DATE: 11/20/2025

To: **All Interested Consultants**

PROJECT: **5741-26030 Manke Dump Site Investigation**

SUBJECT: **Amendment 1 to Request for Proposal (RFP)**

Amend this RFP as follows:

Remove: Attachment 4 - Proposal Preparation, Submission and Evaluation Guidelines; Section I – Any prospective offeror desiring an explanation or interpretation of this RFP must request it in writing no later than seven business days before the last date for submission of proposals. Requests should be directed to the individual in charge at the address listed in the RFP. Any information given to a prospective offeror concerning a solicitation will be furnished promptly to all other prospective offerors as an amendment to the RFP, if that information is necessary in submitting offers or if the lack of it would be prejudicial to any other prospective offerors.

Add: Attachment 4 - Proposal Preparation, Submission and Evaluation Guidelines; Section I – Any prospective offeror desiring an explanation or interpretation of this RFP must request it in writing no later than **two business days** before the last date for submission of proposals. Requests should be directed to the individual in charge at the address listed in the RFP. Any information given to a prospective offeror concerning a solicitation will be furnished promptly to all other prospective offerors as an amendment to the RFP, if that information is necessary in submitting offers or if the lack of it would be prejudicial to any other prospective offerors.

Attached Below:

1. Pre-proposal meeting minutes
2. Manke Dump Geophysical Investigation Memorandum

MILWAUKEE COUNTY
PREPROPOSAL MEETING Minutes
5741-26030 Manke Dump Site Investigation

1. Introductions: All give their name, company, and their relationship to the project

2. Scope Review
   - Project background
     - Project Location
       - The Manke Dump site is located within Warnimont Park. It is situated within a ravine adjacent to Lake Michigan. It is approximately 4 acres in size.
     - Site History
       - It was reported that the site was used as a dump from 1935 until approximately 1962 or 1963. Based on aerial photographs activity can be observed at the site as late as 1970. Upon closure the dump was capped with 20 feet of soil, graded, seeded, and planted with trees.
       - Waste it allegedly accepted include foundry sand, core sands, castings, car bodies, empty barrels, broken trees, debris produced by the construction of the golf course, and municipal garbage.
       - Native soil within Warnimont Parks tends to be clays from ground surface to 15' bgs. Sands between 15 to 40' bgs. Clay from 40' bgs to around 100' bgs.
       - Contaminants identified at the site in the soil above NR 720 RCLs include select RCRA metals, PAHs, VOCs, and PCBs. Samples collected from two monitoring wells did not exceed NR 140 Groundwater Quality Standards. Minimal contamination was found on Seep samples collected. Vinyl Chloride was the only contaminant to exceed NR 140 Groundwater Quality Standards.
       - From 2016-18, remedial action took place at the site including excavating and disposing of exposed waste materials at an offsite landfill or consolidating it within the middle of the ravine. The relatively steep southern ravine face was cut back and re-graded. Material cut from the southern slope of the ravine was placed in the bottom of the ravine. One foot soil cover was placed over exposed material on the southern ravine face and along the bottom of the ravine to cover exposed waste. The area was stabilized and vegetated. The steep vertical scarp located near the eastern end of the ravine was smoothed and capped with riprap to prevent further erosion and to prevent contact with exposed waste.
       - Current land use includes the Oak Leaf Trail passing along the western boundary of the site. A loop of the Forked Aster Hiking Trail runs over the former landfill itself.
   - General project description
       - Prepare a workplan and complete additional site investigation to address the requirements outlined in WDNR's December 16, 2024, letter.

        - The purpose of this project is to complete the additional site investigation, data collection, and documentation necessary to satisfy WDNR requirements for case closure under Wis. Admin. Code ch. NR 726.
- Scope
- Project Management
    - Coordinate staff and subconsultants.
    - Provide progress updates, invoicing, and schedule tracking
    - Schedule, attend and facilitate a project kickoff meeting.
    - Schedule and attend WDNR technical review meeting (Cost proposal shall include review fee).
- Workplan, Investigation, and Report
    - Review existing data and site documents.
    - Define limits of waste
        - Review previous site documents to determine know waste locations and where waste extent information is deficient.
        - Determine if additional borings are needed and identify proposed locations, depths, and analytical parameters, if necessary.
        - Describe the data basis for existing landfill limits and confirm accuracy.
    - Investigate contaminant migration from the landfill
        - Develop a sampling plan for soil, groundwater, seep, and sediment samples along the bluff and beach per the WDNRs letter dated 12/16/2024.
    - Evaluate Pathways
        - Evaluate pathways of concern per NR 726.05(4) and the WDNR letter dated 12/16/2024.

3. Schedule:

- 11/12/2025 Issue Request for Proposal
- 11/19/2025 Optional Pre-proposal Meeting on Teams, 1:00 PM,
- 11/26/2025 Proposals Due
- 12/3/2025 Selection Committee selects consultant.
- 12/31/2025 Consultant contract awarded (approximate date).

4. Targeted Business Enterprise – 15%
    - For more information you can contact OEI at OEIcompliance@milwaukeecountywi.gov
    - Failure to meet the TBE goals may be cause for rejection of any proposal

5. Record documents:
    - PDF
        - Upon completion of provide reports in PDF format

6. Questions

- Was groundwater found within or below the waste?
    - No contaminants about NR 720 RCLs were found within the groundwater table. However, in boring B-5 groundwater was found to be within the fill at approximately 16' below ground surface (bgs).
- Does Milwaukee County have access to the geophysics & other reports related to site investigation?
    - Will attach geophysics report to this document. For all other documents please go to the BRRTS site and reference the closure file dated 12-7-2022 and the Superfund Site Assessment dated 9-2-2016.
- Was there cut/fill work done to bring waste on the side slopes was brought down into the ravine?
    - Yes, work was complete from 2016-18 to consolidate waste present of the side slopes of the ravine to the middle of the ravine. The relatively steep southern ravine face was cut back and re-graded. Material cut from the southern slope of the ravine was placed in the bottom of the ravine. One foot soil cover was placed over exposed material on the southern ravine face and along the bottom of the ravine to cover exposed waste. The area was stabilized and vegetated. The steep vertical scarp located near the eastern end of the ravine was smoothed and capped with riprap to prevent further erosion and to prevent contact with exposed waste.
- What year did the jurisdiction of the site switch from the solid waste group to the R&R group in the WDNR?
    - Around 2018 when work was remedial work was complete on the site.
- Who was Milwaukee County working within the solid waste group at the WDNR?
    - Gerry DeMers who is now retired.
- What is Milwaukee County's expectation of work to be done outside of current scope given how investigation is often an iterative process? If the first submittal doesn't get accepted, is it an error or omission?
    - Milwaukee County understands that there is a chance the first submittal doesn't get accepted by the WDNR. It will not be considered an error or omission.
- What is Milwaukee County looking for when reviewing proposals?
    - Proposals will not be won based on low bid. Milwaukee County is looking for best effort. We will be looking for the best approach to get the case to closure. Other evaluation criteria include TBE requirements, quality and responsiveness to the RFP, project understanding, and qualifications and experience. Fee is considered in the evaluation but has the lowest weight.
- Would you want multiple rounds of sampling done to look at seasonal variations in the groundwater and seep samples?
    - Milwaukee County doesn't have any preconceived notions of how to approach addressing WDNR concerns. Consultant to determine best approach.

Sign-in Sheet
PRE-PROPOSAL MEETING
Project: 5741-26030 Manke Dump Site Investigation
11/19/2025, 1:00 PM, Microsoft Teams

Name	**Company**	**TBE (Yes/No)**	**Email**
Aaron Brasfield	Milwaukee County AE & ES	N/A	Aaron.brasfield@milwaukeecountywi.gov
Tim Detzer	Milwaukee County AE & ES	N/A	Timothy.detzer@milwaukeecountywi.gov
Chris Kubacki	Milwaukee County Parks	N/A	Chris.Kubacki@milwaukeecountywi.gov
Carrie Zulpo	MSA	No	czulpo@msa-ps.com
Kristin Kurzka	The Sigma Group	Yes	kkurzka@thesigmagroup.com
Douglas Cieslak	Brownfield USA	No	doug@brownfieldusa.com
Chris Bonniwell	Terracon	No	Chris.Bonniwell@terracon.com
Brad Brown	Brownfield USA	No	brad@brownfieldusa.com

Milwaukee Co. Dept. of Public Works
STS Project No. 5-86758XA
January 30, 2002

Appendix A

Geophysical Investigation Technical Memorandum

TECHNICAL MEMORANDUM

Date: September 15, 2001
From: John Petruccione – STS Chicago
RE: Results of an Integrated Geophysical Survey, Warnimont Park, Cudahy, Milwaukee County, Wisconsin - STS Project No. 5-87658-XA

STS Consultants, Ltd. (STS) conducted a non-intrusive geophysical investigation at Warnimont Park, Cudahy, Wisconsin on July 9, 10, and 11, 2001. An integrated ground conductivity and magnetic survey was performed in an effort to delineate the lateral, and possibly vertical, extent of buried non-native debris and metallic targets reportedly disposed of within and adjacent to an existing ravine that drains eastward into Lake Michigan. The location and extent of the geophysical survey area was defined during a pre-survey site visit with a Milwaukee County representative on June 12, 2001.

Ground Conductivity (EM-34)

Frequency-domain electromagnetic induction (FDEM) is a non-intrusive, non-destructive geophysical technique implemented to map subsurface electrical conductivity variations. A measure of composite subsurface ground conductivity is recorded by the field instrumentation in millisiemens/meter (mS/m). Ground conductivity responses can be produced by buried metallic (ferrous and non-ferrous) targets, qualitative variations in dissolved ion concentrations in groundwater, air voids (i.e., tunnels and sinkholes), extensive conductive soil components (i.e., cinder and ash), and relative subsurface saturation.

STS utilized a Geonics Limited EM-34-3XL ground conductivity meter equipped with a digital datalogger to complete this investigation. Relative depth of exploration for the ground conductivity instrumentation is based on the intercoil spacing and coil orientation. Vertical coil orientation permits an exploration depth of 0.75 times the intercoil spacing. An exploration depth of 1.5 times the intercoil spacing is anticipated using the horizontal coil orientation.

Magnetic Surveying

Magnetometer surveying involves measuring the magnetic field of the earth at discrete points to observe and map abnormal geomagnetic field variations. The presence of ferrous metallic materials alters the natural magnetic field of the earth in both magnitude and direction, thus creating magnetic anomalies. The magnitude and extent of these anomalous responses are dependent on several variables, including target to magnetic sensor distance (depth), target material, mass, and orientation.

For shallow magnetic surveying, a gradiometer configuration is typically employed. This system consists of two magnetic sensors separated by a 1 m (3.28 ft) vertical distance. The magnetic field of the earth is measured simultaneously by both magnetometers and the vertical magnetic gradient is determined by calculating the difference between the responses of the bottom and top sensors. The gradiometer configuration is most sensitive to shallow-buried (<25 ft subsurface), ferrous metallic objects such as underground storage tanks, drums, pipelines, or other ferrous targets (such as bricks).

STS employed a Geometrics G-858 Cesium-Vapor Magnetometer/Gradiometer for this survey. The Cesium-vapor magnetometer is capable of measuring variations in the magnetic field of the earth to 0.1 nanoteslas (nT).

Field Design & Data Collection

STS designed and constructed (field-flagged) an approximate 20 x 30 ft control grid within the study area, producing 23 north-south trending survey lines. Most profiles were terminated at the edge of the ravine located along the southern boundary of the survey area, however six lines were extended south into the ravine. Profiles lines were numbered 1-23 from west to east. Profiles 2, 6, 12, 18, 20, and 23 were extended into the ravine. A field sketch was created during the geophysical investigation to illustrate the relationship between permanent site features and profile lines established for the EM-34-3XL/magnetic gradient surveying (Figure 1, Attachment A).

Ground conductivity measurements were digitally recorded at 20-ft intervals along each survey line using a Geonics Limited EM-34-3XL electromagnetic instrument (EM-34-3XL). Both 10 m (32.8 ft) and 20 m (65.6 ft) intercoil spacings were employed during the survey, producing a combined total of 702 EM data points across the site. These spacings permitted a depth of exploration ranging from approximately 25-to-100 ft below ground surface (bgs).

A Geometrics G-858 cesium-vapor magnetometer/gradiometer was used during this investigation to map buried ferrous metal targets along each survey line. The magnetic surveying system was operated in continuous data sample mode, producing approximately three data points per linear foot. A total of 21,860 magnetic data point stations were collected along the 23 profile lines.

Results

The lateral extent of debris/fill was determined by reviewing both the contoured and profile data. A comprehensive analysis of the contoured data is presented in Figures 2-6 (Attachment A). Plots of the combined EM-34 and magnetic profile data are included in Attachment B.

In general, negative or positive deflections in ground conductivity were interpreted as disrupted stratigraphy (i.e. debris/fill). Variations of the magnetic gradient were used to infer the presence of subsurface ferrous metallic targets. An analysis of each individual profile is presented below, followed by a discussion of general data trends and interpreted debris limits.

Line 1
Both the 10 and 20 m EM-34 coil spacings reveal minimal variations along Line 1, suggesting native, undisturbed sediments in the subsurface (i.e., no buried debris within the range and resolution of the investigation). Similar trends are observed on the corresponding magnetic gradient data. Measured gradients range between +200 to –150 nT, with positive peaks noted at roughly 84990N and 85010N.

Line 2
The magnetic gradient demonstrates a +900 nT peak at 84985N along Line 2. Smaller peaks on the order of +400-500 nT are noted near northings 84850, 84900, 84935, and 85080. These gradients suggest possible buried targets at the noted coordinates. EM-34 data support this interpretation, with significant variations recorded on the 10 and 20 m vertical dipole profiles south of 85000N (the approximate location of the bike path).

Line 3
No significant fluctuations are observed on the magnetic gradient data set for Line 3. A slight increase in ground conductivity (10 m and 20 m vertical mode) is noted south of 85020N.

Line 4
A measurable increase in ground conductivity is noted (all coil spacings and both dipoles) south of 85025N. Magnetic gradient data also portray slightly greater variation in this area, possibly a result of variable fill or buried debris.

Line 5
A 15 mS/m increase in ground conductivity (20 m vertical dipole) is noted south of 84990N. More gradual increases are observed on the other 3 dipoles. This is consistent with profiles 1 through 4. Slight perturbations in the magnetic gradient (~200 nT/m) were also recorded north of 85140 and south of 84950.

Line 6
Significant variations (20 mS/m) and measurable increases in ground conductivity are noted south of 85000N (all coil spacings and dipoles). Smaller variations were measured north of this coordinate. Greater variations in magnetic gradient were also recorded south of 85025, and are likely attributable to variable material in the subsurface (i.e., debris). An isolated magnetic gradient peak is also visible at 85150N.

Line 7
Dramatic variations in magnetic gradient, on the order of 600 to 800 nT/m, were recorded south of 85025. The smaller (~150 nT/m) peak noted at coordinate 85150 on Line 6 is also visible on Line 7. Ground conductivity data (10 and 20 m vertical dipole) exhibit variations of 15 to 20 mS/m across the profile.

Line 8
Significant fluctuations in magnetic gradient are visible south of 85025N, and a smaller peak is noted near 85145N. An increase in ground conductivity data was measured on the horizontal dipole data (10 and 20 m) south of 85025N, while a decrease was recorded on the vertical dipoles (10 and 20 m) in this location. This suggests that the source of increased ground conductivity is concentrated within 0 to 25 ft bgs.

Line 9
Significant fluctuations in magnetic gradient are visible south of 85025N, and a smaller peak is noted near 85150N. This is consistent with profiles 4 through 8. Measurable increases in ground conductivity can be seen on the vertical dipole data (10 and 20 m) south of 85025N.

Line 10
Significant fluctuations in magnetic gradient are visible south of 85000N and a smaller peak is noted near 85145N. A gradual increase in ground conductivity can also be seen south of 85000N. The dramatic drop in ground conductivity observed on the 20 m vertical dipole profile south of 84875N indicates that the more conductive material is confined to the first 50 ft of subsurface material.

Line 11
Smaller variations in magnetic gradient, on the order of 200 nT/m, were again observed south of 85000N. Ground conductivity gradually increases towards the south on all profiles.

Line 12
The magnetic gradient data is fairly consistent along Line 12, however a 600 nT/m peak is visible at 84830N. An increase in ground conductivity data was measured on the horizontal dipole data (10 and 20 m) south of 84900N, while a decrease was recorded on the vertical dipoles (10 and 20 m) in this location.

Line 13
Line 13 reveals 10 to 20 mS/m variations in ground conductivity, with larger variations observed at the southern end of the profile (south of 84835N). The magnetic gradient data portrays a significant positive anomaly (1,800 nT/m) near this location (~84820N) with a corresponding negative peak to the north and south.

Line 14
Both the EM-34 and magnetic gradient data display dramatic fluctuations south of 84875N, suggesting possible buried debris in this area.

Line 15
Relatively minor variations in ground conductivity (10 to 15 mS/m) and magnetic gradient (maximum 100 to 200 nT/m) are noted along Line 15. No fluctuations in magnetic gradient are observed north of 84950.

Line 16
Measureable variations in ground conductivity (10 to 15 mS/m) are noted along Line 15. No fluctuations in magnetic gradient are observed north of 84900. A high-amplitude anomaly was recorded near 84740N.

Line 17
Ground conductivity values illustrate minimal variation (less than 10 mS/m) along Line 17. Minor fluctuations in the magnetic gradient data are visible south of 84875N.

Line 18
Ground conductivity data (10 m vertical and horizontal dipoles) exhibit minimal (<10 mS/m) fluctuations north of 84700N. A notable increase in ground conductivity (>20 mS/m) is observable south of this point, with peak magnitudes located near coordinate 84550N. This anomalous region is located within the ravine along the southern edge of the survey area, and likely contains buried debris. Magnetic gradient data are characterized by 100 to 200 nT/m variations south of 84770N.

Line 19
Horizontal dipole data (10 and 20 m) illustrate minimal fluctuations. Slight variations can be seen in the vertical dipole data set. This suggests a deeper source of the observed variations. Although the magnetic gradient data is generally characterized by background conditions, isolated anomalies were recorded at 84875N and 84950N.

Line 20
Measured ground conductivity appears variable across the entire length of Line 20, with significant deflections observed south of 84650N. This is particularly evident on the vertical dipole data. Similar deflections can be seen on the magnetic gradient data south of 84750N, with peak magnitudes observed between 84600N and 84650N. The anomalous responses on the EM and magnetic data sets were recorded within the ravine along the southern edge of the survey area (south of 84675N).

Line 21
Both the EM and magnetic gradient data illustrate minor deflections across Line 21. Greater fluctuations are visible on the vertical dipole data set.

Line 22
The magnetic gradient data are generally characterized by background conditions, however a significant negative peak (~-1,750 nT/m) is noted at 84925N. Once again, the EM data portray greater variations on the vertical dipole.

Line 23
A significant increase in ground conductivity is visible south of 84650N, with peak conductivities near 40 and 50 mS/m. Once again, these anomalous values were

recorded in the ravine along the southern edge of the study area, and are likely produced by buried debris and/or greater ground saturation. Although variations are still observable north of this area, the deflections are minor by comparison. Minor fluctuations are seen on the magnetic gradient data, with maximum deflections noted between 84650N and 84770N.

DISCUSSION

Analysis of EM-34 and magnetic gradient data (survey profiles and contoured maps) suggests that buried ferrous debris exists within and north of the existing ravine. This is indicated by high-amplitude magnetic gradients mapped as far north as 85000N. The interpreted northern boundary of this signature is shown on Figure 6. The southern edge of the debris response could not be determined due to heavy vegetation within the ravine, however anomalous magnetic responses were recorded within the ravine in all six profiles extended into that area. Elevated, fluctuating ground conductivities recorded in the ravines support this interpretation.

The vertical limit of the interpreted debris is more difficult to quantify. However, since anomalous ground conductivity fluctuations were observed on most 20 m vertical and horizontal dipole data sets, the debris could be located up to 50 ft bgs. The anomalous magnetic gradients refine this estimate to a maximum of 25 ft bgs in some areas.

Slightly elevated ground conductivities were observed on the 20 m horizontal dipole data (Figure 5), producing three linear anomalies centered on 14550N, 14700N, and 14810N. These features trend perpendicular to the existing ravine, and are parallel to the bluff shoreline. The responses may suggest the presence of additional incisions containing conductive fill at greater depths (>50 ft bgs). No magnetic anomalies were observed in these areas, however the gradient system used in this investigation likely filtered any potential responses from these depths.

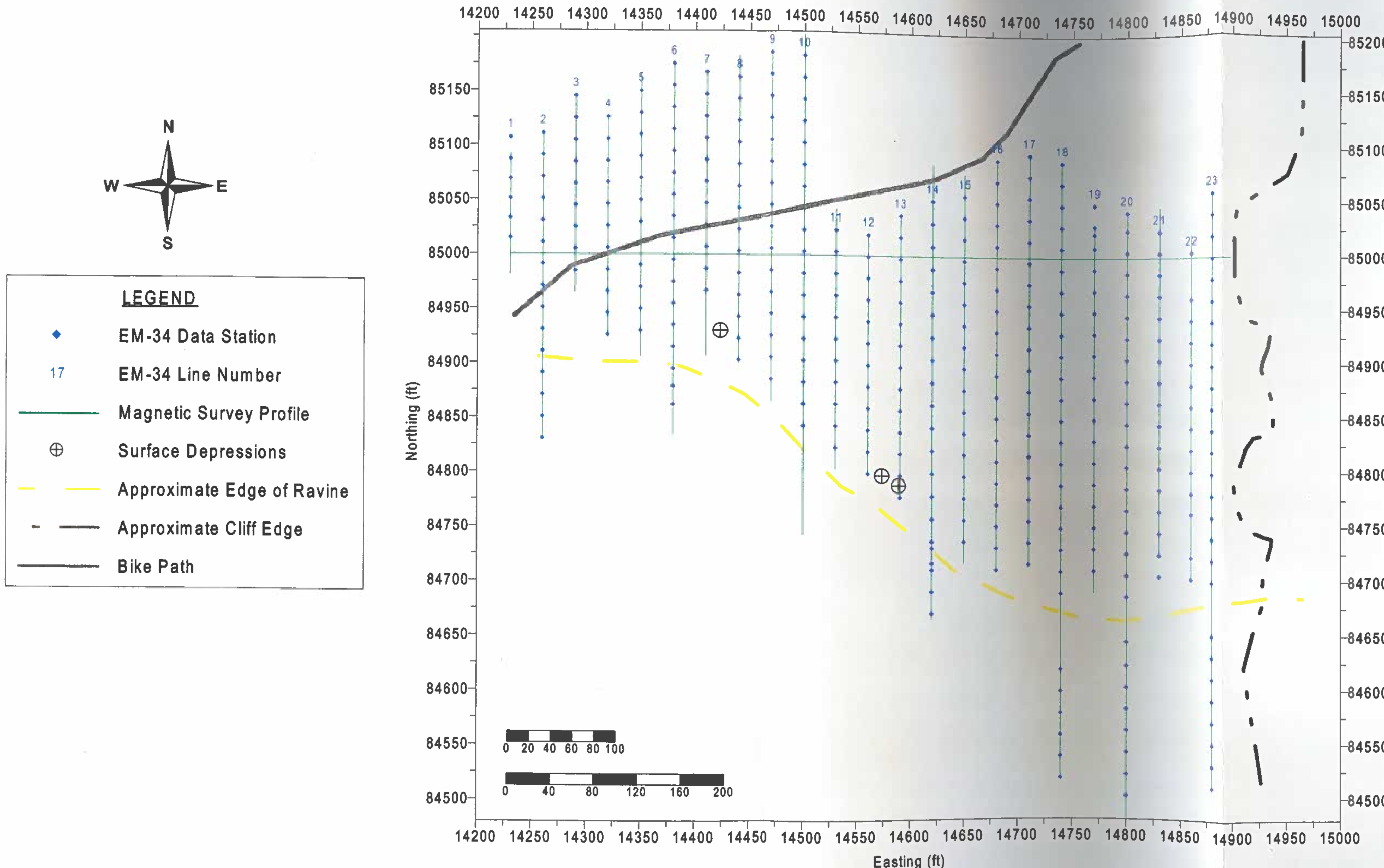
CONCLUSIONS & RECOMMENDATIONS

Final geophysical interpretations indicate that the methods employed during this investigation were successful in delineating the northern boundary of buried debris extending from the existing ravine. In addition, the vertical limits of the debris were estimated between 20 and 50 ft bgs based on a comparison of responses from the 20 m data set and the magnetic gradient data. Three possible buried tributary drainage swales were also defined on the 20 m horizontal dipole.

GENERAL QUALIFICATIONS

The conclusions in this report are based on the observations and tests performed and interpreted by experienced personnel. It is possible that other conditions, not delineated by these surveys, or located outside of the survey area, could exist. This report represents our professional judgement and no warranty, either expressed, or implied, is contained herein.

ATTACHMENT A
FIGURES 1 - 6



DRAWN BY
CHECKED BY DMV DATE 1-29-02
APPROVED BY DRL DATE 1-29-02
CADFILE

Geophysical Data Reference Map
Warnimont Park
Cudahy, WI

STS Consultants Ltd.
Consulting Engineers

STS PROJECT NO. 5-6-86758-XA

STS PROJECT FILE gphys data ref.srf

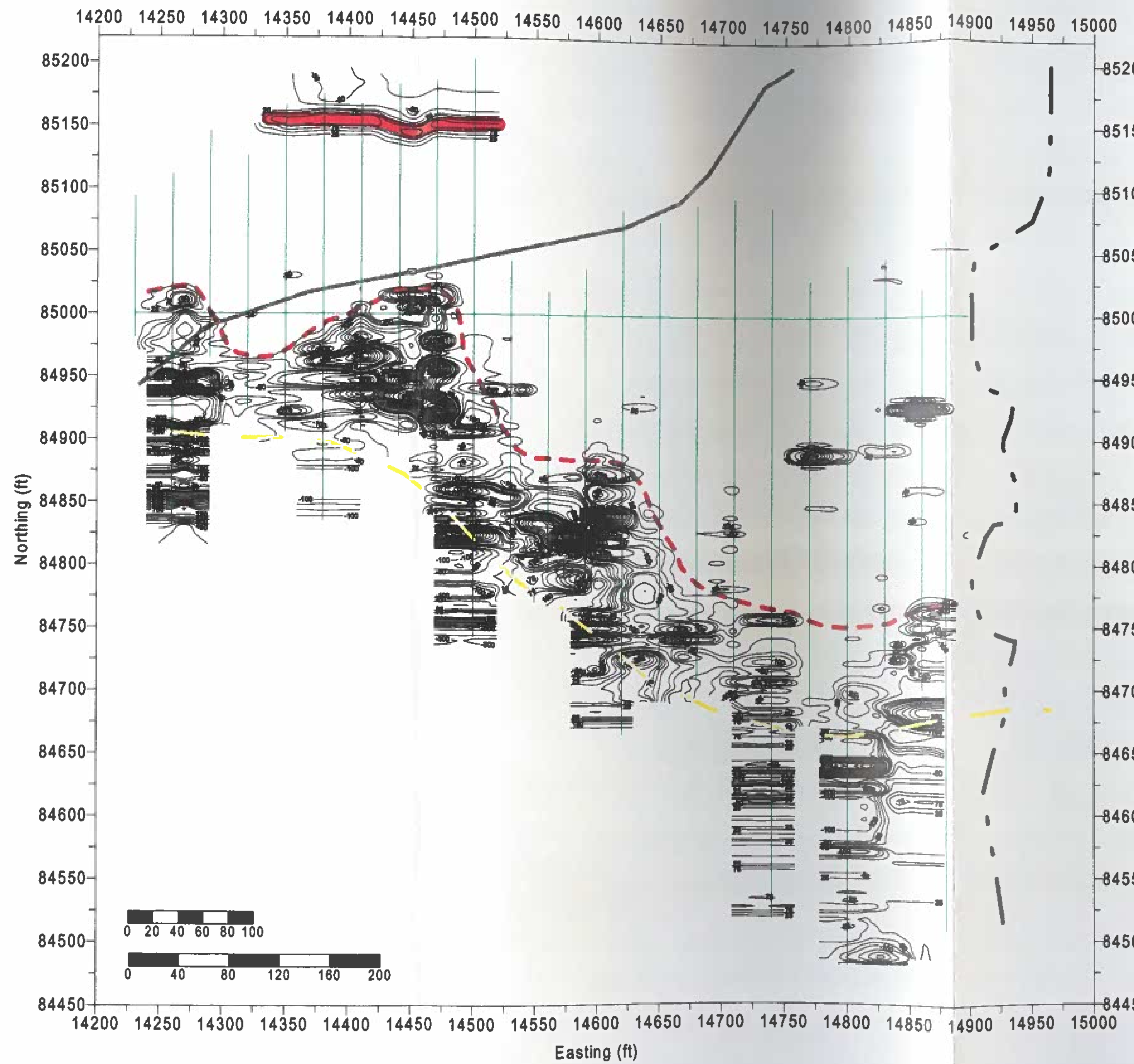
SCALE 1 in = 100 ft

FIGURE NO. 1

LEGEND

green line	Magnetic Survey Profile
⊕	Surface Depressions
yellow dashed line	Approximate Edge of Ravine
black dash-dot line	Approximate Cliff Edge
black line	Bike Path
red dashed line	Interpreted Debris Boundary
thick red line	Interpreted Buried Metal Utility

Contour Interval = 25 & 50 nT/m



Magnetic Gradient Interpretation Map

Warnimont Park
Cudahy, WI

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CADFILE	

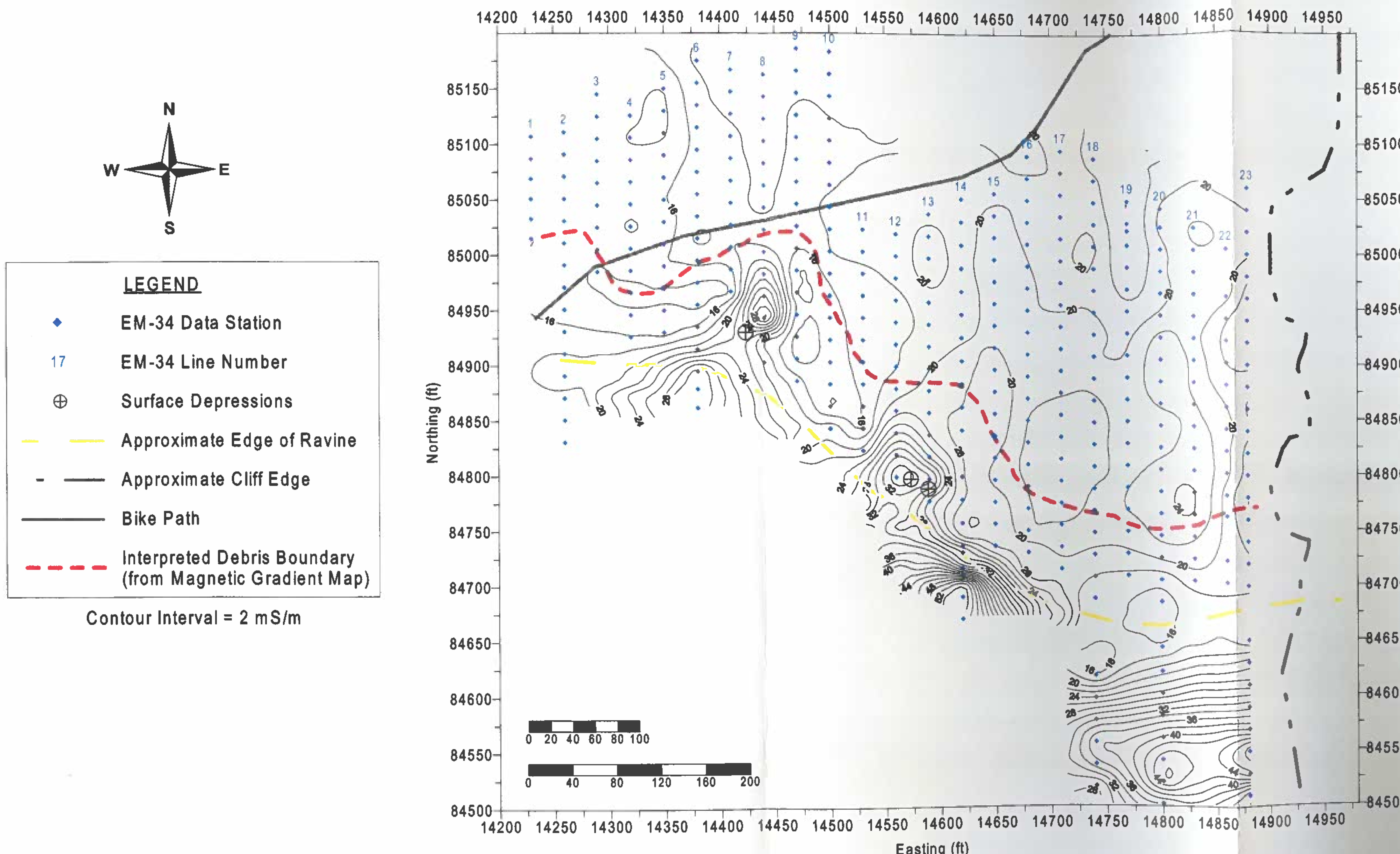
STS Consultants Ltd.
Consulting Engineers

STS PROJECT NO. 5-6-86758-XA

STS PROJECT FILE mag grad.srf

SCALE 1 in. = 100 ft

FIGURE NO. 2



EM-34 - 10 m Horizontal Dipole

Warnimont Park
Cudahy, WI

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CHECKED BY	DMV	DATE 1-29-02
APPROVED BY	DRL	DATE 1-29-02
CADFILE		

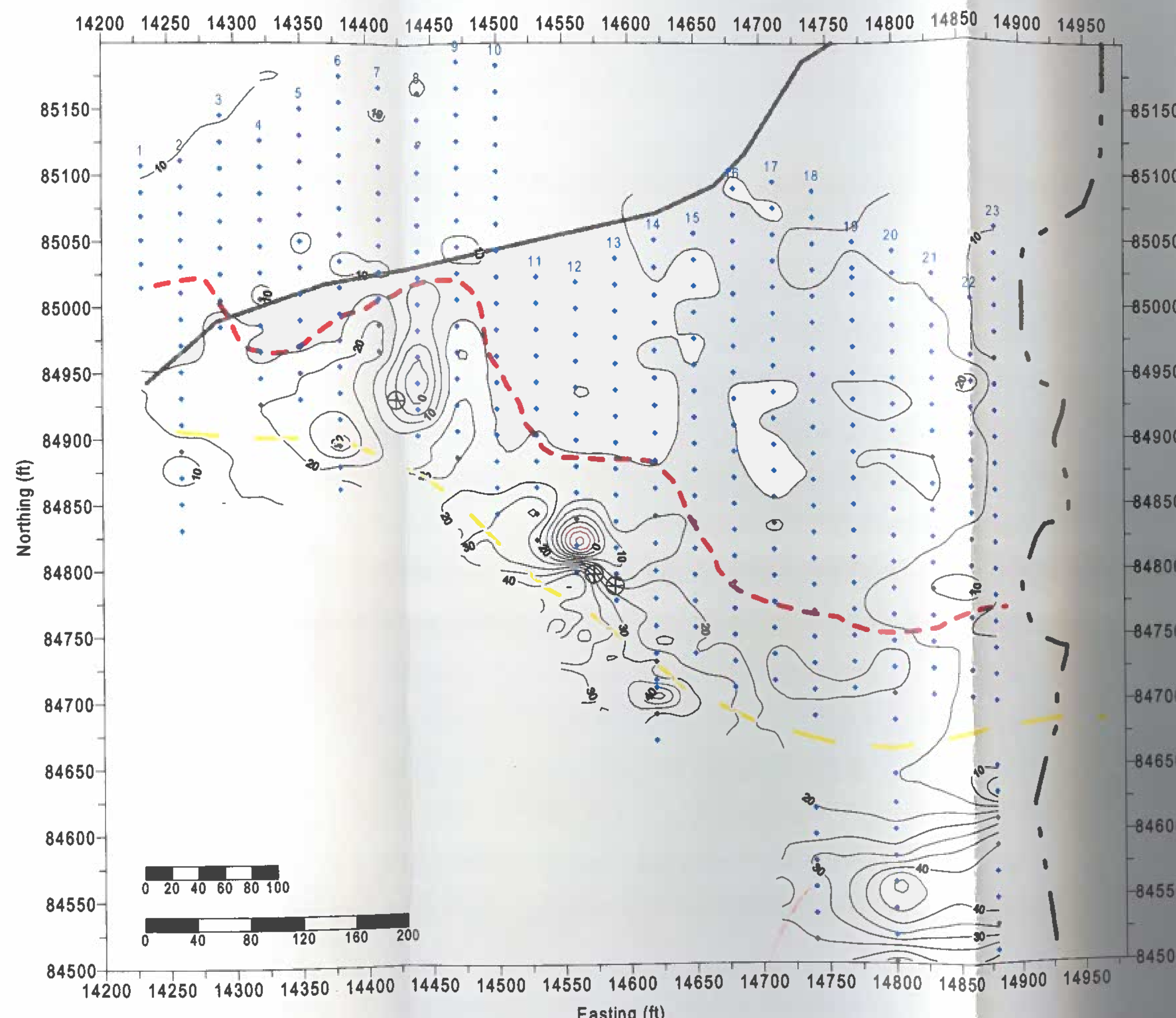
STS Consultants Ltd.
Consulting Engineers

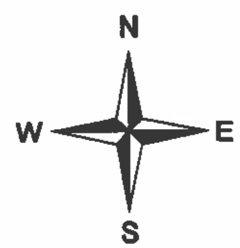
STS PROJECT NO. 5-6-86758-XA

STS PROJECT FILE 10m Horiz.srf

SCALE 1 in = 100 ft

FIGURE NO. 3





LEGEND

- ◆ EM-34 Data Station
- 17 EM-34 Line Number
- ⊕ Surface Depressions
- Approximate Edge of Ravine
- Approximate Cliff Edge
- Bike Path
- Interpreted Debris Boundary (from Magnetic Gradient Map)

Contour Interval = 5 mS/m
Negative Contours Red

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APPROVED BY DRL	DATE 1-29-02
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EM-34 - 10 m Vertical Dipole

Warnimont Park
Cudahy, WI

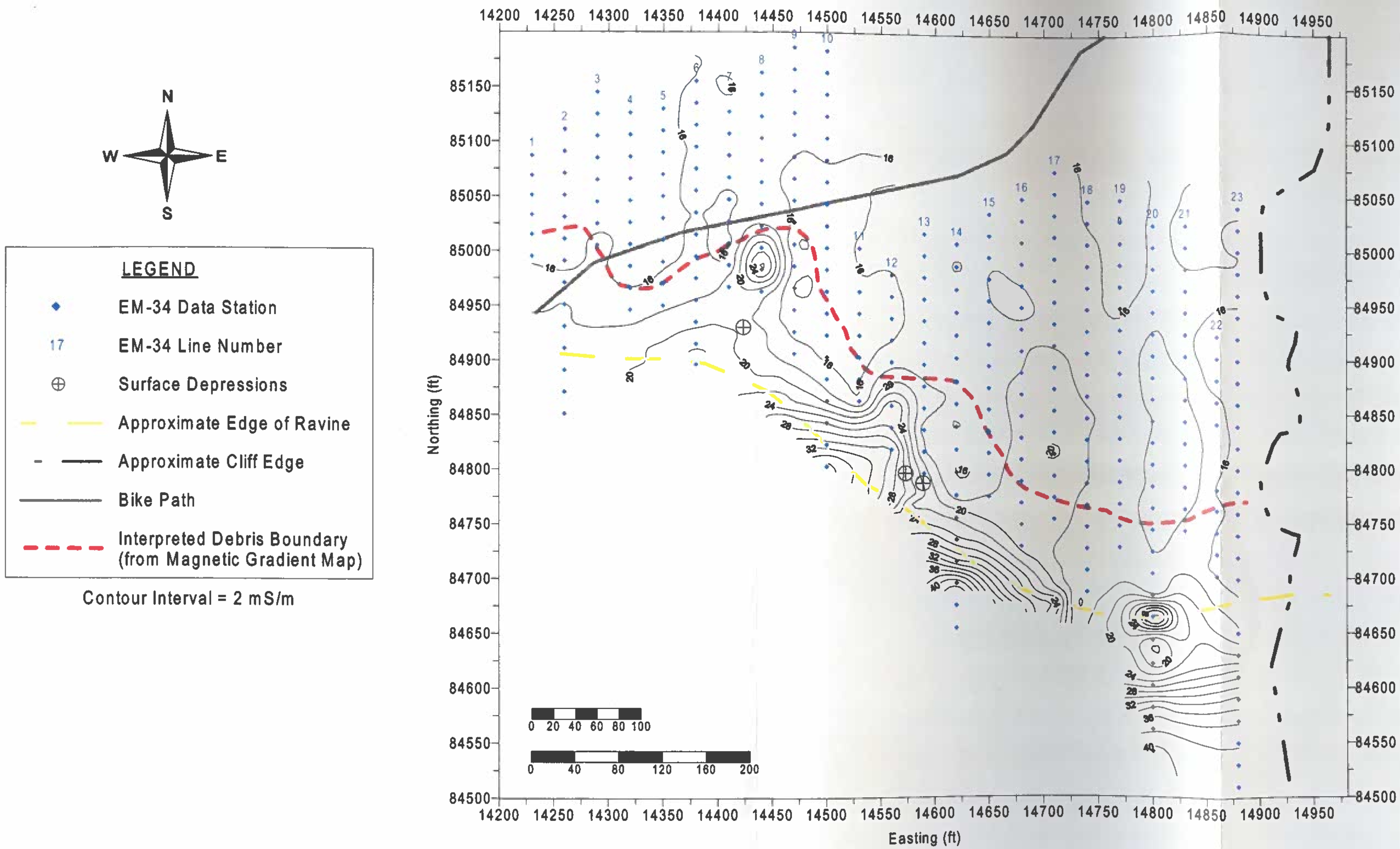
STS Consultants Ltd.
Consulting Engineers

STS PROJECT NO. 5-6-86758-XA

STS PROJECT FILE 10m Vert.srf

SCALE 1 in = 100 ft

FIGURE NO. 4



EM-34 - 20 m Horizontal Dipole

Warnimont Park
Cudahy, WI

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APPROVED BY	DRC	DATE 1-29-02
CADFILE		

STS Consultants Ltd.
Consulting Engineers

STS PROJECT NO. 5-6-86758-XA

STS PROJECT FILE 20m Horiz.srf

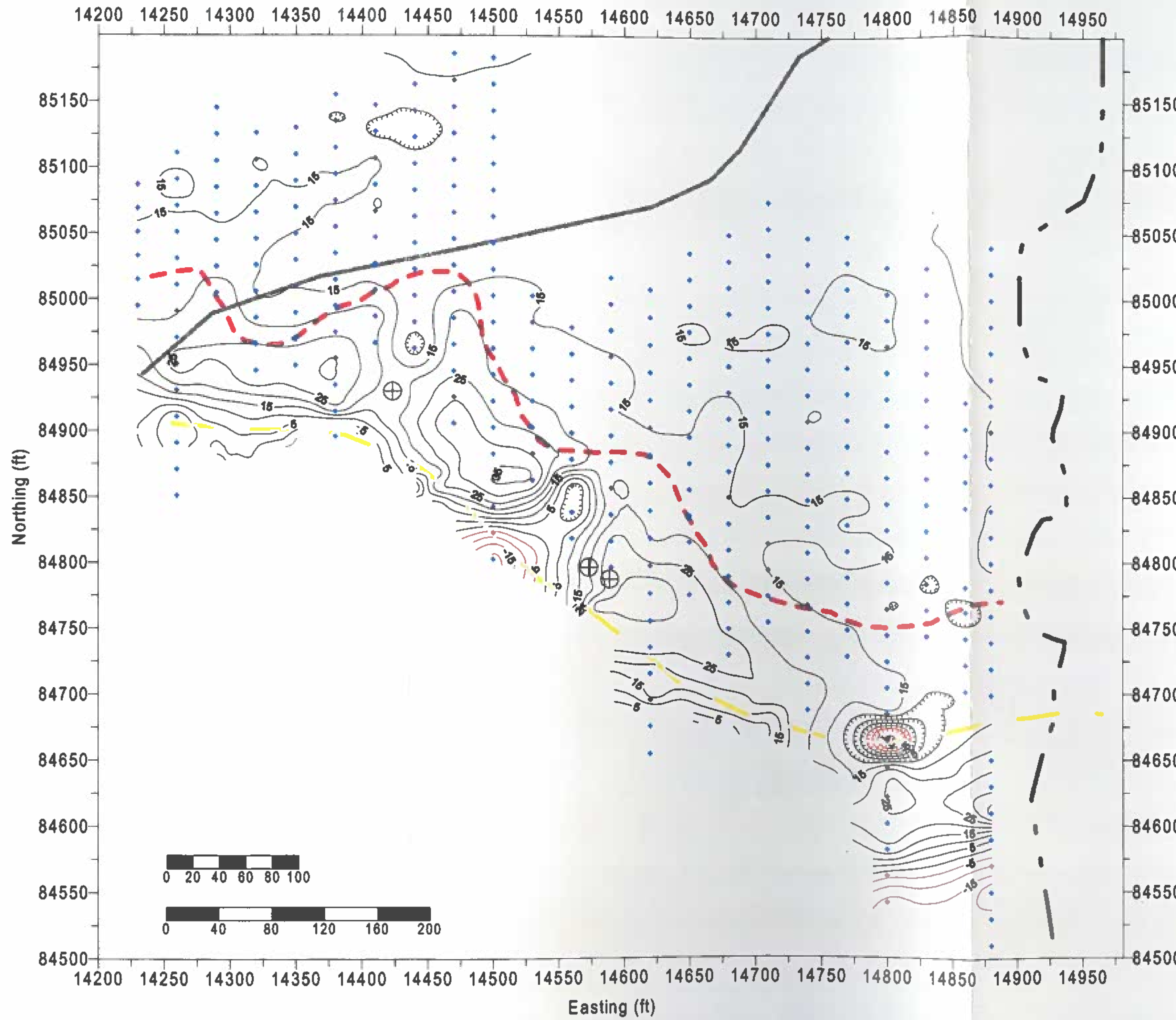
SCALE 1 in = 100 ft

FIGURE NO. 5

LEGEND

- ◆ EM-34 Data Station
- 17 EM-34 Line Number
- ⊕ Surface Depressions
- Approximate Edge of Ravine
- Approximate Cliff Edge
- Bike Path
- Interpreted Debris Boundary (from Magnetic Gradient Map)

Contour Interval = 5 mS/m
Negative Contours Red



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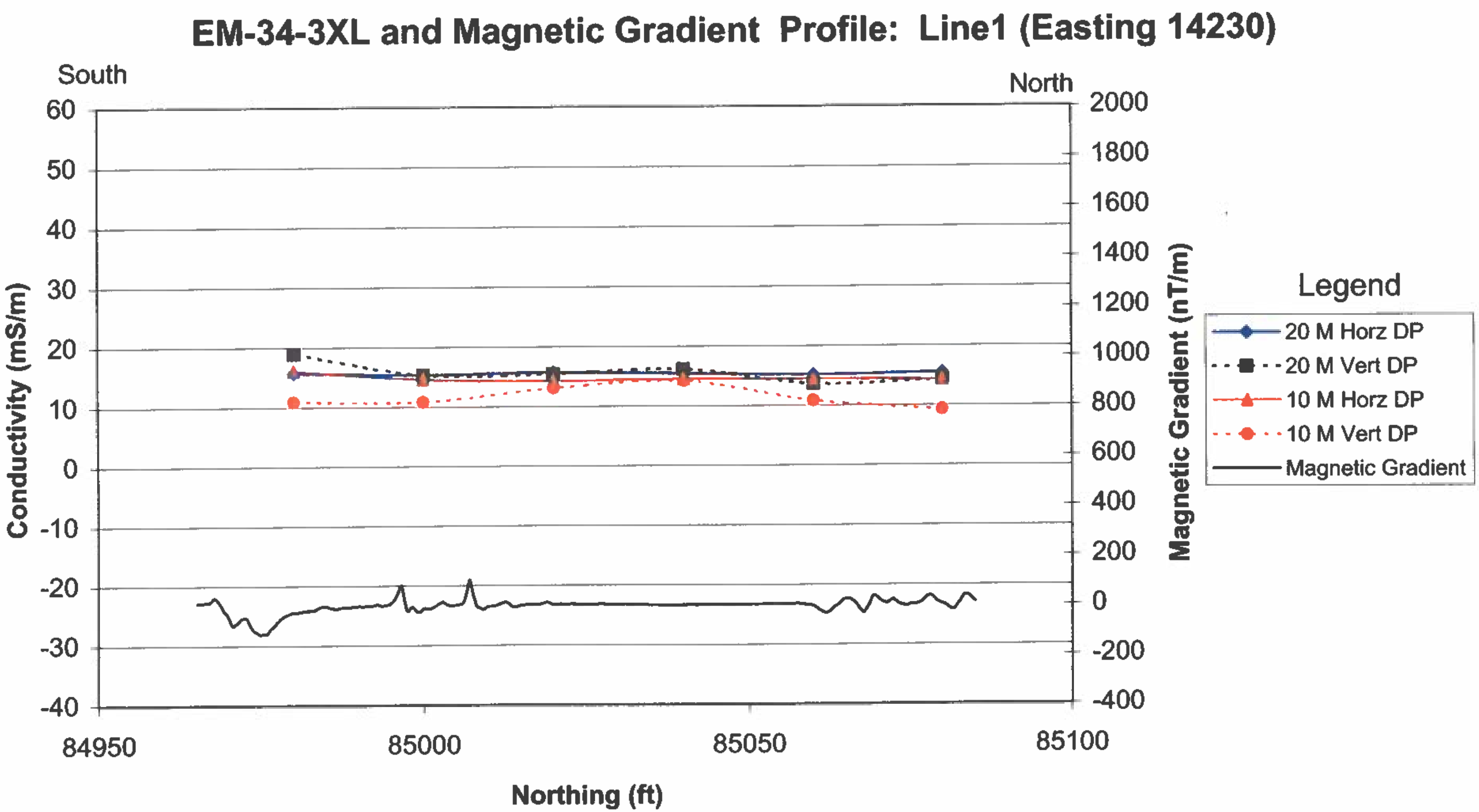
APPROVED BY	DRL	DATE 1-29-02
CADFILE		

EM-34 - 20 m Vertical Dipole
Warnimont Park
Cudahy, WI

STS Consultants Ltd.
Consulting Engineers

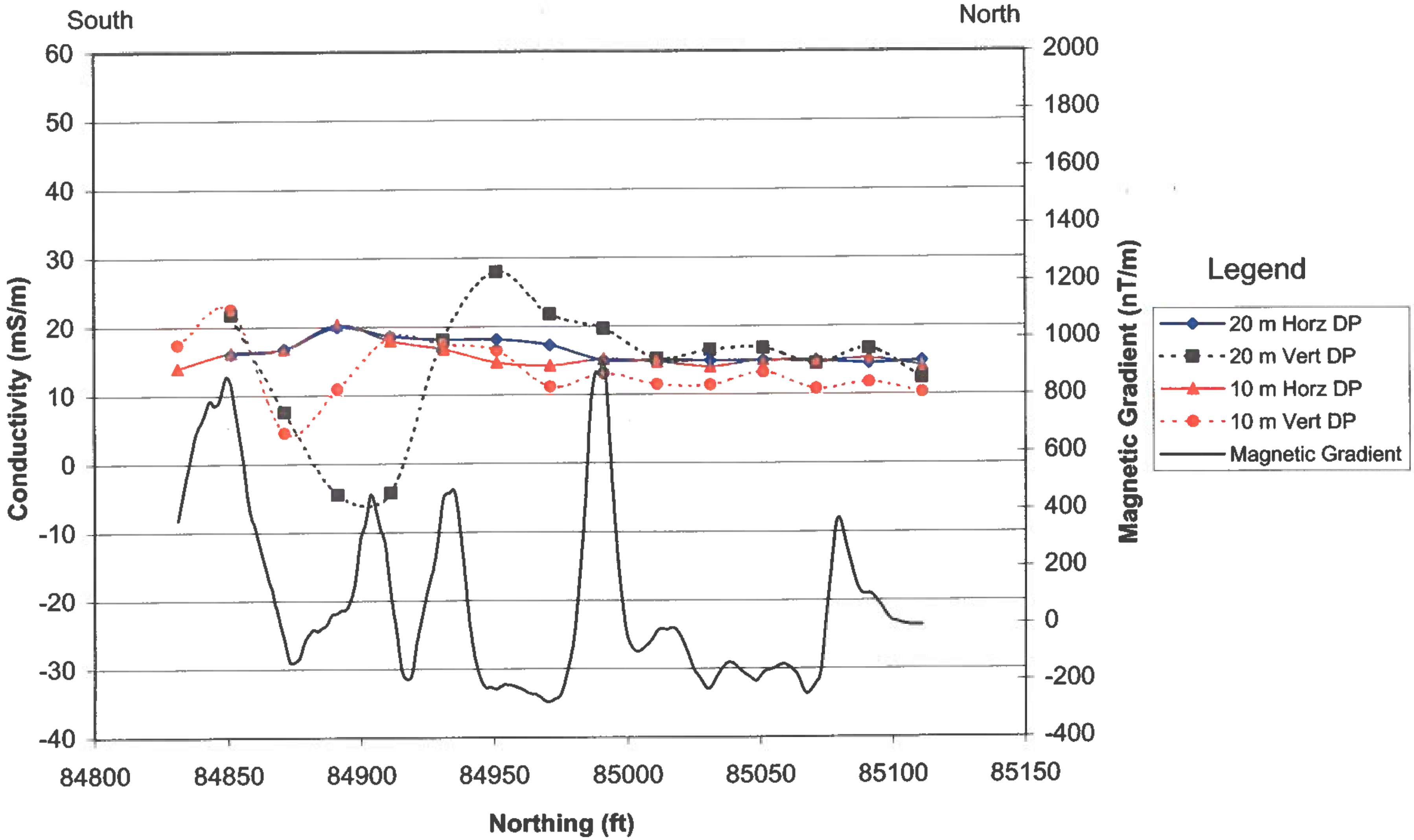
STS PROJECT NO. 5-6-86758-XA
STS PROJECT FILE 20m Vert.srf
SCALE 1 in = 100 ft
FIGURE NO. 6

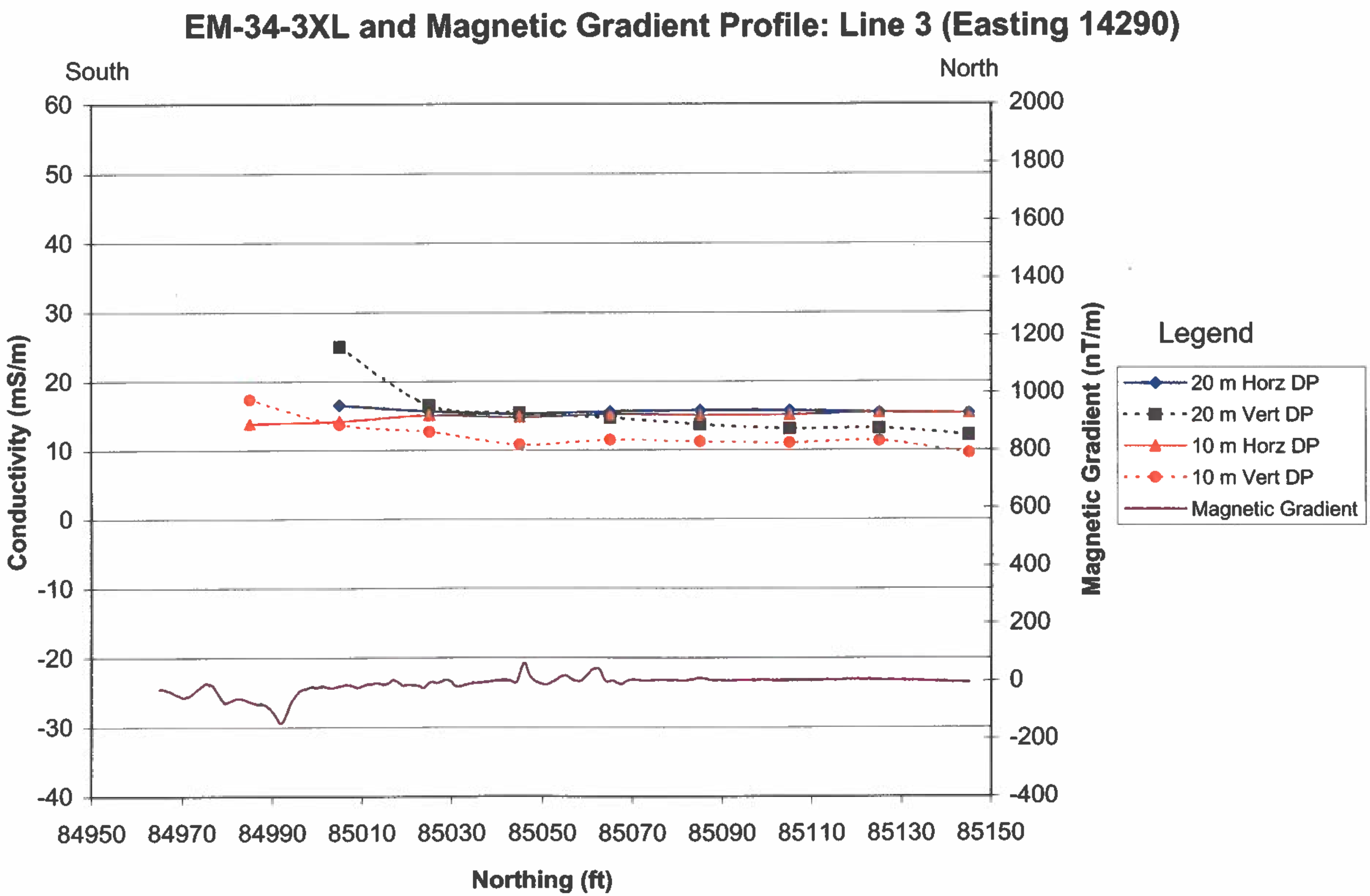
ATTACHMENT B
EM-34 AND MAGNETIC GRADIENT PROFILE DATA



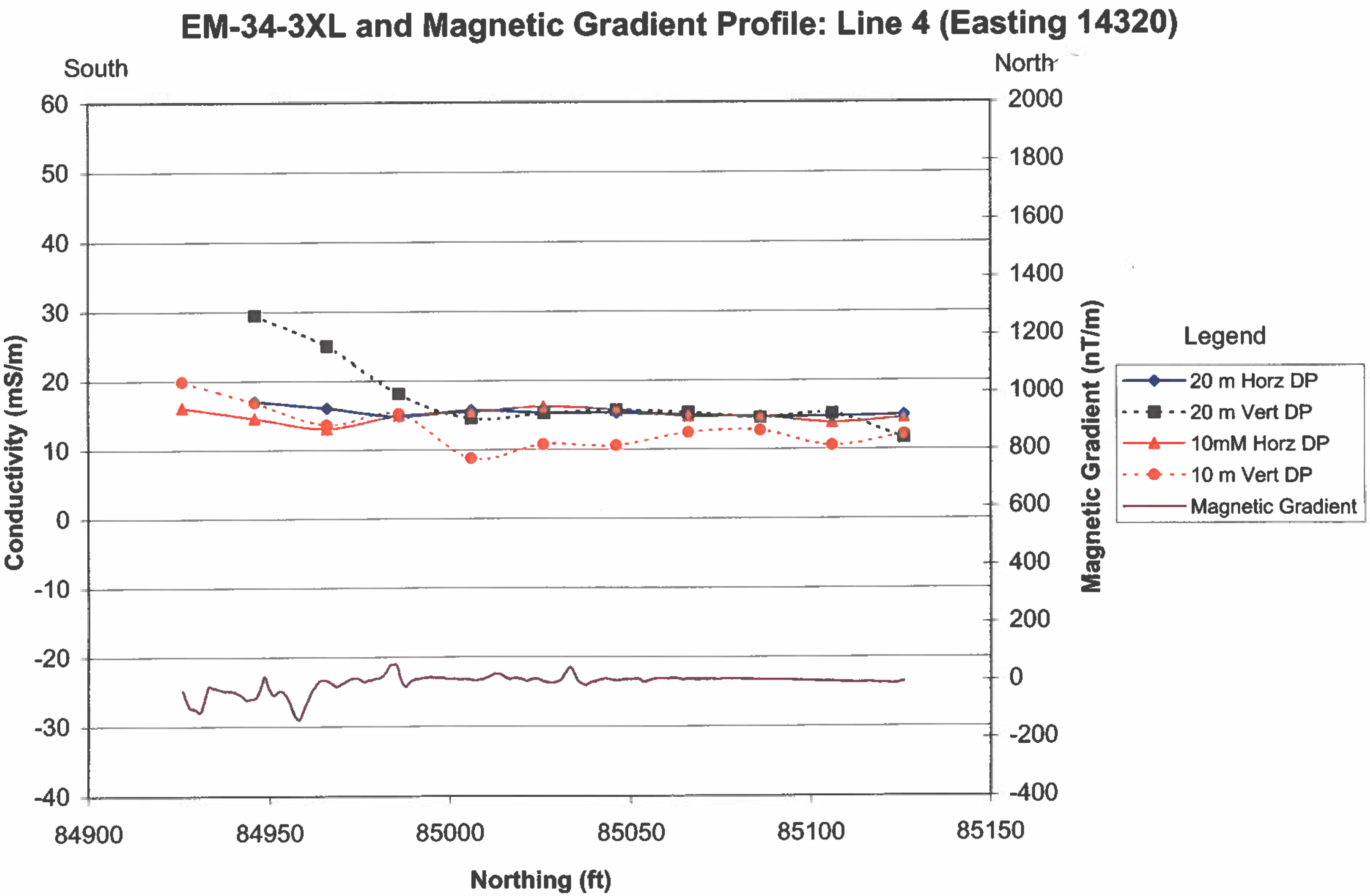
EM-34-3XL and Magnetic Gradient Profile: Line1 (Easting 14230)
South
North
Conductivity (mS/m)
Magnetic Gradient (nT/m)
Northing (ft)
60
50
40
30
20
10
0
-10
-20
-30
-40
2000
1800
1600
1400
1200
1000
800
600
400
200
0
-200
-400
84950
85000
85050
85100
Legend
20 M Horz DP
20 M Vert DP
10 M Horz DP
10 M Vert DP
Magnetic Gradient

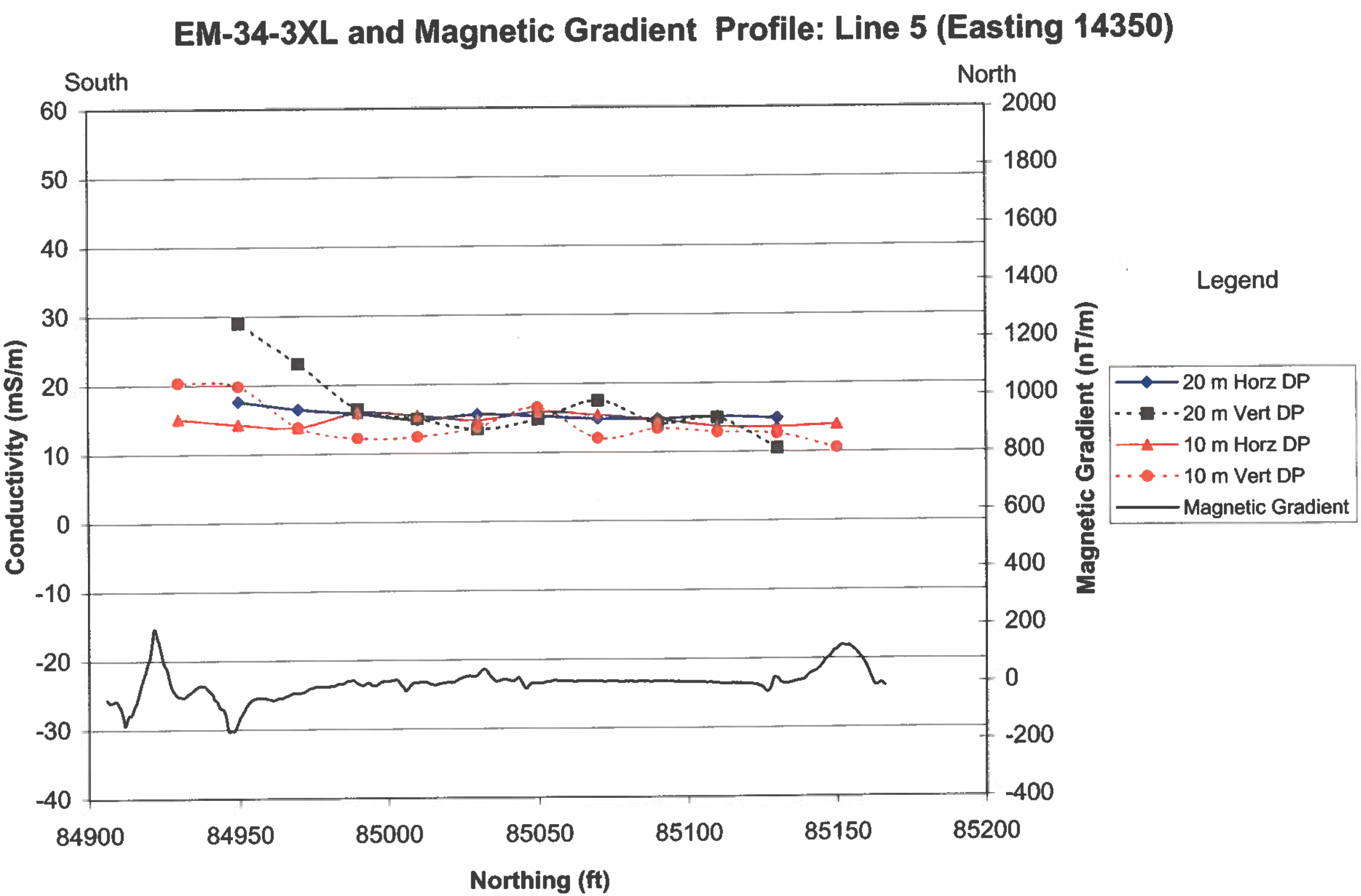
EM-34-3XL and Magnetic Gradient Profile: Line 2 (Easting 14260)



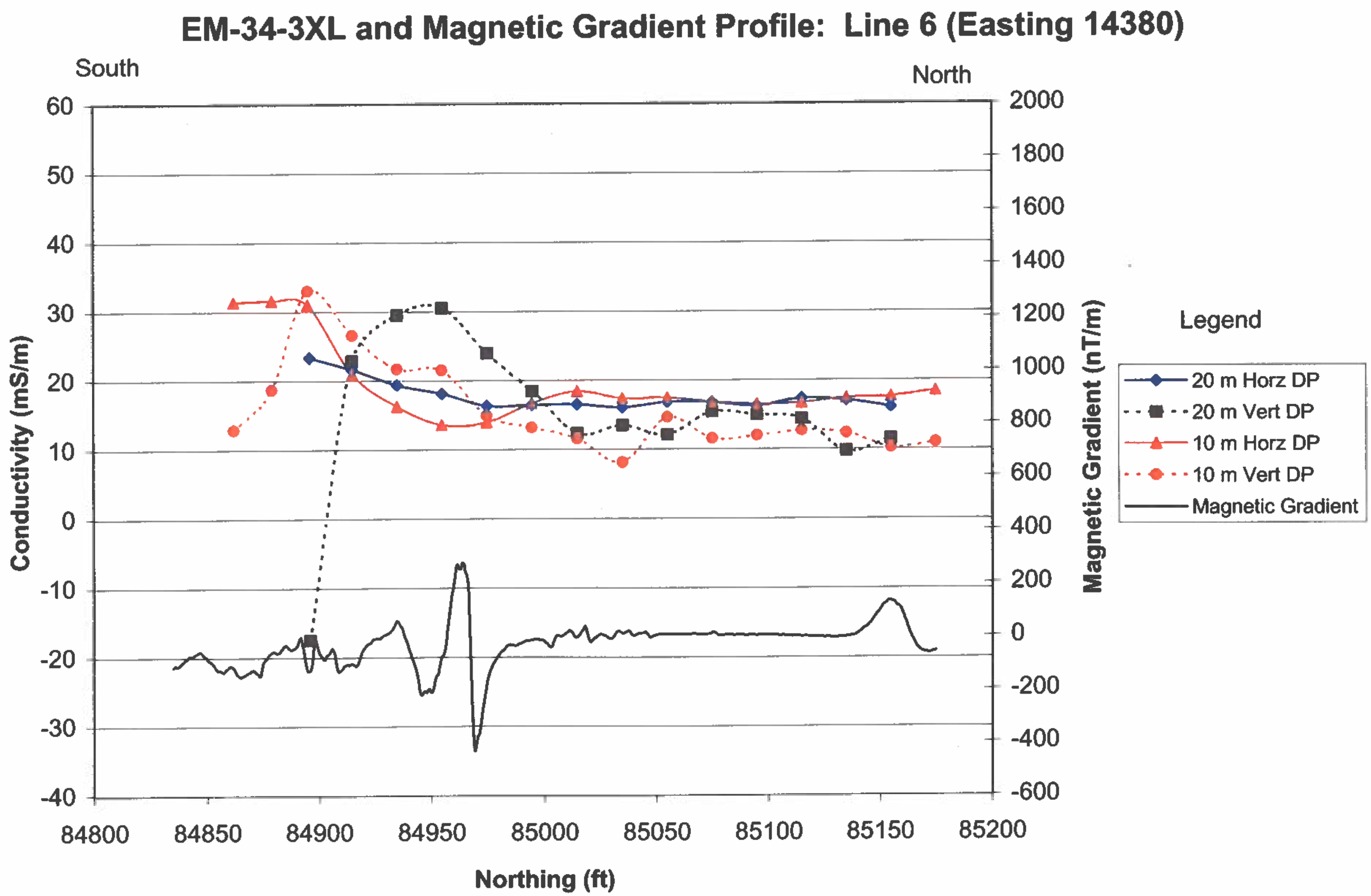


EM-34-3XL and Magnetic Gradient Profile: Line 3 (Easting 14290)
South
North
Conductivity (mS/m)
60
50
40
30
20
10
0
-10
-20
-30
-40
Magnetic Gradient (nT/m)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
-200
-400
84950
84970
84990
85010
85030
85050
85070
85090
85110
85130
85150
Northing (ft)
Legend
20 m Horz DP
20 m Vert DP
10 m Horz DP
10 m Vert DP
Magnetic Gradient

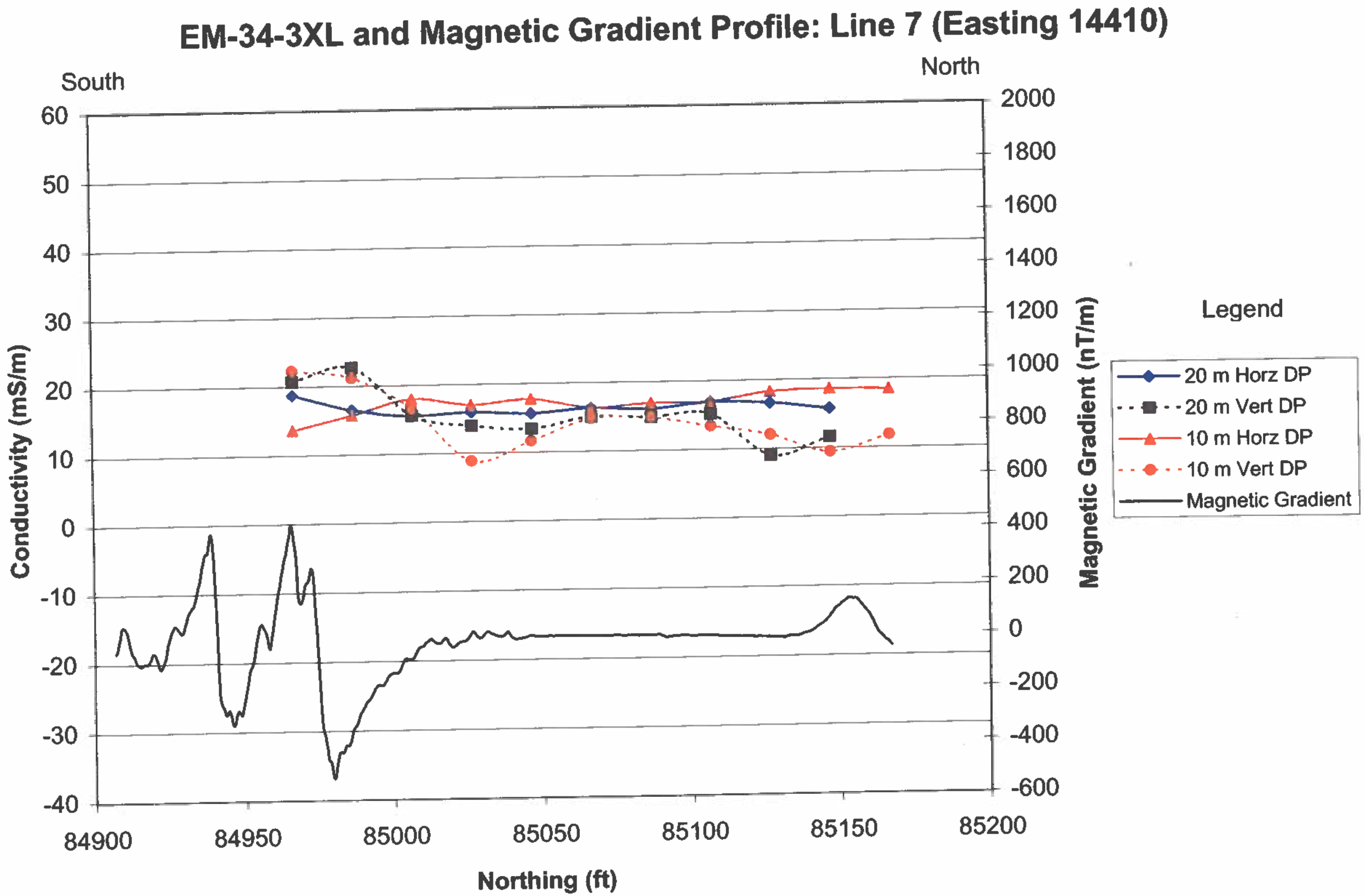

EM-34-3XL and Magnetic Gradient Profile: Line 4 (Easting 14320)
South
North
60
50
40
30
20
10
0
-10
-20
-30
-40
Conductivity (mS/m)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
-200
-400
Magnetic Gradient (nT/m)
84900
84950
85000
85050
85100
85150
Northing (ft)
Legend
20 m Horz DP
20 m Vert DP
10mM Horz DP
10 m Vert DP
Magnetic Gradient

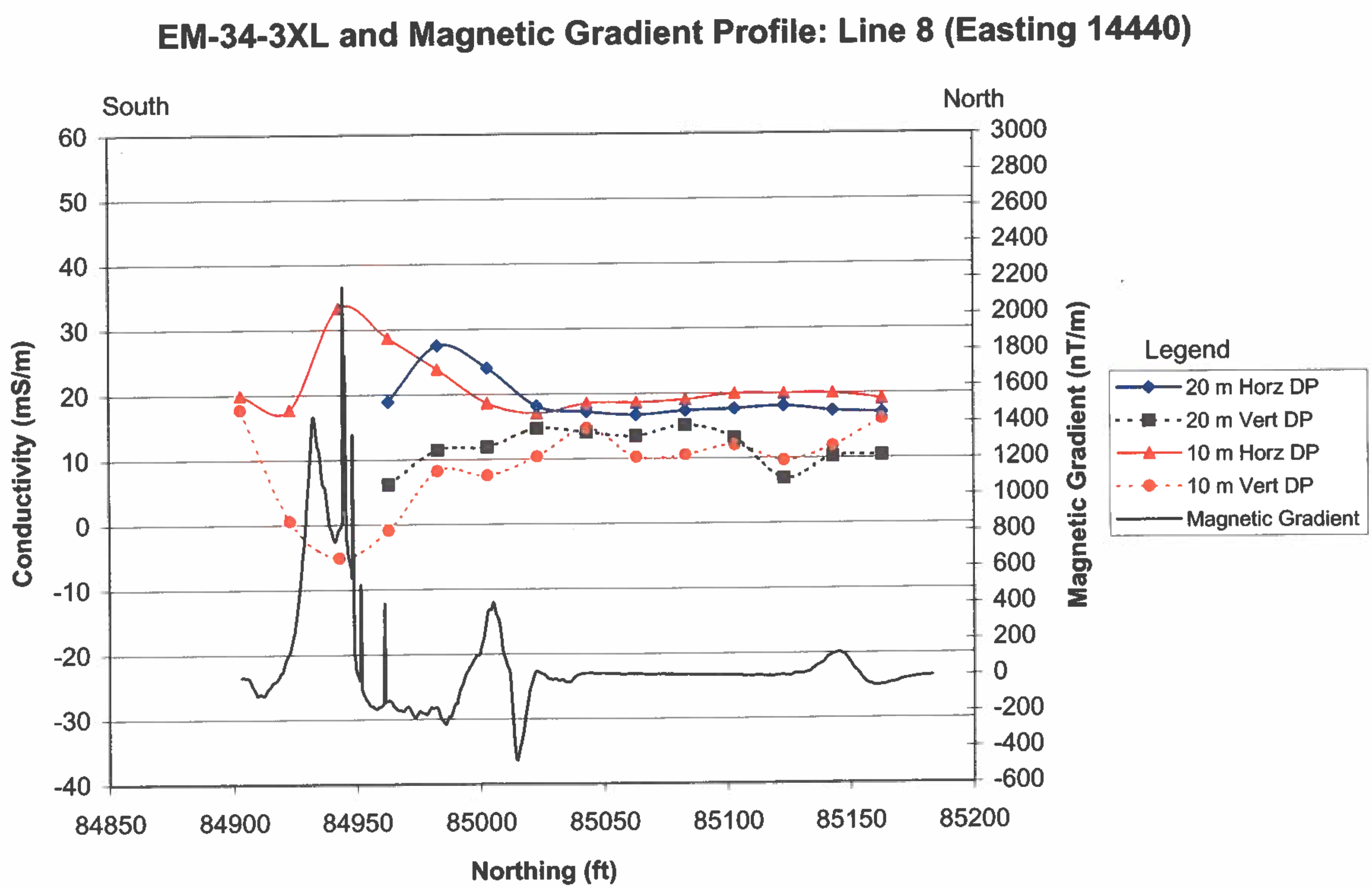


EM-34-3XL and Magnetic Gradient Profile: Line 5 (Easting 14350)
South
North
Conductivity (mS/m)
Magnetic Gradient (nT/m)
Northing (ft)
60
50
40
30
20
10
0
-10
-20
-30
-40
2000
1800
1600
1400
1200
1000
800
600
400
200
0
-200
-400
84900
84950
85000
85050
85100
85150
85200
Legend
20 m Horz DP
20 m Vert DP
10 m Horz DP
10 m Vert DP
Magnetic Gradient

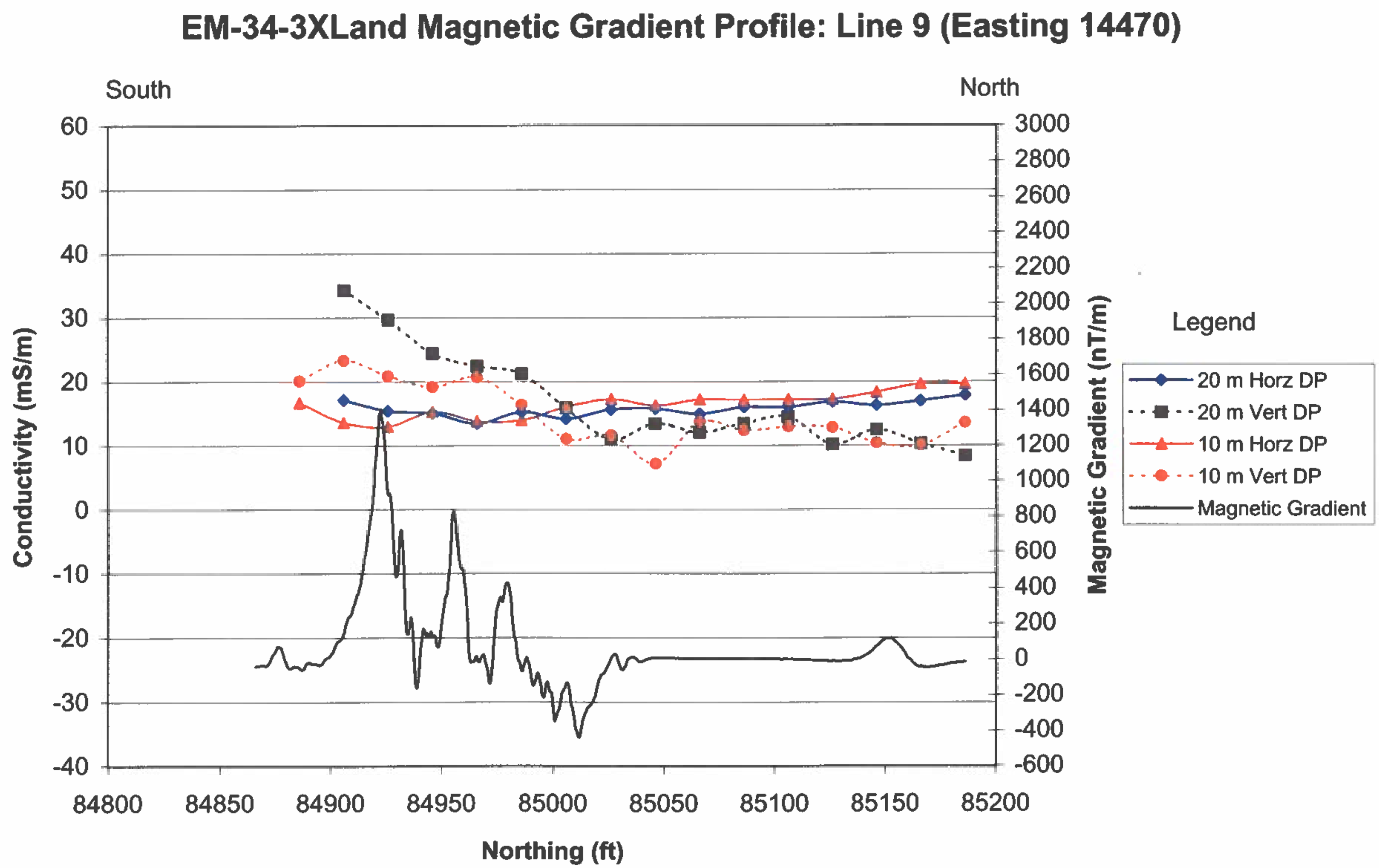


EM-34-3XL and Magnetic Gradient Profile: Line 6 (Easting 14380)
South
North
Conductivity (mS/m)
Magnetic Gradient (nT/m)
Northing (ft)
Legend
20 m Horz DP
20 m Vert DP
10 m Horz DP
10 m Vert DP
Magnetic Gradient

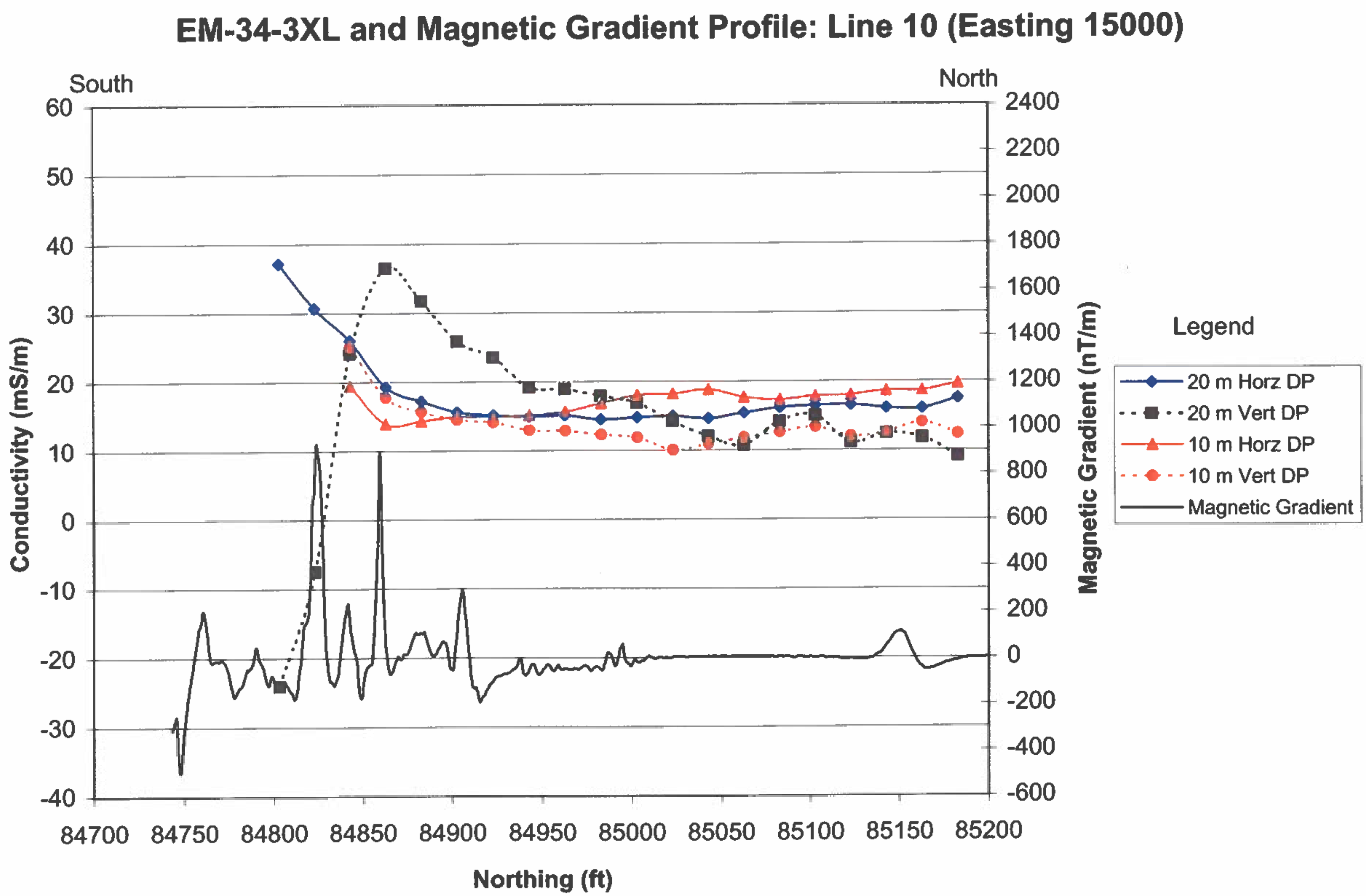

EM-34-3XL and Magnetic Gradient Profile: Line 7 (Easting 14410)
South
North
Conductivity (mS/m)
60
50
40
30
20
10
0
-10
-20
-30
-40
Magnetic Gradient (nT/m)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
-200
-400
-600
84900
84950
85000
85050
85100
85150
85200
Northing (ft)
Legend
20 m Horz DP
20 m Vert DP
10 m Horz DP
10 m Vert DP
Magnetic Gradient



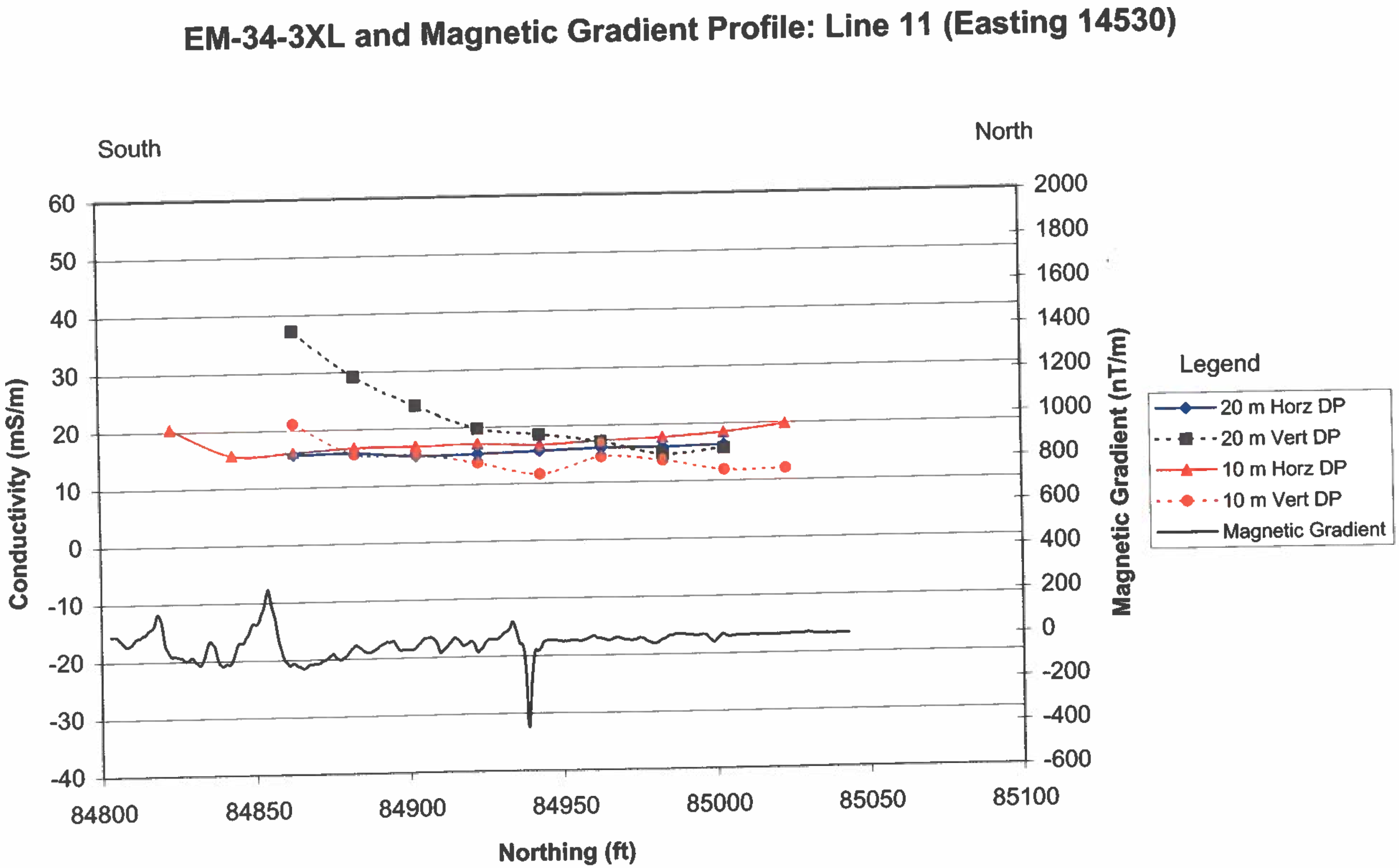
EM-34-3XL and Magnetic Gradient Profile: Line 8 (Easting 14440)
South
North
Conductivity (mS/m)
Magnetic Gradient (nT/m)
60
50
40
30
20
10
0
-10
-20
-30
-40
3000
2800
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
-200
-400
-600
84850
84900
84950
85000
85050
85100
85150
85200
Northing (ft)
Legend
20 m Horz DP
20 m Vert DP
10 m Horz DP
10 m Vert DP
Magnetic Gradient



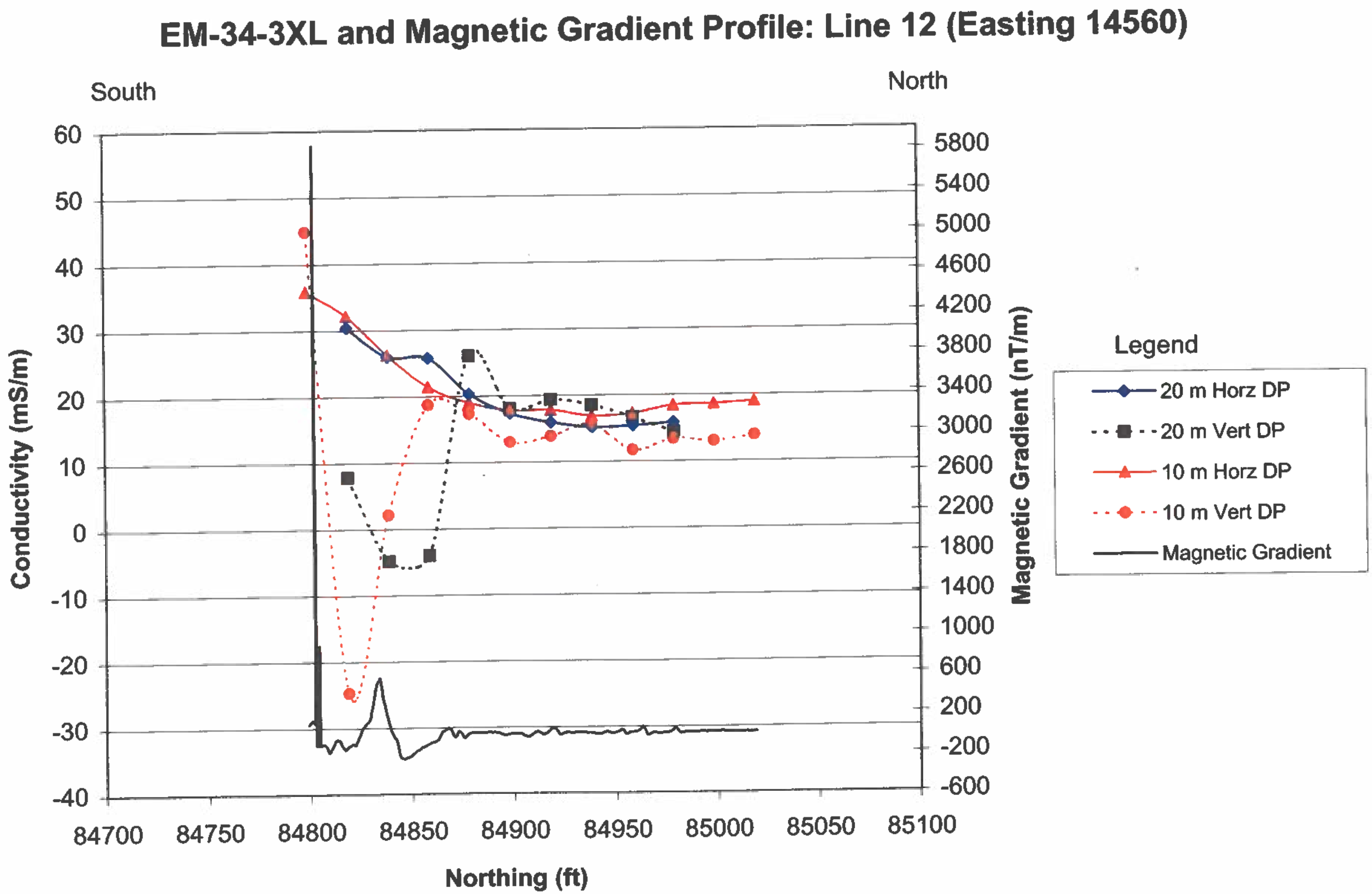
EM-34-3XLand Magnetic Gradient Profile: Line 9 (Easting 14470)
South
North
Conductivity (mS/m)
Magnetic Gradient (nT/m)
60
50
40
30
20
10
0
-10
-20
-30
-40
3000
2800
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
-200
-400
-600
84800
84850
84900
84950
85000
85050
85100
85150
85200
Northing (ft)
Legend
20 m Horz DP
20 m Vert DP
10 m Horz DP
10 m Vert DP
Magnetic Gradient



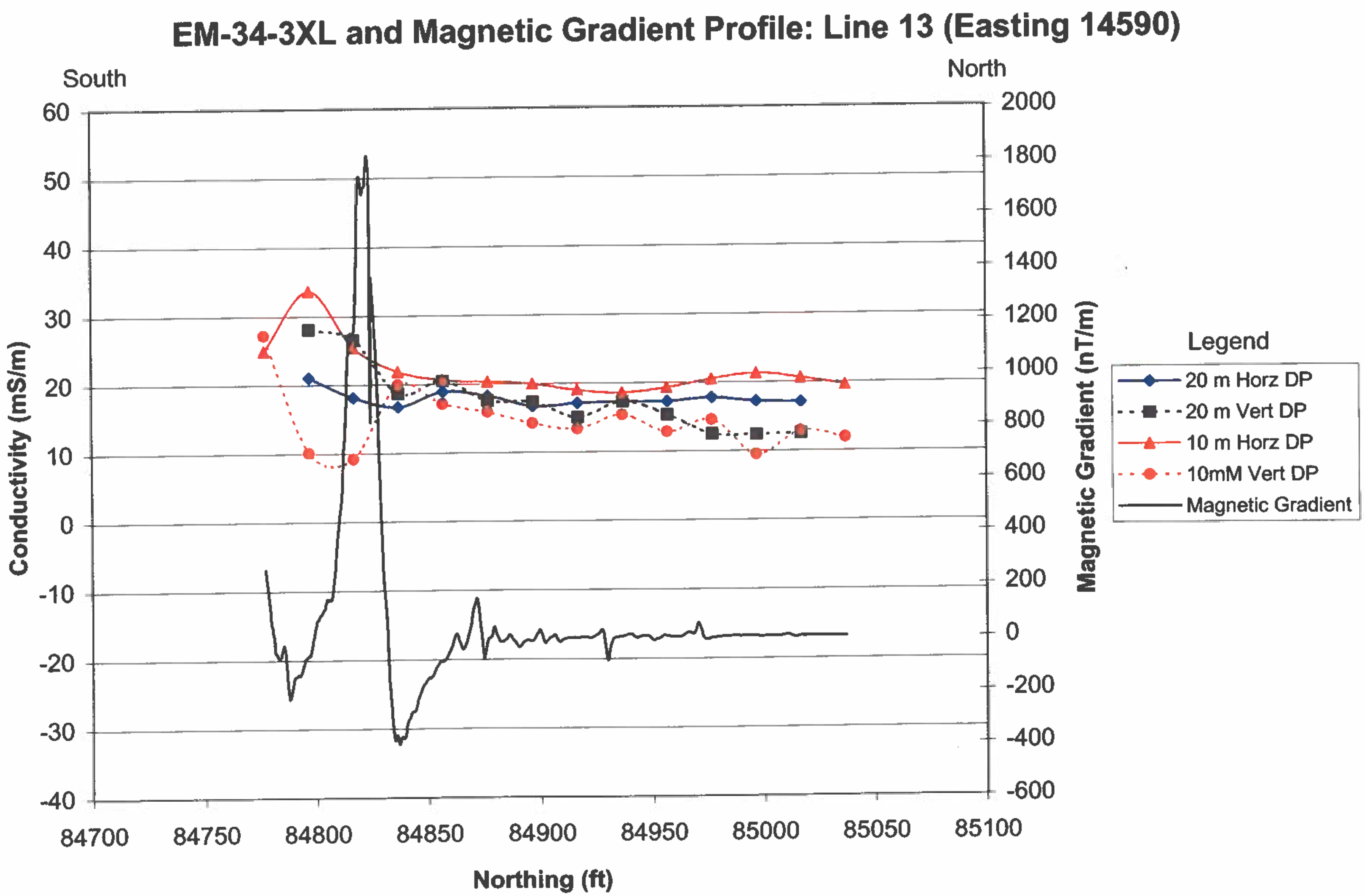
EM-34-3XL and Magnetic Gradient Profile: Line 10 (Easting 15000)
South
North
60
50
40
30
20
10
0
-10
-20
-30
-40
Conductivity (mS/m)
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
-200
-400
-600
Magnetic Gradient (nT/m)
84700
84750
84800
84850
84900
84950
85000
85050
85100
85150
85200
Northing (ft)
Legend
20 m Horz DP
20 m Vert DP
10 m Horz DP
10 m Vert DP
Magnetic Gradient

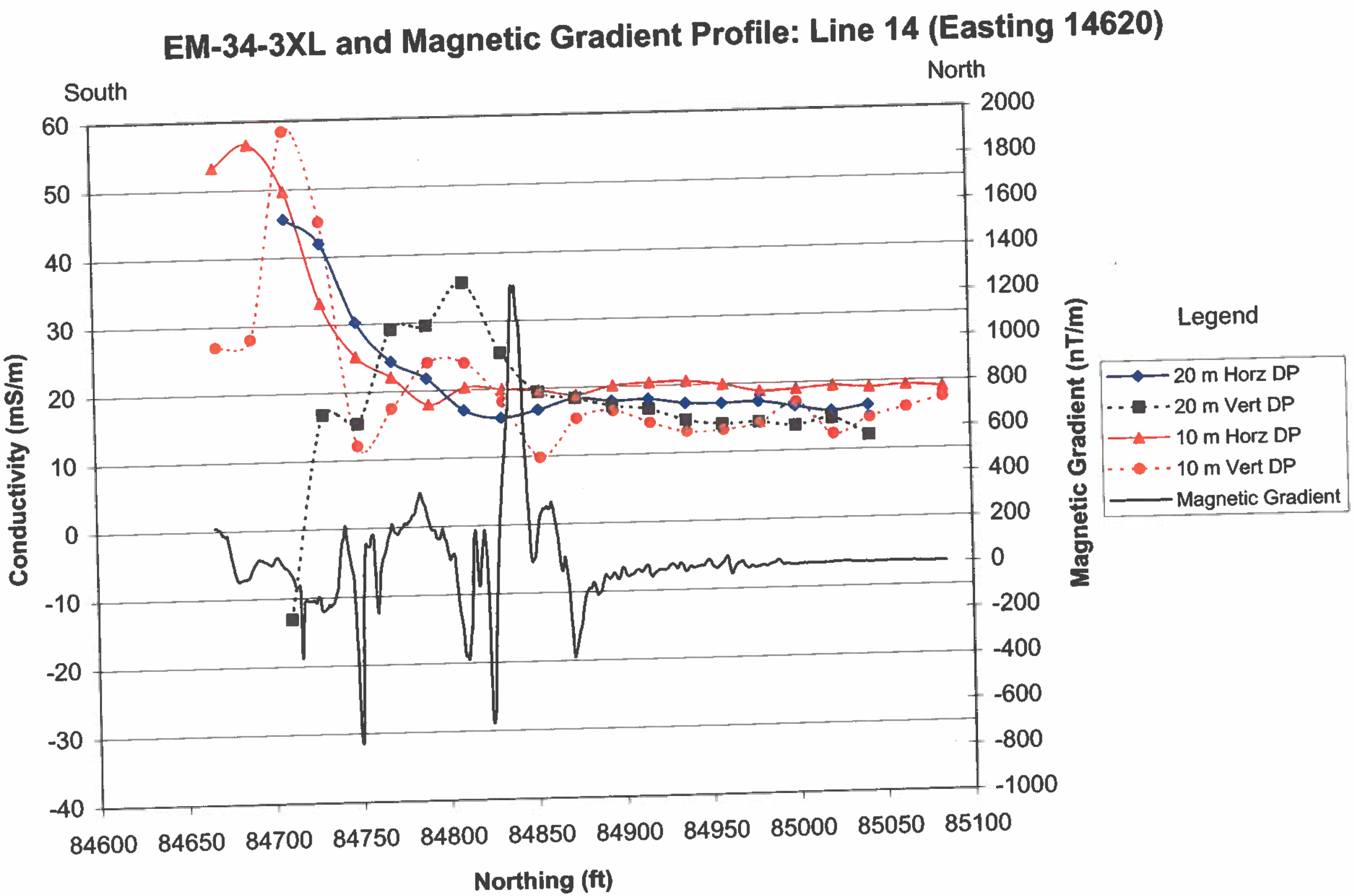


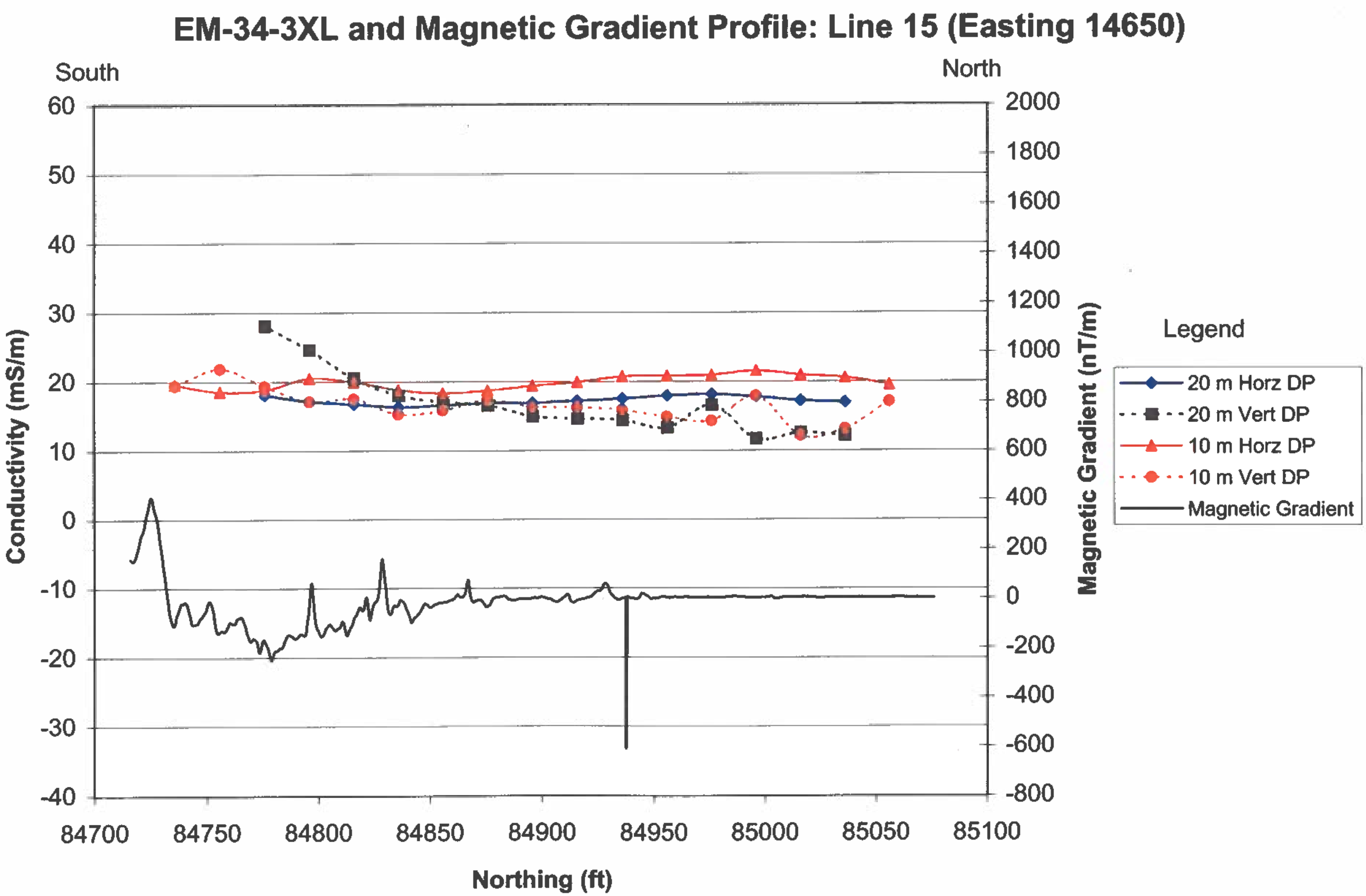
EM-34-3XL and Magnetic Gradient Profile: Line 11 (Easting 14530)
South
North
Conductivity (mS/m)
Magnetic Gradient (nT/m)
Northing (ft)
60
50
40
30
20
10
0
-10
-20
-30
-40
2000
1800
1600
1400
1200
1000
800
600
400
200
0
-200
-400
-600
84800
84850
84900
84950
85000
85050
85100
Legend
20 m Horz DP
20 m Vert DP
10 m Horz DP
10 m Vert DP
Magnetic Gradient



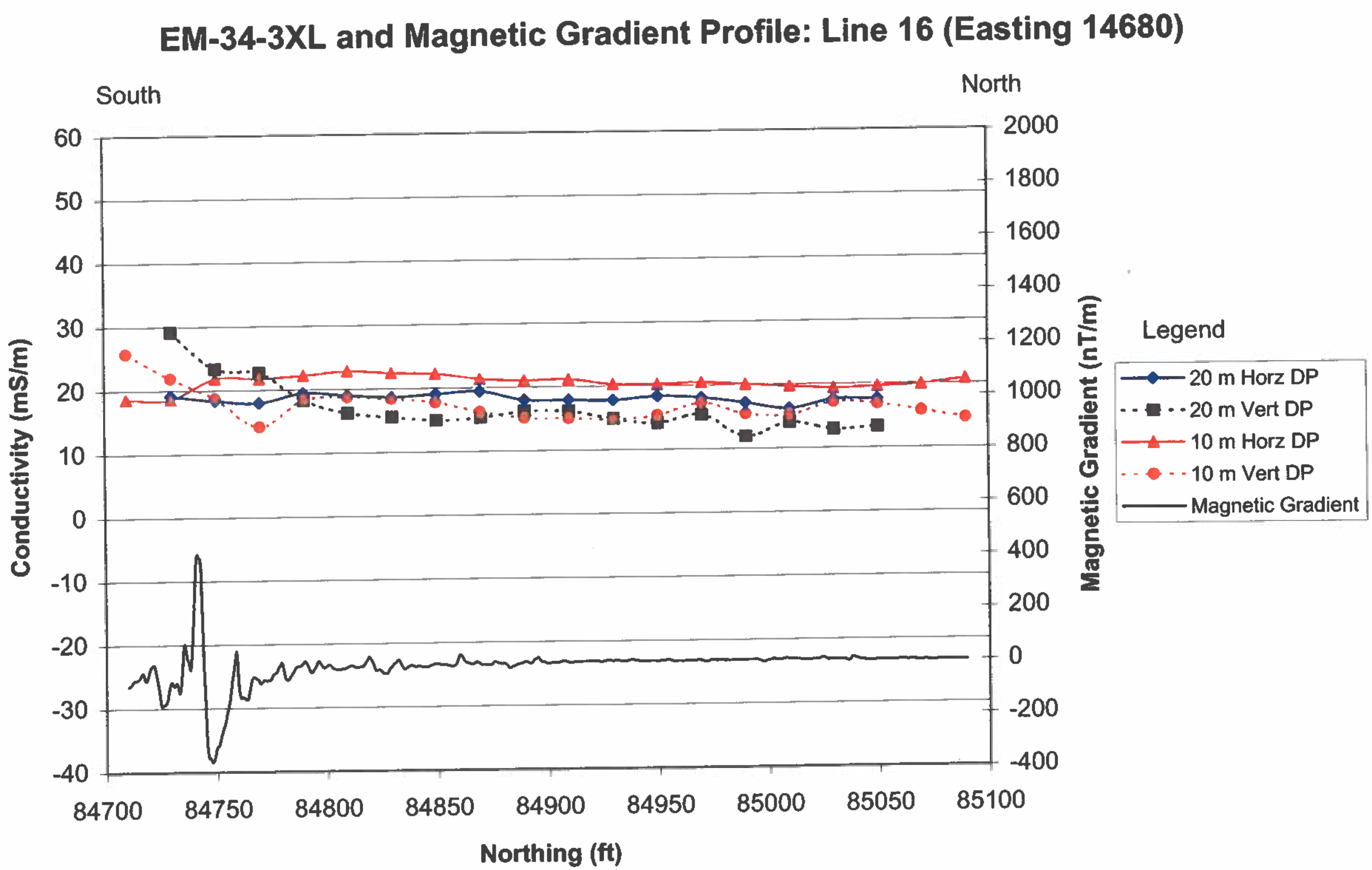
EM-34-3XL and Magnetic Gradient Profile: Line 12 (Easting 14560)
South
North
Conductivity (mS/m)
60
50
40
30
20
10
0
-10
-20
-30
-40
Magnetic Gradient (nT/m)
5800
5400
5000
4600
4200
3800
3400
3000
2600
2200
1800
1400
1000
600
200
-200
-600
84700
84750
84800
84850
84900
84950
85000
85050
85100
Northing (ft)
Legend
20 m Horz DP
20 m Vert DP
10 m Horz DP
10 m Vert DP
Magnetic Gradient

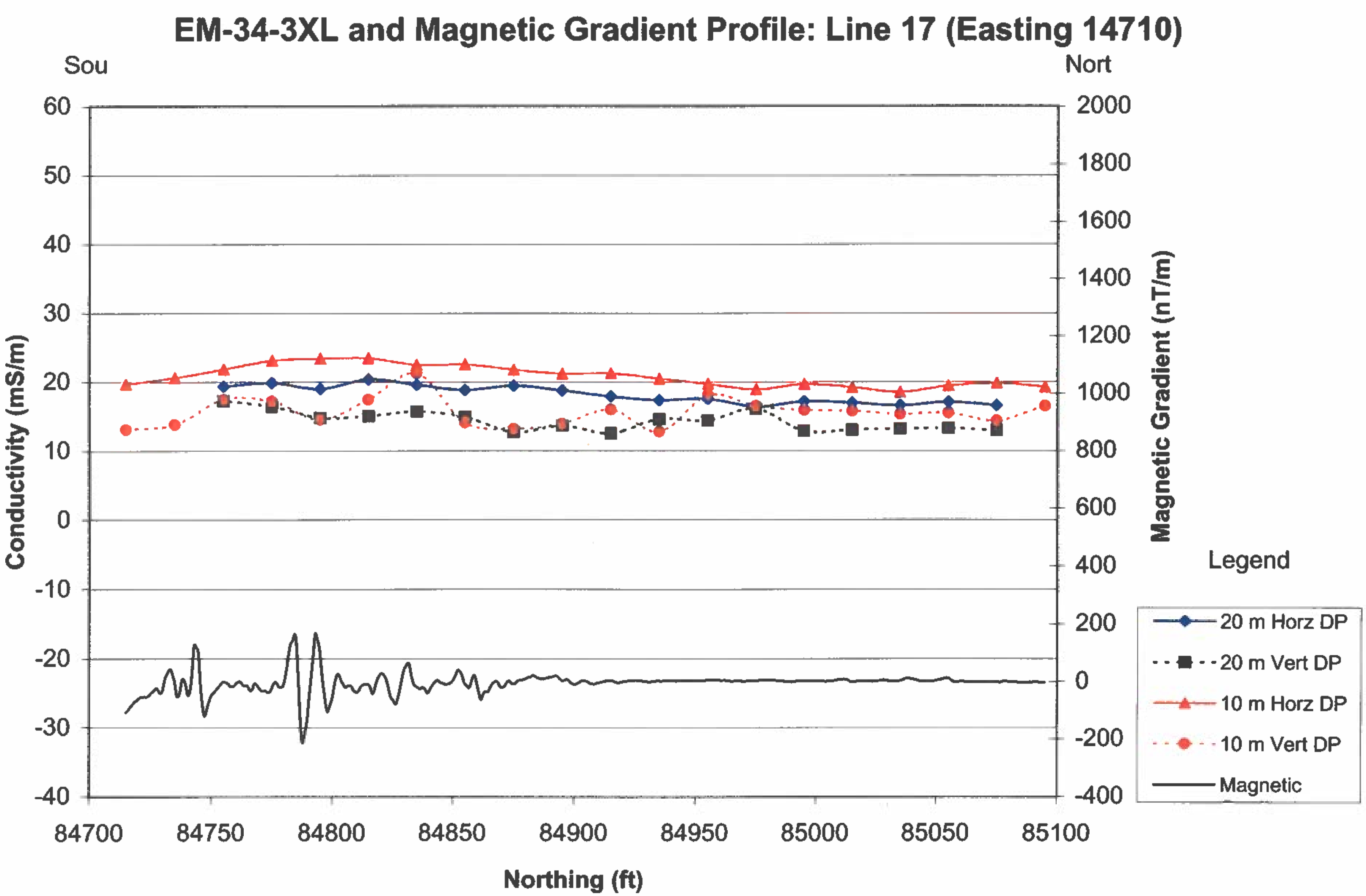

EM-34-3XL and Magnetic Gradient Profile: Line 13 (Easting 14590)
South
North
60
50
40
30
20
10
0
-10
-20
-30
-40
Conductivity (mS/m)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
-200
-400
-600
Magnetic Gradient (nT/m)
84700
84750
84800
84850
84900
84950
85000
85050
85100
Northing (ft)
Legend
20 m Horz DP
20 m Vert DP
10 m Horz DP
10mM Vert DP
Magnetic Gradient


EM-34-3XL and Magnetic Gradient Profile: Line 14 (Easting 14620)
South
North
Conductivity (mS/m)
60
50
40
30
20
10
0
-10
-20
-30
-40
Magnetic Gradient (nT/m)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
-200
-400
-600
-800
-1000
84600
84650
84700
84750
84800
84850
84900
84950
85000
85050
85100
Northing (ft)
Legend
20 m Horz DP
20 m Vert DP
10 m Horz DP
10 m Vert DP
Magnetic Gradient

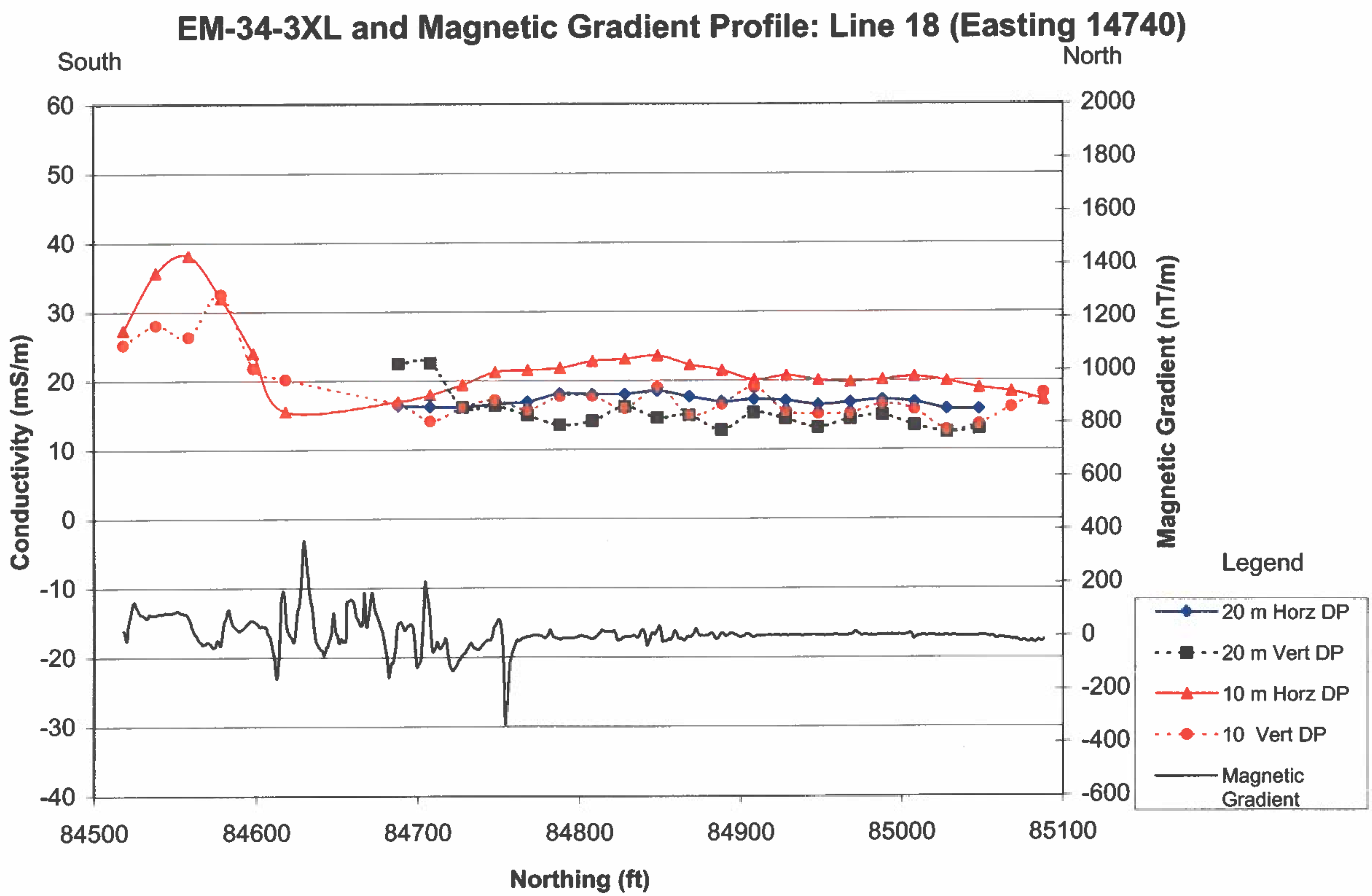


EM-34-3XL and Magnetic Gradient Profile: Line 15 (Easting 14650)
South
North
Conductivity (mS/m)
Magnetic Gradient (nT/m)
Northing (ft)
60
50
40
30
20
10
0
-10
-20
-30
-40
2000
1800
1600
1400
1200
1000
800
600
400
200
0
-200
-400
-600
-800
84700
84750
84800
84850
84900
84950
85000
85050
85100
Legend
20 m Horz DP
20 m Vert DP
10 m Horz DP
10 m Vert DP
Magnetic Gradient

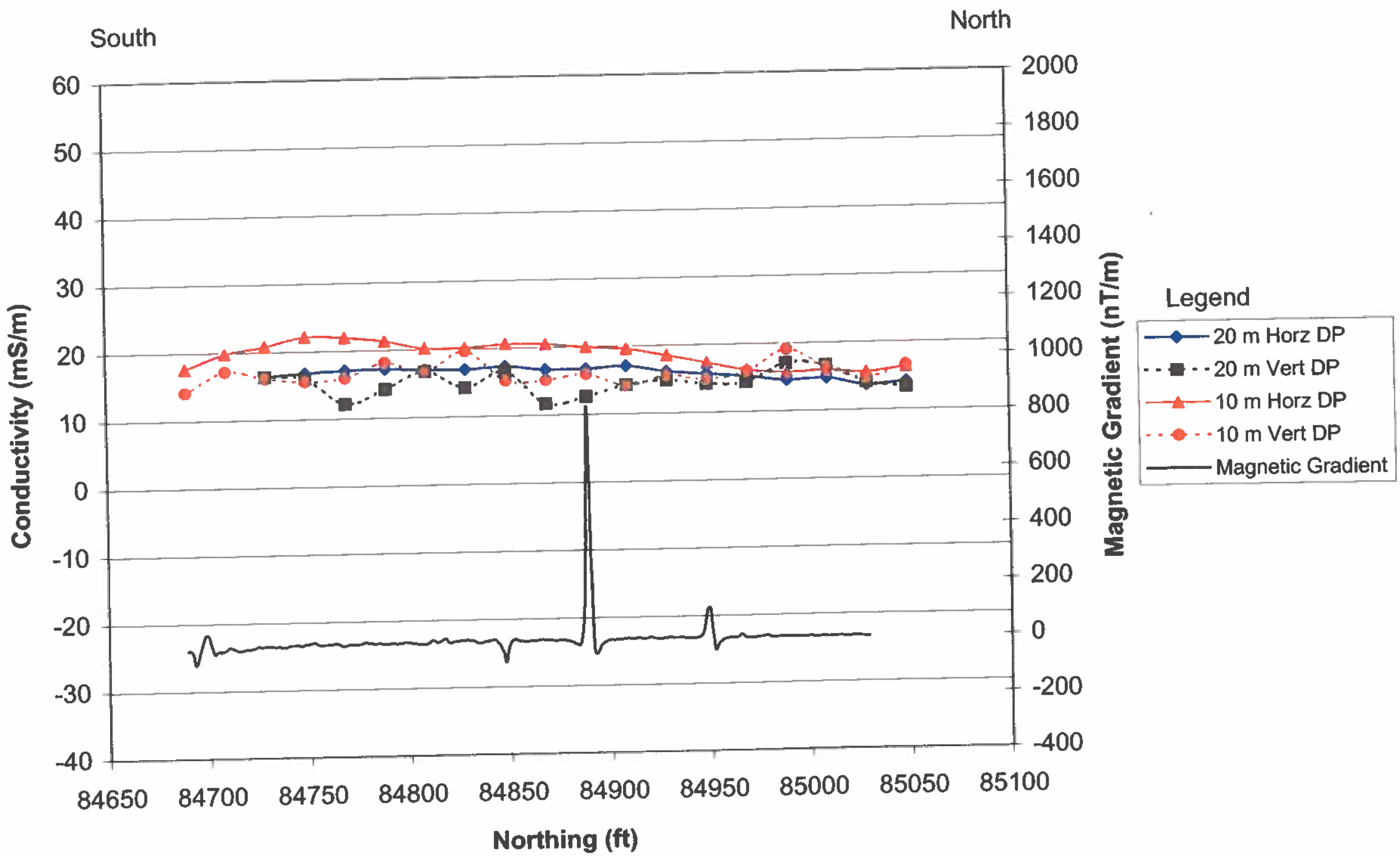

EM-34-3XL and Magnetic Gradient Profile: Line 16 (Easting 14680)
South
North
Conductivity (mS/m)
60
50
40
30
20
10
0
-10
-20
-30
-40
Magnetic Gradient (nT/m)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
-200
-400
84700
84750
84800
84850
84900
84950
85000
85050
85100
Northing (ft)
Legend
20 m Horz DP
20 m Vert DP
10 m Horz DP
10 m Vert DP
Magnetic Gradient

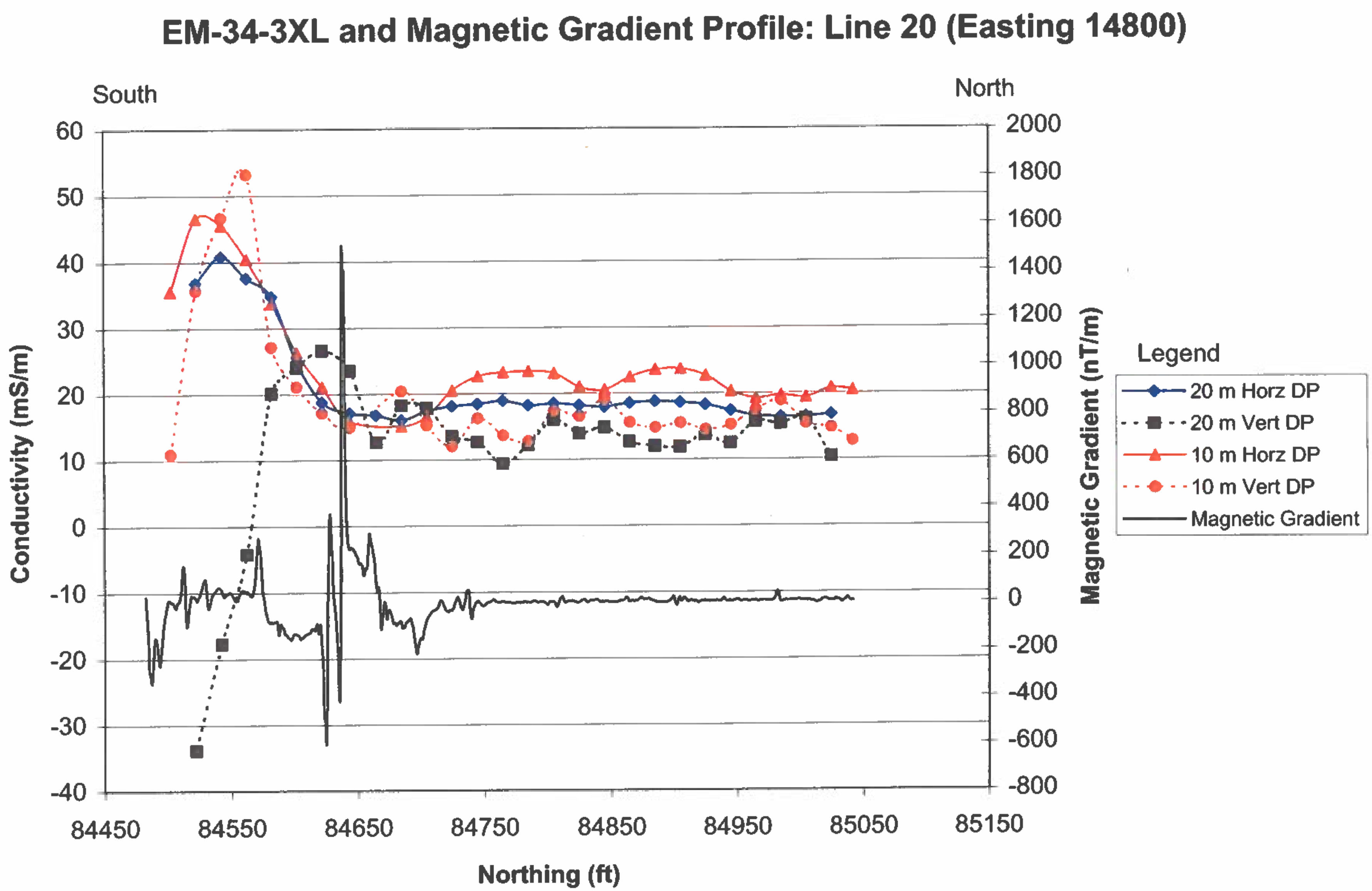


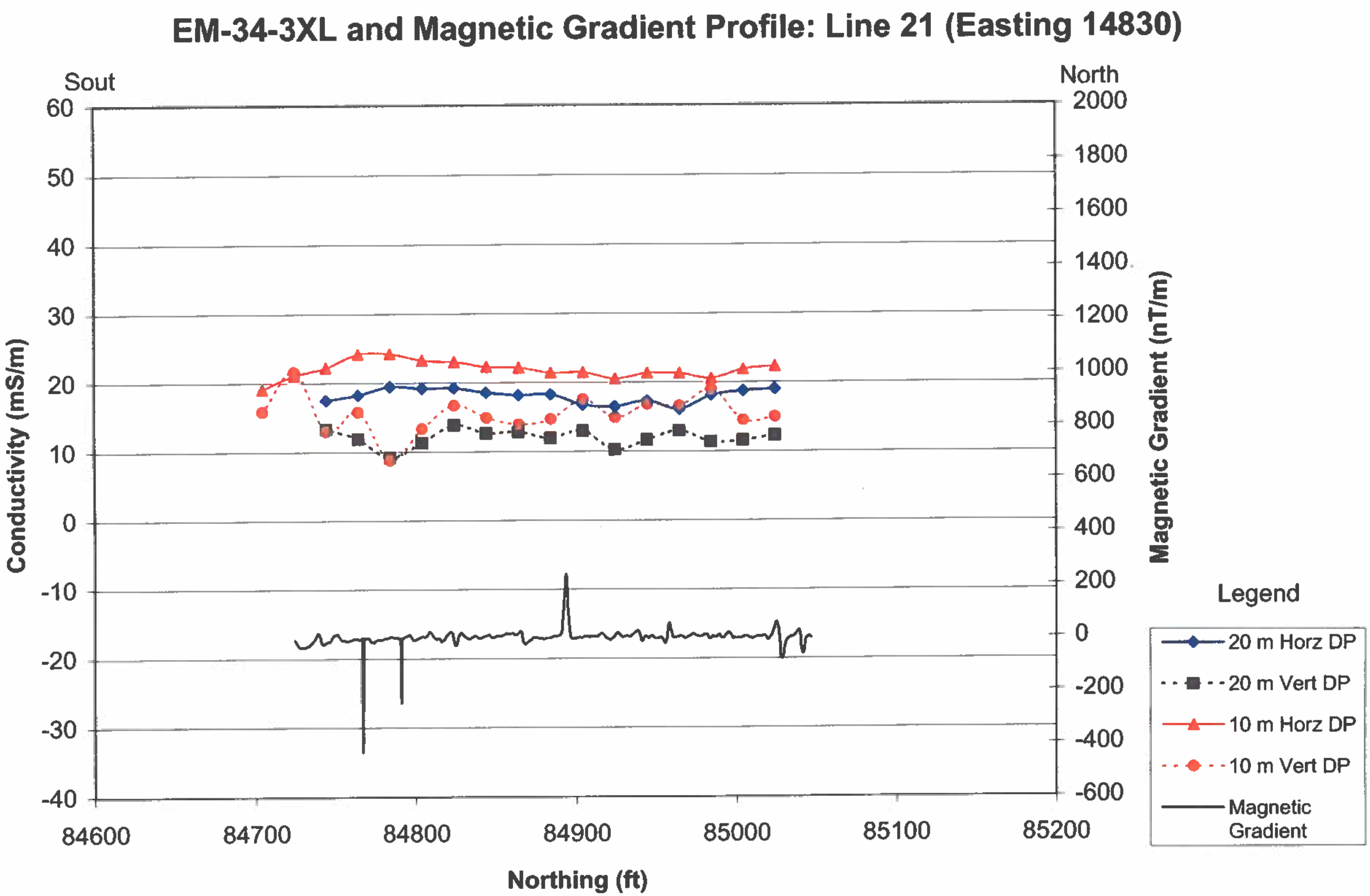
EM-34-3XL and Magnetic Gradient Profile: Line 17 (Easting 14710)
Sou
Nort
Conductivity (mS/m)
Magnetic Gradient (nT/m)
Northing (ft)
60
50
40
30
20
10
0
-10
-20
-30
-40
2000
1800
1600
1400
1200
1000
800
600
400
200
0
-200
-400
84700
84750
84800
84850
84900
84950
85000
85050
85100
Legend
20 m Horz DP
20 m Vert DP
10 m Horz DP
10 m Vert DP
Magnetic

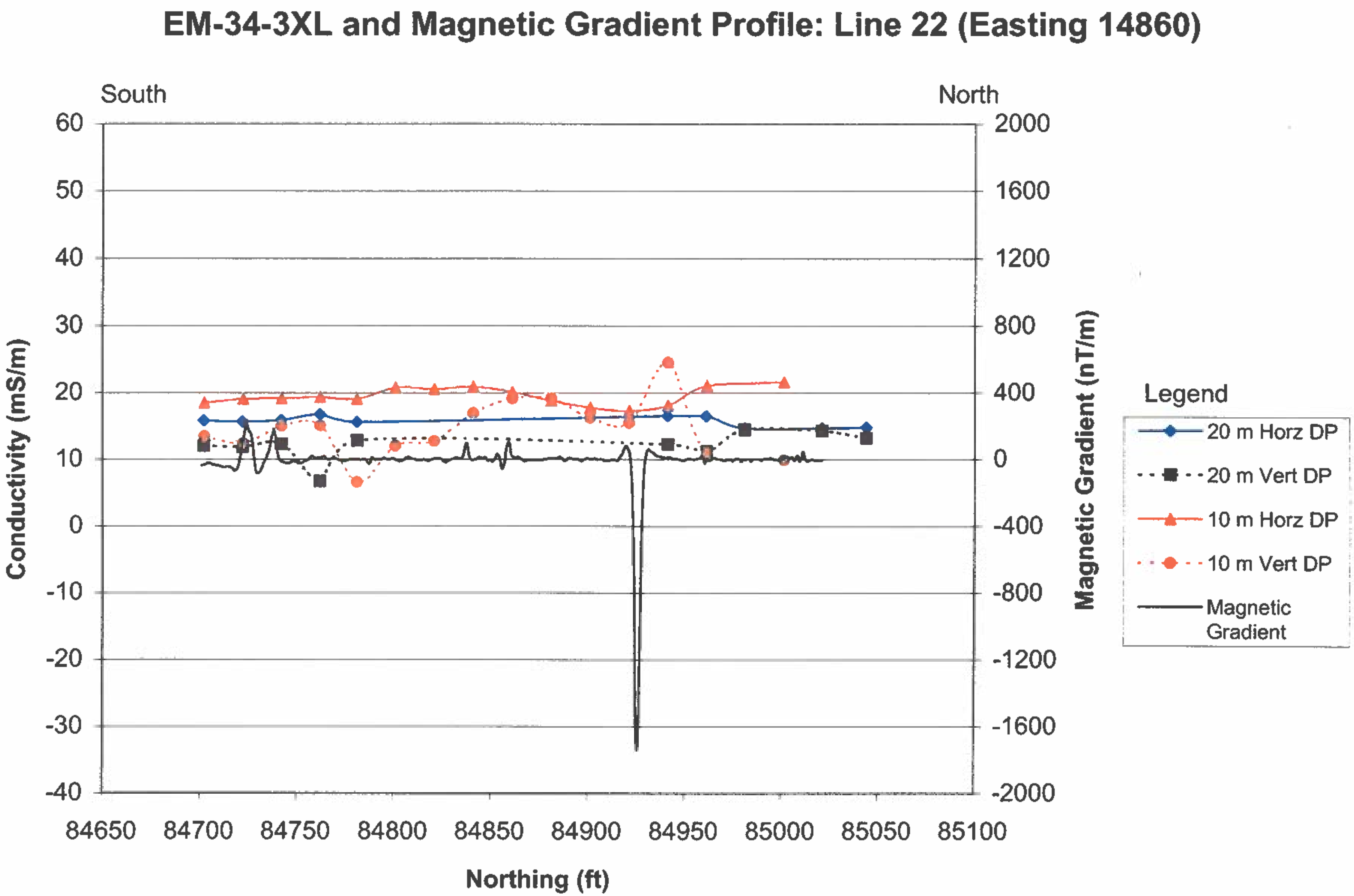

EM-34-3XL and Magnetic Gradient Profile: Line 18 (Easting 14740)
South
North
60
50
40
30
20
10
0
-10
-20
-30
-40
Conductivity (mS/m)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
-200
-400
-600
Magnetic Gradient (nT/m)
84500
84600
84700
84800
84900
85000
85100
Northing (ft)
Legend
20 m Horz DP
20 m Vert DP
10 m Horz DP
10 Vert DP
Magnetic Gradient

EM-34-3XL and Magnetic Gradient Profile: Line 19 (Easting 14770)

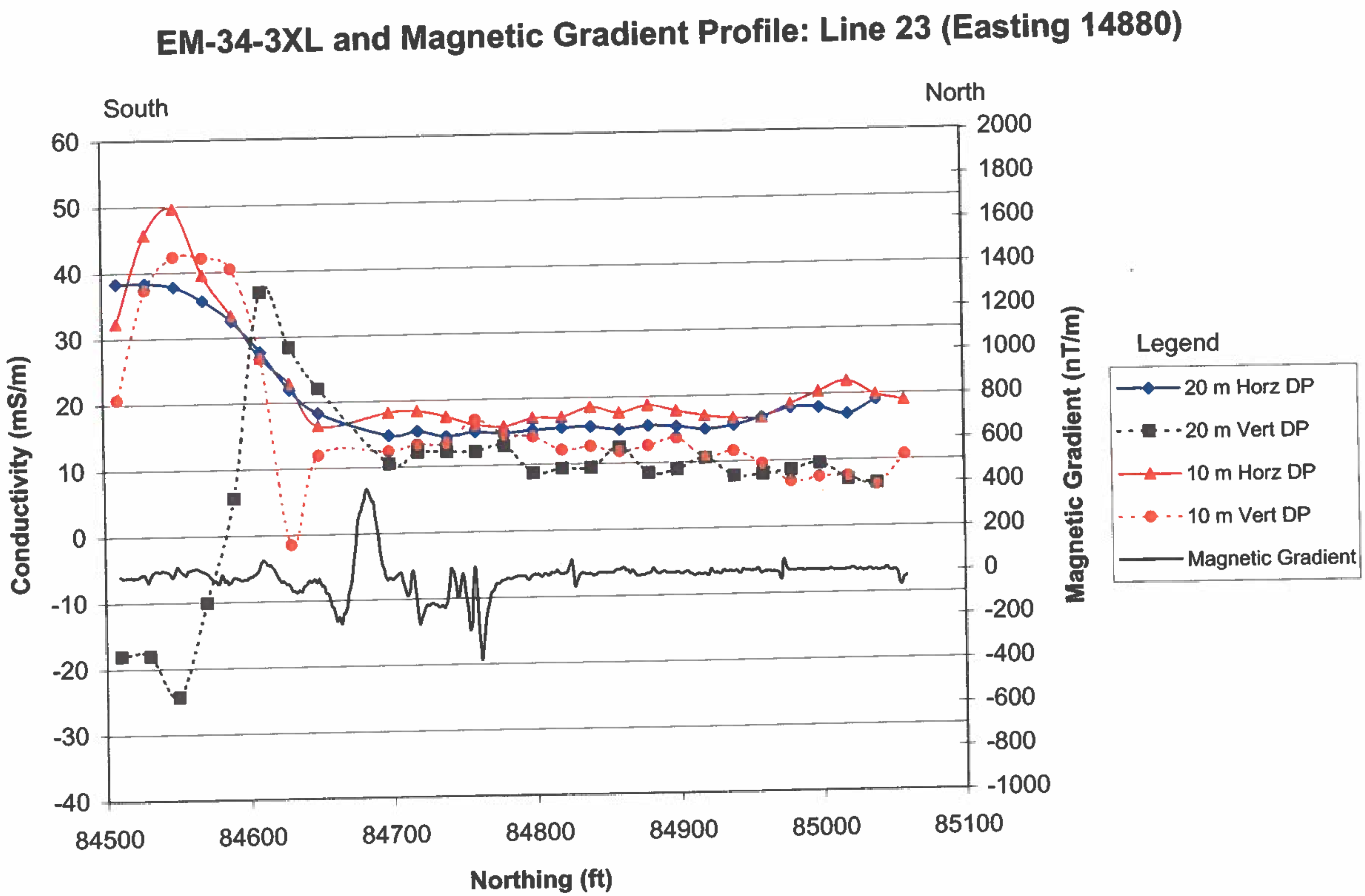



EM-34-3XL and Magnetic Gradient Profile: Line 20 (Easting 14800)
South
North
Conductivity (mS/m)
Magnetic Gradient (nT/m)
Northing (ft)
60
50
40
30
20
10
0
-10
-20
-30
-40
2000
1800
1600
1400
1200
1000
800
600
400
200
0
-200
-400
-600
-800
84450
84550
84650
84750
84850
84950
85050
85150
Legend
20 m Horz DP
20 m Vert DP
10 m Horz DP
10 m Vert DP
Magnetic Gradient


EM-34-3XL and Magnetic Gradient Profile: Line 21 (Easting 14830)
Sout
North
Conductivity (mS/m)
Magnetic Gradient (nT/m)
Northing (ft)
60
50
40
30
20
10
0
-10
-20
-30
-40
2000
1800
1600
1400
1200
1000
800
600
400
200
0
-200
-400
-600
84600
84700
84800
84900
85000
85100
85200
Legend
20 m Horz DP
20 m Vert DP
10 m Horz DP
10 m Vert DP
Magnetic Gradient



EM-34-3XL and Magnetic Gradient Profile: Line 22 (Easting 14860)
South
North
Conductivity (mS/m)
Magnetic Gradient (nT/m)
Northing (ft)
60
50
40
30
20
10
0
-10
-20
-30
-40
2000
1600
1200
800
400
0
-400
-800
-1200
-1600
-2000
84650
84700
84750
84800
84850
84900
84950
85000
85050
85100
Legend
20 m Horz DP
20 m Vert DP
10 m Horz DP
10 m Vert DP
Magnetic Gradient



EM-34-3XL and Magnetic Gradient Profile: Line 23 (Easting 14880)
South
North
Conductivity (mS/m)
60
50
40
30
20
10
0
-10
-20
-30
-40
Magnetic Gradient (nT/m)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
-200
-400
-600
-800
-1000
84500
84600
84700
84800
84900
85000
85100
Northing (ft)
Legend
20 m Horz DP
20 m Vert DP
10 m Horz DP
10 m Vert DP
Magnetic Gradient