US Army Corps of Engineers®
St. Paul District

Appendix P: Hazardous Toxic and Radioactive Waste

CAP Section 205 Flood Risk Management Study

Arcadia, WI

Draft Feasibility Study Report with Integrated Environmental Assessment

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1 Introduction

As part of the requirements of local cooperation, the city of Arcadia must provide any lands required for construction and operation of the project. These lands must be free of contaminants. To determine if any of the project lands contain contaminants, USACE conducts a Phase 1 Environmental Site Assessment (ESA) during the feasibility phase.

This appendix documents the abbreviated Phase 1 ESA, subsequent complete Phase I ESA, and limited Phase II ESA which were conducted as part of the feasibility phase of the study.

2 Abbreviated Phase I ESA

An abbreviated Phase I Environmental Site Assessment (ESA) was conducted in December 2019 to identify any recognized environmental conditions associated with hazardous, toxic, radioactive waste (HTRW). The abbreviated Phase I ESA included records review. The following is a summary of the findings. The complete abbreviated Phase I ESA report can be found at the end of this appendix. All supplementary materials are available upon request.

Upon review of the record database and other existing documentation, two recognized environmental conditions were identified near or on the feasibility level project footprint. Two parcels (at the intersection of the railroad and Turton Creek) are listed as containing residual soil contamination and groundwater contamination. Two other properties were identified as ‘sewage disposal ponds’ on historical topographic maps and visually recognized from aerial photography. They are comprised of multiple wastewater storage cells encompassing approximately 50 acres.

Although the sewage disposal ponds are not listed in any of the reviewed databases, excavation of this material is currently identified and further characterization of this material will be done during the design phase. An additional finding indicated a closed landfill within the proposed project footprint that requires further attention to verify the closure conditions of the site.

Based upon review of the current information available, a Phase II ESA and further collaboration with the Wisconsin Department of Natural Resources is necessary for the properties identified above. It should be noted that several buildings within an industrial zoned area along the northeast portion of the proposed project area are also identified to be under the proposed project footprint. Due to lack of visual inspection along the proposed alignment these structures and associated property use need further evaluation.

3 Full Phase I ESA

A full Phase I ESA was conducted in April 2020. Recognized environmental conditions discovered during the Phase I ESA included:

1.) Isolated areas cited by the Wisconsin Department of Natural Resources for having contaminated soil and groundwater. A limited Phase II Environmental Site Assessment was conducted to further evaluate contamination (see below).

2.) Multiple structures that would be removed, are believed to have been constructed prior to 1978, and therefore may contain lead-based paint and/or asbestos. Lead-based paint and asbestos testing are recommended following property acquisition.

3.) River Miles 0 – 2.87 of Turton Creek are listed as an impaired waterbody by the State of Wisconsin, resulting from elevated phosphorous levels. Depending on construction

methods used for diverting and realigning Turton Creek, a sediment management plan may be required for Clean Water Act Section 401 permitting.

The complete Phase I ESA report can be found at the end of this appendix.

4 Phase II ESA

Based on the findings from full Phase I ESA, a limited Phase II was performed in April 2020. The limited Phase II ESA was performed to further evaluate isolated areas where groundwater and soil contamination had previously been reported. The complete Phase II ESA report can be found at the end of this appendix. All supplementary materials are available upon request.

roundwater concentrations for nitrogen exceeded Wisconsin Enforcement Standards in the northeast portion of the flood risk management system. The impacted area includes ~200 linear feet of planned levee and several relief wells. Based on these findings, it is recommended that relief wells not be installed in this area and alternative options be evaluated. If alternative options cannot be identified it is recommended that perforations (well screens) be installed at elevations less than 713' or ~20 below ground surface where groundwater contamination did not occur. An impermeable drainage ditch should also be considered to transport water offsite, however the discharge location may require a state EPA 401 Certification, thus adding additional complexity to the matter.

Soil samples were also collected and analyzed for nitrogen near the area referenced above. Nitrogen levels in soil were below the Wisconsin Site-Specific Soil Performance Standard. This assessment was unable to evaluate soil where concentrations were predicted to be greatest, although those areas are just outside the project footprint, beneath a concrete pad.

The volatile organic compound Tetrachloroethene was discovered in the upper northeast portion of the flood risk management system. Although concentrations did not exceed the EPA Residual Screening Level, it is recommended that soils excavated during construction near the area of discovery are screened for VOCs in the field using a Photoionization Detector. This is a low cost method for evaluating soil contamination and yields immediate results. This recommendation was made because the origin and spatial extant of the compound are unknown.

Mercury contamination was identified in one of the six sediment samples collected near the shoreline of a historic wastewater lagoon. Overall, average mercury levels were far below the Wisconsin Recommended Sediment Quality Guideline Value for Mercury. Nevertheless, it is recommended that sediment disturbance be kept to a minimum and appropriate personal protection equipment are used. Given the spatial variability of mercury concentrations observed in this study, sediments needing to be moved offsite should be tested to ensure they meet the legal requirements for the receiving landfill.

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St. Paul District

GEOTECHNICAL & GEOLOGY BRANCH
180 5th Street East
St. Paul, MN 55101

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT – ARCADIA CAP 205 PROJECT

Arcadia CAP 205 Feasibility Study
Trempealeau County, Wisconsin

29 December 2019

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Appendices:

1.0 Abbreviations

ACM	Asbestos Containing Material
AIRS	Aerometric Information Retrieval System
AST	Aboveground Storage Tank
AUL	Activity and Use Limitation
ASTM	American Society for Testing Materials
BRRTS	Bureau for Remediation and Redevelopment Tracking System
CDL	Clandestine Drug Labs
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
CO	Continuing Obligations
CONSENT	Superfund Consent Decrees
CORRACTS	Corrective Action Report
DOD	Department of Defense Sites
EDR	Environmental Data Resources
EPA	United States Environmental Protection Agency
ERNS	Emergency Response Notification System
ESA	Environmental Site Assessment
FIFRA	Federal Insecticide, Fungicide, & Rodenticide Act
FINDS	Facility Index System
FOIA	Freedom of Information Act
FTTS	FIFRA/TSCA Tracking System
FUDS	Formerly Used Defense Sites
FR	Federal Register
HMIRS	Hazardous Materials Information Reporting System
LQG	Large Quantity Generators
LAST	Leaking Aboveground Storage Tank
LUCIS	Land Use Control Information System
LUST	Leaking Underground Storage Tank
MGS	Minnesota Geological Survey
MLTS	Material Licensing Tracking System
NFRAP	Former CERCLIS Sites
NPDES	National Pollutant Discharge Elimination
NPL	National Priorities List
NPL LIENS	Federal Superfund Liens
NWI	National Wetlands Inventory
ODI	Open Dump Inventory
PADS	PCB Activity Database System
PCBs	Polychlorinated Biphenyls
PDF	Portable Digital Format
PLP	Permanent List of Priorities
RAATS	RCRA Administrative Action Tracking System
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery Information System
REC	Recognized Environmental Condition
ROD	Records of Decision

RRSM	Remediation and Redevelopment Sites Map
SEMS	Superfund Enterprise Management System Archive
SHWS	State Hazardous Waste Sites
SPILLS	Spills Database
SQG	Small Quantity Generators
SSTS	Section 7 Tracking Systems
SWF	Solid Waste Facility
SWRCY	Solid Waste Recycling
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
TSDF	Treatment, Storage, and Disposal Facilities
UMTRA	Uranium Mill Tailings Sites
USACE	United States Army Corps of Engineers
USC	United States Code
USGS	United States Geological Survey
UST	Underground Storage Tank
VCP	Voluntary Cleanup Program
WDNR	Wisconsin Department of Natural Resources
WGNHS	Wisconsin Geological and Natural History Survey

2.0 Liability Statement

The following excerpts, unless otherwise noted, are from ASTM E 1527-13; Appendix X1.1.5.2; CERCLA Operator Liability:

'A person may be liable as a CERCLA operator when they exercise control over a facility.'

As defined in 42 U.S.C. 9601 (20) (A) The term "owner or operator" means (ii) in the case of an onshore facility or an offshore facility, any person owning or operating such facility.

As defined in 42 U.S.C. 9601 (9) (A) The term "facility" means any building, structure, installation, equipment, pipe or pipeline, well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft, or (B) any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located.

'Some courts have held that ***a person may be liable as a current CERCLA operator where the person did not exercise control over historic operations that caused the contamination but dispersed or moved around contaminated soil****…'*

'Like a past CERCLA owner, a past operator must have exercised control over the site "at the time of disposal" to be liable as a CERCLA operator. Many courts have held that ***disposal is not limited to the original release but can encompass subsequent dispersal or movement of hazardous substances.****'*

3.0 General Information

Project Information:	Arcadia CAP 205 Feasibility Study
Site Information:	Arcadia Feasibility Footprint Trempealeau River/Turton Creek Arcadia, Wisconsin
County:	Trempealeau
Latitude, Longitude:	44.2535°, -91.5064°

Site Assessor: 

Colin A. Riddick, P.G.
Geologist

Environmental Professional Qualification:

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in § 312.10 of 40 CFR 312.

I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed all the appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Colin A. Riddick, P.G.
Geologist

4.0 Executive Summary

4.1 Subject Properties Description

The subject properties are located along the left bank of Turton Creek and the Trempealeau River and the right bank of Meyers Valley Creek. These sites are in the floodplain of the Trempealeau River and associated smaller tributaries. The subject properties dimensions are a linear footprint roughly 90 feet by 2.3 miles and encompassing an estimated 34 acres.

Predominant land use in the immediate vicinity is heavy to light industrial but ranging from recreational to residential properties. Undeveloped bottomland areas and wetlands are found along the edge of the property boundaries.

The subject properties currently contain 7 buildings, 2 of which are in industrial zoned areas and the remaining are residential structures. The sites skirt the edge of the Arcadia business district on the edge of man placed fill. These properties are bounded by the Trempealeau River to the northwest, Turton Creek to the northeast, and Meyers Valley Creek to the southwest.

4.2 *Environmental Report Summary*

Currently the subject properties are a mix of industrial use from manufacturing, agricultural supply, and commercial food supply as well as recreational fields, residential homes, public right of way, and abandoned industrial property. Review of record databases and other existing documentation identified two recognized environmental conditions near or on the feasibility level project footprint. These are summarized below:

- Parcel No. 201-00734-0005 and 201-00730-0000 are listed with Activity and Use Limitation (AUL) restrictions due to residual soil contamination and groundwater contamination.

- Parcel No. 201-01100-0025 and 201-01100-0015 were identified as ‘sewage disposal ponds’ on historical topographic maps and visually recognized from aerial photography.

There is a chance the aforementioned items pose an environmental risk.

4.3 *Recommendations*

Based on the information obtained during the records review portion of the environmental site assessment a ***Phase II Environmental Site Assessment would be necessary*** for the subject properties. It should be noted that the complete report must be read in order to fully understand the findings associated with the subject properties.

5.0 Introduction

5.1 Purpose

The purpose of the Phase I ESA was to evaluate the current and historical conditions of the subject property in an effort to identify recognized environmental conditions (REC) in connection with the subject property and surrounding operations.

A recognized environmental condition is defined by ASTM E 1527-13 as:

The presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. *De minimis* conditions are not recognized environmental conditions.

5.2 Scope of Work

An abbreviated Phase I ESA and the applicable portions conducted on the subject properties was in accordance with ASTM Standard Practice E 1527-13 and further defined below:

- USACE has gathered and reviewed available historical data, including fire insurance maps, survey plat maps, aerial photography, topographic maps from the United States Geological Survey (USGS), groundwater maps from the Wisconsin Geological and Natural History Survey (WGNHS), geologic maps from WGNHS, and interviews with knowledgeable persons.

- USACE has reviewed state and federal environmental databases including NPL, CERCLIS, CORRACTS, RCRA, ERNS, SHWS, SWF, LUST, LAST, UST, AST, CDL, HMIRS, PADS, and SPILLS.

5.3 Limitations and Exceptions

The information, conclusions, and recommendations stated in the report are based upon work undertaken by trained professional and technical staff working for the U.S. Army Corps of Engineers, and also upon information provided by others. We have accepted as true and accurate the information provided by other sources, we cannot be held responsible for the accuracy of this information.

The Phase I ESA was conducted in an abbreviated method due to time constraints which omitted the site reconnaissance portion of the assessment and weighed heavily on records review. The remaining portions of the assessment were conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the environmental profession under similar conditions. No other warranty or guarantee, expressed or implied, is included or intended in this report or otherwise.

The scope of this assessment does not purport to encompass every report, record, or other form of documentation relevant to the subject property being evaluated. The

observations contained herein are made during review of ownership records, discussions with local government personnel, and review of readily accessible environmental databases. The Phase I ESA is based upon our professional judgment concerning the significance of the data collected and in no way attempts to forecast future site conditions.

6.0 Site Description

6.1 Location and Legal Description

Address: Arcadia Feasibility Footprint
Trempealeau River/Turton Creek
Arcadia, Wisconsin

Legal Description: Fourth Principal Meridian, Wisconsin
Township 21 North, Range 9 West
Section 31, Southeast ¼
Section 32, South ½
Township 20 North, Range 9 West
Section 6, Northeast ¼
Township 20 North, Range 10 West
Section 1, Northeast ¼
The areas described contains 34 acres of land, more or less.

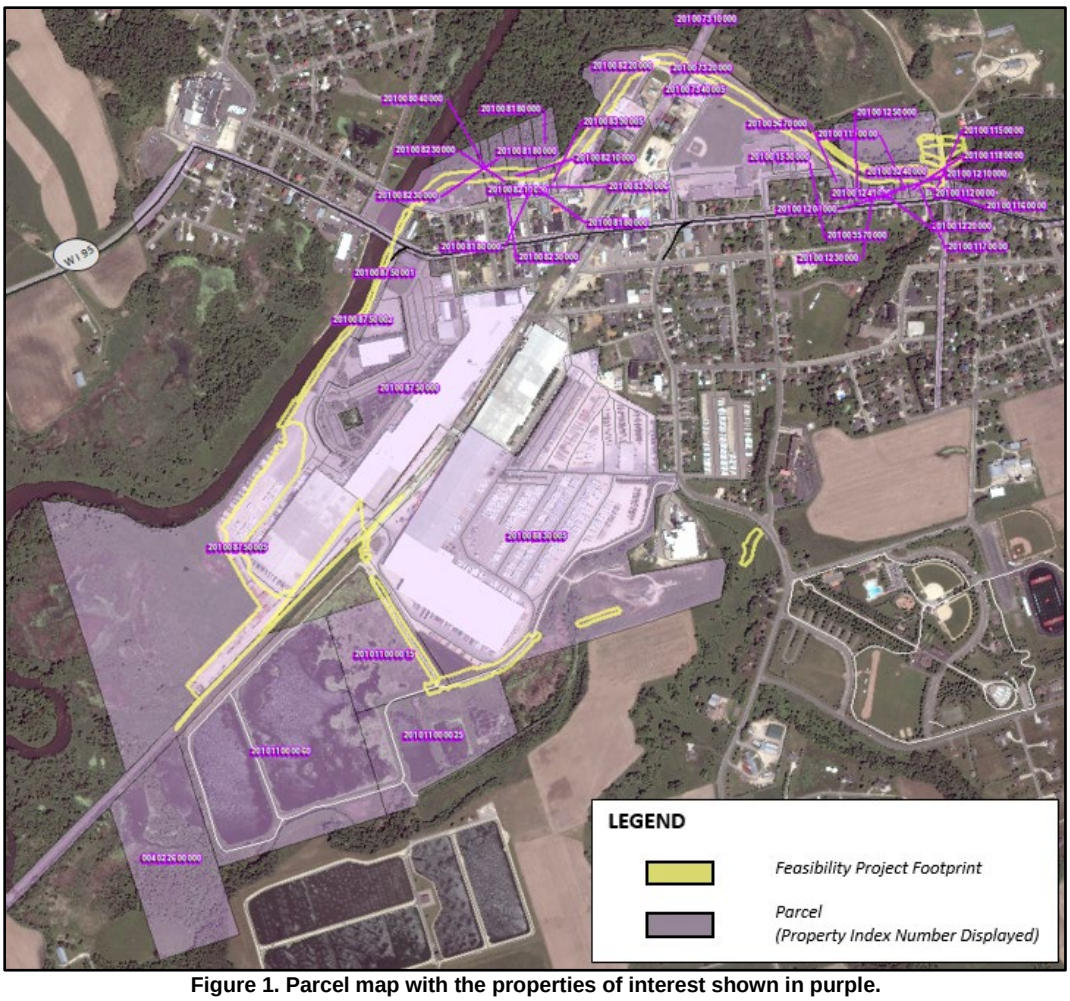

Figure 1. Parcel map with the properties of interest shown in purple.

6.2 Site and Vicinity Description

The subject properties are currently a mix of industrial use from manufacturing, agricultural supply, and commercial food supply as well as recreational fields, residential homes, public right of way, and abandoned industrial property. This area is bounded by the Trempealeau River to the northwest, Turton Creek to the northeast, and Meyers Valley Creek to the southwest.

The earliest use of these sites are unknown, but according to 'City History' from the City of Arcadia website, the town was established in 1856 (City of Arcadia, 2019). Aerial photography reveals that by 1938 the subject properties were a mixture of bottomland marsh and agricultural fields in the southwest portion of the project area and the early business district of Arcadia in the northeast. In the early 1970's major western expansion of the project area by Ashley Furniture began (Ashley Furniture, 2019).

A vast majority of the properties do lie within the 100 year FEMA Federal Flood Zone and are comprised of or bounded by National Wetlands.

The sites are located within the city limits of Arcadia which has a population of 2,925 residents according to the 2010 Census. Ashley Furniture Industries owns a large portion of the subject area located on the southwestern extent of the project area.

6.3 Current Use of the Property

The subject properties are currently owned by private landowners, the City of Arcadia, Ashley Furniture Industries, and various industrial and commercial owners. A small fraction of the subject property in the southern project extents appears to be undeveloped or uninhabited.

6.4 Adjoining Property Information

The adjoining properties are predominately industrial/commercial areas and river/wetland areas. During the records review the following properties were identified in the immediate vicinity:

Direction from Site	**Use**	**Comments**
North	Wetland/ River	Consists of Turton Creek and associated wetlands
South	Wetland/ Industrial	Zoned as industrial
West	Wetland/ River	Consists of the Trempealeau River and associated wetlands
East	Wetland/ Commercial/ Residential	Zoned as commercial and residential

6.5 *Local Government Provided Information*

The USACE conducted a phone interview with Rollie Conrad, City of Arcadia Street Department Superintendent. The purpose of the interview was to determine the closure of an old city landfill identified under the footprint of the feasibility alignment **(Figure 2)**.

There were no unusual conditions identified from the interview but further information is needed from Ayers Associates Inc., the engineering firm involved with closure of the landfill.

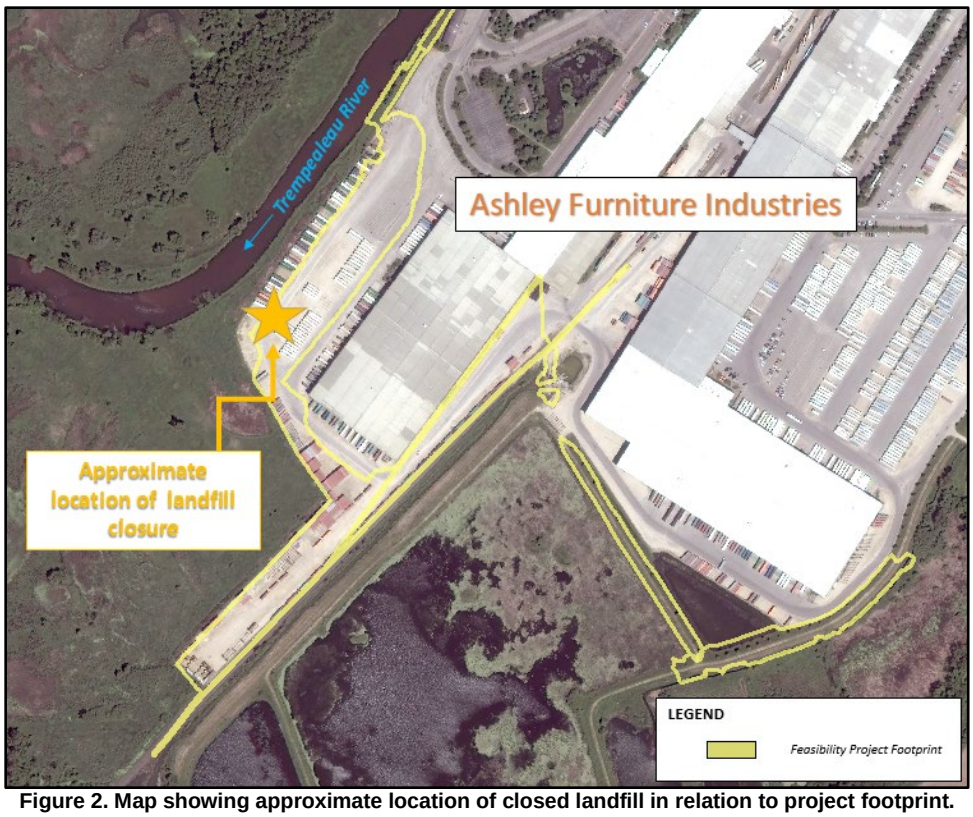

Figure 2. Map showing approximate location of closed landfill in relation to project footprint.

7.0 Records Review

7.1 Standard Environmental Records Sources

At the request of the USACE, Environmental Data Resources, Inc. (EDR) conducted a search of Federal and State databases containing potential or known sites of environmental contamination. The number of listed sites identified within a one mile search radius are summarized in the following table. For a detailed listing of databases and findings, a copy of the EDR Radius Map Reports have been included in Appendix A of this report.

Database List	Subject Property Listings	Total Number of Listings	Environmental Concerns Posed to Subject Property
CDL Sites	N	0	None
Federal NPL Sites	N	0	None
Federal CERCLIS Sites	N	0	None
Federal CERCLIS NFRAP Sites	N	1	None
RCRA CORRACTS Sites	N	0	None
RCRA TSD Facilities	N	0	None
RCRA SQG	Y	1	None
RCRA LQG	N	0	None
Federal ERNS Sites	N	4	None

SPILLS Reports	N	11	None
State HW Sites	N	0	None
State CERCLIS Sites	N	6	None
State AUL Registry	**Y**	16	**Yes**
Landfill/SW Disposal Sites	Y	1	None*
LUST/LAST Sites	**Y**	15	**Yes**
UST/AST Sites	N	54	None
MN AIRS Sites	N	15	None

**(Further Review Needed)*

Detailed review of documentation from the Wisconsin Department of Natural Resources (WDNR) in association with the sites noted above confirmed the Activity and Use Limitation (AUL) or Continuing Obligations (CO) due to remaining contamination on the subject properties **(Figure 3)**.

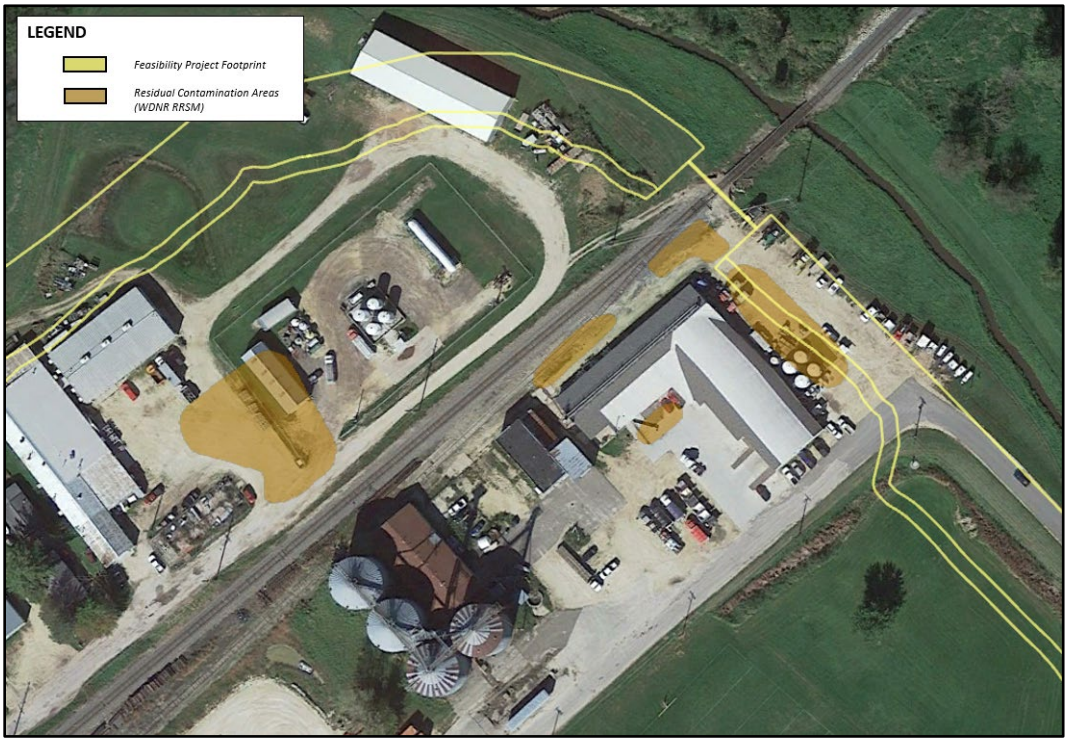

Figure 3. Approximate extent of residual contamination in relation to feasibility footprint. Adapted from Remediation and Redevelopment Sites Map, by WDNR, 2019, Retrieved from https://dnrmaps.wi.gov/H5/?viewer=rrsites

7.2 Physical Setting Sources

Physical setting sources were provided by the EDR GeoCheck Physical Setting Source Addendum unless otherwise noted. A copy of the GeoCheck report can be found in Appendix A of this report.

Groundwater flow direction was not reported by the EDR AQUIFLOW Information System. Flow direction was interpolated from the Generalized Water-Table Elevation Map of Trempealeau County, Wisconsin from the WGNHS. The general localized groundwater flow gradient across the assessment areas is northwest.

The general topographical gradient is northwest, based upon site setting and surrounding areas, there is a likelihood that contamination could be brought to the subject site.

The GeoCheck report revealed that no water supply or monitoring wells were identified on the feasibility project footprint. However, several commercial and industrial wells are located in the vicinity of the project area.

7.3 Historical Use

7.3.1 Sanborn Fire Insurance Maps

Historical fire insurance maps were requested from EDR and a search of the Sanborn Library, LLC was conducted. Historical maps are detailed drawings that show the locations and use of structures on a given property during a specific year. The maps were originally used by insurance companies to assess fire risk. A copy of the Sanborn Map Report can be found in Appendix B of this report.

EDR reported these as unmapped properties and no fire insurance maps were found.

7.3.2 City Directories

Historical and current city directories of the subject property and subject property street were requested from EDR. City directories were obtained for the following years: 1992, 1995, 2000, 2005, 2010, and 2014. City directories have been published for cities and towns across the United States since the 1700s. Originally a list of residents, the city directory developed into a tool for locating individuals and businesses. While city directory coverage is comprehensive for major cities, it may be limited for rural areas and small towns. A copy of the available information for the subject property can be found in Appendix C of this report.

There were no unusual entries identified from the city directories.

7.3.3 Topographical Maps

Historical topographic map coverage of the subject property was requested from EDR. 1926, 1929, 1932, 1934, and 1937 USGS 15 Minute Topographic quadrangles and 1973 and 2013 USGS 7.5 Minute Topographic quadrangles were obtained. Partial copies of the topographic maps can be found in Appendix D of this report.

There were no unusual conditions identified from the topographic maps.

7.3.4 Aerial Photos

Historical aerial photos of the subject property were requested from EDR. Photo coverage was available for the following years: 1938, 1958, 1965,

1973, 1981, 1992, 1998, 2006, 2010, 2013, and 2017. Copies of the aerial photos can be found in Appendix E of this report.

There were no unusual conditions identified from the aerial photos.

8.0 Conclusions

The USACE has conducted an abbreviated Phase I Environmental Site Assessment of the subject property in conformance with the scope and limitations of ASTM Standard Practice E 1527-13. Review of the record databases and other existing documentation revealed that there were several potential risks for contamination due to recognized environmental conditions on or near the subject properties. The two findings that were the major contributors to this risk are as follows:

1. Parcel No. 201-00734-0005 and 201-00730-0000 located in the Southwest Quarter of the Northeast Quarter, Sec. 32, Twp. 21 North, Range 9 West. According to the GIS Registry from the Wisconsin Department of Natural Resources' Remediation and Redevelopment Programs these subject properties are listed as containing residual soil contamination and groundwater contamination. The registry states that excavated material along the eastern property boundary shall be sampled and analyzed for contamination to ensure proper storage, treatment or disposal. The registry also states that any intention to construct a well at these sites will need prior approval from the Wisconsin Department of Natural Resources.
2. Parcel No. 201-01100-0025 and 201-01100-0015 located in the Northwest Quarter of the Northwest Quarter, Sec. 6, Twp. 20 North, Range 9 West. These subject properties were identified as 'sewage disposal ponds' on historical topographic maps and visually recognized from aerial photography. They are comprised of multiple wastewater storage cells encompassing approximately 50 acres.

As a result of Item No. 1 having a Continuing Obligations restriction on the properties and the feasibility level design indicating the need for relief wells, collaboration with the Wisconsin Department of Natural Resources is strongly recommended. Item No. 2 is not listed in any of the reviewed databases as a potential environmental risk but excavation of this material is currently identified in the feasibility level design and further characterization of this material would be prudent. A third finding indicates a closed landfill within the project footprint that requires further attention to verify the closure conditions of this site. It should also be noted that several buildings within an industrial zoned area along the northeast portion of the project area are identified to be under the project footprint. Due to a lack of visual inspection along the project alignment these structures and associated property use need further evaluation. A full site reconnaissance along the entire project alignment should occur in conjunction with any Phase II activities.

A Phase II Environmental Site Assessment is recommended for the subject properties.

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Appendix A

EDR Radius Map with GeoCheck

This appendix is available for viewing upon request.

Appendix B

Certified Sanborn Map Reports

This appendix is available for viewing upon request.

Appendix C

EDR City Directory Image Reports

This appendix is available for viewing upon request.

Appendix D

EDR Historical Topographic Map Reports

This appendix is available for viewing upon request.

Appendix E

EDR Aerial Photo Decade Packages

This appendix is available for viewing upon request.

US Army Corps of Engineers
St. Louis District®

Environmental Quality Section
1222 Spruce Street
St Louis Missouri 63103

ENVIRONMENTAL SITE ASSESSMENT REPORT
CAP 205 Arcadia Flood Risk Management Project

Arcadia, WI 54612
Trempealeau County

PREPARED FOR:

United States Army Corps of Engineers
Saint Paul District
180 5th Street East
Saint Paul, MN 55101

31 May 2020

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Contents

Supplementary Materials (available as separate files)

1.0 ABBREVIATIONS

ABV	Description
AST	Above Ground Storage Tank
ATSM	American Society for Testing and Materials
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
DOD	Department of Defense
EDR	Environmental Data Resources
EMF	Electromotive force
ES	Enforcement Standard
EPA	Environmental Protection Agency
ERNS	Emergency Response Notification System
ESA	Environmental Site Assessment
FEMA	Federal Emergency Management Agency
FRDS	Federal Reporting Data System
HTRW	Hazardous Toxic Radioactive Waste
IEMA	Illinois Emergency Management Agency
LLC	Limited Liability Company
MDL	Method Detection Limit
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
NWI	National Wetlands Inventory
PAL	Preventative Action Limit
PCB	Polychlorinated Biphenyl
PQL	Practical Quantitation Limit
RCL	Residual Contaminant Levels
REC	Recognized Environmental Condition
SEMS	Superfund Enterprise Management System
SSURGO	Soil Survey Geographic Database
UIC	Underground Injection Control
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USGS	United States Geological Survey
UST	Underground Storage Tank

2.0 GENERAL INFORMATION AND ACKNOWLEDGEMENTS

Project Information:	CAP 205 Arcadia Flood Risk Management Project
Site Information:	203 West Main Street Arcadia, WI 54612
County:	Trempealeau County
Latitude, Longitude:	44° 15.149'N, 91° 30.069'W

Site Assessor: _____

Travis J Schepker
Environmental Specialist

Environmental Professional Qualification:

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in 40 CFR 312.10.

I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

_____

Kevin P Slattery
Senior Reviewer
Supervisory Environmental Specialist

3.0 EXECUTIVE SUMMARY

A Phase I Environmental Site Assessments was performed to identify Recognized Environmental Conditions for the Arcadia CAP 205 Flood Risk Management Project. The project would include greater than 40 land parcels, and cover approximately 34 acres. The subject properties are currently a mix of industrial use from manufacturing, agricultural supply, and commercial food supply, as well as recreational fields, residential homes, public right of way, and abandoned industrial property. This area is bounded by the Trempealeau River to the northwest, Turton Creek to the northeast, and Meyers Valley Creek to the southwest.

A Phase I Environmental Site Assessment has been conducted using methods outlined by ASTM 1527-13 which includes a records review, communications with knowledgeable people, and a physical site visit. Key findings included 1.) Parcels No. 201-00734-0005 and 201-00732-0000 are cited by the Wisconsin Department of Natural Resources for having contaminated soil and groundwater from fertilizer and pesticides 2.) Parcel No. 201-00822-0000 is cited by the Wisconsin Department of Natural Resources for having contaminated groundwater from Benzene and Naphthalene 3.) Conversations with local officials indicated that historic sewage disposal ponds on Parcel No. 201007240005 and 201-01100-0015 had contaminated sediment from Mercury 4.) Parcel No. 201-00875-0005 was listed by Wisconsin solid waste disposal list for having a closed landfill 5.) Parcels No. 201-00933-0000, 201-00924-0000, 201-00115-0000, and 201-00116-0000 have residential dwellings that that would be demolished, are believed to have been constructed prior to 1978, and therefore may contain lead-based paint and/or asbestos 6.) Parcel No. 201-00822-0000 contains an industrial building that that would be demolished, is believed to have been constructed prior to 1978, and therefore may contain lead-based paint and/or asbestos, and 7.) Turton Creek River Miles 0 – 2.87 is listed as an impaired waterbody by the State of Wisconsin, resulting from elevated levels of Total Phosphorous. Additional Recognized Environmental Conditions are described in this report.

A limited Phase II Environmental Site Assessment was performed to evaluate Benzene and Naphthalene contamination in groundwater and soil on land Parcel No. 201-00822-0000, which is currently owned and operated by Pilgrim's Pride. Groundwater samples and soil borings were collected from the area where contamination had been previously delineated (Wisconsin Bureau for Remediation and Redevelopment Tracking System_BRRTS ID: 0262182149). This assessment found no evidence of groundwater or soil contamination within the proposed CAP 205 Flood Risk Management Project footprint. No additional groundwater or soil sampling is recommended. It is recommended that results of this assessment are presented to the Wisconsin Department of Natural Resources when an application is submitted for permitting relief wells.

A limited Phase II Environmental Site Assessment was performed to evaluate pesticide and fertilizer contamination on Parcels No. 201-00734-0005 and 201-00732-0000, which are currently owned and operated by Allied Cooperative. Groundwater samples and soil borings were collected from the area where contamination had been previously delineated (Wisconsin Bureau for Remediation and Redevelopment Tracking System_ BRRTS ID: 0262547273 and 0262554601). Groundwater concentrations for Ammonia and Nitrate + Nitrite were detected in the upper 14' of the water table that exceeded Enforcement Standards. Therefore it is recommended that relief wells are not installed on Parcel No. 201-00734-0005 and/or 201-

00732-0000 and alternative options should be evaluated. If alternative options cannot be identified it is recommended that perforations (well screens) are installed at elevations less than 713' or ~20 below ground surface where groundwater contamination did not occur. An impermeable drainage ditch should also be considered to transport contaminated water offsite, however the discharge location may require a state EPA 401 Certification, and adding additional complexity to the matter.

Soil contamination was also evaluated on Allied Cooperative Parcels No. 201-00734-0005 and 201-00732-0000. As of 2009 concentrations of Total Nitrogen had exceeded the Wisconsin Site-Specific Soil Performance Standard of 150 mg/kg. It was decided that natural attenuation would be used as the remediation strategy. The analytical results of the soil samples evaluated for Total Nitrogen in this assessment were below the Wisconsin Site-Specific Soil Performance Standard of 150 mg/kg. Further, Total Nitrogen concentrations observed during the Phase II were below all nearby measurements reported in the 2009, thus indicating that natural attenuation has been a successful remediation strategy. Soil contamination for pesticides had also been reported for the land parcels. This assessment found no evidence of pesticide contamination, which was expected given the duration of nearly 20 years since the last reported major spill and degradation rates associated with the pesticides analyzed. This assessment was unable to evaluate soil where concentrations were predicted to be greatest, although those areas are just outside the scope of the CAP 205 Flood Risk Management Project footprint. Soils needing to be moved offsite should be tested to for Total Nitrogen to ensure they meet the legal requirements for the receiving landfill. If contaminated soil is discovered, it is recommended that results are reported to the Wisconsin Department of Natural Resources and additional guidance is requested.

The Phase II sampling performed on Parcel No. 201-00724-0005 and 201-01100-0015 to evaluate Mercury contamination in sediments presents a low risk to the project. The average mercury concentration was 0.38 mg/kg and ranged from below the Method Detection Level (0.09 mg/kg) to 1.36 mg/kg. Only one sample exceeded the Wisconsin Recommended Sediment Quality Guideline Value for Mercury of 1.1 mg/kg. Given that there was one sample with Mercury concentrations that exceeded state guidelines, it is recommended that sediment disturbance be kept to a minimum and appropriate personal protection equipment are used while handling. Given the spatial variability of Mercury concentrations observed in this study, sediments needing to be moved offsite should be tested to ensure they meet the legal requirements for the receiving landfill.

4.0 INTRODUCTION

4.1 Background

The purpose of this Environmental Site Assessment (ESA) was to evaluate the current and historical conditions of the subject properties in an effort to identify Recognized Environmental Conditions (RECs) in connection with the subject property and surrounding operations. Recognized Environmental Conditions are defined as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. *De minimis* conditions are not recognized environmental conditions.

4.2 Scope of Work

A Phase I ESA was conducted at the subject property in accordance with ASTM Standards Practice E 1527-13, 1903-44, and further defined below:

- USACE has gathered and reviewed available Federal, State, and tribal environmental records. Standard environmental records reviewed included Federal NPL; Federal and State CERCLIS; Federal and State institutional controls/engineering controls registries; Federal ERNS list; State and tribal landfill and/or disposal site lists; State and tribal leaking storage tank lists; State and tribal registered storage tank lists; State and tribal voluntary cleanup sites; and State Brownfield sites. Details from the standard environmental records review are available in Supplementary Materials A-1 and A-2.

- USACE has engaged with individuals having institutional knowledge of the subject properties to discuss environmental conditions. Documented conversations and questionnaires are available in Supplementary Materials B.

- USACE has physically inspected the subject property via walking survey, looking for signs of recognized environmental conditions such as stressed vegetation, soil staining, dumping, and evidence of aboveground and underground storage tanks (USTs).

- USACE has physically observed adjoining properties, paying particular attention to evidence of USTs, questionable housekeeping practices, or unusual business practices.

A Phase II ESA was conducted at the subject property in accordance with ASTM Standard Practices E1903-19, and further defined below:

- This practice covers a process for conducting a Phase II ESA of a parcel of property with respect to the presence or the likely presence of substances including but not

limited to those within the scope of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (e.g., hazardous substances), pollutants, contaminants, petroleum and petroleum products, and controlled substances and constituents thereof. It specifies procedures based on the scientific method to characterize property conditions in an objective, representative, reproducible, and defensible manner. To promote clarity in defining Phase II ESA objectives and transparency in communicating and interpreting Phase II ESA results, this practice specifies adherence to requirements for documenting the scope of assessment and constraints on the conduct of the assessment process.

- This practice is intended for use where a user desires to obtain sound, scientifically valid data concerning actual property conditions, whether or not such data relate to property conditions previously identified as RECs or data gaps in Phase I ESAs. Without attempting to define all such situations, this practice contemplates that users may seek such data to inform their evaluations, conclusions, and choices of action in connection with objectives.

- The scope of a Phase II ESA is related to the objectives of the investigation. Both scope and objectives may require ongoing evaluation and refinement as the assessment progresses.

- The client and Phase II Assessor must have a mutual understanding of the context in which the Phase II ESA is to be performed and the objectives to be met by the investigation, i.e., the specific questions to be answered or problems to be resolved by the Phase II ESA. The scope of Phase II activities must be defined in relation to those objectives.

- This practice is not intended to supersede applicable requirements imposed by regulatory authorities. This practice does not attempt to define a legal standard of care either for the performance of professional services with respect to matters within its scope, or for the performance of any individual Phase II ESA.

- This practice has nine sections and four appendices. Section 1 covers the Scope of the practice. Section 2, Referenced Documents, lists ASTM and other organizations' related standards and guidance that may be useful in conducting Phase II ESAs in accordance with this practice. Section 3, Terminology, contains definitions of terms and acronyms used in this practice. Section 4 addresses the Significance and Use of this practice, including the legal context into which Phase II ESAs may fall. Section 5 discusses development and documentation of the scope of the Phase II ESA, including the Statement of Objectives for the assessment. Section 6 provides a Phase II ESA Overview, with purpose and goal descriptions. Section 7 comprises the main body of Performing the Phase II ESA, and includes initiating scientific inquiry by formulating the question to be answered (7.1), collecting and evaluating information (7.2), identifying areas for investigation (7.3), developing the conceptual model (7.4), developing a plan and rationale for sampling (7.5), conducting the sampling (7.6), and validating the conceptual model (7.7). Interpretation of results is covered in Section 8.

Phase II ESA report preparation is addressed in Section 9. Appendix X1 supports Section 4, and contains legal considerations pertaining to the Phase II ESA. Appendix X2 contains contracting considerations between Phase II assessor and user. Appendix X3 supports Section 9, and describes two examples and a sample table of contents illustrating possible approaches to reporting the results of a Phase II ESA. Appendix X4 supplements Section 2 with a list of standards and references that may be relevant in conducting a Phase II ESA.

No Phase II ESA can eliminate all uncertainty. Furthermore, any sample, either surface or subsurface, taken for chemical testing may or may not be representative of a larger population. Professional judgment and interpretation are inherent in the process, and even when exercised in accordance with objective scientific principles, uncertainty is inevitable. Additional assessment beyond that which was reasonably undertaken may reduce the uncertainty.

5.0 PHASE I ENVIRONMENTAL SITE ASSESSMENT: ARCADIA CAP 205 FLOOD RISK MANAGEMENT PROJECT

5.1 Location and Legal Description

Address: City of Arcadia
Arcadia, WI 54612

Legal Description: Fourth Principal Meridian, Wisconsin
Township 21 North, Range 9 West
Section 31, Southeast ¼
Section 32, South ½
Township 20 North, Range 9 West
Section 6, Northeast ¼
Township 20 North, Range 10 West
Section 1, Northeast ¼
The areas described contains 34 acres of land, more or less.

5.2 Site Description and Historical Land Use

The project would include 30 land parcels, and cover approximately 34 acres (Figure 1 - Figure 4). The subject properties are currently a mix of industrial use from manufacturing, agricultural supply, and commercial food supply as well as recreational fields, residential homes, public right of way, and abandoned industrial property. This area is bounded by the Trempealeau River to the northwest, Turton Creek to the northeast, and Meyers Valley Creek to the southwest.

The earliest use of these sites are unknown, but according to 'City History' from the City of Arcadia website, the town was established in 1856 (City of Arcadia, 2019). Aerial photography reveals that by 1938 the subject properties were a mixture of bottomland marsh and agricultural fields in the southwest portion of the project area and the early business district of Arcadia in the northeast. In the early 1970's, major western expansion of the project area by Ashley Furniture began.

A vast majority of the properties do lie within the 100 year FEMA Federal Flood Zone and are comprised of or bounded by National Wetlands.

The sites are located within the city limits of Arcadia, which has a population of 2,925 residents according to the 2010 Census. Ashley Furniture Industries owns a large portion of the subject area located on the southwestern extent of the project area.

5.3 Current Property Use

The subject properties are currently owned by private landowners, the City of Arcadia, Ashley Furniture Industries, and various industrial and commercial owners. A small fraction of the subject properties in the southern project extents appears to be undeveloped or uninhabited.

5.4 **Adjoining Property Use**

The adjoining properties include residential, industrial/commercial areas, and river/wetland areas. During the records review, the following properties were identified in the immediate vicinity:

Direction	**Use**	**Comments**
North	Wetland/River	Turton Creek and Trempealeau River
South	Wetland/Industrial	Zoned Commercial and Residential
West	Wetland/River	Historical City Lagoon and Wetlands
East	Wetland/Commercial/Residential	Turton Creek

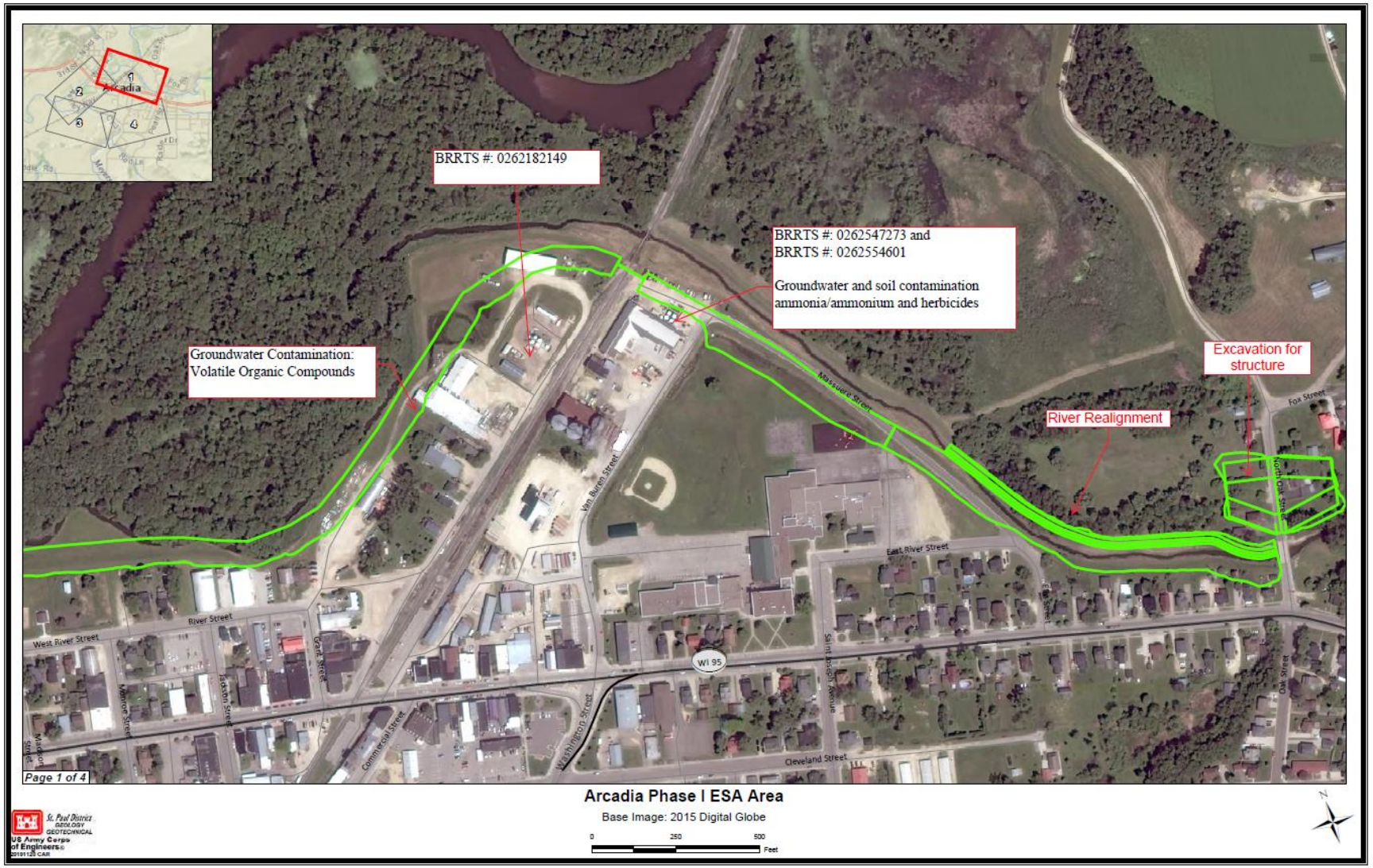

Figure 1: Northeast section of proposed levee footprint.

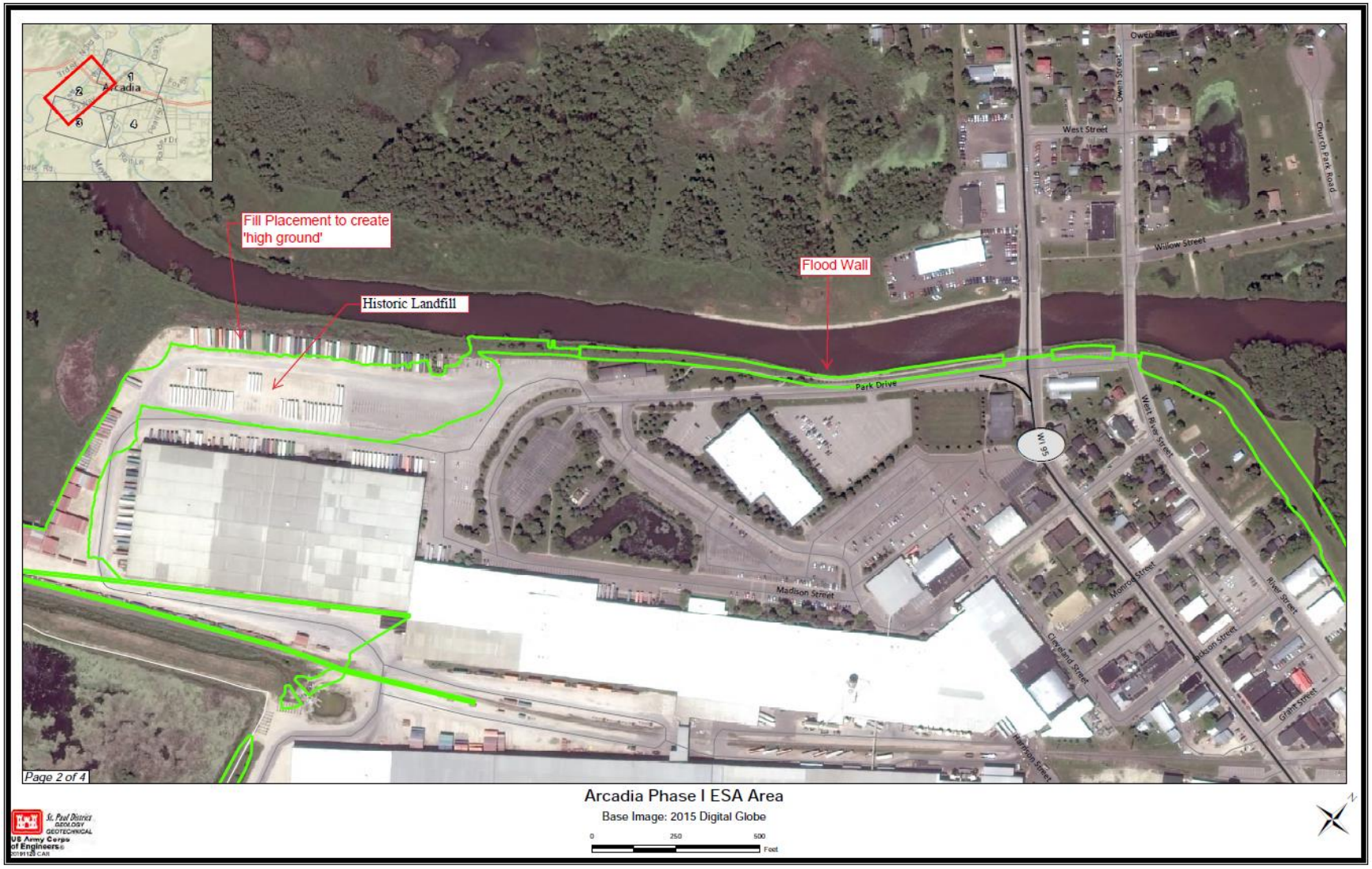

Figure 2: Northwest section of proposed levee footprint.

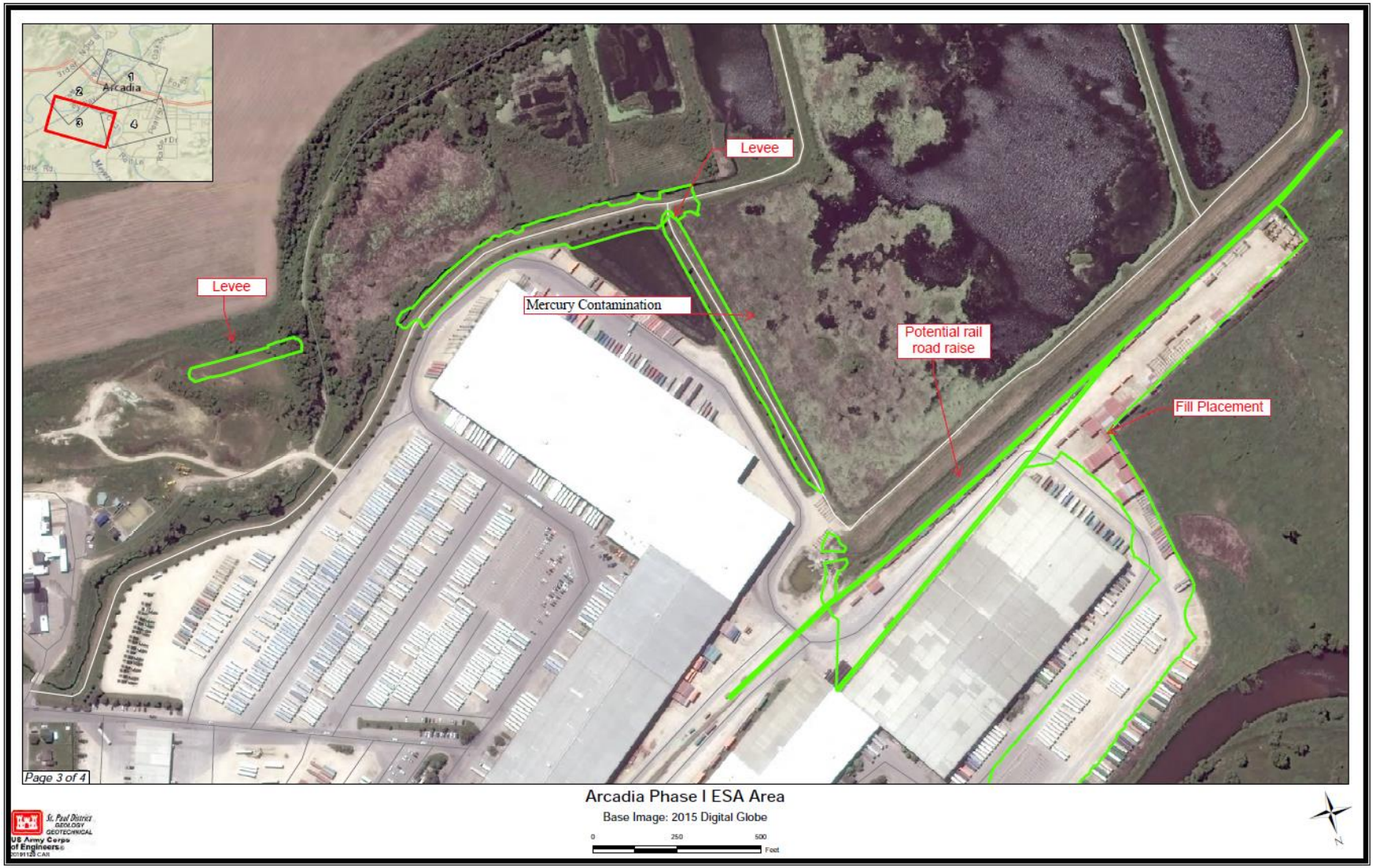

Figure 3: Southwest section of proposed levee footprint.

Figure 4: Southeast section of proposed levee footprint.

5.5 Records Review

For the purpose of this ESA, the following standard record sources were obtained and reviewed to assist in the identification of potential RECs in connection with this project:

- Federal National Priorities List (NPL)
- Federal and State Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS)
- Federal Emergency Response Notification System (ERNS)
- Federal and State institutional controls/engineering controls registries
- Wisconsin Bureau for Remediation and Redevelopment Tracking System (BRRTS)
- State and tribal landfill and/or disposal site lists
- State and tribal leaking storage tank lists
- State and tribal registered storage tanks lists
- State and tribal voluntary cleanup sites
- State Brownfield sites
- State 303D list
- Historical aerial photographs
- USACE historical information
- Historical topographic maps
- National Pipeline Mapping System

These records assist in meeting the requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), and the ASTM Standard Practice for Environmental Site Assessments (E 1527-13). For properties that contained inadequate address information for mapping purposes, reasonable efforts were made to identify the approximate location of the sites in relation to the target property as part of the review process. In addition, the physical setting was assessed for the target property by reviewing topographic maps to identify conditions in which hazardous substances or petroleum products could migrate. Additional details can be reviewed in Supplemental Materials A.

5.6 Site Reconnaissance

During the week of 26 April 26 2020, Environmental Specialist Travis J. Schepker (CEMVS-EC-EQ) and Geologist Grant A. Riddick (CEMVP-EC-D) conducted a physical site visit for the entire project footprint. Relevant findings included four residential dwellings, five residential garages/sheds, two commercial buildings, six ASTs, one UST, two sewage lift stations, three power pole transformers, multiple wetlands, railroad crossings, vehicles, trailers, a deer park, monitoring wells, propane tanks, electrical boxes, empty 55 gallon drums, random debris, and impermeable surfaces. Additional details can be reviewed in Supplemental Materials B.

5.7 Interviews

A questionnaire was mailed to all property owners/managers in the project footprint (see Figures 1-4). The content of the questions asked followed the questionnaire format of ASTM 1528. A response was obtained for approximately 70% of the land parcels that may be directly impacted by the CAP 205 project. Non respondents are considered a data gap for this assessment. Questionnaires can be reviewed in Supplemental Materials C.

Additional phone and in-person interviews were conducted with persons knowledgeable of RECs discovered during the records review and physical site visit. This included Derek Knutson of Pilgrims CEM, Michael Moran of Ashely Furniture, Mike Davy of Davy Engineering, and Former Arcadia Mayor Gary Bouch.

5.8 Summary of Findings and Recommendations

Records review, site reconnaissance, and interviews with knowledgeable persons identified 14 RECs near or within the CAP 205 project footprint. These are summarized below:

1) Parcel No. 201-00734-0005 and 201-00730-0000: According to the GIS Registry from the Wisconsin Department of Natural Resources Remediation and Redevelopment Programs, these subject properties are listed as containing residual soil contamination and groundwater contamination from fertilizers and pesticides. The registry states that excavated material along the eastern property boundary shall be sampled and analyzed for contamination to ensure proper storage, treatment, or disposal. The registry also states that any intention to construct a well at these sites will need prior approval from the Wisconsin Department of Natural Resources s.NR 812.09(4)(w).

   This is a high risk REC and warranted further evaluation prior to construction. A Phase II Environmental Site Assessment was recommended. This recommendation was made because of proposed soil excavation and construction of relief wells within the contaminated area. A Phase II ESA for this REC has been performed and is summarized in section 6.0 of this report.

2) Parcel No. 201-00822-0000: According to the GIS Registry from the Wisconsin Department of Natural Resources Remediation and Redevelopment Programs, the subject property is listed as containing contaminated groundwater. The levels of Benzene and Naphthalene in groundwater had exceeded the Wisconsin Preventative Action Limit (PAL). Groundwater contamination had originated on a neighboring property. The registry states that any intention to construct a well on the property will require approval from the Wisconsin Department of Natural Resources s.NR 812.09(4)(w).

   This is a high risk REC and warranted further evaluation prior to construction. A Phase II Environmental Site Assessment was recommended. This recommendation was made because of proposed soil excavation and construction of relief wells within the

contaminated area. A Phase II ESA for this REC has been performed and is summarized in section 7.0 of this report.

3) Parcel Nos. 201-01100-0025 and 201-01100-0015: These subject properties were identified as 'sewage disposal ponds' on historical topographic maps and visually recognized from aerial photography. They are comprised of multiple wastewater storage cells encompassing approximately 50 acres.

   Sediments from the lagoon were analyzed in 1997 for Mercury by the Wisconsin Department of Natural Resources. Mercury levels had exceeded State of Wisconsin guidelines and Federal freshwater thresholds for aquatic life. Laboratory results are posted on the Environmental Protection Agencies Water Quality Data Portal.

   This is a high risk REC and warranted further evaluation prior to construction. A Phase II Environmental Site Assessment was recommended. This recommendation was made because of proposed excavation occurring within/near the area of concern. A Phase II ESA for this REC has been performed and is summarized in section 8.0 of this report.

4) Turton Creek River Miles 0 – 2.87: Listed as an impaired waterbody by the State of Wisconsin, resulting from elevated levels of Total Phosphorous.

   This is a medium risk REC and *may* warrant further actions prior to and during construction. Depending on construction methods used for diverting and realigning Turton Creek, a sediment management plan may be required. The objective of the sediment management plan should be to identify Best Management Practices (BMPs) that can be used to minimize effects of total suspended solids and phosphorus downstream of the project feature. This may include the use of sediment curtains and in-stream water quality monitoring. It is recommended that the State of Wisconsin's 401 Water Quality Certification review board is contacted as soon as construction methods are identified. Please note that a 401 certification is not a substitute for National Pollutant Discharge Elimination System 402 permit. A Phase II ESA is not recommended at this time.

5) Parcel Nos.: 201-00933-0000, 201-00924-0000, 201-00115-0000, and 201-00116-0000 have residential dwellings that are believed to have been constructed prior to 1978. These dwellings may contain lead-based paint and/or asbestos.

   This is a medium risk REC and warrants further actions prior to demolition. Lead-based paint assessments and asbestos testing are recommended prior to demolition of residential dwellings constructed prior to 1978. Homes containing lead-based paint and asbestos should be demolished by asbestos and lead-safe certified personnel. Lead-based paint and asbestos testing were outside the scope of this ESA. The interior of these dwellings were not examined.

6) Parcel No. 201-00822-0000: Property contains a non-residential building currently used for fabricating and cleaning poultry cages (mods). The interior and exterior were examined. Contents within the building included welding equipment, an industrial air

purification system, a chicken bed washroom and empty 55 gallon drums that had contained chicken oil.

This is a medium risk REC and warrants further actions prior to demolition. Lead-based paint assessments and asbestos testing are recommended prior to demolition of industrial dwellings constructed prior to 1978. Buildings containing lead-based paint and asbestos should be demolished by asbestos and lead-safe certified personnel. Lead-based paint and asbestos testing were outside the scope of this ESA.

7) Parcel No. 201-00875-0005: This parcel is owned by Ashley Furniture Industries. The subject property includes a closed landfill. Closure conditions for the landfill were not discovered during the records review.

   Interviews conducted with Dave Hesch (Reglin & Hesch Excavating) and Gary Bouch (former city mayor) indicated that the landfill was removed in 1985 and transported to the City Landfill located off of Highway 95 on North Creek Road. Removal of the landfill was necessary for expansion of the Ashely Furniture Factory. Further, conversations with knowledgeable persons indicated that only a small portion, if any, of the historic landfill would encompass the project footprint.

   This is a low risk REC and no further actions are recommended. This recommendation is being proposed because there are currently no plans for excavating near or within the historical landfill. Rather, construction of engineered high ground is being implemented to meet the CAP 205's project objectives. An environmental specialist should be consulted should plans change to include excavation.

8) Parcel No. 201-00875-0000: Former Riverland Energy Cooperative at 625 West Main Street (currently owned by Ashley Furniture Industries). A Phase I ESA was performed for the property in 2005. Diesel Range Organics, Gasoline Range Organics, Volatile Organic Compounds, and Polychlorinated Biphenyl were identified as potential RECs, thus triggering a Phase II ESA in 2005. The Phase II concluded that impacts to soil and groundwater were minimal. The State of Wisconsin concluded that "Based on s. NR 71 6. 05(2)(a), Wis. Adm. Code, and the criteria in ss. NR 708. 09(1) and (2), Wis. Adm. Code, the Department hereby determines that further site investigation activities are not warranted and that no further response action is required at this time under the NR 700 rule series, Wis. Adm. Code". See BRRTS No. 07-62-544841 correspondence letter dated 8 February 2006 for additional clarification.

   This is a low risk REC and no further actions are recommended. It is of the Environmental Specialist's opinion that a thorough Phase II ESA has already been performed within the area of concern, which concluded that contamination does not occur within the CAP 205 project footprint.

9) Parcel No. 201-00822-0000: Records review indicated that a building containing asbestos was demolished in 2011. The building was located within the project footprint.

This is a low risk REC and no further actions are recommended. The building was removed by Larry's Excavating in 2011. Any remnants discovered during construction should be handled with caution.

10) Parcel No 201-00734-0005: Several aboveground storage tanks (AST) were discovered during the site visit. All ASTs had secondary containment and no signs of a release were observed outside the containment area.

    This is a low risk REC and no further actions are recommended. It was not clear whether or not ASTs would be within the project footprint. If ASTs are within the project footprint, then ASTs should have all free product removed and tanks physically removed before construction. ASTs in general are not believed to pose a significant environmental risk. However, the ASTs identified were not inspected closely for signs of chronic release and limited sampling may be warranted for BETX, TPH, BNA SIM, and Lead.

11) Parcel No. 201-00875-0000: Records review indicated that Ashley Furniture is listed by TRI air emissions (TRI ID 54612SHLYF350MA) and regulated by the Clean Air Act (CAA ID WI0000005512100006). Chemical releases included Dichloromethane. There have been no violations made against Ashely Furniture during the prior three years.

    This is a low risk REC and no further actions are recommended. The TRI status should be acknowledged in construction safety plans.

12) Parcel No. 201-00875-0000: Records review indicated that Ashley Furniture is listed by RCRA as small quantity generator of hazardous waste. Waste generated includes chemicals used for furniture manufacturing (Handler ID WID981088743).

    This is a low risk REC and no further actions are recommended. Hazardous waste is contained within the manufacturing plant, away from project construction. The RCRA status should be acknowledged in construction safety plans.

13) Parcel No. 201-00937-0000: Records review indicated that Arcadia School District is listed by RCRA as a Non-Generator of hazardous waste. The school district is listed as a handler for petroleum product (Handler ID WID025695875).

    This is a low risk REC and no further actions are recommended. There have been no non-compliant charges made against the school district that would impact the project. The RCRA status should be acknowledged in construction safety plans.

14) Parcel Nos. 201-00818-0000 and 201-00937-0000: Records review indicated that USTs on both parcels had been closed/removed. Petroleum products were stored in USTs. There were no indications as to whether or not USTs had leaked.

    This is a low risk REC and no further actions are recommended. Neither parcel has associated continuing obligations regarding the USTs. The potential occurrence of the USTs should be acknowledged in construction safety plans.

Additional discoveries within the CAP 205 project footprint that were not classified as RECs included non-PCB containing transformers (Parcel No. 201-00875-0005), an industrial storage shed built after 1978 (Parcel No. 201-00822-0000), sewage lift stations (Parcel Nos. 201-00937-0005 and 201-00724-0005), high density of propane tanks adjacent to the CAP 205 project footprint (Parcel No. 201-00875-0005), permanent groundwater monitoring wells (Parcel No. 201-00875-0005), underground gas/power/water lines (multiple residence), septic tanks (multiple parcels), fuel oil tanks for residential heating (multiple parcels), railroad crossings (multiple parcels), wetlands recognized by the National Wetland Inventory (multiple parcels).

5.9 Limitations and Exceptions

U.S. Army Corps of Engineers, Environmental Quality and HTRW Section, Environmental and Munitions Branch (CEMVS-EC-EQ) should be contacted with any known or suspected variations from the conditions described herein. If future development of the property indicates the presence of hazardous or toxic materials, USACE should be notified to perform a re-evaluation of the environmental conditions.

USACE personnel did not have access to all dwellings and land parcels. Further, this study relied on a questionnaire that did not receive a 100% response rate. These are considered data gaps for this assessment.

The scope of this assessment did not include any additional environmental investigation, not outlined herein, or analyses for the presence or absence of hazardous or toxic materials in the soil, ground water, surface water, or air, in, on, under, or above the subject tract.

This site assessment was performed in accordance with generally accepted practices of consultants undertaking similar studies at the same time and in the same geographical area, and USACE observed that degree of care and skill generally exercised by consultants under similar circumstances and conditions. The findings and conclusions stated herein must be considered not as scientific certainties, but rather as professional opinions concerning the significance of the limited data gathered during the course of the environmental site assessment. No other warranty, expressed or implied, is made.

Specifically, USACE does not and cannot represent that the site contains no hazardous waste or material, oil (including petroleum products), or other latent condition beyond that observed by USACE during its site assessment.

The observations described in this report were made under the conditions stated herein. The conclusions presented in the report were based solely upon the services described therein, and not on scientific tasks or procedure beyond the scope of described services or the time and budgetary constraints imposed by the client. Furthermore, such conclusions are based solely on site conditions and rules and regulations, which were in effect at the time of the study.

In preparing this report, USACE relied on certain information provided by State and local officials and other parties referenced herein, and on information contained in the files of State

and/or local agencies available to USACE at the time of the site assessment. Although there may have been some degree of overlap in the information provided by these various sources, an attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this site assessment was not made.

Observations were made of the site and of structures on the site as indicated within the report. Where access to portions of the site or to structures on the site was unavailable or limited, USACE renders no opinion as to the presence of indirect evidence relating to hazardous waste, material, oil, or other petroleum products in that portion of the site or structure. In addition, USACE renders no opinion as to the presence of hazardous waste or material, oil, or other petroleum products or to the presence of indirect evidence relating to hazardous material, oil, or petroleum products where direct observation of the interior walls, floor, roof, or ceiling of a structure on a site was obstructed by objects or coverings on or over these surfaces.

Unless otherwise specified in the report, USACE did not perform testing or analyses to determine the presence or concentration of asbestos, radon, formaldehyde, lead-based paint, lead in drinking water, electromagnetic fields (EMFs), or polychlorinated biphenyls (PCBs) at the site or in the environment at the site.

The purpose of this report is to assess the physical characteristics of the subject site with respect to the presence of hazardous waste, material, oil, or petroleum products in the environment. Except as otherwise described in this report, no specific attempt was made to check on the compliance of present or past owners or operators of the site with Federal, State, or local laws and regulations, environmental or otherwise.

Personnel from CEMVS-EC-EQ have specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property and declare that, to the best of their professional knowledge and belief, meet the definitions of Environmental Professionals as defined under 40 CFR 312.

6.0 PHASE II ENVIRONMENTAL SITE ASSESSMENT: PILGRIMS PRIDE_ LAND PARCEL 201-00822-0000.

6.1 Background

Parcel No. 201-00822-0000 is located in the Southwest Quarter of the Northeast Quarter, Sec. 32, Twp. 21 North, Range 9 West. According to the Wisconsin Bureau for Remediation and Redevelopment Tracking System (BRRTS ID: 0262182149), the subject property is cited for groundwater contamination. Groundwater contamination that had originated on a neighboring property had migrated onto the subject property. Concentrations of Benzene and Naphthalene in groundwater had exceeded the State of Wisconsin's Preventative Action Limits (PAL), however concentrations were below the states Enforcement Standard (ES). The strategy selected for remediation in 2005 was natural attenuation. Wisconsin Department of Natural Resources (DNR) closure conditions stipulate that any intention to construct a groundwater well on the property would require prior approval.

6.2 Objectives

The first objective was to quantify and interpret concentrations of Benzene and Naphthalene in groundwater from within the proposed levee footprint. The current ES and PAL for Benzene are 5 ug/L and 0.5 ug/L, respectively (NR 140.03). The current ES and PAL for Naphthalene are 100 ug/L and 10 ug/L, respectively (NR 140.03). Data will be used to support relief well design, and support well installation approval by the Wisconsin DNR in accordance with administrative code s.NR 812.09_4_w.

The second objective was to quantify and interpret levels of Benzene and Naphthalene concentrations in soil from within the proposed levee footprint. The current residual contamination level (RCL) for Benzene in industrial and non-industrial areas are 7.07 mg/kg and 1.6 mg/kg, respectively (Wis. Admin. Code ch. NR 720). The current RCL for Naphthalene in industrial and non-industrial areas are 24.1 mg/kg and 5.52 mg/kg, respectively (Wis. Admin. Code ch. NR 720). Data will be used to guide handling and placement of excavated materials.

6.3 Methods

Sample Locations: Groundwater and soil samples were collected approximately 10-20' west of the Pilgrims Pride fabrication shop (Figure 6). The area sampled would have been within the groundwater contamination footprint delineated in October 2004 (Figure 7). Note that soil contamination was never cited for this area; however, it was believed that soil contamination from groundwater leaching may have occurred.

Construction of Temporary Ground Water Monitoring Wells: A cluster of four temporary groundwater monitoring wells were constructed on 27 April 2020. The soil was primarily sand, thus a hollow-stem auger method was used to construct the monitoring wells. General well construction was as follows:

1.) Wells were drilled using a 4-1/4" hollow stem-auger to depths of approximately 10', 20', 30', and 40'

2.) The bottom of the auger casing was capped and lined with coarse sand

3.) A slotted 10' section of 2" PVC pipe was inserted into the bottom of the hollowed stem-auger casing and filter pack was placed in the remaining annulus. The bottom of the PVC pipe was capped

4.) A solid section of 2" PVC pipe filled the remainder of the hollow-stem auger casing

5.) The lower 2' of the solid pipe was packed with coarse sand

6.) The remainder of the pipe was sealed with bentonite chips

7.) The pipe was capped at the surface to prevent contamination.

8.) The hollow stem-auger was removed to allow the well to develop.

Temporary monitoring well construction profiles can be reviewed in Figure 8 through Figure 15.

Well Development: On 27 April 2020, two hours after installation, three of the wells (20', 30', and 40') were pumped for one hour at one gallon per minute. At the end of the hour these three wells were producing clear water and there were no problems with recharge rates. The 10' well could not consistently produce water at 1 gallon per minute. The development rate was adjusted to .5 gallons per minute and pumping was continued for an hour with no problems with recharge rate. Temporary monitoring well development logs can be reviewed in Figure 8 - Figure 15

Ground Water Sampling Procedures: On 28 April 2020, three of the wells (20', 30', and 40') were purged at 1 gallon per minute to remove a minimum of 3 casing volumes. The 10' well was purged at .5 gallons per minute to remove a minimum of 3 casing volumes. After purging, all wells were sampled at a rate of 1 liter per minute. New tubing was used on each well for the sampling and the pumps were decontaminated by pumping deionized water between uses. All samples were recorded on chains of custody and the samples were placed on ice in coolers for transport to the laboratory. These samples were collected in 40ml vials, preserved with HCL acid. Water quality measurements can be sporadic in nature when sampling temporary wells, therefore three separate water samples were collected from each well (Wisconsin DNR PUB-RR-647; 2012). Thus a total of 12 groundwater samples were collected from the four wells.

Soil Boring Procedures: For collection of soil samples at specific depths, three 40' borings were installed using a 4-1/4" hollow stem auger. These borings were sunk ~ 15' apart in the same area as the temporary monitoring wells. Split-spoon samples were taken at approximately 1', 3', 6', 12', 24', and 40' from each of the borings. All samples were recorded on chains of custody and the samples were placed on ice in coolers to transport to the laboratory. These samples were collected using Terra Core Kits, in 40ml vials preserved in methanol or sodium bisulfate.

Laboratory Analysis: Groundwater and soil samples were analyzed by ARDL through USACE Environmental Service Contract #W912P918D0014. Groundwater samples were analyzed for Volatile Organic Compounds following EPA Analytical Method 8260B. Soil samples were analyzed for Volatile Organic Compounds following EPA Prep Method 5035A and EPA Analytical Method 8260C. A Quality Assurance review was performed by a USACE chemist and is included with the laboratory packages (see Supplementary Materials D).

Figure 5: Overview of groundwater and soil sample locations. Note that Gold'n Plump was the previous designation for Pilgrim's Pride.

Figure 6: Overview of groundwater and soil sample locations. Note that Gold'n Plump was the previous designation for Pilgrim's Pride (Parcel No. 201-00822-0000).

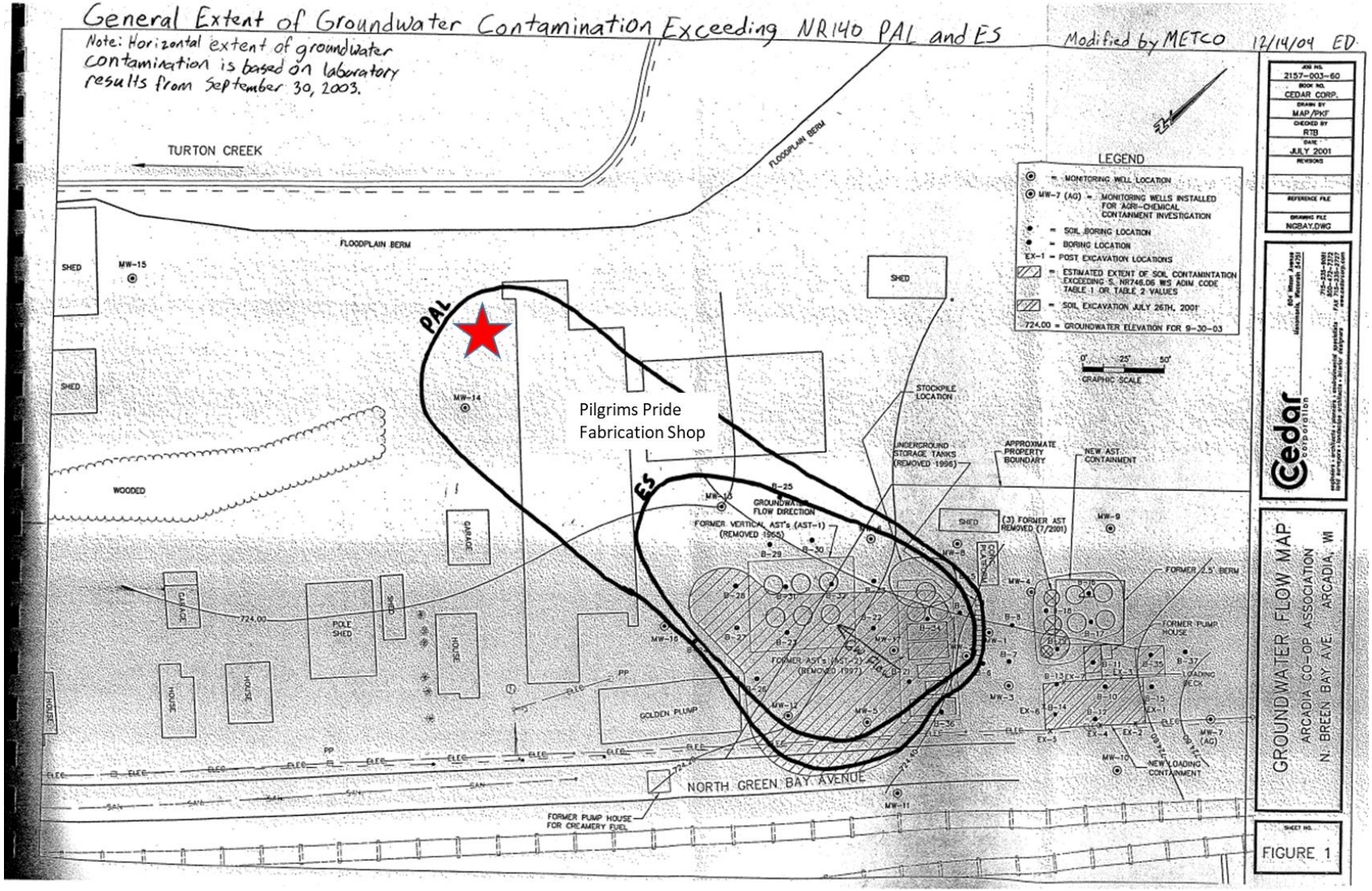

Figure 7: Groundwater contamination delineated in 2004. Red star represents approximate sample location.

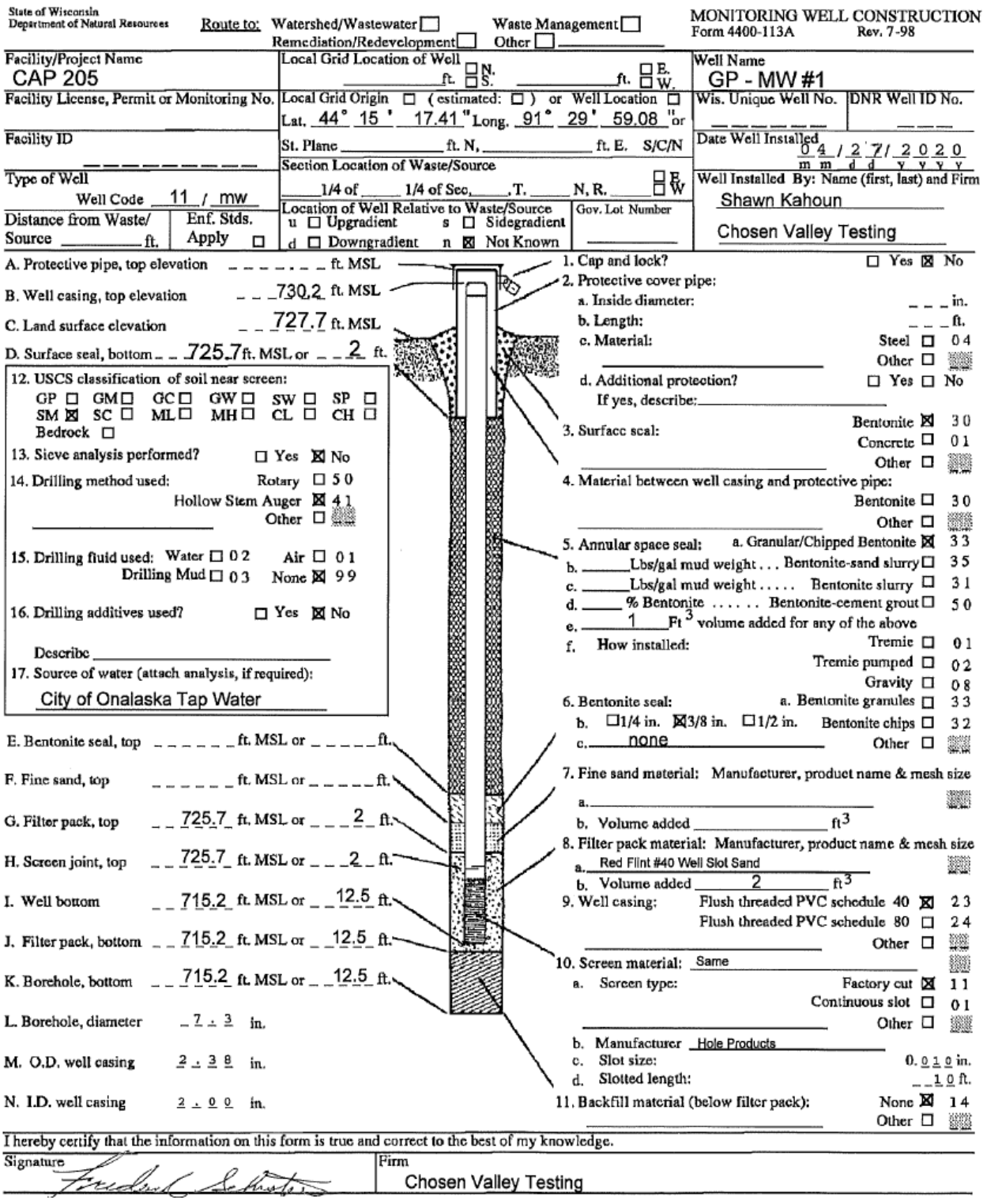

Figure 8: Ten foot temporary groundwater monitoring well construction diagram (BRRTS ID: 0262182149).

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐ _____

Facility/Project Name	County Name	Well Name
CAP 205	Trempealeau	GP-10
Facility License, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number**	**DNR Well ID Number**
	62	_____	___

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

surged with bailer and bailed	☐	41
surged with bailer and pumped	☐	61
surged with block and bailed	☐	42
surged with block and pumped	☐	62
surged with block, bailed and pumped	☐	70
compressed air	☐	20
bailed only	☐	10
pumped only	☐	51
pumped slowly	☐	50
Other pumped & bailed	☒	

3. Time spent developing well 60 min.

4. Depth of well (from top of well casisng) 15.0 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 0.9 gal.

7. Volume of water removed from well 30.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added N/A

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)
N/A

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 9.63 ft.	9.61 ft.
Date	b. 04/27/2020 (m m d d y y y y)	04/27/2020
Time	c. 06:00 ☐ a.m. ☒ p.m.	07:00 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	0.0 inches	0.0 inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☒ 20 Turbid ☐ 25 (Describe)
14. Total suspended solids	_____ mg/l	_____ mg/l
15. COD	_____ mg/l	_____ mg/l

Fill in if drilling fluids were used and well is at solid waste facility: N/A

16. Well developed by: Name (first, last) and Firm
First Name: RANDY Last Name: JENKINS
Firm: ARDL, Inc.

17. Additional comments on development:

Name and Address of Facility Contact/Owner/Responsible Party
First Name: _____ Last Name: _____
Facility/Firm: _____
Street: _____
City/State/Zip: _____

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: [signature]
Print Name: RANDALL K. JENKINS
Firm: ARDL, INC.

Figure 9: Ten foot temporary groundwater monitoring well development log (BRRTS ID: 0262182149).

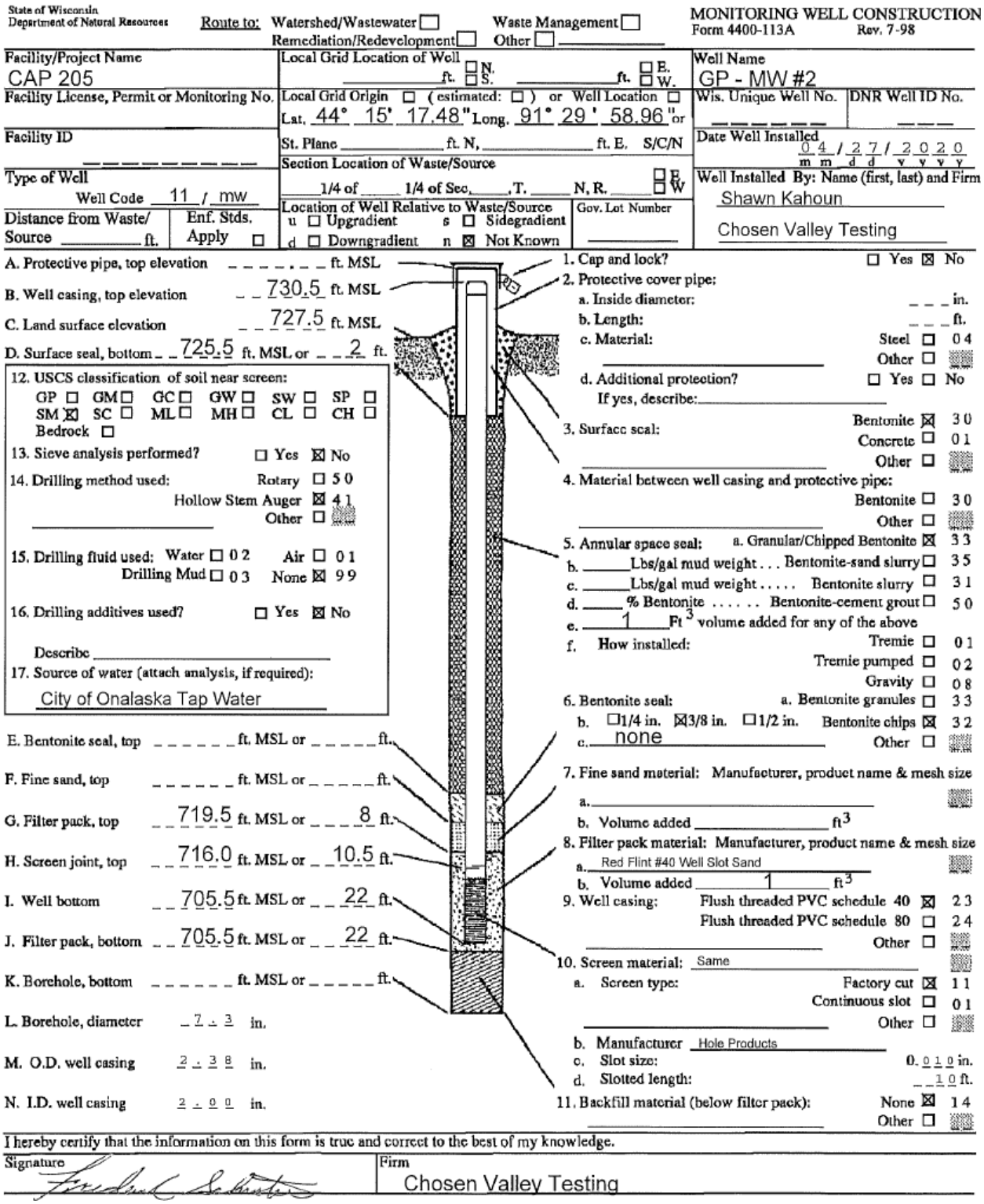

Figure 10: Twenty foot temporary groundwater monitoring well construction diagram (BRRTS ID: 0262182149).

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MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐ _____

Facility/Project Name	County Name	Well Name
CAP 205	Trempealeau	GP-20
Facility License, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number** / **DNR Well ID Number**
	62	_____ / ____

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☐ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☐ 10
pumped only	☒ 51
pumped slowly	☐ 50
Other _____	☐

3. Time spent developing well: 60 min.

4. Depth of well (from top of well casisng): 25.0 ft.

5. Inside diameter of well: 2.00 in.

6. Volume of water in filter pack and well casing: 2.5 gal.

7. Volume of water removed from well: 60.0 gal.

8. Volume of water added (if any): 0.0 gal.

9. Source of water added: N/A

10. Analysis performed on water added? ☐ Yes ☐ No (If yes, attach results)
N/A

	Before Development	After Development
11. Depth to Water (from top of well casing) a.	9.89 ft.	9.88 ft.
Date b. (mm dd yyyy)	04/27/2020	04/27/2020
Time c.	04:40 ☐ a.m. ☒ p.m.	05:40 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	0.0 inches	0.0 inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☒ 20 Turbid ☐ 25 (Describe)
14. Total suspended solids	____.__ mg/l	____.__ mg/l
15. COD	____.__ mg/l	____.__ mg/l

Fill in if drilling fluids were used and well is at solid waste facility: N/A

16. Well developed by: Name (first, last) and Firm
First Name: RANDY Last Name: JENKINS
Firm: ARDL, Inc.

17. Additional comments on development:

Name and Address of Facility Contact/Owner/Responsible Party
First Name: _____ Last Name: _____
Facility/Firm: _____
Street: _____
City/State/Zip: _____

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: _____
Print Name: RANDALL K. JENKINS
Firm: ARDL, INC.

Figure 11: Twenty foot temporary groundwater monitoring well development log (BRRTS ID: 0262182149).

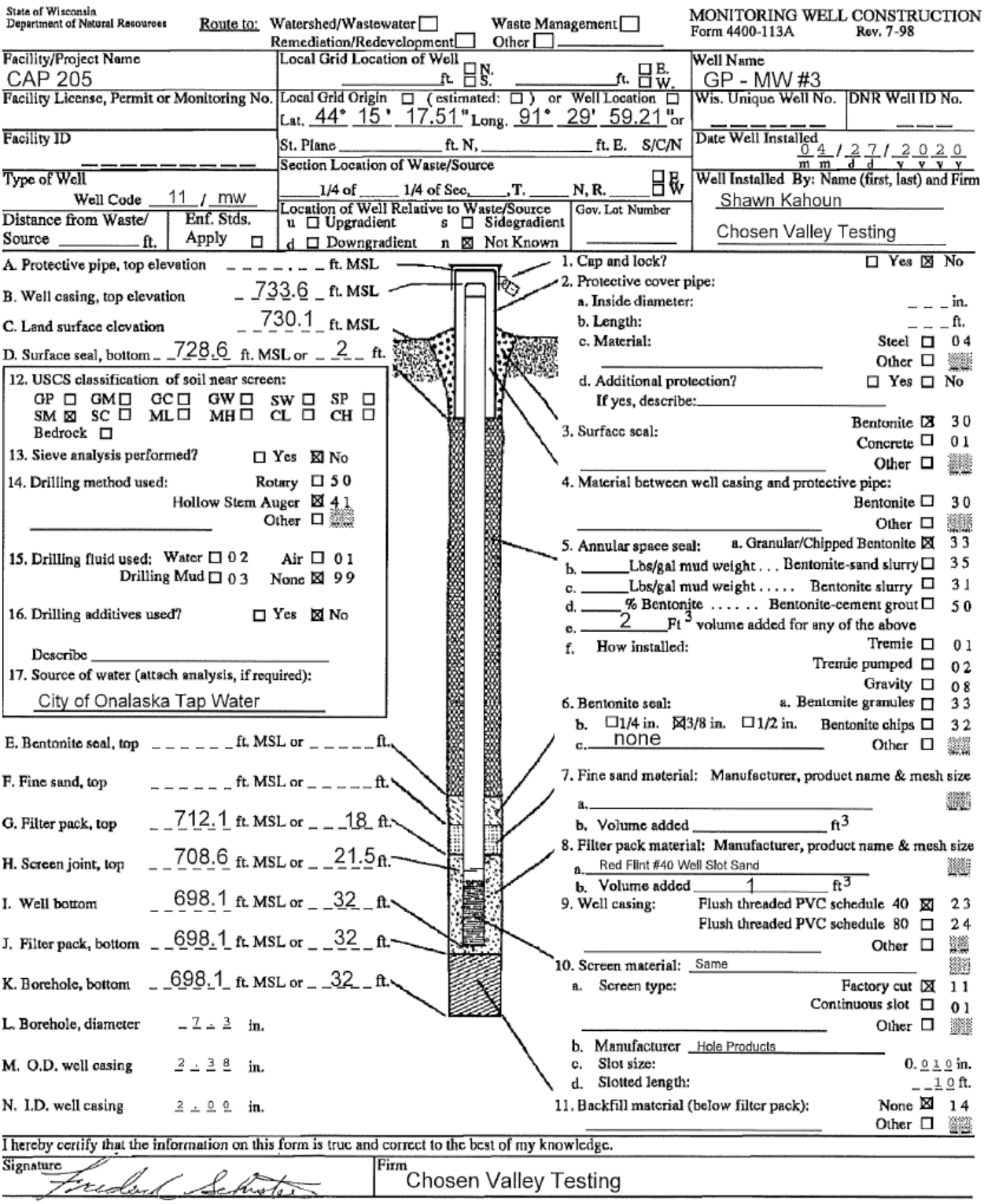


Figure 12: Thirty foot temporary groundwater monitoring well construction diagram (BRRTS ID: 0262182149).

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐ _____

Facility/Project Name	County Name	Well Name
CAP 205	Trempealeau	GP-30

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well ID Number
	62		

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☐ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☐ 10
pumped only	☒ 51
pumped slowly	☐ 50
Other _____	☐

3. Time spent developing well 60 min.

4. Depth of well (from top of well casisng) 35.5 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 3.7 gal.

7. Volume of water removed from well 60.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added N/A

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)
N/A

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 13.12 ft.	13.12 ft.
Date	b. 04/27/2020 (m m d d y y y y)	04/27/2020
Time	c. 04:40 ☐ a.m. ☒ p.m.	05:40 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	0.0 inches	0.0 inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☒ 20 Turbid ☐ 25 (Describe)
14. Total suspended solids	____.__ mg/l	____.__ mg/l
15. COD	____.__ mg/l	____.__ mg/l

Fill in if drilling fluids were used and well is at solid waste facility: N/A

16. Well developed by: Name (first, last) and Firm
First Name: RANDY Last Name: JENKINS
Firm: ARDL, Inc.

17. Additional comments on development:

Name and Address of Facility Contact/Owner/Responsible Party
First Name: _____ Last Name: _____
Facility/Firm: _____
Street: _____
City/State/Zip: _____

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: _____
Print Name: RANDALL K. JENKINS
Firm: ARDL, INC.

Figure 13: Thirty foot temporary groundwater monitoring well development log (BRRTS ID: 0262182149).

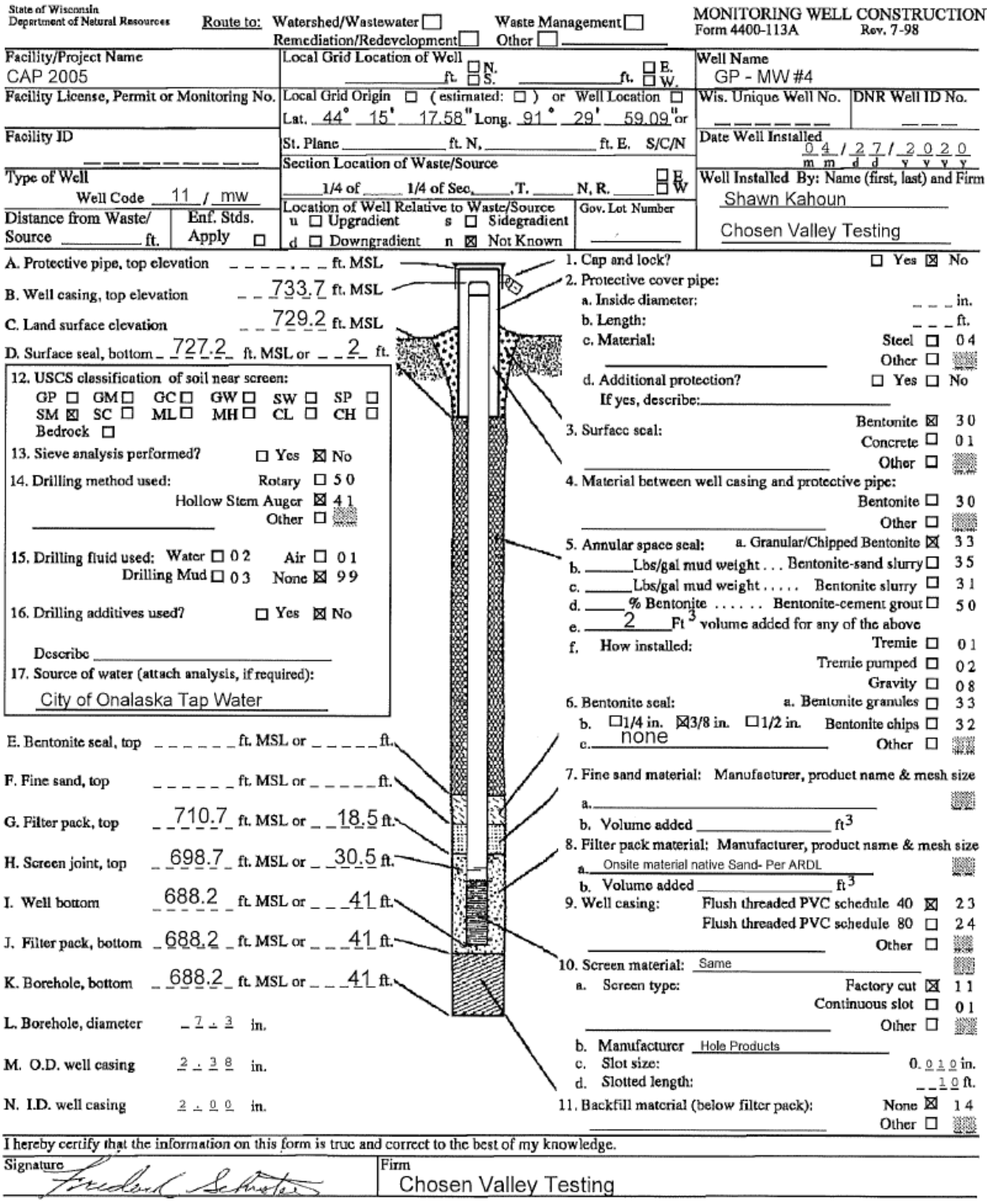


Figure 14: Forty foot temporary groundwater monitoring well construction diagram (BRRTS ID: 0262182149).

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐ _____

Facility/Project Name	County Name	Well Name
CAP 205	Trempealeau	GP-40
Facility License, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number** / **DNR Well ID Number**
	62	_____ / ___

1. Can this well be purged dry? ☒ Yes ☒ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☐ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☐ 10
pumped only	☒ 51
pumped slowly	☐ 50
Other _____	☐

3. Time spent developing well 60 min.

4. Depth of well (from top of well casisng) 45.5 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 5.3 gal.

7. Volume of water removed from well 60.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added N/A

10. Analysis performed on water added? ☐ Yes ☐ No (If yes, attach results) N/A

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 13.23 ft.	13.23 ft.
Date	b. 04/27/2020 (m m d d y y y y)	04/27/2020
Time	c. 04:40 ☐ a.m. ☒ p.m.	08:40 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	00.0 inches	00.0 inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☒ 20 Turbid ☐ 25 (Describe)
14. Total suspended solids	____.__ mg/l	____.__ mg/l
15. COD	____.__ mg/l	____.__ mg/l

Fill in if drilling fluids were used and well is at solid waste facility: N/A

16. Well developed by: Name (first, last) and Firm
First Name: RANDY Last Name: JENKINS
Firm: ARDL, Inc.

17. Additional comments on development:

Name and Address of Facility Contact /Owner/Responsible Party
First Name: _____ Last Name: _____
Facility/Firm: _____
Street: _____
City/State/Zip: _____

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: _____
Print Name: RANDALL K. JENKINS
Firm: ARDL, Inc.

Figure 15: Forty foot temporary groundwater monitoring well development log (BRRTS ID: 0262182149).

6.4 **Results:**

Water: Groundwater was detected at an elevation of approximately 720.5', or seven feet below surface elevation. Concentrations for Benzene and Naphthalene were below the Method Detection Limits (MDL) in the 12 samples analyzed. There were no other VOCs detected that exceeded Wisconsin groundwater criteria. A laboratory package summarizing all VOCs analyzed can be reviewed in Supplementary Material D.

Table 1: Groundwater elevations and summary data for Benzene and Naphthalene at Pilgrim's Pride.

Sample ID	Surface Elevation	Groundwater Elevation Sampled	Benzene(u/L)	Naphthalene (u/L)
GP-10-1	727.7'	715.2' - 720.6'	< 0.50	< 5.0
GP-10-2	727.7'	715.2' - 720.6'	< 0.50	< 5.0
GP-10-3	727.7'	715.2' - 720.6'	< 0.50	< 5.0
GP-20-1	727.5'	716.0' - 705.5'	< 0.50	< 5.0
GP-20-2	727.5'	716.0' - 705.5'	< 0.50	< 5.0
GP-20-3	727.5'	716.0' - 705.5'	< 0.50	< 5.0
GP-30-1	730.1'	708.6' - 698.1	< 0.50	< 5.0
GP-30-2	730.1'	708.6' - 698.2	< 0.50	< 5.0
GP-30-3	730.1'	708.6' - 698.3	< 0.50	< 5.0
GP-40-1	729.2'	698.7' - 688.2'	< 0.50	< 5.0
GP-40-2	729.2'	698.7' - 688.2'	< 0.50	< 5.0
GP-40-3	729.2'	698.7' - 688.2'	< 0.50	< 5.0

Soil: Only one of the 18 samples analyzed for benzene was detected above the MDL, however the detection was far below the RCL. Benzene concentrations were below the MDL in the remaining 17 samples. Concentrations for Naphthalene were below MDL in all 18 samples. Tetrachloroethene was detected in six of the 18 samples; however, concentrations did not exceed industrial or non-industrial RCLs (145 mg/kg and 33 mg/kg respectively). A laboratory package summarizing all VOCs analyzed can be reviewed in Supplementary Material D.

Table 2: Soil summary data for Benzene, Naphthalene, and Tetrachloroethene.

Sample ID	Depth (ft)	Qualifier	Benzene (mg/kg)	Qualifier	Naphthalene (mg/kg)	Qualifier	Tetrachloroethene (mg/kg)
GP-B1-1	1	J	0.002	<	0.005		3.190
GP-B1-3	3	<	0.005	<	0.005	<	0.005
GP-B1-6	6	<	0.023	<	0.023	J	0.024
GP-B1-12	12	<	0.938	<	0.938		16.700
GP-B1-24	24	<	0.005	<	0.005		0.945
GP-B1-40	40	<	0.005	<	0.005		0.654
GP-B2-1	1	<	0.005	<	0.005	<	0.005
GP-B2-3	3	<	0.007	<	0.007	<	0.007
GP-B2-6	6	<	0.005	<	0.005		0.014
GP-B2-12	12	<	0.004	<	0.004	<	0.004
GP-B2-24	24	<	0.005	<	0.005	J	0.001
GP-B2-40	40	<	0.005	<	0.005		0.007
GP-B3-1	1	<	0.005	<	0.005	<	0.005
GP-B3-3	3	<	0.011	<	0.011	<	0.011
GP-B3-6	6	<	0.005	<	0.005	<	0.005
GP-B3-12	12	<	0.005	<	0.005	<	0.005
GP-B3-24	24	<	0.005	<	0.005	<	0.005
GP-B3-40	40	<	0.004	<	0.004	J	0.002

6.5 **Summary and Conclusions**

A limited Phase II ESA was performed in response to residual groundwater contamination on land Parcel No. 201-00822-0000 (BRRTS ID: 0262182149). As of 2004, concentrations of Benzene and Naphthalene had exceeded the State of Wisconsin PAL for groundwater. It was decided that natural attenuation would be used as the remediation strategy.

The Arcadia Flood Risk Management CAP 205 project will pass through the northwest portion of the plume delineated in 2004 (Figure 7). Construction would include soil excavation and installation of relief wells. Closure conditions of BRRTS ID: 0262182149 required a groundwater evaluation prior to the installation of relief wells.

This limited Phase II ESA found no evidence of groundwater or soil contamination within the proposed CAP 205 project footprint. The scope of this ESA was limited to a small area and a single sampling event. Contamination may still occur in other areas, and would therefore have potential to migrate in and out of the project footprint. However, prior groundwater degradation studies for both contaminants indicate that residual contamination is unlikely (Rogers, et al., 2002; McHugh, et al., 2014).

This Limited Phase II ESA recommends no additional groundwater sampling pertaining to BRRTS ID: 0262182149. It is recommended that the results of this Phase II ESA are enclosed with any request issued to WDNR for constructing relief wells on Parcel No. 201-00822-0000.

Tetrachloroethene levels approached the EPA RSL for soil, although were not exceeded. Because this was a relatively small sample size it is recommended that soils excavated during construction on the subject property are screened for VOCs in the field using a Photoionization Detector (PCA, 2018). This is a low cost method for evaluating soil contamination and yields immediate results. If soil contamination is discovered during construction, then consultation with WDNR would be required to determine appropriate disposal methods.

The observations, measurements, and research reported herein are considered sufficient in detail and scope to form a reasonable basis for a limited Phase II ESA of the subject properties (ASTM E1903-19, 2019). The assessment, conclusions, and recommendations presented herein are based upon the subjective evaluation of limited data. The data may not represent all conditions at the subject site, as they reflect the information gathered from specific locations. The limitations of this assessment should be recognized as the client formulates conclusions on the environmental risks associated with these properties.

7.0 PHASE II ENVIRONMENTAL SITE ASSESSMENT: ARCADIA COOP_LAND PARCELS 201-00734-0005 and 201-00732-0000

7.1 Background

Parcel Nos. 201-00734-0005 and 201-00732-0000 are located in the Southwest Quarter of the Northeast Quarter, Sec. 32, Twp. 21 North, Range 9 West. According to the Bureau for Remediation and Redevelopment Tracking System (BRRTS ID: 0262547273 and 0262554601), these properties are listed as containing residual soil contamination for pesticides and fertilizer, and groundwater contamination for fertilizer. The closure strategy selected in 2008 and 2011 for remediation was natural attenuation.

Both BRRTS IDs state that excavated material along the eastern property boundary shall be sampled and analyzed for contamination to ensure proper storage, treatment, or disposal. The BRRTSs also state that any intention to construct a groundwater well at either parcel will need prior approval from the Wisconsin DNR s.NR 812.09(4)(w). Approximately 200 linear feet of the Arcadia Cap 205 Flood Management System will pass through the contaminated area, and will require excavation and installation of relief wells.

7.2 Objectives

The first objective is to quantify fertilizers, specifically Ammonia as Nitrogen (NH_3-N) and Nitrate + Nitrite as Nitrogen (NO_2 + NO_3) concentrations in groundwater within the proposed project footprint where groundwater contamination was previously delineated (BRRTS ID: 0262547273). The current Enforcement Standard (ES) and Preventative Action Limits (PAL) for NH_3-N are 9.7 mg/L and 0.97 mg/L, respectively (NR 140.03). The current ES and PAL for NO_2 + NO_3 are 10 mg/L and 2 mg/L, respectively (NR 140.03).

The second objective is to quantify pesticide and fertilizer concentrations in soil within the proposed project footprint where contamination was previously identified (BRRTS ID: 0262547273 and 0262554601). Pesticides of primary concern were Alachlor, Atrazine, and Metolachlor, whose Residual Contamination Levels (RCL) are 9.69 mg/kg, 2.36 mg/kg, and 9,480 mg/kg, respectively. Fertilizers of concern included Total Nitrogen (herein after TN) which is the sum of ammonia as nitrogen (NH3), nitrate as nitrogen (NO3), and nitrite as nitrogen (NO2). The Wisconsin Site-Specific Soil Performance Standard for TN for this particular site was listed as 150 mg/kg in 2009 (see closure packet for BRRTS ID: 0262554601)

7.3 Methods

Sample Locations: Groundwater and soil samples were collected approximately 25’ from the concrete loading pad towards Turton Creek. The concrete loading pad is considered to be a structural impediment for most of the contaminated soil associated with the BRRTS (Figure 16). The field crew was unable to collect soil samples from the contaminated area due to truck traffic passing through the contaminated area, blocking of building entryways, and difficulties obtaining

clearance from Wisconsin Public Service Diggers Hotline. The area sampled would have been within the groundwater contamination footprint delineated in October 2004 (Figure 17).

Construction of Temporary Ground Water Monitoring Wells: A cluster of four temporary groundwater monitoring wells were constructed on 27 April 2020. The soil was primarily sand, thus a hollow-stem auger method was used to construct the monitoring wells. General well construction was as follows:

1.) Wells were drilled using a 4-1/4" hollow stem-auger to depths of approximately 10', 20', 30', and 40'

2.) The bottom of the auger casing was capped and lined with coarse sand

3.) A slotted 10' section of 2" PVC pipe was inserted into the bottom of the hollowed stem-auger casing and filter pack was placed in the remaining annulus. The bottom of the PVC pipe was capped

4.) A solid section of 2" PVC pipe filled the remainder of the hollow-stem auger casing

5.) The lower 2' of the solid pipe was packed with coarse sand

6.) The remainder of the pipe was sealed with bentonite chips

7.) The pipe was capped at the surface to prevent contamination.

8.) The hollow stem-auger was removed to allow the well to develop.

Temporary monitoring well construction profiles can be reviewed in Figure 20 - Figure 27.

Groundwater Well Development: On 27 April 2020, two hours after installation, all wells were pumped for one hour at one gallon per minute. At the end of the hour all wells were producing clear water and there were no problems with recharge rates (see Figure 20 - Figure 27).

Ground Water Sampling Procedures: On 29 April 2020, all wells were purged at 1 gallon per minute to remove a minimum of 3 casing volumes. After purging, all wells were sampled at a rate of 1 liter per minute. New tubing was used on each well for the sampling and the pumps were decontaminated by pumping deionized water between uses. All samples were recorded on chains of custody and the samples were placed on ice in coolers to transport to the laboratory. These samples were collected in 2 polypropylene bottles, one unpreserved and one preserved with HCL.

Soil Boring Procedures: On 29 April 2020, soil samples were collected from each of the three borings at approximately 1', 3', 6', 12', 24', and 40'. All samples were recorded on chains of custody and the samples were placed on ice in coolers for transport to the laboratory. These samples were collected in 4 oz. glass jars, unpreserved.

Laboratory Analysis: Water and soil samples were analyzed by ARDL through USACE Environmental Service Contract #W912P918D0014. Groundwater samples were analyzed for Nitrate (EPA Method 353.2), Nitrite (EPA Method 354.1), TKN (EPA Method 351.2), and Ammonia-N (EPA Method 350.1). Soil samples were analyzed for Pesticides (8270C), Nitrate (Std Method 4500-NO_3), Nitrite (Std Method 4500-NO_2), TKN (EPA Method 351.2), and Ammonia-N (Std Method 4500-NH_3). A Quality Assurance review was provided by USACE chemist, and is enclosed with laboratory packages (see Supplementary Material D).

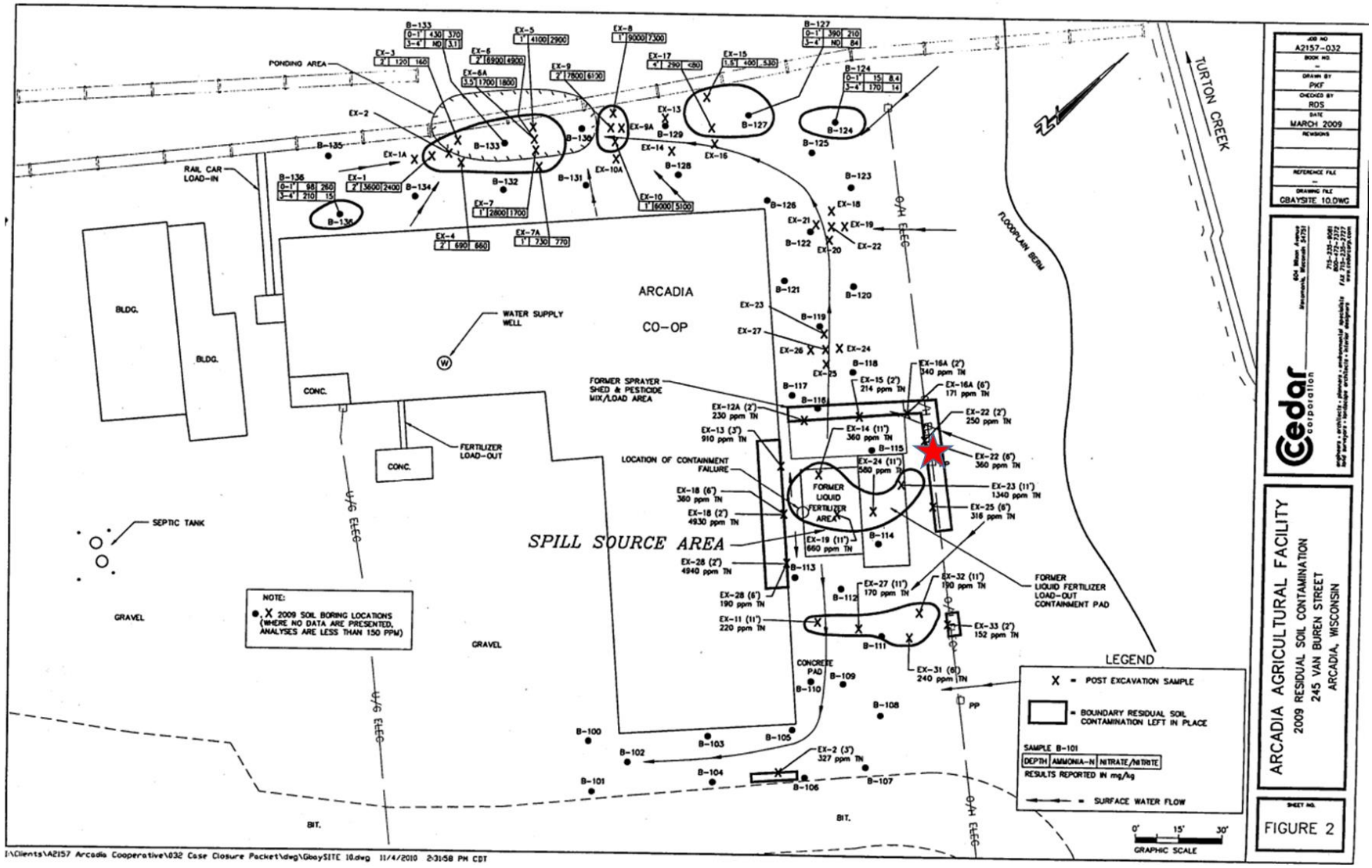


Figure 16: Contaminated soil delineation from 2009. Soil borings were collected near the red star.

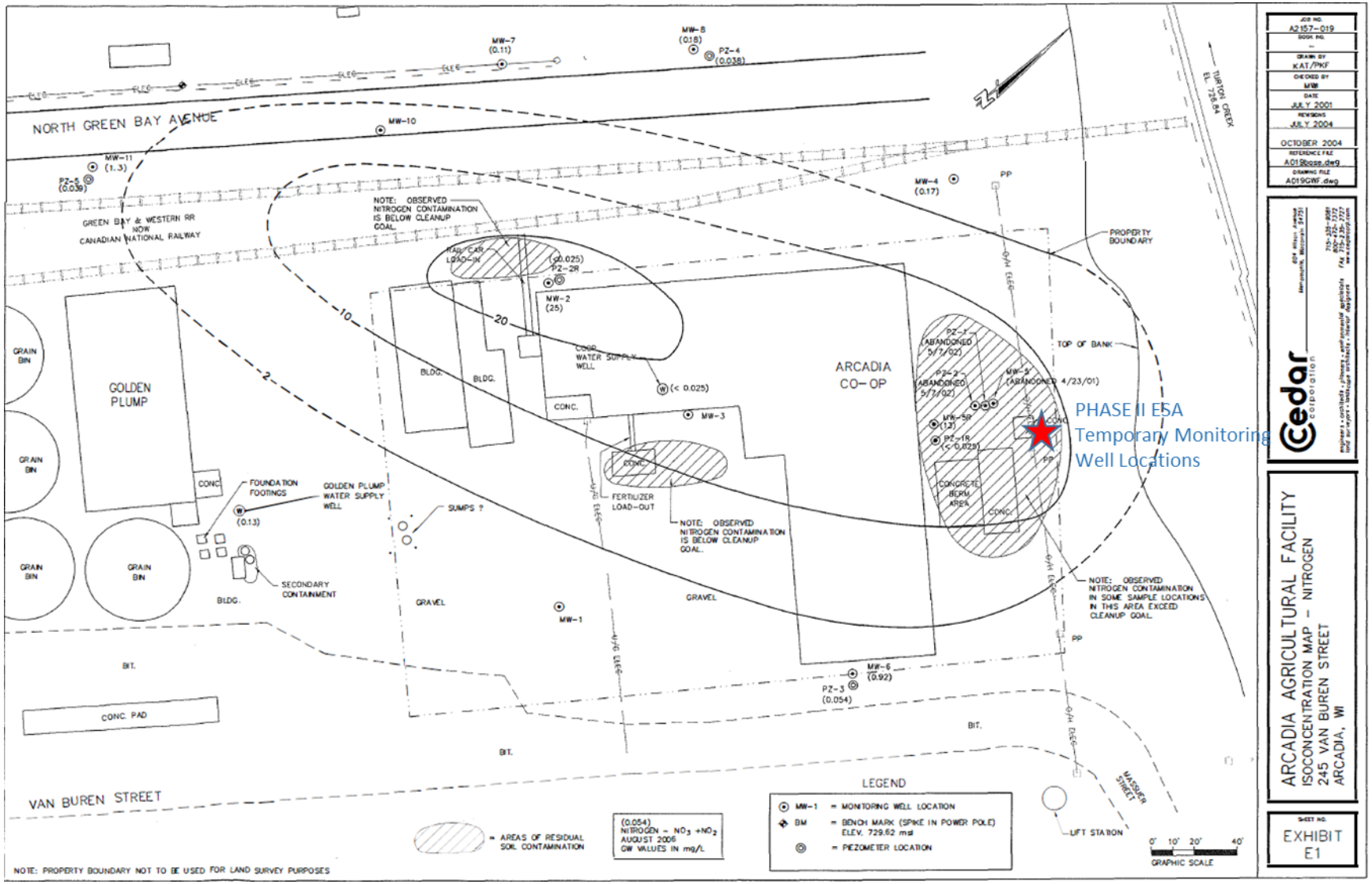


Figure 17: Contaminated groundwater delineation from 2004. Temporary monitoring wells were constructed near the red star.

Figure 18: Overview of groundwater and soil sample locations. Note that Gold'n Plump was the previous designation for Pilgrim's Pride.

Figure 19: Overview of groundwater and soil sample locations. Groundwater locations are designated in red and soil boring locations are designated in red.

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐ _____

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 7-98

Facility/Project Name: CAP 205	Local Grid Location of Well: ____ ft. ☐N. ☐S. ____ ft. ☐E. ☐W.	Well Name: AC - MW #1
Facility License, Permit or Monitoring No.	Local Grid Origin ☐ (estimated: ☐) or Well Location ☐ Lat. 44° 15' 18.46" Long. 91° 29' 47.64" or	Wis. Unique Well No. _____ / DNR Well ID No. ____
Facility ID _____	St. Plane ____ ft. N, ____ ft. E. S/C/N	Date Well Installed 04 / 27 / 2020 (m m d d y y y y)
Type of Well: Well Code 11 / mw	Section Location of Waste/Source: ____ 1/4 of ____ 1/4 of Sec. ____, T. ____ N, R. ____ ☐E ☐W	Well Installed By: Name (first, last) and Firm: Shawn Kahoun / Chosen Valley Testing
Distance from Waste/Source ____ ft. / Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☒ Not Known	Gov. Lot Number: _____

A. Protective pipe, top elevation _____ ft. MSL
B. Well casing, top elevation 738.1 ft. MSL
C. Land surface elevation 735.1 ft. MSL
D. Surface seal, bottom 733.1 ft. MSL or 2 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☒ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis performed? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50 / Hollow Stem Auger ☒ 41 / Other ☐ _____

15. Drilling fluid used: Water ☐ 02 / Air ☐ 01 / Drilling Mud ☐ 03 / None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No
Describe _____

17. Source of water (attach analysis, if required):
City of Onalaska Tap Water

E. Bentonite seal, top _____ ft. MSL or _____ ft.
F. Fine sand, top _____ ft. MSL or _____ ft.
G. Filter pack, top 733.1 ft. MSL or 2 ft.
H. Screen joint, top 733.1 ft. MSL or 2 ft.
I. Well bottom 722.6 ft. MSL or 12.5 ft.
J. Filter pack, bottom 722.6 ft. MSL or 12.5 ft.
K. Borehole, bottom 722.6 ft. MSL or 12.5 ft.
L. Borehole, diameter 7.3 in.
M. O.D. well casing 2.38 in.
N. I.D. well casing 2.00 in.

1. Cap and lock? ☐ Yes ☒ No
2. Protective cover pipe:
a. Inside diameter: ___ in.
b. Length: ___ ft.
c. Material: Steel ☐ 04 / Other ☐ _____
d. Additional protection? ☐ Yes ☐ No
If yes, describe: _____
3. Surface seal: Bentonite ☒ 30 / Concrete ☐ 01 / Other ☐ _____
4. Material between well casing and protective pipe: Bentonite ☐ 30 / Other ☐ _____
5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. _____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. 1 Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 / Tremie pumped ☐ 02 / Gravity ☐ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐1/4 in. ☒3/8 in. ☐1/2 in. Bentonite chips ☒ 32
c. none Other ☐ _____
7. Fine sand material: Manufacturer, product name & mesh size
a. _____
b. Volume added _____ ft^3
8. Filter pack material: Manufacturer, product name & mesh size
a. Red Flint #40 Well Slot Sand
b. Volume added 2 ft^3
9. Well casing: Flush threaded PVC schedule 40 ☒ 23 / Flush threaded PVC schedule 80 ☐ 24 / Other ☐ _____
10. Screen material: Same
a. Screen type: Factory cut ☒ 11 / Continuous slot ☐ 01 / Other ☐ _____
b. Manufacturer Hole Products
c. Slot size: 0.010 in.
d. Slotted length: 10 ft.
11. Backfill material (below filter pack): None ☒ 14 / Other ☐ _____

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Friedrich Schuster | Firm: Chosen Valley Testing

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

Figure 20: Ten foot temporary groundwater monitoring well construction diagram for BRRTS ID: 0262547273 and 0262554601.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐ _____

Facility/Project Name	County Name	Well Name
CAP 205	Trempealeau	AC-10
Facility License, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number** / **DNR Well ID Number**
	62	_____ / ____

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☐ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☐ 10
pumped only	☒ 51
pumped slowly	☐ 50
Other _____	☐

3. Time spent developing well 60 min.

4. Depth of well (from top of well casisng) 15.5 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 0.9 gal.

7. Volume of water removed from well 30.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added N/A

10. Analysis performed on water added? (If yes, attach results) ☐ Yes ☐ No N/A

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 10.02 ft.	10.03 ft.
Date	b. 04/27/2020 (m m d d y y y y)	04/27/2020
Time	c. 03:15 ☐ a.m. ☒ p.m.	04:15 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	0.0 inches	0.0 inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☒ 20 Turbid ☐ 25 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility: N/A

14. Total suspended solids	_____ mg/l	_____ mg/l
15. COD	_____ mg/l	_____ mg/l

16. Well developed by: Name (first, last) and Firm
First Name: RANDY Last Name: JENKINS
Firm: ARDL, Inc.

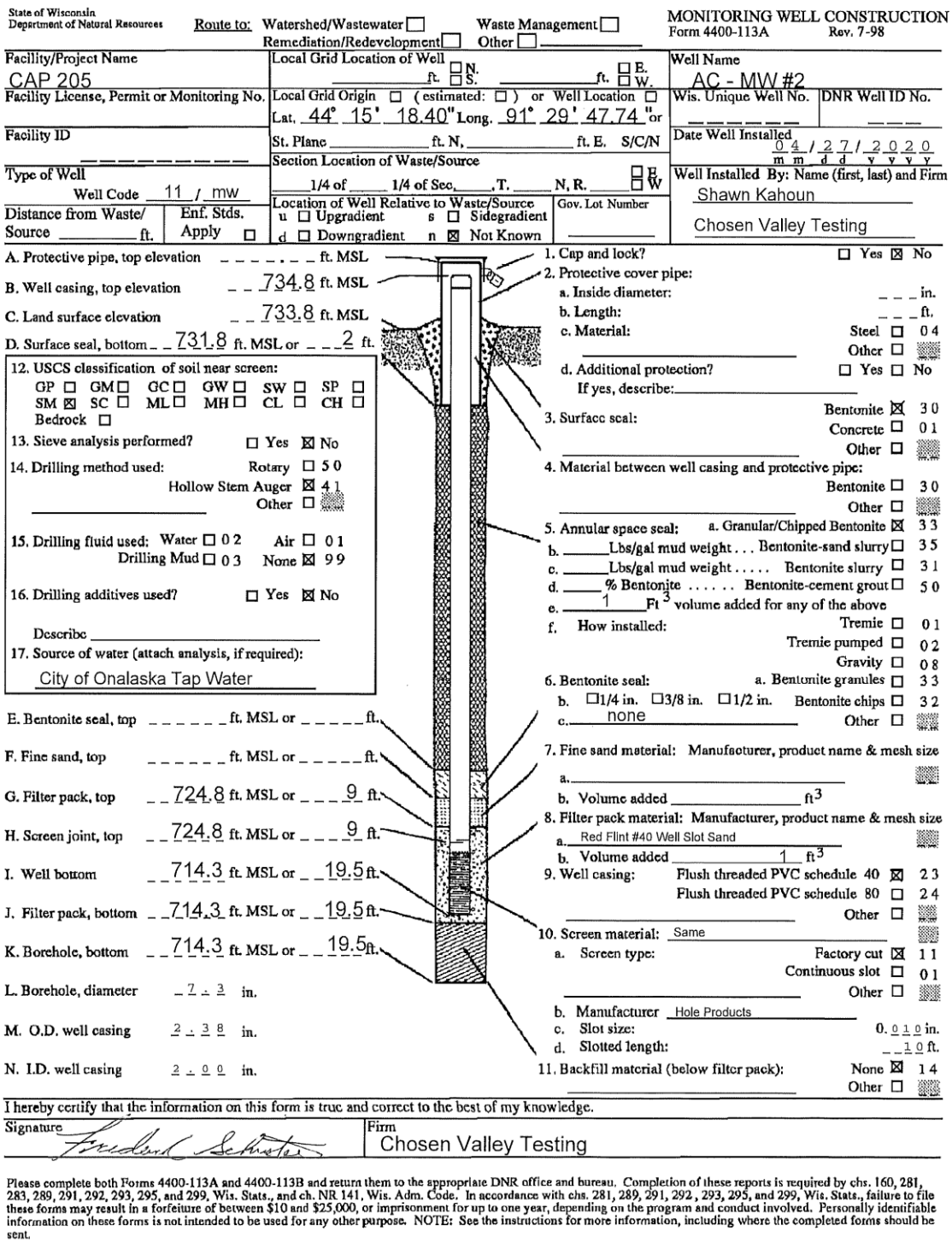
17. Additional comments on development:

Name and Address of Facility Contact/Owner/Responsible Party
First Name: _____ Last Name: _____
Facility/Firm: _____
Street: _____
City/State/Zip: _____

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: [signature]
Print Name: RANDALL JENKINS
Firm: ARDL, INC.

NOTE: See instructions for more information including a list of county codes and well type codes.

Figure 21: Ten foot temporary groundwater monitoring well development log (BRRTS ID: 0262547273 and 0262554601).


State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other ☐

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 7-98

Facility/Project Name: CAP 205
Facility License, Permit or Monitoring No.:
Facility ID:
Type of Well — Well Code 11 / mw
Distance from Waste/Source ____ ft. | Enf. Stds. Apply ☐

Local Grid Location of Well: ____ ft. ☐N. ☐S. ____ ft. ☐E. ☐W.
Local Grid Origin ☐ (estimated: ☐) or Well Location ☐
Lat. 44° 15' 18.40" Long. 91° 29' 47.74" or
St. Plane ____ ft. N, ____ ft. E. S/C/N
Section Location of Waste/Source
____ 1/4 of ____ 1/4 of Sec. ____, T. ____ N, R. ____ ☐E ☐W
Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☒ Not Known
Gov. Lot Number:

Well Name: AC - MW #2
Wis. Unique Well No.: _____ DNR Well ID No.: ___
Date Well Installed: 04 / 27 / 2020 (m m d d y y y y)
Well Installed By: Name (first, last) and Firm
Shawn Kahoun
Chosen Valley Testing

A. Protective pipe, top elevation ____ ft. MSL
B. Well casing, top elevation 734.8 ft. MSL
C. Land surface elevation 733.8 ft. MSL
D. Surface seal, bottom 731.8 ft. MSL or 2 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☒ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐
13. Sieve analysis performed? ☐ Yes ☒ No
14. Drilling method used: Rotary ☐ 50 Hollow Stem Auger ☒ 41 Other ☐ ____
15. Drilling fluid used: Water ☐ 02 Air ☐ 01 Drilling Mud ☐ 03 None ☒ 99
16. Drilling additives used? ☐ Yes ☒ No
Describe ____
17. Source of water (attach analysis, if required):
City of Onalaska Tap Water

E. Bentonite seal, top ____ ft. MSL or ____ ft.
F. Fine sand, top ____ ft. MSL or ____ ft.
G. Filter pack, top 724.8 ft. MSL or 9 ft.
H. Screen joint, top 724.8 ft. MSL or 9 ft.
I. Well bottom 714.3 ft. MSL or 19.5 ft.
J. Filter pack, bottom 714.3 ft. MSL or 19.5 ft.
K. Borehole, bottom 714.3 ft. MSL or 19.5 ft.
L. Borehole, diameter 7.3 in.
M. O.D. well casing 2.38 in.
N. I.D. well casing 2.00 in.

1. Cap and lock? ☐ Yes ☒ No
2. Protective cover pipe:
a. Inside diameter: ___ in.
b. Length: ___ ft.
c. Material: Steel ☐ 04 Other ☐ ____
d. Additional protection? ☐ Yes ☐ No
If yes, describe: ____
3. Surface seal: Bentonite ☒ 30 Concrete ☐ 01 Other ☐ ____
4. Material between well casing and protective pipe: Bentonite ☐ 30 Other ☐ ____
5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. ____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. ____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. ____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. 1 Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 Tremie pumped ☐ 02 Gravity ☐ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐1/4 in. ☐3/8 in. ☐1/2 in. Bentonite chips ☐ 32
c. none Other ☐ ____
7. Fine sand material: Manufacturer, product name & mesh size
a. ____
b. Volume added ____ ft^3
8. Filter pack material: Manufacturer, product name & mesh size
a. Red Flint #40 Well Slot Sand
b. Volume added 1 ft^3
9. Well casing: Flush threaded PVC schedule 40 ☒ 23 Flush threaded PVC schedule 80 ☐ 24 Other ☐ ____
10. Screen material: Same
a. Screen type: Factory cut ☒ 11 Continuous slot ☐ 01 Other ☐ ____
b. Manufacturer Hole Products
c. Slot size: 0.010 in.
d. Slotted length: 10 ft.
11. Backfill material (below filter pack): None ☒ 14 Other ☐ ____

I hereby certify that the information on this form is true and correct to the best of my knowledge.
Signature: Frederick Schuster Firm: Chosen Valley Testing

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

Figure 22: Twenty foot temporary groundwater monitoring well construction diagram for BRRTS ID: 0262547273 and 0262554601.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐ _____

Facility/Project Name	County Name	Well Name
CAP 205	Trempealeau	AC-20
Facility License, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number** / **DNR Well ID Number**
	62	_____ / ____

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☐ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☐ 10
pumped only	☒ 51
pumped slowly	☐ 50
Other _____	☐

3. Time spent developing well __60 min.

4. Depth of well (from top of well casisng) __20.5 ft.

5. Inside diameter of well __2.00 in.

6. Volume of water in filter pack and well casing __4.3 gal.

7. Volume of water removed from well __60.0 gal.

8. Volume of water added (if any) __0.0 gal.

9. Source of water added N/A

10. Analysis performed on water added? (If yes, attach results) ☐ Yes ☐ No N/A

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 6.61 ft.	6.63 ft.
Date	b. 04/27/2020 (mm dd yyyy)	04/27/2020 (mm dd yyyy)
Time	c. 02:10 ☐ a.m. ☒ p.m.	~~3:10~~ 15:10 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	0.0 inches	0.0 inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☒ 20 Turbid ☐ 25 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility: N/A

14. Total suspended solids	____.__ mg/l	____.__ mg/l
15. COD	____.__ mg/l	____.__ mg/l

16. Well developed by: Name (first, last) and Firm
First Name: RANDY Last Name: JENKINS
Firm: ARDL, Inc.

17. Additional comments on development:

Name and Address of Facility Contact /Owner/Responsible Party
First Name: _____ Last Name: _____
Facility/Firm: _____
Street: _____
City/State/Zip: _____

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: [signature]
Print Name: Random K. Jenkins
Firm: ARDL, Inc.

NOTE: See instructions for more information including a list of county codes and well type codes.

Figure 23: Twenty foot temporary groundwater monitoring well development log (BRRTS ID: 0262547273 and 0262554601).

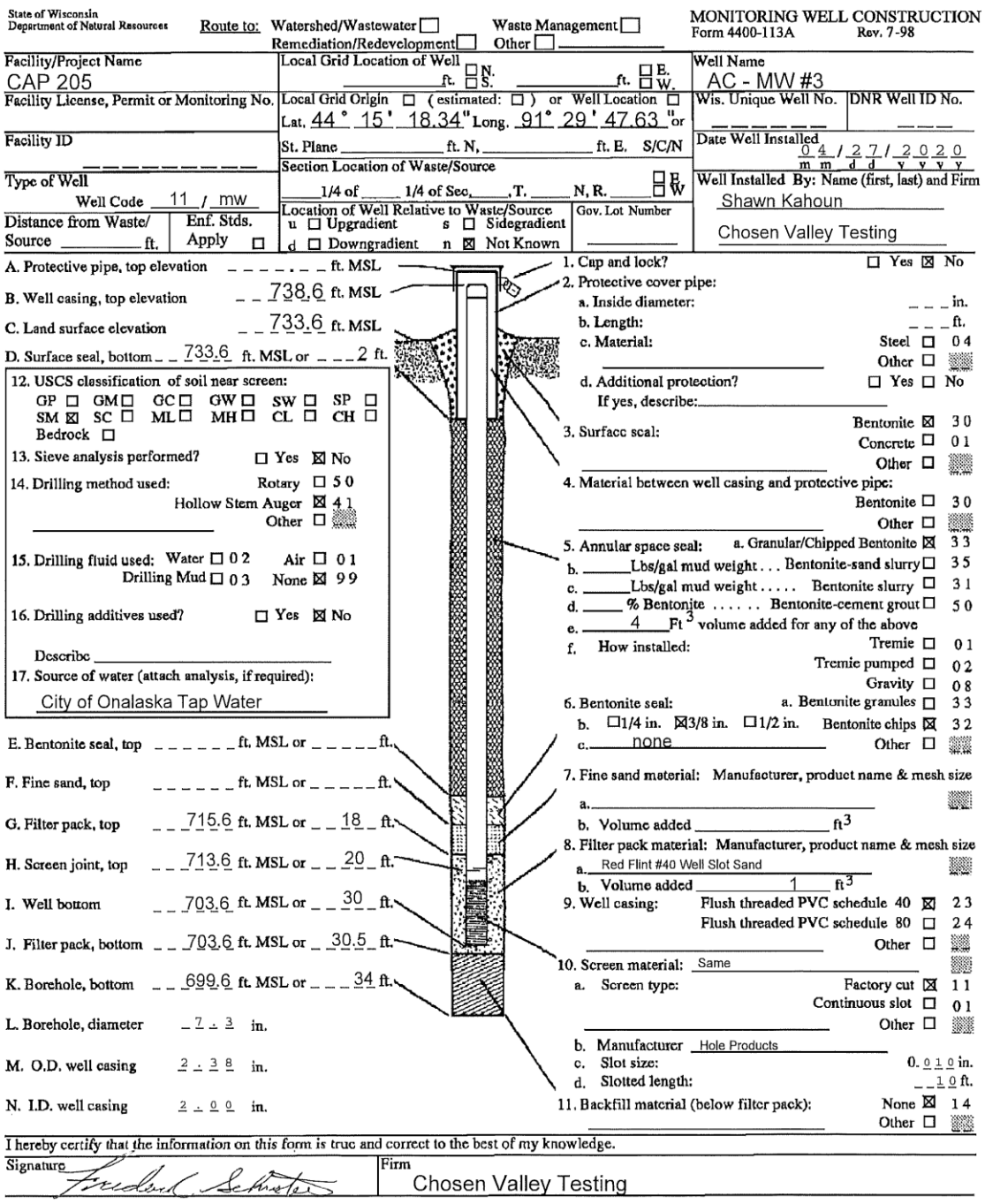


Figure 24: Thirty foot temporary groundwater monitoring well construction diagram for BRRTS ID: 0262547273 and 0262554601.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐ _____

Facility/Project Name	County Name	Well Name
CAP 205	Trempealeau	AC-30
Facility License, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number** / **DNR Well ID Number**
	62	_____ / ____

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☐ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☐ 10
pumped only	☒ 51
pumped slowly	☐ 50
Other _____	☐

3. Time spent developing well 60 min.

4. Depth of well (from top of well casisng) 35.0 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 4.0 gal.

7. Volume of water removed from well 60.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added N/A

10. Analysis performed on water added? (If yes, attach results) ☐ Yes ☐ No N/A

	Before Development	After Development
11. Depth to Water (from top of well casing) a.	10.36 ft.	10.39 ft.
Date b. (mm dd yyyy)	04/27/2020	04/27/2020
Time c.	02:10 ☐ a.m. ☒ p.m.	03:10 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	0.0 inches	0.0 inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☒ 20 Turbid ☐ 25 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility: N/A

14. Total suspended solids	____.__ mg/l	____.__ mg/l
15. COD	____.__ mg/l	____.__ mg/l

16. Well developed by: Name (first, last) and Firm
First Name: RANDY Last Name: JENKINS
Firm: ARDL, Inc.

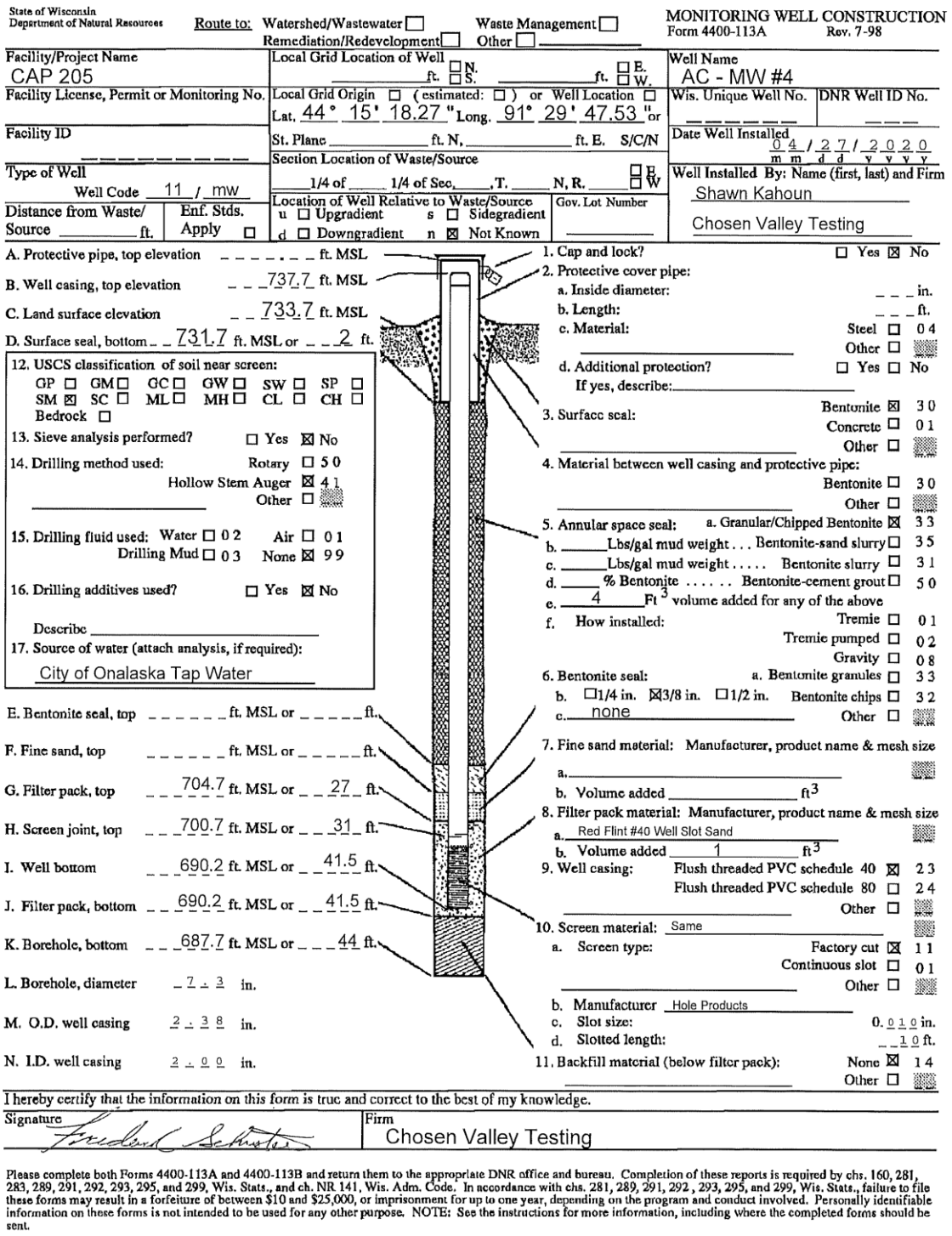
17. Additional comments on development:

Name and Address of Facility Contact /Owner/Responsible Party
First Name: _____ Last Name: _____
Facility/Firm: _____
Street: _____
City/State/Zip: _____

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: [signature]
Print Name: RANDALL K. JENKINS
Firm: ARDL, Inc.

NOTE: See instructions for more information including a list of county codes and well type codes.

Figure 25: Thirty foot temporary groundwater monitoring well development log (BRRTS ID: 0262547273 and 0262554601).



State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other ☐ _____

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 7-98

Facility/Project Name: CAP 205
Facility License, Permit or Monitoring No.:
Facility ID: _ _ _ _ _ _ _ _ _ _
Type of Well: Well Code 11 / mw
Distance from Waste/Source _____ ft. | Enf. Stds. Apply ☐

Local Grid Location of Well _____ ft. ☐N. ☐S. _____ ft. ☐E. ☐W.
Local Grid Origin ☐ (estimated: ☐) or Well Location ☐
Lat. 44° 15' 18.27" Long. 91° 29' 47.53" or
St. Plane _____ ft. N, _____ ft. E. S/C/N
Section Location of Waste/Source
_____ 1/4 of _____ 1/4 of Sec. _____, T. _____ N, R. _____ ☐E ☐W
Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☒ Not Known
Gov. Lot Number: _____

Well Name: AC - MW #4
Wis. Unique Well No.: _ _ _ _ _ _ DNR Well ID No.: _ _ _
Date Well Installed: 04 / 27 / 2020 (m m d d y y y y)
Well Installed By: Name (first, last) and Firm
Shawn Kahoun
Chosen Valley Testing

A. Protective pipe, top elevation _ _ _ _ _ _ ft. MSL
B. Well casing, top elevation _ _ _737.7 ft. MSL
C. Land surface elevation _ _ 733.7 ft. MSL
D. Surface seal, bottom _ _ 731.7 ft. MSL or _ _ 2 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☒ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐
13. Sieve analysis performed? ☐ Yes ☒ No
14. Drilling method used: Rotary ☐ 50 | Hollow Stem Auger ☒ 41 | Other ☐ _____
15. Drilling fluid used: Water ☐ 02 | Air ☐ 01 | Drilling Mud ☐ 03 | None ☒ 99
16. Drilling additives used? ☐ Yes ☒ No
Describe _____
17. Source of water (attach analysis, if required):
City of Onalaska Tap Water

E. Bentonite seal, top _ _ _ _ _ ft. MSL or _ _ _ _ _ ft.
F. Fine sand, top _ _ _ _ _ ft. MSL or _ _ _ _ _ ft.
G. Filter pack, top _ _ 704.7 ft. MSL or _ _ 27 ft.
H. Screen joint, top _ _ 700.7 ft. MSL or _ _ 31 ft.
I. Well bottom _ _ 690.2 ft. MSL or _ _ 41.5 ft.
J. Filter pack, bottom _ _ 690.2 ft. MSL or _ _ 41.5 ft.
K. Borehole, bottom _ _ 687.7 ft. MSL or _ _ 44 ft.
L. Borehole, diameter 7.3 in.
M. O.D. well casing 2.38 in.
N. I.D. well casing 2.00 in.

1. Cap and lock? ☐ Yes ☒ No
2. Protective cover pipe:
a. Inside diameter: _ _ _ in.
b. Length: _ _ _ ft.
c. Material: Steel ☐ 04 | Other ☐ _____
d. Additional protection? ☐ Yes ☐ No
If yes, describe: _____
3. Surface seal: Bentonite ☒ 30 | Concrete ☐ 01 | Other ☐ _____
4. Material between well casing and protective pipe: Bentonite ☐ 30 | Other ☐ _____
5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. _____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. 4 Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 | Tremie pumped ☐ 02 | Gravity ☐ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐1/4 in. ☒3/8 in. ☐1/2 in. Bentonite chips ☐ 32
c. none Other ☐ _____
7. Fine sand material: Manufacturer, product name & mesh size
a. _____
b. Volume added _____ ft^3
8. Filter pack material: Manufacturer, product name & mesh size
a. Red Flint #40 Well Slot Sand
b. Volume added 1 ft^3
9. Well casing: Flush threaded PVC schedule 40 ☒ 23 | Flush threaded PVC schedule 80 ☐ 24 | Other ☐ _____
10. Screen material: Same
a. Screen type: Factory cut ☒ 11 | Continuous slot ☐ 01 | Other ☐ _____
b. Manufacturer Hole Products
c. Slot size: 0.010 in.
d. Slotted length: _ _ 10 ft.
11. Backfill material (below filter pack): None ☒ 14 | Other ☐ _____

I hereby certify that the information on this form is true and correct to the best of my knowledge.
Signature _____ Firm Chosen Valley Testing

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

Figure 26: Forty foot temporary groundwater monitoring well construction diagram for BRRTS ID: 0262547273 and 0262554601.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐ _____

Facility/Project Name	County Name	Well Name
CAP 205	Trempealeau	AC-40
Facility License, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number** / **DNR Well ID Number**
	62	_____ / ____

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☐ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☐ 10
pumped only	☒ 51
pumped slowly	☐ 50
Other _____	☐

3. Time spent developing well 60 min.

4. Depth of well (from top of well casisng) 47.5 ft.

5. Inside diameter of well 3.00 in.

6. Volume of water in filter pack and well casing 6.3 gal.

7. Volume of water removed from well 60.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added N/A

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results) N/A

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 9.03 ft.	9.03 ft.
Date	b. 04/27/2020 (m m d d y y y y)	04/27/2020
Time	c. 02:10 ☐ a.m. ☒ p.m.	03:10 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	0.2 inches	0.0 inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☒ 20 Turbid ☐ 25 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility: N/A

14. Total suspended solids	____.__ mg/l	____.__ mg/l
15. COD	____.__ mg/l	____.__ mg/l

16. Well developed by: Name (first, last) and Firm
First Name: RANDY Last Name: JENKINS
Firm: ARDL, Inc.

17. Additional comments on development:

Name and Address of Facility Contact /Owner/Responsible Party
First Name: _____ Last Name: _____
Facility/Firm: _____
Street: _____
City/State/Zip: _____

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: [signature]
Print Name: RANDAL K. JENKINS
Firm: ARDL, Inc

NOTE: See instructions for more information including a list of county codes and well type codes.

Figure 27: Forty foot temporary groundwater monitoring well development log (BRRTS ID: 0262547273 and 0262554601).

7.4 **Results**

Soil: All pesticides analyzed for this assessment were below the laboratory method MDL. Total Nitrogen did not exceed the Site-Specific Soil Performance Standard of 150 mg/kg for any of the soil samples analyzed (Table 3). A Laboratory package summarizing the soil analysis for this study can be reviewed in Supplementary Material D.

Groundwater: Groundwater was detected at an elevation of approximately 728' or seven feet below surface elevation (Table 4). The ES for NH_3N was exceeded in all groundwater samples collected from elevations 724.8' – 714.3' ($\bar{x}$ = 29.37 mg/l). The PAL for NH_3N was exceeded in all groundwater samples collected from elevations of 724.8' – 714.3' ($\bar{x}$ = 2.51 mg/l). The ES for $NO_2 + NO_3$ was exceeded in all groundwater samples collected from elevations of 728.1' – 722.6' ($\bar{x}$ = 74.7 mg/l). All remaining groundwater measurements were within acceptable criteria.

Table 3: Laboratory summary data for soils analyzed at Allied Cooperative. Pesticides were all below the Method Detection Limit (See Supplementary Materials). The Site-Specific Soil Performance Standard for the site is 150 mg/kg.

Sample ID	Depth Sampled	Qualifier	Nitrate	Qualifier	Nitrite	Qualifier	Ammonia	Total Nitrogen
AC-B1-1	1		73	JH	0.1	<	11.7	73.1
AC-B2-1	1		3.8	<H	0.55	J	8.8	12.6
AC-B3-1	1		12.2	<H	0.46	J	7.9	20.1
AC-B1-3	3	J	0.15	<H	0.61		46.2	46.35
AC-B2-3	3	J	0.28	<H	0.57	R	62.6	62.88
AC-B3-3	3	J	0.33	<H	0.55		86.5	86.83
AC-B1-6	6	J	0.33	<H	0.61		68.5	68.83
AC-B2-6	6	J	0.35	<H	0.6		83.5	83.85
AC-B3-6	6	J	0.22	<H	0.56		77.2	77.42
AC-B1-12	12	J	0.39	H	0.59	R	85.3	86.28
AC-B2-12	12	J	0.24	<H	0.6		46	46.24
AC-B3-12	12	J	0.26	<H	0.57		10.3	10.56
AC-B1-24	24	J	0.39	JH	0.21		78.3	78.9
AC-B2-24	24	J	0.17	<H	0.66	R	59.3	59.47
AC-B3-24	24	J	0.24	<H	0.62	<	11.1	0.24
AC-B1-40	40	J	0.45	<H	0.54	J	5.3	5.75
AC-B2-40	40	J	0.22	<H	0.59	J	12	12.22
AC-B3-40	40	J	0.43	<H	0.61	J	4.9	5.33

"<" below MDL (not included in TN Estimate)
"J" detected below quantitation limits (Included in TN Estimate)
"R" RPD outside accepted recovery limits (not included in TN Estimate)
"H" Holding Times Exceeded (not included in TN Estimate)

Table 4: Laboratory summary data for groundwater analyzed at Allied Cooperative. The current Enforcement Standard and Preventative Action Limits for NH_3-N are 9.7 mg/L and 0.97 mg/L, respectively. The current ES and PAL for NO_2 + NO_3 are 10 mg/L and 2 mg/L, respectively.

Sample ID	Surface Elevation	Elevation Sampled	Ammonia	Nitrate + Nitrite	Units
AC-10-1	735.1'	728.1' – 722.6'	2.37	71.2930	MG/L
AC-10-2	735.1'	728.1' – 722.6'	2.54	76.1960	MG/L
AC-10-3	735.1'	728.1' – 722.6'	2.63	76.7050	MG/L
AC-20-1	733.8'	724.8' – 714.3'	29.70	0.1340	MG/L
AC-20-2	733.8'	724.8' – 714.3'	29.60	0.1470	MG/L
AC-20-3	733.8'	724.8' – 714.3'	28.80	0.1560	MG/L
AC-30-1	733.6'	713.6' – 703.6'	0.12	0.1420	MG/L
AC-30-2	733.6'	713.6' – 703.6'	0.10	0.1360	MG/L
AC-30-3	733.6'	713.6' – 703.6'	0.10	0.1390	MG/L
AC-40-1	733.7'	700.7' – 690.2'	0.34	1.9150	MG/L
AC-40-2	733.7'	700.7' – 690.2'	0.37	2.0130	MG/L
AC-40-3	733.7'	700.7' – 690.2'	0.34	2.0040	MG/L

7.5 Groundwater Contamination Summary and Recommendations

A limited Phase II ESA was performed in response to historic groundwater contamination on land Parcel No. 201-00734-0005 and 201-00732-0000 (BRRTS ID: 0262547273). As of 2008, it was believed that concentrations of NH_3 and NO_2 + NO_3 were exceeding State Enforcement Standards for groundwater on the subject properties. It was decided that natural attenuation would be used as the remediation strategy. The Arcadia Flood Risk Management CAP 205 project will pass through the eastern portion of the plume previously delineated (Figure 17). Construction will include installation of relief wells. Closure conditions referenced by BRRTS ID: 0262547273 require groundwater evaluation prior to the installation of groundwater wells.

Concentrations of NH_3 and NO_2 + NO_3 reported in this assessment both exceeded Wisconsin's Enforcement Standards for groundwater contamination at higher elevations in the water table. Further, NO_2 + NO_3 concentrations observed in this assessment were relatively high when compared to prior monitoring data. For instance, average NO_2 + NO_3 concentration observed in monitoring wells within the contaminated area from 2001 – 2006 was 15.99 mg/l and ranged from 0.025 mg/l to 63 mg/l. The average concentration observed in this assessment at similar elevations was 74.7 mg/l. It should be noted that a monitoring well active from 1993 – 2001 had an average NO_2 + NO_3 concentration of 480 mg/l; however, that well was abandoned in the year 2000 for reasons unknown.

Conversely, NH_3 levels were on the lower end of what was observed during prior monitoring efforts. The average NH_3 concentration observed in all monitoring wells within the contaminated area from 2001 – 2006 was 97.09 mg/l and ranged from 0.31 mg/l to 310 mg/l. The average

concentration observed in this assessment at similar elevations was 29.37 mg/l. It should be noted that a single monitoring well active from 1993 – 2001 had an average NH_3 concentration of 781 mg/l; however, that well was abandoned for reasons unknown. Given the relatively low sample size of this assessment and high variability of historic monitoring data, it is difficult to say whether or not NH_3 concentrations have decreased or remained the same. Additional sampling would alleviate some of the uncertainty, however may take years to obtain a better understanding.

Groundwater monitoring that originated during the early 1990's was a response to a series of pesticide and fertilizer spills. Groundwater was last sampled in 2006, and based on the limited data collected for this assessment, it is difficult to determine whether or not concentrations of $NO_2 + NO_3$ and NH_3 have decreased or remained the same. Given the duration of time, natural attenuation rates, and leaching, a clear decrease in contamination was expected. There was a large fertilizer spill reported in 2009 which may have recharged groundwater in the immediate area; however, groundwater contamination was not evaluated (BRRTS ID: 0262554601).

Allied Cooperative is an industrial agronomy fertilizer and chemical company. The current CAP 205 project footprint works around Allied Cooperative, thus allowing the facility to remain in operation. That said, groundwater contamination would remain as a moderate risk. Therefore it is recommended that relief wells are not installed on Parcel No. 201-00734-0005 and/or 201-00732-0000 and alternative options should be evaluated. If alternative options cannot be identified it is recommended that perforations (well screens) are installed at elevations less than 713' or ~20 below ground surface where groundwater contamination did not occur. Relief wells should be designed so that periodic monitoring could be performed to ensure groundwater flowing through wells remain compliant. An impermeable drainage ditch should also be considered to transport contaminated water offsite, however the discharge location may require a state EPA 401 Certification, and adding additional complexity to the matter.

7.6 **Soil Contamination Summary and Recommendations**

A limited Phase II ESA was performed in response to historic soil contamination on land Parcel Nos. 201-00734-0005 and 201-00732-0000 (BRRTS ID: 0262547273 and 0262554601). As of 2009 concentrations of TN had exceeded the Wisconsin Site-Specific Soil Performance Standard of 150 mg/kg. It was decided that natural attenuation would be used as the remediation strategy. The Arcadia Flood Risk Management CAP 205 project will pass through the contaminated soil (Figure 16). Construction would include excavation of soil. Closure conditions referenced BRRTS ID: 0262547273 and 0262554601 require soil sampling prior to any soil disturbance.

Soil samples evaluated for TN in this assessment were below the Wisconsin Site-Specific Soil Performance Standard of 150 mg/kg. Further, TN concentrations observed in this assessment were below all nearby measurements reported in the 2009, thus indicating that natural attenuation has been a successful remediation strategy. It should be noted that TN concentration observed during this assessment do exceed natural background levels, as well as levels typically observed in agricultural arenas. Non detections for all pesticides were expected given the duration of nearly 20 years since the last major spill and degradation rates associated with the pesticides analyzed (Walker, et al., 1992; Accinelli, et al., 2001).

Due to high volume truck traffic passing through the contaminated area, blocking of building entryways, and difficulties obtaining clearance from Wisconsin Public Service Diggers Hotline, sampling was restricted to a small isolated area, away from areas where TN levels were greatest in 2009. It should be noted that areas with the greatest TN levels are just outside of the project footprint, and contained under a concrete slab (Figure 16). Nevertheless, it is still recommended that additional samples are collected and evaluated during construction. Soils recommended for additional testing would only include those disturbed during construction. Soils exceeding 150 mg/kg could be either moved off site to an appropriate waste facility or capped by an impermeable surface. If contaminated soil is discovered Wisconsin DNR would need to be contacted for additional guidance.

7.7 **Limitations**

The observations, measurements, and research reported herein are considered sufficient in detail and scope to form a reasonable basis for a limited Phase II ESA of the subject properties (ASTM E1903-19, 2019). The assessment, conclusions, and recommendations presented herein are based upon the subjective evaluation of limited data. The data may not represent all conditions at the subject site, as they reflect the information gathered from specific locations. The limitations of this assessment should be recognized as the client formulates conclusions on the environmental risks associated with these properties.

8.0 PHASE II ENVIRONMENTAL SITE ASSESSMENT: MERCURY EVALUATION FOR SEDIMENTS WITHIN HISTORIC CITY SEWAGE DISPOSAL POND

8.1 Background

Parcel No. 201-00724-0005 and 201-01100-0015 located in the Northwest Quarter of the Northwest Quarter, Sec. 6, Twp. 20 North, Range 9 West. These subject properties were identified as 'sewage disposal ponds' on historical topographic maps and visually recognized from aerial photography. They are comprised of multiple wastewater storage cells encompassing approximately 50 acres.

Conversations with local officials indicated that Mercury (Hg) contamination in sediments had been a historical concern. Wisconsin DNR conducted limited Hg testing in the lagoon in 1997 and 2003, and reported concentrations ranging from 0.091 – 2.62 mg/kg. The Threshold Effect Concentrations (TEC) for aquatic life is poorly understood, although an Hg concentration of approximately 1.1 mg/kg is generally recommended for screening purposes (MacDonald, et al., 2000; WDNR, 2003; Conder, et al., 2014)

8.2 Objectives

The objective of this assessment was to quantify Hg levels in sediments within and near the CAP 205 project footprint. Results will be summarized and compared to the Wisconsin Recommended Sediment Quality Guideline Value for Hg of 1.1 mg/kg (WDNR, 2003).

8.3 Methods

Sediment samples were collected along the eastern edge of the historic sewage disposal pond near the levee toe on 28 April 2020 (Figure 28). Six sediment samples were collected using an AMS hand auger with a 3-1/4" barrel. A composite sample was collected from depths of zero to three feet. Sediment samples were analyzed by the Applied Research and Development Laboratory. Samples were analyzed for Total Mercury using method 7470A.

8.4 Results

The average Hg concentration was 0.38 mg/kg and ranged from below the Method Detection Level (0.09 mg/kg) to 1.36 mg/kg. Only one sample exceeded the Wisconsin Recommended Sediment Quality Guideline Value for Hg of 1.1 mg/kg. Overall, Hg concentrations were lower for this assessment than what was observed during prior WDNR assessments ($\bar{x}$ = 0.81 mg/kg).

Table 5: Mercury concentrations observed at historic sewage disposal ponds.

Sample ID	Collection Date	Method	Parameter	Flag	Result	MDL	Units
AW-1	4/28/2020	7470A	Mercury	J	1.36	0.0964	MG/KG
AW-2	4/28/2020	7470A	Mercury		0.137	0.0924	MG/KG
AW-3	4/28/2020	7470A	Mercury		0.171	0.0896	MG/KG
AW-4	4/28/2020	7470A	Mercury		0.128	0.0838	MG/KG
AW-5	4/28/2020	7470A	Mercury	<	0.0887	0.0887	MG/KG
AW-6	4/28/2020	7470A	Mercury		0.117	0.0870	MG/KG

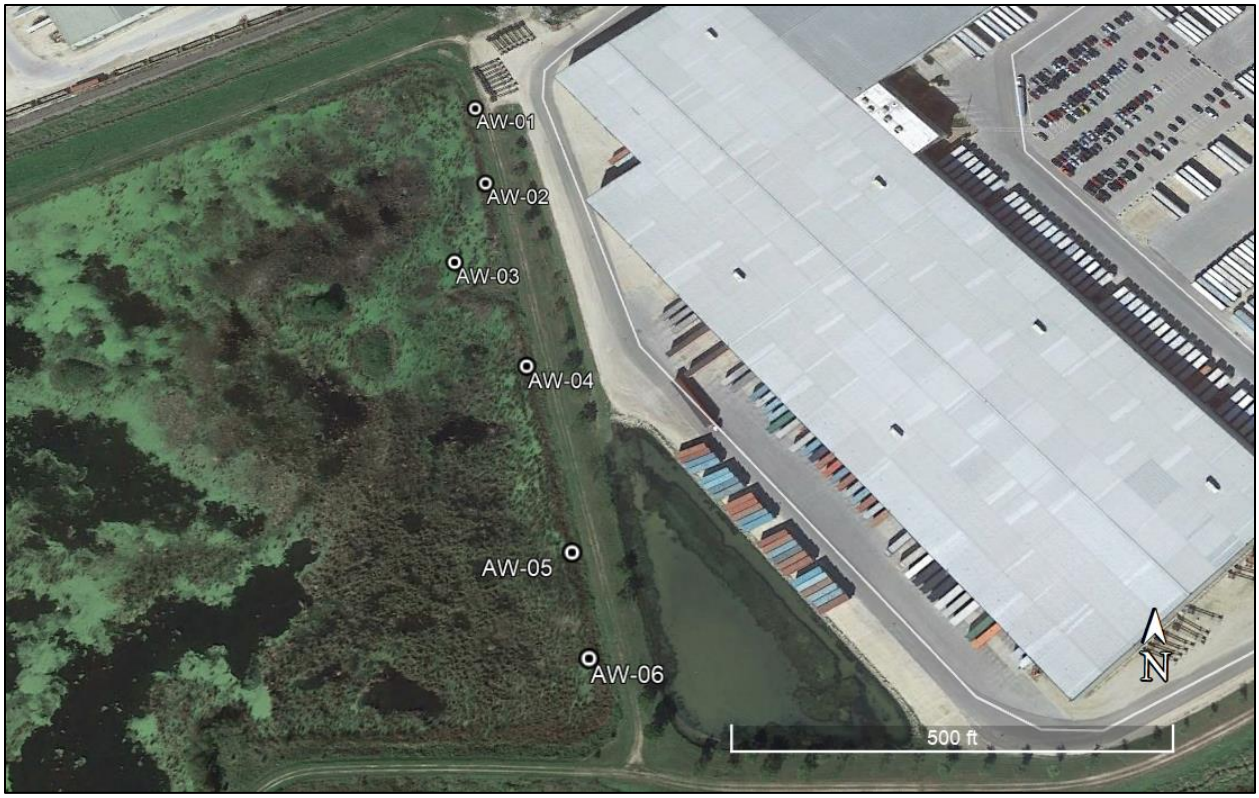


Figure 28: Sample locations along eastern edge of historical city wastewater disposal pond.

8.5 **Conclusions and Recommendations**

Overall, Mercury concentrations were far below Wisconsin Recommended Sediment Quality Guideline Value for Hg of 1.1 mg/kg. Given that there were Hg concentrations that exceeded State guidelines, it is recommended that sediment disturbance be kept to a minimum. Given the spatial variability of Mercury concentrations observed in this study, sediments needing to be moved offsite should be tested to ensure they meet the legal requirements for the receiving landfill.

The observations, measurements, and research reported herein are considered sufficient in detail and scope to form a reasonable basis for a limited Phase II ESA of the subject properties (ASTM E1903-19, 2019). The assessment, conclusions, and recommendations presented herein are based upon the subjective evaluation of limited data. The data may not represent all conditions at the subject site, as they reflect the information gathered from specific locations. The limitations of this assessment should be recognized as the client formulates conclusions on the environmental risks associated with these properties.

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