

Appendix I
Meandering Path
Digital Geophysical Survey Results





APPENDIX I

RANGES 43–48

MEANDERING PATH DIGITAL GEOPHYSICAL SURVEY

RESULTS

I.1 INTRODUCTION

The U.S. Army Corps of Engineers, Sacramento District Office (CESPK) authorized Parsons (task order 0004, contract DACA05-00-D-003) to perform a meandering path digital geophysical survey in and around the Ranges 43–48 IA site, which is located in the central portion of the former Fort Ord.

I.1.1 PURPOSE

A meandering path digital geophysical survey was performed in the Ranges 43–48 IA site to help plan the geophysical work that will be conducted in the site after the prescribed burn. The results of this survey suggest where the geophysical survey should be initially performed with a digital or analog instrument and identify some areas within the site that will likely require sifting.

I.1.2 SCOPE

This meandering path digital geophysical survey was performed over a 4-day span in October 2002 as part of the Ranges 43–48 Preparatory Action (Appendix A). This survey was limited to the areas covered by the surface time-critical removal action (TCRA) that was performed over the original 555-acre Ranges 43–48 site in 2001, and it was performed without any vegetation clearance. This survey entailed collecting and processing data, and developing maps from the processed data.

I.2 SURVEY PROCEDURES

The survey was performed by two Parsons data collection teams comprised of an unexploded ordnance (UXO) escort and two instrument operators. One instrument operator carried and operated a G-858 magnetometer in vertical gradient mode while the other wore and operated a global positioning system (GPS). The UXO escort walked a minimum of 10 ft in front of the instrument operators to ensure that there were no potentially dangerous items on the surface.

It should be noted the data collected during this survey was used only for the general characterization of the site; therefore, the positioning and the data collection location were not required to match and actually may differ by several feet.

I.2.1 DATA COLLECTION AND PROCESSING

Data was downloaded into a field laptop computer and then transferred to the Parsons network. The data was then preprocessed using MagMap2000, exported into Geosoft format, and viewed in profile form in Geosoft. Because identifying individual anomalies was not a goal of this survey, anomalies were not selected from this data for the subsequent intrusive investigations.

I.2.1.1 Maps

Using the processed data, two maps have been produced: Figure I-1, a map showing the vertical gradient [color-coded to represent ranges of data in 5-nanotesla (nT) increments] along the paths traveled by the team and (2) a refined anticipated instrumentation and operations map (Figure 2.2 of this SSWP) displaying where the subsequent geophysical survey will initially be performed with a digital or analog instrument and the areas that will likely require sifting.

I.2.2 QUALITY CONTROL (QC)

The G-858 was tested with a QC spike platform at the beginning and at the end of each day to ensure that it was functioning properly, and it was inspected daily to ensure that all of its parts were operable and so that any broken or damaged parts could be replaced immediately. The GPS was checked by placing the system's antenna over a known point and comparing the calculated location to the coordinates of a known location.

Survey personnel did not wear or carry any metallic items that might have impacted data quality. Audio instrument responses were observed and visual data reviews were performed on the data recorders. Data was downloaded and reviewed frequently to ensure that it was being recorded and stored properly.

I.3 RESULTS

Data was collected by the first Parsons team from October 7–10, 2002; a second team was added to ensure maximum coverage of the site's open areas, and they collected data on October 9. The following subsections describe the results of their surveys.

I.3.1 COVERAGE

The two Parsons data collection teams collectively walked approximately 31.5 miles and therefore covered approximately 7.6 acres of the site (approximately 1.5%), assuming an instrument "footprint" of 2 ft. The paths traveled by the data collection teams are shown in Figure I-1 by the locations of the plotted vertical gradient data.

I.3.2 SELECTION OF AREAS FOR POTENTIAL DIGITAL GEOPHYSICAL SURVEYS

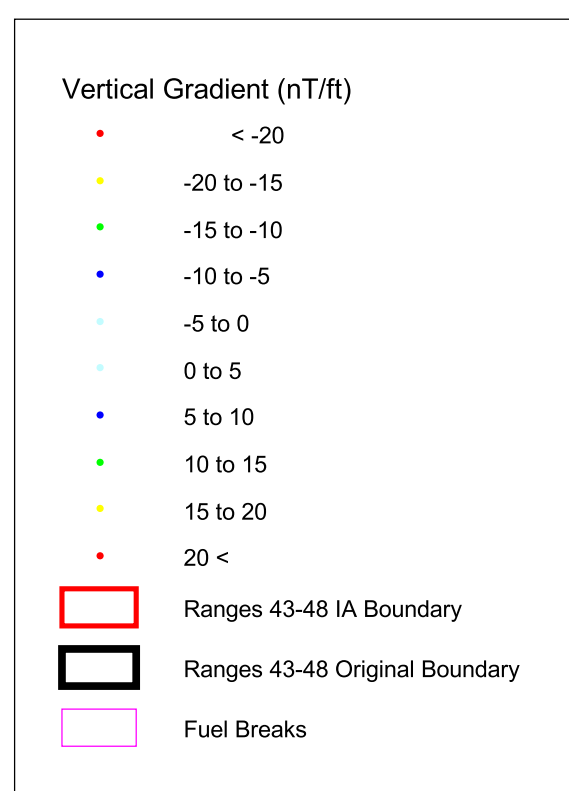
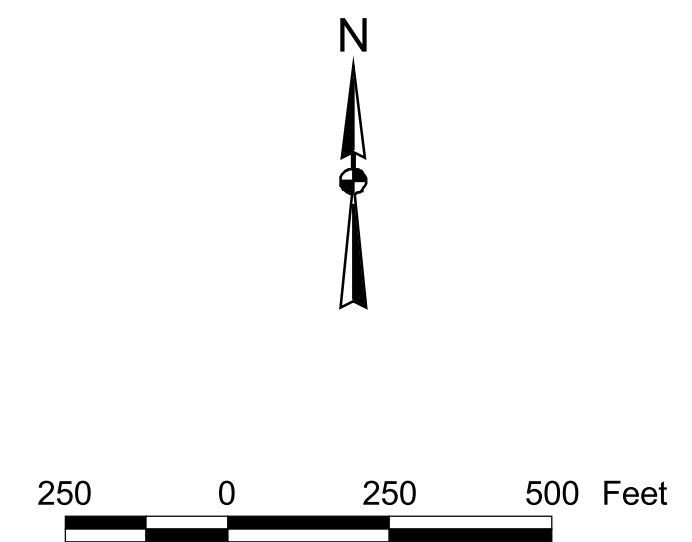
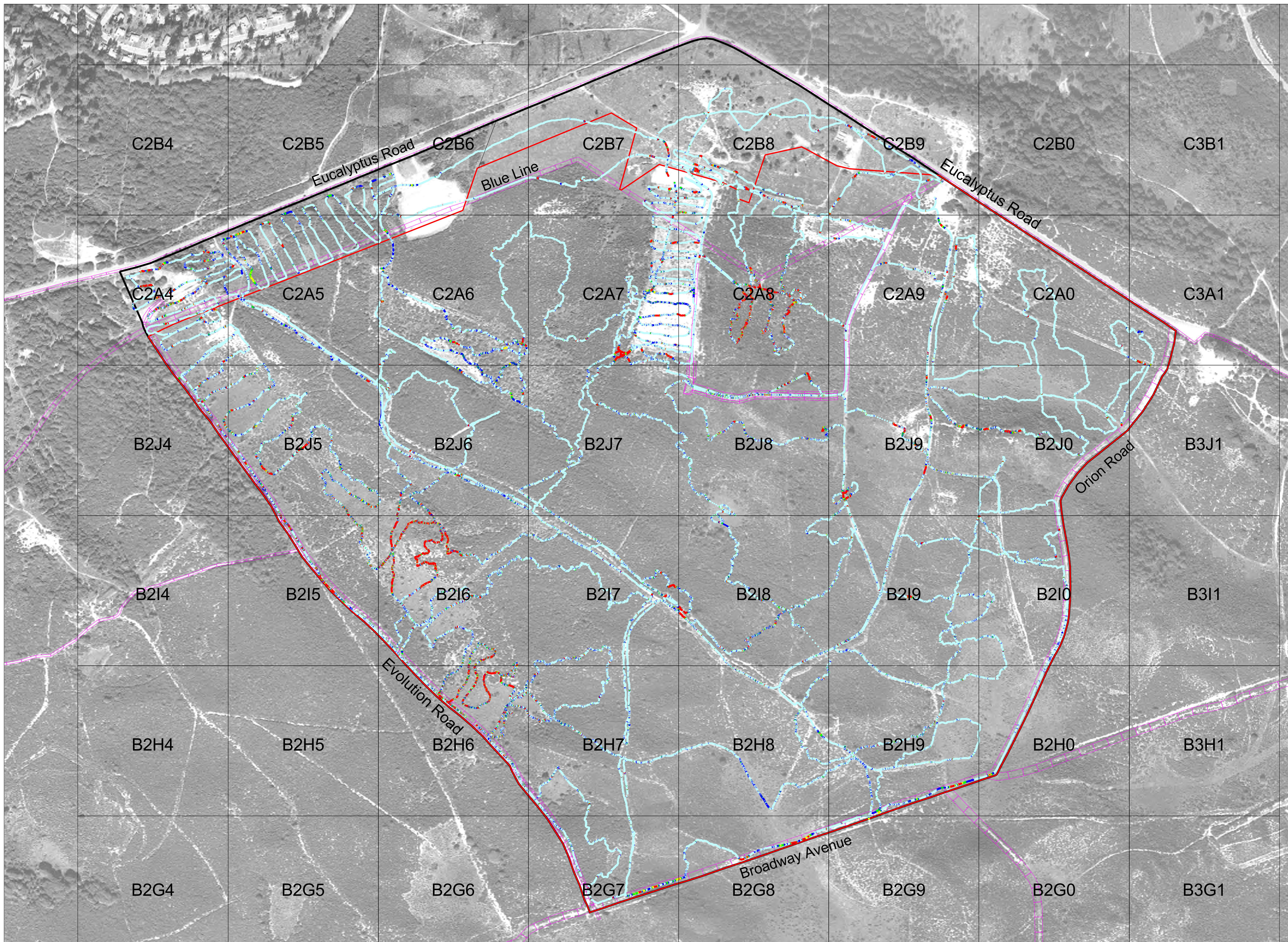
Based on previous geophysical work at the former Fort Ord, Parsons has established that areas covered by meandering path transects with vertical gradients ranging from -10 to +10 nT (light to dark blue points on Figure I-1) are generally candidates for a digital geophysical survey.

The interpretation by the Parsons Project Geophysicist is that anomalies detected in these types of areas will be distinguishable from each other and their locations therefore can be accurately pinpointed with a digital instrument—those areas where it is difficult to distinguish individual anomalies require an alternative removal method (analog survey or sifting). The geophysical data collected with a digital instrument will be reviewed, and an alternative removal method will be designated for any area where the anomalies cannot be distinguished. This interpretation was discussed with the Parsons QC Geophysicist and the USACE Quality Assurance (QA) Geophysicist, and both concurred with it.

I.3.3 SELECTION OF AREAS FOR POTENTIAL SIFTING

Using the interpretation discussed in Section I.3.2, areas were evaluated to determine the appropriate instrumentation/operations. Figure 2-2 of this SSWP shows where sifting operations are now anticipated to be required.

Figure I-1
Ranges 43-48
Vertical Gradients
During Meandering Path
Digital Geophysical Survey



Survey Dates: October 9-12, 2002
 Instruments Used:
 1) G-858 in Vertical Gradient Mode
 2) GPS

Date: March 19, 2003
 Author: David R. Johnston
 NAD 1983 StatePlane California Zone IV (US Feet)
 Source of Data: Fort Ord OE Database,
 1999 Aerial Photography

