEN UPSHAW

DocuSigned by:
Ben Upshaw 10/30/2015
P.E.
SIGNATURE: CD6EB110D6E54E5...

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

FIFTH DIVISION
J.R. HOPKINS, P.E.
DIVISION ENGINEER

29-OCT-2015 16:24
R:\Roadway\Proj\W5205E_Rdy_tsh_1.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	1-A

DIVISION FIVE DESIGN

NORTH CAROLINA PROFESSIONAL SEAL 030459 ENGINEER BEN UPSHAW

DocuSigned by: 10/30/2015
Ben Upshaw P.E.
SIGNATURE
C06FB10D6E54E5...

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

EFF. 01-17-2012
REV. 10-30-2012

2012 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
862.01	Guardrail Placement
862.02	Guardrail Installation

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2	TYPICAL SECTIONS
4 THRU 16	PLAN SHEET
TMP-1	TRANSPORTATION MANAGEMENT PLAN
EC-4 THRU EC-16	EROSION CONTROL PLANS
X-1 THRU X-37	CROSS SECTIONS

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 10-31-2014

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE AT&T, AQUA AMERICA,

TIME WARNER CABLE, PSNC ENERGY, DUKE ENERGY PROGRESS AND

LEVEL 3 COMMUNICATIONS.

6/2/99
29-OCT-2015 16:24
R:\Roadway\Proj\W5205E_Rdy_tsh_1A.dgn
$$$$USERNAME$$$$

04/06/15

PROJECT REFERENCE NO.	SHEET NO.

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 23
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) — P
- U/G Power Line LOS C (S.U.E.*) — P
- U/G Power Line LOS D (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- U/G Telephone Cable LOS B (S.U.E.*) — T
- U/G Telephone Cable LOS C (S.U.E.*) — T
- U/G Telephone Cable LOS D (S.U.E.*) — T
- U/G Telephone Conduit LOS B (S.U.E.*) — TC
- U/G Telephone Conduit LOS C (S.U.E.*) — TC
- U/G Telephone Conduit LOS D (S.U.E.*) — TC
- U/G Fiber Optics Cable LOS B (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS C (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS D (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E.*) — W
- U/G Water Line LOS C (S.U.E.*) — W
- U/G Water Line LOS D (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Cable LOS B (S.U.E.*) — TV
- U/G TV Cable LOS C (S.U.E.*) — TV
- U/G TV Cable LOS D (S.U.E.*) — TV
- U/G Fiber Optic Cable LOS B (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS C (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS D (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) — G
- U/G Gas Line LOS C (S.U.E.*) — G
- U/G Gas Line LOS D (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

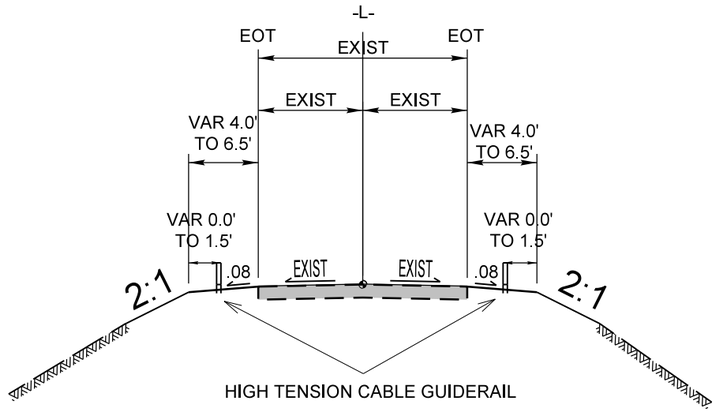
SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

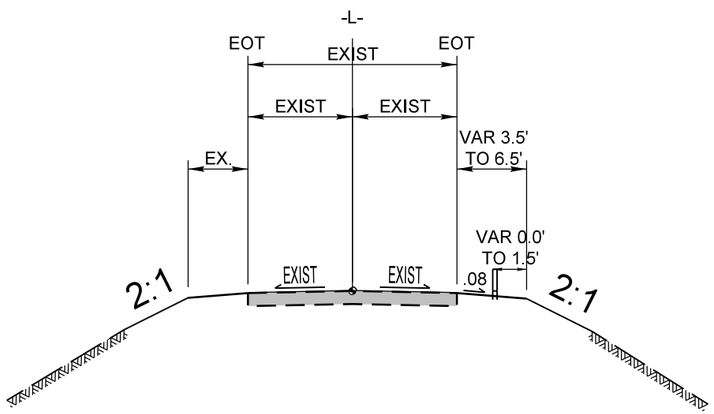
MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

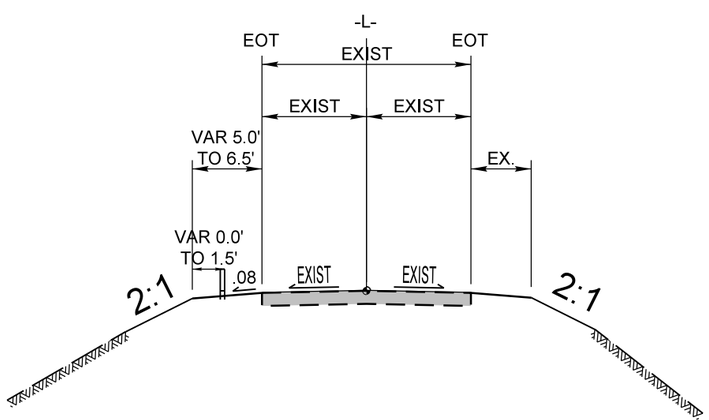
PROJECT REFERENCE NO.	SHEET NO.
W-5205E	2A-1



TYPICAL SECTION NO.1



TYPICAL SECTION NO. 2



TYPICAL SECTION NO. 3

TYPICAL SECTION NO.1

SITE 3 -L- STA. 18+55.00 TO 21+80.00
SITE 4 -L- STA. 38+00.00 TO 41+75.00
SITE 8 -L- STA. 127+65.00 TO 132+80.00
SITE 9 -L- STA. 185+95.00 TO 191+80.00
SITE 10 -L- STA. 198+35.00 TO 201+15.00

TYPICAL SECTION NO.2

SITE 2 -L- STA. 10+50.00 TO 14+35.00
SITE 3 -L- STA. 21+80.00 TO 22+75.00
SITE 6 -L- STA. 97+00.00 TO 102+35.00
SITE 7 -L- STA. 107+90.00 TO 110+77.00
SITE 10 -L- STA. 197+80.00 TO 198+35.00
SITE 10 -L- STA. 201+15.00 TO 201+45.00
SITE 13 -L- STA. 254+50.00 TO 257+40.00
SITE 14 -L- STA. 268+25.00 TO 270+85.00

TYPICAL SECTION NO.3

SITE 4 -L- STA. 41+75.00 TO 42+00.00
SITE 8 -L- STA. 127+25.00 TO 127+65.00
SITE 8 -L- STA. 132+80.00 TO 133+95.00
SITE 12 -L- STA. 235+90.00 TO 241+65.00

DIVISION FIVE DESIGN

NORTH CAROLINA PROFESSIONAL SEAL 030459 ENGINEER BEN UPSHAW

DocuSigned by: 10/30/2015
Ben Upshaw P.E.
SIGNATURE
CD6EB110D8E54E5...

TYPICAL SECTIONS
CABLE GUIDERAIL
INSTALLATION NC 50

DIVISION 05 WAKE COUNTY

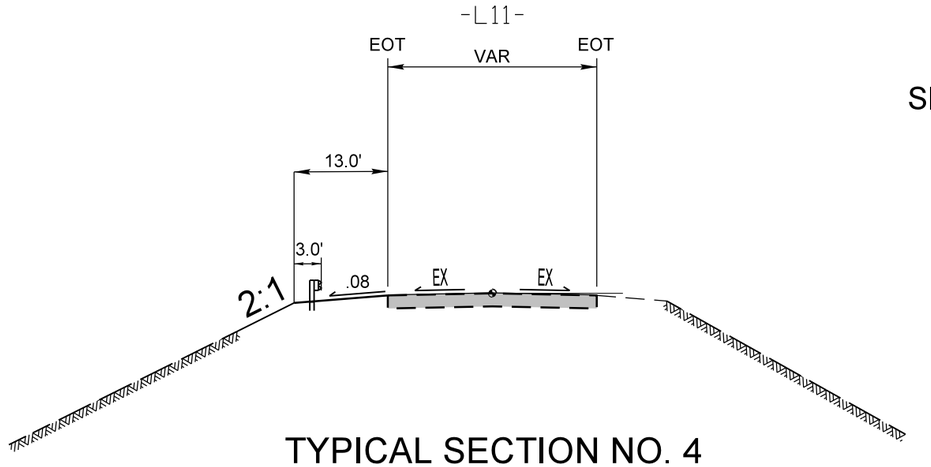
REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

DIVISION OF HIGHWAYS · DIVISION FIVE · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · DESIGN UNIT

SCALE:	NTS	DATE:	12 AUG 2015
PREPARED BY:	TLM		
REVIEWED BY:	BJU		
REVIEWED BY:			

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	2A-2



TYPICAL SECTION NO. 4

TYPICAL SECTION NO.4

SITE 11 -L11- STA. 13+95.00 TO 18+95.00

DIVISION FIVE DESIGN

NORTH CAROLINA PROFESSIONAL SEAL 030459 ENGINEER BEN UPSHAW

DocuSigned by: 10/30/2015

Ben Upshaw P.E.

SIGNATURE CD6EB11DE54E5...

TYPICAL SECTION
GUARDRAIL
INSTALLATION NC 50

DIVISION 05 WAKE COUNTY

REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

DIVISION OF HIGHWAYS · DIVISION FIVE · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · DIVISION DESIGN UNIT

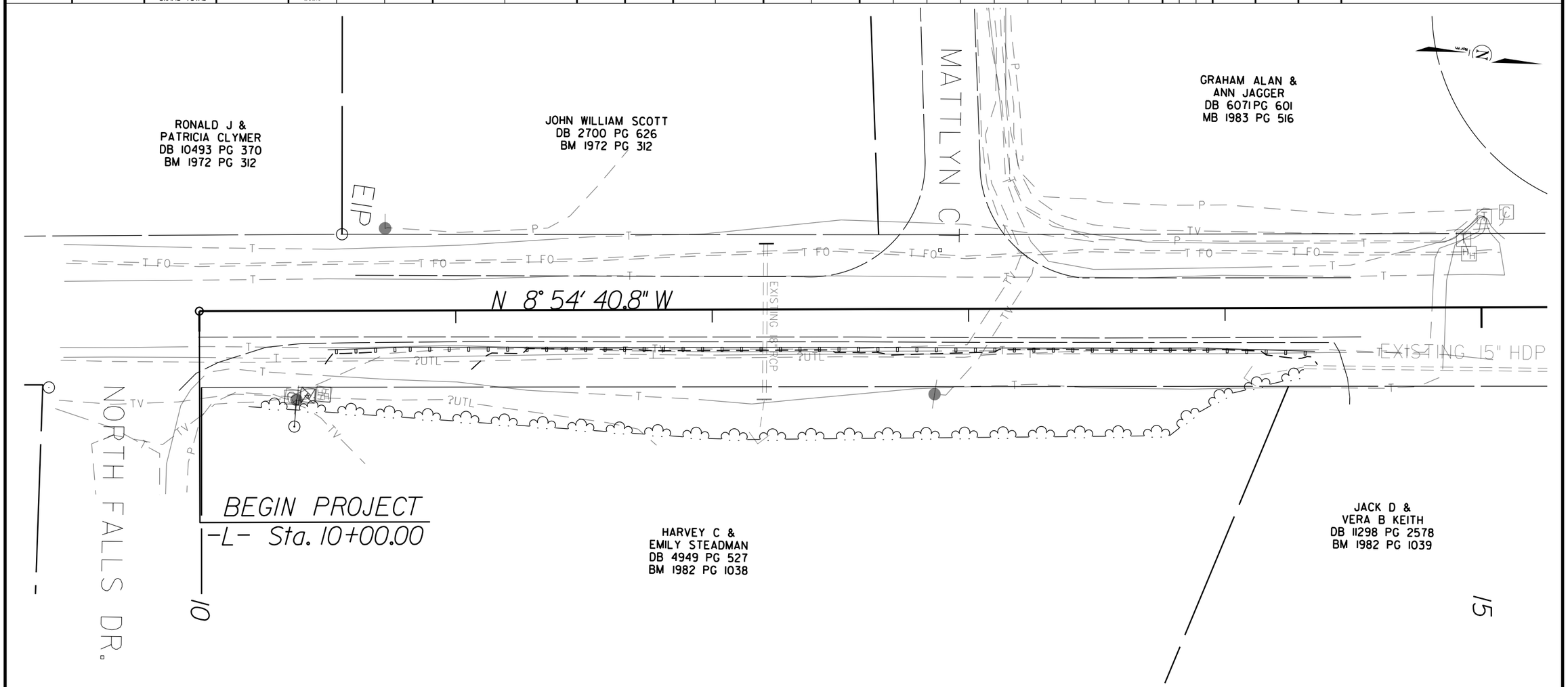
SCALE: NTS	DATE: 12 AUG 2015
PREPARED BY:	TLM
REVIEWED BY:	BJU
REVIEWED BY:	

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	4

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUIDERAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUIDERAIL TO END OF GUIDERAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUIDERAIL.

CABLE GUIDERAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM EOT	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS											REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				CABLE			APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END														
-L-	10+50.00	14+35.00	RT.	385			11+15.00	13+50.00	4.0	4.5	30	45	1.0	1.5			2											
–	–	–	–	–					–	–	–		–				–											
		SITE TOTALS		385.0																								
	DEDUCTIONS FOR ANCHORS 2 ANCHOR UNITS @ 51.25'			–102.5																								
		GRAND TOTAL		282.5																								



DIVISION FIVE DESIGN

NORTH CAROLINA PROFESSIONAL SEAL 030459 ENGINEER BEN UPSHAW

DocuSigned by: 10/30/2015
Ben Upshaw P.E.
SIGNATURE
CD5EB110D6E54E5...

SITE 2 CABLE
GUIDERAIL INSTALLATION
NC 50

DIVISION 05 WAKE COUNTY

REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

DIVISION OF HIGHWAYS · DIVISION FIVE · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · DIVISION DESIGN UNIT

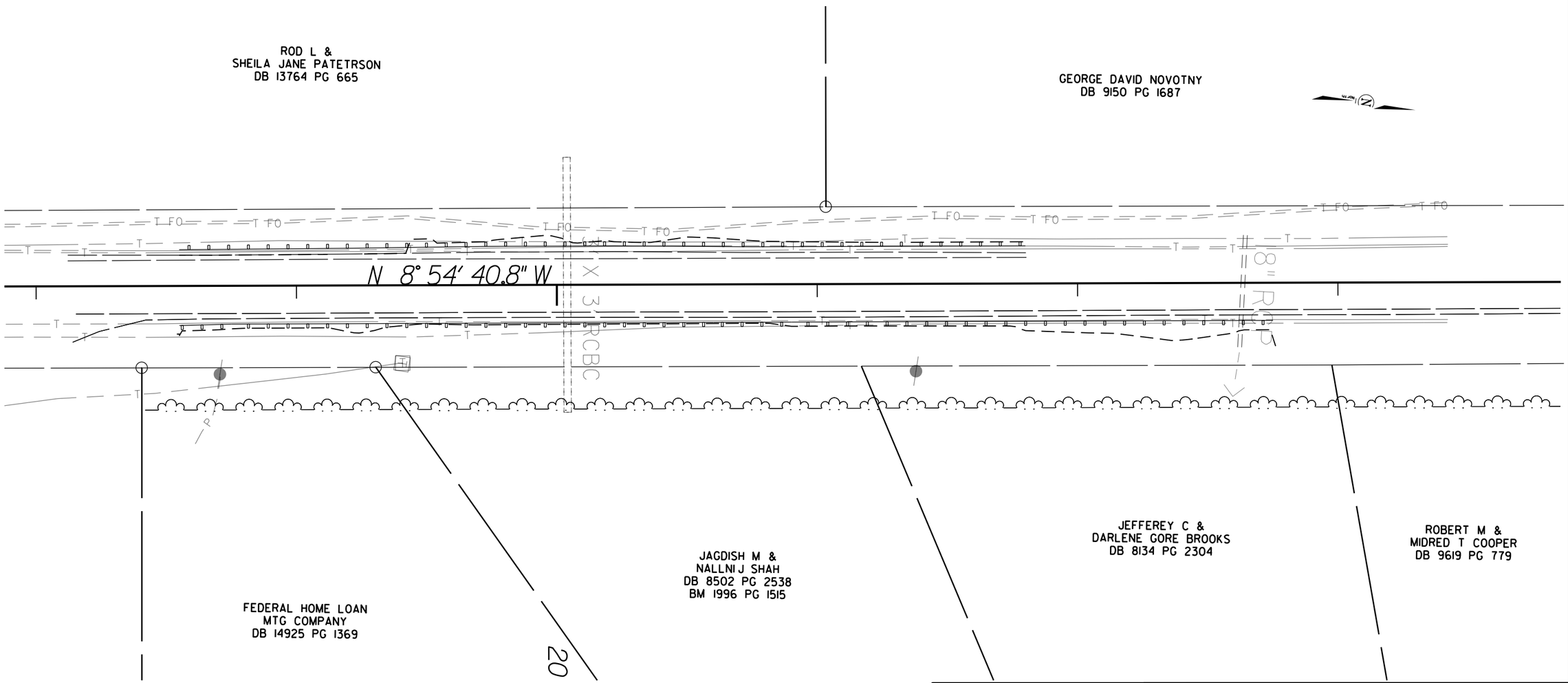
SCALE: 40'=1"	DATE: 12 AUG 2015
PREPARED BY:	TLM
REVIEWED BY:	BJU
REVIEWED BY:	

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	5

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUIDERAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUIDERAIL TO END OF GUIDERAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUIDERAIL.

CABLE GUIDERAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM EOT	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS												REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				CABLE			APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END															
-L-	18+55.00	22+75.00	RT.	420.0			19+50.00	21+50.00	4.0	4.0 – 5.5	15	–	0.5	–			2												
-L-	18+55.00	21+80.00	LT.	325.0			20+55.00	19+80.00	4.0	4.0 – 5.5	–	–	–	–			2												
		SITE TOTALS		745.0																									
	DEDUCTIONS FOR ANCHORS 4 ANCHOR UNITS @ 51.25'			-205.0																									
		GRAND TOTAL		540.0																									



DIVISION FIVE DESIGN

NORTH CAROLINA PROFESSIONAL SEAL 030459 ENGINEER BEN UPSHAW

DocuSigned by: 10/30/2015
Ben Upshaw P.E.
SIGNATURE
C08EB110D6E54E5...

SITE 3 CABLE
GUIDERAIL INSTALLATION
NC 50

DIVISION 05 WAKE COUNTY

REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

DIVISION OF HIGHWAYS · DIVISION FIVE · DESIGN UNIT · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

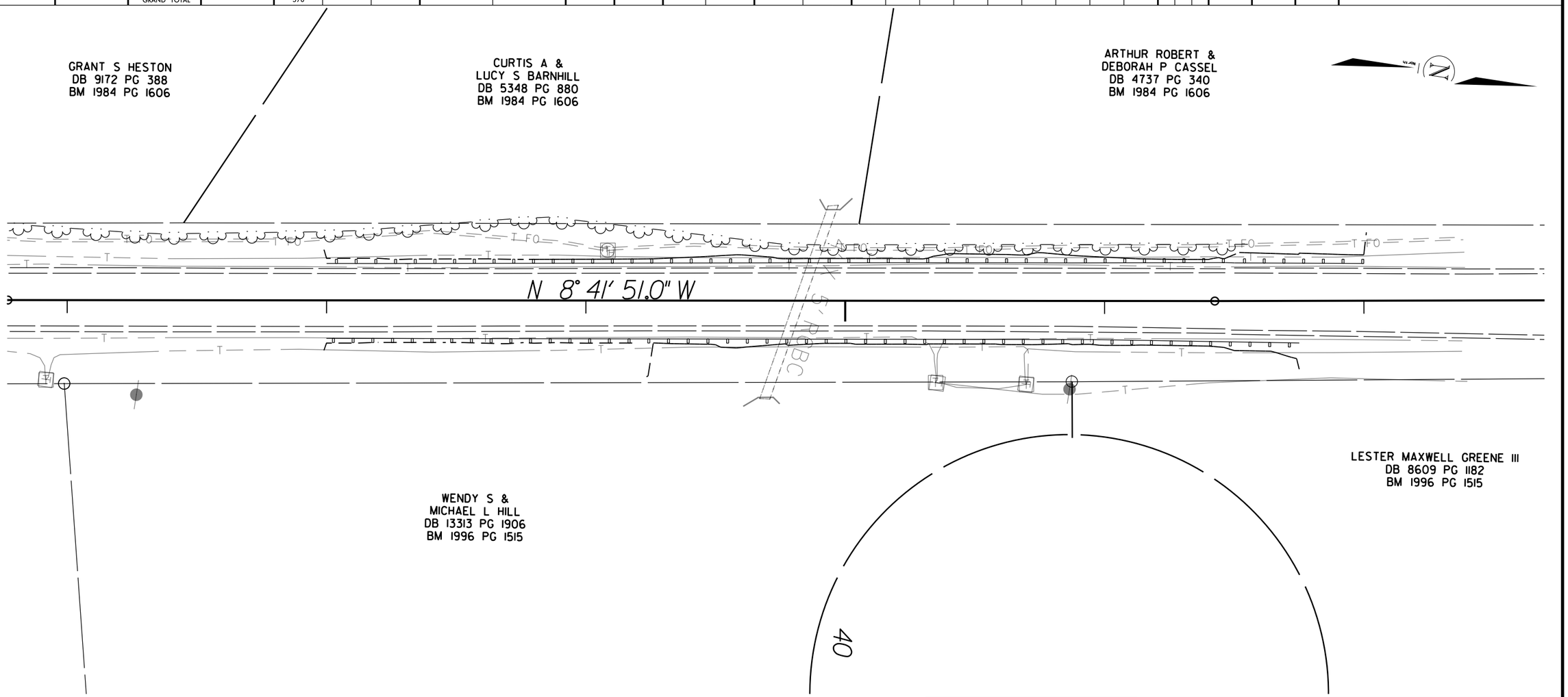
SCALE: 40'=1"	DATE: 12 AUG 2015
PREPARED BY:	TLM
REVIEWED BY:	BJU
REVIEWED BY:	

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	6

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUIDERAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUIDERAIL TO END OF GUIDERAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUIDERAIL.

CABLE GUIDERAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM EOT	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS												REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				CABLE			APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END															
-L-	38+00.00	41+75.00	RT.	375			39+25.00	40+50.00	4.5	4.5 – 6.0	–	–	–	–			2												
-L-	38+00.00	42+00.00	LT.	400			40+75.00	39+25.00	4.0	5.5	–	–	–	–			2												
		SITE TOTALS		775																									
	DEDUCTIONS FOR ANCHORS 2 GRAU @ 50			–205																									
		GRAND TOTAL		570																									



DIVISION FIVE DESIGN

NORTH CAROLINA PROFESSIONAL SEAL 030459 ENGINEER BEN UPSHAW

DocuSigned by: 10/30/2015
Ben Upshaw P.E.
SIGNATURE
CD6EB100D6E54E5...

SITE 4 CABLE
GUIDERAIL INSTALLATION
NC 50

DIVISION 05 WAKE COUNTY

REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

DIVISION OF HIGHWAYS · DIVISION FIVE · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · DESIGN UNIT

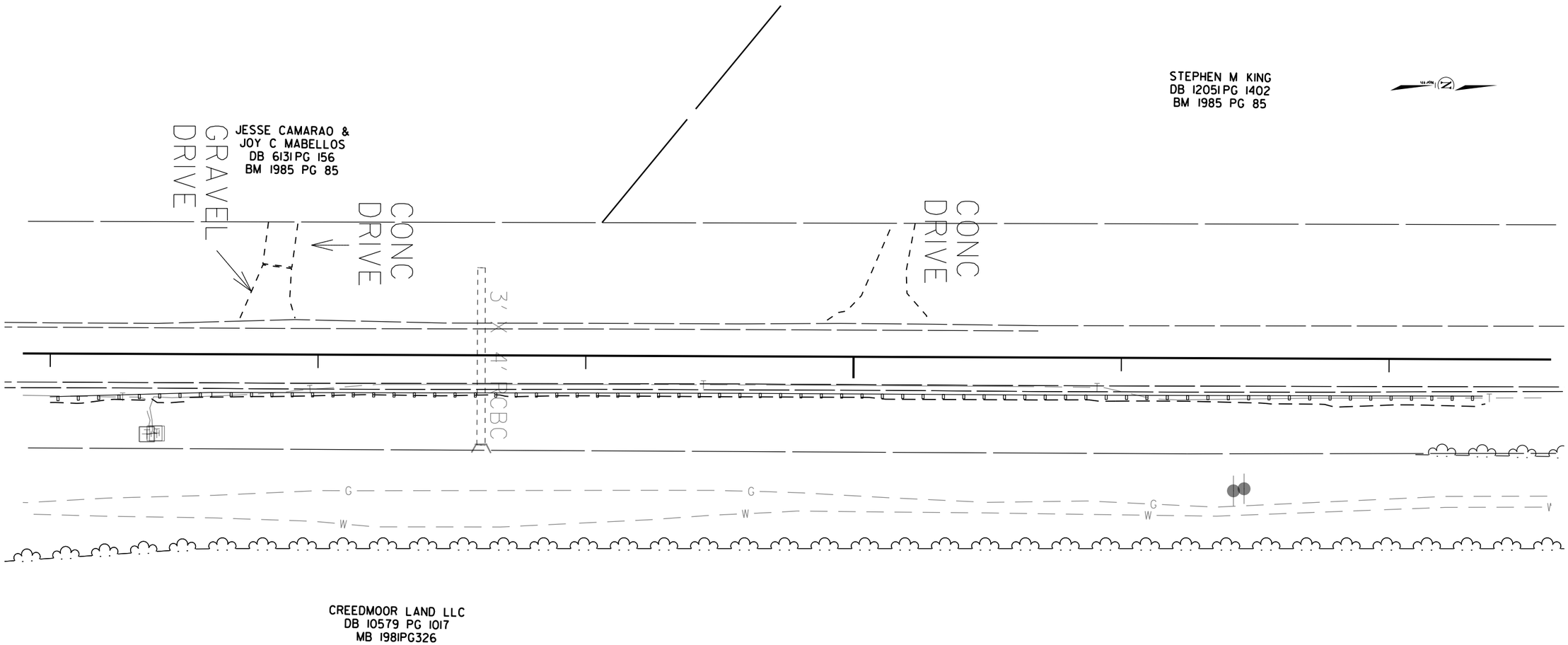
SCALE:	40'=1"	DATE:	12 AUG 2015
PREPARED BY:	TLM		
REVIEWED BY:	BJU		
REVIEWED BY:			

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	7

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUIDERAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUIDERAIL TO END OF GUIDERAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUIDERAIL.

CABLE GUIDERAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM EOT	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS												REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				CABLE			APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END															
-L-	97+00.00	102+35.00	RT.	535			97+60.00	101+10.00	3.5	3.5 – 5.0	60	0	2	–			2												
–	–	–	–	–					–	–	–		–				–												
		SITE TOTALS		535.0																									
	DEDUCTIONS FOR ANCHORS 2 ANCHOR UNITS @ 51.25'			-102.5																									
		GRAND TOTAL		432.5																									



DIVISION FIVE DESIGN

NORTH CAROLINA PROFESSIONAL SEAL 030459 ENGINEER BEN UPSHAW

DocuSigned by: 10/30/2015
Ben Upshaw P.E.
SIGNATURE
C06EB110D6E54E5...

SITE 6 CABLE
GUIDERAIL INSTALLATION
NC 50

DIVISION 05 WAKE COUNTY

REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

DIVISION OF HIGHWAYS · DIVISION FIVE · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · DIVISION DESIGN UNIT

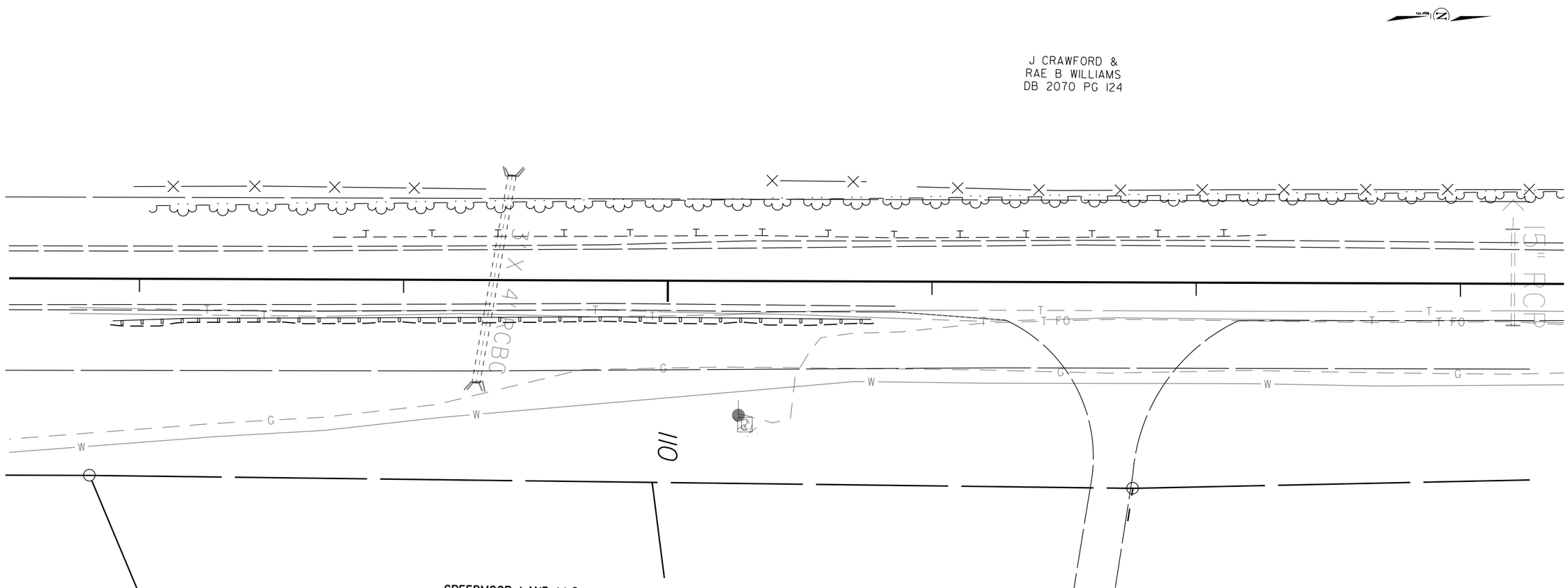
SCALE: 40'=1"	DATE: 12 AUG 2015
PREPARED BY:	TLM
REVIEWED BY:	BJU
REVIEWED BY:	

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	8

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUIDERAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUIDERAIL TO END OF GUIDERAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUIDERAIL.

CABLE GUIDERAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM EOT	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS												REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				CABLE			APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END															
-L-	107+90.00	110+77.00	RT.	287			108+56.00	109+52.00	5.0	6.5	75	–	2.5	–			2												
–	–	–	–	–					–	–	–		–				–												
		SITE TOTALS		287																									
	DEDUCTIONS FOR ANCHORS 2 GRAU @ 50			102.5																									
		GRAND TOTAL		184.5																									



DIVISION FIVE DESIGN

NORTH CAROLINA PROFESSIONAL SEAL 030459 ENGINEER BEN UPSHAW

DocuSigned by: 10/30/2015
Ben Upshaw P.E.
SIGNATURE
CD6EB110D6E54E5...

SITE 7 CABLE
GUIDERAIL INSTALLATION
NC 50

DIVISION 05 WAKE COUNTY

REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

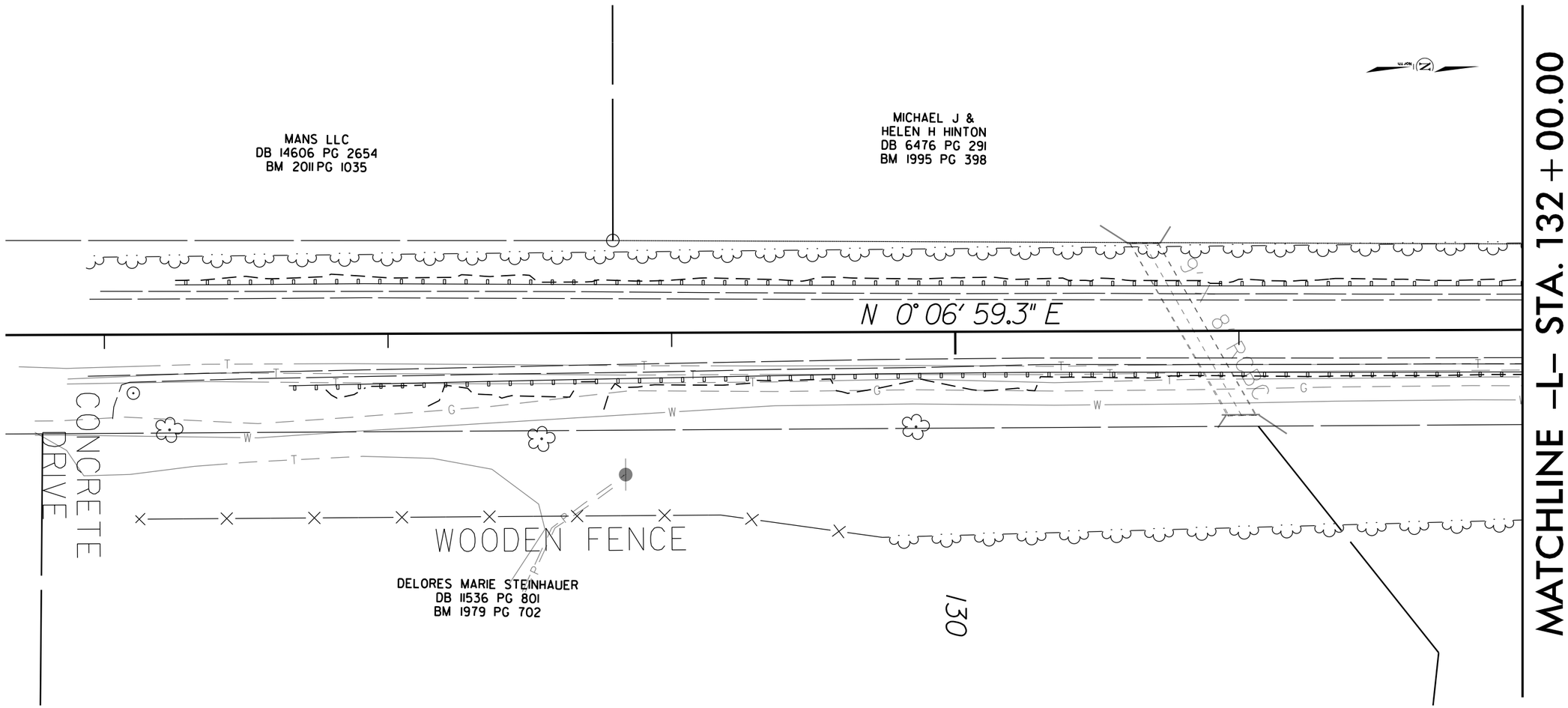
SCALE: 40'=1"	DATE: 12 AUG 2015
PREPARED BY:	TLM
REVIEWED BY:	BJU
REVIEWED BY:	

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	9

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUIDERAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUIDERAIL TO END OF GUIDERAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUIDERAIL.

CABLE GUIDERAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM EOT	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS												REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				CABLE			APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END															
-L-	127+65.00	132+80.00	RT.	515			128+90.00	132+50.00	5.0	5.5 – 6.5	–	–	–	–			2												
-L-	127+25.00	133+95.00	LT.	670			132+70.00	128+50.00	5.0	5.5 – 6.5	–	–	–	–			2												
		SITE TOTALS		1185																									
	DEDUCTIONS FOR ANCHORS 4 ANCHOR UNITS @ 51.25			205																									
		GRAND TOTAL		980																									



DIVISION FIVE DESIGN

NORTH CAROLINA PROFESSIONAL SEAL 030459 ENGINEER BEN UPSHAW

DocuSigned by: 10/30/2015
Ben Upshaw P.E.
SIGNATURE
CD65FB110D6E5455

SITE 8 CABLE
GUIDERAIL INSTALLATION
NC 50

DIVISION 05 WAKE COUNTY

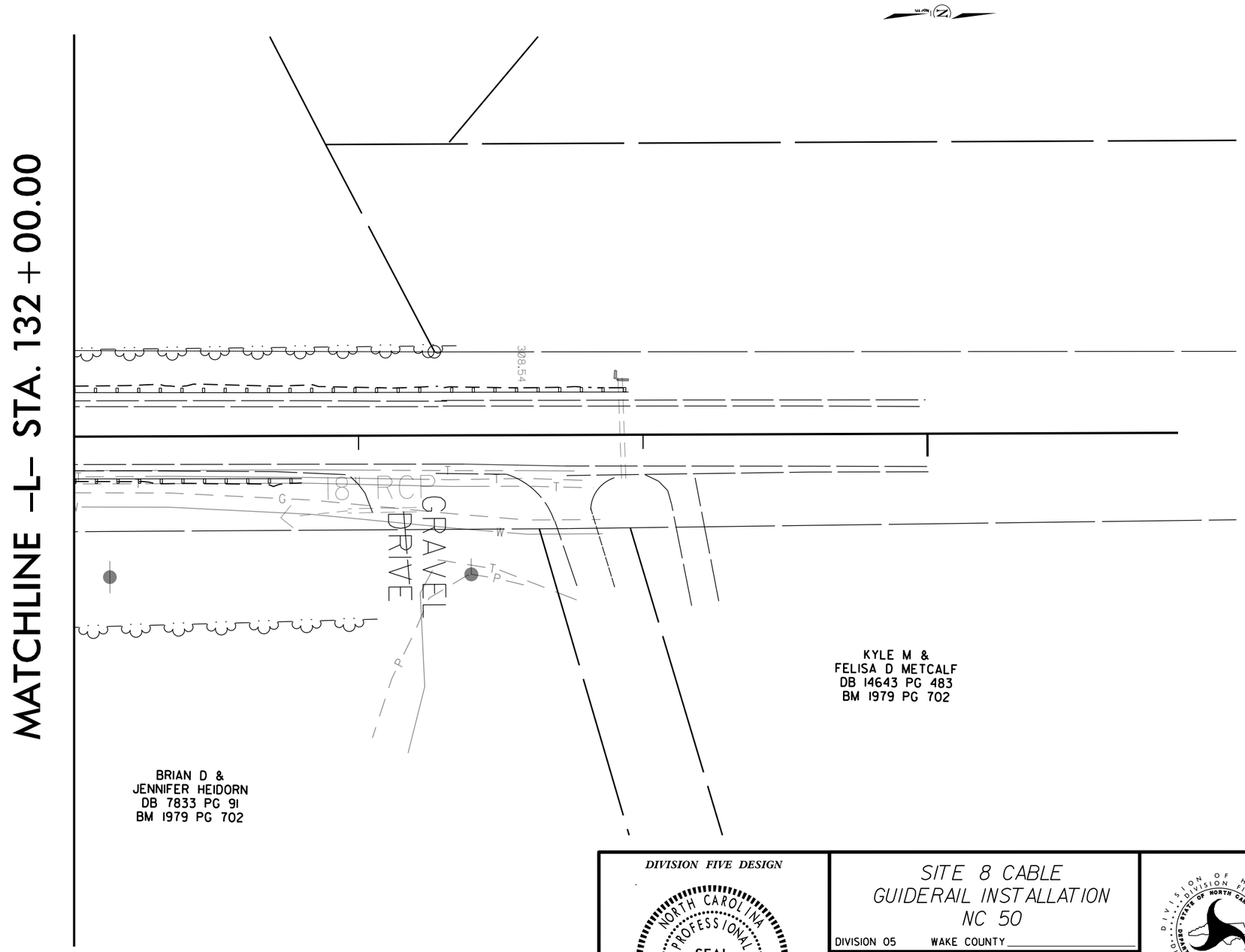
REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

DIVISION OF HIGHWAYS · DIVISION FIVE · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · DIVISION DESIGN UNIT

SCALE: 40'=1"	DATE: 12 AUG 2015
PREPARED BY:	TLM
REVIEWED BY:	BJU
REVIEWED BY:	

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	10



DIVISION FIVE DESIGN

NORTH CAROLINA PROFESSIONAL SEAL 030459 ENGINEER BEN UPSHAW

DocuSigned by: 10/30/2015

Ben Upshaw P.E.

SIGNATURE

CD6EB110D6E54E5

SITE 8 CABLE
GUIDERAIL INSTALLATION
NC 50

DIVISION 05 WAKE COUNTY

REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

DIVISION OF HIGHWAYS · DIVISION FIVE · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · DIVISION DESIGN UNIT

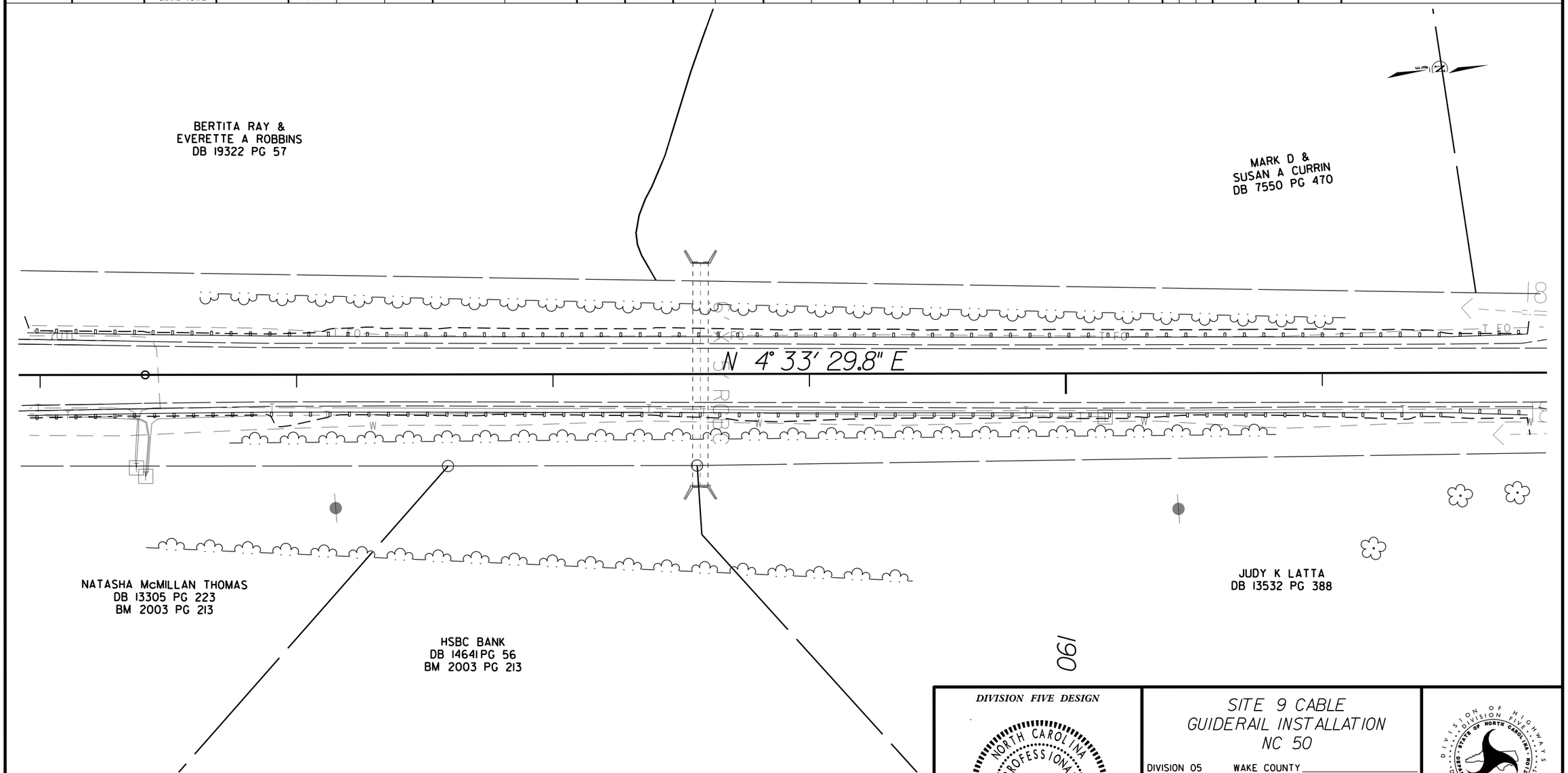
SCALE: 40'=1"	DATE: 12 AUG 2015
PREPARED BY:	TLM
REVIEWED BY:	BJU
REVIEWED BY:	

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	11

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUIDERAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUIDERAIL TO END OF GUIDERAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUIDERAIL.

CABLE GUIDERAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM EOT	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS												REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				CABLE			APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END															
-L-	185+95.00	191+80.00	RT.	585			187+20.00	191+00.00	4.0	4.0 – 4.5	–	30	–	1			2												
-L-	185+95.00	191+80.00	LT.	585			191+00.00	187+20.00	4.5	4.5 – 5.0	30	–	1	–			2												
		SITE TOTALS		1170																									
	DEDUCTIONS FOR ANCHORS 4 ANCHOR UNITS @ 51.25			-205																									
		GRAND TOTAL		965																									



DIVISION FIVE DESIGN

NORTH CAROLINA PROFESSIONAL SEAL 030459 ENGINEER BEN UPSHAW

DocuSigned by: 10/30/2015
Ben Upshaw P.E.
SIGNATURE
CD6EF110D6E5455...

SITE 9 CABLE
GUIDERAIL INSTALLATION
NC 50

DIVISION 05 WAKE COUNTY

REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

DIVISION OF HIGHWAYS · DIVISION FIVE · DIVISION DESIGN UNIT · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

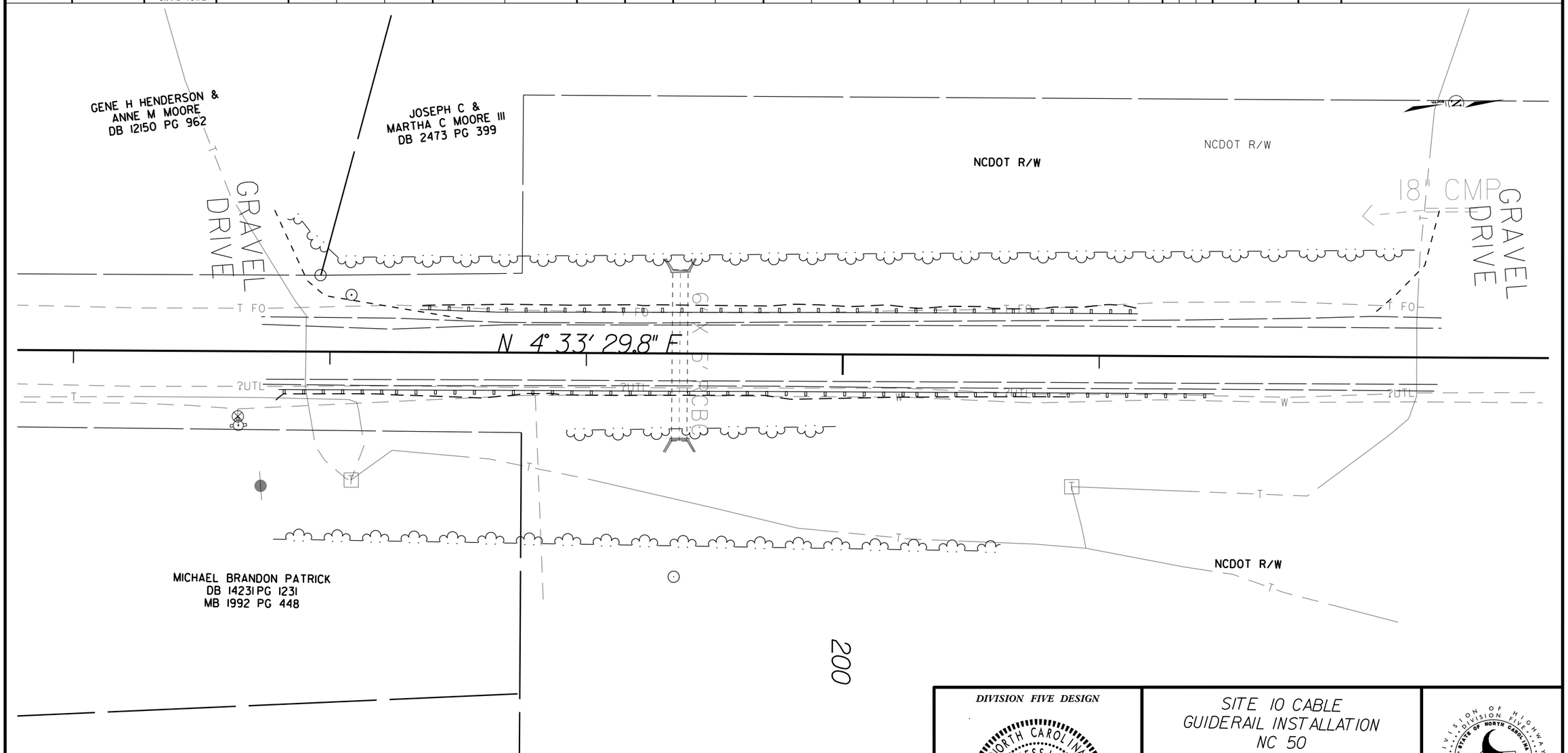
SCALE: 40'=1"	DATE: 12 AUG 2015
PREPARED BY:	TLM
REVIEWED BY:	BJU
REVIEWED BY:	

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	12

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUIDERAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUIDERAIL TO END OF GUIDERAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUIDERAIL.

CABLE GUIDERAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM EOT	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS										REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				CABLE			APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END													
-L-	197+80.00	201+45.00	RT.	365			198+35.00	200+20.00	4.0	4.0 – 5.5	–	–	–	–			2										
-L-	198+35.00	201+15.00	LT.	280			199+90.00	198+50.00	5.0	6.0 – 6.5	–	30	–	1			2										
		SITE TOTALS		645																							
	DEDUCTIONS FOR ANCHORS 4 ANCHOR UNITS @ 51.25			-205																							
		GRAND TOTAL		440																							



DIVISION FIVE DESIGN

NORTH CAROLINA PROFESSIONAL SEAL 030459 ENGINEER BEN UPSHAW

DocuSigned by: 10/30/2015

Ben Upshaw P.E.

SIGNATURE

CD6EB110D6E54E5

SITE 10 CABLE
GUIDERAIL INSTALLATION
NC 50

DIVISION 05 WAKE COUNTY

REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

DIVISION OF HIGHWAYS · DIVISION FIVE · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · DIVISION DESIGN UNIT

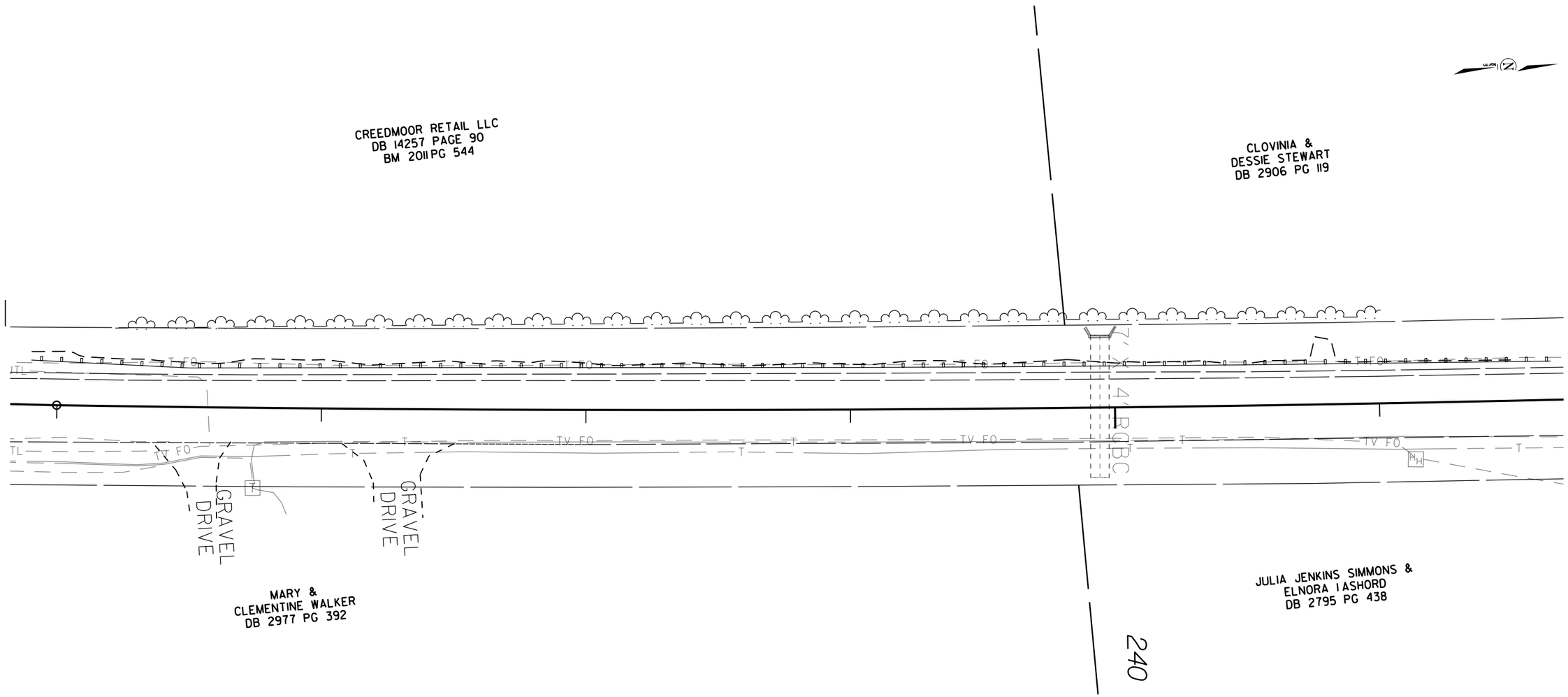
SCALE: 40'=1"	DATE: 22 JAN 2014
PREPARED BY:	CAH
REVIEWED BY:	BJU
REVIEWED BY:	

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	14

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUIDERAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUIDERAIL TO END OF GUIDERAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUIDERAIL.

CABLE GUIDERAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM EOT	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS												REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				CABLE			APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END															
-L-	235+90.00	241+65.00	LT.	575			240+40.00	236+75.00	5.0	5.0 – 5.5	–	120.0	–	4.0			2												
–	–	–	–	–					–	–	–		–				–												
		SITE TOTALS		575																									
	DEDUCTIONS FOR ANCHORS 2 GRAU @ 50			-102.5																									
		GRAND TOTAL		472.5																									



DIVISION FIVE DESIGN

NORTH CAROLINA PROFESSIONAL SEAL 030459 ENGINEER BEN UPSHAW

DocuSigned by: 10/30/2015
Ben Upshaw P.E.
SIGNATURE
C06EB10D6E54E5...

SITE 12 CABLE
GUIDERAIL INSTALLATION
NC 50

DIVISION 05 WAKE COUNTY

REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

DIVISION OF HIGHWAYS · DIVISION FIVE · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · DESIGN UNIT

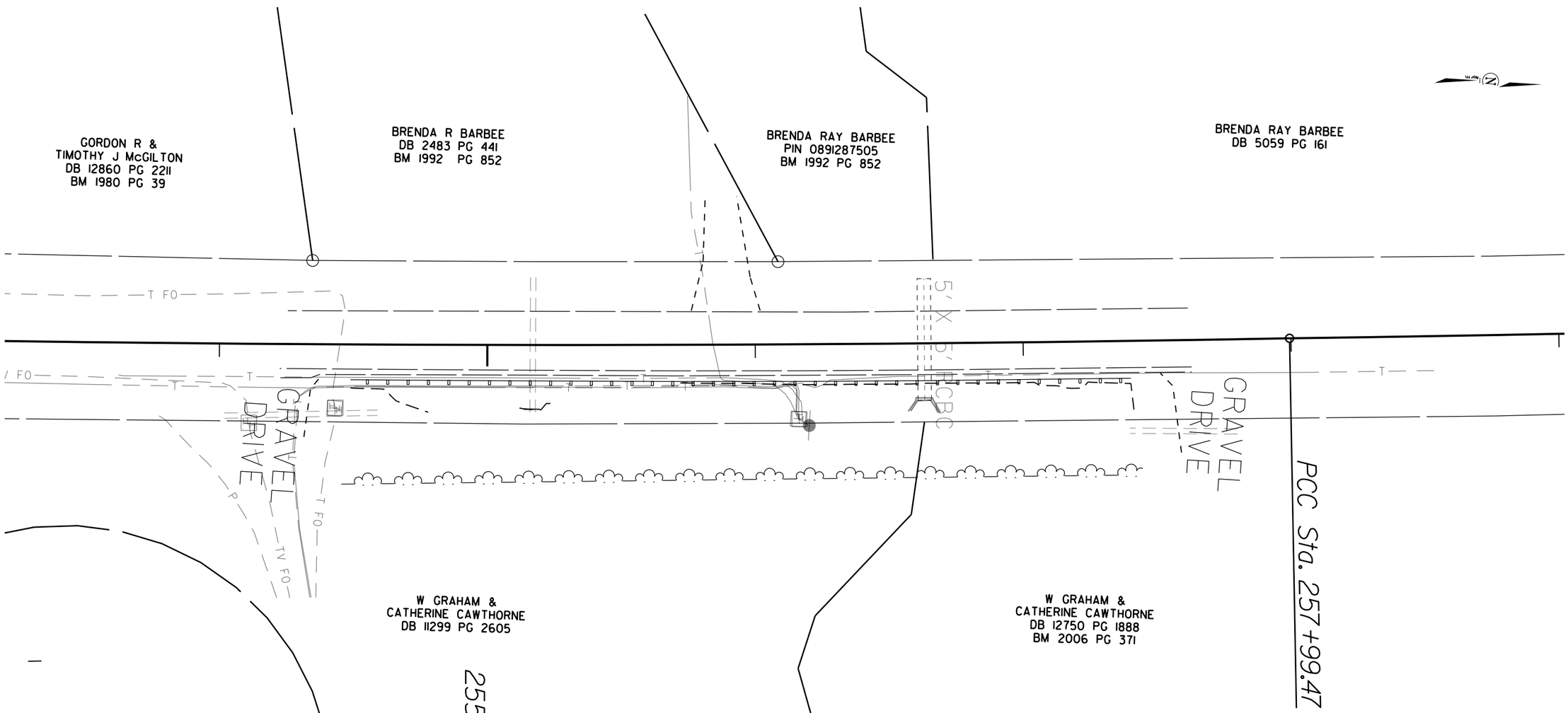
SCALE: 40'-1"	DATE: 12 AUG 2015
PREPARED BY:	TLM
REVIEWED BY:	BJU
REVIEWED BY:	

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUIDERAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUIDERAIL TO END OF GUIDERAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUIDERAIL.

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	15

CABLE GUIDERAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM EOT	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS											REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				CABLE			APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END														
-L-	254+50.00	257+40.00	RT.	290			255+12.00	256+90.00	4.0	4.5 – 6.0	–	–	–	–			2											
–	–	–	–	–					–	–	–		–				–											
		SITE TOTALS		290																								
	DEDUCTIONS FOR ANCHORS 2 ANCHOR UNITS @ 51.25			–102.5																								
		GRAND TOTAL		187.5																								



DIVISION FIVE DESIGN

NORTH CAROLINA PROFESSIONAL SEAL 030459 ENGINEER BEN UPSHAW

DocuSigned by: 10/30/2015
Ben Upshaw P.E.
SIGNATURE
CD8EB1DD6E54E5...

SITE 13 CABLE
GUIDERAIL INSTALLATION
NC 50

DIVISION 05 WAKE COUNTY

REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

DIVISION OF HIGHWAYS · DIVISION FIVE · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · DIVISION DESIGN UNIT

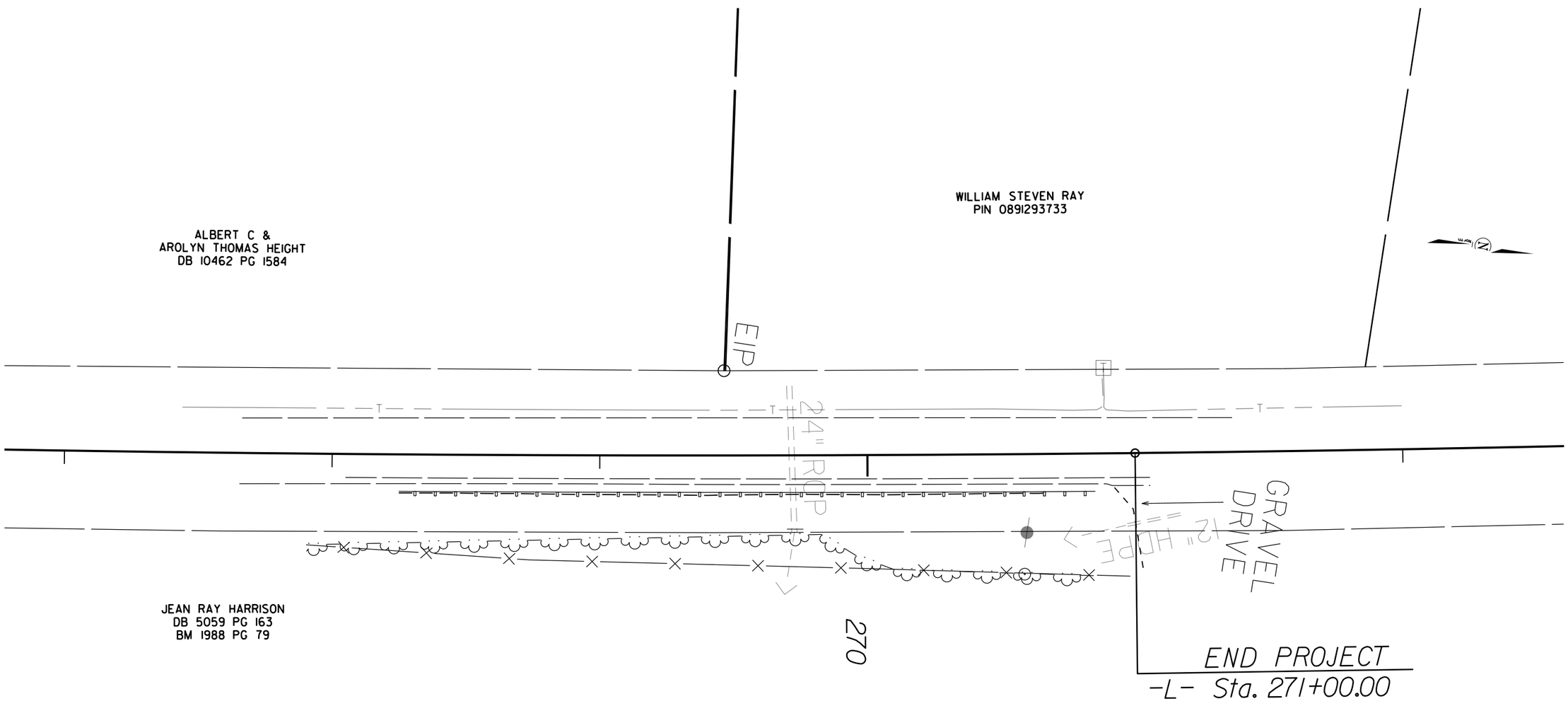
SCALE: 40'=1"	DATE: 12 AUG 2015
PREPARED BY:	TLM
REVIEWED BY:	BJU
REVIEWED BY:	

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	16

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUIDERAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUIDERAIL TO END OF GUIDERAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUIDERAIL.

CABLE GUIDERAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM EOT	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS												REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				CABLE			APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END															
-L-	268+25.00	270+85.00	RT.	260			269+50	269+90	5.0	5.5	–	–	–	–			2												
–	–	–	–	–					–	–	–		–				–												
		SITE TOTALS		260																									
	DEDUCTIONS FOR ANCHORS 2 ANCHOR UNITS @ 51.5			102.5																									
		GRAND TOTAL		157.5																									



DIVISION FIVE DESIGN

NORTH CAROLINA PROFESSIONAL SEAL 030459 ENGINEER BEN UPSHAW

DocuSigned by: 10/30/2015
Ben Upshaw P.E.
SIGNATURE
CD6EB100D6E54E5...

SITE 14 CABLE
GUIDERAIL INSTALLATION
NC 50

DIVISION 05 WAKE COUNTY

REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

DIVISION OF HIGHWAYS · DIVISION FIVE · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · DESIGN UNIT

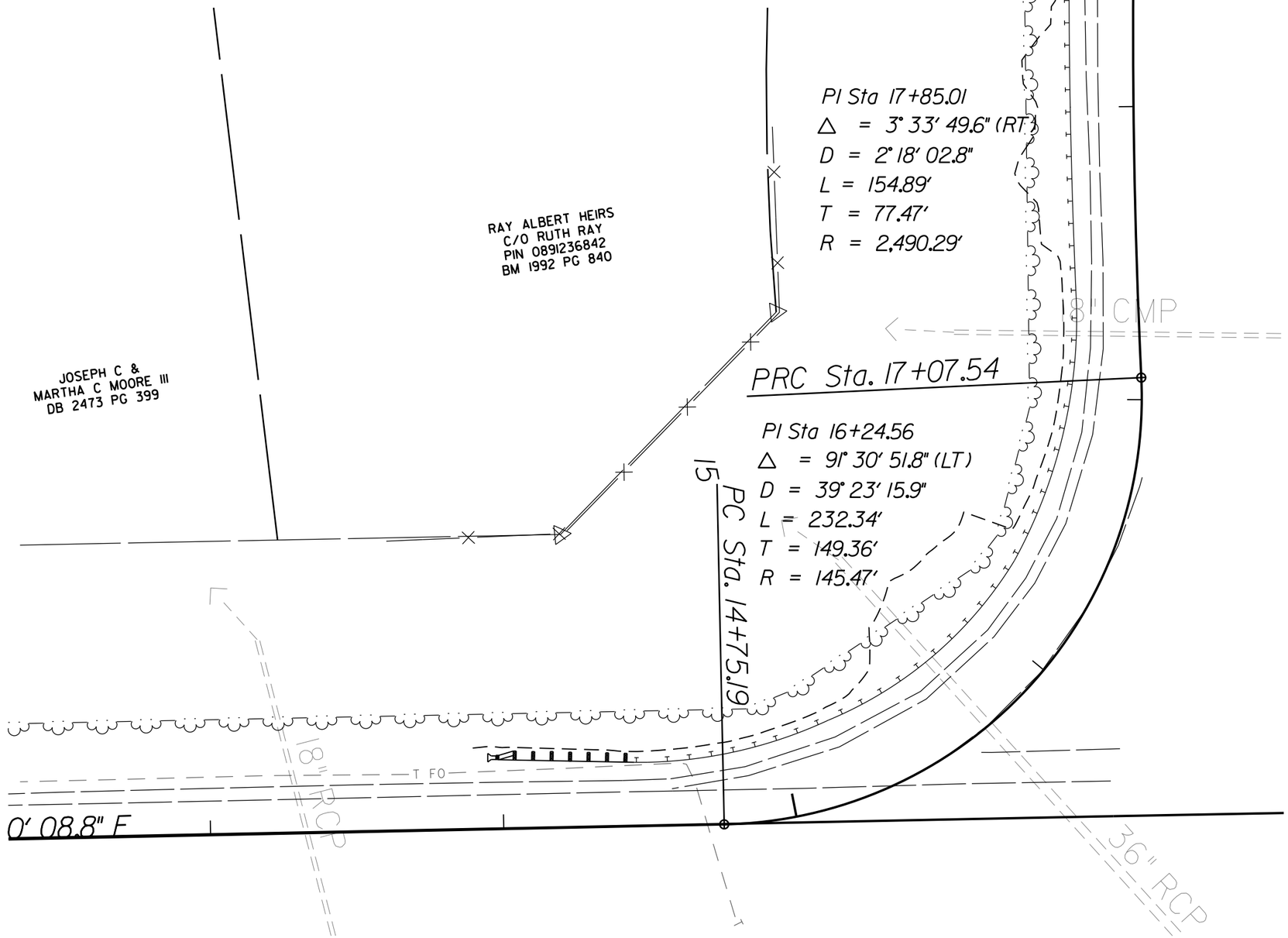
SCALE: 40'=1"	DATE: 12 AUG 2015
PREPARED BY:	TLM
REVIEWED BY:	BJU
REVIEWED BY:	

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	13

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM EOT	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS			REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GRAU 350	M-350	CAT-1	
-11A-	13+95.00	18+95.00	LT.	415	85		18+56.00	15+20.00	10	10.5	–	50	–	1	1			TIE TO EXISTING GUARDRAIL AT STA. 18+95
–	– –		–	–			–	–	–	–	–	–	–	–	–			
																		REMOVE APPROXIMATELY 49' OF GUARDRAIL -L11- STA. 18+46 TO STA. 18+95
PROJECT TOTALS				500														
DEDUCTIONS FOR ANCHORS 1 GRAU @ 50				-50														REMOVE ANCHOR UNIT -L11- STA. 18+46
GRAND TOTAL				450														



DIVISION FIVE DESIGN

NORTH CAROLINA PROFESSIONAL SEAL 030459 ENGINEER BEN UPSHAW

DocuSigned by: 10/30/2015
Ben Upshaw P.E.
SIGNATURE
C0AFB110D6E54E5...

SITE II
GUARDRAIL INSTALLATION
NC 50

DIVISION 05 WAKE COUNTY

REVISIONS	INIT.	DATE

SCALE: 40'=1"	DATE:	31 AUG 2015	
PREPARED BY:	TLM		
REVIEWED BY:	BJU		
REVIEWED BY:			

STATE PROJECT REFERENCE NO.		SHEET NO.
W-5205E		TMP-1
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45335.3.5	HSIP-0050(13)	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

WAKE COUNTY

PROJECT: W-5205E

ROADWAY STANDARD DRAWINGS

REV. SEPTEMBER 2011

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD.NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1135.01	CONES
1150.01	FLAGGING DEVICES
1180.01	SKINNY-DRUM
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
NC 50	MONDAY THRU FRIDAY 6 AM TO 9 AM AND 3 PM TO 7 PM

LANE AND SHOULDER CLOSURE REQUIREMENTS

B) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

F) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

G) DO NOT INSTALL MORE THAN 500 FEET OF LANE CLOSURE ON NC 50 MEASURED FROM THE BEGINNING OF THE MERGE TAPER TO THE END OF THE LANE CLOSURE.

H) PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING.

PAVEMENT EDGE DROP OFF REQUIREMENTS

I) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

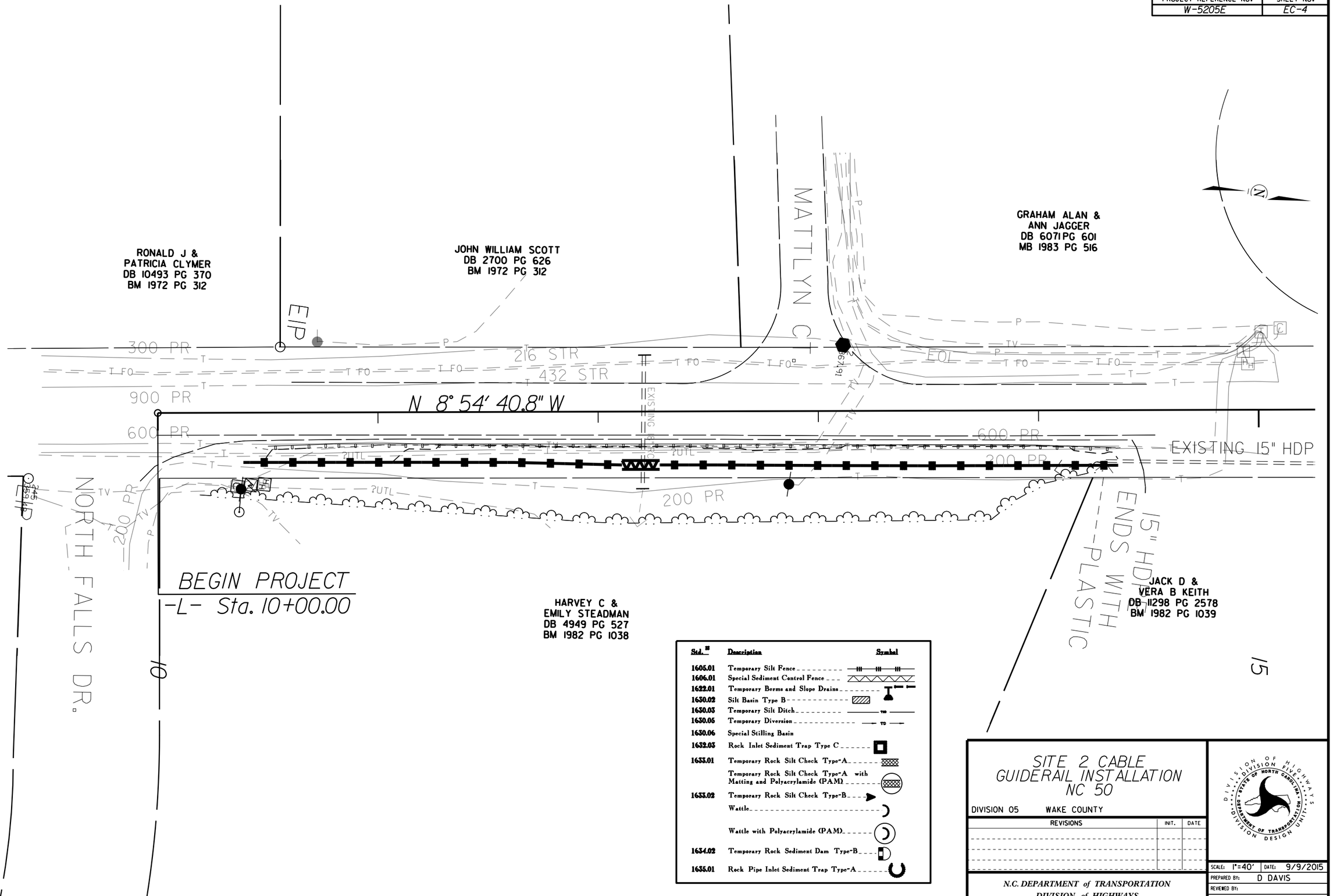
BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

J) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

K) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

L) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	EC-4



Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1630.06	Special Stilling Basin	
1632.03	Rock Inlet Sediment Trap Type C	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle	
	Wattle with Polyacrylamide (PAM)	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	

SITE 2 CABLE GUIDERAIL INSTALLATION NC 50

DIVISION 05 WAKE COUNTY

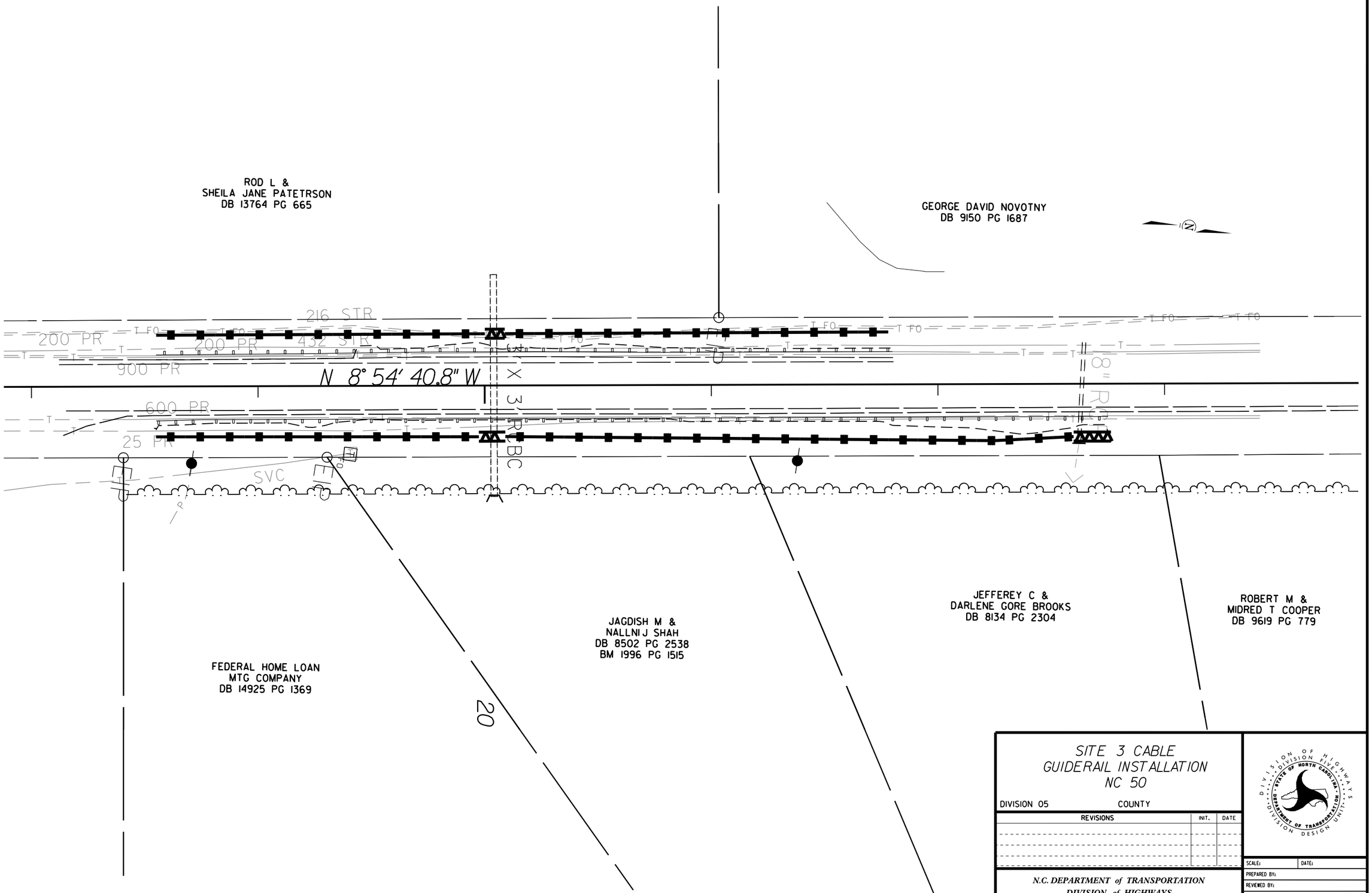
REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

DIVISION OF HIGHWAYS · DIVISION FIVE · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · DIVISION DESIGN UNIT

SCALE: 1"=40' DATE: 9/9/2015
PREPARED BY: D DAVIS
REVIEWED BY:
REVIEWED BY:

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	EC-5



SITE 3 CABLE
GUIDERAIL INSTALLATION
NC 50

DIVISION 05 COUNTY

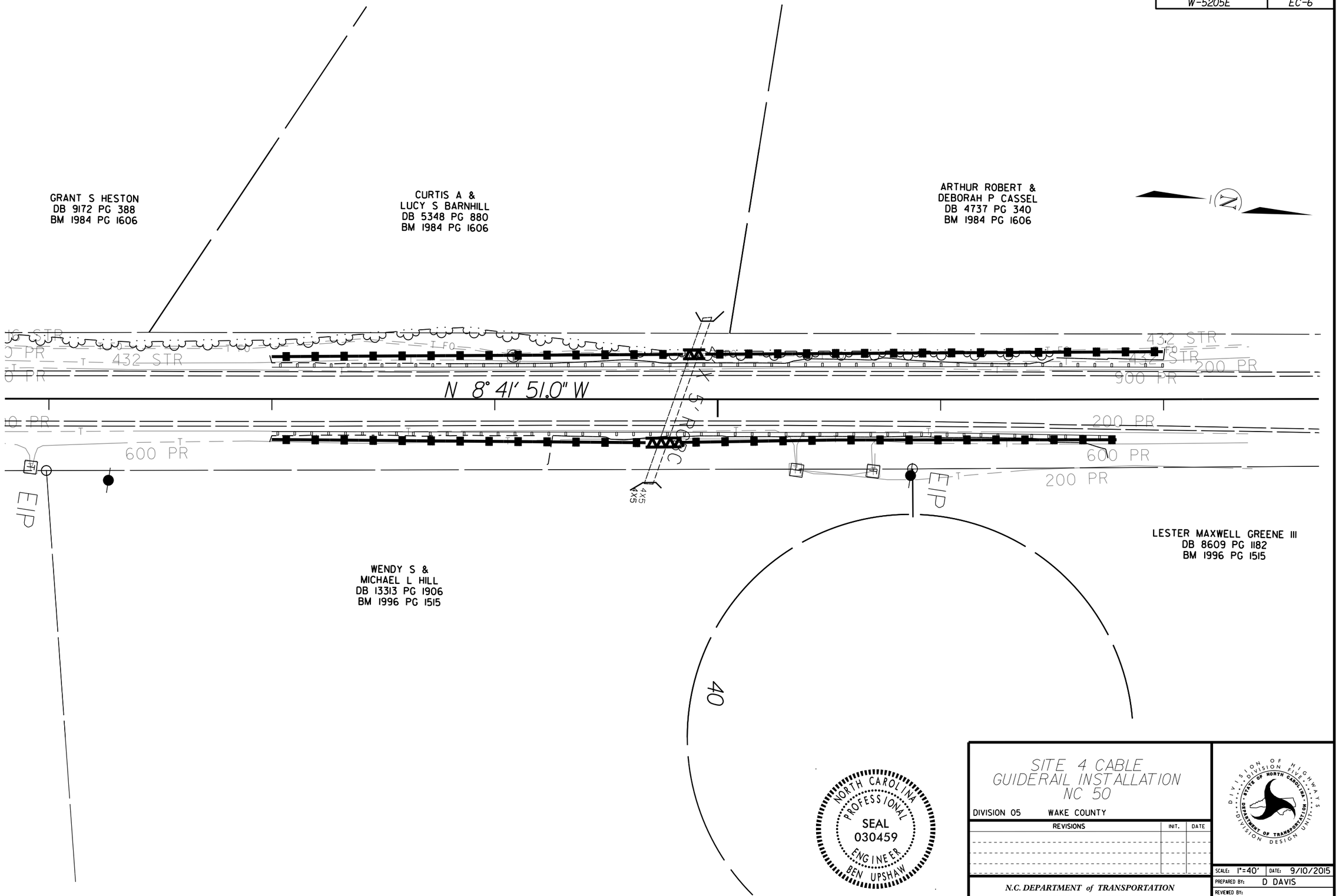
REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

DIVISION OF HIGHWAYS · DIVISION FIVE · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · DIVISION DESIGN UNIT

SCALE:	DATE:
PREPARED BY:	
REVIEWED BY:	
REVIEWED BY:	

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	EC-6



NORTH CAROLINA PROFESSIONAL SEAL 030459 ENGINEER BEN UPSHAW

SITE 4 CABLE
GUIDERAIL INSTALLATION
NC 50

DIVISION 05 WAKE COUNTY

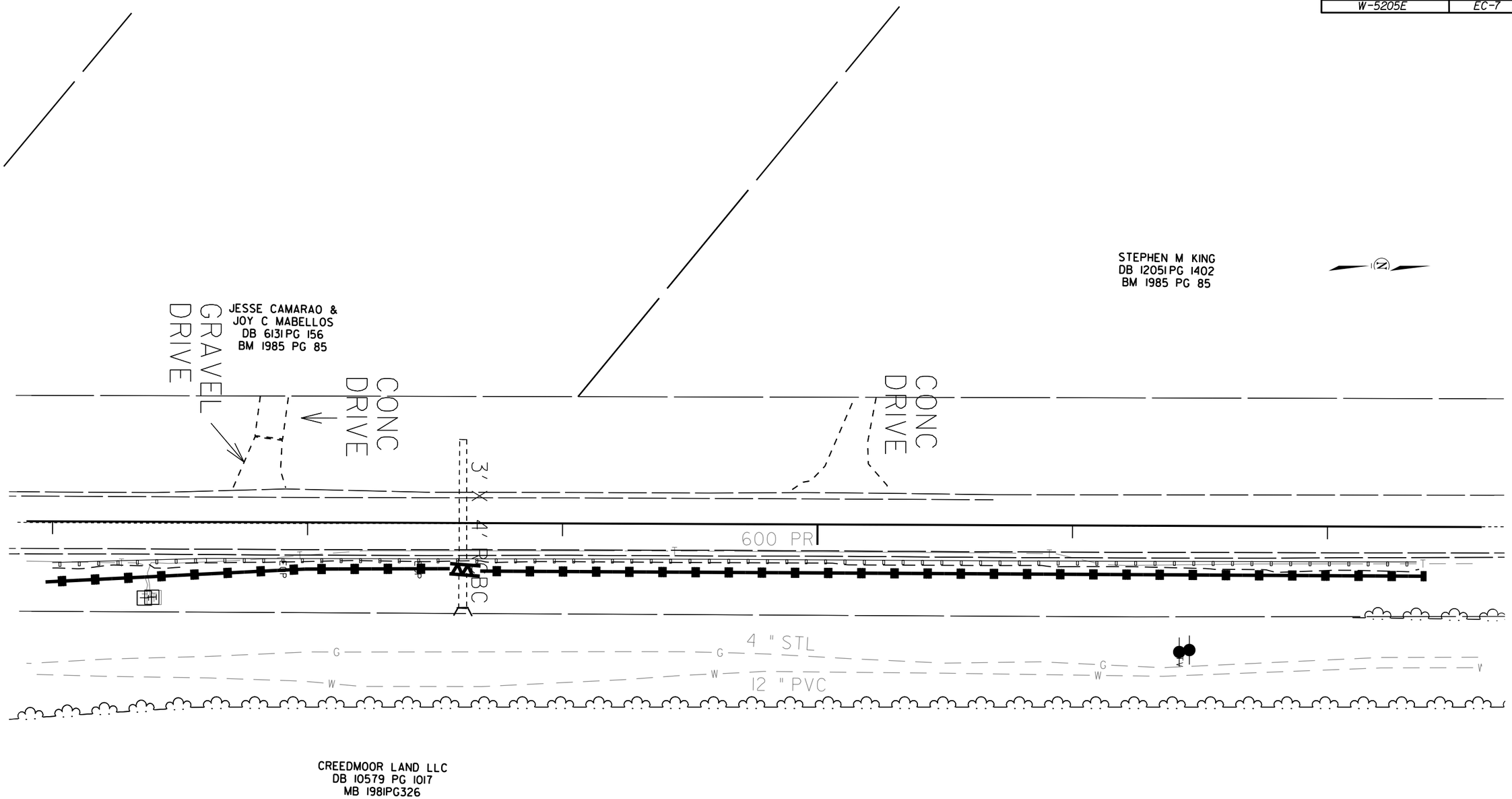
REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

DIVISION OF HIGHWAYS · DIVISION FIVE · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · DESIGN UNIT

SCALE: 1"=40'	DATE: 9/10/2015
PREPARED BY: D DAVIS	
REVIEWED BY:	
REVIEWED BY:	

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	EC-7



SITE 6 CABLE
GUIDERAIL INSTALLATION
NC 50

DIVISION 05 COUNTY

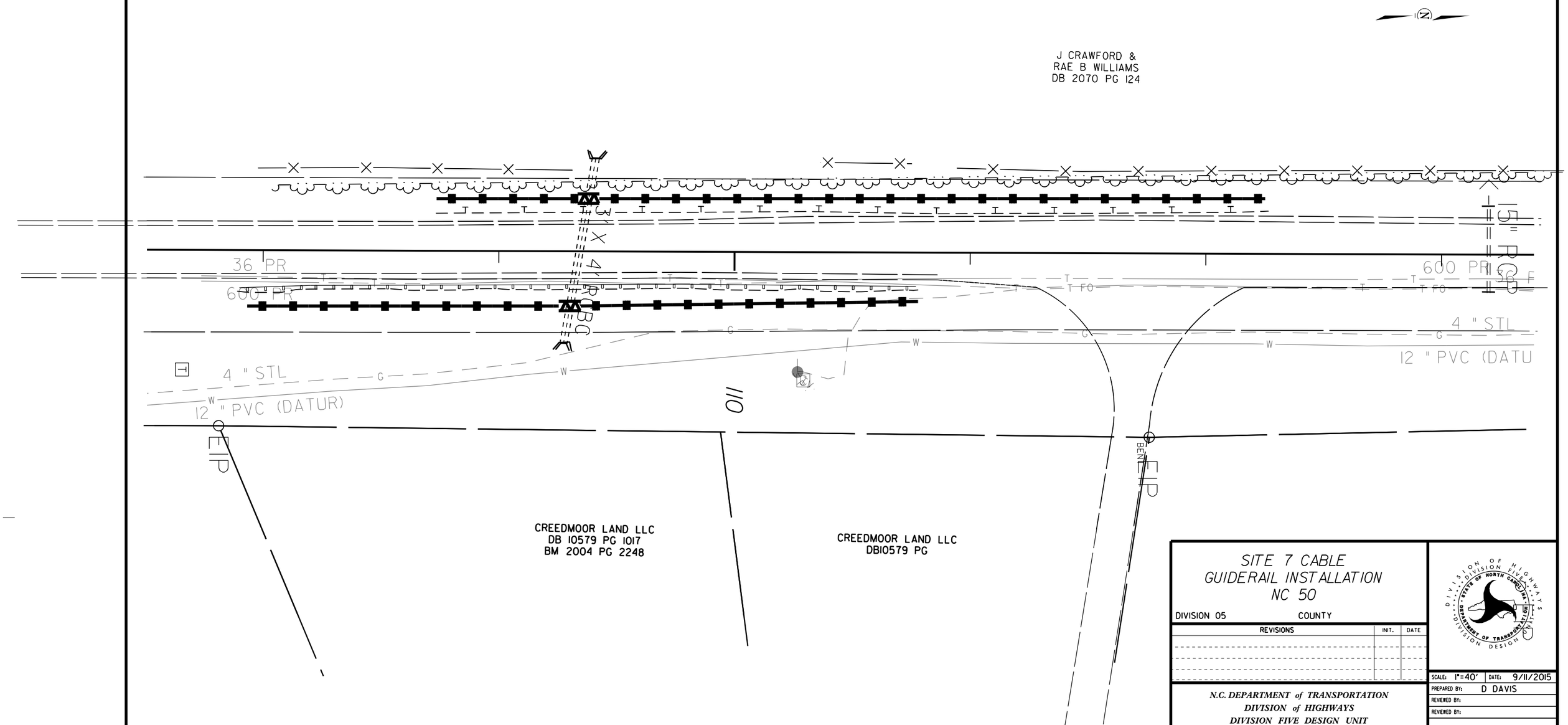
REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

DIVISION OF HIGHWAYS · DIVISION FIVE · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · DIVISION DESIGN UNIT

SCALE: 1"=40' DATE: 9/10/2015
PREPARED BY: D DAVIS
REVIEWED BY:
REVIEWED BY:

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	EC-8



SITE 7 CABLE
GUIDERAIL INSTALLATION
NC 50

DIVISION 05 COUNTY

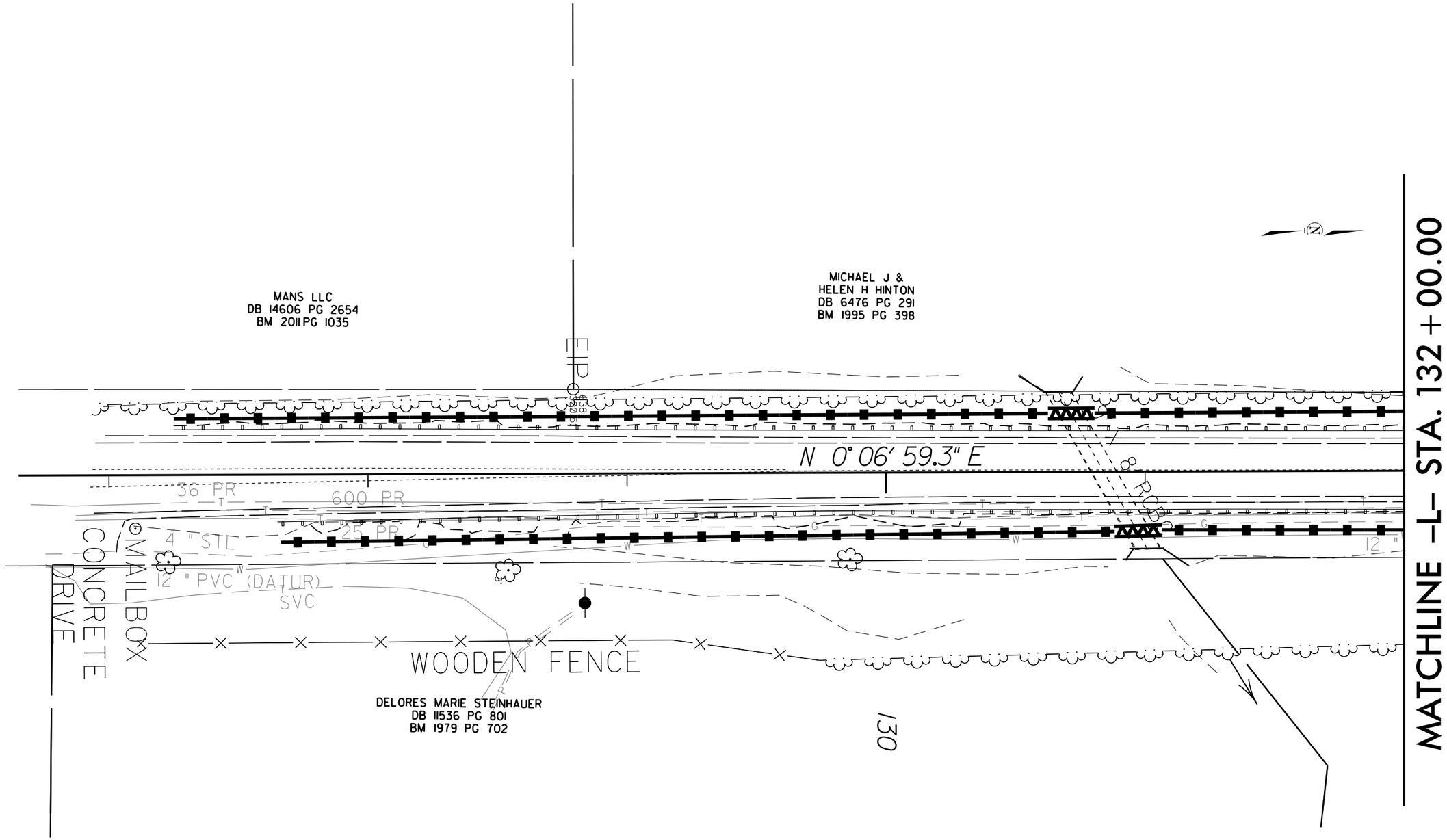
REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

DIVISION OF HIGHWAYS · DIVISION FIVE · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · DIVISION DESIGN

SCALE: 1"=40' DATE: 9/11/2015
PREPARED BY: D DAVIS
REVIEWED BY:
REVIEWED BY:

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	EC-9



SITE 8 CABLE
GUIDERAIL INSTALLATION
NC 50

DIVISION 05 WAKE COUNTY

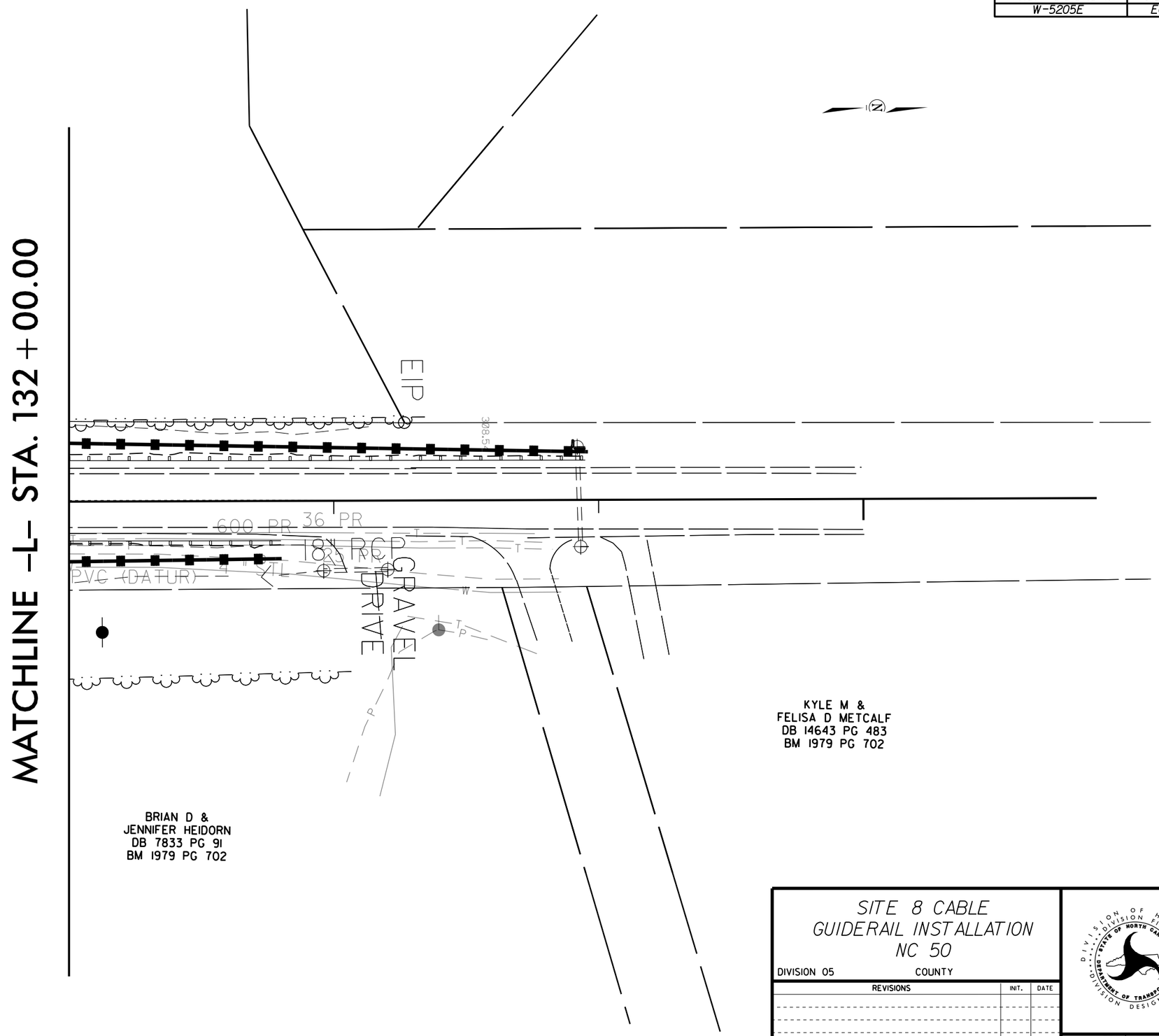
REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

DIVISION OF HIGHWAYS · DIVISION FIVE · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · DESIGN UNIT

SCALE: 1"=40'	DATE: 9/10/2015
PREPARED BY: D DAVIS	
REVIEWED BY:	
REVIEWED BY:	

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	EC-10



SITE 8 CABLE
GUIDERAIL INSTALLATION
NC 50

DIVISION 05 COUNTY

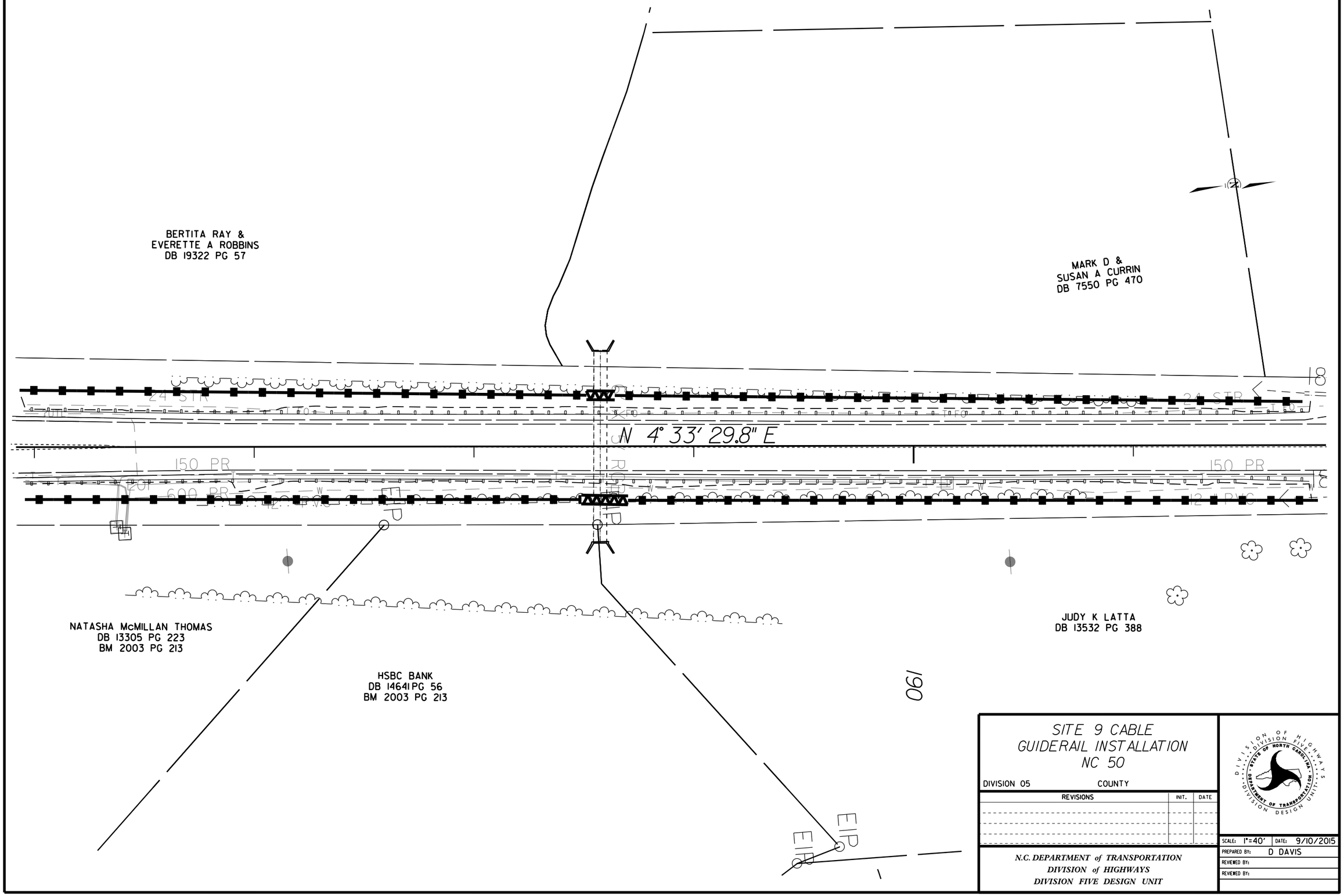
REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

DIVISION OF HIGHWAYS · DIVISION FIVE · DIVISION DESIGN UNIT · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

SCALE: 1"=20' DATE: 9/10/2015
PREPARED BY: D DAVIS
REVIEWED BY:
REVIEWED BY:

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	EC-11



SITE 9 CABLE
GUIDERAIL INSTALLATION
NC 50

DIVISION 05 COUNTY

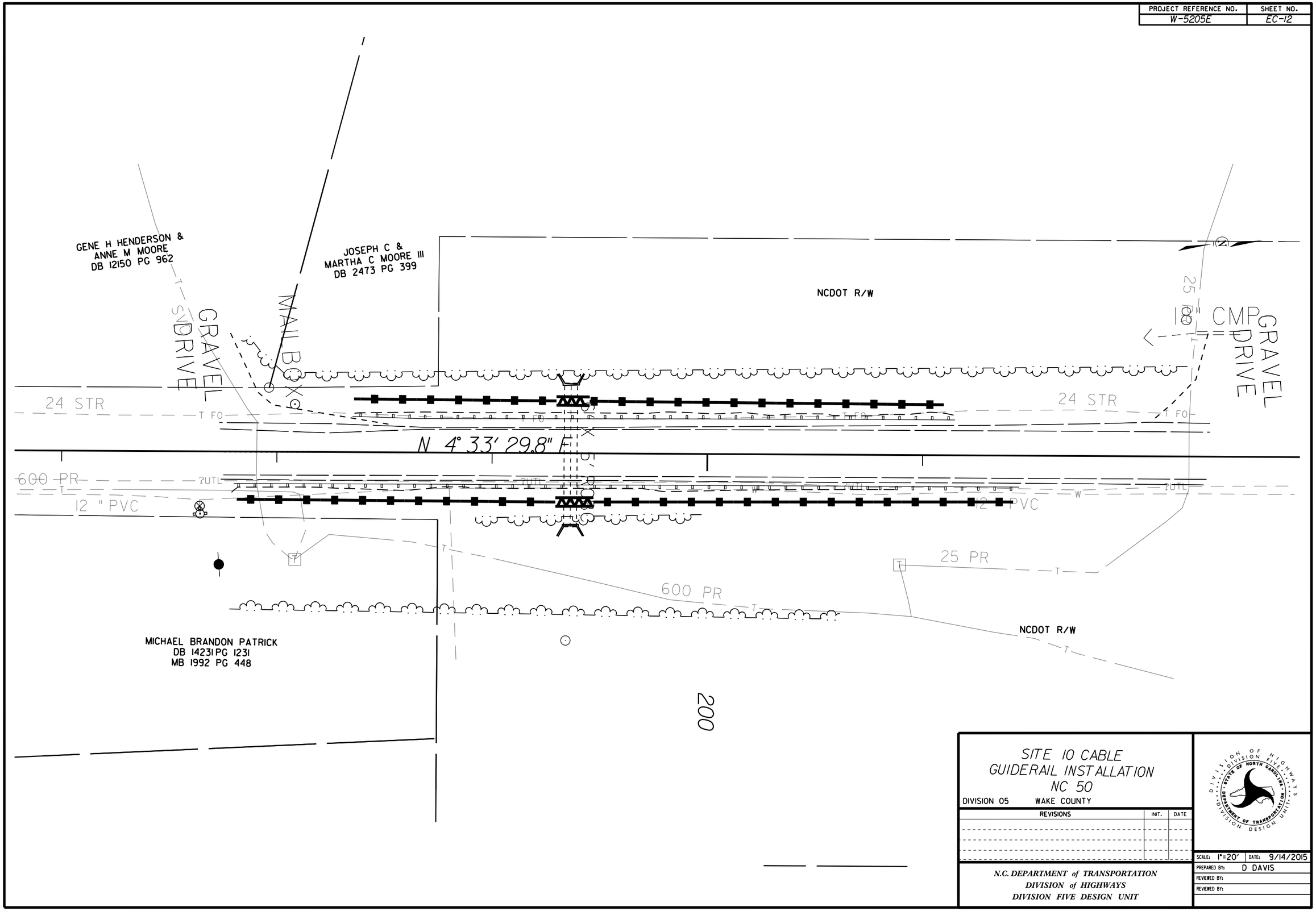
REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

DIVISION OF HIGHWAYS · DIVISION FIVE · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · DIVISION DESIGN UNIT

SCALE: 1"=40' DATE: 9/10/2015
PREPARED BY: D DAVIS
REVIEWED BY:
REVIEWED BY:

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	EC-12



SITE 10 CABLE
GUIDERAIL INSTALLATION
NC 50

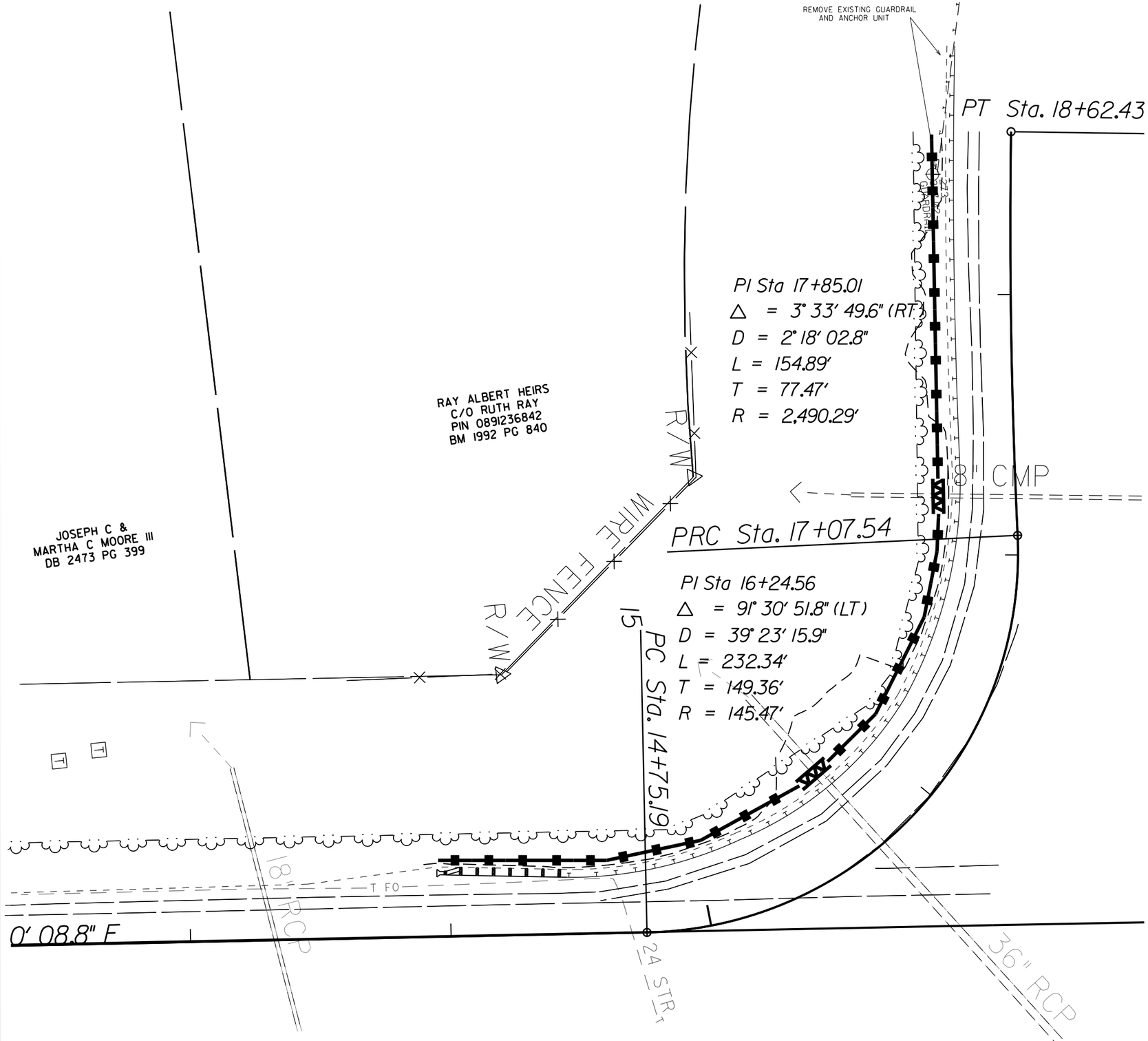
DIVISION 05 WAKE COUNTY

REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

SCALE: 1"=20' DATE: 9/14/2015
PREPARED BY: D DAVIS
REVIEWED BY:
REVIEWED BY:

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	EC-13



SITE II
GUARDRAIL INSTALLATION
NC 50

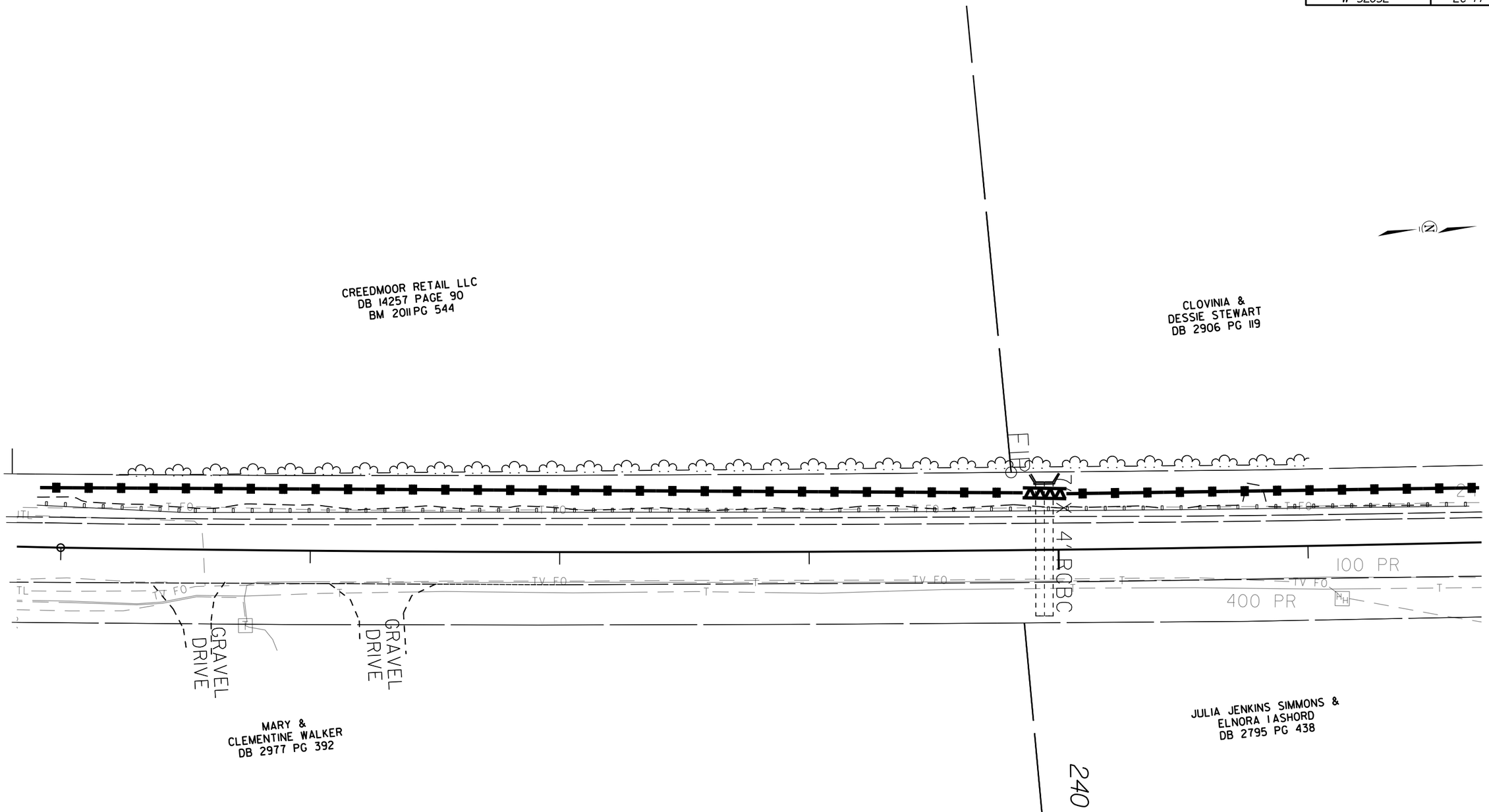
DIVISION 05 WAKE COUNTY

REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

SCALE: 1"=20' DATE: 9/14/2015
PREPARED BY: D DAVIS
REVIEWED BY:
REVIEWED BY:

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	EC-14



SITE 12 CABLE
GUIDERAIL INSTALLATION
NC 50

DIVISION 05 WAKE COUNTY

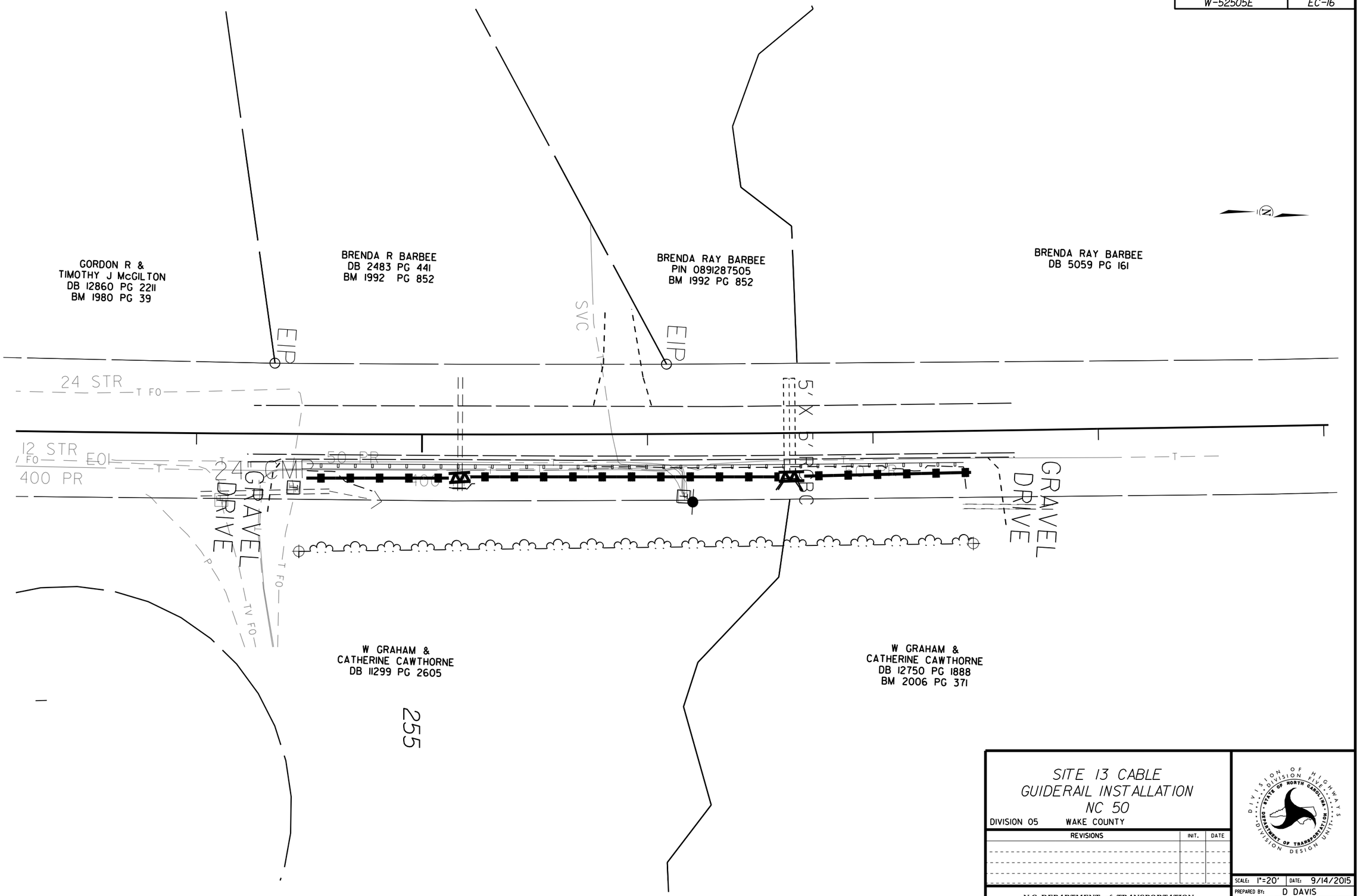
REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

DIVISION OF HIGHWAYS · DIVISION FIVE · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · DESIGN UNIT

SCALE: 1"=20'	DATE: 9/14/2015
PREPARED BY:	D DAVIS
REVIEWED BY:	
REVIEWED BY:	

PROJECT REFERENCE NO.	SHEET NO.
W-52505E	EC-16



SITE 13 CABLE
GUIDERAIL INSTALLATION
NC 50

DIVISION 05 WAKE COUNTY

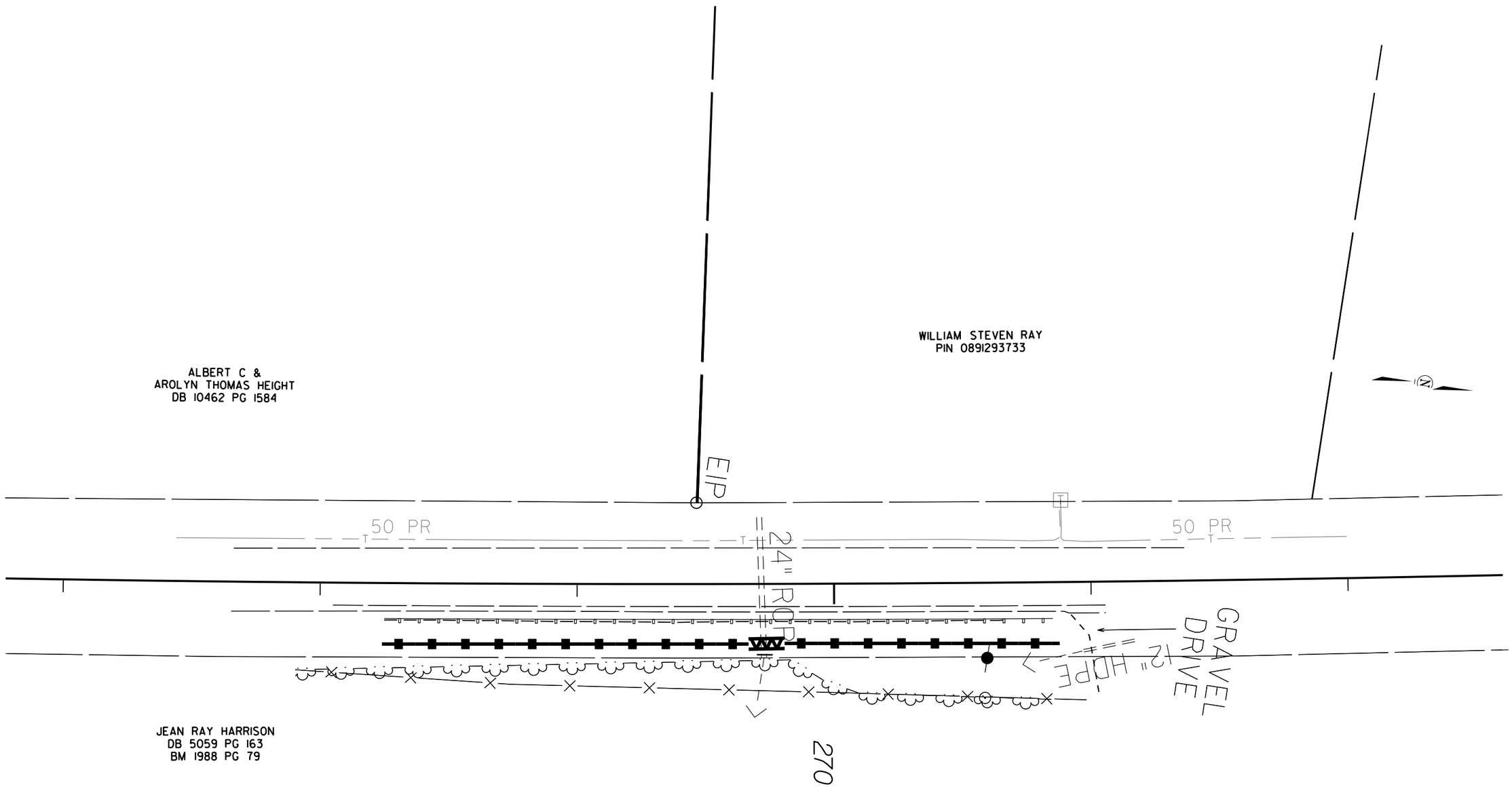
REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

DIVISION OF HIGHWAYS · DIVISION FIVE · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · DIVISION DESIGN UNIT

SCALE: 1"=20'	DATE: 9/14/2015
PREPARED BY:	D DAVIS
REVIEWED BY:	
REVIEWED BY:	

PROJECT REFERENCE NO.	SHEET NO.
W-5205E	EC-16



SITE 14 CABLE
GUIDERAIL INSTALLATION
NC 50

DIVISION 05 WAKE COUNTY

REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

DIVISION OF HIGHWAYS · DIVISION FIVE · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · DESIGN UNIT

SCALE: 1"=20' DATE: 9/14/2015

PREPARED BY: D DAVIS

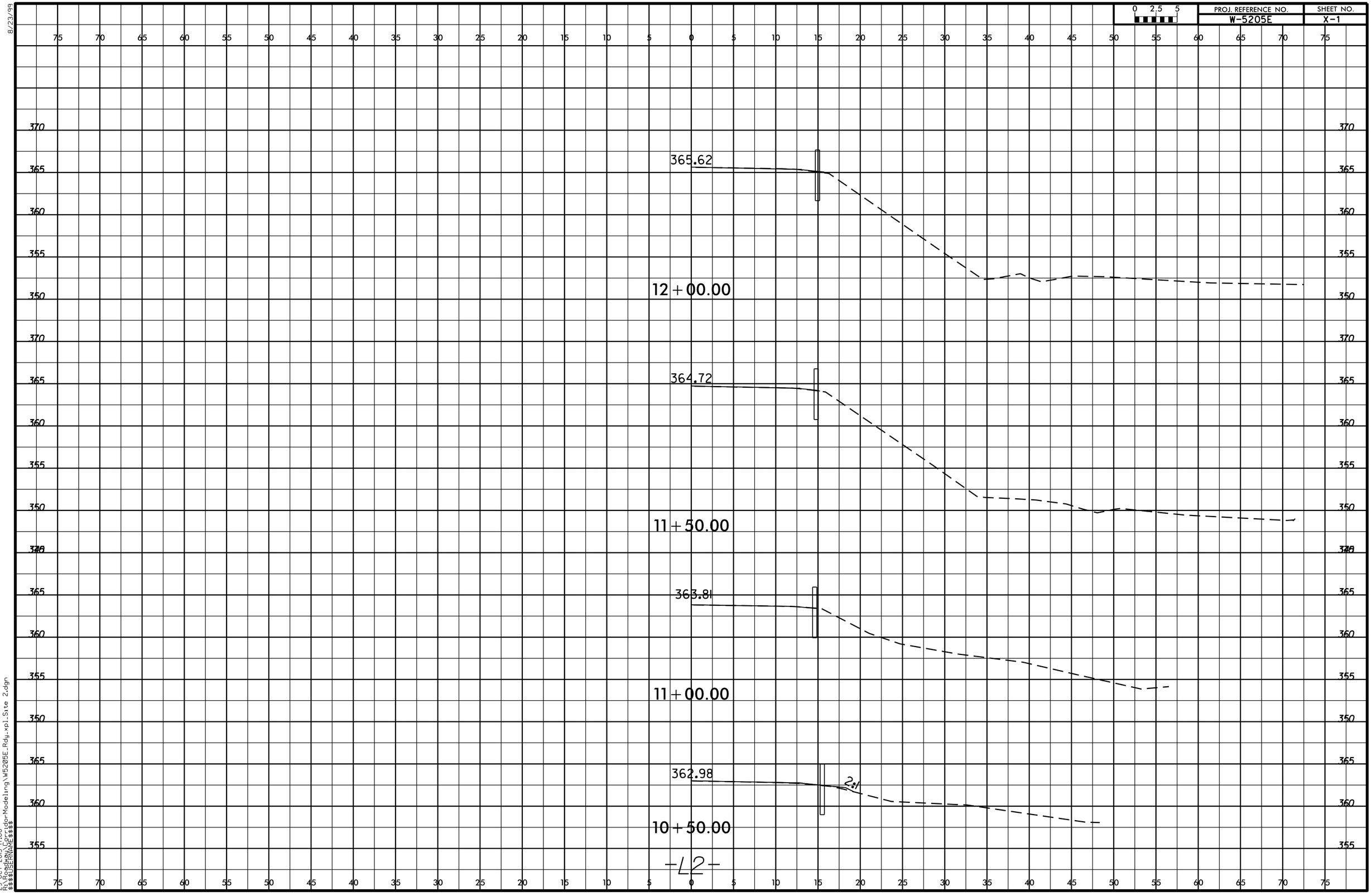
REVIEWED BY:

REVIEWED BY:

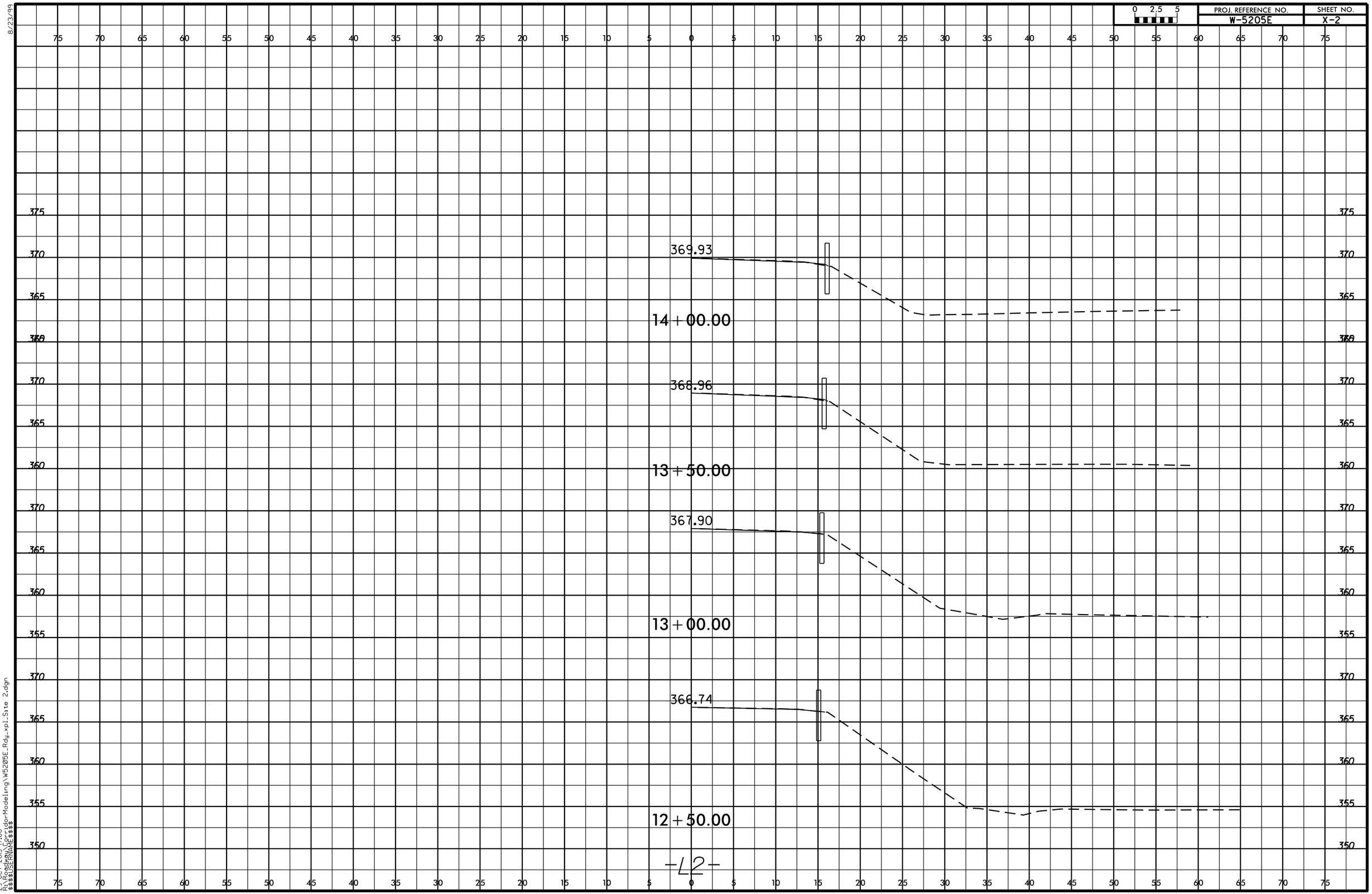
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
W-5205E	X-1

0 2.5 5



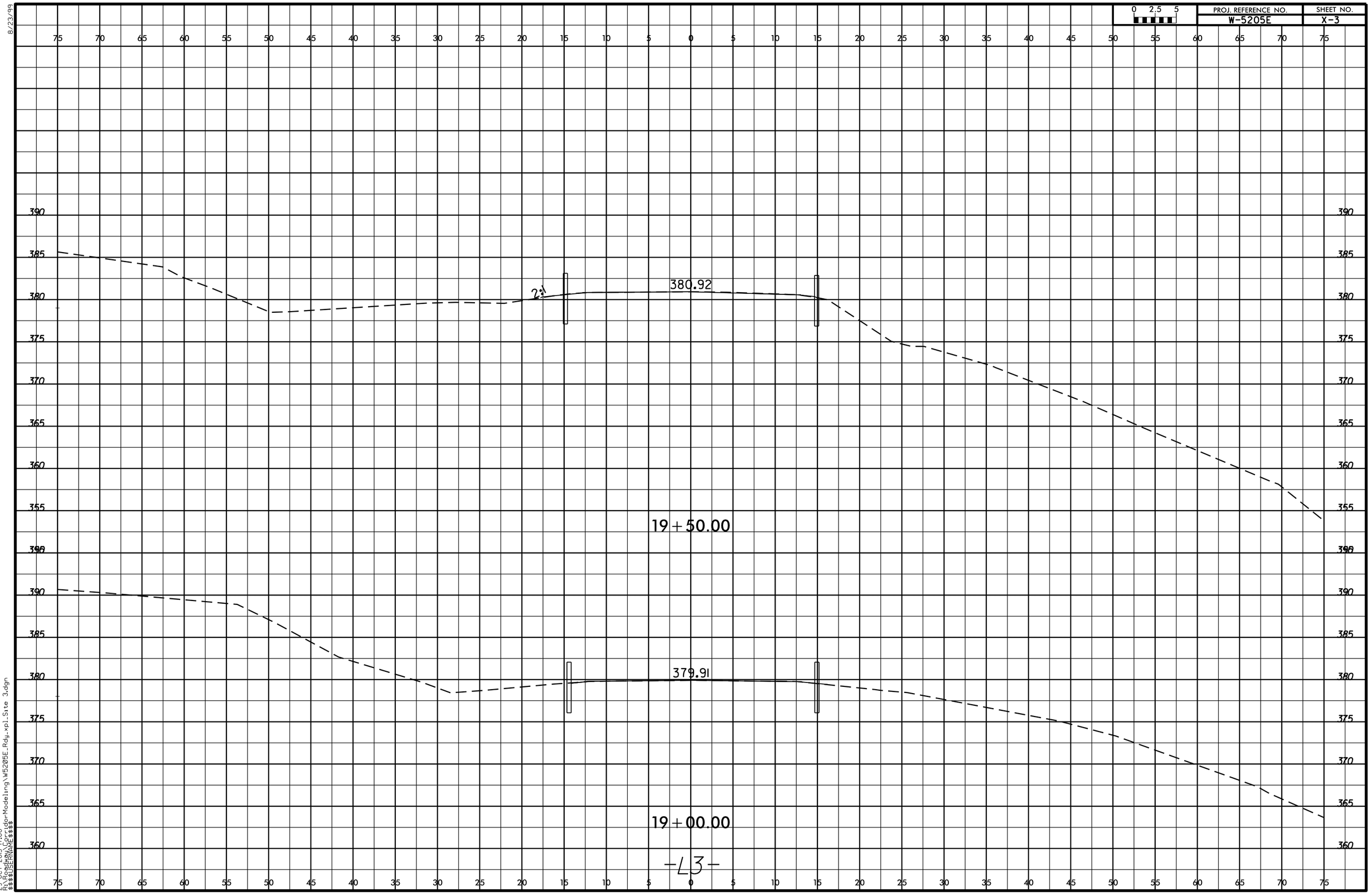
29-OCT-2015 17:00
R:\Roadway\Corridor-Modeling\W5205E_Rdg_xpl_Site 2.dgn
$$$$USERNAME$$$$



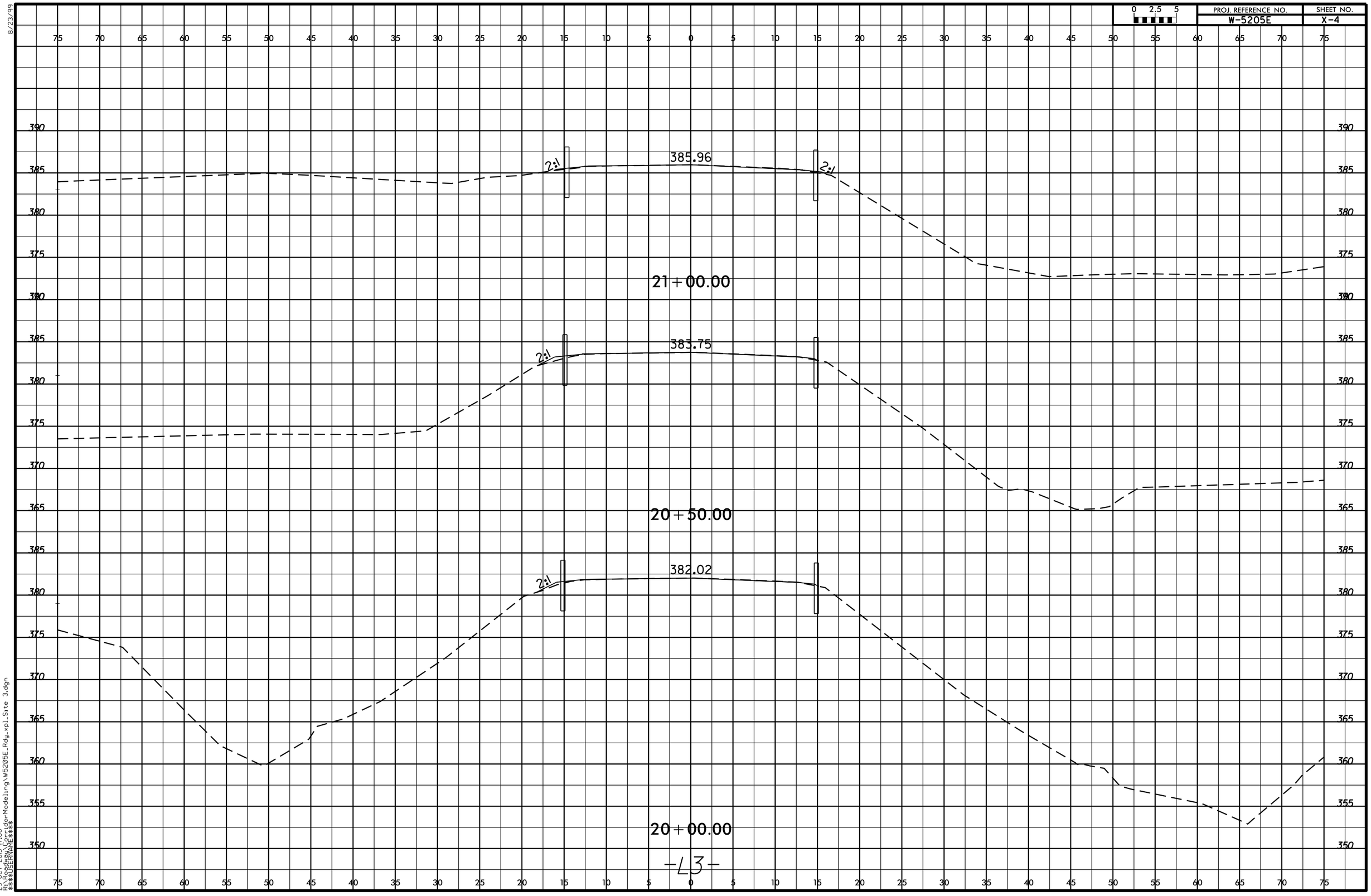
8/23/99
29-OCT-2015 17:00
R:\Roadway\Corridor-Modeling\W5205E_Rdy_xpl_Site 2.dgn
$$$$USERNAME$$$$

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5205E	X-3

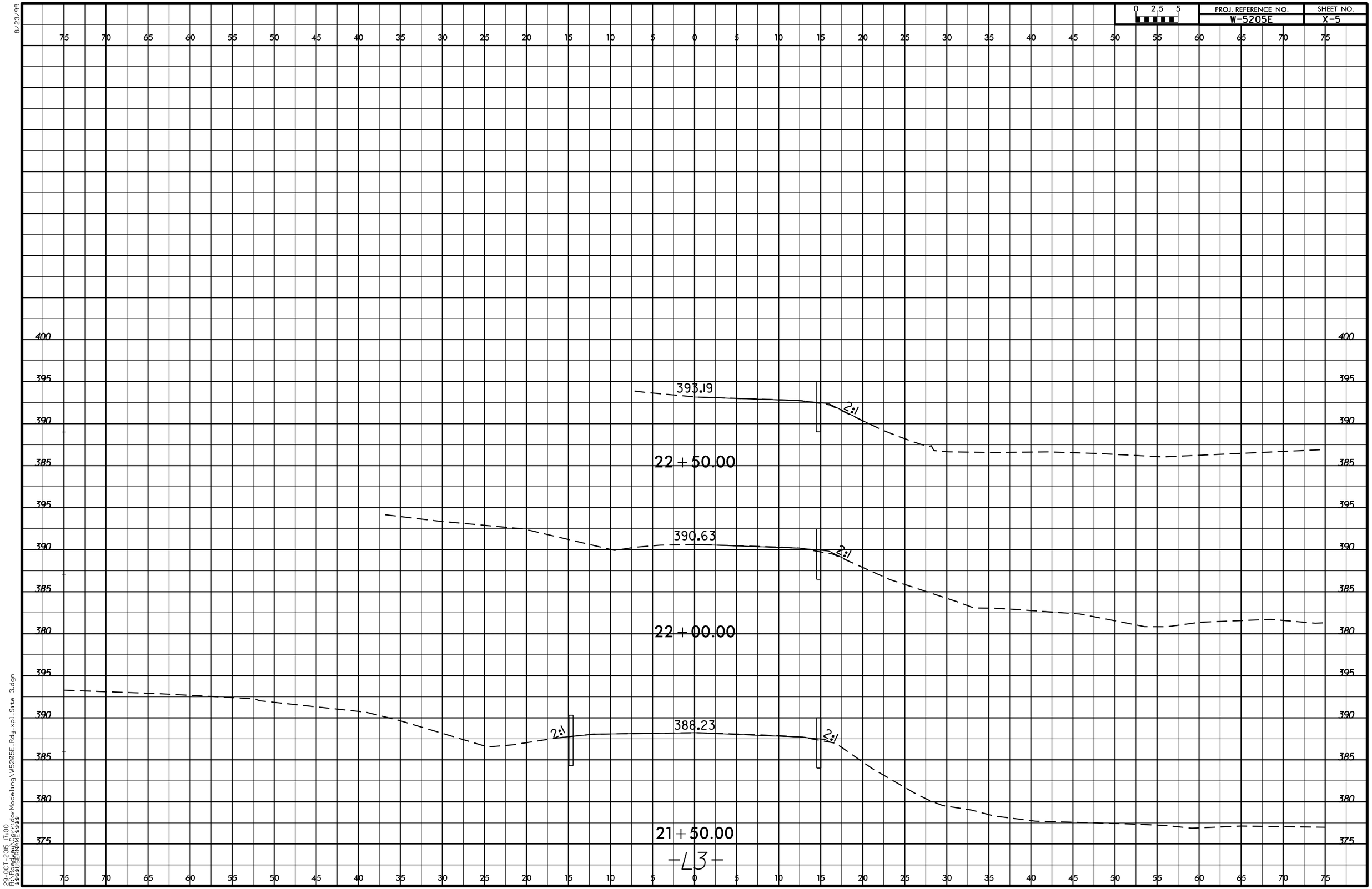


29-OCT-2015 17:00
R:\Roadway\Corridor-Modeling\W5205E_Rdg_xpl_Site 3.dgn
$$$$USERNAME$$$$

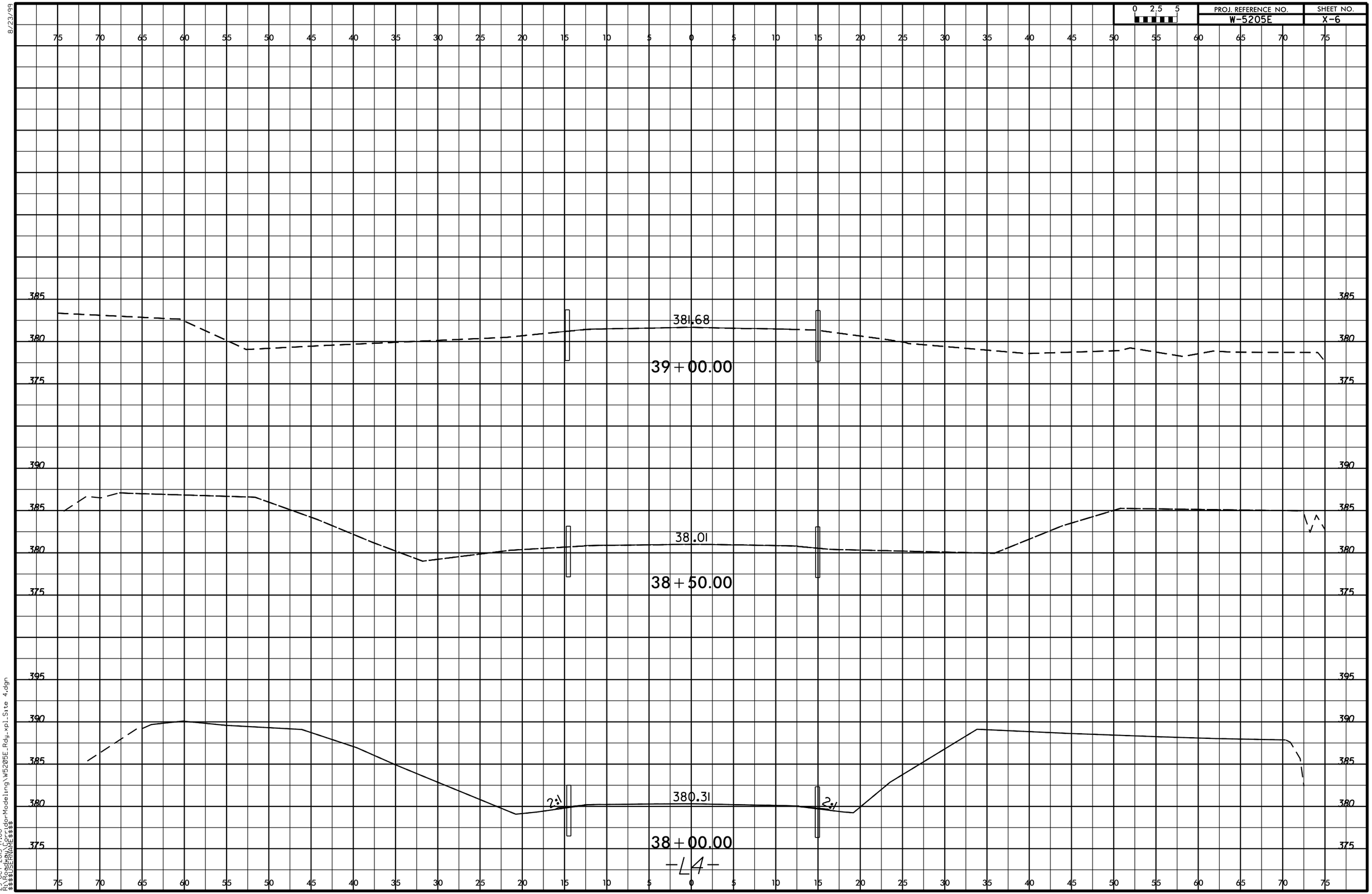


8/23/99

29-OCT-2015 17:00
R:\Roadway\Corridor Modeling\W5205E_Rdy_xpl_Site 3.dgn
$$$$USERNAME$$$$

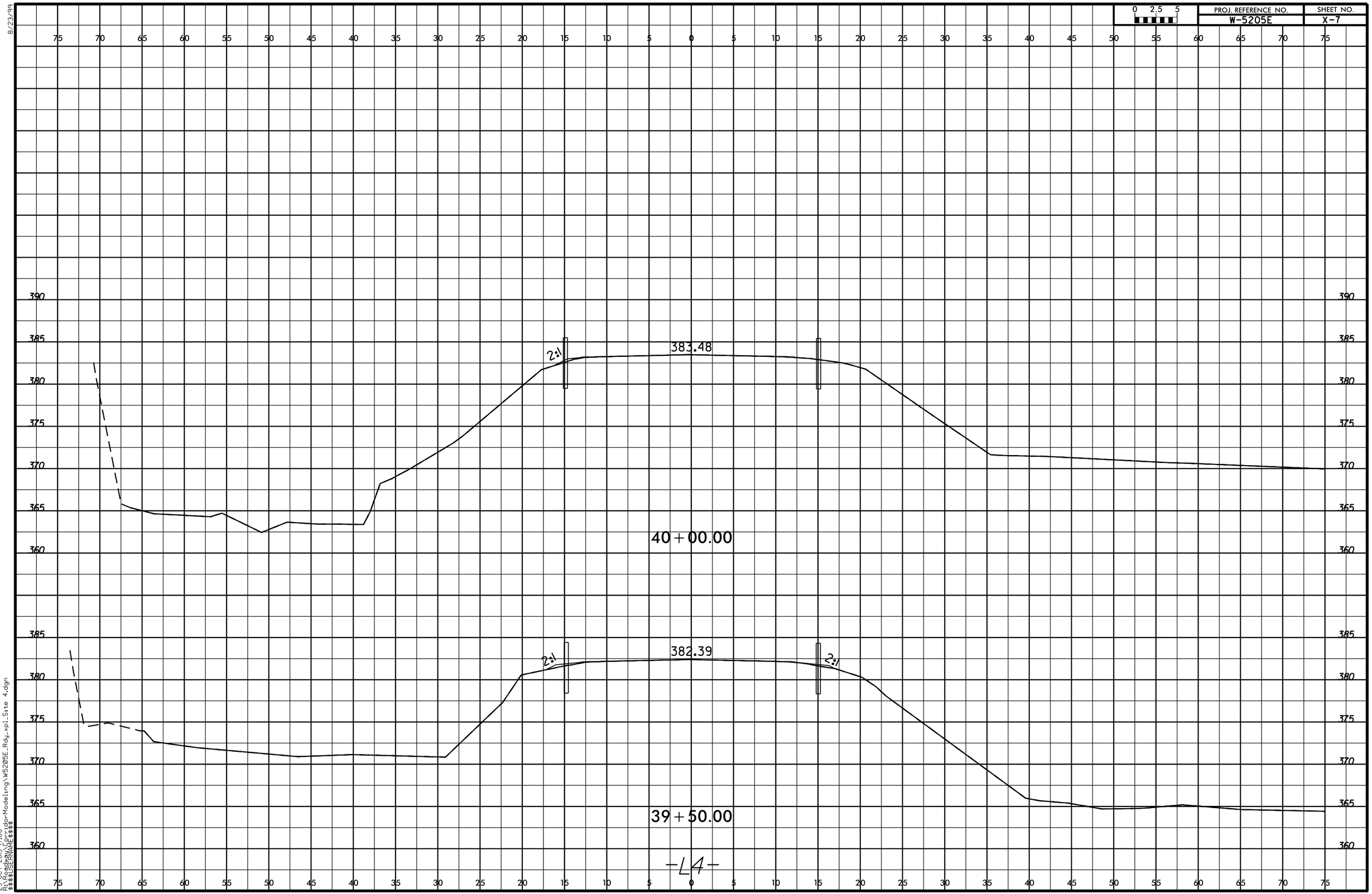


8/23/99
29-OCT-2015 17:00
R:\Roadway\CorridorModeling\W5205E_Rdy_xpl_Site 3.dgn
$$$$USERNAME$$$$



8/23/99

29-OCT-2015 17:00
R:\Roadway\CorridorModeling\W5205E_Rdy_xpl_Site 4.dgn
$$$$USERNAME$$$$

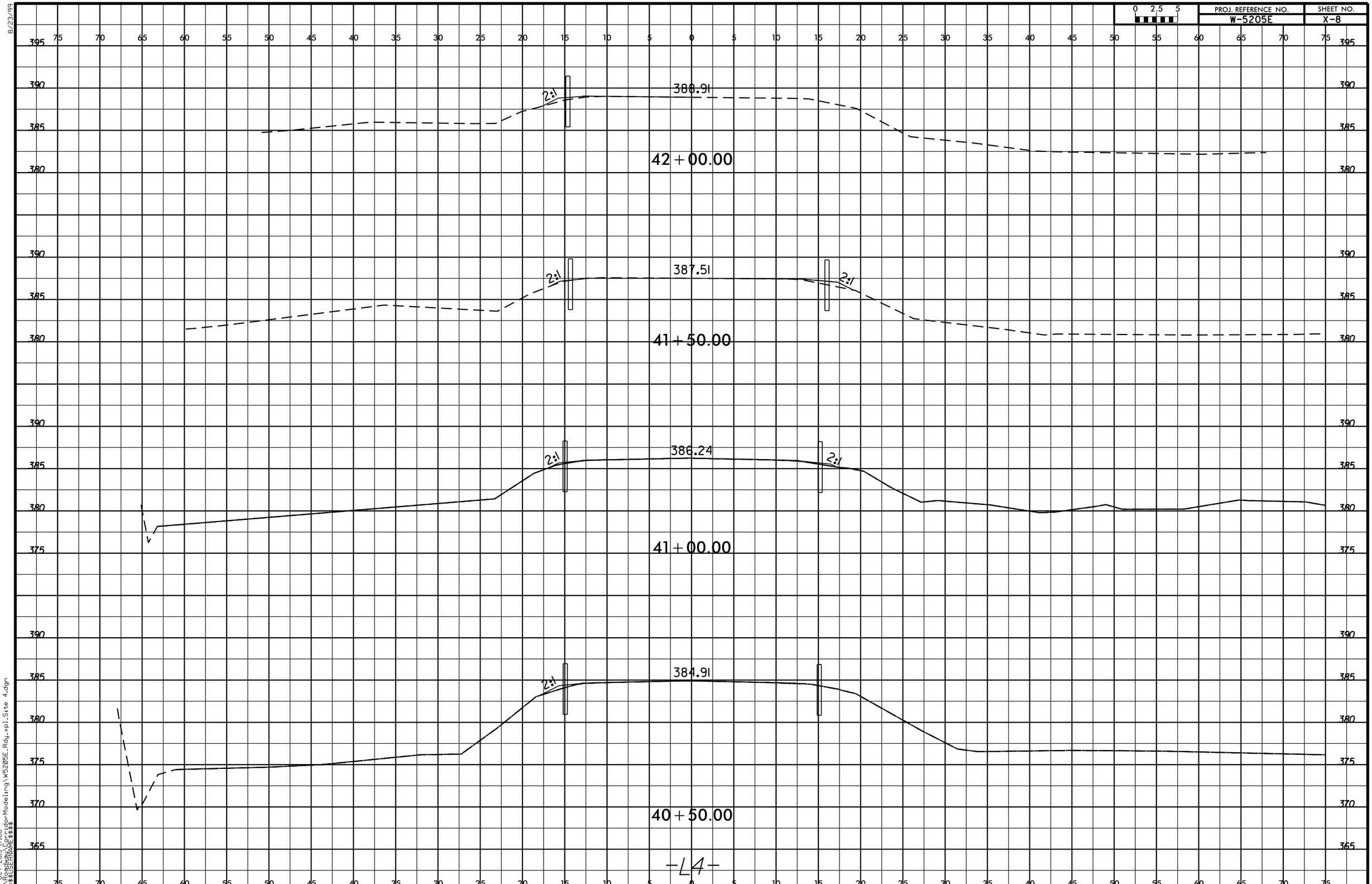


8/23/99

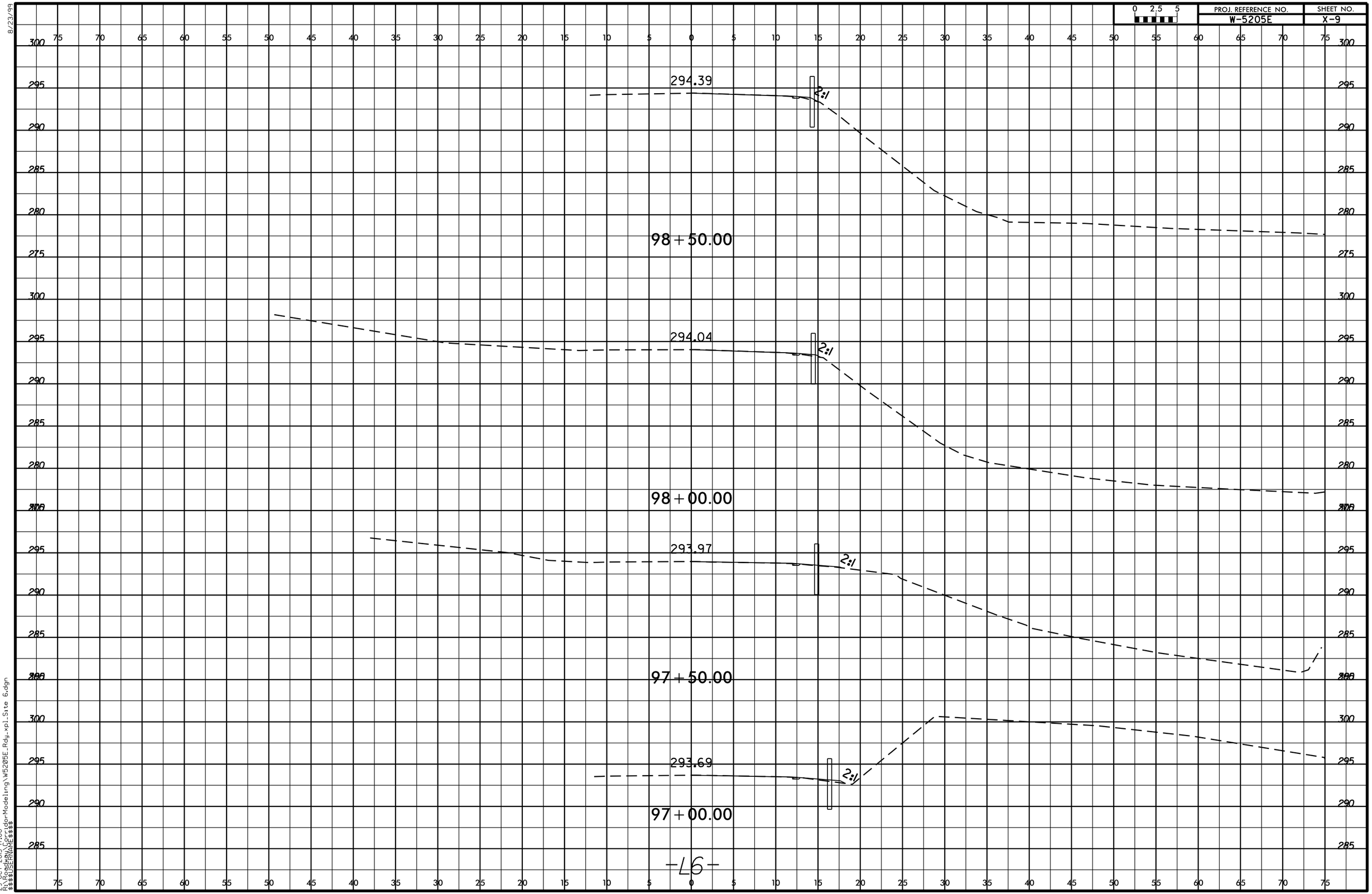
29-OCT-2015 17:00
R:\Roadway\CorridorModeling\W5205E_Rdy_xpl_Site 4.dgn
$$$$USERNAME$$$$

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5205E	X-8



29-OCT-2015 17:00
R:\Roadway\CorridorModeling\W5205E_Rdy_xpl_Site 4.dgn
$$$$USERNAME$$$$

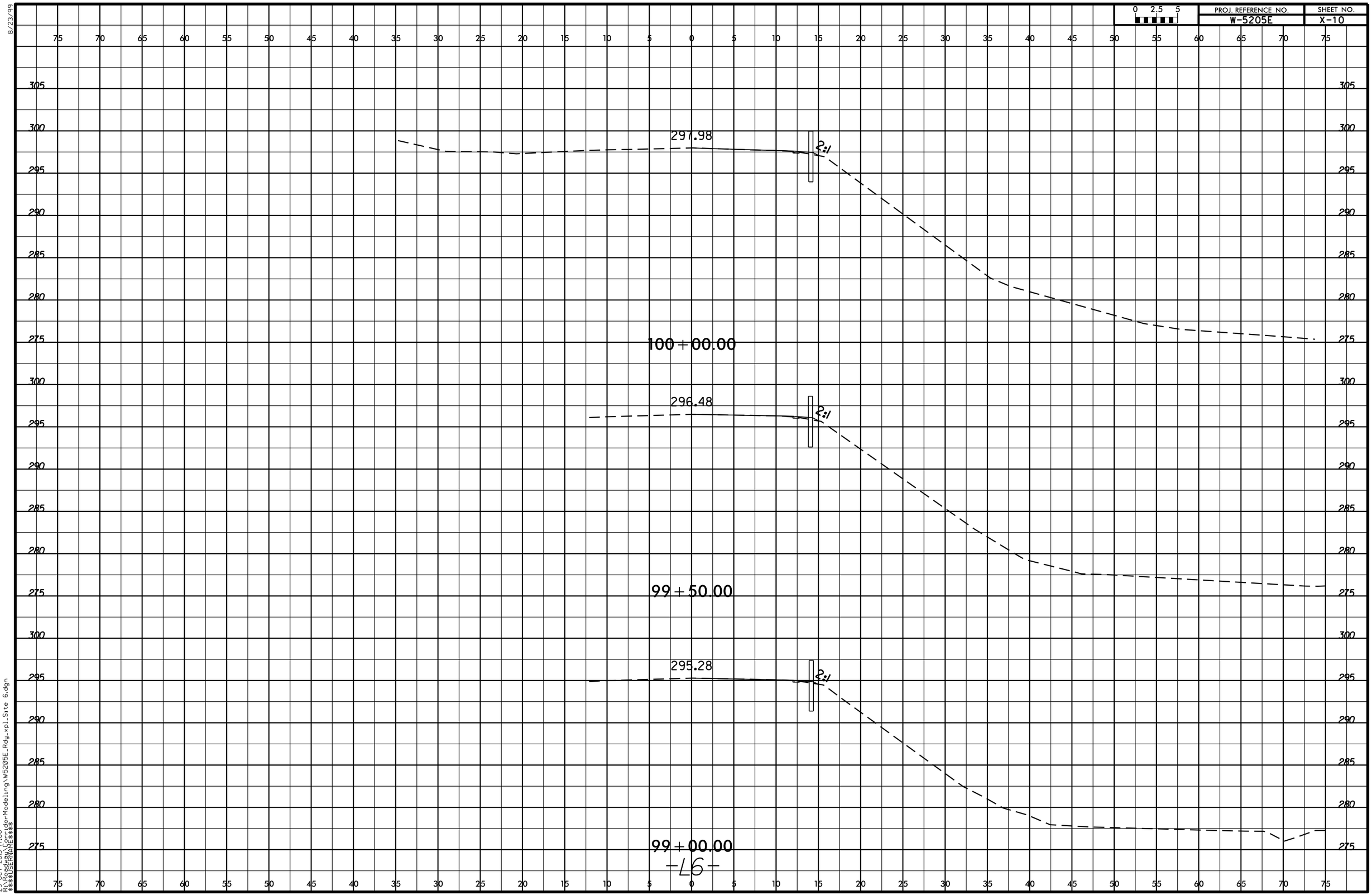


8/23/99

29-OCT-2015 17:00
R:\Roadway\CorridorModeling\W5205E_Rdy_xpl_Site 6.dgn
$$$$USERNAME$$$$

8/23/99

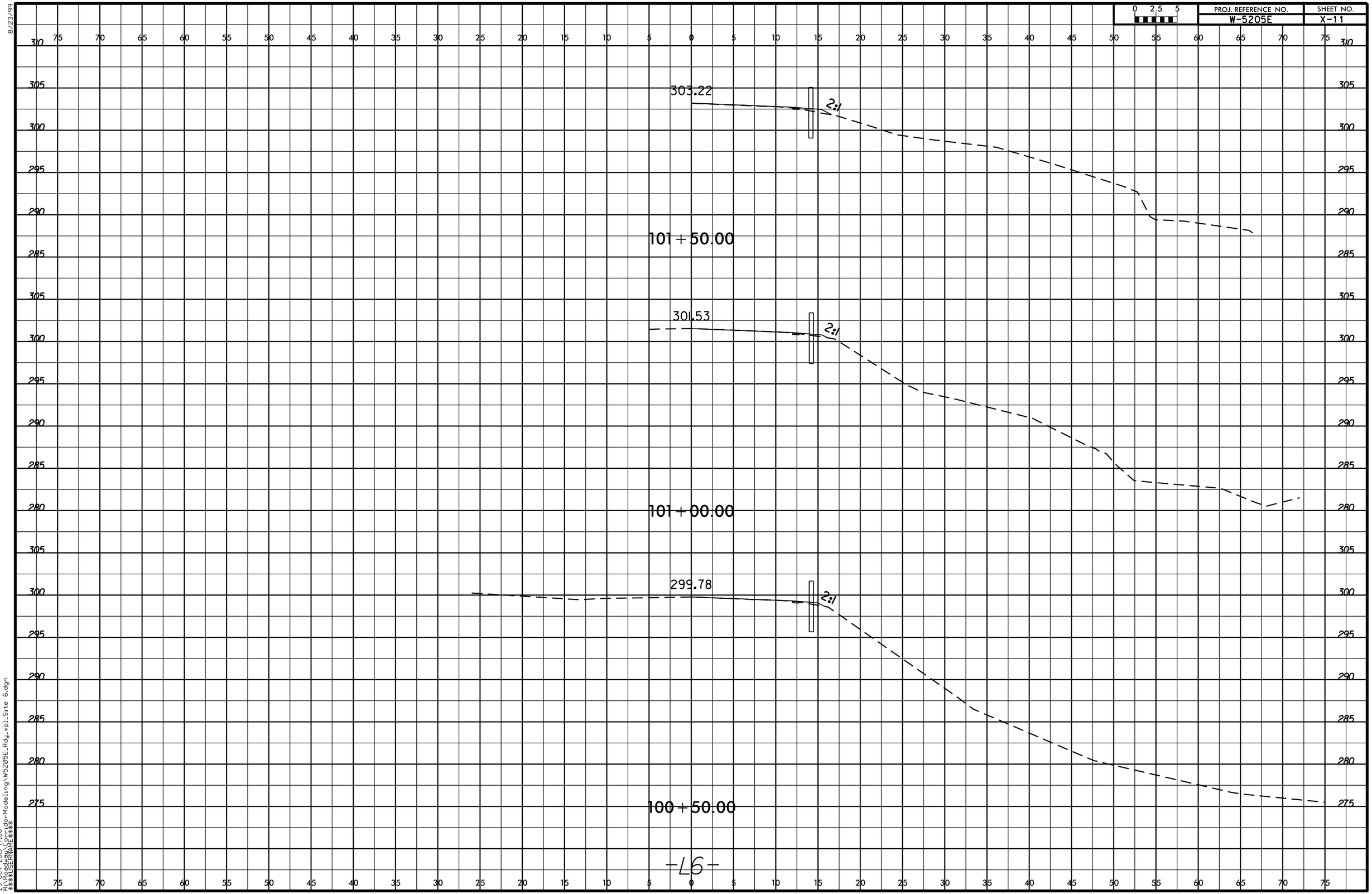
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5205E	X-10



29-OCT-2015 17:00
R:\Roadway\Corridor-Modeling\W5205E_Rdg_xpl_Site 6.dgn
$$$$USERNAME$$$$

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5205E	X-11

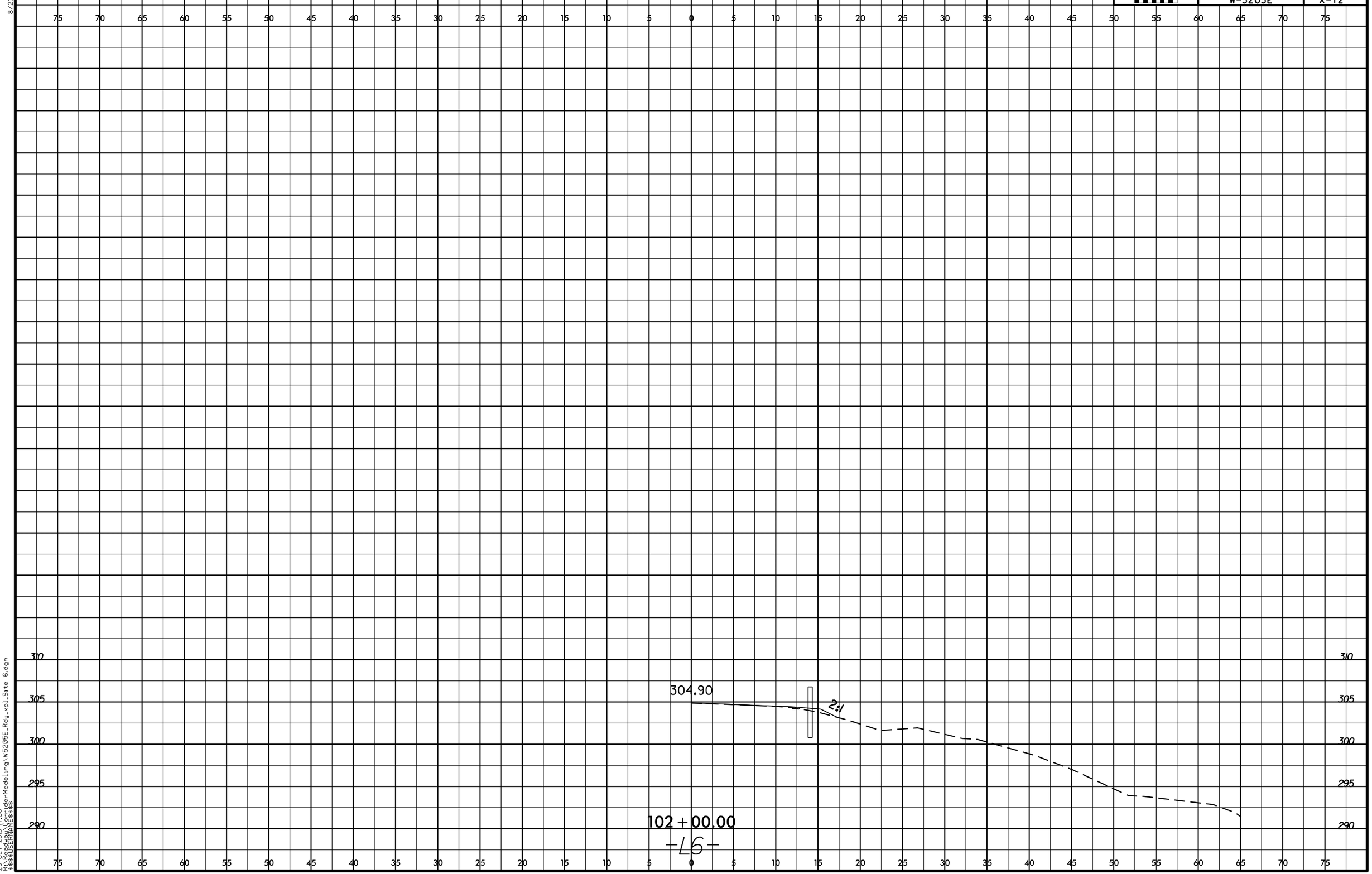


29-OCT-2015 17:00
R:\Roadway\Corridor-Modeling\W5205E_Rdy_xpl_Site 6.dgn
$$$$USERNAME$$$$

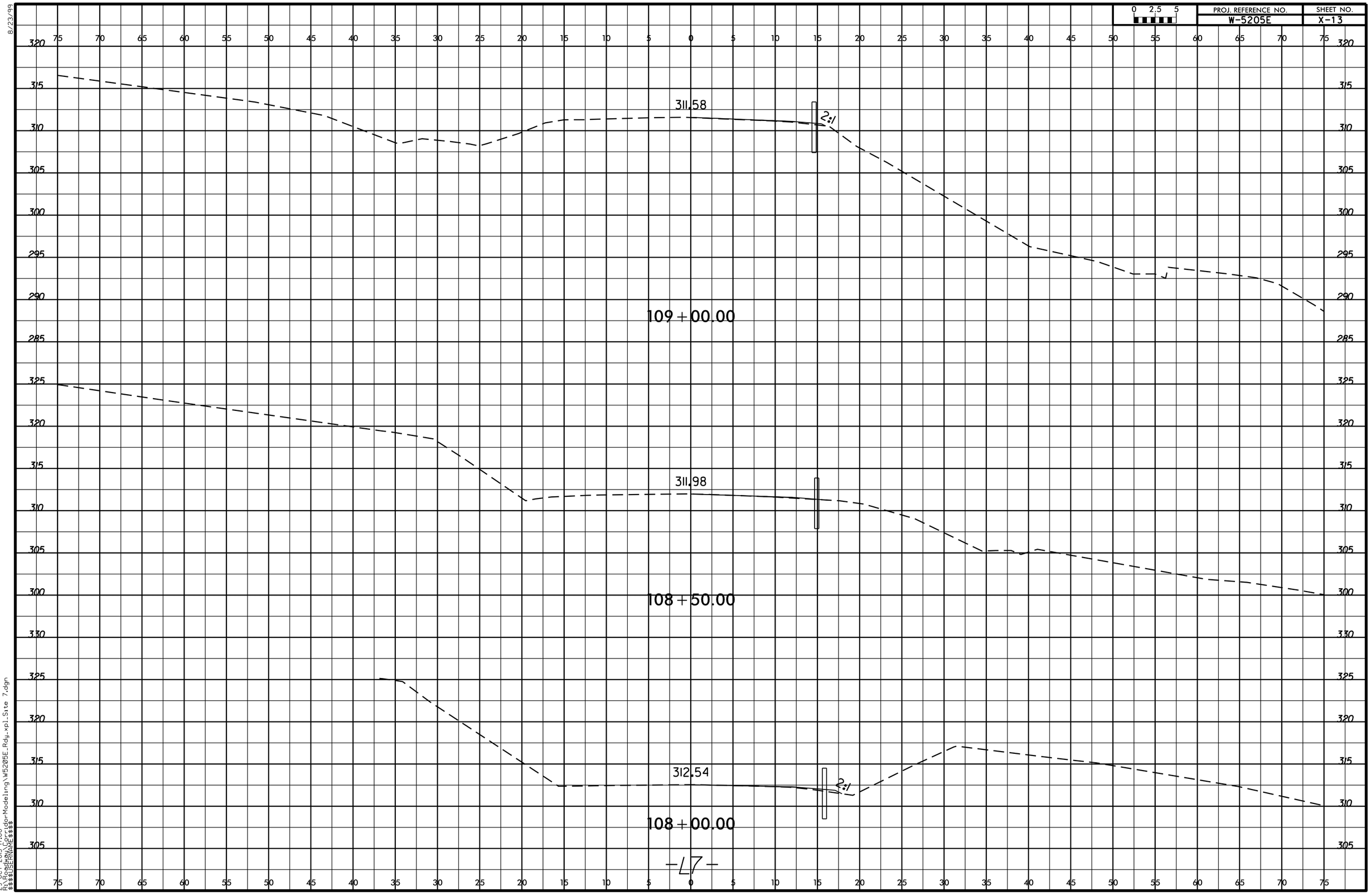
8/23/99

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
W-5205E	X-12

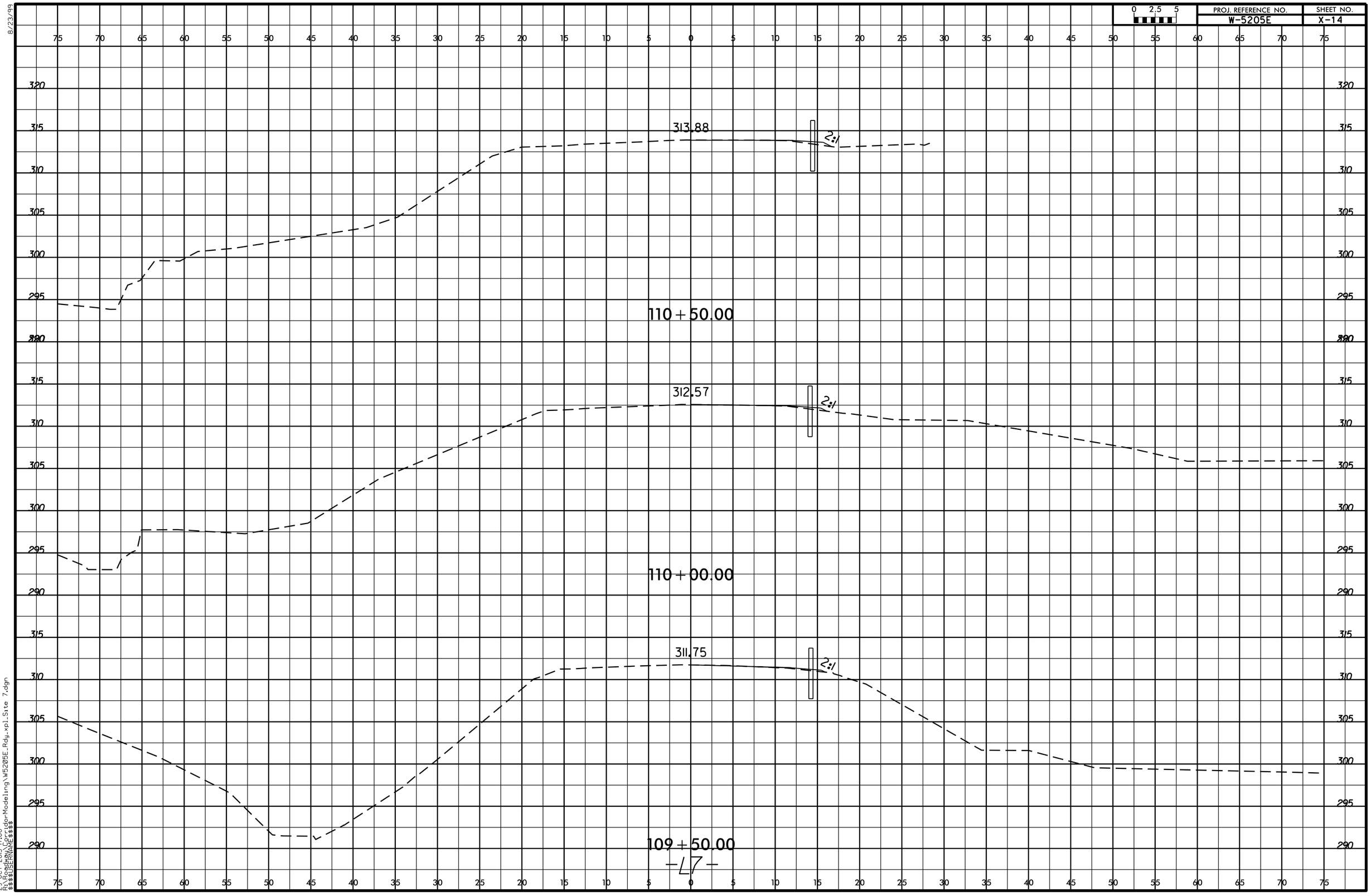


23-OCT-2015 17:00
R:\Roadway\CorridorModeling\W5205E_Rdy_xpl_Site 6.dgn
$$$$USERNAME$$$$



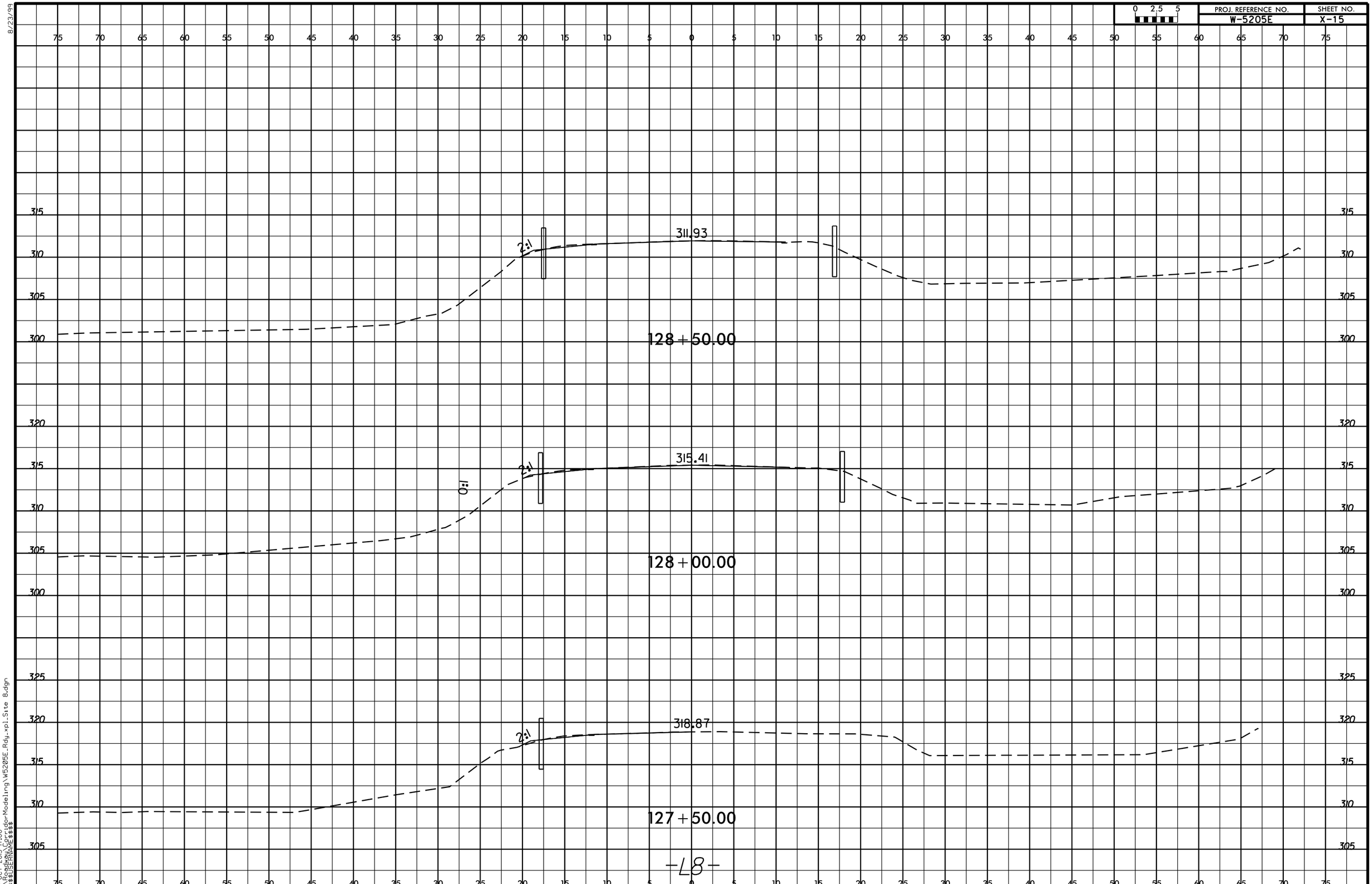
8/23/99

29-OCT-2015 17:00
R:\Roadway\Corridor Modeling\W5205E_Rdy_xpl_Site 7.dgn
$$$$USERNAME$$$$

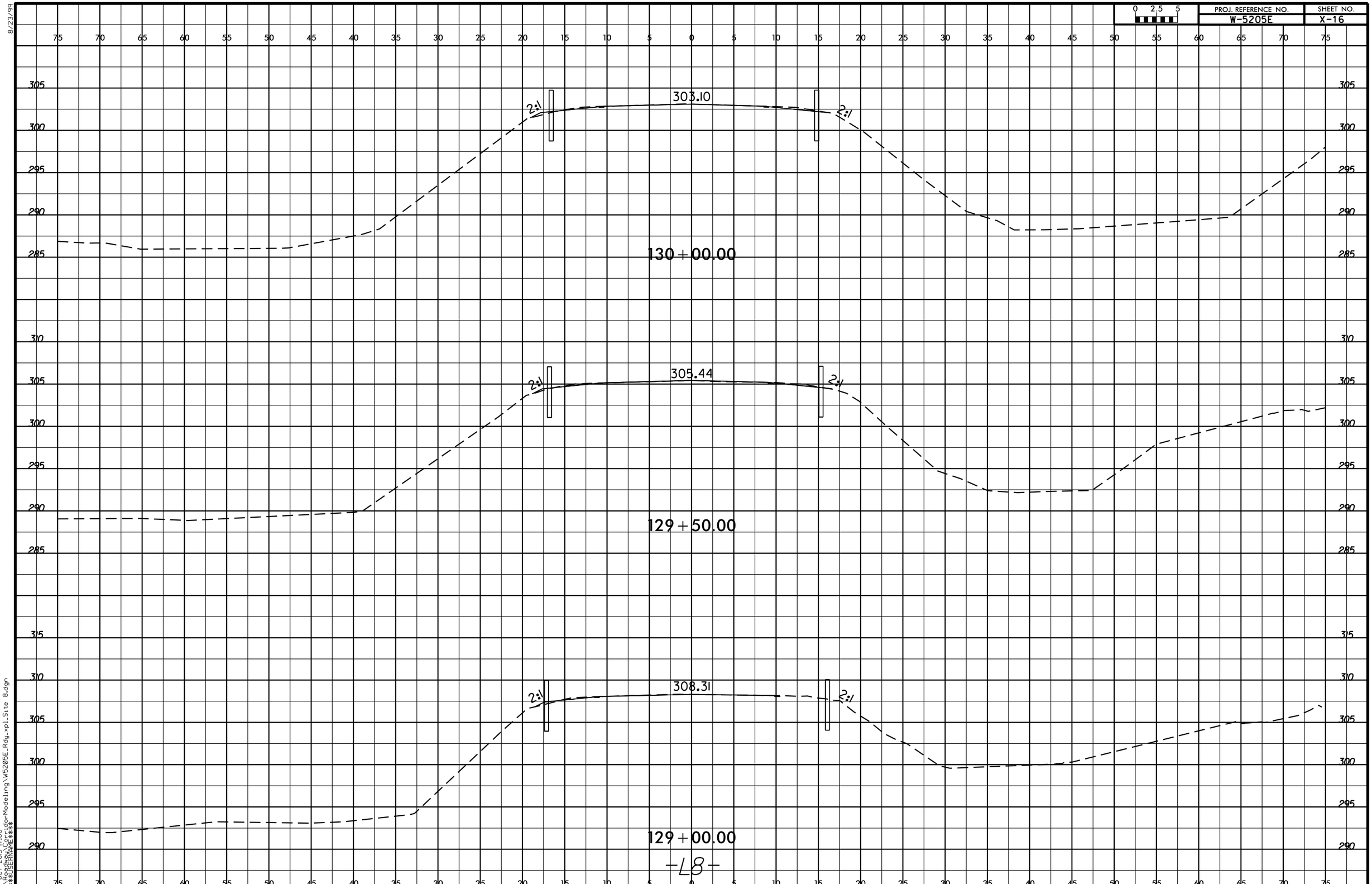


8/23/99

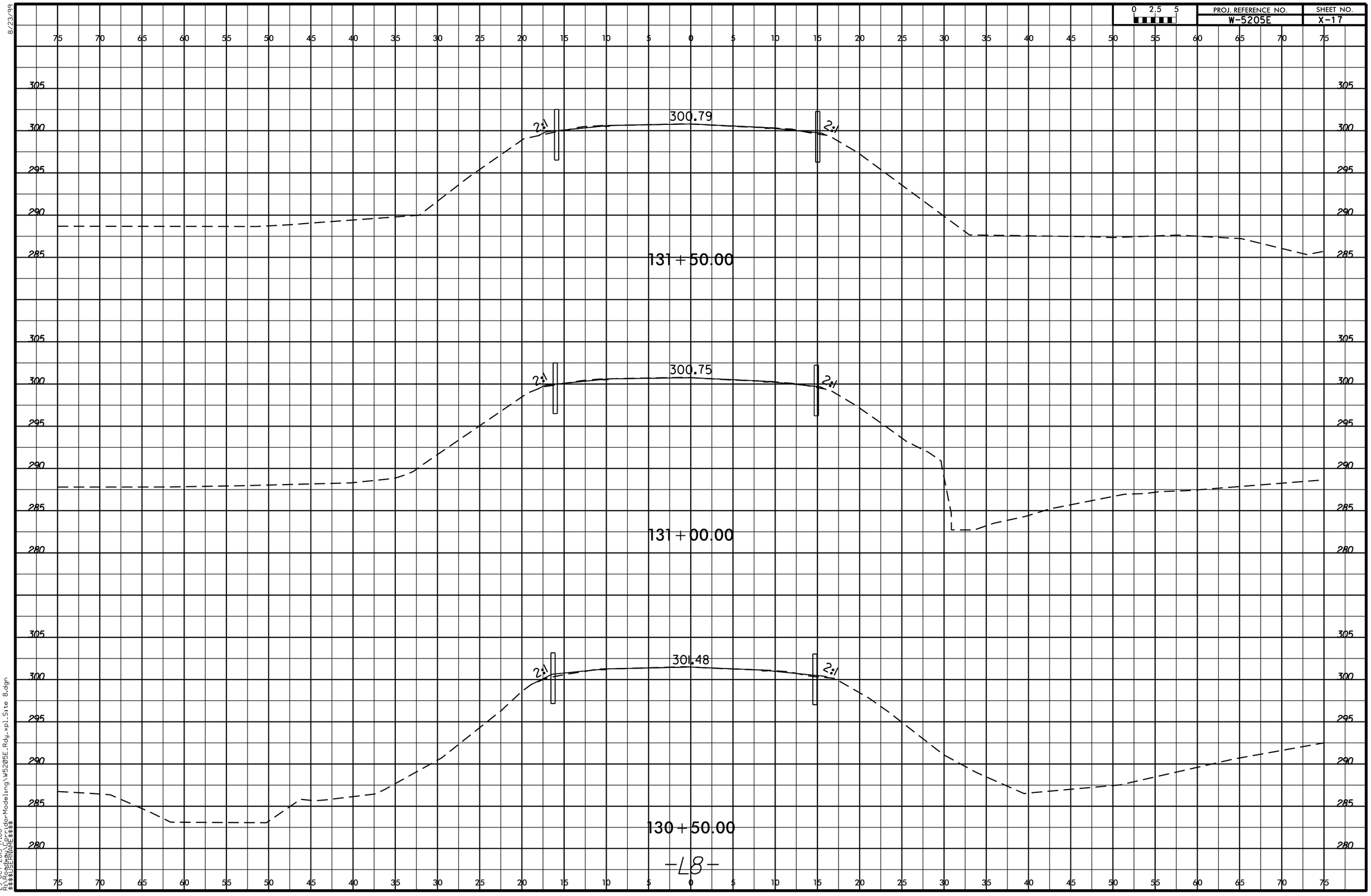
29-OCT-2015 17:00
R:\Roadway\Corridor Modeling\W5205E_Rdy_xpl_Site 7.dgn
$$$$USERNAME$$$$



8/23/99
29-OCT-2015 17:00
R:\Roadway\CorridorModeling\W5205E_Rdy_xpl_Site 8.dgn
$$$$USERNAME$$$$

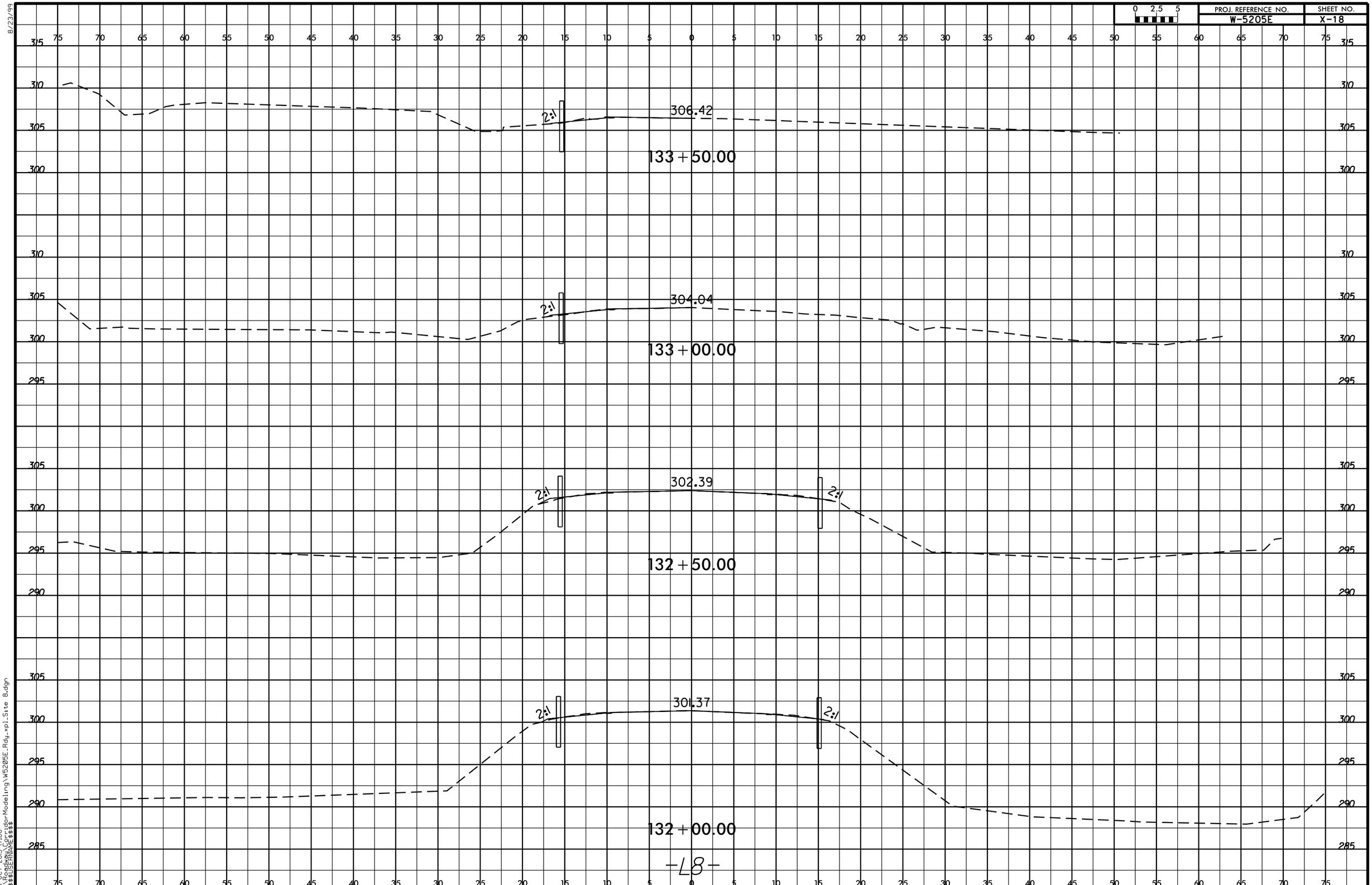


8/23/99
29-OCT-2015 17:00
R:\Roadway\CorridorModeling\W5205E_Rdy_xpl_Site 8.dgn
$$$$USERNAME$$$$



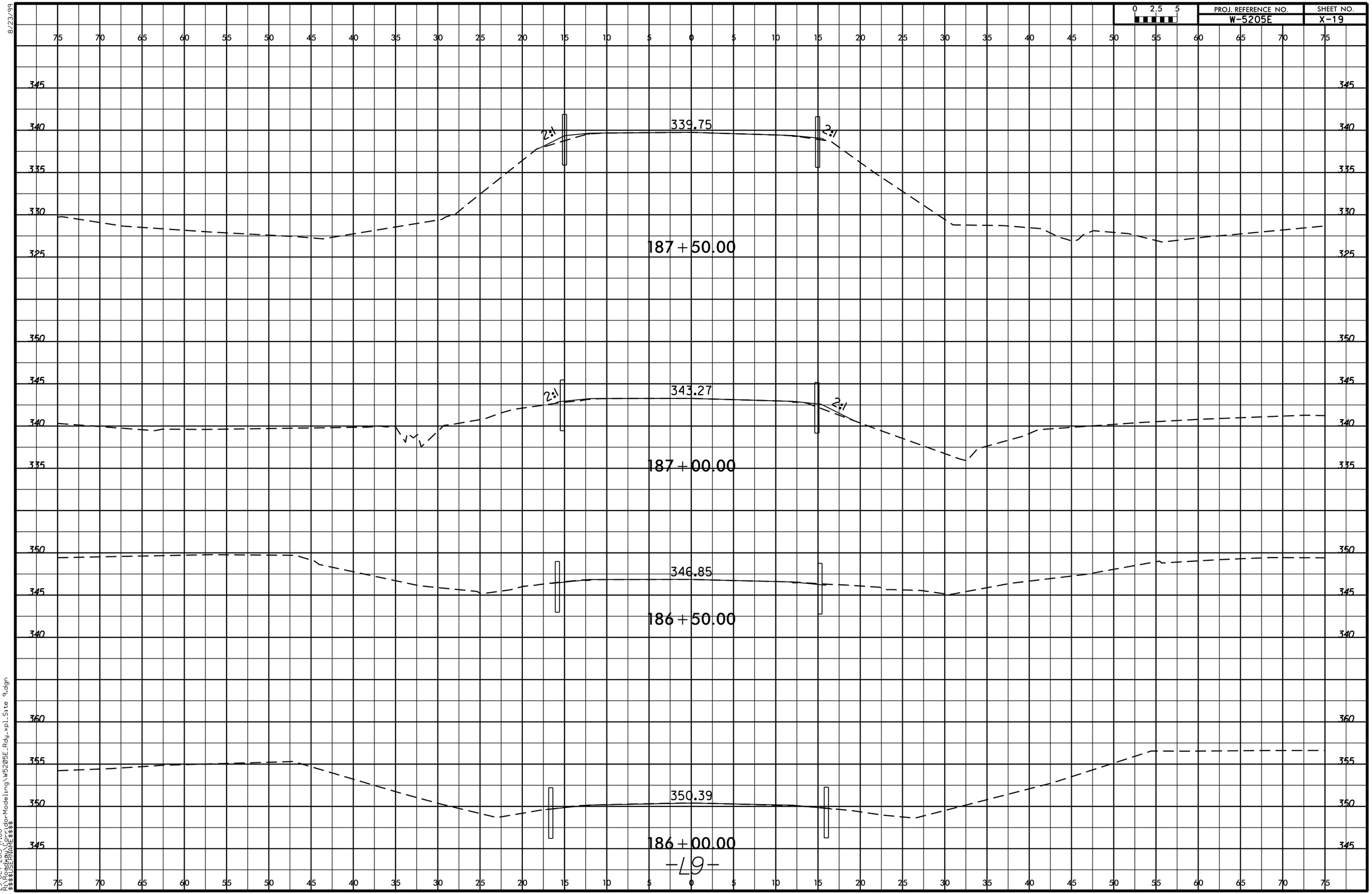
8/23/99

29-OCT-2015 17:00
R:\Roadway\Corridor Modeling\W5205E_Rdy_xpl_Site 8.dgn
$$$$USERNAME$$$$

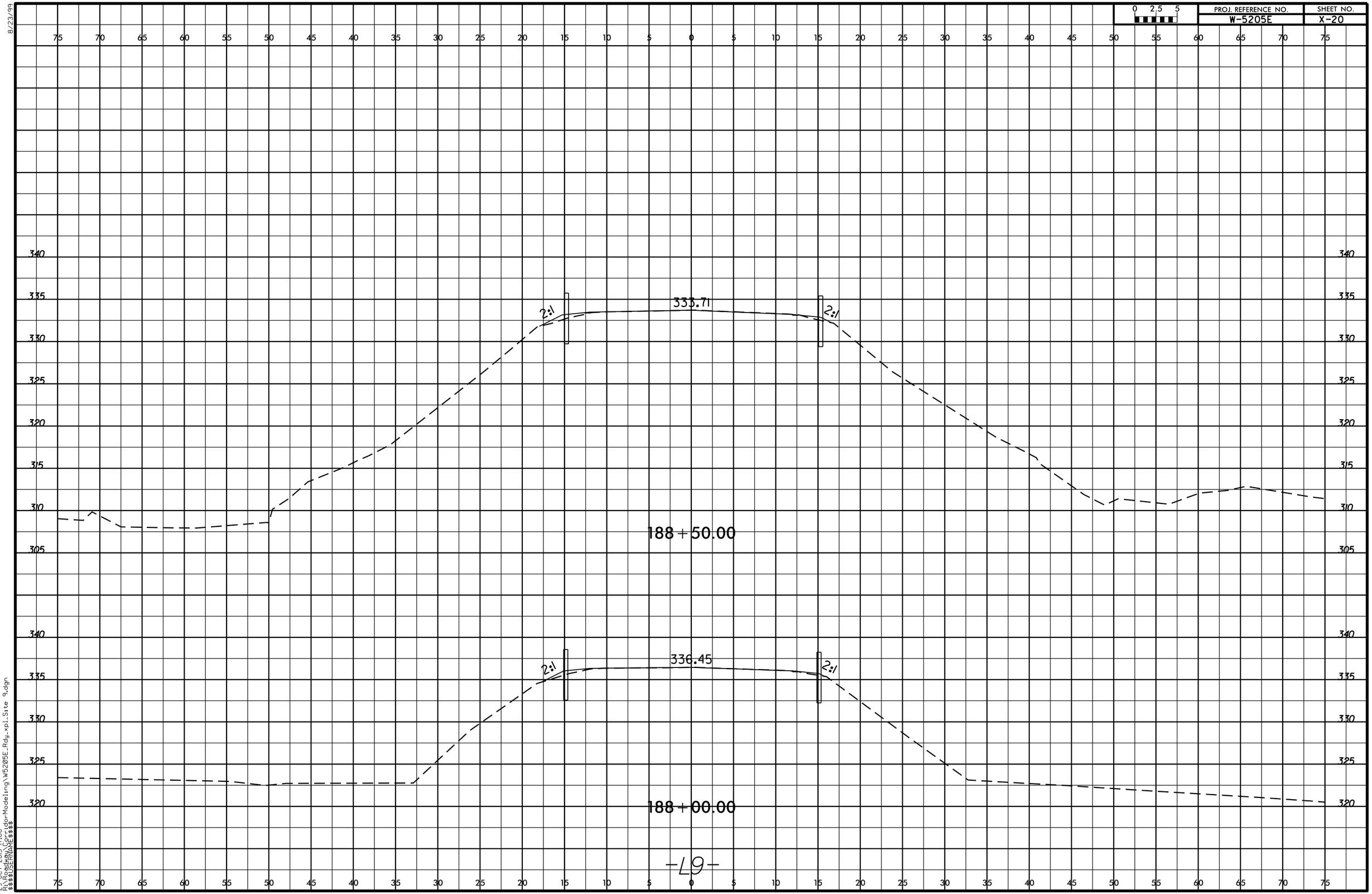


8/23/99

29-OCT-2015 17:00
R:\Roadway\CorridorModeling\W5205E_Rdy_xpl_Site 8.dgn
$$$$USERNAME$$$$



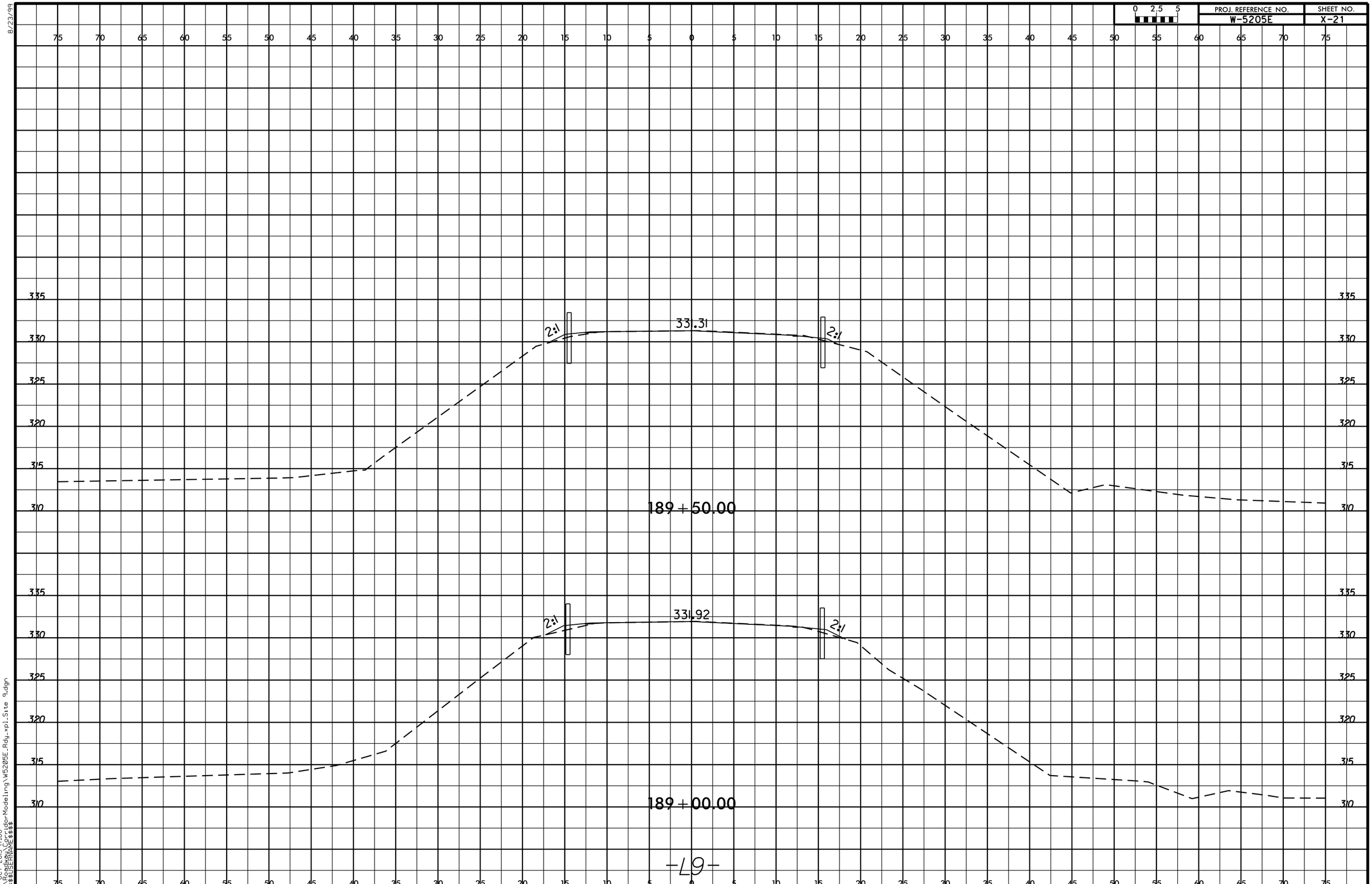
8/23/99
29-OCT-2015 17:00
R:\Roadway\Corridor-Modeling\W5205E_Rdy_xpl_Site 9.dgn
$$$$USERNAME$$$$



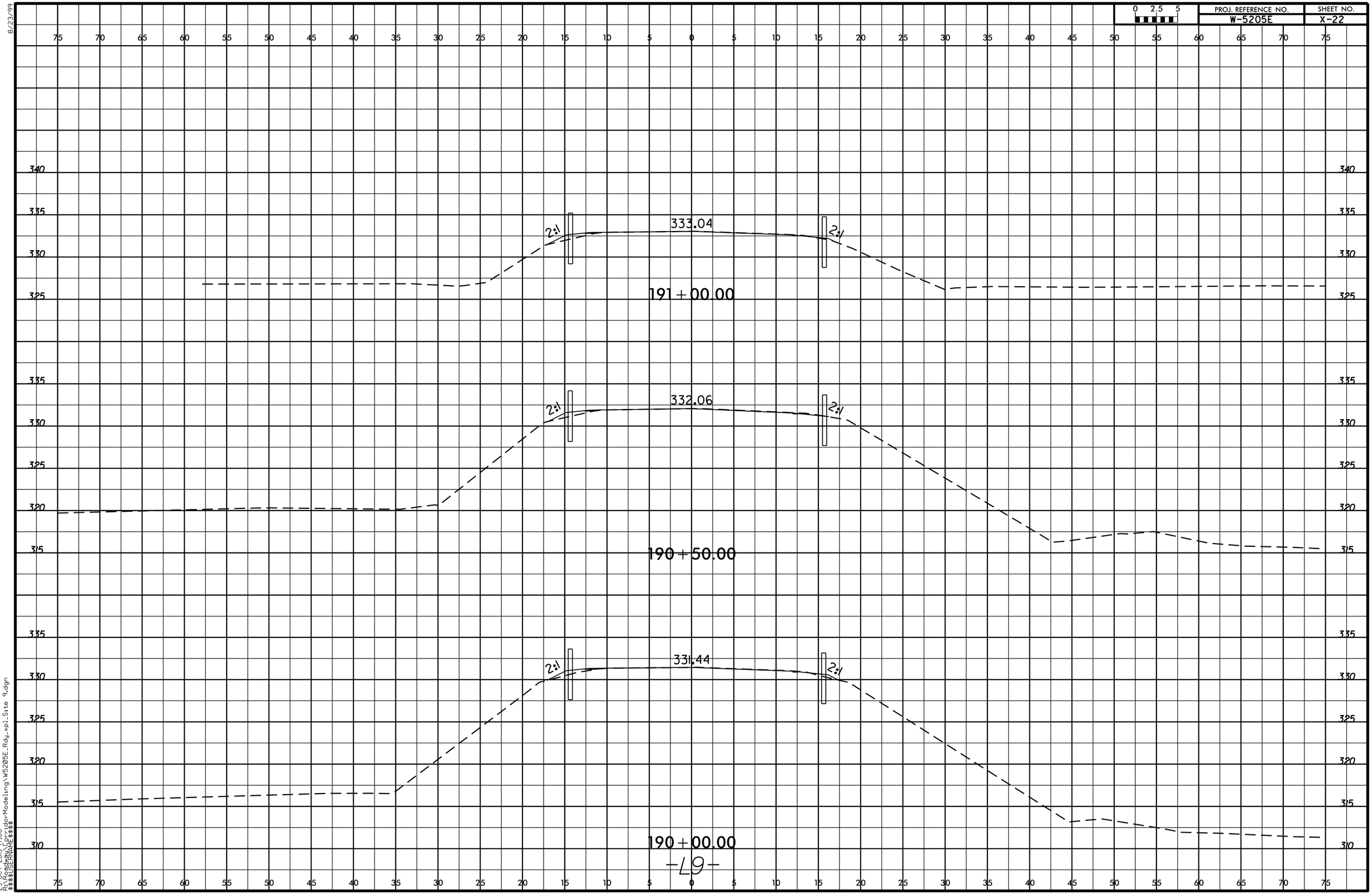
8/23/99
29-OCT-2015 17:00
R:\Roadway\Corridor-Modeling\W5205E_Rdy_xpl_Site 9.dgn
$$$$USERNAME$$$$

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5205E	X-21



23-OCT-2015 17:00
R:\Roadway\CorridorModeling\W5205E_Rdy_xpl_Site 9.dgn
$$$$USERNAME$$$$

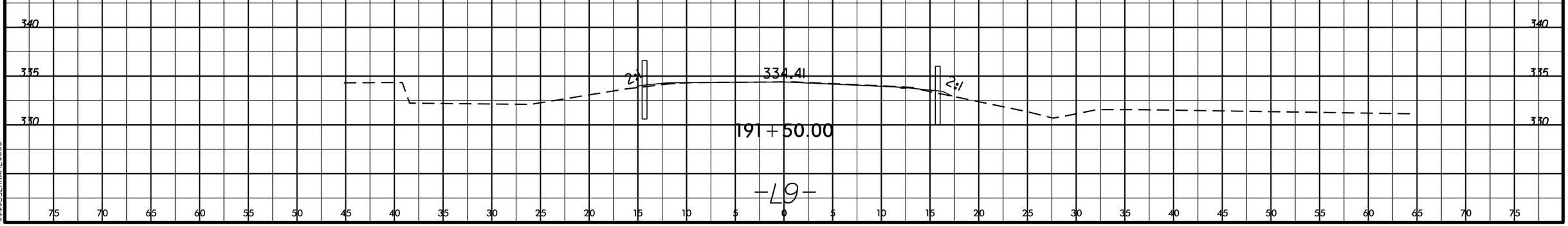


8/23/99
29-OCT-2015 17:00
R:\Roadway\Corridor-Modeling\W5205E_Rdy_xpl_Site 9.dgn
$$$$USERNAME$$$$

8/23/99

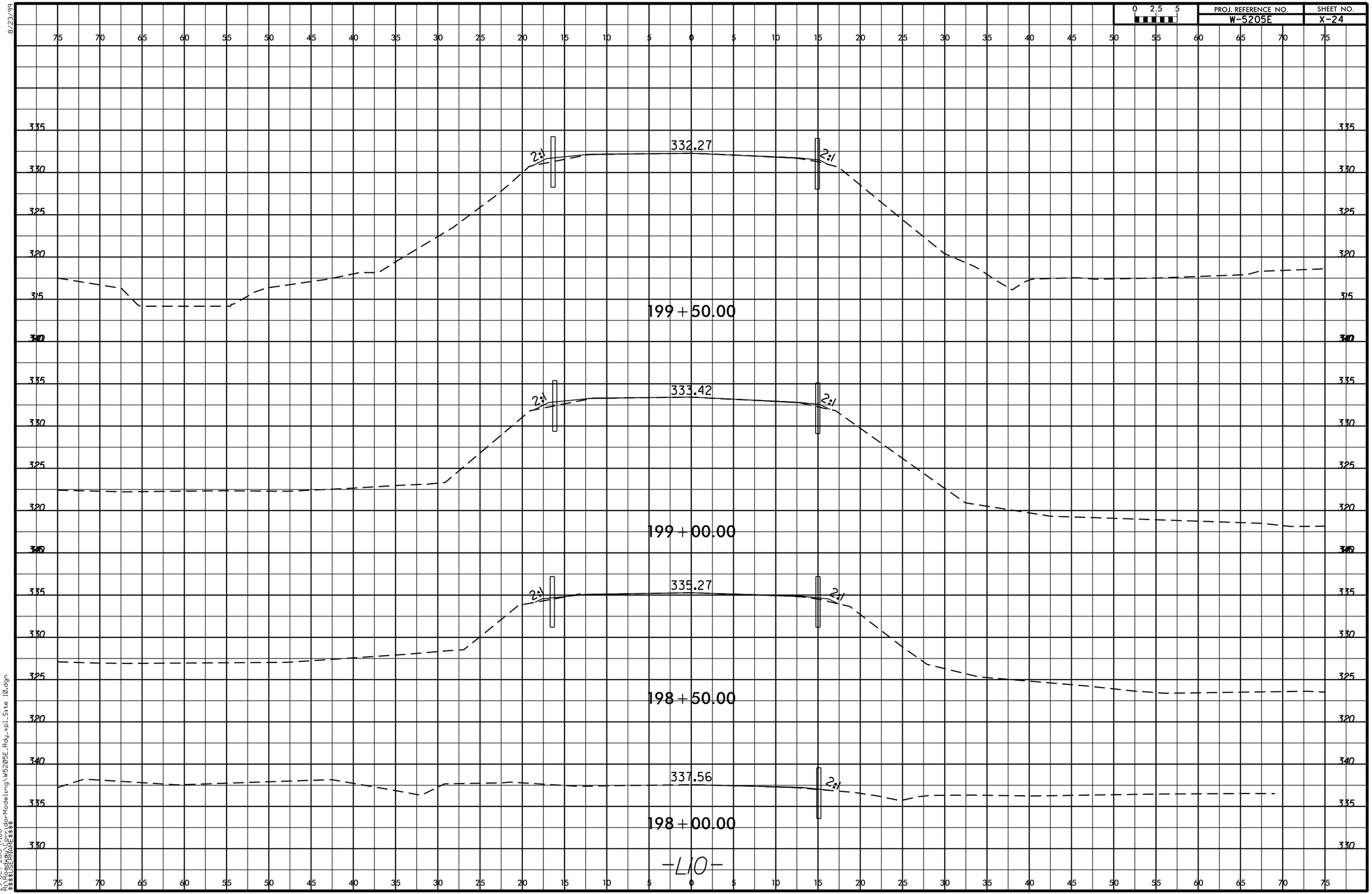
0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
W-5205E	X-23

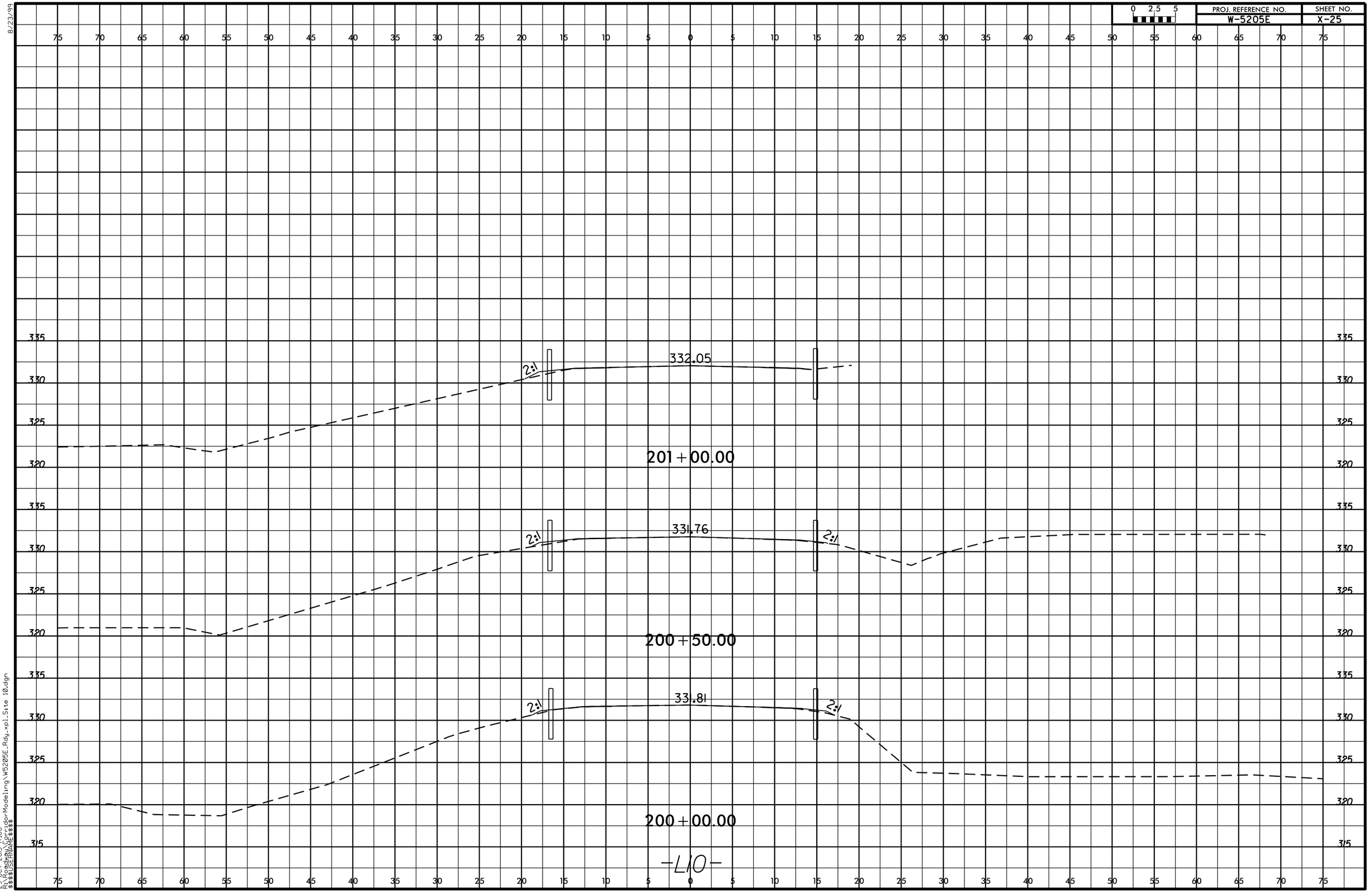


-L9-

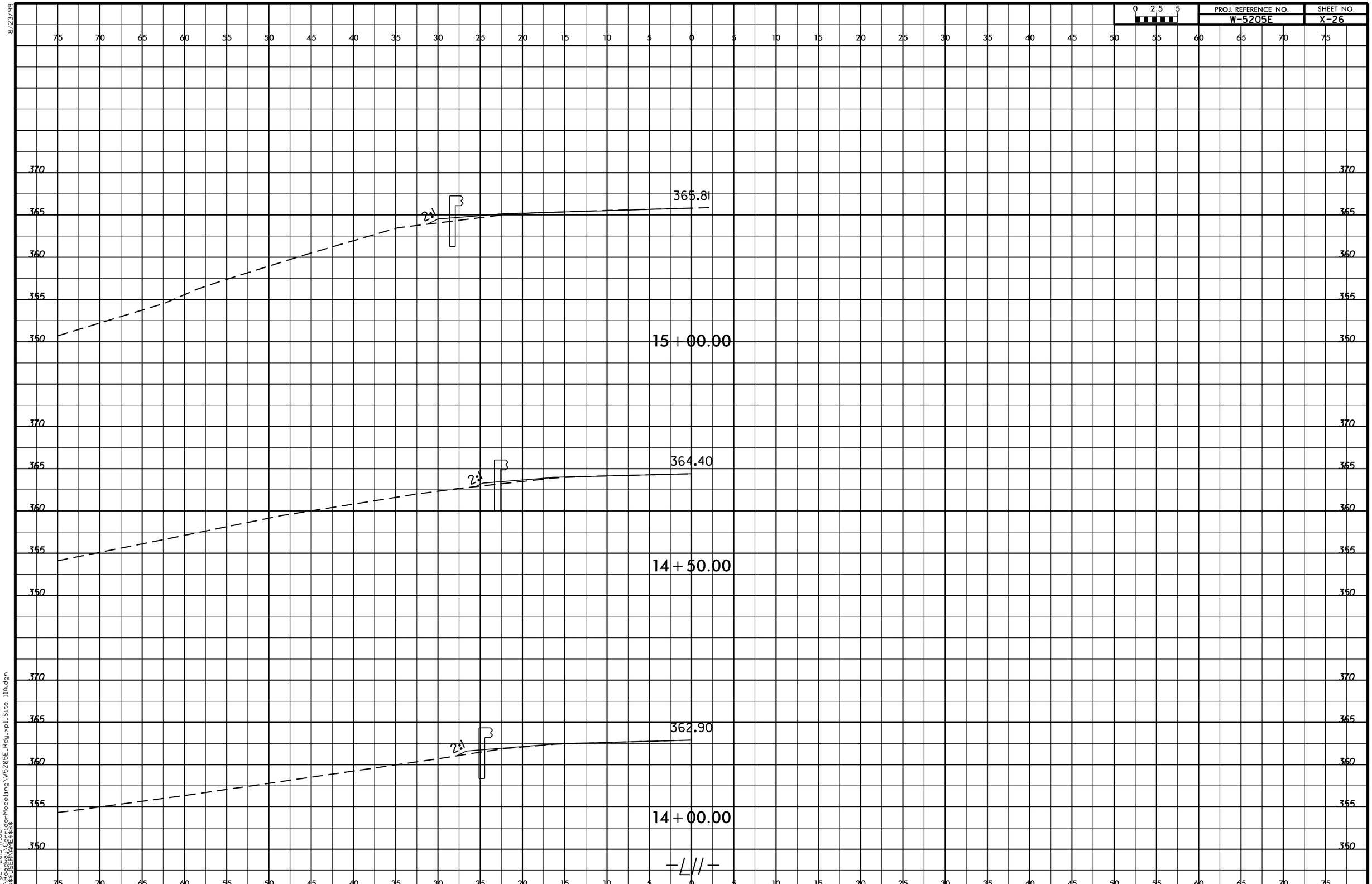
23-OCT-2015 17:00
R:\Roadway\CorridorModeling\W5205E_Rdy_xpl_Site 9.dgn
$$$$USERNAME$$$$



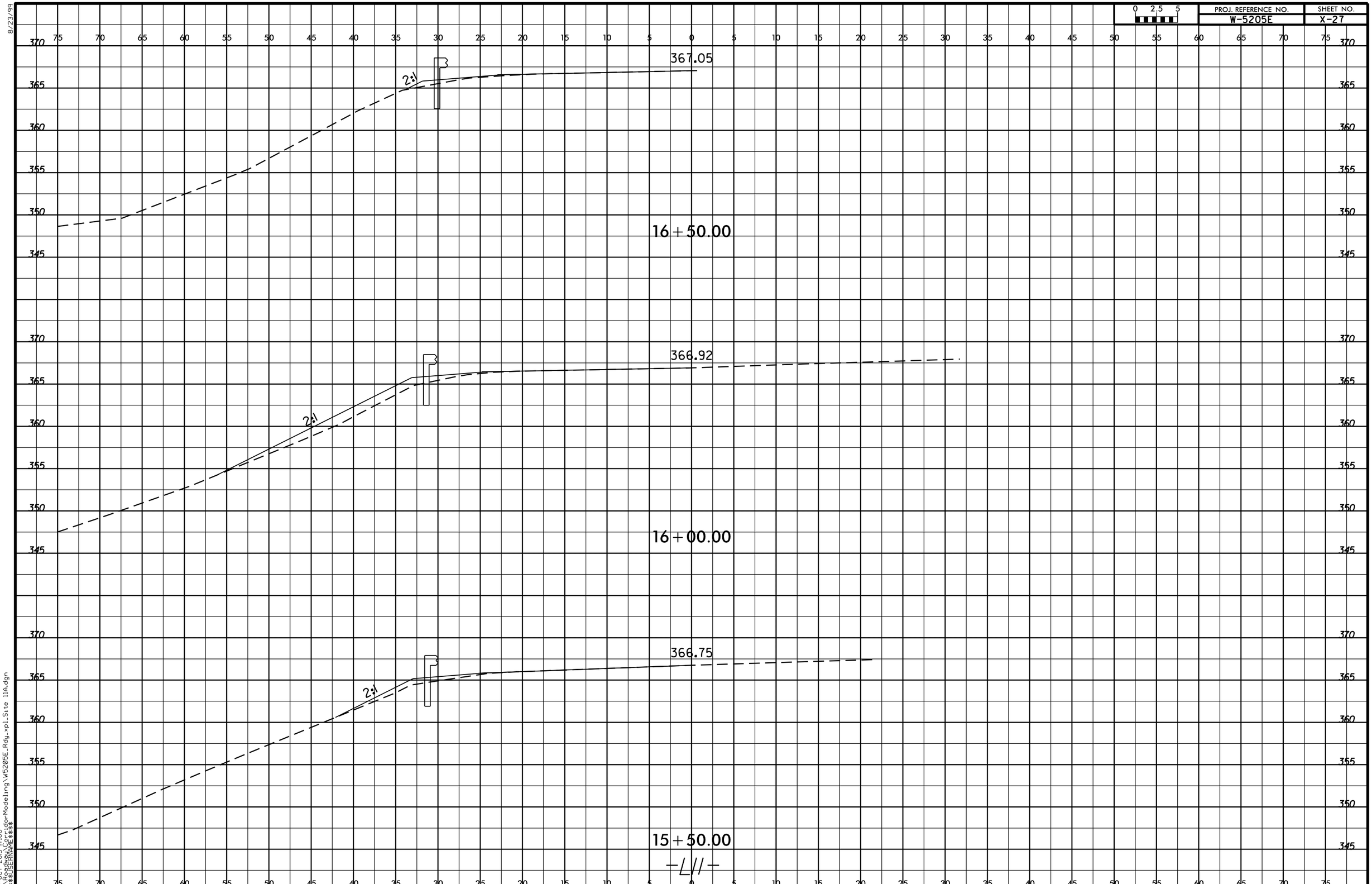
8/23/99
29-OCT-2015 17:00
R:\Roadway\Corridor-Modeling\W5205E_Rdy_xpl_Site 10.dgn
$$$$USERNAME$$$$



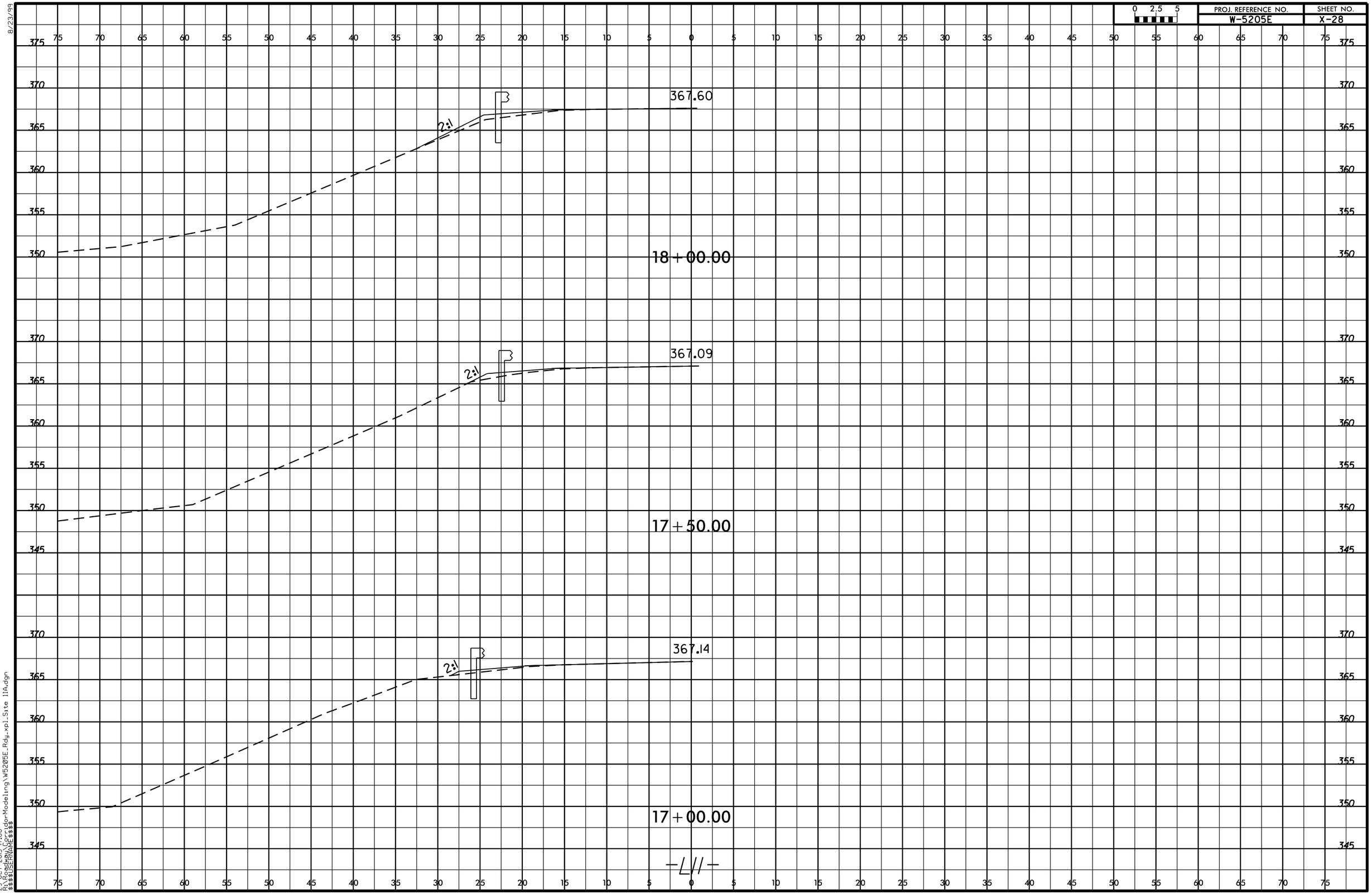
8/23/99
29-OCT-2015 17:00
R:\Roadway\Corridor-Modeling\W5205E_Rdg_xpl_Site 10.dgn
$$$$USERNAME$$$$



8/23/99
29-OCT-2015 17:00
R:\Roadway\CorridorModeling\W5205E_Rdy_xpl_Site 11A.dgn
$$$$USERNAME$$$$



8/23/99
29-OCT-2015 17:00
R:\Roadway\CorridorModeling\W5205E_Rdy_xpl_Site 11A.dgn
$$$$USERNAME$$$$



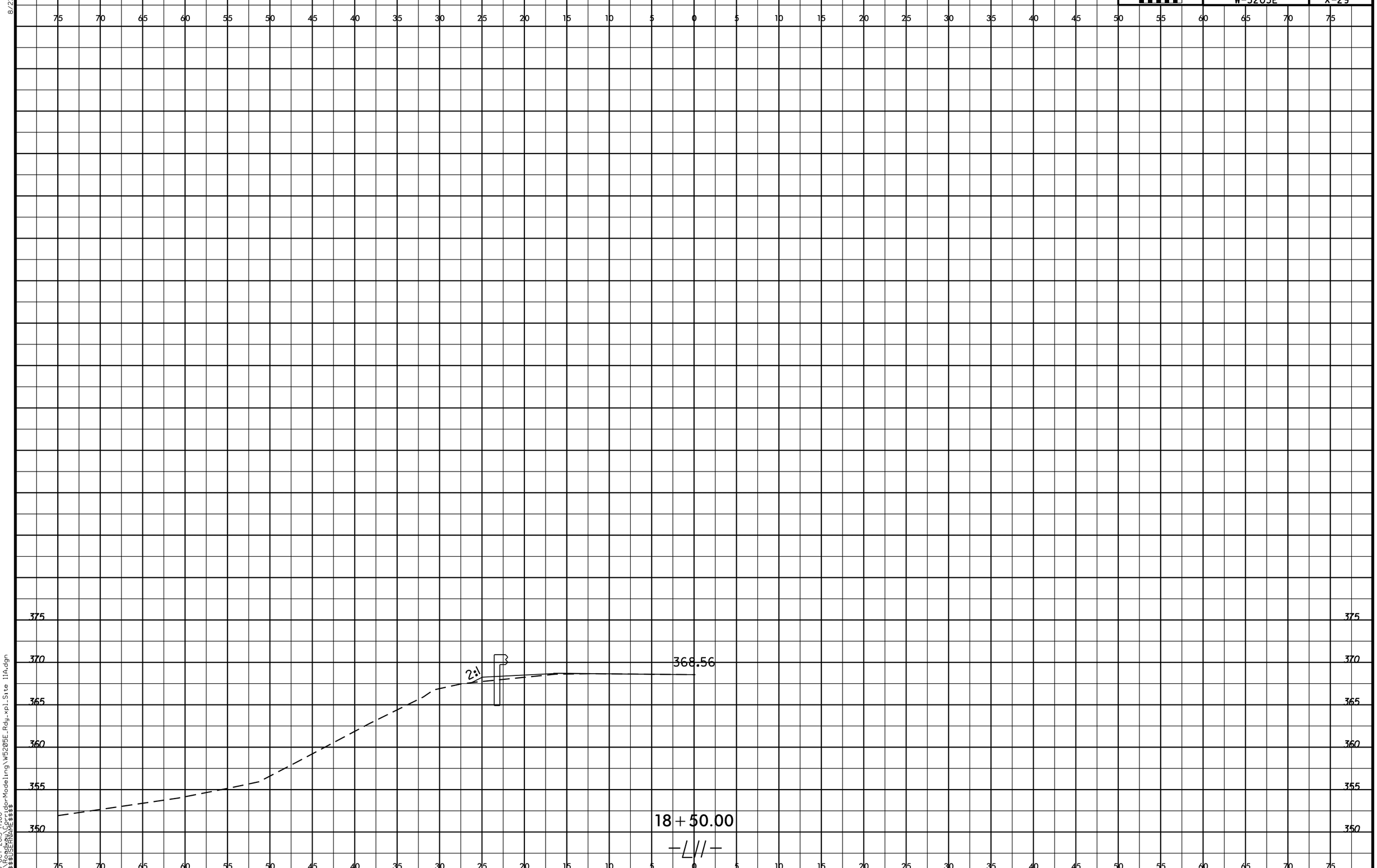
8/23/99

29-OCT-2015 17:00
R:\Roadway\CorridorModeling\W5205E_Rdy_xpl_Site 11A.dgn
$$$$USERNAME$$$$

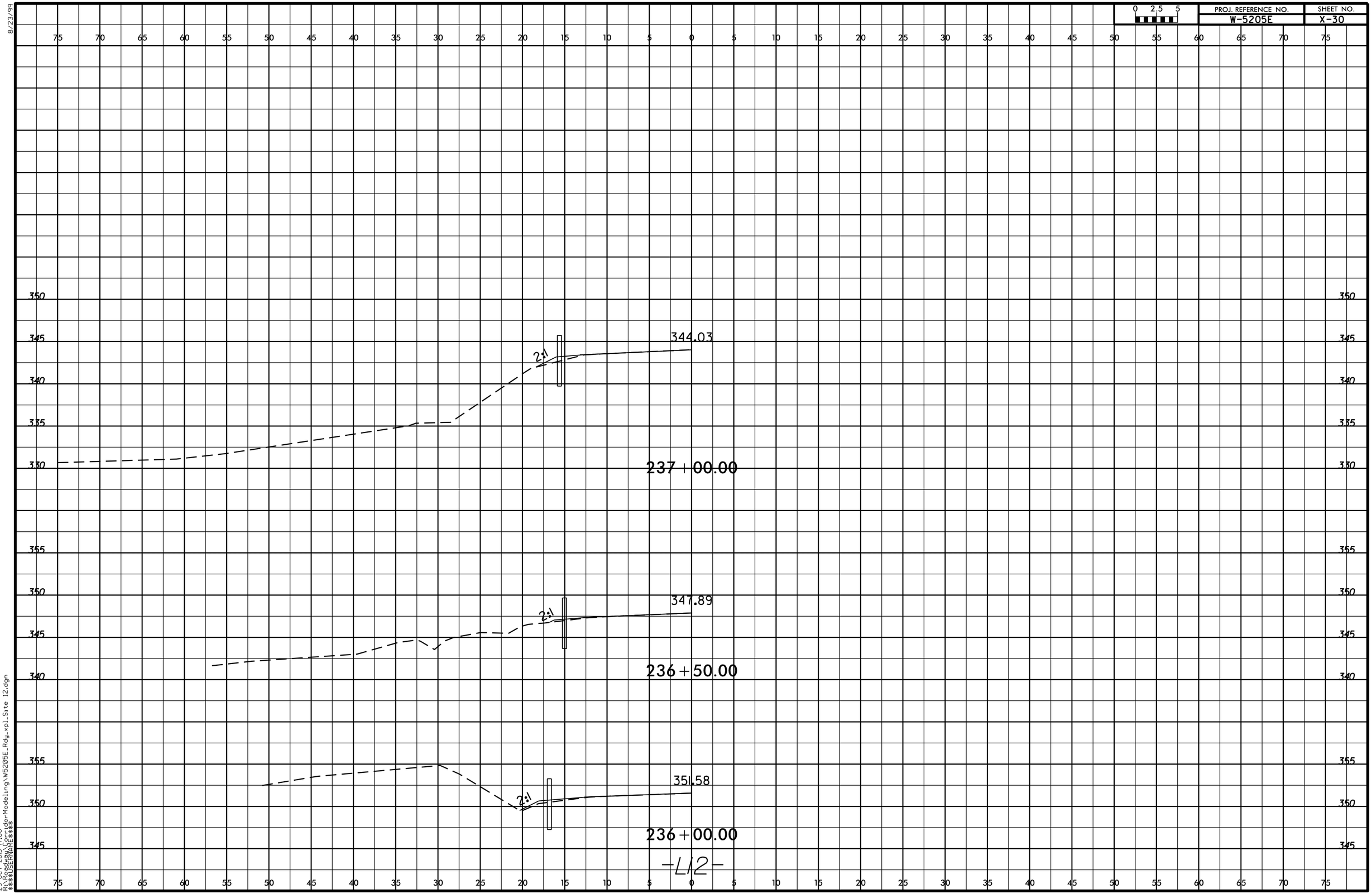
8/23/99

0 2.5 5

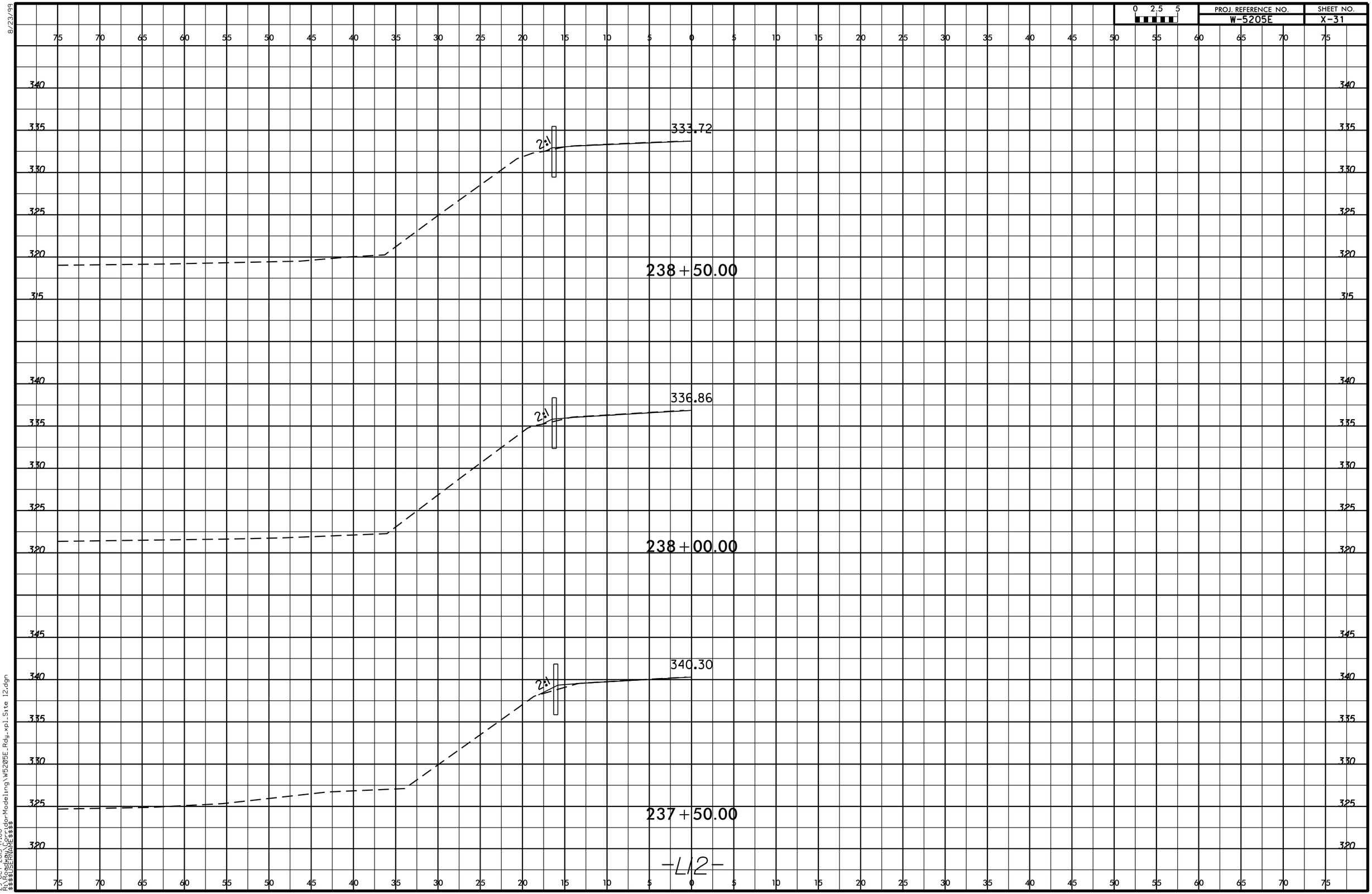
PROJ. REFERENCE NO.	SHEET NO.
W-5205E	X-29



23-OCT-2015 17:00
R:\Roadway\CorridorModeling\W5205E_Rdy_xpl_Site 11A.dgn
$$$$USERNAME$$$$



8/23/99
29-OCT-2015 17:00
R:\Roadway\Corridor-Modeling\W5205E_Rdy_xpl_Site 12.dgn
$$$$USERNAME$$$$



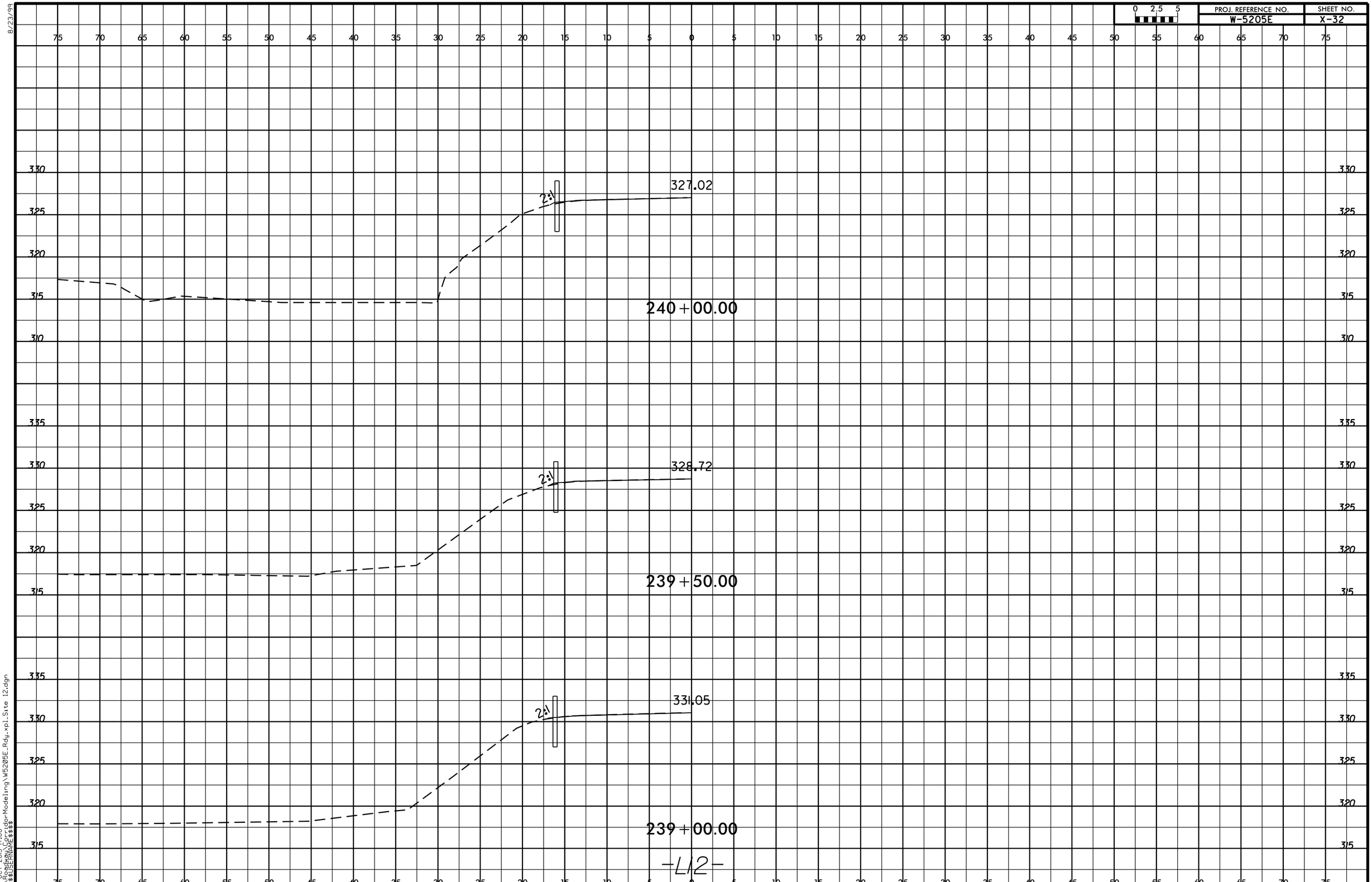
8/23/99

29-OCT-2015 17:00
R:\Roadway\Corridor Modeling\W5205E_Rdy_xpl_Site 12.dgn
$$$$USERNAME$$$$

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
W-5205E	X-32

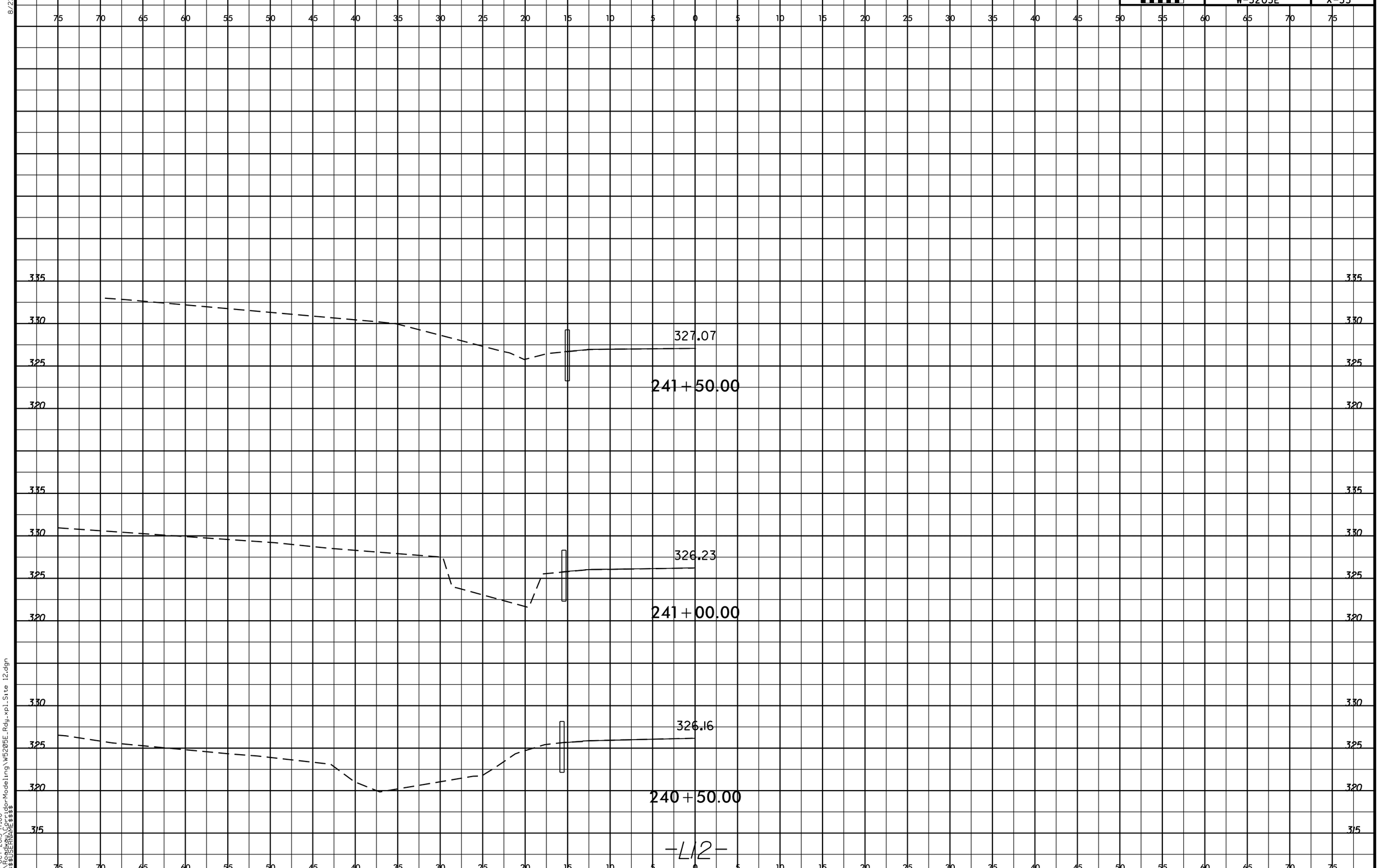
0 2.5 5



23-OCT-2015 17:00
R:\Roadway\CorridorModeling\W5205E_Rdy_xpl_Site 12.dgn
$$$$USERNAME$$$$

8/23/99

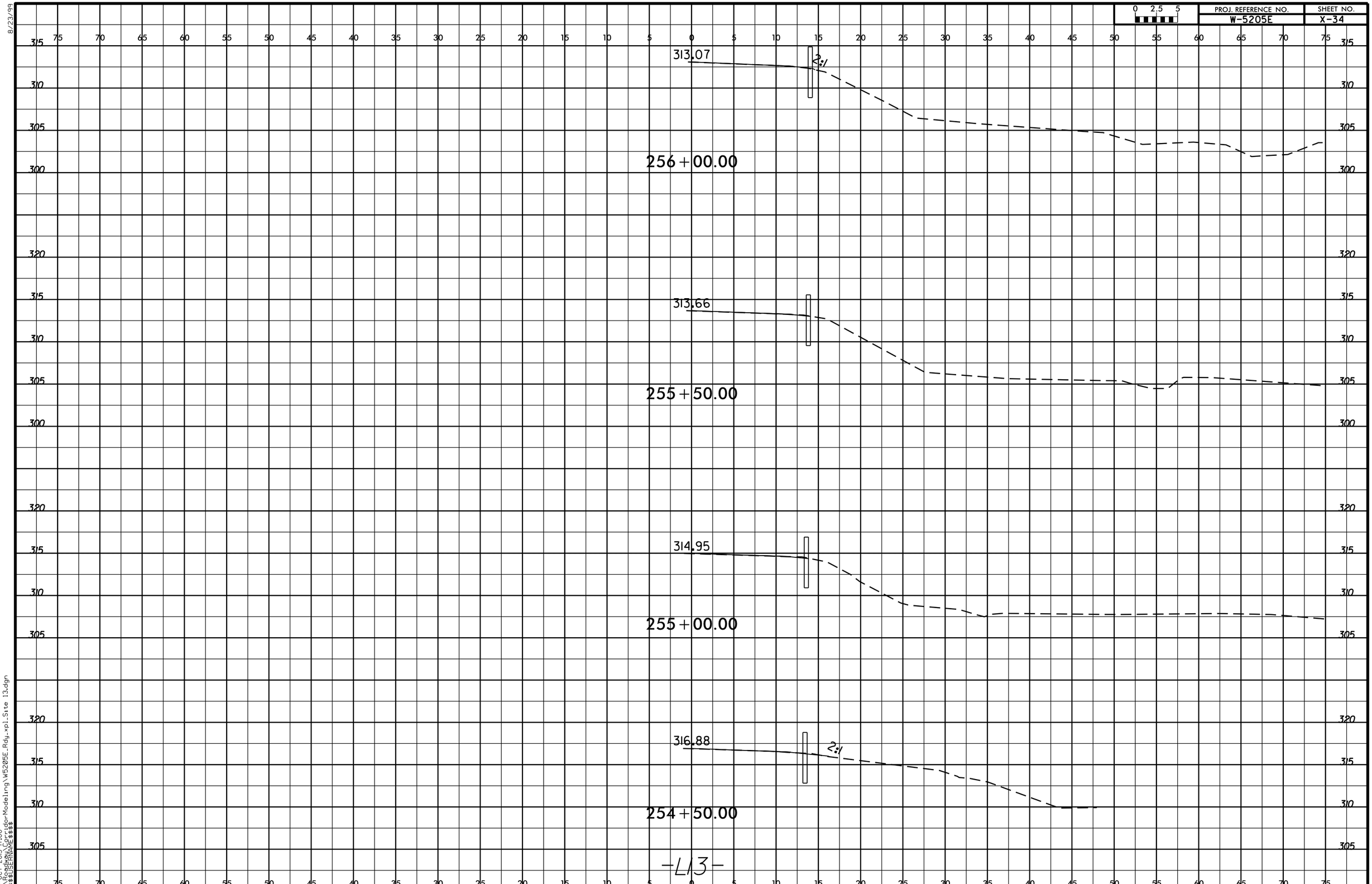
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5205E	X-33



29-OCT-2015 17:00
R:\Roadway\CorridorModeling\W5205E_Rdy.xpl.Site 12.dgn
$$$$USERNAME$$$$

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5205E	X-34



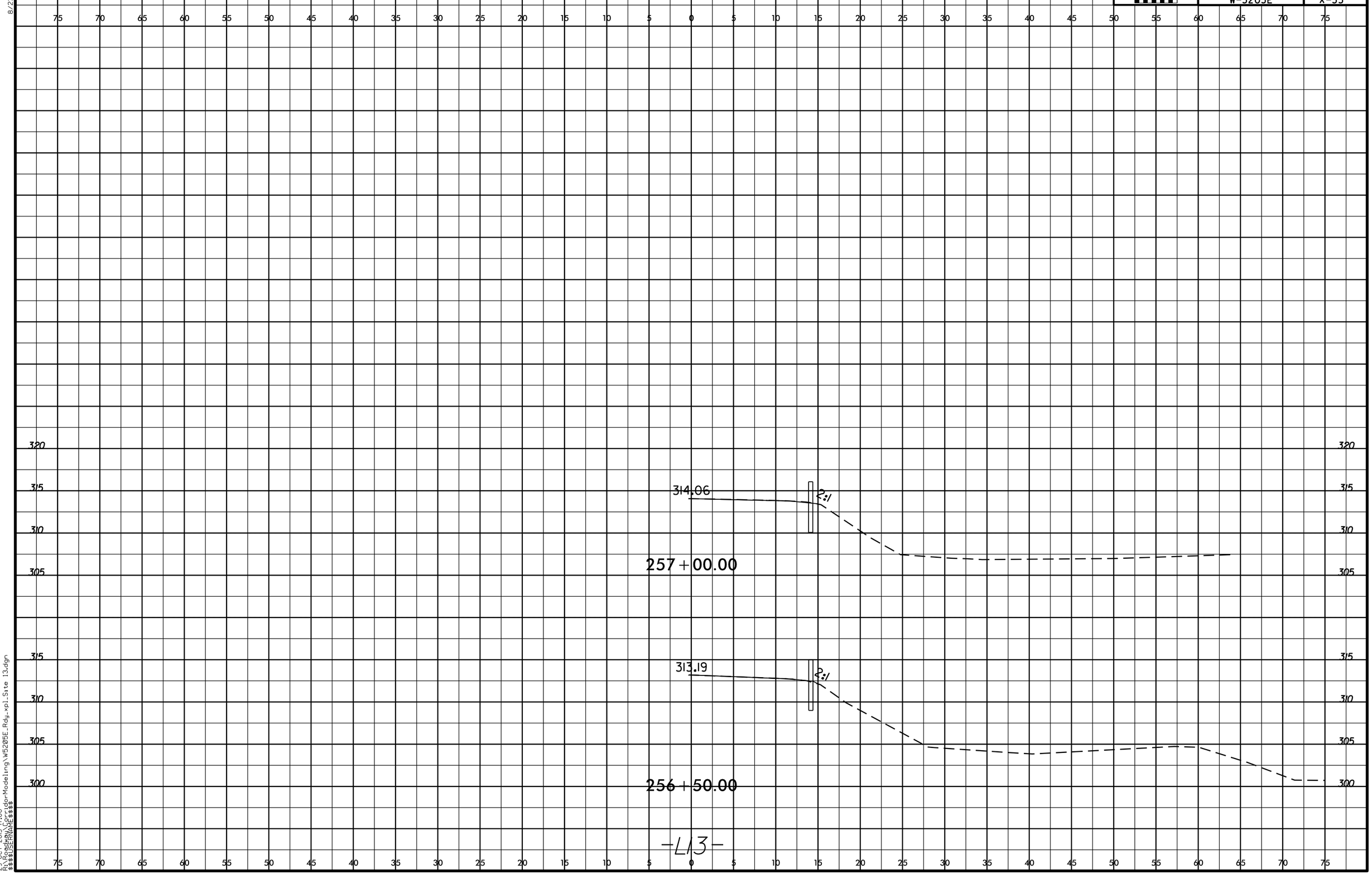
-L13-

29-OCT-2015 17:00
R:\Roadway\CorridorModeling\W5205E_Rdy_xpl_Site 13.dgn
$$$$USERNAME$$$$

8/23/99

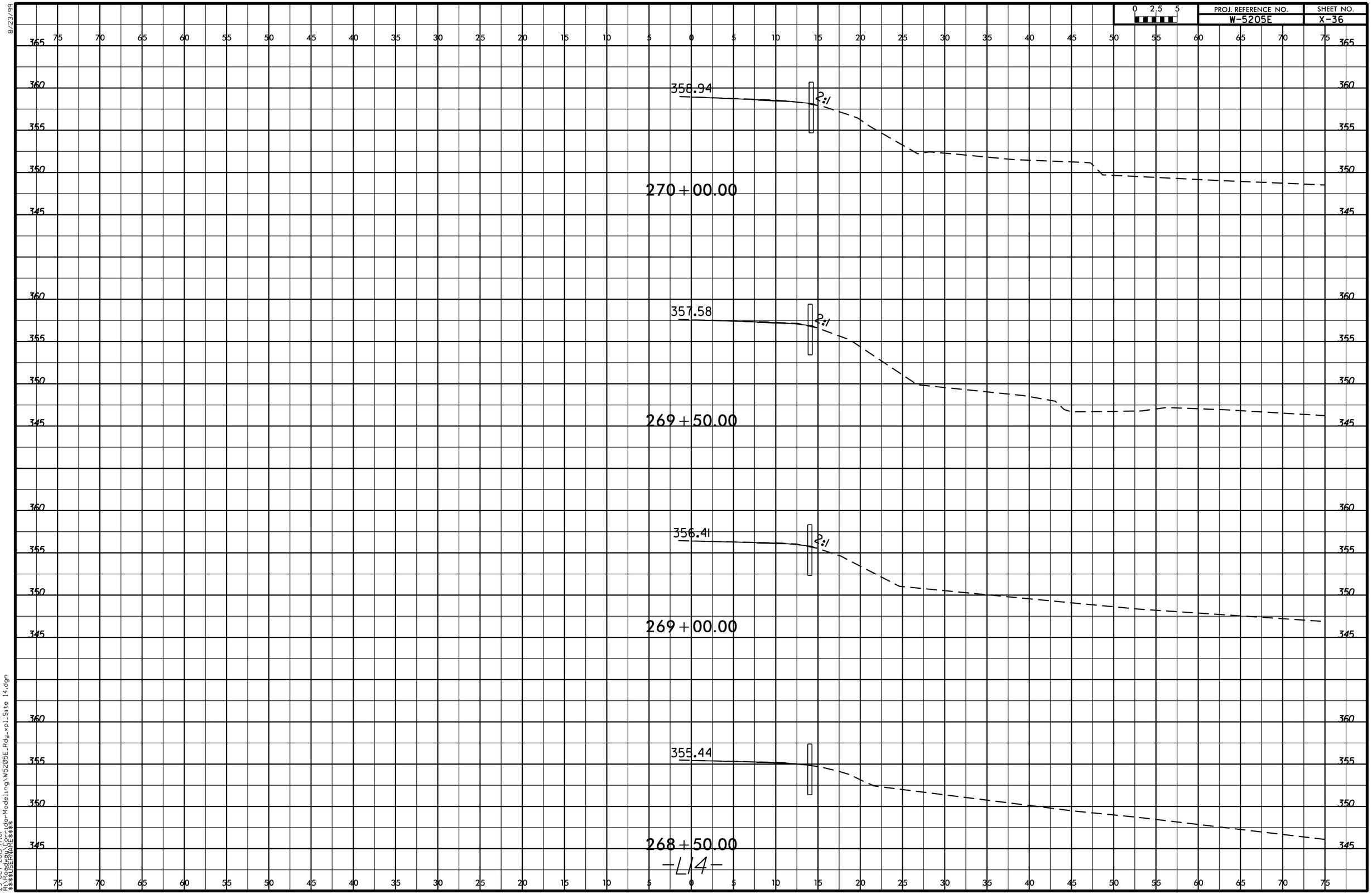
0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
W-5205E	X-35



-L13-

29-OCT-2015 17:00
R:\Roadway\CorridorModeling\W5205E_Rdy_xpl_Site 13.dgn
$$$$USERNAME$$$$

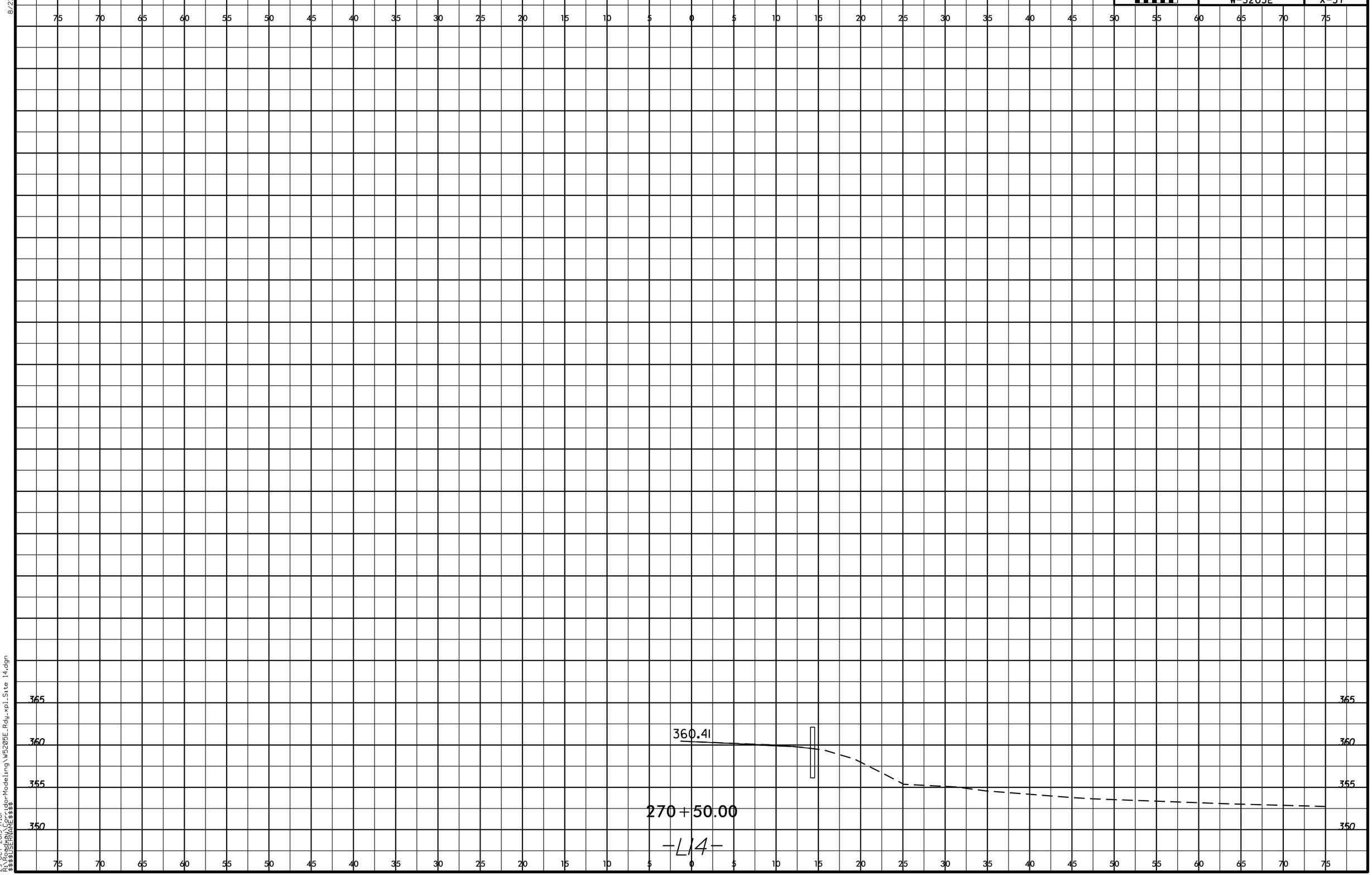


8/23/99
29-OCT-2015 17:01
R:\Roadway\CorridorModeling\W5205E_Rdy_xpl_Site 14.dgn
$$$$USERNAME$$$$

8/23/99

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
W-5205E	X-37



29-OCT-2015 17:01
R:\Roadway\CorridorModeling\W5205E_Rdy_xpl_Site 14.dgn
$$$$USERNAME$$$$