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April 29, 2008

Mr. Timothy Stieve
Sauk County
c/o Mr. Frederick Poehler
Horty Elving & Associates, Inc.
505 East Grant Street
Minneapolis, Minnesota 55404-1490

RE: ADDENDUM 1 - Subsurface Exploration and Geotechnical Engineering Analysis for the Proposed Sauk County Long Term Care Facility in Reedsburg, Wisconsin - STS Project No. 200801368

Dear Mr. Stieve:

STS received comments regarding our Geotechnical Engineering Report issued on April 18, 2008 for the proposed Sauk County Long Term Care Facility. The comments were provided by Innovative Structural Solutions, the project Structural Engineer, after review of the report, and were submitted by Horty Elving & Associates, Inc., the project Architect via email on April 23, 2008. Additional information regarding the overall design changes was provided by Sauk County and submitted in an email by Horty Elving and Associates, Inc. on April 24, 2008. We discussed and clarified the comments and changes with the Structural Engineer during a telephone conversation on April 24, 2008.

STS is issuing this Addendum to our original report, which responds, clarifies and includes additional recommendations as necessary, to address the Innovative Structural Solutions comments. The information contained in this Addendum supersedes the original report.

We appreciate the opportunity to be of continued service to you. If you have questions with regard to the attached, or if we can be of further assistance, please call.

Sincerely,

Justin D. Warner, E.I.T.
Assistant Project Engineer

Matthew D. Emrick, P.E.
Senior Project Engineer

Paul A. Tarvin, P.E.
Regional Vice President

Innovative Structural Solutions Comments and STS Response:

The following comments from Craig Blahut of Innovative Structural Solutions were provided by Fred Poehler of Horty Elving & Associates, Inc. via email on April 23, 2006. A subsequent email from Horty Elving & Associates, Inc. indicated that the finished floor in the building had been raised 5 feet as directed by Sauk County to alleviate concerr.. with potential groundwater impacts to the basement portion of the proposed structure. The new raised basement floor elevation is +902 feet.

1. Section 4.1.1 Site Preparation and Grading: they discuss "it may be necessary to implement an alternative method to evaluate the sub-grade"... Can we ask the soil engineer to comment on what these alternatives are? We need to identify in the construction documents what to do.

   STS Response: The laboratory test data indicated the near surface site soils have high moisture contents, on the order of 25 to 35 percent. The soils consist of sensitive silts and clayey silts. Depending on the time of construction, proofrolling of the subgrade to evaluate the stability may be somewhat problematic. If construction proceeds during the dry summer months, the soils will likely dry and be reasonably stable, such that proofrolling will likely be an effective means to evaluate the subgrade. On the other hand, if earthwork operations commence during the late fall or early spring, attempts at conventional proofrolling activities may result in rutting and/or miring of construction traffic. For this reason, we recommend that the subgrade soils be allowed to dry before the proof roll is completed. If this is not practical, we recommend that STS be allowed to recommend an alternate method to evaluate the subgrade suitability. Such methods may include a visual observation and the use of engineering judgment by the geotechnical engineer. Additional tests such as a dynamic cone penetrometer (DCP) or calibrated penetrometer could also be used to evaluate the suitability of the exposed subgrade.

2. Section 4.1.2 Rock Excavation: they recommend digging "a series of test pits in advance of bidding." How would this be accomplished? Will the Owner hire someone beforehand to do this? Who would monitor what was found?

   STS Response: Given that the finished floor of the building will be raised a minimum of 5 feet, the amount o rock excavation required within the building footprint will be minimal, and may not be necessary. However, rock excavation may still be required to accommodate installation of utilities if they are located near the southeast corner of the proposed building. The quantity, location(s), and depth(s) of test pit(s), if any, are dependent on the location of the utility corridor. If the utility excavations are expected to extend beyond the depth at which shallow bedrock was encountered, a test pit or series of test pits can be dug in these areas. Test pits can be dug with an appropriately sized backhoe or other suitable excavation techniques. The Owner could engage a local Contractor to excavate the test pits with observation to be completed by our field representative. Ultimately, the Contractor is responsible for final method(s) of rock removal and should be required to provide a contingency for difficult excavation.

3. Section 4.5 Below-Grade Walls does not specifically address utilizing drain tile for the basement area. Can we ask the soil engineer to clarify if drain tile should be used? There is a reference to "adequate drainage" behind walls, is that meant to be drain tile? (see item 5 below)

   STS Response: The following additional recommendations are provided for Section 4.4 Floor Slabs on Grade and Section 4.5 Below-Grade Walls:

   Section 4.4 Floor Slabs on Grade: Floor slabs on grade should be underlain by at least 6 inches of compacted, well-graded aggregate base. The aggregate should consist of either a sand or sand and gravel having less than 5% passing the No. 200 sieve (such as ASTM C33 Concrete Sand).

   We also recommend that an underdrain system be installed below the basement floor slab. The slab underdrain pipes should have a minimum diameter of 4 inches and should be installed with a maximum spacing of 25 feet on center. The drainage system should be connected to permanent automatic sump pits c be positively drained to a storm sewer to remove any accumulated water. We recommend that pumps be installed in duplicate and be connected to an emergency power supply.

Section 4.5 Below Grade Walls: Drainage should be provided behind the basement walls to prevent the buildup of hydrostatic pressures. We recommend that free-draining granular drainage aggregate, such as washed stone (AASHTO Size No. 67) with less than 5% passing the No. 200 sieve, be placed within 2 feet behind the back face of the walls. Drainage pipes should also be installed along the perimeter of the basement walls, slightly above the footing, and allowed to drain either by gravity or to a sump pit and pump system. The drainage pipes should consist of a 4 to 6-inch diameter perforated pipe which is surrounded by a minimum of 6 inches of drainage aggregate. The drainage aggregate should be wrapped in a non-woven, high survivability, geotextile fabric with an apparent opening size (AOS) in the range of 70 to 100. The drain pipes should be supplied both inside and outside the building footings, and be interconnected at 10 to 15 feet centers. The drain pipes could be connected to the basement slab underdrain system.

We recommend using waterstops in all construction and expansion joints and waterproofing the below grade walls. A clay cap or other relatively impermeable barrier should be placed above the granular backfill at the surface to minimize surface water infiltration into the free-draining backfill. The clay material should be placed according to the Earthwork Guideline specifications in the Appendix. The cap should extend from final grade to a depth of at least 2 feet. The clay cap should slope away from the structure at a minimum 2% grade. Bituminous or Portland cement concrete (i.e. walkways and drives) could also serve to reduce surface water infiltration.

4. Due to higher grade elevation, boring # B-3 only extends to one foot above the proposed bottom of new footing elevation. This corner of the building essentially has no information to base excavation and soil support strength. Can the soil engineer comment whether he feels we have adequate information to base his recommendations?

   STS Response: The finished floor elevation of the new basement has been raised 5 feet since submittal of our original report. The new basement floor elevation is +902 feet. Boring B-3 was advanced to the point of practical auger refusal, which occurred at 7.9 feet (elevation +906.6 feet) below the existing ground surface. Based on the new floor slab elevation, boring B-3 extends 8.4 feet below the base of the floor slab. Based on the split-spoon samples, the SPT results and correlation with the rock core obtained from boring B-5, we believe that the material beneath the point of practical auger refusal is probable highly weathered sandstone bedrock of equal or greater strength than the material encountered immediately above it. These materials will be suitable for foundation support of the new building.

5. Section 3.3 Groundwater Conditions indicates an adjacent wetland water surface elevation of 894.1 feet. Our basement floor elevation is 898 feet. Bottom of basement footing elevation will be 894 feet. So footing excavations will likely be into saturated soil. This may cause difficult foundation construction issues. Are there any options to raise the building at this point? It is likely that any drain-tile / sumps will run 24/7. Additional pumps or back-up pumps might be a good idea.

   STS Response: The finished floor elevation of the new basement has been raised 5 feet since submittal of our original report. The new basement floor elevation is +902 feet. Based on this information, and the results of boring B-8 in the immediate footprint of the basement, we do not anticipate that basement excavations will extend below the local groundwater table. However, some seepage should be anticipated during construction. Where seepage is encountered, we anticipate that removal can be completed using typical sump and pump techniques. Recommendations for permanent drainage have been provided previously.

   The location of utilities and the invert elevations are not known. Excavations for utilities extending several feet or more below the groundwater level will likely require more elaborate dewatering techniques, such as vacuum well points or dewatering wells.

6. Section 4.1.2 Rock Excavation identifies the difficulties with utility excavation into the rock areas. These areas should be pointed out to the Plumbing and Civil engineers.

   STS Response: STS is in agreement with this statement. Competent rock areas that will require specialized methods for utility excavation should be identified accordingly.

7. Section 4.1.1 Site Preparation and Grading: the report talks about placing 'structural fill' to bring the site up to grade. I cannot find anywhere in the report where there is a specification for the 'structural fill'. I do see the under-slab base fill specified. Would it be the same material? The STS 'earthwork guidelines' do not specify specific soils, so it is not very helpful. The report also does not clarify if the existing site soils can be used for compacted fill or not.

   STS Response: In our opinion, the existing inorganic site soils removed from cut areas can be used as structural fill to raise grades in other areas provided these soils are properly moisture conditioned prior to use. The moisture content of the overburden soils is in the range of 25 to 35%. Depending on the time at which earthwork operations are undertaken, it will most likely be necessary to sufficiently dry the soils to use them as structural soil fill. At a minimum, the soils should be dried using disking, aerating or scarifying methods prior to final compaction. The degree of moisture conditioning needed to prepare the soils for compaction will vary seasonally. The natural water content of cohesive fill soil at the time of compaction should be within -2 to +4% of the optimum water content determined by the Proctor test. Depending on the time of year and the conditions at the time of earthwork, construction delays should be anticipated during periods of wet weather.

   Given the amount of fill required to establish final design grades, we anticipate that fill will be imported from offsite. In this case, fill imported to the site for use as new structural fill to raise grades should consist of a reasonably well-graded granular material, such as a pit run or bank run sand and gravel containing less than 15% material passing the No. 200 sieve. Structural fill should be placed in 9 inch maximum loose lifts and compacted to a minimum of 95% of the modified Proctor (ASTM D-1557) maximum dry density.

8. If the existing site soils can be used as 'structural fill', I would like some spec. verbiage as to how those soils should be handled. (ie – separated, dried, moisture conditioned, compaction values, lift thickness, etc) .

   STS Response: Refer to STS Response to item 7 above which provides recommendations for the use of native site soils as structural fill to raise grades.

9. I would also like spec. verbiage for backfill of the basement walls, as well as backfill for the slab on grade walls (if different).

   STS Response: Refer to STS Response to item 3 above which provides recommendations for backfill of below grade walls and slabs.

Subsurface Exploration and Geotechnical Engineering Analysis

Proposed Sauk County Long Term Care Facility in Reedsburg, Wisconsin

STS Project No. 200801368

Prepared by:
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April 18, 2008

Mr. Timothy Stieve
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c/o Mr. Frederick Poehler
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505 East Grant Street
Minneapolis, Minnesota 55404-1490

RE: Subsurface Exploration and Geotechnical Engineering Analysis for the Proposed Sauk County Long Term Care Facility in Reedsburg, Wisconsin – STS Project No. 200801368

Dear Mr. Stieve:

STS has completed the subsurface exploration and geotechnical engineering evaluation for the above-referenced project. The attached report contains the logs of fourteen (14) borings drilled at the site, four (4) borings from a previous phase of exploration, and our evaluation of the subsurface conditions encountered. The results of the borings are consistent with those reported in a preliminary investigation conducted by STS, dated November 5, 2007. The report also includes recommendations regarding foundation, slab-on-grade and below-grade wall design, as well as subgrade preparation and fill placement for the proposed development.

We have been pleased to provide you with our subsurface exploration and geotechnical engineering services. If you have questions regarding this report or if we may provide additional assistance, please contact us.

Sincerely,

Justin D. Warner, E.I.T.
Assistant Project Engineer

Matthew D. Emrick, P.E.
Senior Project Engineer

for Paul A. Tarvin, P.E.
Regional Vice President

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1.0 Project Overview

STS understands that Sauk County is planning the construction of a new Long Term Care (LTC) facility for a site northwest of the intersection of Derby Row and Carousel Drive in Reedsburg, Wisconsin. The site of the proposed development is an undeveloped farm field bordered by wetlands to the west, the end of housing development on Clark Street to the east, and by additional agricultural fields to the north and south. The approximate location of the site is shown on the Site Location Diagram (Figure 1) included in the Appendix.

STS conducted a preliminary geotechnical analysis of the site and presented the results in a report dated November 5, 2007. The logs of the 4 borings drilled as part of the preliminary analysis are included in the Appendix of this report. The locations of the 4 borings drilled as part of the preliminary analysis are shown on the Boring Location Diagram (Figure 2) included in the Appendix.

Based on a copy of the proposed Site Plan provided by Horty Elving and Associates, Inc. dated March 20, 2008, the proposed building will be constructed in 5 sections. Approximately half of the building will include a full basement. An asphalt pavement drive will circle the facility and an at grade visitor parking lot with capacity for up to 28 vehicles is planned on the east side of the building. An at grade parking lot for LTC facility staff with capacity for up to 76 vehicles, an outbuilding, and a 4 foot depressed exterior loading dock are planned for the west side of the building. Infiltration basins and rain gardens are planned to the north, west, and south sides of the facility.

Finished floor elevation for the LTC facility first floor will be +910.0 feet. Finished floor elevation for the basement sections will be +898.0 feet. Interior column loads at the one-story sections will be approximately 100 kips, and interior loads at the two-story sections will be approximately 150 kips. General interior and exterior wall loads will be approximately two to three kips per lineal foot. STS assumes that exterior footings will bear at typical frost depths beneath the finished floor elevation.

The purposes of this report are to describe the soil conditions encountered in the borings, to evaluate the subsurface information with respect to the proposed construction, and to present recommendations regarding foundation, floor slab and below-grade wall design, as well as subgrade preparation and fill placement.

2.0 Exploration Procedures

2.1 Boring Layout and Survey Procedures

Fourteen (14) borings were staked in the field by a Vierbicher Associates, Inc. survey crew under subcontract to STS. The borings were staked using GPS survey methods at the approximate locations identified on the proposed Site Plan provided by Horty Elving and Associates, Inc. The initial proposed location of boring B-10 was located approximately 30 feet west of boring B-8. Upon further review, boring B-10 was offset approximately 60 feet north and 175 feet west of the proposed location to provide better coverage of the site, and to provide additional subsurface information in the region near the proposed outbuilding location.

The ground surface elevations at the as-drilled boring locations were determined by the Vierbicher Associates, Inc. survey crew. The elevations were referenced to the utility vault on the north side curb of the west end of Clark Street. The elevation of this benchmark was reported to be 909.7 feet NGVD 29. The boring and local benchmark locations are shown on the Boring Location Diagram (Figure 2) included in the Appendix.

2.2 Drilling and Sampling Procedures

The borings were completed by a two-person STS drill crew using an ATV-mounted CME-850 drill rig. The borings were advanced to the respective termination depths of 8 to 25 feet below existing ground surface. The borings were advanced using continuous solid stem flight augers through the near surface soils until groundwater was observed or the borehole became unstable. Temporary steel casing was then installed to maintain the stability of the borehole and the borings were further advanced using rotary wash boring methods. Soil sampling was generally performed at 2 ½ foot intervals in the upper 10 feet, and at 5 foot intervals thereafter to the termination depths in borings B-1 to B-6, and borings B-9 to B-11. Soil sampling was performed continuously to the termination depths in borings B-7, B-8, and B-12 to B-14. Representative soil samples were obtained in general accordance with ASTM D 1586, "Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils." Additionally, a rock core sample was obtained at boring B-5 using an NX-sized diamond core barrel to confirm the presence of bedrock, and to determine the type, consistency, and competency of the rock. A more detailed explanation of both the drilling and sampling procedures used is included in the Appendix.

A log of the soil samples obtained from the borings was maintained by the drill crew. Soil samples were sealed in the field and returned to our Madison, Wisconsin laboratory for further classification and testing. Water level observations made in the open boreholes are noted on the lower left hand corner of the respective boring logs. Upon completion, the borings were backfilled by the drill crew in general accordance with Wisconsin Department of Natural Resource (WDNR) regulations. Borehole abandonment forms were completed and copies are included in the Appendix.

2.3 Laboratory Procedures

The soil samples were visually classified by a Geotechnical Engineer on the basis of texture and plasticity in accordance with the STS Soil Classification System. The estimated group symbol included in parentheses following the soil descriptions on the boring logs is in general conformance with the Unified Soil Classification System, which serves as the basis of the STS Soil Classification System. A brief explanation of the classification of soil samples is included in the STS Field and Laboratory Procedures in the Appendix of this report.

Calibrated penetrometer and moisture content testing were performed on selected representative portions of cohesive soil samples. Results of the field and laboratory tests were then plotted on boring logs which are contained in the Appendix.

Soil samples obtained in borings B-6, B-7, and B-12 through B-14 were also classified in accordance with the US Department of Agriculture (USDA) textural classification system. The samples were classified by an STS Certified Soil Tester (CST), as required by the Wisconsin Department of Natural Resources Technical Standard 1002, *Site Evaluation for Storm Water Infiltration 2001*. The Wisconsin Department of Commerce (WDOC_ Soil Evaluation – Storm Form SBD-10793) was completed for borings B-6, B-7, and B-12 through B-14. Copies of the WDOC Storm Forms are included in the Appendix.

The procedures utilized in preparing the final boring logs from the field logs and laboratory test data are described on the sheets entitled "STS Field and Laboratory Procedures" which are included in the Appendix. Soil samples recovered from the borings will be retained in our laboratory for a period of 90 days after which they will be discarded unless specific instructions as to their disposition are received.

3.0 Exploration Results

3.1 Site Conditions

The site of the proposed development is a portion of an approximately 60 acre parcel located about 600 feet west of the west termination point of Clark Street and northwest of the intersection of Derby Row and Carousel Drive in Reedsburg, Wisconsin. The approximate location of the site is shown on the Site Location Diagram (Figure 1) included in the Appendix.

The site consists of open, undeveloped agricultural fields. The fields are bordered by an existing wetland to the west, additional undeveloped agricultural fields to the north and south, and the west termination point of Clark Street to the east. Existing development, including a technical school and residential areas, are located to the east of the property.

Based on the level survey by Vierbicher Associates, Inc., the surface topography is variable, but generally slopes downward from southeast to northwest across the site. Based on the ground surface elevations at each boring location, there is as much as 19 feet topographic relief across the site.

3.2 Subsurface Conditions

Based on the results of the 14 borings completed as part of this exploration, the subsurface conditions vary across the site. In general, the subsurface conditions consist of surficial topsoil, underlain by low to moderate strength overburden soils, and then underlain by apparent weathered sandstone bedrock. The overburden soils consist of alternating layers ranging in texture from clayey silt, sandy silt, silty sand, and cleaner fine to medium sand. These results are consistent with the conditions encountered in the 4 borings drilled as part of the preliminary geotechnical report submitted by STS on November 5, 2007. The material which was described as probable or possible weathered bedrock on the boring logs is likely a highly weathered bedrock. The presence of bedrock was confirmed via a core sample obtained in boring B-5.

Dark brown clayey silt topsoil (Topsoil:ML) was encountered to depths of approximately 0.5 to 1.0 feet beneath the existing ground surface in borings B-1, B-2, and B-4 to B-14. The topsoil contained traces of fine sand and roots. The consistency of the topsoil ranged from medium (firm) to very stiff based on the results of calibrated penetrometer tests. The moisture contents of representative soil samples ranged from 22 to 31 percent.

Dark brown silty fine to medium sandy topsoil with traces of roots and fine gravel (Topsoil:SM) was encountered to a depth of 0.5 feet in boring B-3. The relative density of the sandy topsoil was loose based on the Standard Penetration Test (SPT) results.

The surficial topsoil is underlain by a layer of brown clayey silt with traces of fine sand (ML) to depths of approximately 2 to 8 feet in borings B-1, B-2, and B-5 to B-14. The consistency of representative clayey silt

samples ranged from medium (firm) to very stiff based on the results of calibrated penetrometer tests. The moisture contents of representative clayey silt samples ranged from 22 to 35 percent, suggesting the clayey silt is only slightly compressible.

The clayey silt in borings B1, B-2, and B-5 to B-14, the silty sand topsoil in boring B-3, and the clayey silt topsoil ir boring B-4 are generally underlain by layers of sandy silt with traces of clay (ML), silty sand with traces of clay, silty sand and gravel with traces of clay (SM-GM), and fine to medium sand with traces of silt and clay (SP). In general, the soil strata become progressively sandier with depth. The relative density of representative sandy silt samples ranged from very loose to loose based on the results of SPT tests. The moisture contents of representative sandy silt samples ranged from 17 to 32 percent. The relative densities of the granular deposits ranged from loose to extremely dense based on SPT results.

Deposits of brown to light brown fine to medium sand with traces of silt were encountered to depths of 7.9 to 20 feet in borings B-2 to B-5, just prior to practical auger refusal. The SPT results generally indicated the relative densities of these granular deposits were in the extremely dense range. Based on the appearance of the recovered samples and the information included on the driller's field logs, these deposits were further described as possible highly weathered bedrock.

The granular soils encountered in borings B-2 to B-5 were underlain by extremely weathered, fine to medium brown to light brown sandstone. Bedrock was not encountered in borings B-1 and B-6 to B-14. In general, the sandstone appears to slope downward from southeast to northwest across the site, roughly paralleling the site topography. At boring B-5, a 5-foot core sample was obtained from 20 to 25 feet to confirm the presence of rock and not a boulder, and to determine the type, consistency, and competency of the rock. Ninety-eight percent of the core was recovered. The Rock Quality Designation (RQD) as determined from the recovered core was 28 percent, suggesting a poor quality rock. Rock cores were not obtained at the remaining borings, and therefore, the bedrock descriptions were inferred based on observations noted while drilling.

Additional variations to the above general profile were noted. Refer to the attached individual boring logs for specific information at the individual boring locations. It should be noted that the stratification lines indicated on the boring logs were selected on the basis of laboratory tests, field logs, and visual observations of the recovered soil samples. The stratification lines that occur on the boring logs are in some cases estimated; in-situ, the transition between soil types in both the horizontal and vertical directions may be gradual.

3.3 Groundwater Conditions

Water was observed at depths between 2 and 6 feet while sampling in borings B-1, B-2, and B-4 through B-15. Water was observed at depths between 2 and 6 feet before casing removal in borings B-2, B-4, B-5, B-7, B-8, and B-11. Water was observed at depths between 3 and 6 feet after boring completion in borings B-1, B-6, B-9 and

B-12 to B-14. The water level elevations relative to the ground surface elevations of each boring are shown in Table 1. The water in the borings was generally observed in the permeable sand layers underlying the surficial soils and native clayey silt and may be evidence of perched water pockets and/or a high seasonal water table resulting from the spring melt conditions.

Table 1
Borehole Water Level Elevations

Boring No.	Ground Elevation	Water Elevation		
		While Sampling	Before Casing Removal	Before Casing Installation
	(feet project datum)	(feet project datum)	(feet project datum)	(feet project datum)
1	901.1	894.7	DRY	895.1
2	905.7	900.6	900.7	DRY
3	914.5	DRY	DRY	DRY
4	903.7	900.2	900.4	DRY
5	907.6	902.4	902.1	DRY
6	902.8	897.5	DRY	897.7
7	908.5	904.5	903.4	DRY
8	903.7	902.1	902.1	DRY
9	901.9	897.9	DRY	899.3
10	903.1	899.2	899.4	DRY
11	905.6	899.2	899.4	DRY
12	902.5	896.7	DRY	897.1
13	903.7	900.7	DRY	900.9
14	895.3	891.3	DRY	891.9

Based on these observations alone, the location of the long-term groundwater table is difficult to determine because of the significant distance between the boring locations, the highly variable soil conditions, and the possibility of seasonal perched groundwater conditions. According to the topographic information shown on the proposed Site Plan provided by Vierbicher Inc., the ground elevation of the wetland that borders the project site to the west is +894.1 feet. Additionally, the water surface elevation of Babb Creek to the north of the site is +881.1 feet. In general, this suggests that groundwater levels will vary between these elevations across the site, and indicates groundwater flow from southwest to the northeast towards Babb Creek. If more accurate long-term groundwater levels are required, observation wells could be installed and monitored over longer time periods. It should also be noted that the groundwater level can be expected to fluctuate both seasonally and annually, depending on variations in precipitation, evaporation, and ground surface runoff.

4.0 Analysis and Recommendations

4.1 Earthwork Recommendations

4.1.1 Site Preparation and Grading

Some earthwork and mass grading will be required to balance the site in preparation for construction of the proposed LTC facility. Based on the proposed finished first floor elevation of +910.0 feet and +898.0 feet for the basement, cuts on the order of 4 to 10 feet will be required in the basement section, and as much as 9 feet of newly placed fill will be required to raise grades in the one-story sections on the north end of the site. Four to five foot cuts are anticipated at the south end of the building.

We expect that earthwork operations will be somewhat problematic, since the moisture content of the low to moderate strength overburden soils is somewhat high, in the range of 25 to 35 percent; the relatively shallow, perhaps perched water conditions; and the sensitivity of the soils because of their high silt content. At a minimum, a substantial amount of moisture conditioning will be required to use the materials as structural soil fill to raise site grades. It may be advantageous to build construction haul roads and limit construction traffic to these haul roads. The haul roads could be constructed by placing a geotextile fabric on the exposed subgrade. The geotextile should have the minimum properties specified in Section 645.2.2 of the Wisconsin Department of Transportation (WisDOT) Standard Specifications. A minimum 18 inch thick layer of breaker run stone or similar coarse grained aggregate should then be placed on top of the geotextile to provide a firm base for equipment to run.

The subgrade should be crowned to promote positive drainage during earthwork operations. The surface should be sealed at the end of each day so as to minimize the potential for surface water infiltration after a precipitation event. Ideally, earthwork should be planned for the dry season, such as the summer months, and not during the late fall or early spring, so as to minimize delays due to inclement weather.

STS recommends the proposed building and parking areas be cleared of topsoil, debris, frozen soil, or other unsuitable material for an area extending at least five feet beyond the edges of the proposed construction area. The stripped topsoil could be stockpiled for future use. After stripping and clearing the construction areas, the exposed subgrade should be observed and thoroughly tested to delineate remaining soft or unstable materials. This could be done by proofrolling. Proofrolling involves traversing the subgrade with a heavily-loaded piece of construction equipment, such as a fully-loaded multi-axle dump truck. Areas exhibiting deflections greater than one inch or excessive rutting should either be recompacted in-place, or be carefully trimmed, removed, and replaced with structural soil fill. However, because of the relatively soft subgrade, proofrolling should be done with extreme care. It may be necessary to implement an alternative method to evaluate the subgrade if proofrolling results in miring of construction traffic.

Once the site is properly prepared, placement of structural fill to raise site grades to balance the site can begin. The structural soil fill should be placed a minimum of five feet beyond the edges of the new construction, and an additional foot for each vertical foot of new fill to be placed to provide adequate lateral confinement. The fill should be placed in 9 inch maximum loose lifts and compacted to a minimum of 95% of the modified Proctor (ASTM D-1557) maximum dry density. As mentioned, the contractor should expect that a substantial amount of moisture conditioning will be required to prepare the subgrade to receive fill, as well as to use the on site soils as structural fill.

Excavations for utility installation should also be backfilled with structural soil fill. Soil type, placement and compaction of structural fill should be completed as described in the STS Earthwork Guideline statement in the Appendix.

We recommend that an STS geotechnical engineer or a qualified field representative be present during stripping and filling operations to confirm that only suitable backfill materials are used, as well as to confirm that the soils have achieved adequate density requirements. This would also allow our representative to observe that the existing subgrade is undisturbed, suitable for placement of fill or concrete, and to confirm that the site is prepared according to the intent of this report.

4.1.2 Rock Excavation

As stated previously, STS understands that the site will be balanced to facilitate construction of the proposed new LTC facility. The finished floor slab elevation of the one-story sections of the facility will be approximately +910.0 feet, and +898.0 for sections with a basement. Given the variation of the ground surface elevation and depth to apparent weathered bedrock at certain of the boring locations, we assume some excavation into this material may be required, particularly in the regions near borings B-2, B-3, B-4, and B-5. Our interpretation as to the depth to the top of apparent weathered bedrock in these borings was based on the dramatic increase in the split-spoon sampler blow counts and on the confirmatory rock core obtained in boring B-5.

Shallow excavations extending into the apparent weathered sandstone can likely be completed using conventional earth moving equipment. Excavations into the weathered rock consisting of dense to extremely dense sand and gravel will be more difficult, and may require ripping. The use of a conventional backhoe will likely be sufficient to excavate shallow trenches for utility installation in these materials; however, we recommend that a series of test pits be excavated in advance of bidding to further evaluate the feasibility of construction using conventional earth moving equipment in both the highly weathered and more competent rock.

Similarly, we recommend that the utility designer consider the locations of more competent bedrock identified in our exploration program, and if possible, adjust the locations of utility corridors to minimize the amount of rock

excavation. Utility excavation, particularly trench excavations, into the more competent rock will be difficult, and may require blasting or specialized trenching equipment.

The contract documents should provide a clear definition between soil and rock excavation. We can assist in developing appropriate specification language to differentiate between soil and rock excavations if desired. We recommend the Contractor be responsible for the final method(s) for rock removal and provide a contingency plar for difficult excavation.

4.2 Foundations

According to the Site Plan provided by Horty Elving & Associates, the basement will be located beneath the centermost section of the proposed LTC facility in the regions near borings B-4, B-5, and B-8, with a finished floor elevation of +898.0 feet. The remainder of the facility will consist of two stories with a finished floor slab on grade elevation of +910.0 feet in the regions near borings B-1 to B-3, B-6, B-7, B-9, and B-11.

Based on this information and the results of the borings, exterior footings for the basement section constructed at typical frost depths will bear on medium (firm) sandy silt, and loose to extremely dense fine to medium sand. Exterior footings constructed at typical frost depths in the single-story sections of the LTC facility will bear on newly placed structural fill used to raise grades, except in the regions near boring B-3 where exterior footings will bear on loose to extremely dense fine to medium sand. Interior footings may bear at shallower depths on newly placed structural fill used to balance the site, or these footings could be extended through the fill to bear on the native soils below.

In our opinion, the overburden silt and sand soils encountered in the borings would be suitable for direct support of footings proportioned for a maximum net allowable soil bearing pressure of 2,000 pounds per square foot (psf). Footings designed to bear upon structural soil fill used to raise grades should also be proportioned for a maximum net allowable soil bearing pressure of 3,000 pounds per square foot (psf). The net allowable bearing pressure is that pressure in excess of the final minimum adjacent overburden pressure. If a uniform bearing pressure is desired regardless of the anticipated bearing stratum, then we recommend using 2,000 psf.

Exterior footings in heated structures should be supported at a minimum depth of 4 feet below final grade to provide adequate protection against frost heave. Interior column footings within heated structures can be supported at shallower elevations provided they are founded on competent bearing soils as described above. Footings for unheated areas should be supported a minimum depth of 5 feet below final grade for frost considerations. The minimum width of continuous footings should be 18 inches, and the minimum dimension of individual spread footings be no less than 30 inches to prevent disproportionately small footing sizes.

Care should be exercised so that the soils at the base of the foundation excavations are not disturbed. Water should not be allowed to pond on the surface of the bearing soils, as this could cause a softening of the subgrade, particularly when subjected to construction traffic. Seepage water should be promptly removed. This can likely be accomplished by typical sump pit and pump techniques, though multiple sumps may be required. STS recommends that the soils at the base of the foundation excavations be observed and tested by an STS geotechnical engineer or a qualified STS representative to observe and check that the foundation subgrade soils are similar in type and consistency to those encountered in the borings, and are suitable for support of the foundations. This observation program is also an important check that the subgrade soils have not been unduly disturbed as a result of construction activities.

STS anticipates that the total settlement of footings designed and constructed in accordance with the recommendations given above will not exceed 1 inch. Differential settlements between equally sized and loaded members should be less than approximately half this amount.

4.3 Seismic Site Class

For seismic design purposes, we have classified the site in general accordance with Section 1615.1.5.1 of the 2002 Wisconsin Enrolled Commercial Building Code (Building Code). The maximum depth explored during this investigation was 25 feet below existing grade; therefore, we have assumed that the soil strength characteristics beyond the maximum depths explored are similar to, or better than, those encountered in the borings. Bedrock was encountered at depths as shallow as 8 feet below existing grade. As a result, we estimate that the N_{ch} within the upper 100 feet of the profile is greater than 50 blows per foot due to the anticipated bedrock. Based on this, and Table 1615.1.1, we have defined the site as Site Classification C.

4.4 Floor Slabs-On-Grade

Assuming the finished floor elevation of the single-story sections of the proposed LTC facility will be +910.0 feet, and the basement section will be +898.0 feet, STS anticipates that the floor slab subgrade will consist of a combination of newly placed structural fill used to raise grades, loose to extremely dense fine to medium sand, and medium (firm) to stiff cohesive soils similar to those encountered in the borings. Provided the site is proofrolled and prepared as recommended in Section 4.1 of this report, and new fill is placed and compacted as recommended herein, these soils would be suitable for support of slabs-on-grade.

We recommend that the floor slabs in slab on grade areas be underlain by at least 6 inches of compacted, well-graded aggregate base. The aggregate base should consist of either a sand or sand and gravel having less than 5 percent passing the No. 200 sieve. This granular layer will act both as a base course for slab support and as a capillary break to vertical moisture migration between the base of the floor slab and the underlying subgrade. ACI also recommends that a vapor barrier be placed below slabs where moisture sensitive floor coverings will be

used. The depth of the vapor barrier, if needed, beneath the slab should be based on the slab and concrete mix design in slab-on-grade areas.

Floor slabs-on-grade should be independently supported from the building foundations to permit slight differential movements to occur between the slabs and foundation elements. Floor slabs should be at least nominally reinforced with steel wire mesh to help reduce cracking and maintain the structural integrity of the slab. Slab reinforcement and concrete design should be performed by a qualified professional with consideration given to the expected loading and environment, drainage, and subgrade conditions.

We recommend the use of a vertical modulus of subgrade reaction of 125 pounds per cubic inch (pci) for design of slabs supported on the soils outlined above. This value is based on a 12-inch square or round plate. The design modulus value should be adjusted based on the final width of the slab. The modulus value could also be increased by incorporating a thicker granular subbase layer. Light to moderately loaded slabs (average load less than 500 psf) that are constructed in accordance with the preceding recommendations should have a total settlement of less than 1/2-inch.

4.5 Below-Grade Walls

The loading dock, exterior below-grade walls, and basements should be designed using the parameters presented in Table 2. Assuming the top of the wall is allowed to rotate at least 0.001 times the height of the wall, the loading dock and other below-grade walls should be designed assuming an "active" lateral earth condition. If the top of the wall is restrained, then the walls should be designed using the "at-rest" lateral earth pressure parameters. Additionally, the loading dock and other below-grade walls may be required to resist sliding.

Table 2
Recommended Loading Dock Wall Design Parameters

Total Unit Weight of Backfill (γ)	125 pcf
Angle of Internal Friction (Φ)	30°
At-Rest Pressure Coefficient, (K_o)	0.5
Active Earth Pressure Coefficient, (K_a)	0.33
Passive Earth Pressure Coefficient, (K_p)	1.50[(1)]
Coefficient of friction between concrete and soil	0.30

(1) Passive earth pressure coefficient reduced by a factor of 2 to account for the large strains to mobilize the full passive resistance.

The values presented in Table 1 assume that the walls are vertical, that a clean, free-draining granular fill containing less than 5 percent by weight passing the No. 200 sieve is used as backfill within 2 feet behind the wall; and that adequate drainage is provided. Surcharge loads within a zone defined by a line extending from a 45 degree angle above the base of the wall should also be included in the design. The size of the compactor

used behind the wall should be limited to less than 500 pounds to minimize stresses on the wall. The backfill should be compacted to a minimum of 95 percent of the maximum dry density as determined by the modified Proctor test, ASTM Specification D-1557.

4.6 Pavement Recommendations

We anticipate that the subgrade below pavements will generally consist of a combination of the clayey silt site soils, and newly placed fill to raise site grades. The silty soils are anticipated to provide poor to moderate subgrade support condition due to their frost susceptibility and tendency to soften when wet. Provided the site is prepared as described in the Section 4.1 and in the attached STS Earthwork Guideline, we recommend that pavements be designed using the parameters given in Table 3.

Table 3
Pavement Design Parameters

California Bearing Ratio (CBR)	3.0
Resilient Modulus (M_r)	4,500 psi
Level of Reliability (R)	90%
Total Standard Deviation (S_o)	0.45 (flexible) 0.35 (rigid)
Change in Serviceability Index (Δ PSI)	1.7
Modulus of Subgrade Reaction	125 lbs/in^3

Notes: (1) Estimated CBR value reduced to reflect potential degradation due to frost action.

These parameters, and subsequent pavement thickness recommendations, are based on the design guidelines presented in the manual entitled "American Association of State Highway and Transportation Officials Guide for Design of Pavement Structures", 1993.

All project pavements should be designed for the types and volumes of traffic, subgrade and drainage conditions that are anticipated. Based upon the above values, Table 4 presents the recommended minimum pavement sections for both bituminous and Portland cement concrete, where the subgrade appears firm under proofrolling at the time of construction. The minimum thicknesses provided are based on the assumption of 20,000 total 18-kip Equivalent Single Axle Load Applications (W_{18}) for auto parking and drive areas, and W_{18} equal to 50,000 for heavy duty drive areas, over a 20 year design life. Greater pavement and/or base course thicknesses may be required for greater expected traffic loads and volumes, or if poorer subgrade conditions are encountered.

Table 4 Recommended Minimum Pavement Sections			
Pavement Area	**Pavement Type**	**Pavement Thickness (in)**	**Base Course Thickness (in)**
Auto Parking and Drive Areas	Rigid (Concrete) Pavement	4.0	6.0
	Flexible (Bituminous) Pavement	3.0	8.0
Heavy Duty Drive Areas	Rigid (Concrete) Pavement	6.0	8.0
	Flexible (Bituminous) Pavement	4.0	10.0

Base course material should conform to Wisconsin Department of Transportation (WisDOT) Section 305.2.2.1, 1 1/4-inch maximum diameter specifications. The base course material should be placed in individual lifts, no greater than 9 inches in loose thickness, and be compacted to a minimum of 95% of the modified Proctor maximum dry density (ASTM D 1557).

For light duty auto parking and drive areas, we recommend that flexible (bituminous) pavements consist of a WisDOT SuperPave Type E-0.3 mix design. For heavy duty drive areas, we recommend that hot mixed asphalt (HMA) consist of a WisDOT SuperPave Type E-1 mix design. The HMA should be compacted to a minimum of 92% of the maximum specific gravity as determined by ASTM D 2041, "Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures." Density tests should also be performed on this material to confirm that the material has been adequately compacted.

In areas subject to heavy traffic loadings, such as entrance roads, areas of concentrated truck backing and turning and in front of loading dock doors or dumpster pads, we recommend that a rigid (concrete) pavement section be utilized. We recommend that the Portland cement concrete have a minimum unconfined compressive strength of 4,000 pounds per square inch (psi), and have transverse joints placed in the concrete pavement every 25 feet.

Pavement subgrades should be positively drained. Drainage should be provided at any low areas and along the edges of pavements and parking lots to prevent the accumulation of free water within the base course, which otherwise can result in subgrade softening and pavement deterioration under exposure and repeated traffic conditions. Around storm inlets or catch basins, it may be appropriate to utilize subsurface finger drains to allow any water to drain out of the base course which may otherwise collect in low areas. Positive pavement base course and subgrade drainage will help minimize pavement deterioration and to extend its useful life. This is especially critical with the high silt content subgrade.

Pavement maintenance such as crack sealing and seal coating will also be required at the appropriate times, regardless of pavement thickness. At a minimum, the pavement should be monitored on an annual basis and cracks sealed to minimize water penetration into the base course.

4.7 Stormwater Detention/Infiltration Considerations

The samples collected from the borings were also classified by an STS Certified Soil Tester in accordance with the USDA textural classification system and copies of the WDOC Soil Evaluation – Storm Form SBD-10793 were completed for each boring for use by Vierbicher during final storm water design. Copies of the Storm Form SBD-10793 are included in the Appendix.

Specific standards for runoff management and stormwater infiltration have been established by the WDNR that must be considered as part of the final design. The WDNR Site Evaluation for Stormwater Infiltration Standards (1002) prescribe specific boring depths, number of borings, sampling intervals, classifications, and testing requirements for various stormwater management systems. Therefore, additional borings and evaluation may be required in the areas of proposed storm water detention areas once final design details are known.

4.8 Construction Considerations

Temporary dewatering may be required to maintain open excavations for utility installation and during initial site grading for storm water structures, in particular where excavations extend into the granular soils below the groundwater table. Isolated excavations extending 1 or 2 feet below the groundwater table can likely be dewatered using typical sump and pump techniques, though multiple sumps may be required. However, larger excavations for utilities and storm water structures extending several feet or more below the groundwater level will likely require more elaborate dewatering techniques, such as vacuum well points or dewatering wells. Therefore, to the extent practical, we recommend that excavation depths be minimized during design.

All excavations which extend greater than 5 feet in depth should be designed in accordance with OSHA regulations with properly sloped or braced sides to prevent excavation instability. Excavation safety is the responsibility of the contractor; however, based on the soil boring data, we expect that the majority of excavations will be completed within the native cohesive and granular soils, or within newly placed structural fill, that is classified as Type C within the OSHA regulations. OSHA recommends a maximum slope inclination of 1.5H:1V for Type C soils. Thus, we recommend that temporary excavation sides at the site be planned with a slope of 1.5H:1V or flatter to prevent excavation instability. Material stockpiles or heavy equipment should not be placed near the edge of the excavation slopes. The actual stable slope angle should be determined during construction and will depend upon the loading, soil, and groundwater conditions encountered.

5.0 General Qualifications

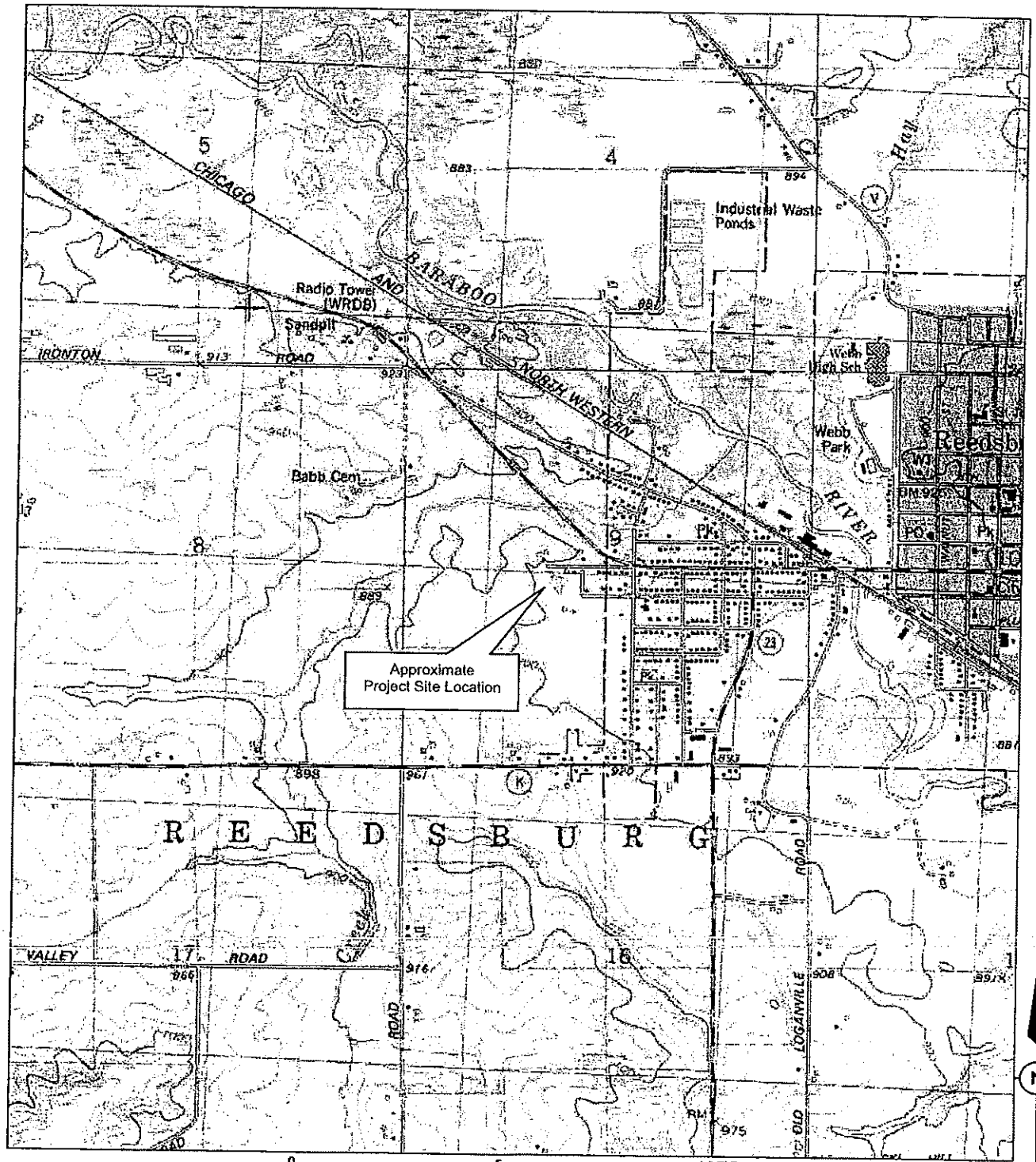
This report has been prepared in general accordance with normally accepted geotechnical engineering practices to aid in the evaluation of this site and to assist our Client in the design of this project. We have prepared this report for the purpose intended by our Client, and reliance on its contents by anyone other than our Client is done at the sole risk of the user. No other warranty, either expressed or implied, is made. The scope is limited to the specific project and location described herein, and our description of the project represents our understanding of the significant aspects relevant to the geotechnical characteristics. In the event that any changes in the design or location of the facilities as outlined in this report are planned, we should be informed so that the changes can be reviewed and the conclusions of this report modified, as necessary, in writing by the Geotechnical Engineer. As a check, we recommend that we be authorized to review the project plans and specifications to confirm that the recommendations contained in this report have been interpreted in accordance with our intent. Without this review, we will not be responsible for the misinterpretation of our data, our analysis, and/or our recommendations, nor how these are incorporated into the final design.

The analysis and recommendations submitted in this report are based on the data obtained from the soil borings performed at the locations indicated on the location diagram and from the information discussed in this report. This report does not reflect any variations which may occur between the borings. In the performance of subsurface explorations, specific information is obtained at specific locations at specific times. However, it is a well known fact that variations in soil and rock conditions exist on most sites between boring locations and that seasonal and annual fluctuations in groundwater levels will likely occur. The nature and extent of variations may not become evident until the course of construction. If variations then appear evident, it will be necessary for a re-evaluation of the recommendations contained in this report after performing on-site observations during the construction period and noting the characteristics of the variations.

The Geotechnical Engineer of Record is the Professional Engineer who authored the geotechnical report. It is recommended that all construction operations dealing with earthwork and foundations be observed by the Geotechnical Engineer of Record or the Geotechnical Engineer's appointed representative to confirm that the design requirements are fulfilled in the actual construction. For some projects, this may be required by the governing building code.

The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g. mold, fungi, bacteria, viruses, and the byproducts of such organisms) assessment of the site, or identification of or prevention of pollutants, hazardous materials, or conditions. Other studies beyond the scope of this project would be required to evaluate the potential of such contamination or pollution.

Figures



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

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Madison, WI 53718
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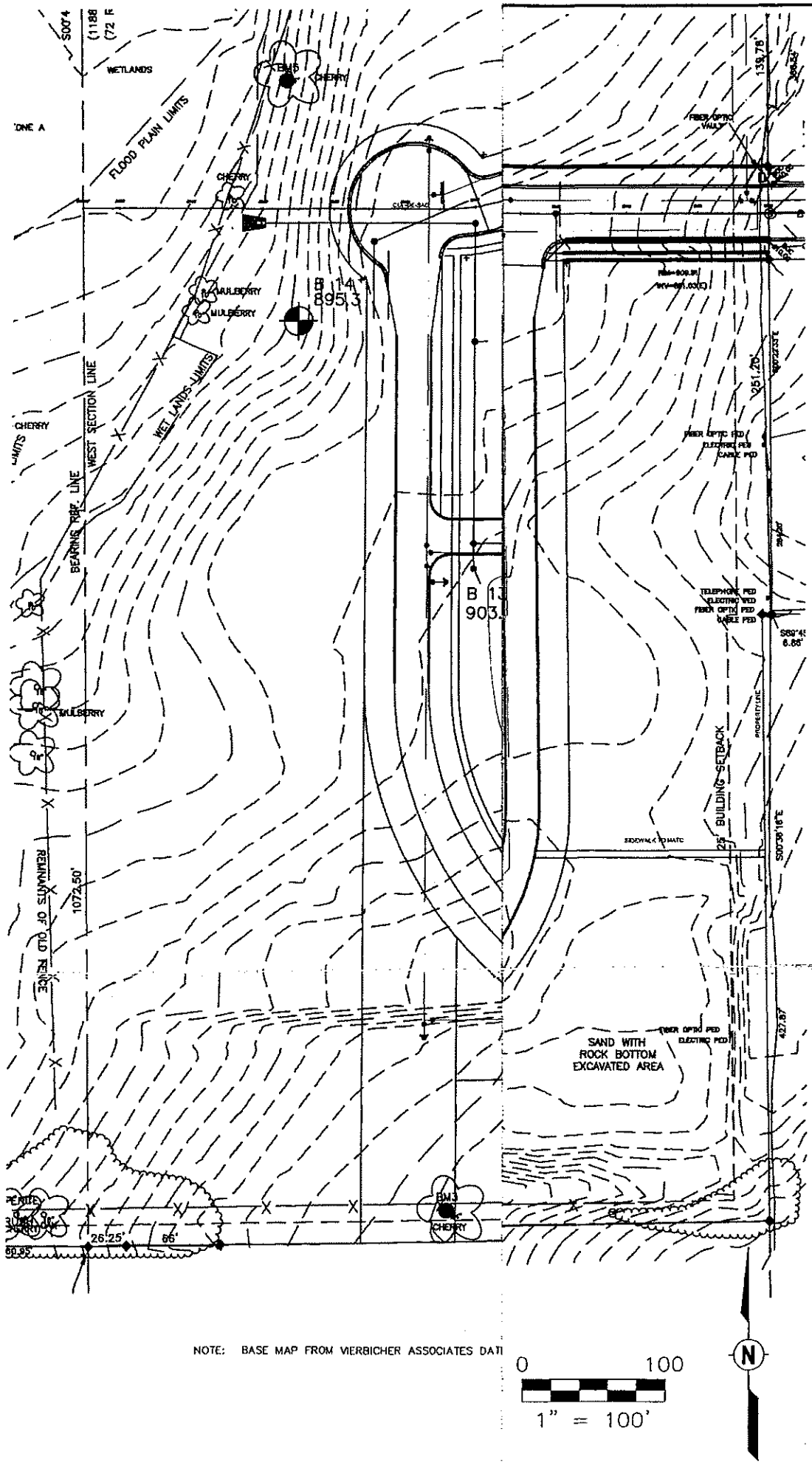
SITE LOCATION DIAGRAM
SAUK COUNTY LONG TERM CARE FACILITY
REEDSBURG, WI

Drawn:	LJE	04/16/2008
Checked:	JDW	04/4162008
Approved:	PAT	04/18/2008
PROJECT NUMBER	200801368	
FIGURE NUMBER	1	



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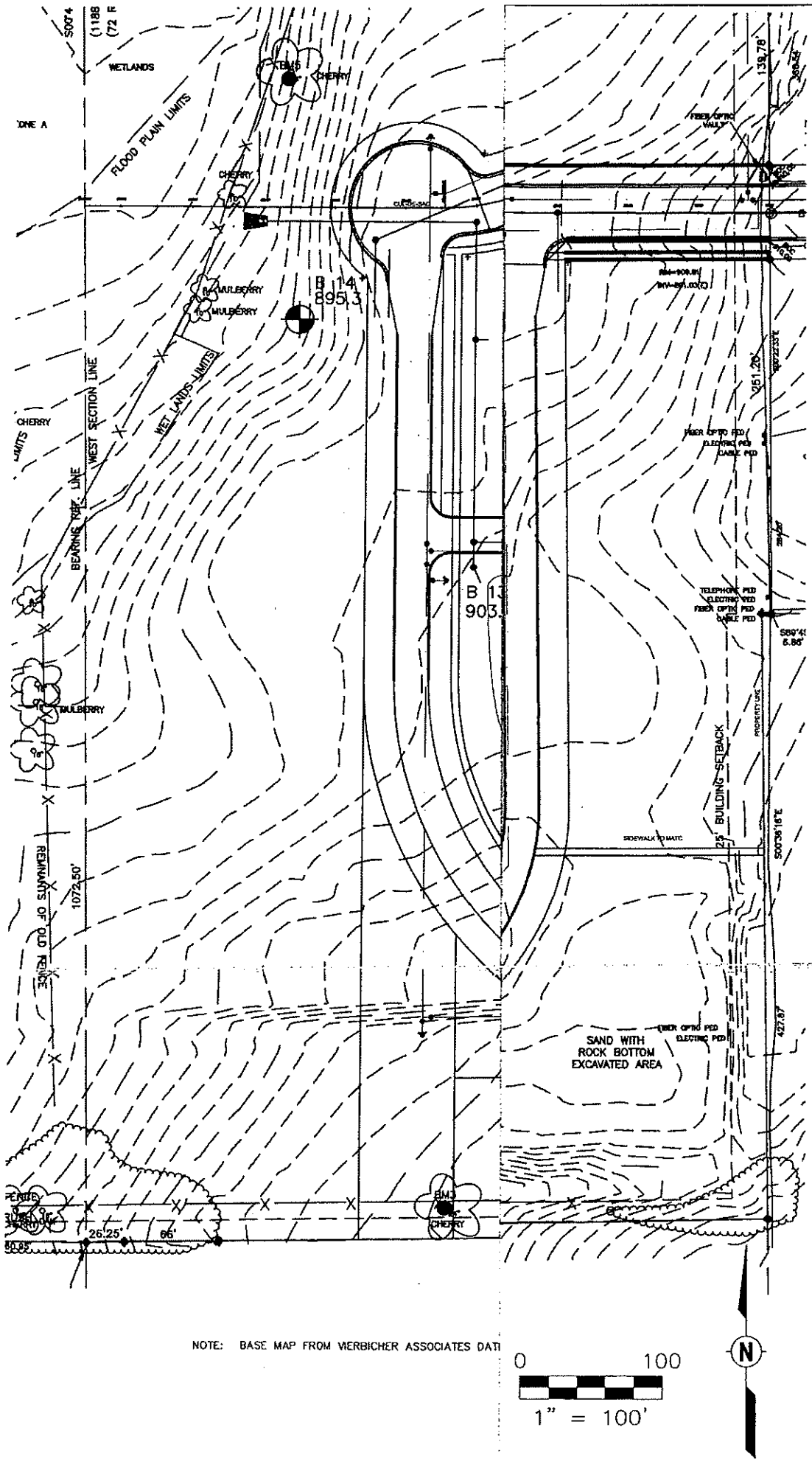

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Appendix A

STS Standard Boring Log Procedures

STS Standard Boring Log Procedures

In the process of obtaining and testing samples and preparing this report, standard procedures are followed regarding field logs, laboratory data sheets and samples.

Field logs are prepared during performance of the drilling and sampling operations and are intended to essentially portray field occurrences, sampling locations and procedures.

Samples obtained in the field are frequently subjected to additional testing and reclassification in the laboratory by experienced geotechnical engineers, and as such, differences between the field logs and the final logs may exist. The engineer preparing the report reviews the field logs, laboratory test data and classifications, and using judgment and experience in interpreting this data, may make further changes. It is common practice in the geotechnical engineering profession not to include field logs and laboratory data sheets in engineering reports, because they do not represent the engineer's final opinions as to appropriate descriptions for conditions encountered in the exploration and testing work. Results of laboratory tests are generally shown on the boring logs or are described in the text of the report, as appropriate.

Samples taken in the field, some of which are later subjected to laboratory tests, are retained in our laboratory for sixty days and are then discarded unless special disposition is requested by our client. Samples retained over a long period of time, even in sealed jars, are subject to moisture loss which changes the apparent strength of cohesive soil, generally increasing the strength from what was originally encountered in the field. Since they are then no longer representative of the moisture conditions initially encountered, observers of these samples should recognize this factor.

Appendices

Appendix A STS Standard Boring Log Procedures

Appendix B STS General Boring Log Notes

Appendix C STS Current Soil Boring Logs and Previous Soil Boring Logs

Appendix D WDOC Soil Evaluation – Storm Form SBD-10793

Appendix E WDNR Borehole Abandonment Forms

Appendix F STS Field and Laboratory Procedures

- STS Subsurface Exploration Procedures
- STS Sampling Procedures
- Laboratory Index Test Procedures

Appendix G STS Soil Classification System

Appendix H STS Earthwork Guideline

Appendix I STS General Qualifications

Appendix J STS Changed Conditions Clause

Appendix B

STS General Boring Log Notes

STS General Notes

Drilling and Sampling Symbols:

SS : Split Spoon - 1-3/8" I.D. 2" O.D. (Unless otherwise noted)	HS : Hollow Stem Auger
ST : Shelby Tube-2" O.D. (Unless otherwise noted)	WS : Wash Sample
PA : Power Auger	FT : Fish Tail
DB : Diamond Bit-NX, BX, AX	RB : Rock Bit
AS : Auger Sample	BS : Bulk Sample
JS : Jar Sample	PM : Pressuremeter Test
VS : Vane Shear	GS : Giddings Sampler
OS : Osterberg Sampler	

Standard "N" Penetration: Blows per foot of a 140 pound hammer falling 30 inches on a 2 inch O.D. split spoon sampler, except where otherwise noted.

Water Level Measurement Symbols:

WL : Water Level	WCI : Wet Cave In
WS : While Sampling	DCI : Dry Cave In
WD : While Drilling	BCR : Before Casing Removal
AB : After Boring	ACR : After Casing Removal

Water levels indicated on the boring logs are the levels measured in the boring at the time indicated. In pervious soils, the indicated elevations are considered reliable groundwater levels. In impervious soils, the accurate determination of groundwater elevations may not be possible, even after several days of observations; additional evidence of groundwater elevations must be sought.

Gradation Description and Terminology:

Coarse grained or granular soils have more than 50% of their dry weight retained on a #200 sieve; they are described as boulders, cobbles, gravel or sand. Fine grained soils have less than 50% of their dry weight retained on a #200 sieve; they are described as clay or clayey silt if they are cohesive and silt if they are non-cohesive. In addition to gradation, granular soils are defined on the basis of their relative in-place density and fine grained soils on the basis of their strength or consistency and their plasticity.

Major Component of Sample	Size Range	Description of Other Components Present in Sample	Percent Dry Weight
Boulders	Over 8 in. (200 mm)	Trace	1-9
Cobbles	8 inches to 3 inches (200 mm to 75 mm)	Little	10-19
Gravel	3 inches to #4 sieve (75 mm to 4.76 mm)	Some	20-34
Sand	#4 to #200 sieve (4.76 mm to 0.074 mm)	And	35-50
Silt	Passing #200 sieve (0.074 mm to 0.005 mm)		
Clay	Smaller than 0.005 mm		

Consistency of Cohesive Soils:

Unconfined Compressive Strength, Qu, tsf	Consistency
<0.25	Very Soft
0.25 - 0.49	Soft
0.50 - 0.99	Medium (firm)
1.00 - 1.99	Stiff
2.00 - 3.99	Very Stiff
4.00 - 8.00	Hard
>8.00	Very Hard

Relative Density of Granular Soils:

N-Blows per foot	Relative Density
0 - 3	Very Loose
4 - 9	Loose
10 - 29	Medium Dense
30 - 49	Dense
50 - 80	Very Dense
>80	Extremely Dense

Appendix C

STS Current Soil Boring Logs and Previous Soil Boring Logs

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OWNER: Sauk County

LOG OF BORING NUMBER: B-1

PROJECT NAME: Sauk County Long Term Care Facility

ARCHITECT-ENGINEER:

SITE LOCATION: Reedsburg, WI

SURFACE ELEVATION 901.1'

DEPTH(FT)	ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	Unit Dry Wt. LBS./FT.^{3}
		1	SS			Topsoil: Clayey Silt, trace fine sand, trace roots - dark brown - moist - medium (firm) (Topsoil: ML)	
	1.0	1A	SS			Clayey Silt, trace fine sand - brown - moist - medium (firm) to stiff (ML)	
		2	SS			***Note: Trace roots in Sample No. 2***	
5		3	SS				
	7.0					Silty Fine Sand, trace clay - brownish gray - moist - loose (SM)	
		4	SS				
	9.0					End of Boring Boring advanced from 0 to 9.0 ft. by solid stem auger. Standard Penetration Tests performed with automatic hammer. Boring backfilled with bentonite chips.	

UNCONFINED COMPRESSIVE STRENGTH TONS/FT.^{2} (1 2 3 4 5)

PLASTIC LIMIT % — WATER CONTENT % — LIQUID LIMIT %

10 20 30 40 50

STANDARD PENETRATION BLOWS/FT. (10 20 30 40 50)

WOH, 7, 6, 6

* Calibrated Penetrometer

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL 6.4' WS	BORING STARTED 4/3/08	STS OFFICE	2821 Dairy Drive, Suite 100 Madison, WI 53718
WL 6.0' AB	BORING COMPLETED 4/3/08	ENTERED BY LJE	SHEET NO. 1 OF 1
WL	RIG/FOREMAN CME-850/RT	APP'D BY JDW/MDE	STS JOB NO. 200801368

MILW AECOM 200801368-SAUK_CO_LTC.GPJ STS.GDT 4/18/08

STS | AECOM

OWNER: Sauk County	LOG OF BORING NUMBER: B-2
PROJECT NAME: Sauk County Long Term Care Facility	ARCHITECT-ENGINEER:
SITE LOCATION: Reedsburg, WI	

UNCONFINED COMPRESSIVE STRENGTH TONS/FT.² (1 2 3 4 5)

PLASTIC LIMIT % — WATER CONTENT % — LIQUID LIMIT % (10 20 30 40 50)

STANDARD PENETRATION BLOWS/FT. (10 20 30 40 50)

DEPTH(FT)	ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	Unit Dry Wt. LBS./FT.³
						SURFACE ELEVATION 905.7'	
		1	SS			0.7 Topsoil: Clayey Silt, trace fine sand, trace roots - dark brown - moist - stiff to very stiff (Topsoil: ML)	
		1A	SS			Clayey Silt, trace fine sand - brown - moist - very stiff (ML)	
						2.0 Sandy Silt, trace clay - brown - moist - medium (firm) (ML)	
		2	SS			***Note: Trace roots in Sample No. 2***	
						4.5 Fine to Medium Sand, trace silt, trace clay - brown - moist to wet - loose (SP)	
5		3	SS			7.0 Sandy Silt, trace clay - brownish gray - moist to wet - soft to medium (firm) (ML)	
		4	SS			***Note: Sample No. 4 disturbed; no penetrometer test available***	
						9.5 Silty Fine Sand, trace clay - brown - wet - loose (SM)	
10		5	SS				
						13.0 Fine to Medium Sand - light brown - moist - extremely dense (SP)	
15		6	SS			***Note: Harder drilling encountered at 19.0', probable weathered bedrock; no recovery for Sample No. 7 (Driller's Observation)***	
20		7	SS			20.0 End of Boring	

* Calibrated Penetrometer

Boring advanced from 0 to 7.5 ft. by solid stem auger.
Boring advanced from 7.5 ft. to 20.0 ft. by rotary bit and fluid.
10.0 ft. of casing installed.
Standard Penetration Tests performed with automatic hammer.
Boring backfilled with bentonite chips and bentonite-sand slurry.

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL 5.1' WS	BORING STARTED 4/2/08	STS OFFICE	2821 Dairy Drive, Suite 100 Madison, WI 53718
WL 5.0' BCR	BORING COMPLETED 4/2/08	ENTERED BY LJE	SHEET NO. 1 OF 1
WL	RIG/FOREMAN CME-850/RT	APP'D BY JDW/MDE	STS JOB NO. 200801368

MILW AECOM 200801368-SAUK_CO_LTC.GPJ STS.GDT 4/18/08

STS | AECOM

OWNER: **Sauk County**	LOG OF BORING NUMBER: **B-3**
PROJECT NAME: **Sauk County Long Term Care Facility**	ARCHITECT-ENGINEER:

SITE LOCATION: **Reedsburg, WI**

DEPTH(FT) / ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	Unit Dry Wt. LBS./FT.³	UNCONFINED COMPRESSIVE STRENGTH TONS/FT.² (1 2 3 4 5) / PLASTIC LIMIT % / WATER CONTENT % / LIQUID LIMIT % (10 20 30 40 50) / STANDARD PENETRATION BLOWS/FT. (10 20 30 40 50)
					SURFACE ELEVATION 914.5'		
	1	SS			0.5 Topsoil: Silty Fine to Medium Sand, trace fine gravel, trace clay, trace roots - dark brown - moist - loose (Topsoil: SM)		5
	1A	SS			Fine to Medium Sand, trace silt - brown to light brown - moist - loose to extremely dense (SP)		
	2	SS			***Note: Possible weathered bedrock in Sample Nos. 3 and 4 (Driller's Observation)***		34
5							
	3	SS					60
	4	SS			7.9		50/.
					End of Boring		
					Boring advanced from 0 to 7.9 ft. by solid stem auger. Standard Penetration Tests performed with automatic hammer. Boring backfilled with bentonite chips.		

* Calibrated Penetrometer

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL: DRY WS	BORING STARTED: 4/2/08	STS OFFICE: 2821 Dairy Drive, Suite 100 Madison, WI 53718	
WL: DRY AB	BORING COMPLETED: 4/2/08	ENTERED BY: LJE	SHEET NO.: 1 OF 1
WL:	RIG/FOREMAN: CME-850/RT	APP'D BY: JDW/MDE	STS JOB NO.: 200801368

MILW AECOM 200801368-SAUK_CO_LTC.GPJ STS.GDT 4/18/08

STS | AECOM

OWNER: Sauk County	LOG OF BORING NUMBER: B-4
PROJECT NAME: Sauk County Long Term Care Facility	ARCHITECT-ENGINEER:

SITE LOCATION: Reedsburg, WI

UNCONFINED COMPRESSIVE STRENGTH TONS/FT.² (1, 2, 3, 4, 5)

PLASTIC LIMIT % | WATER CONTENT % | LIQUID LIMIT % (10, 20, 30, 40, 50)

STANDARD PENETRATION BLOWS/FT. (10, 20, 30, 40, 50)

DEPTH(FT)	ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	Unit Dry Wt. LBS./FT.³	Penetration (BLOWS/FT.)
						SURFACE ELEVATION 903.7'		
		1	SS			0.5 Topsoil: Clayey Silt, trace fine sand, trace roots - dark brown - moist - stiff (Topsoil; ML)		5
		1A	SS			Sandy Silt, trace clay - brown - moist - medium (firm) to stiff (ML)		*
		2	SS			***Note: Trace roots in Sample No. 1A***		8
						4.5		
5		3	SS			Silty Fine to Medium Sand, trace clay - brown - wet - loose (SM)		7
		4	SS					4
						9.5		
10		5	SS			Sandy Silt, trace clay - brownish gray - wet - medium (firm) (ML)		4
						13.0		
15		6	SS			Fine to Medium Sand - light brown - moist - dense to very dense (SP) ***Note: Possible weathered bedrock (Driller's Observation)***		50
		7	SS			17.7		50/1"
						End of Boring Boring advanced from 0 to 7.5 ft. by solid stem auger. Boring advanced from 7.5 ft. to 17.7 ft. by rotary bit and fluid. 10.0 ft. of casing installed. Standard Penetration Tests performed with automatic hammer. Boring backfilled with bentonite chips and bentonite-sand slurry.		* Calibrated Penetrometer

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL 3.5' WS	BORING STARTED 4/2/08	STS OFFICE 2821 Dairy Drive, Suite 100 Madison, WI 53718	
WL 3.3' BCR	BORING COMPLETED 4/2/08	ENTERED BY LJE	SHEET NO. 1 OF 1
WL	RIG/FOREMAN CME-850/RT	APP'D BY JDW/MDE	STS JOB NO. 200801368

MILW AECOM 200801368-SAUK_CO_LTC.GPJ STS.GDT 4/18/08

STS | AECOM

OWNER	LOG OF BORING NUMBER
Sauk County	B-5
PROJECT NAME	ARCHITECT-ENGINEER
Sauk County Long Term Care Facility	

SITE LOCATION: Reedsburg, WI

UNCONFINED COMPRESSIVE STRENGTH TONS/FT.² (1 2 3 4 5)

PLASTIC LIMIT % | WATER CONTENT % | LIQUID LIMIT % (10 20 30 40 50)

STANDARD PENETRATION BLOWS/FT. (10 20 30 40 50)

DEPTH(FT)	ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	Unit Dry Wt. LBS./FT.³
						SURFACE ELEVATION 907.6'	
		1	SS			0.7 Topsoil: Clayey Silt, trace fine sand, trace roots - dark brown - moist - stiff (Topsoil: ML)	
		1A	SS			Clayey Silt, trace fine sand - brown - moist - medium (firm) (ML)	
						2.0 Silty Fine to Medium Sand, trace clay - brown - moist to wet - loose to medium dense (SM)	
		2	SS				
5		3	SS				
		4	SS				
10		5	SS				
						13.0 Fine to Medium Sand - light brown - moist - very dense to extremely dense (SP)	
15		6	SS			***Note: Possible weathered bedrock; no recovery from Sample No. 7 (Driller's Observation)***	
20		RUN #1	DB			20.0 Weathered Bedrock: Brown to light brown, soft to medium sandstone, fine to medium grained, extremely weathered	
25						25.0 End of Boring	

Run #	Depth (ft.)	Recovery (%)	RQD (%)
1	20-25	98	28

Boring advanced from 0 to 7.5 ft. by solid stem auger.
Boring advanced from 7.5 ft. to 25.0 ft. by rotary bit and fluid.
10.0 ft. of casing installed.
Standard Penetration Tests performed with automatic hammer.
Boring backfilled with bentonite chips and bentonite-sand slurry.

* Calibrated Penetrometer

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL 5.2' WS	BORING STARTED 4/2/08	STS OFFICE 2821 Dairy Drive, Suite 100 Madison, WI 53718	
WL 5.5' BCR	BORING COMPLETED 4/2/08	ENTERED BY LJE	SHEET NO. 1 OF 1
WL	RIG/FOREMAN CME-850/RT	APP'D BY JDW/MDE	STS JOB NO. 200801368

MILW AECOM 200801368-SAUK_CO_LTC.GPJ STS.GDT 4/18/08

STS | AECOM

OWNER: Sauk County	LOG OF BORING NUMBER: B-6
PROJECT NAME: Sauk County Long Term Care Facility	ARCHITECT-ENGINEER:

SITE LOCATION: Reedsburg, WI

UNCONFINED COMPRESSIVE STRENGTH TONS/FT.² (1 2 3 4 5)

PLASTIC LIMIT % | WATER CONTENT % | LIQUID LIMIT % (10 20 30 40 50)

STANDARD PENETRATION BLOWS/FT. (10 20 30 40 50)

DEPTH(FT)	ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	Unit Dry Wt. LBS./FT.³
						SURFACE ELEVATION 902.8'	
		1	SS			0.8 Topsoil: Clayey Silt, trace fine sand, trace roots - dark brown - moist - stiff (Topsoil: ML)	
		1A	SS			Clayey Silt, trace fine sand - brown - moist - medium (firm) (ML)	
		2	SS			***Note: Trace roots in Sample No. 1A***	
5		3	SS			5.8	
		4	SS			Silty Fine to Medium Sand, trace clay - brown - moist - loose (SM)	
						8.0 End of Boring	

* Calibrated Penetrometer

Boring advanced from 0 to 8.0 ft. by solid stem auger.
Standard Penetration Tests performed with automatic hammer.
Boring backfilled with bentonite chips.

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL 5.3' WS	BORING STARTED 4/3/08	STS OFFICE 2821 Dairy Drive, Suite 100 Madison, WI 53718	
WL 5.1' AB	BORING COMPLETED 4/3/08	ENTERED BY LJE	SHEET NO. 1 OF 1
WL	RIG/FOREMAN CME-850/RT	APP'D BY JDW/MDE	STS JOB NO. 200801368

MILW AECOM 200801368-SAUK_CO_LTC.GPJ STS.GDT 4/18/08

STS | AECOM

OWNER: Sauk County

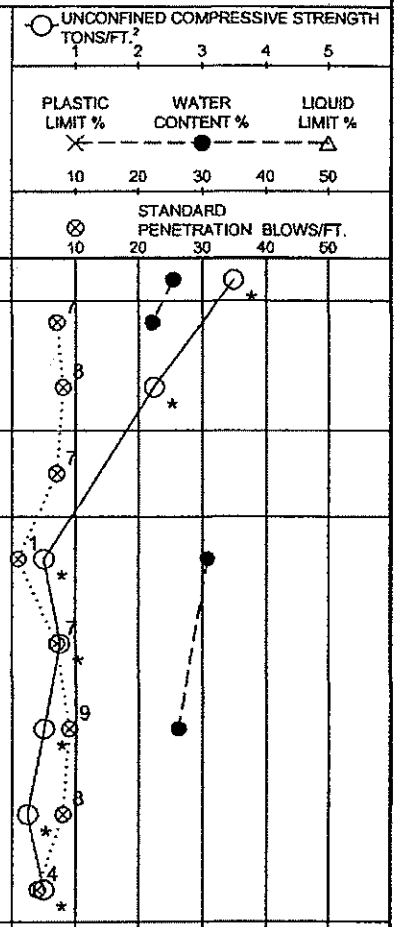
LOG OF BORING NUMBER: B-7

PROJECT NAME: Sauk County Long Term Care Facility

ARCHITECT-ENGINEER:

SITE LOCATION: Reedsburg, WI

DEPTH(FT) / ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	Unit Dry Wt. LBS./FT.³
					SURFACE ELEVATION 908.5'	
	1	SS			Topsoil: Clayey Silt, trace fine sand, trace roots - dark brown - moist - very stiff (Topsoil: ML)	
					1.0	
	1A	SS			Clayey Silt, trace fine sand - brown - moist - very stiff (ML)	
	2	SS			***Note: Trace roots in Sample No. 1A***	
					4.0	
5	3	SS			Silty Fine to Medium Sand, trace clay - brown - moist - loose (SM)	
					6.0	
	4	SS			Clayey Silt, trace fine sand - brown - moist to wet - soft to medium (firm) (ML)	
	5	SS				
10						
	6	SS				
	7	SS				
15	8	SS				
					15.5	
					End of Boring	
					Boring advanced from 0 to 8.0 ft. by solid stem auger. Boring advanced from 8.0 ft. to 15.5 ft. by rotary bit and fluid. 10.0 ft. of casing installed. Standard Penetration Tests performed with automatic hammer. Boring backfilled with bentonite chips and bentonite-sand slurry.	



* Calibrated Penetrometer

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL 4.0' WS	BORING STARTED 4/2/08	STS OFFICE 2821 Dairy Drive, Suite 100 Madison, WI 53718	
WL 5.1' BCR	BORING COMPLETED 4/2/08	ENTERED BY LJE	SHEET NO. 1 OF 1
WL	RIG/FOREMAN CME-850/RT	APP'D BY JDW/MDE	STS JOB NO. 200801368

MILW AECOM 200801368-SAUK_CO_LTC.GPJ STS.GDT 4/18/08

STS | AECOM

OWNER: Sauk County

LOG OF BORING NUMBER: B-8

PROJECT NAME: Sauk County Long Term Care Facility

ARCHITECT-ENGINEER:

SITE LOCATION: Reedsburg, WI

UNCONFINED COMPRESSIVE STRENGTH TONS/FT.² (1 2 3 4 5)

PLASTIC LIMIT % | WATER CONTENT % | LIQUID LIMIT % (10 20 30 40 50)

STANDARD PENETRATION BLOWS/FT. (10 20 30 40 50)

DEPTH(FT)	ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	Unit Dry Wt. LBS./FT.³
						SURFACE ELEVATION 903.7'	
		1	SS			Topsoil: Clayey Silt, trace fine sand, trace roots - dark brown - moist - stiff (Topsoil: ML)	
		1A	SS			0.8 Clayey Silt, trace fine sand - brown - moist - soft to medium (firm) (ML)	
		2	SS			2.0 *Note: Trace roots in Sample No. 1A* Sandy Silt, trace clay - brown - moist - medium (firm) (SM)	
5		3	SS			6.0 Fine to Medium Sand, trace silt - brown - moist - loose (SP)	
		4	SS				
		5	SS				
10		6	SS			12.0 Sandy Silt, trace clay - brown - moist to wet - soft to medium (firm) (ML)	
		7	SS				
15		8	SS			16.0 Silt, trace fine sand, trace clay - gray - moist - medium (firm) (ML)	
		9	SS				
		10	SS				
20						20.0 End of Boring	

Boring advanced from 0 to 8.0 ft. by solid stem auger.
Boring advanced from 8.0 ft. to 20.0 ft. by rotary bit and fluid.
10.0 ft. of casing installed.
Standard Penetration Tests performed with automatic hammer.
Boring backfilled with bentonite chips and bentonite-sand slurry.

WOH

* Calibrated Penetrometer

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL 1.6' WS	BORING STARTED 4/2/08	STS OFFICE	2821 Dairy Drive, Suite 100 Madison, WI 53718
WL 1.6' BCR	BORING COMPLETED 4/2/08	ENTERED BY LJE	SHEET NO. 1 OF 1
WL	RIG/FOREMAN CME-850/RT	APP'D BY JDW/MDE	STS JOB NO. 200801368

MILW AECOM 200801368-SAUK_CO_LTC.GPJ STS.GDT 4/18/08

STS | AECOM

OWNER: Sauk County

LOG OF BORING NUMBER: B-9

PROJECT NAME: Sauk County Long Term Care Facility

ARCHITECT-ENGINEER:

SITE LOCATION: Reedsburg, WI

DEPTH(FT) / ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	Unit Dry Wt. LBS./FT.³	UNCONFINED COMPRESSIVE STRENGTH TONS/FT.² (1 2 3 4 5) / PLASTIC LIMIT % / WATER CONTENT % / LIQUID LIMIT % (10 20 30 40 50) / STANDARD PENETRATION BLOWS/FT. (10 20 30 40 50)
					SURFACE ELEVATION 901.9'		
	1	SS			0.7 Topsoil: Clayey Silt, trace fine sand, trace roots - dark brown - moist - medium (firm) (Topsoil: ML)		
	1A	SS			Clayey Silt, trace fine sand - brown - moist - medium (firm) to stiff (ML)		
	2	SS			***Note: Trace roots in Sample No. 1A***		
					3.8		
5	3	SS			Silty Sand, trace clay - brown - moist - loose (SM)		
	4	SS			8.0		
					End of Boring		

Boring advanced from 0 to 8.0 ft. by solid stem auger.
Standard Penetration Tests performed with automatic hammer.
Boring backfilled with bentonite chips.

* Calibrated Penetrometer

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL 4.0' WS	BORING STARTED 4/3/08	STS OFFICE 2821 Dairy Drive, Suite 100 Madison, WI 53718	
WL 2.6' AB	BORING COMPLETED 4/3/08	ENTERED BY LJE	SHEET NO. 1 OF 1
WL	RIG/FOREMAN CME-850/RT	APP'D BY JDW/MDE	STS JOB NO. 200801368

MILW AECOM 200801368-SAUK_CO_LTC.GPJ STS.GDT 4/18/08

STS | AECOM

OWNER: Sauk County

PROJECT NAME: Sauk County Long Term Care Facility

LOG OF BORING NUMBER: B-10

ARCHITECT-ENGINEER:

SITE LOCATION: Reedsburg, WI

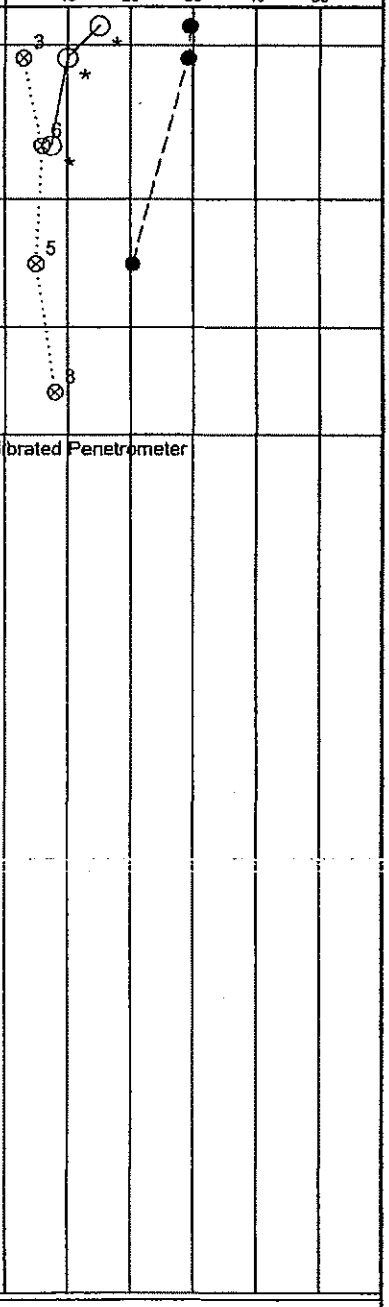
DEPTH(FT) / ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	Unit Dry Wt. LBS./FT.³
					SURFACE ELEVATION 903.1'	
	1	SS			Topsoil: Clayey Silt, trace fine sand, trace roots - dark brown - moist - stiff (Topsoil: ML)	
	1A	SS			0.9 Clayey Silt, trace fine sand - brown - moist - medium (firm) to stiff (ML)	
	2	SS			*Note: Trace roots in Sample No. 1A*	
5					4.5 Sandy Silt, trace clay - brown - moist - medium (firm) (ML)	
	3	SS				
					7.5 Silty Sand, trace clay - brown - moist - loose (SM)	
	4	SS				
10					10.0 End of Boring	

Boring advanced from 0 to 10.0 ft. by solid stem auger.
Standard Penetration Tests performed with automatic hammer.
Boring backfilled with bentonite chips.

UNCONFINED COMPRESSIVE STRENGTH TONS/FT.² (1 2 3 4 5)

PLASTIC LIMIT % / WATER CONTENT % / LIQUID LIMIT % (10 20 30 40 50)

STANDARD PENETRATION BLOWS/FT. (10 20 30 40 50)



* Calibrated Penetrometer

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL 6.0' WS	BORING STARTED 4/3/08	STS OFFICE 2821 Dairy Drive, Suite 100 Madison, WI 53718	
WL 5.2' AB	BORING COMPLETED 4/3/08	ENTERED BY LJE	SHEET NO. 1 OF 1
WL	RIG/FOREMAN CME-850/RT	APP'D BY JDW/MDE	STS JOB NO. 200801368

MILW AECOM 200801368-SAUK_CO_LTC.GPJ STS.GDT 4/18/08

STS | AECOM

OWNER: Sauk County

LOG OF BORING NUMBER: B-11

PROJECT NAME: Sauk County Long Term Care Facility

ARCHITECT-ENGINEER:

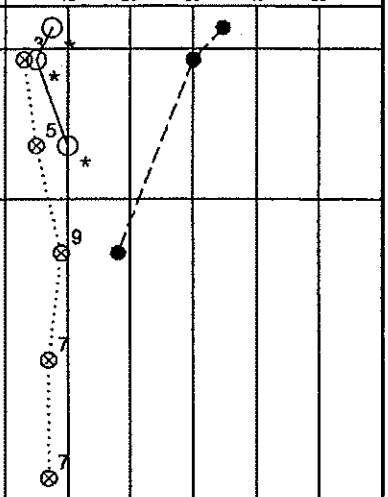
SITE LOCATION: Reedsburg, WI

DEPTH(FT) / ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	Unit Dry Wt. LBS./FT.³
					SURFACE ELEVATION 905.6'	
	1	SS			Topsoil: Clayey Silt, trace fine sand, trace roots - dark brown - moist - medium (firm) (Topsoil: ML)	
	1A	SS			1.0 Clayey Silt, trace fine sand - brown - moist - medium (firm) (ML)	
	2	SS			***Note: Trace roots in Sample No. 1A***	
					4.5	
5					Sandy Silt, trace clay - brown - moist - medium (firm) (ML)	
	3	SS				
	4	SS				
10						
	5	SS				
					12.0 End of Boring	
					Boring advanced from 0 to 12.0 ft. by solid stem auger. Standard Penetration Tests performed with automatic hammer. Boring backfilled with bentonite chips.	

UNCONFINED COMPRESSIVE STRENGTH TONS/FT.² (1 2 3 4 5)

PLASTIC LIMIT % — WATER CONTENT % — LIQUID LIMIT % (10 20 30 40 50)

STANDARD PENETRATION BLOWS/FT. (10 20 30 40 50)



* Calibrated Penetrometer

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL 6.4' WS	BORING STARTED 4/3/08	STS OFFICE	2821 Dairy Drive, Suite 100 Madison, WI 53718
WL 6.2' BCR	BORING COMPLETED 4/3/08	ENTERED BY LJE	SHEET NO. 1 OF 1
WL	RIG/FOREMAN CME-850/RT	APP'D BY JDW/MDE	STS JOB NO. 200801368

MILW AECOM 200801368-SAUK_CO_LTC.GPJ STS.GDT 4/18/08

STS | AECOM

OWNER: Sauk County

LOG OF BORING NUMBER: B-12

PROJECT NAME: Sauk County Long Term Care Facility

ARCHITECT-ENGINEER:

SITE LOCATION: Reedsburg, WI

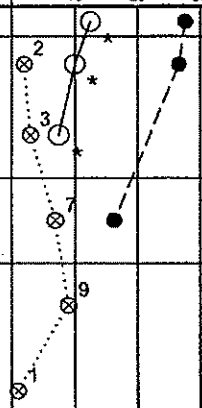
DEPTH(FT)	ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	Unit Dry Wt. LBS./FT.³
						SURFACE ELEVATION 902.5'	
		1	SS			0.7 Topsoil: Clayey Silt, trace fine sand, trace roots - dark brown - moist - stiff (Topsoil: ML)	
		1A	SS			Clayey Silt, trace fine sand - brown - moist - medium (firm) to stiff (ML)	
		2	SS			4.0	
5		3	SS			Sandy Silt, trace clay - brown - moist - medium (firm) (ML) 6.0	
		4	SS			Silty Sand, trace clay - brown - moist - medium dense (SM)	
		5	SS			10.0	
10						End of Boring	

Boring advanced from 0 to 10.0 ft. by solid stem auger.
Standard Penetration Tests performed with automatic hammer.
Boring backfilled with bentonite chips.

UNCONFINED COMPRESSIVE STRENGTH TONS/FT.² (1 2 3 4 5)

PLASTIC LIMIT % | WATER CONTENT % | LIQUID LIMIT % (10 20 30 40 50)

STANDARD PENETRATION BLOWS/FT. (10 20 30 40 50)



* Calibrated Penetrometer

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL 5.8' WS	BORING STARTED 4/3/08	STS OFFICE	2821 Dairy Drive, Suite 100 Madison, WI 53718
WL 5.4' AB	BORING COMPLETED 4/3/08	ENTERED BY LJE	SHEET NO. 1 OF 1
WL	RIG/FOREMAN CME-850/RT	APP'D BY JDW/MDE	STS JOB NO. 200801368

MILW AECOM 200801368-SAUK_CO_LTC.GPJ STS.GDT 4/18/08

STS | AECOM

OWNER: Sauk County

LOG OF BORING NUMBER: B-13

PROJECT NAME: Sauk County Long Term Care Facility

ARCHITECT-ENGINEER:

SITE LOCATION: Reedsburg, WI

DEPTH(FT)	ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	Unit Dry Wt. LBS./FT.³
						SURFACE ELEVATION 903.7'	
		1	SS		0.7	Topsoil: Clayey Silt, trace fine sand, trace roots - dark brown - moist - stiff (Topsoil: ML)	
		1A	SS		2.0	Clayey Silt, trace fine sand - brown - moist - medium (firm) (ML)	
		2	SS			Silty Fine to Medium Sand, trace clay - brown - moist - medium dense (SM)	
5		3	SS		6.0		
		4	SS			Sandy Silt, trace clay - brown - moist - medium (firm) to stiff (ML)	
		5	SS				
10					10.0	End of Boring	

Boring advanced from 0 to 10.0 ft. by solid stem auger.
Standard Penetration Tests performed with automatic hammer.
Boring backfilled with bentonite chips.

UNCONFINED COMPRESSIVE STRENGTH TONS/FT.² (1 2 3 4 5)

PLASTIC LIMIT % | WATER CONTENT % | LIQUID LIMIT %

(10 20 30 40 50)

STANDARD PENETRATION BLOWS/FT. (10 20 30 40 50)

WOH, 9, 10, 8, 6

* Calibrated Penetrometer

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL 3.0' WS	BORING STARTED 4/3/08	STS OFFICE	2821 Dairy Drive, Suite 100 Madison, WI 53718
WL 2.8' AB	BORING COMPLETED 4/3/08	ENTERED BY LJE	SHEET NO. 1 OF 1
WL	RIG/FOREMAN CME-850/RT	APP'D BY JDW/MDE	STS JOB NO. 200801368

MILW AECOM 200801368-SAUK_CO_LTC.GPJ STS.GDT 4/16/08

STS | AECOM

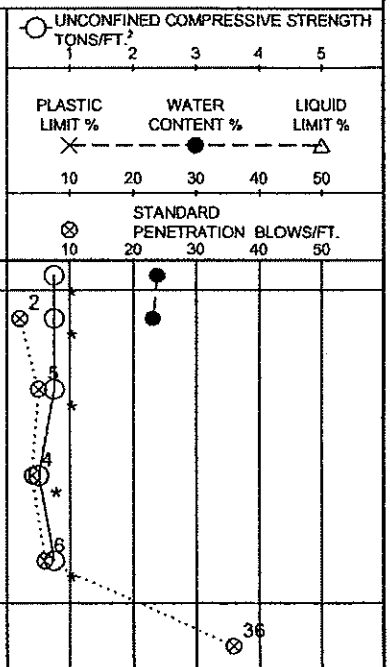
OWNER: **Sauk County**	LOG OF BORING NUMBER: **B-14**
PROJECT NAME: **Sauk County Long Term Care Facility**	ARCHITECT-ENGINEER:

SITE LOCATION: **Reedsburg, WI**

DEPTH(FT)	ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	Unit Dry Wt. LBS./FT.³
						SURFACE ELEVATION 895.3'	
		1	SS			0.7 Topsoil: Clayey Silt, trace fine sand, trace roots - dark brown - moist - medium (firm) (Topsoil: ML)	
		1A	SS			Clayey Silt, trace fine sand - brown - moist - medium (firm) (ML)	
		2	SS			***Note: Trace roots in Sample No. 1A***	
5		3	SS				
		4	SS			8.0	
		5	SS			Silty Sand and Gravel, trace clay - brown - moist - dense (SM-GM)	
10						10.0 End of Boring	

Boring advanced from 0 to 10.0 ft. by solid stem auger.
Standard Penetration Tests performed with automatic hammer.
Boring backfilled with bentonite chips.

* Calibrated Penetrometer



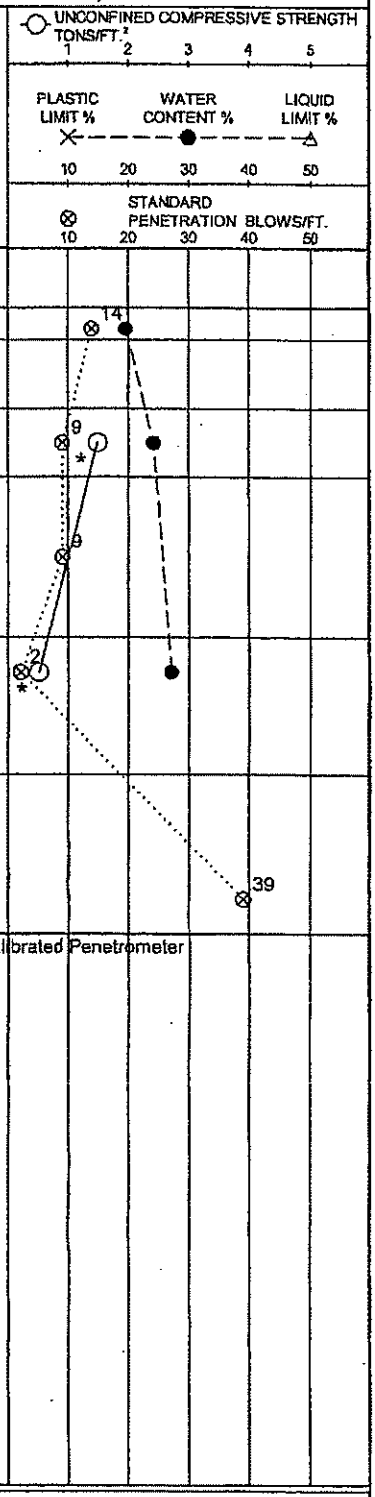
The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL 4.0' WS	BORING STARTED 4/3/08	STS OFFICE 2821 Dairy Drive, Suite 100 Madison, WI 53718	
WL 3.4' AB	BORING COMPLETED 4/3/08	ENTERED BY LJE	SHEET NO. 1 OF 1
WL	RIG/FOREMAN CME-850/RT	APP'D BY JDW/MDE	STS JOB NO. 200801368

OWNER	LOG OF BORING NUMBER
Sauk County	B-1
PROJECT NAME	ARCHITECT-ENGINEER
Sauk County Long Term Care Facility	Horty Elving & Associates, Inc.

SITE LOCATION
Northwest of Derby Row and Carosel Dr. Reedsburg, WI

DEPTH(FT)	ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	Unit Dry Wt. LBS./FT.³
						SURFACE ELEVATION 907.9'	
						Topsoil: Silty Clay - dark brown - moist (Topsoil: CL)	
						1.3	
		1	SS			Silty Clay - brown - moist - very stiff (CL)	
2.5						2.0	
						Silty Fine to Medium Sand - brown - moist - medium dense (SM)	
						3.5	
		2	SS			Sandy Silty Clay, with ocassional sand seams - brown - moist - stiff (CL)	
5.0						5.0	
						Silty Fine to Medium Sand - light brown - moist - loose (SM)	
		3	SS				
7.5							
						8.5	
		4	SS			Silty Clay, with sandy clay seams - brown and gray mottled - rust/brown - medium (CL)	
10.0							
						11.5	
12.5						Fine to Coarse Sand (Possible Weathered Bedrock - Driller's Observation) - light brown - wet - dense (SP)	
						Auger refusal at 15.0' (Possible Bedrock - Driller's Observation)	
		5	SS				
15.0						15.0	
						End of Boring.	
						Boring advanced to 15.0 feet by 2-1/4" hollow stem auger.	
						Standard Penetration Tests performed with automatic hammer.	
						Boring backfilled with 3/8" bentonite chips.	



* Calibrated Penetrometer

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL 6.0' WS	BORING STARTED 10/24/07	STS OFFICE	11425 West Lake Park Drive Milwaukee, WI 53224
WL 10.7' ACR	BORING COMPLETED 10/24/07	ENTERED BY CAS	SHEET NO. 1 OF 1
WL	RIG/FOREMAN CME 55 (BSD)/JR	APP'D BY DSD	STS JOB NO. 200705233

BORING LOG 200705233.GPJ STS.GDT 11/5/07

OWNER: Sauk County	LOG OF BORING NUMBER: B-2	
PROJECT NAME: Sauk County Long Term Care Facility	ARCHITECT-ENGINEER: Horty Elving & Associates, Inc.	

SITE LOCATION: Northwest of Derby Row and Carosel Dr. Reedsburg, WI

DEPTH(FT) / ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	Unit Dry Wt. LBS./FT.³	UNCONFINED COMPRESSIVE STRENGTH TONS/FT.² (1 2 3 4 5) / PLASTIC LIMIT % / WATER CONTENT % / LIQUID LIMIT % (10 20 30 40 50) / STANDARD PENETRATION BLOWS/FT. (10 20 30 40 50)
					SURFACE ELEVATION 911.2'		
					Topsoil: Silty Clay - dark brown - moist (Topsoil: CL)		
					1.2		
2.5	1	SS			Silty Clay - brown - moist - stiff (CL)		4
	2	SS					3
5.0					5.0		
					Fine to Medium Sand with a Trace to Little Silt - brown - moist - medium dense (SP-SM)		14
7.5	3	SS					
					9.0		
10.0	4	SS			Silt, silty clay seams - wet loose (ML)		6
					11.5		
12.5					Fine to Coarse Sand (Possible Weathered Bedrock - Driller's Observation) - light brown - moist to wet - loose to extremely dense (SP)		50/3"
	5	SS			13.8 *Auger refusal at 13.75' (Possible Bedrock - Driller's Observation)*		
					End of Boring.		
					Boring advanced to 13.75 feet by 2-1/4" hollow stem auger.		
					Standard Penetration Tests performed with automatic hammer.		
					Boring backfilled with 3/8" bentonite chips.		

* Calibrated Penetrometer

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL 8.5' WS	BORING STARTED 10/24/07	STS OFFICE	11425 West Lake Park Drive Milwaukee, WI 53224
WL 12.2' ACR	BORING COMPLETED 10/24/07	ENTERED BY CAS	SHEET NO. 1 OF 1
WL	RIG/FOREMAN CME 55 (BSD)/JR	APP'D BY DSD	STS JOB NO. 200705233

BORING LOG 200705233.GPJ STS.GDT 11/5/07

OWNER: Sauk County	LOG OF BORING NUMBER: B-3	
PROJECT NAME: Sauk County Long Term Care Facility	ARCHITECT-ENGINEER: Horty Elving & Associates, Inc.	

SITE LOCATION: Northwest of Derby Row and Carosel Dr. Reedsburg, WI

DEPTH(FT) / ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	Unit Dry Wt. LBS./FT.³	UNCONFINED COMPRESSIVE STRENGTH TONS/FT.² (1 2 3 4 5) / PLASTIC LIMIT % / WATER CONTENT % / LIQUID LIMIT % (10 20 30 40 50) / STANDARD PENETRATION BLOWS/FT. (10 20 30 40 50)
					SURFACE ELEVATION 911.1'		
				0.5	Topsoil: Silty Clay - dark brown - moist		
					Silty Clay - brown - moist - hard (CL)		
				1.5			
2.5	1	SS			Fine to Medium Sand with Silt, sandy silty clay seams - brown - moist - medium dense (SP-SM)		10; 4.5+
5.0	2	SS		5.0			10
					Fine to Coarse Sand (Possible Weathered Bedrock - Driller's Observation) - light brown to white - moist to wet - medium dense to extremely dense (SP)		
7.5	3	SS			*Auger refusal at 22.0'*		25
10.0	4	SS					78
12.5							
15.0	5	SS					50/3"
17.5							
20.0							
				22.0	End of Boring. Boring advanced to 22.0 feet by 2-1/4" hollow stem auger. Standard Penetration Tests performed with automatic hammer. Boring backfilled with 3/8" bentonite chips.		* Calibrated Penetrometer

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL 8.5' WS	BORING STARTED 10/24/07	STS OFFICE	11425 West Lake Park Drive Milwaukee, WI 53224
WL 8.2' ACR	BORING COMPLETED 10/24/07	ENTERED BY CAS	SHEET NO. 1 OF 1
WL 8.2' at 3.5 Hrs +	RIG/FOREMAN CME 55 (BSD)/JR	APP'D BY DSD	STS JOB NO. 200705233

BORING LOG 200705233.GPJ STS.GDT 11/5/07

OWNER: Sauk County	LOG OF BORING NUMBER: B-4	
PROJECT NAME: Sauk County Long Term Care Facility	ARCHITECT-ENGINEER: Horty Elving & Associates, Inc.	
SITE LOCATION: Northwest of Derby Row and Carosel Dr. Reedsburg, WI		

DEPTH(FT)	ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	Unit Dry Wt. LBS./FT.³	UNCONFINED COMPRESSIVE STRENGTH TONS/FT.² (1 2 3 4 5) / PLASTIC LIMIT % / WATER CONTENT % / LIQUID LIMIT % (10 20 30 40 50) / STANDARD PENETRATION BLOWS/FT. (10 20 30 40 50)
						SURFACE ELEVATION 922.6'		
						Topsoil: Silty Clay - dark brown - moist (Topsoil: CL)		
						1.1		
		1	SS			Fine to Medium Silty Sand, silty clay layer - brown - moist - medium dense (SM)		50/4"
2.5						2.0 Fine to Coarse Sand (Possible Weathered Bedrock - Driller's Observation), trace gravel (sandstone) - light brown to white - moist - very dense to extremely dense (SP)		
		2	SS					
5.0								
		3	SS					50
7.5								
		4	SS					73
10.0								
12.5								
		5	SS					50/2"
15.0								
17.5								
		6	SS					50/2"
20.0								
22.5								
						23.5		
		7	SS			End of Boring. Boring advanced to 23.5 feet by 2-1/4" hollow stem auger. Standard Penetration Tests performed with automatic hammer. Boring backfilled with 3/8" bentonite chips.	* Calibrated Penetrometer	23/1"

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL 23.0' WS	BORING STARTED 10/24/07	STS OFFICE	11425 West Lake Park Drive Milwaukee, WI 53224
WL 22.4' ACR	BORING COMPLETED 10/24/07	ENTERED BY CAS	SHEET NO. 1 OF 1
WL	RIG/FOREMAN CME 55 (BSD)/JR	APP'D BY DSD	STS JOB NO. 200705233

BORING LOG 200705233.GPJ STS.GDT 11/5/07

Appendix D

WDOC Soil Evaluation – Storm Form SBD-10793

Wisconsin Department of Commerce
Division of Safety and Buildings

SOIL EVALUATION - STORM

in accordance with Comm 82.365 & 85, Wis. Adm. Code

Attach complete site plan on paper not less than 8 1/2 x 11 inches in size. Plan must include, but not limited to: vertical and horizontal reference point (BM), direction and percent slope, scale or dimensions, north arrow, and BM referenced to nearest road.

Please print all information.

Personal information you provide may be used for secondary purposes (Privacy Law, s. 15.04 (1) (m)).

County

Parcel I.D.

Reviewed by | Date

Property Owner	Property Location
Sauk County (c/o Horty Elving & Associated, Inc)	Govt. Lot NW 1/4 NW 1/4 S 9 T 13 N R 4E E (or) W
Property Owner's Mailing Address: 505 East Grant Street	Lot # / Block # / Subd. Name or CSM#
City: Minneapolis | State: MN | Zip Code: 55404 | Phone Number: (612) 332-4422	☑ City ☐ Village ☐ Town | Nearest Road: Clark Street; City: Reedsburg, WI

Drainage area _____ ☐ sq. ft. ☐ acres
Optional:

Test Site Suitable for (check all that apply)

☐ Irrigation ☐ Bioretention trench ☐ Trench(es)
☐ Rain garden ☐ Grassed swale ☐ Reuse
☐ Infiltration trench ☐ SDS (> 15' wide) ☐ Other _____

Hydraulic Application Test Method:

☐ Morphological Evaluation
☐ Double-Ring Infiltrometer
☐ Other (specify) _____

6 Obs. # ☑ Boring ☐ Pit Ground surface elev. 902.8 ft. Depth to limiting factor 24 in.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr
1	0-10	10YR 3/1		S:L					0.13
2	10-24	10YR 5/4		S:L					0.13
	24-48	10YR 5/6	f,f 5YR 5/8	S:L					N/A
	48-72	10YR 5/2	m,c 5 YR 4/8	S:L					N/A
3	72-94	10YR 5/6	Saturated	LS					N/A

7 Obs. # ☑ Boring ☐ Pit Ground surface elev. 908.5 ft. Depth to limiting factor 24 in.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr
1	0-12	10YR 3/2		S:L					0.13
2	12-24	10YR 5/3		S:L					0.13
	24-48	10YR 5/2	m,m 5YR 4/6	S:L					N/A
3	48-72	10YR 5/2	Saturated	LS					N/A
4	72-180	10YR 5/4	Saturated	S:L					N/A

ST/PSS Name (Please Print): Steven Shimek
Signature
CST/PSS Number: 227101

Address: 6950 Dickinson Road,Greenleaf, WI
Date Evaluation Conducted: 4/15/08
Telephone Number: 920-406-3219

Property Owner Sauk County Parcel ID # _____ Page 2 of 3

12 Obs. # ☑ Boring ☐ Pit Ground surface elev. 902.5 ft. Depth to limiting factor 24 in.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr
1	0-7	7.5YR 3/1		S:L					0.13
2	7-24	10YR 5/4		S:L					0.13
	24-48	10YR 5/4	c,m,7.5YR5/8,10YR 6/2	S:L					N/A
3	48-72	7.5YR 5/4	Saturated	SL					N/A
4	72-120	7.5YR 5/4	Saturated	SL/LS					N/A

13 Obs. # ☑ Boring ☐ Pit Ground surface elev. 903.7 ft. Depth to limiting factor 24 in.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr
1	0-7	10YR 3/2		S:L					
2	7-24	10YR 5/4		S:L					
3	24-48	10YR 5/4	c,m, 7.5YR 5/8	S/LS					
	48-72	10YR 5/4	c,m,7.5YR 5/810YR6/2	LS					
4	72-120	10YR 5/6	Saturated	SCL					

14 Obs. # ☑ Boring ☐ Pit Ground surface elev. 895.3 ft. Depth to limiting factor 24 in.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr
1	0-7	10YR 3/2		S:L					0.13
2	7-24	10YR 5/4		S:L					0.13
	24-48	7.5YR 5/1	c,m, 7.5YR 5/8	S:CL					N/A
	48-72	5YR 5/6	5YR 5/8 Mn*	S:CL					N/A
	72-96	5 YR 5/6	5YR 5/8 Mn*						N/A
3	92-120	7.5YR 5/4		SCL				>60	N/A
			Mn=Mangans						

Property Owner _____ Parcel ID # _____ Page _____ of _____

Obs. # ☐ Boring ☐ Pit Ground surface elev. _____ ft. Depth to limiting factor _____ in.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr

Obs. # ☐ Boring ☐ Pit Ground surface elev. _____ ft. Depth to limiting factor _____ in.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr

Test Results and/or Summary Comments

Water level 4/3/08 while sampling or after boring:

#6 - 61"

#7 - 48"

#12 - 65"

#13 - 34"

#14 - 41"

Soil contained redox features indicating seasonal saturation within 24" to 48" of soil surface at all locations.

Saturated samples were disturbed and restricted ability to accurately identify redox features.

Appendix E

WDNR Borehole Abandonment Forms

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT
Form 3300-5 2/2000 Page 1 of 2

Notice: Please complete Form 3300-5 and return it to the appropriate DNR office and bureau. Completion of this report is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See the instructions for more information.

Route to: ☐ Drinking Water ☐ Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other _____

(1) GENERAL INFORMATION

WI Unique Well No. | DNR Well ID No. | County: SAUK

Common Well Name: B-1 Gov't Lot (if applicable)

Grid Location: ___ 1/4 of ___ 1/4 of Sec. ___ ; T. ___ N; R. ___ ☐ E ☐ W

___ ft. ☐ N. ☐ S., ___ ft. ☐ E. ☐ W.

Local Grid Origin ☐ (estimated: ☐) or Well Location ☐

Lat ___ ° ___ ' ___ " Long ___ ° ___ ' ___ " or

State Plane ___ ft. N. ___ ft. E. ☐ S ☐ C ☐ N Zone

Reason For Abandonment: Soil Tests Comp. | WI Unique Well No. of Replacement Well:

(2) FACILITY /OWNER INFORMATION

Facility Name: SAUK Co. LTC

Facility ID | License/Permit/Monitoring No.

Street Address of Well

City, Village, or Town

Present Well Owner | Original Owner

Street Address or Route of Owner

City, State, Zip Code

(3) WELL/DRILLHOLE/BOREHOLE INFORMATION

Original Construction Date: 4-3-08

☐ Monitoring Well
☐ Water Well
☒ Drillhole / Borehole

If a Well Construction Report is available, please attach.

Construction Type:
☒ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (Specify) _____

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft) (From ground surface): 90' Casing Diameter (in.): / Casing Depth (ft.): /

Lower Drillhole Diameter (in.): 4"

Was Well Annular Space Grouted? ☐ Yes ☐ No ☐ Unknown

If Yes, To What Depth? _____ Feet

Depth to Water (Feet): 60'

(4) PUMP, LINER, SCREEN, CASING, & SEALING MATERIAL

Pump & Piping Removed?	☐ Yes	☐ No	☒ Not Applicable
Liner(s) Removed?	☐ Yes	☐ No	☒ Not Applicable
Screen Removed?	☐ Yes	☐ No	☒ Not Applicable
Casing Left in Place?	☐ Yes	☒ No	
Was Casing Cut Off Below Surface?	☐ Yes	☒ No	
Did Sealing Material Rise to Surface?	☒ Yes	☐ No	
Did Material Settle After 24 Hours?	☐ Yes	☒ No	
If Yes, Was Hole Retopped?	☐ Yes	☐ No	

Required Method of Placing Sealing Material
☐ Conductor Pipe - Gravity ☐ Conductor Pipe - Pumped
☒ Screened & Poured ☐ Other (Explain)
(Bentonite Chips)

Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☐ Bentonite-Sand Slurry
☒ Chipped Bentonite

For monitoring wells and monitoring well boreholes only
☐ Bentonite Chips
☐ Granular Bentonite
☐ Bentonite-Cement Grout
☐ Bentonite - Sand Slurry

(5) Sealing Material Used	From (Ft.)	To (Ft.)		Mix Ratio or Mud Weight
Hole Plug	Surface	9.0	1 bag	

(6) Comments _____

(7) Name of Person or Firm Doing Sealing Work: Subsurface Testing Services, Inc. | Date of Abandonment: 4-3-08

Signature of Person Doing Work: [signature] | Date Signed: 4-3-08

Street or Route: 1035 Kepler Drive | Telephone Number: 920-468-1978

City, State, Zip Code: Green Bay, Wisconsin 54311-8320

FOR DNR OR COUNTY USE ONLY
Date Received | Noted By
Comments

BCG 34930

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT
Form 3300-5 2/2000 Page 1 of 2

Notice: Please complete Form 3300-5 and return it to the appropriate DNR office and bureau. Completion of this report is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See the instructions for more information.

Route to: ☐ Drinking Water ☐ Watersbed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other _____

(1) GENERAL INFORMATION

WI Unique Well No. | DNR Well ID No. | County: SAUK

Common Well Name: B-2 | Gov't Lot (if applicable)

Grid Location: ___ 1/4 of ___ 1/4 of Sec. ___ ; T. ___ N; R. ___ ☐ E ☐ W

___ ft. ☐ N. ☐ S., ___ ft. ☐ E. ☐ W.

Local Grid Origin ☐ (estimated: ☐) or Well Location ☐

Lat ___ ° ___ ' ___ " Long ___ ° ___ ' ___ " or

State Plane ___ ft. N. ___ ft. E. ☐ S ☐ C ☐ N Zone

Reason For Abandonment: Soil Sampling Compl. | WI Unique Well No. of Replacement Well

(2) FACILITY /OWNER INFORMATION

Facility Name: SAUK CO. LTC

Facility ID | License/Permit/Monitoring No.

Street Address of Well

City, Village, or Town

Present Well Owner | Original Owner

Street Address or Route of Owner

City, State, Zip Code

(3) WELL/DRILLHOLE/BOREHOLE INFORMATION

Original Construction Date: 4-2-08

☐ Monitoring Well
☐ Water Well
☒ Drillhole / Borehole

If a Well Construction Report is available, please attach.

Construction Type:
☒ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (Specify) _____

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft) (From ground surface): 20.0' | Casing Diameter (in.): 4" | Casing Depth (ft.): 8.0'

Lower Drillhole Diameter (in.): 4"

Was Well Annular Space Grouted? ☐ Yes ☐ No ☐ Unknown

If Yes, To What Depth? _____ Feet

Depth to Water (Feet): 5.1'

(4) PUMP, LINER, SCREEN, CASING, & SEALING MATERIAL

Pump & Piping Removed?	☐ Yes	☐ No	☒ Not Applicable
Liner(s) Removed?	☐ Yes	☐ No	☒ Not Applicable
Screen Removed?	☐ Yes	☐ No	☒ Not Applicable
Casing Left in Place?	☐ Yes	☒ No	
Was Casing Cut Off Below Surface?	☐ Yes	☒ No	
Did Sealing Material Rise to Surface?	☒ Yes	☐ No	
Did Material Settle After 24 Hours?	☐ Yes	☒ No	
If Yes, Was Hole Retopped?	☐ Yes	☐ No	

Required Method of Placing Sealing Material
☐ Conductor Pipe - Gravity ☒ Conductor Pipe - Pumped
☒ Screened & Poured ☐ Other (Explain)
(Bentonite Chips)

Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☒ Bentonite-Sand Slurry
☒ Chipped Bentonite

For monitoring wells and monitoring well boreholes only
☐ Bentonite Chips
☐ Granular Bentonite
☐ Bentonite-Cement Grout
☐ Bentonite - Sand Slurry

(5) Sealing Material Used	From (Ft.)	To (Ft.)		Mix Ratio or Mud Weight
HOLE PLUG	Surface	3.0	1 bag	
BENTONITE SAND SLURRY	3.0	20.0	12 gal	11 #f

(6) Comments _____

(7) Name of Person or Firm Doing Sealing Work: Subsurface Testing Services, Inc. | Date of Abandonment: 4-2-08

Signature of Person Doing Work: [signature] | Date Signed: 4-2-08

Street or Route: 1035 Kepler Drive | Telephone Number: 920-468-1978

City, State, Zip Code: Green Bay, Wisconsin 54311-8320

FOR DNR OR COUNTY USE ONLY
Date Received: | Noted By:
Comments:

BCG 34930

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT
Form 3300-5 2/2000 Page 1 of 2

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Route to: ☐ Drinking Water ☐ Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other

(1) GENERAL INFORMATION

WI Unique Well No. | DNR Well ID No. | County: SAUK

Common Well Name: B-3 | Gov't Lot (if applicable)

Grid Location: ___ 1/4 of ___ 1/4 of Sec. ___ ; T. ___ N; R. ___ ☐ E ☐ W

___ ft. ☐ N. ☐ S., ___ ft. ☐ E. ☐ W.

Local Grid Origin ☐ (estimated: ☐) or Well Location ☐

Lat ___ ° ___ ' ___ " Long ___ ° ___ ' ___ " or

State Plane ___ ft. N. ___ ft. E. ☐ S ☐ C ☐ N Zone

Reason For Abandonment: Soil Sampling Comp. | WI Unique Well No. of Replacement Well

(2) FACILITY /OWNER INFORMATION

Facility Name: SAUK CO. LTC

Facility ID | License/Permit/Monitoring No.

Street Address of Well

City, Village, or Town

Present Well Owner | Original Owner

Street Address or Route of Owner

City, State, Zip Code

(3) WELL/DRILLHOLE/BOREHOLE INFORMATION

Original Construction Date: 4-2-08

☐ Monitoring Well
☐ Water Well
☒ Drillhole / Borehole

If a Well Construction Report is available, please attach.

Construction Type:
☒ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (Specify)

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft.): 7.9' (From ground surface) | Casing Diameter (in.): 1

Casing Depth (ft.): 1

Lower Drillhole Diameter (in.): 4"

Was Well Annular Space Grouted? ☐ Yes ☐ No ☐ Unknown

If Yes, To What Depth? ___ Feet

Depth to Water (Feet): Dry

(4) PUMP, LINER, SCREEN, CASING, & SEALING MATERIAL

Pump & Piping Removed?	☐ Yes	☐ No	☒ Not Applicable
Liner(s) Removed?	☐ Yes	☐ No	☒ Not Applicable
Screen Removed?	☐ Yes	☐ No	☒ Not Applicable
Casing Left in Place?	☐ Yes	☒ No	
Was Casing Cut Off Below Surface?	☐ Yes	☒ No	
Did Sealing Material Rise to Surface?	☒ Yes	☐ No	
Did Material Settle After 24 Hours?	☐ Yes	☒ No	
If Yes, Was Hole Retopped?	☐ Yes	☐ No	

Required Method of Placing Sealing Material
☐ Conductor Pipe - Gravity ☐ Conductor Pipe - Pumped
☒ Screened & Poured ☐ Other (Explain)
(Bentonite Chips)

Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☐ Bentonite-Sand Slurry
☒ Chipped Bentonite

For monitoring wells and monitoring well boreholes only
☐ Bentonite Chips
☐ Granular Bentonite
☐ Bentonite-Cement Grout
☐ Bentonite - Sand Slurry

(5) Sealing Material Used	From (Ft.)	To (Ft.)		Mix Ratio or Mud Weight
HOLE PLUG	Surface	7.9	1 bag	

(6) Comments

(7) Name of Person or Firm Doing Sealing Work: Subsurface Testing Services, Inc. | Date of Abandonment: 4-2-08

Signature of Person Doing Work | Date Signed: 4-2-08

Street or Route: 1035 Kepler Drive | Telephone Number: 920-468-1978

City, State, Zip Code: Green Bay, Wisconsin 54311-8320

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Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT
Form 3300-5 2/2000 Page 1 of 2

Notice: Please complete Form 3300-5 and return it to the appropriate DNR office and bureau. Completion of this report is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See the instructions for more information.

Route to: ☐ Drinking Water ☐ Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other

(1) GENERAL INFORMATION

WI Unique Well No. | DNR Well ID No. | County: SAUK

Common Well Name: B-4 Gov't Lot (if applicable)

Grid Location: ___ 1/4 of ___ 1/4 of Sec. ___ ; T. ___ N; R. ___ ☐ E ☐ W

___ ft. ☐ N. ☐ S., ___ ft. ☐ E. ☐ W.

Local Grid Origin ☐ (estimated: ☐) or Well Location ☐

Lat ° ' " Long ° ' " or

State Plane ___ ft. N. ___ ft. E. ☐ S ☐ C ☐ N Zone

Reason For Abandonment: Soil Sampling Comp. | WI Unique Well No. of Replacement Well

(2) FACILITY /OWNER INFORMATION

Facility Name: SAUK Co, LTC

Facility ID | License/Permit/Monitoring No.

Street Address of Well

City, Village, or Town

Present Well Owner | Original Owner

Street Address or Route of Owner

City, State, Zip Code

(3) WELL/DRILLHOLE/BOREHOLE INFORMATION

Original Construction Date: 4-2-08

☐ Monitoring Well
☐ Water Well
☒ Drillhole / Borehole

If a Well Construction Report is available, please attach.

Construction Type:
☒ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (Specify)

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft) (From ground surface): 17.7' Casing Diameter (in.): 4"

Casing Depth (ft.): 80

Lower Drillhole Diameter (in.): 4"

Was Well Annular Space Grouted? ☐ Yes ☐ No ☐ Unknown

If Yes, To What Depth? ___ Feet

Depth to Water (Feet): 3.5

(4) PUMP, LINER, SCREEN, CASING, & SEALING MATERIAL

Pump & Piping Removed?	☐ Yes	☐ No	☒ Not Applicable
Liner(s) Removed?	☐ Yes	☐ No	☐ Not Applicable
Screen Removed?	☐ Yes	☐ No	☒ Not Applicable
Casing Left in Place?	☐ Yes	☒ No	
Was Casing Cut Off Below Surface?	☐ Yes	☒ No	
Did Sealing Material Rise to Surface?	☒ Yes	☐ No	
Did Material Settle After 24 Hours?	☐ Yes	☒ No	
If Yes, Was Hole Retopped?	☐ Yes	☐ No	

Required Method of Placing Sealing Material
☒ Conductor Pipe - Gravity ☒ Conductor Pipe - Pumped
☒ Screened & Poured ☐ Other (Explain)
(Bentonite Chips)

Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☒ Bentonite-Sand Slurry
☒ Chipped Bentonite

For monitoring wells and monitoring well boreholes only
☐ Bentonite Chips
☐ Granular Bentonite
☐ Bentonite-Cement Grout
☐ Bentonite - Sand Slurry

(5) Sealing Material Used	From (Ft.)	To (Ft.)		Mix Ratio or Mud Weight
HOLE PLUG	Surface	2.5	1 bag	
BENTONITE SAND SLURRY	2.5	17.7	10 gal	11 #/gal

(6) Comments

(7) Name of Person or Firm Doing Sealing Work: Subsurface Testing Services, Inc. | Date of Abandonment: 4-2-08

Signature of Person Doing Work: Gary Lynn | Date Signed: 4-2-08

Street or Route: 1035 Kepler Drive | Telephone Number: 920-468-1978

City, State, Zip Code: Green Bay, Wisconsin 54311-8320

FOR DNR OR COUNTY USE ONLY
Date Received | Noted By
Comments

BCG 34930

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT
Form 3300-5 2/2000

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Route to: ☐ Drinking Water ☐ Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other

(1) GENERAL INFORMATION

WI Unique Well No. | DNR Well ID No. | County: SAUK

Common Well Name: B-5 Gov't Lot (if applicable)

Grid Location: ___ 1/4 of ___ 1/4 of Sec. ___ ; T. ___ N; R. ___ ☐ E ☐ W

___ ft. ☐ N. ☐ S., ___ ft. ☐ E. ☐ W.

Local Grid Origin ☐ (estimated: ☐) or Well Location ☐

Lat ___ ° ___ ' ___ " Long ___ ° ___ ' ___ "

State Plane ___ ft. N. ___ ft. E. S ☐ C ☐ N ☐ Zone

Reason For Abandonment: Soil Samping Comp. | WI Unique Well No. of Replacement Well

(2) FACILITY /OWNER INFORMATION

Facility Name: SAUK CO. LTC

Facility ID | License/Permit/Monitoring No.

Street Address of Well

City, Village, or Town

Present Well Owner | Original Owner

Street Address or Route of Owner

City, State, Zip Code

(3) WELL/DRILLHOLE/BOREHOLE INFORMATION

Original Construction Date: 4-2-08

☐ Monitoring Well
☐ Water Well
☒ Drillhole / Borehole

If a Well Construction Report is available, please attach.

Construction Type:
☒ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (Specify)

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft) (From ground surface): 250' Casing Diameter (in.): 4"

Casing Depth (ft.): 8.0'

Lower Drillhole Diameter (in.): 4"

Was Well Annular Space Grouted? ☐ Yes ☐ No ☐ Unknown

If Yes, To What Depth? ___ Feet

Depth to Water (Feet): 5.12'

(4) PUMP, LINER, SCREEN, CASING, & SEALING MATERIAL

Pump & Piping Removed?	☐ Yes	☐ No	☒ Not Applicable
Liner(s) Removed?	☐ Yes	☐ No	☒ Not Applicable
Screen Removed?	☐ Yes	☐ No	☒ Not Applicable
Casing Left in Place?	☐ Yes	☒ No	
Was Casing Cut Off Below Surface?	☐ Yes	☒ No	
Did Sealing Material Rise to Surface?	☒ Yes	☐ No	
Did Material Settle After 24 Hours?	☐ Yes	☒ No	
If Yes, Was Hole Retopped?	☐ Yes	☐ No	

Required Method of Placing Sealing Material
☐ Conductor Pipe - Gravity ☒ Conductor Pipe - Pumped
☒ Screened & Poured ☐ Other (Explain)
(Bentonite Chips)

Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☒ Bentonite-Sand Slurry
☒ Chipped Bentonite

For monitoring wells and monitoring well boreholes only
☐ Bentonite Chips
☐ Granular Bentonite
☐ Bentonite-Cement Grout
☐ Bentonite - Sand Slurry

(5) Sealing Material Used	From (Ft.)	To (Ft.)		Mix Ratio or Mud Weight
HOLE PLUG	Surface	3.5	1 bag	
Bentonite SAND SLURRY	3.5	250	1394	11 #/

(6) Comments

(7) Name of Person or Firm Doing Sealing Work: Subsurface Testing Services, Inc. | Date of Abandonment: 4-2-08

Signature of Person Doing Work | Date Signed: 4-2-08

Street or Route: 1035 Kepler Drive | Telephone Number: 920-468-1978

City, State, Zip Code: Green Bay, Wisconsin 54311-8320

FOR DNR OR COUNTY USE ONLY
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BCG 349

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT
Form 3300-5 2/2000 Page 1 of 2

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Route to: ☐ Drinking Water ☐ Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other

(1) GENERAL INFORMATION

WI Unique Well No. | DNR Well ID No. | County: SAUK

Common Well Name: B-6 | Gov't Lot (if applicable)

Grid Location: ___ 1/4 of ___ 1/4 of Sec. ___ ; T. ___ N; R. ___ ☐ E ☐ W

___ ft. ☐ N. ☐ S., ___ ft. ☐ E. ☐ W.

Local Grid Origin ☐ (estimated ☐) or Well Location ☐

Lat ___ ° ___ ' ___ " Long ___ ° ___ ' ___ " or

State Plane ___ ft. N. ___ ft. E. ☐ S ☐ C ☐ N Zone

Reason For Abandonment: SOIL TESTS ONLY | WI Unique Well No. of Replacement Well

(2) FACILITY /OWNER INFORMATION

Facility Name: SAUK CO LTE

Facility ID | License/Permit/Monitoring No.

Street Address of Well

City, Village, or Town

Present Well Owner | Original Owner

Street Address or Route of Owner

City, State, Zip Code

(3) WELL/DRILLHOLE/BOREHOLE INFORMATION

Original Construction Date: 4-3-08

☐ Monitoring Well
☐ Water Well
☒ Drillhole / Borehole

If a Well Construction Report is available, please attach.

Construction Type:
☒ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (Specify)

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft) (From ground surface): 8.0' | Casing Diameter (in.): / | Casing Depth (ft.): /

Lower Drillhole Diameter (in.): 4"

Was Well Annular Space Grouted? ☐ Yes ☐ No ☐ Unknown

If Yes, To What Depth? ___ Feet

Depth to Water (Feet): 5.1'

(4) PUMP, LINER, SCREEN, CASING, & SEALING MATERIAL

Pump & Piping Removed?	☐ Yes	☐ No	☒ Not Applicable
Liner(s) Removed?	☐ Yes	☐ No	☒ Not Applicable
Screen Removed?	☐ Yes	☐ No	☒ Not Applicable
Casing Left in Place?	☐ Yes	☒ No	
Was Casing Cut Off Below Surface?	☐ Yes	☒ No	
Did Sealing Material Rise to Surface?	☒ Yes	☐ No	
Did Material Settle After 24 Hours?	☐ Yes	☒ No	
If Yes, Was Hole Retopped?	☐ Yes	☐ No	

Required Method of Placing Sealing Material
☐ Conductor Pipe - Gravity ☐ Conductor Pipe - Pumped
☒ Screened & Poured ☐ Other (Explain)
(Bentonite Chips)

Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☐ Bentonite-Sand Slurry
☒ Chipped Bentonite

For monitoring wells and monitoring well boreholes only
☐ Bentonite Chips
☐ Granular Bentonite
☐ Bentonite-Cement Grout
☐ Bentonite - Sand Slurry

(5) Sealing Material Used	From (Ft.)	To (Ft.)		Mix Ratio or Mud Weight
Hole plug	Surface	8.0'	1 bag	

(6) Comments

(7) Name of Person or Firm Doing Sealing Work: Subsurface Testing Services, Inc. | Date of Abandonment: 4-3-08

Signature of Person Doing Work | Date Signed: 4-3-08

Street or Route: 1035 Kepler Drive | Telephone Number: 920-468-1978

City, State, Zip Code: Green Bay, Wisconsin 54311-8320

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WELL/DRILLHOLE/BOREHOLE ABANDONMENT
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Route to: ☐ Drinking Water ☐ Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other _____

(1) GENERAL INFORMATION

WI Unique Well No. | DNR Well ID No. | County: SAUK

Common Well Name: B-7 | Gov't Lot (if applicable)

Grid Location: ___ 1/4 of ___ 1/4 of Sec. ___ ; T. ___ N; R. ___ ☐ E ☐ W

___ ft. ☐ N. ☐ S., ___ ft. ☐ E. ☐ W.

Local Grid Origin ☐ (estimated: ☐) or Well Location ☐

Lat ___ ° ___ ' ___ " Long ___ ° ___ ' ___ "

State Plane ___ ft. N. ___ ft. E. S ☐ C ☐ N ☐ Zone

Reason For Abandonment: Soil Sampling Comp. | WI Unique Well No. of Replacement Well

(2) FACILITY /OWNER INFORMATION

Facility Name: SAUK CO. LTC

Facility ID | License/Permit/Monitoring No.

Street Address of Well

City, Village, or Town

Present Well Owner | Original Owner

Street Address or Route of Owner

City, State, Zip Code

(3) WELL/DRILLHOLE/BOREHOLE INFORMATION

Original Construction Date: 4-2-08

☐ Monitoring Well
☐ Water Well
☒ Drillhole / Borehole

If a Well Construction Report is available, please attach.

Construction Type:
☒ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (Specify) _____

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft) (From ground surface): 15.5' | Casing Diameter (in.): 4"

Casing Depth (ft.): 8'

Lower Drillhole Diameter (in.): 4"

Was Well Annular Space Grouted? ☐ Yes ☐ No ☐ Unknown

If Yes, To What Depth? _____ Feet

Depth to Water (Feet): 4.01

(4) PUMP, LINER, SCREEN, CASING, & SEALING MATERIAL

Pump & Piping Removed?	☐ Yes	☐ No	☒ Not Applicable
Liner(s) Removed?	☐ Yes	☐ No	☒ Not Applicable
Screen Removed?	☐ Yes	☐ No	☒ Not Applicable
Casing Left in Place?	☐ Yes	☒ No	
Was Casing Cut Off Below Surface?	☐ Yes	☒ No	
Did Sealing Material Rise to Surface?	☒ Yes	☐ No	
Did Material Settle After 24 Hours?	☐ Yes	☒ No	
If Yes, Was Hole Retopped?	☐ Yes	☐ No	

Required Method of Placing Sealing Material
☐ Conductor Pipe - Gravity ☒ Conductor Pipe - Pumped
☒ Screened & Poured ☐ Other (Explain)
(Bentonite Chips)

Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☒ Bentonite-Sand Slurry
☒ Chipped Bentonite

For monitoring wells and monitoring well boreholes only
☐ Bentonite Chips
☐ Granular Bentonite
☐ Bentonite-Cement Grout
☐ Bentonite - Sand Slurry

(5) Sealing Material Used	From (Ft.)	To (Ft.)		Mix Ratio or Mud Weight
HOLE PLUG	Surface	3.0	1 bag	
BENTONITE SAND SLURRY	3.0	15.5	10 gal	11 #/gal

(6) Comments _____

(7) Name of Person or Firm Doing Sealing Work: Subsurface Testing Services, Inc. | Date of Abandonment: 4-2-08

Signature of Person Doing Work | Date Signed: 4-2-08

Street or Route: 1035 Kepler Drive | Telephone Number: 920-468-1978

City, State, Zip Code: Green Bay, Wisconsin 54311-8320

FOR DNR OR COUNTY USE ONLY

Date Received | Noted By

Comments:

BCG 3400

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT
Form 3300-5 2/2000 Page 1 of 2

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Route to: ☐ Drinking Water ☐ Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other

(1) GENERAL INFORMATION

WI Unique Well No. | DNR Well ID No. | County: SAUK

Common Well Name: B-8 | Gov't Lot (if applicable)

Grid Location: ___ 1/4 of ___ 1/4 of Sec. ___ ; T. ___ N; R. ___ ☐ E ☐ W

___ ft. ☐ N. ☐ S., ___ ft. ☐ E. ☐ W.

Local Grid Origin ☐ (estimated: ☐) or Well Location ☐

Lat ___ ° ___ ' ___ " Long ___ ° ___ ' ___ "

State Plane ___ ft. N. ___ ft. E. ☐ S ☐ C ☐ N Zone

Reason For Abandonment: Soil sampling comp. | WI Unique Well No. of Replacement Well

(2) FACILITY /OWNER INFORMATION

Facility Name: SAUK CO. LTC

Facility ID | License/Permit/Monitoring No.

Street Address of Well

City, Village, or Town

Present Well Owner | Original Owner

Street Address or Route of Owner

City, State, Zip Code

(3) WELL/DRILLHOLE/BOREHOLE INFORMATION

Original Construction Date: 4-2-08

☐ Monitoring Well
☐ Water Well
☒ Drillhole / Borehole

If a Well Construction Report is available, please attach.

Construction Type:
☒ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (Specify)

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft) (From ground surface): 20.0' | Casing Diameter (in.): 4" | Casing Depth (ft.): 8.0'

Lower Drillhole Diameter (in.): 4"

Was Well Annular Space Grouted? ☐ Yes ☐ No ☐ Unknown

If Yes, To What Depth? ___ Feet

Depth to Water (Feet): 1.16'

(4) PUMP, LINER, SCREEN, CASING, & SEALING MATERIAL

Pump & Piping Removed?	☐ Yes	☐ No	☒ Not Applicable
Liner(s) Removed?	☐ Yes	☐ No	☒ Not Applicable
Screen Removed?	☐ Yes	☐ No	☒ Not Applicable
Casing Left in Place?	☐ Yes	☒ No	
Was Casing Cut Off Below Surface?	☐ Yes	☒ No	
Did Sealing Material Rise to Surface?	☒ Yes	☐ No	
Did Material Settle After 24 Hours?	☐ Yes	☒ No	
If Yes, Was Hole Retopped?	☐ Yes	☐ No	

Required Method of Placing Sealing Material
☐ Conductor Pipe - Gravity ☒ Conductor Pipe - Pumped
☒ Screened & Poured (Bentonite Chips) ☐ Other (Explain)

Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☒ Bentonite-Sand Slurry
☒ Chipped Bentonite

For monitoring wells and monitoring well boreholes only
☐ Bentonite Chips
☐ Granular Bentonite
☐ Bentonite-Cement Grout
☐ Bentonite - Sand Slurry

(5) Sealing Material Used	From (Ft.)	To (Ft.)		Mix Ratio or Mud Weight
HOLE PLUG	Surface	3.0'	1 bag	
BENTONITE SAND SLURRY	3.0'	20.0'	12 gal	11 #/gal

(6) Comments

(7) Name of Person or Firm Doing Sealing Work: Subsurface Testing Services, Inc. | Date of Abandonment: 4-2-08

Signature of Person Doing Work: [signature] | Date Signed: 4-2-08

Street or Route: 1035 Kepler Drive | Telephone Number: 920-468-1978

City, State, Zip Code: Green Bay, Wisconsin 54311-8320

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Route to: ☐ Drinking Water ☐ Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other

(1) GENERAL INFORMATION

WI Unique Well No. | DNR Well ID No. | County: SAUK

Common Well Name: B-9 | Gov't Lot (if applicable)

Grid Location: ___ 1/4 of ___ 1/4 of Sec. ___ ; T. ___ N; R. ___ ☐ E ☐ W

___ ft. ☐ N. ☐ S., ___ ft. ☐ E. ☐ W.

Local Grid Origin ☐ (estimated: ☐) or Well Location ☐

Lat ___ ° ___ ' ___ " Long ___ ° ___ ' ___ " or

State Plane ___ ft. N. ___ ft. E. ☐S ☐C ☐N Zone

Reason For Abandonment: SOIL TESTS ONLY | WI Unique Well No. of Replacement Well

(2) FACILITY /OWNER INFORMATION

Facility Name: SAUK CO. LTC

Facility ID | License/Permit/Monitoring No.

Street Address of Well

City, Village, or Town

Present Well Owner | Original Owner

Street Address or Route of Owner

City, State, Zip Code

(3) WELL/DRILLHOLE/BOREHOLE INFORMATION

Original Construction Date: 4-3-08

☐ Monitoring Well
☐ Water Well
☒ Drillhole / Borehole

If a Well Construction Report is available, please attach.

Construction Type:
☒ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (Specify) ___

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft) (From ground surface): 8.0' | Casing Diameter (in.): 4 | Casing Depth (ft.): 4

Lower Drillhole Diameter (in.): 4"

Was Well Annular Space Grouted? ☐ Yes ☐ No ☐ Unknown

If Yes, To What Depth? ___ Feet

Depth to Water (Feet): 2.6'

(4) PUMP, LINER, SCREEN, CASING, & SEALING MATERIAL

Pump & Piping Removed?	☐ Yes	☐ No	☒ Not Applicable
Liner(s) Removed?	☐ Yes	☐ No	☒ Not Applicable
Screen Removed?	☐ Yes	☐ No	☒ Not Applicable
Casing Left in Place?	☐ Yes	☒ No	
Was Casing Cut Off Below Surface?	☐ Yes	☒ No	
Did Sealing Material Rise to Surface?	☒ Yes	☐ No	
Did Material Settle After 24 Hours?	☐ Yes	☒ No	
If Yes, Was Hole Retopped?	☐ Yes	☐ No	

Required Method of Placing Sealing Material
☐ Conductor Pipe - Gravity ☐ Conductor Pipe - Pumped
☒ Screened & Poured ☐ Other (Explain)
(Bentonite Chips)

Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☐ Bentonite-Sand Slurry
☒ Chipped Bentonite

For monitoring wells and monitoring well boreholes only
☐ Bentonite Chips
☐ Granular Bentonite
☐ Bentonite-Cement Grout
☐ Bentonite - Sand Slurry

(5) Sealing Material Used	From (Ft.)	To (Ft.)		Mix Ratio or Mud Weight
Hole Plug	Surface	8.0	1 bag	

(6) Comments ___

(7) Name of Person or Firm Doing Sealing Work: Subsurface Testing Services, Inc. | Date of Abandonment: 4-3-08

Signature of Person Doing Work: Ray | Date Signed: 4-3-08

Street or Route: 1035 Kepler Drive | Telephone Number: 920-468-1978

City, State, Zip Code: Green Bay, Wisconsin 54311-8320

FOR DNR OR COUNTY USE ONLY
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State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT
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Route to: ☐ Drinking Water ☐ Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other

(1) GENERAL INFORMATION

WI Unique Well No. | DNR Well ID No. | County: SAUK

Common Well Name: B-10 | Gov't Lot (if applicable)

Grid Location: ___ 1/4 of ___ 1/4 of Sec. ___ ; T. ___ N; R. ___ ☐ E ☐ W

___ ft. ☐ N. ☐ S., ___ ft. ☐ E. ☐ W.

Local Grid Origin ☐ (estimated: ☐) or Well Location ☐

Lat ___ ° ___ ' ___ " Long ___ ° ___ ' ___ " or

State Plane ___ ft. N. ___ ft. E. S ☐ C ☐ N ☐ Zone

Reason For Abandonment: SOIL TESTS ONLY | WI Unique Well No. of Replacement Well

(2) FACILITY /OWNER INFORMATION

Facility Name: SAUK CO. LTC

Facility ID | License/Permit/Monitoring No.

Street Address of Well

City, Village, or Town

Present Well Owner | Original Owner

Street Address or Route of Owner

City, State, Zip Code

(3) WELL/DRILLHOLE/BOREHOLE INFORMATION

Original Construction Date: 4-3-08

☐ Monitoring Well
☐ Water Well
☒ Drillhole / Borehole

If a Well Construction Report is available, please attach.

Construction Type:
☒ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (Specify)

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft) (From ground surface): 10.0' | Casing Diameter (in.): / | Casing Depth (ft.): /

Lower Drillhole Diameter (in.): 4"

Was Well Annular Space Grouted? ☐ Yes ☐ No ☐ Unknown

If Yes, To What Depth? ___ Feet

Depth to Water (Feet): 5.0'

(4) PUMP, LINER, SCREEN, CASING, & SEALING MATERIAL

Pump & Piping Removed?	☐ Yes	☐ No	☒ Not Applicable
Liner(s) Removed?	☐ Yes	☐ No	☒ Not Applicable
Screen Removed?	☐ Yes	☐ No	☒ Not Applicable
Casing Left in Place?	☐ Yes	☒ No	
Was Casing Cut Off Below Surface?	☐ Yes	☒ No	
Did Sealing Material Rise to Surface?	☒ Yes	☐ No	
Did Material Settle After 24 Hours?	☐ Yes	☒ No	
If Yes, Was Hole Retopped?	☐ Yes	☐ No	

Required Method of Placing Sealing Material
☐ Conductor Pipe - Gravity ☐ Conductor Pipe - Pumped
☒ Screened & Poured ☐ Other (Explain)
(Bentonite Chips)

Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☐ Bentonite-Sand Slurry
☒ Chipped Bentonite

For monitoring wells and monitoring well boreholes only
☐ Bentonite Chips
☐ Granular Bentonite
☐ Bentonite-Cement Grout
☐ Bentonite - Sand Slurry

(5) Sealing Material Used	From (Ft.)	To (Ft.)		Mix Ratio or Mud Weight
HOLE PLUG	Surface	10.0	1 bag	

(6) Comments

(7) Name of Person or Firm Doing Sealing Work: Subsurface Testing Services, Inc. | Date of Abandonment: 4-3-08

Signature of Person Doing Work: Kam | Date Signed: 4-3-08

Street or Route: 1035 Kepler Drive | Telephone Number: 920-468-1978

City, State, Zip Code: Green Bay, Wisconsin 54311-8320

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State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT
Form 3300-5 2/2000 Page 1 of 2

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Route to: ☐ Drinking Water ☐ Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other

(1) GENERAL INFORMATION

WI Unique Well No. | DNR Well ID No. | County: SAUK

Common Well Name: B-11 Gov't Lot (if applicable)

Grid Location: ___ 1/4 of ___ 1/4 of Sec. ___ ; T. ___ N; R. ___ ☐ E ☐ W

___ ft. ☐ N. ☐ S., ___ ft. ☐ E. ☐ W.

Local Grid Origin ☐ (estimated: ☐) or Well Location ☐

Lat ___ ° ___ ' ___ " Long ___ ° ___ ' ___ " or

State Plane ___ ft. N. ___ ft. E. ☐S ☐C ☐N Zone

Reason For Abandonment: Soil Tests Comp. | WI Unique Well No. of Replacement Well

(2) FACILITY /OWNER INFORMATION

Facility Name: SAUK CO. LTC

Facility ID | License/Permit/Monitoring No.

Street Address of Well

City, Village, or Town

Present Well Owner | Original Owner

Street Address or Route of Owner

City, State, Zip Code

(3) WELL/DRILLHOLE/BOREHOLE INFORMATION

Original Construction Date: 4-3-08

☐ Monitoring Well
☐ Water Well
☒ Drillhole / Borehole

If a Well Construction Report is available, please attach.

Construction Type:
☒ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (Specify)

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft) (From ground surface): 12.0' Casing Diameter (in.): / Casing Depth (ft.): /

Lower Drillhole Diameter (in.): 4"

Was Well Annular Space Grouted? ☐ Yes ☐ No ☐ Unknown

If Yes, To What Depth? ___ Feet

Depth to Water (Feet): 6.0'

(4) PUMP, LINER, SCREEN, CASING, & SEALING MATERIAL

Pump & Piping Removed?	☐ Yes	☐ No	☒ Not Applicable
Liner(s) Removed?	☐ Yes	☐ No	☒ Not Applicable
Screen Removed?	☐ Yes	☐ No	☒ Not Applicable
Casing Left in Place?	☐ Yes	☒ No	
Was Casing Cut Off Below Surface?	☐ Yes	☒ No	
Did Sealing Material Rise to Surface?	☒ Yes	☐ No	
Did Material Settle After 24 Hours?	☐ Yes	☒ No	
If Yes, Was Hole Retopped?	☐ Yes	☐ No	

Required Method of Placing Sealing Material
☐ Conductor Pipe - Gravity ☐ Conductor Pipe - Pumped
☒ Screened & Poured ☐ Other (Explain)
(Bentonite Chips)

Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☐ Bentonite-Sand Slurry
☒ Chipped Bentonite

For monitoring wells and monitoring well boreholes only
☐ Bentonite Chips
☐ Granular Bentonite
☐ Bentonite-Cement Grout
☐ Bentonite - Sand Slurry

(5) Sealing Material Used	From (Ft.)	To (Ft.)		Mix Ratio or Mud Weight
HOLE PLUG	Surface	12.0'	1 bag	

(6) Comments

(7) Name of Person or Firm Doing Sealing Work: Subsurface Testing Services, Inc. | Date of Abandonment: 4-3-08

Signature of Person Doing Work | Date Signed: 4-3-08

Street or Route: 1035 Kepler Drive | Telephone Number: 920-468-1978

City, State, Zip Code: Green Bay, Wisconsin 54311-8320

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Route to: ☐ Drinking Water ☐ Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other

(1) GENERAL INFORMATION

WI Unique Well No. | DNR Well ID No. | County

Common Well Name B-12 Gov't Lot (if applicable)

Grid Location ___ 1/4 of ___ 1/4 of Sec. ___ ; T. ___ N; R. ___ ☐ E ☐ W

___ ft. ☐ N. ☐ S., ___ ft. ☐ E. ☐ W.

Local Grid Origin ☐ (estimated: ☐) or Well Location ☐

Lat ___ ° ___ ' ___ " Long ___ ° ___ ' ___ "

State Plane ___ ft. N. ___ ft. E. ☐ S ☐ C ☐ N Zone

Reason For Abandonment: SOIL TESTS Comp.

WI Unique Well No. of Replacement Well

(2) FACILITY /OWNER INFORMATION

Facility Name

Facility ID | License/Permit/Monitoring No.

Street Address of Well

City, Village, or Town

Present Well Owner | Original Owner

Street Address or Route of Owner

City, State, Zip Code

(3) WELL/DRILLHOLE/BOREHOLE INFORMATION

Original Construction Date 4-3-08

☐ Monitoring Well
☐ Water Well
☒ Drillhole / Borehole

If a Well Construction Report is available, please attach.

Construction Type:
☒ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (Specify)

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft) 10.0 (From ground surface) Casing Diameter (in.) 4

Lower Drillhole Diameter (in.) 4" Casing Depth (ft.) 4

Was Well Annular Space Grouted? ☐ Yes ☐ No ☐ Unknown

If Yes, To What Depth? ___ Feet

Depth to Water (Feet) 5.41

(4) PUMP, LINER, SCREEN, CASING, & SEALING MATERIAL

Pump & Piping Removed?	☐ Yes	☐ No	☒ Not Applicable
Liner(s) Removed?	☐ Yes	☐ No	☒ Not Applicable
Screen Removed?	☐ Yes	☐ No	☒ Not Applicable
Casing Left in Place?	☐ Yes	☒ No	
Was Casing Cut Off Below Surface?	☐ Yes	☒ No	
Did Sealing Material Rise to Surface?	☒ Yes	☐ No	
Did Material Settle After 24 Hours?	☐ Yes	☒ No	
If Yes, Was Hole Retopped?	☐ Yes	☐ No	

Required Method of Placing Sealing Material
☐ Conductor Pipe - Gravity ☐ Conductor Pipe - Pumped
☒ Screened & Poured ☐ Other (Explain)
(Bentonite Chips)

Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☐ Bentonite-Sand Slurry
☒ Chipped Bentonite

For monitoring wells and monitoring well boreholes only
☐ Bentonite Chips
☐ Granular Bentonite
☐ Bentonite-Cement Grout
☐ Bentonite - Sand Slurry

(5) Sealing Material Used	From (Ft.)	To (Ft.)		Mix Ratio or Mud Weight
Hole Plug	Surface	10.0	1 bag	

(6) Comments ___

(7) Name of Person or Firm Doing Sealing Work: Subsurface Testing Services, Inc.

Date of Abandonment: 4-3-08

Signature of Person Doing Work: Kay

Date Signed: 4-3-08

Street or Route: 1035 Kepler Drive

Telephone Number: 920-468-1978

City, State, Zip Code: Green Bay, Wisconsin 54311-8320

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WELL/DRILLHOLE/BOREHOLE ABANDONMENT
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Route to: ☐ Drinking Water ☐ Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other

(1) GENERAL INFORMATION

WI Unique Well No. | DNR Well ID No. | County: SAUK

Common Well Name: B-13 | Gov't Lot (if applicable)

Grid Location: ___ 1/4 of ___ 1/4 of Sec. ___ ; T. ___ N; R. ___ ☐ E ☐ W

___ ft. ☐ N. ☐ S., ___ ft. ☐ E. ☐ W.

Local Grid Origin ☐ (estimated: ☐) or Well Location ☐

Lat ___ ° ___ ' ___ " Long ___ ° ___ ' ___ "

State Plane ___ ft. N. ___ ft. E. ☐S ☐C ☐N Zone

Reason For Abandonment: Soil TESTS ONLY | WI Unique Well No. of Replacement Well

(2) FACILITY /OWNER INFORMATION

Facility Name: SAUK CO. LTC

Facility ID | License/Permit/Monitoring No.

Street Address of Well

City, Village, or Town

Present Well Owner | Original Owner

Street Address or Route of Owner

City, State, Zip Code

(3) WELL/DRILLHOLE/BOREHOLE INFORMATION

Original Construction Date: 4-3-08

☐ Monitoring Well
☐ Water Well
☒ Drillhole / Borehole

If a Well Construction Report is available, please attach.

Construction Type:
☒ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (Specify)

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft) (From ground surface): 10.0 | Casing Diameter (in.): 1

Casing Depth (ft.): 1

Lower Drillhole Diameter (in.): 4"

Was Well Annular Space Grouted? ☐ Yes ☐ No ☐ Unknown

If Yes, To What Depth? ___ Feet

Depth to Water (Feet): 2.8'

(4) PUMP, LINER, SCREEN, CASING, & SEALING MATERIAL

Pump & Piping Removed?	☐ Yes	☐ No	☒ Not Applicable
Liner(s) Removed?	☐ Yes	☐ No	☒ Not Applicable
Screen Removed?	☐ Yes	☐ No	☒ Not Applicable
Casing Left in Place?	☐ Yes	☒ No	
Was Casing Cut Off Below Surface?	☐ Yes	☒ No	
Did Sealing Material Rise to Surface?	☒ Yes	☐ No	
Did Material Settle After 24 Hours?	☐ Yes	☒ No	
If Yes, Was Hole Retopped?	☐ Yes	☐ No	

Required Method of Placing Sealing Material
☐ Conductor Pipe - Gravity ☐ Conductor Pipe - Pumped
☒ Screened & Poured ☐ Other (Explain)
(Bentonite Chips)

Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☐ Bentonite-Sand Slurry
☒ Chipped Bentonite

For monitoring wells and monitoring well boreholes only
☐ Bentonite Chips
☐ Granular Bentonite
☐ Bentonite-Cement Grout
☐ Bentonite - Sand Slurry

(5) Sealing Material Used	From (Ft.)	To (Ft.)		Mix Ratio or Mud Weight
HOLE PLUG	Surface	10.0	1 bag	

(6) Comments

(7) Name of Person or Firm Doing Sealing Work: Subsurface Testing Services, Inc. | Date of Abandonment: 4-3-08

Signature of Person Doing Work: Tony | Date Signed: 4-3-08

Street or Route: 1035 Kepler Drive | Telephone Number: 920-468-1978

City, State, Zip Code: Green Bay, Wisconsin 54311-8320

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WELL/DRILLHOLE/BOREHOLE ABANDONMENT
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Route to: ☐ Drinking Water ☐ Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other

(1) GENERAL INFORMATION

WI Unique Well No. | DNR Well ID No. | County: SAUK

Common Well Name: B-14 | Gov't Lot (if applicable)

Grid Location: ___ 1/4 of ___ 1/4 of Sec. ___ ; T. ___ N; R. ___ ☐ E ☐ W

___ ft. ☐ N. ☐ S., ___ ft. ☐ E. ☐ W.

Local Grid Origin ☐ (estimated: ☐) or Well Location ☐

Lat ___ ° ___ ' ___ " Long ___ ° ___ ' ___ " or

State Plane ___ ft. N. ___ ft. E. ☐S ☐C ☐N Zone

Reason For Abandonment: Soil TESTS ONLY | WI Unique Well No. of Replacement Well

(2) FACILITY /OWNER INFORMATION

Facility Name: SAUK CO. LTC

Facility ID | License/Permit/Monitoring No.

Street Address of Well

City, Village, or Town

Present Well Owner | Original Owner

Street Address or Route of Owner

City, State, Zip Code

(3) WELL/DRILLHOLE/BOREHOLE INFORMATION

Original Construction Date ___

☐ Monitoring Well
☐ Water Well
☒ Drillhole / Borehole

If a Well Construction Report is available, please attach.

Construction Type:
☒ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (Specify) ___

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft) 10.0' (From ground surface) | Casing Diameter (in.) 1 | Casing Depth (ft.) 1

Lower Drillhole Diameter (in.) 4"

Was Well Annular Space Grouted? ☐ Yes ☐ No ☐ Unknown

If Yes, To What Depth? ___ Feet

Depth to Water (Feet) 3.41'

(4) PUMP, LINER, SCREEN, CASING, & SEALING MATERIAL

Pump & Piping Removed?	☐ Yes	☐ No	☒ Not Applicable
Liner(s) Removed?	☐ Yes	☐ No	☒ Not Applicable
Screen Removed?.	☐ Yes	☐ No	☒ Not Applicable
Casing Left in Place?	☐ Yes	☒ No	
Was Casing Cut Off Below Surface?	☐ Yes	☒ No	
Did Sealing Material Rise to Surface?	☒ Yes	☐ No	
Did Material Settle After 24 Hours?	☐ Yes	☒ No	
If Yes, Was Hole Retopped?	☐ Yes	☐ No	

Required Method of Placing Sealing Material
☐ Conductor Pipe - Gravity ☐ Conductor Pipe - Pumped
☒ Screened & Poured ☐ Other (Explain)
(Bentonite Chips)

Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☐ Bentonite-Sand Slurry
☒ Chipped Bentonite

For monitoring wells and monitoring well boreholes only
☐ Bentonite Chips
☐ Granular Bentonite
☐ Bentonite-Cement Grout
☐ Bentonite - Sand Slurry

(5) Sealing Material Used	From (Ft.)	To (Ft.)		Mix Ratio or Mud Weight
Hole PLUG	Surface	10.0	1 bag	

(6) Comments ___

(7) Name of Person or Firm Doing Sealing Work: Subsurface Testing Services, Inc. | Date of Abandonment: 4-3-08

Signature of Person Doing Work: Tom | Date Signed: 4-3-08

Street or Route: 1035 Kepler Drive | Telephone Number: 920-468-1978

City, State, Zip Code: Green Bay, Wisconsin 54311-8320

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Appendix F

STS Field and Laboratory Procedures

- STS Subsurface Exploration Procedures
- STS Sampling Procedures
- Laboratory Index Test Procedures

STS Field and Laboratory Procedures

Subsurface Exploration Procedures

Hand-Auger Drilling (HA)

In this procedure, a sampling device is driven into the soil by repeated blows of a sledge hammer or a drop hammer. When the sampler is driven to the desired sample depth, the soil sample is retrieved. The hole is then advanced by manually turning the hand auger until the next sampling depth increment is reached. The hand auger drilling between sampling intervals also helps to clean and enlarge the borehole in preparation for obtaining the next sample.

Power Auger Drilling (PA)

In this type of drilling procedure, continuous flight augers are used to advance the boreholes. They are turned and hydraulically advanced by a truck, trailer or track-mounted unit as site accessibility dictates. In auger drilling, casing and drilling mud are not required to maintain open boreholes.

Hollow Stem Auger Drilling (HS)

In this drilling procedure, continuous flight augers having open stems are used to advance the boreholes. The open stem allows the sampling tool to be used without removing the augers from the borehole. Hollow stem augers thus provide support to the sides of the borehole during the sampling operations.

Rotary Drilling (RB)

In employing rotary drilling methods, various cutting bits are used to advance the boreholes. In this process, surface casing and/or drilling fluids are used to maintain open boreholes.

Diamond Core Drilling (DB)

Diamond core drilling is used to sample cemented formations. In this procedure, a double tube (or triple tube) core barrel with a diamond bit cuts an annular space around a cylindrical prism of the material sampled. The sample is retrieved by a catcher just above the bit. Samples recovered by this procedure are placed in sturdy containers in sequential order.

STS Field and Laboratory Procedures

Field Sampling Procedures

Auger Sampling (AS)

In this procedure, soil samples are collected from cuttings off of the auger flights as they are removed from the ground. Such samples provide a general indication of subsurface conditions; however, they do not provide undisturbed samples, nor do they provide samples from discrete depths.

Split-Barrel Sampling (SS) - (ASTM Standard D-1586-99)

In the split-barrel sampling procedure, a 2-inch O.D. split barrel sampler is driven into the soil a distance of 18 inches by means of a 140-pound hammer falling 30 inches. The value of the Standard Penetration Resistance is obtained by counting the number of blows of the hammer over the final 12 inches of driving. This value provides a qualitative indication of the in-place relative density of cohesionless soils. The indication is qualitative only, however, since many factors can significantly affect the Standard Penetration Resistance Value, and direct correlation of results obtained by drill crews using different rigs, drilling procedures, and hammer-rod-spoon assemblies should not be made. A portion of the recovered sample is placed in a sample jar and returned to the laboratory for further analysis and testing.

Shelby Tube Sampling Procedure (ST) - ASTM Standard D-1587-94

In the Shelby tube sampling procedure, a thin-walled steel seamless tube with a sharp cutting edge is pushed hydraulically into the soil and a relatively undisturbed sample is obtained. This procedure is generally employed in cohesive soils. The tubes are identified, sealed and carefully handled in the field to avoid excessive disturbance and are returned to the laboratory for extrusion and further analysis and testing.

Giddings Sampler (GS)

This type of sampling device consists of 5-foot sections of thin-wall tubing which are capable of retrieving continuous columns of soil in 5-foot maximum increments. Because of a continuous slot in the sampling tubes, the sampler allows field determination of stratification boundaries and containerization of soil samples from any sampling depth within the 5-foot interval.

STS Laboratory Procedures

Water Content (Wc)

The water content of a soil is the ratio of the weight of water in a given soil mass to the weight of the dry soil. Water content is generally expressed as a percentage.

Hand Penetrometer (Qp)

In the hand penetrometer test, the unconfined compressive strength of a soil is determined, to a maximum value of 4.5 tons per square foot (tsf) or 7.0 tsf depending on the testing device utilized, by measuring the resistance of the soil sample to penetration by a small, spring-calibrated cylinder. The hand penetrometer test has been carefully correlated with unconfined compressive strength tests, and thereby provides a useful and a relatively simple testing procedure in which soil strength can be quickly and easily estimated.

Unconfined Compression Tests (Qu)

In the unconfined compression strength test, an undisturbed prism of soil is loaded axially until failure or until 20% strain has been reached, whichever occurs first.

Dry Density (γd)

The dry density is a measure of the amount of solids in a unit volume of soil. Use of this value is often made when measuring the degree of compaction of a soil.

Classification of Samples

In conjunction with the sample testing program, all soil samples are examined in our laboratory and visually classified on the basis of their texture and plasticity in accordance with the STS Soil Classification System which is described on a separate sheet. The soil descriptions on the boring logs are derived from this system as well as the component gradation terminology, consistency of cohesive soils and relative density of granular soils as described on a separate sheet entitled "STS General Notes". The estimated group symbols included in parentheses following the soil descriptions on the boring logs are in general conformance with the Unified Soil Classification System (USCS) which serves as the basis of the STS Soil Classification System.

Appendix G

STS Soil Classification System

STS Soil Classification System (1)

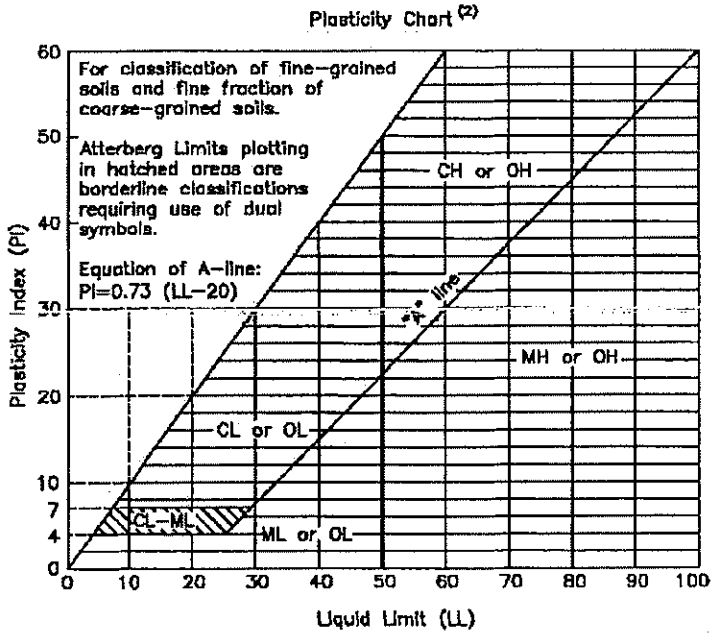
Major Divisions		Group Symbols	Typical Names	Laboratory Classification Criteria
Coarse-grained soils (More than half of material is larger than No. 200 sieve size)	Gravel (More than half of coarse fraction is larger than No. 4 sieve size) — Clean gravel (Little or no fines)	GW	Well-graded, gravel, gravel-sand mixtures, little or no fines	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 & 3
		GP	Poorly graded gravel, gravel-sand mixtures, little or no fines	Not meeting all gradation requirements for GW
	Gravel with fines (Appreciable amount of fines)	GM	Silty gravel, gravel-sand-silt mixtures	Atterberg limits below "A" line or PI less than 4
		GC	Clayey gravel, gravel-sand-clay mixtures	Atterberg limits above "A" line or PI greater than 7
	Sand (More than half of coarse fraction is smaller than No. 4 sieve size) — Clean sand (Little or no fines)	SW	Well-graded sand, gravelly sand, little or no fines	$C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 & 3
		SP	Poorly graded sand, gravelly sand, little or no fines	Not meeting all gradation requirements for SW
	Sand with fines (Appreciable amount of fines)	SM	Silty sand, sand-silt mixtures	Atterberg limits below "A" line or PI less than 4
		SC	Clayey sand, sand-clay mixtures	Atterberg limits above "A" line or PI greater than 7
Fine-grained soils (More than half of material is smaller than No. 200 sieve size)	Silt and clay (Liquid limit less than 50)	ML	Inorganic silt and very fine sand, rock flour, silty or clayey fine sand or clayey silt with slight plasticity	
		CL	Inorganic clay of low to medium plasticity, gravelly clay, sandy clay, silty clay, lean clay	
		OL	Organic silt and organic silty clay of low plasticity	
	Silt and clay (Liquid limit greater than 50)	MH	Inorganic silt, micaceous or diatomaceous fine sandy or silty soils, elastic silt	
		CH	Inorganic clay of high plasticity, fat clay	
		OH	Organic clay of medium to high plasticity, organic silt	
	Highly organic soils	PT	Peat and other highly organic soil	

Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:
Less than 5 percent . . . . . GW, GP, SW, SP
More than 12 percent . . . . . GM, GC, SM, SC
5 to 12 percent . . . . . Borderline cases requiring dual symbols (3)

Above "A" line with PI between 4 and 7 are **borderline** cases requiring use of dual symbols

Limits plotting in hatched zone with PI between 4 and 7 are **borderline** cases requiring use of dual symbols

Plasticity Chart (2)



1. See STS General Notes for component gradation terminology, consistency of cohesive soils and relative density of granular soils.
2. Reference: Unified Soil Classification Systems
3. Borderline classifications, used for soils possessing characteristics of two groups, are designated by combinations of group symbols. For example: GW-GC, well-graded gravel-sand mixture with clay binder.

Appendix H

STS Earthwork Guideline

STS Earthwork Guidelines

Fill or backfill required on the project should consist of a non-frozen, non-organic granular material, aggregate or natural soil that is free of debris and particles larger than 25 percent of the loose lift thickness. The natural water content of cohesive fill soil at the time of compaction should generally be within -2 to +4 percent of the optimum water content determined by the proctor test. Difficulty in obtaining the desired degree of compaction is expected for soil that is too dry or too wet. The water content should be adjusted by sprinkling if too dry or by scarifying and aerating if too wet. Blending with an additive such as fly ash or drier soil may also help produce an acceptable water content.

Fill or backfill which is relatively uniform should be used on the project. Non-uniform materials or mixing two or more materials will reduce the degree of certainty in the test results and will tend to cause variable compressibility of the fill.

Fill or backfill should be placed on a firm, checked subgrade in horizontal lifts with a loose thickness not greater than 12 inches for granular material and 9 inches for cohesive soil. It should then be compacted with equipment that is suited to the soil type and compaction requirements. Normally, vibratory roller or plate compactors are better suited for granular soils, while a sheepsfoot or other "kneading" type of compactors are more effective in cohesive soils. Lighter, hand-propelled compactors should generally be utilized to compact backfill within 5 feet of structures unless the structure is designed to resist expected lateral pressures from use of heavier compactors. When using lighter, hand-propelled compactors, a maximum loose lift thickness of 8 inches should be used for granular material and 6 inches for cohesive soil.

Unless stated otherwise in the report text, fill or backfill that supports foundations, floor slabs that are loaded in excess of 400 psf, and roadway pavement that is subjected to concentrated automobile or truck traffic should be compacted to a dry density of 95% or more of the maximum dry density determined by modified Proctor tests (ASTM D-1557) on representative samples of the fill material. Fill or backfill that supports lightly loaded floor slabs, sidewalks or pavement that is subjected to dispersed automobile traffic should be compacted to a dry density of 90% or more of the maximum dry density determined by modified Proctor tests on representative samples of the fill material. Compaction tests may be considered satisfactory if the average of five consecutive tests on similarly compacted material exceeds the required compaction and no individual test is more than 2% below the required percentage of compaction.

Proper compaction is generally difficult to achieve near the edge of a slope or embankment fill due to lack of confinement. For this reason, we recommend that the compacted fill or backfill zone extend horizontally beyond the edge of foundations a minimum of 1 foot at the subgrade level and then with depth at a minimum slope of 1 horizontal to 1 vertical.

Fill material acceptability, subgrade preparation and testing for suitability, fill placement and fill compaction should be monitored continuously or at least regularly by a qualified soils technician whom reports to the geotechnical engineer for the project. Compaction density for structural fill should be tested at a minimum frequency of once per 5000 ft^2 of fill area or once per 200 yd^3 of compacted material placed unless stated otherwise in our report. In non-structural fill areas, testing frequencies may be reduced in half.

Appendix I

STS General Qualifications

STS General Qualifications

Underground Engineering

This report has been prepared in general accordance with normally accepted geotechnical engineering practices to aid in the evaluation of this site and to assist our Client in the design of this project. We have prepared this report for the purpose intended by our Client, and reliance on its contents by anyone other than our Client is done at the sole risk of the user. No other warranty, either expressed or implied, is made. The scope is limited to the specific project and location described herein, and our description of the project represents our understanding of the significant aspects relevant to the geotechnical characteristics. In the event that any changes in the design or location of the facilities as outlined in this report are planned, we should be informed so that the changes can be reviewed and the conclusions of this report modified as necessary in writing by the geotechnical engineer. As a check, we recommend that we be authorized to review the project plans and specifications to confirm that the recommendations contained in this report have been interpreted in accordance with our intent. Without this review, we will not be responsible for the misinterpretation of our data, our analysis, and/or our recommendations, nor how these are incorporated into the final design.

The analysis and recommendations submitted in this report are based on the data obtained from the soil borings performed at the locations indicated on the location diagram and from the information discussed in this report. This report does not reflect any variations which may occur between the borings. In the performance of subsurface explorations, specific information is obtained at specific locations at specific times. However, it is a well-known fact that variations in soil and rock conditions exist on most sites between boring locations and that seasonal and annual fluctuations in groundwater levels will likely occur. The nature and extent of variations may not become evident until the course of construction. If variations then appear evident, it will be necessary for a re-evaluation of the recommendations contained in this report after performing on-site observations during the construction period and noting the characteristics of the variations.

The geotechnical engineer of record is the professional engineer who authored the geotechnical report. It is recommended that all construction operations dealing with earthwork and foundations be observed by the geotechnical engineer of record or the geotechnical engineer's appointed representative to confirm that the design requirements are fulfilled in the actual construction. For some projects, this may be required by the governing building code.

The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria, viruses, and the byproducts of such organisms) assessment of the site, or identification of or prevention of pollutants, hazardous materials or conditions. Other studies beyond the scope of this project would be required to evaluate the potential of such contamination or pollution.

Appendix J

STS Changed Conditions Clause

STS Changed Conditions Clause

Differing Site Conditions

The owner had a subsurface exploration and testing program performed by a geotechnical consultant. The results of this program are contained in the consultant's report. The consultant's report presents conclusions on the subsurface conditions based on their interpretation of the data obtained in the exploration. The contractor acknowledges that they have reviewed the consultant's report and any addenda thereto, and that their bid for earthwork operations is based on the subsurface conditions, as described in that report. The contract parties recognize that a subsurface exploration does not disclose all conditions as they actually exist and further, conditions may change, particularly groundwater conditions, between the time of subsurface exploration and the time of subsurface construction operations. In recognition of these facts, this clause is made part of the contract and provides a means of equitable additional compensation to the contractor if adverse unanticipated conditions are encountered and found to be materially different than reasonable expected as represented in the contract documents.

If at any time during earthwork, paving, foundation, and underground construction operations, the contractor encounters conditions that they consider to be materially different than those anticipated by the geotechnical consultant's report, contractor shall promptly and before such conditions are disturbed notify the owner's representative in writing of the condition and shall explain: (1) how subsurface or latent physical conditions at the site differ materially from those indicated in the contract, or, (2) what unknown physical conditions were encountered that are of an unusual nature and differ materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in this contract. The owner's representative will promptly initiate an investigation of the alleged differing site conditions. The contractor will provide access to the conditions and fully cooperate with the investigation. Upon completion, the owner's representative will issue a findings report with a recommendation on merit. Conversely, if owner's representative observes subsurface conditions which are different than those anticipated by the foundation consultant's report, he will also promptly notify the contractor. If a differing site condition claim has been found to have merit, negotiations will commence between the owner and the contractor to arrive at an equitable change in contract price for the necessary additional work or for reduction in work because of the unanticipated conditions. The contractor agrees that unit prices listed in the bid are applicable in computing equitable adjustments for additional or reduced work under the contract. For changed conditions for which unit prices are not listed, the additional work will be paid for on a time and material basis.