Final

Record of Decision
for CC RVAAP-73
Facility-Wide Coal Storage

Former Ravenna Army Ammunition Plant
Portage and Trumbull Counties, Ohio

Contract No. W912QR-12-D-0002
Delivery Order: 0003

Prepared for:

U.S. Army Corps of Engineers
Louisville District

Prepared by:

PARSONS
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November 26, 2018

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Ravenna, Ohio

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13. SUPPLEMENTARY NOTES

None.

14. ABSTRACT

This ROD presents the conclusions and recommendations for soil, surface water, and sediment within CC RVAAP-73 Facility-Wide Coal Storage at Camp Ravenna. There were no COCs identified. Therefore, there were no risks and the AOC meets the criteria for Unrestricted (Residential) Land Use.

15. SUBJECT TERMS

ROD = Record of Decision, RVAAP-73 Facility-Wide Coal Storage, No Further Action, AOC=Area of Concern, COCs = Chemicals of Concern, Unrestricted (Residential) Land Use

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Ohio Environmental Protection Agency

John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

October 9, 2018

Mr. David Connolly
Army National Guard Directorate
Environmental Programs Division
ARNG-ILE-CR
111 S. George Mason Dr.
Arlington, VA 22204

Re: US Army Ravenna Ammunition PLT RVAAP
Remediation Response
Project Records
Remedial Response
Portage County
267000859244

Subject: Final Record of Decision for RVAAP-73, Facility-wide Coal Storage, July 27, 2018

Dear Mr. Connolly:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Final Record of Decision for RVAAP-73 Facility-wide Coal Storage," for the Ravenna Army Ammunition Plant (RVAAP), Portage/Trumbull Counties. The document, dated July 27, 2018, was received at the Northeast District Office (NEDO) on July 27, 2018. This letter serves to document Ohio EPA's concurrence regarding the proposal of No Further Action (NFA) for RVAAP-73 Facility-wide Coal Storage site as discussed in the Final Record of Decision (ROD).

Based on investigative findings documented in the Final Remedial Investigation report, human health risk assessment, and ecological risk assessment, the information contained in the Final Proposed Plan, other investigation documents/reports, and Ohio EPA's oversight participation during the investigation, Ohio EPA concurs with the ROD for the RVAAP-73 Facility-wide Coal Storage.

A public meeting was held on February 28, 2018, that was public noticed through radio stations, television stations, and newspapers. A 30-day public comment period was held between February 16, 2018 and March 17, 2018. No comments were received; therefore, the ROD contains no significant changes from the Final PP.

If you have any questions concerning the above, please feel free to contact Ed D'Amato at (330) 963-1170.

Sincerely,

Craig W. Butler
Director

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CONTRACTOR STATEMENT OF INDEPENDENT TECHNICAL REVIEW

Parsons has completed the Final Record of Decision for CC RVAAP-73 Facility-Wide Coal Storage at the Former Ravenna Army Ammunition Plant, Portage and Trumbull Counties, Ohio. Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent in the project. During the independent technical review, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of data quality objectives; technical assumptions; methods, procedures, and materials to be used; the appropriateness of data used and level of data obtained; and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing United States Army Corps of Engineers policy.

7/5/2018

Dan Griffiths, CPG
Independent Technical Reviewer

Date

11/26/2018

Edward Heyse, Ph.D., P.E.
Plan Preparer/Reviewer

Date

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DOCUMENT DISTRIBUTION
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for CC RVAAP-73 Facility-Wide Coal Storage

Former Ravenna Army Ammunition Plant
Portage and Trumbull Counties, Ohio

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ARNG = Army National Guard
DERR = Division of Environmental Response and Revitalization
NEDO = Northeast District Office
OHARNG = Ohio Army National Guard.
Ohio EPA=Ohio Environmental Protection Agency
RVAAP=Ravenna Army Ammunition Plant
REIMS = Ravenna Environmental Information Management System.
USACE = U.S. Army Corps of Engineers.

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ACRONYMS/ABBREVIATIONS

amsl	above mean sea level
AOC	Area of Concern
Army	United States Department of the Army
ARNG	Army National Guard
bgs	below ground surface
BSV	background screening value
Camp Ravenna	Camp Ravenna Joint Military Training Center
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Act Information System
CMCOPCs	Contaminant Migration Chemicals of Potential Concern
COCs	Chemicals of Concern
COECs	Chemicals of Ecological Concern
COPECs	Chemicals of Potential Ecological Concern
CUGs	cleanup goals
DLA	Defense Logistics Agency
DSB	Deep Soil Boring
DU	Decision Unit
ERA	Ecological Risk Assessment
FGDC	Federal Geographic Data Committee
ft^2	square feet
FWCUGs	Facility-Wide Cleanup Goals
HHRA	Human Health Risk Assessment
HQ	Hazard Quotient
HRR	Historical Records Review
I&E	Installation and Environment
IRP	Installation Restoration Program
ISM	incremental sampling method
LUCs	land use controls
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NGT	National Guard Trainee
OHARNG	Ohio Army National Guard
Ohio EPA	Ohio Environmental Protection Agency
ODNR-DNAP	Ohio Department of Natural Resources-Division of Natural Areas and Preserves
PAHs	polyaromatic hydrocarbons
PCBs	polychlorinated biphenyls
REIMS	Ravenna Environmental Information Management System
RI	Remedial Investigation
ROD	Record of Decision
RSL	Regional Screening Level

ACRONYMS/ABBREVIATIONS (CONT.)

RVAAP	Ravenna Army Ammunition Plant
SAIC	Science Applications International Corporation
SRCs	Site-Related Compounds
SVOCs	semivolatile organic compounds
TAL	Target Analyte List
TEC-Weston	TEC-Weston Joint Venture
U.S.	United States
USACE	U.S. Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USP&FO	U.S. Property and Fiscal Officer
VOC	volatile organic compound

PART I THE DECLARATION

A. SITE NAME AND LOCATION

This Record of Decision (ROD) addresses environmental media within the Compliance Restoration Site CC RVAAP-73 Facility-Wide Coal Storage Area of Concern (AOC) at the former Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio (Figures 1 and 2). The former RVAAP, now known as Camp Ravenna Joint Military Training Center (Camp Ravenna), is located in northeastern Ohio within Portage and Trumbull counties. Camp Ravenna is approximately 3 miles east/northeast of the City of Ravenna and 1 mile north/northwest of the City of Newton Falls. As of September 2013, administrative accountability for the entire 21,683-acre facility has been transferred to the U.S. Property and Fiscal Officer (USP&FO) for Ohio and the property subsequently licensed to the Ohio Army National Guard (OHARNG) for use as a military training site.

There were 19 former coal storage locations on the former RVAAP that were investigated in the Final Historical Records Review (HRR, SAIC 2011), which include:

- Load Line No. 1 Power House (Power House No. 1);
- Load Line No. 2 Power House (Power House No. 2);
- Load Line No. 4 Power House (Power House No. 7);
- Load Line No. 12 Power House (Power House No. 3);
- Building F-15;
- Building F-16;
- Atlas Scrap Yard;
- North Line Road Coal Tipple;
- Sand Creek Coal Tipple;
- East Classification Yard;
- Administration Area (Power House No. 6);
- Building U-5;
- Building U-14;
- Building 51-25 (Power House No. 5);
- Building 52-15 (Power House No. 4);
- Inert Storage 2F-21;
- Area No. 6 Inert Storage;
- Former Coal Pile South of East Classification Yard; and
- Building U-16 Boiler House U-16

The HRR recommended 4 of the 19 areas for additional investigation: North Line Road Coal Tipple, Sand Creek Coal Tipple, Building U-16 Boiler House and the Former Coal Pile South of East Classification Yard. The investigations for the North Line Road Coal Tipple, Sand Creek Coal Tipple, and Building U-16 Boiler House are documented in the *Remedial Investigation CC RVAAP-73 Facility-Wide Coal Storage* (Parsons 2017) and the three areas are the subject of this ROD. The fourth area, Former Coal Pile South of East Classification Yard, was investigated as part of the Remedial Investigation for CC RVAAP-79 DLA Ore Storage Sites where it is referred to as the Concrete Pad Storage Area.

The North Line Road Coal Tipple is located in the northwestern portion of Camp Ravenna, just south of Bundling/North Line Road; east of Road 7C, and north of Newton Falls Road. Sand Creek Coal Tipple is located in the north-central portion of Camp Ravenna, just east of Paris-Windham Road and west of Building 812. Building U-16 Boiler House is located in the northwestern portion of Camp Ravenna, north of Bundling/North Line Road, west of Route 80 (also known as Freedom Road) and north of Newton Falls Road. The Comprehensive Environmental Response, Compensation, and Liability Act Information System (CERCLIS) identifier for RVAAP is OH5210020736.

B. STATEMENT OF BASIS AND PURPOSE

This ROD presents the selected remedy for CC RVAAP-73 Facility-Wide Coal Storage, which was chosen by the Army National Guard (ARNG), the lead federal agency, in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on information contained in the Administrative Record file for the AOC.

The Ohio Environmental Protection Agency (Ohio EPA), the support agency, concurred with the selected remedy presented in the *Remedial Investigation CC RVAAP-73 Facility-Wide Coal Storage* (Parsons 2017) and *Proposed Plan for CC RVAAP-73 Facility-Wide Coal Storage* (Parsons 2018). The Remedial Investigation (RI) evaluated soil, sediment, and surface water at CC RVAAP-73 Facility-Wide Coal Storage and recommended no further action for these media (Parsons 2017). The CC RVAAP-73 Facility-Wide Coal Storage AOC meets the requirements for no further action under CERCLA and is compliant with the requirements of the Ohio EPA *Director's Final Findings and Orders*, dated June 10, 2004 (Ohio EPA 2004).

C. ASSESSMENT OF THE SITE

The lead agency has determined that no action is necessary to protect public health or welfare or the environment at CC RVAAP-73 Facility-Wide Coal Storage areas North Line Road Coal Tipple, Sand Creek Coal Tipple, and Building U-16 Boiler House.

D. DESCRIPTION OF THE SELECTED REMEDY

No further action is necessary at CC RVAAP-73 Facility-Wide Coal Storage for soil, sediment, and surface water to meet Unrestricted (Residential) Land Use. Groundwater will be addressed as part of a separate RI for RVAAP-66 Facility-Wide Groundwater. The Army will not be required to implement land use controls (LUCs) as part of this decision, as no Chemicals of Concern (COCs) were identified in soil, sediment, or surface water for the Resident Receptor.

E. RECORD OF DECISION DATA CERTIFICATION CHECKLIST

Table 1 provides the ROD Data Certification Checklist. This checklist certifies that the ROD contains key remedy selection information which is contained in Part II Decision Summary as well. Additional information can be found in the Administrative Record file for CC RVAAP-73 Facility-Wide Coal Storage.

Table 1. ROD Data Certification Checklist

ROD Data Checklist Item	ROD Section	Pages
COCs and their respective concentrations	II.G	15-16
Baseline risk represented by the COCs	II.G	15-16
CUGs established for COCs and the basis for these goals	Not Applicable	
How source materials constituting principal threats are addressed	Not Applicable	
Current and reasonably anticipated future Land Use assumptions used in the baseline risk assessment and ROD	II.F	15
Suitable potential Land Use, following the selected remedy	II.F	15
Estimated capital and the total present worth costs, discount rate, and the number of years over which the remedy cost estimates are projected	Not Applicable	
Key factor(s) that led to selecting the remedy	Not Applicable	

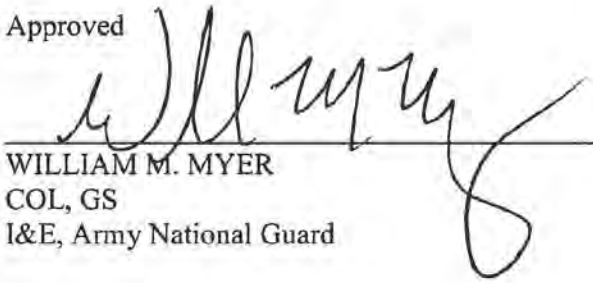
CUGs = cleanup goals; COCs = chemicals of concern; ROD = Record of Decision

F. STATUTORY DETERMINATIONS

The recommendation of no further action for soil, sediment, and surface water is protective of human health and the environment. Because this remedy will not result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a five-year review will not be required for this remedial action.

G. AUTHORIZING SIGNATURE

Approved



24 Apr. 2019

WILLIAM M. MYER
COL, GS
I&E, Army National Guard

Date

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PART II DECISION SUMMARY

A. SITE NAME, LOCATION, AND DESCRIPTION

When the RVAAP Installation Restoration Program (IRP) began in 1989, RVAAP (CERCLIS Identification Number OH5210020736) was identified as a 21,419-acre installation. In 2002 and 2003, OHARNG surveyed the property and the total acreage of the property was found to be 21,683 acres. The RVAAP IRP encompasses investigation and cleanup of past activities over the entire 21,683-acre former RVAAP.

As of September 2013, administrative accountability for the entire acreage of the facility has been transferred to the USP&FO for Ohio and subsequently licensed to OHARNG for use as a military training site (Camp Ravenna). The Army National Guard is the lead agency for any remediation, decisions, and applicable cleanup at CC RVAAP-73 Facility-Wide Coal Storage. These activities are being funded and conducted under the IRP. Ohio EPA is the support agency.

Camp Ravenna is in northeastern Ohio within Portage and Trumbull counties, approximately 3 miles east-northeast of the City of Ravenna and approximately 1 mile northwest of the City of Newton Falls (Figure 1). References in this document to the former RVAAP relate to previous activities at the facility as related to former munitions production activities or to activities being conducted under the restoration/cleanup program.

Camp Ravenna is a parcel of property approximately 11 miles long and 3.5 miles wide, bounded by State Route 5 and the CSX System Railroad on the south; Garret, McCormick, and Berry roads on the west; the Norfolk Southern Railroad on the north; and State Route 534 on the east (Figures 1 and 2). Camp Ravenna is surrounded by several communities: Windham 7 miles to the north, Garrettsville 6 miles to the north, Newton Falls 1 mile to the southeast, Charlestown 5.7 miles to the southwest, and Wayland 3 miles to the south (Figure 1).

The CC RVAAP-73 Facility-Wide Coal Storage consists of three areas: North Line Road Coal Tipple, Sand Creek Coal Tipple, and Building U-16 Boiler House. The three areas are located within the northern portion of Camp Ravenna.

- The North Line Road Coal Tipple is approximately 53,347 square feet (ft^2) (1.22 acres) and the surface elevation is 1,128 feet above mean sea level (amsl). The area is unpaved and vegetated with low shrubs. There are no wetlands, creeks, streams or other water bodies within the North Line Coal Tipple Decision Unit (DU). However, during periods of sustained precipitation, surface water may flow toward Sand Creek, which is located approximately 400 ft east from the DU. Sand Creek flows southeast away from the site. Several wetlands are present along and near Sand Creek and its tributaries north and east of the North Line Road Coal Tipple (Figure 3). The closest downgradient wetland is located approximately 1,100 ft southeast of the North Line Road Coal Tipple area.
- The Sand Creek Coal Tipple is approximately 28,196 ft^2 (0.65 acre) and the surface elevation is approximately 945 feet amsl. The site is covered by woody/shrub-type vegetation. There are no wetlands, creeks, streams, or other water bodies within the Sand Creek Coal Tipple DU. However, during periods of sustained precipitation, surface water may flow toward Sand Creek, which is located within 50 ft of the southeast corner of the site. Sand Creek flows to the east paralleling the area's southern boundary where a tributary

enters the creek approximately 50 ft east of the northeast corner of the area (Figure 4). Sand Creek then flows northeast away from the Sand Creek Coal Tipple area.

- The Building U-16 Boiler House is approximately 6,050 ft^2 (0.138 acre) and the surface elevation is approximately 1,187 feet amsl. The boiler house has been demolished and there are no structures within the investigated area. The ground surface is covered mainly with grasses and small shrubs. There are no wetlands, creeks, streams, or other water bodies within the Building U-16 Boiler House DU. The nearest downgradient surface water body is a tributary (and associated wetlands) of Hinkley Creek, located approximately 1,100 ft south of the Building U-16 Boiler House area (Figure 5).

A fourth former coal storage area, Former Coal Pile South of East Classification Yard, was also identified for investigation in the HRR (SAIC 2011). This area was investigated as part of the Remedial Investigation for CC RVAAP-79 DLA Ore Storage Sites where it is referred to as the Concrete Pad Storage Area. This fourth former coal storage area will be addressed with the ROD for CC RVAAP-79.

B. SITE HISTORY AND ENFORCEMENT ACTIVITIES

The former RVAAP was constructed in 1940 and 1941 for depot storage and ammunition assembly/loading and placed on standby status in 1950. The primary purpose of the former RVAAP was to load medium and major caliber artillery ammunition (i.e., bombs, mines, fuze and boosters, primers, and percussion elements) and store finished components. Load Lines 5 through 11 produced fuzes, boosters, primers, detonators, and percussion elements.

Based on the Final HRR (SAIC 2011) and the Final RI Report (Parsons 2017), historical use at the former RVAAP's coal storage areas were consistent with conventional industrial practices at the time for steam generation supplying power houses, production facilities, and heating systems. The former coal sites received bulk coal primarily by rail at the Sand Creek and North Line Road coal tipples. Bulk coal was typically stored and staged in uncovered piles on the ground surface. Coal was distributed throughout the former RVAAP by truck. Coal storage locations included covered bins and uncovered storage piles on the ground surface. No documentation of accidental or large volume spills or releases associated with the coal storage areas was found during the HRR. No aboveground storage tanks or underground storage tanks are associated with the former coal storage areas. Following is a description of the three coal storage areas.

- North Line Road Coal Tipple: This area was used as a bulk coal receiving, storage, and distribution area. Based on historical aerial photographs of this area, coal storage piles appear in the 1952 through 1966 photos. Most of the coal appears to have been removed by 1979. By 1985, there was no evidence of coal storage in this area; however, during a 2004 visit to this area, coal was noted as remaining scattered over the ground surface in this area (SAIC 2011). More recent photographs taken in 2010 during the HRR (SAIC 2011) and in 2013 during the RI (Parsons 2017) confirm that residual coal remains scattered over the ground surface.
- Sand Creek Coal Tipple: This area was used as a bulk coal receiving, storage, and distribution area. However, historical aerial photographs do not show clear evidence of coal storage in this area. Residual coal was observed on the ground surface in this area during the 2004 area visit (SAIC 2011). Minimal coal was observed in more recent

photographs taken in 2010 during the HRR (SAIC 2011) and in 2011 during the RI (Parsons 2017).

- Building U-16 Boiler House: This area was used to store coal for boiler supply/steam generation. Based on historical aerial photographs of this area, coal storage piles appear in the 1952 through 1966 photos. Most of the coal appears to have been removed by 1979. By 1985, there was no evidence of coal storage in this area; however, during a 2004 visit to this area, residual coal fragments were observed on the ground surface in the area (SAIC 2011). Minimal coal was observed in a more recent photograph taken in 2011 during the HRR (SAIC 2011).

C. COMMUNITY PARTICIPATION

Using the RVAAP community relations program, the Army and Ohio EPA have interacted with the public via news releases, public meetings, reading materials, direct mailings, an internet website, by receiving and responding to public comments. Specific items in the community relations program include the following:

Restoration Advisory Board: The Army established a Restoration Advisory Board in 1996 at RVAAP to promote community involvement in U.S. Department of Defense environmental cleanup activities and allow the public to review and discuss the progress with decision makers. Board meetings are generally held twice a year and are open to the public.

Community Relations Plan: The *Community Relations Plan* (Vista 2017) was prepared to establish processes to keep the public informed of activities at RVAAP. The plan is available in the Administrative Record at Camp Ravenna.

Internet Website: The Army established an internet website in 2004 for RVAAP. It is accessible to the public at www.rvaap.org.

In accordance with CERCLA Section 117(a) and NCP Section 300.430(f)(2), the Army released the *Proposed Plan for CC RVAAP-73 Facility-Wide Coal Storage* (Parsons 2018) to the public on February 16, 2018. The Proposed Plan and other project-related documents are available to the public in the Administrative Record maintained at Camp Ravenna and in the Information Repositories at Reed Memorial Library in Ravenna, Ohio, and Newton Falls Public Library in Newton Falls, Ohio. A notice of availability for the Proposed Plan was published in local newspapers *Record-Courier* and *Tribune Chronicle* (Attachments 1 through 3), as specified in the *Community Relations Plan* (Vista 2017). The notice of availability initiated the 30-day public comment period beginning February 16, 2018 and ending March 17, 2018.

The Army held a public meeting on February 28, 2018, at the Ravenna High School Community Room, 6589 North Chestnut Street, Ravenna, Ohio 44266 to present the Proposed Plan. At this meeting, representatives of the Army provided information and were available to answer any questions. A transcript of the public meeting is available to the public and has been included in the Administrative Record. Responses to any verbal comments received at this meeting and written comments received during the public notification period are included in the Responsiveness Summary, which is Part III of this ROD. The Army considered public input from the public meeting on the Proposed Plan when selecting the remedy.

D. SCOPE AND ROLE OF RESPONSE ACTIONS

The overall program goal of the IRP at the former RVAAP is to address contamination from past activities and restore Army lands to useable conditions. The future use for CC RVAAP-73 Facility-Wide Coal Storage is for military training. Unrestricted (Residential) Land Use was evaluated using the Residential Receptor exposure scenario to assess baseline conditions. The Resident Receptor is the Representative Receptor for Unrestricted (Residential) Land Use, and the National Guard Trainee (NGT) is the Representative Receptor for Military Training Land Use. Military Training Land Use is the most likely future use, and the achievement of Unrestricted (Residential) Land Use does not require restrictions such as Land Use Controls. Based on the Human Health Risk Assessment (HHRA), all COCs were eliminated from further evaluation for Resident Receptor and NGT, and no further action is required for protection of human health. No ecological risks were identified in the Ecological Risk Assessment (ERA) for the AOC.

E. SITE CHARACTERISTICS

Site characteristics, nature and extent of contamination, and the conceptual site model for CC RVAAP-73 Facility-Wide Coal Storage are summarized in the *Final Remedial Investigation CC RVAAP-73 Facility-Wide Coal Storage* (Parsons 2017).

E.1 Physical Characteristics

This section describes the topography/physiology, geology, hydrogeology, and surface water features of Camp Ravenna and CC RVAAP-73 Facility-Wide Coal Storage that were key factors in identifying the potential contaminant transport pathways, receptor populations, and exposure scenarios to evaluate human health and ecological risks.

E.1.1 Topography/Physiography/Geology/Hydrogeology

The regional geology at the facility consists of horizontal to gently dipping bedrock strata of Mississippian and Pennsylvanian age overlain by varying thicknesses of unconsolidated glacial deposits. The bedrock and unconsolidated geology at the facility is shown on Figures 6 and 7, respectively.

The potentiometric surfaces at the facility for unconsolidated deposits and bedrock are based on the facility-wide July 2012 groundwater monitoring event (EQM 2013). The groundwater elevations of the unconsolidated deposits are shown on Figure 8. The potentiometric surface of the Homewood Sandstone Member (uppermost aquifer of the Pottsville Formation) is presented on Figure 9, the potentiometric surface of the upper Sharon Sandstone Member (intermediate aquifer of the Pottsville Formation) is presented on Figure 10, and the potentiometric surface of the lower Sharon Sandstone Member (referred to in this RI as the Sharon Conglomerate; the deepest aquifer of the Pottsville Formation) is presented on Figure 11.

E.1.1.1 North Line Road Coal Tipple

The North Line Road Coal Tipple is generally flat with a slight grade to the east-southeast toward Sand Creek located approximately 400 feet to the east (Figure 3). A ditch exists to the north of the area along the south side of North Line Road. The ditch flows east-northeast into Sand Creek. The HRR (SAIC 2011) indicated that residual coal was observed on the ground surface.

The soil at the North Line Road Coal Tipple was mapped by the United States Department of Agriculture as disturbed soil consisting of a mixture of natural soil and fill termed Udorthents (USDA 1978, 2010). Boring logs from the area indicate dark brown to gray silty clays which may be Lavery Till glacial deposits or fill material. One boring indicated slag and coal as deep as 8 to 10 inches below ground surface (bgs). The estimated depth to bedrock is approximately 125 feet bgs (1,000 feet amsl).

No groundwater monitoring wells are associated with the North Line Road Coal Tipple. FWGmw-003 is the nearest groundwater monitoring well in the vicinity, it is located approximately 50 feet east and is screened in the unconsolidated sediments from 8.5 to 18.5 feet bgs (Parsons 2017). The depth to water in this well was 3.4 feet bgs during the September 2016 groundwater monitoring event (TEC-Weston 2017). The groundwater flow direction in the unconsolidated aquifer beneath the area is to the east-southeast towards Sand Creek.

There are no wetlands, creeks, streams, or other water bodies within the North Line Road Coal Tipple DU (AMEC 2008). Sand Creek is located approximately 400 feet east of the site (Figure 3). Several wetlands are present along and near Sand Creek and its tributaries north and east of the North Line Road Coal Tipple. The closest downgradient wetland is located approximately 1,100 feet southeast of the North Line Road Coal Tipple.

E.1.1.2 Sand Creek Coal Tipple

Sand Creek Coal Tipple is generally flat with a gentle slope to the east, and area topography slopes towards Sand Creek which runs adjacent to the area to the east and south. The HRR indicated that residual coal was observed on the ground surface.

The soil at the Sand Creek Coal Tipple was mapped by the USDA as Trumbull silt loam (USDA 1978, 2010). Boring logs from the area indicate dark brown to gray silty clays at the surface grading to silty sand. These soils may be Hiram Till glacial deposits or fill material. The depth of bedrock in the area is estimated to be 20 feet bgs (925 feet amsl) (Parsons 2017).

Monitoring wells B12mw-013 and BKGmw-012 are located approximately 2,130 east and 3,300 feet west of the Sand Creek Coal Tipple, respectively. They monitor the Sharon Sandstone bedrock aquifer. B12mw-013 is screened from 11.5 to 21.5 feet bgs and had a depth to water of 18.48 bgs (986.87 feet amsl) in September 2017 (TEC-Weston 2017). BKGmw-012 is screened from 38.6-59.6 feet bgs and had a depth to groundwater of 10.7 feet bgs (986.87 feet amsl) in September 2017 (TEC-Weston 2017). Groundwater generally flows to the east-northeast in the Sharon aquifer in this area.

There are no wetlands, creeks, streams, or other water bodies within the Sand Creek Coal Tipple DU (AMEC 2008). Sand Creek is located within 50 feet of the southeast corner of the area (Figure 4). Sand Creek flows to the east paralleling the areas southern boundary. A tributary enters Sand Creek approximately 50 feet east of the northeast corner of the area (Parsons 2017). Sand Creek then flows northwest away from the Sand Creek Coal Tipple area.

E.1.1.3 Building U-16 Boiler House

The Building U-16 Boiler House area is generally flat with a slight grade to the southeast. The boiler house has been demolished and the area has been graded. A former rail line exists just north of the area. The HRR (SAIC 2011) indicated that residual coal fragments were observed on the ground surface.

The native soil at the Building U-16 Boiler House was mapped by the USDA as Wadsworth silt loam (USDA 1978, 2010). Boring logs from the area indicate predominantly brown silty clays which may be Lavery Till glacial deposits or fill material. One boring included coal fragments and gravel from 0 to 6 inches bgs. The depth to bedrock in this area is estimated to be approximately 27 feet bgs.

No groundwater monitoring wells are located within the Building U-16 Boiler House area. The nearest facility-wide groundwater monitoring well is FWGmw-014 which is located approximately 0.5 mile to the east and is screened in unconsolidated sediments from 8.25 to 18.25 feet bgs. The depth to water in this well was 4.88 feet bgs (1,130.12 feet amsl) during the September 2016 groundwater monitoring event. A background monitoring well, BKGmw-005, is located approximately 0.5 mile to the northeast of the former boiler house and is screened in the unconsolidated sediments from 8.2 to 18.2 feet bgs. The depth to water in this well was 13.72 feet bgs (1,135.72 feet amsl) during the September 2016 groundwater monitoring event. The estimated groundwater elevation of the unconsolidated aquifer beneath the area is 1,165 feet amsl (approximately 22 feet bgs), and the direction of groundwater flow is presumed to be to the southeast towards a tributary of Hinkley Creek (Parsons 2017).

The closest bedrock monitoring well, FWGmw-005, is located approximately 2,300 feet to the south and is screened in the uppermost Homewood Sandstone aquifer with a potentiometric surface elevation of 1,147.75 feet amsl (Parsons 2017). There are no monitoring wells west of the area. Groundwater in the Homewood bedrock beneath the area is presumed to be 1,150 feet amsl, and the direction of groundwater flow is presumed to the east-southeast (Parsons 2017).

There are no wetlands, creeks, streams, or other water bodies within the Building U-16 Boiler House area (AMEC 2008). The nearest downgradient surface water body is a tributary (and associated wetlands) of Hinkley Creek (Figure 5), located approximately 1,100 feet south of the Building U-16 Boiler House area (Parsons 2017).

E.1.2 Ecology

The ecological risk assessment (ERA) in the RI Report concluded that there are no important and significant ecological resources at CC RVAAP-73 Facility-Wide Coal Storage. CC RVAAP-73 Facility-Wide Coal Storage provides low quality habitat and due to its small size and non-contiguous individual exposure areas, it likely supports few potential ecological receptors, especially at the population or community level (Parsons 2017).

Numerous plant community and wildlife studies have been conducted at facility dating back to 1993 (AMEC 2008). Plant communities have been mapped for the entire facility property including CC RVAAP-73 Facility-Wide Coal Storage using two classification systems:

- Anderson's Classification Scheme (Anderson 1982) in 1993 (Ohio Department of Natural Resources-Division of Natural Areas and Preserves [ODNR-DNAP] 1993)
- The Federal Geographic Data Committee (FGDC) Vegetation Classification Standard (National Spatial Data Infrastructure 1997) in 1999 (SAIC 1999).

The FGDC Vegetation Classification Standard is the approved standard for vegetation classification on federal land. Plant communities in and around CC RVAAP-73 Facility-Wide Coal Storage were mapped using the FGDC Vegetation Classification Standard).

No detailed ecological study has been performed for the CC RVAAP-73 Facility-Wide Coal Storage. Overall, vegetation in the various areas of CC RVAAP-73 Facility-Wide Coal Storage is sparse and disturbed by historical use. The North Line Road Coal Tipple DU is located in *Fraxinus pennsylvanica* woodland (FL1), which is associated with floodplains near streams and rivers and other temporarily flooded areas (Figure 12). Dominant species in these areas include Green ash, American elm, hackberry, and red maple. Black walnut, white ash, swamp white oak, cottonwood, and black willow may also be present. Other vegetation near the site include *Acer rubrum* (FU4) and Mixed Cold-Deciduous (FU5) successional forests and *Quercus palustris - (Quercus bicolor)* seasonally flooded forest (FL4), as well as dry early-successional herbaceous field (HU1) and dry late-to-mid successional cold-deciduous shrub land (SU1 and SU2). The Sand Creek Coal Tipple DU is also located in *Fraxinus pennsylvanica* woodland (FL1) (Figure 13). Other forested areas such as Fagus grandifolia - Acer saccharum - (Liriodendron tulipifera) (FU1), Fagus grandifolia - Quercus spp. - Acer spp. (FU2) forests, and *Acer rubrum* successional forest (FU4) are located near the site, as well as dry late-to-mid successional cold-deciduous shrub land (SU1).

The Building U-16 Boiler House DU is located in a paved area between mixed cold-deciduous successional forest (FU5) to the northwest and dry late-successional cold-deciduous shrubland (SU2) to the southeast of the site. Mixed Cold-Deciduous successional forest (FU5) is indicative of a late stage of recovery following significant disturbance (e.g., clear-cutting) and may include white ash, wild black cherry, red maple, black locust, quaking aspen, and bigtooth aspen (Figure 14). Dry late-successional cold-deciduous shrubland (SU2) is described as young pioneer trees generally less than seven meters in height are dominant, which may include red maple, wild black cherry, white ash, and black locust. Shrub and herbaceous species are still present although to a lesser extent.

Wildlife studies have not been conducted specifically for CC RVAAP-73 Facility-Wide Coal Storage. However, with its mix of herbaceous fields, shrubland, maintained grass land, and forest edge habitats, CC RVAAP-73 Facility-Wide Coal Storage provides habitat for a variety of wildlife species. CC RVAAP-73 Facility-Wide Coal Storage provides foraging habitat for birds as well as habitat for small mammals including, mice and voles, shrews, and moles that would typically occur in these habitats. Larger mammals occurring on the facility including white-tailed deer, raccoons, woodchucks, and eastern fox squirrels may also use CC RVAAP-73 Facility-Wide Coal Storage habitats, but only transiently. While these receptors may use part of the Facility-Wide Coal Storage, considering the small size of the individual, noncontiguous exposure areas, the AOC is unlikely to support most of these receptors on a population or community level.

E.1.3 Surface Water and Groundwater

Sediment and surface water are not present on the coal storage areas, but sediment and surface water are located in the vicinity of the North Line Road Coal Tipple and Sand Creek Coal Tipple.

E.2 Site Investigations

The following environmental investigations have been completed for the CC RVAAP-73 Facility-Wide Coal Storage Area:

- *Historical Records Review Report for the 2010 Phase I Remedial Investigation Services at Compliance Restoration Sites (9 Areas of Concern), Ravenna Army Ammunition Plant, Ravenna, Ohio. (SAIC 2011).*

– *Remedial Investigation Report for CC RVAAP-73 Facility-Wide Coal Storage (Parsons 2017).*

E.2.1 Historical Records Review

No documentation of prior investigations specific to the former coal storage areas was found during the HRR (SAIC 2011). Nineteen former coal storage locations were identified, and four of these areas were recommended for further investigation. Three of the areas, North Line Road Coal Tipple, Sand Creek Coal Tipple, Building U-16, are addressed in this ROD. The fourth area, Former Coal Pile South of East Classification Yard, is addressed as part of CC RVAAP-79 DLA Ore Storage Sites where it is referred to as the Concrete Pad Storage Area.

E.2.2 Remedial Investigation

The RI Report (Parsons 2017) included collection of surface soil, wet sediment, subsurface soil, and surface water samples which were analyzed for Target Analyte List (TAL) metals, including mercury, and semivolatile organic compounds (SVOCs). Five samples (2 subsurface soil, 1 surface soil, 1 sediment, and 1 surface water) were also analyzed for the full suite of analytes (organochlorine pesticides, TAL metals, volatile organic compounds [VOCs], SVOCs, polychlorinated biphenyls [PCBs], propellants, and explosives). Sampling at each area is described below:

North Line Road Coal Tipple (53,347 ft^2) — Decision Unit (DU) 01 covers the investigative area of approximately 53,347 ft^2 at this former coal storage area (Figure 3). Incremental sampling methodology (ISM) sampling of surface and subsurface soils was conducted in DU01; 1 ISM surface soil sample (0-1 feet bgs) 2 horizontal ISM subsurface soil samples (1 from 1 to 4 feet bgs and 1 from 4 to 7 feet bgs), and 5 vertical ISM subsurface soil samples (1-7 feet bgs). In addition, a vertical composite soil sample was collected from one Deep Soil Boring (DSB, 7-13 feet bgs) in DU01.

In addition to soil samples, 3 collocated wet sediment and surface water samples were collected in Sand Creek, located approximately 600 feet downgradient (southeast of DU01): one upgradient, one where runoff may enter the creek, and one further downgradient. One additional collocated wet sediment and surface water sample was collected from an upgradient ditch that parallels North Line Road, approximately 70 feet north of DU01, and discharges to Sand Creek. The wet sediment and surface water samples were analyzed for TAL metals, including mercury, and SVOCs. One sediment and 1 surface water sample were also analyzed for organochlorine pesticides, PCBs, VOCs, and explosives/propellants.

Sand Creek Coal Tipple (28,196 ft^2) — DU01 covers the investigative area of approximately 28,196 ft^2 at this former coal storage area (Figure 4). ISM sampling of surface and subsurface soils was conducted in DU01; 1 ISM surface soil sample (0-1 feet bgs) 2 horizontal ISM subsurface soil samples (1 from 1 to 4 feet bgs and 1 from 4 to 7 feet bgs), and 5 vertical ISM subsurface soil samples (1-7 feet bgs). In addition, a vertical composite soil sample was collected from one DSB (7-13 feet bgs) in DU01.

In addition to soil samples, a total of 3 collocated wet sediment and surface water samples were collected from Sand Creek, located approximately 50 feet east of DU01: one upgradient, one where

runoff may enter the creek, and one further downgradient. The wet sediment and surface water samples were analyzed for TAL metals, including mercury, and SVOCs.

Building U-16 Boiler House (6,050 ft^2) — DU01 covers the investigative area of approximately 6,050 ft^2 surrounding former Building U-16 (Figure 5). ISM sampling of surface and subsurface soils was conducted in DU01; 1 ISM surface soil sample (0-1 feet bgs) 2 horizontal ISM subsurface soil samples (1 from 1 to 4 feet bgs and 1 from 4 to 7 feet bgs), and 5 vertical ISM subsurface soil samples (1-7 feet bgs). In addition, a vertical composite soil sample was collected from one DSB (7-13 feet bgs) in DU01.

E.3 Nature and Extent of Contamination

Site-Related Compounds (SRCs) were identified in the soil evaluated at CC RVAAP-73 Facility-Wide Coal Storage (surface and subsurface soil). Inorganic SRCs were identified by comparing analytical data to the background screening values (BSVs). If organic compounds were detected, they were retained as SRCs because BSVs have not been established. The majority of SRCs identified were metals and SVOCs. PCBs were not identified in any of the samples analyzed. All SRCs were retained to evaluate the risk to groundwater receptors as well as human and ecological receptors.

To delineate the horizontal and vertical extent of contamination, those SRCs identified in surface and subsurface soil were compared with the most stringent Resident Receptor Facility-Wide Cleanup Goals (FWCUGs [SAIC 2010], or Residential Regional Screening Levels (RSLs) if a FWCUG was not established) at a target risk of 1×10^{-6} and a Hazard Quotient (HQ) of 0.1. The majority of SRCs identified had concentrations less than the FWCUGs (or RSLs for those SRCs without FWCUGs). A summary of the RI data is presented below.

Surface Soil

Thirty-two SRCs were identified in surface soil at the AOC: 13 inorganics, 1 VOC, 17 SVOCs, and 1 explosive. The SRCs with concentrations that exceeded the FWCUGs (or Residential RSLs for chemicals without an established FWCUG) in surface soil for each of the three former coal storage areas are as follows:

- Inorganics: arsenic and manganese at the North Line Road Coal Tipple
- Organics: benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene at the North Line Road Coal Tipple; and benzo(a)pyrene at the Sand Creek Coal Tipple.

Subsurface Soil

Twenty-eight SRCs were identified in subsurface soil at the AOC: 3 inorganics, 2 organochlorine pesticides, 1 VOC, 19 SVOCs, 2 explosives, and 1 propellant. The SRCs with concentrations that exceeded the FWCUGs (or the Residential RSLs for chemicals without an established FWCUG) in subsurface soil for each of the three former coal storage areas are as follows:

- Inorganics: none identified
- Organics: benzo(a)pyrene at the North Line Road Coal Tipple; and benzo(a)pyrene at the Sand Creek Coal Tipple.

The elevated concentrations of arsenic, manganese, benzo(a)anthracene, benzo(a)pyrene and benzo(b)fluoranthene in the North Line Road Coal Tipple soil are most likely attributable to coal

dust or coal fragments observed on the ground surface that may have been included in the soil sample. Benzo(a)pyrene in Sand Creek Coal Tipple soil was detected at concentrations only slightly greater than the FWCUG. Benzo(a)pyrene detections in subsurface soil at concentrations above FWCUGs in subsurface soil are limited and adequately defined. No SRCs were detected in concentrations exceeding the most stringent Resident Receptor FWCUGs (or Residential RSLs for those SRCs without FWCUGs) at the Building U-16 Boiler House. For these reasons, additional sampling to define the extent of metals and polyaromatic hydrocarbons (PAHs) beyond the DUs in either surface or subsurface soil was deemed unnecessary.

Surface Water and Sediment

Sediment and surface water are not present on the coal storage areas, but sediment and surface water are located in the vicinity of the North Line Road Coal Tipple and Sand Creek Coal Tipple. Therefore, wet sediment and surface water sampling was conducted during the RI at the two coal tipples to evaluate whether SRCs in surface soil could be transported to Sand Creek in storm water runoff.

No SRCs were identified in Sand Creek that could be attributable to coal storage within the AOC. SRCs in surface soil at the DUs of the two coal tipples are not impacting the quality of Sand Creek.

Groundwater

Fate and transport modeling eliminated all SRCs in soil as potential risks to groundwater. No Final Contaminant Migration Chemicals of Potential Concern (CMCOPCs) were identified for areas of the CC RVAAP-73 Facility-Wide Coal Storage.

E.4 Conceptual Site Model

Conceptual site model elements are discussed in this section, including primary and secondary sources and release mechanisms, contaminant migration pathways and discharge or exit points, and potential human and ecological receptors.

E.4.1 Primary and Secondary Contaminant Sources and Release Mechanisms

The piles of coal have been removed from the three areas of CC RVAAP-73 Facility-Wide Coal Storage. Although small amounts of remnant coal have been noted on the ground surface at the Building U-16 Boiler House, North Line Road Coal Tipple, and Sand Creek Coal Tipple, coal itself is not a regulated CERCLA substance. For purposes of this investigation, the areas around where the piles of coal were located were investigated to identify if there were sources of contaminants. Secondary sources (contaminated media) were evaluated as part of the RI effort and are described in the following sections.

E.4.2 Contaminant Migration Pathways and Exit Points

No groundwater receptors have been identified for this AOC. However, the potential for soil contaminants to impact groundwater was evaluated in a fate and transport evaluation presented in the RI Report (Parsons 2017). Inorganic and organic SRCs in surface and subsurface soil were further evaluated to determine if residual concentrations in soil pose a risk to groundwater. No CMCOPCs were identified at the three former coal storage areas of CC RVAAP-73 Facility-Wide Coal Storage. The SRCs were screened out as CMCOPCs during the soil screening analysis.

Therefore, results from the fate and transport analyses indicate SRCs in soil do not pose risks to groundwater.

E.4.3 Potential Human Receptors and Ecological Resources

In February 2014, the ARNG and Ohio EPA amended the risk assessment process to address changes in the IRP. The *Final Technical Memorandum: Land Uses and Revised Risk Assessment Process for the RVAAP Installation Restoration Program* (ARNG 2014) identified the following three Categorical Land Uses and Representative Receptors to be considered during the RI phase of the CERCLA process.

1. Unrestricted (Residential) Land Use – Resident Receptor (Adult and Child, formerly called Resident Farmer).
2. Military Training Land Use – NGT.
3. Commercial/Industrial Land Use – Industrial Receptor (United States Environmental Protection Agency [USEPA] Composite Worker).

The OHARNG Land Use for CC RVAAP-73 Facility-Wide Coal Storage is military training. The Representative Receptor is the NGT. Unrestricted (Residential) Land Use for the Residential Receptor is also included to evaluate COCs, as required by the CERCLA process. An evaluation using Resident Receptor (Adult and Child) FWCUGs (SAIC 2010) was used to provide an Unrestricted (Residential) Land Use evaluation. Unrestricted (Residential) Land Use is considered protective for all categories of Land Use at Camp Ravenna. No COCs were identified in the RI for surface or subsurface soil for the Resident Receptor for the North Line Road Coal Tipple, Sand Creek Coal Tipple, or Building U-16 Boiler House. Therefore, No Further Action is obtained for CC RVAAP-73 Facility-Wide Coal Storage surface soil and subsurface soil.

Groundwater is being evaluated on a facility-wide basis under the CERCLA process, and results will be presented in a separate report. No groundwater receptors have been identified for this AOC. The nearest groundwater supply wells utilized by the Army and OHARNG within the former RVAAP are in the Administration Area, which is approximately 3.5 mi southeast of the North Line Road Coal Tipple (the closest of the three subareas of the AOC).

CC RVAAP-73 Facility-Wide Coal Storage contains shrubland and forest-edge habitat. The RI concluded that exposure to surface soil is unlikely to adversely affect communities or populations of common ecological receptors or individuals of state-listed species in CC RVAAP-73 Facility-Wide Coal Storage. Therefore, No Further Action is considered necessary for CC RVAAP-73 Facility-Wide Coal Storage for the protection of ecological receptors.

F. CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES

The current and future use of CC RVAAP-73 Facility-Wide Coal Storage is for military training. In accordance with CERCLA, it is a requirement of the RVAAP Risk Assessment process, as well as suggested in the NCP, to include an evaluation of the Unrestricted (Residential) Land Use scenario. This ROD discusses future Land Use and potential soil, sediment, and surface water impacts to human health, the environment, and groundwater.

G. SUMMARY OF SITE RISKS

The HHRA and ERA estimated risks to human receptors and ecological resources; identified exposure pathways; identified COCs and Chemicals of Ecological Concern (COECs), if any; and provided a basis for remedial decisions. This section of the ROD summarizes the results of the HHRA and ERA, which are presented in detail in the *Final Remedial Investigation, RVAAP-73 Facility-Wide Coal Storage (*Parsons 2017) and *Proposed Plan for CC RVAAP-73 Facility-Wide Coal Storage* (Parsons 2018) in the Administrative Record and Information Repositories.

G.1 Human Health Risk Assessment

A HHRA was performed during the RI to identify COCs and provide a risk management evaluation to determine if remediation is required under CERCLA based on potential risks to human receptors. The exposure media and depths evaluated in the HHRA for the Resident Receptor (Adult and Child) were surface soil (0-1 foot bgs) and subsurface soil (1-13 feet bgs). Surface water and sediment are not present within any of the AOCs, and no COCs were identified in nearby surface water or sediment.

North Line Road Coal Tipple

Arsenic and benzo(a)pyrene (for the Residential Receptor) and manganese (for the NGT Receptor) exceeded risk criteria in surface soil but were eliminated as COCs based on weight of evidence. The total excess lifetime cancer risk for the Resident Receptor (1×10^{-5}) exceeded the Ohio EPA risk criterion of 10^{-5} but was within the USEPA acceptable risk range of from 10^{-4} to 10^{-6}, and the hazard index for Resident Receptor is below the USEPA threshold value of 1. However, coal is present on the ground surface, and multiple metals and PAHs consistent with coal were detected in the surface soil sample. Therefore, coal dust or coal fragments were likely included in the surface soil ISM sample. Arsenic, benzo(a)pyrene, and manganese are among the documented trace compounds in coal (Parsons 2017). Surface soil samples likely had pieces or fragments of coal in them since coal was not identified in subsurface soil samples. No other COCs were identified in surface soil or subsurface soil indicating that there was no CERCLA hazardous substance release at this location. This weight-of-evidence shows that all COCs can be eliminated from further evaluation for Resident Receptor and NGT. Therefore, no further action is required for North Line Road Coal Tipple surface soil for protection of human health.

No COCs were identified in subsurface soil for the Resident Receptor for the North Line Road Coal Tipple. Therefore, no further action is required for North Line Road Coal Tipple subsurface soil for protection of human health.

Sand Creek Coal Tipple

No COCs were identified in surface soil or subsurface soil for the Resident Receptor in this exposure area. Therefore, no further action is required for Sand Creek Coal Tipple surface soil and subsurface soil for protection of human health.

Building U-16 Boiler House

No COCs were identified for surface or subsurface soil for the Resident Receptor in this exposure area. Therefore, no further action is required for Building U-16 Boiler House surface and subsurface soil for protection of human health.

G.2 Ecological Risk Assessment

The ERA was conducted to evaluate the potential for chemicals detected in surface soil (0-1 foot bgs) at CC RVAAP-73 Facility-Wide Coal Storage areas to adversely affect ecological receptors. Maximum concentrations of analytes detected in surface soil were compared to site-specific background screening values and to conservative ecological screening benchmarks for generic receptors. Analytes retained for further evaluation were subsequently assessed using more realistic assumptions in a refining step.

Eight Chemicals of Potential Ecological Concern (COPECs) were identified in surface soil and retained for further evaluation (arsenic, cadmium, manganese, selenium, thallium, zinc, dibenzofuran, and tetryl). The list of COPECs was subsequently refined on a COPEC-by-COPEC basis. Considering site-specific factors such as the small individual and collective size (2.01 acres) and the low-quality habitat, and considering mitigating uncertainties, no ecological risks are anticipated for the AOC. Therefore, no further investigation (e.g., Level III Baseline ERA) or remedial action is considered necessary at CC RVAAP-73 Facility-Wide Coal Storage for the protection of ecological receptors. No COECs were identified for the AOC.

G.3 Basis for Action Statement

No COCs were identified in the HHRA, and no COECs were identified in the ERA. Therefore, no further action is necessary to protect public health and welfare or the environment from actual or threatened releases of hazardous substances.

H. DOCUMENTATION OF NO SIGNIFICANT CHANGE

The *Proposed Plan for CC RVAAP-73 Facility-Wide Coal Storage* was released for public comment on February 16, 2018. The Proposed Plan recommends no further action for CC RVAAP-73 Facility-Wide Coal Storage. No significant changes were necessary or appropriate following conclusion of the public comment period.

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PART III RESPONSIVENESS SUMMARY FOR PUBLIC COMMENTS ON THE U.S. ARMY PROPOSED PLAN FOR CC RVAAP-73 FACILITY-WIDE COAL STORAGE AREA

A. OVERVIEW

On February 16, 2018, the ARNG released the *Final Proposed Plan for CC RVAAP-73 Facility-Wide Coal Storage* (Parsons 2018) for public comment. A 30-day public comment period was held from February 16, 2018, to March 17, 2018. Notifications of the public comment period were published in local newspapers (Attachments 1 through 3) and on the RVAAP Restoration Program website (www.rvaap.org). The Army hosted a public meeting on February 28, 2018, at the Ravenna High School Community Room, 6589 North Chestnut Street, Ravenna, Ohio 44266 to present the Proposed Plan and take questions and comments from the public for the record.

No further action was the preferred Alternative selected in the Proposed Plan for CC RVAPP-73 Facility Wide Coal Storage. During the public meeting, Ohio EPA concurred with the recommendation. No oral comments were received at the public meeting, and the community voiced no objections to no further action for CC RVAAP-73 Facility-Wide Coal Storage during the public comment period.

B. SUMMARY OF STAKEHOLDER ISSUES AND LEAD AGENCY RESPONSES

No comments were received verbally during the public meeting, and no written comments were received during the 30-day public comment period.

C. TECHNICAL AND LEGAL ISSUES

There were no technical or legal issues raised during the public comment period.

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FIGURES

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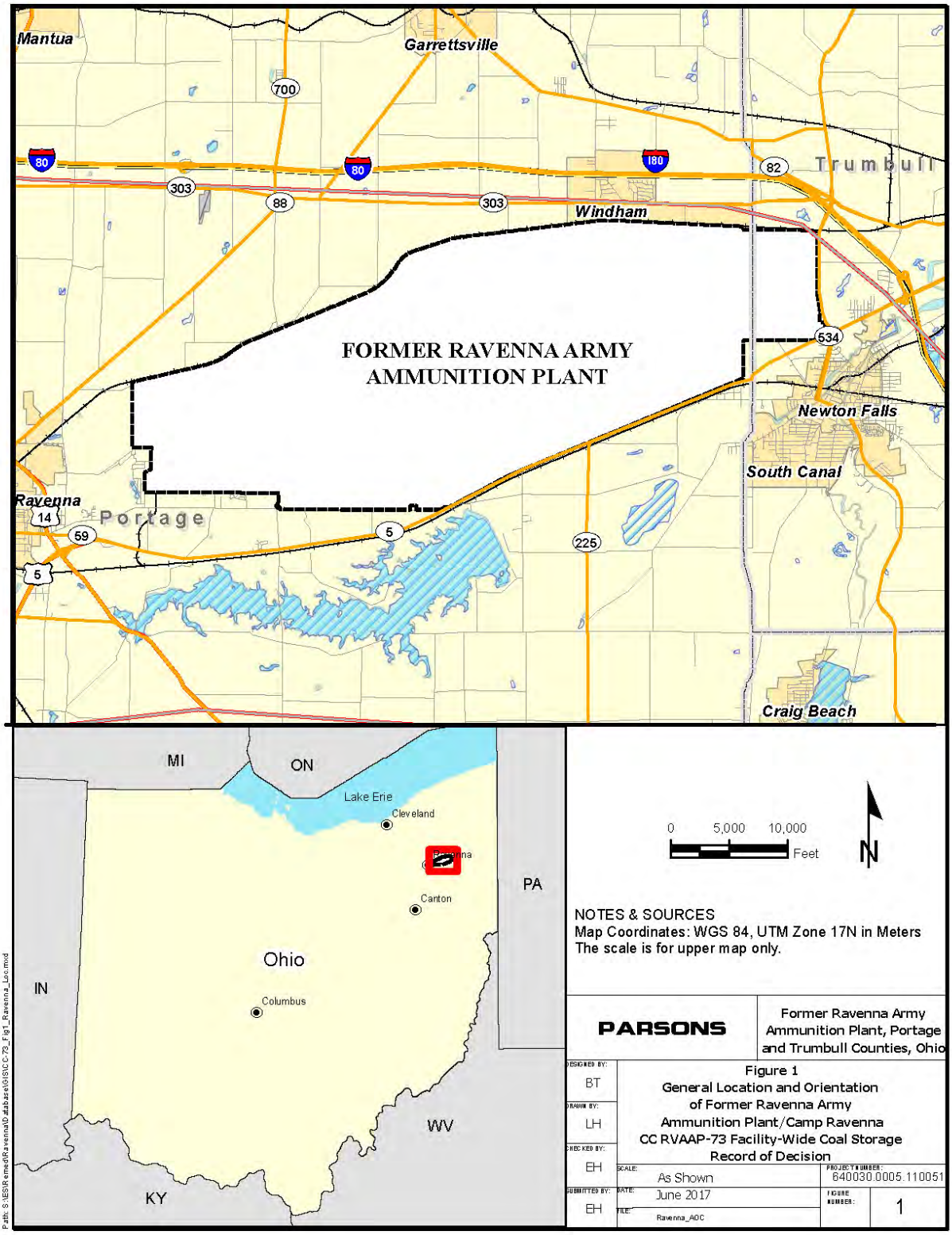

Figure 1. General Location and Orientation of Former RVAAP/Camp Ravenna

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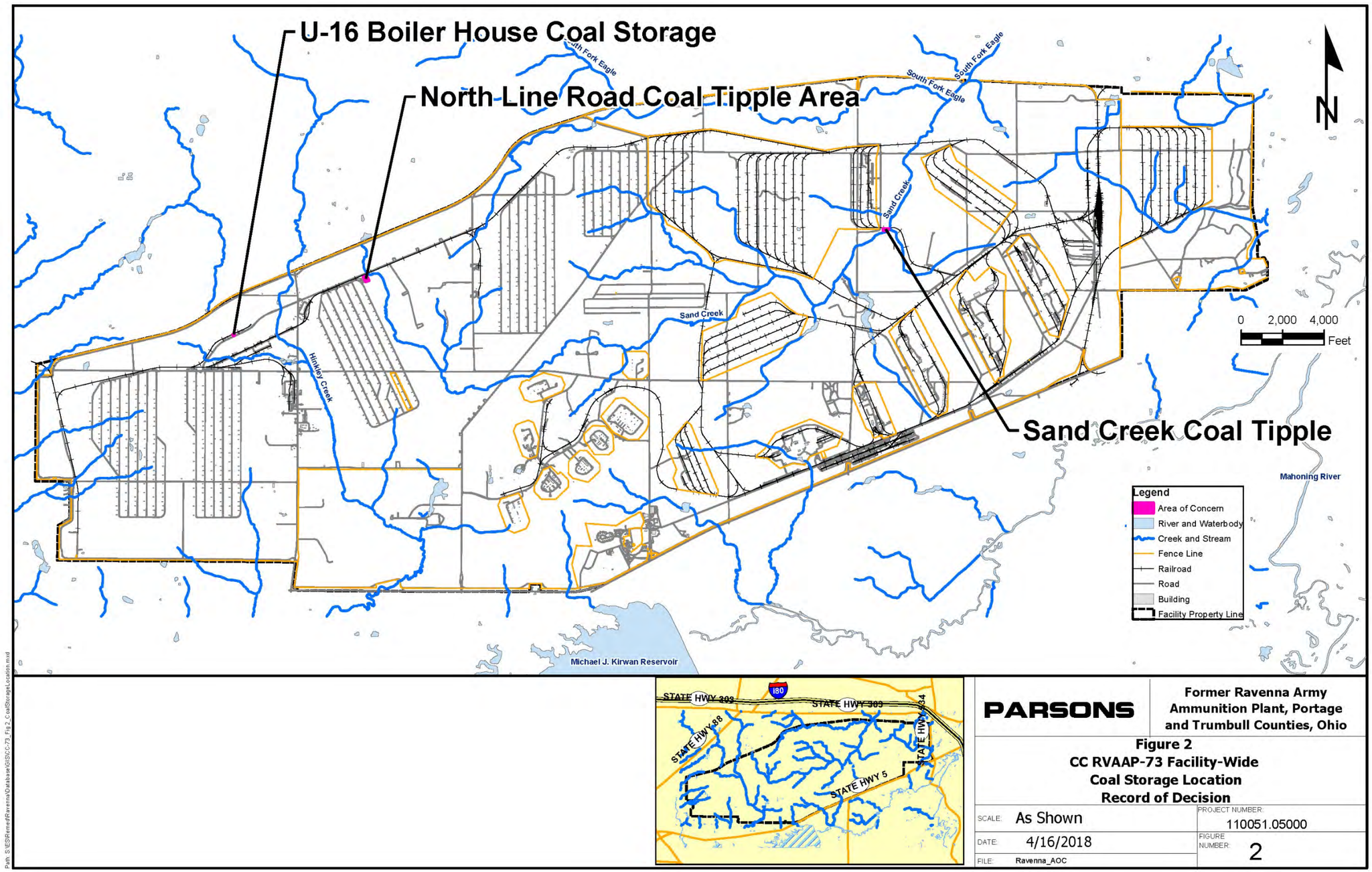

Figure 2. CC RVAAP-73 Facility-Wide Coal Storage Location

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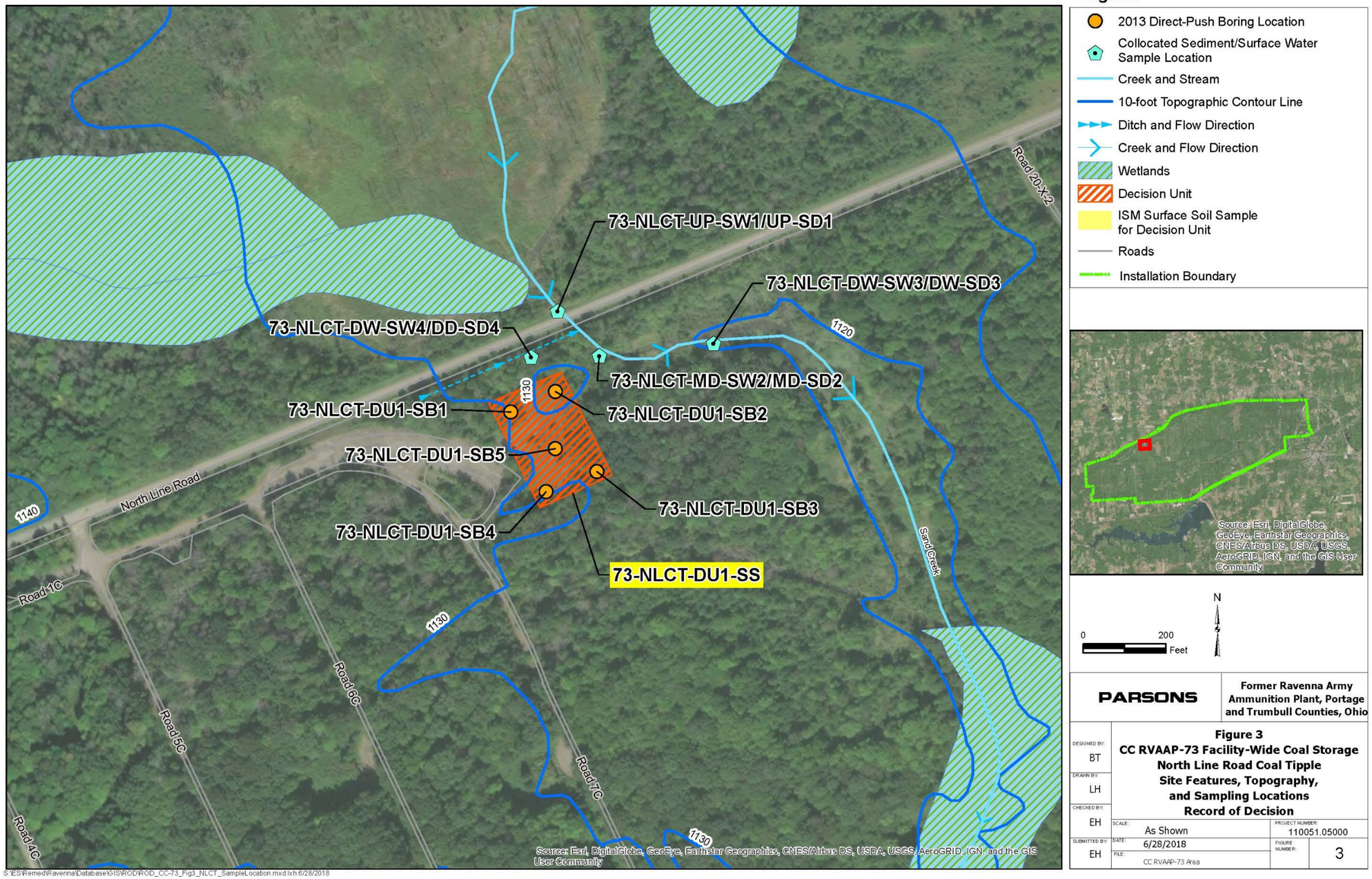

Figure 3. CC RVAAP-73 Facility-Wide Coal Storage North Line Road Coal Tipple Site Features, Topography, and Sample Locations

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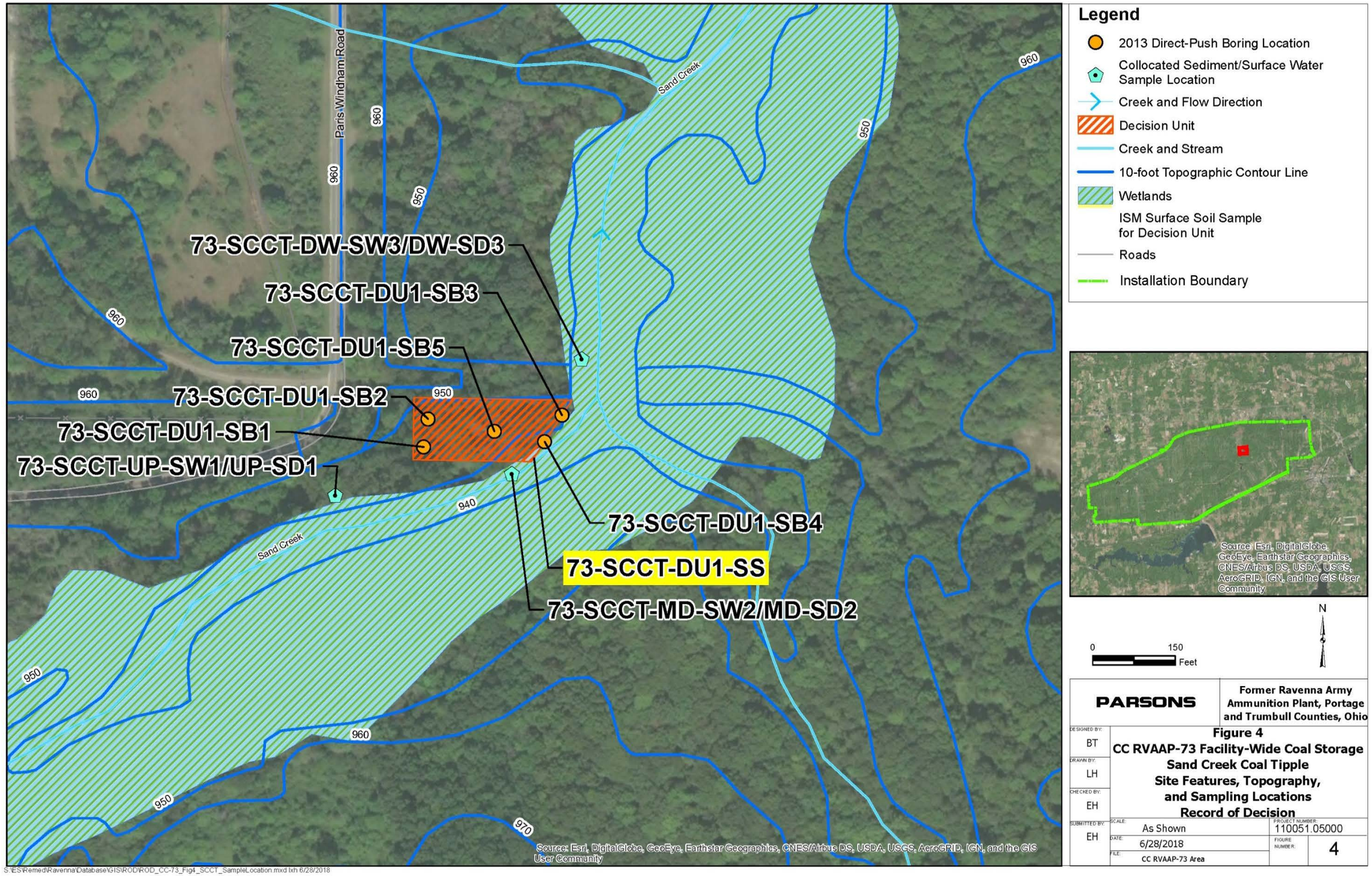

Figure 4. CC RVAAP-73 Facility-Wide Coal Storage Sand Creek Coal Tipple Site Features, Topography, and Sample Locations

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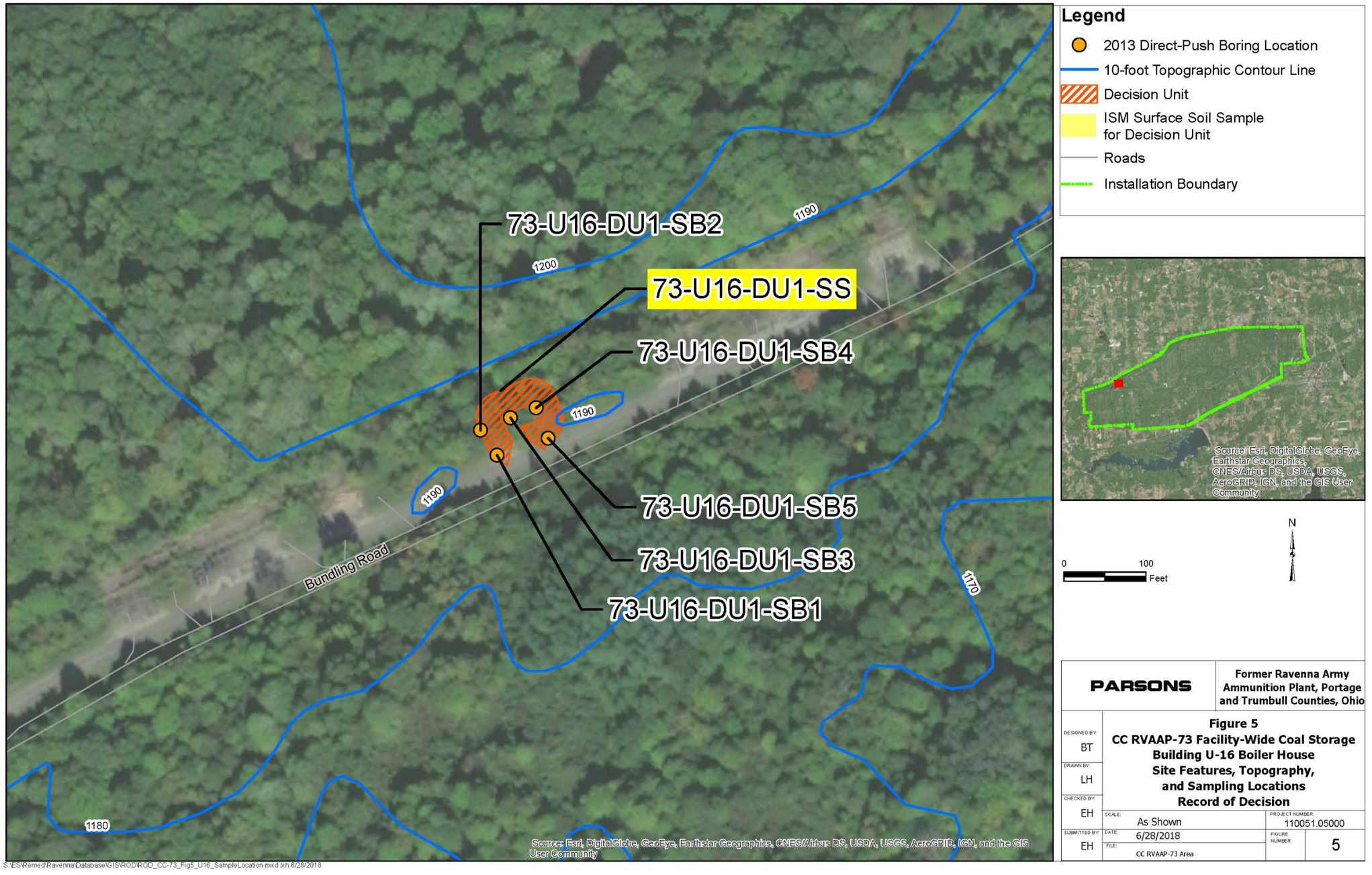

Figure 5. CC RVAAP-73 Facility-Wide Coal Storage Building U-16 Boiler House Coal Storage Site Features, Topography, and Sample Locations

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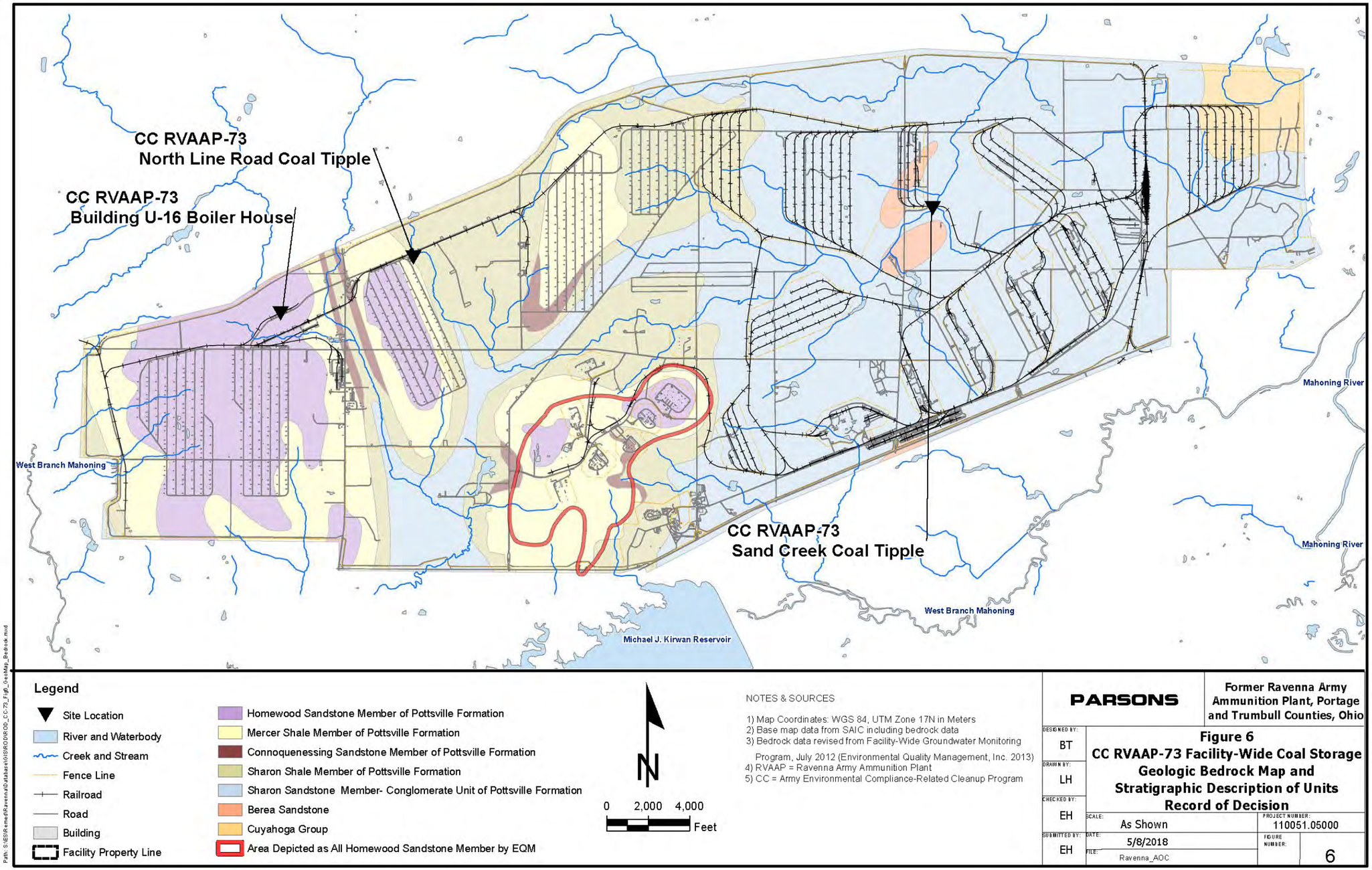

Figure 6. CC RVAAP-73 Facility-Wide Coal Storage Geologic Bedrock Map and Stratigraphic Description of Units

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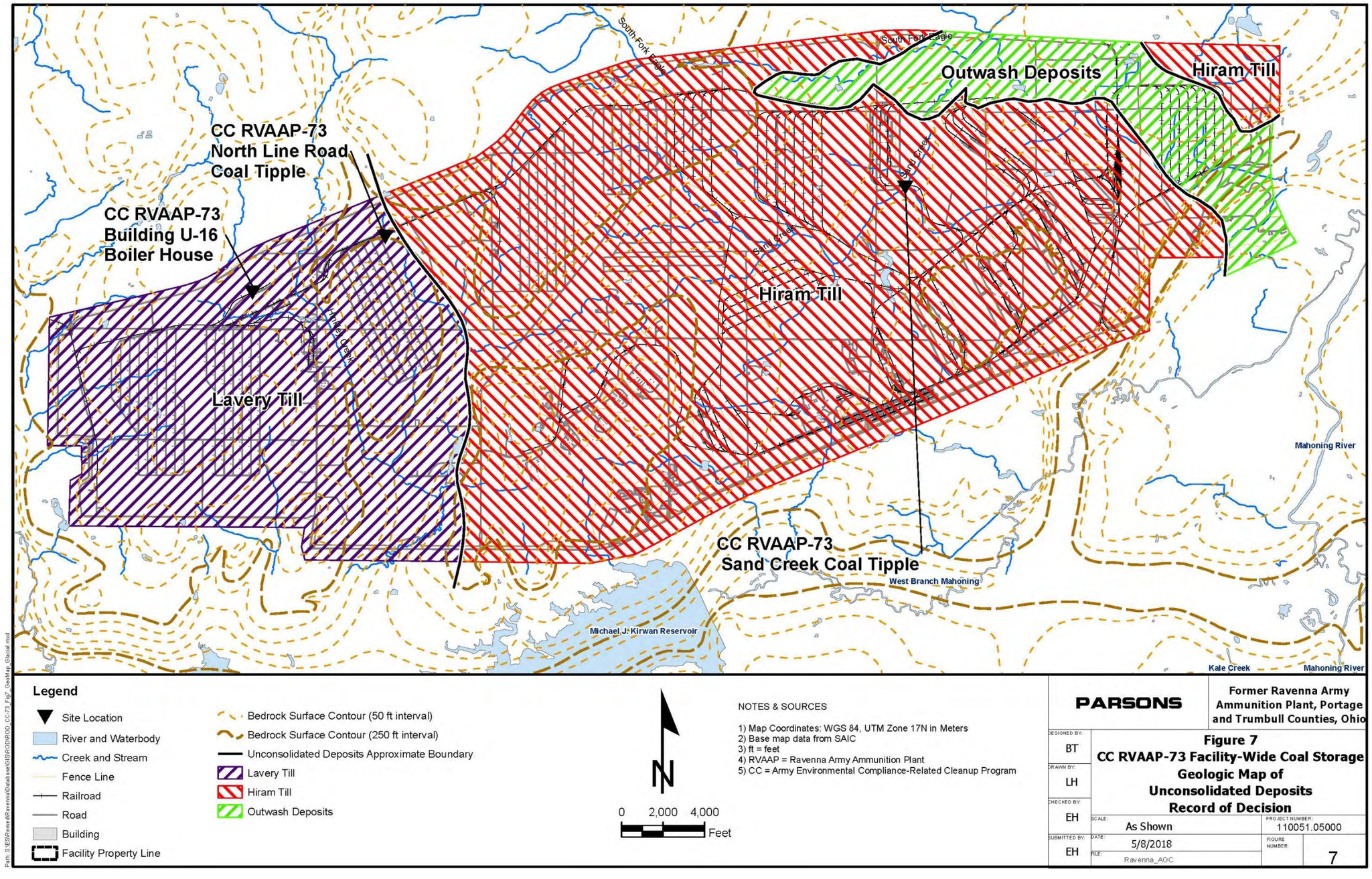

Figure 7. CC RVAAP-73 Facility-Wide Coal Storage Geologic Map of Unconsolidated Deposits

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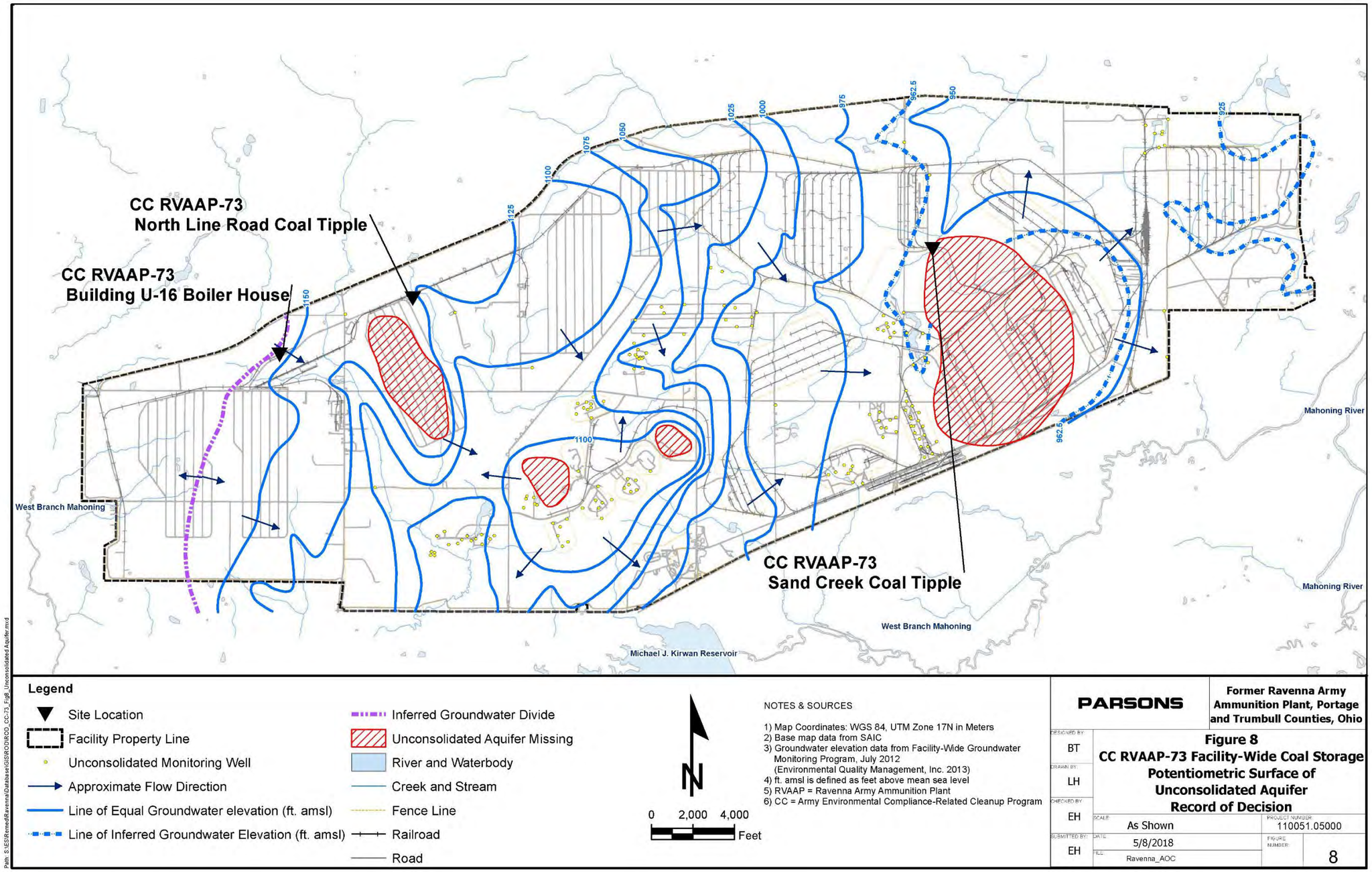

Figure 8. CC RVAAP-73 Facility-Wide Coal Storage Potentiometric Surface of Unconsolidated Aquifer

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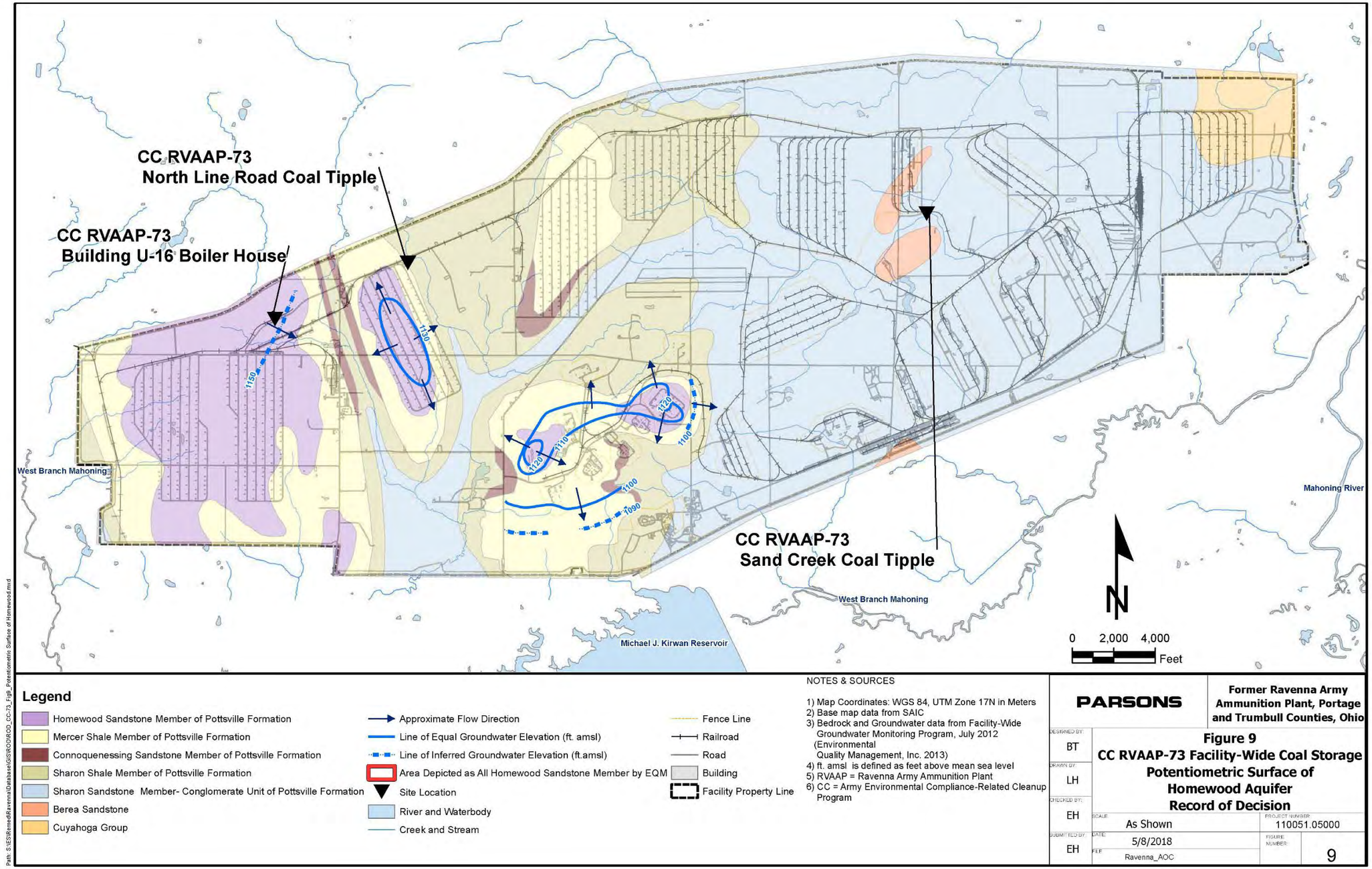

Figure 9. CC RVAAP-73 Facility-Wide Coal Storage Potentiometric Surface of Homewood Aquifer

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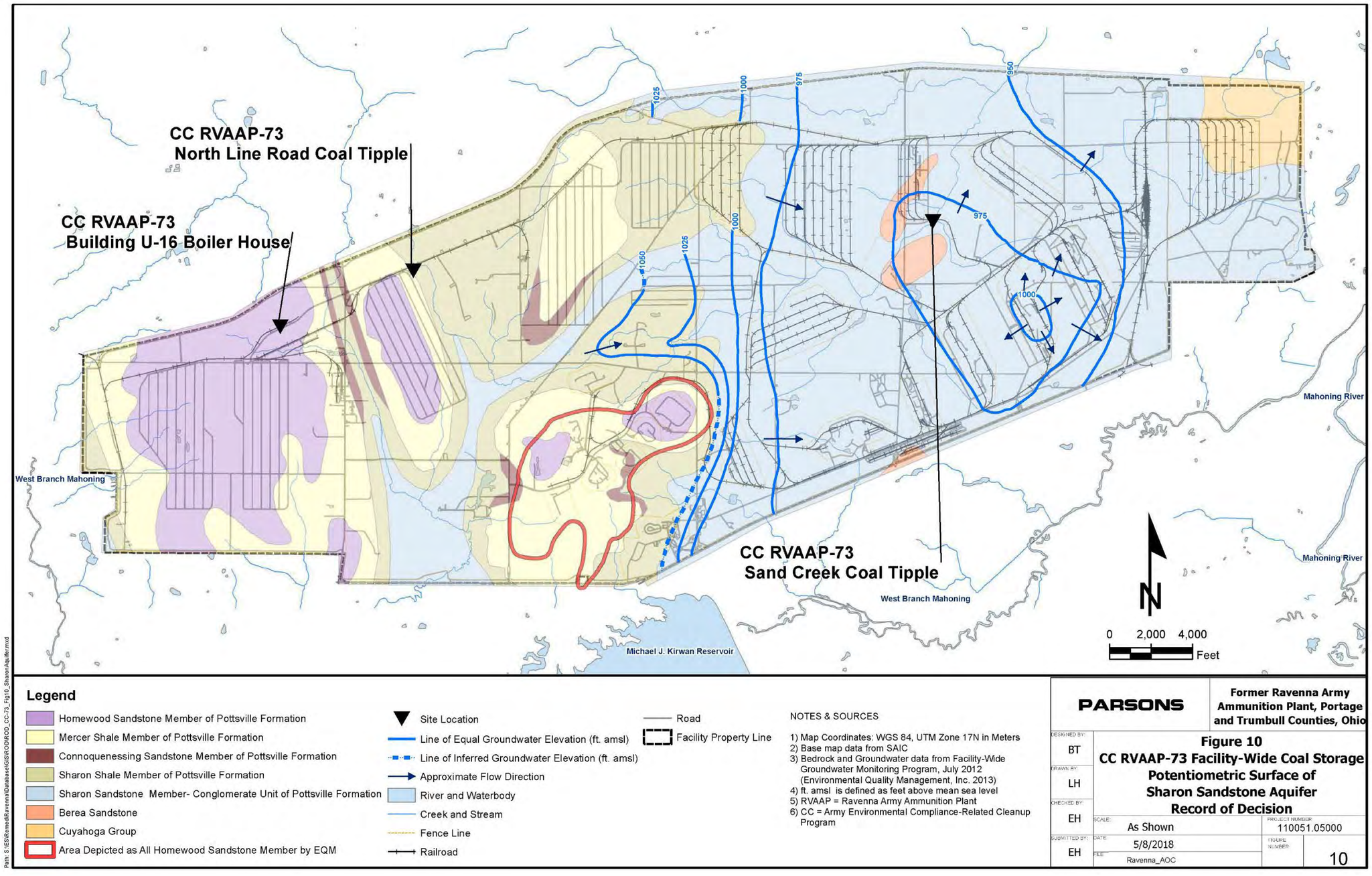

Figure 10. CC RVAAP-73 Facility-Wide Coal Storage Potentiometric Surface of Sharon Sandstone Aquifer

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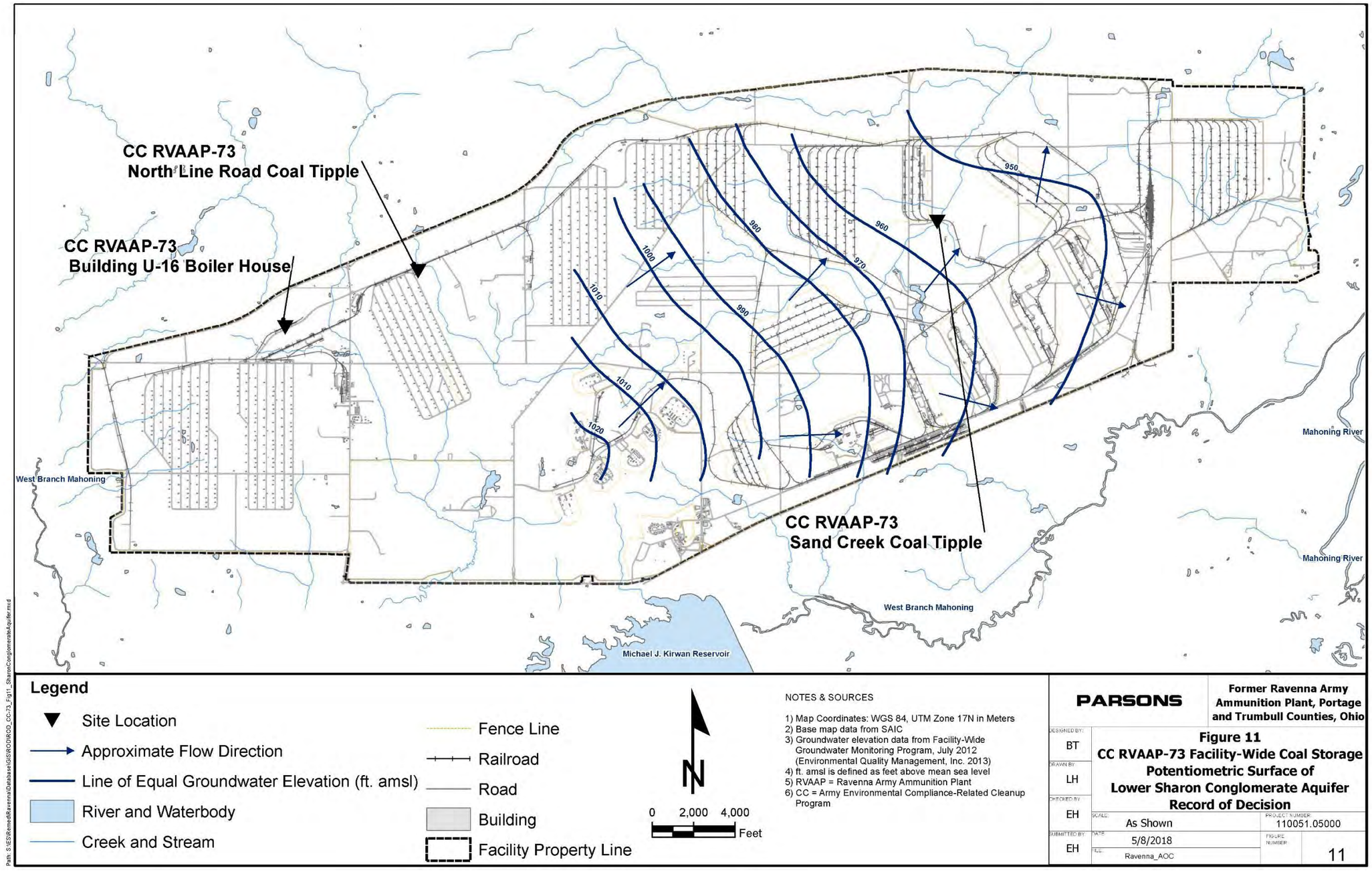

Figure 11. CC RVAAP-73 Facility-Wide Coal Storage Potentiometric Surface of Lower Sharon Conglomerate Aquifer

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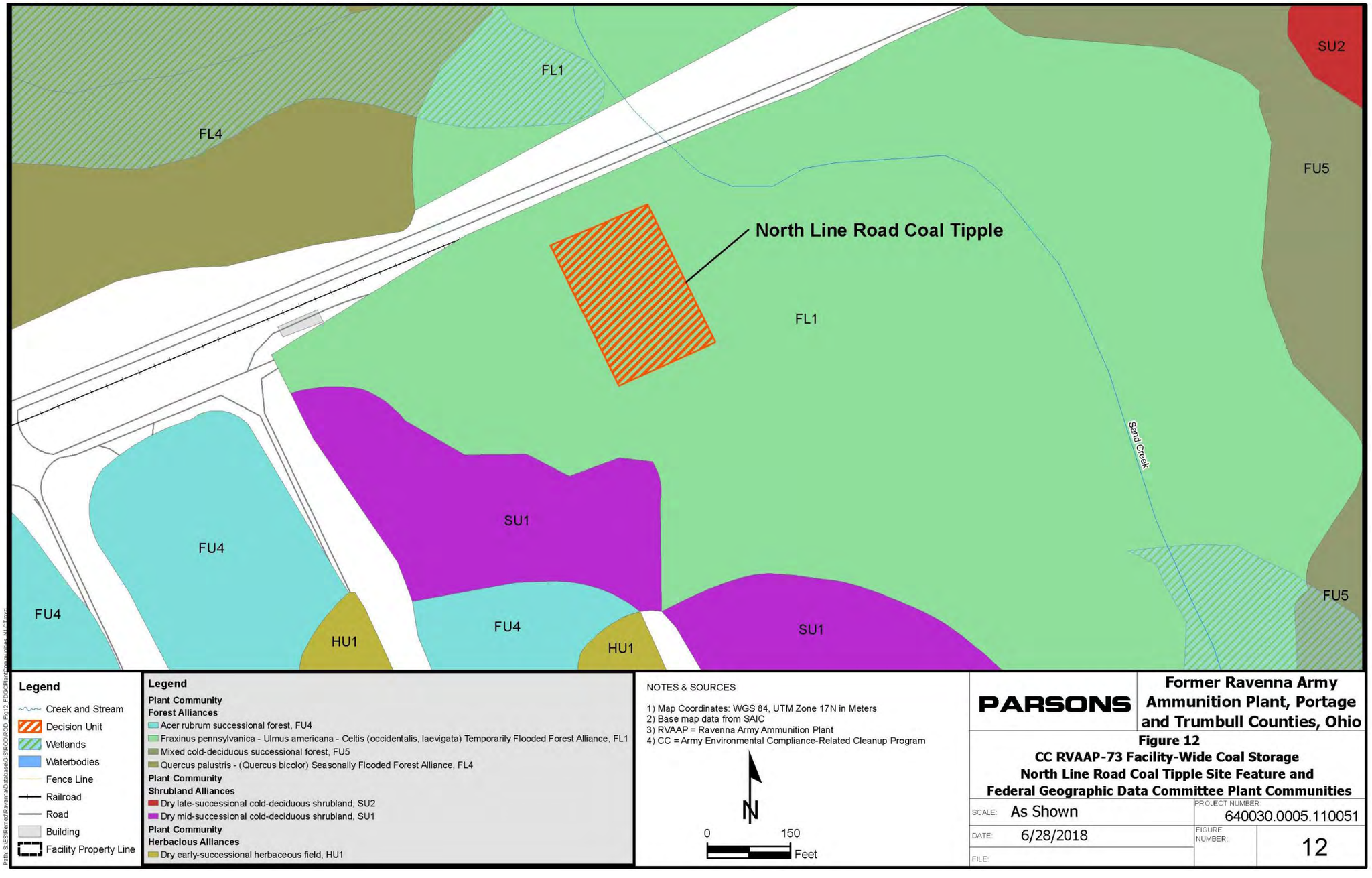

Figure 12. CC RVAAP-73 Facility-Wide Coal Storage North Line Road Coal Tipple, Site Feature and Federal Geographic Data Committee Plant Communities

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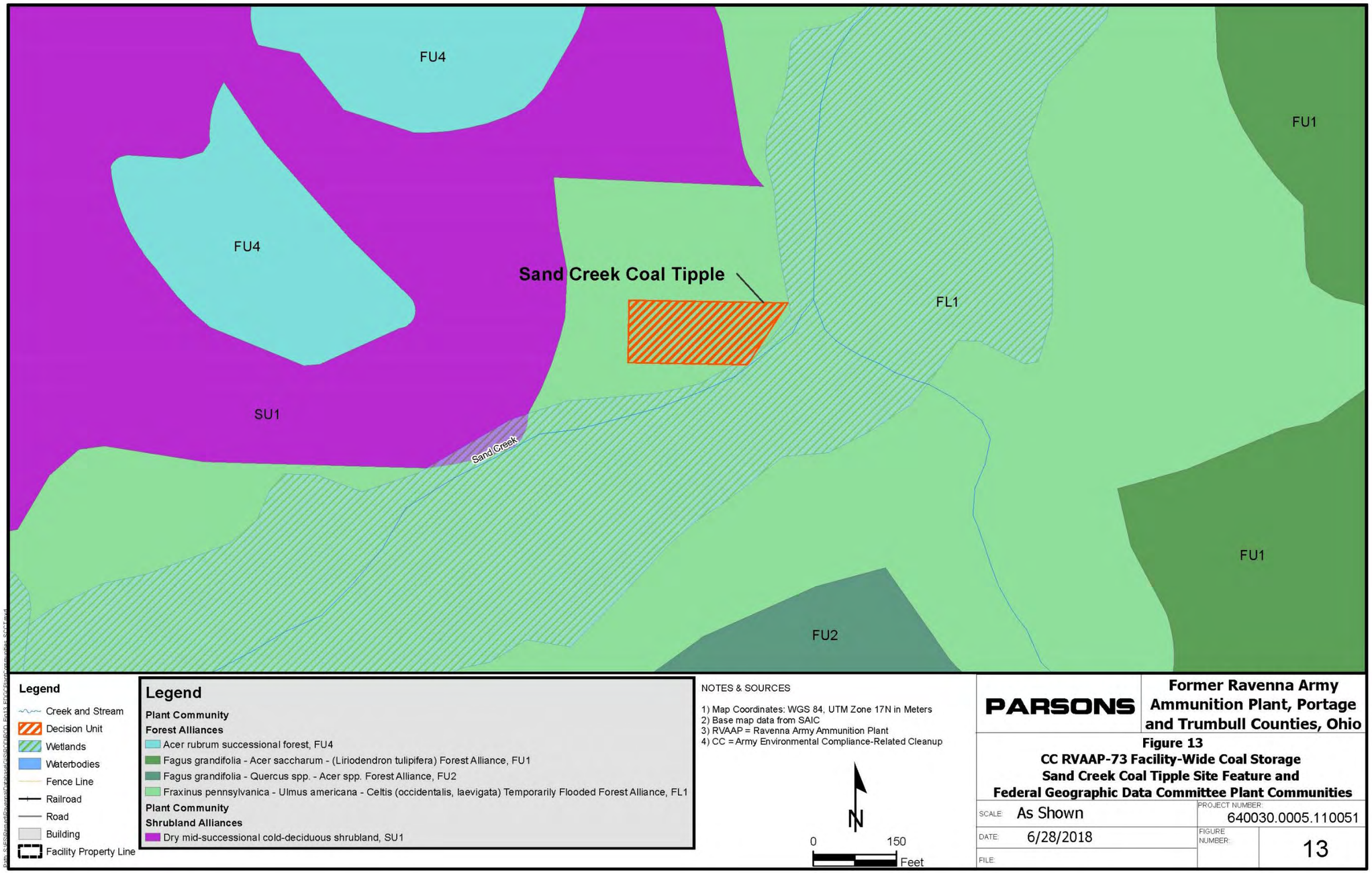

Figure 13. CC RVAAP-73 Facility-Wide Coal Storage Sand Creek Coal Tipple, Site Feature and Federal Geographic Data Committee Plant Communities

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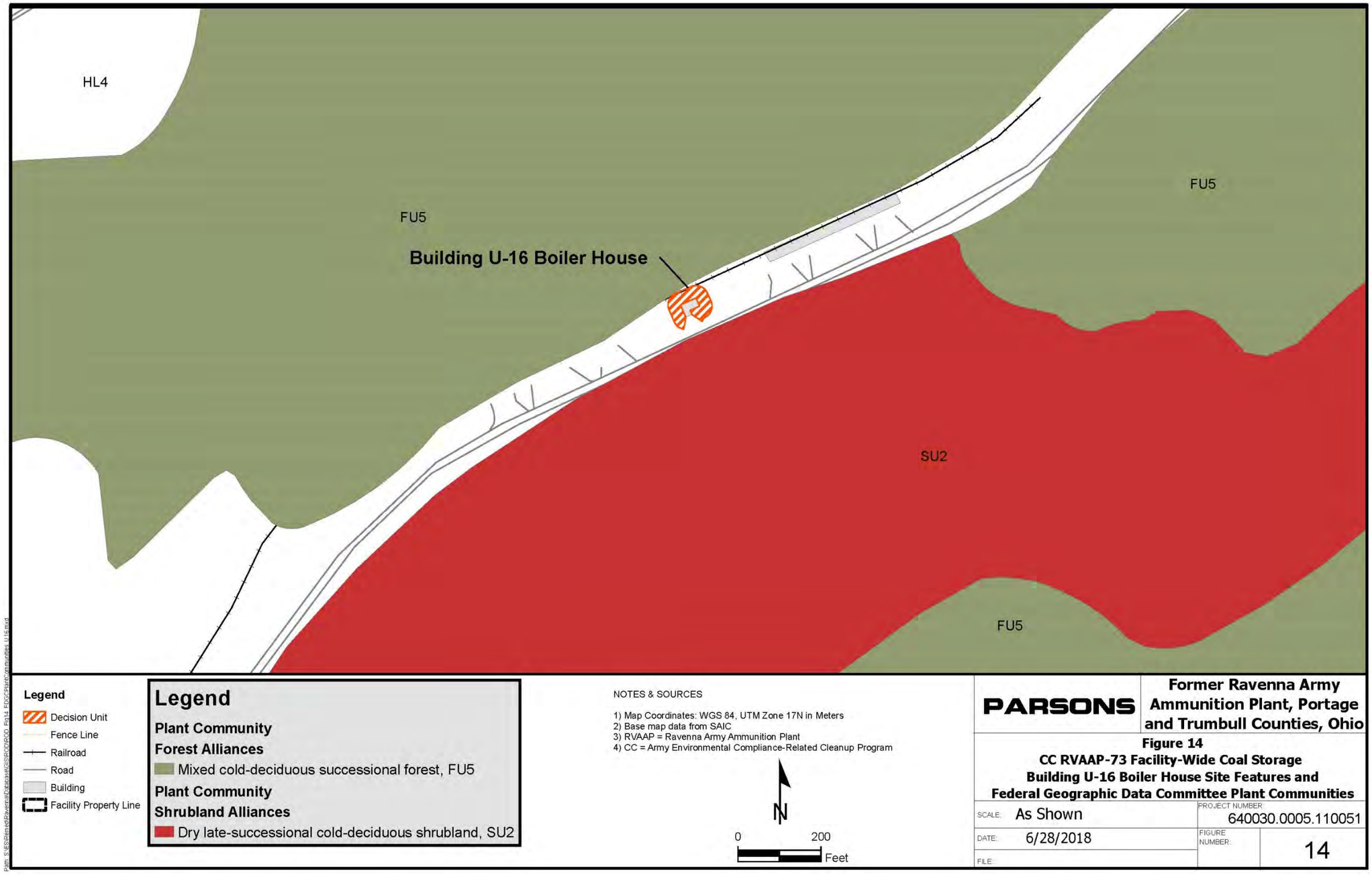

Figure 14. CC RVAAP-73 Facility-Wide Coal Storage Building U-16 Boiler House Coal Storage, Site Feature and Federal Geographic Data Committee Plant Communities

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ATTACHMENTS

Attachment 1 Public Notice

PUBLIC NOTICE

Camp Ravenna Joint Military Training Center
Camp Ravenna Environmental Office
1438 State Route 534 SW-Newton Falls, Ohio 44444
614-336-6136

Public Meeting to be held 28 February 2018 for Army National Guard Release of Proposed Plans for two sites:
Facility-Wide Coal Storage
Depot Area

Ravenna- The Army National Guard, in consultation with the Ohio Environmental Protection Agency, submits for review and comment two (2) Proposed Plans for sites at the Ravenna Army Ammunition Plant (RVAAP) in Portage and Trumbull counties, Ohio.

The Facility-Wide Coal Storage and Depot Area are within the former RVAAP (now known as Camp Ravenna) in Portage and Trumbull Counties, Ohio. These sites are being addressed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The Proposed Plans present the current status and information regarding the sites. The Proposed Plans detail the recommendations for each site and provide the rationale for these recommendations. On 28 February 2018, a public meeting will be held at the Ravenna High School Community Room, 6589 North Chestnut Street, Ravenna Ohio beginning at 6:00 p.m. with an informal open house when technical staff will be available to answer questions. At 6:30 pm, the Army National Guard will briefly describe the site assessments, present the recommendations for each site, and then request verbal comments from the public. Written comments regarding the recommendations may be submitted to the Army National Guard during the 30-day comment period from 16 February 2018 to 17 March 2018. All written comments should be addressed to Camp Ravenna Environmental Office; 1438 State Route 534 SW, Newton Falls, Ohio, 44444 or sent via email to Kathryn.s.tait.nfg@mail.mil.

In accordance with CERCLA, the recommendation presented in the Proposed Plans is also presented in earlier remedial investigation reports. All reports are available for public review at the RVAAP Restoration Program Information Repository at the Reed Memorial Library (167 East Main Street, Ravenna) and the Newton Falls Public Library (204 South Canal Street, Newton Falls). The reports are also available online at www.rvaap.org.

The final remedy for each site will be selected based, in part, on public comments. In coordination with the Ohio Environmental Protection Agency, the Army National Guard will select a final remedy after reviewing and considering all public comments received during the 30-day public comment period from 16 February 2018 to 17 March 2018. The Army National Guard encourages the public to review and comment on the recommendations presented in the Proposed Plans.

For more information or to participate in the review, please visit the RVAAP Restoration website (www.rvaap.org) or call Katie Tait at 614-336-6136.

Attachment 2 Affidavit from Kent Record Courier Newspaper

Proof of Publication
Record Publishing Company
1050 W. Main Street,
Kent, OH 44240
Phone (330) 541-9400
Fax (330) 673-6363

I, Thompson being first duly sworn depose and say that I am Advertising Clerk of
Record Publishing Company

30 Record-Courier a newspaper printed and published in the city of Kent, and of General circul
County of Portage, State of Ohio, and personal knowledge of the facts herein stated and that the no
annexed was Published in said newspapers for 2 insertions on the same day of the week from and a
day of February, 2018 and that the fees charged are legal.

Name of Account: Parsons
Ad Number: 12415272
No. of Lines: 78

Day(s) Published: 02/11, 02/18.

Sworn to and subscribed before this 20th day of March, 2018.

Elizabeth McDaniel
Notary Public
Commission Expires June 19, 2021

PUBLIC NOTICE
Camp Ravenna Joint Military Training Center
Camp Ravenna
Environmental Office
1438 State Route 534 SW
Newton Falls, Ohio 44444
614-336-6136
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28 February 2018 for
Army National Guard Release
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RC, Feb 11, 18, 2018, 12415272

Attachment 3 Affidavit from Warren Tribune Newspaper

PUBLIC NOTICE
Camp Ravenna Joint Military Training Center
Camp Ravenna Environmental Office
1438 State Route 534 SW
Newton Falls, Ohio 44444
614-336-6136
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Army National Guard Release of Proposed
Plans for two sites:
Facility-Wide Coal Storage
Depot Area

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For more information or to participate in the review, please visit the RVAAP Restoration website (www.rvaap.org) or call Katie Tait at 614-336-6136.

#323-9T-February 11 & 18, 2018 23503

PROOF OF PUBLICATION

STATE OF OHIO
TRUMBULL COUNTY SS: PAMELA EAZOR

BEING DULY SWORN, UPON OATH, STATES THAT SHE IS AN AUTHORIZED REPRESENTATIVE OF THE TRIBUNE CHRONICLE, (A DIVISION OF EASTERN OHIO NEWSPAPERS INC) A DAILY NEWSPAPER PRINTED IN THE CITY OF WARREN, COUNTY OF TRUMBULL, STATE OF OHIO AND OF GENERAL CIRCULATION IN THE CITY OF WARREN, TRUMBULL COUNTY, OHIO AND IS INDEPENDENT IN POLITICS.

THAT THE ATTACHED ADVERTISEMENT WAS PUBLISHED IN THE TRIBUNE CHRONICLE EVERY SUNDAY FOR (2) TWO CONSECUTIVE WEEKS AND THAT THE FIRST INSERTION WAS ON SUNDAY THE 11th DAY OF FEBRUARY 2018

Pamela Eazor

SWORN TO BEFORE ME AND SUBSCRIBED IN MY PRESENCE ON THIS 23RD DAY OF FEBRUARY 2018

Constance A. Pacek

NOTARY PUBLIC

NOTARY PUBLIC STATE OF OHIO

CONSTANCE A. PACEK
Notary Public, State of Ohio
My Commission Expires
March 7, 2021

Attachment 4 Ohio EPA Correspondence

Ohio Environmental Protection Agency

John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

October 9, 2018

Mr. David Connolly
Army National Guard Directorate
Environmental Programs Division
ARNG-ILE-CR
111 S. George Mason Dr.
Arlington, VA 22204

Re: US Army Ravenna Ammunition PLT RVAAP
Remediation Response
Project Records
Remedial Response
Portage County
267000859244

Subject: Final Record of Decision for RVAAP-73, Facility-wide Coal Storage, July 27, 2018

Dear Mr. Connolly:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Final Record of Decision for RVAAP-73 Facility-wide Coal Storage," for the Ravenna Army Ammunition Plant (RVAAP), Portage/Trumbull Counties. The document, dated July 27, 2018, was received at the Northeast District Office (NEDO) on July 27, 2018. This letter serves to document Ohio EPA's concurrence regarding the proposal of No Further Action (NFA) for RVAAP-73 Facility-wide Coal Storage site as discussed in the Final Record of Decision (ROD).

Based on investigative findings documented in the Final Remedial Investigation report, human health risk assessment, and ecological risk assessment, the information contained in the Final Proposed Plan, other investigation documents/reports, and Ohio EPA's oversight participation during the investigation, Ohio EPA concurs with the ROD for the RVAAP-73 Facility-wide Coal Storage.

A public meeting was held on February 28, 2018, that was public noticed through radio stations, television stations, and newspapers. A 30-day public comment period was held between February 16, 2018 and March 17, 2018. No comments were received; therefore, the ROD contains no significant changes from the Final PP.

If you have any questions concerning the above, please feel free to contact Ed D'Amato at (330) 963-1170.

Sincerely,

Craig W. Butler
Director

RECEIVED
09 OCT 2018

CWB/ED/nvp

ec: Rebecca Schreffler, Chenega
Kevin Sedlak, ARNG
Angela Schmidt, USACE Louisville
Mark Johnson, Manager, DERR, NEDO
Bob Princic, Supervisor, DERR, NEDO
Katie Tait, OHARNG RTLS
Craig Coombs, USACE Louisville
Gail Harris, Vista Sciences Corporation
Thomas Schneider, Ohio EPA, SWDO, DERR

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www.epa.ohio.gov • (614) 644-3020 • (614) 644-3184(fax)