

APPENDIX G

ALTERNATIVE GEOTECHNICAL INVESTIGATION PROGRAM AND ADDENDUM

Alternative Geotechnical Investigation Program (AGIP) for SMCL Sector 2 Northeast Expansion (10/23/2018)

AGIP Addendum No. 1 for SMCL Sector 2 Northeast Expansion (11/26/2018)

**Alternative Geotechnical Investigation Program (AGIP) for
SMCL Sector 2 Northeast Expansion (10/23/2018)**

October 23, 2018

Mr. Aaron Kent
Waste and Materials Management Hydrogeologist
Wisconsin Department of Natural Resources
1300 W. Clairemont Avenue
Eau Claire, WI 54701

Re: Alternative Geotechnical Investigation Program
Advanced Disposal Services - Seven Mile Creek Landfill
Sector 2 Northeast Expansion
WDNR License # 3097

Dear Mr. Kent:

Advanced Disposal Services (Advanced Disposal) – Seven Mile Creek Landfill, LLC (SMCL), is proposing to expand the Sector 2 Landfill (Northeast Expansion), located in Eau Claire, Wisconsin (Figure 1). An Alternative Geotechnical Investigation Program (AGIP) has been prepared in accordance with Wisconsin Administration Code (WAC) NR 512.085, as part of the forthcoming feasibility study to support the investigation of subsurface conditions at the proposed Northeast Expansion. Cornerstone Environmental Group, LLC (Cornerstone), a Tetra Tech Company, on behalf of Advanced Disposal, is requesting an accelerated review and approval of the enclosed AGIP. The attached tables, figures and attachments provide supporting documentation for this request.

The purpose of the alternative geotechnical investigation program request is as follows:

1. To obtain the WDNR's approval for incorporating several of the existing wells and borings installed and drilled as part of the existing landfills' prior permitting and investigations into the AGIP for the proposed Northeast Expansion.
2. To obtain the WDNR's approval for installation of a targeted set of additional borings and wells needed to adequately characterize the geologic and hydrogeologic conditions at the site.

These objectives will be accomplished by conducting an investigation that will supplement the existing geologic and hydrogeologic information previously gathered at the site. Note that the subsurface conditions within and surrounding the proposed Northeast Expansion area were investigated during previous permitting efforts. As a result, the investigation for the proposed Northeast Expansion will focus on targeted areas within and adjacent to the horizontal footprint to 1) supplement the existing subsurface data and information and 2) satisfy current requirements for landfill expansion design.

The proposed Northeast Expansion will encompass approximately 12.5-acres of horizontal expansion contiguous with the eastern boundary of the existing Sector 2 Landfill and approximately 22-acres of vertical expansion overlying the existing Sector 2 footprint. The unconsolidated subsurface conditions are considered to be in a coarse-grained environment, based on previous soil investigations performed at the site. The AGIP will utilize information gathered at existing borings and wells and the proposed drilling program will be based on the area of the horizontal expansion (12.5-acres). According to NR 512.09, which is based on 5-acre increments in a coarse-grained soil environment, a total of fourteen (14) borings, seven (7) water table wells, and three (3) piezometers are required to adequately characterize a 15-acre site (rounded up from 12.5 acres) (Table 1).

Background Information

SMCL owns, operates, and manages the Sector 2 Landfill which is one of two landfills located on the property. The Sector 1 Landfill is closed and located to the south of the Sector 2 Landfill. The Sector 2 Landfill (Phases 1-7) was approved for construction in 1988 with an approximate 2.9 million cubic yards of disposal capacity. In 2002, a vertical expansion was approved over the existing footprint for an additional approximately 0.94 million cubic yards. In 2005, the Northern Horizontal and Vertical Expansion was approved for construction adding Phases 8-12 to the footprint and approximately 5.3 million cubic yards. In 2011, approval was granted to modify the base grades and final grades of the previously approved Northern Expansion and to include Phase 13 construction. This modification resulted in no additional disposal capacity. In 2015, WDNR approved a Vertical Expansion of Sector 2 for an additional capacity of 1.5 million cubic yards. The subsurface conditions at these landfills have been investigated through the installation of numerous wells and borings during the past several decades as shown on Figure 1.

The proposed Northeast Expansion will add approximately 4.18 million cubic yards of waste capacity and 8-9 years of site life based on the SMCL estimated filling rate. The

horizontal portion of the Northeast Expansion will extend north of Phases 9 and 10 and east of Phase 13 of the Sector 2 Landfill.

The subsurface conditions of the proposed horizontal and vertical footprint were previously investigated during prior feasibility studies for the Sector 2 Landfill. Regional and site-specific geotechnical information has most recently been compiled in the SMCL Sector 2 Feasibility Report dated October 2014 and subsequent Feasibility Report Addendums dated March 2015 and May 2015.

The AGIP proposed herein utilizes twenty-eight (28) existing soil borings, three (3) existing water table wells, and two (2) existing piezometers, as summarized on Tables 1 and 2. Copies of the existing boring logs and monitoring well construction logs for the locations identified in Table 2 are included in Attachment 1. In addition, five (5) new soil borings, four (4) new water table wells, and two (2) new piezometers will be installed to further characterize the site. Four of the new soil borings will be co-located with the four new water table wells and the two new piezometers. The proposed borings, wells, and piezometers are summarized in Table 3. The existing boring and well locations are shown on Figure 1 with the proposed boring and well locations shown on Figure 2.

Exemption/Variance Requests

On the basis of the information presented in this letter, the exemptions listed below are requested for the AGIP. These exemptions will be formally requested in the Feasibility Report.

- An exemption is requested to NR 512.09(1) and NR 512.09(2) to utilize existing borings and wells (Table 2) and to reduce the number of required new borings, water table wells, and piezometers to those shown in Tables 1 and 3. This exemption is justified because of 1) the plethora of available borings and wells previously installed in this area of the site and 2) the consistency of the site geologic and hydrogeologic conditions previously interpreted and documented at the site.
- An exemption to the NR 512.09(1)(b) requirement that borings located outside the limits of waste filling, extend a minimum of 25-feet below the anticipated elevation of the bottom of the proposed liner (subbase) nearest to the borehole is requested for GP-11. Boring GP-11 was drilled to approximately 878.1 feet above mean sea level (ft AMSL) while the nearest base liner elevation is anticipated to be 900-ft AMSL which is approximately three feet short of the required 25-feet. The GP-11 borehole was drilled 17-feet into the weathered bedrock and based on surrounding boring logs, it

can reasonably be assumed that bedrock continues to the required 25-feet below the anticipated elevation of the bottom of the nearest proposed base liner elevation.

- An exemption to NR 507.05(1)(e) is being requested for the requirement to retain soil samples until the department approves the report that included documentation of the soil samples. The soil samples from the existing borings utilized for this AGIP as summarized in Table 2, have not been retained. The borings were completed during previous permitting processes or investigations and approved by the WDNR. The boring logs are included in Attachment 1.
- A variance to the NR 507.14(5) requirement for submission of information on the most current version of the WDNR forms is being requested. The boring log and monitoring well construction forms used for some of the existing borings and wells noted in Table 2 are on older WDNR or non-WDNR logs or forms. The required information is presented sufficiently on these existing forms (Attachment 1).
- A variance to the NR 507.05(2) requirement for collection of a bedrock core from each boring extending five feet or greater into bedrock (see Table 3). It is anticipated that each of the five proposed borings for Northeast Expansion will extend into bedrock. Bedrock cores of the sandstone were obtained in the Sector 2 Area from three borings, DH-23B, TB-78, and DH-46A, during prior investigations (see Table 2, Figure 2 and Attachment 1). Borings DH-23B and TB-78 are located within the proposed vertical expansion footprint. Boring DH-46A is located near the southeast corner of the proposed horizontal expansion area. The cores from these three borings were minimally competent or of low quality with 75% of the core runs having an Rock Quality Designation (RQD) of 0% and none above 40%. As a result of the prior findings of marginally competent or low-quality bedrock as well as the bedrock type being consistent across the Sector 2 Area and regionally, it is proposed that bedrock coring likely required at four of the five new borings be performed at only the deepest boring DH-62A. This boring is anticipated to have the greatest extent of bedrock drilling and is located in the north-central portion of the proposed horizontal footprint.
- A variance to the NR 507.14(4) requirement for submission of well abandonment documentation for monitoring wells DH-23, DH-23A, DH-23B, and DH23-C. Cornerstone continues to search for this information.

- An exemption to the NR 512.09 (4)(f) requirement to perform quarterly water level measurements following the monthly water level measurements at the new wells for a six (6) month period. Water levels have been measured at monitoring wells in the vicinity of the SMCL since the late 1980s. A substantial amount of data exists that justifies this request and documents groundwater flow conditions. The landfill liner design is preliminary at this time and may be adjusted upon review the water level and bedrock data as well as general design considerations during the Feasibility Study.

Geotechnical Information

A summary of the geologic and hydrogeologic conditions in the vicinity of the proposed Northeast Expansion based on existing information is provided below to support the proposed AGIP and the requested exemptions. The Northeast Expansion feasibility study will include data collected from this AGIP and existing data from the previous investigations for the contiguous existing landfill.

The purpose of this section is to demonstrate our understanding of current subsurface conditions at the SMCL and specifically in the proposed Northeast Expansion area. The abundance of existing data, the completeness of current site knowledge, and the consistencies in the geologic and hydrogeologic data have been used to substantiate and justify the proposed AGIP.

The regional and site-specific geologic conditions have been previously substantiated in several documents, but are not limited to, the Sector 2 Landfill Horizontal and Vertical Feasibility Report dated November 2003, the Sector 2 Feasibility Modification dated February 2011, the Sector 2 Vertical Expansion Feasibility Report dated October 2014, and the Sector 2 Vertical Expansion Feasibility Report Addendums No. 1 and 2 dated March and May 2015, respectively. Information and documentation from these Reports has been utilized to prepare the following site-specific geotechnical summary.

Geology

Glacial Geology

The geology in the area of the SMCL consists of alluvial sand and gravel deposits overlying the Cambrian age sandstone bedrock. The alluvial material was deposited by meltwater during the Wisconsin Stage of the Pleistocene glaciation. Regionally, the site is situated in a bedrock valley that ranges in depth from 25 feet to the east, west and north and to 100 feet to the south of the site. Seven Mile Creek generally follows this valley. Based on borings

conducted at the SMCL, the alluvial material ranges from 10 feet to 70 feet in thickness with occasional silt layers in the Sector 2 area. Weathered bedrock has been encountered at depths ranging from 10 feet bgs (TB-63) to 70 feet bgs (DH-39A). The glacial deposits and the weathered bedrock have both been documented through physical testing of soil samples as reported in the 2014 Sector 2 Vertical Expansion Feasibility Report (see attached summary tables of geotechnical test data - Attachment 2) and as documented and reported during other site investigative activities.

Bedrock Geology

Regional information indicates Cambrian-age sandstone (Eau Claire formation and the Mount Simon formation) overlies Precambrian igneous and metamorphic rock (see 2018 ISR Report). The sandstone bedrock is within a few feet of the ground surface within one mile to the east and west of the SMCL. Precambrian rock is the upper most bedrock in the Eau Claire River Valley to the south of the SMCL.

The competent sandstone bedrock surface, if encountered in the vicinity of the SMCL, is shown in Plan Sheet 20 as prepared for the 2015 Sector 2 Feasibility Report Addendum No. 2 (see Attachment 3). Several soil borings and three bedrock cores were previously completed which confirm the regional information. In general, a weathered sandstone bedrock surface exists on site between approximately 810 feet above mean sea level (M.S.L.) and 919 feet M.S.L. The competent sandstone bedrock surface was mapped based on auger refusal or ability to complete rock cores in on-site borings. Neither of these conditions were encountered in most of the borings performed at the SMCL. Competent bedrock in nearby water supply wells is based on the depth well casing installed into the bedrock. It should be noted that private well logs also contain marginally detailed geologic descriptions. Therefore, correlating the private well information with site boring log information has some limitations. Additionally, since limited survey information exists for the private wells, USGS topographic ground surface elevations were utilized as a reference point to determine the bedrock elevation at an individual well. Although some uniformity to the competent bedrock surface is depicted on Plan Sheet 20, due to the weathered condition of the sandstone in the vicinity of the landfill, the competent bedrock surface is more than likely highly variable.

Bedrock cores were completed where competent rock was anticipated to be encountered. A total of three sandstone bedrock cores were obtained in the Sector 2 Area from the borings DH-23B, TB-78, and DH-46A during prior investigations. A short run of crystalline Precambrian rock was also cored at boring DH-23B. The Precambrian rock was encountered

at approximately 816 feet M.S.L. A description of the core samples is provided on the boring logs included in Attachment 1.

Hydrogeology

Regional groundwater flow is from the sandstone hills north and east of the site, south to the Eau Claire River, with approximate groundwater surface elevations of 920 feet M.S.L. to 800 feet M.S.L., respectively. Altoona Lake to the south has a stabilizing effect on the regional groundwater flow in the area. The Lake has a surface elevation of 800 feet, which fluctuates very little with drought and flood conditions. The 100-year intermediate regional flood elevation for the Eau Claire River is 818 feet. The regional water table is generally encountered within the Cambrian-age sandstone bedrock. The Cambrian sandstone is the primary aquifer in the area. Sand and gravel deposits are utilized as a water supply source in localized areas where these deposits have a greater thickness.

The regional groundwater table surface occurs at approximately 870 feet M.S.L. in the immediate vicinity of the site. Regional groundwater flow in the vicinity of the site converges on Seven Mile Creek, flowing to the south-southwest on the east side of the creek and to the south-southeast on the west side of the creek. Similar groundwater convergence is noted relative to Nine Mile Creek to the east of the SMCL. Infiltrating precipitation can be expected to travel vertically downward through the soils with lateral or diagonal movement along the upper surface of the silt layers and sandstone bedrock until it reaches the local groundwater aquifer. The regional groundwater elevation and flow information generally correlates to site-specific information measured and/or gathered from the monitoring well network at the site. Regional information indicates groundwater is shallower than what has historically been encountered on site.

The groundwater is generally encountered at a depth of approximately 40 feet below ground surface on average in the vicinity of Sector 2. The groundwater surface ranges in elevation from approximately 900 feet M.S.L. in the east to 855 feet M.S.L. near the southwest corner of Sector 2. The groundwater flow direction during the high, low and most recent water level conditions was consistent during each of these periods. In general, the groundwater flows to the west near the eastern portion of the Sector 2 Landfill with a groundwater high point noted near well DH-47. The groundwater flow direction shifts to a southwesterly component of flow under the central and western portions of the Sector 2 Landfill. The greatest variation in groundwater levels between the high and the low periods occurs in the eastern portion of the SMCL where they fluctuated 2 to 5 feet between these periods. The variation in water levels between the high and low periods is much more subdued in the central and western portions of the SMCL. The groundwater

elevation and flow directions measured at the SMCL are consistent with regional observations. Groundwater contour maps from the 2014 Feasibility Report are provided in Attachment 4.

There are currently 36 water table wells and 17 piezometers installed at the SMCL. At each of the well nest locations, vertical gradients have been computed on one or more occasions in the past. The vertical gradients calculated in the area surrounding the Northeast Expansion indicate it is generally an area of recharge or downward gradients.

Conclusions and Recommendations

Based on the evaluation of the available data, six monitoring wells at four locations and one additional boring are proposed to be installed as shown on Figure 2. The proposed well locations have been selected to provide adequate areal coverage to characterize water quality and groundwater flow conditions in the area around the Northeast Expansion for purposes of site feasibility and long-term monitoring.

The existing and proposed borings and monitoring wells will fulfill the requirements of NR 512.09 for site-specific geotechnical information. The proposed AGIP takes advantage of the significant amount of existing data generated as part of the WDNR approved siting of the Sector 2 Landfill. The present understanding of geologic and hydrogeologic conditions across the site indicate that the AGIP described herein is reasonable and appropriate for the purposes of site feasibility.

The proposed AGIP will provide adequate and defensible data to fully characterize the subsurface geological conditions as well as the groundwater flow direction and the groundwater quality for feasibility determination. It is anticipated that the correlations between the existing and new data can be accomplished without compromising accuracy of the geotechnical investigation.

In accordance with NR 520.04(4)(b), Cornerstone, on behalf of Advanced Disposal, requests an accelerated review and approval of the AGIP for the proposed Northeast Expansion of the Sector 2 Landfill. We anticipate completing drilling activities by early December 2018.

Mr. Aaron Kent
October 23, 2018
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Should you have any questions regarding the information provided, please contact John by email at John.Oswald@cornerstoneeg.com or by phone at (630) 410-7224.

Sincerely,

Cornerstone Environmental Group, LLC

A handwritten signature in black ink, appearing to read 'Dan Roche'.

Dan Roche, P.E.
Project Engineer

A handwritten signature in blue ink, appearing to read 'John C. Oswald'.

John C. Oswald, P.G.
Sr. Project Manager / Operations Director

Attachments: Table 1: Alternative Geotechnical Program NR 512 Comparison
Table 2: Existing Borings and Well Data
Table 3: Proposed Borings and Well Information
Figure 1: Existing Conditions Map
Figure 2: Proposed Boring and Monitoring Well Location Map
Attachment 1: Existing Boring Logs and Monitoring Well Log Information
Attachment 2: Geotechnical Soil Test Data Summary Tables
Attachment 3: Competent Bedrock Surface Contour Map
Attachment 4: Groundwater Contour Maps

Cc: Mark Vinall - Advanced Disposal Services
Tim Curry - Advanced Disposal Services (electronic copy only)
Nate Coller - WDNR, Spooner Service Office
Marty Herrick - WDNR, LaCrosse Service Office (electronic copy only)
Joe Lourigan - WDNR, Madison (electronic copy only)

References:

Ayers Associates. 2003 Feasibility Report, Superior Seven Mile Creek Landfill, Sector 2 Horizontal and Vertical Expansion. November 13, 2003.

Ayers Associates. 2011a Letter for Feasibility Modification, Veolia ES Seven Mile Creek Landfill, Sector 2, February 2, 2011.

Ayers Associates. 2011b Letter for Feasibility Modification Additional Information, Veolia ES Seven Mile Creek Landfill, Sector 2, April 12, 2011.

Cornerstone Environmental Group. 2014. Feasibility Report, Proposed Sector 2 Vertical Expansion, Advanced Disposal Seven Mile Creek Landfill. October 31, 2014.

Cornerstone Environmental Group. 2015. Feasibility Report Addendum No. 1, Proposed Vertical Expansion of Sector 2, Advanced Disposal Seven Mile Creek Landfill. March 10, 2015.

Cornerstone Environmental Group. 2015. Feasibility Report Addendum No. 2, Proposed Vertical Expansion of Sector 2, Advanced Disposal Seven Mile Creek Landfill. May 20, 2015.

Cornerstone Environmental Group. 2018. Initial Site Report, Proposed Northeast Expansion of Sector 2, Advanced Disposal Seven Mile Creek Landfill. October 10, 2018.

REPORT CERTIFICATION

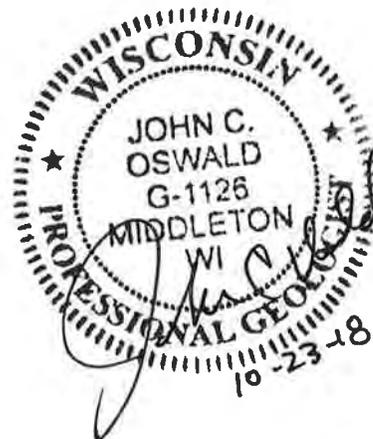
I, John C. Oswald, hereby certify that I am a licensed professional geologist in the State of Wisconsin in accordance with the requirements of ch. GHSS 2, Wis. Adm. Code; that the preparation of this document has not involved any unprofessional conduct as detailed in ch. GHSS 5, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 500 to 538, Wis. Adm. Code.

John C. Oswald

Name

Senior Geologist / WI Operations Director

Title



Tables

Table 1
Alternative Geotechnical Investigation Program - NR 512 Comparison
Advanced Disposal Services
Seven Mile Creek Landfill - Sector 2 Northeast Expansion
Feasibility Report
Eau Claire, Wisconsin

	Requirements for a 15-acre site
Soil borings	14
Water table wells	7
Piezometers	3

	No. of Existing Locations	No. of Proposed Additional Drilling Locations	Total Locations for Proposed Alternative Program
Soil borings	28	5	33
Water table wells	3	4	7
Piezometers	2	2	4

Notes:

1. Assumes a coarse-grained site as defined in NR 500.
2. The total Seven Mile Creek LF expansion footprint is approximately 34.5 acres and includes a 12.5 acre horizontal expansion and a 22.0 acre vertical expansion. The investigation program is based on the 12.5 acre horizontal expansion footprint.
3. One active well nest is required inside the proposed landfill footprint per NR 512.09(2)(b). Well nest DH-62/DH-62A will be installed within the footprint.

Prepared by: N. Dykstra

Checked by: T. Daigle/ J. Oswald

TABLE 2
 PROPOSED ALTERNATIVE GEOTECHNICAL INVESTIGATION PROGRAM
 EXISTING BORING AND MONITORING WELL INFORMATION SUMMARY
 SEVEN MILE CREEK LANDFILL
 SECTOR 2 NORTHEAST EXPANSION

Location	Original landfill boring/well ID	Approx. distance from limits of waste (ft)	Approx. ground surface elevation (ft-MSL)	Boring depth (ft)	Approx. bottom boring elevation (ft-MSL)	Nearest subbase elevation (ft-MSL)	Nearest subbase elevation minus 25 feet (ft-MSL)	Sample interval (ft)	Well bottom elevation (ft-MSL)	Well Type	Use for FR well (meets NR 512 requirements)	Use for FR boring (meets NR 512 requirements)	Standard Penetration Test	MW: soil test in screen zone	MW: hydraulic conductivity (cm/sec)	MW: well log	MW: well development log	Boring log	Well Abandoned	Abandonment log	Comments
150	AB-D	Within	920	30	890	894	869	-	-	-	-	-	-	-	-	-	-	-	-	-	Boring log not available
150	AB-E	Within	911	26	885	902	877	-	-	-	-	-	-	-	-	-	-	-	-	-	Boring log not available
150	AB-F	Within	911	26	885	902	877	-	-	-	-	-	-	-	-	-	-	-	-	-	Boring log not available
150	AB-H	Within	912	26	886	902	877	-	-	-	-	-	-	-	-	-	-	-	-	-	Boring log not available
150	AB-I	Within	912	22	890	908	883	-	-	-	-	-	-	-	-	-	-	-	-	-	Boring log not available
150	AB-J	Within	912	17.5	894.5	908	883	-	-	-	-	-	-	-	-	-	-	-	-	-	Boring log not available
150	AB-K	Within	912	21	891	906	881	-	-	-	-	-	-	-	-	-	-	-	-	-	Boring log not available
150	AB-M	Withn	917	40	877.3	894	869	-	-	-	-	-	-	-	-	-	-	X	-	-	free drilling- rock search
300	AB-N	165	911	55	856	906	881	-	-	-	-	-	-	-	-	-	-	X	-	-	free drilling- rock search
150	AB-O	10	911	15.5	895.64	908	883	5	-	-	-	X	-	-	-	-	-	X	-	-	
150	AB-P	95	911	16.2	894.6	904	879	5	-	-	-	X	-	-	-	-	-	X	-	-	
	GP-10	within	926	47	879	906	881	5	-	-	X	X	-	-	-	-	-	X	-	-	gas probe
	GP-11	within	927	49	878	900	875	5	-	-	X	X	-	-	-	-	-	X	-	-	gas probe
150	DH-1	15	920	55	865.3	894	869	5	-	-	X	X	-	-	-	-	-	X	X	X	Well abandoned
150	DH-23	Within	912	51	861.23	908	883	5	-	-	-	X	-	1.30E-03	-	-	-	X	X	-	Well abandoned / Boring logs from DH-23 and DH-23B combined, provide geologic information to 122.5 feet below ground surface (bgs)
150	DH-23A	Within	912	75	837.2	908	883	(6)	-	-	-	X	-	6.80E-04	-	-	-	X	X	-	Well abandoned
150	DH-23B	Within	912	122.5	789.7	908	883	-	-	-	X	-	-	1.40E-04, 6.4E-03	-	-	-	X	X	-	Well abandoned / Boring logs from DH-23 and DH-23B combined provided geologic information to 122.5 feet bgs / Rock cores from 50 to 60 feet / 95 to 100 feet / 120 to 122.5 feet bgs
150	DH-23C	Within	912	30	882.2	908	883	-	-	-	-	-	-	-	-	-	-	X	X	-	Well abandoned
150	DH-24	Within	921	53.3	867.3	898	873	5	-	-	X	X	-	-	-	-	-	X	X	X	Well abandoned
300	DH-39	155	925	52	872.7	894	869	5	875.7	WT	X	-	X	6.48E-03	X	X	X	X	-	-	
300	DH-39A	155	925	75	849.7	894	869	5	850.7	P	X	X	X	in wx rock	1.45E-03	X	X	X	-	-	Drilled 5 feet into weathered bedrock
150	DH-40	Within	924	59	865.1	898	873	5	875.1	WT	X	X	X	in wx rock	3.91E-03	X	X	X	-	-	Drilled 20 feet into weathered bedrock
150	DH-44	120	917	48	868.7	894	869	5	-	-	-	X	-	4.93E-03	-	-	-	X	X	X	Well abandoned
150	DH-44A	120	917	72	844.6	894	869	5	-	-	X	X	-	6.10E-03	-	-	-	X	X	X	Well abandoned
150	DH-46	120	933	41	892.3	914	889	5	896.3	WT	X	-	X	7.93E-05	X	X	X	-	-	-	
150	DH-46A	120	933	64	869.3	914	889	5	871.3	P	X	X	in wx rock	3.11E-03	X	X	X	-	-	-	Rock core from 30 to 64 feet bgs
Outside	DH-47	315	923	24.5	898.7	912	887	5	900.2	WT	-	X	X	6.67E-03	X	X	X	-	-	-	
Outside	DH-47A	315	923	48	874.9	912	887	-	874.9	P	-	X	X	2.84E-03	X	X	X	-	-	-	
150	DH-50	30	907	42	865.3	900	875	5	-	-	X	X	-	2.16E-03	-	-	-	X	X	X	
150	TB-15	150	911	31	880	905	880	2.5	-	-	X	-	-	-	-	-	-	X	-	-	
150	TB-18	80	913	32	881.2	910	885	2.5	-	-	X	-	-	-	-	-	-	X	-	-	
150	TB-19	Within	913	15	898.2	910	885	2.5	-	-	-	-	-	-	-	-	-	X	-	-	
300	TB-21	180	913	22	891.2	892	867	2.5	-	-	-	-	-	-	-	-	-	-	-	-	Boring log not available
150	TB-22	Within	921	22	899.2	894	869	2.5	-	-	-	-	-	-	-	-	-	-	-	-	Boring log not available
150	TB-29	90	908	26	881.6	905	880	2.5	-	-	-	-	-	-	-	-	-	X	-	-	
150	TB-32	65	911	25.6	885.4	904	879	5	-	-	-	X	-	-	-	-	-	X	-	-	
150	TB-33	Within	910	40	870.2	906	881	5	-	-	X	X	-	-	-	-	-	X	-	-	
150	TB-36	70	912	19.5	892.1	908	883	5	-	-	-	X	-	-	-	-	-	X	-	-	
150	TB-37	Within	911	35.4	875.8	908	883	5	-	-	X	X	-	-	-	-	-	X	-	-	
150	TB-38	40	913	50.2	862.4	896	871	5	-	-	X	X	-	-	-	-	-	X	-	-	
150	TB-39	Within	914	18.2	895.8	894	869	5	-	-	-	X	-	-	-	-	-	X	-	-	
300	TB-40	235	913	46.5	866.5	892	867	5	-	-	X	X	-	-	-	-	-	X	-	-	
150	TB-41	Within	918	40.2	877.6	894	869	5	-	-	-	X	-	-	-	-	-	X	-	-	
300	TB-42	285	910	31.5	878.8	893	868	5	-	-	-	X	-	-	-	-	-	X	-	-	
150	TB-58	95	901	51.5	849.4	924	899	5	-	-	X	X	-	-	-	-	-	X	-	-	
300	TB-61	255	911	56	855.1	892	867	5	-	-	X	X	-	-	-	-	-	X	-	X	
150	TB-62	Within	915	56	859.4	894	869	5	-	-	X	X	-	-	-	-	-	X	-	X	
150	TB-63	Within	923	33.5	889.3	896	871	5	-	-	-	X	-	-	-	-	-	X	-	X	
150	TB-64	Within	919	55.4	863.8	894	869	5	-	-	-	X	-	-	-	-	-	X	-	X	
150	TB-65	Within	917	60.7	856.5	894	869	5	-	-	X	X	-	-	-	-	-	X	-	X	
150	TB-68	Within	920	60.5	859.5	894	869	5	-	-	X	X	-	-	-	-	-	X	-	X	
150	TB-69	15	925	61	864	904	879	5	-	-	X	X	-	-	-	-	-	X	-	X	
150	TB-70	140	919	56	863.4	899	874	5	-	-	X	X	-	-	-	-	-	X	-	X	
300	TB-71	280	915	41	873.8	894	869	5	-	-	-	X	-	-	-	-	-	X	-	X	
300	TB-74	210	910	47	863	898	873	5	-	-	X	X	-	-	-	-	-	X	-	X	

TABLE 2
 PROPOSED ALTERNATIVE GEOTECHNICAL INVESTIGATION PROGRAM
 EXISTING BORING AND MONITORING WELL INFORMATION SUMMARY
 SEVEN MILE CREEK LANDFILL
 SECTOR 2 NORTHEAST EXPANSION

300	TB-77	225	918	50.5	867.8	910	885	5		-		X	X				X		X	
150	TB-78	Within	919	55	863.8	908	883	5		-		X	X				X		X	Rock core from 30 to 55 feet bgs
150	TB-79	Within	922	52	869.8	912	887	5		-		X	X				X		X	
150	TB-80	25	926	56	870.3	914	889	5		-		X	X				X		X	

Prepared by: CR/ND
 Checked by: TD/JO

Notes:

- 1 WT Included in NR 512 count for water table wells
- 2 P Included in NR 512 count for piezometers
- 3 AB-XX/TB-XX /DH-XX Included in NR 512 boring count
- 4 864 Boring depth meets NR 512 depth requirement
- 5 Subbase elevations based on top of clay grades conceptual drawings minus 4-ft
- 6 Ground surface elevation noted is at time boring was drilled
- 7 Wells greater than 150 feet from LF footprint subject to NR 140 ES Exceedences
- 8 wx = weathered
- 9 bgs = below ground surface
- 10 ft - MSL = feet above mean sea level

TABLE 3
 ALTERNATIVE GEOTECHNICAL INVESTIGATION PROGRAM
 PROPOSED BORINGS AND MONITORING WELLS
 ADVANCED DISPOSAL SERVICES -
 SEVEN MILE CREEK LANDFILL
 SECTOR 2 NORTHEAST EXPANSION
 EAU CLAIRE, WI

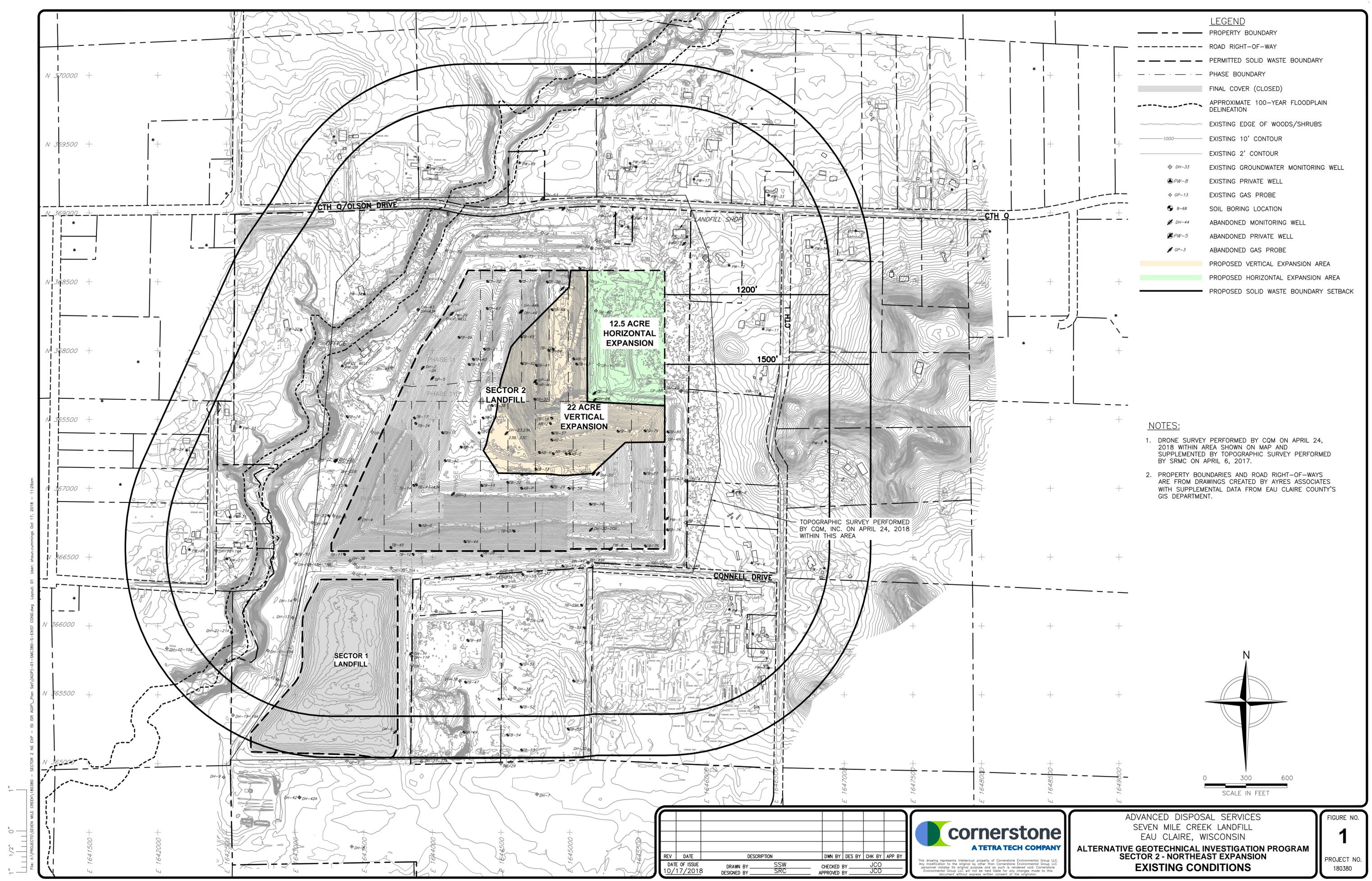
Proposed Borings & Wells	Location	Approx. Ground Surface Elevation (ft-MSL)	Approx. Nearest Subbase Elevation (ft-MSL)	Estimated Groundwater Elevation (ft-MSL)	Estimated Well Bottom Elevation (ft-MSL)	Estimated Boring Bottom Elevation (ft-MSL)	Approx. Competent Bedrock Elevation (ft-MSL)	Approx. Length of Drilling into Bedrock (feet)	Sample Interval (feet)	Total Boring Depth (feet bgs)	Well Depth (feet bgs)	Well Screen Length (feet)	Riser Length (feet)	Well Type	Well Casing Material	Use for FR to Meet NR 512 Requirements	Sampled (feet)	Drilled Only (feet)	Abandoned (feet)	Comments
Wells																				
DH-60	see map	934	906	887	877	875	885	10	NA	59	57	15	45	WT	Sch. 40 PVC	Yes	0	59	0	
DH-60A	see map	934	906	887	847	845	885	40	5	89	87	5	85	P	Sch. 80 PVC	Yes	89	0	0	
DH-61	see map	935	908	892	882	877	896	19	5	58	53	15	41	WT	Sch. 40 PVC	Yes	58	0	0	
DH-62	see map	931	907	887	877	875	892	17	NA	56	54	15	42	WT	Sch. 40 PVC	Yes	0	56	0	
DH-62A	see map	931	907	887	847	845	892	47	5	86	84	5	82	P	Sch. 80 PVC	Yes	86	0	0	Rock coring proposed at this boring
DH-63	see map	931	909	890	880	875	898	23	5	56	51	15	39	WT	Sch. 40 PVC	Yes	56	0	0	
Boring																				
TB-81	see map	931	906	885	-	881	884	3	5	55	-	-	-	-	-	Yes	55	-	55	
Total								159		459	386	70	334				344	115	55	

Notes:

- 1 Water elevations were projected into the expansion area and are based on average water level data measured between Feb 2010 - Apr 2017, which typically are within 3-ft of the high water measurement over that same period.
- 2 WT = water table well
- 3 P = piezometer
- 4 NA - not applicable - Water table well at well nest to be blind drilled.
- 5 BGS = below ground surface
- 6 ft-MSL = feet above mean sea level
- 7 Groundwater elevations are an approximate average of high and low data provided in the 2014 Feasibility Report.
- 8 Competent bedrock elevations are based on 2014 Feasibility Report Addendum No. 1 Estimated Competent Bedrock Contours drawing dated 10/17/2014.
- 9 Riser length = total well depth - screen length + 3-ft stick up above the ground surface.

Prepared by: ND
Checked by: JO

Figures

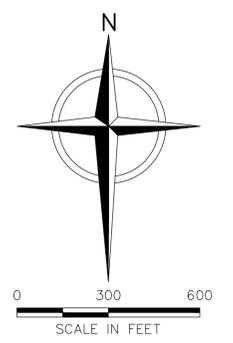


LEGEND

- PROPERTY BOUNDARY
- - - ROAD RIGHT-OF-WAY
- - - PERMITTED SOLID WASTE BOUNDARY
- - - PHASE BOUNDARY
- FINAL COVER (CLOSED)
- - - APPROXIMATE 100-YEAR FLOODPLAIN DELINEATION
- EXISTING EDGE OF WOODS/SHRUBS
- 1000 --- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- ⊕ DH-33 EXISTING GROUNDWATER MONITORING WELL
- ⊕ PW-8 EXISTING PRIVATE WELL
- ⊕ GP-13 EXISTING GAS PROBE
- ⊕ B-68 SOIL BORING LOCATION
- ⊕ DH-44 ABANDONED MONITORING WELL
- ⊕ PW-5 ABANDONED PRIVATE WELL
- ⊕ GP-3 ABANDONED GAS PROBE
- PROPOSED VERTICAL EXPANSION AREA
- PROPOSED HORIZONTAL EXPANSION AREA
- PROPOSED SOLID WASTE BOUNDARY SETBACK

- NOTES:**
1. DRONE SURVEY PERFORMED BY CQM ON APRIL 24, 2018 WITHIN AREA SHOWN ON MAP AND SUPPLEMENTED BY TOPOGRAPHIC SURVEY PERFORMED BY SRMC ON APRIL 6, 2017.
 2. PROPERTY BOUNDARIES AND ROAD RIGHT-OF-WAYS ARE FROM DRAWINGS CREATED BY AYRES ASSOCIATES WITH SUPPLEMENTAL DATA FROM EAU CLAIRE COUNTY'S GIS DEPARTMENT.

TOPOGRAPHIC SURVEY PERFORMED BY CQM, INC. ON APRIL 24, 2018 WITHIN THIS AREA



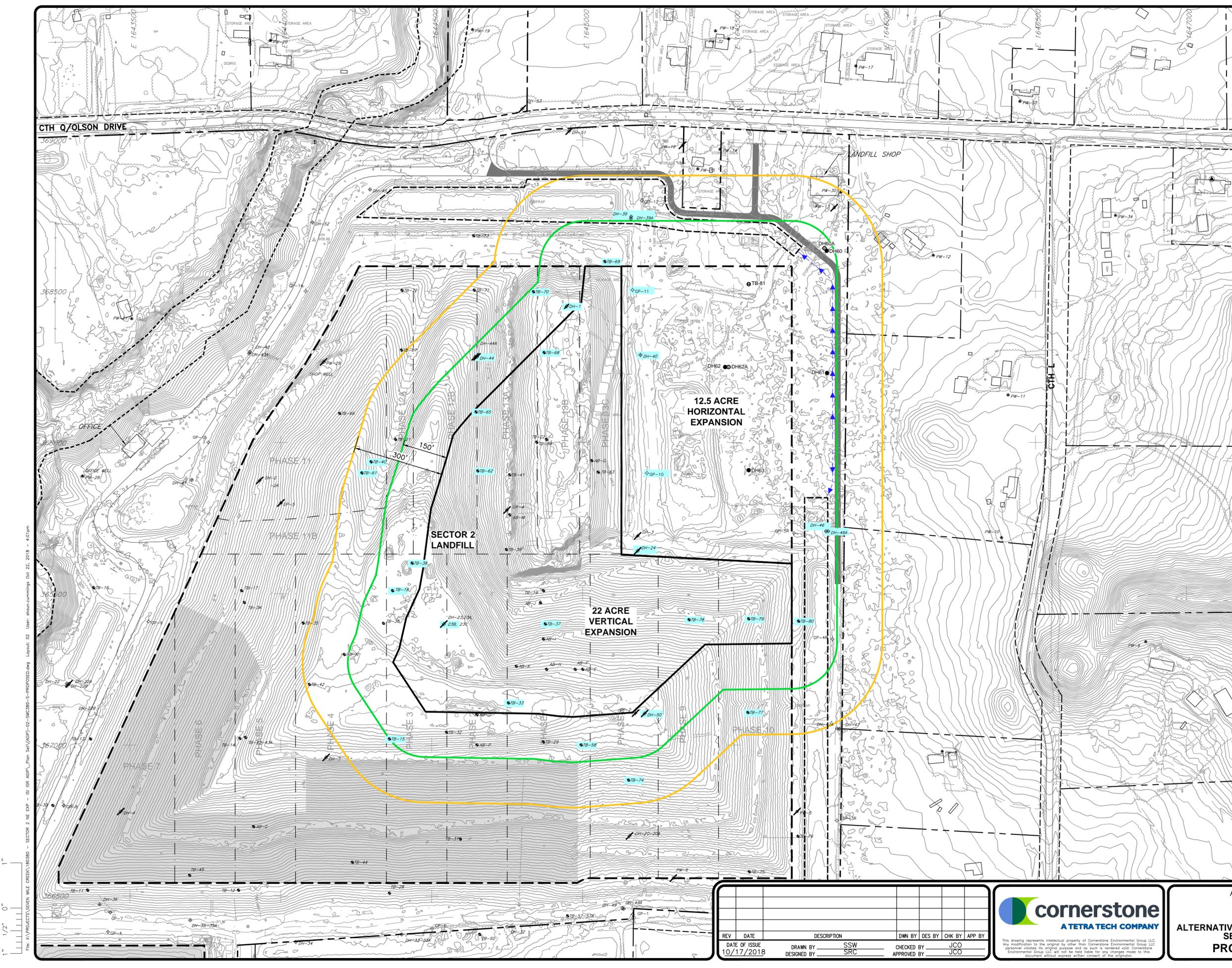
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REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY
	DATE OF ISSUE					
	10/17/2018		SSW	SSW	JCO	JCO
		DESIGNED BY	SRC	CHECKED BY	JCO	APPROVED BY



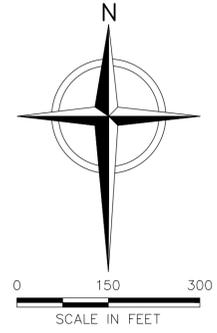
ADVANCED DISPOSAL SERVICES
SEVEN MILE CREEK LANDFILL
EAU CLAIRE, WISCONSIN
**ALTERNATIVE GEOTECHNICAL INVESTIGATION PROGRAM
SECTOR 2 - NORTHEAST EXPANSION
EXISTING CONDITIONS**

FIGURE NO.
1
PROJECT NO.
180380



- LEGEND**
- PROPERTY BOUNDARY
 - - - ROAD RIGHT-OF-WAY
 - - - PERMITTED SOLID WASTE BOUNDARY
 - - - PHASE BOUNDARY
 - FINAL COVER (CLOSED)
 - - - APPROXIMATE 100-YEAR FLOODPLAIN DELINEATION
 - EXISTING EDGE OF WOODS/SHRUBS
 - 1000 --- EXISTING 10' CONTOUR
 - EXISTING 2' CONTOUR
 - ⊕ DH-33 EXISTING GROUNDWATER MONITORING WELL
 - ▲ PW-8 EXISTING PRIVATE WELL
 - ◇ GP-13 EXISTING GAS PROBE
 - B-68 SOIL BORING LOCATION
 - ⊕ DH-44 ABANDONED MONITORING WELL
 - ▲ PW-5 ABANDONED PRIVATE WELL
 - ◇ GP-3 ABANDONED GAS PROBE
 - - - PROPOSED NORTHWEST EXPANSION HORIZONTAL FOOTPRINT
 - PROPOSED NORTHWEST EXPANSION VERTICAL FOOTPRINT
 - 150' OFFSET FROM EXPANSION BOUNDARY
 - 300' OFFSET FROM EXPANSION BOUNDARY
 - ⊕ TB-62 EXISTING BORING UTILIZED IN AGIP
 - TB-82 PROPOSED SOIL BORING LOCATION
 - ⊕ DH60A PROPOSED PIEZOMETER LOCATION
 - DH60 PROPOSED WATER TABLE WELL LOCATION
 - PROPOSED DRAINAGE DITCH
 - - - PROPOSED STORM WATER BASIN
 - PROPOSED ROAD

- NOTES:**
- DRONE SURVEY PERFORMED BY CQM ON APRIL 24, 2018 WITHIN AREA SHOWN ON MAP AND SUPPLEMENTED BY TOPOGRAPHIC SURVEY PERFORMED BY SRMC ON APRIL 6, 2017.
 - PROPERTY BOUNDARIES AND ROAD RIGHT-OF-WAYS ARE FROM DRAWINGS CREATED BY AYRES ASSOCIATES WITH SUPPLEMENTAL DATA FROM EAU CLAIRE COUNTY'S GIS DEPARTMENT.



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DATE OF ISSUE: 10/17/2018
 DRAWN BY: SSW
 DESIGNED BY: SRC
 CHECKED BY: JCO
 APPROVED BY: JCO



ADVANCED DISPOSAL SERVICES
 SEVEN MILE CREEK LANDFILL
 EAU CLAIRE, WISCONSIN
ALTERNATIVE GEOTECHNICAL INVESTIGATION PROGRAM
SECTOR 2 - NORTHEAST EXPANSION
PROPOSED BORING LOCATIONS

FIGURE NO.
2
 PROJECT NO.
 180380

Attachment 1

Existing Boring Logs and Monitoring Well Log Information

BORING NO. AB-M
 SURFACE ELEV. 917.3 FT.

AYRES
 ASSOCIATES

SAMPLE NUMBER	BLOWS ON SAMPLER (140 lbs - 2" O.D. - FALLING 30")			SAMPLE TYPE	CLASSIFICATION AND REMARKS	Moisture	UNIFIED CLASSIFICATION	POCKET PEN READING (TSF)	GEOLOGY	DEPTH	ELEV.	
	6"	6"	per ft.									
					Topsoil 0.4'				↑		Flight Auger	
					Sand, Rd-Brn., M-F, w/so silt, trc. gravel							
					Sand, yel-brn., w/so silt, tracc. gravel				↓ Alluvium ↓	10		
										20		
										30		
										40		
					E.O.B. 40.0'						50	
											60	

— KEY —

- C = ROCK CORE
- A = AUGER SAMPLE
- X = SPLIT SPOON
- S = SHELBY TUBE
- =
- =

PROJECT Seven Mile L.F.
 DATE(S) DRILLED 4-11-85
 LOCATION 27+61 N, 17+5 BE
 GROUNDWATER: FT. BELOW GS. AT ELEV. OF
 DRILLERS: M.P. for JOB NO. 4731.00
W.T.D. DATE

BORING NO. AB-0
 SURFACE ELEV. 911.14 FT.

AYRES
 ASSOCIATES

SAMPLE NUMBER	BLOWS ON SAMPLER (140 lbs - 2" O.D. - FALLING 30")			SAMPLE TYPE	CLASSIFICATION AND REMARKS	Moisture	UNIFIED CLASSIFICATION	POCKET PEN READING (TSF)	GEOLOGY	DEPTH	ELEV.
	6"	6"	per ft								
					Sand, Dk. Brn. M-F, 1/4 silt	M	SP			5	HSA
1	5 22	11	33 R1.0	X							
2	4 12	8	20 R1.2	Y	Sand, Lt. Brn, M-F, 1/4 silt Silt foam in Top 3" (ML)	M	SP			20	
3	100	0.4	100 R0.4	X	Sand stone, Lt. Brn. M-F E.O.B @ 15.5' Cave in to 13.8'	W	SP			30	15'
										40	20
										50	
										60	

— KEY —

- C = ROCK CORE
- A = AUGER SAMPLE
- X = SPLIT SPOON
- S = SHELBY TUBE
- =
- =

PROJECT E.C. County, Seven Mile L.F.
 DATE(S) DRILLED 2-25-86
 LOCATION 21400 N, 16450E
 GROUNDWATER: 140 FT. BELOW GS. AT ELEV. OF 897.14 (Perched)
 DRILLERS: L.F. for JOB NO. _____
W.T.D DATE _____

BORING NO. AB-P
SURFACE ELEV. 910.79 FT.



SAMPLE NUMBER	BLOWS ON SAMPLER (140 lbs - 2" O.D. - FALLING 30")			SAMPLE TYPE	CLASSIFICATION AND REMARKS	Moisture	UNIFIED CLASSIFICATION	POCKET PEN. READING (TSF)	GEOLOGY	DEPTH	ELEV.
	6"	6"	per ft								
					Topsoil 0.8' - Sand-Gr. Brn. F						
1	4 12	8	20 R10	X	Sand, Brn-Rd. M-F, w/trace silt	M	SP			10.5	
2	6 13	9	22 R10	X	Sand, Brn, F-M, w/a some silt	M	SP			20.10	
3	100	0.	100 R1.2	X	W. S.S. yellow-ld. M-F EOB 16.2' NO H ₂ O					30.15	
										40	
										50	
										60	

— KEY —

- C = ROCK CORE
- A = AUGER SAMPLE
- X = SPLIT SPOON
- S = SHELBY TUBE
- =
- =

PROJECT _____
DATE(S) DRILLED 2-25
LOCATION 20+00 N, 16+50 E
GROUNDWATER: NE FT. BELOW GS. AT ELEV. OF _____
DRILLERS: _____ **JOB NO.** _____
 _____ **DATE** _____

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

SES Project Number **507.24**

Facility/Project Name Seven Mile Creek Landfill, 8001 Olson Drive		License/Permit/Monitoring Number		Boring Number GP 10	
Boring Drilled By: Name of crew chief (first, last) and Firm Kevin Z. Hargis Soils & Engineering Services, Inc.		Date Drilling Started April 27, 2016		Date Drilling Completed April 27, 2016	
WI Unique Well No.		DNR Well ID No.		Common Well Name GP 10	
Final Static Water Level 884.6 Feet		Surface Elevation 925.6 Feet		Borehole Diameter 7.6 in	
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/>		State Plane _____ ft. N, _____ ft. E. S / C / N		Local Grid Location	
_____ 1/4 of _____ 1/4 of Sec. _____, T. _____ N, R. _____ E / W		Lat _____ Long _____		<input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID		County Dane		County Code 13	
				Civil Town/City/ or Village City of Eau Claire in the Civil Township of Seymour	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID Readings	Soil Properties						RQD/ Comments
									Pocket Penetrometer	Moisture Content	Liquid Limit	Plasticity Index	P 200		
			1	SAND WITH SILT — dark brown, TOPSOIL-[23" thick]											
			2	POORLY-GRADED SAND (SP) — fine grained, light brown, little silt	SP										
			3												
			4												
1	18	5 6 4	5	POORLY-GRADED SAND (SP) — fine grained, brown, clayey	SP										
			6												
			7												
			8	CLAYEY SAND (SC) — fine grained, medium plasticity fines, gray	SC										
			9												
			10												
			11	SANDSTONE — slightly to moderately weathered, white Highly weathered, 11'-0" to 13'-6" Firmer drilling, 13'-6" to 17'-0"											
			12												
			13												
			14												
3	11	30 10 70/5"	15												

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Craig M. Bower Firm **Soils & Engineering Services, Inc.** Tel: 608-274-7600
1102 Stewart Street Madison, Wisconsin 53713 Fax: 608-274-7511

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in 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 instructions for more information, including where the completed form should be sent.

Facility/Project Name **Seven Mile Creek Landfill, 8001 Olson Drive**

SES Project Number **507.24**

Boring Number **GP 10**

Use only as an attachment to Form 4400-122.

Page **2** of **3**

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID Readings	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Pocket Penetrometer	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			16	SANDSTONE — <i>slightly to moderately weathered, white</i> (continued)										
			17	SANDSTONE — <i>slightly to moderately weathered, reddish-brown, silty</i>										
			18	Firmer drilling, 17'-0" to 18'-0"										
4	12	60	19	SANDSTONE — <i>slightly to moderately weathered, white</i>										
	10	40	20											
			21											
			22											
			23											
5	12	19 1/4"	24											
	2	8 1/2"	25											
			26											
			27											
			28											
6	3	100/3"	29											
			30	Very hard drilling, 30'-0" to 30'-2"										
			31											
			32											
			33	Very hard drilling, 33'-0" to 33'-2"										
7	2	100/1.5"	34											
	1	00/1.5"	35											
			36											
			37											
			38	Hard drilling, 38'-0" to 47'-0"										
8	2	100/1.5"	39											
	1	00/1.5"												

Facility/Project Name **Seven Mile Creek Landfill, 8001 Olson Drive**

SES Project Number **507.24**

Boring Number **GP 10**

Use only as an attachment to Form 4400-122.

Page **3** of **3**

Sample				Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID Readings	Soil Properties						RQD/ Comments
Number and Type	Length Att. & Recovered (in)	Blow Counts	Pocket Penetrometer							Moisture Content	Liquid Limit	Plasticity Index	P 200			
				40	SANDSTONE — <i>slightly to moderately weathered, white</i> (continued)											
				41												
				42												
				43												
				44												
				45												
				46												
				47												
				48												
				49												
				50	NOTES 1. The Legend Record is considered a part of the WDNR Soil Boring Log Information form(s) for Boring GP 10.											
				51												
				52												
				53												
				54												
				55												
				56												
				57												
				58												
				59												
				60												
				61												
				62												
				63												

Route To:

Watershed/Wastewater

Waste Management

MONITORING WELL CONSTRUCTION

SES Project Number **507.24**

Remediation/Redevelopment

Other

Form 4400-113A

Rev. 7-98

Facility/Project Name

Seven Mile Creek Landfill

Local Grid Location of Well

ft. N. E.
 S. W.

Well Name

GP 10

Facility License, Permit or Monitoring No.

Grid Origin Location (estimated:) Well Location

Wis. Unique Well No. DNR Well Number

Facility ID

Lat. _____ Long. _____ or

Date Well Installed

0 4 / 2 9 / 2 0 1 6
m m d d y y y y

Type of Well

Well Code **51 / gp**

St. Plane _____ ft. N, _____ ft. E. S/C/N

Well Installed By: Name (first,last) and Firm

Kevin Z. Hargis

Distance From Waste/Source _____ ft.

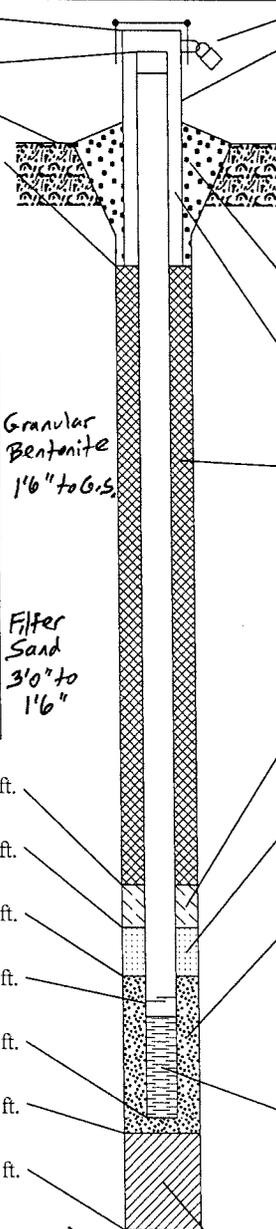
Enf. Stds. Apply

Section Location of Waste/Source

1/4 of _____ 1/4 of Sec. _____ T. _____ N, R. _____ E W

Soils & Engineering Services, Inc.

- A. Protective pipe, top elevation _____ ft. MSL
- B. Well casing, top elevation 928.60 ft. MSL
- C. Land surface elevation 925.6 ft. MSL
- D. Surface seal, bottom 924.1 ft. MSL or 1.5 ft.



- 1. Cap and lock? Yes No
- 2. Protective cover pipe:
 - a. Inside diameter: 6.0 in.
 - b. Length: 5.0 ft.
 - c. Material: Steel 0 4 Other
 - d. Additional protection? Yes No
If yes, describe: 3 bumper posts
- 3. Surface seal: Bentonite 3 0 Concrete 0 1 Other
- 4. Material between well casing and protective pipe: Bentonite 3 0 Other
- 5. Annular space seal:
 - a. Granular/Chipped Bentonite 3 3
 - b. _____ Lbs/gal mud weight Bentonite-sand slurry 3 5
 - c. _____ Lbs/gal mud weight Bentonite slurry 3 1
 - d. _____ % Bentonite Bentonite-cement grout 5 0
 - e. 0.46 Ft³ volume added for any of the above
 - f. How installed: Tremie 0 1 Tremie pumped 0 2 Gravity 0 8
- 6. Bentonite seal:
 - a. Bentonite granules 3 3
 - b. 1/4 in. 3/8 in. 1/2 in. Bentonite chips 3 2
 - c. _____ Other
- 7. Fine sand material: Manufacturer, product name and mesh size
a. none
b. Volume added _____ ft³
- 8. Filter pack material: Manufacturer, product name and mesh size
a. Red Flint Sand and Gravel, #40 well slot
b. Volume added 13 ft³
- 9. Well casing: Flush threaded PVC schedule 40 2 3 Flush threaded PVC schedule 80 2 4 Other
- 10. Screen material: Flush threaded PVC schedule 80
 - a. Screen Type: 80 Factory cut 1 1 Continuous slot 0 1 Other
 - b. Manufacturer Johnson Screens
 - c. Slot size: 0.010 in.
 - d. Slotted length: 40.0 ft.
- 11. Backfill material (below filter pack): None 1 4 Other

- 12. USCS classification of soil near screen:
 - GP GM GC GW SW SP
 - SM SC ML MH CL CH
 - Bedrock OL/OH PT
- 13. Sieve analysis attached? Yes No
- 14. Drilling method used: Rotary 5 0 Hollow Stem Auger 4 1 Other
- 15. Drilling fluid used: Water 0 2 Air 0 1 Drilling Mud 0 3 None 9 9
- 16. Drilling additives used? Yes No
- Describe _____
- 17. Source of water (attach analysis): _____

- E. Bentonite seal, top 922.6 ft. MSL or 3.0 ft.
- F. Fine sand, top 920.6 ft. MSL or 5.0* ft.
- G. Filter pack, top 920.6 ft. MSL or 5.0 ft.
- H. Screen joint, top 919.6 ft. MSL or 6.0 ft.
- I. Well bottom 879.6 ft. MSL or 46.0 ft.
- J. Filter pack, bottom 878.6 ft. MSL or 47.0 ft.
- K. Borehole, bottom 878.6 ft. MSL or 47.0 ft.
- L. Borehole, diameter 7.6 in.
- M. O.D. well casing 1.32 in.
- N. I.D. well casing 0.94 in.

** Geotextile ring on top of sand at 5'0"*

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature **Craig M. Bower**

Firm **Soils & Engineering Services, Inc.**
1102 Stewart Street, Madison, Wisconsin 53713

Tel: 608-274-7600
Fax: 608-274-7511

Please complete both Forms 4400-113A and 4400-113B and return to the appropriate DNR office and bureau. Completion of these reports 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 these forms 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 these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

SES Project Number **507.24**

Facility/Project Name Seven Mile Creek Landfill, 8001 Olson Drive		License/Permit/Monitoring Number		Boring Number GP 11	
Boring Drilled By: Name of crew chief (first, last) and Firm Kevin E. Frome Soils & Engineering Services, Inc.		Date Drilling Started April 27, 2016		Date Drilling Completed April 28, 2016	
WI Unique Well No.		DNR Well ID No.		Common Well Name GP 11	
Final Static Water Level		Surface Elevation 927.1 Feet		Borehole Diameter 7.6 in	
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/>			Local Grid Location		
State Plane _____ ft. N, _____ ft. E. S / C / N			Lat _____		
_____ 1/4 of _____ 1/4 of Sec. _____, T. _____ N, R. _____ E / W			Long _____		
Facility ID		County Dane		County Code 13	
Civil Town/City/ or Village City of Eau Claire in the Civil Township of Seymour					

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID Readings	Soil Properties					RQD/ Comments
									Pocket Penetrometer	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			1	SILTY SAND — fine grained, dark brown, TOPSOIL -[18" thick]										
			2	brown, FILL TOPSOIL , with tan fine sand-[30" thick]										
1	18 16	4 2 3	4	POORLY-GRADED SAND (SP) — fine grained, brown										
			5											
			6		SP									
			7											
			8	LEAN CLAY (CL) — medium plasticity, brown										
2	18 16	2 3 5	9		CL				1.2 3.2					
			10											
			11	POORLY-GRADED SAND (SP) — fine grained, brown										
			12											
			13		SP									
			14											
3	18 16	6 6 8	15											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Craig M. Bower Firm **Soils & Engineering Services, Inc.** Tel: 608-274-7600
1102 Stewart Street Madison, Wisconsin 53713 Fax: 608-274-7511

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in 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 instructions for more information, including where the completed form should be sent.

Facility/Project Name **Seven Mile Creek Landfill, 8001 Olson Drive**

SES Project Number **507.24**

Boring Number **GP 11**

Use only as an attachment to Form 4400-122.

Page **2** of **3**

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID Readings	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Pocket Penetrometer	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			16	POORLY-GRADED SAND (SP) — fine grained, brown (continued)	SP									
			17	SILTY SAND (SM) — fine grained, non-plastic to low plasticity fines, brown										
4	18 14	6 6 9	19		SM									
			20											
			21											
			22	POORLY-GRADED SAND (SP) — fine grained, brown, with some clay seams										
			23											
5	18 12	5 9 13	24		SP									
			25											
			26	POORLY-GRADED SAND (SP) — fine grained, brown										
			27											
			28											
6	18 16	12 25 32	29		SP									
			30											
			31											
			32	SANDSTONE — slightly to moderately weathered, light brown, with some green shaley seams										
			33											
7	18 12	5 10 21	34											
			35											
			36											
			37	SANDSTONE — slightly to moderately weathered, white										
			38	Firm drilling, 38'-0" to 49'-0"										
8	3	100/3"	39											

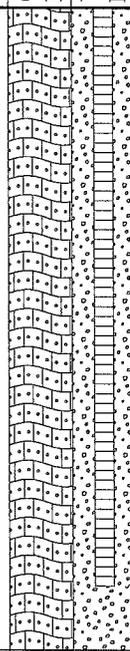
Facility/Project Name **Seven Mile Creek Landfill, 8001 Olson Drive**

SES Project Number **507.24**

Boring Number **GP 11**

Use only as an attachment to Form 4400-122.

Page **3** of **3**

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID Readings	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Pocket Penetrometer	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			40 41 42 43 44 45 46 47 48 49	SANDSTONE — <i>slightly to moderately weathered, white</i> (continued)										
			50 51 52 53 54 55 56 57 58 59 60 61 62 63	NOTES 1. The Legend Record is considered a part of the WDNR Soil Boring Log Information form(s) for Boring GP 11.										

Route To:

Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

SES Project Number **507.24**

Facility/Project Name

Seven Mile Creek Landfill

Local Grid Location of Well

ft. N. E. S. W.

Well Name

GP 11

Facility License, Permit or Monitoring No.

Grid Origin Location (estimated:) Well Location

Wis. Unique Well No. DNR Well Number

Facility ID

Lat. _____ Long. _____ or

Date Well Installed

04/29/2016

Type of Well

Well Code **51 / gp**

St. Plane _____ ft. N, _____ ft. E. S/C/N

Well Installed By: Name (first,last) and Firm

Kevin Z. Hargis

Distance From Waste/Source _____ ft.

Enf. Stds. Apply

Section Location of Waste/Source

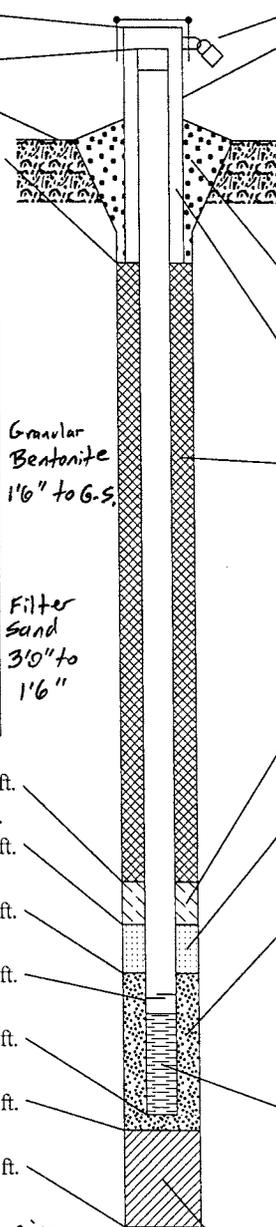
_____ 1/4 of _____ 1/4 of Sec. _____, T. _____ N, R. _____ E W

Location of Well Relative to Waste/Source

u Upgradient s Sidegradient
d Downgradient n Not Known

Soils & Engineering Services, Inc.

A. Protective pipe, top elevation _____ ft. MSL	1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
B. Well casing, top elevation <u>930.08</u> ft. MSL	2. Protective cover pipe:
C. Land surface elevation <u>927.1</u> ft. MSL	a. Inside diameter: <u>6.0</u> in.
D. Surface seal, bottom <u>925.6</u> ft. MSL or <u>1.5</u> ft.	b. Length: <u>5.0</u> ft.
	c. Material: Steel <input checked="" type="checkbox"/> 04 Other <input type="checkbox"/>
	d. Additional protection? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes, describe: <u>3 bumper posts</u>
12. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> SM <input checked="" type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock <input type="checkbox"/> OL/OH <input type="checkbox"/> PT <input type="checkbox"/>	3. Surface seal: Bentonite <input checked="" type="checkbox"/> 30 Concrete <input type="checkbox"/> 01 Other <input type="checkbox"/>
13. Sieve analysis attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	4. Material between well casing and protective pipe: Bentonite <input checked="" type="checkbox"/> 30 Other <input type="checkbox"/>
14. Drilling method used: Rotary <input type="checkbox"/> 50 Hollow Stem Auger <input checked="" type="checkbox"/> 41 Other <input type="checkbox"/>	5. Annular space seal: a. Granular/Chipped Bentonite <input checked="" type="checkbox"/> 33 b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry <input type="checkbox"/> 35 c. _____ Lbs/gal mud weight Bentonite slurry <input type="checkbox"/> 31 d. _____ % Bentonite Bentonite-cement grout <input type="checkbox"/> 50 e. <u>0.46</u> Ft ³ volume added for any of the above f. How installed: Tremie <input type="checkbox"/> 01 Tremie pumped <input type="checkbox"/> 02 Gravity <input checked="" type="checkbox"/> 08
15. Drilling fluid used: Water <input type="checkbox"/> 02 Air <input type="checkbox"/> 01 Drilling Mud <input type="checkbox"/> 03 None <input checked="" type="checkbox"/> 99	6. Bentonite seal: a. Bentonite granules <input checked="" type="checkbox"/> 33 b. <input type="checkbox"/> 1/4 in. <input type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite chips <input type="checkbox"/> 32 c. _____ Other <input type="checkbox"/>
16. Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7. Fine sand material: Manufacturer, product name and mesh size a. <u>none</u> b. Volume added _____ ft ³
Describe _____	8. Filter pack material: Manufacturer, product name and mesh size a. <u>Red Flint Sand and Gravel, #40 well slot</u> b. Volume added <u>13</u> ft ³
17. Source of water (attach analysis): _____	9. Well casing: Flush threaded PVC schedule 40 <input type="checkbox"/> 23 Flush threaded PVC schedule 80 <input checked="" type="checkbox"/> 24 Other <input type="checkbox"/>
E. Bentonite seal, top <u>924.1</u> ft. MSL or <u>3.0</u> ft.	10. Screen material: <u>Flush threaded PVC schedule 80</u> a. Screen Type: <u>80</u> Factory cut <input checked="" type="checkbox"/> 11 Continuous slot <input type="checkbox"/> 01 Other <input type="checkbox"/>
F. Fine sand, top <u>922.1</u> ft. MSL or <u>5.0*</u> ft.	b. Manufacturer <u>Johnson Screens</u> c. Slot size: <u>0.010</u> in. d. Slotted length: <u>42.0</u> ft.
G. Filter pack, top <u>922.1</u> ft. MSL or <u>5.0</u> ft.	11. Backfill material (below filter pack): None <input checked="" type="checkbox"/> 14 Other <input type="checkbox"/>
H. Screen joint, top <u>921.1</u> ft. MSL or <u>6.0</u> ft.	
I. Well bottom <u>879.1</u> ft. MSL or <u>48.0</u> ft.	
J. Filter pack, bottom <u>878.1</u> ft. MSL or <u>49.0</u> ft.	
K. Borehole, bottom <u>878.1</u> ft. MSL or <u>49.0</u> ft.	
L. Borehole, diameter <u>7.6</u> in.	
M. O.D. well casing <u>1.32</u> in.	
N. I.D. well casing <u>0.94</u> in.	



I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Craig M. Lower

Firm **Soils & Engineering Services, Inc.**
1102 Stewart Street, Madison, Wisconsin 53713

Tel: 608-274-7600
Fax: 608-274-7511

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Route to:
 Verification Only of Fill and Seal
 Drinking Water
 Watershed/Wastewater
 Remediation/Redevelopment
 Waste Management
 Other: _____

SES Project Number 507.24

1. Well Location Information Boring Location Information **2. Facility / Owner Information**

County: **Dane** Boring Number: **DH 1**

Latitude / Longitude (Degrees and Minutes): _____ ° _____ ' N
 _____ ° _____ ' W

Method Code (see instructions): _____

1/4 1/4 1/4 Section Township Range E
 or Gov't Lot # W

Well Street Address: **8001 Olson Drive**

Well City, Village or Town: **City of Eau Claire** Well ZIP Code: _____

Subdivision Name: _____ Lot #: _____

Facility Name: **Seven Mile Creek Landfill**

Facility ID (FID or PWS): _____

License/Permit/Monitoring No: _____

Original Well Owner: _____

Present Well Owner: _____

Mailing Address of Present Owner: _____

City of Present Owner: _____ State: _____ Zip Code: _____

Reason For Removal From Service: **Soil Boring for GEOTECHNICAL sampling.**

WI Unique Well # of Replacement Well: **NA**

3. Well / Drillhole / Borehole Information

Monitoring Well Original Construction Date (mm/dd/yyyy): **01/30/1976**

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 From Ground Surface (ft.): **61.0** Casing Diameter (in.): **2**

Lower Drillhole Diameter (in.): **5.6** Casing Depth (ft.): **45**

Was well annular space grouted? **NA** Yes No Unknown

If yes, to what depth (feet)? Depth to Water (Feet): **40' 4"**

4. Pump, Liner, Screen, Casing & Sealing Material

Pump and piping removed? Yes No N/A

Liner(s) removed? Yes No N/A

Screen removed? Yes No N/A

Casing left in place? Yes No N/A

Was casing cut off below surface? Yes No N/A

Did sealing material rise to surface? Yes No N/A

Did material settle after 24 hours? Yes No N/A

If yes, was hole retopped? Yes No N/A

If bentonite chips were used, were they hydrated with water from a known safe source? Yes No N/A

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

Sealings Materials:
 Neat Cement Grout Clay-Sand Slurry (11 lb./gal. wt.)
 Sand-Cement (Concrete) Grout Bentonite-Sand Slurry " "
 Concrete Bentonite Chips

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

5. Material Used To Fill Well / Drillhole	From (Ft.)	To (Ft.)	No. Yards Sacks Sealed or Volume (circle one)	Mix Ratio or Mud Weight
Bentonite Chips	Surface	5.0	3 - 50 lb Bags	
Bentonite-Sand Slurry	5.0	25.0	45 - gallons	
Bentonite-Cement Grout	25.0	61.0	90 - gallons	

6. Comments

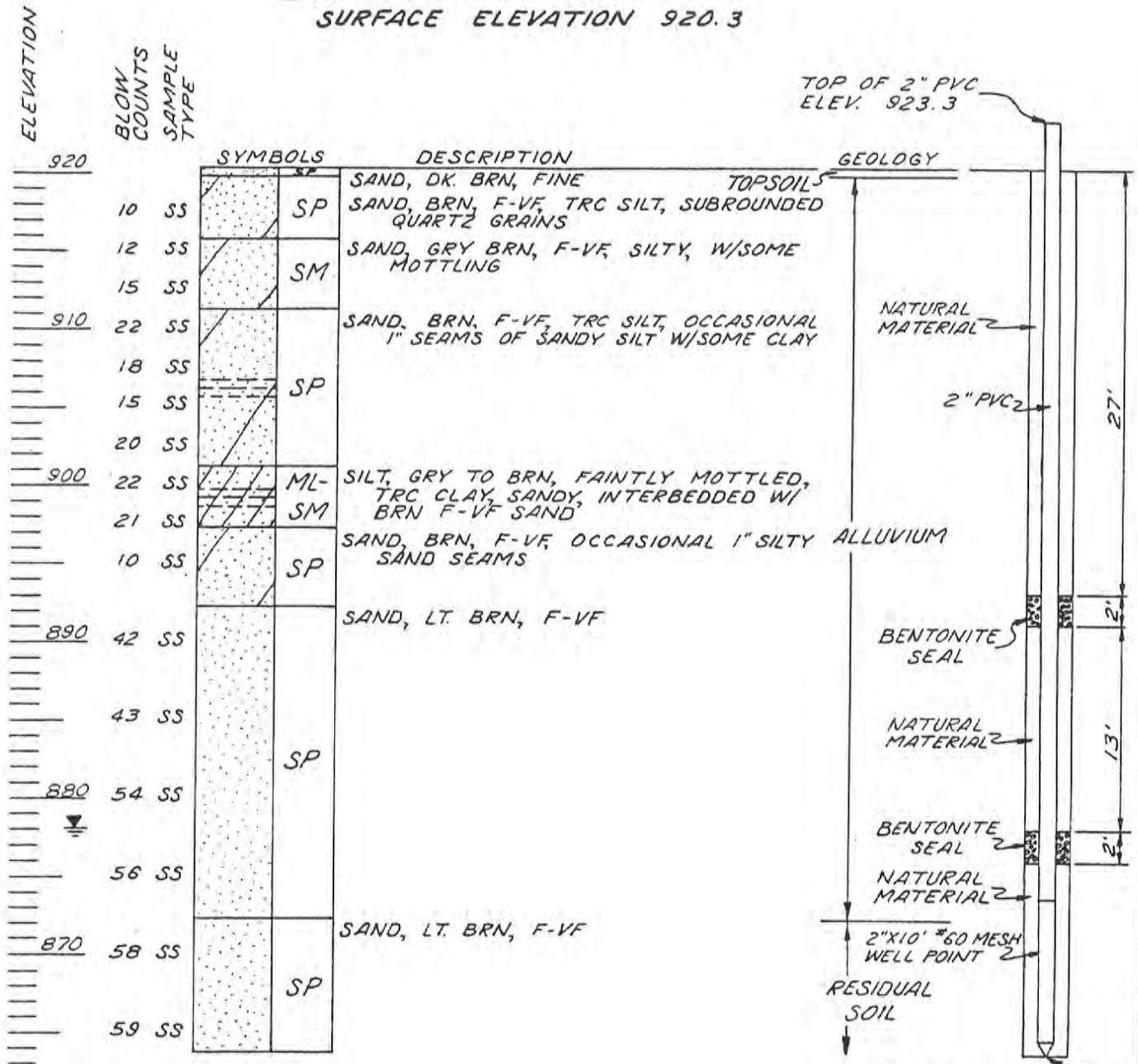
NA = Not applicable to soil borings.

7. Supervision of Work

Name of Person or Firm Doing Filling & Sealing				DNR Use Only	
License #		Date of Filling & Sealing (mm/dd/yyyy)		Date Received	Noted By
SOILS & ENGINEERING SERVICES, INC.		01/30/1976			
Street or Route			Telephone Number		Comments
1102 Stewart Street			(608) 274-7600		
City		State	ZIP Code	Signature of Person Doing Work	
Madison		WI	53713	<i>Craig M. Bower</i>	
				Date Signed	
				05/10/2016	

BORING NO. DH-1

SURFACE ELEVATION 920.3



BORING NO. DH-1
 STARTED 1-21-76
 COMPLETED 1-21-76
 3/4" HSA TO 55.0'

BOTTOM OF WELL POINT ELEV. 865.3

LEGEND

- SS STEEL SPLIT SPOON SAMPLER
- ☼ WATER LEVEL

SCALE: 1" = 10'-0"

GRAPHICAL LOG OF BORING
 PROPOSED EAU CLAIRE LANDFILL
 TOWN OF SEYMOUR, WISCONSIN
 DATE: 1-30-76
 JOB NO. H 01-0050-175

BORING NO. DH-23A
SURFACE ELEV. 912.2 FT.

AYRES
ASSOCIATES

SAMPLE NUMBER	BLOWS ON SAMPLER (140 lbs - 2" O.D. -FALLING 30")		SAMPLE TYPE	CLASSIFICATION AND REMARKS	Moisture	UNIFIED CLASSIFICATION	POCKET PEN READING (TSF)	GEOLOGY	DEPTH	ELEV.
	6"	6" per ft								
				Topsoil 0.4				↑	25' of 4" Casing	
				Sand, yellow-Brn, C-F, w/some silt, trc. gravel.						10
1	100/0	100 R.O.O		Sand, yellow-Brn, M-F, w/some silt, w/some s.s. chips				↓ Alluvium	Tricone & Water	
									20	
									30	
									40	
2	100/0	100 R.O.O						50		
3	100/0	100 R.O.O						60		
4	100/0	100 R.O.O								

See Page 2

— KEY —

- C = ROCK CORE
- A = AUGER SAMPLE
- X = SPLIT SPOON
- S = SHELBY TUBE
- =
- =

PROJECT Seven Mile L.F
 DATE(S) DRILLED 4-30-85, 5-1-85
 LOCATION 23+93 N, 15+44 E
 GROUNDWATER: 34.2 FT. BELOW GS. AT ELEV. OF 878.0
 DRILLERS: M.P. for W.D. JOB NO. 473100
 _____ DATE _____

BORING NO. DH-23B
SURFACE ELEV. 912.2 **FT.**

AYRES
ASSOCIATES

SAMPLE NUMBER	BLOWS ON SAMPLER (140 lbs - 2" Q.D. - FALLING 30")		SAMPLE TYPE	CLASSIFICATION AND REMARKS	Moisture	UNIFIED CLASSIFICATION	POCKET PEN. READING (TSF)	GEOLOGY	DEPTH	ELEV.
	6"	6" per ft.								
				Top soil 0.3'						50' of 4" Casing
				Free Drilling - 0.0' - 50.0'						
				Sand, yel-brn., C-F, w/some silt, +tr. gravel					10	
				Sand, yel-brn., M-F, w/some silt, "Weathered Sandstone"					20	
									30	
									40	
									50	
				"NXM Core Run" 50.0' - 55.0'						Tricone & H ₂ O
				"NXM Core Run" 55.0' - 60.0'					60	
				Note: H ₂ O Loss 65.0' - 90.0' 100 gal. / 10' Run					70	
				Clay, Rd. Brn.					70	

— KEY —

- C = ROCK CORE
- A = AUGER SAMPLE
- X = SPLIT SPOON
- S = SHELBY TUBE
- =
- =

PROJECT Seven Mile L.F.
 DATE(S) DRILLED 5-2-85
 LOCATION 21+95 N, 15+32 E
 GROUNDWATER: 34.2 FT. BELOW GS. AT ELEV. OF 878.0
 DRILLERS: M.P. for JOB NO. 4731.00
W.T.D. DATE _____