

APPENDIX I
Geophysical Data

Geophysical data is provided in the electronic copy of this report.

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SCHILLING AIR FORCE BASE GEOPHYSICAL SURVEY

1.0 INTRODUCTION

Parsons performed a geophysical survey at the former Schilling Air Force Base (AFB) using a Geometrics G858 magnetometer in accordance with the Site-Specific Work Plan (SS-WP).

2.0 EQUIPMENT TESTING

Daily quality control (QC) tests performed with the G858 included the collection of a static test and the survey of a dynamic repeat line containing a metallic seed item twice a day (before and after site surveys). The static test included the collection of three minutes of background data in a geophysically quiet location, followed by the collection of one minute of data over a test item and an additional minute of data without the test item. The goal of the static test was for the pre-survey instrument response to the test item to be within 20% of the post-survey response to the item and for the background line responses to vary by no more than +/- 3 nanoteslas per foot (nT/ft). All static tests collected during the geophysical investigation were within these parameters.

The dynamic repeat line test included the collection of data over a 20-foot test strip that included a metallic seed item. The results from the pre- and post-survey repeat lines were compared to ensure that the response amplitudes measured over the test item were within 20% of one another and that the locations of the test item in each repeat line were within 0.2 meters. All test lines collected during the geophysical investigation met these criteria.

In addition to the daily equipment tests performed during the field effort at the Schilling AFB, the results of a test conducted on a simulated chemical agent identification set (CAIS) shipping container during the Walker Army Air Field (AAF) geophysical investigation were used to guide the selection of anomalies in the former Schilling AFB data. The former Walker AAF data indicated that the expected anomaly caused by a CAIS container was expected to be approximately 10 feet long by 6 feet wide. These dimensions were used as the low end of the selection criteria for anomalies in the former Schilling AFB data, although larger anomalies were also selected as possible locations for additional investigation, given the possibility that they might be burial pits containing multiple items.

3.0 GEOPHYSICAL SURVEY

The survey area proposed in the SS-WP was a 5-acre square of approximately 460 feet to a side, and it was intended that the corners of the area be located using a real-time kinematic (RTK) global positioning system (GPS) capable of sub-centimeter accuracy. However, Salina Airport personnel were concerned that the GPS base station, which uses a radio frequency signal to broadcast a correction to the GPS rover used by the field team, might interfere with airport communications, so they requested that the base station only be used when the airport tower was off-line (11PM to 7AM). Therefore, a less accurate non-RTK GPS was used to

locate the southwest corner of the grid. To ensure that the intended survey area was covered, the field crew added 20 feet to the length of each side of the proposed grid to account for possible offsets due to the use of the non-RTK GPS. The resulting 500-foot by 500-foot grid (approximately 5.7 acres) was established using survey tapes and a compass. Smaller grids were established at 100-foot intervals within the survey area to provide additional location control for the geophysical data. The four corners of the survey area were later surveyed during tower off-hours using the RTK GPS, and the more accurately located points were used to position the geophysical data.

A specially designed cart was used to tow two G858 sensors across the survey area. The sensors were spaced at a horizontal distance of 5 feet, with both at a height of 1-foot above the ground surface. Geophysical data were collected by walking parallel lines at 10-foot intervals. Survey tapes and cones were placed at 100-foot intervals to guide data collection, and survey lines were either started and stopped at the tapes or a fiducial mark was placed in the data by the operator. During processing, the G858 data were positioned using the start/end points and fiducial marks.

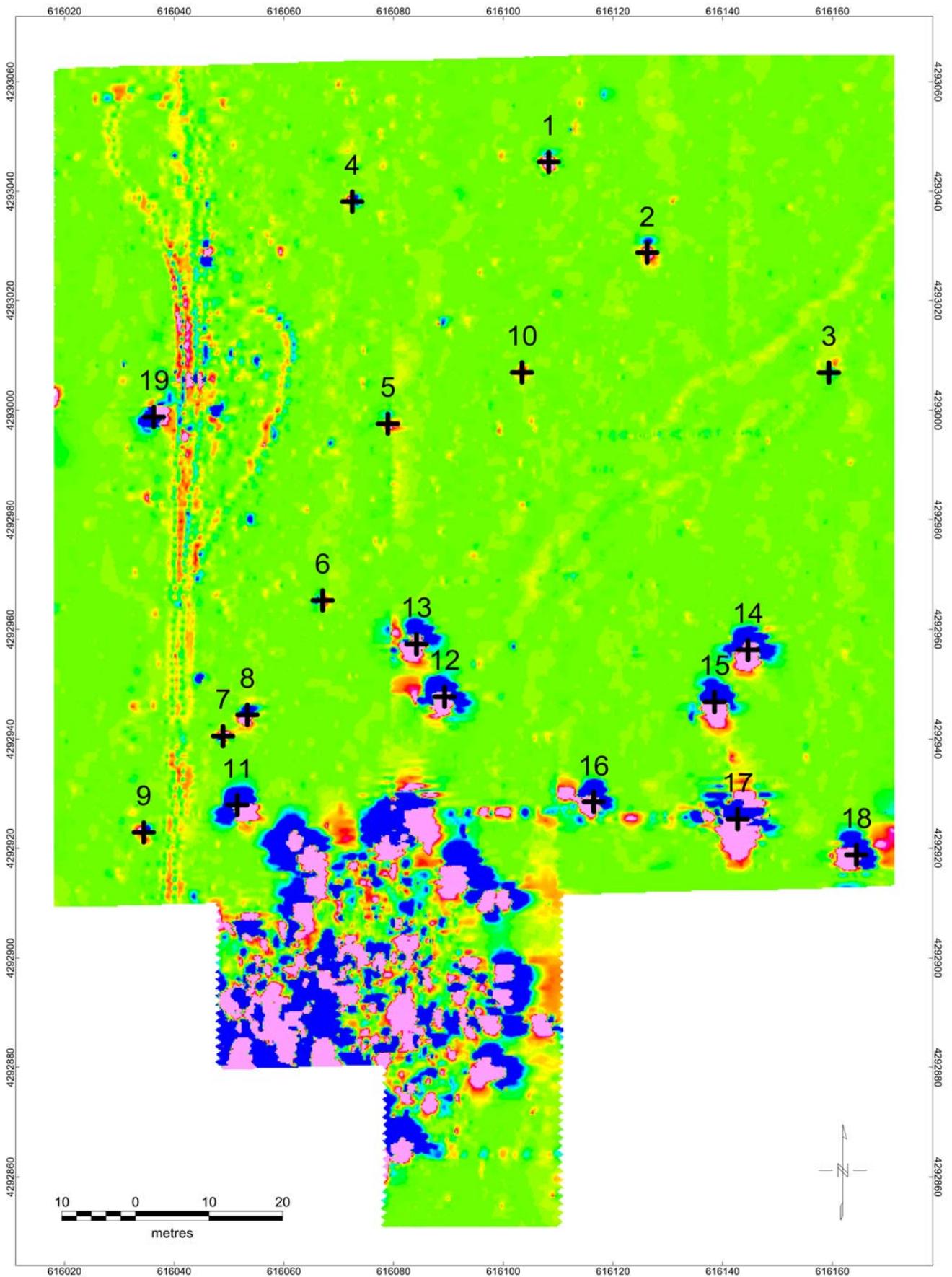
The team collected data over the 500-foot by 500-foot survey area on June 8 and 9, 2010. Initial processing indicated that there was an area of extremely high anomaly density that appeared to extend past the southern boundary of the surveyed area. At the request of the USACE geophysicist, three more 100-foot by 100-foot grids were established south of the original survey area to further delineate the areal extent of the high anomaly density area. Data were collected over these three grids on June 10, 2010.

4.0 RESULTS

The data were processed and the results of the survey were used to identify targets for potential intrusive investigation. Anomalies were selected based on the results of the testing conducted during the former Walker AAF geophysical investigation and on the judgment of the project geophysicist with regard to larger anomalies that might represent burial pits. The large, high-anomaly-density area on the southern end of the survey area extends to the former location of the former radio transmitter building, which was leveled relatively recently. Based on the location of the anomalies and some debris evident on the ground surface, it appears that the transmitter building was simply flattened into the adjacent field and mostly buried. Therefore, it is assumed that the destruction of the building is the cause of the large anomalous area. No targets have been selected from these anomalies, although excavating a test pit through this area may be considered to ensure that the anomalies are actually due to building debris. The locations of targets selected from the Schilling AFB geophysical data are listed in Table 1 and the geophysical data and target locations are shown on Figure 1.

Table 1

Anomaly ID	Easting (UTM meters)	Northing (UTM meters)	Peak Response (nT)	Trough Response (nT)	Analytic Signal Reponse (nT)	Length (m)
1	616108.3	4293045.6	325	-20	423	4.0
2	616126.2	4293028.7	91	-25	205	5.2
3	616159.7	4293006.7	22	-61	127	3.9
4	616072.5	4293038.1	82	-57	304	2.6
5	616079.0	4292997.5	59	-17	96	3.8
6	616067.1	4292965.2	292	-90	178	3.1
7	616048.8	4292941.0	173	-59	207	2.4
8	616053.0	4292944.7	299	-111	309	4.4
9	616034.5	4292922.9	100	-104	435	3.4
10	616103.4	4293006.9	61	0	208	2.0
11	616051.5	4292927.9	2471	-98	741	10.0
12	616089.3	4292947.7	1703	-296	1487	15
13	616085.1	4292958.0	955	-92	444	9.5
14	616145.3	4292957.4	2056	-205	1343	9.7
15	616138.5	4292946.8	1338	-270	2159	10.5
16	616116.5	4292928.4	3042	-228	930	11
17	616142.7	4292925.3	10000	-16441	43170	17
18	616166.1	4292919.8	2090	-212	1225	12
19	616036.3	4292998.8	1293	-276	1769	9.3



5
 + Selected anomaly with ID

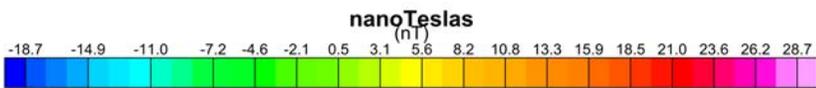


Figure 1
 G858 Data
 Former Schilling AFB

Schilling CWM SI

Location	Gas Inst Area	Geosoft Database Na	A0-B2
Collection Dat	6/8/2010	QC File - Static Test Line No	060810.gdb: L0-1, L11-12
Team ID	Team 1	Static test lines include: AM Background, AM Spike, AM background DM Background, DM Spike, DM Background	
Geophysical Sensor	G858	QC file - GPS Test Line No.	
Positioning System	Fiducials	QC file - Repeat Line No.	060810.gdb: L3, L7
Terrain	flat	Coordinate_Syste	NAD83 Datum, UTM Zone 14N, m
Latency_Value:	0	Drift Parameters:	Median filter calculated for reading channel using 100 point rolling statistics
Raw Data Comment	Grids A0, A1, A2, B0, B1, B2		
Processing Comments			
Final Data Comment			
		Gridding Parameters:	0.2m cell size; others default.
		Anomaly Selection Parameters:	

Coverage Results

Dataset_ID	A0-B2
Total_polygon_are	60000
Area_covered	60000
Percent_Coverage	100
Explanation	
Coverage_Map_ID	
QCStatus	Pass
ReadyforDeliver	Yes
GapCompletionDa	
DeliveredFinal	No
Picked?:	

Schilling CWM SI

Location	Gas Inst Area	Geosoft Database Na	A3-B4
Collection Dat	6/8/2010	QC File - Static Test Line No	060810.gdb: L0-1, L11-12
Team ID	Team 1	Static test lines include: AM Background, AM Spike, AM background PM Background, PM Spike, PM Background	
Geophysical Sensor	G858	QC file - GPS Test Line No.	
Positioning System	Fiducials	QC file - Repeat Line No.	060810.gdb: L3, L7
Terrain	flat	Coordinate_Syste	NAD83 Datum, UTM Zone 14N, m
Latency_Value:	0	Drift Parameters:	Median filter calculated for reading channel using 100 point rolling statistics
Raw Data Comment	Grids A3, A4, B3, B4		
Processing Comments			
Final Data Comment			
		Gridding Parameters:	0.2m cell size; others default.
		Anomaly Selection Parameters:	

Coverage Results

Dataset_ID	A3-B4
Total_polygon_are	40000
Area_covered	40000
Percent_Coverage	100
Explanation	
Coverage_Map_ID	
QCStatus	Pass
ReadyforDeliver	Yes
GapCompletionDa	
DeliveredFinal	No Picked?:

Schilling CWM SI

Location	Gas Inst Area	Geosoft Database Na	Bneg1-Cneg1
Collection Dat	6/10/2010	QC File - Static Test Line No	061010.gdb: L0-1, L11-12
Team ID	Team 1	Static test lines include: AM Background, AM Spike, AM background BM Background, BM Spike, BM Background	
Geophysical Sensor	G858	QC file - GPS Test Line No.	
Positioning System	Fiducials	QC file - Repeat Line No.	061010.gdb: L3, L7
Terrain	flat	Coordinate_Syste	NAD83 Datum, UTM Zone 14N, m
Latency_Value:	0	Drift Parameters:	Median filter calculated for reading channel using 100 point rolling statistics
Raw Data Comment	Grids B-1, C-1	Gridding Parameters:	0.2m cell size; others default.
Processing Comments	Data looks quite noisy, but resposnes are correct. Both grids added to survey area at USACE request to further define large anomalous area seen at the bottom of the original grid. Likely caused by a demolished building plowed into this area.	Anomaly Selection Parameters:	
Final Data Comment			

Coverage Results

Dataset_ID	Bneg1-Cneg1
Total_polygon_are	20000
Area_covered	20000
Percent_Coverage	100
Explanation	
Coverage_Map_ID	
QCStatus	Pass
ReadyforDeliver	Yes
GapCompletionDa	
DeliveredFinal	No
Picked?:	

Schilling CWM SI

Location	Gas Inst Area	Geosoft Database Na	C0-C2
Collection Dat	6/9/2010	QC File - Static Test Line No	060910.gdb: L0-1, L11-12
Team ID	Team 1	Static test lines include: AM Background, AM Spike, AM background DM Background, DM Spike, DM Background	
Geophysical Sensor	G858	QC file - GPS Test Line No.	
Positioning System	Fiducials	QC file - Repeat Line No.	060910.gdb: L3, L7
Terrain	flat	Coordinate_Syste	NAD83 Datum, UTM Zone 14N, m
Latency_Value:	0	Drift Parameters:	Median filter calculated for reading channel using 100 point rolling statistics
Raw Data Comment	Grids C0, C1, C2	Gridding Parameters:	0.2m cell size; others default.
Processing Comments		Anomaly Selection Parameters:	
Final Data Comment			

Coverage Results

Dataset_ID	C0-C2
Total_polygon_are	30000
Area_covered	30000
Percent_Coverage	100
Explanation	
Coverage_Map_ID	
QCStatus	Pass
ReadyforDeliver	Yes
GapCompletionDa	
DeliveredFinal	No
Picked?:	

Schilling CWM SI

Location	Gas Inst Area	Geosoft Database Na	C3-D4
Collection Dat	6/9/2010	QC File - Static Test Line No	060910.gdb: L0-1, L11-12
Team ID	Team 1	Static test lines include: AM Background, AM Spike, AM background DM Background, DM Spike, DM Background	
Geophysical Sensor	G858	QC file - GPS Test Line No.	
Positioning System	Fiducials	QC file - Repeat Line No.	060910.gdb: L3, L7
Terrain	flat	Coordinate_Syste	NAD83 Datum, UTM Zone 14N, m
Latency_Value:	0	Drift Parameters:	Median filter calculated for reading channel using 100 point rolling statistics
Raw Data Comment	Grids C3, C4, D3, D4	Gridding Parameters:	0.2m cell size; others default.
Processing Comments		Anomaly Selection Parameters:	
Final Data Comment			

Coverage Results

Dataset_ID	C3-D4		
Total_polygon_are	30000		
Area_covered	30000		
Percent_Coverage	100		
Explanation			
Coverage_Map_ID			
QCStatus	Pass		
ReadyforDeliver	Yes		
GapCompletionDa			
DeliveredFinal	No	Picked?:	

Schilling CWM SI

Location	Gas Inst Area	Geosoft Database Na	Cneg2
Collection Dat	6/10/2010	QC File - Static Test Line No	061010.gdb: L0-1, L11-12
Team ID	Team 1	Static test lines include:	AM Background, AM Spike, AM background PM Background, PM Spike, PM Background
Geophysical Sensor	G858	QC file - GPS Test Line No.	
Positioning System	Fiducials	QC file - Repeat Line No.	061010.gdb: L3, L7
Terrain	flat	Coordinate_Syste	NAD83 Datum, UTM Zone 14N, m
Latency_Value:	0	Drift Parameters:	Median filter calculated for reading channel using 100 point rolling statistics
Raw Data Comment	Grid C-2	Gridding Parameters:	0.2m cell size; others default.
Processing Comments	Grids added to survey area at USACE request to further define large anomalous area seen at the bottom of the original grid. Likely caused by a demolished building plowed into this area.	Anomaly Selection Parameters:	
Final Data Comment			

Coverage Results

Dataset_ID	Cneg2
Total_polygon_are	10000
Area_covered	10000
Percent_Coverage	100
Explanation	
Coverage_Map_ID	
QCStatus	Pass
ReadyforDeliver	Yes
GapCompletionDa	
DeliveredFinal	No
Picked?:	

Schilling CWM SI

Location	Gas Inst Area	Geosoft Database Na	D0-E2
Collection Dat	6/9/2010		
Team ID	Team 1	QC File - Static Test Line No	060910.gdb: L0-1, L11-12
Geophysical Sensor	G858	Static test lines include:	
Positioning System	Fiducials	AM Background, AM Spike, AM background	
Terrain	flat	PM Background, PM Spike, PM Background	
Latency_Value:	0	QC file - GPS Test Line No.	
		QC file - Repeat Line No.	060910.gdb: L3, L7
Raw Data Comment	Grids D0, D1, D2, E0, E1, E2	Coordinate_Syste	NAD83 Datum, UTM Zone 14N, m
		Drift Parameters:	Median filter calculated for reading channel using 100 point rolling statistics
Processing Comments		Gridding Parameters:	0.2m cell size; others default.
Final Data Comment		Anomaly Selection Parameters:	

Schilling CWM SI

Location	Gas Inst Area	Geosoft Database Na	E3-E4
Collection Dat	6/9/2010	QC File - Static Test Line No	060910.gdb: L0-1, L11-12
Team ID	Team 1	Static test lines include:	AM Background, AM Spike, AM background DM Background, DM Spike, DM Background
Geophysical Sensor	G858	QC file - GPS Test Line No.	
Positioning System	Fiducials	QC file - Repeat Line No.	060910.gdb: L3, L7
Terrain	flat	Coordinate_Syste	NAD83 Datum, UTM Zone 14N, m
Latency_Value:	0	Drift Parameters:	Median filter calculated for reading channel using 100 point rolling statistics
Raw Data Comment	Grids E3, E4		
Processing Comments			
Final Data Comment			
		Gridding Parameters:	0.2m cell size; others default.
		Anomaly Selection Parameters:	

Coverage Results

Dataset_ID	E3-E4
Total_polygon_are	20000
Area_covered	20000
Percent_Coverage	100
Explanation	
Coverage_Map_ID	
QCStatus	Pass
ReadyforDeliver	Yes
GapCompletionDa	
DeliveredFinal	No
Picked?:	