AN ALLETE COMPANY

May 12, 2023

Mr. John Sager
Wisconsin Departement of Natural Resouces
Superior Service Center
1701 N 4th Street
Superior, WI 54880

RE: Work Plan for the Investigation and Remediation of Soil and Groundwater beneath the Former MGP Building, Superior Water, Light & Power MGP Site, BRRTS No. 02-16-275446

Dear Mr. Sager:

Graymont demolished the former manufactured gas plant (MGP) building the week of March 13, 2023, and excavated the concrete foundation the week of May 1, 2023. Wisconsin Department of Natural Resources (WDNR) was notified. Since the building was located over an area of suspected contamination, WDNR has determined that further investigation and/or remedial action (RA) are needed within this area of the site. This includes Superior Water, Light & Power (SWL&P) investigating contamination beneath the former MGP building as required in Wisconsin Administrative Code Ch. NR716 and amending the WDNR GIS Registry to include residual contamination beneath the building once RA construction is complete. These activities can be conducted in conjunction with RA construction.

The *100% Remedial Action Design Report - Upland Area (RAD)* was prepared by Foth Infrastructure & Environment LLC (Foth) and submitted to WDNR, on behalf of SWL&P, on October 7, 2022. WDNR provided conditional approval of the *RAD,* on December 29, 2022. Revisions to the *RAD* were provided to WDNR, on March 10, 2023 (Foth, 2023a). The *RAD* established the basis for evaluating residual soil and groundwater contamination and appropriate RA.

The purpose of this Work Plan is to provide an investigation and remediation plan for soil and groundwater beneath the former MGP building that will be performed by SWL&P in the footprint of the building. The objectives are to determine if residual volatile organic compound (VOC) or polynuclear aromatic hydrocarbon (PAH) soil contamination exists beneath the building and remediate residual soil and groundwater contamination consistent with the *RAD*.

Introduction

The basis for the investigation and additional RA is based upon the *RAD* and includes the following activities in the area beneath the former MGP building:

- Exploratory soil borings beneath the foundation of the former MGP building.

- Excavation of soil beneath the former MGP building foundation, as necessary, depending on soil boring results. Soil excavation of shallow soil above direct contact soil residual contaminant levels (RCLs) for soil <4 feet below ground surface (bgs) and of soil >4 feet above the Site-Specific Excavation Target Concentration.

- Excavation confirmation sampling following soil excavation including excavation side walls and bottom.

- Evaluation of soil confirmation data for compliance with direct contact RCLs for soil <4 feet bgs and with Site-Specific Excavation Target Concentrations for soil >4 feet bgs.

- Disposal of excavated soil.

- Backfilling the excavation with clean, imported, low-permeability backfill.

Location of the former MGP Building

A photo of the former MGP building is provided on Figure 1. The location of the former MGP building is shown on Figure 2. Gravel parking areas surround the former MGP building, and several vacant parcels of land that were used during historic Site operations are located immediately to the west, southwest, and south of this building.

Demolition and Removal of Remaining Subsurface Concrete

The concrete foundation will be demolished as described in the *RAD* (Appendix E, Specification 02 41 13. Part 2). MGP-related structures within the extents of excavation will be removed entirely. An estimated 140 cubic yards of concrete (280 tons) will be removed from beneath the former MGP building.

Exploratory Soil Borings in Footprint of Former MGP Building

Soil borings for environmental sampling will be advanced using a direct push or other environmental drill rig type at four locations identified on Figure 2 as MGP-B-128, MGP-B-129, MGP-B-130, and MGP-B-131. The borings will be advanced from the base of the removed foundation to a total depth of approximately 6 feet. Continuous soil cores will be collected from these borings for soil characterization, to be performed by Foth. Soil cores will be photographed, screened with a photoionization detector (PID), visually characterized, and logged. Observations and measurements will be recorded for each boring on the Soil Logging Form included in the *Remedial Action Quality Assurance Project Plan (QAPP)* (Foth, 2023b) according to textural class, color, moisture content, particle size and shape, consistency, and other observations (for example, staining and odor). Boreholes will be advanced as close as possible to the locations shown on Figure 2. If refusal is encountered, the borehole will be offset within 10 feet of the original location. If refusal is encountered three times, the Foth Field Team Leader or designee will contact the Foth Project Manager for further instruction to relocate the sample location or accept a boring with less than continuous recovery.

All cores from the borehole will be collected and laid out before opening to avoid losing VOCs to volatilization. Then, all cores will be opened and screened with a PID. The first sample interval will be selected based on highest PID readings or visual impacts. If no impacts are noted, the sample will be collected at the base of the excavation where the foundation was removed. A second sample will be collected at the terminus of the soil boring. Remaining soil samples from each of the soil borings will be archived in 1-foot intervals in case additional data are needed to define the depth of potential impacts.

The contracted laboratory will archive the samples in a manner that will preserve the sample integrity. Two soil samples from each boring location will be selected for initial laboratory analyses, as previously described. Assuming 100% soil recovery during drilling, a total of two samples for laboratory analysis and four samples for laboratory archiving will be collected from each boring for a total of 24 samples, not including quality assurance/quality control (QA/QC) samples.

At all soil sample intervals, the VOC sample will be collected first with an En Core® sampling syringe, or similar, directly from the core for off-site laboratory analysis. A duplicate core will be collected for on-site Frog5000 analysis of BTEX and naphthalene. Then, a sufficient and representative quantity of soil sample will be collected from the core and homogenized in a clean aluminum or stainless-steel bowl with a clean steel spoon before placing the soil sample in the laboratory containers. The required analytical parameters are summarized in Table 1.

Table 1
Sampling and Analysis Summary
MGP Building Soil Investigation
Superior Water, Light & Power
Superior Wisconsin

Sample Location	VOC	PAH	TPH-DRO/ORO	TPH-GRO	TOC	Field SPT/PP	Visual Field Classification
MGP-B-128	X	X	X	X	X	X	X
MGP-B-129	X	X	X	X	X	X	X
MGP-B-130	X	X	X	X	X	X	X
MGP-B-131	X	X	X	X	X	X	X

Notes:

Refer to the QAPP (Foth, 2023b) for method codes, sample containers, and preservatives.

PAH - polycyclic aromatic hydrocarbons
SPT/PP - standard penetration test/pocket penetrometer
TPH - total petroleum hydrocarbons
VOC - volatile organic compounds
GRO - gas range organics
DRO - diesel range organics
TOC - total organic carbon

Prepared by: HLH
Checked by: BDS

Soil samples will be collected in laboratory-supplied containers, preserved on ice, and submitted to the laboratories with a completed chain of custody in a manner consistent

with the *QAPP*. Reusable tools will be decontaminated between samples following the processes described in the *QAPP*.

Investigation Derived Waste (IDW) will be handled as described in Section 4 of the *Field Sampling Plan (FSP)* (Foth, 2023c), samples will be handled as described in Section 5 of the *FSP,* and field documentation will be completed as described in Section 5.3. of the *FSP*.

Field sampling precision, accuracy, and bias will be evaluated by collecting the QA/QC samples. QA/QC samples will be collected at a 5% frequency for field duplicates. One matrix spike/matrix spike duplicate (MS/MSD) sample will be collected per sample batch in accordance with laboratory performance criteria detailed in Table 4-1 of the *FSP*. For this field event, it is likely that one MS/MSD sample will be required for each analysis type. Equipment rinse blanks will be collected from each piece of non-disposable sampling equipment to assess equipment decontamination. Further detail regarding QA/QC samples is provided in the *QAPP*.

Soil Excavation

Once the results of the soil boring samples have been analyzed using the field GC (Frog5000) for BTEX and naphthalene and evaluated against excavation criteria (*FSP*, Table 2-1), soil will be excavated under the footprint of the former MGP building, as necessary. Shallow soils <4 feet bgs with concentrations above the surface soil RCLs will be excavated and deeper soils >4 ft bgs exceeding the Site-Specific Excavation Target Concentration, additional soil will be excavated consistent with the *RAD*.

Excavation of soil will proceed as described in the *RAD* for soil excavations in Area 1 and Area 2 including Sections 2.6 (Excavation) and 4.1 (Soil Excavation, Solidification, and Off-site Landfilling), and in Section 8.1 (Excavation Extents and Confirmation), of the *FSP,* which was submitted to WDNR on March 10, 2023.

Excavation Confirmation Sampling

Excavation confirmation sampling will be conducted following concrete removal and soil excavations relevant to areas adjacent to and beneath the former MGP building, which is described in Section 4.3, Table 4-1, of the *FSP*. Planned excavation confirmation sampling locations for the area beneath the former MGP building are shown on Figure 3.

Based on the excavation confirmation sampling, the need for further RA will be evaluated. If shallow soil is above the surface soil RCLs for soil <4 feet bgs or if soil >4 feet is above the Site-Specific Excavation Target Concentration, additional soil will be excavated consistent with the *RAD*.

Disposal of Excavated Soil

Excavated soil will be solidified, if needed, loaded into haul vehicles, and disposed of at the off-site Shamrock Landfill as described in Section 2, of the *RAD*.

Backfilling Excavations

The excavation beneath the former MGP building will be backfilled with clean, imported, low-permeability backfill as described in Section 2, of the *RAD*. Excavated debris and soil will not be used as backfill in on-site excavations.

Groundwater Sampling and Remediation of Residual Groundwater Contamination

Sampling of new and existing groundwater monitoring wells near the former MGP building will provide groundwater sampling data to evaluate post-excavation groundwater quality. MW-27 is adjacent to the former MGP building. Monitored natural attenuation (MNA) is the groundwater remedy for groundwater adjacent to and below the former MGP holder and former Hortonsphere including the area beneath the former MGP building. Performance of the MNA will be evaluated during routine quarterly groundwater sampling events as described in the *Remedial Action Operations, Maintenance, and Monitoring Plan* (Foth, 2023d), which was submitted to WDNR on March 10, 2023.

WDNR GIS Registry Amendment

The investigation and remediation activities described above will be documented in the Construction Completion Report. SWL&P will also amend the WDNR GIS Registry to include data describing residual soil and groundwater contamination associated with the former MGP building once RA construction is complete.

If you have any additional questions, please contact me at (218) 355-3191.

Sincerely,

Greg Prom
Senior Environmental Compliance Specialist

Attachments

cc: Jamie Mehle, SWL&P
Joscelyn Skandel, SWL&P
Erin Hughes, Foth
Steve Laszewski, Foth
Michael Raimonde, Foth
Brian Symons, Foth

References:

Foth, 2023a. *100% Design Upland Area Remedial Action Design Report – Former Manufactured Gas Plant.* March 10, 2023.

Foth, 2023b. *Remedial Action Quality Assurance Project Plan – Upland Area, Former Manufactured Gas Plant*. March 10, 2023.

Foth, 2023c. *Field Sampling Plan – Upland Area, Former Manufactured Gas Plant*. March 10, 2023.

Foth, 2023d. *Remedial Action Operations, Maintenance, and Monitoring Plan – Upland Area, Former Manufactured Gas Plant*. March 10, 2023.

NOTES:

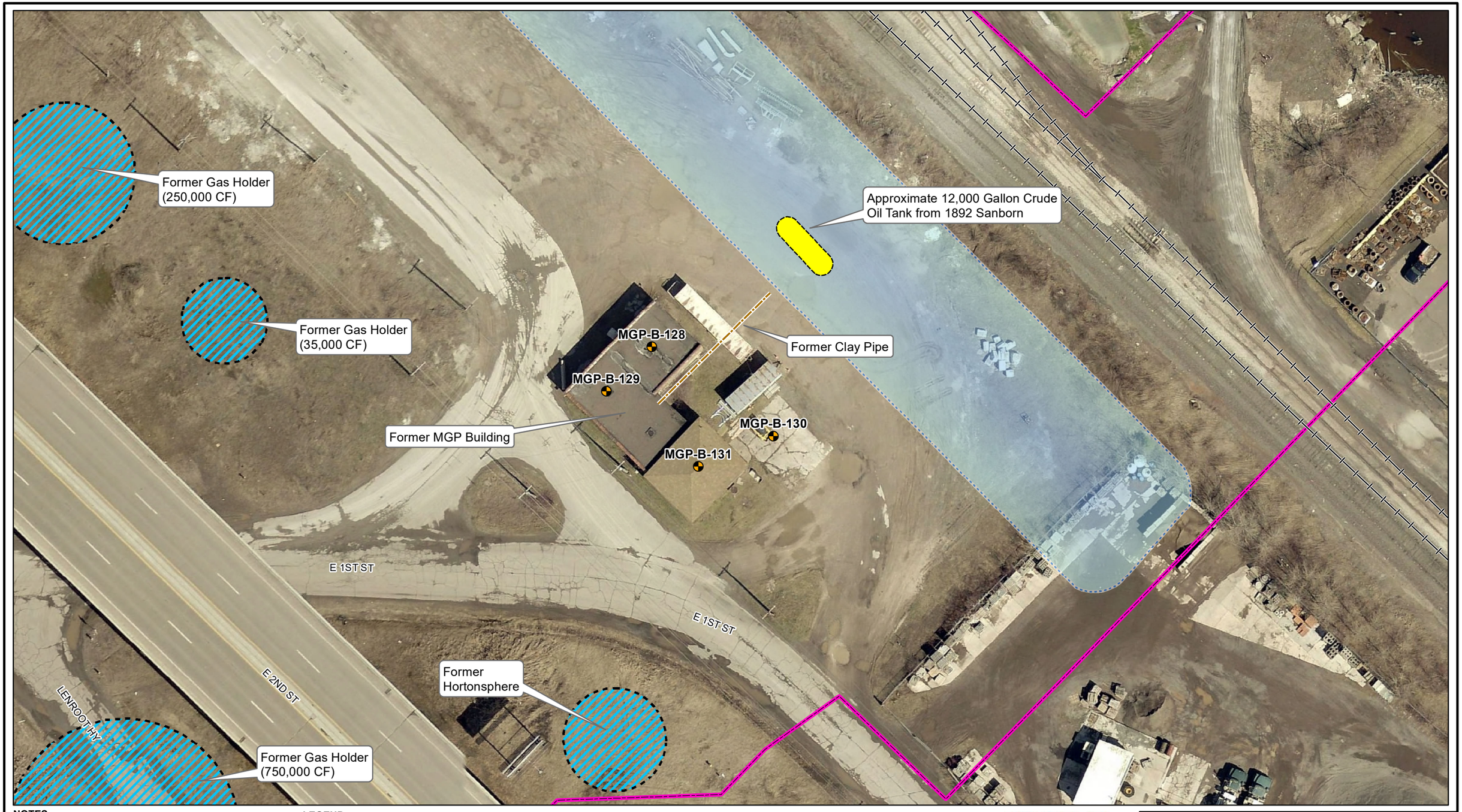
1. Photo taken before demolition of the former MGP building in March 2023.

SUPERIOR WATER, LIGHT & POWER

FIGURE 1

WORK PLAN FOR FORMER MGP BUILDING
PHOTO OF FORMER MGP BUILDING BEFORE DEMOLITION
SUPERIOR, WISCONSIN

Date: MARCH 2022	Revision Date: MARCH 2023
Drawn By: DAT	Checked By: BDS1 Project: 18S024.26



NOTES:

1. 2019 - 3" resolution air photo from Douglas County.
2. Horizontal coordinate system: NAD 1983 Douglas County, units in feet.
3. Extent of MGP Discharge Pond from Chart of Harbor at Duluth, Minn. and Superior, Wis. / Prepared Under the Direction of Major W.L. Fisk, USACE
4. Former 12,000 Gallon Crude Oil Tank from 1892 Sanborn.

LEGEND

Approximate Building Boring Locations

- Soil Boring
- Former Clay Pipe
- Railroad
- Former 12,000 Gallon Crude Oil Tank
- Former MGP Building Discharge Pond
- Former Gas Holders
- Approximate Site Boundary

SM&P

Foth

N

0 20 40 Feet

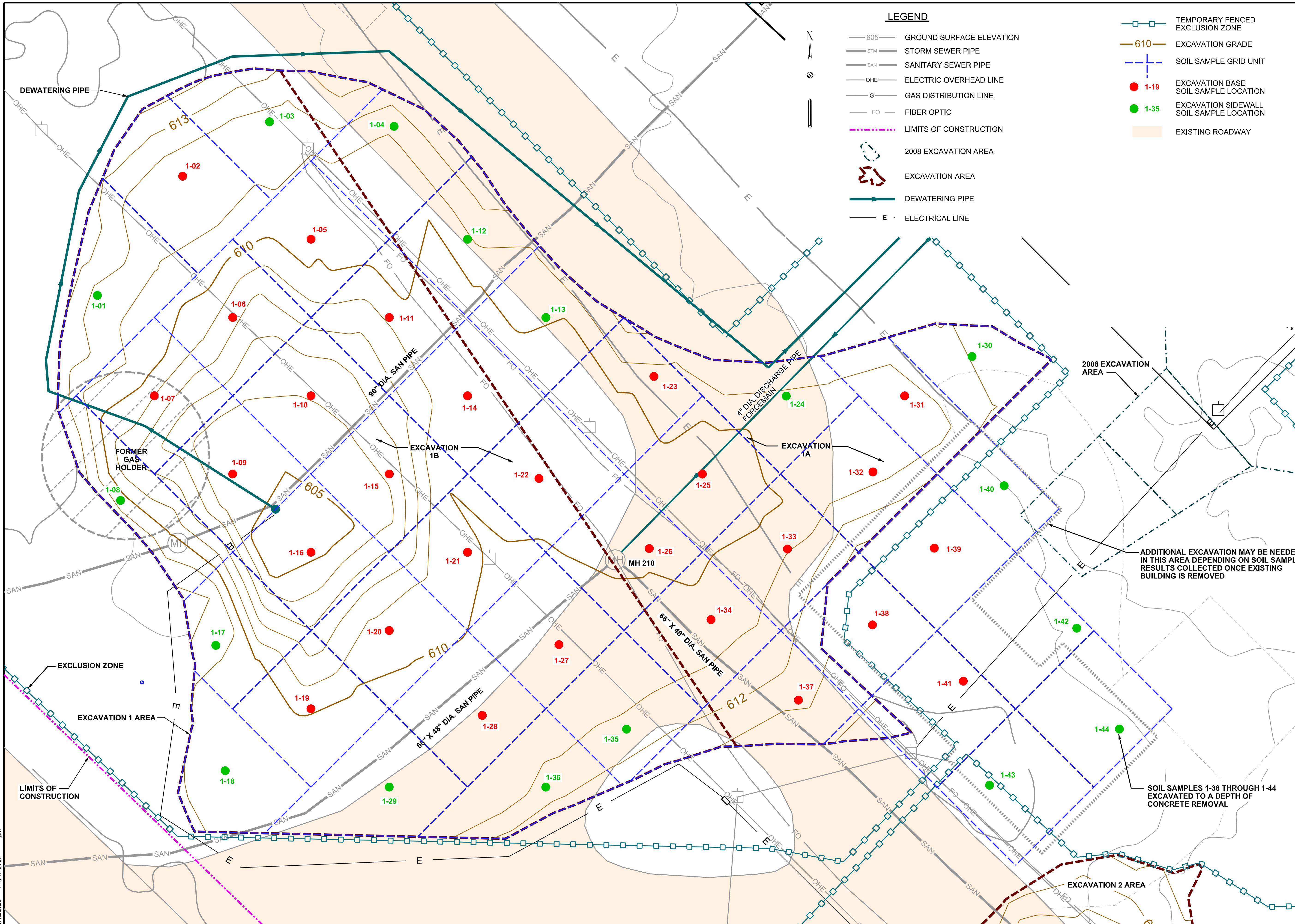
SUPERIOR WATER, LIGHT & POWER

FIGURE 2

SOIL AND GEOTECH BORING LOCATIONS
FORMER MGP BUILDING
SUPERIOR, WISCONSIN

Date: MAY 2023	Revision Date:	
Drawn By: DAT	Checked By: BDS1	Project: 18S024

Path: Q:\Superior Water Light and Power\18s024\GIS\mxd\Former MGP Building Investigation\Figure 2 - Soil Boring Locations.mxd Date: 5/12/2023



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SWL&P

WORK PLAN FOR THE FORMER MGP BUILDING

SUPERIOR WATER, LIGHT & POWER
DOUGLAS COUNTY, WISCONSIN

REVISIONS

NO.	BY	DATE	DESCRIPTION

RECORD DRAWING OF COMPLETED CONSTRUCTION BY:
RECORD DRAWINGS OF COMPLETED CONSTRUCTION CONFORMING TO CONTRACTOR AND/OR OWNERS RECORDS.
BY ____ DATE ____

DATE OF PREPARATION

	BY	DATE
SURVEYED		
DRAWN	JOW	MAY 2023
DESIGNED		
CHECKED	BDS1	MAY 2023

AREA 1A-1B SOIL SAMPLE LOCATION FOR THE FORMER MGP GAS HOLDER AREA EXCAVATION PLAN

HORIZONTAL SCALE: 0 10' 20'

PROJECT ID: 18S024

FIGURE 3

pw:\\foth-pw.bentley.com:foth-pw-01\Documents\Clients\Superior Water Light Power\0018S024.00\CAD\Drawings\Upland WDNR Response Work Plan\Figure 3 - SWLP Area 1 Sampling Grid with Bldg Footprint.dgn
5/12/2023 11:34:16 AM jow