2200 S. Main Street, Ste. A
Blacksburg, VA 24060

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August 21, 2024

Mr. Daniel Scott, P.E.
Solid Waste Permits
Virginia Department of Environmental Quality
Southwest Regional Office
355-A Deadmore Street
Abingdon, Virginia 24210

RE: Russell County Landfill, Solid Waste Permit No. 258
Major Permit Modification – Revised Post Closure Care Plan – Revision 1
TRC Project No. 594903

Dear Mr. Scott:

On behalf of Russell County (County), TRC Engineers, Inc. (TRC) is submitting for your review and approval, this request for a Major Permit Amendment for leachate system modifications at the Russell County Solid Waste Permit No. 258 Landfill (facility). In conjunction with the Major Permit Modification, a revision of the facility's Post-Closure Care (PCC) Plan is being submitted. This revision to the Facility's PCC Plan reflects the planning, design, and installation of an expanded leachate storage and containment system. A request for the Major Permit Modification and a revised PCC Plan was submitted to the Virginia Department of Environmental Quality (VDEQ) on June 10, 2024. Subsequently, on June 20, 2024, the County received VDEQ's comments on the request for Major Permit Modification submittal. This letter and the accompanying revised Major Permit Modification request and revised PCC Plan respond to VDEQ's comments. Each of VDEQ's comments are first presented below followed by the response.

Amendment 4 (Major) – Leachate System Modifications
SWP 258 - Russell County Landfill (Copper Ridge)

1) This project was originally scoped to provide pumping from the collection point by forcemain to the centralized storage and pump and haul currently utilized by SWP 515. Please provide a narrative description as part of the submission that discusses the lesser reliability and functionality of the proposed alternative.

Narrative describing the difference between the original proposed scope of the project is provided in the Background Section 1.2.

2) As currently proposed, two tanks at one of the three collection points are to be replaced with larger tanks (each of the two 1,250 gallons increased to 6,500 gallons). Provide text and analysis of the proposed storage versus the historical flow data and overflow/releases showing how the proposed upgrade was determined and that it is sufficient to alleviate past violations.

Description and analysis supporting the sizing of the new larger tanks at the Bulk location and how this will alleviate the risk of future overflows and violations has been included in Section 1.3, Current Conditions.

3) Expand the Operations Plan Section 2.4: Indicate how often tank volumes are checked, methodology of measurement (stick depth vs volume chart for each tank), 'action' levels, contingency plan, etc. based upon the rationale discussed in Comment 2 (above) to eliminate overflow/release. 'At least weekly and more if it rains' is not acceptable.

The Operations Plan provided in Section 2.4 was expanded to include the methodology for measuring tank volumes. A tank gauge is used to measure tank volume, a detail for the gauge is provided in the attached *Addendum 1 - Details*. A more detailed pumping schedule and 'action levels' are also provided in Section 2.4.

4) Leachate and Storage Containment Plan - Provide specification or plan notes for access risers and any internal coating for leak protection/deterioration of concrete vaults. Provide construction narrative that indicates how leachate is controlled during the construction process. Capping and letting leachate backup into the collection piping/Landfill mass is not acceptable. Provide adequate sump and pump and transport for all time where tanks are offline.

An inspection port detail has been provided in the *Addendum 1 – Details*, along with a Manway detail such that the interior of the tanks can be accessed for maintenance and application of tank coating. An internal epoxy coating is proposed for the tanks and is referenced in the *Spill Protection Detail* and *Section 2.5 - Construction Sequence*. Specifications for the epoxy coating are also included in *Appendix F*.
During tank replacement, a temporary roll-off sludge container will be used to collect leachate flowing from the inlet pipe. The sludge container is to be monitored at a minimum of every 8-hours and pumped at regular intervals such to prevent spillage. Haul trucks typically used for emptying the leachate tanks will be used to empty the sludge container or it will be replaced with an empty sludge container and hauled to the WWTP for disposal. This is described in the *Addendum 1 – Details* and *Section 2.5 - Construction Sequence*.

5) As has been previously discussed for SWP 258 and SWP 515, it is understood that the facility wishes to be able to haul a greater volume to the receiving Sewage Treatment Works ("STW") but it is necessary to determine general procedures based upon the STW's base abilities to accept larger bulk loads or larger loads over shorter duration. 'We call to check' is acceptable before transporting but a general bulk volume and volume over time range should be part of the Operations Plan based upon discussions and understanding with the receiving STW's.

Average and maximum leachate volumes expected to be hauled to the wastewater treatment facilities is discussed in the *Section 2.4 – Operations Plan* and has been communicated with the receiving facilities.

On behalf of the County, TRC is requesting that the *Revised Post-Closure Care Plan* be included as a major permit modification to the Facility's solid waste permit in accordance with the requirements set forth in 9 VAC 20-81-600.F of the Virginia Solid Waste Management Regulations.

Should you have any questions or comments, please do not hesitate to contact the undersigned at 540-557-1396.

Sincerely,
TRC Engineers, Inc.

Will Mason-Deese
Project Manager

cc: Mr. Lonzo Lester, County Administrator, Russell County
Mr. Brian Ferguson, Russell County Solid Waste
Mr. Toby Edwards, Director of Waste Management Services, CPPDC
Ms. Carrie Blankenship, P.G., Environmental Program Manager, TRC
Mr. Stacy Bowers, Land Protection and Remediation Manger, DEQ-SWRO

MAJOR PERMIT AMENDMENT

POST-CLOSURE CARE PLAN

RUSSELL COUNTY LANDFILL

SOLID WASTE PERMIT NO. 258

RUSSELL COUNTY, VIRGINIA

Submitted to:
Virginia Department of Environmental Quality
Southwest Regional Office
355-A Deadmore Street
Abingdon, Virginia 24210

Prepared for:
Russell County
137 Highland Drive, Suite A
Lebanon, Virginia 24266

Prepared by:
TRC Engineers, Inc.
2200 S. Main Street, Suite A
Blacksburg VA 24060

Revised August 21, 2024

TRC Job Number: 594903

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Addendum 1 Details

1.0 INTRODUCTION

This *Revised Post-Closure Care Plan* (Plan) has been prepared by TRC Engineers, Inc. for the Russell County Landfill (Facility), Solid Waste Permit No. 258, and includes items set forth in Section III of the Virginia Department of Environmental Quality's (DEQ) *Submission Instructions No. 6 for Closure and Post-Closure Care Plans,* dated January 2012, and in accordance with the Virginia Solid Waste Management Regulations (VSWMR). The Plan serves as the document to describe activities necessary to prevent the landfill from becoming a hazard to the environment through post-closure maintenance. The drawings, appendices, and figures should be considered an integral part of this Plan. This revised Plan is being prepared and submitted in conjunction with an application for a Major Permit Amendment to modify the Facility's leachate storage and containment system.

1.1 Site Location

The Facility is a closed unlined landfill on Copper Ridge, along State Route 667, in Russell County, Virginia. The ridge extends northeast to southwest. The Facility covers a total of 96.7 acres with approximately 9.5 acres utilized for waste disposal in two unlined cells. Areas adjoining the landfill are mostly National Forest and agricultural lands as well as rural residential. The nearest permanent water body is a perennial stream named Meade Branch. A solid waste transfer facility is presently located on the property between the Permit No. 258 landfill and the adjoining Permit No. 515 lined landfill. The Permit No. 258 landfill is located north of the transfer station and the Permit No. 515 landfill is located south of the transfer station.

1.2 Background

The Facility is owned and operated by Russell County and the Facility was permitted as a sanitary landfill on September 27, 1978 under Solid Waste Permit No. 258. Waste acceptance occurred between October 1978 and October 1992. A progressive trench fill method was the primary method of waste disposal at the Facility. Waste was disposed in two unlined cells. Closure activities for the Facility were completed in December 1997, with the landfill receiving certified closure by a professional engineer on December 30, 1997, beginning the post-closure care period.

In the absence of waste disposal data, County population data and published per capita waste generation values were used to estimate the quantity of waste generated in the County. Using that information and an assumption of the percent of waste generated that was disposed of in the landfill, the EPA applicability tool can be used. This method was used with the conservative assumption that 100% of the waste generated in Russell County was disposed of in the Russell County landfill between 1978 and 1992 to estimate the waste mass in the landfill. The approximate waste mass is estimated to be less than 338,213 tons, or 397,900 cubic yards.

A Revised *Partial Termination of Post-Closure Care Activity* (TPCA) was submitted to DEQ on April 16, 2014. The TPCA requested to end post-closure care landfill gas monitoring. DEQ tentatively approved the request to end post-closure care for landfill gas monitoring on April 29, 2014 with final approval being issued on June 6, 2014 (Appendix A). Currently, the landfill is in post-closure care monitoring for groundwater monitoring under the Phase II monitoring program, leachate management, stormwater conveyance, and final cover system maintenance. Russell County is not aware of any other permit that has been issued for this facility by state or federal agencies.

In 2022, a Major Permit Modification updated the Post Closure Care Plan for the adjoining Permit No. 515 landfill to modify the leachate storage and containment system associated with the Permit No. 515 landfill. At that time, plans were made to pump leachate by forcemain from the Permit No. 258 landfill to a centralized storage location used by the Permit No. 515 landfill. However, pumping leachate from the Permit No. 258 landfill to a centralized location at the Permit No. 515 landfill would require bringing electrical services to the far side of the Permit No. 258 landfill which is not a feasible option for the County. Furthermore, if a forecmain were used, the leachate containment system would be susceptible to overflow during times of power failure. Additional leachate storage capacity on the Permit No. 258 landfill, as described in this Major Permit Modification, is not constrained by reliability of electrical service, allows greater flexibility for hauling the leachate offsite, and decreases the likelihood of a leachate overflow from the Permit No. 258 landfill.

1.3 Current Conditions

The purpose for this revision is to update the Plan with details of the modification of the leachate collection and disposal system at the Facility and other minor/status updates.

The original leachate system in place at the Facility consisted of leachate collected at three (3) different points. These collection points have a total of seven (7) below grade storage tanks between them, (Figure 3). The 'Side Road' collection point is located along the entrance road on the south side of the landfill and is comprised of two below grade concrete tanks with a combined approximate capacity of 4,700 gallons. The 'Tripples' collection point is located northwest of the landfill below Waste Area #2 and is comprised of three below grade concrete tanks with a combined capacity of approximately 5,000 gallons. The 'Bulk' collection is located on the northeast side of Waste Area #1 and was previously comprised of two approximately 2,500-gallon below grade concrete tanks. These tanks at the Bulk location are being replaced with two below grade pre-cast concrete 6,500-gallon tanks for a combined storage capacity of approximately 13,000-gallons at the Bulk collection point. With the addition of the new tanks at the Bulk location, the combined leachate storage capacity from all collections points is approximately 22,700 gallons.

The locations of the leachate collection points, including the Bulk tanks, are depicted on Figure 3 and historical leachate generation is summarized in Appendix C. Replacing the tanks at the Bulk location with larger tanks result in an increase in 10,500 gallons of storage capacity. This substantial increase in volume, while maintaining current pumping practices, is expected to eliminate future overflows.

Monthly leachate generation records from 2016 through May 2024 are included in Appendix C. A maximum monthly flow of 171,500 gallons at the Bulk location was observed in February 2019 and was used to inform the design and sizing of the new Bulk tanks. This maximum flow equates to approximately 6,125 gallons of leachate per day. The Bulk tanks were designed to remain fully functional with 13,000 gallons of leachate removed every 48 hours during the worst observed scenario. Thus, the tanks were designed to have a capacity greater than 7% of the maximum observed monthly flow of 171,500 gallons in February 2019. Because the tanks could be pumped every 24 hours with

current resources, this approach incorporates a factor of safety of 2 and alleviates the risks of future overflows and violations.

The most recent overflow at the Bulk location occurred in January 2024 during which approximately 72,000 gallons of leachate were produced. This is within the design capacity of the additional tanks and therefore would have eliminated the overflow.

The average and median of the monthly leachate generation data set from the Bulk location (with the provided 2021 data sets being summed to reflect the total leachate for each month) are 47,000 and 44,300 gallons per month, respectively, which is less than 13,000 gallons per week. Note the leachate is removed via a truck with capacity less than 13,000 gallons, so multiple trips are needed. Multiple pumping events allows for the full capacity to be removed without the tanks ever nearing overflow.

The leachate levels in the tanks are checked and pumped down at least twice weekly. Leachate is hauled offsite to wastewater treatment plants to be processed. The leachate is routinely sampled for the constituents and parameters required by the wastewater treatment plants.

The updated leachate system includes five (5) exiting tanks located at the Tripples and Side Road locations, while replacing two (2) approximately 2,500-gallon tanks with two (2) 6,500 gallon below grade concrete storage tanks at the Bulk location. The County owns and operates a wastewater haul truck to transport leachate pumped from the tanks to a wastewater treatment facility. Leachate is transported to wastewater treatment facilities either in Dante or Lebanon. The County coordinates with the receiving wastewater treatment facility on the volume that they can accept at a given time and directs leachate to either Dante or Lebanon accordingly.

2.0 POST-CLOSURE CARE ACTIVITIES

Closure activities for the Facility were completed and closure certification was submitted to DEQ on December 30, 1997, which began the post-closure care period.

A revised *Partial Termination of Post Closure Care Activity Evaluation* was submitted to DEQ on April 16, 2014. The purpose of the Partial TPCA Evaluation was to demonstrate that the County has completed landfill gas related post-closure care activities in accordance with the *Russell County Sanitary Landfill Solid Waste Permit #258 Post-Closure Plan*, dated January 1998. The TPCA requested to end post-closure care landfill gas monitoring. DEQ approved the request on June 6, 2014 (Appendix A). The County did not request to terminate, and continues groundwater monitoring, leachate management, stormwater conveyance, or final cover system maintenance.

2.1 Post-Closure Contact

Name: Brian Ferguson, Russell County Solid Waste

Owner: Russell County

Address: 137 Highland Drive
Lebanon, Virginia 24266

Phone: (276) 415-9105

2.2 Security

The Facility is controlled by fencing with lockable gates at all entrances and unauthorized persons are not permitted to enter the site. Since access at the Facility is controlled and coupled with proper maintenance, public health and the environment are protected.

2.3 Inspection Plans

An inspection program will be conducted throughout the post-closure care period for the Facility. In the event issues are noted during inspections, the frequency of inspections will be increased. The inspection interval will be based on the severity of the issue(s) observed and potential effects to the public and the environment. A schedule of the post-closure inspections is presented below and in Appendix B.

System	Components	Frequency - Type
Final Cover System*	Integrity of Cover	Quarterly - Visual
Security Control System	Fencing and Access Gate	Quarterly - Visual
	Posted Signs	Quarterly - Visual
Drainage and Erosion Control Systems	Basins	Quarterly - Visual
	Ditches, Channels, and Piping	Quarterly - Visual
	Culverts	Quarterly - Visual
	Discharge Outlets and Spillways	Quarterly - Visual
	Diversion Berms	Quarterly - Visual
Leachate Collection System	Tank Components and Access Points	Quarterly - Visual
	Cleanouts	Quarterly - Visual
	Tank capacity and volume	Twice Weekly and preceding rain events - Visual

Note:
* Integrity of final cover includes inspecting for leachate breakouts.

The reporting forms used with all inspections is found in Appendix B. Copies of the inspections will be kept by Russell County and available to DEQ for their review.

2.4 Operations Plan

All of the tanks in the leachate containment are below grade and fill by gravity drainage from various drain lines throughout the landfill. The tanks are emptied manually into a haul truck either using a portable submersible pump or a vacuum truck. The Operations Plan detailed below describe the manual operations and emptying/loading procedures.

2.4.1 Operations

The tanks in the leachate containment system are positioned below grade and receive leachate by gravity drainage from various drain lines running mainly around the toe of the landfill. The landfill is unlined so there is no liner to collect leachate. Leachate collects in the below grade tanks at three locations across the landfill: Side Road, Tripples, and Bulk. Access ports on top of the tanks and extending to the ground surface are used for access for portable pumps or a vacuum hose used to transfer leachate to a haul truck.

The tanks at the Side Road and Tripples locations have the inlet pipe from the landfill entering one tank. The tanks are then piped together allowing the additional tanks to fill once the first tank fills to a certain level. The inlet pipe at the Bulk location is teed so that each of the two tanks has its own inlet pipe. Butterfly isolation valves can be used to open or close each tank individually so that a tank can be taken offline for maintenance. A 4-inch overflow line connects the two tanks and will allow one to spill over into the other if one tank fills. A float gauge installed on the Bulk tanks is used to monitor leachate levels.

2.4.2 Emptying Tanks/Loading Trucks

Leachate levels in the tanks are checked and pumped down at least twice weekly and preceding forecasted rain events. During large rain events tanks are to be checked daily. When the tanks are pumped, leachate levels are to be maintained below at least 20% capacity of the tank, leaving less than approximately 2 feet of leachate in each tank at the Bulk location. Leachate is either pumped with a submersible pump from the tank to the haul truck, or a vacuum truck is used to empty the tanks. Access ports on top of the tanks provide access for the pump or vacuum hose.

The volume of the haul truck may not allow all the tanks to be fully pumped down at once, and multiple haul trips or multiple trucks may be used to pump the tanks down to acceptable levels. The County owns and operates a 3,000-gallon wastewater haul truck that is used for emptying tanks and hauling to the wastewater treatment plant. A 5,000-gallon roll-off sludge container is kept onsite to be used to haul leachate during times of high flow. The County also utilizes private contractors for emptying the tanks when needed and during times of higher flow and increased pumping.

The County coordinates with the receiving wastewater treatment facility on the volume that they can accept at a given time and directs leachate to either Dante or Lebanon accordingly. The average volume of leachate to be hauled to the wastewater treatment facility is approximately 100,000 gallons per month or 25,000 gallons per week. However, during periods of high flow as much as 300,000 gallons per month, or 75,000 gallons per week can be collected for disposal at the wastewater

treatment facilities. This expected range in volumes has been communicated and is understood by the wastewater treatment facilities.

2.5 Construction Sequence

The following details the sequence of construction activities during the removal and replacement of the leachate tanks at the Bulk Location.

- Install Temporary Tank – a temporary roll-off sludge container will be used to contain leachate during tank replacement activities. The sludge container will be positioned downgradient of the inlet pipe such that leachate will gravity drain through piping to the sludge tank.
- The inlet pipe will be cut off from the existing tanks and flow from the inlet redirected to the sludge tank.
- The two existing tanks will be pumped and emptied.
- Monitoring of the sludge tank will begin, at a minimum of every 8 hours, and the sludge tank pumped down at regular intervals to prevent spillage. The haul truck typically used to empty the tanks will be used to empty the sludge tank, or the sludge tank will be replaced with an empty sludge tank and hauled to the wastewater treatment facility.
- Existing tanks will be removed. They will be taken to the onsite transfer station for disposal.
- The two new tanks and associated piping will be installed.
- An epoxy will be applied inside the tanks per manufacture instructions. The epoxy detailed in Appendix F, or an approved equal, will be used. The tanks will be tested for watertightness after the epoxy has dried/cured.
- Once the tanks are confirmed to be watertight, the plumbing to the inlet will be connected and the tanks allowed to fill.
- Temporary roll-off sludge tank will be removed and hauled to the wastewater treatment facility for leachate disposal.
- Final site grading.

2.6 Maintenance Plans

Post-closure maintenance will consist of the following preventive and corrective maintenance activities. Maintenance activities will be initiated as soon as possible, and in no case, later than 30 days after discovery of an issue. Necessary resources for the performance of maintenance will be available from Russell County, or they will procure an external contractor or consultant.

2.6.1 Security Control Devices

Throughout the post-closure care period, fencing, lockable gates, and other natural and artificial barriers will be maintained to control access to and from the Facility. All gates will be clearly marked with signs stating the name of the Facility, that solid waste was disposed on the site, and that the site is no longer used for disposal purposes. Missing or damaged security locks will be replaced when discovered during inspections. Damage to the gate or perimeter fencing, which interferes with their intended function, will be repaired promptly.

2.6.2 Leachate Collection System

The facility has a leachate collection system in place which includes additional below-grade leachate storage capacity. Leachate from the unlined Russell County Permit No. 258 Landfill is collected at three (3) different locations in at total of seven (7) below grade storage tanks, as shown in **Figures 2** and **3**.

The below grade tanks are checked and pumped twice weekly and preceding rain events. The leachate is hauled offsite to wastewater treatment plants to be processed. The leachate is either hauled to the Dante Wastewater Treatment Plant or to the Lebanon Wastewater Treatment Plant. The County coordinates with the receiving wastewater treatment facility on the volume that they can accept at a given time and directs leachate to either Dante or Lebanon accordingly. The leachate is routinely sampled for the constituents and parameters required by the wastewater treatment plants.

The County utilizes a leachate log to record the amount of leachate generated and removed from the facility. Russell County will continue to record and maintain records of the amount of leachate generated and removed from the landfill. Summaries of monthly and annual leachate generation at the

Russell County Permit No. 258 landfill from 2018 through the early part of 2024 are included in Appendix C.

The leachate containment system expansion provides additional leachate storage capacity and potentially decreases the frequency at which leachate is hauled from the landfill, making leachate hauling more cost and labor efficient. The expanded leachate containment system includes the addition of two (2) 6,500-gallon below ground concrete storage tanks that will replace two (2) approximately 2,500-gallon existing tanks at the Bulk leachate collection point.

The tanks will be checked at least quarterly for sediment build-up. Sediment will be removed as needed with a vacuum truck. A manway is installed on each of the Bulk tanks to further aid with maintenance activities. The two tanks at the Bulk collection point may be isolated and taken offline for maintenance activities using butterfly isolation valves.

Tanks are emptied into haul trucks utilizing either portable submersible pumps or via vacuum trucks. The County has purchased and operates a haul truck for disposing of the leachate and contracted haulers can be utilized when necessary.

The final design of the expanded leachate containment system is included in the Drawings submitted with this Post Closure Care Plan. A request for a Major Permit Modification to update Solid Waste Permit No. 258 to reflect these changes to the leachate containment system is also being submitted with this Post Closure Care Plan. Upon DEQ approval, the expansion of the leachate containment system is planned to occur during late 2024 and early 2025.

2.6.3 Leachate Control Plan

If leachate seeps are observed, the following leachate control plan will be implemented. DEQ will be consulted prior to pursuing corrective measures not included in this plan.

Actions for Seeps

A contingency/remedial action plan will be developed, based on the estimated leachate flow rate, which will include the following actions, as needed:

- **Inspection of Site:** The evaluation will include a review of existing grading, erosion, and sedimentation plans and a site inspection. The site will be inspected for potential infiltration sources, which could be the result of run-on, a damaged cap, or ponding resulting from landfill settlement. Inspection results will be used to develop a corrective plan and schedule to complete any required field modifications. Significant modifications to the closure configuration of the site will be submitted to DEQ for review and completed under the supervision of a professional engineer.
- **Repairs to the Final Cap:** If a breach in the capping system is observed during the inspection, the cap will be repaired. Materials for the cap repair shall be approved by a registered professional engineer and meet the requirements of the original closure construction specifications. The breached area will be excavated to allow space for properly interfacing the repair with the unaffected cap. All repairs to the cap shall be in accordance with the original closure plan specifications and meet DEQ requirements. Upon completion of the repair, appropriate documentation will be submitted to DEQ.
- **Leachate Seep Control:** Cover soils saturated with leachate will be excavated and disposed of properly. Exposed areas will be covered with clean, compacted soil to prevent infiltration and properly maintain the soil cover thickness. The surface of the affected area shall be regraded and seeded to promote drainage and vegetative growth. Persistent seeps, unable to be controlled by excavation and cover replacement, may require more complex engineering solutions. The County will retain the services of a qualified design engineer for assistance with these seeps as needed.
- **Treatment and Disposal of Leachate:** If leachate is collected, it will be piped into the collection tanks for storage and eventual disposal as described in section 2.4.2.
- **Inspection and Maintenance Plan:** Leachate management will continue throughout the post-closure care period of the site. Trained personnel will conduct quarterly inspections to evaluate

leachate system performance throughout the post-closure care period, unless a different inspection interval is approved by DEQ.

2.6.4 Releases from Landfill

To eliminate leachate releases, appropriate repairs to the cap, leachate collection and disposal system will be made as soon as possible and no later than 30 days after discovery.

2.6.5 Leak detection between Liners

The landfill does not have a liner system nor a leak detection layer; therefore, no monitoring plan is necessary.

2.6.6 Dewatering

The landfill does not have a dewatering system; therefore, no monitoring plan is necessary.

2.7 Post-Closure Uses

No active post-closure uses are planned for the property; the land will be open and dormant. Consequently, no uses are expected to interfere with the regulated post-closure care activities.

2.8 Training

Trained personnel will conduct inspections and maintenance. Training will be completed as needed to ensure knowledge of personnel remains current. If specialized knowledge is needed to address an issue, competent engineering and construction firms will be engaged to help the County.

3.0 POST-CLOSURE CARE COST ESTIMATE

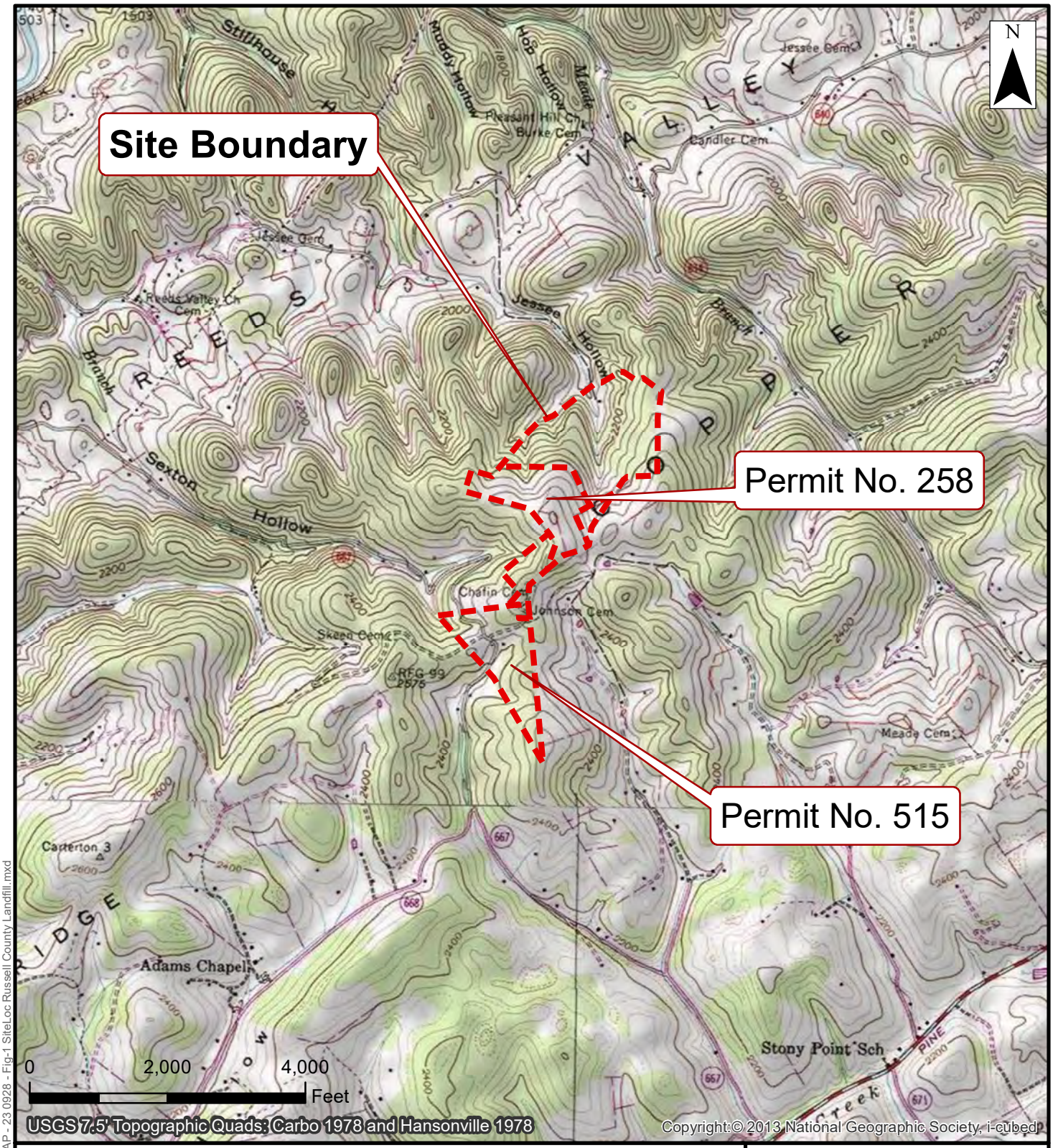
In accordance with the Financial Assurance Regulations, 9VAC20-70-10 *et seq*., an estimate of probable cost for post-closure care has been prepared; copies of the worksheets are included in **Appendix D** of this Plan. The estimated cost of post-closure activities is $1,162,510 for 10 years of post-closure care final cover system maintenance, leachate management, and groundwater monitoring.

FIGURES

Figure 1 Site Location Map

Figure 2 Potentiometric Surface Map

Figure 3 Aerial Photograph & Site Detail



Site Location

Russell County Landfill
Lebanon, Virginia

SCALE 1" = 2000'

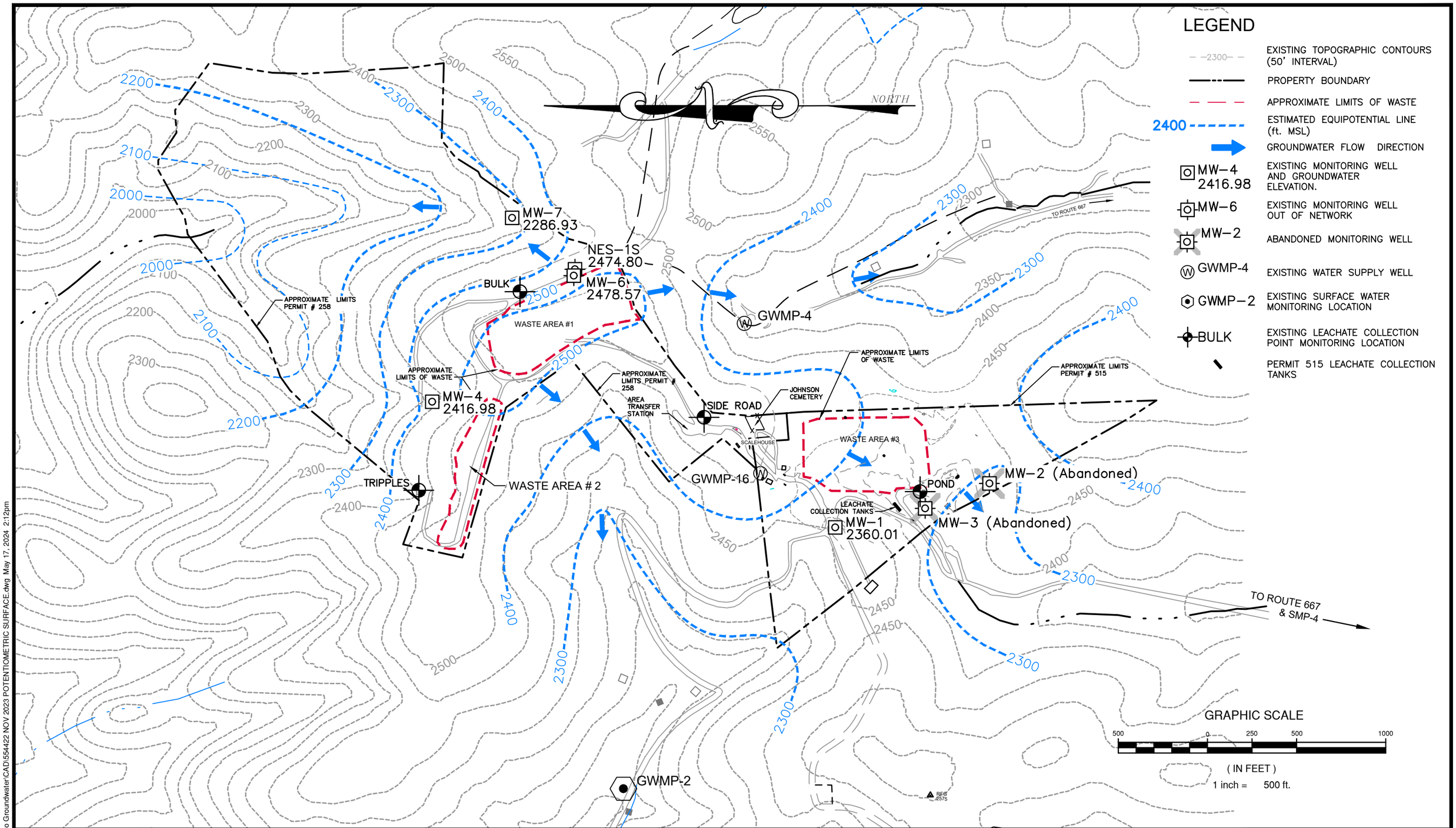
PLAN NO. 554422

TRC Engineers, Inc.
2200 South Main Street, Suite A
Blacksburg, VA 24060
540-552-0444

DESIGNED	WMD
DRAWN	BM
CHECKED	WMD
DATE	03/15/24

FIGURE 1

File: P:\B13\100B13159B\B13159B-01\GIS\MAP - 23 0928 - Fig-1 SiteLoc Russell County Landfill.mxd



P:\2023\554422 - Russell Co Groundwater\CAD\554422 NOV 2023 POTENTIOMETRIC SURFACE.dwg May 17, 2024 2:12pm

TRC ENGINEERS, INC.
2200 South Main Street
Suite A
Blacksburg, VA 24060
540-552-0444

DESIGNED	BM
DRAWN	DLD
CHECKED	WMD
DATE	03/15/2024

POTENTIOMETRIC SURFACE MAP - NOVEMBER 14, 2023

RUSSELL COUNTY LANDFILL

RUSSELL COUNTY, VIRGINIA

SCALE: 1"=500'

PLAN NO. 554422

FIGURE 2

Russell County Landfill

N

Tripples

MW-4

MW-7

Bulk

NES-1S MW-6

Russell County Landfill

GWMP-2

Transfer Station

Side Road

Permit No. 258

Transfer Station

Scale House

GWMP-4

MW-1

Permit No. 515

SWP No. 515 Leachate Tanks

Pond

State Route 667

0 225 450 900 Feet

Aerial Imagery: 2022, Virginia Geographic Information Network (VGIN)

Perennial Stream

Generalized Groundwater Flow Direction

Monitoring Well

Abandoned Well

Observation Well

Leachate Collection Point

Groundwater Monitoring Point (water supply well)

Surface Water Monitoring Point

Permit No. 258 Waste Boundary

Permit No. 515 Waste Boundary

Russell Co. Landfill Property Boundary

Aerial Photograph & Site Detail

Russell County Landfill
Solid Waste Permit Nos. 258 & 515
Russell County, Virginia

SCALE: 1" = 450'

PROJECT: 594903

TRC
2200 South Main Street, Suite A
Blacksburg, VA 24060
540-552-0444

DESIGNED: WMD
DRAWN: WMD
CHECKED: CNB
DATE: 5/15/2024

FIGURE
3

Path: C:\QGIS\Russell Co\21 1215 - Site Aerial.mxd

APPENDIX A

2014 DEQ Approval of Partial Termination of Post-Closure Care Activities

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
SOUTHWEST REGIONAL OFFICE
355-A Deadmore Street, Abingdon, Virginia 24210
Phone (276) 676-4800 Fax (276) 676-4899
www.deq.virginia.gov

Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

Allen J. Newman, P.E.
Regional Director

June 6, 2014

Mr. Rufus Hood
Russell County Administrator
PO Box 1208
Lebanon, VA 24266

Re: Partial Termination of Post-Closure Care – **Gas Monitoring Only**
Russell County Landfill – Copper Ridge, Permit No. 258
Russell County, Virginia

Dear Mr. Hood:

The Department has completed the review of the certification dated April 15, 2014 signed by Darrell Thornock P.E., verifying that the post-closure care activities have been completed in accordance with the post-closure care plan for gas monitoring. In addition, the Department has also completed the review of the evaluation prepared by Darrell Thornock P.E., dated revised April 15, 2014, and signed and dated by you on December 20, 2013 assessing and evaluating the landfill's potential for harm to human health and the environment in the event the aforementioned post-closure monitoring and maintenance is discontinued.

The Department provided tentative approval for partial termination of gas monitoring in a letter dated April 29, 2014. In response, the facility sent letters to all adjacent property owners notifying them of the Department's tentative decision. A copy of the notice sent, list of persons notified, and summary of public comments received were received by the Department on June 4, 2014. No comments were received by the County or DEQ.

The Department has determined that post-closure care **gas monitoring** may be discontinued at the above referenced facility based on the certification and evaluation provided, review of DEQ records, and the Department's site inspection conducted on March 10, 2014. Based on your demonstration of satisfactory completion of post-closure care, Russell County is partially released from the requirements of Solid Waste Permit No. 258 for the operation and maintenance of the Russell County Landfill (Copper Ridge) for Post Closure Care **Gas Monitoring** effective June 6, 2014.

The facility should continue post closure care monitoring, inspection, and maintenance in accordance with the facility permit, the revised Post-Closure Care Plan (DEQ Approved June 6, 2014 – Minor Amendment) and VSWMR until such time as the facility can demonstrate that terminating these activities

will not pose a threat to human health or the environment. The facility will also be responsible for demonstrating financial assurance for the continued post-closure care monitoring and maintenance activities. Please direct questions concerning financial assurance to Leslie Beckwith at 804-698-4123 or leslie.beckwith@deq.virginia.gov.

The partial termination of post-closure monitoring and maintenance is self-certifying and self-implementing, meaning the owner is responsible for ensuring that the information contained in the certification is pertinent and correct and the owner is responsible for any future deficiencies or adverse impacts to human health and the environment.

As provided by rule 2A:2 of the Supreme Court of Virginia, you have 30 days from the date of service of this decision to initiate an appeal of this decision, by filing notice with:

David K. Paylor, Director
Virginia Department of Environmental Quality
Attn: Division of Land Protection & Revitalization
P.O Box 1105
Richmond, Virginia 23218

In the event that this decision is served to you by mail, three days are added to that period. Please refer to Part Two of the rules of the Supreme Court of Virginia, which describe the required content of the Notice of Appeal, including specification of the Circuit Court to which an appeal is taken and additional requirements governing appeals from decisions of administrative agencies.

Rule 2A:2 can be found at the following link:
http://leg1.state.va.us/cgi-bin/legp504.exe?000+scr+vscr-2AZ2

Should you have any questions or desire further information regarding this decision please contact Daniel P. Scott, Solid Waste Permits at 276.676-4866 or daniel.scott@deq.virginia.gov.

Sincerely,

Allen J. Newman, PE
Southwest Regional Director
Department of Environmental Quality

c: Geoff Christe - Groundwater Permit Coordinator, DEQ, CO
Kathryn Perszyk - Solid Waste Permit Coordinator, DEQ, CO
Leslie Beck with - OFA Manager, DEQ, Office of Financial Assurance
Daniel Manweiler - Land Protection Manager, DEQ, SWRO
Daniel Scott – SW Permits, DEQ, SWRO
Stacy Bowers - Compliance Inspector, DEQ, SWRO

APPENDIX B

POST-CLOSURE INSPECTION FORMS

Russell County Permit No. 258 Landfill

Post-Closure Inspection Schedule

System	Components	Frequency	Type of Inspection
Final System Cover*	Integrity of Cover	Quarterly	Visual
Security Control System	Fencing and Access Gate	Quarterly	Visual
	Posted Signs	Quarterly	Visual
Drainage and Erosion Control Systems	Basins	Quarterly	Visual
	Ditches, Channels, and Piping	Quarterly	Visual
	Culverts	Quarterly	Visual
	Discharge Outlets and Spillways	Quarterly	Visual
	Diversion Berms	Quarterly	Visual
Leachate Collection System	Cleanouts	Quarterly	Visual
	Tank Levels/ Volumes	Twice Weekly and prior to rain events	Visual

* Integrity of final cover includes checking for leachate seeps.

POST CLOSURE INSPECTION REPORT

FACILITY INFORMATION

Owner: Russell County

Solid Waste Permit No.: 258 & 515

Location: Route 667, Russell County

INSPECTION

Inspection Date: _____

Inspector Name: _____

Time: _____

Weather Conditions: _____

Facility Access

Was cable gate locked? Yes_____ No_____ N/A

Condition of locks _____

Condition of cable gate: _____

Condition of perimeter fencing: _____

Any evidence of unauthorized entry and/or dumping? _____

Any access road obstructions? _____

Facility Drainage Features

Condition of culverts and pipes: _____

Condition of diversion berms and slope drains: _____

Sediment basin riser pipe condition: _____

Sediment basin outlet structure condition: _____

Evidence of channel erosion? _____

Evidence of channel silting? _____

POST CLOSURE INSPECTION REPORT

Slope Conditions

Describe any areas of slope failure, settlement, leachate seeps, or non-vegetated areas:

_____

_____

_____

Monitoring Well Conditions

Check boxes where deficiencies are noted and explain below.

	MW-1	MW-4	MW-6	MW-7	NES-1S	GWMP-4
Unlocked						
Casing Damage						
Evidence of Tampering						
Pad Damage						
Standing water around well						

Comments: _____

_____

_____

Date ___/___/___	1-Tripples	2-Bulk	3-Side Rd	4-Pond	5-Transfer St
Load 1 Gallons ______					
Load 2 Gallons ______					
Load 3 Gallons ______					
Load 4 Gallons ______					

Date ___/___/___	1-Tripples	2-Bulk	3-Side Rd	4-Pond	5-Transfer St
Load 1 Gallons ______					
Load 2 Gallons ______					
Load 3 Gallons ______					
Load 4 Gallons ______					

Date ___/___/___	1-Tripples	2-Bulk	3-Side Rd	4-Pond	5-Transfer St
Load 1 Gallons ______					
Load 2 Gallons ______					
Load 3 Gallons ______					
Load 4 Gallons ______					

Date ___/___/___	1-Tripples	2-Bulk	3-Side Rd	4-Pond	5-Transfer St
Load 1 Gallons ______					
Load 2 Gallons ______					
Load 3 Gallons ______					
Load 4 Gallons ______					

APPENDIX C

Leachate Flow Data

LEACHATE TOTAL (GALLONS) 2016

	January	February	March	April	May	June	July	August	September	October	November	December	Yearly Total	%
Location														
1-Tripples	11,600	22,000	12,900	8,050	21,100	7,000	4,100	5,450	3,000	1,600	2,550	21,500	120,850	8.94%
2-Bulk	65,700	107,800	47,000	21,200	52,600	38,350	15,700	20,250	11,500	4,500	5,300	38,400	428,300	31.70%
3-Side Road	35,700	62,700	22,300	5,750	27,000	15,950	4,900	7,050	3,500	2,150	3,700	38,400	229,100	16.96%
4-Pond	60,000	87,600	48,200	24,400	56,300	31,800	29,400	42,770	36,300	23,900	19,050	83,400	543,120	40.20%
5-Transfer	1,000	1,700	1,000	1,800	700	2,950	2,500	2,500	7,050	1,500	2,500	4,500	29,700	2.20%
Total Gallons	174,000	281,800	131,400	61,200	157,700	96,050	56,600	78,020	61,350	33,650	33,100	186,200	1,351,070	
Total Loads (2500 Gallons)	50	129	83	75	42	78	68	115	83	67	94	98	982	

LEACHATE TOTAL (GALLONS) 2017

	January	February	March	April	May	June	July	August	September	October	November	December	Yearly Total	%
Location														
1-Tripples	20,500	5,300	12,900	16,700	13,800	6,140	5,250	12,300	4,800	4,600	6,900	4,400	113,590	8.05%
2-Bulk	40,000	24,000	31,900	38,100	43,400	23,600	19,400	30,100	12,600	24,800	22,100	14,600	324,600	22.99%
3-Side Road	34,500	12,800	21,300	31,300	38,700	11,800	9,100	24,800	10,900	15,100	23,100	6,700	240,100	17.01%
4-Pond	54,500	39,700	58,700	75,000	79,100	39,100	34,400	83,300	43,900	65,000	61,300	50,500	684,500	48.49%
5-Transfer	6,000	2,100	0	3,800	12,100	7,800	800	5,050	2,400	4,500	500	3,800	48,850	3.46%
Total Gallons	155,500	83,900	124,800	164,900	187,100	88,440	68,950	155,550	74,600	114,000	113,900	80,000	1,411,640	
Total Loads (2500 Gallons)	50	129	83	75	42	78	68	115	83	67	94	98	982	

LEACHATE TOTAL (GALLONS) 2018

	January	February	March	April	May	June	July	August	September	October	November	December	Yearly Total	%
Location														
1-Tripples	6,500	35,300	16,800	16,500	5,000	9,600	6,400	13,500	12,800	6,400	17,600	28,400	174,800	6.94%
2-Bulk	18,000	65,200	51,200	50,800	23,600	51,700	49,400	85,100	64,400	44,400	67,000	81,200	652,000	25.88%
3-Side Road	15,000	70,800	48,000	46,200	13,800	31,000	31,900	55,100	41,200	28,400	55,600	59,500	496,500	19.71%
4-Pond	70,500	143,200	108,500	86,000	56,400	82,200	85,900	123,300	102,600	80,500	90,300	91,100	1,120,500	44.48%
5-Transfer	5,000	11,500	2,500	3,000	6,200	10,500	8,900	7,700	8,500	5,800	3,500	2,300	75,400	2.99%
Total Gallons	115,000	326,000	227,000	202,500	105,000	185,000	182,500	284,700	229,500	165,500	234,000	262,500	2,519,200	
Total Loads (2500 Gallons)	50	129	83	75	42	78	68	115	83	67	94	98	982	

LEACHATE TOTAL (GALLONS) 2019

	January	February	March	April	May	June	July	August	September	October	November	December	Yearly Total	%
Location														
1-Tripples	16,400	31,300	15,900	11,000	7,900	4,500	5,200	3,700	2,300	6,600	10,100	9,300	124,200	5.89%
2-Bulk	62,900	171,500	94,400	62,200	49,900	36,100	37,500	24,600	11,900	24,400	31,500	60,200	667,100	31.62%
3-Side Road	54,000	104,300	50,400	26,800	25,500	18,800	25,400	13,700	4,700	14,800	23,200	49,000	410,600	19.46%
4-Pond	89,500	163,100	116,300	64,000	68,700	51,400	48,600	32,500	26,000	47,100	50,200	97,500	854,900	40.52%
5-Transfer	2,200	6,800	3,000	3,500	5,500	7,000	7,300	2,500	5,000	6,600	2,500	1,000	52,900	2.51%
Total Gallons	225,000	477,000	280,000	167,500	157,500	117,800	124,000	77,000	49,900	99,500	117,500	217,000	2,109,700	
Total Loads (2500 Gallons)	50	129	109	68	63	47	50	31	20	40	47	87	740	

LEACHATE TOTAL (GALLONS) 2020

	January	February	March	April	May	June	July	August	September	October	November	December	Yearly Total	%
Location														
1-Tripples	21,500	20,500	17,500	19,500	46,000	15,150	2,500	14,000	9,000	12,500	14,000	11,500	203,650	9.06%
2-Bulk	72,500	96,000	78,500	77,500	97,500	37,000	25,000	37,750	31,800	40,500	58,000	75,000	727,050	32.36%
3-Side Road	53,500	73,500	52,500	56,000	57,500	20,850	5,750	13,750	4,200	19,500	26,000	40,500	423,550	18.85%
4-Pond	108,000	103,000	101,000	88,500	52,000	71,250	51,750	42,500	69,500	49,500	37,500	28,500	803,000	35.74%
5-Transfer	7,000	15,500	5,500	8,000	7,000	8,250	7,500	13,500	5,500	8,000	2,000	2,000	89,750	3.99%
Total Gallons	262,500	308,500	255,000	249,500	260,000	152,500	92,500	121,500	120,000	130,000	137,500	157,500	2,247,000	
Total Loads (2500 Gallons)	105	123	102	100	104	61	37	49	48	52	55	63	899	

LEACHATE TOTAL (GALLONS) 2021 HAULED TO DANTE

	January	February	March	April	May	June	July	August	September	October	November	December	Yearly Total	%
Location														
1-Tripples					4,000	1,500	1,500	2,850	4,000	1,000	3,300		18,150	7.85%
2-Bulk					5,000	2,500	250	7,800	9,000	14,000	5,200		43,750	18.93%
3-Side Road					2,600	1,500	2,850	6,500	2,000	1,000	5,600		22,050	9.54%
4-Pond					16,400	4,000	4,370	28,579	16,158	23,500	28,400		121,407	52.52%
5-Transfer					0	0	0	0	6,000	10,500	9,300		25,800	11.16%
Total Gallons	0	0	0	0	28,000	9,500	8,970	45,729	37,158	50,000	51,800	0	231,157	
Total Loads	0	0	0	0	14	4	4	18	15	20	21	0	95	

LEACHATE TOTAL (GALLONS) 2021

	January	February	March	April	May	June	July	August	September	October	November	December	Yearly Total	%
Location														
1-Tripples	9,000	15,000	17,500	20,000	2,700	700	2,250	500	0				67,650	7.98%
2-Bulk	56,500	42,500	52,500	30,000	19,750	10,000	9,000	1,500	0				221,750	26.17%
3-Side Road	33,500	33,500	45,500	30,000	10,600	9,500	6,250	7,500	0				176,350	20.81%
4-Pond	41,000	57,500	38,700	32,500	68,650	52,800	36,750	9,500	0				337,400	39.81%
5-Transfer	2,500	4,000	5,800	5,000	13,300	7,000	3,250	3,500	0				44,350	5.23%
Total Gallons	142,500	152,500	160,000	117,500	115,000	80,000	57,500	22,500	0	0	0	0	847,500	
Total Loads (2500 Gallons)	57	61	64	47	46	32	23	9	0	0	0	0	339	

Russell County Landfill - Permit No. 258

Leachate Generation

2022														
Location	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	**Annual Total**	**% of Annual**
1-Tripples	14,000	17,500	12,000	16,500	12,000	10,500	6,000	9,000	0	6,000	6,000	9,000	**118,500**	13.09%
2-Bulk	63,600	70,700	73,500	46,500	37,500	36,000	25,500	33,000	15,300	21,000	13,500	21000	**457,100**	50.49%
3-Side Road	54,600	46,700	54,000	34,500	28,500	23,000	10,500	36,000	6,000	9,000	9,000	18000	**329,800**	36.43%
Total Gallons	132,200	134,900	139,500	97,500	78,000	69,500	42,000	78,000	21,300	36,000	28,500	48,000	**905,400**	
2023														
Location	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	**Annual Total**	**% of Annual**
1-Tripples	6,000	6,000	12,000	9,000	3,000	18,000	12,000	12,000	9,000	9,000	9,000	10,000	**115,000**	8.50%
2-Bulk	60,000	72,000	54,000	63,000	33,000	78,000	72,000	75,000	70,500	69,000	75,000	71500	**793,000**	58.61%
3-Side Road	42,000	57,000	36,000	21,000	16,500	45,000	36,000	39,000	42,000	36,000	36,000	38500	**445,000**	32.89%
Total Gallons	108,000	135,000	102,000	93,000	52,500	141,000	120,000	126,000	121,500	114,000	120,000	120,000	**1,353,000**	
2024														
Location	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	**Annual Total**	**% of Annual**
1-Tripples	9,000	12,000	13,500	10,500	15,000								**60,000**	4.43%
2-Bulk	72,000	126,000	96,000	48,500	42,000								**384,500**	28.42%
3-Side Road	42,000	66,000	55,500	30,000	33,000								**226,500**	16.74%
Total Gallons	123,000	204,000	165,000	89,000	90,000								**671,000**	

APPENDIX D

Post-Closure Care Costs

Solid Waste Disposal Facility
Cost Estimate Form, DEQ Form CE SWDF

Facility Name: Russell County Sanitary Landfill **Permit No. SWP 258**
Location Address: 1786 Century Farm Road
City, State, Zip: Castlewood, Virginia, 24224

FA Holder: Russell County
Estimate Prepared by: Will Mason-Deese, TRC Engineers, Inc.

Indicate the plan versions for which this cost estimate was prepared, identifying the following information for each plan:

Closure Plan

Title: Closure Plan
Plan Date: 1997 **Approved:** 1997
Consultant: Joyce Engineering, Inc

Post-Closure Plan

Title: Post Closure Care Plan
Plan Date: May 2024 **Approved:** _____
Consultant: TRC Engineers, Inc.

Corrective Action Plan

Title: N/A
Plan Date: _____ **Approved:** _____
Consultant: _____

Corrective Action Monitoring Plan

Title: N/A
Plan Date: _____ **Approved:** _____
Consultant: _____

Cost Estimate Summary

Closure Cost Element	Total Cost	Notes
Total Closure Cost:	$	
Total Post-Closure Cost:	$1,162,510	
Total Corrective Action Cost:	$	
Total:	**$1,162,510**	

References: Please indicate references used to develop this cost estimate: Worksheet CEW-02

CERTIFICATION BY PREPARER

This is to certify that the cost estimates pertaining to the engineering features and monitoring requirements of this solid waste management facility have been prepared by me and are representative of the design specified in the facility's Closure Plan. The estimate is based on the cost of hiring a third party and does not incorporate any salvage value that may be realized by the sale of wastes, facility structures, or equipment, land or other facility assets at the time of closure. In my professional judgment, the cost estimates are a true, correct, and complete representation of the financial liabilities for closure and postclosure care of the facility and comply with the requirements of 9 VAC 20-70 and all other DEQ rules and statutes of the Commonwealth of Virginia.

SIGNATURE: Will Mason-Deese DATE: 5/31/2024

NAME: Will Mason-Deese
TITLE: Project Manager

Acknowledgement by Owner / Operator:

SIGNATURE: _____ DATE: 6/3/24

NAME: Lonzo Lester
TITLE: Russell County Administrator

Instructions for Completing DEQ Form CE SWDF

DEQ Form CE SWDF should be submitted by solid waste disposal facilities providing a new or updated cost estimate in accordance with a new permit, permit modification, or facility operational change affecting the existing financial assurance cost estimate. Examples of operational changes that could require calculation of a revised cost estimate and submittal of this form are listed below:

- Issuance of certificate-to-operate (e.g. new landfill cell, expansion, etc.)
- Addition of a new solid waste building, equipment or other construction on site
- Increase in permitted landfill disposal capacity
- Significant increase or decrease (± 15%) in SWIA report since previous year
- Increase, decrease, or exceedance of permitted daily disposal limit
- Increase, decrease, or exceedance of permitted storage capacity
- New stockpile, increase or decrease to stockpile size, or complete removal of stockpile
- Change to leachate collection and control system or leachate disposal method
- Addition or removal of leachate storage unit or capacity (e.g. tanks or impoundments)
- Change to underdrain system or monitoring frequency
- Addition or removal of wells in groundwater or gas monitoring network
- Change to frequency of groundwater or gas monitoring (except for temporary changes to the gas monitoring frequency in a subset of wells to address a methane gas exceedance)
- Groundwater corrective action (e.g. initial groundwater protection standards exceedance, alternate source demonstration, remedy selection)
- Change in groundwater corrective action plan or remedy
- Release from groundwater corrective action
- Change to passive or active gas remediation system (new vent, well, expansion, etc.)
- Addition or removal of odor control system or equipment
- Modification to closure or post-closure care plan
- Partial or full facility closure
- Entering post-closure care
- Changes to post-closure care uses of the property
- Partial or full post-closure care termination
- Any enforcement action requiring a revised cost estimate and financial assurance update.

If the facility is increasing an existing cost estimate for inflation to meet the annual financial assurance demonstration, this worksheet is not necessary. This form is designed to provide summary information regarding the individual cost estimates developed to cover the cost of facility closure, post-closure care, and groundwater corrective action and certification that the estimates are true, correct and complete. Separate from this form, the Department has provided closure and post-closure cost estimate worksheets, CEW-01 and CEW-02, respectively, to assist in development of closure and post-closure cost estimates. A worksheet has not been developed for corrective action cost estimates since corrective action remedies are site-specific and vary based on the remediation selected.

These instructions are designed to assist solid waste disposal facilities with the completion of this form and forms CEW-01 and CEW-02. The descriptions below are listed in the order as they appear on DEQ Form CE SWDF.

Facility Name:
Enter the name of the facility as it should appear or as it currently appears on the existing DEQ Part B Permit.

Permit No. SWP
Indicate the 3-digit number assigned to the facility. The permit number is usually written as SWP###.

Address, City, State, Zip:
Provide the street address of the facility's physical location (may be Rural Route/Box No. if 911 address is not available)

FA Holder:
Indicate the entity responsible for maintaining the financial assurance mechanism. This entity should be either the owner or operator of the facility listed, and should match the SCC documentation filed for the facility.

Estimate Prepared By:
Indicate the person and entity preparing this form and the attached cost estimate worksheets. For example, if the form is prepared by a facility representative, this box should contain his/her name along with the facility name. If a consultant prepared the form, the consultant's name along with the consultant's company should be listed.

Closure, Post-Closure Care, Corrective Action and Corrective Action Monitoring Plans

For each plan, indicate the following information:

Title: Indicate the title of the approved plan on file with the Department. If a closure or post-closure plan has not been approved the facility should provide a cost estimate for the standard regulatory cap and post-closure care required per the Virginia Solid Waste Management Regulations.

Plan Date: Specify the plan's date. If the plan has been revised, enter the date of the last revision.

Approved: Indicate date of the plan's approval. The approval date should be the date of any Department correspondence indicating the plan is administratively complete/technically adequate (for stand-alone plans) or the date of the permit modification incorporating the plan into the facility's Part B permit.

Consultant: Indicate the consulting firm who prepared the plan or latest revision.

Cost Estimate Summary

Total Closure Cost: Enter the estimated total cost of closure activities. This amount should match the total determined using worksheet CEW-01 or other worksheet prepared for closing the facility. Worksheet CEW-01 or alternate should be attached to DEQ Form CE SWDF.

Total Post-Closure Cost: Enter the estimated total cost of post-closure care activities. The amount should match the total determined using worksheet CEW-02 or other worksheet prepared for operating the facility during the post-closure care period. Worksheet CEW-02 or alternate should be attached to DEQ Form CE SWDF.

Worksheet CEW-02: FORMAT FOR THE ESTIMATION OF POST-CLOSURE COSTS

FILL IN THE BOXES. THE REST WILL BE CALCULATED FOR YOU

I. Groundwater Monitoring

			Calculation or Conversion		
a. Total number of monitoring wells	5	wells			
b. Total number of sampling events/year	2	events/yr	a x b	10	samples/yr
c. Quantity of additional samples (e.g. QA/QC)	2	samples/even	b x c	4	samples/yr
d. Total samples per year			b + c	14	samples/yr
e. Analysis unit cost (Table 3.1 constituents)	$570.00	/sample			
f. *Total Analysis cost*			d x e	*$7,980.00*	/yr
g. GW Monitoring unit cost	$4,000.00	/event			
i. *Total sampling cost*			f + (g x b)	*$15,980.00*	/yr
j. Engineering fees & reports	$8,000	/yr			
Yearly Groundwater Monitoring Cost			i + j	***$23,980***	***/yr***

II. Landfill Gas Monitoring, Maintenance, and Control

a. Frequency of LFG compliance monitoring	0	events/yr			
b. LFG Monitoring unit cost	$0.00	/event			
c. *Total perimeter LFG monitoring cost*			a x b	*$0*	/yr
d. Frequency of suface monitoring (air permit)	0	events/yr			
e. Surface monitoring unit cost	$0.00	/event			
f. *Total surface monitoring cost*			d x e	*$0*	/yr
g. Control system operating unit cost	$0	/yr			
h. Frequency of LFG control system inspections	0	events/yr			
i. Control system inspection cost	$0.00	/event			
j. *Total constrol system cost*			g + (h x i)	*$0*	/yr
Yearly Landfill Gas Monitoring, Maintenance, & Control Cost			c + f + j	***$0***	***/yr***

III. Leachate Management

a. Quantity of leachate generated	873,960	gal/yr			
On-site Leachate Management or Pre-Treatment					
b. On-site treatment operating unit cost	$0.00	/gal			
c. *Total on-site management cost*			a x b	*$0*	/yr
Leachate Disposal					
d. Private disposal unit cost	$0.00	/gal			
e. POTW disposal unit cost	$0.05	/gal			
f. Direct discharge to POTW unit cost	$0.00	/gal			
g. Pump & Haul unit cost	$0.05	/gal			
h. Subtotal leachate disposal unit cost			d + e + f + g	$0.10	
i. *Total leachate disposal cost*			a x h	*$87,396*	/yr
j. Leachate sampling & analysis unit cost	$625.00	/sample			
k. Frequency of leachate sampling & analysis	3	sample/yr			
l. *Total leachate sampling & analysis cost*			j x k	*$1,875.00*	/yr
Yearly Leachate Management Cost			c + i + l	***$89,271***	***/yr***
Closure of Leachate Storage Units					
m. Total Cost to Decommission/Remove	$0.00				
One-time Leachate Unit Closure Cost at end of PCC			m	***$0***	

IV. Cap Maintenance & Repair

a. Closed Landfill Area	10	acres			
Mowing & Fertilization					
b. Mowing frequency	2	visits/yr			
c. Mowing unit cost	$50.00	/acre/visit			
d. *Total mowing cost*			a x b x c	*$1,000*	/yr
e. Fertilizer frequency	-	visits/yr			
f. Fertilizer unit cost	$0.00	/acre/visit			
g. *Total fertilizer cost*			a x e x f	*$0*	/yr
Cap Erosion & Repair					
h. Area to reseed/year			33% x a	3.3	acres
i. Reseeding unit cost	$0.00	/acre			
j. *Total reseeding cost*			h x i	*$0.00*	/yr
k. Area of cap erosion/year			10% x a	1.0	acres
l. Cap erosion repair unit cost	$0.00	/acre			
m. Mobilization/Demobilization	$0.00	/yr			
n. *Total cap erosion repair cost*			(k x l) + m	*$0*	/yr
Yearly Cap Maintenance & Repair cost			d + g + j + n	***$1,000 /yr***	

V. Sediment Basin Maintenance & Repair

a. Sediment basin cleanout frequency, 1 per	10	years	1 / a	0.10	event/yr
b. Sediment basin cleanout unit cost	$0	/event			
c. Mobilization/Demobilization	$0	/event			
d. *Total sediment basin maintenance cost*			a x (b + c)	*$0*	/yr
e. Total number of stormwater sampling locations	-	locations			
f. Stormwater sampling frequency	-	events/yr			
g. Total number of stormwater samples			e x f	0	samples/yr
h. Analysis unit cost (VPDES permit parameters)	$0	/sample			
i. *Total Analysis cost*			g x h	*$0*	/yr
j. Mobilization unit cost	$0.00	/event			
k. Technician field unit cost	$0.00	/event			
l. *Total sampling cost*			f x (j + k)	*$0.00*	/yr
m. Engineering fees & reports	$0	/yr			
n. *Total Stormwater Sampling & Analysis cost*			i + l + m	*$0*	*/yr*
Yearly Sediment Basin Maintenance & Repair			d + n	***$0 /yr***	

VI. Vector & Rodent Control

a. Vector and rodent control unit cost	$0	/yr			
Yearly Vector and Rodent Control Cost			a	***$0 /yr***	

VII. Post-Closure Care General Inspections

a. General Inspection unit cost	$250	/inspection			
b. Number of inspections per year	4				
Yearly Post-Closure Care General Inspection Cost			a x b	***$1,000 /yr***	

VIII. Underdrain Monitoring

			Calculation or Conversion	
a. Total number of monitoring locations	0	wells		
b. Total number of sampling events/year	0	events/yr	a x b	0 samples/yr
c. Quantity of additional samples (e.g. QA/QC)	0	samples/even	b x c	0 samples/yr
d. Total samples per year			b + c	0 samples/yr
e. Analysis unit cost (leachate indicator parameters)	$0.00	/sample		
f. *Total Analysis cost*			d x e	*$0.00* /yr
g. Underdrain Monitoring unit cost	$0.00	/event		
i. *Total sampling cost*			f + (g x b)	*$0.00* /yr
j. Engineering fees & reports	$0	/yr		
Yearly Underdrain Monitoring Cost			i + j	***$0 /yr***

Annual Post-Closure Care Cost (APCC)			I + … + VIII	$115,251 /yr
Length of post-closure care (LPCC)	10	years		
Post-Closure Care Cost			(APCC x LPCC) + III.m.	$1,152,510
Engineering & Documentation			Engineering Sum	$10,000
Post-Closure Care Evaluation	$8,000			
Post-Closure Care Certification	$2,000			
Cost for survey and deed notation (if not completed at time of landfill closure)	$0			
FA Mechanism Maintenance Cost	$0	/yr	FA maintenance x LPCC	$0
Total Post-Closure Care Cost			Post-Closure Cost + Engineering + FA Maintenance	**$1,162,510**

Facilities are not required to use Worksheets CEW-01 and CEW-02; these forms are merely provided for facility use in an effort to show the depth of items to be addressed when preparing closure and post-closure care cost estimates. Facility-specific or alternate worksheets will be accepted for review and should accompany a certified DEQ Form CE SWDF.

APPENDIX E

Part B Permit Application Form and Fee Payment

Solid Waste Disposal Facility
Part B Application Form, DEQ Form SW PTB

Please specify, is this application for a ☐ New Facility or ☒ Part B Modification

I. FACILITY INFORMATION

A. Facility Location

Facility Name: Russell County Sanitary Landfill **Permit No. SWP** 258

Location Address: 1786 Century Farm Road

City, State, Zip: Castlewood, Virginia, 24224

Latitude: 36 Deg 53 Min 12.16 Sec North **Longitude:** 82 Deg 12 Min 34.67 SecWest

B. Facility Contact Information

Contact Person: Brian Ferguson **Contact Title:** Russell County Solid Waste

Contact Phone: (276) 210-5920 **Contact E-mail:** brian.ferguson@russellcountyva.us

Owner: Russell County **Operator:** Russell County

Mailing Address: 137 Highland Dr, Suite A **Mailing Address:** 137 Highland Dr, Suite A

City, State, Zip: Lebanon, Virginia, 24266 **City, State, Zip:** Lebanon, Virginia, 24266

II. OPERATIONAL INFORMATION

A. Solid Waste Disposal Facility Information

Facility Type: Sanitary Landfill **If other, specify:**

Total Property Acreage: 96.7 acres **Facility Boundary:** 96.7 acres

Disposal Unit Boundary Acreage: 9.5 acres **Total Capacity:** Estimated < 397,900 cubic yards

Daily Disposal Limit: 50 tons/day **Estimated Site Life:** closed years

Hours of Operation: 8:30AM -4:30PM Monday-Friday

C. Types of Wastes to Accepted (check all that apply)

- ☒ Agricultural Waste
- ☐ Animal Carcasses
- ☐ Asbestos, friable
- ☐ Asbestos, non-friable
- ☐ Ash, non CCB/FFCP
- ☐ Coal Combustion Residuals (CCR)
- ☐ Commercial Waste
- ☒ Construction Waste
- ☐ Contaminated Soil
- ☐ Debris Waste
- ☒ Demolition Waste
- ☐ Fossil Fuel Combustion Products
- ☐ Household Hazardous Waste
- ☐ Household Waste
- ☒ Industrial Waste
- ☐ Institutional Waste
- ☐ Liquid Waste
- ☒ Municipal Solid Waste
- ☐ Scrap Metal
- ☐ Single Stream Recyclables
- ☐ Sludge, industrial
- ☐ Sludge, POTW
- ☒ Vegetative Waste
- ☐ Waste Tires, Storage: _____ cy
- ☐ White Goods
- ☐ Other Wastes, please list:

D. Alternate Cover Materials

Does this facility use or propose to use alternate cover materials? ☐ Yes ☒ No

If yes list material(s):

E. Solid Waste Management Activities (check all that apply)

- ☐ Convenience Center
- ☐ Household Hazardous Waste Collection
- ☐ Landfill Mining
- ☐ Material Salvage
- ☐ Mulching
- ☐ Open Burning
- ☐ Tire Processing (Chipping, Shredding, etc)
- ☐ Other, Please list: _____

III. DESIGN INFORMATION

A. Landfill Design

Sanitary Landfill Options

- ☐ Subtitle D Liner (9 VAC 20-81-130.J.1.a.)
- ☐ FML/GCL Liner (9 VAC 20-81-130.J.1.b.)
- ☐ Alternate Liner (9 VAC 20-81-130.J.1.c.)

CDD Landfill, Industrial Landfill, and Surface Impoundment Options

- ☐ Compacted Clay (9 VAC 20-81-130.J.2.a.)
- ☐ Synthetic Liner (9 VAC 20-81-130.J.2.b.)
- ☐ Alternate Liner (9 VAC 20-81-130.J.2.c.)
- ☐ In-Place Soil (9 VAC 20-81-130.J.2.d.)
- ☐ Double Liner (9 VAC 20-81-130.J.2.e.)
- ☐ Composite Liner (40 CFR 257.70(b))
- ☐ Alternative Composite Liner (40 CFR 257.70(c))

B. Final Cover Design

- ☒ Standard Final Cover (9 VAC 20-81-160.D.2.c.)
- ☐ Sanitary Landfill Alternate (9 VAC 20-81-160.D.2.d.)
- ☐ CDD/Industrial Landfill Alternate (9 VAC 20-81-160.D.2.e.)
- ☐ Additional Alternate (9 VAC 20-81-160.D.2.f.)
- ☐ CCR Final Cover (40 CFR 257.102(d)(3)(i))
- ☐ CCR Alternate Final Cover (40 CFR 257.102(d)(3)(ii))

Professional Geologist or Professional Engineer Certification: To the best of my knowledge, information and belief, the selected landfill liner and final cover designs are, in my professional opinion, suitable for the above named facility based on site specific conditions and engineering principles. The designs proposed in the following Attachments are in compliance with applicable laws, codes, and ordinances. (Stamp, sign, and date in space to right)

F. Leachate Management (check all that apply)

- ☐ Leachate Recirculation
- ☐ Discharged directly to WWTP
- ☐ Treated onsite and discharged
- ☒ Transported by vehicle to offsite WWTP
- ☐ Other method

G. Research, Development, and Demonstration Plans

Does this application include a Research, Development, and Demonstration Plan? ☐ Yes ☒ No

If yes, please select the type of activity proposed under the RDD Plan (check all that apply):

- ☐ The addition of liquids in addition to leachate and gas condensate from the same landfill for accelerated decomposition of the waste mass.
- ☐ Allowing run-on water to flow into the landfill waste mass.
- ☐ Allowing testing of the construction and infiltration performance or alternative final cover systems.
- ☐ Other measures to be taken to enhance stabilization of the waste mass.

H. Variances

Does this application include a variance request(s) to regulatory siting requirements? ☐ Yes ☒ No

If yes, list regulatory citation(s): _____

IV. PART B APPLICATION ATTACHMENTS

The following items shall be provided as an attachment to this form and will constitute the facility's Solid Waste Part A Permit application. Please indicate whether each item is 'included' for the proposed facility or facility modification.

Solid Waste Permit Part B Application Attachments	Included?
Attachment I: Notice of Intent	☐
Attachment II: VDOT Adequacy Report and Approval Letter (if increasing daily disposal limit)	☐
Attachment III: Design Plans	☐
Attachment IV: Closure Plan	☐
Attachment V: Post-Closure Plan	☒
Attachment VI: Design Report	☐
Attachment VII: Construction Quality Assurance (CQA) Plan and Technical Specifications	☐
Attachment VIII: Leachate Management Plan	☐
Attachment IX: Landfill Gas Plans	☐
Attachment X: Groundwater Monitoring Plan	☐
Attachment XI: Groundwater Corrective Action Plan	☐
Attachment XII: Financial Assurance Documentation	☒
Attachment XIII: Special Waste Documentation	☐
Attachment XIV: Alternate Liner Demonstration	☐
Attachment XV: Laboratory Test Results Documenting Permeability of In-Place Soils	☐
Attachment XVI: Alternate Final Cover Demonstration	☐
Attachment XVII: Research, Development, and Demonstration Plan	☐

V. PART B APPLICATION FEE

Applicants for new permits and major permit modifications must submit the applicable permit fee under the provisions of 9VAC20-90. The Regional Office staff can assist with determining the appropriate major modification permit fee if needed. The application fee should be submitted in the form of a check, draft, or postal money order made payable to the Treasurer of Virginia for the required Part A permit application fee. Permit application fees should be mailed to:

DEQ Accounts Receivable
P.O. Box 1104
Richmond, Virginia 23218.

☒ Copy of the check (with account and routing numbers blacked out), draft, or postal money order is included with the permit application submitted to the DEQ Regional Office.

VI. RESPONSIBLE OFFICIAL SIGNATURE

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate, and complete.

SIGNATURE:

DATE: 6/4/22

NAME:

TITLE: Council Administrator

RUSSELL COUNTY
BOARD OF SUPERVISORS
137 HIGHLAND DR. SUITE A • LEBANON, VIRGINIA 24266
PHONE - 276-889-8000

FIRST BANK & TRUST CO.
LEBANON, VIRGINIA 24266

68-446/514

604982
604982

6/07/2024

PAY TO THE ORDER OF FOUR THOUSAND FOUR HUNDRED FORTY DOLLARS 00CENTS**********

$$*******4,440.00 DOLLARS

DEQ ACCOUNTS RECEIVABLE
PO BOX 1104
RICHMOND VA 23218

MEMO

BY ORDER OF BOARD OF SUPERVISORS

TREASURER MP

COUNTY ADMINISTRATOR MP

CHAIRMAN MP

Security features. Details on back.

⑈604982⑈ ⑆051404464⑆ 1001 613 7⑈

RUSSELL COUNTY BOARD OF SUPERVISORS

604982
6/07/2024 604982

DATE	PO#	INVOICE#	DESCRIPTION	DISCOUNT	NET AMT
6/04/2024		06042024			4440.00

APPENDIX F

Epoxy Specifications

TNEMEC

PRODUCT DATA SHEET

HI-BUILD EPOXOLINE® II SERIES N69

PRODUCT PROFILE

GENERIC DESCRIPTION Polyamidoamine Epoxy

COMMON USAGE An advanced generation epoxy for protection and finishing of steel and concrete. It has excellent resistance to abrasion and is suitable for immersion as well as chemical contact exposure. Contact your local Tnemec representative for a list of chemicals. This product can also be used for lining storage tanks that contain demineralized, deionized or distilled water.

COLORS Refer to Tnemec Color Guide. **Note:** Epoxies chalk with extended exposure to sunlight. Lack of ventilation, incomplete mixing, miscatalyzation or the use of heaters that emit carbon dioxide and carbon monoxide during application and initial stages of curing may cause yellowing to occur.

FINISH Satin

SPECIAL QUALIFICATIONS A two-coat system at 4.0-6.0 dry mills (100-150 dry microns) per coat passes the performance requirements of **MIL-PRF-4556F** for fuel storage.

PERFORMANCE CRITERIA Extensive test data available. Contact your Tnemec representative for specific test results.

COATING SYSTEM

SURFACER/FILLER/PATCHER 215

PRIMERS **Steel:** Self-priming or Series 1, 27, 37H, 66, L69, L69F, N69F, V69F, 90E-92, 90-97, H90-97, 90G-1K97, 90-98, 91-H_2O, 94-H_2O, 135, 161, 394, 530
Galvanized Steel and Non-Ferrous Metal: Self-priming or Series 66, L69, L69F, N69F, V69F, 161
Concrete: Self-priming or Series 130, 215, 218
CMU: Self-priming or 130, 215, 218, 1254

TOPCOATS 22, 46H-413, 66, L69, L69F, N69, N69F, V69, V69F, 72, 73, 84, 104, 113, 114, 141, 156, 157, 161, 175, 180, 181, 287, 446, 740, 750, 1028, 1029, 1070, 1070V, 1071, 1071V, 1072, 1072V, 1074, 1074U, 1075, 1075U, 1077, 1078, 1080, 1081. Refer to COLORS on applicable topcoat data sheets for additional information. **Note:** The following recoat times apply for Series N69: Immersion Service—Surface must be scarified after 60 days. Atmospheric Service—After 60 days, scarification or an epoxy tie-coat is required. When topcoating with Series 740 or 750, recoat time for N69 is 21 days for atmospheric service. Contact your Tnemec representative for specific recommendations.

SURFACE PREPARATION

PRIMED STEEL **Immersion Service:** Scarify the epoxy prime coat surface by abrasive blasting with fine abrasive before topcoating if it has been exterior exposed for 60 days or longer and N69 is the specified topcoat.

STEEL **Immersion Service:** SSPC-SP10/NACE 2 Near-White Blast Cleaning with a minimum angular anchor profile of 1.5 mils.
Non-Immersion Service: SSPC-SP6/NACE 3 Commercial Blast Cleaning with a minimum angular anchor profile of 1.5 mils.

GALVANIZED STEEL & NON-FERROUS METAL Surface preparation recommendations will vary depending on substrate and exposure conditions. Contact your Tnemec representative or Tnemec Technical Services.

CAST/DUCTILE IRON Contact your Tnemec representative or Tnemec Technical Services.

CONCRETE Allow new concrete to cure 28 days. For optimum results and/or immersion service, abrasive blast referencing SSPC-SP13/NACE 6, ICRI CSP 2-4 Surface Preparation of Concrete and Tnemec's Surface Preparation and Application Guide.

CMU Allow mortar to cure for 28 days. Level protrusions and mortar spatter.

PAINTED SURFACES **Non-Immersion Service:** Ask your Tnemec representative for specific recommendations.

ALL SURFACES Must be clean, dry and free of oil, grease, chalk and other contaminants.

TECHNICAL DATA

VOLUME SOLIDS 67.0 ± 2.0% (mixed) †

RECOMMENDED DFT 2.0 to 10.0 mils (50 to 255 microns) per coat. **Note:** MIL-PRF-4556F applications require two coats at 4.0-6.0 mils (100-150 microns) per coat. Otherwise, the number of coats and thickness requirements will vary with substrate, application method and exposure. Contact your Tnemec representative.

CURING TIME AT 5 MILS DFT Without 44-700 Accelerator

Temperature	To Handle	To Recoat	Immersion
90°F (32°C)	5 hours	7 hours	7 days
80°F (27°C)	7 hours	9 hours	7 days
70°F (21°C)	9 hours	12 hours	7 days
60°F (16°C)	16 hours	22 hours	9 to 12 days
50°F (10°C)	24 hours	32 hours	12 to 14 days

Curing time varies with surface temperature, air movement, humidity and film thickness. **Note:** For faster curing and low-temperature applications, add No. 44-700 Epoxy Accelerator; see separate product data sheet for cure information.

VOLATILE ORGANIC COMPOUNDS **Unthinned:** 2.40 lbs/gallon (285 grams/litre)
Thinned 10% (No. 4 Thinner): 2.80 lbs/gallon (334 grams/litre)
Thinned 10% (No. 60 Thinner): 2.80 lbs/gallon (335 grams/litre)

HAPS **Unthinned:** 2.40 lbs/gal solids
Thinned 10% (No. 4 Thinner): 3.25 lbs/gal solids
Thinned 10% (No. 60 Thinner): 2.40 lbs/gal solids

THEORETICAL COVERAGE 1,074 mil sq ft/gal (26.4 m²/L at 25 microns). See APPLICATION for coverage rates. †

HI-BUILD EPOXOLINE® II | SERIES N69

NUMBER OF COMPONENTS Two: Part A (amine) and Part B (epoxy) — One (Part A) to one (Part B) by volume.

PACKAGING 5 gallon (18.9L) pails and 1 gallon (3.79L) cans — Order in multiples of 2.

NET WEIGHT PER GALLON 13.67 ± 0.25 lbs (6.10 ± .11 kg) (mixed) †

STORAGE TEMPERATURE Minimum 20°F (-7°C) Maximum 110°F (43°C)

TEMPERATURE RESISTANCE (Dry) Continuous 250°F (121°C) Intermittent 275°F (135°C)

SHELF LIFE Part A: 24 months; Part B: 12 months at recommended storage temperature.

FLASH POINT - SETA Part A: 82°F (28°C) Part B: 93°F (34°C)

HEALTH & SAFETY Paint products contain chemical ingredients which are considered hazardous. Read container label warning and Material Safety Data Sheet for important health and safety information prior to the use of this product.
Keep out of the reach of children.

APPLICATION

COVERAGE RATES

	Dry Mils (Microns)	Wet Mils (Microns)	Sq Ft/Gal (m²/Gal)
Suggested (1)	6.0 (150)	9.0 (230)	179 (16.6)
Minimum	2.0 (50)	3.0 (75)	537 (49.9)
Maximum	10.0 (250)	15.0 (375)	107 (10.0)

Dense Concrete & Masonry: From 100 to 150 sq ft (9.3 to 13.9 m²) per gallon.
CMU: From 75 to 100 sq ft (7.0 to 9.3 m²) per gallon.
(1) Note for Steel: Roller or brush application requires two or more coats to obtain recommended film thickness. Also, Series N69 can be spray applied to an optional high-build film thickness range of 8.0 to 10.0 dry mils (205 to 255 dry microns) or 11.5 to 14.5 wet mils (209 to 370 wet microns). Allow for overspray and surface irregularities. Film thickness is rounded to the nearest 0.5 mil or 5 microns. Application of coating below minimum or above maximum recommended dry film thicknesses may adversely affect coating performance. †

MIXING
1. Start with equal amounts of both Parts A & B.
2. Using a power mixer, separately stir Parts A & B.
3. (For accelerated version. If not using 44-700, skip to No. 4.)
Add four (4) fluid ounces of 44-700 per gallon of Part A while Part A is under agitation.
4. Add Part A to Part B under agitation, stir until thoroughly mixed.
5. Both components must be above 50°F (10°C) prior to mixing. For application of the unaccelerated version to surfaces between 50°F to 60°F (10°C to 16°C) or the accelerated version to surfaces between 35°F to 50°F (2°C to 10°C), allow mixed material to stand 30 minutes and restir before using.
6. For optimum application properties, the material temperature should be above 60°F (16°C).
Note: The use of more than the recommended amount of 44-700 will adversely affect performance.

THINNING Use No. 4 or No. 60 Thinner. For air spray, thin up to 10% or 3/4 pint (380 mL) per gallon. For airless spray, roller or brush, thin up to 5% or 1/4 pint (190 mL) per gallon.

POT LIFE Without 44-700: 6 hours at 50°F (10°C) 4 hours at 75°F (24°C) 1 hour at 100°F (38°C)
With 44-700: 2 hours at 50°F (10°C) 1 hour at 75°F (24°C) 30 minutes at 100°F (38°C)

SPRAY LIFE Without 44-700: 1 hour at 75°F (24°C) With 44-700: 30 minutes at 75°F (24°C)
Note: Spray application after listed times will adversely affect ability to achieve recommended dry film thickness.

APPLICATION EQUIPMENT

Air Spray ‡

Gun	Fluid Tip	Air Cap	Air Hose ID	Mat'l Hose ID	Atomizing Pressure	Pot Pressure
DeVilbiss JGA	E	765 or 704	5/16" or 3/8" (7.9 or 9.5 mm)	3/8" or 1/2" (9.5 or 12.7 mm)	75-100 psi (5.2-6.9 bar)	10-20 psi (0.7-1.4 bar)

Low temperatures or longer hoses require higher pot pressure.

Airless Spray ‡

Tip Orifice	Atomizing Pressure	Mat'l Hose ID	Manifold Filter
0.015"-0.019" (380-485 microns)	3000-4800 psi (207-330 bar)	1/4" or 3/8" (6.4 or 9.5 mm)	60 mesh (250 microns)

Use appropriate tip/atomizing pressure for equipment, applicator technique and weather conditions.
‡ Spray application of first coat on CMU should be followed by backrolling. **Note:** Application over inorganic zinc-rich primers: Apply a wet mist coat and allow tiny bubbles to form. When bubbles disappear in 1 to 2 minutes, apply a full wet coat at specified mil thickness.
Roller: Use 3/8" or 1/2" (9.5 mm or 12.7 mm) synthetic woven nap roller cover. Use longer nap to obtain penetration on rough or porous surfaces.
Brush: Recommended for small areas only. Use high quality natural or synthetic bristle brushes.

SURFACE TEMPERATURE Minimum 50°F (10°C) Maximum 135°F (57°C) The surface should be dry and at least 5°F (3°C) above the dew point. Coating will not cure below minimum surface temperature.

CLEANUP Flush and clean all equipment immediately after use with the recommended thinner or MEK.
† Values may vary with color.

DRAWINGS

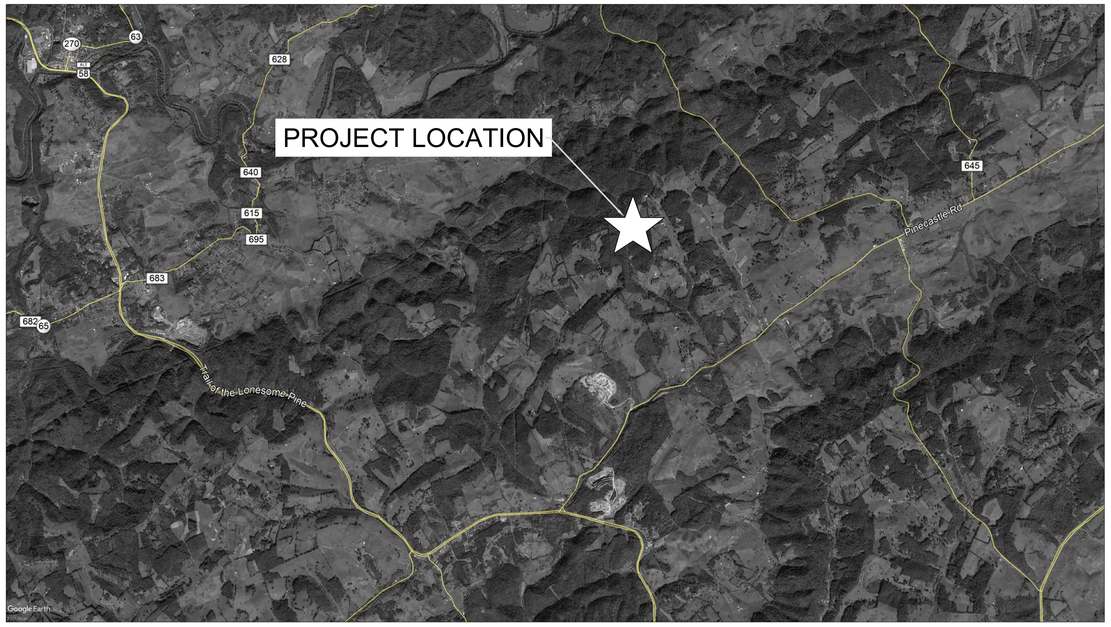
LEACHATE STORAGE AND CONTAINMENT EXPANSION

Sheet 0 – Cover
Sheet 1 – Existing Conditions
Sheet 2 – Proposed Equipment
Sheet 3 – Details
Addendum 1 - Details

LEACHATE STORAGE AND CONTAINMENT EXPANSION
RUSSELL COUNTY SANITARY LANDFILL
SOLID WASTE PERMIT NO. 258

* * *

RUSSELL COUNTY, VIRGINIA



OWNER INFORMATION

RUSSELL COUNTY, VA
SOLID WASTE
137 HIGHLAND DRIVE
LEBANON, VA 24266
OFFICE PHONE: (276) 415-9102

LONZO LESTER
COUNTY ADMINISTRATOR
(276) 889-8000

DRAWING LIST	
SHEET G-1	COVER
SHEET C-1	EXISTING CONDITIONS
SHEET C-2	PROPOSED EQUIPMENT
SHEET C-3	DETAILS

NOTE: CONTRACTOR TO CONTACT MISS UTILITY (811) IN ADVANCE OF PLANNED WORK. ADVANCE TIME PERIOD SHALL BE IN ACCORDANCE WITH CURRENT MISS UTILITY GUIDELINES (www.missutilityofvirginia.com).

COMMONWEALTH OF VIRGINIA
STEVEN R. GANDY
Lic. No. 402063178
PROFESSIONAL ENGINEER
SRG
5/17/24

114 Edinburgh South Drive, Suite 200
Cary, NC 27511
919-873-1500 FAX 919-873-1074
www.TRCCOMPANIES.com
NC Firm License # F-0591

• Richmond, VA • Newport News, VA
• Blacksburg, VA • Northern Virginia
• Charlottesville, VA • Virginia Beach, VA

TRC ENGINEERS, INC.

COVER

LEACHATE STORAGE AND CONTAINMENT EXPANSION
RUSSELL COUNTY SANITARY LANDFILL, SWP No. 258
RUSSELL COUNTY, VIRGINIA

REVISIONS

DESIGNED BY:	SRG
DRAWN BY:	YCA
CHECKED BY:	WMD
SCALE:	NTS
DATE:	MAY, 2024
PROJECT NUMBER:	594903

G-1

TO TRANSFER STATION

RUSSELL COUNTY LANDFILL

SEE INSERT A

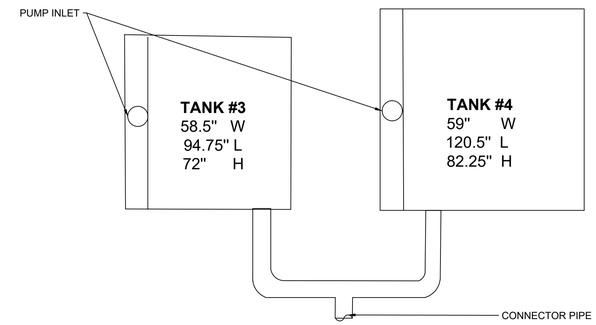
EXISTING TANKS (#3 - #4) TO BE REPLACED IN THE SAME LOCATION FOR 6,500 GALLONS MULTI SEAM TANKS (SEE DETAIL D-1)

INTERCEPT EXISTING INFLUENT LINE AND INSTALL MANIFOLD BETWEEN TWO NEW TANKS WITH ISOLATION VALVES

VACUUM TRUCK LOADING AREA

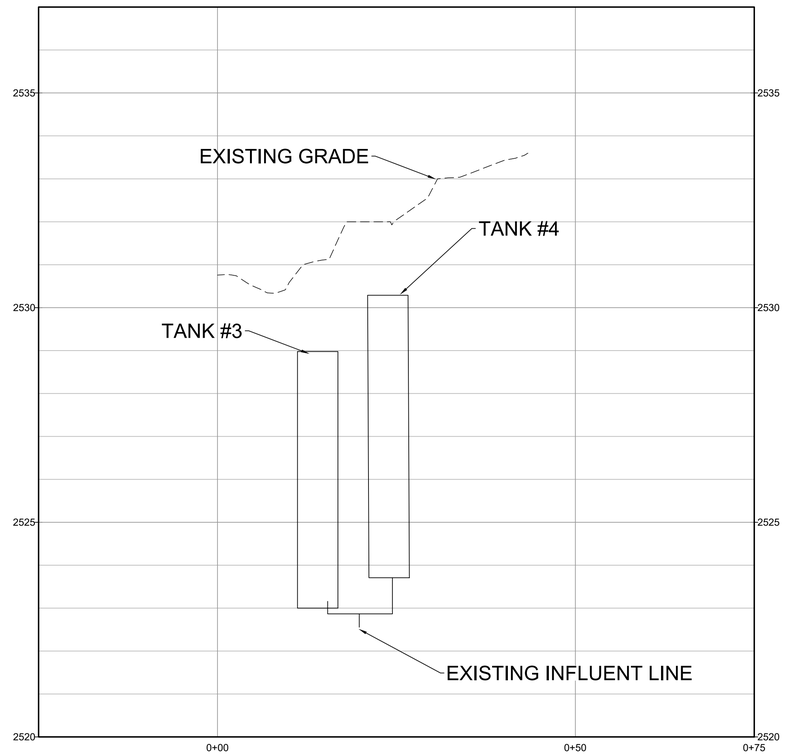
GRAVEL

GRAVEL ROAD



INSERT A - PLAN VIEW EXISTING TANKS
NTS

NOTE:
TANKS LOCATED APPROX. 32"-36" BELOW GRADE



PROFILE EXISTING TANKS - SCALE: H: 1"=30', V: 1"=5'

COMMONWEALTH OF VIRGINIA
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EXISTING CONDITIONS

LEACHATE STORAGE AND CONTAINMENT EXPANSION

RUSSELL COUNTY SANITARY LANDFILL, SWP No. 258
RUSSELL COUNTY, VIRGINIA

REVISIONS

DESIGNED BY:	SRG
DRAWN BY:	YCA
CHECKED BY:	WMD
SCALE:	1" = 10'
DATE:	MAY, 2024
PROJECT NUMBER:	594903

C-1

P:\2024\594903 - Russell Co (VA) Leachate Tanks\CAD\CONFIG.dwg, May 16, 2024 3:53:31 AM

NOTES:

1. EXISTING TANKS (#3 - #4) TO BE REPLACED IN THE SAME LOCATION FOR 6,500 GALLONS MULTI SEAM TANKS (SEE DETAIL D-1)
2. TANK MUST BE INSTALLED ON UNDISTURBED SOIL WITH 12" STONE UNDERNEATH.
3. IF SOIL IS DISTURBED 95% COMPACTION MUST BE ACHIEVED PRIOR TO SETTING THE TANK.

TO TRANSFER STATION

RUSSELL COUNTY LANDFILL

TANK #3

TANK #4

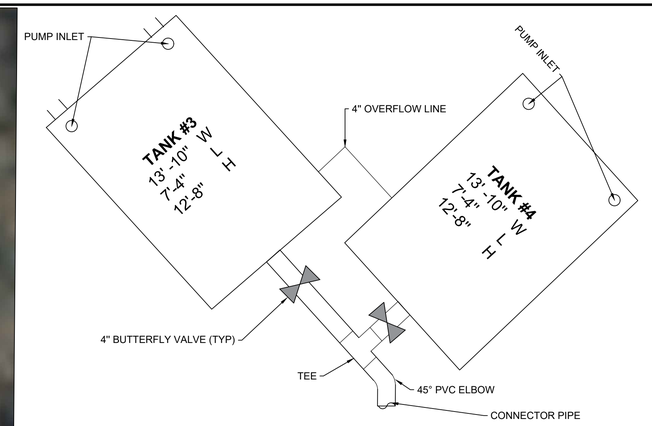
SEE INSERT B

INTERCEPT EXISTING INFLUENT LINE AND INSTALL MANIFOLD BETWEEN TWO NEW TANKS WITH ISOLATION VALVES. EXISTING LINE IS TO BE CAPPED WHILE THE NEW TANKS ARE BEING INSTALLED.

GRAVEL

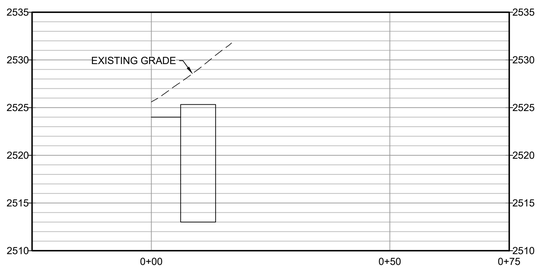
VACUUM TRUCK LOADING AREA

GRAVEL ROAD

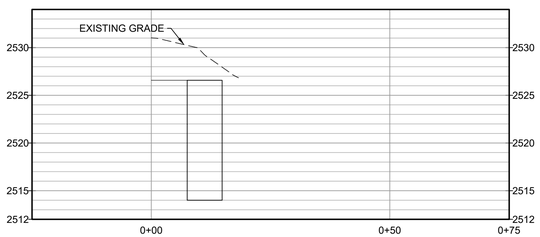


INSERT B - PLAN VIEW NEW TANKS
NTS

NOTE:
MAINTAIN A MINIMUM OF 1' COVER



ALGN-TANK #3 - SCALE: H: 1"=30', V: 1"=15'



ALGN-<TANK #4>-8 - SCALE: H: 1"=30', V: 1"=15'

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PROPOSED EQUIPMENT

LEACHATE STORAGE AND CONTAINMENT EXPANSION

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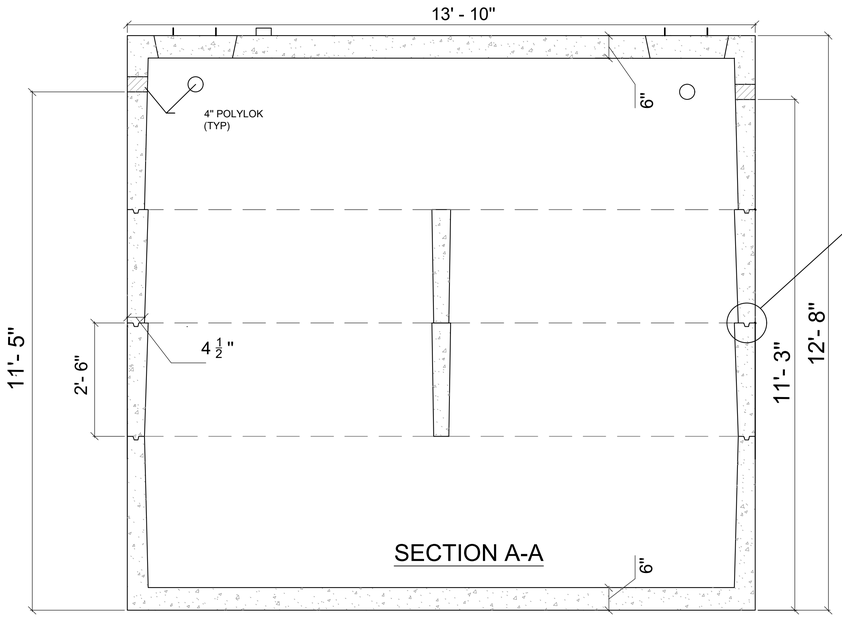
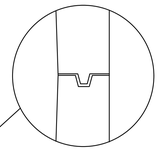
C-2

6,500 GALLONS MULTI SEAM TANK



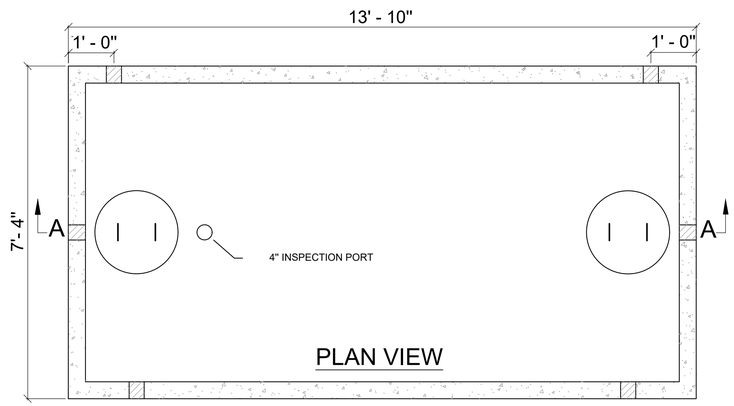
SECTION A-A



KEYWAY DETAIL

APPROX. WEIGHT:

TOP:	14,775 LB
BAFFLE:	5,600 LB (x2)
BOTTOM:	14,775 LB
TOTAL:	40,750 LB

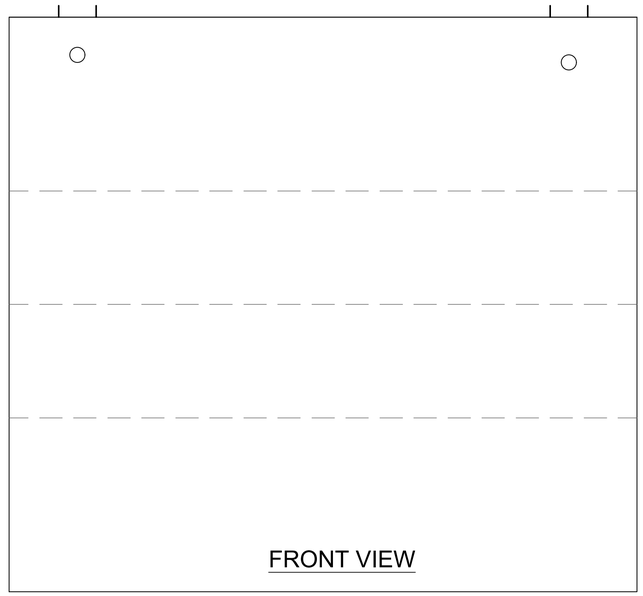


PLAN VIEW

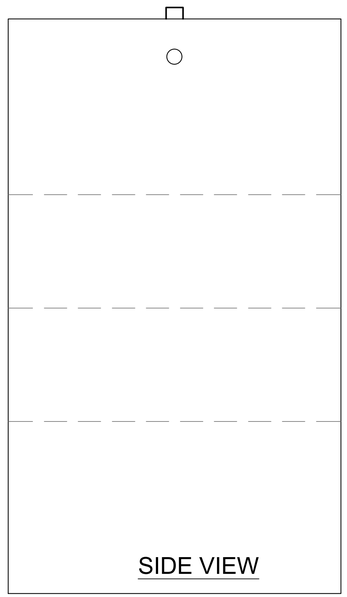
GAL. PER IN:	53.35
ACTUAL GAL. TO OUTLET:	6,847
FULL CAPACITY:	7,380

NOTES:

1. CONCRETE STRENGTH = MIN. 4500 PSI
2. #4 REBAR AT 1' O.C
3. "POLYLOK" PIPE SEALS CAST IN TANK
4. MASTIC SEALANT IN TANK JOINT



FRONT VIEW



SIDE VIEW

TANK ELEVATIONS

SECTION	TANK #3	TANK #4
BOTTOM	2513'	2514'
TOP	2525.8'	2526.8'
GRADE	+-2528'	+-2528'

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DETAILS

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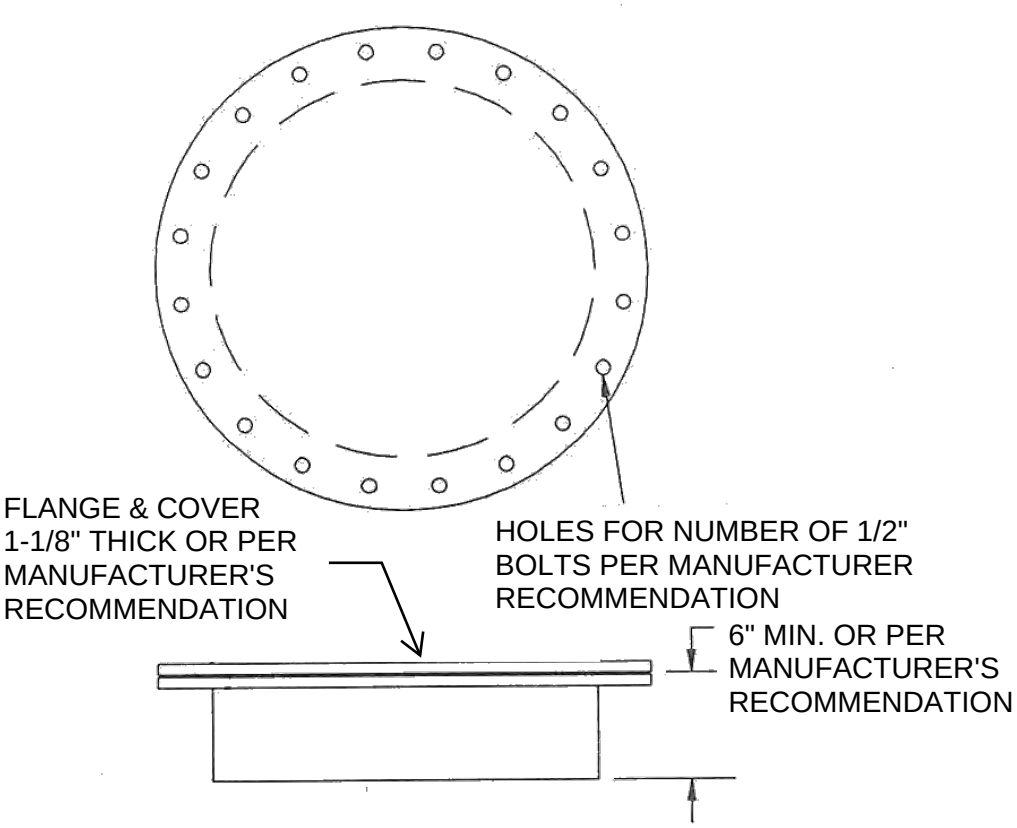
D-1

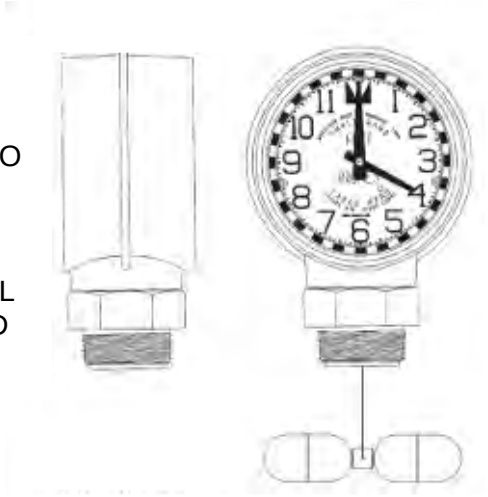
ADDENDUM 1 - DETAILS



INSPECTION PORT DETAIL

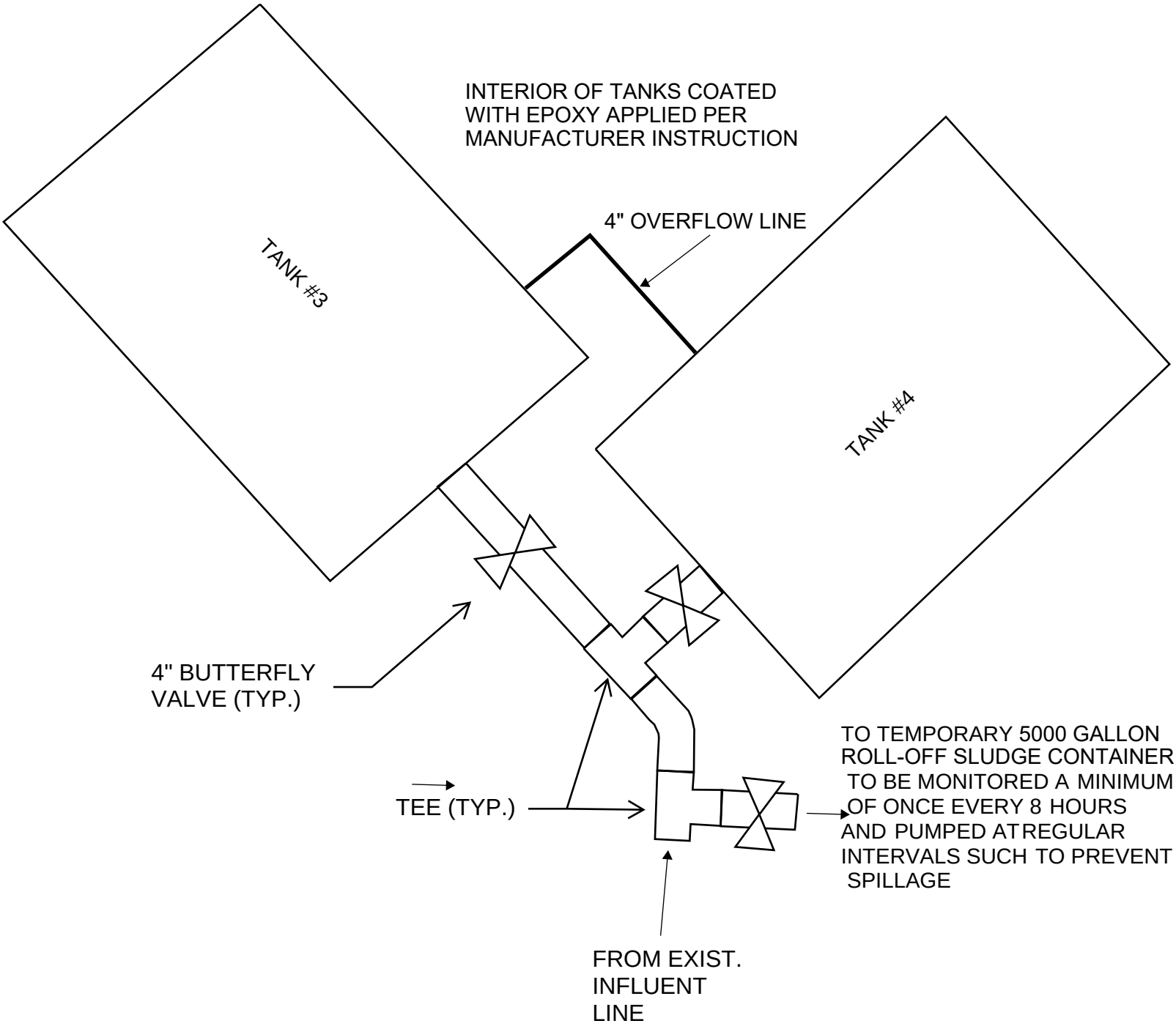
NTS

MODEL 818 CLOCK GAUGE BY MORRISON BROS CO. OR EQUAL TO BE INSTALLED IN PER MANUFACTUERER RECOMMENDATIONS WITH STAINLESS STEEL FLOAT AND CABLE AND ALUMINUM BODY



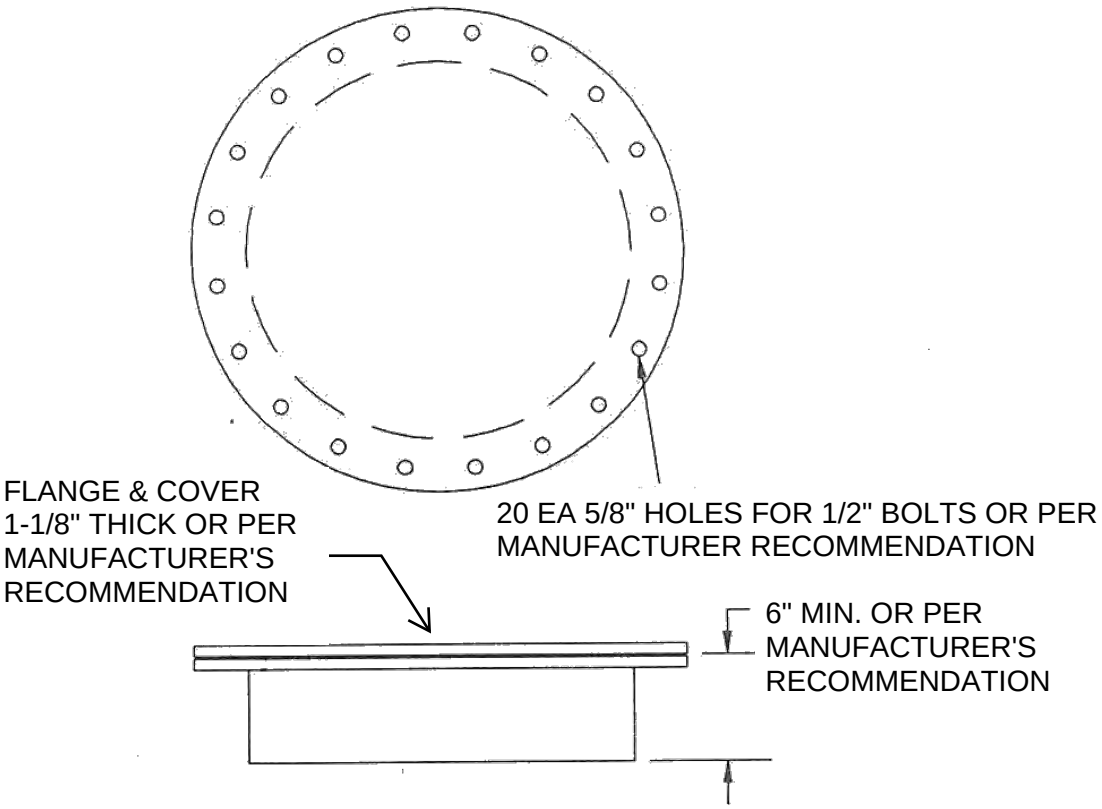
TANK GAUGE DETAIL

NTS



SPILL PROTECTION DETAIL - PLAN VIEW

NTS



24" MANWAY DETAIL

NTS