Proactive by Design

EXTENT OF CONTAMINATION STUDY REMOVAL WORK PLAN

House Street Disposal Area
Plainfield Township, Kent County, Michigan

May 29, 2018
File No. 16.0062335.52

PREPARED FOR:
Wolverine World Wide, Inc.
Rockford, Michigan

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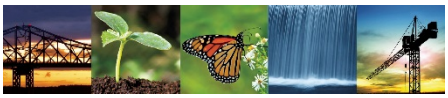

Submitted Via Email Only

May 29, 2018
File No. 16.0062335.52

Mr. Jeffrey Kimble, On-Scene Coordinator (OSC)
United States Environmental Protection Agency - Region 5
9311 Groh Road
Grosse Ile, Michigan 48135

Re: Extent of Contamination Study Removal Work Plan
House Street Disposal Area
Plainfield Township, Kent County, Michigan

Dear Mr. Kimble:

On behalf of Wolverine World Wide, Inc. (Wolverine), Rose & Westra, a Division of GZA GeoEnvironmental, Inc. (R&W/GZA), has prepared this Extent of Contamination Study Removal Work Plan (RWP) for the former Wolverine House Street Disposal Area in Plainfield Township, Kent County, Michigan. This RWP was prepared in response to the EPA Region 5 Unilateral Administrative Order for Removal Actions[1] (UAO) effective February 1, 2018, associated with the Former Wolverine Tannery and House Street Disposal Area. This RWP is submitted pursuant to Paragraph 20(a) of the UAO. This RWP incorporates your comments made in your May 11, 2018 letter and May 23, 2018 electronic-mail.

Very truly yours,

Rose & Westra, A Division of GZA GeoEnvironmental, Inc.

Jiangeng (Jim) Cai, P.E.
Senior Project Manager

John C. Osborne, P.G.
Consultant Reviewer/Senior Vice President

Mark A. Westra
Associate Principal

Attachment

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1. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Docket No. V-W-18-C-004.

LIST OF FIGURES IN TEXT

APPENDED FIGURES

APPENDED TABLES

APPENDICES

Appendices to the QAPP such as Standard Operating Procedures will be incorporated by reference.

Acronym	Definition
ARARs	Applicable or Relevant and Appropriate Requirements
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	Constituent of Concern
CSM	Conceptual Site Model
CSM Update	"Conceptual Site Model Update and Status Report," prepared by R&W/GZA, dated February 9, 2018
EE/CA	Engineering Evaluation/Cost Analysis
EPA	United States Environmental Protection Agency
FSP	Field Sampling Plan
GAC	Granular Activated Carbon
Grid Block	400-foot by 400-foot square grid
GRGCC	MDEQ Part 201 Generic Residential Groundwater Cleanup Criteria
GRSCC	MDEQ Part 201 Generic Residential Soil Cleanup Criteria
GSI	Groundwater-Surface Water Interface
HSS	House Street Site
MDEQ	Michigan Department of Environmental Quality
ng/L	nanogram/Liter
PFAS	Perfluoroalkyl and Polyfluoroalkyl Substances
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane Sulfonate
ppt	parts per trillion
PRT	Post Run Tubing
QAPP	Quality Assurance Project Plan
R&W/GZA	Rose & Westra, a Division of GZA GeoEnvironmental, Inc.
RCRA	Resource Conservation and Recovery Act
RIWP	"Conceptual Site Model and Remedial Investigation Work Plan," prepared by R&W/GZA, dated November 27, 2017
RRD	Remediation and Redevelopment Division
RWP	Removal Work Plan
Site	House Street Site, 1855 House Street NE, Plainfield Township, Michigan
SOP	Standard Operating Procedure
SVOCs	Semi-Volatile Organic Compounds
TAL	Target Analyte List
TCLP	Toxicity Characteristic Leaching Procedure
TSCA	Toxic Substances Control Act
UAO	Unilateral Administrative Order
VAP	Vertical Aquifer Profiling
VOCs	Volatile Organic Compounds
Wolverine	Wolverine World Wide, Inc.
XRF	X-ray fluorescence

1.0 INTRODUCTION

On behalf of Wolverine World Wide, Inc. (Wolverine), Rose & Westra, a Division of GZA GeoEnvironmental, Inc. (R&W/GZA) prepared this Extent of Contamination Study Removal Work Plan[2] (RWP) for the House Street Disposal Area located at 1855 House Street NE, Plainfield Township, Kent County, Michigan ("Site"), in response to the EPA's UAO for Removal Actions, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Docket No. V-W-18-C-004, dated January 10, 2018 and effective February 1, 2018. As required in UAO Paragraph 20 (c), this Draft RWP includes a schedule for this proposed investigation. The objectives of the removal actions described in this Draft RWP are to monitor, assess, and evaluate the relevant constituents of concern (COCs) present at the Site.

A Draft Field Sampling Plan (FSP) for the Site (R&W/GZA, 2018) and a Draft Quality Assurance Project Plan (QAPP) (R&W/GZA, 2018), prepared by R&W/GZA, dated March 5, 2018, have been submitted to EPA. EPA has provided comments, dated March 27, 2018, on the FSP and QAPP. R&W/GZA is preparing responses to EPA's comments. In addition, other investigative activities focusing on PFAS are ongoing under the supervision of the MDEQ.

2.0 SITE BACKGROUND

This section provides a summary of the Site background, history, previous investigation activities and data. Refer to the CSM Update for more detailed information.

2.1. SITE LOCATION AND HISTORY

The Site encompasses approximately 76 acres. The Site is located in an area of mixed rural and residential land use according to "Plainfield Charter Township Zoning Map," dated April 13, 2015. See **Figure 2.1-1** for a Site Locus.

The Site was a licensed and regulated disposal facility from the mid-1960s through 1978. Until 1970, the Site received leather tanning waste from Wolverine's Tannery located in Rockford, Michigan. The MDEQ Remediation and Redevelopment Division (RRD) files indicate the Site's disposal license expired in 1978, but it appears no waste was disposed after 1970. Based on past investigation data at the Site and Wolverine's Tannery Site, the waste also contains certain volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), select inorganic compounds, and PFAS including PFOS and PFOA. See **Figure 2.1-2** for a Site Diagram.

2. Under CERCLA definition the term "remove" or "removal" means the cleanup or removal of released hazardous substances from the environment, such actions as may be necessary taken in the event of the threat of release of hazardous substances into the environment, such actions as may be necessary to monitor, assess, and evaluate the release or threat of release of hazardous substances, the disposal of removed material, or the taking of such other actions as may be necessary to prevent, minimize, or mitigate damage to the public health or welfare or to the environment, which may otherwise result from a release or threat of release. The term includes, in addition, without being limited to, security fencing or other measures to limit access, provision of alternative water supplies, temporary evacuation and housing of threatened individuals not otherwise provided for, action taken under section 9604(b) of this title, and any emergency assistance which may be provided under the Disaster Relief and Emergency Assistance Act [42 U.S.C. 5121 et seq.

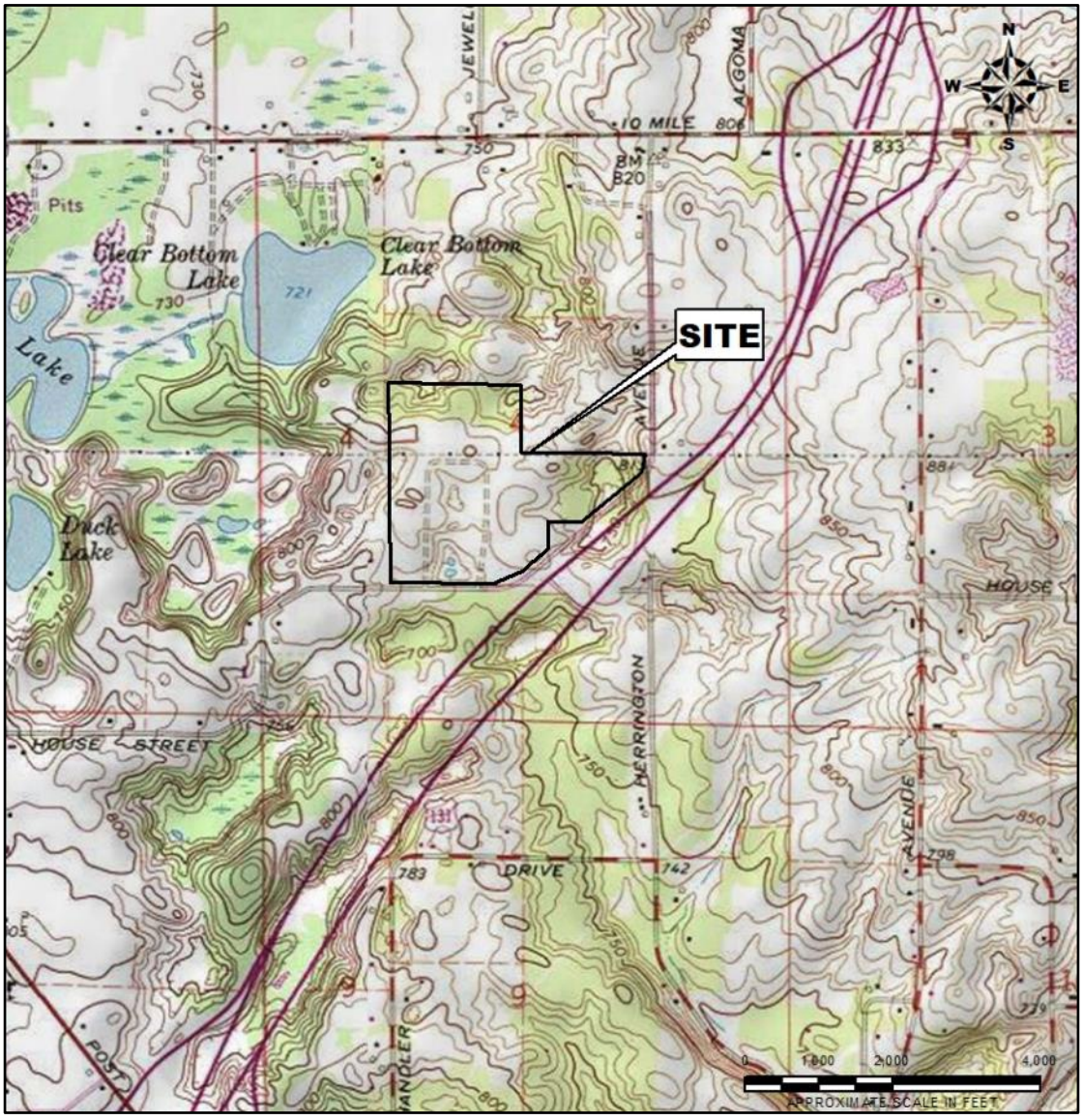


Figure 2.1-1: Site Locus

Figure 2.1-2: Site Diagram

2.2. PREVIOUS INVESTIGATIONS

As part of the *Conceptual Site Model and Remedial Investigation Work Plan* prepared by R&W/GZA, dated November 27, 2017 (RIWP) implementation under the MDEQ investigation, R&W/GZA reviewed historical aerial photographs and identified potential historical disposal areas at the Site. Sixteen soil borings, identified as WB-1 through WB-16, were completed from November 27 to December 1, 2017 to assess the presence and obtain representative samples for characterization of the waste materials. Waste materials were observed in five (WB-1, WB-2, WB-4, WB-11, and WB-14) of the sixteen (16) borings (See Appendix A for soil boring logs summarizing observations about the soil and waste). Samples were collected from the waste and soil underlying the waste in the five soil borings for laboratory analyses of Michigan 10 metals, hexavalent chromium, VOCs, SVOCs, and PFAS. See Table A for a summary of the analytical results. See Figure 2.2-1 for the boring locations where samples were

collected for laboratory analysis. Because evidence of waste was not identified, no samples were collected from WB-3, WB-5 through WB-10, WB-12, WB-13, WB-15, and WB-16.

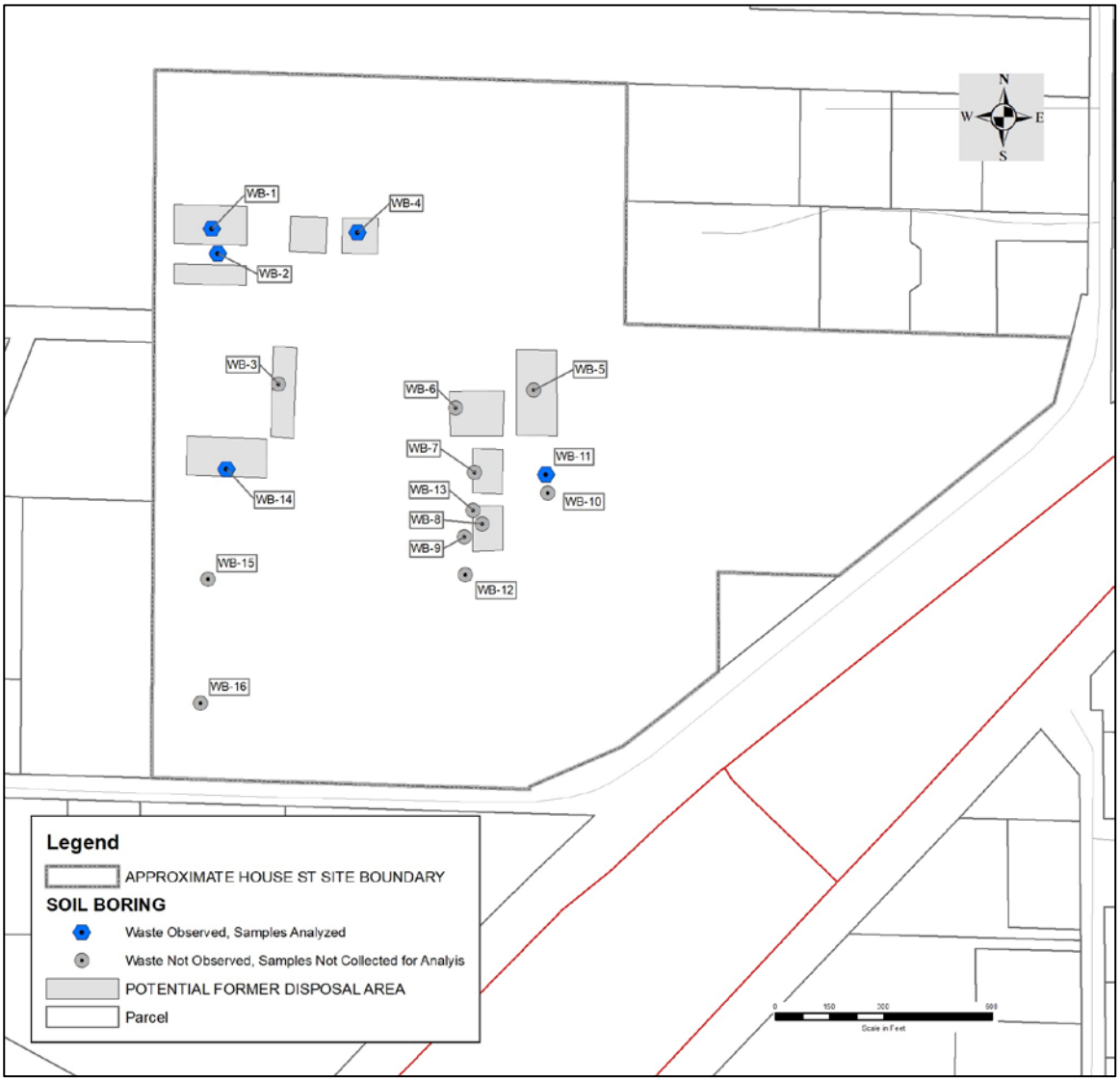


Figure 2.2-1: PREVIOUS SOIL BORING LOCATIONS

Seven soil borings were installed on-site to evaluate geology and hydrogeology, and twelve (12) permanent monitoring wells, MW-1S/1D through MW-7S, were installed at these seven locations. In addition, four borings were installed at properties immediately southeast of the Site, and ten monitoring wells, MW-8 through MW-11S/11M/11D, were installed at these four locations. The following table provides a summary of the well construction date and information.

Borehole Name	Well Number	Well Installation Date	Top of Casing Elevation	Ground Surface Elevation, Ft.	Screen Depth Interval, Ft.	Depth to the Bottom of well, Ft.
SB-1	MW-1S	9/5/17	790.73	788.7	68.4-73.1	75.0
SB-1	MW-1D	9/5/17	791.01	788.8	170.1-174.7	175.0
SB-2	MW-2S	9/11/17	799.66	797.6	78.5-83.1	83.4
SB-3	MW-3P	9/12/17	790.07	787.5	19.0-24.0	25.0
SB-3	MW-3S	9/12/17	790.62	788.1	69.7-74.6	75.1
SB-4	MW-4S	9/12/17	784.88	782.3	71.1-75.7	76.0
SB-5	MW-5P	9/19/17	781.45	778.9	17.1-21.8	22.3
SB-5	MW-5S	9/19/17	781.61	778.8	61.9-66.6	67.1
SB-5	MW-5D	12/1/17	781.84	779.1	188.0-198.0	198.5
SB-6	MW-6S	9/14/17	772.76	770.3	57.1-61.8	62.3
SB-6	MW-6D	11/2/17	773.33	770.6	155.0-160.0	162.0
SB-7	MW-7S	9/20/17	791.09	788.9	70.1-74.7	75.0
SB-8	MW-8	10/30/17	745.09	742.2	27.7-32.7	36.0
SB-9	MW-9S	11/17/17	820.20	817.8	26.0-31.0	31.0
SB-9	MW-9M	11/17/17	820.66	817.9	126.0-131.0	131.0
SB-9	MW-9D	11/17/17	820.88	818.2	203.0-208.0	220.0
SB-10	MW-10S	11/29/17	780.06	777.2	49.0-59.0	60.0
SB-10	MW-10M	11/29/17	780.64	777.7	125.0-130.0	131.0
SB-10	MW-10D	11/28/17	780.94	778.1	185.0-190.0	192.0
SB-11	MW-11S	11/9/17	744.78	742.1	21.0-31.0	31.5
SB-11	MW-11M	11/9/17	744.96	742.3	95.0-100.0	100.0
SB-11	MW-11D	11/8/17	744.75	742.1	150.0-155.0	162.0

Upon completion of the well installation at MW-1S through MW-7S in September 2017, groundwater samples were collected from the on-site monitoring wells (MW-1S, MW-1D, MW-2S, MW-3S, MW-4S, MW-5S, MW-6S, and MW-7S) for laboratory analyses of inorganic compounds, VOCs, and PFAS from October 12, 2017 to October 16, 2017. After the installation of monitoring wells MW-5D, MW-8, MW-9S/M/D, MW-10S/D/D, and MW-11S/M/D in November and December 2017, these wells were sampled for laboratory analysis of PFAS from December 6, 2017 to January 22, 2018. See Table B for a summary of the analytical results. See Figure 2.2-2 for the monitoring well locations.

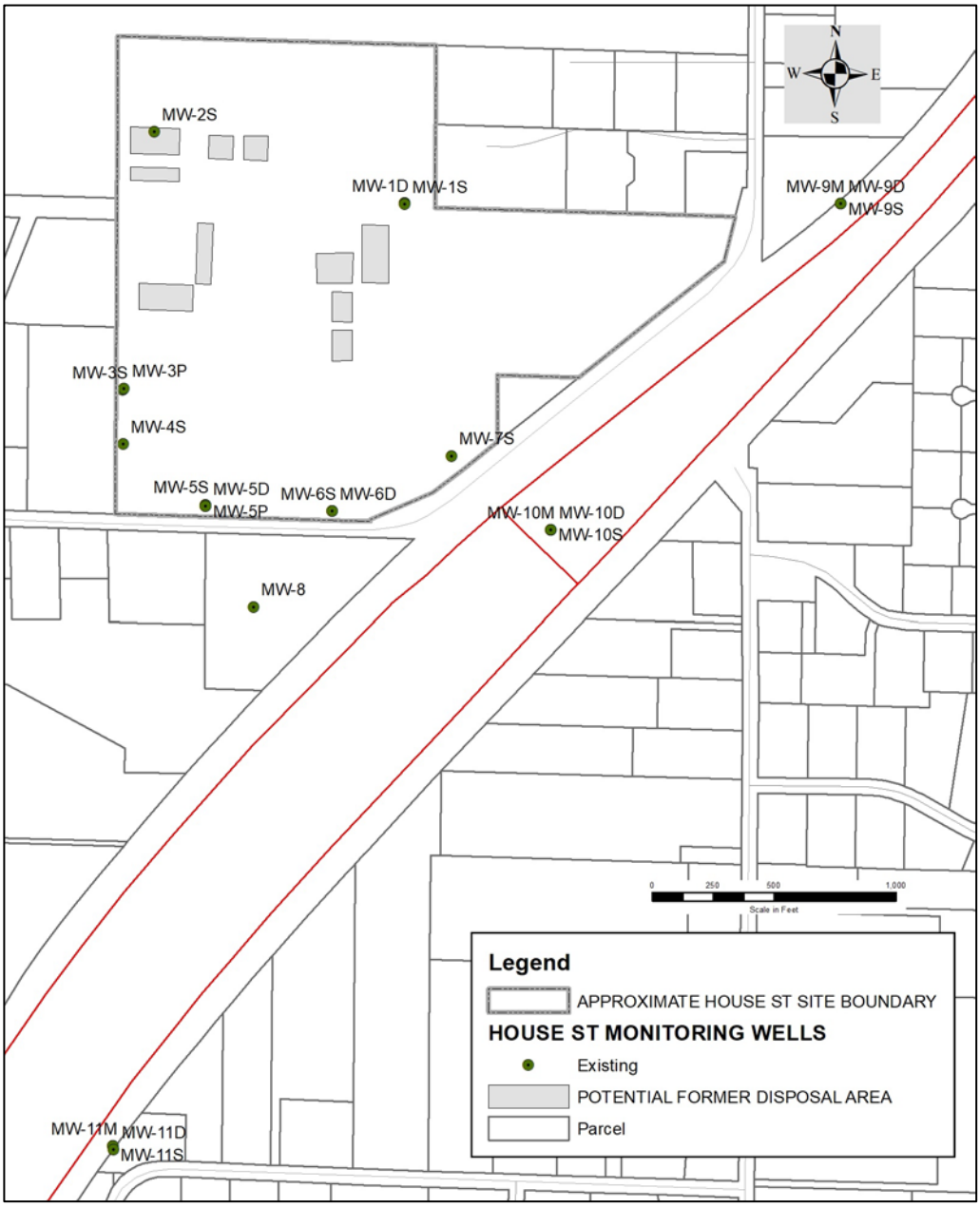


Figure 2.2-2: MONITORING WELL LOCATIONS

2.3. SUMMARY OF PREVIOUS INVESTIGATION FINDINGS

In 2017, Wolverine initiated a limited investigation of suspected waste disposal areas on the Site, underlying soil, and on-site groundwater in the vicinity of suspected former trench locations. Samples collected from 5 of 16 soil borings (WB-1 through WB-16) were submitted for laboratory analysis, based on visual observation of suspected waste in discolored soils. Groundwater samples were collected from 8 on-site monitoring wells in October 2017 for laboratory analyses of inorganic compounds, VOCs, and PFAS, the results of which indicated inorganic compounds and VOCs were of low concern while PFAS were detected at elevated concentrations in select

monitoring wells. Therefore, the subsequent investigation was focused on PFAS evaluation, and the additional monitoring wells, MW-5D, MW-8, MW-9S/M/D, MW-10S/D/D and MW-11S/M/D, were sampled for PFAS analysis from December 2017 to January 2018.

2.3.1. Waste

Waste appears to occur in trenches often reflected by discrete topographic anomalies. Discrete horizons of blue-, black- or grey-colored materials occasionally observed appear to indicate tannery wastewater treatment sludge have been placed in the trench disposal areas. The waste material in the trenches were observed to be finer-grained fill material and are unlike natural geologic conditions typically observed across the Site. Waste is mixed with soil at some locations and depths. Inorganic chemicals, metals, VOCs, and SVOCs were detected in waste samples at concentrations greater than the GRSCC[3] protective of groundwater for drinking water uses, or the Groundwater-Surface Water Interface (GSI).

Sample Names	Ground Surface Elevation, Ft.	Sample Interval, feet below ground surface	Soil Observation	Results Exceeding GRSCC
WB-11A	788.7	2.8 to 5.6	Waste	Cr+6 and Hg[4] > GRSCCs PFOS/PFOA > GRSCCs
WB-4A	794.7	8.3 to 10.7	Waste	Hg > GRSCC 2 VOCs > GRSCCs 1 SVOC > GRSCC PFOS/PFOA > GRSCCs
WB-1A	798.0	4.6 to 14.3	Waste	Hg > GRSCC PFOS/PFOA > GRSCCs
WB-2A	797.7	7.1 to 10.7	Waste	Hg > GRSCC 4 VOCs > GRSCCs
WB-14A	798.7	7.3 to 10.6	Waste	Hg > GRSCC 4 VOCs > GRSCCs PFOS/PFOA > GRSCCs

2.3.2. Soil

Limited samples were collected below the visible waste in the 5 boreholes where waste materials were observed. The following table provides a summary of the sample depths,field observations and results exceeding GRSCCs. See Table A for a summary of the analytical data.

3. Constituent concentrations of the waste samples were compared to the MDEQ Part 201 Generic Soil Cleanup Criteria. However, it is important to note the comparison does not necessarily imply applicability of the Criteria to the waste samples because the physical and chemical properties of the waste samples are expected to be different than the default values or assumptions used to derive the Generic Soil Cleanup Criteria in the Cleanup Criteria Requirements for Response Activity Rules (R299.1-299.50).

4 . Cr+6 denotes hexavalent chromium; Hg denotes mercury.

Sample Names	Ground Surface Elevation, Ft.	Sample Interval, feet below ground surface	Soil Observation	Results Exceeding GRSCC
WB-11B	788.7	9.0 to 9.6	Soil	PFOS/PFOA > GRSCCs
WB-4B	794.7	14.0 to 15.8	Soil	PFOS/PFOA > GRSCCs
WB-1B	798.0	16.3 to 17.9	Soil	PFOS/PFOA > GRSCCs
WB-2B	797.7	14.0 to 15.8	Soil	PFOS/PFOA > GRSCCs
WB-14B	798.7	15.0 to 16.0	Soil	PFOS/PFOA > GRSCCs

2.3.3. Groundwater

Nitrate was detected in one well at a concentration slightly greater than the GRGCC for drinking water uses, but neither ammonia nor nitrite-nitrogen were detected. VOCs were not detected in the monitoring well sample, except for dichlorodifluoromethane and trichlorofluoromethane measured at two locations several orders of magnitude less than the Part 201 GRGCC for drinking water uses. Metals were not found in groundwater at concentrations greater than GRGCC in the wells and depths sampled. Shallow groundwater, if encountered, has not been sampled to date.

2.3.4. Summary

To date, samples have only been collected from 5 of the 16 on-site soil borings. The 16 soil borings were limited to the suspected former disposal areas, and the remaining Site area has not been fully evaluated. Based on the analysis of residual waste samples, materials containing metals, VOCs, and SVOCs (as well as PFOS and PFOA) have been disposed at the Site.

Metals, VOCs, and SVOCs have not been found in groundwater at the Site in concentrations greater than GRGCC to date and at those wells and depths sampled.

Fine-grained soil is present in lacustrine deposits or unstratified moraines beneath waste materials, however, the fine-grained soil stratum is not continuous. Because the waste materials have been found to be placed originally within depressions or trenches and remain buried in the upper 15 feet of the subsurface soils, the potential for surface runoff carrying constituents of interest in sediment or water was and remains unlikely.

3.0 EXTENT OF CONTAMINATION SURVEY PLAN

This section describes the Extent of Contamination Survey Plan designed to evaluate the extent of COCs in soil, soil gas, groundwater, sediment, and surface water. Sampling for PFAS will be performed for the concurrent investigation under MDEQ jurisdiction. The objectives of this survey plan include the following:

1. The vertical and horizontal delineation of historically disposed waste materials on-site;

2. An evaluation of the potential presence of perched groundwater zones at the Site and their effect on the migration of COCs;

3. An evaluation of the lateral and vertical extents of COCs in soil and groundwater, and surface water if identified; and,

4. An evaluation of VOC concentrations in soil gas at the northeast and southwest Site area, which adjoin residential properties

Soil cores collected under this RWP will be first screened in the field using a portable X-ray fluorescence (XRF) instrument and a MiniRAE 2000 Photo Ionization Detector (PID) in 1-foot increments, and the samples will be selected for laboratory analysis based on the XRF measurements, PID screening results, and visual inspection. Detailed subsurface exploration techniques, sampling procedures and laboratory analyses are provided in the FSP. Detailed standard operating procedures (SOPs) including methodology, equipment, and documentation protocols, are provided in Appendix A of the QAPP.

The survey plan consists of biased sampling at the known and suspected former disposal areas, and systematic sampling across the entire Site to search for other potential disposal areas and any surface disposal activities. These sampling strategies are consistent with the guidance and approaches provided in Chapter Nine "Sampling Plan" found in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA publication SW-846" (USEPA, 1986) and "Guidance on Choosing a Sampling Design for Environmental Data Collection, for Use in Developing a Quality Assurance Project Plan" (USEPA, 2002). The proposed biased and systematic sampling locations are shown in **Figure A**. The sampling strategies and proposed sampling locations are discussed below.

3.1. SITE CONTROL

To minimize trespassing, warning signs - "Warning: Environmental Contamination Investigation Ongoing at This Site, No Trespassing" - will be posted at the entrance gates and along the north, west, south, and southeast property boundaries.

If any rainfall occurs during the active investigation activities, observations for potential offsite surface water and soil runoff will be made at appropriate locations to be determined during mobilization by the OSC. If potentially affected surface water or soil runoff to adjoining land is observed, appropriate mitigation efforts will be implemented to address the off-Site migration.

3.2. BIASED SAMPLING AT THE AREAS OBSERVED WITH WASTE

R&W/GZA reviewed historical aerial photographs, licensing information, and existing topography to identify potential disposal areas at the Site. Sixteen soil borings, identified as WB-1 through WB-16, were installed to assess the presence of the waste materials, and waste materials were observed in five (WB-1, WB-2, WB-4, WB-11, and WB-14) of the sixteen (16) borings. To delineate the extent of the waste in these five areas, biased sampling strategy is proposed.

A square sampling grid of 25 ft by 25 ft will be overlaid and centered around each of the five locations. At each location, the grid stations located immediately next to the center boring location are named as Tier 1 grid stations. The grid stations located one grid interval outside of the Tier 1 grid stations are named as Tier 2 grid stations. See **Figures B, C, and D** for the proposed sampling grids.

A drilling contractor will perform the soil exploration using a direct-push rig at the Tier 1 grid stations; soil samples will be collected continuously for field screening of metals and organic compounds using a XRF and a PID at 1-foot

+increments and observed for the presence of waste materials consistent with the methodology described in the QAPP. The soil samples will also be visually classified and logged on soil boring logs. The soil borings will be advanced until no waste materials are observed and XRF measurements, PID readings and visual inspection indicate no potential contamination or to a depth of 20 feet below grade, whichever is deeper. Additional soil samples may be collected from these borings at the discretion of GZA or under the direction of EPA supervising personnel in the field.

In addition, perched groundwater, if encountered, will be documented on soil boring logs, and soil sample collection will be continued for XRF and PID screening and visual inspection as discussed above. If sufficient groundwater is present in the perched zone, a temporary well will be installed, and a groundwater sample will be collected from the temporary well. An initial sample will be collected prior to groundwater purging, and the purging and sampling will be performed following the "Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells," by U.S. EPA, Region I, Revision 4, dated September 19, 2017 (EPA Region I, 2017) (EPA Region I, 2017). If the well is purged dry, an aliquot of the initial sample will be submitted for laboratory analysis.

If waste is encountered or the XRF readings / PID readings indicate potential contamination at any Tier 1 grid stations, additional soil borings will be installed, and soil samples will be collected at the Tier 2 grid stations immediately next to that grid station. If necessary, additional soil borings will be performed at tertiary grid stations immediately next to any Tier 2 grid station where waste is encountered. This process will be repeated until no waste materials are observed and no elevated levels are detected by the XRF and PID at the perimeter grid stations, and the extent of the waste materials considered delineated. The boring locations may be adjusted in the field, based on site access and field observations. As may be deemed necessary to define the extent of waste or COCs, additional soil borings may be performed at the discretion of R&W/GZA or under the direction of EPA supervising personnel in the field.

Once the extent of waste materials is delineated, the perimeter soil borings will be sampled for laboratory analyses to confirm the delineation. At least two samples will be collected from each of the perimeter boring locations, one at the interval where waste material is observed, or the greatest contamination was detected by the XRF or PID, and another within 1 to 2 feet below it. If no waste material is observed, the depth interval of the samples will be based on the intervals in the adjacent borings where waste was observed and/or XRF or PID readings. Additional soil samples from these borings may be collected at the discretion of R&W/GZA or under the direction of EPA supervising personnel in the field.

Each soil sample will be submitted for the analyses of VOCs, SVOCs, metals (aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, total chromium, hexavalent chromium, cobalt, copper, iron, lead, magnesium, mercury, molybdenum, nickel, selenium, silver, sodium, titanium, thallium, vanadium and zinc), total ammonia, nitrate, nitrite, chloride, total and available cyanide, acetate, formate, total phosphorus, sulfate and sulfide in accordance with the methods described in the QAPP and FSP.

Sufficient soil will be collected and submitted to the laboratory so the Toxicity Characteristic Leaching Procedure, SW-846 Method 1311 (TCLP) metal analysis can be performed if the laboratory identifies total metal concentration exceeding 20 times their maximum concentrations TCLP values for hazardous waste.

Sampling for PFAS will be performed for the concurrent investigation under MDEQ jurisdiction. Refer to the FSP and QAPP for detailed subsurface exploration techniques and procedures of soil sampling, sample preservation,

sample packaging, chain of custody, field quality assurance (QA) and quality control (QC) sample requirement, and laboratory QA/QC requirement.

Matrix	Depth of Samples	Number of Samples	Sampling Strategy	Rationale and Target Area
Subsurface	(TBD)	96 (projected)	Biased Sampling	To evaluate potential presence of waste materials and COCs from identified waste disposal practice areas

3.3. BIASED SAMPLING AT THE REMAINING POTENTIAL DISPOSAL AREAS

Soil borings were previously performed at the remaining disposal areas, but soil samples were not collected for laboratory analysis because waste materials were not observed in the soil. To confirm the absence of waste materials, five soil borings will be installed at each of the seven remaining areas to collect soil samples for laboratory analysis. See **Figure E** for the proposed sampling locations, HT-PWB2-1 through HT-PWB2-35. The boring locations may be adjusted in the field, based on site access and field observation. Additional soil borings may be performed at the discretion of R&W/GZA or under the direction of EPA supervising personnel in the field.

A drilling contractor will use a direct-push drill rig for the soil borings; soil samples will be collected continuously for field screening of metals using a portable XRF instrument and organic compounds using a MiniRAE 2000 PID at 1-foot increments and observed for the presence of waste materials. The soil samples will also be visually classified and logged. Generally, three soil samples will be collected from each boring. The borehole will be advanced until the XRF readings, PID readings and visual inspection indicate no contamination or to a depth of 20 feet below grade, whichever is deeper. If waste materials are observed at a boring location, then one sample will be collected from the upper portion of the waste, one from the lower portion of the waste, and one soil sample will be collected 1 to 2 feet below the observed waste material. If no waste materials are observed at a boring location, the soil sample intervals will be based on visual, olfactory evidence, XRF measurements or PID screening results, and the intervals at the adjacent borings where waste materials were observed. Additional soil samples may be collected at the discretion of R&W/GZA or under the direction of EPA supervising personnel in the field.

In addition, if perched groundwater is encountered, the sampling approach described in Section 3.2 will be used.

Each soil sample will be submitted for the analyses of VOCs, SVOCs, metals (aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, total chromium, hexavalent chromium, cobalt, copper, iron, lead, magnesium, mercury, molybdenum, nickel, selenium, silver, sodium, titanium, thallium, vanadium and zinc), total ammonia, nitrate, nitrite, chloride, total and available cyanide, formate, total phosphorus, sulfate and sulfide in accordance with the methods described in the QAPP and FSP.

Sufficient soil will be collected and submitted to the laboratory so the Toxicity Characteristic Leaching Procedure, SW-846 Method 1311 (TCLP) metal analysis can be performed if the laboratory identifies total metal concentration exceeding 20 times their maximum concentrations TCLP values for hazardous waste.

If the subsurface exploration and analytical data identify areas where waste materials were observed or COC concentrations exceeded GRSCC, these areas will be further assessed using the biased sampling strategy as discussed in **Section 3.2**.

Sampling for PFAS will be performed for the concurrent investigation under MDEQ jurisdiction. Refer to the FSP and QAPP for detailed subsurface exploration techniques and procedures of soil sampling, sample preservation, sample packaging, chain of custody, field quality assurance (QA) and quality control (QC) sample requirement, and laboratory QA/QC requirement.

Matrix	Depth of Samples	Number of Samples	Sampling Strategy	Rationale and Target Area
Subsurface	(TBD)	105 (projected)	Biased Sampling	To evaluate potential presence of waste materials and COCs from potential historical waste disposal practice areas.

3.4. SYSTEMATIC SAMPLING ACROSS THE SITE

To evaluate the potential presence of COCs resulting from surface disposal or other potential disposal areas at the Site, a systematic sampling strategy is proposed. The systematic sampling locations, combined with the biased sampling locations, will also be used to evaluate Site geology, and the potential presence of perched groundwater.

A 400-foot by 400-foot square grid (Grid Block) will be overlaid onto the Site area, as shown in **Figure F**. To improve the randomness, the Grid Block cells are sub-divided into 100-foot by 100-foot sub-grid cells, and a random number generator was used to select the sample location within the Grid Block. As shown in **Figure F**, sub-grid cell No. 11 is randomly chosen, and soil borings will be positioned at sub-grid cell No. 11 for all the Grid Blocks located on the Site. If sub-grid cell No. 11 is overlapped with the proposed biased sampling locations, the proposed soil boring location is removed. If sub-grid cell No. 11 is located outside of the property boundary, the boring location is arbitrarily relocated inside of the Site boundary.

A drilling contractor will use a direct-push drill rig for the soil borings; soil samples will be collected continuously for field screening of metals using a portable XRF instrument and organic compounds using a MiniRAE 2000 PID and observed for the presence of waste materials. The soil samples will also be visually classified and logged. Generally, two soil samples will be collected from each boring. The borehole will be advanced until the XRF readings, PID readings, and visual inspection indicate no contamination or to a depth of 20 feet below grade, whichever is deeper. If waste materials are observed at a boring location, then one sample will be collected from the waste and another soil sample will be collected from 1 to 2 feet below the observed waste material. If no waste materials are observed at a boring location, the soil sample intervals will be based on visual, olfactory evidence, XRF measurements or PID screening results, and the intervals at the adjacent borings where waste materials were observed.

In addition, if perched groundwater is encountered, the sampling approach described in Section 3.2 will be utilized.

Each soil sample will be submitted for the analyses of VOCs, SVOCs, metals (aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, total chromium, hexavalent chromium, cobalt, copper, iron, lead, magnesium, mercury, molybdenum, nickel, selenium, silver, sodium, titanium, thallium, vanadium and zinc)), total ammonia, nitrate, nitrite, chloride, total and available cyanide, formate, total phosphorus, sulfate and sulfide in accordance with the methods described in the QAPP and FSP.

Sufficient soil will be collected and submitted to the laboratory so the Toxicity Characteristic Leaching Procedure, SW-846 Method 1311 (TCLP) metal analysis can be performed if the laboratory identifies total metal concentration exceeding 20 times their maximum concentrations TCLP values for hazardous waste. If the subsurface exploration and analytical data identify areas where waste materials were observed or COC concentrations exceeded GRSCC, these areas will be further assessed using the biased sampling strategy as discussed in **Section 3.2**. Additional soil samples may be collected at the discretion of R&W/GZA or under the direction of EPA supervising personnel in the field.

If perched groundwater is encountered, the spatial extent of the perched groundwater zone and the need for additional groundwater sampling will be evaluated.

Matrix	Depth of Samples	Number of Samples	Sampling Strategy	Rationale and Target Area
Soil	TBD	52 (projected)	Systematic Sampling with Random Sub-grid	To evaluate potential presence of COCs from historical waste disposal practice across the Site

3.5. MONITORING WELL SAMPLING

Two rounds of groundwater monitoring well sampling events will be performed to evaluate the potential presence of COCs in groundwater. The following groundwater monitoring wells, located at the Site and on MDOT property, will be sampled:

- MW-1S
- MW-1D
- MW-2S
- MW-3P
- MW-3S
- MW-4S
- MW-5P
- MW-5S
- MW-5D
- MW-6S
- MW-6D
- MW-7S
- MW-8
- MW-9S
- MW-9M
- MW-9D
- MW-10S
- MW-10M
- MW-10D
- MW-11S
- MW-11M
- MW-11D

R&W /GZA will collect groundwater samples following the "Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells," by U.S. EPA, Region I, Revision 4, dated September 19, 2017 (EPA Region I, 2017) (EPA Region I, 2017). For the monitoring wells screened in the perched zone, which are expected to have relatively low recharge rate, an initial sample will be collected prior to groundwater purging. If the well is purged dry, an aliquot of the initial sample will be submitted for laboratory analysis. Each groundwater sample will be submitted for the analyses of VOCs, SVOCs, total metals (aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, total chromium, hexavalent chromium, cobalt, copper, iron, lead, magnesium, mercury, molybdenum, nickel, selenium, silver, sodium, titanium, thallium, vanadium and zinc), total ammonia, nitrate, nitrite, chloride, total and available cyanide, formate, total phosphorus, sulfate and sulfide in accordance with the methods described in the QAPP and FSP.

Refer to the FSP and QAPP for detailed sampling procedures, sample preservation, sample packaging, chain of custody, field quality assurance (QA) and quality control (QC) sample requirement, and laboratory QA/QC requirements.

Matrix	Number of Samples	Rationale and Target Area
Groundwater	44	To evaluate the potential presence of COCs in groundwater

3.6. SOIL GAS SAMPLING

To evaluate potential vapor intrusion to the adjoining residential properties northeast, southwest, and southeast of the Site, soil gas sampling will be performed. The soil gas sampling activities consist of the following tasks:

1. Soil gas monitoring well installation at five locations at the northeast property boundary, six locations at the southwest property boundary, and two locations where residential properties adjoin. See Figure G. At each location, four soil gas monitoring wells will be installed at depths of 5 feet, 8 feet, 11 feet and 14 feet below ground surface; and,

2. Two rounds of soil gas monitoring well sampling will be performed at the 13 locations for laboratory analysis.

A drilling contractor will use a direct-push drill rig to install the soil gas monitoring wells. The soil gas monitoring point will be installed in the target intervals described above. The locations and well intervals may be adjusted based on visual, olfactory evidence or PID screening results at adjacent soil boring performed under Sections 3.2, 3.3 and 3.4 and site access with approval from EPA supervising personnel in the field. Additional soil gas monitoring points may be installed under the direction of EPA supervising personnel in the field. If perched groundwater is present, the soil gas monitoring point will be installed at least 2 feet above the water table.

Soil gas monitoring wells will be installed in general accordance with EPA Region IV's SOP (EPA Region IV, 2014) and SOPs contained in MDEQ's guidance document (MDEQ, 2013). Generally, six-inch long vapor implant screens will be positioned at the target depth interval. Prior to the installation of the implant, the borehole annulus will be backfilled with 4 to 6 inches of sand pack. ¼-inch OD (outside diameter) Teflon™ tubing will be attached to the implant and extended above the ground surface. Sand pack will be installed to 6 to 12-inches above the top of the implant screen. Following installation of the implant and filter pack, the remainder of the borehole annulus will be sealed with hydrated bentonite pellets or granules. The tubing will be terminated with Swagelok® caps or valves. The monitoring points will be finished with above-ground protective casings.

Two rounds of soil gas samples will be collected using a laboratory provided, 6-liter summa canisters equipped with dedicated flow controllers following EPA Region IV's SOP and MDEQ's guidance. Procedures will be modified to facilitate the use of the sample containers provided by the laboratory. Samples will be submitted to laboratory for analysis of VOCs following USEPA Method TO-15. The detection limit for TCE will be less than or equal to 0.4 ppbv.

Refer to the FSP and QAPP for detailed subsurface exploration techniques and procedures of soil gas sampling, sample preservation, sample packaging, chain of custody, field quality assurance (QA) and quality control (QC) sample requirement, and laboratory QA/QC requirement.

3.7. DATA EVALUATION AND REPORTING

The information and data collected during completion of the Extent of Contamination Survey Plan will be evaluated by R&W/GZA relative to the previously-presented Site investigation objectives. The work performed will be summarized, data will be compiled, and conclusions and recommendations presented in a report. The report will include figures and tables summarizing the information collected and results of soil gas, soil, and groundwater analyses.

The report may, if appropriate, include a work plan for proposing activities associated with additional activities selected to address data gaps necessary to select and/or design a removal action.

4.0 REMOVAL IMPLEMENTATION

Upon completion of the above scope of work, a preliminary risk evaluation will be performed to evaluate the potential human health and environmental pathways, and the need for further CERCLA removal actions. The preliminary risk assessment will include comparing Site data to established EPA and State of Michigan ARARs and generic cleanup criteria.

EPA will determine the potential immediate actions at the Site. This section will be updated including a Removal Action Implementation Plan, if appropriate. Such a plan will detail Site preparation and security measures, Site controls to prevent accidental releases and off-site migration, construction and operation areas, waste staging and segregation operation, decontamination zone, air monitoring and dust control, confirmation sampling, waste transportation and disposal plan, Site restoration, etc.

5.0 OFF-SITE MIGRATION CONTROL

Based on the existing data, the waste materials are encountered from approximately 3 feet to 14 feet below ground surface. The Site is generally covered with vegetation or trees. Therefore, the likelihood of off-site COC migration via air deposition is low. If the data from the Extent of Contamination Survey Plan indicate the presence of COCs in surficial soil, the need for off-site migration control via air deposition will be evaluated.

The waste materials present below ground surface are unlikely to migrate via surface run-off. However, if the data from the Extent of Contamination Survey Plan indicate their presence in surficial soil, the likelihood for surface run-off will be evaluated based on the location of detection, detected concentrations and topography, and the need for off-site migration control via surface run-off will be evaluated.

The PFAS-related groundwater investigation under the MDEQ is currently ongoing (see the CSM Update report). The sampling proposed in this work plan will provide additional data about the presence/absence of other COCs in on-site groundwater monitoring wells and immediately south and southeast of the Site. Upon completion of the groundwater monitoring well sampling under **Section 3.5**, the extent of groundwater COCs and the need for off-site groundwater migration control will be evaluated. To date, no such migration has been identified.

6.0 INVESTIGATION DERIVED WASTE DISPOSAL

Investigation-derived soil or solid waste materials from the proposed investigation work will be containerized in 55-gallon drums and staged at the Site before being disposed off-site. The soil or waste will be sampled and analyzed for Toxicity Characteristic Leaching Procedure ([TCLP] VOCs, SVOCs,) metals, PFAS, and waste

characteristics including ignitability, reactivity, and corrosivity. According to the EPA Off-site Rule (40 CFR 300.440), the waste will be disposed of in a facility operating in compliance with RCRA, Toxic Substances Control Act (TSCA), or other applicable Federal or State requirements.

Groundwater from sampling and well development activities will be contained in a 200-gallon polyethylene tank, and treated using granular activated carbon (GAC), and tested for COCs and PFAS. The water will be treated until the effluent concentrations meet EPA Health Advisory Level for PFOS and PFOA, and MDEQ Part 201 Generic Groundwater Cleanup Criteria protective of drinking water uses for residential properties. The treated water will be discharged to the ground surface adjacent to the sampling/well location where collected if the COC and PFOS concentrations meet GRGCC. The treatment system will include two or more sets of GAC canisters in series. The spent carbon will be removed from the Site by Culligan for off-site incineration.

7.0 ANTICIPATED SCHEDULE

R&W/GZA anticipates that, following Region 5's acceptance of the final RWP, approximately 6 weeks from on-site mobilization will be required to complete the proposed field work. The final report summarizing the data and activities (including data points, photographs, and data tables; refer to **Section 3.7**) will be submitted one calendar month from receipt of the last electronic data deliverable from the lab. See Appendix B for an estimated project schedule. The anticipated schedule does not consider weather-related delays.

8.0 REFERENCES

EPA Region I. (2017). *Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells, Revision 4.* USEPA Region I.

EPA Region IV. (2014). *Operating Procedure, Soil Gas Sampling.* Athen, Georgia: USEPA Science and Ecosystem Support DIvision.

MDEQ. (2013). *Guidance Document for the Vapor Instrusion Pathway.* Lansing, Michigan: MDEQ, Remediation and Redevelopment Division.

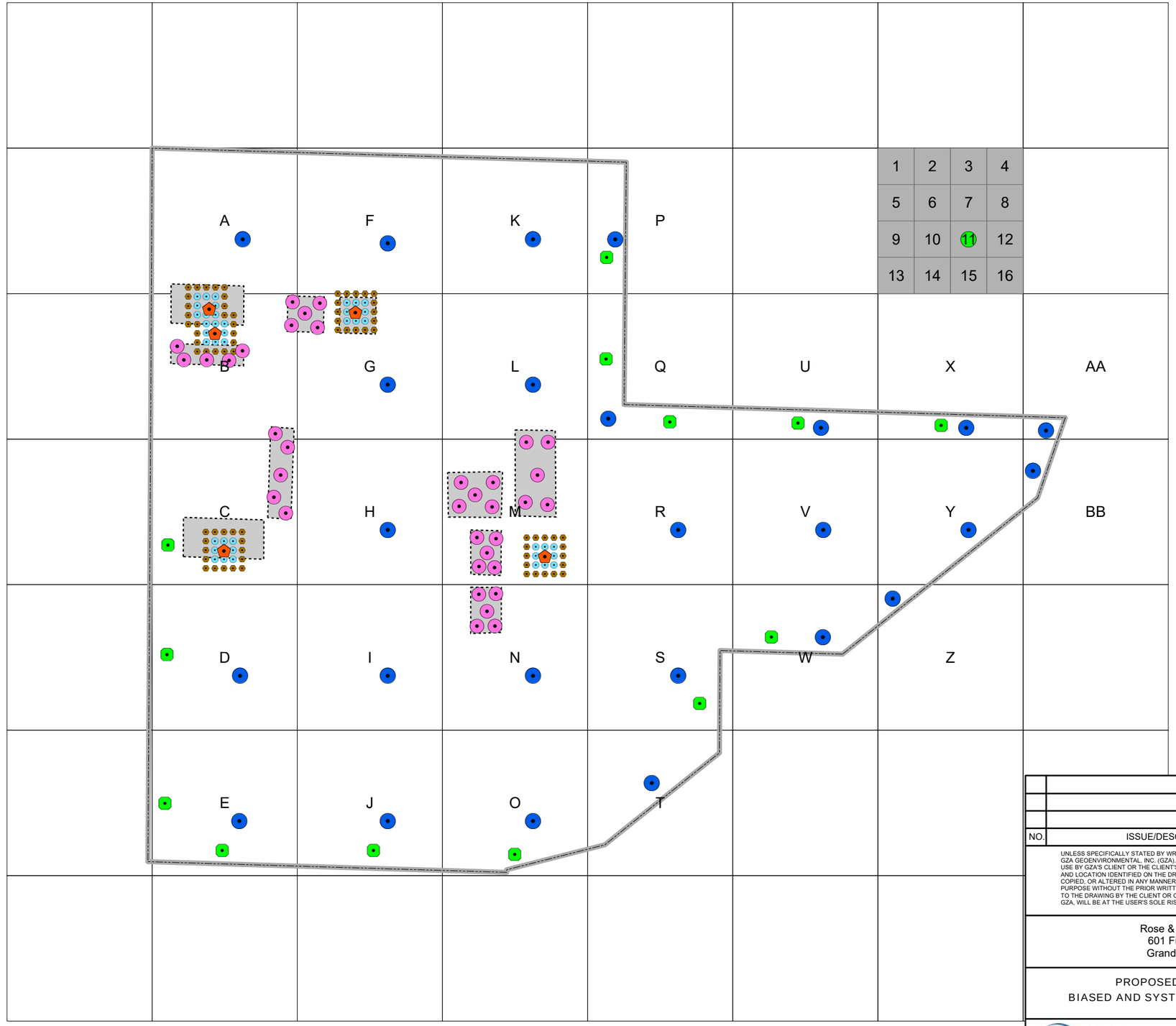
R&W/GZA. (2018). *DRAFT Field Sampling Plan, House Street Disposal Area.* Grand Rapids, MI: R&W/GZA.

R&W/GZA. (2018). *DRAFT Quality Assurance Project Plan, Former Wolverine Tannery and House Street DIsposal Area.* Grand Rapids, MI: R&W/GZA.

USEPA. (1986). *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publication SW-846.* Washington, DC.: USEPA Office of Solid Waste.

USEPA. (2002). *Guidance on Choosing a Sampling Design for Environmental Data Collection, for Use in Developing a Quality Assurance Project Plan, EPA/240/R-02/005.* Washington DC.: USEPA Office of Environmental Information.

FIGURES



Legend

PROPOSED SOIL GAS MONITORING WELL LOCATION

ADDITIONAL PROPOSED SOIL/WASTE BORING

PREVIOUS SOURCE AREA SAMPLE LOCATION

25 FT GRID STATION

TIER 1 GRID

TIER 2 GRID

SAMPLE GRID

RANDOMLY SELECTED SUB-GRID CELL

SYSTEMATIC GRID SAMPLE

APPROXIMATE FORMER DISPOSAL AREA

APPROXIMATE HOUSE ST SITE BOUNDARY

GRID BLOCK/CELL

100 FT SUB-GRID-CELL

400 FT GRID BLOCK

300 150 0 300

Scale in Feet

NO.	ISSUE/DESCRIPTION	BY	DATE

Rose & Westra, a Division of GZA
601 Fifth Street NW, Suite 102
Grand Rapids, Michigan 49504

PROPOSED SAMPLING LOCATIONS
BIASED AND SYSTEMATIC SAMPLING STRATEGIES

GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
WOLVERINE WORLD WIDE, INC.

PROJ MGR: LJP	REVIEWED BY: LJP	CHECKED BY: JTH	FIGURE
DESIGNED BY: JC	DRAWN BY: JC	SCALE: AS SHOWN	A
DATE: 05-24-18	PROJECT NO. 16.0062335.52	REVISION NO.	

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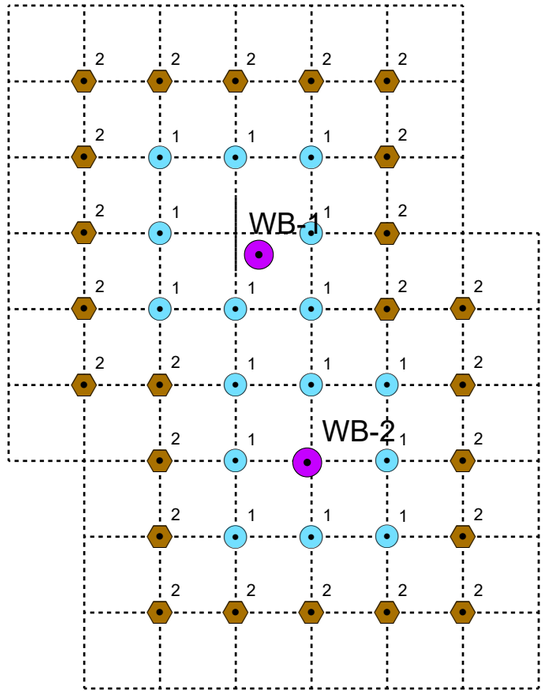

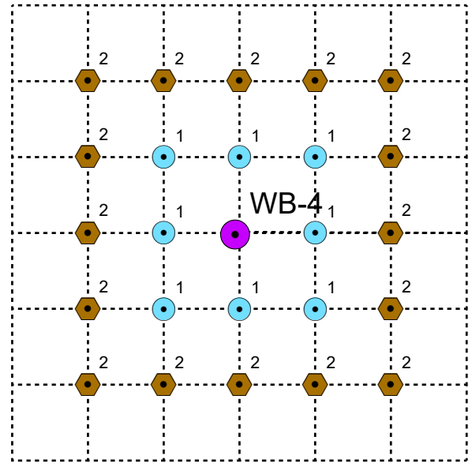

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PREVIOUS SOIL BORINGS

25 FT GRID STATION

TIER 1 GRID

TIER 2 GRID

25FT_GRID

50 25 0 50

Scale in Feet

NO.	ISSUE/DESCRIPTION	BY	DATE

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PROPOSED BIASED SAMPLING PLAN
WB-1, WB-2 AND WB-4 AREAS

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WOLVERINE WORLD WIDE, INC.

PROJ MGR: LJP	REVIEWED BY: LJP	CHECKED BY: JTH	FIGURE
DESIGNED BY: JC	DRAWN BY: JC	SCALE: AS SHOWN	B
DATE: 05-18-18	PROJECT NO. 16.0062335.52	REVISION NO.	

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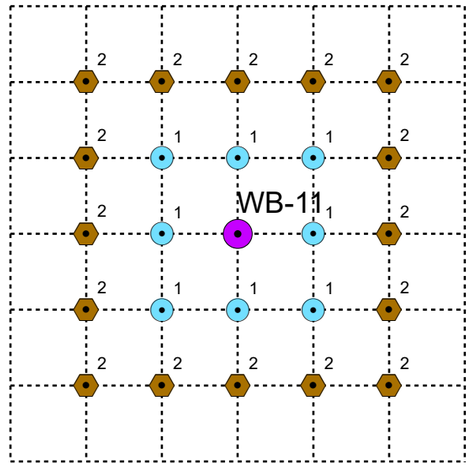

Legend

- PREVIOUS SOIL BORINGS

25 FT GRID STATION

- TIER 1 GRID
- TIER 2 GRID
- 25FT_GRID

50 25 0 50

Scale in Feet

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PROPOSED BIASED SAMPLING PLAN
WB-11 AREA

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PROJ MGR: LJP	REVIEWED BY: LJP	CHECKED BY: JTH	FIGURE
DESIGNED BY: JC	DRAWN BY: JC	SCALE: AS SHOWN	C
DATE: 05-18-18	PROJECT NO. 16.0062335.52	REVISION NO.	

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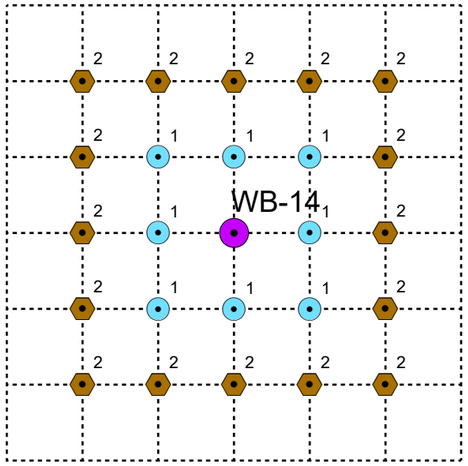

Legend

- PREVIOUS SOIL BORINGS

25 FT GRID STATION

- TIER 1 GRID
- TIER 2 GRID
- 25FT_GRID

50 25 0 50

Scale in Feet

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PROPOSED BIASED SAMPLING PLAN
WB-14 AREA

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PROJ MGR: LJP	REVIEWED BY: LJP	CHECKED BY: JTH	FIGURE
DESIGNED BY: JC	DRAWN BY: JC	SCALE: AS SHOWN	D
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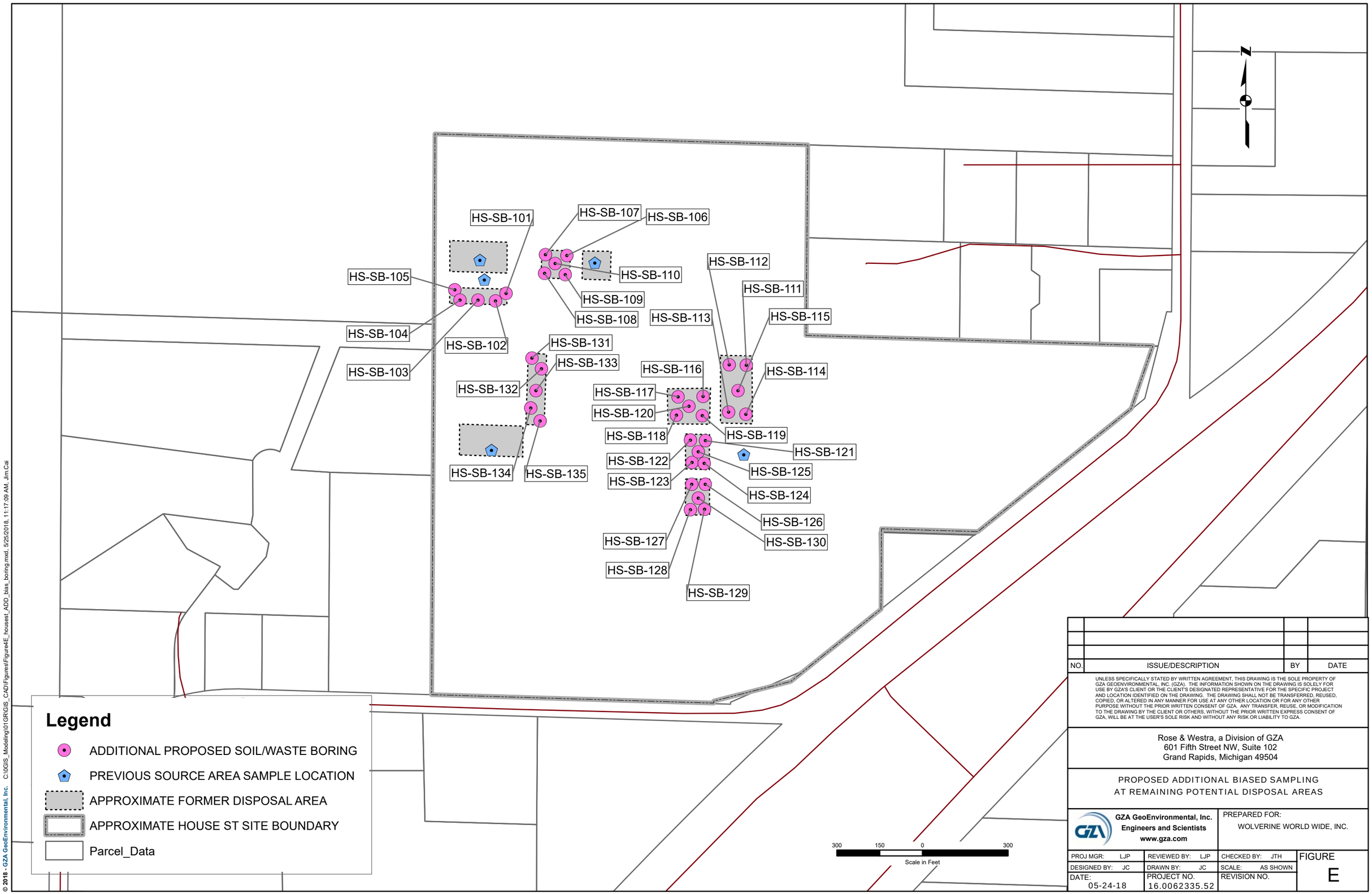

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PROPOSED ADDITIONAL BIASED SAMPLING AT REMAINING POTENTIAL DISPOSAL AREAS

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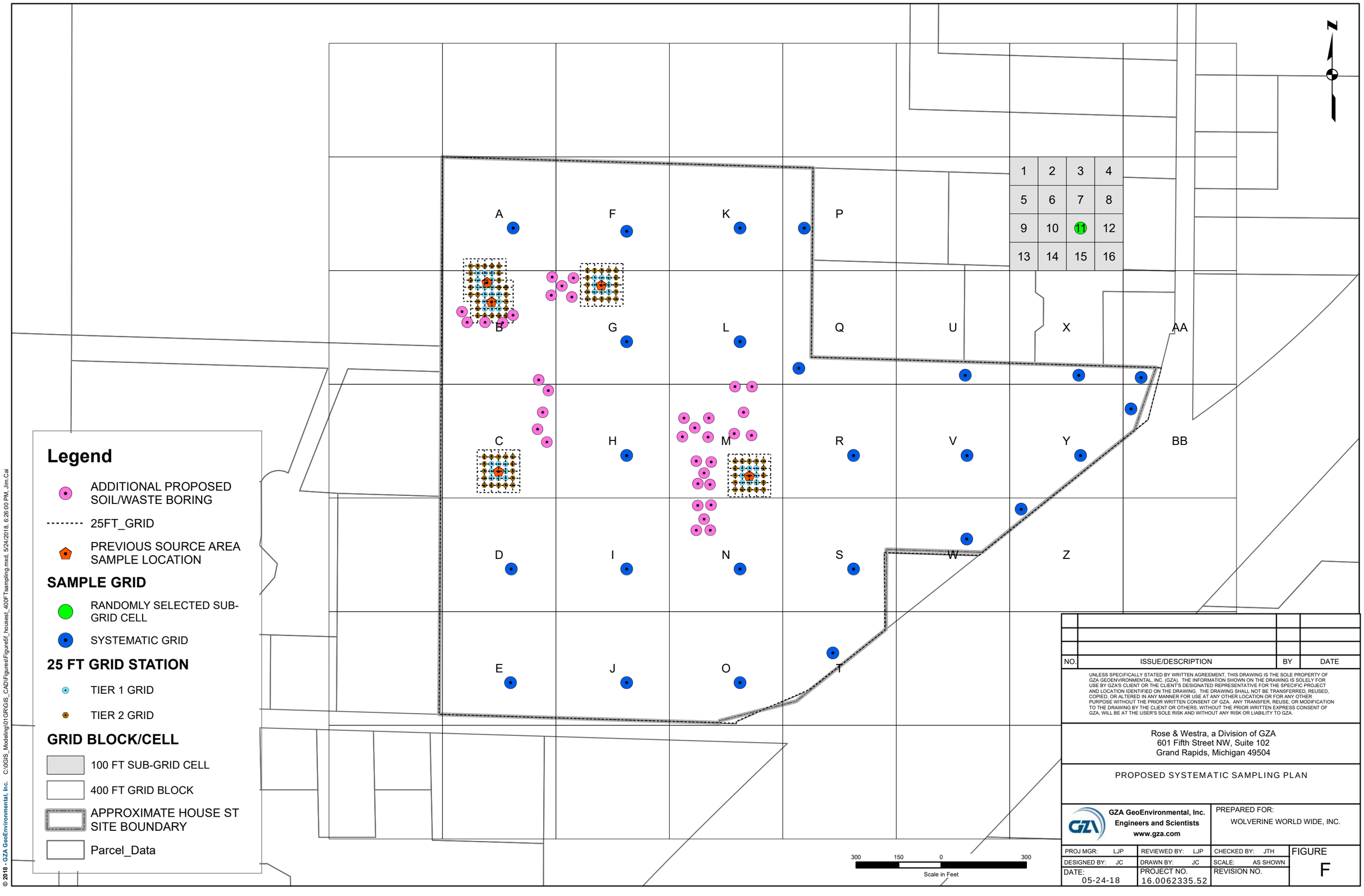
DESIGNED BY: JC	DRAWN BY: JC	SCALE: AS SHOWN	E
DATE: 05-24-18	PROJECT NO. 16.0062335.52	REVISION NO.	



Legend

- ADDITIONAL PROPOSED SOIL/WASTE BORING
- 25FT_GRID
- PREVIOUS SOURCE AREA SAMPLE LOCATION

SAMPLE GRID

- RANDOMLY SELECTED SUB-GRID CELL
- SYSTEMATIC GRID

25 FT GRID STATION

- TIER 1 GRID
- TIER 2 GRID

GRID BLOCK/CELL

- 100 FT SUB-GRID CELL
- 400 FT GRID BLOCK
- APPROXIMATE HOUSE ST SITE BOUNDARY
- Parcel_Data

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PROPOSED SYSTEMATIC SAMPLING PLAN

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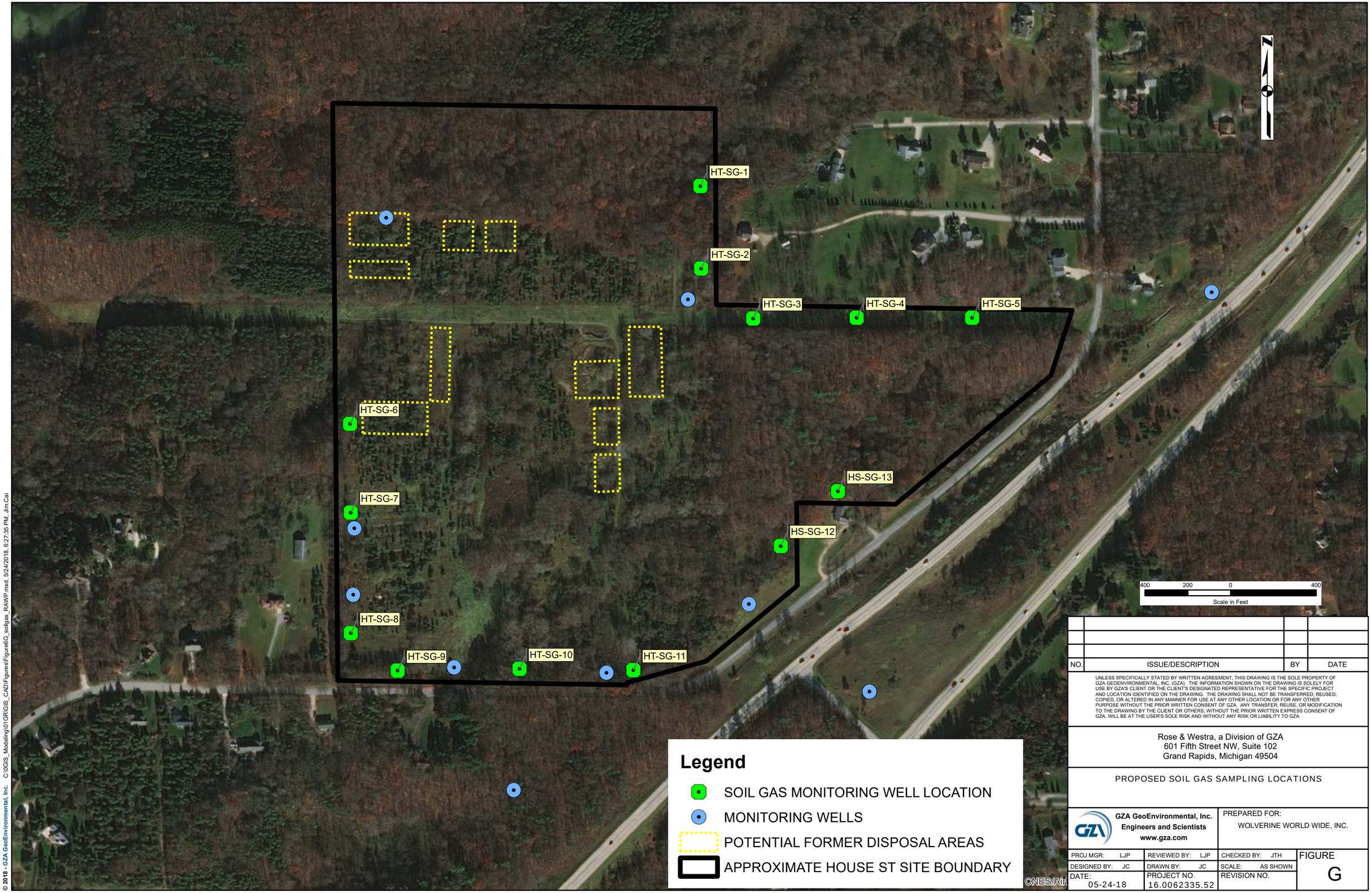
PROJ MGR: LJP	REVIEWED BY: LJP	CHECKED BY: JTH	FIGURE F
DESIGNED BY: JC	DRAWN BY: JC	SCALE: AS SHOWN	
DATE: 05-24-18	PROJECT NO. 16.0062335.52	REVISION NO.	



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PROPOSED SOIL GAS SAMPLING LOCATIONS

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DESIGNED BY: JC	DRAWN BY: JC	SCALE: AS SHOWN	
DATE: 05-24-18	PROJECT NO. 16.0062335.52	REVISION NO.	

TABLES

TABLE A

SUMMARY OF SOURCE AREA WASTE AND SOIL ANALYTICAL DATA - PFOS/PFOA

HOUSE STREET DISPOSAL AREA

PLAINFIELD TOWNSHIP, KENT COUNTY, MICHIGAN

FIELDID	MDEQ Proposed Part 201 Residential Soil Cleanup Criteria Protective of Groundwater for Drinking Water Uses	MDEQ Proposed Part 201 Residential Soil Cleanup Criteria - Direct Contact	WB-11A (Waste)	WB-11B (Soil)	WB-14A (Waste)	WB-14B (Soil)	WB-1A (Waste)	WB-1B (Soil)	WB-2A (Waste)
DepthInt			2.8 - 5.6	9 - 9.6	7.3 - 10.6	15 - 16	4.6 - 14.3	16.3 - 17.9	7.1 - 10.7
Sample_ID			K1712986-001	K1712986-002	K1712986-011	K1712986-012	K1712986-007	K1712986-008	K1712986-005
SAMPDATE			11/27/2017	11/27/2017	12/01/2017	12/01/2017	11/30/2017	11/30/2017	11/30/2017
Parameter (ng/Kg)									
Perfluorooctane sulfonic acid (PFOS)	1,400	2,100,000	***2,200,000***	***7,800***	***18,000,000***	***100,000***	***270,000***	***59,000***	<950
Perfluorooctanoic acid (PFOA)	59,000	2,100,000	16,000	6,300	59,000	2,800	2,600	14,000	2,900

TABLE A
SUMMARY OF SOURCE AREA WASTE AND SOIL ANALYTICAL DATA - PFOS/PFOA
HOUSE STREET DISPOSAL AREA
PLAINFIELD TOWNSHIP, KENT COUNTY, MICHIGAN

FIELDID	MDEQ Proposed Part 201 Residential Soil Cleanup Criteria Protective of Groundwater for Drinking Water Uses	MDEQ Proposed Part 201 Residential Soil Cleanup Criteria - Direct Contact	WB-2B (Soil)	WB-4A (Waste)	WB-4B (Soil)
DepthInt			14 - 15.8	8.3 - 10.7	14 - 15.8
Sample_ID			K1712986-006	K1712986-003	K1712986-004
SAMPDATE			11/30/2017	11/29/2017	11/29/2017
Parameter (ng/Kg)					
Perfluorooctane sulfonic acid (PFOS)	1,400	2,100,000	***6,900,000***	***79,000,000***	***33,000***
Perfluorooctanoic acid (PFOA)	59,000	2,100,000	***130,000***	***240,000***	23,000

TABLE A
SUMMARY OF SOURCE AREA WASTE AND SOIL DATA - DETECTED METALS
HOUSE STREET DISPOSAL AREA
PLAINFIELD TOWNSHIP, KENT COUNTY, MICHIGAN

FIELDID DepthInt Sample_ID SAMPDATE	State-Wide Default Background	MDEQ Part 201 Residential Drinking Water Protection Criteria	MDEQ Part 201 Groundwater Surface Water Interface Criteria	MDEQ Part 201 Residentail Soil Volatilization to Indoor Air Inhalation Criteria	MDEQ Part 201 Residential Infinite Source Volatile Soil Inhalation Criteria	MDEQ Part 201 Particulate Soil Inhalation Criteria	MDEQ Part 201 Residential Soil Direct Contact Criteria
Detected Inorganics (ug/kg)							
Arsenic	5,800	4,600	4,600	NA	NA	720,000	7,600
Barium	75,000	1,300,000	NA	NA	NA	330,000,000	37,000,000
Chromium (III)	18,000	1,000,000,000	NA	NA	NA	330,000,000	790,000,000
Chromium (VI)	NA	30,000	3,300	NA	NA	260,000	2,500,000
Copper	32,000	5,800,000	NA	NA	NA	130,000,000	20,000,000
Lead	21,000	700,000	NA	NA	NA	100,000,000	400,000
Mercury	130	1,700	50	48,000	52,000	20,000,000	160,000
Zinc	47,000	2,400,000	NA	NA	NA	NA	170,000,000

TABLE A
SUMMARY OF SOURCE AREA WASTE AND SOIL DATA - DETECTED METALS
HOUSE STREET DISPOSAL AREA
PLAINFIELD TOWNSHIP, KENT COUNTY, MICHIGAN

FIELDID	WB-11A (Waste)	WB-11B (Soil)	WB-14A (Waste)	WB-14B (Soil)	WB-1A (Waste)	WB-1B (Soil)	WB-2A (Waste)	WB-2B (Soil)	WB-4A (Waste)	WB-4B (Soil)
DepthInt	2.8 - 5.6	9 - 9.6	7.3 - 10.6	15 - 16	4.6 - 14.3	16.3 - 17.9	7.1 - 10.7	14 - 15.8	8.3 - 10.7	14 - 15.8
Sample_ID	1712003-01A	1712003-02A	1712016-01A	1712016-02A	1712003-07A	1712003-08A	1712003-05A	1712003-06A	1712003-03A	1712003-04A
SAMPDATE	11/27/2017	11/27/2017	12/01/2017	12/01/2017	11/30/2017	11/30/2017	11/30/2017	11/30/2017	11/29/2017	11/29/2017
Detected Inorganics (ug/kg)										
Arsenic	<10000	1,100	<10000	<1000	<1000	<1000	<10000	<1000	<10000	1,300
Barium	40,000	7,800	36,000	2,600	36,000	6,100	15,000	3,100	47,000	2,400
Chromium (III)	25,977,000	6,300	38,000,000	3,000	2,800,000	3,100	26,000,000	2,500	25,000,000	2,800
Chromium (VI)	***23,000***	<500	<500	<500	<500	<500	<500	<500	<500	<500
Copper	45,000	2,800	160,000	1,700	15,000	1,500	57,000	1,100	52,000	2,000
Lead	28,000	1,900	59,000	1,000	9,700	1,200	28,000	<1000	26,000	1,400
Mercury	***430***	<50	***820***	<50	***120***	<50	***1,400***	<50	***2,400***	<50
Zinc	120,000	9,400	360,000	4,200	40,000	4,500	150,000	2,900	140,000	5,400

TABLE A
SUMMARY OF SOURCE AREA WASTE AND SOIL DATA - VOCS/SVOCs OF INTEREST
HOUSE STREET DISPOSAL AREA
PLAINFIELD TOWNSHIP, KENT COUNTY, MICHIGAN

FIELDID DepthInt Sample_ID SAMPDATE	MDEQ Part 201 Residential Drinking Water Protection Criteria	MDEQ Part 201 Groundwater Surface Water Interface Criteria	MDEQ Part 201 Residentail Soil Volatilization to Indoor Air Inhalation Criteria	MDEQ Part 201 Residential Infinite Source Volatile Soil Inhalation Criteria	MDEQ Part 201 Particulate Soil Inhalation Criteria	MDEQ Part 201 Residential Soil Direct Contact Criteria	MDEQ Soil Saturation Concentration
VOCs of Concern (ug/kg)							
n-Butylbenzene	1.60E+03	NA	NA	NA	2.00E+09	2.50E+06	1.00E+07
sec-Butylbenzene	1.60E+03	NA	NA	NA	4.00E+08	2.50E+06	1.00E+07
1,1-Dichloroethane	1.80E+04	1.50E+04	2.30E+05	2.10E+06	3.30E+10	2.70E+07	8.90E+05
Tetrachloroethene	1.00E+02	1.20E+03	1.10E+04	1.70E+05	2.70E+09	2.00E+05	8.80E+04
Toluene	1.60E+04	5.40E+03	3.30E+05	2.80E+06	2.70E+10	5.00E+07	2.50E+05
1,1,1-Trichloroethane	4.00E+03	1.80E+03	2.50E+05	3.80E+06	6.70E+10	5.00E+08	4.60E+05
Trichloroethene	1.00E+02	4.00E+03	1.00E+03	1.10E+04	1.30E+08	1.10E+05	5.00E+05
1,2,4-Trimethylbenzene	2.10E+03	5.70E+02	4.30E+06	2.10E+07	8.20E+10	3.20E+07	1.10E+05
1,3,5-Trimethylbenzene	1.80E+03	1.10E+03	2.60E+06	1.60E+07	8.20E+10	3.20E+07	9.40E+04
SVOCs (ug/kg)							
Nitrobenzene	3.30E+02	3.60E+03	9.10E+04	5.40E+04	4.70E+07	1.00E+05	4.90E+05

TABLE A
SUMMARY OF SOURCE AREA WASTE AND SOIL DATA - VOCS/SVOCs OF INTEREST
HOUSE STREET DISPOSAL AREA
PLAINFIELD TOWNSHIP, KENT COUNTY, MICHIGAN

FIELDID	WB-11A (Waste)	WB-11B (Soil)	WB-14A (Waste)	WB-14B (Soil)	WB-1A (Waste)	WB-1B (Soil)	WB-2A (Waste)	WB-2B (Soil)	WB-4A (Waste)	WB-4B (Soil)
DepthInt	2.8 - 5.6	9 - 9.6	7.3 - 10.6	15 - 16	4.6 - 14.3	16.3 - 17.9	7.1 - 10.7	14 - 15.8	8.3 - 10.7	14 - 15.8
Sample_ID	1712003-01A	1712003-02A	1712016-01A	1712016-02A	1712003-07A	1712003-08A	1712003-05A	1712003-06A	1712003-03A	1712003-04A
SAMPDATE	11/27/2017	11/27/2017	12/01/2017	12/01/2017	11/30/2017	11/30/2017	11/30/2017	11/30/2017	11/29/2017	11/29/2017
VOCs of Concern (ug/kg)										
n-Butylbenzene	<50	<50	***2500***	<50	<50	<50	<100	<50	<50	<50
sec-Butylbenzene	<50	<50	***1700***	<50	<50	<50	<100	<50	<50	<50
1,1-Dichloroethane	<50	<50	<50	<50	<50	<50	***17000***	<50	<50	<50
Tetrachloroethene	<50	<50	<50	<50	<50	<50	<100	<50	***130***	<50
Toluene	<50	<50	<50	<50	<50	<50	***25000***	<50	660	<50
1,1,1-Trichloroethane	<50	<50	<50	<50	<50	<50	***15000***	<50	<50	<50
Trichloroethene	<50	<50	<50	<50	<50	<50	***160***	<50	<50	<50
1,2,4-Trimethylbenzene	<50	<50	***5300***	98	95	<50	350	<50	***760***	<50
1,3,5-Trimethylbenzene	<50	<50	***1700***	<50	<50	<50	<100	<50	290	<50
SVOCs (ug/kg)										
Nitrobenzene	<330	<330	<330	<330	<330	<330	<330	<330	***1400***	<330

NOTES:

1. Concentration and criteria units are reported in nano-grams per kilogram (ng/kg) or parts per trillion (ppt) for PFAS, and micro-grams per kilogram (ug/kg) or parts per billion (ppb) for inorganics, volatile organic compounds and semi-volatile organic compounds; "< RL" indicates the compound was analyzed for but not detected above the method detection limit; RL = Reporting Limit.

2. MDEQ Proposed Part 201 Residential Cleanup Criteria for Perfluorooctane sulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA) were based on the "Proposed Part 201 Cleanup Cirteria Rules," dated August 29, 2017.

3. MDEQ Part 201 Residential Soil Cleanup Criteria for inorganics, VOCs and SVOCs were based on MDEQ's Part 201 Cleanup Crtieria and Screening Levels dated December 2013.

4. Constituent concentrations of the waste samples were compared to the MDEQ Part 201 Generic Soil Cleanup Criteria. However it is important to note the comparison does not necessarily imply applicability of the Criteria to the waste samples because the physical and chemical properties of the waste samples are expected to be different than the default values or assumptions used to derive the Generic Soil Cleanup Criteria in the Cleanup Criteria Requirements for Response Activity Rules (R299.1-299.50).

5. Bold italic number with thick line border or bold italic chemical indicates that compound was detected above one of the listed cleanup cirteria.

6. For chromiums, the laboratory reported total chromium and hexvalent chromium concentrations. Chromium (III) concentrations in the table was obtained by deducting hexvalent chromium concentrations from the total chromium concentrations for the purpose of comparing to available cleanup criteria for chromium (III).

TABLE B

SUMMARY OF GROUNDWATER ANALYTICAL DATA - PFOS/PFOA
HOUSE STREET DISPOSAL AREA
PLAINFIELD TOWNSHIP, KENT COUNTY, MICHIGAN

WELL	PART 201 RESIDENTAIL GROUNDWATER CLEANUP CRITERIA - DRINKING WATER USES	MW-10D	MW-10M	MW-10S	MW-11D	MW-11M	MW-11S	MW-1D	MW-1S
LABORATORY ID		K1800647-002	K1800647-001	K1800647-003	K1713273-012	K1713273-015	K1713273-011	K1711117-004	K1711117-003
SAMPLE DATE		01/22/2018	01/22/2018	01/22/2018	12/08/2017	12/08/2017	12/08/2017	10/12/2017	10/12/2017
Parameter (ng/L)									
Perfluorooctane sulfonic acid (PFOS)	70	<4.4	12	37	<4.1	<4.1	<4.3	<4.2	<4.2
Perfluorooctanoic acid (PFOA)	70	<1.8	9.3	15	<1.6	<1.6	<1.7	<1.7	4.2

TABLE B
SUMMARY OF GROUNDWATER ANALYTICAL DATA - PFOS/PFOA
HOUSE STREET DISPOSAL AREA
PLAINFIELD TOWNSHIP, KENT COUNTY, MICHIGAN

WELL	PART 201 RESIDENTAIL GROUNDWATER CLEANUP CRITERIA - DRINKING WATER USES	MW-2	MW-3S	MW-4S	MW-5D	MW-5S	MW-6D	MW-6S	MW-7S
LABORATORY ID		K1711117-005	K1711250-001	K1711250-002	K1800647-004	K1711250-003	K1713273-007	K1711250-004	K1711250-005
SAMPLE DATE		10/12/2017	10/13/2017	10/13/2017	01/22/2018	10/13/2017	12/07/2017	10/16/2017	10/16/2017
Parameter (ng/L)									
Perfluorooctane sulfonic acid (PFOS)	70	<4.2	22	***2000***	26	***44000***	<4.3	<4.2	4.7
Perfluorooctanoic acid (PFOA)	70	<1.7	***380***	***830***	8.9	***2800***	<1.7	9.8	3.3

TABLE B
SUMMARY OF GROUNDWATER ANALYTICAL DATA - PFOS/PFOA
HOUSE STREET DISPOSAL AREA
PLAINFIELD TOWNSHIP, KENT COUNTY, MICHIGAN

WELL	PART 201 RESIDENTAIL GROUNDWATER CLEANUP CRITERIA - DRINKING WATER USES	MW-8	MW-9D	MW-9M	MW-9S
LABORATORY ID		K1713273-008	K1713273-004	K1713273-002	K1713273-001
SAMPLE DATE		12/07/2017	12/06/2017	12/06/2017	12/06/2017
Parameter (ng/L)					
Perfluorooctane sulfonic acid (PFOS)	70	***150***	<4.1	<4.3	<4.2
Perfluorooctanoic acid (PFOA)	70	***600***	<1.6	<1.7	2.4

TABLE B
SUMMARY OF GROUNDWATER ANALYTICAL DATA - CONSTITUENTS OF INTEREST
HOUSE STREET DISPOSAL AREA
PLAINFIELD TOWNSHIP, KENT COUNTY, MICHIGAN

WELL	PART 201 RESIDENTAIL GROUNDWATER CLEANUP CRITERIA - DRINKING WATER USES	PART 201 RESIDENTAIL GROUNDWATER CLEANUP CRITERIA - GROUNDWATER SURFACE INTERFACE	PART 201 RESIDENTAIL GROUNDWATER CLEANUP CRITERIA - INDOOR AIR INHALATION	MW-1D	MW-1S	MW-2	MW-3S	MW-4S	MW-5S
LABORATORY ID				1710057-02A	1710057-01A	1710057-03A	1710061-01A	1710061-02A	1710061-03A
SAMPLE DATE				10/12/2017	10/12/2017	10/12/2017	10/13/2017	10/13/2017	10/13/2017
Metals (ug/L)									
Aluminum	50	NA	NA	<50	***84***	***68***	<50	<50	<50
Water Chemistry (ug/L)									
Nitrogen, Nitrate (As N)	10,000	NA	NA	2700	3100	1700	4400	3500	***12000***
VOCs (ug/L)									
Dichlorodifluoromethane	1,700.00	NA	220,000.00	<1	<1	<1	2.4	1.8	<1
Trichlorofluoromethane	2,600.00	NA	1,100,000.00	<1	<1	<1	6.5	4.7	<1

TABLE B
SUMMARY OF GROUNDWATER ANALYTICAL DATA - CONSTITUENTS OF INTEREST
HOUSE STREET DISPOSAL AREA
PLAINFIELD TOWNSHIP, KENT COUNTY, MICHIGAN

WELL	PART 201 RESIDENTAIL GROUNDWATER CLEANUP CRITERIA - DRINKING WATER USES	PART 201 RESIDENTAIL GROUNDWATER CLEANUP CRITERIA - GROUNDWATER SURFACE INTERFACE	PART 201 RESIDENTAIL GROUNDWATER CLEANUP CRITERIA - INDOOR AIR INHALATION	MW-6S	MW-7S
LABORATORY ID				1710069-01A	1710069-02A
SAMPLE DATE				10/16/2017	10/16/2017
Metals (ug/L)					
Aluminum	50	NA	NA	<50	***98***
Water Chemistry (ug/L)					
Nitrogen, Nitrate (As N)	10,000	NA	NA	1200	1300
VOCs (ug/L)					
Dichlorodifluoromethane	1,700.00	NA	220,000.00	<1	<1
Trichlorofluoromethane	2,600.00	NA	1,100,000.00	<1	<1

NOTES:

1. Concentration and criteria units are reported in nano-grams per liter (ng/L) or parts per trillion (ppt) for PFAS, and micro-grams per liter (ug/L) or parts per billion (ppb) for inorganics, and volatile organic compounds; "< RL" indicates the compound was analyzed for but not detected above the method detection limit; RL = Reporting Limit.

2. Bold indicates that compound was detected above the RL. Highlighted Italic number with thick line border or italic chemical indicates that compound was detected above one of the listed cleanup criteria or screening levels.

3. Michigan Part 201 groundwater cleanup criteria protective of drinking water uses were based on USEPA Health Advisory Level obtained from USEPA Fact sheet: PFOA & PFOS Drinking Water Health Advisories, EPA 800-F-16-003, dated November 2016. The cleanup criteria of 70 ppt was established for the combined concentrations of PFOA and PFOS.

4. MDEQ Part 201 Residential Groundwater Cleanup Criteria for inorganics, and VOCs were based on MDEQ's Part 201 Cleanup Crtieria and Screening Levels dated December 2013.

APPENDIX A

SOURCE AREA SOIL BORING LOGS

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
1855 House Street NE
Belmont, Michigan

Boring No.: WB-1
Page: 1 **of** 2
File No.: 16.0062335.52
Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jim/Bryan
Logged by: John Morehouse
Date Start/Finish: 11-30-17 / 11-30-17
Boring Location:
GS Elev.: 798.00' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/19	0-2	1-2 4-5	0.0 ppm	Very dark grayish brown, poorly sorted, SILT, some fine grained Sand, trace Gravel, trace Clay, cohesive, slightly plastic, moist (FILL). Changing at 0.4 feet to: Mottled, dark yellowish-brown, poorly sorted, CLAY & SILT, plastic, cohesive, moist (FILL).	SILT (FILL) 0.4' CLAY & SILT (FILL)	1	None
2	2	24/14	2-4	4-4 8-8	0.0 ppm	Mottled, dark yellowish-brown, poorly sorted, CLAY & SILT, plastic, cohesive, moist (FILL). Changing at 3.0 feet to: Pale brown to light yellowish-brown, well sorted, fine to medium grained SAND, trace Silt, moist (FILL).	3' SAND (FILL)		
4	3	24/12	4-6	2-1 1-1	0.0 ppm	Pale brown to light yellowish-brown, well sorted, fine to medium grained SAND, trace Silt, moist (FILL). Changing at 4.6 feet to: Black to dark blue WASTE (FILL). Changing at 5.0 feet to: Brown to dark yellowish-brown, CLAY & SILT, some Sand, trace Gravel, mixed with black and dark blue Waste, moist (FILL).	4.6' WASTE (FILL) 5' SAND (FILL)	2	
6	4	24/15	6-8	0-0 0-0	0.0 ppm	Brown to dark yellowish-brown, CLAY & SILT, some Sand, trace Gravel, mixed with black and dark blue Waste, moist (FILL).			
8	5	24/18	8-10	0-0 1-1	0.0 ppm	Brown to dark yellowish-brown, CLAY & SILT, some Sand, trace Gravel, mixed with black and dark blue Waste, moist (FILL). Changing at 8.9 feet to: Black to dark blue WASTE, moist (FILL). Changing at 9.0 feet to: Brown to dark yellowish-brown, CLAY & SILT, some Sand, trace Gravel, mixed with black and dark blue Waste, moist (FILL).	8.9' 9' WASTE (FILL) CLAY & SILT (FILL)		

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per milliion (ppm) of isobutylene. Background was measured at 0.0ppm.
2. Composite sample was collected from approximately 4.6 to 14.3 feet below ground surface and submitted for laboratory analytical testing.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
1855 House Street NE
Belmont, Michigan

Boring No.: WB-1
Page: 2 **of** 2
File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	6	24/24	10-12	0-0 3-5	0.0 ppm	Brown to dark yellowish-brown, CLAY & SILT, some Sand, trace Gravel, mixed with black and dark blue Waste, moist (FILL). Changing at 11.3 feet to: Black to dark blue WASTE, moist (FILL). Changing at 11.4 feet to: Brown to yellowish brown, CLAY & SILT, some Sand, trace Gravel, mixed with black to dark blue Waste, moist (FILL). Changing at 11.5 feet to: Dark brown to pale brown, poorly sorted, fine to medium SAND, some Silt, little Clay, moderately plastic, moderately cohesive, moist (FILL).	CLAY & SILT (FILL)		
11							11.3' WASTE (FILL) 11.4' CLAY & SILT (FILL) 11.5' SAND (FILL)		
12	7	24/24	12-14	3-3 4-5	0.0 ppm				
13						Dark brown to pale brown, poorly sorted, fine to medium SAND, some Silt, little Clay, moderately plastic, moderately cohesive, moist (FILL).			
14	8	24/8	14-16		0.0 ppm	Dark brown to pale brown, poorly sorted, fine to medium SAND, some Silt, little Clay, moderately plastic, moderately cohesive, moist (FILL). Changing at 14.3 feet to: Black to dark blue WASTE, moist (FILL). Changing at 14.4 feet to: Dark brown, poorly sorted, fine to medium SAND, some Silt, little Clay, moderately plastic, moderately cohesive, moist (FILL).	14.3' WASTE (FILL) 14.4' SAND (FILL)		
15									
16	9	24/22	16-18		0.0 ppm	Brown to pale brown, poorly sorted, fine to coarse grained SAND, trace Silt, trace Gravel, moist (SW). Changing at 16.2 feet to: Grayish brown to dark gray, Silty CLAY, plastic, cohesive, moist (CL). Changing at 16.3 feet to: Very pale brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP).	16' 16.2' SAND (SW) 16.3' Silty CLAY (CL) SAND (SP)	3	
17									
18						Bottom of Borehole at 18.0 Feet	18'	4 5	
19									
20									
21									

REMARKS

3. Soil sample was collected from approximately 16.3 to 17.9 feet below ground surface and submitted for laboratory analytical testing.
4. No groundwater was encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite grout and tremie pipe placed.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: WB-1

BORING_WELL_6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
1855 House Street NE
Belmont, Michigan

Boring No.: WB-2
Page: 1 **of** 3
File No.: 16.0062335.52
Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jim/Bryan
Logged by: John Morehouse
Date Start/Finish: 11-30-17 / 11-30-17
Boring Location:
GS Elev.: 797.70' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/18	0-2	3-2 2-3	0.0 ppm	Very dark grayish-brown, poorly sorted, SILT, some fine grained Sand, trace Gravel, trace Clay, cohesive, silghty plastic moist (FILL). Changing at 0.4 feet to: Mottled, dark yellowish brown, poorly sorted, CLAY & SILT, plastic, cohesive, moist (FILL). Changing at 1.0 feet to: Pale brown to light yellowish brown, well sorted, fine to medium grained SAND, trace Silt, moist (FILL). Changing at 1.3 feet to: Dark yellowish brown, poorly sorted, fine to medium grained SAND, some Silt, trace Clay, trace Gravel, non plastic, moderately cohesive, moist (FILL).	SILT (FILL) 0.4' CLAY & SILT (FILL) 1' SAND (FILL)	1	None
2	2	24/18	2-4	2-2 1-1	0.0 ppm	Dark yellowish brown, poorly sorted, fine to medium grained SAND, some Silt, trace Clay, trace Gravel, non plastic, moderately cohesive, moist (FILL). Changing at 2.6 feet to: Mottled, brown to dark brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, moist (FILL).	2.6' CLAY & SILT (FILL)		
3									
4	3	24/19	4-6	2-2 2-3	0.0 ppm	Mottled, brown to dark brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, moist (FILL).			
5									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per milliion (ppm) of isobutylene. Background was measured at 0.0ppm.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: WB-2

GZA
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Engineers and Scientists

Wolverine World Wide, Inc.
1855 House Street NE
Belmont, Michigan

Boring No.: WB-2
Page: 2 **of** 3
File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	4	24/20	6-8	1-2 2-2	0.0 ppm	Mottled, brown to dark brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, moist (FILL). Changing at 6.5 feet to: Brown to dark yellowish brown, CLAY & SILT, some Sand, trace Gravel, mixed with black to dark blue Waste, moist (FILL). Changing at 7.1 feet to: Black to dark blue WASTE, moist (FILL). Changing at 7.3 feet to: Brown to dark yellowish brown, CLAY & SILT, some Sand, trace Gravel, mixed with black to dark blue Waste, moist (FILL). Changing at 7.6 feet to: Black to dark blue WASTE, moist (FILL).	CLAY & SILT (FILL)	2	
7							7.1' WASTE (FILL) 7.3' CLAY & SILT (FILL) 7.6' WASTE (FILL)		
8	5	24/21	8-10	0-0 2-1	0.0 ppm	Black to dark blue WASTE, moist (FILL).			
9									
10	6	24/9	10-12	1-4 8-7	0.0 ppm	Black to dark blue WASTE, moist (FILL). Changing at 10.7 feet to: Brown, poorly sorted, medium to coarse grained SAND, trace Gravel, trace Silt, moist (SW).	10.7' SAND (SW)		
11									
12	7	24/21	12-14	3-4 8-10	0.0 ppm	Very pale brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP).	12' SAND (SP)		

REMARKS

2. Composite sample was collected from approximately 7.1 to 10.7 feet below ground surface and submitted for laboratory analytical testing.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

GZA
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1855 House Street NE
Belmont, Michigan

Boring No.: WB-2
Page: 3 **of** 3
File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
							SAND (SP)		
14	8	24/21	14-16	4-6 7-11	0.0 ppm	Very pale brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP).		3	
15									
16						Bottom of Borehole at 16.0 Feet	16'	4 5	
17									
18									
19									

REMARKS

3. Soil sample was collected from approximately 14.0 to 15.8 feet below ground surface and submitted for laboratory analytical testing.
4. No groundwater was encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite grout and tremie pipe placed.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: WB-2

BORING_WELL_6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Wolverine World Wide, Inc.
1855 House Street NE
Belmont, Michigan

Boring No.: WB-3
Page: 1 **of** 3
File No.: 16.0062335.52
Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jim/Bryan
Logged by: John Morehouse
Date Start/Finish: 11-30-17 / 11-30-17
Boring Location:
GS Elev.: 797.30' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/16	0-2	2-1 1-2	0.0 ppm	Very dark grayish brown, poorly sorted, SILT, some fine grained Sand, trace Gravel, trace Clay, cohesive, slightly plastic, moist (FILL). Changing at 0.3 feet to: Dark yellowish brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, moist (FILL).	SILT (FILL) 0.3' CLAY & SILT (FILL)	1	None
2	2	24/19	2-4	2-3 3-4	0.0 ppm	Dark yellowish brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, moist (FILL).			
3									
4	3	24/20	4-6	2-2 4-5	0.0 ppm	Dark yellowish brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, moist (FILL). Changing at 4.5 feet to: Dark yellowish brown, well sorted, coarse grained, SAND, trace Silt, moist (FILL). Changing at 4.6 feet to: Dark yellowish brown, poorly sorted, CLAY & SILT, some Sand, some Sand, trace Gravel, plastic, cohesive, moist (FILL).	4.5' 4.6' SAND (FILL) CLAY & SILT (FILL)		
5									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per milliion (ppm) of isobutylene. Background was measured at 0.0ppm.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: WB-3

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Boring No.: WB-3
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File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
	4	24/24	6-8	3-4 5-6	0.0 ppm	Dark yellowish brown, poorly sorted, CLAY & SILT, some Sand, some Sand, trace Gravel, plastic, cohesive, moist (FILL).	CLAY & SILT (FILL)		
7									
8	5	24/24	8-10	3-3 5-6	0.0 ppm	Dark yellowish brown, poorly sorted, CLAY & SILT, some Sand, some Sand, trace Gravel, plastic, cohesive, moist (FILL).			
9									
10	6	24/24	10-12	2-4 6-10	0.0 ppm	Dark yellowish brown, poorly sorted, CLAY & SILT, some Sand, some Sand, trace Gravel, plastic, cohesive, moist (FILL).			
11									
12	7	24/24	12-14	4-7 13-39	0.0 ppm	Dark yellowish brown grading to dark grayish brown to dark brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, moist (FILL).			

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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Boring No.: WB-3
Page: 3 **of** 3
File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
14	8	24/21	14-16	6-12 31-32	0.0 ppm	Dark brown, poorly sorted, medium to coarse grained SAND, little Gravel, trace Silt, moist (FILL). Changing at 14.4 feet to: Dark yellowish brown grading to dark grayish brown to dark brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, moist (FILL). Changing at 14.6 feet to: Dark brown, poorly sorted, medium to coarse grained SAND, little Gravel, trace Silt, moist (SW).	CLAY & SILT (FILL) 14' SAND (FILL) 14.4' CLAY & SILT (FILL) 14.6' SAND (SW) 16'	2 3	
15									
16						Bottom of Borehole at 16.0 Feet			
17									
18									
19									

REMARKS

2. No groundwater was encountered during drilling or upon completion.
3. Borehole was backfilled with bentonite grout and tremie pipe placed.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: WB-3

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Boring No.: WB-4
Page: 1 **of** 3
File No.: 16.0062335.52
Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jim/Bryan
Logged by: John Morehouse
Date Start/Finish: 11-29-17 / 11-29-17
Boring Location:
GS Elev.: 794.70' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/19	0-2	2-3 4-4	0.0 ppm	Very dark grayish brown, poorly sorted, SILT, some fine grained Sand, trace Gravel, trace Clay, cohesive, slightly plastic, moist (FILL). Changing at 0.2 feet to: Dark yellowish brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, moist (FILL). Changing at 1.4 feet to: Dark yellowish brown, moderately sorted, fine to coarse grained SAND, little Gravel, trace Silt, moist (FILL).	SILT (FILL) 0.2' CLAY & SILT (FILL) 1.4' SAND (FILL)	1	None
2	2	24/24	2-4	1-2 3-4	0.0 ppm	Dark yellowish brown, moderately sorted, fine to coarse grained SAND, little Gravel, trace Silt, moist (FILL). Changing at 2.5 feet to: Dark yellowish brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, moist (FILL). Changing at 2.9 feet to: Dark yellowish brown, moderately sorted, fine to coarse grained SAND, little Gravel, trace Silt, moist (SW). Changing at 3.1 feet to: Dark yellowish brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, mosit (FILL). Changing at 3.2 feet to: Dark yellowish brown, moderately sorted, fine to coarse grained SAND, little Gravel, trace Silt, moist (FILL). Changing at 3.9 feet to: Dark yellowish brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, moist (FILL).	2.5' CLAY & SILT (FILL) 2.9' SAND (FILL) 3.1' 3.2' CLAY & SILT (FILL) SAND (FILL) 3.9'		
3									
4	3	24/15	4-6	1-2 2-2	0.0 ppm	Dark yellowish brown, moderately sorted, fine to coarse SAND, little Gravel, trace Silt, moist (FILL). Changing at 4.3 feet to: Dark yellowish brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, moist (FILL). Changing at 4.7 feet to: Dark yellowish brown, moderately sorted, fine to coarse grained SAND, little Gravel, trace Silt, moist (FILL).	4' CLAY & SILT (FILL) SAND (FILL) 4.3' CLAY & SILT (FILL) 4.7' SAND (FILL) 6'		
5									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per milliion (ppm) of isobutylene. Background was measured at 0.0ppm.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: WB-4

BORING_WELL_6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Boring No.: WB-4
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File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	4	24/20	6-8	3-1 2-1	0.0 ppm	Dark yellowish brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, moist (FILL). Changing at 6.5 feet to: Black to dark blue WASTE, moist (FILL). Changing at 6.6 feet to: Brown to yellowish brown, well sorted, fine to medium SAND, trace Silt, moist (FILL).	CLAY & SILT (FILL) 6.5' 6.6WASTE (FILL) SAND (FILL)		
7									
8	5	24/15	8-10	2-3 3-2	0.0 ppm	Brown to yellowish brown, well sorted, fine to medium SAND, trace Silt, moist (FILL). Changing at 8.3 feet to: Black to dark gray, WASTE, moist (FILL). Changing at 8.7 feet to: Brown to yellowish brown, well sorted, fine to medium SAND, trace Silt, with black to dark gray, Waste, moist (FILL).	8.3' WASTE (FILL) 8.7' SAND (FILL)	2 3	
9									
10	6	24/20	10-12	0-0 2-4	0.0 ppm	Brown to dark yellowish brown, CLAY & SILT, some Sand, trace Gravel, mixed with black to dark blue Waste, moist (FILL). Changing at 10.4 feet to: Black to dark gray WASTE, moist (FILL). Changing at 10.7 feet to: Dark blue to purple WASTE, moist (FILL). Changing at 11.3 feet to: Very pale brown, very well sorted, fine to medium SAND, trace Silt, moist (SP).	10' CLAY & SILT (FILL) 10.4' WASTE (FILL) 11.3' SAND (SP)		
11									
12	7	24/15	12-14	2-4 6-3	0.0 ppm	Very pale brown, very well sorted, fine to medium SAND, trace Silt, moist (SP).			

REMARKS

2. Strong odor noted in sample.
3. Composite sample was collected from approximately 8.3 to 10.7 feet below ground surface and submitted for laboratory analytical testing.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: WB-4

BORING_WELL_6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
							SAND (SP)		
14	8	24/21	14-16	1-1 3-4	0.0 ppm	Very pale brown, very well sorted, fine to medium SAND, trace Silt, moist (SP).		4	
15									
16							16'	5	
						Bottom of Borehole at 16.0 Feet		6	
17									
18									
19									

REMARKS

4. Soil sample was collected from approximately 14.0 to 15.8 feet below ground surface and submitted for laboratory analytical testing.
5. No groundwater was encountered during drilling or upon completion.
6. Borehole was backfilled with bentonite grout and tremie pipe placed.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: WB-4

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Boring No.: WB-5
Page: 1 **of** 3
File No.: 16.0062335.52
Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jim/Bryan
Logged by: John Morehouse
Date Start/Finish: 11-29-17 / 11-29-17
Boring Location:
GS Elev.: 790.50' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/22	0-2	2-3 3-4	0.0 ppm	Very dark grayish brown, poorly sorted, SILT, some fine grained Sand, trace Gravel, trace Clay, cohesive, slightly plastic, moist (FILL). Changing at 0.2 feet to: Yellowish brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL).	SILT (FILL) 0.2' CLAY & SILT (CL)	1	None
2	2	24/16	2-4	3-5 5-6	0.0 ppm	Yellowish brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL). Changing at 2.9 feet to: Dark yellowish brown, poorly sorted, fine to coarse grained SAND, little Gravel, little Silt, trace Clay, non to slightly plastic, moderately cohesive, moist (SW).	2.9' SAND (SW)		
3									
4	3	24/19	4-6	5-5 6-6	0.0 ppm	Brown, poorly sorted, fine to coarse grained SAND, little Gravel, trace Silt, moist (SW). Changing at 4.3 feet to: Dark yellowish brown, poorly sorted, fie to coarse grained SAND, little Gravel, little Silt, trace Clay, non to slightly plastic, moderately cohesive, moist (SW). Changing at 4.4 feet to: Brown, poorly sorted, fine to coarse grained SAND, little Gravel, trace Silt, moist (SW).			
5									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per milliion (ppm) of isobutylene. Background was measured at 0.0ppm.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: WB-5

BORING_WELL_6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Boring No.: WB-5
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File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
	4	24/16	6-8	3-8 6-4	0.0 ppm	Brown, poorly sorted, fine to coarse grained SAND, little Gravel, trace Silt, moist (SW). Changing at 6.5 feet to: Dark yellowish brown, poorly sorted, fine to coarse grained SAND, little Gravel, little Silt, trace Clay, non to slightly plastic, moderately cohesive, moist (SW). Changing at 6.6 feet to: Brown, poorly sorted, fine to coarse grained SAND, little Gravel, trace Silt, moist (SW). Changing at 6.7 feet to: Dark yellowish brown, poorly sorted, fine to coarse grained SAND, little Gravel, trace Silt, moist (SW). Changing at 6.8 feet to: Brown, poorly sorted, fine to coarse grained SAND, little Gravel, trace Silt, moist (SW).	SAND (SW)		
7									
8	5	24/21	8-10	2-3 5-5	0.0 ppm	Brown, poorly sorted, fine to coarse grained SAND, little Gravel, trace Silt, moist (SW). Changing at 8.4 feet to: Brown, moderately sorted, CLAY & SILT, little Sand, plastic, cohesive, moist (CL). Changing at 9.5 feet to: Brown, poorly sorted, CLAY & SILT, little Sand, little Gravel, plastic, cohesive, moist (CL).	8.4' CLAY & SILT (CL)		
9									
10	6	24/16	10-12	3-2 5-7	0.0 ppm	Yellowish brown, moderately sorted, fine to coarse grained SAND, trace Gravel, trace Silt, moist (SW). Changing at 10.8 feet to: Pale brown to light yellowish brown, well sorted, fine to medium grained SAND, trace Silt, moist (SP).	10' SAND (SW) 10.8' SAND (SP)		
11									
12							12'		

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: WB-5

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Boring No.: WB-5
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File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
14									
15									
16						Bottom of Borehole at 16.0 Feet		2 3	
17									
18									
19									

REMARKS

2. No groundwater was encountered during drilling or upon completion.
3. Borehole was backfilled with bentonite grout and tremie pipe placed.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: WB-5

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Belmont, Michigan

Boring No.: WB-6
Page: 1 **of** 2
File No.: 16.0062335.52
Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jim/Bryan
Logged by: John Morehouse
Date Start/Finish: 11-29-17 / 11-29-17
Boring Location:
GS Elev.: 790.60' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/20	0-2	1-2 2-2	0.0 ppm	Yellowish brown, poorly sorted, SILT & CLAY, some Sand, trace Gravel, plastic, cohesive, with occasional very thin seams of dark yellowish brown, moderately well sorted, fine to medium grained Sand, moist (FILL).	SILT & CLAY (CL)	1	None
2	2	24/23	2-4	3-4 5-7	0.0 ppm	Yellowish brown, poorly sorted, SILT & CLAY, some Sand, trace Gravel, plastic, cohesive, with occasional very thin seams of dark yellowish brown, moderately well sorted, fine to medium grained Sand, moist (FILL).			
3									
4	3	24/19	4-6	2-3 2-5	0.0 ppm	Yellowish brown, poorly sorted, SILT & CLAY, some Sand, trace Gravel, plastic, cohesive, with occasional very thin seams of dark yellowish brown, moderately well sorted, fine to medium grained Sand, moist (FILL).			
5									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per milliion (ppm) of isobutylene. Background was measured at 0.0ppm.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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Boring No.: WB-6
Page: 2 **of** 2
File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
	4	24/24	6-8	3-4 5-6	0.0 ppm	Yellowish brown, poorly sorted, SILT & CLAY, some Sand, trace Gravel, plastic, cohesive, with occasional very thin seams of dark yellowish brown, moderately well sorted, fine to medium grained Sand, moist (FILL). Changing at 7.0 feet to: Brown, well sorted, fine to medium grained SAND, trace Silt, moist (FILL).	SILT & CLAY (CL)		
7							7' SAND (FILL)		
8	5	24/24	8-10	2-4 4-3	0.0 ppm	Dark yellowish brown, poorly sorted, SILT & CLAY, some Sand, trace Gravel, plastic, cohesive, moist (FILL). Changing at 8.6 feet to: Brown, well sorted, fine to medium SAND, trace Silt, moist (FILL). Changing at 9.5 feet to: Light yellowish brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP).	8' SILT & CLAY (FILL)		
9							8.6' SAND (FILL)		
							9.5' SAND (SP)		
10							10'	2 3	
						Bottom of Borehole at 10.0 Feet			
11									
12									

REMARKS

2. No groundwater was encountered during drilling or upon completion.
3. Borehole was backfilled with bentonite grout and tremie pipe placed.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: WB-6

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Wolverine World Wide, Inc.
1855 House Street NE
Belmont, Michigan

Boring No.: WB-7
Page: 1 **of** 2
File No.: 16.0062335.52
Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jim/Bryan
Logged by: John Morehouse
Date Start/Finish: 11-28-17 / 11-28-17
Boring Location:
GS Elev.: 784.20' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/24	0-2	1-2 2-2	0.0 ppm	Very dark grayish brown, poorly sorted, SILT, some fine grained Sand, trace Gravel, trace Clay, cohesive, slightly plastic, moist (FILL). Changing at 1.3 feet to: Yellowish brown, poorly sorted, SILT & CLAY, some Sand, trace Gravel, moderately plastic, moderately cohesive, with occasional very thin fine Sand lenses, moist (FILL).	SILT (FILL) 1.3' SILT & CLAY (FILL)	1	None
2	2	24/21	2-4	3-4 4-4	0.0 ppm	Yellowish brown, poorly sorted, SILT & CLAY, some Sand, trace Gravel, moderately plastic, moderately cohesive, with occasional very thin fine Sand lenses, moist (FILL).			
3									
4	3	24/20	4-6	2-4 4-3	0.0 ppm	Yellowish brown, poorly sorted, SILT & CLAY, some Sand, trace Gravel, moderately plastic, moderately cohesive, with occasional very thin fine Sand lenses, moist (FILL). Changing at 4.5 feet to: Dark yellowish brown, fine to coarse grained SAND, little Silt, trace Clay, trace Gravel, moderately cohesive, non to slightly plastic, moist (FILL). Changing at 4.8 feet to: Brown to dark brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (FILL).	4.5' SAND (FILL) 4.8' CLAY & SILT (FILL)		
5									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per milliion (ppm) of isobutylene. Background was measured at 0.0ppm.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: WB-7

BORING_WELL_6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

GZA
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Engineers and Scientists

Wolverine World Wide, Inc.
1855 House Street NE
Belmont, Michigan

Boring No.: WB-7
Page: 2 **of** 2
File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
	4	24/24	6-8	1-3 4-5	0.0 ppm	Brown to dark brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (FILL). Changing at 7.1 feet to: Soft, brown to dark brown, poorly sorted CLAY & SILT, little Sand, little Gravel, moderately plastic, moderately cohesive, moist (FILL).	CLAY & SILT (FILL)		
7									
8	5	24/24	8-10	4-6 6-7	0.0 ppm	Dark yellowish brown, moderately sorted, fine grained SAND, little Silt, trace Clay, slightly plastic, moderately cohesive, moist (FILL). Changing at 8.6 feet to: Dark yellowish brown, moderately well sorted, fine to medium grained SAND, trace Silt, moist (FILL). Changing at 8.8 feet to: Dark yellowish brown, moderately sorted, fine grained SAND, little Silt, trace Clay, slightly plastic, moderately cohesive, moist (FILL). Changing at 9.8 feet to: Dark yellowish brown, poorly sorted, CLAY & SILT, some Sand, little Gravel, plastic, cohesive, moist (FILL).	8' SAND (FILL) 9.8' CLAY & SILT (FILL)		
9									
10						Bottom of Borehole at 10.0 Feet	10'	2 3	
11									
12									

REMARKS

2. No groundwater was encountered during drilling or upon completion.
3. Borehole was backfilled with bentonite grout and tremie pipe placed.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: WB-7

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Wolverine World Wide, Inc.
1855 House Street NE
Belmont, Michigan

Boring No.: WB-8
Page: 1 **of** 2
File No.: 16.0062335.52
Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jim/Bryan
Logged by: John Morehouse
Date Start/Finish: 11-28-17 / 11-28-17
Boring Location:
GS Elev.: 782.10' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/20	0-2	1-1 2-2	0.0 ppm	Very dark grayish brown, poorly sorted, SILT, some fine grained Sand, trace Gravel, trace Clay, cohesive, slightly plastic, moist (FILL). Changing at 1.2 feet to: Dark yellowish brown, poorly sorted, CLAY & SILT, little Sand, little Gravel, plastic, cohesive, moist (FILL). Changing at 1.5 feet to: Yellowish brown grading to brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, moderately plastic, moderately cohesive, moist (FILL).	SILT (FILL)	1	None
2	2	24/24	2-4	3-3 3-5	0.0 ppm	Yellowish brown grading to brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, moderately plastic, moderately cohesive, moist (FILL). Changing at 2.4 feet to: Brown, well sorted, fine to medium SAND, trace Silt, moist (FILL). Changing at 2.5 feet to: Dark yellowish brown, poorly sorted, fine grained SAND, some Silt, little Clay, slightly to moderately plastic, moderately cohesive, moist (SP). Changing at 2.9 feet to: Mottled, brown, moderately well sorted, CLAY & SILT, trace Sand, plastic, cohesive, moist (CL).	1.2' CLAY & SILT (FILL) 2.4' 2.5' SAND (FILL) SAND (SP) 2.9' CLAY & SILT (CL)		
3									
4	3	24/24	4-6	2-4 7-8	0.0 ppm	Mottled, brown, moderately well sorted, CLAY & SILT, trace Sand, plastic, cohesive, moist (CL). Changing at 5.3 feet to: Dark yellowish brown, poorly sorted, SILT & CLAY, some Sand, trace Gravel, non to slightly plastic, moderately cohesive, moist (ML). Changing at 5.9 feet to: Dark yellowish brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL).			
5							5.3' SILT & CLAY (ML) 5.9' 6' CLAY & SILT		

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per milliion (ppm) of isobutylene. Background was measured at 0.0ppm.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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Boring No.: WB-8
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File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
	4	24/21	6-8	2-3 4-5	0.0 ppm	Dark yellowish brown, moderately sorted, fine grained SAND, little Silt, trace Clay, moist (SM). Changing at 6.4 feet to: Mottled, brown, moderately well sorted, CLAY & SILT, trace Sand, plastic, cohesive, moist (CL). Changing at 7.0 feet to: Yellowish brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP). Changing at 7.2 feet to: Mottled, brown, moderately well sorted, CLAY & SILT, trace Sand, plastic, cohesive, moist (CL). Changing at 7.3 feet to: Yellowish brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP).	(CL) SAND (SM)		
7							6.4' CLAY & SILT (CL)		
							7' SAND (SP)		
							7.2' 7.3' CLAY & SILT (CL) SAND (SP)		
8	5	24/21	8-10	2-4 3-3	0.0 ppm	Dark yellowish brown, moderately sorted, SILT & CLAY, some Sand, moderately plastic, cohesive, moist (ML). Changing at 8.6 feet to: Yellowish brown, well sorted, fine to medium grained SAND, little Silt, moist to wet (SM). Changing at 9.4 feet to: Slightly mottled, brown to dark brown, moderately well sorted, CLAY & SILT, trace Sand, plastic, cohesive, bedded, moist (CL).	8' SILT & CLAY (ML)		
9							8.6' SAND (SM)		
							9.4' CLAY & SILT (CL)		
10						Bottom of Borehole at 10.0 Feet	10'	2 3	
11									
12									

REMARKS

2. No groundwater was encountered during drilling or upon completion.
3. Borehole was backfilled with bentonite grout and tremie pipe placed.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: WB-8

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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1855 House Street NE
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Boring No.: WB-9
Page: 1 **of** 2
File No.: 16.0062335.52
Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jim/Bryan
Logged by: John Morehouse
Date Start/Finish: 11-28-17 / 11-28-17
Boring Location:
GS Elev.: 781.80' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/24	0-2	1-1 2-4	0.0 ppm	Very dark grayish brown, poorly sorted, fine to medium gained SAND, some Silt, trace Clay, trace Gravel, slightly plastic, moderately coheisve, moist (FILL) Changing at 0.5 feet to: Mottled, dark yellowish brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, grades coarser with depth, moist (FILL).	SAND (FILL) 0.5' CLAY & SILT (CL)	1	None
2	2	24/24	2-4	3-4 4-6	0.0 ppm	Mottled, dark yellowish brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, grades coarser with depth, moist (FILL).			
4	3	24/20	4-6	1-2 4-5	0.0 ppm	Mottled, dark yellowish brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, grades coarser with depth, moist (FILL). Changing at 4.9 feet to: Dark yellowish brown, very well sorted, fine to medium SAND, trace Silt, moist (FILL). Changing at 5.1 feet to: Mottled, dark yellowish brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, grades coarser with depth, moist (FILL). Changing at 5.6 feet to: Dark yellowish brown, poorly sorted, fine to medium grained SAND, some Silt, little Clay, moderately plastic, cohesive, moist (SM).	4.9' 5.1' SAND (FILL) CLAY & SILT (FILL) 5.6' SAND (SM)		
6	4	24/24	6-8	3-2 4-4	0.0 ppm		6.6' CLAY & SILT (CL)		
8	5	24/24	8-10	3-5 6-7	0.0 ppm	Dark yellowish brown, poorly sorted, fine to medium grained SAND, some Silt, little Clay, moderately plastic, cohesive, moist (SM). Changing at 6.4 feet to: Dark brown, moderately well sorted, fine to medium SAND, little Silt, trace Clay, slightly plastic, slightly to moderately cohesive, moist (SM). Changing at 6.6 feet to: Dark yellowish brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, with occasional very thin fine Sand lenses, moist (CL). Dark yellowish brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, with occasional very thin fine	8.7' SAND (SP)		

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per milliion (ppm) of isobutylene. Background was measured at 0.0ppm.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: WB-9

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File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	6	24/24	10-12	4-4 3-3	0.0 ppm	Sand lenses, moist (CL). Changing at 8.7 feet to: Yellowish brown, very well sorted, fine to medium SAND, trace Silt, moist (SP). Yellowish brown, very well sorted, fine to medium SAND, trace Silt, moist (SP). Changing at 11.0 feet to: Brown to dark brown, well sorted, CLAY & SILT, trace Sand, plastic, cohesive, moist (CL).	SAND (SP) 11' CLAY & SILT (CL)		
12	7	24/24	12-14	3-5 5-5	0.0 ppm	Brown to dark brown, well sorted, CLAY & SILT, trace Sand, plastic, cohesive, moist (CL). Changing at 12.5 feet to: Light yellowish brown to very pale brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP).	12.5' SAND (SP)		
14	8	24/21	14-16	2-3 4-4	0.0 ppm	Light yellowish brown to very pale brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP).			
16	9	24/22	16-18	2-4 5-6	0.0 ppm	Light yellowish brown to very pale brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP).			
18	10	24/24	18-20	3-4 5-5	0.0 ppm	Light yellowish brown to very pale brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP). Changing at 19.9 feet to: Dark brown, poorly sorted, fine to coarse grained SAND, little Silt, moist (SM).			
20						Bottom of Borehole at 20.0 Feet	19.9' 20' SAND (SM)	2 3	
21									

REMARKS

2. No groundwater was encountered during drilling or upon completion.
3. Borehole was backfilled with bentonite grout and tremie pipe placed.

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Boring No.: WB-9

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Wolverine World Wide, Inc.
1855 House Street NE
Belmont, Michigan

Boring No.: WB-10
Page: 1 **of** 2
File No.: 16.0062335.52
Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jim/Bryan
Logged by: John Morehouse
Date Start/Finish: 11-27-17 / 11-27-17
Boring Location:
GS Elev.: 789.30' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/20	0-2	1-1 2-3	0.0 ppm	Very dark grayish brown, poorly sorted, fine to medium SAND, some Silt, trace Clay, trace Gravel, slightly plastic, moderately cohesive, moist (FILL). Changing at 0.4 feet to: Brown to dark yellowish brown, CLAY & SILT, some Sand, trace Gravel, mixed with black to dark blue Waste, moist (FILL). Changing at 1.1 feet to: Dark brown, poorly sorted, fine to medium SAND, some Silt, trace Clay, trace Gravel, slightly plastic, moderately cohesive, moist (FILL). Changing at 1.5 feet to: Brown to dark yellowish brown, CLAY & SILT, some Sand, trace Gravel, mixed with black to dark blue Waste, moist (FILL).	SAND (FILL) 0.4' CLAY & SILT (FILL) 1.1' SAND (FILL) 1.5' CLAY & SILT (FILL)	1	None
2	2	24/24	2-4	1-2 2-4	0.0 ppm				
3							3.4'		
4	3	24/19	4-6	2-3 3-2	0.0 ppm	Brown to dark yellowish brown, CLAY & SILT, some Sand, trace Gravel, mixed with black to dark blue Waste, moist (FILL). Changing at 3.4 feet to: Yellowish brown, moderately sorted, SILT & CLAY, some Sand, moderately plastic, moderately cohesive, moist (FILL). Changing at 3.5 feet to: Brown to dark yellowish brown, CLAY & SILT, some Sand, trace Gravel, mixed with black to dark blue Waste, moist (FILL).	3.5' SILT & CLAY (FILL) CLAY & SILT (FILL) 4.4' SAND (FILL)		
5									
6	4	24/24	6-8	3-4 7-8	0.0 ppm	Brown to dark yellowish brown, CLAY & SILT, some Sand, trace Gravel, mixed with black to dark blue Waste, moist (FILL). Changing at Changing at 4.4 feet to: Yellowish brown, moderately sorted, fine to medium grained SAND, some Silt, little Clay, moderately plastic, cohesive, moist (FILL)			
7									
8	5	24/24	8-10	5-8 12-16	0.0 ppm	Brown, moderately sorted, fine to medium grained SAND, little Silt, trace Clay, trace Gravel, non plastic, slightly cohesive, moist (FILL). Changing at 6.4 feet to: Yellowish brown, moderately sorted, fine to medium grained SAND, some Silt, little Clay, trace Gravel, non plastic, slightly cohesive, moist (FILL). Changing at 7.8 feet to: Brown, moderately sorted, fine to medium grained SAND, little Sand, trace Clay, trace Gravel, non plastic, slightly cohesive, moist (FILL).	8' SILT & CLAY (ML)		
9									
10	6	24/24	10-12	4-10 9-9	0.0 ppm	Mottled, yellowish brown, moderately sorted, SILT & CLAY, little Sand, trace Gravel, plastic, cohesive, with occasional very thin fine thin Sand lenses, moist (CL). Mottled, yellowish brown, moderately sorted, SILT & CLAY, little Sand, trace Gravel,	10.9' SAND (SP)		
11									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per milliion (ppm) of isobutylene. Background was measured at 0.0ppm.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	7	24/24	12-14	2-5 7-16	0.0 ppm	plastic, cohesive, with occasional very fine Sand lenses, moist (ML). Changing at 10.9 feet to: Pale brown, well sorted, fine to medium grained SAND, trace Silt, moist (SP).	SAND (SP)		
13						Pale brown, well sorted, fine to medium grained SAND, trace Silt, moist (SP). Changing at 13.1 feet to: Dark yellowish brown, moderately sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL). Changing at 13.2 feet to: Dark yellowish brown to yellowish brown, poorly sorted, fine to coarse SAND, little Gravel, trace Silt, moist (SW).	13.1' 13.2' CLAY & SILT (CL) SAND (SW)		
14	8	24/24	14-16	8-6 8-14	0.0 ppm		14.6' CLAY & SILT (CL)		
15							15.1' 15.2' SAND (SP) 15.3' CLAY & SILT (CL)		
16	9	24/24	16-18	4-5 6-7	0.0 ppm	Dark yellowish brown to yellowish brown, poorly sorted, fine to coarse SAND, little Gravel, trace Silt, moist (SW). Changing at 14.6 feet to: Dark yellowish brown, moderately sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL). Changing at 15.1 feet to: Pale brown, very well sorted, fine grained SAND, trace Silt, moist to wet (SP). Changing at 15.2 feet to: Dark yellowish brown, moderately sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL). Changing at 15.3 feet to: Very pale brown, very well sorted, fine grained SAND, trace Silt, bedded, moist (SP).	SAND (SP)		
17									
18	10	24/24	18-20	4-7 7-10	0.0 ppm				
19									
20						Very pale brown, very well sorted, fine grained SAND, trace Silt, bedded, moist (SP).	20'	2 3	
						Bottom of Borehole at 20.0 Feet			
21									
22									
23									
24									
25									

REMARKS

2. No groundwater was encountered during drilling or upon completion.
3. Borehole was backfilled with bentonite grout and tremie pipe placed.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: WB-10

BORING_WELL_6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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1855 House Street NE
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Boring No.: WB-11
Page: 1 **of** 2
File No.: 16.0062335.52
Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jim/Bryan
Logged by: John Morehouse
Date Start/Finish: 11-27-17 / 11-27-17
Boring Location:
GS Elev.: 788.70' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/24	0-2	2-1 2-3	0.0 ppm	Very dark grayish brown, poorly sorted, fine to medium grained SAND, some Silt, trace Clay, trace Gravel, slightly plastic, moderately coheisve, moist (FILL). Changing at 0.6 feet to: Dark yellowish brown, moderately sorted, fine to coarse SAND, trace Silt, trace Gravel, moist (FILL). Changing at 1.1 feet to: Brown to dark brown, CLAY & SILT, some Sand, trace, trace Gravel, mixed with black to dark blue Waste, moist (FILL). Changing at 1.2 feet to: Dark yellowish brown, moderately sorted, fine to coarse SAND, trace Silt, trace Gravel, moist (FILL). Changing at 1.3 feet to: Brown to dark yellowish brown, CLAY & SILT, some Sand, trace Gravel, mixed with black to dark blue Waste, moist (FILL). Changing at 1.4 feet to: Dark yellowish brown, moderately sorted, fine to coarse SAND, trace Silt, trace Gravel, moist (FILL). Dark yellowish brown, moderately sorted, fine to coarse SAND, trace Silt, trace Gravel, moist (FILL). Changing at 3.1 feet to: Black to dark blue WASTE, moist (FILL). Changing at 3.2 feet to: Dark yellowish brown, moderately sorted, fine to coarse SAND, trace Silt, trace Gravel, moist (FILL). Dark yellowish brown, moderately sorted, fine to coarse SAND, trace Silt, trace Gravel, moist (FILL). Changing at 5.1 feet to: Black to dark blue WASTE, moist (FILL). Dark yellowish brown, moderately well sorted, fine to coarse SAND, trace Silt, trace Gravel, moist (FILL).	SAND (FILL) 1.1' 1.2' CLAY & SILT (FILL) 1.3' 1.4' SAND (FILL) CLAY & SILT (FILL) SAND (FILL) 3.1' 3.2' WASTE (FILL) SAND (FILL) 5.1' WASTE (FILL) 6' SAND (FILL)	1	None
2	2	24/24	2-4	2-1 1-1	0.0 ppm				
3								2	
4	3	24/19	4-6	1-1 1-1	0.0 ppm				
5									
6	4	24/16	6-8	2-1 1-2	0.0 ppm				
7									
8	5	24/19	8-10	1-1 2-1	0.0 ppm	Dark yellowish brown, moderately well sorted, fine to coarse SAND, trace Silt, trace Gravel, moist (FILL). Changing at 8.7 feet to: Light yellowish brown, moderately well sorted, fine to coarse grained SAND, trace Silt, trace Gravel, grades finer with depth, moist (SW).	8.7' SAND (SW)		
9								3	

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per milliion (ppm) of isobutylene. Background was measured at 0.0ppm.
2. Composite sample was collected from approximately 2.8 to 5.6 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from approximately 9.0 to 9.6 feet below ground surface and submitted for laboratory analytical testing.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: WB-11

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Boring No.: WB-11
Page: 2 **of** 2
File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	6	24/19	10-12	1-1 1-1	0.0 ppm	Light yellowish brown, moderately well sorted, fine to coarse grained SAND, trace Gravel, grades finer with depth, moist (SW). Changing at 10.9 feet to: Light yellowish brown, moderately well sorted, fine to medium grained SAND, trace Silt, trace Gravel, moist (SP).	SAND (SW)		
11							10.9' SAND (SP)		
12	7	24/16	12-14	2-2 2-2	0.0 ppm	Light yellowish brown, moderately well sorted, fine to medium grained SAND, trace Silt, trace Gravel, moist (SP). Changing at 12.4 feet to: Dark brown, poorly sorted, SILT & CLAY, some Sand, trace Gravel, slightly plastic, moderately cohesive, moist (ML). Changing at 12.8 feet to: Mottled, brown to grayish brown, well sorted, CLAY & SILT, with lenses of light brownish gray, Clay & Silt, plastic, cohesive, moist (CL).	12.4'		
13							SILT & CLAY (ML) 12.8' CLAY & SILT (CL)		
14	8	24/13	14-16	1-1 2-2	0.0 ppm	Pale brown to very pale brown, very well sorted, fine SAND, trace Silt, moist (SP).	14' SAND (SP)		
15									
16	9	24/18	16-18	2-2 4-4	0.0 ppm	Pale brown to very pale brown, very well sorted, fine SAND, trace Silt, moist (SP).			
17									
18	10	24/21	18-20	3-3 4-4	0.0 ppm	Pale brown to very pale brown, very well sorted, fine SAND, trace Silt, moist (SP).			
19									
20						Bottom of Borehole at 20.0 Feet	20'	4 5	
21									

REMARKS

4. No groundwater was encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite grout and tremie pipe placed.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: WB-11

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Wolverine World Wide, Inc.
1855 House Street NE
Belmont, Michigan

Boring No.: WB-12
Page: 1 **of** 2
File No.: 16.0062335.52
Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jim/Bryan
Logged by: John Morehouse
Date Start/Finish: 11-28-17 / 11-28-17
Boring Location:
GS Elev.: 777.00' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/22	0-2	0-2 2-2	0.0 ppm	Very dark grayish brown, poorly sorted, fine to medium grained SAND, some Silt, trace Clay, trace Gravel, slightly plstic, moderately cohesive, moist (FILL). Changing at 0.5 feet to: Mottled, dark yellowish brown to grayish brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, with occasional decaying wood, plastic, cooheisve, moist (FILL).	SAND (FILL) 0.5' CLAY & SILT (FILL)	1	None
2	2	24/16	2-4	3-3 3-2	0.0 ppm	Mottled, dark yellowish brown to grayish brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, with occasional decaying wood, plastic, cooheisve, moist (FILL). Changing at 2.4 feet to: Dark brown, poorly sorted,fine to medium grained SAND, some Silt, trace Clay, trace Gravel, non to slightly plastic, slightly cohesive, former topsoil layer with decaying vegatation and roots at approximately 2.7 feet, moist (SP). Changing at 3.1 feet to: Very pale brown to yellow grading darker, moderately sorted, CLAY & SILT, little Sand, plastic, cohesive, bedded, with decaying vegetation and roots, moist (CL).	2.4' SAND (SP) 3.1' CLAY & SILT (CL)		
4	3	24/22	4-6	2-2 6-8	0.0 ppm	Very pale brown to yellow grading darker, moderately sorted, CLAY & SILT, little Sand, plastic, cohesive, bedded, with decaying vegetation and roots, moist (CL). Changing at 4.5 feet to: Mottled, brown to dark yellowish brown to red, CLAY & SILT, trace Sand, plastic, cohesive, bedded, moist (CL). Changing at 4.6 feet to: Yellowish brown, moderately sorted, CLAY & SILT, little Sand, plastic, cohesive, bedded, moist (CL).			
5									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per milliion (ppm) of isobutylene. Background was measured at 0.0ppm.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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Boring No.: WB-12
Page: 2 **of** 2
File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
	4	24/20	6-8	6-7 8-8	0.0 ppm	Yellowish brown, moderately sorted, CLAY & SILT, little Sand, plastic, cohesive, bedded, moist (CL).	CLAY & SILT (CL)		
7									
8	5	24/20	8-10	4 5-5	0.0 ppm	Yellowish brown, moderately sorted, CLAY & SILT, little Sand, plastic, cohesive, bedded, moist (CL). Changing at 8.4 feet to: Light yellowish brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP).	8.4' SAND (SP)		
9									
10						Bottom of Borehole at 10.0 Feet	10'	2 3	
11									
12									

REMARKS

2. No groundwater was encountered during drilling or upon completion.
3. Borehole was backfilled with bentonite grout and tremie pipe placed.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: WB-12

BORING_WELL_6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Wolverine World Wide, Inc.
1855 House Street NE
Belmont, Michigan

Boring No.: WB-13
Page: 1 **of** 2
File No.: 16.0062335.52
Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jim/Bryan
Logged by: John Morehouse
Date Start/Finish: 11-28-17 / 11-28-17
Boring Location:
GS Elev.: 789.80' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/16	0-2	0-2 2-3	0.0 ppm	Dark brown, poorly sorted, fine to medium grained SAND, some Silt, trace Clay, trace Gravel, slightly plastic, moderately cohesive, moist (FILL).	SAND (FILL)	1	None
2	2	24/24	2-4	3-3 4-3	0.0 ppm	Very dark grayish brown to dark yellowish brown, poorly sorted, fine to medium grained SAND, little Silt, trace Clay, trace Gravel, moderately plastic, moderately cohesive, moist (FILL).			
3									
4	3	24/21	4-6	2-3 4-4	0.0 ppm	Very dark grayish brown to dark yellowish brown, poorly sorted, fine to medium grained SAND, little Silt, trace Clay, trace Gravel, moderately plastic, moderately cohesive, moist (FILL).			
5									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per milliion (ppm) of isobutylene. Background was measured at 0.0ppm.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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Belmont, Michigan

Boring No.: WB-13
Page: 2 **of** 2
File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	4	24/24	6-8	3-5 7-9	0.0 ppm	Very dark grayish brown to dark yellowish brown, poorly sorted, fine to medium grained SAND, little Silt, trace Clay, trace Gravel, moderately plastic, moderately cohesive, moist (FILL).	SAND (FILL)		
7									
8	5	24/20	8-10	5-8 11-15	0.0 ppm	Yellowish brown, poorly sorted, SILT & CLAY, some Sand, trace Gravel, moderately plastic, moderately cohesive, moist (FILL).	8' SILT & CLAY (FILL)		
9									
10						Bottom of Borehole at 10.0 Feet	10'	2 3	
11									
12									

REMARKS

2. No groundwater was encountered during drilling or upon completion.
3. Borehole was backfilled with bentonite grout and tremie pipe placed.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: WB-13

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Wolverine World Wide, Inc.
1855 House Street NE
Belmont, Michigan

Boring No.: WB-14
Page: 1 **of** 2
File No.: 16.0062335.52
Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jim/Bryan
Logged by: John Morehouse
Date Start/Finish: 11-30-17 / 11-30-17
Boring Location:
GS Elev.: 798.70' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/21	0-2	1-3 4-3	0.0 ppm	Dark brown, poorly sorted, fine to medium grained SAND, some Silt, trace Clay, trace Gravel, slightly plastic, moderately cohesive, moist (FILL). Changing at 0.3 feet to: Dark yellowish brown to brown, poorly sorted, CLAY & SILT, plastic, cohesive, moist (FILL).	SAND (FILL) 0.3' CLAY & SAND (FILL)	1	None
2	2	24/21	2-4	3-3 3-5	0.0 ppm	Dark yellowish brown to brown, poorly sorted, CLAY & SILT, plastic, cohesive, moist (FILL). Changing at 3.6 feet to: Dark yellowish brown to brown, moderately well sorted, medium to coarse SAND, trace Silt, moist (FILL). Changing at 3.7 feet to: Very soft dark grayish brown to brown, poorly sorted, CLAY & SILT, plastic, cohesive, moist (FILL).			
3							3.6' 3.7' SAND (FILL) CLAY & SILT (FILL)		
4	3	24	4-6	1-2 2-3	0.0 ppm	Very soft dark grayish brown to brown, poorly sorted, CLAY & SILT, plastic, cohesive, moist (FILL).			
5									
6	4	24/20	6-8	0-0 0-2	0.0 ppm	Very soft, dark grayish brown to brown, poorly sorted, CLAY & SILT, plastic, cohesive, moist (FILL). Changing at 7.1 feet to: Brown to dark yellowish brown, CLAY & SILT, some Sand, trace Gravel, mixed with black to dark blue Waste, moist (FILL). Changing at 7.3 feet to: Black to dark blue WASTE, moist (FILL).		2	
7									
8	5	24/13	8-10	0-0 0-2	0.0 ppm	Brown to dark yellowish brown, CLAY & SILT, some Sand, trce Gravel, mixed with black to dark blue Waste, moist (FILL). Changing at 8.4 feet to: Black to dark blue WASTE, moist (FILL). Changing at 8.5 feet to: Brown to dark yellowish brown, CLAY & SILT, some Sand, trce Gravel, mixed with black to dark blue Waste, moist (FILL).			
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per milliion (ppm) of isobutylene. Background was measured at 0.0ppm.
2. Composite sample was collected from approximately 7.3 to 10.6 feet below ground surface and submitted for laboratory analytical testing.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: WB-14

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Belmont, Michigan

Boring No.: WB-14
Page: 2 **of** 2
File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
11	6	24/24	10-12	0-0 3-6	0.0 ppm	Brown to dark yellowish brown, CLAY & SILT, some Sand, trce Gravel, mixed with black to dark blue Waste, moist (FILL). Changing at 10.3 feet to: Black to dark blue WASTE, moist (FILL). Changing at 10.6 feet to: Brown to dark yellowish brown, CLAY & SILT, some Sand, trace Gravel, mixed with black to dark blue Waste, moist (FILL). Changing at 11.3 feet to: Dark brown, poorly sorted, medium to coarse grained SAND, little Gravel, trace Silt, moist (FILL).	10.3' WASTE (FILL) 10.6' CLAY & SILT (FILL) 11.3' SAND (FILL) 12'		
12	7	24/20	12-14	3-3 3-4	0.0 ppm	Dark yellowish brown to brown, poorly sorted, CLAY & SILT, plastic, cohesive, moist (FILL). Changing at 12.1 feet to: Dark brown, poorly sorted, medium to coarse grained SAND, little Gravel, trace Silt, trace Clay, moist (SW). Changing at 12.3 feet to: Dark yellowish brown to brown, poorly sorted, CLAY & SILT plastic, cohesive, moist (CL). Changing at 12.7 feet to: Dark brown, poorly sorted, medium to coarse grained SAND, little Gravel, trace Silt, trace Clay, moist (SW). Changing at 12.9 feet to: Dark yellowish brown to brown, poorly sorted, CLAY & SILT, plastic, cohesive, moist (CL). Changing at 13.1 feet to: Dark yellowish brown, grading to brown, well sorted, fine to medium SAND, trace Silt, moist (SP).	12.1' CLAY & SILT (FILL) 12.3' SAND (SW) 12.7' CLAY & SILT (CL) 12.9' SAND (SW) 13.1' CLAY & SILT (CL) SAND (SP)		
13									
14	8	24/24	14-16	2-2 3-4	0.0 ppm				
15								3	
16						Dark yellowish brown, grading to brown, well sorted, fine to medium SAND, trace Silt, moist (SP). Bottom of Borehole at 16.0 Feet	16'	4 5	
17									
18									
19									
20									
21									

REMARKS

3. Soil sample was collected from approximately 15.0 to 16.0 feet below ground surface and submitted for laboratory analytical testing.
4. No groundwater was encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite grout and tremie pipe placed.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: WB-14

BORING_WELL_6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Wolverine World Wide, Inc.
1855 House Street NE
Belmont, Michigan

Boring No.: WB-15
Page: 1 **of** 2
File No.: 16.0062335.52
Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jim/Bryan
Logged by: John Morehouse
Date Start/Finish: 12-1-17 / 12-1-17
Boring Location:
GS Elev.: 791.50' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/24	0-2	1-1 2-2	0.0 ppm	Dark brown, poorly sorted, fine to medium grained SAND, some Silt, trace Clay, trace Gravel, slightly plastic, moderately cohesive, moist (TOPSOIL/FILL). Changing at 0.2 feet to: Dark brown to dark yellowish brown, poorly sorted, CLAY & SILT, little Sand, plastic, cohesive, moist with Topsoil with decaying vegetation at 1.0 foot (FILL).	SAND (TOPSOIL/FILL) 0.2' CLAY & SILT (FILL)	1	None
2	2	24/21	2-4	2-2 5-5	0.0 ppm	Dark yellowish brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (FILL).			
3									
4	3	24/24	4-6	1-2 5-7	0.0 ppm	Dark yellowish brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (FILL).			
5									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per milliion (ppm) of isobutylene. Background was measured at 0.0ppm.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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1855 House Street NE
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Boring No.: WB-15
Page: 2 **of** 2
File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	4	24/20	6-8	3-4 3-3	0.0 ppm	Dark yellowish brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (FILL). Changing at 7.1 feet to: Dark yellowish brown, moderately sorted, fine to coarse grained SAND, trace Silt, moist (SW). Changing at 7.3 feet to: Dark yellowish brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL). Changing at 7.7 feet to: Dark yellowish brown, moderately sorted, fine to coarse grained SAND, trace Silt, moist (SW). Changing at 7.8 feet to: Dark yellowish brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL). Changing at 7.9 feet to: Dark yellowish brown, moderately sorted, fine to coarse grained SAND, trace Silt, moist (SW).	CLAY & SILT (FILL)		
7							7.1' SAND (SW) 7.3' CLAY & SILT (CL) 7.7' 7.8' SAND (SW) 7.9' CLAY & SILT (CL) SAND (SW)		
8	5	24/20	8-10	2-2 2-2	0.0 ppm	Dark yellowish brown, moderately sorted, fine to coarse grained SAND, trace Silt, moist (SW). Changing at 9.3 feet to: Dark yellowish brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL). Changing at 9.5 feet to: Dark yellowish brown, moderately sorted, fine to coarse grained SAND, trace Silt, moist (SW).			
9							9.3' CLAY & SILT 9.5' (CL) SAND (SW)		
10	6	24/18	10-12	2-2 4-2	0.0 ppm	Dark yellowish brown, moderately sorted, fine to coarse grained SAND, trace Silt, moist (SW). Changing at 11.0 feet to: Dark yellowish brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, coheisve, moist (CL). Changing at 11.1 feet to: Dark yellowish brown, moderately sorted, fine to coarse grained SAND, trace Silt, moist (SW).			
11							11' 11.1' CLAY & SILT (CL) SAND (SW)		
12						Bottom of Borehole at 12.0 Feet	12'	2 3	

REMARKS

2. No groundwater was encountered during drilling or upon completion.
3. Borehole was backfilled with bentonite grout and tremie pipe placed.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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1855 House Street NE
Belmont, Michigan

Boring No.: WB-16
Page: 1 **of** 2
File No.: 16.0062335.52
Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jim/Bryan
Logged by: John Morehouse
Date Start/Finish: 12-1-17 / 12-1-17
Boring Location:
GS Elev.: 784.60' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/21	0-2	0-1 1-2	0.0 ppm	Dark yellowish brown, well sorted, fine grained SAND, little Silt, moist (SM). Changing at 0.2 feet to: Light yellowish brown grading to pale brown, very well sorted, fine grained SAND, trace Silt, banded, moist (SP).	SAND (SM) 0.2' SAND (SP)	1	None
2	2	24/24	2-4	2-3 3-4	0.0 ppm	Light yellowish brown grading to pale brown, very well sorted, fine grained SAND, trace Silt, banded, moist (SP).			
3									
4	3	24/16	4-6	2-3 3-4	0.0 ppm	Light yellowish brown grading to pale brown, very well sorted, fine grained SAND, trace Silt, banded, moist (SP).			
5									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionzation detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per milliion (ppm) of isobutylene. Background was measured at 0.0ppm.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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Belmont, Michigan

Boring No.: WB-16
Page: 2 **of** 2
File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
	4	24/21	6-8	3-4 5-6	0.0 ppm	Light yellowish brown grading to pale brown, very well sorted, fine grained SAND, trace Silt, banded, moist (SP).	SAND (SP)		
7									
8	5	24/20	8-10	4-6 7-7	0.0 ppm	Light yellowish brown grading to pale brown, very well sorted, fine grained SAND, trace Silt, banded, moist (SP).			
9									
10						Bottom of Borehole at 10.0 Feet	10'	2 3	
11									
12									

REMARKS

2. No groundwater was encountered during drilling or upon completion.
3. Borehole was backfilled with bentonite grout and tremie pipe placed.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: WB-16

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Wolverine World Wide, Inc.
1855 House Street NE
Belmont, Michigan

Boring No.: MW-1S
Page: 1 **of** 6
File No.: 16.0062335.52
Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jerry Huntoon
Logged by: John Morehouse
Date Start/Finish: 9-5-17 / 9-5-17
Boring Location:
GS Elev.: 788.70' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
0						See SB-1/MW-1D boring log for detailed soil descriptions.			PROTECTIVE CASING; Backfill/Cement Pad

1
2
3
4
5
6
7
8
9
10
11

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: MW-1S

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Wolverine World Wide, Inc.
1855 House Street NE
Belmont, Michigan

Boring No.: MW-1S
Page: 2 **of** 6
File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: MW-1S

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Belmont, Michigan

Boring No.: MW-1S
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File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
27									
28									
29									
30									
31									
32									Bentonite/Grout
33									
34									
35									
36									
37									
38									
39									

REMARKS

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Boring No.: MW-1S

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File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
41									
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									

REMARKS

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File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				

55
56
57
58
59
60
61
62
63
64
65
66
67

Bentonite Seal

REMARKS

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File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
69									Top of Well Screen
70									Silica Sand Filter Pack
71									2-Inch Dia. 5-Foot PVC Screen (0.010" Slot)
72									
73									
74									Bottom of Well Screen
75						Bottom of Borehole at 75.0 Feet		1	
76									
77									
78									
79									
80									
81									

REMARKS

1. Monitoring well was installed in borehole upon completion. Well screen set from approximately 68.4 to 73.1 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: MW-1S

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Belmont, Michigan

Boring No.: MW-5P
Page: 1 **of** 2
File No.: 16.0062335.52
Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jerry Huntoon
Logged by: John Morehouse
Date Start/Finish: 9-19-17 / 9-19-17
Boring Location:
GS Elev.: 778.90' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
						See SB-5/MW-5S boring log for detailed soil descriptions.			PROTECTIVE CASING; Backfill/Cement Pad; Bentonite/Grout

1
2
3
4
5
6
7
8
9
10
11

REMARKS

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Boring No.: MW-5P

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Boring No.: MW-5P
Page: 2 **of** 2
File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
13									
14									Bentonite Seal
15									
16									
17									Top of Well Screen
18									
19									Silica Sand Filter Pack
20									2-Inch Dia. 5-Foot PVC Screen (0.010" Slot)
21									
22									Bottom of Well Screen
22						Bottom of borehole at 22.3 Feet		1	
23									
24									
25									

REMARKS

1. Monitoring well was installed in borehole upon completion. Well screen set from approximately 17.1 to 21.8 feet below ground surface.

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Boring No.: SB-1/MW-1D
Page: 1 **of** 13
File No.: 16.0062335.52
Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jerry Huntoon
Logged by: John Morehouse
Date Start/Finish: 9-5-17 / 9-5-17
Boring Location:
GS Elev.: 788.80' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/20	0-2	3-4 4-7		Yellowish-brown to brown, SILT, some fine grained Sand, trace Gravel, poorly sorted, dry (ML).	SILT (ML)		PROTECTIVE CASING Backfill/Cement Pad
2	2	24/22	2-4	4-5 8-9		Yellowish-brown to brown, SILT, some fine grained Sand, trace Gravel, poorly sorted, dry (ML). Changing at 2.6 feet to: Yellowish-brown, fine to medium SAND, little Silt, moderately sorted, dry (SM). Changing at 2.7 feet to: Mottled dark yellowish-brown to light grayish-brown, SILT, little Clay, little Sand, trace Gravel, poorly sorted, dry (ML).	2.6' 2.7' SAND (SM) SILT (ML)		
3									
4	3	24/24	4-6	8-6 7-7		Yellowish-red to dark brown, medium to fine grained SAND, some Silt, trace Gravel, moderate sorting, dry (SM). Changing at 4.5 feet to: Mottled dark yellowish-brown to light gray, SILT, little Clay, little fine to medium grained Sand, slightly plastic, cohesive, poorly sorted, dry (ML).	4' SAND (SM) 4.5' SILT (ML)		
5									
6	4	24/24	6-8	3-4 5-5		Mottled dark yellowish-brown to light gray, SILT, little Clay, little fine to medium grained Sand, slightly plastic, cohesive, poorly sorted, dry (ML). Changing at 7.1 feet to: Mottled grayish-brown to dark yellowish-brown, CLAY & SILT, plastic, cohesive, moist (CL).	7.1' CLAY & SILT (CL)		
7									
8	5	24	8-10	4-4 3-5		Mottled grayish-brown to dark yellowish-brown, CLAY & SILT, plastic, cohesive, moist (CL).			
9									
10	6	24/20	10-12	2-4 2-2		Mottled grayish-brown to dark yellowish-brown, CLAY & SILT, plastic, cohesive, moist (CL). Changing at 10.4 feet to: Dark gray to dark grayish-brown, fine to medium grained SAND, trace Silt, moderately sorted, moist (SP). Changing at 11.4 feet to: Dark gray to dark grayish-brown, fine to coarse SAND, trace	10.4' SAND (SP) 11.4' SAND (SW) 12'		
11									

REMARKS

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Boring No.: SB-1/MW-1D

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Boring No.: SB-1/MW-1D
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File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
	7	24/24	12-14	5-6 14-16		Gravel, trace Silt, trace Clay, slightly cohesive, poorly sorted, moist to wet (SW). Dark grayish-brown to very dark grayish-brown, CLAY & SILT, trace Gravel, plastic, cohesive, poorly sorted, moist (CL). Changing at 13.6 feet to: Grayish-brown, coarse to medium SAND, trace Gravel, trace Silt, poorly sorted, moist (SP). Changing at 13.7 feet to: Mottled yellowish-brown to light yellowish-brown to dark gray to black, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, poorly sorted, moist (CL). Mottled yellowish-brown to light yellowish-brown to dark gray to black, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, poorly sorted, moist (CL). Changing at 15.0 feet to: Black, fine to coarse grained SAND, trace Gravel, trace Silt, poorly sorted, moist (SW). Changing at 15.1 feet to: Brownish-yellow, SILT, very well sorted, moist to wet (ML). Light yellowish-brown to pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Changing at 17.3 feet to: Dark yellowish-brown, fine grained SAND, little Clay, little Silt, slightly to moderately plastic, cohesive, moderately sorted, moist (SC). Light yellowish-brown to pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Changing at 19.0 feet to: Yellowish-brown, fine grained SAND, little Clay, little Silt, moderately plastic, cohesive, moderately sorted, moist (SC). Changing at 19.3 feet to: Light yellowish-brown to pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Light yellowish-brown to pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP).	CLAY & SILT (CL)		
13							13.6'		
	8	24/24	14-16	4-12 7-7			13.7' SAND (SP) CLAY & SILT (CL)		
14									
15							15' 15.1' SAND (SW) SILT (ML)		
	9	24/18	16-18	3-3 5-6			16' SAND (SP)		
16									
17							17.3' SAND (SM)		
	10	24/20	18-20	2-4 7-9			18' SAND (SP)		
18									
19							19' 19.3' SAND (SM) SAND (SP)		
	11	24/17	20-22	3-6 7-10					
20									
21									
	12	24/18	22-24	3-5 6-9		Light yellowish-brown to pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP).			
22									
23									
	13	24/23	24-26	5-9 10-14		Light yellowish-brown to pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Changing at 25.5 feet to: Yellowish-brown, SILT & CLAY, little Silt, slightly plastic, cohesive, well sorted, moist (CL).			
24									
25							25.5' CLAY & SILT (CL) 26'		

REMARKS

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Boring No.: SB-1/MW-1D
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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	14	24/24	26-28	6-8 13-13		Light yellowish-brown to pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Changing at 26.3 feet to: Yellowish-brown, SILT & CLAY, little Silt, slightly plastic, cohesive, well sorted, moist (CL). Changing at 27.7 feet to: Light yellowish-brown to pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Yellowish-brown, CLAY & SILT, little Sand, slightly plastic, cohesive, well sorted, moist (CL). Changing at 28.9 feet to: Light yellowish-brown to pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Changing at 29.1 feet: Yellowish-brown, CLAY & SILT, little Sand, slightly plastic, cohesive, well sorted, moist (CL). Changing at 29.3 feet to: Yellowish-brown, SILT, cohesive, well sorted, moist (ML). Changing at 29.9 feet to: Yellowish-brown, CLAY & SILT, little Sand, slightly plastic, cohesive, well sorted, moist (CL). Yellowish-brown, CLAY & SILT, little Sand, slightly plastic, cohesive, well sorted, moist (CL). Changing at 30.6 feet to: Light yellowish-brown to pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Changing at 31.0 feet to: Yellowish-brown, CLAY & SILT, little Silt, slightly plastic, cohesive, well sorted, moist (CL). Yellowish-brown, CLAY & SILT, little Silt, slightly plastic, cohesive, well sorted, moist (CL). Changing at 32.5 feet to: Light gray to light brownish-gray, fine grained SAND, trace Silt, very well sorted, moist (SP). Light gray to light brownish-gray, fine grained SAND, trace Silt, very well sorted, moist (SP).	26.3' SAND (SP) CLAY & SILT (CL) 27.7' 28' SAND (SP) CLAY & SILT (CL) 28.9' 29.1' SAND (SP) 29.3' CLAY & SILT (CL) SILT (ML) 29.9' CLAY & SILT (CL) 30.6' SAND (SP) 31' CLAY & SILT (CL) 32.5' SAND (SP)		
27									
28	15	24/23	28-30	4-10 8-13					
29									
30	16	24/22	30-32	9-12 16-15					
31									
32	17	24/22	32-34	4-10 8-13					
33									
34	18	24/23	34-36	7-13 20-25					
35									
36	19	24/20	36-38	4-11 18-26		Light gray to light brownish-gray, fine grained SAND, trace Silt, very well sorted, moist (SP). Changing 37.1 feet to: Light gray, fine to medium SAND, trace Silt, well sorted, moist (SP).			
37									
38	20	24/23	38-40	4-7 12-15		Very pale brown to light yellowish-brown, SILT, little Clay, slightly plastic, coheisve, well sorted, moist (ML). Changingn at 38.2 feet to: Yellowish-brown, CLAY & SILT, plastic, cohesive, moderately well sorted, moist (CL). Changing at 38.4 feet to: Very pale, brown to light yellowish-brown, SILT, little Clay, slightly plastic, cohesive,	38' 38.2' SILT (ML) 38.4' CLAY & SILT (CL) 38.7' SILT (ML) 38.9' CLAY & SILT (CL) SILT (ML) 40'		
39									

REMARKS

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Boring No.: SB-1/MW-1D

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Boring No.: SB-1/MW-1D
Page: 4 **of** 13
File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	21	24/20	40-42	5-10 14-14		moderately well sorted, moist (ML). Changing at 38.7 feet to: Yellowish-brown, CLAY & SILT, plastic, cohesive, moderately well sorted, moist (CL). Changing at 38.9 feet to: Very pale brown to light yellowish-brown, SILT, little Clay, slightly plastic, cohesive, well sorted, moist (ML).	40.2' CLAY & SILT (CL) 40.5' SILT (ML) CLAY & SILT (CL) 41' SAND (SP)		
41									
42	22	24/18	42-44	5-5 11-13		Light yellowish-brown, CLAY & SILT, slight plastic, cohesive, very well sorted, moist (CL). Changing at 40.2 feet to: Very pale brown to yellowish-brown, SILT, little Clay, slightly plastic, coheisive, well sorted, moist (ML). Changing at 40.5 feet to: Light yellowish-brown, CLAY & SILT, slight plastic, cohesive, very well sorted, moist (CL). Changing at 41.0 feet to: Very pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP).	42.2' 42.4' SILT (ML) SAND (SP)		
43									
44	23	24/20	44-46	10-10 15-22		Very pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Changing at 42.2 feet to: Light yellowish-brown, SILT, trace Clay, slightly plastic, cohesive, well sorted, moist (ML).Changing at 42.4 feet to: Very pale, brown, fine grained SAND, trace Silt, very well sorted, moist (SP).			
45							45.3'		
46	24	24/20	46-48	4-13 16-21		Very pale, brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Changing at 45.3 feet to: Brown to yellowish-brown, CLAY & SILT, plastic, cohesive, very well sorted, moist (CL). Changing at 45.6 feet to: Very pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP).	45.6' CLAY (CL) SAND (SP)		
47									
48	25	24/17	48-50	5-12 23-28		Very pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Very pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP).			
49									
50	26	24/20	50-52	4-6 15-17		Very pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Changing at 51.2 feet to: Yellowish-brown, SILT, trace Clay, cohesive, non to slightly plastic, very well sorted (bedded), moist (ML).Changing at 51.7 feet to: Very pale brown, fine grained SAND, trace Silt, very well sorted, moist, with occasional very thin Silt seams (SP).			
51							51.2' SILT (ML) 51.7' SAND (SP)		
52	27	24/16	52-54	7-12 16-21		Very pale brown, fine grained SAND, trace Silt, very well sorted, moist, with occasional very thin Silt seams (SP).			
53									

REMARKS

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Boring No.: SB-1/MW-1D

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
55	28	24/20	54-56	5-11 17-26		Very pale brown, fine grained SAND, trace Silt, very well sorted, moist, with occasional very thin Silt seams (SP). Changing at 54.2 feet to: Very pale brown, fine grained SAND, little Silt, very well sorted, moist (SP).	54.2' SAND (SM)		
56	29	24/23	56-58	4-9 16-20		Light yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, moist (SP). Changing at 56.3 feet to: Very pale brown, fine grained SAND, little Silt, very well sorted, moist (SM).	56' 56.3' SAND (SP) SAND (SM)		
58	30	24/24	58-60	9-13 18-24		Very pale brown, fine grained SAND, little Silt, very well sorted, moist (SM). Changing at 59.0 feet to: Brown, fine grained SAND, some Silt, very well sorted, moist to wet (SM).			
60	31	24/22	60-62	11-13 22-28		Brown, fine grained SAND, little Silt, non plastic, moderately cohesive, very well sorted, moist (SP).			
62	32	24/22	62-64	6-6 11-14		Brown, fine grained SAND, little Silt, non plastic, moderately cohesive, very well sorted, moist (SM). Changing at 62.7 feet to: Brown, fine to medium grained SAND, trace Silt, grading fine with depth, well sorted, damp (SP). Changing at 63.0 feet to: Brown, fine grained SAND, trace Silt, very well sorted, damp (SP).	62.7' 63' SAND (SP) SAND (SM)		
64	33	24/20	64-66	11-3 6-11		Brown, fine to medium grained SAND, trace Silt, grading fine with depth, well sorted, damp (SP). Changing at 65.0 feet to: Brown, fine grained SAND, some Silt, very well sorted, damp (SM). Changing at 65.1 feet to: Brown, fine to medium grained SAND, trace Silt, grading fine with depth, well sorted, wet (SP). Changing at 65.6 feet to: Brown, CLAY & SILT, plastic, cohesive, well sorted, moist (CL).	64' SAND (SP) 65' 65.1' SAND (SM) SAND (SP) 65.6' CLAY & SILT		
66	34	24/24	66-68	5-11 12-14		Brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP). Changing at 67.0 feet to: Yellowish-brown, fine to medium grained SAND, little Silt, very well sorted wet (SP).	66' (CL) SAND (SP) 67' SAND (SM)		

REMARKS

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File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	35	24/13	68-70	2-4 7-13		Yellowish-brown, fine to medium grained SAND, little Silt, very well sorted wet (SP).	SAND (SM)		
69									
70	36	24/18	70-72	2-6 12-16		Yellowish-brown, fine to medium grained SAND, little Silt, very well sorted wet (SP).			
71									
72	37	24/23	72-74	3-3 5-9		Brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP). Changing at 73.1 feet to: Brown, CLAY & SILT, slightly plastic, moderately cohesive, well sorted, moist to wet (CL).	72' SAND (SP) 73.1' CLAY & SILT (CL)		
73									
74	38	24/20	74-76	2-1 2-2		Brown, CLAY & SILT, slightly plastic, moderately cohesive, well sorted, moist to wet (CL).			
75									
76	39	24/19	76-78	2-5 8-11		Brown, CLAY & SILT, slightly plastic, moderately cohesive, well sorted, moist to wet (CL).			
77									
78	40	24/23	78-80	2-4 5-10		Brown, CLAY & SILT, slightly plastic, moderately cohesive, well sorted, moist to wet (CL). Changing at 79.3 feet to: Yellowish-brown, CLAY & SILT, plastic, cohesive, well sorted, moist (CL). Changing at 79.4 feet to: Yellowish-brown, medium to coarse grained SAND, trace Silt, moderately well sorted, wet (SW).			
79							79.4' SAND (SW)		
80	41	24/22	80-82	2-4 6-7		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).	80' SAND (SP)		
81									
							82'		

REMARKS

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Boring No.: SB-1/MW-1D

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
83	42	24/24	82-84	2-5 11-12		Yellowish-brown, medium to coarse grained SAND, trace Silt, well sorted, wet (SW). Changing at 82.4 feet to: Yellowish-brown, medium to coarse grained SAND, trace Silt, poorly sorted, wet (SW). Changing at 83.2 feet to: Yellowish-brown to gray, GRAVEL, some coarse grained Sand, trace Silt, poorly sorted, wet (GW). Changing at 83.4 feet to: Yellowish-brown, CLAY & SILT, plastic, coheisve, well sorted, moist (CL). Changing at 83.5 feet to: Yellowish-brown to gray, GRAVEL, some coarse grained Sand, trace Silt, poorly sorted, wet (GW). Changing at 83.7 feet to: Yellowish-brown, fine to medium SAND, trace Silt, trace Gravel, well sorted, wet (SP).	SAND (SW) 82.4' SAND (SW) 83.4' 83.5' CLAY & SILT (CL) 83.7' GRAVEL (GW) SAND (SP)		
84	43	24/23	84-86	3-6 11-14					Grout
85							84.7' GRAVEL (GW) 85.2' SAND (SP)		
86	44	24/24	86-88	3-4 9-15		Yellowish-brown, fine to medium SAND, trace Silt, trace Gravel, well sorted, wet (SP). Changing at 84.7 feet to: Yellowish-brown to gray, GRAVEL, some coarse to medium grained Sand, trace Silt, poorly sorted, wet (GW). Changing at 85.2 feet to: Yellowish-brown, fine grained SAND, trace Silt, very well sorted, wet (SP).			
87							87.2' SAND (SW)		
88	45	24/16	88-90	3-5 8-12		Yellowish-brown, fine grained SAND, trace Silt, very well sorted, wet (SP). Changing at 87.2 feet to: Yellowish-brown, coarse grained SAND, some Gravel, trace Silt, very well sorted, wet (SW).			
89						Yellowish-brown, medium to coarse grained SAND, some Gravel, trace Silt, poorly sorted wet (SW).			
90	46	24/22	90-92	3-4 7-11		Yellowish-brown, fine to medium SAND, trace Silt, moderately sorted, wet (SP). Changing at 91.6 feet to: Dark grayish-brown, CLAY & SILT, plastic, cohesive, well sorted, moist (CL). Changing at 91.7 feet to: Yellowish-brown, medium to coarse grained SAND, trace Silt, trace Gravel, grading finer with depth, well sorted, wet (SW).	90' SAND (SP)		
91							91.6' 91.7' CLAY & SILT (CL) SAND (SW)	1	
92	47	24/1	92-94	5-7 12-13		Yellowish-brown, medium to coarse grained SAND, trace Silt, trace Gravel, grading finer with depth, well sorted, wet (SW).			
93									
94	48	24/4	94-96	5-7 9-10		Yellowish-brown, medium to coarse grained SAND, trace Silt, trace Gravel, grading finer with depth, well sorted, wet (SW).			
95									

REMARKS

1. Groundwater was encountered at approximately 91.7 feet below ground surface.

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Boring No.: SB-1/MW-1D

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Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	49	24/8	96-98	2-3 6-12		Yellowish-brown, medium to coarse grained SAND, trace Silt, trace Gravel, grading finer with depth, well sorted, wet (SW).	SAND (SW)		
97									
98	50	24/11	98-100	2-3 10-12		Yellowish-brown, medium to coarse grained SAND, trace Silt, trace Gravel, grading finer with depth, well sorted, wet (SW).			
99									
100	51	24/23	100-102	3-4 9-13		Yellowish-brown, medium to coarse grained SAND, trace Silt, trace Gravel, grading finer with depth, well sorted, wet (SW). Changing at 101.8 feet to: Dark yellowish-brown to yellowish-brown, CLAY & SILT, moderately plastic, cohesive, well sorted, moist (CL).			
101							101.8'		
102	52	24/11	102-104	1-1 3-9		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).	102 CLAY & SILT (CL) SAND (SP)		
103									
104	53	24/11	104-106	4-4 15-26		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).			
105									
106	54	24/11	106-108	1-5 15-30		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).			
107									
108	55	24/10	108-110	4-9 25-32		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).			
109									

REMARKS

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Boring No.: SB-1/MW-1D

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	56	24/10	110-112	4-9 20-31		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).	SAND (SP)		
111									
112	57	24/8	112-114	2-5 14-27		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).			
113									
114	58	24/11	114-116	2-4 10-28		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).			
115									
116	59	24/14	116-118	4-10 25-40		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).			
117									
118	60	24/10	118-120	3-7 21-25		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).			
119									
120	61	24/16	120-122	4-7 14-31		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).			
121									
122	62	24/14	122-124	3-6 22-32		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).			
123									

REMARKS

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Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
	63	24/19	124-126	5-13 29-45		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).	SAND (SP)		
125									
126	64	24/1	126-128	1-5 18-34		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).			
127									
128	65	24/24	128-130	6-18 34-48		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).			
129									
130	66	24/23	130-132	5-10 28-46		Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP). Changing at 131.5 feet to: Yellowish-brown, medium to coarse grained SAND, trace Silt, moderately sorted, wet (SW). Changing at 131.7 feet to: Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).			
131									
132	67	24/23	132-134	5-15 30-45		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).			
133									
134	68	24/24	134-136	3-5 21-31		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).			
135									
136	69	24/11	136-138	6-16 29-43		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).			
137									

REMARKS

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Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
	70	24/6	138-140	2-3 13-33		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).	SAND (SP)		
139									
140	71	24/11	140-142	2-4 9-27		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).			
141									
142	72	24/14	142-144	3-10 25-42		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).			
143									
144	73	24/20	144-146	9-25-50/5"		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).			
145									
146	74	24/18	146-148	6-27 52-53		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).			
147									
148	75	24/12	148-150	9-34 48-50/3"		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).			
149									
150	76	24/0	150-152	6-11 26-29		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).			
151									

REMARKS

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Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
	77	24/24	152-154	2-8 26-31		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).	SAND (SP)		
153									
154	78	24/20	154-156	5-12 28-43		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).			
155									
156	79	24/1	156-158	3-6 18-21		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).			
157									
158	80	24/24	158-160	7-8 19-25		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).			
159									
160	81	24/7	160-162	3-10 21-29		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).			
161									
162	82	24/0	162-164	4-11 25-32		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).			
163									
164	83	24/6	164-166	1-14 34-45		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).			
165									

REMARKS

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Boring No.: SB-1/MW-1D

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
167	84	24/24	166-168	9-29 51-50/3"		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).	SAND (SP)		
168	85	24/13	168-170	3-6 18-34		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).			
169									
170	86	24/1	170-172	5-6 19-44		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).			Top of Well Screen
171									Silica Sand Filter Pack
172	87	24/16	172-174	2-4 7-14		Yellowish-brown, fine to medium grained SAND, little Silt, trace Gravel, well sorted, wet (SP).	172' SAND (SM)		
173									2-Inch Dia. 5-Foot PVC Screen (0.010" Slot)
174	88	24/24	174-176	8-13 21-23		Yellowish-brown, fine to medium grained SAND, little Silt, very well sorted, wet (SP). Changing at 174.7 feet to: Yellowish-brown, SILT, trace Clay, non plastic, cohesive, very well sorted (bedded), moist (ML). Changing at 175.5 feet to: Yellowish-brown, SILT, trace Clay, moderately plastic, cohesive, very well sorted (bedded), wet (ML).	174.7' SILT (ML)		
175									Bottom of Well Screen
176						Bottom of Borehole at 176.0 Feet	176'	2	
177									
178									
179									

REMARKS

2. Monitoring well was installed in borehole upon completion. Well screen set from approximately 170.1 to 174.7 feet below ground surface.

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Boring No.: SB-2/MW-2S
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Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jerry Huntoon
Logged by: John Morehouse
Date Start/Finish: 9-11-17 / 9-11-17
Boring Location:
GS Elev.: 797.60' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/18	0-2	7-8 8-10		Dark brown to yellowish-brown, SILT & CLAY, some Sand, plastic, cohesive, poorly sorted, moist (CL).	CLAY & SILT (CL)		PROTECTIVE CASING; Backfill/Cement Pad
2	2	24/23	2-4	8-8 9-9		Dark brown to yellowish-brown, SILT & CLAY, some Sand, plastic, cohesive, poorly sorted, moist (CL).			
4	3	24/22	4-6	5-6 7-7		Dark brown to yellowish-brown, CLAY & SILT, some Sand, plastic, cohesive, poorly sorted, moist (CL). Changing at 4.6 feet to: Brown to grayish-brown, SILT, some fine grained Sand, trace Clay, non to slightly plastic, slightly cohesive, moderately sorted moist (ML). Changing at 5.1 feet to: Yellowish-brown to brown, CLAY & SILT, some Sand, moderately plstic, cohesive, moderately sorted, moist (CL).	4.6' SILT (ML) 5.1' CLAY & SILT (CL)		
6	4	24/22	6-8	4-5 5-6		Yellowish-brown to brown, CLAY & SILT, some Sand, moderately plstic, cohesive, moderately sorted, moist (CL).			
8	5	24/17	8-10	2-4 6-6		Yellowish-brown to brown, CLAY & SILT, some Sand, moderately plastic, cohesive, moderately sorted, moist (CL). Changing at 9.0 feet to: Dark yellowish-brown, fine to medium SAND, trace Silt, moderately sorted moist (SP).	9' SAND (SP)		
10	6	24/17	10-12	3-4 4-4		Mottled dark yellowish-red to dark reddish-brown to dark brown to dark grayish-brown, SILT, some fine grained SAND, moderately sorted, moist (ML). Changing at 10.5 feet to: Yellowish-brown to pale brown, fine to medium SAND, trace Silt, well sorted, moist (SP).	10' SILT (ML) 10.5' SAND (SP)		

REMARKS

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Boring No.: SB-2/MW-2S

BORING_WELL_6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
13	7	24/17	12-14	2-2 3-4		Yellowish-brown to pale brown, fine to medium SAND, trace Silt, well sorted, moist (SP).	SAND (SP)		
14	8	24/22	14-16	2-2 3-5		Yellowish-brown to pale brown, fine to medium SAND, trace Silt, well sorted, moist (SP). Changing at 15.2 feet to: Soft, Dark brown, CLAY & SILT, plastic, cohesive, moderately sorted, moist (CL). Changing at 15.3 feet to: Yellowish-brown to pale brown, fine to medium grained SAND, trace Silt, well sorted, moist (SP).	15.2' 15.3' CLAY & SILT (CL) SAND (SP)		
16	9	24/24	16-18	4-5 6-6		Yellowish-brown to pale brown, fine to medium grained SAND, trace Silt, well sorted, moist (SP). Changing at 16.6 feet to: Yellowish-brown, CLAY & SILT, plastic, cohesive, moderately sorted, moist (CL).	16.6' CLAY & SILT (CL)		
18	10	24/14	18-20	4-5 8-10		Yellowish-brown, CLAY & SILT, plastic, cohesive, moderately sorted, moist (CL). Changing at 18.6 feet to: Yellowish-brown, fie to coarse grained SAND, some Gravel, trace Silt, poorly sorted, moist SW). Changing at 19.0 feet to: Yellowish-brown, CLAY & SILT, plastic, cohesive, moderately sorted, moist (CL). Changing at 19.3 feet to: Yellowish-brown, fine grained SAND, some Silt, non plastic, moderately cohesive, well sorted, moist (SM).	18.6' SAND (SW) 19' 19.3' CLAY & SILT (CL) SAND (SM)		
20	11	24/24	20-22	4-5 8-10			20' CLAY & SILT (CL)		
22	12	24/16	22-24	2-3 5-6		Dark yellowish-brown to yellowish-brown, SILT & CLAY, moderately plastic, cohesive, well sorted, moist (CL). Changing at 21.7 feet to: Light gray to light brownish-gray, fine grained SAND, trace Silt, very well sorted, moist (SP). Dark yellowish-brown to yellowish-brown, SILT & CLAY, moderately plastic, cohesive, well sorted, moist (CL). Changing at 22.4 feet to: Light yellowish-brown to pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).	21.7' 22' SAND (SP) CLAY & SILT 22.4' (CL) SAND (SP)		
24	13	24/16	24-26	4-6 6-6		Light yellowish-brown to pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			
25									

REMARKS

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
27	14	24/20	26-28	4-5 6-6		Light yellowish-brown to pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).	SAND (SP)		
28	15	24/18	28-30	6-7 12-12		Light yellowish-brown to pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			
29									
30	16	24/22	30-32	7-9 11-13		Light yellowish-brown to pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP). Changing at 31.7 feet to: Light yellowish-brown, fine to medium grained SAND, trace Gravel, trace Silt, moderately well sorted, moist (SP).			
31									
32	17	24/18	32-34	7-7 7-8		Light yellowish-brown to yellowish-brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Changing at 32.2 feet to: Pale brown to very pale brown, fine to coarse grained SAND, some Gravel, trace Silt, poorly sorted, moist (SW).	32.2' SAND (SW)		
33									
34	18	24/20	34-36	13-38 31-18		Pale brown, fine to coarse grained SAND, some Gravel, trace Silt, poorly sorted, moist (SW).			
35									
36	19	24/20	36-38	2-4 7-8		Very pale brown, fine grained SAND, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP).	36' SAND (SP)		
37									Grout
38	20	24/19	38-40	2-3 6-7		Very pale brown, fine grained SAND, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP).			
39									

REMARKS

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Boring No.: SB-2/MW-2S

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	21	24/20	40-42	5-7 9-13		Very pale brown, fine grained SAND, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP).	SAND (SP)		
41									
42	22	24/19	42-44	4-6 9-11		Very pale brown, fine grained SAND, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP).			
43									
44	23	24/22	44-46	5-8 10-13		Very pale brown, fine grained SAND, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP).			
45									
46	24	24/22	46-48	3-5 8-13		Very pale brown, fine grained SAND, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP).			
47									
48	25	24/23	48-50	5-7 9-10		Very pale brown, fine grained SAND, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP).			
49									
50	26	24/22	50-52	6-7 12-13		Very pale brown, fine grained SAND, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP).			
51									
52	27	24/20	52-54	5-9 11-13		Very pale brown, fine grained SAND, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP). Changing at 52.8 feet to: Yellowish-brown, CLAY & SILT, well sorted, moist (CL). Changing at 52.9 feet to: Very pale brown, fine grained SAND, trace Silt, very well sorted, moist (SP).	52.8' 52.9' CLAY & SILT (CL) SAND (SP) 54'		
53									

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: SB-2/MW-2S

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Engineers and Scientists

Wolverine World Wide, Inc.
1855 House Street NE
Belmont, Michigan

Boring No.: SB-2/MW-2S
Page: 5 **of** 7
File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
55	28	24/22	54-56	5-9 13-13		Yellowish-brown, fine to coarse grained SAND, trace Gravel, trace Silt, poorly sorted, moist (SW). Changing at 55.0 feet to: Very pale brown grading to yellowish-brown, fine grained SAND, little Silt, grading to fine to medium grained Sand, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP).	SAND (SW) 55' SAND (SM)		
56	29	24/22	56-58	3-5 11-14		Very pale brown grading to yellowish-brown, fine grained SAND, little Silt, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP).			
58	30	24/20	58-60	8-12 15-20		Very pale brown grading to yellowish-brown, fine grained SAND, little Silt, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP).			
60	31	24/20	60-62	5-9 10-11		Very pale brown grading to yellowish-brown, fine grained SAND, little Silt, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP).			
62	32	24/22	62-64	8-11 14-15		Very pale brown grading to yellowish-brown, fine grained SAND, little Silt, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP).			
64	33	24/18	64-66	2-4 8-14		Very pale brown grading to yellowish-brown, fine grained SAND, little Silt, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP).			
66	34	24/18	66-68	6-14 17-18		Very pale brown grading to yellowish-brown, fine grained SAND, little Silt, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP).			

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: SB-2/MW-2S

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File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	35	24/18	68-70	5-14 19-24		Very pale brown grading to yellowish-brown, fine grained SAND, little Silt, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP). Changing at 69.3 feet to: Light yellowish-brown, fine to coarse grained SAND, trace Silt, moderately sorted, moist (SW). Changing at 69.4 feet to: Very pale brown grading to yellowish-brown, fine grained SAND, little Silt, grading to fine to medium grained Sand, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP).	SAND (SM)		
69							69.3'		
							69.4 SAND (SW)		
70	36	24/16	70-72	4-10 17-19			SAND (SP)		
71						Very pale brown grading to yellowish-brown, fine grained SAND, little Silt, grading to fine to medium grained Sand, trace Silt, very well sorted, moist with occasional trace Gravel, moist (SP).			
72	37	24/18	72-74	6-14 24-23		Brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).			
73									
74	38	24/23	74-76	2-3 5-10		Brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP). Changing at 75.5 feet to: Brown, fine to coarse grained SAND, trace Silt, trace Gravel, poorly sorted, wet (SW).			
75							75.5'		
							SAND (SW)		
76	39	24/18	76-78	2-8 14-20		Brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).			
77									
78	40	24/18	78-80	3-7 10-18		Brown, fine to coarse grained SAND, trace Silt, trace Gravel, poorly sorted, wet (SW).			Top of Well Screen Silica Sand Filter Pack
79									
80	41	24/18	80-82	3-9 9-19		Brown, fine to coarse grained SAND, trace Silt, trace Gravel, poorly sorted, wet (SW). Changing at 80.7 feet to: Brown, fine to medium SAND, trace Silt, trace Gravel, moderately well sorted, wet (SW).			
81							80.7'		2-Inch Dia. 5-Foot PVC Screen (0.010" Slot)
							SAND (SP)		
							82'		

REMARKS

1. Groundwater was not encountered during drilling or upon completion.
2. Monitoring well was installed in borehole upon completion. Well screen set from approximately 78.5 to 83.1 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: SB-2/MW-2S

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Boring No.: SB-2/MW-2S
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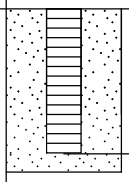
File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
						Bottom of Borehole at 82.0 Feet		1 2	 Bottom of Well Screen
83									
84									
85									
86									
87									
88									
89									
90									
91									
92									
93									
94									
95									

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: SB-2/MW-2S

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Boring No.: SB-3/MW-3S
Page: 1 **of** 6
File No.: 16.0062335.52
Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jerry Huntoon
Logged by: John Morehouse
Date Start/Finish: 9-12-17 / 9-12-17
Boring Location:
GS Elev.: 788.10' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

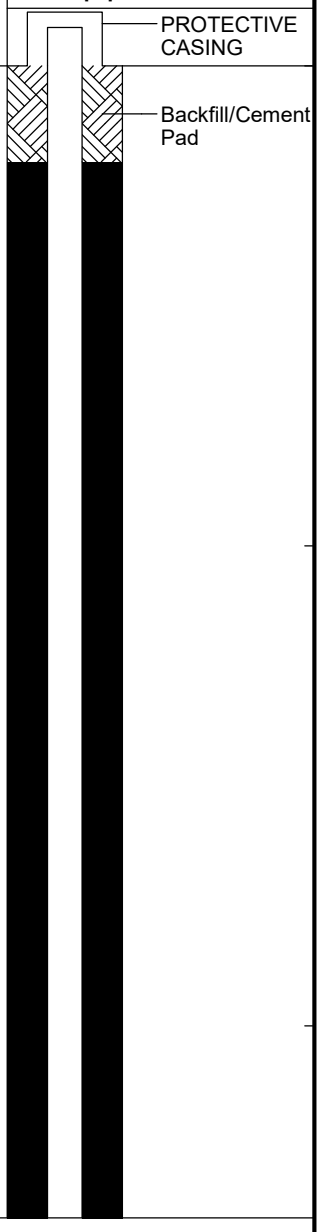
GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks
1	1	24/21	0-2	5-6 6-7	0.0 ppm >4.0 tsf	Hard, brown, CLAY, trace Silt, trace fine Sand, dry (CL).	CLAY (CL)	1 2
2	2	24/21	2-4	7-5 5-4	0.0 ppm	Loose, dark brown, yellowish brown, fine SAND, trace Silt, damp (SP).	2' SAND (SP)	
4	3	24/14	4-6	3-2 2-3	0.0 ppm	Loose, dark yellowish brown, fine SAND, trace Silt, damp (SP) Changing at 5.2 feet to: Loose, dark yellowish-brown, fine SAND, little Gravel, trace Silt, damp (SP).		
6	4	24/21	6-8	2-5 5-5		Loose, yellowish-brown, well sorted, fine SAND, damp (SP). Changing at 7.8 feet to: Loose, pale brown, fine SAND, damp (SP).		
8	5	24/21	8-10	1-4 5-7		Loose, pale brown, well sorted, fine SAND, trace Silt, damp (SP).		
10	6	24/20	10-12	4-5 6-7		Loose, pale brown, well sorted, fine SAND, trace Silt, damp (SP).		

Equipment Installed



REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Pocket penetrometer readings were measured in tons per square foot (tsf) and are used to evaluate consistency of cohesive soil.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: SB-3/MW-3S

BORING_WELL_6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	7	24/20	12-14	3-5 5-5		Loose, pale brown, well sorted, fine SAND, trace Silt, damp (SP).	SAND (SP)		
13									
14	8	24/20	14-16	4-5 5-5		Loose, pale brown, well sorted, fine SAND, trace Silt, damp (SP).			
15									
16	9	24/24	16-18	2-5 9-10	>4.0 tsf	Loose, pale brown, well sorted, fine SAND, trace Silt, damp (SP). Changing at 16.2 feet to: Hard, brown, CLAY, trace Silt, damp (CL). Changing at 17.8 feet to: Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).	16.2' CLAY (CL)		
17							17.8' SAND (SP)		
18	10	24/24	18-20	2-6 7-9		Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). Changing at 18.2 feet to: Brown, CLAY, trace Silt, damp (CL). Changing at 19.0 feet to: Medium dense, brown, well sorted, fine to medium SAND, trace Silt, moist (SP).	18.2' CLAY (CL)		
19							19' SAND (SP)		
20	11	24/24	20-22	5-6 7-10	>4.0 tsf	Hard, brown, CLAY, trace Silt, damp (CL). Changing at 20.5 feet to: Medium dense, brown, well sorted, fine to medium SAND, trace Silt, moist (SP). Changing at 21.5 feet to: Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).	20' CLAY (CL)		
21							20.5' SAND (SP)		
22	12	24/22	22-24	4-4 5-6		Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). Changing at 23.5 feet to: Medium dense, pale brown, well sorted, fine SAND, some Silt, wet (SM).			
23							23.5' SAND (SM)		
24	13	24/22	24-26	4-4 5-6		Medium dense, pale brown, well sorted, fine SAND, some Silt, wet (SM). Changing at 25.3 feet to: Hard, light gray and brown mottled, CLAY, trace Silt, moist (CL). Changing at 25.9 feet to: Loose, pale brown, well sorted, fine SAND, trace Silt, moist (SP).			
25							25.3' CLAY (CL)		
							25.9'		

REMARKS

3. Double cased from 0.0 to 25.0 feet during drilling.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
27	14	24/20	26-28	2-2 6-8	>4.0 tsf	Loose, pale brown, well sorted, fine SAND, trace Silt, moist (SP).	SAND (SP)	3	
28	15	24/20	28-30	6-10 10-11		Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).			
30	16	24/20	30-32	2-4 9-10		Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).			
32	17	24/21	32-34	5-12 13-20		Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).			
34	18	24/19	34-36	8-16 28-40		Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).			Grout
36	19	24/21	36-38	18-18 19-31		Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).			
38	20	24	38-40			Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			

REMARKS

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Boring No.: SB-3/MW-3S

BORING_WELL_6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Boring No.: SB-3/MW-3S
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File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	21	24	40-42			Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).	SAND (SP)		
41									
42	22	24	42-44			Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
43									
44	24	24	44-46			Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
45									
46	26	24	46-48			Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
47									
48	27	24	48-50			Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
49									
50	28	24	50-52			Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
51									
52	30	24	52-54			Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
53									

REMARKS

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Boring No.: SB-3/MW-3S

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	31	24	54-56			Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).	SAND (SP)		
55									
56	32	24	56-58			Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
57									
58	33	24	58-60			Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
59									
60	34	24	60-62			Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
61									
62	35	24	62-64			Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP). Changing at 63.0 feet to: Light yellowish-brown to yellowish-brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
63									
64	36	24	64-66			Yellowish-brown, fine to medium SAND, trace Silt, very well sorted, wet (SP).		4	
65									
66	37	24	66-68			Yellowish-brown, fine to medium SAND, trace Silt, very well sorted, wet (SP). Changing at 67.0 feet to: Yellowish-brown, fine to medium SAND, some Silt, very well sorted, wet (SM). Changing at 67.2 feet to: Yellowish-brown, fine to medium SAND, trace Silt, very well sorted, wet (SP).			
67							67' 67.2'SAND (SM) SAND (SP)		

REMARKS

4. Groundwater was encountered at approximately 64.0 feet below ground surface.

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Boring No.: SB-3/MW-3S
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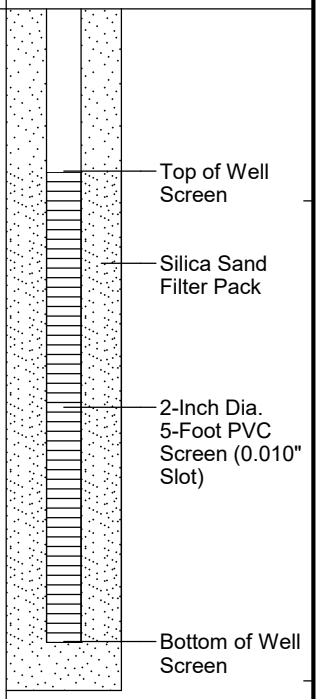
File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
69	38	24	68-70			Yellowish-brown, fine to medium SAND, trace Silt, very well sorted, wet (SP).	SAND (SP)		
70	39	24	70-72			Yellowish-brown, fine to medium SAND, trace Silt, very well sorted, wet (SP).			
71									
72	40	24	72-74			Yellowish-brown, fine to medium SAND, trace Silt, very well sorted, wet (SP). Changing at 73.8 feet to: Yellowish-brown, fine to medium SAND, some Silt, well sorted, wet (SM).			
73									
74	41	24	74-76			Yellowish-brown, fine to medium SAND, some Silt, well sorted, wet (SM).	73.8' SAND (SM)		
75									
76						Bottom of Borehole at 76.0 Feet	76'	5	
77									
78									
79									
80									
81									



REMARKS

5. Monitoring well was installed in borehole upon completion. Well screen set from approximately 69.7 to 74.6 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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Boring No.: SB-3P/MW-3P
Page: 1 **of** 2
File No.: 16.0062335.52
Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jerry Huntoon
Logged by: John Morehouse
Date Start/Finish: 9-12-17 / 9-12-17
Boring Location:
GS Elev.: 787.50' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
0						See SB-3/MW-3S boring log for detailed soil descriptions.			PROTECTIVE CASING
1									Backfill/Cement Pad
2									
3									
4									
5									
6									
7									
8									Bentonite/Grout
9									
10									
11									

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: SB-3P/MW-3P

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Boring No.: SB-3P/MW-3P
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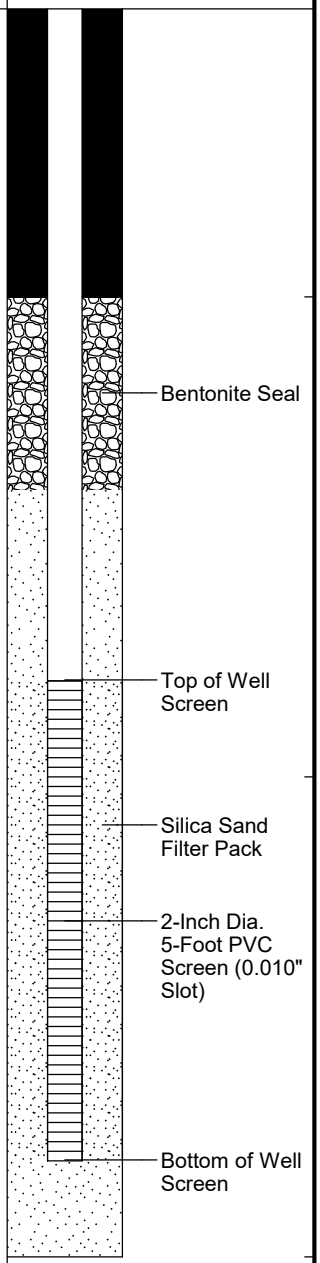
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
23	1	24/24	23-25	3-4 7-9		Medium dense, brown, well sorted, fine SAND, trace Silt, wet (SP). Changing at 24.3 feet to: Hard, gray and brown mottled, CLAY, trace Silt, damp (CL).	SAND (SP)		
24					>4.0 tsf		24.3' CLAY (CL)	1	
25						Bottom of Borehole at 25.0 Feet	25'	2	



REMARKS

1. Pocket penetrometer readings were measured in tons per square foot (tsf) and are used to evaluate consistency of cohesive soil.
2. Monitoring well was installed in borehole upon completion. Well screen set from approximately 19.0 to 24.0 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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Boring No.: SB-4/MW-4S
Page: 1 **of** 6
File No.: 16.0062335.52
Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jerry Huntoon
Logged by: John Morehouse
Date Start/Finish: 9-12-17 / 9-12-17
Boring Location:
GS Elev.: 782.30' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/14	0-2	1-1 1-1	0.0 ppm	Very loose, yellowish- brown, well sorted, fine SAND, some Organic Matter (roots), trace Silt, dry (SP).	SAND	1	PROTECTIVE CASING; Backfill/Cement Pad
2	2	24/14	2-4	1-2 2-2	0.0 ppm	Loose, pale brown, well sorted, fine SAND, damp (SP).			
4	3	24/13	4-6	2-2 4-5	0.1 ppm	Loose, pale brown, well sorted, fine SAND, damp (SP).			
6	4	24/14	6-8	2-3 5-7	0.0 ppm	Loose, pale brown, well sorted, fine SAND, damp (SP).			
8	5	24/14	8-10	3-3 5-7	0.0 ppm	Loose, pale brown, well sorted, fine SAND, damp (SP).			
10	6	24/21	10-12	5-5 7-8	0.0 ppm >4.0 tsf	Loose, pale brown, well sorted, fine SAND, damp (SP). Changing at 11.0 feet to: Hard, gray and brown mottled, CLAY, trace Silt, damp (CL).	11' CLAY (CL)	2	

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Pocket penetrometer readings were measured in tons per square foot (tsf) and are used to evaluate consistency of cohesive soil.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	7	24	12-14	5-6 7-7	0.0 ppm >4.0 tsf	Hard, gray and brown mottled, CLAY, trace Silt, damp (CL). Changing at 13.0 feet to: Medium dense, pale brown and brown mottled, well sorted, fine SAND, trace Silt, damp (SP).	CLAY (CL) 13' SAND (SP)		
14	8	24/24	14-16	2-2 3-2	0.0 ppm	Loose, yellowish-brown, well sorted, fine SAND, trace Silt, damp (SP).			
16	9	24/18	16-18	1-1 1-3	0.0 ppm	Loose, yellowish-brown, well sorted, fine SAND, trace Silt, damp (SP). Changing at 17.8 feet to: Loose, yellowish-brown, well sorted, fine GRAVEL, trace Silt, damp (GW).	18'		
18	10	24/16	18-20	2-3 6-7	0.0 ppm	Loose, yellowish-brown, well sorted, fine GRAVEL, trace Silt, damp (GW). Changing at 19.0 feet to: Medium dense, yellowish-brown, well sorted, fine SAND, trace Silt, damp (SP).	GRAVEL (GW) 19' SAND (SP)		
20	11	24/15	20-22	6-7 9-9	0.0 ppm	Medium dense, yellowish-brown, well sorted, fine SAND, trace Silt, damp (SP).			
22	12	24/24	22-24	4-8 8-10	0.0 ppm	Medium dense, yellowish-brown, well sorted, fine SAND, trace Silt, moist (SP). Changing at 23.9 feet to: Hard, brown, CLAY, damp (CL).	23.9'		
24	13	24/24	24-26	6-7 9-10	0.0 ppm >4.0 tsf	Hard, brown, CLAY, damp (CL).	CLAY (CL) 26'		
25									

REMARKS

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Boring No.: SB-4/MW-4S

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
27	14	24/0	26-28			NO RECOVERY.	NO RECOVERY		
28	15	24/16	28-30	5-9 11-15	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, trace Silt, damp (SP).	28' SAND (SP)		
29									
30	16	24/15	30-32	6-12 13-21	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, trace Silt, damp (SP).			
31									
32	17	24/17	32-34	4-18 31-39	0.0 ppm	Dense, pale brown, well sorted, fine SAND, trace Silt, damp (SP).			
33									Bentonite/Grout
34	18	24/17	34-36	7-10 15-19	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, trace Silt, damp (SP).			
35									
36	19	24/17	36-38	4-10 15-22	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, trace Silt, trace Gravel, damp (SP).			
37									
38	20	24/20	38-40	10-12 21-24	0.0 ppm	Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).			
39									

REMARKS

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Boring No.: SB-4/MW-4S

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	21	24/17	40-42	10-11 16-19	0.0 ppm	Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP). Encountered Rock at 40.2 feet.	SAND (SP)		
41									
42	22	24/19	42-44	7-11 17-25	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).			
43									
44	23	24/19	44-46	7-12 23-26	0.0 ppm	Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).			
45									
46	24	24/19	46-48	10-14 15-15	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).			
47									
48	25	24/20	48-50	8-14 36-49	0.0 ppm	Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).			
49									
50	26	24/24	50-52	18-37 47-47	0.0 ppm	Very dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).			
51									
52	27	24/21	52-54	33-29 52-50/3"	0.0 ppm	Very dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).			
53									

REMARKS

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
55	28	24/16	54-56	19-58-50/4"	0.0 ppm	Very dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).	SAND (SP)		
56	29	24	56-58			Light yellowish-brown to pale brown, very well sorted, fine to medium SAND, trace Silt, moist (SP).			
58	30	24	58-60			Light yellowish-brown to pale brown, very well sorted, fine to medium SAND, trace Silt, moist (SP). Changing at 59.6 feet to: Brown, very well sorted, fine to medium SAND, trace Silt, wet (SP).		3	
60	31	24	60-62			Brown, very well sorted, fine to medium SAND, trace Silt, wet (SP).			
62	32	24	62-64			Brown, very well sorted, fine to medium SAND, trace Silt, wet (SP).			
64	33	24	64-66			Brown, very well sorted, fine to medium SAND, trace Silt, wet (SP).			
66	34	24	66-68			Brown, very well sorted, fine to medium SAND, trace Silt, wet (SP).			Bentonite Seal
67									

REMARKS

3. Groundwater was encountered at approximately 59.6 feet below ground surface.

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Boring No.: SB-4/MW-4S

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
69	35	24	68-70			Brown, very well sorted, fine to medium SAND, trace Silt, wet (SP).	SAND (SP)		
70	36	24	70-72			Brown, very well sorted, fine to medium SAND, trace Silt, wet (SP).			
71									Top of Well Screen
72	37	24	72-74			Brown, very well sorted, fine to medium SAND, trace Silt, wet (SP).			Silica Sand Filter Pack
73									2-Inch Dia. 5-Foot PVC Screen (0.010" Slot)
74	38	24	74-76			Brown, very well sorted, fine to medium SAND, trace Silt, wet (SP).			
75									
76						Bottom of Borehole at 76.0 Feet	76'	4	Bottom of Well Screen
77									
78									
79									
80									
81									

REMARKS

4. Monitoring well was installed in borehole upon completion. Well screen set from approximately 71.1 to 75.7 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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Boring No.: SB-5/MW-5D
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Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jerry Huntoon
Logged by: Joe Workman/Adam Kittler
Date Start/Finish: 12-1-17 / 12-5-17
Boring Location:
GS Elev.: 779.10' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	17.5" / 12.0"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1–19						Blind drill from 0.0 to 20.0 feet. Cuttings observed to consist of brown, fine to medium SAND, trace Silt, damp (SP). See SB-5/MW-5S boring log detailed soil descriptions from 0.0 to 66.0 feet.	SAND (SP) (BLIND DRILL)		PROTECTIVE CASING
20	1	24/24	20-22	16/24"	2.5 tsf	Very stiff, gray, Silty CLAY, trace fine Sand, damp (CL).	20' Silty CLAY (CL)	1	
21–22						Blind drill from 22.0 to 69.0 feet.	22'	2 3	
23–29									

REMARKS

1. Pocket penetrometer readings were measured in tons per square foot (tsf) and are used to evaluate the consistency of cohesive soil.
2. Spoon driven to confirm depth of confining layer.
3. Double cased from 0.0 to 22.0 feet during drilling.

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Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									
41									
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									
61									
62									
63									
64									

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: SB-5/MW-5D

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
66									
67									
68									
69	34	24/20	69-71	5-7 9-10	0.0 ppm	Loose, brown, well sorted, fine SAND, trace wet (SP).	SAND (SP)	4	
70									
71									
72									
73									
74	35	24/13	74-76	7-9 12-17	0.0 ppm	Medium dense, brown, well sorted, fine SAND, trace Silt, moist (SP).			
75									
76									
77									
78									
79	36	24/18	79-81	1-3 4-9	0.0 ppm	Loose, pale brown, well sorted, fine SAND, trace Silt, moist (SP).			
80									
81									
82									
83									
84	37	24/6	84-86	2-5 11-11	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, trace Gravel, trace Silt, moist (SP).			
85									
86									
87									
88									
89	38	24/12	89-91	2-5 10-14	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, trace Gravel, trace Silt, moist (SP).			
90									
91									
92									
93									Bentonite/Grout
94	39	24/18	94-96	3-10 11-24	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).			
95									
96									
97									
98									
99	40	24/24	99-101	3-4 10-14	0.0 ppm	Medim dense, pale brown, well sorted, fine			

REMARKS

4. Field screening of samples for orgainc vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings above background levels are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: SB-5/MW-5D

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Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
101						SAND, trace Silt, trace Gravel, moist (SP).	SAND (SP)		
102									
103									
104	41	24/9	104-106	2-6 10-19	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).			
105									
106									
107									
108									
109	42	24/14	109-111	4-8 18-26	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, trace Silt, grace Gravel, moist (SP).			
110									
111									
112									
113									
114	43	24/8	114-116	5-9 16-22	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, trace Silt, trace Gravel, moist (SP).			
115									
116									
117									
118									
119	44	24/8	119-121	2-4 10-11	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).			
120									
121									
122									
123									
124	45	24/8	124-126	3-11 22-27	0.0 ppm	Dense, pale brown, well sorted, fine SAND, trace Silt, trace Gravel, moist (SP).			
125									
126									
127									
128									
129	46	24/24	129-131	3-8 17-31	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, trace Silt, trace Gravel, moist (SP).			
130									
131									
132									
133									
134	47	24/13	134-136	10-22-50/6"	0.0 ppm	Very dense, pale brown, well sorted, fine			

REMARKS

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
136						SAND, little Gravel, trace Silt, moist (SP).	SAND (SP)		
137									
138									
139	48	24/14	139-141	10-23 34-35	0.0 ppm	Very dense, pale brown, well sorted, fine SAND, little Gravel, trace Silt, moist (SP).			
140									
141									
142									
143									
144	49	24/6	144-146	4-7 14-21	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).			
145									
146									
147									
148									
149	50	24/5	149-151	1-3 8-17	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).			
150									
151									
152									
153									
154	51	24/3	154-156	4-22-50/6"	0.0 ppm	Very dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).			
155									
156									
157									
158									
159	52	24/18	159-161	10-21 29-34	0.0 ppm	Dense, pale brown, well sorted, fine SAND, trace Silt, moist (SP).			
160									
161									
162									
163									
164	53	24/12	164-166	8-11 11-11	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, trace Gravel, trace Silt, moist (SP).			
165									
166									
167									
168									
169	54	24/12	169-171	3-3 3-5	0.0 ppm	Loose, pale brown, well sorted, fine SAND,			

REMARKS

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Boring No.: SB-5/MW-5D

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
171						trace Silt, trace Gravel, moist (SP).	SAND (SP)		
172									
173									
174	55	24/10	174-176	1-1 1-2	0.0 ppm	Very loose, pale brown, well sorted, fine SAND, trace Silt, moist (SP).			
175									
176									
177									
178									
179	56	24/12	179-181	1-3 1-3	0.0 ppm	Very loose, pale brown, well sorted, fine SAND, trace Silt, trace Gravel, moist (SP).			
180									
181									
182									
183									
184	57	24/18	184-186	1-1 1-1	0.0 ppm	Very loose, pale brown, well sorted, fine SAND, little Gravel, trace Silt, moist (SP).			
185									
186									
187									
188									Top of Well Screen
189	58	24/12	189-191	1-3 10-21	0.0 ppm	Medium dense, pale brown, well sorted, fine SAND, little Gravel, trace Silt, moist (SP).			
190									
191									
192									Silica Sand Filter Pack
193									2-Inch Dia. 5-Foot PVC Screen (0.010" Slot)
194	59	24/8	194-196	32-38-50/4"	0.0 ppm	Very dense, pale brown, well sorted, fine SAND, little Gravel, trace Silt, trace Cobbles, moist (SP).			
195									
196									
197									
198	60	24/0	198-200	50/0"		NO RECOVERY.	198' NO RECOVERY		Bottom of Well Screen
199									
200						Bottom of Borehole at 200.0	200'	5	
201									
202									
203									
204									

REMARKS

5. Monitoring well was installed in borehole upon completion. Well screen set from approximately 188.0 to 198.0 feet below ground surface.

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Boring No.: SB-5/MW-5S
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Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jerry Huntoon
Logged by: John Morehouse
Date Start/Finish: 9-19-17 / 9-19-17
Boring Location:
GS Elev.: 778.80' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/19	0-2	6-5 8-9		Dark yellowish-brown, fine to coarse grained SAND, little Gravel, trace Silt, poorly sorted, dry to moist (FILL). Changing at 0.4 feet to: Light yellowish-brown, fine to coarse grained SAND, trace Silt, trace Gravel, moderately sorted, moist (FILL). Changing at 0.7 feet to: Very dark grayish-brown to dark yellowish-brown, fine grained SAND, some Silt, slightly cohesive, moderately sorted, moist (FILL). Changing at 1.2 feet to: Brownish-yellow grading to pale brown to very pale brown, fine grained SAND, trace Silt, well sorted, moist (SP).	SAND (FILL)		PROTECTIVE CASING
2	2	24/20	2-4	4-5 5-5			1.2' SAND (SP)		Backfill/Cement Pad
3									
4	3	24/18	4-6	2-3 3-4		Brownish-yellow grading to pale brown to very pale brown, fine grained SAND, trace Silt, well sorted, moist (SP). Changing at 3.2 feet to: Dark yellowish-brown to brown, fine to medium grained SAND, little Clay, little Silt, trace Gravel, slightly plastic, moderately cohesive, poorly sorted, moist (SC). Changing at 3.5 feet to: Dark yellowish-brown, CLAY & SILT, plastic, cohesive, modereately well sorted, moist (CL).	3.5' CLAY & SILT (CL)		
5									
6	4	24/19	6-8	2-2 2-3		Dark yellowish-brown, CLAY & SILT, plastic, cohesive, modereately well sorted, moist (CL). Light yellowish-brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).	6' SAND (SP)		
7									
8	5	24/17	8-10	2-2 3-4		Light yellowish-brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
9									
10	6	24/18	10-12	3-4 4-6		Light yellowish-brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
11						Light yellowish-brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: SB-5/MW-5S

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Wolverine World Wide, Inc.
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Belmont, Michigan

Boring No.: SB-5/MW-5S
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File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	7	24/23	12-14	2-3 5-9		Light yellowish-brown, fine to medium SAND, trace Silt, very well sorted, moist (SP). Light yellowish-brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).	SAND (SP)		
13									
14	8	24/20	14-16	3-9 10-10		Light yellowish-brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
15									
16	9	24/20	16-18	2-4 4-4		Light yellowish-brown, fine to medium SAND, trace Silt, very well sorted, moist (SP). Light yellowish-brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
17									
18	10	24/19	18-20	3-5 5-4		Light yellowish-brown, fine to medium SAND, trace Silt, very well sorted, moist (SP). Changing at 19.5 feet to: Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, moist (SP). Changing at 19.3 feet to: Dark brown to dark yellowish-brown grading to black, fine to medium grained SAND, trace Silt, well sorted, moist to wet (SP).			
19									
20	11	24/18	20-22	3-3 4-3					
21						Dark yellowish-brown, fine to medium grained SAND, trace Silt, wet sorted, moist to wet (SP). Changing at 20.2 feet to: Dark gray, fine to medium grained SAND, trace Silt, well sorted, wet (SP). Changing at 20.3 feet to: Reddish-gray, fine to medium grained SAND, trace Silt, well sorted, wet (SP). Changing at 20.7 feet to: Yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).			
22	12	24/23	22-24	2-5 8-8		Brown, Silty CLAY, plastic, cohesive, very well sorted, moist (CL).	22' Silty CLAY (CL)		
23									
24	13	24/20	24-26	4-6 6-7		Brown, Silty CLAY, plastic, cohesive, very well sorted, moist (CL).			
25							26'		

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: SB-5/MW-5S

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
27	14	24/17	26-28	3-5 8-9		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).	SAND (SP)		
28	15	24/18	28-30	4-6 8-9		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			Bentonite/Grout
29									
30	16	24/24	30-32	5-6 9-10		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			
31									
32	17	24/18	32-34	3-5 9-13		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			
33									
34	18	24/18	34-36	3-7 13-16		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			
35									
36	19	24/19	36-38	3-7 10-10		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			
37									
38	20	24/24	38-40	3-5 8-12		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			
39									

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: SB-5/MW-5S

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Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	21	24/22	40-42	3-5 11-16		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).	SAND (SP)		
41									
42	22	24/24	42-44	3-11 18-21		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			
43									
44	23	24/20	44-46	5-10 14-17		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			
45									
46	24	24/24	46-48	4-7 9-9		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			
47									
48	25	24/20	48-50	3-8 11-15		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			
49									
50	26	24/24	50-52	3-10 17-18		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			
51									
52	27	24/22	52-54	9-13 21-25		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			
53									

REMARKS

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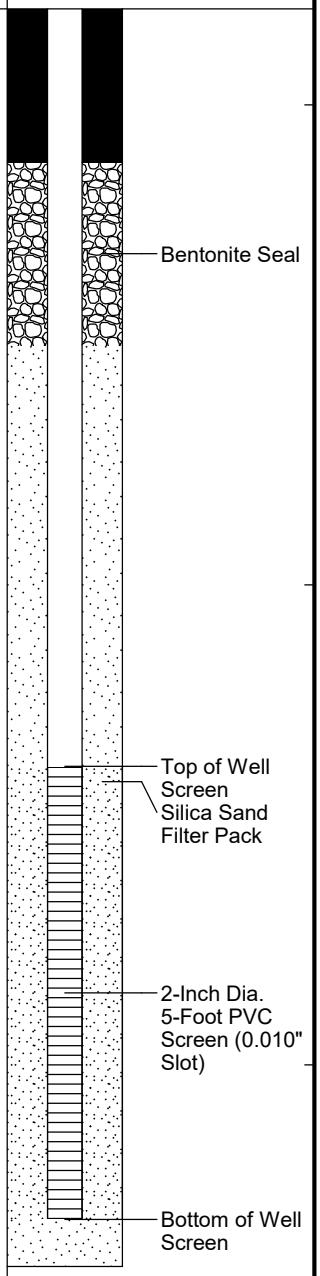
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks
55	28	24/24	54-56	4-5 8-10		Pale brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP). Changing at 54.5 feet to: Brown to yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).	SAND (SP)	1
56	29	24/24	56-58	3-4 5-6		Brown to yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).		
58	30	24/16	58-60	2-3 5-5		Brown to yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).		
60	31	24/16	60-62	1-1 2-2		Brown to yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP). Brown to yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).		
62	32	24/5	62-64	1-4 7-11		Brown to yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).		
64	33	24/11	64-66	2-6 10-10		Brown to yellowish-brown, fine to medium grained SAND, trace Silt, well sorted, wet (SP).		
67						Bottom of Borehole at 67.0 Feet	67'	2

Equipment Installed



REMARKS

1. Groundwater was encountered at approximately 54.5 feet below ground surface.
2. Monitoring well was installed in borehole upon completion. Well screen set from approximately 61.9 to 66.6 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: SB-5/MW-5S

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Boring No.: SB-6/MW-6S
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File No.: 16.0062335.52
Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jerry Huntoon
Logged by: John Morehouse
Date Start/Finish: 9-13-17 / 9-14-17
Boring Location:
GS Elev.: 770.30' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/18	0-2	4-3 3-5		Very dark grayish-brown to dark brown, fine to medium grained SAND, some Silt, poorly sorted, dry (SM). Changing at 0.2 feet to: Dark brown, fine to medium grained SAND, some Silt, moderately sorted, dry (SM). Changing at 0.4 feet to: Dark yellowish-brown,fine to medium grained SAND, some Silt, trace Gravel, moderately sorted, dry (SM).	SAND (SM)		PROTECTIVE CASING
2	2	24/16	2-4	8-8 11-12		Dark yellowish-brown,fine to medium grained SAND, some Silt, trace Gravel, moderately sorted, dry (SM). Changing at 2.8 feet to: Dark yellowish-brown, fine to medium SAND, little Clay, little Silt, non to slightly plastic, moderately cohesive, poorly sorted, dry (SC). Changing at 3.0 feet to: Mottled dark yellowish-brown to pale brown, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, poorly sorted, dry to moist (CL).	2.8'		Backfill/Cement Pad
3							3' SAND (SC)		
4	3	24/19	4-6	8-9 13-15			CLAY & SILT (CL)		
5						Mottled dark yellowish-brown to pale brown, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, poorly sorted, dry to moist (CL). Changing at 5.2 feet to: Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).	5.2'		
6	4	24/14	6-8	2-2 2-2		Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).	SAND (SP)		
7									
8	5	24/20	8-10	1-3 3-4		Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
9									
10	6	24/24	10-12	2-3 3-5		Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
11									

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: SB-6/MW-6S

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
13	7	24/22	12-14	3-4 5-5		Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).	SAND (SP)		
14	8	24/20	14-16	2-5 6-11		Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist with some alternating beds of dark yellowish-brown, fine to medium grained SAND, trace Gravel at 14.6 feet.			
16	9	24/22	16-18	4-8 9-10		Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
18	10	24/22	18-20	4-5 7-8		Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
20	11	24/19	20-22	6-9 14-15		Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
22	12	24/24	22-24	6-10 11-13		Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
24	13	24/20	24-26	5-8 13-18		Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			

REMARKS

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Boring No.: SB-6/MW-6S

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Check: J Cai

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
	14	24/22	26-28	7-10 15-18		Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).	SAND (SP)		Bentonite/Grout
27									
28	15	24/22	28-30	7-11 12-14		Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
29									
30	16	24/20	30-32	7-14 15-17		Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
31									
32	17	24/16	32-34	7-10 15-21		Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
33									
34	18	24/22	34-36	6-10 18-20		Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).			
35									
36	19	24/19	36-38	10-16 23-34		Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP). Changing at 36.8 feet to: Light yellowish-brown, fine grained SAND, little Silt, very well sorted, moist (SM). Changing at 37.8 feet to: Light yellowish-brown to pale brown, fine to medium grained SAND, trace Silt, well sorted, moist (SP).	36.8' SAND (SM) 37.8' SAND (SP)		
37									
38	20	24/19	38-40	9-22 22-20		Light yellowish-brown to pale brown, fine to medium grained SAND, trace Silt, well sorted, moist (SP). Changing at 38.5 feet to: Light yellowish-brown, fine grained SAND, little Silt, very well sorted, moist (SM).	38.5' SAND (SM)		
39									

REMARKS

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File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
41	21	24/24	40-42	4-6 7-3		Light yellowish-brown, fine grained SAND, little Silt, very well sorted, moist (SM). Changing at 40.9 feet to: Yellowish-brown, fine grained SAND, little Silt, well sorted, moist (SM).	SAND (SM)		
42	22	24/19	42-44	11-22 37-38		Yellowish-brown, fine grained SAND, little Silt, well sorted, moist (SM). Changing at 43.1 feet to: Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP).	43.1' SAND (SP)		
44	23	24/22	44-46	16-22 28-30		Very pale brown, fine to medium SAND, trace Silt, very well sorted, moist (SP). Changing at 44.8 feet to: Brown, fine to medium grained SAND, trace Silt, well sorted, moist (SP).			
46	24	24/22	46-48	6-8 10-11		Brown, fine to medium grained SAND, trace Silt, trace Gravel, well sorted, wet (SP).		1	
48	25	24/18	48-50	4-11 18-21		Brown, fine to medium grained SAND, trace Silt, trace Gravel, well sorted, wet (SP).			
50	26	24/18	50-52	5-11 14-17		Brown, fine to medium grained SAND, trace Silt, trace Gravel, well sorted, wet (SP).			
52	27	24/11	52-54	3-9 18-21		Brown, fine to medium grained SAND, trace Silt, trace Gravel, well sorted, wet (SP).			Bentonite Seal

REMARKS

1. Groundwater was encountered at approximately 46.0 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: SB-6/MW-6S

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
55	28	24/20	54-56	3-8 14-15		Brown, fine to medium grained SAND, trace Silt, trace Gravel, well sorted, wet (SP).	SAND (SP)		
56	29	24/8	56-58	2-4 12-12		Brown, fine to medium grained SAND, trace Silt, trace Gravel, well sorted, wet (SP).			
57									Top of Well Screen Silica Sand Filter Pack
58	30	24/12	58-60	3-7 12-11		Brown, fine to medium grained SAND, trace Silt, trace Gravel, well sorted, wet (SP).			
59									2-Inch Dia. 5-Foot PVC Screen (0.010" Slot)
60	31	24/7	60-62	1-1 3-7		Brown, fine to medium grained SAND, trace Silt, trace Gravel, well sorted, wet (SP).			
61									
62						Bottom of Borehole at 62.0 Feet	62'	2	Bottom of Well Screen
63									
64									
65									
66									
67									

REMARKS

2. Monitoring well was installed in borehole upon completion. Well screen set from approximately 57.1 to 61.8 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: SB-6/MW-6S

BORING_WELL_6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Boring No.: SB-6D/MW-6D
Page: 1 **of** 5
File No.: 16.0062335.52
Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jerry Huntoon
Logged by: Julie Groenleer
Date Start/Finish: 10-31-17 / 11-2-17
Boring Location:
GS Elev.: 770.60' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1						See SB-6/MW-6S for soil description from 0.0 to 70.0 feet.			PROTECTIVE CASING
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: SB-6D/MW-6D

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Check: J Cai

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									
41									
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									
61									
62									
63									
64									

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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Check: J Cai

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
66									
67									
68									
69									
70	1	24/18	70-72	1-2 4-12		Loose, brown, fine to medium SAND, trace Silt, wet (SP).	SAND (SP)		
71									
72	2	24/13	72-74	2-3 11-17		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
73									
74	3	24/1	74-76	7-11 19-18		Medium dense, light brown, fine Silty SAND, wet (SM).	74' Silty SAND (SM)		
75									
76	4	24/4	76-78	2-3 3-8		Loose, brown, fine to medium SAND, trace Silt, wet (SP).	76' SAND (SP)		Bentonite/Grout
77									
78	5	24/12	78-80	4-7 15-18		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
79									
80	6	24/20	80-82	2-6 17-25		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
81									
82	7	24/16	82-84	2-2 4-8		Loose, brown, fine to medium SAND, trace Silt, wet (SP).			
83									
84	8	24/12	84-86	2-2 2-7		Very loose, brown, fine to medium SAND, trace Silt, wet (SP).			
85									
86	9	24/20	86-88	5-16 37-35		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).			
87									
88	10	24/13	88-90	5-6 56-50		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).			
89									
90	11	24/24	90-92	6-17 60-30		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).			
91									
92	12	24/0	92-94	4-7 10-11		NO RECOVERY.	92' NO RECOVERY		
93									
94	13	24/0	94-96	2-3 4-11		NO RECOVERY.			
95									
96	14	24/24	96-98	2-7 9-24		Medium dense, brown, fine SAND, trace medium Sand, trace Silt, wet (SP).	96' SAND (SP)		
97									
98	15	24/24	98-100	3-6 13-22		Medium dense, brown, fine SAND, trace medium Sand, trace Silt, wet (SP). Changing at 99.6 feet to: Medium dense,	99.6'		
99							100'		

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: SB-6D/MW-6D

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Wolverine World Wide, Inc.
1855 House Street NE
Belmont, Michigan

Boring No.: SB-6D/MW-6D
Page: 4 **of** 5
File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
101	16	24/11	100-102	3-8 20-31		brown, fine Silty SAND, wet (SM). Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	Silty SAND (SM)/ SAND (SP)		
102 103	17	24/18	102-104	2-3 10-15		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
104 105	18	24/6	104-106	5-10 23-22		Dense, brown, fine Silty SAND, wet (SM).	104' Silty SAND (SM)		
106 107	19	24/17	106-108	9-19 29-29		Dense, brown, fine Silty SAND, wet (SM).			
108 109	20	24/12	108-110	5-12 18-18		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	108' SAND (SP)		
110 111	21	24/13	110-112	2-3 5-17		Loose, brown, fine to medium SAND, trace Silt, wet (SP).			
112 113	22	24/0	112-114	3-4 7-12		NO RECOVERY.	112' NO RECOVERY		
114 115	23	24/0	114-116	3-5 15-17		NO RECOVERY.			
116 117	24	24/0	116-118	4-13 30-45		NO RECOVERY (bailed for sample description: Brown, fine to medium SAND, trace Silt, moist (SP)).	116' NO RECOVERY (bailed for sample description: SAND (SP))		
118 119	25	24/10	118-120	9-29 46-54		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).	118' SAND (SP) with Silty SAND in spoon at 120.0 feet		
120 121	26	24/8	120-122	6-7 9-19		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
122 123	27	24/24	122-124	10-22 37-39		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).			
124 125	28	24/24	124-126	6-21 28-28		Dense, brown, fine to medium SAND, trace Silt, wet (SP).			
126 127	29	24/24	126-128	11-19 33-24		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).			
128 129	30	24/12	128-130	3-3 3-10		Loose, brown, fine to medium SAND, trace Silt, wet (SP).			
130 131	31	24/24	130-132	8-25 35-17		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).			
132 133	32	24/14	132-134	12-29 44-50		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).			
134	33	24/20	134-136	2-7 30-50		Dense, brown, fine to medium SAND, trace			

REMARKS

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Boring No.: SB-6D/MW-6D
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File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
136						Silt, wet (SP).	SAND (SP) with Silty SAND in spoon at 120.0 feet		
137	34	24/19	136-138	2-4 12-21		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
138	35	24/14	138-140	8-11 11-14		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
140	36	24/12	140-142	5-11 23-24		Dense, brown, fine to medium SAND, trace Silt, trace fine Gravel, wet (SP).			
142	37	24/12	142-144	4-8 12-18		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
144	38	24/10	144-146	1-3 12-17		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
146	39	24/8	146-148	1-2 4-8		Loose, brown, fine to medium SAND, trace Silt, wet (SP).			
148	40	24/9	148-150	1-3 7-14		Loose, brown, fine to medium SAND, trace Silt, wet (SP).			
150	41	24/7	150-152	1-2 5-7		Loose, brown, fine to medium SAND, trace Silt, wet (SP).			
152	42	24/0	152-154	3-7 20-32		NO RECOVERY.	152' NO RECOVERY		
154	43	24/24	154-156	3-8 18-32		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	154' SAND (SP)		Top of Well Screen
156	44	24/14	156-158	5-12 47-24		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).			Silica Sand Filter Pack
158	45	24/24	158-160	3-12 29-36		Dense, brown, fine to medium SAND, trace Silt, wet (SP). Changing at 160.0 feet (in shoe) to: Very stiff, gray, CLAY & SILT, some fine Sand, moist (CL).			2-Inch Dia. 5-Foot PVC Screen (0.010" Slot)
160	46	24/24	160-162	1-9 23-36	3.75 tsf >4.0 tsf	Hard, gray, CLAY & SILT, some fine to coarse Sand, moist (CL).	160' CLAY & SILT (CL)		Bottom of Well Screen
162						Bottom of Borehole at 162.0 Feet	162'		
163									
164									
165									
166									
167									
168									
169									

REMARKS

Pocket penetrometer readings were measured in tons per square foot (tsf) and are used to evaluate consistency of cohesive soil.
Monitoring well was installed in borehole upon completion. Well screen set from approximately 155.0 to 160.0 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: SB-6D/MW-6D

BORING_WELL_6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Belmont, Michigan

Boring No.: SB-7/MW-7S
Page: 1 **of** 6
File No.: 16.0062335.52
Check: J Cai

Contractor: Stearns Drilling Company
Foreman: Jerry Huntoon
Logged by: John Morehouse
Date Start/Finish: 9-19-17 / 9-20-17
Boring Location:
GS Elev.: 788.90' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30.0"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/18	0-2	2-1 2-1		Very loose, dark brown to yellowish-brown, fine grained SAND, some Silt, moderately sorted, dry (TOPSOIL). Changing at 0.5 feet to: Brownish-yellow, fine grained SAND, little Silt, well sorted, dry (SM).	SAND (TOPSOIL) 0.5' SAND (SM)		PROTECTIVE CASING Backfill/Cement Pad
2	2	24/12	2-4	2-3 3-4		Loose, yellowish-brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).	2' SAND (SP)		
4	3	24/18	4-6	2-2 3-2		Loose, yellowish-brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			
6	4	24/5	6-8	2-2 2-2		Loose, yellowish-brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP) with fractured rock at 6.1 feet. Changing at 6.3 feet to: Dark brown, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, mmoist (CL).	6.3' CLAY & SILT (CL)		
8	5	24/12	8-10	2-2 3-4		Loose dark grayish-brown to dark brown, coarse grained SAND, little Gravel, trace Silt, poorly sorted, moist (SP).	8' SAND (SP)		
10	6	24/11	10-12	4-6 4-4		Loose dark grayish-brown to dark brown, coarse grained SAND, little Gravel, trace Silt, poorly sorted, moist (SP).			

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: SB-7/MW-7S

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Boring No.: SB-7/MW-7S
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Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	7	24/19	12-14	4-7 5-5		Loose dark grayish-brown to dark brown, coarse grained SAND, little Gravel, trace Silt, poorly sorted, moist (SP). Changing at 12.6 feet to: Stiff, brown, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, poorly sorted, moist (CL). Changing at 13.2 feet to: Stiff, dark brown, CLAY & SILT, some Sand, trace Gravel, plastic, cohesive, poorly sorted, moist (CL).	SAND (SP) 12.6' CLAY & SILT (CL) 13' 13.2'SAND (SM) CLAY & SILT (CL)		
13									
14	8	24/0	14-16	8-8 9-10		NO RECOVERY.			
15									
16	9	24/17	16-18	3-4 3-5		Loose, brown, fine grained SAND, trace Silt, very well sorted, moist (SP). Changing at 16.4 feet to: Medium brown, CLAY & SILT, some Sand, trace Gravel, moderately plastic, cohesive, poorly sorted, moist (CL). Changing at 16.7 feet to: Loose, dark yellowish-brown, fine grained SAND, trace Silt, well sorted, moist (SP). Changing at 17.0 feet to: Medium mottled yellowish-brown, CLAY & SILT, plastic, cohesive, well sorted, moist (CL).	16' SAND (SP) 16.4' 16.7'CLAY & SILT (CL) 17' SAND (SP) CLAY & SILT (CL)		
17									
18	10	24/22	18-20	4-4 5-6					
19						Medium mottled yellowish-brown, CLAY & SILT, plastic, cohesive, well sorted, moist (CL). Changing at 18.6 feet to: Stiff mottled yellowish-brown, CLAY & SILT, plastic, cohesive, well sorted, moist (CL). Changing at 18.9 feet to: Loose, light yellowish-brown to brownish-yellow, fine grained SAND, very well sorted, moist (SP). Changing at 19.0 feet to: Stiff, mottled yellowish-brown, CLAY & SILT, plastic, cohesive, well sorted, moist (CL).	18.9' 19' SAND (SP) CLAY & SILT (CL)		
20	11	24/14	20-22	3-3 4-5					
21						Stiff, mottled yellowish-brown, CLAY & SILT, plastic, cohesive, well sorted, moist (CL).	20.6' SAND (SP)		
22	12	24/16	22-24	1-1 2-3		Loose to medium dense, very pale brown, fine grained SAND, trace Silt, very well sorted (bedded), moist (SP).			
23									
24	13	24/22	24-26	2-3 3-2		Loose to medium dense, very pale brown, fine grained SAND, trace Silt, very well sorted (bedded), moist (SP).			
25									

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: SB-7/MW-7S

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Belmont, Michigan

Boring No.: SB-7/MW-7S
Page: 3 **of** 6
File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
27	14	24/22	26-28	2-3 3-3		Loose to medium dense, very pale brown, fine grained SAND, trace Silt, very well sorted (bedded), moist (SP).	SAND (SP)		
28	15	24/22	28-30	2-3 4-3		Loose to medium dense, very pale brown, fine grained SAND, trace Silt, very well sorted (bedded), moist (SP).			
29									
30	16	24/20	30-32	1-3 6-8		Loose to medium dense, very pale brown, fine grained SAND, trace Silt, very well sorted (bedded), moist (SP). Changing at 30.3 feet to: Stiff, yellowish-brown, SILT, little Clay, plastic, cohesive, well sorted, moist to wet (ML). Changing at 30.7 feet to: Medium dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted (bedded), moist (SP).	30.3' SILT (ML) 30.7' SAND (SP)		
31									
32	17	24/23	32-34	5-5 7-8		Medium dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted (bedded), moist (SP). Changing at 32.7 feet to: Soft, dark yellowish-brown, CLAY & SILT, plastic, cohesive, moist (CL). Changing at 32.8 feet to: Medium dense, very pale brown, fine to coarse grained SAND, some Gravel, trace Silt, poorly sorted, moist (SP).	32.7' 32.8' CLAY & SILT (CL) SAND (SP)		
33									Bentonite/Grout
34	18	24/20	34-36	4-8 9-8		Medium dense, very pale brown, fine to coarse grained SAND, some Gravel, trace Silt, moderately sorted, moist (SP).			
35									
36	19	24/18	36-38	5-6 7-8		Medium dense, very pale brown, fine to coarse grained SAND, some Gravel, trace Silt, moderately sorted, moist (SP). Changing at 36.1 feet to: Brown to yellowish-brown, CLAY & SILT, plastic, cohesive, well sorted (bedded), moist (CL). Changing at 36.2 feet to: Medium dense, very pale brown, fine to coarse grained SAND, some Gravel, trace Silt, moderately sorted, moist (SP).	36.1' 36.2' CLAY & SILT (CL) SAND (SP)		
37									
38	20	24/18	38-40	3-5 5-7		Medium dense, very pale brown, fine to coarse grained SAND, some Gravel, trace Silt, moderately sorted, moist (SP). Changing at 38.5 feet to: Medium dense, light yellowish-brown to very pale brown, fine to medium grained SAND, trace Silt,			
39									

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: SB-7/MW-7S

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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1855 House Street NE
Belmont, Michigan

Boring No.: SB-7/MW-7S
Page: 4 **of** 6
File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	21	24/20	40-42	2-4 7-8		very well sorted, moist (SP). Medium dense, light yellowish-brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).	SAND (SP)		
41									
42	22	24/16	42-44	4-4 6-10		Medium dense, light yellowish-brown to very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP). Changing at 42.9 feet to: Medium dense, light yellowish-brown, fine to coarse grained SAND, some Gravel, trace Silt, poorly sorted, moist (SP).			
43									
44	23	24/20	44-46	3-5 6-9		Medium dense, light yellowish-brown, fine to coarse grained SAND, trace Silt, poorly sorted, moist (SP). Changing at 45.3 feet to: Stiff to very stiff yellowish-brown grading to dark gray, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, poorly sorted, moist (CL).			
45							45.3' CLAY & SILT (CL)		
46	24	24/12	46-48	3-6 7-10		Stiff to very stiff yellowish-brown grading to dark gray, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, poorly sorted, moist (CL).			
47									
48	25	24/18	48-50	10-11 29-17		Stiff to very stiff yellowish-brown grading to dark gray, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, poorly sorted, moist (CL). Changing 48.6 feet to: Dense to very dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).	48.6' SAND (SP)		
49									
50	26	24/6	50-52	21-39 48-25		Dense to very dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			
51									
52	27	24/23	52-54	6-12 16-20		Dense to very dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			
53									

REMARKS

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Boring No.: SB-7/MW-7S

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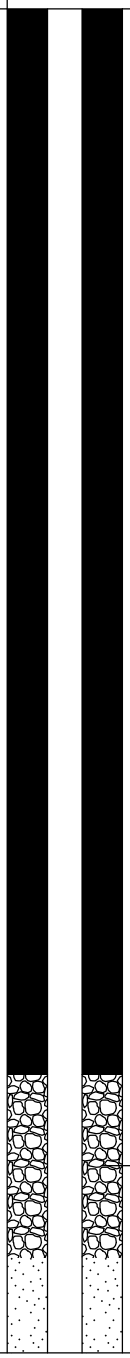
File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
55	28	24/20	54-56	6-16 17-23		Dense to very dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).	SAND (SP)		
56	29	24/23	56-58	6-13 17-21		Dense to very dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			
57									
58	30	24/20	58-60	8-16 20-31		Dense to very dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			
59									
60	31	24/24	60-62	9-17 18-24		Dense to very dense, very pale brown, fine to medium grained SAND, trace Silt, very well sorted, moist (SP).			
61									
62	32	24/18	62-64	4-8 10-11		Medium dense, yellowish-brown, fine to medim grained SAND, trace Silt, well sorted, wet (SP).		1	
63									
64	33	24/23	64-66	2-3 7-10		Medium dense, yellowish-brown, fine to medim grained SAND, trace Silt, well sorted, wet (SP).			
65									
66	34	24/1	66-68	1-3 5-9		Medium dense, yellowish-brown, fine to medim grained SAND, trace Silt, well sorted, wet (SP).			Bentonite Seal
67									



REMARKS

1. Groundwater was encountered at approximately 62.0 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: SB-7/MW-7S

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Boring No.: SB-7/MW-7S
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File No.: 16.0062335.52
Check: J Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
69	35	24/23	68-70	1-4 7-7		Medium dense, yellowish-brown, fine to medim grained SAND, trace Silt, well sorted, wet (SP).	SAND (SP)		
70	36	24/8	70-72	2-7 11-11		Medium dense, yellowish-brown, fine to medim grained SAND, trace Silt, well sorted, wet (SP).			Top of Well Screen Silica Sand Filter Pack
72	37	24/5	72-74	1-2 5-9		Medium dense, yellowish-brown, fine to medim grained SAND, trace Silt, well sorted, wet (SP).			2-Inch Dia. 5-Foot PVC Screen (0.010" Slot)
74						Bottom of Borehole at 74.0 Feet	74'	2	Bottom of Well Screen
75									
76									
77									
78									
79									
80									
81									

REMARKS

2. Monitoring well was installed in borehole upon completion. Well screen set from approximately 70.1 to 74.7 feet below ground surface.

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Boring No.: SB-7/MW-7S

BORING_WELL 6233550 WWW HOUSE STREET NE.GPJ GZA_CORP.GDT 5/17/18

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Wolverine World Wide, Inc.
House Street
Belmont, Michigan

Boring No.: MW-9M
Page: 1 **of** 4
File No.: 16.0062335.52
Check: Jim Cai

Contractor: Stearns Drilling Company
Foreman: Jerry Huntoon
Logged by: John Morehouse
Date Start/Finish: 11-17-17 / 11-17-17
Boring Location:
GS Elev.: 817.90' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1						See SB-9/MW-9D boring log for sample description and classification.			PROTECTIVE CASING
2									
3									
4									
5									
6									
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11									
12									
13									
14									
15									
16									
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23									
24									
25									
26									
27									
28									
29									

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: MW-9M

BORING_WELL_TEST.GPJ GZA_CORP.GDT 5/17/18

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Boring No.: MW-9M
Page: 2 **of** 4
File No.: 16.0062335.52
Check: Jim Cai

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									
41									
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									
61									Grout
62									
63									
64									

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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Check: Jim Cai

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
66									
67									
68									
69									
70									
71									
72									
73									
74									
75									
76									
77									
78									
79									
80									
81									
82									
83									
84									
85									
86									
87									
88									
89									
90									
91									
92									
93									
94									
95									
96									
97									
98									
99									

REMARKS

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Boring No.: MW-9M
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Check: Jim Cai

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
101–134						Bottom of Borehole at 131.0 Feet		1	Top of Well Screen; Silica Sand Filter Pack; 2-Inch Dia. 5-Foot PVC Screen (0.010" Slot); Bottom of Well Screen

REMARKS

1. Monitoring well was installed in borehole upon completion. Well screen set from 126.0 to 131.0 feet below ground surface.

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Boring No.: MW-9M

BORING_WELL_TEST.GPJ GZA_CORP.GDT 5/17/18

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Boring No.: MW-9S
Page: 1 **of** 1
File No.: 16.0062335.52
Check: Jim Cai

Contractor: Stearns Drilling Company
Foreman: Jerry Huntoon
Logged by: John Morehouse
Date Start/Finish: 11-17-17 / 11-17-17
Boring Location:
GS Elev.: 817.80' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30"	NA
TOC Elev.:	NA	NA

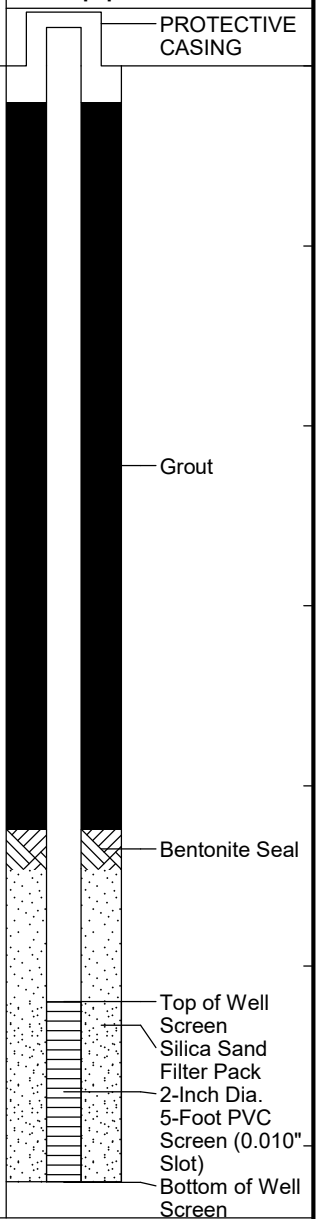
GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks
1–30						See SB-9/MW-9D boring log for sample description and classification.		
31						Bottom of Borehole at 31.0 Feet		1

Equipment Installed



REMARKS

1. Monitoring well was installed in borehole upon completion. Well screen set from 26.0 to 31.0 feet below ground surface.

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Boring No.: SB-10/MW-10D
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File No.: 16.0062335.52
Check: Jim Cai

Contractor: Stearns Drilling Company
Foreman: Jerry Huntoon
Logged by: Julie Groenleer/Joe Workman
Date Start/Finish: 11-20-17 / 11-28-17
Boring Location:
GS Elev.: 778.10' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/17	0-2	2-2 3-2		TOPSOIL. Changing at 0.6 feet to: Loose, brown, fine to medium SAND, trace Silt, damp (SP).	TOPSOIL 0.6' SAND (SP)		PROTECTIVE CASING
2	2	24/16	2-4	2-3 8-7		Medium dense, brown, fine to medium SAND, trace Silt, damp (SP).			
4	3	24/0	4-6	4-5 6-8		NO RECOVERY.	4' NO RECOVERY		
6	4	24/18	6-8	3-3 4-4		Loose, brown, fine to medium SAND, trace Silt, damp (SP).	6' SAND (SW)		
8	5	24/14	8-10	2-4 4-4		Loose, brown, fine to medium SAND, trace Silt, damp (SP).			
10	6	24/20	10-12	2-5 7-5		Medium dense, brown, fine to medium SAND, trace Silt, damp (SP).			
12	7	24/12	12-14	3-2 3-3		Loose, brown, fine to medium SAND, trace Silt, damp (SP).			
14	8	24/21	14-16	3-3 3-4		Loose, brown, fine to medium SAND, trace Silt, damp (SP).			
16	9	24/20	16-18	2-4 4-6		Loose, brown, fine to medium SAND, trace Silt, damp (SP).			

REMARKS

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BORING_WELL_TEST.GPJ GZA_CORP.GDT 5/17/18

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File No.: 16.0062335.52
Check: Jim Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
19	10	24/18	18-20	3-6 6-6		Medium dense, brown, fine to medium SAND, trace Silt, damp (SP).	SAND (SW)		
20	11	24/17	20-22	3-4 6-7		Loose, brown, fine to medium SAND, trace Silt, damp (SP).			
22	12	24/19	22-24	3-5 6-7		Medium dense, brown, fine to medium SAND, trace Silt, damp (SP).			
24	13	24/22	24-26	4-6 8-8		Medium dense, brown, fine to medium SAND, trace Silt, damp (SP).			
26	14	24/18	26-28	6-13 13-18		Medium dense, brown, fine to medium SAND, trace Silt, damp (SP).			
28	15	24/20	28-30	10-13 21-20		Dense, brown, fine to medium SAND, trace Silt, damp (SP).			
30	16	24/20	30-32	10-16 21-24		Dense, brown, fine to medium SAND, trace Silt, damp (SP).			
32	17	24/22	32-34	11-16 24-27		Dense, brown, fine to medium SAND, trace Silt, damp (SP).			
34	18	24/18	34-36	10-16 26-32		Dense, brown, fine to medium SAND, trace Silt, damp (SP).			
36	19	24/19	36-38	12-21 25-29		Dense, brown, fine to medium SAND, trace Silt, damp (SP).			
38	20	24/16	38-40	8-18 21-27		Dense, brown, fine to medium SAND, trace Silt, damp (SP).			

REMARKS

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Check: Jim Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
							SAND (SW)		
40	21	24/23	40-42	14-20 22-25		Dense, brown, fine to medium SAND, trace Silt, damp (SP).			
41									
42	22	24/20	42-44	8-12 17-21		Medium dense, brown, fine to medium SAND, trace Silt, damp (SP).			
43									
44	23	24/24	44-46	7-10 10-9		Medium dense, brown, fine to medium SAND, trace Silt, damp (SP).			
45									
46	24	24/18	46-48	7-13 14-14		Medium dense, brown, fine to medium SAND, trace Silt, trace Gravel, damp (SP).			
47									
48	25	24/24	48-50	9-11 11-12		Medium dense, brown, fine to medium SAND, trace Silt, trace Gravel, damp (SP).			
49									
50	26	24/16	50-52	9-11 13-10		Medium dense, brown, fine to medium SAND, trace Silt, moist (SP).			
51									
52	27	24/24	52-54	9-11 11-7		Medium dense, brown, fine to medium SAND, trace Silt, moist (SP). Changing at 53.0 feet to: Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).		1	
53									
54	28	24/17	54-56	3-3 6-8		Loose, brown, fine to medium SAND, trace Silt, wet (SP).			
55									
56	29	24/18	56-58	2-3 7-7		Loose, brown, fine to coarse SAND, trace Silt, trace fine Gravel, wet (SW).			
57									
58	30	24/13	58-60	4-8 8-10		Medium dense, brown, fine to coarse SAND, trace Silt, trace fine Gravel, wet (SW).			
59									

REMARKS

1. Groundwater was encountered at approximately 53.0 feet below ground surface.

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Boring No.: SB-10/MW-10D
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Check: Jim Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
60	31	24/6	60-62	2-4 6-9		Loose, brown, fine to coarse SAND, trace Silt, trace fine Gravel, wet (SW).	SAND (SW)		
61									
62	32	24/3	62-64	6-8 13-20		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	62' SAND (SP)		
63									
64	33	24/12	64-66	4-9 10-15		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
65									
66	34	24/12	66-68	2-5 8-11		Medium dense, brown, fine to medium SAND, little Silt, wet (SM).	66' SAND (SM)		
67									
68	35	24/8	68-70	5-7 13-15		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	68' SAND (SP)		
69									
70	36	24/11	70-72	3-3 7-8		Loose, brown, fine to medium SAND, trace Silt, wet (SP).			
71									
72	37	24/13	72-74	2-4 10-10		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
73									
74	38	24/20	74-76	2-3 5-12		Loose, brown, fine to medium SAND, trace Silt, wet (SP).			
75									
76	39	24/17	76-78	3-8 10-13		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
77									
78	40	24/12	78-80	4-5 8-15		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
79									
80	41	24/21	80-82	4-12 19-22		Dense, brown, fine to medium SAND, trace Silt, wet (SP).			

REMARKS

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Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
							SAND (SP)		
82	42	24/13	82-84	4-12 21-25		Dense, brown, fine to medium SAND, trace Silt, wet (SP).			
83									
84	43	24/22	84-86	6-10 15-15		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
85									
86	44	24/18	86-88	3-7 7-15		Medium dense, brown, fine to medium SAND, trace Silt, trace coarse Sand, wet (SP).			
87									
88	45	24/19	88-90	5-11 15-16		Medium dense, brown, fine to medium SAND, trace Silt, trace coarse Sand, wet (SP).			
89									
90	46	24/16	90-92	4-8 20-22		Medium dense, brown, fine to medium SAND, trace Silt, trace coarse Sand, wet (SP).			
91									Grout
92	47	24/20	92-94	4-7 15-19		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
93									
94	48	20/20	94-95.7	4-12 38-50/4"		Dense, brown, fine to medium SAND, trace Silt, wet (SP).			
95									
96	49	24/22	96-98	7-14 22-30		Dense, brown, fine to medium SAND, trace Silt, wet (SP).			
97									
98	50	24/4	98-100	5-8 15-22		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
99									
100	51	24/18	100-102	3-8 13-21		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
101									

REMARKS

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Check: Jim Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	52	24/20	102-104	4-5 15-19		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	SAND (SP)		
103									
104	53	24/18	104-106	6-7 13-21		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
105									
106	54	24/13	106-108	5-13 29-45		Dense, brown, fine to medium SAND, trace Silt, wet (SP).			
107									
108	55	24/17	108-110	5-11 21-35		Dense, brown, fine to medium SAND, little Silt, wet (SM).	108' SAND (SM)		
109									
110	56	24/20	110-112	4-13 32-56		Dense, brown, fine to medium SAND, trace Silt, wet (SP).	110' SAND (SP)		
111									
112	57	24/7	112-114	5-11 18-31		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
113									
114	58	24/18	114-116	3-7 18-35		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
115									
116	59	24/8	116-118	2-2 3-5		Loose, brown, fine to medium SAND, trace Silt, wet (SP).			
117									
118	60	24/17	118-120	2-8 36-50		Dense, brown, fine to medium SAND, trace Silt, wet (SP).			
119									
120	61	17/8	120-121.4	14-37-50/5"		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).			
121									
122	62	22/20	122-123.8	11-26 34-50/4"		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).			

REMARKS

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Check: Jim Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
							SAND (SP)		
124	63	24/11	124-126	1-1 15-25		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
125									
126	64	24/0	126-128	2-3 8-21		NO RECOVERY.	126' NO RECOVERY		
127									
128	65	24/21	128-130	6-6 16-23		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	128' SAND (SP)		
129									
130	66	24/13	130-132	1-10 12-15		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
131									
132	67	24/4	132-134	8-9 23-50		Dense, brown, fine to medium SAND, trace Silt, wet (SP).			
133									
134	68	20/12	134-135.7	5-12 26-50/4"		Dense, brown, fine to medium SAND, trace Silt, wet (SP).			
135									
136	69	20/13	136-137.7	3-7 31-50/2"		Dense, brown, fine to medium SAND, trace Silt, wet (SP).			
137									
138	70	16/11	138-139.3	12-21-50/4"		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).			
139									
140	71	15/15	140-141.3	4-25-50/3"		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).			
141									
142	72	12/12	142-143	19-50/6"		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).			
143									

REMARKS

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	73	24/21	144-146	9-13 28-27		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	SAND (SP)		
145									
146	74	18/16	146-147.5	11-29-50/6"		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).			
147									
148	75	24/20	148-150	6-13 32-50		Dense, brown, fine to medium SAND, trace Silt, wet (SP). Changing at 149.7 feet to: Dense, brown, fine SAND, little Silt, wet (SM).			
149							149.7' SAND (SM)		
150	76	15/13	150-151.3	6-21-50/3"		Dense, brown, fine SAND, little Silt, wet (SM). Changing at 150.6 feet to: Very dense, brown, fine to medium SAND, trace Silt, wet (SP).	150.6' SAND (SP)		
151									
152	77	11/11	152-152.9	11-50/5"		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).			
153									
154	78	14/13	154-155.2	8-41-50/2"		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).			
155									
156	79	24/17	156-158	8-15 27-50		Dense, brown, fine to medium SAND, trace Silt, wet (SP).			
157									
158	80	12/12	158-159	6-14		Dense, brown, fine to medium SAND, trace Silt, wet (SP).			
159									
160	81	24/11	160-162	3-5 10-16		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
161									
162	82	16/11	162-163.3	17-43-50/4"		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).			
163									
164	83	16/16	164-165.3	12-50-50/4"		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).			

REMARKS

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Check: Jim Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
							SAND (SP)		
166	84	23/15	166-167.9	10-28 34-50/5"		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).			
167									
168	85	24/24	168-170	7-17 23-20		Dense, brown, fine to medium SAND, trace Silt, wet (SP).			
169									
170	86	23/23	170-171.9	6-12 19-50/5"		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP). Changing at 171.0 feet to: Very dense, gray, fine to medium SAND, little Clay & Silt, trace coarse Sand, trace fine Gravel, wet (SC).			
171							171' SAND (SC)		
172	87	24/24	172-174	16-28 48-36		Very dense, gray, fine to medium SAND, trace Silt, wet (SP). Changing at 173.0 feet to: Very dense, gray, fine to coarse SAND, little Clay & Silt, little fine Gravel, wet (SC). Changing at 173.5 feet to: Very dense, gray, fine to medium SAND, trace Silt, wet (SP). Changing at 173.9 feet to: Very dense, gray, fine to coarse SAND, little Clay & Silt, little fine Gravel, moist (SC).	172' SAND (SP)		
173							173' SAND (SC) 173.5' SAND (SP) 173.9'		
174	88	7/7	174-174.6	50-50/1"			174' SAND (SC) SAND (SP)		
175									
176	89	24/24	176-178	12-29 31-35		Very dense, gray, fine to medium SAND, trace coarse Sand, trace Clay & Silt, wet (SP). Very dense, gray, fine to coarse SAND, some fine to coarse Gravel, trace Clay & Silt, wet (SW).	176' SAND (SW)		
177									
178	90	24/24	178-180	16-20 17-42		Very dense, gray, fine to coarse SAND, little fine Gravel, trace Clay & Silt, wet (SW).			
179									
180	91	17/17	180-181.4	3-16-50/5"		Medium dense, gray, fine to coarse SAND, little fine Gravel, trace Silt, wet (SW). Changing at 181.5 feet to: Very dense, gray, fine to medium SAND, little Silt, wet (SM).			
181							181.5' SAND (SM)		
182	92	10/10	182-182.8	11-50/4"		Very dense, fine to coarse SAND, little fine to coarse Gravel, trace Silt, wet (SW).	182' SAND (SW)		Bentonite Seal
183									
184	93	4/4	184-184.3	75/4"		Very dense, gray, fine to medium SAND, little Clay & Silt, trace coarse Sand, trace fine fine Gravel, moist (SC).	184' SAND (SC)		
185									Top of Well Screen
							186'		

REMARKS

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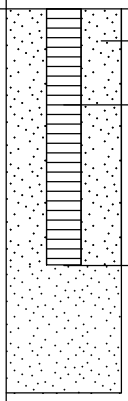
Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
187	94	3/3	186-186.3	50/3"		Very dense, gray, fine to coarse SAND, some fine to coarse Gravel, trace Cobble, trace Silt, wet (SW).	SAND (SW)		
188	95	2/2	188-188.2	50/2"		Very dense, gray, fine to coarse SAND, some fine to coarse Gravel, trace Cobble, trace Silt, wet (SW).			
189									
190	96	3/1	190-190.3	50/3"		NO RECOVERY.	190' NO RECOVERY (Rock Fragment in Tip)		
191									
192						Bottom of Borehole at 192.0 Feet	192'	2	
193									
194									
195									
196									
197									
198									
199									
200									
201									
202									
203									
204									
205									
206									



REMARKS

2. Monitoring well installed upon completion.

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BORING_WELL_TEST.GPJ GZA_CORP.GDT 5/17/18

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Contractor: Stearns Drilling Company
Foreman: Jerry Huntoon
Logged by: Julie Groenleer
Date Start/Finish: 11-6-17 / 11-8-17
Boring Location: NB US 131
GS Elev.: _____ **Datum:** _____

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:** _____

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/22	0-2	0-1 1-1	1.5 tsf	TOPSOIL. Changing at 0.2 feet to: Very loose, brown, fine to medium SAND, little Silt, damp (SM). Changing at 0.8 feet to: Stiff, brown, CLAY & SILT, trace fine Sand, moist (CL). Changing at 1.4 feet to: Very loose, dark brown, fine to medium SAND, little Clay, little Silt, damp (SC). Medium dense, brown, fine to medium SAND, little Silt, moist (SM).	0.5' TOPSOIL 0.8' SAND (SM) 1.4' CLAY & SILT (CL) 2' SAND (SC) SAND (SM)	1	PROTECTIVE CASING
2	2	24/24	2-4	5-6 7-5					
3									
4	3	24/18	4-6	4-5 5-5		Loose, brown, fine to medium SAND, little Silt, moist (SM). Changing at 5.5 feet to: Sitff, brown, CLAY & SILT, little fine to coarse Sand, moist (CL).	5.5' CLAY & SILT (CL)		
5					1.0 tsf				
6	4	24/24	6-8	1-1 2-2	1.0 tsf	Sitff, brown, CLAY & SILT, little Sand, moist (CL).			
7									
8	5	24/22	8-10	2-3 2-2		Loose, brown, fine to medium SAND, little Silt, moist (SM).	8' SAND (SM)		
9									
10	6	24/22	10-12	2-2 2-2		Very loose, brown, fine to medium SAND, little Silt, moist (SM). Changing at 11.9 feet to: Stiff, brown, CLAY & SILT, little fine to medium Sand, moist (CL).			
11							11.9' CLAY & SILT (CL)		
12	7	24/22	12-14	2-5 9-11	2.0 tsf >4.0 tsf	Hard, brown with gray mottling, CLAY & SILT, trace fine to coarse Sand, damp (CL).			
13									
14	8	24/24	14-16	7-14 15-12	>4.0 tsf	Hard, brown with gray mottling, CLAY & SILT, trace fine to coarse Sand, damp (CL).			
15									
16	9	24/14	16-18	1-3 3-3		Loose, brown, fine to medium SAND, little Silt, moist (SM).	16' SAND (SM)		
17									
18	10	24/16	18-20	1-4 3-2	2.25 tsf	Very stiff, brown, CLAY & SILT, trace fine to coarse Sand, moist (CL). Changing at 19.5 feet to: Loose, brown, fine to medium SAND, little Silt, moist (SM).	18' CLAY & SILT (CL) 19.5' SAND (SM)		
19									

REMARKS

1. Pocket penetrometer readings were measured in tons per square foot (tsf) and are used to evaluate consistency of cohesive soil.

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
21	11	24/4	20-22	4-6 3-3		Loose, brown, fine to medium SAND, little Silt, moist (SM).	SAND (SM)		
22	12	24/24	22-24	1-7 7-7	2.25 tsf	Medium dense, brown, fine to medium Silty SAND, moist (SM). Changing at 22.9 feet to: Very stiff, brown, CLAY & SILT, little fine Sand, damp (CL). Changing at 23.8 feet to: Medium dense, brown, fine to medium SAND, little Silt, moist (SM).	22.9' CLAY & SILT (CL) 23.8' SAND (SM)	2	
24	13	24/26	24-26	1-1 1-1		Very loose, brown, fine to medium SAND, little Silt, wet (SM).			
26	14	24/24	26-28	1-5 7-10		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	26' SAND (SP)		
28	15	24/18	28-30	8-9 10-11		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
30	16	24/10	30-32	2-5 8-14		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
32	17	24/15	32-34	2-7 8-9		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
34	18	24/10	34-36	3-8 13-11		Medium dense, brown, fine to medium SAND, trace coarse Sand, trace Silt, wet (SP).			
36	19	24/18	36-38	7-8 10-10		Medium dense, brown, fine to medium SAND, trace coarse Sand, trace Silt, wet (SP). Changing at 37.4 feet to: Medium dense, brown, fine SAND, little Silt, wet (SM).	37.4' SAND (SM)		
38	20	24/18	38-40	2-2 5-6		Loose, brown, fine SAND, trace Silt, wet (SP).	38' SAND (SP)		
40	21	24/12	40-42	2-2 5-12		Loose, brown, fine SAND, trace Silt, wet (SP).			
42	22	24/16	42-44	2-4 5-7		Loose, brown, fine SAND, trace Silt, wet (SP).			
43									

REMARKS

2. Groundwater was encountered at approximately 24.0 feet below ground surface.

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
44							SAND (SP)		
45	23	24/18	44-46	3-8 9-10		Medium dense, brown, fine SAND, trace Silt, wet (SP).			
46	24	24/24	46-48	2-7 7-9		Medium dense, brown, fine to coarse SAND, trace fine Gravel, trace Silt, wet (SW).	46' SAND (SW)		
47									
48	25	24/24	48-50	2-7 10-12		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP). Changing at 49.2 feet to: Medium dense, brown, fine to coarse SAND, trace fine Gravel, trace Silt, wet (SW).	48' SAND (SP) 49.2' SAND (SW)		
49									
50	26	24/10	50-52	2-11 14-22		Medium dense, brown, fine SAND, trace Silt, wet (SP).	50' SAND (SP)		
51									
52	27	24/6	52-54	4-8 15-22		Medium dense, brown, fine SAND, trace Silt, wet (SP).		3	
53									
54	28	24/14	54-56	2-4 7-11		Medium dense, brown, fine SAND, trace Silt, wet (SP).			
55									
56	29	24/24	56-58	2-4 6-6		Loose, brown, fine SAND, little Silt, wet (SW).	56' SAND (SW)		
57									
58	30	24/24	58-60	2-4 7-11		Medium dense, brown, fine SAND, trace Silt, wet (SP).	58' SAND (SP)		
59									
60	31	24/18	60-62	5-8 13-22		Medium dense, brown, fine SAND, some Silt, wet (SM).	60' SAND (SM)		
61									
62	32	24/20	62-64	3-5 6-6		Medium dense, brown, fine SAND, some Silt, wet (SM).			
63									
64	33	24/18	64-66	3-5 6-6		Medium dense, brown, fine SAND, some Silt, wet (SM).			
65									
66	34	24/18	66-68	3-7 13-11		Medium dense, brown, fine SAND, some			

REMARKS

3. Low recovery due to rock in tip.

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
67						Silt, wet (SM). Changing at 67.1 feet to: Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	67.1' SAND (SM) / SAND (SP)		
68	35	24/22	68-70	3-5 8-6		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP). Changing at 68.8 feet to: Medium dense, brown, fine SAND, little Silt, wet (SM).	68.8' SAND (SM)		
69									
70	36	24/23	70-72	2-3 4-5		Loose, brown, fine SAND, trace Silt, wet (SP).	70' SAND (SP)		
71									
72	37	24/20	72-74	3-4 6-8		Loose, brown, fine SAND, trace Silt, wet (SP).			
73									Grout
74	38	24/24	74-76	3-3 5-9		Loose, brown, fine SAND, trace Silt, wet (SP).			
75									
76	39	24/0	76-78	6-10 15-13		NO RECOVERY.	76' NO RECOVERY		
77									
78	40	24/17	78-80	2-2 5-11		Loose, brown, fine SAND, trace Silt, wet (SP).	78' SAND (SP)		
79									
80	41	24/12	80-82	2-4 9-10		Medium dense, brown, fine SAND, trace Silt, wet (SP).			
81									
82	42	24/24	82-84	3-3 5-6		Loose, brown, fine SAND, trace Silt, wet (SP).			
83									
84	43	24/0	84-86	2-4 5-9		NO RECOVERY.	84' NO RECOVERY		
85									
86	44	24/18	86-88	1-2 5-12		Loose, brown, fine SAND, trace Silt, wet (SP).	86' SAND (SP)		
87									
88	45	24/8	88-90	6-5 8-11		Medium dense, brown, fine SAND, trace Silt, wet (SP).			
89									

REMARKS

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
91	46	24/18	90-92	2-4 7-11		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	SAND (SP)		
92	47	24/0	92-94	2-3 6-10		NO RECOVERY.	92' NO RECOVERY		
93									
94	48	24/16	94-96	2-4 4-8		Loose, brown, fine to medium SAND, trace Silt, wet (SP). Changing at 95.8 feet to: Loose, brown, fine SAND, little Silt, wet (SM).	94' SAND (SP)		
95							95.8' SAND (SM)		
96	49	24/12	96-98	2-3 4-5		Loose, brown, fine SAND, little Silt, wet (SM).			
97									
98	50	24/16	98-100	2-3 6-8		Loose, brown, fine SAND, trace Silt, wet (SP).	98' SAND (SP)		
99									
100	51	24/4	100-102	2-5 10-14		Medium dense, brown, fine SAND, trace Silt, wet (SP).			
101									
102	52	24/12	102-104	2-7 13-15		Medium dense, brown, fine SAND, trace Silt, wet (SP).			
103									
104	53	24/0	104-106	7-14 15-20		NO RECOVERY.	104' NO RECOVERY		
105									
106	54	24/19	106-108	1-3 8-13		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	106' SAND (SP)		
107									
108	55	24/18	108-110	2-4 6-8		Loose, brown, fine to medium SAND, trace Silt, wet (SP).			
109									
110	56	24/10	110-112	7-14 18-17		Dense, brown, fine to medium SAND, trace Silt, wet (SP).			
111									
112	57	24/0	112-114	4-8 10-13		NO RECOVERY.	112' NO RECOVERY		
113									

REMARKS

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
114	58	24/10	114-116	8-10 11-15		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	114' SAND (SP)		
115									
116	59	24/10	116-118	1-2 2-2		Very loose, brown, fine to medium SAND, trace Silt, wet (SP).			
117									
118	60	24/19	118-120	2-2 5-7		Loose, brown, fine to medium SAND, trace Silt, wet (SP).			
119									
120	61	24/22	120-122	2-2 5-7		Loose, brown, fine to medium SAND, trace Silt, wet (SP).			
121									
122	62	24/23	122-124	2-2 7-8		Loose, brown, fine to medium SAND, trace Silt, wet (SP).			
123									
124	63	24/20	124-126	6-7 10-13		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
125									
126	64	24/20	126-128	3-3 4-4		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP). Changing at 127.5 feet to: Soft, gray, CLAY & SILT, little fine to medium Sand, moist (CL).	127.5' CLAY & SILT		
127					<0.25 tsf				
128	65	24/12	128-130	3-4 12-14	<0.25 tsf	Soft, gray, CLAY & SILT, little fine to medium Sand, moist (CL). Changing at 128.2 feet to: Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	128.2' (CL) SAND (SP)		
129									
130	66	24/9	130-132	2-5 13-15		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
131									
132	67	24/15	132-134	4-10 18-21		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP). Changing at 133.2 feet to: Soft, gray, CLAY & SILT, some fine to medium Sand, mosit (CL). Changing at 133.9 feet to: Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).	133.2' CLAY & SILT		
133					0.25 tsf				
134	68	24/16	134-136	6-13 18-23			133.9' (CL) SAND (SP)		
135						Dense, brown, fine to medium SAND, trace Silt, wet (SP).			
136	69	24/14	136-138	2-4 12-15		Medium dense, brown, fine to medium			

REMARKS

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
137						SAND, trace Silt, wet (SP).	SAND (SP)		
138	70	24/8	138-140	3-10 20-21		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
139									
140	71	24/18	140-142	3-4 15-18		Medium dense, brown, fine to medium SAND, trace Silt, wet (SP).			
141									
142	72	24/16	142-144	4-11 19-24		Medium dense, brown, fine to medium SAND, trace Silt, trace fine Gravel, wet (SP).			
143									
144	73	24/18	144-146	11-13 23-33		Medium dense, brown, fine to coarse SAND, trace Silt, trace fine Gravel, wet (SW).	144' SAND (SW)		
145									
146	74	24/10	146-148	9-13 30-30		Dense, brown, fine to medium SAND, trace Silt, trace coarse Sand, wet (SP).	146' SAND (SP)		
147									
148	75	24/10	148-150	9-18 26-34		Dense, brown, fine to medium SAND, trace Silt, trace coarse Sand, wet (SP).			
149									
150	76	24/21	150-152	9-23 29-40		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).			Top of Well Screen
151									Silica Sand Filter Pack
152	77	18/18	152-153.5	25-42-50		Very dense, brown, fine to medium SAND, trace Silt, wet (SP).		4	2-Inch Dia. 5-Foot PVC Screen (0.010" Slot)
153									
154	78	24/24	154-156	11-13 15-18		Medium dense, brown, fine SAND, some Silt, wet (SM).	154' SAND (SM)		
155									Bottom of Wellscreen
156	79	24/24	156-158	7-17 37-30		Very dense, brown, fine SAND, some Silt, wet (SM). Changing at 157.7 feet to: Hard, gray, CLAY & SILT, little fine Sand, moist (CL).			
157							157.7'		
158	80	24/24	158-160	8-18 27-26	>4.0 tsf >4.0 tsf	Hard, gray, CLAY & SILT, little fine Sand, moist (CL). Changing at 159.1 feet to: Dense, gray, fine SAND, some Silt, wet (SM). Changing at 159.9 feet to: Hard, gray, CLAY & SILT, little fine Sand, moist (CL).	CLAY & SILT (CL)		
159							159.1' SAND (SM) 159.9'		

REMARKS

4. Only drove spoon 18.0 inches due to high blow counts.

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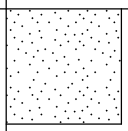
Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
161	81	24/24	160-162	6-10 18-20	>4.0 tsf >4.0 tsf	Hard, gray, CLAY & SILT, some fine Sand, moist (CL).	CLAY & SILT (CL)		
162						Bottom of Borehole at 162.0 Feet	162'	5	
163									
164									
165									
166									
167									
168									
169									
170									
171									
172									
173									
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178									
179									
180									
181									
182									
183									

REMARKS

5. Monitoring well was installed in borehole upon completion. Well screen set from 150.0 to 155.0 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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Boring No.: SB-8/MW-8
Page: 1 **of** 3
File No.: 16.0062335.52
Check: Jim Cai

Contractor: Stearns Drilling Company
Foreman: Jerry Huntoon
Logged by: John Morehosue
Date Start/Finish: 10-30-17 / 10-30-17
Boring Location:
GS Elev.: 742.20' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/20	0-2	1-1 1-3		Very loose, very dark grayish-brown, well sorted, fine grained SAND, little silt, slightly cohesive, moist (SM). Changing at 0.9 feet to: Very loose, yellowish-brown, well sorted, fine to medium grained SAND, trace Silt, moist (SP).	SAND (SM) 0.9' SAND (SP)		PROTECTIVE CASING
2	2	24/6	2-4	2-2 2-1		Very loose, yellowish-brown, well sorted, fine to medium grained SAND, trace Silt, moist (SP).			
4	3	24/15	4-6	2-2 2-1		Very loose, yellowish-brown, well sorted, fine to medium grained SAND, trace Silt, moist (SP).			
6	4	24/17	6-8	2-3 4-6		Loose, yellowish-brown, well sorted, fine to medium grained SAND, trace Silt, moist (SP).			
8	5	24/19	8-10	3-5 5-7		Loose, yellowish-brown, well sorted, fine to medium grained SAND, trace Silt, moist (SP). Changing at 8.5 feet to: Loose, dark yellowish-brown, well sorted, fine grained SAND, little Silt, slightly cohesive, moist (SM). Changing at 8.8 feet to: Loose, light yellowish-brown to brownish-yellow, well sorted, fine to medium grained SAND, trace Silt, moist (SP). Changing at 8.9 feet to: Dark yellowish-brown, moderately well sorted, CLAY & SILT, little Sand, moderately plastic, cohesive, moist (CL). Changing at 9.1 feet to: Loose, light yellowish-brown to brownish-yellow, well sorted, fine to medium grained SAND, trace Silt, moist (SP). Changing at 9.3 feet to: Dark yellowish-brown, moderately well sorted, CLAY & SILT, little Sand, moderately plastic, cohesive, moist (CL). Medium dense, brown, well sorted, fine to medium grained SAND, little Silt, slightly cohesive, moist (SM). Changing at 10.8 feet to: Medium dense, dark yellowish-brown,	8.5' 8.8' SAND (SM) 8.9' SAND (SP) 9.1' CLAY & SILT (CL) 9.3' SAND (SP) 10' CLAY & SILT (CL) SAND (SM) 10.8' SAND (SP)		
10	6	24/18	10-12	6-6 5-5					
12	7	24/17	12-14	3-3 4-4					
14	8	24/17	14-16	3-3 4-5					Grout

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: SB-8/MW-8

BORING_WELL_TEST.GPJ GZA_CORP.GDT 5/17/18

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File No.: 16.0062335.52
Check: Jim Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
						very well sorted, fine to medium grained SAND, trace Silt, moist (SP).	SAND (SP)		
16	9	24/18	16-18	3-4 5-5		Loose, dark yellowish-brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP).			
17						Loose, yellowish-brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP).			
18	10	24/19	18-20	4-4 4-4		Loose, dark yellowish-brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP).			
19						Dark yellowish-brown, very well sorted, fine to medium grained SAND, trace Silt, moist (SP).			
20	11	24/16	20-22	2-2 2-3		Very loose, brown to yellowish-brown, well sorted, fine to medium grained SAND, trace Silt, wet (SP).		1	
21									
22	12	24/18	22-24	1-3 2-2		Very loose, brown to yellowish-brown, well sorted, fine to medium grained SAND, trace Silt, wet (SP).			
23									
24	13	24/19	24-26	1-0 0-0		Very loose, brown to yellowish-brown, well sorted, fine to medium grained SAND, trace Silt, wet (SP).			
25									
26	14	24/18	26-28	0-0 0-1		Very loose, brown to yellowish-brown, well sorted, fine to medium grained SAND, trace Silt, wet (SP).			
27									
28	15	24/6	28-30	0-0 0-3		Very loose, brown to yellowish-brown, well sorted, fine to medium grained SAND, trace Silt, wet (SP).			Top of Well Screen
29									
30	16	24/18	30-32	0-1 0-1		Very loose, brown to yellowish-brown, well sorted, fine to medium grained SAND, trace Silt, wet (SP).			Silica Sand Filter Pack 2-Inch Dia. 5-Foot PVC Screen (0.010" Slot)
31									
32	18	24/15	32-34	1-1 2-3		Very loose, brown to yellowish-brown, well			

REMARKS

1. Groundwater was encountered at approximately 20.0 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: SB-8/MW-8

BORING_WELL_TEST.GPJ GZA_CORP.GDT 5/17/18

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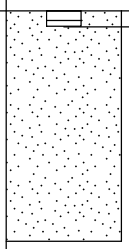
File No.: 16.0062335.52
Check: Jim Cai

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
33						sorted, fine to medium grained SAND, trace Silt, wet (SP).	SAND (SP)		 Bottom of Well Screen
34	19	24/17	34-36	0-1 2-3		Very loose, brown to yellowish-brown, well sorted, fine to medium grained SAND, trace Silt, wet (SP).			
35									
36						Bottom of Borehole at 36.0 Feet	36'	2	
37									
38									
39									
40									
41									
42									
43									
44									
45									
46									
47									
48									
49									

REMARKS

2. Monitoring well was installed in borehole upon completion. Well screen set from 27.7 to 32.7 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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Boring No.: SB-9/MW-9D
Page: 1 **of** 16
File No.: 16.0062335.52
Check: Jim Cai

Contractor: Stearns Drilling Company
Foreman: Jerry Huntoon
Logged by: Joe Workman/John Morehouse
Date Start/Finish: 11-10-17 / 11-17-17
Boring Location:
GS Elev.: 818.20' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	24/13	0-2	2-2 1-2	1.0 tsf	Stiff, brown, CLAY & SILT, trace fine to medium Sand, trace Organic Matter, damp (CL).	CLAY & SILT (CL)	1	PROTECTIVE CASING
2	2	24/6	2-4	1-2 3-5	1.5 tsf	Stiff, brown, CLAY & SILT, trace fine to coarse Sand, trace fine Gravel, damp (CL).			
4	3	24/24	4-6	2-4 7-8	3.5 tsf	Very stiff, brown, CLAY & SILT, trace fine Sand, damp (CL).			
6	4	24/24	6-8	4-5 9-11	3.0 tsf	Very stiff, brown, CLAY & SILT, trace fine Sand, damp (CL).			
8	5	24/24	8-10	2-4 7-9	2.5 tsf 3.5 tsf	Very stiff, brown, CLAY & SILT, trace fine Sand, damp (CL). Changing at 9.0 feet to: Very stiff, brown, CLAY & SILT, little fine to coarse Sand, trace fine Gravel, damp (CL).			
10	6	24/24	10-12	4-5 13-12	1.0 tsf 3.5 tsf	Stiff, brown, CLAY & SILT, little fine to coarse Sand, trace fine Gravel, damp (CL). Changing at 11.0 feet to: Very stiff, brown and gray, CLAY & SILT with intermittent 1/8 inch seams of fine to medium Sand, damp (CL).			

REMARKS

1. Pocket penetrometer readings were measured in tons per square foot (tsf) and are used to evaluate consistency of coheisve soil.

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
13	7	24/24	12-14	4-8 12-10	3.5 tsf 3.0 tsf	Very stiff, brown and gray, CLAY & SILT with intermittent 1/8 inch seams of fine to medium Sand, damp (CL). Changing at 13.2 feet to: Very stiff, gray, CLAY & SILT, little fine to coarse Sand, trace fine Gravel, damp (CL).	CLAY & SILT (CL)		
14	8	24/24	14-16	3-4 7-11	3.0 tsf	Very stiff, gray, CLAY & SILT, little fine to coarse Sand with intermittent 1/16" seams of fine to medium Sand, damp (CL).			
16	9	24/24	16-18	3-5 9-12	3.0 tsf	Very stiff, brown and gray CLAY & SILT, trace fine to medium Sand, damp (CL). Changing at 17.7 feet to: Medium dense, brown, fine to medium SAND, trace Silt, damp (SP).			
							17.7' SAND (SP)		
18	10	24/13	18-20	2-6 7-8		Medium dense, brown, fine to medium SAND, trace coarse Sand, trace Silt, damp (SP).			
							20'		
20	11	24/8	20-22	6-13 12-11	3.0 tsf	Very stiff, brown, CLAY & SILT, little fine to coarse Sand, damp (CL). Changing at 21.0 feet to: Medium dense, brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt, damp (SW).	CLAY & SILT (CL)		
21							21' SAND (SP)		
22	12	24/20	22-24	5-5 7-8		Medium dense, brown, fine to medium SAND, trace coarse Sand, trace fine to coarse Gravel, trace Silt, damp (SP).			
24	13	24/20	24-26	2-2 2-3		Medium dense, brown, fine to medium SAND, trace coarse Sand, trace fine to coarse Gravel, trace Silt, wet (SP).		2	

REMARKS

2. Groundwater was encountered at approximately 24.0 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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Check: Jim Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	14	24/13	26-28	1-1 3-2		Loose, brown, fine to medium SAND, trace coarse Sand, trace Silt, wet (SP).	SAND (SP)		
27									
28	15	24/14	28-30	1-1 2-3		Loose, brown, fine to medium SAND, trace coarse Sand, trace Silt, wet (SP).			
29									
30	16	24/24	30-32	3-1 3-4		Loose, brown, fine to medium SAND, trace coarse Sand, trace Silt, wet (SP). Changing at 31.0 feet to: Stiff, brown, CLAY & SILT, little fine to coarse Sand, moist (CL).	31'		
31					1.0 tsf		CLAY & SILT (CL)		
32	17	24/8	32-34	2-5 4-4	0.25 tsf	Very soft, brown, CLAY & SILT, some fine to coarse Sand, little fine Gravel, moist (CL).			
33									
34	18	24/14	34-36	6-3 6-7	1.5 tsf	Stiff, brown, CLAY & SILT, some fine to coarse Sand, little fine Gravel, damp (CL).			
35									
36	19	24/15	36-38	6-8 12-14	2.5 tsf	Very stiff, brown, CLAY & SILT, little fine to coarse Sand, trace fine Gravel, damp (CL).			
37									
38	20	24/14	38-40	8-16 12-12	3.5 tsf	Very stiff, gray, CLAY & SILT, some fine to coarse Sand, trace Cobbles (based on fragments), damp (CL).			
39									

REMARKS

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Boring No.: SB-9/MW-9D

BORING_WELL_TEST.GPJ GZA_CORP.GDT 5/17/18

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Check: Jim Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
41	21	24/16	40-42	2-9 31-17	>4.0 tsf	Hard, gray, CLAY & SILT, some fine to coarse Sand, trace fine to coarse Gravel, damp (CL).	CLAY & SILT (CL)		
42	22	24/22	42-44	3-4 10-14	2.5 tsf	Very stiff, gray, CLAY & SILT, little fine to coarse Sand, trace fine Gravel, damp (CL).			
44	23	24/19	44-46	4-6 15-18	3.0 tsf	Very stiff, gray, CLAY & SILT, little fine to coarse Sand, trace fine to coarse Gravel, damp (CL).			
46	24	24/20	46-48	3-15 32-28	>4.0 tsf	Hard, gray, CLAY & SILT, little fine to coarse Sand, trace fine to coarse Gravel, damp (CL).			
48	25	24/20	48-50	4-18 22-30	>4.0 tsf	Hard, gray, CLAY & SILT, little fine to coarse Sand, damp (CL).			
50	26	24/0	50-52	25-29 35-45		NO RECOVERY.	50' NO RECOVERY		
52	27	24/20	52-54	26-24 30-31	>4.0 tsf	Hard, gray, CLAY & SILT, some fine to coarse Sand, little fine to coarse Gravel, trace Cobbles (based on fragments), damp (CL).	52' CLAY & SILT (CL)		
53									

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	28	24/24	54-56	10-17 20-30	4.0 tsf	Hard, gray, CLAY & SILT, little fine to coarse Sand, trace fine Gravel, damp (CL).	CLAY & SILT (CL)		
55									
56	29	24/0	56-58	24-40 49-54		NO RECOVERY.	56' NO RECOVERY		
57									
58	30	24/24	58-60	8-18 20-31	>4.0 tsf	Hard, gray, CLAY & SILT, little fine to coarse Sand, trace fine Gravel, damp (CL).	58' CLAY & SILT (CL)		
59									
60	31	24/24	60-62	5-4 18-24	4.0 tsf	Hard, gray, CLAY & SILT, little fine to coarse Sand, trace fine Gravel, damp (CL).			
61									
62	32	24/24	62-64	6-14 14-15		Brown, poorly sorted, SILT & CLAY, little Sand, trace gravel, plastic, cohesive, moist (ML).	62' SILT & CLAY (ML)		
63									
64	33	24/24	64-66	6-12 15-17		Brown, poorly sorted, SILT & CLAY, little Sand, trace gravel, plastic, cohesive, moist (ML).			
65									
66	34	24/24	66-68	5-9 14-25		Brown, poorly sorted, SILT & CLAY, little Sand, trace gravel, plastic, cohesive, moist (ML).			
67									

REMARKS

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Check: Jim Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
69	35	24/24	68-70	9-14 19-26		Brown, poorly sorted, SILT & CLAY, little Sand, trace gravel, plastic, cohesive, moist (ML).	SILT & CLAY (ML)		
70	36	24/23	70-72	5-15 20-26		Brown grading to dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL).	70' CLAY & SILT (CL)		
71									
72	37	24/24	72-74	7-14 23-28		Brown grading to dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL).			
73									
74	38	24/24	74-76	9-11 15-20		Brown grading to dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL).			
75									
76	39	24/14	76-78	10-13 33-39		Brown grading to dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL).			
77									
78	40	24/24	78-80	5-25 19-23		Brown grading to dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL).			
79									
80	41	24/24	80-82	6-11 15-21		Brown grading to dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL).			
81									

REMARKS

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Check: Jim Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	42	24/24	82-84	10-15 23-25		Brown grading to dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL).	CLAY & SILT (CL)		
83									
84	43	24/12	84-86	7-14 21-20		Brown grading to dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL).			
85									
86	44	24/24	86-88	8-18 23-25		Brown grading to dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL).			
87									
88	45	24/15	88-90	5-38 33-33		Brown grading to dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL).			
89									
90	46	24/24	90-92	8-14 15-28		Brown grading to dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL).			
91									
92	47	24/24	92-94	15-16 25-33		Brown grading to dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL). Changing at 92.1 feet to: Dark grayish-brown, well sorted, Silty CLAY, plastic, cohesive, moist (CL).	92.1' Silty CLAY (CL)		
93									
94	48	24/24	94-96	13-22 37-43		Dark grayish-brown, well sorted, Silty CLAY, plastic, cohesive, moist (CL). Changing at 94.4 feet to: Dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL).	94.4' CLAY & SILT (CL)		
95									

REMARKS

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Boring No.: SB-9/MW-9D

BORING_WELL_TEST.GPJ GZA_CORP.GDT 5/17/18

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Check: Jim Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	49	24/24	96-98	8-18 30-23		Dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL).	CLAY & SILT (CL)		
97									
98	50	24/24	98-100	14-24 33-45		Dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL).			Grout
99									
100	51	24/21	100-102	19-29 47-50/3.5"		Dark grayish-brown, poorly sorted, CLAY & SILT, little Sand, trace Gravel, plastic, cohesive, moist (CL). Changing at 101.5 feet to: Dark grayish-brown, very well sorted, SILT, trace Clay, cohesive, non to slighty plastic, moist with occasional very thin lenses of Clayey Silt, moist (ML).			
101							101.5' SILT (ML)		
102	52	24/24	102-104	13-26 38-44		Dark grayish-brown, very well sorted, SILT, trace Clay, cohesive, non to slighty plastic, moist with occasional very thin lenses of Clayey Silt, moist (ML).			
103									
104	53	24/24	104-106	20-30 41-39		Dark grayish-brown, very well sorted, SILT, trace Clay, cohesive, non to slighty plastic, moist with occasional very thin lenses of Clayey Silt, moist (ML).			
105									
106	54	24/24	106-108	22-33 37-50		Dark grayish-brown, very well sorted, SILT, trace Clay, cohesive, non to slighty plastic, moist with occasional very thin lenses of Clayey Silt, moist (ML).			
107									
108	55	24/14	108-110	7-9 27-28		Dark grayish-brown, very well sorted, SILT, trace Clay, cohesive, non to slighty plastic, moist with occasional very thin lenses of Clayey Silt, moist (ML). Changing at 108.8 feet to: Dark grayish-brown, well sorted, CLAY, plastic, cohesive, moist (CL).			
109							108.8' CLAY (CL)		

REMARKS

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Boring No.: SB-9/MW-9D
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Check: Jim Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
111	56	24/14	110-112	20-41-50		Dark grayish-brown, well sorted, CLAY, plastic, cohesive, moist (CL). Changing at 110.3 feet to: Dark grayish-brown, very well sorted, SILT, trace Clay, cohesive, non to slightly plastic, moist with occasional very thin lenses of Clayey Silt, moist (ML).	110.3' CLAY (CL) / SILT (ML)		
112	57	24/15	112-114	9-30-50/5"		Dark grayish-brown, well sorted, CLAY, plastic, cohesive, moist (CL). Changing at 112.8 feet to: Dark grayish-brown, very well sorted, SILT, trace Clay, cohesive, non to slightly plastic, moist with occasional very thin lenses of Clayey Silt (ML).	112' CLAY (CL) / 112.8' SILT (ML)		
114	58	24/24	114-116	15-20 36-50		Dark grayish-brown, well sorted, CLAY, plastic, coesive, moist (CL). Changing at 114.4 feet to: Dark grayish-brown, very well sorted, SILT, trace Clay, cohesive, non to slightly plastic, moist with occasional very thin lenses of Clayey Silt, moist (ML). Changing at 114.6 feet to: Dark grayish-brown, well sorted, CLAY, plastic, cohesive, moist (CL). Changing at 115.2 feet to: Dark grayish-brown, well sorted, CLAY, plastic, cohesive, moist (CL).	114' CLAY (CL) / 114.4' SILT (ML) / 114.6' CLAY (CL) / 115.1' SILT (ML) / 115.2' CLAY (CL) / 116' SILT (ML)		
116	59	24/15	116-118	1-1 2-5					
118	60	24/13	118-120	4-11 23-42		Dark grayish-brown, very well sorted, SILT, trace Clay, cohesive, non to slightly plastic, moist with occasional very thin lenses of Clayey Silt (ML). Changing at 116.3 feet to: Grayish-brown, very well sorted, SILT, trace Clay, cohesive, non to slightly plastic, moist with occasional very thin lenses of Clayey Silt (ML). Grayish-brown, very well sorted, SILT, trace Clay, cohesive, non to slightly plastic, moist with occasional very thin lenses of Clayey Silt (ML).			
120	61	24/0	120-122	17-55		NO RECOVERY.	120' NO RECOVERY		
122	62	24/12	122-124	26-44-50/3"		Very dense, grayish-brown to brown, very well sorted, fine to medium grained SAND, trace Silt, wet (SP). Changing at 122.8 feet to: Very dense, grayish-brown to brown, very well sorted, fine grained SAND, some Silt, wet (SM).	122' SAND (SP) / 122.8' SAND (SM) / 124'	3	

REMARKS

3. Groundwater was encountered at approximately 122.0 feet below ground surface.

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	63	24/12	124-126	27-50/4"		Very dense, grayish-brown to brown, very well sorted, fine to medium SAND, trace Silt, wet (SP). Changing at 124.4 feet to: Dark gray, poorly sorted, SILT & CLAY, little Sand, trace Gravel, plastic, cohesive, moist (ML). Changing at 124.6 feet to: Very dense, grayish-brown to brown, very well sorted, fine to medium grained SAND, trace Silt, wet (SP).	SAND (SP) 124.4' 124.6' SILT & CLAY (CL) SAND (SP)		
125									
126	64	24/18	126-128	5-14-50/5"		Very dense, grayish-brown to brown, very well sorted, fine to medium grained SAND, trace Silt, wet (SP). Changing at 126.3 feet to: Dark grayish-brown, very well sorted, Silty CLAY, plastic, cohesive, bedded, moist (CL). Changing at 127.0 feet to: Very dense, brown to grayish-brown, very well sorted, fine to medium grained SAND, trace Silt, wet (SP).	126.3' Silty CLAY (CL) 127' SAND (SP)		
127									
128	65	24/14	128-130	8-46-50/2"		Very dense, brown to grayish-brown, well sorted, fine to medium grained SAND, little Silt, wet (SM).	128' SAND (SM)		
129									
130	66	24/6	130-132	36-50/4"		Very dense, brown to grayish-brown, well sorted, fine to medium grained SAND, little Silt, wet (SM).			
131									
132	67	24/9	132-134	26-50/4.5"		Very dense, brown to grayish-brown, well sorted, fine to medium grained SAND, little Silt, wet (SM). Changing at 132.3 feet to: Very dense, brown to dark brown, moderately sorted, coarse to fine grained SAND, trace Silt, wet (SW). Changing at 132.5 feet to: Very dense, brown to grayish-brown, well sorted, fine to medium SAND, little Silt, wet (SM).	132.3' 132.5' SAND (SW) SAND (SP)		
133									
134	68	24/3	134-136	5-10 39-50/4"		Dense, brown to grayish-brown, well sorted, fine to medium SAND, little Silt, wet (SM).			
135									
136	69	24/6	136-138	9-32-50/5"		Very dense, brown to grayish-brown, well sorted, fine to medium SAND, little Silt, wet (SM).			
137									

REMARKS

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Boring No.: SB-9/MW-9D

BORING_WELL_TEST.GPJ GZA_CORP.GDT 5/17/18

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Boring No.: SB-9/MW-9D
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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	70	24/4	138-140	50/5"		Very dense, grayish-brown, moderately sorted, fine to medium grained SAND, little Silt, trace Clay, trace Gravel, slightly cohesive, wet (SM).	SAND (SP)		
139									
140	71	24/6	140-142	50/5.5"		Very dense, grayish-brown, well sorted, fine grained SAND, trace Silt, non to slightly cohesive, wet with occasional very thin seams of Silty Clay (SP-SC).			
141									
142	72	24/4	142-144	50/4.5"		Very dense, brown to dark brown, moderately sorted, fine to coarse grained SAND, trace Silt, trace Clay, trace Gravel, wet (SW).	142' SAND (SW)		
143									
144	73	24/8	144-146	12-37-50/2"		Very dense, dark grayish-brown, poorly sorted, fine to coarse grained SAND, trace Gravel, trace Silt, trace Clay, wet (SW). Changing at 144.4 feet to: Very dense, pale brown grading to brown, moderately sorted, fine to coarse grained SAND, trace Silt, trace Gravel, non to slightly cohesive, wet (SW).			
145									
146	74	24/10	146-148	32-50/3.5"		Very dense, pale brown grading to brown, moderately sorted, fine to coarse grained SAND, trace Silt, trace Gravel, non to slightly cohesive, wet (SW).			
147									
148	75	24/9	148-150	35-50/3"		Very dense, pale brown grading to brown, moderately sorted, fine to coarse grained SAND, trace Silt, trace Gravel, non to slightly cohesive, wet (SP). Changing at 148.6 feet to: Very dense, pale brown, very well sorted, fine to medium SAND, trace Silt, wet (SP).	148.6' SAND (SP)		
149									
150	76	24/4	150-152	50/5"		Very dense, pale brown, moderately sorted, fine to coase grained SAND, trace Silt, trace Gravel, wet (SW).	150' SAND (SW)		
151							152'		

REMARKS

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	77	24/0	152-154	50/4"		NO RECOVERY.	NO RECOVERY		
153									
154	78	24/4	154-156	50/5.5"		Very dense, pale brown, moderately sorted, fine to coarse SAND, trace Silt, trace Gravel, wet (SW).	154' SAND (SW)		
155									
156	79	24/7	156-158	34-50/4"		Very dense, pale brown, moderately sorted, fine to coarse grained SAND, trace Silt, trace Gravel, wet (SW). Changing at 156.5 feet to: Pale brown, very well sorted, SILT, trace Clay, moderately cohesive, slightly plastic, wet (ML).	156.5' SILT (ML)		
157									
158	80	24/4	158-160	40-50/2.5"		Very dense, grayish-brown, very well sorted, fine grained SAND, little Silt, wet (SM).	158' SAND (SM)		
159									
160	81	24/3	160-162	50/5"		Very dense, grayish-brown, very well sorted, fine grained SAND, little Silt, wet (SM).			
161									
162	82	24/4	162-164	41-50/5"		Very dense, brown to dark brown, moderately well sorted, fine grained SAND, little Silt, wet (SM).			
163									
164	83	24/4	164-166	50/6"		Very dense, brown to dark brown, moderately well sorted, fine grained SAND, little Silt, wet (SM).			
165									

REMARKS

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	84	24/3	166-168	43-50/3"		Very dense, brown to dark brown, moderately well sorted, fine grained SAND, little Silt, wet (SM).	SAND (SM)		
167									
168	85	24/2	168-170	47-50/3"		Very dense, brown, well sorted, fine to medium SAND, little Silt, trace Clay, slightly cohesive, non to slightly plastic, wet (SM).			
169									
170	86	24/7	170-172	36-50/4"		Very dense, brown, well sorted, fine to medium SAND, little Silt, trace Clay, slightly cohesive, non to slightly plastic, wet (SM).			
171									
172	88	24/0	172-174	43-50/3"		Very dense, brown, well sorted, fine to medium SAND, little Silt, trace Clay, slightly cohesive, non to slightly plastic, wet (SM).			
173									
174	89	24/10	174-176	35-50		Very dense, brown, well sorted, fine to medium SAND, little Silt, trace Clay, slightly cohesive, non to slightly plastic, wet (SM). Changing at 174.2 feet to: Grayish-brown, very well sorted, SILT, little fine grained Sand, trace Clay, slightly cohesive, slightly plastic, moist to wet (ML).	174.2' SILT (ML)		
175									
176	90	24/0	176-178	28-50		NO RECOVERY.	176' NO RECOVERY		
177									
178	91	24/4	178-180	45-50/3.5"		Grayish-brown, very well sorted, SILT, little fine grained Sand, trace Clay, slightly cohesive, slightly plastaic, moist to wet (ML).	178' SILT (ML)		
179									
							180'		

REMARKS

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	92	24/1	180-182	45-50/3.5"		Very dense, brown, well sorted, fine to medium SAND, little Silt, trace Clay, slightly cohesive, non to slightly plastic, wet (SM).	SAND (ML)		
181									
182	93	24/6	182-184	50		Very dense, brown to dark brown, moderately well sorted, fine grained SAND, little Silt, wet (SM). Changing at 182.1 feet to: Brown to dark brown, very well sorted, SILT, moderately cohesive, wet (ML). Changing at 182.2 feet to: Brown to dark brown, moderately well sorted, fine grained SAND, little Silt, wet (SM). Changing at 182.4 feet to: Brown to dark brown, very well sorted, SILT, moderately cohesive, wet (ML). NO RECOVERY.	182.1' SILT (ML) 182.2' SAND (SM) 182.4' SILT (ML)		
183									
184	94	24/0	184-186	50/5.5"			184' NO RECOVERY		
185									
186	95	24/6	186-188	58/6"		Very dense, grayish-brown, very well sorted, fine to medium SAND, trace Silt, trace Clay, slightly cohesive, wet (SP).	186' SAND (SP)		
187									
188	96	24/5	188-190	75/6"		Very dense, grayish-brown, very well sorted, fine to medium SAND, trace Silt, trace Clay, slightly cohesive, wet (SP).			
189									
190	97	24/4	190-192	50/6"		Very dense, grayish-brown, very well sorted, fine to medium SAND, trace Silt, trace Clay, slightly cohesive, wet (SP).			
191									
192	98	24/2	192-194	50/5"		Very dense, grayish-brown, very well sorted, fine to medium SAND, trace Silt, trace Clay, slightly cohesive, wet (SP).			
193									

REMARKS

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
195	99	24/9	194-196	42-50/3"		Grayish-brown, very well sorted, fine to medium SAND, trace Silt, trace Clay, slightly cohesive, wet (SP). Changing at 194.3 feet to: Grayish-brown, very well sorted, SILT, cohesive, moist to wet (ML).	194.3' SAND (SP) / SILT (ML)		
196	100	24/9	196-198	15-38-50/3"		Grayish-brown, very well sorted, SILT, cohesive, moist to wet (ML).			
198	101	24/9	198-200	24-50/5"		Grayish-brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, slightly plastic, moderately cohesive, moist (CL). Changing at 198.2 feet to: Grayish-brown, very well sorted, SILT, cohesive, moist to wet (ML).	198' 198.2' CLAY & SILT (CL) / SILT (ML)		
200	102	24/4	200-202	28-50/3"		Grayish-brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, slightly plastic, moderately cohesive, moist (CL).	200' CLAY & SILT (CL)		
202	103	24/3	202-204	50/6"		Grayish-brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, slightly plastic, moderately cohesive, moist (CL).			Silica Sand Filter Pack
204	104	24/7	204-206	50/6"		Grayish-brown, poorly sorted, CLAY & SILT, some Sand, trace Gravel, slightly plastic, moderately cohesive, moist (CL). Changing at 204.3 feet to: Grayish-brown, well sorted, fine to medium grained SAND, litle Silt, moderately cohesive, wet (SM). Changing at 204.4 feet to: Grayish-brown, moderately well sorted, fine to medium SAND, little Silt,	204.3' SAND (SM)		Top of Well Screen
206	105	24/12	206-208	30-50/4"		trace Gravel, non-plastic, non-cohesive, moist to wet (SM). Grayish-brown, moderately well sorted, fine to medium SAND, little Silt, trace Gravel, non-plastic, non-cohesive, moist to wet (SM). Changing at 206.4 feet to: Grayish-brown, well sorted, SILT, trace Clay, slightly coheisive, moderately	206.4' 206.5' SILT (ML) / SAND (SM)		2-Inch Dia. 5-Foot PVC Screen (0.010" Slot)

REMARKS

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Boring No.: SB-9/MW-9D

BORING_WELL_TEST.GPJ GZA_CORP.GDT 5/17/18

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	106	24/9	208-210	19-24 23-25		cohesive, moist to wet (ML). Changing at 206.5 feet to: Dense, grayish-brown, moderately well sorted, fine to medium SAND, little Silt, trace Gravel, non-plastic, non-cohesive, moist to wet (SM).	SAND (SM) 208.4' SILT (ML) 208.8' Silty CLAY (CL)		Bottom of Well Screen
209						Dense, grayish-brown, moderately well sorted, fine to medium SAND, little Silt, trace Gravel, non-plastic, non-cohesive, moist to wet (SP). Changing at 208.4 feet to: Grayish-brown, well sorted, SILT, trace Clay, slightly cohesive, moderately cohesive, moist to wet (ML). Changing at 208.8 feet to: Grayish-brown, very well sorted, Silty CLAY, plastic, cohesive, moist (CL).			
210	107	24/8	210-212	14-18-75/6"					
211							211.3' SAND (SM)		
212	108	24/15	212-214	19-45-50/3"		Grayish-brown, very well sorted, Silty CLAY, plastic, cohesive, moist (CL). Changing at 211.3 feet to: Grayish-brown, moderately well sorted, fine to medium SAND, little Silt, trace Gravel, non-plastic, non-cohesive, moist to wet (SM).	212' Silty CLAY (CL) 212.9'		
213						Grayish-brown, very well sorted, Silty CLAY, plastic, cohesive, moist (CL). Changing at 212.9 feet to: Grayish-brown, well sorted, fine to medium SAND, little Silt, trace Clay, wet with occasional very thin Silty Clay seams (SM).	SAND (SM)		
214	109	24/12	214-216	34-50/3"		Grayish-brown, well sorted, fine to medium SAND, little Silt, trace Clay, wet with occasional very thin Silty Clay seams (SM). Changing at 214.7 feet to: Grayish-brown, moderately well sorted, fine to medium SAND, little Silt, trace Gravel, non-plastic, non-cohesive, moist to wet (SM). Changing at 214.9 feet to: Grayish-brown, well sorted, SILT, trace Clay, slightly to moderately coheisve, moist to wet (ML).	214.9' SILT (ML)		
215									
216	110	24/18	216-218	18-27-50/5"			216' Silty CLAY (CL)		
217						Grayish-brown, very well sorted, Silty CLAY, plastic, cohesive, moist (CL). Changing at 217.4 feet to: Dark gray with reddish-yellow stains, poorly sorted, CLAY & SILT, some Sand, trace Gravel, wet (CL).	217.4' CLAY & SILT (CL)		
218	111	24/18	218-220	15-32-50/4"		Grayish-brown, very well sorted, Silty CLAY, plastic, cohesive, moist (CL).	218' Silty CLAY (CL)		
219									
220						Bottom of Borehole at 220.0 Feet	220'	4	
221									

REMARKS

4. Monitoring well was installed in borehole upon completion. Well screen set from 203.0 to 208.0 feet below ground surface.

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Boring No.: MW-10M
Page: 1 **of** 2
File No.: 16.0062335.52
Check: Jim Cai

Contractor: Stearns Drilling Company
Foreman: Jerry Huntoon
Logged by: Joe Workman
Date Start/Finish: 11-20-17 / 11-29-17
Boring Location:
GS Elev.: 778.10' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1						See SB-10/MW-10D boring log for sample description and classification.			PROTECTIVE CASING
61									Grout

REMARKS

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Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
81–172						Bottom of Borehole at 131.0 Feet		1	Bentonite Seal; Top of Well Screen; Silica Sand Filter Pack; 2-Inch Dia. 5-Foot PVC Screen (0.010" Slot); Bottom of Well Screen

REMARKS

1. Monitoring well was installed in borehole upon completion. Well screen set from 125.0 to 130.0 feet below ground surface.

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Boring No.: MW-10S
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File No.: 16.0062335.52
Check: Jim Cai

Contractor: Stearns Drilling Company
Foreman: Jerry Huntoon
Logged by: Joe Workman
Date Start/Finish: 11-20-17 / 11-29-17
Boring Location:
GS Elev.: 778.10' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	8.0" / 4.25"	2.0" / 1 3/8"
Hammer Wt.:	140lbs	NA
Hammer Fall:	30"	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1–29						See SB-10/MW-10D boring log for sample description and classification.			PROTECTIVE CASING; Grout

REMARKS

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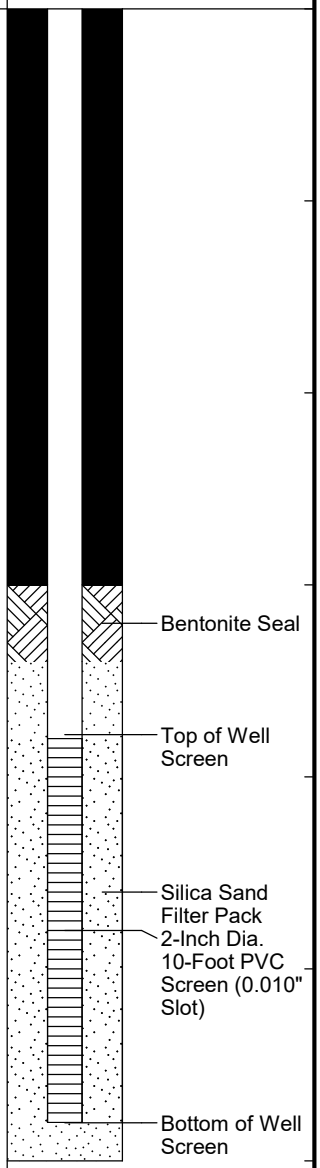
Check: Jim Cai

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
31–64						Bottom of Borehole at 60.0 Feet		1	



REMARKS

1. Monitoring well was installed in borehole upon completion. Well screen set from 49.0 to 59.0 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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House Street
Belmont, Michigan

Boring No.: MW-11M
Page: 1 **of** 3
File No.: 16.0062335.52
Check: Jim Cai

Contractor: Stearns Drilling Company
Foreman: Jerry Huntoon
Logged by: Julie Groenleer/Joe Workman
Date Start/Finish: 11-8-17 / 11-9-17
Boring Location: NB US 131
GS Elev.: _____ **Datum:** _____

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	NA
O.D. / I.D.:	8.0" / 4.25"	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:** _____

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1						See SB-11/MW-11D boring log for detailed soil descriptions.			PROTECTIVE CASING
2									
3									
4									
5									
6									
7									
8									
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30									
31									
32									
33									
34									

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: MW-11M

BORING_WELL_TEST.GPJ GZA_CORP.GDT 5/17/18

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Boring No.: MW-11M
Page: 2 **of** 3
File No.: 16.0062335.52
Check: Jim Cai

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
36									
37									
38									
39									
40									
41									
42									
43									
44									
45									
46									Grout
47									
48									
49									
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REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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Boring No.: MW-11M
Page: 3 **of** 3
File No.: 16.0062335.52
Check: Jim Cai

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
77–116						Bottom of Borehole at 100.0 Feet			Top of Well Screen; Silica Sand Filter Pack; 2-Inch Dia. 5-Foot PVC Screen (0.010" Slot); Bottom of Wellscreen

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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Boring No.: MW-11S
Page: 1 **of** 1
File No.: 16.0062335.52
Check: Jim Cai

Contractor: Stearns Drilling Company
Foreman: Jerry Huntoon
Logged by: Joe Workman
Date Start/Finish: 11-9-17 / 11-9-17
Boring Location: NB US 131
GS Elev.: _____ **Datum:** _____

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	NA
O.D. / I.D.:	8.0" / 4.25"	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

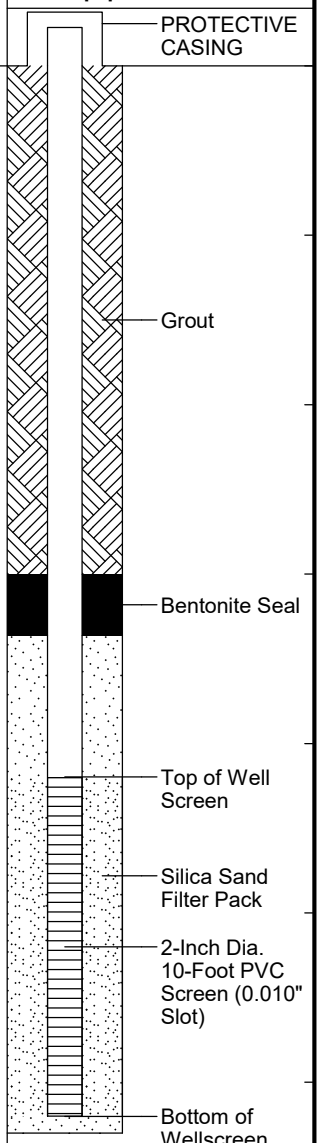
GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: NA **Survey Date:** _____

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks
1–31						See SB-11/MW-11D boring log for detailed soil descriptions.		
32						Bottom of Borehole at 31.5 Feet		
33								

Equipment Installed



REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

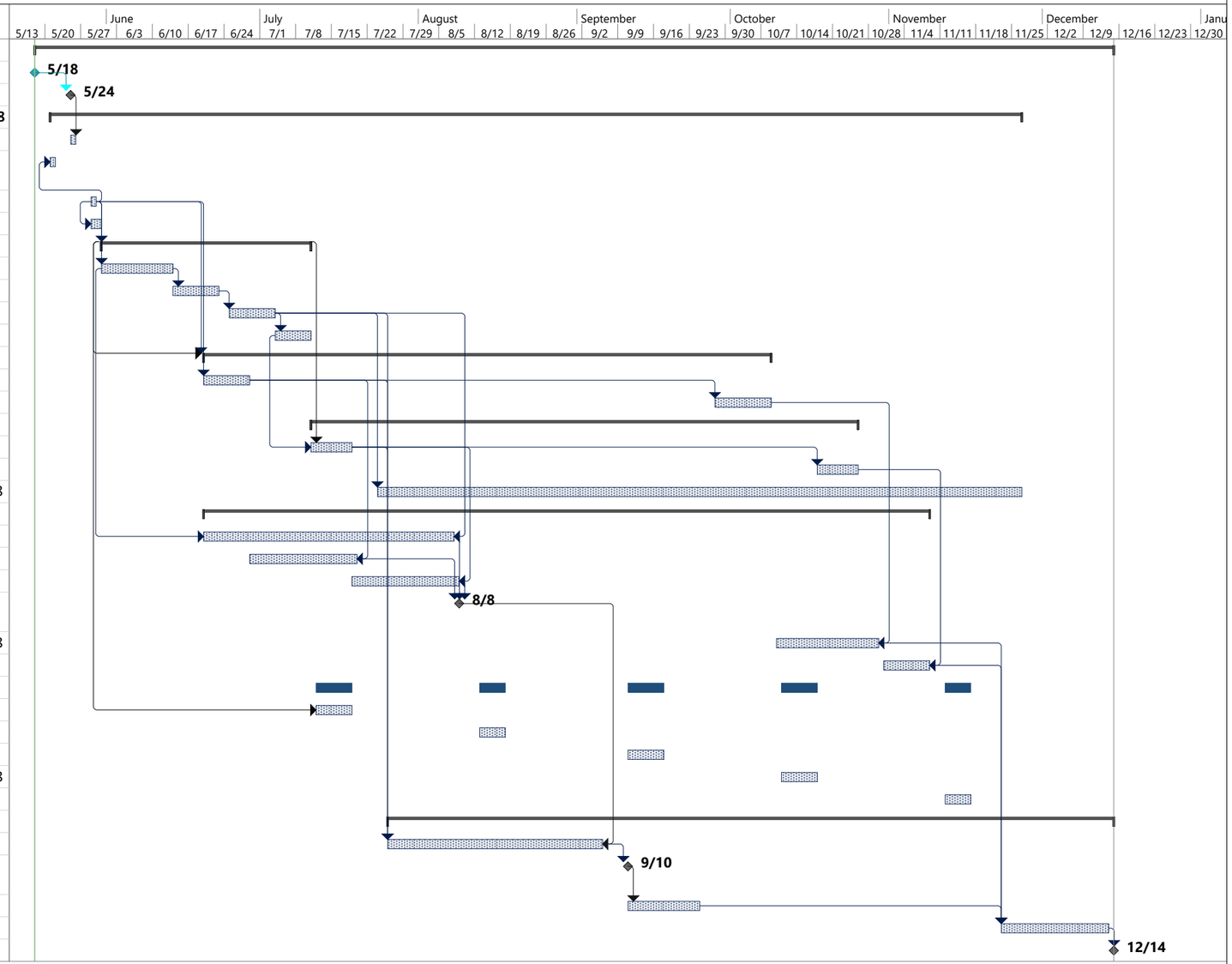
Boring No.: MW-11S

BORING_WELL_TEST.GPJ GZA_CORP.GDT 5/17/18

APPENDIX B

ESTIMATED PROJECT SCHEDULE

ID	Task Mode	Task Name	Duration	Start	Finish
1		**Unilateral Administrative Order (UAO)**	**151 days?**	**Fri 5/18/18**	**Fri 12/14/18**
2		Submittal of Final Removal Work Plan	0 days	Fri 5/18/18	Fri 5/18/18
3		EPA Approval of Removal Work Plan	0 days	Thu 5/24/18	Thu 5/24/18
4		**Site Work**	**136 days?**	**Mon 5/21/18**	**Mon 11/26/18**
5		Notify EPA 48 Hours Prior to Performing On-Site Work	1 day	Fri 5/25/18	Fri 5/25/18
6		Notify EPA and State 7 Days Prior to Sample Collection Activities	1 day	Mon 5/21/18	Mon 5/21/18
7		Mobilization	1 day	Tue 5/29/18	Tue 5/29/18
8		Placement of Warning Signs	2 days	Tue 5/29/18	Wed 5/30/18
9		**Drilling and Soil Sampling**	**29 days?**	**Thu 5/31/18**	**Tue 7/10/18**
10		25 Ft Grid Biased Soil Sampling	10 days	Thu 5/31/18	Wed 6/13/18
11		Biased Soil Sampling at Remaining 7 Areas	7 days?	Thu 6/14/18	Fri 6/22/18
12		400 Ft Grid Systematic Soil Sampling	7 days	Mon 6/25/18	Tue 7/3/18
13		Soil Gas Monitoring Well Installation	5 days	Wed 7/4/18	Tue 7/10/18
14		**Groundwater Sampling**	79 days?	Wed 6/20/18	Mon 10/8/18
15		First Groundwater Sampling Event	7 days?	Wed 6/20/18	Thu 6/28/18
16		Second Groundwater Sampling Event	7 days?	Fri 9/28/18	Mon 10/8/18
17		**Soil Gas Sampling**	77 days	Wed 7/11/18	Thu 10/25/18
18		First Soil Gas Sampling Event	6 days	Wed 7/11/18	Wed 7/18/18
19		Second Soil Gas Sampling Event	6 days	Thu 10/18/18	Thu 10/25/18
20		Investigation Derived-Waste Disposal	90 days	Tue 7/24/18	Mon 11/26/18
21		**Laboratory Analysis**	**102 days?**	**Wed 6/20/18**	**Thu 11/8/18**
22		Soil Sampling Analytical Data	35 days	Wed 6/20/18	Tue 8/7/18
23		First Groundwater Sampling Event Data	15 days	Fri 6/29/18	Thu 7/19/18
24		First Soil Gas Sampling Data	15 days	Thu 7/19/18	Wed 8/8/18
25		Receipt of All Soil and First Round Groundwater and Soil Gas EDDs	0 days?	Wed 8/8/18	Wed 8/8/18
26		Second Groundwater Sampling Event Data	14 days	Wed 10/10/18	Mon 10/29/18
27		Second Soil Gas Sampling Data	7 days	Wed 10/31/18	Thu 11/8/18
28		**Monthly Progress Report**	**92 days**	**Thu 7/12/18**	**Fri 11/16/18**
29		Monthly Progress Report 1	5 days	Thu 7/12/18	Wed 7/18/18
30		Monthly Progress Report 2	5 days	Mon 8/13/18	Fri 8/17/18
31		Monthly Progress Report 3	5 days	Tue 9/11/18	Mon 9/17/18
32		Monthly Progress Report 4	5 days	Thu 10/11/18	Wed 10/17/18
33		Monthly Progress Report 5	5 days	Mon 11/12/18	Fri 11/16/18
34		**Report Preparation**	**102 days?**	**Thu 7/26/18**	**Fri 12/14/18**
35		Preparation of Report	30 days	Thu 7/26/18	Wed 9/5/18
36		Submit Final Report (W/O 2nd Round Groundwater and Soil Gas Data)	3 days	Thu 9/6/18	Mon 9/10/18
37		EPA Review	10 days	Tue 9/11/18	Mon 9/24/18
38		Preparation of Report Addendum with 2nd Round Data	15 days	Fri 11/23/18	Thu 12/13/18
39		Submit Report Addendum with 2nd Round Data	1 day?	Fri 12/14/18	Fri 12/14/18



Project: UAO schedule 051718
Date: Fri 5/18/18

Task | Split | Milestone | Summary | Project Summary | Inactive Task | Inactive Milestone | Inactive Summary | Manual Task | Duration-only | Manual Summary Rollup | Manual Summary | Start-only | Finish-only | External Tasks | External Milestone | Deadline | Progress | Manual Progress

FIGURES

TABLES

APPENDIX A

SOURCE AREA SOIL BORING LOGS

APPENDIX B

ESTIMATED PROJECT SCHEDULE