

**2023 ST. JOSEPH PENINSULA STATE PARK
EAGLE HARBOR
TOPOGRAPHIC AND HYDROGRAPHIC SURVEY**

PREPARED FOR



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF BEACHES AND COASTAL SYSTEMS
3900 COMMONWEALTH BOULEVARD, MAIL STATION 300
TALLAHASSEE, FLORIDA 32399-3000

AND



DEWBERRY PROJECT NO. 50165724
AUGUST 2, 2023

PREPARED BY:



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2022 ST. JOSEPH PENINSULA STATE PARK EAGLE HARBOR BREACH PROJECT TOPOGRAPHIC & HYDROGRAPHIC SURVEY REPORT

Prepared For:

Florida Department of Environmental Protection
Bureau of Beaches and Coastal Systems
3900 Commonwealth Boulevard, Mail Station 300
Tallahassee, Florida 32399-3000

And

MRD Associates, Inc.

Prepared By:



Dewberry®

203 Aberdeen Parkway
Panama City, Florida 32405

**2023 St. Joseph Peninsula State Park Eagle Harbor
Topographic & Hydrographic Survey**

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Topographic & Hydrographic Survey***

1. ABSTRACT

Dewberry was contracted by MRD Associates, Inc. to provide Surveying services for the 2023 St. Joseph Peninsula State Park Eagle Harbor Topographic and Hydrographic Survey. Topographic and Hydrographic Surveys were performed between DEP Reference monuments R-65, through R-78, and at all ½ monuments in between, in Gulf County, Florida. The intended purpose of these surveys is to provide current elevation data, which shall be used to compare with historic elevation data (previous surveys were performed in February, 2020, June, 2021, and August 2022), and for the future physical monitoring of the beach and offshore areas. This data is necessary in order to regularly observe and assess, with quantitative measurements, the performance of the project, any adverse effects which may have occurred, and the need for any adjustments, modifications, or mitigative responses to the project.

2. METHODOLOGY

2(a). CONTROL SURVEY:

Survey field crews found and verified existing 2nd order FDEP “B” monuments “51-83-B21”, and “51-83-B25”. In order to confirm FDEP provided coordinates and elevations were accurate, and to meet required accuracy standards, each monument was re-collected prior to the start of Topographic and Hydrographic Surveying. Spectra Precision Epoch 85 GNSS RTK GPS systems were used, together with the Florida Department of Transportation Permanent Reference Network, a GNSS Real Time Network (which provides internet based GPS data), to locate and re-collect said survey control. Once confirmed, these monuments were used as base station control for the duration of this project. Results of control survey, and pictures of each control monument and location are shown in Appendix 5 (Monument Information Report).

Spectra Precision Epoch 85 GNSS RTK GPS systems were used to locate and re-collect existing 3rd order FDEP Range Monuments. Survey field crews used the coordinates and elevations provided by the FDEP for each R-monument to locate its position, and, when found, each R-monument was re-collected. When no R-monument was found, a 5/8” capped iron rod (No. 8011) was set at the published position. The results of the Range Monument survey, and pictures of each monument and location are shown in Appendix 5 (Monument Information Report).

2(b). UPLAND SURVEY:

Once the Control Survey was completed, Upland Surveys began. Multiple survey field crews were used to conduct Upland Profile Surveys at each range monument, all using Spectra Precision Epoch 85 GNSS RTK GPS systems. Elevations were obtained at all grade breaks, and at intervals approximately 10 feet, along each profile line. In order to maintain online tolerances, Topcon’s “Stake to Line” program was used to ensure all points collected were near the profile azimuth. The upland portion of the profile lines commenced at the landward-most position, and extended seaward to the 5 foot contour line, or the vegetation line. Data along Range lines R65-5, R66, R66-5, R67, R71, R71-5, R72, and R72-5 terminated at the approximate vegetation line. These lines lie within areas that were closed at the time this survey was conducted, and State Park officials confirmed that access to these areas was prohibited.

2(c). BEACH AND OFFSHORE SURVEY:

Beach Surveys were performed on the same day as the Offshore Survey.

Offshore surveys ran along profile azimuths, from wading depth to a distance of 3,500 feet from each range monument. “Nemo”, Dewberry’s 22 foot aluminum hydrographic survey vessel, was used to perform offshore surveys. A Spectra Precision Epoch 85 GNSS RTK GPS system was used onboard the survey vessel to provide horizontal positions, and instantaneous tide corrections. Depths were obtained using a Ross 825B dual frequency sounder, together with a through-hull mounted transducer. The sounder was calibrated at the beginning of each day, and again checked at the end of each day, with an Odom Digibar Pro sound velocity probe. Measurements were observed at 1’ intervals, starting at a depth of 1’, and descending to the lowest observed depth each day, usually as deep as 30’. Hypack Hydrographic Surveying

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software, version 2019, was used as a data collection platform to record positions, elevations, tides and depths. Hypack's navigation software (survey map and left/right indicator) was used to maintain online tolerances.

Beach Surveys overlapped both the Upland Surveys and the Offshore Surveys. Multiple survey field crews were used to conduct Beach Surveys at each range monument, all using Spectra Precision Epoch 85 GNSS RTK GPS systems. Elevations were obtained at all grade breaks, and at intervals approximately 10 feet, along each profile line. In order to maintain online tolerances, Topcon's "Stake to Line" program was used to ensure all points collected were near the profile azimuth.

2(d). DATA PROCESSING:

Field survey data was processed using Hypack Hydrographic Surveying software, version 2019, and AutoCAD Civil 3D Land Development Desktop. Offshore raw data was edited using Hypack's "Single Beam Editor", and merged with Beach and Upland points using Hypack's "Merge XYZ" program. Profile Plots, shown in Appendix 2, were created using Hypack's "Cross Sections and Volumes" program. Once raw offshore data was edited and merged with beach and upland data, XYZ files were exported from Hypack, reducing the number of points so that they could be legibly displayed on plan view sheets. (Spacing is at ~15 foot intervals). Survey Maps (Plan view), shown in Appendix 1, were then created showing the range lines, elevations, and 2019 aerial photographs, which were obtained from WWW.LABINS.ORG.

3. SURVEY REPORT

2023 ST. JOSEPH PENINSULA STATE PARK EAGLE HARBOR TOPOGRAPHIC & HYDROGRAPHIC SURVEY

Project Information:

Title of Project: 2023 St. Joseph Peninsula State Park Eagle Harbor Survey

Prepared By: Dewberry Engineers Inc.

Prepared For: MRD Associates, Inc.

Submitted To: Florida Department of Environmental Protection

Date Prepared: August 2, 2023.

Dates of Survey: July 26 through 27, 2023.

Project Location: Surveys consist of the beach, nearshore, and offshore areas of Gulf County, Florida, from FDEP Range Monuments R-65, through R-78, and at all ½ monuments in between, in Gulf County, Florida.

Survey Notes:

1. Horizontal datum is referenced to Florida State Plane Coordinates, North zone, NAD 1983/2011, U.S. Survey Feet, per FDEP control monuments 51-83-B21, and 51-83-B25.
2. Vertical datum is referenced to North American Vertical Datum (NAVD) 1988, per FDEP control monuments 51-83-B21, and 51-83-B25.
3. This survey, map, and report is not valid without the signature and original raised seal of a Florida licensed Surveyor and Mapper. Additions or deletions to survey maps or reports by other than the signing party or parties is prohibited without written consent of the signing party or parties.
4. Source of information: FDEP Land Boundary Information System internet web site (www.labins.org); previous surveys by Dewberry Engineers, Inc.; aerial photographs obtained from Google earth; aerial photographs obtained from WWW.LABINS.ORG; field survey.
5. There may be additional restrictions not shown on this survey that may be found in the public records of Gulf County, Florida.
6. Upland Topographic Surveys were conducted with the use of Spectra Precision Epoch 85 GNSS RTK GPS systems.

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7. Offshore Hydrographic Surveys were conducted with the use of Spectra Precision Epoch 85 GNSS RTK GPS system for horizontal positions and tide corrections, a Ross 825B dual frequency echosounder for depths (soundings), and Hypack Hydrographic software for data collection.

8. Aids to navigation have not been located by this survey.

9. The survey shown hereon represents the results of a field survey of the subject property as of the dates surveyed.

10. No attempt has been made by the undersigning surveyor to locate or determine Rights-of-way, easements, sections, or other property boundaries of any kind.

11. No title search, title opinion or abstract was performed by, nor provided to Dewberry, for the subject property. There may be deeds of record, unrecorded deeds, easements, encroachments, right-of-ways, building setbacks, restrictive covenants or other instruments which could affect the boundaries or use of the subject property.

12. No underground and/or subaqueous utilities, utility lines, foundations, or other underground structures have been located by Dewberry.

13. Upland and Beach Surveys were recorded in Field Book 278 and 335.

14. Offshore Surveys were recorded in Field Book AF3.

15. Survey Maps (plan views) are intended to be displayed at the following scales:

S1: 1"=2,000'
S2-S5: 1"=200'

16. This Survey Report is not full and complete without the Hydrographic & Topographic Survey, dated August 2, 2023, titled "2023 St. Joseph Peninsula State Park Eagle Harbor Topographic & Hydrographic Survey Map".

17. Appendices:

1. Survey Maps (Plan View)
2. Profile Plots
3. Ground Digital Photos
4. Federally Compliant Metadata
5. Monument Information Report
6. FDEP ASCII files
7. XYZ Data
8. Field Books/Pages

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4. CERTIFICATION

This survey was conducted in accordance with the *Bureau of Beaches and Coastal Systems (BBCS), Monitoring Standards for Beach Erosion Control Projects, March, 2004* and the *BBCS Statewide Coastal Monitoring Program, Regional Data Collection and Processing Plan, March, 2004*.

This survey meets the *BBCS* technical specifications for “Beach Profile Topographic Surveying”, and “Offshore Profile Surveying”, and is in accordance with Chapter 5J-17.050, F.A.C. Minimum Technical Standards, established by the Florida Board of Professional Surveyors and Mappers pursuant to Chapter 472 of the Florida Statutes. All work was conducted under the direct supervision and responsible charge of a Professional Surveyor and Mapper who is registered in the State of Florida. Signed and sealed survey maps are provided in **Appendix 1**. The location of all published control, as well as control found and used for survey purposes, is presented in **Appendix 5**. Federally compliant metadata for the applicable data sets is provided in **Appendix 4**.

Vertical data is referenced to North American Vertical Datum of 1988 (NAVD 88). Horizontal data is referenced to the Florida State Plane Coordinate System, North Zone, North American Datum of 1983 (NAD 83). The profile data is presented in xyz format relative to NAVD 88 in **Appendix 7**. Copies of all field books and pages are provided in **Appendix 8**.

I hereby certify that this Topographic and Hydrographic Survey is true and correct to the best of my knowledge and belief, and was performed under my direct supervision and direction. I further certify that it meets the minimum technical standards set forth in Chapter 5J-17.050, adopted by the Florida Board of Professional Surveyors and Mappers, pursuant to Section 472.027 of the Florida Statutes.

Frederick C. Rankin, P.S.M.
Professional Surveyor and Mapper
Florida License Number LS 6585
Dewberry
203 Aberdeen Parkway
Panama City, FL 32405

Date

APPENDIX 1

Survey Maps (Plan View)

Topographic & Hydrographic Survey

August 1, 2023 (07:34:20 EST)
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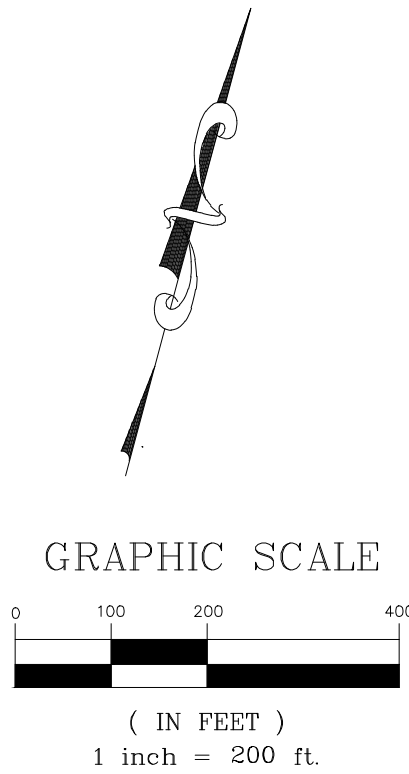
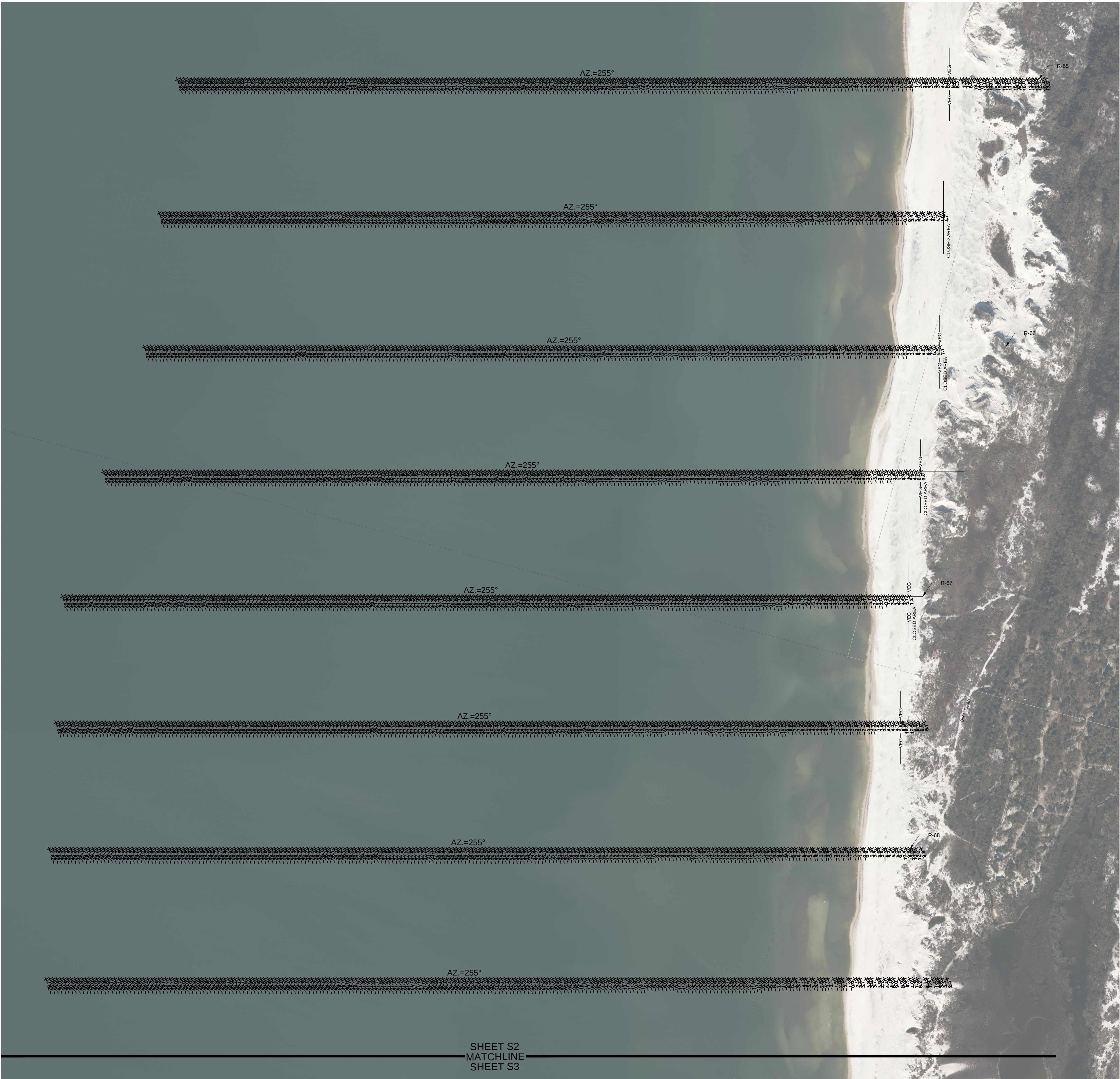
A

B

C

D

E



INDEX OF SHEETS

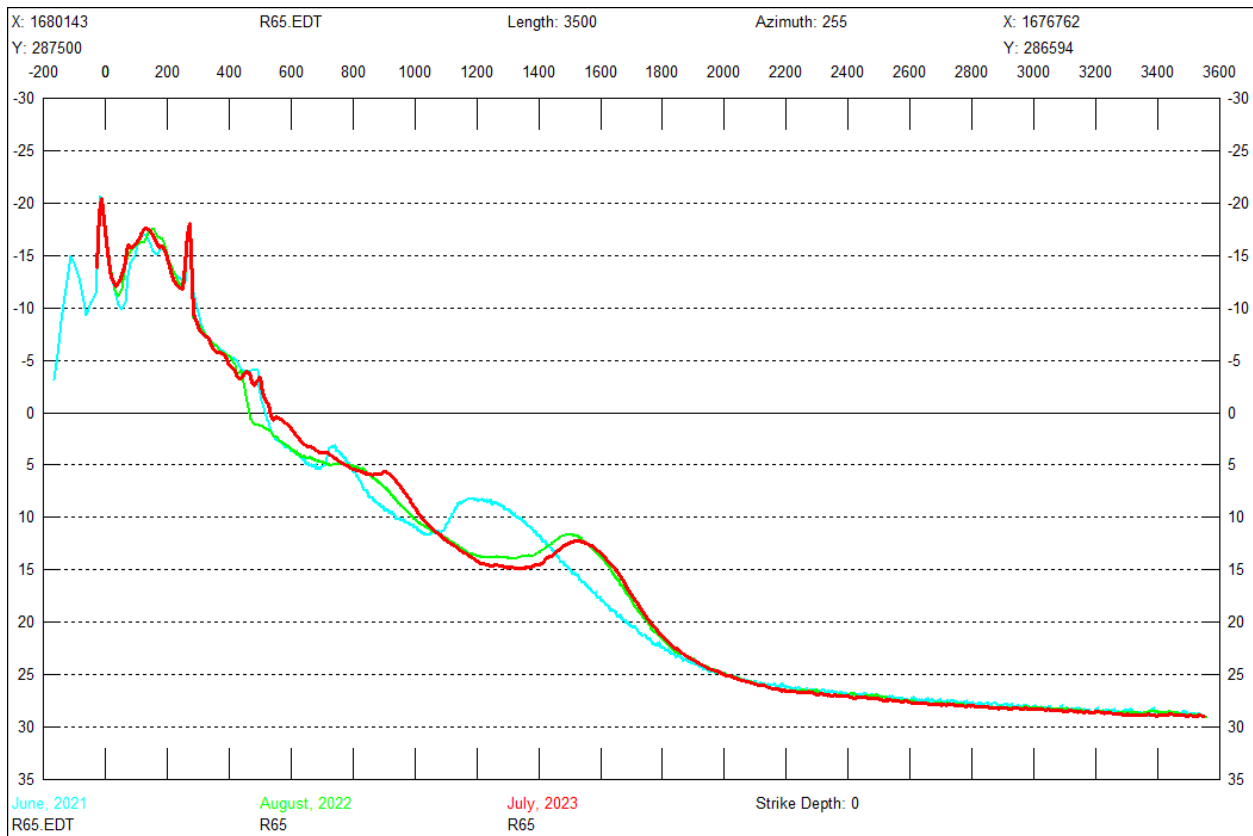
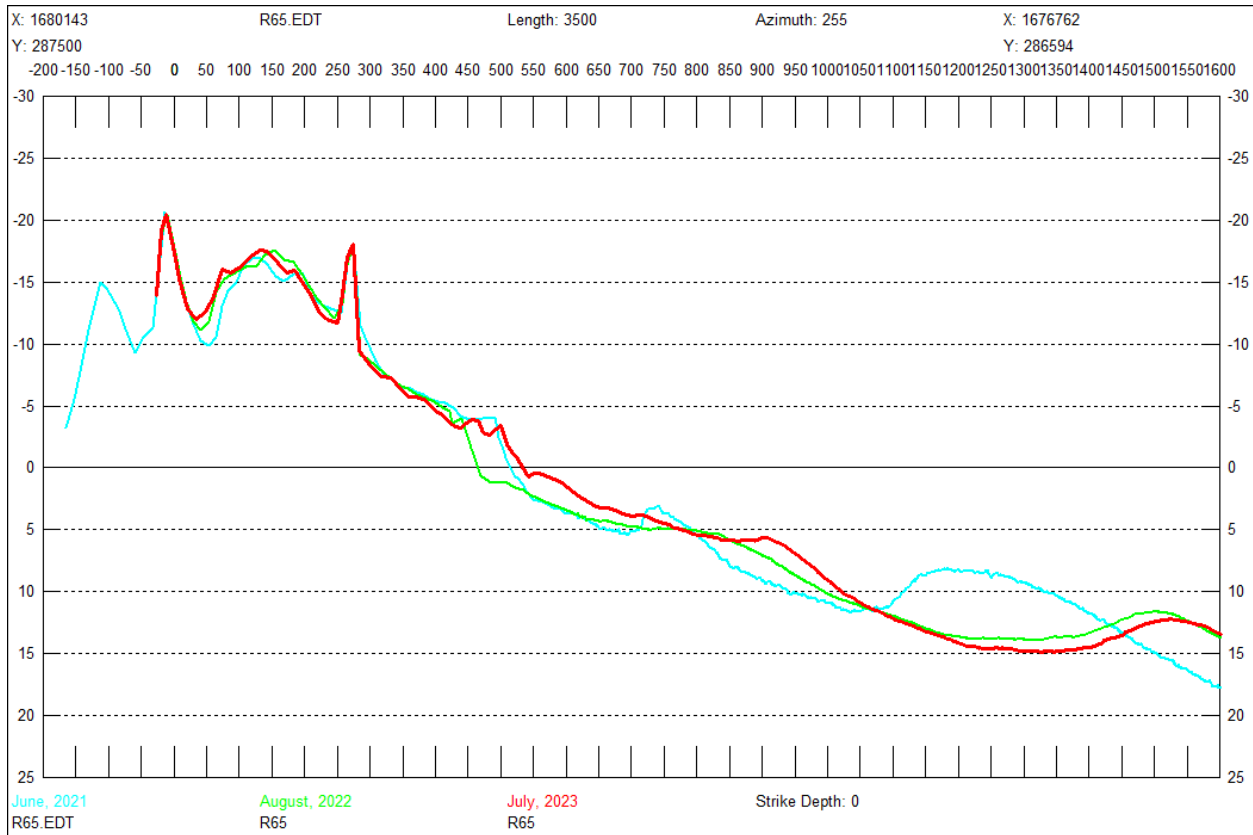
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OVERALL SITE, SHEET INDEX, AND	
CONTROL & RANGE MONUMENT INFORMATION	S1
SITE DETAILS (RANGE LINES)	S2-S5

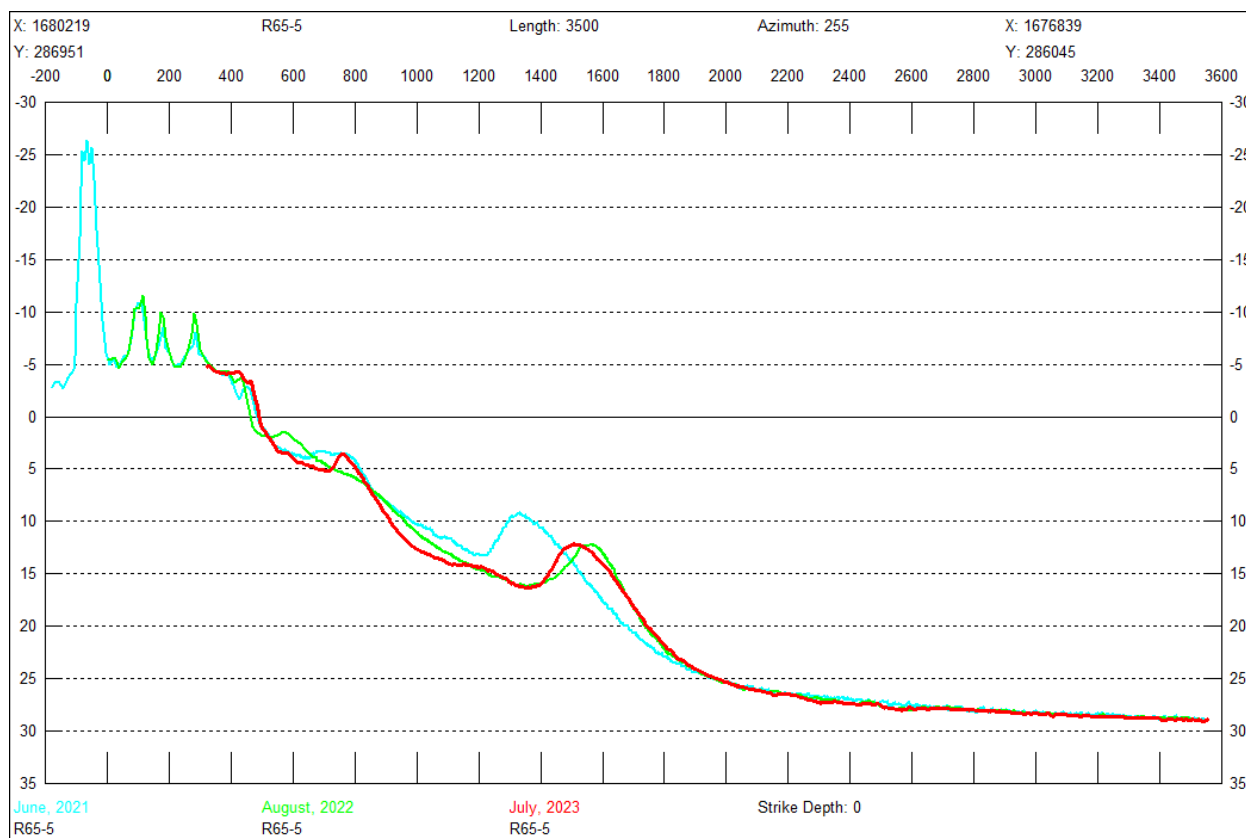
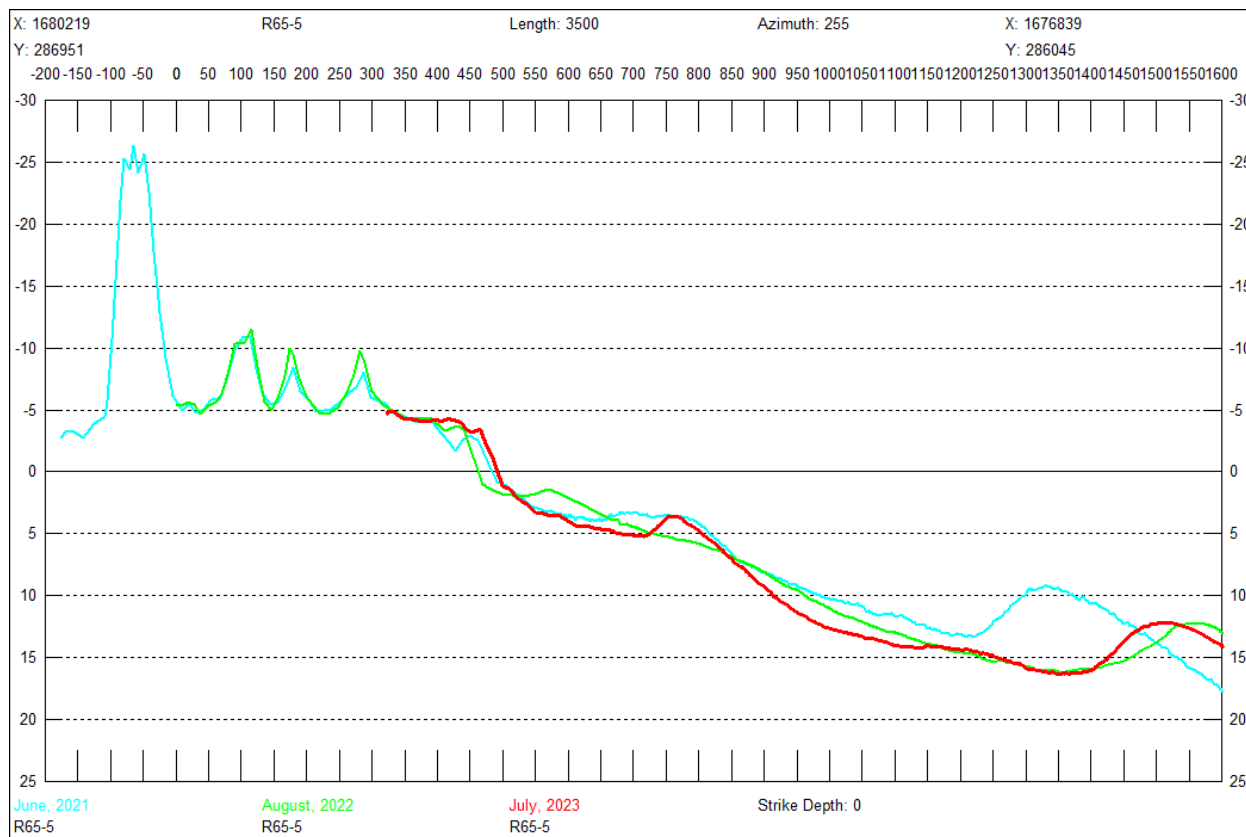
- SURVEYOR'S NOTES:**
1. UPLAND TOPOGRAPHIC SURVEYS WERE CONDUCTED WITH THE USE OF SPECTRA PRECISION EPOCH 85 GNSS RTK GPS SYSTEMS.
 2. OFFSHORE HYDROGRAPHIC SURVEYS WERE CONDUCTED WITH THE USE OF SPECTRA PRECISION EPOCH 85 GNSS RTK GPS SYSTEMS FOR HORIZONTAL POSITIONS AND TIDE CORRECTIONS, A ROSS 825B DUAL FREQUENCY ECHOSOUNDER FOR DEPTHS (SOUNDINGS), AND HYPACK HYDROGRAPHIC SOFTWARE FOR DATA COLLECTION.
 3. SOURCE OF INFORMATION: 2019 AERIAL PHOTOGRAPHS SHOWN HEREON WERE OBTAINED FROM F.D.E.P. LAND BOUNDARY INFORMATION SYSTEM INTERNET WEB SITE (WWW.LABINS.ORG); PREVIOUS SURVEYS BY DEWBERRY; FIELD SURVEY.
 4. AIDS TO NAVIGATION HAVE NOT BEEN LOCATED BY THIS SURVEY.
 5. DATE OF OFFSHORE PROFILE SURVEY: 07/26/2023
 6. DATE OF UPLAND PROFILE SURVEY: 07/26/2023

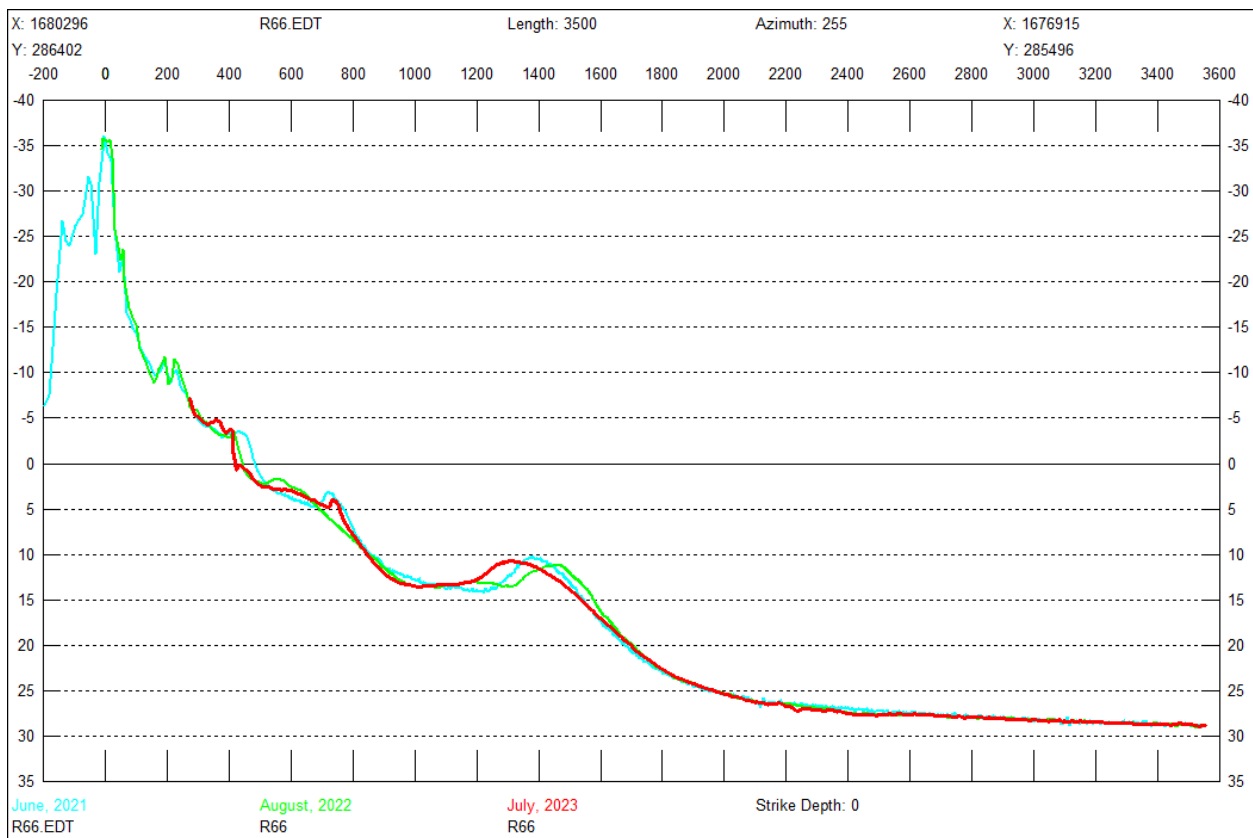
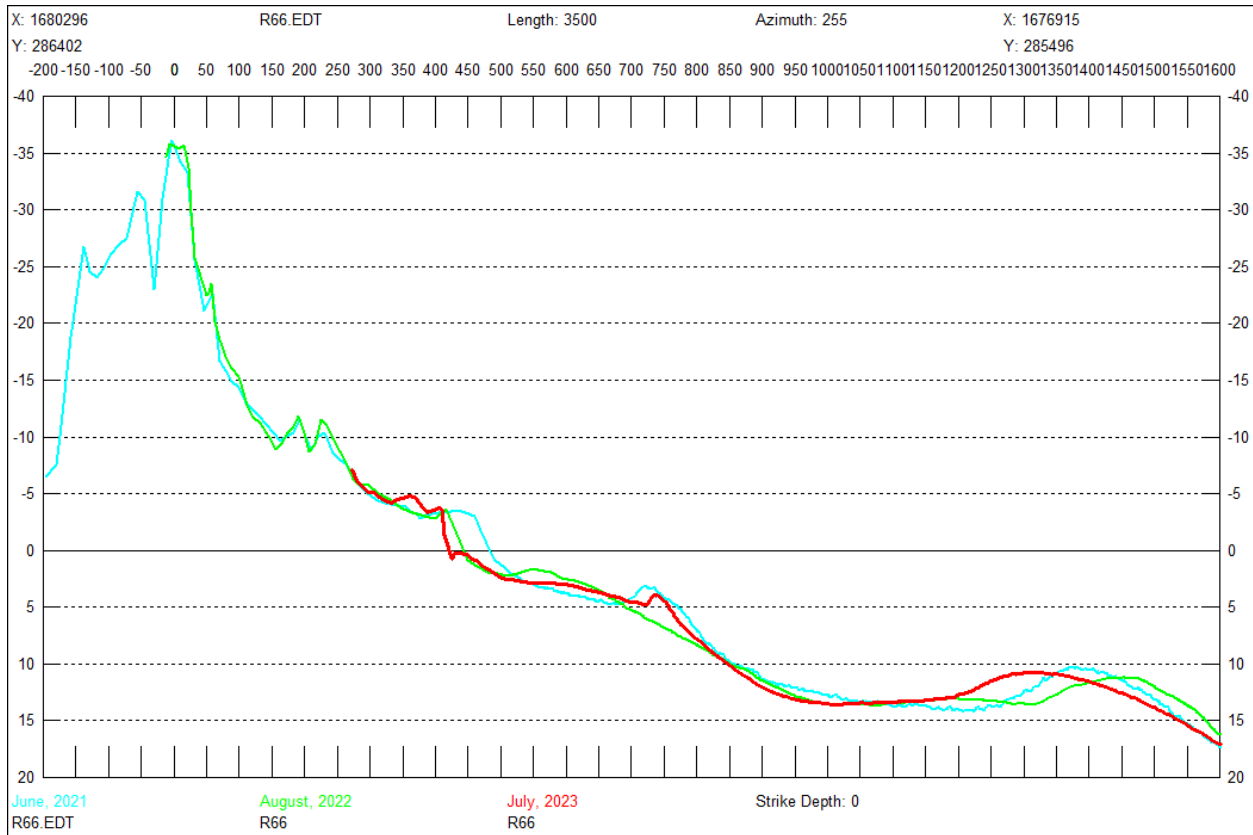
NO.		REVISIONS		BY	DATE
PROJECT: C. PANAMA P.S.M. DATE: 08/02/2023 PROFESSIONAL SURVEYOR & MAPPER NO. 050595					
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FIELD BOOK/PAGE: N/A					
FIELD DATE: 07/27/2023					
DRAWN BY: FCR					
DRAWING DATE: 08/02/2023					
SHEET SCALE: 1" = 200'					
APPROVED BY: JG					
 Dewberry DEWBERRY ENGINEERS, INC. 203 ABERDEEN PARKWAY PANAMA CITY, FLORIDA 32405 PHONE: 850.522.0644 FAX: 850.522.1011 WWW.DEWBERRY.COM CERTIFICATE OF AUTHORIZATION NO. L.B. 8011					
PROJECT NO. 50165724					
SHEET NO. 2 OF 5					

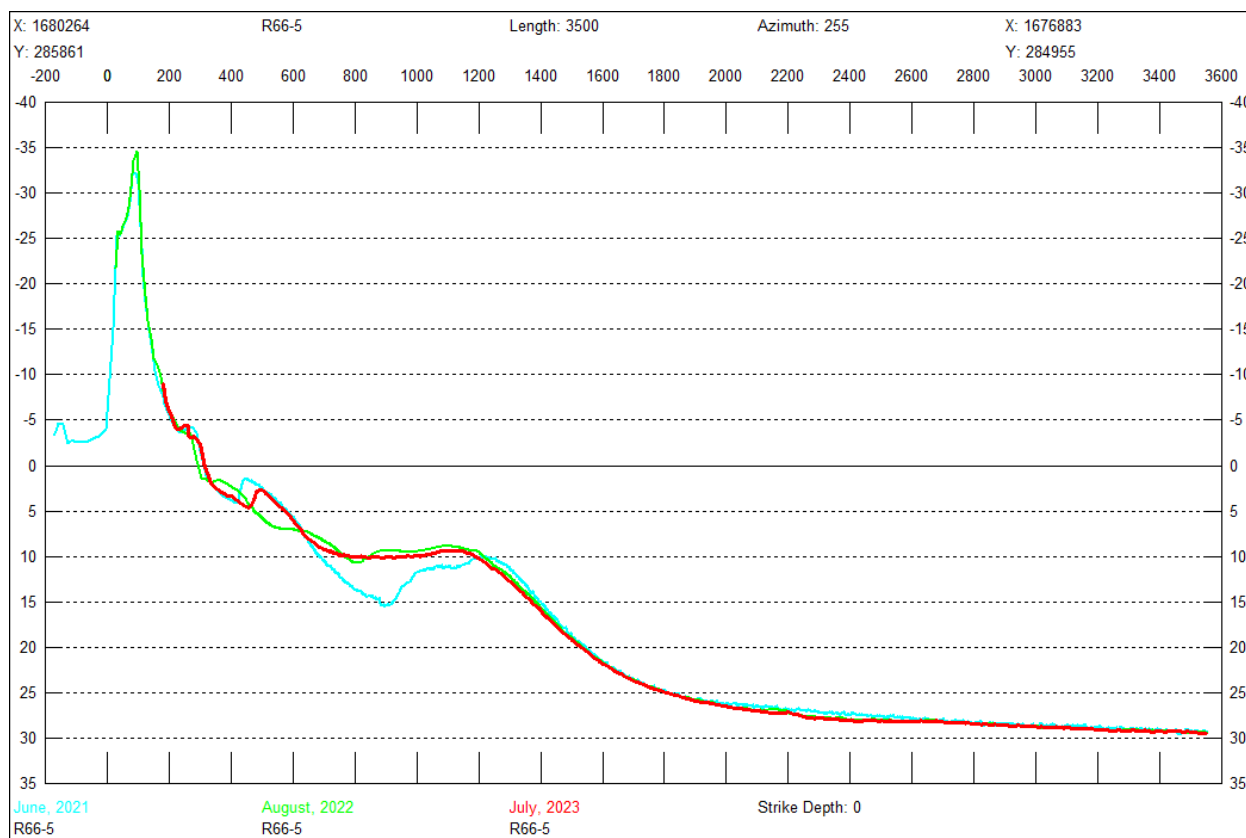
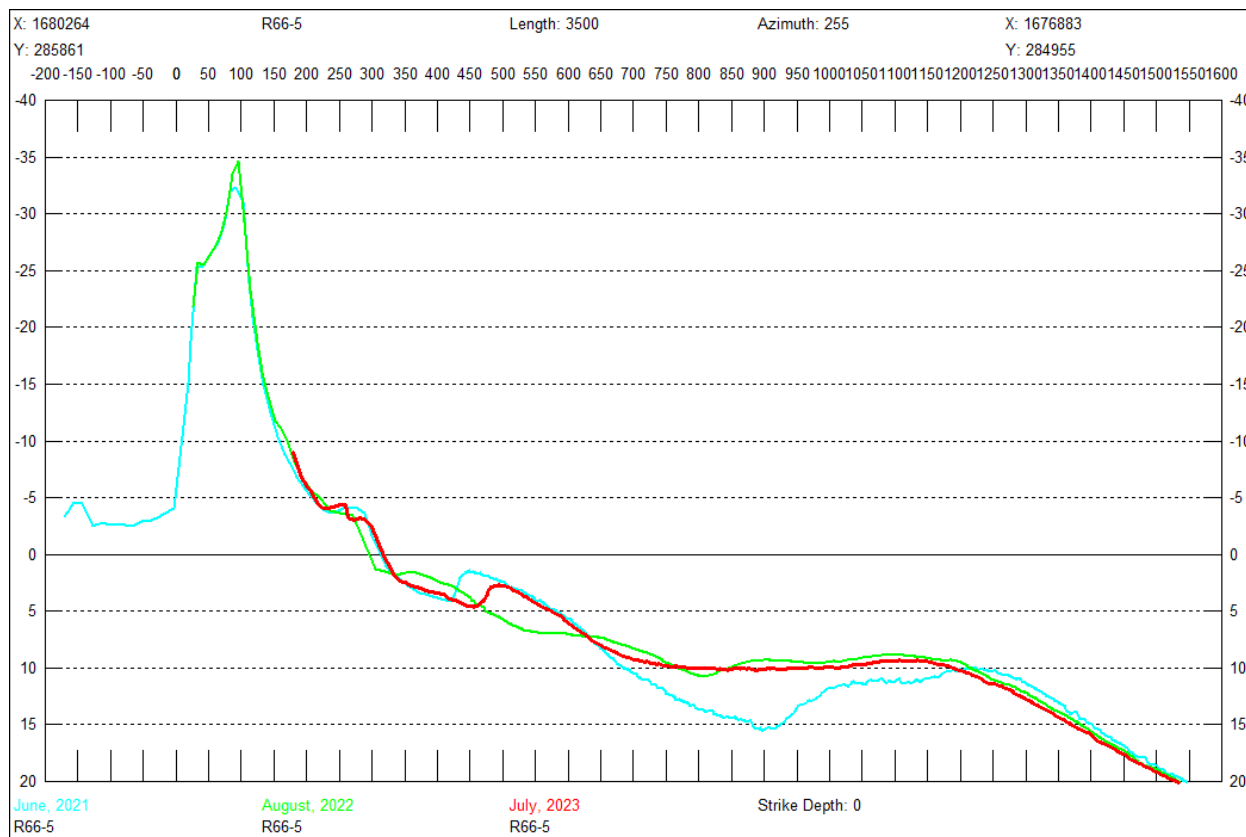
APPENDIX 2

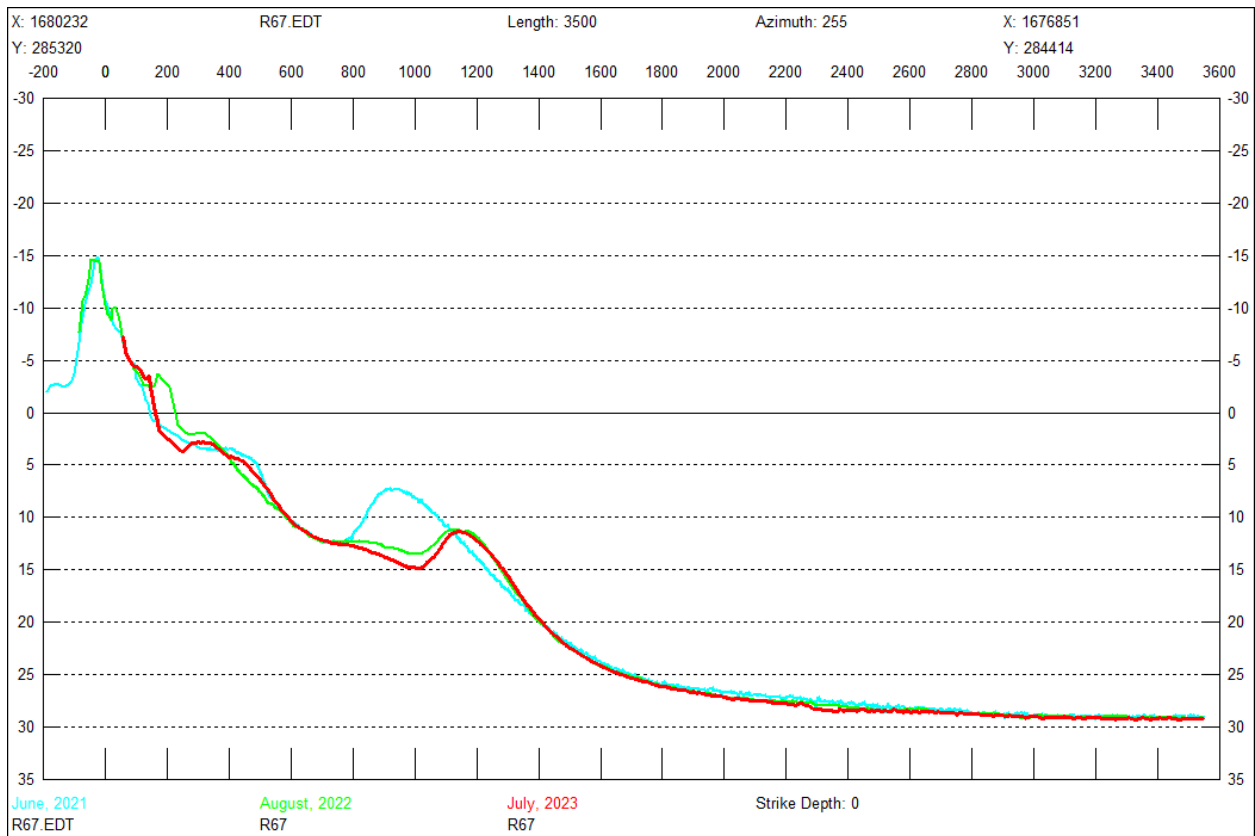
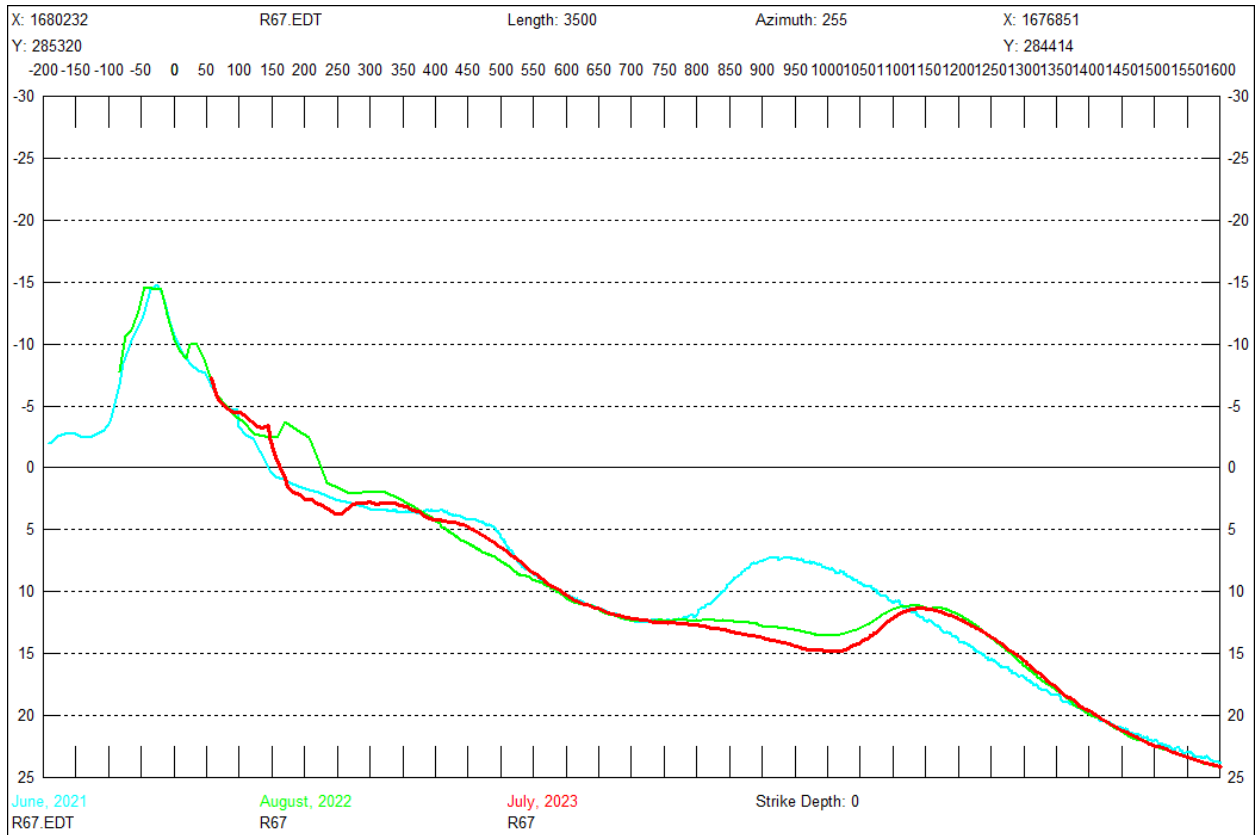
Profile Plots

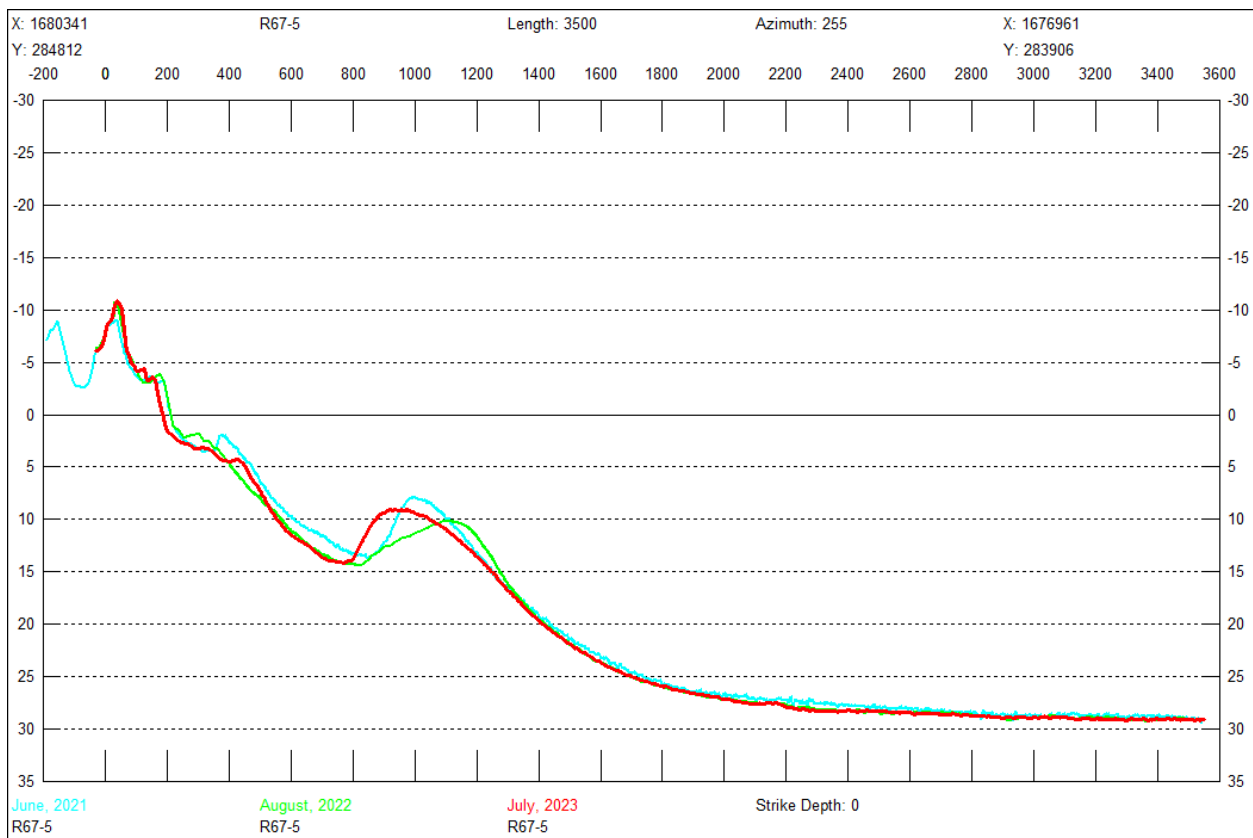
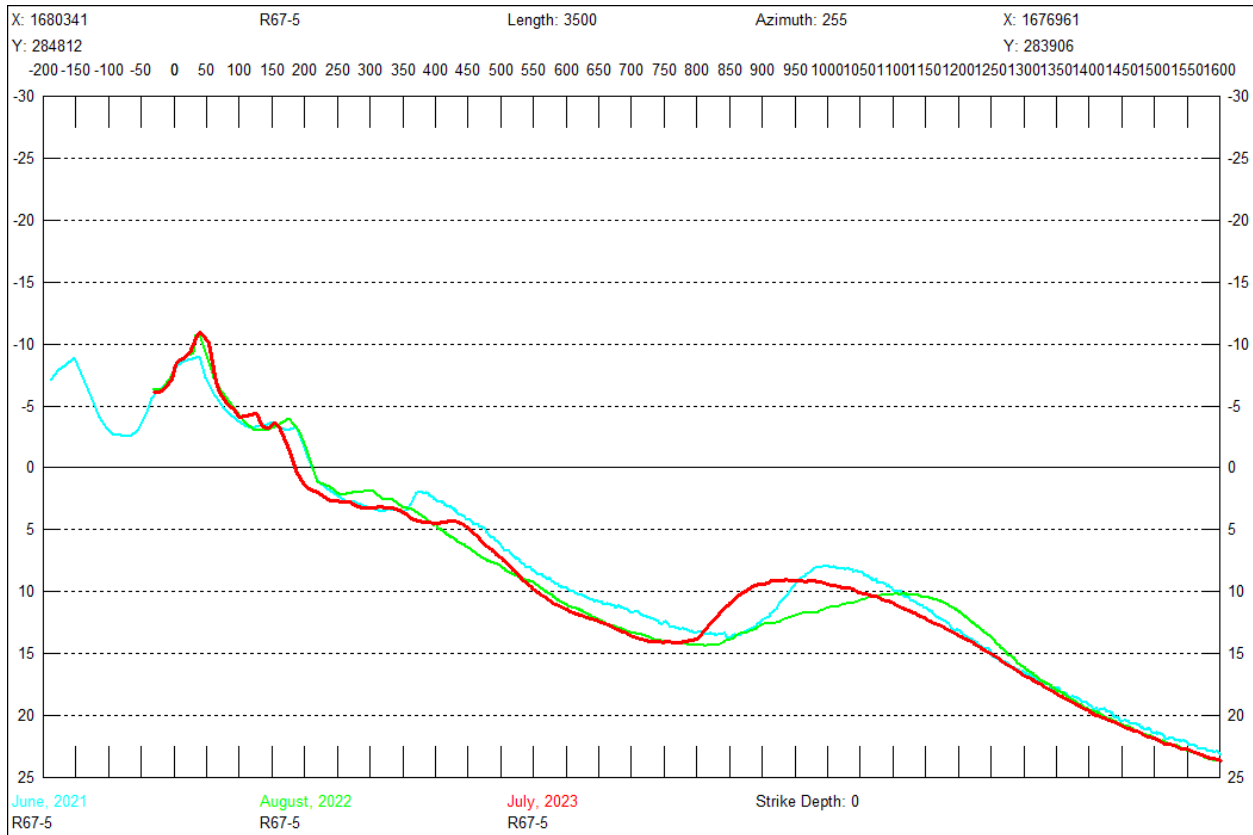


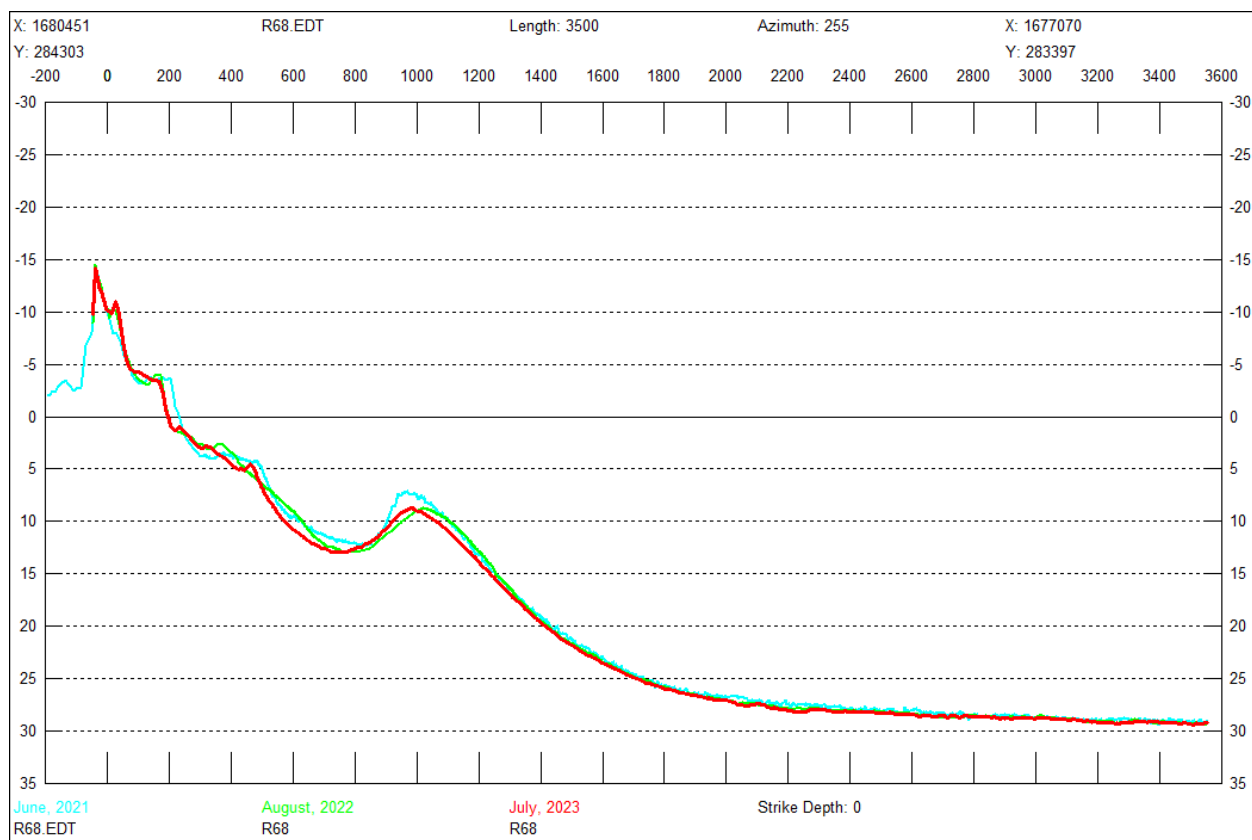
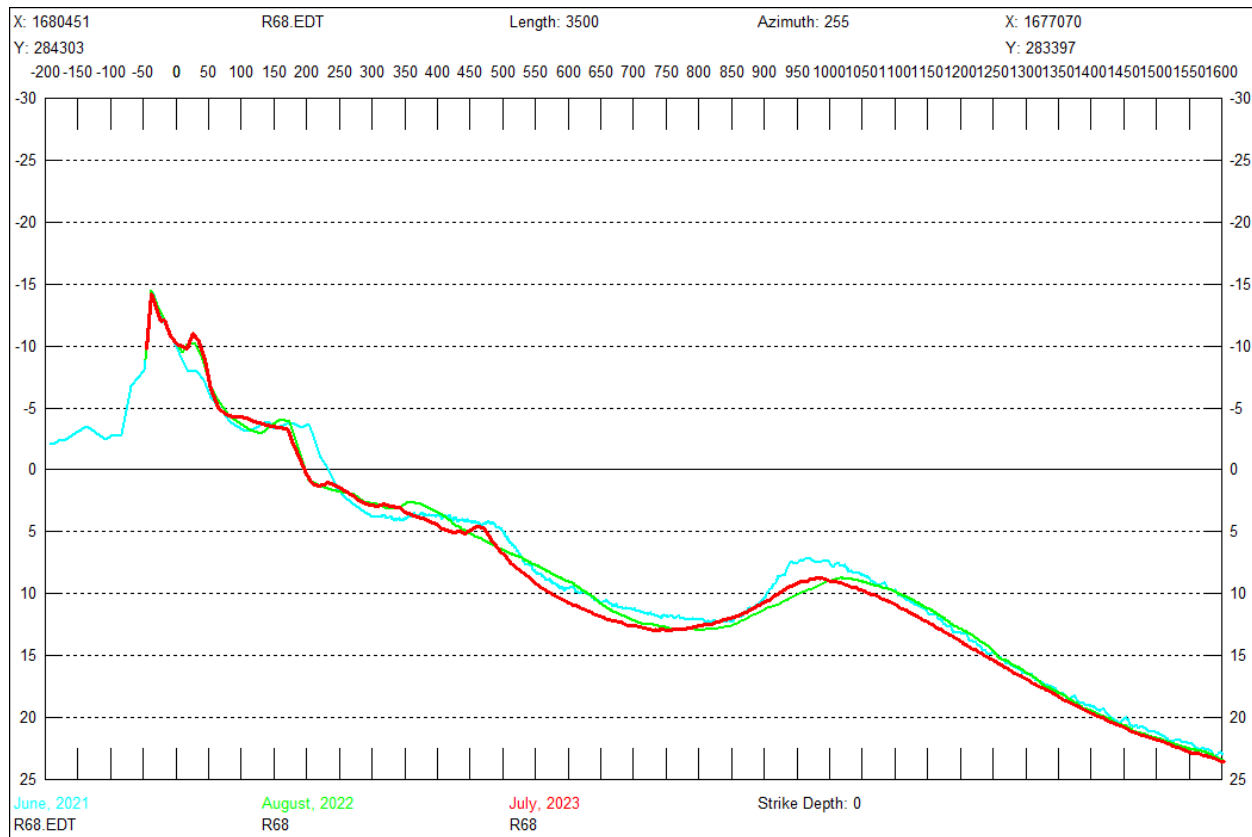


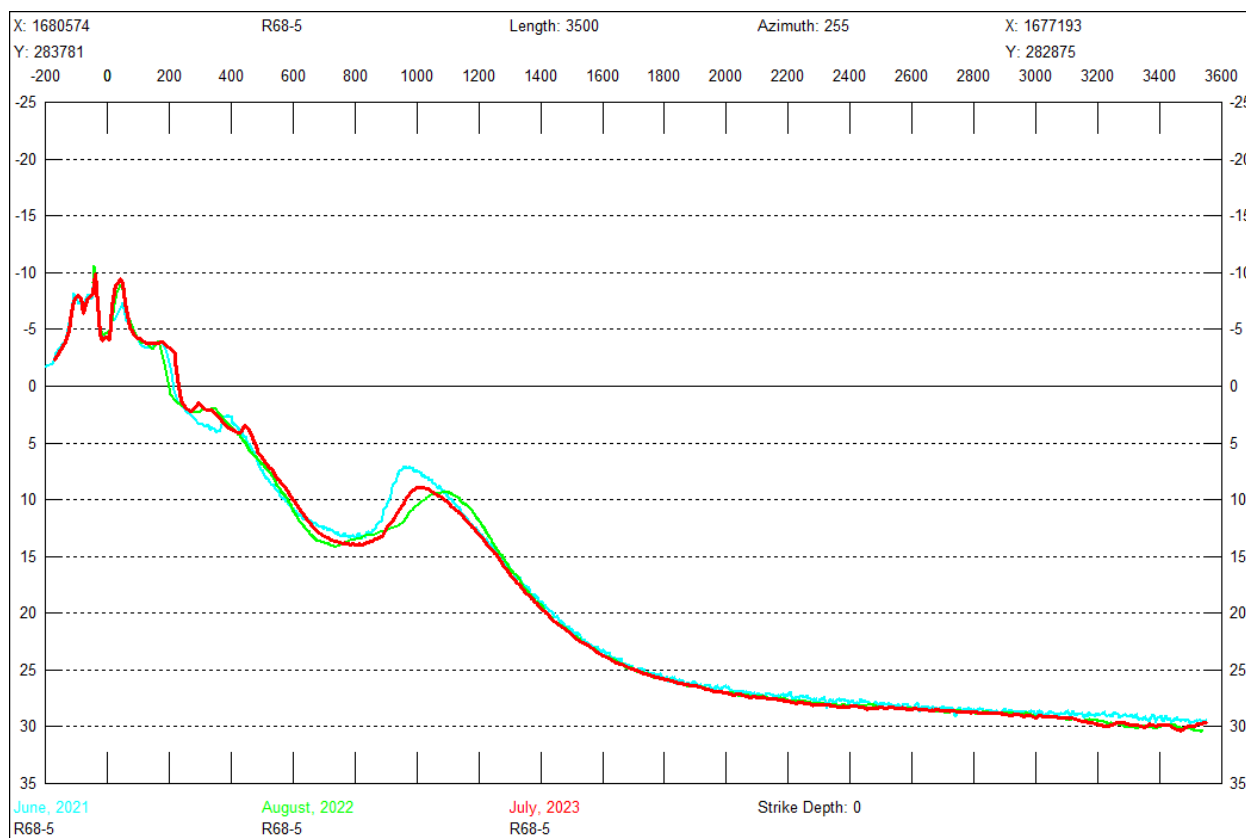
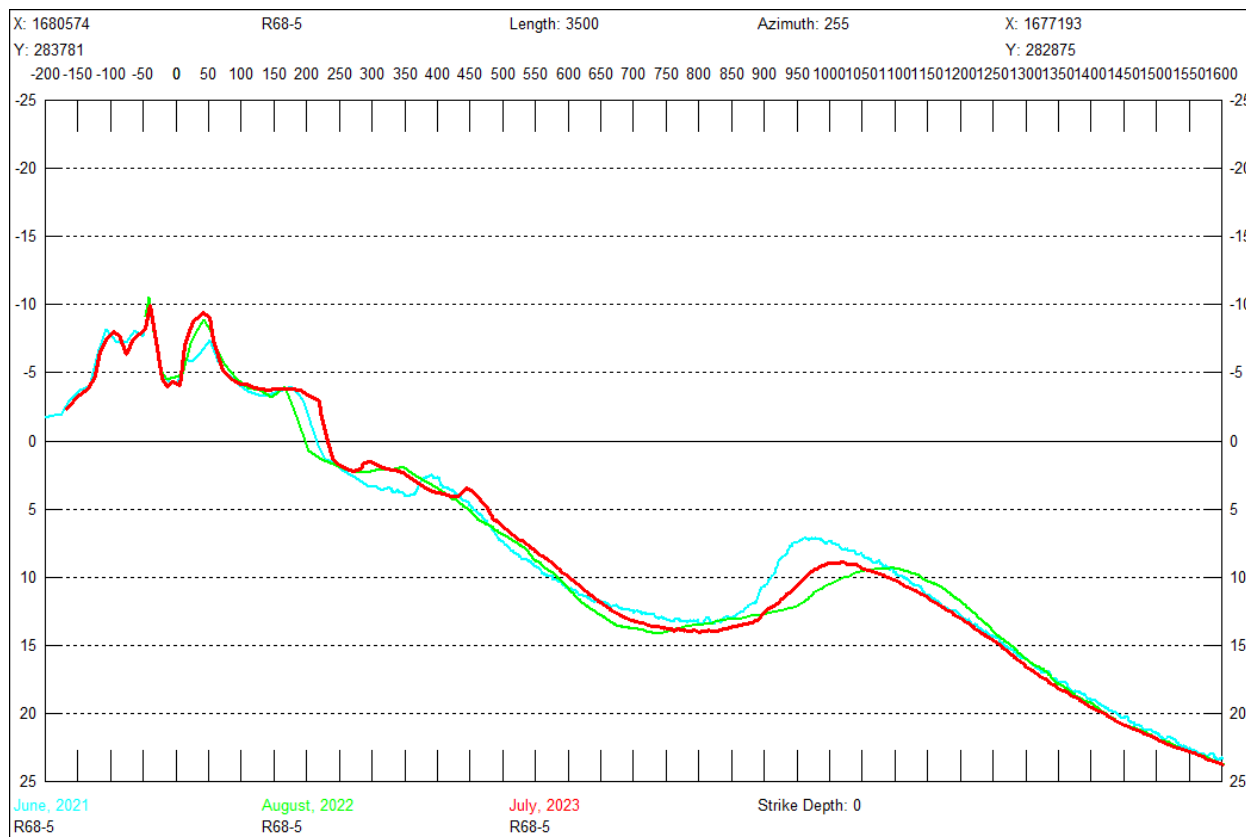


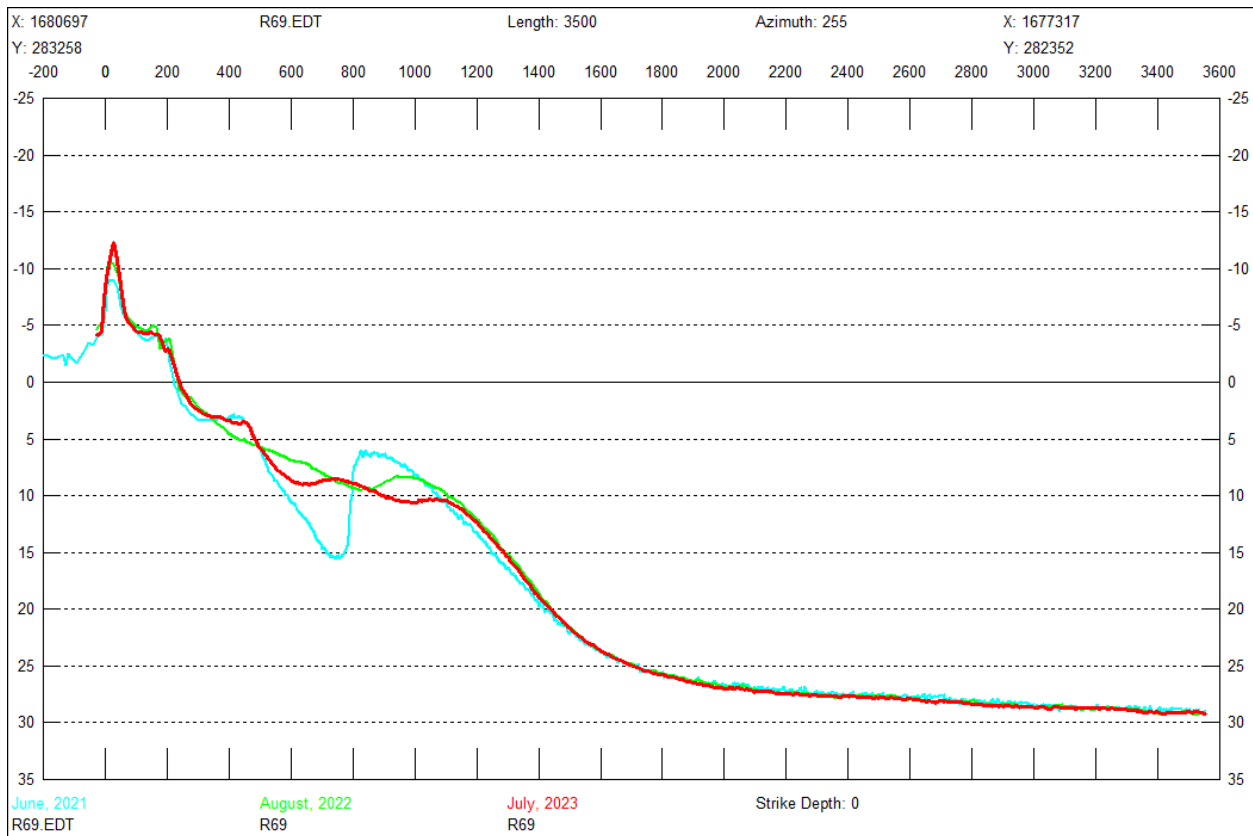
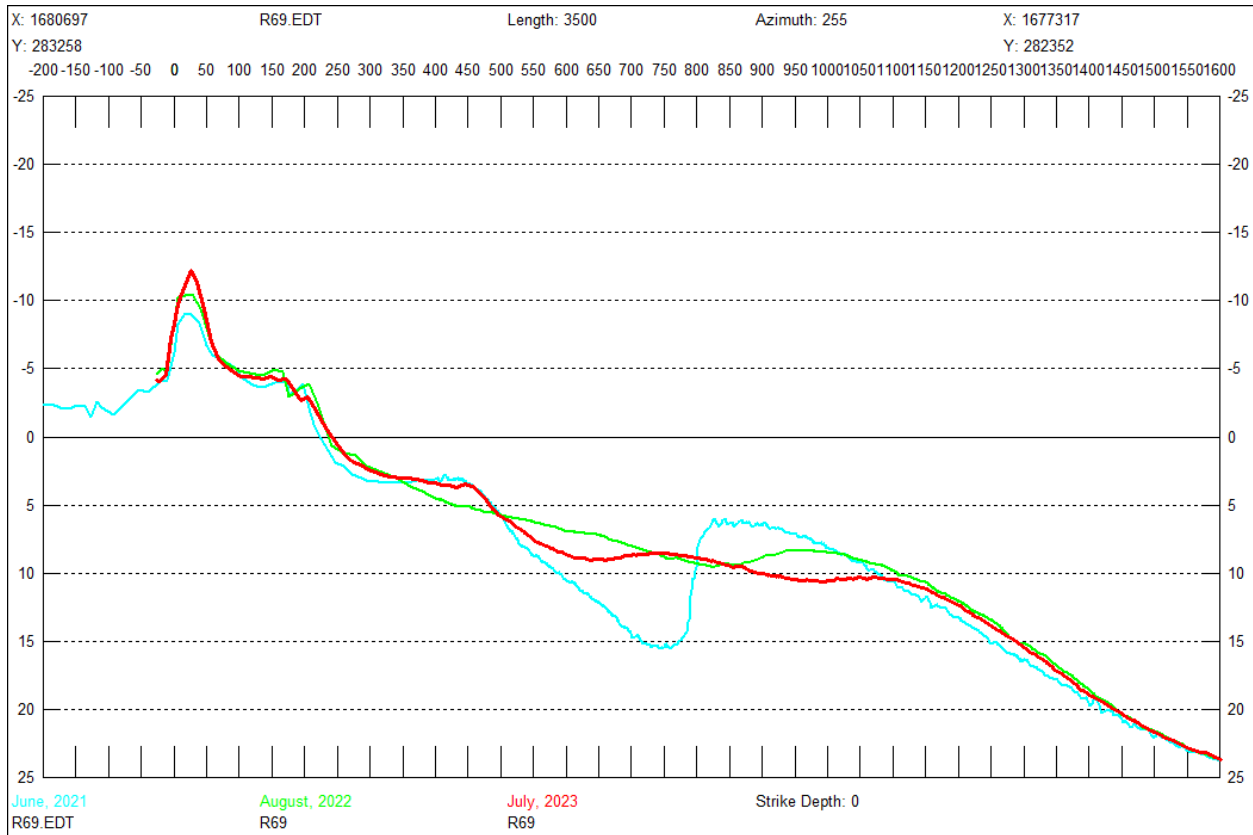


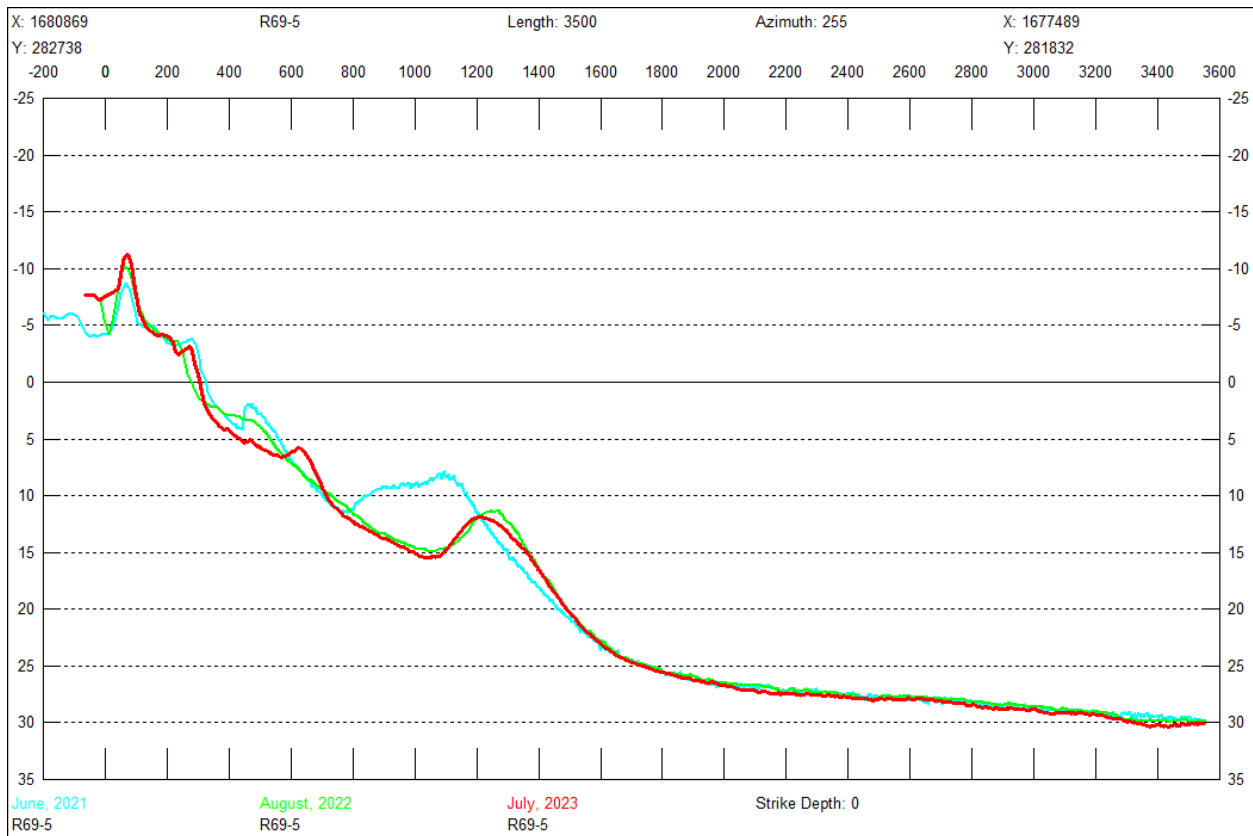
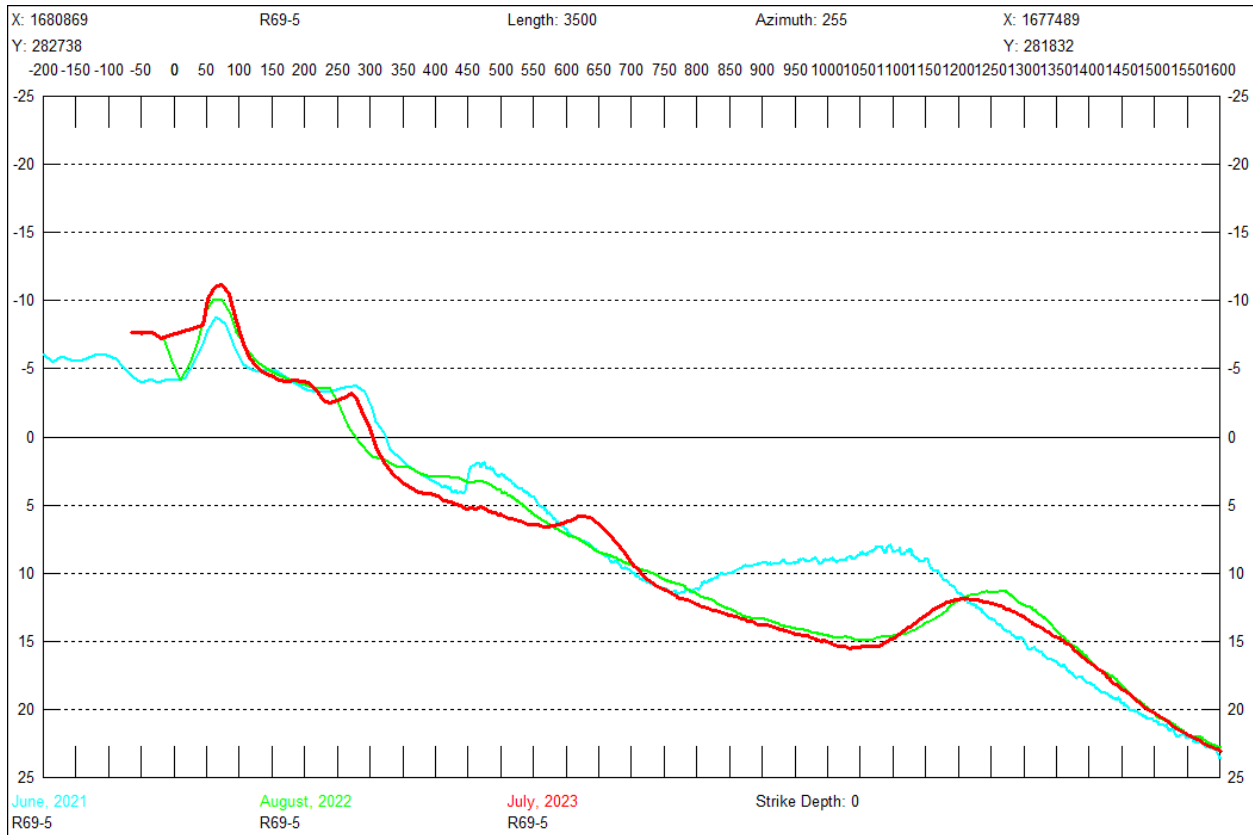


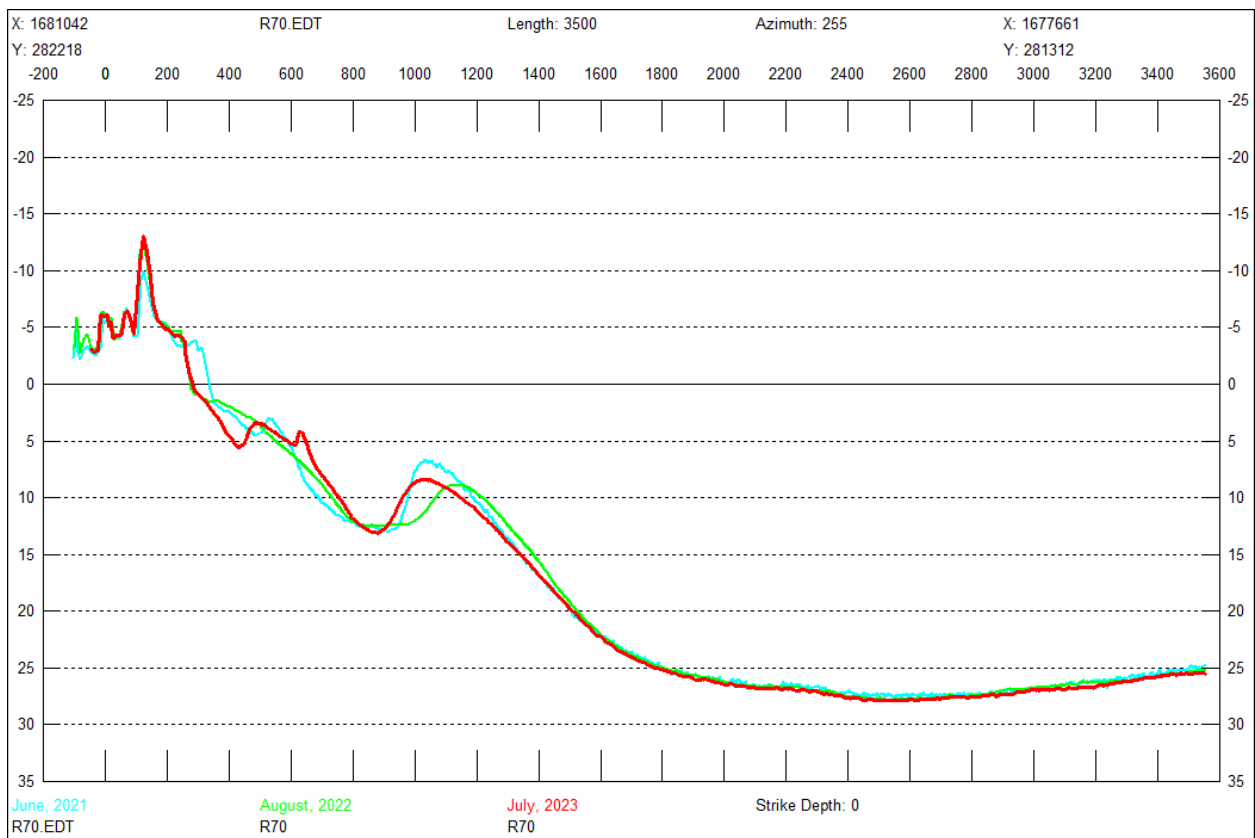
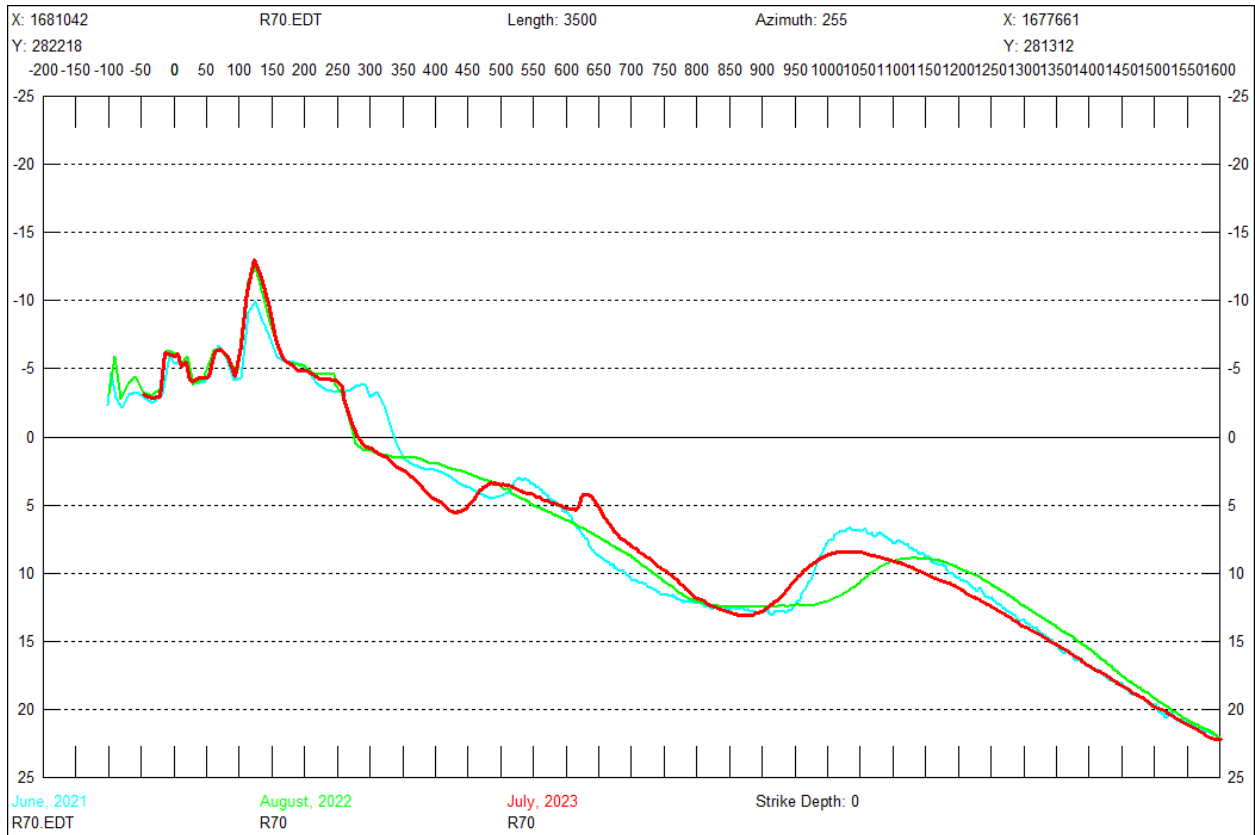


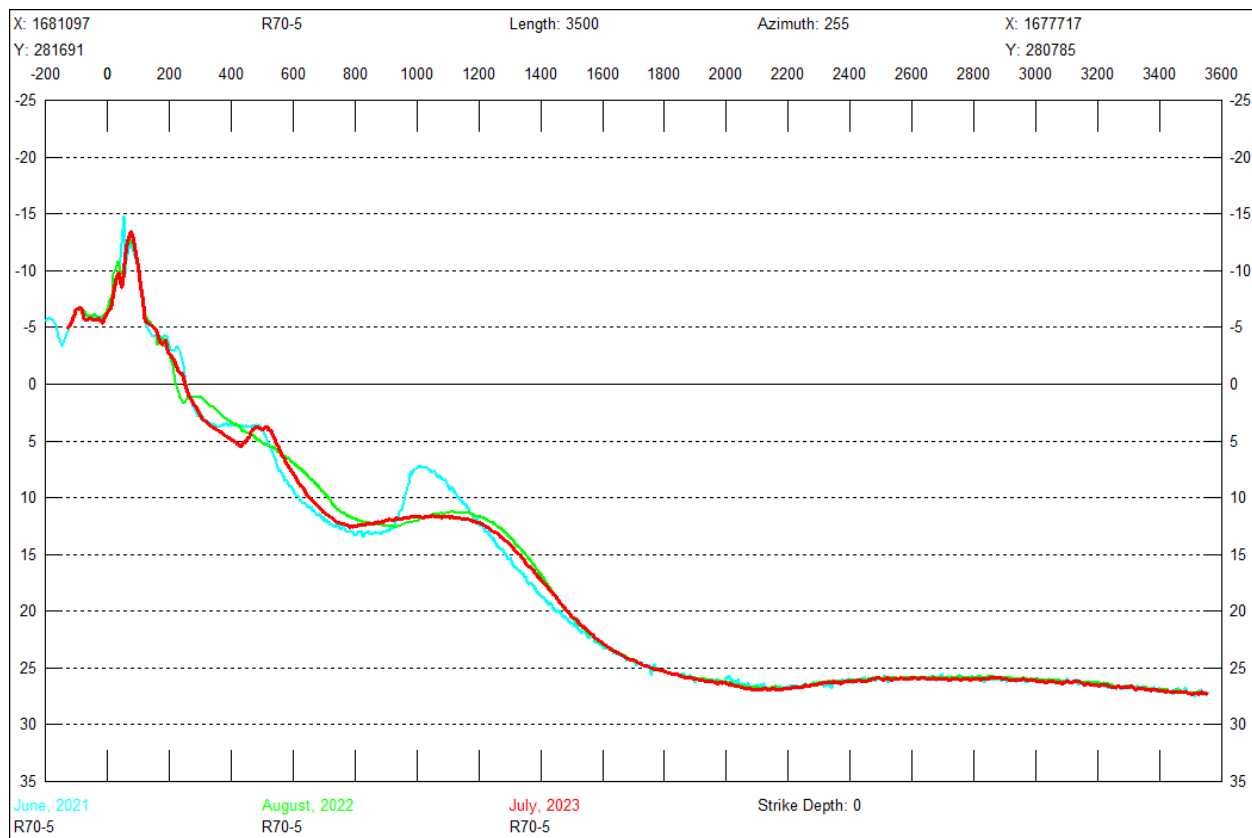
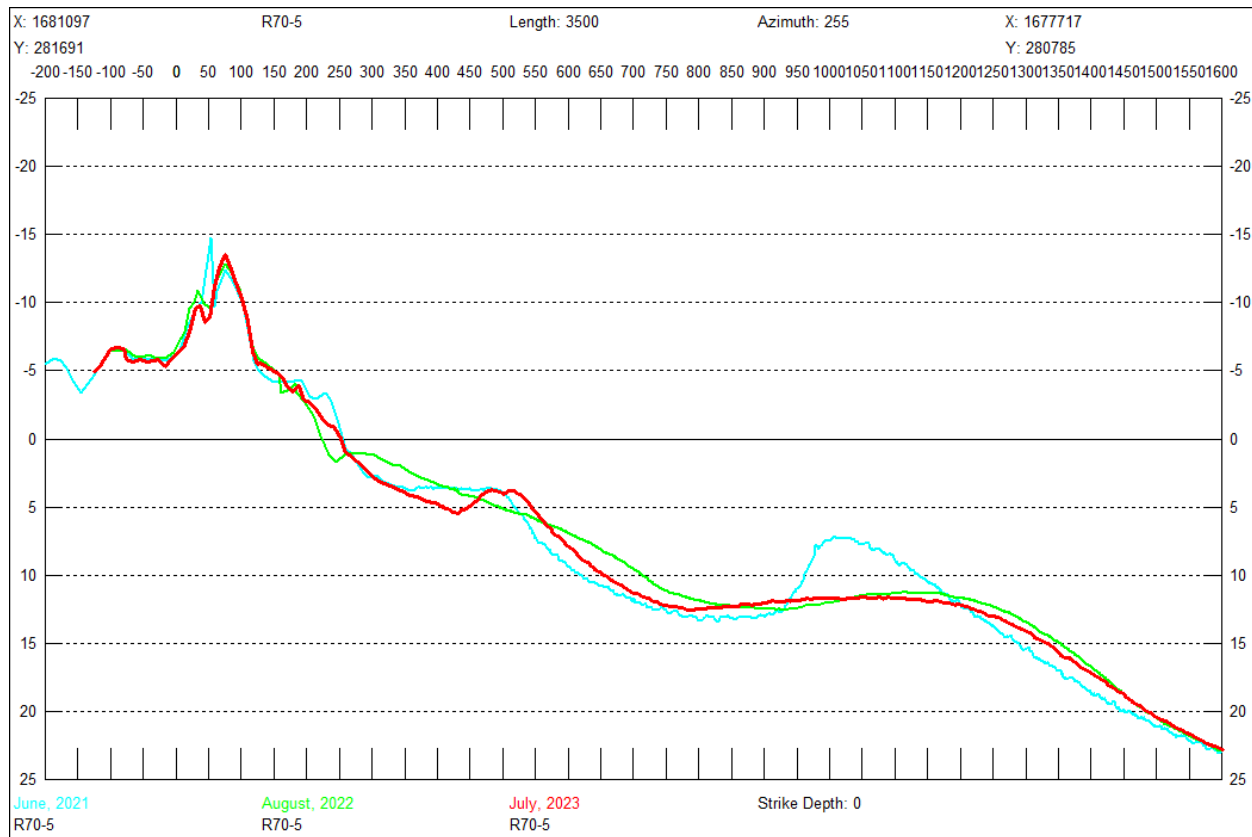


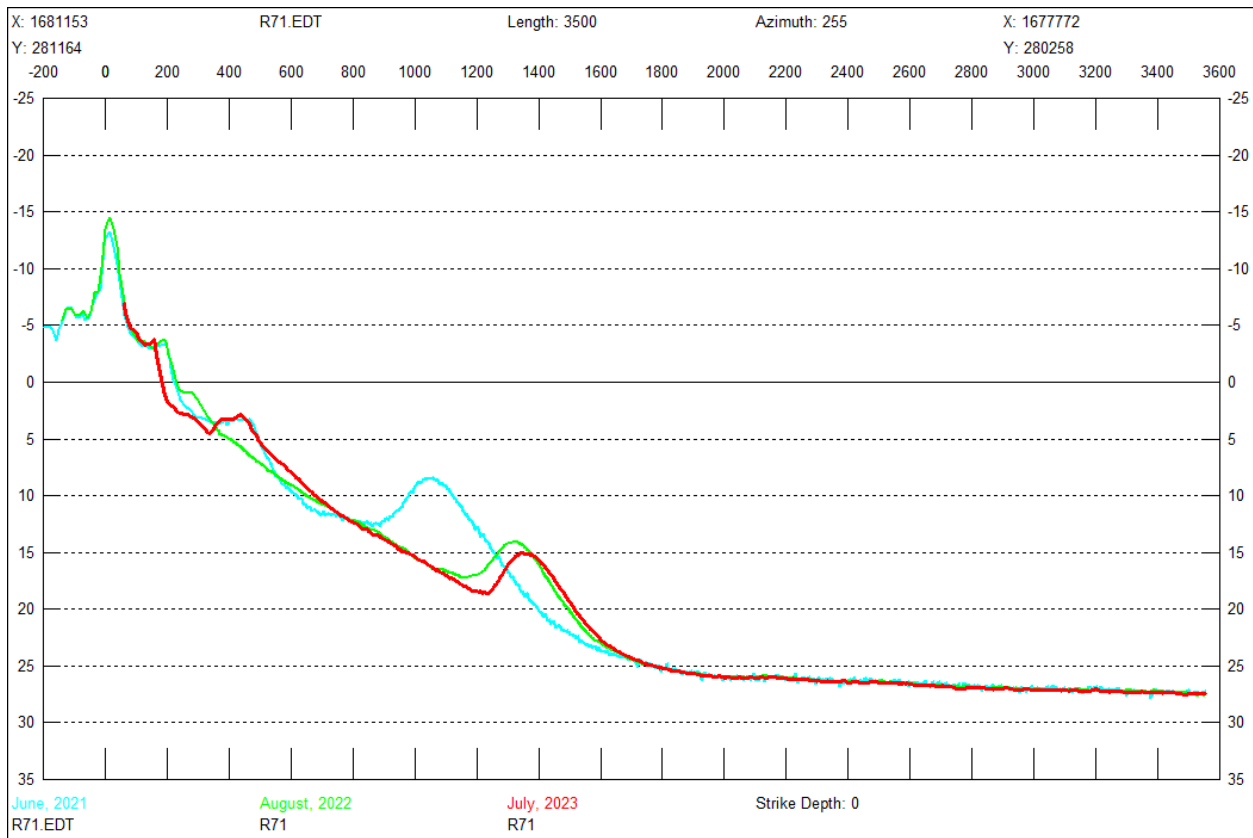
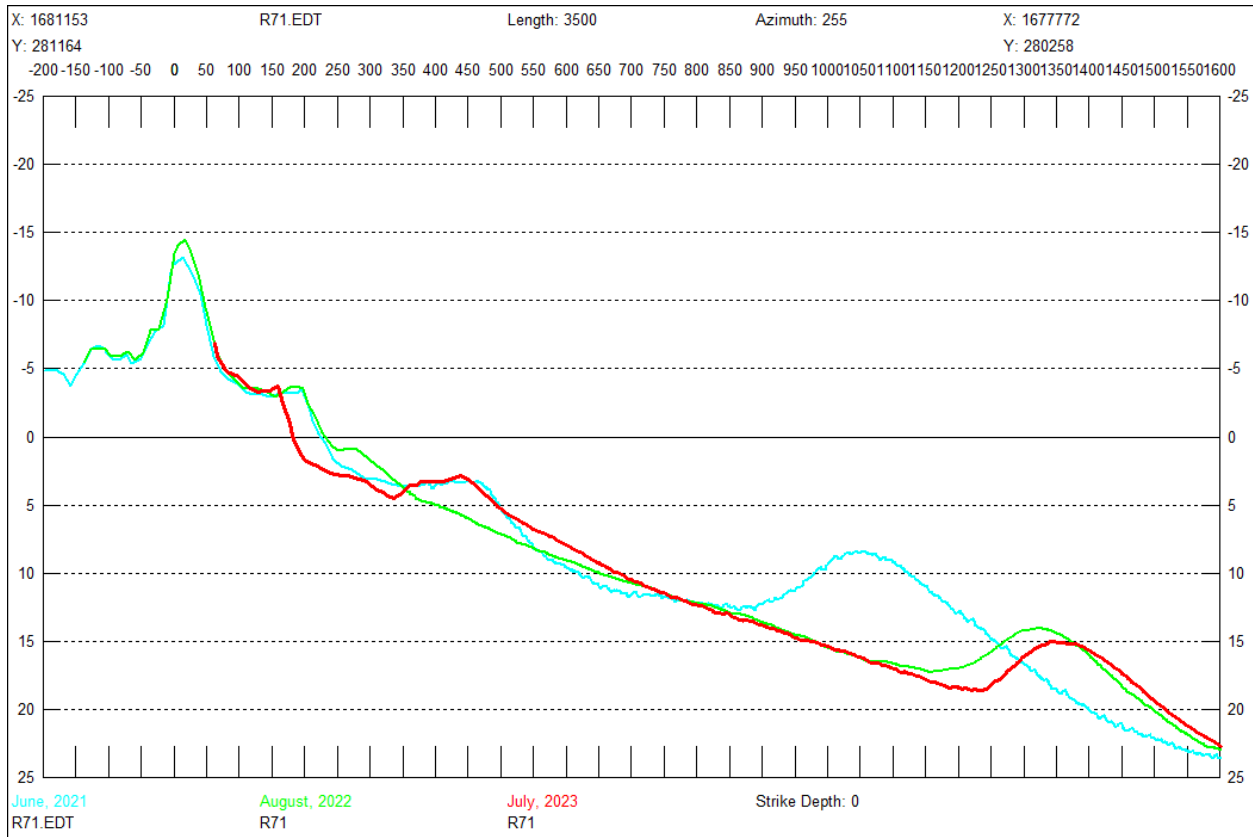


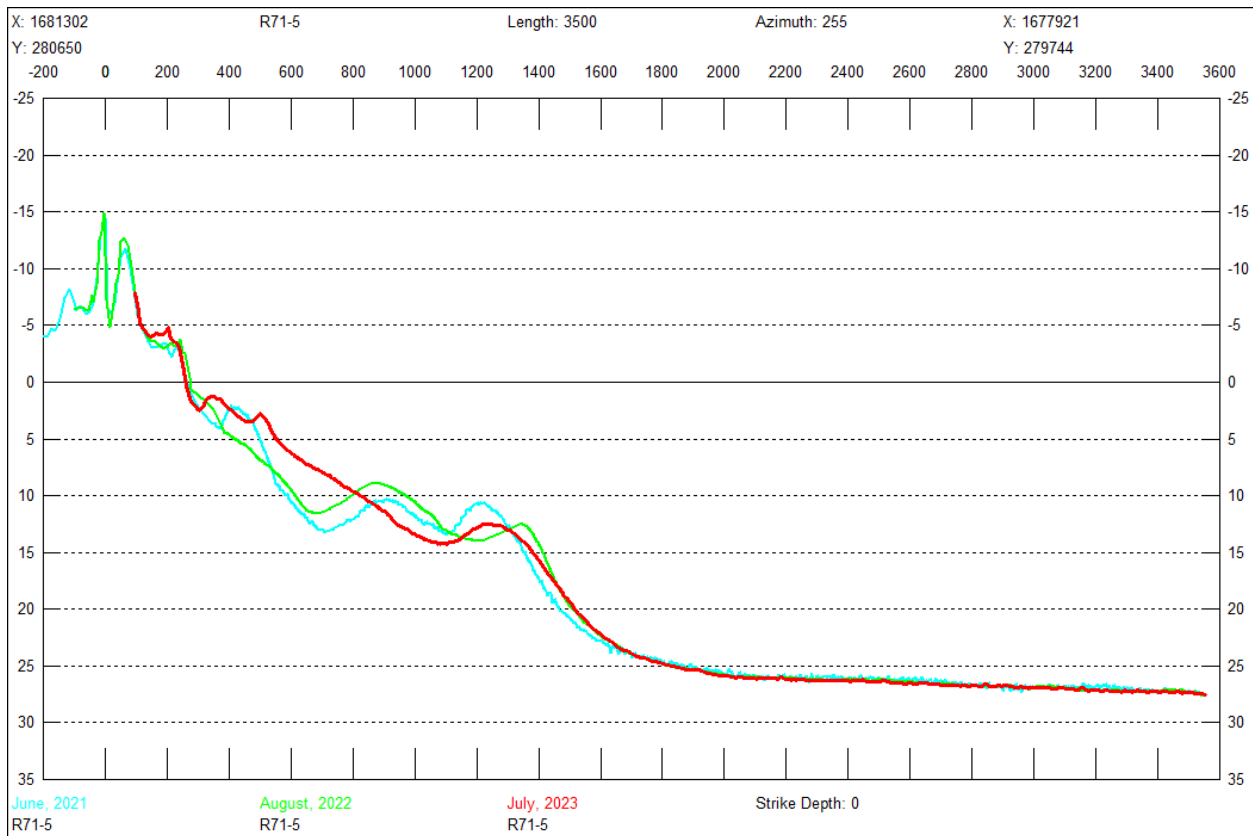
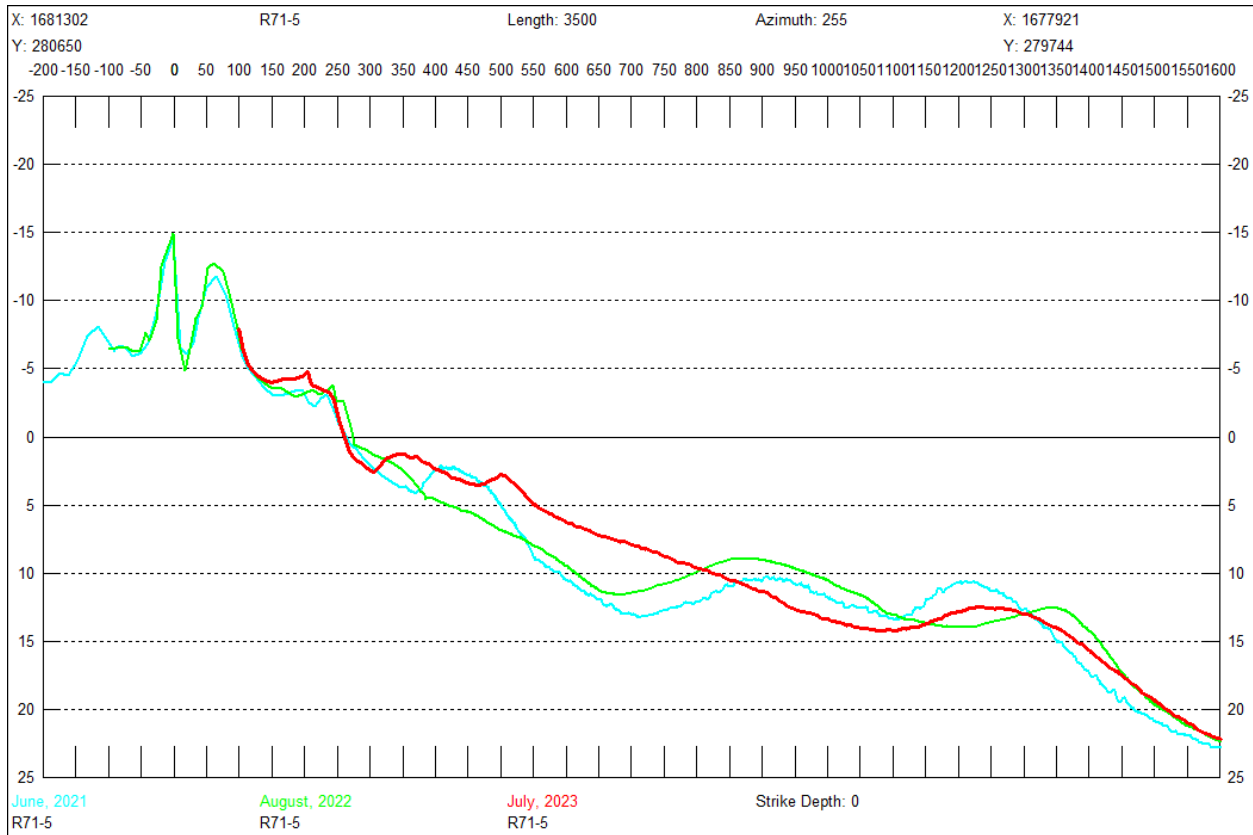


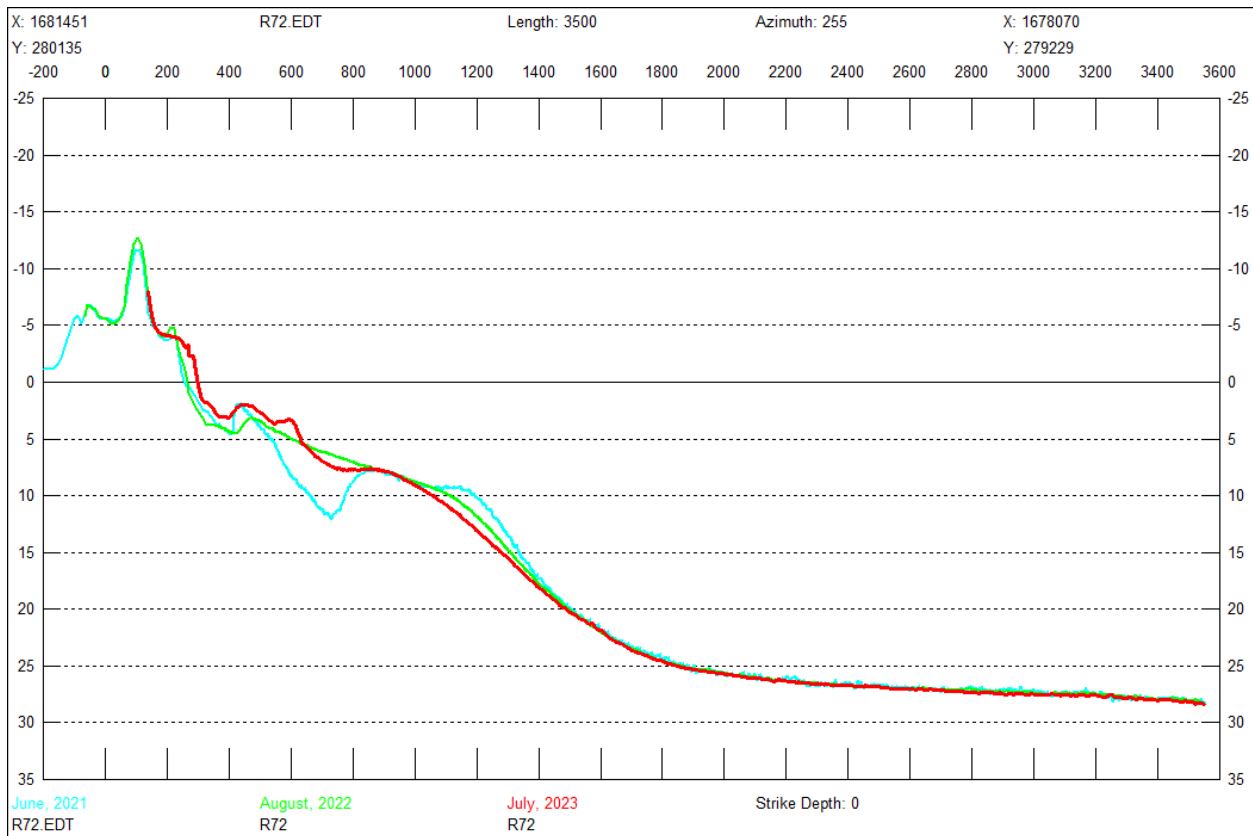
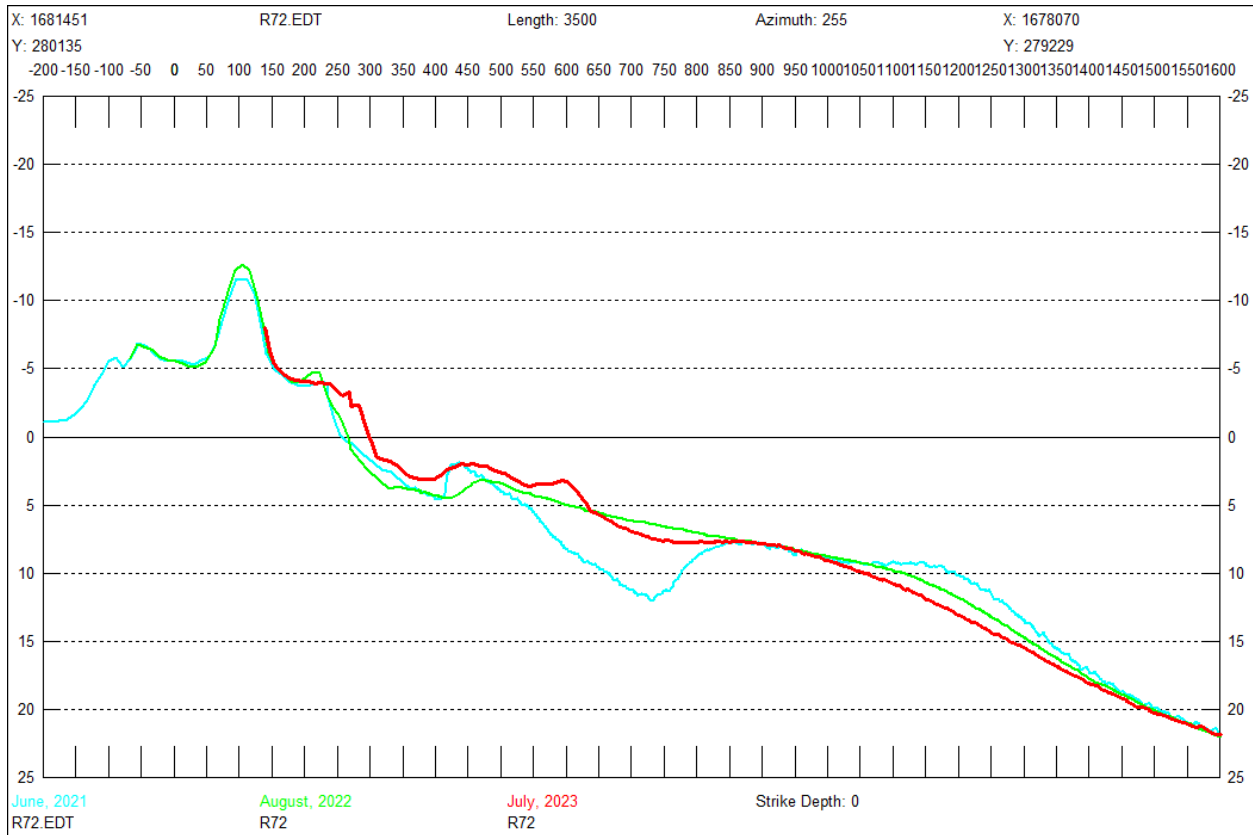


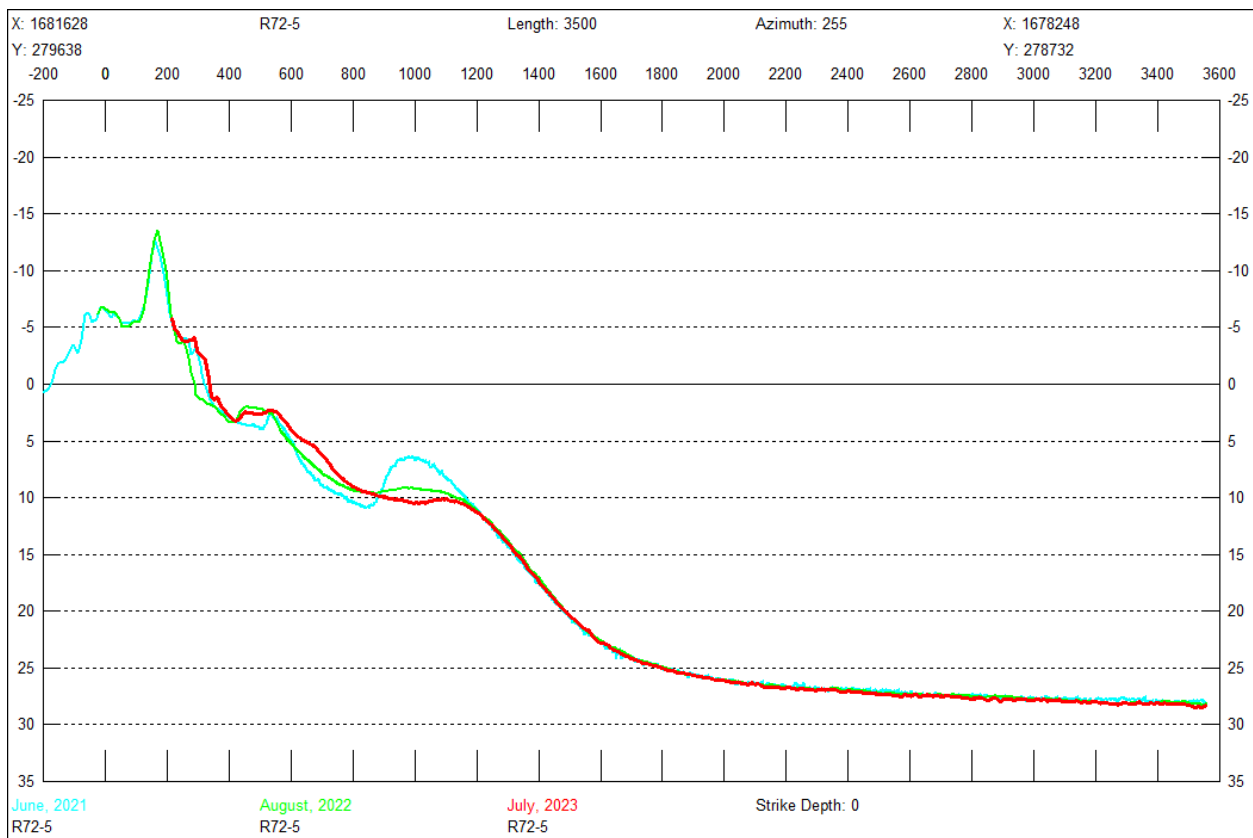
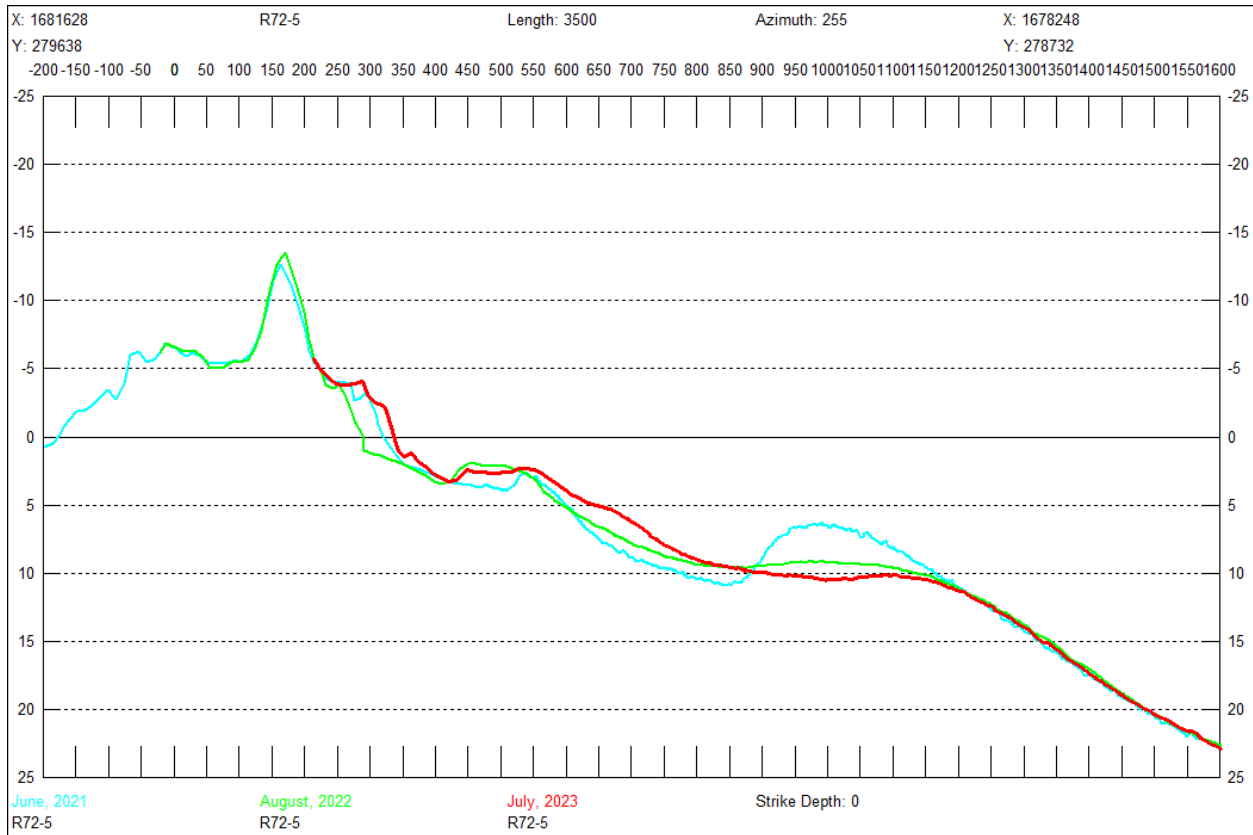


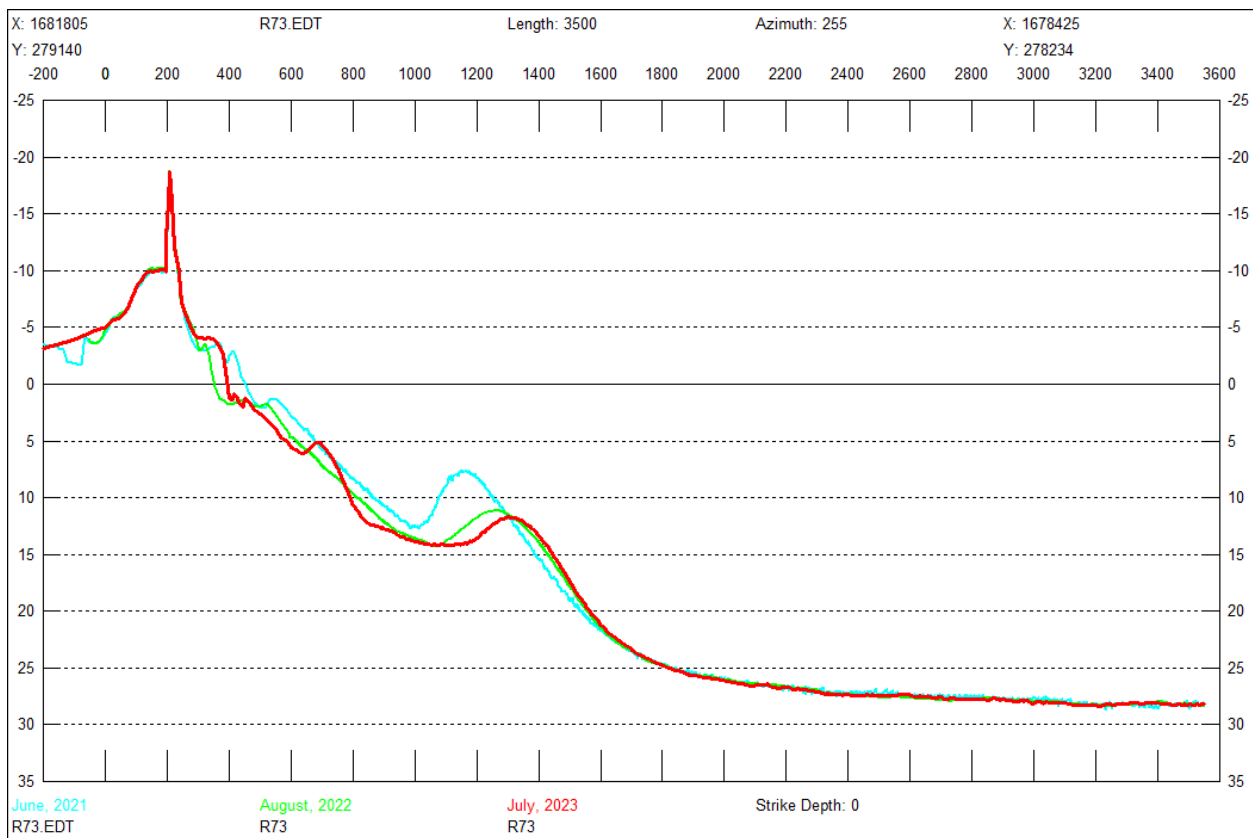
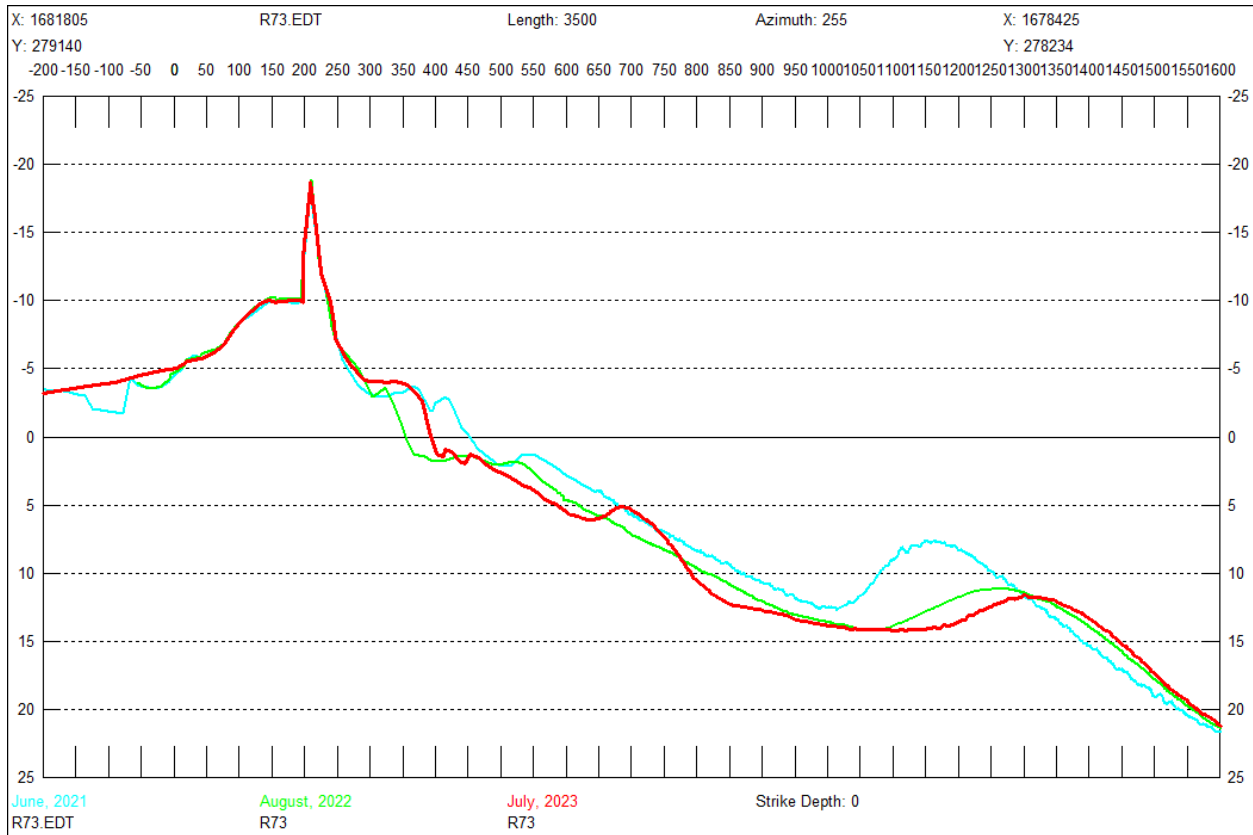


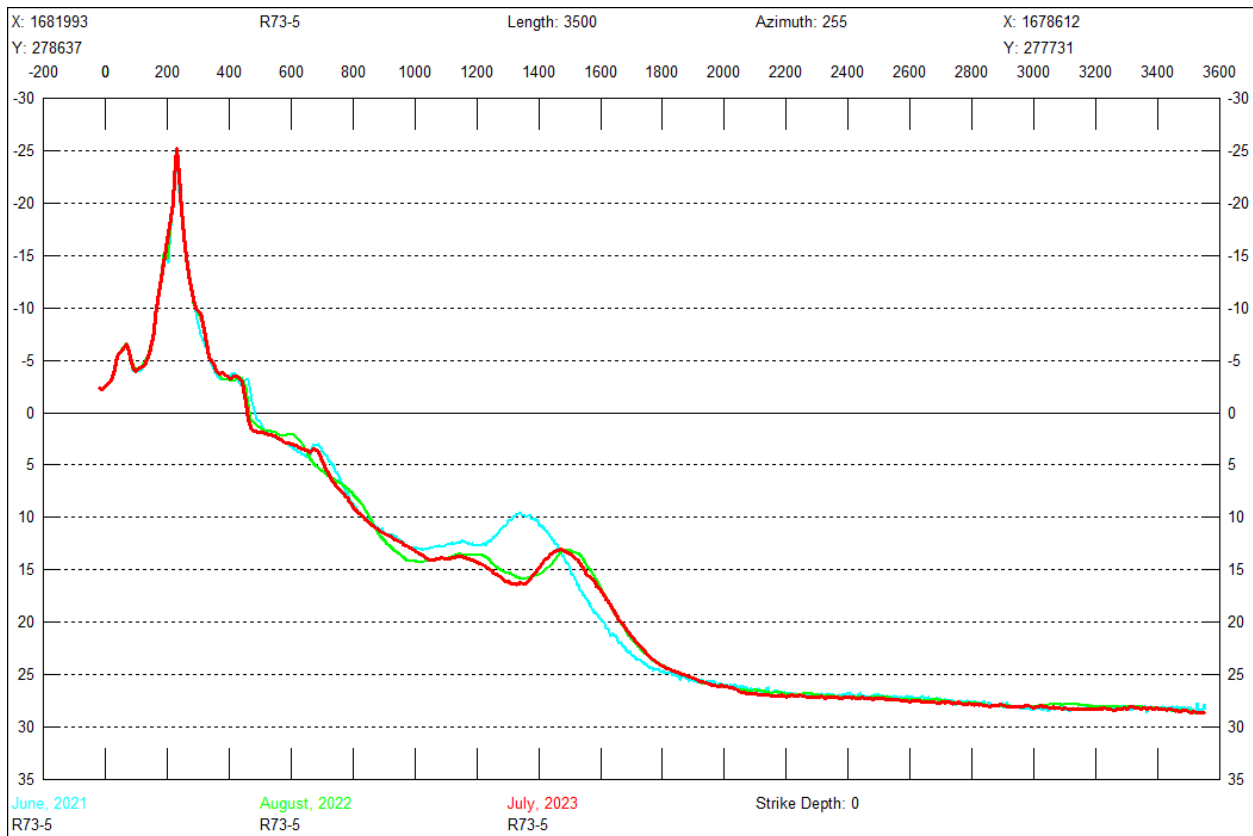
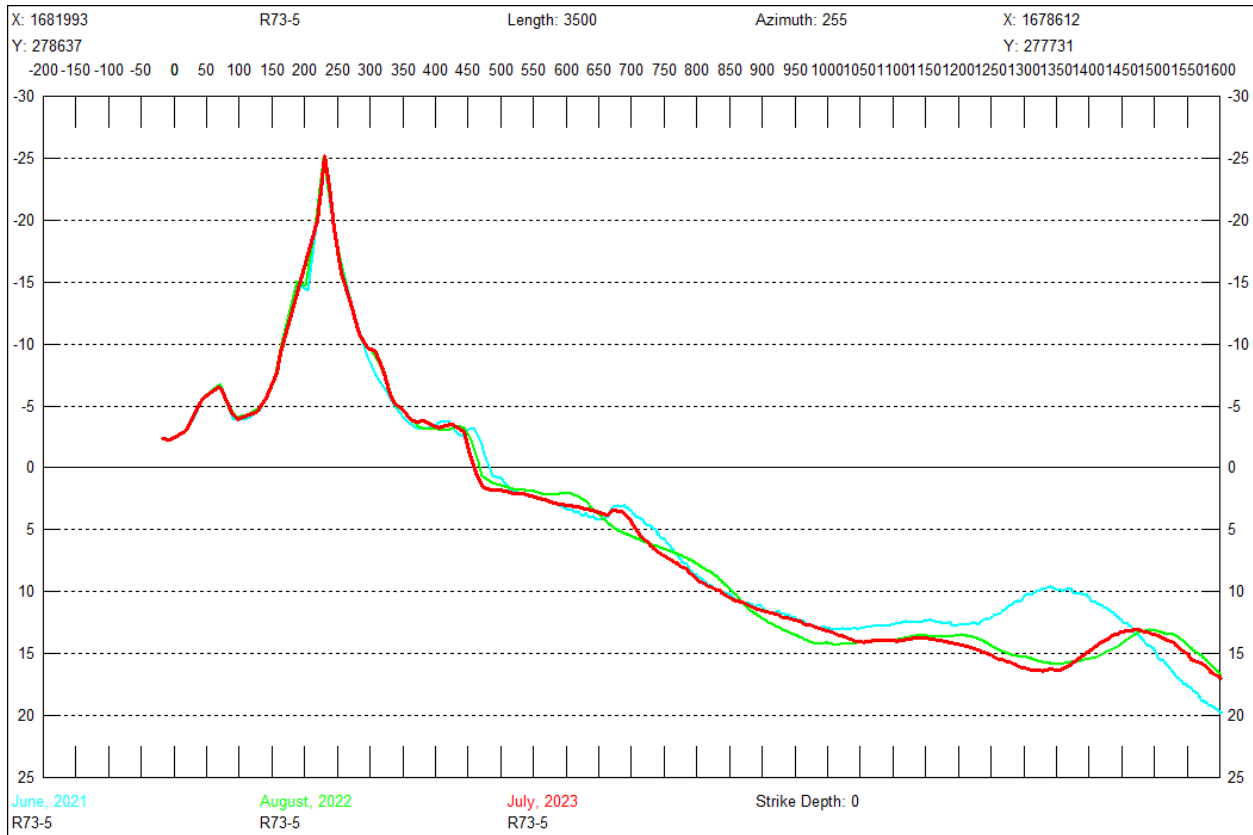


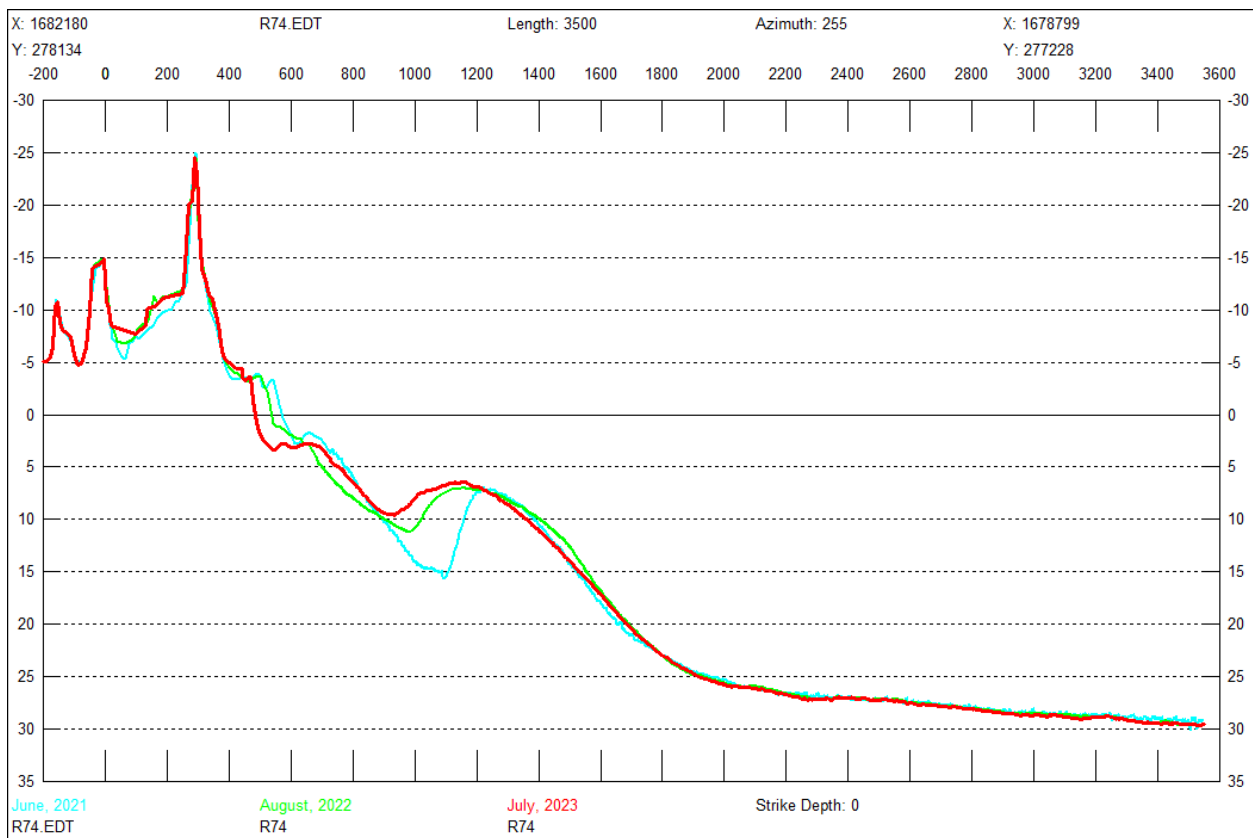
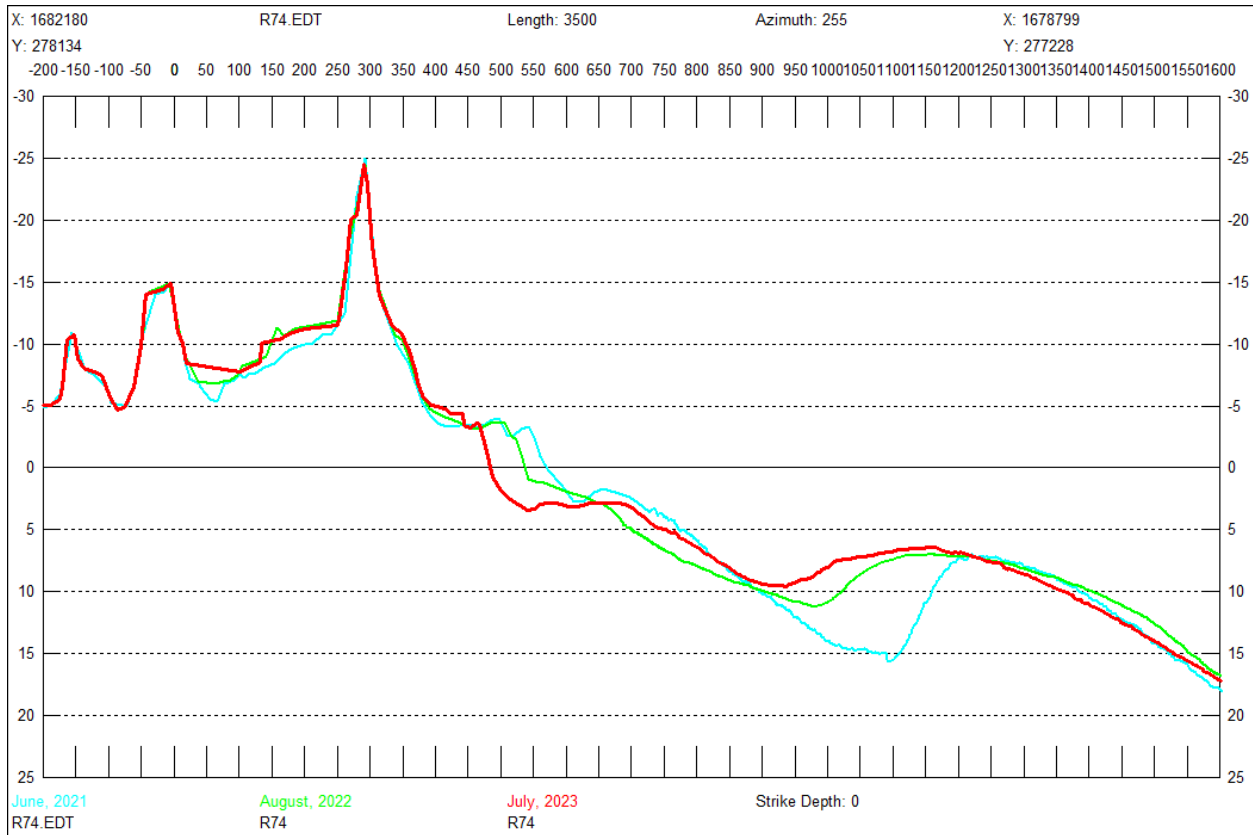


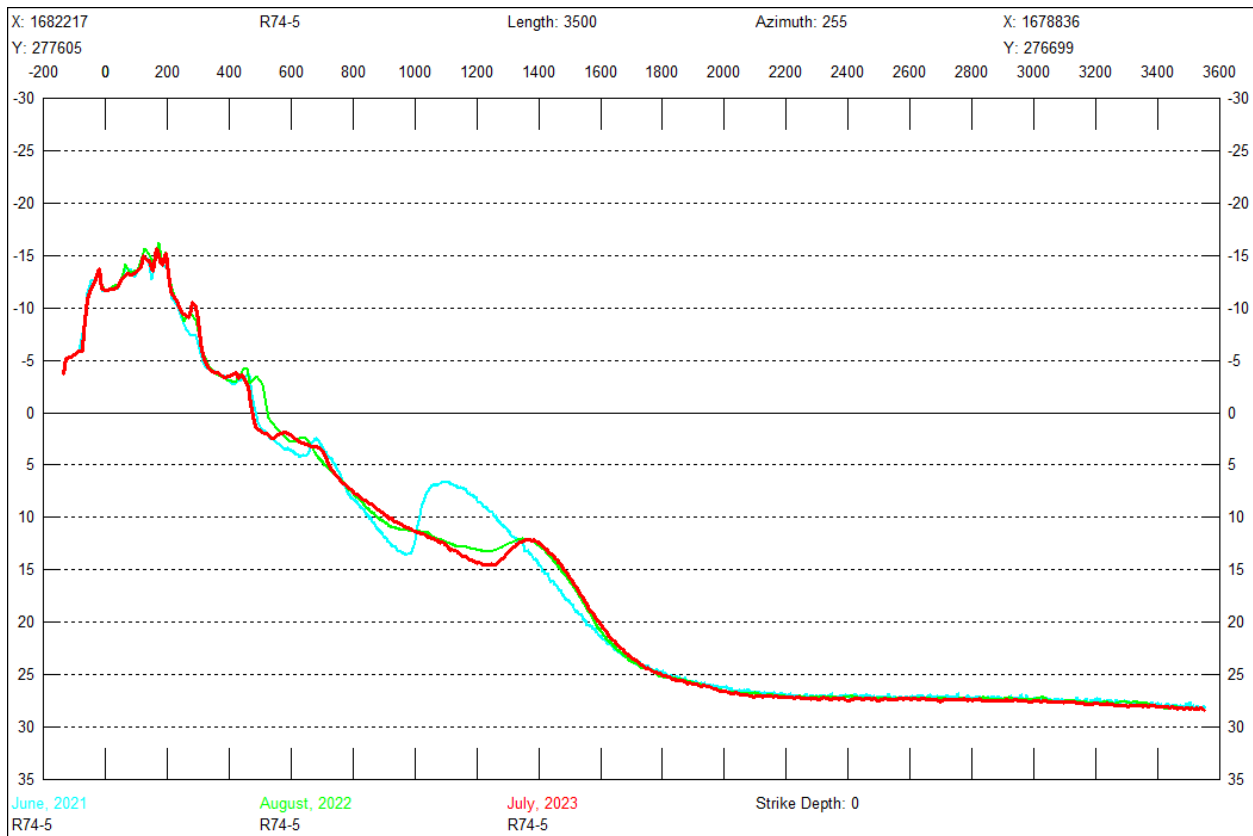
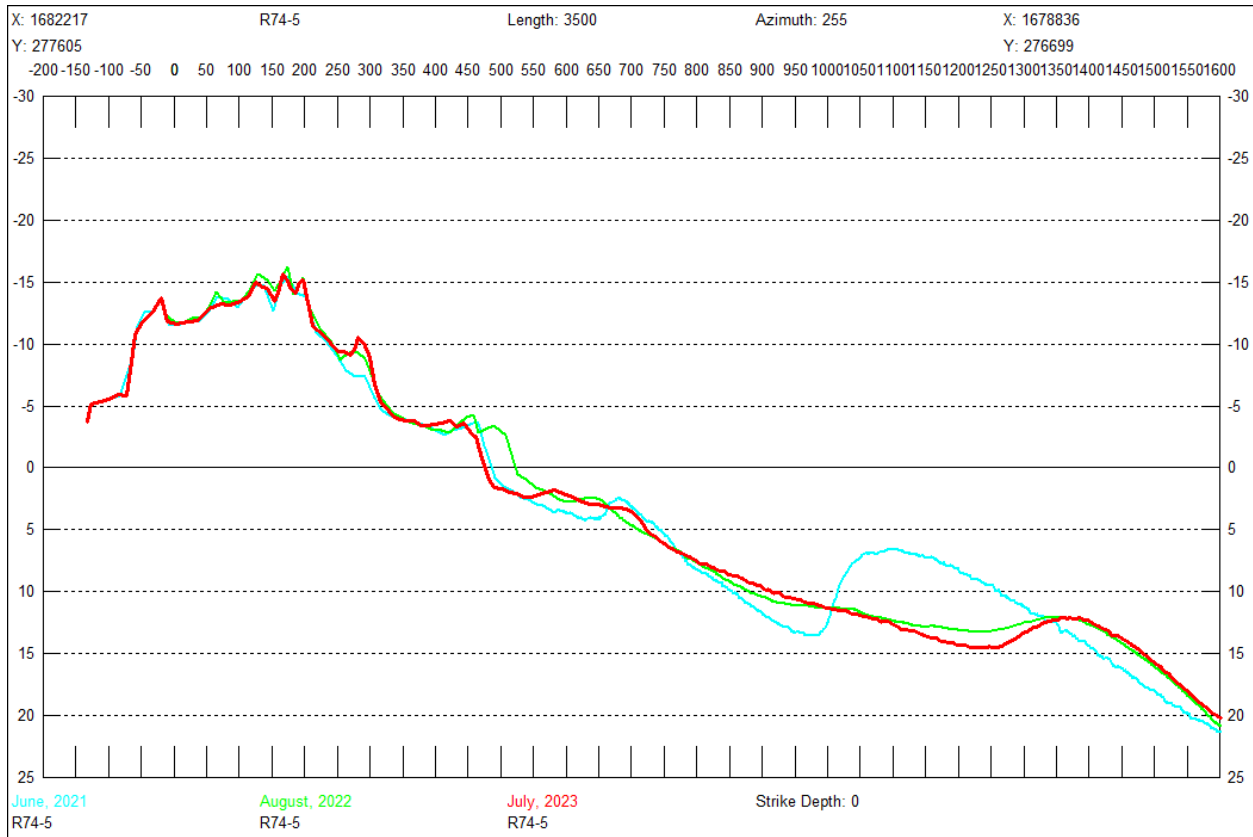


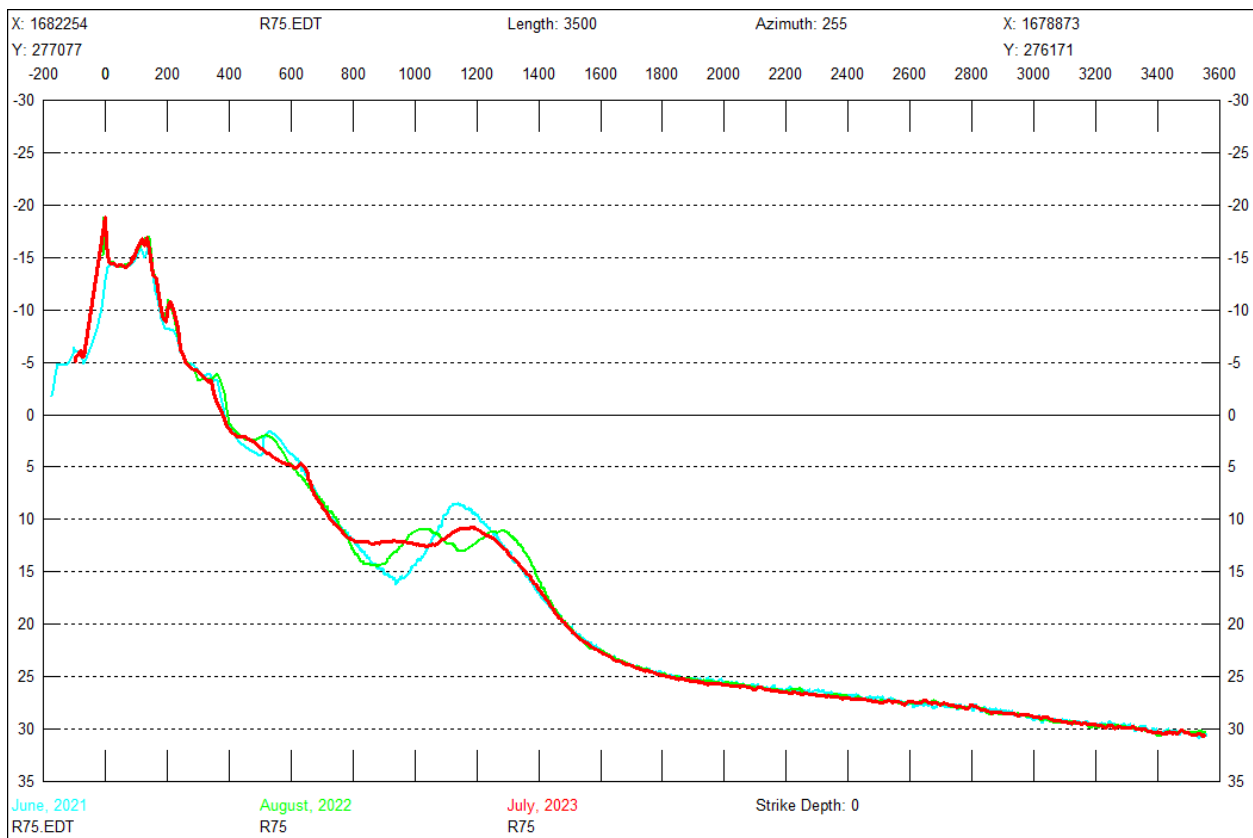
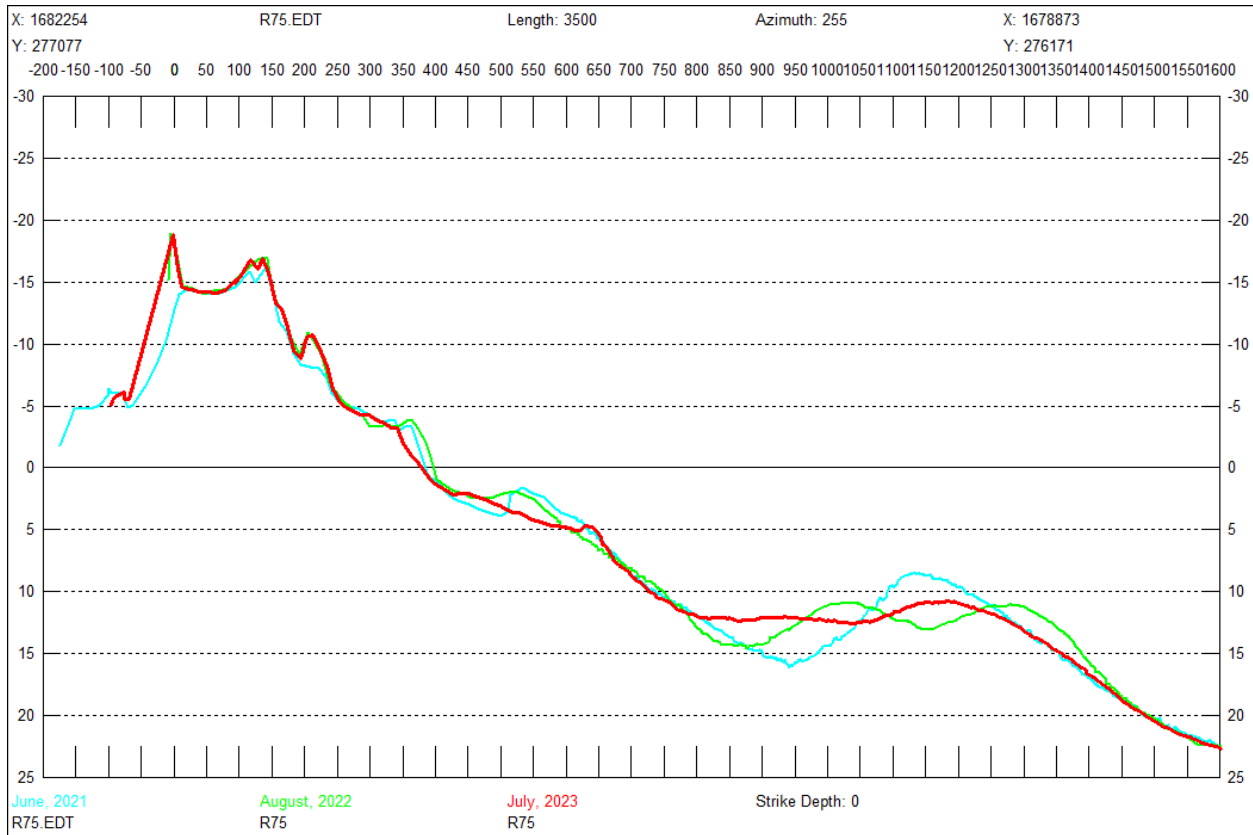


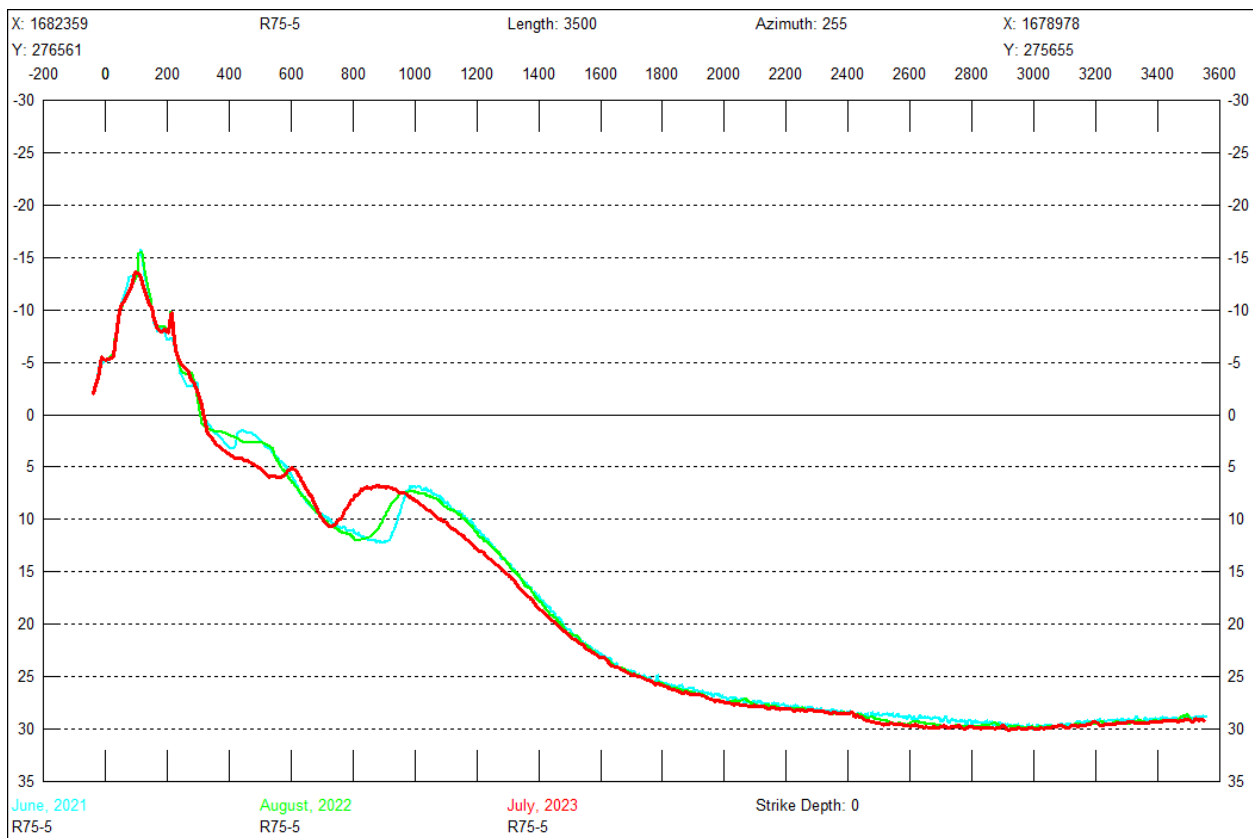
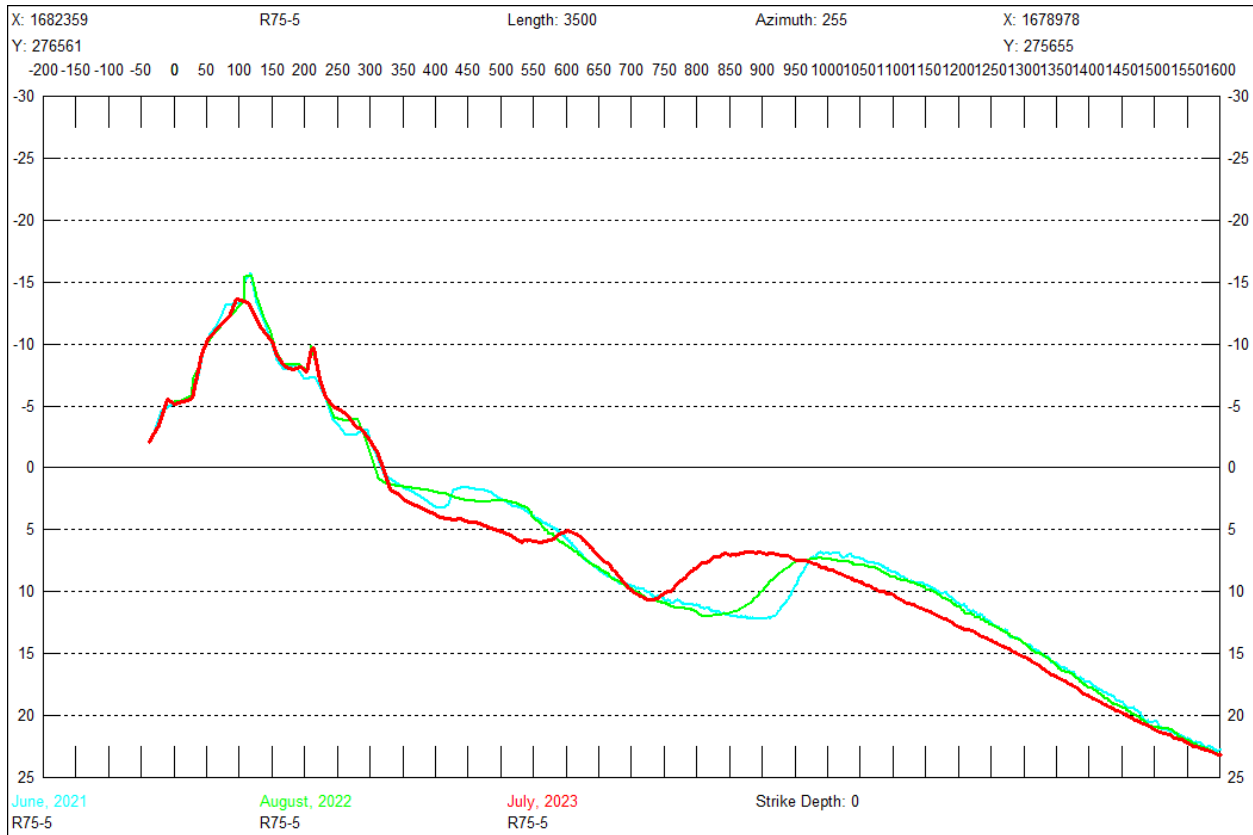


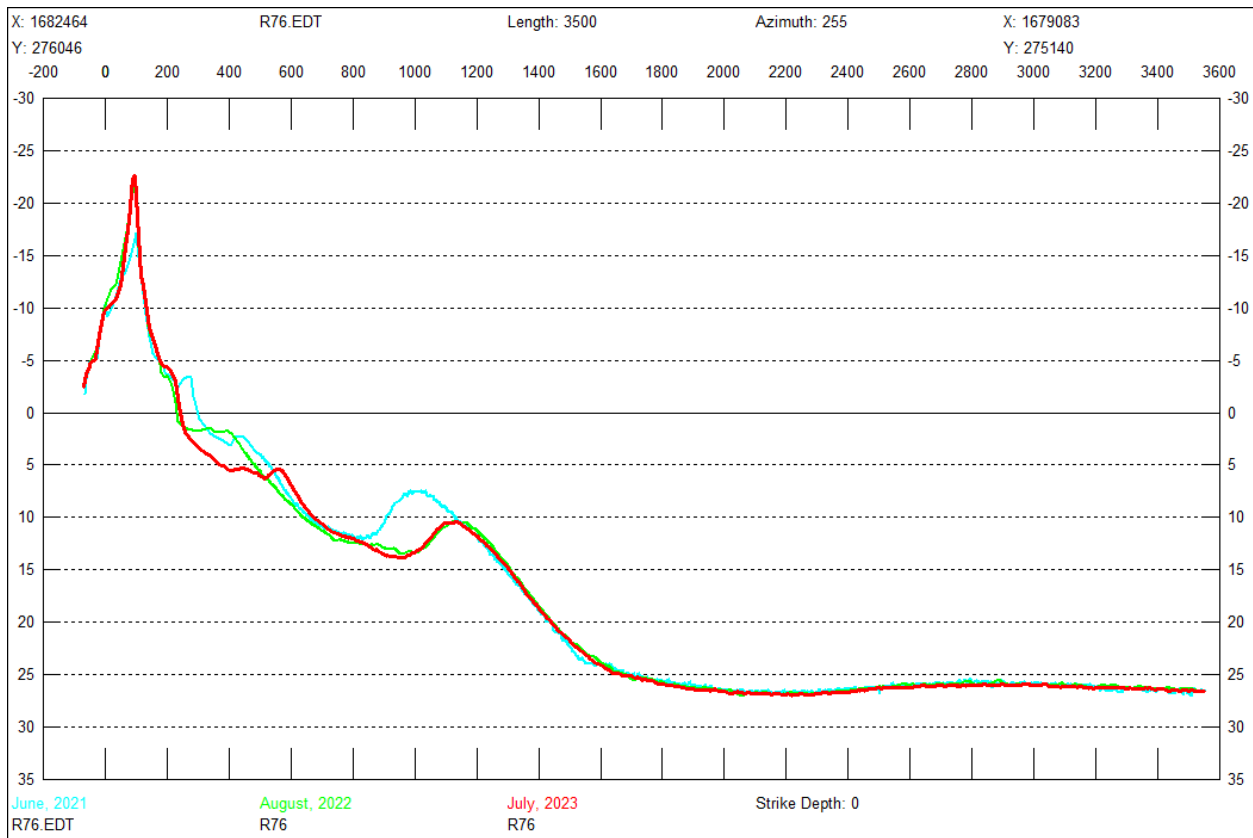
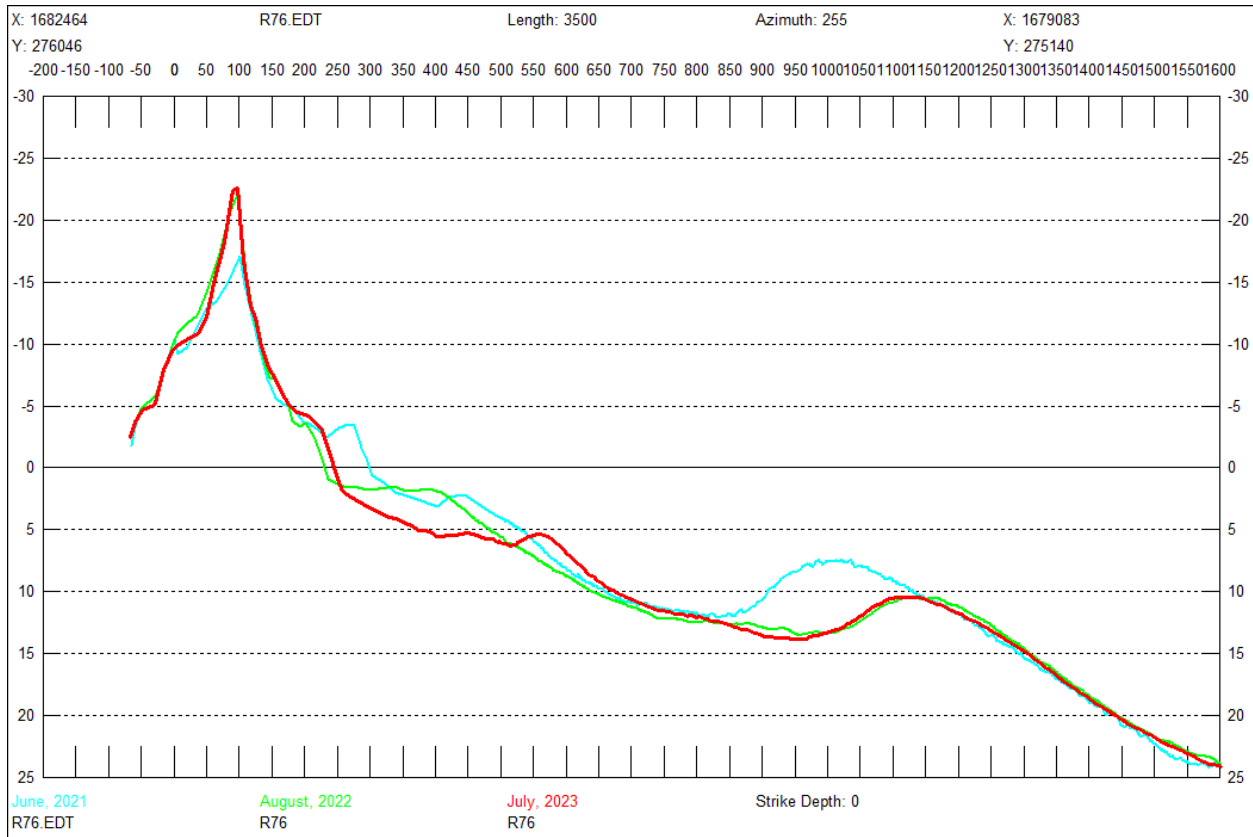


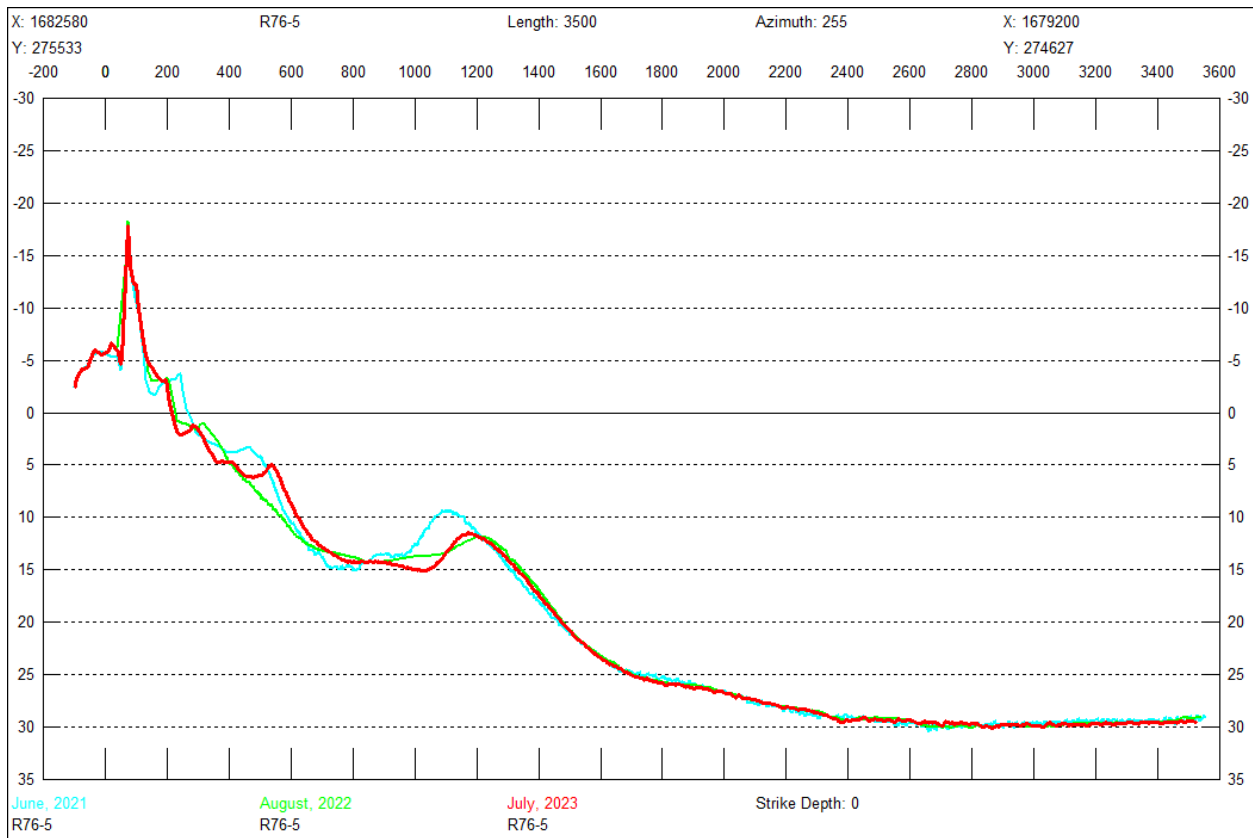
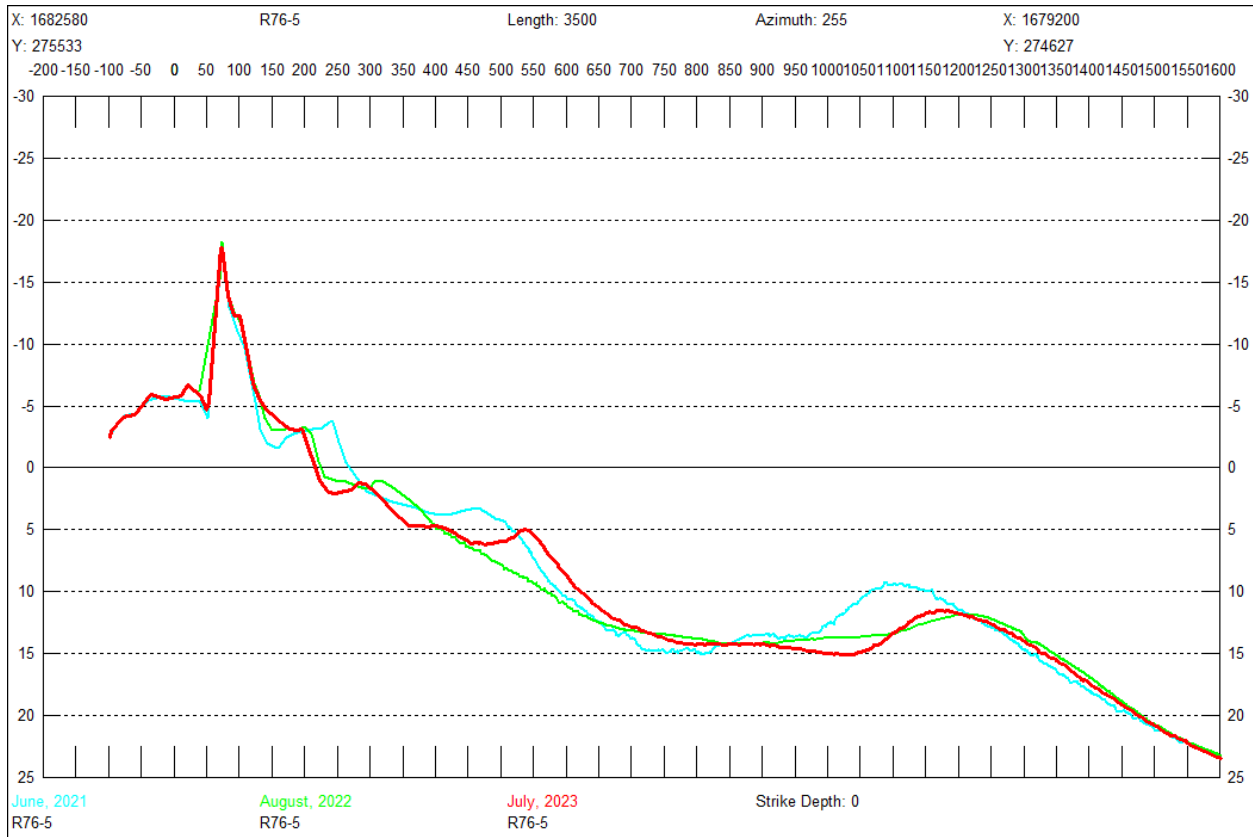


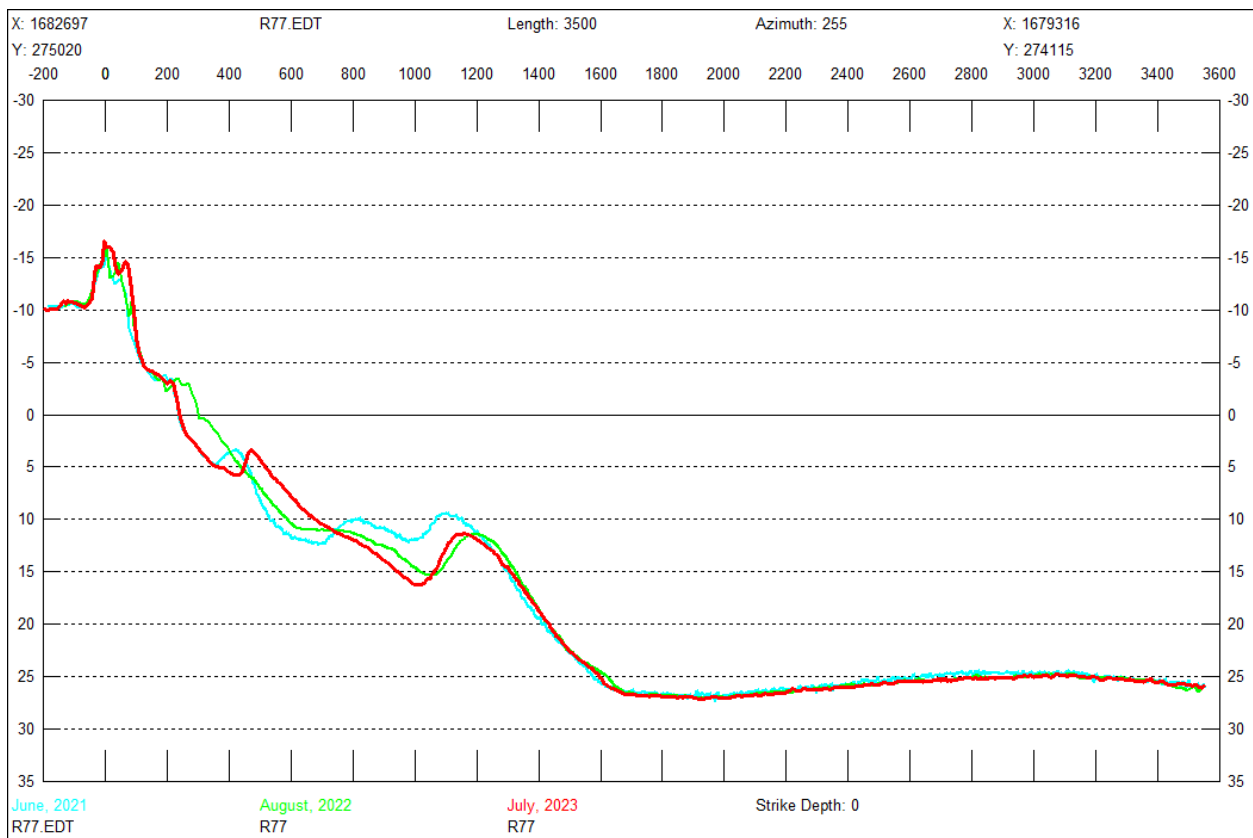
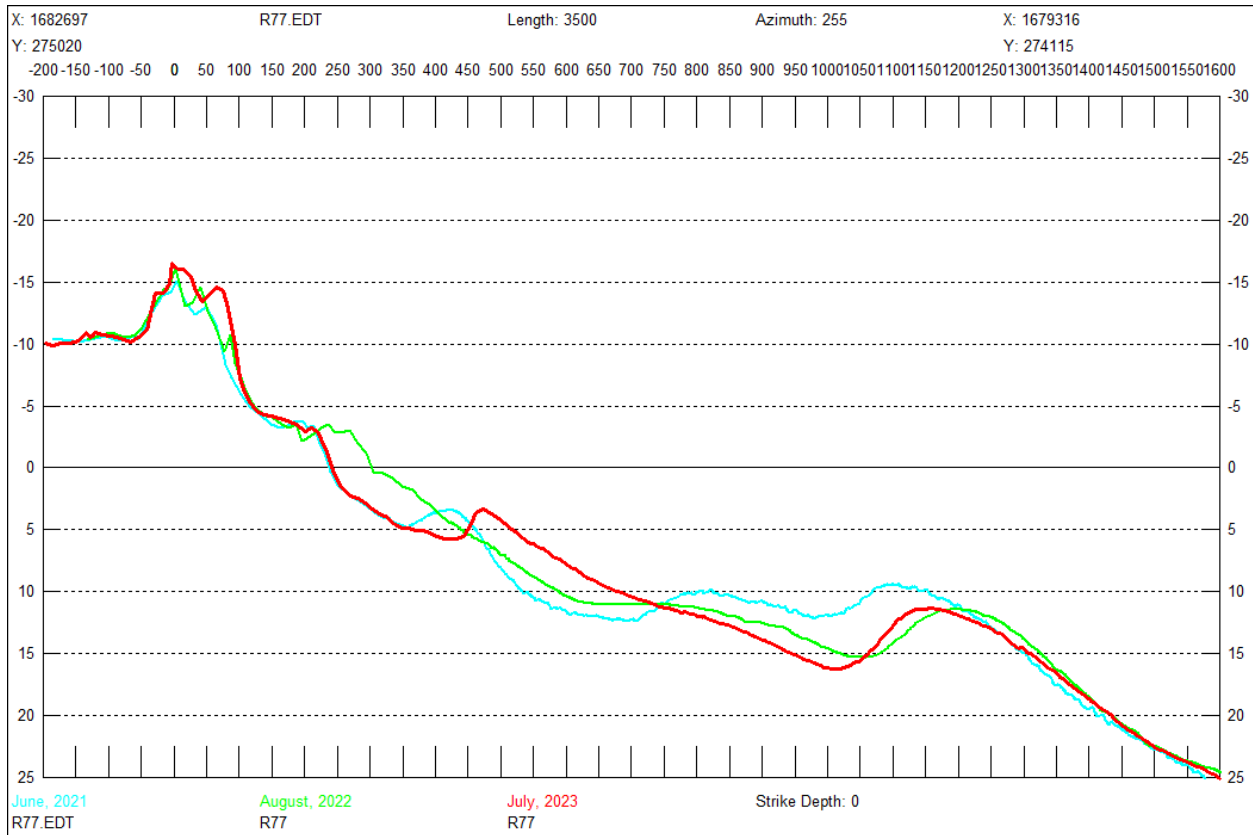


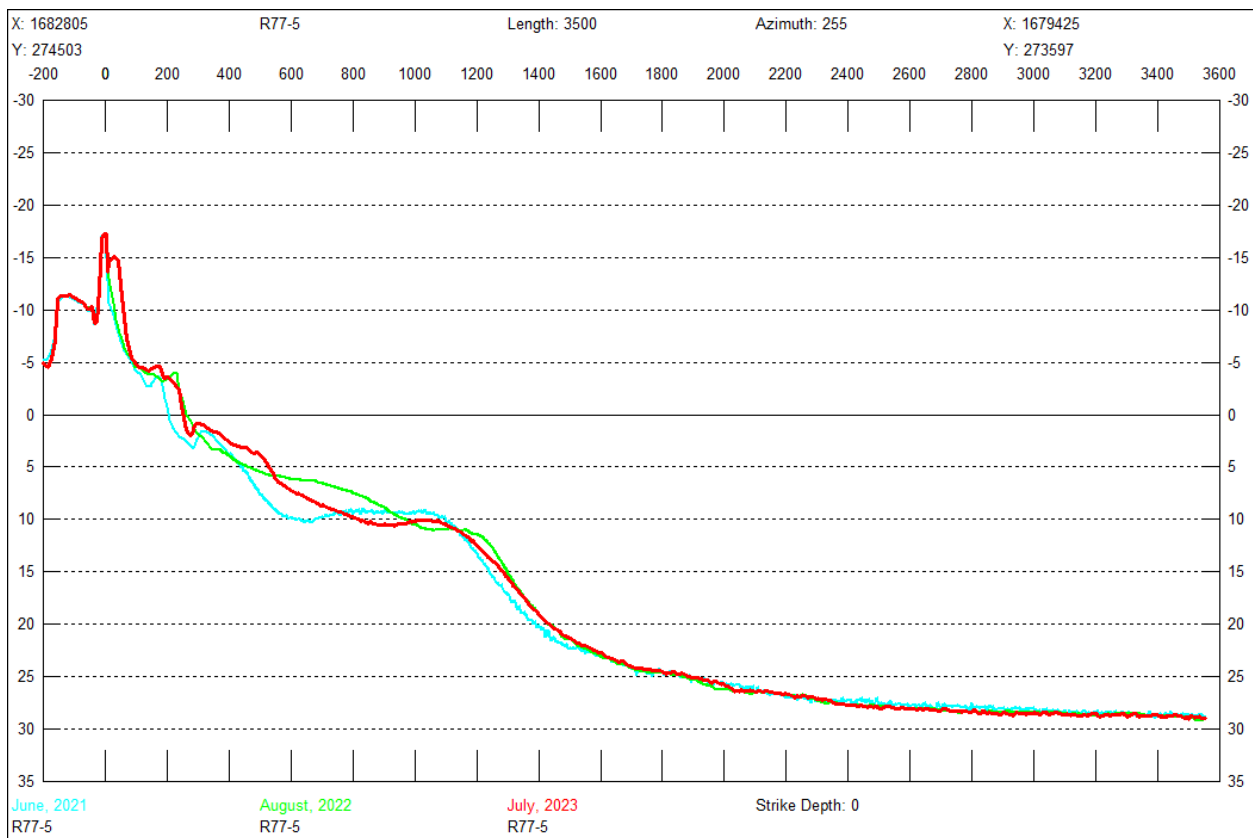
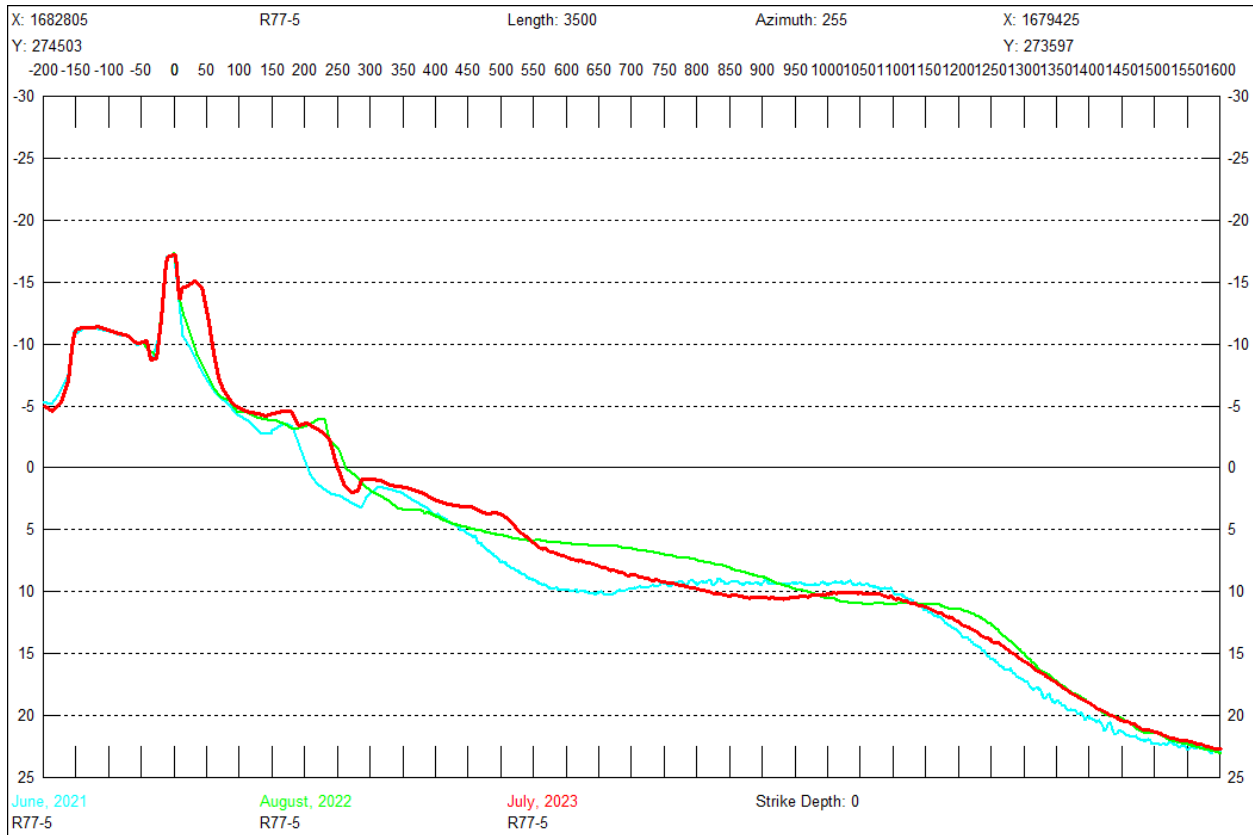


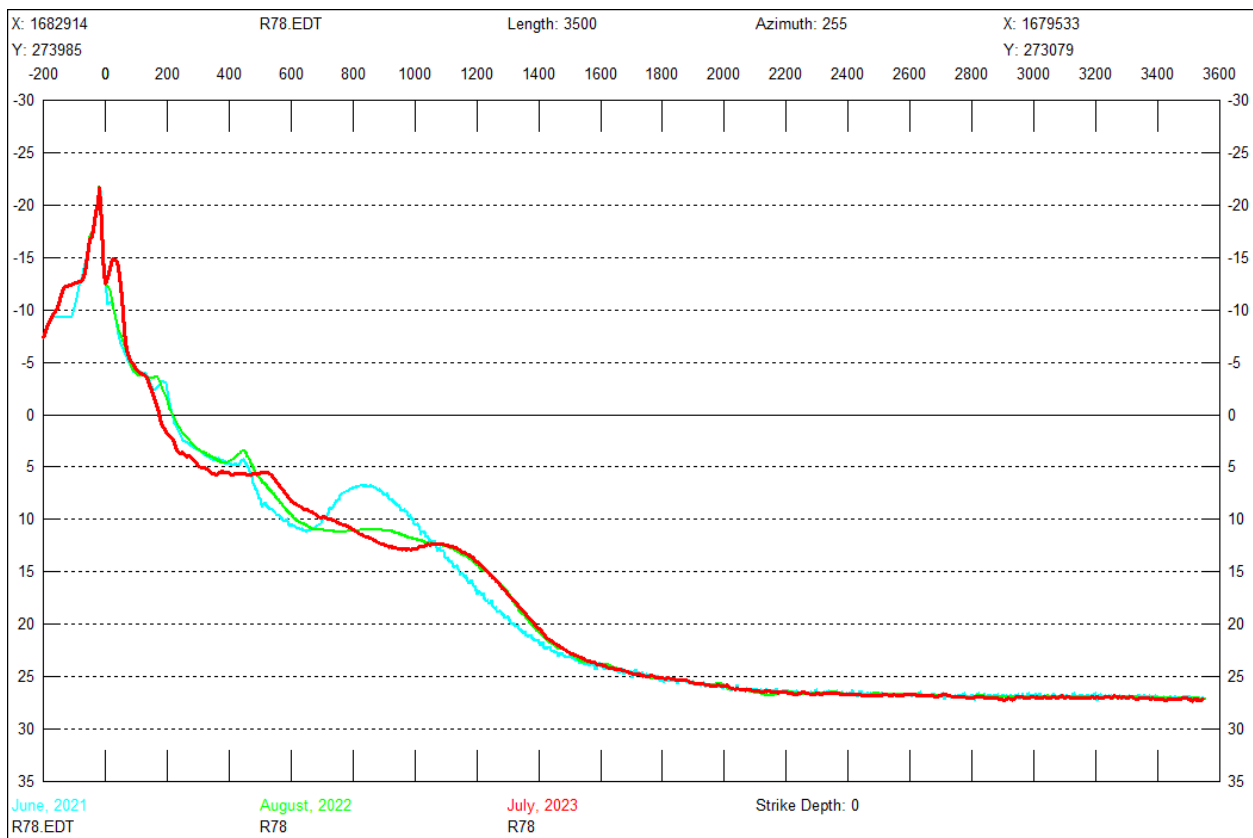
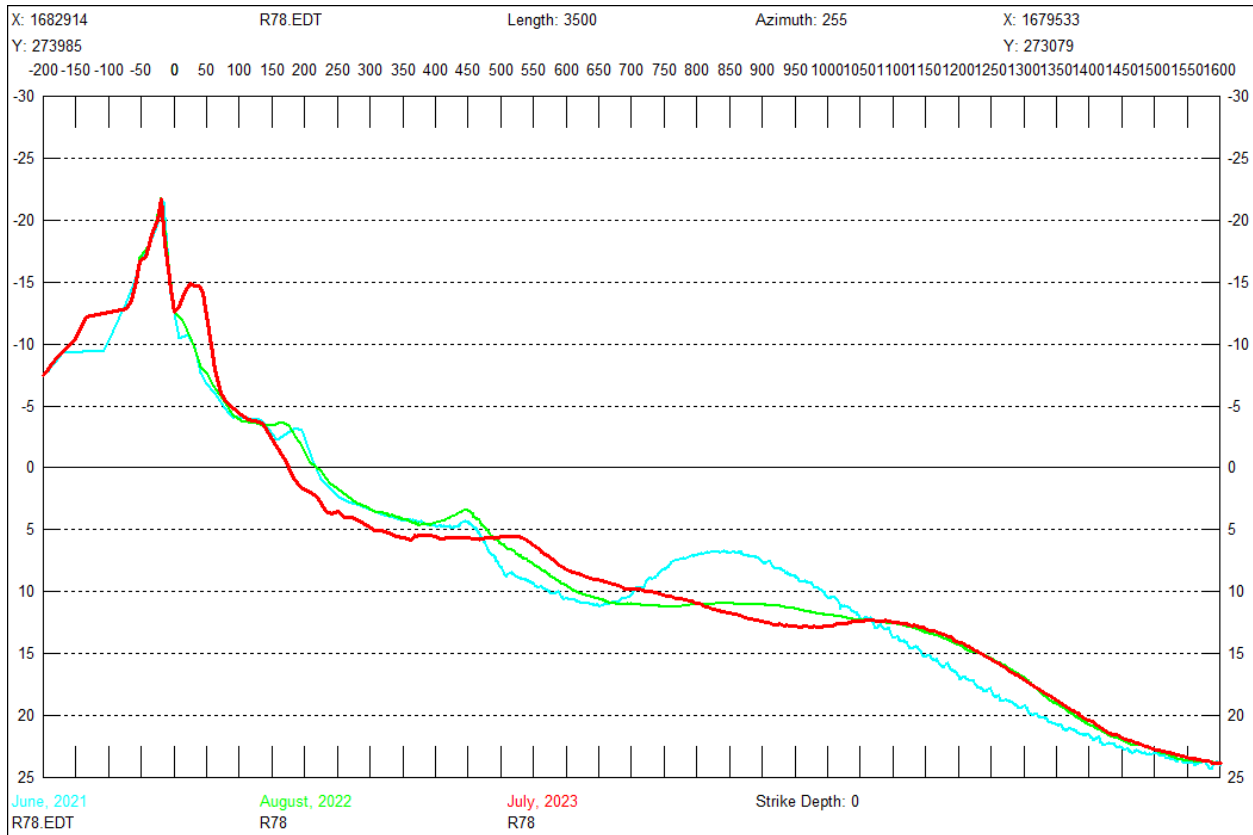












APPENDIX 3

Ground Digital Photos



2023 ST. JOSEPH PENINSULA STATE PARK
EAGLE HARBOR TOPOGRAPHIC & HYDROGRAPHIC SURVEY
Ground Digital Photography
Monument – R-65°



South View



East View



North View



Monument View



2023 ST. JOSEPH PENINSULA STATE PARK
EAGLE HARBOR TOPOGRAPHIC & HYDROGRAPHIC SURVEY
Ground Digital Photography
Monument – R-66°



South View



East View



North View

No Image Available

Monument View



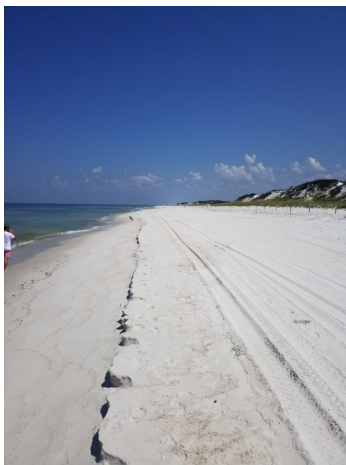
2023 ST. JOSEPH PENINSULA STATE PARK
EAGLE HARBOR TOPOGRAPHIC & HYDROGRAPHIC SURVEY
Ground Digital Photography
Monument – R-67 °



South View



East View



North View

No Image Available

Monument View



2023 ST. JOSEPH PENINSULA STATE PARK
EAGLE HARBOR TOPOGRAPHIC & HYDROGRAPHIC SURVEY
Ground Digital Photography
Monument – R- 68°



South View



East View



North View



Monument View



2023 ST. JOSEPH PENINSULA STATE PARK
EAGLE HARBOR TOPOGRAPHIC & HYDROGRAPHIC SURVEY
Ground Digital Photography
Monument – R-69°



South View



East View



North View



Monument View



2023 ST. JOSEPH PENINSULA STATE PARK
EAGLE HARBOR TOPOGRAPHIC & HYDROGRAPHIC SURVEY
Ground Digital Photography
Monument – R-70°



South View



East View



North View



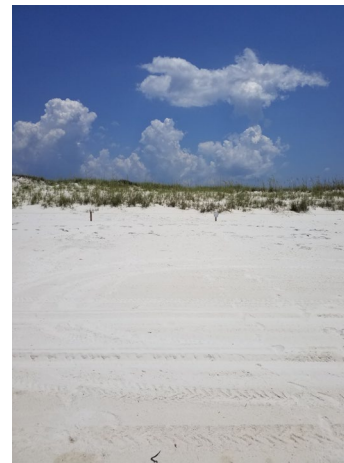
Monument View



2023 ST. JOSEPH PENINSULA STATE PARK
EAGLE HARBOR TOPOGRAPHIC & HYDROGRAPHIC SURVEY
Ground Digital Photography
Monument – R-71°



South View



East View



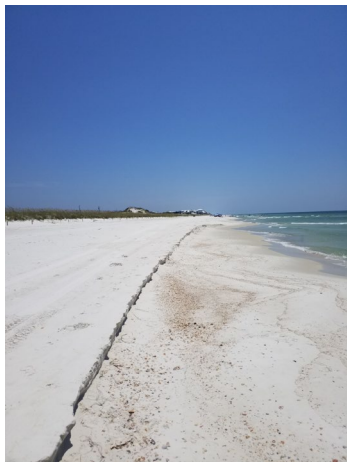
North View

No Image Available

Monument View



2023 ST. JOSEPH PENINSULA STATE PARK
EAGLE HARBOR TOPOGRAPHIC & HYDROGRAPHIC SURVEY
Ground Digital Photography
Monument – R-72°



South View



East View



North View

No Image Available

Monument View



2023 ST. JOSEPH PENINSULA STATE PARK
EAGLE HARBOR TOPOGRAPHIC & HYDROGRAPHIC SURVEY
Ground Digital Photography
Monument – R-73°



South View



East View



North View



Monument View



2023 ST. JOSEPH PENINSULA STATE PARK
EAGLE HARBOR TOPOGRAPHIC & HYDROGRAPHIC SURVEY
Ground Digital Photography
Monument – R-74



South View



East View



North View



Monument View



2023 ST. JOSEPH PENINSULA STATE PARK
EAGLE HARBOR TOPOGRAPHIC & HYDROGRAPHIC SURVEY
Ground Digital Photography
Monument – R-75



South View



East View



North View



Monument View



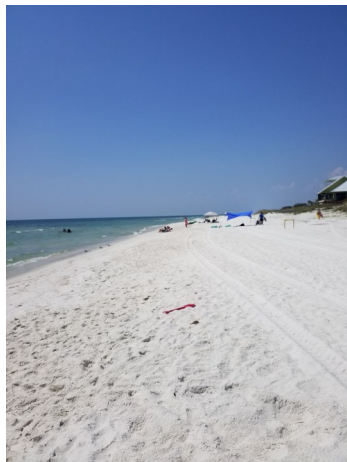
2023 ST. JOSEPH PENINSULA STATE PARK
EAGLE HARBOR TOPOGRAPHIC & HYDROGRAPHIC SURVEY
Ground Digital Photography
Monument – R-76°



South View



East View



North View

No Image Available

Monument View



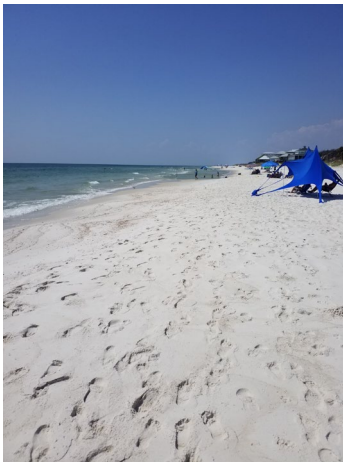
2023 ST. JOSEPH PENINSULA STATE PARK
EAGLE HARBOR TOPOGRAPHIC & HYDROGRAPHIC SURVEY
Ground Digital Photography
Monument – R-77°



South View



East View



North View

No Image Available

Monument View



2023 ST. JOSEPH PENINSULA STATE PARK
EAGLE HARBOR TOPOGRAPHIC & HYDROGRAPHIC SURVEY
Ground Digital Photography
Monument – R-78°



South View



East View



North View



Monument View

APPENDIX 4(A)

*Federally Compliant Metadata
(Monument Information Report)*

Identification_Information:

Citation:

Citation_Information:

Originator: Dewberry Engineers Inc.

Publication_Date: Unpublished Material

Title: 2023 St. Joseph Peninsula State Park Eagle Harbor Topographic and
Hydrographic Survey

Geospatial_Data_Presentation_Form: Entity Point

Online_Linkage: App5-50165724_MIR.xls

Description:

Abstract: Dewberry was contracted by MRD Associates, Inc.
to provide Topographic and Hydrographic Surveys for the physical
monitoring of the beach, and offshore areas of the 2023 St. Joseph Peninsula
State Park Eagle Harbor project.

The beach and offshore profile survey consists of FDEP reference monuments R-65
through R-78 in Gulf County.

This data is necessary to regularly observe and assess, with quantitative
measurements, the performance of the project, any adverse effects which have
occured, and the need for any adjustments, modifications, or mitigative response
to the project.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 20230726

Ending_Date: 20230727

Currentness_Reference: Ground condition

Status:

Progress: Complete

Maintenance_and_Update_Frequency: Yearly

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -85.419331

East_Bounding_Coordinate: -85.399333

North_Bounding_Coordinate: 29.787539

South_Bounding_Coordinate: 29.737719

Keywords:

Theme:

Theme_Keyword_Thesaurus: None

Theme_Keyword: Monumentation

Place:

Place_Keyword_Thesaurus: None

Place_Keyword: Cape San Blas

Place_Keyword: Gulf County

Place_Keyword: Florida

Stratum:

Stratum_Keyword_Thesaurus: None

Stratum_Keyword: Control

Access_Constraints: None

Use_Constraints:

The data shown within is based on field and/or site conditions at the time of field survey. The user is responsible for the results of an application of the data other than its intended purpose.

Point_of_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Frederick C. Rankin

Contact_Organization: Dewberry Engineers Inc.

Contact_Address:

Address_Type: mailing and physical

Address:

Dewberry Engineers Inc.

203 Aberdeen Parkway

City: Panama City

State_or_Province: FL

Postal_Code: 32405

Country: USA

Contact_Voice_Telephone: (850) 522-0644

Contact_Facsimile_Telephone: (850) 522-1011

Contact_Electronic_Mail_Address: erankin@dewberry.com

Data_Set_Credit: Dewberry Engineers Inc.

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report: All attributes are assumed to be accurate; however, no tests were performed.

Logical_Consistency_Report: These data are logically consistent.

Completeness_Report: No omissions.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

RTK is a process where GPS signal corrections are transmitted in real time from a reference receiver at a known location to one or more remote rover receivers. The use of an RTK capable GPS system can compensate for atmospheric delay, orbital errors and other variables in GPS geometry, increasing positioning accuracy up to within a centimeter. Using the code phase of GPS signals, as well as the carrier phase, which delivers the most accurate GPS information, RTK provides differential corrections to produce the most precise GPS positioning.

The RTK process begins with a preliminary ambiguity resolution. This is a crucial aspect of any kinematic system, particularly in real-time where the velocity of a rover receiver should not degrade either the achievable performance or the system's overall reliability. After the receiver resolves the ambiguities correctly, the accuracy of each position computation is between 0.5 to 2 cm horizontal and 1 to 3 cm vertical (depending on antenna multipath rejection capability) plus 1 ppm for double frequency and 2 ppm for single frequency. All RTK accuracy specifications from all manufacturers are within this range. They are all based on the assumption that the integers are estimated correctly.

Quantitative_Horizontal_Positional_Accuracy_Assessment:

Horizontal_Positional_Accuracy_Value: 0.20

Vertical_Positional_Accuracy:

Vertical_Positional_Accuracy_Report:

RTK is a process where GPS signal corrections are transmitted in real time from a reference receiver at a known location to one or more remote rover receivers. The use of an RTK capable GPS system can compensate for atmospheric delay, orbital errors and other variables in GPS geometry, increasing positioning accuracy up to within a centimeter. Using the code phase of GPS signals, as well as the carrier phase, which delivers the most accurate GPS information, RTK provides differential corrections to produce the most precise GPS positioning.

The RTK process begins with a preliminary ambiguity resolution. This is a crucial aspect of any kinematic system, particularly in real-time where the velocity of a rover receiver should not degrade either the achievable performance or the system's overall reliability. After the receiver resolves the ambiguities correctly, the accuracy of each position computation is between 0.5 to 2 cm horizontal and 1 to 3 cm vertical (depending on antenna multipath rejection capability) plus 1 ppm for double frequency and 2 ppm for single frequency. All RTK accuracy specifications from all manufacturers are within this range. They are all based on the assumption that the integers are estimated correctly.

Lineage:

Process_Step:

Process_Description:

Dewberry conducted control and range monument location and verification with the use of Spectra Precision Epoch 85 GNSS RTK GPS Systems.

Process_Date: 20230802

Process_Step:

Process_Description:

Horizontal and vertical positions for recovered control and range monuments were entered into the DEP spreadsheet "GU03I.xls". This spreadsheet shows the differences between field measured and DEP published northings, eastings, and elevations for each monument.

Process_Date: 20230802

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Point

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Grid_Coordinate_System:

Grid_Coordinate_System_Name: State Plane Coordinate System 1983

State_Plane_Coordinate_System: Florida North

SPCS_Zone_Identifier: 903

Transverse_Mercator:

Scale_Factor_at_Central_Meridian: 0.999941

Longitude_of_Central_Meridian: -84.5000

Latitude_of_Projection-Origin: 29.0000

False_Easting: 1968500.0000

False_Northing: 0.0000

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: coordinate Pair

Coordinate_Representation:

Abcissa_Resolution: 0.0000

Ordinate_Resolution: 0.0000

Planar_Distance_Units: survey feet

Vertical_Coordinate_System_Definition:

Depth_System_Definition:

Depth_Datum_Name: North American Vertical Datum of 1988

Depth_Distance_Units: feet

Depth_Resolution: 0.000001

Depth-Encoding_Method: Explicit depth coordinate included with horizontal coordinates

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: App5-50165724_MIR.xls

Entity_Type_Definition:

File contains northings, eastings, and elevations for monuments as published by DEP, found by Dewberry, and used by Dewberry, differences between given vs. found, given vs. used, and found vs. used.

Entity_Type_Definition_Source: Dewberry

Attribute:

Attribute_Label: DEP Given MON ID

Attribute_Definition: Range monument name

Attribute_Definition_Source: Dewberry

Attribute_Domain_Values:

Unrepresentable_Domain: Coordinates defining the feature

Attribute_Label: DEP Given M. DATE

Attribute_Definition: Date the monumentation was set.

Attribute_Definition_Source: Dewberry

Attribute_Domain_Values:

Unrepresentable_Domain: Date defining the feature

Attribute_Label: DEP GIVEN NORTHING

Attribute_Definition: Northing coordinates based on State Plane Coordinate System, Florida North Zone, 901, North American Datum of 1983.

Attribute_Definition_Source: Dewberry

Attribute_Domain_Values:

Unrepresentable_Domain: Coordinates defining the feature

Attribute_Label: DEP GIVEN EASTING

Attribute_Definition: Easting coordinates based on State Plane Coordinate System, Florida North Zone, 901, North American Datum of 1983.

Attribute_Definition_Source: Dewberry

Attribute_Domain_Values:

Unrepresentable_Domain: Coordinates defining the feature

Attribute_Label: DEP GIVEN AZ

Attribute_Definition: Azimuth from the monument which is the baseline of survey for the profile lines.

Attribute_Definition_Source: Dewberry

Attribute_Domain_Values:

Unrepresentable_Domain: Azimuth defining the feature

Attribute_Label: DEP GIVEN NAVD

Attribute_Definition: Elevations based on the North American Vertical Datum of 1988

Attribute_Definition_Source: Dewberry

Attribute_Domain_Values:

Unrepresentable_Domain: Elevations defining the feature

Attribute_Label: Dewberry FOUND MON ID
Attribute_Definition: Range monument name
Attribute_Definition_Source: Dewberry
Attribute_Domain_Values:
 Unrepresentable_Domain: Monument names defining feature
Attribute_Label: Dewberry FOUND M. Date
Attribute_Definition: Date the monumentation was recovered.
Attribute_Definition_Source: Dewberry
Attribute_Domain_Values:
 Unrepresentable_Domain: Dates defining feature
Attribute_Label: Dewberry FOUND NORTHING
Attribute_Definition: Northing coordinates based on State Plane Coordinate System, Florida
 North Zone, 901, North American Datum of 1983.
Attribute_Definition_Source: Dewberry
Attribute_Domain_Values:
 Unrepresentable_Domain: Northing coordinates defining feature
Attribute_Label: Dewberry FOUND EASTING
Attribute_Definition: Easting coordinates based on State Plane Coordinate System, Florida
 North Zone, 901, North American Datum of 1983.
Attribute_Definition_Source: Dewberry
Attribute_Domain_Values:
 Unrepresentable_Domain: Easting coordinates defining feature
Attribute_Label: Dewberry FOUND AZ
Attribute_Definition: Azimuth of monument found
Attribute_Definition_Source: Dewberry
Attribute_Domain_Values:
 Unrepresentable_Domain: Azimuth defining feature
Attribute_Label: Dewberry FOUND NAVD
Attribute_Definition: Elevations based on North American Vertical Datum of 1988
Attribute_Definition_Source: Dewberry
Attribute_Domain_Values:
 Unrepresentable_Domain: Elevations defining feature
Attribute_Label: Dewberry USED MON ID
Attribute_Definition: Monument names used by Dewberry
Attribute_Definition_Source: Dewberry
Attribute_Domain_Values:
 Unrepresentable_Domain: Names defining feature
Attribute_Label: Dewberry USED M. Date
Attribute_Definition: Dates monuments were used by Dewberry
Attribute_Definition_Source: Dewberry
Attribute_Domain_Values:
 Unrepresentable_Domain: Dates defining feature
Attribute_Label: Dewberry USED NORTHING
Attribute_Definition: Northing coordinates based on State Plane Coordinate System, Florida
 North Zone, 901, North American Datum of 1983.
Attribute_Definition_Source: Dewberry
Attribute_Domain_Values:
 Unrepresentable_Domain: Northing coordinates defining feature
Attribute_Label: Dewberry USED EASTING
Attribute_Definition: Easting coordinates based on State Plane Coordinate System, Florida

North Zone, 901, North American Datum of 1983.

Attribute_Definition_Source: Dewberry

Attribute_Domain_Values:

Unrepresentable_Domain: Easting coordinates defining feature

Attribute_Label: Dewberry USED AZ

Attribute_Definition: Azimuth used by Dewberry

Attribute_Definition_Source: Dewberry

Attribute_Domain_Values:

Unrepresentable_Domain: Azimuth defining feature

Attribute_Label: Dewberry USED NAVD

Attribute_Definition: Elevations based on North American Vertical Datum of 1988

Attribute_Definition_Source: Dewberry

Attribute_Domain_Values:

Unrepresentable_Domain: Elevations defining feature

Attribute_Label: Range monument name

Attribute_Definition: Names of range monument

Attribute_Definition_Source: Dewberry

Attribute_Domain_Values:

Unrepresentable_Domain: Names defining feature

Attribute_Label: GIVEN VS. FOUND Northing

Attribute_Definition: Difference between Given Northing and Found Northing

Attribute_Definition_Source: Dewberry

Attribute_Domain_Values:

Unrepresentable_Domain: Value defining feature

Attribute_Label: GIVEN VS. FOUND Easting

Attribute_Definition: Difference between Given Easting and Found Easting

Attribute_Definition_Source: Dewberry

Attribute_Domain_Values:

Unrepresentable_Domain: Value defining feature

Attribute_Label: GIVEN VS. FOUND Azimuth

Attribute_Definition: Difference between Given Azimuth and Found Azimuth

Attribute_Definition_Source: Dewberry

Attribute_Domain_Values:

Unrepresentable_Domain: Value defining feature

Attribute_Label: GIVEN VS. FOUND NAVD

Attribute_Definition: Difference between Given NAVD and Found NAVD elevation

Attribute_Definition_Source: Dewberry

Attribute_Domain_Values:

Unrepresentable_Domain: Value defining feature

Attribute_Label: GIVEN VS. USED NORTHING

Attribute_Definition: Difference between Given Northing and Used Northing

Attribute_Definition_Source: Dewberry

Attribute_Domain_Values:

Unrepresentable_Domain: Value defining feature

Attribute_Label: GIVEN VS. USED Easting

Attribute_Definition: Difference between Given Easting and Used Easting

Attribute_Definition_Source: Dewberry

Attribute_Domain_Values:

Unrepresentable_Domain: Value defining feature

Attribute_Label: GIVEN VS. USED Azimuth

Attribute_Definition: Difference between Given and Used Azimuths
Attribute_Definition_Source: Dewberry
Attribute_Domain_Values:
 Unrepresentable_Domain: Value defining feature
Attribute_Label: GIVEN VS. USED NAVD
Attribute_Definition: Difference between Given and Used NAVD elevations
Attribute_Definition_Source: Dewberry
Attribute_Domain_Values:
 Unrepresentable_Domain: Value defining feature
Attribute_Label: FOUND VS. USED NORTHING
Attribute_Definition: Difference between Found and Used Northing
Attribute_Definition_Source: Dewberry
Attribute_Domain_Values:
 Unrepresentable_Domain: Value defining feature
Attribute_Label: FOUND VS. USED EASTING
Attribute_Definition: difference between Found and Used Easting
Attribute_Definition_Source: Dewberry
Attribute_Domain_Values:
 Unrepresentable_Domain: Value defining feature
Attribute_Label: FOUND VS. USED Azimuth
Attribute_Definition: Difference between Found VS. Used Azimuth
Attribute_Definition_Source: Dewberry
Attribute_Domain_Values:
 Unrepresentable_Domain: Value defining feature
Attribute_Label: FOUND VS. USED NAVD
Attribute_Definition: Difference between Found and Used NAVD elevation
Attribute_Definition_Source: Dewberry
Attribute_Domain_Values:
 Unrepresentable_Domain: Value defining feature

Metadata_Reference_Information:

Metadata_Date: 20230802

Metadata_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Frederick C. Rankin

Contact_Organization: Dewberry Engineers Inc.

Contact_Address:

Address_Type: mailing and physical

Address:

Dewberry Engineers Inc.

203 Aberdeen Parkway

City: Panama City

State_or_Province: FL

Postal_Code: 32405

Country: USA

Contact_Voice_Telephone: (850) 522-0644

Contact_Facsimile_Telephone: (850) 522-1011

Contact_Electronic_Mail_Address: erankin@dewberry.com

Metadata_Standard_Name: Content Standard for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

APPENDIX 4(B)

*Federally Compliant Metadata
(FDEP ASCII files)*

Identification_Information:

Citation:

Citation_Information:

Originator: Dewberry Engineers Inc.

Publication_Date: Unpublished Material

Title: 2023 St. Joseph Peninsula State Park Eagle Harbor Topographic and Hydrographic Survey

Geospatial_Data_Presentation_Form: Entity Point

Online_Linkage: App6-50165724_FINAL_NAVD.DEP

Description:

Abstract: Dewberry was contracted by MRD Associates, Inc. to provide Topographic and Hydrographic Surveys for the physical monitoring of the beach, and offshore areas of the 2023 St. Joseph Peninsula State Park Eagle Harbor project.

The beach and offshore profile survey consists of FDEP reference monuments R-65 through R-78 in Gulf County.

This data is necessary to regularly observe and assess, with quantitative measurements, the performance of the project, any adverse effects which have occurred, and the need for any adjustments, modifications, or mitigative response to the project.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 20230726

Ending_Date: 20230727

Currentness_Reference: Ground condition

Status:

Progress: Complete

Maintenance_and_Update_Frequency: Yearly

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -85.419331

East_Bounding_Coordinate: -85.399333

North_Bounding_Coordinate: 29.787539

South_Bounding_Coordinate: 29.737719

Keywords:

Theme:

Theme_Keyword_Thesaurus: None

Theme_Keyword: Monumentation

Place:

Place_Keyword_Thesaurus: None

Place_Keyword: Cape San Blas

Place_Keyword: Gulf County

Place_Keyword: Florida

Stratum:

Stratum_Keyword_Thesaurus: None

Stratum_Keyword: Control

Access_Constraints: None

Use_Constraints:

The data shown within is based on field and/or site conditions at the time of field survey. The user is responsible for the results of an application of the data other than its intended purpose.

Point_of_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Frederick C. Rankin

Contact_Organization: Dewberry Engineers Inc.

Contact_Address:

Address_Type: mailing and physical

Address:

Dewberry Engineers Inc.

203 Aberdeen Parkway

City: Panama City

State_or_Province: FL

Postal_Code: 32405

Country: USA

Contact_Voice_Telephone: (850) 522-0644

Contact_Facsimile_Telephone: (850) 522-1011

Contact_Electronic_Mail_Address: erankin@dewberry.com

Data_Set_Credit: Dewberry Engineers Inc.

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report: All attributes are assumed to be accurate; however, no tests were performed.

Logical_Consistency_Report: These data are logically consistent.

Completeness_Report: No omissions.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

RTK is a process where GPS signal corrections are transmitted in real time from a reference receiver at a known location to one or more remote rover receivers. The use of an RTK capable GPS system can compensate for atmospheric delay, orbital errors and other variables in GPS geometry, increasing positioning accuracy up to within a centimeter. Using the code phase of GPS signals, as well as the carrier phase, which delivers the most accurate GPS information, RTK provides differential corrections to produce the most precise GPS positioning.

The RTK process begins with a preliminary ambiguity resolution. This is a crucial aspect of any kinematic system, particularly in real-time where the velocity of a rover receiver should not degrade either the achievable performance or the system's overall reliability. After the receiver resolves the ambiguities correctly, the accuracy of each position computation is between 0.5 to 2 cm horizontal and 1 to 3 cm vertical (depending on antenna multipath rejection capability) plus 1 ppm for double frequency and 2 ppm for single frequency. All RTK accuracy specifications from all manufacturers are within this range. They are all based on the assumption that the integers are estimated correctly.

Quantitative_Horizontal_Positional_Accuracy_Assessment:

Horizontal_Positional_Accuracy_Value: 0.20

Vertical_Positional_Accuracy:

Vertical_Positional_Accuracy_Report:

RTK is a process where GPS signal corrections are transmitted in real time from a reference receiver at a known location to one or more remote rover receivers. The use of an RTK capable GPS system can compensate for atmospheric delay, orbital errors and other variables in GPS geometry, increasing positioning accuracy up to within a centimeter. Using the code phase of GPS signals, as well as the carrier phase, which delivers the most accurate GPS information, RTK provides differential corrections to produce the most precise GPS positioning.

The RTK process begins with a preliminary ambiguity resolution. This is a crucial aspect of any kinematic system, particularly in real-time where the velocity of a rover receiver should not degrade either the achievable performance or the system's overall reliability. After the receiver resolves the ambiguities correctly, the accuracy of each position computation is between 0.5 to 2 cm horizontal and 1 to 3 cm vertical (depending on antenna multipath rejection capability) plus 1 ppm for double frequency and 2 ppm for single frequency. All RTK accuracy specifications from all manufacturers are within this range. They are all based on the assumption that the integers are estimated correctly.

Lineage:

Process_Step:

Process_Description:

Offshore Hydrographic Surveys were conducted with the use of a Spectra Precision Epoch 85 GNSS RTK GPS Systems System onboard the survey vessel "Nemo", together with Coastal Oceanographics HYPACK Software (version 2019), and a Ross 825B fathometer.

Process_Date: 20230802

Process_Step:

Process_Description:

Upland Topographic Surveys were conducted with the use of Spectra Precision Epoch 85 GNSS RTK GPS Systems.

Process_Date: 20230802

Process_Step:

Process_Description:

Processing of data was performed with the use of Coastal Oceanographics HYPACK Software (version 2019), and AutoCAD Civil 3D Land Desktop.

Process_Date: 20230802

Process_Step:

Process_Description:

Redundancy checks for quality control/quality assurance were conducted as follows:

- 1.) Horizontal and vertical checks were performed on Control and Range monuments and compared to DEP published data.
- 2.) Sound velocity calibrations were made at the beginning and end of each day with the use of Odom Digibar Pro Sound Velocity Probe.

Process_Date: 20230802

Process_Step:

Process_Description:

Final survey maps were reviewed and edited by a Florida Licensed Professional Surveyor and Mapper.

Process_Date: 20230802

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Point

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Grid_Coordinate_System:

Grid_Coordinate_System_Name: State Plane Coordinate System 1983

State_Plane_Coordinate_System: Florida North

SPCS_Zone_Identifier: 903

Transverse_Mercator:

Scale_Factor_at_Central_Meridian: 0.999941

Longitude_of_Central_Meridian: -84.5000

Latitude_of_Projection-Origin: 29.0000

False_Easting: 1968500.0000

False_Northing: 0.0000

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: coordinate Pair

Coordinate_Representation:

Abscissa_Resolution: 0.0000

Ordinate_Resolution: 0.0000

Planar_Distance_Units: survey feet

Vertical_Coordinate_System_Definition:

Depth_System_Definition:

Depth_Datum_Name: North American Vertical Datum of 1988

Depth_Distance_Units: feet

Depth_Resolution: 0.000001

Depth_Encoding_Method: Explicit depth coordinate included with horizontal coordinates

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: App6-50165724_FINAL_NAVD.DEP

Entity_Type_Definition:

This file contains a list of coordinates within the headers of each set of data. The data that follows each header is a list of stations and elevations based on the coordinate referenced in the header.

Entity_Type_Definition_Source: Dewberry

Attribute:

Attribute_Label:

Attribute_Definition:

Header (first line) containing monument ID, established date, coordinates based on the State Plane Coordinate System, Florida North Zone, 903, North American Datum of 1983, azimuth and elevation.

Attribute_Definition_Source: Dewberry

Attribute_Domain_Values:

Unrepresentable_Domain: Coordinates defining the feature

Attribute_Label:

Attribute_Definition:

Header (second line) containing upland date, beach date, offshore date, total number of upland points, beach points, and offshore points.

Attribute_Definition_Source: Dewberry

Attribute_Domain_Values:

Unrepresentable_Domain: Coordinates defining the feature

Attribute_Label:

Attribute_Definition:

Data following header consists of lists of eastings, northings, and elevations along the profile line.

Attribute_Definition_Source: Dewberry

Attribute_Domain_Values:

Unrepresentable_Domain: Elevations defining the feature

Metadata_Reference_Information:

Metadata_Date: 20230802

Metadata_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Frederick C. Rankin

Contact_Organization: Dewberry Engineers Inc.

Contact_Address:

Address_Type: mailing and physical

Address:

Dewberry Engineers Inc.

203 Aberdeen Parkway

City: Panama City

State_or_Province: FL

Postal_Code: 32405

Country: USA

Contact_Voice_Telephone: (850) 522-0644

Contact_Facsimile_Telephone: (850) 522-1011

Contact_Electronic_Mail_Address: erankin@dewberry.com

Metadata_Standard_Name: Content Standard for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

APPENDIX 4(C)

*Federally Compliant Metadata
(XYZ Data)*

Identification_Information:

Citation:

Citation_Information:

Originator: Dewberry Engineers Inc.
Publication_Date: Unpublished Material
Title: 2022 St. Joseph Peninsula State Park Eagle Harbor Breach Topographic and Hydrographic Survey
Geospatial_Data_Presentation_Form: Entity Point
Online_Linkage: App7-50156320.xyz

Identification_Information:

Citation:

Citation_Information:

Originator: Dewberry Engineers Inc.
Publication_Date: Unpublished Material
Title: 2023 St. Joseph Peninsula State Park Eagle Harbor Topographic and Hydrographic Survey
Geospatial_Data_Presentation_Form: Entity Point
Online_Linkage: App7-50165724.xyz

Description:

Abstract: Dewberry was contracted by MRD Associates, Inc. to provide Topographic and Hydrographic Surveys for the physical monitoring of the beach, and offshore areas of the 2023 St. Joseph Peninsula State Park Eagle Harbor project.

The beach and offshore profile survey consists of FDEP reference monuments R-65 through R-78 in Gulf County.

This data is necessary to regularly observe and assess, with quantitative measurements, the performance of the project, any adverse effects which have occurred, and the need for any adjustments, modifications, or mitigative response to the project.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 20230726
Ending_Date: 20230727

Currentness_Reference: Ground condition

Status:

Progress: Complete
Maintenance_and_Update_Frequency: Yearly

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -85.419331
East_Bounding_Coordinate: -85.399333
North_Bounding_Coordinate: 29.787539
South_Bounding_Coordinate: 29.737719

Keywords:

Theme:

Theme_Keyword_Thesaurus: None

Theme_Keyword: Monumentation

Place:

Place_Keyword_Thesaurus: None

Place_Keyword: Cape San Blas

Place_Keyword: Gulf County

Place_Keyword: Florida

Stratum:

Stratum_Keyword_Thesaurus: None

Stratum_Keyword: Control

Access_Constraints: None

Use_Constraints:

The data shown within is based on field and/or site conditions at the time of field survey. The user is responsible for the results of an application of the data other than its intended purpose.

Point_of_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Frederick C. Rankin

Contact_Organization: Dewberry Engineers Inc.

Contact_Address:

Address_Type: mailing and physical

Address:

Dewberry Engineers Inc.

203 Aberdeen Parkway

City: Panama City

State_or_Province: FL

Postal_Code: 32405

Country: USA

Contact_Voice_Telephone: (850) 522-0644

Contact_Facsimile_Telephone: (850) 522-1011

Contact_Electronic_Mail_Address: erankin@dewberry.com

Data_Set_Credit: Dewberry Engineers Inc.

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report: All attributes are assumed to be accurate; however, no tests were performed.

Logical_Consistency_Report: These data are logically consistent.

Completeness_Report: No omissions.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

RTK is a process where GPS signal corrections are transmitted in real time from a reference receiver at a known location to one or more remote rover receivers. The use of an RTK capable GPS system can compensate for atmospheric delay, orbital errors and other variables in GPS geometry, increasing positioning accuracy up to within a centimeter. Using the code phase of GPS signals, as well as the carrier phase, which delivers the most accurate GPS information, RTK provides differential corrections to produce the most precise GPS positioning.

The RTK process begins with a preliminary ambiguity resolution. This is a crucial aspect of any kinematic system, particularly in real-time where the velocity of a rover

receiver should not degrade either the achievable performance or the system's overall reliability. After the receiver resolves the ambiguities correctly, the accuracy of each position computation is between 0.5 to 2 cm horizontal and 1 to 3 cm vertical (depending on antenna multipath rejection capability) plus 1 ppm for double frequency and 2 ppm for single frequency. All RTK accuracy specifications from all manufacturers are within this range. They are all based on the assumption that the integers are estimated correctly.

Quantitative_Horizontal_Positional_Accuracy_Assessment:

Horizontal_Positional_Accuracy_Value: 0.20

Vertical_Positional_Accuracy:

Vertical_Positional_Accuracy_Report:

RTK is a process where GPS signal corrections are transmitted in real time from a reference receiver at a known location to one or more remote rover receivers. The use of an RTK capable GPS system can compensate for atmospheric delay, orbital errors and other variables in GPS geometry, increasing positioning accuracy up to within a centimeter. Using the code phase of GPS signals, as well as the carrier phase, which delivers the most accurate GPS information, RTK provides differential corrections to produce the most precise GPS positioning.

The RTK process begins with a preliminary ambiguity resolution. This is a crucial aspect of any kinematic system, particularly in real-time where the velocity of a rover receiver should not degrade either the achievable performance or the system's overall reliability. After the receiver resolves the ambiguities correctly, the accuracy of each position computation is between 0.5 to 2 cm horizontal and 1 to 3 cm vertical (depending on antenna multipath rejection capability) plus 1 ppm for double frequency and 2 ppm for single frequency. All RTK accuracy specifications from all manufacturers are within this range. They are all based on the assumption that the integers are estimated correctly.

Lineage:

Process_Step:

Process_Description:

Offshore Hydrographic Surveys were conducted with the use of a Spectra Epoch 85 RTK GPS System onboard the survey vessel "Nemo", together with Coastal Oceanographics HYPACK Software (version 2019), and a Ross 825B fathometer.

Process_Date: 20230802

Process_Step:

Process_Description:

Upland Topographic Surveys were conducted with the use of Spectra Epoch 85 RTK GPS Systems.

Process_Date: 20230802

Process_Step:

Process_Description:

Processing of data was performed with the use of Coastal Oceanographics HYPACK Software (version 2019), and AutoCAD Civil 3D Land Desktop.

Process_Date: 20230802

Process_Step:

Process_Description:

Redundancy checks for quality control/quality assurance were conducted as follows:

- 1.) Horizontal and vertical checks were performed on Control and Range monuments and compared to DEP published data.
- 2.) Sound velocity calibrations were made at the beginning and end of each day with

the use of Odom Digibar Pro Sounding Velocity Probe.

Process_Date: 20230802

Process_Step:

Process_Description:

Final survey maps were reviewed and edited by a Florida Licensed Professional Surveyor and Mapper.

Process_Date: 20230802

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Point

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Grid_Coordinate_System:

Grid_Coordinate_System_Name: State Plane Coordinate System 1983

State_Plane_Coordinate_System: Florida North

SPCS_Zone_Identifier: 903

Transverse_Mercator:

Scale_Factor_at_Central_Meridian: 0.999941

Longitude_of_Central_Meridian: -84.5000

Latitude_of_Projection_Origin: 29.0000

False_Easting: 1968500.0000

False_Northing: 0.0000

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: coordinate Pair

Coordinate_Representation:

Abcissa_Resolution: 0.0000

Ordinate_Resolution: 0.0000

Planar_Distance_Units: survey feet

Vertical_Coordinate_System_Definition:

Depth_System_Definition:

Depth_Datum_Name: North American Vertical Datum of 1988

Depth_Distance_Units: feet

Depth_Resolution: 0.000001

Depth_Encoding_Method: Explicit depth coordinate included with horizontal coordinates

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: App7-50165724.xyz

Entity_Type_Definition: file contains eastings, northings, and elevations for data points.

Entity_Type_Definition_Source: Dewberry

Attribute:

Attribute_Label:

Attribute_Definition:

Easting coordinate based on the State Plane Coordinate System, Florida North Zone, 903, North American Datum of 1983

Attribute_Definition_Source: Dewberry

Attribute_Domain_Values:

Unrepresentable_Domain: Coordinates defining the feature

Attribute_Label:

Attribute_Definition:

Northing coordinate based on the State Plane Coordinate System, Florida North Zone, 903,
 North American Datum of 1983

Attribute_Definition_Source: Dewberry

Attribute_Domain_Values:

 Unrepresentable_Domain: Coordinates defining the feature

Attribute_Label:

Attribute_Definition: elevation based on the North American Vertical Datum of 1988

Attribute_Definition_Source: Dewberry

Attribute_Domain_Values:

 Unrepresentable_Domain: Elevation defining the feature

Metadata_Date: 20230802

Metadata_Contact:

 Contact_Information:

 Contact_Person_Primary:

 Contact_Person: Frederick C. Rankin

 Contact_Organization: Dewberry Engineers Inc.

 Contact_Address:

 Address_Type: mailing and physical

 Address:

 Dewberry Engineers Inc.

 203 Aberdeen Parkway

 City: Panama City

 State_or_Province: FL

 Postal_Code: 32405

 Country: USA

 Contact_Voice_Telephone: (850) 522-0644

 Contact_Facsimile_Telephone: (850) 522-1011

 Contact_Electronic_Mail_Address: erankin@dewberry.com

Metadata_Standard_Name: Content Standard for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

APPENDIX 5

Monument Information Report

CONTROL MONUMENT USED BY DEWBERRY for 2023 ST. JOSEPH PENINSULA STATE PARK EAGLE HARBOR JULY, 2023	
DATUMS: NAD83/2011 / NAVD1988	
DESIGNATION	51-83-B21
STAMPING	51-83-B21
NORTHING	278122.63
EASTING	1682188.01
HORIZONTAL RMSE	N.A.
ELEVATION	13.85
VERTICAL RMSE	N.A.
DESCRIPTION	This point was held as base station control for this project.



51-83-B21 LOCATION



51-83-B21 MONUMENT

CONTROL MONUMENT USED BY DEWBERRY for 2023 ST. JOSEPH PENINSULA STATE PARK EAGLE HARBOR JULY, 2023	
DATUMS: NAD83/2011 / NAVD1988	
DESIGNATION	51-83-B25
STAMPING	51-83-B25
NORTHING	266503.00
EASTING	1685811.91
HORIZONTAL RMSE	0.08
ELEVATION	17.45
VERTICAL RMSE	0.04
DESCRIPTION	This point was checked into prior to field survey.



51-83-B25 LOCATION



51-83-B25 MONUMENT

GULF COUNTY RANGE MONUMENT COMPARISON USED BY DEWBERRY
for ST. JOSEPH PENINSULA STATE PARK EAGLE HARBOR 2023
JULY, 2023

DATUMS: NAD83/90 / NAVD1988																														
DEP GIVEN CONTROL						CONTROL FOUND BY DEWBERRY 2023						CONTROL USED BY DEWBERRY 2023						GIVEN -VS-FOUND				GIVEN -VS-USED				FOUND-VS-USED				
MON ID	M. DATE	NORTHING	EASTING	AZ	M. ELEV.	MON ID	M. DATE	NORTHING	EASTING	AZ	M. ELE	MON ID	M. DATE	NORTHING	EASTING	AZ	M. ELEV.	ΔN	ΔE	ΔAZ	ΔZ	ΔN	ΔE	ΔAZ	ΔZ	ΔN	ΔE	ΔAZ	ΔZ	
R-65	MAR1997	287499.720	1680142.660	255.0	16.93	R-65	FND CIR 7137	287499.746	1680142.56	255.0	17.72	R-65	FND CIR 7137	287499.746	1680142.555	255.0	17.72	R-65	-0.026	0.105	0.0	-0.79	-0.026	0.105	0.0	-0.79	0.000	0.000	0.0	0.00
R-66A	JUN1983	286401.680	1680295.980	255.0	35.73	R-66A	not recovered			255.0		R-66A	JUN1983	286401.680	1680295.980	255.0	35.73	R-66A			0.0		0.000	0.000	0.0	0.00			0.0	
R-67	JUN1983	285319.940	1680232.050	255.0	24.16	R-67	not recovered			255.0		R-67	RE-SET 2020	285319.940	1680232.050	255.0	24.16	R-67			0.0		0.000	0.000	0.0	0.00			0.0	
R-68A	JUN1983	284303.130	1680450.720	255.0	14.08	R-68A	FND CIR 8011	284303.138	1680450.82	255.0	9.42	R-68A	FND CIR 8011	284303.138	1680450.820	255.0	9.42	R-68A	-0.008	-0.100	0.0	4.67	-0.008	-0.100	0.0	4.67	0.000	0.000	0.0	0.00
R-69A	JUN1983	283258.310	1680697.260	255.0	4.18	R-69A	FND CIR 8011	283258.284	1680697.18	255.0	8.30	R-69A	FND CIR 8011	283258.284	1680697.178	255.0	8.30	R-69A	0.026	0.082	0.0	-4.12	0.026	0.082	0.0	-4.12	0.000	0.000	0.0	0.00
R-70	JUN1983	282218.240	1681041.530	255.0	5.30	R-70	FND CIR 8011	282218.235	1681041.60	255.0	5.62	R-70	FND CIR 8011	282218.235	1681041.601	255.0	5.62	R-70	0.005	-0.071	0.0	-0.32	0.005	-0.071	0.0	-0.32	0.000	0.000	0.0	0.00
R-71	JUN1983	281164.360	1681153.220	255.0	10.19	R-71	not recovered			255.0		R-71	JUN1983	281164.360	1681153.220	255.0	10.19	R-71			0.0		0.000	0.000	0.0	0.00			0.0	
R-72A	JUN1983	280135.240	1681451.120	255.0	4.10	R-72A	not recovered			255.0		R-72A	RE-SET 2020	280135.240	1681451.120	255.0	4.10	R-72A			0.0		0.000	0.000	0.0	0.00			0.0	
R-73	MAR1997	279140.360	1681805.390	255.0	4.13	R-73	MAR1997	279140.36	1681805.21	255.0	4.58	R-73	MAR1997	279140.360	1681805.210	255.0	4.58	R-73	0.000	0.180	0.0	-0.45	0.000	0.180	0.0	-0.45	0.000	0.000	0.0	0.00
R-74	JUN1983	278133.660	1682180.160	255.0	14.56	R-74	JUN1983	278133.676	1682180.03	255.0	14.63	R-74	JUN1983	278133.676	1682180.030	255.0	14.63	R-74	-0.016	0.130	0.0	-0.07	-0.016	0.130	0.0	-0.07	0.000	0.000	0.0	0.00
R-75	MAR1997	277076.850	1682253.940	255.0	19.23	R-75	MAR1997	277076.839	1682253.80	255.0	19.67	R-75	MAR1997	277076.839	1682253.801	255.0	19.67	R-75	0.011	0.139	0.0	-0.44	0.011	0.139	0.0	-0.44	0.000	0.000	0.0	0.00
R-76	MAR1997	276045.690	1682463.710	255.0	10.73	R-76	not recovered			255.0		R-76	MAR1997	276045.690	1682463.710	255.0	10.73	R-76			0.0		0.000	0.000	0.0	0.00			0.0	
R-77	FEB1993	275020.490	1682696.990	255.0	13.31	R-77	not recovered			255.0		R-77	FEB 2020	275020.490	1682696.990	255.0	13.31	R-77			0.0		0.000	0.000	0.0	0.00			0.0	
R-78	FEB1993	273984.590	1682913.740	255.0	21.89	R-78	RE-SET 2023	273984.574	1682913.75	255.0	12.47	R-78	RE-SET 2023	273984.574	1682913.754	255.0	12.47	R-78	0.016	-0.014	0.0	9.43	0.016	-0.014	0.0	9.43	0.000	0.000	0.0	0.00

APPENDIX 6

FDEP ASCII Files

(Provided Digitally)

APPENDIX 7

XYZ Files

(Provided Digitally)

APPENDIX 8(A)

Field Book AF2

RP 50165724 EAGLE HARBOR 07-20-23

JM

EQ: SP80

ROSS 825B

CF-31 TOUGHBOOK

NEMO

DIGI BAR PRO

BASE

CHK

X DOCK AT MB BOAT RAMP

WATER ELEV = 8:00 AM 3.29 - 2.84 = 0.40

4:37 PM 3.29 - 3.50 = -0.21

NEMO 8:00 AM = 0.40

SOS 9:56^{AM} AVE 5041 28' OBS 5035 USED 5035

3:18^{PM} AVE 5042 29' OBS 5035

DRAFT 1.1'

CENTER MOUNT SET UP

	RTK	ROSS
STAR	0	0
FOR	0	0
VERT	-9.63	0

AF3-38

LINE	STATUS	START	STOP	
R-65	FIXED	9:59	10:06	
65.5	FIXED	10:10	10:17	
R-66	FIXED	10:23	10:30	
66.5	FIXED	10:33	10:41	
R-67	FIXED	10:44	10:52	
67.5	FIXED	10:55	11:03	
R-68	FIXED	11:07	11:15	
68.5	FIXED	11:17	11:25	
R-69	FIXED	11:33	11:41	
69.5	FIXED	11:44	11:52	
R-70	FIXED	11:55	12:03	
70.5	FIXED	12:06	12:15	
R-71	FIXED	12:18	12:27	
71.5	FIXED	12:30	12:38	
R-72	FIXED	12:41	12:50	
72.5	FIXED	12:53	1:01	
R-73	FIXED	1:04	1:12	Float 10 sec. 1:10
73.5	FIXED	1:15	1:23	
R-74	FIXED	1:26	1:33	
74.5	FIXED	1:37	1:45	
R-75	FIXED	1:49	1:57	
75.5	FIXED	2:03	2:11	
R-76	FIXED	2:14	2:23	
76.5	FIXED	2:28	2:36	
R-77	FIXED	2:40	2:48	
77.5	FIXED	2:53	3:01	
R-78	FIXED	3:05	3:13	
CHK	FIXED	3:20	3:57	

APPENDIX 8(B)

Field Book 321

7-26-23

D. LEIN A. CURRIE A. BARFIELD

TK	HI	HR	PTS	DESC.
4	5.48	6.56	1000	CHK IN @ 3 HE = 0.093 VE = -0.055

1001-1047 R 65 LINE

1048-1087 R 65.5 LINE

1088-1141 R 66 LINE

1142-1173 R 66.5 LINE

1174-1216 R 67 LINE

1217-1254 R 67.5 LINE

1255-1300 R 68 LINE

1301-1340 R 68.5 LINE

1341-1377 R 69 LINE

1378-1417 R 69.5 LINE

1418-1442 R 70 LINE

1443-1476 R 70.5 LINE

1477-1527 R 71 LINE

1528-1578 R 71.5 LINE

1579-1633 R 72 LINE

1634-1677 R 72.5 LINE

1678-1711 R 73 LINE

1712-1742 R 73.5 LINE

1743-1784 R 74 LINE

1785-1824 R 74.5 LINE

1825-1865 R 75 LINE

1866-1896 R 75.5 LINE

1897-1928 R 76 LINE

1929-1960 R 76.5 LINE

1961-2002 R 77 LINE

2003-2045 R 77.5 LINE

2046-2072 R 78 LINE

7-27-23

D. LEIN A. CURRIE

TK	HI	HR	PTS	DESC.
4	5.32	6.56	2073	CHK IN @ 3 HE = 0.061 VE = -0.001

2074-2112 R 78 UPLAND

GS, GS, GS, GS, GS, GS, GS, GS, GS, GS

CIR/8011 SET, GS, GS, GS, GS, GS, GS

GS, GS, GS, GS, GS, BC, GS, GS, GS, GS

BC, ES/ASPH - ES

2113-2145 R 77.5 UPLAND

GS, GS, GS, GS, GS, GS, GS, GS, GS, GS

GS, GS, GS, GS, GS, GS, BC, GS, GS, GS, GS

EOG, EOG, ES, ES, EOG, GS - GS

2146-2176 R 77 FALLS ON PEDESTRIAN
WALKWAY

GS, GS, GS, GS, GS, GS, GS, GS, GS, GS

GS, GS, GS, GS, GS, GS, BC, GS, GS, GS

GS, GS, GS, BC, GS - GS

2177-2198 R 76.5 UPLAND

GS, GS, GS, GS, GS, GS, GS, GS, GS, GS

GS, GS, GS, GS, EOG, ES, EOG, GS, GS, GS

EDW/WETLANDS

2199-2202 GS - GS R 76 MAN NOT RECOVER
DO TO PROPERTY OWNER

NOT ALLOWING ON PROPERTY

2203-2231 GS, GS, GS, GS, GS, GS, GS, GS, GS, GS

GS, BC, GS, GS, GS, BC, GS, EBP,

ES, ES, EBP, GS, GS, GS, GS, GS, GS

EDW/WETLANDS R 75.5 UPL.

2232-2265 GS, GS, GS, GS, GS, GS, GS, GS, GS, GS

GS, GS, GS, EBP, ES, ES, ES, ES, ES, EBP, GS, GS, GS

R 75, GS, GS, EOG, ES, EOG, GS R 75 UPL.

2266-2309 R 74.5 UPLAND MEH, GS - GS

EDW/WETLANDS

7-27-23 A.L. A.C.

π	HI	HR	PTS	DESC.
4	5.32	6.56	2310-2364	R 74 UPLAND
			2365-2377	R 73.5 UPLAND
			2378-2416	R 73 UPLAND
			2417-2434	R 73.5 UPLAND
			2435-2453	R 76 UPLAND
				MONUMENT FALLS
				IN BRICK OWY

APPENDIX 8(C)

Field Book 321

7-25-20

FB# 335

15

UPLAND

PTS.

[illegible]
$$HF = 0.028$$

PT 10,000 7-27-23

PTS

"R-6S	GS, GS, GS, GS, GS, GS, GS, GS, GS, GS, CRGS.	10,001 - 10,036
"L5.S	GS, GS, GS, GS, GS, GS, GS, GS, GS, GS.	"10.037"
"R-66	GS, GS, GS, GS, GS, GS, GS, GS,	GS
"66.S	GS, GS, GS, GS, GS, GS, GS, GS,	GS, GS
"R-67	GS, GS, GS, GS, GS, GS, GS, GS,	GS
67.S	GS, GS, GS, GS, GS, GS, GS, GS,	GS, GS
R-68	GS, GS, GS, GS, GS, GS, GS, GS,	CRGS - 10,052 - 10,065
68.S	GS, GS, GS, GS, GS, GS, GS, GS,	GS, GS
R-69	GS, GS, GS, GS, GS, GS, GS, GS,	CRGS
69.S	GS, GS, GS, GS, GS, GS, GS, GS,	GS, GS
R-70	GS, GS, GS, GS, GS, GS, GS, GS,	GS
70.S	GS, GS, GS, GS, GS, GS, GS, GS,	GS, GS
R-71	GS, GS, GS, GS, GS, GS, GS, GS,	GS

R-87 cm

scrub oaks

CTR-SET R-88

COLLAPSING PINE TREES R89

TABLE SCRUB OAKS

CIR 1804 REF R-90

BDLG

1-R 801 REF R-91

BDL A

cm

FNC / Pool

CIR/801/REF

NB SAT IN BETWEEN BOLD,

UPLANDS 55165724 EAGLE HARBOR

CTR/7137 REF

BIRD NEST AREA

CLOSED AREA.

CIR/8011 REF

ezR/8011 RFF Thick BRUSH

CTR/8011 REF SWAMP AREA

BIRD NEST AREA

R - 73.5