State of Wisconsin
Department of Natural Resources
PO Box 7921, Madison WI 53707-7921
dnr.wi.gov

Development at Historic Fill Site or Licensed Landfill Exemption Application

Form 4400-226 (R 05/16)

Notice: Use of this form is required by the DNR for any application to develop at a historic fill site or licensed landfill pursuant to secs. NR 506.085 and NR 500.08(4), Wis. Adm. Code. The Department will not consider your application unless you provide complete information requested. Personally identifiable information collected will be used to process your application and will also be accessible by request under Wisconsin's Open Records law [ss.19.31 - 19.39, Wis. Stats.]

Instructions: See *Development at Historic Fill Sites and Licensed Landfills: What you need to know* (PUB-RR-683, November 2013) for detailed instructions.

- All Exemption Application materials should be sent to the region where the site is located, as listed on page 6.
- Include $700 fee payment with this application. If the site is a licensed landfill and the Waste and Materials Management program is doing the review, submit no fee now. You will be sent an invoice upon receipt of this application.
- Determine the appropriate exemption type for the site and check appropriate box below.
- Provide complete information requested for each type of exemption. Include the following attachments:
  Required: Summary of Existing and Potential Impacts described in Section V as an attachment, under the seal of a professional engineer or geologist registered to practice in Wisconsin.

  Optional: Site Visit Summary Comments (Section IX) including any photos, sketches or site visit notes.

Exemption Type

☐ **Remediation and Redevelopment Program NR 700 Rule Series Process Exemption:** Site with remedial actions conducted in accordance with NR 700 series
Required: Sections I - VI ***Optional:*** Sections VII - X

☒ **Case-by-Case Evaluation:** Sites with anticipated environmental impacts or wastes of special concerns
Required: Sections I - VI ***Optional:*** Sections VII - X

☐ **Expedited Exemption:** Site with no expected environmental impact
Required: Sections I - VI **and** Form 4400-226A Expedited Exemption Application ***Optional:*** Sections VII - X

I. Applicant Information

Owner - Last Name	First	MI	Phone Number (include area code)
Clement J. Zablocki VAMC			(414) 384-2000

Contact Name (if different)
Tony Jazdzyk, P.E.

Street Address	City	State	ZIP Code
260 West Seeboth Street	Milwaukee	WI	53295

Developer - Last Name	First	MI	Phone Number (include area code)
Milwaukee Metropolitan Sewerage District	Tony Jazdzyk, P.E.		(414) 319-6914

Street Address	City	State	ZIP Code
260 West Seeboth Street	Milwaukee	WI	53204

II. Site Name and Location

Site Name	Location / Address
Clement J. Zablocki VAMC	5000 W. National Avenue

Is the site known by another name(s)? ○Yes ◉No ○Unknown
If yes, provide name: _____

◉ City ○ Town ○ Village of Milwaukee

Does the site have a license number? ○Yes ◉No ○Unknown
If yes, License Number: _____

State	ZIP Code	County
WI	53295	Milwaukee

A. Attach a map with site location and limits of fill/waste disposal area.

B. Global Positioning System Coordinates

Latitude DEG MIN SEC N | Longitude DEG MIN SEC W

Describe method for collecting GPS Coordinates
RR Site Maps website program.
X = 684892.96589
Y = 285259.54489

Program Lead, Fee Status and Regulatory ID Numbers *(This area for DNR use only)*

○ **Waste Management Bureau**
○ **Remediation and Redevelopment Bureau - Exemption is part of remedy under NR 700 program**
  ○ Fee already paid for review of remedial design report.
  ○ Review of remedial design report not requested and payment is attached.

☐ Payment Attached
Amount $

Hazardous Waste Facility License ID #:(5 digits)	DNR FID #: (9 digits)	USEPA ID #:(used for both RCRA & CERCLIS #s) (WI+Alpha+9 digits)

Region	Project Manager	Telephone Number

III. Site Ownership History

Previous Owner - Last Name	First	MI	Telephone Number

Street Address	City	State	ZIP Code

Responsible Municipal / Private Operator - Last Name (if applicable)	First	MI	Telephone Number

Street Address	City	State	ZIP Code

IV. Evaluation of Existing and Potential Impacts. See Development at Historic Fill Sites and Licensed Landfill: Guidance for Investigation and Development at Historic Fill Sites and Licensed Landfill: Potential Problems and Considerations.

A. Analytical data for the following media have been collected and/or examined before completing this application:

1. Groundwater: ◉ Yes ○ No
2. Soil: ◉ Yes ○ No
3. Surface water / sediment: ○ Yes ◉ No
4. Air: ○ Yes ◉ No
5. Methane or other explosive gases: ○ Yes ◉ No

B. Based on known or suspected sources and wastes, their physical characteristics, containment and geologic environment, do you suspect a release of pollutants to the environment?

◉ Yes: ☒ Groundwater ☒ Soil ☐ Surface Water / Sediment ☐ Methane or Other Explosive Gases
○ No

C. If there is NOT a likelihood of a release of pollutants or evidence of a release, would the impact of the proposed development be likely to cause a release to the environment?

○ Yes: **If yes, be sure to summarize actions to be taken to prevent adverse environmental impacts in V. Part C below.**
◉ No

V. Summary of Existing and Potential Impacts. See Development at Historic Fill Sites and Licensed Landfill: Guidance for Investigation and Development at Historic Fill Sites and Licensed Landfill: Potential Problems and Considerations.

Describe the following in an attached narrative under the signature of a qualified professional. Organize, label and package as listed below.

A. Existing Site Conditions

1. existing site conditions including waste types,
2. potential for impacts, and
3. evaluation of existing impacts.

B. Proposed Development Summary. Include explanation for overall site decision.

C. Summary of actions to be taken and engineering controls that will prevent or minimize adverse environmental impacts and potential threats to human health and welfare, including worker safety.

VI. Certification of Application Information

I certify that information in this application and all its attachments is true and correct and in conformity with applicable Wis. statutes.

Print / Type Name of Applicant

Mr. Tony Jazdzyk, P.E. / MMSD

Applicant Signature Anthony Jazdzyk Date Signed 11/4/2022

Sections VII - IX are optional for all Applicants.

VII. Current and Historic Type of Waste Disposal Site (Check all that apply)

- ☐ Licensed Landfill
- ☐ Non-approved {See s.289.01(3)}, Wis Stats.
- ☐ Approved
- ☐ One-time Disposal
- ☐ Construction / Demolition
- ☒ Historic Fill Site

Liner
- ☒ Unlined
- ☐ Clay Liner
- ☐ Lined
- ☐ Unengineered
- ☐ Composite Liner
- ☐ Other Liner (Describe): _____

Total Landfill Volume
- ◉ < 50,000 yd ³
- ○ 50,000-500,000 yd
- ○ > 500,000 yd ³

Does the landfill have a closure plan? ○ Yes ◉ No ○ Unknown

Does the landfill have a groundwater monitoring plan? ○ Yes ◉ No ○ Unknown

Have groundwater monitoring wells been installed? ◉ Yes ○ No ○ Unknown

Was a cover installed? ○ Yes: ◉ No **If no, go to Past Land Uses.**
- ☐ Composite cap
- ☐ Layered soil cap with clay barrier
- ☐ Clay cap
- ☐ Soil cap - not recompacted clay
- ☐ Other cover
- ☐ Unknown

What is the thickness of the cover? ○ < 6 in ○ 6-12 in ○ 12-24 in ○ > 24 in ○ Unknown

Past Land Uses. (Check all that apply)
- ☐ Agricultural co-op
- ☐ Brush pile
- ☐ Bulk plant
- ☐ Coal gas manufacturer
- ☐ Deer pit
- ☐ Dry cleaner
- ☐ Electroplater
- ☐ Lagoon
- ☐ Manufacturing Type: _____
- ☐ Old burn pit
- ☐ Pipeline
- ☐ RCRA generator
- ☐ Salvage yard
- ☐ Service Station
- ☐ Tannery
- ☐ Unknown
- ☒ Other: U.S. Gov. VA Facility

Date(s) of Site Operation

From: 01/01/1867 To: 10/11/2022 No. of Years: 155 ☐ Unknown

VIII. Waste Information & Geologic Environment. See Development at Historic Fill Sites and Licensed Landfills: Guidance for Investigation

A. Known or Suspected Sources/Wastes. (Check all that apply)
- ☐ Abandoned containers
- ☐ Above ground pipeline or tank
- ☐ Animal carcasses
- ☐ Buried drums
- ☐ Burning of materials
- ☒ Foundry sand
- ☐ Industrial accident
- ☐ Known or suspected hazardous materials
- ☐ Municipal waste
- ☐ Paper mill sludge
- ☐ Transformer
- ☐ Trees/brush
- ☐ Surface spills
- ☐ Fly ash
- ☒ Demolition/construction waste
- ☐ Surface impoundment/lagoons
- ☐ Underground pipeline or tank
- ☐ Exempted fill [NR 500.08(1) and (2)]
- ☐ Unknown
- ☐ Other: _____

B. Physical Characteristics of Sources/Wastes

○ Liquid ◉ Solid ○ Liquid & Solid ○ Unknown

VIII. Waste Information & Geologic Environment *(continued)*

C. Waste Containment ○ Liner ◉ Unknown ○ Not applicable

☐ Engineered cover
○ Maintained ○ Not maintained

☐ Functioning leachate collection & removal system
☐ Functioning & maintained run-off management system
☐ Functioning groundwater monitoring system

D. Soil Type: Estimate distances or determinations based on regional or site specific information.

○ Regional ◉ Site specific

Clay, silt or other fine grained soils present? (lacustrine, tills, etc.) ◉ Yes ○ No

At surface? ◉ Yes ○ No At depth? ○ Yes ○ No _____ feet

Sand & gravel, coarse grained soils present? ○ Yes ◉ No

At surface? ○ Yes ○ No At depth? ○ Yes ○ No _____ feet

E. Depth to Groundwater

○ Regional ◉ Site specific 8 feet

F. Direction of Groundwater Flow

○ Regional ◉ Site specific NW direction

G. Depth to Bedrock

◉ Regional ○ Site specific 50-100 direction

H. Bedrock Type

○ Regional ◉ Site specific ☐ Sandstone ☒ Limestone/Dolomite ☐ Metamorphic/Igneous

IX. Site Visit

Conduct a site visit to complete site screening and determine general site conditions, on-site activities and adjacent land use encroachment issues. As appropriate to document the site, take photos, sketch the site and prepare a Site Visit Report.

On-site visit conducted? ◉ Yes ○ No

General site conditions: Document any observed releases and note whether or not you were able to walk the site. Examples of things to be aware of include the following:

- leachate seeps or evidence of seeps such as stained soil/vegetation
- stressed vegetation as a sign of gas migration to the surface or of leachate seeps;
- quality and coverage of vegetation on the cap;
- odors which may indicate gas migration to the atmosphere;
- erosion of the cap;
- maintenance of positive drainage over the capped area;
- visual desiccation cracks in the cap.

Attach the following to your application:

☒ Photographs, regular or digital ☐ Site sketch ☐ Site Visit Report

Name(s) of Person(s) Conducting Site Visit	Date of Site Visit
Aileen Zebrowski, E.I.T. and Alexander Huebner of K. Singh & Associates, Inc.	03/29/2022

IX. Site Visit *(continued)*

A. Adjacent Land Uses. Indicate all directions. (Check all that apply)

	N	S	E	W	NE	NW	SE	SW
☐ Agricultural	☐	☐	☐	☐	☐	☐	☐	☐
☒ Industrial	☐	☐	☒	☐	☐	☐	☐	☐
☐ Recreational	☐	☐	☐	☐	☐	☐	☐	☐
☒ Residential	☐	☒	☐	☒	☐	☐	☒	☒
☐ Undeveloped	☐	☐	☐	☐	☐	☐	☐	☐
☒ Commercial	☐	☒	☐	☐	☐	☐	☒	☒
☒ Other: U.S. Gov. VA Facility	☒	☐	☒	☒	☒	☒	☐	☐

B. Potential Groundwater Receptors. Estimate distances. (1 mile = 5,280 ft)

Distance to and direction of nearest municipal well: _____ feet ☐ > ½ mile from the waste _____ direction

Distance to and direction of nearest other-than-municipal well: 825 feet ☐ > ½ mile from the waste _____ direction

Distance to and direction of nearest non-community well: _____ feet ☐ > ½ mile from the waste _____ direction

Distance to and direction of nearest private well: _____ feet ☐ > ½ mile from the waste _____ direction

Distance to and direction of nearest private well: _____ feet ☐ > ½ mile from the waste _____ direction

C. Potential For Gas Migration

0 No. of homes within 300 feet of waste (gas migration potential)

0 No. of homes between 300 & 1,000 ft to waste (gas migration potential)

Distance to and direction of nearest building: 150 feet ☐ > ½ mile from the waste _____ direction

Type of building: ☒ On-site building ☐ Municipal ☐ Residential ☐ Commercial ☐ Industrial ☐ Unknown

D. Potential Surface Water Receptors. Estimate distances.

◉ Creek 180 feet ○ Drainage ditch: _____ feet ○ Intermittent stream: _____ feet

○ River _____ feet ○ Lake _____ feet ○ Wetland: _____ feet

E. Based on the site visit, did you visually observe...

1. a release to a surface water body? ○ Yes ◉ No ○ Unknown
2. a leachate seep? ○ Yes ◉ No ○ Unknown
3. a release to soils? ○ Yes ◉ No ○ Unknown

X. Comments: Use this section to provide comments on any aspect of the site visit. Attach any information or explanations labeled with the appropriate section number to which the material applies.

Excerpts from the MCR (KSingh, June 21, 2022) are included in Attachment B, which include figures of the sewer alignment, photographs and soil boring logs for reference.

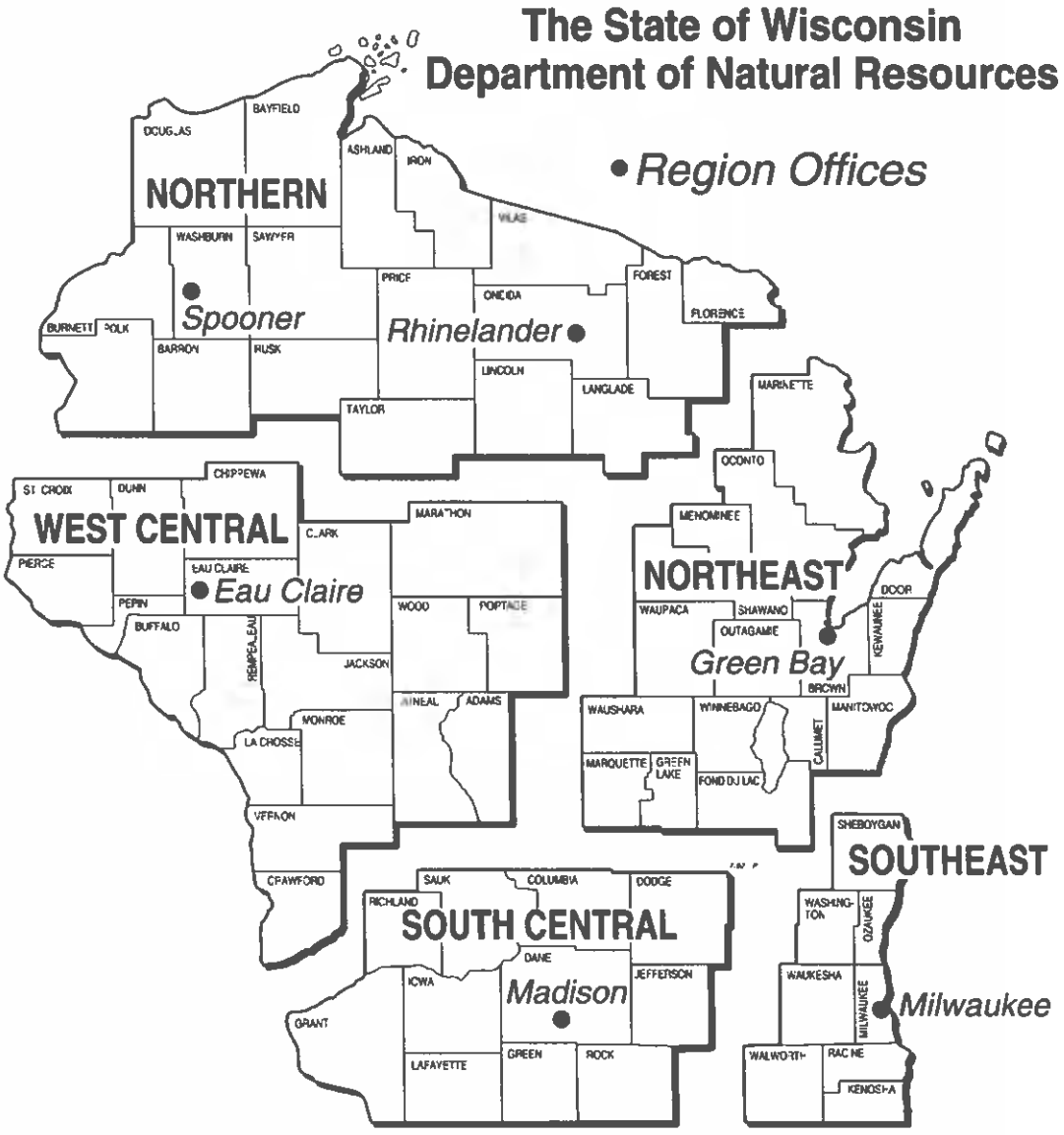
Region Map

NORTHERN REGION
Remediation & Redevelopment
Team Supervisor
Department of Natural Resources
107 Sutliff Avenue
Rhinelander, WI 54501
(715) 365-8976
OR
Regional Waste Program Manager
Department of Natural Resources
107 Sutliff Avenue
Rhinelander WI 54501
(715) 365-8946

NORTHEAST REGION
Remediation & Redevelopment
Team Supervisor
Department of Natural Resources
2984 Shawano Avenue
Green Bay, WI 54313-6727
(920) 662-5160
OR
Regional Waste Program Manager
Department of Natural Resources
2984 Shawano Avenue
Green Bay, WI 54313-6727
(920) 662-5120

SOUTHEAST REGION
Remediation & Redevelopment
Team Supervisor
Department of Natural Resources
2300 N. Martin Luther King Drive
Milwaukee, WI 53212
(414) 263-8561 or (414) 263-8714
OR
Regional Waste Program Manager
Department of Natural Resources
2300 N. Martin Luther King Drive
Milwaukee, WI 53212
(414) 263-8694 or (414) 263-8697

WEST CENTRAL REGION
Remediation & Redevelopment
Team Supervisor
Department of Natural Resources
1300 West Clairemont Avenue
Eau Claire, WI 54701
(715) 839-3710
OR
Regional Waste Program Manager
Department of Natural Resources
1300 West Clairemont Avenue
Eau Claire, WI 54701
(715) 839-3708



SOUTH CENTRAL REGION
Remediation & Redevelopment
Team Supervisor
Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg, WI 53711
(608) 275-3241

OR Regional Waste Program Manager
Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg, WI 53711
(608) 275-3466

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November 4, 2022

Ms. Jennifer Dorman
Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
1027 W. St. Paul Ave.
Milwaukee WI, 53233

Project #40459

Subject: Development at Historic Fill Site Application
Veterans Affairs Grounds MIS Relocation
MMSD Project No. C06023D01
5000 W. National Avenue, Milwaukee, Wisconsin
BRRTS #: 02-41-563846; FID #: 341041470

Dear Ms. Dorman,

On behalf of Milwaukee Metropolitan Sewerage District (MMSD), K. Singh & Associates, Inc. (KSingh) requests review and approval of the Historic Fill Exemption Request for the above referenced site. A brief project background, work completed to date, and Historic Fill Exemption Request are described below.

Project Background

MMSD is in the process of design for the Veteran Affairs (VA) Grounds Metropolitan Interceptor Sewer (MIS) Relocation under Contract No. C06023D01. MMSD will be constructing a new MIS alignment on the eastern portion of the VA grounds with a minimum service life of 100 years to ensure reliable conveyance of wastewater through the VA grounds and have reasonable access to the MIS. The new MIS alignment is shown within the figures of Attachment A.

A total of eleven (11) soil borings (B-1 to B-11) were proposed to be performed along the alignment. However, soil borings B-4 and B-5 were not performed due to difficulty in locating underground utilities. Soil borings were advanced to depths ranging from 17.5 to 30 feet below ground surface (bgs). Soil borings B-1, B-6, and B-11 were converted into Monitoring Wells (MWs) MW-1, MW-2, and MW-3, respectively.

Fill was identified in all soil borings from depths 0.5 to 20 feet, bgs. Fill was generally brown to grey silty clay with little to trace sand and gravel. Buried topsoil was identified in soil borings B-2 and B-3 from depths of 9.5 to 13.5 feet, bgs. Anthropogenic materials encountered in the historic fill soils consisted of brick fragments, black silty sand (possible foundry sand), asphalt layers and asphalt chunks, and metal fragments. There were no organic type debris encountered; therefore, methane is not a concern along the project alignment.

Work Completed to Date

KSingh completed the following environmental and geotechnical tasks for this project:

- Phase I Environmental Site Assessment prepared by KSingh in 2021. Based on the findings of the Phase I ESA, a Materials Characterization Report (MCR) was recommended based on recognized environmental conditions (RECs) on the VA Grounds.
- Geotechnical Data Report was prepared by KSingh in 2022.
- Geotechnical Baseline Report was prepared by KSingh in 2022.
- MCR was prepared by KSingh in 2022. Based on the soil borings of the MCR, historic fill was encountered in all soil borings along the alignment; therefore, a Historic Fill Exemption Request was recommended.

Historic Fill Exemption Request

Excerpts from the MCR are included in Attachment A, which include figures, tables, photographs and soil boring logs for reference. A Development at Historic Fill Site or Licensed Landfill Exemption Application, Form 4400-226 (R 05/16) is presented as Attachment B along with attachments.

Closing

The proposed development is planned to be completed in 2023. The Clement J. Zablocki Veterans' Administration Medical Center (VAMC), and MMSD request Wisconsin Department of Natural Resources (WDNR) approval of the historic fill exemption request to move this project forward as planned. We request the WDNR to send a written response within 60 days as WDNR approval is required prior to start of construction in 2023. A review fee of $700 will be submitted to the WDNR in a separate submittal.

Please call us if you have any questions regarding this submittal.

Sincerely,

K. SINGH & ASSOCIATES, INC.

Daniel K. Pelczar

Daniel K. Pelczar, CPG, P.G.
Senior Geologist

Robert T. Reineke

Robert T. Reineke, P.E.
Senior Engineer

Ajay P. Singh, MPM, P.E.
Project Manager

cc: Mr. Tony Jazdzyk P.E. / MMSD

enc. Attachment A: Excerpts from the Materials Characterization Report (KSingh, 2022)
Attachment B: Development at Historic Fill Site or Licensed Landfill Exemption Application, Form 4400-226 (R 05/16); along with attachments

Attachment A

Excerpts from the Materials Characterization Report (KSingh, 2022)

FIGURES

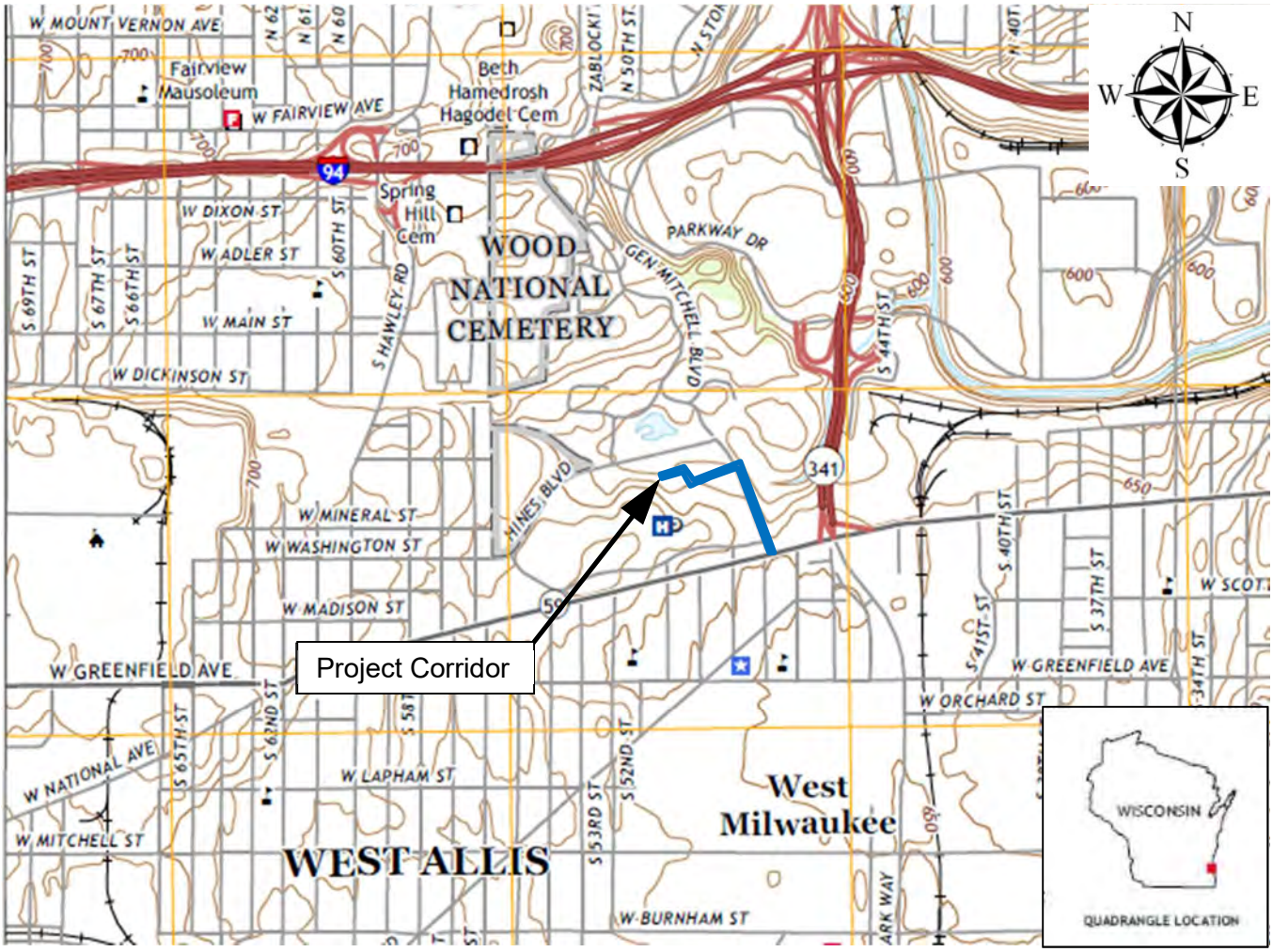

Figure 1 – Topographic Map of Project Location

from 2018 Milwaukee Quadrangle, Wisconsin – Milwaukee Co., 7.5 minute series

Scale 1:24,000

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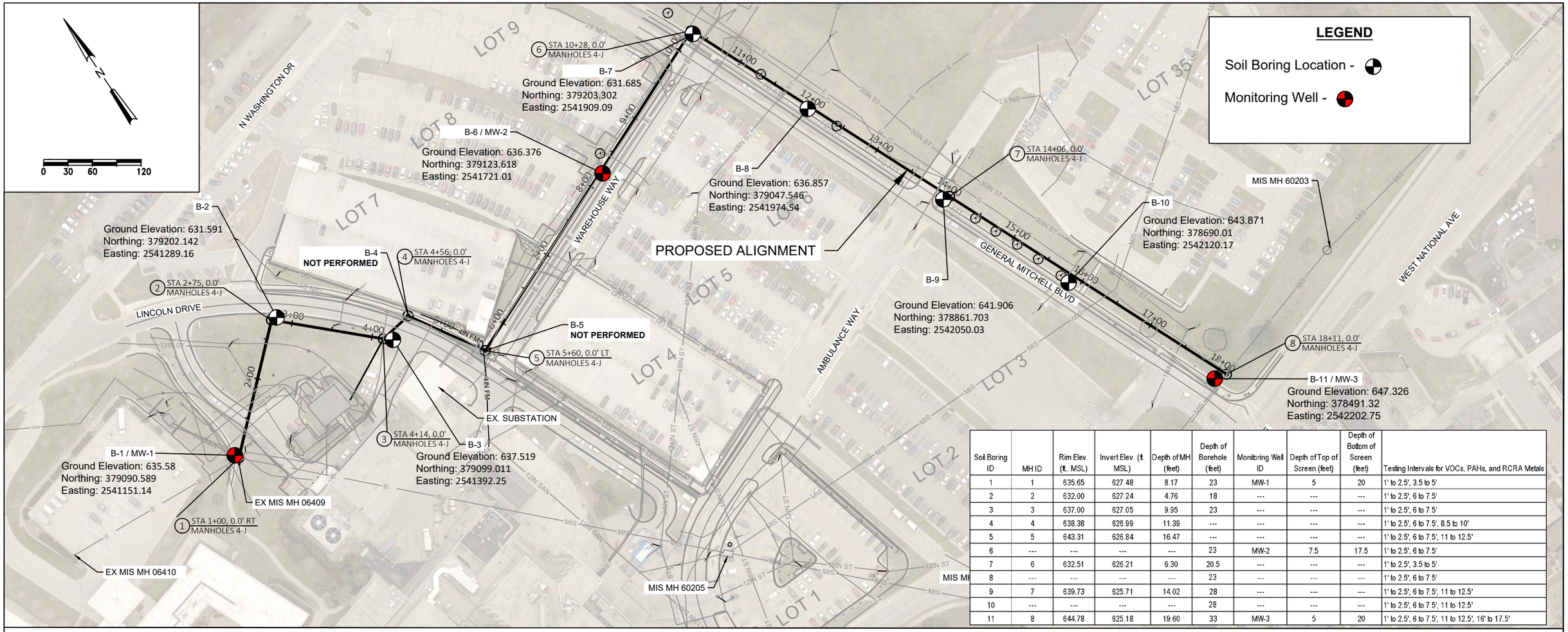
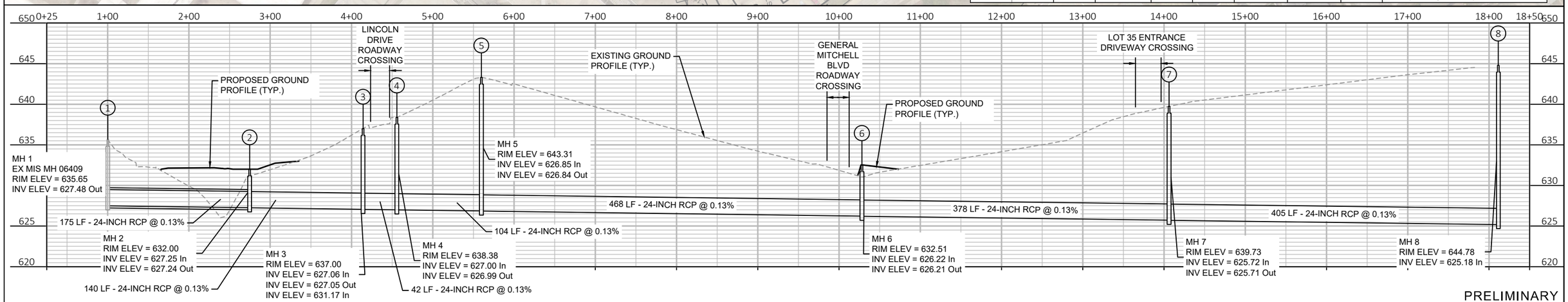


Soil Boring ID	MH ID	Rim Elev. (ft. MSL)	Invert Elev. (ft. MSL)	Depth of MH (feet)	Depth of Borehole (feet)	Monitoring Well ID	Depth of Top of Screen (feet)	Depth of Bottom of Screen (feet)	Testing Intervals for VOCs, PAHs, and RCRA Metals
1	1	635.65	627.48	8.17	23	MW-1	5	20	1' to 2.5', 3.5 to 5'
2	2	632.00	627.24	4.76	18	---	---	---	1' to 2.5', 6 to 7.5'
3	3	637.00	627.05	9.95	23	---	---	---	1' to 2.5', 6 to 7.5'
4	4	638.38	626.99	11.39	---	---	---	---	1' to 2.5', 6 to 7.5', 8.5 to 10'
5	5	643.31	626.84	16.47	---	---	---	---	1' to 2.5', 6 to 7.5', 11 to 12.5'
6	---	---	---	---	23	MW-2	7.5	17.5	1' to 2.5', 6 to 7.5'
7	6	632.51	626.21	6.30	20.5	---	---	---	1' to 2.5', 3.5 to 5'
8	---	---	---	---	23	---	---	---	1' to 2.5', 6 to 7.5'
9	7	639.73	625.71	14.02	28	---	---	---	1' to 2.5', 6 to 7.5', 11 to 12.5'
10	---	---	---	---	28	---	---	---	1' to 2.5', 6 to 7.5', 11 to 12.5'
11	8	644.78	625.18	19.60	33	MW-3	5	20	1' to 2.5', 6 to 7.5', 11 to 12.5', 16' to 17.5'



PRELIMINARY

HORIZONTAL DATUM
NAD27 WISCONSIN STATE PLANE SOUTH ZONE COORDINATE SYSTEM
VERTICAL DATUM
NGVD29 NATIONAL GEODETIC VERTICAL DATUM ON 1929

DSGN S.SCHARCH
DR S.SCHARCH
CHK A. SINGH

This Design Prepared For MMSD By:
KSingh Engineers Scientists Consultants

REV. NO.	DATE	REVISION DESCRIPTION	BY	APVD

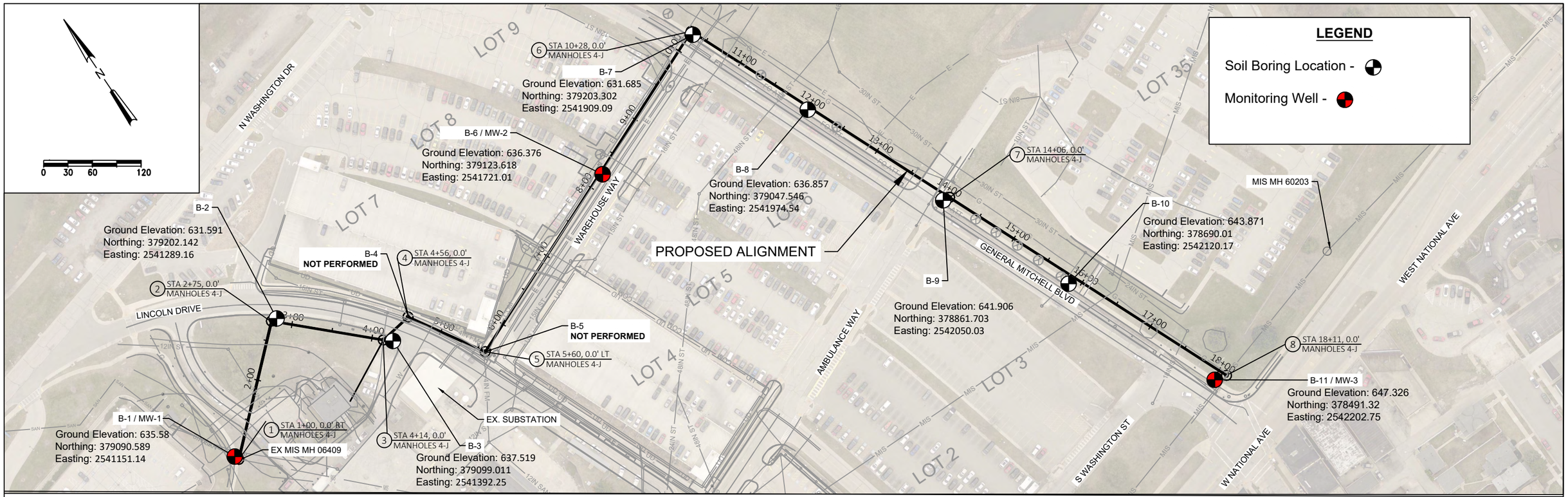
PARTNERS FOR A CLEANER ENVIRONMENT

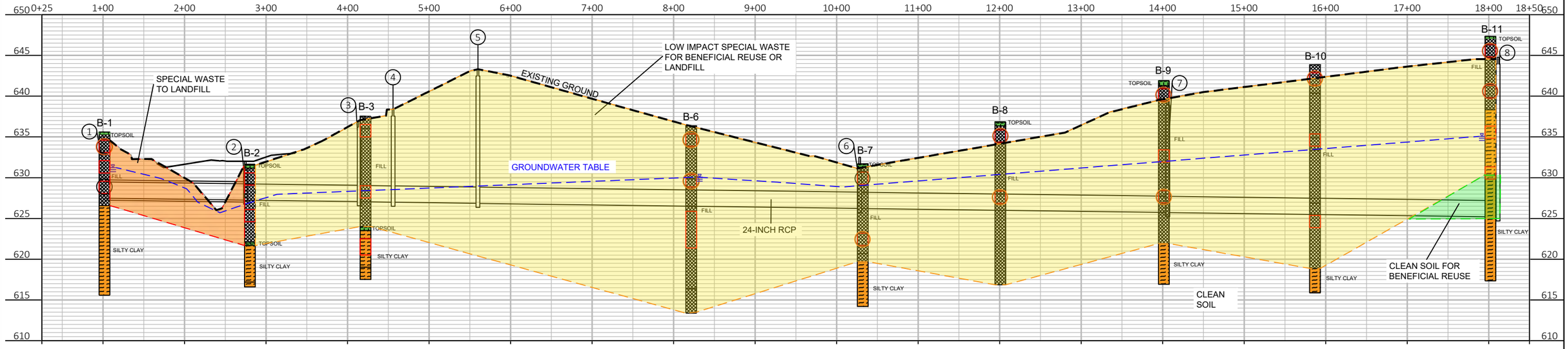
MILWAUKEE METROPOLITAN SEWERAGE DISTRICT

METROPOLITAN INTERCEPTOR SEWER SYSTEM
VETERANS AFFAIRS GROUNDS MIS RELOCATION

LOCATIONS OF SOIL BORINGS AND MONITORING WELLS

DRAWING NO.:	FIGURE 3
SHEET:	02
DATE:	MARCH 15, 2022
CONTRACT:	C06023D01
MMSD FILE:	PII ESA FIGURE 2.DWG





LEGEND - FILL | SILTY CLAY | TOPSOIL | CLEAN SOIL FOR BENEFICIAL REUSE | SPECIAL WASTE TO LANDFILL | LOW IMPACT SPECIAL WASTE FOR BENEFICIAL REUSE OR LANDFILL | EXISTING GROUND ELEVATION | GROUNDWATER ELEVATION | SAMPLE RANGE

GROUNDWATER PROTECTION RCL EXTENTS
NON-INDUSTRIAL DIRECT CONTACT PROTECTION RCL EXTENTS
INDUSTRIAL DIRECT CONTACT PROTECTION RCL EXTENTS

PRELIMINARY

HORIZONTAL DATUM: NAD27 WISCONSIN STATE PLANE SOUTH ZONE COORDINATE SYSTEM
VERTICAL DATUM: NGVD29 NATIONAL GEODETIC VERTICAL DATUM ON 1929

DSGN S.SCHARCH
DR S.SCHARCH
CHK A. SINGH

This Design Prepared For MMSD By: KSingh Engineers Scientists Consultants

REV. NO.	DATE	REVISION DESCRIPTION	BY	APVD

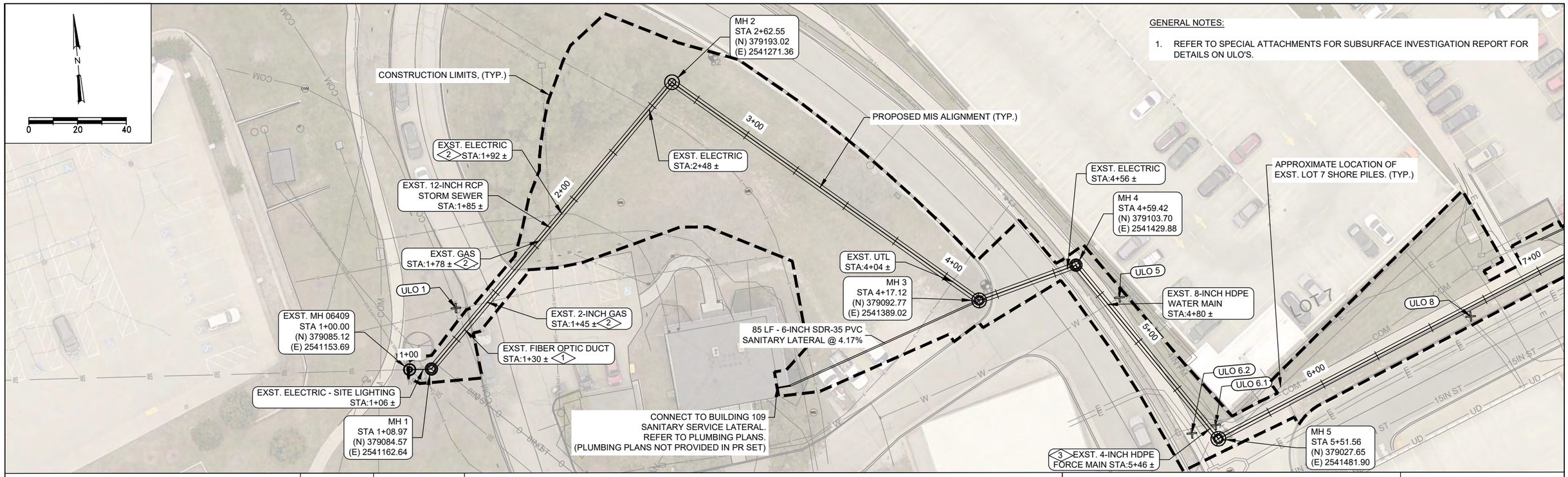
PARTNERS FOR A CLEANER ENVIRONMENT

MILWAUKEE METROPOLITAN SEWERAGE DISTRICT

METROPOLITAN INTERCEPTOR SEWER SYSTEM
VETERANS AFFAIRS GROUNDS MIS RELOCATION

CROSS SECTION OF SOIL BORINGS AND MONITORING WELLS

DRAWING NO.:	FIGURE 4
SHEET:	02
DATE:	MARCH 15, 2022
CONTRACT:	C06023D01
MMSD FILE:	PH ESA CROSS SECTION.DWG



PRELIMINARY

HORIZONTAL DATUM
NAD27 WISCONSIN STATE PLANE SOUTH ZONE COORDINATE SYSTEM

VERTICAL DATUM
NGVD29 NATIONAL GEODETIC VERTICAL DATUM ON 1929

DSGN S.SCHARCH
DR S.SCHARCH
CHK A. SINGH

This Design Prepared For MMSD By:
KSingh Engineers Scientists Consultants

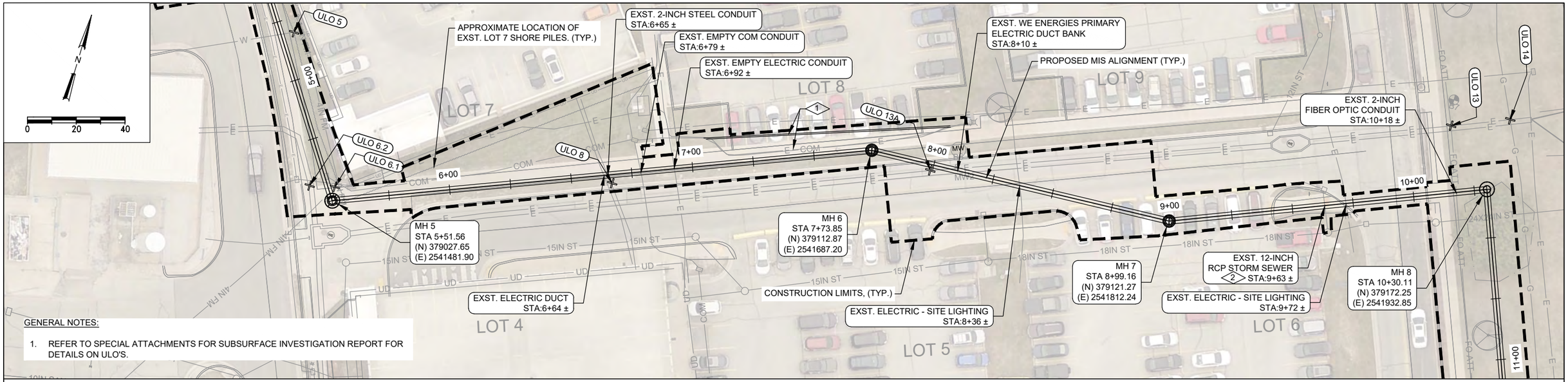
REV. NO.	DATE	REVISION DESCRIPTION	BY	APVD

MMSD PARTNERS FOR A CLEANER ENVIRONMENT

MILWAUKEE METROPOLITAN SEWERAGE DISTRICT

METROPOLITAN INTERCEPTOR SEWER SYSTEM
VA GROUNDS MIS RELOCATION
PLAN AND PROFILE
PROPOSED MIS PLAN & PROFILE - MH 06409 TO MH 5

DRAWING NO.:	XXX-PP-501
SHEET:	29
DATE:	JUNE, 2022
CONTRACT:	C06023C01
MMSD FILE:	XXXPP501.DWG

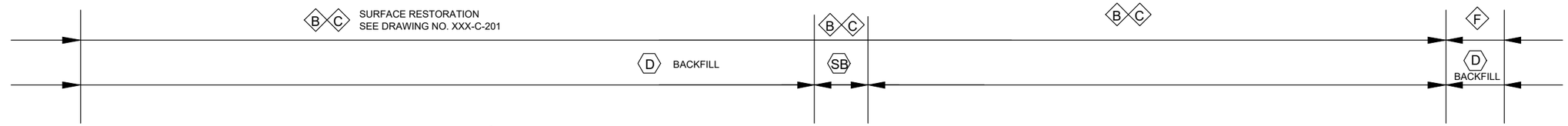


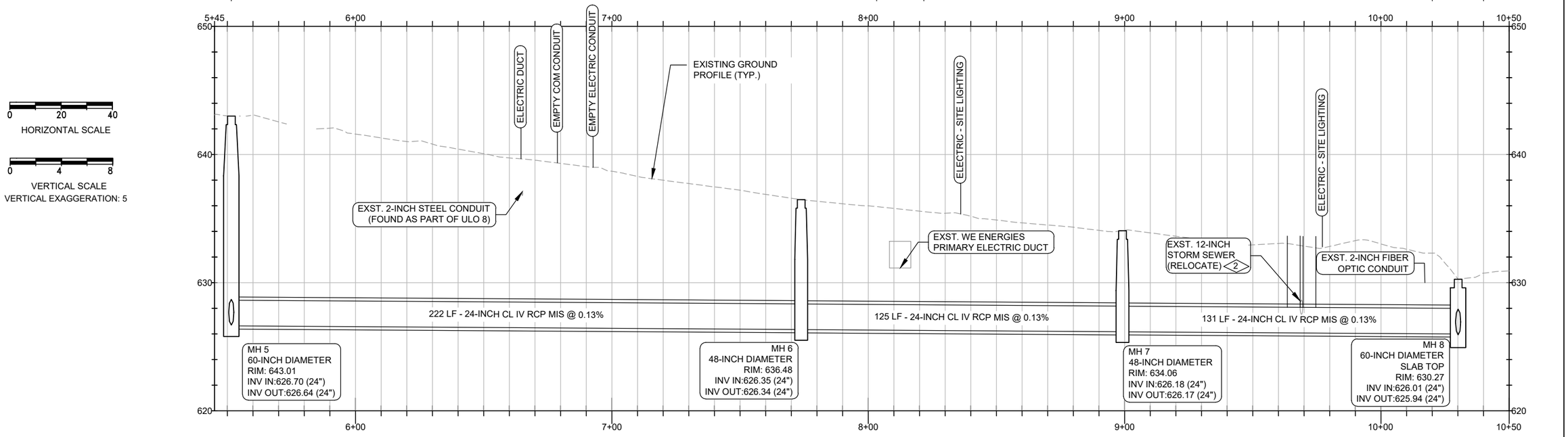
GENERAL NOTES:

1. REFER TO SPECIAL ATTACHMENTS FOR SUBSURFACE INVESTIGATION REPORT FOR DETAILS ON ULO'S.

<1> PLAN AND PROFILE NOTES:

1. RELOCATE EXST. COM LINE AND ELECTIRC LINE. OFFSET RELOCATED ALIGNMENT OUT OF MIS UTILITY TRENCH AS SHOWN.
2. SEE DETAIL 3, XXX-PP-405.





PRELIMINARY

HORIZONTAL DATUM
NAD27 WISCONSIN STATE PLANE SOUTH ZONE COORDINATE SYSTEM

VERTICAL DATUM
NGVD29 NATIONAL GEODETIC VERTICAL DATUM ON 1929

DSGN S.SCHARCH
DR S.SCHARCH
CHK A. SINGH

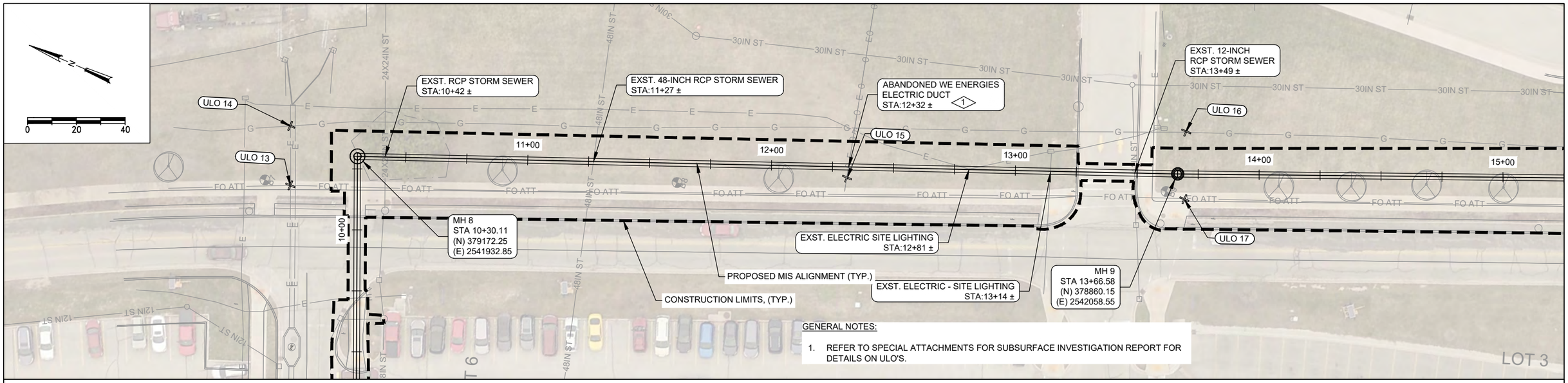
This Design Prepared For MMSD By:
KSingh Engineers Scientists Consultants

REV. NO.	DATE	REVISION DESCRIPTION	BY	APVD

MILWAUKEE METROPOLITAN SEWERAGE DISTRICT

METROPOLITAN INTERCEPTOR SEWER SYSTEM
VA GROUNDS MIS RELOCATION
PLAN AND PROFILE
PROPOSED MIS PLAN & PROFILE - MH 5 TO MH 8

DRAWING NO.:	XXX-PP-502
SHEET:	30
DATE:	JUNE, 2022
CONTRACT:	C06023C01
MMSD FILE:	XXXPP501.DWG

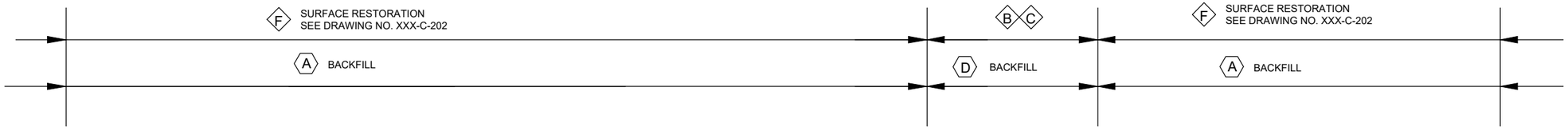


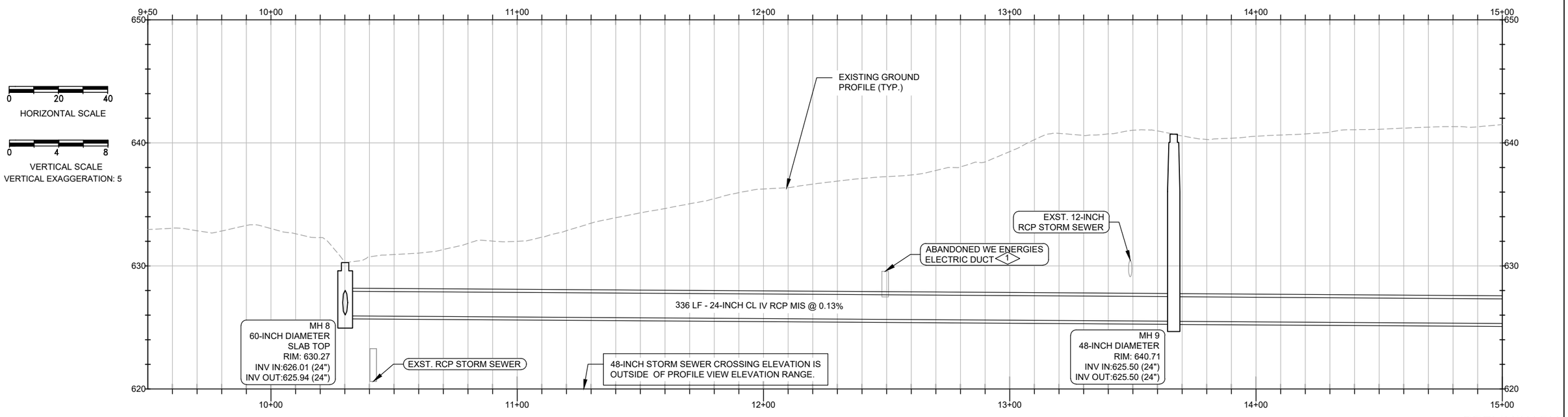
GENERAL NOTES:

1. REFER TO SPECIAL ATTACHMENTS FOR SUBSURFACE INVESTIGATION REPORT FOR DETAILS ON ULO'S.

1 PLAN AND PROFILE NOTES:

1. ABANDONED ELECTRIC DUCT AT STA 12+32 CONTAINS ASBESTOS. REFER TO SPECIFICATION 01014 - PROTECTION OF THE ENVIRONMENT.





PRELIMINARY

HORIZONTAL DATUM	DSGN
NAD27 WISCONSIN STATE PLANE SOUTH ZONE COORDINATE SYSTEM	S.SCHARCH
	DR S.SCHARCH
VERTICAL DATUM	CHK A. SINGH
NGVD29 NATIONAL GEODETIC VERTICAL DATUM ON 1929	

This Design Prepared For MMSD By: KSingh Engineers Scientists Consultants

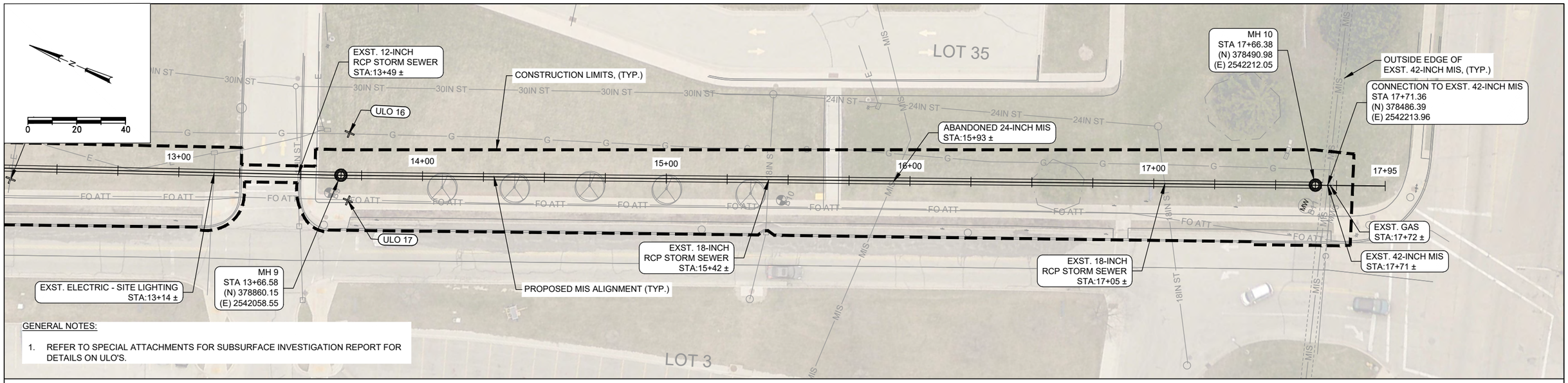
REV. NO.	DATE	REVISION DESCRIPTION	BY	APVD

MMSD PARTNERS FOR A CLEANER ENVIRONMENT

MILWAUKEE METROPOLITAN SEWERAGE DISTRICT

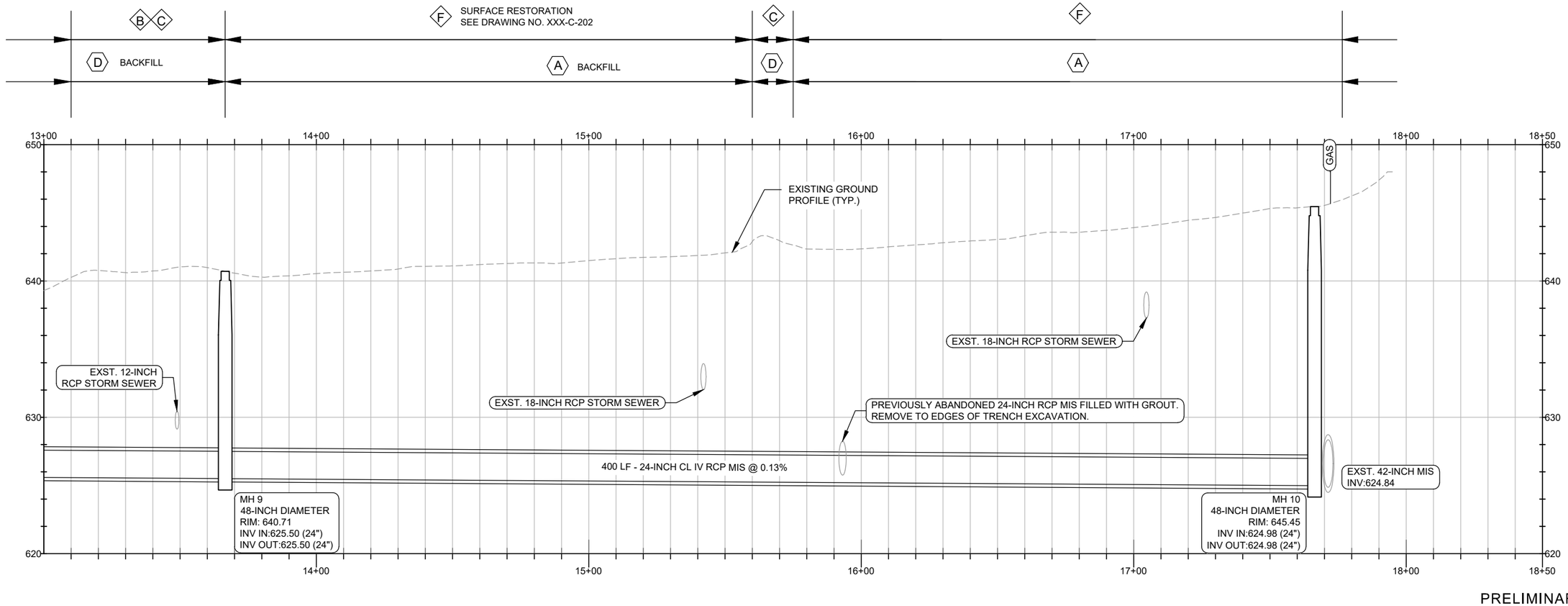
METROPOLITAN INTERCEPTOR SEWER SYSTEM
VA GROUNDS MIS RELOCATION
PLAN AND PROFILE
PROPOSED MIS PLAN & PROFILE - MH 8 TO MH 9

DRAWING NO.:	XXX-PP-503
SHEET:	31
DATE:	JUNE, 2022
CONTRACT:	C06023C01
MMSD FILE:	XXXPP501.DWG



GENERAL NOTES:

1. REFER TO SPECIAL ATTACHMENTS FOR SUBSURFACE INVESTIGATION REPORT FOR DETAILS ON ULO'S.



0 20 40
HORIZONTAL SCALE

0 4 8
VERTICAL SCALE
VERTICAL EXAGGERATION: 5

PRELIMINARY

HORIZONTAL DATUM
NAD27 WISCONSIN STATE PLANE SOUTH ZONE COORDINATE SYSTEM

VERTICAL DATUM
NGVD29 NATIONAL GEODETIC VERTICAL DATUM ON 1929

DSGN S.SCHARCH
DR S.SCHARCH
CHK A. SINGH

This Design Prepared For MMSD By:
KSingh Engineers Scientists Consultants

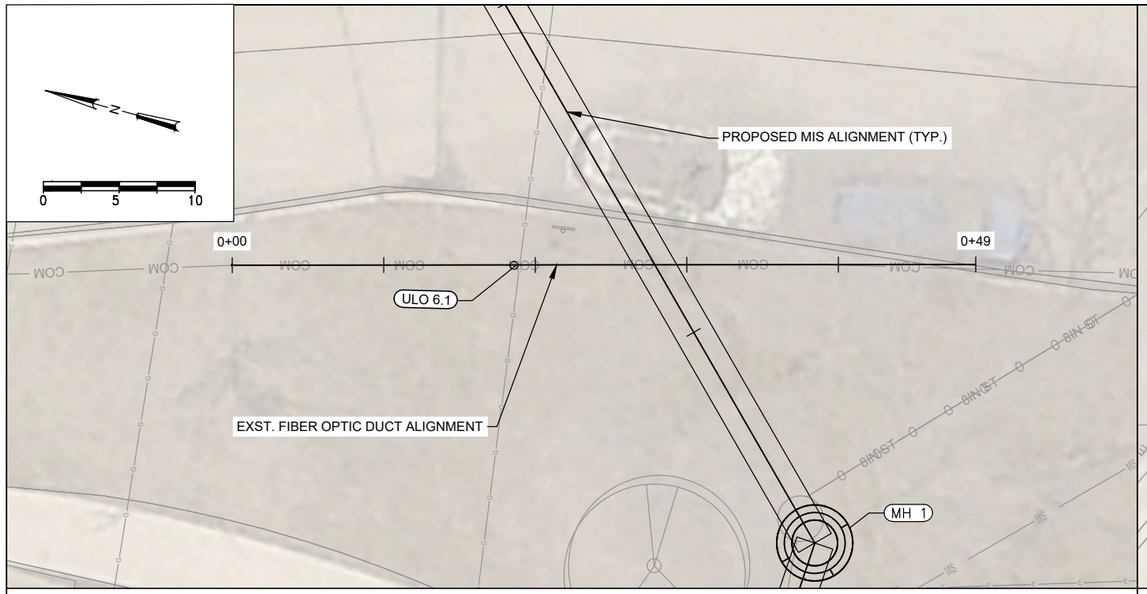
REV. NO.	DATE	REVISION DESCRIPTION	BY	APVD

MMSD PARTNERS FOR A CLEANER ENVIRONMENT

MILWAUKEE METROPOLITAN SEWERAGE DISTRICT

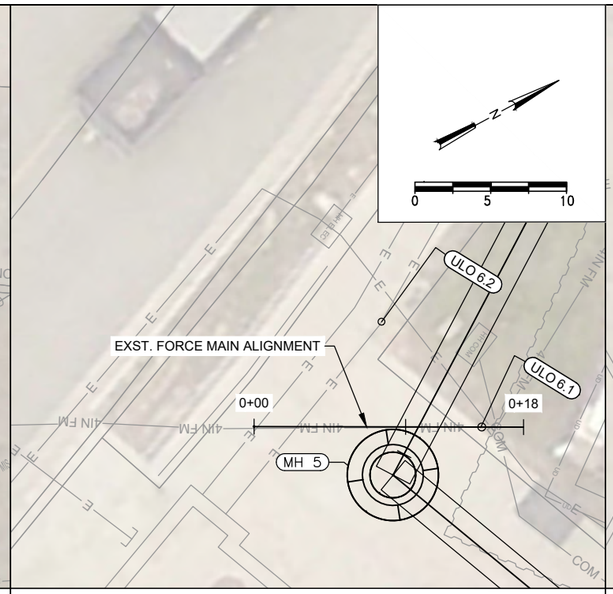
METROPOLITAN INTERCEPTOR SEWER SYSTEM
VA GROUNDS MIS RELOCATION
PLAN AND PROFILE
PROPOSED MIS PLAN & PROFILE - MH 9 TO CONNECTION TO MIS

DRAWING NO.:	XXX-PP-504
SHEET:	32
DATE:	JUNE, 2022
CONTRACT:	C06023C01
MMSD FILE:	XXXPP501.DWG



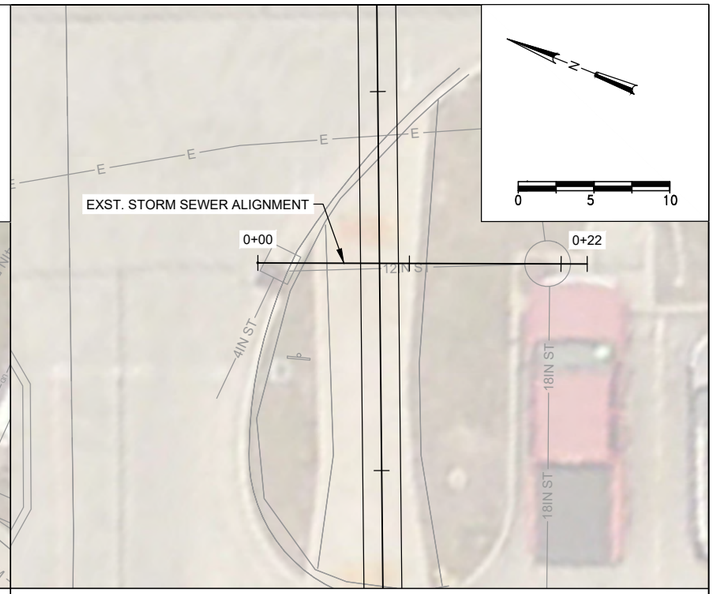
RELOCATION DETAIL 1

SCALE AS NOTED — XXX-PP-505



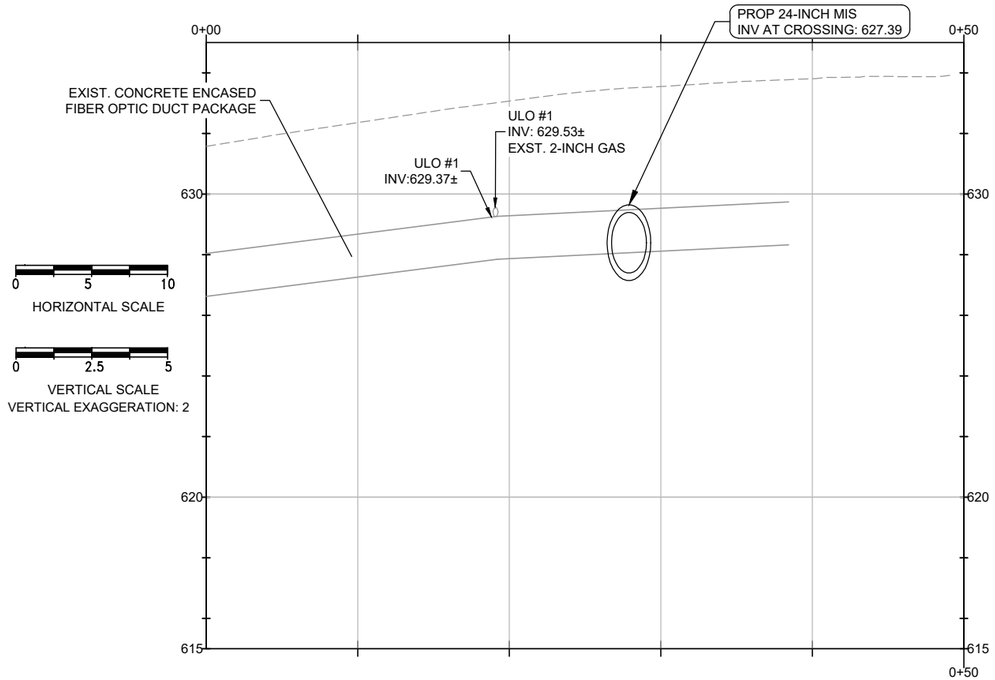
RELOCATION DETAIL 2

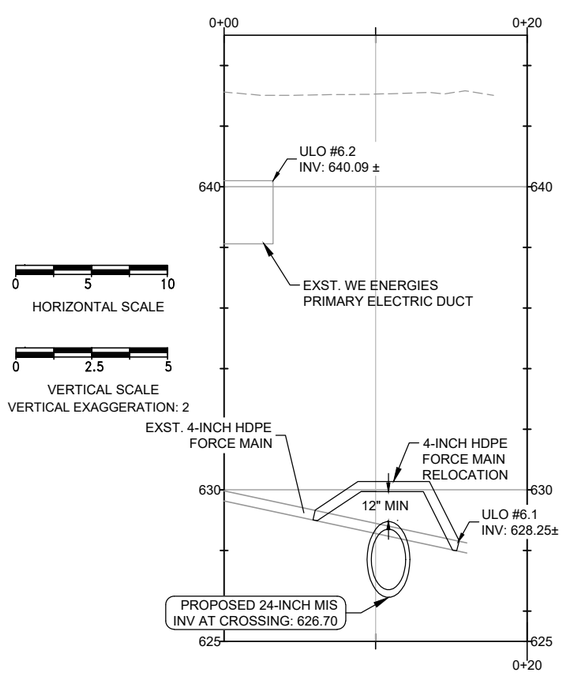
SCALE AS NOTED — XXX-PP-505

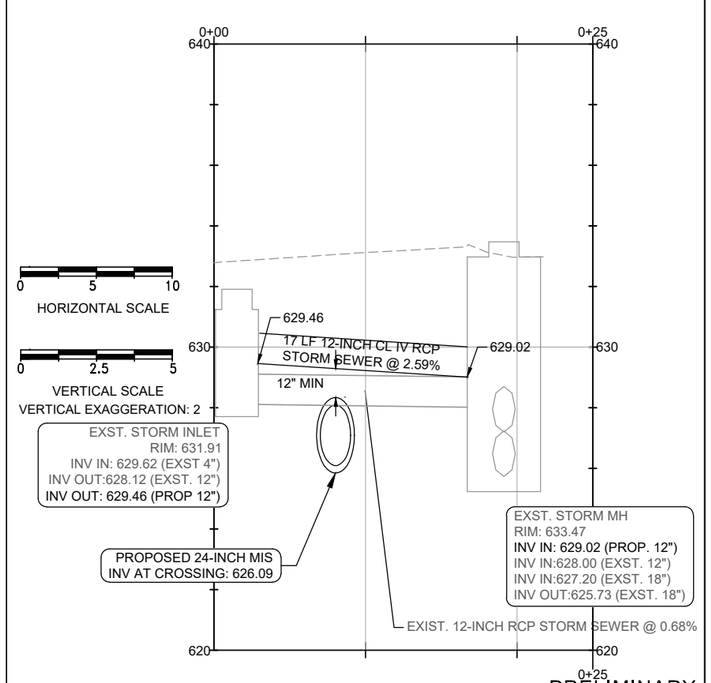


RELOCATION DETAIL 3

SCALE AS NOTED — XXX-PP-505







PRELIMINARY

HORIZONTAL DATUM
NAD27 WISCONSIN STATE PLANE SOUTH ZONE COORDINATE SYSTEM

VERTICAL DATUM
NGVD29 NATIONAL GEODETIC VERTICAL DATUM ON 1929

DSGN S.SCHARCH
DR S.SCHARCH
CHK A. SINGH

This Design Prepared For MMSD By:
KSingh Engineers Scientists Consultants

REV. NO.	DATE	REVISION DESCRIPTION	BY	APVD

MMSD PARTNERS FOR A CLEANER ENVIRONMENT

MILWAUKEE METROPOLITAN SEWERAGE DISTRICT

METROPOLITAN INTERCEPTOR SEWER SYSTEM
VA GROUNDS MIS RELOCATION
PLAN AND PROFILE
RELOCATION DETAILS

DRAWING NO.:	XXX-PP-505
SHEET:	33
DATE:	JUNE, 2022
CONTRACT:	C06023C01
MMSD FILE:	XXXPP501.DWG

TABLES

Table 2
Summary of Soil Quality Test Results
MMSD VA Grounds MIS Relocation Project, C06023D01

Analyte	Sample ID	NR 720 RCLs for Groundwater Protection (1)	NR 720 RCLs - Non-Industrial Use for Direct Contact Protection (1)	NR 720 RCLs - Industrial Use for Direct Contact Protection (1)	Background Threshold Value (1)	NR 661.0024 Toxicity Characteristic	Method	B-1	B-1	B-1	B-2	B-2	B-3	B-3	B-3	B-6	B-6
	Depth (feet)							1-2.5'	3.5-5'	6-7.5'	1-2.5'	5.5-7'	1-2.5'	8.5-10'	15.5-17'	1-2.5'	6-7.5'
	Date							3/22/2022	3/22/2022	3/22/2022	3/29/2022	3/29/2022	3/29/2022	3/29/2022	3/29/2022	3/22/2022	3/22/2022
	UNITS							500-214086-7	500-214086-8	500-214086-9	500-214387-13	500-214387-14	500-214387-11	500-214387-12	500-214387-15	500-214086-5	500-214086-6
Physical Characteristics																	
Moisture, Percent	%	---	---	---	---	---	Moisture	15.3	18.9	18.2	14.1	15.5	10	16.3	16.1	14.6	16.7
Solids, Percent	%	---	---	---	---	---	Moisture	84.7	81.1	81.8	85.9	84.5	90.0	83.7	83.9	85.4	83.3
Metals																	
Arsenic	mg/kg	0.584	0.677	3	8	---	EPA 6010B	5	5	---	3.7	3.8	2.3	5.8	5.8	5.3	3.2
Barium	mg/kg	164.8	15,300	100,000	364	---	EPA 6010B	62	62	---	56	54	21	61	23	78	97
Cadmium	mg/kg	0.752	71.1	985	1	---	EPA 6010B	<0.040	<0.040	---	0.12 J B	0.11 J B	0.16 J B	0.11 J B	0.22 B	<0.040	<0.041
Chromium	mg/kg	360,000*	---	---	44	---	EPA 6010B	23 B	23 B	---	23 B	21 B	8.6 B	26 B	14 B	20	23 B
Lead	mg/kg	27	400	800	51.6	---	EPA 6010B	11	11	---	10	9	12	12	9.4	18	8.5
Selenium	mg/kg	0.52	391	5840	---	---	EPA 6010B	<0.65	<0.65	---	<0.67	<0.59	<0.59	<0.61	<0.61	<0.65	<0.66
Silver	mg/kg	0.8491	391	5,840	---	---	EPA 6010B	0.21 J	0.21 J	---	0.26 J	0.30 J	<0.13	0.41 J	0.17 J	0.29 J	0.27 J
Mercury	mg/kg	0.208	3.13	3.13	---	---	EPA 7471A	0.059	0.018	---	0.024	0.029	0.02	0.027	0.02	0.03	0.02
Polychlorinated Biphenyls (PCBs)																	
PCB-1016	mg/kg	0.009384	4.11	28	---	---	EPA 8082A	---	<0.0062	<0.0075	<0.0076	---	<0.0070	<0.0076	<0.0074	<0.0074	<0.0077
PCB-1221	mg/kg		0.213	0.883	---	---	EPA 8082A	---	<0.0062	<0.0075	<0.0076	---	<0.0070	<0.0076	<0.0074	<0.0074	<0.0077
PCB-1232	mg/kg		0.19	0.792	---	---	EPA 8082A	---	<0.0043	<0.0052	<0.0052	---	<0.0048	<0.0052	<0.0051	<0.0051	<0.0053
PCB-1242	mg/kg		0.235	0.972	---	---	EPA 8082A	---	<0.0061	<0.0075	<0.0075	---	<0.0069	<0.0075	<0.0074	<0.0073	<0.0076
PCB-1248	mg/kg		0.236	0.975	---	---	EPA 8082A	---	<0.0075	<0.0091	<0.0092	---	<0.0085	<0.0092	<0.0090	<0.0089	<0.0093
PCB-1254	mg/kg		0.239	0.988	---	---	EPA 8082A	---	<0.0053	<0.0065	<0.0065	---	<0.0061	<0.0065	<0.0064	<0.0064	<0.0067
PCB-1260	mg/kg		0.243	1	---	---	EPA 8082A	---	<0.0059	0.086	<0.0073	---	<0.0067	<0.0073	<0.0071	<0.0071	<0.0074
PCB-1268	mg/kg		---	---	---	---	EPA 8082A	---	---	---	---	---	---	---	---	---	---
Total PCBs	mg/kg	0.009384	---	---	---	---	EPA 8082A	---	<0.0043	0.086	<0.0052	---	<0.0048	<0.0052	<0.0051	<0.0051	<0.0053
Polynuclear Aromatic Hydrocarbons (PAHs)																	
1-Methylnaphthalene	mg/kg	---	17.6	72.7	---	---	EPA 8270D	0.016 J	<0.0095	---	<0.0089	<0.0091	<0.0085	<0.0096	<0.0096	<0.0093	<0.0093
2-Methylnaphthalene	mg/kg	---	239	3010	---	---	EPA 8270D	0.012 J	<0.0071	---	<0.0067	<0.0068	<0.0064	<0.0072	<0.0072	<0.0070	<0.0070
Acenaphthene	mg/kg	---	3590	45200	---	---	EPA 8270D	0.13	<0.0070	---	<0.0065	<0.0067	<0.0063	<0.0071	<0.0071	0.011 J	0.028 J
Acenaphthylene	mg/kg	---	---	---	---	---	EPA 8270D	0.028 J	<0.0051	---	<0.0048	<0.0049	0.0057 J	<0.0052	0.0066 J	0.0052 J	<0.0050
Anthracene	mg/kg	196.949	17900	100000	---	---	EPA 8270D	0.49	<0.0065	---	<0.0061	0.018 J	0.013 J	<0.0066	0.021 J	0.043	0.15
Benzo[a]anthracene	mg/kg	---	1.14	20.8	---	---	EPA 8270D	0.97	<0.0052	---	0.035 J	0.053	0.085	<0.0053	0.027 J	0.14	0.34
Benzo[a]pyrene	mg/kg	0.47	0.115	2.11	---	---	EPA 8270D	0.92	<0.0075	---	0.035 J	0.053	0.11	<0.0076	0.023 J	0.19	0.34
Benzo[b]fluoranthene	mg/kg	0.4781	1.15	21.1	---	---	EPA 8270D	1.3	<0.0084	---	0.044	0.062	0.14	<0.0085	<0.0085	0.22	0.46
Benzo[g,h,i]perylene	mg/kg	---	---	---	---	---	EPA 8270D	0.24	<0.013	---	0.021 J	0.028 J	0.052	<0.013	<0.013	0.058	0.097
Benzo[k]fluoranthene	mg/kg	---	11.5	211	---	---	EPA 8270D	0.53	<0.011	---	0.019 J	0.029 J	0.060	<0.012	<0.012	0.12	0.26
Chrysene	mg/kg	0.1442	115	2110	---	---	EPA 8270D	1.0	<0.011	---	0.047	0.068	0.13	<0.011	<0.011	0.15	0.36
Dibenz(a,h)anthracene	mg/kg	---	0.115	2.11	---	---	EPA 8270D	0.14	<0.0075	---	<0.0070	0.0080 J	0.015 J	<0.0076	<0.0076	0.018 J	0.042
Fluoranthene	mg/kg	88.8778	2390	30100	---	---	EPA 8270D	2.1	0.036 J	---	0.075	0.14	0.23	0.014 J	0.056	0.35	0.90
Fluorene	mg/kg	14.8299	2390	30100	---	---	EPA 8270D	0.19	<0.0055	---	<0.0051	<0.0052	<0.0049	<0.0055	0.011 J	0.016 J	0.052
Indeno[1,2,3-cd]pyrene	mg/kg	---	1.15	21.1	---	---	EPA 8270D	0.30	<0.010	---	0.017 J	0.023 J	0.048	<0.010	<0.010	0.066	0.12
Naphthalene	mg/kg	0.6582	5.52	24.1	---	---	EPA 8270D	0.012 J	<0.0060	---	<0.0056	<0.0057	<0.0054	<0.0061	<0.0060	<0.0059	<0.0058
Phenanthrene	mg/kg	---	---	---	---	---	EPA 8270D	1.5	<0.0054	---	0.022 J	0.049	0.080	0.0081 J	0.040	0.17	0.38
Pyrene	mg/kg	54.5455	1790	22600	---	---	EPA 8270D	2.0	<0.0077	---	0.060	0.11	0.18	0.012 J	0.046	0.33	0.83

Table 2
Summary of Soil Quality Test Results
MMSD VA Grounds MIS Relocation Project, C06023D01

Analyte	Sample ID	NR 720 RCLs for Groundwater Protection (1)	NR 720 RCLs - Non-Industrial Use for Direct Contact Protection (1)	NR 720 RCLs - Industrial Use for Direct Contact Protection (1)	Background Threshold Value (1)	NR 661.0024 Toxicity Characteristic	Method	B-1	B-1	B-1	B-2	B-2	B-3	B-3	B-3	B-6	B-6
	Depth (feet)							1-2.5'	3.5-5'	6-7.5'	1-2.5'	5.5-7'	1-2.5'	8.5-10'	15.5-17'	1-2.5'	6-7.5'
	Date							3/22/2022	3/22/2022	3/22/2022	3/29/2022	3/29/2022	3/29/2022	3/29/2022	3/29/2022	3/22/2022	3/22/2022
	UNITS							500-214086-7	500-214086-8	500-214086-9	500-214387-13	500-214387-14	500-214387-11	500-214387-12	500-214387-15	500-214086-5	500-214086-6
Volatile Organic Compounds (VOCs)																	
1,1,1,2-Tetrachloroethane	mg/kg	0.0534	2.78	12.3	---	---	EPA 8260B	<0.031	<0.030	<0.031	<0.031	<0.032	<0.028	<0.032	<0.032	<0.031	<0.032
1,1,1-Trichloroethane	mg/kg	0.1402	640	640	---	---	EPA 8260B	<0.026	<0.025	<0.026	<0.026	<0.026	<0.023	<0.027	<0.026	<0.025	<0.027
1,1,2,2-Tetrachloroethane	mg/kg	0.0002	0.81	3.6	---	---	EPA 8260B	<0.027	<0.026	<0.027	<0.027	<0.028	<0.024	<0.028	<0.028	<0.026	<0.028
1,1,2-Trichloroethane	mg/kg	0.0032	1.59	7.01	---	---	EPA 8260B	<0.024	<0.023	<0.024	<0.024	<0.024	<0.021	<0.025	<0.024	<0.023	<0.025
1,1-Dichloroethane	mg/kg	0.4834	5.06	22.2	---	---	EPA 8260B	<0.028	<0.027	<0.028	<0.028	<0.028	<0.025	<0.029	<0.028	<0.027	<0.029
1,1-Dichloroethene	mg/kg	0.005	320	1,190	---	---	EPA 8260B	<0.026	<0.025	<0.026	<0.026	<0.027	<0.023	<0.027	<0.027	<0.026	<0.027
1,1-Dichloropropene	mg/kg	---	---	---	---	---	EPA 8260B	<0.020	<0.019	<0.020	<0.020	<0.021	<0.018	<0.021	<0.021	<0.020	<0.021
1,2,3-Trichlorobenzene	mg/kg	---	62.6	934	---	---	EPA 8260B	<0.031	<0.030	<0.031	<0.031	<0.032	<0.028	<0.032	<0.032	<0.030	<0.032
1,2,3-Trichloropropane	mg/kg	0.0519	0.005	0.109	---	---	EPA 8260B	<0.028	<0.027	<0.028	<0.028	<0.029	<0.025	<0.029	<0.029	<0.027	<0.029
1,2,4-Trichlorobenzene	mg/kg	0.408	24	113	---	---	EPA 8260B	<0.023	<0.022	<0.023	<0.023	<0.024	<0.021	<0.024	<0.024	<0.023	<0.024
1,2,4-Trimethylbenzene	mg/kg	1.3787**	219	219	---	---	EPA 8260B	<0.024	<0.023	<0.024	<0.024	<0.025	<0.022	<0.025	<0.025	<0.024	<0.025
1,2-Dibromo-3-chloropropane	mg/kg	0.0002	0.008	0.092	---	---	EPA 8260B	<0.13	<0.13	<0.13	<0.13	<0.14	<0.12	<0.14	<0.14	<0.13	<0.14
1,2-Dibromoethane	mg/kg	0.0000282	0.05	0.221	---	---	EPA 8260B	<0.026	<0.025	<0.026	<0.026	<0.027	<0.023	<0.027	<0.027	<0.026	<0.027
1,2-Dichlorobenzene	mg/kg	1.168	376	376	---	---	EPA 8260B	<0.023	<0.022	<0.023	<0.023	<0.023	<0.020	<0.023	<0.023	<0.022	<0.023
1,2-Dichloroethane	mg/kg	0.0028	0.652	2.87	---	---	EPA 8260B	<0.027	<0.025	<0.027	<0.026	<0.027	<0.024	<0.028	<0.027	<0.026	<0.028
1,2-Dichloropropane	mg/kg	0.0033	3.4	15	---	---	EPA 8260B	<0.029	<0.028	<0.029	<0.029	<0.030	<0.026	<0.030	<0.030	<0.028	<0.030
1,3,5-Trimethylbenzene	mg/kg	1.3787**	182	182	---	---	EPA 8260B	<0.026	<0.025	<0.026	<0.026	<0.026	<0.023	<0.027	<0.026	<0.025	<0.027
1,3-Dichlorobenzene	mg/kg	1.1528	297	297	---	---	EPA 8260B	<0.027	<0.026	<0.027	<0.027	<0.028	<0.024	<0.028	<0.028	<0.026	<0.028
1,3-Dichloropropane	mg/kg	0.0003	1,490	1,490	---	---	EPA 8260B	<0.025	<0.024	<0.025	<0.024	<0.025	<0.022	<0.025	<0.025	<0.024	<0.025
1,4-Dichlorobenzene	mg/kg	0.144	3.74	16.4	---	---	EPA 8260B	<0.025	<0.024	<0.025	<0.025	<0.025	<0.022	<0.026	<0.025	<0.024	<0.026
2,2-Dichloropropane	mg/kg	---	191	191	---	---	EPA 8260B	<0.030	<0.029	<0.030	<0.030	<0.031	<0.027	<0.031	<0.031	<0.029	<0.031
2-Chlorotoluene	mg/kg	---	907	907	---	---	EPA 8260B	<0.021	<0.020	<0.021	<0.021	<0.022	<0.019	<0.022	<0.022	<0.021	<0.022
4-Chlorotoluene	mg/kg	---	253	253	---	---	EPA 8260B	<0.024	<0.023	<0.024	<0.024	<0.024	<0.021	<0.025	<0.024	<0.023	<0.025
Benzene	mg/kg	0.0051	1.6	7.07	---	---	EPA 8260B	<0.0099	<0.0095	<0.0099	<0.0099	<0.010	<0.0088	<0.010	<0.010	<0.0096	<0.010
Bromobenzene	mg/kg	---	342	679	---	---	EPA 8260B	<0.024	<0.023	<0.024	<0.024	<0.025	<0.021	<0.025	<0.025	<0.024	<0.025
Bromochloromethane	mg/kg	---	216	906	---	---	EPA 8260B	<0.029	<0.028	<0.029	<0.029 *+	<0.030 *+	<0.026 *+	<0.030 *+	<0.030	<0.028	<0.030
Bromodichloromethane	mg/kg	0.0003	0.418	1.83	---	---	EPA 8260B	<0.025	<0.024	<0.025	<0.025	<0.026	<0.022	<0.026	<0.026	<0.025	<0.026
Bromoform	mg/kg	0.0023	25.4	113	---	---	EPA 8260B	<0.033	<0.031	<0.033	<0.033	<0.034	<0.029	<0.034	<0.033	<0.032	<0.034
Bromomethane	mg/kg	0.0051	9.6	43	---	---	EPA 8260B	<0.054	<0.052	<0.054	<0.054 *+	<0.055 *+	<0.048 *+	<0.056 *+	<0.055	<0.053	<0.056
Carbon tetrachloride	mg/kg	0.0039	0.916	4.03	---	---	EPA 8260B	<0.026	<0.025	<0.026	<0.026	<0.027	<0.023	<0.027	<0.027	<0.025	<0.027
Chlorobenzene	mg/kg	---	370	761	---	---	EPA 8260B	<0.026	<0.025	<0.026	<0.026	<0.027	<0.023	<0.027	<0.027	<0.026	<0.027
Chloroethane	mg/kg	0.2266	2,120	2,120	---	---	EPA 8260B	<0.034	<0.033	<0.034	<0.034	<0.035	<0.030	<0.035	<0.035	<0.033	<0.035
Chloroform	mg/kg	0.0033	0.454	1.98	---	---	EPA 8260B	<0.025	<0.024	<0.025	<0.025	<0.026	<0.022	<0.026	<0.026	<0.024	<0.026
Chloromethane	mg/kg	0.0155	159	669	---	---	EPA 8260B	<0.022	<0.021	<0.022	<0.022 *-	<0.022 *-	<0.019 *-	<0.022 *-	<0.022	<0.021	<0.022
cis-1,2-Dichloroethene	mg/kg	0.0412	156	2,340	---	---	EPA 8260B	<0.028	<0.027	<0.028	<0.028	<0.028	<0.025	<0.029	<0.028	<0.027	<0.029
cis-1,3-Dichloropropene	mg/kg	0.0003	1,210	1,210	---	---	EPA 8260B	<0.028	<0.027	<0.028	<0.028	<0.029	<0.025	<0.029	<0.029	<0.027	<0.029
Dibromochloromethane	mg/kg	0.032	8.28	38.9	---	---	EPA 8260B	<0.033	<0.032	<0.033	<0.033	<0.034	<0.029	<0.034	<0.034	<0.032	<0.034
Dibromomethane	mg/kg	---	34	143	---	---	EPA 8260B	<0.018	<0.018	<0.018	<0.018	<0.019	<0.016	<0.019	<0.019	<0.018	<0.019
Dichlorodifluoromethane	mg/kg	3.0863	126	530	---	---	EPA 8260B	<0.046	<0.044	<0.046	<0.046 *-	<0.047 *-	<0.041 *-	<0.047 *-	<0.047	<0.045	<0.047
Ethylbenzene	mg/kg	1.57	8.02	35.4	---	---	EPA 8260B	<0.012	<0.012	<0.012	<0.012	<0.013	<0.011	<0.013	<0.013	<0.012	<0.013
Hexachlorobutadiene	mg/kg	---	1.63	7.19	---	---	EPA 8260B	<0.030	<0.029	<0.030	<0.030	<0.031	<0.027	<0.031	<0.031	<0.029	<0.031
Isopropyl ether	mg/kg	---	2,260	2,260	---	---	EPA 8260B	<0.019	<0.018	<0.019	<0.019	<0.019	<0.017	<0.019	<0.019	<0.018	<0.019
Isopropylbenzene	mg/kg	---	268	268	---	---	EPA 8260B	<0.026	<0.025	<0.026	<0.026	<0.027	<0.023	<0.027	<0.027	<0.025	<0.027
Methyl tert-butyl ether	mg/kg	0.027	63.8	282	---	---	EPA 8260B	<0.027	<0.026	<0.027	<0.027	<0.027	<0.024	<0.028	<0.027	<0.026	<0.028
Methylene chloride	mg/kg	0.0026	61.8	1,150	---	---	EPA 8260B	<0.11	<0.11	<0.11	<0.11	<0.11	<0.098	<0.11	<0.11	<0.11	<0.11
Naphthalene	mg/kg	0.6582	5.52	24.1	---	---	EPA 8260B	<0.023	<0.022	<0.023	<0.023	<0.023	<0.020	<0.023	<0.023	<0.022	<0.023

Table 2
Summary of Soil Quality Test Results
MMSD VA Grounds MIS Relocation Project, C06023D01

Analyte	Sample ID	NR 720 RCLs for Groundwater Protection (1)	NR 720 RCLs - Non-Industrial Use for Direct Contact Protection (1)	NR 720 RCLs - Industrial Use for Direct Contact Protection (1)	Background Threshold Value (1)	NR 661.0024 Toxicity Characteristic	Method	B-1	B-1	B-1	B-2	B-2	B-3	B-3	B-3	B-6	B-6
	Depth (feet)							1-2.5'	3.5-5'	6-7.5'	1-2.5'	5.5-7'	1-2.5'	8.5-10'	15.5-17'	1-2.5'	6-7.5'
	Date							3/22/2022	3/22/2022	3/22/2022	3/29/2022	3/29/2022	3/29/2022	3/29/2022	3/29/2022	3/22/2022	3/22/2022
	UNITS							500-214086-7	500-214086-8	500-214086-9	500-214387-13	500-214387-14	500-214387-11	500-214387-12	500-214387-15	500-214086-5	500-214086-6
n-Butylbenzene	mg/kg	---	108	108	---	---	EPA 8260B	<0.026	<0.025	<0.026	<0.026	<0.027	<0.023	<0.027	<0.027	<0.026	<0.027
n-Propylbenzene	mg/kg	---	264	264	---	---	EPA 8260B	<0.028	<0.027	<0.028	<0.028	<0.029	<0.025	<0.029	<0.029	<0.027	<0.029
p-Isopropyltoluene	mg/kg	---	162	162	---	---	EPA 8260B	<0.025	<0.024	<0.025	<0.024	<0.025	<0.022	<0.025	<0.025	<0.024	<0.025
sec-Butylbenzene	mg/kg	---	145	145	---	---	EPA 8260B	<0.027	<0.026	<0.027	<0.027	<0.028	<0.024	<0.028	<0.028	<0.026	<0.028
Styrene	mg/kg	0.22	867	867	---	---	EPA 8260B	<0.026	<0.025	<0.026	<0.026	<0.027	<0.023	<0.027	<0.027	<0.026	<0.027
tert-Butylbenzene	mg/kg	---	183	183	---	---	EPA 8260B	<0.027	<0.026	<0.027	<0.027	<0.028	<0.024	<0.028	<0.028	<0.026	<0.028
Tetrachloroethene	mg/kg	0.0045	33	145	---	---	EPA 8260B	<0.025	<0.024	<0.025	<0.025	<0.026	<0.022	<0.026	<0.026	<0.024	<0.026
Toluene	mg/kg	1.1072	818	818	---	---	EPA 8260B	<0.010	<0.0096	<0.010	<0.0099	<0.010	<0.0089	<0.010	<0.010	<0.0097	<0.010
trans-1,2-Dichloroethene	mg/kg	0.0626	1,560	1,850	---	---	EPA 8260B	<0.024	<0.023	<0.024	<0.024	<0.024	<0.021	<0.025	<0.024	<0.023	<0.025
trans-1,3-Dichloropropene	mg/kg	---	1,510	1,510	---	---	EPA 8260B	<0.025	<0.024	<0.025	<0.024	<0.025	<0.022	<0.025	<0.025	<0.024	<0.025
Trichloroethene	mg/kg	0.0036	1.3	8.41	---	---	EPA 8260B	<0.011	<0.011	<0.011	<0.011	<0.011	<0.0099	<0.012	<0.011	<0.011	<0.012
Trichlorofluoromethane	mg/kg	---	1,230	1,230	---	---	EPA 8260B	<0.029	<0.028	<0.029	<0.029	<0.030	<0.026	<0.030	<0.030	<0.028	<0.030
Vinyl chloride	mg/kg	0.0001	0.067	2.08	---	---	EPA 8260B	<0.018	<0.017	<0.018	<0.018 *-	<0.018 *-	<0.016 *-	<0.018 *-	<0.018	<0.017	<0.018
Xylenes, Total	mg/kg	3.96	260	260	---	---	EPA 8260B	<0.015	<0.014	<0.015	<0.015	<0.015	<0.013	<0.015	<0.015	<0.015	<0.015
TCLP Metals																	
Arsenic	mg/L	---	---	---	---	5	EPA 6010C	---	---	---	---	---	---	---	<0.010	---	---
Barium	mg/L	---	---	---	---	100	EPA 6010C	---	---	---	---	---	---	---	0.17 J	---	---
Cadmium	mg/L	---	---	---	---	1	EPA 6010C	---	---	---	---	---	---	---	0.0046 J	---	---
Chromium	mg/L	---	---	---	---	5	EPA 6010C	---	---	---	---	---	---	---	<0.010	---	---
Copper	mg/L	---	---	---	---	---	EPA 6010C	---	---	---	---	---	---	---	0.014 J	---	---
Lead	mg/L	---	---	---	---	5	EPA 6010C	---	---	---	---	---	---	---	<0.0075	---	---
Nickel	mg/L	---	---	---	---	---	EPA 6010C	---	---	---	---	---	---	---	0.024 J	---	---
Selenium	mg/L	---	---	---	---	1	EPA 6010C	---	---	---	---	---	---	---	<0.020	---	---
Silver	mg/L	---	---	---	---	5	EPA 6010C	---	---	---	---	---	---	---	<0.010	---	---
Zinc	mg/L	---	---	---	---	---	EPA 6010C	---	---	---	---	---	---	---	0.17	---	---
Mercury	mg/L	---	---	---	---	0.2	EPA 7470A	---	---	---	---	---	---	---	<0.00020	---	---

Notes:

(1) From WDNR RCLs Worksheet dated December 2018

Bold = Exceeds RCL

--- = Not analyzed / No established standard

B = Blank contamination: The analyte was detected above one-half the reporting limit in an associated blank. *3 = ISTD Response or Retention Time Outside Acceptable Limits.

J = Estimated: The analyte was positively identified; the quantitation is an estimation. F1 = MS and/or MSD Recovery Exceed Control Limits. F2 = MS/MSD Rpd Exceeds Control Limits.

Table 2
Summary of Soil Quality Test Results
MMSD VA Grounds MIS Relocation Project, C06023D01

Analyte	Sample ID	NR 720 RCLs for Groundwater Protection (1)	NR 720 RCLs - Non-Industrial Use for Direct Contact Protection (1)	NR 720 RCLs - Industrial Use for Direct Contact Protection (1)	Background Threshold Value (1)	NR 661.0024 Toxicity Characteristic	Method	B-6	B-7	B-7	B-8	B-8	B-9	B-9	B-9	B-10	B-10
	Depth (feet)							10.5-15'	1-2.5'	8.5-10'	1-2.5'	8.5-10'	1-2.5'	8.5-10'	13.5-15'	1-2.5'	8.5-10'
	Date							3/22/2022	3/29/2022	3/29/2022	3/29/2022	3/29/2022	3/29/2022	3/29/2022	3/29/2022	3/29/2022	3/29/2022
	UNITS							500-214086-10	500-214387-9	500-214387-10	500-214387-7	500-214387-8	500-214387-4	500-214387-5	500-214387-6	500-214387-1	500-214387-2
Physical Characturistics																	
Moisture, Percent	%	---	---	---	---	---	Moisture	16.6	15.4	14.8	15.4	18.5	14.2	15.8	16.1	12.9	16.5
Solids, Percent	%	---	---	---	---	---	Moisture	83.4	84.6	85.2	84.6	81.5	85.8	84.2	83.9	87.1	83.5
Metals																	
Arsenic	mg/kg	0.584	0.677	3	8	---	EPA 6010B	5.4	4.5	4.5	4.8	4	4.2	3.3	3.7	3.7	3.2
Barium	mg/kg	164.8	15,300	100,000	364	---	EPA 6010B	63	54	59	66	56	55	49	61	54	56
Cadmium	mg/kg	0.752	71.1	985	1	---	EPA 6010B	0.056 J B	0.13 J B	0.18 J B	0.40 B	0.10 J B	0.24 B	0.14 J B	0.081 J B	0.18 J B	0.091 J B
Chromium	mg/kg	360,000*	---	---	44	---	EPA 6010B	23 B	21 B	18 B	23 B	25 B	20 B	22 B	23 B	19 B	21 B
Lead	mg/kg	27	400	800	51.6	---	EPA 6010B	21	10	24	36	12	25	10	11	13	8.8
Selenium	mg/kg	0.52	391	5840	---	---	EPA 6010B	<0.70	<0.64	<0.63	<0.66	<0.69	<0.66	<0.65	<0.59	<0.62	<0.64
Silver	mg/kg	0.8491	391	5,840	---	---	EPA 6010B	0.26 J	0.24 J	0.26 J	0.41 J	0.29 J	0.31 J	0.27 J	0.29 J	0.30 J	0.24 J
Mercury	mg/kg	0.208	3.13	3.13	---	---	EPA 7471A	---	0.017 J	0.065	0.045	0.029	0.03	0.017 J	0.016 J	0.03	0.017 J
Polychlorinated Biphenyls (PCBs)																	
PCB-1016	mg/kg	0.009384	4.11	28	---	---	EPA 8082A	<0.0076	<0.0076	---	<0.0075	<0.0079	<0.0074	<0.0074	---	<0.0074	<0.0077
PCB-1221	mg/kg		0.213	0.883	---	---	EPA 8082A	<0.0076	<0.0076	---	<0.0075	<0.0079	<0.0074	<0.0074	---	<0.0074	<0.0077
PCB-1232	mg/kg		0.19	0.792	---	---	EPA 8082A	<0.0053	<0.0052	---	<0.0052	<0.0054	<0.0051	<0.0051	---	<0.0051	<0.0053
PCB-1242	mg/kg		0.235	0.972	---	---	EPA 8082A	<0.0075	<0.0075	---	<0.0075	<0.0078	<0.0074	<0.0074	---	<0.0073	<0.0077
PCB-1248	mg/kg		0.236	0.975	---	---	EPA 8082A	<0.0092	<0.0092	---	<0.0091	<0.0095	<0.0090	<0.0090	---	<0.0090	<0.0093
PCB-1254	mg/kg		0.239	0.988	---	---	EPA 8082A	<0.0066	<0.0065	---	<0.0065	<0.0068	<0.0064	<0.0064	---	<0.0064	<0.0067
PCB-1260	mg/kg		0.243	1	---	---	EPA 8082A	<0.0073	<0.0073	---	<0.0072	<0.0076	<0.0071	<0.0071	---	<0.0071	<0.0074
PCB-1268	mg/kg		---	---	---	---	EPA 8082A	---	---	---	---	---	---	---	---	---	---
Total PCBs	mg/kg	0.009384	---	---	---	---	EPA 8082A	<0.0053	<0.0052	---	<0.0052	<0.0054	<0.0051	<0.0051	---	<0.0051	<0.0053
Polynuclear Aromatic Hydrocarbons (PAHs)																	
1-Methylnaphthalene	mg/kg	---	17.6	72.7	---	---	EPA 8270D	---	<0.0094	0.061 J	0.023 J	<0.0094	<0.0093	<0.0095	<0.0094	0.019 J	<0.0094
2-Methylnaphthalene	mg/kg	---	239	3010	---	---	EPA 8270D	---	<0.0071	0.060 J	0.022 J	0.013 J	0.0082 J	0.011 J	<0.0071	0.023 J	<0.0071
Acenaphthene	mg/kg	---	3590	45200	---	---	EPA 8270D	---	0.015 J	0.072	0.17	0.020 J	0.025 J	0.037 J	0.12	0.052	<0.0070
Acenaphthylene	mg/kg	---	---	---	---	---	EPA 8270D	---	0.0098 J	0.14	0.027 J	0.054	0.015 J	<0.0051	0.0094 J	0.023 J	<0.0051
Anthracene	mg/kg	196.949	17900	100000	---	---	EPA 8270D	---	0.067	0.29	0.83	0.057	0.078	0.10	0.48	0.21	0.010 J
Benzo[a]anthracene	mg/kg	---	1.14	20.8	---	---	EPA 8270D	---	0.13	1.3	2.0	0.16	0.38	0.12	0.85	0.60	<0.0052
Benzo[a]pyrene	mg/kg	0.47	0.115	2.11	---	---	EPA 8270D	---	0.11	1.5	1.9	0.21	0.42	0.10	0.90	0.60	<0.0075
Benzo[b]fluoranthene	mg/kg	0.4781	1.15	21.1	---	---	EPA 8270D	---	0.14	1.5	2.1	0.20	0.53	0.12	0.94	0.73	0.014 J
Benzo[g,h,i]perylene	mg/kg	---	---	---	---	---	EPA 8270D	---	0.045	0.48	0.62	0.091	0.21	0.051	0.47	0.29	<0.012
Benzo[k]fluoranthene	mg/kg	---	11.5	211	---	---	EPA 8270D	---	0.053	0.65	0.93	0.089	0.20	0.051	0.43	0.26	<0.011
Chrysene	mg/kg	0.1442	115	2110	---	---	EPA 8270D	---	0.15	1.3	2.0	0.18	0.44	0.14	0.84	0.64	<0.011
Dibenz(a,h)anthracene	mg/kg	---	0.115	2.11	---	---	EPA 8270D	---	0.015 J	0.16	0.29	0.024 J	0.062	0.013 J	0.11	0.034 J	<0.0075
Fluoranthene	mg/kg	88.8778	2390	30100	---	---	EPA 8270D	---	0.36	3.1	5.2	0.28	0.99	0.40	2.4	1.5	0.090
Fluorene	mg/kg	14.8299	2390	30100	---	---	EPA 8270D	---	0.024 J	0.12	0.20	0.025 J	0.025 J	0.056	0.15	0.060	<0.0054
Indeno[1,2,3-cd]pyrene	mg/kg	---	1.15	21.1	---	---	EPA 8270D	---	0.044	0.55	0.71	0.080	0.21	0.044	0.42	0.27	<0.010
Naphthalene	mg/kg	0.6582	5.52	24.1	---	---	EPA 8270D	---	<0.0059	0.084	0.023 J	0.032 J	0.012 J	0.016 J	0.0089 J	0.021 J	<0.0060
Phenanthrene	mg/kg	---	---	---	---	---	EPA 8270D	---	0.24	1.4	2.4	0.12	0.43	0.41	1.4	0.69	0.018 J
Pyrene	mg/kg	54.5455	1790	22600	---	---	EPA 8270D	---	0.26	2.3	3.6	0.29	0.73	0.27	1.9	1.1	0.070

Table 2
Summary of Soil Quality Test Results
MMSD VA Grounds MIS Relocation Project, C06023D01

Analyte	Sample ID	NR 720 RCLs for Groundwater Protection (1)	NR 720 RCLs - Non-Industrial Use for Direct Contact Protection (1)	NR 720 RCLs - Industrial Use for Direct Contact Protection (1)	Background Threshold Value (1)	NR 661.0024 Toxicity Characteristic	Method	B-6	B-7	B-7	B-8	B-8	B-9	B-9	B-9	B-10	B-10
	Depth (feet)							10.5-15'	1-2.5'	8.5-10'	1-2.5'	8.5-10'	1-2.5'	8.5-10'	13.5-15'	1-2.5'	8.5-10'
	Date							3/22/2022	3/29/2022	3/29/2022	3/29/2022	3/29/2022	3/29/2022	3/29/2022	3/29/2022	3/29/2022	3/29/2022
	UNITS							500-214086-10	500-214387-9	500-214387-10	500-214387-7	500-214387-8	500-214387-4	500-214387-5	500-214387-6	500-214387-1	500-214387-2
Volatile Organic Compounds (VOCs)																	
1,1,1,2-Tetrachloroethane	mg/kg	0.0534	2.78	12.3	---	---	EPA 8260B	<0.030	<0.032	<0.031	<0.031	<0.033	<0.031	<0.032	<0.032	<0.030	<0.032
1,1,1-Trichloroethane	mg/kg	0.1402	640	640	---	---	EPA 8260B	<0.025	<0.026	<0.026	<0.026	<0.027	<0.026	<0.026	<0.026	<0.025	<0.026
1,1,2,2-Tetrachloroethane	mg/kg	0.0002	0.81	3.6	---	---	EPA 8260B	<0.026	<0.027	<0.027	<0.027	<0.029	<0.027	<0.027	<0.028	<0.026	<0.028
1,1,2-Trichloroethane	mg/kg	0.0032	1.59	7.01	---	---	EPA 8260B	<0.023	<0.024	<0.024	<0.024	<0.025	<0.024	<0.024	<0.024	<0.023	<0.024
1,1-Dichloroethane	mg/kg	0.4834	5.06	22.2	---	---	EPA 8260B	<0.027	<0.028	<0.028	<0.028	<0.029	<0.028	<0.028	<0.028	<0.027	<0.028
1,1-Dichloroethene	mg/kg	0.005	320	1,190	---	---	EPA 8260B	<0.025	<0.027	<0.027	<0.026	<0.028	<0.026	<0.027	<0.027	<0.025	<0.027
1,1-Dichloropropene	mg/kg	---	---	---	---	---	EPA 8260B	<0.019	<0.020	<0.020	<0.020	<0.021	<0.020	<0.020	<0.021	<0.019	<0.021
1,2,3-Trichlorobenzene	mg/kg	---	62.6	934	---	---	EPA 8260B	<0.030	<0.032	<0.031	<0.031	<0.033	<0.031	<0.031	<0.032	<0.030	<0.032
1,2,3-Trichloropropane	mg/kg	0.0519	0.005	0.109	---	---	EPA 8260B	<0.027	<0.028	<0.028	<0.028	<0.030	<0.028	<0.028	<0.029	<0.027	<0.029
1,2,4-Trichlorobenzene	mg/kg	0.408	24	113	---	---	EPA 8260B	<0.022	<0.024	<0.023	<0.023	<0.025	<0.023	<0.023	<0.024	<0.022	<0.024
1,2,4-Trimethylbenzene	mg/kg	1.3787**	219	219	---	---	EPA 8260B	<0.023	<0.025	<0.024	<0.024	<0.026	<0.024	<0.024	<0.025	<0.023	<0.025
1,2-Dibromo-3-chloropropane	mg/kg	0.0002	0.008	0.092	---	---	EPA 8260B	<0.13	<0.14	<0.14	<0.13	<0.14	<0.13	<0.14	<0.14	<0.13	<0.14
1,2-Dibromoethane	mg/kg	0.0000282	0.05	0.221	---	---	EPA 8260B	<0.025	<0.027	<0.026	<0.026	<0.028	<0.026	<0.026	<0.027	<0.025	<0.027
1,2-Dichlorobenzene	mg/kg	1.168	376	376	---	---	EPA 8260B	<0.022	<0.023	<0.023	<0.022	<0.024	<0.023	<0.023	<0.023	<0.022	<0.023
1,2-Dichloroethane	mg/kg	0.0028	0.652	2.87	---	---	EPA 8260B	<0.025	<0.027	<0.027	<0.026	<0.028	<0.026	<0.027	<0.027	<0.025	<0.027
1,2-Dichloropropane	mg/kg	0.0033	3.4	15	---	---	EPA 8260B	<0.028	<0.029	<0.029	<0.029	<0.031	<0.029	<0.029	<0.030	<0.028	<0.030
1,3,5-Trimethylbenzene	mg/kg	1.3787**	182	182	---	---	EPA 8260B	<0.025	<0.026	<0.026	<0.026	<0.027	<0.026	<0.026	<0.026	<0.025	<0.026
1,3-Dichlorobenzene	mg/kg	1.1528	297	297	---	---	EPA 8260B	<0.026	<0.028	<0.027	<0.027	<0.029	<0.027	<0.027	<0.028	<0.026	<0.028
1,3-Dichloropropane	mg/kg	0.0003	1,490	1,490	---	---	EPA 8260B	<0.024	<0.025	<0.025	<0.024	<0.026	<0.024	<0.025	<0.025	<0.023	<0.025
1,4-Dichlorobenzene	mg/kg	0.144	3.74	16.4	---	---	EPA 8260B	<0.024	<0.025	<0.025	<0.024	<0.026	<0.025	<0.025	<0.025	<0.024	<0.025
2,2-Dichloropropane	mg/kg	---	191	191	---	---	EPA 8260B	<0.029	<0.031	<0.030	<0.030	<0.032	<0.030	<0.030	<0.031	<0.029	<0.031
2-Chlorotoluene	mg/kg	---	907	907	---	---	EPA 8260B	<0.020	<0.022	<0.021	<0.021	<0.023	<0.021	<0.021	<0.022	<0.020	<0.022
4-Chlorotoluene	mg/kg	---	253	253	---	---	EPA 8260B	<0.023	<0.024	<0.024	<0.024	<0.025	<0.024	<0.024	<0.024	<0.023	<0.024
Benzene	mg/kg	0.0051	1.6	7.07	---	---	EPA 8260B	<0.0095	<0.010	<0.0099	<0.0098	<0.010	<0.0098	<0.010	<0.010	<0.0095	<0.010
Bromobenzene	mg/kg	---	342	679	---	---	EPA 8260B	<0.023	<0.024	<0.024	<0.024	<0.026	<0.024	<0.024	<0.025	<0.023	<0.025
Bromochloromethane	mg/kg	---	216	906	---	---	EPA 8260B	<0.028	<0.029 *+	<0.029 *+	<0.029 *+	<0.031 *+	<0.029 *+	<0.029 *+	<0.030 *+	<0.028	<0.030 *+
Bromodichloromethane	mg/kg	0.0003	0.418	1.83	---	---	EPA 8260B	<0.024	<0.026	<0.025	<0.025	<0.027	<0.025	<0.025	<0.026	<0.024	<0.026
Bromoform	mg/kg	0.0023	25.4	113	---	---	EPA 8260B	<0.031	<0.033	<0.033	<0.033	<0.035	<0.033	<0.033	<0.034	<0.031	<0.034
Bromomethane	mg/kg	0.0051	9.6	43	---	---	EPA 8260B	<0.052	<0.055 *+	<0.054 *+	<0.054 *+	<0.057 *+	<0.054 *+	<0.054 *+	<0.055 *+	<0.052	<0.055 *+
Carbon tetrachloride	mg/kg	0.0039	0.916	4.03	---	---	EPA 8260B	<0.025	<0.026	<0.026	<0.026	<0.028	<0.026	<0.026	<0.027	<0.025	<0.027
Chlorobenzene	mg/kg	---	370	761	---	---	EPA 8260B	<0.025	<0.027	<0.026	<0.026	<0.028	<0.026	<0.026	<0.027	<0.025	<0.027
Chloroethane	mg/kg	0.2266	2,120	2,120	---	---	EPA 8260B	<0.033	<0.035	<0.034	<0.034	<0.036	<0.034	<0.034	<0.035	<0.033	<0.035
Chloroform	mg/kg	0.0033	0.454	1.98	---	---	EPA 8260B	<0.024	<0.025	<0.025	<0.025	<0.027	<0.025	<0.025	<0.026	<0.024	<0.026
Chloromethane	mg/kg	0.0155	159	669	---	---	EPA 8260B	<0.021	<0.022 *-	<0.022 *-	<0.022 *-	<0.023 *-	<0.022 *-	<0.022 *-	<0.022 *-	<0.021	<0.022 *-
cis-1,2-Dichloroethene	mg/kg	0.0412	156	2,340	---	---	EPA 8260B	<0.027	<0.028	<0.028	<0.027	<0.029	<0.028	<0.028	<0.028	<0.026	<0.028
cis-1,3-Dichloropropene	mg/kg	0.0003	1,210	1,210	---	---	EPA 8260B	<0.027	<0.029	<0.028	<0.028	<0.030	<0.028	<0.028	<0.029	<0.027	<0.029
Dibromochloromethane	mg/kg	0.032	8.28	38.9	---	---	EPA 8260B	<0.032	<0.034	<0.033	<0.033	<0.035	<0.033	<0.033	<0.034	<0.032	<0.034
Dibromomethane	mg/kg	---	34	143	---	---	EPA 8260B	<0.018	<0.019	<0.018	<0.018	<0.019	<0.018	<0.018	<0.019	<0.018	<0.019
Dichlorodifluoromethane	mg/kg	3.0863	126	530	---	---	EPA 8260B	<0.044	<0.046 *-	<0.046 *-	<0.045 *-	<0.048 *-	<0.045 *-	<0.046 *-	<0.047 *-	<0.044	<0.047 *-
Ethylbenzene	mg/kg	1.57	8.02	35.4	---	---	EPA 8260B	<0.012	<0.013	<0.012	<0.012	<0.013	<0.012	<0.013	<0.013	<0.012	<0.013
Hexachlorobutadiene	mg/kg	---	1.63	7.19	---	---	EPA 8260B	<0.029	<0.031	<0.030	<0.030	<0.032	<0.030	<0.030	<0.031	<0.029	<0.031
Isopropyl ether	mg/kg	---	2,260	2,260	---	---	EPA 8260B	<0.018	<0.019	<0.019	<0.019	<0.020	<0.019	<0.019	<0.019	<0.018	<0.019
Isopropylbenzene	mg/kg	---	268	268	---	---	EPA 8260B	<0.025	<0.026	<0.026	<0.026	<0.028	<0.026	<0.026	<0.027	<0.025	<0.027
Methyl tert-butyl ether	mg/kg	0.027	63.8	282	---	---	EPA 8260B	<0.026	<0.027	<0.027	<0.026	<0.028	<0.027	<0.027	<0.027	<0.026	<0.027
Methylene chloride	mg/kg	0.0026	61.8	1,150	---	---	EPA 8260B	<0.11	<0.11	<0.11	<0.11	<0.12	<0.11	<0.11	<0.11	<0.11	<0.11
Naphthalene	mg/kg	0.6582	5.52	24.1	---	---	EPA 8260B	<0.022	<0.023	<0.023	<0.022	<0.024	<0.023	<0.023	<0.023	<0.022	<0.023

Table 2
Summary of Soil Quality Test Results
MMSD VA Grounds MIS Relocation Project, C06023D01

Analyte	Sample ID	NR 720 RCLs for Groundwater Protection (1)	NR 720 RCLs - Non-Industrial Use for Direct Contact Protection (1)	NR 720 RCLs - Industrial Use for Direct Contact Protection (1)	Background Threshold Value (1)	NR 661.0024 Toxicity Characteristic	Method	B-6	B-7	B-7	B-8	B-8	B-9	B-9	B-9	B-10	B-10
	Depth (feet)							10.5-15'	1-2.5'	8.5-10'	1-2.5'	8.5-10'	1-2.5'	8.5-10'	13.5-15'	1-2.5'	8.5-10'
	Date							3/22/2022	3/29/2022	3/29/2022	3/29/2022	3/29/2022	3/29/2022	3/29/2022	3/29/2022	3/29/2022	3/29/2022
	UNITS							500-214086-10	500-214387-9	500-214387-10	500-214387-7	500-214387-8	500-214387-4	500-214387-5	500-214387-6	500-214387-1	500-214387-2
n-Butylbenzene	mg/kg	---	108	108	---	---	EPA 8260B	<0.025	<0.027	<0.026	<0.026	<0.028	<0.026	<0.027	<0.027	<0.025	<0.027
n-Propylbenzene	mg/kg	---	264	264	---	---	EPA 8260B	<0.027	<0.028	<0.028	<0.028	<0.030	<0.028	<0.028	<0.029	<0.027	<0.029
p-Isopropyltoluene	mg/kg	---	162	162	---	---	EPA 8260B	<0.024	<0.025	<0.025	<0.024	<0.026	<0.024	<0.025	<0.025	<0.023	<0.025
sec-Butylbenzene	mg/kg	---	145	145	---	---	EPA 8260B	<0.026	<0.027	<0.027	<0.027	<0.029	<0.027	<0.027	<0.028	<0.026	<0.028
Styrene	mg/kg	0.22	867	867	---	---	EPA 8260B	<0.025	<0.027	<0.026	<0.026	<0.028	<0.026	<0.026	<0.027	<0.025	<0.027
tert-Butylbenzene	mg/kg	---	183	183	---	---	EPA 8260B	<0.026	<0.027	<0.027	<0.027	<0.029	<0.027	<0.027	<0.028	<0.026	<0.028
Tetrachloroethene	mg/kg	0.0045	33	145	---	---	EPA 8260B	<0.024	<0.025	<0.025	<0.025	<0.027	<0.025	<0.025	<0.026	<0.024	<0.026
Toluene	mg/kg	1.1072	818	818	---	---	EPA 8260B	<0.0096	<0.010	<0.010	<0.0099	<0.011	<0.0099	<0.010	<0.010	<0.0095	<0.010
trans-1,2-Dichloroethene	mg/kg	0.0626	1,560	1,850	---	---	EPA 8260B	<0.023	<0.024	<0.024	<0.024	<0.025	<0.024	<0.024	<0.024	<0.023	<0.024
trans-1,3-Dichloropropene	mg/kg	---	1,510	1,510	---	---	EPA 8260B	<0.024	<0.025	<0.025	<0.024	<0.026	<0.024	<0.025	<0.025	<0.023	<0.025
Trichloroethene	mg/kg	0.0036	1.3	8.41	---	---	EPA 8260B	<0.011	<0.011	<0.011	<0.011	<0.012	<0.011	<0.011	<0.011	<0.011	<0.011
Trichlorofluoromethane	mg/kg	---	1,230	1,230	---	---	EPA 8260B	<0.028	<0.029	<0.029	<0.029	<0.031	<0.029	<0.029	<0.030	<0.028	<0.030
Vinyl chloride	mg/kg	0.0001	0.067	2.08	---	---	EPA 8260B	<0.017	<0.018 *-	<0.018 *-	<0.018 *-	<0.019 *-	<0.018 *-	<0.018 *-	<0.018 *-	<0.017	<0.018 *-
Xylenes, Total	mg/kg	3.96	260	260	---	---	EPA 8260B	<0.014	<0.015	<0.015	<0.015	<0.016	<0.015	<0.015	<0.015	<0.014	<0.015
TCLP Metals																	
Arsenic	mg/L	---	---	---	---	5	EPA 6010C	<0.010	---	---	---	---	---	---	---	---	---
Barium	mg/L	---	---	---	---	100	EPA 6010C	0.32 J	---	---	---	---	---	---	---	---	---
Cadmium	mg/L	---	---	---	---	1	EPA 6010C	<0.0020	---	---	---	---	---	---	---	---	---
Chromium	mg/L	---	---	---	---	5	EPA 6010C	<0.010	---	---	---	---	---	---	---	---	---
Copper	mg/L	---	---	---	---	---	EPA 6010C	<0.010	---	---	---	---	---	---	---	---	---
Lead	mg/L	---	---	---	---	5	EPA 6010C	<0.0075	---	---	---	---	---	---	---	---	---
Nickel	mg/L	---	---	---	---	---	EPA 6010C	<0.010	---	---	---	---	---	---	---	---	---
Selenium	mg/L	---	---	---	---	1	EPA 6010C	<0.020	---	---	---	---	---	---	---	---	---
Silver	mg/L	---	---	---	---	5	EPA 6010C	<0.010	---	---	---	---	---	---	---	---	---
Zinc	mg/L	---	---	---	---	---	EPA 6010C	<0.020	---	---	---	---	---	---	---	---	---
Mercury	mg/L	---	---	---	---	0.2	EPA 7470A	<0.00020	---	---	---	---	---	---	---	---	---

Notes:

(1) From WDNR RCLs Worksheet dated December 2018

Bold = Exceeds RCL

--- = Not analyzed / No established standard

B = Blank contamination: The analyte was detected above one-half the reporting limit in an associated blank. *3 = ISTD Response or Retention Time Outside Acceptable Limits.

J = Estimated: The analyte was positively identified; the quantitation is an estimation. F1 = MS and/or MSD Recovery Exceed Control Limits. F2 = MS/MSD Rpd Exceeds Control Limits.

Table 2
Summary of Soil Quality Test Results
MMSD VA Grounds MIS Relocation Project, C06023D01

Analyte	Sample ID	NR 720 RCLs for Groundwater Protection (1)	NR 720 RCLs - Non-Industrial Use for Direct Contact Protection (1)	NR 720 RCLs - Industrial Use for Direct Contact Protection (1)	Background Threshold Value (1)	NR 661.0024 Toxicity Characteristic	Method	B-10	B-11	B-11	B-11	B-11	Trip Blank
	Depth (feet)							18.5-20'	1-2.5'	6-7.5'	11-12.5'	16-17.5'	---
	Date							3/29/2022	3/22/2022	3/22/2022	3/22/2022	3/22/2022	3/29/2022
	UNITS							500-214387-3	500-214086-1	500-214086-2	500-214086-3	500-214086-4	500-214387-16
Physical Characturistics													
Moisture, Percent	%	---	---	---	---	---	Moisture	14.6	17.7	15.8	7.4	12.9	---
Solids, Percent	%	---	---	---	---	---	Moisture	85.4	82.3	84.2	92.6	87.1	---
Metals													
Arsenic	mg/kg	0.584	0.677	3	8	---	EPA 6010B	6.7	6.6	5.7	3.3	3.3	---
Barium	mg/kg	164.8	15,300	100,000	364	---	EPA 6010B	48	71	53	13	31	---
Cadmium	mg/kg	0.752	71.1	985	1	---	EPA 6010B	0.075 J B	0.22 J B	0.057 J B	0.12 J B	0.099 J B	---
Chromium	mg/kg	360,000*	---	---	44	---	EPA 6010B	20 B	22	22 B	7	13	---
Lead	mg/kg	27	400	800	51.6	---	EPA 6010B	11	50	24	5.9	8.5	---
Selenium	mg/kg	0.52	391	5840	---	---	EPA 6010B	<0.60	<0.71	<0.62	<0.59	<0.67	---
Silver	mg/kg	0.8491	391	5,840	---	---	EPA 6010B	0.24 J	0.36 J	0.30 J	<0.13	<0.15	---
Mercury	mg/kg	0.208	3.13	3.13	---	---	EPA 7471A	0.017 J	0.065	0.045	<0.0056	0.0093 J	---
Polychlorinated Biphenyls (PCBs)													
PCB-1016	mg/kg	0.009384	4.11	28	---	---	EPA 8082A	---	<0.0078	<0.0077	---	---	---
PCB-1221	mg/kg		0.213	0.883	---	---	EPA 8082A	---	<0.0078	<0.0077	---	---	---
PCB-1232	mg/kg		0.19	0.792	---	---	EPA 8082A	---	<0.0054	<0.0053	---	---	---
PCB-1242	mg/kg		0.235	0.972	---	---	EPA 8082A	---	<0.0077	<0.0076	---	---	---
PCB-1248	mg/kg		0.236	0.975	---	---	EPA 8082A	---	<0.0094	<0.0093	---	---	---
PCB-1254	mg/kg		0.239	0.988	---	---	EPA 8082A	---	<0.0067	<0.0066	---	---	---
PCB-1260	mg/kg		0.243	1	---	---	EPA 8082A	---	<0.0075	<0.0074	---	---	---
PCB-1268	mg/kg		---	---	---	---	EPA 8082A	---	---	---	---	---	---
Total PCBs	mg/kg	0.009384	---	---	---	---	EPA 8082A	---	<0.0054	<0.0053	---	---	---
Polynuclear Aromatic Hydrocarbons (PAHs)													
1-Methylnaphthalene	mg/kg	---	17.6	72.7	---	---	EPA 8270D	<0.0093	0.012 J	0.018 J	<0.0086	<0.0089	---
2-Methylnaphthalene	mg/kg	---	239	3010	---	---	EPA 8270D	<0.0070	0.013 J	0.020 J	<0.0065	<0.0067	---
Acenaphthene	mg/kg	---	3590	45200	---	---	EPA 8270D	<0.0068	0.034 J	0.046	<0.0063	<0.0065	---
Acenaphthylene	mg/kg	---	---	---	---	---	EPA 8270D	<0.0050	0.032 J	0.013 J	<0.0046	<0.0048	---
Anthracene	mg/kg	196.949	17900	100000	---	---	EPA 8270D	<0.0064	0.23	0.12	<0.0059	<0.0061	---
Benzo[a]anthracene	mg/kg	---	1.14	20.8	---	---	EPA 8270D	<0.0051	1.1	0.24	<0.0047	0.0071 J	---
Benzo[a]pyrene	mg/kg	0.47	0.115	2.11	---	---	EPA 8270D	<0.0074	1.2 *3	0.25	<0.0068	<0.0070	---
Benzo[b]fluoranthene	mg/kg	0.4781	1.15	21.1	---	---	EPA 8270D	<0.0082	1.8 *3	0.30	<0.0076	<0.0079	---
Benzo[g,h,i]perylene	mg/kg	---	---	---	---	---	EPA 8270D	<0.012	0.35 *3	0.069	<0.011	<0.012	---
Benzo[k]fluoranthene	mg/kg	---	11.5	211	---	---	EPA 8270D	<0.011	0.67 *3	0.17	<0.010	<0.011	---
Chrysene	mg/kg	0.1442	115	2110	---	---	EPA 8270D	<0.010	1.1	0.23	<0.0096	<0.0099	---
Dibenz(a,h)anthracene	mg/kg	---	0.115	2.11	---	---	EPA 8270D	<0.0074	0.16 *3	0.034 J	<0.0068	<0.0070	---
Fluoranthene	mg/kg	88.8778	2390	30100	---	---	EPA 8270D	<0.0071	2.0	0.55	0.031 J	0.032 J	---
Fluorene	mg/kg	14.8299	2390	30100	---	---	EPA 8270D	<0.0054	0.043	0.065	<0.0049	<0.0051	---
Indeno[1,2,3-cd]pyrene	mg/kg	---	1.15	21.1	---	---	EPA 8270D	<0.0099	0.41 *3	0.078	<0.0091	<0.0094	---
Naphthalene	mg/kg	0.6582	5.52	24.1	---	---	EPA 8270D	<0.0059	0.018 J	0.026 J	<0.0054	<0.0056	---
Phenanthrene	mg/kg	---	---	---	---	---	EPA 8270D	<0.0053	0.65	0.42	<0.0049	0.0063 J	---
Pyrene	mg/kg	54.5455	1790	22600	---	---	EPA 8270D	<0.0076	2.2	0.51	<0.0070	0.0078 J	---

Table 2
Summary of Soil Quality Test Results
MMSD VA Grounds MIS Relocation Project, C06023D01

Analyte	Sample ID / Depth (feet) / Date / UNITS	NR 720 RCLs for Groundwater Protection (1)	NR 720 RCLs - Non-Industrial Use for Direct Contact Protection (1)	NR 720 RCLs - Industrial Use for Direct Contact Protection (1)	Background Threshold Value (1)	NR 661.0024 Toxicity Characteristic	Method	B-10 18.5-20' 3/29/2022 500-214387-3	B-11 1-2.5' 3/22/2022 500-214086-1	B-11 6-7.5' 3/22/2022 500-214086-2	B-11 11-12.5' 3/22/2022 500-214086-3	B-11 16-17.5' 3/22/2022 500-214086-4	Trip Blank --- 3/29/2022 500-214387-16
Volatile Organic Compounds (VOCs)													
1,1,1,2-Tetrachloroethane	mg/kg	0.0534	2.78	12.3	---	---	EPA 8260B	<0.031	<0.033	<0.031	<0.027	<0.030	<0.023
1,1,1-Trichloroethane	mg/kg	0.1402	640	640	---	---	EPA 8260B	<0.026	<0.027	<0.026	<0.022	<0.025	<0.019
1,1,2,2-Tetrachloroethane	mg/kg	0.0002	0.81	3.6	---	---	EPA 8260B	<0.027	<0.029	<0.027	<0.023	<0.026	<0.020
1,1,2-Trichloroethane	mg/kg	0.0032	1.59	7.01	---	---	EPA 8260B	<0.024	<0.025	<0.024	<0.020	<0.023	<0.018
1,1-Dichloroethane	mg/kg	0.4834	5.06	22.2	---	---	EPA 8260B	<0.028	<0.029	<0.028	<0.024	<0.027	<0.021
1,1-Dichloroethene	mg/kg	0.005	320	1,190	---	---	EPA 8260B	<0.027	<0.028	<0.026	<0.023	<0.025	<0.020
1,1-Dichloropropene	mg/kg	---	---	---	---	---	EPA 8260B	<0.020	<0.021	<0.020	<0.017	<0.019	<0.015
1,2,3-Trichlorobenzene	mg/kg	---	62.6	934	---	---	EPA 8260B	<0.031	<0.033	<0.031	<0.027	<0.030	<0.023
1,2,3-Trichloropropane	mg/kg	0.0519	0.005	0.109	---	---	EPA 8260B	<0.028	<0.030	<0.028	<0.024	<0.027	<0.021
1,2,4-Trichlorobenzene	mg/kg	0.408	24	113	---	---	EPA 8260B	<0.023	<0.025	<0.023	<0.020	<0.022	<0.017
1,2,4-Trimethylbenzene	mg/kg	1.3787**	219	219	---	---	EPA 8260B	<0.024	<0.026	<0.024	<0.021	<0.023	<0.018
1,2-Dibromo-3-chloropropane	mg/kg	0.0002	0.008	0.092	---	---	EPA 8260B	<0.14	<0.14	<0.13	<0.12	<0.13	<0.10
1,2-Dibromoethane	mg/kg	0.0000282	0.05	0.221	---	---	EPA 8260B	<0.026	<0.028	<0.026	<0.022	<0.025	<0.019
1,2-Dichlorobenzene	mg/kg	1.168	376	376	---	---	EPA 8260B	<0.023	<0.024	<0.023	<0.019	<0.022	<0.017
1,2-Dichloroethane	mg/kg	0.0028	0.652	2.87	---	---	EPA 8260B	<0.027	<0.028	<0.027	<0.023	<0.026	<0.020
1,2-Dichloropropane	mg/kg	0.0033	3.4	15	---	---	EPA 8260B	<0.029	<0.031	<0.029	<0.025	<0.028	<0.021
1,3,5-Trimethylbenzene	mg/kg	1.3787**	182	182	---	---	EPA 8260B	<0.026	<0.027	<0.026	<0.022	<0.025	<0.019
1,3-Dichlorobenzene	mg/kg	1.1528	297	297	---	---	EPA 8260B	<0.027	<0.029	<0.027	<0.023	<0.026	<0.020
1,3-Dichloropropane	mg/kg	0.0003	1,490	1,490	---	---	EPA 8260B	<0.025	<0.026	<0.024	<0.021	<0.024	<0.018
1,4-Dichlorobenzene	mg/kg	0.144	3.74	16.4	---	---	EPA 8260B	<0.025	<0.026	<0.025	<0.021	<0.024	<0.018
2,2-Dichloropropane	mg/kg	---	191	191	---	---	EPA 8260B	<0.030	<0.032	<0.030	<0.026	<0.029	<0.022
2-Chlorotoluene	mg/kg	---	907	907	---	---	EPA 8260B	<0.021	<0.023	<0.021	<0.018	<0.020	<0.016
4-Chlorotoluene	mg/kg	---	253	253	---	---	EPA 8260B	<0.024	<0.025	<0.024	<0.020	<0.023	<0.018
Benzene	mg/kg	0.0051	1.6	7.07	---	---	EPA 8260B	<0.0099	<0.010	<0.0099	<0.0085	<0.0095	<0.0073
Bromobenzene	mg/kg	---	342	679	---	---	EPA 8260B	<0.024	<0.026	<0.024	<0.021	<0.023	<0.018
Bromochloromethane	mg/kg	---	216	906	---	---	EPA 8260B	<0.029 *+	<0.031	<0.029	<0.025	<0.028	<0.021 *+
Bromodichloromethane	mg/kg	0.0003	0.418	1.83	---	---	EPA 8260B	<0.025	<0.027	<0.025	<0.022	<0.024	<0.019
Bromoform	mg/kg	0.0023	25.4	113	---	---	EPA 8260B	<0.033	<0.035	<0.033	<0.028	<0.031	<0.024
Bromomethane	mg/kg	0.0051	9.6	43	---	---	EPA 8260B	<0.054 *+	<0.057	<0.054	<0.046	<0.052	<0.040 *+
Carbon tetrachloride	mg/kg	0.0039	0.916	4.03	---	---	EPA 8260B	<0.026	<0.028	<0.026	<0.022	<0.025	<0.019
Chlorobenzene	mg/kg	---	370	761	---	---	EPA 8260B	<0.026	<0.028	<0.026	<0.022	<0.025	<0.019
Chloroethane	mg/kg	0.2266	2,120	2,120	---	---	EPA 8260B	<0.034	<0.036	<0.034	<0.029	<0.033	<0.025
Chloroform	mg/kg	0.0033	0.454	1.98	---	---	EPA 8260B	<0.025	<0.027	<0.025	<0.022	<0.024	<0.019
Chloromethane	mg/kg	0.0155	159	669	---	---	EPA 8260B	<0.022 *-	<0.023	<0.022	<0.019	<0.021	<0.016 *-
cis-1,2-Dichloroethene	mg/kg	0.0412	156	2,340	---	---	EPA 8260B	<0.028	<0.029	<0.028	<0.024	<0.027	<0.020
cis-1,3-Dichloropropene	mg/kg	0.0003	1,210	1,210	---	---	EPA 8260B	<0.028	<0.030	<0.028	<0.024	<0.027	<0.021
Dibromochloromethane	mg/kg	0.032	8.28	38.9	---	---	EPA 8260B	<0.033	<0.035	<0.033	<0.028	<0.032	<0.024
Dibromomethane	mg/kg	---	34	143	---	---	EPA 8260B	<0.018	<0.019	<0.018	<0.016	<0.018	<0.014
Dichlorodifluoromethane	mg/kg	3.0863	126	530	---	---	EPA 8260B	<0.046 *-	<0.048	<0.046	<0.039	<0.044	<0.034 *-
Ethylbenzene	mg/kg	1.57	8.02	35.4	---	---	EPA 8260B	<0.012	<0.013	<0.012	<0.011	<0.012	<0.0092
Hexachlorobutadiene	mg/kg	---	1.63	7.19	---	---	EPA 8260B	<0.030	<0.032	<0.030	<0.026	<0.029	<0.022
Isopropyl ether	mg/kg	---	2,260	2,260	---	---	EPA 8260B	<0.019	<0.020	<0.019	<0.016	<0.018	<0.014
Isopropylbenzene	mg/kg	---	268	268	---	---	EPA 8260B	<0.026	<0.028	<0.026	<0.022	<0.025	<0.019
Methyl tert-butyl ether	mg/kg	0.027	63.8	282	---	---	EPA 8260B	<0.027	<0.028	<0.027	<0.023	<0.026	<0.020
Methylene chloride	mg/kg	0.0026	61.8	1,150	---	---	EPA 8260B	<0.11	<0.12	<0.11	<0.095	<0.11	<0.082
Naphthalene	mg/kg	0.6582	5.52	24.1	---	---	EPA 8260B	<0.023	0.027 J	0.067 J	<0.019	<0.022	<0.017

Table 2
Summary of Soil Quality Test Results
MMSD VA Grounds MIS Relocation Project, C06023D01

Analyte	Sample ID / Depth (feet) / Date / UNITS	NR 720 RCLs for Groundwater Protection (1)	NR 720 RCLs - Non-Industrial Use for Direct Contact Protection (1)	NR 720 RCLs - Industrial Use for Direct Contact Protection (1)	Background Threshold Value (1)	NR 661.0024 Toxicity Characteristic	Method	B-10 / 18.5-20' / 3/29/2022 / 500-214387-3	B-11 / 1-2.5' / 3/22/2022 / 500-214086-1	B-11 / 6-7.5' / 3/22/2022 / 500-214086-2	B-11 / 11-12.5' / 3/22/2022 / 500-214086-3	B-11 / 16-17.5' / 3/22/2022 / 500-214086-4	Trip Blank / --- / 3/29/2022 / 500-214387-16
n-Butylbenzene	mg/kg	---	108	108	---	---	EPA 8260B	<0.026	<0.028	<0.026	<0.023	<0.025	<0.019
n-Propylbenzene	mg/kg	---	264	264	---	---	EPA 8260B	<0.028	<0.030	<0.028	<0.024	<0.027	<0.021
p-Isopropyltoluene	mg/kg	---	162	162	---	---	EPA 8260B	<0.025	<0.026	<0.024	<0.021	<0.024	<0.018
sec-Butylbenzene	mg/kg	---	145	145	---	---	EPA 8260B	<0.027	<0.029	<0.027	<0.023	<0.026	<0.020
Styrene	mg/kg	0.22	867	867	---	---	EPA 8260B	<0.026	<0.028	<0.026	<0.022	<0.025	<0.019
tert-Butylbenzene	mg/kg	---	183	183	---	---	EPA 8260B	<0.027	<0.029	<0.027	<0.023	<0.026	<0.020
Tetrachloroethene	mg/kg	0.0045	33	145	---	---	EPA 8260B	<0.025	<0.027	<0.025	<0.022	<0.024	<0.019
Toluene	mg/kg	1.1072	818	818	---	---	EPA 8260B	<0.010	<0.011	<0.0099	<0.0086	<0.0096	<0.0074
trans-1,2-Dichloroethene	mg/kg	0.0626	1,560	1,850	---	---	EPA 8260B	<0.024	<0.025	<0.024	<0.020	<0.023	<0.018
trans-1,3-Dichloropropene	mg/kg	---	1,510	1,510	---	---	EPA 8260B	<0.025	<0.026	<0.024	<0.021	<0.024	<0.018
Trichloroethene	mg/kg	0.0036	1.3	8.41	---	---	EPA 8260B	<0.011	<0.012	<0.011	<0.0095	<0.011	<0.0082
Trichlorofluoromethane	mg/kg	---	1,230	1,230	---	---	EPA 8260B	<0.029	<0.031	<0.029	<0.025	<0.028	<0.021
Vinyl chloride	mg/kg	0.0001	0.067	2.08	---	---	EPA 8260B	<0.018 *-	<0.019	<0.018	<0.015	<0.017	<0.013 *-
Xylenes, Total	mg/kg	3.96	260	260	---	---	EPA 8260B	<0.015	0.042	<0.015	<0.013	<0.014	<0.011
TCLP Metals													
Arsenic	mg/L	---	---	---	---	5	EPA 6010C	---	---	---	---	---	---
Barium	mg/L	---	---	---	---	100	EPA 6010C	---	---	---	---	---	---
Cadmium	mg/L	---	---	---	---	1	EPA 6010C	---	---	---	---	---	---
Chromium	mg/L	---	---	---	---	5	EPA 6010C	---	---	---	---	---	---
Copper	mg/L	---	---	---	---	---	EPA 6010C	---	---	---	---	---	---
Lead	mg/L	---	---	---	---	5	EPA 6010C	---	---	---	---	---	---
Nickel	mg/L	---	---	---	---	---	EPA 6010C	---	---	---	---	---	---
Selenium	mg/L	---	---	---	---	1	EPA 6010C	---	---	---	---	---	---
Silver	mg/L	---	---	---	---	5	EPA 6010C	---	---	---	---	---	---
Zinc	mg/L	---	---	---	---	---	EPA 6010C	---	---	---	---	---	---
Mercury	mg/L	---	---	---	---	0.2	EPA 7470A	---	---	---	---	---	---

Notes:

(1) From WDNR RCLs Worksheet dated December 2018

Bold = Exceeds RCL

--- = Not analyzed / No established standard

B = Blank contamination: The analyte was detected above one-half the reporting limit in an associated blank. *3 = ISTD Response or Retention Time Outside Acceptable Limits.

J = Estimated: The analyte was positively identified; the quantitation is an estimation. F1 = MS and/or MSD Recovery Exceed Control Limits. F2 = MS/MSD Rpd Exceeds Control Limits.

SITE PHOTOGRAPHS

B-3 and B-4 Location

MW-1 Installation

MW-1 Installation

MW-2 Installation

MW-2 Installation

MW-3 Installation

MW-3 Installation

Typical Soil Split Spoon Sample

SOIL BORING LOGS

SOIL BORING LOG

PROJECT NAME:	MMSD VA Grounds MIS Relocation	**GROUND SURFACE ELEVATION:**	635.58	**DATE BEGAN:**	3/22/2022
DRILL EQUIP:	7822DT Geoprobe	**NORTH:**	379090.59	**DATE FINISHED:**	3/22/2022
DRILLER:	Scott Klumb	**EAST:**	2541151.14	**PROJECT NO:**	40459
DRILLING METHOD:	HSA	**CHECKED BY:**	Robert Reineke	**BORING NO:**	B-1/MW-1
CONTRACTOR:	Soil & Engineering Services, Inc.	**FIELD ENGINEER:**	Alexander Huebner		

Elevation (FT)	Depth (FT)	Description	Graphic Profile	Graphic Well Profile	USCS	SPT Blows Per 6"	N-Value	Sample Number	Recovered (Inches)	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing Sieve 200	Remarks/ Qp (Unconfined Compressive Strength, tsf)	Qp (penetrometer, tsf)
635.0	0.0	TOPSOIL (3")			TP										
		FILL - Silty Clay (CL) - Very stiff to medium, dark brown to light brown, moist, little organics, trace sand and gravel				0-2-3-3	6	1-SS	18/24	36.4				NA	0.75
						3-4-4	8	2-SS	15.5/ 28	19.6				0	3.5
630.0	5.0				FILL										
						2-2-3	5	3-SS	18/18	24.4				0	1
		SILTY CLAY (CL) - Hard to stiff, light brown to grey, moist, trace gravel				5-8-11	19	4-SS	18/18	18.9				0	4.5
625.0	10.0														
						2-4-7	11	5-SS	18/18	18.8				0	NA
					CL	3-4-6	10	6-SS	18/18	20.2	34	15		0	3.5
620.0	15.0														
						3-5-6	11	7-SS	18/18	20.9				0	NA
						3-5-7	12	8-SS	18/18	17.3				0	1.5
615.0	20.0	Soil boring converted into monitoring well MW-1 per NR 141.													

KSingh Engineers Scientists Consultants

DTW WHILE DRILLING:
DTW AFTER DRILLING: 4.63 ft
DTW AFTER 24 HRS: 3.10 ft

SOIL BORING LOG

PROJECT NAME:	MMSD VA Grounds MIS Relocation	**GROUND SURFACE ELEVATION:**	631.59	**DATE BEGAN:**	3/29/2022
DRILL EQUIP:	7822DT Geoprobe	**NORTH:**	379202.14	**DATE FINISHED:**	3/29/2022
DRILLER:	Scott Klumb	**EAST:**	2541289.16	**PROJECT NO:**	40459
DRILLING METHOD:	HSA	**CHECKED BY:**	Robert Reineke	**BORING NO:**	B-2
CONTRACTOR:	Soil & Engineering Services, Inc.	**FIELD ENGINEER:**	Aileen Zebrowski, EIT		

Elevation (FT)	Depth (FT)	Description	Graphic Profile	Graphic Well Profile	USCS	SPT Blows Per 6"	N-Value	Sample Number	Recovered (Inches)	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing Sieve 200	Remarks/ Qp (Unconfined Compressive Strength, tsf)	Qp (penetrometer, tsf)
	0.0	TOPSOIL (5")			TP										
630.0		FILL - Silty Clay (CL) - Hard to very soft, orangish brown to grey, moist, trace sand, gravel, and organics				0-2-2-4	6	1-SS	21/24	16.7				0.4	4.5
						2-4-4	8	2-SS	18/18	18.4				0.3	1.5
	5.0				FILL										
625.0						2-3-2	5	3-SS	18/18	19.7				0.3	2
						1-2-2	4	4-SS	18/18	22.9				0.5	0.75
	10.0	BURIED TOPSOIL (6")			TP										
		SILTY CLAY (CL) - Soft, dark grey, moist, little sand													
620.0						2-3-4	7	5-SS	18/18	20.7				0.3	0.5
					CL										
						3-3-1	4	6-SS	18/18	31.3				0.4	0.25
	15.0	SANDY CLAY (CL) - Very soft, dark grey, wet, little silt			CL										
615.0		End of Boring at 18 ft. Borehole abandoned in accordance with NR 141.25													

DTW WHILE DRILLING:

DTW AFTER DRILLING: ---

DTW AFTER 24 HRS: ---

SOIL BORING LOG

PROJECT NAME:	MMSD VA Grounds MIS Relocation	**GROUND SURFACE ELEVATION:**	636.38	**DATE BEGAN:**	3/22/2022
DRILL EQUIP:	7822DT Geoprobe	**NORTH:**	379123.62	**DATE FINISHED:**	3/22/2022
DRILLER:	Scott Klumb	**EAST:**	2541721.01	**PROJECT NO:**	40459
DRILLING METHOD:	HSA	**CHECKED BY:**	Robert Reineke	**BORING NO:**	B-6/MW-2
CONTRACTOR:	Soil & Engineering Services, Inc.	**FIELD ENGINEER:**	Alexander Huebner		

Elevation (FT)	Depth (FT)	Description	Graphic Profile	Graphic Well Profile	USCS	SPT Blows Per 6"	N-Value	Sample Number	Recovered (Inches)	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing Sieve 200	Remarks/ Qp (Unconfined Compressive Strength, tsf)	Qp (penetrometer, tsf)
635.0	0.0	FILL - Silty Clay (CL) - Hard to very stiff, dark brown to light brown, moist, little to trace organics, trace gravel and sand			FILL	0-2-3-3	6	1-SS	17/18	22.7				NA	2.25
						2-2-2	4	2-SS	14/18	22.8	34	16		0	4.5
	5.0														
630.0		FILL - Silty Clay (CL) - Very stiff to stiff, light brown, moist, trace gravel				2-2-1	3	3-SS	18/18	19.3				0	3.25
					FILL	2-2-3	6	4-SS	18/18	19.5				0	1.2
	10.0														
625.0		FILL - Silty Clay (CL) - Very stiff to stiff, light brown to brown to grey, moist, little to trace gravel				3-3-4	7	5-SS	18/18					0	2.25
						2-2-3-5	8	6-SS	24/24					NA	1.5
	15.0				FILL										
620.0						4-5-6-8	14	7-SS	24/24	22.3				NA	2.75
						2-3-4	7	8-SS	18/18	23.4				NA	2
	20.0	Soil boring converted into monitoring well MW-2 per NR 141.													
615.0															

DTW WHILE DRILLING:

DTW AFTER DRILLING: 7.02 ft

DTW AFTER 24 HRS: 6.22 ft

SOIL BORING LOG

PROJECT NAME:	MMSD VA Grounds MIS Relocation	**GROUND SURFACE ELEVATION:**	637.52	**DATE BEGAN:**	3/29/2022
DRILL EQUIP:	7822DT Geoprobe	**NORTH:**	379099.01	**DATE FINISHED:**	3/29/2022
DRILLER:	Scott Klumb	**EAST:**	2541392.25	**PROJECT NO:**	40459
DRILLING METHOD:	HSA	**CHECKED BY:**	Robert Reineke	**BORING NO:**	B-3
CONTRACTOR:	Soil & Engineering Services, Inc.	**FIELD ENGINEER:**	Aileen Zebrowski, EIT		

Elevation (FT)	Depth (FT)	Description	Graphic Profile	Graphic Well Profile	USCS	SPT Blows Per 6"	N-Value	Sample Number	Recovered (Inches)	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing Sieve 200	Remarks/ Qp (Unconfined Compressive Strength, tsf)	Qp (penetrometer, tsf)
	0.0	FILL - SAND (SP) - Very loose, tannish grey, moist, trace clay, little silt			FILL	1-1/12"-1	1/6"	1-SS	15/24	6.6				0	NA
635.0		FILL - Silty Clay (CL) - Hard to medium, orangish brown to dark brown, moist, trace organics, sand, and gravel, 3" sand seam noted													
						2-4-8	12	2-SS	NA	15				0	2
	5.0														
						6-9-4	13	3-SS	NA	8.4				0	4.5
630.0					FILL										
						4-4-3	7	4-SS	18/18	20.3				0	3
	10.0														
						6-8-11	19	5-SS	18/18	19.1				0	4.5
625.0															
		BURIED TOPSOIL (6")			TP										
		SANDY CLAY (CL) - Stiff to very soft, dark brown to grey, moist, some sand, trace gravel, sandy silt and clayey silt seams noted			CL	2-3-4	7	6-SS	18/18	19.6			61.1	0.1	1.25
	15.0														
		SILTY CLAY (CL) - Very stiff, orangish brown, moist, little sand, sand seam noted at 17.75 ft			CL	2-5-7	12	7-SS	18/18	21.8				NA	0.25
620.0														Water noted at 17.25 ft Cave in at 17.9 ft	
		SILTY CLAY (CL) - Very stiff, orangish brown, moist, little to trace fine sand, clayey silt layer noted			CL	5-8-11	19	8-SS	NA	24.6	23	16		NA	3.5
	20.0														
		End of Boring at 20 ft. Borehole abandoned in accordance with NR 141.25													
615.0															

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DTW WHILE DRILLING:
DTW AFTER DRILLING: ---
DTW AFTER 24 HRS: ---

SOIL BORING LOG

PROJECT NAME:	MMSD VA Grounds MIS Relocation	**GROUND SURFACE ELEVATION:**	631.69	**DATE BEGAN:**	3/29/2022
DRILL EQUIP:	7822DT Geoprobe	**NORTH:**	379203.3	**DATE FINISHED:**	3/29/2022
DRILLER:	Scott Klumb	**EAST:**	2541909.09	**PROJECT NO:**	40459
DRILLING METHOD:	HSA	**CHECKED BY:**	Robert Reineke	**BORING NO:**	B-7
CONTRACTOR:	Soil & Engineering Services, Inc.	**FIELD ENGINEER:**	Aileen Zebrowski, EIT		

Elevation (FT)	Depth (FT)	Description	Graphic Profile	Graphic Well Profile	USCS	SPT Blows Per 6"	N-Value	Sample Number	Recovered (Inches)	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing Sieve 200	Remarks/ Qp (Unconfined Compressive Strength, tsf)	Qp (penetrometer, tsf)
	0.0	TOPSOIL (5")			TP										
630.0		FILL - Silty Clay (CL) - Very stiff to stiff, orangish brown to grey, moist, trace organics, sand, and gravel, brick fragments noted				0-2-2-3	5	1-SS	23/24	17.3				0.3	NA
					FILL	1-2-2	4	2-SS	15/18	16.5				0	0.75
	5.0														
625.0						3-3-4	7	3-SS	18/18	20.2				0.1	2.5
		FILL - Silty Clay (CL) - Very stiff, dark brown to orangish brown, moist, little to trace sand, trace organics and gravel, 3" black silty sand seam and 5" asphalt noted			FILL	4-5-9	14	4-SS	18/18	19.1				0	2.5
	10.0														
620.0		FILL - Silty Clay (CL) - Very stiff, black to brown, moist, trace sand and gravel, 3" sand seam noted			FILL	3-5-6	11	5-SS	NA	12.1				0	3.5
		SILTY CLAY (CL) - Very stiff to medium, dark brown to grey, moist, little to trace sand, trace gravel, 14" sandy clay layer noted													
					CL	4-5-5	10	6-SS	17/18	16.3				0	2.5
	15.0														
615.0						3-3-3-6	9	7-SS	24/24	21.1			60.6	0	0.5
		End of Boring at 17.5 ft. Borehole abandoned in accordance with NR 141.25													
	20.0														

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DTW WHILE DRILLING:
DTW AFTER DRILLING: ---
DTW AFTER 24 HRS: ---

SOIL BORING LOG

PROJECT NAME:	MMSD VA Grounds MIS Relocation	**GROUND SURFACE ELEVATION:**	641.91	**DATE BEGAN:**	3/29/2022
DRILL EQUIP:	7822DT Geoprobe	**NORTH:**	378861.7	**DATE FINISHED:**	3/29/2022
DRILLER:	Scott Klumb	**EAST:**	2542050.03	**PROJECT NO:**	40459
DRILLING METHOD:	HSA	**CHECKED BY:**	Robert Reineke	**BORING NO:**	B-9
CONTRACTOR:	Soil & Engineering Services, Inc.	**FIELD ENGINEER:**	Aileen Zebrowski, EIT		

Elevation (FT)	Depth (FT)	Description	Graphic Profile	Graphic Well Profile	USCS	SPT Blows Per 6"	N-Value	Sample Number	Recovered (Inches)	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing Sieve 200	Remarks/ Qp (Unconfined Compressive Strength, tsf)	Qp (penetrometer, tsf)
	0.0	TOPSOIL (8")			TP										
640.0		FILL - Silty Clay (CL) - Very stiff to soft, orangish brown to grey, moist, little to trace sand, trace organics, chunks of asphalt noted				1-2-3-4	7	1-SS	16/24	14.9				0.8	NA
						2-3-1	4	2-SS	15/18	18.7				0.4	2.5
	5.0														
						2-2-2	4	3-SS	18/18	7				0.6	2
635.0					FILL										
						2-4-4	4	4-SS	18/18	14				0	0.25
	10.0														
						2-4-5	9	5-SS	18/18	15.1				0	1.25
630.0															
		FILL - Silty Clay (CL) - Very stiff to stiff, orangish brown to grey, moist, trace sand, gravel, and organics				4-4-6	10	6-SS	18/18	18.4				0.1	1.25
	15.0														
						3-6-6	12	7-SS	18/18	20.8				NA	2.25
625.0					FILL										
						4-7-10	17	8-SS	18/18	16.4				NA	4
	20.0														
		SANDY CLAY (CL) - Stiff, orangish brown to grey, moist, some silt, mottled													
620.0					CL										
						6-6-5	11	9-SS	18/18	15.9			65.2	0.4	1
	25.0														
		End of Boring at 25 ft. Borehole abandoned in accordance with NR 141.25													
615.0															

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DTW WHILE DRILLING:
DTW AFTER DRILLING: ---
DTW AFTER 24 HRS: ---

SOIL BORING LOG

PROJECT NAME:	MMSD VA Grounds MIS Relocation	**GROUND SURFACE ELEVATION:**	636.86	**DATE BEGAN:**	3/29/2022
DRILL EQUIP:	7822DT Geoprobe	**NORTH:**	379047.55	**DATE FINISHED:**	3/29/2022
DRILLER:	Scott Klumb	**EAST:**	2541974.54	**PROJECT NO:**	40459
DRILLING METHOD:	HSA	**CHECKED BY:**	Robert Reineke	**BORING NO:**	B-8
CONTRACTOR:	Soil & Engineering Services, Inc.	**FIELD ENGINEER:**	Aileen Zebrowski, EIT		

Elevation (FT)	Depth (FT)	Description	Graphic Profile	Graphic Well Profile	USCS	SPT Blows Per 6"	N-Value	Sample Number	Recovered (Inches)	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing Sieve 200	Remarks/ Qp (Unconfined Compressive Strength, tsf)	Qp (penetrometer, tsf)
	0 0	TOPSOIL (6")			TP										
635 0		FILL - Silty Clay (CL) - Stiff to soft, orangish brown to grey, moist, little to trace sand, trace gravel and organics, mottled				0-2-3-3	6	1-SS	11/24	24 5				0	NA
	5 0					2-2-2	4	2-SS	12/18	17 5				0 2	0 5
630 0						2-3-3	6	3-SS	17/18	18 3				0	1 5
	10 0					0-2-2	4	4-SS	18/18	17 7				0	0 25
					FILL										
625 0						2-3-2	5	5-SS	18/18	22 1				0	1 5
	15 0					2-1-2	NA	6-SS	17/18	24				0	0 5
620 0						2-2-3	5	7-SS	18/18	19 8				0	1 5
	20 0	End of Boring at 20 ft. Borehole abandoned in accordance with NR 141.25				3-4-6	NA	8-SS	18/18	21 2				0	3 25
615 0															

DTW WHILE DRILLING:

DTW AFTER DRILLING: ---

DTW AFTER 24 HRS: ---

SOIL BORING LOG

PROJECT NAME:	MMSD VA Grounds MIS Relocation	**GROUND SURFACE ELEVATION:**	643.87	**DATE BEGAN:**	3/29/2022
DRILL EQUIP:	7822DT Geoprobe	**NORTH:**	378690.01	**DATE FINISHED:**	3/29/2022
DRILLER:	Scott Klumb	**EAST:**	2542120.17	**PROJECT NO:**	40459
DRILLING METHOD:	HSA	**CHECKED BY:**	Robert Reineke	**BORING NO:**	B-10
CONTRACTOR:	Soil & Engineering Services, Inc.	**FIELD ENGINEER:**	Aileen Zebrowski, EIT		

Elevation (FT)	Depth (FT)	Description	Graphic Profile	Graphic Well Profile	USCS	SPT Blows Per 6"	N-Value	Sample Number	Recovered (Inches)	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing Sieve 200	Remarks/ Qp (Unconfined Compressive Strength, tsf)	Qp (penetrometer, tsf)
	0.0	FILL - Silty Clay (CL) - Stiff, brown, moist, trace to little coarse sand, trace metal fragments noted			FILL	0-3-3-3	6	1-SS	16/24	20.1				0.4	1.25
640.0	5.0	FILL - Silty Clay (CL) - Hard to very stiff, orangish brown to brown to dark brown, moist, little to trace sand, trace gravel and organics			FILL	3-4-4	8	2-SS	16/18	17				1.3	3.5
						2-4-4	8	3-SS	18/18	20.2				0.4	4.5
635.0	10.0	FILL - Silty Clay (CL) - Very stiff to soft, dark brown to orangish brown, moist, trace gravel, wet at 9 ft			FILL	2-3-5	8	4-SS	18/18	18.6				Water noted at 9 ft 0.5	0.5
		FILL - Silty Clay (CL) - Very stiff, orangish brown to dark brown, moist, trace sand, gravel and organics			FILL	4-6-8	14	5-SS	18/18	17.1				1.1	3.25
630.0	15.0					4-7-10	17	6-SS	18/18	17.7				0.5	3.25
						5-6-8	14	7-SS	18/18	20.6				0.5	3.75
625.0	20.0	SILTY CLAY (CL) - Hard to stiff, brown to grey, moist, little to trace sand, trace gravel			CL	3-5-7	12	8-SS	18/18	16.9				0.6	1.75
620.0	25.0	End of Boring at 25 ft. Borehole abandoned in accordance with NR 141.25				4-5-8	13	9-SS	18/18	20.7				0.5	2.25

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DTW WHILE DRILLING:
DTW AFTER DRILLING: ---
DTW AFTER 24 HRS: ---

SOIL BORING LOG

PROJECT NAME:	MMSD VA Grounds MIS Relocation	**GROUND SURFACE ELEVATION:**	647.33	**DATE BEGAN:**	3/22/2022
DRILL EQUIP:	7822DT Geoprobe	**NORTH:**	378491.32	**DATE FINISHED:**	3/22/2022
DRILLER:	Scott Klumb	**EAST:**	2542202.75	**PROJECT NO:**	40459
DRILLING METHOD:	HSA	**CHECKED BY:**	Robert Reineke	**BORING NO:**	B-11/MW-3
CONTRACTOR:	Soil & Engineering Services, Inc.	**FIELD ENGINEER:**	Alexander Huebner		

Elevation (FT)	Depth (FT)	Description	USCS	SPT Blows Per 6"	N-Value	Sample Number	Recovered (Inches)	Moisture Content %	Liquid Limit (LL)	Plastic Limit (PL)	Percent Passing Sieve 200	Remarks/ Qp (Unconfined Compressive Strength, tsf)	Qp (penetrometer, tsf)
	0.0	TOPSOIL (3")	TP	1-2-4-4	8	1-SS	8/24					NA	0.5
645.0		FILL - Silty Clay (CL) - Very stiff to medium, dark brown to light brown, moist, little organics, some to trace fine sand, little to trace gravel											
	5.0		FILL	3-3-4	7	2-SS	18/18	16.4				0	3
				2-2-2	4	3-SS	15/18	14				0	1.75
640.0													
	10.0	SILTY SAND (SM) - Loose, light brown, moist, fine grained, trace gravel		4-4-4	8	4-SS	18/18	7.8				0	NA
			SM	4-4-4	8	5-SS	13/18	5.6			18.3	0	NA
635.0													
	15.0	SILTY SAND (SM) - Loose, grey, saturated, coarse grained, trace gravel	SM	3-4-4	7	6-SS	17/18	17.4				Water noted at 14 ft 0	NA
				2-3-5	8	7-SS	18/18	15.2				0	1.25
630.0		SILTY CLAY (CL) - Very stiff to stiff, grey to greyish brown, moist, some to trace coarse sand											
	20.0			4-3-7	10	8-SS	18/18	12.1				0	2.5
625.0			CL										
	25.0			3-3-4	7	9-SS	18/18	26.5				NA	NA
620.0													
	30.0			6-4-5	9	10-SS	0/18					NA	NA
615.0		Soil boring converted into monitoring well MW-3 per NR 141.											

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DTW WHILE DRILLING:
DTW AFTER DRILLING: 12.29 ft
DTW AFTER 24 HRS: 12.21 ft

V. Summary of Existing and Potential Impacts.

A. Existing Site Conditions

1. Existing site conditions including waste types,

- *A total of eleven (11) soil borings (B-1 to B-11) were proposed to be performed along the alignment. However, soil borings B-4 and B-5 were not performed due to difficulty in locating underground utilities. Soil borings were advanced to depths ranging from 17.5 to 30 feet below ground surface (bgs). Soil borings B-1, B-6, and B-11 were converted into Monitoring Wells (MWs) MW-1, MW-2, and MW-3, respectively.*
- *Waste types include PAHs and PCBs for soils and PAHs and Metals in groundwater that are above state standards.*

2. Potential for impacts, and

- *There are soil and groundwater impacts which are documented in the Materials Characterization Report (MCR) (KSingh, June 21, 2022) on behalf of Milwaukee Metropolitan Sewerage District (MMSD). Excerpts the MCR are included with the Historical Fill Exemption Request.*

3. Evaluation of existing impacts.

- *Soil contamination is present at the project corridor for PAHs (Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Chrysene, and Dibenzo(a,h)anthracene) and PCB (PCB-1260) above NR 720 RCLs for the groundwater exposure pathway and/or for the non-industrial use direct contact exposure pathway.*
- *Anthropogenic materials were encountered in the historic fill soils which consisted of brick fragments, black silty sand (possible foundry sand), asphalt layers and asphalt chunks, and metal fragments. There were no organic type debris encountered; therefore, methane is not a concern along the project alignment.*
- *Groundwater contamination is at the project corridor for PAHs (Benzo(a)pyrene, Benzo(b)fluoranthene, and Chrysene) which are above the NR 140 Enforcement Standards (ESs) and Dissolved Metals (Dissolved Arsenic, Barium, Chromium, and Lead) above the NR 140 Preventative Action Limits (PALs).*

B. Proposed Development Summary. Include explanation for overall site decision.

- *The Milwaukee Metropolitan Sewerage District (MMSD) is in the process of design for the Veteran Affairs (VA) Grounds Metropolitan Interceptor Sewer (MIS) Relocation under Contract No. C06023D01. The U.S. Department of Veteran Affairs is constructing a new Radiation Oncology Building on the Clement J. Zablocki Veterans Affairs Medical Center (VAMC) grounds in Milwaukee, Wisconsin. The new building has been constructed over an existing 24-inch diameter clay MIS constructed in 1925 that serves the VAMC, the City of West Allis, and the City of Milwaukee (approximately 270.6 acres). The new building includes a slab-on-grade foundation*

supported by approximately 130 drilled micropiles that were installed in November 2021. The new building location reduces access to the existing MIS and could subject the sewer to additional structural loadings from the micropile foundation support system.

- *The existing 24-inch MIS has had buildings constructed over it on two prior occasions. The MIS was constructed over with the hospital emergency generator addition and with the Chiller Plant and Graphics Control building. No damage was observed to the MIS from either prior construction project.*
- *KSingh was selected by MMSD to perform design through construction services for the VA Grounds MIS Relocation Project. During Preliminary Design, a Phase I Environmental Site Assessment (ESA) was performed and submitted on November 5, 2021. Based on the findings of the Phase I ESA, a Materials Characterization Report was recommended based on recognized environmental conditions (RECs) on the VA Grounds. The RECs identified in the Phase I ESA include:*
    - *Known Contamination from a Leaking Underground Storage Tank near the Alignment which consist of Gasoline Range Organics (GRO), Diesel Range Organics (DRO), Petroleum Volatile Organic Compounds (PVOCs) Polycyclic Aromatic Hydrocarbons (PAHs) and heavy metals;*
    - *Known Contamination detected during Construction of Parking Structures directly adjacent to the Alignment which consist of PVOCs and PAHs; and*
    - *Presence of known Historic Fill along the Alignment.*
- *Environmental sampling and analysis were recommended to confirm the presence of contaminants of concern noted in the Phase I ESA and to characterize soils for management purposes. The soils sampling included testing for parameters required for landfill characterization to determine the potential for on-site reuse. Additionally, purge water from the monitoring wells during development was tested under Chapter 11 Discharge Parameters to determine if the water quality was acceptable to discharge into MMSD's sewage system.*

C. Summary of actions to be taken and engineering controls that will prevent or minimize adverse impacts and potential treats to human health and welfare, including worker safety.

- *Fill was encountered in all soil borings along the alignment. Contamination in soil borings containing PAHs and PCBs soil exceedances is likely due to the historical fill present on the subject site. All fill, due to the variability of its source should be treated as contaminated. Fill between soil borings B-2 and B-11 may be managed as Low Impact Material. Landfill waste characterization and PCBs detected less than 50 mg/kg demonstrate that there is no hazardous waste present. Additionally, due to the presence of PAHs in groundwater greater than regulatory limits, groundwater is considered contaminated. KSingh recommends the following actions:*
    - *Assist VA and MMSD in coordinating regulatory notification to the Wisconsin Department of Natural Resources (WDNR). Regulatory notification will entail providing the Materials Characterization Report to the WDNR for information purposes and submitting a request to build on historic fill.*
    - *Coordinate with Waste Management to confirm that the existing soil profile used to manage soil cuttings will still be acceptable for underground location of utilities wastes considering the newest test results.*
    - *A copy of the Materials Characterization Report should be submitted to the WDNR.*

- *Fill should be considered Special Waste throughout the proposed alignment due to the presence of contamination in fill and the variability of fill. Soils containing PCBs exceedances in between soil borings B-1 and B-2 cannot be used as earth fill and must be treated as Special Waste and disposed of at a licensed landfill. Soils which do not contain PCBs but contain PAHs including Benzo(a)anthracene, Benzo(a)pyrene, Chrysene, and Dibenzo(a,h)anthracene exceedances of NR 720 RCLs are considered Special Waste and will be landfilled.*
- *Native soils with no NR 720 RCLs exceedances may be managed as Clean Fill or beneficially reused.*
- *Considering fill was encountered in all soil borings along the alignment and the presence of PCBs was confirmed, this site would qualify for a Historical Fill – Case by Case Exemption. Therefore, it is recommended that a Historical Fill – Case by Case Exemption be requested from the WDNR.*
- *Groundwater encountered during construction should be managed as if it is contaminated and discharged to MMSD sewers under a Notice of Intent (NOI). The proposed alignment will be constructed below the water table and excavation dewatering will be required during construction.*

- *Worker safety will be in Level D Personal Protective Equipment (PPE). Appropriate Level D PPE may include hard hat, gloves; coveralls; ear plugs, safety glasses; and steel-toe boots.*

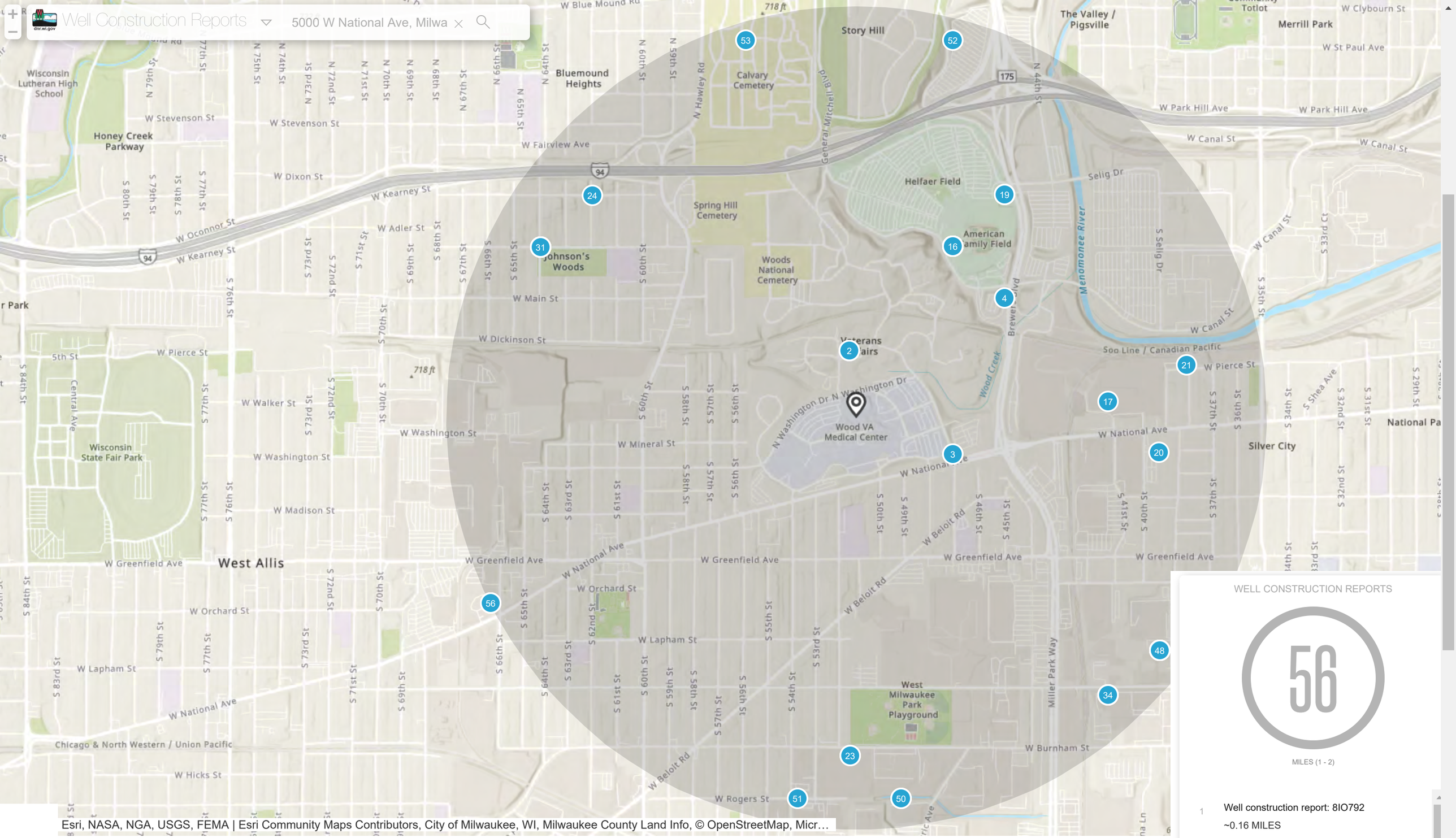
IX. Site Visit.

B. Potential Groundwater Receptors.

See attached map. Groundwater is assumed to be flowing locally to the northwest and regionally to the northeast towards the Wood Creek and the Menomonee River.

Well Construction Reports

5000 W National Ave, Milwa



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WELL CONSTRUCTION REPORTS

56

MILES (1 - 2)

1	Well construction report: 8IO792 ~0.16 MILES
2	Well construction report: 8IO790 ~0.16 MILES
3	Well construction report: 8IO791 ~0.25 MILES