



**RPUG 2024**  
Road Profile Users' Group

April 29 - May 2



**ST. AUGUSTINE**  
FLORIDA

*New Technology For An Old World*

# USING PROVAL AS A QC TOOL IN PROFILE MILLING

JEFF MCGOWAN

MAR-ZANE MATERIALS – LAB

A DIVISION OF SHELLY & SANDS INC.

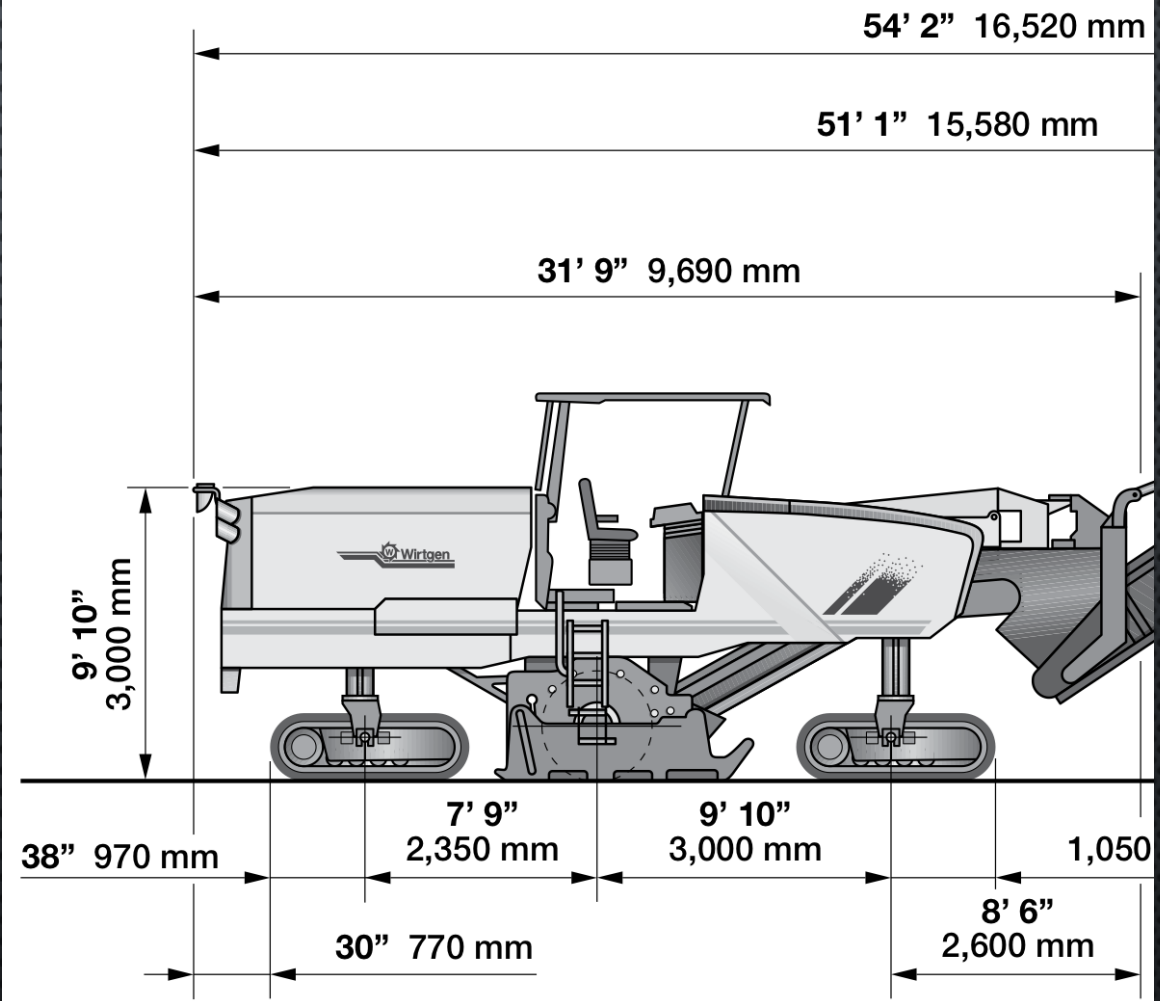


**RPUG**  
Road Profile Users' Group

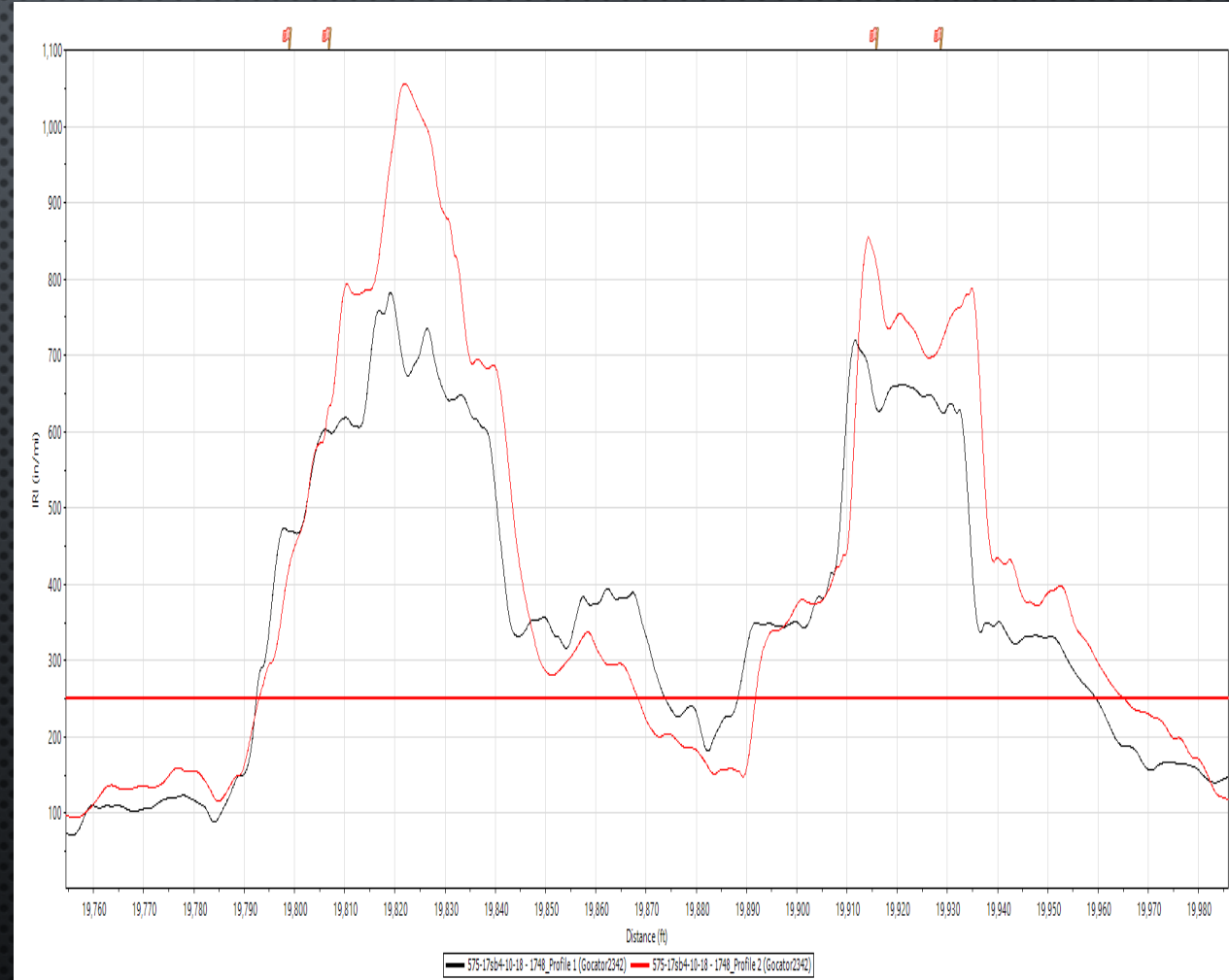
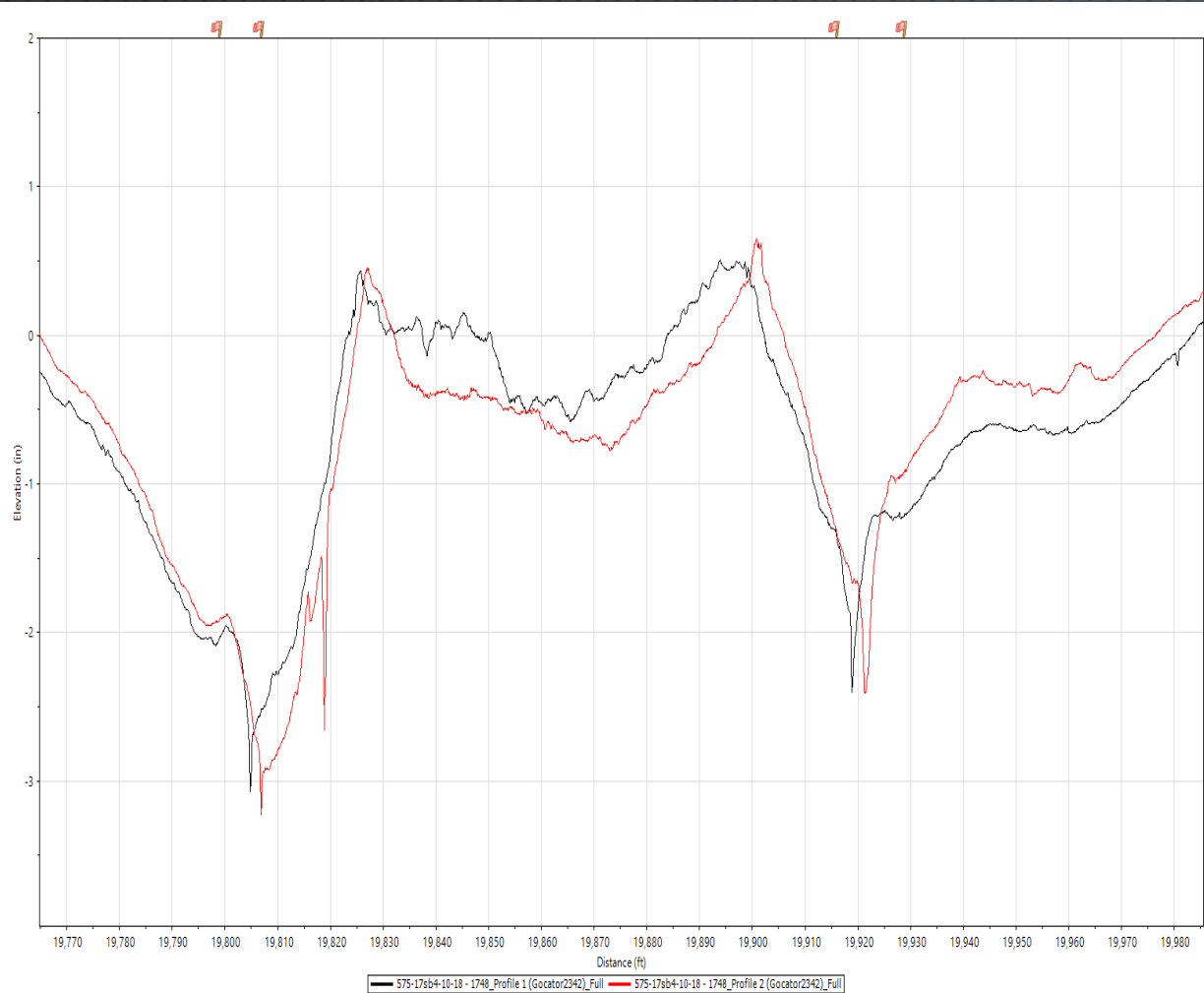
# EXISTING PAVEMENT APPLICATIONS FOR PROVAL

- IDENTIFY ROUGH BRIDGE TRANSITIONS
- ISOLATE AREAS OF UNUSUAL GEOMETRY
- ADDRESS INTERMEDIATE ROUGHNESS ON MULTI-YEAR WORK

Dimensions in American standard and mm



# ROUGH BRIDGE TRANSITIONS

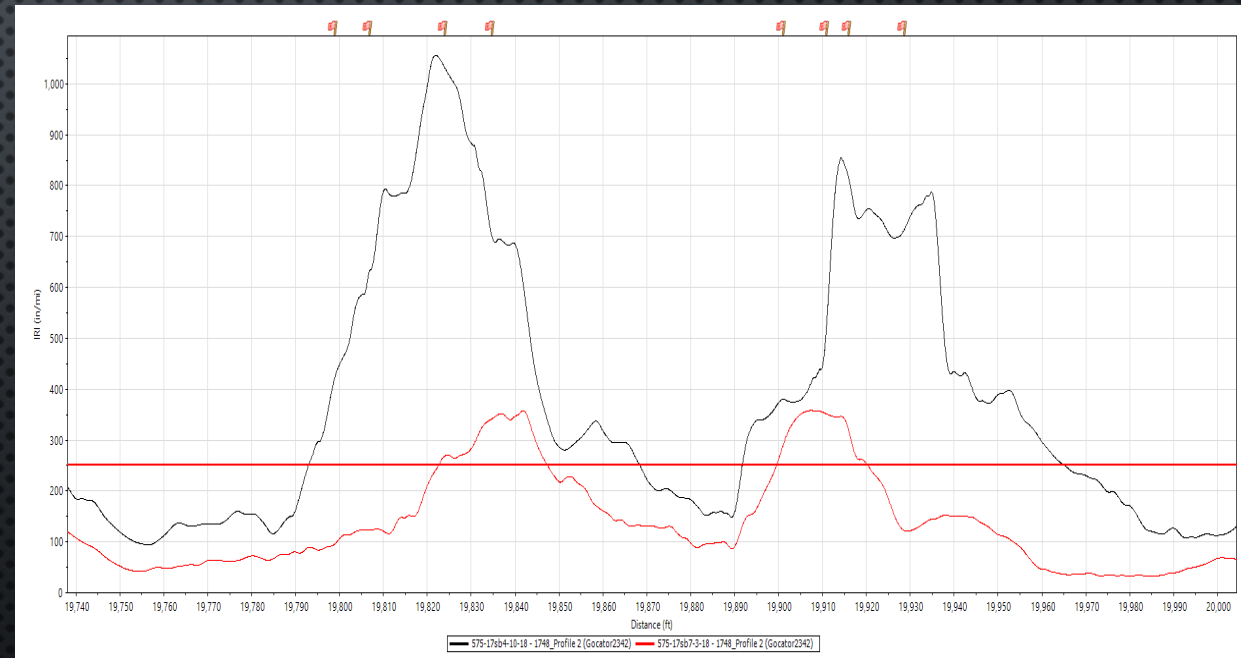


# PULL DECK ELEVATIONS FOR STRATEGIC VARIABLE DEPTH MILL TO MATCH THE DECK ELEVATION

## LWP LAR RESPONSE AFTER APPROACH OVERLAY

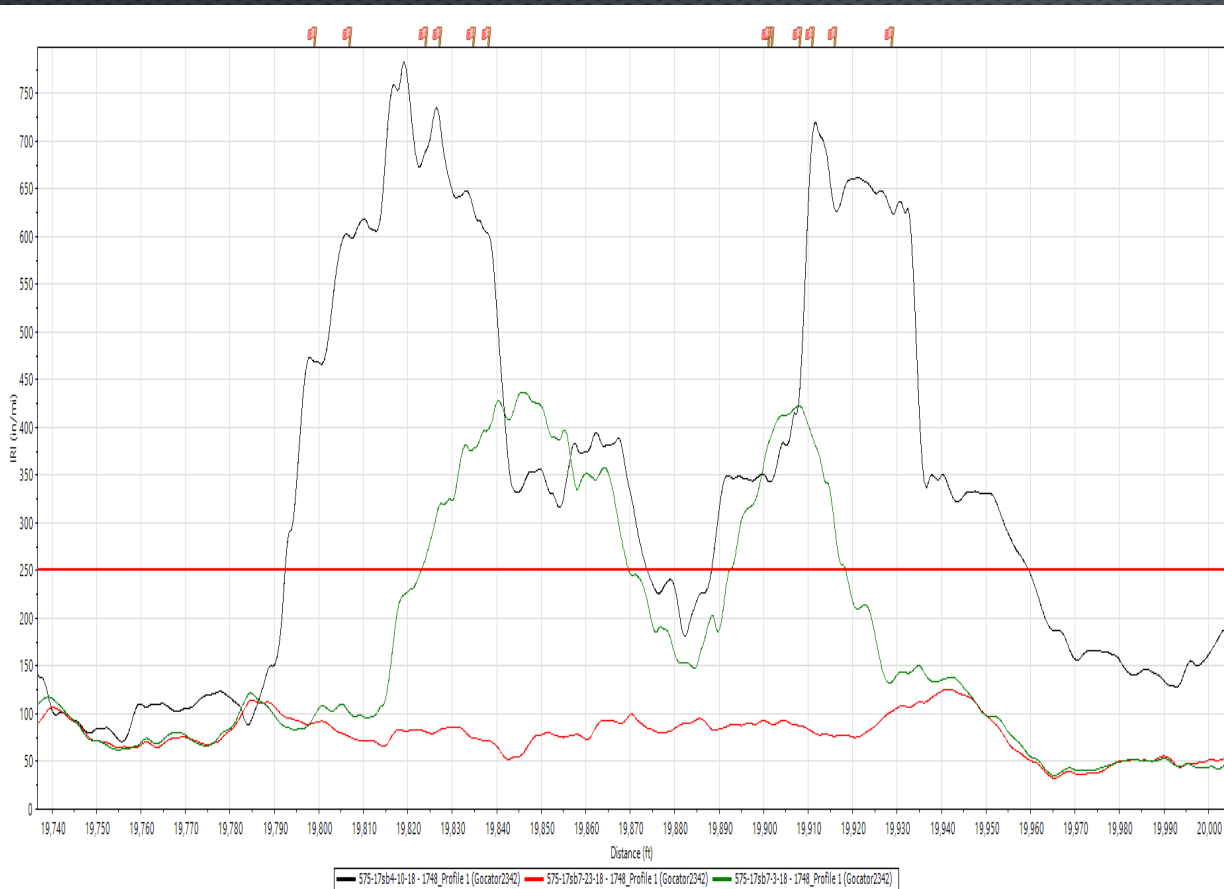


## RWP LAR RESPONSE AFTER APPROACH OVERLAY

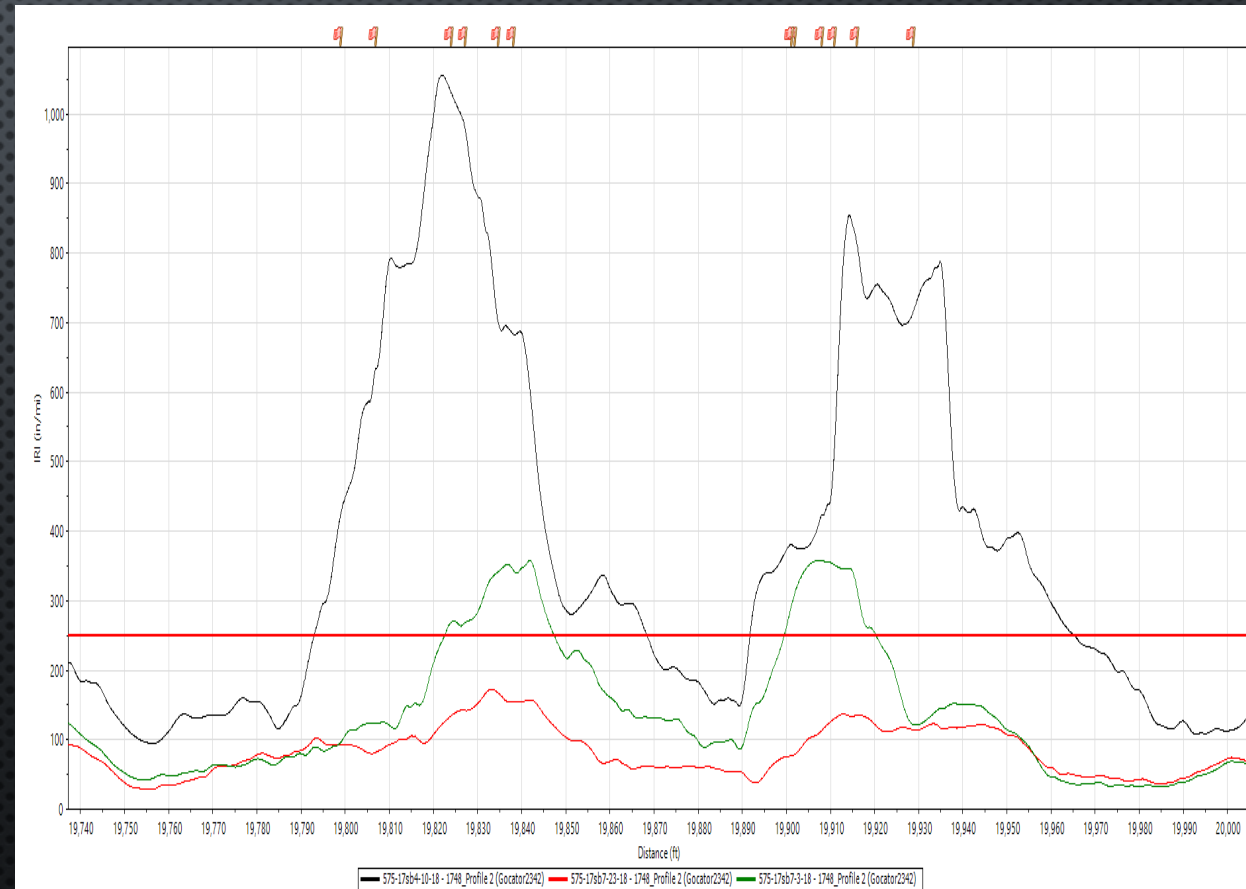


# RESULTS AFTER A BLANKET GRIND

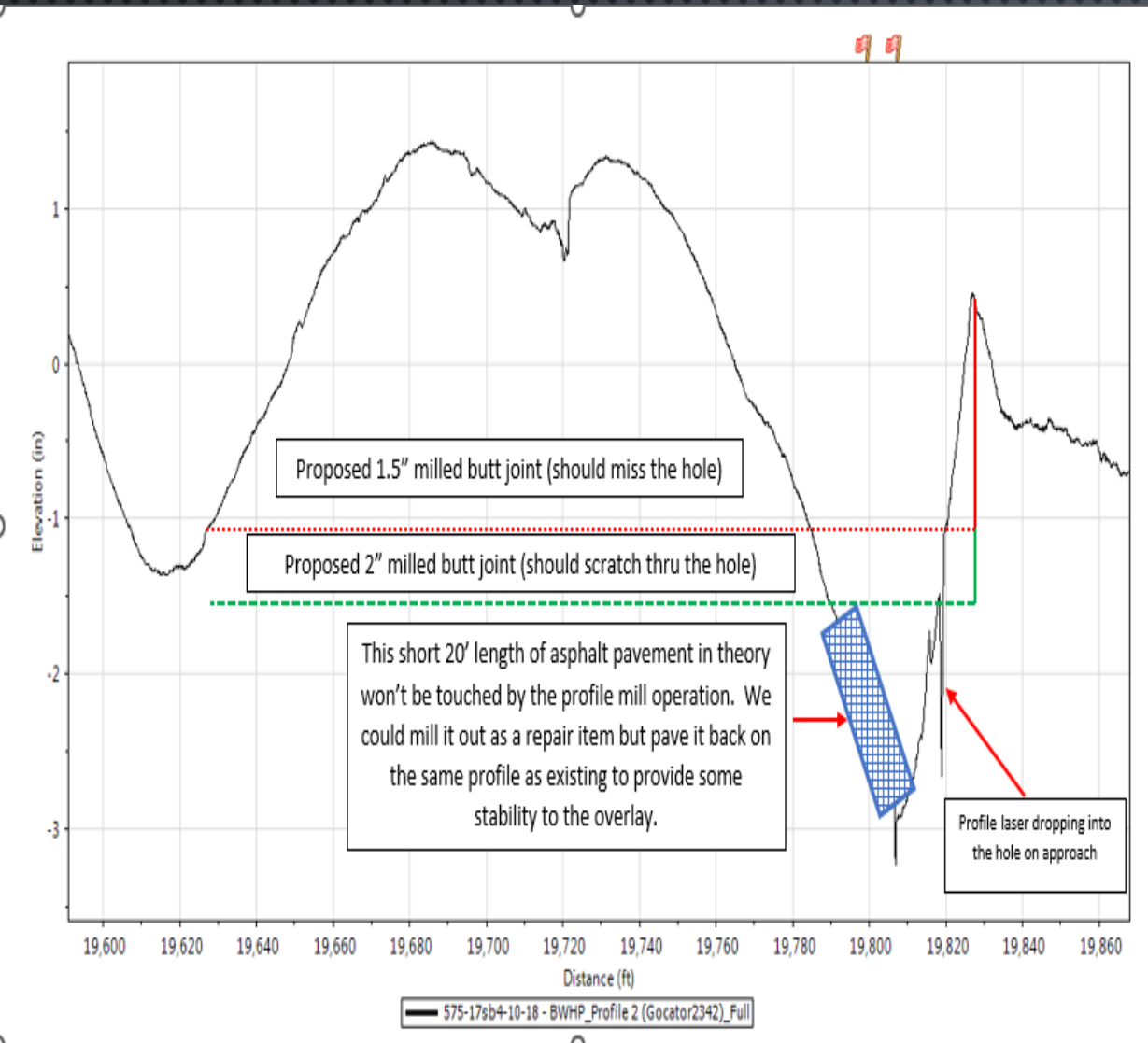
LWP Existing / **Overlay** / **Post-grind**



RWP Existing / **Overlay** / **Post-grind**



# INFORMATION SENT OUT TO THE PROJECT



Into PIK-23-1604 (SBDL) Over Moore's Run		Off PIK-23-1604 (SBDL) Over Moore's Run	
MEASURE BACK FROM LWP		MEASURE FORWARD FROM RWP	
Cut (c) or Fill (f) inches	Ft. from Tie-in	Cut (c) or Fill (f) inches	Ft. from Tie-in
c - 1.5" Multiplex to 2.2"	-85' to -50'	c - 1.5" REVEAL	I/F (RWP Approach)
c - 2.2"	-50'	c - 2.2"	10'
c - 2.1"	-40'	c - 2.7"	20'
c - 2.2"	-30'	c - 2.7"	30'
c - 2"	-20'	c - 2.7"	40'
c - 1.9"	-10'	c - 2.7"	50'
c - 1.5" REVEAL	I/F (LWP Approach)	c - 2.7" to 1.5" Multiplex	50' to 110'

# BENEFITS OF FIXING BRIDGE TRANSITIONS

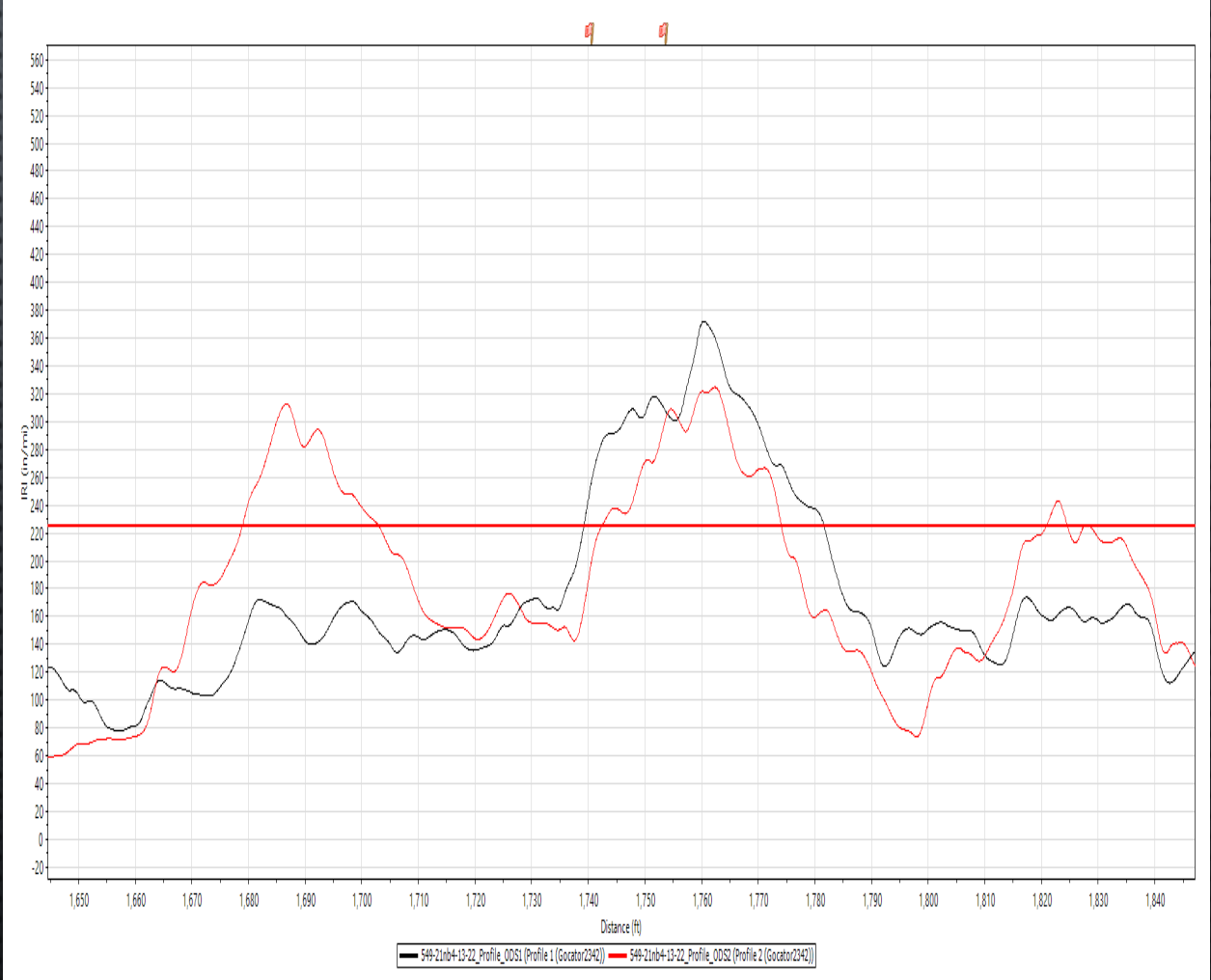
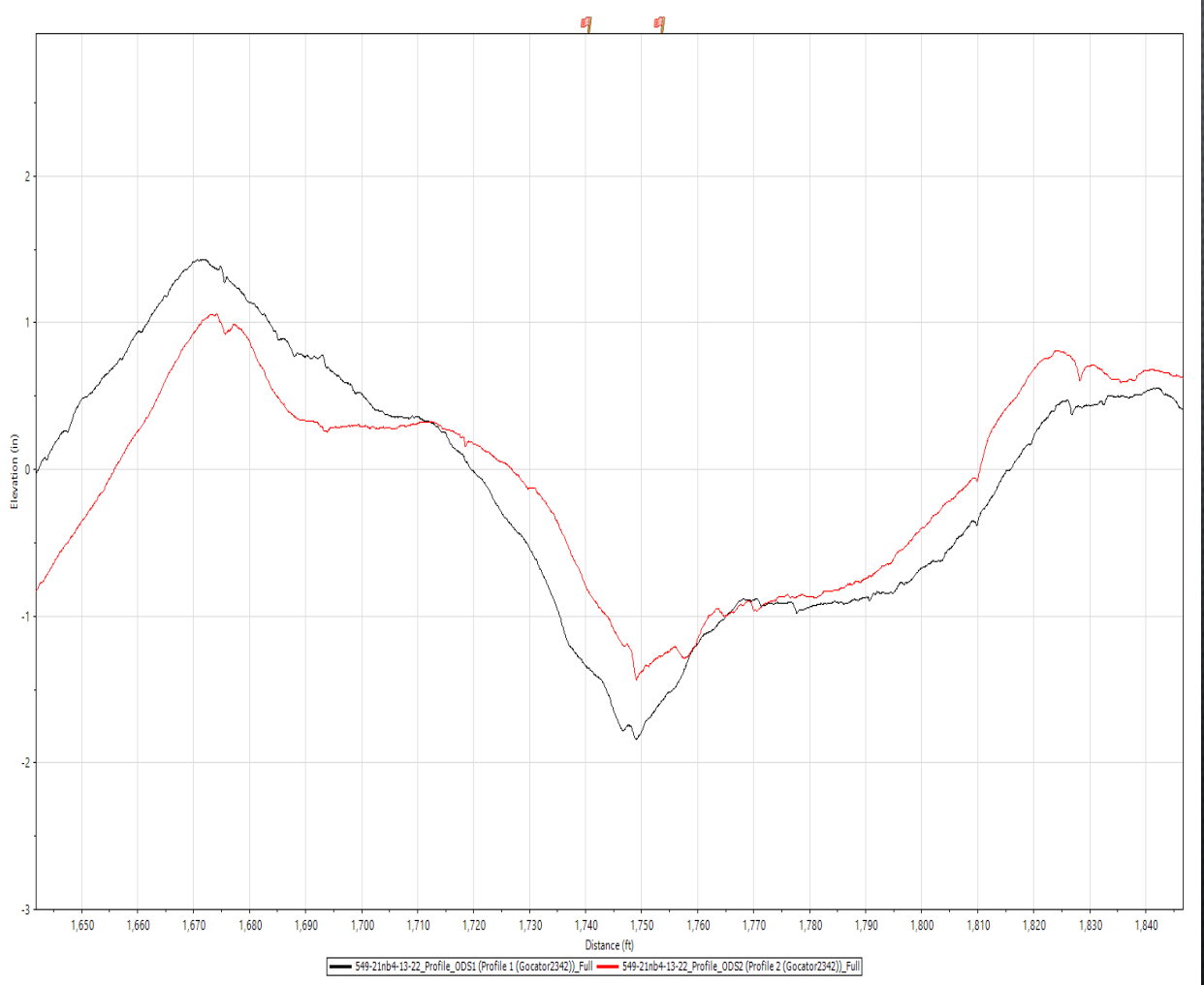
- IMMEDIATE END-USER SATISFACTION
- EXTEND LIFE SPAN OF THE STRUCTURE
- DECREASED MAINTENANCE COSTS (PAVEMENT & VEHICLES)

HOW MUCH MORE CAN THIS BRIDGE TAKE?

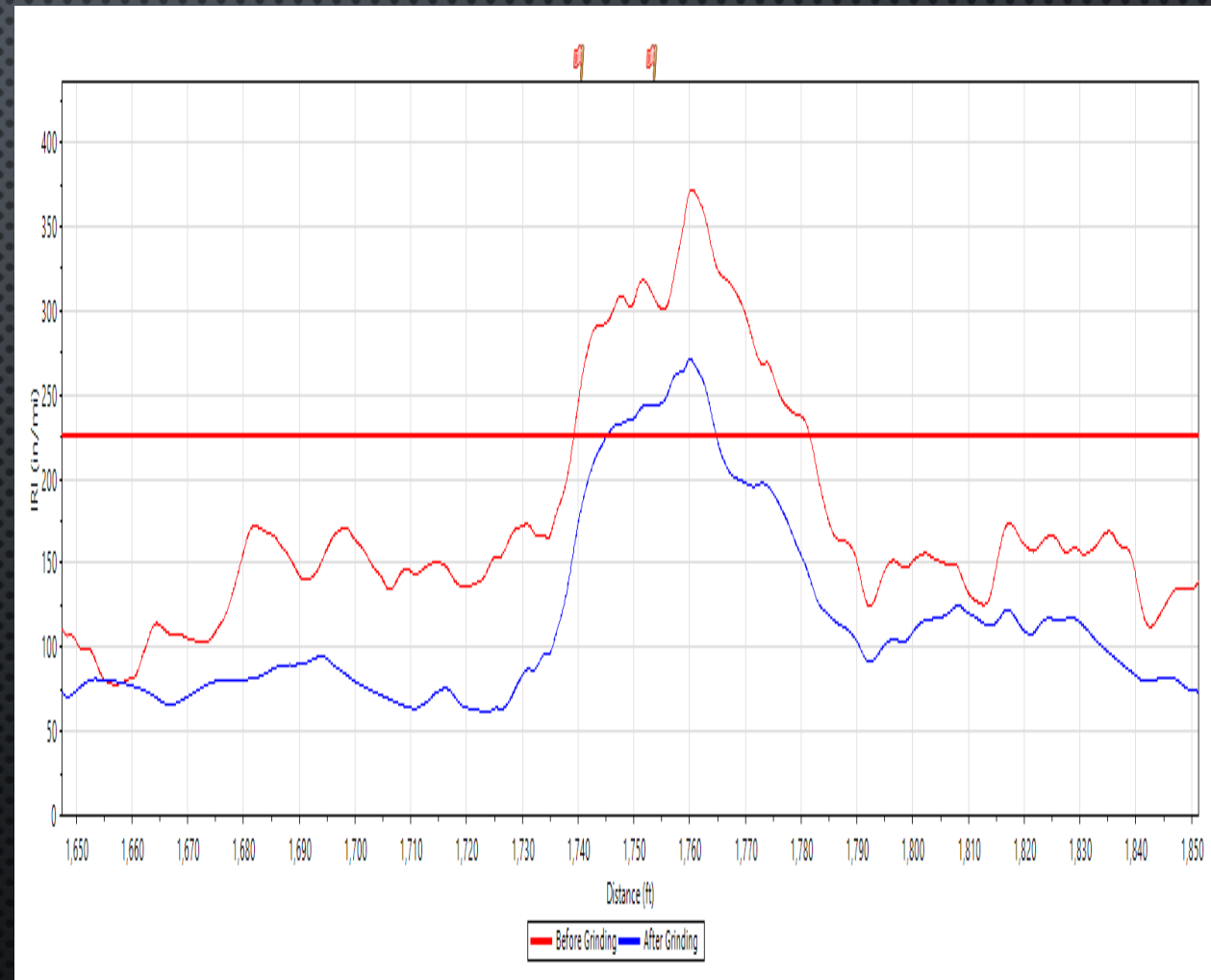




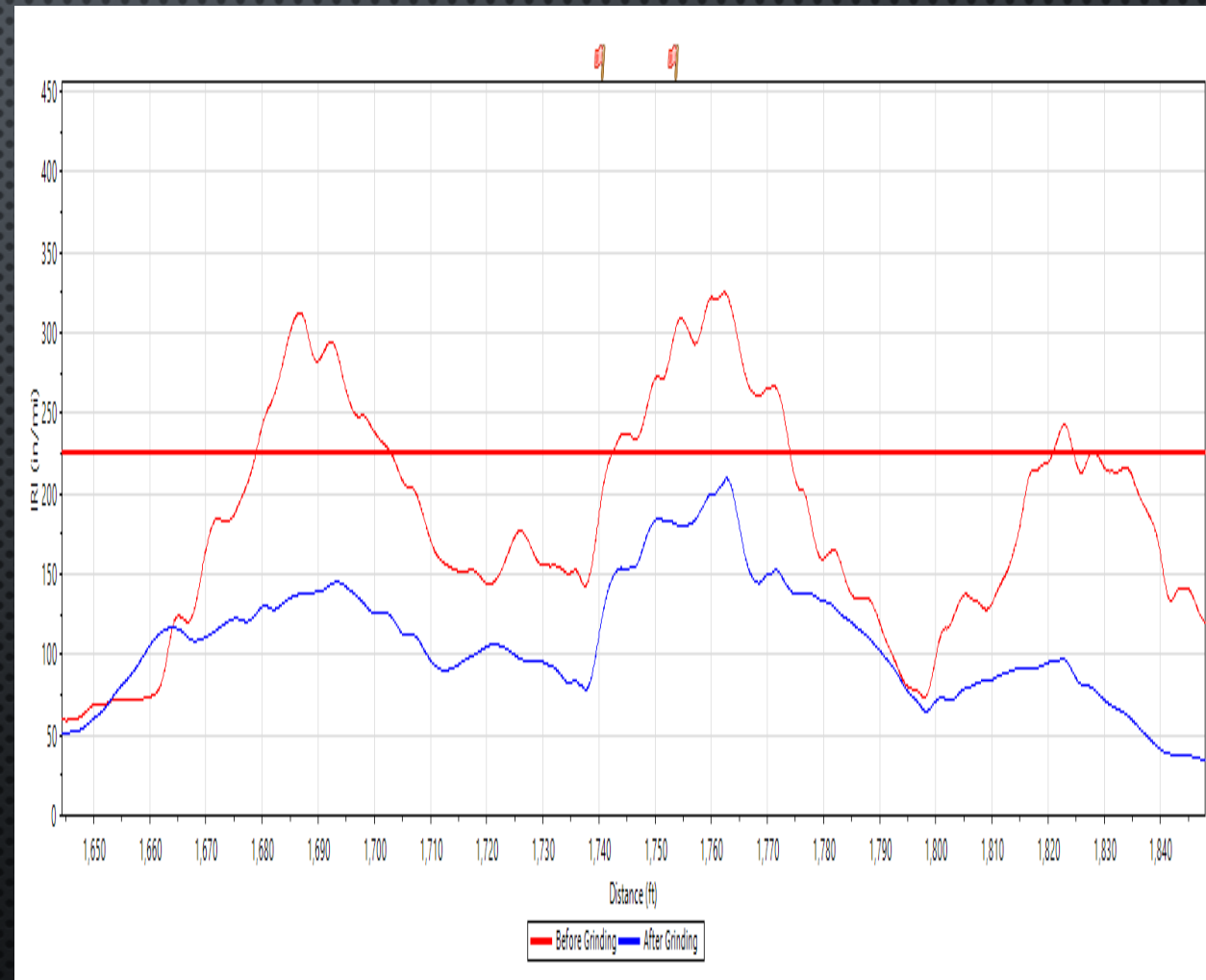
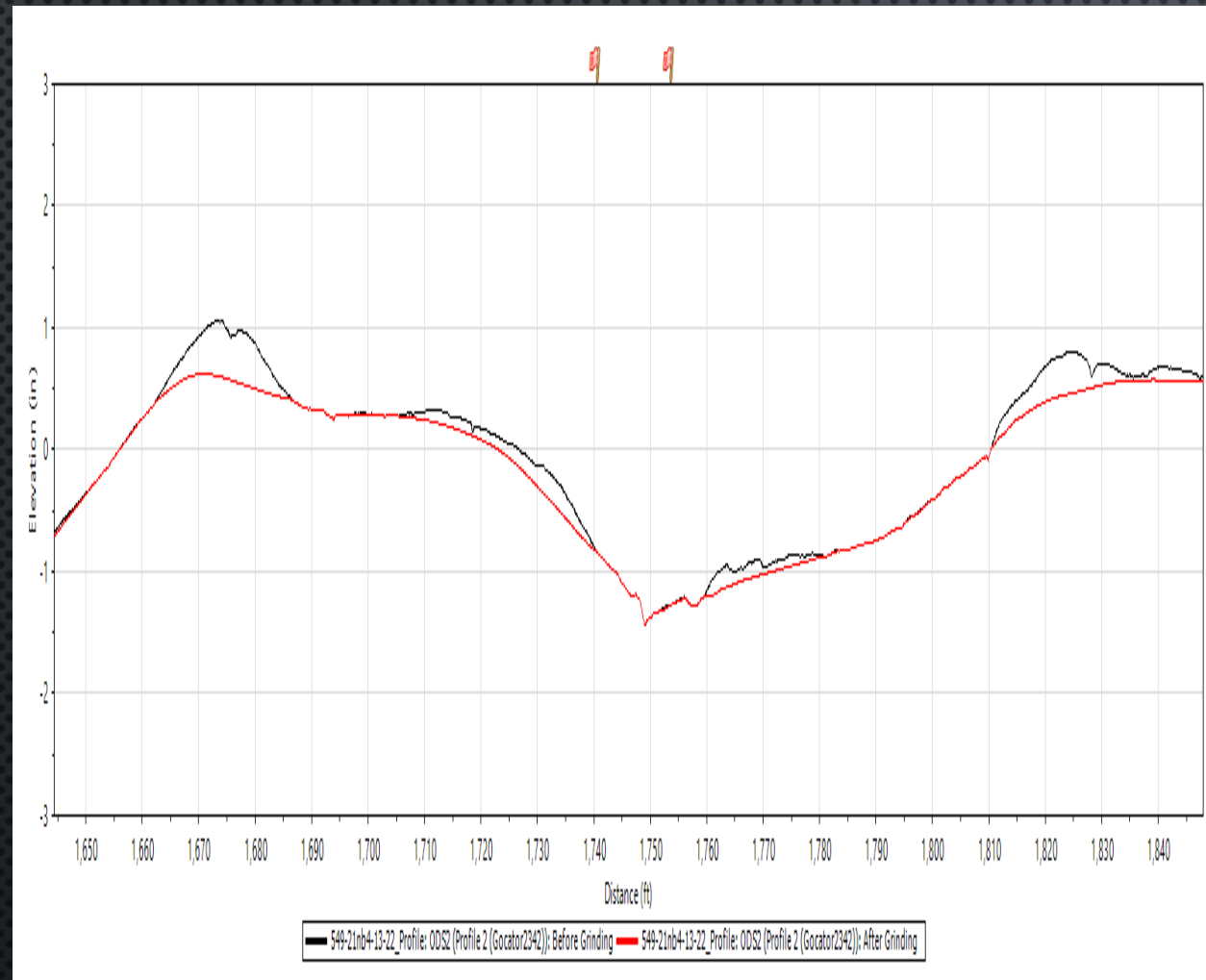
# UNUSUAL GEOMETRY (INVERTED COUNTY LINE)



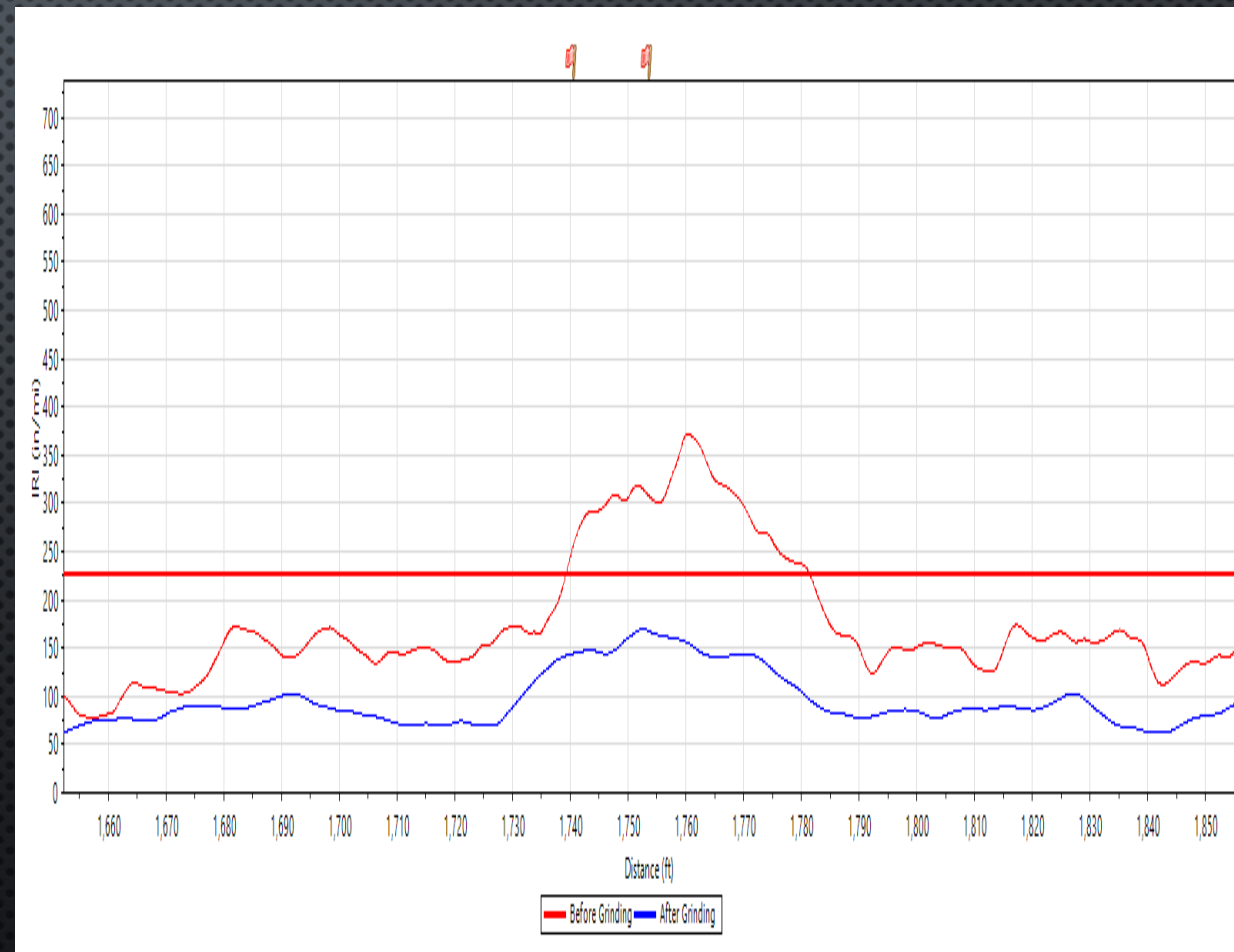
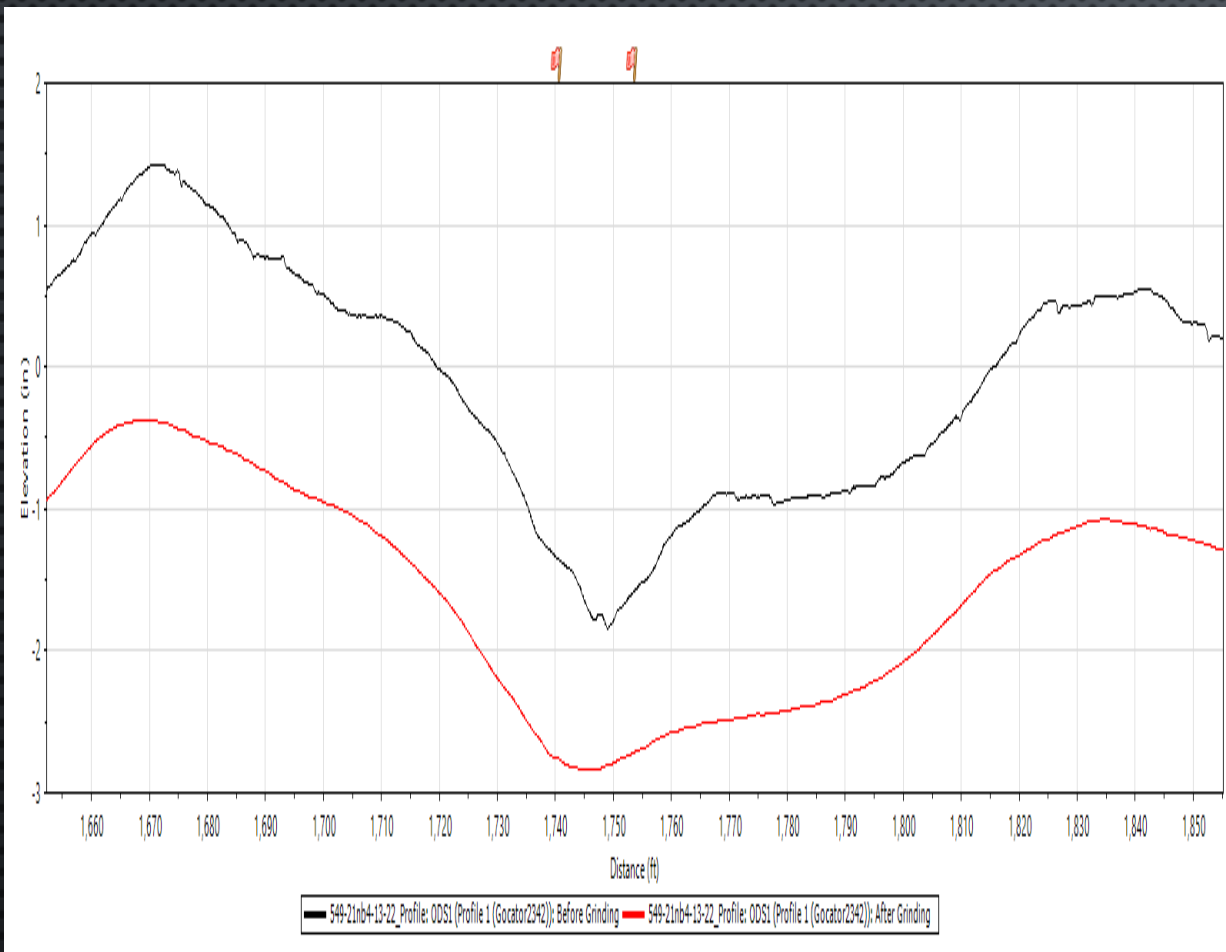
# LWP GRIND SIMULATION



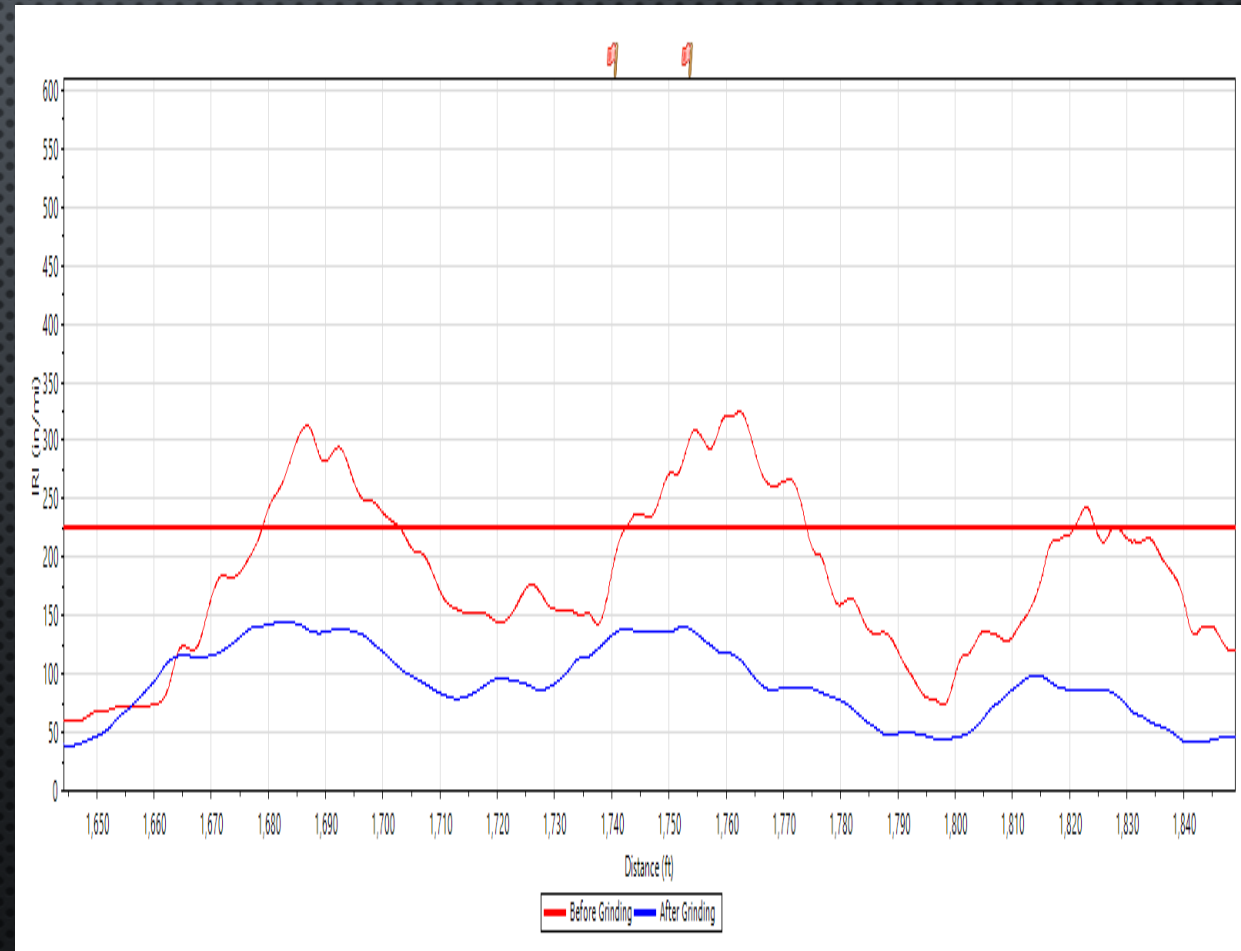
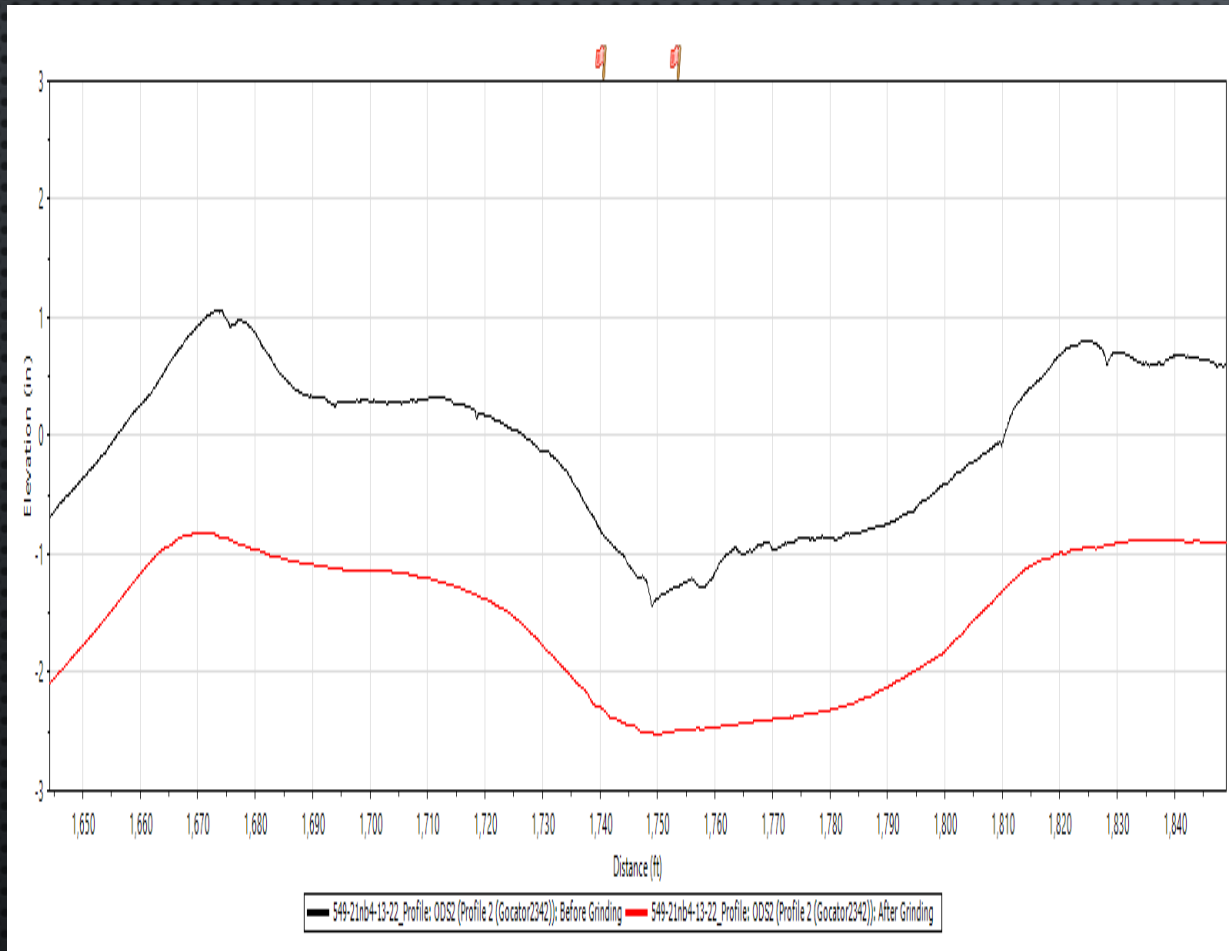
# RWP GRIND SIMULATION



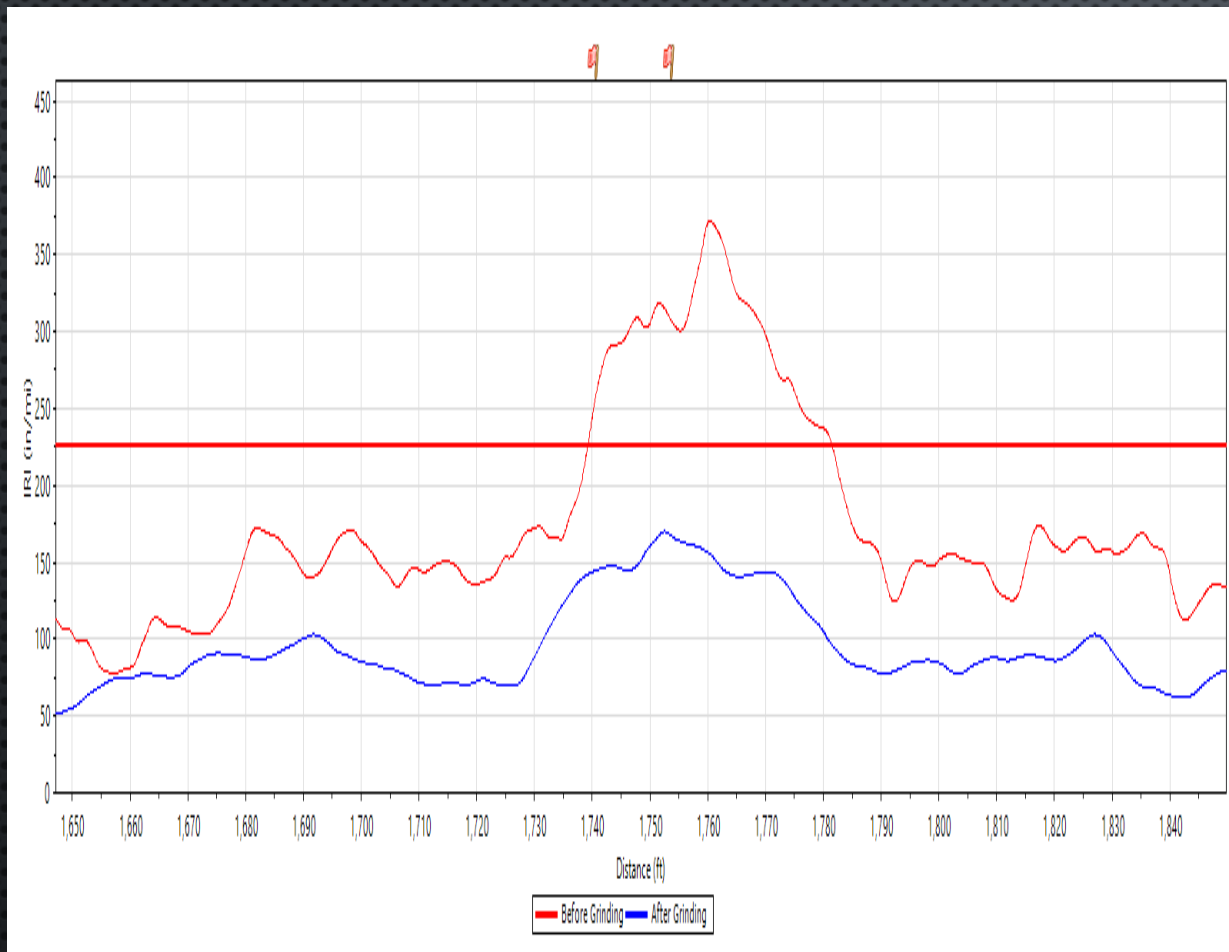
# LWP MILL SIMULATION (-1.5")



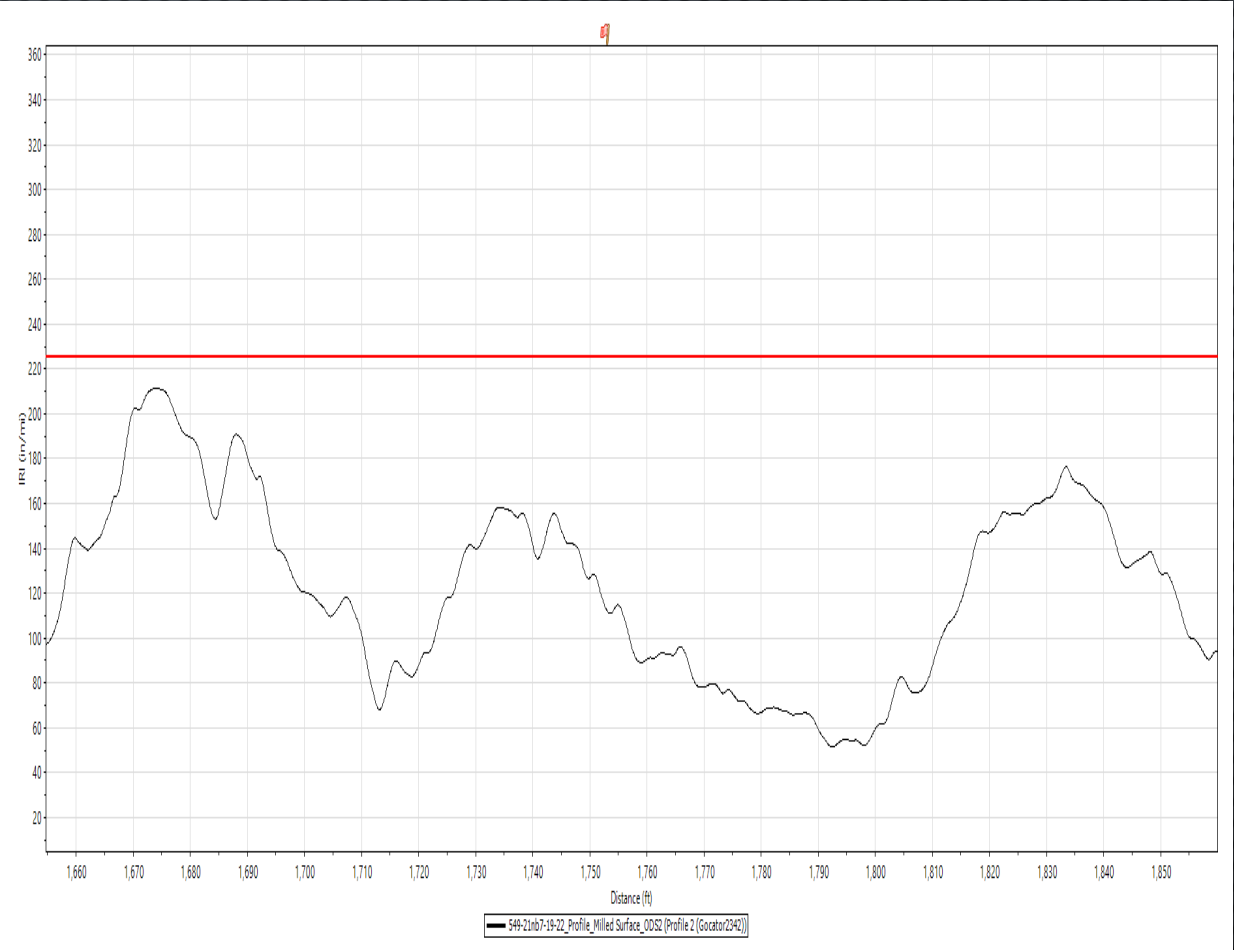
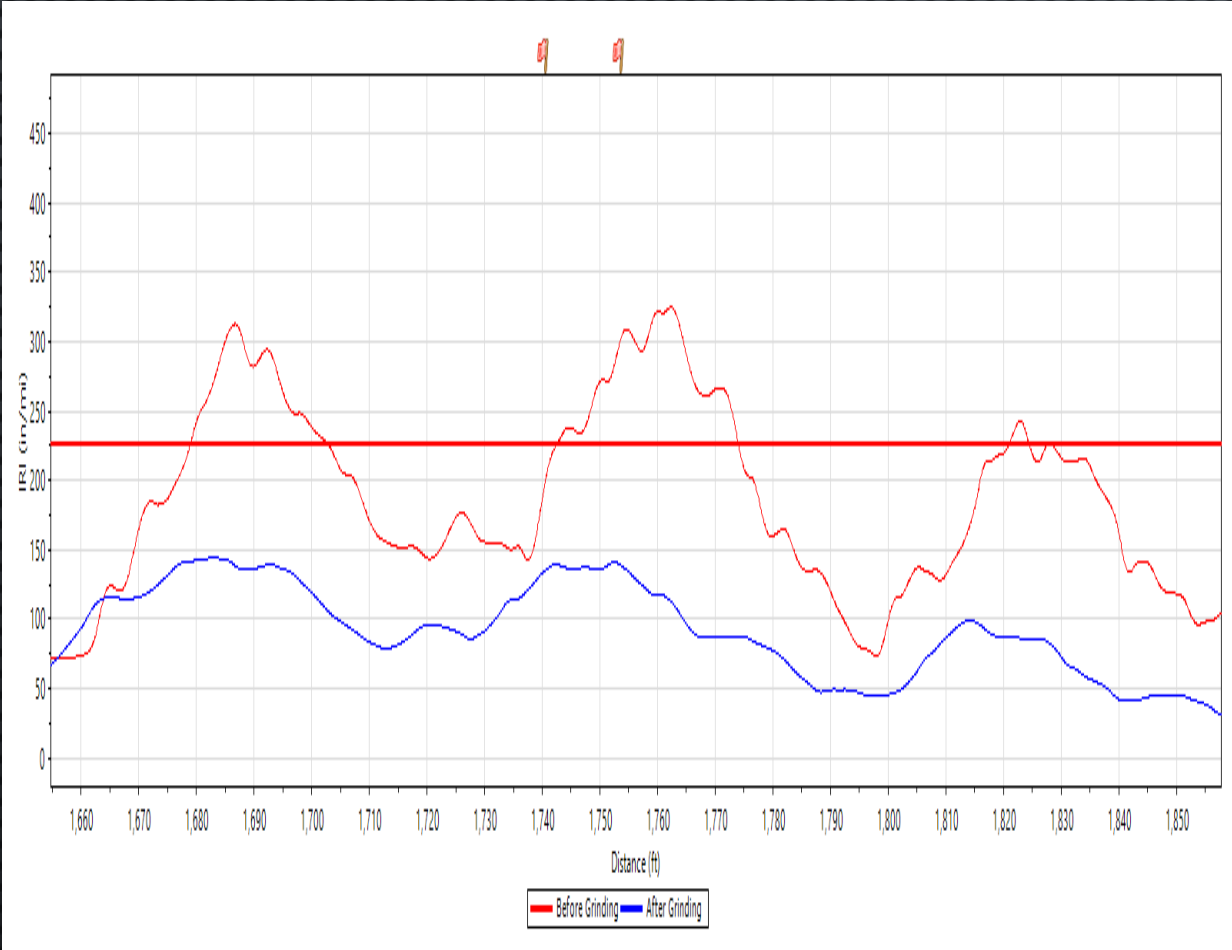
# RWP MILL SIMULATION (-1.5")



# LWP MILL SIMULATION VS. ACTUAL MILLED SURFACE

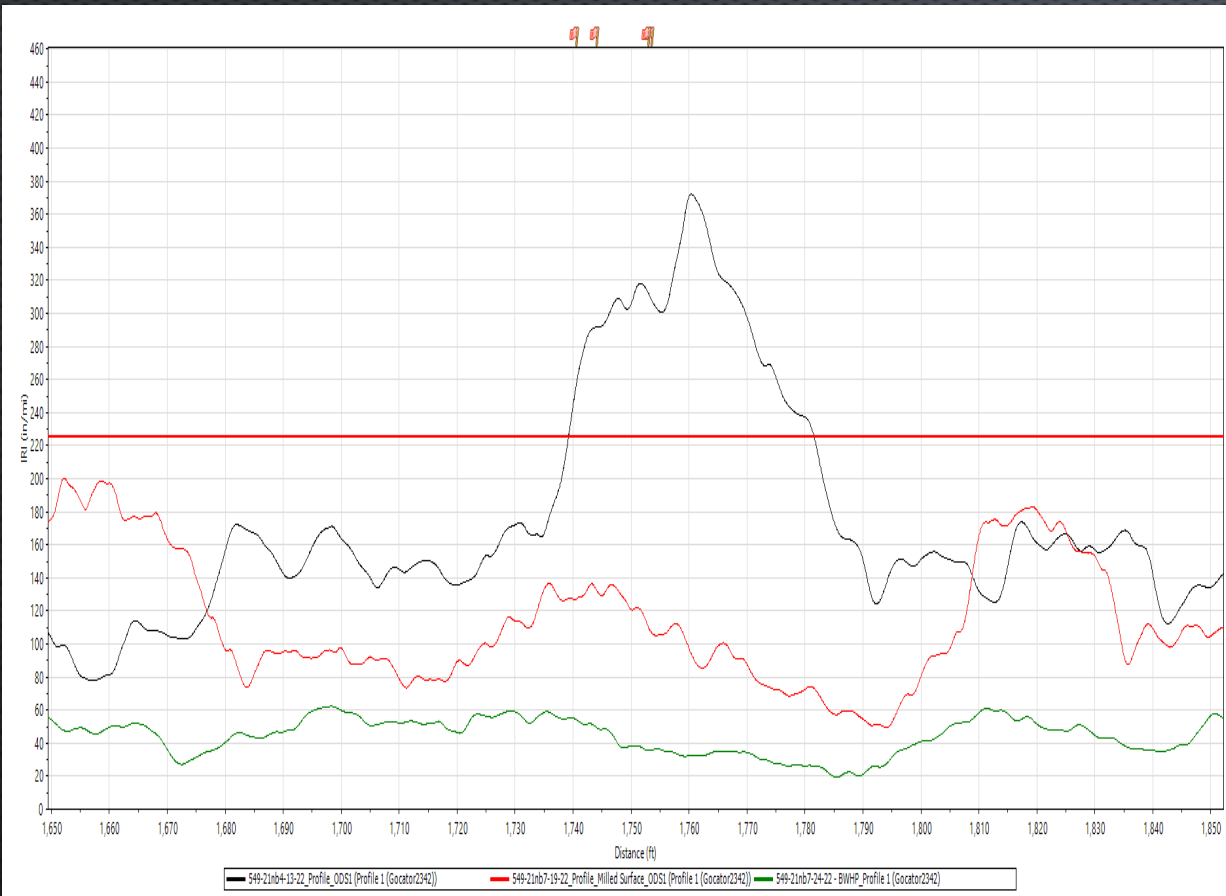


# RWP MILL SIMULATION VS. ACTUAL MILLED SURFACE

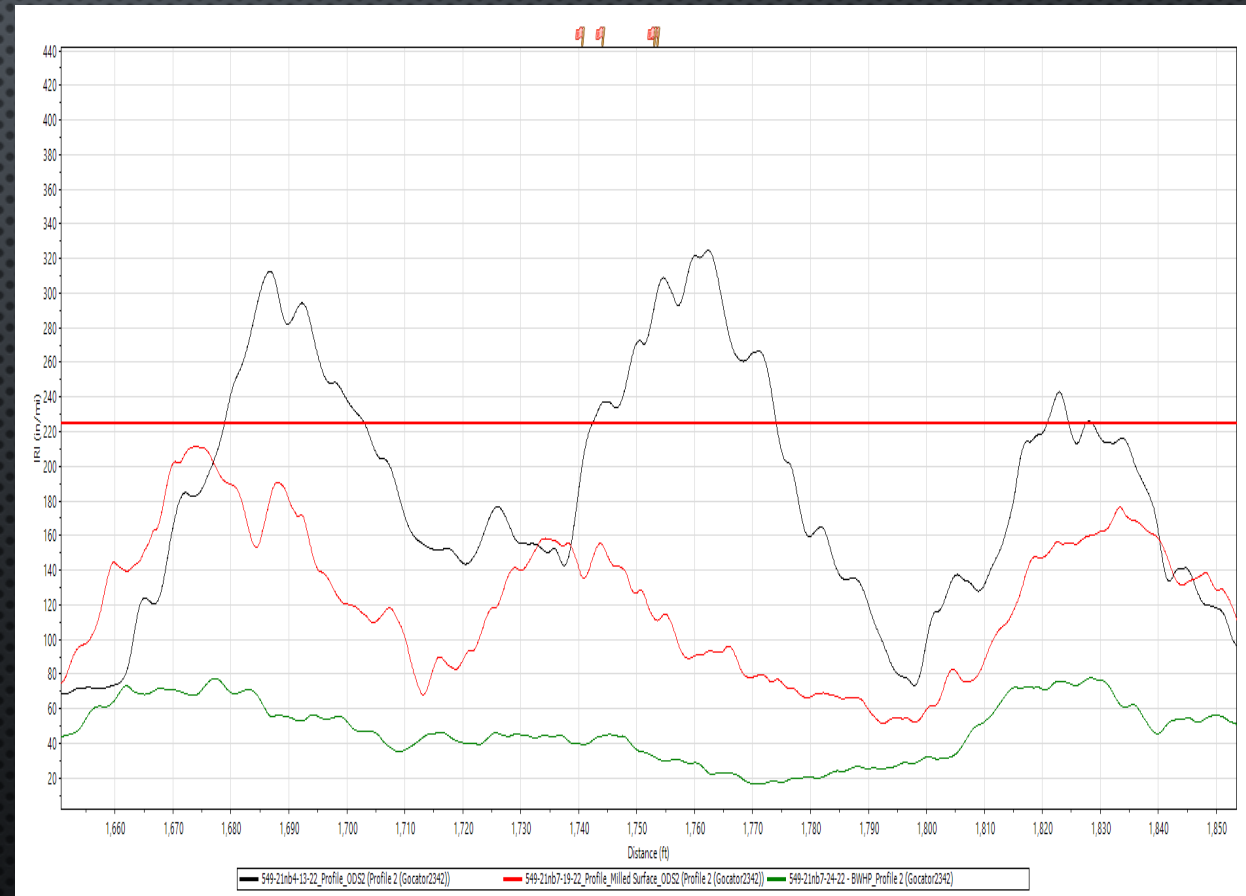


# RESULTS AFTER ALL 3 PHASES

LWP Existing / Profile Milled / Surface Course



RWP Existing / Profile Milled / Surface Course







SB Existing Pavement IRI

MRI

LWP

RWP

**Mainline I/D Average:**

**92.3**

**71.2**

**113.5**

SB Surface Course IRI

MRI

LWP

RWP

**Mainline I/D Average:**

**39.3**

**39.0**

**39.6**

NB Existing Pavement IRI

MRI

LWP

RWP

**Mainline I/D Average:**

**101.5**

**67.6**

**135.4**

NB Surface Course IRI

MRI

LWP

RWP

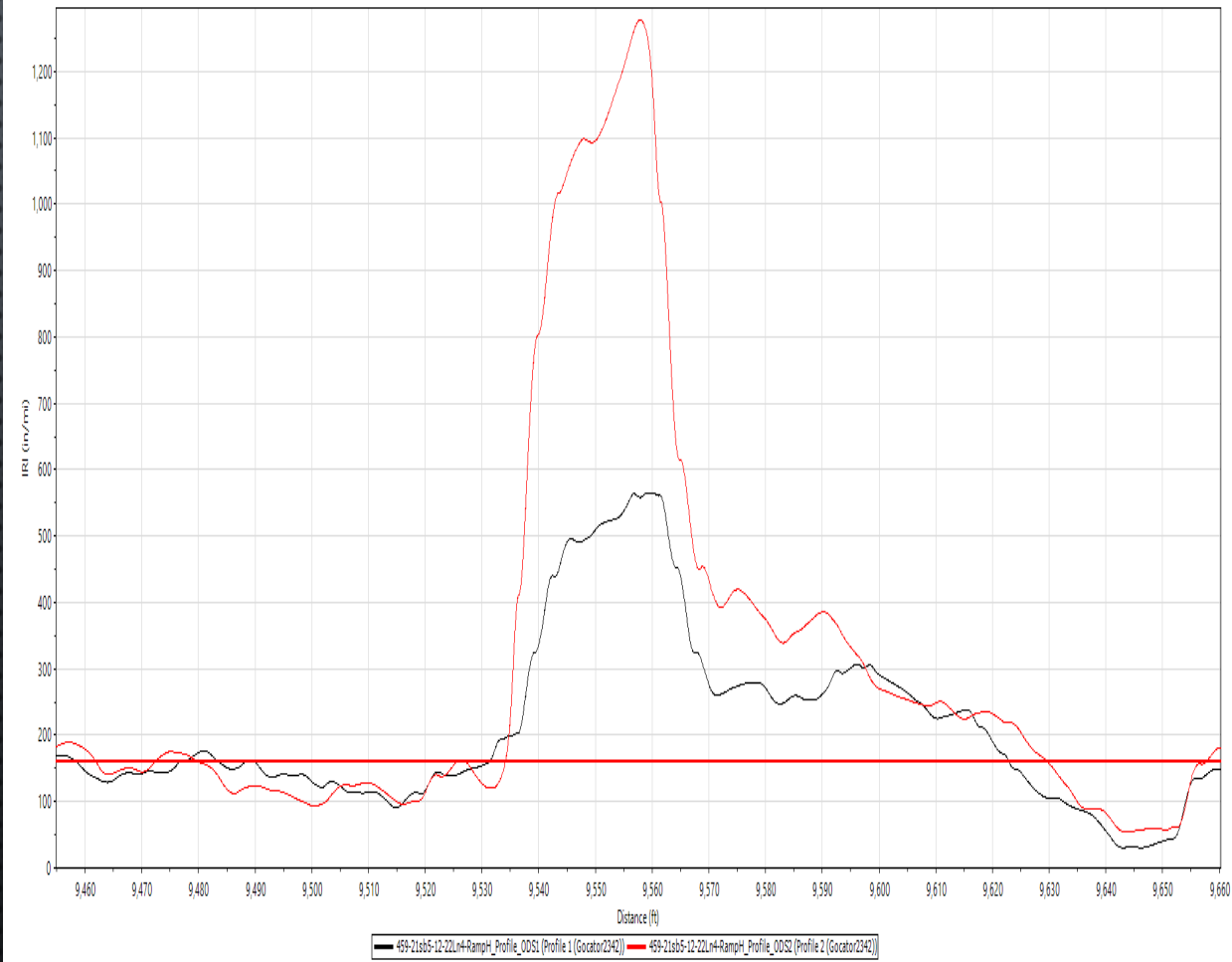
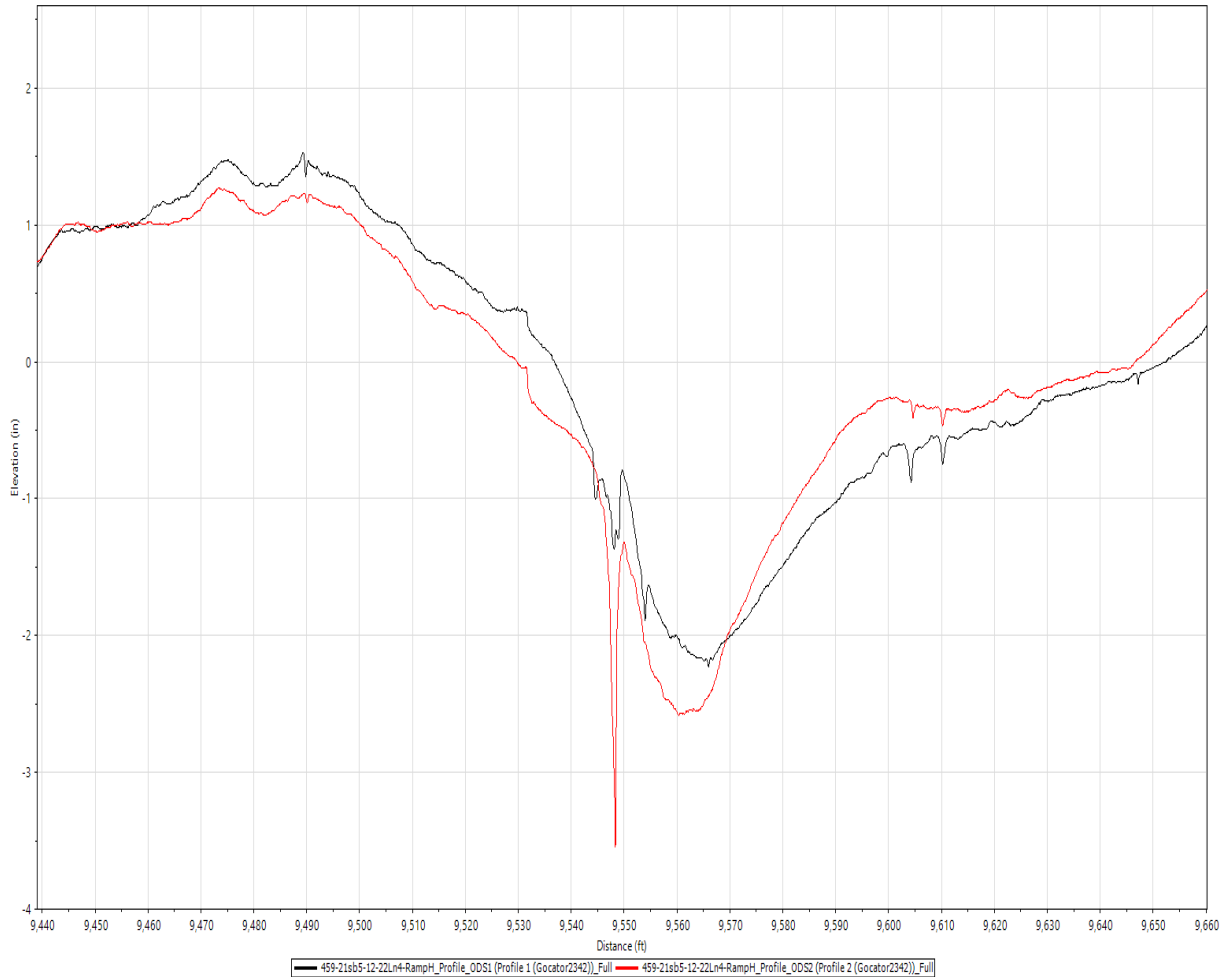
**Mainline I/D Average:**

**44.2**

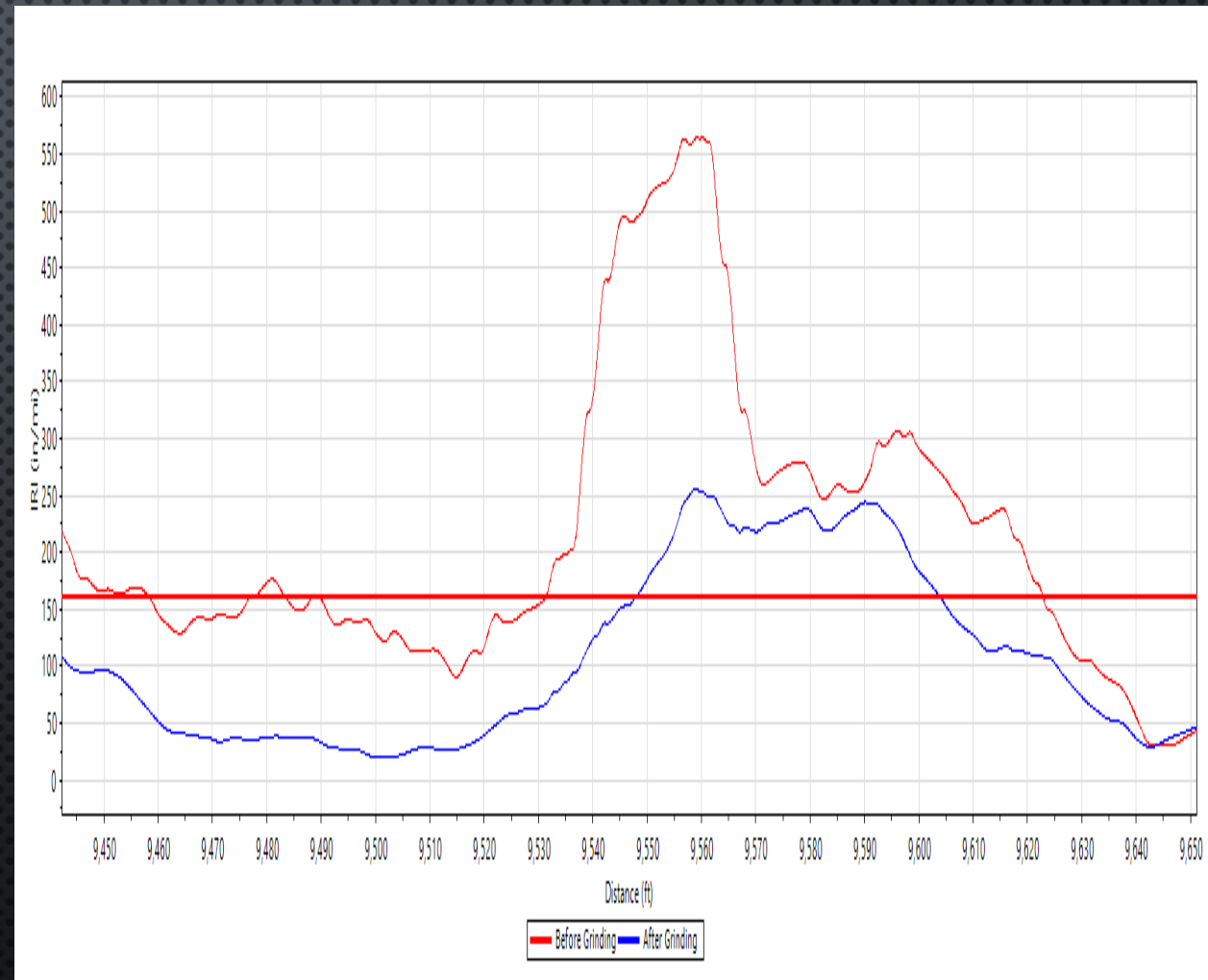
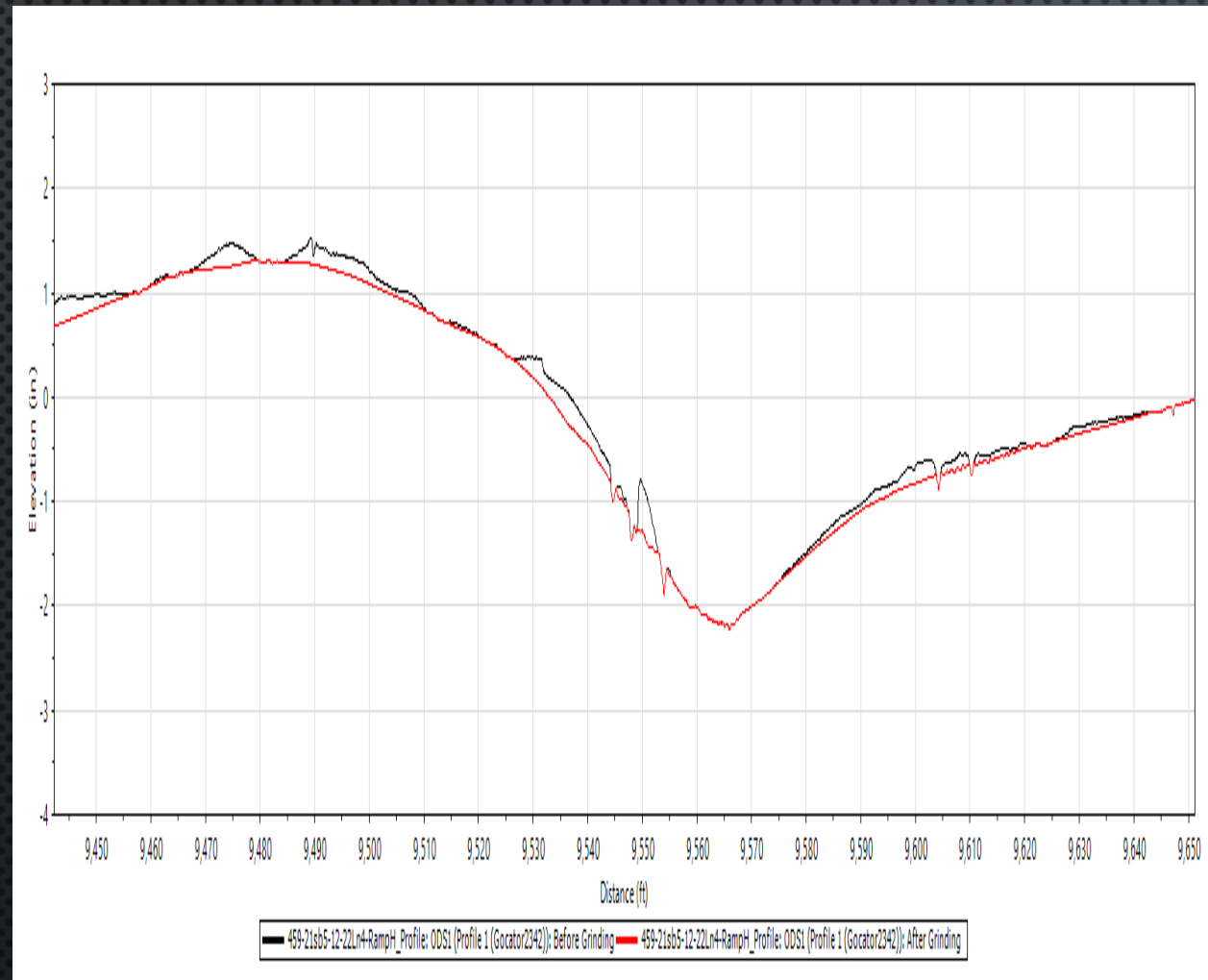
**41.9**

**46.5**

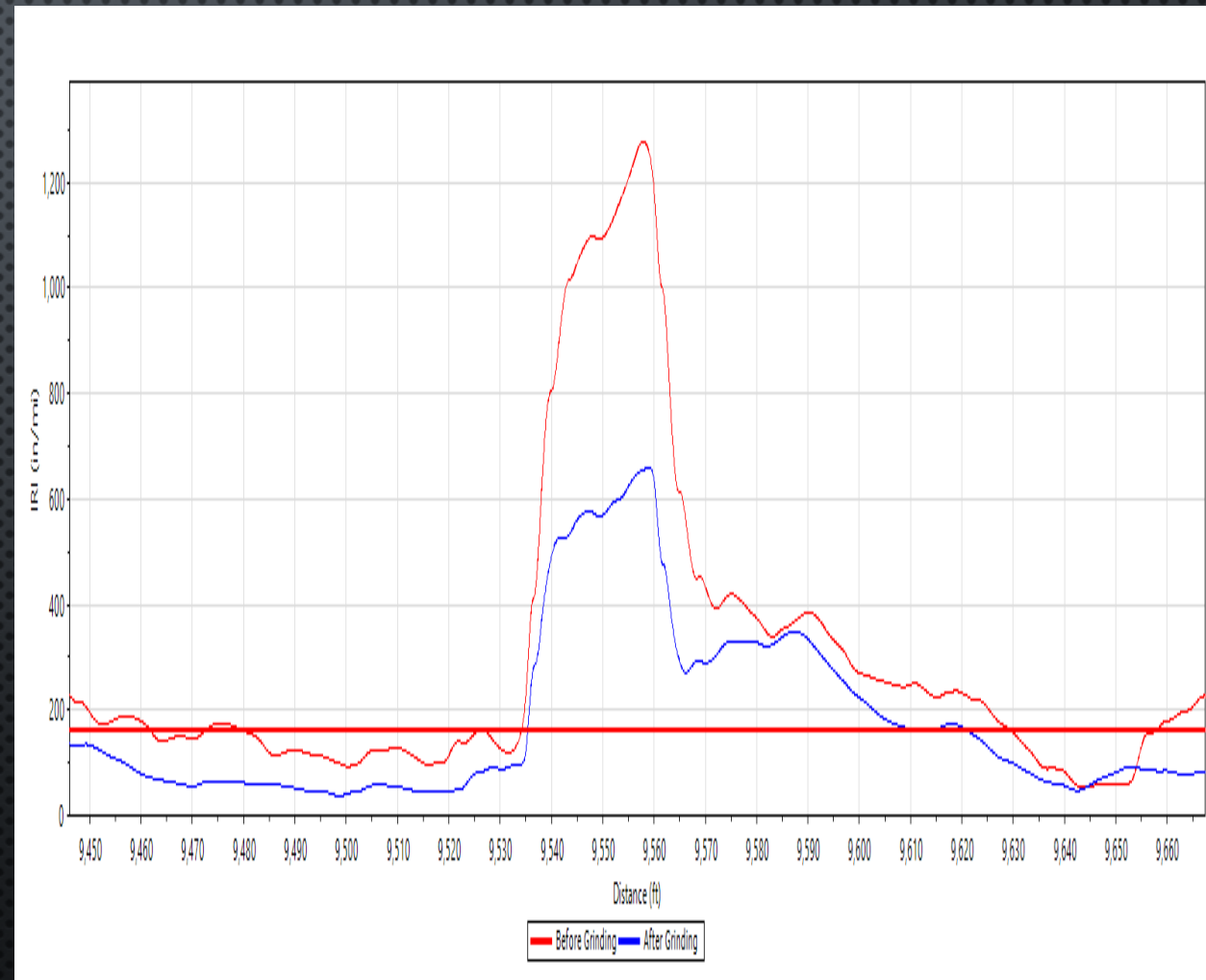
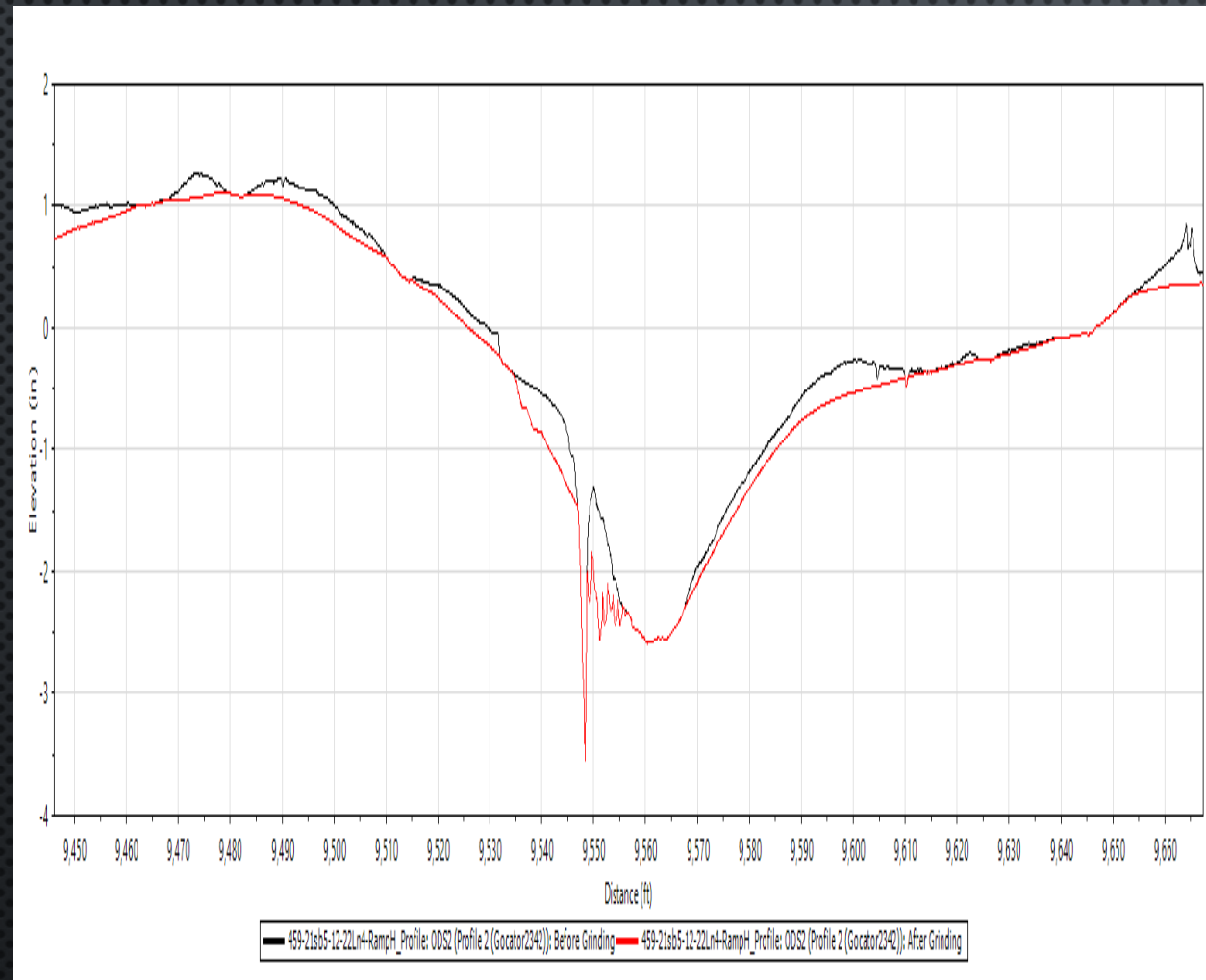
# UNUSUAL GEOMETRY (PAVEMENT SAG)



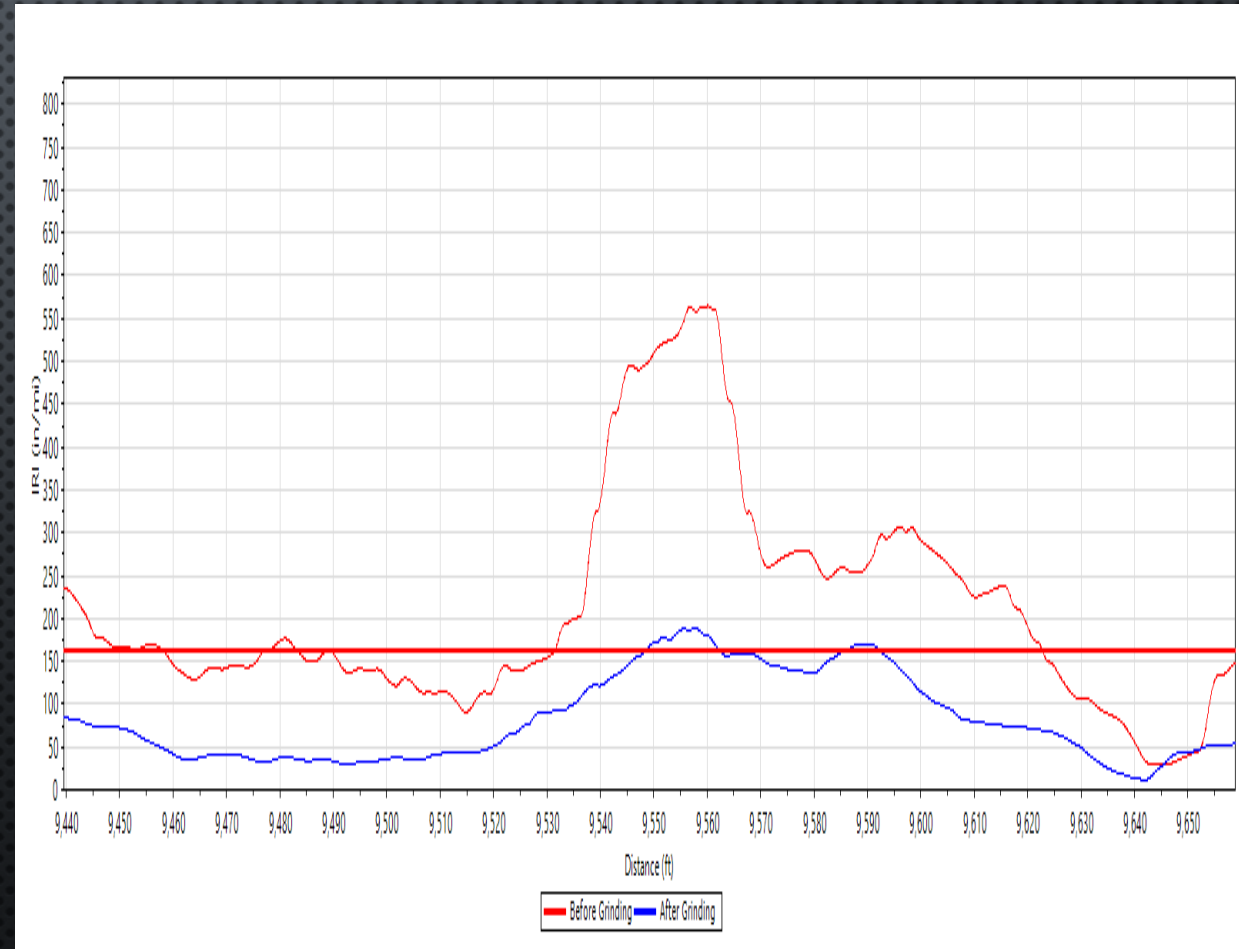
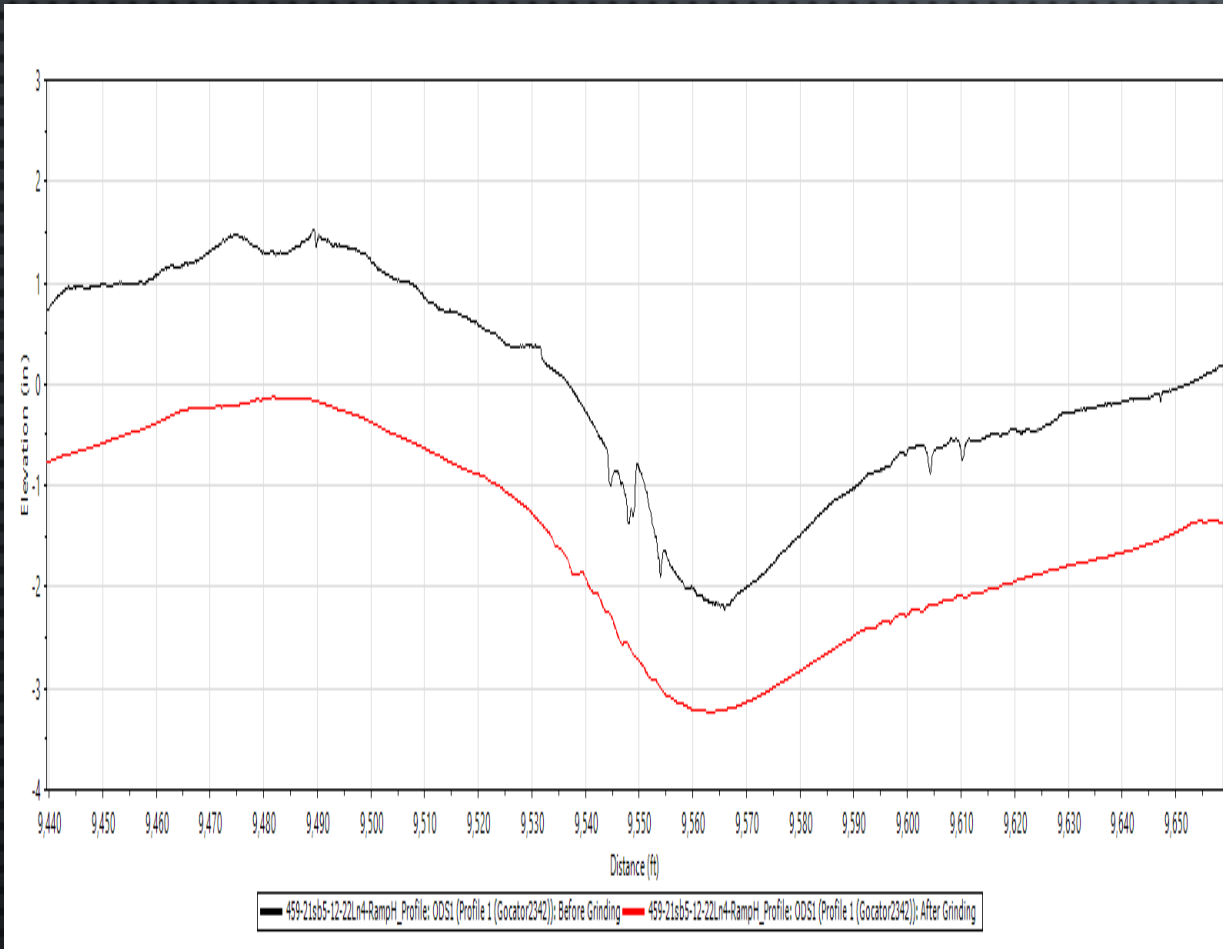
# LWP GRIND SIMULATION



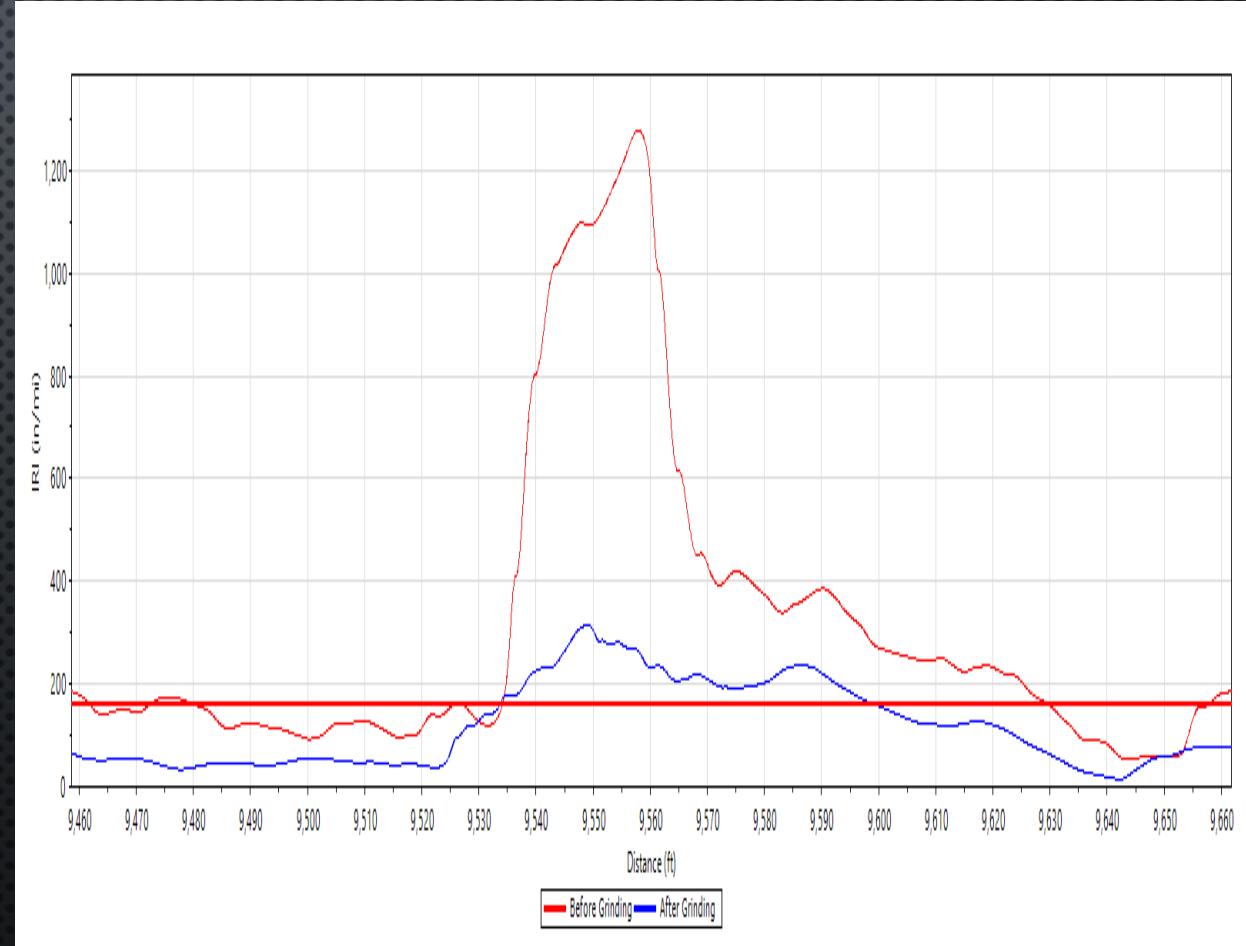
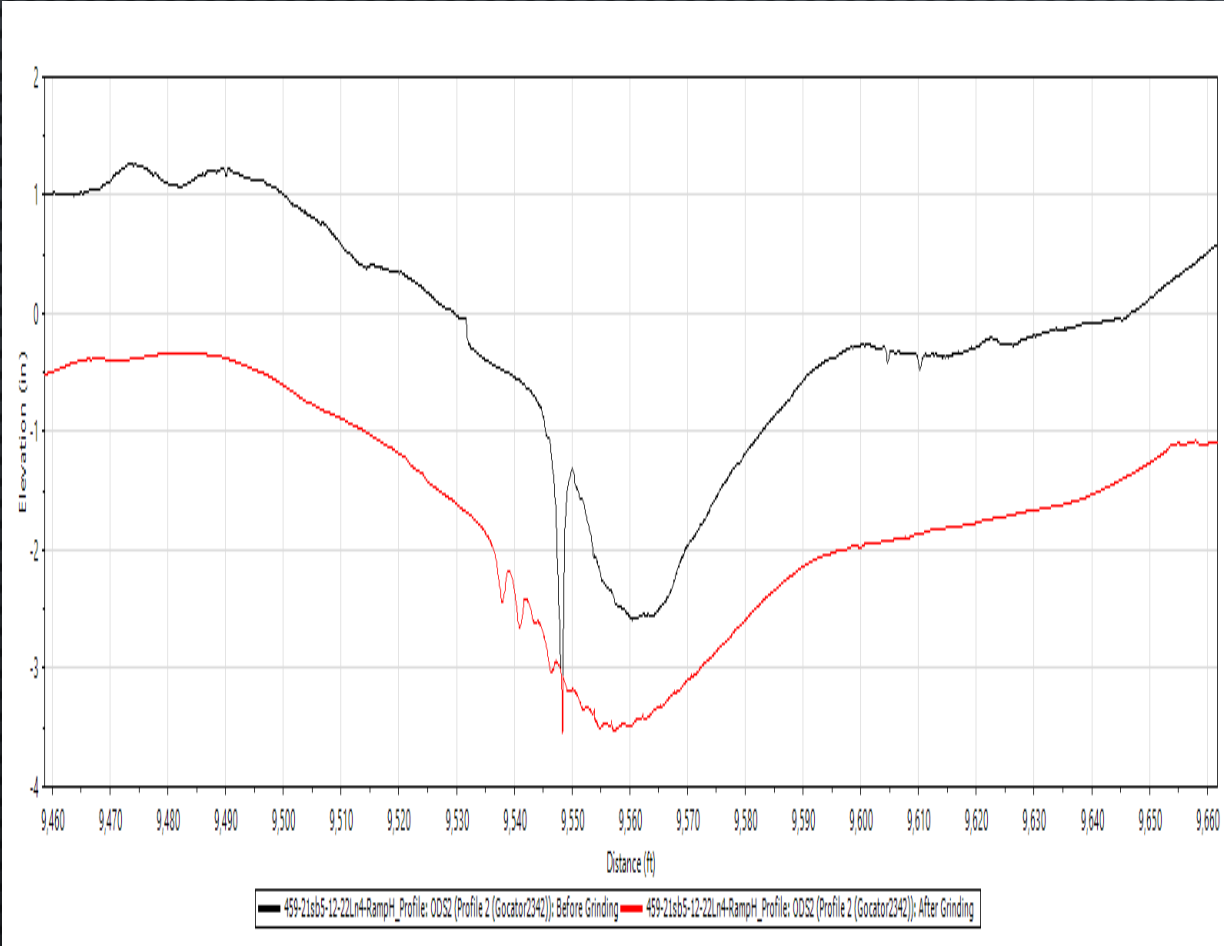
# RWP GRIND SIMULATION



# LWP MILL SIMULATION (1.5")

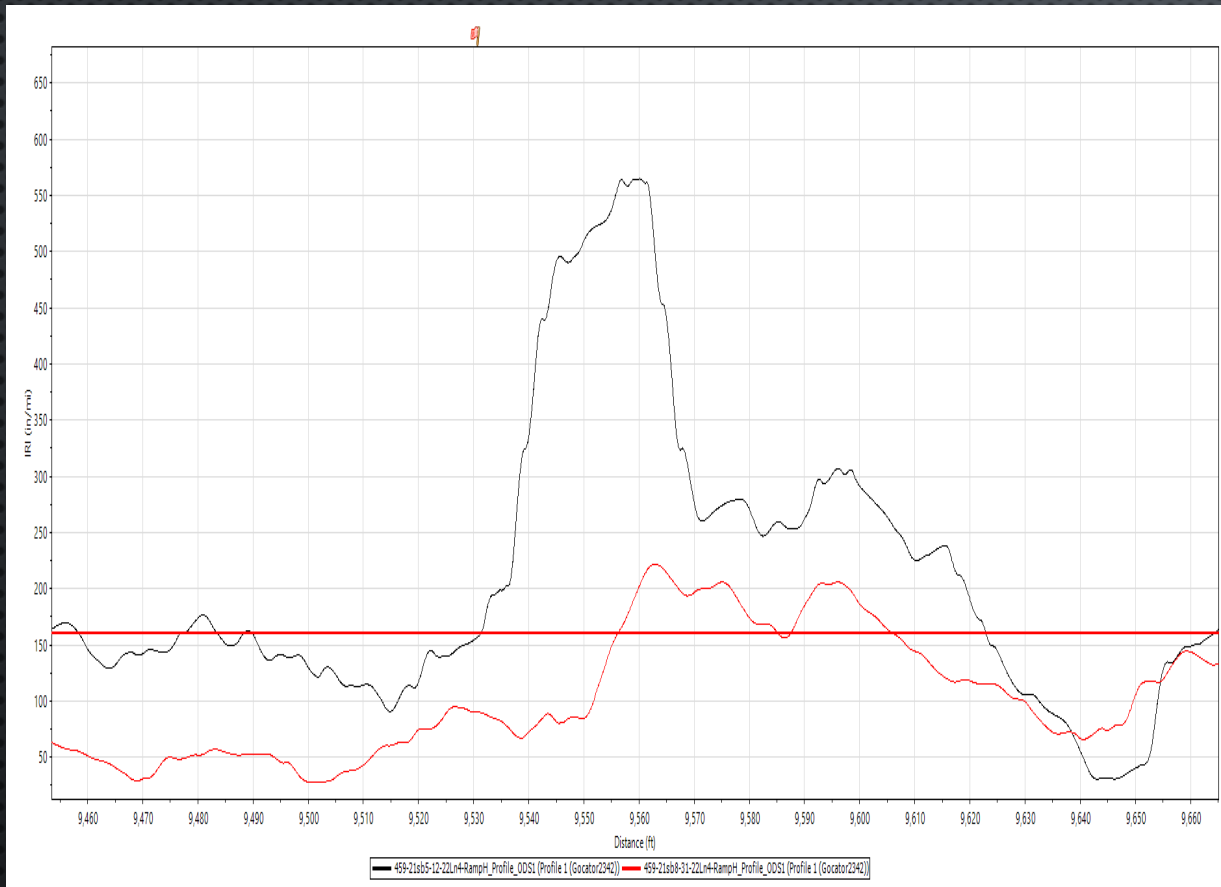


# RWP MILL SIMULATION (1.5")

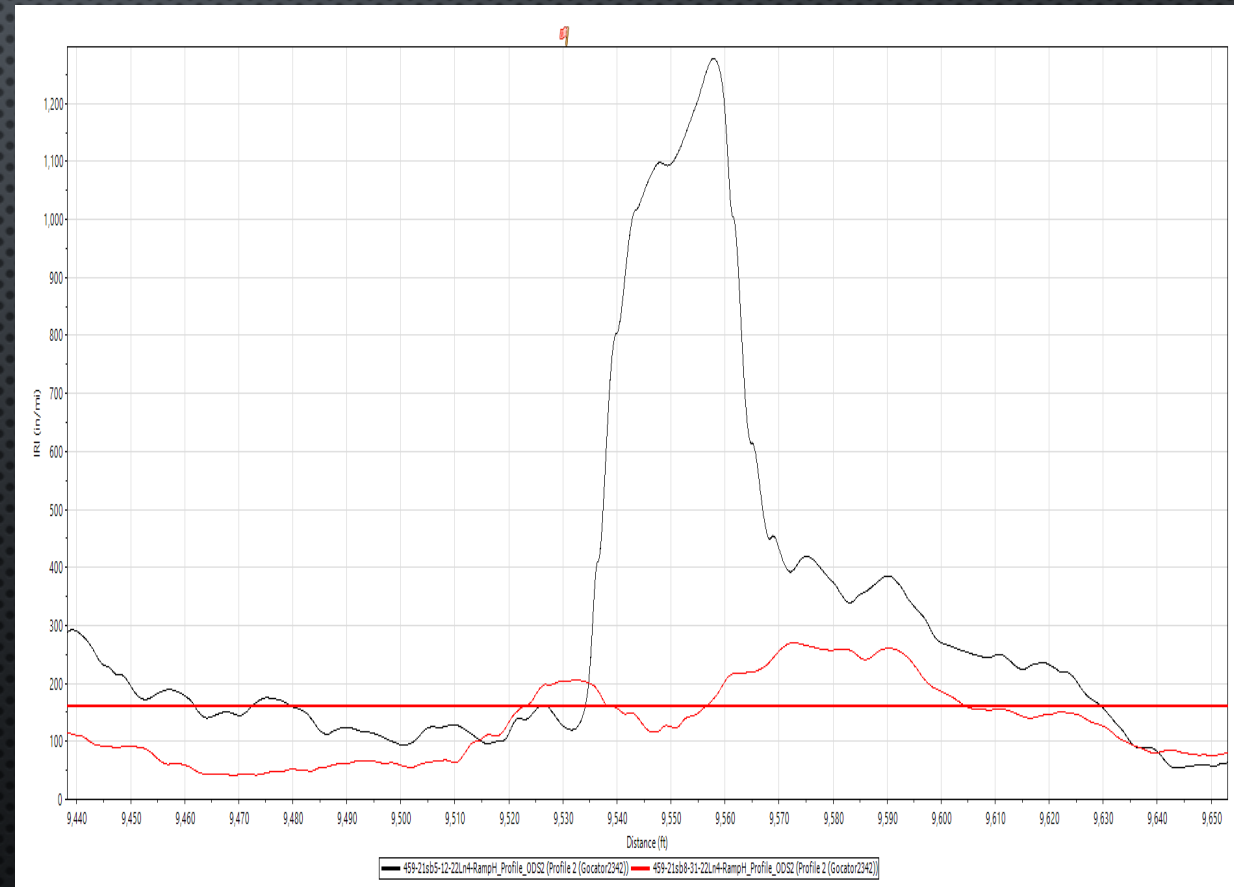


# PRE VS. POST-PAVE (NO PROFILE MILL)

## LWP BEFORE & AFTER PAVE

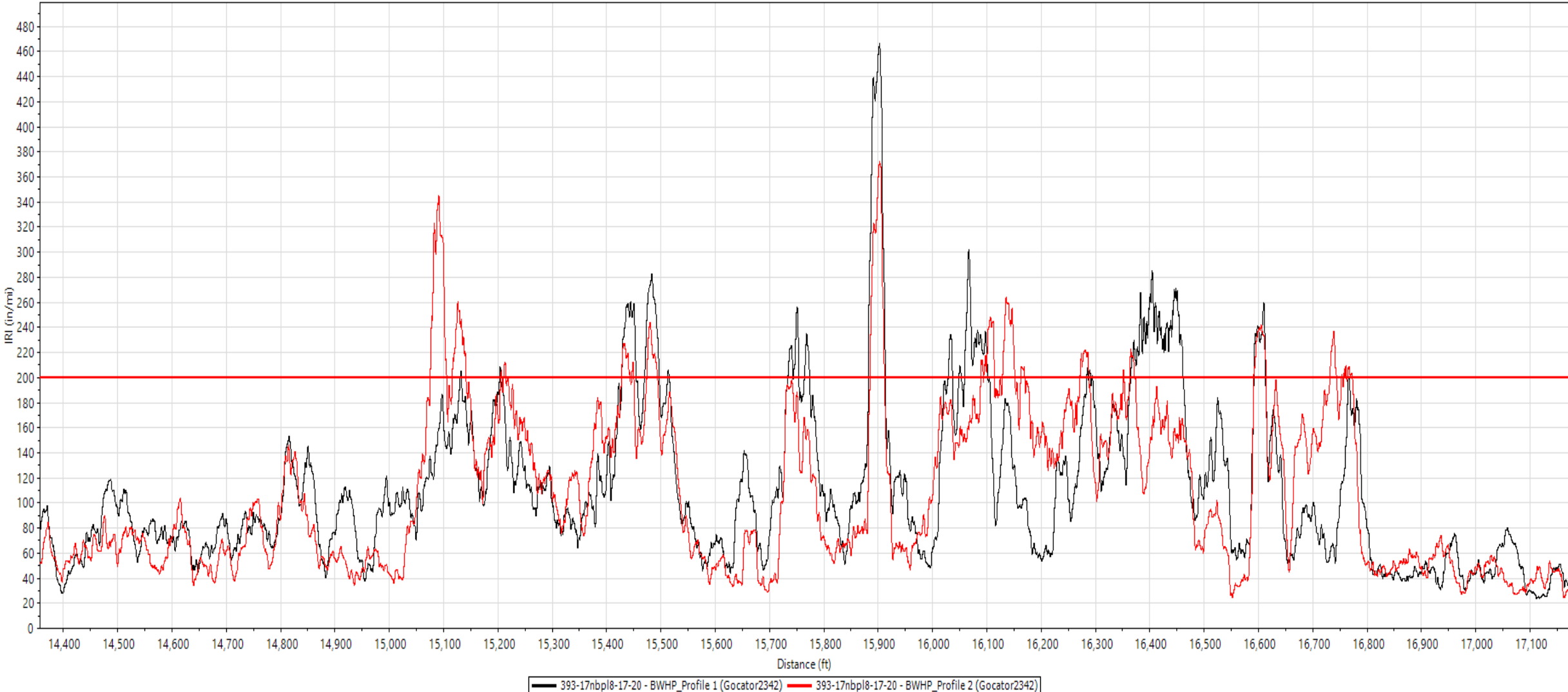


## RWP BEFORE & AFTER PAVE



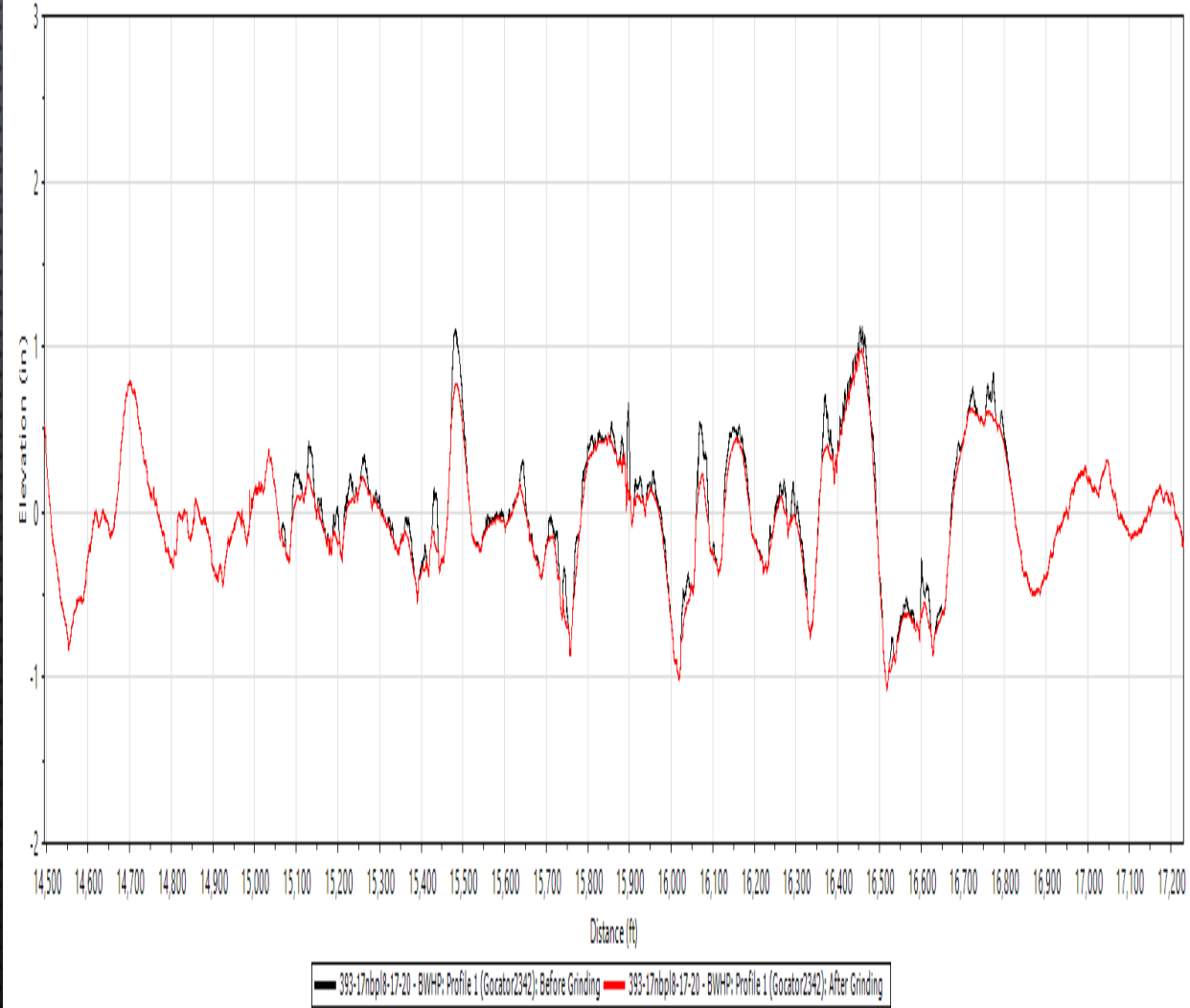
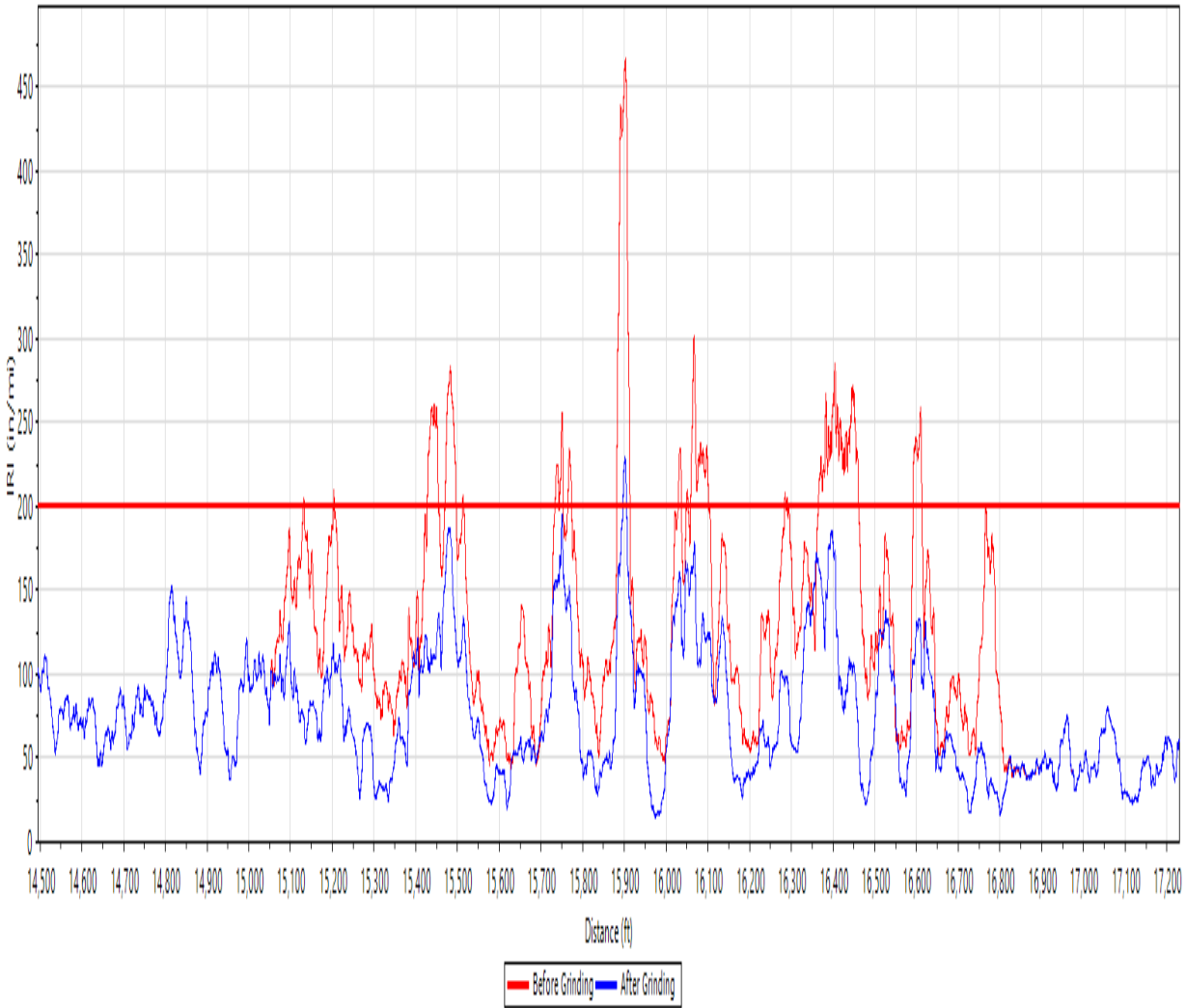


# ROUGH INTERMEDIATE PAVEMENT (MULTI-YEAR WORK)

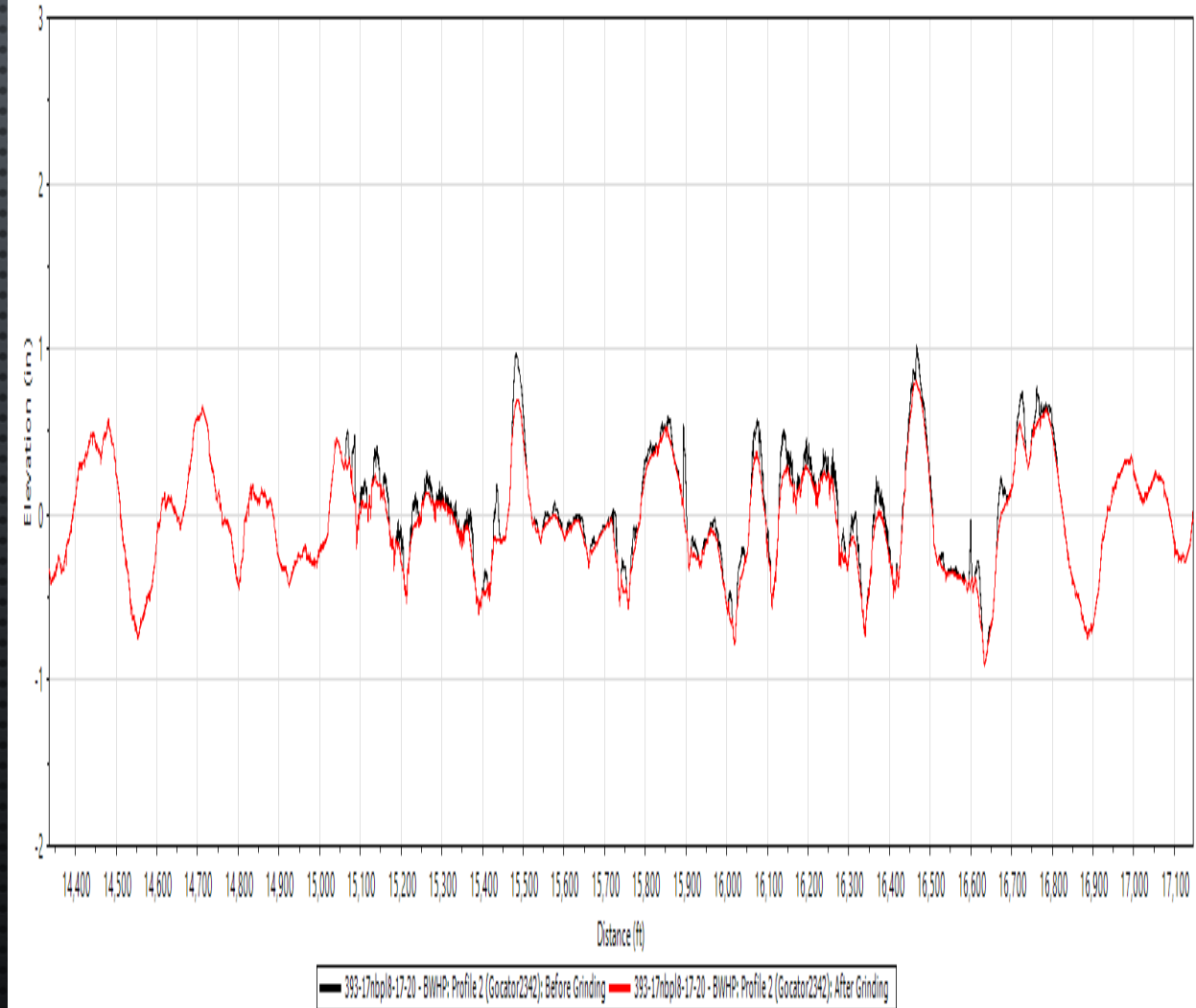
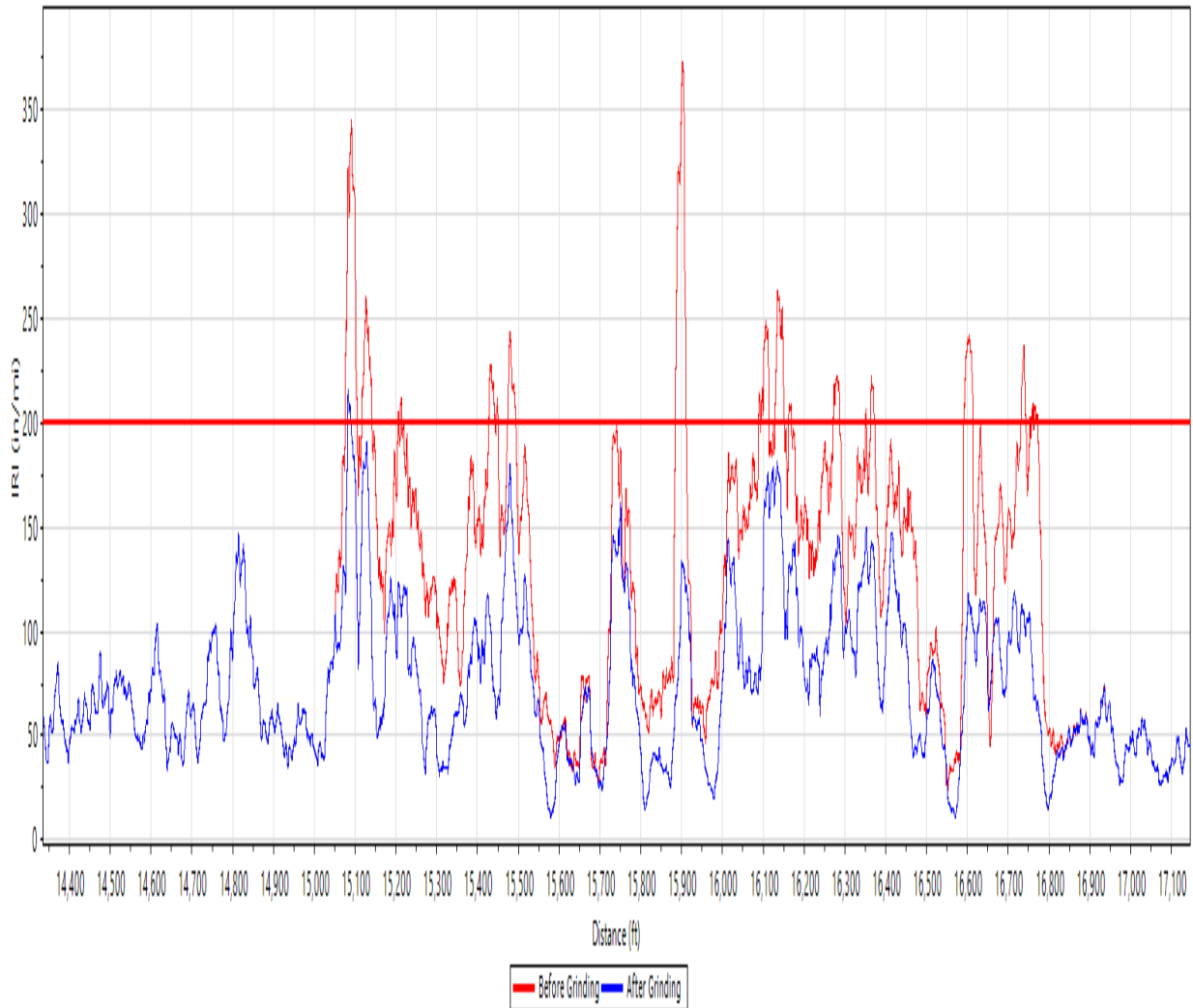


— 393-17nbpl8-17-20 - BWHP\_Profile 1 (Gocator2342) — 393-17nbpl8-17-20 - BWHP\_Profile 2 (Gocator2342)

# LWP PROFILE MILL SIMULATIONS



# RWP PROFILE MILL SIMULATIONS



“QUALITY IS NEVER AN ACCIDENT; IT IS ALWAYS THE RESULT OF HIGH INTENTION, SINCERE EFFORT, INTELLIGENT DIRECTION AND SKILLFUL EXECUTION; IT REPRESENTS THE WISE CHOICE OF MANY ALTERNATIVES.” WILLIAM A. FOSTER; FORMER US MARINE BORN IN GARFIELD HEIGHTS, OH.

EVANS, ROBBIN. (2008). *A BOUNTIFUL HEART : THE LIFE OF BOB EVANS*. NO MAN'S LAND PUBLISHING.

# QUESTIONS?

