ARCADIS

To:
Ms. Ruth Curley
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File

From:
Lisa Collins

Date:
July 2, 2013

Subject:
Summary Report for SSDS Pilot Test 52 4RCA

ARCADIS Project No.:

Ms. Ruth Curley
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, New York 12233-7258

Subject:
Summary Report for SSDS Pilot Test in Area of VMP-7A
Solvent Dock Area
Former Lockheed Martin French Road Facility
525 French Road, Utica, New York

Dear Ms. Curley:

ARCADIS (on behalf of the Lockheed Martin Corporation) has prepared this summary report for the pilot test conducted in the area of vacuum monitoring point (VMP) VMP-7A at the former Lockheed Martin French Road facility in Utica, New York. The basis for the pilot test was presented in ARCADIS' November 30, 2012 report to the New York State Department of Environmental Conservation (NYSDEC), titled

Utility Clearance:

Prior to any intrusive activities, a review of ground-penetrating radar (GPR)c+Type/Pagu0S P

Summary Report for
SSDS Pilot Test in Area
of VMP-7A

Waste Management

Concrete generated from intrusive activities was

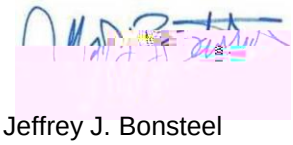
After turning the SSDS offline to allow for modification of equipment setup, the SSDS was restarted with SDS-1 through SDS-8 online and an applied vacuum of 66 in.W.C. at SDS-7 and SDS-8.
Two rounds of sub-slab differential pressures, orifice plate differential pressures, and anemometer readings were then collected approximately 1 hour apart from each other.
The SDS-7 and SDS-8 applied vacuum was then briefly increased to 80 in.W.C. by speeding up the blower to measure sub-slab differential pressure at a single monitoring point (TVMP-8).
After returning the blower to its original speed, two more rounds of sub-slab differential pres

Sub-slab differential pressures at each of the seven pilot test monitoring points while SDS-8 had an applied vacuum of 66 in.W.C. and SDS-7 was offline were:

- VMP-7A (-30 in.W.C.)
- VMP-8A (-1.175 in.W.C.)
- VMP-8B (-9 in.W.C.)
- VMP-8C (0 to -0.005 in.W.C.)
- VMP-8D (-0.006 in.W.C.)
- TVMP-5 (-1.043 in.W.C.)
- TVMP-8 (0 to -0.005 in.W.C.)

Sub-slab differential pressures at each of the seven pilot test monitoring points while SDS-7 and SDS-8 were operated simultaneously with applied vacuums of 66 in.W.C. were:

- VMP-7A (-32 in.W.C.)
- VMP-8A (-1.8 in.W.C.)
- VMP-8B (-11.5 in.W.C.)
- VMP-8C (-0.005 to -0.008 in.W.C.)
- VMP-8D (-0.022 to -0.026 in.W.C.)
- TVMP-5 (-0.805 in.W.C.)
- TVMP-



Jeffrey J. Bonsteel
Project Manager

Attachments:
Table 1: VMP-7A Area Pilot Test Data
Figure 1: Pre-Existing SSDS Layout in VMP-7A Area
Figure 2: SDS-8 Pilot Test Locations
Appendix A: GPR Survey

Copies:
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Ms. Dale Truskett, Lockheed Martin
Ms. Kay Armstrong, Armstrong & Associates
Ms. Mary Morningstar,

Tables

Table 1. VMP-7A Area Pilot Test Data, Former Lockheed Martin French Road Facility, Utica, New York

Date/Time				Turns Open	Orifice Plate Differential Pressure SDS-#	(in.W.C.)	SDS-#	(in.W.C.)	SDS-#	Q (scfm)		Aggregate System Air Flowrate (acfm)		SDS-8 Air Flowrate (acfm)	VMP-7A	VMP-8A	VMP-8B	VMP-8C	VMP-8D	TVMP-5	TVMP-8
						71.9	6	0.018	6	7		95		-							
						72.1	7	0.016	7	5											
8:37																					
10:50																					
11:05																					
11:17	NM	47.9	1 thru 6, 8	0.875	8	24	8	0.23	8	21	NM	-	NM	-	-11.400	-0.269	-3.000	0.000	0.000 w/ jumps to -0.003	-0.215	0.000
11:33																					
11:45	NM	47.9	1 thru 6, 8	1.25	8	48.2	8	0.57	8	32	NM	-	NM	-	> -15.000	-0.763	-7.000	0.000	0.000	-0.230	-0.006
12:06																					
12:38	NM	47.9	1 thru 6, 8	7.625	8	66	8	0.85	8	38	NM	-	NM	-	-30.000	-1.175	-9.000	0 to -0.005	-0.006	-1.043	0 to -0.005
12:47																					
12:50	NM	53.0	1 thru 6, 8	7.625	8	79	8	NM	-	-	NM	-	NM	-	-32.000	-1.445	-10.000	0 to -0.004	-0.004 to -0.009	-1.138	0.000
14:30																					
16:42																					
						63.5	7														
										47		215		45							
						63.5	8														
17:30	Closed FCV-107 100%.																				
17:50	Vacuumed 3-4 gallons of water from SDS-8 sump.																				
17:53																					
						66	7														
										50		-		37					-0.022	-1.877	0.000
						66	8														
19:12																					
19:27																					
19:45																					

Table 1. VMP-7A Area Pilot Test Data, Former Lockheed Martin French Road Facility, Utica, New York

7:50																					
						66	7														
						66	8														
						66	7														
						66	8														
~12:00																					
14:33																					
14:56	NM	47.9	1 thru 7	7.625	7	73	7	0.013	7	5	1410	122	NM	-	NM	NM	NM	NM	NM	NM	NM
15:25																					
				7.625	1	68.8	1	0.025	1	10					-37.500	-2.100	-13.500	-0.006	-0.010	-	-
				0.75	2	0.865	2	0.05	2	8											
				1	3	1.02	3	0.4	3	23											

6[illegible] TJ ET EMC /P <</MCID 2>>BDC BT 1 0 0 1 47.0259,1 0 6108355.09 2367083W* n /P <</MCID 2/La1ang (x-none)>> BDC BT 1 0 0 1 116.269,56 543.1 0 g 0 G -0.[(al)94[ghtJ ET EMC /P <</MCID 19>>BDC BT 1 0 0 1 47.0314,4.0 6108377 846 59.09 W* n /P <</MCID 19/Laang (x-none)>> BDC BT 1 0 0 1 116.32 587.45455830 g 0 G -0.625

Figures

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Appendix A

LOCKHEED MARTIN
FORMER FRENCH ROAD FACILITY

UTICA, NEW YORK

GROUND PENETRATING RADAR INVESTIGATION
APRIL 2013 INTERIOR INVESTIGATION

FORMER LOCKHEED MARTIN FACILITY
GROUND PENETRATING RADAR INVESTIGATION

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FIGURES

1.0 INTRODUCTION

At the request of Arcadis U.S., Inc. (Arcadis), Spectra Subsurface Imaging Group, LLC (Spectra) performed a ground penetrating radar (GPR) investigation at the Lockheed Martin, Former French Road Facility in Utica, New York. The scope of work for this project called for a GPR investigation at five areas to determine if utilities or other subsurface features were present in building interior areas where subsurface borings are scheduled to occur. The GPR survey was performed on April 25, 2013.

2.0 GEOPHYSICAL SURVEY PROCEDURE

2.1 RADAR INSTRUMENTATION

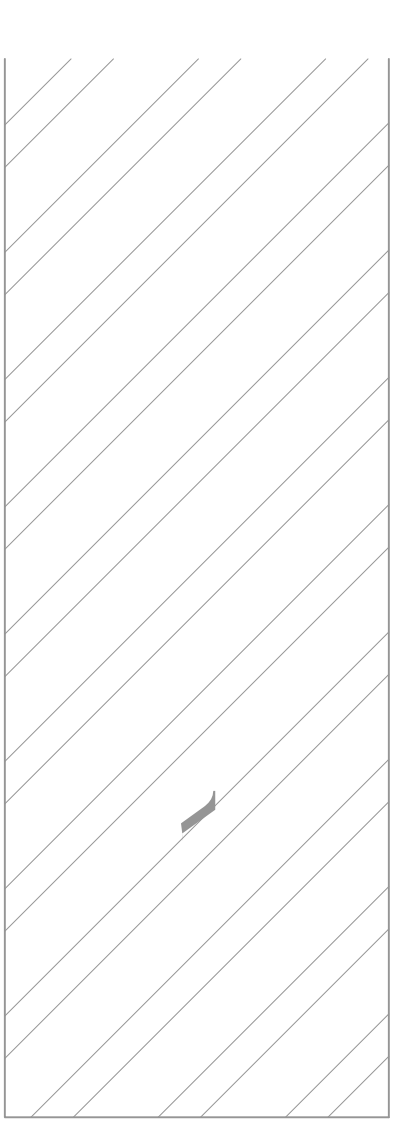
To map the subsurface at the site, Spectra used a 400 MHz single channel GPR antenna. This GPR system uses a single antenna to produce a two dimensional (length and depth) cross section. This antenna has a maximum depth penetration of 8-10 feet depending on subsurface conditions, and is ideally suited to map utilities.

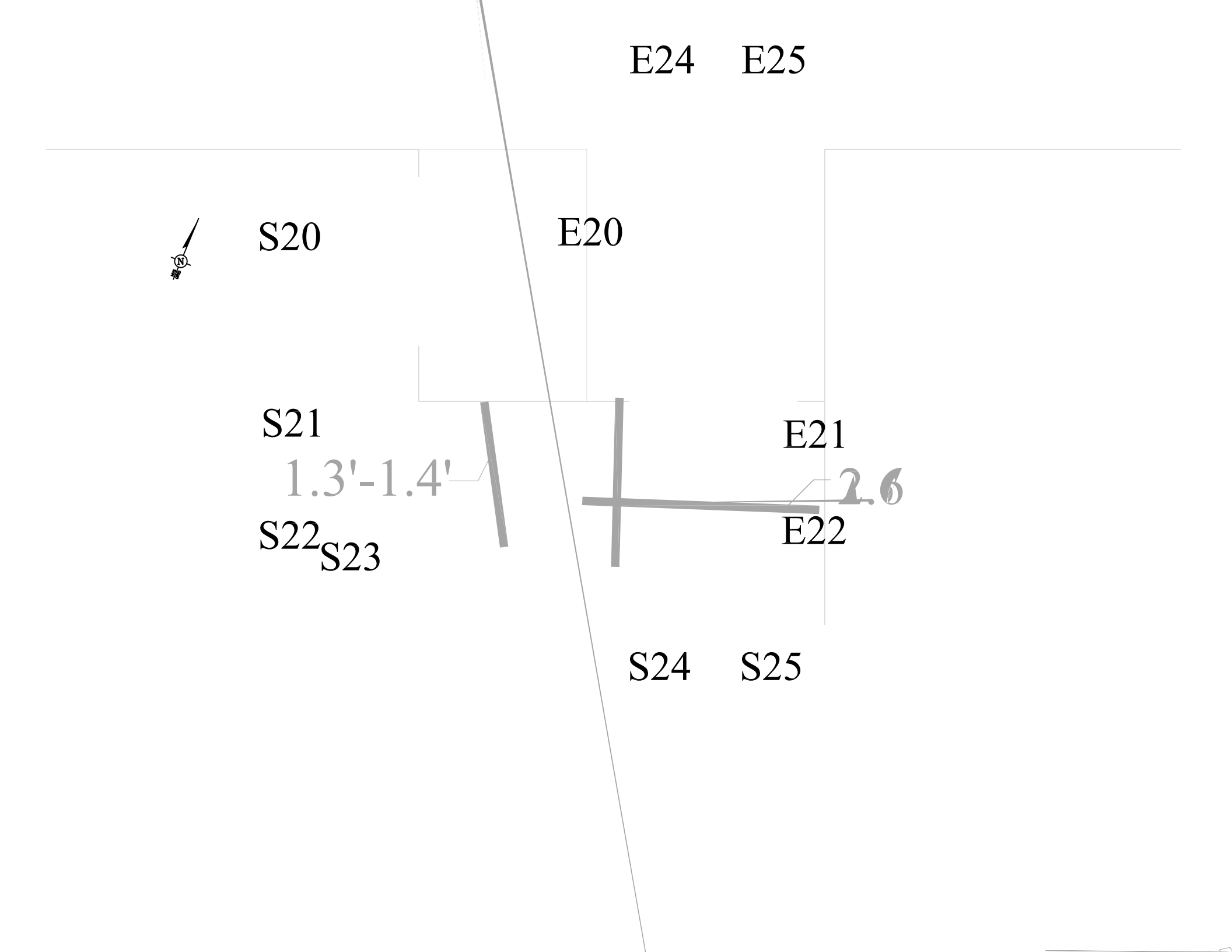
GPR utilizes high frequency electromagnetic waves that are directed into the ground by a transmitting antenna. Radar reflections are produced in the subsurface at material boundaries that have differing electrical properties. These subsurface reflections return back to the surface and are detected by a receiving antenna. Figure 1 illustrates a schematic radar signature that is commonly observed in recorded profiles and illustrates the reflection response that is characteristic of a small subsurface object such as a utility pipe. Since the buried object in this example has a curved surface, radar reflections will be received from the top of the object and from both sides as the antenna passes over the feature. As a result, the radar signature is parabolic in nature and is commonly referred to as a "diffraction hyperbola."

Figure 1 – Data Collection – Point Target

Figure 1 illustrates how a point target creates a diffraction hyperbola. Because the radar signal is emitted in a cone shape, the antenna unit begins to detect the subsurface object before

FIGURES




E24
E25
S20
E20
S21
E21
1.3'-1.4'
2.6
S22
S23
E22
S24
S25