

2015 ST. JOSEPH PENINSULA GEOTECHNICAL SURVEY HYDROGRAPHIC SURVEY REPORT

JCP Permit



PREPARED ON BEHALF OF

GULF COUNTY

PREPARED FOR



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

AND

GULF COUNTY, FLORIDA.

PREBLE-RISH, INC. PROJECT NO. 487.016

APRIL 2015

PREPARED BY:



PANAMA CITY

203 Aberdeen Parkway
Panama City, Florida 32405

P 850.522.0644

F 850.522.1011

PANAMA CITY • PORT ST. JOE • BLOUNTSTOWN • SANTA ROSA BEACH • FT. WALTON BEACH
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*2015 St. Joseph Peninsula Geotechnical Survey
Hydrographic Survey*

2015 ST. JOSEPH PENINSULA GEOTECHNICAL SURVEY HYDROGRAPHIC SURVEY REPORT

JCP Permit

Prepared For:

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

And

Gulf County, Florida.

Prepared By:

Preble-Rish, Inc.
203 Aberdeen Parkway
Panama City, FL 32405



**2015 St. Joseph Peninsula Geotechnical Survey
Hydrographic Survey**

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4. XYZ Data (Provided digitally)
5. Field Book/Pages

**2015 St. Joseph Peninsula Geotechnical Survey
Hydrographic Survey**

1. ABSTRACT

Preble Rish, Inc. (PRI) was contracted MRD Associates, Inc. (MRD) to provide surveying services for the 2015 St. Joseph Peninsula Geotechnical Survey Hydrographic Survey. Hydrographic Surveys were performed at six areas (A, B, C, D, E, and F) adjacent to St. Joseph Peninsula in Gulf County, Florida. The areas surveyed vary from approximately 0.5 to 8.0 miles offshore, beginning approximately 4 miles southwest of the northernmost tip of St. Joseph Peninsula, and ending approximately 8 miles southwest of the southernmost tip of St. Joseph Peninsula. PRI was responsible for conducting a Hydrographic Survey of these six areas, as well as, providing real time GPS positions to MRD for the duration of the survey, for implementation with their sub-surface survey. The intended purpose of this survey is to obtain geographic information of these six subject areas, including positions, depth, and type/quality of sand. This data is necessary for the evaluation of these six areas as potential borrow sites for future beach renourishment.

2. METHODOLOGY

2(a). BOAT SETUP AND SURVEY CONTROL:

This survey was conducted with the use of Florida State University Coastal & Marine Laboratory (FSUCML) research vessel "R/V Apalachee". Survey equipment including GPS system, transducer, and towfish (used by MRD to conduct sub-surface survey), were mounted on the vessel prior to field survey. All equipment was measured, calibrated, and tested at FSUCML prior to departure. Survey field crews found and verified existing N.G.S. monument "8360L 1988 TIDAL", which is located at FSUCML. Elevation of said N.G.S. monument was confirmed prior to the start of Hydrographic Surveying. A Spectra Precision Epoch 50 GNSS RTK GPS system was used, together with the Florida Department of Transportation (FDOT) Florida Permanent Reference Network (FPRN), and eGPS Solutions GNSS Real Time Network (which provides internet based GPS data), to locate and verify survey control.

Planned profile lines were calculated in the office by MRD and provided to PRI prior to field survey. However, during the field survey, additional lines were calculated "on the fly" and added to the survey. A tabular listing of all profile lines can be found in Appendix 3 (Profile Line Information), which includes Area, Line, Northing, Easting, and Azimuth.

2(b). HYDROGRAPHIC SURVEY:

Offshore Hydrographic Surveys were conducted simultaneously with sub-surface surveys (conducted by MRD). "R/V Apalachee", FSUCML's 65 foot aluminum research vessel, was used to perform offshore surveys. A Spectra Precision Epoch 50 GNSS RTK GPS system, together with the Florida Department of Transportation (FDOT) Florida Permanent Reference Network (FPRN), and eGPS Solutions GNSS Real Time Network (which provides internet based GPS data), 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 an over-the-side 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 55' to 60'. Hypack Hydrographic Surveying software, version 2012, was used as a data collection platform to record positions, elevations, tides and depths.

2(c). DATA PROCESSING:

Field survey data was processed using Hypack Hydrographic Surveying software, version 2012, and AutoCAD Civil 3D Land Development Desktop. Offshore raw data was edited using Hypack's "Single Beam Editor". Profile Plots, shown in Appendix 2, were created using Hypack's "Cross Sections and Volumes" program. Once raw offshore data was edited, 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 ~30 foot intervals). Survey Maps (Plan view), shown in Appendix 1, were then created showing the range line data and elevations.

3. SURVEY REPORT
2015 ST. JOSEPH PENINSULA GEOTECHNICAL SURVEY
HYDROGRAPHIC SURVEY

Project Information:

Title of Project: 2015 St. Joseph Peninsula Geotechnical Survey Hydrographic Survey

Prepared By: Preble-Rish, Inc.

Prepared For: Gulf County, Florida

Submitted To: Florida Department of Environmental Protection

Date Prepared: May 14, 2015.

Dates of Survey: April 13-16, 2015.

Project Location: Survey consists of offshore areas of Gulf County, Florida, from approximately 0.5 to 8.0 miles offshore, beginning approximately 4 miles southwest of the northernmost tip of St. Joseph Peninsula, and ending approximately 8 miles southwest of the southernmost tip of St. Joseph Peninsula.

Survey Notes:

1. Horizontal datum is referenced to Florida State Plane Coordinates, North zone, NAD 1983/2011, U.S. Survey Feet, established using a Spectra Precision Epoch 50 GNSS RTK GPS system, together with the Florida Department of Transportation (FDOT) Florida Permanent Reference Network (FPRN), and eGPS Solutions GNSS Real Time Network (which provides internet based GPS data).
2. Vertical datum is referenced to North American Vertical Datum (NAVD) 1988, established using a Spectra Precision Epoch 50 GNSS RTK GPS system, together with the Florida Department of Transportation (FDOT) Florida Permanent Reference Network (FPRN), and eGPS Solutions GNSS Real Time Network (which provides internet based GPS data). N.G.S. monument "8360 L 1988 TIDAL", was verified and checked into prior to field survey.
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 Preble-Rish, Inc.; aerial photographs obtained from Google earth; the FDOT Florida Permanent Reference Network (FPRN); Field survey.
5. There may be additional restrictions not shown on this survey that may be found in the public records of Bay County, Florida.
6. Offshore Hydrographic Surveys were conducted with the use of Spectra Precision Epoch 50 GNSS RTK GPS system, together with the Florida Department of Transportation (FDOT) Florida Permanent Reference Network (FPRN), and eGPS Solutions GNSS Real Time Network (which provides internet based GPS data), for horizontal positions and tide

**2015 St. Joseph Peninsula Geotechnical Survey
Hydrographic Survey**

corrections, a Ross 825B dual frequency echosounder for depths (soundings), and Hypack Hydrographic software for data collection.

7. Aids to navigation have not been located by this survey.
8. The survey shown hereon represents the results of a field survey of the subject property as of the dates surveyed.
9. 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.
10. No title search, title opinion or abstract was performed by, nor provided to Preble-Rish, Inc., 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.
11. No underground and/or subaqueous utilities, utility lines, foundations, or other underground structures have been located by Preble-Rish, Inc.
12. Offshore Surveys were recorded in Field Book FCR 4.
13. Survey Maps (plan views) are intended to be displayed at the following scales:
 S1: 1"=5,000'
 S2-S88: 1"=500'
14. This Survey Report is not full and complete without the Hydrographic Survey, dated April 16, 2015. titled "2015 St. Joseph Peninsula Geotechnical Survey Hydrographic Survey Map".

15. Appendices:

1. Survey Maps (Plan View)
2. Profile Plots
3. Profile Line Information
4. XYZ Data (Provided Digitally)
5. Field Book/Pages

**2015 St. Joseph Peninsula Geotechnical Survey
Hydrographic Survey**

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 “Offshore Profile Surveying”, and “Borrow Site Bathymetric 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 profile lines surveyed is presented in **Appendix 3**.

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 4**. Copies of field book and pages are provided in **Appendix 5**.

I hereby certify that this 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
Preble-Rish, Inc.
203 Aberdeen Parkway
Panama City, FL 32405

Date

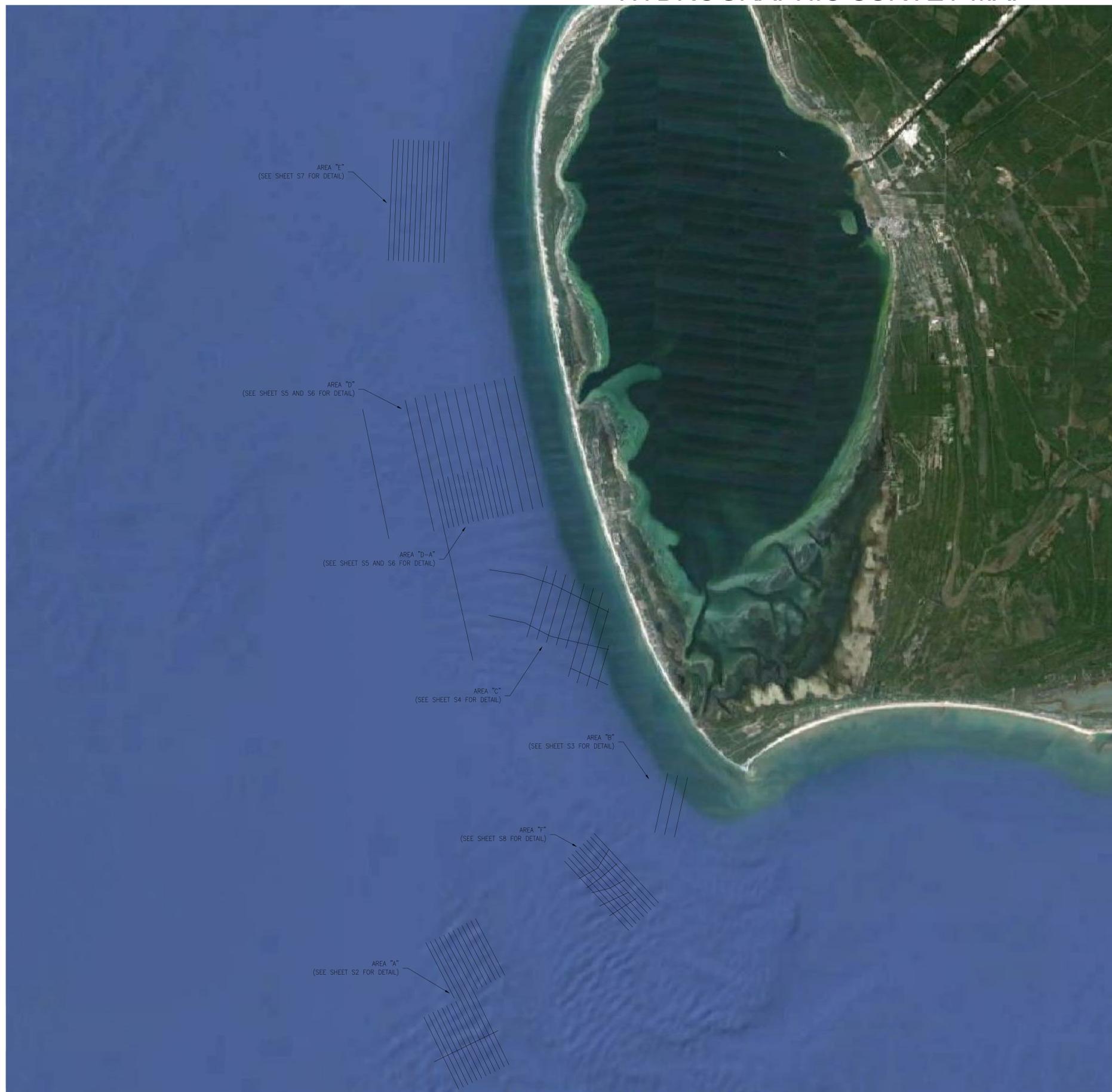
**2015 St. Joseph Peninsula Geotechnical Survey
Hydrographic Survey**

APPENDIX 1

Survey Maps (Plan View)

Hydrographic Survey

2015 ST. JOSEPH PENINSULA GEOTECHNICAL SURVEY HYDROGRAPHIC SURVEY MAP



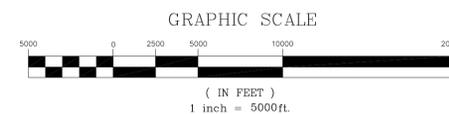
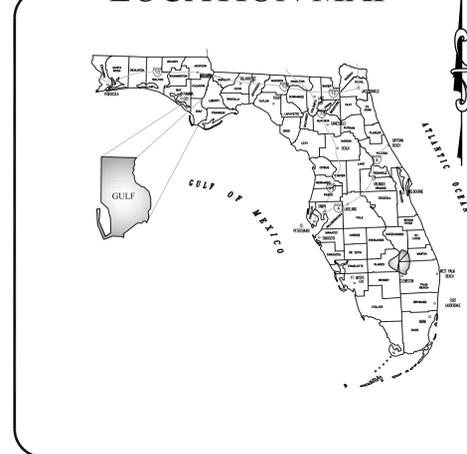
SYMBOLS & ABBREVIATIONS:

- NAD = NORTH AMERICAN DATUM (1983)
- NAVD = NORTH AMERICAN VERTICAL DATUM (1988)
- No. = NUMBER
- # = NUMBER
- L.B. = LICENSED BUSINESS
- L.S. = LICENSED SURVEYOR
- P.S.M. = PROFESSIONAL SURVEYOR AND MAPPER
- ELEV. = ELEVATION
- D.N.R. = DEPARTMENT OF NATURAL RESOURCES
- INC. = INCORPORATED
- FDEP = FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
- x21.2 = SPOT ELEVATION AT "X"
- FDOT = FLORIDA DEPARTMENT OF TRANSPORTATION
- AZ = AZIMUTH
- 144 = PROFILE LINE POINT OF BEGINNING

INDEX OF SHEETS

TITLE	NO.
OVERALL SITE - SHEET INDEX	S1
SITE DETAILS (RANGE LINES)	S2-S8

LOCATION MAP



SURVEYOR'S NOTES:

1. HORIZONTAL DATUM SHOWN HEREON IS REFERENCED TO FLORIDA STATE PLANE COORDINATES, NORTH ZONE, NAD 1983/2011, U.S. SURVEY FEET, ESTABLISHED USING A SPECTRA PRECISION EPOCH 50 GNSS RTK GPS SYSTEM, TOGETHER WITH THE FDOT FLORIDA PERMANENT REFERENCE NETWORK (FPRN), AND eGPS SOLUTIONS GNSS REAL TIME NETWORK, WHICH PROVIDES REAL TIME GPS DATA.
2. VERTICAL DATUM SHOWN HEREON IS REFERENCED TO NORTH AMERICAN VERTICAL DATUM (NAVD) 1988, ESTABLISHED USING A SPECTRA PRECISION EPOCH 50 GNSS RTK GPS SYSTEM, TOGETHER WITH THE FDOT FLORIDA PERMANENT REFERENCE NETWORK (FPRN), AND eGPS SOLUTIONS GNSS REAL TIME NETWORK, WHICH PROVIDES REAL TIME GPS DATA.
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: F.D.E.P. LAND BOUNDARY INFORMATION SYSTEM INTERNET WEB SITE (WWW.LABINS.ORG); PREVIOUS SURVEYS BY PREBLE-RISH, INC.; AERIAL PHOTOGRAPHS SHOWN HEREON OBTAINED FROM GOOGLE EARTH; THE FDOT FLORIDA PERMANENT REFERENCE NETWORK (FPRN); 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. THIS SURVEY WAS CONDUCTED WITH THE USE OF SPECTRA PRECISION EPOCH 50 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.
7. AIDS TO NAVIGATION HAVE NOT BEEN LOCATED BY THIS SURVEY.
8. THIS SURVEY MAP IS NOT FULL AND COMPLETE WITHOUT THE SURVEY REPORT, DATED MAY, 2015, TITLED "2015 ST. JOSEPH PENINSULA GEOTECHNICAL SURVEY HYDROGRAPHIC SURVEY REPORT".

NO.	DATE	APPL.	REVISION
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FREDERICK C. BARNER P.S.M.
PROFESSIONAL SURVEYOR & MAPPER
FLORIDA LICENSE NO. L.S. 6885

DATE SIGNED: 4/16/15

LIB 007137

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PANAMA CITY, FL 32366
(850) 725-2700

203 ABERDEEN PARKWAY
PANAMA CITY, FL 32365
(850) 725-2044

1000 NW MAIN ST
BREVARD, FL 32915
(888) 642-0771

20 E. WASHINGTON ST
SANTA ROSA BEACH, FL 32089
(850) 267-9779

2004 CENTRAL AVE EAST
BALMONTOWN, FL 32043
(850) 194-4300

94 JAMES THOMAS RD
DUNNEDONVILLE, FL 32027
(850) 734-9866

DESIGNED: FCR

DRAWN: FCR

CHECKED: DJB

DATE: 4/16/15

SCALE: 1"=5,000'

HYDROGRAPHIC SURVEY

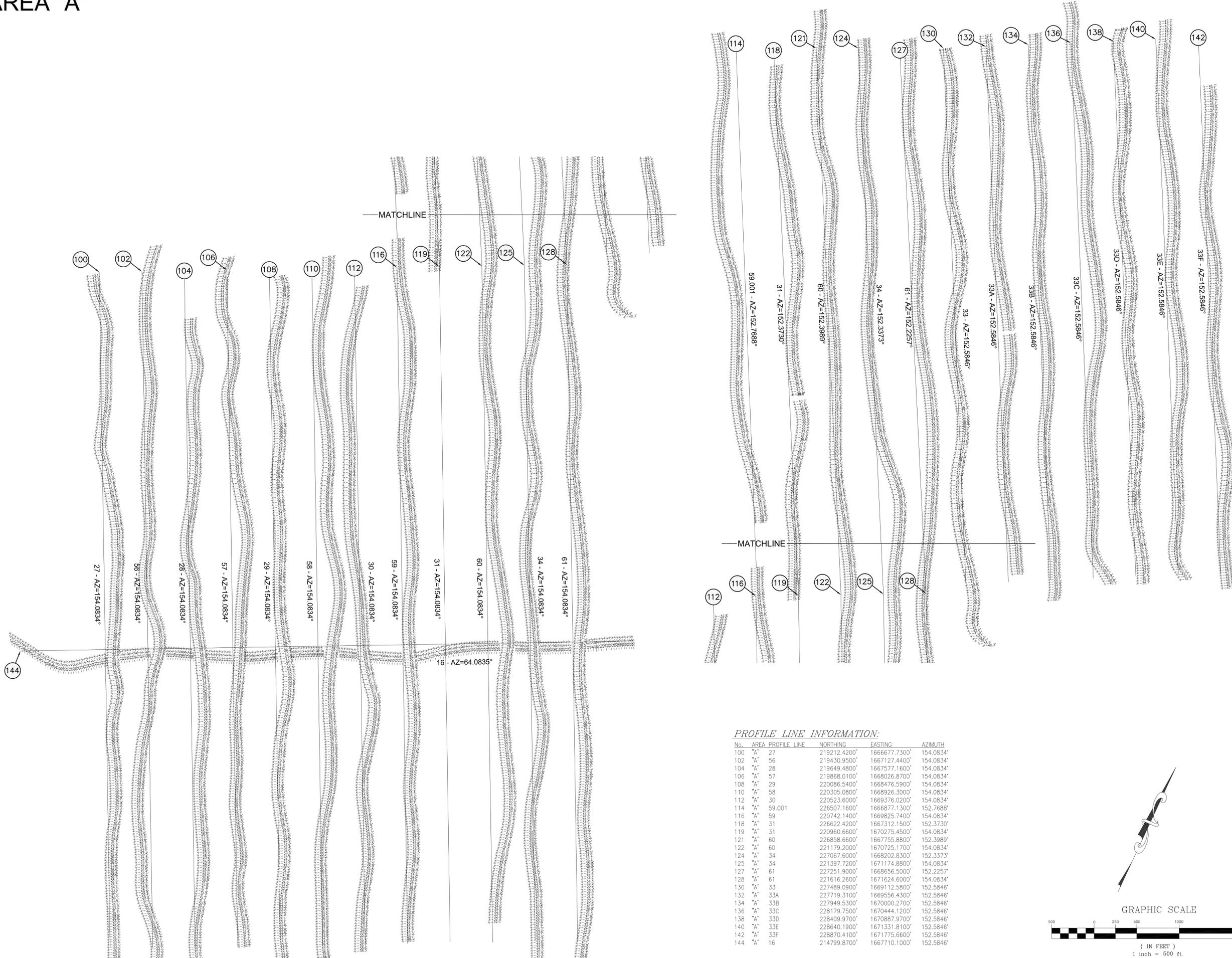
2015 ST. JOSEPH PENINSULA
GEOTECHNICAL SURVEY
GULF COUNTY, FLORIDA.

PROJECT NO.
487.016

SHEET
S1

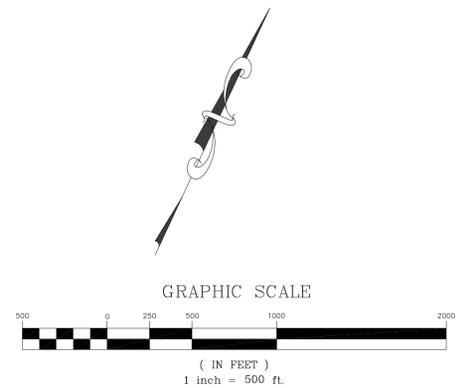
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AREA "A"



PROFILE LINE INFORMATION:

No.	AREA	PROFILE LINE	NORTHING	EASTING	AZIMUTH
100	"A"	27	219212.4200'	1666677.7300'	154.0834°
102	"A"	56	219430.9500'	1667127.4400'	154.0834°
104	"A"	28	219649.4800'	1667577.1500'	154.0834°
106	"A"	57	219868.0100'	1668026.8600'	154.0834°
108	"A"	29	220086.5400'	1668476.5700'	154.0834°
110	"A"	58	220305.0700'	1668926.2800'	154.0834°
112	"A"	30	220523.6000'	1669376.0000'	154.0834°
114	"A"	59.001	226507.1600'	1666877.1300'	152.7688°
116	"A"	59	220742.1400'	1669825.7400'	154.0834°
118	"A"	31	226622.4200'	1667312.1500'	152.3730°
119	"A"	31	220960.6600'	1670275.4500'	154.0834°
121	"A"	60	226858.6600'	1667755.8800'	152.3989°
122	"A"	60	221179.2000'	1670725.1700'	154.0834°
124	"A"	34	227067.6000'	1668202.8300'	152.3373°
125	"A"	34	221397.7200'	1671174.8800'	154.0834°
127	"A"	61	227251.9000'	1668656.5000'	152.2257°
128	"A"	61	221616.2600'	1671624.6000'	154.0834°
130	"A"	33	227489.0900'	1669112.5800'	152.5846°
132	"A"	33A	227719.3100'	1669556.4300'	152.5846°
134	"A"	33B	227949.5300'	1670000.2700'	152.5846°
136	"A"	33C	228179.7500'	1670444.1200'	152.5846°
138	"A"	33D	228409.9700'	1670887.9700'	152.5846°
140	"A"	33E	228640.1900'	1671331.8100'	152.5846°
142	"A"	33F	228870.4100'	1671775.6600'	152.5846°
144	"A"	16	214799.8700'	1667710.1000'	152.5846°



HYDROGRAPHIC SURVEY
2015 ST. JOSEPH PENINSULA
GEOTECHNICAL SURVEY
GULF COUNTY, FLORIDA.

PROJECT NO. **487.016** SHEET **S2**

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PORT ST. JOE, FL 32086
(904) 227-7200

200 HERBERT PARKWAY
SANTA ROSA BEACH, FL 32089
(904) 267-9719

1000 NW MAIN ST.
BRISTOL, FL 32311
(904) 642-0771

2004 CENTRAL AVE. EAST
DAWSONVILLE, GA 30156
(770) 214-4000

DATE: 4/16/15
CHECKED: DJB
DRAWN: FCR
DESIGNED: FCR

SCALE: 1"=500'

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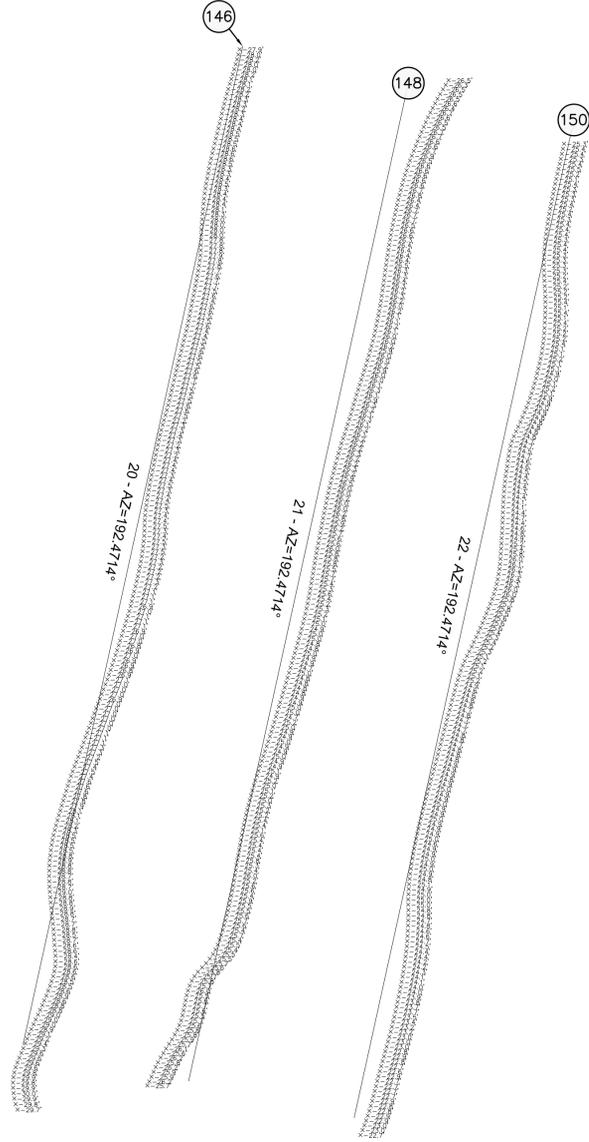
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FREDERICK C. RANNEY P.S.M.
PROFESSIONAL SURVEYOR & MAPPER
FLORIDA LICENSE NO. L.S. 6086

DATE DRAWN: 4/16/15
LIB 007137

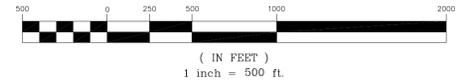
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AREA "B"



PROFILE LINE INFORMATION:

No.	AREA	PROFILE LINE	NORTHING	EASTING	AZIMUTH
146	"B"	20	243179.3900'	1690773.9300'	192.4714°
148	"B"	21	242963.4300'	1691750.3400'	192.4714°
150	"B"	22	242747.4800'	1692726.7400'	192.4714°



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HYDROGRAPHIC SURVEY
2015 ST. JOSEPH PENINSULA
GEOTECHNICAL SURVEY
GULF COUNTY, FLORIDA.

PROJECT NO.
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SHEET
S3

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203 ABERDEEN PARKWAY
 PANAMA CITY, FL 32405
 (850) 752-0044

1000 NW MAIN ST
 SANTA ROSA BEACH, FL 32089
 (850) 267-0719

2004 CENTRAL AVE EAST
 BLOUNTSTOWN, FL 32007
 (850) 642-0771

36 JAGGER THOMAS RD
 CHAMBERLAINVILLE, FL 32027
 (850) 714-0086

SCALE: 1"=500'

DESIGNED: FCR
 DRAWN: DJB
 CHECKED: FCR
 DATE: 4/16/15

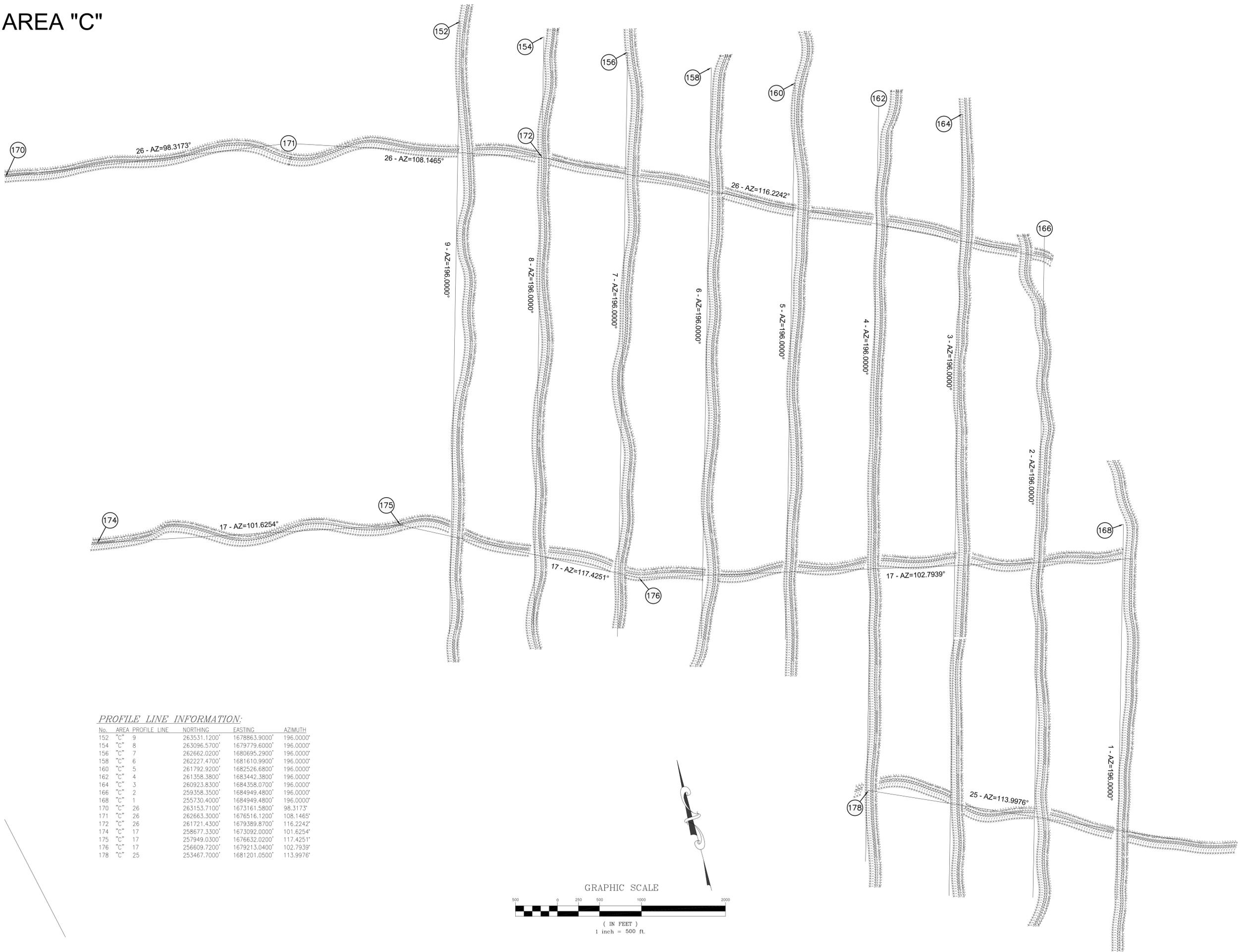
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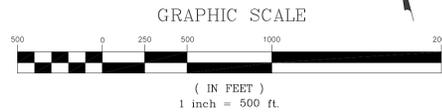
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AREA "C"



PROFILE LINE INFORMATION:

No.	AREA	PROFILE LINE	NORTHING	EASTING	AZIMUTH
152	"C"	9	263531.1200'	1678863.9000'	196.0000°
154	"C"	8	263096.5700'	1679779.6000'	196.0000°
156	"C"	7	262662.0200'	1680695.2900'	196.0000°
158	"C"	6	262227.4700'	1681610.9900'	196.0000°
160	"C"	5	261792.9200'	1682526.6800'	196.0000°
162	"C"	4	261358.3800'	1683442.3800'	196.0000°
164	"C"	3	260923.8300'	1684358.0700'	196.0000°
166	"C"	2	259358.3500'	1684949.4800'	196.0000°
168	"C"	1	255730.4000'	1684949.4800'	196.0000°
170	"C"	26	263153.7100'	1673161.5800'	98.3173°
171	"C"	26	262663.3000'	1676516.1200'	108.1465°
172	"C"	26	261721.4300'	1679389.8700'	116.2242°
174	"C"	17	258677.3300'	1673092.0000'	101.6254°
175	"C"	17	257949.0300'	1676632.0200'	117.4251°
176	"C"	17	256609.7200'	1679213.0400'	102.7939°
178	"C"	25	253467.7000'	1681201.0500'	113.9976°



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 PANAMA CITY, FL 32365
 (850) 221-7200

1000 NW MANA ST.
 BREVARD, FL 32915
 (888) 642-7171

200 ALBERGHEEN PARKWAY
 FT. COSS NORTH
 SANTA ROSA BEACH, FL 32089
 (850) 426-9709

2000 CENTRAL AVE. EAST
 CHANDLERVILLE, FL 32027
 (850) 214-0300

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 DESIGNED: FCR
 SCALE: 1"=500'

HYDROGRAPHIC SURVEY

**2015 ST. JOSEPH PENINSULA
 GEOTECHNICAL SURVEY
 GULF COUNTY, FLORIDA.**

PROJECT NO. 487.016 SHEET S4

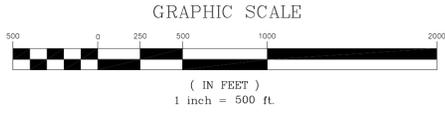
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FREDERICK C. BARNER P.S.M.
 PROFESSIONAL SURVEYOR & MAPPER
 FLORIDA LICENSE NO. L.S. 6865

NO.	DATE	APPL.	REVISION
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DATE BANNED: LIB 0007137
 FLORIDA LICENSE NO. L.S. 6865

AREA "D"



180

WEST - AZ=168.5034°

PROFILE LINE INFORMATION:

No.	AREA	PROFILE LINE	NORTHING	EASTING	AZIMUTH
180	"D"	WEST	278925.2400'	1660640.0900'	168.5034°
182	"D"	35	279826.6100'	1664839.8800'	167.5312°
184	"D"	36	280042.5100'	1665816.2900'	167.5312°
186	"D"	37	280258.4200'	1666792.7100'	167.5312°
188	"D"	38	280474.3300'	1667769.1200'	167.5312°
190	"D"	40	280690.2400'	1668745.5300'	167.5312°
192	"D"	39	280906.1500'	1669721.9500'	167.5312°
194	"D"	41	281122.0500'	1670698.3600'	167.5312°
196	"D"	43	281337.9600'	1671674.7700'	167.5312°
198	"D"	42	281553.8700'	1672651.1900'	167.5312°
200	"D"	44	281769.7800'	1673627.6000'	167.5312°
202	"D"	46	281985.6900'	1674604.0200'	167.5312°
204	"D"	45	282201.5900'	1675580.4300'	167.5312°
206	"D-A"	AREA1_LINE7_RE	272070.9300'	1668069.5800'	167.2873°
208	"D-A"	AREA1_LINE6_RE	272310.5900'	1669028.2300'	167.1474°
210	"D-A"	AREA1_LINE5_RE	272533.0400'	1670003.1700'	167.1474°
212	"D-A"	AREA1_LINE4_RE	272755.4800'	1670978.1200'	167.1474°
214	"D-A"	AREA1_LINE3_RE	272977.9200'	1671953.0600'	167.1474°
216	"D-A"	AREA1_LINE2_RE	273200.3700'	1672928.0100'	167.1474°
218	"D-A"	AREA1_LINE1_RE	273422.8100'	1673902.9600'	167.1474°

MATCHLINE

WEST - AZ=167.5312°

182

35 - AZ=167.5312°

184

36 - AZ=167.5312°

186

37 - AZ=167.5312°

188

38 - AZ=167.5312°

190

40 - AZ=167.5312°

192

39 - AZ=167.5312°

194

41 - AZ=167.5312°

196

42 - AZ=167.5312°

198

44 - AZ=167.5312°

200

46 - AZ=167.5312°

202

45 - AZ=167.5312°

204

MATCHLINE

M:\487\016_2015_S.P. GEOTECHNICAL SURVEY\DWG\487016-HS.DWG

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3001 CENTRAL AVE EAST
BLOUNTSTOWN, FL 32049
(850) 194-0009

94 JAGGERS THOMAS RD
DUNNEDALE, FL 32046
(850) 714-0886

HYDROGRAPHIC SURVEY
2015 ST. JOSEPH PENINSULA
GEOTECHNICAL SURVEY
GULF COUNTY, FLORIDA.

PROJECT NO. 487.016 SHEET S5

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FREDERICK C. BARNER P.S.M.
PROFESSIONAL SURVEYOR & MAPPER
FLORIDA LICENSE NO. L.S. 6868

NO.	DATE	APPL.
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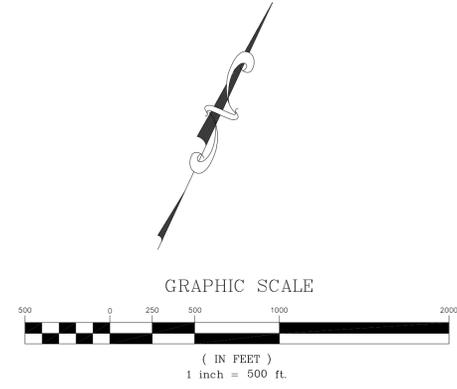
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DRAWN: FCR
DESIGNED: FCR
SCALE: 1"=500'

REVISION:

LIB 007137

AREA "D"

MATCHLINE



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NO.	DATE	APPL.
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DATE DRAWN: 4/16/15
 PROFESSIONAL SURVEYOR & MAPPER: FREDERICK C. BARNER P.S.M.
 FLORIDA LICENSE NO. L.S. 6868

DATE: 4/16/15
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 DRAWN: FCR
 DESIGNED: FCR
 SCALE: 1"=500'

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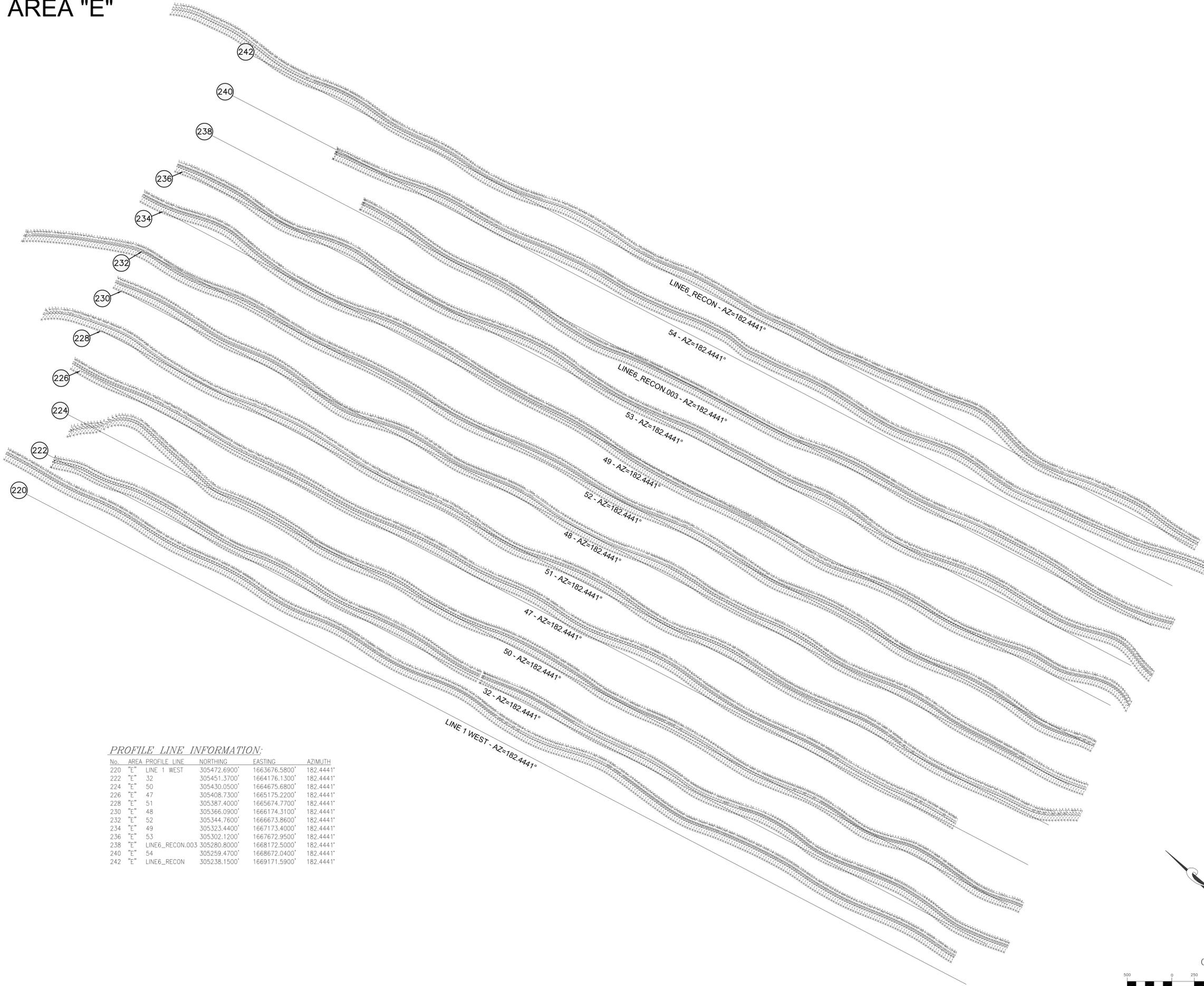
2006 CENTRAL AVE EAST
 BOUNTY TOWN, FL 32409
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PROJECT NO. 487.016
 SHEET S6

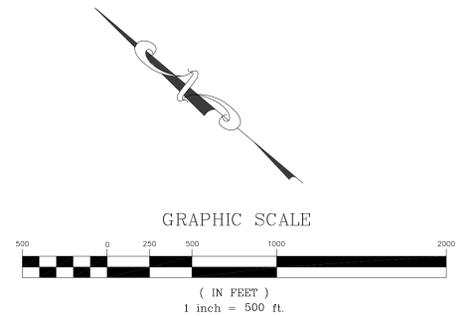
HYDROGRAPHIC SURVEY
 2015 ST. JOSEPH PENINSULA
 GEOTECHNICAL SURVEY
 GULF COUNTY, FLORIDA.

AREA "E"



PROFILE LINE INFORMATION:

No.	AREA	PROFILE LINE	NORTHING	EASTING	AZIMUTH
220	"E"	LINE 1 WEST	305472.6900'	1663676.5800'	182.4441°
222	"E"	32	305451.3700'	1664176.1300'	182.4441°
224	"E"	50	305430.0500'	1664675.6800'	182.4441°
226	"E"	47	305408.7300'	1665175.2200'	182.4441°
228	"E"	51	305387.4000'	1665674.7700'	182.4441°
230	"E"	48	305366.0900'	1666174.3100'	182.4441°
232	"E"	52	305344.7600'	1666673.8600'	182.4441°
234	"E"	49	305323.4400'	1667173.4000'	182.4441°
236	"E"	53	305302.1200'	1667672.9500'	182.4441°
238	"E"	LINE6_RECON.003	305280.8000'	1668172.5000'	182.4441°
240	"E"	54	305259.4700'	1668672.0400'	182.4441°
242	"E"	LINE6_RECON	305238.1500'	1669171.5900'	182.4441°



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NO.	DATE	APPL.	REVISION
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PROFESSIONAL SURVEYOR & MAPPER
FLORIDA LICENSE NO. L.S. 6068

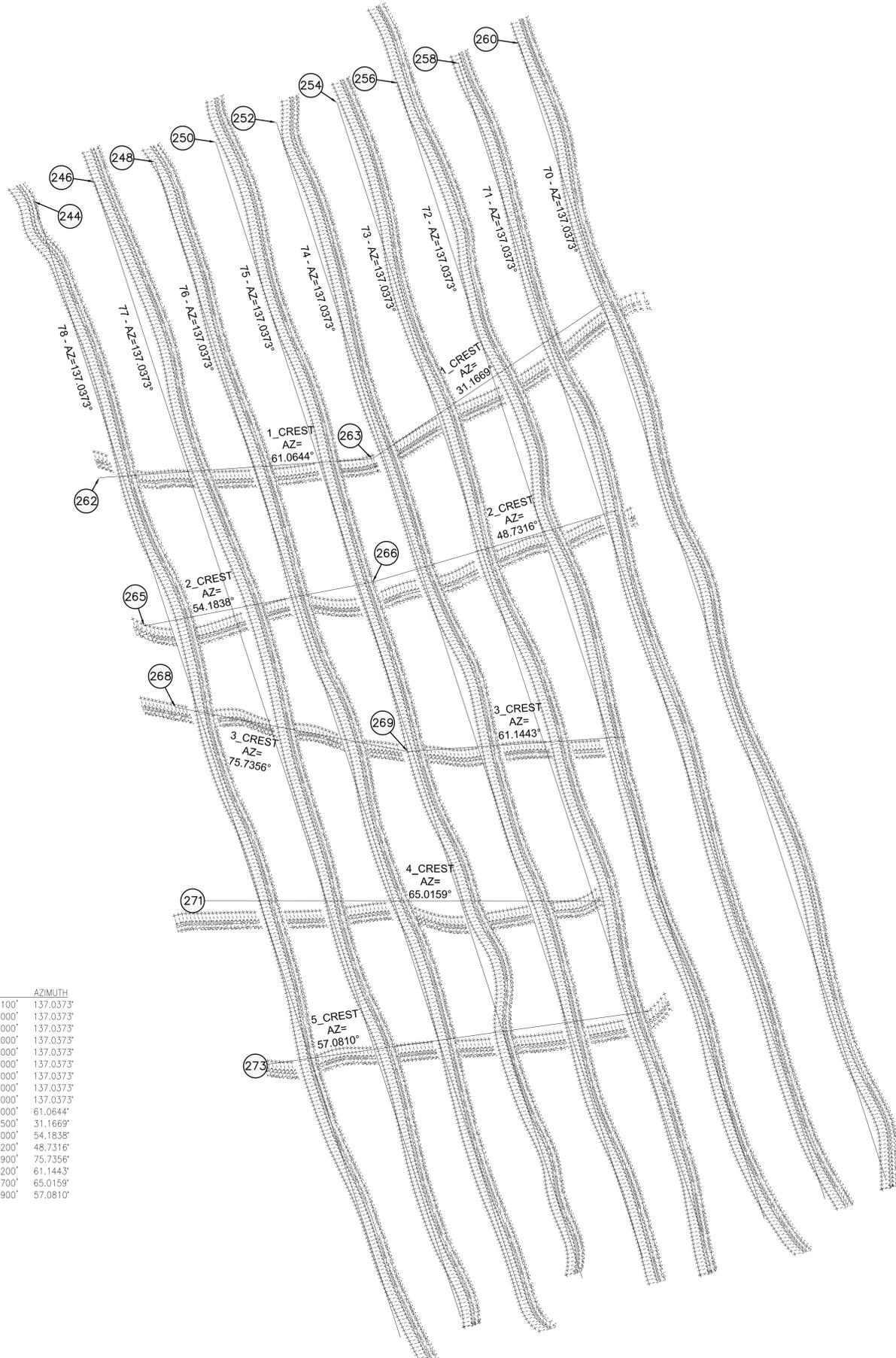
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SCALE: 1"=500'

HYDROGRAPHIC SURVEY

2015 ST. JOSEPH PENINSULA
GEOTECHNICAL SURVEY
GULF COUNTY, FLORIDA.

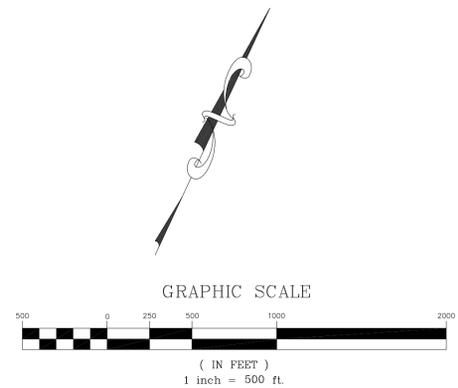
PROJECT NO. 487.016 SHEET S7

AREA "F"



PROFILE LINE INFORMATION:

No.	AREA	PROFILE LINE	NORTHING	EASTING	AZIMUTH
244	"F"	78	234515.9000'	1680577.9100'	137.0373°
246	"F"	77	234856.6600'	1680943.8000'	137.0373°
248	"F"	76	235197.4200'	1681309.7000'	137.0373°
250	"F"	75	235538.1800'	1681675.6000'	137.0373°
252	"F"	74	235878.9400'	1682041.5000'	137.0373°
254	"F"	73	236219.7000'	1682407.4000'	137.0373°
256	"F"	72	236560.4600'	1682773.3000'	137.0373°
258	"F"	71	236901.2200'	1683139.2000'	137.0373°
260	"F"	70	237241.9800'	1683505.1000'	137.0373°
262	"F"	1_CREST	232779.2000'	1681955.0000'	61.0644°
263	"F"	1_CREST	233815.7500'	1683829.9500'	31.1669°
265	"F"	2_CREST	231879.8300'	1682762.9000'	54.1838°
266	"F"	2_CREST	232946.8800'	1684241.5200'	48.7316°
268	"F"	3_CREST	231407.2900'	1683250.6900'	75.7356°
269	"F"	3_CREST	231864.5900'	1685049.4200'	61.1443°
271	"F"	4_CREST	230096.3500'	1684012.8700'	65.0159°
273	"F"	5_CREST	229136.0100'	1685003.6900'	57.0810°



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FLORIDA LICENSE NO. L.S. 6868

DATE DRAWN: 4/16/15
DATE: 4/16/15

CHECKED: DJB
DRAWN: FCR
DESIGNED: FCR

SCALE: 1"=500'

HYDROGRAPHIC SURVEY

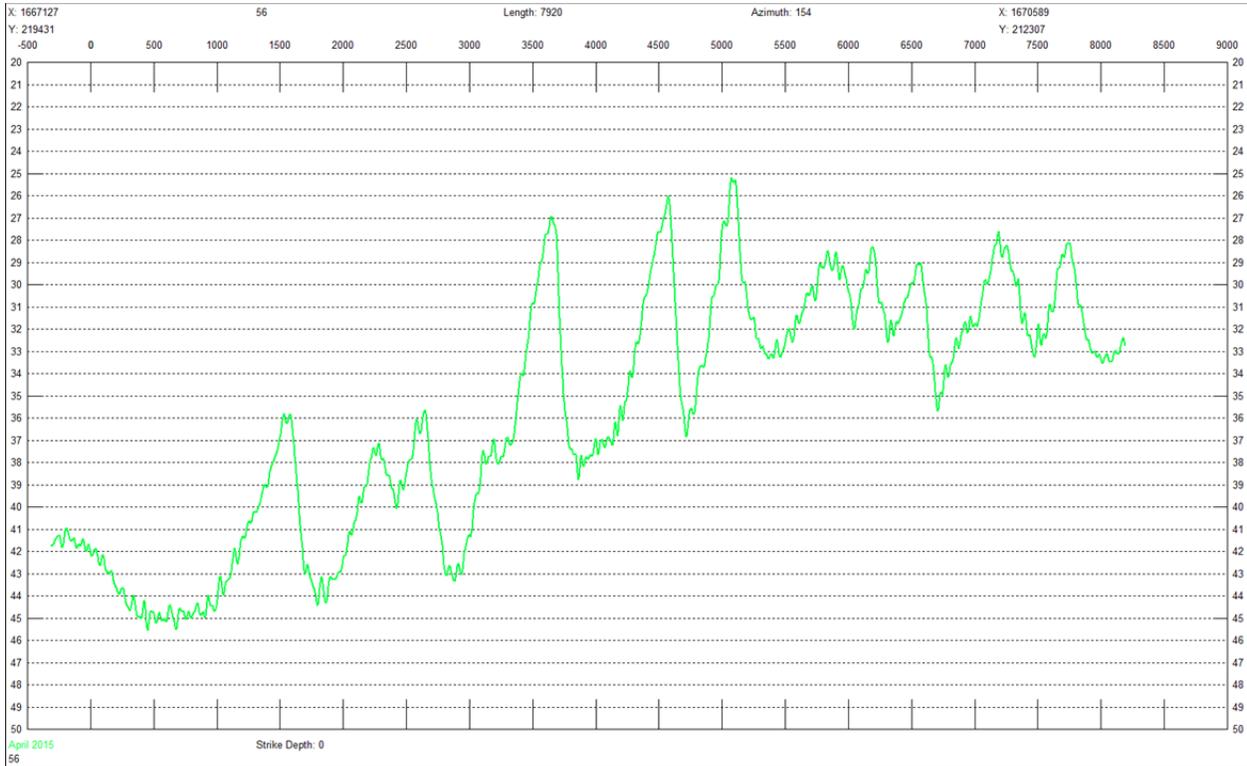
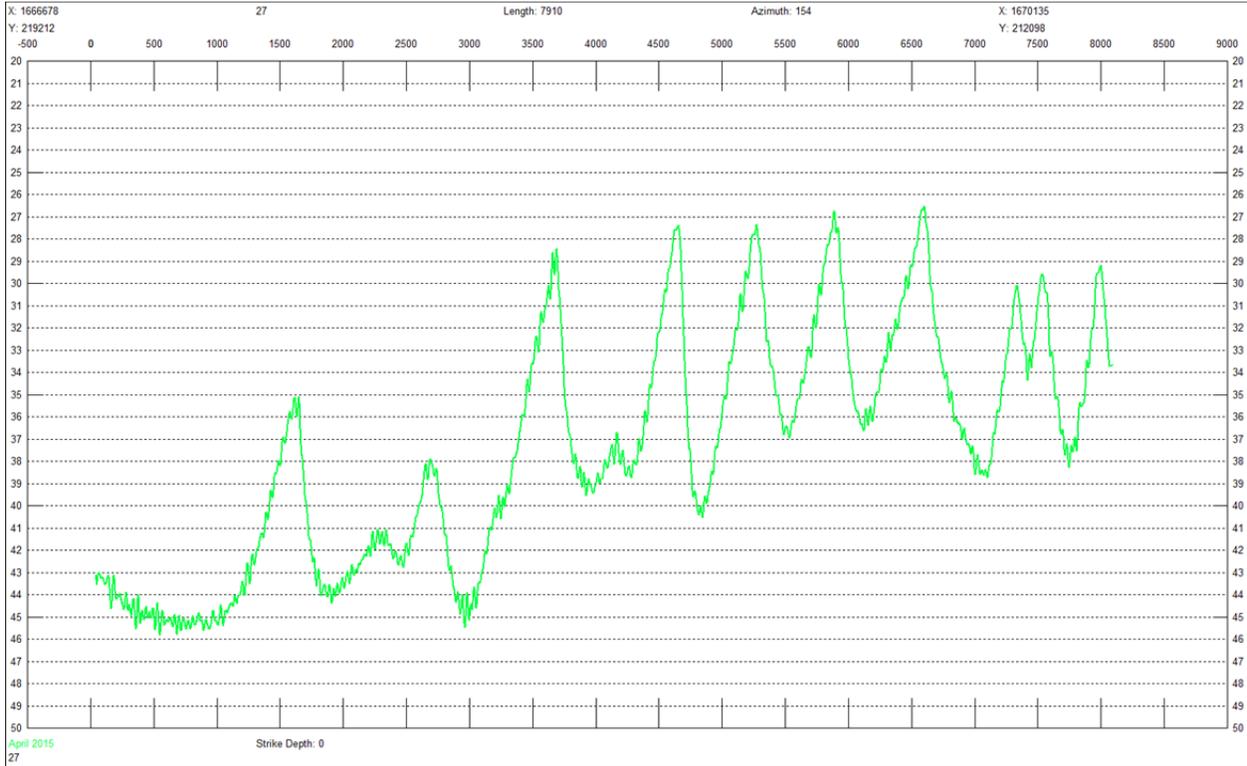
2015 ST. JOSEPH PENINSULA
GEOTECHNICAL SURVEY
GULF COUNTY, FLORIDA.

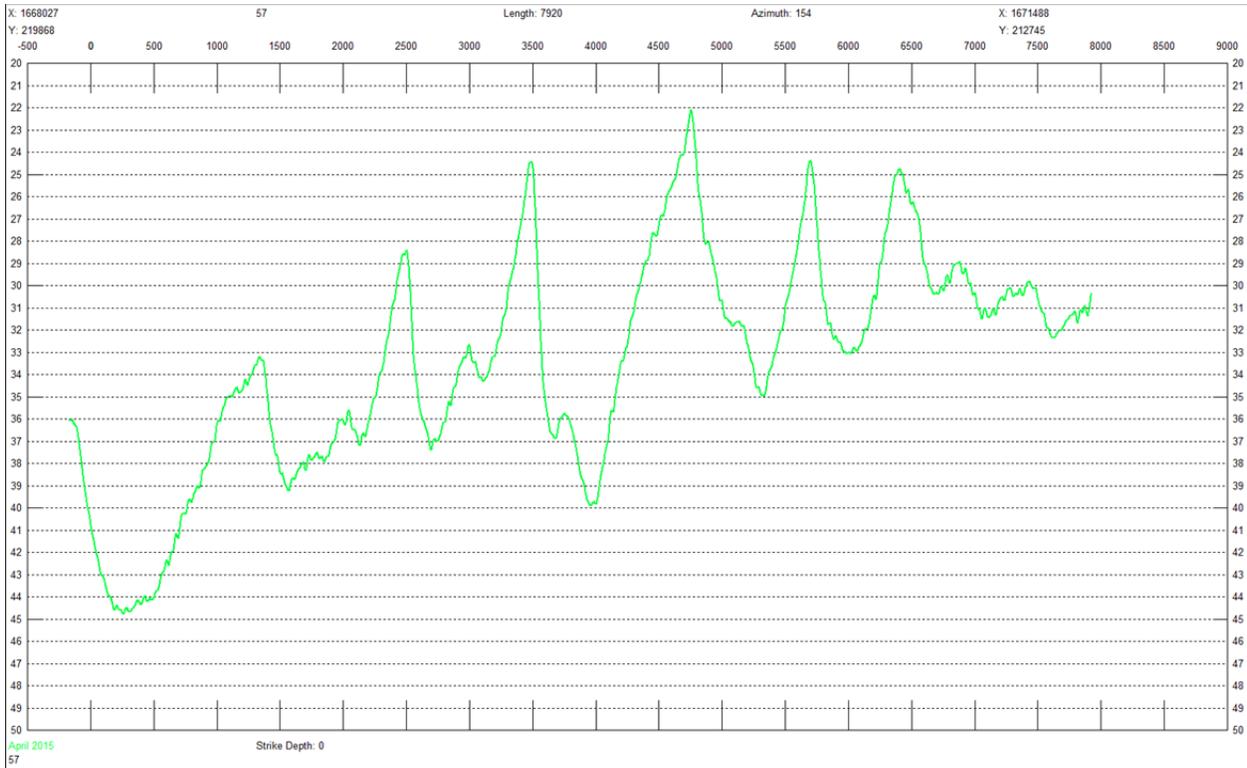
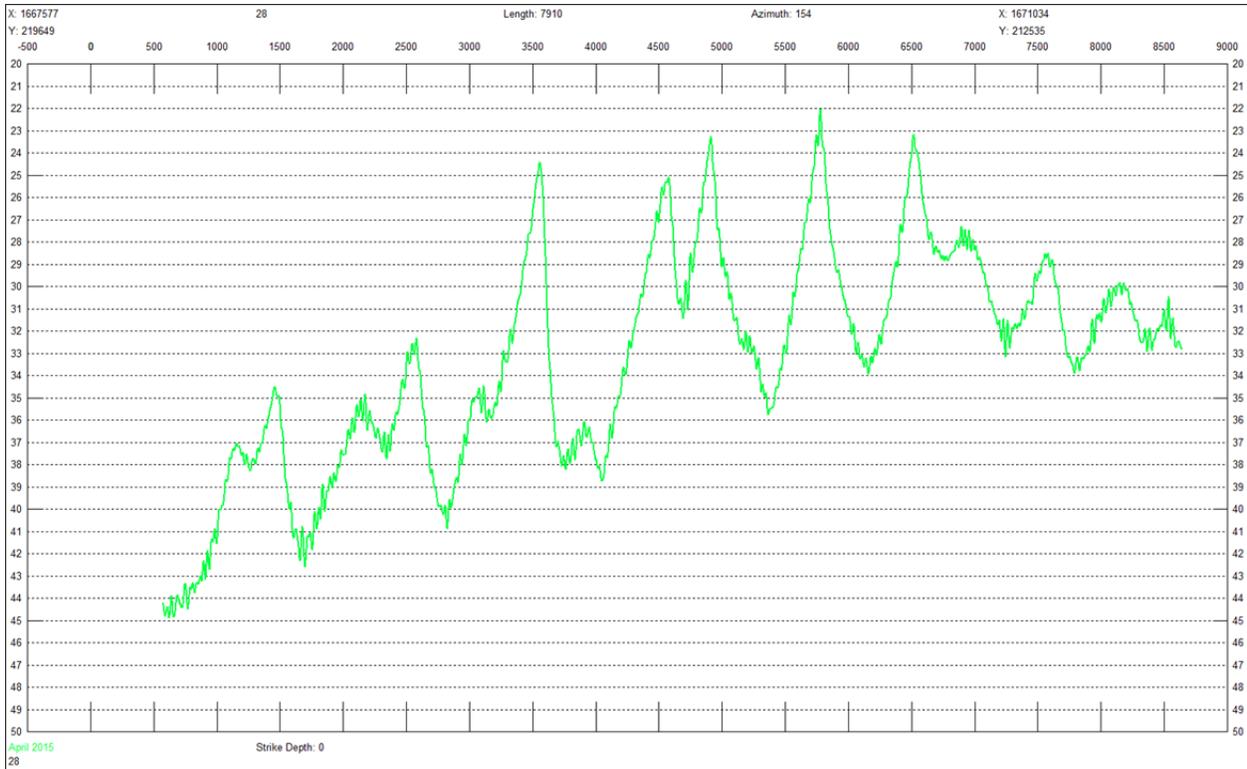
PROJECT NO. 487.016 SHEET S8

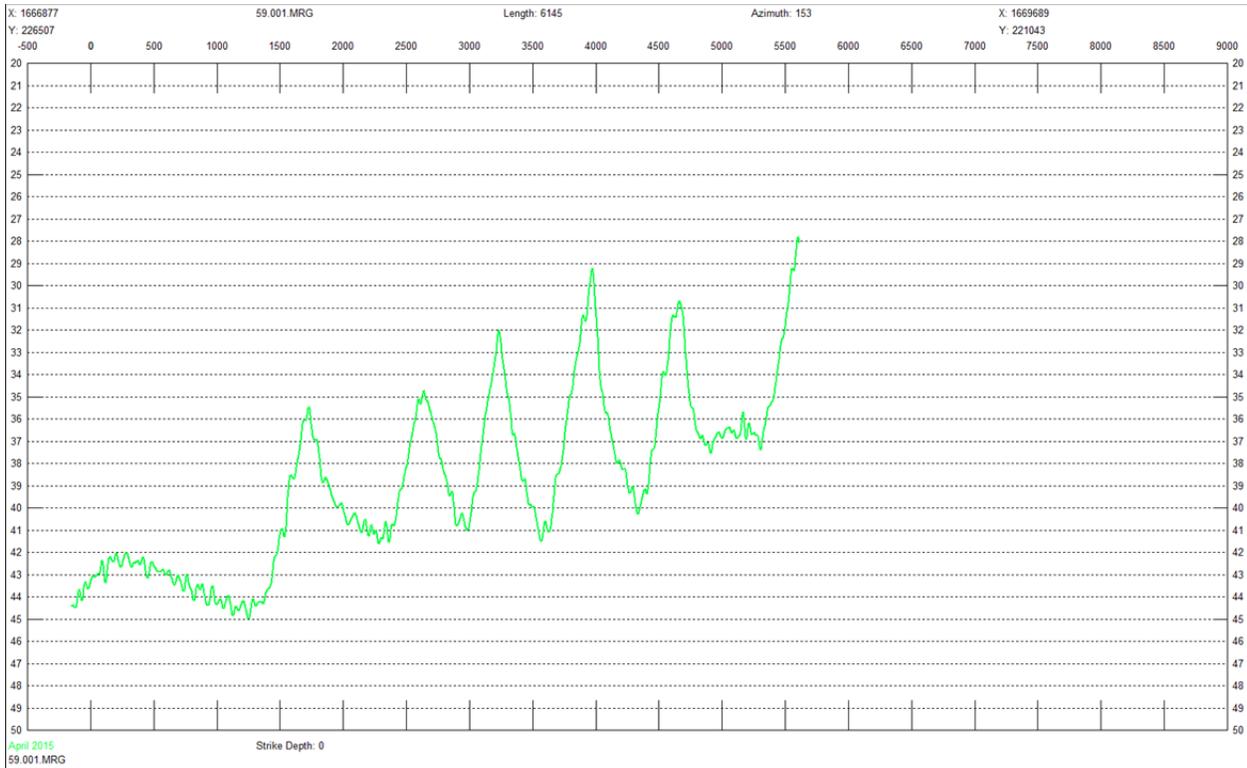
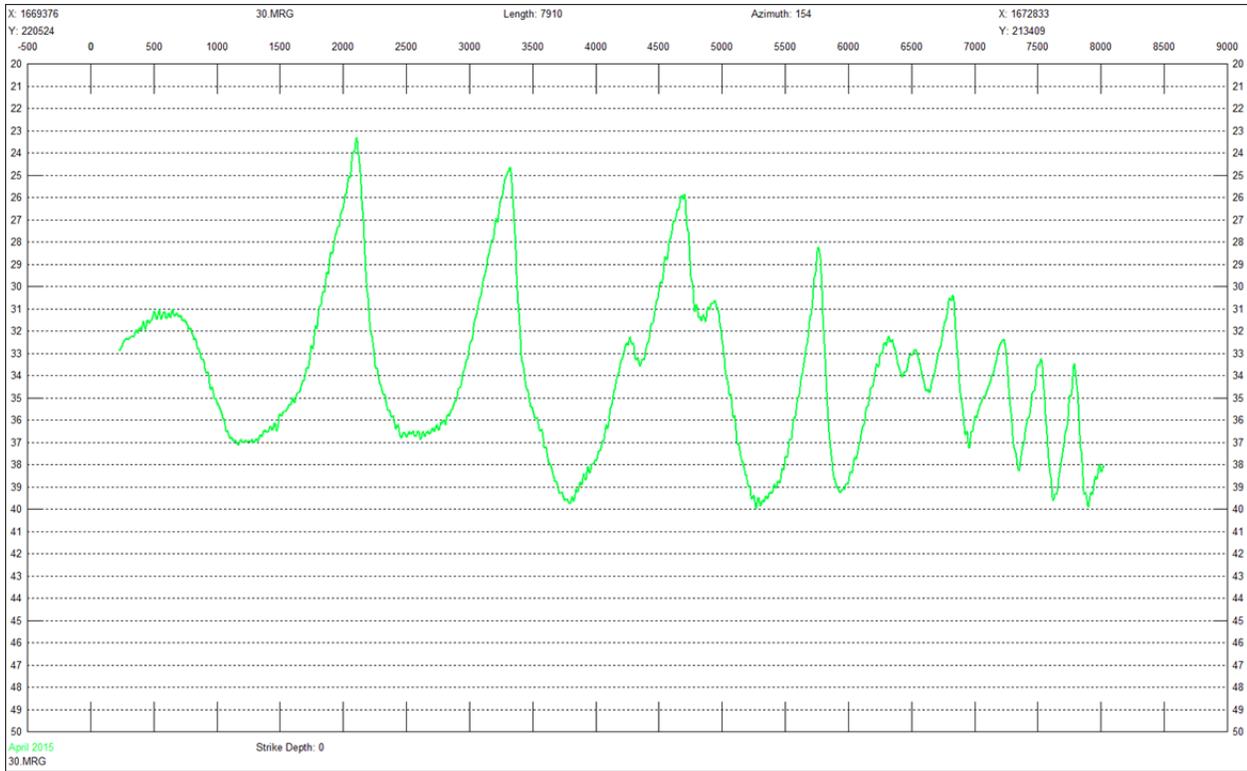
APPENDIX 2

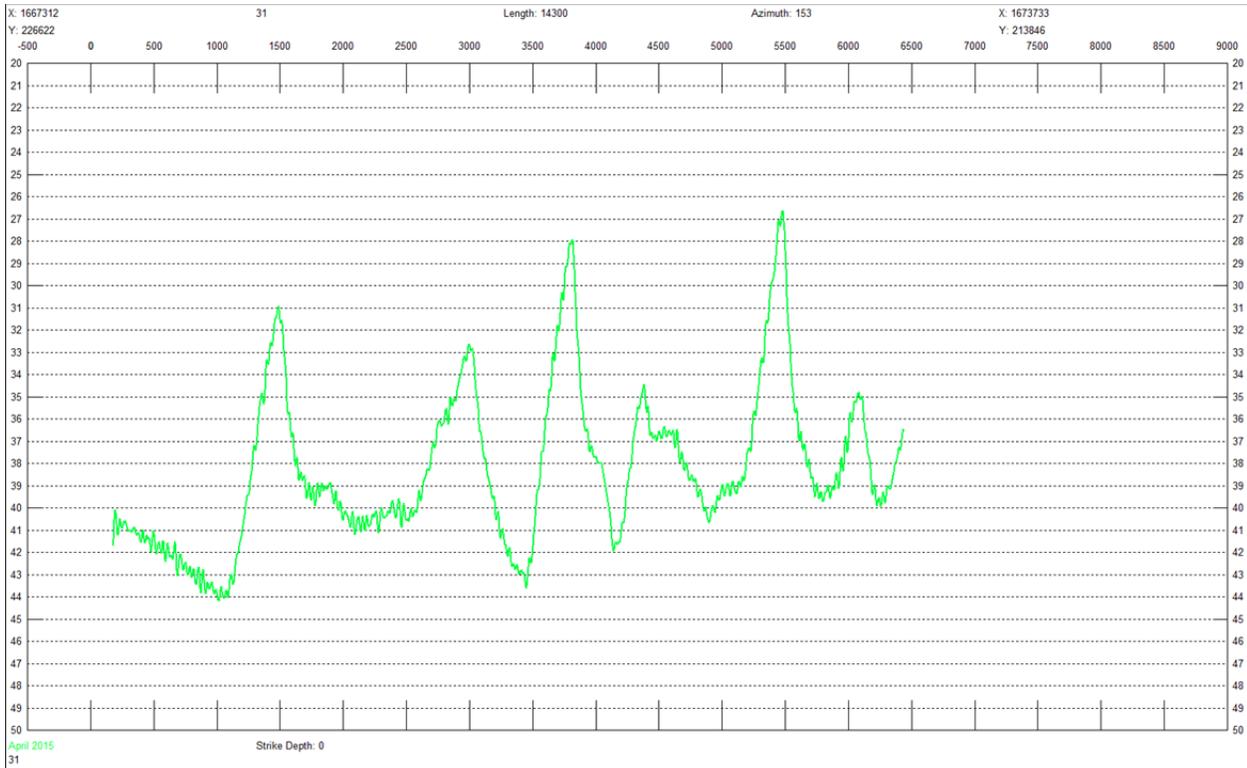
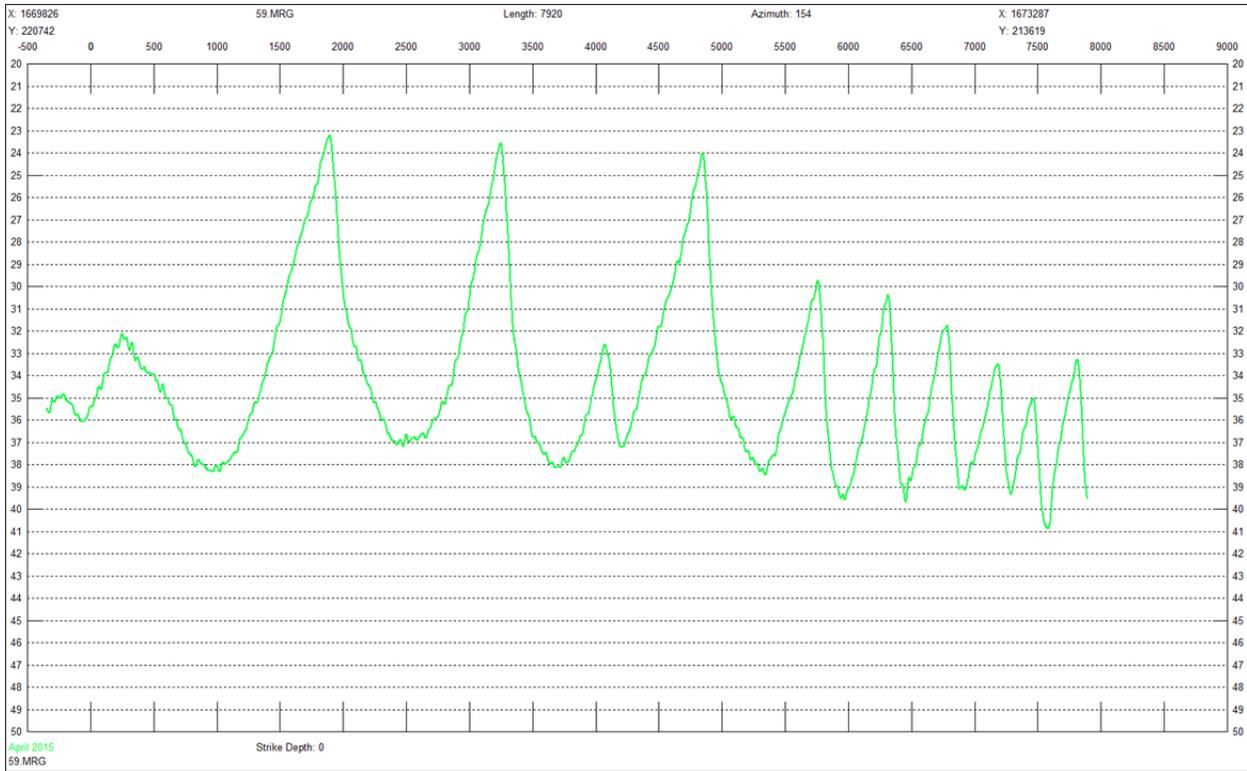
Profile Plots

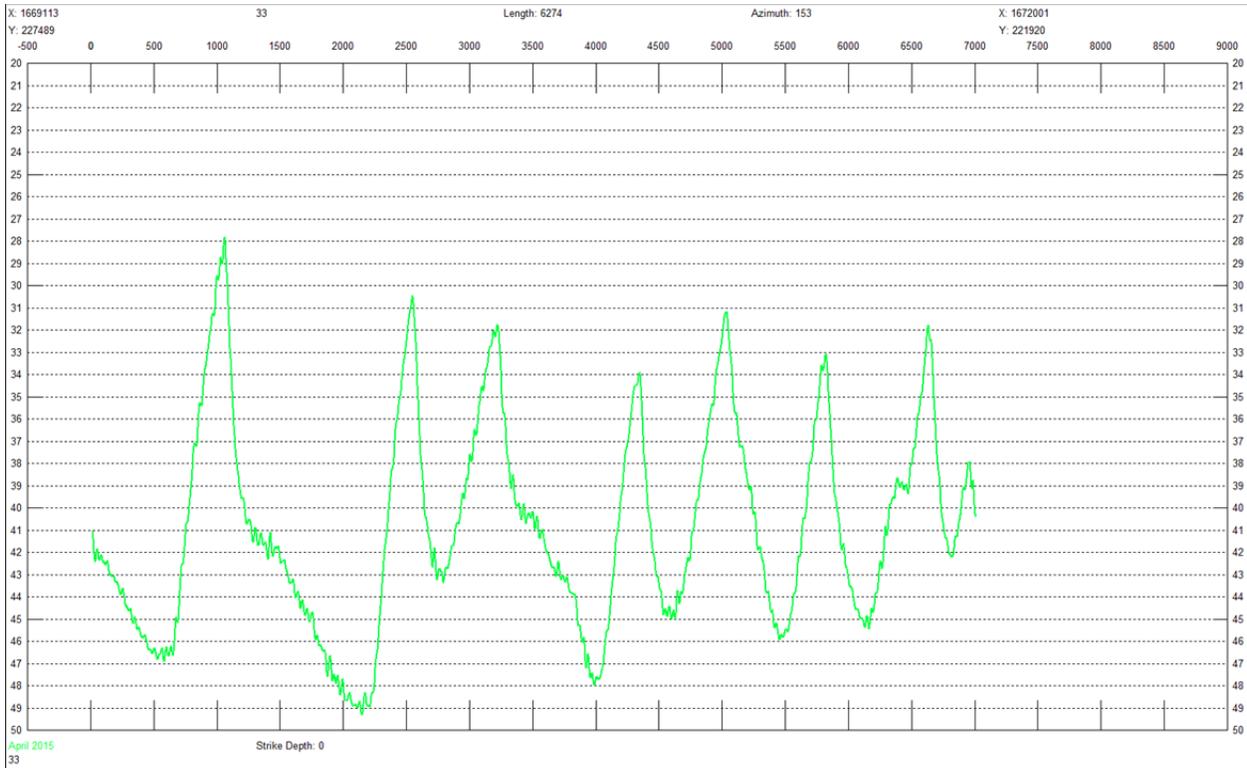
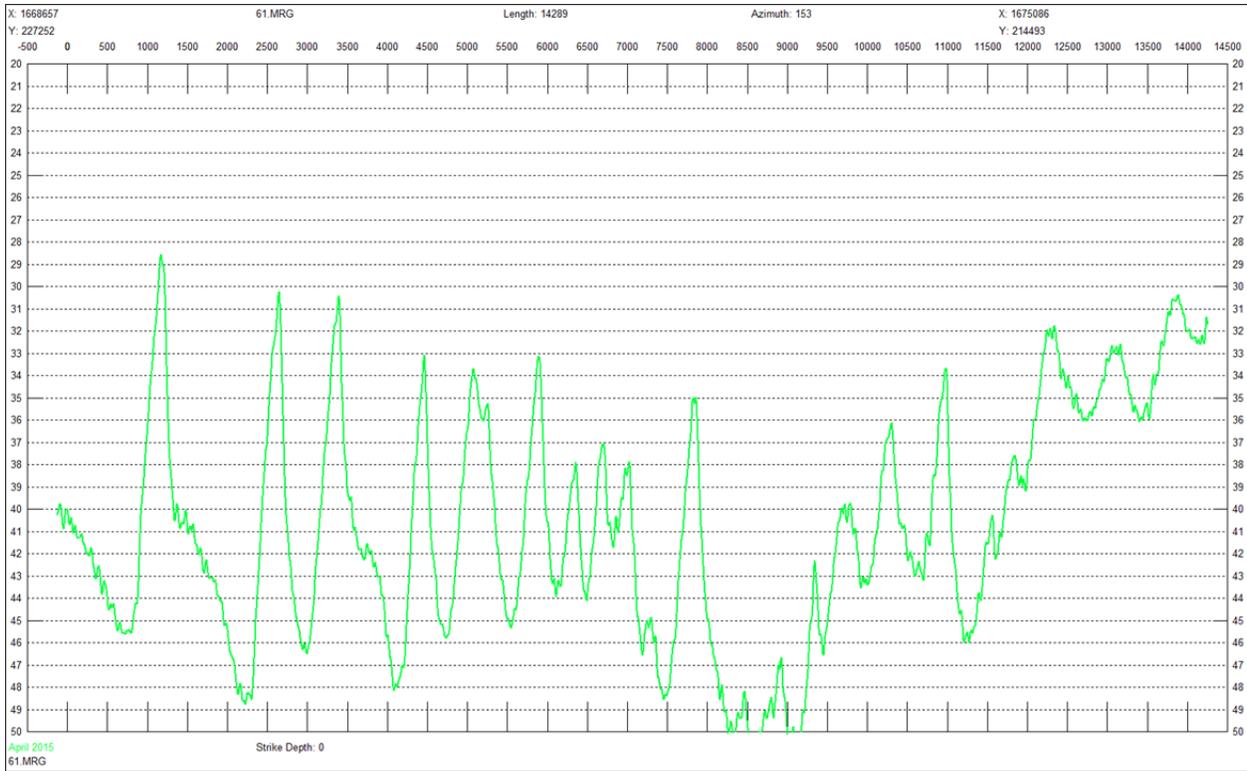
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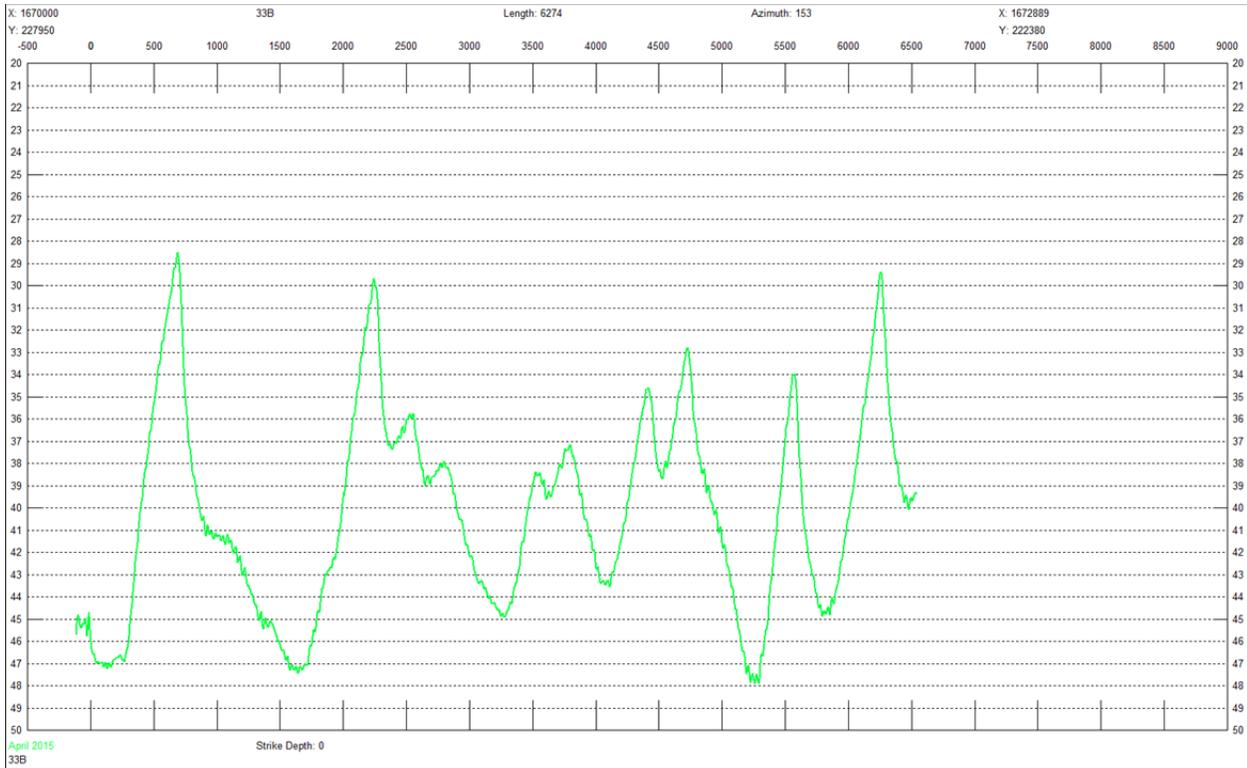
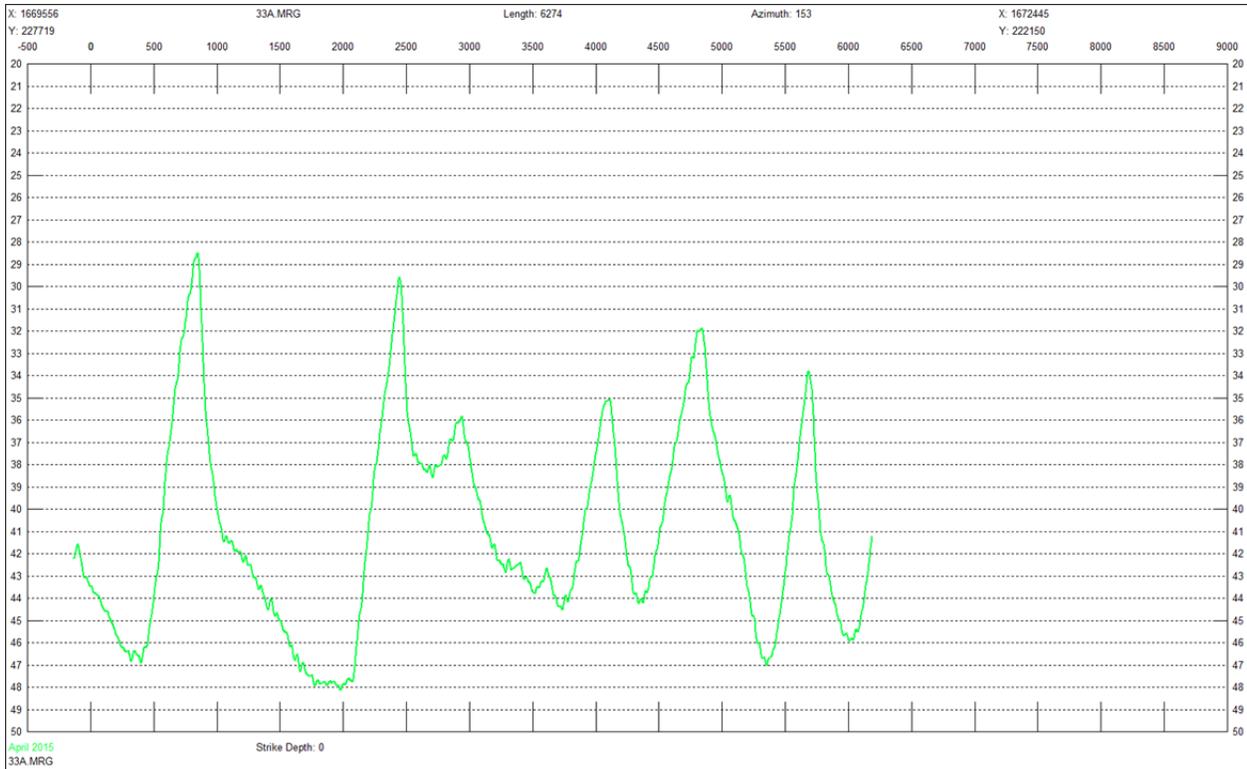


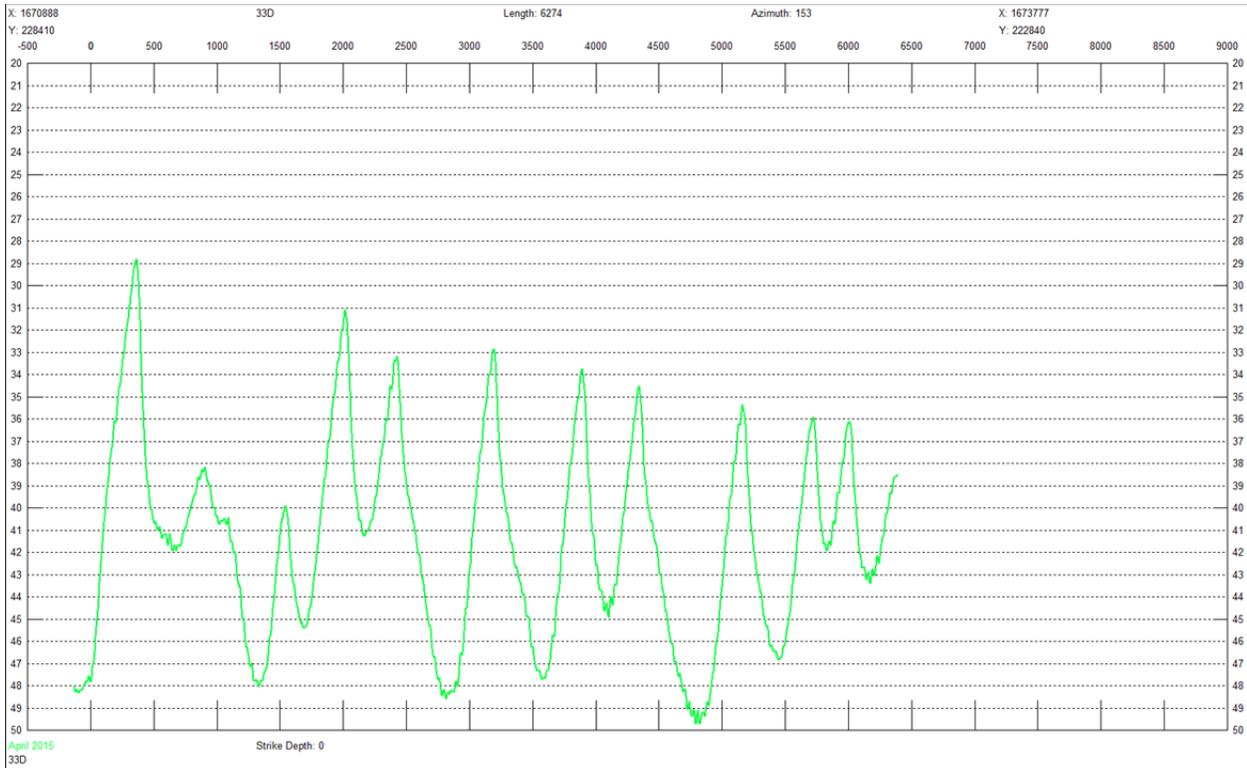
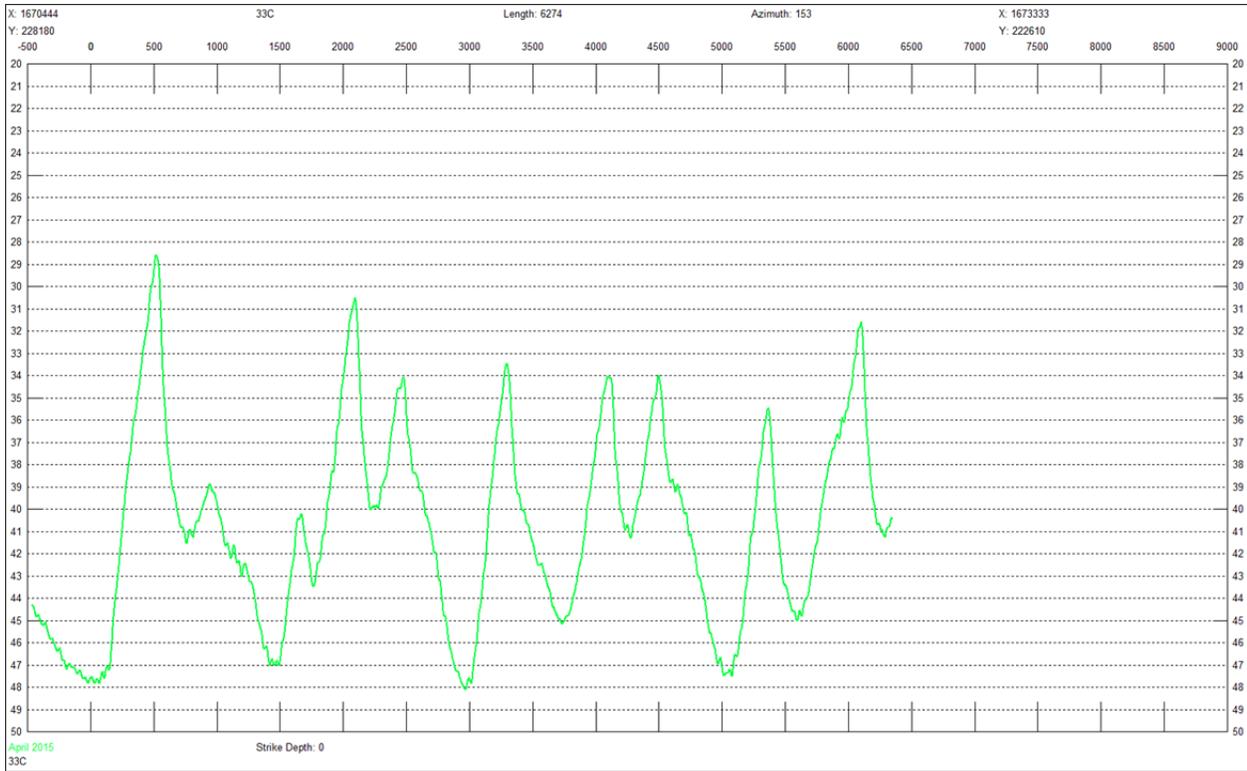




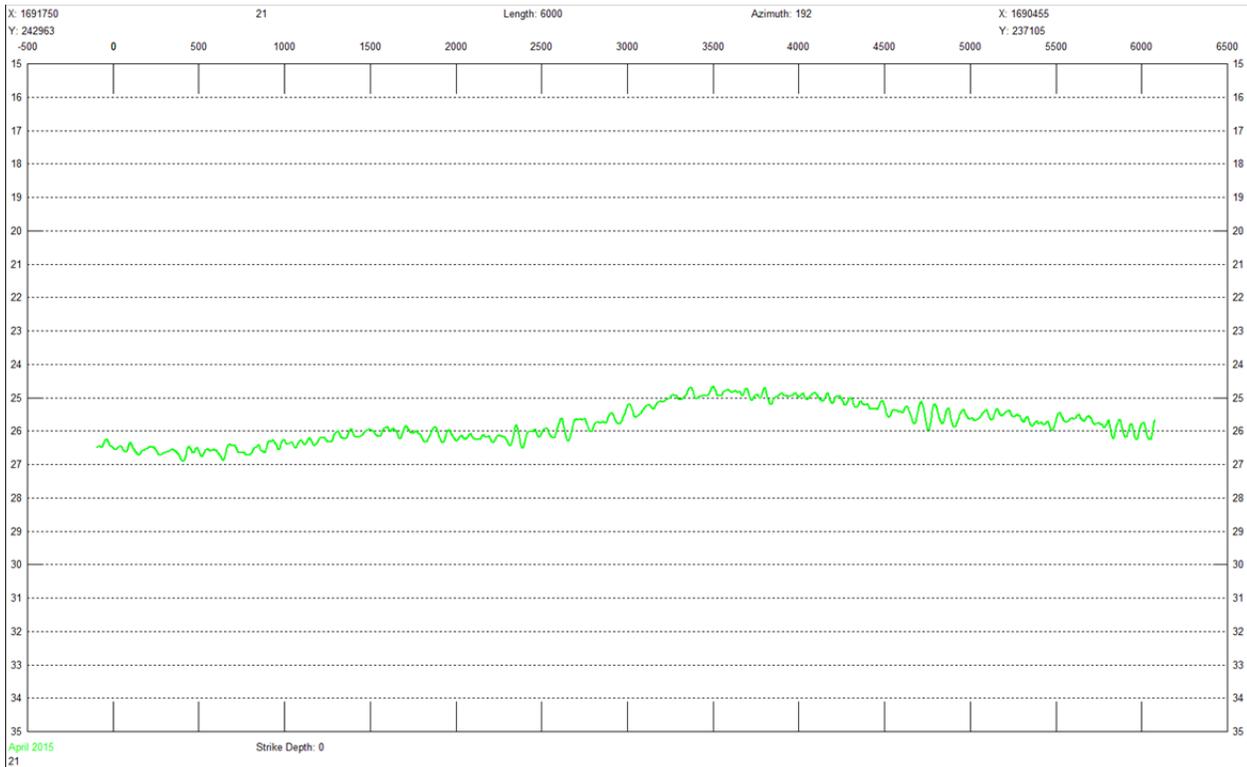
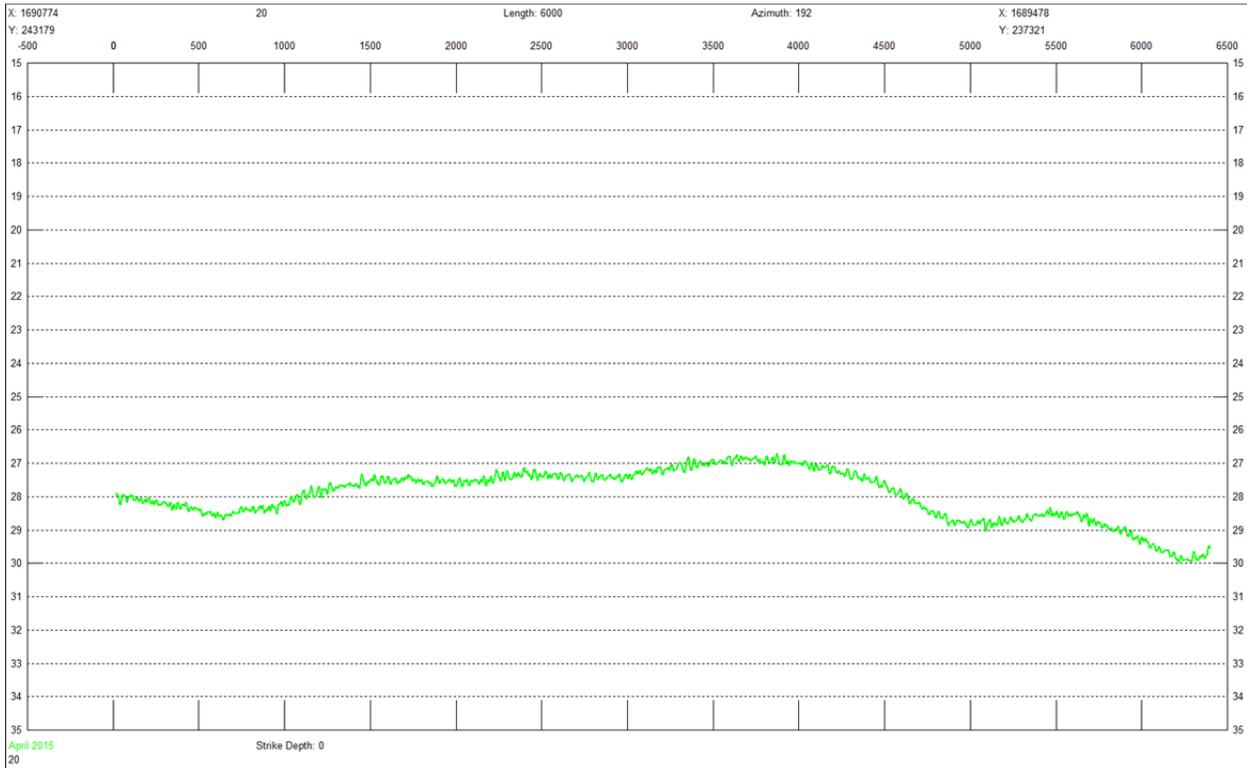


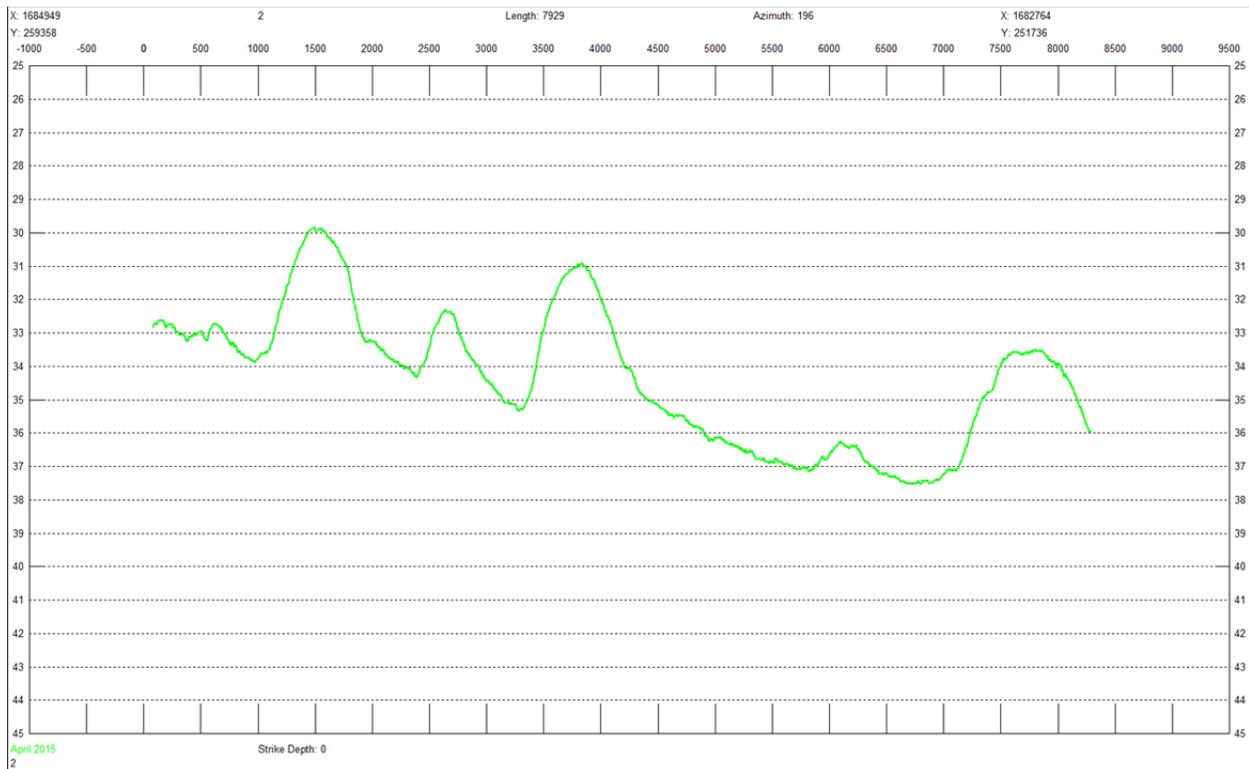
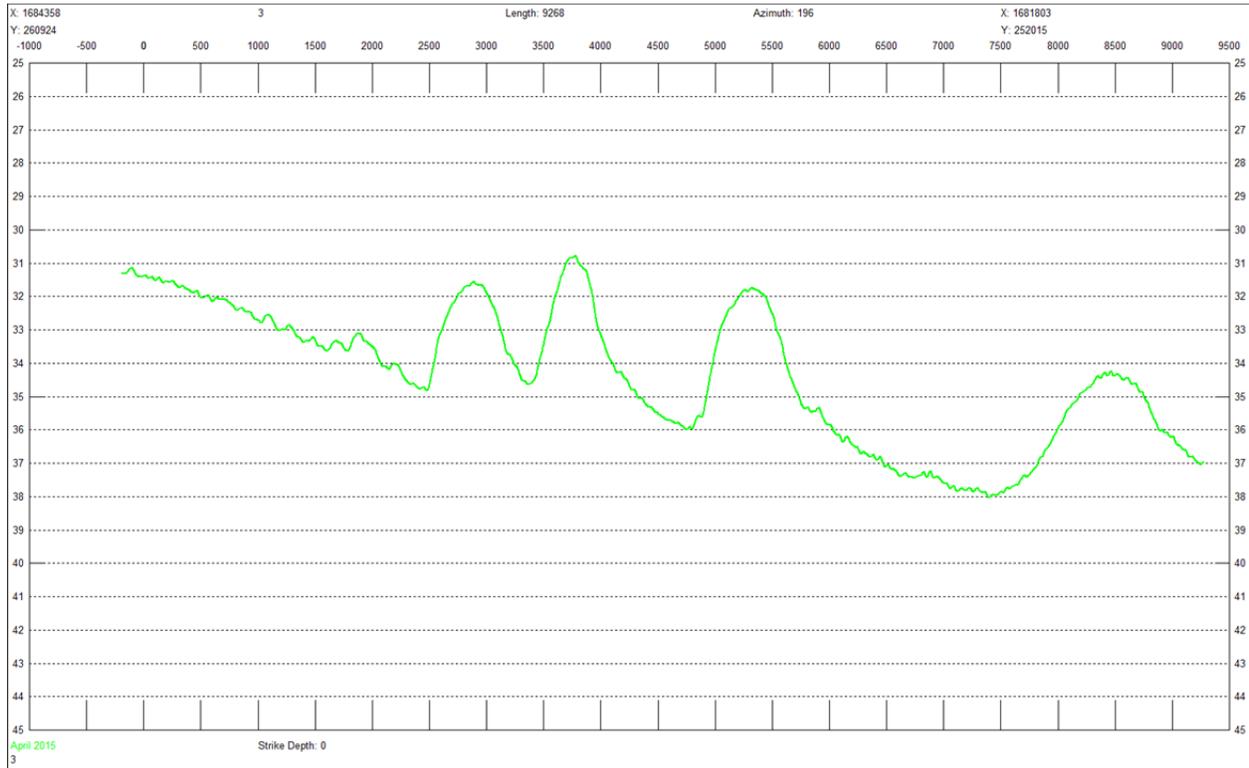




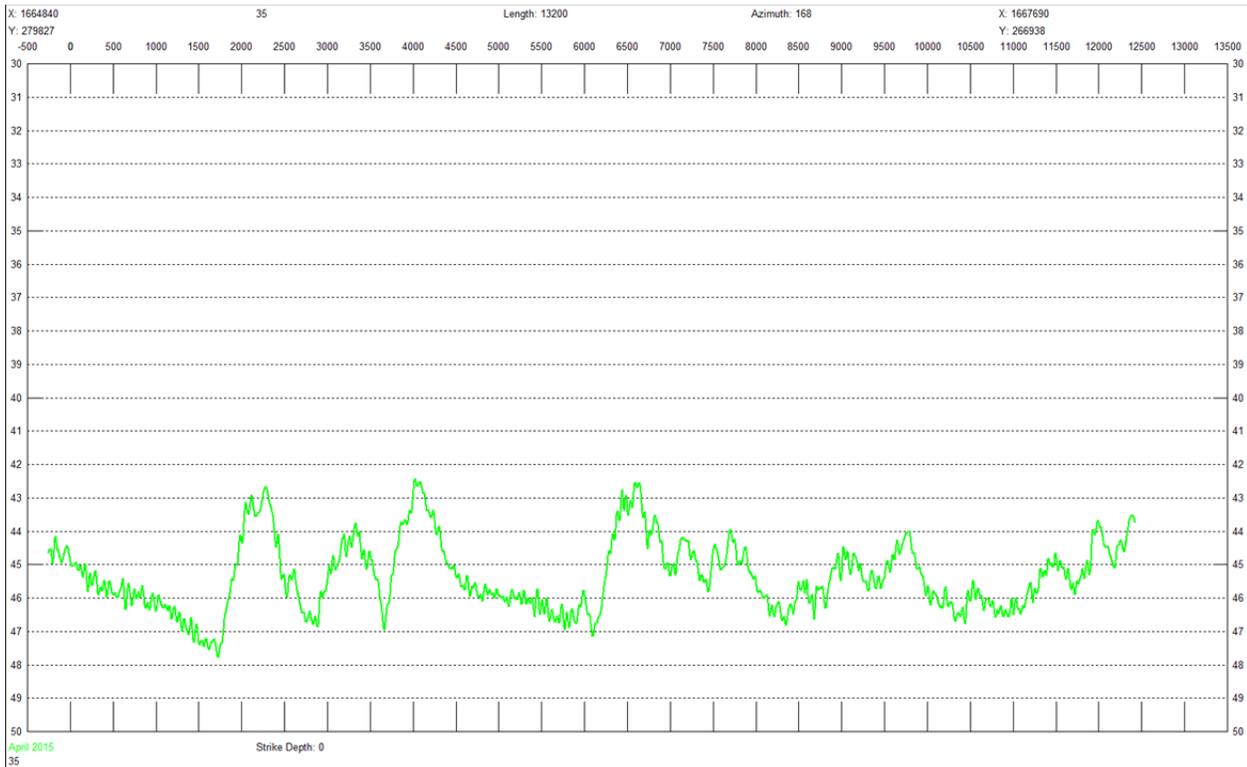
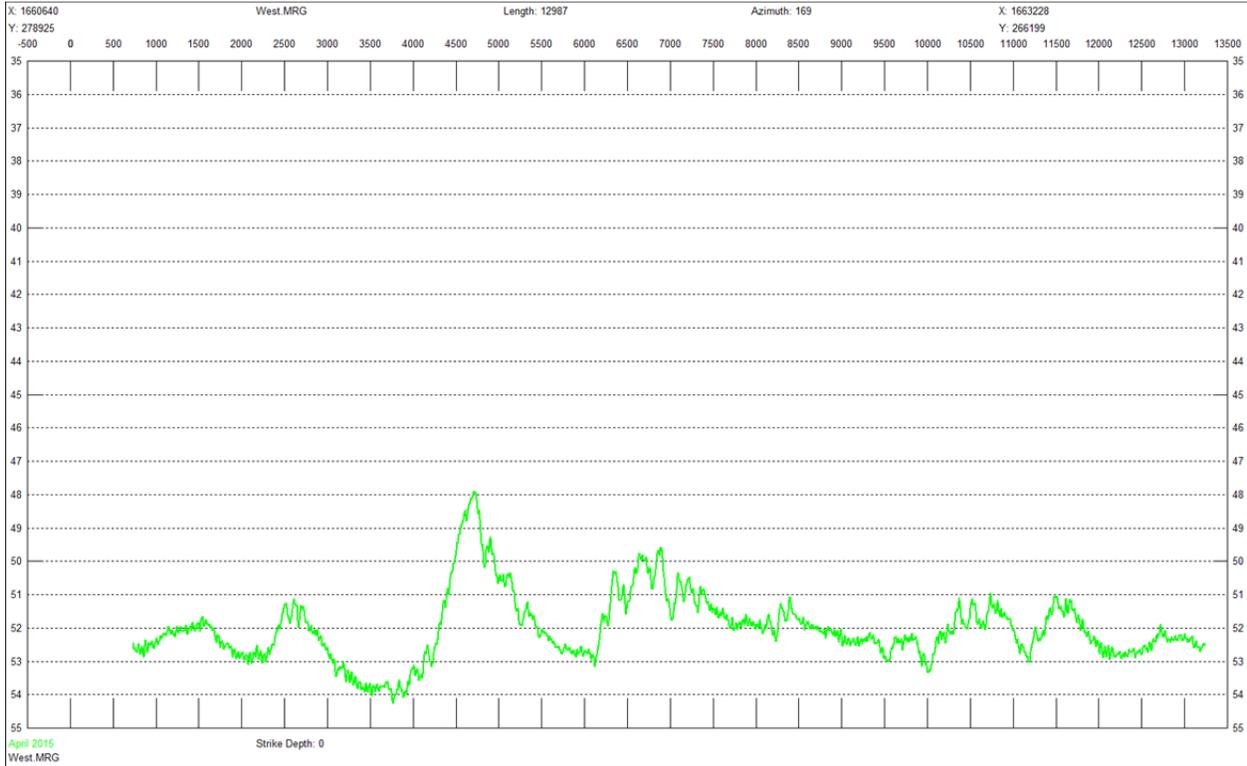


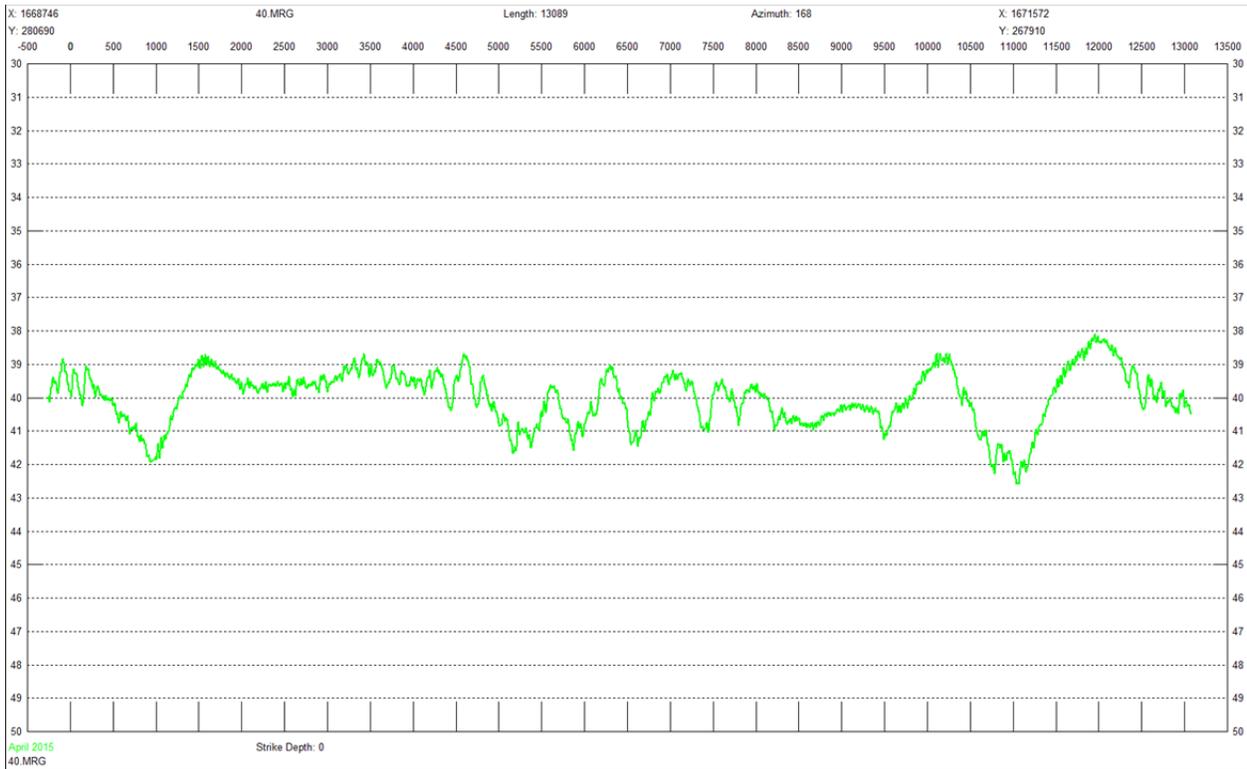
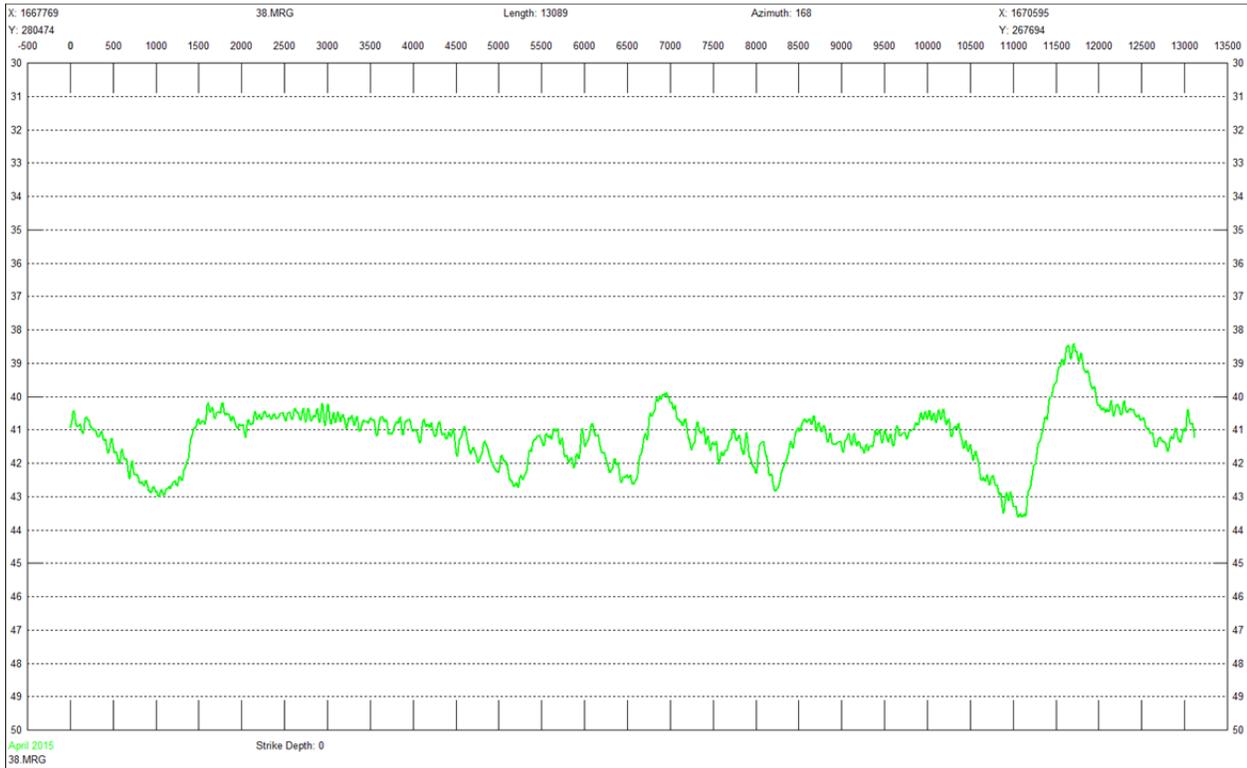
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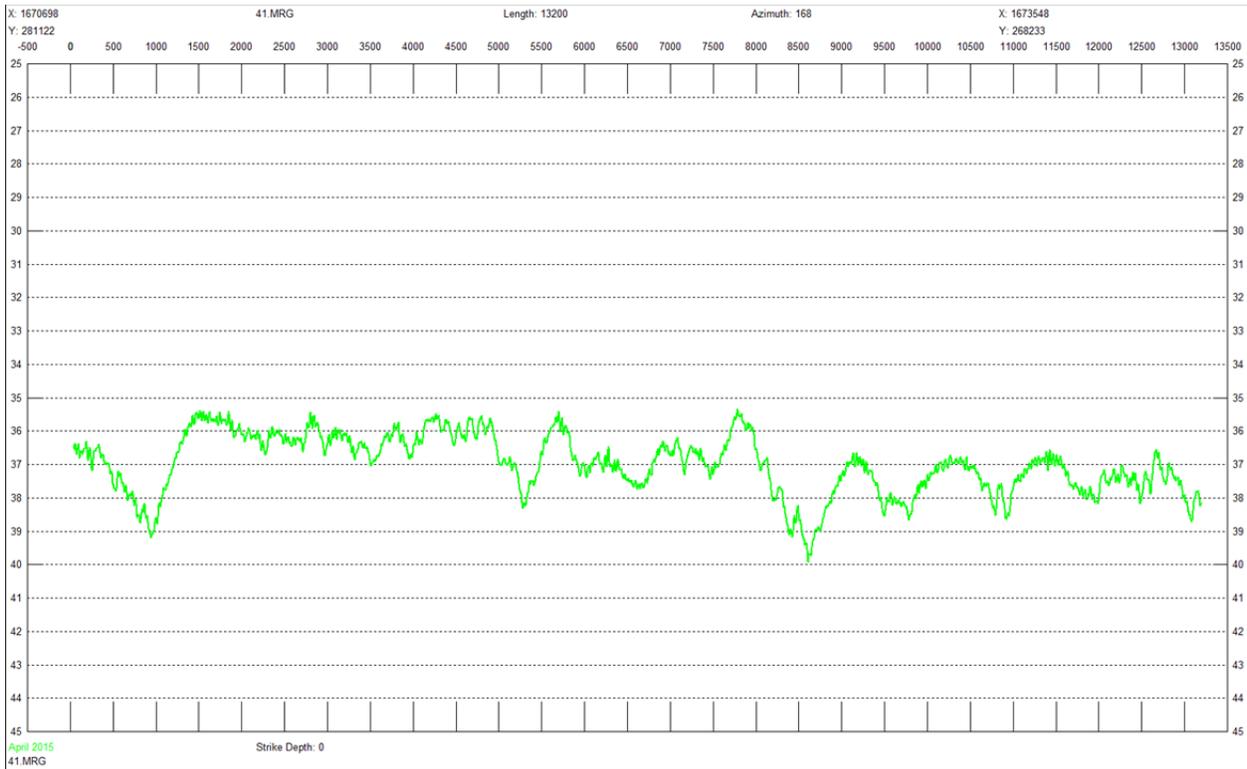
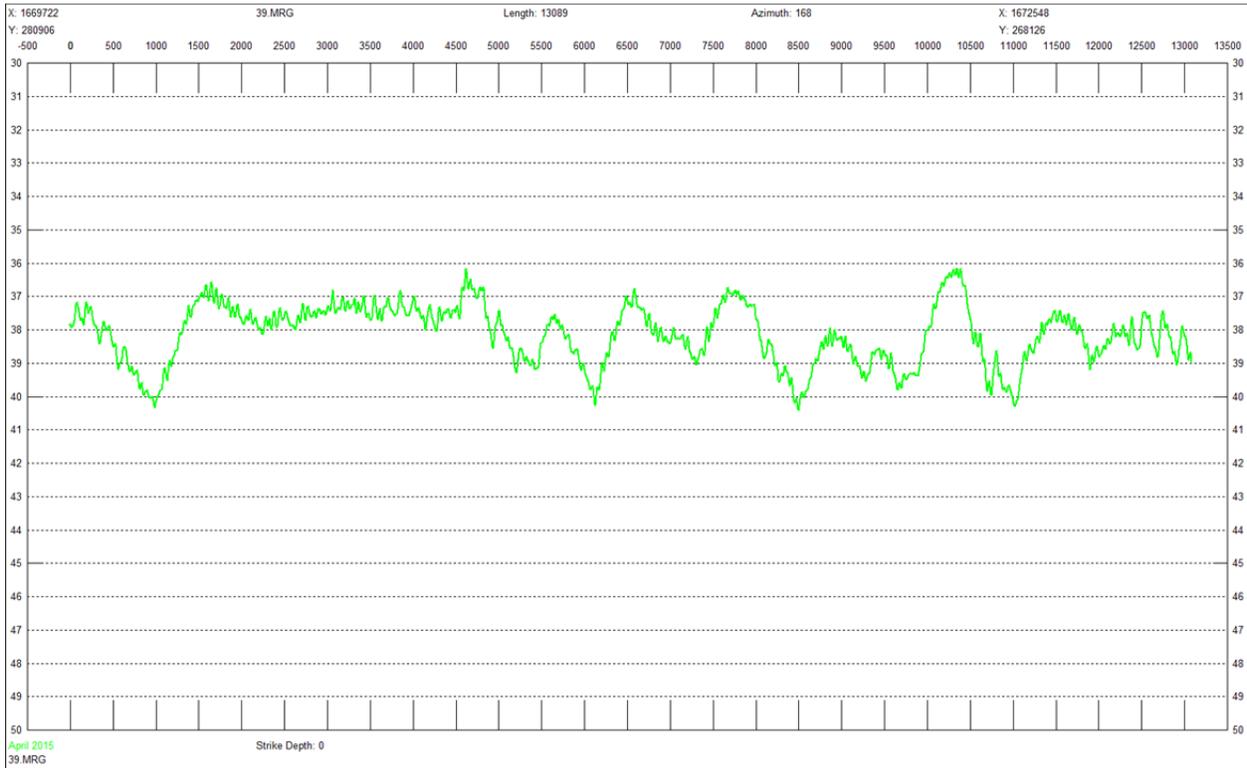


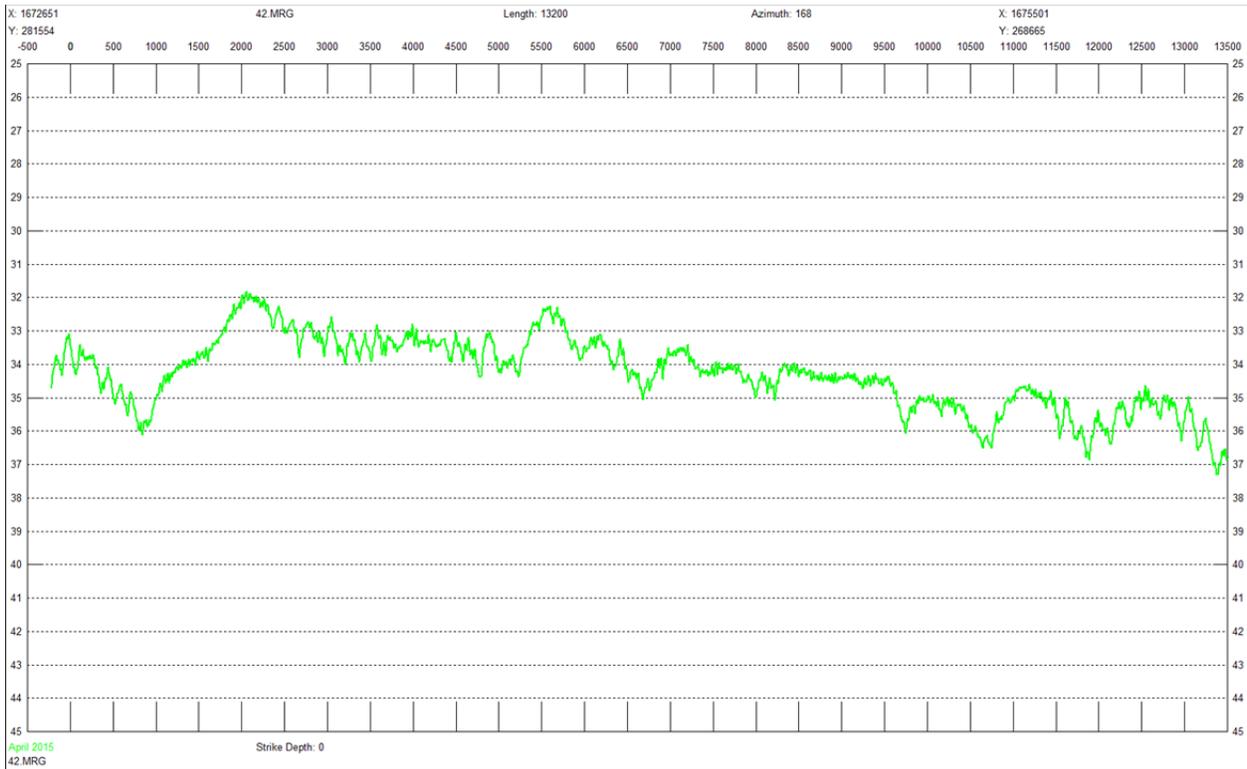
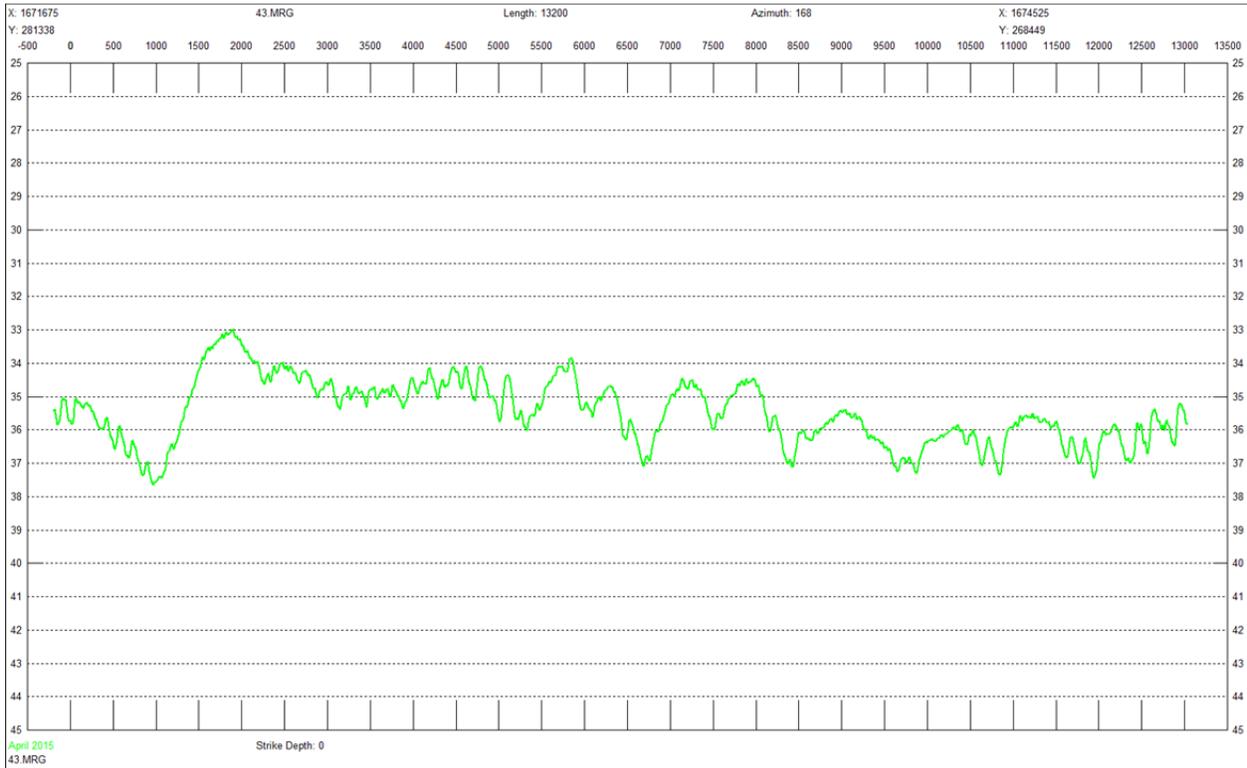


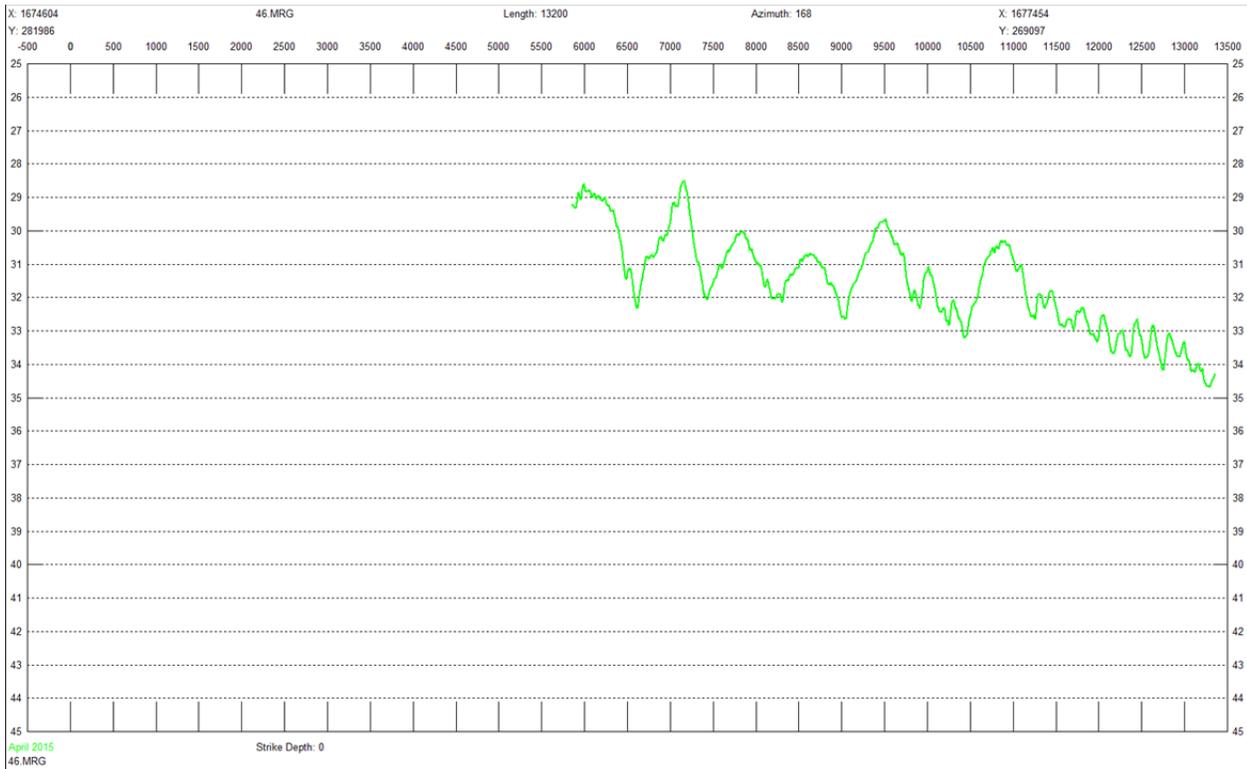
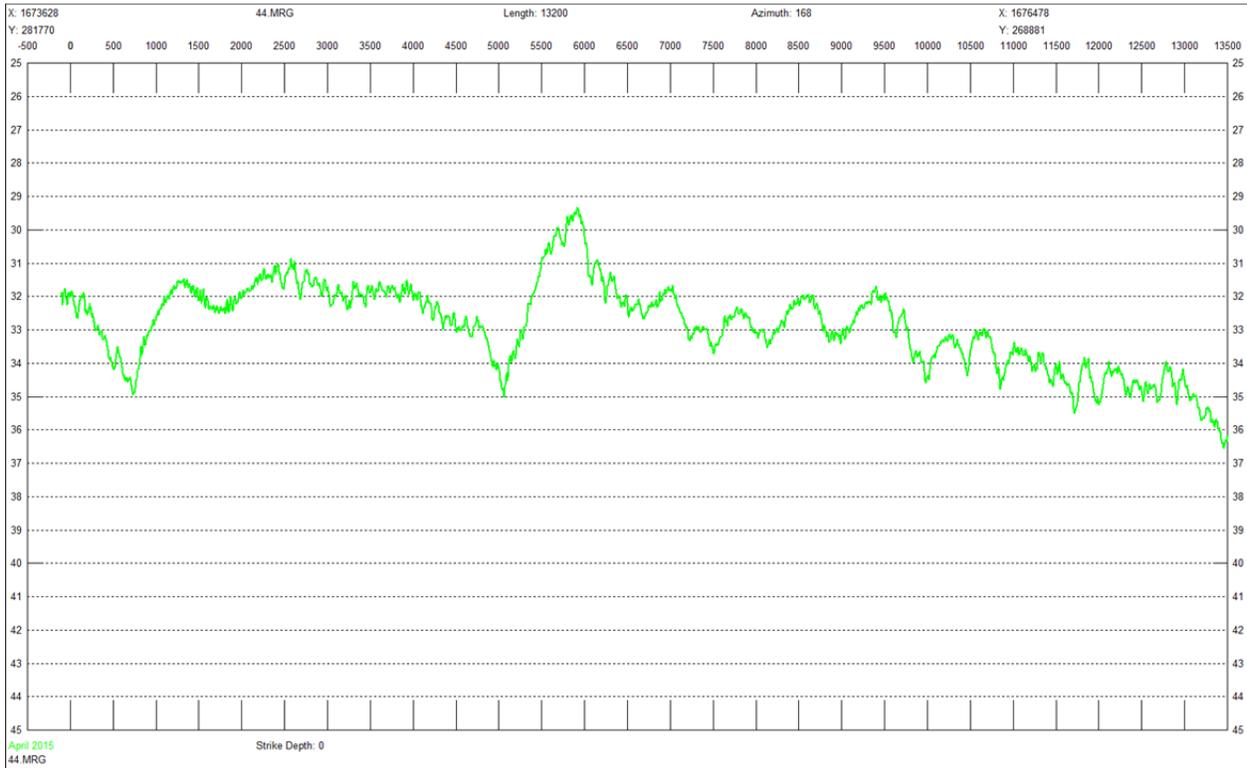
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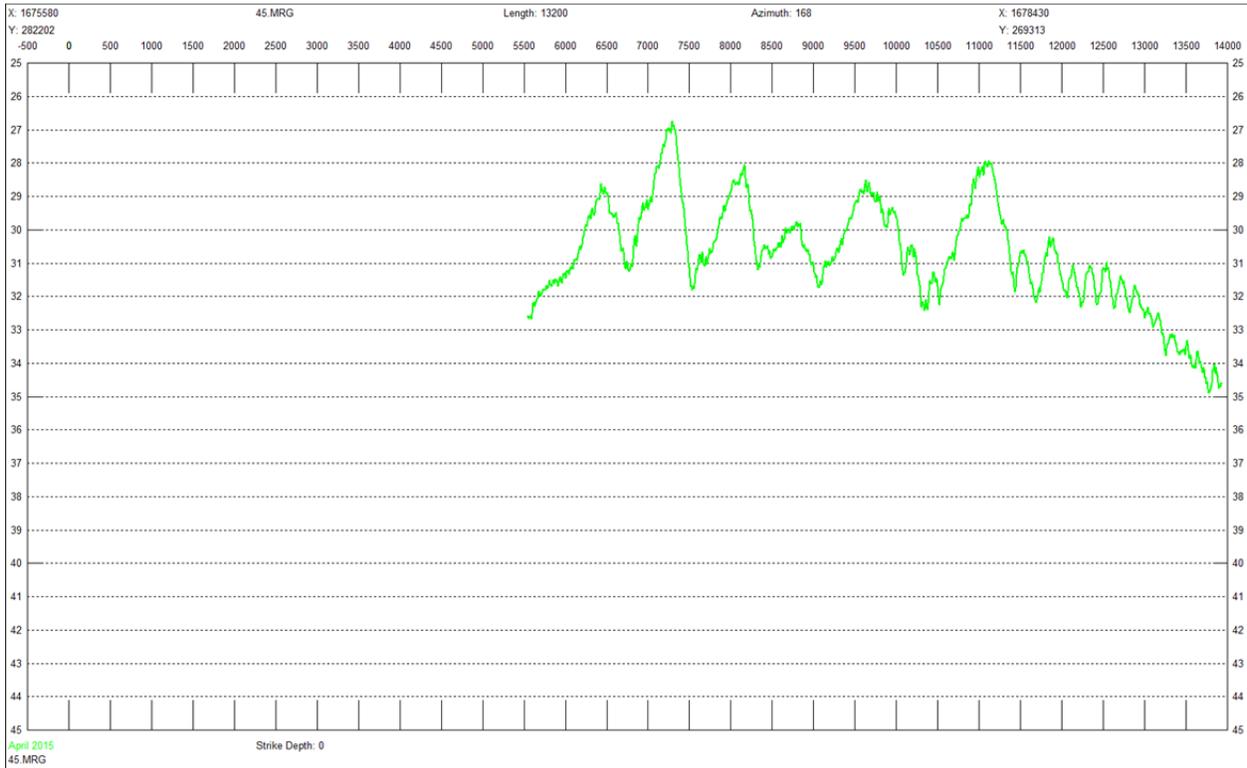




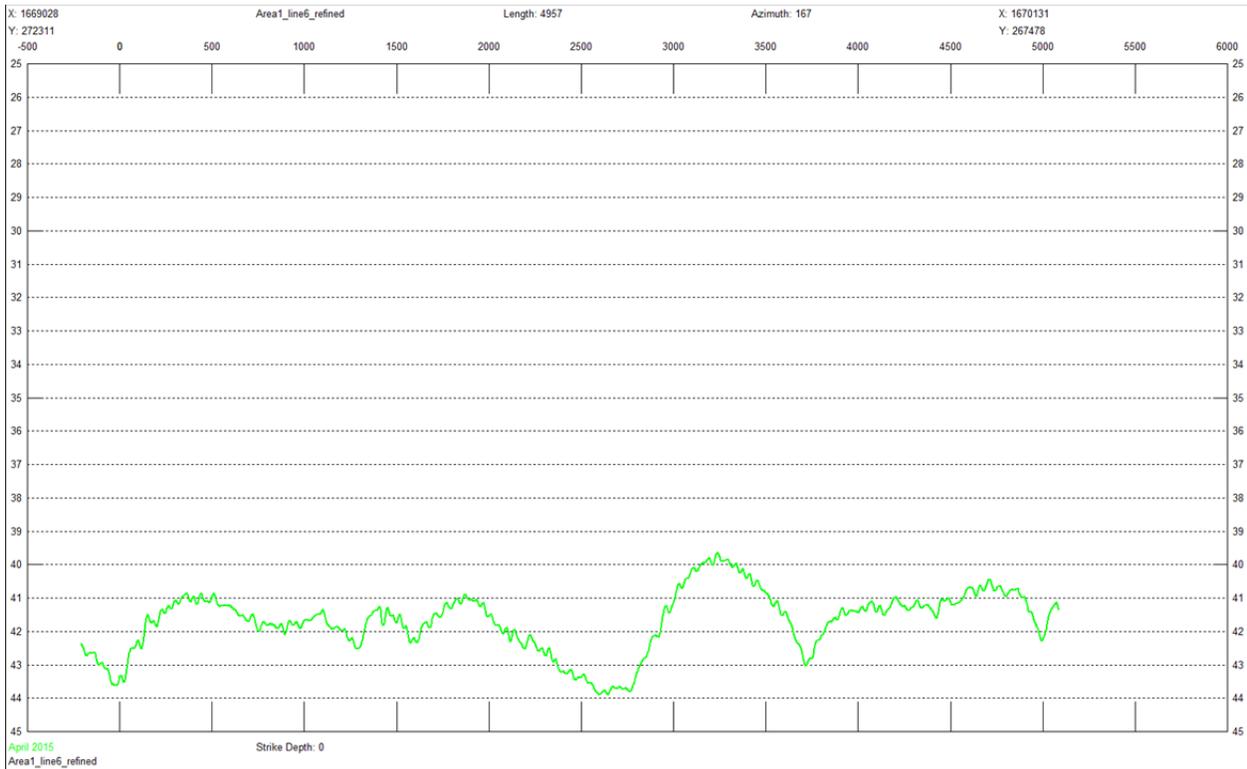
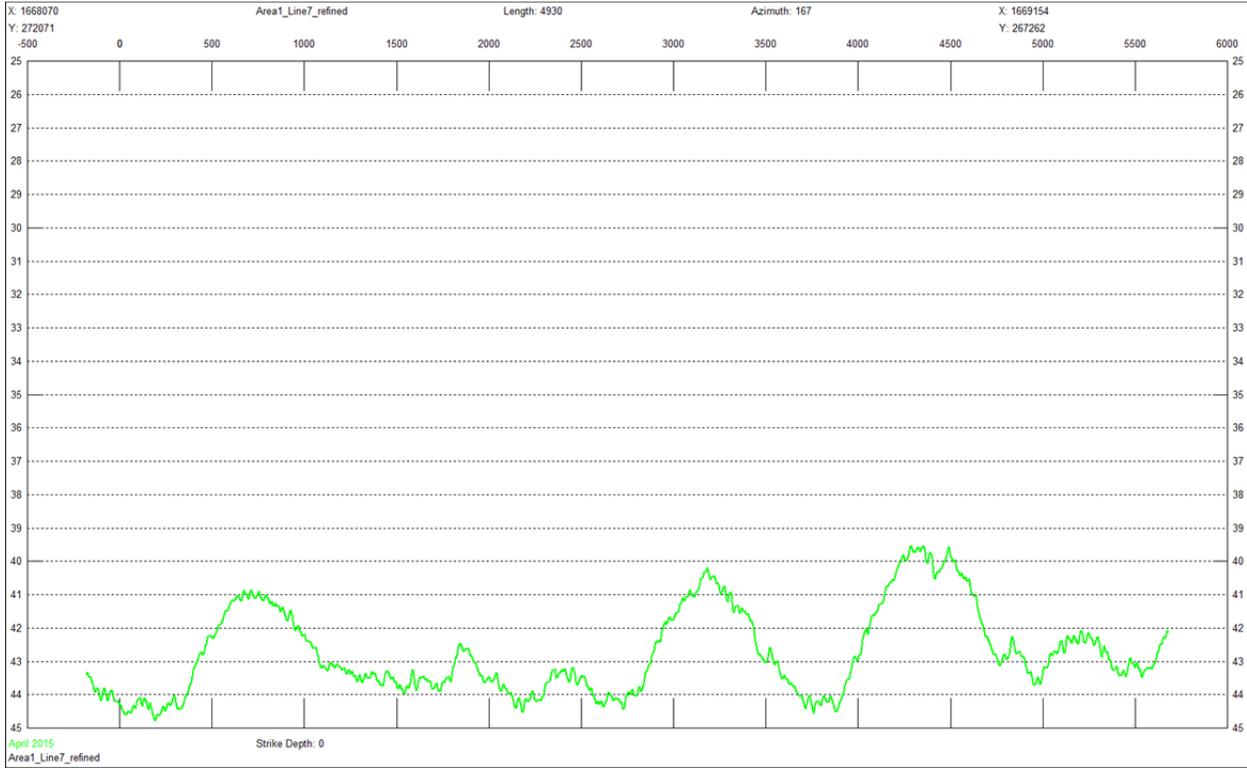


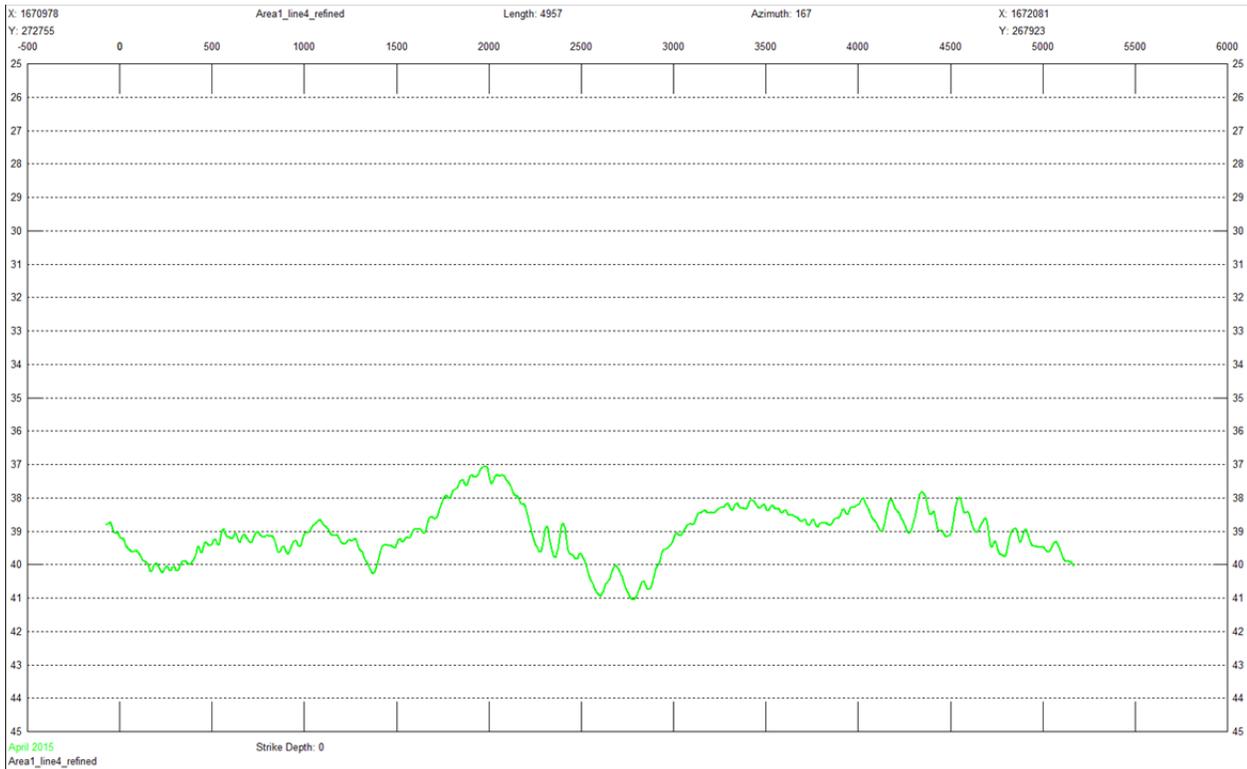
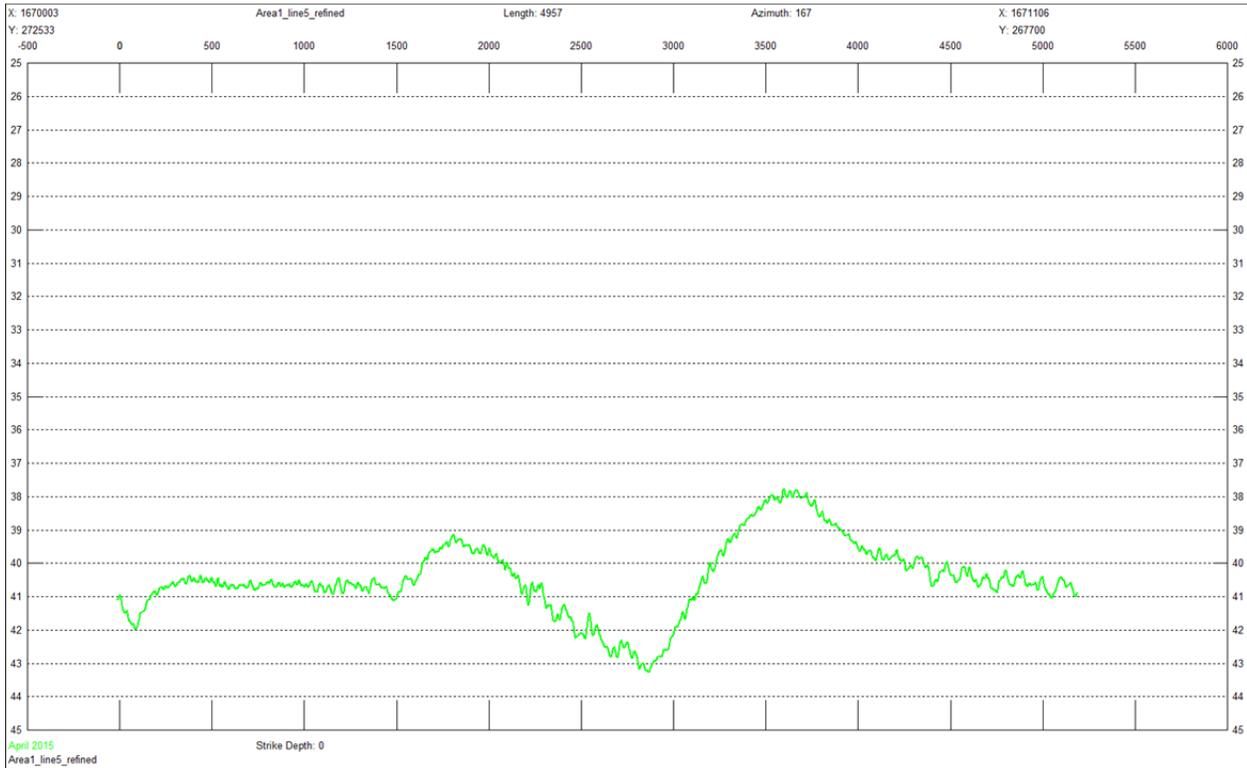


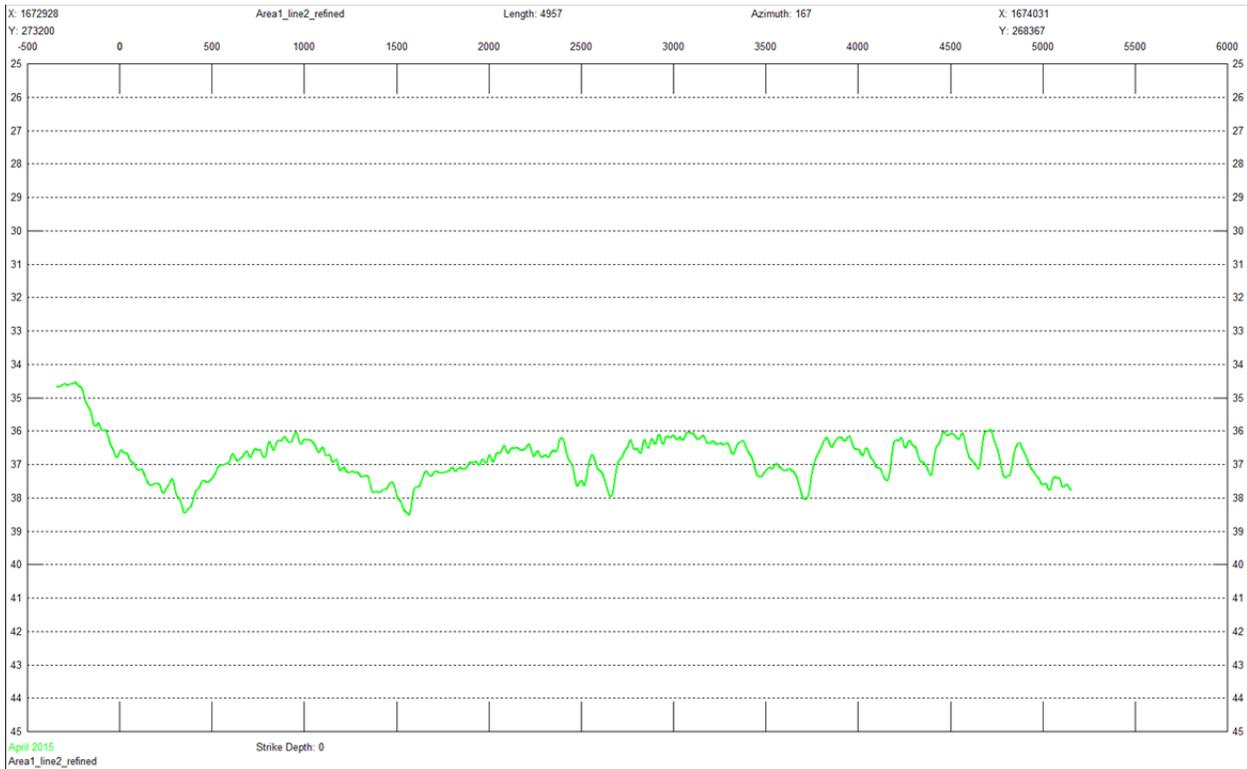
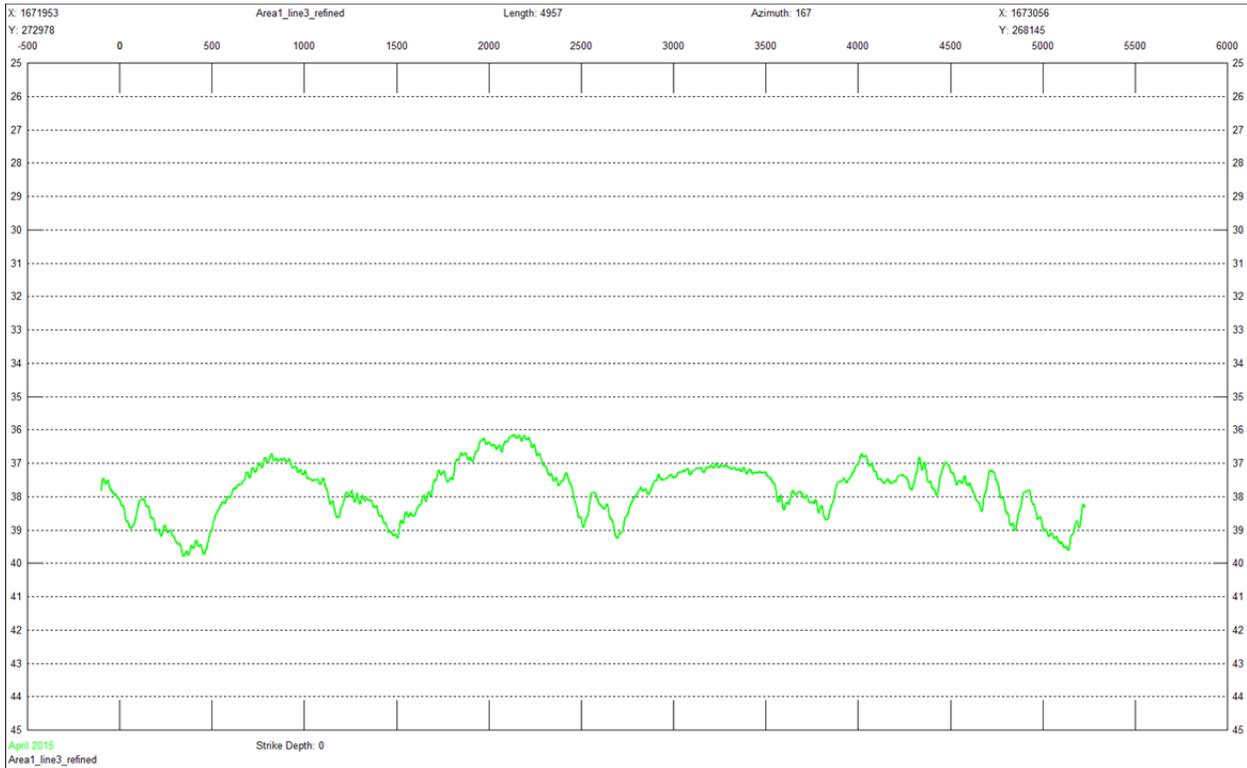


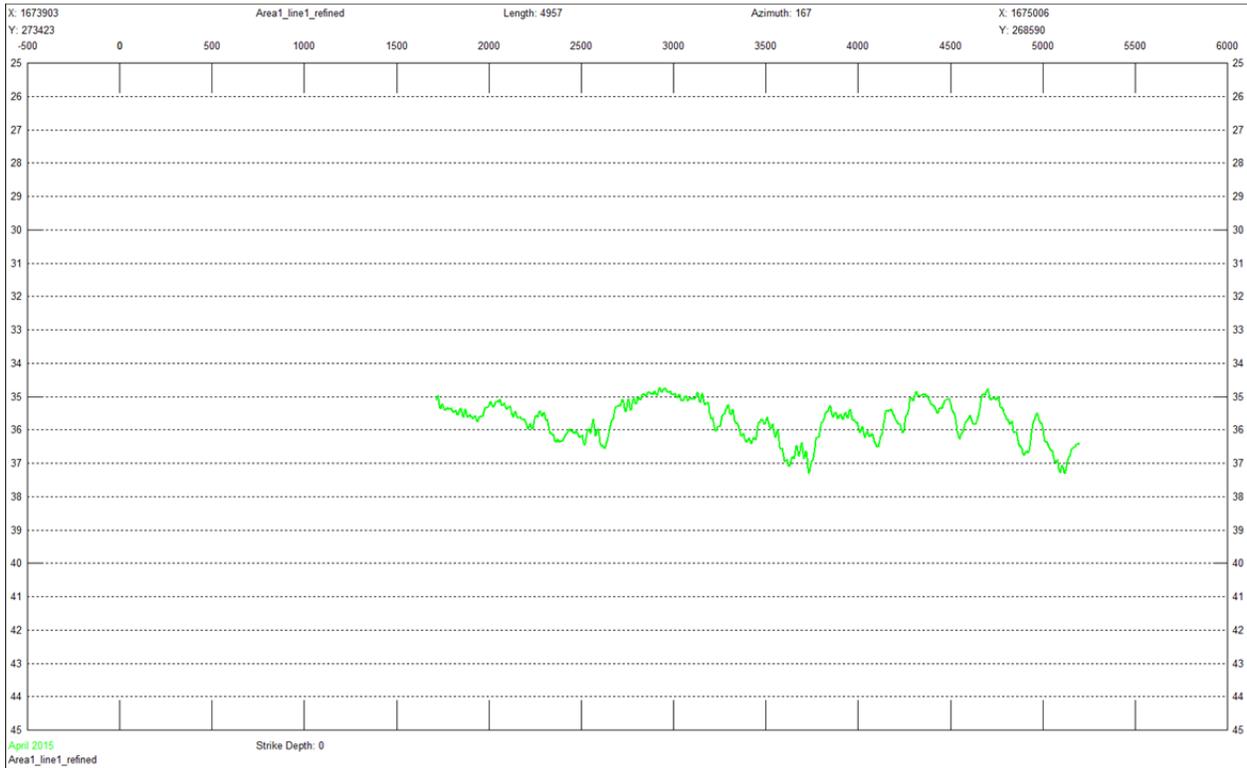


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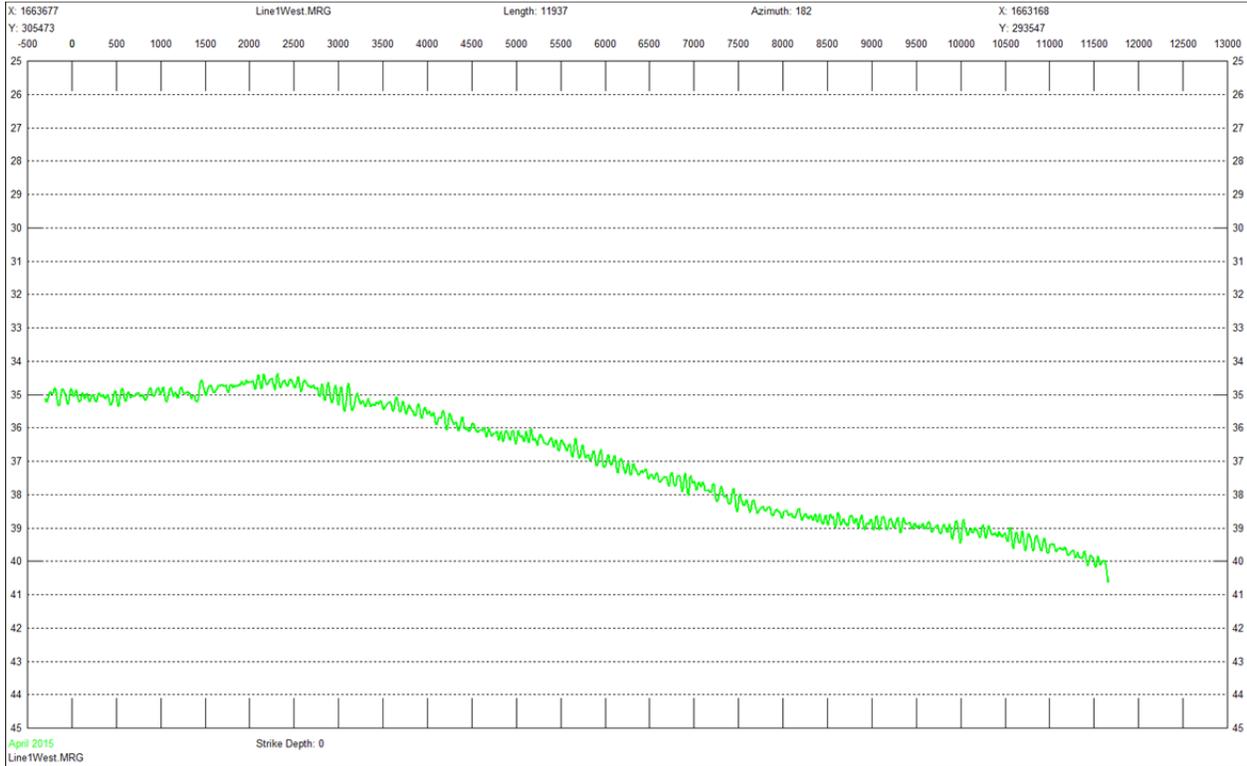


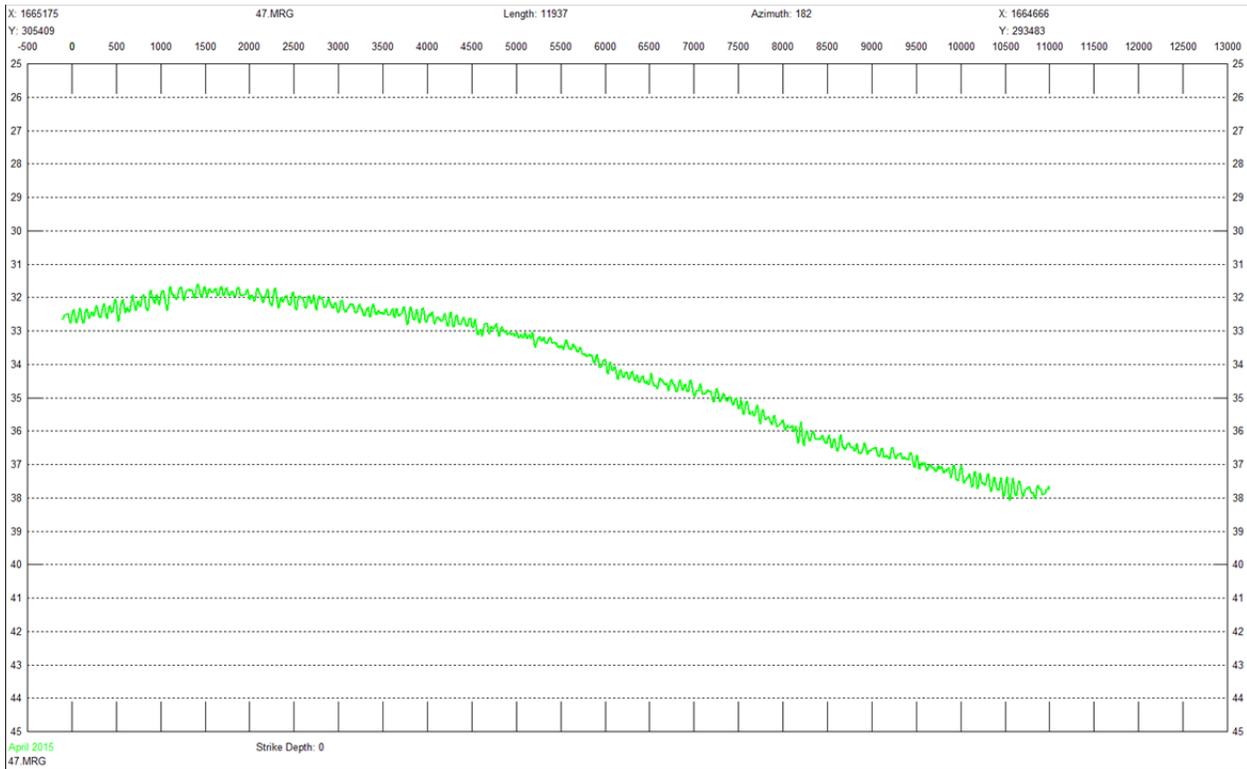
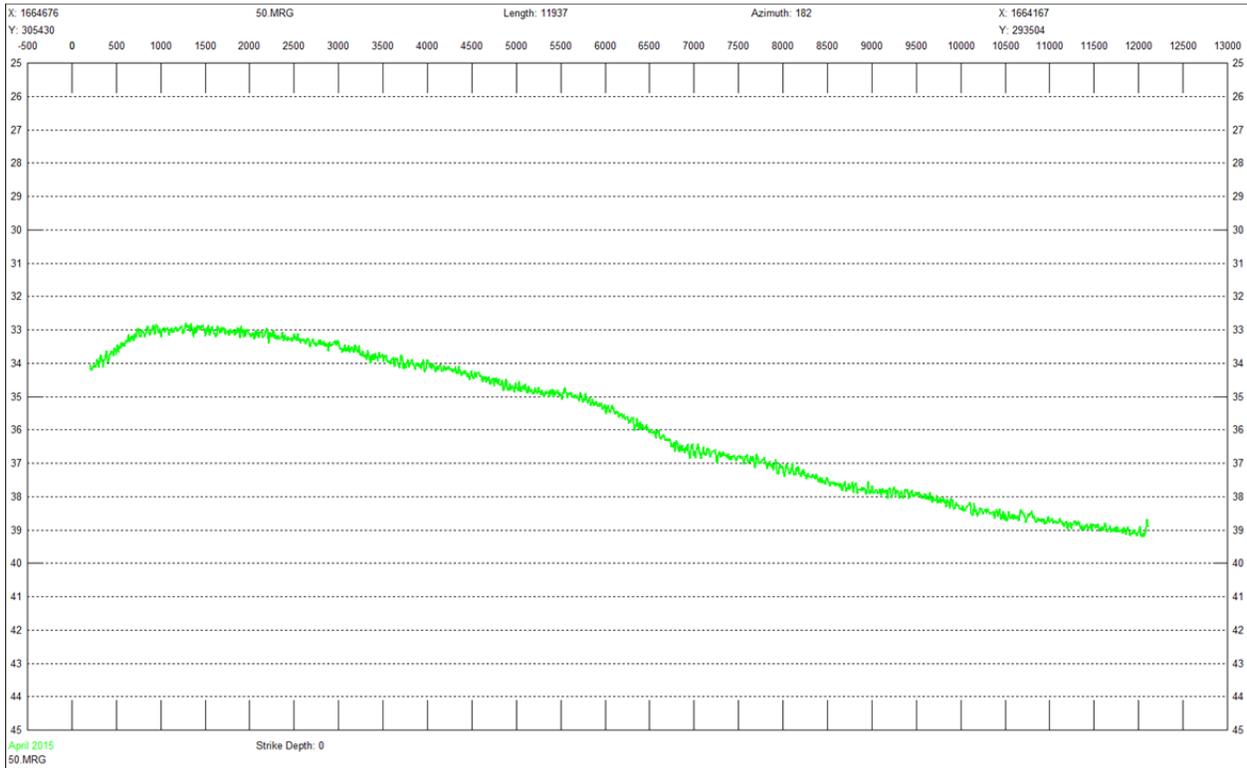


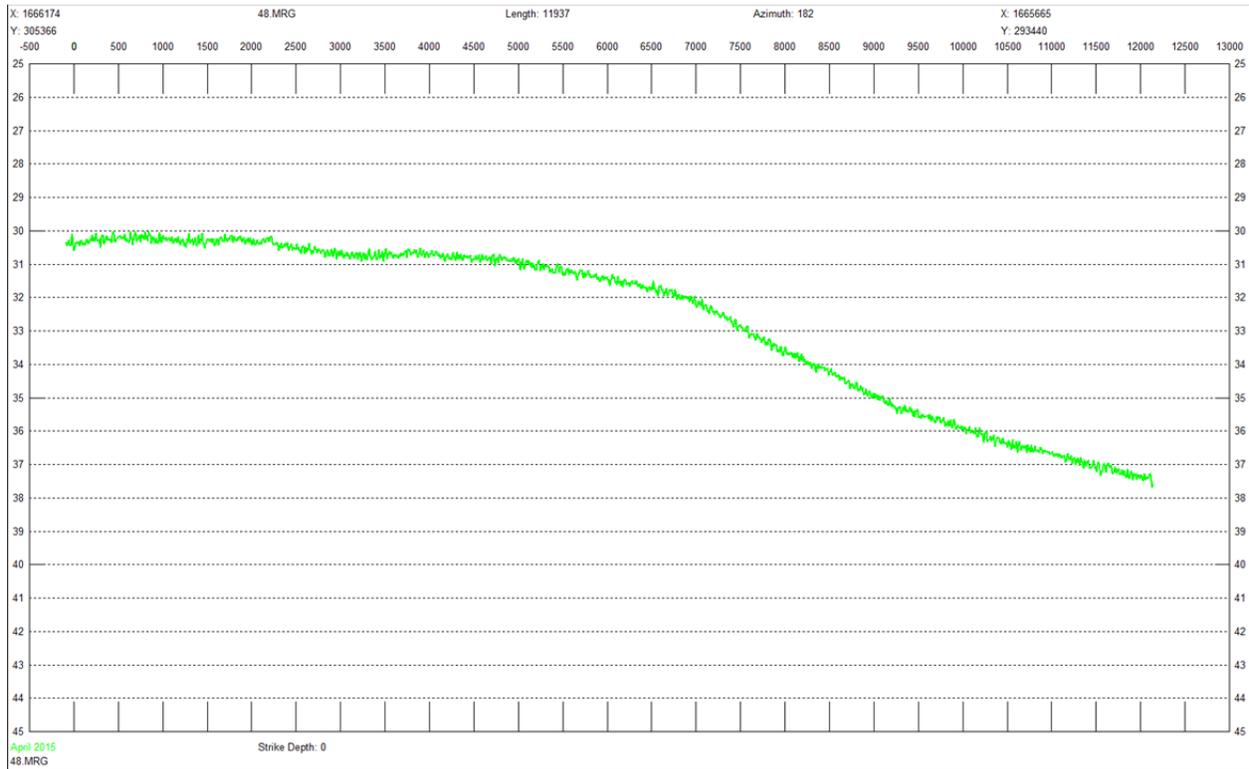
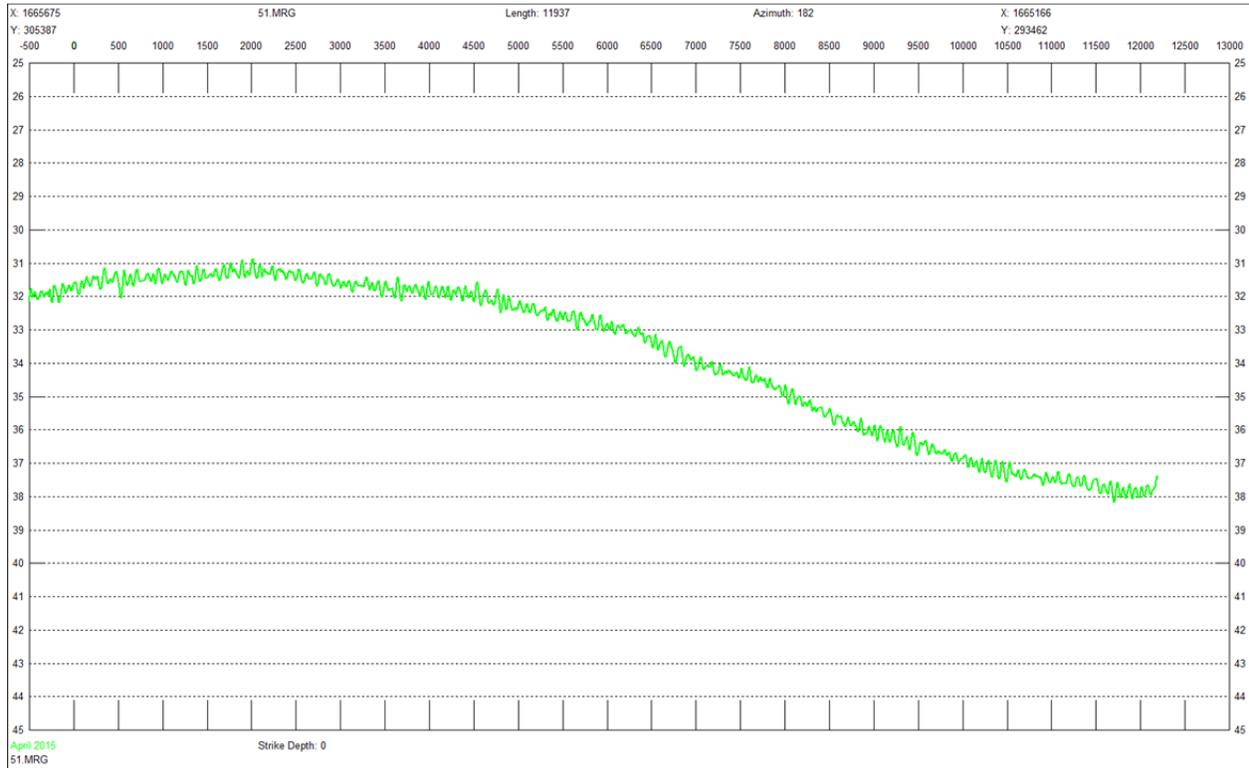


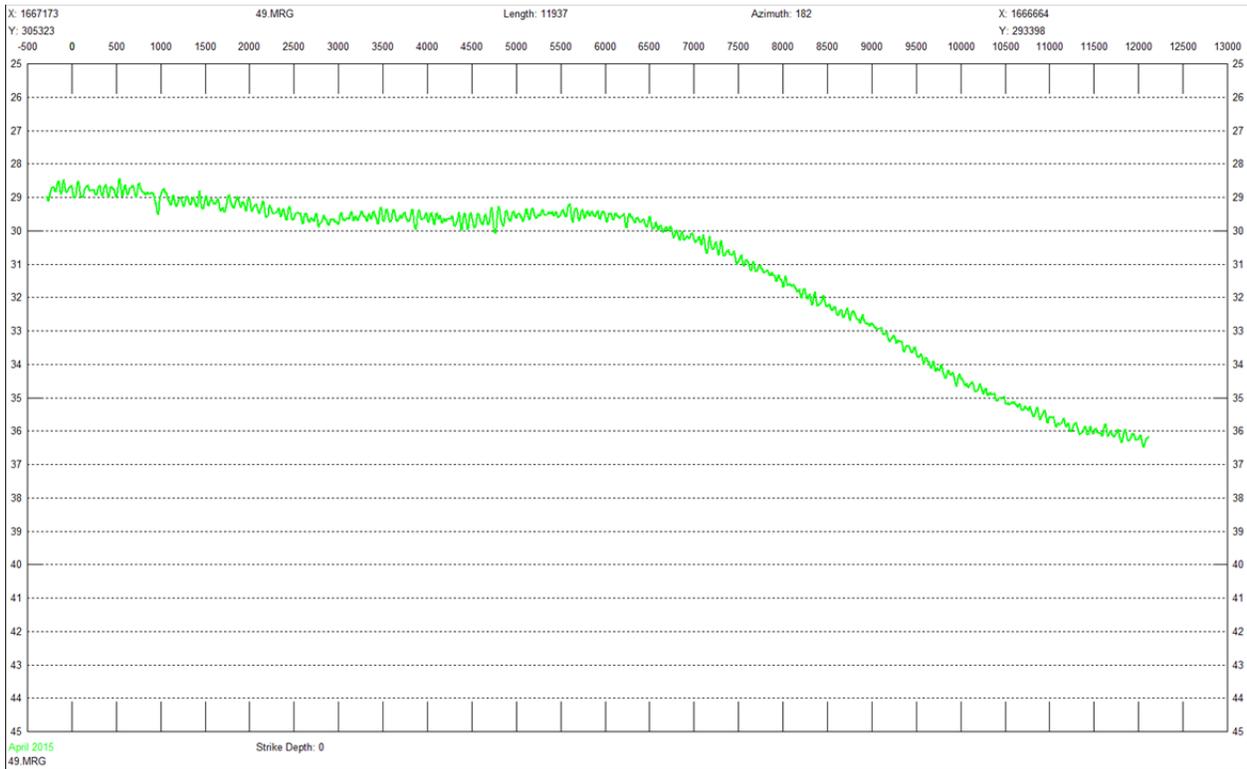
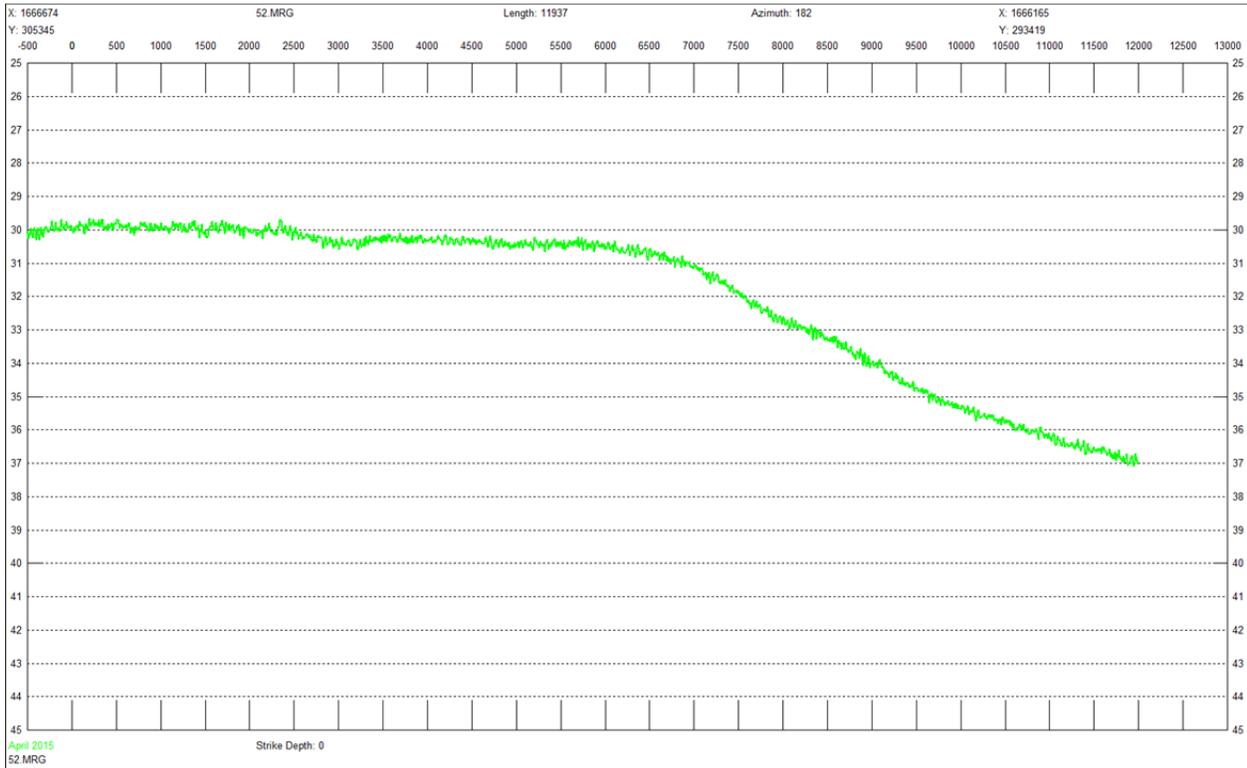


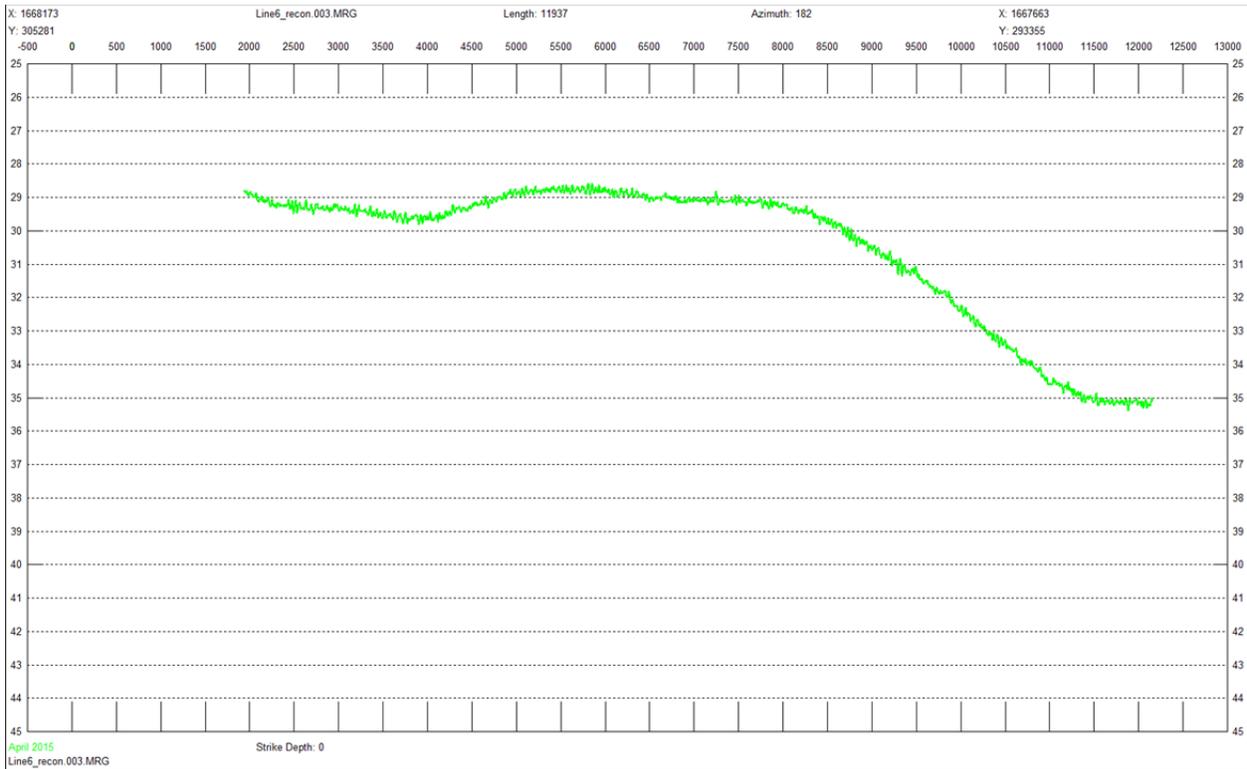
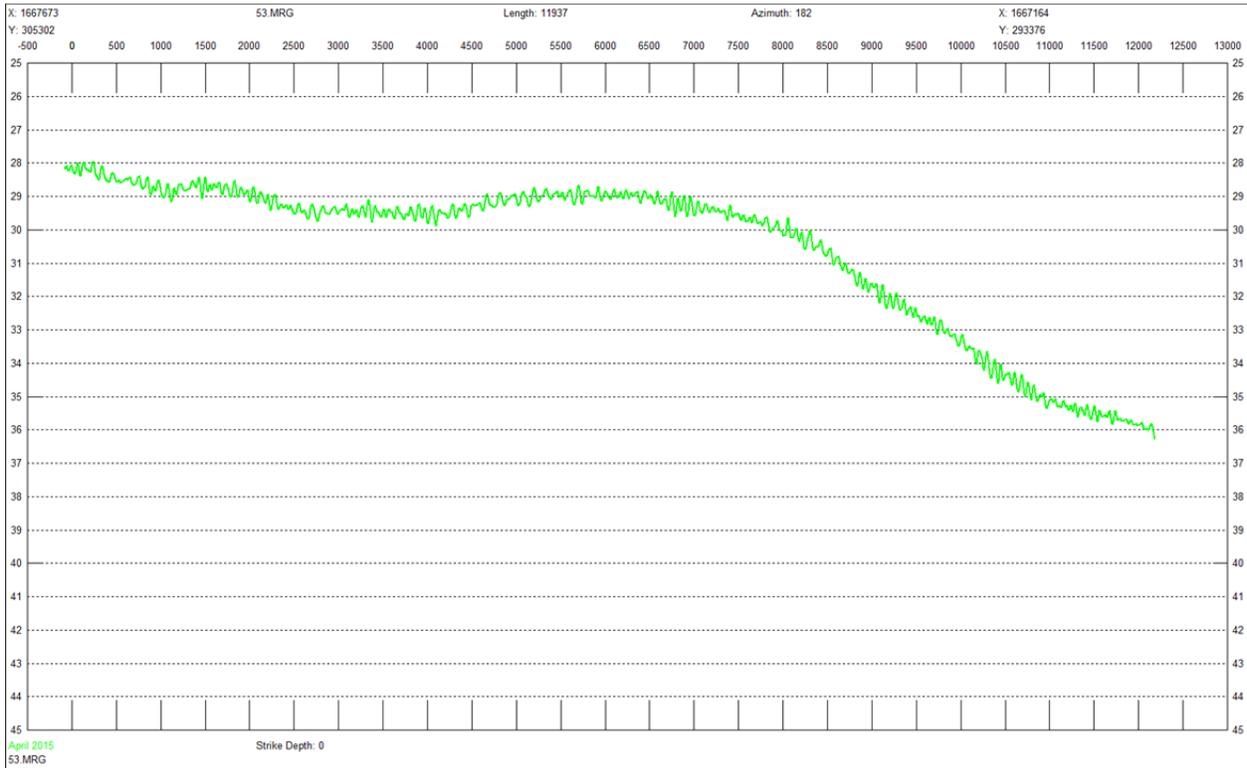
AREA "E" PROFILE DATA

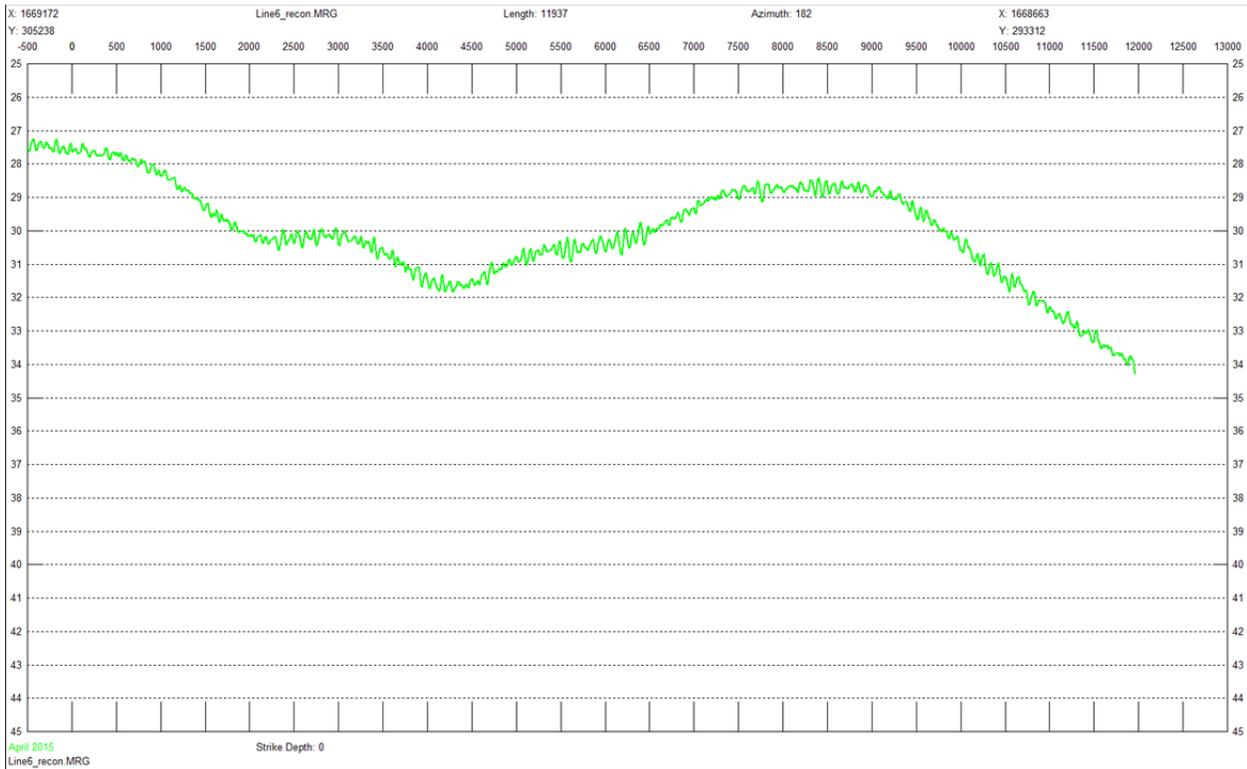
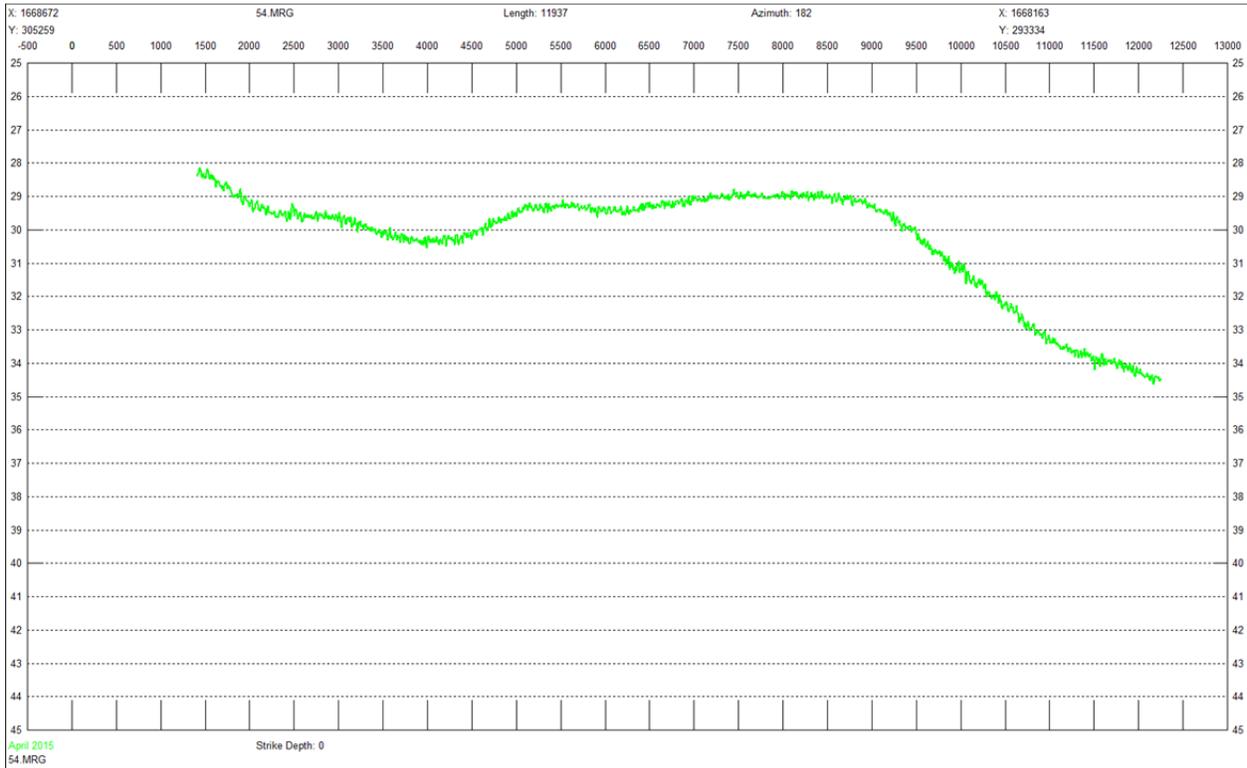


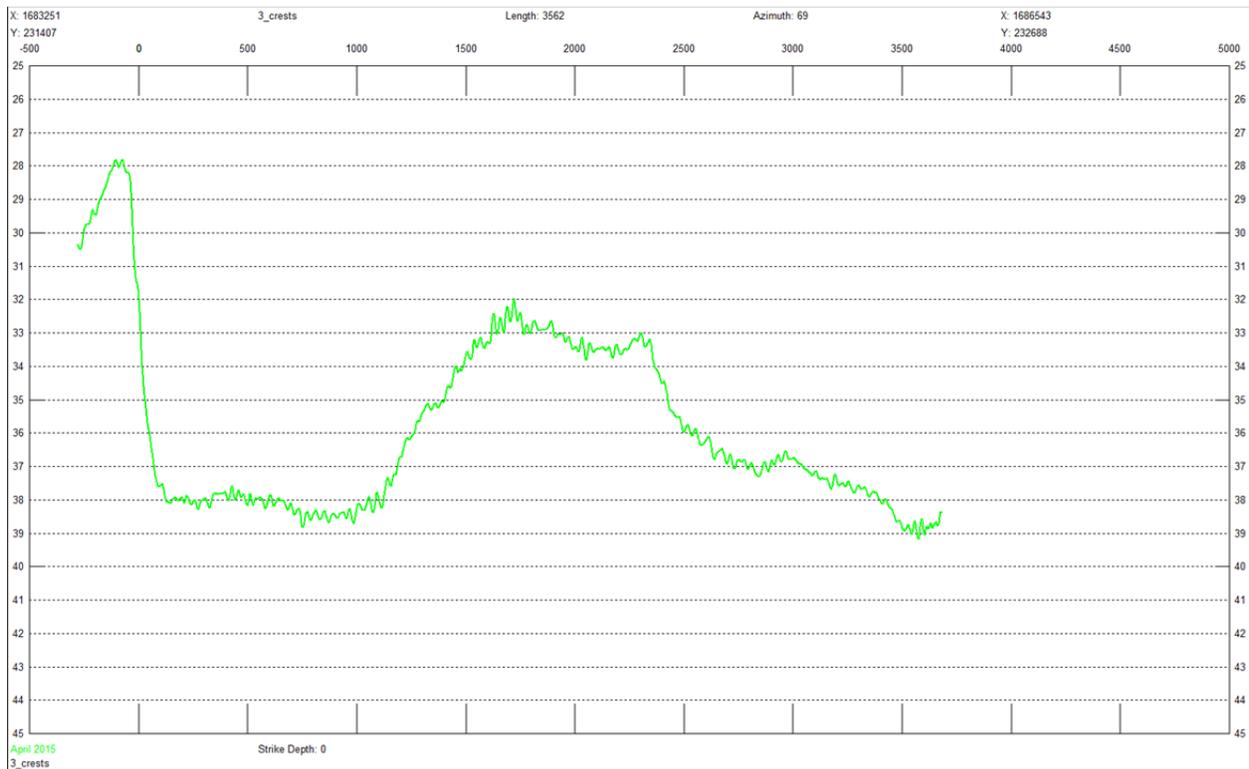
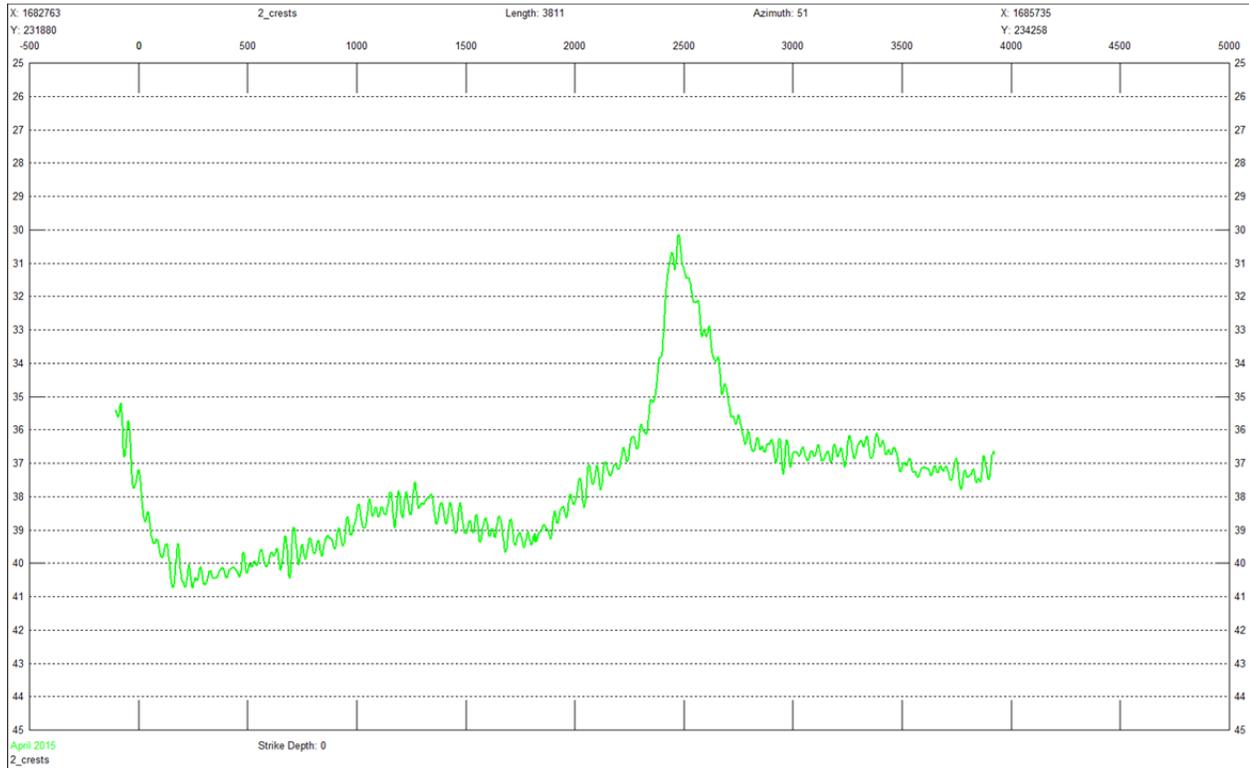


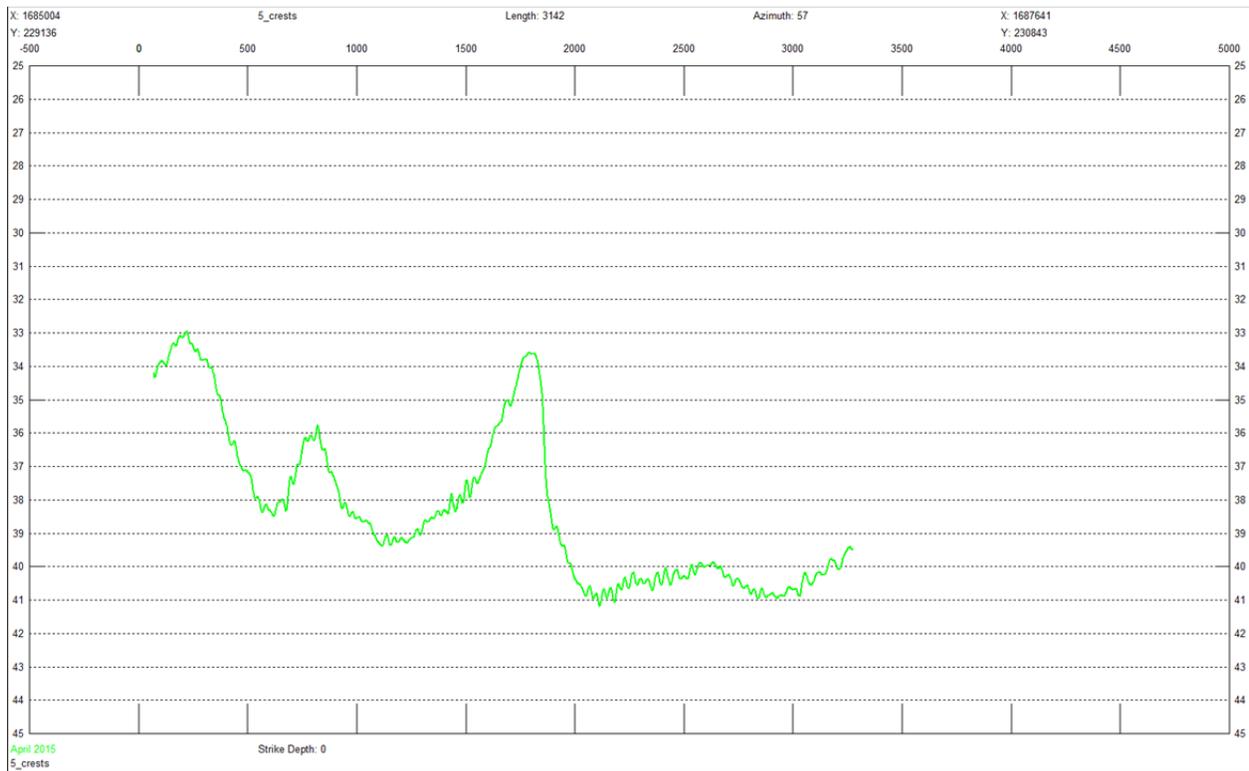
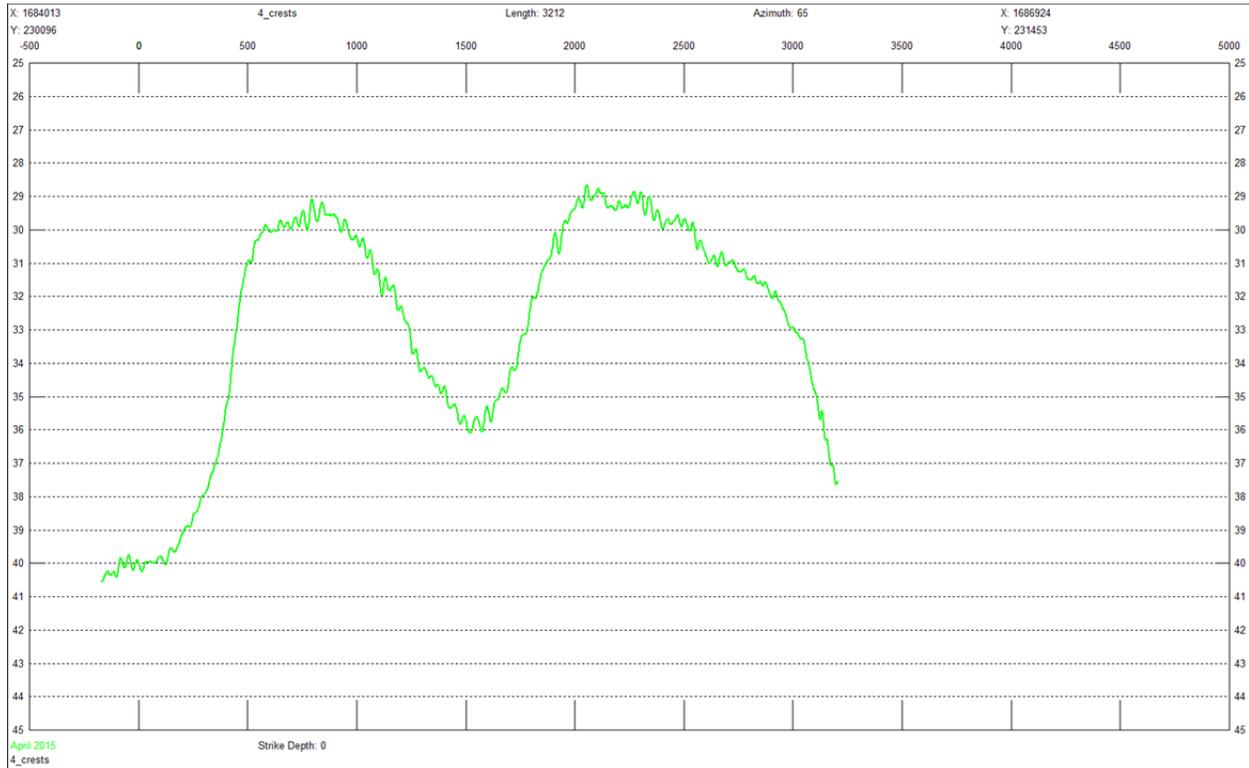












APPENDIX 3

Profile Line Information

PROFILE LINE INFORMATION USED BY PREBLE-RISH, INC.
2015 ST. JOSEPH PENINSULA GEOTECHNICAL SURVEY
APRIL 2015
DATUMS: NAD83/2011

CONTROL USED BY PRI 2015 SURVEY						CONTROL USED BY PRI 2015 SURVEY					
POB	AREA	LINE	NORTHING	EASTING	AZ	POB	AREA	LINE	NORTHING	EASTING	AZ
100	A	27	219212.42	1666677.73	154.0834°	184	D	36	280042.51	1665816.29	167.5312°
102	A	56	219430.95	1667127.44	154.0834°	186	D	37	280258.42	1666792.71	167.5312°
104	A	28	219649.48	1667577.16	154.0834°	188	D	38	280474.33	1667769.12	167.5312°
106	A	57	219868.01	1668026.87	154.0834°	190	D	40	280690.24	1668745.53	167.5312°
108	A	29	220086.54	1668476.59	154.0834°	192	D	39	280906.15	1669721.95	167.5312°
110	A	58	220305.08	1668926.30	154.0834°	194	D	41	281122.05	1670698.36	167.5312°
112	A	30	220523.60	1669376.02	154.0834°	196	D	43	281337.96	1671674.77	167.5312°
114	A	59.001	226507.16	1666877.13	152.7688°	198	D	42	281553.87	1672651.19	167.5312°
116	A	59	220742.14	1669825.74	154.0834°	200	D	44	281769.78	1673627.60	167.5312°
118	A	31	226622.42	1667312.15	152.3730°	202	D	46	281985.68	1674604.02	167.5312°
119	A	31	220960.66	1670275.45	154.0834°	204	D	45	282201.59	1675580.43	167.5312°
121	A	60	226858.66	1667755.88	152.3989°	206	D-A	AREA1_LINE7_RE	272070.93	1668069.58	167.2873°
122	A	60	221179.20	1670725.17	154.0834°	208	D-A	AREA1_LINE6_RE	272310.59	1669028.23	167.1474°
124	A	34	227067.60	1668202.83	152.3373°	210	D-A	AREA1_LINE5_RE	272533.04	1670003.17	167.1474°
125	A	34	221397.72	1671174.88	154.0834°	212	D-A	AREA1_LINE4_RE	272755.48	1670978.12	167.1474°
127	A	61	227251.90	1668656.50	152.2257°	214	D-A	AREA1_LINE3_RE	272977.92	1671953.06	167.1474°
128	A	61	221616.26	1671624.60	154.0834°	216	D-A	AREA1_LINE2_RE	273200.37	1672928.01	167.1474°
130	A	33	227489.09	1669112.58	152.5846°	218	D-A	AREA1_LINE1_RE	273422.81	1673902.96	167.1474°
132	A	33A	227719.31	1669556.43	152.5846°	220	E	LINE 1 WEST	305472.69	1663676.58	182.4441°
134	A	33B	227949.53	1670000.27	152.5846°	222	E	32	305451.37	1664176.13	182.4441°
136	A	33C	228179.75	1670444.12	152.5846°	224	E	50	305430.05	1664675.68	182.4441°
138	A	33D	228409.97	1670887.97	152.5846°	226	E	47	305408.73	1665175.22	182.4441°
140	A	33E	228640.19	1671331.81	152.5846°	228	E	51	305387.40	1665674.77	182.4441°
142	A	33F	228870.41	1671775.66	152.5846°	230	E	48	305366.09	1666174.31	182.4441°
144	A	16	214799.87	1667710.10	152.5846°	232	E	52	305344.76	1666673.86	182.4441°
146	B	20	243179.39	1690773.93	192.4714°	234	E	49	305323.44	1667173.40	182.4441°
148	B	21	242963.43	1691750.34	192.4714°	236	E	53	305302.12	1667672.95	182.4441°
150	B	22	242747.48	1692726.74	192.4714°	238	E	LINE6_RECON.003	305280.80	1668172.50	182.4441°
152	C	9	263531.12	1678863.90	196.0000°	240	E	54	305259.47	1668672.04	182.4441°
154	C	8	263096.57	1679779.60	196.0000°	242	E	LINE6_RECON	305238.15	1669171.59	182.4441°
156	C	7	262662.02	1680695.29	196.0000°	244	F	78	234515.90	1680577.91	137.0373°
158	C	6	262227.47	1681610.99	196.0000°	246	F	77	234856.66	1680943.80	137.0373°
160	C	5	261792.92	1682526.68	196.0000°	248	F	76	235197.42	1681309.70	137.0373°
162	C	4	261358.38	1683442.38	196.0000°	250	F	75	235538.18	1681675.60	137.0373°
164	C	3	260923.83	1684358.07	196.0000°	252	F	74	235878.94	1682041.50	137.0373°
166	C	2	259358.35	1684949.48	196.0000°	254	F	73	236219.70	1682407.40	137.0373°
168	C	1	255730.40	1684949.48	196.0000°	256	F	72	236560.46	1682773.30	137.0373°
170	C	26	263153.71	1673161.58	98.3173°	258	F	71	236901.22	1683139.20	137.0373°
171	C	26	262663.30	1676516.12	108.1465°	260	F	70	237241.98	1683505.10	137.0373°
172	C	26	261721.43	1679389.87	116.2242°	262	F	1_CREST	232779.20	1681955.00	61.0644°
174	C	17	258677.33	1673092.00	101.6254°	263	F	1_CREST	233815.75	1683829.95	31.1669°
175	C	17	257949.03	1676632.02	117.4251°	265	F	2_CREST	231879.83	1682762.90	54.1838°
176	C	17	256609.72	1679213.04	102.7939°	266	F	2_CREST	232946.88	1684241.52	48.7316°
178	C	25	253467.70	1681201.05	113.9976°	268	F	3_CREST	231407.29	1683250.69	75.7356°
180	D	WEST	278925.24	1660640.09	168.5034°	269	F	3_CREST	231864.59	1685049.42	61.1443°
182	D	35	279826.61	1664839.88	167.5312°	271	F	4_CREST	230096.35	1684012.87	65.0159°
						273	F	5_CREST	229136.01	1685003.69	57.0810°

APPENDIX 4

XYZ Files

(Provided Digitally)

**2015 St. Joseph Peninsula Geotechnical Survey
Hydrographic Survey**

APPENDIX 5

Field Book FCR 4

FCR 487.016
WC SSP GEOTECHNICAL
BOAT SETUP

DATE: 4/13/15

+	HI	-	ELEV.
6.89	13.21		6.32
		6.26	6.95

- FRPN GPS NETWORK CHECK INTO
N6S MON 8360L 1988 TIDAL MON.

PUB EL. = 6.32' (NAVD 88)
FIELD = 6.35' (GPS)

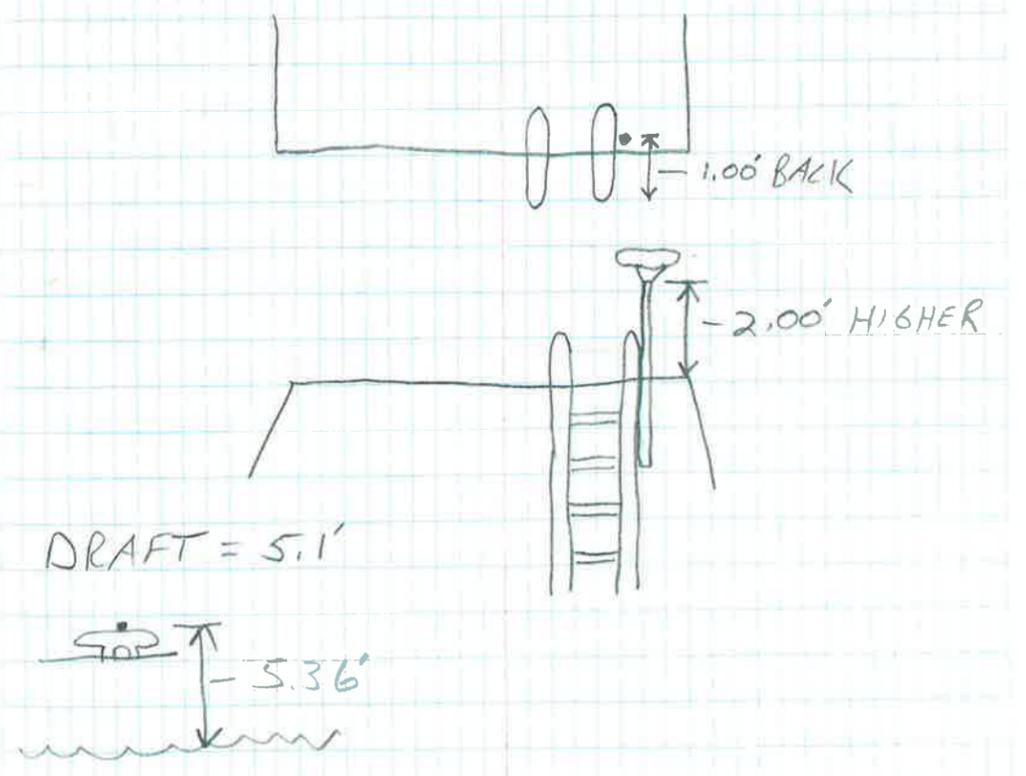
BULK HEAD EL. = 6.95' (LEVEL)
= 6.96' (GPS)

- SET ELEV. ON BOAT WHERE GPS
WILL BE MOUNTED (BLACK DOT)
BESIDE LADDER.
ELEV. = 20.57'

N6S MON 8360L 1988 TIDAL MON
@ FSU MARINE LAB

BULKHEAD TOP AT LADDER

** GPS POSITION OFFSETS **
FROM BLACK DOT



GATE COMBO: 6006

8.5
+ .75

9.25

2' = 2.75
WTR TO GATE = 5.10

114.009
99.193

14.82'
5.10

19.92'
+ 2.00

21.92'

7.00

EL = -0.05

★ NOTE: DRAFT IS ACTUALLY ~ 5.7
HOWEVER MAX DRAFT IN
HYPACK IS 5.0'

HARDWARE SET @

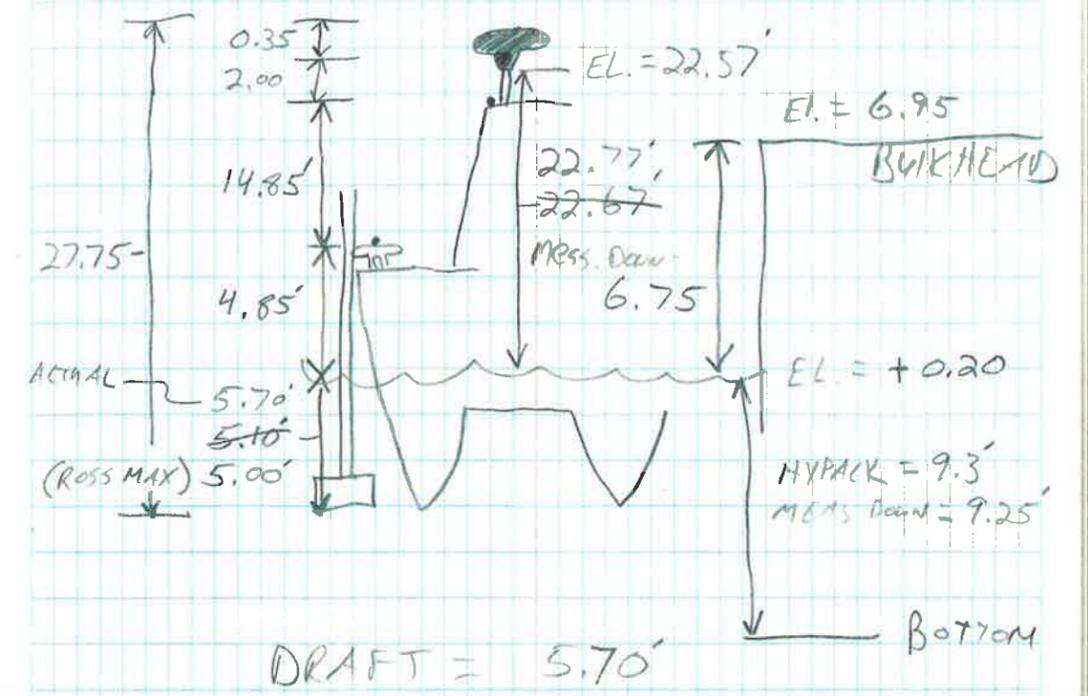
DRAFT = 0.0

GPS VERT 9/5 = 27.75
(WTR LINE) " " = 22.05

ELEV CHECK

MEAS DOWN = +0.20 @ 6:11 EST
HYPACK = +0.20

@ 6:11 EST 4/13/15



(VERT 9/5) HI = 22.67'
GPS

~~@ 5:19~~

~~WTR EL MEAS Down = -0.12
" " PER HYPACK = +0.20~~

162"

X

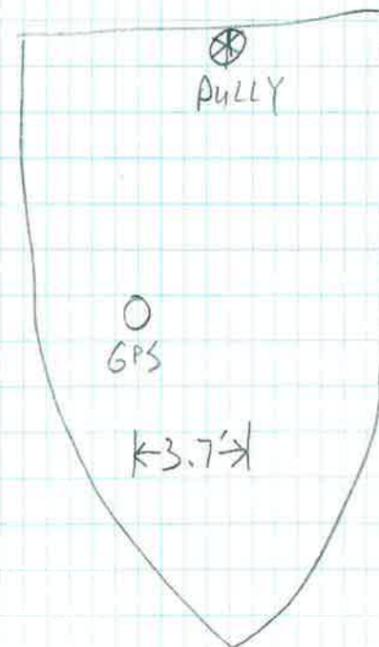
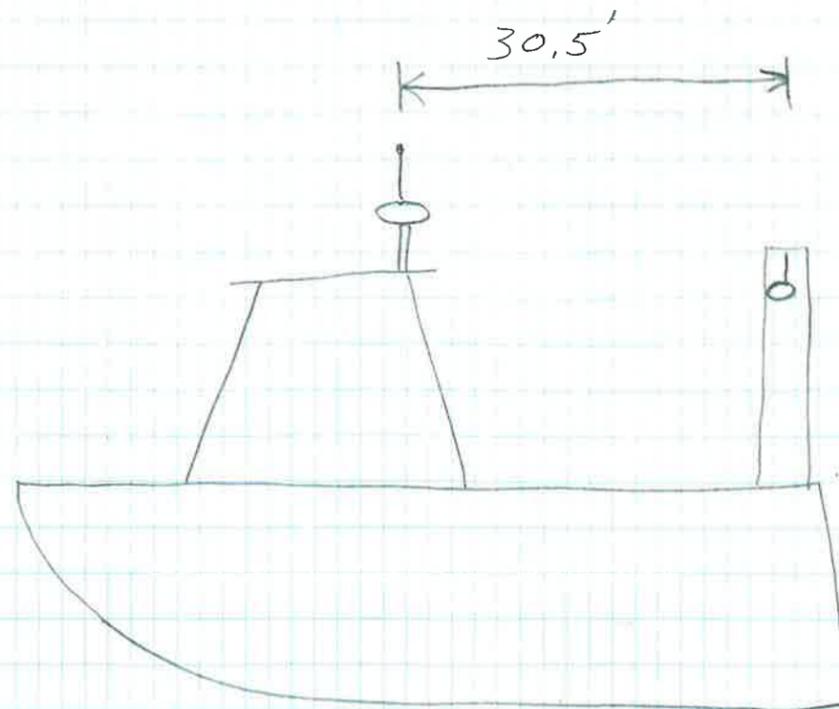
17
13.5

30.5

HYPACK HARDWARE:

RTK GPS: STARBOARD = 3.9
VERTICAL = -27.75

C ROSS 825B: STARBOARD = 11.1
FORWARD = -1.3
VERTICAL = 0.0



FCD 487.016
WC SSP GEOTECK

DATE: 4/14/15

DRAFT = ~ 5.7 @ 11:00 AM. CST. (ROSS 0.0)
SOS AVE = 5010 @ 11:00 AM. CST

- STARTING @ SITE "D"
- FDOT NETWORK NOT WORKING SWITCHED TO E GPS, FLOATING @ START OF "D2"

HYPACK

LINE #	SOL	EOL	DIR
D2	~ 11:30 ish	12:27	NW
D3	12:50	1:23	SE
D2A	1:23	1:27	
D4	1:33	1:58	NW
D5	2:07	2:40	SE
D5C	2:41	2:47	SE

NOTE

SPE SOL ~ 11:50ish / FLOAT RTK
 SET TEST TARGET @ 11:57
 FIXED RTK ~ 12:00
 Float 12:18

12:18:14 - FIXED RTK
 13:18:59 - MRD LINE 37 SOUTHERN SHOAL
 13:20:32 - NOTHING - DELETE TARGET
 13:22:48 = MRD

CONTINUATION OF LINE D3 SE'LY
 13:26:51 - FLOAT RTK
 LINE BEGAN FLOAT RTK
 AUTO EVENT MARKING WAS TURNED ON @ START,
 TURNED OFF AROUND 1:42

BEGAN IN FLOAT
 FIXED 2:16
 FLOAT 2:39
 BEGAN IN FLOAT

HYPACK LINE #	SOL	EOL	DIRECT.
D6	2:47	3:14	NW
D7	3:23		SE
D6B		3:57	SE
D8	4:16	4:42	NW
D9	4:48	5:20	SE
D10	5:25	5:44	NW
D10A	6:23	6:52	SE
D11	6:56	7:09	NW
D12	7:11	7:27	SE
D1	7:51		NW
D13	8:27	8:52	SE

NOTES

BEGAN IN FLOAT
 FIXED 2:54
 FLOAT 3:11

BEGAN IN FLOAT
 FIXED 3:28
 3:49 FLOAT RTK

CONTINUE LINE D7

16:00 FIXED RTK
 16:42 FLOAT RTK

* STARTED LINE FIXED
 5:10 FLOAT RTK

5:22 FIXED RTK

5:33 PROBLEM WITH TOWFISH PULLING TO RIGHT
 OF BOAT, BOAT LEANING TO RIGHT

6:00 - RESET TOWFISH
 - RE-RUN D10

*** ADDING LINE N: 278859.5 N: 266440.6
 "D13" E: 1661071.3 E: 1663943.2

6:42 FLOAT

STARTED LINE FIXED RTK
 7:08 FLOAT

STARTED LINE IN STAND ALONE

" " " " "

" " " " "

RE-SET GPS

HYDRAK	SOL	EOL	DIR
C17	9:10	9:35	
C16	9:45	10:09	W. 15H
C16A	10:15	10:42	E. 15H
C15	10:53	11:02	NW
C14	11:16	11:26	N
C13	11:34	11:51	S
4-15-15 C12	11:54	12:10	N
4-15-15 C11	↓ 12:13	12:32	S
C10	12:39	12:53	N
C9	12:55	1:10	S
C8	1:13	1:25	N
C7	1:28	1:43	S
C6	1:47		N

** MOVING BACK TO SITE "D", ADDED NEW LINES **

NOTES

21:09:08 FIXED RTK
 21:12:07 FLOAT RTK
 21:25:24 FIXED RTK
 21:27:53 FLOAT RTK
 FIXED @ END OF LINE

00:43:48 FLOAT 2 SECONDS ±
 00:51:17 FLOAT

BEGAN LINE IN FLOAT
 COVERED GPS WITH BAGS RAIN COMING SOON GAINED FIX
 1:04:16

**
 2:09:26 FLOAT

HYPACK	SOL	TOL	DIR
AIR1	2:23	2:31	S
AIR2	2:34	2:43	N
AIR3	2:45	2:54	S
AIR4	3:01	3:10	N
AIR5	3:14	3:26	S
AIR6	3:29	3:38	N
AIR7	3:41	3:54	S

*** MOVING TO AREA 5, ADDED NEW LINES ***

AS-6	5:03	5:24	N
AS-5	5:32	5:52	S
AS-4	6:01	6:23	N
AS-3	6:29	6:53	S
AS-2	7:00	7:20	N
AS-1	7:21	7:51	
AS-1 0816	8:16	8:37	
1	8:54	9:16	

NOTES:

2:22:39 FIXED

2:46:15 LOST FLY FOR A FEW SECONDS

3:26:05 ... Minutes

LINE STARTED IN FLOAT
FIXED @ END OF LINE

LINE STARTED IN FLOAT, ENDED IN NON KIN

MISSED 1st ~ 25% OF LINE, RAISING TOW FISH

6:53:41 FIXED RTK

LINE STARTED IN FLOAT, MISSED 1st ~ 20% OF LINE
7:15 FIXED

LINE STARTED IN FLOAT

ERIC/ANDREW SWAP
FLOAT 9:07:40 / FIXED 9:08:04 / 9:12:45 Float

HYPACK LINE #	SOL	EOL	DIRECTION
8	9:22	9:44	
9	9:49	10:16	
10	10:21	10:43	
11	10:51	11:13	
B3	1:38	1:51	S
B4	1:53	2:03	N
B5	2:06	2:17	S.
A9	3:05	3:17	
A7	3:34	3:49	
A-6	3:53	4:06	N
A-6A	4:10	4:28	S
A-5	4:31	4:43	N
A-5A	4:48	5:03	S

NOTES

BEGAN LINE IN FLOAT / STAND ALONE

BEGAN FLOAT 9:59:51 FIXED
 10:07:12 FLOAT (5 SECONDS)
 10:13:23 FLOAT
 10:25:12 FIXED (BEGAN IN FLOAT)
 10:30:20 DIFF.
 10:35:24 FLOAT

10:51 FLOAT

11:03:27 FIXED

* SOS CALIBRATION = 5010 * (1:15 4-15-15)

MOVED TO AREA "B"

1:38 STARTED IN FLOAT

STARTED IN FLOAT (WHOLE LINE)

STARTED IN FLOAT " "

STARTED FLOAT ENDED FIXED

FIXED

FIXED

HYPACK LINE #	SOI	EOL	Direct.
11	9:35	9:45	
17	10:19	10:35	
18	10:39	10:55	
19	10:59	11:11	
19	11:18	11:36	
20	11:40	11:56	
21	12:01 AM.	12:18	
22	12:22	12:37	
23	12:40	12:58	
24	1:02	1:16	
25	1:18	1:37	
1	1:53	2:01	
2	2:05	2:12	
3	2:15	2:23	
4	2:25	2:31	
5	2:35	2:40	

NOTES

STARTED IN FLOAT

FIXED

STARTED IN FLOAT

STARTED IN FLOAT

FIXED

FIXED

FIXED