PERIODIC REVIEW REPORT (2017)
AMERICAN VALVE MANUFACTURING
NYSDEC SITE NO. 420002

WORK ASSIGNMENT NO. D007619-17

Prepared for:

New York State Department of Environmental Conservation
Albany, New York

Prepared by:

MACTEC Engineering and Consulting, P.C.
Portland, Maine

MACTEC: 3612122252

JANUARY 2018

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GLOSSARY OF ACRONYMS AND ABBREVIATIONS

AVM	American Valve Manufacturing
bgs	below ground surface
CCR	Construction Completion Report
EC	engineering controls
FS	feasibility study
HA	USEPA Drinking Water Health Advisories
HDPE	high-density polyethylene
IC	institutional controls
LDPE	low-density polyethylene
LTM	long term monitoring
MACTEC	MACTEC Engineering and Consulting, P.C.
mg/kg	milligrams per kilogram
µg/L	micrograms per liter
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
OU	operable unit
PFAS	polyfluoroalkyl substances
PFBS	perfluorobutanesulfonic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonic acid
PRR	Periodic Review Report
RI	remedial investigation
ROD	Record of Decision

GLOSSARY OF ACRONYMS AND ABBREVIATIONS (CONTINUED)

RSL	Regional Screening Level
SCG	Standards, Criteria, and Guidance
SCO	Soil Cleanup Objective
Site	American Valve Manufacturing site
SM	site management
SMP	site management plan
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound
XRF	x-ray fluorescence

EXECUTIVE SUMMARY

The American Valve Manufacturing Site (Site No. 420002; herein referred to as the Site) is an 9.8-acre site located at 170 Mansion Street in the village of Coxsackie, New York (Greene County). The Site was remediated in accordance with the Records of Decision (RODs) for Operable Unit 1 (OU1) (foundry sand waste) (New York State Department of Environmental Conservation [NYSDEC], 1997) and OU2 (groundwater and building contamination) (NYSDEC, 1999a). The Site includes an engineered landfill cover system which overlies waste foundry sand remaining after the remedial actions were completed. Contaminants of concern are volatile organic compounds including tetrachloroethene, trichloroethene, 1,2-dichloroethene, vinyl chloride, and lead. Remedial goals outlined in the RODs for the Site are to prevent direct contact with contaminated soil and/or groundwater, and to prevent contaminated surface water and groundwater from migrating off-site. In accordance with the Draft Site Management (SM) Plan Revision 2 (MACTEC Engineering and Consulting, P.C. [MACTEC], 2016), current SM requirements for monitoring the performance and effectiveness of the remedial measures completed at the Site consist of semi-annual Site inspections and environmental monitoring at 15-month intervals.

This Periodic Review Report summarizes SM activities completed at the Site during 2017 and evaluates the effectiveness of the remedial actions. During the reporting period, SM requirements were met. MACTEC concludes that the remedy for the Site is appropriate.

Additional activities conducted at the request of the NYSDEC during 2017 included:

- installation of perimeter fence signs
- additional groundwater sampling to evaluate the presence/absence of polyfluoroalkyl substances (PFAS) and 1,4-dioxane at the Site
- soil removal at the residential property boundary.

1.0 SITE HISTORY

The Site is located at 170 Mansion Avenue in the Village of Coxsackie, Greene County, New York (Figure 1.1), and is currently identified as Section 56.14 Block 2 and Lot 37 on the Greene County Tax Map. The original Site was 12.5 acres in size when the Records of Decisions (RODs) were signed in 1997 and 1999 (New York State Department of Environmental Conservation [NYSDEC], 1997; NYSDEC 1999a). In 2017 the NYSDEC modified the Site boundary and reduced the area to 9.8 acres, which includes the landfill and associated features (i.e. fence, drainage swales, access road). The Site no longer includes the Northern Parcel. The Site is bounded by undeveloped property (the Northern Parcel) to the north, residential properties and Spencer Boulevard to the south, the village water tower to the east, and CSX railroad to the west.
Figure 1.2 shows the current Site features.

American Valve Manufacturing (AVM) manufactured valves and pipe fittings at this facility between 1904 and 1986. During the time the company was operating, various industrial wastes including spent foundry sand were disposed onsite including disposal into an unlined landfill on the southern end of the property. After the company went out of business, the abandoned landfill was not properly closed (NYSDEC, 1997).

A Remedial Investigation (RI)/Feasibility Study (FS) that addressed the presence of lead in the foundry sands, defined as Operable Unit-1 (OU1), was completed in early 1997; a Remedial Design was completed in June 1999. A RI/FS that addressed groundwater contamination (petroleum and volatile organic compounds [VOCs]) and building contamination, defined as OU2, was completed in January 1999, and a ROD was signed in March 1999. Remedies for both OUs have been completed, and the Site is now in the site management (SM) phase to monitor the effectiveness of the remedy (MACTEC Engineering and Consulting, P.C. [MACTEC], 2016a).

2.0 SITE MANAGEMENT STATUS

This Periodic Review Report (PRR) documents the SM activities conducted during 2017:

- Semi-Annual Site Inspections – April (MACTEC, 2017a) and October (MACTEC, 2017b)
- Installation of site contact information signs on perimeter fence – June
- Installation of high-density polyethylene (HDPE) Hydrasleeves™ in select wells in preparation for December groundwater monitoring - June
- Long Term Monitoring (LTM) – December
- Additional groundwater sampling at the request of the NYSDEC to evaluate the presence/absence of polyfluoroalkyl substances (PFAS) and 1,4-dioxane at the Site – December
- Residential Property Boundary Soil Removal – December

This PRR was completed using site-specific documentation including the Site's RODs (NYSDEC, 1997 and 1999a) and the Site Management Plan (SMP) (MACTEC, 2016a). The PRR was prepared to document that established controls required by the SMP are operational and effective, that the SMP is being implemented and conducted accordingly, and that the remedy remains protective of the environment and/or public health.

SM requirements as described in the SMP are outlined in Table 2.1. These include semi-annual inspection of institutional/engineering controls (IC/EC) at the Site, as well as LTM which includes analysis of groundwater, surface water, and sediment samples from existing monitoring locations (Figure 1.2). Existing shallow and deep wells are monitored to evaluate contaminant concentrations in groundwater as compared to the Site cleanup goals (New York State (NYS) Class GA Standards [6 New York Codes, Rules and Regulations Parts 700-705] for lead and VOCs) (NYS, 1999). Surface water sample results are monitored for comparison to site cleanup goals for lead and VOCs (Technical and Operational Guidance Series 1.1.1, "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations" [NYSDEC, 1998]). Sediment sample results are compared to Technical Guidance for Screening Contaminated Sediments, 1999 for VOCs, semi-VOCs and lead (NYSDEC, 1999b).

SM activities were completed during the reporting period and an evaluation of the performance, protectiveness, and effectiveness of the remedy is summarized below.

2.1 INSTITUTIONAL CONTROLS/ENGINEERING CONTROLS PLAN

Contaminated soil exists beneath the ground surface, therefore IC/ECs are required to protect human health and the environment. ICs at the Site consist of the SMP (MACTEC, 2016a) and the RODs (NYSDEC, 1997; NYSDEC 1999a). ECs at the Site include an engineered landfill cover, site access controls, and the Site storm water drainage system. Exposure to remaining contamination in soil/waste at the Site is prevented by an engineered landfill cover system placed over a portion of the Site. Roads providing access to the landfill area are equipped with locked gates. The Site is enclosed by a perimeter fence to restrict access by animals, people, and vehicles, thus preventing damage to the cover. These controls prevent trespassing on the Site, limit future development at the Site, and prevent direct contact with the contaminated soil/waste. The storm water drainage system consists of a surface drainage swale and a culvert that drains from the northwest portion of the landfill toward a drainage basin located adjacent to the CSX railroad.

During the reporting period, the ECs were inspected in April and October 2017 in accordance with the SMP. ECs are in place and functioning as intended; however, the following conditions were observed during the Site inspections:

- Damage to the perimeter fence by a large fallen tree limb adjacent to the MW-22S/22D series wells
- Exposed geotextile in two areas
- Multiple animal burrows in various areas
- Tractor tire marks in two areas of the cover
- Standing water in the drainage swale on the southwest side of the landfill
- Woody vegetation growth along the edges of the drainage channel

During the October 2017 Site inspection, the cap had not been mowed, therefore long grass and bushy vegetation were observed on the cap and therefore features of concern noted during the April inspection, such as exposed sections of geotextile, could not be confirmed. MACTEC recommends coordinating cap mowing prior to conducting the fall inspections.

2.2 LONG TERM MONITORING PLAN

The LTM program described in the SMP includes groundwater elevation monitoring, monitoring well inventory and repair, groundwater sampling and analysis, and surface water/sediment sampling and analysis. Since January 2008, monitoring locations have been sampled at 15-month intervals (Table 2.1). Results of the LTM conducted in December 2017 are discussed below. The LTM locations are shown on Figure 1.2. Table 2.2 summarizes the sampling and analysis plan for all Site monitoring locations.

2.2.1 Groundwater Elevation Monitoring

Groundwater elevations obtained from the 10 monitoring wells sampled are summarized in Table 2.3. As shown on Figure 2.1, groundwater elevations measured during the reporting period illustrate a west/northwest groundwater flow direction towards the CSX railroad. Overburden groundwater elevations at the Site are relatively shallow, ranging between one and nine feet below ground surface (bgs).

2.2.2 Monitoring Well Inventory and Repair

Monitoring well conditions were inspected in April and October of 2017 as part of the semi-annual inspections. Site inspection records and photographs taken during those inspections are included in Appendix A.

The monitoring wells were observed to be in good condition during both Site inspections, and no repairs were needed in 2017.

2.2.3 Environmental Sampling and Analysis

LTM activities were conducted in December 2017 in general accordance with the SMP (MACTEC, 2016a). Groundwater samples were collected using Hydrasleeves™ from ten monitoring wells. Exceptions to the monitoring plan were as follows:

- Surface water and sediment grab samples were not collected during the December 2017 monitoring event because location SW-10/SED-10 was frozen.
- Groundwater samples from monitoring well MW-7S were not collected for VOC or lead analysis, as the Hydrasleeve™ did not contain enough sample volume.

- In addition to the routine LTM parameters, samples were collected from two monitoring wells (MW-1S and MW-23S) for PFAS analysis, and from three monitoring wells (MW-1S, MW-5S, and MW-7S) for 1,4-dioxane analysis. This additional sampling is described in Subsection 2.4.3 below.

Compounds detected in groundwater, surface water, and sediment were tabulated and compared to applicable standards, criteria, and guidance (SCGs) for the Site as defined in the ROD for OU1 (NYSDEC, 1997). The ROD directs comparison of Site compound concentrations to these SCGs to determine whether the landfill cap and drainage continue to be effective. For purposes of this PRR, environmental monitoring results and comparisons to SCGs are discussed below and presented in Table 2.4.

2.2.3.1 Groundwater

During the reporting period, each of the 10 monitoring wells were sampled using a Hydrasleeve™ sampler, a no-flow sampling device placed in each well a minimum of 6 months prior to collecting the sample to allow particulates to settle out of the water column. During installation, the Hydrasleeve™ in MW-7S was caught on an obstruction (likely a polyvinyl chloride joint in the well riser) and the sleeve was not fully submerged. The sample volume in the MW-7S Hydrasleeve™ was inadequate to analyze for all planned parameters; therefore, it was analyzed for 1,4-dioxane only (see Subsection 2.4.3).

Groundwater samples were analyzed for VOCs by the United States Environmental Protection Agency (USEPA) Method 8260 and lead by the USEPA Method 6010B. VOCs were detected at concentrations above SCGs in one of the nine monitoring wells. Figure 2.2 shows the most recent analytical results that exceeded SCGs.

Comparison of the 2017 analytical results for the sampled wells to historical findings from 2004 to 2016 (Malcolm Pirnie, Inc., 2004; H2M, 2006a/b; MACTEC, 2008; MACTEC, 2009; MACTEC, 2013; MACTEC, 2015; MACTEC, 2016b; MACTEC, 2017c) show fluctuating concentrations of lead and VOCs in groundwater. Locations and parameters with observed concentrations in excess of SCGs from 2004 to 2017 are shown below. A time series plot showing concentrations of cis-1,2-dichloroethene in MW-5S is included in Appendix B.

Location	Parameter	GA	2004	2006	2008	2009	2012	2014	2015	2016	2017
MW-5D	Lead	25	**358**	2.4	1.5 B	-	**47.1**	15.7	-	2.2	-
MW-5S	Vinyl Chloride	2	-	2 J	2	2	-	-		2	-
MW-5S	1,2-dichloroethene	5	-	**42**	**44**	**20**	**67**	**32**	NM	**33**	**36.2**
MPI-22S	Lead	25	NM	NM	-	1.6 B	-	**25.2**	NM	4	-

Notes:
GA= NYS GA Standard
B = analyte was detected in the laboratory method blank analyzed concurrently with the sample.
Bold = results exceeds NYS GA standard
- = Not detected
NM = Not measured, or sample not submitted for this analysis
Results presented in µg/L = micrograms per liter

2.2.3.2 Surface Water/Sediment

Surface water/sediment samples were scheduled to be collected in December 2017 in accordance with the SMP, at locations SW-10 and SED-10 from the drainage basin adjacent to the Site and railroad (Figure 1.2). Samples were to be analyzed for VOCs and lead. Sample locations SW-10 and SED-10 were frozen during the December sampling event and therefore no samples were collected.

2.3 OPERATIONS & MAINTENANCE PLAN

In accordance with the SMP, site-wide inspections conducted semi-annually include inspections of the landfill cover system, storm water collection and drainage system, landfill gas vents, site security features, and monitoring wells.

During the 2017 reporting period, inspections were conducted in April and October. Inspection observations were recorded using Post Closure Inspection Forms, photographic logs, and field notes included with the Semi-annual Inspection Reports – April and October 2017 (MACTEC, 2017a; MACTEC, 2017b) (Appendix A).

Inspections included observations of:

- Cover system integrity

- Drainage swale conditions
- The monitoring well network
- Perimeter fence and gates

Findings of these inspections are provided in Subsections 2.1 and 2.2 above.

2.4 ADDITIONAL SITE ACTIVITIES

2.4.1 Perimeter Fence Sign Installation

In June 2017, signs providing contact information were posted on the perimeter fence at the landfill gate and the Cato Street gate (Appendix C).

2.4.2 Residential Boundary Soil Remediation

In December 2017, soil excavation activities were conducted along the residential properties abutting the northern portion of the Site in areas where lead and copper were identified at concentrations exceeding Residential Soil Cleanup Objectives (SCOs).

Remedial activities were conducted by Environmental Waste Minimization, Inc. from December 7 through December 20, 2017. Activities at the Site began with removal of the chain-link fence between the residential properties and the northern portion of the Site. This was followed by removal of vegetation having a diameter of less than 12 inches within the identified excavation areas, with the exception of the Blinn property where, at the request of the property owner, a row of forsythia remains. Vegetation was chipped and transported to the Village's composting facility, which abuts the Site to the west.

In conformance with the work plan, x-ray fluorescence (XRF) field screening was conducted to guide excavation activities (MACTEC, 2017e). Screening criteria were established as 20% of the SCOs (320 milligrams per kilogram [mg/kg] for lead and 216 mg/kg for copper). Prior to beginning excavation, pre-screening activities were conducted, which showed the area of copper and lead within residential properties was more extensive than previously known. Excavations were initiated based on the extent established with the prescreening results and continued until XRF results met the screening criteria, or until the excavation limit reached a portion of residential property boundary

that was inaccessible e.g. trees, buildings, etc.). Based on XRF results, samples were collected for laboratory analysis and submitted to Pace Analytical to confirm that the remaining soil met Residential SCOs. Confirmatory samples from accessible portions of the excavations that exceeded SCOs were over-excavated and then resampled until confirmation results were within acceptable limits. The concentrations of lead and copper in the excavated soil did not exceed the industrial SCO; therefore, the excavated soil was transported to the landfill on the southern portion of the Site and spread on-Site (within the fence line) along the northern boundary. The area where soil was spread was stabilized for the winter with mulch; seeding will be conducted in the spring when weather conditions are more conducive to vegetation growth.

Clean imported fill and topsoil were used to backfill the excavations. Figures 2.3 through 2.5 show the extent of excavation.

Laboratory results show that there is contamination remaining on three of the four properties excavated. On two of the properties excavation was terminated due to logistical constraints including proximity to large trees or structures. On the third property a row of forsythia, which was located in the middle of the contaminated area, was not removed at the owner's request. Access was not obtained from one additional property located on the northern boundary of the Site, although several attempts were made to contact her. It is likely that contamination extends onto this property based on concentrations of contaminants found on adjacent properties.

Restoration activities including planting grass and replacing trees and shrubbery were not conducted at the site in 2017 due to weather conditions. In addition, the fence was not replaced along the Site boundary at the request of the NYSDEC project manager. The NYSDEC will work with the Village of Coxsackie to determine if and what type of fencing should be installed.

MACTEC is currently preparing an Interim Construction Completion Report which documents activities conducted onsite during the remediation. A Final Remedial Action Completion Report will be completed after restoration activities are conducted in 2018.

2.4.3 PFAS and 1-4 Dioxane Sampling

At the request of the NYSDEC, sampling was conducted to evaluate the presence/absence of PFAS and 1,4-dioxane at the Site. This sampling was conducted concurrently with the LTM groundwater sampling, and generally followed the 2017 Long Term Monitoring Addendum (MACTEC, 2017d) with the following exception:

- Monitoring well MW-7S was planned for PFAS and 1,4-dioxane sampling and analysis (along with the regular LTM parameters). However, inadequate sample volume was present in the Hydrasleeve™, as described in Section 2.2.3, so only 1,4-dioxane was analyzed.

PFAS samples were collected in December from monitoring wells equipped with HDPE Hydrasleeves™ samplers. The low-density polyethylene (LDPE) samplers typically used for LTM sampling could cause biased results due to PFAS affinity for the material. Therefore, the LPDE samplers were removed from the select wells and replaced with HPDE samplers in June to allow sufficient time for the wells to equilibrate.

Groundwater samples were shipped to TestAmerica Laboratories, Inc. for PFAS compound analysis using modified USEPA Method 537. This analysis includes the six PFAS compounds identified in the USEPA Safe Drinking Water Act Unregulated Contaminant Monitoring Rule. Samples collected for 1,4-dioxane were analyzed using USEPA Method 8260 SIM to obtain low detection limits.

PFAS results were compared with the USEPA Drinking Water Health Advisories (HA) of 70 nanograms per liter for the combined concentration of perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS), and a Regional Screening Level (RSL) of 380 micrograms per liter (µg/L) for residential tap water for Perfluorobutanesulfonic acid (PFBS). PFAS results are presented in Table 2.5. Concentrations were below the HA and RSL.

1,4-Dioxane results are presented along with VOC results in Table 2.4. 1,4-Dioxane was not detected above the laboratory reporting limit of 0.4 µg/L in the wells sampled. The USEPA RSL for 1,4-dioxane is 0.46 µg/L.

3.0 CONCLUSIONS AND RECOMMENDATIONS

Current SM activities being conducted at the Site are in compliance with the requirements of the Site's SMP, and SM is effective in monitoring the status of remedial goals established in the ROD:

- direct contact with the waste at the Site is eliminated
- off-site migration of groundwater contaminants is prevented
- off-site migration of surface water contaminants exceeding SCGs is prevented.

To maintain the Site integrity, the following recommendations are provided:

ICs/ECs Plan - Based on Site Inspection Reports:

- Continue semi-annual inspections as scheduled
- Repair the reported damage to the perimeter fence along the southern boundary and remove tree branches that could potentially damage the fence.
- Address excess vegetation growth on the landfill cap by mowing.
- Fill/repair rodent holes observed in during inspections.

Monitoring Plan

- LTM activities should continue as scheduled (the next 15 month sampling event is scheduled for March 2019).

Residential Soil Removal

The extent of remaining contamination on residential properties should be evaluated and a plan developed to remediate the soils with concentrations of lead and copper exceeding the residential SCOs. The follows actions are recommended:

- Define the extent of contamination on the Sander and Brandt properties and remediate soils with concentrations exceeding the SCOs.
- Obtain access to the Eddy property and conduct an investigation to determine if contamination is present exceeding the residential SCOs for lead and copper. If contamination is found, define the extent of contamination and conduct remedial activities.

PFAS and 1,4-Dioxane Sampling

- Based on analytical results, which were below the applicable HA and RSLs, no additional groundwater sampling for PFAS and low-level 1,4-dioxane is recommended at the Site. Continue LTM groundwater sampling using LDPE Hydrasleeves™.

Site Management Plan

- The Draft SMP, which reflects changes at the Site as a result of the boundary modification, should be updated to indicate NYSDEC approval.

4.0 REFERENCES

H2M Labs, Inc. (H2M), 2006a, SDG Narrative for Volatile and Metals Analyses - Samples Received: 6/28/06, SDG#:DEC0244, July 2006

H2M, 2006b, SDG Narrative for Volatile and Metals Analyses - Samples Received: 6/28/06 and 6/29/06, SDG#:DEC0245, July 2006

MACTEC Engineering and Consulting, P.C. (MACTEC), 2008. Monitoring Report and Site Inspection – January 2008, March 2008.

MACTEC, 2009. Site Inspection and Monitoring Report – May 2009, August 2009.

MACTEC, 2013. Semi-annual Site Inspection Report– November 2012. January 2013.

MACTEC, 2015. Periodic Review Report - 2014. January 2015.

MACTEC, 2016a. Draft Site Management Plan Revision 2– American Valve Manufacturing. October 2016.

MACTEC, 2016b. Periodic Review Report – 2015. January 2016.

MACTEC, 2017a. Semi-Annual Site Inspection Report – April 2017.

MACTEC, 2017b. Semi-Annual Site Inspection Report – October 2017.

MACTEC, 2017c. Periodic Review Report – 2016. January 2017.

MACTEC, 2017d. 2017 Long Term Monitoring Addendum, Polyfluoroalkyl Substances and 1,4-Dioxane Groundwater Sampling. May 2017.

MACTEC, 2017e. Field Activities Plan – Residential Boundary Soil Excavation. November 2017.

Malcolm Pirnie, Inc., 2004. "Semi-Annual Monitoring and Maintenance Report, Environmental Monitoring Plan, Former American Valve Manufacturing Facility". October 5, 2004.

REFERENCES (CONTINUED)

New York State (NYS) 1999. 6 New York Codes, Rules and Regulations Parts 700-705. August 1999.

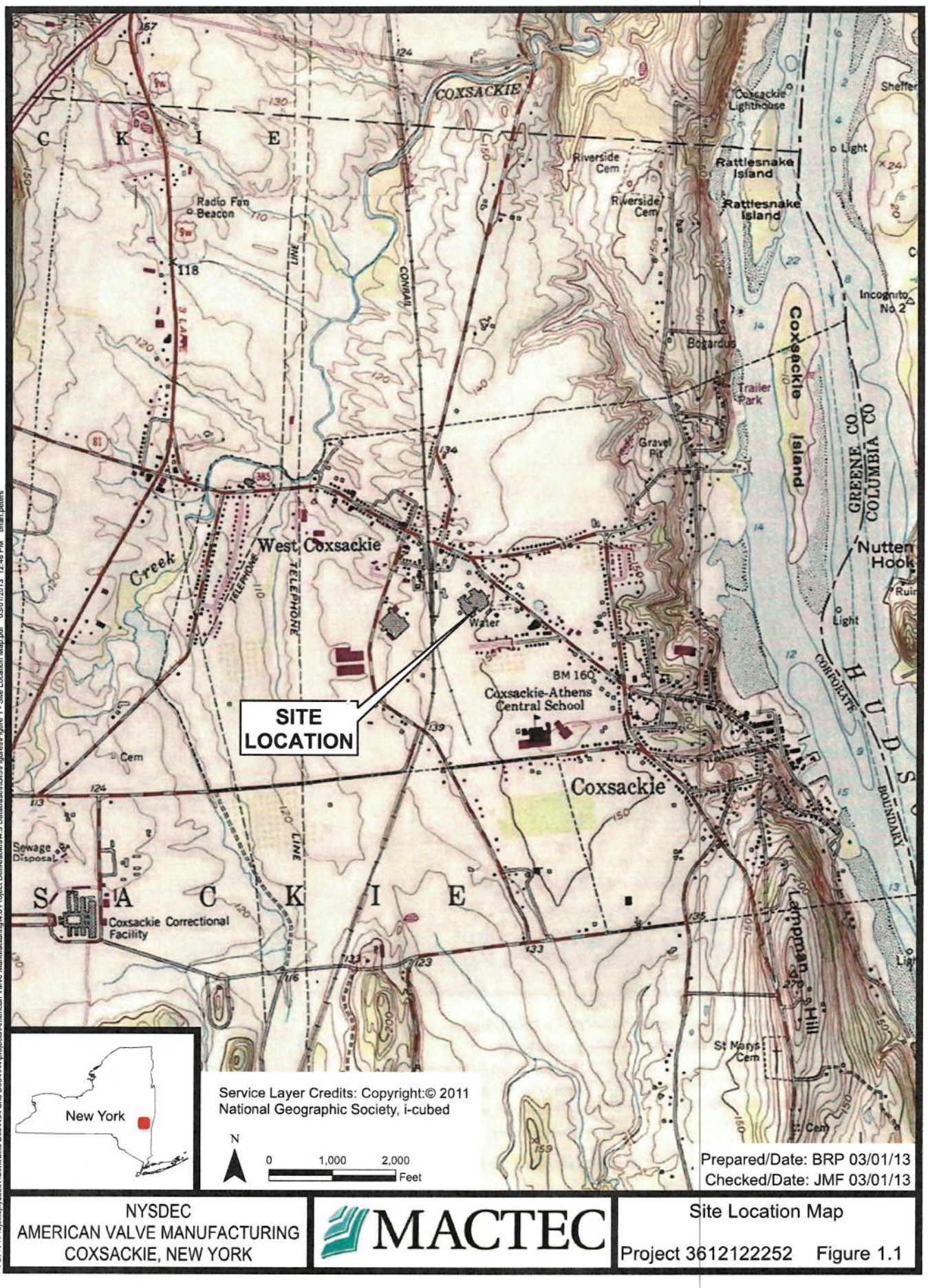
New York State Department of Environmental Conservation (NYSDEC), 1997. Record of Decision. American Valve Manufacturing, OPERABLE UNIT 1, Inactive Hazardous Waste Site, Coxsackie, Greene County, NY, Site No. 420002. March 1997.

NYSDEC, 1998. Division of Water Technical and Operational Guidance Series (TOGS) (1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. October 1998 (revised).

NYSDEC, 1999a. Record of Decision. American Valve Manufacturing, OPERABLE UNIT 2, Inactive Hazardous Waste Site, Coxsackie, Greene County, NY, Site No. 420002. March 1999.

NYSDEC, 1999b. Technical Guidance for Screening Contaminated Sediments. January 25, 1999.

FIGURES



NYSDEC
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MACTEC

Site Location Map

Project 3612122252 Figure 1.1

NYSDEC
AMERICAN VALVE MANUFACTURING
COXSACKIE, NEW YORK

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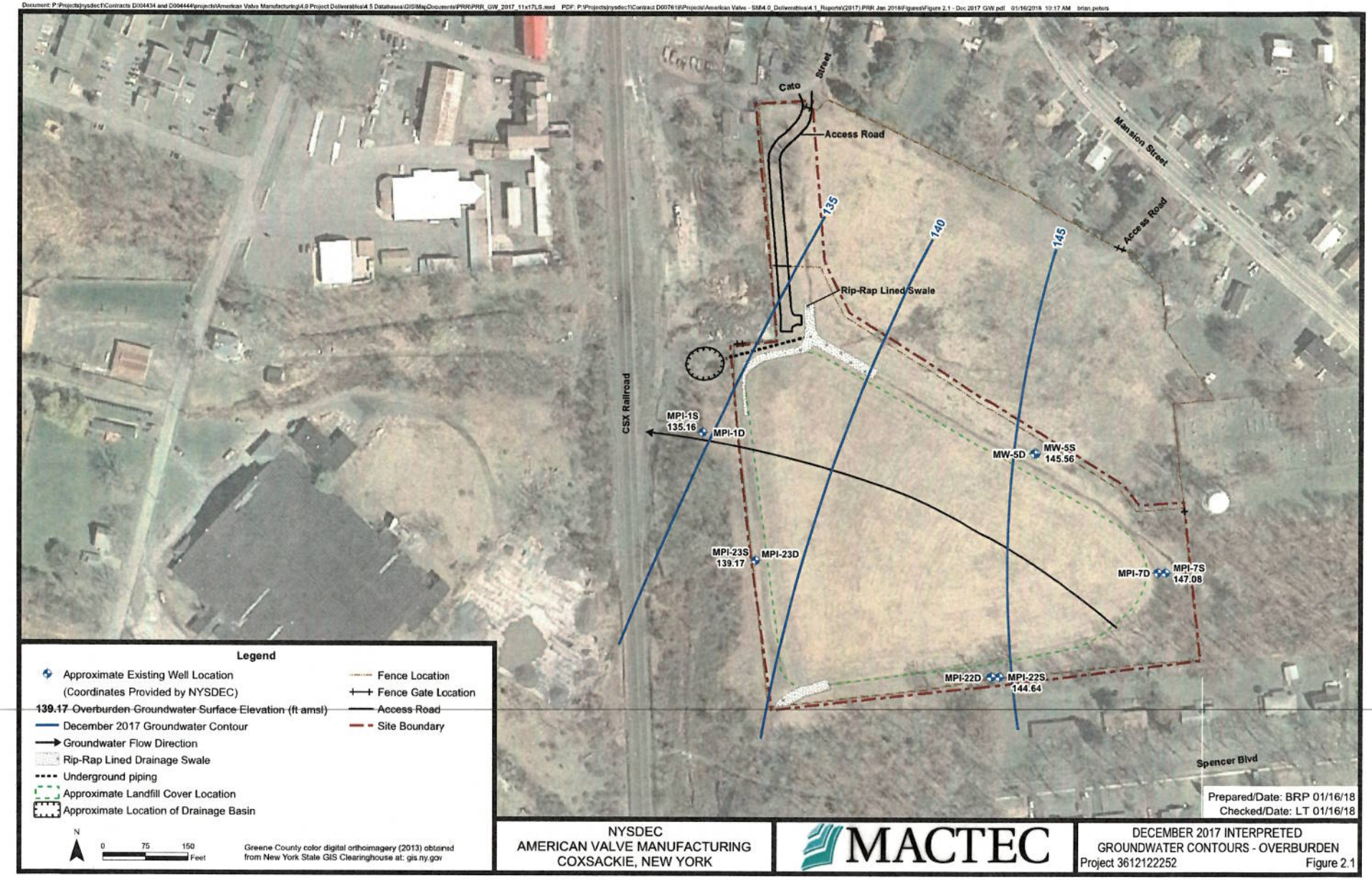
SITE FEATURES

Project 3612122252 Figure 1.2



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DECEMBER 2017 INTERPRETED
GROUNDWATER CONTOURS - OVERBURDEN
Project 3612122252 Figure 2.1

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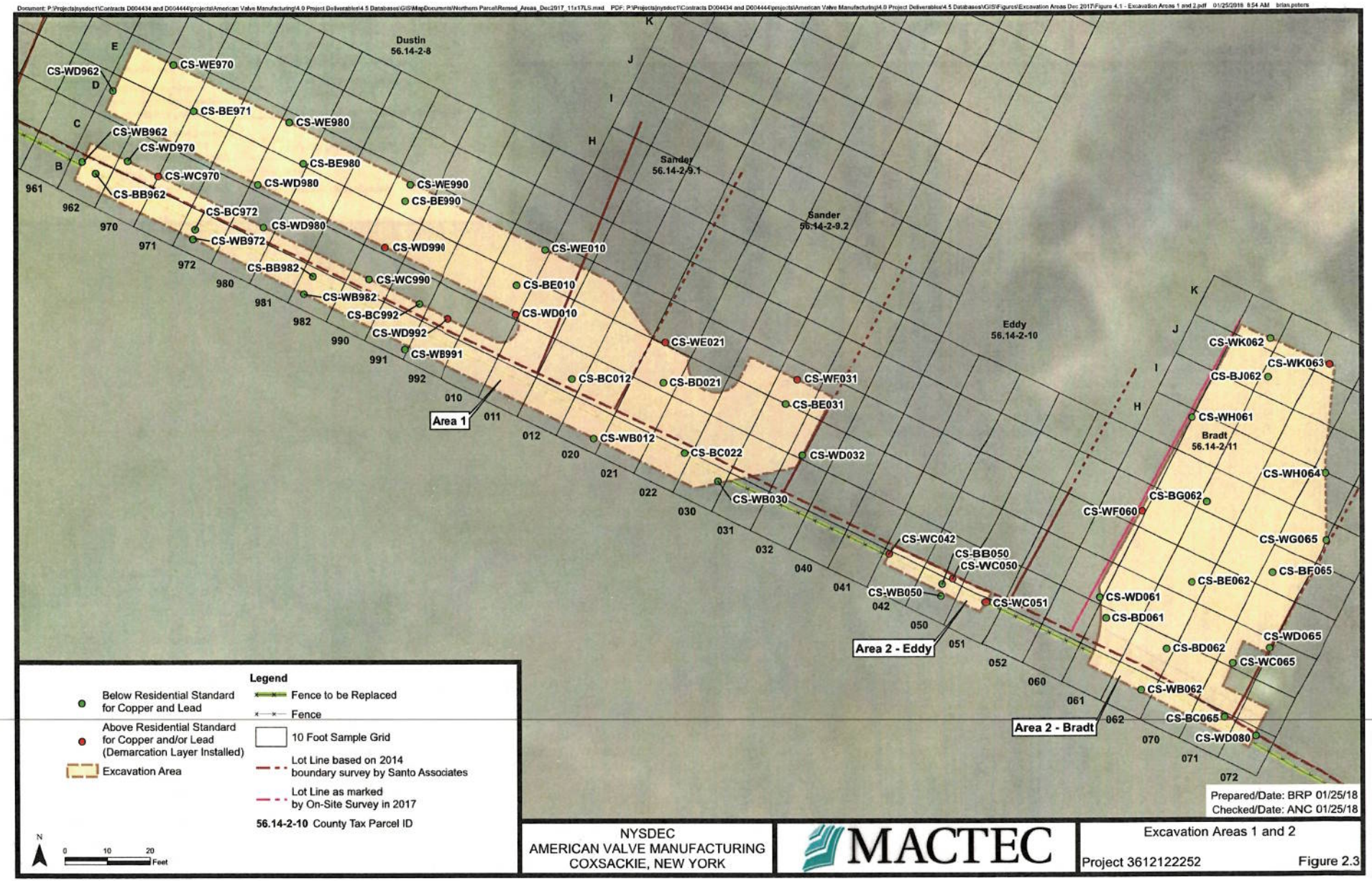
LONG TERM MONITORING RESULTS

Project 3612122252 Figure 2.2



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Excavation Areas 1 and 2

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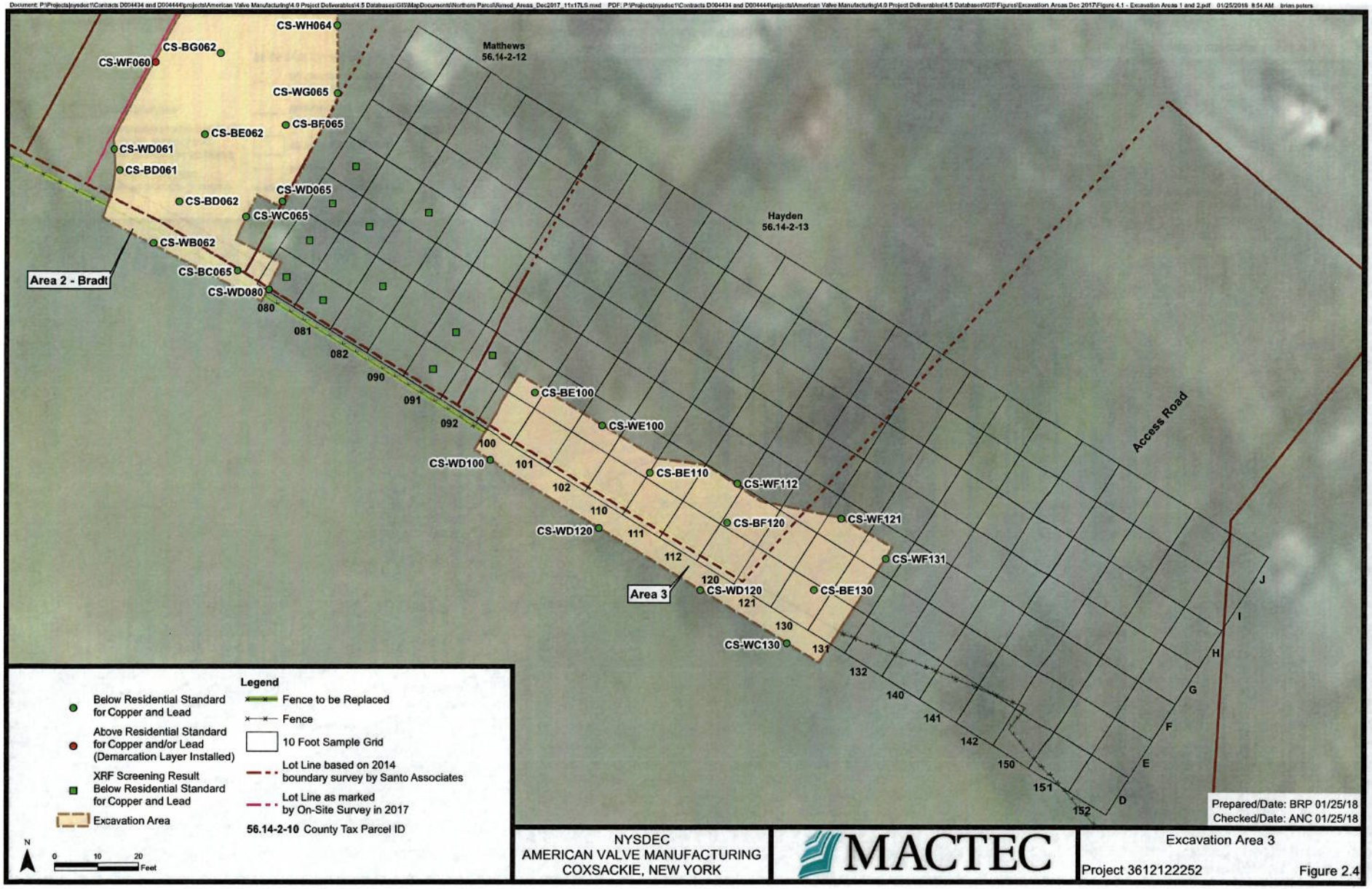
Figure 2.3



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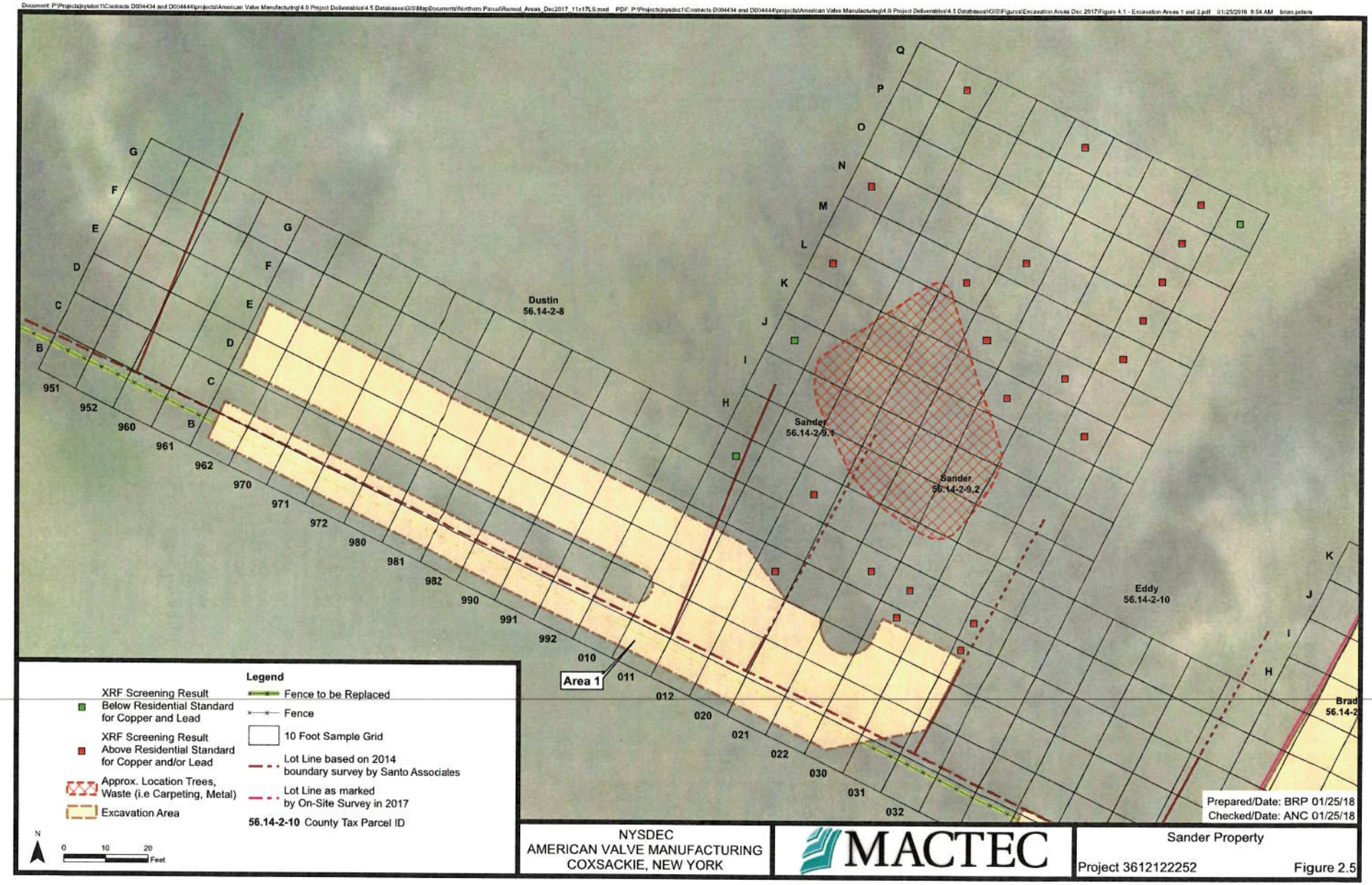
MACTEC

Excavation Area 3

Project 3612122252 Figure 2.4



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MACTEC

Sander Property

Project 3612122252 Figure 2.5

TABLES

Table 2.1: Site Management Plan Requirements

(Inspection and Long Term Monitoring)

Component	Action	Required Frequency
LANDFILL		
Landfill Cover System	Inspection	Semi-annually in spring and summer*
Landfill Cover System	Mowing	Annually in late summer/fall**
Site Drainage System	Inspection	Semi-annually in spring and summer*
Site Security	Inspection	Semi-annually in spring and summer
Access Road	Inspection	Semi-annually in spring and summer
Gas Vents	Inspection	Semi-annually in spring and summer
Ground Water Monitoring System	Inspection	Semi-annually in spring and summer
LONG TERM MONITORING		
Ground Water Monitoring Program		
10 monitoring locations	No purge sampling (Hydrasleeve)	Every 15 months (December 2017, March 2019)
Surface Water/Sediment Monitoring Program		
1 monitoring location	Surface Water/Sediment grab sampling	Every 15 months (December 2017, March 2019)

*Additonal inspections to occur after a major rain event. A major rain event is defined as a five-year, 24-hour storm.
**NYSDEC currently coordinates mowing

Prepared by: JMF 11/20/2012
Updated by: LMT 01/12/2018
Checked by: BKH 01/16/2018

Table 2.2: Long Term Monitoring Sampling and Analysis Plan Requirements

Sample Locations	Total Lead (6010B)	VOCs (8260B)
MONITORING WELLS		
MPI-1S	X	X
MPI-1D	X	X
MW-5S	X	X
MW-5D	X	X
MPI-7S	NOT ENOUGH VOLUME FOR SAMPLE	
MPI-7D	X	X
MPI-22S*	X	X
MPI-22D*	X	X
MPI-23S*	X	X
MPI-23D*	X	X
SURFACE WATER		
SW-10 (Northern Drainage Basin)	SAMPLE LOCATION FROZEN- UNABLE TO COLLECT SAMPLE	
SEDIMENT		
SED-10 (Northern Drainage Basin)	SAMPLE LOCATION FROZEN- UNABLE TO COLLECT SAMPLE	

Notes:
An 'X' marked in a column indicates the analysis was performed for that sample location.
VOCs = Volatile Organic Compounds
*- well installation logs identify these as "MW" instead of "MPI"

Prepared by: JMF 11/20/2012
Updated by: LMT 01/12/2018
Checked by: BKH 01/16/2018

Table 2.3: Groundwater Elevation Summary

Well ID	Measuring Point Elevation	Protective Casing Stickup (ft AGS)	Protective Casing Stickup/Well Difference (ft)	Depth to BOW (ft TOR)	December 2017 Depth to Water (ft TOR)	December 2017 Water Elevation (ft MSL)
MPI-1S	145.64	2.7	0.65	22.0	10.48	135.16
MPI-1D	145.75	3.0	0.74	52.6	8.75	137.00
MW-5S	149.25	2.2	0.43	16.1	3.69	145.56
MW-5D	148.90	2.9	1.28	31.8	5.29*	143.61
MPI-7S	153.77	2.0	0.43	22.2	6.69	147.08
MPI-7D	154.77	2.7	0.77	37.5	9.42	145.35
MPI-22S	156.35	3.0	0.10	16.0	11.71	144.64
MPI-22D	155.79	3.2	0.64	38.0	12.07	143.72
MPI-23S	149.92	2.6	0.45	16.1	10.75	139.17
MPI-23D	149.51	2.9	0.25	35.0	9.62	139.89

Notes:
ft. = feet
in = inches
NA = Not Applicable
TOR = Top of Riser
AGS = Above Ground Surface
BOW = bottom of well
MSL = Mean Sea Level

Table 2.4A: Groundwater Long Term Monitoring Results – December 2017

			Media	GW	GW	GW	GW	GW
			Location	MPI-1D	MPI-1S	MPI-22D	MPI-22S	MPI-23D
			Sample Date	12/19/2017	12/19/2017	12/19/2017	12/19/2017	12/19/2017
			Sample ID	MPI-1D	MPI-1S	MPI-22D	MPI-22S	MPI-23D
			Qc Code	FS	FS	FS	FS	FS
Analysis	Parameter	Standard	Units	Result Qualifier	Result Qualifier	Result Qualifier	Result Qualifier	Result Qualifier
8260C	1,4-Dioxane	0.46	µg/L		0.4 U			
8260C	Cis-1,2-Dichloroethene	5	µg/L	1 U	1 U	1 U	1 U	1 U
8260C	Trichloroethene	5	µg/L	1 U	1 U	1 U	1 U	1 U
8260C	Vinyl chloride	2	µg/L	1 U	1 U	1 U	1 U	1 U
6010C	Lead	25	µg/L	5 U	5 U	5 U	5 U	5 U
Field	Turbidity	NS	NTUs	78.4	79.8	59.3	60.1	119

			Media	GW	GW	GW	GW	GW
			Location	MPI-23S	MPI-7D	MPI-7S	MW-5D	MW-5S
			Sample Date	12/19/2017	12/19/2017	12/19/2017	12/19/2017	12/19/2017
			Sample ID	MPI-23S	MPI-7D	MPI-7S	MW-5D	MW-5S
			Qc Code	FS	FS	FS	FS	FS
Analysis	Parameter	Standard	Units	Result Qualifier	Result Qualifier	Result Qualifier	Result Qualifier	Result Qualifier
8260C	1,4-Dioxane	0.46	µg/L			0.4 U		0.4 U
8260C	Cis-1,2-Dichloroethene	5	µg/L	1 U	1 U		1 U	**36.2**
8260C	Trichloroethene	5	µg/L	1 U	1 U		1 U	**2.5**
8260C	Vinyl chloride	2	µg/L	1 U	1 U		1 U	1 U
6010C	Lead	25	µg/L	5 U	5 U		5 U	5 U
Field	Turbidity	NS	NTUs	39.6	14.5	80	200	252

Notes:
QC Code: FS = field sample
µg/L = micrograms per liter
NTUs = Nephelometric turbidity units
U = Target analyte is not detected > the reported detection limit.
Bold = Indicates positively detected result
Highlighted cell indicates exceedance of the SCG standard
NS = No Standard
Standards are applicable standards, criteria, and guidance (SCGs) as defined in the ROD for OU1 (NYSDEC, 1997).
EPA guidance value use for 1,4-dioxane standard

Table 2.5: Groundwater Long Term Monitoring PFOA Results – December 2017

			Media	GW	GW
			Location	MPI-1S	MPI-23S
			Sample Date	12/19/2017	12/19/2017
			Sample ID	MPI-1S	MPI-23S
			Qc Code	FS	FS
Analys	Parameter	Standard	Units	Result Qualifier	Result Qualifier
PFCs	Perfluorobutanesulfonic acid	NS	ng/L	1.8 U	**0.96** J
PFCs	Perfluorobutanoic acid	NS	ng/L	**0.34** J	**4.1**
PFCs	Perfluoroheptanoic acid	NS	ng/L	1.8 U	**0.57** J
PFCs	Perfluorohexanoic acid	NS	ng/L	1.8 U	**0.85** J
PFCs	Perfluorooctanesulfonic acid	NS	ng/L	**0.58** J	**0.86** J
PFCs	Perfluorooctanoic acid	NS	ng/L	1.8 U	**0.92** J
PFCs	Perfluoropentanoic acid	NS	ng/L	1.8 U	**2.5** J
PFCs	Sum PFOA and PFOS	70	ng/L	**0.58** J	**1.8** J

Notes:
QC Code: FS = field sample
ng/L = nanograms per liter
U = Target analyte is not detected > the reported detection limit.
J = Concentration is estimated
Bold = Indicates positively detected result
NS = No Standard
Standard is EPA established health advisory level

APPENDICES

APPENDIX A

FIELD DATA RECORDS

APPENDIX A-1

SPRING INSPECTION FDRS

APRIL 2017

New York Department of Environmental Conservation
Inactive Hazardous Waste Site
Inspection Form-Landfills

Site Name: *American Valve*	NYSDEC Site Number: *420002*	NYSDEC PM: *William Welling*
Site Location: 170 Mansion Ave., Coxsackie, NY	Site Classification # : 4	Primary Site Contact: *Jean Firth*

Site Inspection Date: 4/12/17	Purpose of Inspection: Semi Annual Inspection		
Name of Inspector: Jolene Lorewski	Title: Geologist	Agency/Company: MACTEC Engineering & Consulting	Address: 211 Congress street Portland, Maine 04101
Phone Number: 518-344-9358			

Landfill Cover System

Vegetative Cover Condition	(Good)	Poor	NA	Cover System Observations: see additional observation notes section
Landfill Gas Vents	(Good)	Poor	NA	
Evidence of Vegetative Stress	Yes	(No)	NA	
Mowing Required	Yes	(No)	NA	
Presence of Debris	(Yes)	No	NA	
Evidence of Ponded Water (a low area with water that remains for extended periods)	Yes	(No)	NA	
Evidence of Wet Areas (wet soils not located in a depression)	Yes	(No)	NA	
Evidence of Standing Water (water that is the result of recent precipitation events)	(Yes)	No	NA	
Exposed Geotextile	(Yes)	No	NA	
Evidence of Erosion Settlement	Yes	(No)	NA	
Engineered Drainage Swale Condition	(Good)	Poor	NA	
Evidence of Leachate Seepage	Yes	(No)	NA	
Evidence of Erosion	Yes	(No)	NA	
Presence of Woody Growth	Yes	(No)	NA	
Animal Burrows	(Yes)	No	NA	

Last Inspection observations (document with photos and describe):

1- Check re-growth in consolidation area. - regrowth observed to be in good condition

2- Check previous wet/ponded areas. no areas of wet/ponded areas observed

3- Check damage to fence. Amec met with contractor (Siena Fence Co, Inc.) and Haley Brothers for repair estimates for perimeter fence damage in vicinity of MW 22 will cluster. Large limb damaged perimeter fence in this area. Discussed possible dead tree removal to prevent future fence damage

Stormwater Collection and Drainage

Drainage Channel Condition	(Good)	Poor	NA	Collection System Observations: Wooded growth at areas of drainage swale
Sedimentation	Yes	(No)	NA	
Debris	Yes	(No)	NA	
Erosion/Slope Loss	Yes	(No)	NA	
Evidence of Leachate Seepage	Yes	(No)	NA	
Rip-Rap Condition	(Good)	Poor	NA	
Culvert Condition	(Good)	Poor	NA	
Other Drainage Structures/Pipes	(Good)	Poor	NA	
Detention Basin	(Good)	Poor	(NA) JJL	

Access Road

Overall Condition	(Good)	Poor	NA	Access Rd Condition Observations:
Potholes Observed	Yes	(No)	NA	