

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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May 11, 2017

Mr. Charles Trione
East Coast Project Lead
Lockheed Martin
6801 Rockledge Drive
MP CCT 246
Bethesda, MD 20817

Re: 2016 Annual Site Management Report
Former Lockheed Martin French Road Facility
Utica, Oneida County, New York
Site No. 633036A

Dear Mr. Trione,

The New York State Department of Environmental Conservation and New York State Department of Health (Departments) have reviewed the 2016 Annual Site Management Report, dated March 2017. The 2016 Annual Site Management Report is approved with the following modification:

Section 5.0 Recommendations: This section explains that if a statistical sudden increase of VOCs detected in groundwater is identified, it will be evaluated in fuller context by additionally considering the magnitude of VOC concentrations in relation to historic concentrations, nearby well data, and potential impact to receptors to aid in determining if resampling is necessary. If further review determines an additional groundwater sample is not needed, the Departments should be notified and may still require the subject monitoring to be resampled.

In accordance with the Order on Consent and 6NYCRR 375-1.6(d), please indicate within 15 days whether you accept the Department's modified report. Please ensure that all copies of the final report include this approval letter, and place copies of the report in the document repositories. Please contact me at 518-402-9675 if you have any questions.

Sincerely,



Sarah Saucier, P.E.
Project Manager
Remedial Section C
Division of Environmental Remediation



Department of
Environmental
Conservation

Ec: P. McGuire, Tetrattech
J. Zigmont, CDM
R. Zigenfus, ConMed
S. Karpiniski, DOH
A. Omorogbe, DEC

Lockheed Martin Corporation
Acceptance of
NYSDEC Conditions

From: Trione, Charles <charles.trione@lmco.com>
Sent: Wednesday, May 24, 2017 10:45 AM
To: Mahoney, Robert (Stantec)
Subject: FW: 633036A; Former Lockheed Martin French Road Facility; 2016 Annual Site Management Report Correspondence

From: Trione, Charles (US)
Sent: Thursday, May 11, 2017 4:56 PM
To: 'Saucier, Sarah K (DEC)' <Sarah.Saucier@dec.ny.gov>
Subject: RE: 633036A; Former Lockheed Martin French Road Facility; 2016 Annual Site Management Report Correspondence

Sarah,
Lockheed Martin accepts the Department's modified Report.

Please let me know if you have any questions or need additional information.

Regards,
Chuck

From: Saucier, Sarah K (DEC) [<mailto:Sarah.Saucier@dec.ny.gov>]
Sent: Thursday, May 11, 2017 2:19 PM
To: Trione, Charles (US) <charles.trione@lmco.com>
Cc: Karpinski, Steven (HEALTH) <steven.karpinski@health.ny.gov>; Omorogbe, Amen (DEC) <amen.omorogbe@dec.ny.gov>; McGuire, Pat <Pat.McGuire2@tetrattech.com>; Rick Zigenfus (rickzigenfus@conmed.com) <rickzigenfus@conmed.com>; Zigmont, James <ZigmontJH@cdmsmith.com>
Subject: EXTERNAL: 633036A; Former Lockheed Martin French Road Facility; 2016 Annual Site Management Report Correspondence

Attached is correspondence regarding the 2016 Annual Site Management Report. Please let me know if you have any questions or comments.

Thank you,
Sarah

Sarah Saucier, P.E.
Division of Environmental Remediation

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2016 Annual Site Management Report

**Former Lockheed Martin
French Road Facility
Utica, New York**



Prepared for:

Lockheed Martin Corporation
Energy, Environment, Safety and Health
6801 Rockledge Drive
Bethesda, Maryland 20817

Prepared by:

Stantec Consulting Services Inc.
61 Commercial Street, Suite 100
Rochester, New York 14614

May 2017

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Certification Statement

I, Peter Nielsen, of Stantec Consulting Services Inc., certify that I am currently a New York State-registered professional engineer and that this Site Management Report was prepared in accordance with applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10). I certify that information and statements in this certification form are true. For each engineering control* identified for the site, I certify that all of the following statements are true:

- The inspection of the site to confirm the effectiveness of the engineering controls required by the remedial program was performed under my direction;
- The engineering controls employed at this site are unchanged from the date the control was put in place, or last approved by the Department;
- Nothing has occurred that would impair the ability of the control to protect the public health and environment;
- Access to the site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of the engineering controls;
- The engineering control systems are performing as designed and are effective;
- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program and generally-accepted engineering practices; and
- The information presented in this report is accurate and complete.


Signature

2/21/2017
Date



* Remediation, as defined in the Statement of Basis, has not been completed at the time this report was prepared. Once the remedy has been implemented, and remediation is deemed complete by NYSDEC, institutional controls (as outlined in the Site Management Plan and Environmental Easement), can be finalized and fully implemented. For that reason, only engineering controls are certified herein. Following site closure, and through the periodic review reporting process, both engineering and institutional controls will be certified.



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ABBREVIATIONS & ACRONYMS

AGC	Annual Guideline Concentration
BBL	Blasland, Bouck, & Lee, Inc.
CB	catch basin
CMIP	corrective measures implementation plan
CMS	corrective measures study
ConMed	ConMed Corporation
DAR	(NYSDEC) Division of Air Resources
DCE	dichloroethene
DER	(NYSDEC) Division of Environmental Remediation
EC	Engineering Control
EE	Environmental Easement
FNPD	Former Northern Perimeter Ditch
FS	Feasibility Study
GCTS	groundwater collection and treatment system
GE	General Electric Company
HDPE	high-density polyethylene
IC	Institutional Control
ICM	interim corrective measures
IGWMP	Interim Groundwater Monitoring Program
in. W.C.	inches of water column
IRZ	in-situ reactive zone
Lockheed Martin	Lockheed Martin Corporation
MMC	Martin Marietta Corporation
MNA	monitored natural attenuation
MW	monitoring well
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OCIDA	Oneida County Industrial Development Agency
OM&M	Operation, Maintenance, and Monitoring
PCB	polychlorinated biphenyl
PCE	tetrachloroethene

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PC	Performing Contractor
PLC	Programmable Logic Controller
PZ	piezometer
RL	reporting limit
SB	Statement of Basis
SDS	sub-slab depressurization sump
SGV	standards and guidance values
SIR	Supplemental Investigation Report
SMR	Site Management Report
SPDES	State Pollutant Discharge Elimination System
SSDS	sub-slab depressurization system
SVI	soil vapor intrusion
TCE	trichloroethene
TOGS	Technical and Operational Guidance Series
VC	vinyl chloride
VFD	variable frequency drive
VOC	volatile organic compound
VPGAC	vapor-phase granular activated carbon
VMP	vacuum monitoring point

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1.0 INTRODUCTION

On behalf of Lockheed Martin Corporation (Lockheed Martin), Stantec Consulting Services Inc. (Stantec) has prepared this 2016 Annual Site Management Report (SMR) for the Former Lockheed Martin French Road Facility (herein, "the site") in Utica, New York. Refer to Figure 1 for a site location map. The activities described herein have been performed in general accordance with the Corrective Measures Implementation Plan (CMIP) required by the "Order on Consent" (Order) issued by the New York State Department of Environmental Conservation (NYSDEC) on October 3, 2008 (NYSDEC, 2008), and the *Final Statement of Basis (SB), Corrective Measures Selection, Former Lockheed Martin-French Road Facility, Operable Units 01 and 02, Site No. 633036A, EPA ID No. NYD000521971, Utica, Oneida County*, issued by NYSDEC on March 31, 2015 (SB; NYSDEC, 2015).

In addition to the interim corrective measures (ICMs) currently implemented on-site, the SB requires excavation of source-area subsurface soils impacted with volatile organic compounds (VOCs) in the Former Northern Perimeter Ditch (FNPD) Area 2 (located to the east of the maintenance building and directly north of the pole barn), as well as polychlorinated biphenyl (PCB)-impacted shallow surface soils at three other locations across the site. Excavation pre-design investigation activities began in November 2015, and were completed in October 2016. The *Draft Excavation Initial Design Investigation Report* (Stantec, 2016a) summarizing the investigation findings and recommendations was submitted to NYSDEC and New York State Department of Health (NYSDOH) on November 15, 2016, and subsequently approved on December 23, 2016. The finalized *Excavation Initial Design Investigation Report* (Stantec, 2017) was submitted to NYSDEC and NYSDOH, and filed in the public repository in January 2017. Excavation design is proceeding and remedial soil excavation is anticipated to be performed in 2018.

The SB requires both Engineering and Institutional Controls (ECs and ICs) to mitigate risks associated with remaining contamination to ensure protection of human health and the environment. Throughout 2016, operation of the Sub-Slab Depressurization System (SSDS) and Groundwater Collection and Treatment System (GCTS) ECs, and execution of the groundwater monitoring program were continued in order to meet the remedial objectives specified in the SB. Per the SB, a cover system EC has been incorporated into the *Draft Site Management Plan (Draft SMP; Stantec, 2016b)*, and annual inspections to assess its performance began in 2015. An Environmental Easement (EE) will be granted to NYSDEC, and recorded with the Oneida County Clerk, to require compliance with all ECs and ICs implemented on-site. The *Draft SMP* and EE materials were submitted to the Oneida County Industrial Development Agency (OCIDA) and NYSDEC on July 8, 2016. The *Draft SMP* should be consulted for additional details regarding site controls and management.

The SSDS performance portion of this report (see Section 2.1 and Appendix A of this SMR) was written to meet requirements specified in the *SSDS Operation, Maintenance, and Monitoring Plan (SSDS OM&M Plan; Stantec, 2016c)*, and the GCTS performance portion of this report (see

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Section 2.2 and Appendix B) was written to satisfy the requirements specified in the *Groundwater Collection and Treatment System Operation Maintenance, and Monitoring Manual (GCTS OM&M Manual; Stantec, 2016d)*. The cover system performance portion of the report (Section 2.3 and Appendix C) was written to satisfy requirements detailed in the *Draft SMP*. The *Interim Groundwater Monitoring Program (IGWMP)* is the basis for the groundwater monitoring program performance portion of this report (see Section 4.0 and Appendix D). The *IGWMP* was originally authored in October 2009 by ARCADIS and subsequently revised in February 2012 (ARCADIS, 2012) and in May 2016 (Stantec, 2016e).

Beginning on December 1, 2016, the Performing Contractor (PC) role for this site was transitioned to another firm, Tetra Tech.

1.1 REMEDIAL OBJECTIVES

As listed in the SB, the remedial objectives and actions to attain them are as follows:

OBJECTIVE	ACTION ITEMS	Relevant 2016 ECs/monitoring programs*
1. Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards	- EE and SMP (ICs) to prohibit groundwater use; and - Connection to municipal public water supply.	--
2. Prevent contact with or inhalation of volatiles from contaminated groundwater	- Continued SSDS operation; - SMP protocols for ground-intrusive activities and provision for future soil vapor intrusion (SVI) investigations; and - Groundwater monitoring.	<ul style="list-style-type: none"> • SSDS • Groundwater monitoring program
3. Restore groundwater aquifer to pre-disposal/pre-release conditions, to the extent practicable	- Continued GCTS operation; and - Groundwater monitoring (to evaluate GCTS performance).	<ul style="list-style-type: none"> • GCTS • Groundwater monitoring program
4. Remove the source of groundwater or surface water contamination	- Source area subsurface soil excavation (FNPB Area 2).	--
5. Prevent the discharge of contaminants to surface water	- Continued GCTS operation.	<ul style="list-style-type: none"> • GCTS

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OBJECTIVE	ACTION ITEMS	Relevant 2016 ECs/monitoring programs*
6. Prevent ingestion/direct contact with contaminated soil	<ul style="list-style-type: none"> - Source area subsurface soil excavation (FNPB Area 2); - Isolated PCB-impacted surface soil removal; - Restrictive Use Agreement (RUA) prohibiting residential use; and - Site cover system. 	<ul style="list-style-type: none"> • Site cover system
7. Prevent inhalation exposure from contaminants volatilizing from soil	<ul style="list-style-type: none"> - Source area subsurface soil excavation (FNPB Area 2); - SMP provision for potential future SVI investigations; and - Continued SSDS operation. 	<ul style="list-style-type: none"> • SSDS
8. Prevent migration of contaminants that would result in groundwater or surface water contamination	<ul style="list-style-type: none"> - Source area subsurface soil excavation (FNPB Area 2); and - Isolated PCB-impacted surface soil removal. 	--
9. Mitigate impacts to public health resulting from SVI into buildings on-site	<ul style="list-style-type: none"> - SMP provision for potential future SVI investigations; and - Continued SSDS operation. 	<ul style="list-style-type: none"> • SSDS

* This report details controls, history, and quantifiable performance criteria (where applicable) for each of the relevant ECs/monitoring programs listed in the third (and referenced) column.

1.2 SITE DESCRIPTION AND OWNERSHIP HISTORY

In the early 1950s, General Electric Company (GE) acquired approximately 55 acres of undeveloped land on French Road in Utica, New York and built a 500,000-square-foot manufacturing facility (Figure 1). GE operations included manufacturing, assembling, and testing electrical components for the defense and aerospace industries. GE production operations continued until April 1993, when the facility was acquired by Martin Marietta Corporation (MMC), who also used the facility for manufacturing operations.

In March 1995, MMC merged with Lockheed Corporation to form Lockheed Martin Corporation. In March 1996, Lockheed Martin sold the property to Pinnacle Park, Inc., which subsequently transferred the property to and leased it back from the OCIDA. ConMed Corporation (ConMed), a medical supplies manufacturer and distributor, now occupies the facility under ownership with OCIDA. Although Lockheed Martin no longer owns the property, the corporation retains responsibility for environmental cleanup related to past releases at the site. Figure 2 presents the site layout.

1.3 GROUNDWATER COLLECTION AND TREATMENT SYSTEM HISTORY

Groundwater beneath the northeast portion of the main manufacturing building (known as the Solvent Dock Area) and in an area along the FNPD has been impacted by VOCs. The former Solvent Dock and immediate vicinity (referred to hereafter as the Solvent Dock Area) once included a 275-gallon fiberglass overflow-retention tank. This tank stored spent waste solvents, which were periodically sampled, pumped from the tank, and disposed by waste haulers. The tank was removed in June 1990, at which time it was observed to be dented and leaking fluid. The FNPD (running along the northern property boundary) was an open-drainage swale that received storm water from the area north of the manufacturing building and conveyed the water, along with storm water from the western portion of the property, to a manhole before discharging it to the municipal storm sewer.

GE, MMC, and Lockheed Martin have investigated groundwater in these areas since 1991. In November 1994, Blasland, Bouck, & Lee, Inc. (BBL) investigated the facility storm sewer in the Solvent Dock Area. That investigation determined that VOCs detected in the storm sewer were attributable to the discharge of VOC-contaminated groundwater into the FNPD and infiltration of VOC-contaminated groundwater from the Solvent Dock Area into the storm sewer beneath the building.

In May 1995, BBL completed a *Storm Sewer Investigation Report* (BBL, 1995a), which recommended that the contaminated portion of the storm sewer flow be collected, treated, and discharged to meet proposed "State Pollutant Discharge Elimination System" (SPDES) VOC-effluent limitations. BBL evaluated remedial design alternatives (in accordance with NYSDEC recommendations) that would remedy contaminated groundwater by addressing the source of VOCs entering the storm sewer. The results of this evaluation are in the *Storm Sewer Basis of Design Report* (BBL, 1995b). This report led to design of the GCTS in October 1995, and initial system construction was completed in June 1996 as an ICM. The GCTS initially consisted of two underdrain pipes in the vicinity of the northern perimeter ditch, and the construction also included filling in the northern perimeter ditch and installation of a buried shallow storm sewer line.

The GCTS collects groundwater from the Solvent Dock Area and the FNPD area, conveys the collected groundwater to a treatment building where VOCs are removed by an air stripper, and then discharges the treated effluent to the municipal stormwater system under SPDES Permit #NY0121894. The post-stripper vapor stream is treated with vapor-phase granular activated carbon (VPGAC) before discharge to the atmosphere. A detailed description of the system is documented in the *GCTS OM&M Manual*.

Once the system was installed and the FNPD was replaced by a buried 24-inch-diameter high-density polyethylene (HDPE) pipe, groundwater no longer discharged to the surface. The pipe now conveys storm water that formerly flowed in the ditch. The ditch area was filled and contoured to match the existing grade. The GCTS was expanded in 2010 to include a third underdrain line running through the facility's eastern parking lot, parallel to a storm sewer running

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east-west toward a common storm sewer line (with eventual discharge to Nail Creek). This work also upgraded several GCTS components, notably the air stripper and associated controls. A more detailed explanation of the GCTS, including the current system layout, can be found in Appendix B.

1.4 SUB-SLAB DEPRESSURIZATION SYSTEM HISTORY

In February 2006, sub-slab soil gas and indoor air samples were collected at multiple locations inside occupied structures in the Solvent Dock Area where groundwater was known to be impacted by VOCs. VOCs including primarily tetrachloroethene (PCE) and trichloroethene (TCE) were detected in the soil gas beneath the main building, as presented in the *Vapor Intrusion Study Report* (EarthTech, 2006). Concentrations of VOCs in sub-slab soil gas samples were greater than NYSDOH guidance levels that required mitigation measures to be implemented (in accordance with NYSDOH's then-current *Public Comment Draft, Guidance for Evaluating Soil Vapor Intrusion in the State of New York, February 2005*).

Additional sub-slab soil gas and indoor air samples were collected in 2007 in the eastern portion of the main building. Based on these results, ARCADIS recommended re-sampling and installing an SSDS. In October and November 2007, supplemental sub-slab soil gas and indoor air sampling was conducted to:

- Confirm previous results;
- Better understand sub-slab soil gas and indoor air quality; and
- Further define areas in the building that might require mitigation as part of the planned ICM for the ConMed facility.

Results of this study were submitted to NYSDEC in the *Addendum to the Vapor Intrusion Study Report for the Solvent Dock Area* (ARCADIS, 2008a). The study results identified elevated TCE in sub-slab soil gas and indoor air at concentrations that could warrant mitigation within the eastern/northeastern portion of the ConMed facility, in accordance with *Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006* (NYSDOH, 2006).

The SSDS was initially installed in November 2007 and was operated as a pilot test to evaluate the system's effectiveness. The initial pilot system extracted soil vapor from two sub-slab depressurization sumps (SDSs): SDS-1 and SDS-2. Based on the pilot test results and supplemental indoor air/sub-slab analytical results (*Revised Work Plan for the Interim Corrective Measure*; ARCADIS, 2008b), the pilot-test system was expanded as part of an ICM plan to include an additional SDS location (SDS-3), a variable-frequency motor drive, and a programmable logic controller (PLC) equipped with a cellular modem. Following the SSDS startup/shakedown period, the SSDS began continuous operation in July 2008. The ICM operated from July 2008 through November 2010.

As presented in the *Sub-Slab Depressurization System 100% Design Work Plan* (ARCADIS, 2010), OM&M activities during 2009 indicated that the ICM SSDS was not meeting operational goals (specifically in the area north of SDS-1 and west of SDS-3), thereby requiring system expansion

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and modification. In September 2010, SSDS upgrade activities (which included the installation of additional depressurization sumps SDS-4 through SDS-7 and upgrades to other major components of the system) were initiated. The purpose of these upgrades was to expand the capture area of sub-slab vapor from areas of the main building not currently being mitigated by the system. Upgrade activities continued into February 2011, at which point the expanded system began full-scale operation. A detailed description of the upgraded system is documented in the revised *SSDS OM&M Plan*.

As presented in the *Summary Report for SSDS Pilot Test in Area of VMP-7A Solvent Dock Area* (ARCADIS, 2013a), a pilot test was conducted to address the vacuum performance of the existing SSDS in the vicinity of vapor monitoring point (VMP) VMP-7A (*note: for purposes of this report, vacuum and differential pressure are reported as inches of water column [in. W.C.] and expressed as a positive value*). The objective of the SSDS pilot test was to identify an SDS location(s) that would induce a vacuum greater than 0.004 in. W.C. in the sub-slab soil environment, at a sufficient radius to capture the area of VMP-7A and consistent with the design parameters (as presented within the *Sub-Slab Depressurization System 100% Design Work Plan*; ARCADIS, 2010).

This was accomplished by the installation of SDS-8. The pilot test results indicated that operation of SDS-8 created a sub-slab vacuum at VMP-7A well in excess of the target performance criteria of 0.004 in. W.C. of vacuum. As a result, permanent piping and infrastructure incorporating SDS-8 into the full-scale SSDS was installed with approval from NYSDEC. SDS-8 was permanently brought online on October 23, 2013, as detailed in the *Summary Report for Startup of SDS-8* (ARCADIS, 2014). The current SSDS configuration now covers the eastern one-third of the main manufacturing facility.

The *2015 Annual Vapor Intrusion Study Report* recommended that the annual vapor intrusion monitoring program be discontinued in the eastern one-third of the building where the SSDS is located (Stantec, 2015a). NYSDEC and NYSDOH approved the discontinuation of the annual SVI monitoring program in the area of SSDS operation in a letter dated September 21, 2015.

In response to the NYSDEC's request in May of 2015 to evaluate the need to investigate the western portion of the facility for potential SVI, Lockheed Martin submitted a letter summarizing the existing historical data relating to potential SVI in the western portion of the building (Stantec, 2015b). Lockheed Martin agreed to perform supplemental VI investigations, and submitted a work plan for additional SVI sampling in the western portion of the manufacturing facility (Stantec, 2015c). NYSDEC and NYSDOH approved the work plan in the same letter referenced above (dated September 21, 2015). SVI sampling for the western portion of the facility was performed in March 2016. The investigation findings and recommendations were summarized in a *Soil Vapor Intrusion Assessment* report and submitted to NYSDEC and NYSDOH on July 20, 2016 (Stantec, 2016f). The report was approved by NYSDEC and NYSDOH on September 22, 2016. Based on the results of the SVI assessment, no further investigations are warranted. Lockheed Martin decommissioned the vapor monitoring points in January 2017.

1.5 GROUNDWATER MONITORING HISTORY

After the installation of the GCTS, BBL subsequently developed a groundwater monitoring program to evaluate the effectiveness of the GCTS. This program, as presented in the *Ground-Water Sampling and Analysis Work Plan* (BBL, 1998), has been modified through periodic correspondence with NYSDEC to accommodate changing conditions over the project's life. ARCADIS prepared the *IGWMP* as part of the CMIP required by the Order. Since then, the *IGWMP* was revised in February 2012 (ARCADIS, 2012). Further modifications to the groundwater monitoring program were proposed in the *2015 Annual Site Management Report (2015 SMR; Stantec, 2016g)* and accepted by NYSDEC on May 24, 2016. The *IGWMP* was then modified accordingly in May 2016 (Stantec, 2016e). The modified *IGWMP* has been incorporated into the Draft *SMP* which is currently under NYSDEC review.

Lockheed Martin's investigations into the areas of concern identified at the site were presented in the *2009 Corrective Measures Study Report (CMS; CMS 2009 Report; ARCADIS, 2009)*. The *CMS 2009 Report* selected monitored natural attenuation (MNA) as one of the remedial alternatives to be used as a corrective measure to address site groundwater contamination. Additionally, the *CMS 2009 Report* concluded that supplemental investigations in specific areas of the site were warranted to fully characterize the extent of contamination and to confirm the effectiveness of the remedial action recommendations. These investigations are summarized in the *Former Northern Perimeter Ditch Supplemental Investigation Report (SIR) (FNPD SIR; ARCADIS, 2011a)*, which confirmed the presence of VOC-contaminated groundwater near the FNPD and recommended further investigation of contaminants in soil, groundwater, and soil vapor, as well as improved characterization of hydrogeologic conditions.

A feasibility study (FS) report (ARCADIS, 2011b) for the FNPD was submitted to NYSDEC in June 2011. The FS proposed selection of a combination of *in-situ* biological treatment, continued operation of the GCTS, institutional controls, and MNA as the most feasible remedial alternative for the FNPD groundwater impacts. A bioremediation pilot test, which was implemented in April 2012, evaluated the feasibility of an *in-situ* reactive zone (IRZ) using injected food-grade molasses as a carbon source to facilitate enhanced reductive dechlorination. The low permeability of the soils and the low injection flow rates observed during the IRZ pilot test demonstrated that *in-situ* biological treatment is not a viable component for full-scale application.

The FNPD 2013 *Corrective Measures Study (CMS 2013 Report; ARCADIS, 2013b)*, which was prepared to address the requirements of a letter from NYSDEC to Lockheed Martin dated July 16, 2013, evaluated the performance of the ICMs operating at the facility and recommended a corrective measures alternative pertinent to the FNPD. The *CMS 2013 Report* concluded that the chlorinated VOCs in groundwater had decreased through natural attenuation processes and operation of the ICMs since monitoring began in 1996; however, certain VOCs continued to persist at concentrations above regulatory criteria. The components of the recommended corrective measures within the *CMS 2013 Report* included continued operation of the GCTS, institutional controls, and MNA. Following its submittal, the *CMS 2013 Report* was reviewed by

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NYSDEC for use in preparation of the SB. As described in the SB, the major components of the selected site remedy (specifically pertaining to groundwater impacts) include FNPD source-area soil removal, continued periodic groundwater monitoring, operation and maintenance of the existing GCTS, and institutional controls (in the form of a Site Management Plan).

2.0 ENGINEERING CONTROLS

Since remaining contamination exists at the site, ECs are required to protect human health and the environment. The ECs are described below and detailed in Appendices A through C of this SMR.

2.1 SSDS PERFORMANCE

This section of the SMR documents the following: continuous, ongoing operation and maintenance of the SSDS; monitoring of sub-slab differential pressures; quarterly influent and effluent vapor sampling, annual indoor air and sub-slab vapor sampling, and system leak testing. Appendix A of this report summarizes the SSDS OM&M operational activities and system performance from January through December 2016 in the following sections:

- **Section 2** provides a brief history of system expansions and upgrades since the SSDS operation began, a list of all major SSDS components, and details of the main SSDS remedial operational objectives;
- **Section 3** describes operation and maintenance activities that occurred during the reporting period, including routine, non-routine, alarm response, and system modification activities;
- **Section 4** reviews daily, monthly, and quarterly monitoring activities during the reporting period, including a soil vapor intrusion assessment performed for the western building areas in March 2016 (Stantec, 2016f);
- **Section 5** provides a summation of the SSDS 2016 performance results. Overall the system performed effectively during the reporting period, as demonstrated by the following performance criteria:
 - Sufficient radius of vacuum in the sub-slab vapor environment beneath the building floor slab maintained at or greater than 0.004 in. W.C. (with minor brief exceptions as detailed in Appendix A),
 - 99.5% system runtime, and
 - Contaminant mass concentrations in the system vapor effluent remained below the NYSDEC Division of Air Resources (DAR)-1 guidance values.
- **Section 6** describes 2017 goals and recommendations, including the following:
 - The goals for operation maintenance and monitoring for the SSDS in 2017 remain unchanged.
 - A backup blower is now present on site as detailed in Appendix A.

2.2 GCTS PERFORMANCE

This section of the report documents the following: ongoing operation and maintenance of the GCTS; monitoring of system effectiveness; and monthly effluent sampling and quarterly influent and effluent sampling. Appendix B of this report summarizes the GCTS OM&M activities performed from January through December 2016 in the following sections:

- **Section 2** provides a description of the GCTS process, a list of all major components, and details of the main GCTS remedial operational objectives;
- **Section 3** describes operation and maintenance activities that occurred during the reporting period, including routine, non-routine, alarm response, and system modification activities;
- **Section 4** reviews system influent, effluent, and stormwater monitoring activities during the reporting period;
- **Section 5** provides a summary of the GCTS 2016 performance results. Overall the system performed effectively during the reporting period, as demonstrated by the following performance criteria:
 - 99.6% system runtime;
 - Quarterly stormwater samples collected from the Catch Basins (CBs) contained no detectable concentrations of VOCs above their respective laboratory reporting limits (RLs), as shown in Table B-4;
 - System-effluent samples contained no detectable concentrations of VOCs above their respective laboratory RLs (as shown in Table B-2) during the reporting period;
 - Vapor-phase discharge from the VPGAC manifold (post-carbon) was below NYSDEC DAR-1 allowable annual-guidance concentrations (AGC); and
 - The site-specific goal of 95% mass removal of target VOCs (specifically 1,1-dichloroethene [1,1-DCE], cis-1,2-dichloroethene [cis-1,2-DCE], PCE, trans-1,2-dichloroethene [trans-1,2-DCE], TCE, and vinyl chloride [VC]) in the system vapor effluent was achieved for most of 2016; however the data from the October sampling event showed a decrease to 92% mass removal. Accordingly, the system's VPGAC was changed out in December.
- **Section 6** describes 2017 goals and recommendations. No substantial changes to the GCTS operation are currently anticipated.

2.3 COVER SYSTEM

This section of the report documents the ongoing satisfactory performance of the site cover system. Appendix C of this report summarizes the cover system inspection completed on

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October 4, 2016 to assess cover system conditions and performance from January through December 2016 in the following sections:

- **Section 2** provides a description of the cover system and its remedial objectives, as outlined in the SB;
- **Section 3** details the site cover system inspection completed by Stantec, on October 4, 2016, with important items for the system's performance noted;
- **Section 4** reviews the system performance results. Overall the system performed effectively during the reporting period; and
- **Section 5** describes 2017 goals and recommendations, including the following:
 - Inspection will continue on an annual basis; and
 - Continued communication between ConMed, Lockheed Martin, and Lockheed Martin's PC on any ground-intrusive or re-paving work planned for 2017 is recommended to allow for timely documentation of changes to the cover system.

3.0 INSTITUTIONAL CONTROLS

A series of ICs is required by the SB to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination; and (3) limit the use and development of the site to Industrial or Commercial uses only. Adherence to these ICs will be required by the EE once it is implemented. Once remediation is complete in accordance with the SB, the ICs will be implemented under the SMP. Refer to the *Draft SMP* for a detailed description of site ICs.

4.0 GROUNDWATER MONITORING

This section of the report documents the groundwater monitoring activities performed at the site, including water level gauging and groundwater sampling for laboratory analysis. The criteria to which groundwater analytical results are compared are NYSDEC's *Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values (SGVs)* and associated addenda (NYSDEC, 1998; NYSDEC, 2000; NYSDEC, 2004). Groundwater monitoring is required by the SB to address the remedial objectives described in Section 1.1. Appendix D of this report summarizes the groundwater monitoring activities performed from January through December 2016 in the following sections:

- **Section 2** provides a brief description of site groundwater impacts, investigation history, contaminant distribution, and monitoring goals;
- **Section 3** describes the groundwater monitoring parameters, locations, and objectives of the *IGWMP*;
- **Section 4** evaluates the results of the 2016 groundwater monitoring program, specifically the findings from each of the four *IGWMP* Objectives (1-4) and site geochemistry. Section 4 also includes a description of the data quality review; and
- **Section 5** provides recommendations relative to future monitoring and evaluation of data.
- **Section 6** lists references cited in the report.

The 2016 groundwater monitoring results indicate that groundwater quality remains stable and has shown improvement in some areas. No sudden increases or exceedances of historical maxima were observed during 2016, except for monitoring well MW-18 where the concentration of PCE and TCE in Q1, and the concentration of PCE in Q2 exceeded their historical maxima. However, no sudden increases, exceedances of historical maxima, or increasing trends were observed in Q3 and Q4.

One statistically-significant increasing trend was identified for cis-1,2-DCE at MW-1, although it appears simply to be reflective of fluctuations around historically low concentrations. The Mann-Kendall analysis also identified statistically-significant decreasing trends for one or more analytes at two monitoring locations (PZ-5 and MW-2). Overall, the groundwater contaminant plume appears relatively stable with respect to contaminant concentrations and plume extent. Hydrogeologic conditions, including site geochemistry and groundwater flow direction, have remained consistent over the past five years of monitoring.

4.1 RECENT PROGRAM MODIFICATIONS

As stated in Section 3.5.1 of the *IGWMP*, "four consecutive rounds of sampling data yielding results below cleanup goals will indicate that cleanup goals have been achieved for a particular location. Removal of that location from the monitoring network will then be assessed

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and, if appropriate, removal of that location from the MNA monitoring plan will be requested in writing from NYSDEC." As reported in the 2015 SMR (prepared in early 2016), such results were achieved for the following wells, each of which showed four or more consecutive quarters with contaminant levels below SGVs:

- PZ-7
- PZ-13R
- PZ-18
- PZ-26
- MW-5
- MW-13S
- MW-14BR

Accordingly, Stantec proposed to NYSDEC in a letter dated December 23, 2015 to remove the above wells from the Solvent Dock Area groundwater monitoring program. NYSDEC approved this recommendation in a letter dated January 21, 2016. The sampling program was modified as such beginning in April 2016 (Q2 sampling event), with one exception. Although NYSDEC agreed to removal of each of these wells from the monitoring program, Lockheed Martin decided to continue sampling well PZ-13R, given its location at the easternmost extent of the monitoring network and its seasonal fluctuations of TCE which approach and occasionally exceed regulatory standards.

In response to plume stability demonstrated by monitoring results and statistical analyses, and as part of the 2015 SMR, Lockheed Martin proposed to change the gauging and sampling frequency from quarterly to annual, beginning in 2017, for all wells included in the monitoring program. This recommendation was accepted by NYSDEC via approval of the 2015 SMR on May 24, 2016. The annual monitoring program will be implemented in 2017, and continue to provide sufficient gauging and analytical data to fulfill the groundwater monitoring requirement directive of the SB.

4.2 RECOMMENDATIONS FOR 2017

Based on several years of groundwater data, and with the advent of annual groundwater sampling in 2017, some elements of the original *Interim Groundwater Monitoring Program* are no longer applicable, most notably the "Decision Tree for Performance Monitoring." Accordingly, the recommendations in the groundwater report include revisions to the manner in which statistical data will be evaluated and what actions will be taken based on the data.

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5.0 REFERENCES

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- ARCADIS, 2013b *Corrective Measures Study, Former Northern Perimeter Ditch, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York.* December 2013.
- ARCADIS, 2014 *Summary Report for Startup of SDS-8 (in the Area of VMP-7A), Solvent Dock Area, Former Lockheed Martin French Road Facility, 525 French Road, Utica, New York.* January 2014.
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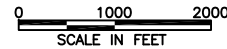
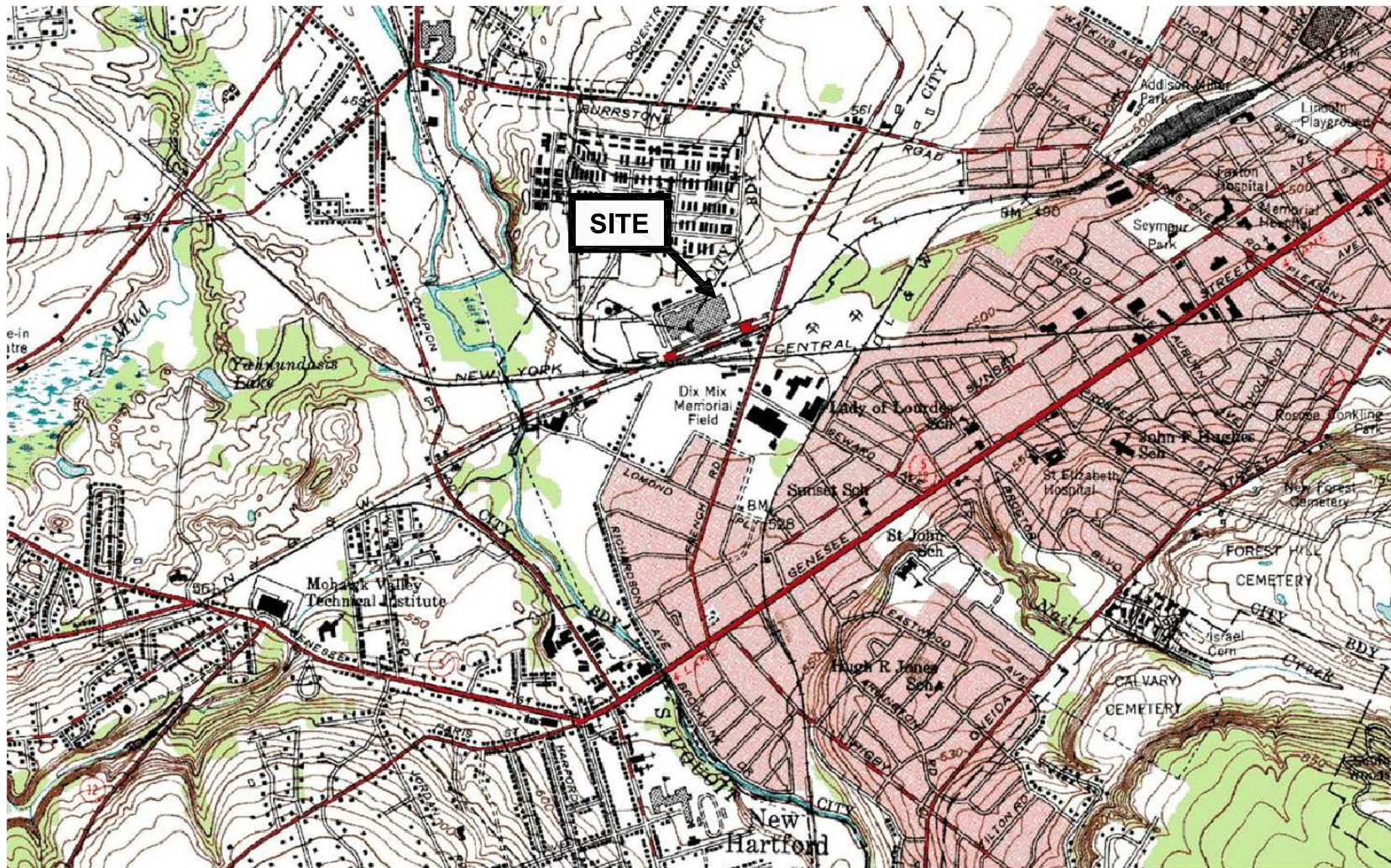
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FORMER LOCKHEED MARTIN FRENCH ROAD FACILITY
UTICA, NEW YORK**

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EarthTech, 2006	<i>Vapor Intrusion Study Report for the Solvent Dock Area. April 2006.</i>
NYSDEC, 1998	<i>Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998.</i>
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NYSDEC, 2008	<i>Order on Consent, Index Number: CO 6-20080321-5. October 3, 2008.</i>
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Stantec, 2015a	<i>2015 Annual Vapor Intrusion Study, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York. August 24, 2015.</i>
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Stantec, 2015c	<i>Work Plan for Soil Vapor Intrusion Sampling, Western Portion of Manufacturing Facility, Former Lockheed Martin French Road Facility, 525 French Road, Utica, New York, NYSDEC Site No. 633036A. September 8, 2015.</i>
Stantec, 2016a	<i>Draft Excavation Initial Design Investigation Report, Former Lockheed Martin French Road Facility, Utica, New York. November 9, 2016.</i>
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FORMER LOCKHEED MARTIN FRENCH ROAD FACILITY
UTICA, NEW YORK**

Stantec, 2016c	<i>Sub-Slab Depressurization System Operational, Maintenance, and Monitoring Plan, Former Lockheed Martin French Road Facility, Utica, New York. March 2016.</i>
Stantec, 2016d	<i>Groundwater Collection and Treatment System Operations, Maintenance, and Monitoring Manual, Solvent Dock Area. March 2016.</i>
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Stantec, 2017	<i>Excavation Initial Design Investigation Report, Former Lockheed Martin French Road Facility, Utica, New York. January 4, 2017.</i>

FIGURES



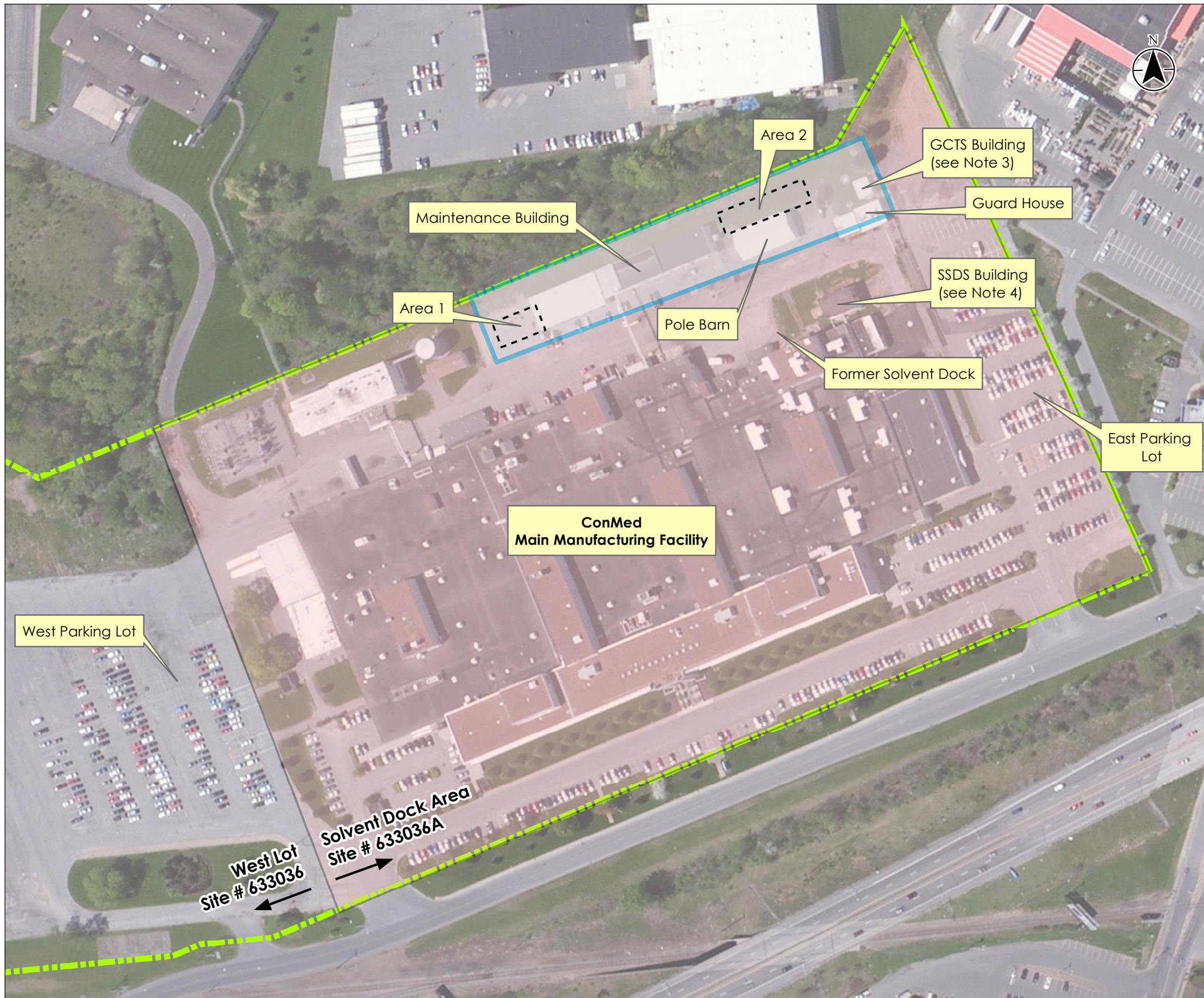
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FACILITY UTICA, NEW YORK

SITE LOCATION MAP



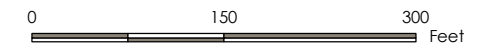
FIGURE
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Legend

- Former Northern Perimeter Ditch (FNPD)
- FNPD Areas of Investigation
- Cover System Extent
- Property Line



Notes

1. Coordinate System:
NAD 1983 StatePlane New York Central FIPS 3102 Feet
2. See Figure B-1 for the extent and layout of the GCTS (Appendix B: Groundwater Collection and Treatment System Operation, Maintenance, and Monitoring Performance Report).
3. See Figure A-1 for the extent and layout of the SSDS (Appendix A: Sub-Slab Depressurization System Operation, Maintenance, and Monitoring Performance Report).



Project Location: 525 French Road, Utica, Oneida County, NY
 Prepared by: LB on 2016-11-23
 1st Technical Review by: RJM on 2017-01-19
 2nd Technical Review by: PN on 2017-01-20
 190500800

2016 Annual Site Management Report
 Former Lockheed Martin French Road Facility
 Utica, New York

Figure No.

2

Title

Site Layout

APPENDICES

**2016 Annual Site
Management Report**

**APPENDIX A:
Sub-Slab Depressurization System
Operation, Maintenance, and
Monitoring Performance Report**

**Former Lockheed Martin
French Road Facility
Utica, New York**



Prepared for:

Lockheed Martin Corporation
Energy, Environment, Safety and Health
6801 Rockledge Drive
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Prepared by:

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May 2017

**2016 Annual Site
Management Report**

**APPENDIX B:
Groundwater Collection and
Treatment System
Operation, Maintenance, and
Monitoring Performance Report**

**Former Lockheed Martin
French Road Facility
Utica, New York**



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May 2017

**2016 Annual Site
Management Report**

**APPENDIX C:
Cover System
Performance Report**

**Former Lockheed Martin
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May 2017

**2016 Annual Site
Management Report**

**APPENDIX D:
Groundwater Monitoring Report**

**Former Lockheed Martin
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May 2017