CIVIL & ENVIRONMENTAL ENGINEERING, SURVEYING

June 2, 2022

WDNR
Attn: Mr. Matthew Thompson
1300 W. Clairmont Avenue
Eau Claire, WI 54701

Subject:

Riverside Rail Corridor – Remedial Action Options Report
132 River Street
Wausau, WI 54401
WDNR BRRTS #02-37-584785

Dear Mr. Thompson,

Enclosed is the remedial action options report for the above referenced Riverside Rail Corridor site in Wausau, Wisconsin.

Thank you for your assistance with this project, please contact me with questions or comments at (715) 675-9784 or Mmichalski@REIengineering.com

Sincerely,
REI Engineering, Inc.

Matthew C. Michalski

Matthew C. Michalski, P.G.
Hydrogeologist

Enclosures A/S

REI

CIVIL & ENVIRONMENTAL
ENGINEERING, SURVEYING

Remedial Actions Options Report

Riverside Rail Corridor
132 River Street
Wausau, WI 54401
BRRTS #02-37-584785

REI Project #9073

COMPREHENSIVE SERVICES WITH PRACTICAL SOLUTIONS

Remedial Actions Options Report

Riverside Rail Corridor
132 River Street
Wausau, WI 54401
BRRTS #02-37-584785

REI Project #9073

Prepared For:

City of Wausau
Attn: Mr. Eric Lindman, P.E
407 Grant Street
Wausau, WI 54403

June 2022

Responsive. Efficient. Innovative.

REMEDIAL ACTIONS OPTIONS REPORT

WISCONSIN ADMINISTRATIVE CODE CHAPTER NR712 CERTIFICATIONS

The recommendations contained in this report are based on the information obtained from our study of the site and were arrived at in accordance with accepted hydrogeologic and engineering practices at this time and location.

"I, Matthew C. Michalski, hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03 (1), Wis. Adm. Code, am registered in accordance with the requirements of ch. GHSS 2, Wis. Adm. Code, or licensed in accordance with the requirements of ch. GHSS 3, Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code."

Matthew C. Michalski

Hydrogeologist

6/1/2022

Date

"I, Brian J. Bailey, hereby certify that I am a scientist as that term is defined in s. NR 712.03 (3), Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code."

Brian J. Bailey

Scientist

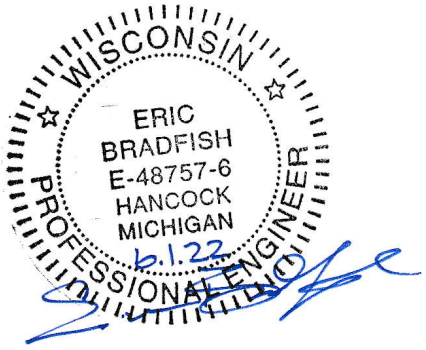
6/1/2022

Date

"I, Eric L. Bradfish, herby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code."

Eric L. Bradfish

Environmental Engineer



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REMEDIAL ACTIONS OPTIONS REPORT

RIVERSIDE RAIL CORRIDOR
132 RIVER STREET
WAUSAU, WI 54401
BRRTS #02-37-584785

REI PROJECT #9073

1.0 EXECUTIVE SUMMARY

The subject property is currently and has been utilized as a public park maintained by the City of Wausau. The lands currently contained within the park boundaries were deeded to the city through three (3) deeds dated October 15, 1923, January 18, 1930, and November 13, 1930 with provisions requiring the lands be maintained as a public park for free use of the public.

On September 24, 2019, TRC Solutions submitted results for the Wood Waste Burning Site Investigation related the open WAULECO SNE Corp (BRRTS# 02-37-000006) Environmental Repair Program (ERP) site. Soil samples were collected based on aerial deposition models with samples collected both within and outside of modeled deposition areas. Soil samples collected outside of the area of modeled deposition were located near potential sources of dioxins and furans. Three (3) samples were collected along the former railroad tracks south of Riverside Park which revealed an exceedance for residential direct contact Residual Contaminant Level (RCL).

On November 21, 2019, the City of Wausau received a "Responsible Party" letter for contamination identified within the former rail corridor located at the south end of Riverside Park. The "Responsible Party" letter identified the property owners' responsibilities in relation to the identified contamination. An ERP site listing was opened for the property on the WDNR's BRRTS database. On December 31, 2019, REI submitted a Site Investigation Workplan on behalf of the responsible party.

The site investigation consisted of thirty (30) hand sampling locations. Fifty-seven (57) unsaturated soil samples were submitted to a state certified laboratory for analysis.

Laboratory analytical results for seventeen (17) soil samples collected either within the subject property boundaries or surrounding neighborhood, by other consulting firms, as part of other projects submitted to the WDNR were also utilized. Results of the investigation are as follows:

Unconsolidated materials encountered during the site investigation varied depending on location within the subject property. Soils along the former railroad tracks, associated grade, and sloped portion of the property, generally consisted of a brown sandy silt to silty sand with varying amounts of organics, glass fragments, coal clinkers, and metal fragments underlain by a reddish tan fine to coarse grained sand with gravel in a few locations.

Unconsolidated materials encountered in areas of manicured lawn consisted of brown silt with medium grained sand from land surface to depths ranging from nine (9) to twelve (12) inches below land surface. Underlain by a reddish brown to light brown silty clay to sandy clay with varying amounts of gravel.

Unsaturated soil contamination exceeding the Wisconsin Administrative Code (WAC) Chapter NR720 Non-Industrial Direct Contact RCLs was identified in twenty-five (25) of the seventy-four (74) soil samples utilized as part of the site investigation.

Based on the results of the site investigation REI recommended remedial actions be taken to address unsaturated soil contamination exceeding the WAC Chapter NR720 direct contact RCLs.

Five (5) remedial action alternatives were analyzed including:

- Photolysis
- Phytoremediation and Bioremediation
- Soil Excavation
- Soil Incineration
- Thermal Desorption

Additionally, managing residual contamination through the implementation of institutional and/or engineering controls was also analyzed.

Based upon the effectiveness, technical feasibility, cost, and estimated time to site remediation and closure, soil excavation appears to be the preferred remedial action at this site.

2.0 INTRODUCTION

2.1 Purpose of Report

The purpose of the remedial action options report is to evaluate remedial options to address soil contamination identified on the subject property exceeding the Wisconsin Administrative Code (WAC) Chapter NR720 Non-Industrial Direct Contact RCLs.

2.2 General Information

2.2.1 Responsible Party

City of Wausau
Attn: Mr. Eric Lindman, P.E.
407 Grant Street
Wausau, WI 54403

2.2.2 Regulatory Contact

Wisconsin Department of Natural Resources
Remediation and Redevelopment Program
Attn: Mr. Matt Thompson
West Central Regional Office
1300 W. Clairemont Avenue
Eau Claire, WI 54701

2.2.3 Environmental Consulting Firm

REI Engineering, Inc.
Attn: Mr. Matthew C. Michalski
4080 North 20th Avenue
Wausau, Wisconsin 54401
Phone: (715) 675-9784
E-mail: MMichalski@REIengineering.com

2.2.4 Site Name, Address, & Legal Description

Riverside Rail Corridor
132 River Street
Wausau, WI 54401

Facility ID:

737251350

Parcel ID Number:

291-2907-362-0511

Public Land Survey System:

The North Half (N½) of the Southeast Quarter (SE¼) of Section Thirty-five (35), Township Twenty-nine North (29N), Range Seven East (7E), Marathon County, Wisconsin.

WTM Coordinates:

Easting: 548,852

Northing: 497,486

Latitude & Longitude:

Latitude: 44° 57' 0.8" N

Longitude: 89° 38' 3.3" W

Legal Description:

The subject property was obtained by the City of Wausau through three (3) deeds dated October 15, 1923, January 18, 1930, and November 13, 1930 with provisions requiring the lands be maintained as a public park for free use of the public. Per the City of Wausau, the lands deeded to the city are not platted and no plat or certified survey maps exist for the subject property.

The site location is depicted in Figure 1.

2.3 Site Background

Site background information including current and historic land use, site layout, zoning, previous releases/investigations, current investigation summary, and other data sources utilized are summarized in the previously submitted Site Investigation Reports submitted to the WDNR on September 20, 2021. The current site layout is depicted in Figures 2-4.

2.4 Terminology Utilized

Due to the numerous naming conventions and large number of compounds potentially included as part of the dioxins, furans, and biphenyls families of chemicals the following terminology is commonly utilized and will be included throughout this report. 2,3,7,8-tetrachlorodibenzo-*p*-dioxin is commonly shortened to 2,3,7,8-TCDD, TCDD, or referenced

simply as dioxin. Dioxin-like compounds (DLCs) is "a description used for compounds that have chemical structures, physico-chemical properties, and toxic responses similar to TCDD (U.S. EPA, 2010)." DLCs include compounds from the dioxins, furan, and biphenyls families of chemicals. Furthermore, dioxin and dioxin-like compounds are commonly referenced simply as dioxins.

2.5 Summary of Site Investigation

The following is a summary of events that have taken place at the site as part of the site investigation:

December 19, 2019	WDNR notified that REI was retained as the environmental consultant for environmental investigation.
December 31, 2019	REI submitted Site Investigation Work Plan to the WDNR.
January 30, 2020	WDNR provides notice to proceed with the scope of services outlined in the December 31, 2019 Site Investigation Work Plan
April 23, 2020	REI personnel collected soil samples from sample locations R1 through R10 and P1 through P5.
July 10, 2020	REI personnel staked the proposed soil sample locations P6 through P16.
August 5, 2020	REI personnel collected soil samples from sample locations P6 through P16, RP-102, and RP-103. Due to a power outage at the laboratory the collected samples exceeded the allowable holding temperature and as such were not analyzed.
September 14, 2020	REI personnel collected soil samples from sample locations P6 through P16, RP-102, and RP-103.
February 24, 2021	WDNR requests additional soil sampling to further define degree and extent.
April 23, 2021	REI personnel staked the proposed soil sample locations P17 through P20.

May 12, 2021	REI personnel collected soil samples from sample locations P1, P11, P17 through P20, and R11.
September 20, 2021	REI submitted a Site Investigation Report to the WDNR.
November 12, 2021	WDNR approved the Site Investigation Report.

Sample locations are depicted in Figures 2-5.

3.0 RESULTS OF SITE INVESTIGATION

3.1 Regional Geology & Hydrogeology

The site is located in the northcentral portion of the Central Wisconsin River Basin. Land surface elevation at the site is approximately 1,180 ± 10 feet above MSL according to the U.S.G.S. Wausau East, Wisconsin 7.5-minute quadrangle map. The topography for the region consists of gently rolling till plains slightly modified by stream erosion. The region has many crystalline rock outcroppings that project through the glacial deposits. The nearest surface water is Lake Wausau (WBIC 1437500) located adjacent to the northeast boundary of the subject property. Lake Wausau is a drainage lake and impoundment of the Wisconsin River (WBIC 1179900). Lake Wausau is not listed as an impaired water, but the Wisconsin River is identified as an impaired water due to Mercury and Polychlorinated biphenyls (PCBs).

The geology and water resources of the basin as described by Devaul and Green (1971), indicate that unconsolidated surficial geology generally consists of unpitted outwash consisting of stratified sand and gravel with some clay and silt including alluvium. Major streams generally have branching drainage patterns and there are fewer wetlands or natural lakes compared to outwash deposits to the south and northeast. The bedrock in the area consists of Pre-Cambrian crystalline rock. The depth to bedrock is anticipated to be present at approximately 40 feet bls, based on local Well Construction Reports.

Soil permeabilities for the unpitted outwash material are 2.5 to 5 inches per hour. The average annual precipitation in the area is about 30.9 inches per year. The typical evapotranspiration rate is about 19.7 inches per year. This leaves about 11.2 inches per year for surface runoff and groundwater recharge. Surface water inflow into the basin averages 7.1 inches per year and outflow averages 18 inches per year (Devaul and Green, 1971).

3.2 Site Geology

Unconsolidated materials encountered during the site investigation varied depending on location within the subject property. Soils along the former railroad tracks, associated grade, and sloped portion of the property, generally consisted of a brown sandy silt to silty sand with varying amounts of organics, glass fragments, coal clinkers, and metal fragments underlain by a reddish tan fine to coarse grained sand with gravel in a few locations.

Unconsolidated materials encountered in areas of manicured lawn consisted of brown silt with medium grained sand from land surface to depths ranging from nine (9) to twelve (12) inches below land surface. Underlain by a reddish brown to light brown silty clay to sandy clay with varying amounts of gravel.

Figure 6 depicts the elevation profile southwest to northeast across the area of the identified culvert.

3.3 Site Hydrogeology

Groundwater was not encountered during completion of the site investigation. However, based on data included in the 2020 Annual Groundwater Monitoring Report for the nearby Wauleco/SNE ERP site (BRRTS# 02-37-000006) depth to groundwater in the area of the site investigation ranges from approximately eight (8) to twenty (20) feet below land surface depending on well location and the local groundwater flow is toward the east.

3.4 Soil & Vadose Zone Quality

Soil analytical results are summarized in Tables 1a-1h. In the fall of 2019, the City of Wausau redeveloped the former railroad tracks located between River Street and Thomas Street. As part of the redevelopment the former railroad tracks were removed and approximately the top six (6) inches of soil were removed and transported to the Marathon County Landfill for disposal. Following the soil removal, sheet pilings were installed along Lake Wausau (WBIC 1437500) and the Wisconsin River (WBIC 1179900). Following installation of the sheet pilings, clean fill materials were utilized to adjust the land surface elevation and a paved walking path was installed with landscaping present along the sides. Based on the approximately top six (6) inches of the soil column having been excavated during the site redevelopment, the locations of soil samples *N4-1* (0-6 inches bls), *N4-2* (0-6 inches bls), *N4-3* (0-6 inches bls), *R8* (2-4 inches bls), *R9* (4-5 inches bls), and *R10* (5-6 inches bls) were removed.

Unsaturated soil contamination identified during the site investigation included concentrations exceeding the WAC Chapter NR720 state soil standards for the following:

Concentrations of at least one (1) of the seventeen (17) dioxins exceeding the WAC Chapter NR720 Non-Industrial Direct Contact RCL were identified in twenty-five (25) of the seventy-four (74) soil samples collected from within the park boundaries or nearby neighborhood. Table 2 summarizes individual exceedances by compound.

Compound	WAC Chapter NR720 Non-Industrial Direct Contact RCL Exceedances	Exceedance Count
Dioxins		
2,3,7,8-TCDD	No Exceedances	0
1,2,3,7,8-PeCDD	Culvert In (4-6 inches bls), Culvert Out (4-6 inches bls), 117 Riv 1 (4-6 inches bls), 117 Riv 2 (4-6 inches bls), N4-2 (0-6 inches bls)^, N4-3 (0-6 inches bls)^, R1 (3-5 inches bls), P1 (7-9 inches bls), P8 (2-3 and 10-12 inches bls), P10 (2-3 and 10-12 inches bls), P11 (2-3 and 10-12 inches bls), P17 (10-12 inches bls)	16
1,2,3,4,7,8-HxCDD	No Exceedances	0
1,2,3,6,7,8-HxCDD	Culvert In (4-6 inches bls), Culvert Out (4-6 inches bls), P1 (7-9 and 22-24 inches bls), P8 (2-3 and 10-12 inches bls), P11 (2-3 and 10-12 inches bls), P17 (10-12 inches bls)	9
1,2,3,7,8,9-HxCDD	Culvert In (4-6 inches bls)	1
1,2,3,7,8,9-HpCDD	Culvert In (4-6 inches bls) , Culvert Out (4-6 inches bls), 117 Riv 1 (4-6 inches bls), 117 Riv 2 (4-6 inches bls), N4-1 (0-6 inches bls)^, N4-2 (0-6 inches bls)^, N4-3 (0-6 inches bls)^, R1 (3-5 inches bls), P1 (2-3, 7-9, and 22-24 inches bls), P6 (2-3 inches bls), P7 (2-3 inches bls), P8 (2-3 and 10-12 inches bls), P9 (2-3 inches bls), P10 (10-12 inches bls), P11 (2-3 and 10-12 inches bls), P13, (2-3 inches), P17 (2-3 and 10-12 inches bls)	22
OCDD	Culvert In (4-6 inches bls), P11 (2-3 inches bls)	2
Furans		
2,3,7,8-TCDF	No Exceedances	0
1,2,3,7,8-PeCDF	N4-2 (0-6 inches bls)^	1
2,3,4,7,8-PeCDF	Culvert In (4-6 inches bls), Culvert Out (4-6 inches bls), 1003 EMT (8-10 inches bls), N4-3 (0-6 inches bls)^, P1 (2-3, 7-9, and 22-24 inches bls), P6 (2-3 inches bls), P8 (2-3 and 10-12 inches bls), P10 (2-3 and 10-12 inches bls), P11 (2-3 and 10-12 inches bls), P17 (10-12 inches bls), P18 (2-3 inches bls)	15
1,2,3,4,7,8-HxCDF	N4-3 (0-6 inches bls)	1
1,2,3,6,7,8-HxCDF	No Exceedances	0
2,3,4,6,7,8-HxCDF	Culvert In (4-6 inches bls), Culvert Out (4-6 inches bls), 1003 EMT (8-10 inches bls), P11 (2-3 and 10-12 inches bls)	4
1,2,3,7,8,9-HxCDF	No Exceedances	0
1,2,3,4,6,7,8-HpCDF	Culvert In (4-6 inches bls), P11 (2-3 inches bls)	2
1,2,3,4,7,8,9-HpCDF	No Exceedances	0
OCDF	No Exceedances	0

^ = Sample location excavated during redevelopment

Table 2: WAC Chapter NR720 Non-Industrial Direct Compound RCL exceedances by compound.

The concentration of 1,2,3,4,6,7,8-HpCDD in sample *Culvert In* (4-6 inches bls) also identified an exceedance of the WAC Chapter NR720 Industrial Direct Contact RCL. The concentration of 2,3,4,7,8-PeCDF in samples *Culvert Out* (4-6 inches bls) and *1003* EMT (8-10 inches bls) also identified exceedances of the WAC Chapter NR720 Industrial Direct Contact RCL.

Three (3) soil samples identified WAC Chapter NR720 Non-Industrial Direct Contact RCL exceedances for the calculated cumulative hazard index including: *Culvert In* (4-6 inches bls), *Culvert Out* (4-6 inches bls), and *N4-3* (0-6 inches bls).

Ten (10) soil samples identified WAC Chapter NR720 Non-Industrial Direct Contact RCL exceedances for the calculated cumulative cancer risk including: *Culvert In* (4-6 inches bls), *Culvert Out* (4-6 inches bls), *N4-3* (0-6 inches bls), *P1* (7-9 inches bls, *P8* (2-3 and 10-12 inches bls), *P10* (2-3 inches bls), *P11* (2-3 and 10-12 inches bls), and *P17* (10-12 inches bls).

Please note, 2,3,7,8-TCDD is the only compound analyzed with a WAC Chapter NR720 Groundwater Pathway Protection RCL. Zero (0) of the seventy-four (74) soil samples collected from within the park boundaries or nearby neighborhood identified an exceedance of the WAC Chapter NR720 Groundwater Pathway Protection RCL.

A soil isoconcentration map depicting the estimated extent of unsaturated soil contamination exceeding the WAC Chapter NR720 state soil standards for all sampled parameters is included in Figure 7. Soil isoconcentration and "heat" maps depicted 1,2,3,4,6,7,8-HpCDD concentrations are included in Figures 8 and 9. Please note, the soil isoconcentrations and "heat" maps depict contamination extending southwest beyond the property boundaries of the subject property. However due to the limited and significantly further spaced data points in this direction, this depiction is related to the software program attempting to corelate the further spaced data points. As a result, the accuracy of these maps is best limited to the subject property in the areas of higher density data points.

4.0 Remedial Action Options

4.1 In-Situ Remedial Options

4.1.1 Photolysis

Dioxins can, under the proper conditions, undergo photolysis by sunlight. The process is generally cost effective and less destructive compared to other remedial options for

dioxins. An organic low-toxicity solvent, such as isooctane, hexane, cyclohexane, etc., is sprayed onto the surface of impacted soils and allowed to photodegrade under sunlight. Research studies have identified convective upward movement of dioxins as the volatile organic solvents evaporate as the major transport mechanism moving dioxins to the surface for ongoing photolysis.

The majority of contamination at the site is limited to shallow soils ideal for photolysis. Soil sampling and laboratory analysis would be required to ensure dioxin concentrations in the treated soils decrease below the WDNR WAC Chapter NR720 Groundwater Protection Pathway and Non-Industrial Direct Contact RCLs following each application event. Additionally, multiple applications maybe required to decrease soil concentrations below the WDNR WAC Chapter NR720 Groundwater Protection Pathway and Non-Industrial Direct Contact RCLs. Prior WDNR approval would likely be required prior to the application of any solvents as part of the site remediation and depending on the chosen solvent may require specialized application permitting and/or licensing.

4.1.2 Phytoremediation and Bioremediation

Phytoremediation and Bioremediation utilizes living plants, bacteria, fungi, rhamnolipids, and other microbiota to extract, destroy, or lower the bioavailability of contaminants in soil, air, and water. While the cost of phytoremediation can be significantly lower than traditional treatment methods, the time scale for completed remediation below the WAC NR720 Non-Industrial Direct Contact RCLs would likely be measured in years. Additionally, the applicability and effectiveness of phytoremediation and bioremediation for the treatment of dioxins contamination at field scale are still being assessment.

The majority of contamination at the site is limited to shallow soils which may allow for a variety of different phytoremediation or bioremediation options. Soil sampling and laboratory analysis would need to be completed during the treatment process to ensure dioxin concentrations decrease below the WDNR WAC Chapter NR720 Groundwater Protection Pathway and Non-Industrial Direct Contact RCLs. Additionally, if phytoremediation is used with plants that extract and accumulate dioxins, the resulting biomass will need to be tested and may require appropriate disposal such as incineration or landfilling.

4.2 Ex-Situ Remedial Options

The effectiveness of the ex-situ remedial options are all the same as the impacted soils will be excavated from the site. Soil sampling and laboratory analysis will be required to verify that soil contamination exceeding the WDNR WAC Chapter NR720 Groundwater Protection Pathway and Non-Industrial Direct Contact RCLs was removed. Prior to the excavation the existing vegetation and railroad tracks located within the area of impacted soils would need to be removed. Following completion, the excavation would be backfilled with clean soils. Due to the steep slope and concentration of surface runoff through the culvert at the top of the hill, significant work will be required to prevent destabilization of the slope while new vegetation is established. Hauling of impacted soils would need to be completed by a licensed solid waste hauler to the final treatment or disposal location.

4.2.1 Soil Excavation

Soil excavation consists of the removal and transport of impacted soils to an off-site facility for disposal within the facility.

4.2.2 Soil Incineration

Soil incineration consists of heating soils to temperatures greater than 1,200˚C and is considered the most effective way of destroying dioxins. Generally, impacted soils would be excavated and transported to an incineration facility for treatment. There are multiple methods of incineration available and as with thermal desorption, incineration is a highly energy intensive process.

4.2.3 Thermal Desorption

Thermal desorption consists of heating soils to temperatures lower than incineration to volatilize dioxins to the soil and organic particles of the soil. Generally, impacted soils would be excavated and transported to a facility for treatment. Thermal desorption is an energy intensive process.

4.3 Institutional & Engineering Controls

Institutional and/or engineering controls generally consist of physical barriers to prevent direct human contact with impacted soils including but not limited to fencing, capping or impacted soils, land use changes, etc. Generally, if engineering controls are utilized, annual inspections are required at a minimum to ensure the controls are operating as intended.

Institutional and/or engineering controls will not result in the removal, destruction, or decrease of dioxin concentrations. The site would have continuing obligations associated with residual contamination and any required maintenance inspection requirements.

5.0 RECOMMENDED REMEDIAL ACTION

Due to the limited area of contamination at this site, both horizontal and vertical; site location and topography; and current surface cover/vegetation, REI recommends soil excavation as the remedial option for this site. While other methods would allow for the destruction or removal of dioxins from the impacted soils, the volume of soil remediated for reuse would be limited in comparison to other sites. Additionally, both soil incineration and thermal desorption would require soils to be excavated from the site and transported to an offsite treatment location. Due to the site topography, in-situ remedial options are not likely feasible at this site as the current site vegetation, which is likely acting to stabilize the slope from significant erosion, would need to be removed. The timeframe of both photolysis, phytoremediation, and bioremediation is open ended, but would likely be measured in years and would require engineering controls such as fencing around the area to prevent direct human contact during the remediation period.

5.1 Estimated Timeframe

The timeframe for completion of the remedial action will depend mainly on bidding period and selected contractor availability. Trees and railroad tracks located within the remedial area will need to be removed prior to commencement of the excavation. Once the excavation area is prepared, the excavation should be completed over a period of two (2) to five (5) days depending on turn times for hauling of impacted soils for disposal and clean fill to the site.

5.2 Estimated Costs

REI understands the City of Wausau intends to bid out the remedial action scope of work. As costs can very between excavators and the proposed excavation area will require site specific erosion control. The total excavation is expected to result in the removal of approximately 810 to 910 cubic yards of impacted soil. Disposal cost for landfilling of this material is $34.17/ton (at the Marathon County Landfill), bringing the total disposal cost to approximately $44,300 – $50,000. Laboratory analytical costs for waste determination samples is expected to cost approximately $3,000 - $4,000. Confirmation soil sampling laboratory analysis are expected to cost approximately $15,700 - $31,300 depending on the total number of confirmation

samples collected. Cost for consultant oversight, report preparation, and data interpretation will vary depending on actual time onsite, number of samples collected, and waste determination analytical results, but is expected to cost approximately $12,000 - $17,000.

5.3 Remedial Action Performance Verification

Confirmations soil samples will also need to be collected to verify the effectiveness of the excavation. Sidewall samples will be collected to verify the lateral extend of contamination as effectively been remediated or remediated to the property boundaries and base samples will be collected in location without existing vertical definition to verify that soil contamination exceeding the Non-Industrial Direct Contact RCLs has been removed from the direct contact zone.

As field screening methods for dioxins are extremely limited, REI recommends that lateral confirmations samples be collected prior to the completion of the soil excavation. Collection of the samples prior to the completion of the excavation will also limit the possibility of contamination remaining following completion of the initial excavation.

5.4 Remedial Action Generated Waste Disposal

Soils excavated as part of the site remediation will be transported to the Marathon County Landfill for disposal.

5.5 Sustainable Remedial Actions Evaluation

5.5.1 Energy Use & Potential for Renewable Energy

Energy use as part of the selected remedial action will consist mainly of petroleum compounds used to operate excavation and transport equipment. This energy use is expected to be similar for excavation actives needed for other ex-situ remedial options previously identified. Renewable energy options for this project are limited to biodiesel, but the use of this fuel will be dependent on the selected contractor for excavation activities.

5.5.2 Generation of Air Pollutants

Completion of the soil excavation will require the use of equipment powered by internal combustion engines which are known sources of air pollutants. However,

there are federal requirements for emission controls depending on the age and size of equipment used.

5.5.3 Water Use & Impacts to Water Resources

Significant water usage is not expected as part of the remediation of this site. Additionally, impacts to water resources are not expected during or after completion of the remedial action. Erosion control best management practices (BMP's) shall be installed prior to any land disturbing activities and shall remain in place until the site is deemed restored by the WDNR. During site remediation, the excavating contractor shall assume full responsibility for inspection and maintenance of the erosion control devices.

5.5.4 Future Land Use & Enhancements of Ecosystem

REI's goal is to minimize disruption of the local ecosystem to areas with identified impacts. Collection of confirmation samples prior to the completion of the soil excavation will allow for further delineation of the area to be excavated.

5.5.5 Reducing, Reusing, and Recycling Materials and Wastes

Impacted soils excavated from the subject property will be transported to the Marathon County Landfill for disposal. No other significant waste streams are expected to be generated during the remedial actions. If the culvert is reinstalled following the excavation, recycled concrete from non-contaminated sites could be utilized to armor the outfall location and stabilize the backfilled slope if needed.

5.5.6 Optimizing Sustainable Management Practices During Long-term Care and Stewardship

After completion of the excavation long-term care and/or stewardship should not be required except for any maintenance or intervention required to reestablish native vegetation on the slope.

6.0 EXCAVATION SCOPE

6.1 Landfill Approval

Prior to hauling impacted soils for disposal, approval will be required from the landfill. For the Marathon County Landfill this includes providing all requested analytical results required

by the landfill. For material impacted with Dioxins, the Marathon County Landfill will need analytical results for all parameters listed under Protocol 1, which is included as Appendix A. Due to the volume of soil to be removed from the site, three (3) to four (4) composite samples will need to be collected from the proposed excavation area for the required parameters. The additional sampling for disposal approval will need to be completed prior to any material being transported to the Marathon County Landfill. Please note, if the material does not pass the Protocol 1 requirements, the landfill will not be able to accept the material as a solid waste. This would require the material to be shipped to a hazardous waste landfill, which could accept the material, or further examine other remedial options.

6.2 Site Preparation

The majority of the proposed excavation area consists of thick vegetation including bushes and trees. Additionally, a portion of the proposed excavation area has abandoned railroad tracks present. Prior to excavation, the area will need significant vegetation removed along with the railroad tracks contained within the excavation area. However, trees and shrubs should be cut off at grade as the stumps and root mass should be excavated for disposal with the surrounding impacted soils due to entrainment of soils within the root mass.

6.3 Volume of Soil to be Removed

Based on laboratory analytical data the proposed excavation consists of an irregularly shaped area depicted in Figure 10. In total an area of approximately 12,950 square feet is proposed to be excavated to a depth of one (1) foot below land surface. Two (2) areas within the initial excavation area will also need to be extended vertically an additional two (2) to three (3) feet to a total depth of three (3) to four (4) feet bls. These areas are depicted on Figure 10 and measures approximately 2,960 square feet. Excavation to four (4) feet bls would remove the entire direct contact zone in these locations.

6.4 Confirmation Soil Samples

REI is estimating between twenty (20) to thirty (30) confirmation soil samples will be collected to verify the effectiveness of the excavation. REI is proposing that approximately ten (10) confirmation soil samples be collected prior to the start of excavation activities to ensure that the lateral extent of soil contamination is completely contained within the proposed soil excavation in all directions except the southwest due to property boundaries. These samples

can be collected during the same sampling event as the waste determination samples required prior to disposing of impacted materials at the Marathon County Landfill.

6.5 Site Restoration

Due to the slope of the land surface in a large portion of the excavation area, erosion control measures will need to be implemented by the excavation contractor to ensure any backfilled material does not migrate down slope due to rainfall events until vegetation is able to be reestablished on the slope. This may include fast growing grasses, bushes, or trees. Additionally, if the culvert located beneath the railroad tracks is to be replaced, riprap or armoring would be advisable to prevent erosion due to the channeling effects of the culvert.

7.0 Conclusions and Recommendations

Based upon the effectiveness, technical feasibility, cost, and estimated time to site remediation and closure, soil excavation appears to be the preferred remedial action at this site.

8.0 References

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TABLES

Table 1a
Soil Analytical Results
Riverside Rail Corridor
132 River Street
Wausau, WI 54401
BRRTS# 02-37-584785

					Collected By-->	CWE, Inc.										
					Date-->	*6/13/2006*	*6/13/2006*	*6/13/2006*	*12/8/2008*	*12/8/2008*	*12/8/2008*	*12/8/2008*	*12/8/2008*	*12/8/2008*	*12/8/2008*	*12/8/2008*
					Sample-->	*Culv. In.*	*Culv. Out*	*122E*	*1003 Emt*	*130 Riv*	*141 Riv*	*120 Riv*	*117 Riv 1*	*Fern*	*117 Riv 2*	*Oak*	*Weston*
					Sample Depth--(Inches)-->	*4-6*[2]	*4-6*[2]	*4-6*[2]	*8-10*	*4-6*	*6-8*	*4-6*	*4-6*	*4-6*	*4-6*	*4-6*	*4-6*
					Percent Moisture (%)-->	-	-	-	-	-	-	-	-	-	-	-	-
					Saturated (S) vs Unsaturated (U)-->	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*
Dioxin Congeners	CAS Number	Units	Non-Industrial Not-to-Exceed DC RCL	Industrial Not-to-Exceed DC RCL	Groundwater Pathway Protection RCL											
2,3,7,8-TCDD	1746-01-6	ng/kg	4.82	21.8	30.0	2.1	<2.0	<0.99	<1	<1.8	<1	<1	<1	<1	<1	<1	<1
1,2,3,7,8-PeCDD	36088-22-9	ng/kg	4.93	22.3	- -	15	11	<4.9	<5	<5	<5	<5	5.1	<5	5.6	<5	<5
1,2,3,4,7,8-HxCDD	39227-28-6	ng/kg	49.3	223	- -	48	23	6.3	<5	<5	<5	<5	12	<5	15	<5	<5
1,2,3,6,7,8-HxCDD	57653-85-7	ng/kg	49.3	223	- -	140	83	17	15	6.0	<5	<5	41	5.6	44	<5	<5
1,2,3,7,8,9-HxCDD	19408-74-3	ng/kg	49.3	223	- -	60	36	11	6.8	5.5	<5	<5	25	<5	27	<5	<5
1,2,3,4,6,7,8-HpCDD	35822-46-9	ng/kg	484	2.19E+03	- -	2,400	1,400	270	260	95	87	120	1,100	170	1,100	30	<5
OCDD	3268-87-9	ng/kg	1.64E+04	7.44E+04	- -	17,000	9,300	1,600	3,000	700	630	830	7,600	1,200	8,200	270	24
Total TCDD	- -	ng/kg	- -	- -	- -	10	14	6.7	7.9	<1.8	3.3	5.7	15	3.5	22	<1	<1
Total PeCDD	- -	ng/kg	- -	- -	- -	84	71	<4.9	<5	<5	<5	<5	40	<5	48	<5	<5
Total HxCDD	- -	ng/kg	- -	- -	- -	780	570	110	85	58	25	34	310	34	360	<5	<5
Total HpCDD	- -	ng/kg	- -	- -	- -	4,300	2,800	460	500	190	170	230	2,000	300	2,000	58	<5
Furan Congeners																	
2,3,7,8-TCDF	51207-31-9	ng/kg	48.2	219	- -	6.7	7.3	1.7 [T]	2.0	<3.9	<1	<1	3.5	1.4	3.7	<1	<1
1,2,3,7,8-PeCDF	57117-41-6	ng/kg	164	744	- -	13	8.7	<4.9	<5	<5	<5	<5	<5	<5	<5	<5	<5
2,3,4,7,8-PeCDF	57117-31-4	ng/kg	16.4	74.4	- -	45	80	5.7	76	<5	<5	<5	16	<5	16	<5	<5
1,2,3,4,7,8-HxCDF	70648-26-9	ng/kg	48.5	220	- -	32	35	7.3	24	<5	<5	<5	37	<5	12	<5	<5
1,2,3,6,7,8-HxCDF	57117-44-9	ng/kg	48.5	220	- -	34	33	5.4	26	<5	<5	<5	19	5.9	17	<5	<5
2,3,4,6,7,8-HxCDF	60851-34-5	ng/kg	49.3	223	- -	59	75	9.0	100	<5	<5	<5	29	<5	23	<5	<5
1,2,3,7,8,9-HxCDF	72918-21-9	ng/kg	49.3	223	- -	14	11	<4.9	6.4	<5	<5	<5	<5	<5	5.0	<5	<5
1,2,3,4,6,7,8-HpCDF	67562-39-4	ng/kg	490	2.22E+03	- -	550	480	94	160	43	27	42	350	83	350	19	<5
1,2,3,4,7,8,9-HpCDF	55673-89-7	ng/kg	490	2.22E+03	- -	40	31	8.5	13	<5	<5	<5	20	<5	20	<5	<5
OCDF	39001-02-0	ng/kg	1.64E+04	7.44E+04	- -	950	710	130	170	49	36	53	520	170	550	34	<5
Total TCDF	- -	ng/kg	- -	- -	- -	110	190	43	140	4.8	18	24	110	16	110	12	5.6
Total PeCDF	- -	ng/kg	- -	- -	- -	550	880	69	880	49	28	33	260	12	250	45	<5
Total HxCDF	- -	ng/kg	- -	- -	- -	990	1,200	150	1,600	64	40	52	580	60	560	27	<5
Total HpCDF	- -	ng/kg	- -	- -	- -	1,400	710	250	540	87	51	78	870	190	850	38	<5
Individual Exceedances (DC)			1	1	- -	8	5	0	2	0	0	0	2	0	2	0	0
Cumulative Hazard Index (DC)			1.0	1.0	- -	1.6315	1.4627	0.1804	0.8558	0.0366	0.0105	0.0151	0.6551	0.0519	0.6298	0.0059	0.0001
Cumulative Cancer Risk (DC)			1.0E-05	1.0E-05	- -	2.2E-05	1.8E-05	2.4E-06	9.4E-06	5.6E-07	2.8E-07	3.9E-07	8.9E-06	8.7E-07	8.7E-06	1.2E-07	1.5E-09
Total 2,3,7,8-TCDD Equivalence[1]	- -	ng/kg	4.82	21.8	- -	106	88	12	46	2.8	1.3	1.9	44	4.2	42	0.58	0.0072

Notes:
NR 720 Standards Obtained From WDNR RR Program's Soil RCL Spreadsheet
This site is assessed as Non-Industrial
RCL = Residual Contaminant Level
DC = Direct Contact
ng/kg = Parts Per Trillion (ppt)
< = Concentration Below Laboratory Detection Limit
- = Not Sampled/Collected
- - = No Standard/Not Applicable
TEQ = Toxicity Eqivalent Calculations
[1] = TEQ values calculated using the U.S. EPA 2007 values.
[2] = Depth is approximate. CWE letter notes sample collection from base of A horizion, generally 4 to 6 inches below land surface.

TCDD: Tetrachlorodibenzo-p-dioxin
PeCDD: Pentachlorodibenzo-p-dioxin
HxCDD: Hexachlorodibenzo-p-dioxin
HPCDD: Heptachlorodibenzo-p-dioxin
OCDD: Octachlorodibenzo-p-dioxin
TCDF: Tetrachlorodibenzofuran
PeCDF: Pentachlorodibenzofuran
HxCDF: Hexachlorodibenzofuran
HPCDF: Heptachlorodibenzofuran
OCDF: Octachlorodibenzofuran

Laboratory Qualifiers and Notes:
[T] = Estimated maximum concentration

Italic	= Exceeds NR720 Groundwater Pathway Protection
Bold	= Exceeds NR720 Non-Industrial Not-To-Exceed DC RCL
Underlined	= Exceeds NR720 Industrial Not-To-Exceed DC RCL

Table 1b
Soil Analytical Results
Riverside Rail Corridor
132 River Street
Wausau, WI 54401
BRRTS# 02-37-584785

					Collected By-->	*Sand Creek Consulting (SCC)*				TRC				SCC		REI	SCC	REI
					Date-->	*1/9/2018*	*1/9/2018*	*1/9/2018*	*1/9/2018*	*8/14/2019*	*8/14/2019*	*8/14/2019*	*8/14/2019*	*11/5/2019*	*11/5/2019*	*9/14/2020*	*11/5/2019*	*9/14/2020*
					Sample-->	*B-101*	*B-102*	*B-103*	*B-104*	*N4-1**	*N4-2**	*N4-3**	*N7-1*	*RP-101*	*RP-102*	*RP-102*	*RP-103*	*RP-103*
					Sample Depth--(Inches)-->	*8*	*8*	*8*	*8*	*0-6*	*0-6*	*0-6*	*0-6*	*10*	*8*	*10-12*	*10*	*12-14*
					Percent Moisture (%)-->	*12.0*	*15.1*	*16.8*	*9.9*	*8.7*	*12.0*	*8.9*	*8.2*	*26.7*	*24.6*	*9.9*	*22.6*	*17.7*
					Saturated (S) vs Unsaturated (U)-->	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*
Dioxin Congeners	CAS Number	Units	Non-Industrial Not-to-Exceed DC RCL	Industrial Not-to-Exceed DC RCL	Groundwater Pathway Protection RCL													
2,3,7,8-TCDD	1746-01-6	ng/kg	4.82	21.8	30.0	<0.28	<0.41	<0.23	<0.23	0.80 J	0.85 J	1.0	0.26 J	<2.1 D	<0.27	<0.28	<2.5	<0.36
1,2,3,7,8-PeCDD	36088-22-9	ng/kg	4.93	22.3	- -	2.3 J	0.74 I,J, EMPC	0.48 I,J, EMPC	0.56 J	2.5 J	5.2	5.9	0.91 J	<1.5 D	1.9 J	0.44 I, J, EMPC	<0.55	<0.59
1,2,3,4,7,8-HxCDD	39227-28-6	ng/kg	49.3	223	- -	3.1 J	1.1 J	0.55 I,J, EMPC	0.69 J	6.3	7.8 J,DN2	9.0 J,DN2	2.2 J	<2.9 D	4.8 J	1.1 I, J, EMPC	1.4 J	<1.2
1,2,3,6,7,8-HxCDD	57653-85-7	ng/kg	49.3	223	- -	15	4.2 J	2.2 J	3.6 J	24	39 DN2	44 DN2	6.1	6.0 J, D	21	5.8	4.7	<1.4
1,2,3,7,8,9-HxCDD	19408-74-3	ng/kg	49.3	223	- -	7.6	2.4 J	1.4 J	1.9 J	12	15 J,DN2	15 J,DN2	3.4 J	3.4 J, D	8.9	3.0 J	2.0 I, J, EMPC	<1.1
1,2,3,4,6,7,8-HpCDD	35822-46-9	ng/kg	484	2.19E+03	- -	290	85	50	81	530	820 DN2	930 DN2	150	95 D	380	110	77	9.4
OCDD	3268-87-9	ng/kg	1.64E+04	7.44E+04	- -	2,000	570	380	650	5,100	7,300 DN2	9,200 DN2	1,300	610 I, J, D	3,000	900	520	63
Total TCDD	- -	ng/kg	- -	- -	- -	10	2.5 B	1.7 B, J	1.1 B, J	11	18	12	21	<2.1 D	2.0	1.1	4.7	0.40 J
Total PeCDD	- -	ng/kg	- -	- -	- -	23	7.1	2.6	3.3 J	22	25	33	50	<1.5 D	9.6	2.2 J	7.2	<0.59
Total HxCDD	- -	ng/kg	- -	- -	- -	120	39	19	24	170	260 DN2	310 DN2	7.6	45 D	120	40	35	<1.1
Total HpCDD	- -	ng/kg	- -	- -	- -	560	160	99	150	1,000	1,600 DN2	1,900 DN2	330	180 D	710	210	140	9.4
Furan Congeners																		
2,3,7,8-TCDF	51207-31-9	ng/kg	48.2	219	- -	2.9 V	0.87 J	<0.46	<0.26	2.1 V	4.4 C	2.4 V	0.55 I,J, EMPC	<2.4 D	1.4 C	<0.61	1.9 V	<0.44
1,2,3,7,8-PeCDF	57117-41-6	ng/kg	164	744	- -	2.0 J	0.70 J	<0.52	0.42 J	2.1 J	270 P, EMPC	3.4 J	0.69 J	<1.5 D	1.8 J	<0.46	<0.29	<0.73
2,3,4,7,8-PeCDF	57117-31-4	ng/kg	16.4	74.4	- -	9.8	2.0 J	1.1 J	1.2 J	11	14	61	4.1 J	<1.7 D	14	5.3 I, J, EMPC	12	<0.44
1,2,3,4,7,8-HxCDF	70648-26-9	ng/kg	48.5	220	- -	5.8	2.0 I,J, EMPC	1.3 J	1.5 J	8.2	16 J,DN2	75 P,DN2, EMPC	3.6 P,J, EMPC	4.8 J, D	6.3	<0.73	2.1 J	<1.3
1,2,3,6,7,8-HxCDF	57117-44-9	ng/kg	48.5	220	- -	6.7	1.8 J	0.99 J	1.2 J	8.0	20 J,DN2	28 P,DN2, EMPC	2.7 J	3.8 J, D	14 P, EMPC	11 P, EMPC	6.2 P, EMPC	<1.2
2,3,4,6,7,8-HxCDF	60851-34-5	ng/kg	49.3	223	- -	11 P, EMPC	2.7 J	1.2 J	1.6 J	6.5	16 J,DN2	30 DN2	2.4 J	3.9 J, D	6.2	7.7	5.2	<1.3
1,2,3,7,8,9-HxCDF	72918-21-9	ng/kg	49.3	223	- -	1.3 J	0.36 J	<0.12	<0.20	3.0 J	6.7 J,DN2	6.1 J,DN2	0.8 J	2.0 J, D, EMPC	2.9 J	<1.1	1.5 I, J, EMPC	<1.2
1,2,3,4,6,7,8-HpCDF	67562-39-4	ng/kg	490	2.22E+03	- -	120	30	17	26	150	250 DN2	380 DN2	46	37 D	99	40	45	3.2 J
1,2,3,4,7,8,9-HpCDF	55673-89-7	ng/kg	490	2.22E+03	- -	4.0 J	0.96 I,J, EMPC	0.81 J	1.0 J	9.4	14 J,DN2	20 J,DN2	2.3 J	2.3 I, J, D, EMPC	6.3	2.4 I, J, EMPC	2.4 J	<1.7
OCDF	39001-02-0	ng/kg	1.64E+04	7.44E+04	- -	190	36	19	42	320	490 DN2	620 DN2	71	49 I, J, D, EMPC	170	56	68	6.2 J
Total TCDF	- -	ng/kg	- -	- -	- -	69	23	7.9	6.6	58	99	140 E	21	<2.4 D	41	14	35	<0.44
Total PeCDF	- -	ng/kg	- -	- -	- -	120	36	0.38	18	180	480	760	50	130 D	260	120	190	2.6 J
Total HxCDF	- -	ng/kg	- -	- -	- -	150	37	24	27	200	430 DN2	1,200 DN2	87	110 D	280	120	210	<1.2
Total HpCDF	- -	ng/kg	- -	- -	- -	140	46	34	59	380	610 DN2	1,100 DN2	100	91 D	250	90	110	3.2 J
Individual Exceedances (DC)			1	1	- -	0	0	0	0	1	3	4	0	0	0	0	0	0
Cumulative Hazard Index (DC)			1.0	1.0	- -	0.2495	0.0676	0.0352	0.0493	0.3379	0.713	1.0547	0.1096	0.0596	0.2933	0.1112	0.1333	0.0012
Cumulative Cancer Risk (DC)			1.0E-05	1.0E-05	- -	3.2E-06	8.7E-07	4.6E-07	6.7E-07	4.5E-06	9.0E-06	1.3E-05	1.4E-06	8.0E-07	3.8E-06	1.4E-06	1.5E-06	3.0E-08
Total 2,3,7,8-TCDD Equivalence[1]	- -	ng/kg	4.82	21.8	- -	15	4.2	2.4	3.3	22	44	62	7.0	3.9	19	6.7	7.5	0.15

Notes:
NR 720 Standards Obtained From WDNR RR Program's Soil RCL Spreadsheet
This site is assessed as Non-Industrial
RCL = Residual Contaminant Level
DC = Direct Contact
ng/kg = Parts Per Trillion (ppt)
< = Concentration Below Laboratory Detection Limit
- = Not Sampled/Collected
- - = No Standard/Not Applicable
TEQ = Toxicity Eqivalent Calculations
[1] = TEQ values calculated using the U.S. EPA 2007 values.
* = Excavated during redevelopment

TCDD: Tetrachlorodibenzo-p-dioxin
PeCDD: Pentachlorodibenzo-p-dioxin
HxCDD: Hexachlorodibenzo-p-dioxin
HPCDD: Heptachlorodibenzo-p-dioxin
OCDD: Octachlorodibenzo-p-dioxin
TCDF: Tetrachlorodibenzofuran
PeCDF: Pentachlorodibenzofuran
HxCDF: Hexachlorodibenzofuran
HPCDF: Heptachlorodibenzofuran
OCDF: Octachlorodibenzofuran

Laboratory Qualifiers and Notes:
J = Estimated Value
EMPC = Estimated Maximum Possible Concentration
P = PCDE Interference
I = Interference Present
V = Results verified by confimation analysis
C = Results obtained from confirmation analysis
D = Results obtained from analysis of diluted sample
DN2 = Results obtained from diluted sample
E = Exceeds calibration Range
B = Less than 10x higher than method blank level
Results reported on a dry weight basis and are valid to no more than 2 significant figures

Italic	= Exceeds NR720 Groundwater Pathway Protection
Bold	= Exceeds NR720 Non-Industrial Not-To-Exceed DC RCL
Underlined	= Exceeds NR720 Industrial Not-To-Exceed DC RCL

Table 1c
Soil Analytical Results
Riverside Rail Corridor
132 River Street
Wausau, WI 54401
BRRTS# 02-37-584785

					Collected By-->	Arcadis						
					Date-->	*9/26/2020*	*9/26/2020*	*9/26/2020*	*9/26/2020*	*9/26/2020*	*9/30/2020*	*9/30/2020*
					Sample-->	*SB-01 (0-4)*	*SB-01 (28-31)*	*Dup-01*	*SB-03 (0-4)*	*SB-03 (24-27.5)*	*SB-05 (0-4)*	*SB-05 (29-31.5)*
					Sample Depth--(Inches)-->	*0-4*	*28-31*	*28-31*	*0-4*	*24-27.5*	*0-4*	*29-31.5*
					Percent Moisture (%)-->							
					Saturated (S) vs Unsaturated (U)-->	*U*	*U*	*U*	*U*	*U*	*U*	*U*
Dioxin Congeners	CAS Number	Units	Non-Industrial Not-to-Exceed DC RCL	Industrial Not-to-Exceed DC RCL	Groundwater Pathway Protection RCL							
2,3,7,8-TCDD	1746-01-6	ng/kg	4.82	21.8	30.0	<0.21	<0.15	<0.15	<0.18	<0.13	0.35 J, EMPC	<0.038
1,2,3,7,8-PeCDD	36088-22-9	ng/kg	4.93	22.3	- -	<0.15	<0.0097	<0.11	<0.14	<0.10	0.99 J, EMPC	<0.047
1,2,3,4,7,8-HxCDD	39227-28-6	ng/kg	49.3	223	- -	0.85 J, B	0.27 J, B	0.29 J, B, EMPC	0.46 J, B	<0.033	2.7 J	0.20 J, EMPC
1,2,3,6,7,8-HxCDD	57653-85-7	ng/kg	49.3	223	- -	1.4 J	<0.034	0.18 J, EMPC	1.9 J, B	<0.042	9.3	<0.048
1,2,3,7,8,9-HxCDD	19408-74-3	ng/kg	49.3	223	- -	0.91 J, B	<0.028	<0.030	0.87 J, B	0.082 J, B	5.2 J	<0.044
1,2,3,4,6,7,8-HpCDD	35822-46-9	ng/kg	484	2.19E+03	- -	21 B	0.46 J, B	0.95 J, B, EMPC	67 B	3.5 J, B	230 B	0.11 J, B
OCDD	3268-87-9	ng/kg	1.64E+04	7.44E+04	- -	130 B	2.7 J, B	6.7 J, B, EMPC	850 B	41 B	1,800 B	1.3 J, B
Total TCDD	- -	ng/kg	- -	- -	- -	2.2	<0.15	<0.15	<0.18	<0.13	13 EMPC	<0.038
Total PeCDD	- -	ng/kg	- -	- -	- -	<0.26	<0.0097	<0.11	<0.14	<0.10	21 EMPC	<0.047
Total HxCDD	- -	ng/kg	- -	- -	- -	7.2 B	0.27 J, B	0.46 J, B, EMPC	12 B, EMPC	0.43 J, B, EMPC	68	0.20 J, EMPC
Total HpCDD	- -	ng/kg	- -	- -	- -	40 B	0.98 J, B	2.1 J, B, EMPC	360 B	21 B	560 B	0.28 J, B, EMPC
Furan Congeners												
2,3,7,8-TCDF	51207-31-9	ng/kg	48.2	219	- -	0.6 J	<0.071	<0.084	<0.11	<0.063	0.78 J, B	0.066 J, B
1,2,3,7,8-PeCDF	57117-41-6	ng/kg	164	744	- -	<0.18	<0.049	<0.060	<0.094	<0.050	<0.58	0.072 J, EMPC
2,3,4,7,8-PeCDF	57117-31-4	ng/kg	16.4	74.4	- -	0.52 J, EMPC	<0.053	<0.071	<0.10	<0.059	1.6 J	<0.038
1,2,3,4,7,8-HxCDF	70648-26-9	ng/kg	48.5	220	- -	0.85 J	<0.041	0.2 J	0.32 J, EMPC	<0.055	4.4 J	<0.070
1,2,3,6,7,8-HxCDF	57117-44-9	ng/kg	48.5	220	- -	0.89 J	<0.036	0.23 J, EMPC	0.33 J	<0.049	3.7 J	<0.062
2,3,4,6,7,8-HxCDF	60851-34-5	ng/kg	49.3	223	- -	0.82 J, EMPC	<0.030	0.20 J	0.33 J	<0.041	3.0 J	<0.037
1,2,3,7,8,9-HxCDF	72918-21-9	ng/kg	49.3	223	- -	0.44 J	<0.028	0.29 J	<0.13	<0.042	<0.41	0.049 J
1,2,3,4,6,7,8-HpCDF	67562-39-4	ng/kg	490	2.22E+03	- -	6.5 B	0.18 J, B, EMPC	0.43 J, B	8.2 B	0.39 J, B, EMPC	69 B	0.18 J, B, EMPC
1,2,3,4,7,8,9-HpCDF	55673-89-7	ng/kg	490	2.22E+03	- -	0.71 J, B, EMPC	<0.022	0.21 J, B, EMPC	0.66 J, B	<0.030	3.1 J	<0.035
OCDF	39001-02-0	ng/kg	1.64E+04	7.44E+04	- -	13 B	0.79 J, B	1.1 J, B	40 B	1.8 J, B, EMPC	140 B	0.52 J, B, EMPC
Total TCDF	- -	ng/kg	- -	- -	- -	5.3 EMPC	<0.071	<0.084	<0.11	<0.068	23 EMPC	0.11 J, B, EMPC
Total PeCDF	- -	ng/kg	- -	- -	- -	17 EMPC	<0.053	<0.21	1.0 J, EMPC	<0.17	69	0.16 J, EMPC
Total HxCDF	- -	ng/kg	- -	- -	- -	16 EMPC	<0.041	0.91 J, EMPC	7.9 EMPC	0.21 J, EMPC	96	<0.051
Total HpCDF	- -	ng/kg	- -	- -	- -	17 B, EMPC	0.32 J, B, EMPC	0.98 J, B, EMPC	31 B	1.3 J, B, EMPC	180 B	0.18 J, B, EMPC
Individual Exceedances (DC)			1	1	- -	-	-	-	-	-	-	-
Cumulative Hazard Index (DC)			1.0	1.0	- -	-	-	-	-	-	-	-
Cumulative Cancer Risk (DC)			1.0E-05	1.0E-05	- -	-	-	-	-	-	-	-
Total 2,3,7,8-TCDD Equivalence[1]	- -	ng/kg	4.82	21.8	- -	1.2	0.034	0.16	1.4	0.060	8.3	0.037

Notes:
NR 720 Standards Obtained From WDNR RR Program's Soil RCL Spreadsheet
This site is assessed as Non-Industrial
RCL = Residual Contaminant Level
DC = Direct Contact
ng/kg = Parts Per Trillion (ppt)
< = Concentration Below Laboratory Detection Limit
- = Not Sampled/Collected
- - = No Standard/Not Applicable
TEQ = Toxicity Eqivalent Calculations
[1] = TEQ values calculated using the U.S. EPA 2007 values.

TCDD: Tetrachlorodibenzo-p-dioxin
PeCDD: Pentachlorodibenzo-p-dioxin
HxCDD: Hexachlorodibenzo-p-dioxin
HPCDD: Heptachlorodibenzo-p-dioxin
OCDD: Octachlorodibenzo-p-dioxin
TCDF: Tetrachlorodibenzofuran
PeCDF: Pentachlorodibenzofuran
HxCDF: Hexachlorodibenzofuran
HPCDF: Heptachlorodibenzofuran
OCDF: Octachlorodibenzofuran

Laboratory Qualifiers and Notes:
J = Estimated Value
EMPC = Estimated Maximum Possible Concentration
B = Compound was found in the blank and sample.
2 = Lab report containd two (2) separate identical results
3 = Lab report containd two (2) separate results with one result = 0.0050 mg/kg and the seond = 0.0052 mg/kg.
Results reported on a dry weight basis and are valid to no more than 2 significant figures

Italic	= Exceeds NR720 Groundwater Pathway Protection
Bold	= Exceeds NR720 Non-Industrial Not-To-Exceed DC RCL
Underlined	= Exceeds NR720 Non-Industrial Not-To-Exceed DC RCL

Table 1d
Soil Analytical Results
Riverside Rail Corridor
132 River Street
Wausau, WI 54401
BRRTS# 02-37-584785

					Collected By-->	REI Engineering, Inc.										
					Date-->	*4/23/2020*	*9/14/2020*	*4/23/2020*	*9/14/2020*	*4/23/2020*	*4/23/2020*	*4/23/2020*	*4/23/2020*	*4/23/2020*	*4/23/2020*	*4/23/2020*	*4/23/2020*	*5/12/2021*
					Sample-->	*R1*	*R1*	*R2*	*R2*	*R3*	*R4*	*R5*	*R6*	*R7*	*R8**	*R9**	*R10**	*R11*
					Sample Depth--(Inches)-->	*3-5*	*10-12*	*4-6*	*10-12*	*3-6*	*3-5*	*6-9*	*6-8*	*11-13*	*2-4*	*4-5*	*5-6*	*10-12*
					Percent Moisture (%)-->	*28.6*	*12.9*	*22.4*	*15.4*	*16.7*	*18.8*	*13.3*	*8.6*	*8.1*	*11.3*	*3.9*	*8.3*	*10.4*
					Saturated (S) vs Unsaturated (U)-->	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*
Dioxin Congeners	CAS Number	Units	Non-Industrial Not-to-Exceed DC RCL	Industrial Not-to-Exceed DC RCL	Groundwater Pathway Protection RCL													
2,3,7,8-TCDD	1746-01-6	ng/kg	4.82	21.8	30.0	1.1 J	<0.67	0.55 J	<0.39	<0.24	<0.18	<0.34	<0.52	<0.20	<0.17	<0.15	<0.22	<0.43
1,2,3,7,8-PeCDD	36088-22-9	ng/kg	4.93	22.3	- -	5.2 J	1.9 J	2.8 J	1.0 I, J, EMPC	0.55 I, J, EMPC	1.2 J	0.84 J	0.73 J	<0.10	<0.094	<0.097	0.24 I, J, EMPC	0.87 J
1,2,3,4,7,8-HxCDD	39227-28-6	ng/kg	49.3	223	- -	12	5.1 J	5.1 J	3.3 J	0.39 I, J, EMPC	1.7 J	0.89 I, J, EMPC	0.59 I, J, EMPC	<0.25	<0.22	<0.19	0.61 J	8.5
1,2,3,6,7,8-HxCDD	57653-85-7	ng/kg	49.3	223	- -	39	16	22	11	1.6 I, J, EMPC	6.0	3.5 J	2.6 J	<0.25	<0.17	0.29 J	1.5 J	2.3 J
1,2,3,7,8,9-HxCDD	19408-74-3	ng/kg	49.3	223	- -	24	8.5	10	5.2 I, J, EMPC	1.2 I, J, EMPC	3.6 J	1.9 J	1.2 J	<0.26	0.16 I, J, EMPC	<0.17	1.2 J	8.0
1,2,3,4,6,7,8-HpCDD	35822-46-9	ng/kg	484	2.19E+03	- -	960	310	400	200	37	0.64 J	78	57	5.8	1.3 J	5.3	33	4.0 J
OCDD	3268-87-9	ng/kg	1.64E+04	7.44E+04	- -	7,400	2,600	3,000	1,400	270	850	660	510	44	49	35	280	150
Total TCDD	- -	ng/kg	- -	- -	- -	22	7.5	9.3	4.1	1.2	6.3	<0.34	<0.52	<0.20	<0.17	<0.15	<0.22	1,300
Total PeCDD	- -	ng/kg	- -	- -	- -	58	20	29	5.9	2.4 J	11	<4.3	3.1 J	<0.10	<0.094	0.16 J	0.72 J	3.8
Total HxCDD	- -	ng/kg	- -	- -	- -	350	140	160	60	16	51	28	15.0	2.4 J	1.3 J	2.7 J	14	8.5
Total HpCDD	- -	ng/kg	- -	- -	- -	1,900	610	760	410	77	230	160	130	11	12	10	63	56
Furan Congeners																		
2,3,7,8-TCDF	51207-31-9	ng/kg	48.2	219	- -	4.0 V	1.8 C	2.5 V	1.5 V	0.66 J	0.80 I, J, EMPC	<0.34	<0.48	<0.17	<0.26	<0.18	0.18 I, J, EMPC	1.1 C
1,2,3,7,8-PeCDF	57117-41-6	ng/kg	164	744	- -	4.7 J	1.9 J	3.2 J	<1.0	0.49 J	0.94 J	0.57 J	<0.022	<0.14	<0.047	<0.16	0.17 I, J, EMPC	1.0 J
2,3,4,7,8-PeCDF	57117-31-4	ng/kg	16.4	74.4	- -	12	5.0 J	15	4.8 J	1.3 J	2.4 J	5.7	9.2	0.14 I, J, EMPC	0.24 J	0.56 J	0.81 J	13
1,2,3,4,7,8-HxCDF	70648-26-9	ng/kg	48.5	220	- -	19	9.8 P, EMPC	24 P, EMPC	4.1 J	1.2 J	2.8 J	1.2 J	1.7 J	<0.28	<0.28	0.20 J	0.52 J	3.9 J
1,2,3,6,7,8-HxCDF	57117-44-9	ng/kg	48.5	220	- -	22	6.7	7.9	3.8 J	1.4 I, J, EMPC	4.8 P, EMPC	2.0 J	1.8 J	<0.18	0.85 J	0.90 P, J, EMPC	1.2 P, J, EMPC	5.2
2,3,4,6,7,8-HxCDF	60851-34-5	ng/kg	49.3	223	- -	23	7.5	15	6.8	1.5 J	3.6 J	4.8	1.9 J	<0.27	0.28 J	0.43 J	0.93 J	8.5
1,2,3,7,8,9-HxCDF	72918-21-9	ng/kg	49.3	223	- -	5.5 J	1.7 I, J, EMPC	3.1 J	<0.90	<0.46	0.64 J	0.67 I, J, EMPC	<0.17	<0.23	<0.20	<0.14	0.22 I, J, EMPC	1.6 J, P, EMPC
1,2,3,4,6,7,8-HpCDF	67562-39-4	ng/kg	490	2.22E+03	- -	340	120	140	65	14	40	28	17	2.2 J	1.8 J	1.9 J	8.6	61
1,2,3,4,7,8,9-HpCDF	55673-89-7	ng/kg	490	2.22E+03	- -	17	6.8	7.6	2.7 I, J, EMPC	<0.50	2.0 J	1.3 J	1.2 J	<0.22	<0.15	<0.14	0.46 J	4.0 J
OCDF	39001-02-0	ng/kg	1.64E+04	7.44E+04	- -	450	170	180	110	16	56	39	32	3.0 J	2.5 I, J, EMPC	2.4 J	19	92
Total TCDF	- -	ng/kg	- -	- -	- -	110	50	72	15	5.8	22	9.6	7.8	0.31 J	0.49 J	2.4	3.0	27
Total PeCDF	- -	ng/kg	- -	- -	- -	230	120	240	97	17	41	81	86	1.9 J	2.2 J	9.2	13	140
Total HxCDF	- -	ng/kg	- -	- -	- -	520	210	290	130	22	60	86	39	3.1 J	3.7 J	6.9	14	290
Total HpCDF	- -	ng/kg	- -	- -	- -	750	230	310	150	30	87	74	44	2.4 J	1.8 J	1.9 J	20	170
Individual Exceedances (DC)			1	1	- -	2	0	0	0	0	0	0	0	0	0	0	0	0
Cumulative Hazard Index (DC)			1.0	1.0	- -	0.6165	0.2248	0.3381	0.1425	0.0392	0.0986	0.0905	0.0951	0.0016	0.0046	0.0075	0.026	0.1848
Cumulative Cancer Risk (DC)			1.0E-05	1.0E-05	- -	8.3E-06	2.9E-06	4.3E-06	1.9E-06	4.8E-07	1.0E-06	1.1E-06	1.1E-06	2.8E-08	5.1E-08	8.9E-08	3.3E-07	1.9E-06
Total 2,3,7,8-TCDD Equivalence[1]	- -	ng/kg	4.82	21.8	- -	40	14	23	9.1	2.3	5.0	5.3	5.4	0.14	0.25	0.43	1.6	9.5

Notes:
NR 720 Standards Obtained From WDNR RR Program's Soil RCL Spreadsheet
This site is assessed as Non-Industrial
RCL = Residual Contaminant Level
DC = Direct Contact
ng/kg = Parts Per Trillion (ppt)
< = Concentration Below Laboratory Detection Limit
- = Not Sampled/Collected
- - = No Standard/Not Applicable
TEQ = Toxicity Eqivalent Calculations
[1] = TEQ values calculated using the U.S. EPA 2007 values.
* = Excavated during redevelopment

TCDD: Tetrachlorodibenzo-p-dioxin
PeCDD: Pentachlorodibenzo-p-dioxin
HxCDD: Hexachlorodibenzo-p-dioxin
HPCDD: Heptachlorodibenzo-p-dioxin
OCDD: Octachlorodibenzo-p-dioxin
TCDF: Tetrachlorodibenzofuran
PeCDF: Pentachlorodibenzofuran
HxCDF: Hexachlorodibenzofuran
HPCDF: Heptachlorodibenzofuran
OCDF: Octachlorodibenzofuran

Laboratory Qualifiers and Notes:
J = Estimated Value
EMPC = Estimated Maximum Possible Concentration
P = PCDE Interference
I = Interference Present
V = Results verified by confimation analysis
C = Results obtained from confirmation analysis
D = Results obtained from analysis of diluted sample
E = Exceeds calibration Range
Results reported on a dry weight basis and are valid to no more than 2 significant figures

Italic	= Exceeds NR720 Groundwater Pathway Protection
Bold	= Exceeds NR720 Non-Industrial Not-To-Exceed DC RCL
Underlined	= Exceeds NR720 Non-Industrial Not-To-Exceed DC RCL

Table 1e
Soil Analytical Results
Riverside Rail Corridor
132 River Street
Wausau, WI 54401
BRRTS# 02-37-584785

					Collected By-->	REI Engineering, Inc.										
					Date-->	*4/23/2020*	*4/23/2020*	*5/12/2021*	*4/23/2020*	*4/23/2020*	*4/23/2020*	*4/23/2020*	*4/23/2020*	*4/23/2020*	*4/23/2020*	*4/23/2020*
					Sample-->	*P1*	*P1*	*P1*	*P2*	*P2*	*P3*	*P3*	*P4*	*P4*	*P5*	*P5*
					Sample Depth--(Inches)-->	*2-3*	*7-9*	*22-24*	*2-3*	*10-12*	*2-3*	*12-14*	*2-3*	*9-11*	*2-3*	*11-13*
					Percent Moisture (%)-->	*45.0*	*24.7*	*12.7*	*20.7*	*19.5*	*19.0*	*12.0*	*17.8*	*12.9*	*19.9*	*16.8*
					Saturated (S) vs Unsaturated (U)-->	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*
Dioxin Congeners	CAS Number	Units	Non-Industrial Not-to-Exceed DC RCL	Industrial Not-to-Exceed DC RCL	Groundwater Pathway Protection RCL											
2,3,7,8-TCDD	1746-01-6	ng/kg	4.82	21.8	30.0	0.35 J	0.71 J	<3.9 D	<0.30	<0.13	<0.24	<0.74	<0.96	<0.54	<0.76	<0.91
1,2,3,7,8-PeCDD	36088-22-9	ng/kg	4.93	22.3	- -	3.0 I, J, EMPC	6.1	3.0 I, D	0.43 J	<0.15	0.25 J	0.42 I, J, EMPC	<0.56	<0.53	0.74 I, J, EMPC	<0.79
1,2,3,4,7,8-HxCDD	39227-28-6	ng/kg	49.3	223	- -	6.0 J	14	10 I, D	0.58 I, J, EMPC	<0.21	0.61 J	0.77 I, J, EMPC	1.8 I, J, EMPC	0.57 I, J, EMPC	1.8 J	<0.39
1,2,3,6,7,8-HxCDD	57653-85-7	ng/kg	49.3	223	- -	23	57	50 D	2.6 J	0.4 J	1.4 J	1.4 J	3.9 J	1.9 J	4.4 J	0.64 J
1,2,3,7,8,9-HxCDD	19408-74-3	ng/kg	49.3	223	- -	13	30	26 D	1.6 I, J, EMPC	0.35 I, J, EMPC	0.67 I, J, EMPC	0.76 J	3.0 J	0.82 I, J, EMPC	2.6 I, J, EMPC	<0.64
1,2,3,4,6,7,8-HpCDD	35822-46-9	ng/kg	484	2.19E+03	- -	520	1,200	900 D	55	4.8 J	27	28	110	39	110	17
OCDD	3268-87-9	ng/kg	1.64E+04	7.44E+04	- -	4,000	9,600	6,600 D	370	67	170	220	890	310	840	130
Total TCDD	- -	ng/kg	- -	- -	- -	4.0	9.6	<3.9 D	1.7	0.82 J	<0.24	<0.74	<0.96	<0.54	2.3	1.1
Total PeCDD	- -	ng/kg	- -	- -	- -	18	53	26 D	5.3 J	<0.15	1.8 J	0.82	3.6 J	<0.43	6.6	<0.79
Total HxCDD	- -	ng/kg	- -	- -	- -	200	430	330 D	22	4.8 J	9.1	7.2	37	12	43	5.9
Total HpCDD	- -	ng/kg	- -	- -	- -	1,100	2,500	1,800 D	110	19	52	54	200	73	200	31
Furan Congeners																
2,3,7,8-TCDF	51207-31-9	ng/kg	48.2	219	- -	1.6 J	2.6 V	<4.6 D	0.47 J	<0.21	0.26 I, J, EMPC	<0.64	<0.74	<0.77	<0.96	<0.66
1,2,3,7,8-PeCDF	57117-41-6	ng/kg	164	744	- -	3.1 J	6.1	<1.1 D	0.40 I, J, EMPC	<0.26	<0.48	<0.61	<1.2	<0.59	<1.1	<1.1
2,3,4,7,8-PeCDF	57117-31-4	ng/kg	16.4	74.4	- -	26	34	22 I, D	1.1 J	<0.22	0.61 J	2.2 J	2.3 I, J, EMPC	0.89 J	1.8 I, J, EMPC	0.55 I, J, EMPC
1,2,3,4,7,8-HxCDF	70648-26-9	ng/kg	48.5	220	- -	9.3	15	16 I, D	1.4 J	<0.30	0.83 J	0.73 J	2.3 I, J, EMPC	1.6 P, J, EMPC	2.4 I, J, EMPC	<0.41
1,2,3,6,7,8-HxCDF	57117-44-9	ng/kg	48.5	220	- -	10	21	16 I, D	2.1 P, J, EMPC	0.55 J	1.3 I, J, EMPC	0.81 I, J, EMPC	2.4 J	0.86 J	1.7 J	<0.45
2,3,4,6,7,8-HxCDF	60851-34-5	ng/kg	49.3	223	- -	25	39	14 I, D	1.7 J	0.22 I, J, EMPC	0.67 I, J, EMPC	1.6 I, J, EMPC	3.0 J	0.65 J	2.7 J	<0.45
1,2,3,7,8,9-HxCDF	72918-21-9	ng/kg	49.3	223	- -	4.5 J	6.9	<1.5 D	<0.56	<0.24	<0.33	<0.33	<0.16	<0.14	<0.40	<0.43
1,2,3,4,6,7,8-HpCDF	67562-39-4	ng/kg	490	2.22E+03	- -	140	340	250 D	16	3.9 J	11	8.1	41	16	54 P, EMPC	9.5 P, EMPC
1,2,3,4,7,8,9-HpCDF	55673-89-7	ng/kg	490	2.22E+03	- -	9.7	21	14 I, D	0.78 I, J, EMPC	<0.60	<0.87	<0.51	1.4 J	<0.27	<0.72	<0.98
OCDF	39001-02-0	ng/kg	1.64E+04	7.44E+04	- -	240	540	400 D	26	4.1 I, J, EMPC	12	13	55	20	59	12
Total TCDF	- -	ng/kg	- -	- -	- -	81	110	74 D	6.2	0.48	2.6	1.8	13	1.6	8.9	<0.66
Total PeCDF	- -	ng/kg	- -	- -	- -	440	610	280 D	17	2.9	9.7	25	31	12	26	3.6 J
Total HxCDF	- -	ng/kg	- -	- -	- -	440	830	550 D	25	5.7	15	24	40	17	45	3.0 J
Total HpCDF	- -	ng/kg	- -	- -	- -	380	840	620 D	35	7.8	20	18	83	31	46	8.3
Individual Exceedances (DC)			1	1	- -	2	4	3	0	0	0	0	0	0	0	0
Cumulative Hazard Index (DC)			1.0	1.0	- -	0.4623	0.8467	0.5517	0.0489	0.0042	0.0233	0.0364	0.061	0.0234	0.0709	0.0074
Cumulative Cancer Risk (DC)			1.0E-05	1.0E-05	- -	5.8E-06	1.1E-05	7.5E-06	6.1E-07	5.3E-08	2.9E-07	4.3E-07	8.5E-07	3.2E-07	9.5E-07	1.1E-07
Total 2,3,7,8-TCDD Equivalence[1]	- -	ng/kg	4.82	21.8	- -	28	54	37	2.7	0.26	1.4	2.1	4.1	1.6	4.7	0.54

Notes:
NR 720 Standards Obtained From WDNR RR Program's Soil RCL Spreadsheet
This site is assessed as Non-Industrial
RCL = Residual Contaminant Level
DC = Direct Contact
ng/kg = Parts Per Trillion (ppt)
< = Concentration Below Laboratory Detection Limit
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TEQ = Toxicity Eqivalent Calculations
[1] = TEQ values calculated using the U.S. EPA 2007 values.

TCDD: Tetrachlorodibenzo-p-dioxin
PeCDD: Pentachlorodibenzo-p-dioxin
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HPCDF: Heptachlorodibenzofuran
OCDF: Octachlorodibenzofuran

Laboratory Qualifiers and Notes:
J = Estimated Value
EMPC = Estimated Maximum Possible Concentration
P = PCDE Interference
I = Interference Present
V = Results verified by confimation analysis
C = Results obtained from confirmation analysis
D = Results obtained from analysis of diluted sample
E = Exceeds calibration Range
Results reported on a dry weight basis and are valid to no more than 2 significant figures

Italic	= Exceeds NR720 Groundwater Pathway Protection
Bold	= Exceeds NR720 Non-Industrial Not-To-Exceed DC RCL
Underlined	= Exceeds NR720 Non-Industrial Not-To-Exceed DC RCL

Table 1f
Soil Analytical Results
Riverside Rail Corridor
132 River Street
Wausau, WI 54401
BRRTS# 02-37-584785

					Collected By-->	REI Engineering, Inc.									
					Date-->	*9/14/2020*	*9/14/2020*	*9/14/2020*	*9/14/2020*	*9/14/2020*	*9/14/2020*	*9/14/2020*	*9/14/2020*	*9/14/2020*	*9/14/2020*
					Sample-->	*P6*	*P6*	*P7*	*P7*	*P8*	*P8*	*P9*	*P9*	*P10*	*P10*
					Sample Depth--(Inches)-->	*2-3*	*10-12*	*2-3*	*10-12*	*2-3*	*10-12*	*2-3*	*10-12*	*2-3*	*10-12*
					Percent Moisture (%)-->	*17.2*	*6.4*	*15.9*	*9.5*	*11.9*	*17.3*	*17.4*	*9.7*	*15.9*	*14.1*
					Saturated (S) vs Unsaturated (U)-->	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*
Dioxin Congeners	CAS Number	Units	Non-Industrial Not-to-Exceed DC RCL	Industrial Not-to-Exceed DC RCL	Groundwater Pathway Protection RCL										
2,3,7,8-TCDD	1746-01-6	ng/kg	4.82	21.8	30.0	0.32 I, J, EMPC	<0.27	0.97 J	<0.27	0.69 J	0.61 J	<0.26	0.27 J	0.41 J	<0.38
1,2,3,7,8-PeCDD	36088-22-9	ng/kg	4.93	22.3	- -	3.2 J	0.33 J	3.8 J	0.62 J	6.4	6.6	3.3 J	0.68 J	5.9	2.7 J
1,2,3,4,7,8-HxCDD	39227-28-6	ng/kg	49.3	223	- -	7.9	<0.96	9.4	1.5 J	17	16	6.7	2.1 J	12	5.1 J
1,2,3,6,7,8-HxCDD	57653-85-7	ng/kg	49.3	223	- -	24	2.0 J	35	5.7	69	51	28	6.5	48	15
1,2,3,7,8,9-HxCDD	19408-74-3	ng/kg	49.3	223	- -	13	1.4 J	19	3.2 J	29	25	12	3.8 J	22	8.5
1,2,3,4,6,7,8-HpCDD	35822-46-9	ng/kg	484	2.19E+03	- -	530	36	1,200	190	1,200	1,000	550	150	900	290
OCDD	3268-87-9	ng/kg	1.64E+04	7.44E+04	- -	4,600	290	11,000 E	1,700	10,000 E	8,100	4,400	1,100	7,600	2,300
Total TCDD	- -	ng/kg	- -	- -	- -	8.1	0.61 J	20	5.2	18	9.5	16	3.5	10	3.6
Total PeCDD	- -	ng/kg	- -	- -	- -	24	0.33 J	45	8.9	49	50	44	6.6	44	22
Total HxCDD	- -	ng/kg	- -	- -	- -	180	1.6	330	52	480	390	250	5.7	350	130
Total HpCDD	- -	ng/kg	- -	- -	- -	1,000	66	2,400	360	2,300	1,900	1,100	280	1,800	560
Furan Congeners															
2,3,7,8-TCDF	51207-31-9	ng/kg	48.2	219	- -	1.9 V	<0.44	3.7 C	0.86 I, J, EMPC	4.1 C	5.7 C	3.3 V	0.76 J	4.3 C	2.1 C
1,2,3,7,8-PeCDF	57117-41-6	ng/kg	164	744	- -	0.32 I, J, EMPC	<0.72	3.3 J	<1.1	4.7 J	5.9	3.4 J	0.88 J	4.5 J	2.7 J
2,3,4,7,8-PeCDF	57117-31-4	ng/kg	16.4	74.4	- -	17	1.9 J	8.9	2.0 J	32	66	8.5	2.3 I, J, EMPC	53	54
1,2,3,4,7,8-HxCDF	70648-26-9	ng/kg	48.5	220	- -	11	<0.86	11	2.3 I, J, EMPC	20	17	13	3.5 J	15	12
1,2,3,6,7,8-HxCDF	57117-44-9	ng/kg	48.5	220	- -	13	1.6 P, J, EMPC	8.7	2.5 I, J, EMPC	24	36	12	4.0 P, J, EMPC	24	37
2,3,4,6,7,8-HxCDF	60851-34-5	ng/kg	49.3	223	- -	10	<1.4	9.0	3.1 J	20	23	9.5	3.5 J	31	31
1,2,3,7,8,9-HxCDF	72918-21-9	ng/kg	49.3	223	- -	4.6 J	<0.69	3.7 J	0.67 J	8.3 I, EMPC	10	4.0 J	0.67 I, J, EMPC	8.4	6.8
1,2,3,4,6,7,8-HpCDF	67562-39-4	ng/kg	490	2.22E+03	- -	180	16	230	42	310	330	230	59	300	140
1,2,3,4,7,8,9-HpCDF	55673-89-7	ng/kg	490	2.22E+03	- -	12	<1.1	12	2.8 J	20	20	12	2.4 J	17	8.3
OCDF	39001-02-0	ng/kg	1.64E+04	7.44E+04	- -	400	26	640	100	550	530	390	95	460	170
Total TCDF	- -	ng/kg	- -	- -	- -	56	4.5	77	16	82	150	86	18	140	110
Total PeCDF	- -	ng/kg	- -	- -	- -	250	32	150	30	500	990	150	47	810	930
Total HxCDF	- -	ng/kg	- -	- -	- -	450	36	300	52	830	1,300	350	78	1,000	950
Total HpCDF	- -	ng/kg	- -	- -	- -	560	40	570	96	790	840	480	120	730	360
Individual Exceedances (DC)			1	1	- -	2	0	1	0	4	4	1	0	3	1
Cumulative Hazard Index (DC)			1.0	1.0	- -	0.4105	0.0329	0.4747	0.0847	0.8475	1.0253	0.3827	0.1023	0.882	0.6476
Cumulative Cancer Risk (DC)			1.0E-05	1.0E-05	- -	5.3E-06	4.1E-07	7.2E-06	1.2E-06	1.1E-05	1.3E-05	5.0E-06	1.4E-06	1.1E-05	7.3E-06
Total 2,3,7,8-TCDD Equivalence[1]	- -	ng/kg	4.82	21.8	- -	26	2.0	35	6.1	54	62	24	6.6	53	36

Notes:
NR 720 Standards Obtained From WDNR RR Program's Soil RCL Spreadsheet
This site is assessed as Non-Industrial
RCL = Residual Contaminant Level
DC = Direct Contact
ng/kg = Parts Per Trillion (ppt)
< = Concentration Below Laboratory Detection Limit
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TEQ = Toxicity Eqivalent Calculations
[1] = TEQ values calculated using the U.S. EPA 2007 values.

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PeCDD: Pentachlorodibenzo-p-dioxin
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HxCDF: Hexachlorodibenzofuran
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OCDF: Octachlorodibenzofuran

Laboratory Qualifiers and Notes:
J = Estimated Value
EMPC = Estimated Maximum Possible Concentration
P = PCDE Interference
I = Interference Present
V = Results verified by confimation analysis
C = Results obtained from confirmation analysis
D = Results obtained from analysis of diluted sample
E = Exceeds calibration Range
Results reported on a dry weight basis and are valid to no more than 2 significant figures

Italic	= Exceeds NR720 Groundwater Pathway Protection
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Underlined	= Exceeds NR720 Non-Industrial Not-To-Exceed DC RCL

Table 1g
Soil Analytical Results
Riverside Rail Corridor
132 River Street
Wausau, WI 54401
BRRTS# 02-37-584785

					Collected By-->	REI Engineering, Inc.												
					Date-->	*9/14/2020*	*9/14/2020*	*5/12/2021*	*9/14/2020*	*9/14/2020*	*9/14/2020*	*9/14/2020*	*9/14/2020*	*9/14/2020*	*9/14/2020*	*9/14/2020*	*9/14/2020*	*9/14/2020*
					Sample-->	*P11*	*P11*	*P11*	*P12*	*P12*	*P13*	*P13*	*P14*	*P14*	*P15*	*P15*	*P16*	*P16*
					Sample Depth--(Inches)-->	*2-3*	*10-12*	*22-24*	*2-3*	*10-12*	*2-3*	*10-12*	*2-3*	*10-12*	*2-3*	*10-12*	*2-3*	*10-12*
					Percent Moisture (%)-->	*18.7*	*17.7*	*9.3*	*20.5*	*14.3*	*20.7*	*13.8*	*16.8*	*3.7*	*12.1*	*6.9*	*15.3*	*6.6*
					Saturated (S) vs Unsaturated (U)-->	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*
Dioxin Congeners	CAS Number	Units	Non-Industrial Not-to-Exceed DC RCL	Industrial Not-to-Exceed DC RCL	Groundwater Pathway Protection RCL													
2,3,7,8-TCDD	1746-01-6	ng/kg	4.82	21.8	30.0	1.5	0.79 I, J, EMPC	<0.17	<0.51	<0.39	<0.56	<0.44	<0.70	<0.27	<0.39	<0.36	<0.77	<0.50
1,2,3,7,8-PeCDD	36088-22-9	ng/kg	4.93	22.3	- -	11	7.1	1.3 J	1.9 J	1.1 J	1.5 J	0.97 J	1.5 J	<0.30	1.7 J	2.5 J	2.7 J	<0.93
1,2,3,4,7,8-HxCDD	39227-28-6	ng/kg	49.3	223	- -	24	15	1.5 J	3.5 J	1.9 I, J, EMPC	3.3 I, J, EMPC	2.1 I, J, EMPC	2.9 J	0.75 J	5.7	4.0 I, J, EMPC	5.0 J	<1.7
1,2,3,6,7,8-HxCDD	57653-85-7	ng/kg	49.3	223	- -	100	52	8.7	13	7.4	22	13	13	3.7 J	16	18	16	<2.0
1,2,3,7,8,9-HxCDD	19408-74-3	ng/kg	49.3	223	- -	45	25	3.8 J	6.7	4.8 J	10	6.9	5.9	1.6 J	9.7	9.4	10	<1.6
1,2,3,4,6,7,8-HpCDD	35822-46-9	ng/kg	484	2.19E+03	- -	1,900	880	150	220	120	830	370	220	72	350	370	300	40
OCDD	3268-87-9	ng/kg	1.64E+04	7.44E+04	- -	18,000 E	7,500	1,100	1,700	920	3,900	2,100	1,800	530	2,500	3,100	2,400	310
Total TCDD	- -	ng/kg	- -	- -	- -	21	19	0.57 J	8.0	4.2	5.3	4.5	6.9	1.7	1.4	4.8	4.4	<0.50
Total PeCDD	- -	ng/kg	- -	- -	- -	86	60	7.6	29	170	12	12	19	4.9	14	14	15	<0.93
Total HxCDD	- -	ng/kg	- -	- -	- -	700	380	52	120	64	220	120	100	30	140	140	130	8.1
Total HpCDD	- -	ng/kg	- -	- -	- -	3,700	1,700	270	410	240	1,400	660	420	130	690	760	570	74
Furan Congeners																		
2,3,7,8-TCDF	51207-31-9	ng/kg	48.2	219	- -	9.1 C	8.7 C	0.83 J	2.2 C	1.2 C	0.91 I, J, EMPC	1.3 V	1.7 C	<0.30	2.2 C	1.9 V	1.1 I, J, EMPC	<0.69
1,2,3,7,8-PeCDF	57117-41-6	ng/kg	164	744	- -	11	7.4	0.88 J	2.0 I, J, EMPC	<1.8	<1.6	<1.4	<1.3	<1.3	2.1 J	1.9 I, J, EMPC	<0.74	<1.1
2,3,4,7,8-PeCDF	57117-31-4	ng/kg	16.4	74.4	- -	110	130	15	14	10	10	8.1	4.1 J	1.7 J	5.4	6.0	2.5 I, J, EMPC	1.0 J
1,2,3,4,7,8-HxCDF	70648-26-9	ng/kg	48.5	220	- -	22	17	3.1 J	6.6	2.6 I, J, EMPC	4.9 J	3.7 J	4.9 J	2.1 J	9.0	9.2	8.3	1.2 I, J, EMPC
1,2,3,6,7,8-HxCDF	57117-44-9	ng/kg	48.5	220	- -	46	32	5.3	20 P, EMPC	13 P, EMPC	5.7 J	5.8	7.7 P, EMPC	2.3 J	9.3	6.9 I, EMPC	7.9	<1.2
2,3,4,6,7,8-HxCDF	60851-34-5	ng/kg	49.3	223	- -	56	58	16	7.6	4.1 J	7.7	5.9	6.7	0.96 I, J, EMPC	5.5	7.3	5.3 J	1.8 J
1,2,3,7,8,9-HxCDF	72918-21-9	ng/kg	49.3	223	- -	18	16	2.0 J	2.5 J	<1.2	<1.5	0.97 I, J, EMPC	<1.4	<0.36	2.2 J	2.4 J	2.3 I, J, EMPC	<1.3
1,2,3,4,6,7,8-HpCDF	67562-39-4	ng/kg	490	2.22E+03	- -	540	340	47	95	50	110	89	100	30	120	140	110	15
1,2,3,4,7,8,9-HpCDF	55673-89-7	ng/kg	490	2.22E+03	- -	38	22	3.3 J	5.5 J	2.2 I, J, EMPC	5.5 I, J, EMPC	5.5 J	5.5 J	0.79 I, J, EMPC	6.5	8.4	5.7	<2.8
OCDF	39001-02-0	ng/kg	1.64E+04	7.44E+04	- -	840	530	65	130	65	210	140	170	49	230	210	170	23
Total TCDF	- -	ng/kg	- -	- -	- -	280	290	33	72	39	34	38	32	7.7	26	27	25	1.9
Total PeCDF	- -	ng/kg	- -	- -	- -	1,400	1,500	220	230	160	150	150	87	28	100	92	74	5.0 J
Total HxCDF	- -	ng/kg	- -	- -	- -	2,100	2,000	130	260	170	230	200	130	42	220	210	180	22
Total HpCDF	- -	ng/kg	- -	- -	- -	1,300	890	130	200	100	280	210	220	66	300	310	230	31
Individual Exceedances (DC)			1	1	- -	7	5	0	0	0	1	0	0	0	0	0	0	0
Cumulative Hazard Index (DC)			1.0	1.0	- -	1.7746	1.4579	0.2136	0.2754	0.1665	0.253	0.181	0.196	0.0428	0.2285	0.2552	0.2148	0.0172
Cumulative Cancer Risk (DC)			1.0E-05	1.0E-05	- -	2.2E-05	1.7E-05	2.5E-06	3.3E-06	2.0E-06	4.2E-06	2.6E-06	2.5E-06	5.8E-07	3.1E-06	3.4E-06	2.3E-06	2.6E-07
Total 2,3,7,8-TCDD Equivalence[1]	- -	ng/kg	4.82	21.8	- -	108	84	12	16	9.6	21	13	11	2.9	15	16	14	1.2

Notes:
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Table 1h
Soil Analytical Results
Riverside Rail Corridor
132 River Street
Wausau, WI 54401
BRRTS# 02-37-584785

					Collected By-->	REI Engineering, Inc.							
					Date-->	*5/12/2021*	*5/12/2021*	*5/12/2021*	*5/12/2021*	*5/12/2021*	*5/12/2021*	*5/12/2021*	*5/11/2021*
					Sample-->	*P17*	*P17*	*P18*	*P18*	*P19*	*P19*	*P20*	*P20*
					Sample Depth--(Inches)-->	*2-3*	*10-12*	*2-3*	*14-16*	*2-3*	*14-16*	*2-3*	*12-14*
					Percent Moisture (%)-->	*26.4*	*16.2*	*18.6*	*4.2*	*25.1*	*15.9*	*14.3*	*3.9*
					Saturated (S) vs Unsaturated (U)-->	*U*	*U*	*U*	*U*	*U*	*U*	*U*	*U*
Dioxin Congeners	CAS Number	Units	Non-Industrial Not-to-Exceed DC RCL	Industrial Not-to-Exceed DC RCL	Groundwater Pathway Protection RCL								
2,3,7,8-TCDD	1746-01-6	ng/kg	4.82	21.8	30.0	0.59 J, I, EMPC	1.2	<2.7 D	<0.37	<0.79	<0.32	<3.1 D	<0.32
1,2,3,7,8-PeCDD	36088-22-9	ng/kg	4.93	22.3	- -	4.7 J	7.6	<1.4 D	<0.21	1.1 J	0.63 J	2.5 J, D	<0.20
1,2,3,4,7,8-HxCDD	39227-28-6	ng/kg	49.3	223	- -	12	18	5.1 J, D	<0.46	2.4 J	0.87 J	3.3 J, D	<0.37
1,2,3,6,7,8-HxCDD	57653-85-7	ng/kg	49.3	223	- -	46	86	20 J, D	<0.44	9.4	3.4 J	11 J, D	1.0 J, I, EMPC
1,2,3,7,8,9-HxCDD	19408-74-3	ng/kg	49.3	223	- -	22	38	9.6 J, D	<0.41	3.9 J, I, EMPC	1.8 J, I, EMPC	5.1 J, D	0.4 J, I, EMPC
1,2,3,4,6,7,8-HpCDD	35822-46-9	ng/kg	484	2.19E+03	- -	900	1,400	360 D	3.9 J	180	72	240 D	17
OCDD	3268-87-9	ng/kg	1.64E+04	7.44E+04	- -	7,000 E	11,000 E	2,700	29	1,400	540	1,900 D	140
Total TCDD	- -	ng/kg	- -	- -	- -	7.9	8.7	<2.7 D	<0.37	5.6	4.0	<3.1 D	<0.32
Total PeCDD	- -	ng/kg	- -	- -	- -	40	51	2.4 J, D	<0.21	11	6.8	7.7 J, D	<0.20
Total HxCDD	- -	ng/kg	- -	- -	- -	300	480	150 D	1.4 J	72	28	84 D	6.2
Total HpCDD	- -	ng/kg	- -	- -	- -	1,700	2,700	710 D	3.9 J	330	130	450 D	33
Furan Congeners													
2,3,7,8-TCDF	51207-31-9	ng/kg	48.2	219	- -	2.1 V	4.2 C	<2.5 D	<0.69	1.6 V	<0.56	<4.0 D	<0.50
1,2,3,7,8-PeCDF	57117-41-6	ng/kg	164	744	- -	3.3 J	5.2	<2.5 D	<0.35	1.2 J	0.91 J	<2.9 D	<0.21
2,3,4,7,8-PeCDF	57117-31-4	ng/kg	16.4	74.4	- -	13	30	17 J, D	<0.38	3.4 J	1.9 J	6.7 J, D	0.43 J
1,2,3,4,7,8-HxCDF	70648-26-9	ng/kg	48.5	220	- -	12	22	8.8 J, D	<0.42	4.2 J	2.1 J	6.8 J, D	0.6 J
1,2,3,6,7,8-HxCDF	57117-44-9	ng/kg	48.5	220	- -	13	24	11 J, D	<0.35	3.9 J	1.9 J	6.9 J, D	0.38 J, I, EMPC
2,3,4,6,7,8-HxCDF	60851-34-5	ng/kg	49.3	223	- -	21	44	19 J, D	<0.41	3.2 J	1.6 J	6.7 J, D	0.53 J, I, EMPC
1,2,3,7,8,9-HxCDF	72918-21-9	ng/kg	49.3	223	- -	4.9	8.1	<4.6 D	<0.33	1.8 J, I, EMPC	0.89 J, I, EMPC	<1.9 D	<0.39
1,2,3,4,6,7,8-HpCDF	67562-39-4	ng/kg	490	2.22E+03	- -	210	340	130 D	1.5 J	62	30	100 D	6.5
1,2,3,4,7,8,9-HpCDF	55673-89-7	ng/kg	490	2.22E+03	- -	13	21	8.7 J, D	<0.57	3.3 J, I, EMPC	1.4 J	5.9 J, I, D, EMPC	<0.51
OCDF	39001-02-0	ng/kg	1.64E+04	7.44E+04	- -	380	590	170 D	2.1 J	120	58	170 D	11
Total TCDF	- -	ng/kg	- -	- -	- -	59	100	43 D	<0.69	20	11	<4.0 D	0.59 J, B
Total PeCDF	- -	ng/kg	- -	- -	- -	200	360	250 D	4.6 J	54	23	84 D	5.4
Total HxCDF	- -	ng/kg	- -	- -	- -	270	660	210 D	2.0 J	100	28	160 D	10
Total HpCDF	- -	ng/kg	- -	- -	- -	540	880	290 D	3.3 J	150	130	240 D	15
Individual Exceedances (DC)			1	1	- -	1	4	1	0	0	0	0	0
Cumulative Hazard Index (DC)			1.0	1.0	- -	0.5416	0.9879	0.2926	0.0015	0.1259	0.0537	0.2024	0.0106
Cumulative Cancer Risk (DC)			1.0E-05	1.0E-05	- -	7.4E-06	1.3E-05	3.7E-06	2.3E-08	1.7E-06	7.0E-07	2.6E-06	1.4E-07
Total 2,3,7,8-TCDD Equivalence[1]	- -	ng/kg	4.82	21.8	- -	36	63	18	0.063	8.1	3.7	13	0.70

Notes:
NR 720 Standards Obtained From WDNR RR Program's Soil RCL Spreadsheet
This site is assessed as Non-Industrial
RCL = Residual Contaminant Level
DC = Direct Contact
ng/kg = Parts Per Trillion (ppt)
< = Concentration Below Laboratory Detection Limit
- = Not Sampled/Collected
- - = No Standard/Not Applicable
TEQ = Toxicity Eqivalent Calculations
[1] = TEQ values calculated using the U.S. EPA 2007 values.

TCDD: Tetrachlorodibenzo-p-dioxin
PeCDD: Pentachlorodibenzo-p-dioxin
HxCDD: Hexachlorodibenzo-p-dioxin
HPCDD: Heptachlorodibenzo-p-dioxin
OCDD: Octachlorodibenzo-p-dioxin
TCDF: Tetrachlorodibenzofuran
PeCDF: Pentachlorodibenzofuran
HxCDF: Hexachlorodibenzofuran
HPCDF: Heptachlorodibenzofuran
OCDF: Octachlorodibenzofuran

Laboratory Qualifiers and Notes:
J = Estimated Value
EMPC = Estimated Maximum Possible Concentration
P = PCDE Interference
I = Interference Present
V = Results verified by confimation analysis
C = Results obtained from confirmation analysis
D = Results obtained from analysis of diluted sample
E = Exceeds calibration Range
Results reported on a dry weight basis and are valid to no more than 2 significant figures

Italic	= Exceeds NR720 Groundwater Pathway Protection
Bold	= Exceeds NR720 Non-Industrial Not-To-Exceed DC RCL
Underlined	= Exceeds NR720 Non-Industrial Not-To-Exceed DC RCL

Table **2**
WAC Chapter NR720 Exceedances
Riverside Rail Corridor
132 River Street
Wausau, WI 54401
BRRTS# 02-37-584785

Compound	WAC Chapter NR720 Non-Industrial Direct Contact RCL Exceedances	Exceedance Count
Dioxins		
2,3,7,8-TCDD	No Exceedances	0
1,2,3,7,8-PeCDD	Culvert In (4-6 inches bls), Culvert Out (4-6 inches bls), 117 Riv 1 (4-6 inches bls), 117 Riv 2 (4-6 inches bls), N4-2 (0-6 inches bls)^, N4-3 (0-6 inches bls)^, R1 (3-5 inches bls), P1 (7-9 inches bls), P8 (2-3 and 10-12 inches bls), P10 (2-3 and 10-12 inches bls), P11 (2-3 and 10-12 inches bls), P17 (10-12 inches bls)	16
1,2,3,4,7,8-HxCDD	No Exceedances	0
1,2,3,6,7,8-HxCDD	Culvert In (4-6 inches bls), Culvert Out (4-6 inches bls), P1 (7-9 and 22-24 inches bls), P8 (2-3 and 10-12 inches bls), P11 (2-3 and 10-12 inches bls), P17 (10-12 inches bls)	9
1,2,3,7,8,9-HxCDD	Culvert In (4-6 inches bls)	1
1,2,3,7,8,9-HpCDD	Culvert In (4-6 inches bls)* , Culvert Out (4-6 inches bls), 117 Riv 1 (4-6 inches bls), 117 Riv 2 (4-6 inches bls), N4-1 (0-6 inches bls)^, N4-2 (0-6 inches bls)^, N4-3 (0-6 inches bls)^, R1 (3-5 inches bls), P1 (2-3, 7-9, and 22-24 inches bls), P6 (2-3 inches bls), P7 (2-3 inches bls), P8 (2-3 and 10-12 inches bls), P9 (2-3 inches bls), P10 (10-12 inches bls), P11 (2-3 and 10-12 inches bls), P13, (2-3 inches), P17 (2-3 and 10-12 inches bls)	22
OCDD	Culvert In (4-6 inches bls), P11 (2-3 inches bls)	2
Furans		
2,3,7,8-TCDF	No Exceedances	0
1,2,3,7,8-PeCDF	N4-2 (0-6 inches bls)	1
2,3,4,7,8-PeCDF	Culvert In (4-6 inches bls), Culvert Out (4-6 inches bls)*, 1003 EMT (8-10 inches bls)*, N4-3 (0-6 inches bls)^, P1 (2-3, 7-9, and 22-24 inches bls), P6 (2-3 inches bls), P8 (2-3 and 10-12 inches bls), P10 (2-3 and 10-12 inches bls), P11 (2-3 and 10-12 inches bls), P17 (10-12 inches bls), P18 (2-3 inches bls)	15
1,2,3,4,7,8-HxCDF	N4-3 (0-6 inches bls)^	1
1,2,3,6,7,8-HxCDF	No Exceedances	0
2,3,4,6,7,8-HxCDF	Culvert In (4-6 inches bls), Culvert Out (4-6 inches bls), 1003 EMT (8-10 inches bls), P11 (2-3 and 10-12 inches bls)	4
1,2,3,7,8,9-HxCDF	No Exceedances	0
1,2,3,4,6,7,8-HpCDF	Culvert In (4-6 inches bls), P11 (2-3 inches bls)	2
1,2,3,4,7,8,9-HpCDF	No Exceedances	0
OCDF	No Exceedances	0
Cumulative Hazard Index	Culvert In (4-6 inches bls), Culvert Out (4-6 inches bls), N4-3 (0-6 inches bls)^	3
Cumulative Cancer Risk	Culvert In (4-6 inches bls), Culvert Out (4-6 inches bls), N4-3 (0-6 inches bls)^, P1 (7-9 inches bls, P8 (2-3 and 10-12 inches bls), P10 (2-3 inches bls), P11 (2-3 and 10-12 inches bls), P17 (10-12 inches bls)	10

Notes:
WAC = Wisconsin Administrative Code
* = Concentration also exceeded the WAC Chapter NR720 Industrial Direct Contact RCLs.
^ = Sample location excavated during redevelopment

FIGURES

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SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2

1000 500 0 METERS 1000 2000

1 0.5 0 1

MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

FEET

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

MN
GN
2°50'
50 MILS
1°54'
34 MILS

UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

WAUSAU WEST QUADRANGLE
WISCONSIN - MARATHON COUNTY
7.5-MINUTE SERIES

QUADRANGLE LOCATION

WAUSAU WEST, WI
2018
REI ENGINEERING, INC.

RIVERSIDE RAILROAD CORRIDOR 132 RIVER STREET WAUSAU, WI	N	FIGURE 1 : VICINITY MAP	
		PROJECT NO. 9073	DRAWN BY: MCM
			DATE: 9/13/2021

DRAWING FILE: P:\9000-9099\9073 - CITY OF WAUSAU RIVERSIDE RR CORRIDOR\DWGS\9073-VICN.DWG LAYOUT: RR CORRIDOR PLOTTED: SEP 13, 2021 - 2:12PM PLOTTED BY: MATTM

DRAWING FILE: P:\9000-9099\9073 - City of Wausau Riverside RR Corridor\DWGS\9073-Detailed Site.dwg LAYOUT: Site (24X36) PLOTTED: Sep 13, 2021 - 2:12pm PLOTTED BY: MattM

LEGEND

0 150 300
SCALE: 1" = 150'

- SOIL SAMPLE - PARK - REI ENGINEERING, INC
- SOIL SAMPLE - RR CORRIDOR - REI ENGINEERING, INC
- SOIL SAMPLE (2020) - ARCADIS
- SOIL SAMPLE (2019) - SAND CREEK CONSULTANTS, INC
- SOIL SAMPLE (2019) - TRC
- SOIL SAMPLE (2018) - SAND CREEK CONSULTANTS, INC
- SOIL SAMPLE (2017) - AECOM
- SOIL SAMPLE (2008) - CWE, INC
- SOIL SAMPLE (2006) - CWE, INC
- PROPERTY BOUNDARIES (APPROXIMATE)

NOTES:

1. ARCADIS SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON ARCADIS's MAP "SUMMARY OF SOIL ANALYTICAL RESULTS", IDENTIFIED AS FIGURE 1 OF THE NOTIFICATION OF HAZARDOUS SUBSTANCE DISCHARGE (BRRTS#: 02-37-587000).
2. TRC SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON TRC's MAP "LOCATION OF 36 SOIL SAMPLES AND RCL EXCEEDANCES", IDENTIFIED AS FIGURE 6 (OCTOBER 2019).
3. SAND CREEK CONSULTANTS, INC SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON THE CITY OF WAUSAU AND MARATHON COUNTY GIS MAP "SOIL SAMPLES LOCATIONS RIVERSIDE PARK" (DECEMBER 2019)
4. CWE, INC. SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON CWE'S MAP "SAMPLE LOCATION MAP" (OCTOBER 2009)
5. ONE (1) CWE, INC. SOIL SAMPLE IS NOT DEPICTED ON THIS MAP. THE UNMAPPED LOCATION WAS FOR A SAMPLE COLLECTED FROM THE WOODS BEHIND THE FORMER CWE OFFICE (5707 SCHOFIELD, AVE, WESONT, WI).

N

REI Engineering, INC.

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RIVERSIDE RAILROAD CORRIDOR
132 RIVER STREET
WAUSAU, WISCONSIN

FIGURE 2 : DETAILED SITE MAP

PROJECT No.	DRAWN BY:	DATE:
9073	MCM	9/13/2021

LEGEND

0 60

SCALE: 1" = 60'

- SOIL SAMPLE - RR CORRIDOR - REI ENGINEERING, INC
- SOIL SAMPLE (2019) - TRC
- SOIL SAMPLE (2017) - AECOM
- SOIL SAMPLE (2008) - CWE, INC

PROPERTY BOUNDARIES (APPROXIMATE)

NOTES:

1. TRC SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON TRC's MAP "LOCATION OF 36 SOIL SAMPLES AND RCL EXCEEDANCES", IDENTIFIED AS FIGURE 6 (OCTOBER 2019).
2. CWE, INC. SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON CWE'S MAP "SAMPLE LOCATION MAP" (OCTOBER 2009)
3. NOT ALL SAMPLE LOCATIONS ARE IDENTIFIED ON THIS MAP. ALL AVAILABLE SAMPLE LOCATIONS ARE DEPICTED ON THE EXPANDED DETAILED SITE MAP UNLESS NOTED.

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RIVERSIDE RAILROAD CORRIDOR
132 RIVER STREET
WAUSAU, WISCONSIN

FIGURE 3 : DETAILED SITE MAP - RAILROAD

PROJECT No.	DRAWN BY:	DATE:
9073	MCM	9/13/2021

REI Engineering, INC.

DRAWING FILE: P:\9000-9099\9073 - CITY OF WAUSAU RIVERSIDE RR CORRIDOR\DWGS\9073-DETAILED SITE.DWG LAYOUT: RR CLOSEUP PLOTTED: SEP 13, 2021 - 2:13PM PLOTTED BY: MATTM

LEGEND

0 60

SCALE: 1" = 60'

- SOIL SAMPLE - PARK - REI ENGINEERING, INC
- SOIL SAMPLE - RR CORRIDOR - REI ENGINEERING, INC
- SOIL SAMPLE (2019) - SAND CREEK CONSULTANTS, INC
- SOIL SAMPLE (2019) - TRC
- SOIL SAMPLE (2008) - CWE, INC
- SOIL SAMPLE (2006) - CWE, INC

PROPERTY BOUNDARIES (APPROXIMATE)

NOTES:

1. TRC SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON TRC's MAP "LOCATION OF 36 SOIL SAMPLES AND RCL EXCEEDANCES", IDENTIFIED AS FIGURE 6 (OCTOBER 2019).
2. SAND CREEK CONSULTANTS, INC SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON THE CITY OF WAUSAU AND MARATHON COUNTY GIS MAP "SOIL SAMPLES LOCATIONS RIVERSIDE PARK" (DECEMBER 2019)
3. CWE, INC. SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON CWE'S MAP "SAMPLE LOCATION MAP" (OCTOBER 2009)
4. NOT ALL SAMPLE LOCATIONS ARE IDENTIFIED ON THIS MAP. ALL AVAILABLE SAMPLE LOCATIONS ARE DEPICTED ON THE EXPANDED DETAILED SITE MAP UNLESS NOTED.

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RIVERSIDE RAILROAD CORRIDOR
132 RIVER STREET
WAUSAU, WISCONSIN

FIGURE 4 : DETAILED SITE MAP - PARK

PROJECT No.	DRAWN BY:	DATE:
9073	MCM	9/13/2021

REI Engineering, INC.

DRAWING FILE: P:\9000-9099\9073 - CITY OF WAUSAU RIVERSIDE RR CORRIDOR\DWGS\9073-DETAILED SITE.DWG LAYOUT: PARK CLOSEUP PLOTTED: SEP 13, 2021 - 2:14PM PLOTTED BY: MATTM

DRAWING FILE: P:\9000-9099\9073 - CITY OF WAUSAU RIVERSIDE RR CORRIDOR\DWGS\9073-DETAILED SITE.DWG LAYOUT: PARK CULVERT CLOSEUP PLOTTED: SEP 13, 2021 - 2:15PM PLOTTED BY: MATTM

P19
P20
P15
P14
RP-103
P2
P3
P13
RP-102
P9
CULV. OUT.
P10
P18
P8
P1
P11
P7
R1
CULVERT
P17
CULV. IN.
RP-101
P12
120 RIV
P6
R2
122E

LEGEND

0 30
SCALE: 1" = 30'

- SOIL SAMPLE - PARK - REI ENGINEERING, INC
- SOIL SAMPLE - RR CORRIDOR - REI ENGINEERING, INC
- SOIL SAMPLE (2019) - SAND CREEK CONSULTANTS, INC
- SOIL SAMPLE (2008) - CWE, INC
- SOIL SAMPLE (2006) - CWE, INC

PROPERTY BOUNDARIES (APPROXIMATE)

NOTES:
1. SAND CREEK CONSULTANTS, INC SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON THE CITY OF WAUSAU AND MARATHON COUNTY GIS MAP "SOIL SAMPLES LOCATIONS RIVERSIDE PARK" (DECEMBER 2019)
2. CWE, INC. SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON CWE'S MAP "SAMPLE LOCATION MAP" (OCTOBER 2009)
3. NOT ALL SAMPLE LOCATIONS ARE IDENTIFIED ON THIS MAP. ALL AVAILABLE SAMPLE LOCATIONS ARE DEPICTED ON THE EXPANDED DETAILED SITE MAP UNLESS NOTED.

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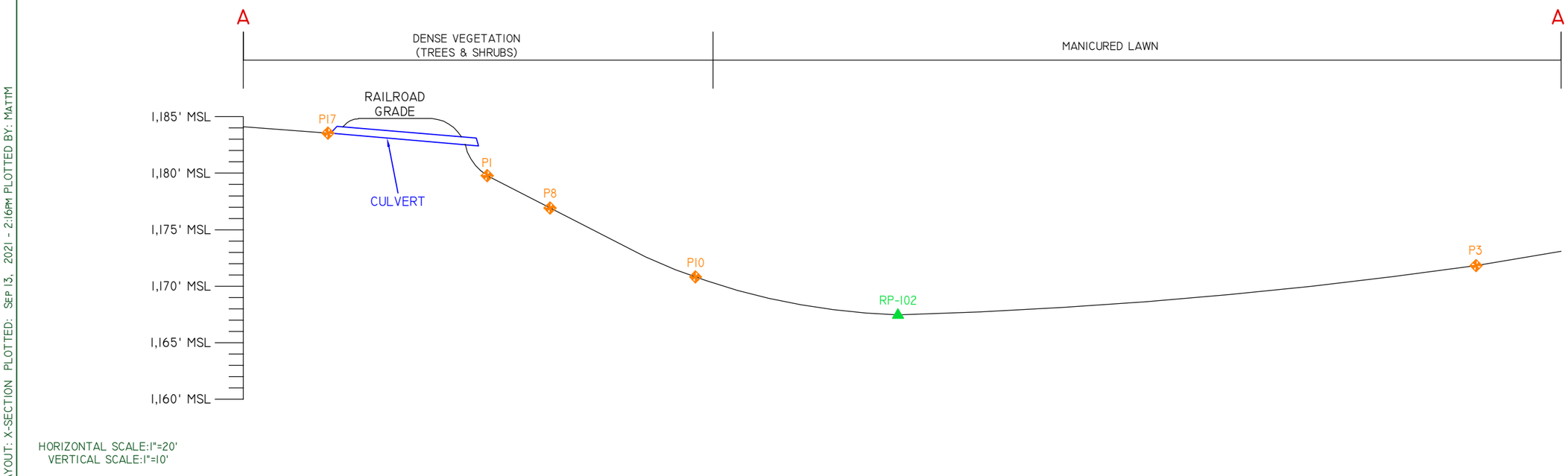
RIVERSIDE RAILROAD CORRIDOR
132 RIVER STREET
WAUSAU, WISCONSIN

FIGURE 5 : DETAILED SITE MAP - PARK CULVERT

PROJECT No.	DRAWN BY:	DATE:
9073	MCM	9/13/2021

REI Engineering, INC.



REI ENGINEERING, INC.

LEGEND

0 30

SCALE: 1" = 30'

- SOIL SAMPLE - PARK (2020) - REI ENGINEERING, INC
- SOIL SAMPLE - RR CORRIDOR (2020) - REI ENGINEERING, INC
- SOIL SAMPLE (2019) - SAND CREEK CONSULTANTS, INC
- SOIL SAMPLE (2006) - CWE, INC

PROPERTY BOUNDARIES (APPROXIMATE)

N

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RIVERSIDE RAILROAD CORRIDOR
132 RIVER STREET
WAUSAU, WISCONSIN

FIGURE 6 : ELEVATION PROFILE A-A'

PROJECT No.	DRAWN BY:	DATE:
9321	MCM	9/13/2021

DRAWING FILE:: P:\9000-9099\9073 - CITY OF WAUSAU RIVERSIDE RR CORRIDOR\DWGS\9073-X SECTION.DWG LAYOUT: X-SECTION PLOTTED: SEP 13, 2021 - 2:16PM PLOTTED BY: MATTM

NOTES:

1. SHALLOW HALLOW SOIL CONTAMINATION IS BASED ON UNSATURATED SOIL ANALYTICAL RESULTS FOR SAMPLES COLLECTED WITHIN THE TOP TEN (10) TO TWELVE (12) INCHES OF THE SOIL COLUMN.
2. ARCADIS SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON ARCADIS'S MAP "SUMMARY OF SOIL ANALYTICAL RESULTS", IDENTIFIED AS FIGURE 1 OF THE NOTIFICATION OF HAZARDOUS SUBSTANCE DISCHARGE (BRRTS#: 02-37-587000).
3. TRC SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON TRC'S MAP "LOCATION OF 36 SOIL SAMPLES AND RCL EXCEEDANCES", IDENTIFIED AS FIGURE 6 (OCTOBER 2019).
4. SAND CREEK CONSULTANTS, INC SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON "HE CITY OF WAUSAU AND MARATHON COUNTY GIS MAP "SOIL SAMPLES LOCATIONS RIVERSIDE PARK" (DECEMBER 2019)
5. CWE, INC. SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON CWE'S MAP "SAMPLE LOCATION MAP" (OCTOBER 2009)
6. ONE (1) CWE, INC. SOIL SAMPLE IS NOT DEPICTED ON THIS MAP. THE UNMAPPED LOCATION WAS FOR A SAMPLE COLLECTED FROM THE WOODS BEHIND THE FORMER CWE OFFICE (5707 SCHOFIELD, AVE, WESONT, WI).

N

REI Engineering, INC.

REI
CIVIL & ENVIRONMENTAL ENGINEERING, SURVEYING

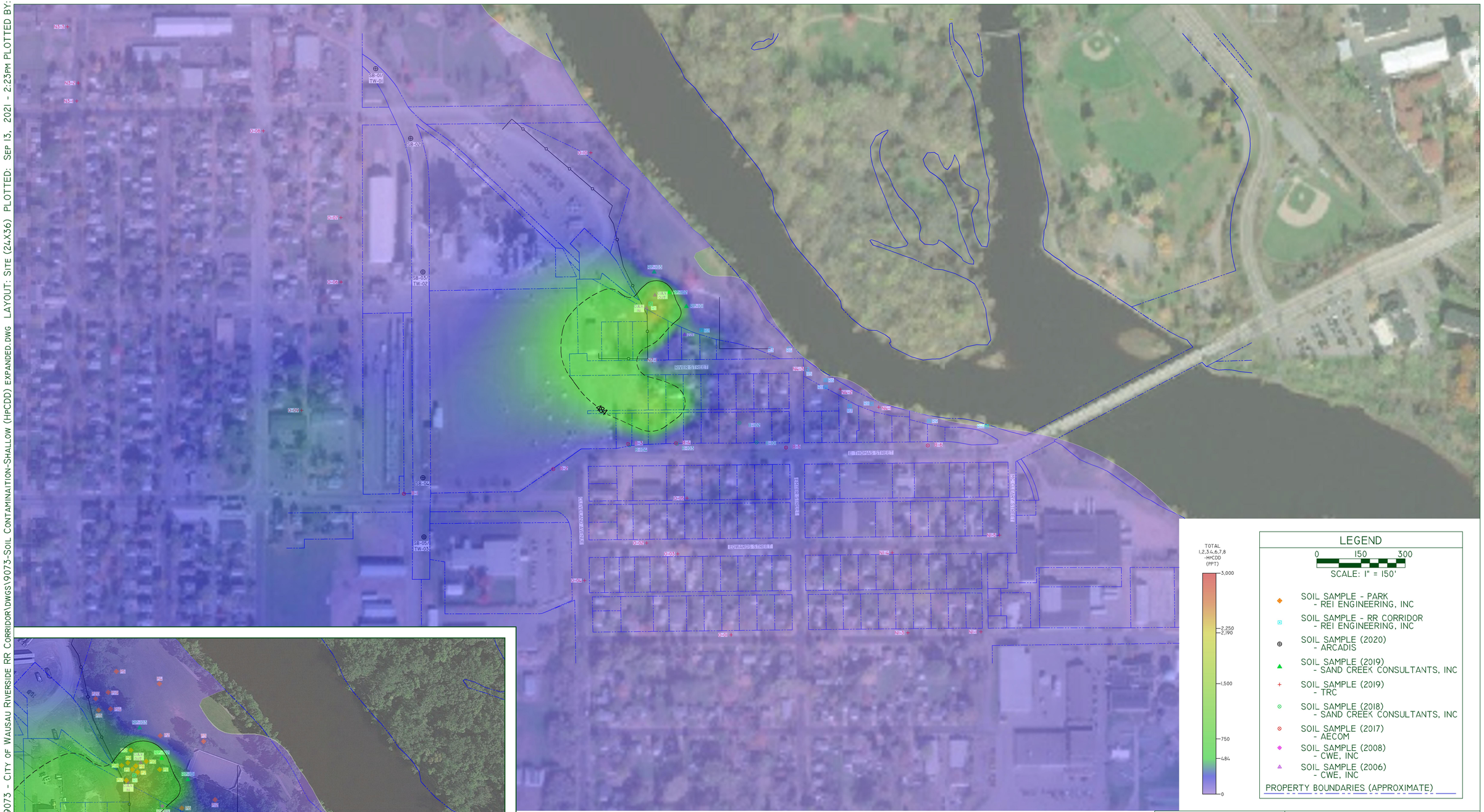
RIVERSIDE RAILROAD CORRIDOR
132 RIVER STREET
WAUSAU, WISCONSIN

FIGURE 7 : SOIL CONTAMINATION - NR720 IDIVIDUAL EXCEEDANCES

PROJECT No.	DRAWN BY:	DATE:
9073	MCM	9/13/2021

DRAWING FILE: P:\9000-9099\9073 - CITY OF WAUSAU RIVERSIDE RR CORRIDOR\DWGS\9073-SOIL CONTAMINATION-NR720.DWG LAYOUT: SITE (24X36) PLOTTED: SEP 13, 2021 - 2:22PM PLOTTED BY: MATTM

DRAWING FILE: P:\9000-9099\9073 - CITY OF WAUSAU RIVERSIDE RR CORRIDOR\DWGS\9073-SOIL CONTAMINAITION-SHALLOW (HPCDD) EXPANDED.DWG LAYOUT: SITE (24X36) PLOTTED: SEP 13, 2021 - 2:23PM PLOTTED BY: MATTI



NOTES:

1. SHALLOW HALLOW SOIL CONTAMINATION IS BASED ON UNSATURATED SOIL ANALYTICAL RESULTS FOR SAMPLES COLLECTED WITHIN THE TOP TEN (10) TO TWELVE (12) INCHES OF THE SOIL COLUMN.
2. ARCADIS SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON ARCADIS'S MAP "SUMMARY OF SOIL ANALYTICAL RESULTS", IDENTIFIED AS FIGURE 1 OF THE NOTIFICATION OF HAZARDOUS SUBSTANCE DISCHARGE (BRRTS#: 02-37-587000).
3. TRC SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON TRC'S MAP "LOCATION OF 36 SOIL SAMPLES AND RCL EXCEEDANCES", IDENTIFIED AS FIGURE 6 (OCTOBER 2019).
4. SAND CREEK CONSULTANTS, INC SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON "HE CITY OF WAUSAU AND MARATHON COUNTY GIS MAP "SOIL SAMPLES LOCATIONS RIVERSIDE PARK" (DECEMBER 2019)
5. CWE, INC. SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON CWE'S MAP "SAMPLE LOCATION MAP" (OCTOBER 2009)
6. ONE (1) CWE, INC. SOIL SAMPLE IS NOT DEPICTED ON THIS MAP. THE UNMAPPED LOCATION WAS FOR A SAMPLE COLLECTED FROM THE WOODS BEHIND THE FORMER CWE OFFICE (5707 SCHOFIELD, AVE, WESONT, WI).

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REI Engineering, INC.

REI
CIVIL & ENVIRONMENTAL ENGINEERING, SURVEYING

RIVERSIDE RAILROAD CORRIDOR
132 RIVER STREET
WAUSAU, WISCONSIN

FIGURE 8 : SOIL CONTAMINATION - SHALLOW (1,2,3,4,6,7,8-HPCDD)

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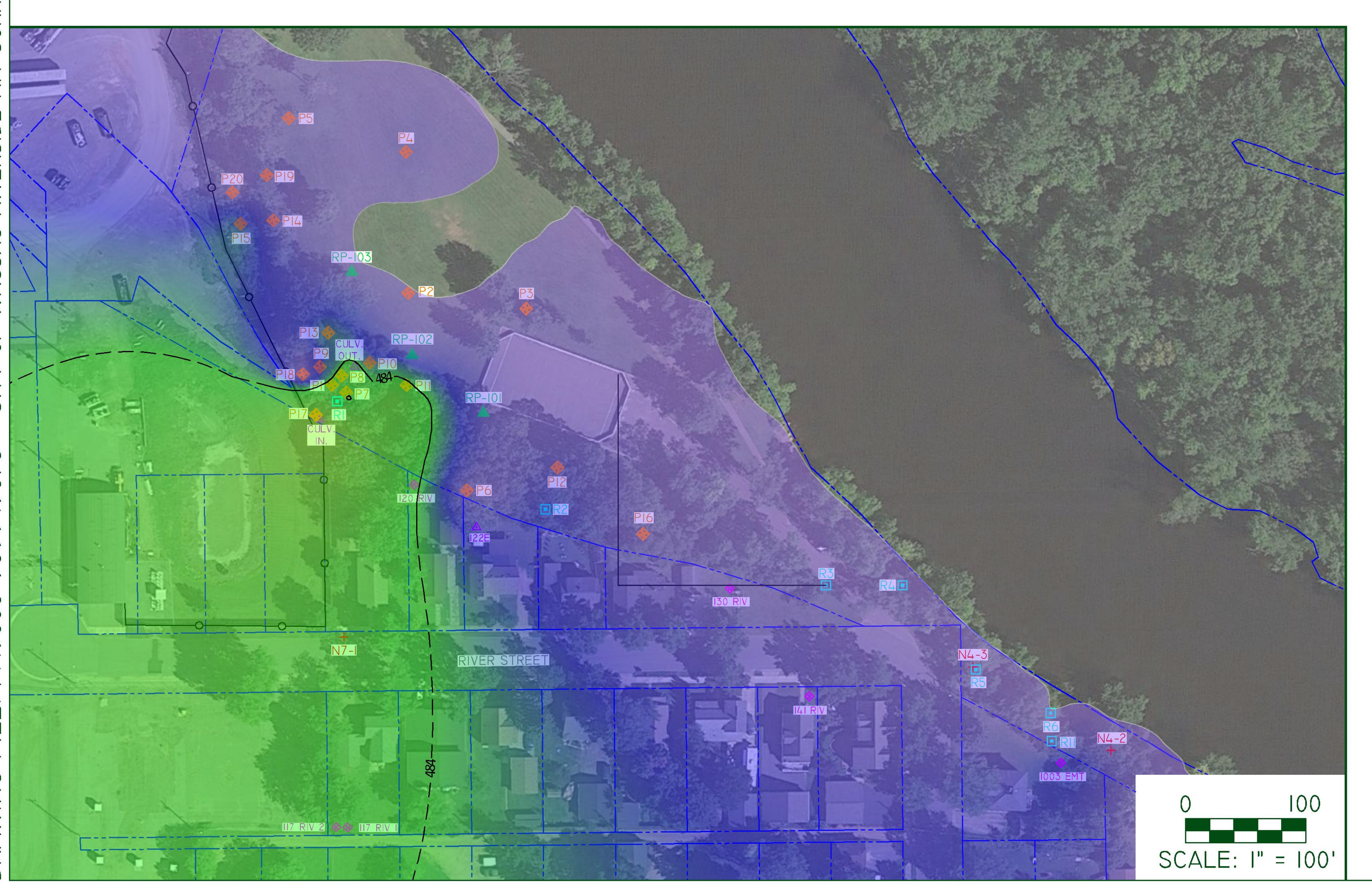

NOTES:

1. SHALLOW HALLOW SOIL CONTAMINATION IS BASED ON UNSATURATED SOIL ANALYTICAL RESULTS FOR SAMPLES COLLECTED AT DEPTHS GREATER THAN TEN (10) TO TWELVE (12) INCHES BELOW LAND SURFACE.
2. ARCADIS SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON ARCADIS's MAP "SUMMARY OF SOIL ANALYTICAL RESULTS", IDENTIFIED AS FIGURE 1 OF THE NOTIFICATION OF HAZARDOUS SUBSTANCE DISCHARGE (BRRTS#: 02-37-587000).
3. TRC SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON TRC's MAP "LOCATION OF 36 SOIL SAMPLES AND RCL EXCEEDANCES", IDENTIFIED AS FIGURE 6 (OCTOBER 2019).
4. SAND CREEK CONSULTANTS, INC SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON THE CITY OF WAUSAU AND MARATHON COUNTY GIS MAP "SOIL SAMPLES LOCATIONS RIVERSIDE PARK" (DECEMBER 2019)
5. CWE, INC. SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON CWE'S MAP "SAMPLE LOCATION MAP" (OCTOBER 2009)
6. ONE (1) CWE, INC. SOIL SAMPLE IS NOT DEPICTED ON THIS MAP. THE UNMAPPED LOCATION WAS FOR A SAMPLE COLLECTED FROM THE WOODS BEHIND THE FORMER CWE OFFICE (5707 SCHOFIELD, AVE, WESONT, WI).

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FIGURE 9 : SOIL CONTAMINATION - DEEP (1,2,3,4,6,7,8-HpCDD)

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9073	MCM	9/13/2021

DRAWING FILE: P:\9000-9099\9073 - CITY OF WAUSAU RIVERSIDE RR CORRIDOR\DWGS\9073-SOIL CONTAMINAITION-DEEP (HPCDD) EXPANDED.DWG LAYOUT: SITE (24X36) PLOTTED: SEP 13, 2021 - 2:24PM PLOTTED BY: MATTM

DRAWING FILE: P:\9000-9099\9073 - CITY OF WAUSAU RIVERSIDE RR CORRIDOR\DWGS\9073-SOIL CONTAMINAITION-NR720.DWG LAYOUT: SITE (24X36) PLOTTED: MAY 25, 2022 - 1:32PM PLOTTED BY: MATTM

LEGEND

0 60 120

SCALE: 1" = 60'

PROPOSED EXCAVATION TO 1 FOOT BLS

PROPOSED EXCAVATION TO 3-4 FEET BLS

- SOIL SAMPLE - PARK - REI ENGINEERING, INC
- SOIL SAMPLE - RR CORRIDOR - REI ENGINEERING, INC
- SOIL SAMPLE (2020) - ARCADIS
- SOIL SAMPLE (2019) - SAND CREEK CONSULTANTS, INC
- SOIL SAMPLE (2019) - TRC
- SOIL SAMPLE (2018) - SAND CREEK CONSULTANTS, INC
- SOIL SAMPLE (2017) - AECOM
- SOIL SAMPLE (2008) - CWE, INC
- SOIL SAMPLE (2006) - CWE, INC

EXCEEDES WAC CHAPTER NR720 NON-INDUSTRIAL DIRECT CONTACT RCLs

EXCEEDES WAC CHAPTER NR720 INDUSTRIAL DIRECT CONTACT RCLs

PROPERTY BOUNDARIES (APPROXIMATE)

NOTES:

1. SHALLOW HALLOW SOIL CONTAMINATION IS BASED ON UNSATURATED SOIL ANALYTICAL RESULTS FOR SAMPLES COLLECTED WITHIN THE TOP TEN (10) TO TWELVE (12) INCHES OF THE SOIL COLUMN.
2. ARCADIS SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON ARCADIS'S MAP "SUMMARY OF SOIL ANALYTICAL RESULTS", IDENTIFIED AS FIGURE 1 OF THE NOTIFICATION OF HAZARDOUS SUBSTANCE DISCHARGE (BRRTS#: 02-37-587000).
3. TRC SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON TRC'S MAP "LOCATION OF 36 SOIL SAMPLES AND RCL EXCEEDANCES", IDENTIFIED AS FIGURE 6 (OCTOBER 2019).
4. SAND CREEK CONSULTANTS, INC SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON THE CITY OF WAUSAU AND MARATHON COUNTY GIS MAP "SOIL SAMPLES LOCATIONS RIVERSIDE PARK" (DECEMBER 2019)
5. CWE, INC. SOIL SAMPLE LOCATIONS ARE AN APPROXIMATION BASED ON CWE'S MAP "SAMPLE LOCATION MAP" (OCTOBER 2009)
6. ONE (1) CWE, INC. SOIL SAMPLE IS NOT DEPICTED ON THIS MAP. THE UNMAPPED LOCATION WAS FOR A SAMPLE COLLECTED FROM THE WOODS BEHIND THE FORMER CWE OFFICE (5707 SCHOFIELD, AVE, WESONT, WI).

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WAUSAU, WISCONSIN

FIGURE 10 : PROPOSED EXCAVATION BOUNDARIES

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APPENDIX A

MARATHON COUNTY LANDFILL SAMPLING REQUIREMENTS

Protocol 1

Analytical Parameter	Acceptance Criteria
pH	2.5 < pH < 12.0
Total solids	> 40%
Free liquids (paint filter)	0%
Flash point (closed cup)	> 140°F
TCLP Metals[2]	
arsenic	< 5.0 mg/1
barium	< 100.0 mg/1
cadmium	< 1.0 mg/1
chromium	< 5.0 mg/1
copper	< 100.0 mg/1
lead	< 5.0 mg/1
mercury	< 0.2 mg/1
nickel	< 35.0 mg/l
selenium	< 1.0 mg/1
silver	< 5.0 mg/1
zinc	< 200.0 mg/l
TCLP Organics[2]	
benzene	< 0.5 mg/1
carbon tetrachloride	< 0.5 mg/1
chlorobenzene	< 100.0 mg/1
chloroform	< 6.0 mg/1
o-cresol	< 200.0 mg/1*
m-cresol	< 200.0 mg/l*
p-cresol	< 200.0 mg/1*
1,4-dichlorobenzene	< 7.5 mg/1
1,2-dichloroethane	< 0.5 mg/1
1,1-dichloroethene	< 0.7 mg/1
2,4-dinitrotoluene	< 0.13 mg/1
hexachlorobenzene	< 0.13 mg/1
hexachloro-1,3-butadiene	< 0.5 mg/1
hexachloroethane	< 3.0 mg/1
methyl ethyl ketone	< 200.0 mg/1
nitrobenzene	< 2.0 mg/1
pentachlorophenol	< 100.0 mg/1
pyridine	< 5.0 mg/1
tetrachloroethene	< 0.7 mg/1
trichloroethene	< 0.5 mg/1
2,4,5-trichlorophenol	< 400.0 mg/l
2,4,6-trichlorophenol	< 2.0 mg/1
vinyl chloride	< 0.2 mg/1