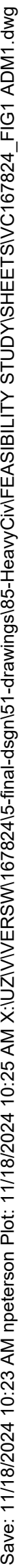
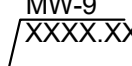


Appendix L

2024 Groundwater Elevation Contour Maps



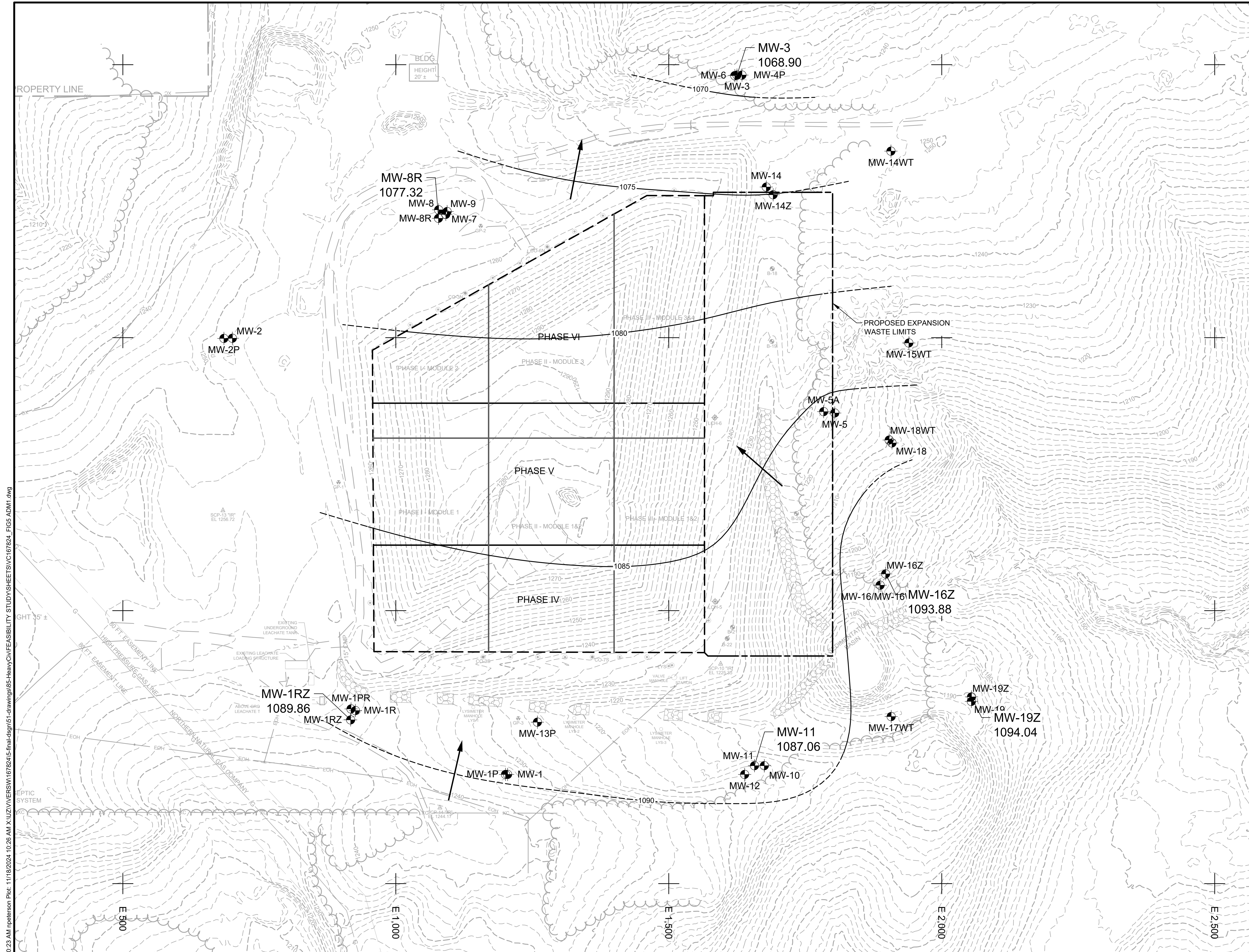
- LEGEND:**
- | | |
|---|--|
|  | STATIC WATER ELEVATION - FT
(AUGUST 27, 2024) |
|  | EXISTING MONITORING WELL |
|  | GROUNDWATER CONTOUR
(DASHED WHERE INFERRED) |
|  | GROUNDWATER FLOW LINE |
|  | PROPOSED WASTE LIMITS |
|  | ACTIVE WASTE LIMITS |



 PLANS PREPARED BY:
329 JAY STREET
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VERNON COUNTY LANDFILL
FEASIBILITY STUDY - ADDENDUM 1
PERCHED WATER TABLE MAP (AUGUST 2024)

Save: 11/18/2024 10:23 AM mpeterson Plot: 11/18/2024 10:26 AM X:\UZ\V\VERS\W167824\5-final-dsgn\51-drawings\5-Heavy\CON\FEASIBILITY STUDY\SHEETS\VC167824_FIGS ADM1.dwg



NOTES:

1. TOPOGRAPHIC CONTOUR INTERVAL IS 10-FOOT MAJOR AND 2-FOOT MINOR.
2. GROUNDWATER CONTOUR INTERVAL IS 5-FOOT.
3. GROUNDWATER CONTOURS ARE BASED ON MONITORING WELL STATIC WATER ELEVATIONS SAMPLED BY SEH INC. FOR VERNON COUNTY ON AUGUST 27, 2024.

LEGEND:

- MW-9
XXXXXX
- STATIC WATER ELEVATION - FT
(AUGUST 27, 2024)
- MW-9
- EXISTING MONITORING WELL
- 1145
- GROUNDWATER CONTOUR
(DASHED WHERE INFERRED)
- GROUNDWATER FLOW LINE
- PROPOSED WASTE LIMITS
- ACTIVE WASTE LIMITS

SEH Project	VERS\W 167824	Rev #	Revision Issue Description	Date	Rev #	Revision Issue Description	Date
Drawn By	NRP						
Designed By	TTR						
Checked By	DRH						

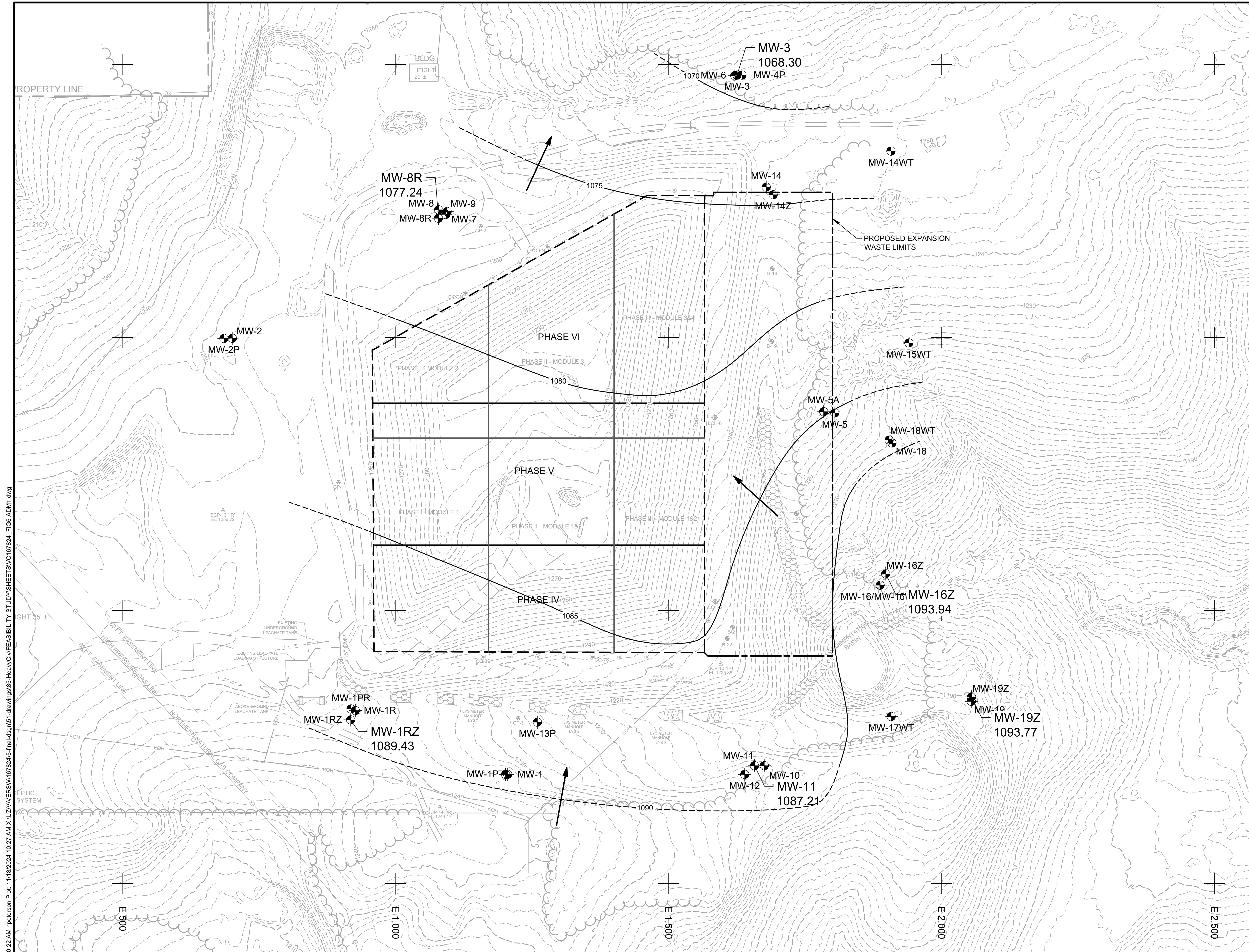
SEH
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PLANS PREPARED FOR:
VERNON COUNTY SOLID WASTE DEPTH
53705 CTH LF
VIROQUA, WISCONSIN

VERNON COUNTY LANDFILL
FEASIBILITY STUDY - ADDENDUM 1
UPPER POTENTIOMETRIC MAP (AUGUST 2024)

FIG
5

Save: 11/18/2024 10:22 AM mpeterson Plot: 11/18/2024 10:27 AM X:\UZV\VERS\W167824\5-final-dsgn\51-drawings\5-Heavy\CON\FEASIBILITY STUDY\VSHEETS\VC167824_FIG6 ADM1.dwg

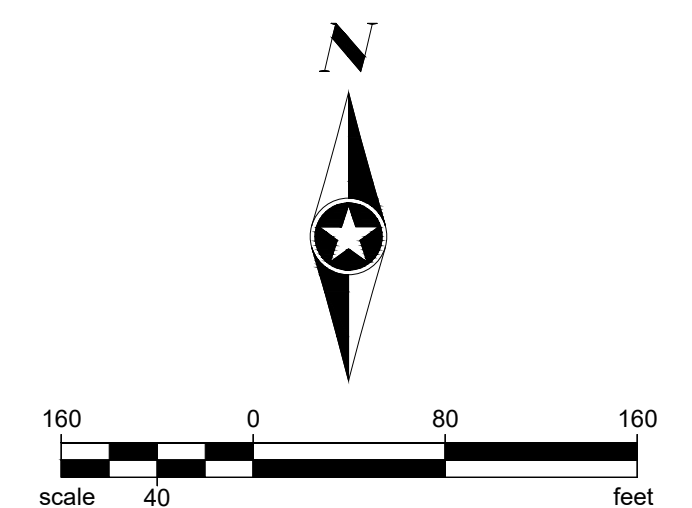


NOTES:

1. TOPOGRAPHIC CONTOUR INTERVAL IS 10-FOOT MAJOR AND 2-FOOT MINOR.
2. GROUNDWATER CONTOUR INTERVAL IS 5-FOOT.
3. GROUNDWATER CONTOURS ARE BASED ON MONITORING WELL STATIC WATER ELEVATIONS SAMPLED BY SEH INC. FOR VERNON COUNTY ON OCTOBER 2, 2024.

LEGEND:

- MW-9
XXXXXX
- STATIC WATER ELEVATION - FT
(OCTOBER 2, 2024)
- MW-9
- EXISTING MONITORING WELL
- 1145
- GROUNDWATER CONTOUR
(DASHED WHERE INFERRED)
- GROUNDWATER FLOW LINE
- PROPOSED WASTE LIMITS
- ACTIVE WASTE LIMITS



SEH Project	VERS\W 167824	Rev #	Revision Issue Description	Date	Rev #	Revision Issue Description	Date
Drawn By	NRP						
Designed By	TTR						
Checked By	DRH						

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VERNON COUNTY SOLID WASTE DEPTH
53705 CTH LF
VIROQUA, WISCONSIN

VERNON COUNTY LANDFILL
FEASIBILITY STUDY - ADDENDUM 1
UPPER POTENTIOMETRIC MAP (OCTOBER 2024)

FIG
6

Appendix M

Environmental Monitoring Plan

Environmental Monitoring and Maintenance Plan

Vernon County Landfill

Viroqua, Wisconsin

VERSW 167824 | November 12, 2024



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Environmental Monitoring and Maintenance Plan

Vernon County Landfill

Prepared for Vernon County, Wisconsin

1 Introduction

This plan summarizes the environmental monitoring program and maintenance requirements for the Vernon County Landfill.

The Vernon County Landfill is a 250-acres parcel located in the Town of Viroqua, Wisconsin. The site is located in Section 15, T13N, R4W, City of Viroqua, Vernon County, Wisconsin. The site is owned by Vernon County and has been operating since 1993. The integrated waste management system includes, but is not limited to:

- An approximate 10-acre municipal solid waste landfill, with an approximate design capacity of 590,000 cubic yards (WDNR License No. 3268).
- A closed small sized (50,000 cubic yard) C&D Landfill (WDNR License No. 3712).
- A recyclable material processing and baling facility.

Figure 1, “Environmental Monitoring Plan” shows existing facility layout of the Landfill. The monitoring requirements summarized in this plan are based on the requirements outlined in Wisconsin Department of Natural Resources (WDNR) site approvals.

2 Groundwater Monitoring Well Sampling

The groundwater monitoring requirements for the Landfill are summarized within **Table 1**. Groundwater sampling and decontamination procedures will follow guidelines established by the WDNR. Groundwater samples will be collected at the frequency specified by WDNR plan approvals. Groundwater sampling involves the preparation of the groundwater monitoring wells for sampling, the collection of representative groundwater samples, analysis of the groundwater samples, comparison of the analytical results to the applicable groundwater standards, and reporting of the results to the WDNR Groundwater Environmental Monitoring Database (GEMS). Well Information Forms (WIFs) are found in **Appendix A**. The sampling procedures are outlined below:

- All sampling preparation is completed by the sampling team prior to sampling event.
- Measure water elevation: Measure the distance from the top of the monitoring well casing to the top of groundwater in the well to the nearest hundredth (0.01) of a foot, using an electronic water level indicator. Subtract the measured distance from the elevation of the top of the well casing to obtain groundwater elevation. The well casing is referenced to USGS elevation. The measurements are recorded on the field form.

- As necessary, pumps will be pulled that interfere with obtaining accurate water levels. This procedure may need to be completed 1-2 days before a water level measurement can be taken to stabilize water level in the well.
- Well Purging and Field Measurements: Wells are purged using dedicated pumps or a portable pump, decontaminated prior to use. Four well volumes of water or the amount of water to purge the well dry is removed from each well before sampling. The amount of water purged is recorded on the field form. Field tests for specific conductance, temperature, and pH are performed on an unfiltered sample in the field. The appropriate meters are used for measurements. Also, the presence of any color, turbidity, or odor in the sample is noted on the field form.
- Collect Sample: Collect the necessary sample from the monitoring well after the required volume of water has been purged. If the well is purged dry, wait for the well to recharge sufficiently to allow removal of an adequate sample volume. Typically, the volatile organic compound (VOC) samples are collected first at the wellhead, immediately upon removal of the sample from the well. Appropriate samples for indicator parameters and metals are filtered through a 0.45-micron membrane. The samples are then preserved as outlined in **Table 2**, "Analytical Parameters, Methods, and Preservatives." All samples are stored at 4° C.
- Calibration: Field measurement meters are to be calibrated daily according to manufacturer's instructions. Calibrations are to be recorded in field form or field book format.
- Equipment decontamination: All equipment used for sampling, except for dedicated well pumps and tubing, is cleaned between wells by triple rinsing with distilled/deionized water to prevent cross-contamination.
- The volume of sample needed is determined by the laboratory and is relative to the parameters being tested. Sample volume, bottle type, and preservative type listed on **Table 2** are recorded on the chain-of-custody form at the completion of each sampling event.
- Chain-of-Custody: The samples are maintained under chain-of-custody procedures throughout the sampling event. The field sampler is responsible for care, custody, and transportation of the samples to the WDNR certified laboratory.

To evaluate data quality, one duplicate groundwater sample is typically collected for each group of 10 samples. These samples are typically collected from wells which are downgradient of the facility. Field/equipment blanks will be collected and transported during groundwater sampling to evaluate decontamination procedures. One field/equipment blank for each group of 10 samples is to be collected. The field/equipment blanks are typically collected after sampling of a downgradient well. One trip blank for VOCs per cooler is to be initiated at the laboratory and transported with the sample bottles. All samples are tracked on the chain-of-custody forms.

The list of groundwater wells and parameters for the Landfill are provided on **Table 1**. The locations of groundwater wells for the Landfill are shown on **Figure 1**.

Analytical parameters will be analyzed by the laboratory in accordance with methods in the latest edition of Test Methods for Evaluating Solid Waste Physical/Chemical Methods SW 846. The parameters, analytical methods, and appropriate preservatives for the detection monitoring parameters are listed in **Table 2** and Wis. Admin. Code NR 507 Appendix I, Table 3.

Groundwater quality analyses results are provided by the laboratory in both electronic and hard copy format. The electronic data is uploaded into a data management system and reported electronically to WDNR-GEMS by the County's landfill consultant. Analytical results are reported with the limit of detection (LOD) and the limit of quantification (LOQ) for each parameter. If a substance is detected below the limit of quantification, the detected value is reported with the appropriate qualifier.

Groundwater laboratory analytical and field data are reported to WDNR-GEMS semi-annually in January and July. The GEMS submittal will also include:

- NR 140 Exceedance Notification,
- Monthly Landfill Gas Well Data,
- Semi-Annual Perimeter Gas Probe Data,
- Leachate Discharge Quantities,
- Semi-Annual Sedimentation Basin Data,
- Environmental Monitoring Data Certification Form 4400-231 (R 1/04).

3 Private Well Monitoring

One private water supply well is present on the facility property, but it is located greater than 1,200 feet from the proposed expansion area. One private water supply well is located south of the landfill property and is also greater than 1,200 feet south of the proposed expansion area. Currently, the monitoring conducted on these wells is summarized in **Table 3**.

The procedures for sampling private water supply wells are as follows:

- Flush the system from private wells as close to the pump as possible and before the water softener, water heater, or pressure tank, if possible. Purge and sample only from the cold water ports. If it is not possible to collect a sample before treatment, note this on the field form. There is usually a sample tap just prior to entering the pressure tank.
 - Remove aerators, filters, or other devices from the sample tap before taking a sample.
 - If the sample must be taken from an outside tap, remove any hoses before taking a sample.
 - If the sample is collected on the well side of the pressure tank, make sure the pump is running and allow the water to run from the tap for at least ten minutes or four pump cycles prior to sample collection. Ensure the flowing water is cold before sampling.
 - If the sample is collected on the plumbing side of the pressure tank, allow the water to run at least 20 minutes prior to sample collection to flush out water in the pressure tank and cycle the water pump. For large pressure tanks, calculate the necessary flushing time based on pressure tank volume and flow rate. Ensure the flowing water is cold before sampling.
 - If not purging from sampling port, purge water supply line to sampling port to ensure a fresh representative sample is collected. Ensure the flowing water is cold before sampling.
 - Make every effort possible to reduce the amount of aeration of the sample by filling the sample container with the least amount of turbulence. If the sample port has any aeration screen or strainer filter or other device remove it prior to sampling.
 - Reduce the water flow to a thin stream before collecting sample for VOCs.
-

- Do not filter samples taken from water supply wells. Sample directly into sample containers. Sample order should be:
 - preserved vials
 - unpreserved vials
 - preserved glass bottles
 - unpreserved glass bottles
 - preserved plastic bottles
 - unpreserved plastic bottles
- Make every effort to reduce any possible sources of contamination in area of sampling port (example: remove gas containers, fertilizers, etc. from area).
- For each sampling event, the same sample port should be used.

In-field measurements, color, odor, turbidity, field pH, and field conductivity (corrected to 25° C) are performed on a separate unfiltered sample at the time of sampling. In-field measurements are recorded on the field form.

The private water supply wells are sampled for the parameters outlined in **Table 3**. Samples from private wells may use Method EPA 524.2 but must include additional VOCs on the Method 8260 list and NR 507 Appendix III list.

To evaluate drinking water data quality, one duplicate VOC drinking water sample is collected at each event. The duplicate sample is collected at the P-2 or “Williams” well whenever possible. Field/equipment blanks will be collected/transported during drinking water sampling to evaluate decontamination procedures. One trip blank for VOCs per cooler will be initiated at the laboratory and transported with the sample bottles. All samples are tracked on the chain of custody forms.

The results are reported to WDNR-GEMS semi-annually with the environmental monitoring data for the Active MSW Landfill (License #3268).

4 Surface Water Monitoring

Surface water from the landfill flows into a sedimentation basin located southeast of the Active MSW Landfill, as shown on **Figure 1**.

A surface water sample will be collected at the inspection point (Sedimentation Basin) semi-annually for analysis of parameter identified in **Table 4**.

All analytical parameters collected semi-annually shall be collected as a grab direct immersion sample. Pond samplers, pumps, boats, hip boots, waders, and other water sampling devices may be required to collect a surface water or stormwater sample safely. A direct immersion sampling method shall be implemented for sample collection whenever possible and is described below.

- Don appropriate health and safety equipment.
 - Obtain the required sample container(s).
 - If entering the water body, always do so with as little bottom disturbance as possible and wait for the water around the planned sampling area to return to its undisturbed state (clarity) before sampling.
-

- Collect each liquid sample by slowly submerging the sample container with minimal surface disturbance. If sampling in a stream or current, make sure the open end of the sample container is pointed upstream.
- Retrieve the container from the liquid with minimal disturbance; cap and wipe the outside of the container with a towel or cloth.

The surface water monitoring results will be reported to WDNR-GEMS semi-annually with the environmental monitoring data for the Active MSW Landfill (License #3268).

5 Leachate Monitoring Program

5.1 Leachate Sampling Points

The leachate collection system for the Active MSW Landfill (License #3268), drains to leachate storage tank located near the southwest side of the property. Additional design and configuration detail information for the leachate system is located in **Appendix B**, “Leachate Figures”.

5.2 Leachate Quality

Leachate operation monitoring requirements are to be in accordance with Chapter NR 507. Monitoring requirements are summarized on **Table 5**, “Leachate and Lysimeter Monitoring Requirements.” The locations of leachate monitoring points are shown on **Figure 1**.

Grab samples are collected from the leachate storage tank (WDNR Point ID 300). A representative grab sample will be collected using a composite sampler, bailer or similar method. These samples will be collected semi-annually in the months of March and September.

During collection of the unpreserved sample, field pH and field specific conductance are to be measured. Additionally, the color, turbidity, and odor of the sample are noted. All field measurements are recorded on the field form. Leachate quantities are recorded monthly and reported semi-annually with the leachate quality data.

Reporting of the semi-annual monitoring for the landfill to the WDNR-GEMS database will be completed on a semi-annual basis.

5.3 Leachate Head

Leachate head monitoring is conducted at the Active MSW Landfill (License #3268), in accordance with the schedule outlined on **Table 5**. **Figure 1** shows the location of the leachate head monitoring wells for the above reference sites.

A Plan modification was submitted to the WDNR on October 2, 2020, proposing the revised leachate monitoring system that is summarized on **Table 5**. This modification proposed to monitor leachate cleanout location CO-3S, CO-7S, CO-3N, and CO-6N instead of damaged or missing leachate wells LHW-1, LHW-2, LHW-3, and LHW-4. This proposed plan modification was approved by the WDNR in a letter dated February 9, 2021.

When measuring the liquid elevation at the leachate cleanouts, the elevation must be adjusted by 18-inches to reflect leachate head elevation on the liner versus the leachate collection trend. Leachate quantities pumped are recorded monthly with the leachate quality data. Reporting leachate head volumes for Active MSW Landfill (License #3268) to WDNR-GEMS database is included in the semi-annual GEMS submittal.

6 Landfill Gas Monitoring

The landfill gas (LFG) monitoring network consists of LFG monitoring probes located on the perimeter of the Active MSW Landfill (License #3268). The location of LFG probes are shown on **Figure 1**.

6.1 LFG Monitoring

LFG probe monitoring is conducted in accordance with the Plan of Operation as specified on **Table 6**, "Landfill Gas Monitoring". Gas probes will be monitored using a handheld combustible gas meter, i.e., LANDTEC GEM 5000. Each probe will be monitored semi-annually for percent methane and percent oxygen. Site conditions will also be required at the time of gas monitoring which includes monitoring of ambient temperature, barometric pressure, barometric pressure trend, and ground surface conditions. The data results from LFG probes are reported to the WDNR semi-annually. The location of LFG monitoring points are shown on **Figure 1**, "LFG Monitoring Plan."

Once final closure occurs, the LFG produced by the Active MSW Landfill (License #3268) will be extracted and conveyed to a blower and flare system. Future LFG extraction monitoring is summarized on **Table 7**, "Landfill Gas Extraction System Monitoring Requirements". Data will be collected from the LFG extraction blower twice monthly while it is operating. The blower inlet, blower outlet, and flare data are reported under WDNR Point ID 400 through 402, respectively. The data results from the LFG extraction points will be reported to the WDNR semi-annually.

7 Inspection and Maintenance Requirements

The Landfill Operations Coordinator, or designee, conducts daily, weekly, and monthly of all active and closed landfill areas. Inspection and maintenance requirements for the Landfill are shown on **Table 8**, "Inspection and Maintenance Requirements." Results of the inspections are documented on inspection logs and retained by the Landfill Operations coordinator.

The inspections will include but not be limited to review of the following:

- Site Conditions shall be noted for:
 - Weather conditions and station data.
 - Dust/Water application volume.
 - Odors.
 - Intermediate and final cover shall be inspected, and observations of the following noted:
 - Growth of vegetation and presence of any bare spots.
 - Erosion of the waste slope and/or intermediate cover.
 - Sloughing or slumping of the waste face or intermediate cover.
 - Presence of any leachate seeps.
 - Evidence of gas leakage through the cover.
 - Leachate management system shall be checked for:
 - Leachate extraction wells working.
 - Building inspection.
 - Integrity of the leachate transfer piping.
-

- Sedimentation/clogging in the leachate manhole.
 - Proper operation of the leachate pump including manufacturer's recommended periodic maintenance.
 - SCADA and leachate totals.
- Surface water management structures shall be checked for:
 - Integrity of surface water and erosion control devices.
 - Siltation or sedimentation in surface water conveyance structure.
 - Erosion in and/or around surface water conveyance structure.
- Operating gas and leachate management system on the Landfill shall be:
 - SCADA and gas monitor operation and calibration.
 - LFG quality measurements.

The Landfill Operations Manager, or designee, shall take action within 48 hours to correct any deficiency on any of the listed structures. The corrective action shall return the damage structure to its original condition or better.

Tables

Table 1 – Groundwater Monitoring Requirements

Table 2 – Analytical Parameters, Methods, and Preservatives

Table 3 – Private Water Supply Well Monitoring

Table 4 – Surface Water Monitoring

Table 5 – Leachate and Lysimeter Monitoring Requirements

Table 6 – Landfill Gas Probe Monitoring

Table 7 – Landfill Gas Extraction System Monitoring Requirements

Table 8 – Inspection and Maintenance Requirements

Table 1
Groundwater Monitoring Requirements
Vernon County Landfill (License # 3268)

WELL ID	DNR ID	Grid Location		GW Elevation 04189	Odor 00001	Color 00002	Turbidity 00003	Field Temp. 00010	Field Conductivity 00094	Field pH 00400	Chloride 00940	Total Hardness 22413	Alkalinity 39036	Dissolved Iron 74010	VOCs ¹
		Northing	Eastng												
MW-1	101	582815.9	1745979.0	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	A
MW-1R	120	582940.9	1745703.8	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	A
MW-1P	102	582809.9	1745957.4	SA	SA	SA	SA	SA	SA	SA	--	--	--	--	--
MW-1RZ	123	582922.0	1745693.7	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	A
MW-1PR ²	121	582942.0	1745694.9	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA
MW-2	103	583625.4	1745492.1	SA	SA	SA	SA	SA	SA	SA	--	--	--	--	--
MW-2P	104	583625.5	1745476.6	SA	SA	SA	SA	SA	SA	SA	--	--	--	--	--
MW-3	105	584086.5	1746427.5	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	A
MW-4P	107	584086.3	1746438.4	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	A
MW-5 ³	108	583468.0	1746588.2	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	A
MW-5A ^{2,3}	109	583467.9	1746571.9	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA
MW-6	110	584086.7	1746417.5	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	A
MW-7	111	583943.8	1745887.8	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	A
MW-8R	112	583837.0	1745874.2	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	A
MW-9 ²	113	583858.6	1745892.3	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA
MW-10	114	582822.1	1746433.2	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	A
MW-11	115	582806.2	1746432.0	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	A
MW-12 ²	116	582806.6	1746413.0	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA
MW-13P	117	582910.5	1746035.6	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	A
MW-14 ³	118	583881.3	1746475.7	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	A
MW-14Z ³	119	583867.0	1746488.0	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	A
MW-14WT	125	583964.8	1746693.1	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	A
MW-15WT	127	583598.0	1746728.6	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	A
MW-16WT	129	583157.4	1746673.4	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	A
MW-16 ²	131	583147.8	1746669.7	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA
MW-16Z	135	583168.4	1746679.1	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	A
MW-17WT ²	133	582907.9	1746684.9	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA
MW-18WT ²	137	583413.3	1746690.8	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA
MW-18	139	583407.8	1746695.9	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	A
MW-19	141	582931.4	1746831.1	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	A
MW-19Z	143	582939.8	1746831.5	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	A
MW-14R ⁴	TBD	Future	Future	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	A

SA = Semi Annual Monitoring (March and September).

A= Annual Monitoring (September).

1. VOCs within ch. NR 507, Appendix III, including acetone, carbon disulfide, methyl ethyl ketone, and tetrahydrofuran.

2. Subtitle "D" Wells.

3. Well will need to be abandoned during proposed expansion construction. Sampling will occur until well is abandoned.

4. Proposed replacement monitoring well to be installed when existing monitoring wells MW-14 and MW-14Z are abandoned due to proposed expansion construction.

Table 2
Analytical Parameters, Methods, and Preservatives
Vernon County Landfill (License # 3268)

Parameter	Minimum Sample Size	Container	Preservative ¹	Method
Volatile Organic Compounds	120 ml	GV40T	HCL	EPA 8021, 8260
Alkalinity	100 ml	P or G	---	EPA 310.2
Antimony	250 ml	P or G	HNO ₃ , pH <2	EPA 200.9
Arsenic	250 ml	P or G	HNO ₃ , pH <2	EPA 200.9
Barium	250 ml	P or G	HNO ₃ , pH <2	EPA 6010
Beryllium	250 ml	P or G	HNO ₃ , pH <2	EPA 6010
Biochemical Oxygen Demand (BOD)	100 ml	P or G	---	SM5210B
Boron	250 ml	P or G	HNO ₃ , pH <2	EPA 6020
Cadmium	250 ml	P or G	HNO ₃ , pH <2	EPA 6020
Chemical Oxygen Demand (COD)	50 ml	P or G	HNO ₃ , pH <2	EPA 410.4, 5220B
Chloride	50 ml	P or G	---	EPA 300.0
Chromium	250 ml	P or G	HNO ₃ , pH <2	EPA 6010
Cobalt	250 ml	P or G	HNO ₃ , pH <2	EPA 6010
Color	---	---	---	---
Conductivity (Field)	---	---	---	---
Copper	250 ml	P or G	HNO ₃ , pH <2	EPA 6010
Fluoride	250 ml	P or G	---	EPA 340.2
Groundwater Elevation	---	---	---	---
Hardness	50 ml	P or G	---	EPA 6010
Iron	250 ml	P or G	HNO ₃ , pH <2	EPA 6010
Lead	250 ml	P or G	HNO ₃ , pH <2	EPA 6020
Manganese	250 ml	P or G	HNO ₃ , pH <2	EPA 6010
Mercury	50 ml	P or G	HNO ₃ , pH <2	EPA 245.1
Nickel	250 ml	P or G	HNO ₃ , pH <2	EPA 6010
Nitrate + Nitrite (NO ₃ +NO ₂)	50 ml	P or G	---	EPA 3531
Odor	---	---	---	---
pH (Field)	---	---	---	---
Selenium	250 ml	P or G	HNO ₃ , pH <2	EPA 6020
Silver	250 ml	P or G	HNO ₃ , pH <2	EPA 6010
Sodium	250 ml	P or G	HNO ₃ , pH <2	EPA 200.7
Sulfate	250 ml	P or G	---	EPA 300.0
Temperature (Field)	---	---	---	EPA 170.1, 2550 B
Thallium	250 ml	P or G	HNO ₃ , pH <2	EPA 200.9
Total Kjeldahl Nitrogen	250 ml	P or G	H ₂ SO ₄ , pH <2	SM 4500-NH ₃ E
Total Suspended Solids	250 ml	P or G	---	USGS I-3765
Turbidity	---	---	---	---
Vanadium	250 ml	P or G	HNO ₃ , pH <2	EPA 6010
Zinc	250 ml	P or G	HNO ₃ , pH <2	EPA 6010

1. All samples must be cooled to 4 C.
GV 40T - 40 ml glass vial with teflon cap
G = Glass
P = Plastic

Table 3
Private Water Supply Well Monitoring
Vernon County Landfill (License # 3268)

Private Water Supply WELL ID	DNR ID	Color 00002	Odor 00001	Turbidity 00003	Field Temp. 00010	Field pH 00400	Field Conductivity 00094	Alkalinity, total 39036	Total Hardness 22413	Chloride 00940	VOCs ¹
Facility Well (P-1)	201	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA
Williams Well (P-2)	202	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA

SA = Semi Annual Monitoring (March and September).

1. Samples from private wells may use Method EPA 524.2, but must include additional VOCs on Method EPA 8260 list and NR507 Appendix III list.

Table 4
Surface Water Monitoring
Vernon County Landfill (License # 3268)

Sample Point	DNR ID	Surface Water Elevation	Dissolved Oxygen	Odor	Color	Turbidity	Field Temp.	Field Cond	Field pH	Total Alkalinity	Chloride	Total Iron	Filtered Nitrate	Total Phosphorous	Total Hardness
Sedimentation Basin	502	99520	299	00001	00002	00003	00010	00094	00400	00410	00940	74010	00620	00665	00900
		SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA

SA = Semi Annual Monitoring (March and September).

Table 5
Leachate and Lysimeter Monitoring Requirements
Vernon County Landfill (License # 3268)

Sample Point	DNR ID	Grid Location		Volume Removed Lysimeter 74064	Leachate 00032	Depth of Leachate 00031	Leachate Head Elevation 00023	Depth to Liquid 72002	Liquid Elevation 99423	Odor 00001	Color 00003	Turbidity 00003	BOD 00310	Field pH 00400	Field Solids 00150	Total Susp Solids 00150	TKN 00625	Total NH3 00410	Total Alkalinity 00410	Total Cadmium 01027	Total Chloride 00940	Total Hardness 00900	Total Iron 74010	Total Lead 01051	Total Manganese 01055	Total Mercury 00929	Total Sodium 00929	Total Sulfate 00945	VOCs ¹	SVOCs ²	
		Northing	Easting																												
Leachate Storage Tank																															
Lys-1	300	1745623.3	583001.682	--	M	--	--	--	--	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	A	A	
Lys-3	340	1745518.787	582940.41	M	--	--	--	M	SA	SA	SA	SA	SA	SA	SA	--	SA	--	SA	--	SA	SA	SA	SA	SA	SA	SA	SA	A	A	
CO-3S	342	1746261.904	582893.0	M	--	--	--	M	SA	SA	SA	SA	SA	SA	SA	--	SA	--	SA	--	SA	SA	SA	SA	SA	SA	SA	SA	A	A	
CO-7S	331	1745938.82	583031.843	--	M	M	M	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CO-3N	332	1746138.753	583027.563	--	M	M	M	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CO-6N	333	1745920.513	583698.75	--	M	M	M	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CO-9N	334	1746072.262	583760.511	--	M	M	M	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
LCH-5 ³	335	1746365.69	583124.42	--	M	M	M	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
LCH-6 ³	336	1746372.416	583461.234	--	M	M	M	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TBD	TBD	Future	Future	--	M	M	M	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
LCH-8	TBD	Future	Future	--	M	M	M	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CO-9S	TBD	Future	Future	--	M	M	M	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

1. VOCs within ch. NR 507, Appendix III, including acetone, carbon disulfide, methyl ethyl ketone, and tetrahydrofuran.

2. SVOCs within ch. NR 507, Appendix IV.

3. To be abandoned during proposed expansion construction. Sampling will occur until location is abandoned.

M- Monthly

SA - Semiannually

A - Annually

Table 6
Landfill Gas Probe Monitoring
Vernon County Landfill (License # 3268)

Sample Point	DNR #	Grid Location		Gas Quality		Field Temperature F	Barometric Pressure mm of HG	Barometric Pressure Trend	Ground Surface Condition
				Methane %	Oxygen %				
Reported under Active MSW Landfill (License #3253)									
GP-1	460	1745680.9	583357.5	Q	Q	Q	Q	Q	--
GP-2R	463	1745951.2	583821.3	Q	Q	Q	Q	Q	--
GP-3	464	1746000.7	582918.3	Q	Q	Q	Q	Q	--
GP-4	TBD	Future	Future	Q	Q	Q	Q	Q	--
Q = Quarterly Monitoring (March, June, September, and December).									

Table 7
Landfill Gas Extraction System Monitoring Requirements
Vernon County Landfill (License # 3268)

Sample Point	DNR ID #	Coordinates		Gas Quality					Pressure	Header Pressure " H ₂ O	Field Temperature F	Flow Rate
		Northing	Eastng	Carbon Dioxide %	Methane %	Nitrogen %	Oxygen %	Vacuum " H ₂ O				
Blower Inlet	400	Future	Future	85544	85547	99181	85550	46390	46382	46382	46388	46386
Blower Outlet	401	Future	Future	Mx2	Mx2	Mx2	Mx2	Mx2	Mx2	--	Mx2	Mx2
Flare	402	Future	Future	Mx2	Mx2	Mx2	Mx2	Mx2	Mx2	--	Mx2	Mx2
GW-1	410	Future	Future	--	Q	--	Q	--	--	Q	Q	Q
GW-2	412	Future	Future	--	Q	--	Q	--	--	Q	Q	Q
GW-3	414	Future	Future	--	Q	--	Q	--	--	Q	Q	Q
GW-4	416	Future	Future	--	Q	--	Q	--	--	Q	Q	Q
GW-5	418	Future	Future	--	Q	--	Q	--	--	Q	Q	Q
GW-6	420	Future	Future	--	Q	--	Q	--	--	Q	Q	Q
GW-7	422	Future	Future	--	Q	--	Q	--	--	Q	Q	Q
GW-8	424	Future	Future	--	Q	--	Q	--	--	Q	Q	Q
GW-9	426	Future	Future	--	Q	--	Q	--	--	Q	Q	Q
GW-10	428	Future	Future	--	Q	--	Q	--	--	Q	Q	Q
GW-11	430	Future	Future	--	Q	--	Q	--	--	Q	Q	Q
GW-12	TBD	Future	Future	--	Q	--	Q	--	--	Q	Q	Q
GW-13	TBD	Future	Future	--	Q	--	Q	--	--	Q	Q	Q
GW-14	TBD	Future	Future	--	Q	--	Q	--	--	Q	Q	Q
GW-15	TBD	Future	Future	--	Q	--	Q	--	--	Q	Q	Q
Mx2 = Twice Monthly Q = Quarterly 1. Required at the time of any gas monitoring.												

Table 8
Inspection and Maintenance Requirements
Vernon County Landfill (License # 3268)

Location	Inspection Schedule	Maintenance Schedule
Cover Vegetation	Semi-Annually	Maintain Healthy Vegetative Growth, Repair as Necessary
Cover Vegetation	Annually	Mow Cover
Runoff Control Structures	Semi-Annually	Inspect for Erosion and Sedimentation, Repair as Necessary
Cap Settlement	Semi-Annually	Check for Cap Settlement, Repair as Necessary
Road Repair	Semi-Annually	Inspect Roads, Repair as Necessary
Gas Extraction System	Monthly	Inspect Wells, Blower, Piping, etc.
Leachate Collection System	Semi-Annually	Inspect Lift Station, Pumps, Tank, Loading Structure, Cleanout Riser, etc.
Leachate Collection System	Annually	Clean out Leachate Lines
Lysimeters	Semi-Annually	Inspect Sampling Ports and Marholes
Groundwater Monitoring Wells	Semi-Annually	Inspect Surface Seal, Protective Casing/Cover, Lock, Well Casing, Labels, Cap, Bailer Fit, etc.
Groundwater Monitoring Wells	Annually	Measure Well Depth
M = Monthly		
A = Annually		
SA = Semi-Annually		

Figures

Figure 1 – Environmental Monitoring Plan

Appendix A

Well Information Forms

GROUNDWATER MONITORING WELL AND POINT INFORMATION

Form 4000-089 (R 04/19)

Page 1 of 7

Use the Groundwater Monitoring Well and Point Information Form to record identification, location and construction information for groundwater monitoring wells and any other sample "points," (e.g., gas probes, lysimeters, leachate collection systems, etc.), that are part of the environmental monitoring program. **NOTE:** Not all fields will be applicable to all point types. Only **one** coordinate reference system may be used per site. Allowable coordinate systems are listed below. (Coordinates for each system require a minimum number of digits as described below.) Local grid coordinates cannot be accepted. Identify the Coordinate Reference System, Datum and Method used.

Facility Name			County	Facility ID No. (FID)	License, Permit or Monitoring No.			Date	Completed By (Name and Firm)					
Vernon County MSW Landfill			Vernon	663038310	3268			04/11/2023	Brian Kent, SEH					
DNR Point ID No.	Point Name ¹	WUWN ² (if app.)	Type	Status	Gradient	Enf. Stds. Y/N.	Elevations msl (ft)		Well Casing		Well Screen Length (ft)	Well (Pt) Total Length ⁵ (ft)	Coordinates ^{6,7,8,9}	
							Construction Date	Ground Surface	Well Top (of casing)	Type			Diam ³ (in)	Length ⁴ (ft)
102	MW-1P		11	A			1236.4	1238.41	P	2	101.1	10	582809.9	1745957.3
101	MW-1		12	A			1236.4	1238.11	P	2	148.0	10	582815.9	1745957.3
121	MW-1PR		11	A			1245.0	1247.61	P	2	112.7	15	582942.0	1745694.8
120	MW-1R		12	A			1244.6	1247.25	P	2	149.6	15	582940.8	1745703.8
123	MW-1RZ		12	A			1244.0	1245.45	P	2	181.5	5	582921.9	1745693.6
104	MW-2P		11	A			1252.5	1254.88	P	2	114.8	10	583625.4	1745476.5
103	MW-2		12	A			1252.5	1254.35	P	2	164.6	10	583625.4	1745492.0
105	MW-3		12	A			1233.0	1235.25	P	2	175.0	5	584086.5	1746427.4
107	MW-4P		11	A			1232.9	1235.19	P	2	85.0	10	584086.2	1746438.4
109	MW-5A		11	A			1224.0	1225.18	P	2	88.3	15	583467.8	1746571.9
108	MW-5		12	A			1223.3	1225.32	P	2	140.6	10	583467.9	1746588.2
110	MW-6		12	A			1233.0	1235.37	P	2	197.2	5	584086.7	1746417.4
111	MW-7		12	A			1255.7	1258.03	P	2	229.5	5	583843.8	1745887.7
112	MW-8R		12	A			1256.1	1258.84	P	2	187.5	15	583836.9	1745874.1
113	MW-9		11	A			1255.4	1257.50	P	2	111.8	15	583858.6	1745892.2
114	MW-10		12	A			1215.6	1217.52	P	2	178.5	5	582822.1	1746433.1
115	MW-11		12	A			1216.4	1218.36	P	2	147.5	15	582806.2	1746431.9
116	MW-12		11	A			1216.4	1218.36	P	2	83.5	15	582806.6	1746413.0
117	MW-13P		11	A			1224.5	1227.42	P	2	87.4	15	582910.4	1746035.5
118	MW-14	JX072	12	A			1247.5	1249.69	P	2	171.1	15	583881.3	1746475.7
119	MW-14Z	JX073	12	A			1247.5	1250.22	P	2	205.8	5	583866.9	1746488.0
125	MW-14WT	WC334	11	A			1247.2	1249.70	P	2	90.0	15	583964.7	1746693.0
127	MW-15WT	WC335	11	A			1220.6	1223.24	P	2	72.8	10	583598.0	1746728.6

Completion of this form is mandatory under chs. 281, 289 and 292, Wis. Stats., and ss. NR 110.25, NR 507.14 and NR 716.15, Wis. Admin. Code

GROUNDWATER MONITORING WELL AND POINT INFORMATION

Form 4400-089 (R 04/19)

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DNR Point ID No.	Point Name ¹	WUWN ² (if app.)	Type	Status	Gradient	Enf. Stds. Y/N.	Construction Date	Elevations msl (ft)		Well Casing			Well Screen Length (ft)	Well (Pt) Total Length ⁵ (ft)	Coordinates ^{6,7,8,9}	
								Ground Surface	Well Top (of casing)	Type	Diam ³ (in)	Length ⁴ (ft)			Y / Lat / Northing	X / Long / Easting
129	MW-16WT	WC336	11	A			09/21/2022	1184.7	1187.41	P	2	64.9	10	74.9	583157.3	1746673.3
131	MW-16	WC337	12	A			08/25/2022	1184.3	1186.92	P	2	91.9	5	96.9	583147.8	1746669.6
133	MW-17WT	WC338	11	A			09/26/2022	1196.4	1199.18	P	2	76.9	10	86.9	582907.9	1746684.9
201	P-1 (Facility)	FU046	13	A			12/10/1992			S	6					
202	P-2 (Williams)	8IW730	13	A			07/10/1969			S	6					
502	Sedimentation Basin		22	A												
300	Leachate Storage Tank		23	A											583001.6	1745623.2
340	Lys-1		14	A											582940.4	1745918.7
341	Lys-2		14	A											582916.5	1746103.3
342	Lys-3		14	A											582892.9	1746261.9
310	LHW-1		24	A											583130.8	1745934.8
314	LHW-2		24	A											583452.2	1745941.7
318	LHW-3		24	A											583120.3	1746129.7
322	LHW-4		24	A											583793.7	1746077.0
326	LHW-5		24	A											583124.4	1746365.6
330	LHW-6		24	A											583461.2	1746372.4
460	GP-1		51	A											583357.5	1745680.9
462	GP-2		51	A											583821.2	1745951.2
464	GP-3		51	A											582918.3	1746000.6
135	MW-16Z	WF528	12	A			08/06/2024	1184.5	1186.50	P	2	117.0	5	122.0	583168.4	1746679.1
137	MW-18WT	WF527	11	A			08/02/2024	1210.1	1212.24	P	2	79.2	10	89.2	583413.3	1746690.8
139	MW-18	WF526	11	A			08/01/2024	1209.8	1212.00	P	2	109.2	10	119.2	583407.8	1746695.9
141	MW-19	WF530	11	A			08/13/2024	1190.5	1192.82	P	2	95.3	10	105.3	582931.4	1746831.1
143	MW-19Z	WF529	12	A			08/09/2024	1190.2	1192.34	P	2	127.1	5	132.1	582939.8	1746831.5

GROUNDWATER MONITORING WELL AND POINT INFORMATION

Form 400-089 (R 04/19)

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¹Include previous name as well if one exists. ²Wisconsin Unique Well Number. ³Well Casing Diameter measures inside diameter. ⁴Length of well casing from top of casing to top of screen. ⁵Total length of well from top of casing to bottom of well. <i>Should equal sum of well casing length and screen length.</i>	⁶Identify Coordinate Reference System (only one system may be used per site): ☐ Lat/Long (Decimal Degrees) WGS84 (min. 8 digits total w/ 6 right of decimal, e.g., -89.123456) State Plane (min. 2 digits right of decimal) ☐ North ☐ Central ☒ South ☐ Wisc. Transverse Mercator WTM91 (min. 2 digits right of decimal) ☐ Local County Coord. Sys. (WISCRS) (min. digits vary by county)	⁷Identify Projection Datum and units* ☐ NAD83 ☐ NAD27 ☐ NAD83(91) ☒ NAD83(11) ☐ Other Describe: _____ Units used for State Plane, WTM or County Coord. Sys: ☐ meters ☒ feet *NOTE: A datum and units are not required for Lat/Long	⁸Identify the Method Used to Determine the Coordinates: ☒ GPS001-Survey grade ☐ GPS003-Mapping grade/real-time differential correction ☐ GPS004-Mapping grade/post processing ☐ SRV001-Classical terrestrial surveying techniques ☐ OTH001 (Other), Describe: _____ Remarks: _____	⁹Y / Lat / Northing describe the vertical axis. X / Long / Easting describe the horizontal axis. (include " " where needed, e.g., -89.123456)
---	---	--	---	---

INSTRUCTIONS FOR COMPLETING THE GROUNDWATER MONITORING WELL AND POINT INFORMATION FORM (#4400-089)

When completed, this form provides a record of information for each well or sampling point that is part of a facility's environmental monitoring program. It provides the facility or consultant with a means of presenting point information required by the Department in a consistent format. This form should be updated as new points are added to the monitoring program or new information becomes available (e.g., re-surveyed elevation for existing points).

Complete the form with the necessary information as described below:

Facility Name: Enter the name of the site or landfill.

County: Enter the county the site or landfill is located.

Facility ID Number (FID): Enter the 9-digit Facility ID (FID) assigned to the site.

License/Permit/Monitoring Number: Enter the number assigned by the Department to the facility. If unknown, leave blank.

Date: Enter the date on which the form is completed (mm/dd/yyyy).

Completed By: Enter the name and firm of person completing the form.

DNR Point ID Number: Enter the 3-digit number assigned to the point by the Department, for use by the Department.

Point Name: Enter the common name given to the point by the facility or consultant; e.g. MW-2, GP-5. If the point had a previous name, please include and identify as such.

Wisconsin Unique Well Number (WUWN): Enter the Wisconsin Unique Well Number assigned to groundwater monitoring and private wells. WUWNs are available from the Department and are to be assigned to all newly installed monitoring and private wells.

Type: Enter the Numerical code describing the type of well or sampling point. Point type codes range from 11 to 99. *See list of Point Types beginning on page 4.*

Status: Enter the status of the well using the following codes:

A	–	<u>A</u> ctively monitored point
I	–	<u>I</u> nactive point (existing point not currently being monitored)
P	–	<u>P</u> ermanently abandoned point
L	-	<u>P</u> Lanned.

INSTRUCTIONS FOR COMPLETING THE GROUNDWATER MONITORING WELL AND POINT INFORMATION FORM (#4400-089)

Gradient Position: Enter the location of the well in the groundwater flow system relative to the disposal site, spill, etc. *Use one of the six letters designated below. If gradient position is not known or does not apply to the type of point, leave blank.*

U = Up gradient

D = Down gradient

Y = Side-to-down gradient

S = Side gradient

X = Side-to-up gradient

N = Not known

Enf. Stds. Apply: Enter "Y" if enforcement standards apply at this well. Enforcement standards apply to any well beyond the **Design Management Zone (DMZ)** or the property boundary of the facility or to a water supply well. For spills, enforcement standards apply at every point at which groundwater is monitored. (For more information, see s. NR 140.22, Wis. Adm. Code.) *If the application of enforcement standards is not relevant to the type of point entered, leave blank.*

Construction Date: Enter the installation date of the point.

Elevations:

Ground Surface: The elevation, in feet, of the ground surface adjacent to the well using mean sea level (MSL) based on national geodetic vertical survey (i.e., NAVD88).

Well Top (of casing): The elevation, of the top of the well casing (not top of protective pipe), in feet using MSL based on national geodetic vertical survey (i.e., NAVD88).

Well Casing:

Type: The type of pipe used: plastic (P), steel (S), or other (O).

Diam: The inside diameter of the pipe used in the well construction, in inches.

Length: The length of the well casing from the top of the casing to the top of the screen, measured in feet.

Well Screen Length: The length of the screen measured in feet.

Well (Point) Total Length: The total length of the well (or point) from the top of the casing to the bottom of the well, measured in feet. *Should equal sum of well casing length and screen length.*

Point Coordinate Reference Systems: Only one coordinate reference system may be used on the form. Allowable coordinate systems are Lat/Long (in decimal degrees [DD] only), State Plane and Wisconsin Transverse Mercator (WTM91). County coordinate systems (WISCRS) may also be used. Local grid coordinates are *not* accepted. The field named "Y / Lat / Northing" describe the vertical axis and the field "X / Long / Easting" describe the horizontal axis.

INSTRUCTIONS FOR COMPLETING THE GROUNDWATER MONITORING WELL AND POINT INFORMATION FORM (#4400-089)

Identify the coordinate reference system used:

- Latitude/Longitude WGS84 (Decimal Degrees, minimum 8 digits total w/ 6 right of decimal)
- State Plane (min. 2 digits right of decimal):
 - North
 - Central
 - South
- Wisc. Transverse Mercator (WTM91, min. 2 digits right of decimal)
- Local County Coordinate System (aka Wisconsin Coordinate Reference System (WISCRS), minimum digits vary by county)

Identify the projection datum used (listed below) by checking the appropriate box on the bottom of the form.

NOTE: A datum is not required for Lat/Long.

- NAD83
- NAD27
- NAD83(91)
- NAD83(11)
- Other

Identify the units used, meters or feet, for State Plane, WTM or Local County Coordinate System.

Identify the method used to determine the coordinates by checking the appropriate box on the bottom of the form.

The options are:

- GPS001-Survey grade GPS
- GPS003-Mapping grade GPS with real-time differential correction
- GPS004-Mapping grade GPS with post processing differential correction
- SRV001-Classical terrestrial surveying techniques
- OTH001 (Other)

Remarks: Include any comments applicable to the submittal (e.g., Re-surveyed top of well casing elevation).

List of Point Types

- 11 (mw) Water table observation well (monitoring well screen intersecting the water table) (non-Subtitle D well)
- 12 (pz) Piezometer (monitoring well with screen sealed below the water table (non-Subtitle D well)
- 13 (pw) Private well - potable water supply
- 14 (ly) Lysimeter
- 15 (sp) Spring
- 16 (rp) Resistivity probe
- 17 (gc) Gradient control
- 18 (at) Aquifer test well
- 19 (pn) Private well-non potable
- 21 (fs) Flow or seep
- 22 (sw) Surface water
- 23 (lc) Leachate collection system
- 24 (lh) Leachate head well
- 25 (lg) Leachate and gas combo
- 26 (ew) Groundwater extraction well
- 27 (he) Horizontal groundwater extraction well

INSTRUCTIONS FOR COMPLETING THE GROUNDWATER MONITORING WELL AND POINT INFORMATION FORM (#4400-089)

- 28 (hw) Horizontal monitoring well
- 29 (ha) Horizontal vapor extraction well
- 31 (us) Upstream
- 32 (ms) Mid-site
- 33 (ds) Downstream
- 34 (ro) Run-off
- 35 (im) Impounded
- 36 (sg) Staff gauge
- 41 (tr) Treated
- 42 (pr) Pretreated
- 45 (pp) Private well primary treatment
- 46 (ps) Private well secondary treatment
- 49 (sh) Settlement hub
- 51 (gp) Gas probe
- 52 (nl) Non-landfill structure
- 53 (ge) Gas extraction system
- 54 (gu) Gas utilization or destruction
- 55 (gc) Gas condensate
- 56 (sc) Site conditions collection
- 57 (sv) Soil venting well (includes both soil vapor extraction and bioventing, includes both extraction and unsaturated zone gas phase injection wells installed in soil or fill, but not refuse)
- 58 (gm) Gas sample monitoring point
- 59 (sc) Stone column gas extraction well
- 61 (ij) Injection well (injection of liquids not gases)
- 62 (as) In situ air sparging well (injection well to inject gases into the aquifer)
- 63 (uv) Unterdruck Verdampfer Brunnen (UVB) wells (sparging wells where the gases remain in the well and are not injected into the aquifer)
- 64 (le) Groundwater and light non-aqueous phase liquid (LNAPL) extraction well
- 65 (de) Groundwater and dense non-aqueous phase liquid (DNAPL) extraction well
- 66 (ve) Vacuum enhanced groundwater extraction wells
- 67 (vi) Vacuum enhanced groundwater and LNAPL extraction well
- 68 (vd) Vacuum enhanced groundwater and DNAPL extraction well
- 71 (dw) Subtitle D water table observation well (see 11/mw)
- 72 (dp) Subtitle D piezometer (see 12/pz)
- 80 (mc) Municipal water supply well: cities, villages, and sanitary districts
- 81 (oc) Community-other-than-municipal (OTM) water supply well: mobile home parks, apartments, subdivisions, and condominium complexes
- 85 (nn) Noncommunity-Nontransient water supply well (schools, day care centers, and industries) A Noncommunity water system that regularly serves at least 25 of the same persons over 6 months per year
- 86 (tn) Noncommunity-Transient water supply well (motels, restaurants, parks, taverns, churches, and campgrounds) A Noncommunity water system that serves at least 25 people at least 60 days of the year
- 99 (ot) Other

Appendix B

Leachate Figures

LEGEND

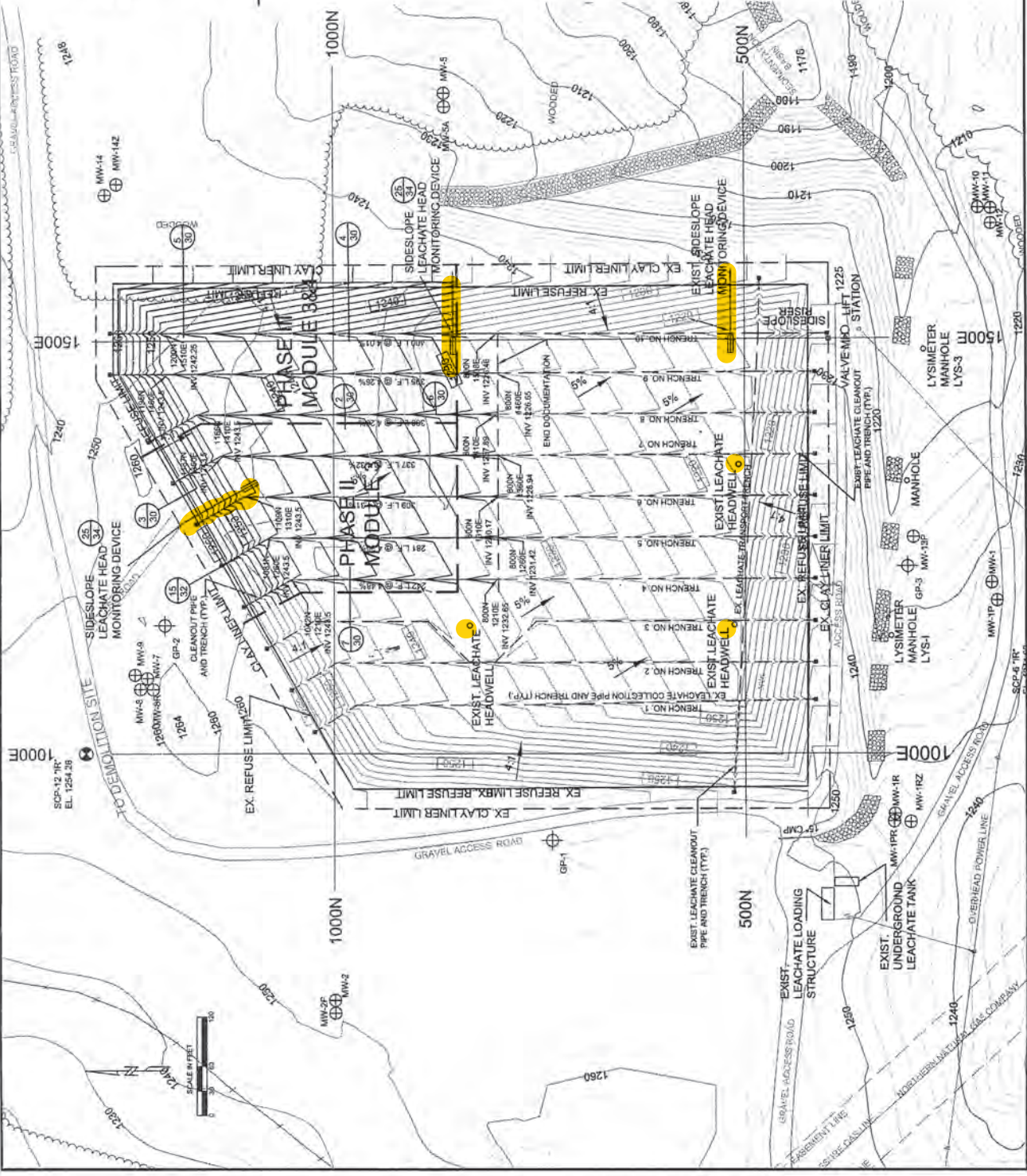
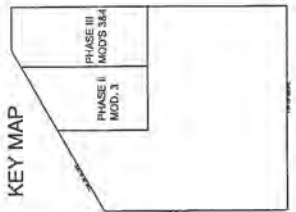
- EXISTING EDGE OF WOODS
- EXISTING POWER POLE
- EXISTING RIPRAP
- EXISTING SURVEY CONTROL POINT
- EXISTING GAS PROBE
- EXISTING MONITORING WELL
- EXISTING FENCE
- EXISTING CONTOURS INDEX (8250A)
- EXISTING CONTOURS INTERMEDIATE (8250A)
- EXISTING SUB-BASE CONTOURS INDEX
- EXISTING SUB-BASE CONTOURS INTERMEDIATE
- BASE CONTOURS INDEX
- BASE CONTOURS INTERMEDIATE
- PHASE LIMIT LINE AND CLAY LIMIT LINE

DETAIL REFERENCE NOTE

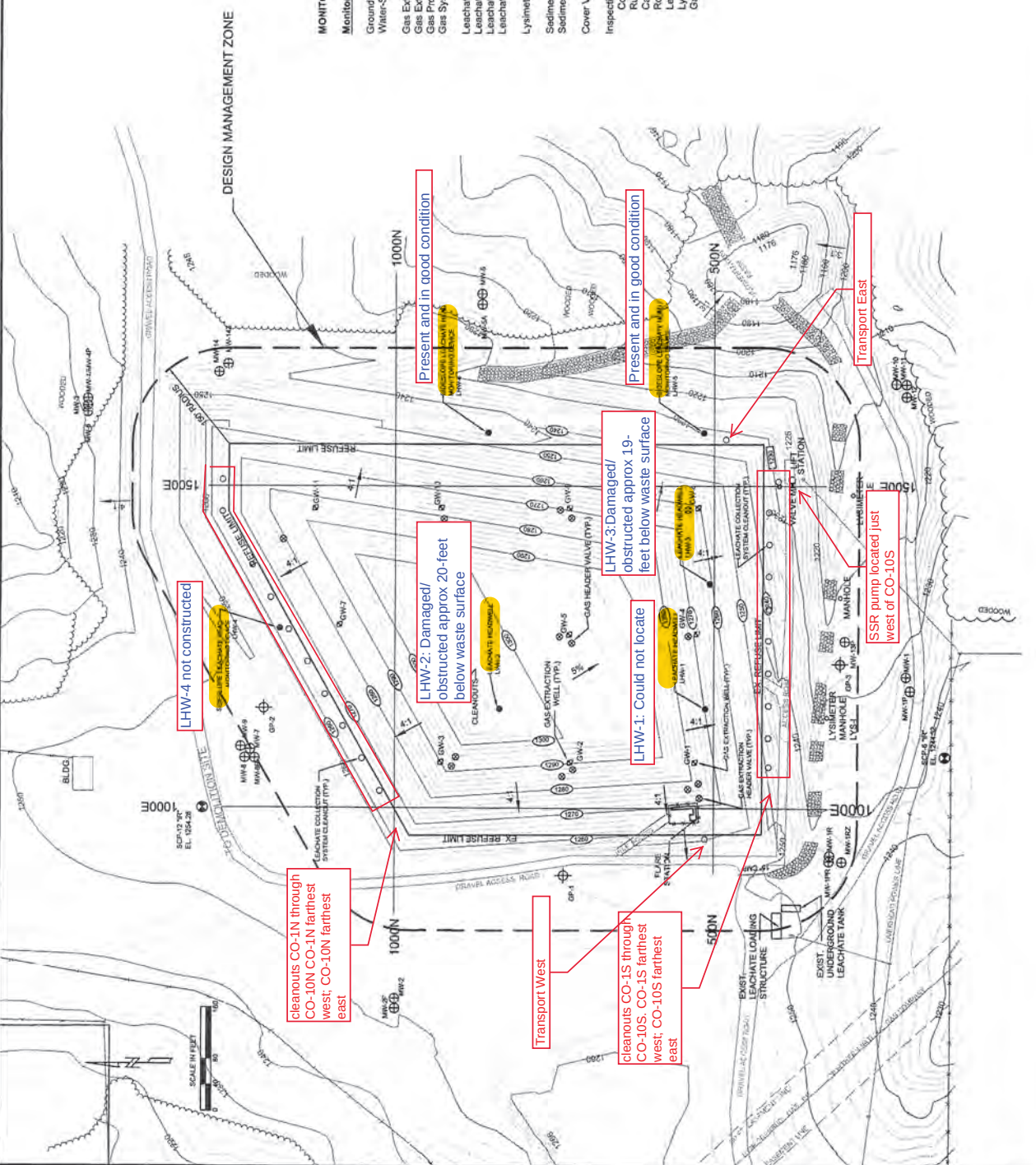
- 16 SEE DETAIL 16
- 32 ON PAGE 32

NOTE:
THIS BASE GRADE SHEET ILLUSTRATES:
THE EXISTING BASE GRADES AND SLOPE PERCENTS AND SIDESLOPE SLOPE RATIOS CONSTRUCTED IN PRIOR MODULE DOCUMENTATION REPORTS.
THE INSTALLED LEACHATE COLLECTION SYSTEM CONSTRUCTED IN PRIOR MODULE DOCUMENTATION REPORTS.
THE EXISTING WASTE LIMIT AND CLAY LIMIT ESTABLISHED IN PRIOR MODULE DOCUMENTATION REPORTS.
THE REMAINING PHASES II & III OF THE WASTE LEACHATE TREATMENT SLOPE RATIOS AND SIDESLOPE SLOPE RATIOS AND LEACHATE COLLECTION SYSTEM TO BE CONSTRUCTED IN THE NEW PLAN OF OPERATION.

KEY MAP



- LEGEND**
- EXISTING EDGE OF WOODS
 - EXISTING POWER POLE
 - EXISTING RIPRAP
 - EXISTING SURVEY CONTROL POINT
 - EXISTING GAS PROBE
 - EXISTING MONITORING WELL
 - EXISTING FENCE
 - EXISTING CONTOURS INTERMEDIATE
 - FINAL CONTOURS INDEX
 - FINAL CONTOURS INTERMEDIATE
 - GW-1
 - GAS EXTRACTION WELL



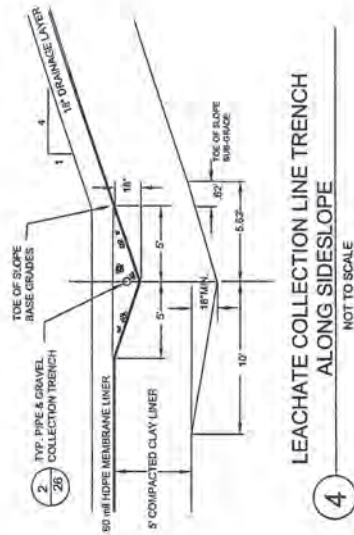
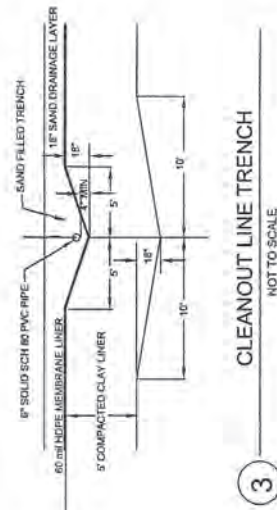
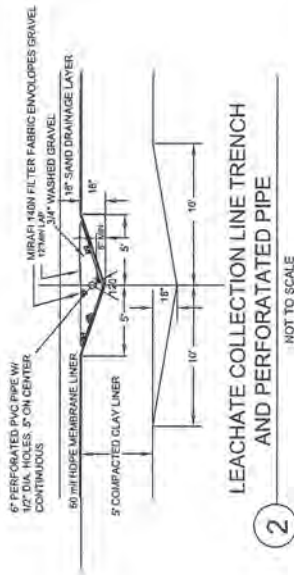
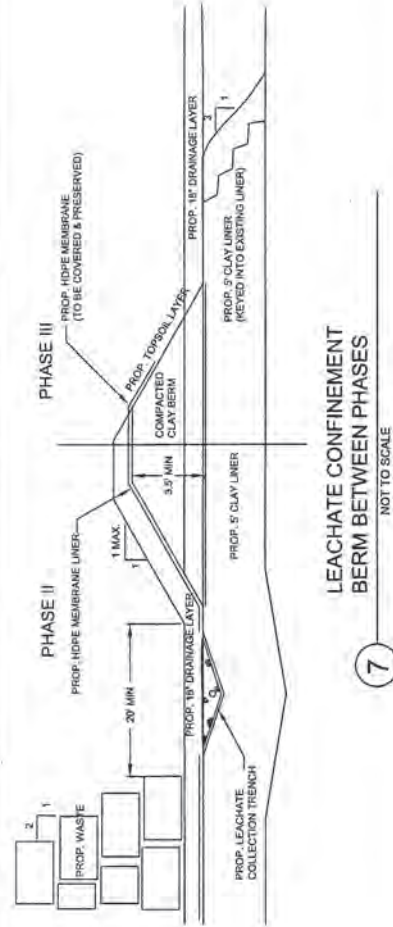
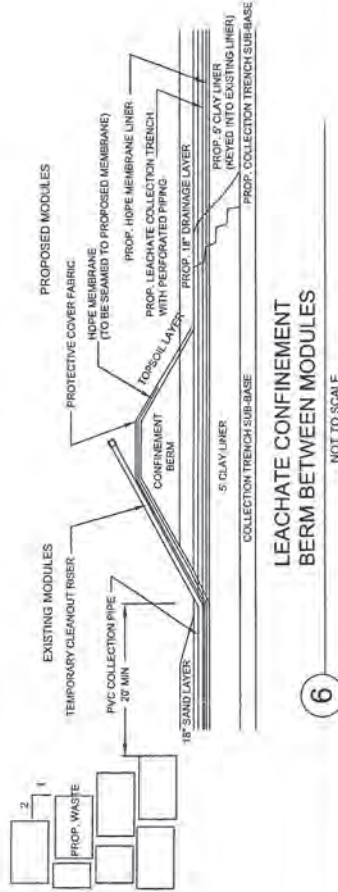
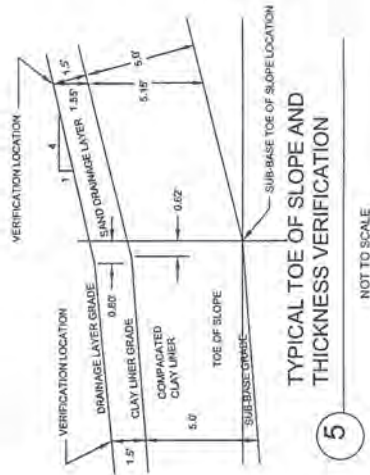
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PROJECT:
VERNON COUNTY SANITARY BAFLE
FINAL CLOSURE & MONITORING PLAN
PLAN OF OPERATION FOR VERTICAL EXPANSION

REVISIONS:

PROJECT NO: 94522000
DRAWN BY: D.H.
CHECKED BY: P.A.
APPROVED BY: H.Z.
DATE: JAN 2005

SHEET:
16 OF 31

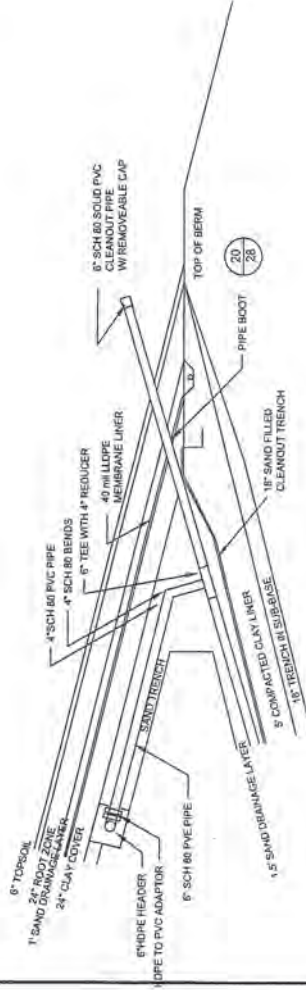


PROJECT:
VERNON COUNTY SANITARY BAILEFIL
PLAN OF OPERATION FOR VERTICAL EXPANSION

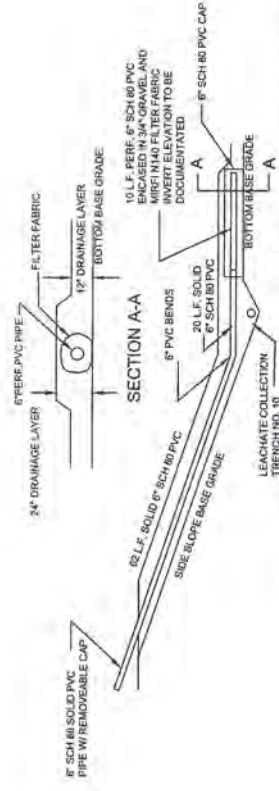
DETAILS

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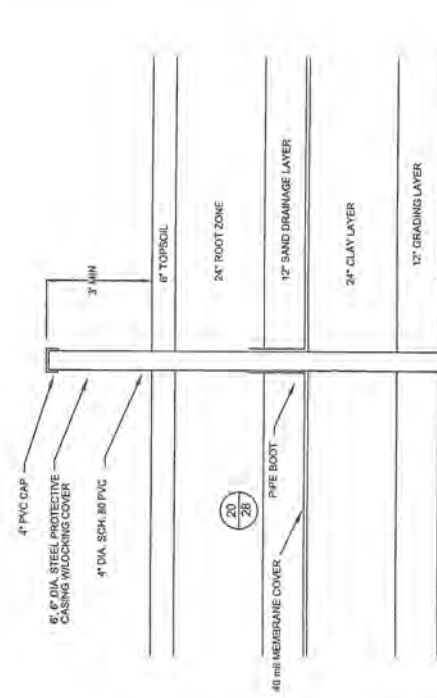
PROJECT NO:	04650000
DRAWN BY:	D.H.
CHECKED BY:	P.A.
APPROVED BY:	H.Z.
DATE:	JAN 2005
SHEET:	29 OF 31



24 CONDENSATE PIPE TO CLEANOUT TIE-IN
NOT TO SCALE

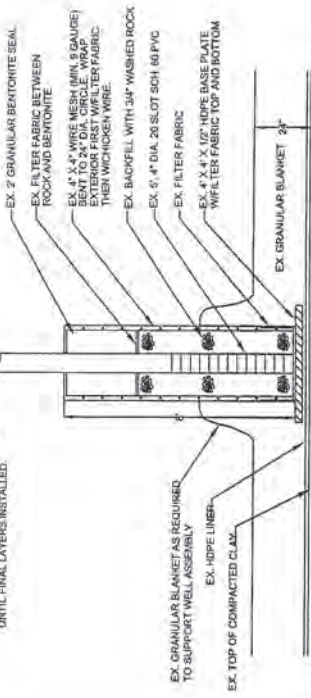


25 SIDESLOPE LEACHATE HEAD MONITORING DEVICE
NOT TO SCALE



NOTE:

WELL SHALL BE TEMPORARILY CAPPED
UNTIL FINAL LAYERS INSTALLED



23 LEACHATE HEADWELL
NOT TO SCALE

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