

EXHIBIT 8

Geotechnical Plans & Specifications

May 4, 2023

John Ford
President
Three Leaf Partners
504 W. Juneau Avenue
Milwaukee WI, 53203



Subject: Geotechnical Subsurface Investigation
Hartland Quarry Apartments
700/701 W. Capitol Drive, Hartland, Wisconsin

Dear Mr. Ford:

GeoTest, Inc. (GeoTest) has prepared this geotechnical engineering report related to the above-referenced project. This report describes the subsurface exploration and laboratory testing programs and presents recommendations regarding foundation support of the proposed structures, construction of floor slabs, pavements, and stormwater management systems, bluff stabilization, and includes other construction considerations. All environmental-related services are being provided by others.

Project Description

Three Leaf Partners is proposing to develop the property located at 700/701 W. Capitol Drive in the Village of Hartland, Wisconsin. The location of the project is illustrated in Figure 1 in Appendix A. The boundaries of the combined 45-acre property are illustrated in Figure 2 in Appendix A.

The proposed development consists of eighteen separate buildings, including a single-story club house, two- and three-story apartment buildings (some slab-on-grade and some with below-grade parking), and single-story garage buildings. The development will also include parking and drive paved areas and multiple stormwater management devices. The proposed development is illustrated in Figure 3 in Appendix A.

Structural loads have not been provided. However, we anticipate that column and wall loads will not exceed 300 kips and 5 kips per linear foot, respectively.

The finished floor elevations for the new buildings have not been provided but are expected to vary across the property. The preliminary civil engineering plans indicate cuts and fills of up to 15 feet are anticipated to achieve the final site grades.

The stormwater management facilities are designed, on a preliminary basis, to consist of four infiltration ponds. The entire development will be internally drained.

The perimeter bluffs currently have slopes steeper than 1h:1v, with many sections close to 0.75h:1v. The proposed development plan assumes the final slopes will be designed for 2h:1v.

Property History

To develop an appropriate geotechnical scope of work for this project, research and a site walk-through were completed. The research included reviewing local well logs (available from Waukesha County), a past environmental investigation report (produced by Drake Environmental, Inc.), and construction materials testing reports (produced by Gestra Engineering, Inc.). The Well logs and Drake and Gestra documents are included in Appendix B.

We interviewed individuals familiar with past activities at the property, including Jason Palmer with Cass Custom Crushing and Ed Troxell with Riv/Crete Ready Mix. We also toured the property with Jason and Ed, along with employees from Walbec Group, the project's civil engineering consultant.

The geologic settling at the property was described as granular (primarily sand and gravel) glacial deposits. The property was mined for road gravel from the 1930's to the 1960's (known as Palmer Sand & Gravel), after which it became a concrete plant under multiple company names. The concrete plant operations were located in the southwest corner of the property but are no longer active.

The property owners began accepting fill materials in the 1970's, which still occurs. Most of the fills appear to consist of soil and concrete wastes, but also occasional inert materials that include asphalt, building materials, wood, and metal. It is currently being used as an operational base for a trucking company and to store construction equipment.

Most of the property perimeter was lined with bluffs formed by past mining operations. Although the property's ground surface was near the adjacent property elevations in the southwest corner, the remaining elevation differences were as high as 85 feet. Therefore, an integral aspect of the development plan includes addressing the substantial perimeter embankments, not only for safety but also to maximize the buildable area.

Two areas that were unusual, with an unknown history, were the apparent overburden stockpiled soils forming the north boundary of the former concrete plant area at the southwest corner of the property, and the bluff peninsula in the east portion of the former pit that extends northward from the south property boundary. It was believed that the overburden stockpiled soils were placed as a buffer between the adjacent residential area to the west and to serve as a ramp for trucks to unload into a crusher. No one had an explanation for why the bluff peninsula was not excavated during the

mining operations, other than maybe they were unsuitable for production. These two areas were identified for evaluation, in addition to the overall pit base and bluffs.

Scope of Work

Geotechnical Subsurface Exploration

The research identified five areas with different soils and materials to be targeted for evaluation. These areas (described below) are illustrated on Figure 4 in Appendix A. This figure does not illustrate the bluff areas, although they also warranted evaluation.

- Industrial Development Area (including the apparent overburden stockpiled soils)
- Construction Debris Fill
- Soft Clay/Silt Sediment
- Compacted Imported Soil Fill
- Native Soils – Pit Base

The following geotechnical exploration program was developed to evaluate these areas:

- Nine test pits were excavated to depths of about 6 to 11 feet.
- Nineteen surface samples were collected from the perimeter bluffs.

The approximate sampling locations are identified on the Sampling Location Diagram (Figure 5) in Appendix A. Representative samples from the test pits and bluffs were collected in buckets and returned to GeoTest for laboratory testing and classification.

The test pit locations, the ground surface elevations at the test pits, and their depths were measured by a Walbec surveyor at the time they were excavated. Their locations and the elevation/depth data are represented on two figures provided by Walbec, which are included in Appendix B.

Laboratory Testing

The laboratory testing program consisted of the following:

- Modified Proctor testing of four samples.
- Grain Size Analyses of twenty-three samples.
- Atterberg Limits testing of one sample.

All laboratory results are presented in reports included in Appendix C.

In addition, a GeoTest geotechnical engineer examined and visually classified each sample, based on texture and plasticity, in accordance with the Unified Soil Classification System (USCS). General notes and a description of the USCS

classification system are included in Appendix C. The soil descriptions are presented in this report.

The recovered soil samples will be retained for 60 days after the date of this report. Unless other instructions as to their disposition are received, they will be discarded at that point.

Soil and Groundwater Conditions

The following narrative is a generalization of the subsurface conditions encountered on the property. Please recognize that the conditions can vary in areas between the sample locations.

Subsurface Conditions

The dominant geology on the property was described as well-grade granular glacial deposits, consisting of sand and gravel with variable percentages of fines (clay and silt), along with occasional cobbles and boulders. Differences from these native deposits included the placement of imported fill soils and man-made materials, primarily concrete in various forms.

The results of the test pit and bluff sampling programs are presented below. Following that information, the five ground surface areas are discussed.

Test Pits - The GeoTest test pit exploration program was designed to evaluate the subsurface conditions at each of the five areas where different soils or materials were expected. The following table summarizes the soils/materials encountered at the test pits.

Test Pit	Depth, ft	Description
TP-1 & TP-2 ¹	0-6.4	SC-SM: Fine to coarse sand, some gravel, little clay and silt, occasional cobbles and boulders; brown; moist (32.8% gravel, 43.6% sand, 23.6% fines) – appeared to be native soil deposits.
TP-3 ³	0-5.6	SW-SM: Fine to coarse sand and gravel, few clay and silt, occasional cobbles; brown; moist (43.0% gravel, 46.4% sand, 12.6% fines) – appeared to be native soil deposits.
TP-4 ²	0-11.3	FILL (Rubble): Concrete and asphalt fragments, metal, wood, intermixed sand and gravel.
TP-5 ²	0-3	FILL (Rubble): Concrete fragments intermixed sand and gravel.
TP-5 ³	3-9.1	FILL (SP-SM): Fine sand, little medium to coarse sand, little gravel, few silt; brown; moist (20.7% gravel, 66.9% sand, 12.4% fines) – appeared to be fill soils.
TP-6 ⁴	8.1	GW: Fine to coarse gravel, some fine to coarse sand, trace silt, occasional cobbles and boulders; brown; moist (61.8% gravel, 35.3% sand, 2.9% fines) – appeared to be native soil deposits.

TP-7 ⁵	0-9	FILL (SW-SM): Fine to coarse sand, some gravel, few silt; brown; moist – compacted fill (tested by Gestra) that originated from a local utility construction project.
TP-7 ⁴	9-10.4	GW: Fine to coarse gravel, some fine to coarse sand, trace silt, occasional cobbles and boulders; brown; moist – appeared to be native soil deposits.
TP-8 ⁶	0-5.5	SEDIMENT (CL-ML): Clayey silt, trace fine sand; orange-brown; saturated; soft – appeared to be sediment run-off from the adjacent bluff peninsula and concrete fill area.
TP-8 ⁴	5.5-6.2	GW: Fine to coarse gravel, some fine to coarse sand, trace silt, occasional cobbles and boulders; brown; moist – appeared to be native soil deposits.
TP-9	6.6	GW: Fine to coarse gravel, some fine to coarse sand, few silt, occasional cobbles and boulders; brown; moist (56.2% gravel, 37.0% sand, 6.8% fines) – appeared to be native soil deposits.

Notes:

- 1- The samples from TP-1 and TP-2 were composited because these soils are expected to be excavated and reused as an engineered fill.
- 2- No sample was collected because these materials will be segregated, and the soil and concrete will be crushed for reuse as an engineered fill.
- 3- This sample was subjected to the Modified Proctor test because it is projected to be excavated and reused as an engineered fill.
- 4- This sample was not subjected to the Modified Proctor test because it will not be excavated for reuse as an engineered fill.
- 5- This sample was not tested because it will not be excavated for reuse as an engineered fill (the Gestra field density test results passed).
- 6- This sample was not tested because it should be excavated and is not suitable for reuse as an engineered fill.

Bluff Samples - The samples collected from the perimeter bluffs were subjected to Grain Size Analyses (sieve testing) to understand the grain size distribution and determine certain material coefficients that can be used in slope stability analyses. The following table summarizes the distribution of gravel, sand, and fines.

Bluff Sample	Percent Gravel	Percent Sand	Percent Fines	USCS Class
1	54.9	44.0	1.1	GW
2	0.0	3.2	96.8	CL
3	55.1	38.6	6.3	GW-GM
4	56.3	40.6	3.1	GW
5	36.1	57.4	6.5	SW-SM
6	28.5	62.2	9.3	SW-SM
7	8.0	84.3	7.7	SW-SM
8	11.5	57.6	30.9	SM

9	9.4	61.7	28.9	SM
10	42.7	47.9	9.4	SW-SM
11	11.6	61.4	27.0	SM
12	20.1	69.1	10.8	SW-SM
13	54.6	40.9	4.5	GW-GM
14	18.5	45.6	35.9	SM
15	29.5	52.3	18.2	SM
16	13.5	62.1	24.4	SC
17	9.3	67.4	23.3	SC
18	42.4	43.9	13.7	SM
19	42.9	46.2	10.9	SM

In summary, the above results indicate that the bluff soils are almost entirely granular and vary in their fine content. Only one sample was a fine soil (clay), present along the south side of the bluff peninsula in the east portion of the property that extends from the south property boundary. The majority of the bluff soils met the OSHA definition of Type C, which requires a minimum slope of 1.5h:1v. Some areas met Type B, which require a minimum slope of 1h:1v.

Industrial Development Area - The boring logs generated by Drake during their environmental investigation indicated that the soils present in the southwest portion of the property primarily consisted of layered sands, with variable clay, silt, and gravel content. Occasional silt layers were also noted. Most of the soil to depths of 10 to 15 feet was described as fill or possible fill, which could have been placed to facilitate the existing development, including backfill in the former underground storage tank (UST) cavities.

The Drake boring logs indicated the granular soils exhibited very loose to very dense relative densities, with N-values ranging from 1 to 72. The lowest values (less than 5) were located at the former UST cavity. Excluding the UST backfill soils, all N-values (except two) exceeded 10 and averaged 32. The relatively uniform and high N-values suggest most of the soils are likely native deposits and not fills.

Two test pits were excavated (TP-1 and TP-2) and two bluff samples (B18 and B19) were collected to evaluate the nature of the apparent overburden stockpiled soils. The test pit and bluff samples were similar in nature, and all appeared to be native soil. A visual evaluation of the soils making up this area concluded that there is a combination of both native glacial deposits and fills soils that make up this higher ground.

One test pit (TP-3) was excavated to determine if the former concrete plant area is underlain by native or fill soils. This sample appeared to be native and were similar to the samples from TP-1 and TP-2.

Construction Debris Fill Area – Two test pits (TP-4 and TP-5) were excavated in this area. As anticipated, the materials at TP-4 were mostly buried concrete rubble and concrete truck washouts. The profile also included other inert materials, such as asphalt, metal, wood, and intermixed sand and gravel soil. The fill extended deeper than could be excavated. The materials at TP-5 consisted of concrete rubble overlying fine sand fill. The sand fill likely is the remnant of a stockpile created during the past mining and concrete plant operations.

Compacted Soil Fill Area - The soils placed in this area are represented by the Gestra documents and the sample from TP-7. This soil was imported from a local utility construction project by Musson Brothers and described as sandy gravel. We were told that the soil was placed in 1-foot lifts and compacted. Gestra tested them for compaction at three surface locations, which passed the 95% specification. The test pit exposed soils also described as sand and gravel fill to a depth of about 9 feet overlying native sand and gravel. The test pit walls remained vertical, and the soil appeared to be dense and well compacted.

Soft Clay/Silt Sediment – The soils in this area are represented by the sample from TP-8. They appeared to have accumulated as run-off from the adjacent higher finger bluff and concrete rubble fill areas. They were fine grained clay and silt that were saturated. While traversing this area with the backhoe, it sank about 3 feet, prompting the decision to excavate the test pit. The soft, saturated sediments extended to a depth of about 5.5 feet and overlay native sand and gravel soil.

Native Soils – Pit Base Area – Two test pits (TP-6 and TP-9) were excavated in the areas believed to be the final base of the original mining pit. These two samples were similar in nature and both described as mostly well-graded gravel with some sand and trace to few silt fines. These soils were also similar to bluff samples B1, B3, B4, and B13, where the original pit was terminated due to property boundary restrictions.

Groundwater Conditions

Free groundwater was not encountered in any of the test pits. Groundwater was noted in the Drake report at depths of 8 to 10 feet. The nearby potable well reports indicated the depth to groundwater ranged from 55 to 135 feet, from ground surface elevations up to 85 feet above the pit base. Based on this data, the normal groundwater table likely exists at a depth of about 10 to 20 feet below the pit base.

Fluctuations in the groundwater table elevation should be expected with variations in precipitation, evapotranspiration, surface runoff, etc. Also, shallow perched groundwater conditions should be expected where relatively permeable granular soils are underlain by relatively impermeable cohesive soils, especially following precipitation events.

Analysis and Recommendations

There are eight primary issues that should be considered when planning this project.

- Fill materials exist on the property. The fills vary from construction soil placed in the developed area, UST backfill, construction rubble, compacted imported soil, and general grading materials. Other than the compacted imported soil, most other fills are not suitable for support of engineered fill and structural elements.
- Most building foundations will bear upon engineered fill placed to raise low areas of the property. It will be important to plan for sufficient quality-control measures during site grading and construction to ensure competent bearing conditions.
- Saturated clay and silt soils exist in the "Sediment" area, which are highly sensitive to construction activity and are not suitable for the support of engineered fill and structural elements.
- The compacted imported soil area only had three field density tests. Additional testing should be conducted to confirm they are consistent and suitable for the support of engineered fill and structural elements.
- Unexpected materials or items could be buried on the property that would not be suitable for reuse, such as construction equipment, organic material such as timber and vegetation.
- Subsurface elements related to past developments exist, including foundations, slabs, and utilities. These features should be identified and removed within structural areas.
- Although not encountered during this evaluation, it is possible that clay and silt soils could be encountered during the site improvement activities. These soil types are sensitive to moisture variations and could cause construction challenges and schedule delays.
- Although the perimeter bluffs vary in soil type, they should all be uniformly designed for safety and stability.

Foundation Support

Once the property has been properly prepared (described below), the proposed buildings can be supported on conventional, shallow spread footings. The foundations can likely be designed using an allowable bearing capacity value of 3,000 psf to 6,000 psf, depending on the final grades and localized bearing conditions. Properly designed and constructed footings should experience total and differential settlements of less than 1 inch and $\frac{3}{4}$ inch, respectively.

Traditionally, perimeter footings and interior footings in unheated areas should bear at a depth of at least 48 inches below the final exterior grade to provide adequate frost protection. If desired, exterior footings can bear at shallower depths by following ASCE 32-01 (American Society of Civil Engineers, Design and Construction of Frost-Protected Shallow Foundations, 2001). Interior footings not subject to frost can bear directly beneath the floor slab.

Seismic Design

The soil conditions present at a site are utilized in determining the Seismic Design Category (SDC) for structures. Part of selecting the SDC is determining the Site Class for the soils, which categorizes common soil conditions into broad classes, where typical ground motion attenuation and amplification effects are assigned. Site Class is determined based on the average properties of the soil within 100 feet of the ground surface. Geotechnical engineers use a variety of parameters to characterize the engineering properties of these soils, including general soil classifications (e.g., hard rock, soft clay, etc.), N-values, and laboratory testing.

Site Class A includes hard rock that is typically found only in the eastern United States. The types of rock typically found in the western states include various volcanic deposits, sandstones, shales, and granites that commonly have the characteristic appropriate to either Site Class B or C. Sites with very dense sands and gravels or very stiff to hard clay deposits also may qualify as Site Class C. Sites with relatively stiff cohesive or medium dense non-cohesive soils, including mixtures of clays, silts, and sands, are categorized as Site Class D. Site Class D is the most common site class throughout the United States. Sites along rivers or other waterways underlain by deep soft clay deposits are categorized as Site Class E. Sites where soils are subject to liquefaction or other ground instabilities are categorized as Site Class F and site-specific analyses are required.

Based on the types of soils present at the boring locations at this property, and their apparent engineering properties, Site Class D is assigned to the site, as defined in the International Building Code (2015) Section 1613.

Floor Slab Support

The expected final subgrade soils should be suitable for support of concrete floor slabs. However, the floor slab areas should be proof-rolled and soft areas removed or improved prior to the placement of base course materials. An average subgrade modulus value of 150 pounds per cubic inch (pci) is appropriate.

Below-grade Walls

A coefficient of friction of 0.35 may be used with dead load forces for wall footings that bear on suitable (as defined in the geotechnical report) native soils or engineered fill.

The lateral earth pressure value ranges presented below assume that the walls are vertical, that a clean, free-draining granular fill (P200 <6%) is used as backfill within 2 feet behind the wall, the backfill condition at the ground surface is level, and that adequate drainage is provided to prevent the buildup of hydrostatic pressures.

Retaining Wall Design Parameters	
Soil Unit Weight	140 pcf
Angle of Internal Friction	35°
Soil Cohesion	0 psf
Earth Pressure Coefficient	
At Rest Design Parameters	0.46
Active Design Parameters	0.30
Passive Design Parameters	3.35

We recommend using a minimum safety factor of 2.0 in passive earth pressure calculations, ignoring the upper 2 feet of soil in frost protected areas and 4 feet of soil in other areas. For walls that are free to rotate at least 0.001 times the height of the wall, such as a temporary earth retention system and retaining walls, an active earth pressure condition will develop. For walls that will be restrained, such as permanent below-grade walls, an at-rest condition will develop. For walls that rotate towards the soil, a passive condition will develop. Below-grade and retaining wall design should also consider surface and subgrade surcharge loading.

Special attention should be employed during placement of backfill against below-grade and retaining walls. Inadequate placement and compaction of backfill will result in at-grade structural elements and slab/pavement settlement and distress. To achieve a balance between minimizing excessive pressures against the walls during construction and reducing the settlement of the wall backfill, the granular backfill should be compacted to at least 90 percent of the maximum dry density obtained in accordance with ASTM Specification D1557, Modified Proctor Method. Where backfill supports structural elements, sidewalks, or pavements, the upper 4 feet should be compacted to 95% of the maximum dry density (Modified Proctor). Lifts of 4 to 6 inches can be effective in achieving compaction requirements.

Drainage should be provided behind below-grade walls to prevent the buildup of hydrostatic pressures. We recommend that free-draining granular drainage aggregate be placed within 2 feet behind the back face of the walls.

A relatively impermeable barrier at the ground surface is recommended, such as a minimum 2-foot-thick clay cap or Bituminous or Portland cement concrete (i.e., walkways and drives) to minimize surface water infiltration into backfill against walls. The impermeable barrier should slope away from the structure at a minimum 2 percent grade.

Engineered Fill, Wall, and Utility Trench Backfill

The on-site soil and materials (if processed properly) can be reused as engineered fill. All engineered fill, wall, and utility trench backfill should consist of inorganic materials,

free of debris, not exceed 3 inches in size, and should be placed in 8 to 10-inch loose lifts compacted to a minimum of 95 percent of the maximum dry density (Modified Proctor). If the engineered fills are less than 7 feet in thickness, they should be moisture conditioned to be within +/- 3% of the optimum moisture content. Where engineered fills exceed 7 feet, they should be moisture conditioned to be at the optimum moisture to + 3% above.

Pavement Design

The Wisconsin Asphalt Pavement Association (WAPA) Design Guide should be utilized to design the new asphalt surface parking areas. Traffic Class I was assumed for parking areas that are mainly used by light passenger vehicles and Traffic Class II for medium-loaded drive areas.

The minimum pavement section should consist of the following:

Material	Traffic Class I	Traffic Class II	WisDOT Specification
Asphalt Surface Course	2 inches	2 inches	Section 460
Asphalt Binder Course	2 inches	2.5 inches	Section 460
Dense Graded Base Course	8 inches	10 inches	Section 305

The pavement sections above are not intended to support on-going construction traffic. Also, the pavement sections presented above should not be used for areas that experience heavy truck traffic, equipment or truck parking areas, entrances and exit aprons, or trash-dumpster loading zones. In these areas, a Portland Cement Concrete (PCC) pavement should be used. The PCC layer thickness is recommended to be 7 inches with a minimum of 6-inch-thick crushed stone base course. The reinforcement details for PCC layers and final pavement section should be designed by the project design engineer.

These recommendations assume the subgrade is prepared as described in this report. Additional corrective action may be warranted at the time of construction, depending on the site conditions. If any clay or silt soils exist in pavement areas, it may be beneficial to install a geotextile fabric (e.g., GEOTEX 315) as a separating layer between such a subgrade and the base course after the subgrade has been evaluated by proof-roll testing.

Stormwater Management

Three stormwater management devices are proposed for the development. Based on the soil descriptions at two of those areas (TP-6 and TP-9), the prevailing soils were classified as "Coarse Sand and Gravel". Consequently, the devices would be exempt from the Wisconsin Department of Natural Resources (WDNR) infiltration requirements. The estimated static infiltration rate based on the Standard 1002 – Table 2 would be 3.60 inches per hour (in/hr).

Bluff Stability

The prevailing soil type making up the perimeter bluffs is described as sand and gravel that meet the OSHA definition for Type C. Some soils meet the Type B description, but they are not consistent. Therefore, the bluffs should be designed for minimum slopes of 1.5h:1v for safety and stability.

Construction Considerations

Because of the presence of undocumented fill on the property, extra caution should be exercised during construction. All poor soil/fills should be stripped from structural and engineered fill areas prior to any construction activities. Additional effort should also be taken to identify the former UST cavities, which were likely backfilled with soils that are not suitable for the support of engineered fill and structural elements. The exposed subgrade soils and all engineered fills should be observed, tested, and documented by a representative of the geotechnical engineer. Large structural areas, such as building footprints and beneath engineered fill and pavements, should be proof-rolled to identify low-strength or disturbed areas that need to be removed or improved.

Footing excavations and all engineered fill subgrade soils should be evaluated to confirm the bearing materials are consistent with those identified in this report and anticipated by the geotechnical and structural engineers. If unanticipated conditions are encountered, the geotechnical and structural engineers should be notified immediately. All footing pads must bear upon suitable native soils or engineered fill soils that have been confirmed in the field by a representative of the geotechnical engineer. Where unsuitable bearing soils, such as organic, disturbed, wet, frozen, or low-strength (less than the design bearing capacity) soils are encountered, the excavation should be extended to competent bearing soil. If extended, the footing pads can be constructed at the base of the excavations, or the excavations can be backfilled with clean, crushed stone or lean concrete.

Buried structural elements from past developments exist. Therefore, efforts should be taken during site grading to identify all existing structural elements and undocumented fills. Existing foundations should be removed to a depth of at least 4 feet below proposed foundations. Existing concrete slabs below a depth of 4 feet should be removed or broken into minimum 1-foot pieces to avoid water pooling. Utilities may also exist that could require abandonment.

It is unlikely that excavations will encounter groundwater. However, if any do or if perched water is encountered, filtered sump pumps and drawing water from sump pits should be adequate to remove water that collects in excavations. Excavated sump pits should be lined with a geotextile and filled with open-graded, free-draining aggregate.

Surface water should not be allowed to be collected in excavations or on prepared subgrades during or after construction. Areas should be sloped to facilitate removal of

collected surface runoff. Positive site drainage should be provided to reduce infiltration of surface water around the perimeter of structures and within pavement areas.

Excavation walls may need to be sloped or braced for stability and safety reasons. The Owner and Contractor should be aware of, and become familiar with, applicable local, state, and federal safety regulations, including current OSHA Excavation and Trench Safety Standards. Construction-site safety generally is the responsibility of the Contractor, who should also be responsible for the means, methods, and sequencing of construction operations.

The Contractor should be aware that slope height, slope inclination, or excavation depths should in no case exceed those specified in local, state, or federal safety regulations, (e.g., OSHA Health and Safety Standards for Excavations, 29 CFR Part 1926), or successor regulations. The on-site soils are generally considered Type C soils when applying the OSHA regulations. Such regulations are strictly enforced, and if they are not followed, the Owner, Contractor, and/or earthwork Subcontractor(s) could be liable for substantial penalties.

General Qualifications

The services provided by GeoTest on this project were performed with the degree of skill and care typically performed by other members of the geotechnical engineering profession, practicing in this locale, at this time. No other warranty, expressed or implied, is given.

We appreciate the opportunity to provide geotechnical engineering services for this project. If you have any questions, or require any further assistance, please feel free to contact us.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael D. Frede".

Michael D. Frede, P.E.
Technical Director/Senior Engineer



Appendix A

Figure 1 – Site Location Diagram

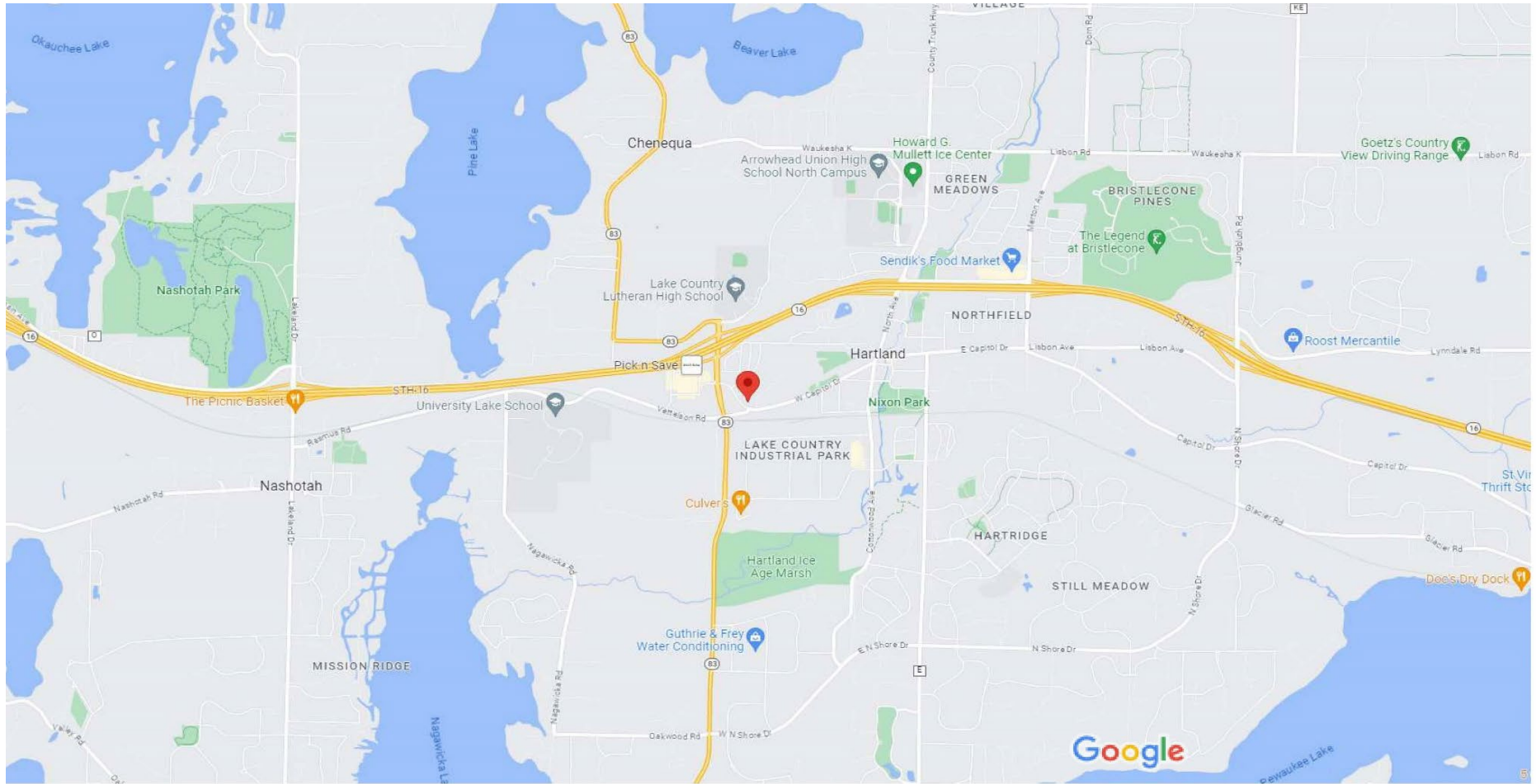
Figure 2 – Property Boundary Diagram

Figure 3 – Proposed Development Diagram

Figure 4 – Geotechnical Areas of Interest Diagram

Figure 5 – Sampling Location Diagram





Map data ©2023 Google 2000 ft



Project Name: Hartland Quarry Apartments
Project Location: 700/701 W. Capitol Drive
Hartland, Wisconsin
Waukesha County

Project No.: 7708
Date: 4/29/23
Drawn By: MDF
Scale: NTS

FIGURE 1
Site Location
Diagram



- Legend**
- Municipal Boundary_2K
 - Parcel_Dimension_2K
 - Note_Text_2K
 - Lots_2K**
 - Lot
 - Unit
 - General Common Element
 - Or lot
 - Simultaneous Conveyance**
 - Assessor Plat
 - CSII
 - Condominium
 - Subdivision
 - Cartline_2K**
 - EA-Easement_Line
 - P L-DA
 - P L-Excluded_Tile_Line
 - P L-Meander_Line
 - P L-Note
 - P L-Tile
 - P L-Tile_Line
 - <all other utilities>
 - Railroad_2K

0 532.30 Feet

The information and depictions herein are for informational purposes and Waukesha County specifically disclaims accuracy in this reproduction and specifically admonishes and advises that if specific and precise accuracy is required, the same should be determined by procurement of certified maps, surveys, plats, Flood Insurance Studies, or other official means. Waukesha County will not be responsible for any damages which result from third party use of the information and depictions herein, or for use which ignores this warning.

Notes:

Printed: 2/14/2023



Project Name: Hartland Quarry Apartments
Project Location: 700/701 W. Capitol Drive
 Hartland, Wisconsin
 Waukesha County

Project No.: 7708
Date: 4/29/23
Drawn By: MDF
Scale: NTS

FIGURE 2
Property Boundary
Diagram



JLA PROJECT NUMBER: 22-013

HARTLAND QUARRY APARTMENTS

Plan Commission Submittal

SUMMARY	
APARTMENTS (2 STORIES OVER U.S. PARKING) =	234 UNITS
COVERED PARKING =	234 STALLS
SURFACE PARKING =	96 STALLS
STACKED PLATS (2 STORIES) =	144 UNITS
COVERED PARKING =	144 STALLS
DRIVEWAY PARKING =	144 STALLS
STREET PARKING =	36 STALLS
TOWNHOMES (2 STORIES) =	27 UNITS
COVERED PARKING =	54 STALLS
DRIVEWAY PARKING =	54 STALLS
SURFACE PARKING =	17 STALLS
CLUBHOUSE VISITOR PARKING =	10 STALLS
TOTAL UNITS =	405 UNITS

PROGRESS DOCUMENTS

These documents reflect progress and in final form, may be subject to change, including modifications, deletions, or additions. They are not to be used for final bidding or construction without approval.

DATE OF SUBMITTAL: 3/15/2024

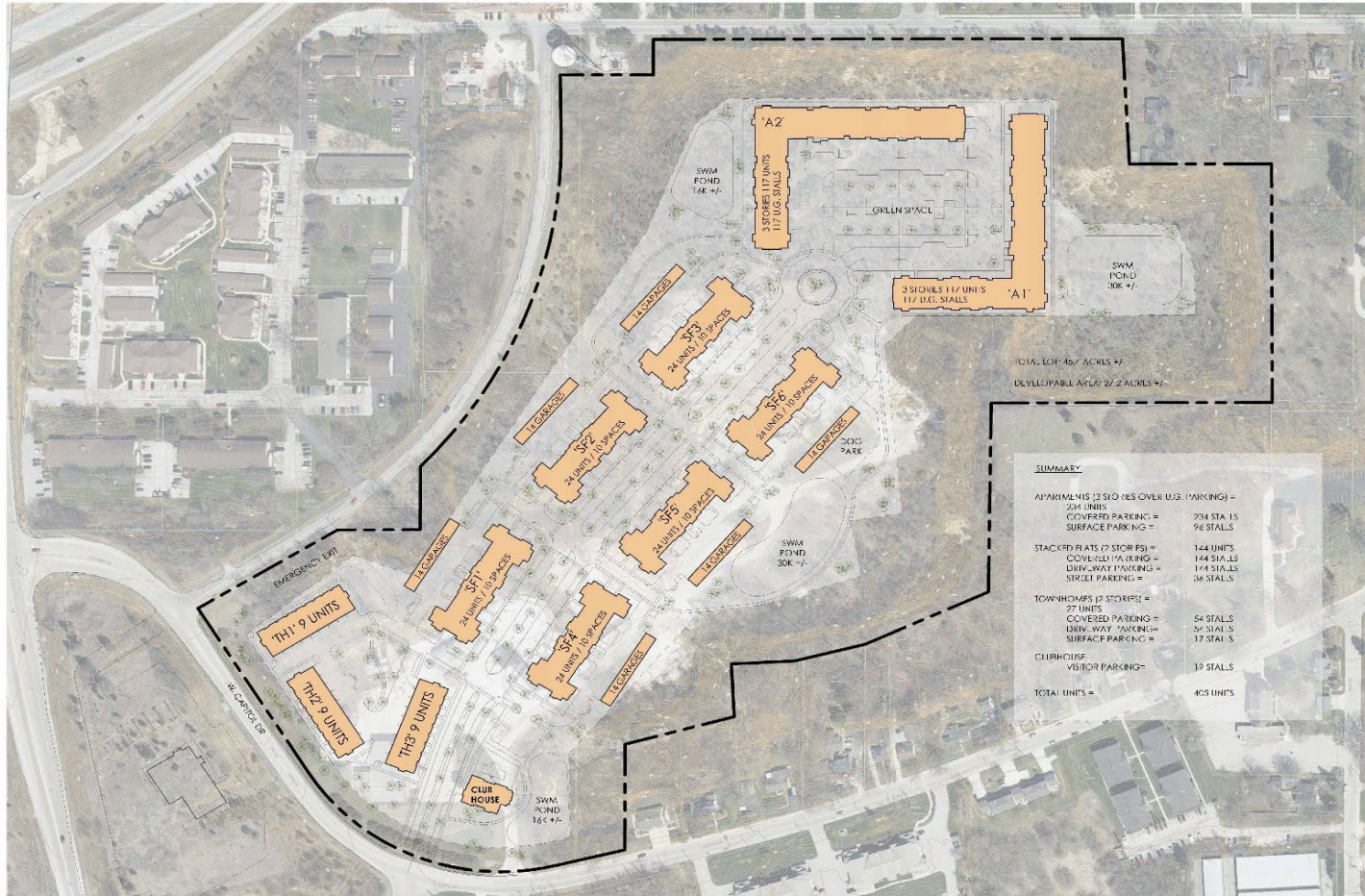
REVISION NO. 1: 3/15/2024

DATE: 3/15/2024

ARCHITECTURAL SITE LAYOUT PLAN

SHEET: 100

ASP-100



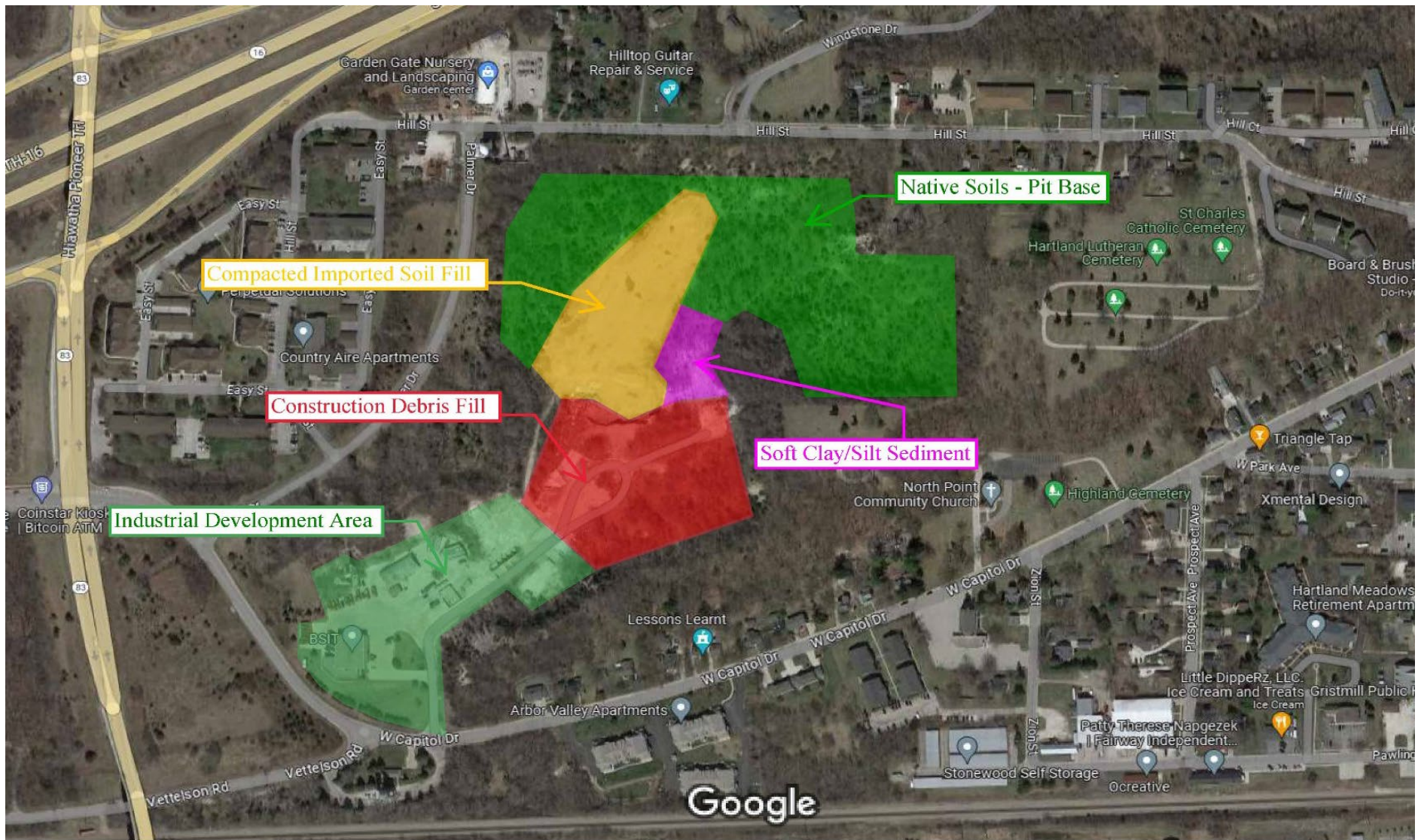
ARCHITECTURAL SITE PLAN
1" = 100'



Project Name: Hartland Quarry Apartments
Project Location: 700/701 W. Capitol Drive
Hartland, Wisconsin
Waukesha County

Project No.: 7708
Date: 4/29/23
Drawn By: MDF
Scale: NTS

FIGURE 3
Proposed
Development
Diagram



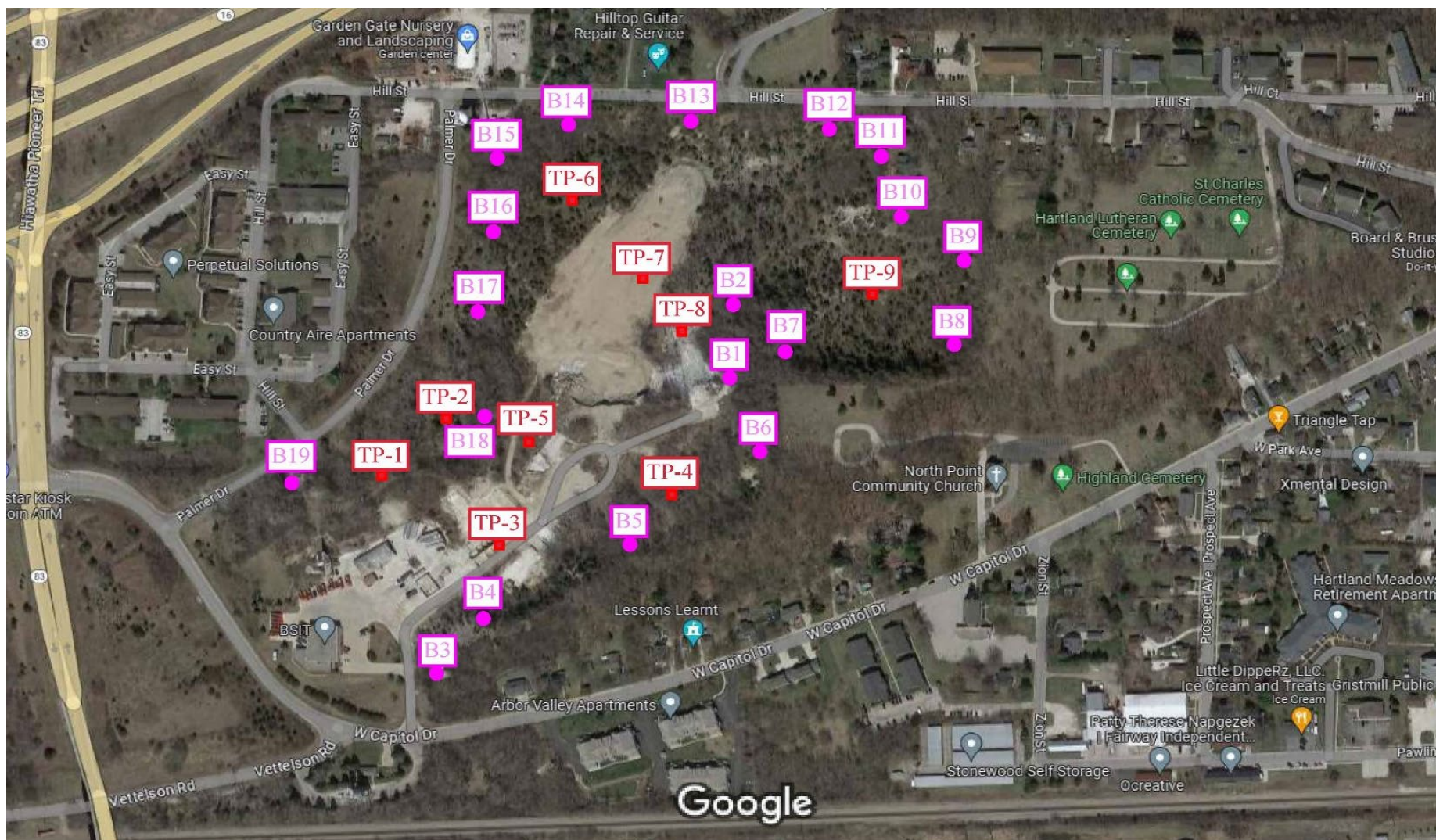
Imagery ©2023 CNES / Airbus, Maxar Technologies, U.S. Geological Survey, USDA/FPAC/GEO, Map data ©2023



Project Name: Hartland Quarry Apartments
Project Location: 700/701 W. Capitol Drive
Hartland, Wisconsin
Waukesha County

Project No.: 7708
Date: 4/29/23
Drawn By: MDF
Scale: NTS

FIGURE 4
Geotechnical Areas
of Interest Diagram



- Test Pit Locations
- Bluff Samples

Imagery ©2023 CNES / Airbus, Maxar Technologies, U.S. Geological Survey, USDA/FPAC/GEO, Map data ©2023



Project Name: Hartland Quarry Apartments
Project Location: 700/701 W. Capitol Drive
Hartland, Wisconsin
Waukesha County

Project No.: 7708
Date: 4/29/23
Drawn By: MDF
Scale: NTS

FIGURE 5
Sampling Location
Diagram



Appendix B

Well Logs

- 8KM754_WCR
- 8KM755_WCR
- 8KM756_WCR
- 8NM185_WCR
- 8NN038_WCR
- IJ288_WCR

Drake Environmental Geologic Information

- Diagrams
- Boring Logs

Gestra Laboratory Reports

- Proctor Analysis (D1557)
- Field Density Testing

Walbec Test Pit Survey Diagrams

- Test Pits 1 through 5
- Test Pits 6 through 9



WELL CONSTRUCTOR'S REPORT

WISCONSIN STATE BOARD OF HEALTH

Wel 6

1. COUNTY <u>Waushara</u>		CHECK ONE ☒ Town ☐ Village ☐ City		NAME <u>DeLafield</u>	
2. LOCATION (Number and Street or 1/4 section, section, township and range. Also give subdivision name, lot and block numbers when available) <u>NW 1/4 Sec 3 T7N R18E</u>					
3. OWNER AT TIME OF DRILLING <u>Robert Steinman</u>					
4. OWNER'S COMPLETE MAIL ADDRESS <u>Hill St Hartland Wisc</u>					
JUN 24 1966					
5. Distance in feet from well to nearest: (Record answer in appropriate block)		BUILDING	SANITARY SEWER	FLOOR DRAIN	FOUNDATION DRAIN
		C. I.	TILE	C. I.	TILE
				SEWER CONNECTED	INDEPENDENT
CLEAR WATER DRAIN	SEPTIC TANK	PRIVY	SEEPAGE PIT	ABSORPTION FIELD	BARN
C. I.	TILE				
	<u>60</u>		<u>75</u>		
OTHER POLLUTION SOURCES (Give description such as dump, quarry, drainage well, stream, pond, lake, etc.)					

6. Well is intended to supply water for:

Home Service Station

7. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
<u>6"</u>	<u>Surface</u>	<u>268</u>			

10. FORMATIONS

Kind	From (ft.)	To (ft.)
<u>Sand & gravel Brown</u>	<u>Surface</u>	<u>120</u>
<u>Gray sand & gravel</u>	<u>120</u>	<u>170</u>
<u>Clay & sand</u>	<u>170</u>	<u>233</u>
<u>Sand & gravel</u>	<u>233</u>	<u>268</u>

8. CASING, LINER, CURBING, AND SCREEN

Dia. (in.)	Kind and Weight	From (ft.)	To (ft.)
<u>6"</u>	<u>standard steel</u>	<u>Surface</u>	<u>268</u>

9. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
	<u>Surface</u>	



11. MISCELLANEOUS DATA

Yield test: <u>12</u>	Hrs. at <u>12</u>	GPM
Depth from surface to normal water level <u>120</u> ft.		
Depth to water level when pumping <u>130</u> ft.		

Well construction completed on May 11 1966Well is terminated 8 inches ☒ above ☐ below final gradeWell disinfected upon completion ☒ Yes ☐ NoWell sealed watertight upon completion ☒ Yes ☐ No

Water sample sent to

Madison

laboratory on:

May 11 1966

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, type of casing joints, method of finishing the well, amount of cement used in grouting, blasting, sub-surface pumprooms, access pits, etc., should be given on reverse side.

SIGNATURE

COMPLETE MAIL ADDRESS

[Signature]

Registered Well Driller

Hartland Wisc

Please do not write in space below

COLIFORM TEST RESULT

GAS — 24 HRS.

GAS — 48 HRS.

CONFIRMED

REMARKS

plot 752104

WELL CONSTRUCTOR'S REPORT

WISCONSIN STATE BOARD OF HEALTH

Wel 6

1. COUNTY <u>Waushara</u>		CHECK ONE ☒ Town ☐ Village ☐ City		NAME <u>Delafield</u>	
2. LOCATION (Number and Street or 1/4 section, section, township and range. Also give subdivision name, lot and block numbers when available.) <u>Hartland HY 16 & Hill St T7N R18E NW 1/4 Sec 3</u>					
3. OWNER AT TIME OF DRILLING <u>Bob Steinman</u>					
4. OWNER'S COMPLETE MAIL ADDRESS <u>Hartland Wisc</u>					
5. Distance in feet from well to nearest: (Record answer in appropriate block)		BUILDING C. I.	SANITARY SEWER C. I.	FLOOR DRAIN C. I.	FOUNDATION DRAIN SEWER CONNECTED INDEPENDENT
<u>10</u>					
CLEAR WATER DRAIN C. I.	SEPTIC TANK TILE	PRIVY	SEEPAGE PIT	ABSORPTION FIELD	BARN SILO ABANDONED WELL SINK
	<u>60</u>		<u>70</u>		<u>SECRET</u> ENCLOSURE
OTHER POLLUTION SOURCES (Give description such as dump, quarry, drainage well, stream, pond, lake, etc.)					

RECEIVED

6. Well is intended to supply water for:

Service Station

7. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
<u>6</u>	<u>Surface</u>	<u>268</u>			

10. FORMATIONS

Kind	From (ft.)	To (ft.)
<u>Surface</u>		
<u>Sand & gravel</u>	<u>-</u>	<u>120</u>
<u>Down sand & gravel</u>	<u>120</u>	<u>140</u>
<u>Gray sand & gravel</u>	<u>140</u>	<u>170</u>
<u>Gray clay & sand</u>	<u>170</u>	<u>185</u>
<u>Brown sand</u>	<u>185</u>	<u>225</u>
<u>Gray sand & clay</u>	<u>225</u>	<u>233</u>
<u>Brown sand & gravel</u>	<u>233</u>	<u>268</u>

8. CASING, LINER, CURBING, AND SCREEN

Dia. (in.)	Kind and Weight	From (ft.)	To (ft.)
<u>6</u>	<u>Standard steel</u>	<u>Surface</u>	<u>268</u>

9. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
<u>Surface</u>		



11. MISCELLANEOUS DATA

Yield test:	<u>6</u>	Hrs. at	<u>20</u>	GPM
Depth from surface to normal water level	<u>104</u>	ft.		
Depth to water level when pumping	<u>120</u>	ft.		

Well construction completed on April 13 1966Well is terminated 6 inches ☒ above ☐ below final gradeWell disinfected upon completion ☒ Yes ☐ NoWell sealed watertight upon completion ☒ Yes ☐ NoWater sample sent to Madisonlaboratory on: April 13 1966

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, type of casing joints, method of finishing the well, amount of cement used in grouting, blasting, sub-surface pumprooms, access pits, etc., should be given on reverse side.

SIGNATURE <u>J. Rogers</u>	COMPLETE MAIL ADDRESS <u>Hartland Wisc</u>
Registered Well Driller	

Please do not write in space below

COLIFORM TEST RESULT	GAS — 24 HRS.	GAS — 48 HRS.	CONFIRMED	REMARKS <u>plot 762103</u>
----------------------	---------------	---------------	-----------	-------------------------------

NW, Sec 3 T7N R18E

Wol 6

WELL CONSTRUCTOR'S REPORT TO WISCONSIN STATE BOARD OF HEALTH

See Instructions on Reverse Side

1. County Waushara Town ☐ Village ☒ Hartland City ☐ Check one and give name

2. Location SW 1/4 NW 1/4 Sec 3 T7N R18E
Name of street and number of premise or Section, Town and Range numbers

3. Owner ☒ or Agent ☐ Hartland Washed Sand & Gravel
Name of individual, partnership or firm

4. Mail Address Hartland
Complete address required

5. From well to nearest: Building 10 ft; sewer — ft; drain — ft; septic tank — ft;
dry well or filter bed — ft; abandoned well — ft.

6. Well is intended to supply water for: Office

7. DRILLHOLE:

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
6	0	77			

8. CASING AND LINER PIPE OR CURBING:

Dia. (in.)	Kind and Weight	From (ft.)	To (ft.)
6	Std Steel	0	78'5"

9. GROUT:

Kind	From (ft.)	To (ft.)

11. MISCELLANEOUS DATA:

Yield test: 3 Hrs. at 10 GPM.

Depth from surface to water-level: 55 ft.

Water-level when pumping: 58 ft.

Water sample was sent to the state laboratory at:

Madison on 19
City

10. FORMATIONS:

Kind	From (ft.)	To (ft.)
Gravel	0	77

Construction of the well was completed on:

Jan 6 1958

The well is terminated — inches
☒ above, below ☐ the permanent ground surface.

Was the well disinfected upon completion?

Yes ☒ No ☐

Was the well sealed watertight upon completion?

Yes ☒ No ☐

H. A. BUTLER
WELL CONTRACTOR

Signature _____
Registered Well Driller

DELAFIELD, WIS.
Please do not write in space below

Complete Mail Address

Rec'd _____ No. _____

Ans'd _____

Interpretation _____



10 ml 10 ml 10 ml 10 ml 10 ml

Gas—24 hrs. _____

48 hrs. _____

Confirm _____

B. Coli _____

Examiner _____

1. COUNTY Waukesha CHECK ONE ☒ Town ☐ Village ☐ City NAME Delafield

2. LOCATION (Number and Street or 1/4 section, section, township and range. Also give subdivision name, lot and block numbers when available.) SW 1/4 Section 3 T 7 N R 18 E PER APPROVAL LETTER SW, NW, NW, Sec 3

3. OWNER AT TIME OF DRILLING Higas Construction Co. (W.F. Higas + Linda D. Higas, Owners)

4. OWNER'S COMPLETE MAIL ADDRESS Route #1, Box 63, Delafield, Wis.

5. Distance in feet from well to nearest:

BUILDING	SANITARY SEWER	FLOOR DRAIN	FOUNDATION DRAIN	WASTE WATER DRAIN
C. I.	TILE	C. I.	SEWER CONNECTED	C. I.
18	✓	45	✓	✓

(Record answer in appropriate block)

CLEAR WATER DRAIN	SEPTIC TANK	PRIVY	SEEPAGE PIT	ABSORPTION FIELD	BARN	SILLO	ABANDONED WELL	SINK HOLE
C. I.	TILE							
✓	✓	306	✓	330	✓	✓	✓	✓

6. OTHER POLLUTION SOURCES (Give description such as dump, quarry, drainage well, stream, pond, lake, etc.)

None

7. Well is intended to supply water for:

2 Apartment Houses

9. DRILLHOLE						10. FORMATIONS			
Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)	Kind	From (ft.)	To (ft.)	
10	Surface	20				Clay top soil	Surface	8	
6	20	120				Gravel	8	104	
						Gravel + sand (water bearing)	104	120	

8. CASING, LINER, CURBING, AND SCREEN

Dia. (in.)	Kind and Weight	From (ft.)	To (ft.)
10	ASTM-A53 Grade B	Surface	20
6	ASTM-A53 Grade B	20	106
	1280 P/E		
	welded		
6	Silica Brass screen	106	120

9. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
Cement slurry	Surface	20

11. MISCELLANEOUS DATA

Yield test: 24 Hrs. at 60 GPM

Depth from surface to normal water level 87 ft.

Depth to water level when pumping 88'-6" ft.

Well construction completed on 10/10 1968

Well is terminated 20 inches ☒ above ☐ below final grade

Well disinfected upon completion ☒ Yes ☐ No

Well sealed watertight upon completion ☒ Yes ☐ No

Water sample sent to Madison laboratory on: 10/26 1968

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, type of casing joints, method of finishing the well, amount of cement used in grouting, blasting, sub-surface pumprooms, access pits, etc., should be given on reverse side.

SIGNATURE Agua Well Drilling & Pump Co. Inc. COMPLETE MAIL ADDRESS Rt. 1, Nashotah, Wis.

Frank Bollhagen Registered Well Driller

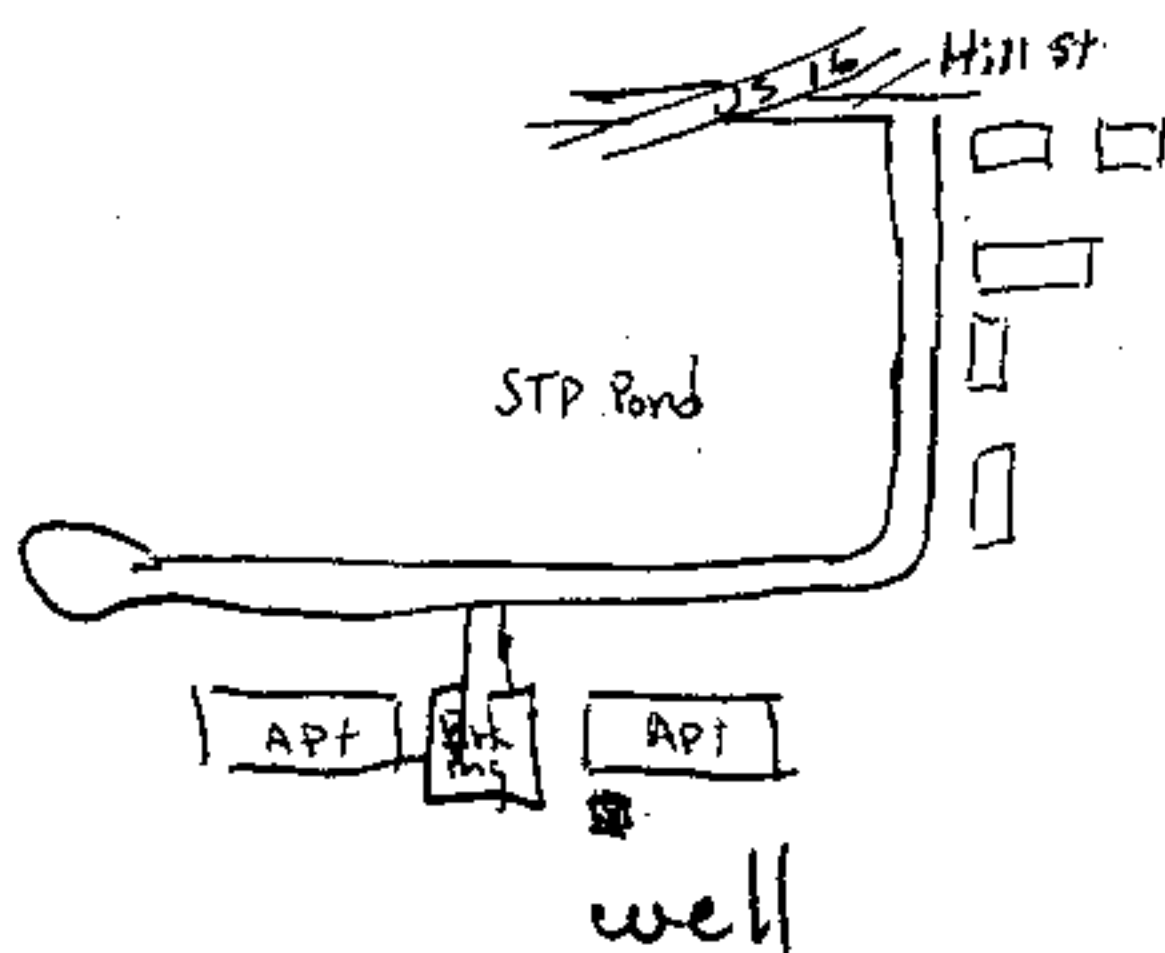
COLIFORM TEST RESULT 10 Capacity Well. Approved 12-6-68

GAS - 24 HRS. SEE OTHER SIDE

GAS - 48 HRS. plot 762105

CONFIRMED 12-8-68

REMARKS As M.E. Ostrom



8

A/E 934

D > 120

< 814

W - 87

847 + 10/68

775

159

WELL CONSTRUCTOR'S REPORT

Well-6.

WHITE COPY - DIVISION'S COPY
 GREEN COPY - DRILLER'S COPY
 YELLOW COPY - OWNER'S COPY

STATE OF WISCONSIN
 DEPARTMENT OF NATURAL RESOURCES
 Box 450
 Madison, Wisconsin 53701

1. COUNTY WAUKESHA		CHECK ONE ☒ Town ☐ Village ☐ City		NAME MERTON	
2. LOCATION (Number and Street or 1/4 section, section, township and range. Also give subdivision name, lot and block numbers when available.) N. 48 W. 30756 HILL ST. TOWN OF MERTON. T8N R18E					
3. OWNER AT TIME OF DRILLING WAGEN REALTY CO. SE, SE, SW, SW, Sec. 34					
4. OWNER'S COMPLETE MAIL ADDRESS 318 LAKE RD. OCONOMOWOC, WIS.					
5. Distance in feet from well to nearest: (Record answer in appropriate block)		BUILDING	SANITARY SEWER	FLOOR DRAIN	FOUNDATION DRAIN
		C. I.	TILE	C. I.	TILE
		8	40	60	—
					SEWER CONNECTED
					INDEPENDENT
					WASTE WATER DRAIN
					C. I.
					45
					TILE
					—
CLEAR WATER DRAIN	SEPTIC TANK	PRIVY	SEEPAGE PIT	ABSORPTION FIELD	BARN
C. I.	TILE				SILO
—	—	70	—	95	—
					ABANDONED WELL
					SINK HOLE
					—
OTHER POLLUTION SOURCES (Give description such as dump, quarry, drainage well, stream, pond, lake, etc.)					

6. Well is intended to supply water for: **FURNITURE STORE**

7. DRILLHOLE						10. FORMATIONS		
Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)	Kind	From (ft.)	To (ft.)
6	Surface		UNKNOWN			UNKNOWN	Surface	126
	Redrill					SAND	126	160
8. CASING, LINER, CURBING, AND SCREEN								
Dia. (in.)	Kind and Weight		From (ft.)	To (ft.)				
6	new BLK. Steel		Surface	134		HARD PAN.	160	205
	T&C . 0.280					GRAVEL	205	260
6	UNKNOWN		134	260				
9. GROUT OR OTHER SEALING MATERIAL								
Kind			From (ft.)	To (ft.)				
UNKNOWN			Surface	134				

11. MISCELLANEOUS DATA				Well construction completed on Aug 29 1974	
Yield test:	8	Hrs. at	10	GPM	Well is terminated 8 inches ☒ above ☐ below final grade
Depth from surface to normal water level 135 ft.				Well disinfected upon completion ☒ Yes ☐ No	
Depth to water level when pumping 135 ft.				Well sealed watertight upon completion ☒ Yes ☐ No	
Water sample sent to Madison, WIS.				laboratory on: Sept 16 1974	

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, type of casing joints, method of finishing the well, amount of cement used in grouting, blasting, sub-surface pumprooms, access pits, etc., should be given on reverse side.

SIGNATURE Denny Hartman Registered Well Driller	COMPLETE MAIL ADDRESS 5100 N. 56 ST. MILWAUKEE, WIS.
---	--

Please do not write in space below			
COLIFORM TEST RESULT See letter driller's file	GAS - 24 HRS.	GAS - 48 HRS.	CONFIRMED
			9/24/74
REMARKS			plot 782049

SEP 17 1974 OCT 2 1974

WELL CONSTRUCTOR'S REPORT
FORM 3300-15

NOTE
WHITE COPY - DIVISION'S COPY
GREEN COPY - DRILLER'S COPY
YELLOW COPY - OWNER'S COPY

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
Box 450
Madison, Wisconsin 53701

1. COUNTY <u>WAUKESHA</u>		CHECK ONE ☒ Town ☐ Village ☐ City		NAME <u>MERTON</u>													
2. LOCATION - ☒ 1/4 Section ☐ Section ☐ Township ☐ Range		3. OWNER AT TIME OF DRILLING															
<u>SE, SE, SW</u> <u>SW</u> <u>34</u> <u>8N</u> <u>18E</u>		<u>WAGNER REALTY CO.</u>															
OR - Grid or street no. <u>N. 48 W 30756</u>		ADDRESS <u>318 LAKE RD.</u>															
Street name <u>HILL ST</u>		POST OFFICE <u>DEONOMOUC, WIS</u>															
AND - If available subdivision name, lot & block no. <u>SE, SE, SW, SW Sec 34</u>																	
4. Distance in feet from well to nearest:		BUILDING		SANITARY SEWER		FLOOR DRAIN		FOUNDATION DRAIN		WASTE WATER DRAIN							
(Record answer in appropriate block)		C. I.		TILE		C. I.		TILE		C. I.		TILE					
		<u>8</u>		<u>40</u>		<u>60</u>		<u>—</u>		<u>45</u>		<u>—</u>					
CLEAR WATER DRAIN		SEPTIC TANK		PRIVY		SEEPAGE PIT		ABSORPTION FIELD		BARN		SILO		ABANDONED WELL		SINK HOLE	
C. I.		TILE															
<u>—</u>		<u>70</u>		<u>—</u>		<u>—</u>		<u>95</u>		<u>—</u>		<u>—</u>		<u>—</u>		<u>—</u>	
OTHER POLLUTION SOURCES (Give description such as dump, quarry, drainage well, stream, pond, lake, etc.)																	

5. Well is intended to supply water for: STORE FURNITURE

6. DRILLHOLE						9. FORMATIONS					
Dia. (in.)		From (ft.)		To (ft.)		Kind		From (ft.)		To (ft.)	
		Surface		<u>REDRILL</u>		<u>UNKNOWN</u>		Surface		<u>126</u>	
						<u>SAND</u>		<u>126</u>		<u>160</u>	
7. CASING, LINER, CURBING, AND SCREEN						<u>HARD PAIR</u>		<u>160</u>		<u>205</u>	
Dia. (in.)		Kind and Weight		From (ft.)		To (ft.)		<u>GRAVEL</u>		<u>205</u>	
<u>6</u>		<u>UNKNOWN</u>		Surface		<u>126</u>				<u>260</u>	
<u>6" New, Steel, BLK, TFC</u>				<u>126</u>		<u>260</u>					
<u>0.280</u>											

8. GROUT OR OTHER SEALING MATERIAL				10. TYPE OF DRILLING MACHINE USED							
Kind		From (ft.)		To (ft.)		☒ Cable Tool		☐ Direct Rotary		☐ Reverse Rotary	
<u>X</u>		Surface		<u>X</u>		☐ Rotary - air w/drilling mud		☐ Rotary - hammer with drilling mud & air		☐ Jetting with ☐ Air ☐ Water	
				Well construction completed on <u>aug 29</u> 19 <u>74</u>							

11. MISCELLANEOUS DATA				Well is terminated <u>8</u> inches ☒ above ☐ below final grade			
Yield test: <u>8</u>		Hrs. at <u>10</u>		GPM		Well disinfected upon completion ☒ Yes ☐ No	
Depth from surface to normal water level <u>135</u>		ft.				Well sealed watertight upon completion ☒ Yes ☐ No	
Depth to water level when pumping <u>135</u>		ft.					

Water sample sent to Madison, Wis laboratory on: Sept 16 19 74

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, type of casing joints, method of finishing the well, amount of cement used in grouting, blasting, sub-surface pumprooms, access pits, etc., should be given on reverse side.

SIGNATURE <u>Henry Hartman</u> Registered Well Driller		COMPLETE MAIL ADDRESS <u>5100 N. 56 St. Milwaukee, Wis</u>	
---	--	---	--

COLIFORM TEST RESULT <u>WK 31760-2</u>		GAS - 24 HRS.		GAS - 48 HRS.		CONFIRMED		REMARKS	
REV. 3-71									

Well Construction Report WISCONSIN UNIQUE WELL NUMBER				IJ288		Drinking Water and Groundwater - DG/5 Department of Natural Resources, Box 7921 Madison WI 53707				Form 3300-077A					
Property Owner GARDEN GATE NURSERY						Phone #		1. Well Location				Fire # (if avail.)			
Mailing Address N48 W30756 HILL ST								Town of MERTON							
City HARTLAND						State WI		Zip Code 53029							
County Waukesha		Co. Permit #		Notification #		Completed 06-22-1995		Subdivision Name				Lot #			
												Block #			
Well Constructor (Business Name) MICHAEL HARTMAN				Lic. # 436		Facility ID # (Public Wells)				Latitude / Longitude in Decimal Degree (DD) 43.1059 °N -88.3586 °W					
						Well Plan Approval #				Method Code GCD013					
Address W82 N28280 MARSHALL HARTLAND WI 53029						Approval Date (mm-dd-yyyy)				SW SW Section Township Range or Govt Lot # 34 8 N 18 E					
Hicap Permanent Well #				Common Well #		Specific Capacity 0.8				2. Well Type Replacement of previous unique well # constructed in					
Reason for replaced or reconstructed well ? OUT OF WATER															
3. Well serves 1 # of NURSERY Non-community Heat Exchange ___ # of drillholes				Hicap Well ? No Hicap Property ? No Hicap Potable ?		Construction Type Drilled									
4. Potential Contamination Sources - ON REVERSE SIDE															
5. Drillhole Dimensions and Construction Method															
Dia. (in.)		From (ft.)		To (ft.)		Upper Enlarged Drillhole				Lower Open Bedrock					
6		Surface		278											
						Rotary - Mud Circulation Rotary - Air Rotary - Air & Foam Drill-Through Casing Hammer Reverse Rotary Cable-tool Bit ___ in. dia... Dual Rotary Temp. Outer Casing ___ in. dia Removed? ___ depth ft. (If NO explain on back side)									
6. Casing, Liner, Screen															
Dia. (in.)		Material, Weight, Specification Manufacturer & Method of Assembly				From (ft.)		To (ft.)							
6		0 280 A 53 GRB SAWHILL STEEL WELDED				Surface		278							
Dia. (in.)		Screen type, material & slot size				From (ft.)		To (ft.)							
7. Grout or Other Sealing Material															
Method MOUNDED															
Kind of Sealing Material				From (ft.)		To (ft.)		# Sacks Cement							
CRUMBLES DRILL				Surface		0									
8. Geology															
Geology Codes		8. Geology Type, Caving/Noncaving, Color, Hardness, etc...				From (ft.)		To (ft.)							
		C CLAY				Surface		10							
		Y SAND @ GRAVEL				10		50							
		P HARDPAN				50		90							
		S SAND				90		125							
		P HARDPAN				125		145							
		Y SAND @ GRAVEL				145		170							
		P HARDPAN				170		250							
		Y SAND @ GRAVEL				250		278							
9. Static Water Level															
120 ft. below ground surface															
10. Pump Test															
Pumping level 180 ft. below surface															
Pumping at 50 GP M for 4 Hrs.															
Pumping Method ?															
11. Well Is															
18 in. above grade															
Developed ? Yes															
Disinfected ? Yes															
Capped ? Yes															
12. Notified Owner of need to fill & seal ?															
Filled & Sealed Well(s) as needed? No															
PUMP MAN TO DO															
13. Constructor / Supervisory Driller															
Lic #															
Date Signed															
MH														06-26-1995	
Drill Rig Operator														Lic or Reg #	
Date Signed															
MA															

4a. Potential Contamination Sources			Is the well located in floodplain ? <u>No</u>		
Type	Qualifier	Distance	Type	Qualifier	Distance
Building Overhang		9	Collector Sewer - San or Storm		90
			Sewer - Building Sanitary		40
Comment: Water Quality Text: Water Quantity Text: Difficulty Text: Created On: 10-10-1995 Created by: HFRC LOAD Updated On: 07-12-2019 Updated by: PARCEL_MATCH					

HILL STREET

U.S. HWY 16

PALMER DRIVE

WEST

ST. HWY "83"

LAFARGE-WISCONSIN DIVISION
PROPERTY

PROPERTY
BOUNDARY

INVESTIGATION
AREA

SEE
FIGURE 3

CAPITOL DRIVE

C.A. SE. P. & P. RAILROAD

DIAGRAM SCALE

0 325 650
1 - INCH = 325 - FEET

ALL DIMENSIONS
ON THIS DIAGRAM
ARE APPROXIMATE



LAFARGE - HARTLAND
REMEDIATION INVESTIGATION

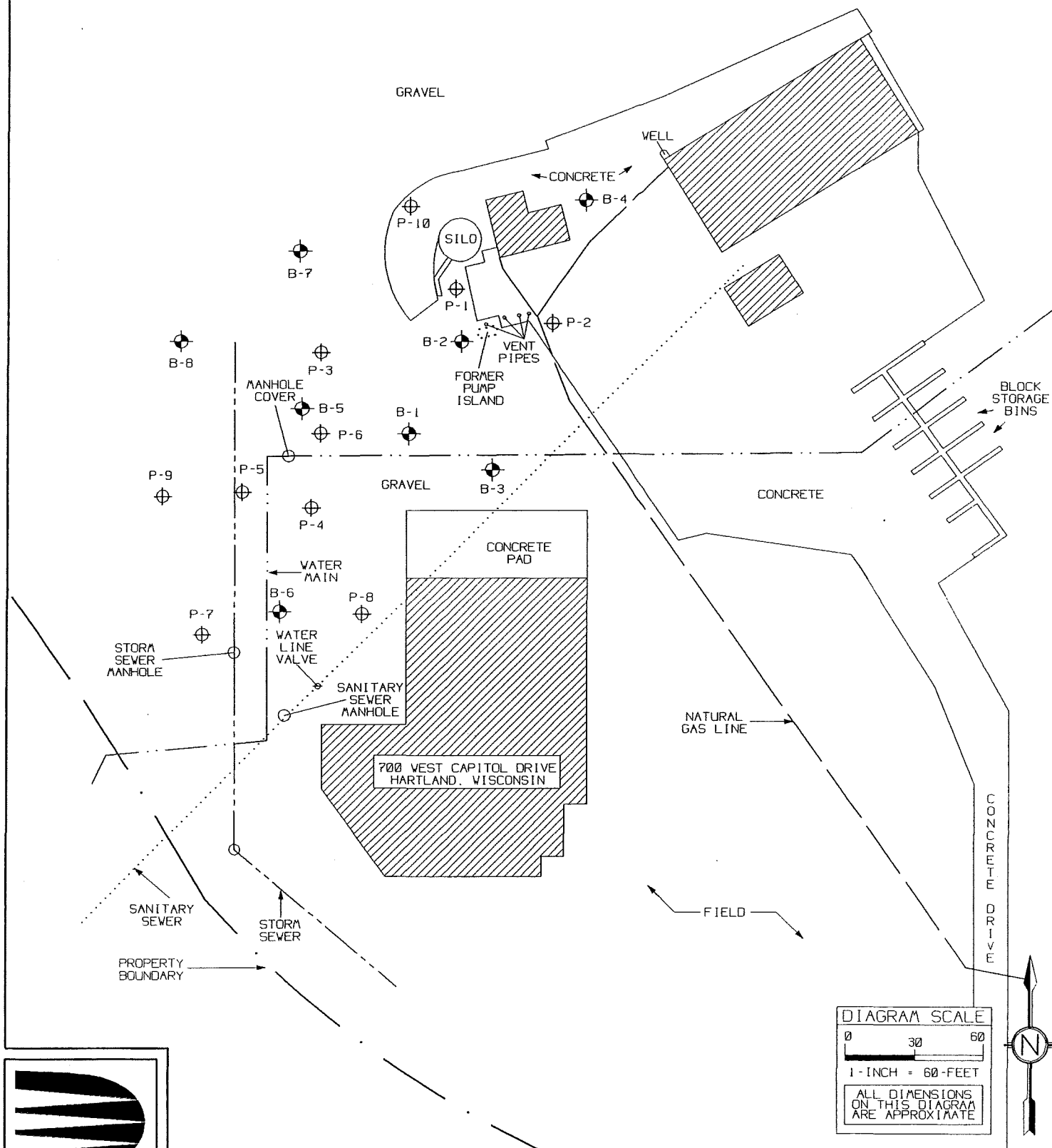
PROJECT NO. J98109 PA DWF
DRAWN BY JMM DATE: 11/18/98
CHKD BY DWF DATE 12-2-98
APRVD BY MT DATE 7-9-99

LOCATION
DIAGRAM

FIGURE
2

FILE: J8109A(L1)

- ⊕ = PROBEHOLE LOCATION
 ⊕ = BORING LOCATION

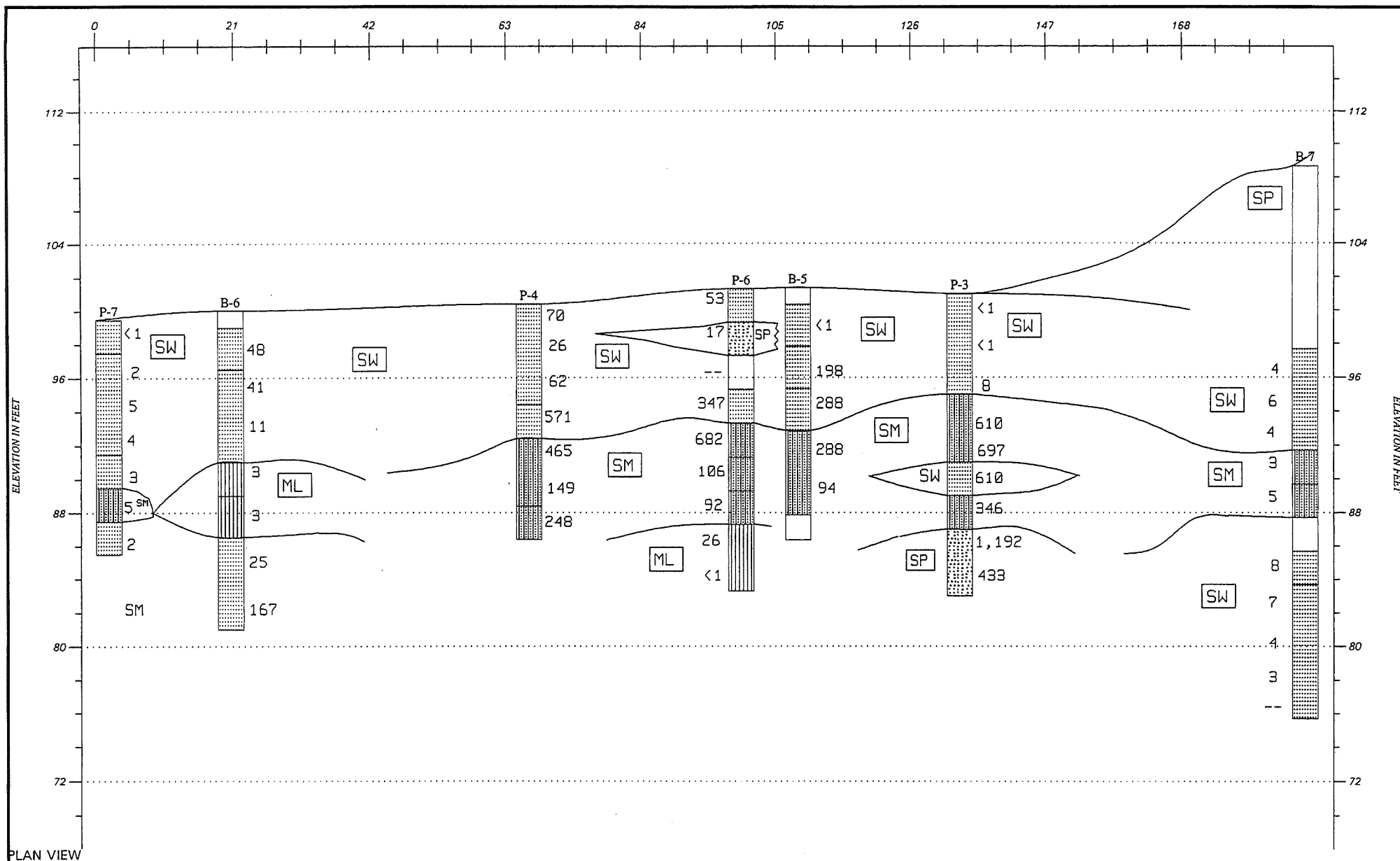


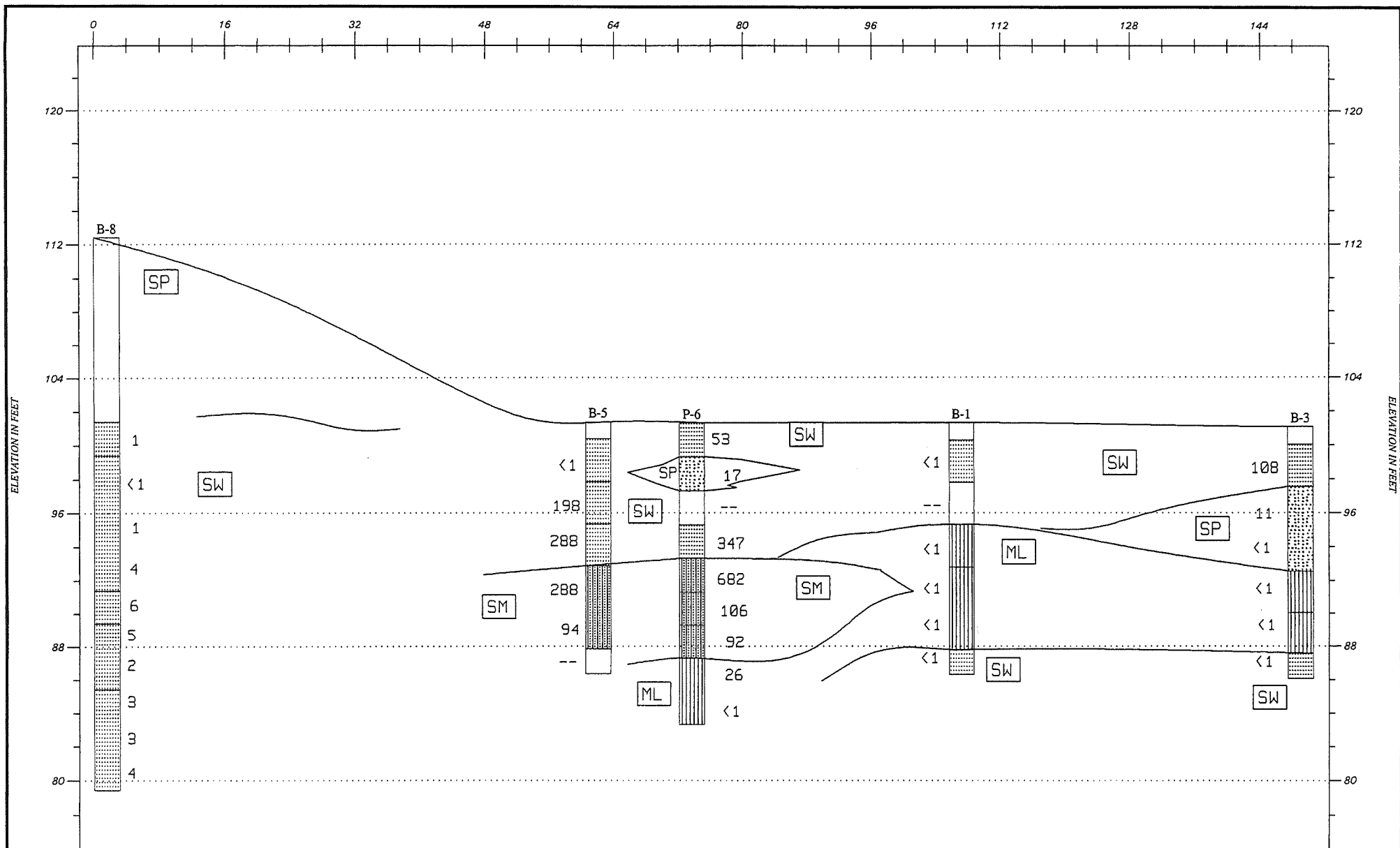
LAFARGE - HARTLAND
 REMEDIAL INVESTIGATION

PROJECT NO. J98109 PA DVF
 DRAWN BY JAM DATE: 07/30/99
 CHKD BY *DPV* DATE 7-21-99
 APRVD BY *TLO* DATE 9-21-99

PROBEHOLE AND BORING LOCATIONS
 DIAGRAM

FIGURE
 4

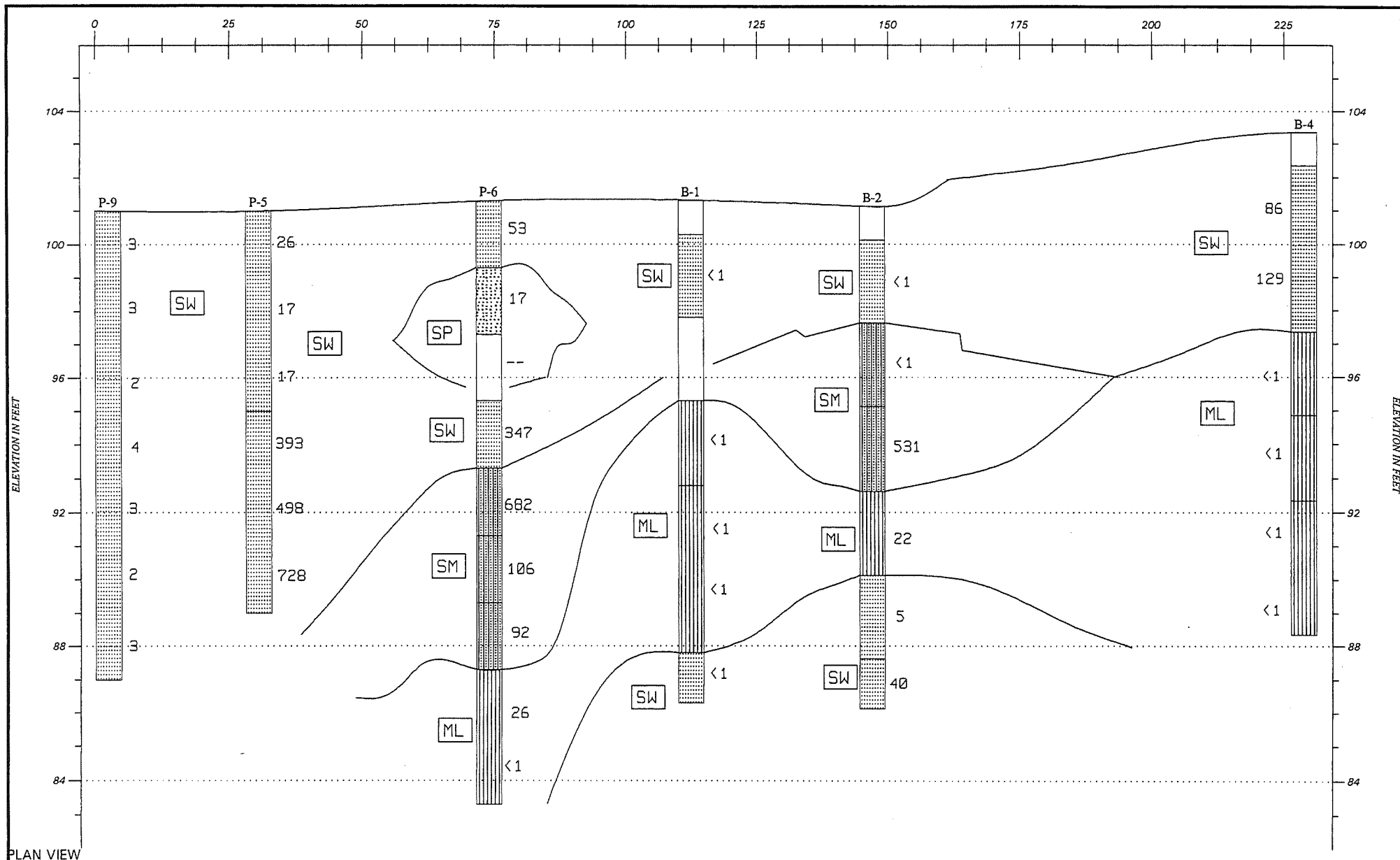




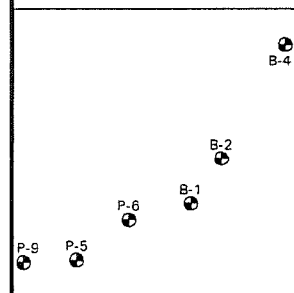
DRAKE ENVIRONMENTAL, INC.

GEOLOGICAL CROSS SECTION

HORIZONTAL SCALE: 1" = (proportional)'	FIELD TECHNICIAN	DATE DRAWN
VERTICAL SCALE: 1" = 8'	TJO	8/23/1999
LAFARGE - HARTLAND		
PROJECT NUMBER: J98109		FIGURE NUMBER
		7



PLAN VIEW



DRAKE ENVIRONMENTAL, INC.		
GEOLOGICAL CROSS SECTION		
HORIZONTAL SCALE: 1" = (proportional)'	FIELD TECHNICIAN	DATE DRAWN
VERTICAL SCALE: 1" = 4'	TJO	8/22/1999
LAFARGE - HARTLAND		
PROJECT NUMBER: J98109		FIGURE NUMBER
		8



PROJECT NAME LAFARGE - HARTLAND		FIELD TEC TJO	DRAWN BY DWF	PROBE NUMBER P-1
CLIENT LAFARGE - WISCONSIN DIVISION		PROJECT NUMBER J98109		
LOCATION 700 W CAPITOL DR, HARTLAND, WI NW 1/4 NW 1/4 SEC 3 T7N R18E		LOCATION DESCRIPTION 25 FEET NE OF FORMER UST		

DEPTH	SAMPLE	TYPE	N	QP	DESCRIPTION	USCS	PID	GRAPHIC
0					MEDIUM TO COARSE SAND WITH SILTY FINE SAND AND FINE TO COARSE GRAVEL, TRACE ROOTS - YELLOWISH BROWN (10YR 5/4) - MOIST TO WET (FILL)	SW	<1	
1	1	PR	--	--				
2					MEDIUM TO COARSE SAND, WITH FINE SAND; FEW FINE TO COARSE GRAVEL - YELLOWISH BROWN (10YR 5/4) - MOIST (FILL), FINE SANDY SILT TO SILTY CLAY; FEW MEDIUM TO COARSE SAND, DAMP TO MOIST (POSSIBLE FILL)	SW	<1	
3	2	PR	--	--				
4					SILT, TRACE COARSE SAND TO FINE GRAVEL - DARK YELLOWISH BROWN (10YR 4/6) - DAMP (POSSIBLE FILL)	ML	17	
5	3	PR	--	--				
6					SILTY FINE TO MEDIUM SAND, TRACE COARSE SAND AND FINE GRAVEL - GRAYISH BROWN (10YR 5/2) - DAMP, PETROLEUM ODOR (POSSIBLE FILL)	SM	*2260	
7	4	PR	--	--				
8					SILTY FINE TO MEDIUM SAND, TRACE COARSE SAND, TRACE FINE GRAVEL - GRAYISH BROWN (10YR 5/2) - DAMP TO MOIST, PETROLEUM ODOR (POSSIBLE FILL)	SM	1,073	
9	5	PR	--	--				
10					SILTY FINE SAND TO FINE SANDY SILT, TRACE COARSE SAND - YELLOWISH BROWN (10YR 5/4) - MOIST TO WET, SLIGHT ODOR	SM	70	
11	6	PR	--	--				
12					FINE SANDY SILT, TRACE COARSE SAND AND FINE GRAVEL - YELLOWISH BROWN (10YR 5/4) - WET	ML	17	
13	7	PR	--	--				
14					SILTY FINE SAND, TRACE MEDIUM AND COARSE SAND, TRACE FINE GRAVEL - YELLOWISH BROWN (10YR 5/4) - MOIST, PETROLEUM ODOR	SM	*365	
15	8	PR	--	--				
16					PROBEHOLE TERMINATED AT 16.0 FEET			
17								
18								
19								
20								
21								

NOTE: THE STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. ACTUAL TRANSITION MAY BE GRADUAL.		
DRILLING DATE: 1-25-99	DRILL RIG: Geoprobe Model 5400	NOTES
DRILLED BY: UNDERGROUND POWER CORP.		*SUBMITTED FOR LABORATORY ANALYSIS
BORING DRILLED WITH GEOPROBE 2' INTERVALS		
PROBEHOLE ABANDONED WITH BENTONITE		
GROUND SURFACE AT 0.0 DURING DRILLING		
GROUNDWATER AT APPROX 10' DURING DRILLING		



PROJECT NAME LAFARGE - HARTLAND		FIELD TEC TJO	DRAWN BY DWF	PROBE NUMBER
CLIENT LAFARGE - WISCONSIN DIVISION		PROJECT NUMBER J98109		P-2
LOCATION 700 W CAPITOL DR, HARTLAND, WI NW 1/4 NW 1/4 SEC 3 T7N R18E		LOCATION DESCRIPTION 30 FEET EAST OF FORMER UST		

DEPTH	SAMPLE	TYPE	N	QP	DESCRIPTION	USCS	PID	GRAPHIC
0					8 INCHES CONCRETE			
1					SILTY FINE SAND, FEW MEDIUM TO COARSE SND, TRACE FINE GRAVEL - YELLOWISH BROWN (10YR 5/4) - DAMP (FILL)	SM		
2	1	PR	--	--			<1	
3					FINE SAND, TRACE MEDIUM TO COARSE SAND, TRACE FINE GRAVEL - YELLOWISH BROWN (10YR 5/6) - DAMP (FILL)	SW		
4	2	PR	--	--			<1	
5					SILTY FINE SAND, TRACE MEDIUM TO COARSE SAND AND FINE GRAVEL - PALE BROWN (10YR 6/3) - DAMP (FILL)	SM		
6	3	PR	--	--			<1	
7					SILTY FINE SAND, TRACE MEDIUM TO COARSE SAND AND FINE GRAVEL - PALE BROWN (10YR 6/3) - DAMP (FILL), LITTLE RECOVERY	SM		
8	4	PR	--	--			*<1	
9					SILTY FINE SAND, FINE MEDIUM TO COARSE SAND AND FINE GRAVEL - YELLOWISH BROWN (10YR 5/4) - WET, FILL	SM		
10	5	PR	--	--	FINE SANDY SILT, TRACE COARSE SAND - YELLOWISH BROWN (10YR 5/4) - WET	ML		
11					FINE SANDY SILT, TRACE COARSE SAND AND FINE GRAVEL - BROWN (10YR 5/3)	ML		
12	6	PR	--	--	SILTY CLAY, TRACE SILT, TRACE COARSE SAND AND FINE GRAVEL - DARK GRAY (10YR 4/1) - MOIST TO WET	CL		
13					PROBEHOLE TERMINATED AT 13.0 FEET			
14								
15								
16								
17								
18								
19								
20								
21								

NOTE: THE STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. ACTUAL TRANSITION MAY BE GRADUAL.	
DRILLING DATE: 1-25-99 DRILLED BY: UNDERGROUND POWER CORP. BORING DRILLED WITH GEOPROBE 2' INTERVALS PROBEHOLE ABANDONED WITH BENTONITE GROUND SURFACE AT 0.0 DURING DRILLING GROUNDWATER AT APPROX 9' DURING DRILLING	NOTES *SUBMITTED FOR LABORATORY ANALYSIS



PROJECT NAME LAFARGE - HARTLAND		FIELD TEC TJO	DRAWN BY DWF	PROBE NUMBER
CLIENT LAFARGE - WISCONSIN DIVISION		PROJECT NUMBER J98109		P-3
LOCATION 700 W CAPITOL DR, HARTLAND, WI NW 1/4 NW 1/4 SEC 3 T7N R18E		LOCATION DESCRIPTION 70 FEET WEST OF FORMER UST		

DEPTH	SAMPLE	TYPE	N	QP	DESCRIPTION	USCS	PID	GRAPHIC
0								
1	1	PR	--	--	MEDIUM TO COARSE SAND WITH SILTY FINE SAND AND FINE TO COARSE GRAVEL, TRACE ROOTS - YELLOWISH BROWN (10YR 5/4) - MOIST TO WET (FILL)	SW	<1	
2								
3	2	PR	--	--			<1	
4								
5	3	PR	--	--			8	
6								
7	4	PR	--	--	SILTY FINE SAND WITH MEDIUM SAND, TRACE COARSE SAND AND FINE GRAVEL - GRAY BROWN (10YR 5/2) - WET, PETROLEUM ODOR (FILL)	SM	610	
8								
9	5	PR	--	--			*697	
10								
11	6	PR	--	--	FINE TO MEDIUM SAND, TRACE COARSE SAND AND FINE GRAVEL - GRAYISH BROWN (10YR 5/2) - WET, PETROLEUM ODOR (FILL)	SW	610	
12								
13	7	PR	--	--	SILTY FINE SAND, FEW MEDIUM SAND, TRACE COARSE SAND AND FINE GRAVEL, TRACE FINE SANDY SILT - YELLOWISH BROWN (10YR 5/4) - WET, PETROLEUM ODOR (FILL)	SM	346	
14								
15	8	PR	--	--	PEA GRAVEL, TRACE SILTY FINE AND MEDIUM SAND - DARK GRAY TO VERY DARK GRAY (10YR 3.5/1) - WET, PETROLEUM ODOR (FILL)	SP	1,192	
16								
17	9	PR	--	--			*433	
18					PROBEHOLE TERMINATED AT 18.0 FEET			
19								
20								
21								

NOTE: THE STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. ACTUAL TRANSITION MAY BE GRADUAL.		
DRILLING DATE: 1-25-99	DRILL RIG: Geoprobe Model 5400	NOTES *SUBMITTED FOR LABORATORY ANALYSIS
DRILLED BY: UNDERGROUND POWER CORP.		
BORING DRILLED WITH GEOPROBE 2' INTERVALS		
PROBEHOLE ABANDONED WITH BENTONITE		
GROUND SURFACE AT 0.0 DURING DRILLING		
GROUNDWATER AT APPROX 7' DURING DRILLING		



PROJECT NAME LAFARGE - HARTLAND		FIELD TEC TJO	DRAWN BY DWF	PROBE NUMBER
CLIENT LAFARGE - WISCONSIN DIVISION		PROJECT NUMBER J98109		P-4
LOCATION 700 W CAPITOL DR, HARTLAND, WI NW 1/4 NW 1/4 SEC 3 T7N R18E		LOCATION DESCRIPTION 100 FEET SW OF FORMER UST		

DEPTH	SAMPLE	TYPE	N	QP	DESCRIPTION	USCS	PID	GRAPHIC
0					MEDIUM TO COARSE SAND WITH SILTY FINE SAND AND FINE TO COARSE GRAVEL, TRACE ROOTS - YELLOWISH BROWN (10YR 5/4) - MOIST TO WET (FILL)	SW	70	
1	1	PR	--	--				
2								
3	2	PR	--	--			26	
4								
5	3	PR	--	--			62	
6								
7	4	PR	--	--	FINE SAND WITH MEDIUM TO COARSE SAND, TRACE FINE GRAVEL - GREYISH BROWN (10YR 5/2) - MOIST, PETROLEUM ODOR, WET	SW	*571	
8								
9	5	PR	--	--	SILTY FINE SAND, TRACE COARSE SAND AND FINE GRAVEL - YELLOWISH BROWN (10YR 5/4) - MOIST, PETROLEUM ODOR (FILL)	SM	465	
10								
11	6	PR	--	--			149	
12								
13	7	PR	--	--	SILTY FINE SAND TO SANDY SILT, TRACE COARSE SAND AND FINE GRAVEL - YELLOWISH BROWN (10YR 5/4) - MOIST, PETROLEUM ODOR, FILL	SM	*248	
14					PROBEHOLE TERMINATED AT 14.0 FEET			
15								
16								
17								
18								
19								
20								
21								

NOTE: THE STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. ACTUAL TRANSITION MAY BE GRADUAL.		
DRILLING DATE: 1-25-99	DRILL RIG: Geoprobe Model 5400	NOTES
DRILLED BY: UNDERGROUND POWER CORP.		*SUBMITTED FOR LABORATORY ANALYSIS
BORING DRILLED WITH GEOPROBE 2' INTERVALS		
PROBEHOLE ABANDONED WITH BENTONITE		
GROUND SURFACE AT 0.0 DURING DRILLING		
GROUNDWATER AT APPROX. DURING DRILLING		



PROJECT NAME LAFARGE - HARTLAND		FIELD TEC TJO	DRAWN BY DWF	PROBE NUMBER
CLIENT LAFARGE - WISCONSIN DIVISION		PROJECT NUMBER J98109		P-5
LOCATION 700 W CAPITOL DR, HARTLAND, WI NW 1/4 NW 1/4 SEC 3 T7N R18E		LOCATION DESCRIPTION 110 FEET SW OF FORMER UST		

DEPTH	SAMPLE	TYPE	N	QP	DESCRIPTION	USCS	PID	GRAPHIC
0					MEDIUM TO COARSE SAND WITH SILTY FINE SAND AND FINE TO COARSE GRAVEL, TRACE ROOTS - YELLOWISH BROWN (10YR 5/4) - MOIST TO WET (FILL)	SW		
1	1	PR	--	--			26	
2								
3	2	PR	--	--	MEDIUM TO COARSE SAND, WITH SILTY FINE SAND AND FINE GRAVEL - GRAYISH BROWN (10YR 5/2) - MOIST TO WET, PETROLEUM ODOR (FILL)	SW	17	
4								
5	3	PR	--	--			17	
6								
7	4	PR	--	--	MEDIUM TO COARSE SAND, WITH SILTY FINE SAND AND FINE GRAVEL - GRAYISH BROWN (10YR 5/2) - MOIST TO WET, PETROLEUM ODOR (FILL)	SW	*393	
8								
9	5	PR	--	--			498	
10								
11	6	PR	--	--	PROBEHOLE TERMINATED AT 12.0 FEET		*728	
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								

NOTE: THE STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. ACTUAL TRANSITION MAY BE GRADUAL.

DRILLING DATE: 1-25-99	DRILL RIG: Geoprobe Model 5400	NOTES
DRILLED BY: UNDERGROUND POWER CORP.		*SUBMITTED FOR LABORATORY ANALYSIS
BORING DRILLED WITH GEOPROBE 2' INTERVALS		
PROBEHOLE ABANDONED WITH BENTONITE		
GROUND SURFACE AT 0.0 DURING DRILLING		
GROUNDWATER AT APPROX. DURING DRILLING		



PROJECT NAME LAFARGE - HARTLAND		FIELD TEC TJO	DRAWN BY DWF	PROBE NUMBER
CLIENT LAFARGE - WISCONSIN DIVISION		PROJECT NUMBER J98109		P-6
LOCATION 700 W CAPITOL DR, HARTLAND, WI NW 1/4 NW 1/4 SEC 3 T7N R18E		LOCATION DESCRIPTION 80 FEET SW OF FORMER UST		

DEPTH	SAMPLE	TYPE	N	QP	DESCRIPTION	USCS	PID	GRAPHIC
0					MEDIUM TO COARSE SAND WITH SILTY FINE SAND AND FINE TO COARSE GRAVEL, TRACE ROOTS - YELLOWISH BROWN (10YR 5/4) - MOIST TO WET (FILL)	SW	53	
1	1	PR	--	--				
2					FINE GRAVEL, TRACE FINE SAND - YELLOWISH BROWN (10YR 5/4) - DAMP (FILL)	SP	17	
3	2	PR	--	--				
4					NO RECOVERY		--	
5	3	PR	--	--				
6					FINE TO COARSE SAND, TRACE FINE GRAVEL - YELLOWISH BROWN (10YR 5/4) - MOIST TO WET, PETROLEUM ODOR (FILL)	SW	347	
7	4	PR	--	--				
8					SILTY FINE SAND, TRACE MEDIUM AND COARSE SAND - YELLOWISH BROWN (10YR 5/4) - MOIST, PETROLEUM ODOR (FILL)	SM	*682	
9	5	PR	--	--				
10					SILTY FINE SAND, TRACE MEDIUM TO COARSE SAND AND FINE GRAVEL - GRAYISH BROWN (10YR 5/2) - WET, PETROLEUM ODOR (FILL)	SM	106	
11	6	PR	--	--				
12					SILTY FINE SAND, TRACE FINE SANDY SILT, TRACE MEDIUM TO COARSE SAND AND FINE GRAVEL - GRAYISH BROWN (10YR 5/2) - WET, PETROLEUM ODOR (FILL)	SM	92	
13	7	PR	--	--				
14					FINE SANDY SILT, TRACE MEDIUM TO COARSE SAND AND FINE GRAVEL - YELLOWISH BROWN (10YR 5/4) - WET	ML	26	
15	8	PR	--	--				
16								
17	9	PR	--	--			*<1	
18					PROBEHOLE TERMINATED AT 18.0 FEET			
19								
20								
21								

NOTE: THE STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. ACTUAL TRANSITION MAY BE GRADUAL.		
DRILLING DATE: 1-25-99	DRILL RIG: Geoprobe Model 5400	NOTES
DRILLED BY: UNDERGROUND POWER CORP.		*SUBMITTED FOR LABORATORY ANALYSIS
BORING DRILLED WITH GEOPROBE 2' INTERVALS		
PROBEHOLE ABANDONED WITH BENTONITE		
GROUND SURFACE AT 0.0 DURING DRILLING		
GROUNDWATER AT APPROX 10' DURING DRILLING		



PROJECT NAME LAFARGE - HARTLAND		FIELD TEC TJO	DRAWN BY DWF	PROBE NUMBER
CLIENT LAFARGE - WISCONSIN DIVISION		PROJECT NUMBER J98109		P-7
LOCATION 700 W CAPITOL DR, HARTLAND, WI NW 1/4 NW 1/4 SEC 3 T7N R18E		LOCATION DESCRIPTION 170 FEET SW OF FORMER UST		

DEPTH	SAMPLE	TYPE	N	QP	DESCRIPTION	USCS	PID	GRAPHIC
0					MEDIUM TO COARSE SAND, WITH SILTY FINE SAND ND FINE TO COARSE GRAVEL, TRACE ROOTS - YELLOWISH BROWN (10YR 5/4) - MOIST TO WET (FILL)	SW	1	
1	1	PR	--	--				
2					FINE TO MEDIUM SAND, TRACE COARSE SAND AND FINE GRAVEL - YELLOWISH BROWN (10YR 5/4) - MOIST (FILL)	SW	2	
3	2	PR	--	--				
4								
5	3	PR	--	--			5	
6								
7	4	PR	--	--			*4	
8					FINE TO MEDIUM SAND, TRACE COARSE SAND AND FINE GRAVEL, BLACK SILTY SAND LAYER - YELLOWISH BROWN (10YR 5/4) - MOIST (FILL)	SW	3	
9	5	PR	--	--				
10					FINE SILTY SAND, TRACE COARSE SAND AND FINE GRAVEL - LIGHT YELLOWISH BROWN (10YR 6/4) - MOIST (FILL)	SM	5	
11	6	PR	--	--				
12					FINE SAND, TRACE MEDIUM TO COARSE SAND AND FINE GRAVEL - YELLOWISH BROWN (10YR 5/4) - WET (FILL)	SW	2	
13	7	PR	--	--				
14					PROBEHOLE TERMINATED AT 14.0 FEET			
15								
16								
17								
18								
19								
20								
21								

NOTE: THE STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. ACTUAL TRANSITION MAY BE GRADUAL.		
DRILLING DATE: 1-26-99	DRILL RIG: Geoprobe Model 5400	NOTES
DRILLED BY: UNDERGROUND POWER CORP.		*SUBMITTED FOR LABORATORY ANALYSIS
BORING DRILLED WITH GEOPROBE 2' INTERVALS		
PROBEHOLE ABANDONED WITH BENTONITE		
GROUND SURFACE AT 0.0 DURING DRILLING		
GROUNDWATER AT APPROX 12' DURING DRILLING		



PROJECT NAME LAFARGE - HARTLAND		FIELD TEC TJO	DRAWN BY DWF	PROBE NUMBER
CLIENT LAFARGE - WISCONSIN DIVISION		PROJECT NUMBER J98109		P-8
LOCATION 700 W CAPITOL DR, HARTLAND, WI NW 1/4 NW 1/4 SEC 3 T7N R18E		LOCATION DESCRIPTION 130 FEET SW OF FORMER UST		

DEPTH	SAMPLE	TYPE	N	QP	DESCRIPTION	USCS	PID	GRAPHIC
0								
1	1	PR	--	--	FINE TO MEDIUM SAND, TRACE COARSE SAND AND FINE GRAVEL - DARK YELLOWISH BROWN (10YR 4/4) - MOIST (FILL)	SW	*55	
2								
3	2	PR	--	--	FINE SAND, TRACE MEDIUM TO COARSE SAND AND FINE GRAVEL - YELLOWISH BROWN (10YR 5/4) - MOIST (FILL)	SW	8	
4								
5	3	PR	--	--			4	
6								
7	4	PR	--	--	FINE SAND, TRACE MEDIUM TO COARSE SAND AND FINE GRAVEL - YELLOWISH BROWN (10YR 5/4) - MOIST (FILL), LITTLE RECOVERY	SW	*4	
8								
9	5	PR	--	--			3	
10								
11	6	PR	--	--	FINE SILTY SAND TO SANDY SILT, TRACE MEDIUM AND COARSE SAND, TRACE FINE GRAVEL - YELLOWISH BROWN (10YR 5/4) - MOIST TO WET (FILL)	SM	2	
12								
13	7	PR	--	--	SILTY FINE TO MEDIUM SAND, TRACE COARSE SAND, TRACE FINE GRAVEL - YELLOWISH BROWN (10YR 5/4) - WET, FILL	SM	3	
14					PROBEHOLE TERMINATED AT 14.0 FEET			
15								
16								
17								
18								
19								
20								
21								

NOTE: THE STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. ACTUAL TRANSITION MAY BE GRADUAL.

DRILLING DATE: 1-26-99	DRILL RIG: Geoprobe Model 5400	NOTES
DRILLED BY: UNDERGROUND POWER CORP.		*SUBMITTED FOR LABORATORY ANALYSIS
BORING DRILLED WITH GEOPROBE 2' INTERVALS		
PROBEHOLE ABANDONED WITH BENTONITE		
GROUND SURFACE AT 0.0 DURING DRILLING		
GROUNDWATER AT APPROX 11' DURING DRILLING		



PROJECT NAME LAFARGE - HARTLAND		FIELD TEC TJO	DRAWN BY DWF	PROBE NUMBER
CLIENT LAFARGE - WISCONSIN DIVISION		PROJECT NUMBER J98109		P-9
LOCATION 700 W CAPITOL DR, HARTLAND, WI NW 1/4 NW 1/4 SEC 3 T7N R18E		LOCATION DESCRIPTION 150 FEET SW OF FORMER UST		

DEPTH	SAMPLE	TYPE	N	QP	DESCRIPTION	USCS	PID	GRAPHIC
0					FINE TO MEDIUM SAND, TRACE COARSE SAND AND FINE GRAVEL - YELLOWISH BROWN (10YR 5/4) - DAMP TO MOIST (FILL)	SW		
1	1	PR	--	--			3	
2								
3	2	PR	--	--			3	
4								
5	3	PR	--	--			2	
6								
7	4	PR	--	--	PROBEHOLE TERMINATED AT 14.0 FEET		*4	
8								
9	5	PR	--	--			3	
10								
11	6	PR	--	--			2	
12								
13	7	PR	--	--			3	
14								
15								
16								
17								
18								
19								
20								
21								

NOTE: THE STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. ACTUAL TRANSITION MAY BE GRADUAL.

DRILLING DATE: 1-26-99	DRILL RIG: Geoprobe Model 5400	NOTES *SUBMITTED FOR LABORATORY ANALYSIS
DRILLED BY: UNDERGROUND POWER CORP.		
BORING DRILLED WITH GEOPROBE 2' INTERVALS		
PROBEHOLE ABANDONED WITH BENTONITE		
GROUND SURFACE AT 0.0 DURING DRILLING		
GROUNDWATER AT APPROX. DURING DRILLING		



PROJECT NAME LAFARGE - HARTLAND		FIELD TEC TJO	DRAWN BY DWF	PROBE NUMBER
CLIENT LAFARGE - WISCONSIN DIVISION		PROJECT NUMBER J98109		P-10
LOCATION 700 W CAPITOL DR, HARTLAND, WI NW 1/4 NW 1/4 SEC 3 T7N R18E		LOCATION DESCRIPTION 65 FEET NW OF FORMER UST		

DEPTH	SAMPLE	TYPE	N	QP	DESCRIPTION	USCS	PID	GRAPHIC
0					FINE TO MEDIUM SAND, TRACE COARSE SAND AND FINE GRAVEL - GRAY (10YR 5/1) - WET, CEMENT ODOR (FILL)	SW		
1	1	PR	--	--			351	
2					SILTY FINE SAND, TRACE MEDIUM TO COARSE SAND AND FINE GRAVEL - GRAY (10YR 6/1) - WET, CEMENT ODOR (FILL)	SM		
3	2	PR	--	--			381	
4								
5	3	PR	--	--			483	
6					SILTY FINE SAND, TRACE MEDIUM TO COARSE SAND AND FINE GRAVEL - GRAY (10YR 6/1) - WET, CEMENT AND PETROLEUM ODOR (FILL)	SM		
7	4	PR	--	--			*723	
8					FINE SILTY SAND, FEW MEDIUM TO COARSE SAND AND FINE GRAVEL - VERY DARK GRAYISH BROWN (10YR 3/2) - WET, PETROLEUM ODOR (FILL)	SM		
9	5	PR	--	--			767	
10					FINE TO MEDIUM SILTY SAND, TRACE COARSE SAND - GRAY (10YR 5/1) - WET, PETROLEUM ODOR (FILL)	SM		
11	6	PR	--	--			307	
12								
13	7	PR	--	--			398	
14								
15	8	PR	--	--			*556	
16					PROBEHOLE TERMINATED AT 16.0 FEET			
17								
18								
19								
20								
21								

NOTE: THE STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. ACTUAL TRANSITION MAY BE GRADUAL.		
DRILLING DATE: 1-26-99	DRILL RIG: Geoprobe Model 5400	NOTES
DRILLED BY: UNDERGROUND POWER CORP.		*SUBMITTED FOR LABORATORY ANALYSIS
BORING DRILLED WITH GEOPROBE 2' INTERVALS		
PROBEHOLE ABANDONED WITH BENTONITE		
GROUND SURFACE AT 0.0 DURING DRILLING		
GROUNDWATER AT APPROX. DURING DRILLING		



PROJECT NAME LAFARGE - HARTLAND		FIELD TEC TJO	DRAWN BY DWF	BORING NUMBER
CLIENT LAFARGE - WISCONSIN DIVISION		PROJECT NUMBER J98109		B-1
LOCATION 700 W CAPITOL DR, HARTLAND, WI NW 1/4 NW 1/4 SEC 3 T7N R18E		LOCATION DESCRIPTION 75'N, 4'E OF NW CORNER OF BLDG		

DEPTH	SAMPLE	TYPE	N	QP	DESCRIPTION	USCS	PID	GRAPHIC
0								
1								
2	1	SS	22	--	FINE TO COARSE SAND, FINE TO MEDIUM GRAVEL (PEA GRAVEL) - YELLOWISH BROWN (10YR 5/4) - MOIST (FILL)	SW	<1	
3								
4	2	SS	--	--	NO RECOVERY		--	
5								
6								
7	3	SS	15	--	FINE SANDY SILT TO SILTY SAND, TRACE MEDIUM SAND, FINE TO MEDIUM GRAVEL - YELLOWISH BROWN (10YR 5/4) - MOIST TO WET (FILL)	ML	*<1	
8								
9	4	SS	33	--	FINE SANDY SILT TO SILTY SAND, TRACE MEDIUM SAND, FINE TO MEDIUM GRAVEL - YELLOWISH BROWN (10YR 5/4) - MOIST (FILL)	ML	<1	
10								
11								
12	5	SS	31	--			<1	
13								
14	6	SS	25	--	FINE TO COARSE SAND, FINE TO MEDIUM GRAVEL (PEA GRAVEL) - YELLOWISH BROWN (10YR 5/4) - MOIST	SW	<1	
15					BOREHOLE TERMINATED AT 15.0 FEET			
16								
17								
18								
19								
20								
21								

NOTE: THE STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. ACTUAL TRANSITION MAY BE GRADUAL.		
DRILLING DATE: 3-8-99	DRILL RIG: FOREMOST MOBILE	NOTES *SAMPLE SUBMITTED FOR LABORATORY ANALYSIS SS = SPLIT SPOON
DRILLED BY: BRIOHN ENVIRONMENTAL CONTRACTORS		
BORING DRILLED WITH 4.25 INCH I.D. HSA		
BOREHOLE BACKFILLED WITH BENTONITE		
GROUND SURFACE AT 101.30 DURING DRILLING		



PROJECT NAME LAFARGE - HARTLAND		FIELD TEC TJO	DRAWN BY DWF	BORING NUMBER
CLIENT LAFARGE - WISCONSIN DIVISION		PROJECT NUMBER J98109		B-2
LOCATION 700 W CAPITOL DR, HARTLAND, WI NW 1/4 NW 1/4 SEC 3 T7N R18E		LOCATION DESCRIPTION 105'N, 25'E OF NW CRNR OF BLDG		

DEPTH	SAMPLE	TYPE	N	QP	DESCRIPTION	USCS	PID	GRAPHIC
0								
1								
2	1	SS	72	--	FINE TO COARSE SAND, FINE TO MEDIUM GRAVEL (PEA GRAVEL) - YELLOWISH BROWN (10YR 5/4) - MOIST (FILL)	SW	<1	
3								
4	2	SS	19	--	SILTY FINE SAND TO FINE SANDY SILT, TRACE MEDIUM TO COARSE SAND, TRACE COARSE GRAVEL - YELLOWISH BROWN (10YR 5/4) - DAMP (FILL)	SM	<1	
5								
6								
7	3	SS	20	--	SILTY FINE SAND TO FINE SANDY SILT, TRACE MEDIUM TO COARSE SAND, TRACE COARSE GRAVEL - YELLOWISH BROWN (10YR 5/4) - DAMP (FILL), SLIGHT ODOR, VERY LITTLE RECOVERY	SM	531	
8								
9	4	SS	16	--	FINE SANDY SILT, TRACE MEDIUM TO COARSE SAND - YELLOWISH BROWN (10YR 5/4) - MOIST TO WET (FILL)	ML	*22	
10								
11								
12	5	SS	18	--	FINE TO COARSE SAND, FINE TO MEDIUM GRAVEL (PEA GRAVEL) - YELLOWISH BROWN (10YR 5/4) - WET (FILL)	SW	5	
13								
14	6	SS	16	--	FINE TO COARSE SAND, FINE TO MEDIUM GRAVEL (PEA GRAVEL) - YELLOWISH BROWN (10YR 5/4) - WET (FILL), SLIGHT ODOR	SW	*40	
15					BOREHOLE TERMINATED AT 15.0 FEET			
16								
17								
18								
19								
20								
21								

NOTE: THE STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. ACTUAL TRANSITION MAY BE GRADUAL.		
DRILLING DATE: 3-8-99	DRILL RIG: FOREMOST MOBILE	NOTES *SAMPLE SUBMITTED FOR LABORATORY ANALYSIS SS = SPLIT SPOON WELL SET AT 15' WITH 10' SCREEN DNR UID #JN379
DRILLED BY: BRIOHN ENVIRONMENTAL CONTRACTORS		
BORING DRILLED WITH 4.25 INCH I.D. HSA		
BOREHOLE BACKFILLED WITH BENTONITE		
GROUND SURFACE AT 101.13 DURING DRILLING		



PROJECT NAME LAFARGE - HARTLAND		FIELD TEC TJO	DRAWN BY DWF	BORING NUMBER
CLIENT LAFARGE - WISCONSIN DIVISION		PROJECT NUMBER J98109		B-3
LOCATION 700 W CAPITOL DR, HARTLAND, WI NW 1/4 NW 1/4 SEC 3 T7N R18E		LOCATION DESCRIPTION 48'N, 38'E OF NW CORNR OF BLDG		

DEPTH	SAMPLE	TYPE	N	QP	DESCRIPTION	USCS	PID	GRAPHIC
0								
1	1	SS	5	--	FINE TO COARSE SAND, FINE TO MEDIUM GRAVEL (PEA GRAVEL) - YELLOWISH BROWN (10YR 5/4) - WET (FILL)	SW	*108	
2								
3								
4	2	SS	1	--	MEDIUM GRAVEL, WET (FILL)	SP	11	
5								
6								
7	3	SS	1	--			<1	
8								
9	4	SS	21	--	FINE SANDY SILT TO SILTY FINE SAND, TRACE MEDIUM TO COARSE SAND, TRACE FINE GRAVEL - YELLOWISH BROWN (10YR 5/4) - DAMP (FILL)	ML	<1	
10								
11	5	SS	41	--	FINE SANDY SILT TO SILTY FINE SAND, TRACE MEDIUM TO COARSE SAND, TRACE FINE TO COARSE GRAVEL - YELLOWISH BROWN (10YR 5/4) - WET (FILL)	ML	<1	
12								
13								
14	6	SS	41	--	FINE SAND, TRACE MEDIUM TO COARSE GRAVEL, DAMP (FILL)	SW	<1	
15					BOREHOLE TERMINATED AT 15.0 FEET			
16								
17								
18								
19								
20								
21								

NOTE: THE STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. ACTUAL TRANSITION MAY BE GRADUAL.		
DRILLING DATE: 3-8-99	DRILL RIG: FOREMOST MOBILE	NOTES *SAMPLE SUBMITTED FOR LABORATORY ANALYSIS SS = SPLIT SPOON WELL SET AT 15' WITH 10' SCREEN DNR UID #JN378
DRILLED BY: BRIOHN ENVIRONMENTAL CONTRACTORS		
BORING DRILLED WITH 4.25 INCH I.D. HSA		
GROUND SURFACE AT 101.06 DURING DRILLING		



PROJECT NAME LAFARGE - HARTLAND		FIELD TEC TJO	DRAWN BY DWF	BORING NUMBER B-4
CLIENT LAFARGE - WISCONSIN DIVISION		PROJECT NUMBER J98109		
LOCATION 700 W CAPITOL DR, HARTLAND, WI NW 1/4 NW 1/4 SEC 3 T7N R18E		LOCATION DESCRIPTION 15' N OF NE CORNER OF SILO BLDG		

DEPTH	SAMPLE	TYPE	N	QP	DESCRIPTION	USCS	PID	GRAPHIC
0								
1								
2	1	SS	47	--	FINE TO COARSE SAND, FINE TO MEDIUM GRAVEL (PEA GRAVEL), COARSE GRAVEL - YELLOWISH BROWN (10YR 5/4) - MOIST (FILL), CEMENT ODOR	SW	86	
3								
4	2	SS	27	--			*129	
5								
6								
7	3	SS	34	--	FINE SANDY SILT, TRACE SILTY CLAY, TRACE MEDIUM TO COARSE SAND, TRACE FINE TO MEDIUM GRAVEL - BROWN (10YR 5/3) - DAMP (FILL)	ML	<1	
8								
9	4	SS	9	--	FINE SANDY SILT, TRACE SANDY CLAY, TRACE MEDIUM SAND AND FINE GRAVEL - BROWN (10YR 5/3) - WET	ML	<1	
10								
11								
12	5	SS	14	--	FINE SANDY SILT TO SILTY CLAY, TRACE MEDIUM TO COARSE SAND AND FINE GRAVEL - BROWN (10YR 5/3) - WET	ML	<1	
13								
14	6	SS	21	--			<1	
15					BOREHOLE TERMINATED AT 15.0 FEET			
16								
17								
18								
19								
20								
21								

NOTE: THE STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. ACTUAL TRANSITION MAY BE GRADUAL.

DRILLING DATE: 3-8-99	DRILL RIG: FOREMOST MOBILE	<u>NOTES</u> *SAMPLE SUBMITTED FOR LABORATORY ANALYSIS SS = SPLIT SPOON WELL SET AT 15' WITH 10' SCREEN DNR UID #JN377
DRILLED BY: BRIOHN ENVIRONMENTAL CONTRACTORS		
BORING DRILLED WITH 4.25 INCH I.D. HSA		
GROUND SURFACE AT 103.36 DURING DRILLING		



PROJECT NAME LAFARGE - HARTLAND		FIELD TEC TJO	DRAWN BY DWF	BORING NUMBER
CLIENT LAFARGE - WISCONSIN DIVISION		PROJECT NUMBER J98109		B-5
LOCATION 700 W CAPITOL DR, HARTLAND, WI NW 1/4 NW 1/4 SEC 3 T7N R18E		LOCATION DESCRIPTION 75'N, 45'W OF NW CORNR OF BLDG		

DEPTH	SAMPLE	TYPE	N	QP	DESCRIPTION	USCS	PID	GRAPHIC
0								
1								
2	1	SS	38	--	FINE TO COARSE SAND, FINE TO MEDIUM GRAVEL (PEA GRAVEL) - YELLOWISH BROWN (10YR 5/4) - DAMP	SW	<1	
3								
4	2	SS	38	--	FINE TO COARSE SAND, FINE TO MEDIUM GRAVEL (PEA GRAVEL) - YELLOWISH BROWN (10YR 5/4) - MOIST	SW	198	
5								
6								
7	3	SS	9	--	FINE TO COARSE SAND, FINE TO MEDIUM GRAVEL (PEA GRAVEL) - YELLOWISH BROWN (10YR 5/4) - MOIST, ODOR	SW	*288	
8								
9	4	SS	3	--	FINE SILTY SAND, TRACE MEDIUM TO COARSE SAND, TRACE FINE GRAVEL - BROWN (10YR 5/3) - WET (FILL), ODOR	SM	288	
10								
11								
12	5	SS	28	--			*94	
13								
14	6	SS	22	--	NO RECOVERY		--	
15					BOREHOLE TERMINATED AT 15.0 FEET			
16								
17								
18								
19								
20								
21								

NOTE: THE STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. ACTUAL TRANSITION MAY BE GRADUAL.

DRILLING DATE: 3-8-99	DRILL RIG: FOREMOST MOBILE	<u>NOTES</u> *SAMPLE SUBMITTED FOR LABORATORY ANALYSIS SS = SPLIT SPOON WELL SET AT 15' WITH 10' SCREEN DNR UID #JK522
DRILLED BY: BRIOHN ENVIRONMENTAL CONTRACTORS		
BORING DRILLED WITH 4.25 INCH I.D. HSA		
GROUND SURFACE AT 101.37 DURING DRILLING		



PROJECT NAME LAFARGE - HARTLAND		FIELD TEC TJO	DRAWN BY DWF	BORING NUMBER B-6
CLIENT LAFARGE - WISCONSIN DIVISION		PROJECT NUMBER J98109		
LOCATION 700 W CAPITOL DR, HARTLAND, WI NW 1/4 NW 1/4 SEC 3 T7N R18E		LOCATION DESCRIPTION 15'S, 55'W OF NW CORNR OF BLDG		

DEPTH	SAMPLE	TYPE	N	QP	DESCRIPTION	USCS	PID	GRAPHIC
0								
1								
2	1	SS	30	--	FINE TO MEDIUM SAND, TRACE COARSE SAND, TRACE FINE GRAVEL - DARK BROWN (10YR 4/3) - DAMP (FILL)	SW	48	
3								
4	2	SS	30	--	FINE TO MEDIUM SAND, TRACE COARSE SAND, TRACE FINE GRAVEL - YELLOWISH BROWN (10YR 5/4) - DAMP (FILL)	SW	41	
5								
6								
7	3	SS	51	--			11	
8								
9	4	SS	16	--	FINE SANDY SILT, TRACE COARSE SAND TO FINE GRAVEL - BROWN (10YR 5/3) - MOIST TO WET	ML	*3	
10								
11								
12	5	SS	18	--	FINE SANDY SILT TO SILTY FINE SAND, TRACE COARSE SAND AND FINE GRAVEL - BROWN (10YR 5/3) - 3 INCH SEAM, SILT, TRACE SILTY CLAY - DARK GRAY (10YR 4/1) - MOIST	ML	3	
13								
14	6	SS	28	--	FINE SAND, MEDIUM TO COARSE SAND, TRACE FINE GRAVEL - BROWN (10YR 5/3) - MOIST	SW	25	
15								
16								
17	7	SS	30				*167	
18								
19					BOREHOLE TERMINATED AT 19.0 FEET			
20								
21								

NOTE: THE STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. ACTUAL TRANSITION MAY BE GRADUAL.

DRILLING DATE: 3-26-99	DRILL RIG: FOREMOST MOBILE	<u>NOTES</u> *SAMPLE SUBMITTED FOR LABORATORY ANALYSIS SS = SPLIT SPOON WELL SET AT 19' WITH 10' SCREEN DNR UID #JK523
DRILLED BY: BRIOHN ENVIRONMENTAL CONTRACTORS		
BORING DRILLED WITH 4.25 INCH I.D. HSA		
GROUND SURFACE AT 100.02 DURING DRILLING		



PROJECT NAME LAFARGE - HARTLAND		FIELD TEC TJO	DRAWN BY DWF	BORING NUMBER
CLIENT LAFARGE - WISCONSIN DIVISION		PROJECT NUMBER J98109		B-7
LOCATION 700 W CAPITOL DR, HARTLAND, WI NW 1/4 NW 1/4 SEC 3 T7N R18E		LOCATION DESCRIPTION 145'N, 46'W OF NW CRNR OF BLDG		

DEPTH	SAMPLE	TYPE	N	QP	DESCRIPTION	USCS	PID	GRAPHIC
0					BLIND DRILLED TO 11.0 FEET			
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12	1	SS	9	--	FINE SAND TO SILTY FINE SAND WITH MEDIUM TO COARSE SAND AND FINE GRAVEL - YELLOWISH BROWN (10YR 5/4) - MOIST	SW	4	
13								
14	2	SS	10	--			6	
15								
16	3	SS	26	--			4	
17								
18	4	SS	43	--	SILTY FINE SAND, TRACE MEDIUM TO COARSE SAND, TRACE FINE GRAVEL - YELLOWISH BROWN (10YR 5/4) - MOIST	SM	3	
19								
20	5	SS	26	--	SILTY FINE SAND, TRACE MEDIUM TO COARSE SAND - PALE BROWN (10YR 6/3) - MOIST	SM	5	
21								

NOTE: THE STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. ACTUAL TRANSITION MAY BE GRADUAL.

DRILLING DATE: 3-26-99

DRILL RIG: TRACKED ATV

NOTES

DRILLED BY: BRIOHN ENVIRONMENTAL CONTRACTORS

BORING DRILLED WITH 4.25 INCH I.D. HSA

*SAMPLE SUBMITTED FOR LABORATORY ANALYSIS

SS = SPLIT SPOON

WELL SET AT 33' WITH 15' SCREEN

DNR UID #JK524

GROUND SURFACE AT 108.71 DURING DRILLING



PROJECT NAME LAFARGE - HARTLAND		FIELD TEC TJO	DRAWN BY DWF	BORING NUMBER
CLIENT LAFARGE - WISCONSIN DIVISION		PROJECT NUMBER J98109		B-7
LOCATION 700 W CAPITOL DR, HARTLAND, WI NW 1/4 NW 1/4 SEC 3 T7N R18E		LOCATION DESCRIPTION 145'N, 46'W OF NW CRNR OF BLDG		

DEPTH	SAMPLE	TYPE	N	QP	DESCRIPTION	USCS	PID	GRAPHIC
21					NO RECOVERY			
22	6	SS	35	--			--	
23								
24	7	SS	18	--	FINE SAND TO SILTY FINE SAND WITH MEDIUM TO COARSE SAND AND FINE GRAVEL - YELLOWISH BROWN (10YR 5/4) - MOIST	SW	*8	
25								
26	8	SS	32	--	FINE SAND, TRACE MEDIUM TO COARSE SAND, WET	SW	7	
27								
28	9	SS	14	--			4	
29								
30	10	SS	12	--			*3	
31								
32	11	SS	--	--			--	
33					BOREHOLE TERMINATED AT 33.0 FEET			
34								
35								
36								
37								
38								
39								
40								
41								
42								
43								
44								
45								

NOTE: THE STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. ACTUAL TRANSITION MAY BE GRADUAL.



PROJECT NAME LAFARGE - HARTLAND		FIELD TEC TJO	DRAWN BY DWF	BORING NUMBER
CLIENT LAFARGE - WISCONSIN DIVISION		PROJECT NUMBER J98109		B-8
LOCATION 700 W CAPITOL DR, HARTLAND, WI NW 1/4 NW 1/4 SEC 3 T7N R18E		LOCATION DESCRIPTION 105'N, 98'W OF NW CRNR OF BLDG		

DEPTH	SAMPLE	TYPE	N	OP	DESCRIPTION	USCS	PID	GRAPHIC
0					BLIND DRILLED TO 11.0 FEET			
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12	1	SS	57	--	FINE SAND WITH MEDIUM TO COARSE SAND, TRACE FINE GRAVEL - LIGHT GRAY (10YR 7/2) - DAMP	SW	1	
13								
14	2	SS	68	--	FINE SAND TO FINE SILTY SAND, TRACE MEDIUM TO COARSE SAND, TRACE FINE GRAVEL - BROWN (10YR 5/3) - DAMP	SW	<1	
15								
16	3	SS	53	--			1	
17								
18	4	SS	51	--			4	
19								
20	5	SS	49	--			*6	
21								

NOTE: THE STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. ACTUAL TRANSITION MAY BE GRADUAL.

DRILLING DATE: 3-26-99	DRILL RIG: TRACKED ATV	NOTES *SAMPLE SUBMITTED FOR LABORATORY ANALYSIS SS = SPLIT SPOON WELL SET AT 33' WITH 15' SCREEN DNR UID #JK525
DRILLED BY: BRIOHN ENVIRONMENTAL CONTRACTORS		
BORING DRILLED WITH 4.25 INCH I.D. HSA		
GROUND SURFACE AT 112.42 DURING DRILLING		



PROJECT NAME LAFARGE - HARTLAND		FIELD TEC TJO	DRAWN BY DWF	BORING NUMBER B-8
CLIENT LAFARGE - WISCONSIN DIVISION		PROJECT NUMBER J98109		
LOCATION 700 W CAPITOL DR, HARTLAND, WI NW 1/4 NW 1/4 SEC 3 T7N R18E		LOCATION DESCRIPTION 105'N, 98'W OF NW CRNR OF BLDG		

DEPTH	SAMPLE	TYPE	N	QP	DESCRIPTION	USCS	PID	GRAPHIC	
21	6	SS	50	--	FINE SAND, TRACE MEDIUM TO COARSE SAND, TRACE FINE GRAVEL - BROWN (10YR 5/3) - MOIST, LITTLE RECOVERY	SW	5		
22									
23	7	SS	52	--	FINE TO MEDIUM SAND WITH COARSE SAND, TRACE FINE GRAVEL - BROWN (10YR 5/3) - MOIST	SW	2		
24									
25	8	SS	58	--			3		
26									
27	9	SS	54	--	FINE SAND, TRACE MEDIUM AND COARSE SAND - BROWN (10YR 5/3) - WET	SW	3		
28									
29	10	SS	--	--			*4		
30									
31	11	SS	--	--			--		
32									
33	BOREHOLE TERMINATED AT 33.0 FEET								
34									
35									
36									
37									
38									
39									
40									
41									
42									
43									
44									
45									

NOTE: THE STRATIFICATION LINES ARE APPROXIMATE BOUNDARIES. ACTUAL TRANSITION MAY BE GRADUAL.



191 W. Edgerton Ave
Milwaukee, WI 53207
(414)933-7444

Report On: Proctor

Lab No: 20-06843

Report No: 20-06843

Project No: 20072-40

Cust No: 0111

Page 1 of 1

Client: Musson Brothers, Inc.
Bob Draths
1522 Pearl St.
Waukesha, WI 53186

Project: Sunnyslope Dr. Storm Sewer, Sanitary
Sewer and Water Main.

Engineer: Ruekert Mielke

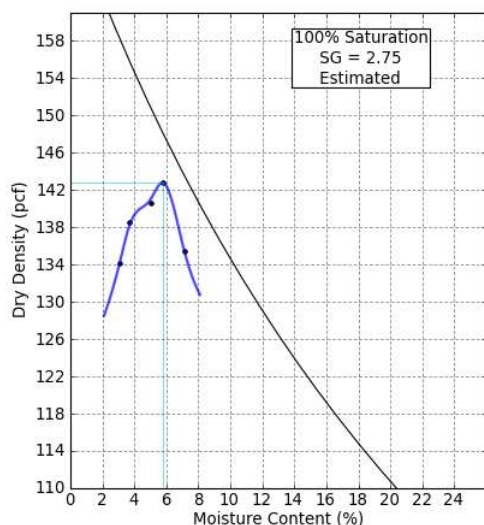
Report Date: 08/11/2020

Location: Fill Site

Sample Date: 08/11/2020

Material: Trench Spoils

Sampled By: Max Piehl



% Moisture

Dry Density Lbs./Cu.Ft.

3.1

134.1

3.7

138.6

5.0

140.6

5.8

142.8

7.1

135.5

5.8

Optimum

142.8

Maximum

Color: Brown

Description: sandy gravel

Desc of Rammer: Mechanical

Preparation Method: Dry

Oversized Material:

Test Method (As Applicable): AASHTO T-180, AASHTO T-99, ASTM D-1557, ASTM D-1559, ASTM D-2041, ASTM D-558, ASTM D-698 Method-C

Orig: Musson Brothers, Inc. Attn: Bob Draths
(1-ec copy)
1-ec Ruekert Mielke Attn: Peter Gesch
1-cc Laboratory

Respectfully Submitted,

Andrew Davis, Project Manager

THIS REPORT APPLIES ONLY TO THE STANDARDS OR PROCEDURES INDICATED AND TO THE SAMPLE(S) TESTED AND/OR OBSERVED AND ARE NOT NECESSARILY INDICATIVE OF THE QUALITIES OF APPARENTLY IDENTICAL OR SIMILAR PRODUCTS OR PROCEDURES, NOR DO THEY REPRESENT AN ONGOING QUALITY ASSURANCE PROGRAM UNLESS SO NOTED. THESE REPORTS ARE FOR THE EXCLUSIVE USE OF THE ADDRESSED CLIENT AND ARE NOT TO BE REPRODUCED WITHOUT WRITTEN PERMISSION.

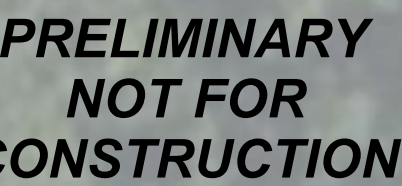
REPORT CREATED BY ElmTree SYSTEM



FIELD DENSITY REPORT

GESTRA Engineering, Inc.
191 W. Edgerton Avenue
Milwaukee, WI 53207
Phone 414-933-7444
Fax 414-933-7844

General Information									
Project Name:	Sunnyslope Drive		Report to:	City of Hartland		Page:	1 of 1		
Project Number:	20072-40		Contractor:	Musson Brothers		Date:	8/4/2020		
Project Location:	Hartland, WI		Technician:	Max Piehl		Total hrs on Job:	1.3		
Proctor Type:	Modified ASTM D1557		Time Arrive:	11:45 AM		Travel Time:	1.2		
Req.Compaction:	95%		Time Depart:	1:05 PM		Milage (R/T):	64		
Test Locations:									
Test #	General Test Area		Reference		Distance from Ref (ft) N/S E/W		Elevation (ft)	Rod Depth (in)	
1	Fill Site		SW Corner of Site					6	
2	Fill Site		NE Corner of Site					6	
3	Fill Site		E Side of Site					6	
Test Results:									
Test #	Proctor Number	Field Moisture (%)	Moisture Difference (%)	Wet Density (lb/ft ³)	Dry Density (lb/ft ³)	Compaction (%)	Pass / Fail	Retest Number	
1	1	8.1	2.3	150.9	139.5	98%	Pass		
2	1	8.8	3.0	148.0	136.0	95%	Pass		
3	1	6.7	0.9	144.2	135.1	95%	Pass		
Nuclear Gauge & Proctor Information									
Brand:	CPN		Serial Number:	8972		Standard Density Count:			
Model:	MC1DRP		Test Mode:	Direct		Standard Moisture Count:			
Proctor #	Soil Description				Max Dry Density (lb/ft ³)	Gravel Content (%)	Optimum Moisture (%)		
1	Spoils from Sunnyslope Dr.				142.8		5.8		
Remarks:									
SG = Subgrade									
							Reviewed by:	A. Davis	



DIGGERS HOTLINE
Toll Free (800) 242-8511
Milwaukee Area (414) 259-1181
Hearing Impaired TDD (800) 542-2288
www.DiggersHotline.com

SHEET TITLE		PROJECT		REVISION DESCRIPTION		DATE	
Soil Testing 2 of 2		Hardland Apartments 700 W. Capital Drive Village of Hardland, WI		NO			
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Drawing Scale: 1 : 40 Drawn: Checked: P&D Project No: 490686 Sheet No.							

Appendix C

Laboratory Reports

- Modified Proctor (D1557) & Grain Size Analysis (D6913)
 - TP-1/TP-2 - composite
 - TP-3
 - TP-5
 - B6/B7 - composite (Grain Size Analysis below)
- Grain Size Analysis (D6913)
 - TP-6
 - TP-9
 - B1
 - B2 (including Atterberg Limits (D4318))
 - B3
 - B4
 - B5
 - B6
 - B7
 - B8
 - B9
 - B10
 - B11
 - B12
 - B13
 - B14
 - B15
 - B16
 - B17
 - B18
 - B19
- General Notes
- USCS Description



Material Test Report

Report #: CSPL-000001-00

West Allis

2135 S. 116th Street
West Allis, WI 53227
Phone: 888-436-8378
Fax: 414-321-8359

Client:

Three Leaf Partners
504 W Juneau Avenue
Milwaukee, WI 53203

Project:

7708
Hartland Quarry Apartments
700/701 Capitol Drive
Hartland, WI

Sample Information

Sample Date: 04/17/2023
Sample No: 7157
Source: Jobsite
Supplier: Client
Sampled By: Michael Frede
Sample From: Test Pit
Sampling Method: Not Provided
Field ID: TP-1 + TP-2 Combined
Application: Test Pit
Visual Description: Light Brown Silty Sand with few Gravel
Specification:

Sieve Analysis Data

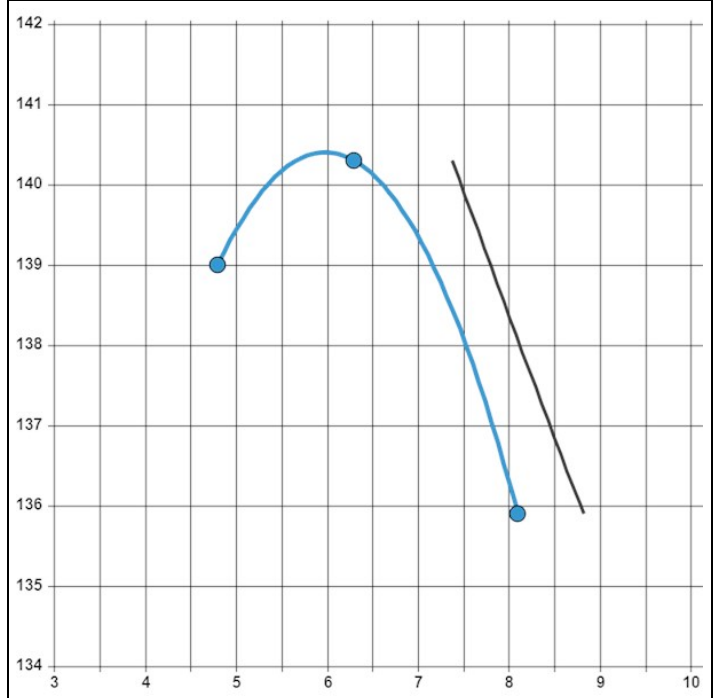
ASTM C136/C117

Sieve Size	% Passing	Upper/Lower Limits
2 in (50 mm)	100.0	
1-1/2 in (37.5 mm)	100.0	
1-1/4 in (31.75 mm)	93.7	
1 in (25 mm)	91.7	
3/4 in (19 mm)	86.4	
1/2 in (12.5 mm)	79.5	
3/8 in (9.5 mm)	75.3	
No 4 (4.75 mm)	67.2	
No 10 (2 mm)	60.9	
No 20 (850 µm)	55.5	
No 40 (425 µm)	47.5	
No 60 (250 µm)	38.1	
No 100 (150 µm)	30.1	
No 140 (106 µm)	26.3	
No 200 (75 µm)	23.6	

Test Completed Date: 04/21/2023**Test Completed By:** Abdel Deif

Laboratory Compaction Data (Proctor)

ASTM D1557

Maximum Dry Density (lb/ft³): 140.4**Optimum Moisture (%):** 6.0**Compaction Method:** B (ASTM D1557)**Type of Rammer:** Manual**Est. Specific Gravity:** 2.70**Oversize Correction Needed:** Yes

Plasticity Details

ASTM D4318

Liquid Limit (LL): **Plastic Limit (PL):****Plasticity Index (PI):**

Imtiaz Ahmed, Laboratory Manager

Apr 27, 2023



Material Test Report

Report #: CSPL-000002-00

West Allis

2135 S. 116th Street
West Allis, WI 53227
Phone: 888-436-8378
Fax: 414-321-8359

Client:

Three Leaf Partners
504 W Juneau Avenue
Milwaukee, WI 53203

Project:

7708
Hartland Quarry Apartments
700/701 Capitol Drive
Hartland, WI

Sample Information

Sample Date: 04/17/2023
Sample No: 7158
Source: Jobsite
Supplier: Client
Sampled By: Michael Frede
Sample From: Test Pit
Sampling Method: Not Provided
Field ID: TP-3
Application: Test Pit
Visual Description: Brown Sand and Gravel, trace Silt
Specification:

Sieve Analysis Data

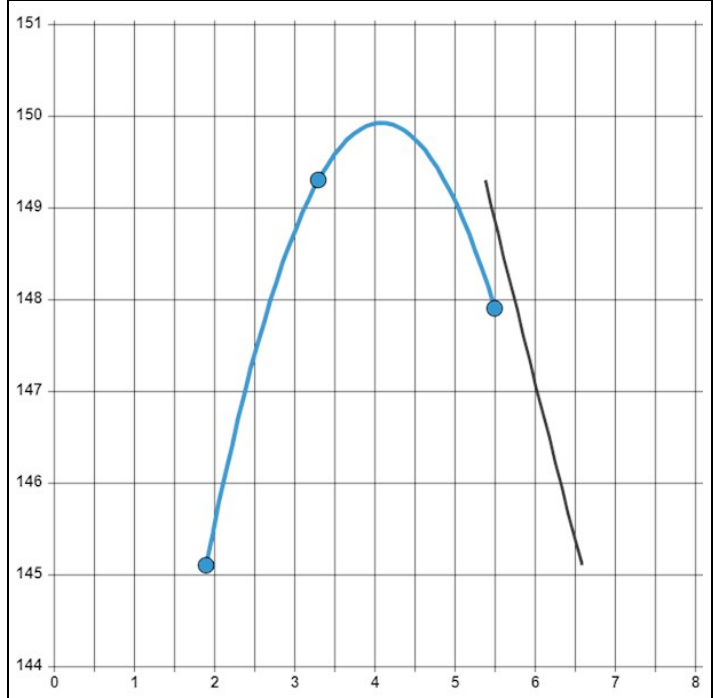
ASTM C136/C117

Sieve Size	% Passing	Upper/Lower Limits
2 in (50 mm)	100.0	
1-1/2 in (37.5 mm)	100.0	
1-1/4 in (31.75 mm)	93.4	
1 in (25 mm)	90.7	
3/4 in (19 mm)	84.0	
1/2 in (12.5 mm)	75.2	
3/8 in (9.5 mm)	69.6	
No 4 (4.75 mm)	57.0	
No 10 (2 mm)	47.6	
No 20 (850 µm)	40.3	
No 40 (425 µm)	32.0	
No 60 (250 µm)	23.0	
No 100 (150 µm)	17.3	
No 140 (106 µm)	14.9	
No 200 (75 µm)	12.6	

Test Completed Date: 04/25/2023**Test Completed By:** Abdel Deif

Laboratory Compaction Data (Proctor)

ASTM D1557

Maximum Dry Density (lb/ft³): 150.0**Optimum Moisture (%):** 4.1**Compaction Method:** C (ASTM D1557)**Type of Rammer:** Manual**Est. Specific Gravity:** 2.75**Oversize Correction Needed:** Yes

Plasticity Details

ASTM D4318

Liquid Limit (LL):**Plastic Limit (PL):****Plasticity Index (PI):**

Imtiaz Ahmed, Laboratory Manager

Apr 27, 2023



Material Test Report

Report #: CSPL-000003-00

West Allis

2135 S. 116th Street
West Allis, WI 53227
Phone: 888-436-8378
Fax: 414-321-8359

Client:

Three Leaf Partners
504 W Juneau Avenue
Milwaukee, WI 53203

Project:

7708
Hartland Quarry Apartments
700/701 Capitol Drive
Hartland, WI

Sample Information

Sample Date: 04/17/2023
Sample No: 7159
Source: Jobsite
Supplier: Client
Sampled By: Michael Frede
Sample From: Test Pit
Sampling Method: Not Provided
Field ID: TP-5
Application: Test Pit
Visual Description: Brown Silty Sand with few Gravel
Specification:

Sieve Analysis Data

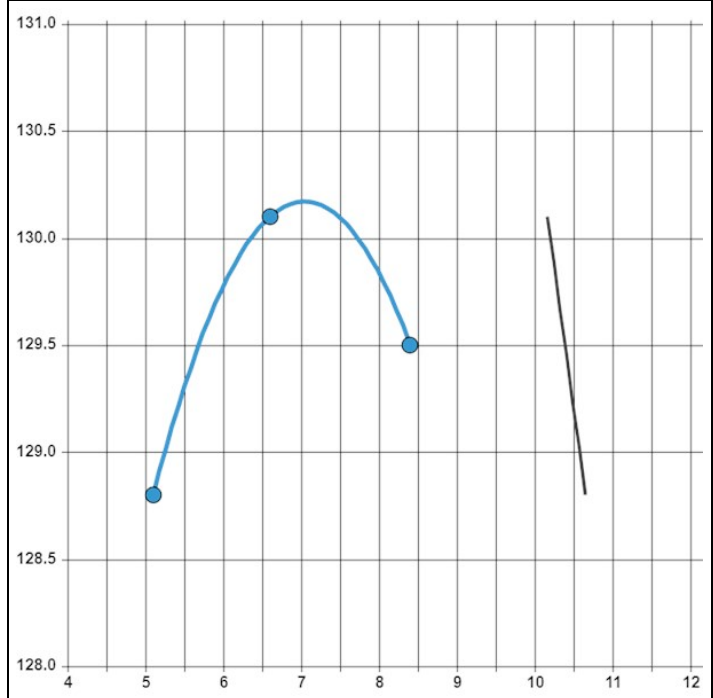
ASTM C136/C117

Sieve Size	% Passing	Upper/Lower Limits
2 in (50 mm)	100.0	
1-1/2 in (37.5 mm)	100.0	
1-1/4 in (31.75 mm)	97.6	
1 in (25 mm)	95.1	
3/4 in (19 mm)	92.8	
1/2 in (12.5 mm)	88.6	
3/8 in (9.5 mm)	85.6	
No 4 (4.75 mm)	79.3	
No 10 (2 mm)	73.6	
No 20 (850 µm)	68.2	
No 40 (425 µm)	60.0	
No 60 (250 µm)	43.6	
No 100 (150 µm)	24.4	
No 140 (106 µm)	17.0	
No 200 (75 µm)	12.4	

Test Completed Date: 04/24/2023**Test Completed By:** Abdel Deif

Laboratory Compaction Data (Proctor)

ASTM D1557

Maximum Dry Density (lb/ft³): 130.2**Optimum Moisture (%):** 7.1**Compaction Method:** A (ASTM D1557)**Type of Rammer:** Manual**Est. Specific Gravity:** 2.65**Oversize Correction Needed:** Yes

Plasticity Details

ASTM D4318

Liquid Limit (LL):**Plastic Limit (PL):****Plasticity Index (PI):**

Imtiaz Ahmed, Laboratory Manager

Apr 27, 2023

West Allis
2135 S. 116th Street
West Allis, WI 53227
Phone: 888-436-8378
Fax: 414-321-8359

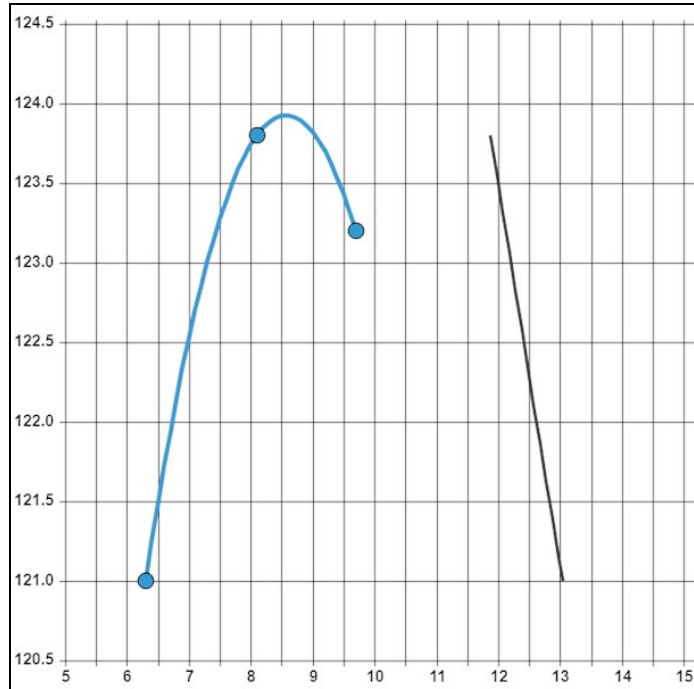
Client:
Three Leaf Partners
504 W Juneau Avenue
Milwaukee, WI 53203

Project:
7708
Hartland Quarry Apartments
700/701 Capitol Drive
Hartland, WI

Sample Information

Sample Date:	04/18/2023	Sample Number:	7190
Sample From:	Test Pit	Field ID:	Bluff 6 + 7 Combined
Sample Location :	Onsite	Sampled By:	Michael Frede

Test Results



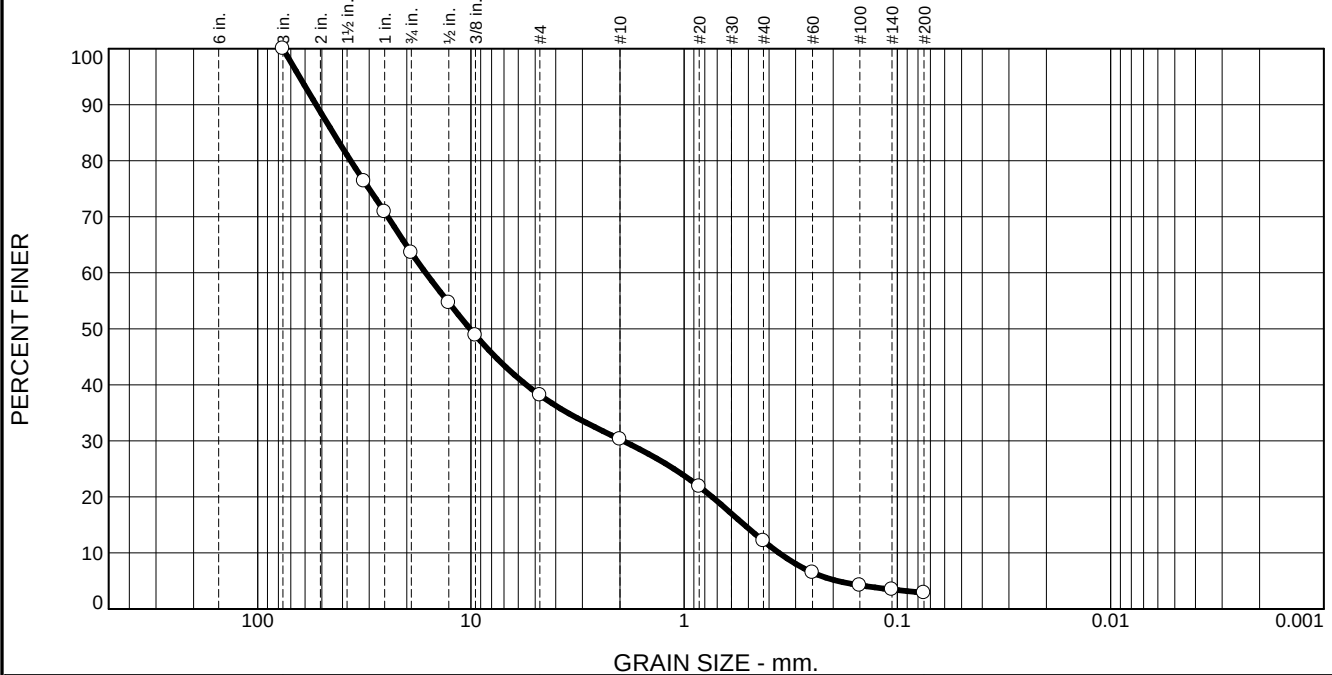
Sample Photo



Oversize Correction Needed:	Yes	Visual Description:	Dark Brown Silty Clay with Organic
Maximum Dry Density (lb/ft³):	123.9	Compaction Method Used:	A (ASTM D1557)
Optimum Moisture (%):	8.5	Type of Rammer Used:	Manual
		Sp. Gravity (Est):	2.60
Test Date:	04/25/2023	Lab Technician:	Abdel Deif

Intiaz Ahmed, Laboratory Manager
Apr 27, 2023

Sieve Analysis Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	36.4	25.4	7.9	18.2	9.2	2.9	

Test Results (ASTM C136 & ASTM C117)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0		
1 1/4"	76.4		
1"	70.9		
3/4"	63.6		
1/2"	54.7		
3/8"	48.9		
#4	38.2		
#10	30.3		
#20	21.9		
#40	12.1		
#60	6.5		
#100	4.2		
#140	3.5		
#200	2.9		

* (no specification provided)

Material Description
Brown sand and gravel

Atterberg Limits (ASTM D 4318)
PL= LL= PI=

Classification
USCS (D 2487)= AASHTO (M 145)=

Coefficients
D₉₀= 53.2485 D₈₅= 44.3097 D₆₀= 16.3112
D₅₀= 10.1019 D₃₀= 1.9347 D₁₅= 0.5218
D₁₀= 0.3589 C_u= 45.45 C_c= 0.64

Remarks
F.M.=5.82

Date Received: 4/17/23 **Date Tested:** 4/27/23
Tested By: Luke Emery
Checked By: Imtiaz Ahmed
Title: Lab Manager

Source of Sample: TP **Depth:** Onsite
Sample Number: 6

Date Sampled: 4/17/23

GeoTest, Inc.

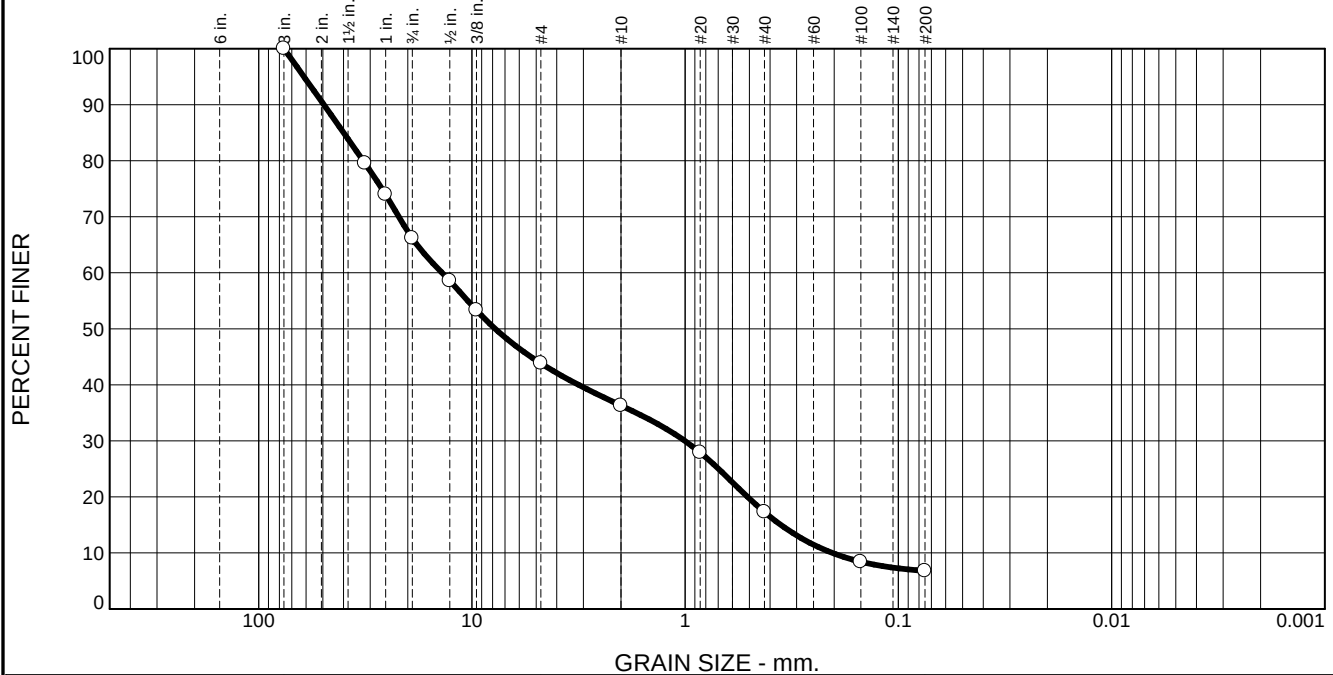
West Allis, WI

Client: Three Leaf Partners
Project: Hatland Quarry Apartments

Project No: 7708

Test No 7160-6836

Sieve Analysis Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	33.8	22.4	7.5	19.0	10.5	6.8	

Test Results (ASTM C136 & ASTM C117)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0		
1 1/4"	79.5		
1"	74.0		
3/4"	66.2		
1/2"	58.6		
3/8"	53.3		
#4	43.8		
#10	36.3		
#20	27.9		
#40	17.3		
#100	8.4		
#200	6.8		

* (no specification provided)

Material Description

Brown sand and gravel

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D₉₀= 49.4912 D₈₅= 39.9751 D₆₀= 13.8034
D₅₀= 7.7767 D₃₀= 1.0033 D₁₅= 0.3560
D₁₀= 0.2043 C_u= 67.57 C_c= 0.36

Remarks

F.M.=5.39

Date Received: 4/17/23 Date Tested: 4/27/23

Tested By: Luke Emery

Checked By: Imtiaz Ahmed

Title: Lab Manager

Source of Sample: TP Depth: Onsite
Sample Number: 9

Date Sampled: 4/17/23

GeoTest, Inc.

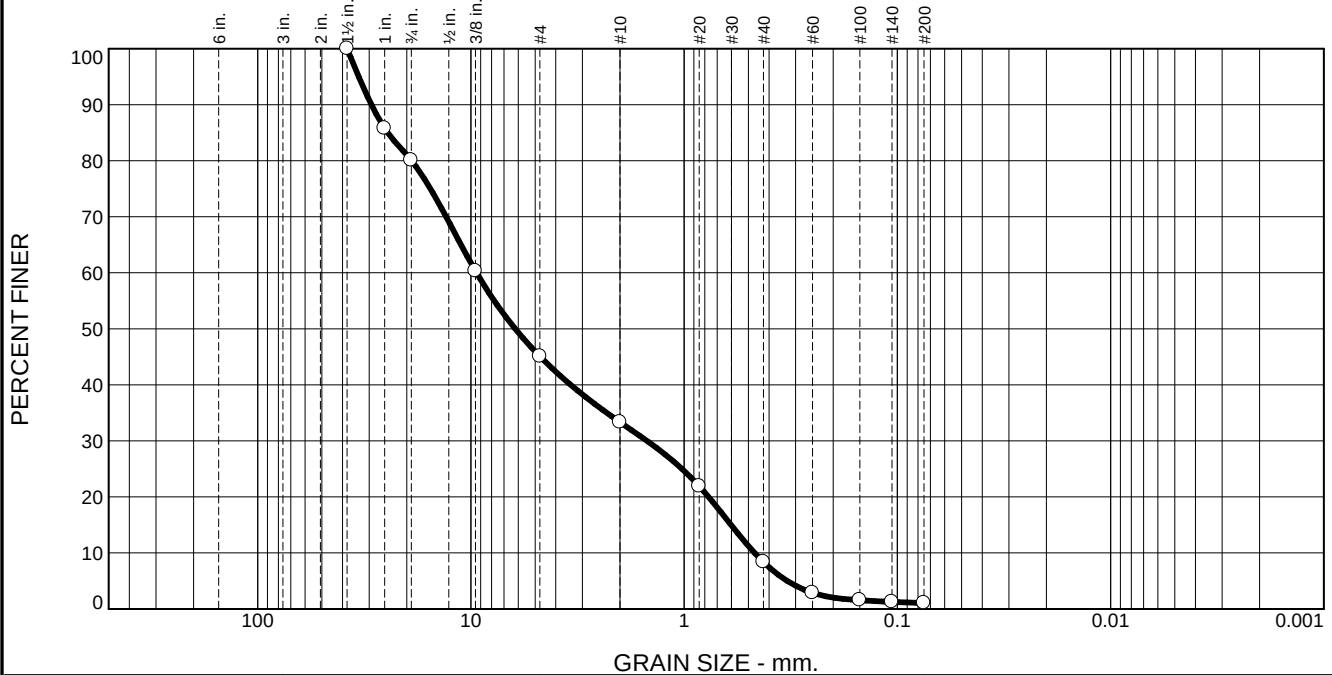
West Allis, WI

Client: Three Leaf Partners
Project: Hatland Quarry Apartments

Project No: 7708

Test No 7162-6838

Sieve Analysis Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	19.9	35.0	11.8	24.9	7.3	1.1	

Test Results (ASTM D6913 & ASTM D1140)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1-1/2"	100.0		
1"	85.8		
3/4"	80.1		
3/8"	60.3		
#4	45.1		
#10	33.3		
#20	21.9		
#40	8.4		
#60	2.9		
#100	1.6		
#140	1.3		
#200	1.1		

* (no specification provided)

Material Description

Brown f to c sand

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D₉₀= 29.3003 D₈₅= 24.5860 D₆₀= 9.4124
D₅₀= 6.1982 D₃₀= 1.4946 D₁₅= 0.6023
D₁₀= 0.4674 C_u= 20.14 C_c= 0.51

Remarks

F.M.=5.32

Date Received: 4/17/23 Date Tested: 4/19/23

Tested By: Hiten Soni

Checked By: Imtiaz Ahmed

Title: Lab Manager

Source of Sample: Bluff Depth: Onsite
Sample Number: 1

Date Sampled: 4/17/23

GeoTest, Inc.

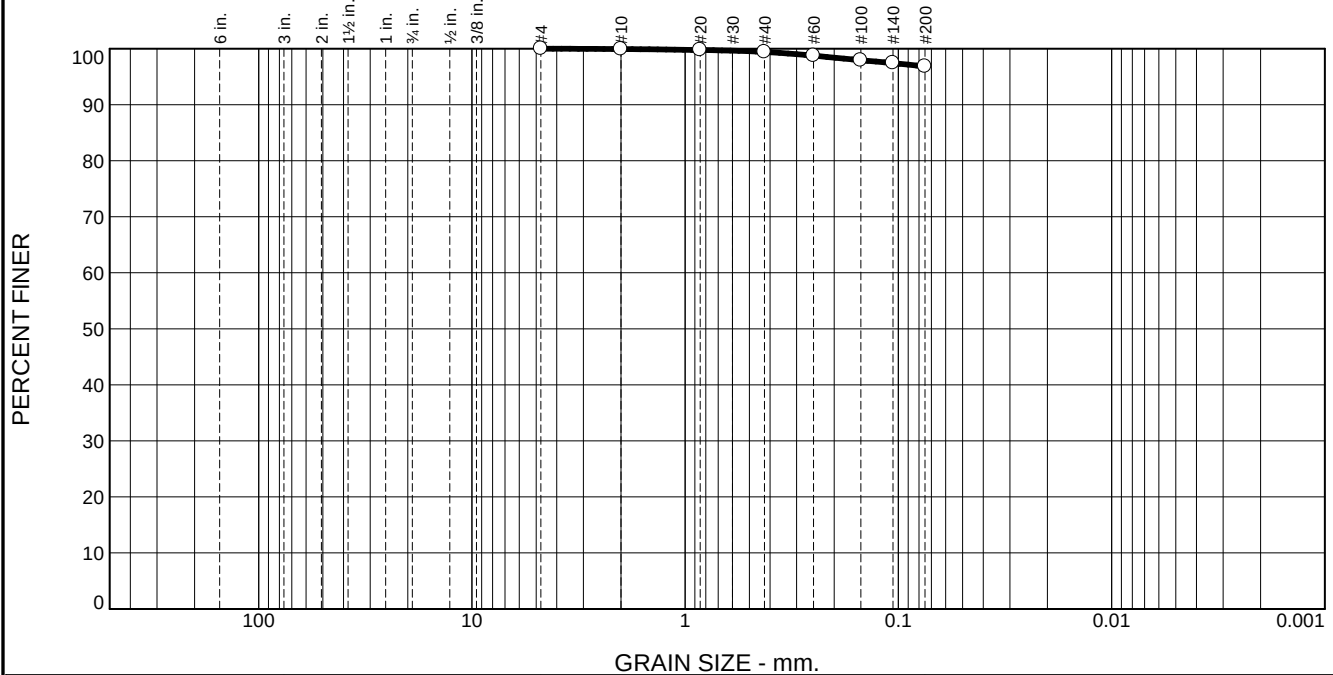
West Allis, WI

Client: Three Leaf Partners
Project: Hatland Quarry Apartments

Project No: 7708

Test No

Sieve Analysis Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.5	2.6	96.8	

Test Results (ASTM D6913 & ASTM D1140)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.9		
#20	99.8		
#40	99.4		
#60	98.8		
#100	97.9		
#140	97.4		
#200	96.8		

* (no specification provided)

Material Description
Brown lean clay

Atterberg Limits (ASTM D 4318)
PL= 22.5 LL= 34.7 PI= 12.2

Classification
USCS (D 2487)= CL AASHTO (M 145)= A-6(13)

Coefficients
D₉₀= D₈₅= D₆₀=
D₅₀= D₃₀= D₁₅=
D₁₀= C_u= C_c=

Remarks
F.M.=0.04

Date Received: 4/17/23 Date Tested: 4/19/23
Tested By: Hiten Soni
Checked By: Imtiaz Ahmed
Title: Lab Manager

Source of Sample: Bluff Depth: Onsite
Sample Number: 2

Date Sampled: 4/17/23

GeoTest, Inc.

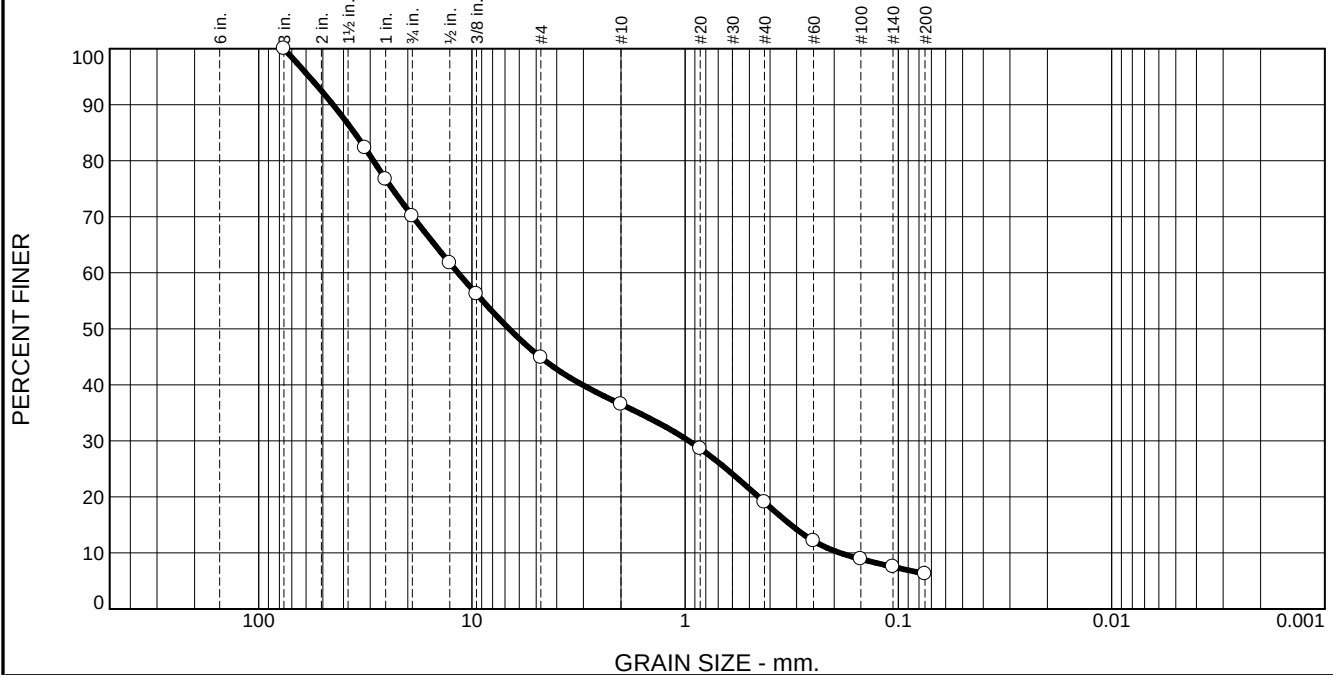
West Allis, WI

Client: Three Leaf Partners
Project: Hatland Quarry Apartments

Project No: 7708

Test No 7164-6840

Sieve Analysis Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	29.9	25.2	8.4	17.4	12.8	6.3	

Test Results (ASTM C136 & ASTM C117)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0		
1 1/4"	82.3		
1"	76.7		
3/4"	70.1		
1/2"	61.7		
3/8"	56.2		
#4	44.9		
#10	36.5		
#20	28.6		
#40	19.1		
#60	12.1		
#100	8.9		
#140	7.5		
#200	6.3		

* (no specification provided)

Material Description
Brown sand and gravel

Atterberg Limits (ASTM D 4318)
PL= LL= PI=

Classification
USCS (D 2487)= AASHTO (M 145)=

Coefficients
D₉₀= 44.8239 D₈₅= 35.5744 D₆₀= 11.6219
D₅₀= 6.6981 D₃₀= 0.9602 D₁₅= 0.3195
D₁₀= 0.1880 C_u= 61.82 C_c= 0.42

Remarks
F.M.=5.25

Date Received: 4/18/23 **Date Tested:** 4/27/23
Tested By: Craig Englund
Checked By: Imtiaz Ahmed
Title: Lab Manager

Source of Sample: Bluff **Depth:** Onsite
Sample Number: 3

Date Sampled: 4/18/23

GeoTest, Inc.

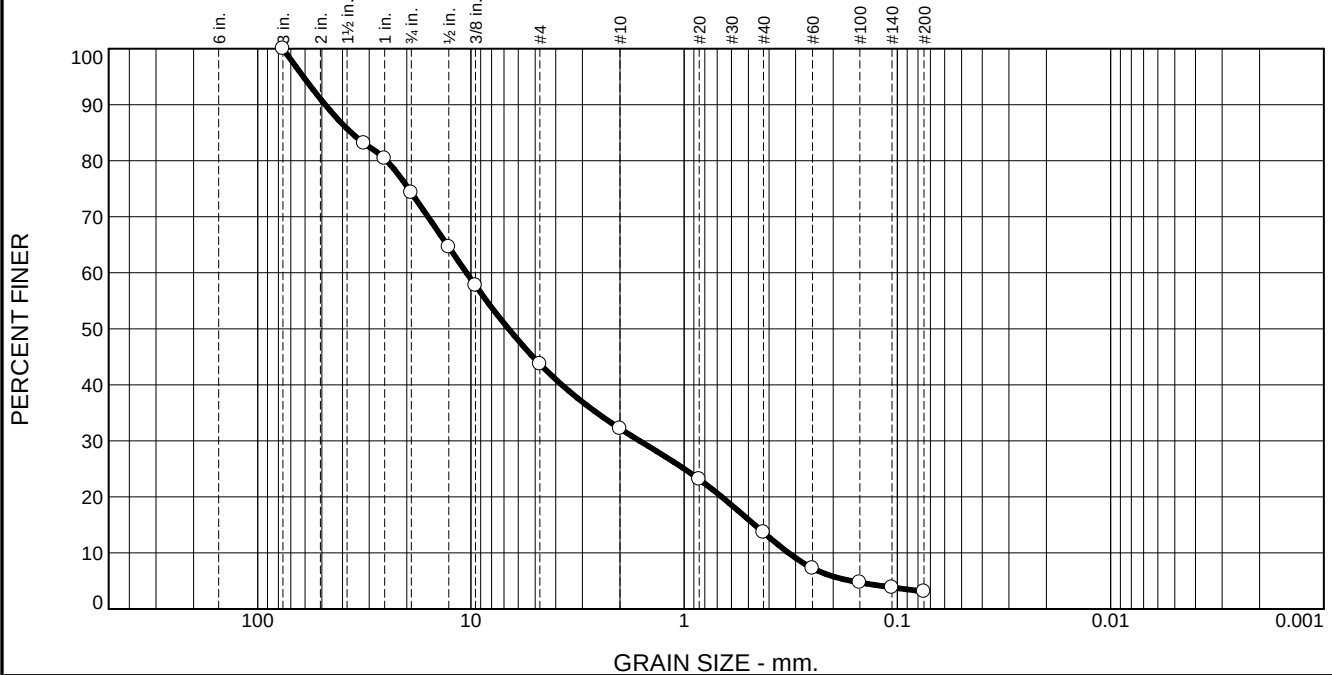
West Allis, WI

Client: Three Leaf Partners
Project: Hatland Quarry Apartments

Project No: 7708

Test No 7173-6848

Sieve Analysis Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	25.7	30.6	11.5	18.5	10.6	3.1	

Test Results (ASTM C136 & ASTM C117)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0		
1 1/4"	83.1		
1"	80.4		
3/4"	74.3		
1/2"	64.6		
3/8"	57.7		
#4	43.7		
#10	32.2		
#20	23.1		
#40	13.7		
#60	7.3		
#100	4.7		
#140	3.8		
#200	3.1		

* (no specification provided)

Material Description		
Brown sand and gravel		
Atterberg Limits (ASTM D 4318)		
PL=	LL=	PI=
Classification		
USCS (D 2487)=	AASHTO (M 145)=	
Coefficients		
D ₉₀ = 48.2763	D ₈₅ = 36.4131	D ₆₀ = 10.4876
D ₅₀ = 6.6655	D ₃₀ = 1.6184	D ₁₅ = 0.4670
D ₁₀ = 0.3238	C _u = 32.39	C _c = 0.77
Remarks		
F.M.=5.45		
Date Received: 4/18/23 Date Tested: 4/27/23		
Tested By: Craig Englund		
Checked By: Imtiaz Ahmed		
Title: Lab Manager		

Source of Sample: Bluff Depth: Onsite
Sample Number: 4

Date Sampled: 4/18/23

GeoTest, Inc.

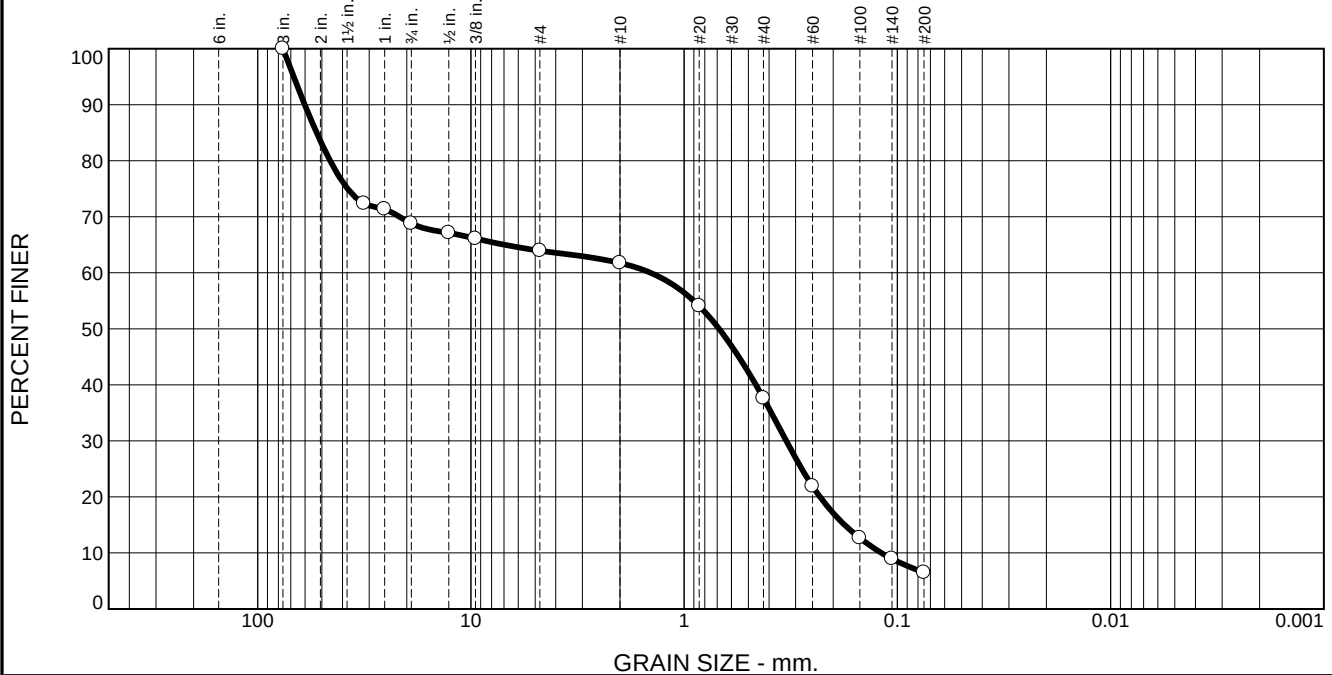
West Allis, WI

Client: Three Leaf Partners
Project: Hatland Quarry Apartments

Project No: 7708

Test No 7174-6849

Sieve Analysis Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	31.2	4.9	2.2	24.1	31.1	6.5	

Test Results (ASTM C136 & ASTM D1140)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0		
1 1/4"	72.3		
1"	71.3		
3/4"	68.8		
1/2"	67.1		
3/8"	66.1		
#4	63.9		
#10	61.7		
#20	54.1		
#40	37.6		
#60	21.9		
#100	12.7		
#140	8.9		
#200	6.5		

* (no specification provided)

Material Description

Dark Brown sand and gravel

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D₉₀= 60.1653 D₈₅= 52.9287 D₆₀= 1.4365
D₅₀= 0.6859 D₃₀= 0.3320 D₁₅= 0.1768
D₁₀= 0.1188 C_u= 12.09 C_c= 0.65

Remarks

F.M.=4.19

Date Received: 4/18/23 Date Tested: 4/27/23

Tested By: Craig Englund

Checked By: Imtiaz Ahmed

Title: Lab Manager

Source of Sample: Bluff Depth: Onsite
Sample Number: 5

Date Sampled: 4/18/23

GeoTest, Inc.

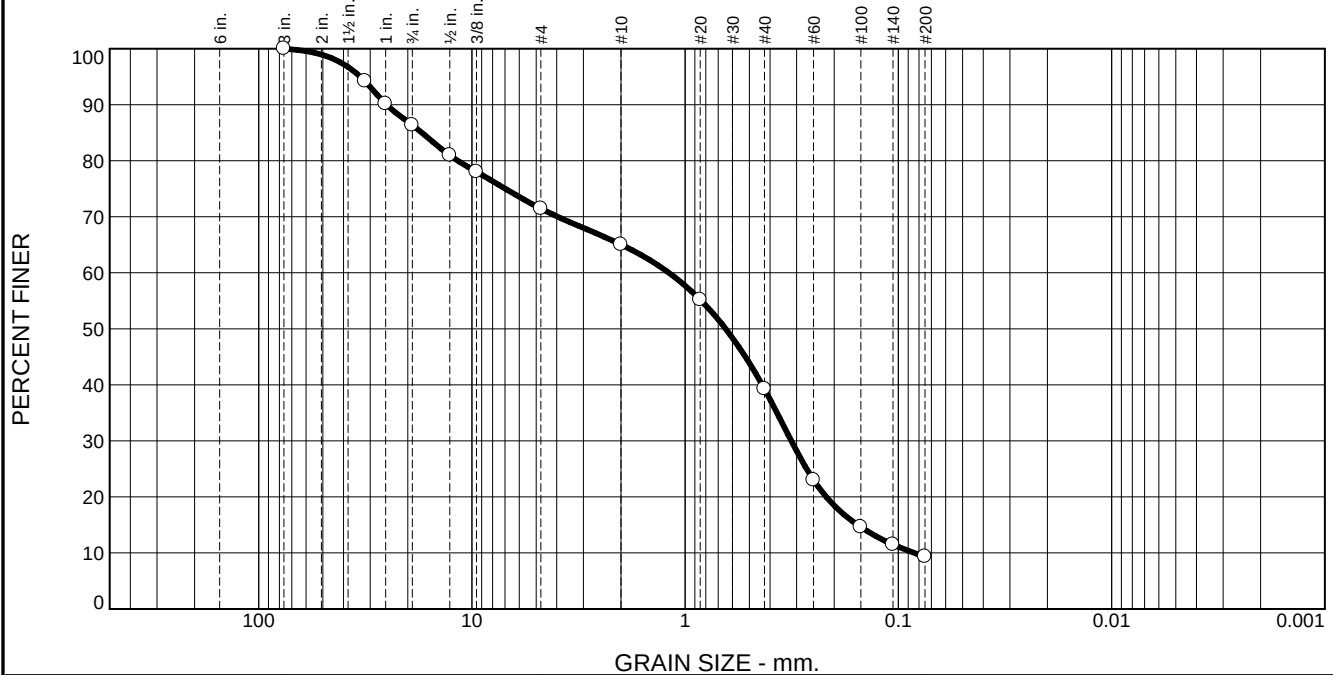
West Allis, WI

Client: Three Leaf Partners
Project: Hatland Quarry Apartments

Project No: 7708

Test No 7175-6850

Sieve Analysis Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	13.6	14.9	6.5	25.7	30.0	9.3	

Test Results (ASTM C136 & ASTM C117)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0		
1 1/4"	94.2		
1"	90.2		
3/4"	86.4		
1/2"	81.0		
3/8"	78.0		
#4	71.5		
#10	65.0		
#20	55.2		
#40	39.3		
#60	23.0		
#100	14.6		
#140	11.5		
#200	9.3		

* (no specification provided)

Material Description

Brown sand and gravel

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D₉₀= 25.1604 D₈₅= 17.1823 D₆₀= 1.1920
D₅₀= 0.6455 D₃₀= 0.3180 D₁₅= 0.1553
D₁₀= 0.0841 C_u= 14.17 C_c= 1.01

Remarks

F.M.=3.50

Date Received: 11/18/23 Date Tested: 4/27/23

Tested By: Luke Emery

Checked By: Imtiaz Ahmed

Title: Lab Manager

Source of Sample: Bluff Depth: Onsite
Sample Number: 6

Date Sampled: 11/18/23

GeoTest, Inc.

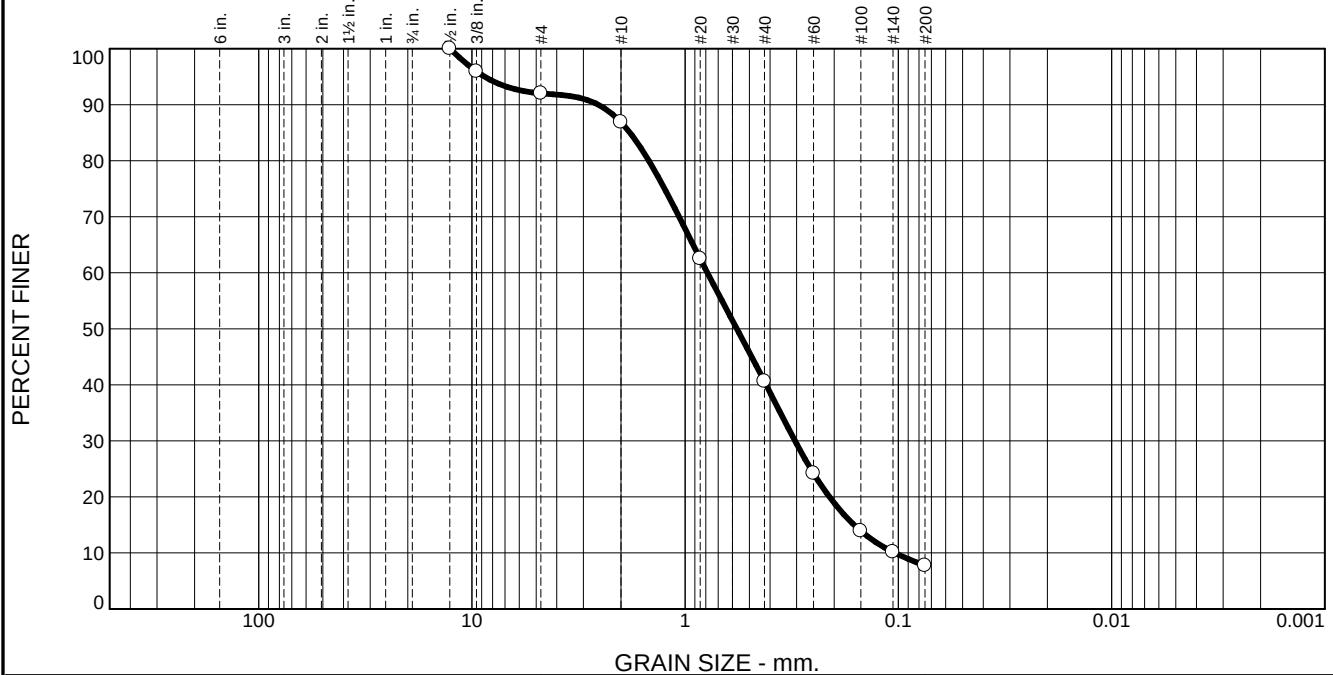
West Allis, WI

Client: Three Leaf Partners
Project: Hatland Quarry Apartments

Project No: 7708

Test No 7176-6851

Sieve Analysis Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	8.0	5.1	46.3	32.9	7.7	

Test Results (ASTM D6913 & ASTM D1140)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1/2"	100.0		
3/8"	95.9		
#4	92.0		
#10	86.9		
#20	62.5		
#40	40.6		
#60	24.2		
#100	13.9		
#140	10.2		
#200	7.7		

* (no specification provided)

Material Description

Brown f to c sand

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D₉₀= 2.5558 D₈₅= 1.8143 D₆₀= 0.7865
D₅₀= 0.5722 D₃₀= 0.3055 D₁₅= 0.1615
D₁₀= 0.1040 C_u= 7.56 C_c= 1.14

Remarks

F.M.=2.55

Date Received: 4/18/23 Date Tested: 4/27/23

Tested By: Luke Emery

Checked By: Imtiaz Ahmed

Title: Lab Manager

Source of Sample: Bluff Depth: Onsite
Sample Number: 7

Date Sampled: 4/18/23

GeoTest, Inc.

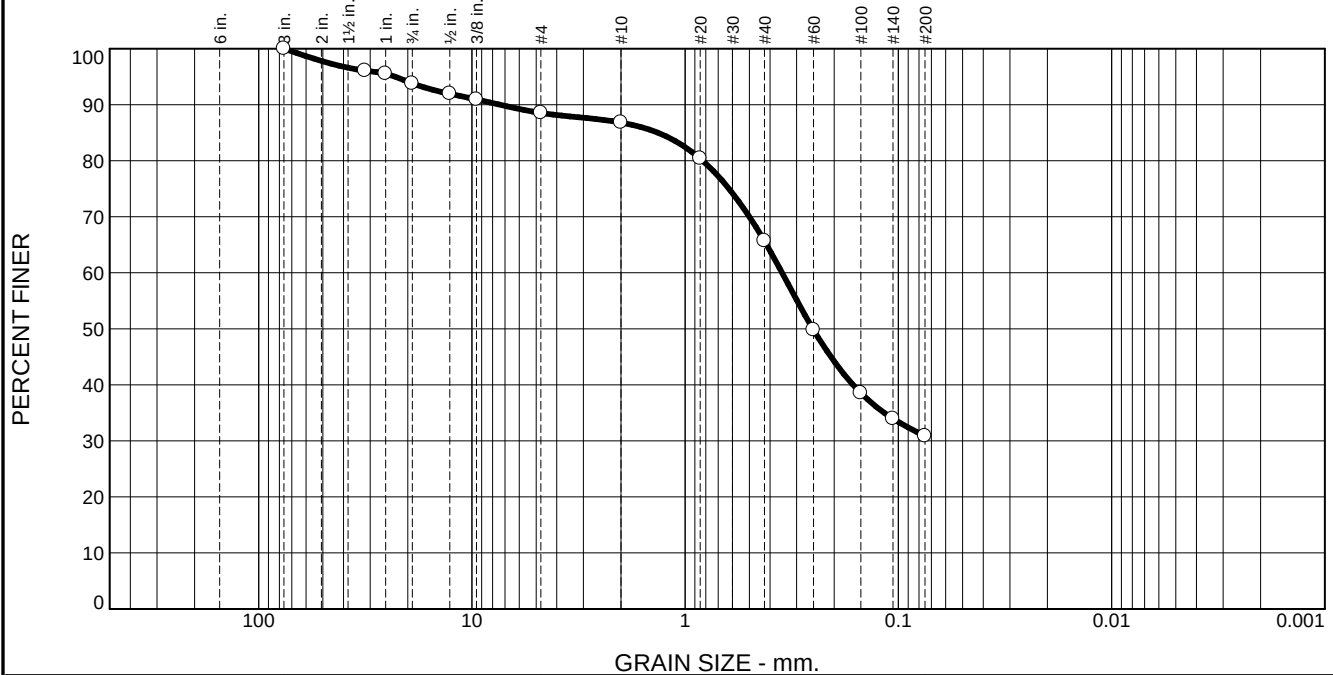
West Allis, WI

Client: Three Leaf Partners
Project: Hatland Quarry Apartments

Project No: 7708

Test No 7177-6852

Sieve Analysis Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	6.2	5.3	1.7	21.1	34.8	30.9	

Test Results (ASTM C136 & ASTM C117)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0		
1 1/4"	96.1		
1"	95.5		
3/4"	93.8		
1/2"	92.0		
3/8"	90.9		
#4	88.5		
#10	86.8		
#20	80.4		
#40	65.7		
#60	49.8		
#100	38.5		
#140	34.0		
#200	30.9		

* (no specification provided)

Material Description
Brown sand and gravel

Atterberg Limits (ASTM D 4318)
PL= LL= PI=

Classification
USCS (D 2487)= AASHTO (M 145)=

Coefficients
D₉₀= 7.4064 D₈₅= 1.3432 D₆₀= 0.3512
D₅₀= 0.2518 D₃₀= D₁₅=
D₁₀= C_u= C_c=

Remarks
F.M.=1.91

Date Received: 4/18/23 **Date Tested:** 4/27/23
Tested By: Craig Englund
Checked By: Imtiaz Ahmed
Title: Lab Manager

Source of Sample: Bluff **Depth:** Onsite
Sample Number: 8

Date Sampled: 4/18/23

GeoTest, Inc.

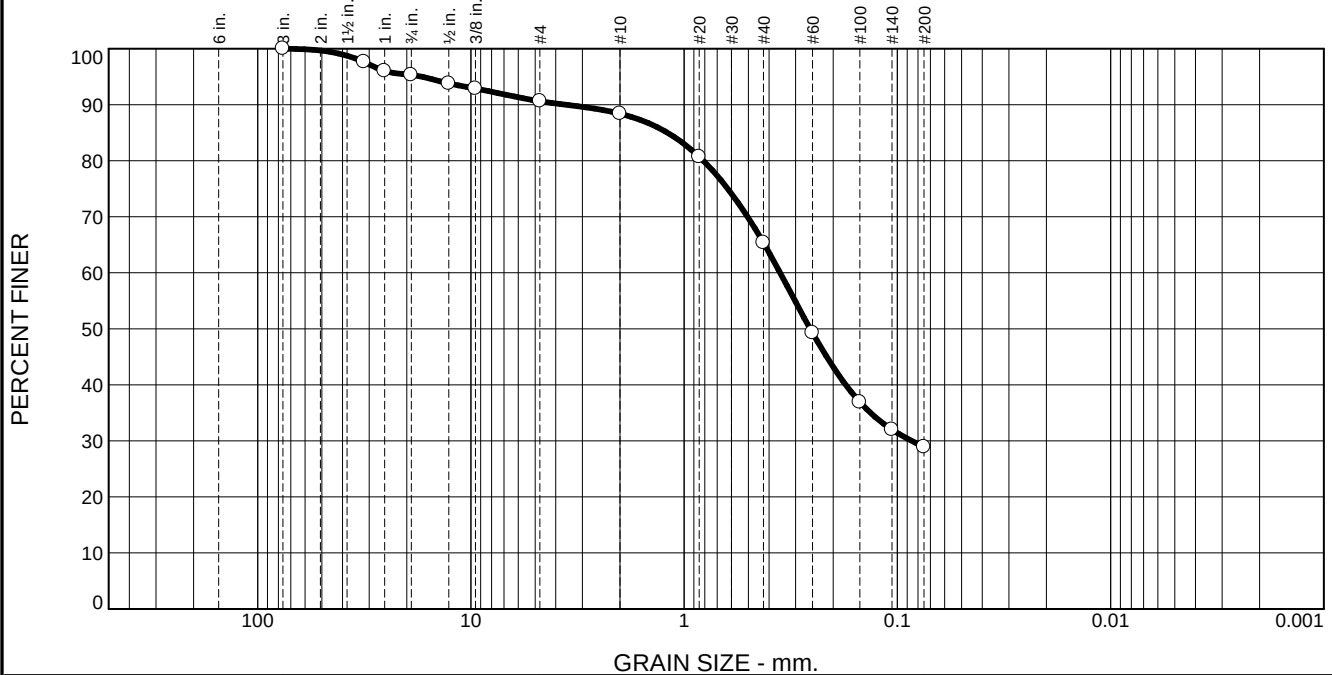
West Allis, WI

Client: Three Leaf Partners
Project: Hatland Quarry Apartments

Project No: 7708

Test No 7178-6853

Sieve Analysis Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	4.7	4.7	2.2	23.0	36.5	28.9	

Test Results (ASTM C136 & ASTM C117)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0		
1 1/4"	97.6		
1"	96.0		
3/4"	95.3		
1/2"	93.8		
3/8"	92.9		
#4	90.6		
#10	88.4		
#20	80.7		
#40	65.4		
#60	49.3		
#100	36.9		
#140	32.0		
#200	28.9		

* (no specification provided)

Material Description
Brown sand and gravel

Atterberg Limits (ASTM D 4318)
 PL= LL= PI=

Classification
 USCS (D 2487)= AASHTO (M 145)=

Coefficients
 D₉₀= 3.6204 D₈₅= 1.1979 D₆₀= 0.3550
 D₅₀= 0.2564 D₃₀= 0.0857 D₁₅=
 D₁₀= C_u= C_c=

Remarks
F.M.=1.83

Date Received: 4/18/23 **Date Tested:** 4/27/23
Tested By: Craig Englund
Checked By: Imtiaz Ahmed
Title: Lab Manager

Source of Sample: Bluff **Depth:** Onsite
Sample Number: 9

Date Sampled: 4/18/23

GeoTest, Inc.

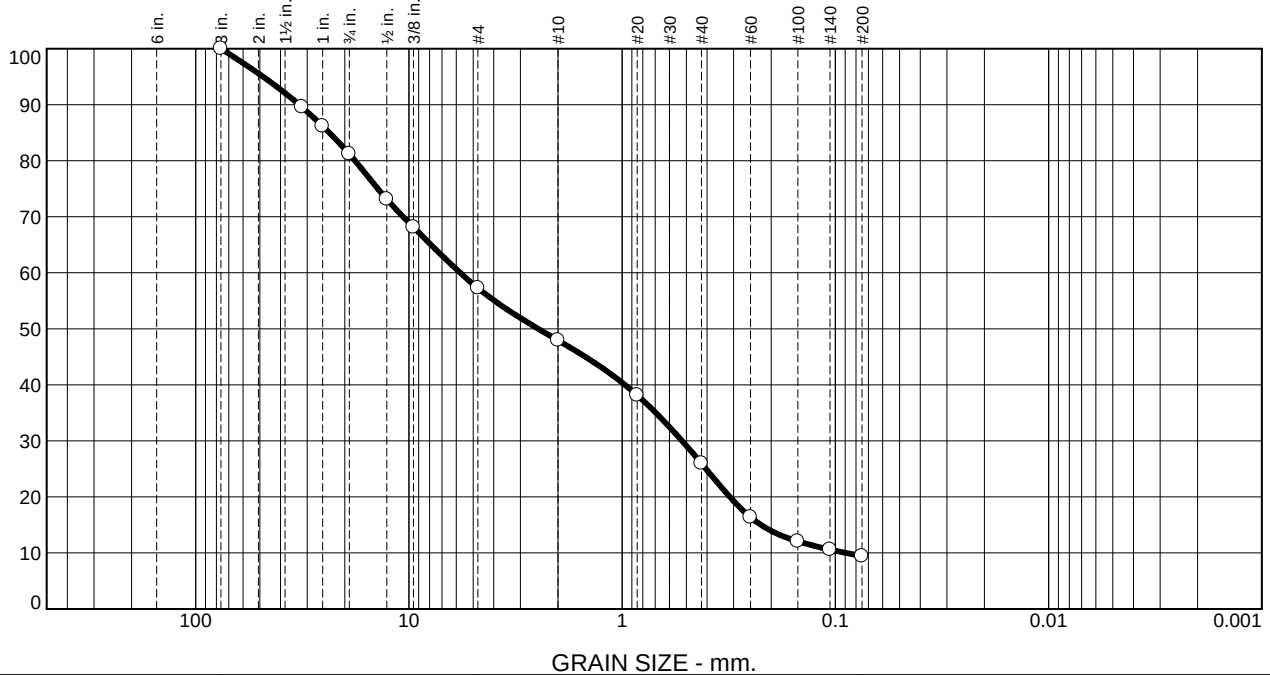
West Allis, WI

Client: Three Leaf Partners
Project: Hatland Quarry Apartments

Project No: 7708

Test No 7179-6854

PERCENT FINER



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	18.8	23.9	9.4	21.9	16.6	9.4	

Test Results (ASTM C136 & ASTM C117)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0		
1 1/4"	89.6		
1"	86.2		
3/4"	81.2		
1/2"	73.1		
3/8"	68.1		
#4	57.3		
#10	47.9		
#20	38.2		
#40	26.0		
#60	16.4		
#100	12.1		
#140	10.6		
#200	9.4		

* (no specification provided)

Material Description

Brown sand and gravel

Atterberg Limits (ASTM D 4318)

PL=

LL=

PI=

Classification

USCS (D 2487)=

AASHTO (M 145)=

Coefficients

D₉₀= 32.6990

$$D_{85} = 23.6371$$

D₆₀= 5.7505

D₅₀= 2.4748

$$D_{30} = 0.5236$$
$$D_{15} = 0.2235$$
$$D_{10} = 0.0894$$
$$C_u = 64.32$$
$$C_c = 0.53$$

Remarks

F.M.=4.46

Date Received: 4/18/23

Date Tested: 4/27/23

Tested By: Craig Englund

Checked By: Imtiaz Ahmed

Title: Lab Manager

Source of Sample: Bluff
Sample Number: 10

Depth: Onsite

Date Sampled: 4/18/23

GeoTest, Inc.

West Allis, WI

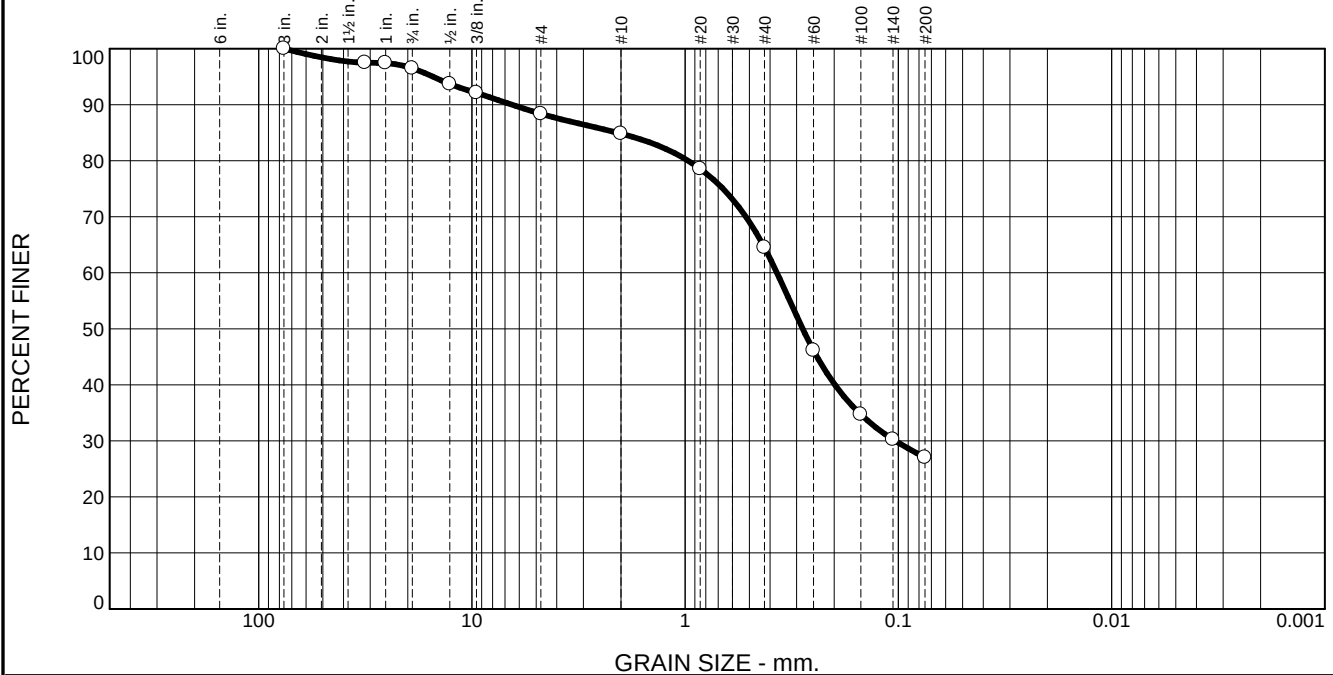
Client: Three Leaf Partners

Project: Hatland Quarry Apartments

Project No: 7708

Test No 7180-6855

Sieve Analysis Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	3.5	8.1	3.6	20.3	37.5	27.0	

Test Results (ASTM C136 & ASTM C117)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0		
1 1/4"	97.5		
1"	97.4		
3/4"	96.5		
1/2"	93.7		
3/8"	92.1		
#4	88.4		
#10	84.8		
#20	78.5		
#40	64.5		
#60	46.1		
#100	34.7		
#140	30.3		
#200	27.0		

* (no specification provided)

Material Description
Brown sandy silt, little topsoil

Atterberg Limits (ASTM D 4318)
 PL= _____ LL= _____ PI= _____

Classification
 USCS (D 2487)= _____ AASHTO (M 145)= _____

Coefficients
 D₉₀= 6.4931 D₈₅= 2.0810 D₆₀= 0.3712
 D₅₀= 0.2810 D₃₀= 0.1034 D₁₅= _____
 D₁₀= _____ C_u= _____ C_c= _____

Remarks
F.M.=1.98

Date Received: 4/18/23 **Date Tested:** 4/27/23
Tested By: Craig Englund
Checked By: Imtiaz Ahmed
Title: Lab Manager

Source of Sample: Bluff **Depth:** Onsite
Sample Number: 11

Date Sampled: 4/18/23

GeoTest, Inc.

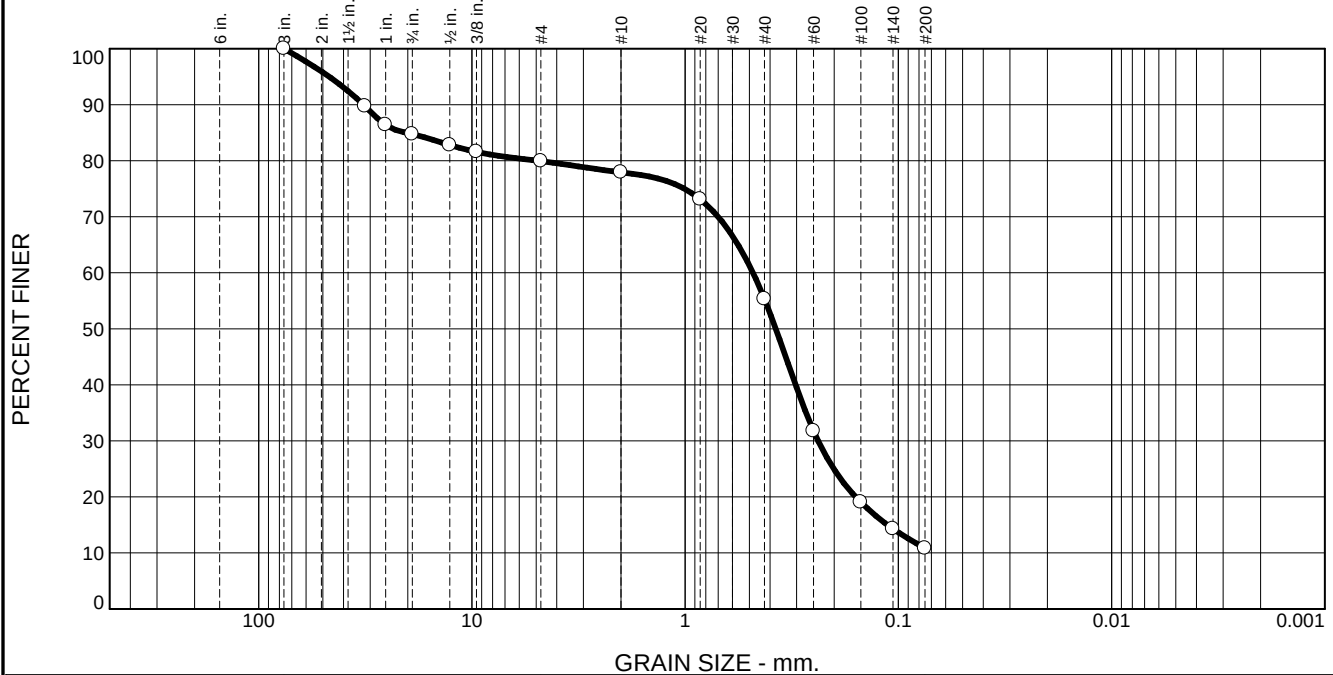
West Allis, WI

Client: Three Leaf Partners
Project: Hatland Quarry Apartments

Project No: 7708

Test No 7181-6856

Sieve Analysis Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	15.3	4.8	2.0	22.6	44.5	10.8	

Test Results (ASTM C136 & ASTM C117)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0		
1 1/4"	89.7		
1"	86.4		
3/4"	84.7		
1/2"	82.8		
3/8"	81.6		
#4	79.9		
#10	77.9		
#20	73.1		
#40	55.3		
#60	31.8		
#100	19.1		
#140	14.3		
#200	10.8		

* (no specification provided)

Material Description
Brown sand and gravel

Atterberg Limits (ASTM D 4318)
PL= _____ LL= _____ PI= _____

Classification
USCS (D 2487)= _____ AASHTO (M 145)= _____

Coefficients
D₉₀= 32.2820 D₈₅= 20.4121 D₆₀= 0.4808
D₅₀= 0.3760 D₃₀= 0.2379 D₁₅= 0.1125
D₁₀= _____ C_u= _____ C_c= _____

Remarks
F.M.=2.82

Date Received: 4/18/23 **Date Tested:** 4/27/23
Tested By: Craig Englund
Checked By: Imtiaz Ahmed
Title: Lab Manager

Source of Sample: Bluff **Depth:** Onsite
Sample Number: 12

Date Sampled: 4/18/23

GeoTest, Inc.

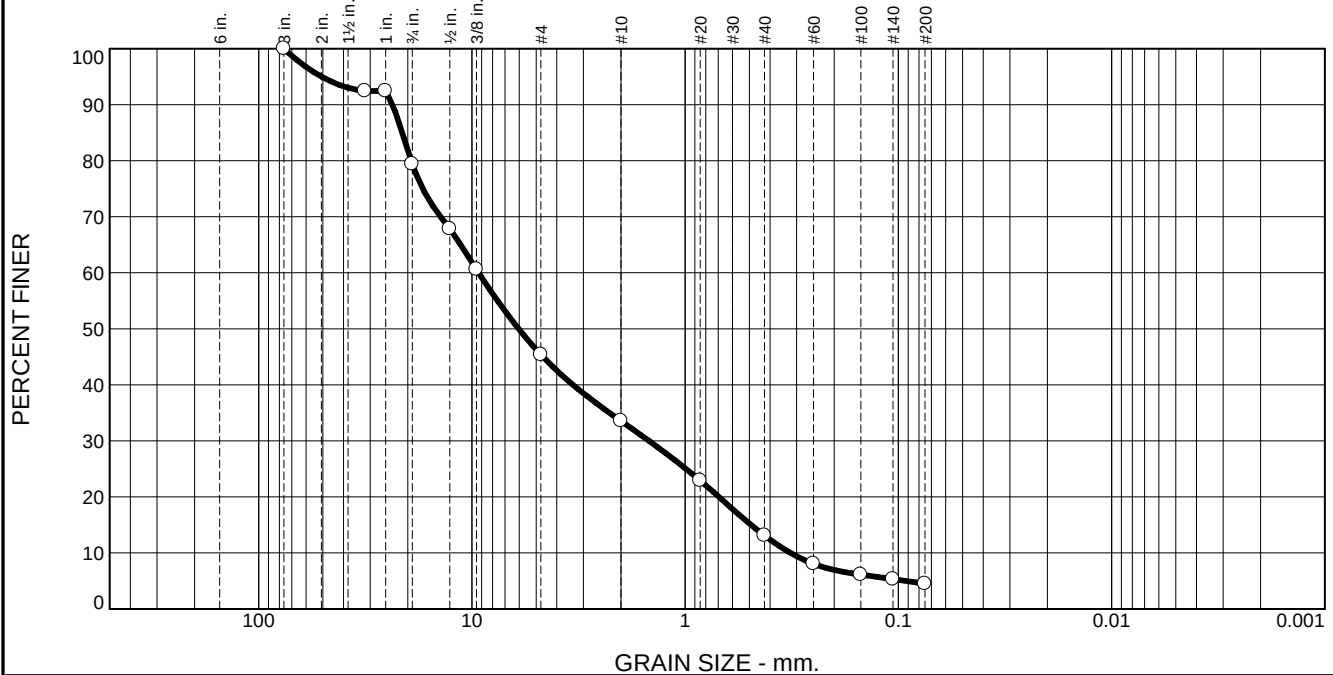
West Allis, WI

Client: Three Leaf Partners
Project: Hatland Quarry Apartments

Project No: 7708

Test No 7182-6857

Sieve Analysis Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	20.6	34.0	11.8	20.5	8.6	4.5	

Test Results (ASTM C136 & ASTM C117)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0		
1 1/4"	92.5		
1"	92.5		
3/4"	79.4		
1/2"	67.8		
3/8"	60.6		
#4	45.4		
#10	33.6		
#20	22.9		
#40	13.1		
#60	8.0		
#100	6.1		
#140	5.3		
#200	4.5		

* (no specification provided)

Material Description
Brown sand and gravel, little topsoil

Atterberg Limits (ASTM D 4318)
PL= LL= PI=

Classification
USCS (D 2487)= AASHTO (M 145)=

Coefficients
D₉₀= 23.5441 D₈₅= 21.2405 D₆₀= 9.3029
D₅₀= 6.0393 D₃₀= 1.4790 D₁₅= 0.4908
D₁₀= 0.3207 C_u= 29.01 C_c= 0.73

Remarks
F.M.=5.25

Date Received: 4/18/23 **Date Tested:** 4/27/23
Tested By: Craig Englund
Checked By: Imtiaz Ahmed
Title: Lab Manager

Source of Sample: Bluff **Depth:** Onsite
Sample Number: 13

Date Sampled: 4/18/23

GeoTest, Inc.

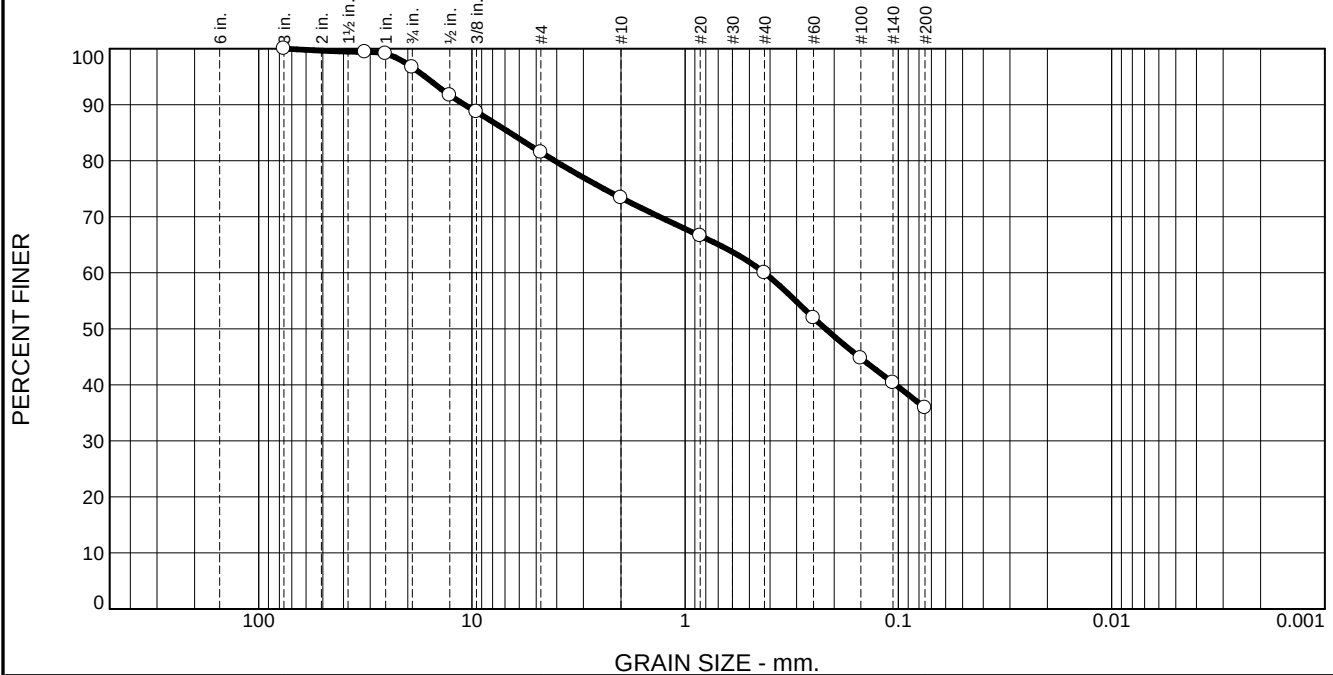
West Allis, WI

Client: Three Leaf Partners
Project: Hatland Quarry Apartments

Project No: 7708

Test No 7183-6858

Sieve Analysis Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	3.3	15.2	8.1	13.4	24.1	35.9	

Test Results (ASTM C136 & ASTM C117)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0		
1 1/4"	99.4		
1"	99.1		
3/4"	96.7		
1/2"	91.7		
3/8"	88.7		
#4	81.5		
#10	73.4		
#20	66.6		
#40	60.0		
#60	52.0		
#100	44.8		
#140	40.4		
#200	35.9		

* (no specification provided)

Material Description
Brown sand and gravel

Atterberg Limits (ASTM D 4318)
PL= LL= PI=

Classification
USCS (D 2487)= AASHTO (M 145)=

Coefficients
D₉₀= 10.8312 D₈₅= 6.6383 D₆₀= 0.4254
D₅₀= 0.2195 C_u= D₁₅=
D₁₀= C_c=

Remarks
F.M.=2.26

Date Received: 4/18/23 **Date Tested:** 4/27/23
Tested By: Craig Englund
Checked By: Imtiaz Ahmed
Title: Lab Manager

Source of Sample: Bluff **Depth:** Onsite
Sample Number: 14

Date Sampled: 4/18/23

GeoTest, Inc.

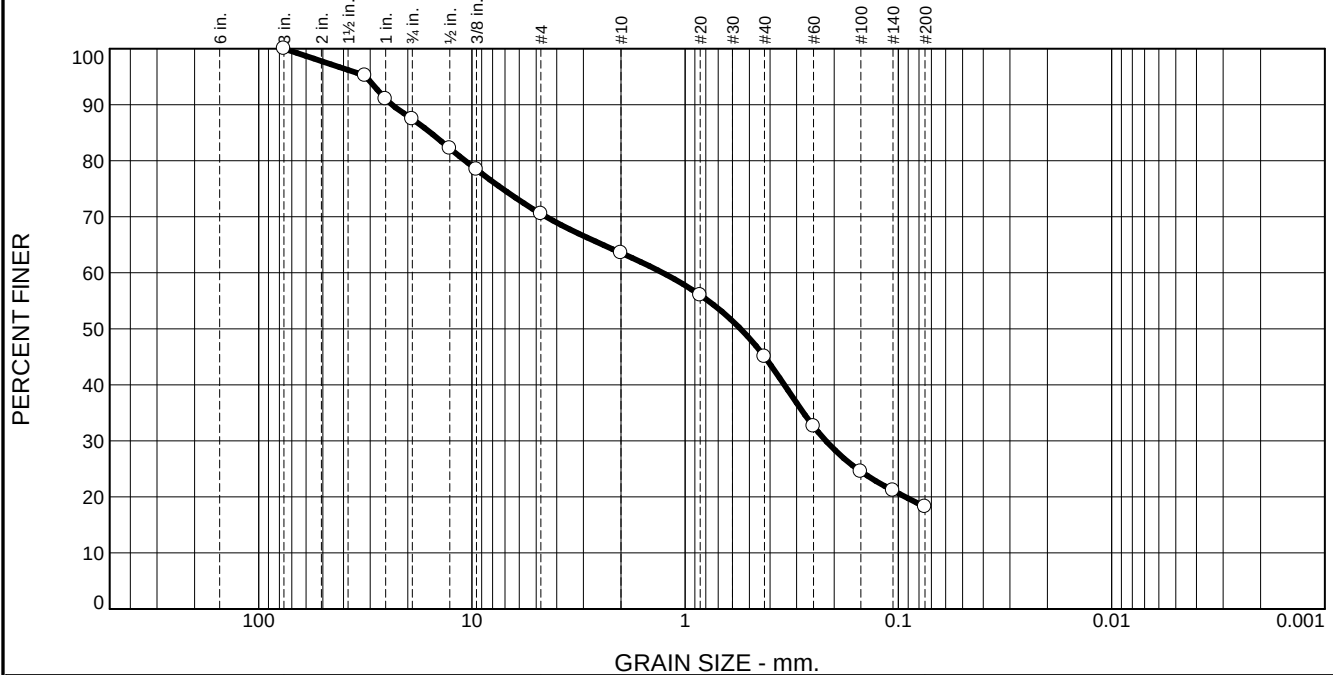
West Allis, WI

Client: Three Leaf Partners
Project: Hatland Quarry Apartments

Project No: 7708

Test No 7184-6859

Sieve Analysis Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	12.6	16.9	6.9	18.5	26.9	18.2	

Test Results (ASTM C136 & ASTM C117)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0		
1 1/4"	95.2		
1"	91.0		
3/4"	87.4		
1/2"	82.2		
3/8"	78.4		
#4	70.5		
#10	63.6		
#20	56.0		
#40	45.1		
#60	32.6		
#100	24.5		
#140	21.1		
#200	18.2		

* (no specification provided)

Material Description
Brown sand and gravel

Atterberg Limits (ASTM D 4318)
 PL= LL= PI=

Classification
 USCS (D 2487)= AASHTO (M 145)=

Coefficients
 D₉₀= 23.7282 D₈₅= 15.6351 D₆₀= 1.2733
 D₅₀= 0.5496 D₃₀= 0.2188 D₁₅=
 D₁₀= C_u= C_c=

Remarks
F.M.=3.31

Date Received: 4/18/23 **Date Tested:** 4/27/23
Tested By: Craig Englund
Checked By: Imtiaz Ahmed
Title: Lab Manager

Source of Sample: Bluff **Depth:** Onsite
Sample Number: 15

Date Sampled: 4/18/23

GeoTest, Inc.

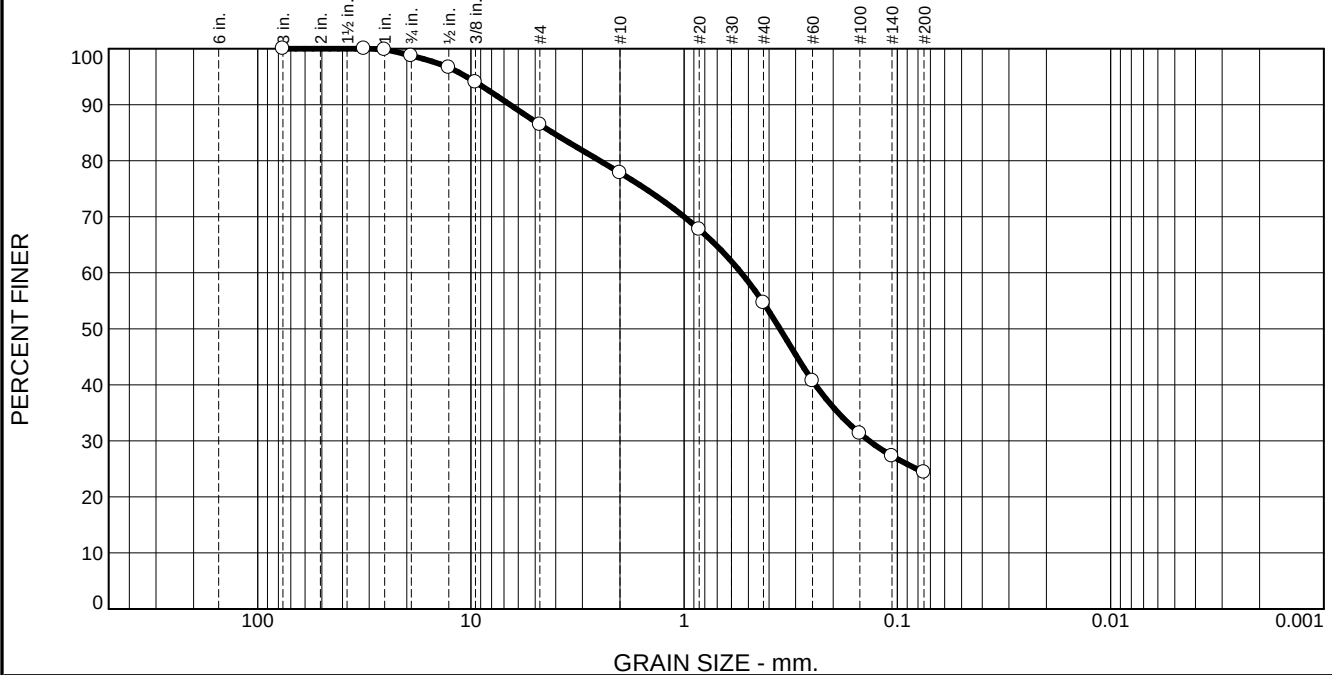
West Allis, WI

Client: Three Leaf Partners
Project: Hatland Quarry Apartments

Project No: 7708

Test No 7185-6860

Sieve Analysis Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	1.3	12.2	8.6	23.3	30.2	24.4	

Test Results (ASTM C136 & ASTM C117)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0		
1 1/4"	100.0		
1"	99.8		
3/4"	98.7		
1/2"	96.6		
3/8"	94.0		
#4	86.5		
#10	77.9		
#20	67.7		
#40	54.6		
#60	40.7		
#100	31.3		
#140	27.3		
#200	24.4		

* (no specification provided)

Material Description
Brown clay with gravel

Atterberg Limits (ASTM D 4318)
 PL= LL= PI=

Classification
 USCS (D 2487)= AASHTO (M 145)=

Coefficients
 D₉₀= 6.5592 D₈₅= 4.1299 D₆₀= 0.5399
 D₅₀= 0.3558 D₃₀= 0.1356 D₁₅=
 D₁₀= C_u= C_c=

Remarks
F.M.=2.30

Date Received: 4/18/23 **Date Tested:** 4/27/23
Tested By: Craig Englund
Checked By: Imtiaz Ahmed
Title: Lab Manager

Source of Sample: Bluff **Depth:** Onsite
Sample Number: 16

Date Sampled: 4/18/23

GeoTest, Inc.

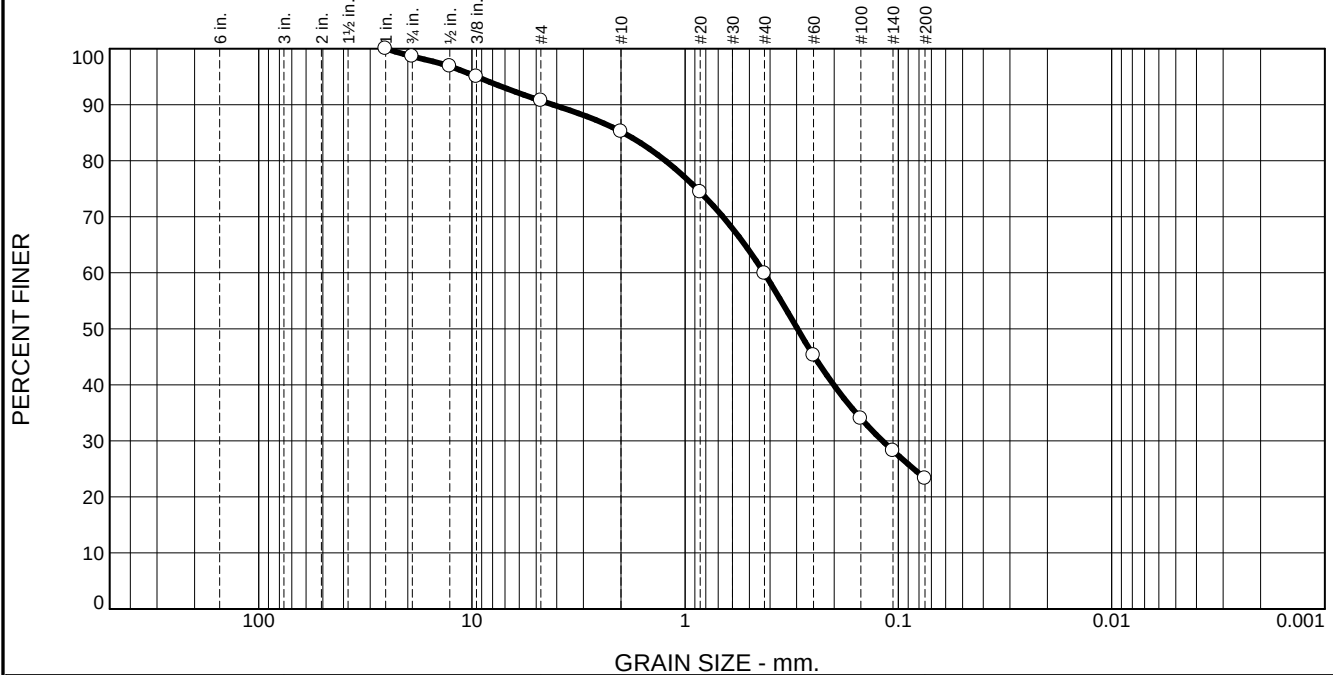
West Allis, WI

Client: Three Leaf Partners
Project: Hatland Quarry Apartments

Project No: 7708

Test No 7186-6861

Sieve Analysis Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	1.4	7.9	5.5	25.3	36.6	23.3	

Test Results (ASTM D6913 & ASTM D1140)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
3/4"	98.6		
1/2"	96.9		
3/8"	95.0		
#4	90.7		
#10	85.2		
#20	74.4		
#40	59.9		
#60	45.3		
#100	34.0		
#140	28.2		
#200	23.3		

* (no specification provided)

Material Description

Brown clay

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D₉₀= 4.1716 D₈₅= 1.9521 D₆₀= 0.4269
D₅₀= 0.2976 D₃₀= 0.1187 D₁₅=
D₁₀= C_u= C_c=

Remarks

F.M.=1.98

Date Received: 4/18/23 Date Tested: 4/28/23

Tested By: Craig Englund

Checked By: Imtiaz Ahmed

Title: Lab Manager

Source of Sample: Bluff Depth: Onsite
Sample Number: 17

Date Sampled: 4/18/23

GeoTest, Inc.

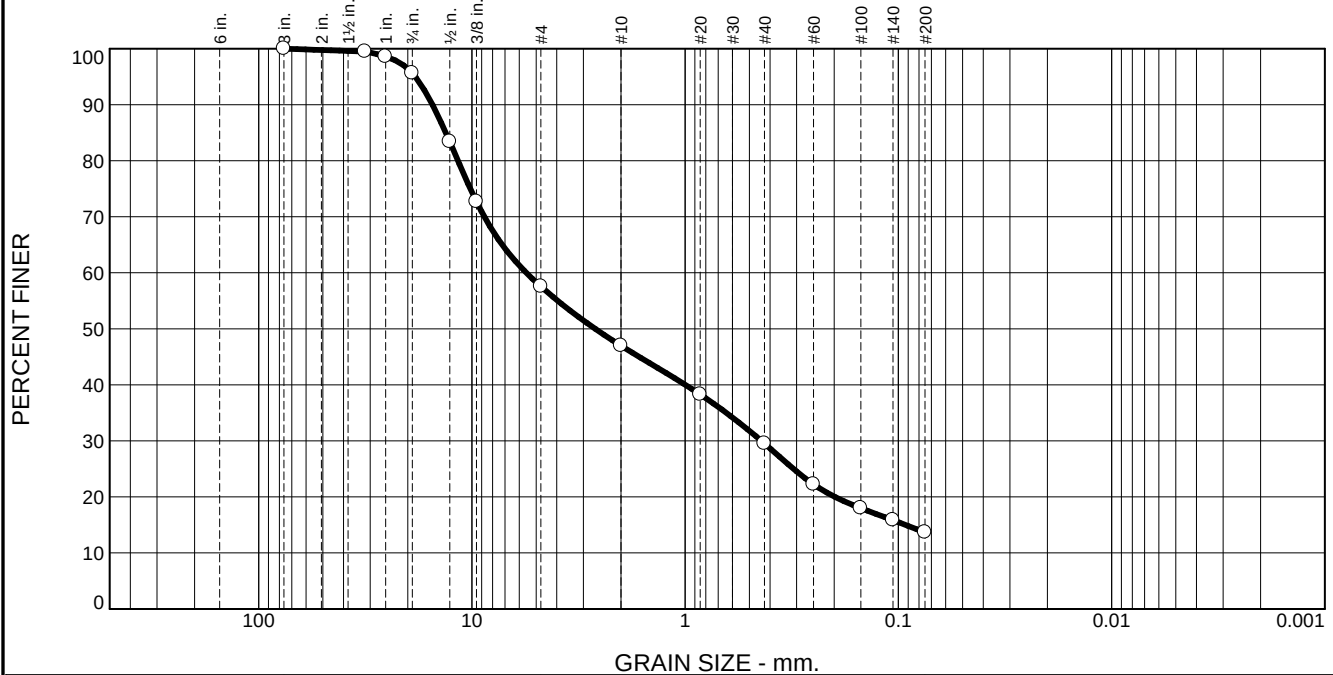
West Allis, WI

Client: Three Leaf Partners
Project: Hatland Quarry Apartments

Project No: 7708

Test No 7187-6862

Sieve Analysis Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	4.4	38.0	10.6	17.5	15.8	13.7	

Test Results (ASTM C136 & ASTM C117)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0		
1 1/4"	99.5		
1"	98.6		
3/4"	95.6		
1/2"	83.4		
3/8"	72.7		
#4	57.6		
#10	47.0		
#20	38.3		
#40	29.5		
#60	22.2		
#100	18.0		
#140	15.8		
#200	13.7		

* (no specification provided)

Material Description
Brown sand and gravel

Atterberg Limits (ASTM D 4318)
PL= LL= PI=

Classification
USCS (D 2487)= AASHTO (M 145)=

Coefficients
D₉₀= 15.3163 D₈₅= 13.2611 D₆₀= 5.5607
D₅₀= 2.6404 D₃₀= 0.4391 D₁₅= 0.0926
D₁₀= C_u= C_c=

Remarks
F.M.=4.07

Date Received: 4/18/23 **Date Tested:** 4/28/23
Tested By: Craig Englund
Checked By: Imtiaz Ahmed
Title: Lab Manager

Source of Sample: Bluff **Depth:** Onsite
Sample Number: 18

Date Sampled: 4/18/23

GeoTest, Inc.

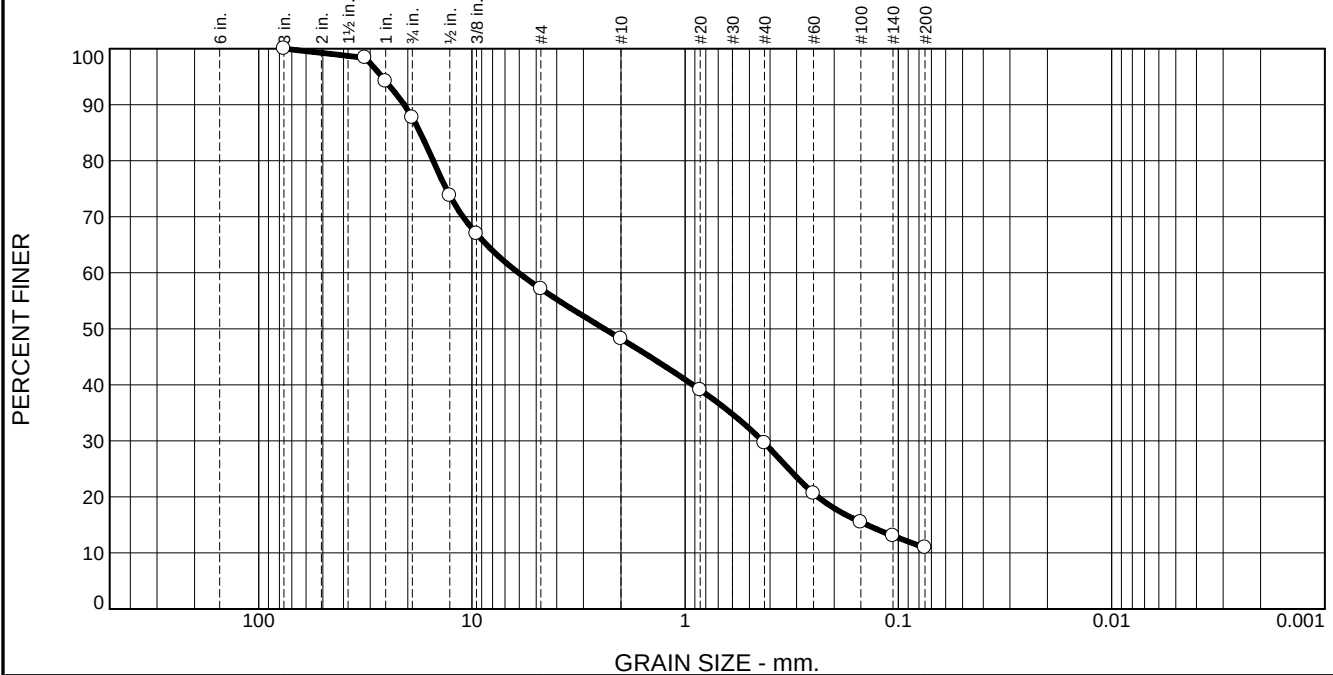
West Allis, WI

Client: Three Leaf Partners
Project: Hatland Quarry Apartments

Project No: 7708

Test No 7188-6863

Sieve Analysis Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	12.3	30.6	8.9	18.6	18.7	10.9	

Test Results (ASTM C136 & ASTM C117)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0		
1 1/4"	98.4		
1"	94.2		
3/4"	87.7		
1/2"	73.8		
3/8"	67.0		
#4	57.1		
#10	48.2		
#20	39.1		
#40	29.6		
#60	20.6		
#100	15.5		
#140	13.1		
#200	10.9		

* (no specification provided)

Material Description

Brown sand and gravel with topsoil

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D₉₀= 20.7905 D₈₅= 17.4838 D₆₀= 6.0538
D₅₀= 2.3916 D₃₀= 0.4347 D₁₅= 0.1404
D₁₀= C_u= C_c=

Remarks

F.M.=4.23

Date Received: 4/18/23 Date Tested: 4/28/23

Tested By: Craig Englund

Checked By: Imtiaz Ahmed

Title: Lab Manager

Source of Sample: Bluff Depth: Onsite
Sample Number: 19

Date Sampled: 4/18/23

GeoTest, Inc.

West Allis, WI

Client: Three Leaf Partners
Project: Hatland Quarry Apartments

Project No: 7708

Test No 7189-6864