DRAFT REMEDIAL ACTION PLAN
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina
Site ID No. NONCD0000766
State Contract No. N15003i
Task Order 766RA-6

March 5, 2024

Submitted To:

North Carolina Department of Environmental Quality
Division of Waste Management
Superfund Section
Special Remediation Branch
Pre-Regulatory Landfill Unit
1646 Mail Service Center
Raleigh, North Carolina 27699-1646

Prepared By:

CDG, Inc.
4301 Taggart Creek Road
Charlotte, NC 28208

CDG

James Gamertsfelder
Project Manager

Thomas W. Witner, PG
Principal

NORTH CAROLINA LICENSED SEAL 916 GEOLOGIST THOMAS W. WITNER

I certify that, to the best of my knowledge, after thorough investigation, the information contained in or accompanying this certification is true, accurate, and complete.

Table of Contents

Figures

Appendices

List of Acronyms

CY	Cubic Yard
DEMLR	Department of Energy, Mineral, and Land Resources
DWQ	Division of Water Quality
E&SC	Erosion and Sediment Control
HDPE	High Density Polyethylene
NCDEQ	North Carolina Department of Environmental Control
NCDOT	North Carolina Department of Transportation
ROW	Right-of-Way
PLURs	Perpetual Land Use Restrictions
SGSL	Soil Gas Screening Level
USACE	United States Army Corp of Engineering
VOC	Volatile Organic Compound
WDA	Waste Disposal Area
2L Standards	15A 02L NCAC .0202 Groundwater Quality Standards
2B Standards	15A NCAC 02B .0200 Surface Waters and Wetlands Standards

1.0 Introduction and Site History

The Sims Legion Park landfill (Site) is located at the intersection of Interstate 85 and Highway 321 in Gastonia, North Carolina (see Figure 1). The Site is located on two parcels with most of the Site being located on an approximately 39-acre property owned by the City of Gastonia (Gastonia) identified as Gaston County Parcel 100220 which is bisected by the North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) for Interstate 85. A smaller section of the waste disposal area extends onto an approximately 0.77-acre residential property identified as Gaston County Parcel 100258 and owned by Garry Lane Carroll.

Sims Legion Park is located on the southern portion of the Gastonia property and consists of a baseball stadium, two practice baseball fields, an abandoned BMX track, associated paved parking areas, green space, and undeveloped wooded areas. The portion of the Gastonia property located north of Interstate 85 is primarily wooded. Two electric substations which are reportedly owned by Gaston County are located on the northern portion of the Gastonia property. Cross Leg Branch, a tributary to Long Creek, is located along the western boundary of the Site property.

Historical landfilling operations reportedly began at the Site around the beginning of World War II (late 1930's to early 1940's) and operated as a landfill at least through 1948. The baseball stadium was reportedly built by the American Legion in the 1950's. The Site was relinquished to the City of Gastonia in 1972.

2.0 Sensitive Environments

It was found that environmentally sensitive areas are primarily not present within a 500-foot buffer of the suspected waste disposal area. While there are no known endangered species present, potential habitat was determined to be at least marginally present for two plant species: Schweinitz's sunflower and dwarf-flowered heartleaf. Further, an onsite stream that is a tributary to Long Creek is noted as a potentially impacted water body, as well as a small offshoot stream that discharges from a pipe at the edge of the old landfill and flows to the tributary. Wetlands were not identified on the Site properties.

3.0 Geophysical Survey

A geophysical survey was conducted over roughly 44 acres of accessible area of the Site. Areas with dense vegetation such as the forested areas on the western edge of the property were not considered accessible, due to the means of conducting the survey. The survey used electromagnetic terrain conductivity to map the presence of waste material at depths of 7.2 feet, 13.7 feet, and 21.9 feet. Municipal Solid Waste was found throughout the parcel, although in a limited sense north of Interstate 85, and not under the Sims Legion Park field.

The conclusions of the survey are that the practice fields, parking lot, and BMX park likely contain buried municipal waste to a depth of between 7 and 14 feet below grade, and that a portion of the forested area just south of I-85 may contain buried municipal waste as deep as

22 feet below grade. Some waste may be present in the I-85 right-of-way, but was not observed north of the interstate to the northern piece of the Sims Legion Park parcel.

4.0 Geology and Hydrogeology

The Sims Legion Park property is located in the western portion of the Charlotte Belt of North Carolina and is underlain by a metamorphosed granite pluton. This unit is characterized as a foliated to massive granite rock of Pennsylvanian to Permian age (270-320my) which is megacrystic to equigranular. Soil at the Site is primarily brown and reddish-brown clayey and silty sands. Bedrock has been encountered during well installations at depths ranging from 46 to 51 feet below grade.

Depth to groundwater measured in groundwater monitoring wells has ranged from approximately 6 to 30 feet below grade and the groundwater flow at the Site is generally towards the west and northwest (see Appendix A).

5.0 Natural and Anthropogenic Background

A review of naturally occurring and anthropogenic background concentrations was completed based on data obtained from background soil, groundwater, and surface water samples collected at the Site, outside and/or up-gradient from the waste disposal area (WDA). Data from the background samples were reviewed for comparison to the detected concentrations in the cover soil, groundwater, sediment, and surface water samples. The results are discussed as part of the risk evaluation below in Section 8.2. A summary of the data is included with the Risk Calculator worksheets in Appendix B.

6.0 Waste Disposal Area

The WDA was determined based on the preliminary geophysical survey and follow-up confirmation borings and encompasses approximately 20.9 acres. The WDA is located on the northern and southern areas of the main property within the wooded areas and areas of the parking lot, practice baseball fields, and abandoned BMX track, and in a small area on the residential property south of the main Site. Figures depicting the WDA are included in Appendix A. Observed waste thicknesses have ranged from less than 2 to greater than 15 feet and the total volume of waste is estimated to be approximately 260,000 cubic yards (CYs).

7.0 Media Characterization

The following sections summarize characterization of the various media at the Site. The figures and tables representing this data are included in Appendix A.

7.1 Above Ground Vapor Study

Approximately 94 locations have been screened for potential above ground landfill vapors within the WDA. No elevated levels of concern have been identified.

7.2 Evaluation of Existing Soil Cover for use as the Permanent Cover System

Soil cover thickness and quality were evaluated at 51 locations within the WDA. Cover soil thicknesses ranged from less than 1-foot to greater than 8 feet. Sampling results for the cover soil samples were input into the NCDEQ Risk Calculator to determine the potential carcinogenic and non-carcinogenic risks. The results of the Risk Calculator are discussed in Section 8.2.

7.3 Surface Water/Sediment/Seep Investigation

Five surface water, two sediment, and one seep locations have been sampled at the Site. No analyzed constituents were detected at concentrations exceeding the 15A NCAC 02B .0200 Surface Waters and Wetlands Standards (2B Standards) in the surface water samples. Constituents detected in the surface water and sediment samples were evaluated using the NCDEQ Risk Calculator with further discussion of the results included in Section 8.2. Risk Calculator results indicate no risk exceedances for the surface water or sediment. The seep was identified and sampled during NCDOT construction work. However, it was not located after the construction work was complete and the area is now overlain by a highway access ramp.

7.4 Groundwater Investigation

Twelve temporary and 13 permanent groundwater monitoring wells have been installed and sampled at the Site. Several organic and inorganic constituents have been detected at concentrations exceeding the 15A 02L NCAC .0202 Groundwater Quality Standards (2L Standards). However, many of the inorganic metals were detected at similar concentrations in up-gradient wells indicating they are likely at natural background levels. Furthermore, concentrations of tetrachloroethene and trichloroethene have been detected in up-gradient monitoring wells and are attributed to a known release on an up-gradient property. The detected volatile organic compounds (VOCs) have been delineated and there is no evidence they have migrated off-site. Constituents detected in the groundwater samples were evaluated using the NCDEQ Risk Calculator with further discussion of the results included in Section 8.2.

7.5 Potable Water Supply Well Sampling

No potable water supply wells have been identified within 1,000 feet of the Site.

7.6 Landfill Gas Probe Installation and Monitoring

Thirty landfill gas probes and approximately 50 shallow and deep vapor points have been installed and screened and/or sampled at the Site. Constituents detected in the landfill gas and soil gas samples were evaluated using the NCDEQ Risk Calculator with further discussion of the results included in Section 8.2. Risk Calculator results indicated there were no risk exceedances for the residential soil gas to indoor air pathway.

7.7 Methane Assessment

Methane gas has been delineated to below 1.25% based on screening data obtained from the landfill gas probes and vapor points.

7.8 Structural Vapor Intrusion

Fifty shallow and deep vapor points have been installed and screened and/or sampled at the Site. Constituents detected in the landfill gas and soil gas samples were evaluated using the NCDEQ Risk Calculator with further discussion of the results included in Section 8.2. Risk Calculator results indicated there were no risk exceedances for the residential soil gas to indoor air pathway. Additionally, ten structures have been screened for VOCs and explosive gas. No exceedances or hazardous vapors above background concentrations were found during an on-site structure survey.

7.9 Contaminant Sources and Impacted Receptors

Landfilled waste material appears to be a minor contaminant source for groundwater and soil gas at the Site. Also, a known up-gradient release appears to be the source of tetrachloroethene and/or trichloroethene (and byproduct) detections in groundwater and soil gas. There are no known impacted receptors with risk exceedances attributed to the waste.

7.10 Waste Characterization (Consolidation, Total Removal, or Hot Spot Assessment)

No waste hot spots have been identified based on waste characterization or other sampling results. Therefore, waste consolidation, total removal, or further hot spot assessment are not recommended. NCDEQ Risk Calculator results indicate there are no exceedances of calculated risk for the private residence located on Gaston County Parcel 100258 due to the buried waste located on that property. Therefore, waste removal and consolidation onto the main Site is not recommended. Removal and relocation of this waste could result in additional risk exposure compared to the waste remaining capped and in place. Furthermore, relocation would be cost prohibitive based on the estimated volume of waste of 2,000 CYs, and the potential to encounter additional waste during the removal activities. The remedial alternative for the residential property is the same as it is for the remainder of the Site.

8.0 Risk Evaluation

This investigation has identified risks to human health and the environment and has delineated the approximate horizontal and vertical extent of these risks. Potential exposure pathways exist in the form of surficial waste, subsurface waste, contaminated soil, contaminated groundwater, contaminated surface water, and landfill gas. Due to the volume of waste, unknown contents, and nonregulated management practices, it is technically infeasible and cost prohibitive to fully characterize and thus identify all risks and magnitude of risk associated with the heterogeneous waste.

8.1 Physical Risks

Physical risks associated with the WDA at the Site include slip, trip, and fall hazards, sharps. These risks will be mitigated by the proposed cover system, grading, and removal of surficial waste present at the Site.

8.2 Chemical Risks

When institutional controls and a minimum one-foot-thick engineered cover consisting of clean soil and vegetative material are employed and maintained, the potential exposure pathways include direct exposure to the cover material and landfill gas. The NCDEQ Risk Calculator was utilized to evaluate the risks of contaminants of concern identified in cover soil and landfill gas samples collected. The Risk Calculator was also utilized to evaluate groundwater, surface water, sediment, and background data for the various media. The maximum concentrations of each detected contaminant were input into the Risk Calculators. The Risk Calculator worksheets are included in Appendix B, and a summary of the results is outlined below.

Soil and Soil Gas		
Receptor/Pathway	Carcinogenic Risk	Hazard Index
Resident - Soil (Cover Soil)	6.6E-04	2.7E+02
Resident - Soil Gas to Indoor Air	5.9E-05	5.8E-01

Red values indicate a risk exceedance

Worst case cover soil risk, consisting of the maximum concentrations of each detected analyte from all cover soil samples, exceeded the Carcinogenic Risk (CR) and Hazard Index (HI) for a resident receptor. Soil in areas where individual cover soil sampling grids were determined to exceed the risks will be addressed by proving appropriate clean cover over the areas. Soil in areas where individual soil sampling grids were determined not to exceed the risks will remain in place. Soil gas risk did not exceed the CR or HI for a residential receptor. Hydrogen sulfide was not detected in soil gas when screened using field instruments or in laboratory analysis of targeted soil gas probes. Methane has been detected using field instruments exceeding 1.25% by volume within the WDA, but not in the vicinity of enclosed structures.

Groundwater		
Receptor/Pathway	Carcinogenic Risk	Hazard Index
Resident - Groundwater	1.3E-03	5.4E+01
Resident - Background Groundwater	5.1E-03	3.1E+02

Red values indicate a risk exceedance

Worst case groundwater risk exceeded the CR and HI for a resident receptor. However, groundwater use restrictions are included in the institutional controls and the pathway is incomplete. Furthermore, the risk from background (upgradient) groundwater was also determined to exceed the CR and HI for a resident receptor indicating both

naturally occurring metals and contaminants from upgradient sources are contributing to the groundwater risk.

Surface Water and Sediment		
Receptor/Pathway	Carcinogenic Risk	Hazard Index
Recreator/Trespasser - Surface Water	0.0E+00	2.2E-01
Resident - Sediment	1.4E-06	2.4E-01

Red values indicate a risk exceedance

Worst case surface water risk did not exceed the CR or HI for a recreator/trespasser receptor and no detected analytes exceeded the 2B Standards. Worst case sediment risk also did not exceed the CR or HI for a resident receptor.

9.0 Remedial Goals and Evaluation of Alternatives

Based on the results of the Remedial Investigation, the remedial goals for the Site include limiting exposure to the waste and impacted media, stabilizing the slopes, obtaining suitable structural fill/borrow soil, installation of permanent erosion control measures, and institutional controls limiting land use of the site. Evaluation of several remedial alternatives are discussed below. Alternatives 1 and 2 are associated with maintaining appropriate cover over the majority of the WDA whereas Alternatives A and B are associated with the existing stormwater pipe, tributary, and ravine residing within the WDA. A combination of either Alternative 1 or 2 together with either Alternative A or B, in conjunction with appropriate institutional controls, will be necessary to meet the remedial goals.

The property owner has requested to keep a number of trees within the WDA. These trees will be identified on the Notice plat recorded in conjunction with the DPLUR. The owner of the landfill will be responsible for future care and maintenance of all trees remaining within the WDA as detailed in the recorded perpetual land use restrictions.

9.1 Alternative 1 – Clearing trees and grubbing in wooded WDA areas and import and placement of cover material as needed to maintain 1-foot-thick cover over WDA.

Alternative 1 includes clearing and grubbing wooded areas within WDA and importing and placement of suitable cover material where needed to maintain a 1-foot-thick cover over the waste. Based on the current cover thicknesses in the wooded areas, it is anticipated that most of the existing clean cover material will be disturbed and removed during grubbing and significant imported cover material will be required over most of the grubbed area. Following placement of imported cover material, a vegetative cover would be established over the denuded areas to provide permanent erosion control measures.

9.2 Alternative 2 – Clearing trees and grinding stumps in wooded WDA areas and import and placement of cover material as needed to maintain 1-foot-thick cover over WDA.

Alternative 2 includes clearing and grinding stumps (without grubbing) in the wooded areas of the WDA and importing and placement of suitable cover material where needed to maintain a 1-foot-thick cover over the waste. The existing cover material will remain in place which will provide a 1-foot-thick cover over most of the wooded portion of the WDA. Some imported cover material will be required to augment areas where existing cover soil is less than 1-foot-thick and areas that are disturbed and compacted during clearing options. As discussed above, a vegetative cover would be established over denuded areas or areas where imported cover material was placed.

The following criteria were evaluated for both Alternatives 1 and 2:

- Protection of human health and the environment, including attainment of cleanup levels:

  As direct contact with the waste material is the primary risk associated with the Site, import and placement of a suitable cover material to provide a 1-foot-thick barrier between the top of waste and the ground surface will provide protection for human health and the environment. Alternatives 1 and 2 will both equally provide these benefits.

- Compliance with applicable federal, state, and local regulations:

  Implementation of both alternatives can be completed in such a way to maintain compliance with regulations. In particular, it is anticipated that an Erosion and Sediment Control (E&SC) Plan can be developed which would address regulatory requirements. The additional disturbance to the surficial soils necessary for Alternative 1 will likely result in a higher difficulty of implementing, maintaining, and closing the E&SC measures than would Alternative 2. Therefore, Alternative 2 is a preferred choice.

- Long-term effectiveness and performance:

  When implemented in accordance with an approved E&SC Plan thus providing a vegetative and erosion resistant cover over the waste material, Alternatives 1 and 2 will both equally provide long-term effectiveness and performance in meeting the remedial goals.

- Reduction of toxicity, mobility, and volume:

  Alternative 2 will reduce toxicity by reducing the opportunity for direct contact with the waste and reducing stormwater infiltration through the waste by

maintaining positive runoff. Likewise, mobility of contaminants associated with the waste will be reduced by appropriate containment beneath the cover system and reduced stormwater infiltration. Alternative 1 could increase the toxicity and mobility when compared to Alternative 2 due to the removal of the root mass and greater disturbance to the cover system which has been stabilized over time. A cover system will not reduce the volume of waste material directly but will likely reduce the volume of secondary contamination from potential soil gas exposure and stormwater infiltration. Alternatives 1 and 2 will both equally provide these benefits.

- Short-term effectiveness:

  Upon completion, a cover system will provide immediate effectiveness in minimizing the impact of the waste providing short-term benefits to the environment and local community. It is expected that the time needed to complete Alternative 1 will be greater than for Alternative 2 and will also require additional truck traffic associated with importing and exporting a larger volume of materials. Therefore, Alternative 2 is preferred for short term effectiveness.

- Implementability:

  Implementation of a cover system is considered both technically and logistically feasible. E&SC measures will need to be robust due to the proximity of the creek and tributary. However, the additional land disturbance associated with the grubbing as part of Alternative 1 is likely to result in more robust E&SC measures than Alternative 2. Furthermore, a significantly greater volume of imported and exported material will be needed for Alternative 1 than for Alternative 2. This will increase the time to complete the remedy, increase truck traffic and wear and tear to local roadways, and increase the mobility of sediment during major rain events. For these reasons, Alternative 2 is considered more implementable.

- Cost:

  The estimated cost for Alternative 1 is expected to be higher than for Alternative 2, primarily due to the significantly higher volume of imported soil needed, but also due to additional E&SC maintenance and the potential for a longer monitoring period for the establishment of cover stabilization. Therefore, Alternative 2 is preferred when considering cost. See Section 13.3 for the estimated costs for the remedial alternatives.

- Community Acceptance

  Community acceptance is expected to be equal for both Alternatives 1 and 2 upon completion of the remedy. Both alternatives would allow for the continued use of the park in its current capacity. However, the additional time needed to

implement the remedy and the additional truck traffic needed for the greater volume of imported cover for Alternative 1 result in Alternative 2 being considered more acceptable.

9.3 Alternative A – Extending the stormwater pipe to the end of the tributary and filling ravine with imported material.

Alternative A includes extending the 48-inch diameter stormwater pipe, that currently discharges at the head of the tributary, to the creek and then filling the tributary with material to allow for a smooth grade across the top of slopes. Since waste relocation is not being evaluated for the Site, import material or Site spoils will need to be used as the fill for the ravine. The filled ravine will merge with the existing slopes allowing for positive drainage. A vegetative cover would be established to provide permanent erosion control measures.

9.4 Alternative B – Partially extending the stormwater pipe and grade ravine to 4:1 slopes.

Alternative B includes partially extending the 48-inch diameter stormwater pipe approximately 50 feet towards the creek, partially filling the ravine around the extended pipe, and grading the steep ravine to establish safe and maintainable 4:1 slopes. The purpose of the pipe extension is to allow for a 4:1 slope along the tributary without intruding into the existing practice ball fields. This requires partial filling of the upper end of the ravine. It is anticipated that a portion of the waste material removed while grading the 4:1 slopes perpendicular to the ravine will be used as fill in the upper end of the ravine to reduce off-site disposal of waste material and importing of fill material. To minimize potential erosion during flooding events, high-Density Polyethylene (HDPE) expandable cells will be used in conjunction with soil infill on the graded slopes adjacent to the ravine. The area within the 4:1 slope boundary will be cleared and grubbed prior to grading.

The following criteria were evaluated for both Alternatives A and B:

- Protection of human health and the environment, including attainment of cleanup levels:

  As direct contact with the waste material is the primary risk associated with the Site, placement of a suitable cover material to provide a 1-foot-thick barrier between the top of waste and the ground surface will provide protection for human health and the environment. Alternatives A and B will both equally provide these benefits.

- Compliance with applicable federal, state, and local regulations:

Preliminary discussions with the North Carolina Department of Water Quality (DWQ) indicate that complete filling and destruction of the tributary, evaluated as Alternative A, may not be allowed without compensatory mitigation. Furthermore, this would likely require an individual permit to be submitted to the DWQ and United States Army Corps of Engineers (USACE). However, based on discussions with the DWQ, partial filling and destruction of the tributary, evaluated as Alternative B to allow for reasonable sloping, would likely be approved under a Nationwide Permit and without the need for compensatory mitigation. A No-Rise Study will likely be necessary for Alternative A, and a simpler No-Rise Certification for Alternative B. It is anticipated that Alternative B will have a better chance at maintaining a no-rise condition. Based on the above, Alternative B will more likely maintain compliance with regulatory requirements.

- Long-term effectiveness and performance:

  With proper maintenance, both Alternatives A and B will equally provide long-term effectiveness and performance of the remedy. However, maintenance will be more critical and difficult for Alternative B due to the slopes and erosive nature of the tributary and creek flooding.

- Reduction of toxicity, mobility, and volume:

  A cover system over the waste will reduce toxicity by reducing the chance of direct contact with the waste and reducing stormwater infiltration through the waste by maintaining positive runoff. Likewise, mobility of contaminants associated with the waste will be reduced by appropriate containment beneath the cover system and reduced stormwater infiltration. A cover system can reduce the volume of secondary contamination from potential soil gas exposure and stormwater infiltration. Furthermore, some of the waste excavated when creating the slope for Alternative B will require off-site disposal resulting in a reduction in the volume of waste at the Site. Overall, Alternatives A and B are expected to perform similarly.

- Short-term effectiveness:

  Upon completion, a cover system will provide immediate effectiveness in minimizing the impact of the waste providing short-term benefits to the environment and local community. It is expected that the time needed to complete Alternative B will be greater than for Alternative A. Therefore, Alternative A can be considered more effective in the short term.

- Implementability:

  Implementation of Alternatives A and B are technically and logistically feasible. E&SC measures will need to be robust for both alternatives as the grading/filling

will be taking place directly in the tributary and within the ravine. Although Alternative A will include some imported soil and exported waste, Alternative B will require an overall greater volume of material being moved to or from the Site. This will increase the time to complete the remedy and increase truck traffic and wear and tear to local roadways. For these reasons (and not considering regulations discussed above), Alternative A is considered more implementable.

- Cost:

  The cost for the construction aspects of Alternative B is estimated to be higher than for Alternative A. However, permitting cost is expected to be higher for Alternative A due to the total filling of the tributary. See Section 13.3 for the estimated costs for the remedial alternatives.

- Community Acceptance

  Community acceptance is expected to be equal for both Alternatives A and B upon completion of the remedy. Both alternatives would allow for the continued use of the park in its current capacity. However, due to the more detailed permitting requirements and anticipated regulatory review time required for Alternative A, Alternative B is expected to be implemented sooner which would results in a timelier project completion and return to full use of the park facilities.

10.0 Proposed Remedy

Based on the evaluations summarized above, the combination of Alternative 2, clearing trees and grinding stumps in wooded WDA areas and import and place cover material as needed to maintain 1-foot-thick cover over WDA, and Alternative B, partially extending the stormwater pipe and grading the ravine to 4:1 slopes, are considered the best alternatives to meet the remedial goals.

The remedial design for Alternatives 2 and B generally includes the following:

- Recordation of the DPLUR and Notice plat
- Tree removal (keep trees requested by property owner)
- Establishment of E&SC measures
- Stump grinding outside of the sloped ravine area and grubbing within the sloped ravine area
- Stormwater pipe extension within the tributary
- Grading of the slopes adjacent to the tributary
- Harvesting of cover soil and waste relocation within graded areas
- Off-site disposal of excess waste material cut from graded areas
- Installation of HDPE expandable cells on slopes adjacent to tributary
- Import and placement of soil in areas where existing cover is less than 1-foot-thick and over HDPE expandable cell area

- Monitoring of establishment of vegetative cover in denuded areas
- E&SC permit closure

10.1 Well Installation and Abandonment

Prior to beginning the remedial construction activities, Site groundwater monitoring wells and landfill gas probes will be abandoned by a North Carolina licensed driller in accordance with 15A NCAC 2C.0113 Well Construction Standards.

10.2 Stormwater Management

Stormwater will be managed in accordance with the E&SC plan. Clean water runoff will generally be routed around the work areas using a combination of ditches and berms. Stormwater from within the work areas will be routed to and treated by the appropriate E&SC measures per the E&SC plan.

10.3 Investigation and Remedial Action Derived Wastes

No off-site disposal of landfill waste is planned for the remedy. Excavated landfill waste will be used to backfill around the pipe extension in the ravine, sediment basins, and topographic low areas of the site and will be appropriately covered with clean material in accordance with the RAP design. Special wastes including white goods, scrap metal, and tires will be transported to permitted recycling or disposal facilities.

11.0 Waters of the United States Mitigation Measures

Impact to Waters of the United States from site remedial activities will be mitigated by employing appropriate E&SC measures in accordance with the E&SC plan. Any temporary or permanent destruction of Waters of the United States will be completed in accordance with permitting obtained through the DWQ and USACE.

12.0 Erosion and Sediment Control Measures

Appropriate temporary and permanent E&SC measures will be established and maintained throughout the remedial activities in accordance with the approved E&SC Plan (the draft E&SC plan is included in Appendix C). E&SC measures will only be removed when approved by the NCDEQ Department of Energy, Mineral, and Land Resources (DEMLR).

13.0 Remedy Implementation

13.1 Procedures

The general remedy implementation procedures will include initial site preparation activities such as installing temporary driveways to access the site and security measures such as vehicle gates and safety fencing and clearing of areas where initial E&SC measures then will be implemented. The remaining remedy work will commence once the E&SC measures have been implemented and inspected by DEMLR personnel.

Upon inspection and approval of the E&SC measures, the wooded areas of the WDA, outside of the ravine slope area, will be timbered and the harvested timber or other vegetative waste material will either be taken offsite for proper disposal or processing, or chipped on-site to provide on-site use for the mulch. The remaining stumps will be ground to 6-inches below grade. The property owner had requested that a number of trees remain within the wooded area for aesthetic purposes. These trees were marked by the property owner and subsequently surveyed as part of the Notice plat. The property owner will be responsible for maintenance of the trees that remain within the WDA in accordance with the DPLUR. The ravine slope area will be grubbed following timbering to prepare for grading.

Once the wooded areas have been timbered and the stumps ground down or grubbed, the extension to the existing stormwater pipe will be installed and grading of the 4:1 slopes will begin adjacent to the tributary. Efforts will be made to retain clean topsoil and cover soil overlying the waste in the graded areas for reuse. Any retained soil will be used as cover material over the graded slopes or in other areas that have less than a 1-foot-thick cover. Landfill waste material removed during the grading of the slopes will be used as fill around the extended portion of the stormwater pipe to facilitate the grading of a 4:1 at the upper end of the tributary. Any excess waste material not able to be placed in the upper portion of the tributary ravine will be sampled and removed from the site for disposal at a permitted landfill.

Once the designed subgrade has been met, a layer of structural fill will be placed and compacted in the graded 4:1 graded slope areas along the tributary followed by installation of an HDPE cellular confinement system. The cellular confinement system will then be infilled with soil material amended as needed to allow establishment of a vegetative cover. The cellular confinement system will be incorporated as part of the 1-foot-thick cover system over the waste. Additional soil will be graded over any other areas of the Site that require additional cover thickness determined during previous investigations. However, a cellular confinement system will not be used in those areas. Denuded areas will be seeded and covered with matting or other material to facilitate vegetative growth at the conclusion of work in the areas. The vegetative cover and the effectiveness of the E&SC measures will be monitored and maintained until an appropriate vegetative cover is established at which point an DEMLR inspection will be requested. Upon approval by DEMLR personnel, the temporary E&SC measures will be removed in accordance with the E&SC plan.

13.2 Estimated Schedule for Remedy

The estimated schedule for the proposed remedy is detailed below:

Task	Time to Complete
Submit E&SC Plan and 404/401 Permit Applications	8 weeks following approval of Draft RAP
Bid Review, Contractor Selection, and Bid Award	8 weeks following bid advertisement
Contract Finalization and Remedy Startup	4 weeks following bid award
Remedy Implementation	18 weeks following startup
Post Remedy Monitoring	26 weeks following remedy completion

13.3 Estimated Cost for Remedy

The estimated costs for the proposed remedial alternatives are as follows:

Alternative 1A (Clear and Grub and Fill Ravine): $1,755,000
Alternative 1B (Clear and Grub and Partially Fill Ravine: $1,825,000
Alternative 2A (Clear and Grind and Fill Ravine): $1,720,000
Alternative 2B (Clear and Grind and Partially Fill Ravine: $1,800,000

13.4 Operation and Maintenance, System Monitoring, and Performance Evaluation

E&SC measures will be inspected on a weekly basis and after significant rain events. Maintenance and necessary repairs will be completed as needed throughout the monitoring period. The Monitoring period will commence upon initiation of the remedial construction activities and continue until closure of the E&SC is approved by DEMLR personnel. A one-year warranty will be provided for permanent E&SC measures (vegetative cover) which will begin upon substantial completion of the remedial activities.

14.0 Off-Site Borrow Material

Importing of off-site borrow material is not planned for this remedy. However, CDG has tentatively identified John E. Jenkins Quarry in Gastonia as a preferred borrow source In the event that off-site borrow material is required. If off-site borrow material is required, CDG will collect samples from the borrow source to determine if the material meets the remedial goals for the Site. The samples will be submitted to a North Carolina-certified laboratory and analyzed for the following parameters by the most current U.S. EPA Contract Laboratory Program Target Compound List:

- Volatile organic compounds by EPA Metod
- 1,4-dioxane by EPA Method 8270 SIM
- Semi-volatile organic compounds by EPA Method 8270
- 14 metals by EPA Method 6020
- Mercury by EPA Method 7471

15.0 Surface Preparation and Cover Systems

The non-wooded areas of the Site generally already have at least a 1-foot-thick soil cover over the waste. These areas will be left alone so as not to disturb the existing vegetative or other cover. Similarly, most of the wooded areas of the Site have at least a 1-foot-thick cover over the waste. However, the trees and woody vegetation will be removed, the stumps will be ground to 6-inches below grade level, and the grindings removed for proper off-site disposal. Additional cover soil will be placed in areas where the stumps were ground and any other areas there were found to have less than a 1-foot-thick cover. Grading will be minimized in these areas to disturb the ground surface as little as possible and maintain the root systems for the purpose of erosion control.

In the graded slope areas adjacent to the tributary will be grubbed prior to grading, soil imported or harvested from the Site will be placed directly on the exposed waste (if present), graded, and compacted to a thickness of approximately 4-inches. If determined to be necessary, a geosynthetic separation fabric will be placed between the top of waste and soil cover. An HDPE expandable cell confinement system will be installed over the 4-inch soil cover. The cell confinement system will then be infilled with 8-inches of soil to provide a 1-foot-thick cover over the waste.

16.0 Vegetative Cover System

Any denuded areas will be seeded and matted or mulched to establish an adequate and maintainable vegetative cover. The vegetative cover will include grass species that are native to the area and appropriate for erosion control and the use of the Site. Soil amendments may be needed for the cover soil to support establishment of the vegetative cover. The need for amendments will be determined by appropriate testing.

17.0 Health and Safety Plan

The remedial implementation contractor will prepare a Site-Specific Health and Safety Plan in accordance with 29 CFR 1910.120 and submit the plan for review and approval.

18.0 Decontamination Procedures and Asbestos Management

Decontamination procedures will be detailed in the bid documents and in plans submitted by the remedial implementation contractor. An Asbestos Management Plan will be prepared by the remedial implementation contractor and submitted for approval by North Carolina Health and Human Services.

19.0 Perpetual Land Use Restrictions

As part of the risk-based containment remedy, Perpetual Land Use Restrictions (PLURs) and Notice Plats will be enacted and recorded for each parcel that is part of the site including the City of Gastonia property identified as Gaston County Parcel 100220 and the Garry Lane Carroll residential property identified as Gaston County Parcel 100258. PLURs are necessary because waste will remain on those two properties. Additionally, contaminants have been identified in

the groundwater on the City of Gastonia Property. The property owners will be responsible for maintaining the PLURs. The PLURs and Notice Plats may require amendment at a later date. Draft PRLUs and Notice Plat for the City of Gastonia Property are included in Appendix D and E, respectively.

20.0 References

CDM Smith, 2020. PRLF Remedial Investigation – Waste Boundary, Cover Soil, Groundwater, Landfill Gas, Sims Legion Park Landfill, May 21, 2020.

NCDEQ, 2022. Guidelines for Addressing Pre-Regulatory Landfills and Dumps, March 2022.

Schnabel Engineering, 2011. Site Summary Report, Sims Legion Park Landfill, February 3, 2011.

Smith+Gardner, 2017. Sims Legion Park First Phase Report, June 30, 2017.

Smith+Gardner, 2017. Remedial Investigation-Contaminant Delineation Report, Sims Legion Park Landfill, December 2017.

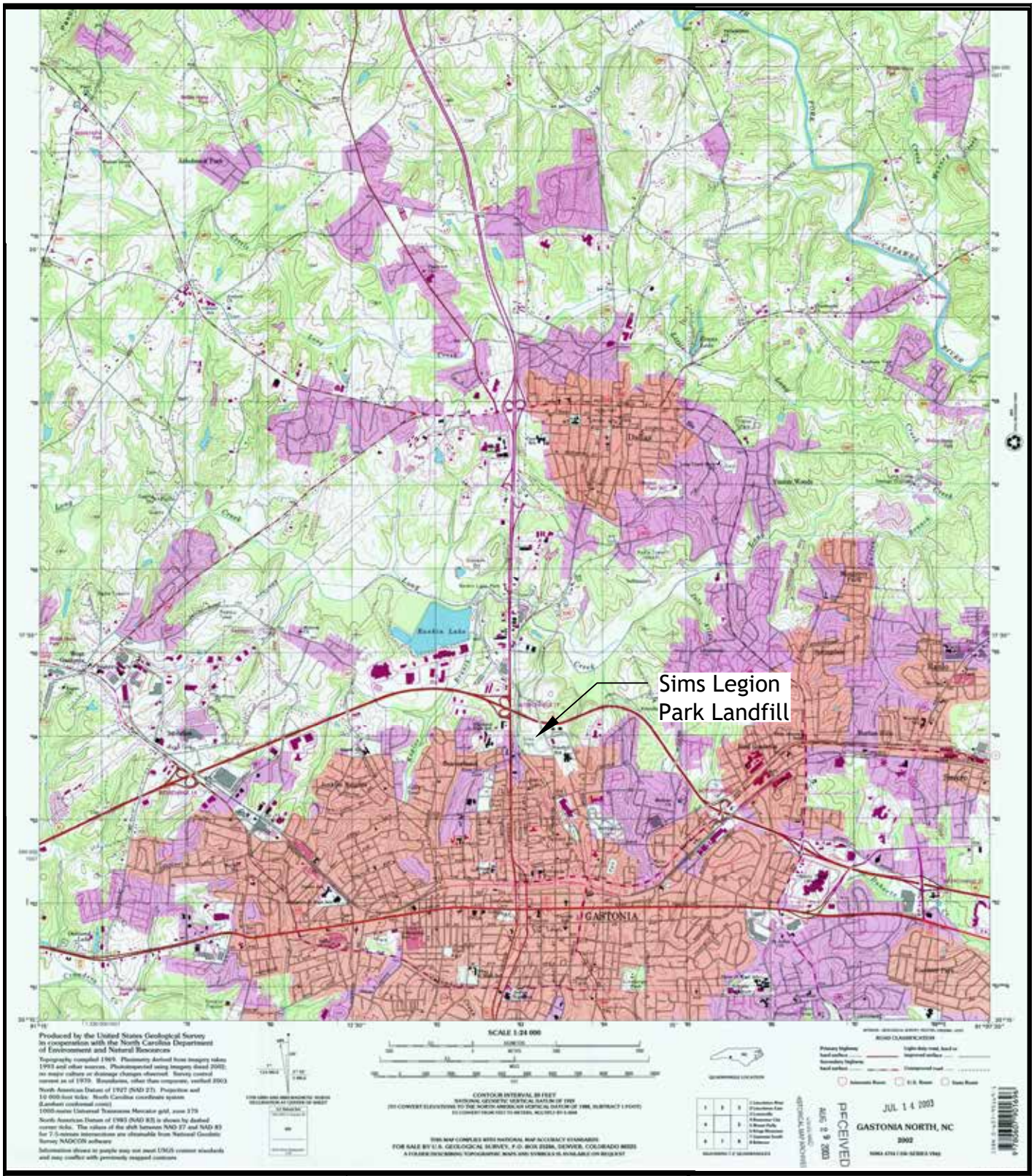
USGS, 2013. Geochemical and Mineralogical Data for Soils of the Conterminous United States, 2013.

21.0 Sole Use Statement

This report was prepared solely for the intended use by the NCDEQ - Superfund Section - Special Remediation Branch - Pre-Regulatory Landfill Unit in accordance with the scope of work presented in the Work Plan and Cost Proposal Remediation Implementation Task Order 766RA-4 through 766RA-9 dated November 17, 2022. Use of this document for other purposes is at the sole risk of the user.

FIGURES

4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
704-394-6913
WWW.CDGE.COM
LICENSE NO. C-4973



The drawings, specifications and other documents prepared by CDG for this project are instruments of CDG for use solely with respect to this project and, unless otherwise provided, CDG shall be deemed the author of these documents and shall retain all common law, statutory and other reserved rights, including copyright.	FILE NUMBER: R031622004	DRAWING NAME: TOPO.dwg
	SCALE: AS SHOWN	DRAWN BY: JG
	DATE: 3.8.2023	CHECKED BY: TW
CLIENT NAME: *NCDEQ - DIVISION OF WASTE MANAGEMENT* *217 WEST JONES STREET* *RALEIGH, NORTH CAROLINA*	PROJECT NAME: SIMS LEGION PARK DR. M.L.K. JR. WAY GASTONIA, GASTON COUNTY, NORTH CAROLINA	SHEET TITLE: TOPOGRAPHIC LOCATION — 1

APPENDICES

APPENDIX A

Remedial Investigation and Characterization Figures and Tables

LEGEND

150	EXISTING 10' CONTOUR (SEE REFERENCE 1)
— — —	EXISTING 2' CONTOUR
▬ ▬ ▬	APPROXIMATE PROPERTY BOUNDARY
▬▬▬▬	APPROXIMATE PROPERTY BOUNDARY (TO BE SURVEYED)
— — —	APPROXIMATE ADJACENT PARCEL BOUNDARY
••••••	APPROXIMATE DISPOSAL BOUNDARY (SEE REFERENCE 3)
—— – ——	EXISTING EASEMENT (SEE REFERENCE 2)
—·—·—	RIGHT OF WAY
— — —	UTILITY – STORM SEWER
⊕	GROUNDWATER MONITORING WELL (TEMPORARY)
⊕	GROUNDWATER MONITORING WELL
▲ SW–1	SURFACE WATER SAMPLE LOCATION
——	STREAM (SEE REFERENCE 1)
🟩	ZONE X (0.2% ANNUAL CHANCE) (SEE REFERENCE 5)
🟦	ZONE AE (FLOODWAY)
700 —— – –	POTENTIOMETRIC CONTOUR (DASHED WHERE INFERRED)
←	GROUNDWATER FLOW DIRECTION
SLP-1 TOC= DTW= GWE=	MONITORING WELL DESIGNATION TOP OF CASING DEPTH TO WATER GROUNDWATER ELEVATION

NOTES

1. IT IS UNKNOWN IF WASTE IS PRESENT UNDER 1–85. RELATED RECORDS ARE UNAVAILABLE.

REFERENCES

1. TOPOGRAPHY FROM LIDAR COLLECTED BY THE NC FLOODPLAIN MAPPING PROGRAM AND PROCESSED BY THE NC DOT GIS UNIT.
2. PROPERTY BOUNDARY, EASEMENT, RIGHT OF WAY, AND UTILITY LOCATIONS FROM ALTA/NSPS LAND TITLE SURVEY FOR SIMS LEGION PARK BY A.G. ZOUTEWELLE SURVEYORS, CHARLOTTE, NC. DATE OF SURVEY FEBRUARY 28, 2017.
3. BORING LOCATIONS FROM FIELD SURVEY PERFORMED BY A.G. ZOUTEWELLE SURVEYORS, CHARLOTTE, NC.
4. AERIAL IMAGERY FROM BING MAPS IMAGERY TAKEN IN 2017 BY THE MICROSOFT CORPORATION.

0 100' 200' 300'

PRELIMINARY
NOT FOR CONSTRUCTION

PREPARED FOR:

NORTH CAROLINA
DEPARTMENT OF
ENVIRONMENTAL QUALITY
DIVISION OF WASTE
MANAGEMENT

PREPARED BY:

NC LIC. NO. F-1370 (ENGINEERING)

SMITH+
GARDNER
ENGINEERS

14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577

SEAL

DocuSigned by:
Joan A. Smyth
B9779EBA711F488...

SEAL 1369 12/11/2017
JOAN A. SMYTH

SEAL

REV.	DATE	DESCRIPTION

PROJECT TITLE:

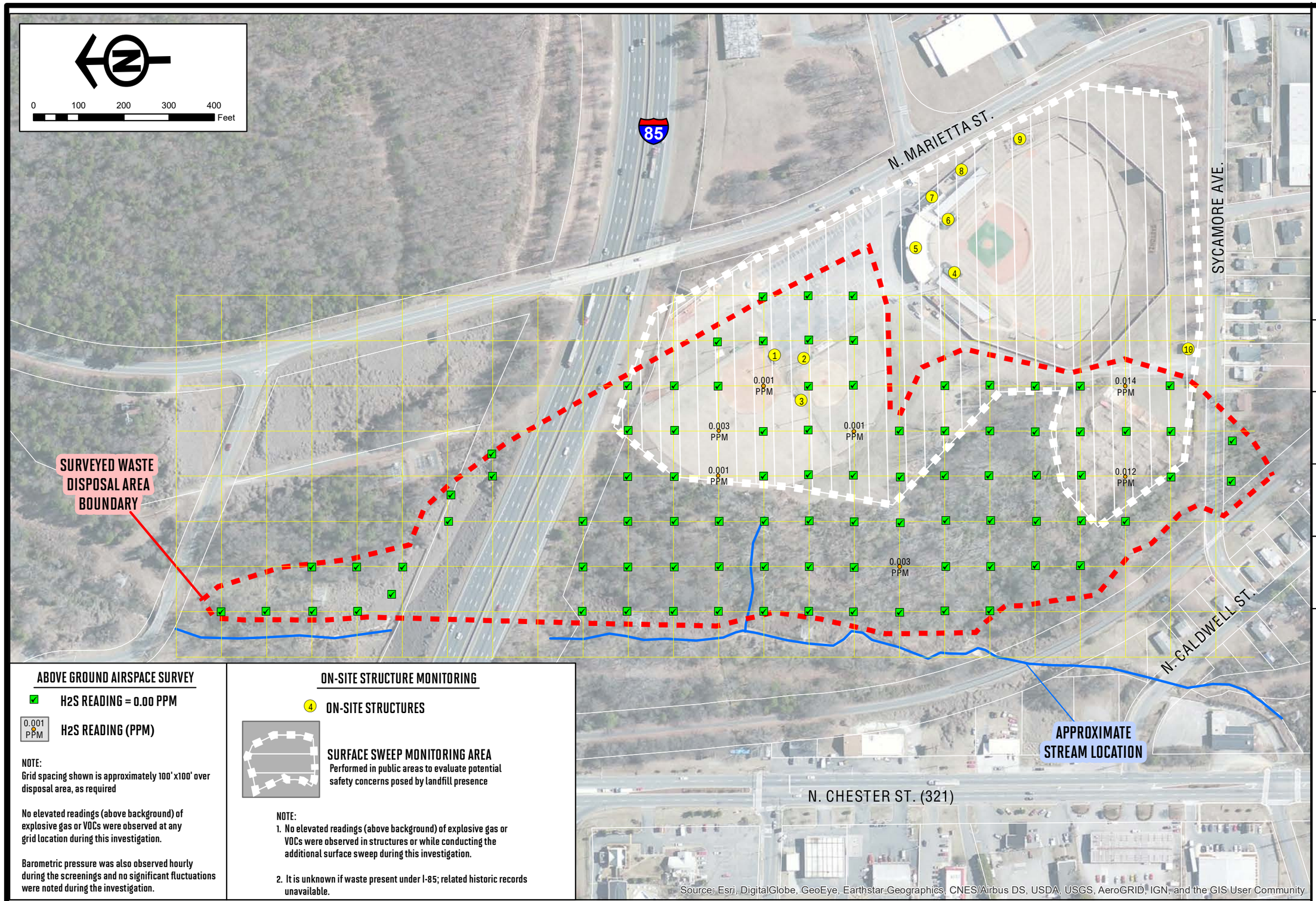
SIMS LEGION PARK
LANDFILL
CONTAMINANT DELINEATION

DRAWING TITLE:

POTENTIOMETRIC
SURFACE MAP

DESIGNED: M.M.G.	PROJECT NO: SIMS 17-21
DRAWN: C.J.W.	SCALE: AS SHOWN
APPROVED:	DATE: NOV. 2017
FILENAME: SIMS-D0005	
SHEET NUMBER:	DRAWING NUMBER: FIG.6

G:\CAD\Sims Legion Park\Sims 17-21\sheets\SIMS-D0005.dwg - 12/11/2017 10:46 AM



ABOVE GROUND AIRSPACE SURVEY

- ☑ H2S READING = 0.00 PPM
- 0.001 PPM — H2S READING (PPM)

NOTE:
Grid spacing shown is approximately 100' x100' over disposal area, as required

No elevated readings (above background) of explosive gas or VOCs were observed at any grid location during this investigation.

Barometric pressure was also observed hourly during the screenings and no significant fluctuations were noted during the investigation.

ON-SITE STRUCTURE MONITORING

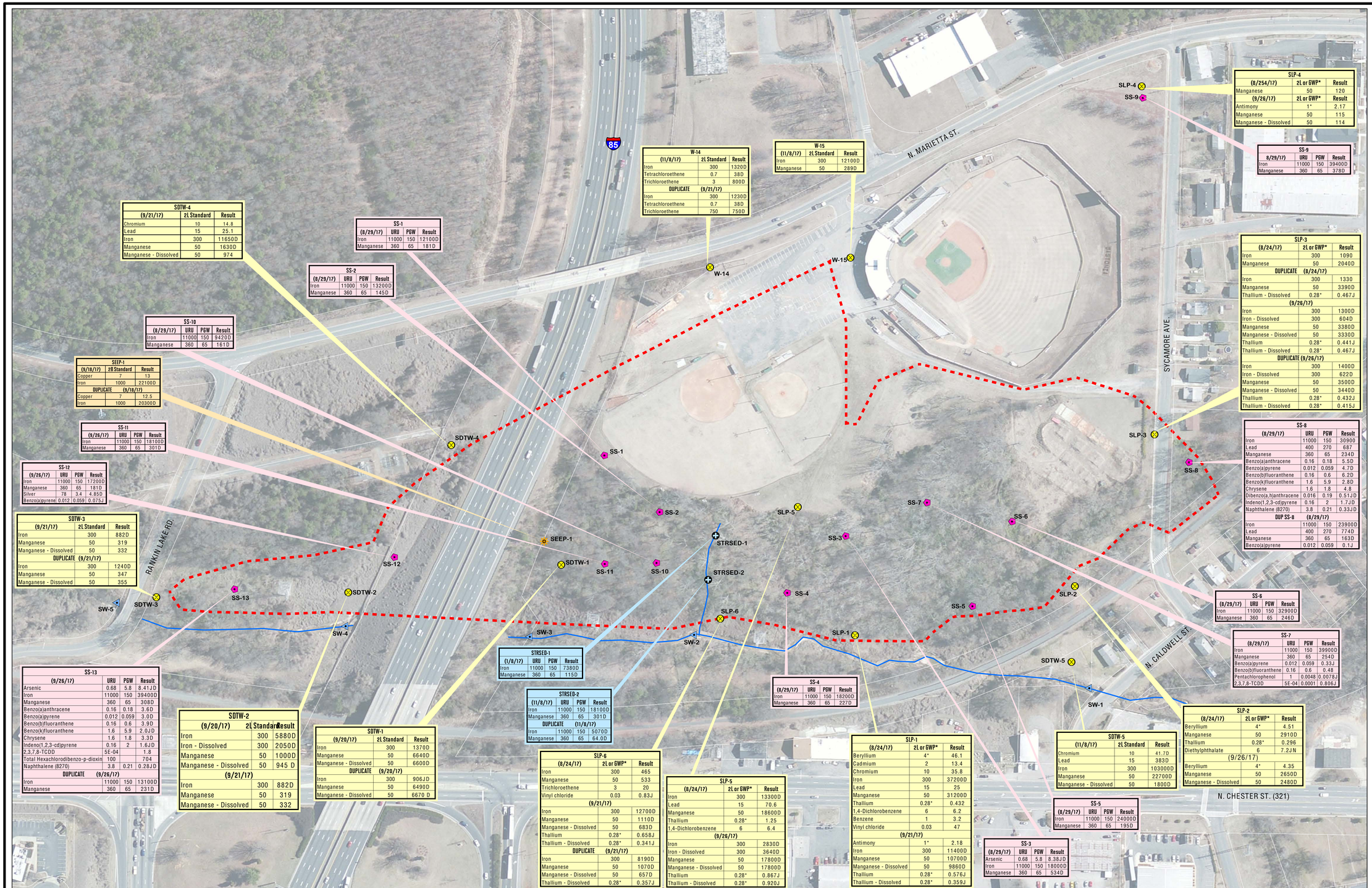
- (4) ON-SITE STRUCTURES
- SURFACE SWEEP MONITORING AREA
  Performed in public areas to evaluate potential safety concerns posed by landfill presence

NOTE:
1. No elevated readings (above background) of explosive gas or VOCs were observed in structures or while conducting the additional surface sweep during this investigation.
2. It is unknown if waste present under I-85; related historic records unavailable.

SMITH+GARDNER
NC LIC. NO. F-1370 (ENGINEERING)
14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577

FIGURE NO.:	7
SCALE:	1:2400
FILENAME:	
PROJECT NO.:	SIMS 17-21
APPROVED:	SAS
DRAWN:	DMM
DATE:	Dec. 2017

SIMS LEGION PARK LANDFILL
CONTAMINANT DELINEATION PHASE
ABOVE GROUND VAPOR EVALUATION MAP
GASTONIA, NC



SDTW-4 (9/21/17)	2L Standard	Result
Chromium	10	14.8
Lead	15	25.1
Iron	300	11650D
Manganese	50	1630D
Manganese - Dissolved	50	974

SS-1 (8/29/17)	URU	PGW	Result
Iron	11000	150	12100D
Manganese	360	65	181D

SS-2 (8/29/17)	URU	PGW	Result
Iron	11000	150	13200D
Manganese	360	65	145D

SS-10 (8/29/17)	URU	PGW	Result
Iron	11000	150	9420D
Manganese	360	65	161D

SEEP-1 (9/18/17)	2B Standard	Result
Copper	7	13
Iron	1000	22100D
DUPLICATE (9/18/17)		
Copper	7	12.5
Iron	1000	20300D

SS-11 (9/26/17)	URU	PGW	Result
Iron	11000	150	18100D
Manganese	360	65	301D

SS-12 (9/26/17)	URU	PGW	Result
Iron	11000	150	17200D
Manganese	360	65	181D
Silver	78	3.4	4.85D
Benzo(a)pyrene	0.012	0.059	0.075J

SDTW-3 (9/21/17)	2L Standard	Result
Iron	300	882D
Manganese	50	319
Manganese - Dissolved	50	332
DUPLICATE (9/21/17)		
Iron	300	1240D
Manganese	50	347
Manganese - Dissolved	50	355

SS-13 (9/26/17)	URU	PGW	Result
Arsenic	0.68	5.8	8.41JD
Iron	11000	150	39400D
Manganese	360	65	308D
Benzo(a)anthracene	0.16	0.18	3.6D
Benzo(a)pyrene	0.012	0.059	3.0D
Benzo(b)fluoranthene	0.16	0.6	3.9D
Benzo(k)fluoranthene	1.6	5.9	2.0JD
Chrysene	1.6	1.8	3.3D
Indeno(1,2,3-cd)pyrene	0.16	2	1.6JD
2,3,7,8-TCDD	5E-04		1.8
Total Hexachlorodibenzo-p-dioxin	100		704
Naphthalene (8270)	3.8	0.21	0.28JD
DUPLICATE (9/26/17)			
Iron	11000	150	13100D
Manganese	360	65	231D

SDTW-2 (9/20/17)	2L Standard	Result
Iron	300	5880D
Iron - Dissolved	300	2050D
Manganese	50	1000D
Manganese - Dissolved	50	945 D
(9/21/17)		
Iron	300	882D
Manganese	50	319
Manganese - Dissolved	50	332

SDTW-1 (9/20/17)	2L Standard	Result
Iron	300	1370D
Manganese	50	6640D
Manganese - Dissolved	50	6600D
DUPLICATE (9/20/17)		
Iron	300	906JD
Manganese	50	6490D
Manganese - Dissolved	50	6670 D

STRSED-1 (1/8/17)	URU	PGW	Result
Iron	11000	150	7380D
Manganese	360	65	115D

STRSED-2 (11/8/17)	URU	PGW	Result
Iron	11000	150	18100D
Manganese	360	65	301D
DUPLICATE (11/8/17)			
Iron	11000	150	5070D
Manganese	360	65	64.0D

SLP-6 (8/24/17)	2L or GWP*	Result
Iron	300	465
Manganese	50	533
Trichloroethene	3	20
Vinyl chloride	0.03	0.83J
(9/21/17)		
Iron	300	12700D
Manganese	50	1110D
Manganese - Dissolved	50	683D
Thallium	0.28*	0.658J
Thallium - Dissolved	0.28*	0.341J
DUPLICATE (9/21/17)		
Iron	300	8190D
Manganese	50	1070D
Manganese - Dissolved	50	657D
Thallium - Dissolved	0.28*	0.357J

SS-4 (8/29/17)	URU	PGW	Result
Iron	11000	150	18200D
Manganese	360	65	227D

SLP-5 (8/24/17)	2L or GWP*	Result
Iron	300	13300D
Lead	15	70.6
Manganese	50	18600D
Thallium	0.28*	1.25
1,4-Dichlorobenzene	6	6.4
(9/26/17)		
Iron	300	2830D
Iron - Dissolved	300	3640D
Manganese	50	17800D
Manganese - Dissolved	50	17800D
Thallium	0.28*	0.867J
Thallium - Dissolved	0.28*	0.920J

SLP-1 (8/24/17)	2L or GWP*	Result
Beryllium	4*	46.1
Cadmium	2	13.4
Chromium	10	35.8
Iron	300	37200D
Lead	15	25
Manganese	50	31200D
Thallium	0.28*	0.432
1,4-Dichlorobenzene	6	6.2
Benzene	1	3.2
Vinyl chloride	0.03	47
(9/21/17)		
Antimony	1*	2.18
Iron	300	11400D
Manganese	50	10700D
Manganese - Dissolved	50	9860D
Thallium	0.28*	0.576J
Thallium - Dissolved	0.28*	0.359J

SDTW-5 (11/8/17)	2L Standard	Result
Chromium	10	41.7D
Lead	15	383D
Iron	300	103000D
Manganese	50	22700D
Manganese - Dissolved	50	1800D

SS-5 (8/29/17)	URU	PGW	Result
Iron	11000	150	24000D
Manganese	360	65	195D

SS-3 (8/29/17)	URU	PGW	Result
Arsenic	0.68	5.8	8.38JD
Iron	11000	150	18000D
Manganese	360	65	534D

SLP-2 (8/24/17)	2L or GWP*	Result
Beryllium	4*	4.51
Manganese	50	2910D
Thallium	0.28*	0.296
Diethylphthalate	6	7.2JN
(9/26/17)		
Beryllium	4*	4.35
Manganese	50	2650D
Manganese - Dissolved	50	2480D

SS-6 (8/29/17)	URU	PGW	Result
Iron	11000	150	32900D
Manganese	360	65	246D

SS-7 (8/29/17)	URU	PGW	Result
Iron	11000	150	39900D
Manganese	360	65	254D
Benzo(a)pyrene	0.012	0.059	0.33J
Benzo(b)fluoranthene	0.16	0.6	0.48
Pentachlorophenol	1	0.0048	0.0078J
2,3,7,8-TCDD	5E-04	0.0001	0.806J

SS-8 (8/29/17)	URU	PGW	Result
Iron	11000	150	30900
Lead	400	270	687
Manganese	360	65	234D
Benzo(a)anthracene	0.16	0.18	5.5D
Benzo(a)pyrene	0.012	0.059	4.7D
Benzo(b)fluoranthene	0.16	0.6	6.2D
Benzo(k)fluoranthene	1.6	5.9	2.8D
Chrysene	1.6	1.8	4.8
Dibenzo(a,h)anthracene	0.016	0.19	0.51JD
Indeno(1,2,3-cd)pyrene	0.16	2	1.7JD
Naphthalene (8270)	3.8	0.21	0.33JD
DUP SS-8 (8/29/17)			
Iron	11000	150	23900D
Lead	400	270	774D
Manganese	360	65	163D
Benzo(a)pyrene	0.012	0.059	0.1J

SS-9 8/29/17	URU	PGW	Result
Iron	11000	150	39400D
Manganese	360	65	378D

SLP-4 (8/254/17)	2L or GWP*	Result
Manganese	50	120
(9/26/17)	2L or GWP*	Result
Antimony	1*	2.17
Manganese	50	115
Manganese - Dissolved	50	114

SLP-3 (8/24/17)	2L or GWP*	Result
Iron	300	1090
Manganese	50	2040D
DUPLICATE (8/24/17)		
Iron	300	1330
Manganese	50	3390D
Thallium - Dissolved	0.28*	0.467J
(9/26/17)		
Iron	300	1300D
Iron - Dissolved	300	604D
Manganese	50	3380D
Manganese - Dissolved	50	3330D
Thallium	0.28*	0.441J
Thallium - Dissolved	0.28*	0.467J
DUPLICATE (9/26/17)		
Iron	300	1400D
Iron - Dissolved	300	622D
Manganese	50	3500D
Manganese - Dissolved	50	3440D
Thallium	0.28*	0.432J
Thallium - Dissolved	0.28*	0.415J

W-14 (11/8/17)	2L Standard	Result
Iron	300	1320D
Tetrachloroethene	0.7	38D
Trichloroethene	3	800D
DUPLICATE (9/21/17)		
Iron	300	1230D
Tetrachloroethene	0.7	38D
Trichloroethene	750	750D

W-15 (11/8/17)	2L Standard	Result
Iron	300	12100D
Manganese	50	289D

LIMIT OF WASTE BOUNDARY

APPROXIMATE STREAM LOCATION

GROUNDWATER MONITORING WELL LOCATIONS (SLP & SDTW & W)

SOIL SAMPLE LOCATIONS (SS)

SEEP LOCATION

SURFACE WATER LOCATIONS (SW)

STREAM CHANNEL SEDIMENT LOCATIONS (STRSED)

Notes:

J - The reported value is between the laboratory method detection limit (MDL) and the laboratory method reporting limit (MRL), adjusted for actual sample preparation data and moisture content, where applicable.

D - The sample was analyzed at dilution

N - The analysis indicates the presence of an analyte for which there is presumptive evidence (85% or greater confidence) to make a "tentative identification".

1. 15A NCAC 02L .0202 is the NCDEQ Groundwater Quality Standards
2. 15A NCAC 02B Standard is the NCAC 2B Standard for Class C waters
3. URU is the Unrestricted Use Heath Based PSRG (Preliminary Soil Remediation Goals)
4. PGW is the Protection of Groundwater Standard, October 2016.
5. It is unknown if waste present under I-85; related historic records unavailable.

100 50 0 100 Feet

PREPARED FOR:

NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WASTE MANAGEMENT

PREPARED BY:

SMITH+ GARDNER ENGINEERS

SEAL

SEAL

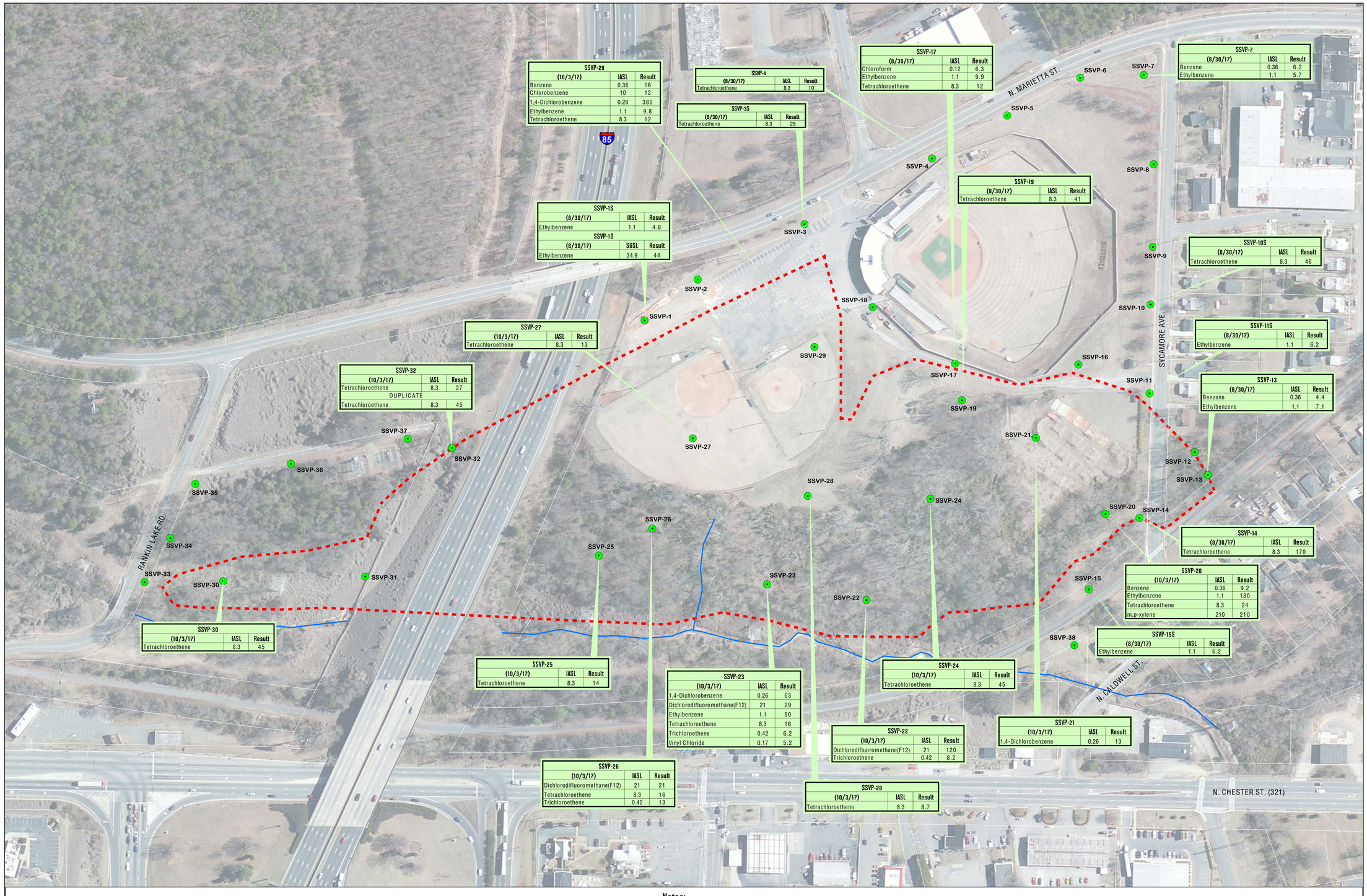
REV.	DATE	DESCRIPTION

SIMS LEGION PARK LANDFILL REMEDIAL INVESTIGATION CONTAMINANT DELINEATION PHASE

EXCEEDANCE SUMMARY MAP (GROUNDWATER, SOIL, & STREAM SEDIMENT)

(Aerial Photo 2/14/2011)

DESIGNED: DMM	PROJECT NO: SIMS 17-21
DRAWN: DMM	SCALE: 1:1200
APPROVED: MMG	DATE: Dec. 2017
FILENAME:	
SHEET NUMBER: ---	DRAWING NUMBER: FIGURE 8A



LIMIT OF WASTE BOUNDARY

APPROXIMATE STREAM LOCATION

SOIL GAS VAPOR PROBE (SSVP) LOCATIONS

Notes:

1. It is unknown if waste present under I-85; related historic records unavailable.
2. IASL is the NCDEQ Division of Waste Management Residential Vapor Indoor Air Screening Levels (TCR=1.0E-6), October 2017. Comparison to the IASL screening level is required by the NCDEQ for all shallow soil gas samples (< 5 feet). Exceedances for the IASL levels shown will be investigated further through a risk based assessment in the draft remedial action plan under an additional scope of work.
3. SGSL is the NCDEQ Division of Waste Management Sub-slab and Exterior Soil Gas Screening Level, October 2017. Comparison to the SGSL screening level is required by the NCDEQ for all deep soil gas samples (> 5 feet). Exceedances for the SGSL levels shown will be investigated further through a risk based assessment in the draft remedial action plan under an additional scope of work.

100 50 0 100 Feet

PREPARED FOR:

NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WASTE MANAGEMENT

PREPARED BY:

SMITH+ GARDNER ENGINEERS

SEAL

SEAL

REV.	DATE	DESCRIPTION

Electronic files are instruments of service provided by Smith Gardner, Inc. for the convenience of the intended recipient(s), and no warranty is either expressed or implied. Any reuse or redistribution of this document in whole or part without the written authorization of Smith Gardner, Inc., will be at the sole risk of the recipient. If there is a discrepancy between the electronic files and the signed and sealed hard copies, the hard copies shall govern. Use of any electronic files generated or provided by Smith Gardner, Inc., constitutes an acceptance of these terms and conditions.

SIMS LEGION PARK LANDFILL REMEDIAL INVESTIGATION CONTAMINANT DELINEATION PHASE

EXCEEDANCE SUMMARY MAP (VAPOR)

(Aerial Photo 2/14/2011)

DESIGNED: DMM	PROJECT NO: SIMS 17-21
DRAWN: DMM	SCALE: 1:1200
APPROVED: MMG	DATE: Dec. 2017
FILENAME:	
SHEET NUMBER: ---	DRAWING NUMBER: FIGURE 8B

Table 1
Summary of Soil Boring Information
SIMS Legion Park - Gastonia, North Carolina

Boring Location	Cover Depth (FT)	Waste Thickness (FT)	Waste type	Depth of Boring
SLP-1	NWE	NWE	NWE	20
SLP-2	NWE	NWE	NWE	30
SLP-3	3	1	MSW (rubber etc.)	40
SLP-4	NWE	NWE	NWE	25
SLP-5	3	1	MSW (rubber, metal)	30
SLP-6	NWE	NWE	NWE	20
SDTW-1	6	27	MSW (wood, plastic, etc.)	34
SDTW-2	1	6	C&D (brick) and MSW (glass, wood, plastic) mix	47
SDTW-3	NWE	NWE	NWE	20
SDTW-4	NWE	NWE	NWE	37
SDTW-5	NWE	NWE	NWE	20
SB-1	3	18	MSW (plastic, rubber, etc.)	27
SB-2	2	11	2' of C&D and soil mix over MSW	20
SB-3	1	14	2' of C&D and soil mix over MSW	24
SB-4	3	15	MSW	24
SB-5	2	3	MSW (tires, etc)	19
SB-6	3	5	MSW (plastic, metal) soil mix	20
SB-7	2	18	MSW (glass, plastic, metal)	30
SB-8	3	17	MSW (glass, etc.)	30
SB-9	NWE	NWE	NWE	20
SB-10	NWE	NWE	NWE	17
SB-11	NWE	NWE	NWE	12
SB-12	1	10	C&D (brick) and MSW (metal, glass, etc), mixed with soil	40
SB-13	1	6	C&D (brick) and MSW (metal, glass, etc), mixed with soil	12
S&ME B-1	NWE	NWE	NWE	20
S&ME B-2	1	10	MSW (paper etc.)	20
S&ME B-3	1	6.5	MSW (glass etc.)	25
S&ME B-4	1	16.5	C&D (brick) and MSW (wood, fabric, etc.)	30
S&ME B-5	5	14.5	MSW (metal, plastic)	30
S&ME B-6	0	17.5	C&D (brick) and MSW (plastic, fabric)	25
S&ME B-7	1	12.5	MSW (glass)	30

NOTE:

1. NWE - No Waste Encountered
2. MSW is any solid waste resulting from the operation of residential, commercial, industrial, governmental, or institutional establishments that would normally be collected, processed, and disposed of through a public or private solid waste management service. Municipal solid waste does not include hazardous waste, sludge, industrial waste managed in a solid waste management facility owned and operated by the generator of the industrial waste for management of that waste, or solid waste from mining or agricultural operations.
3. C&D is solid waste resulting solely from construction, remodeling, repair, or demolition operations on pavement, buildings, or other structures, but does not include inert debris, land-clearing debris or yard debris.
4. Boring logs for all locations are provided in Attachment 5 of the Remedial Investigation-Contaminant Delineation Report.

SMITH+GARDNER

Table 2A
Detection Summary - Groundwater (Monitoring Wells)
SIMS Legion Park - Gastonia, North Carolina
August 24, 2017

By: MCK
Date: 10/6/2017

Analyte	Unit	LOQ/CL	15A NCAC 02L .0202 or GWP* Standard	IMAC	W-14	DUP W-14	W-15
Nitrate as N	mg/L	0.5	10	NE	1.2	1.2	2.2
Sulfate as SO4	mg/L	10	250	NE	11	11	<10
Ammonia as N	ug/L	0.1	1500*	1500	<0.1	<0.1	<0.1
Phosphorus	ug/L	1.0	NE	NE	**0.12**	**0.03J**	**0.44**
Arsenic	ug/L	1.0	10	NE	<1.0	<1.0	<1.0
Beryllium	ug/L	1.0	4*	4	0.206	<1.0	1.09D
Cadmium	ug/L	1.0	2	NE	<1.0	<1.0	0.629
Chromium	ug/L	1.0	10	NE	1.05	0.932J	4.61
Copper	ug/L	10	1000	NE	1.32	1.21	13.5
Iron	ug/L	2500	300	NE	**1320D**	**1230D**	**12100D**
Lead	ug/L	0.5	15	NE	0.799	0.729	10.9
Manganese	ug/L	500	50	NE	40.2	37.3	**289D**
Nickel	ug/L	1.0	100	NE	<1.0	<1.0	1.96
Selenium	ug/L	1.0	20	NE	1.04	1.25	<1.0
Silver	ug/L	1.0	20	NE	<1.0	<1.0	<1.0
Thallium	ug/L	0.1	0.28*	0.2	<0.1	<1.0	0.0539J
Zinc	ug/L	1.0	1000	NE	8.51	6.93	58.9
1,4-Dichlorobenzene	ug/L	1.0	6	NE	<1.0	<1.0	<1.0
Acetone	ug/L	20	6000	NE	<20	<20	<20
Benzene	ug/L	1.0	1	NE	<1.0	<1.0	<1.0
Chlorobenzene	ug/L	1.0	50	NE	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	ug/L	1.0	70	NE	62D	<1.0	<1.0
Isopropylbenzene	ug/L	1.0	70	NE	<1.0	<1.0	<1.0
o-Xylene	ug/L	1.0	500	NE	<1.0	<1.0	<1.0
Tetrachloroethene	ug/L	1.0	0.7	NE	**38D**	<1.0	<1.0
Toluene	ug/L	1.0	600	NE	<1.0	<1.0	<1.0
Trichloroethene	ug/L	1.0	3	NE	**800D**	<1.0	<1.0
Vinyl chloride	ug/L	1.0	0.03	NE	<1.0	<1.0	<1.0
2-Methylnaphthalene	ug/L	10	NE	NE	<10	<10	<10
Dibenzofuran	ug/L	10	28*	28	<10	<10	<10
Diethylphthalate	ug/L	10	6	NE	<10	<10	<10
Diethyltoluamide	ug/L	NA	NE	NE	NA	NA	NA
Di-n-butylphthalate	ug/L	NA	NE	NE	NA	NA	NA
Naphthalene	ug/L	1.0	NE	NE	<1.0	<1.0	<1.0
1,2,3,6,7,8-HxCDD	pg/L	50.1	NE	NE	<50.1	<50.1	<50.1
1,2,3,4,6,7,8-HpCDD	pg/L	52.1	NE	NE	<52.1	<52.1	2.05JK
1,2,3,4,6,7,8,9-OCDD	pg/L	104	NE	NE	5.32JK	<104	27.0J
1,2,3,4,6,7,8-HpCDF	pg/L	51.5	NE	NE	<51.5	<51.5	<51.5
1,2,3,7,8-PeCDF	pg/L	51.1	NE	NE	<52.1	<52.1	0.552JK
Total Hexachlorodibenzo-p-dioxin	pg/L	52.1	NE	NE	<52.1	<52.1	0.9J
Total Heptachlorodibenzo-p-dioxin	pg/L	50.1	NE	NE	<50.1	<50.1	<50.1
Total Hexachlorodibenzofuran	pg/L	51.5	NE	NE	<51.5	<51.5	<51.5
Total Heptachlorodibenzofuran	pg/L	50.1	NE	NE	<50.1	<50.1	<50.1
TEQ WHO2005 ND=0	pg/L	NE	NE	NE	0.0016	NA	0.00811
TEQ WHO2005 ND=0.5	pg/L	NE	NE	NE	1.17	1.06	1.19
Formadehyde	ug/L	50	600	NE	<50	<50	<50
Methane	mg/L	0.001	NE	NE	<0.001	**0.0000467J**	**0.00107**

NOTE:

LOQ/CL	-	Reporting Limit/Control Limit for the parameter recovery result
15A NCAC 02L .0202	-	NCDEQ Groundwater Quality Standards
GWP*	-	Groundwater Protection Standard (indicated by*)
IMAC	-	Interim Maximum Allowable Concentrations (established under 15A NCAC 2L .0202)
< LOQ/CL	-	Not detected at or above the LOQ/CL
Shading	-	Constituent detected above 2L Standard
Bold Letters	-	Constituent detected but 2L Standard not estbalished for this constituent
NE	-	2L Standard not established for this constituent
ND	-	Not Detected
J	-	The reported value is between the laboratory method detection limit (MDL)
D	-	The laboratory analyzed the sample at dilution
K	-	Estimated Maximum Possible Concentration
N	-	The analysis indicates the presence of an analyte for which there is
P	-	Greater than 25% concentration difference was observed between the primary and secondary GC column. The lower concentration is

Laboratory data presented in the units noted.
Results for samples collected on 8/24/2017 Job No. 12827 and 12828

Table 2A
Detection Summary - Groundwater (Monitoring Wells)
SIMS Legion Park - Gastonia, North Carolina
August 24, 2017

Analyte	Unit	LOQ/CL	15A NCAC 02L .0202 or GWP* Standard	IMAC	W-14	DUP W-14	W-15
Tentatively Identified Compounds							
Benzene, 1,2,3,5-tetramethyl- (VOC)	ug/L	NE	NE	NE	NA	NA	NA
Benzene, 1,2,3,5-tetramethyl- (SVOC)	ug/L	NE	NE	NE	NA	NA	NA
Benzene, 1-ethyl-2,3-dimethyl- (01)	ug/L	NE	NE	NE	NA	NA	NA
Benzene, 1-ethyl-2,3-dimethyl- (02)	ug/L	NE	NE	NE	NA	NA	NA
Benzene, 1-ethyl-2-methyl-	ug/L	NE	NE	NE	NA	NA	NA
Benzene, 1-ethyl-3-methyl-	ug/L	NE	NE	NE	NA	NA	NA
Benzene, 4-ethyl-1,2-dimethyl-	ug/L	NE	NE	NE	NA	NA	NA
2(3H)-Benzothiazolone	ug/L	NE	NE	NE	NA	NA	NA
Benzenesulfonamide, 2-methyl-	ug/L	NE	NE	NE	NA	NA	NA
Benzenesulfonamide, 4-methyl-	ug/L	NE	NE	NE	NA	NA	NA
Benzenesulfonamide, N-ethyl...	ug/L	NE	NE	NE	NA	NA	NA
D-Limonene	ug/L	NE	NE	NE	NA	NA	NA
Limonene	ug/L	NE	NE	NE	NA	NA	NA
Octadecanoic acid	ug/L	NE	NE	NE	NA	NA	NA
Oxybenzone	ug/L	NE	NE	NE	NA	NA	NA
Tetrachloroethylene	ug/L	NE	NE	NE	NA	NA	NA
Tri(2-chloroethyl) phosphate	ug/L	NE	NE	NE	NA	NA	NA
p-Xylene	ug/L	NE	500	NE	NA	NA	NA

NOTE:

LOQ/CL	-	Reporting Limit/Control Limit for the parameter recovery result
15A NCAC 02L .0202	-	NCDEQ Groundwater Quality Standards
GWP*	-	Groundwater Protection Standard (indicated by*)
IMAC	-	Interim Maximum Allowable Concentrations (established under 15A NCAC 2L .0202)
< LOQ/CL	-	Not detected at or above the LOQ/CL
Shading	-	Constituent detected above 2L Standard
Bold Letters	-	Constituent detected but 2L Standard not estbalished for this constituent
NE	-	2L Standard not established for this constituent
ND	-	Not Detected
J	-	The reported value is between the laboratory method detection limit (MDL)
D	-	The laboratory analyzed the sample at dilution
K	-	Estimated Maximum Possible Concentration
N	-	The analysis indicates the presence of an analyte for which there is
P	-	Greater than 25% concentration difference was observed between the primary and secondary GC column. The lower concentration is

Laboratory data presented in the units noted.
Results for samples collected on 8/24/2017 Job No. 12827 and 12828, and 11/8/2017 Job No. 16271

SMITH+GARDNER

Table 2B
Detection Summary - Groundwater (Dissolved Metals)
SIMS Legion Park - Gastonia, North Carolina
Septmber 21 and 26, 2017

By: MCK
Date: 10/6/2017

Analyte	Unit	LOQ/CL	15A NCAC 02L .0202 or GWP* Standard	IMAC	SLP-01	SLP-02	SLP-03	DUP SLP-03	SLP-04	SLP-05	SLP-06	DUP SLP-06	W-14	DUP W-14	W-15
Arsenic	ug/L	1.0	10	NE	1.66	2.44	<1.0	<1.0	<1.1	0.511J	1.4	1.27	<1.0	<1.0	<1.0
Arsenic - Dissolved	ug/L	1.0	10	NE	<1.0	2.61	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Antimony	ug/L	2.0	1*	1	**2.18**	<2.0	<2.0	0.910J	**2.17**	0.414J	<2.0	<2.0	<1.0	<1.0	<1.0
Antimony - Dissolved	ug/L	2.0	1*	1	0.784J	<2.0	<2.0	<2.0	<2.0	0.464J	1.10J	<2.0	<1.0	<1.0	<1.0
Beryllium	ug/L	1.0	4*	4	<1.0	**4.35**	<1.0	<1.0	<1.0	<1.0	<1.0	2.98JD	0.206	<1.0	1.09D
Beryllium - Dissolved	ug/L	1.0	4*	4	<1.0	5.54JD	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.258JD	<1.0	<1.0
Cadmium	ug/L	1.0	2	NE	0.370J	0.89J	<1.0	<1.0	<1.0	0.540J	0.231J	0.257J	<1.0	<1.0	0.629
Cadmium - Dissolved	ug/L	1.0	2	NE	0.190J	0.866J	<1.0	<1.0	<1.0	0.529J	<1.0	<1.0	<1.0	<1.0	0.371
Chromium	ug/L	1.0	10	NE	7.53	<1.0	<1.0	<1.0	<1.0	<1.0	8.98	5.8	1.32	1.21	13.5
Copper	ug/L	10.0	1000	NE	11.6	1.11	0.47J	0.445J	0.77J	1.43	10.5	9.22	1.32	1.21	13.5
Copper - Dissolved	ug/L	1.0	1000	NE	2.71	1.35	0.909J	0.438J	1.47	0.790J	0.228J	0.38J	<1.0	<1.0	<1.0
Iron	ug/L	2500	300	NE	**11400D**	151	**1300D**	**1400D**	17.2J	**2830D**	**12700D**	**8190D**	**1320D**	**1230D**	**12100D**
Iron - Dissolved	ug/L	50	300	NE	278	93.1	**604D**	**622D**	<50	**3640D**	19.9J	12.5J	10.2	5.73	92.4
Lead	ug/L	0.5	15	NE	6.23	2.66JD	<0.5	<0.5	<0.5	0.558J	11.9	12.9	0.799	0.729	10.9
Manganese	ug/L	50	50	NE	**10700D**	**2650D**	**3380D**	**3500D**	**115**	**17800D**	**1110D**	**1070D**	40.2	37.3	**289D**
Manganese - Dissolved	ug/L	5.0	50	NE	**9860D**	**2480D**	**3330D**	**3440D**	**114**	**17800D**	**683D**	**657D**	3.54	2.88	21
Nickel	ug/L	1.0	100	NE	8.45	2.18	0.626J	0.564J	0.285J	1.12	5.11	4.09	<1.0	<1.0	1.96
Nickel - Dissolved	ug/L	1.0	100	NE	5.78	2.03	0.572J	0.528J	0.361J	1.05	1.66	1.85	<1.0	<1.0	<1.0
Selenium	ug/L	3.0	20	NE	<3.0	3.68	<3.0	<3.0	<3.0	<3.0	1.44J	1.41J	1.04	1.25	<3.0
Selenium - Dissolved	ug/L	3.0	20	NE	<3.0	3.04	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	0.963J	1.08	<3.0
Silver	ug/L	1.0	20	NE	0.164J	1.39	0.181J	0.141J	<1.0	<1.0	0.133J	<1.0	<1.0	<1.0	<1.0
Silver - Dissolved	ug/L	2.0	21	NE	0.118J	0.118J	0.121J	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Thallium	ug/L	1.0	0.28*	0.2	**0.576J**	<1.0	**0.441J**	**0.432**	0.260J	**0.867J**	**0.658J**	0.0527J	<1.0	<1.0	0.0539J
Thallium - Dissolved	ug/L	1.0	0.28*	0.2	**0.359J**	<1.0	**0.467J**	**0.415J**	0.265J	**0.920J**	**0.341 J**	**0.357J**	<1.0	<1.0	<1.0
Zinc	ug/L	5.0	1000	NE	57.2	11.1	1.89J	1.94J	8.69	3.11J	47.9	38.2	<5.0	<5.0	58.9
Zinc - Dissolved	ug/L	5.0	1000	NE	23.1	12.5	3.29J	2.69J	11.0	3.24J	6.84	7.28	<5.0	<5.0	7.14
Mercury - Dissolved	ug/L	0.2	1	NE	<0.2	<0.2	0.102J	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

NOTE:

LOQ/CL	-	Reporting Limit/Control Limit for the parameter recovery result
15A NCAC 02L .0202	-	NCDEQ Groundwater Quality Standards
GWP*	-	Groundwater Protection Standard (indicated by*)
IMAC	-	Interim Maximum Allowable Concentrations (established under 15A NCAC 2L .0202)
< LOQ/CL	-	Not detected at or above the LOQ/CL
Shading	-	Constituent detected above 2L Standard
Bold Letters	-	Constituent detected but 2L Standard not estbalished for this constituent
NE	-	2L Standard not established for this constituent
J	-	The reported value is between the laboratory method detection limit (MDL) and the laboratory method reporting limit (MRL).
D	-	The laboratory analyzed the sample at dilution

Laboratory data presented in the units noted.
Results for samples collected on 9/21/2017 - Job No. CA14778, 9/26/2017 - Job No. 14883, and 11/8/2017 Job No. 16721

SMITH+GARDNER

Table 2C
Detection Summary - Groundwater (Temporary Wells)
SIMS Legoin Park - Gastonia, North Carolina
Septmber 20-22, 2017

By: MCK
Date: 10/11/2017

Analyte	Unit	LOQ/CL	Test Method	15A NCAC 02L .0202 or GWP* Standard	IMAC	SDTW-1	DUP SDTW-1	SDTW-2	SDTW-3	DUP SDTW-3	SDTW-4	SDTW-5
Methane	mg/L	0.001	RSK-175	NE	NE	**0.0252**	**0.0255**	**0.00202**	**0.00241**	**0.00285**	**0.00114**	**0.000528J**
Ammonia as N	ug/L	0.1	EPA 350.1	1500*	1500	**3.5D**	**4.6D**	**0.1**	0.055J	0.045J	<0.1	0.19
Nitrate as N	mg/L	0.5	EPA 300.0	10	NE	<0.5	<0.5	3.5	1.5	1.3	0.47J	1.2
Sulfate as SO4	mg/L	10	EPA 300.0	250	NE	3.9J	3.1J	87	20	17	8.3	25
Phosphorus	ug/L	1.0	EPA 365.4	NE	NE	0.093J	**0.14**	<1.0	**1**	**0.88**	**0.43**	**4.6D**
Antimony	ug/L	2.0	EPA 6020B	1*	1	<2.0	<2.0	1.94J	1.58	1.65J	<2.0	<2.0
Antimony - Dissolved	ug/L	2.0	EPA 6020B	1*	1	<2.0	<2.0	1.65 J	1.73 J	<2.0	<2.0	<2.0
Arsenic	ug/L	1.0	EPA 6020B	10	NE	<1.0	<1.0	0.988J	<1.0	0.525J	2.61	<1.0
Beryllium	ug/L	1.0	EPA 6020B	4*	4	0.308J	0.289J	0.276J	<1.0	<1.0	<1.0	78.7D
Beryllium - Dissolved	ug/L	2.0	EPA 6020B	4*	4	0.224J	0.226 J	<2.0	<2.0	<2.0	<2.0	<2.0
Cadmium	ug/L	1.0	EPA 6020B	2	NE	0.269J	0.276J	0.571J	0.105J	0.231 J	0.488J	4.2
Cadmium - Dissolved	ug/L	1.0	EPA 6020B	2	NE	0.273J	0.269 J	0.449 J	0.130J	<1.0	0.144J	0.079
Chromium	ug/L	1.0	EPA 6020B	10	NE	0.926J	0.642J	6.37	1.37	2.25	**14.8**	**41.7D**
Copper	ug/L	1.0	EPA 6020B	1000	NE	2.04	1.32	11	6.9	7.96	18.2	243D
Copper - Dissolved	ug/L	1.0	EPA 6020B	1000	NE	0.452J	0.457 J	1.22	3.19	1.81	0.295J	<1.0
Iron	ug/L	600	EPA 6020B	300	NE	**1370D**	**906JD**	**5880D**	**882D**	**1240D**	**11650D**	**103000D**
Iron - Dissolved	ug/L	12	EPA 6020B	300	NE	212	211	**2050 D**	<12.0	<12.0	<12.0	<12.0
Lead	ug/L	1.0	EPA 6020B	15	NE	<1.0	<1.0	11.8	2.03	2.83	**25.1**	**383D**
Nickel	ug/L	1.0	EPA 6020B	100	NE	1.24	1.11	6.25	3.13	3.33	5.4	32.7D
Nickel - Dissolved	ug/L	1.0	EPA 6020B	100	NE	0.927J	0.917 J	5.07	2.49	2.29	1.69	<1.0
Manganese	ug/L	500	EPA 6020B	50	NE	**6640D**	**6490D**	**1000D**	**319**	**347**	**1630D**	**22700D**
Manganese - Dissolved	ug/L	500	EPA 6020B	50	NE	**6600D**	**6670 D**	**945 D**	**332**	**355**	**974 D**	**1800D**
Selenium	ug/L	3.0	EPA 6020B	20	NE	<3.0	<3.0	1.17J	<3.0	1.04J	3.28	0.940J
Selenium - Dissolved	ug/L	3.0	EPA 6020B	20	NE	<3.0	<3.0	<3.0	<3.0	<3.0	1.57J	0.963J
Silver	ug/L	1.0	EPA 6020B	20	NE	<1.0	0.662J	0.384J	<1.0	0.136 J	<1.0	<1.0
Thallium	ug/L	1.0	EPA 6020B	0.28*	0.2	0.795J	0.709J	0.515 J	0.379J	0.466J	0.857J	2.68
Thallium - Dissolved	ug/L	1.0	EPA 6020B	0.28*	0.2	0.679J	0.651 J	0.405 J	0.481J	**0.425**	0.41J	<1.0
Zinc	ug/L	50	EPA 6020B	1000	NE	80.5	19	266	318	409	114	886D
Zinc - Dissolved	ug/L	50	EPA 6020B	1000	NE	14.5	16.9	226	370	65.8	20	2.68J
Mercury - Dissolved	ug/L	0.2	EPA 7470A	1	NE	<0.2	<0.2	<0.2	<0.2	0.117 J	0.099J	<0.2
1,4-Dichlorobenzene	ug/L	1.0	EPA 8260B	6	NE	0.61J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Acetone	ug/L	20	EPA 8260B	6000	NE	<20	<20	<20	19J	22	<20	<20
Carbon disulfide	ug/L	5.0	EPA 8260B	700	NE	4.5J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	ug/L	1.0	EPA 8260B	50	NE	0.81J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Caprolactam	ug/L	10.0	EPA 8270D	4000	NE	2.0J	<10	2 J	3.0J	2.3 J	<10	<10
1,2,3,6,7,8-HxCDD	pg/L	51.8	EPA 8290A	NE	NE	<51.8	<51.8	6.38J	<51.8	<51.8	<51.8	156J
1,2,3,7,8,9-HxCDD	pg/L	51.8	EPA 8290A	NE	NE	<51.8	<51.8	2.61JK	<51.8	<51.8	<51.8	**886**
1,2,3,4,6,7,8-HpCDD	pg/L	51.6	EPA 8290A	NE	NE	5.77J	8.95JK	**115**	20.0JK	17.0J	12.8JK	**7380**
1,2,3,4,6,7,8,9-OCDD	pg/L	102	EPA 8290A	NE	NE	**131**	**151**	**1880**	<102	**499**	<102	**174000E**
1,2,3,4,6,7,8-HpCDF	pg/L	50.9	EPA 8290A	NE	NE	<50.9	1.42J	<50.9	<50.9	5.40JK	1.74JK	18JK
1,2,3,4,6,7,8,9-OCDF	pg/L	103	EPA 8290A	NE	NE	2.79JK	<103	<103	16.6JK	12.4J	4.03JK	<103
2,3,7,8-TCDF	pg/L	43.3	EPA 8290A	NE	NE	<43.3	<43.3	<43.3	<43.3	<43.3	<43.3	18.4JK
1,2,3,7,8-PeCDF	pg/L	51.8	EPA 8290A	NE	NE	<51.8	<51.8	2.48JK	<51.8	<51.8	<51.8	6.58JK
2,3,4,7,8-PeCDF	pg/L	51.8	EPA 8290A	NE	NE	<51.8	<51.8	2.80JK	<51.8	<51.8	<51.8	4.94JK
1,2,3,4,7,8-HxCDF	pg/L	51.8	EPA 8290A	NE	NE	<51.8	<51.8	4.16JK	<51.8	<51.8	<51.8	7.10J
1,2,3,6,7,8-HxCDF	pg/L	51.8	EPA 8290A	NE	NE	<51.8	<51.8	3.27JK	<51.8	<51.8	<51.8	<51.8
2,3,4,6,7,8-HxCDF	pg/L	51.8	EPA 8290A	NE	NE	<51.8	<51.8	3.23JK	<51.8	<51.8	<51.8	<51.8
1,2,3,4,6,7,8-HpCDF	pg/L	51.8	EPA 8290A	NE	NE	<51.8	<51.8	19.8J	<51.8	<51.8	<51.8	18.0JK
1,2,3,4,6,7,8,9-OCDF	pg/L	51.8	EPA 8290A	NE	NE	<51.8	<51.8	31.0J	<51.8	<51.8	<51.8	13.0J
Total Tetrachlorodibenzo-p-dioxin	pg/L	51.8	EPA 8290A	NE	NE	<51.8	<51.8	6.69J	<51.8	<51.8	<51.8	**295**
Total Pentachlorodibenzo-p-dioxin	pg/L	51.8	EPA 8290A	NE	NE	<51.8	<51.8	6.46J	<51.8	<51.8	<51.8	**880**
Total Hexachlorodibenzo-p-dioxin	pg/L	53.0	EPA 8290A	NE	NE	<51.8	<51.8	58.7J	<51.8	<51.8	2.12J	4920J
Total Heptachlorodibenzo-p-dioxin	pg/L	50.9	EPA 8290A	NE	NE	5.77J	<50.9	**220**	<51.8	31.6J	54.3J	**13100**
Total Tetrachlorodibenzofuran	pg/L	10.4	EPA 8290A	NE	NE	<10.4	<10.4	4.97J	<51.8	<10.4	<10.4	15.4J
Total Pentachlorodibenzofuran	pg/L	50.9	EPA 8290A	NE	NE	<50.9	<50.9	22.0J	<50.9	19.3J	<50.9	9.61J
Total Hexachlorodibenzofuran	pg/L	53.0	EPA 8290A	NE	NE	<53.0	<53.0	29.7J	<53.0	<53.0	1.99J	17.9J
Total Heptachlorodibenzofuran	pg/L	50.9	EPA 8290A	NE	NE	<50.9	1.42J	37.6J	<51.8	9.06J	3.31J	9.96J
TEQ WHO2005 ND=0	pg/L	NE	EPA 8290A	NE	NE	**0.0969**	**0.0596**	**2.56**	**0.252**	**0.324**	**0.223**	**231**
TEQ WHO2005 ND=0.5	pg/L	NE	EPA 8290A	NE	NE	**2.22**	**2.22**	**6.16**	**2.92**	**2.16**	**1.98**	**244**
Tentatively Identified Compounds												
1-Octadecone	ug/l	NE		NE	NE	6.4 JN	ND	ND	ND	ND	ND	ND
2(3H)-Benzothiazolone	ug/L	NE	EPA 8270D	NE	NE	5.6JN	6.8JN	ND	ND	ND	ND	ND
2,6,10,14,18-Pentaen-22-Al-2,6,1-Docosa	ug/L	NE	EPA 8270D	NE	NE	9.4JN	ND	4.2 J	ND	ND	ND	ND
Propylene Glycol	ug/L	NE	EPA 8270D	140000	140000	4.9 J	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ug/L	NE		0.7	NE	4.2 JBN	4.5 JBN	4.7 JBN	ND	ND	ND	ND

NOTE:

LOQ/CL	-	Reporting Limit/Control Limit for the parameter recovery result
15A NCAC 02L .0202	-	NCDEQ Groundwater Quality Standards
GWP*	-	Groundwater Protection Standard (indicated by*)
IMAC	-	Interim Maximum Allowable Concentrations (established under 15A NCAC 2L .0202)
< LOQ/CL	-	Not detected at or above the LOQ/CL
Shading	-	Constituent detected above 2L Standard
Bold Letters	-	Constituent detected but 2L Standard not estbalished for this constituent
NE	-	2L Standard not established for this constituent
ND	-	Not Detected
J	-	The reported value is between the laboratory method detection limit (MDL) and the laboratory method reporting limit (MRL).
D	-	The laboratory analyzed the sample at dilution
K	-	Estimated Maximum Possible Concentration
N	-	The analysis indicates the presence of an analyte for which there is presumptive evidence (85% or greater confidence) to make a tentative identification".
B	-	The analyte was detected in the associated method blank

Laboratory data presented in the units noted.
Results for samples collected on 9/20/2017 - Job No. CA14617, 9/22/2017 Job No. 14666, and 11/8/2017 Job No. 16271

SMITH+GARDNER

Table 3
Detection Summary - Seep Sample
SIMS Legion Park - Gastonia, North Carolina
September 18, 2017

By: MCK
Date: 10/11/2017

Analyte	Unit	LOQ/CL	15A NCAC 02B Standard	Seep-1	DUP Seep-1
Ammonia as N	mg/L	0.1	NE	**3.2D**	**3.1D**
Phosphorus	mg/L	1.0	NE	**0.13**	0.089J
Antimony	ug/L	2.0	640	6.16	6.23
Arsenic	ug/L	1.0	10	1.57	1.4
Cadmium	ug/L	1.0	2	0.910J	0.89J
Chromium	ug/L	1.0	50	1.23	1.33
Copper	ug/L	10	7	**13**	**12.5**
Iron	ug/L	2500	1000	**22100D**	**20300D**
Lead	ug/L	0.5	25	16.1	15.7
Nickel	ug/L	1	88	22.2	21.1
Manganese	ug/L	500	NE	**1360D**	**1420D**
Thallium	ug/L	0.1	0.47	0.33J	0.329J
Zinc	ug/L	50	50	45.1	42.1
Acetone	ug/L	20	200	10J	10J
Formaldehyde	ug/L	50	1200	<50	56
Methane	mg/L	0.001	NE	**0.161D**	**0.141D**
Sulfate as SO4	mg/L	1	NE	**6.7**	**10**
1,2,3,4,6,7,8-HpCDD	pg/L	52.2	NE	**8.71**	4.68J
1,2,3,4,6,7,8,9-OCDD	pg/L	104	NE	**82.6**	59.5J
Total Heptachlorodibenzo-p-dioxin	pg/L	52.2	NE	**19.8**	4.68J
Total Hexachlorodibenzofuran	pg/L	52.2	NE	0.982J	<52.2
TEQ WHO2005 ND=0	pg/L	NA	NE	**0.112**	**0.0646**
TEQ WHO2005 ND=0.5	pg/L	NA	NE	**1.92**	**2.02**

NOTE:

LOQ/CL	-	Reporting Limit/Control Limit for the parameter recovery result
15A NCAC 02B Standard	-	NCAC 2B Standard for Class C waters
< LOQ/CL	-	Not detected at or above the LOQ/CL
Shading	-	Constituent detected above the 2B Standard
Bold Letters	-	Constituent detected but 2B Standard not estbalished for this constituent
J	-	The reported value is between the laboratory method detection limit (MDL) and the laboratory method reporting limit (MRL).
D	-	The laboratory analyzed the sample at dilution
NE	-	2B Standard not established for this constituent

Laboratory data presented in the units noted.
Results for seep sampled 9/18/17 laboratory Job No. CA14538

SMITH+GARDNER

Table 4
Detection Summary - Soil Samples
SIMS Legion Park - Gastonia, North Carolina
August 24-29 and September 26, 2017

By: MCK
Date: 10/6/2017

Analyte	Unit	LOQ/CL	Test Method	Unrestricted Use Health Based (PSRG)	Protection of Groundwater Standard	SS-1	SS-7	SS-8	DUP SS-8	SS-9	SS-10	SS-11	SS-12	SS-13	DUP SS-13
Ammonia as N	mg/kg dry	1.2	EPA 350.1	NE	NE	0.63J	<1.2	<1.2	**0.65**	<1.2	**1.5**	<1.2	**2.6**	**1.7**	**2.8**
Phosphorous	mg/kg dry	11.0	EPA 365.4	NE	NE	<11.0	<11.0	<11.0	<11.0	<11.0	<11.0	**130**	390D	720D	**200**
Cyanide (total)	mg/kg dry	0.120	EPA 9014	320	14	<0.12	1.4	0.46	<0.12	<0.12	0.18	<0.12	<0.12	0.35	0.21
Nitrate as N	mg/kg dry	12	EPA 9056A	26000	NE	6J	12	<12	<12	<12	20	5.7J	8.2J	<12	16
Sulfate as SO4	mg/kg dry	64	EPA 9056A	NE	NE	31J	<64	<64	<64	**67**	<64	<64	<64	<64	<64
Arsenic	mg/kg dry	14.6	EPA 6020B	0.68	5.8	<14.6	<14.6	<14.6	<14.6	<14.6	<14.6	<14.6	<14.6	**8.41JD**	<14.6
Beryllium	mg/kg dry	11.3	EPA 6020B	NE	NE	1.01JD	<11.3	<11.3	<11.3	<11.3	<11.3	1.35JD	<11.3	<11.3	<11.3
Cadmium	mg/kg dry	17.7	EPA 6020B	14.2	3.0	<17.7	<17.7	7.41JD	8.25JD	<17.7	<17.7	<17.7	<17.7	<17.7	<17.7
Chromium	mg/kg dry	61.1	EPA 6020B	24000	360000	3.26JD	<61.1	<61.1	<61.1	<61.1	61.1	5.19JD	17.2JD	29.1JD	4.63JD
Copper	mg/kg dry	6	EPA 6020B	620	700	10.3D	73.5D	36.9D	31.3D	13.3JD	10.6D	19.6D	0.068J	170D	15.3D
Iron	mg/kg dry	390	EPA 6020B	11000	150	**12100D**	**39900D**	**30900**	**23900D**	**39400D**	**9420D**	**18100D**	**17200D**	**39400D**	**13100D**
Lead	mg/kg dry	117	EPA 6020B	400	270	17JD	155	**687**	**774D**	14.2JD	16.5JD	21.7JD	103D	330D	22.1D
Manganese	mg/kg dry	78	EPA 6020B	360	65	**181D**	**254**	**234D**	**163D**	**378D**	**161D**	**301D**	**181D**	**308D**	**231D**
Nickel	mg/kg dry	6.96	EPA 6020B	NE	NE	<6.96	<6.96	<6.96	<6.96	<6.96	<6.96	2.65JD	4.40JD	13.6JD	2.21JD
Silver	mg/kg dry	5.82	EPA 6020B	78	3.4	<5.82	<5.82	<5.82	<5.82	<5.82	<5.82	<5.82	**4.85D**	<5.82	<5.82
Thallium	mg/kg dry	5.65	EPA 6020B	NE	NE	<5.65	<5.65	<5.65	<5.65	<5.65	0.435JD	0.883JD	0.267JD	<5.65	0.513JD
Zinc	mg/kg dry	117	EPA 6020B	4600	1200	36D	169D	127	80.7D	69.8JD	48.8D	97.6D	222D	598D	65.2
Mercury	mg/kg dry	0.028	EPA 7471B	4.6	1.0	0.0189J	0.248	0.83	<0.028	0.0439	0.0349	<0.028	<0.028	<0.028	<0.028
Chlordane-alpha	mg/kg dry	0.002	EPA 8081B	NE	NE	<0.002	**0.0051**	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Acetone	mg/kg dry	0.031	EPA 8260B	1220	24	0.034	0.019	<0.031	0.043	0.096	0.04	<0.031	<0.031	<0.031	0.1
Methyl acetate	mg/kg dry	0.0012	EPA 8260B	1560	NE	0.0074	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012
Methylene chloride	mg/kg dry	0.0026	EPA 8260B	57.0	0.023	<0.0026	<0.0026	<0.0026	<0.0026	<0.0026	<0.0026	<0.0026	<0.0026	<0.0026	<0.0026
Anthracene	mg/kg dry	1.90	EPA 8270D	NE	NE	<1.9	<1.9	**3.4D**	<1.9	<1.9	<1.9	<1.9	<1.9	**1.3JD**	<1.9
Benzo(a)anthracene	mg/kg dry	0.39	EPA 8270D	0.16	0.18	<0.39	0.31J	**5.5D**	0.087J	<0.39	<0.39	<0.39	0.074J	**3.6D**	<0.39
2-Methylnaphthalene	mg/kg dry	1.9	EPA 8270D	48	1.6	<1.9	<1.9	0.24JD	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9
Acenaphthene	mg/kg dry	1.9	EPA 8270D	720	8.4	<1.9	<1.9	0.98JD	<1.9	<1.9	<1.9	<1.9	<1.9	0.76JD	<1.9
Benzo(a)pyrene	mg/kg dry	0.39	EPA 8270D	0.012	0.059	<0.39	**0.33J**	**4.7D**	**0.1J**	<0.39	<0.39	<0.39	**0.075J**	**3.0D**	<0.39
Benzo(b)fluoranthene	mg/kg dry	0.39	EPA 8270D	0.16	0.6	<0.39	**0.48**	**6.2D**	0.15J	<0.39	<0.39	<0.39	0.11J	**3.9D**	<0.39
Benzo(g,h,i)perylene	mg/kg dry	0.39	EPA 8270D	NE	NE	<0.39	0.14J	1.7JD	<0.39	<0.39	<0.39	<0.39	<0.39	1.6JD	<0.39
Benzo(k)fluoranthene	mg/kg dry	0.39	EPA 8270D	1.6	5.9	<0.39	0.26J	**2.8D**	0.052J	<0.39	<0.39	<0.39	<0.39	**2.0JD**	<0.39
Bis(2-ethylhexyl)phthalate	mg/kg dry	0.41	EPA 8270D	NE	NE	<0.41	0.078J	<0.41	0.061J	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41
Carbazole	mg/kg dry	1.9	EPA 8270D	NE	NE	<1.9	<1.9	**1.9**	<1.9	<1.9	<1.9	<1.9	<1.9	0.55JD	<1.9
Chrysene	mg/kg dry	0.39	EPA 8270D	1.6	1.8	<0.39	0.29J	**4.8**	0.086J	<0.39	<0.39	<0.39	<0.39	**3.3D**	<0.39
Di-n-butylphthalate	mg/kg dry	0.39	EPA 8270D	NE	NE	<0.39	0.067J	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39
Dibenzo(a,h)anthracene	mg/kg dry	1.9	EPA 8270D	0.016	0.19	<1.9	<1.9	**0.51JD**	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9
Dibenzofuran	mg/kg dry	1.9	EPA 8270D	14.6	5.2	<1.9	<1.9	1.1JD	<1.9	<1.9	<1.9	<1.9	<1.9	0.35JD	<1.9
Fluoranthene	mg/kg dry	0.39	EPA 8270D	6000	330	<0.39	0.31J	15D	0.15J	<0.39	<0.39	<0.39	0.077J	8.0D	<0.39
Fluorene	mg/kg dry	1.9	EPA 8270D	480	56	<1.9	<1.9	1.8JD	<1.9	<1.9	<1.9	<1.9	<1.9	0.68JD	<1.9
Indeno(1,2,3-cd)pyrene	mg/kg dry	0.39	EPA 8270D	0.16	2	<0.39	0.13J	**1.7JD**	<0.39	<0.39	<0.39	<0.39	<0.39	**1.6JD**	<0.39
Naphthalene	mg/kg dry	2.9	EPA 8270D	3.8	0.21	<2.9	<2.9	**0.33JD**	<2.9	<2.9	<2.9	<2.9	<2.9	**0.28JD**	<2.9
Phenanthrene	mg/kg dry	0.48	EPA 8270D	NE	68	<0.48	<0.48	<0.48	0.049J	<0.48	<0.48	<0.48	<0.48	6.6D	<0.48
Pyrene	mg/kg dry	0.39	EPA 8270D	360	220	<0.39	0.29J	12D	0.13J	<0.39	<0.39	<0.39	0.069J	6.0D	<0.39
2,4-DCAA [2C]	mg/kg dry	0.012	EPA 8151A	NE	NE	**61**	**52**	**61**	**23**	**43**	<0.012	<0.012	<0.012	<0.012	<0.012
Pentachlorophenol	mg/kg dry	0.012	EPA 8151A	1.0	0.0048	<0.012	**0.0078J**	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012
2,3,7,8-TCDD	pg/g	0.996	EPA 8290A	0.00048	0.00011	<0.996	**0.806J**	<0.996	<0.996	<0.996	<0.996	<0.996	<0.996	**1.8**	<0.996
1,2,3,7,8-PeCDD	pg/g	4.99	EPA 8290A	NE	NE	<4.99	1.22JK	0.565JK	<4.99	<4.99	0.357JK	<4.99	0.305J	**12.9**	<4.99
1,2,3,4,7,8-HxCDD	pg/g	4.99	EPA 8290A	NE	NE	<4.99	<4.99	1.05J	<4.99	<4.99	0.447JK	<4.99	<4.99	**26**	<4.99
1,2,3,6,7,8-HxCDD	pg/g	4.99	EPA 8290A	NE	NE	<4.99	**5.73**	3.88J	2.42JK	<4.99	1.29J	<4.99	1.34J	**54.3**	<4.99
1,2,3,7,8,9-HxCDD	pg/g	4.99	EPA 8290A	NE	NE	<4.99	2.56J	1.84JK	<4.99	<4.99	1.21J	<4.99	<4.99	**62.1**	<4.99
1,2,3,4,6,7,8-HpCDD	pg/g	4.99	EPA 8290A	NE	NE	**22.3**	**252**	**185**	**94.6**	**14.9**	**36.4**	4.73J	**41.3**	**1480**	1.72J
1,2,3,4,6,7,8,9-OCDD	pg/g	9.97	EPA 8290A	NE	NE	**554**	**7100E**	**9350E**	**2410**	**1390**	**4720E**	**55.7**	**751**	**9240E**	**111**
2,3,7,8-TCDF	pg/g	0.996	EPA 8290A	NE	NE	<0.996	**3.03**	**0.957**	0.769J	<0.996	<0.996	<0.996	<0.996	**2.52**	<0.996

SMITH+GARDNER

Table 4
Detection Summary - Soil Samples
SIMS Legion Park - Gastonia, North Carolina
August 24-29 and September 26, 2017

By: MCK
Date: 10/6/2017

Analyte	Unit	LOQ/CL	Test Method	Unrestricted Use Health Based (PSRG)	Protection of Groundwater Standard	SS-1	SS-7	SS-8	DUP SS-8	SS-9	SS-10	SS-11	SS-12	SS-13	DUP SS-13
1,2,3,7,8-PeCDF	pg/g	4.98	EPA 8290A	NE	NE	<4.98	0.873JK	<4.98	<4.98	<4.98	<4.98	<4.98	<4.98	1.93J	<4.98
2,3,4,7,8-PeCDF	pg/g	4.98	EPA 8290A	NE	NE	<4.98	3.29J	1.52J	1.31J	<4.98	<4.98	<4.98	<4.98	**5.51**	<4.98
1,2,3,4,7,8-HxCDF	pg/g	4.98	EPA 8290A	NE	NE	<4.98	2.04JK	1.79JK	0.779JK	<4.98	<4.98	<4.98	<4.98	4.79J	<4.98
1,2,3,6,7,8-HxCDF	pg/g	4.99	EPA 8290A	NE	NE	<4.98	1.47J	0.819J	0.577JK	<4.99	0.718JK	<4.99	0.403JK	3.73J	0.0953J
2,3,4,6,7,8-HxCDF	pg/g	4.99	EPA 8290A	NE	NE	0.529JK	2.43JK	1.77J	1.41JK	<4.99	0.596JK	<4.99	0.477JK	4.74J	<4.99
1,2,3,4,6,7,8-HpCDF	pg/g	4.99	EPA 8290A	NE	NE	**9.68**	**41.4**	**45.7**	**30.3**	2.40J	**6.92**	1.96J	**5.06**	3.08J	0.488J
1,2,3,4,7,8,9-HpCDF	pg/g	4.64	EPA 8290A	NE	NE	<4.64	2.47J	1.94JK	1.33J	<4.99	<4.64	<4.64	<4.64	<4.64	<4.64
1,2,3,4,6,7,8,9-OCDF	pg/g	4.99	EPA 8290A	NE	NE	**11.8**	**129**	**67.8**	**36.6**	4.32J	6.42J	2.59J	**11.7**	**101**	0.433JK
Total Tetrachlorodibenzo-p-dioxin	pg/g	0.997	EPA 8290A	NE	NE	<0.997	3.58J	**0.947**	<0.997	<0.997	0.303J	<4.99	**1.87**	**39.6**	<0.997
Total Pentachlorodibenzo-p-dioxin	pg/g	4.99	EPA 8290A	NE	NE	<4.99	5.03J	0.788J	<4.99	<4.99	1.97J	0.289J	2.03J	**131Q**	<0.997
Total Hexachlorodibenzo-p-dioxin	pg/g	4.99	EPA 8290A	100	NE	<4.99	36.7J	28.7J	**13.2**	1.39J	14.6J	0.313J	12.9J	**704**	0.369J
Total Heptachlorodibenzo-p-dioxin	pg/g	4.99	EPA 8290A	NE	NE	**42.7**	**482**	**376**	**180**	**32.7**	**80.9**	10.3J	**74.1**	**3500E**	3.64J
Total Tetrachlorodibenzofuran	pg/g	4.99	EPA 8290A	NE	NE	<4.99	**11.7**	**10.2**	**4.79**	<4.99	0.866J	<4.99	**2.13**	**55.7**	<4.99
Total Pentachlorodibenzofuran	pg/g	4.99	EPA 8290A	NE	NE	<4.99	29.1J	21.7J	14.0J	<4.99	4.21J	<4.99	**4.61**	70.0JQ	0.284J
Total Hexachlorodibenzofuran	pg/g	4.99	EPA 8290A	NE	NE	5.12J	55.8J	48.4J	30.8J	1.67J	8.66J	1.90J	**6.45**	96.9J	0.609J
Total Heptachlorodibenzofuran	pg/g	4.99	EPA 8290A	NE	NE	**16.8**	172J	143J	94.6J	2.40J	**11**	3.67J	**15.5**	218J	0.780J
TEQ WHO2005 ND=0	pg/g	NA	EPA 8290A	NE	NE	**0.476**	**8.2**	**6.44**	**2.47**	**0.592**	**2.14**	**0.116**	**1.36**	**50.9**	**0.0649**
TEQ WHO2005 ND=0.5	pg/g	NA	EPA 8290A	NE	NE	**1.04**	**8.2**	**6.94**	**2.95**	**1.1**	**2.43**	**0.412**	**1.69**	**50.9**	**0.253**
Tentatively Identified Compounds															
3-Octanone	mg/kg dry	NA	EPA 8260B	NE	NE	0.0070JN	ND	ND	ND	ND	ND	ND	ND	ND	ND
11H-Benzo[b]fluorene	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	0.91JDN	ND	ND	ND	ND	ND	ND	ND
28-Nor-17.beta.(H)-hopane	mg/kg dry	NA	EPA 8270D	NE	NE	ND	0.29JN	ND	ND	ND	ND	ND	ND	ND	ND
Benzo[e]pyrene	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	1 JDN	ND	ND	ND	ND	ND	ND	ND
Bicyclo[2.2.1]heptan-2-one,...	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bicyclo[3.1.1]heptane, 6,6-...	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	ND	ND	ND	0.0058JN	ND
Camphene	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	ND	ND	ND	0.093JN	ND
1,5-Cyclooctadiene, 1,5-dim...	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	ND	ND	ND	0.0036JN	ND
Cycloeicosane	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	0.54JN	ND	ND	ND	ND
Cyclopentane	mg/kg dry	NA	EPA 8260D	NE	NE	ND	ND	ND	ND	ND	0.046 JN	ND	ND	ND	ND
1,4-Dimethyl-8-isopropylide...	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.30JN
Docosane	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	ND	ND	0.16JN	ND	ND
1-Docosene	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	0.45JN	0.47JN	ND	ND	ND
1-Dotriacontanol	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	ND	0.72JN	ND	ND	0.56JN
1-Eicosene	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.23JN
Eucalyptol	mg/kg dry	NA	EPA 8260D	NE	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene, 2-methyl-	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	ND	ND	ND	1.5JDN	ND
Heneicosane	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	ND	0.50JN	ND	ND	ND
n-Hexadecanoic acid	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	0.27JN	ND	ND	ND	ND	ND
2-Hexene, 3,5,5-trimethyl-	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	ND	ND	0.47JN	ND	ND
Heptadecane	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

SMITH+GARDNER

Table 4
Detection Summary - Soil Samples
SIMS Legion Park - Gastonia, North Carolina
August 24-29 and September 26, 2017

By: MCK
Date: 10/6/2017

Analyte	Unit	LOQ/CL	Test Method	Unrestricted Use Health Based (PSRG)	Protection of Groundwater Standard	SS-1	SS-7	SS-8	DUP SS-8	SS-9	SS-10	SS-11	SS-12	SS-13	DUP SS-13
Hexane	mg/kg dry	NA	EPA 8270D	122	54	ND	ND	ND	0.016JN	ND	ND	ND	ND	ND	ND
Hexatriacontane	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	0.81JN	ND	ND	ND	ND
D-Limonene	mg/kg dry	NA	EPA 8260D	NE	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane, chlorodifluoro-	mg/kg dry	NA	EPA 8260D	NE	NE	ND	ND	0.09 JN	0.2 JN	ND	ND	ND	ND	ND	ND
Naphthalene, 1,2,3,4-tetrac	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene, 1,2,3,5,6,7,8,...	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	0.85JN	ND	ND	ND	ND
Nonacosane	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	ND	0.22 JN	ND	ND	ND
Nonadecane	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,4,6a,6b,8a,11,11,14b-Octa...	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	1.1JN	ND	ND	ND	ND
1-Octadecanol	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	0.47JN	ND	ND	ND	ND	ND
Octadecane	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	0.82JDN	ND	ND	ND	ND	ND	ND	ND
3-Penten-2-ol	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	0.20JN	ND	ND	ND	ND	ND
2-Phenanthrenol, 4b,5,6,7,8...(01)	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	2 JN	ND	ND	ND	0.32
2-Phenanthrenol, 4b,5,6,7,8... (02)	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.5JN
Pentane, 2-methyl-	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pentatriacontane	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	1.5JN	ND	ND	ND	0.47JN
Perylene	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	3.2JDN	ND	ND	ND	ND	ND	2.5JDN	ND
Phenanthrere, 2-methyl-	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	0.93 JDN	ND	ND	ND	ND	ND	ND	ND
.beta.-Pinene	mg/kg dry	NA	EPA 8260D	NE	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1R-.alpha.-Pinene	mg/kg dry	NA	EPA 8260D	NE	NE	ND	ND	ND	ND	ND	ND	ND	ND	0.018JN	ND
Oxirane, hexadecyl-	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	0.39JN	ND	ND	ND	ND	ND
1,2,4,8-Tetramethylbicyclo[...	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.29JN
Taraxerol	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	0.72JN	ND	ND	ND	ND
Tetracosane	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetratetracontane	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Triacontane	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	0.34JN	ND	ND	ND	ND	ND	ND
Triphenyl phosphate	mg/kg dry	NA	EPA 8270D	NE	NE	ND	ND	ND	ND	ND	ND	ND	1.1JN	ND	ND

NOTE:

LOQ/CL	-	Reporting Limit/Control Limit for the parameter recovery result
Unrestricted Use Heath Based PSRG	-	Unrestricted Use Health Based Preliminary Soil Remediation Goals (mg/kg) Does Not Need Land Use Restrictions, October 2016
Protection of Groundwater Standard	-	Protection of Groundwater Standard, October 2016
< LOQ/CL	-	Not detected at or above the LOQ/CL
Bold Letters	-	Constituent detected however no standard has been enstablished
Shading	-	Constituent detected above Unrestricted Use PSRGs or Protection of Groundwater Standards if PSRGs not established
NE	-	Standard not established for this constituent
ND	-	Not Detected
J	-	The reported value is between the laboratory method detection limit (MDL) and the laboratory method reporting limit (MRL).
D	-	The laboratory analyzed the sample at dilution
N	-	The analysis indicates the presence of an analyte for which there is presumptive evidence (85% or greater confidence) to make a tentative identification".
E	-	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate.
K	-	Estimated Maximum Possible Concentration

Laboratory data presented in the units noted.
Results for samples collected 8/29/2017 - Job No. CA12826, 9/26/2017 - Job No. CA14255 and 10/17/2017 - Job No. CA15703

Initial runs of 8620B exceeded the hold time for soil samples SS-1, SS-2, SS-3, SS-4, SS-5, SS-6, DUP-SS-8 and SS-9 as a result of a power outage from Hurricane Irma. The soil samples were recollected on 10/17/2017. Results from ENCO Laboratories received on 10/17/2017 - Job

SMITH+GARDNER

Table 5
Detection Summary - Surface Water Samples
SIMS Legion Park - Gastonia, North Carolina
August 30, 2017

By: MCK
Date: 10/11/2017

Analyte	Unit	LOQ/CL	15A NCAC 02B Standard	SW-1	DUP SW-1	SW-2	SW-3	SW-4	SW-5	DUP SW-5
Ammonia	mg/L	0.045	NE	<0.045	<0.045	<0.045	0.098 J	**0.11**	<0.045	<0.045
Nitrate as N	mg/L	0.5	NE	**1.2**	NA	**0.85**	**0.82**	**0.73**	**0.72**	**0.7**
Sulfate as SO4	mg/L	10	NE	**13**	NA	**13**	**13**	**12**	**12**	**12**
Antimony	ug/L	0.5	640	<0.5	<0.5	<0.5	<0.5	<0.5	0.282J	0.275J
Arsenic	ug/l	0.5	10	<0.5	0.513 J	<0.5	<0.5	<0.5	<0.5	<0.5
Copper	ug/L	1.0	7	1.4	1.45	1.59	1.73	1.49	1.51	1.49
Iron	ug/L	5.0	1000	119	122	654	739	702	546	526
Lead	ug/L	0.5	25	0.277 J	0.284 J	0.491 J	0.601	0.315 J	0.364J	0.275
Manganese	ug/L	10	NE	**32.5**	**32.6**	**199 D**	**206 D**	**238 D**	**170D**	**151D**
Nickel	ug/L	0.5	88	0.536 J	0.535 J	0.739 J	0.735 J	0.721 J	<0.5	<0.5
Zinc	ug/L	5.0	50	3.2 J	3.02 J	4.71 J	4.85 J	5.17	5.48	5.42
2,4-D	ug/L	0.3	60	<0.3	<0.3	2.5	0.85	0.65	<0.3	<0.3
1,2,3,4,6,7,8-HpCDD	pg/L	52.1	NE	1.67 JK	<52.1	1.66 JK	2.64 JK	<52.1	1.77JK	1.29JK
1,2,3,4,6,7,8,9-OCDD	pg/L	104.0	NE	19.2 J	18.8 JK	24 J	33.7 J	37.8 J	24.4J	22 J
1,2,3,4,6,7,8,9-HpCDF	pg/L	51.7	NE	1.03 JK	<51.7	<51.7	<51.7	1.05 JK	<51.7	<51.7
1,2,3,7,8-PeCDF	pg/L	50.9	NE	<50.9	<50.9	<50.9	<50.9	<50.9	0.407JK	<50.9
Total Tetrachlorodibenzofuran	pg/L	1.4	NE	<1.4	1.81 J	<1.4	<1.4	<1.4	<1.4	<1.4
TEQ WHO2005 ND=0	pg/L	NE	NE	**0.0058**	0	**0.00721**	**0.0101**	**0.0113**	**0.00733**	**0.00661**
TEQ WHO2005 ND=0.5	pg/L	NE	NE	**1.24**	**1.16**	**1.36**	**1.36**	**1.49**	**0.922**	**0.892**
Formaldehyde	ug/L	50	1200	<50	NA	<50	<50	61	120	120
Methane	mg/L	0.001	NE	**0.0042**	**0.00261**	**0.0186**	**0.0241**	**0.0098**	**0.00747**	**0.0103**
Tentatively Identified Compounds										
D-Limonene	ug/l	NE	NE	4.4 JN	5 JN	ND	4.7 JN	4.1 JN	ND	ND
Hexatriacontane	ug/L	NE	NE	4.2 JN	ND	ND	ND	ND	4.2 JN	ND
Pentatriacontane	ug/L	NE	NE	ND	ND	ND	ND	ND	4.8 JN	ND

NOTE:

LOQ/CL	-	Reporting Limit/Control Limit for the parameter recovery result
15A NCAC 02B Standard	-	NCAC 2B Standard for Class C waters
< LOQ/CL	-	Not detected at or above the LOQ/CL
Shading	-	Constituent detected above the 2B Standard
Bold Letters	-	Constituent detected but 2B Standard not estbalished for this constituent
J	-	The reported value is between the laboratory method detection limit (MDL) and the laboratory method reporting limit (MRL).
D	-	The laboratory analyzed the sample at dilution
K	-	Estimated Maximum Possible Concentration
N	-	The analysis indicates the presence of an analyte for which there is presumptive evidence (85% or greater confidence) to make a tentative identification".
NE	-	2B Standard not established for this constituent
NA	-	Not Analyzed
ND	-	Not Detected

Results for samples collected 8/25/17 Job No. 12829 and 8/30/2017 Job No. 13503
Laboratory data presented in the units noted.

SMITH+GARDNER

Table 6
Detection Summary - Stream Sediment Samples
SIMS Legion Park - Gastonia, North Carolina
November 8, 2017

By: MCK
Date: 12/4/2017

Analyte	Unit	LOQ/CL	Test Method	Unrestricted Use Health Based (PSRG)	Protection of Groundwater Standard	STRSED-1	STRSED-2	DUP STRSED-2
Ammonia as N	mg/kg dry	1.1	EPA 350.1	NE	NE	<1.1	**0.53J**	<1.1
Phosphorous	mg/kg dry	11.0	EPA 365.4	NE	NE	**230**	**600D**	**190**
Sulfate as SO4	mg/kg dry	60	EPA 9056A	NE	NE	<60	**55J**	<60
Beryllium	mg/kg dry	5.55	EPA 6020B	NE	NE	**0.334JD**	<5.55	<5.55
Chromium	mg/kg dry	61.1	EPA 6020B	24000	360000	5.03JD	4.16JD	3.73JD
Copper	mg/kg dry	6.0	EPA 6020B	620	700	12.3D	16.8D	7.58D
Iron	mg/kg dry	390	EPA 6020B	11000	150	**7380D**	**6830D**	**5070D**
Lead	mg/kg dry	117	EPA 6020B	400	270	16.8D	221D	9.12JD
Manganese	mg/kg dry	78	EPA 6020B	360	65	**115D**	**152D**	**64.0D**
Nickel	mg/kg dry	6.96	EPA 6020B	NE	NE	4.3D	3.73D	2.77D
Zinc	mg/kg dry	117	EPA 6020B	4600	1200	49.1D	18.6	19.7
1,4-Dichlorobenzene	mg/kg dry	0.0009	EPA 8260B	2.6	0.07	<0.0009	0.0005J	0.0015
Chlorobenzene	mg/kg dry	0.0001	EPA 8260B	56	0.44	<0.0001	<0.0001	0.0006J
Toluene	mg/kg dry	0.0015	EPA 8260B	818	5.5	0.0009J	<0.0015	<0.0015
Trichloroethene	mg/kg dry	0.0009	EPA 8260B	0.8	0.018	<0.0009	0.0019	0.0006J
Benzo(a)anthracene	mg/kg dry	0.86	EPA 8270D	0.16	0.18	0.09J	<0.86	<0.86
Benzo(a)pyrene	mg/kg dry	0.86	EPA 8270D	0.012	0.059	**0.13J**	<0.86	<0.86
Benzo(b)fluoranthene	mg/kg dry	0.86	EPA 8270D	0.16	0.6	0.19J	<0.86	0.094J
Bis(2-ethylhexyl)phthalate	mg/kg dry	0.82	EPA 8270D	NE	NE	<0.82	<0.82	**0.087J**
Phenanthrene	mg/kg dry	0.86	EPA 8270D	NE	68	0.13J	<0.86	<0.86
Pyrene	mg/kg dry	0.86	EPA 8270D	360	220	0.16J	<0.86	<0.86
1,2,3,4,6,7,8-HpCDD	pg/g	63.3	EPA 8290A	NE	NE	<63.3	13.6JK	15.2J
1,2,3,4,6,7,8,9-OCDD	pg/g	127	EPA 8290A	NE	NE	**274**	**253**	**243**
2,3,7,8-TCDF	pg/g	12.7	EPA 8290A	NE	NE	<12.7	2.22J	2.23J
1,2,3,4,7,8-HxCDF	pg/g	63.3	EPA 8290A	NE	NE	<63.3	0.749JK	<63.3
1,2,3,6,7,8-HxCDF	pg/g	63.3	EPA 8290A	NE	NE	<63.3	0.879J	<63.3
1,2,3,4,6,7,8-HpCDF	pg/g	63.3	EPA 8290A	NE	NE	5.49J	4.21J	3.91J
1,2,3,4,6,7,8,9-OCDF	pg/g	63.3	EPA 8290A	NE	NE	7.59JK	5.56J	7.01J
Total Hexachlorodibenzo-p-dioxin	pg/g	127	EPA 8290A	100	NE	2.28J	2.97J	2.60J
Total Heptachlorodibenzo-p-dioxin	pg/g	63.3	EPA 8290A	NE	NE	24.8J	12.5J	34.4J
Total Tetrachlorodibenzofuran	pg/g	12.7	EPA 8290A	NE	NE	<12.7	2.22J	2.23J
Total Pentachlorodibenzofuran	pg/g	63.3	EPA 8290A	NE	NE	3.64J	<63.3	2.20J
Total Hexachlorodibenzofuran	pg/g	63.3	EPA 8290A	NE	NE	<63.3	0.879J	<63.3
Total Heptachlorodibenzofuran	pg/g	63.3	EPA 8290A	NE	NE	5.49J	7.701J	8.39J
TEQ WHO2005 ND=0	pg/g	NA	EPA 8290A	NE	NE	**0.248**	**0.43**	**0.489**
TEQ WHO2005 ND=0.5	pg/g	NA	EPA 8290A	NE	NE	**1.97**	**1.84**	**1.94**

NOTE:

LOQ/CL	-	Reporting Limit/Control Limit for the parameter recovery result
Unrestricted Use Heath Based PSRG	-	Unrestricted Use Health Based Preliminary Soil Remediation Goals (mg/kg) Does Not Need Land Use Restrictions, October 2016
Protection of Groundwater Standard	-	Protection of Groundwater Standard, October 2016
< LOQ/CL	-	Not detected at or above the LOQ/CL
Bold Letters	-	Constituent detected however no standard has been enstablished
Shading	-	Constituent detected above Unrestricted Use PSRGs or Protection of Groundwater Standards if PSRGs not established
NE	-	Standard not established for this constituent
ND	-	Not Detected
J	-	The reported value is between the laboratory method detection limit (MDL) and the laboratory method reporting limit (MRL).
D	-	The laboratory analyzed the sample at dilution
N	-	The analysis indicates the presence of an analyte for which there is presumptive evidence (85% or greater confidence) to make a tentative identification".
E	-	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate.
K	-	Estimated Maximum Possible Concentration

Laboratory data presented in the units noted.
Results for samples collected 11/8/2017 - Job No. CA16756

SMITH+GARDNER

Table 7A
Soil Gas Summary - Shallow Probes
SIMS Legion Park - Gastonia, North Carolina
September 2017

By: MCK
Date: 10/11/2017

Analyte	Unit	LOQ/CL	IASL	SSVP-1S	SSVP-2	SSVP-3S	SSVP-4	SSVP-5S	SSVP-6	SSVP-7	SSVP-8S	SSVP-9S	SSVP-10S
Benzene	ug/m^3	3.2	0.36	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2	6.2	<3.2	<3.2	<3.2
2-Butanone	ug/m^3	30	1000	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30
Carbon Disulfide	ug/m^3	6.3	150	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3
Chlorobenzene	ug/m^3	4.7	10	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7
Chloroform	ug/m^3	4.9	0.12	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	4.9	<4.9	<4.9
1,4-Dichlorobenzene	ug/m^3	12	0.26	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
Dichlorodifluoromethane(F12)[1]	ug/m^3	5.0	21	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	19	<5.0
Dichlorotetrafluoroethane(F114)[1]	ug/m^3	7.1	NE	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	**14**	<7.1
cis-1,2 Dichloroethene	ug/m^3	4.0	NE	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Ethylbenzene	ug/m^3	4.4	1.1	4.8	<4.4	<4.4	<4.4	<4.4	<4.4	5.7	<4.4	<4.4	<4.4
4-Methyl-2-pentanone (MIBK)	ug/m^3	8.3	630	18	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3
Styrene	ug/m^3	4.3	210	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3
Tetrachloroethene	ug/m^3	6.9	8.3	<6.9	<6.9	25	10	<6.9	<6.9	<6.9	<6.9	<6.9	46
Toluene	ug/m^3	3.8	1000	57	5.4	8.3	4.6	12	14	13	13	4.0	8.5
Trichloroethene	ug/m^3	5.0	0.42	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,2,4-Trimethylbenzene	ug/m^3	5.0	130	27	<5.0	<5.0	<5.0	<5.0	<5.0	7.5	9.7	<5.0	<5.0
1,3,5-Trimethylbenzene	ug/m^3	5.0	130	7.3	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Vinyl Chloride	ug/m^3	2.6	0.17	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6
m,p-xylene	ug/m^3	8.8	210	22	<8.8	<8.8	<8.8	<8.8	<8.8	15	14	<8.8	<8.8
o-xylene	ug/m^3	4.4	210	11	<4.4	<4.4	<4.4	<4.4	<4.4	8.6	6.9	<4.4	<4.4

NOTE:

LOQ/CL	-	Reporting Limit/Control Limit for the parameter recovery result
IASL	-	NCDEQ Residential Vapor Indoor Air Screening Levels (TCR=1.0E-6), October 2017
< LOQ/CL	-	Not detected at or above the LOQ/CL
Shading	-	Constituent detected above the IASL
Bold Letters	-	Constituent detected but no Standard exists
NE	-	No threshold for NC DEQ Division of Waste Management Sub-slab and Exterior Soil Gas Screening Level

1 % recoveries for Dichlorodifluoromethane and Dichlorotetrafluoroethane fell above the method criteria in the continuing calibration verification assoicated with batch EI71109. Any results for those analytes in this batch may be biased high.

Results from H&P Mobile Geochemistry, Inc. sampled 8/30/2017 - Job No. AG090517-12 and 10/3/2017 - Job No. MC101117-16

SMITH+GARDNER

Table 7A
Soil Gas Summary - Shallow Probes
SIMS Legion Park - Gastonia, North Carolina
September 2017

By: MCK
Date: 10/11/2017

Analyte	Unit	LOQ/CL	IASL	SSVP-11S	SSVP-12S	SSVP-13	SSVP-14	SSVP-15S	SSVP-16	SSVP-17	SSVP-18	SSVP-19	SSVP-20
Benzene	ug/m^3	3.2	0.36	<3.2	<3.2	4.4	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2	9.2
2-Butanone	ug/m^3	30	1000	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30
Carbon Disulfide	ug/m^3	6.3	150	<6.3	<6.3	23	<6.3	<6.3	<6.3	9.7	20	<6.3	<6.3
Chlorobenzene	ug/m^3	4.7	10	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7
Chloroform	ug/m^3	4.9	0.12	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	6.3	<4.9	<4.9	<4.9
1,4-Dichlorobenzene	ug/m^3	12	0.26	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
Dichlorodifluoromethane(F12)[1]	ug/m^3	5.0	21	7.3	<5.0	<5.0	6.8	<5.0	<5.0	5.6	<5.0	11	13
Dichlorotetrafluoroethane(F114)[1]	ug/m^3	7.1	NE	<7.1	<7.1	<7.1	24	<7.1	<7.1	11	<7.1	44	7.3
cis-1,2 Dichloroethene	ug/m^3	4.0	NE	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Ethylbenzene	ug/m^3	4.4	1.1	6.2	<4.4	7.1	<4.4	6.2	<4.4	9.9	<4.4	<4.4	130
4-Methyl-2-pentanone (MIBK)	ug/m^3	8.3	630	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3
Styrene	ug/m^3	4.3	210	<4.3	20	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3
Tetrachloroethene	ug/m^3	6.9	8.3	<6.9	<6.9	<6.9	170	<6.9	<6.9	12	<6.9	41	24
Toluene	ug/m^3	3.8	1000	14	12	23	5.5	15	8.8	26	12	6.4	18
Trichloroethene	ug/m^3	5.0	0.42	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,2,4-Trimethylbenzene	ug/m^3	5.0	130	8.3	13	13	<5.0	10	8.0	20	<5.0	<5.0	25
1,3,5-Trimethylbenzene	ug/m^3	5.0	130	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.6	<5.0	<5.0	13
Vinyl Chloride	ug/m^3	2.6	0.17	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6
m,p-xylene	ug/m^3	8.8	210	20	12	17	<8.8	16	<8.8	26	<8.8	<8.8	210
o-xylene	ug/m^3	4.4	210	12	6.3	<4.4	<4.4	9.3	8.3	14	4.5	<4.4	82

NOTE:

LOQ/CL	-	Reporting Limit/Control Limit for the parameter recovery result
IASL	-	NCDEQ Residential Vapor Indoor Air Screening Levels (TCR=1.0E-6), October 2017
< LOQ/CL	-	Not detected at or above the LOQ/CL
Shading	-	Constituent detected above the IASL
Bold Letters	-	Constituent detected but no Standard exists
NE	-	No threshold for NC DEQ Division of Waste Management Sub-slab and Exterior Soil Gas Screening Level

1 % recoveries for Dichlorodifluoromethane and Dichlorotetrafluoroethane fell above the method criteria in the continuing calibration verification assoicated with batch EI71109. Any results for those analytes in this batch may be biased high.

Results from H&P Mobile Geochemistry, Inc. sampled 8/30/2017 - Job No. AG090517-12 and 10/3/2017 - Job No. MC101117-16

SMITH+GARDNER

Table 7A
Soil Gas Summary - Shallow Probes
SIMS Legion Park - Gastonia, North Carolina
September 2017

By: MCK
Date: 10/11/2017

Analyte	Unit	LOQ/CL	IASL	SSVP-21	SSVP-22	SSVP-23	SSVP-24	SSVP-25	SSVP-26	SSVP-27	SSVP-28	SSVP-29	SSVP-30
Benzene	ug/m^3	3.2	0.36	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2	16	<3.2
2-Butanone	ug/m^3	30	1000	<30	<30	49	<30	<30	<30	<30	<30	<30	<30
Carbon Disulfide	ug/m^3	6.3	150	10	<6.3	7.3	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3
Chlorobenzene	ug/m^3	4.7	10	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	12	<4.7
Chloroform	ug/m^3	4.9	0.12	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9
1,4-Dichlorobenzene	ug/m^3	12	0.26	13	<12	63	<12	<12	<12	<12	<12	380	<12
Dichlorodifluoromethane(F12)[1]	ug/m^3	5.0	21	<5.0	120	29	<5.0	5.3	21	<5.0	13	13	<5.0
Dichlorotetrafluoroethane(F114)[1]	ug/m^3	7.1	NE	<7.1	630	200	<7.1	<7.1	33	<7.1	12	140	<7.1
cis-1,2 Dichloroethene	ug/m^3	4.0	NE	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	8.8	<4.0
Ethylbenzene	ug/m^3	4.4	1.1	<4.4	<4.4	50	<4.4	<4.4	<4.4	<4.4	<4.4	9.8	<4.4
4-Methyl-2-pentanone (MIBK)	ug/m^3	8.3	630	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3
Styrene	ug/m^3	4.3	210	<4.3	<4.3	<4.3	9.9	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3
Tetrachloroethene	ug/m^3	6.9	8.3	<6.9	<6.9	16	45	14	16	13	8.7	12	45
Toluene	ug/m^3	3.8	1000	3.9	6	16	7.7	5.0	5.2	<3.8	4.7	11	6.2
Trichloroethene	ug/m^3	5.0	0.42	<5.0	8.2	6.2	<5.0	<5.0	13	<5.0	<5.0	<5.0	<5.0
1,2,4-Trimethylbenzene	ug/m^3	5.0	130	<5.0	<5.0	45	<5.0	<5.0	<5.0	<5.0	<5.0	6.2	<5.0
1,3,5-Trimethylbenzene	ug/m^3	5.0	130	<5.0	<5.0	21	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Vinyl Chloride	ug/m^3	2.6	0.17	<2.6	<2.6	5.2	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6
m,p-xylene	ug/m^3	8.8	210	<8.8	<8.8	96	<8.8	<8.8	<8.8	<8.8	<8.8	19	<8.8
o-xylene	ug/m^3	4.4	210	<4.4	<4.4	52	<4.4	<4.4	<4.4	<4.4	<4.4	12	<4.4

NOTE:

LOQ/CL	-	Reporting Limit/Control Limit for the parameter recovery result
IASL	-	NCDEQ Residential Vapor Indoor Air Screening Levels (TCR=1.0E-6), October 2017
< LOQ/CL	-	Not detected at or above the LOQ/CL
Shading	-	Constituent detected above the IASL
Bold Letters	-	Constituent detected but no Standard exists
NE	-	No threshold for NC DEQ Division of Waste Management Sub-slab and Exterior Soil Gas Screening Level

1 % recoveries for Dichlorodifluoromethane and Dichlorotetrafluoroethane fell above the method criteria in the continuing calibration verification assoicated with batch EI71109. Any results for those analytes in this batch may be biased high.

Results from H&P Mobile Geochemistry, Inc. sampled 8/30/2017 - Job No. AG090517-12 and 10/3/2017 - Job No. MC101117-16

SMITH+GARDNER

Table 7A
Soil Gas Summary - Shallow Probes
SIMS Legion Park - Gastonia, North Carolina
September 2017

By: MCK
Date: 10/11/2017

Analyte	Unit	LOQ/CL	IASL	SSVP-31	SSVP-32	SSVP-32	SSVP-33	SSVP-34	SSVP-35	SSVP-36S	SSVP-37S	SSVP-38S
Benzene	ug/m^3	3.2	0.36	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2
2-Butanone	ug/m^3	30	1000	<30	<30	<30	<30	<30	<30	<30	<30	<30
Carbon Disulfide	ug/m^3	6.3	150	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3
Chlorobenzene	ug/m^3	4.7	10	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7
Chloroform	ug/m^3	4.9	0.12	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9
1,4-Dichlorobenzene	ug/m^3	12	0.26	<12	<12	<12	<12	<12	<12	<12	<12	<12
Dichlorodifluoromethane(F12)[1]	ug/m^3	5.0	21	<5.0	14	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Dichlorotetrafluoroethane(F114)[1]	ug/m^3	7.1	NE	<7.1	21	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
cis-1,2 Dichloroethene	ug/m^3	4.0	NE	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Ethylbenzene	ug/m^3	4.4	1.1	<4.4	<4.4	<4.4	<4.4	<4.4	<4.4	<4.4	<4.4	<4.4
4-Methyl-2-pentanone (MIBK)	ug/m^3	8.3	630	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3
Styrene	ug/m^3	4.3	210	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3
Tetrachloroethene	ug/m^3	6.9	8.3	<6.9	27	45	<6.9	<6.9	<6.9	<6.9	<6.9	<6.9
Toluene	ug/m^3	3.8	1000	4.1	4.8	6.2	5.5	7.9	4.5	5.8	5.0	6.9
Trichloroethene	ug/m^3	5.0	0.42	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,2,4-Trimethylbenzene	ug/m^3	5.0	130	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,3,5-Trimethylbenzene	ug/m^3	5.0	130	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Vinyl Chloride	ug/m^3	2.6	0.17	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6
m,p-xylene	ug/m^3	8.8	210	<8.8	<8.8	<8.8	<8.8	<8.8	<8.8	<8.8	<8.8	<8.8
o-xylene	ug/m^3	4.4	210	<4.4	<4.4	<4.4	<4.4	<4.4	<4.4	<4.4	<4.4	<4.4

NOTE:

LOQ/CL	-	Reporting Limit/Control Limit for the parameter recovery result
IASL	-	NCDEQ Residential Vapor Indoor Air Screening Levels (TCR=1.0E-6), October 2017
< LOQ/CL	-	Not detected at or above the LOQ/CL
Shading	-	Constituent detected above the IASL
Bold Letters	-	Constituent detected but no Standard exists
NE	-	No threshold for NC DEQ Division of Waste Management Sub-slab and Exterior Soil Gas Screening Level

1 % recoveries for Dichlorodifluoromethane and Dichlorotetrafluoroethane fell above the method criteria in the continuing calibration verification assoicated with batch EI71109. Any results for those analytes in this batch may be biased high.

Results from H&P Mobile Geochemistry, Inc. sampled 8/30/2017 - Job No. AG090517-12 and 10/3/2017 - Job No. MC101117-16

SMITH+GARDNER

Table 7B
Soil Gas Summary - Deep Probes
SIMS Legion Park - Gastonia, North Carolina
September 2017

By: MCK
Date: 10/11/2017

Analyte	Unit	LOQ/CL	SGSL	SSVP-1D	SSVP-3D	SSVP-5D	SSVP-8D	SSVP-9D	SSVP-10D	SSVP-11D	SSVP-12D	SSVP-15D	SSVP-36D	SSVP-37D	SSVP-38D
Benzene	ug/m^3	3.2	120	<3.2	<3.2	9.7	<3.2	<3.2	<3.2	<3.2	<3.2	11	<3.2	<3.2	<3.2
Carbon Disulfide	ug/m^3	6.3	4870	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3	43	<6.3	<6.3	<6.3
Chlorobenzene	ug/m^3	4.7	4380	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7
Chloroform	ug/m^3	4.9	40.7	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	10	<4.9	<4.9	<4.9	<4.9
Dichlorodifluoromethane(F12)[1]	ug/m^3	5.0	695	<5.0	<5.0	<5.0	<5.0	83	<5.0	7.3	16	<5.0	<5.0	<5.0	<5.0
Dichlorotetrafluoroethane(F114)[1]	ug/m^3	7.1	NE	<7.1	<7.1	<7.1	<7.1	53	<7.1	<7.1	7.1	<7.1	<7.1	<7.1	<7.1
4-Ethyltoluene	ug/m^3	5.0	NE	<5.0	<5.0	11	<5.0	<5.0	<5.0	<5.0	<5.0	5.3	<5.0	<5.0	<5.0
Ethylbenzene	ug/m^3	4.4	34.9	**44**	6.9	21	<4.4	<4.4	<4.4	<4.4	<4.4	14	<4.4	<4.4	<4.4
Styrene	ug/m^3	4.3	695	180	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3	6.9	<4.3	<4.3	<4.3
Tetrachloroethene	ug/m^3	6.9	278	<6.9	<6.9	<6.9	<6.9	<6.9	35	7.4	11	<6.9	<6.9	<6.9	<6.9
Toluene	ug/m^3	3.8	34800	37	20	84	5.9	8.3	8.7	4.7	13	38	15	12	12
1,2,4-Trimethylbenzene	ug/m^3	5.0	48.7	6.2	10	32	<5.0	5.2	<5.0	<5.0	<5.0	19	<5.0	<5.0	<5.0
1,3,5-Trimethylbenzene	ug/m^3	5.0	NE	<5.0	<5.0	10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
m,p-xylene	ug/m^3	8.8	695	9.8	21	66	<8.8	<8.8	<8.8	<8.8	<8.8	31	<8.8	<8.8	<8.8
o-xylene	ug/m^3	4.4	695	7.5	7.5	26	<4.4	<4.4	<4.4	<4.4	<4.4	18	<4.4	<4.4	<4.4

NOTE:

LOQ/CL	-	Reporting Limit/Control Limit for the parameter recovery result
SGSL	-	NC DEQ Division of Waste Management Sub-slab and Exterior Soil Gas Screening Level
< LOQ/CL	-	Not detected at or above the LOQ/CL
Shading	-	Constituent detected above the SWSG Standard
NE	-	Standard Not Established
[1]	-	% recoveries for Dichlorodifluoromethane and Dichlorotetrafluoroethane fell above the method criteria in the continuing calibration verification assoicated with batch EI71109. Any results for those analytes in this batch may be biased high.

Results from H&P Mobile Geochemistry, Inc. sampled 8/30/2017 - Job No. AG090517-12 and 11/15/2017 - Job No. MC111517-12

Ortho Image from ESRI.
Parcels from Gaston County GIS Data, 2019.

CDM Smith

0 100 200 400 600 Feet

1:3,000

Figure 1: Site Map
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina
Site Identification Number: NONCD0000766

Ortho Image from ESRI.
Parcels from Gaston County GIS Data, 2019.

CDM Smith

0 100 200 400 600 Feet

1:3,000

Figure . : Waste Disposal Boundary Delineation

Sims Legion Park Landfill

Gastonia, Gaston County, North Carolina

Site Identification Number: NONCD0000766

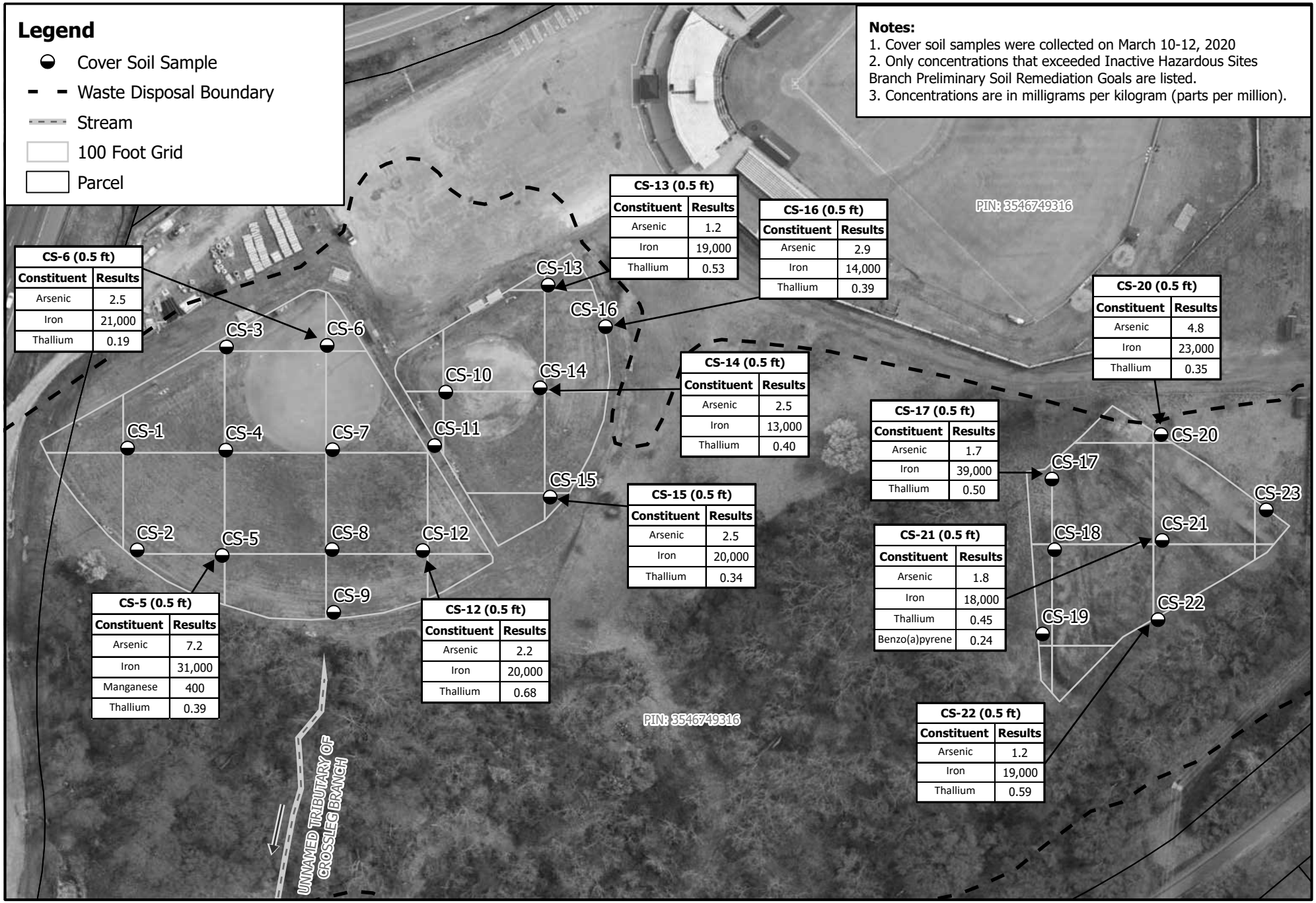
Ortho Image from ESRI.
Parcels from Gaston County GIS Data, 2019.

CDM Smith

0 100 200 400 600 Feet

1:3,000

Figure 3: Cover Soil Thickness
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina
Site Identification Number: NONCD0000766



Ortho Image from ESRI.
Parcels from Gaston County GIS Data, 2019.

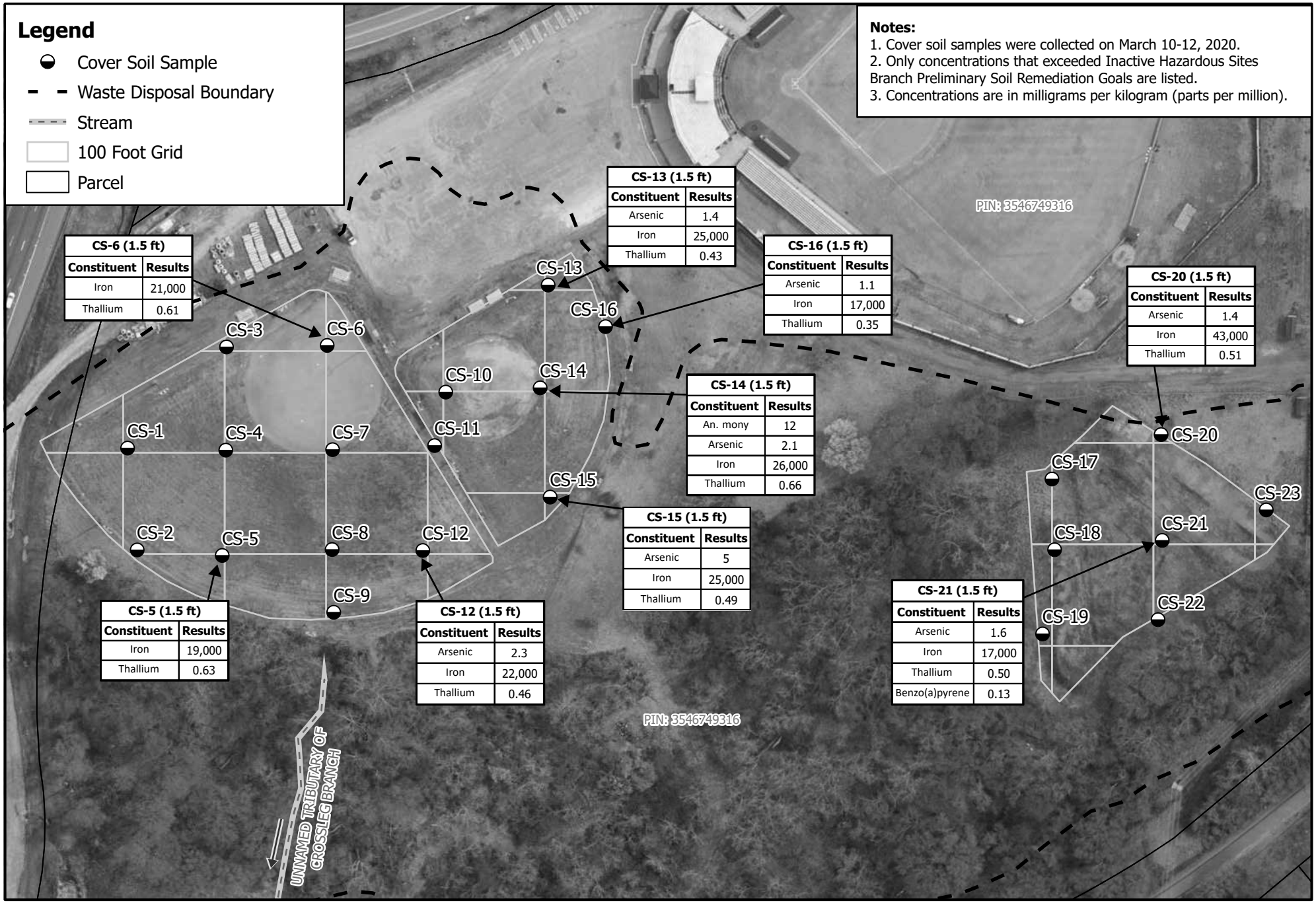
CDM Smith

0 50 100 200 300 Feet

1:1,500

Figure 4A: Cover Soil Boring Analytical Results

Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina
Site Identification Number: NONCD0000766



Ortho Image from ESRI.
Parcels from Gaston County GIS Data, 2019.

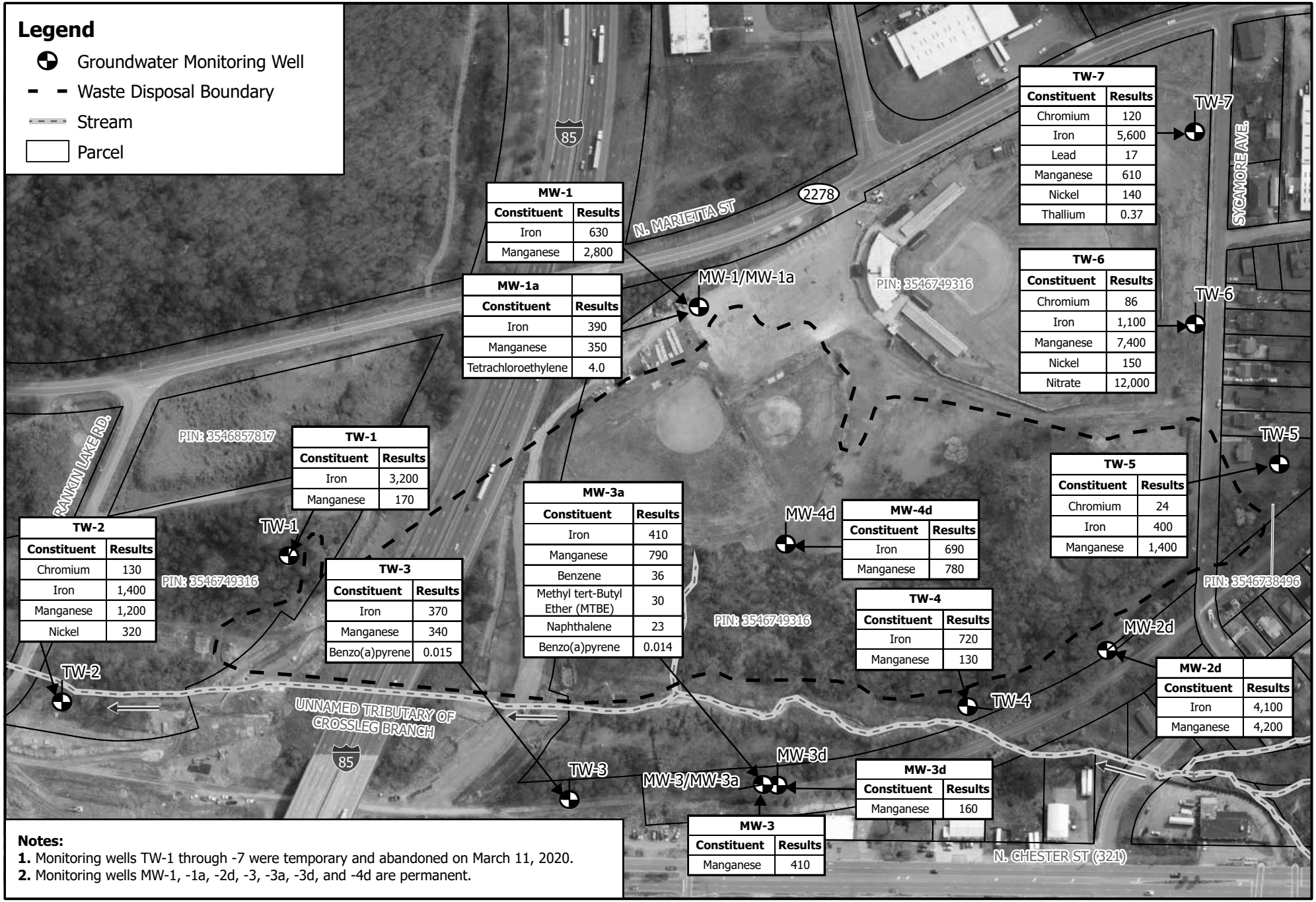
CDM Smith

0 50 100 200 300 Feet

1:1,500

Figure 4B: Cover Soil Boring Analytical Results

Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina
Site Identification Number: NONCD0000766



Notes:
1. Monitoring wells TW-1 through -7 were temporary and abandoned on March 11, 2020.
2. Monitoring wells MW-1, -1a, -2d, -3, -3a, -3d, and -4d are permanent.

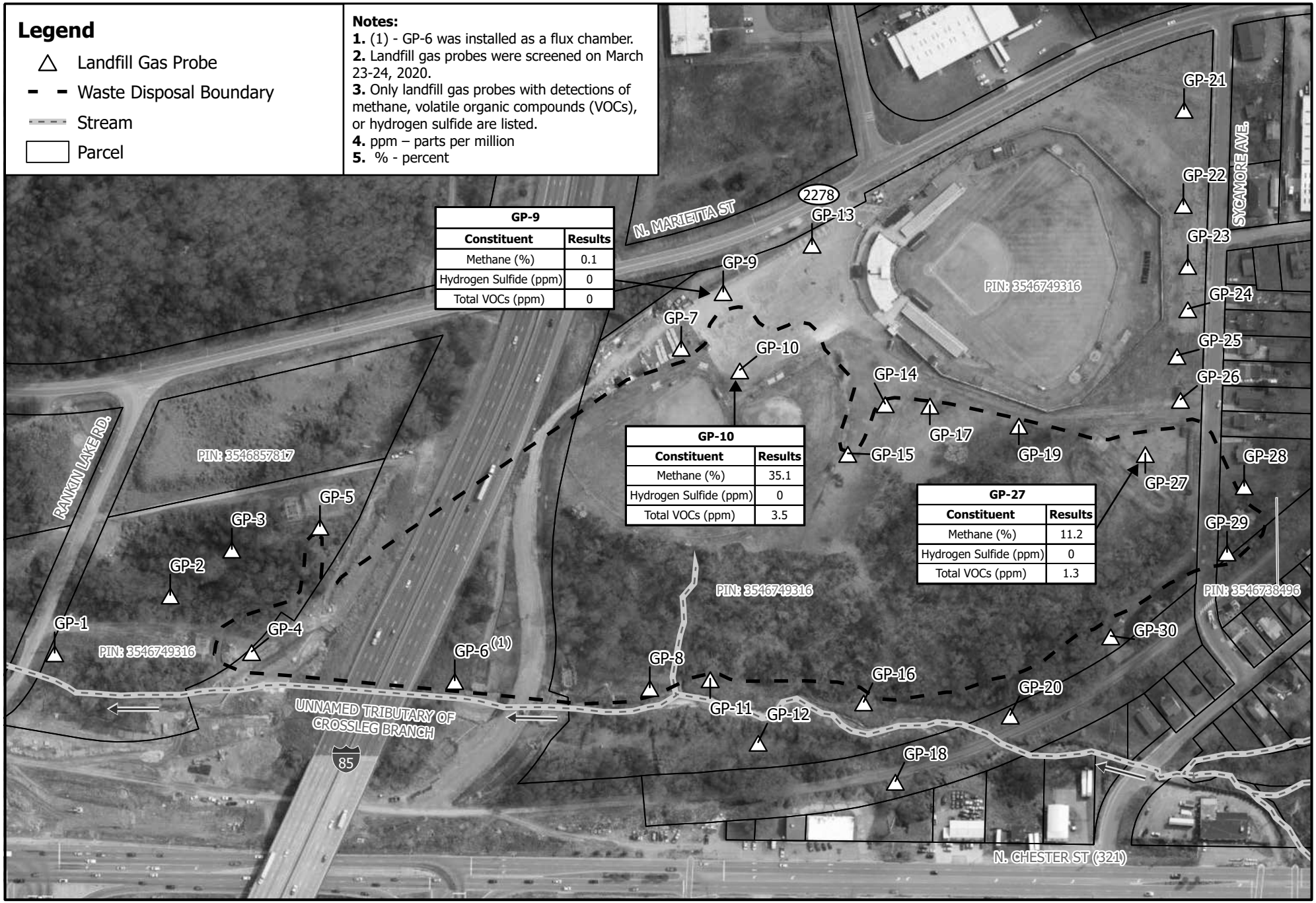
Ortho Image from ESRI.
Parcels from Gaston County GIS Data, 2019.

CDM Smith

0 100 200 400 600 Feet
1:3,000

Figure 5: Groundwater Analytical Results

Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina
Site Identification Number: NONCD0000766



Ortho Image from ESRI.
Parcels from Gaston County GIS Data, 2019.

CDM Smith

0 100 200 400 600 Feet

1:3,000

Figure 6: Landfill Gas Probe Screening Results

Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina
Site Identification Number: NONCD0000766

Table 1
Cover Soil Boring Summary
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina

Soil Boring Code	Northing	Easting	Latitude	Longitude	Estimated Cover Soil Thickness (feet)	Estimated Waste Thickness (feet)	Total VOCs Measured in Cover Soil/Waste (ppm)	Waste Present (Yes/No)	Waste Description
B-1	565786.51	1347605.07	35.28487	81.18633	--	--	0	No	None
B-1A	565771.79	1347593.63	35.28483	81.18637	--	--	0	No	None
B-1B	565773.22	1347621.47	35.28483	81.18628	--	--	0	No	None
B-1C	565725.22	1347592.23	35.28470	81.18637	--	--	0	No	None
B-2	565579.54	1347644.18	35.28430	81.18619	--	--	0	No	None
B-2A	565578.76	1347625.48	35.28430	81.18625	--	--	0	No	None
B-2B	565581.54	1347611.60	35.28431	81.18629	--	--	0	No	None
B-2C	565586.07	1347593.69	35.28432	81.18636	--	--	0	No	None
B-3	565375.73	1347689.38	35.28375	81.18602	--	--	0	No	None
B-3A	565344.99	1347673.91	35.28366	81.18607	1.0	--[3]	0	Yes[3]	Brick, glass
B-3B	565316.57	1347655.35	35.28358	81.18613	0.0	--[3]	0	Yes[3]	Glass, tile, brick
B-4	565328.30	1347770.16	35.28362	81.18574	1.0	--[3]	0	Yes[3]	Brick
B-4A	565292.20	1347730.63	35.28352	81.18587	--	--	0	No	None
B-5	564704.28	1348061.42	35.28192	81.18472	5.0	1.0	14.6	Yes	Plastic, metal
B-5A	564728.78	1348133.77	35.28200	81.18448	--	--	0	No	None
B-6	564517.52	1348215.58	35.28142	81.18419	5.0	--[2]	0	Yes	Glass, metal
B-6A	564535.26	1348248.13	35.28147	81.18409	--	--	0	No	None
B-7	564318.89	1348300.68	35.28088	81.18389	--	--	0	No	None
B-7A	564329.15	1348283.46	35.28091	81.18395	--	--	0	No	None
B-7B	564344.81	1348271.27	35.28095	81.18399	--	--	0	No	None
B-7C	564359.42	1348262.76	35.28099	81.18402	--	--	0	No	None
B-7D	564373.75	1348221.05	35.28103	81.18416	--	--	0	No	None
B-7E	564375.84	1348187.09	35.28103	81.18428	3.0	--[2]	6.0	Yes	Glass, plastic
B-7F	564373.91	1348204.32	35.28103	81.18422	3.0	--[2]	4.7	Yes	Metal
B-8	564272.50	1348097.41	35.28074	81.18457	5.0	--[2]	0	Yes	Metal
B-8A	564264.90	1348102.99	35.28072	81.18455	--	--	0	No	None
B-9/GP-14	564204.54	1348052.56	35.28055	81.18472	3.0	--[2]	0	Yes	Plastic, rubber
B-9A	564277.80	1347970.86	35.28075	81.18499	--	--	0	No	None
B-10	564208.00	1348069.43	35.28056	81.18466	--	--	0	No	None
B-10A	564192.55	1348040.37	35.28052	81.18476	8.0	--[2]	0.2	Yes	Cloth, plastic
B-11	564120.25	1348081.29	35.28032	81.18461	--	--	0.8	No	None
B-11A	564119.88	1348066.47	35.28032	81.18466	--	--	0.6	No	None
B-11B/GP-17	564116.35	1348049.83	35.28031	81.18472	3.0	1.5	0.8	Yes	Plastic
B-12	563925.37	1348025.85	35.27978	81.18478	--	--	0	No	None
B-12A/GP-19	563941.10	1348010.45	35.27982	81.18484	2.0	--[2]	0.1	Yes	Plastic, wire
B-13	563763.80	1348042.15	35.27934	81.18472	--	--	0	No	None
B-13A	563764.62	1348019.72	35.27934	81.18479	--	--	0	No	None
B-13B	563761.48	1347993.89	35.27933	81.18488	--	--	0	No	None
B-13C	563765.33	1347967.94	35.27934	81.18497	4.0	--[2]	0.8	Yes	Metal, plastic
B-14	563600.02	1348006.58	35.27889	81.18483	1.5	--[3]	0	Yes[3]	Plastic
B-14A	563627.19	1347984.42	35.27896	81.18490	2.0	0.5	0	Yes	Metal, glass, plastic
B-14B	563593.48	1347854.44	35.27886	81.18533	2.0	--[3]	0	Yes[3]	Rubber
B-14C	563623.46	1347878.55	35.27894	81.18526	3.0	0.5	0.3	Yes	Rubber, plastic
B-15	563496.26	1347874.66	35.27859	81.18526	--	--	0	No	None
B-15A	563512.62	1347871.79	35.27864	81.18527	4.0	--[2]	0	Yes	Plastic film
B-16	563445.86	1347819.82	35.27845	81.18544	--	--	0	No	None
B-16A	563468.13	1347822.58	35.27851	81.18543	5.0	--[2]	1.1	Yes	Plastic, ceramic
B-17/GP-29	563530.82	1347760.33	35.27868	81.18565	8.0	--[2]	0	Yes	Plastic
B-17A	563516.16	1347736.11	35.27864	81.18573	--	--	0	No	None
B-18	563625.95	1347720.51	35.27894	81.18579	0.5	--[2]	0	Yes	Glass, plastic, wire, metal
B-18A	563610.39	1347744.33	35.27890	81.18570	4.0	--[2]	0	Yes	Glass, metal, rubber, fabric
B-18B	563606.50	1347705.30	35.27889	81.18584	--	--	0	No	None
B-19	563805.03	1347567.19	35.27942	81.18631	--	--	0	No	None
B-19A	563813.39	1347593.26	35.27945	81.18623	--	--	0	No	None
B-19B	563808.22	1347614.80	35.27944	81.18615	2.0	--[2]	0	Yes	Metal, plastic, rubber
B-20	563969.92	1347524.24	35.27987	81.18647	1.0	--[2]	0	Yes	Wire brush, brick, plastic
B-20A	563967.16	1347501.21	35.27987	81.18655	--	--	0	No	None
B-21	564105.52	1347468.53	35.28024	81.18667	--	--	0	No	None
B-21A	564090.82	1347497.48	35.28020	81.18657	2.0	--[2]	0	Yes	Rubber, metal
B-21B	564056.56	1347530.12	35.28011	81.18646	1.0	--[2]	0	Yes	Metal, rubber, glass

Table 1
Cover Soil Boring Summary
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina

Soil Boring Code	Northing	Easting	Latitude	Longitude	Estimated Cover Soil Thickness (feet)	Estimated Waste Thickness (feet)	Total VOCs Measured in Cover Soil/Waste (ppm)	Waste Present (Yes/No)	Waste Description
B-22	564301.29	1347457.16	35.28078	81.18672	--	--	0	No	None
B-22A	564265.20	1347471.04	35.28068	81.18667	--	--	0	No	None
B-22B	564258.98	1347486.72	35.28067	81.18662	--	--	0	No	None
B-22C	564237.68	1347493.74	35.28061	81.18659	3.0	--[(2)]	0	Yes	Glass
B-23	564477.42	1347495.99	35.28127	81.18660	--	--	0	No	None
B-23A	564486.76	1347515.25	35.28129	81.18654	6.0	--[(2)]	0	Yes	Plastic film
B-24/GP-8	564668.46	1347493.26	35.28179	81.18662	2.0	--[(2)]	0	Yes	Plastic, wire, glass
B-24A	564668.62	1347484.56	35.28179	81.18665	3.0	--[(2)]	0	Yes	Cloth
B-25	564757.06	1347521.36	35.28204	81.18654	3.0	--[(2)]	0	Yes	Glass, yarn
B-25A	564766.17	1347508.18	35.28206	81.18658	3.0	--[(2)]	0.8	Yes	Plastic, glass, rubber, tire
B-25B	564759.45	1347485.39	35.28204	81.18666	2.0	--[(2)]	4.9	Yes	Plastic film
B-26	564844.48	1347535.93	35.28228	81.18649	3.0	--[(2)]	0	Yes	Plastic
B-26A	564840.76	1347509.52	35.28227	81.18658	1.0	--[(2)]	0	Yes	Plastic film
B-26B	564844.10	1347491.38	35.28227	81.18664	1.0	--[(2)]	0	Yes	Fabric, glass, plastic
B-27/GP-4	564668.80	1347484.57	35.28179	81.18662	0.0	2.0	0	Yes	Brick, glass
B-28	565606.21	1347557.55	35.28437	81.18648	--	--	0	No	None
B-29	564860.23	1347835.55	35.28234	81.18549	4.0	1.0	0	Yes	Glass
B-29A	563531.69	1347821.22	35.27869	81.18544	1.0	1.0	0	Yes	Glass, metal
B-30	564851.24	1347692.64	35.28231	81.18597	--	--	0	No	None
B-30A	563664.76	1347980.68	35.27906	81.18492	2.0	--[(2)]	0	Yes	Glass, paper, metal, wire, plastic
B-31	564446.76	1348263.72	35.28123	81.18403	--	--	0	No	None
B-31A	564416.33	1348214.04	35.28114	81.18419	--	--	0.3	No	None
B-31B	564395.78	1348176.89	35.28108	81.18431	3.0	--[(2)]	11.1	Yes	Plastic, glass, metal, wood, ceramic
B-32	564860.23	1347835.55	35.28234	81.18549	5.0	11.0	0	Yes	Plastic, glass, metal, rubber
B-33	564851.24	1347692.64	35.28231	81.18597	5.0	10.0	0	Yes	Glass, brick, plastic bag, plastic, wood, metal wire
CS-1	564771.78	1347957.53	35.28210	81.18508	--	--	0	No	None
CS-2	564762.34	1347857.13	35.28207	81.18541	--	--	0	No	None
CS-3	564674.30	1348057.21	35.28184	81.18473	--	--	0	No	None
CS-4	564674.99	1347955.50	35.28184	81.18508	--	--	0	No	None
CS-5	564678.52	1347851.70	35.28184	81.18542	2.5	--[(2)]	0	Yes	Glass, rubber
CS-6	564575.07	1348058.75	35.28157	81.18472	2.5	--[(2)]	0.9	Yes	Glass, rubber
CS-7	564569.73	1347956.00	35.28155	81.18507	--	--	0	No	None
CS-8	564570.21	1347857.53	35.28154	81.18540	--	--	0	No	None
CS-9	564568.60	1347795.68	35.28154	81.18560	--	--	0	No	None
CS-10	564458.19	1348012.72	35.28125	81.18487	--	--	0	No	None
CS-11	564469.17	1347960.01	35.28127	81.18505	--	--	0	No	None
CS-12	564480.82	1347856.58	35.28130	81.18539	3.0	--[(2)]	0	Yes	Rubber, plastic
CS-13	564357.25	1348118.23	35.28097	81.18451	2.0	--[(2)]	0	Yes	Metal
CS-14	564365.15	1348016.95	35.28099	81.18485	2.5	--[(2)]	0	Yes	Glass, plastic
CS-15	564355.29	1347909.24	35.28096	81.18521	2.5	--[(2)]	0	Yes	Plastic
CS-16	564299.50	1348077.50	35.28081	81.18464	2.0	--[(2)]	0	Yes	Rubber, plastic
CS-17	563860.68	1347927.05	35.27960	81.18511	1.25	--[(2)]	0	Yes	Rubber
CS-18	563858.05	1347857.36	35.27959	81.18534	0.25	--[(2)]	0	Yes	Plastic
CS-19	563869.92	1347774.33	35.27961	81.18562	0.42	--[(2)]	0	Yes	Glass
CS-20	563753.10	1347970.89	35.27931	81.18496	2.0	--[(2)]	0	Yes	Plastic, paper
CS-21	563752.00	1347866.53	35.27930	81.18531	2.5	--[(2)]	0	Yes	Plastic, paper
CS-22	563756.11	1347788.40	35.27930	81.18557	0.83	--[(2)]	0	Yes	Paper, plastic
CS-23	563649.40	1347896.59	35.27902	81.18520	0.33	--[(2)]	0	Yes	Glass, plastic, rubber

Notes:

1. Waste delineation borings were advanced from March 4-11, 2020. Cover soil borings were completed March 10-12, 2020.
2. [(2)] - Waste thickness not estimated. Boring was used to determine the presence of waste and thickness of cover soil above waste.
3. [(3)] - Waste present at this boring location was sparse, and not in a defined layer.
4. [(4)] - Total volatile organic compounds (VOCs) measured in cover soil.
5. [(5)] - Total VOCs measured in cover soil and waste. Highest recorded measurement is listed.
6. No VOCs were detcted in the cover soil borings with the exception of those noted in the table.
7. ppm - parts per million
8. -- No waste present.
9. NA - Not Applicable
10. Northing and Easting Coordinates - North American Datum 1983 State Plane Feet North Carolina
11. Latitude and Longitude Coordinates - World Geodetic System 1984

Table 2a
Detected Cover Soil Boring Constituents - Metals
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina

Cover Soil Boring Sample Code	Sample Date	Antimony	Arsenic	Beryllium	Cadmium	Chromium[4]	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
Health-Based Residential PSRG [3]		**6.3**	**0.68**	**31**	**14**	**23,000**	**630**	**11,000**	**400**	**380**	**2.3**	**310**	**78**	**78**	**0.16**	**4,700**
Health-Based Industrial PSRG [3]		**93**	**3.0**	**470**	**200**	**350,000**	**9,300**	**160,000**	**800**	**5,600**	**9.7**	**4,700**	**1,200**	**1,200**	**2.3**	**70,000**
CS-5-0.5	11-Mar-20	--	7.2*	1.0	--	22	37	31,000	20	400	0.025	12	--	0.068	0.39	60
CS-5-1.5	11-Mar-20	--	0.55	1.3	--	8.6	20	19,000	23	240	0.032	3.6	--	0.049	0.63	66
CS-6-0.5	11-Mar-20	--	2.5	0.46	--	18	22	21,000[5]	12	220	0.013	8.4	--	0.052	0.19	28
CS-6-1.5	11-Mar-20	--	0.29	1.3	--	10	17	21,000	18	300	0.019	4.7	--	0.047	0.61	65
CS-12-0.5	11-Mar-20	--	2.2	1.2	--	13	19	20,000	21	240	0.013	6.1	--	0.062	0.68	74
CS-12-0.5 (dup)	11-Mar-20	--	3.2*	1.1	--	12	16	18,000	18	180	0.015	4.7	--	0.043	0.54	59
CS-12-1.5	11-Mar-20	--	2.3	1.1	--	12	19	22,000	27	180	0.035	6.4	--	0.081	0.46	51
CS-13-0.5	10-Mar-20	--	1.2	1.3	--	11	25	19,000	19	250	0.019	5.2	--	0.065	0.53	63
CS-13-1.5	10-Mar-20	--	1.4	0.89	--	14	15	25,000	20	210	0.044	5.8	--	0.061	0.43	42
CS-14-0.5	10-Mar-20	--	2.5	0.51	--	7.3	15	13,000	21	140	0.034	3.6	--	0.068	0.40	29
CS-14-0.5 (dup)	10-Mar-20	0.44	3.3*	0.68	--	8.8	19	16,000	26	200	0.032	4.0	--	0.079	0.45	68
CS-14-1.5	10-Mar-20	12	2.1	1.2	0.96	12	22	26,000	75	240	0.097	4.9	--	0.070	0.66	67
CS-15-0.5	11-Mar-20	--	2.5	0.62	--	9.7	15	20,000	20	110	0.027	3.6	--	0.047	0.34	36
CS-15-1.5	11-Mar-20	--	5.0*	0.73	6.3	13	21	25,000	45	150	0.076	5.8	--	0.091	0.49	78
CS-16-0.5	10-Mar-20	--	2.9	0.77	--	8.0	18	14,000	21	170	0.026	3.8	--	0.061	0.39	57
CS-16-1.5	10-Mar-20	--	1.1	0.79	--	7.4	20	17,000	15	110	0.027	4.5	--	0.060	0.35	55
CS-17-0.5	11-Mar-20	0.51	1.7	0.87	0.28	16	23	39,000	150	240	0.33	7.7	--	0.80	0.50	98
CS-20-0.5	12-Mar-20	0.72	4.8*	0.73	0.23	18	39	23,000	45	280	0.028	17	--	0.077	0.35	61
CS-20-1.5	12-Mar-20	--	1.4	0.91	--	25	19	43,000	26	220	0.11	8.8	--	0.089	0.51	120
CS-21-0.5	12-Mar-20	--	1.8	0.83	--	12	20	18,000	46	180	0.038	7.0	--	0.080	0.45	64
CS-21-0.5 (dup)	12-Mar-20	--	2.1	0.81	--	11	23	19,000	47	210	0.039	7.1	--	0.068	0.46	68
CS-21-1.5	12-Mar-20	--	1.6	0.74	--	8.8	32	17,000	25	240	0.024	4.8	--	0.059	0.50	80
CS-22-0.5	12-Mar-20	--	1.2	0.90	--	11	19	19,000[5]	24	230	0.019	5.4	--	0.065	0.59	64

Notes:

1. All units are in milligrams per kilogram (parts per million).
2. dup - duplicate sample
3. [3] - Inactive Hazardous Sites Branch Preliminary Soil Remediation Goal (PSRG) - December 2019
4. [4] - There is no PSRG for total chromium. The PSRG provided is for chromium(III), insoluble salts.
5. [5] - MS-19 Qualifier - The sample to spike ratio was greater than or equal to 4 to 1. The spiked amount was not representative of the native amount In the sample. Recoveries cannot be calculated.

	- Concentration exceeds Residential PSRGs
*	- Concentration exceeds Induatrial PSRGs
--	- Indicates the result is below the detection limit.

Table 2b
Detected Cover Soil Boring Constituents - Volatile Organic Compounds
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina

Cover Soil Boring Sample Code	Sample Date	Acetone	Naphthalene	1,2,4-Trimethylbenzene
Health-Based Residential PSRG [3]		**12,000**	**4.1**	**63**
Health-Based Industrial PSRG [3]		**140,000**	**18**	**370**
CS-5-0.5	11-Mar-20	0.027[4,5]	--	--
CS-5-1.5	11-Mar-20	0.035[4,5]	--	--
CS-6-0.5	11-Mar-20	0.011[4,5]	0.0017[5]	0.00048
CS-6-1.5	11-Mar-20	0.029[4,5]	--	--
CS-12-0.5	11-Mar-20	0.015[4,5]	--	--
CS-12-0.5 (dup)	11-Mar-20	0.026[4,5]	--	--
CS-12-1.5	11-Mar-20	0.018[4,5]	--	--
CS-13-0.5	10-Mar-20	0.016[4,5]	--	--
CS-13-1.5	10-Mar-20	--	--	--
CS-14-0.5	10-Mar-20	0.058	--	--
CS-14-0.5 (dup)	10-Mar-20	0.11	--	--
CS-14-1.5	10-Mar-20	0.062	--	--
CS-15-0.5	11-Mar-20	0.073[6]	--	--
CS-15-1.5	11-Mar-20	0.094[6]	--	--
CS-16-0.5	10-Mar-20	0.019[4,5]	--	--
CS-16-1.5	10-Mar-20	0.035	--	--
CS-17-0.5	11-Mar-20	0.18	--	--
CS-20-0.5	12-Mar-20	0.053	--	--
CS-20-1.5	12-Mar-20	0.066	--	--
CS-21-0.5	12-Mar-20	0.049	--	--
CS-21-0.5 (dup)	12-Mar-20	0.062	--	--
CS-21-1.5	12-Mar-20	0.035	--	--
CS-22-0.5	12-Mar-20	0.065	--	--

Notes:

1. All units are in milligrams per kilogram (parts per million).
2. dup - duplicate sample
3. [3] - Inactive Hazardous Sites Branch Preliminary Soil Remediation Goal (PSRG) - December 2019
4. [4] - L-04 Qualifier - The laboratory blank/control sample recovery and duplicate recovery were outside of control limits. Reported values are likely to be biased on the low side.
5. [5] - V-05 Qualifier - The continuing calibration verification did not meet method specifications and was biased on the low side.
6. [6] - R-05 Qualfier - The laboratory blank duplicate relative percent difference was outside of control limits. Reduced precision was anticipated for this analyte.

-- - Indicates the result is below the detection limit.

Table 2c
Detected Cover Soil Boring Constituents - Semi-Volatile Organic Compounds
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina

Cover Soil Boring Sample Code	Sample Date	Acenaphthalene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-Ethylhexyl)phthalate	Carbazole	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Phenanthrene	Pyrene
Health-Based Residential PSRG [3]		**720**	**NS**	**3,600**	**1.1**	**0.11**	**1.1**	**NS**	**11**	**39**	**NS**	**110**	**0.11**	**15**	**480**	**480**	**1.1**	**18**	**48**	**4.1**	**NS**	**360**
Health-Based Industrial PSRG [3]		**9,000**	**NS**	**45,000**	**21**	**2.1**	**21**	**NS**	**210**	**160**	**NS**	**2,100**	**2.1**	**210**	**6,000**	**6,000**	**21**	**73**	**600**	**18**	**NS**	**4,500**
CS-5-0.5	11-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CS-5-1.5	11-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CS-6-0.5	11-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CS-6-1.5	11-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CS-12-0.5	11-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CS-12-0.5 (dup)	11-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CS-12-1.5	11-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CS-13-0.5	10-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CS-13-1.5	10-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CS-14-0.5	10-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CS-14-0.5 (dup)	10-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CS-14-1.5	10-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CS-15-0.5	11-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CS-15-1.5	11-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CS-16-0.5	10-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CS-16-1.5	10-Mar-20	--	--	--	--	--	--	--	--	0.36	--	--	--	--	--	--	--	--	--	--	--	--
CS-17-0.5	11-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CS-20-0.5	12-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.15
CS-20-1.5	12-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CS-21-0.5	12-Mar-20	--	--	--	0.23	0.24	0.23	0.13	--	--	--	0.21	--	--	0.23	--	--	--	--	--	--	0.42
CS-21-0.5 (dup)	12-Mar-20	2.3	2.0	4.1	13	11*	12	5.0	4.4	--	2.5	12	2.0	1.3	19	2.5	5.5	0.37	0.77	2.4	14	29
CS-21-1.5	12-Mar-20	--	--	--	--	0.13	0.26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CS-22-0.5	12-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:

1. All units are in milligrams per kilogram (parts per million).
2. dup - duplicate sample
3. [3] - Inactive Hazardous Sites Branch Preliminary Soil Remediation Goal (PSRG) - December 2019
4. NS - No Standard

	- Concentration exceeds Residential PSRGs
*	- Concentration exceeds Induatrial PSRGs
--	- Indicates the result is below the detection limit.

Table 2d
Detected Cover Soil Boring Constituents - General Chemistry Analytes
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina

Cover Soil Boring Sample Code	Sample Date	Ammonia	Nitrate	Sulfate
Health-Based Residential PSRG [3]		**6,200,000,000**	**25,000**	**NS**
Health-Based Industrial PSRG [3]		**26,000,000,000**	**370,000**	**NS**
CS-5-0.5	11-Mar-20	--	1.32	--
CS-5-1.5	11-Mar-20	92	0.889	--
CS-6-0.5	11-Mar-20	--	1.98	--
CS-6-1.5	11-Mar-20	80	1.52	--
CS-12-0.5	11-Mar-20	--	0.439	--
CS-12-0.5 (dup)	11-Mar-20	--	1.98	--
CS-12-1.5	11-Mar-20	--	1.36	--
CS-13-0.5	10-Mar-20	--	0.362	--
CS-13-1.5	10-Mar-20	--	1.12	--
CS-14-0.5	10-Mar-20	--	0.745	--
CS-14-0.5 (dup)	10-Mar-20	--	--	--
CS-14-1.5	10-Mar-20	--	--	--
CS-15-0.5	11-Mar-20	--	1.29	--
CS-15-1.5	11-Mar-20	--	1.16	--
CS-16-0.5	10-Mar-20	--	0.817	--
CS-16-1.5	10-Mar-20	--	0.634	--
CS-17-0.5	11-Mar-20	--	0.857	--
CS-20-0.5	12-Mar-20	--	0.692	--
CS-20-1.5	12-Mar-20	--	--	--
CS-21-0.5	12-Mar-20	--	--	--
CS-21-0.5 (dup)	12-Mar-20	--	--	--
CS-21-1.5	12-Mar-20	--	0.711	--
CS-22-0.5	12-Mar-20	--	--	--

Notes:

1. All units are in milligrams per kilogram (parts per million).
2. dup - duplicate sample
3. [3] - Inactive Hazardous Sites Branch Preliminary Soil Remediation Goal (PSRG) - December 2019
4. NS - No Standard

-- - Indicates the result is below the detection limit.

Table 3
Groundwater Monitoring Well Construction Summary
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina

Groundwater Well Code	Completion Date	Northing	Easting	Latitude	Longitude	Drilling Method	Screened Lithology	Total Depth (feet bgs)	Depths (feet bgs)			Borehole Diameter (inches)
									Screen Interval	Filter Interval	Seal Interval	
TW-1	5-Mar-20	565379.62	1347750.27	35.28376	81.18582	Sonic	Regolith	25.0	15.0 - 25.0	13.0 - 15.0	10.0 - 13.0	6
TW-2	5-Mar-20	565826.74	1347463.08	35.28497	81.18681	Hand Auger	Regolith	9.0	4.0 - 9.0	3.0 - 9.0	0.0 - 3.0	3
TW-3	6-Mar-20	564826.81	1347269.79	35.28221	81.18738	Sonic	Regolith	20.0	10.0 - 20.0	8.0 - 20.0	5.0 - 8.0	6
TW-4	5-Mar-20	564041.56	1347454.17	35.28007	81.18671	Sonic	Regolith	10.0	5.0 - 10.0	3.0 - 10.0	1.0 - 3.0	6
TW-5	5-Mar-20	563427.62	1347931.60	35.27841	81.18506	Sonic	Regolith	25.0	15.0 - 25.0	13.0 - 25.0	10.0 - 13.0	6
TW-6	5-Mar-20	563592.83	1348208.01	35.27888	81.18415	Sonic	Regolith	35.0	25.0 - 35.0	23.0 - 35.0	20.0 - 23.0	6
TW-7	5-Mar-20	563594.19	1348586.21	35.27891	81.18288	Sonic	Regolith	10.0	5.0 - 10.0	3.0 - 10.0	0.0 - 3.0	6
MW-1	12-Mar-20	564571.69	1348241.23	35.28157	81.18411	Sonic	Regolith	20.0	10.0 - 20.0	8.0 - 20.0	5.0 - 8.0	6
MW-1a	12-Mar-20	564571.69	1348241.23	35.28157	81.18411	Sonic	Regolith	40.0	35.0 - 40.0	33.0 - 40.0	22.0 - 33.0	6
MW-2d	10-Mar-20	563766.96	1347565.04	35.27932	81.18632	Sonic	PWR	46.0	36.0 - 46.0	34.0 - 46.0	31.0 - 34.0	6
MW-3	12-Mar-20	564444.84	1347300.06	35.28117	81.18725	Sonic	Regolith	16.0	6.0 - 16.0	4.0 - 16.0	1.0 - 4.0	6
MW-3a	12-Mar-20	564444.84	1347300.06	35.28117	81.18725	Sonic	Regolith	28.0	23.0 - 28.0	21.0 - 28.0	18.0 - 21.0	6
MW-3d	12-Mar-20	564416.90	1347298.99	35.28109	81.18726	Sonic	PWR	47.0	37.0 - 47.0	35.0 - 47.0	32.0 - 35.0	6
MW-4d	10-Mar-20	564400.36	1347774.44	35.28107	81.18566	Sonic	PWR	51.0	41.0 - 51.0	39.0 - 41.0	36.0 - 39.0	6

Notes:

1. bgs - below ground surface
2. PWR - Partially Weathered Rock
2. Northing and Easting Coordinates - North American Datum 1983 State Plane Feet North Carolina
3. Latitude and Longitude Coordinates - World Geodetic System 1984
4. Each well was constructed of 2-inch diameter Schedule 40 polyvinylchloride (PVC) riser flush-threaded to 0.01-inch mill slotted pre-packed Schedule 40 PVC screen. Wells MW-1, -1a, -2d, -3, -3a, -3d, and -4d were completed with a steel flush-mounted protective cover, 2-foot by 2-foot concrete pad, expansion cap, identification placard, and a lock.
5. Temporary groundwater wells (TW-1 through -7) were abandoned on March 11, 2020.

Table 4
Water Quality Measurements and Groundwater Elevations
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina

Monitoring Well Code	Water Quality Measurements				Depth to Groundwater
	pH	Conductivity	Temperature	Turbidity	
	(S.U.)	(µS/cm)	(degrees Celsius)	(NTUs)	(feet BTOC)
TW-1	6.30	118	17.9	132	16.33
TW-2	6.81	591	16.9	18.9	6.27
TW-3	5.04	76	18.2	9.4	11.55
TW-4	6.08	224	13.3	37.2	6.55
TW-5	5.58	101	17.8	9.9	20.00
TW-6	6.59	425	23.8	12.6	29.83
TW-7	5.37	88	17.4	28.3	6.59
MW-1	5.70	278	15.5	8.3	9.01
MW-1a	6.33	108	18.0	9.7	9.02
MW-2d	5.71	352	15.0	8.9	7.83
MW-3	5.80	127	14.7	9.4	10.03
MW-3a	5.40	88	16.4	34.5	10.00
MW-3d	6.17	96	17.0	9.2	10.51
MW-4d	6.21	213	14.6	7.9	17.32

Notes:

1. Water levels and water quality measurements for TW-1 through -7 were collected on March 9-11, 2020.
2. Water levels and water quality measurements for MW-1, 1a, -2d, -3, -3a, -3d, and -4d were collected on March 23-24, 2020.
3. S.U. - Standard Units
4. µS/cm - Microsiemens per centimeter
5. NTUs - Nephelometric Turbidity Units
6. BTOC - Below Top of Casing
7. Turbidity was measured at the time of sample collection.

Table 5a
Detected Groundwater Constituents - Metals
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina

Monitoring Well Code	Sample Date	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
North Carolina 2L or IMAC		**1[3]**	**10**	**4[3]**	**2**	**10**	**1,000**	**300**	**15**	**50**	**1**	**100**	**20**	**20**	**0.2[3]**	**1,000**
TW-1	11-Mar-20	--	0.75	0.65	--	7.1	6.8	3,200	3.5	170	--	4.9	--	--	0.073	25
TW-2	11-Mar-20	--	--	--	--	130	11	1,400	0.65	1,200	--	320	--	--	--	140
TW-3	11-Mar-20	--	--	0.94	0.065	--	2.4	370	0.31	340	--	3.3	--	--	0.025	20
TW-4	11-Mar-20	--	--	0.22	--	--	1.1	720	2.1	130	--	1.2	2.0	--	0.022	6.8
TW-4 (dup)	11-Mar-20	--	--	0.34	--	--	1.2	720	3.6	130	--	1.2	1.9	--	0.029	7.9
TW-5	9-Mar-20	--	--	0.14	0.045	24	3.5	400	0.82	1,400	--	17	--	--	0.059	21
TW-5 (dup)	9-Mar-20	--	--	0.13	0.050	19	3.1	380	0.85	1,300	--	15	--	--	0.058	18
TW-6	10-Mar-20	--	--	--	0.10	86	4.5	1,100	0.49	7,400	--	150	--	--	0.15	210
TW-7	10-Mar-20	--	--	0.84	--	120	11	5,600	17	610	0.046	140	--	--	0.37	45
MW-1	24-Mar-20	--	--	0.45	0.22	0.98	1.2	630	0.31	2,800	--	8.2	--	--	0.087	24
MW-1a	23-Mar-20	--	---	0.15	--	1.2	1.9[4]	390	0.34	350	--	1.6	--	--	0.037	14
MW-2d	23-Mar-20	--	--	0.43	0.20	1.6	1.8	4,100	0.63	4,200	--	10	2.4	--	0.10	49
MW-2d (dup)	23-Mar-20	--	--	0.41	0.20	1.4	1.8	4,200	0.66	4,200	--	10	2.4	--	0.10	50
MW-3	24-Mar-20	--	--	--	0.078	--	--	140	0.38	410	--	2.3	--	--	0.077	13
MW-3a	24-Mar-20	--	--	0.11	0.16	--	--	410	0.29	790	--	3.0	--	--	0.19	14
MW-3a (dup)	24-Mar-20	--	--	0.15	0.16	--	--	450	0.33	780	--	2.8	--	--	0.19	16
MW-3d	24-Mar-20	--	--	--	--	--	1.2	220	0.27	160	--	1.4	--	--	0.021	17
MW-4d	23-Mar-20	--	--	--	0.095	--	--	690	0.19	780	--	2.1	--	--	0.045	13

Notes:

1. All units are in micrograms per liter (parts per billion).
2. dup - duplicate sample
3. [3] - Interim Maximum Allowable Concentration (IMAC)
4. [4] - R-02 Qualifier - The duplicate relative percent difference was outside of control limits.

	- Concentration exceeds the 15A NCAC 02L .0202 (North Carolina 2L) or IMAC.
--	- Indicates the result is below the detection limit.

Table 5b
Detected Groundwater Constituents - Volatile Organic Compounds
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina

Monitoring Well Code	Sample Date	Acetone	Benzene	Bromodichloromethane	tert-Butyl Alcohol (TBA)	n-Butylbenzene	sec-Butylbenzene	Chlorobenzene	Chloroform	1,4-Dichlorobenzene	Diisopropyl Ether (DIPE)	Ethylbenzene	Isopropylbenzene (Cumene)	p-Isopropyltoluene (p-Cymene)	Methyl tert-Butyl Ether (MTBE)	Naphthalene	n-Propylbenzene	Tetrachloroethylene	Trichloroethylene	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	m+p Xylene	o-Xylene
North Carolina 2L or IMAC		**6,000**	**1**	**0.6**	**NS**	**70**	**70**	**50**	**70**	**6**	**70**	**600**	**70**	**25[3]**	**20**	**6**	**70**	**0.7**	**3**	**600**	**400**	**400**	**NS**	**500**
TW-1	10-Mar-20	6.2	--	0.20	--	--	--	--	0.81	--	--	--	--	0.21	--	--	--	--	--	--	--	--	--	--
TW-2	10-Mar-20	7.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TW-3	10-Mar-20	--	--	--	--	--	--	--	0.88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TW-4	10-Mar-20	4.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TW-4 (dup)	10-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TW-5	9-Mar-20	--	--	--	--	--	--	--	1.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TW-5 (dup)	9-Mar-20	--	--	--	--	--	--	--	1.1	--	--	--	--	--	--	--	--	0.18	--	--	--	--	--	--
TW-6	9-Mar-20	9.0	0.24	--	--	--	--	--	5.2	--	--	--	--	--	--	--	--	--	--	0.15	--	--	--	--
TW-7	9-Mar-20	9.2	--	--	--	--	--	--	1.9	--	--	0.21	--	--	--	--	0.17	--	--	0.31	0.92	0.26	0.89	0.55
MW-1	23-Mar-20	--	--	--	--	--	--	--	5.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-1a	23-Mar-20	--	--	--	--	--	--	--	2.9	--	--	--	--	--	--	--	--	4.0	--	--	--	--	--	--
MW-2d	23-Mar-20	--	--	--	--	--	--	--	0.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-2d (dup)	23-Mar-20	--	--	--	--	--	--	--	0.46	0.34	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	24-Mar-20	--	--	--	--	--	--	--	0.49	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3a	24-Mar-20	--	36	--	33	1.3	0.88	--	1.4	--	0.69	0.56	5.2	0.52	30	23	0.79	--	--	0.16	130	34	110	100
MW-3a (dup)	24-Mar-20	--	37	--	33	1.4	0.91	--	1.2	--	0.69	0.56	5.3	0.55	31	26	0.81	--	--	0.17	130	35	120	110
MW-3d	24-Mar-20	--	--	--	--	--	--	--	0.56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-4d	23-Mar-20	--	--	--	--	--	--	0.76	--	1.5	--	--	--	--	--	--	--	--	2.7	--	--	--	--	--

Notes:

1. All units are in micrograms per liter (parts per billion).
2. dup - duplicate sample
3. [3] - Interim Maximum Allowable Concentration (IMAC)

	- Concentration exceeds the 15A NCAC 02L .0202 (North Carolina 2L) or IMAC.
--	- Indicates the result is below the detection limit.

Table 5c
Detected Groundwater Constituents - Semi-Volatile Organic Compounds
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina

Monitoring Well Code	Sample Date	Acenaphthene	Acenaphthylene	Acetophenone	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	1,4-Dichlorobenzene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	3/4-Methylphenol	Naphthalene	Phenanthrene	Phenol	Pyrene
North Carolina 2L or IMAC		**80**	**200**	**700[3]**	**2,000**	**0.05**	**0.005**	**0.05**	**0.5**	**5**	**6**	**300**	**300**	**0.05**	**NS**	**30**	**NS**	**6**	**200**	**30**	**200**
TW-1	10-Mar-20	Not Analyzed[4]																			
TW-2	10-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.77	--	--	--	--
TW-3	10-Mar-20	--	--	--	--	0.021	0.015	0.019	0.015	0.019	--	0.035	--	--	--	--	--	--	0.042	--	0.033
TW-4	10-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TW-4 (dup)	10-Mar-20	0.037	0.038	--	--	0.016	--	--	--	--	--	--	0.045	--	--	0.082	--	--	0.039	--	--
TW-5	9-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TW-5 (dup)	9-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TW-6	9-Mar-20	--	--	0.44	--	--	--	--	0.014	--	--	--	0.060	0.019	--	0.24	5.1	--	0.055	--	0.035
TW-7	9-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	23-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-1a	23-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-2d	23-Mar-20	0.053	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-2d (dup)	23-Mar-20	0.052	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	24-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3a	24-Mar-20	0.041	0.039	--	0.034	0.023	0.014	0.016	0.015	0.018	--	0.032	0.12	--	2.7	1.7	--	3.0	0.051	0.24	0.031
MW-3a (dup)	24-Mar-20	--	--	--	--	--	--	--	--	--	--	--	0.062	--	2.1	0.38	--	0.38	--	--	--
MW-3d	24-Mar-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-4d	23-Mar-20	--	--	--	--	--	--	--	--	--	0.93	--	--	--	--	--	--	--	--	--	--

Notes:

1. All units are in micrograms per liter (parts per billion).
2. dup - duplicate sample
3. [3] - Interim Maximum Allowable Concentration (IMAC)
4. [4] - Semi-volatile organic compounds were not analyzed for TW-1 because the bottles were broken in transit to the laboratory.

	- Concentration exceeds the 15A NCAC 02L .0202 (North Carolina 2L)
--	- Indicates the result is below the detection limit.

Table 5d
Detected Groundwater Constituents - General Chemistry
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina

Monitoring Well Code	Sample Date	Ammonia	Nitrate	Sulfate
North Carolina 2L or IMAC		**1,500[(3)]**	**10,000**	**250,000**
TW-1	10-Mar-20	290	910	10,000
TW-2	10-Mar-20	1,200	260	120,000
TW-3	10-Mar-20	--	1,700	810
TW-4	10-Mar-20	--	2,800	45,000
TW-4 (dup)	10-Mar-20	--	3,100	46,000[(4)]
TW-5	9-Mar-20	290	4,600	4,500
TW-5 (dup)	9-Mar-20	--	4,800	4,800
TW-6	9-Mar-20	440	12,000	4,600
TW-7	9-Mar-20	150	1,000	20,000
MW-1	23-Mar-20	--	240	1,100
MW-1a	23-Mar-20	--	230	2,600
MW-2d	23-Mar-20	--	--	110,000
MW-2d (dup)	23-Mar-20	--	--	110,000[(4)]
MW-3	24-Mar-20	--	1,900	29,000
MW-3a	24-Mar-20	--	2,900	2,000
MW-3a (dup)	24-Mar-20	--	2,900	1,900
MW-3d	24-Mar-20	--	420	750
MW-4d	23-Mar-20	--	270	870

Notes:

1. All units are in micrograms per liter (parts per billion).
2. dup - duplicate sample
3. [(3)] - Interim Maximum Allowable Concentration (IMAC)
4. [(4)] - MS-07 Qualifier - The matrix spike recovery was outside of control limits.

	- Concentration exceeds the 15A NCAC 02L .0202 (North Carolina 2L)
--	- Indicates the result is below the detection limit.

Table 6
Landfill Gas Probe Construction Summary
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina

Landfill Gas Probe Code	Completion Date	Northing	Easting	Latitude	Longitude	Drilling Method	Screened Lithology	Total Depth (feet bgs)	Depths (feet bgs)			Borehole Diameter (inches)
									Screen Interval	Filter Interval	Seal Interval	
GP-1	3/2/2020	565841.45	1347561.53	35.28502	81.18648	Sonic	Regolith	11.0	6.0 - 11.0	5.0 - 11.0	3.0 - 5.0	6
GP-2	3/2/2020	565613.56	1347675.47	35.28440	81.18608	Sonic	Regolith	11.0	6.0 - 11.0	5.0 - 11.0	3.0 - 5.0	6
GP-3	3/2/2020	565492.27	1347766.11	35.28407	81.18577	Sonic	Regolith	11.0	6.0 - 11.0	5.0 - 11.0	3.0 - 5.0	6
GP-4	3/12/2020	565453.28	1347563.88	35.28395	81.18645	HSA	Regolith	11.0	6.0 - 11.0	5.0 - 11.0	3.0 - 5.0	3
GP-5	3/2/2020	565318.51	1347811.12	35.28360	81.18561	Sonic	Regolith	11.0	6.0 - 11.0	5.0 - 11.0	3.0 - 5.0	6
GP-7	3/12/2020	564606.53	1348163.97	35.28166	81.18437	Sonic	Regolith	11.0	6.0 - 11.0	5.0 - 11.0	3.0 - 5.0	6
GP-8	3/12/2020	564668.46	1347493.26	35.28179	81.18662	HSA	Regolith	11.0	6.0 - 11.0	5.0 - 11.0	3.0 - 5.0	3
GP-9	3/6/2020	564523.85	1348273.39	35.28144	81.18400	Sonic	Regolith	10.0	5.0 - 10.0	5.0 - 11.0	3.0 - 5.0	6
GP-10	3/6/2020	564491.24	1348119.17	35.28134	81.18451	Sonic	Regolith	7.0	5.0 - 7.0	5.0 - 7.0	3.0 - 5.0	6
GP-11	3/10/2020	564549.33	1347510.43	35.28147	81.18656	Sonic	Regolith	6.0	5.0 - 6.0	5.0 - 6.0	3.0 - 5.0	6
GP-12	3/12/2020	564454.83	1347385.31	35.28120	81.18697	Sonic	Regolith	6.0	5.0 - 6.0	5.0 - 6.0	3.0 - 5.0	6
GP-13	3/6/2020	564348.64	1348366.96	35.28097	81.18367	Sonic	Regolith	6.0	5.0 - 6.0	5.0 - 6.0	3.0 - 5.0	6
GP-14	3/9/2020	564204.54	1348052.56	35.28055	81.18472	HSA	Regolith	11.0	6.0 - 11.0	5.0 - 11.0	3.0 - 5.0	3
GP-15	3/9/2020	564278.23	1347954.71	35.28075	81.18505	HSA	Regolith	11.0	6.0 - 11.0	5.0 - 11.0	3.0 - 5.0	3
GP-16	3/10/2020	564246.98	1347464.77	35.28063	81.18669	Sonic	Regolith	6.0	5.0 - 6.0	5.0 - 6.0	3.0 - 5.0	6
GP-17	3/9/2020	564116.35	1348049.83	35.28031	81.18472	HSA	Regolith	11.0	6.0 - 11.0	5.0 - 11.0	3.0 - 5.0	3
GP-18	3/12/2020	564184.51	1347308.38	35.28045	81.18721	HSA	Regolith	8.0	5.0 - 8.0	5.0 - 8.0	3.0 - 5.0	3
GP-19	3/9/2020	563941.10	1348010.45	35.27982	81.18484	HSA	Regolith	11.0	6.0 - 11.0	5.0 - 11.0	3.0 - 5.0	3
GP-20	3/10/2020	563957.98	1347438.77	35.27984	81.18675	Sonic	Regolith	6.0	5.0 - 6.0	5.0 - 6.0	3.0 - 5.0	6
GP-21	3/5/2020	563615.40	1348633.00	35.27897	81.18273	Sonic	Regolith	6.0	5.0 - 6.0	5.0 - 6.0	3.0 - 5.0	6
GP-22	3/5/2020	563616.88	1348445.28	35.27896	81.18336	Sonic	Regolith	6.0	5.0 - 6.0	5.0 - 6.0	3.0 - 5.0	6
GP-23	3/5/2020	563608.22	1348325.24	35.27893	81.18376	Sonic	Regolith	11.0	6.0 - 11.0	5.0 - 11.0	3.0 - 5.0	6
GP-24	3/5/2020	563608.22	1348239.72	35.27892	81.18404	Sonic	Regolith	11.0	6.0 - 11.0	5.0 - 11.0	3.0 - 5.0	6
GP-25	3/5/2020	563629.42	1348147.70	35.27898	81.18435	Sonic	Regolith	11.0	6.0 - 11.0	5.0 - 11.0	3.0 - 5.0	6
GP-26	3/5/2020	563622.58	1348061.00	35.27895	81.18464	Sonic	Regolith	11.0	6.0 - 11.0	5.0 - 11.0	3.0 - 5.0	6
GP-27	3/5/2020	563691.86	1347954.36	35.27914	81.18501	Sonic	Regolith	11.0	6.0 - 11.0	5.0 - 11.0	3.0 - 5.0	6
GP-28	3/12/2020	563496.92	1347890.86	35.27860	81.18521	Sonic	Regolith	11.0	6.0 - 11.0	5.0 - 11.0	3.0 - 5.0	6
GP-29	3/12/2020	563518.08	1347732.84	35.27865	81.18574	HSA	Regolith	6.0	5.0 - 6.0	5.0 - 6.0	3.0 - 5.0	3
GP-30	3/10/2020	563760.16	1347594.89	35.27930	81.18622	Sonic	Regolith	6.0	5.0 - 6.0	5.0 - 6.0	3.0 - 5.0	6

Notes:

1. bgs - below ground surface
2. HSA - Hollow-stem auger
3. Northing and Easting Coordinates - North American Datum 1983 State Plane Feet North Carolina
4. Latitude and Longitude Coordinates - World Geodetic System 1984
5. Wells are 1-inch diameter Schedule 40 polyvinyl chloride (PVC) riser flush-threaded to 0.01-inch mill slotted Schedule 40 PVC screen. Completed with a steel flush-mounted (GP-7 through -30) or above-grade (GP-1 through -5) protective cover, 2-foot by 2-foot concrete pad, stopcock valve, identification placard, and a lock.

Table 7
Landfill Gas Probe Groundwater Measurements
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina

Landfill Gas Probe Code	Date	Depth to Water from Ground Surface (feet)	Screen Interval (feet bgs)
GP-1	3/24/2020	11.15	6.35 - 11.35
GP-2	3/24/2020	Dry	6.12 - 11.12
GP-3	3/24/2020	10.69	5.98 - 10.98
GP-4	3/24/2020	Dry	7.74 - 12.74
GP-5	3/24/2020	Dry	6.08 - 11.08
GP-7	3/23/2020	Dry	6.45 - 11.45
GP-8	3/24/2020	10.65	6.55 - 11.55
GP-9	3/23/2020	5.11	5.15 - 10.15
GP-10	3/24/2020	7.00	5.30 - 7.30
GP-11	3/23/2020	4.32	4.33 - 5.33
GP-12	3/23/2020	0.88	5.04 - 6.04
GP-13	3/23/2020	5.53	4.73 - 5.73
GP-14	3/23/2020	Dry	6.37 - 11.37
GP-15	3/23/2020	10.38	6.47 - 11.47
GP-16	3/23/2020	5.41	5.29 - 6.29
GP-17	3/23/2020	Dry	6.41 - 11.41
GP-18	3/23/2020	4.81	3.55 - 6.55
GP-19	3/23/2020	11.15	6.52 - 11.52
GP-20	3/23/2020	Dry	5.45 - 6.45
GP-21	3/23/2020	5.90	5.40 - 6.40
GP-22	3/23/2020	Dry	5.35 - 6.35
GP-23	3/23/2020	Dry	6.55 - 11.55
GP-24	3/23/2020	Dry	6.45 - 11.45
GP-25	3/23/2020	Dry	6.55 - 11.55
GP-26	3/23/2020	Dry	6.30 - 11.30
GP-27	3/23/2020	Dry	5.25 - 10.25
GP-28	3/23/2020	Dry	6.32 - 11.32
GP-29	3/23/2020	Dry	5.61 - 6.61
GP-30	3/23/2020	Dry	4.83 - 5.83

Notes:

1. bgs - below ground surface
2. The screens in landfill gas probes GP-9, -11, and -12 were completely submerged.

Table 8
Landfill Gas Probe Screening Measurements
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina

Landfill Gas Probe Code	Screening Date	Time	Methane			Carbon Dioxide (%)	Oxygen (%)	Hydrogen Sulfide (ppm)	Total VOCs (ppm)
			(%)	(µg/m^3)	LEL (%)				
GP-1	3/24/2020	0840	0.0	0	0	1.1	19.7	0	0
GP-2	3/24/2020	0845	0.0	0	0	0.1	20.6	0	0
GP-3	3/24/2020	0849	0.0	0	0	0.2	20.7	0	0
GP-4	3/24/2020	0900	0.0	0	0	4.3	13.6	0	0
GP-5	3/24/2020	0853	0.0	0	0	5.7	14.0	0	0
GP-6[(6)]	3/24/2020	0814	0.0	0	0	3.1	19.6	0	0
GP-7	3/23/2020	1559	0.0	0	0	4.9	9.1	0	0
GP-8	3/24/2020	0817	0.0	0	0	8.3	10.7	0	0
GP-9	3/23/2020	1549	0.1	65,684	2	0.1	19.3	0	0
GP-10	3/24/2020	0805	35.1	23,055,037	>100	15.1	1.9	0	3.5
GP-11	3/23/2020	1317	0.0	0	0	4.4	5.2	0	0
GP-12	3/23/2020	1247	0.0	0	0	1.9	16.1	0	0
GP-13	3/23/2020	1544	0.0	0	0	7.2	4.4	0	0
GP-14	3/23/2020	1334	0.0	0	0	3.3	16.5	0	0
GP-15	3/23/2020	1340	0.0	0	0	1.3	11.8	0	0
GP-16	3/23/2020	1311	0.0	0	0	1.2	14.2	0	0
GP-17	3/23/2020	1345	0.0	0	0	2.2	17.3	0	0
GP-18	3/23/2020	1242	0.0	0	0	0.1	20.1	0	0
GP-19	3/23/2020	1350	0.0	0	0	4.8	8.6	0	0
GP-20	3/23/2020	1305	0.0	0	0	3.3	15.2	0	0
GP-21	3/23/2020	1011	0.0	0	0	1.3	13.7	0	0
GP-22	3/23/2020	1145	0.0	0	0	0.7	16.2	0	0
GP-23	3/23/2020	1153	0.0	0	0	0.1	21.2	0	0
GP-24	3/23/2020	1157	0.0	0	0	7.5	13.1	0	0
GP-25	3/23/2020	1201	0.0	0	0	6.8	13.8	0	0
GP-26	3/23/2020	1205	0.0	0	0	5.2	15.3	0	0
GP-27	3/23/2020	1210	11.2	7,356,593	>100	14.9	4.1	0	1.3
GP-28	3/23/2020	1221	0.0	0	0	4.6	14.0	0	0
GP-29	3/23/2020	1232	0.0	0	0	0.1	21.1	0	0
GP-30	3/11/2020	1317	0.0	0	0	0.2	19.0	0	0
	3/23/2020	1257	0.0	0	0	0.7	15.0	0	0

Notes:

1. Methane (µg/m^3) was calculated using the following formula: = [((% by volume)*16.04)/24.42]*1,000,000
   Formula variables:
   16.04 grams/mol - the molecular weight of methane
   24.45 - conversion factor that represents the volume of one mole of gas at a temperature of 25° C and a pressure of 1 atmosphere (29.9" of Hg)
   1,000,000 - coversion factor from g to µg
2. LEL - lower explosive limit
3. VOCs - volatile organic compounds
4. ppm - parts per million
5. (%) - percent
6. [(6)] - GP-6 was screened using a flux chamber because groundwater was at 3 feet below ground surface.
7. 3/11/2020 Weather Conditions: Temperature = 67°F, Barometric Pressure = 29.20" Hg, Humidity = 39%
8. 3/23/2020 Weather Conditions: Temperature = 48°F, Barometric Pressure = 29.41" Hg, Humidity = 52%
9. 3/24/2020 Weather Conditions: Temperature = 52°F, Barometric Pressure = 29.30" Hg, Humidity = 93%

Table 9
Detected Landfill Gas Constituents - Volatile Organic Compounds
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina

Landfill Gas Probe Code			GP-20	GP-21	GP-22	GP-23	GP-24	GP-24 (dup)	GP-25	GP-26	GP-27	GP-28	GP-29	GP-29 (dup)
Sample Date			25-Mar-20	24-Mar-20	24-Mar-20	24-Mar-20	24-Mar-20	24-Mar-20	24-Mar-20	24-Mar-20	24-Mar-20	24-Mar-20	25-Mar-20	25-Mar-20
Compound	DWM-R	DWM-NR												
Acetone	220,000	2,700,000	5.1	--	8.6	3.1	2.1	2.4	3.2	2.7	--	--	4.5	3.9
Benzene	120	1,600	0.060	0.15	0.27	0.13	0.40	0.41	0.044	0.14	24	0.67	0.13	0.15
2-Butanone (MEK)	35,000	440,000	0.80	1.0	0.98	0.68	0.49	0.55	0.63	0.48	--	0.72	0.65	0.48
Carbon Disulfide	4,900	61,000	--	9.6	11	7.5	1.4	1.4	1.4	2.5	13	16	0.19	0.26
Carbon Tetrachloride	160	2,000	--	--	--	--	--	--	--	--	--	--	0.054	0.054
Chlorobenzene	350	4,400	--	--	--	--	--	--	--	--	76	--	--	--
Chloroform	41	530	0.076	0.93	0.61	0.062	--	0.046	0.058	0.30	--	1.2	--	--
Chloromethane	630	7,900	0.36	--	--	--	--	--	--	--	--	--	0.50	--
Cyclohexane	42,000	530,000	--	--	--	--	--	--	--	--	9.2	--	--	--
Dichlorodifluoromethane (Freon 12)	700	8,800	0.35	0.34	0.38	18	3.8	3.5	0.83	3.8	9.3	4.1	0.35	0.29
cis-1,2-Dichloroethylene	NS	NS	--	--	0.10	--	--	--	--	--	1.3	--	--	--
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	NS	NS	--	--	--	18	1.8	2.0	0.54	1.0	16	1.5	--	--
Ethanol	NS	NS	39	17	32	7.9	8.3	8.2	9.9	9.1	--	9.3	--	5.2
Ethylbenzene	370	4,900	0.40	0.29	0.58	0.37	0.072	0.070	0.57	0.16	--	0.24	0.058	0.062
4-Ethyltoluene	NS	NS	--	--	0.14	--	--	--	--	--	--	--	--	--
Heptane	2,800	35,000	--	--	0.14	--	--	--	--	--	0.97	0.23	--	--
Hexane	4,900	61,000	--	--	--	--	--	--	--	--	--	1.5	--	--
Isopropanol	1,400	18,000	1.2	--	--	--	--	--	--	1.9	--	--	--	--
Methylene Chloride	4,200	53,000	0.41	0.39	0.14	0.27	0.35	0.33	0.68	0.60	1.0	0.48	0.13	0.12
Naphthalene	21	260	0.30	--	0.40	--	1.0	1.3	0.37	0.37	--	0.41	0.078	0.12
Propene	21,000	260,000	--	--	7.0	--	--	--	--	--	150	--	--	--
Tetrachloroethylene	280	3,500	1.4	11	18	4.3	1.6	1.7	28	5.5	--	6.0	0.11	0.11
Toluene	35,000	440,000	0.14	--	--	0.76	--	--	0.37	--	--	--	--	--
Trichloroethylene	14	180	--	--	0.24	--	--	--	0.048	--	--	--	--	--
Trichlorofluoromethane (Freon 11)	NS	NS	0.17	0.19	0.19	0.14	0.16	0.17	0.20	0.18	--	0.16	0.18	0.18
1,2,4-Trimethylbenzene	420	5,300	--	--	0.54	--	0.15	--	--	--	--	0.44	--	--
1,3,5-Trimethylbenzene	420	5,300	--	0.066	0.15	--	--	--	--	--	--	0.10	--	--
Vinyl Chloride	56	2,800	--	--	--	--	--	--	--	--	26	--	--	--
m&p-Xylene	700	8,800	1.7	0.98	2.0	1.3	0.20	0.21	2.6	0.68	--	0.78	0.23	0.25
o-Xylene	700	8,800	2.9	1.5	2.2	1.8	0.17	0.17	5.4	1.2	--	0.41	0.35	0.37

Notes:

1. All units are in micrograms per cubic meter (parts per billion).
2. dup - duplicate sample
3. [3] - Division of Waste Management (DWM) Vapor Intrusion Screening Level (February 2018) - Sub-Slab and Exterior Soil Gas Screening Level
4. NS - No Standard

-- - Indicates the result is below the detection limit.

Table 10
Estimated Waste Boundary Coordinates
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina

Location	Northing	Easting	Latitude	Longitude
1	565236.32	1347740.22	35.28337	81.18584
2	565195.96	1347769.74	35.28326	81.18574
3	565155.60	1347799.25	35.28315	81.18563
4	565114.21	1347826.82	35.28304	81.18554
5	565067.10	1347843.58	35.28291	81.18548
6	565024.07	1347868.98	35.28279	81.18539
7	564981.17	1347894.66	35.28267	81.18530
8	564940.07	1347922.94	35.28256	81.18520
9	564901.03	1347954.18	35.28246	81.18510
10	564861.92	1347985.33	35.28235	81.18499
11	564822.81	1348016.48	35.28225	81.18488
12	564783.70	1348047.63	35.28214	81.18478
13	564744.58	1348078.77	35.28204	81.18467
14	564704.65	1348108.78	35.28193	81.18456
15	564662.77	1348136.10	35.28181	81.18447
16	564621.51	1348164.33	35.28170	81.18437
17	564580.64	1348193.14	35.28159	81.18427
18	564539.77	1348221.94	35.28148	81.18417
19	564495.33	1348242.97	35.28136	81.18410
20	564456.40	1348216.48	35.28125	81.18419
21	564412.88	1348200.45	35.28113	81.18424
22	564366.33	1348212.34	35.28100	81.18419
23	564331.57	1348181.03	35.28091	81.18429
24	564304.89	1348139.90	35.28083	81.18443
25	564270.67	1348103.43	35.28074	81.18455
26	564272.96	1348056.53	35.28074	81.18471
27	564288.34	1348008.96	35.28078	81.18487
28	564289.12	1347961.84	35.28078	81.18503
29	564249.16	1347977.72	35.28067	81.18497
30	564230.67	1348024.10	35.28062	81.18481
31	564201.84	1348061.82	35.28054	81.18468
32	564152.15	1348062.03	35.28041	81.18468
33	564102.57	1348055.84	35.28027	81.18470
34	564053.37	1348047.13	35.28014	81.18472
35	564004.48	1348036.66	35.28000	81.18475
36	563955.59	1348026.18	35.27987	81.18479
37	563907.02	1348014.33	35.27973	81.18482
38	563858.56	1348002.04	35.27960	81.18486
39	563810.47	1347988.37	35.27946	81.18490
40	563761.21	1347982.60	35.27933	81.18492
41	563712.81	1347994.61	35.27920	81.18487
42	563663.33	1348001.78	35.27906	81.18485
43	563618.27	1348018.73	35.27894	81.18479

Table 10
Estimated Waste Boundary Coordinates
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina

Location	Northing	Easting	Latitude	Longitude
44	563573.21	1348007.69	35.27881	81.18482
45	563547.82	1347965.20	35.27874	81.18496
46	563526.96	1347919.76	35.27868	81.18511
47	563504.33	1347875.26	35.27862	81.18526
48	563469.10	1347841.17	35.27852	81.18537
49	563460.25	1347797.01	35.27849	81.18552
50	563495.39	1347762.07	35.27859	81.18564
51	563536.17	1347735.19	35.27870	81.18573
52	563585.09	1347725.57	35.27883	81.18577
53	563630.49	1347704.83	35.27895	81.18584
54	563673.01	1347678.70	35.27907	81.18593
55	563714.59	1347650.93	35.27918	81.18603
56	563760.07	1347630.44	35.27930	81.18610
57	563802.71	1347605.15	35.27942	81.18619
58	563846.14	1347581.98	35.27954	81.18627
59	563885.58	1347551.27	35.27964	81.18637
60	563928.97	1347527.10	35.27976	81.18646
61	563976.70	1347512.78	35.27989	81.18651
62	564024.47	1347498.44	35.28002	81.18656
63	564071.94	1347483.87	35.28015	81.18661
64	564121.53	1347478.19	35.28029	81.18663
65	564170.98	1347470.83	35.28042	81.18666
66	564219.91	1347474.41	35.28056	81.18665
67	564264.57	1347495.83	35.28068	81.18659
68	564313.67	1347504.33	35.28082	81.18656
69	564363.63	1347506.21	35.28095	81.18656
70	564413.61	1347506.07	35.28109	81.18656
71	564463.61	1347505.73	35.28123	81.18657
72	564512.84	1347510.70	35.28136	81.18655
73	564560.61	1347518.18	35.28150	81.18653
74	564607.62	1347502.06	35.28162	81.18659
75	564652.66	1347480.34	35.28175	81.18667
76	564700.78	1347466.96	35.28188	81.18671
77	564750.48	1347463.10	35.28201	81.18673
78	564800.43	1347460.89	35.28215	81.18674
79	564850.18	1347465.64	35.28229	81.18673
80	564899.92	1347470.76	35.28243	81.18672
81	564949.65	1347475.88	35.28256	81.18670
82	564999.40	1347480.93	35.28270	81.18669
83	565049.18	1347485.61	35.28284	81.18668
84	565098.96	1347490.28	35.28297	81.18667
85	565148.74	1347494.95	35.28311	81.18665
86	565198.52	1347499.62	35.28325	81.18664

Table 10
Estimated Waste Boundary Coordinates
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina

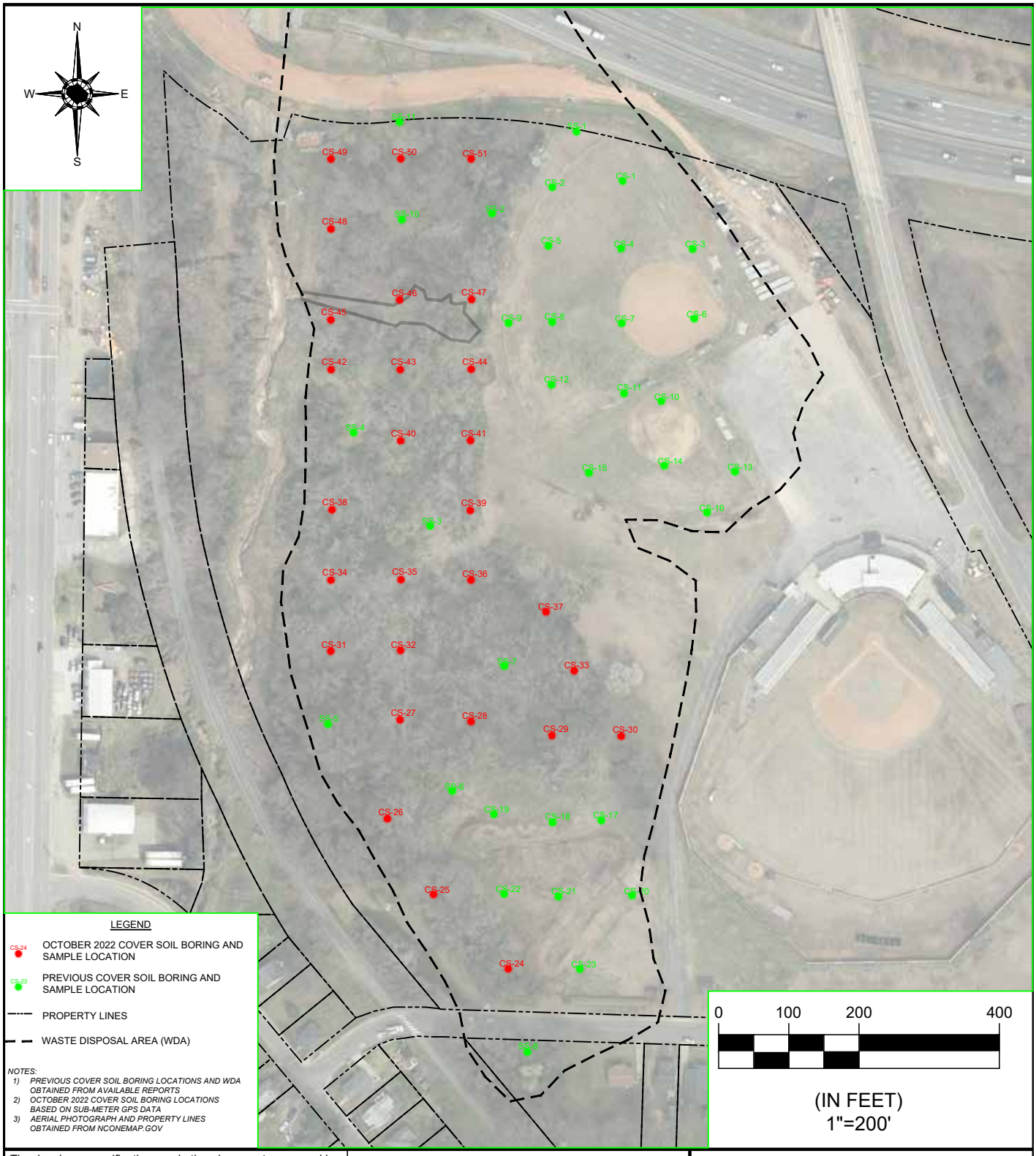
Location	Northing	Easting	Latitude	Longitude
87	565248.30	1347504.30	35.28338	81.18663
88	565298.08	1347508.97	35.28352	81.18662
89	565347.86	1347513.64	35.28366	81.18661
90	565397.68	1347517.88	35.28380	81.18660
91	565447.55	1347521.47	35.28393	81.18659
92	565495.30	1347533.78	35.28407	81.18655
93	565525.49	1347566.75	35.28415	81.18644
94	565509.46	1347613.54	35.28411	81.18628
95	565464.93	1347635.77	35.28399	81.18621
96	565417.40	1347651.25	35.28386	81.18615
97	565371.30	1347668.69	35.28373	81.18609
98	565353.00	1347713.01	35.28368	81.18594
99	565347.59	1347762.67	35.28367	81.18577
100	565320.97	1347790.41	35.28360	81.18568
101	565313.49	1347744.92	35.28358	81.18583
102	565306.47	1347699.18	35.28356	81.18598

Notes:

1. Waste boundary locations start with the northernmost point of the waste area and proceed in a clockwise direction. Locations are approximately 50 feet apart.
2. Northing and Easting Coordinates - North American Datum 1983 State Plane Feet North Carolina
3. Latitude and Longitude Coordinates - World Geodetic System 1984

SHIELD ENGINEERING

4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
704-394-6913
www.shieldengineering.com
License No. F-0856



	FILE NUMBER: 1220121	DRAWING NAME: 1220121 DRAP4 w-PROP CVR SOIL.dwg
	SCALE: AS SHOWN	DRAWN BY: JG
	DATE: 2.6.2023	CHECKED BY: TW
CLIENT NAME: *NCDEQ - DIVISION OF WASTE MANAGEMENT 217 WEST JONES STREET RALEIGH, NORTH CAROLINA*	PROJECT NAME: SIMS LEGION PARK GASTONIA, GASTON COUNTY, NORTH CAROLINA	SHEET TITLE: COVER SOIL BORING LOCATIONS — 1

C:\Users\jgamertsfelder\CDG, Inc\Charlotte Projects - 1220121 - Sim's Legion Park\Project Details\Drawings\1220121 DRAP4 w-PROP CVR SOIL.dwg, 3/1/2023 3:04 PM, James Gamertsfelder

Table 1A - Evaluation of WDA Existing Soil Cover for use as the Permanent Cover System - Metals Results
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina
ID #: NONCD0000766

.. alytical Method -->		EPA 6020																EPA 7199	EPA 7471
Analyte -->		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Manganese	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Hexavalent Chromium	Mercury
Sample ID	Date Collected	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
CS-24	10/21/2022	0.11U	0.91	104	0.83	0.029U	4.7	4.5	14.8	18	128	2.1	0.10U	0.20U	0.48	29.7	51.7	0.277U	0.0079U
CS-25	10/21/2022	0.14U	2.1	58.2	0.56	0.13	10.3	2.2	108	31.3	67.6	3.9	0.13U	0.25U	0.3	38.5	64.6	0.600 J	0.13
CS-26	10/21/2022	0.13U	3.2	78.8	0.37	0.17	29.1	2.2	16.7	75.9	87.8	3	0.12U	0.24U	0.24	24.3	48.9	2.17	0.16
CS-28	10/20/2022	2.8	1.7	72	0.8	0.46	9.9	3	25.1	400	157	4.7	0.11U	0.21U	0.3	26.7	73.5	0.280U	0.25
DUP-1 (CS-28)	10/20/2022	0.85	2.4	85.4	0.81	0.7	62.7	3.7	27.2	132	187	7.5	0.11U	0.21U	0.36	37.1	95.4	0.386 J	0.3
CS-30	10/21/2022	0.13U	1.5	49.3	0.45	0.22	10.2	2.4	20.3	21.7	84.6	5.7	0.12U	0.23U	0.35	46.2	91.9	0.588 J	0.086
DUP-2 (CS-30)	10/21/2022	0.12U	3.9	44.7	0.51	0.28	9.8	3.1	17	27.3	93.5	4.8	0.11U	0.22U	0.33	37.7	154	0.318U	0.1
CS-31	10/20/2022	0.12U	1.7	57	0.3	20.9	12.9	2.1	49.5	78	117	13.3	0.11U	0.21U	0.17	16.7	89.8	0.274 J	0.11
CS-32	10/20/2022	4	1.3	210	1.9	0.16	17.3	6.5	34.9	40	235	6	0.11U	0.22U	0.62	50.5	122	0.783 J	0.1
CS-33	10/20/2022	0.13U	1.5	69.3	0.75	0.17	10.9	3.9	26.6	60.1	146	5.5	0.12U	0.23U	0.38	37.3	77.7	0.883 J	0.13
CS-34	10/20/2022	0.13U	2.1	70	0.87	0.033U	10	4.4	17.9	24.2	123	6.4	0.12U	0.23U	0.4	30.6	46.9	0.729 J	0.0091U
CS-35	10/20/2022	0.12U	1.2	72	0.82	0.12	6.4	3.4	26.6	45.2	152	3.9	0.11U	0.21U	0.39	32.8	82.3	0.400 J	0.056
CS-36	10/20/2022	0.13U	1.2	56.2	0.73	0.033U	10	5.2	491	58.1	140	2.9	0.12U	0.23U	0.42	32	177	3.9	0.0082U
CS-37	10/20/2022	0.13U	1.7	37.7	0.4	0.033U	8.2	1.8	11.1	23.1	70.7	3.3	0.12U	0.23U	0.28	35.6	36.1	0.533 J	0.075
CS-38	10/21/2022	0.12U	1.7	71.8	0.63	0.032U	8.4	3.9	11.5	31.5	105	4.8	0.11U	0.22U	0.33	32.9	42.9	0.439 J	0.029
CS-39	10/20/2022	0.12U	2.4	74.1	0.79	0.11	11.6	3.9	27.7	40.6	175	6	0.11U	0.22U	0.42	46.9	64.8	0.734 J	0.061
CS-40	10/26/2022	0.13U	2.2	92.2	0.94	0.13	8.2	4.1	18.3	25.2	137	4.1	0.12U	0.23U	0.47	35.1	56.2	0.718 J	0.0085U
CS-41	10/26/2022	0.12U	3.6	83.8	0.89	0.14	11.5	4.4	40.3	41.7	144	5.9	0.11U	0.22U	0.44	46.2	76.1	0.667 J	0.032
CS-42	10/26/2022	1.2	6.6	104	1.1	1.3	14.3	6.5	152	206	285	8.1	0.12U	0.23U	0.42	34.9	243	1.17	0.21
CS-43	10/26/2022	0.12U	2	76.6	1	0.095	6.4	3.5	13.4	14.8	114	3.5	0.11U	0.21U	0.27	39.3	44.2	0.371 J	0.036
CS-44	10/26/2022	0.12U	3.5	110	0.88	0.17	12.3	5.4	23.2	28.5	188	5.8	0.11U	0.22U	0.36	54.5	72.4	0.301 J	0.058
CS-45	10/26/2022	0.13U	1.5	58.9	0.61	0.033U	7.1	3	6.9	13.2	107	2.7	0.12U	0.23U	0.25	26.7	28	0.313 J	0.0084U
CS-46	10/26/2022	0.13U	1.6	152	1.1	0.034U	14.9	7.5	17.8	19.9	279	6.1	0.12U	0.24U	0.64	58.9	89.2	0.497 J	0.0090U
CS-47	10/26/2022	0.12U	3	117	1.2	0.35	13.3	5.4	23.9	126	197	5.8	0.11U	0.21U	0.43	38	83.2	0.689 J	0.0081U
CS-48	10/26/2022	0.11U	0.14U	80.3	1.1	0.028U	2.3	3.2	11.1	13.6	140	1.4	0.10U	0.20U	0.5	16.2	55.8	0.265U	0.0085U
CS-49	10/26/2022	0.13U	7	87.1	0.9	0.48	29.8	6.7	21.3	26.8	226	18.2	0.12U	0.23U	0.35	33.5	86.2	0.284U	0.036
CS-50	10/26/2022	0.11U	0.95	98.5	1	0.077	4.3	3.7	11.9	35	157	2	0.10U	0.19U	0.38	23.9	62.7	0.266U	0.0084U
DUP-3 (CS-50)	10/26/2022	0.12U	0.61	62.3	0.96	0.030U	3.3	3	9	20.7	143	1.6	0.11U	0.21U	0.38	19.2	48.8	0.265U	0.0083U
CS-51	10/26/2022	0.12U	0.88	75.6	1.1	0.031U	3.4	3.1	12.7	16.6	132	1.9	0.11U	0.22U	0.44	22.4	52.9	0.284U	0.0092U

Notes:
Resident and Non-Resident Carcinogenic Risk and Hazard Index calculated using The NCDEQ Risk Calculator
Risks calculated using background soil and groundwater data
CR = Carcinogenic Risk
HI = Hazard Index
mg/kg = milligrams per kilogram
J = Estimated value between the adjusted laboratory detction limit and reporting limit
U = Not Detected at the detection limit listed
ND = Not Detected
TICs = Tentatively Identified Compounds
TICs that are not positively identified or those without Preliminary Soil Remediation Goals are not included in this table
Blue highlighted values are detections used as maximum concentration inputs into NCDEQ Risk Calculator
Yellow highlighted values are method detection limits used as maximum concentration inputs into NCDEQ Risk Calculator
U Values input into NCDEQ Risk Calculator as a worst case concentration if above the highest detection from other samples in EU and exceeding the the lower of the Residential and Protection of Groundwater Preliminary Soil Remediation Goals

Table 1B - Evaluation of WDA Existing Soil Cover for use as the Permanent Cover System - VOCs Results
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina
ID #: NONCD0000766

Analytical Method -->		EPA 8260																				
Analyte -->		Acetone	Benzene	Carbon tetrachloride	Chlorobenzene	Cyclohexane	1,2-Dibromo-3-chloropropane	Dibromochloromethane	1,2-Dibromoethane (EDB)	1,4-Dichlorobenzene	1,2-Dichloroethane	Ethylbenzene	Isopropylbenzene (Cumene)	Methyl acetate	Methylcyclohexane	Methylene Chloride	Methyl-tert-butyl ether	1,1,2,2-Tetrachloroethane	Tetrachloroethene	Toluene	Vinyl chloride	m&p-Xylene	o-Xylene
Sample ID	Date Collected	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
CS-24	10/21/2022	0.0398U	0.0025U	0.0023U	0.0040 J	0.0037U	0.0024U	0.0035U	0.0027U	0.0016U	0.0041U	0.0039 J	0.0021U	0.0107U	0.0065U	0.0170U	0.0037 J	0.0016U	0.0020U	0.0018U	0.0031U	0.0058 J	0.0052 J
CS-25	10/21/2022	0.0523U	0.0032U	0.0030U	0.0057 J	0.0049U	0.0032U	0.0046U	0.0036U	0.0021U	0.0054U	0.0056 J	0.0028U	0.0916	0.0086U	0.0223U	0.0030U	0.0021U	0.0026U	0.0041 J	0.0041U	0.0056U	0.0080 J
CS-26	10/21/2022	0.0459U	0.0028U	0.0027U	0.0041 J	0.0043U	0.0028U	0.0040U	0.0031U	0.0045 J	0.0047U	0.0050 J	0.0024U	0.0124U	0.0075U	0.0196U	0.0027U	0.0019U	0.0023U	0.0041 J	0.0036U	0.0100 J	0.0078
CS-28	10/20/2022	0.0466U	0.0029U	0.0027U	0.0014U	0.0044U	0.0028U	0.0041U	0.0032U	0.0019U	0.0048U	0.0045 J	0.0025U	0.0126U	0.0076U	0.0199U	0.0027U	0.0019U	0.0023U	0.0021U	0.0037U	0.0082 J	0.0086
DUP-1 (CS-28)	10/20/2022	0.0449U	0.0028U	0.0026U	0.0046 J	0.0042U	0.0027U	0.0039U	0.0031U	0.0018U	0.0046U	0.0041 J	0.0024U	0.0121U	0.0082 J	0.0442	0.0026U	0.0018U	0.0022U	0.0046 J	0.0036U	0.0092 J	0.0075
CS-30	10/21/2022	0.0501U	0.0031U	0.0029U	0.0045 J	0.0047U	0.0030U	0.0044U	0.0034U	0.0020U	0.0052U	0.0049 J	0.0027U	0.0135U	0.0082U	0.0214U	0.0029U	0.0021U	0.0025U	0.0022U	0.0040U	0.0053U	0.0077 J
DUP-2 (CS-30)	10/21/2022	0.0497 J	0.0028U	0.0027U	0.0040 J	0.0043U	0.0028U	0.0040U	0.0031U	0.0019U	0.0047U	0.0044 J	0.0024U	0.0124U	0.0075U	0.0195U	0.0027U	0.0019U	0.0023U	0.0038 J	0.0036U	0.0078 J	0.0076
CS-31	10/20/2022	0.0408U	0.0054 J	0.0024U	0.0037 J	0.0038U	0.0025U	0.0036U	0.0028U	0.0017U	0.0042U	0.0049 J	0.0036 J	0.0110U	0.0082 J	0.0274	0.0024U	0.0017U	0.0020U	0.0104	0.0032U	0.0121 J	0.0097
CS-32	10/20/2022	0.0508U	0.0032U	0.0030U	0.0050 J	0.0048U	0.0031U	0.0044U	0.0035U	0.0021U	0.0052U	0.0051 J	0.0027U	0.0137U	0.0083U	0.0715	0.0030U	0.0021U	0.0025U	0.0022U	0.0040U	0.0096 J	0.0076 J
CS-33	10/20/2022	0.0466U	0.0029U	0.0027U	0.0046 J	0.0044U	0.0028U	0.0041U	0.0032U	0.0019U	0.0048U	0.0055 J	0.0025U	0.0126U	0.0076U	0.0395	0.0027U	0.0019U	0.0023U	0.0076	0.0037U	0.015	0.0097
CS-34	10/20/2022	0.0515U	0.0032U	0.0030U	0.0044 J	0.0048U	0.0031U	0.0045U	0.0035U	0.0021U	0.0053U	0.0065 J	0.0027U	0.0139U	0.0084U	0.381	0.0030U	0.0021U	0.0025U	0.0064 J	0.0041U	0.0097 J	0.0084
CS-35	10/20/2022	0.0421U	0.0026U	0.0025U	0.0037 J	0.0040U	0.0025U	0.0037U	0.0029U	0.0017U	0.0044 J	0.0043 J	0.0022U	0.0114U	0.0069U	0.055	0.0025U	0.0017U	0.0021U	0.0035 J	0.0033U	0.0090 J	0.0061 J
CS-36	10/20/2022	0.0455U	0.0028U	0.0027U	0.0040 J	0.0043U	0.0028U	0.0040U	0.0031U	0.0018U	0.0047U	0.0041 J	0.0024U	0.0123U	0.0075U	0.0504	0.0027U	0.0019U	0.0022U	0.0045 J	0.0036U	0.0104 J	0.0097
CS-37	10/20/2022	0.0510U	0.0032U	0.0030U	0.0044 J	0.0048U	0.0031U	0.0045U	0.0035U	0.0021U	0.0053U	0.0268	0.0027U	0.0138U	0.0084U	0.0401	0.0030U	0.0021U	0.0025U	0.0023U	0.0040U	0.0104 J	0.0068 J
CS-38	10/21/2022	0.0532U	0.0033U	0.0031U	0.0045 J	0.0050U	0.0032U	0.0047U	0.0036U	0.0022U	0.0055U	0.0061 J	0.0028U	0.0144U	0.0087U	0.0227U	0.0044 J	0.0022U	0.0026U	0.0045 J	0.0042U	0.0121 J	0.0094
CS-39	10/20/2022	0.0440U	0.0027U	0.0026U	0.0040 J	0.0041U	0.0027U	0.0038U	0.0030U	0.0018U	0.0045U	0.0064 J	0.0023U	0.0119U	0.0081 J	0.0673	0.0026U	0.0018U	0.0022U	0.0082	0.0035U	0.0112 J	0.0079
CS-40	10/26/2022	0.0459U	0.0028U	0.0027U	0.0040 J	0.0043U	0.0028U	0.0040U	0.0031U	0.0019U	0.0047U	0.0056 J	0.0024U	0.0124U	0.0126 J	0.0196U	0.0027U	0.0019U	0.0023U	0.0084	0.0036U	0.0141 J	0.0104
CS-41	10/26/2022	0.0457U	0.0028U	0.0027U	0.0014U	0.0043U	0.0028U	0.0040U	0.0031U	0.0019U	0.0047U	0.0047 J	0.0024U	0.0123U	0.0075U	0.0195U	0.0027U	0.0019U	0.0022U	0.0020U	0.0036U	0.0083 J	0.0062 J
CS-42	10/26/2022	0.0448U	0.0028U	0.0026U	0.0038 J	0.0042U	0.0027U	0.0039U	0.0031U	0.0044 J	0.0046U	0.007	0.0024U	0.0121U	0.0089 J	0.0191U	0.0026U	0.0018U	0.0054 J	0.0126	0.0035U	0.0168	0.0124
CS-43	10/26/2022	0.0505U	0.0031U	0.0029U	0.0043 J	0.0047U	0.0031U	0.0044U	0.0035U	0.0020U	0.0052U	0.0037U	0.0027U	0.0136U	0.0083U	0.0304 J	0.0029U	0.0021U	0.0025U	0.0022U	0.0040U	0.0093 J	0.0074 J
CS-44	10/26/2022	0.0465U	0.0029U	0.0027U	0.0039 J	0.0044U	0.0028U	0.0041U	0.0032U	0.0019U	0.0048U	0.0040 J	0.0025U	0.0126U	0.0076U	0.0198U	0.0027U	0.0019U	0.0023U	0.0044 J	0.0037U	0.0087 J	0.0075
CS-45	10/26/2022	0.0424U	0.0026U	0.0025U	0.0038 J	0.0042 J	0.0026U	0.0037U	0.0029U	0.0017U	0.0044U	0.0044 J	0.0022U	0.0114U	0.0136	0.0181U	0.0025U	0.0017U	0.0021U	0.0061 J	0.0034U	0.0110 J	0.009
CS-46	10/26/2022	0.0481U	0.0030U	0.0028U	0.0014U	0.0045U	0.0029U	0.0042U	0.0033U	0.0019U	0.0050U	0.0043 J	0.0025U	0.0130U	0.0079U	0.0205U	0.0028U	0.0020U	0.0024U	0.0021U	0.0038U	0.0080 J	0.0076
CS-47	10/26/2022	0.0412U	0.0026U	0.0024U	0.0038 J	0.0039U	0.0025U	0.0036U	0.0028U	0.0017U	0.0042U	0.0036 J	0.0022U	0.0111U	0.0117 J	0.0176U	0.0024U	0.0017U	0.0020U	0.0060 J	0.0033U	0.0104 J	0.0083
CS-48	10/26/2022	0.0374U	0.0023U	0.0022U	0.0035 J	0.0035U	0.0023U	0.0033U	0.0026U	0.0015U	0.0039U	0.0035 J	0.0020U	0.0101U	0.0061U	0.0159U	0.0022U	0.0015U	0.0018U	0.0017U	0.0030U	0.0067 J	0.0065
CS-49	10/26/2022	0.0539U	0.0033U	0.0031U	0.0016U	0.0050U	0.0033U	0.0047U	0.0037U	0.0022U	0.0056U	0.0052 J	0.0029U	0.0145U	0.0088U	0.0318 J	0.0031U	0.0022U	0.0027U	0.0063 J	0.0043U	0.0104 J	0.0098
CS-50	10/26/2022	0.0388U	0.0024U	0.0023U	0.0037 J	0.0036U	0.0023U	0.0034U	0.0027U	0.0016U	0.0040U	0.0038 J	0.0021U	0.0105U	0.0064U	0.0166U	0.0023U	0.0016U	0.0019U	0.0017U	0.0031U	0.0057 J	0.0067
DUP-3 (CS-50)	10/26/2022	0.0400U	0.0025U	0.0023U	0.0042 J	0.0038U	0.0024U	0.0035U	0.0027U	0.0016U	0.0041U	0.0034 J	0.0021U	0.0108U	0.0066U	0.0171U	0.0023U	0.0016U	0.0020U	0.0018U	0.0032U	0.0067 J	0.0067
CS-51	10/26/2022	0.0522U	0.0032U	0.0030U	0.0054 J	0.0049U	0.0032U	0.0046U	0.0036U	0.0021U	0.0054U	0.0050 J	0.0028U	0.0141U	0.0085U	0.0223U	0.0030U	0.0021U	0.0026U	0.0023U	0.0041U	0.0082 J	0.0086

Notes:
Resident and Non-Resident Carcinogenic Risk and Hazard Index calculated using The NCDEQ Risk Calculator
Risks calculated using background soil and groundwater data
CR = Carcinogenic Risk
HI = Hazard Index
mg/kg = milligrams per kilogram
J = Estimated value between the adjusted laboratory detction limit and reporting limit
U = Not Detected at the detection limit listed
ND = Not Detected
Blue highlighted values are detections used as maximum concentration inputs into NCDEQ Risk Calculator
Yellow highlighted values are method detection limits used as maximum concentration inputs into NCDEQ Risk Calculator
U Values input into NCDEQ Risk Calculator as a worst case concentration if above the highest detection from other samples in EU and exceeding the the lower of the Residential and Protection of Groundwater Preliminary Soil Remediation Goals

Table 1C - Evaluation of WDA Existing Soil Cover for use as the Permanent Cover System - SVOCs Results
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina
ID #: NONCD0000766

Analytical Method -->		EPA 8270																														EPA 8270 SIM	EPA 8270 TICs		
Analyte -->		Acenaphthylene	Anthracene	Atrazine	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	4-Chloroaniline	bis(2-Chloroethoxy)methane	bis(2-Chloroethyl) ether	2-Chlorophenol	Chrysene	Dibenz(a,h)anthracene	2,4-Dichlorophenol	4,6-Dinitro-2-methylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	Fluoranthene	Hexachloro-1,3-butadiene	Hexachlorobenzene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	Naphthalene	2-Nitroaniline	4-Nitroaniline	Nitrobenzene	N-Nitroso-di-n-propylamine	N-Nitrosodiphenylamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene	1,2,4,5-Tetrachlorobenzene	2,4,6-Trichlorophenol	1,4-Dioxane (p-Dioxane)	Tri(2-chloroethyl) phos	Phosphoric acid, tris(2	Benzo[e]pyrene
Sample ID	Date Collected	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
CS-24	10/21/2022	0.121U	0.112U	0.110U	0.114U	0.119U	0.114U	0.121U	0.269U	0.142U	0.129U	0.129U	0.125U	0.132U	0.134U	0.320U	1.06U	0.132U	0.126U	0.117U	0.149U	0.134U	0.197U	0.131U	0.135U	0.153U	0.116U	0.281U	0.261U	0.159U	0.129U	0.122U	0.336U	0.112U	0.153U	0.139U	0.0836U	0.141U	0.0362U	ND	ND	ND
CS-25	10/21/2022	0.144U	0.134U	0.132U	0.137U	0.142U	0.137U	0.144U	0.322U	0.170U	0.154U	0.154U	0.149U	0.158U	0.160U	0.383U	1.27U	0.158U	0.150U	0.141U	0.178U	0.160U	0.235U	0.157U	0.162U	0.183U	0.139U	0.336U	0.312U	0.190U	0.154U	0.145U	0.402U	0.134U	0.183U	0.167U	0.100U	0.169U	0.0402U	ND	0.243 J	ND
CS-26	10/21/2022	0.141U	0.131U	0.129U	0.134U	0.139U	0.134U	0.141U	0.315U	0.167U	0.151U	0.151U	0.146U	0.154U	0.157U	0.374U	1.24U	0.154U	0.147U	0.137U	0.174U	0.157U	0.230U	0.153U	0.158U	0.179U	0.136U	0.328U	0.305U	0.186U	0.151U	0.142U	0.393U	0.131U	0.179U	0.163U	0.0977U	0.165U	0.0392U	ND	ND	ND
CS-28	10/20/2022	0.128U	0.119U	0.117U	0.122U	0.126U	0.122U	0.128U	0.286U	0.151U	0.137U	0.137U	0.133U	0.140U	0.143U	0.340U	1.13U	0.140U	0.134U	0.125U	0.158U	0.143U	0.209U	0.139U	0.144U	0.162U	0.124U	0.298U	0.277U	0.169U	0.137U	0.129U	0.357U	0.119U	0.162U	0.148U	0.0889U	0.150U	0.0365U	ND	ND	ND
DUP-1 (CS-28)	10/20/2022	0.130U	0.121U	0.119U	0.123U	0.128U	0.123U	0.130U	0.290U	0.153U	0.139U	0.139U	0.134U	0.142U	0.144U	0.345U	1.14U	0.142U	0.135U	0.126U	0.160U	0.144U	0.212U	0.141U	0.146U	0.165U	0.125U	0.302U	0.281U	0.171U	0.139U	0.131U	0.362U	0.121U	0.165U	0.150U	0.0900U	0.152U	0.0365U	ND	ND	ND
CS-30	10/21/2022	0.139U	0.129U	0.127U	0.132U	0.137U	0.132U	0.139U	0.310U	0.164U	0.149U	0.149U	0.144U	0.152U	0.155U	0.369U	1.22U	0.152U	0.145U	0.238 J	0.171U	0.155U	0.226U	0.151U	0.156U	0.176U	0.134U	0.323U	0.301U	0.183U	0.149U	0.140U	0.387U	0.233 J	0.176U	0.197 J	0.0963U	0.163U	0.0418U	ND	ND	ND
DUP-2 (CS-30)	10/21/2022	0.130U	0.121U	0.119U	0.123U	0.128U	0.123U	0.130U	0.290U	0.153U	0.139U	0.139U	0.134U	0.142U	0.144U	0.345U	1.14U	0.142U	0.135U	0.126U	0.160U	0.144U	0.211U	0.141U	0.145U	0.164U	0.125U	0.302U	0.281U	0.171U	0.139U	0.131U	0.361U	0.121U	0.164U	0.150U	0.0900U	0.152U	0.0421U	ND	ND	ND
CS-31	10/20/2022	0.128U	0.119U	0.117U	0.122U	0.137 J	0.162 J	0.128U	0.286U	0.152U	0.137U	0.137U	0.133U	0.140U	0.143U	0.341U	1.13U	0.140U	0.134U	0.209 J	0.158U	0.143U	0.209U	0.139U	0.144U	0.163U	0.124U	0.299U	0.278U	0.169U	0.137U	0.129U	0.357U	0.150 J	0.163U	0.171 J	0.0889U	0.150U	0.0360U	ND	ND	ND
CS-32	10/20/2022	0.130U	0.121U	0.118U	0.123U	0.127U	0.123U	0.130U	0.289U	0.153U	0.139U	0.139U	0.134U	0.142U	0.144U	0.344U	1.14U	0.142U	0.135U	0.126U	0.160U	0.144U	0.211U	0.141U	0.145U	0.164U	0.125U	0.302U	0.280U	0.171U	0.139U	0.131U	0.361U	0.121U	0.164U	0.150U	0.0898U	0.152U	0.0393U	ND	ND	ND
CS-33	10/20/2022	0.137U	0.128U	0.125U	0.130U	0.135U	0.130U	0.137U	0.306U	0.162U	0.146U	0.146U	0.142U	0.150U	0.152U	0.364U	1.20U	0.150U	0.143U	0.133U	0.169U	0.152U	0.223U	0.149U	0.154U	0.174U	0.132U	0.319U	0.296U	0.181U	0.146U	0.138U	0.381U	0.128U	0.174U	0.158U	0.0949U	0.161U	0.0416U	ND	ND	ND
CS-34	10/20/2022	1.34U	1.25U	1.23U	1.28U	1.32U	1.28U	1.34U	3.00U	1.59U	1.44U	1.44U	1.39U	1.47U	1.50U	3.57U	11.8U	1.47U	1.40U	1.31U	1.66U	1.50U	2.19U	1.46U	1.51U	1.70U	1.30U	3.13U	2.91U	1.77U	1.44U	1.36U	3.74U	1.25U	1.70U	1.55U	0.932U	1.58U	0.0369U	ND	ND	ND
CS-35	10/20/2022	0.128U	0.119U	0.117U	0.121U	0.126U	0.121U	0.128U	0.285U	0.151U	0.137U	0.137U	0.132U	0.140U	0.142U	0.339U	1.12U	0.140U	0.133U	0.124U	0.158U	0.142U	0.208U	0.139U	0.143U	0.162U	0.123U	0.297U	0.276U	0.169U	0.137U	0.129U	0.356U	0.119U	0.162U	0.148U	0.0886U	0.150U	0.0380U	0.0286 J	ND	ND
CS-36	10/20/2022	0.129U	0.120U	0.118U	0.122U	0.126U	0.122U	0.129U	0.287U	0.152U	0.138U	0.138U	0.133U	0.141U	0.143U	0.342U	1.13U	0.141U	0.134U	0.125U	0.159U	0.143U	0.210U	0.140U	0.144U	0.163U	0.124U	0.299U	0.278U	0.170U	0.138U	0.130U	0.358U	0.120U	0.163U	0.149U	0.0892U	0.151U	0.0399U	ND	ND	ND
CS-37	10/20/2022	0.134U	0.125U	0.122U	0.127U	0.132U	0.127U	0.134U	0.299U	0.158U	0.143U	0.143U	0.139U	0.147U	0.149U	0.356U	1.18U	0.147U	0.140U	0.131U	0.165U	0.149U	0.218U	0.146U	0.150U	0.170U	0.129U	0.312U	0.290U	0.177U	0.143U	0.135U	0.373U	0.125U	0.170U	0.155U	0.0929U	0.157U	0.0408U	ND	ND	ND
CS-38	10/21/2022	1.33U	1.24U	1.22U	1.27U	1.31U	1.27U	1.33U	2.98U	1.58U	1.43U	1.43U	1.38U	1.46U	1.48U	3.54U	11.7U	1.46U	1.39U	1.30U	1.64U	1.48U	2.17U	1.45U	1.50U	1.69U	1.29U	3.11U	2.89U	1.76U	1.43U	1.35U	3.71U	1.24U	1.69U	1.54U	0.925U	1.56U	0.0359U	ND	ND	ND
CS-39	10/20/2022	0.195 J	0.332 J	0.122U	0.882	0.949	1.11	0.389	0.298U	0.158U	0.143U	0.143U	0.807	0.173 J	0.149U	0.355U	1.17U	0.146U	0.139U	1.69	0.165U	0.149U	0.218U	0.145U	0.473	0.169U	0.129U	0.311U	0.289U	0.176U	0.143U	0.135U	0.372U	1.11	0.169U	1.48	0.0926U	0.157U	0.0398U	ND	ND	0.626 J
CS-40	10/26/2022	0.137U	0.128U	0.125U	0.130U	0.135U	0.130U	0.137U	0.306U	0.162U	0.147U	0.147U	0.142U	0.150U	0.152U	0.364U	1.21U	0.150U	0.143U	0.134U	0.169U	0.152U	0.223U	0.149U	0.154U	0.174U	0.132U	0.319U	0.297U	0.181U	0.147U	0.138U	0.382U	0.128U	0.174U	0.158U	0.0950U	0.161U	0.0374U	ND	ND	ND
CS-41	10/26/2022	0.131U	0.122U	0.120U	0.125U	0.129U	0.125U	0.131U	0.293U	0.155U	0.140U	0.140U	0.136U	0.144U	0.146U	0.349U	1.16U	0.144U	0.137U	0.128U	0.162U	0.146U	0.214U	0.143U	0.147U	0.167U	0.127U	0.306U	0.284U	0.173U	0.140U	0.133U	0.366U	0.122U	0.167U	0.152U	0.0911U	0.154U	0.0385U	ND	ND	ND
CS-42	10/26/2022	0.131U	0.122U	0.119U	0.124U	0.128U	0.124U	0.131U	0.292U	0.154U	0.140U	0.140U	0.135U	0.143U	0.145U	0.347U	1.15U	0.143U	0.136U	0.127U	0.161U	0.145U	0.213U	0.142U	0.146U	0.166U	0.126U	0.304U	0.283U	0.172U	0.140U	0.132U	0.364U	0.122U	0.166U	0.151U	0.0906U	0.153U	0.0372U	0.269 J	ND	ND
CS-43	10/26/2022	0.129U	0.120U	0.118U	0.122U	0.126U	0.122U	0.129U	0.287U	0.152U	0.138U	0.138U	0.133U	0.141U	0.143U	0.342U	1.13U	0.141U	0.134U	0.125U	0.159U	0.143U	0.210U	0.140U	0.144U	0.163U	0.124U	0.300U	0.279U	0.170U	0.138U	0.130U	0.358U	0.120U	0.163U	0.149U	0.0892U	0.151U	0.0402U	ND	ND	ND
CS-44	10/26/2022	0.134U	0.125U	0.123U	0.127U	0.132U	0.127U	0.134U	0.300U	0.159U	0.144U	0.144U	0.139U	0.147U	0.150U	0.357U	1.18U	0.147U	0.140U	0.131U	0.166U	0.150U	0.219U	0.146U	0.151U	0.170U	0.130U	0.313U	0.291U	0.177U	0.144U	0.136U	0.374U	0.125U	0.170U	0.155U	0.0932U	0.158U	0.0375U	ND	ND	ND
CS-45	10/26/2022	0.133U	0.124U	0.121U	0.126U	0.130U	0.126U	0.133U	0.296U	0.157U	0.142U	0.142U	0.137U	0.145U	0.148U	0.352U	1.17U	0.145U	0.138U	0.129U	0.164U	0.148U	0.216U	0.144U	0.149U	0.168U	0.128U	0.309U	0.287U	0.175U	0.142U	0.134U	0.369U	0.124U	0.168U	0.153U	0.0920U	0.156U	0.0373U	ND	ND	ND
CS-46	10/26/2022	0.138U	0.128U	0.126U	0.131U	0.135U	0.131U	0.138U	0.308U	0.163U	0.147U	0.147U	0.143U	0.151U	0.153U	0.366U	1.21U	0.151U	0.144U	0.134U	0.170U	0.153U	0.225U	0.150U	0.154U	0.175U	0.133U	0.321U	0.298U	0.182U	0.147U	0.139U	0.384U	0.128U	0.175U	0.159U	0.0955U	0.162U	0.0401U	ND	ND	ND
CS-47	10/26/2022	0.128U	0.119U	0.117U	0.121U	0.126U	0.121U	0.128U	0.286U	0.151U	0.137U	0.137U	0.132U	0.140U	0.142U	0.340U	1.13U	0.140U	0.134U	0.125U	0.158U	0.142U	0.209U	0.139U	0.143U	0.162U	0.124U	0.298U	0.277U	0.169U	0.137U	0.129U	0.357U	0.119U	0.162U	0.148U	0.0887U	0.150U	0.0360U	ND	ND	ND
CS-48	10/26/2022	0.119U	0.111U	0.109U	0.113U	0.117U	0.113U	0.119U	0.265U	0.140U	0.127U	0.127U	0.123U	0.130U	0.132U	0.315U	1.04U	0.130U	0.124U	0.116U	0.146U	0.132U	0.193U	0.129U	0.133U	0.150U	0.115U	0.276U	0.257U	0.157U	0.127U	0.120U	0.331U	0.111U	0.150U	0.137U	0.0823U	0.139U	0.0346U	ND	ND	ND
CS-49	10/26/2022	0.138U	0.129U	0.126U	0.131U	0.136U	0.131U	0.138U	0.308U	0.163U	0.148U	0.148U	0.143U	0.151U	0.154U	0.367U	1.21U	0.151U	0.144U	0.134U	0.170U	0.154U	0.225U	0.150U	0.155U	0.175U	0.133U	0.321U	0.299U	0.182U	0.148U	0.139U	0.384U	0.129U	0.175U	0.159U	0.0957U	0.162U	0.0371U	ND	ND	ND
CS-50	10/26/2022	0.118U	0.110U	0.108U	0.112U	0.116U	0.112U	0.118U	0.264U	0.140U	0.126U	0.126U	0.122U	0.129U	0.131U	0.314U	1.04U	0.129U	0.123U	0.115U	0.146U	0.131U	0.193U	0.128U	0.132U	0.150U	0.114U	0.275U	0.256U	0.156U	0.126U	0.119U	0.329U	0.110U	0.150U	0.137U	0.0819U	0.139U	0.0351U	ND	ND	ND
DUP-3 (CS-50)	10/26/2022	0.122U	0.114U	0.112U	0.116U	0.120U	0.116U	0.122U	0.272U	0.144U	0.130U	0.130U	0.126U	0.134U	0.136U	0.324U	1.07U	0.134U	0.127U	0.119U	0.150U	0.136U	0.199U	0.133U	0.137U	0.155U	0.118U	0.284U	0.264U	0.161U	0.130U	0.123U	0.340U	0.114U	0.155U	0.141U	0.0846U	0.143U	0.0350U	ND	ND	ND
CS-51	10/26/2022	0.128U	0.119U	0.117U	0.121U	0.125U	0.121U	0.128U	0.285U	0.151U	0.136U	0.136U	0.132U	0.140U	0.142U	0.339U	1.12U	0.140U	0.133U	0.124U	0.157U	0.142U	0.208U	0.139U	0.143U	0.162U	0.123U	0.297U	0.276U	0.168U	0.136U	0.129U	0.355U	0.119U	0.162U	0.147U	0.0884U	0.150U	0.0371U	ND	ND	ND

Notes:
Resident and Non-Resident Carcinogenic Risk and Hazard Index calculated using The NCDEQ Risk Calculator
Risks calculated using background soil and groundwater data
CR = Carcinogenic Risk
HI = Hazard Index
mg/kg = milligrams per kilogram
J = Estimated value between the adjusted laboratory detction limit and reporting limit
U = Not Detected at the detection limit listed
ND = Not Detected
Blue highlighted values are detections used as maximum concentration inputs into NCDEQ Risk Calculator
Yellow highlighted values are method detection limits used as maximum concentration inputs into NCDEQ Risk Calculator
U Values input into NCDEQ Risk Calculator as a worst case concentration if above the highest detection from other samples in EU and exceeding the the lower of the Residential and Protection of Groundwater Preliminary Soil Remediation Goals

C:\Users\jimmy.gamertsfelder\CDG, Inc\Charlotte Projects - Pre-Reg Landfill\1220121 - Sim's Legion Park\Project Details\Drawings\Soil Cover2 Results.dwg, 9/18/2023 3:36 PM, Jimmy Gamertsfelder

LEGEND

- SB-6 — SOIL COVER AND BACKGROUND BORING (SAMPLED) - INDICATES LOCATION OF CENTER BORING
- B-6 — SOIL COVER AND BACKGROUND BORING (NOT SAMPLED)
- SUB-SAMPLE BORINGS LOCATED APPROXIMATELY 25 FEET NORTH, EAST, SOUTH, AND WEST OF CENTER BORING
- 0-1' — SOIL COVER THICKNESS ISOLINE (AREAS OF INSUFFICIENT COVER) AND GENERAL SOIL COVER THICKNESS IN AREA (FEET)
- WASTE DISPOSAL AREA (WDA)
- PROPERTY LINE

NOTES:

1) AERIAL PHOTOGRAPH AND PROPERTY LINES OBTAINED FROM NCONEMAP.GOV
2) SAMPLES LOCATIONS BASED ON SUB-METER GPS
3) SB-74 THROUGH SB-79 ARE BACKGROUND SAMPLE LOCATIONS
4) WDA OBTAINED FROM PREVIOUS REPORT

EXPOSURE UNITS (EUs)

EU-CS AREA

RISK CALCULATOR RESULTS

Exposure Unit - CS							
Resident		Non-Residential Worker		Construction Worker		Recreator/ Trespasser	
Carcinogenic Risk (CR)	Hazard Index (HI)	CR	HI	CR	HI	CR	HI
5.2E-04	1.8E+01	1.1E-04	1.2E+00	2.0E-05	1.6E+01	2.9E-04	9.9E+00

CARCINOGENIC RISK AND HAZARD INDEX DETERMINED USING THE NCDEQ RISK CALCULATOR - SOIL GAS TO INDOOR AIR PATHWAY

RED VALUES INDICATE A RISK EXCEEDANCE

0 80 160 320

(IN FEET)
1"=160'

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
704-394-6913
WWW.CDGE.COM
LICENSE NO. C-4973

PROJECT NAME:
SIMS LEGION PARK
DR. M.L.K. JR. WAY
GASTONIA, GASTON COUNTY, NORTH CAROLINA

CLIENT NAME:
NCDEQ - DIVISION OF WASTE MANAGEMENT
217 WEST JONES STREET
RALEIGH, NORTH CAROLINA

DRAWING NAME: Soil Cover2 Results.dwg
DRAWN BY: JG
FILE NUMBER: R031623006
CHECKED BY: TW
SCALE: AS SHOWN
DATE: 09.01.2023

SHEET TITLE:
EVALUATION OF WDA EXISTING SOIL COVER FOR USE AS THE PERMANENT COVER SYSTEM

SHEET:
2

Table 1A - Evaluation of WDA Existing Soil Cover for use as the Permanent Cover System - Metals Results
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina
ID #: NONCD0000766

Analytical Method -->		EPA 6020																EPA 7199	EPA 7471
Analyte -->		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Manganese	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Hexavalent Chromium	Mercury
Sample ID	Date and Time Collected	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SB-1	6/13/2023 10:55 AM	0.53	3.8	103	1	<0.26	9.3	4.9	18.4	28.8	211	4.9	2	<0.26	0.42	36	70	<0.48	<0.051
DUP (SB-1)	6/13/2023 10:55 AM	0.93	4	91.5	0.96	<0.25	8.7	4.5	15	23.9	235	4.7	1.7	<0.25	0.37	33.6	63.7	<0.48	<0.044
SB-2	6/13/2023 1:15 PM	<0.26	12.3	109	0.9	<0.26	8.3	5.6	18.2	24.8	168	4.5	1.7	<0.26	0.45	33.6	102	<0.47	<0.049
SB-3	6/13/2023 2:00 PM	<0.26	3.3	101	0.94	<0.26	8.4	5.7	26.6	36.7	153	4.5	1.8	<0.26	0.49	36.1	65.8	<0.49	<0.048
SB-4	6/13/2023 3:10 PM	<0.21	3.2	74.2	0.69	<0.21	10.8	5	18.6	21.9	169	5.5	1.6	<0.21	0.41	33.3	62.3	<0.47	<0.045
SB-5	6/16/2023 9:25 AM	<0.22	2.4	84.8	0.91	<0.22	10.3	7.3	18.1	20.4	225	5.3	2.3	<0.22	0.4	35.2	51.3	0.57	<0.043
DUP (SB-5)	6/16/2023 9:27 AM	<0.26	2.6	100	0.95	<0.26	12.5	7.2	19.6	19.8	244	6.1	2.1	<0.26	0.43	37.9	55.3	0.52	<0.046
SB-6	6/16/2023 10:30 AM	<0.26	3.2	107	1.1	<0.26	9.7	5.4	16.9	36.6	213	4.8	2	<0.26	0.44	33.6	83.3	0.86	<0.042
SB-7	6/16/2023 11:40 AM	<0.30	4.5	139	1.4	<0.30	8.9	6.1	20.4	43	256	4.3	2.3	<0.30	0.55	40.5	75.4	<0.49	<0.047
SB-8	6/16/2023 1:20 PM	<0.27	3.4	76.3	0.8	<0.27	11.8	7.6	23.5	19	192	6.7	2	<0.27	0.33	43.7	46.3	0.53	<0.045
SB-9	6/16/2023 2:10 PM	<0.27	3	106	0.83	<0.27	16.6	10.9	41.1	21.8	363	8.7	2.4	<0.27	0.37	71.9	69	0.66	<0.048
SB-10	6/20/2023 11:30 AM	<3.0	6.8	115	<3.0	<1.5	11.1	8.6	30.1	28.3	340	5.2	<15	<3.0	<3.0	59.4	108	<0.48	<0.050
DUP (SB-10)	6/20/2023 11:32 AM	<1.3	12.2	187	2	<0.65	21	13.7	44.7	49.1	582	7.8	9.4	<1.3	<1.3	106	196	<0.53	<0.048
SB-11	6/23/2023 10:25 AM	<1.2	3.7	111	1.4	<0.29	12.5	5.6	14.9	77	308	6.8	0.85	<0.29	0.55	44.3	71.8	<0.46	<0.042
DUP (SB-11)	6/23/2023 10:27 AM	<1.2	3.7	110	1.5	<0.29	12.5	5.8	15.3	67.1	318	6.5	0.64	<0.29	<2.9	45.4	74	<0.47	<0.041
SB-12	6/23/2023 12:10 PM	<1.2	4.4	95.6	1.2	<0.31	12.2	5.2	21.5	64.8	229	6.9	0.74	<0.31	<1.5	46.8	80.9	0.51	<0.042
SB-13	6/23/2023 1:55 PM	<1.1	5.9	129	0.87	0.47	11.6	3.9	37.9	117	168	6.4	0.61	<0.29	<1.1	30.2	95.8	0.69	<0.041
SB-14	6/23/2023 3:05 PM	<1.2	11.4	69.2	0.96	<0.29	21.6	6.8	30.4	31.8	197	12.5	0.73	0.35	<0.29	75.2	96.8	<0.46	0.11
SB-15	7/5/2023 11:30 AM	<1.3	3.6	91	<1.3	<0.66	8.9	6.1	18.9	21.5	196	3.6	<6.6	<1.3	<1.3	45.4	54	<0.52	<0.053
DUP (SB-15)	7/5/2023 11:35 AM	<1.1	3.2	97.5	1.1	<0.55	7.8	6.5	17.5	20.4	224	3	5.7	<1.1	<1.1	44.1	55.6	<0.46	<0.045
SB-16	7/5/2023 12:55 PM	<1.1	2.9	82	<1.1	<0.55	7.4	4.4	12.4	16.2	181	2.5	<5.5	<1.1	<1.1	37.4	41.6	<0.46	<0.046
SB-17	7/5/2023 2:00 PM	<1.2	4.3	94	1.2	<0.58	23.8	14.3	45.3	19.8	388	9.8	7.9	<1.2	<1.2	95.8	50.1	0.51	<0.044
SB-18	7/5/2023 2:55 PM	<1.2	3.6	114	<1.2	<0.60	17.1	25.2	38	44.1	952	23.3	<6.0	<1.2	<1.2	65.1	441	<0.49	<0.045
SB-19	7/6/2023 10:20 AM	<1.1	3.2	88.4	1.5	<0.56	8.2	4.8	16.2	20.7	198	3.7	<5.6	<1.1	<1.1	36	60.1	<0.44	<0.040
DUP (SB-19)	7/6/2023 10:25 AM	<1.1	3.6	89.7	1.7	<0.56	7.1	5.3	18.6	21.1	251	3.1	<5.6	<1.1	<1.1	32.9	64.1	<0.45	<0.042
SB-20	7/6/2023 11:18 AM	<1.2	3.3	130	1.4	<0.61	8.6	5.1	20.6	27.9	201	4.1	<6.1	<1.2	<1.2	43.7	71.2	<0.49	<0.049
SB-21	7/6/2023 12:24 PM	<1.2	2.2	140	1.3	<0.58	5.9	5.2	15.8	18.6	213	2.8	<5.8	<1.2	<1.2	37.4	69.1	<0.46	<0.044
SB-22	7/6/2023 1:10 PM	<1.2	3.8	184	1.7	<0.59	11	6.8	23.2	25.8	259	4.9	6.9	<1.2	<1.2	57	86.5	<0.50	<0.046
SB-23	7/6/2023 2:30 PM	3.5	4.1	133	<1.2	0.73	13.3	5.2	30.9	133	274	6.9	<5.9	<1.2	<1.2	41.8	149	<0.48	0.43
SB-24	7/11/2023 10:10 AM	<1.0	4.3	90.4	<1.0	<0.52	12.6	4.7	22	44.3	177	5.2	<5.2	<1.0	<1.0	46.7	73.7	0.96	0.21

Table 1A - Evaluation of WDA Existing Soil Cover for use as the Permanent Cover System - Metals Results
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina
ID #: NONCD0000766

Analytical Method -->		EPA 6020																EPA 7199	EPA 7471
Analyte -->		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Manganese	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Hexavalent Chromium	Mercury
Sample ID	Date and Time Collected	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
DUP (SB-24)	7/11/2023 10:15 AM	<1.2	5.3	93.6	<1.2	<0.59	18.4	7.7	56.8	95.4	251	7.2	<5.9	<1.2	<1.2	45.4	97.8	<0.47	0.27
SB-25	7/11/2023 4:30 PM	<1.2	2.7	74.6	<1.2	1.3	16.9	3.9	101	103	189	6.9	<5.8	<1.2	<1.2	27.4	135	<0.47	0.18
SB-26	7/11/2023 10:30 AM	7.6	5.6	284	<1.1	1	35.8	6.5	66.3	385	321	9	<5.4	<1.1	<1.1	63.9	233	0.7	0.43
SB-27	7/11/2023 12:00 PM	<1.2	6.4	71.3	<1.2	<0.61	21.6	4.1	16.9	30.3	173	12	<6.1	<1.2	<1.2	26.8	65.5	<0.51	<0.051
SB-28	7/11/2023 12:20 PM	<1.3	8.5	146	<1.3	<0.64	15.8	6.2	27.7	47.3	260	6.3	<6.4	<1.3	<1.3	49	141	<0.49	0.065
SB-29	7/11/2023 2:15 PM	<1.1	2.5	91.9	<1.1	<0.56	8.8	3.9	21.8	50.3	169	4.3	<5.6	<1.1	<1.1	36.8	75.6	<0.46	<0.040
SB-30	7/11/2023 2:25 PM	<1.1	2.3	66.7	<1.1	<0.54	7.1	2.9	12.7	27.2	109	3.2	<5.4	<1.1	<1.1	24.6	43.3	0.55	<0.043
SB-31	7/11/2023 4:20 PM	<1.2	2.1	80.4	<1.2	<0.61	7	3.2	12.5	32.3	145	2.9	<6.1	<1.2	<1.2	31.5	49.2	<0.50	<0.046
SB-32	7/12/2023 9:15 AM	<1.1	4.6	98.1	0.89	<0.28	12.3	4.3	20.1	43.7	182	6.3	1.5	<0.28	<1.4	30.6	92.6	0.5	<0.045
SB-33	7/12/2023 9:25 AM	<1.1	3.7	103	1.1	<0.28	10.1	4.9	21.6	36	181	6.1	1.4	<0.28	<1.4	37.3	55.6	0.73	<0.044
DUP (SB-33)	7/12/2023 9:30 AM	<1.1	1.3	54.8	0.55	<0.27	5.1	2.2	7.7	17.6	84.1	2.8	1.1	<0.27	<0.27	21.5	65.6	0.46	<0.047
SB-34	7/12/2023 11:30 AM	<1.1	3.2	85	0.87	0.33	11.4	4.8	33.6	44.4	165	6.6	1.5	<0.27	<1.3	36.1	108	<0.46	0.068
SB-35	7/12/2023 11:40 AM	<1.1	3.3	82.4	0.97	<0.28	9.2	4	14.3	34.9	121	5.3	1.2	<0.28	<1.1	32.3	48.6	0.76	<0.043
SB-36	7/12/2023 2:10 PM	<1.1	2.1	73.6	0.96	<0.29	10.3	4.2	30.6	51.3	160	7.9	1.6	<0.29	<1.1	35.4	83.6	0.98	0.28
SB-37	7/12/2023 2:20 PM	<1.1	2.7	205	1.5	0.46	12.5	6.5	32.2	94.9	237	6.5	1.9	<0.29	<2.9	48	252	<0.46	0.075
SB-38	7/12/2023 3:55 PM	<1.1	3.6	79.5	0.91	<0.28	11.7	2.9	58.3	44.8	91.7	5.4	1.2	<0.28	<1.1	42	77.8	0.58	0.3
SB-39	7/12/2023 4:05 PM	<1.1	3	104	0.49	0.42	11.2	2.6	33.7	70.3	95.3	5.4	0.72	1	<0.29	22.7	125	1.3	0.13
SB-40	7/13/2023 9:30 AM	<2.9	4.2	102	<2.9	<1.4	10.8	5.3	29.9	62.7	228	7.6	<14	<2.9	<2.9	42.8	154	<0.46	0.076
SB-41	7/13/2023 9:35 AM	<2.8	<2.8	56	<2.8	<1.4	11.7	3.2	43.6	32.5	132	6.1	<14	<2.8	<2.8	56.6	68	1.9	0.044
DUP (SB-41)	7/13/2023 9:40 AM	<2.8	<2.8	63.2	<2.8	<1.4	11.8	3.4	42.2	35.9	143	6	<14	<2.8	<2.8	55.7	78.1	0.5	0.075
SB-42	7/13/2023 11:30 AM	<2.9	3.5	86.2	<2.9	<1.5	14.1	4.6	43.7	93.3	200	7.2	<15	<2.9	<2.9	51.2	140	<0.46	0.37
SB-43	7/13/2023 11:40 AM	<1.2	4	89	0.83	0.73	9.1	4.5	23.9	49.5	198	6.6	0.88	<0.29	<0.59	39.4	117	<0.44	0.093
SB-44	7/13/2023 1:40 PM	<2.9	<2.9	71.4	<2.9	<1.5	10.8	5.2	34.5	36.9	223	5.4	<15	<2.9	<2.9	39.9	90	<0.47	0.11
SB-45	7/13/2023 2:45 PM	9.5	4.3	169	<2.9	<1.4	68.8	8.7	73.9	465	351	12.4	<14	<2.9	<2.9	49.8	195	1.7	0.83
SB-46	7/17/2023 9:45 AM	<1.1	4.1	185	1.5	<0.28	15.2	8	27.4	35.8	258	10.9	1.3	<0.28	0.71	82.7	94.9	1.1	0.05
SB-47	7/17/2023 10:15 AM	<1.2	3.2	114	1.3	<0.31	13	6	22.7	21.2	216	8.4	0.84	<0.31	0.48	44.1	77.2	<0.47	<0.045
SB-48	7/17/2023 10:45 AM	<1.0	3.4	99	0.94	<0.26	12.7	4.5	17.2	20.9	163	7.1	0.74	<0.26	0.39	40.4	59.2	<0.42	<0.044
SB-49	7/17/2023 11:10 AM	<1.2	2.9	109	1	<0.31	14.6	5.1	19.5	24.7	198	7.6	0.76	<0.31	0.41	43.3	54.9	0.57	<0.046
SB-50	7/17/2023 12:35 PM	<1.1	3.2	129	0.99	2.6	16.1	6.2	44.2	211	293	11.7	0.7	0.35	0.41	39.7	170	0.53	0.22
DUP (SB-50)	7/17/2023 12:40 PM	1.1	5.2	399	0.96	1.7	16.2	6.6	37.3	209	248	11.5	0.64	<0.28	0.42	42.8	295	<0.46	0.34

Table 1A - Evaluation of WDA Existing Soil Cover for use as the Permanent Cover System - Metals Results
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina
ID #: NONCD0000766

Analytical Method -->		EPA 6020																EPA 7199	EPA 7471
Analyte -->		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Manganese	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Hexavalent Chromium	Mercury
Sample ID	Date and Time Collected	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SB-51	7/19/2023 9:40 AM	<1.1	3.5	120	0.89	0.4	12.5	4.8	35.6	83.9	187	6.8	0.87	<0.29	<1.4	39.7	112	<0.45	0.43
DUP (SB-51)	7/19/2023 9:45 AM	<1.2	4.4	155	0.94	0.48	12.9	4.8	42.3	145	182	7.2	0.73	<0.30	<0.60	40.4	147	<0.45	0.33
SB-52	7/19/2023 9:55 AM	<1.2	3.1	58.7	0.59	1.2	10.1	2.5	191	61.4	90.4	4.9	0.67	<0.31	<0.62	35.5	60	<0.47	0.22
SB-53	7/19/2023 11:55 AM	<1.1	3.5	109	1	<0.29	8.7	5.5	23	26.3	188	5.6	0.78	<0.29	<0.57	37	67.3	<0.43	<0.044
SB-54	7/19/2023 2:15 PM	<1.2	337	95	0.86	0.49	40.2	7.9	23.2	68.1	260	21.7	0.51	<0.29	<0.59	35.7	95.9	<0.43	0.055
SB-55	7/28/2023 9:30 AM	<1.1	1.7	80.6	1	<0.27	4.6	3.3	17.9	24.8	152	2.3	0.53	<0.27	0.59	21.3	61	<0.45	0.045
DUP (SB-55)	7/28/2023 9:32 AM	<1.1	1.7	94	1.1	<0.27	5.1	3.5	16.5	23.1	148	2.6	0.43	<0.27	<0.53	23.2	62.8	<0.46	<0.042
SB-56	7/28/2023 11:20 AM	<1.2	6.1	134	1.2	0.7	17.5	6.7	25.6	48.9	265	16.3	0.95	<0.29	<0.59	44.4	81.7	<0.48	0.093
SB-57	7/28/2023 1:05 PM	<1.2	4.1	137	1.1	0.35	15.9	7.2	29.7	33.4	221	10.4	0.79	<0.29	<0.58	57.4	64.1	0.61	0.064
SB-58	7/28/2023 1:45 PM	<1.2	3.5	135	1.1	<0.30	11	5.2	21.2	34.4	172	6.1	0.81	<0.30	<0.60	48	87	<0.46	0.098
SB-59	7/28/2023 2:30 PM	<1.2	3.4	97.7	0.96	<0.30	11.5	5.5	24.7	31.3	161	8.9	0.54	<0.30	<0.60	45.2	57.2	<0.46	0.063
SB-60	8/2/2023 9:10 AM	<1.1	3.6	86	1.1	<0.28	13.7	7.4	27.2	26.7	191	10.3	0.53	<0.28	<1.4	41.1	51.7	<0.47	<0.045
DUP (SB-60)	8/2/2023 9:15 AM	<1.1	6.7	99.1	1.1	<0.28	22.3	8.5	32.4	29.6	220	14.9	1.7	<0.28	<2.8	45.8	<56	0.57	<0.043
SB-61	8/2/2023 10:15 AM	<1.1	4.5	100	1.4	0.47	17.6	11.3	41.1	37.7	211	17.1	0.68	<0.29	<1.4	44.2	60.6	<0.46	<0.047
SB-62	8/2/2023 11:25 AM	<1.1	14.2	92.4	1	0.88	12.6	5.7	30.2	43.7	1640	9.1	0.54	<0.28	<1.1	43.1	538	<0.45	0.063
SB-63	8/2/2023 11:55 AM	<1.2	5.3	139	1.3	<0.31	20.8	6.5	26.1	45.3	242	10.7	1.8	<0.31	<1.6	73.6	83	<0.52	0.054
SB-64	8/2/2023 1:00 PM	2.4	57.7	265	0.7	5.3	23.4	10.5	132	300	351	14.8	1.2	<0.27	<2.7	41.9	273	<0.47	0.28
SB-65	8/2/2023 2:00 PM	<1.1	2.6	91.6	0.68	0.33	12.7	4.2	18.9	55.3	128	8.1	1.1	<0.28	<1.1	41.8	61.2	<0.46	0.075
SB-66	8/2/2023 2:00 PM	<1.2	1.9	82.5	0.55	0.75	9.4	2.9	17.2	38.5	116	5.8	1.3	<0.30	<0.30	24.2	78.8	0.51	0.26
SB-67	8/3/2023 9:45 AM	1.1	3.1	61.8	0.6	<0.29	12	3.4	16.5	156	134	4.9	0.72	<0.29	<0.57	35.5	39.4	<0.44	<0.044
DUP (SB-67)	8/3/2023 9:48 AM	<1.1	3.1	79.4	0.67	<0.28	7.7	3.9	15.8	133	159	4.1	0.58	<0.28	<0.55	32.6	47.1	<0.44	<0.042
SB-68	8/3/2023 11:30 AM	<1.2	4.5	88.4	0.97	<0.30	15.7	6.3	19	25	209	8.2	0.75	<0.30	<0.59	64.2	49.3	0.53	<0.043
SB-69	8/4/2023 9:45 AM	<0.82	2.4	93.6	0.87	0.39	10.5	4	31.3	46.6	166	5	0.53	<0.21	<1.0	29.1	93.8	0.65	0.14
DUP (SB-69)	8/4/2023 9:48 AM	<1.2	3.8	110	1	0.44	14.9	5.1	48.4	53.7	192	7.5	0.62	<0.30	<0.60	34.9	107	0.72	0.25
SB-70	8/4/2023 10:35 AM	<1.2	2.4	104	0.98	0.94	8.5	4.3	22.8	43.6	199	4.1	0.55	<0.30	<0.61	25.4	99.2	<0.47	0.1
SB-71	8/4/2023 11:40 AM	<1.1	2.7	134	1.2	<0.28	5.1	4.8	14.5	14.5	220	2.7	0.7	<0.28	<2.8	30.1	59.4	<0.43	<0.042
SB-72	8/4/2023 1:00 PM	<1.1	5	75.7	0.73	0.41	12.9	5.2	19.9	13.6	167	8.4	0.44	<0.28	<0.56	31.8	95.2	<0.47	<0.047
SB-73	8/4/2023 1:55 PM	<1.2	3.8	105	1.3	<0.30	8.2	5.1	16.5	18.9	175	3.7	0.9	<0.30	<0.60	42.6	64.8	<0.48	<0.046
SB-79	8/11/2023 11:20 AM	<1.2	8.2	196	0.99	0.89	19.5	6.5	49.6	129	290	12.5	0.92	<0.29	<2.9	39.1	284	<0.47	0.057
DUP (SB-79)	8/11/2023 11:24 AM	<1.1	10.9	175	0.98	0.98	20.6	6.9	51.1	125	355	12.9	0.73	<0.29	<0.29	40.8	287	0.51	0.054

Table 1A - Evaluation of WDA Existing Soil Cover for use as the Permanent Cover System - Metals Results
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina
ID #: NONCD0000766

Analytical Method -->		EPA 6020															EPA 7199	EPA 7471
Analyte -->		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Manganese	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Hexavalent Chromium	Mercury
Sample ID	Date and Time Collected	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SB-80	8/11/2023 12:35 PM	28.2	6.4	401	0.7	2.4	29.3	6	76.4	4780	241	13.2	2.2	0.49	<0.31	46.1	1730	0.54	0.077
SB-81	8/11/2023 1:50 PM	<1.2	3.5	126	0.73	0.35	13.2	4.4	24.5	86.9	192	6.4	0.82	<0.30	<1.2	39.4	133	0.51	<0.042
SB-82	8/11/2023 2:45 PM	<1.2	4.2	99.3	0.81	<0.29	18.3	4.4	22.7	40.1	144	9.7	0.64	0.88	<1.2	51.7	92.6	1.1	0.044
SB-83	8/14/2023 10:20 AM	<1.1	11.5	66.9	1.2	<0.28	32.4	9.3	36	31.9	238	19	0.9	<0.28	0.47	96.2	50.9	0.72	<0.046
DUP (SB-83)	8/14/2023 10:22 AM	<1.1	9	58.5	1.1	<0.29	24.9	7.2	40.3	37.9	232	14	0.68	<0.29	0.34	78.1	56.2	<0.45	<0.044
SB-84	8/14/2023 11:25 AM	<1.2	4.5	97.5	1.2	<0.3	8.3	5	17	22.9	176	4.6	1	<0.3	0.51	41.6	66.2	0.49	<0.045
SB-85	8/14/2023 12:05 PM	<1.2	2.9	64.2	0.62	0.29	6.3	3.3	71.2	24.4	418	3.7	0.52	<0.29	0.32	26.1	44.6	<0.48	<0.048
SB-86	8/14/2023 3:00 PM	<1.2	3.9	69	0.42	0.82	18.5	2.4	38.4	126	91.3	6.9	0.71	1.1	<0.3	27.8	176	<0.48	1.5
SB-87	8/14/2023 3:45 PM	<1.2	2.1	43.7	0.31	<0.29	7.7	1.7	7.5	13.5	54	3.8	0.48	<0.29	<0.29	24	20.7	0.75	<0.046

Notes:
Carcinogenic Risk and Hazard Index calculated using The NCDEQ Risk Calculator
CR = Carcinogenic Risk
HI = Hazard Index
mg/kg = milligrams per kilogram
J = Estimated value between the adjusted laboratory detction limit and reporting limit
< = Not Detected at the detection limit listed
ND = Not Detected
Blue highlighted values are detections used as maximum concentration inputs into NCDEQ Risk Calculator

Table 1B - Evaluation of WDA Existing Soil Cover for use as the Permanent Cover System - SVOCs Results
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina
ID #: NONCD0000766

Analytical Method -->		EPA 8270																								
Analyte -->		2-Methylnaphthalene	4-Chloroaniline	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Butyl benzyl phthalate	Carbazole	Chrysene	Di-n-butyl Phthalate	Di-n-octyl Phthalate	Dibenzo(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene	bis(2-Ethylhexyl)phthalate
Sample ID	Date and Time Collected	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SB-1	6/13/2023 10:55 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.959	ND	ND	ND	ND	ND	ND	ND	ND	ND
DUP (SB-1)	6/13/2023 10:55 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.06	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-2	6/13/2023 1:15 PM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.199 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-3	6/13/2023 2:00 PM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.415	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-4	6/13/2023 3:10 PM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.296	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-5	6/16/2023 9:25 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.585	ND	ND	ND	ND	ND	ND	ND	ND	ND
DUP (SB-5)	6/16/2023 9:27 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.677	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-6	6/16/2023 10:30 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.397	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-7	6/16/2023 11:40 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.13 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-8	6/16/2023 1:20 PM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.505	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-9	6/16/2023 2:10 PM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.319	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-10	6/20/2023 11:30 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.118 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
DUP (SB-10)	6/20/2023 11:32 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.268	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-11	6/23/2023 10:25 AM	ND	ND	ND	ND	ND	0.0198 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.389	ND	ND	0.0226 J	ND	ND	ND	ND	0.0239 J	0.356 J
DUP (SB-11)	6/23/2023 10:27 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.391	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-12	6/23/2023 12:10 PM	ND	ND	ND	ND	ND	0.0309 J	0.0435 J	0.0697 J	0.0272 J	ND	ND	ND	ND	0.0397 J	ND	ND	ND	ND	0.0455 J	ND	0.0336 J	ND	0.0219 J	0.048 J	ND
SB-13	6/23/2023 1:55 PM	ND	ND	ND	ND	ND	0.0402 J	0.0354 J	0.049 J	0.0277 J	ND	ND	ND	ND	0.0384 J	ND	ND	ND	ND	0.0675 J	ND	0.0283 J	ND	0.0351 J	0.0621 J	ND
SB-14	6/23/2023 3:05 PM	ND	ND	ND	ND	ND	0.0564 J	0.0655 J	0.0849 J	0.0546 J	0.0314 J	ND	ND	ND	0.0643 J	1.48	ND	ND	ND	0.0634 J	ND	0.0471 J	ND	ND	0.0723 J	ND
SB-15	7/5/2023 11:30 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DUP (SB-15)	7/5/2023 11:35 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-16	7/5/2023 12:55 PM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-17	7/5/2023 2:00 PM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-18	7/5/2023 2:55 PM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-19	7/6/2023 10:20 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DUP (SB-19)	7/6/2023 10:25 AM	ND	ND	ND	ND	0.0243 J	0.134 J	0.114 J	0.18 J	0.0822 J	0.0543 J	ND	ND	ND	0.138 J	ND	ND	ND	ND	0.316	ND	0.107 J	ND	0.178 J	0.239	ND
SB-20	7/6/2023 11:18 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-21	7/6/2023 12:24 PM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-22	7/6/2023 1:10 PM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-23	7/6/2023 2:30 PM	ND	ND	ND	ND	ND	0.0655 J	0.0688 J	0.0856 J	0.059 J	0.0306 J	ND	ND	ND	0.0609 J	ND	ND	ND	ND	0.119 J	ND	0.0625 J	ND	0.0561 J	0.111 J	0.125 J
SB-24	7/11/2023 10:10 AM	ND	ND	ND	ND	ND	0.0558 J	0.0521 J	0.0662 J	0.0421 J	ND	ND	ND	ND	0.0496 J	ND	ND	ND	ND	0.106 J	ND	0.0508 J	ND	0.0662 J	0.0886 J	0.194 J
DUP (SB-24)	7/11/2023 10:15 AM	ND	ND	ND	ND	ND	0.0496 J	0.0516 J	0.0665 J	0.0413 J	ND	ND	ND	ND	0.0515 J	ND	ND	ND	ND	0.0945 J	ND	0.0501 J	ND	0.0668 J	0.0836 J	0.274 J
SB-25	7/11/2023 10:30 AM	ND	ND	ND	ND	ND	0.029 J	0.0341 J	0.0406 J	0.0656 J	ND	ND	0.0487 J	ND	0.0361 J	ND	ND	ND	ND	0.0341 J	ND	0.0436 J	ND	0.0229 J	0.0669 J	0.151 J
SB-26	7/11/2023 12:00 PM	ND	ND	ND	ND	ND	0.0516 J	0.0474 J	0.0572 J	0.035 J	ND	ND	ND	ND	0.0417 J	ND	ND	ND	ND	0.0822 J	ND	0.0469 J	ND	0.0241 J	0.0725 J	ND
SB-27	7/11/2023 12:20 PM	ND	ND	ND	ND	ND	0.0975 J	0.115 J	0.137 J	0.096 J	0.0429 J	ND	ND	ND	0.0873 J	ND	ND	ND	ND	0.19 J	ND	0.115 J	ND	0.0477 J	0.175 J	ND
SB-28	7/11/2023 2:15 PM	ND	ND	ND	ND	ND	0.0533 J	0.059 J	0.0704 J	0.0454 J	0.0262 J	ND	ND	ND	0.0517 J	ND	ND	ND	ND	0.0967 J	ND	0.0567 J	ND	0.0425 J	0.093 J	ND
SB-29	7/11/2023 2:25 PM	0.0408 J	ND	0.135 J	ND	0.297	0.945	1.05	1.3	0.668	0.45	ND	ND	0.231	0.942	ND	ND	0.184	0.0711 J	1.43	0.142 J	0.897	0.154 J	0.97	1.11	0.0582 J
SB-30	7/11/2023 4:20 PM	ND	ND	ND	ND	ND	0.0393 J	0.0402 J	0.0534 J	0.03 J	ND	ND	ND	ND	0.0359 J	ND	ND	ND	ND	0.0751 J	ND	0.0391 J	ND	0.0374 J	0.0677 J	ND
SB-31	7/11/2023 4:30 PM	ND	ND	ND	0.0905 J	0.0428 J	0.0741 J	0.081 J	0.0867 J	0.0581 J	0.0285 J	ND	ND	ND	0.0622 J	ND	ND	ND	ND	0.0894 J	ND	0.07 J	ND	0.0488 J	0.107 J	0.425
SB-32	7/12/2023 9:15 AM	ND	ND	ND	ND	0.0343 J	0.111 J	0.103 J	0.139 J	0.0709 J	0.0496 J	ND	ND	ND	0.0963 J	ND	ND	ND	ND	0.224	ND	0.0744 J	ND	0.142 J	0.186 J	ND
SB-33	7/12/2023 9:25 AM	ND	ND	ND	ND	ND	0.0331 J	0.0367 J	0.0476 J	0.0289 J	ND	ND	ND	ND	0.034 J	ND	ND	ND	ND	0.054 J	ND	0.027 J	ND	0.0281 J	0.0551 J	ND
DUP (SB-33)	7/12/2023 9:30 AM	ND	ND	ND	ND	ND	0.0391 J	0.0423 J	0.0526 J	0.0302 J	ND	ND	ND	ND	0.0422 J	ND	ND	ND	ND	0.0644 J	ND	0.033 J	ND	0.0361 J	0.0756 J	ND
SB-34	7/12/2023 11:30 AM	ND	ND	ND	ND	0.028 J	0.0836 J	0.0749 J	0.0944 J	0.0474 J	0.0349 J	ND	ND	ND	0.0787 J	ND	ND	ND	ND	0.176 J	ND	0.0505 J	ND	0.116 J	0.149 J	0.0426 J
SB-35	7/12/2023 11:40 AM	0.037 J	ND	0.0948 J	ND	0.203	0.254	0.22	0.252	0.121 J	0.0954 J	ND	ND	0.0889 J	0.227	ND	ND	0.0252 J	0.0838 J	0.589	0.108 J	0.135 J	0.0643 J	0.724	0.494	ND
SB-36	7/12/2023 2:10 PM	ND	0.066 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0377 J

Table 1B - Evaluation of WDA Existing Soil Cover for use as the Permanent Cover System - SVOCs Results
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina
ID #: NONCD0000766

Analytical Method -->		EPA 8270																						
Analyte -->		2-Methylnaphthalene	4-Chloroaniline	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Butyl benzyl phthalate	Carbazole	Chrysene	Di-n-butyl Phthalate	Di-n-octyl Phthalate	Dibenzo(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene	bis(2-Ethylhexyl)phthalate
Sample ID	Date and Time Collected	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SB-37	7/12/2023 2:20 PM	ND	ND	ND	0.115 J	0.0406 J	0.175 J	0.272	0.158 J	0.31	0.0465 J	ND	ND	ND	0.184 J	ND	ND	0.0335 J	ND	0.117 J	ND	0.106 J	ND	0.0327 J	0.301	0.111 J
SB-38	7/12/2023 3:55 PM	0.0263 J	ND	0.035 J	0.0434 J	0.146 J	0.338	0.336	0.412	0.236	0.155 J	ND	ND	0.108 J	0.342	ND	ND	0.0448 J	0.0375 J	0.783	0.0473 J	0.253	0.0539 J	0.688	0.662	ND
SB-39	7/12/2023 4:05 PM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0851 J
SB-40	7/13/2023 9:30 AM	0.0205 J	ND	ND	ND	ND	0.0263 J	0.0291 J	0.0419 J	ND	ND	ND	ND	ND	0.0314 J	ND	ND	ND	ND	0.0332 J	ND	ND	ND	ND	0.0459 J	ND
SB-41	7/13/2023 9:35 AM	ND	ND	ND	ND	ND	0.0702 J	0.0558 J	0.0816 J	0.0315 J	0.0296 J	ND	ND	ND	0.0808 J	ND	ND	ND	ND	0.163 J	ND	0.0361 J	ND	0.0532 J	0.134 J	ND
DUP (SB-41)	7/13/2023 9:40 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.085 J
SB-42	7/13/2023 11:30 AM	0.0385 J	ND	0.0519 J	ND	0.0816 J	0.191 J	0.181 J	0.229	0.114 J	0.0848 J	ND	ND	0.0431 J	0.183 J	ND	ND	ND	0.0218 J	0.437	0.041 J	0.126 J	0.0379 J	0.361	0.373	0.242 J
SB-43	7/13/2023 11:40 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0509 J
SB-44	7/13/2023 1:40 PM	ND	ND	ND	ND	ND	ND	ND	0.0228 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0485 J
SB-45	7/13/2023 2:45 PM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.116 J
SB-46	7/17/2023 9:45 AM	ND	ND	ND	ND	ND	ND	ND	0.0238 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0228 J	ND	ND	ND	ND	0.0239 J	ND
SB-47	7/17/2023 10:15 AM	ND	ND	ND	0.061 J	ND	0.0307 J	0.0344 J	0.0322 J	0.0227 J	ND	ND	ND	ND	0.0242 J	ND	ND	ND	ND	0.025 J	ND	ND	ND	ND	0.0441 J	ND
SB-48	7/17/2023 10:45 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0211 J	ND	ND	ND	ND	0.021 J	ND
SB-49	7/17/2023 11:10 AM	ND	ND	ND	ND	ND	0.0466 J	0.045 J	0.0561 J	0.0286 J	ND	ND	ND	ND	0.0443 J	ND	ND	ND	ND	0.0657 J	ND	0.0331 J	ND	0.0247 J	0.0606 J	ND
SB-50	7/17/2023 12:35 PM	ND	ND	ND	ND	ND	0.0218 J	0.0245 J	0.034 J	0.0235 J	ND	ND	ND	ND	0.024 J	ND	ND	ND	ND	0.0339 J	ND	ND	ND	ND	0.0354 J	0.144 J
DUP (SB-50)	7/17/2023 12:40 PM	ND	ND	ND	ND	ND	ND	ND	0.0247 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0233 J	ND	ND	ND	ND	0.0241 J	0.128 J
SB-51	7/19/2023 9:40 AM	ND	ND	ND	ND	ND	0.0197 J	ND	0.0265 J	ND	ND	ND	ND	ND	ND	ND	0.282	ND	ND	0.027 J	ND	ND	ND	ND	0.0303 J	0.0471 J
DUP (SB-51)	7/19/2023 9:45 AM	ND	ND	ND	ND	ND	0.0193 J	0.026 J	0.0251 J	ND	ND	ND	ND	ND	0.0192 J	ND	0.356	ND	ND	0.0237 J	ND	ND	ND	ND	0.0291 J	0.0602 J
SB-52	7/19/2023 9:55 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.33	ND	ND	ND	ND	ND	ND	ND	ND	0.159 J
SB-53	7/19/2023 11:55 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0984 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-54	7/19/2023 2:15 PM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.129 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-55	7/28/2023 9:30 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND
DUP (SB-55)	7/28/2023 9:32 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.247	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-56	7/28/2023 11:20 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.334	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-57	7/28/2023 1:05 PM	ND	ND	ND	ND	ND	ND	0.0269 J	0.0254 J	0.0262 J	ND	ND	ND	ND	ND	ND	0.223	ND	ND	ND	ND	0.0306 J	ND	ND	0.0241 J	ND
SB-58	7/28/2023 1:45 PM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.239	ND	ND	ND	ND	ND	ND	ND	ND	0.0407 J
SB-59	7/28/2023 2:30 PM	ND	ND	ND	ND	ND	0.038 J	0.0384 J	0.0424 J	0.0248 J	ND	ND	ND	ND	0.035 J	ND	0.19 J	ND	ND	0.0709 J	ND	0.0304 J	ND	0.047 J	0.0705 J	0.0469 J
SB-60	8/2/2023 9:10 AM	ND	ND	ND	0.104 J	0.0342 J	0.0792 J	0.0847 J	0.0783 J	0.0487 J	0.0256 J	0.335 J	ND	ND	0.0696 J	ND	0.489	ND	ND	0.0612 J	ND	0.0449 J	ND	ND	0.124 J	ND
DUP (SB-60)	8/2/2023 9:15 AM	ND	ND	ND	0.0798 J	0.0319 J	0.0406 J	0.0513 J	0.0526 J	0.0424 J	ND	ND	ND	ND	0.0339 J	ND	0.439	ND	ND	0.0354 J	ND	0.034 J	ND	ND	0.0581 J	ND
SB-61	8/2/2023 10:15 AM	ND	ND	ND	0.118 J	0.0429 J	0.0562 J	0.0642 J	0.0653 J	0.0425 J	ND	ND	ND	ND	0.0548 J	ND	0.808	ND	ND	0.0685 J	ND	0.0383 J	ND	ND	0.108 J	0.0488 J
SB-62	8/2/2023 11:25 AM	ND	ND	ND	0.0216 J	ND	0.042 J	0.0402 J	0.0523 J	0.0292 J	ND	ND	ND	ND	0.0377 J	ND	0.502	ND	ND	0.0686 J	ND	0.0302 J	ND	0.0413 J	0.0669 J	0.0713 J
SB-63	8/2/2023 11:55 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.583	ND	ND	0.0246 J	ND	ND	ND	ND	ND	ND
SB-64	8/2/2023 1:00 PM	ND	ND	ND	ND	ND	0.0817 J	0.098 J	0.117 J	0.0762 J	0.0427 J	ND	ND	ND	0.0784 J	ND	0.757	ND	ND	0.127 J	ND	0.0796 J	ND	0.0452 J	0.117 J	0.245 J
SB-65	8/2/2023 2:00 PM	ND	ND	ND	ND	ND	0.0373 J	0.0398 J	0.0513 J	0.0273 J	ND	ND	ND	ND	0.0349 J	ND	1.19	ND	ND	0.0585 J	ND	0.0318 J	ND	ND	0.0539 J	0.0829 J
SB-66	8/2/2023 2:00 PM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.259	ND	ND	ND	ND	ND	ND	ND	ND	0.0579 J
SB-67	8/3/2023 9:45 AM	ND	ND	ND	ND	ND	0.0283 J	0.0262 J	0.0369 J	0.0216 J	ND	ND	ND	ND	0.022 J	ND	0.228	ND	ND	0.0516 J	ND	ND	ND	0.0268 J	0.0467 J	ND
DUP (SB-67)	8/3/2023 9:48 AM	ND	ND	ND	ND	ND	0.0251 J	0.0226 J	0.0296 J	ND	ND	ND	ND	ND	0.0197 J	ND	0.179 J	ND	ND	0.0439 J	ND	ND	ND	0.0284 J	0.039 J	ND
SB-68	8/3/2023 11:30 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.126 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-69	8/4/2023 9:45 AM	ND	ND	ND	ND	0.0256 J	0.0731 J	0.0661 J	0.0786 J	0.04 J	0.0277 J	ND	ND	ND	0.0624 J	ND	0.154 J	ND	ND	0.136 J	ND	0.0429 J	ND	0.0892 J	0.126 J	0.065 J
DUP (SB-69)	8/4/2023 9:48 AM	ND	ND	ND	ND	ND	0.029 J	0.0298 J	0.0323 J	ND	ND	ND	ND	ND	0.0248 J	ND	0.178 J	ND	ND	0.046 J	ND	ND	ND	0.0267 J	0.043 J	0.0507 J
SB-70	8/4/2023 10:35 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.146 J	ND	ND	0.0244 J	ND	ND	ND	ND	ND	0.982
SB-71	8/4/2023 11:40 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.112 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-72	8/4/2023 1:00 PM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0244 J	ND	0.199	ND	ND	ND	ND	ND	ND	ND	ND	0.0388 J
SB-73	8/4/2023 1:55 PM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.568	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 1B - Evaluation of WDA Existing Soil Cover for use as the Permanent Cover System - SVOCs Results
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina
ID #: NONCD0000766

Analytical Method -->		EPA 8270																								
Analyte -->		2-Methylnaphthalene	4-Chloroaniline	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Butyl benzyl phthalate	Carbazole	Chrysene	Di-n-butyl Phthalate	Di-n-octyl Phthalate	Dibenzo(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene	bis(2-Ethylhexyl)phthalate
Sample ID	Date and Time Collected	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SB-79	8/11/2023 11:20 AM	ND	ND	ND	ND	0.0423 J	0.217	0.275	0.351	0.22	0.116 J	ND	ND	ND	0.214	ND	0.266	0.0524 J	ND	0.325	ND	0.237	ND	0.161 J	0.298	0.129 J
DUP (SB-79)	8/11/2023 11:24 AM	ND	ND	ND	ND	0.0312 J	0.173 J	0.177 J	0.23	0.139 J	0.0775 J	ND	ND	ND	0.166 J	ND	0.18 J	0.0312 J	ND	0.265	ND	0.149 J	ND	0.124 J	0.255	ND
SB-80	8/11/2023 12:35 PM	ND	ND	ND	ND	0.0232 J	0.131 J	0.153 J	0.194 J	0.117 J	0.0619 J	ND	ND	ND	0.118 J	ND	0.502	0.0272 J	ND	0.185 J	ND	0.127 J	ND	0.0897 J	0.156 J	ND
SB-81	8/11/2023 1:50 PM	ND	ND	ND	ND	ND	0.0777 J	0.0875 J	0.111 J	0.0646 J	0.035 J	ND	ND	ND	0.077 J	ND	0.475	ND	ND	0.122 J	ND	0.0715 J	ND	0.0583 J	0.107 J	ND
SB-82	8/11/2023 2:45 PM	ND	ND	ND	ND	ND	0.0403 J	0.0492 J	0.0662 J	ND	ND	ND	ND	ND	0.0443 J	ND	0.43	ND	ND	0.0335 J	ND	0.0403 J	ND	ND	0.0385 J	ND
SB-83	8/14/2023 10:20 AM	ND	ND	ND	ND	ND	0.0195 J	0.0235 J	0.0337 J	0.0224 J	ND	ND	ND	ND	0.0235 J	ND	ND	ND	ND	0.0289 J	ND	ND	ND	ND	0.0277 J	ND
DUP (SB-83)	8/14/2023 10:22 AM	ND	ND	ND	ND	ND	0.024 J	0.0266 J	0.0374 J	0.0211 J	ND	ND	ND	ND	0.0261 J	ND	ND	ND	ND	0.0348 J	ND	ND	ND	ND	0.0338 J	ND
SB-84	8/14/2023 11:25 AM	ND	ND	ND	0.0225 J	ND	0.0278 J	0.0318 J	0.0319 J	ND	ND	ND	ND	ND	0.0235 J	ND	ND	ND	ND	0.0274 J	ND	ND	ND	ND	0.0394 J	ND
SB-85	8/14/2023 12:05 PM	ND	ND	ND	ND	0.0745 J	0.315	0.25	0.328	0.136 J	0.122 J	ND	ND	ND	0.307	ND	ND	0.0339 J	ND	0.64	0.0223 J	0.173 J	ND	0.18 J	0.558	ND
SB-86	8/14/2023 3:00 PM	ND	ND	ND	ND	ND	ND	ND	ND	0.0393 J	ND	ND	ND	ND	ND	0.225 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.804
SB-87	8/14/2023 3:45 PM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:
Carcinogenic Risk and Hazard Index calculated using The NCDEQ Risk Calculator
CR = Carcinogenic Risk
HI = Hazard Index
mg/kg = milligrams per kilogram
J = Estimated value between the adjusted laboratory detction limit and reporting limit
< = Not Detected at the detection limit listed
ND = Analyte Not Detected Over Method Detection Limit (MDL) and MDL Lower than the NCDEQ Residential Preliminary Soil Remediation Goal
Blue highlighted values are detections used as maximum concentration inputs into NCDEQ Risk Calculator

Table 2 - Cover Soil Thickness and Waste Description
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina
ID #: NONCD0000766

Boring Number	Composite Sub-Sample ID	Estimated Cover Thickness (feet)	Waste Present (Y/N?)	Waste Description / Notes
SB-1	*N*	2	Y	No description
	E	2	Y	No description
	S	>2	N	
	W	2	Y	No description
	C	1.25	Y	No description
SB-2	All	>2	N	
SB-3	*N*	1.5	Y	No description
	E	>2	N	
	S	>2	N	
	W	1.5	Y	No description
	C	1.5	Y	No description
SB-4	All	>2	N	
SB-5	*N*	1.5	Y	No description
	E	>2	N	
	S	>2	N	
	W	2	Y	No description
	C	2	Y	No description
SB-6	*N*	>2	N	
	E	>2	N	
	S	2	Y	No description
	W	>2	N	
	C	>2	N	
SB-7	*N*	>2	N	
	E	1.25	Y	No description
	S	>2	N	
	W	>2	N	
	C	>2	N	
SB-8	All	>2	N	
SB-9	All	>2	N	
SB-10	All	>2	N	
SB-11	*N*	1.5	Y	No description
	E	>2	N	
	S	1	Y	No description
	W	1.5	Y	No description
	C	2	Y	No description
SB-12	*N*	>2	N	
	E	>2	N	
	S	2	Y	No description
	W	>2	N	
	C	2	Y	No description
SB-13	All	>2	N	
SB-14	*N*	>2	N	
	E	>2	N	
	S	>2	N	
	W	1	Y	No description
	C	>2	N	
SB-20	All	>2	N	
SB-21	All	>2	N	
SB-22	All	>2	N	

Table 2 - Cover Soil Thickness and Waste Description
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina
ID #: NONCD0000766

Boring Number	Composite Sub-Sample ID	Estimated Cover Thickness (feet)	Waste Present (Y/N?)	Waste Description / Notes
SB-23	*N*	>2	N	
	E	1.5	Y	Glass, Metal
	S	>2	N	
	W	2	Y	Glass, Metal
	C	1.5	Y	Metal
SB-24	*N*	2	Y	Glass, Plastic
	E	>2	N	
	S	1.5	Y	Plastic
	W	2	Y	Glass, Plastic
	C	>2	N	
SB-25	*N*	1	Y	Glass, Plastic, Metal
	E	>2	N	
	S	1.5	Y	Plastic
	W	1	Y	Glass, Plastic, Metal
	C	1	Y	Glass, Plastic, Metal
SB-26	All	>1	N	Refusal
SB-27	All	>2	N	
SB-28	All	>2	N	
SB-29	All	>2	N	
SB-30	All	>2	N	
SB-31	*N*	1.5	Y	Plastic
	E	>2	N	
	S	1	Y	Plastic, Metal
	W	1.5	Y	Metal
	C	1	Y	Metal
SB-32	All	>2	N	
SB-33	*N*	2	Y	Rubber
	E	>2	N	
	S	>2	N	
	W	>2	N	
	C	>2	N	
SB-34	All	>1	N	Refusal
SB-35	All	>1	N	Refusal
SB-36	*N*	2	Y	Metal, Glass
	E	1.5	Y	Plastic, Glass
	S	>2	N	
	W	2	Y	Glass
	C	1	Y	Rubber
SB-37	*N*	1.5	Y	Metal
	E	1	Y	Netting, Rope
	S	2	Y	Metal, Glass
	W	>2	N	
	C	1.5	Y	Paper, Foam
SB-38	*N*	1.5	Y	Burnt Material,
	E	>2	N	
	S	>2	N	
	W	2	Y	Plastic, Glass
	C	1.5	Y	Fabric, Glass

Table 2 - Cover Soil Thickness and Waste Description
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina
ID #: NONCD0000766

Boring Number	Composite Sub-Sample ID	Estimated Cover Thickness (feet)	Waste Present (Y/N?)	Waste Description / Notes
SB-39	*N*	1	Y	Metal
	E	1.5	Y	Rubber
	S	>2	N	
	W	>2	N	
	C	1	Y	Styrofoam
SB-40	*N*	1	Y	Insulation, Burnt
	E	>2	N	
	S	1	Y	Insulation, Burnt
	W	>2	N	
	C	1	Y	Insulation, Burnt
SB-41	*N*	>2	N	
	E	1	Y	Glass
	S	>2	N	
	W	>2	N	
	C	>2	N	
SB-42	*N*	1.5	Y	Plastic, Glass
	E	1.5	Y	Plastic, Glass
	S	1.5	Y	Plastic, Glass
	W	1.5	Y	Plastic, Glass
	C	0.5	Y	Plastic, Glass
SB-43	*N*	1.5	Y	Plastic
	E	1.5	Y	Plastic
	S	1.5	Y	Plastic
	W	1	Y	Cleaning wipes
	C	2	Y	Asphalt
SB-44	*N*	1.5	Y	Plastic
	E	>2	N	
	S	>2	N	
	W	>2	N	
	C	>2	N	
SB-45	*N*	1	Y	Plastic, Netting
	E	>2	N	
	S	1.5	Y	Plastic
	W	>2	N	
	C	>2	N	
SB-46	All	>0.5-2	N	Refusal
SB-47	All	>0.5-0.75	N	Refusal
SB-48	All	>0.5-1	N	Refusal
SB-49	All	>0.5	N	Refusal
SB-50	*N*	>2	N	
	E	2	Y	Plastic, Glass
	S	1.5	Y	Plastic, Glass
	W	1.5	Y	Netting
	C	1	Y	Metals, Plastic
SB-51	*N*	1.5	Y	Metals
	E	1	Y	Metals
	S	>2	N	
	W	>2	N	
	C	>2	N	

Table 2 - Cover Soil Thickness and Waste Description
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina
ID #: NONCD0000766

Boring Number	Composite Sub-Sample ID	Estimated Cover Thickness (feet)	Waste Present (Y/N?)	Waste Description / Notes
SB-52	*N*	>2	N	
	E	NA	N	Rock Pile
	S	>2	N	
	W	1.5	Y	Plastic bags
	C	>2	N	
SB-53	All	>2	N	
SB-54	*N*	2	Y	Plastic, Metal
	E	1.5	Y	Plastic
	S	1.5	Y	Rubber
	W	2	Y	Plastic, Metal
	C	>2	N	
SB-55	All	>2	N	
SB-56	All	>2	N	
SB-57	All	>1	N	Refusal
SB-58	*N*	>2	N	
	E	>2	N	
	S	1	Y	Metal, Glass
	W	2	Y	Plastic
	C	1	Y	Plastic
SB-59	ALL	>1.5	N	Refusal
SB-60	*N*	>1	N	Refusal
	E	1.5	Y	Plastic
	S	>1	N	Refusal
	W	>1	N	Refusal
	C	>1	N	Refusal
SB-61	*N*	>2	N	
	E	2	Y	Plastic, Glass
	S			Roadway
	W	0.5	Y	Plastic
	C	2	Y	Plastic, Glass
SB-62	*N*	1.5	Y	Plastic, Glass
	E	2	Y	Glass, Metal
	S			Roadway
	W	1.5	Y	Plastic, Glass
	C	1.5	Y	Plastic
SB-63	All	>2	N	
SB-64	*N*	0.25	Y	Plastic, Glass, Metal
	E	0.5	Y	Plastic, Glass, Metal
	S	0.5	Y	Plastic, Glass, Metal
	W	0.75	Y	Plastic, Glass
	C	0.75	Y	Plastic, Glass, Metal
SB-65	*N*	2	N	Chemical Odor
	E	1	Y	Fabric, Glass
	S	1	Y	Plastic
	W	1	Y	Drywall
	C	1	Y	Brick, Glass

Table 2 - Cover Soil Thickness and Waste Description
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina
ID #: NONCD0000766

Boring Number	Composite Sub-Sample ID	Estimated Cover Thickness (feet)	Waste Present (Y/N?)	Waste Description / Notes
SB-66	*N*	>2	N	
	E	1.5	Y	Metal
	S	2	Y	Wire
	W	>2	N	
	C	>2	N	
SB-67	*N*	1.5	Y	Plastic, Metal, Fabric
	E	>2	N	
	S	>2	N	
	W	>2	N	
	C	>2	N	
SB-68	*N*	>2	N	
	E	>2	N	
	S	1.5	Y	Plastic, Glass
	W	>2	N	
	C	2	Y	Plastic, Glass, Fabric
SB-69	*N*	1.5	Y	Plastic
	E	1	Y	Netting
	S	1	Y	Insultation
	C	>2	N	
SB-70	*N*	1	Y	Insulation
	E	1.5	Y	Plastic, Glass
	S	1.5	Y	Plastic, Glass
	C	2	Y	Netting
SB-71	*E*	1.5	Y	Plastic, Glass, Fabric
	S	1.5	Y	Cloth
	W	>2	N	
	C	2	Y	Plastic, Glass
SB-72	All	>2	N	
SB-73	*N*	2	Y	Asphalt
	E	1.5	Y	Metal
	S	1	Y	Plastic
	W	2	Y	Plastic, Glass
	C	>2	N	
SB-74	All	>2	N	
SB-75	All	>2	N	
SB-76	All	>2	N	
SB-77	All	>2	N	
SB-78	All	>2	N	
SB-79	*All*	>1	N	Refusal
SB-80	*N*	1	Y	Brick
	E	1	Y	Metal
	S	>2	N	
	W	>2	N	
	C	1	Y	Metal
SB-81	All	>2	N	

Table 2 - Cover Soil Thickness and Waste Description
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina
ID #: NONCD0000766

Boring Number	Composite Sub-Sample ID	Estimated Cover Thickness (feet)	Waste Present (Y/N?)	Waste Description / Notes
SB-82	*N*	>2	N	
	E	>2	N	
	S	1	Y	Wire
	W	>2	N	
	C	>2	N	
SB-83	*N*	1.5	Y	Rope
	E	>2	N	
	S	1	Y	Plastic
	W	>2	N	
	C	1.25	Y	Plastic
SB-84	*N*	>2	N	
	E	>2	N	
	S	1	Y	Plastic
	W	2	Y	Plastic, Glass
	C	>2	N	
SB-85	*N*	>2	N	
	E	>2	N	
	S	2	Y	Metal
	W	>2	N	
	C	>2	N	
B-86	All	<1	Y	
SB-86	*N*	1.5	Y	
	E	1.5	Y	Ceramics
	S	1	Y	Plastic, Metal
	W	>2	N	
	C	1	Y	Plastic
SB-87	All	>2	N	

Notes:

Boring Number as Shown on Figure and GPS Coordinates Based on Center "C" Sub-Sample Loc

Sub-Sample IDs Indicate General Location Relative to Center "C" Location (N=~25' North of Ce

NA = Not Applicable

All = All Sub-Sample Borings

> = No Waste Encountered Above Depth Shown

< = Waste Encountered Above Depth Shown

Refusal = Hand Auger Refusal Determined Not Due to Waste

Table 3A -Background Soil - Metals Results
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina
ID #: NONCD0000766

Analytical Method -->		EPA 6020																EPA 7199	EPA 7471
Analyte -->		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Manganese	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Hexavalent Chromium	Mercury
Sample ID	Date and Time Collected	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SB-74	8/10/2023 12:30 PM	<1.2	6.5	126	1	<0.31	11.1	4.2	16.7	38.6	154	6.4	1.3	<0.31	<1.2	53.1	54	0.73	<0.045
DUP (SB-74)	8/10/2023 12:34 PM	<1.2	6.5	147	1.2	<0.29	14.7	5	18.9	29.1	159	8.7	0.88	<0.29	<1.2	75.4	49.2	0.72	<0.045
SB-75	8/10/2023 1:25 PM	<1.2	3.4	94.8	0.8	<0.30	11.4	7.7	38	30.7	254	6.9	0.85	<0.30	<3.0	51.4	54.5	0.61	<0.045
SB-76	8/10/2023 2:00 PM	<1.3	3.5	216	1.8	<0.32	13	7.2	15	20.2	331	8.4	1.2	<0.32	<3.2	82.7	79.1	0.61	<0.046
SB-77	8/10/2023 2:45 PM	<1.3	3.8	228	1.7	<0.32	15.3	8.6	15.3	22.3	314	9.8	1.1	<0.32	<3.2	80.9	55.6	0.74	<0.046
SB-78	8/10/2023 3:20 PM	<1.2	5.5	358	1.1	0.72	15	5.7	58.1	280	273	8.3	1	<0.30	<3.0	44.2	365	<0.47	0.12

Notes:
mg/kg = milligrams per kilogram
J = Estimated value between the adjusted laboratory detction limit and reporting limit
< = Not Detected at the detection limit listed
ND = Not Detected

Table 3B - Background Soil - SVOCs Results
Sims Legion Park Landfill
Gastonia, Gaston County, North Carolina
ID #: NONCD0000766

Analytical Method -->		EPA 8270																				
Analyte -->		2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Carbazole	Chrysene	Di-n-octyl Phthalate	Dibenzo(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene	bis(2-Ethylhexyl)phthalate
Sample ID	Date Collected	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SB-74	6/13/2023 10:55 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.661	ND	ND	ND	ND	ND	ND	ND	ND	ND
DUP (SB-74)	6/16/2023 9:25 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.756	ND	ND	0.0251 J	ND	ND	ND	ND	ND	ND
SB-75	6/13/2023 10:55 AM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.201	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-76	6/13/2023 1:15 PM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.433	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-77	6/13/2023 2:00 PM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.419	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-78	6/13/2023 3:10 PM	0.0601 J	0.437	0.0248 J	1.06	2.94	3.06	3.62	2.52	1.26	0.801	2.94	0.405	0.591	0.276	5.23	0.41	2.65	0.0585 J	4.16	3.81	0.0472 J

Notes:
mg/kg = milligrams per kilogram
J = Estimated value between the adjusted laboratory detction limit and reporting limit
< = Not Detected at the detection limit listed
ND = Analyte Not Detected Over Method Detection Limit (MDL) and MDL Lower than the NCDEQ Residential Preliminary Soil Remediation Goal

APPENDIX B

Risk Calculator Worksheets

North Carolina Department of Environmental Quality
Risk Calculator

Version Date:	July 2023
Basis:	May 2023 EPA RSL Table
Site Name:	Sims Legion Park
Site Address:	
DEQ Section:	
Site ID:	NONCD0000766
Exposure Unit ID:	Comprehensive Cover Soil
Submittal Date:	
Prepared By:	JG
Reviewed By:	KS

Table of Contents		TOC
Version Date: July 2023 **Basis: May 2023 EPA RSL Table**		
Site ID: NONCD0000766		
Exposure Unit ID: Comprehensive Cover Soil		
Form No.	**Description**	**Check box if included**
DATA INPUT SHEETS		
Input Section 1 - Exposure Pathways & Parameters		
Input Form 1A	Complete Exposure Pathways	☑
Input Form 1B	Exposure Factors and Target Risks	☑
Input Form 1C	Contaminant Migration Parameters	☐
Input Form 1D	Sample Statistics	☐
Input Section 2 - Exposure Point Concentrations		
Input Form 2A	Soil Exposure Point Concentration Table	☑
Input Form 2B	Groundwater Exposure Point Concentration Table	☐
Input Form 2C	Surface Water Exposure Point Concentration Table	☐
Input Form 2D	Soil Gas Exposure Point Concentration Table	☐
Input Form 2E	Indoor Air Exposure Point Concentration Table	☐
DATA OUTPUT SHEETS		
Output Section 1 - Summary Output for All Calculators		
Output Form 1A	Risk for Individual Pathways	☑
Output Form 1B	Sitewide Risk	☐
Output Section 2 - Direct Contact Soil and Groundwater Calculators		
Output Form 2A	Resident Soil	☑
Output Form 2B	Resident Groundwater Use	☐
Output Form 2C	Non-Residential Worker Soil	☐
Output Form 2D	Non-Residential Worker Groundwater Use	☐
Output Form 2E	Construction Worker Soil	☐
Output Form 2F	Recreator/Trespasser Soil	☐
Output Form 2G	Recreator/Trespasser Surface Water	☐
Output Section 3 - Vapor Intrusion Calculators		
Output Form 3A	Resident Groundwater to Indoor Air	☐
Output Form 3B	Resident Soil Gas to Indoor Air	☐
Output Form 3C	Resident Indoor Air	☐
Output Form 3D	Non-Residential Worker Groundwater to Indoor Air	☐
Output Form 3E	Non-Residential Worker Soil Gas to Indoor Air	☐
Output Form 3F	Non-Residential Worker Indoor Air	☐
Output Section 4 - Contaminant Migration Worksheets		
Output Form 4A	Soil to Groundwater - Forward Mode	☐
Output Form 4B	Groundwater to Groundwater - Forward Mode	☐
Output Form 4C	Soil to Surface Water - Forward Mode	☐
Output Form 4D	Groundwater to Surface Water - Forward Mode	☐
Output Form 4E	Soil to Groundwater - Backward Mode	☐
Output Form 4F	Groundwater to Groundwater - Backward Mode	☐
Output Form 4G	Soil to Surface Water - Backward Mode	☐
Output Form 4H	Groundwater to Surface Water - Backward Mode	☐

Complete Exposure Pathways		Input Form 1A
Version Date: July 2023 **Basis: May 2023 EPA RSL Table**		
Site ID: NONCD0000766		
Exposure Unit ID: Comprehensive Cover Soil		
Note: Risk output will only be calculated for complete exposure pathways.		
Receptor	**Pathway**	**Check box if pathway complete**
DIRECT CONTACT SOIL AND WATER PATHWAYS		
Resident	Soil	☑
	Groundwater Use	☐
Non-Residential Worker	Soil	☐
	Groundwater Use	☐
Construction Worker	Soil	☐
Recreator/Trespasser	Soil	☐
	Surface Water	☐
VAPOR INTRUSION PATHWAYS		
Resident	Groundwater to Indoor Air	☐
	Soil Gas to Indoor Air	☐
	Indoor Air	☐
Non-Residential Worker	Groundwater to Indoor Air	☐
	Soil Gas to Indoor Air	☐
	Indoor Air	☐
CONTAMINANT MIGRATION PATHWAYS		
Groundwater	Source Soil	☐
	Source Groundwater	☐
Surface Water	Source Soil	☐
	Source Groundwater	☐

Exposure Factors and Target Risks **Input Form 1B**

Version Date: July 2023

Basis: May 2023 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: Comprehensive Cover Soil

Exposure Parameter	Default Value	Site Specific Value	Justification
General			
Target Cancer Risk (individual)	1.0E-06	1.0E-06	
Target Cancer Risk (cumulative)	1.0E-04	1.0E-04	
Target Hazard Index (individual)	2.0E-01	2.0E-01	
Target Hazard Index (cumulative)	1.0E+00	1.0E+00	
Residential Child			
Lifetime (LT) (years)	70	70	
Body Weight (BW) (kg)	15	15	
Exposure Duration (ED) (yr)	6	6	
Exposure Frequency (EF) (d/yr)	350	350	
Exposure Time (ET) (hr/d)	24	24	
Skin Surface Area - Soil Exposure (SA_s) (cm2)	2373	2373	
Soil Adherence Factor (AF) (mg/cm^2)	0.2	0.2	
Soil Ingestion Rate (IRS) (mg/day)	200	200	
Skin Surface Area - Water Exposure (SA_w) (cm2)	6365	6365	
Water Ingestion Rate (IRW) (L/d)	0.78	0.78	
Water Exposure Time (ET_{event}) (hr/event)	0.54	0.54	
Water Event Frequency (EV) (events/day)	1	1	
Residential Adult			
Lifetime (LT) (years)	70	70	
Body Weight (BW) (kg)	80	80	
Exposure Duration (ED) (yr)	20	20	
Exposure Frequency (EF) (d/yr)	350	350	
Exposure Time (ET) (hr/d)	24	24	
Skin Surface Area - Soil Exposure (SA_s) (cm^2)	6032	6032	
Soil Adherence Factor (AF) (mg/cm^2)	0.07	0.07	
Soil Ingestion Rate (IRS) (mg/day)	100	100	
Skin Surface Area - Water Exposure (SA_w) (cm^2)	19652	19652	
Water Ingestion Rate (IRW) (L/d)	2.5	2.5	
Water Exposure Time (ET_{event}) (hr/event)	0.71	0.71	
Water Event Frequency (EV) (events/day)	1	1	
Non-Residential Worker			
Lifetime (LT) (years)	70	70	
Body Weight (BW) (kg)	80	80	
Exposure Duration (ED) (yr)	25	25	
Exposure Frequency (EF) (d/yr)	250	250	
Exposure Time (ET) (hr/d)	8	8	
Skin Surface Area - Soil Exposure (SA_s) (cm^2)	3527	3527	
Soil Adherence Factor (AF) (mg/cm^2)	0.12	0.12	
Soil Ingestion Rate (IR) (mg/day)	100	100	
Skin Surface Area - Water Exposure (SA_w) (cm^2)	19652	19652	
Water Ingestion Rate (IRW) (L/d)	0.83	0.83	
Water Exposure Time (ET_{event}) (hr/event)	0.67	0.67	
Water Event Frequency (EV) (events/day)	1	1	
Construction Worker			
Lifetime (LT) (years)	70	70	
Body Weight (BW) (kg)	80	80	
Working Weeks (EW) (wk/yr)	50	50	
Exposure Duration (ED) (yr)	1	1	
Exposure Frequency (EF) (d/yr)	250	250	
Exposure Time (ET) (hr/d)	8	8	
Skin Surface Area - Soil Exposure (SA_s) (cm^2)	3527	3527	
Soil Adherence Factor (AF) (mg/cm^2)	0.3	0.3	
Soil Ingestion Rate (IR) (mg/day)	330	330	

User Defined Child				
	Recreator	Trespasser		
Lifetime (LT) (years)	70	NA	70	
Averaging Time (AT) (days/yr)	365	NA	365	
Body Weight (BW) (kg)	15	NA	15	
Exposure Duration 0-2 (ED) (yr)	2	NA	2	
Exposure Duration 2-6 (ED) (yr)	4	NA	4	
Exposure Frequency (EF) (d/yr)	195	NA	195	
Exposure Time (ET) (hr/d)	2	NA	2	

Exposure Factors and Target Risks **Input Form 1B**

Version Date: July 2023

Basis: May 2023 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: Comprehensive Cover Soil

Exposure Parameter	Default Value		Site Specific Value	Justification
Skin Surface Area - Soil Exposure (SA_s) (cm^2)	2373	NA	2373	
Soil Adherence Factor (AF) (mg/cm^2)	0.2	NA	0.2	
Soil Ingestion Rate (IRS) (mg/day)	200	NA	200	
Skin Surface Area - Water Exposure (SA_w) (cm^2)	6365	NA	6365	
Water Ingestion Rate (IRW) (L/hr)	0.12	NA	0.12	
Water Exposure Time (ET_{event}) (hr/event)	2	NA	2	
Water Event Frequency (EV) (events/day)	1	NA	1	
User Defined Adult				
	Recreator	Trespasser		
Lifetime (LT) (years)	70	70	70	
Body Weight (BW) (kg)	80	45	80	
Exposure Duration 6-16 (ED) (yr)	10	10	10	
Exposure Duration 16-26 (ED) (yr)	10	0	10	
Exposure Frequency (EF) (d/yr)	195	90	195	
Exposure Time (ET) (hr/d)	2	2	2	
Skin Surface Area - Soil Exposure (SA_s) (cm^2)	6032	6032	6032	
Soil Adherence Factor (AF) (mg/cm^2)	0.07	0.2	0.07	
Soil Ingestion Rate (IRS) (mg/day)	100	200	100	
Skin Surface Area - Water Exposure (SA_w) (cm^2)	19652	19652	19652	
Water Ingestion Rate (IRW) (L/hr)	0.11	0.11	0.11	
Water Exposure Time (ET_{event}) (hr/event)	2	2	2	
Water Event Frequency (EV) (events/day)	1	1	1	

Exposure Point Concentrations **Input Form 2A**

Version Date: July 2023

Basis: May 2023 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: Comprehensive Cover Soil

Soil Exposure Point Concentration Table

Description of Exposure Point Concentration Selection:

Maximum concentraions of detected analytes in all Cover Soil samples collected at the site. Results from background samples SS-9,SS-13,SS-13DUP, and SB-74 through SB-78 were not included in this evaluation.

NOTE: If the chemical list is changed from a prior calculator run, remember to select "See All Chemicals" on the data output sheet or newly added chemicals will not be included in risk calculations

Exposure Point Concentration (mg/kg)	Notes:	CAS Number	Chemical **For the chemicals highlighted in blue, data entry notes are provided in the PSRG Table link on the Main Menu**	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value	Screening Toxicity Value (Screening Level) (n/c)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
0.43	SS1	67-64-1	Acetone			mg/kg										
2.6	SS12	7664-41-7	Ammonia			mg/kg										
28.2	SB80	7440-36-0	Antimony (metallic)			mg/kg										
337	SB54	7440-38-2	Arsenic, Inorganic			mg/kg										
401	SB80	7440-39-3	Barium			mg/kg										
0.0054	CS31	71-43-2	Benzene			mg/kg										
0.335	SB60	65-85-0	Benzoic Acid			mg/kg										
2	SB10DUP	7440-41-7	Beryllium and compounds			mg/kg										
20.9	SCS31	7440-43-9	Cadmium (Diet)			mg/kg										
0.019	SS4	5103-71-9	Chlordane (alpha)			mg/kg										
0.066	SB36	106-47-8	Chloroaniline, p-			mg/kg										
0.0057	CS25	108-90-7	Chlorobenzene			mg/kg										
0.7	SS5	75-45-6	Chlorodifluoromethane			mg/kg										
68.8	SB45	16065-83-1	Chromium(III), Insoluble Salts			mg/kg										
3.9	CS36	18540-29-9	Chromium(VI)			mg/kg										
25.2	SB18	7440-48-4	Cobalt			mg/kg										
491	CS36	7440-50-8	Copper			mg/kg										
0.0036	CS31	98-82-8	Cumene			mg/kg										
1.4	SS7	57-12-5	~Cyanide (CN-)			mg/kg										
0.0042	CS45	110-82-7	Cyclohexane			mg/kg										
0.0045	CS26	106-46-7	Dichlorobenzene, 1,4-			mg/kg										
0.0044	CS35	107-06-2	Dichloroethane, 1,2-			mg/kg										
0.02	SS2	123-91-1	Dioxane, 1,4-			mg/kg										
1.07156E-05	SS3,SS7,SS8	1746-01-6	~TCDD, 2,3,7,8-			mg/kg										
0.0268	CS37	100-41-4	Ethylbenzene			mg/kg										
1.3	CS21DUP	132-64-9	~Dibenzofuran			mg/kg										
0.069	SS5	110-54-3	Hexane, N-			mg/kg										
39900	SS7	7439-89-6	Iron			mg/kg										
4780	SB80	7439-92-1	~Lead and Compounds			mg/kg										
1640	SB62	7439-96-5	Manganese (Non-diet)			mg/kg										
1.5	SB86	7487-94-7	~Mercuric Chloride (and other Mercury salts)			mg/kg										
0.0916	CS25	79-20-9	Methyl Acetate			mg/kg										
0.0075	SS1	78-93-3	Methyl Ethyl Ketone (2-Butanone)			mg/kg										
0.0044	CS38	1634-04-4	Methyl tert-Butyl Ether (MTBE)			mg/kg										
0.381	CS34	75-09-2	Methylene Chloride			mg/kg										
23.3	SB18	7440-02-0	Nickel Soluble Salts			mg/kg										
21	SS5	14797-55-8	Nitrate (measured as nitrogen)			mg/kg										
0.012	SS5	87-86-5	Pentachlorophenol			mg/kg										
390	SS12	7723-14-0	Phosphorus, White			mg/kg										
0.982	SB70	117-81-7	~Bis(2-ethylhexyl)phthalate			mg/kg										
0.0487	SB25	85-68-7	~Butyl Benzyl Phthalate			mg/kg										
1.48	SB14	84-74-2	~Dibutyl Phthalate			mg/kg										
1.19	SB65	117-84-0	~Octyl Phthalate, di-N-			mg/kg										
0.00014	SS7	39635-31-9	~Heptachlorobiphenyl, 2,3,3',4,4',5,5'- (PCB 189)			mg/kg										
0.000447	SS5	52663-72-6	~Hexachlorobiphenyl, 2,3',4,4',5,5'- (PCB 167)			mg/kg										
coelutes with 156		69782-90-7	~Hexachlorobiphenyl, 2,3,3',4,4',5'- (PCB 157)			mg/kg										
0.0012	SS5	38380-08-4	~Hexachlorobiphenyl, 2,3,3',4,4',5- (PCB 156)			mg/kg										
0.0000249	SS5	32774-16-6	~Hexachlorobiphenyl, 3,3',4,4',5,5'- (PCB 169)			mg/kg										
0.000117	SS7	65510-44-3	~Pentachlorobiphenyl, 2',3,4,4',5- (PCB 123)			mg/kg										
0.00466	SS5	31508-00-6	~Pentachlorobiphenyl, 2,3',4,4',5- (PCB 118)			mg/kg										
0.00209	SS5	32598-14-4	~Pentachlorobiphenyl, 2,3,3',4,4'- (PCB 105)			mg/kg										
0.0000878	SS5	74472-37-0	~Pentachlorobiphenyl, 2,3,4,4',5- (PCB 114)			mg/kg										
0.00000715	SS8	57465-28-8	~Pentachlorobiphenyl, 3,3',4,4',5- (PCB 126)			mg/kg										
0.2084025	SS7	1336-36-3	~Polychlorinated Biphenyls (high risk)			mg/kg										
0.00039	SS7	32598-13-3	~Tetrachlorobiphenyl, 3,3',4,4'- (PCB 77)			mg/kg										
0.00000766	SS8	70362-50-4	~Tetrachlorobiphenyl, 3,4,4',5- (PCB 81)			mg/kg										
2.3	CS21DUP	83-32-9	~Acenaphthene			mg/kg										
4.1	CS21DUP	120-12-7	~Anthracene			mg/kg										
13	CS21DUP	56-55-3	~Benz[a]anthracene			mg/kg										

Exposure Point Concentrations **Input Form 2A**

Version Date: July 2023

Basis: May 2023 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: Comprehensive Cover Soil

Soil Exposure Point Concentration Table

Description of Exposure Point Concentration Selection:

Maximum concentraions of detected analytes in all Cover Soil samples collected at the site. Results from background samples SS-9,SS-13,SS-13DUP, and SB-74 through SB-78 were not included in this evaluation.

NOTE: If the chemical list is changed from a prior calculator run, remember to select "See All Chemicals" on the data output sheet or newly added chemicals will not be included in risk calculations

Exposure Point Concentration (mg/kg)	Notes:	CAS Number	Chemical **For the chemicals highlighted in blue, data entry notes are provided in the PSRG Table link on the Main Menu**	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value	Screening Toxicity Value (Screening Level) (n/c)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
1	SS8	192-97-2	~Benzo(e)pyrene			mg/kg										
11	CS21DUP	50-32-8	~Benzo[a]pyrene			mg/kg										
12	CS21DUP	205-99-2	~Benzo[b]fluoranthene			mg/kg										
4.4	CS21DUP	207-08-9	~Benzo[k]fluoranthene			mg/kg										
12	CS21DUP	218-01-9	~Chrysene			mg/kg										
2	CS21DUP	53-70-3	~Dibenz[a,h]anthracene			mg/kg										
19	CS21DUP	206-44-0	~Fluoranthene			mg/kg										
2.5	CS21DUP	86-73-7	~Fluorene			mg/kg										
5.5	CS21DUP	193-39-5	~Indeno[1,2,3-cd]pyrene			mg/kg										
0.37	CS21DUP	90-12-0	~Methylnaphthalene, 1-			mg/kg										
0.77	CS21DUP	91-57-6	~Methylnaphthalene, 2-			mg/kg										
2.4	CS21DUP	91-20-3	~Naphthalene			mg/kg										
29	CS21DUP	129-00-0	~Pyrene			mg/kg										
9.4	SB10DUP	7782-49-2	Selenium			mg/kg										
4.85	SS12	7440-22-4	Silver			mg/kg										
0.0054	CS42	127-18-4	Tetrachloroethylene			mg/kg										
0.883	SS11	7440-28-0	Thallium (Soluble Salts)			mg/kg										
0.0126	CS42	108-88-3	Toluene			mg/kg										
0.00048	CS6	95-63-6	Trimethylbenzene, 1,2,4-			mg/kg										
0.269	CS42	115-96-8	Tris(2-chloroethyl)phosphate			mg/kg										
0.243	CS25	78-42-2	Tris(2-ethylhexyl)phosphate			mg/kg										
106	SB10DUP	7440-62-2	Vanadium and Compounds			mg/kg										
0.0168	CS42	108-38-3	Xylene, m-			mg/kg										
0.0124	CS42	95-47-6	Xylene, o-			mg/kg										
1730	SB80	7440-66-6	Zinc and Compounds			mg/kg										

Risk for Individual Pathways **Output Form 1A**

Version Date: July 2023

Basis: May 2023 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: Comprehensive Cover Soil

DIRECT CONTACT SOIL AND WATER CALCULATORS

Receptor	Pathway	Carcinogenic Risk	Hazard Index	Risk exceeded?
Resident	Soil	6.6E-04	2.7E+02	YES
	Groundwater Use*	NC	NC	NC
Non-Residential Worker	Soil	NC	NC	NC
	Groundwater Use*	NC	NC	NC
Construction Worker	Soil	NC	NC	NC
Recreator/Trespasser	Soil	NC	NC	NC
	Surface Water*	NC	NC	NC

VAPOR INTRUSION CALCULATORS

Receptor	Pathway	Carcinogenic Risk	Hazard Index	Risk exceeded?
Resident	Groundwater to Indoor Air	NC	NC	NC
	Soil Gas to Indoor Air	NC	NC	NC
	Indoor Air	NC	NC	NC
Non-Residential Worker	Groundwater to Indoor Air	NC	NC	NC
	Soil Gas to Indoor Air	NC	NC	NC
	Indoor Air	NC	NC	NC

CONTAMINANT MIGRATION CALCULATORS

Pathway	Source	Target Receptor Concentrations Exceeded?	
Groundwater	Source Soil	Exceedence of 2L at Receptor?	NC
	Source Groundwater	Exceedence of 2L at Receptor?	NC
Surface Water	Source Soil	Exceedence of 2B at Receptor?	NC
	Source Groundwater	Exceedence of 2B at Receptor?	NC

Notes:

1. If lead concentrations were entered in the exposure point concentration tables, see the individual calculator sheets for lead concentrations in comparison to screening levels. Note that lead is not included in cumulative risk calculations.

2. * = If concentrations in groundwater exceed the NC 2L Standards or IMAC, or concentrations in surface water exceed the NC 2B Standards, appropriate remediation and/or institutional control measures will be necessary to be eligible for a risk-based closure.
3. NM = Not modeled, user did not check this pathway as complete.
4. NC = Pathway not calculated, required contaminant migration parameters were not entered.

DEQ Risk Calculator - Direct Contact - Resident Soil **Output Form 2A**

Version Date: July 2023

Basis: May 2023 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: Comprehensive Cover Soil

** - Note that inhalation on this calculator refers to outdoor inhalation of volatiles and particulates, not indoor inhalation associated with vapor intrusion.*

*** - Note that the EPA has no consensus on reference dose or cancer slope factor values for lead, therefore it is not possible to calculate cancer risk or hazard quotient. Lead concentrations are compared to the EPA screening level of 400 mg/kg for residential soil.*

CAS #	Chemical Name:	Ingestion Concentration (mg/kg)	Dermal Concentration (mg/kg)	Inhalation Concentration (mg/kg)*	Ingestion Carcinogenic Risk	Dermal Carcinogenic Risk	Inhalation Carcinogenic Risk*	Calculated Carcinogenic Risk	Ingestion Hazard Quotient	Dermal Hazard Quotient	Inhalation Hazard Quotient*	Calculated Non-Carcinogenic Hazard Quotient
67-64-1	Acetone	0.43	0.43	0.43					6.1E-06			6.1E-06
7664-41-7	Ammonia	2.6	2.6	2.6							8.4E-11	8.4E-11
7440-36-0	Antimony (metallic)	28.2	28.2	28.2					**9.0E-01**		1.5E-06	**9.0E-01**
7440-38-2	Arsenic, Inorganic	337	337	337	**4.4E-04**	**6.1E-05**	8.7E-09	5.0E-04	**8.6E+00**	**1.0E+00**	3.6E-04	**9.6E+00**
7440-39-3	Barium	401	401	401					2.6E-02		1.3E-05	2.6E-02
71-43-2	Benzene	0.0054	0.0054	0.0054	4.3E-10		4.0E-09	4.4E-09	1.7E-05		4.6E-05	6.3E-05
65-85-0	Benzoic Acid	0.335	0.335	0.335					1.1E-06	2.5E-07		1.3E-06
7440-41-7	Beryllium and compounds	2	2	2			2.9E-11	2.9E-11	1.3E-02		1.6E-06	1.3E-02
7440-43-9	Cadmium (Diet)	20.9	20.9	20.9			2.3E-10	2.3E-10	**2.7E+00**	**2.5E-01**	3.4E-05	**2.9E+00**
5103-71-9	Chlordane (alpha)	0.019	0.019	0.019					4.9E-04	4.6E-05		5.3E-04
106-47-8	Chloroaniline, p-	0.066	0.066	0.066	1.9E-08	5.3E-09		2.4E-08	1.7E-03	4.0E-04		2.1E-03
108-90-7	Chlorobenzene	0.0057	0.0057	0.0057					3.6E-06		1.6E-05	2.0E-05
75-45-6	Chlorodifluoromethane	0.7	0.7	0.7							4.3E-06	4.3E-06
16065-83-1	Chromium(III), Insoluble Salts	68.8	68.8	68.8					5.9E-04			5.9E-04
18540-29-9	Chromium(VI)	3.9	3.9	3.9	**1.3E-05**		5.4E-09	1.3E-05	1.7E-02		6.3E-07	1.7E-02
7440-48-4	Cobalt	25.2	25.2	25.2			1.4E-09	1.4E-09	**1.1E+00**		6.8E-05	**1.1E+00**
7440-50-8	Copper	491	491	491					1.6E-01			1.6E-01
98-82-8	Cumene	0.0036	0.0036	0.0036					4.6E-07		1.3E-06	1.8E-06
57-12-5	~Cyanide (CN-)	1.4	1.4	1.4					3.0E-02		3.0E-02	5.9E-02
110-82-7	Cyclohexane	0.0042	0.0042	0.0042							2.1E-07	2.1E-07
106-46-7	Dichlorobenzene, 1,4-	0.0045	0.0045	0.0045	3.5E-11		1.6E-09	1.6E-09	8.2E-07		4.8E-07	1.3E-06
107-06-2	Dichloroethane, 1,2-	0.0044	0.0044	0.0044	5.8E-10		8.4E-09	8.9E-09	9.4E-06		1.2E-04	1.3E-04
123-91-1	Dioxane, 1,4-	0.02	0.02	0.02	2.9E-09		8.5E-10	3.7E-09	8.5E-06		1.5E-05	2.4E-05
1746-01-6	~TCDD, 2,3,7,8-	1.07156E-05	1.07156E-05	1.07156E-05	**2.0E-06**	1.7E-07	6.9E-08	2.2E-06	2.0E-01	1.4E-02	1.2E-04	**2.1E-01**
100-41-4	Ethylbenzene	0.0268	0.0268	0.0268	4.2E-10		4.0E-09	4.4E-09	6.9E-06		4.3E-06	1.1E-05
132-64-9	~Dibenzofuran	1.3	1.3	1.3					1.7E-02			1.7E-02
110-54-3	Hexane, N-	0.069	0.069	0.069							3.0E-05	3.0E-05
7439-89-6	Iron	39900	39900	39900					**7.3E-01**			**7.3E-01**
7439-92-1	~Lead and Compounds	4780	4780	4780					**>SL****	**>SL****	**>SL****	
7439-96-5	Manganese (Non-diet)	1640	1640	1640					**8.7E-01**		5.3E-04	**8.7E-01**
7487-94-7	~Mercuric Chloride (and other Mercury salts)	1.5	1.5	1.5					6.4E-02		8.1E-08	6.4E-02
79-20-9	Methyl Acetate	0.0916	0.0916	0.0916					1.2E-06			1.2E-06
78-93-3	Methyl Ethyl Ketone (2-Butanone)	0.0075	0.0075	0.0075					1.6E-07		1.1E-07	2.7E-07
1634-04-4	Methyl tert-Butyl Ether (MTBE)	0.0044	0.0044	0.0044	1.1E-11		7.8E-11	8.9E-11			2.7E-07	2.7E-07
75-09-2	Methylene Chloride	0.381	0.381	0.381	5.0E-09		1.2E-09	6.2E-09	8.1E-04		1.9E-04	1.0E-03
7440-02-0	Nickel Soluble Salts	23.3	23.3	23.3			3.6E-11	3.6E-11	1.5E-02		4.2E-06	1.5E-02
14797-55-8	Nitrate (measured as nitrogen)	21	21	21					1.7E-04			1.7E-04
87-86-5	Pentachlorophenol	0.012	0.012	0.012	6.9E-09	4.9E-09	3.7E-16	1.2E-08	3.1E-05	1.8E-05		4.9E-05
7723-14-0	Phosphorus, White	390	390	390					**2.5E+02**			**2.5E+02**
117-81-7	~Bis(2-ethylhexyl)phthalate	0.982	0.982	0.982	2.0E-08	5.6E-09	1.4E-14	2.5E-08	6.3E-04	1.5E-04		7.8E-04
85-68-7	~Butyl Benzyl Phthalate	0.0487	0.0487	0.0487	1.3E-10	3.7E-11		1.7E-10	3.1E-06	7.4E-07		3.9E-06
84-74-2	~Dibutyl Phthalate	1.48	1.48	1.48					1.9E-04	4.5E-05		2.3E-04
117-84-0	~Octyl Phthalate, di-N-	1.19	1.19	1.19					1.5E-03	3.6E-04		1.9E-03
39635-31-9	~Heptachlorobiphenyl, 2,3,3',4,4',5,5'- (PCB 189)	0.00014	0.00014	0.00014	7.9E-10	3.1E-10	2.1E-11	1.1E-09	7.8E-05	2.6E-05	4.0E-08	1.0E-04
52663-72-6	~Hexachlorobiphenyl, 2,3',4,4',5,5'- (PCB 167)	0.000447	0.000447	0.000447	2.5E-09	9.9E-10	1.0E-10	3.6E-09	2.5E-04	8.3E-05	2.0E-07	3.3E-04
38380-08-4	~Hexachlorobiphenyl, 2,3,3',4,4',5- (PCB 156)	0.0012	0.0012	0.0012	6.7E-09	2.7E-09	4.0E-10	9.8E-09	6.7E-04	2.2E-04	7.5E-07	8.9E-04
32774-16-6	~Hexachlorobiphenyl, 3,3',4,4',5,5'- (PCB 169)	0.0000249	0.0000249	0.0000249	1.4E-07	5.5E-08	5.8E-09	2.0E-07	1.4E-02	4.6E-03	1.1E-05	1.8E-02
65510-44-3	~Pentachlorobiphenyl, 2',3,4,4',5- (PCB 123)	0.000117	0.000117	0.000117	6.6E-10	2.6E-10	5.9E-11	9.7E-10	6.5E-05	2.2E-05	1.1E-07	8.7E-05
31508-00-6	~Pentachlorobiphenyl, 2,3',4,4',5- (PCB 118)	0.00466	0.00466	0.00466	2.6E-08	1.0E-08	2.9E-09	3.9E-08	2.6E-03	8.6E-04	5.5E-06	3.5E-03
32598-14-4	~Pentachlorobiphenyl, 2,3,3',4,4'- (PCB 105)	0.00209	0.00209	0.00209	1.2E-08	4.6E-09	1.3E-09	1.8E-08	1.2E-03	3.9E-04	2.4E-06	1.6E-03
74472-37-0	~Pentachlorobiphenyl, 2,3,4,4',5- (PCB 114)	0.0000878	0.0000878	0.0000878	4.9E-10	1.9E-10	3.1E-11	7.2E-10	4.9E-05	1.6E-05	5.8E-08	6.5E-05
57465-28-8	~Pentachlorobiphenyl, 3,3',4,4',5- (PCB 126)	0.00000715	0.00000715	0.00000715	1.3E-07	5.3E-08	1.3E-08	2.0E-07	1.3E-02	4.3E-03	2.2E-05	1.7E-02
1336-36-3	~Polychlorinated Biphenyls (high risk)	0.2084025	0.2084025	0.2084025	6.0E-07	2.4E-07	7.5E-08	9.1E-07				
32598-13-3	~Tetrachlorobiphenyl, 3,3',4,4'- (PCB 77)	0.00039	0.00039	0.00039	7.3E-09	2.9E-09	8.9E-15	1.0E-08	7.1E-04	2.4E-04	1.6E-11	9.5E-04
70362-50-4	~Tetrachlorobiphenyl, 3,4,4',5- (PCB 81)	0.00000766	0.00000766	0.00000766	4.3E-10	1.7E-10	5.5E-11	6.5E-10	4.3E-05	1.4E-05	1.0E-07	5.7E-05
83-32-9	~Acenaphthene	2.3	2.3	2.3					4.9E-04	1.5E-04		6.4E-04
120-12-7	~Anthracene	4.1	4.1	4.1					1.7E-04	5.4E-05		2.3E-04
56-55-3	~Benz[a]anthracene	13	13	13	**8.5E-06**	**2.8E-06**	1.6E-07	1.1E-05				
192-97-2	~Benzo(e)pyrene	1	1	1					1.4E-01	3.4E-02	8.1E-06	1.8E-01
50-32-8	~Benzo[a]pyrene	11	11	11	**7.2E-05**	**2.4E-05**	1.1E-10	9.6E-05	**4.7E-01**	1.4E-01	8.9E-05	**6.1E-01**
205-99-2	~Benzo[b]fluoranthene	12	12	12	**7.8E-06**	**2.6E-06**	1.2E-11	1.0E-05				
207-08-9	~Benzo[k]fluoranthene	4.4	4.4	4.4	2.9E-07	9.6E-08	4.4E-13	3.8E-07				
218-01-9	~Chrysene	12	12	12	7.8E-08	2.6E-08	1.2E-13	1.0E-07				
53-70-3	~Dibenz[a,h]anthracene	2	2	2	**1.3E-05**	**4.4E-06**	2.0E-11	1.7E-05				
206-44-0	~Fluoranthene	19	19	19					6.1E-03	1.9E-03		7.9E-03
86-73-7	~Fluorene	2.5	2.5	2.5					8.0E-04	2.5E-04		1.0E-03
193-39-5	~Indeno[1,2,3-cd]pyrene	5.5	5.5	5.5	**3.6E-06**	**1.2E-06**	5.5E-12	4.8E-06				
90-12-0	~Methylnaphthalene, 1-	0.37	0.37	0.37	1.5E-08	5.6E-09		2.1E-08	6.8E-05	2.1E-05		8.8E-05
91-57-6	~Methylnaphthalene, 2-	0.77	0.77	0.77					2.5E-03	7.6E-04		3.2E-03
91-20-3	~Naphthalene	2.4	2.4	2.4	4.1E-07	1.5E-07	5.9E-07	1.2E-06	1.5E-03	4.7E-04	1.6E-02	1.8E-02
129-00-0	~Pyrene	29	29	29					1.2E-02	3.8E-03		1.6E-02
7782-49-2	Selenium	9.4	9.4	9.4					2.4E-02		7.6E-09	2.4E-02
7440-22-4	Silver	4.85	4.85	4.85					1.2E-02			1.2E-02
127-18-4	Tetrachloroethylene	0.0054	0.0054	0.0054	1.6E-11		1.6E-10	1.8E-10	1.2E-05		4.1E-05	5.3E-05
7440-28-0	Thallium (Soluble Salts)	0.883	0.883	0.883					**1.1E+00**			**1.1E+00**
108-88-3	Toluene	0.0126	0.0126	0.0126					2.0E-06		5.3E-07	2.5E-06
95-63-6	Trimethylbenzene, 1,2,4-	0.00048	0.00048	0.00048					6.1E-07		9.1E-07	1.5E-06
115-96-8	Tris(2-chloroethyl)phosphate	0.269	0.269	0.269	7.7E-09	2.2E-09		9.9E-09	4.9E-04	1.2E-04		6.1E-04
78-42-2	Tris(2-ethylhexyl)phosphate	0.243	0.243	0.243	1.1E-09	3.1E-10		1.4E-09	3.1E-05	7.4E-06		3.8E-05
7440-62-2	Vanadium and Compounds	106	106	106					**2.7E-01**		1.7E-05	**2.7E-01**
108-38-3	Xylene, m-	0.0168	0.0168	0.0168					1.1E-06		2.8E-05	2.9E-05
95-47-6	Xylene, o-	0.0124	0.0124	0.0124					7.9E-07		1.7E-05	1.8E-05
7440-66-6	Zinc and Compounds	1730	1730	1730					7.4E-02			7.4E-02
						Cumulative:		**6.6E-04**				**2.7E+02**

North Carolina Department of Environmental Quality
Risk Calculator

Version Date:	January 2023
Basis:	November 2022 EPA RSL Table
Site Name:	Sims Legion Park
Site Address:	
DEQ Section:	DWM PRLU
Site ID:	NONCD0000766
Exposure Unit ID:	VI
Submittal Date:	
Prepared By:	KS
Reviewed By:	JG

Table of Contents		TOC
Version Date: January 2023 **Basis: November 2022 EPA RSL Table**		
Site ID: NONCD0000766		
Exposure Unit ID: VI		
Form No.	**Description**	**Check box if included**
DATA INPUT SHEETS		
Input Section 1 - Exposure Pathways & Parameters		
Input Form 1A	Complete Exposure Pathways	☑
Input Form 1B	Exposure Factors and Target Risks	☑
Input Form 1C	Contaminant Migration Parameters	☐
Input Form 1D	Sample Statistics	☐
Input Section 2 - Exposure Point Concentrations		
Input Form 2A	Soil Exposure Point Concentration Table	☐
Input Form 2B	Groundwater Exposure Point Concentration Table	☐
Input Form 2C	Surface Water Exposure Point Concentration Table	☐
Input Form 2D	Soil Gas Exposure Point Concentration Table	☑
Input Form 2E	Indoor Air Exposure Point Concentration Table	☐
DATA OUTPUT SHEETS		
Output Section 1 - Summary Output for All Calculators		
Output Form 1A	Risk for Individual Pathways	☑
Output Form 1B	Sitewide Risk	☑
Output Section 2 - Direct Contact Soil and Groundwater Calculators		
Output Form 2A	Resident Soil	☐
Output Form 2B	Resident Groundwater Use	☐
Output Form 2C	Non-Residential Worker Soil	☐
Output Form 2D	Non-Residential Worker Groundwater Use	☐
Output Form 2E	Construction Worker Soil	☐
Output Form 2F	Recreator/Trespasser Soil	☐
Output Form 2G	Recreator/Trespasser Surface Water	☐
Output Section 3 - Vapor Intrusion Calculators		
Output Form 3A	Resident Groundwater to Indoor Air	☐
Output Form 3B	Resident Soil Gas to Indoor Air	☑
Output Form 3C	Resident Indoor Air	☐
Output Form 3D	Non-Residential Worker Groundwater to Indoor Air	☐
Output Form 3E	Non-Residential Worker Soil Gas to Indoor Air	☐
Output Form 3F	Non-Residential Worker Indoor Air	☐
Output Section 4 - Contaminant Migration Worksheets		
Output Form 4A	Soil to Groundwater - Forward Mode	☐
Output Form 4B	Groundwater to Groundwater - Forward Mode	☐
Output Form 4C	Soil to Surface Water - Forward Mode	☐
Output Form 4D	Groundwater to Surface Water - Forward Mode	☐
Output Form 4E	Soil to Groundwater - Backward Mode	☐
Output Form 4F	Groundwater to Groundwater - Backward Mode	☐
Output Form 4G	Soil to Surface Water - Backward Mode	☐
Output Form 4H	Groundwater to Surface Water - Backward Mode	☐

Complete Exposure Pathways	Input Form 1A
Version Date: January 2023 **Basis: November 2022 EPA RSL Table**	
Site ID: NONCD0000766	
Exposure Unit ID: VI	
Note: Risk output will only be calculated for complete exposure pathways.	

Receptor	Pathway	Check box if pathway complete
DIRECT CONTACT SOIL AND WATER PATHWAYS		
Resident	Soil	☐
	Groundwater Use	☐
Non-Residential Worker	Soil	☐
	Groundwater Use	☐
Construction Worker	Soil	☐
Recreator/Trespasser	Soil	☐
	Surface Water	☐
VAPOR INTRUSION PATHWAYS		
Resident	Groundwater to Indoor Air	☐
	Soil Gas to Indoor Air	☑
	Indoor Air	☐
Non-Residential Worker	Groundwater to Indoor Air	☐
	Soil Gas to Indoor Air	☐
	Indoor Air	☐
CONTAMINANT MIGRATION PATHWAYS		
Groundwater	Source Soil	☐
	Source Groundwater	☐
Surface Water	Source Soil	☐
	Source Groundwater	☐

Exposure Factors and Target Risks **Input Form 1B**

Version Date: January 2023

Basis: November 2022 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: VI

Exposure Parameter	Default Value	Site Specific Value	Justification
General			
Target Cancer Risk (individual)	1.0E-06	1.0E-06	
Target Cancer Risk (cumulative)	1.0E-04	1.0E-04	
Target Hazard Index (individual)	2.0E-01	2.0E-01	
Target Hazard Index (cumulative)	1.0E+00	1.0E+00	
Residential Child			
Lifetime (LT) (years)	70	70	
Body Weight (BW) (kg)	15	15	
Exposure Duration (ED) (yr)	6	6	
Exposure Frequency (EF) (d/yr)	350	350	
Exposure Time (ET) (hr/d)	24	24	
Skin Surface Area - Soil Exposure (SA_s) (cm2)	2373	2373	
Soil Adherence Factor (AF) (mg/cm^2)	0.2	0.2	
Soil Ingestion Rate (IRS) (mg/day)	200	200	
Skin Surface Area - Water Exposure (SA_w) (cm2)	6365	6365	
Water Ingestion Rate (IRW) (L/d)	0.78	0.78	
Water Exposure Time (ET_{event}) (hr/event)	0.54	0.54	
Water Event Frequency (EV) (events/day)	1	1	
Residential Adult			
Lifetime (LT) (years)	70	70	
Body Weight (BW) (kg)	80	80	
Exposure Duration (ED) (yr)	20	20	
Exposure Frequency (EF) (d/yr)	350	350	
Exposure Time (ET) (hr/d)	24	24	
Skin Surface Area - Soil Exposure (SA_s) (cm^2)	6032	6032	
Soil Adherence Factor (AF) (mg/cm^2)	0.07	0.07	
Soil Ingestion Rate (IRS) (mg/day)	100	100	
Skin Surface Area - Water Exposure (SA_w) (cm^2)	19652	19652	
Water Ingestion Rate (IRW) (L/d)	2.5	2.5	
Water Exposure Time (ET_{event}) (hr/event)	0.71	0.71	
Water Event Frequency (EV) (events/day)	1	1	
Non-Residential Worker			
Lifetime (LT) (years)	70	70	
Body Weight (BW) (kg)	80	80	
Exposure Duration (ED) (yr)	25	25	
Exposure Frequency (EF) (d/yr)	250	250	
Exposure Time (ET) (hr/d)	8	8	
Skin Surface Area - Soil Exposure (SA_s) (cm^2)	3527	3527	
Soil Adherence Factor (AF) (mg/cm^2)	0.12	0.12	
Soil Ingestion Rate (IR) (mg/day)	100	100	
Skin Surface Area - Water Exposure (SA_w) (cm^2)	19652	19652	
Water Ingestion Rate (IRW) (L/d)	0.83	0.83	
Water Exposure Time (ET_{event}) (hr/event)	0.67	0.67	
Water Event Frequency (EV) (events/day)	1	1	
Construction Worker			
Lifetime (LT) (years)	70	70	
Body Weight (BW) (kg)	80	80	
Working Weeks (EW) (wk/yr)	50	50	
Exposure Duration (ED) (yr)	1	1	
Exposure Frequency (EF) (d/yr)	250	250	
Exposure Time (ET) (hr/d)	8	8	
Skin Surface Area - Soil Exposure (SA_s) (cm^2)	3527	3527	
Soil Adherence Factor (AF) (mg/cm^2)	0.3	0.3	
Soil Ingestion Rate (IR) (mg/day)	330	330	

Exposure Factors and Target Risks **Input Form 1B**

Version Date: January 2023

Basis: November 2022 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: VI

Exposure Parameter	Default Value		Site Specific Value	Justification
User Defined Child				
	Recreator	Trespasser		
Lifetime (LT) (years)	70	NA	70	
Averaging Time (AT) (days/yr)	365	NA	365	
Body Weight (BW) (kg)	15	NA	15	
Exposure Duration 0-2 (ED) (yr)	2	NA	2	
Exposure Duration 2-6 (ED) (yr)	4	NA	4	
Exposure Frequency (EF) (d/yr)	195	NA	195	
Exposure Time (ET) (hr/d)	2	NA	2	
Skin Surface Area - Soil Exposure (SA_s) (cm^2)	2373	NA	2373	
Soil Adherence Factor (AF) (mg/cm^2)	0.2	NA	0.2	
Soil Ingestion Rate (IRS) (mg/day)	200	NA	200	
Skin Surface Area - Water Exposure (SA_w) (cm^2)	6365	NA	6365	
Water Ingestion Rate (IRW) (L/hr)	0.12	NA	0.12	
Water Exposure Time (ET_{event}) (hr/event)	2	NA	2	
Water Event Frequency (EV) (events/day)	1	NA	1	
User Defined Adult				
	Recreator	Trespasser		
Lifetime (LT) (years)	70	70	70	
Body Weight (BW) (kg)	80	45	80	
Exposure Duration 6-16 (ED) (yr)	10	10	10	
Exposure Duration 16-26 (ED) (yr)	10	0	10	
Exposure Frequency (EF) (d/yr)	195	90	195	
Exposure Time (ET) (hr/d)	2	2	2	
Skin Surface Area - Soil Exposure (SA_s) (cm^2)	6032	6032	6032	
Soil Adherence Factor (AF) (mg/cm^2)	0.07	0.2	0.07	
Soil Ingestion Rate (IRS) (mg/day)	100	200	100	
Skin Surface Area - Water Exposure (SA_w) (cm^2)	19652	19652	19652	
Water Ingestion Rate (IRW) (L/hr)	0.11	0.11	0.11	
Water Exposure Time (ET_{event}) (hr/event)	2	2	2	
Water Event Frequency (EV) (events/day)	1	1	1	

Exposure Point Concentrations **Input Form 2D**

Version Date: January 2023

Basis: November 2022 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: VI

Soil Gas Exposure Point Concentration Table

Description of Exposure Point Concentration Selection:

Note: Chemicals highlighted in orange are non-volatile chemicals. Since these chemicals do not pose a vapor intrusion risk, no risk values are calculated for these chemicals.

If the chemical list is changed from a prior calculator run, remember to select "See All Chemicals" on the data output sheet or newly added chemicals will not be included in risk calculations

Exposure Point Concentration (ug/m^3)	Notes:	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value	Screening Toxicity Value (Screening Level) (n/c)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
8.6	GP22	67-64-1	Acetone			ug/m^3										
24	GP27	71-43-2	Benzene			ug/m^3										
43	SSVP15D	75-15-0	Carbon Disulfide			ug/m^3										
0.054	GP29	56-23-5	Carbon Tetrachloride			ug/m^3										
76	GP27	108-90-7	Chlorobenzene			ug/m^3										
10	SSVP12D	67-66-3	Chloroform			ug/m^3										
0.5	GP29	74-87-3	Chloromethane			ug/m^3										
9.2	GP27	110-82-7	Cyclohexane			ug/m^3										
380	SSVP29	106-46-7	Dichlorobenzene, 1,4-			ug/m^3										
120	SSVP22	75-71-8	Dichlorodifluoromethane			ug/m^3										
8.8	SSVP29	156-59-2	Dichloroethylene, cis-1,2-			ug/m^3										
130	SSVP20	100-41-4	Ethylbenzene			ug/m^3										
0.97	GP27	142-82-5	Heptane, N-			ug/m^3										
1.5	GP28	110-54-3	Hexane, N-			ug/m^3										
1.9	GP26	67-63-0	Isopropanol			ug/m^3										
49	SSVP23	78-93-3	Methyl Ethyl Ketone (2-Butanone)			ug/m^3										
18	SSVP1S	108-10-1	Methyl Isobutyl Ketone (4-methyl-2-pentanone)			ug/m^3										
1	GP27	75-09-2	Methylene Chloride			ug/m^3										
1.3	GP24 (DUP)	91-20-3	~Naphthalene			ug/m^3										
150	GP27	115-07-1	Propylene			ug/m^3										
180	SSVP1D	100-42-5	Styrene			ug/m^3										
170	SSVP14	127-18-4	Tetrachloroethylene			ug/m^3										
84	SSVP5D	108-88-3	Toluene			ug/m^3										
13	SSVP26	79-01-6	Trichloroethylene			ug/m^3										
0.2	GP25	75-69-4	Trichlorofluoromethane			ug/m^3										
45	SSVP23	95-63-6	Trimethylbenzene, 1,2,4-			ug/m^3										
21	SSVP23	108-67-8	Trimethylbenzene, 1,3,5-			ug/m^3										
26	GP27	75-01-4	Vinyl Chloride			ug/m^3										
105	SSVP20	108-38-3	Xylene, m-			ug/m^3										
82	SSVP20	95-47-6	Xylene, o-			ug/m^3										
105	SSVP20	106-42-3	Xylene, p-			ug/m^3										

Risk for Individual Pathways **Output Form 1A**

Version Date: January 2023

Basis: November 2022 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: VI

DIRECT CONTACT SOIL AND WATER CALCULATORS

Receptor	Pathway	Carcinogenic Risk	Hazard Index	Risk exceeded?
Resident	Soil	NC	NC	NC
	Groundwater Use*	NC	NC	NC
Non-Residential Worker	Soil	NC	NC	NC
	Groundwater Use*	NC	NC	NC
Construction Worker	Soil	NC	NC	NC
Recreator/Trespasser	Soil	NC	NC	NC
	Surface Water*	NC	NC	NC

VAPOR INTRUSION CALCULATORS

Receptor	Pathway	Carcinogenic Risk	Hazard Index	Risk exceeded?
Resident	Groundwater to Indoor Air	NC	NC	NC
	Soil Gas to Indoor Air	5.9E-05	5.8E-01	NO
	Indoor Air	NC	NC	NC
Non-Residential Worker	Groundwater to Indoor Air	NC	NC	NC
	Soil Gas to Indoor Air	NC	NC	NC
	Indoor Air	NC	NC	NC

CONTAMINANT MIGRATION CALCULATORS

Pathway	Source	Target Receptor Concentrations Exceeded?	
Groundwater	Source Soil	Exceedence of 2L at Receptor?	NC
	Source Groundwater	Exceedence of 2L at Receptor?	NC
Surface Water	Source Soil	Exceedence of 2B at Receptor?	NC
	Source Groundwater	Exceedence of 2B at Receptor?	NC

Notes:

1. If lead concentrations were entered in the exposure point concentration tables, see the individual calculator sheets for lead concentrations in comparison to screening levels. Note that lead is not included in cumulative risk calculations.

2. * = If concentrations in groundwater exceed the NC 2L Standards or IMAC, or concentrations in surface water exceed the NC 2B Standards, appropriate remediation and/or institutional control measures will be necessary to be eligible for a risk-based closure.
3. NM = Not modeled, user did not check this pathway as complete.
4. NC = Pathway not calculated, required contaminant migration parameters were not entered.

DEQ Risk Calculator - Vapor Intrusion - Resident Soil Gas to Indoor Air **Output Form 3B**

Version Date: January 2023

Basis: November 2022 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: VI

Carcinogenic risk and hazard quotient cells highlighted in orange are associated with non-volatile chemicals. Since these chemicals do not pose a vapor intrusion risk, no risk values are calculated for these chemicals.

All concentrations are in ug/m^3

CAS #	Chemical Name:	Soil Gas Concentration (ug/m^3)	Calculated Indoor Air Concentration (ug/m^3)	Target Indoor Air Conc. for Carcinogens @ TCR = 1E-06	Target Indoor Air Conc. for Non-Carcinogens @ THQ = 0.2	Calculated Carcinogenic Risk	Calculated Non-Carcinogenic Hazard Quotient
67-64-1	Acetone	8.6	0.258	-	-		
71-43-2	Benzene	24	0.72	3.6E-01	6.3E+00	**2.0E-06**	2.3E-02
75-15-0	Carbon Disulfide	43	1.29	-	1.5E+02		1.8E-03
56-23-5	Carbon Tetrachloride	0.054	0.00162	4.7E-01	2.1E+01	3.5E-09	1.6E-05
108-90-7	Chlorobenzene	76	2.28	-	1.0E+01		4.4E-02
67-66-3	Chloroform	10	0.3	1.2E-01	2.0E+01	**2.5E-06**	2.9E-03
74-87-3	Chloromethane	0.5	0.015	-	1.9E+01		1.6E-04
110-82-7	Cyclohexane	9.2	0.276	-	1.3E+03		4.4E-05
106-46-7	Dichlorobenzene, 1,4-	380	11.4	2.6E-01	1.7E+02	**4.5E-05**	1.4E-02
75-71-8	Dichlorodifluoromethane	120	3.6	-	2.1E+01		3.5E-02
156-59-2	Dichloroethylene, cis-1,2-	8.8	0.264	-	8.3E+00		6.3E-03
100-41-4	Ethylbenzene	130	3.9	1.1E+00	2.1E+02	**3.5E-06**	3.7E-03
142-82-5	Heptane, N-	0.97	0.0291	-	8.3E+01		7.0E-05
110-54-3	Hexane, N-	1.5	0.045	-	1.5E+02		6.2E-05
67-63-0	Isopropanol	1.9	0.057	-	4.2E+01		2.7E-04
78-93-3	Methyl Ethyl Ketone (2-Butanone)	49	1.47	-	1.0E+03		2.8E-04
108-10-1	Methyl Isobutyl Ketone (4-methyl-2-pentanone)	18	0.54	-	6.3E+02		1.7E-04
75-09-2	Methylene Chloride	1	0.03	1.0E+02	1.3E+02	3.0E-10	4.8E-05
91-20-3	~Naphthalene	1.3	0.039	8.3E-02	6.3E-01	4.7E-07	1.2E-02
115-07-1	Propylene	150	4.5	-	6.3E+02		1.4E-03
100-42-5	Styrene	180	5.4	-	2.1E+02		5.2E-03
127-18-4	Tetrachloroethylene	170	5.1	1.1E+01	8.3E+00	4.7E-07	1.2E-01
108-88-3	Toluene	84	2.52	-	1.0E+03		4.8E-04
79-01-6	Trichloroethylene	13	0.39	4.8E-01	4.2E-01	8.2E-07	1.9E-01
75-69-4	Trichlorofluoromethane	0.2	0.006	-	-		
95-63-6	Trimethylbenzene, 1,2,4-	45	1.35	-	1.3E+01		2.2E-02
108-67-8	Trimethylbenzene, 1,3,5-	21	0.63	-	1.3E+01		1.0E-02
75-01-4	Vinyl Chloride	26	0.78	1.7E-01	1.7E+01	**4.7E-06**	9.3E-03
108-38-3	Xylene, m-	105	3.15	-	2.1E+01		3.0E-02
95-47-6	Xylene, o-	82	2.46	-	2.1E+01		2.4E-02
106-42-3	Xylene, p-	105	3.15	-	2.1E+01		3.0E-02
					Cumulative:	5.9E-05	5.8E-01

North Carolina Department of Environmental Quality
Risk Calculator

Version Date:	July 2023
Basis:	May 2023 EPA RSL Table
Site Name:	Sims Legion Park
Site Address:	
DEQ Section:	
Site ID:	NONCD0000766
Exposure Unit ID:	GW
Submittal Date:	
Prepared By:	JN
Reviewed By:	JG

Table of Contents **TOC**

Version Date: July 2023
Basis: May 2023 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: GW

Form No.	Description	Check box if included
	DATA INPUT SHEETS	
	Input Section 1 - Exposure Pathways & Parameters	
Input Form 1A	Complete Exposure Pathways	☑
Input Form 1B	Exposure Factors and Target Risks	☑
Input Form 1C	Contaminant Migration Parameters	☐
Input Form 1D	Sample Statistics	☐
	Input Section 2 - Exposure Point Concentrations	
Input Form 2A	Soil Exposure Point Concentration Table	☐
Input Form 2B	Groundwater Exposure Point Concentration Table	☑
Input Form 2C	Surface Water Exposure Point Concentration Table	☐
Input Form 2D	Soil Gas Exposure Point Concentration Table	☐
Input Form 2E	Indoor Air Exposure Point Concentration Table	☐
	DATA OUTPUT SHEETS	
	Output Section 1 - Summary Output for All Calculators	
Output Form 1A	Risk for Individual Pathways	☑
Output Form 1B	Sitewide Risk	☑
	Output Section 2 - Direct Contact Soil and Groundwater Calculators	
Output Form 2A	Resident Soil	☐
Output Form 2B	Resident Groundwater Use	☑
Output Form 2C	Non-Residential Worker Soil	☐
Output Form 2D	Non-Residential Worker Groundwater Use	☐
Output Form 2E	Construction Worker Soil	☐
Output Form 2F	Recreator/Trespasser Soil	☐
Output Form 2G	Recreator/Trespasser Surface Water	☐
	Output Section 3 - Vapor Intrusion Calculators	
Output Form 3A	Resident Groundwater to Indoor Air	☑
Output Form 3B	Resident Soil Gas to Indoor Air	☐
Output Form 3C	Resident Indoor Air	☐
Output Form 3D	Non-Residential Worker Groundwater to Indoor Air	☐
Output Form 3E	Non-Residential Worker Soil Gas to Indoor Air	☐
Output Form 3F	Non-Residential Worker Indoor Air	☐
	Output Section 4 - Contaminant Migration Worksheets	
Output Form 4A	Soil to Groundwater - Forward Mode	☐
Output Form 4B	Groundwater to Groundwater - Forward Mode	☐
Output Form 4C	Soil to Surface Water - Forward Mode	☐
Output Form 4D	Groundwater to Surface Water - Forward Mode	☐
Output Form 4E	Soil to Groundwater - Backward Mode	☐
Output Form 4F	Groundwater to Groundwater - Backward Mode	☐
Output Form 4G	Soil to Surface Water - Backward Mode	☐
Output Form 4H	Groundwater to Surface Water - Backward Mode	☐

Complete Exposure Pathways	Input Form 1A
Version Date: July 2023 **Basis: May 2023 EPA RSL Table**	
Site ID: NONCD0000766	
Exposure Unit ID: GW	
Note: Risk output will only be calculated for complete exposure pathways.	

Receptor	Pathway	Check box if pathway complete
DIRECT CONTACT SOIL AND WATER PATHWAYS		
Resident	Soil	☐
	Groundwater Use	☑
Non-Residential Worker	Soil	☐
	Groundwater Use	☐
Construction Worker	Soil	☐
Recreator/Trespasser	Soil	☐
	Surface Water	☐
VAPOR INTRUSION PATHWAYS		
Resident	Groundwater to Indoor Air	☑
	Soil Gas to Indoor Air	☐
	Indoor Air	☐
Non-Residential Worker	Groundwater to Indoor Air	☐
	Soil Gas to Indoor Air	☐
	Indoor Air	☐
CONTAMINANT MIGRATION PATHWAYS		
Groundwater	Source Soil	☐
	Source Groundwater	☐
Surface Water	Source Soil	☐
	Source Groundwater	☐

Exposure Factors and Target Risks **Input Form 1B**

Version Date: July 2023
Basis: May 2023 EPA RSL Table
Site ID: NONCD0000766

Exposure Unit ID: GW

Exposure Parameter	Default Value	Site Specific Value	Justification
General			
Target Cancer Risk (individual)	1.0E-06	1.0E-06	
Target Cancer Risk (cumulative)	1.0E-04	1.0E-04	
Target Hazard Index (individual)	2.0E-01	2.0E-01	
Target Hazard Index (cumulative)	1.0E+00	1.0E+00	
Residential Child			
Lifetime (LT) (years)	70	70	
Body Weight (BW) (kg)	15	15	
Exposure Duration (ED) (yr)	6	6	
Exposure Frequency (EF) (d/yr)	350	350	
Exposure Time (ET) (hr/d)	24	24	
Skin Surface Area - Soil Exposure (SA_s) (cm2)	2373	2373	
Soil Adherence Factor (AF) (mg/cm^2)	0.2	0.2	
Soil Ingestion Rate (IRS) (mg/day)	200	200	
Skin Surface Area - Water Exposure (SA_w) (cm2)	6365	6365	
Water Ingestion Rate (IRW) (L/d)	0.78	0.78	
Water Exposure Time (ET_{event}) (hr/event)	0.54	0.54	
Water Event Frequency (EV) (events/day)	1	1	
Residential Adult			
Lifetime (LT) (years)	70	70	
Body Weight (BW) (kg)	80	80	
Exposure Duration (ED) (yr)	20	20	
Exposure Frequency (EF) (d/yr)	350	350	
Exposure Time (ET) (hr/d)	24	24	
Skin Surface Area - Soil Exposure (SA_s) (cm^2)	6032	6032	
Soil Adherence Factor (AF) (mg/cm^2)	0.07	0.07	
Soil Ingestion Rate (IRS) (mg/day)	100	100	
Skin Surface Area - Water Exposure (SA_w) (cm^2)	19652	19652	
Water Ingestion Rate (IRW) (L/d)	2.5	2.5	
Water Exposure Time (ET_{event}) (hr/event)	0.71	0.71	
Water Event Frequency (EV) (events/day)	1	1	
Non-Residential Worker			
Lifetime (LT) (years)	70	70	
Body Weight (BW) (kg)	80	80	
Exposure Duration (ED) (yr)	25	25	
Exposure Frequency (EF) (d/yr)	250	250	
Exposure Time (ET) (hr/d)	8	8	
Skin Surface Area - Soil Exposure (SA_s) (cm^2)	3527	3527	
Soil Adherence Factor (AF) (mg/cm^2)	0.12	0.12	
Soil Ingestion Rate (IR) (mg/day)	100	100	
Skin Surface Area - Water Exposure (SA_w) (cm^2)	19652	19652	
Water Ingestion Rate (IRW) (L/d)	0.83	0.83	
Water Exposure Time (ET_{event}) (hr/event)	0.67	0.67	
Water Event Frequency (EV) (events/day)	1	1	
Construction Worker			
Lifetime (LT) (years)	70	70	
Body Weight (BW) (kg)	80	80	
Working Weeks (EW) (wk/yr)	50	50	
Exposure Duration (ED) (yr)	1	1	
Exposure Frequency (EF) (d/yr)	250	250	
Exposure Time (ET) (hr/d)	8	8	
Skin Surface Area - Soil Exposure (SA_s) (cm^2)	3527	3527	
Soil Adherence Factor (AF) (mg/cm^2)	0.3	0.3	
Soil Ingestion Rate (IR) (mg/day)	330	330	

Exposure Factors and Target Risks **Input Form 1B**

Version Date: July 2023
Basis: May 2023 EPA RSL Table
Site ID: NONCD0000766

Exposure Unit ID: GW

Exposure Parameter	Default Value		Site Specific Value	Justification
User Defined Child				
	Recreator	Trespasser		
Lifetime (LT) (years)	70	NA	70	
Averaging Time (AT) (days/yr)	365	NA	365	
Body Weight (BW) (kg)	15	NA	15	
Exposure Duration 0-2 (ED) (yr)	2	NA	2	
Exposure Duration 2-6 (ED) (yr)	4	NA	4	
Exposure Frequency (EF) (d/yr)	195	NA	195	
Exposure Time (ET) (hr/d)	2	NA	2	
Skin Surface Area - Soil Exposure (SA_s) (cm^2)	2373	NA	2373	
Soil Adherence Factor (AF) (mg/cm^2)	0.2	NA	0.2	
Soil Ingestion Rate (IRS) (mg/day)	200	NA	200	
Skin Surface Area - Water Exposure (SA_w) (cm^2)	6365	NA	6365	
Water Ingestion Rate (IRW) (L/hr)	0.12	NA	0.12	
Water Exposure Time (ET_{event}) (hr/event)	2	NA	2	
Water Event Frequency (EV) (events/day)	1	NA	1	
User Defined Adult				
	Recreator	Trespasser		
Lifetime (LT) (years)	70	70	70	
Body Weight (BW) (kg)	80	45	80	
Exposure Duration 6-16 (ED) (yr)	10	10	10	
Exposure Duration 16-26 (ED) (yr)	10	0	10	
Exposure Frequency (EF) (d/yr)	195	90	195	
Exposure Time (ET) (hr/d)	2	2	2	
Skin Surface Area - Soil Exposure (SA_s) (cm^2)	6032	6032	6032	
Soil Adherence Factor (AF) (mg/cm^2)	0.07	0.2	0.07	
Soil Ingestion Rate (IRS) (mg/day)	100	200	100	
Skin Surface Area - Water Exposure (SA_w) (cm^2)	19652	19652	19652	
Water Ingestion Rate (IRW) (L/hr)	0.11	0.11	0.11	
Water Exposure Time (ET_{event}) (hr/event)	2	2	2	
Water Event Frequency (EV) (events/day)	1	1	1	

Exposure Point Concentrations **Input Form 2B**

Version Date: July 2023

Basis: May 2023 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: GW

Groundwater Exposure Point Concentration Table

Description of Exposure Point Concentration Selection:

Max values from non-background wells (SLP-1,SLP-2,SLP-3,DUP SLP-3,SLP-5,SLP-6,DUP SLP-6,SDTW-1,DUP SDTW-1,SDTW-2,SDTW-5,MW-2d,MW-2d (dup),MW4d,TW-4)

NOTE: If the chemical list is changed from a prior calculator run, remember to select "See All Chemicals" on the data output sheet or newly added chemicals will not be included in risk calculations

Exposure Point Concentration (ug/L)	Notes:	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value	Screening Toxicity Value (Screening Level) (n/c)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
4.2	TW-4	67-64-1	Acetone			ug/L										
4600	DUP SDTW-1	7664-41-7	Ammonia			ug/L										
1.65	SDTW-2	7440-36-0	Antimony (metallic)			ug/L										
2.61	SLP-2	7440-38-2	Arsenic, Inorganic			ug/L										
5.54	SLP-2	7440-41-7	Beryllium and compounds			ug/L										
0.866	SLP-2	7440-43-9	Cadmium (Diet)			ug/L										
2	SDTW-1	105-60-2	Caprolactam			ug/L										
4.5	SDTW-1	75-15-0	Carbon Disulfide			ug/L										
0.81	SDTW-1	108-90-7	Chlorobenzene			ug/L										
0.46	MW-2d (dup)	67-66-3	Chloroform			ug/L										
41.7	SDTW-5	16065-83-1	Chromium(III), Insoluble Salts			ug/L										
41.7	SDTW-5	18540-29-9	Chromium(VI)			ug/L										
2.71	SLP-01	7440-50-8	Copper			ug/L										
1.5	MW-4d	106-46-7	Dichlorobenzene, 1,4-			ug/L										
4200	MW-2d (dup)	7439-89-6	Iron			ug/L										
383	SDTW-5	7439-92-1	~Lead and Compounds			ug/L										
17800	SLP-05	7439-96-5	Manganese (Non-diet)			ug/L										
0.102	SLP-03	7487-94-7	~Mercuric Chloride (and other Mercury salts)			ug/L										
10	MW-2d (dup)	7440-02-0	Nickel Soluble Salts			ug/L										
3500	SDTW-2	14797-55-8	Nitrate (measured as nitrogen)			ug/L										
0.053	MW-2d	83-32-9	~Acenaphthene			ug/L										
0.016	TW-4 (dup)	56-55-3	~Benz[a]anthracene			ug/L										
0.045	TW-4 (dup)	86-73-7	~Fluorene			ug/L										
0.082	TW-4 (dup)	91-57-6	~Methylnaphthalene, 2-			ug/L										
3.04	SLP-02	7782-49-2	Selenium			ug/L										
0.662	DUP SDTW-1	7440-22-4	Silver			ug/L										
0.92	SLP-05	7440-28-0	Thallium (Soluble Salts)			ug/L										
2.7	MW-4d	79-01-6	Trichloroethylene			ug/L										
226	SDTW-2	7440-66-6	Zinc and Compounds			ug/L										

Risk for Individual Pathways **Output Form 1A**

Version Date: July 2023

Basis: May 2023 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: GW

DIRECT CONTACT SOIL AND WATER CALCULATORS

Receptor	Pathway	Carcinogenic Risk	Hazard Index	Risk exceeded?
Resident	Soil	NC	NC	NC
	Groundwater Use*	1.3E-03	5.4E+01	YES
Non-Residential Worker	Soil	NC	NC	NC
	Groundwater Use*	NC	NC	NC
Construction Worker	Soil	NC	NC	NC
Recreator/Trespasser	Soil	NC	NC	NC
	Surface Water*	NC	NC	NC

VAPOR INTRUSION CALCULATORS

Receptor	Pathway	Carcinogenic Risk	Hazard Index	Risk exceeded?
Resident	Groundwater to Indoor Air	3.4E-06	5.3E-01	NO
	Soil Gas to Indoor Air	NC	NC	NC
	Indoor Air	NC	NC	NC
Non-Residential Worker	Groundwater to Indoor Air	NC	NC	NC
	Soil Gas to Indoor Air	NC	NC	NC
	Indoor Air	NC	NC	NC

CONTAMINANT MIGRATION CALCULATORS

Pathway	Source	Target Receptor Concentrations Exceeded?	
Groundwater	Source Soil	Exceedence of 2L at Receptor?	NC
	Source Groundwater	Exceedence of 2L at Receptor?	NC
Surface Water	Source Soil	Exceedence of 2B at Receptor?	NC
	Source Groundwater	Exceedence of 2B at Receptor?	NC

Notes:

1. If lead concentrations were entered in the exposure point concentration tables, see the individual calculator sheets for lead concentrations in comparison to screening levels. Note that lead is not included in cumulative risk calculations.

2. * = If concentrations in groundwater exceed the NC 2L Standards or IMAC, or concentrations in surface water exceed the NC 2B Standards, appropriate remediation and/or institutional control measures will be necessary to be eligible for a risk-based closure.
3. NM = Not modeled, user did not check this pathway as complete.
4. NC = Pathway not calculated, required contaminant migration parameters were not entered.

Sitewide Risk **Output Form 1B**

Version Date: July 2023 NOTE: If any changes were made, select "Update Sitewide Risk Values" to obtain updated values.

Basis: May 2023 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: GW

		Resident - Current Scenario			Resident - Future Scenario			Non-Residential Worker - Current Scenario			Non-Residential Worker - Future Scenario			Construction Worker			Recreator/Trespasser		
Receptor	**Pathway**	**Check box to include in site-wide risk calculations**	**Carcinogenic Risk**	**Hazard Index**	**Check box to include in site-wide risk calculations**	**Carcinogenic Risk**	**Hazard Index**	**Check box to include in site-wide risk calculations**	**Carcinogenic Risk**	**Hazard Index**	**Check box to include in site-wide risk calculations**	**Carcinogenic Risk**	**Hazard Index**	**Check box to include in site-wide risk calculations**	**Carcinogenic Risk**	**Hazard Index**	**Check box to include in site-wide risk calculations**	**Carcinogenic Risk**	**Hazard Index**
DIRECT CONTACT SOIL AND WATER CALCULATORS																			
Resident	Soil	☐	NM	NM	☐	NM	NM												
	Groundwater Use*	☑	1.3E-03	5.4E+01	☑	1.3E-03	5.4E+01												
Non-Residential Worker	Soil							☐	NM	NM	☐	NM	NM						
	Groundwater Use*							☐	NM	NM	☐	NM	NM						
Construction Worker	Soil													☐	NM	NM			
Recreator/Trespasser	Soil																☐	NM	NM
	Surface Water Use*																☐	NM	NM
VAPOR INTRUSION CALCULATORS																			
Resident	Groundwater to Indoor Air	☑	3.4E-06	5.3E-01	☑	3.4E-06	5.3E-01												
	Soil Gas to Indoor Air	☐	NM	NM	☐	NM	NM												
	Indoor Air	☐	NM	NM	☐	NM	NM												
Non-Residential Worker	Groundwater to Indoor Air							☐	NM	NM	☐	NM	NM						
	Soil Gas to Indoor Air							☐	NM	NM	☐	NM	NM						
	Indoor Air							☐	NM	NM	☐	NM	NM						
TOTAL SITEWIDE RISK FOR EACH RECEPTOR			**1.3E-03**	**5.4E+01**		**1.3E-03**	**5.4E+01**		0.0E+00	0.0E+00		0.0E+00	0.0E+00		0.0E+00	0.0E+00		0.0E+00	0.0E+00

Notes:
1. If lead concentrations were entered in the exposure point concentration tables, see the individual calculator sheets for lead concentrations in comparison to screening levels. Note that lead is not included in cumulative risk calculations.
2. * = If concentrations in groundwater exceed the NC 2L Standards or IMAC, or concentrations in surface water exceed the NC 2B Standards, appropriate remediation and/or institutional control measures will be necessary to be eligible for a risk-based closure.
3. NM = Not Modeled
4. NC = Pathway not calculated

DEQ Risk Calculator - Direct Contact - Resident Groundwater Use **Output Form 2B**

Version Date: July 2023

Basis: May 2023 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: GW

** - Note that inhalation on this calculator refers to inhalation associated with tapwater use, not inhalation associated with vapor intrusion from subsurface groundwater sources.*

*** - Note that the EPA has no consensus on reference dose or cancer slope factor values for lead, therefore it is not possible to calculate cancer risk or hazard quotient. Lead concentrations are compared to the EPA Action Level of 15 µg/L.*

CAS #	Chemical Name:	Ingestion Concentration (ug/L)	Dermal Concentration (ug/L)	Inhalation Concentration (ug/L)*	Ingestion Carcinogenic Risk	Dermal Carcinogenic Risk	Inhalation Carcinogenic Risk*	Calculated Carcinogenic Risk	Ingestion Hazard Quotient	Dermal Hazard Quotient	Inhalation Hazard Quotient*	Calculated Non-Carcinogenic Hazard Quotient
67-64-1	Acetone	4.2	4.2	4.2					2.3E-04	9.6E-07		2.3E-04
7664-41-7	Ammonia	4600	4600	4600							**4.4E+00**	**4.4E+00**
7440-36-0	Antimony (metallic)	1.65	1.65	1.65					**2.1E-01**	6.0E-03		**2.1E-01**
7440-38-2	Arsenic, Inorganic	2.61	2.61	2.61	**5.0E-05**	2.7E-07		**5.1E-05**	**4.3E-01**	1.9E-03		**4.4E-01**
7440-41-7	Beryllium and compounds	5.54	5.54	5.54					1.4E-01	8.7E-02		**2.3E-01**
7440-43-9	Cadmium (Diet)	0.866	0.866	0.866					**4.3E-01**			**4.3E-01**
105-60-2	Caprolactam	2	2	2					2.0E-04	2.2E-06		2.0E-04
75-15-0	Carbon Disulfide	4.5	4.5	4.5					2.2E-03	2.2E-04	3.1E-03	5.6E-03
108-90-7	Chlorobenzene	0.81	0.81	0.81					2.0E-03	6.3E-04	7.8E-03	1.0E-02
67-66-3	Chloroform	0.46	0.46	0.46	1.8E-07	1.6E-08	**1.9E-06**	**2.1E-06**	2.3E-03	1.8E-04	2.3E-03	4.7E-03
16065-83-1	Chromium(III), Insoluble Salts	41.7	41.7	41.7					1.4E-03	4.7E-04		1.9E-03
18540-29-9	Chromium(VI)	41.7	41.7	41.7	**8.3E-04**	**3.6E-04**		**1.2E-03**	**6.9E-01**	**2.4E-01**		**9.4E-01**
7440-50-8	Copper	2.71	2.71	2.71					3.4E-03	1.5E-05		3.4E-03
106-46-7	Dichlorobenzene, 1,4-	1.5	1.5	1.5	1.0E-07	7.1E-08	**2.9E-06**	**3.1E-06**	1.1E-03	6.7E-04	9.0E-04	2.6E-03
7439-89-6	Iron	4200	4200	4200					**3.0E-01**	1.3E-03		**3.0E-01**
7439-92-1	~Lead and Compounds	383	383	383					**>SL****	**>SL****	**>SL****	
7439-96-5	Manganese (Non-diet)	17800	17800	17800					**3.7E+01**	**4.1E+00**		**4.1E+01**
7487-94-7	~Mercuric Chloride (and other Mercury salts)	0.102	0.102	0.102					1.7E-02	1.1E-03		1.8E-02
7440-02-0	Nickel Soluble Salts	10	10	10					2.5E-02	5.5E-04		2.5E-02
14797-55-8	Nitrate (measured as nitrogen)	3500	3500	3500					1.1E-01	4.8E-04		1.1E-01
83-32-9	~Acenaphthene	0.053	0.053	0.053					4.4E-05	5.5E-05		9.9E-05
56-55-3	~Benz[a]anthracene	0.016	0.016	0.016	6.4E-08		4.7E-07	5.4E-07				
86-73-7	~Fluorene	0.045	0.045	0.045					5.6E-05	9.7E-05		1.5E-04
91-57-6	~Methylnaphthalene, 2-	0.082	0.082	0.082					1.0E-03	1.3E-03		2.3E-03
7782-49-2	Selenium	3.04	3.04	3.04					3.0E-02	1.3E-04		3.0E-02
7440-22-4	Silver	0.662	0.662	0.662					6.6E-03	4.4E-04		7.0E-03
7440-28-0	Thallium (Soluble Salts)	0.92	0.92	0.92					**4.6E+00**	2.0E-02		**4.6E+00**
79-01-6	Trichloroethylene	2.7	2.7	2.7	**2.3E-06**	3.6E-07	**2.8E-06**	**5.5E-06**	**2.7E-01**	3.9E-02	**6.5E-01**	**9.6E-01**
7440-66-6	Zinc and Compounds	226	226	226					3.8E-02	9.9E-05		3.8E-02
						Cumulative:		**1.3E-03**				**5.4E+01**

DEQ Risk Calculator - Vapor Intrusion - Resident Groundwater to Indoor Air **Output Form 3A**

Version Date: July 2023

Basis: May 2023 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: GW

Carcinogenic risk and hazard quotient cells highlighted in orange are associated with non-volatile chemicals. Since these chemicals do not pose a vapor intrusion risk, no risk values are calculated for these chemicals.

Groundwater concentrations are in ug/L. Air concentrations are in ug/m^3.

CAS #	Chemical Name:	Groundwater Concentration (ug/L)	Target Indoor Air Conc. for Carcinogens @ TCR = 1E-06	Target Indoor Air Conc. for Non-Carcinogens @ THQ = 0.2	Calculated Carcinogenic Risk	Calculated Non-Carcinogenic Hazard Quotient
67-64-1	Acetone	4.2	-	-		
7664-41-7	Ammonia	4600	-	1.0E+02		5.8E-03
7440-36-0	Antimony (metallic)	1.65	-	6.3E-02		
7440-38-2	Arsenic, Inorganic	2.61	6.5E-04	3.1E-03		
7440-41-7	Beryllium and compounds	5.54	1.2E-03	4.2E-03		
7440-43-9	Cadmium (Diet)	0.866	1.6E-03	2.1E-03		
105-60-2	Caprolactam	2	-	4.6E-01		
75-15-0	Carbon Disulfide	4.5	-	1.5E+02		3.6E-03
108-90-7	Chlorobenzene	0.81	-	1.0E+01		2.0E-03
67-66-3	Chloroform	0.46	1.2E-01	2.0E+01	5.7E-07	6.8E-04
16065-83-1	Chromium(III), Insoluble Salts	41.7	-	-		
18540-29-9	Chromium(VI)	41.7	1.2E-05	2.1E-02		
7440-50-8	Copper	2.71	-	-		
106-46-7	Dichlorobenzene, 1,4-	1.5	2.6E-01	1.7E+02	5.8E-07	1.8E-04
7439-89-6	Iron	4200	-	-		
7439-92-1	~Lead and Compounds	383	-	-		
7439-96-5	Manganese (Non-diet)	17800	-	1.0E-02		
7487-94-7	~Mercuric Chloride (and other Mercury salts)	0.102	-	6.3E-02		
7440-02-0	Nickel Soluble Salts	10	1.1E-02	1.9E-02		
14797-55-8	Nitrate (measured as nitrogen)	3500	-	-		
83-32-9	~Acenaphthene	0.053	-	-		
56-55-3	~Benz[a]anthracene	0.016	1.7E-02	-	4.6E-10	
86-73-7	~Fluorene	0.045	-	-		
91-57-6	~Methylnaphthalene, 2-	0.082	-	-		
7782-49-2	Selenium	3.04	-	4.2E+00		
7440-22-4	Silver	0.662	-	-		
7440-28-0	Thallium (Soluble Salts)	0.92	-	-		
79-01-6	Trichloroethylene	2.7	4.8E-01	4.2E-01	**2.3E-06**	**5.2E-01**
7440-66-6	Zinc and Compounds	226	-	-		
				Cumulative:	3.4E-06	5.3E-01

North Carolina Department of Environmental Quality
Risk Calculator

Version Date:	July 2023
Basis:	May 2023 EPA RSL Table
Site Name:	Sims Legion Park
Site Address:	
DEQ Section:	
Site ID:	NONCD0000766
Exposure Unit ID:	BG GW-SW
Submittal Date:	
Prepared By:	JN
Reviewed By:	JG

Table of Contents		TOC
Version Date: July 2023		
Basis: May 2023 EPA RSL Table		
Site ID: NONCD0000766		
Exposure Unit ID: BG GW-SW		
Form No.	**Description**	**Check box if included**
DATA INPUT SHEETS		
Input Section 1 - Exposure Pathways & Parameters		
Input Form 1A	Complete Exposure Pathways	☑
Input Form 1B	Exposure Factors and Target Risks	☑
Input Form 1C	Contaminant Migration Parameters	☐
Input Form 1D	Sample Statistics	☐
Input Section 2 - Exposure Point Concentrations		
Input Form 2A	Soil Exposure Point Concentration Table	☐
Input Form 2B	Groundwater Exposure Point Concentration Table	☑
Input Form 2C	Surface Water Exposure Point Concentration Table	☑
Input Form 2D	Soil Gas Exposure Point Concentration Table	☐
Input Form 2E	Indoor Air Exposure Point Concentration Table	☐
DATA OUTPUT SHEETS		
Output Section 1 - Summary Output for All Calculators		
Output Form 1A	Risk for Individual Pathways	☑
Output Form 1B	Sitewide Risk	☑
Output Section 2 - Direct Contact Soil and Groundwater Calculators		
Output Form 2A	Resident Soil	☐
Output Form 2B	Resident Groundwater Use	☑
Output Form 2C	Non-Residential Worker Soil	☐
Output Form 2D	Non-Residential Worker Groundwater Use	☐
Output Form 2E	Construction Worker Soil	☐
Output Form 2F	Recreator/Trespasser Soil	☐
Output Form 2G	Recreator/Trespasser Surface Water	☑
Output Section 3 - Vapor Intrusion Calculators		
Output Form 3A	Resident Groundwater to Indoor Air	☑
Output Form 3B	Resident Soil Gas to Indoor Air	☐
Output Form 3C	Resident Indoor Air	☐
Output Form 3D	Non-Residential Worker Groundwater to Indoor Air	☐
Output Form 3E	Non-Residential Worker Soil Gas to Indoor Air	☐
Output Form 3F	Non-Residential Worker Indoor Air	☐
Output Section 4 - Contaminant Migration Worksheets		
Output Form 4A	Soil to Groundwater - Forward Mode	☐
Output Form 4B	Groundwater to Groundwater - Forward Mode	☐
Output Form 4C	Soil to Surface Water - Forward Mode	☐
Output Form 4D	Groundwater to Surface Water - Forward Mode	☐
Output Form 4E	Soil to Groundwater - Backward Mode	☐
Output Form 4F	Groundwater to Groundwater - Backward Mode	☐
Output Form 4G	Soil to Surface Water - Backward Mode	☐
Output Form 4H	Groundwater to Surface Water - Backward Mode	☐

Complete Exposure Pathways		Input Form 1A
Version Date: July 2023 **Basis: May 2023 EPA RSL Table**		
Site ID: NONCD0000766		
Exposure Unit ID: BG GW-SW		
Note: Risk output will only be calculated for complete exposure pathways.		
Receptor	**Pathway**	**Check box if pathway complete**
DIRECT CONTACT SOIL AND WATER PATHWAYS		
Resident	Soil	☐
	Groundwater Use	☑
Non-Residential Worker	Soil	☐
	Groundwater Use	☐
Construction Worker	Soil	☐
Recreator/Trespasser	Soil	☐
	Surface Water	☑
VAPOR INTRUSION PATHWAYS		
Resident	Groundwater to Indoor Air	☑
	Soil Gas to Indoor Air	☐
	Indoor Air	☐
Non-Residential Worker	Groundwater to Indoor Air	☐
	Soil Gas to Indoor Air	☐
	Indoor Air	☐
CONTAMINANT MIGRATION PATHWAYS		
Groundwater	Source Soil	☐
	Source Groundwater	☐
Surface Water	Source Soil	☐
	Source Groundwater	☐

Exposure Factors and Target Risks **Input Form 1B**

Version Date: July 2023
Basis: May 2023 EPA RSL Table
Site ID: NONCD0000766

Exposure Unit ID: BG GW-SW

Exposure Parameter	Default Value	Site Specific Value	Justification
General			
Target Cancer Risk (individual)	1.0E-06	1.0E-06	
Target Cancer Risk (cumulative)	1.0E-04	1.0E-04	
Target Hazard Index (individual)	2.0E-01	2.0E-01	
Target Hazard Index (cumulative)	1.0E+00	1.0E+00	
Residential Child			
Lifetime (LT) (years)	70	70	
Body Weight (BW) (kg)	15	15	
Exposure Duration (ED) (yr)	6	6	
Exposure Frequency (EF) (d/yr)	350	350	
Exposure Time (ET) (hr/d)	24	24	
Skin Surface Area - Soil Exposure (SA_s) (cm2)	2373	2373	
Soil Adherence Factor (AF) (mg/cm^2)	0.2	0.2	
Soil Ingestion Rate (IRS) (mg/day)	200	200	
Skin Surface Area - Water Exposure (SA_w) (cm2)	6365	6365	
Water Ingestion Rate (IRW) (L/d)	0.78	0.78	
Water Exposure Time (ET_{event}) (hr/event)	0.54	0.54	
Water Event Frequency (EV) (events/day)	1	1	
Residential Adult			
Lifetime (LT) (years)	70	70	
Body Weight (BW) (kg)	80	80	
Exposure Duration (ED) (yr)	20	20	
Exposure Frequency (EF) (d/yr)	350	350	
Exposure Time (ET) (hr/d)	24	24	
Skin Surface Area - Soil Exposure (SA_s) (cm^2)	6032	6032	
Soil Adherence Factor (AF) (mg/cm^2)	0.07	0.07	
Soil Ingestion Rate (IRS) (mg/day)	100	100	
Skin Surface Area - Water Exposure (SA_w) (cm^2)	19652	19652	
Water Ingestion Rate (IRW) (L/d)	2.5	2.5	
Water Exposure Time (ET_{event}) (hr/event)	0.71	0.71	
Water Event Frequency (EV) (events/day)	1	1	
Non-Residential Worker			
Lifetime (LT) (years)	70	70	
Body Weight (BW) (kg)	80	80	
Exposure Duration (ED) (yr)	25	25	
Exposure Frequency (EF) (d/yr)	250	250	
Exposure Time (ET) (hr/d)	8	8	
Skin Surface Area - Soil Exposure (SA_s) (cm^2)	3527	3527	
Soil Adherence Factor (AF) (mg/cm^2)	0.12	0.12	
Soil Ingestion Rate (IR) (mg/day)	100	100	
Skin Surface Area - Water Exposure (SA_w) (cm^2)	19652	19652	
Water Ingestion Rate (IRW) (L/d)	0.83	0.83	
Water Exposure Time (ET_{event}) (hr/event)	0.67	0.67	
Water Event Frequency (EV) (events/day)	1	1	
Construction Worker			
Lifetime (LT) (years)	70	70	
Body Weight (BW) (kg)	80	80	
Working Weeks (EW) (wk/yr)	50	50	
Exposure Duration (ED) (yr)	1	1	
Exposure Frequency (EF) (d/yr)	250	250	
Exposure Time (ET) (hr/d)	8	8	
Skin Surface Area - Soil Exposure (SA_s) (cm^2)	3527	3527	
Soil Adherence Factor (AF) (mg/cm^2)	0.3	0.3	
Soil Ingestion Rate (IR) (mg/day)	330	330	

Exposure Factors and Target Risks **Input Form 1B**

Version Date: July 2023
Basis: May 2023 EPA RSL Table
Site ID: NONCD0000766

Exposure Unit ID: BG GW-SW

Exposure Parameter	Default Value		Site Specific Value	Justification
User Defined Child				
	Recreator	Trespasser		
Lifetime (LT) (years)	70	NA	70	
Averaging Time (AT) (days/yr)	365	NA	365	
Body Weight (BW) (kg)	15	NA	15	
Exposure Duration 0-2 (ED) (yr)	2	NA	2	
Exposure Duration 2-6 (ED) (yr)	4	NA	4	
Exposure Frequency (EF) (d/yr)	195	NA	195	
Exposure Time (ET) (hr/d)	2	NA	2	
Skin Surface Area - Soil Exposure (SA_s) (cm^2)	2373	NA	2373	
Soil Adherence Factor (AF) (mg/cm^2)	0.2	NA	0.2	
Soil Ingestion Rate (IRS) (mg/day)	200	NA	200	
Skin Surface Area - Water Exposure (SA_w) (cm^2)	6365	NA	6365	
Water Ingestion Rate (IRW) (L/hr)	0.12	NA	0.12	
Water Exposure Time (ET_{event}) (hr/event)	2	NA	2	
Water Event Frequency (EV) (events/day)	1	NA	1	
User Defined Adult				
	Recreator	Trespasser		
Lifetime (LT) (years)	70	70	70	
Body Weight (BW) (kg)	80	45	80	
Exposure Duration 6-16 (ED) (yr)	10	10	10	
Exposure Duration 16-26 (ED) (yr)	10	0	10	
Exposure Frequency (EF) (d/yr)	195	90	195	
Exposure Time (ET) (hr/d)	2	2	2	
Skin Surface Area - Soil Exposure (SA_s) (cm^2)	6032	6032	6032	
Soil Adherence Factor (AF) (mg/cm^2)	0.07	0.2	0.07	
Soil Ingestion Rate (IRS) (mg/day)	100	200	100	
Skin Surface Area - Water Exposure (SA_w) (cm^2)	19652	19652	19652	
Water Ingestion Rate (IRW) (L/hr)	0.11	0.11	0.11	
Water Exposure Time (ET_{event}) (hr/event)	2	2	2	
Water Event Frequency (EV) (events/day)	1	1	1	

Exposure Point Concentrations **Input Form 2B**

Version Date: July 2023

Basis: May 2023 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: BG GW-SW

Groundwater Exposure Point Concentration Table

Description of Exposure Point Concentration Selection:

Max values from upgradient wells (TW-5, 6, 7, MW-1/1A, W-14, W-15, SDTW-4)

NOTE: If the chemical list is changed from a prior calculator run, remember to select "See All Chemicals" on the data output sheet or newly added chemicals will not be included in risk calculations

Exposure Point Concentration (ug/L)	Notes:	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value	Screening Toxicity Value (Screening Level) (n/c)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
9.2	TW-7	67-64-1	Acetone			ug/L										
0.44	TW-6	98-86-2	Acetophenone			ug/L										
440	TW-6	7664-41-7	Ammonia			ug/L										
0.24	TW-6	71-43-2	Benzene			ug/L										
0.84	TW-7	7440-41-7	Beryllium and compounds			ug/L										
0.371	W-15	7440-43-9	Cadmium (Diet)			ug/L										
5.4	MW-1	67-66-3	Chloroform			ug/L										
120	TW-7	16065-83-1	Chromium(III), Insoluble Salts			ug/L										
120	TW-7	18540-29-9	Chromium(VI)			ug/L										
11	TW-7	7440-50-8	Copper			ug/L										
62	W-14	156-59-2	Dichloroethylene, cis-1,2-			ug/L										
5.1	TW-6	95-65-8	Dimethylphenol, 3,4-			ug/L										
0.21	TW-7	100-41-4	Ethylbenzene			ug/L										
5600	TW-7	7439-89-6	Iron			ug/L										
25.1	SDTW-4	7439-92-1	~Lead and Compounds			ug/L										
7400	TW-6	7439-96-5	Manganese (Non-diet)			ug/L										
0.099	SDTW-4	7487-94-7	~Mercuric Chloride (and other Mercury salts)			ug/L										
150	TW-6	7440-02-0	Nickel Soluble Salts			ug/L										
12000	TW-6	14797-55-8	Nitrate (measured as nitrogen)			ug/L										
0.014	TW-6	207-08-9	~Benzo[k]fluoranthene			ug/L										
0.06	TW-6	86-73-7	~Fluorene			ug/L										
0.019	TW-6	193-39-5	~Indeno[1,2,3-cd]pyrene			ug/L										
0.24	TW-6	91-57-6	~Methylnaphthalene, 2-			ug/L										
0.035	TW-6	129-00-0	~Pyrene			ug/L										
0.17	TW-7	103-65-1	Propyl benzene			ug/L										
1.57	SDTW-4	7782-49-2	Selenium			ug/L										
38	W-14	127-18-4	Tetrachloroethylene			ug/L										
0.41	SDTW-4	7440-28-0	Thallium (Soluble Salts)			ug/L										
0.31	TW-7	108-88-3	Toluene			ug/L										
800	W-14	79-01-6	Trichloroethylene			ug/L										
0.92	TW-7	95-63-6	Trimethylbenzene, 1,2,4-			ug/L										
0.26	TW-7	108-67-8	Trimethylbenzene, 1,3,5-			ug/L										
0.89	TW-7	108-38-3	Xylene, m-			ug/L										
0.55	TW-7	95-47-6	Xylene, o-			ug/L										
210	TW-6	7440-66-6	Zinc and Compounds			ug/L										

Exposure Point Concentrations **Input Form 2C**

Version Date: July 2023

Basis: May 2023 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: BG GW-SW

Surface Water Exposure Point Concentration Table

Description of Exposure Point Concentration Selection:

Maximum concentrations of detected chemicals in up-gradient surface water samples SW-5, DUP SW-5

NOTE: If the chemical list is changed from a prior calculator run, remember to select "See All Chemicals" on the data output sheet or newly added chemicals will not be included in risk calculations

Exposure Point Concentration (ug/L)	Notes:	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value	Screening Toxicity Value (Screening Level) (n/c)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
0.282	SW-5	7440-36-0	Antimony (metallic)			ug/L										
1.51	SW-5	7440-50-8	Copper			ug/L										
546	SW-5	7439-89-6	Iron			ug/L										
0.364	SW-5	7439-92-1	~Lead and Compounds			ug/L										
170	SW-5	7439-96-5	Manganese (Non-diet)			ug/L										
7200	SW-5	14797-55-8	Nitrate (measured as nitrogen)			ug/L										
5.48	SW-5	7440-66-6	Zinc and Compounds			ug/L										

Risk for Individual Pathways **Output Form 1A**

Version Date: July 2023

Basis: May 2023 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: BG GW-SW

DIRECT CONTACT SOIL AND WATER CALCULATORS

Receptor	Pathway	Carcinogenic Risk	Hazard Index	Risk exceeded?
Resident	Soil	NC	NC	NC
	Groundwater Use*	5.1E-03	3.1E+02	YES
Non-Residential Worker	Soil	NC	NC	NC
	Groundwater Use*	NC	NC	NC
Construction Worker	Soil	NC	NC	NC
Recreator/Trespasser	Soil	NC	NC	NC
	Surface Water*	0.0E+00	2.0E-01	NO

VAPOR INTRUSION CALCULATORS

Receptor	Pathway	Carcinogenic Risk	Hazard Index	Risk exceeded?
Resident	Groundwater to Indoor Air	6.8E-04	1.6E+02	YES
	Soil Gas to Indoor Air	NC	NC	NC
	Indoor Air	NC	NC	NC
Non-Residential Worker	Groundwater to Indoor Air	NC	NC	NC
	Soil Gas to Indoor Air	NC	NC	NC
	Indoor Air	NC	NC	NC

CONTAMINANT MIGRATION CALCULATORS

Pathway	Source	Target Receptor Concentrations Exceeded?	
Groundwater	Source Soil	Exceedence of 2L at Receptor?	NC
	Source Groundwater	Exceedence of 2L at Receptor?	NC
Surface Water	Source Soil	Exceedence of 2B at Receptor?	NC
	Source Groundwater	Exceedence of 2B at Receptor?	NC

Notes:

1. If lead concentrations were entered in the exposure point concentration tables, see the individual calculator sheets for lead concentrations in comparison to screening levels. Note that lead is not included in cumulative risk calculations.

2. * = If concentrations in groundwater exceed the NC 2L Standards or IMAC, or concentrations in surface water exceed the NC 2B Standards, appropriate remediation and/or institutional control measures will be necessary to be eligible for a risk-based closure.
3. NM = Not modeled, user did not check this pathway as complete.
4. NC = Pathway not calculated, required contaminant migration parameters were not entered.

Sitewide Risk **Output Form 1B**

Version Date: July 2023 NOTE: If any changes were made, select "Update Sitewide Risk Values" to obtain updated values.

Basis: May 2023 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: BG GW-SW

		Resident - Current Scenario			Resident - Future Scenario			Non-Residential Worker - Current Scenario			Non-Residential Worker - Future Scenario			Construction Worker			Recreator/Trespasser		
Receptor	**Pathway**	**Check box to include in site-wide risk calculations**	**Carcinogenic Risk**	**Hazard Index**	**Check box to include in site-wide risk calculations**	**Carcinogenic Risk**	**Hazard Index**	**Check box to include in site-wide risk calculations**	**Carcinogenic Risk**	**Hazard Index**	**Check box to include in site-wide risk calculations**	**Carcinogenic Risk**	**Hazard Index**	**Check box to include in site-wide risk calculations**	**Carcinogenic Risk**	**Hazard Index**	**Check box to include in site-wide risk calculations**	**Carcinogenic Risk**	**Hazard Index**
DIRECT CONTACT SOIL AND WATER CALCULATORS																			
Resident	Soil	☐	NM	NM	☐	NM	NM												
	Groundwater Use*	☑	5.1E-03	3.1E+02	☑	5.1E-03	3.1E+02												
Non-Residential Worker	Soil							☐	NM	NM	☐	NM	NM						
	Groundwater Use*							☐	NM	NM	☐	NM	NM						
Construction Worker	Soil													☐	NM	NM			
Recreator/Trespasser	Soil																☐	NM	NM
	Surface Water Use*																☑	0.0E+00	2.0E-01
VAPOR INTRUSION CALCULATORS																			
Resident	Groundwater to Indoor Air	☑	6.8E-04	1.6E+02	☑	6.8E-04	1.6E+02												
	Soil Gas to Indoor Air	☐	NM	NM	☐	NM	NM												
	Indoor Air	☐	NM	NM	☐	NM	NM												
Non-Residential Worker	Groundwater to Indoor Air							☐	NM	NM	☐	NM	NM						
	Soil Gas to Indoor Air							☐	NM	NM	☐	NM	NM						
	Indoor Air							☐	NM	NM	☐	NM	NM						
TOTAL SITEWIDE RISK FOR EACH RECEPTOR			**5.8E-03**	**4.7E+02**		**5.8E-03**	**4.7E+02**		0.0E+00	0.0E+00		0.0E+00	0.0E+00		0.0E+00	0.0E+00		0.0E+00	2.0E-01

Notes:
1. If lead concentrations were entered in the exposure point concentration tables, see the individual calculator sheets for lead concentrations in comparison to screening levels. Note that lead is not included in cumulative risk calculations.
2. * = If concentrations in groundwater exceed the NC 2L Standards or IMAC, or concentrations in surface water exceed the NC 2B Standards, appropriate remediation and/or institutional control measures will be necessary to be eligible for a risk-based closure.
3. NM = Not Modeled
4. NC = Pathway not calculated

DEQ Risk Calculator - Direct Contact - Resident Groundwater Use **Output Form 2B**

Version Date: July 2023

Basis: May 2023 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: BG GW-SW

** - Note that inhalation on this calculator refers to inhalation associated with tapwater use, not inhalation associated with vapor intrusion from subsurface groundwater sources.*

*** - Note that the EPA has no consensus on reference dose or cancer slope factor values for lead, therefore it is not possible to calculate cancer risk or hazard quotient. Lead concentrations are compared to the EPA Action Level of 15 µg/L.*

CAS #	Chemical Name:	Ingestion Concentration (ug/L)	Dermal Concentration (ug/L)	Inhalation Concentration (ug/L)*	Ingestion Carcinogenic Risk	Dermal Carcinogenic Risk	Inhalation Carcinogenic Risk*	Calculated Carcinogenic Risk	Ingestion Hazard Quotient	Dermal Hazard Quotient	Inhalation Hazard Quotient*	Calculated Non-Carcinogenic Hazard Quotient
67-64-1	Acetone	9.2	9.2	9.2					5.1E-04	2.1E-06		5.1E-04
98-86-2	Acetophenone	0.44	0.44	0.44					2.2E-04	9.5E-06		2.3E-04
7664-41-7	Ammonia	440	440	440							**4.2E-01**	**4.2E-01**
71-43-2	Benzene	0.24	0.24	0.24	1.7E-07	2.4E-08	3.3E-07	5.3E-07	3.0E-03	4.0E-04	3.8E-03	7.2E-03
7440-41-7	Beryllium and compounds	0.84	0.84	0.84					2.1E-02	1.3E-02		3.4E-02
7440-43-9	Cadmium (Diet)	0.371	0.371	0.371					1.8E-01			1.8E-01
67-66-3	Chloroform	5.4	5.4	5.4	**2.1E-06**	1.9E-07	**2.2E-05**	**2.4E-05**	2.7E-02	2.1E-03	2.6E-02	5.5E-02
16065-83-1	Chromium(III), Insoluble Salts	120	120	120					4.0E-03	1.4E-03		5.3E-03
18540-29-9	Chromium(VI)	120	120	120	**2.4E-03**	**1.0E-03**		**3.4E-03**	**2.0E+00**	**7.0E-01**		**2.7E+00**
7440-50-8	Copper	11	11	11					1.4E-02	6.0E-05		1.4E-02
156-59-2	Dichloroethylene, cis-1,2-	62	62	62					**1.5E+00**	1.7E-01	**7.4E-01**	**2.5E+00**
95-65-8	Dimethylphenol, 3,4-	5.1	5.1	5.1					**2.5E-01**	2.9E-02		**2.8E-01**
100-41-4	Ethylbenzene	0.21	0.21	0.21	3.0E-08	1.7E-08	9.3E-08	1.4E-07	2.1E-04	1.1E-04	1.0E-04	4.2E-04
7439-89-6	Iron	5600	5600	5600					**4.0E-01**	1.8E-03		**4.0E-01**
7439-92-1	~Lead and Compounds	25.1	25.1	25.1					**>SL****	**>SL****	**>SL****	
7439-96-5	Manganese (Non-diet)	7400	7400	7400					**1.5E+01**	**1.7E+00**		**1.7E+01**
7487-94-7	~Mercuric Chloride (and other Mercury salts)	0.099	0.099	0.099					1.6E-02	1.0E-03		1.7E-02
7440-02-0	Nickel Soluble Salts	150	150	150					**3.7E-01**	8.2E-03		**3.8E-01**
14797-55-8	Nitrate (measured as nitrogen)	12000	12000	12000					**3.7E-01**	1.6E-03		**3.8E-01**
207-08-9	~Benzo[k]fluoranthene	0.014	0.014	0.014	5.6E-09			5.6E-09				
86-73-7	~Fluorene	0.06	0.06	0.06					7.5E-05	1.3E-04		2.0E-04
193-39-5	~Indeno[1,2,3-cd]pyrene	0.019	0.019	0.019	7.6E-08			7.6E-08				
91-57-6	~Methylnaphthalene, 2-	0.24	0.24	0.24					3.0E-03	3.7E-03		6.7E-03
129-00-0	~Pyrene	0.035	0.035	0.035					5.8E-05	2.3E-04		2.9E-04
103-65-1	Propyl benzene	0.17	0.17	0.17					8.5E-05	9.3E-05	8.2E-05	2.6E-04
7782-49-2	Selenium	1.57	1.57	1.57					1.6E-02	6.9E-05		1.6E-02
127-18-4	Tetrachloroethylene	38	38	38	**1.0E-06**	5.8E-07	**1.8E-06**	**3.4E-06**	**3.2E-01**	1.7E-01	**4.6E-01**	**9.4E-01**
7440-28-0	Thallium (Soluble Salts)	0.41	0.41	0.41					**2.0E+00**	9.0E-03		**2.1E+00**
108-88-3	Toluene	0.31	0.31	0.31					1.9E-04	5.9E-05	3.0E-05	2.8E-04
79-01-6	Trichloroethylene	800	800	800	**6.8E-04**	**1.1E-04**	**8.4E-04**	**1.6E-03**	**8.0E+01**	**1.2E+01**	**1.9E+02**	**2.8E+02**
95-63-6	Trimethylbenzene, 1,2,4-	0.92	0.92	0.92					4.6E-03	4.6E-03	7.4E-03	1.7E-02
108-67-8	Trimethylbenzene, 1,3,5-	0.26	0.26	0.26					1.3E-03	9.4E-04	2.1E-03	4.3E-03
108-38-3	Xylene, m-	0.89	0.89	0.89					2.2E-04	1.3E-04	4.3E-03	4.6E-03
95-47-6	Xylene, o-	0.55	0.55	0.55					1.4E-04	6.9E-05	2.6E-03	2.8E-03
7440-66-6	Zinc and Compounds	210	210	210					3.5E-02	9.2E-05		3.5E-02
						Cumulative:		**5.1E-03**				**3.1E+02**

North Carolina Department of Environmental Quality
Risk Calculator

Version Date:	January 2023
Basis:	November 2022 EPA RSL Table
Site Name:	Sims Legion Park
Site Address:	
DEQ Section:	DWM PRLU
Site ID:	NONCD0000766
Exposure Unit ID:	SW-SED
Submittal Date:	
Prepared By:	JN
Reviewed By:	JG

Table of Contents		TOC
Version Date: January 2023 **Basis: November 2022 EPA RSL Table**		
Site ID: NONCD0000766		
Exposure Unit ID: SW-SED		
Form No.	**Description**	**Check box if included**
DATA INPUT SHEETS		
Input Section 1 - Exposure Pathways & Parameters		
Input Form 1A	Complete Exposure Pathways	☑
Input Form 1B	Exposure Factors and Target Risks	☑
Input Form 1C	Contaminant Migration Parameters	☐
Input Form 1D	Sample Statistics	☐
Input Section 2 - Exposure Point Concentrations		
Input Form 2A	Soil Exposure Point Concentration Table	☑
Input Form 2B	Groundwater Exposure Point Concentration Table	☐
Input Form 2C	Surface Water Exposure Point Concentration Table	☑
Input Form 2D	Soil Gas Exposure Point Concentration Table	☐
Input Form 2E	Indoor Air Exposure Point Concentration Table	☐
DATA OUTPUT SHEETS		
Output Section 1 - Summary Output for All Calculators		
Output Form 1A	Risk for Individual Pathways	☑
Output Form 1B	Sitewide Risk	☐
Output Section 2 - Direct Contact Soil and Groundwater Calculators		
Output Form 2A	Resident Soil	☑
Output Form 2B	Resident Groundwater Use	☐
Output Form 2C	Non-Residential Worker Soil	☐
Output Form 2D	Non-Residential Worker Groundwater Use	☐
Output Form 2E	Construction Worker Soil	☐
Output Form 2F	Recreator/Trespasser Soil	☐
Output Form 2G	Recreator/Trespasser Surface Water	☑
Output Section 3 - Vapor Intrusion Calculators		
Output Form 3A	Resident Groundwater to Indoor Air	☐
Output Form 3B	Resident Soil Gas to Indoor Air	☐
Output Form 3C	Resident Indoor Air	☐
Output Form 3D	Non-Residential Worker Groundwater to Indoor Air	☐
Output Form 3E	Non-Residential Worker Soil Gas to Indoor Air	☐
Output Form 3F	Non-Residential Worker Indoor Air	☐
Output Section 4 - Contaminant Migration Worksheets		
Output Form 4A	Soil to Groundwater - Forward Mode	☐
Output Form 4B	Groundwater to Groundwater - Forward Mode	☐
Output Form 4C	Soil to Surface Water - Forward Mode	☐
Output Form 4D	Groundwater to Surface Water - Forward Mode	☐
Output Form 4E	Soil to Groundwater - Backward Mode	☐
Output Form 4F	Groundwater to Groundwater - Backward Mode	☐
Output Form 4G	Soil to Surface Water - Backward Mode	☐
Output Form 4H	Groundwater to Surface Water - Backward Mode	☐

Complete Exposure Pathways	Input Form 1A

Version Date: January 2023
Basis: November 2022 EPA RSL Table
Site ID: NONCD0000766

Exposure Unit ID: SW-SED

Note: Risk output will only be calculated for complete exposure pathways.

Receptor	Pathway	Check box if pathway complete
DIRECT CONTACT SOIL AND WATER PATHWAYS		
Resident	Soil	☑
	Groundwater Use	☐
Non-Residential Worker	Soil	☐
	Groundwater Use	☐
Construction Worker	Soil	☐
Recreator/Trespasser	Soil	☐
	Surface Water	☑
VAPOR INTRUSION PATHWAYS		
Resident	Groundwater to Indoor Air	☐
	Soil Gas to Indoor Air	☐
	Indoor Air	☐
Non-Residential Worker	Groundwater to Indoor Air	☐
	Soil Gas to Indoor Air	☐
	Indoor Air	☐
CONTAMINANT MIGRATION PATHWAYS		
Groundwater	Source Soil	☐
	Source Groundwater	☐
Surface Water	Source Soil	☐
	Source Groundwater	☐

Exposure Factors and Target Risks **Input Form 1B**

Version Date: January 2023

Basis: November 2022 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: SW-SED

Exposure Parameter	Default Value	Site Specific Value	Justification
General			
Target Cancer Risk (individual)	1.0E-06	1.0E-06	
Target Cancer Risk (cumulative)	1.0E-04	1.0E-04	
Target Hazard Index (individual)	2.0E-01	2.0E-01	
Target Hazard Index (cumulative)	1.0E+00	1.0E+00	
Residential Child			
Lifetime (LT) (years)	70	70	
Body Weight (BW) (kg)	15	15	
Exposure Duration (ED) (yr)	6	6	
Exposure Frequency (EF) (d/yr)	350	350	
Exposure Time (ET) (hr/d)	24	24	
Skin Surface Area - Soil Exposure (SA_s) (cm2)	2373	2373	
Soil Adherence Factor (AF) (mg/cm^2)	0.2	0.2	
Soil Ingestion Rate (IRS) (mg/day)	200	200	
Skin Surface Area - Water Exposure (SA_w) (cm2)	6365	6365	
Water Ingestion Rate (IRW) (L/d)	0.78	0.78	
Water Exposure Time (ET_{event}) (hr/event)	0.54	0.54	
Water Event Frequency (EV) (events/day)	1	1	
Residential Adult			
Lifetime (LT) (years)	70	70	
Body Weight (BW) (kg)	80	80	
Exposure Duration (ED) (yr)	20	20	
Exposure Frequency (EF) (d/yr)	350	350	
Exposure Time (ET) (hr/d)	24	24	
Skin Surface Area - Soil Exposure (SA_s) (cm^2)	6032	6032	
Soil Adherence Factor (AF) (mg/cm^2)	0.07	0.07	
Soil Ingestion Rate (IRS) (mg/day)	100	100	
Skin Surface Area - Water Exposure (SA_w) (cm^2)	19652	19652	
Water Ingestion Rate (IRW) (L/d)	2.5	2.5	
Water Exposure Time (ET_{event}) (hr/event)	0.71	0.71	
Water Event Frequency (EV) (events/day)	1	1	
Non-Residential Worker			
Lifetime (LT) (years)	70	70	
Body Weight (BW) (kg)	80	80	
Exposure Duration (ED) (yr)	25	25	
Exposure Frequency (EF) (d/yr)	250	250	
Exposure Time (ET) (hr/d)	8	8	
Skin Surface Area - Soil Exposure (SA_s) (cm^2)	3527	3527	
Soil Adherence Factor (AF) (mg/cm^2)	0.12	0.12	
Soil Ingestion Rate (IR) (mg/day)	100	100	
Skin Surface Area - Water Exposure (SA_w) (cm^2)	19652	19652	
Water Ingestion Rate (IRW) (L/d)	0.83	0.83	
Water Exposure Time (ET_{event}) (hr/event)	0.67	0.67	
Water Event Frequency (EV) (events/day)	1	1	
Construction Worker			
Lifetime (LT) (years)	70	70	
Body Weight (BW) (kg)	80	80	
Working Weeks (EW) (wk/yr)	50	50	
Exposure Duration (ED) (yr)	1	1	
Exposure Frequency (EF) (d/yr)	250	250	
Exposure Time (ET) (hr/d)	8	8	
Skin Surface Area - Soil Exposure (SA_s) (cm^2)	3527	3527	
Soil Adherence Factor (AF) (mg/cm^2)	0.3	0.3	
Soil Ingestion Rate (IR) (mg/day)	330	330	

Exposure Factors and Target Risks **Input Form 1B**

Version Date: January 2023

Basis: November 2022 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: SW-SED

Exposure Parameter	Default Value		Site Specific Value	Justification
User Defined Child				
	Recreator	Trespasser		
Lifetime (LT) (years)	70	NA	70	
Averaging Time (AT) (days/yr)	365	NA	365	
Body Weight (BW) (kg)	15	NA	15	
Exposure Duration 0-2 (ED) (yr)	2	NA	2	
Exposure Duration 2-6 (ED) (yr)	4	NA	4	
Exposure Frequency (EF) (d/yr)	195	NA	195	
Exposure Time (ET) (hr/d)	2	NA	2	
Skin Surface Area - Soil Exposure (SA_s) (cm^2)	2373	NA	2373	
Soil Adherence Factor (AF) (mg/cm^2)	0.2	NA	0.2	
Soil Ingestion Rate (IRS) (mg/day)	200	NA	200	
Skin Surface Area - Water Exposure (SA_w) (cm^2)	6365	NA	6365	
Water Ingestion Rate (IRW) (L/hr)	0.12	NA	0.12	
Water Exposure Time (ET_{event}) (hr/event)	2	NA	2	
Water Event Frequency (EV) (events/day)	1	NA	1	
User Defined Adult				
	Recreator	Trespasser		
Lifetime (LT) (years)	70	70	70	
Body Weight (BW) (kg)	80	45	80	
Exposure Duration 6-16 (ED) (yr)	10	10	10	
Exposure Duration 16-26 (ED) (yr)	10	0	10	
Exposure Frequency (EF) (d/yr)	195	90	195	
Exposure Time (ET) (hr/d)	2	2	2	
Skin Surface Area - Soil Exposure (SA_s) (cm^2)	6032	6032	6032	
Soil Adherence Factor (AF) (mg/cm^2)	0.07	0.2	0.07	
Soil Ingestion Rate (IRS) (mg/day)	100	200	100	
Skin Surface Area - Water Exposure (SA_w) (cm^2)	19652	19652	19652	
Water Ingestion Rate (IRW) (L/hr)	0.11	0.11	0.11	
Water Exposure Time (ET_{event}) (hr/event)	2	2	2	
Water Event Frequency (EV) (events/day)	1	1	1	

Exposure Point Concentrations **Input Form 2A**

Version Date: January 2023

Basis: November 2022 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: SW-SED

Soil Exposure Point Concentration Table

Description of Exposure Point Concentration Selection:

Maximum Sediment Concentrations

NOTE: If the chemical list is changed from a prior calculator run, remember to select "See All Chemicals" on the data output sheet or newly added chemicals will not be included in risk calculations

Exposure Point Concentration (mg/kg)	Notes:	CAS Number	Chemical **For the chemicals highlighted in blue, data entry notes are provided in the PSRG Table link on the Main Menu**	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value	Screening Toxicity Value (Screening Level) (n/c)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
0.53	STRSED-2 (J)	7664-41-7	Ammonia			mg/kg										
0.334	STRSED-1	7440-41-7	Beryllium and compounds			mg/kg										
0.0006	DUP STRSED-2	108-90-7	Chlorobenzene			mg/kg										
5.03	STRSED-1	16065-83-1	Chromium(III), Insoluble Salts			mg/kg										
16.8	STRSED-2	7440-50-8	Copper			mg/kg										
0.0015	DUP STRSED-2	106-46-7	Dichlorobenzene, 1,4-			mg/kg										
7380	STRSED-1	7439-89-6	Iron			mg/kg										
221	STRSED-2	7439-92-1	~Lead and Compounds			mg/kg										
152	STRSED-2	7439-96-5	Manganese (Non-diet)			mg/kg										
4.3	STRSED-1	7440-02-0	Nickel Soluble Salts			mg/kg										
0.087	DUP STRSED-2	117-81-7	~Bis(2-ethylhexyl)phthalate			mg/kg										
0.09	STRSED-1	56-55-3	~Benz[a]anthracene			mg/kg										
0.13	STRSED-1	50-32-8	~Benzo[a]pyrene			mg/kg										
0.19	STRSED-1	205-99-2	~Benzo[b]fluoranthene			mg/kg										
0.16	STRSED-1	129-00-0	~Pyrene			mg/kg										
0.0009	STRSED-1	108-88-3	Toluene			mg/kg										
0.0019	STRSED-2	79-01-6	Trichloroethylene			mg/kg										
49.1	STRSED-1	7440-66-6	Zinc and Compounds			mg/kg										

Exposure Point Concentrations **Input Form 2C**

Version Date: January 2023

Basis: November 2022 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: SW-SED

Surface Water Exposure Point Concentration Table

Description of Exposure Point Concentration Selection:

Maximum surface water concentrations from SW-2 through SW-5/Dup SW-5

NOTE: If the chemical list is changed from a prior calculator run, remember to select "See All Chemicals" on the data output sheet or newly added chemicals will not be included in risk calculations

Exposure Point Concentration (ug/L)	Notes:	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value	Screening Toxicity Value (Screening Level) (n/c)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
110	SW-4	7664-41-7	Ammonia			ug/L										
0.282	SW-5	7440-36-0	Antimony (metallic)			ug/L										
1.73	SW-3	7440-50-8	Copper			ug/L										
739	SW-3	7439-89-6	Iron			ug/L										
0.601	SW-3	7439-92-1	~Lead and Compounds			ug/L										
238	SW-4	7439-96-5	Manganese (Non-diet)			ug/L										
0.739	SW-2	7440-02-0	Nickel Soluble Salts			ug/L										
850	SW-2	14797-55-8	Nitrate (measured as nitrogen)			ug/L										
5.48	SW-5	7440-66-6	Zinc and Compounds			ug/L										

Risk for Individual Pathways **Output Form 1A**

Version Date: January 2023

Basis: November 2022 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: SW-SED

DIRECT CONTACT SOIL AND WATER CALCULATORS

Receptor	Pathway	Carcinogenic Risk	Hazard Index	Risk exceeded?
Resident	Soil	1.4E-06	2.4E-01	NO
	Groundwater Use*	NC	NC	NC
Non-Residential Worker	Soil	NC	NC	NC
	Groundwater Use*	NC	NC	NC
Construction Worker	Soil	NC	NC	NC
Recreator/Trespasser	Soil	NC	NC	NC
	Surface Water*	0.0E+00	2.2E-01	NO

VAPOR INTRUSION CALCULATORS

Receptor	Pathway	Carcinogenic Risk	Hazard Index	Risk exceeded?
Resident	Groundwater to Indoor Air	NC	NC	NC
	Soil Gas to Indoor Air	NC	NC	NC
	Indoor Air	NC	NC	NC
Non-Residential Worker	Groundwater to Indoor Air	NC	NC	NC
	Soil Gas to Indoor Air	NC	NC	NC
	Indoor Air	NC	NC	NC

CONTAMINANT MIGRATION CALCULATORS

Pathway	Source	Target Receptor Concentrations Exceeded?	
Groundwater	Source Soil	Exceedence of 2L at Receptor?	NC
	Source Groundwater	Exceedence of 2L at Receptor?	NC
Surface Water	Source Soil	Exceedence of 2B at Receptor?	NC
	Source Groundwater	Exceedence of 2B at Receptor?	NC

Notes:

1. If lead concentrations were entered in the exposure point concentration tables, see the individual calculator sheets for lead concentrations in comparison to screening levels. Note that lead is not included in cumulative risk calculations.

2. * = If concentrations in groundwater exceed the NC 2L Standards or IMAC, or concentrations in surface water exceed the NC 2B Standards, appropriate remediation and/or institutional control measures will be necessary to be eligible for a risk-based closure.
3. NM = Not modeled, user did not check this pathway as complete.
4. NC = Pathway not calculated, required contaminant migration parameters were not entered.

DEQ Risk Calculator - Direct Contact - Resident Soil **Output Form 2A**

Version Date: January 2023

Basis: November 2022 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: SW-SED

** - Note that inhalation on this calculator refers to outdoor inhalation of volatiles and particulates, not indoor inhalation associated with vapor intrusion.*

*** - Note that the EPA has no consensus on reference dose or cancer slope factor values for lead, therefore it is not possible to calculate cancer risk or hazard quotient. Lead concentrations are compared to the EPA screening level of 400 mg/kg for residential soil.*

CAS #	Chemical Name:	Ingestion Concentration (mg/kg)	Dermal Concentration (mg/kg)	Inhalation Concentration (mg/kg)*	Ingestion Carcinogenic Risk	Dermal Carcinogenic Risk	Inhalation Carcinogenic Risk*	Calculated Carcinogenic Risk	Ingestion Hazard Quotient	Dermal Hazard Quotient	Inhalation Hazard Quotient*	Calculated Non-Carcinogenic Hazard Quotient
7664-41-7	Ammonia	0.53	0.53	0.53							1.7E-11	1.7E-11
7440-41-7	Beryllium and compounds	0.334	0.334	0.334			4.8E-12	4.8E-12	2.1E-03		2.7E-07	2.1E-03
108-90-7	Chlorobenzene	0.0006	0.0006	0.0006					3.8E-07		1.7E-06	2.1E-06
16065-83-1	Chromium(III), Insoluble Salts	5.03	5.03	5.03					4.3E-05			4.3E-05
7440-50-8	Copper	16.8	16.8	16.8					5.4E-03			5.4E-03
106-46-7	Dichlorobenzene, 1,4-	0.0015	0.0015	0.0015	1.2E-11		5.3E-10	5.4E-10	2.7E-07		1.6E-07	4.4E-07
7439-89-6	Iron	7380	7380	7380					1.3E-01			1.3E-01
7439-92-1	~Lead and Compounds	221	221	221					**<SL****	**<SL****	**<SL****	
7439-96-5	Manganese (Non-diet)	152	152	152					8.1E-02		4.9E-05	8.1E-02
7440-02-0	Nickel Soluble Salts	4.3	4.3	4.3			6.7E-12	6.7E-12	2.7E-03		7.7E-07	2.7E-03
117-81-7	~Bis(2-ethylhexyl)phthalate	0.087	0.087	0.087	1.8E-09	4.9E-10	1.3E-15	2.2E-09	5.6E-05	1.3E-05		6.9E-05
56-55-3	~Benz[a]anthracene	0.09	0.09	0.09	5.9E-08	2.0E-08	1.1E-09	8.0E-08				
50-32-8	~Benzo[a]pyrene	0.13	0.13	0.13	8.5E-07	2.8E-07	1.3E-12	1.1E-06	5.5E-03	1.7E-03	1.1E-06	7.3E-03
205-99-2	~Benzo[b]fluoranthene	0.19	0.19	0.19	1.2E-07	4.1E-08	1.9E-13	1.7E-07				
129-00-0	~Pyrene	0.16	0.16	0.16					6.8E-05	2.1E-05		8.9E-05
108-88-3	Toluene	0.0009	0.0009	0.0009					1.4E-07		3.8E-08	1.8E-07
79-01-6	Trichloroethylene	0.0019	0.0019	0.0019	2.2E-10		1.3E-09	1.5E-09	4.9E-05		2.9E-04	3.4E-04
7440-66-6	Zinc and Compounds	49.1	49.1	49.1					2.1E-03			2.1E-03
						Cumulative:		1.4E-06				2.4E-01

DEQ Risk Calculator - Direct Contact - Recreator/Trespasser Surface Water **Output Form 2G**

Version Date: January 2023

Basis: November 2022 EPA RSL Table

Site ID: NONCD0000766

Exposure Unit ID: SW-SED

Receptor Type:

CAS #	Chemical Name:	Ingestion Concentration (ug/L)	Dermal Concentration (ug/L)	Ingestion Carcinogenic Risk	Dermal Contact Carcinogenic Risk	Calculated Carcinogenic Risk	Ingestion Hazard Quotient	Dermal Contact Hazard Quotient	Calculated Non-Carcinogenic Hazard Quotient
7664-41-7	Ammonia	110	110						
7440-36-0	Antimony (metallic)	0.282	0.282				6.0E-03	2.1E-03	8.2E-03
7440-50-8	Copper	1.73	1.73				3.7E-04	2.0E-05	3.9E-04
7439-89-6	Iron	739	739				9.0E-03	4.8E-04	9.5E-03
7439-92-1	~Lead and Compounds	0.601	0.601						
7439-96-5	Manganese (Non-diet)	238	238				8.5E-02	1.1E-01	2.0E-01
7440-02-0	Nickel Soluble Salts	0.739	0.739				3.2E-04	8.4E-05	4.0E-04
14797-55-8	Nitrate (measured as nitrogen)	850	850				4.5E-03	2.4E-04	4.8E-03
7440-66-6	Zinc and Compounds	5.48	5.48				1.6E-04	5.0E-06	1.6E-04
					Cumulative:	0.0E+00			2.2E-01

APPENDIX C

Erosion and Sediment Control Plan

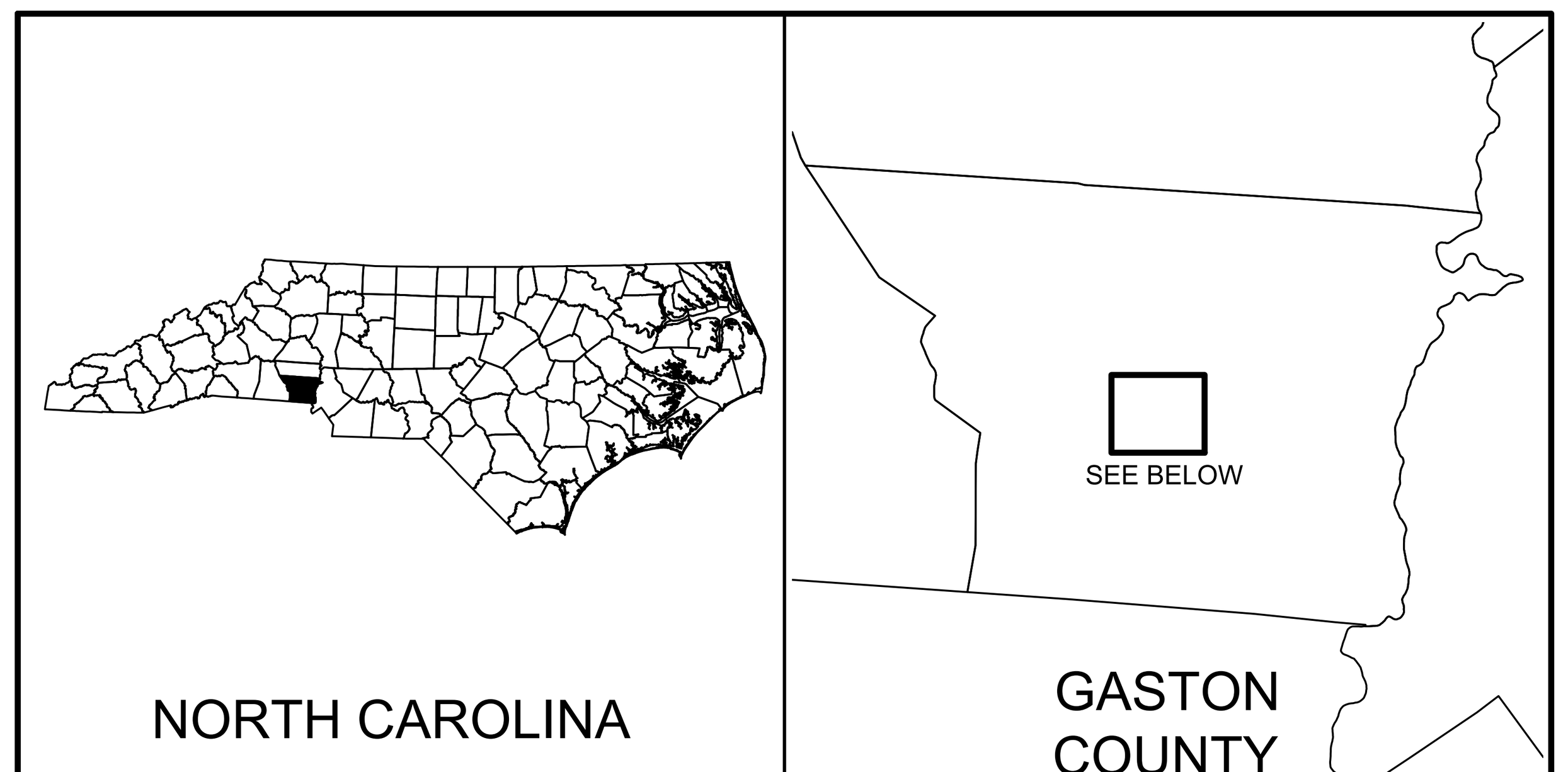
EROSION & SEDIMENTATION CONTROL PLANS

FOR

SIMS LEGION PARK LANDFILL

GASTONIA, GASTON COUNTY, NORTH CAROLINA

Sheet List Table	
Sheet Number	Sheet Title
1	COVER
2	EXISTING CONDITIONS PLAN
3	EROSION & SEDIMENTATION CONTROL PLAN - OVERVIEW
4	EROSION & SEDIMENTATION CONTROL PLAN - 1
5	EROSION & SEDIMENTATION CONTROL PLAN - 2
6	EROSION & SEDIMENTATION CONTROL PLAN - 3
7	FINAL MATTING PLAN
8	EROSION & SEDIMENTATION CONTROL DETAILS - 1
9	EROSION & SEDIMENTATION CONTROL DETAILS - 2
10	EROSION & SEDIMENTATION CONTROL DETAILS - 3
11	STORM PLAN & PROFILE
12	RAVINE PLAN & DETAILS
13	STOCKPILE PLAN
14	MISCELLANEOUS NOTES
15	NC DEQ SELF INSPECTIONS
16	NC DEQ STABILIZATION NOTES



VICINITY MAP N.T.S.

VICINITY MAP SCALE: 1" = 400'

CONTACT INFORMATION
OWNER/DEVELOPER
NCDEQ - DIVISION OF WASTE MANAGEMENT
217 WEST JONES STREET
RALEIGH, NORTH CAROLINA
(919) 707-8331
SURVEYOR

ENGINEER
SHIELD ENGINEERING, INC.
4301 TAGGERT CREEK ROAD
CHARLOTTE, NC 28208
(704) 394-6913
CLIENT CONTACT
MR. THOMAS SLUSSER
(919) 707-8331

TOTAL DISTURBED AREA = 19.51 AC.

NCDEQ - DIVISION OF WASTE MANAGEMENT
217 WEST JONES STREET
RALEIGH, NORTH CAROLINA
(919) 707-8331

REVISIONS

REV.	DATE	COMMENTS
1	09-12-23	NCDEQ SUBMITTAL

ENGINEER'S SEAL: DRAFT

PROJECT #	1220121-01
DATE:	JULY, 2023
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	RLG
SCALE:	AS SHOWN

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdge.com
License No. C-4973

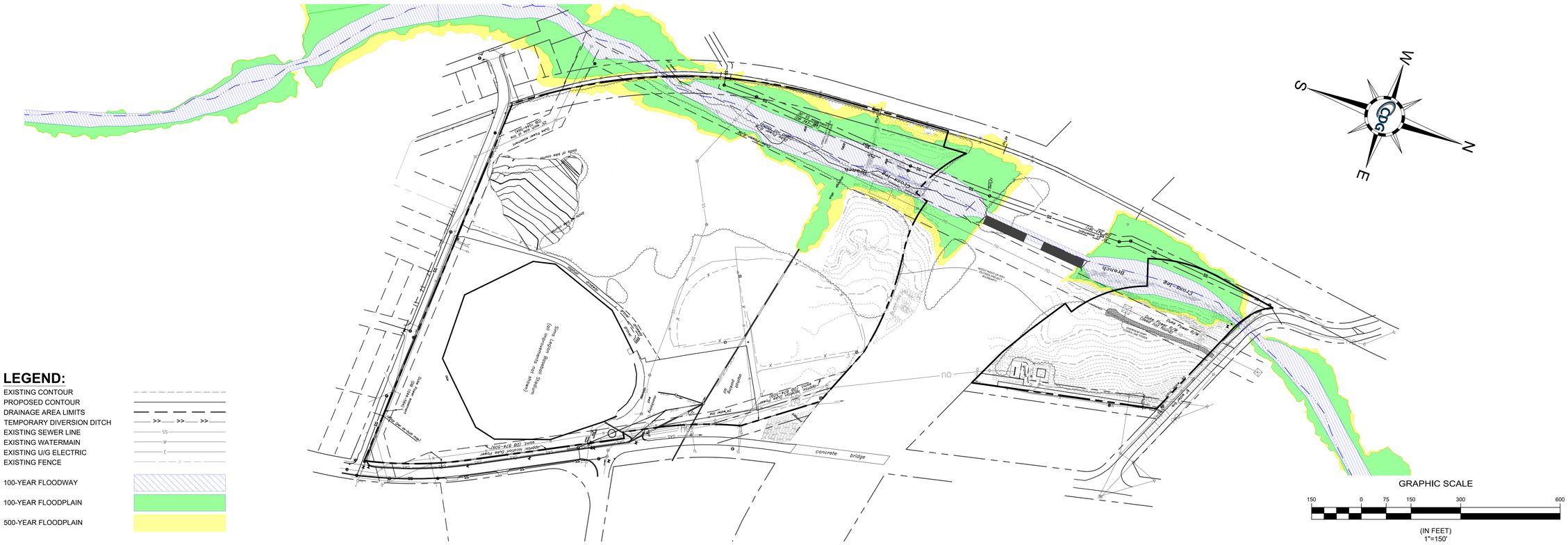
SIMS LEGION PARK LANDFILL
1001 DR. MARTIN LUTHER KING JR. HWY.
GASTONIA, GASTON COUNTY, NORTH CAROLINA

SHEET TITLE: COVER

DRAWING NO: 1

C:\Users\dave.weikle\CDG, Inc\Charlotte Projects - 1220121 - Sim's Legion Park\Project Details\Drawings\1220121-01 COVER.dwg, 3/5/2024 3:26 PM, Dave Weikle

NOTE: THIS LATEST NORTH CAROLINA GIS AERIAL PHOTOGRAPH IS FROM 2019 AND DOES NOT REPRESENT PRESENT DAY CONDITIONS.



LEGEND:

EXISTING CONTOUR	— — — —
PROPOSED CONTOUR	———
DRAINAGE AREA LIMITS	— — —
TEMPORARY DIVERSION DITCH	—>>—>>—>>—
EXISTING SEWER LINE	—SS—
EXISTING WATERMAIN	—W—
EXISTING U/G ELECTRIC	—E—
EXISTING FENCE	— — X — —
100-YEAR FLOODWAY	▨
100-YEAR FLOODPLAIN	🟩
500-YEAR FLOODPLAIN	🟨

NCDEQ - DIVISION OF WASTE MANAGEMENT
217 WEST JONES STREET
RALEIGH, NORTH CAROLINA
(919) 707-8331

REVISIONS

REV.	DATE	COMMENTS
1	09-12-23	NCDEQ SUBMITTAL

ENGINEER'S SEAL:

DRAFT

PROJECT #	1220121-01
DATE:	JULY, 2023
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	RLG
SCALE:	1" = 150'

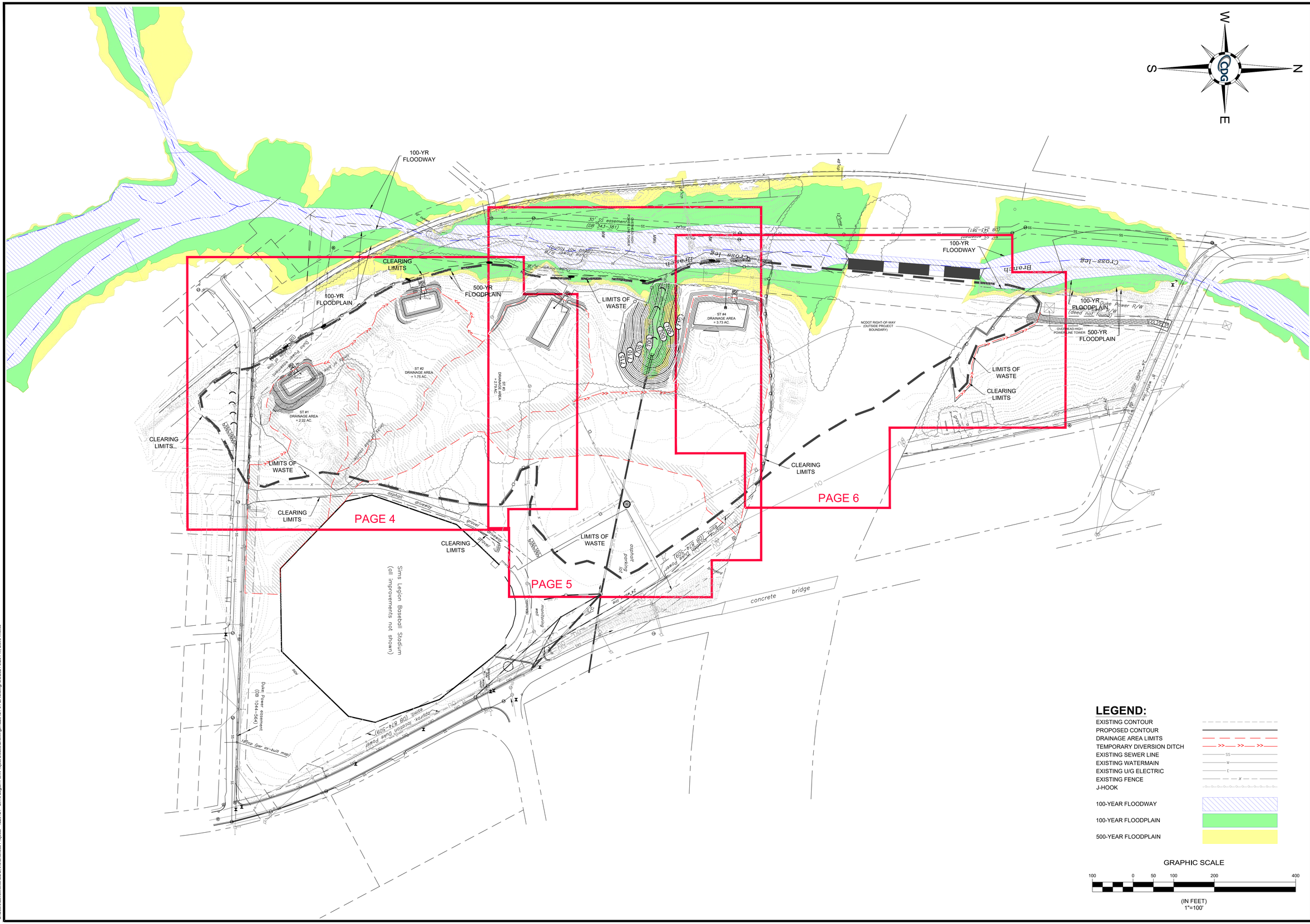
CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdge.com
License No. C-4973

SIMS LEGION PARK LANDFILL
1001 DR. MARTIN LUTHER KING JR. HWY.
GASTONIA, GASTON COUNTY, NORTH CAROLINA

SHEET TITLE:
EXISTING CONDITIONS PLAN

DRAWING NO:
2

C:\Users\dave.weikle\CDG, Inc\Charlotte Projects - 1220121 - Sim's Legion Park\Project Details\Drawings\1220121-01 EXISTING.dwg, 3/5/2024 3:26 PM, Dave Weikle



LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- DRAINAGE AREA LIMITS
- TEMPORARY DIVERSION DITCH
- EXISTING SEWER LINE
- EXISTING WATERMAIN
- EXISTING U/G ELECTRIC
- EXISTING FENCE
- J-HOOK
- 100-YEAR FLOODWAY
- 100-YEAR FLOODPLAIN
- 500-YEAR FLOODPLAIN

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1"=100'

NCDEQ - DIVISION OF WASTE MANAGEMENT
217 WEST JONES STREET
RALEIGH, NORTH CAROLINA
(919) 707-8331

REVISIONS

REV.	DATE	COMMENTS
1	09-12-23	NCDEQ SUBMITTAL

ENGINEER'S SEAL:

DRAFT

PROJECT #	120121-01
DATE:	JULY, 2023
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	RLG
SCALE:	1" = 100'

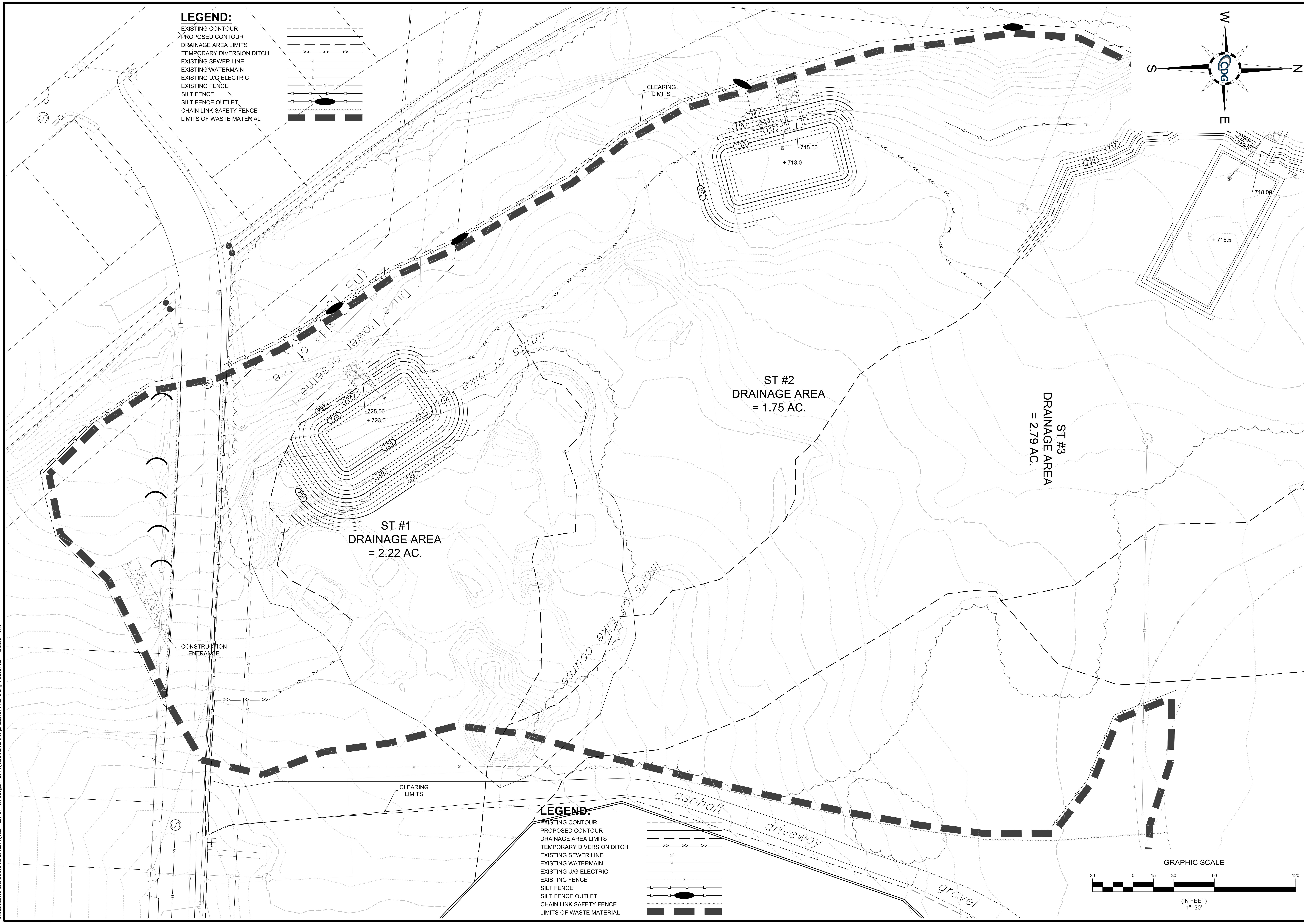
CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdgnc.com
License No. C-4973

SIMS LEGION PARK LANDFILL
1001 DR. MARTIN LUTHER KING JR. HWY.
GASTONIA, GASTON COUNTY, NORTH CAROLINA

SHEET TITLE:
EROSION & SEDIMENTATION CONTROL PLAN - OVERVIEW

DRAWING NO: 3

C:\Users\dave.wekle\CDG, Inc\Charlotte Projects - 120121 - Sims Legion Park\Project Details\Drawings\120121-01 ERO.dwg, 3/5/2024 3:26 PM, Dave Wekle


LEGEND:
EXISTING CONTOUR
PROPOSED CONTOUR
DRAINAGE AREA LIMITS
TEMPORARY DIVERSION DITCH
EXISTING SEWER LINE
EXISTING WATERMAIN
EXISTING U/G ELECTRIC
EXISTING FENCE
SILT FENCE
SILT FENCE OUTLET
CHAIN LINK SAFETY FENCE
LIMITS OF WASTE MATERIAL
CLEARING LIMITS
715.50
+ 713.0
718.00
+ 715.5
725.50
+ 723.0
Duke Power easement
side of line
limits of bike course
ST #1
DRAINAGE AREA
= 2.22 AC.
ST #2
DRAINAGE AREA
= 1.75 AC.
ST #3
DRAINAGE AREA
= 2.79 AC.
CONSTRUCTION ENTRANCE
CLEARING LIMITS
asphalt driveway
gravel
W
S
N
E
GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1"=30'

NCDEQ - DIVISION OF WASTE MANAGEMENT
217 WEST JONES STREET
RALEIGH, NORTH CAROLINA
(919) 707-8331

REVISIONS

REV.	DATE	COMMENTS
1	09-12-23	NCDEQ SUBMITTAL

ENGINEERS SEAL: DRAFT

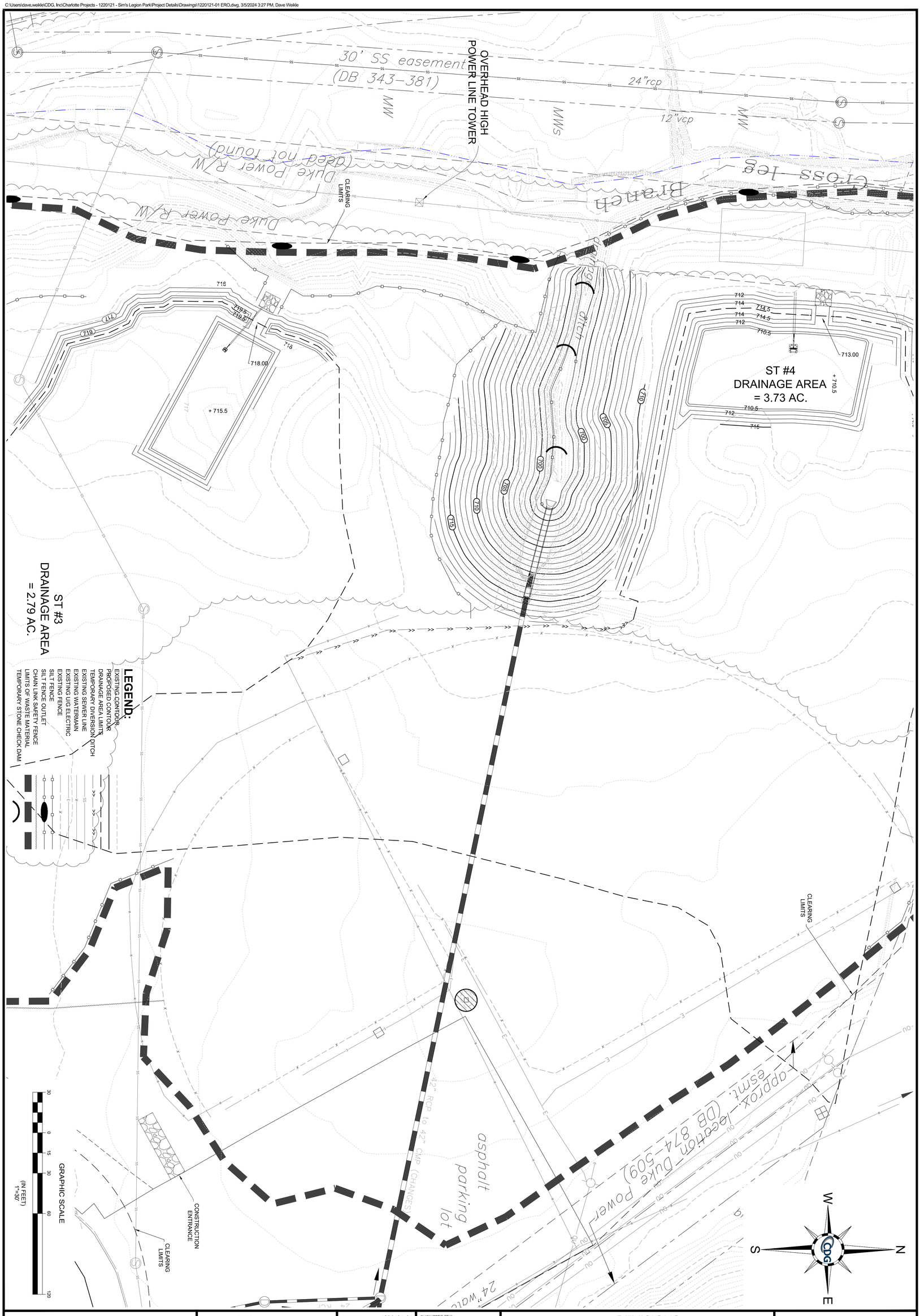
PROJECT #	1220121-01
DATE:	JULY, 2023
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	RLG
SCALE:	1" = 30'

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdge.com
License No. C-4973

SIMS LEGION PARK LANDFILL
1001 DR. MARTIN LUTHER KING JR. HWY.
GASTONIA, GASTON COUNTY, NORTH CAROLINA

SHEET TITLE: EROSION & SEDIMENTATION CONTROL PLAN - 1

DRAWING NO: 4



SIMS LEGION PARK LANDFILL
1001 DR. MARTIN LUTHER KING JR. HWY.
GASTONIA, GASTON COUNTY, NORTH CAROLINA

DRAWING NO: 5

SHEET TITLE: EROSION & SEDIMENTATION CONTROL PLAN - 2

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdge.com
License No. C-4973

PROJECT #	1220121-01
DATE:	JULY, 2023
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	RLG
SCALE:	1 ' = 30'

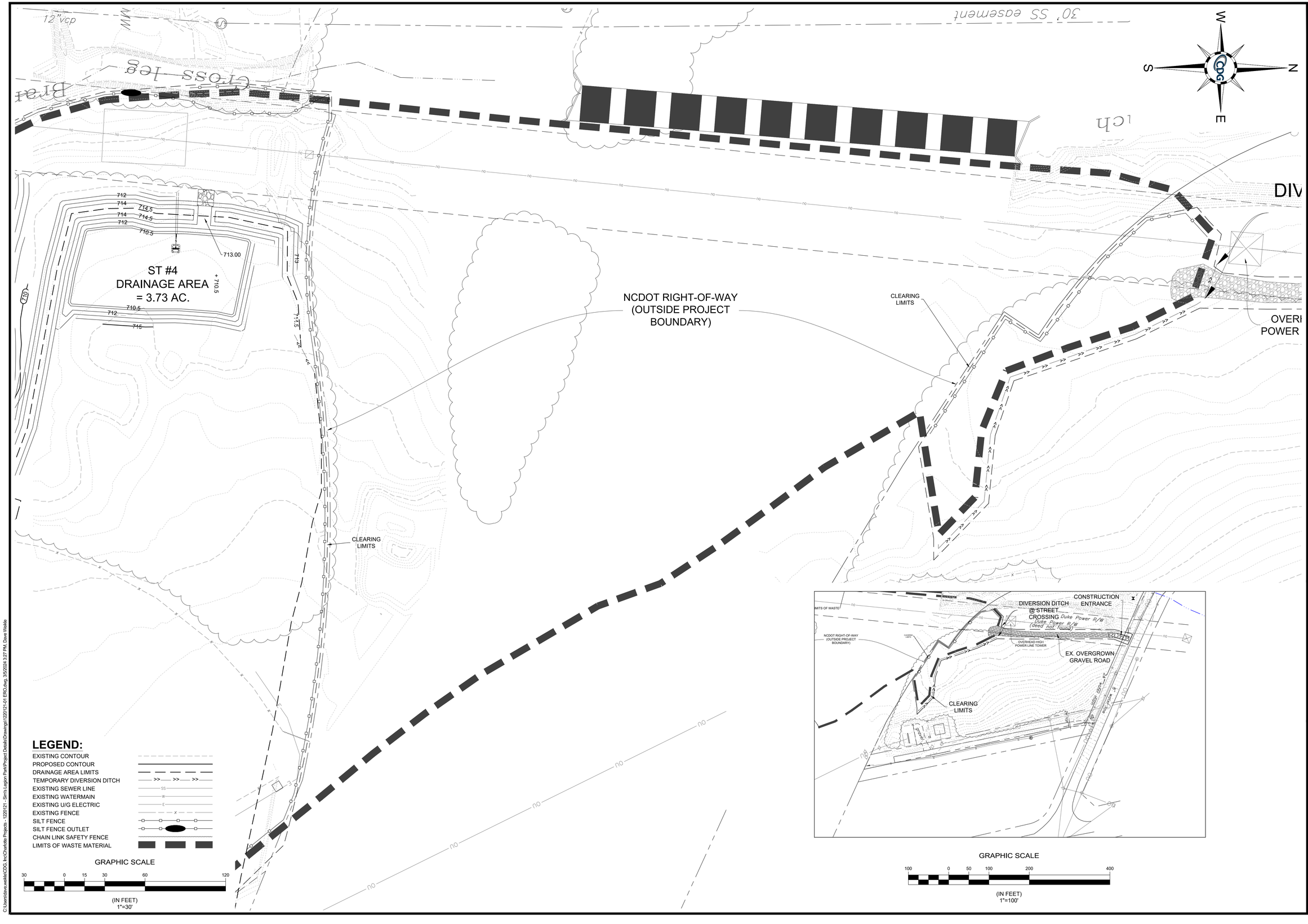
ENGINEER'S SEAL:

DRAFT

REVISIONS

REV.	DATE	COMMENTS
1	09-12-23	NCDEQ SUBMITTAL

NCDEQ - DIVISION OF WASTE MANAGEMENT
217 WEST JONES STREET
RALEIGH, NORTH CAROLINA
(919) 707-8331



C:\Users\dave.weikle\CDG Inc\Charlotte Projects - 1220121 - Sims Legion Park\Project Details\Drawings\1220121-01 ERO.dwg, 3/5/2024 3:27 PM, Dave Weikle

NCDEQ - DIVISION OF WASTE MANAGEMENT
217 WEST JONES STREET
RALEIGH, NORTH CAROLINA
(919) 707-8331

REVISIONS

REV.	DATE	COMMENTS
1	09-12-23	NCDEQ SUBMITTAL

ENGINEER'S SEAL:

DRAFT

PROJECT #	1220121-01
DATE:	JULY, 2023
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	RLG
SCALE:	1" = 30'

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdge.com
License No. C-4973

SIMS LEGION PARK LANDFILL
1001 DR. MARTIN LUTHER KING JR. HWY.
GASTONIA, GASTON COUNTY, NORTH CAROLINA

SHEET TITLE:
EROSION & SEDIMENTATION CONTROL PLAN - 3

DRAWING NO:
6


CLEARING LIMITS
LIMITS OF WASTE
30' SS easement (DB 343-381)
OVERHEAD HIGH POWER LINE TOWER
Duke Power R/W
Duke Power R/W (best not found)
25' each side of line Duke Power easement (DB 1074-564)
limits of bike course
CONSTRUCTION ENTRANCE
asphalt driveway
gravel driveway
gravel
Sims Legion Baseball Stadium (all improvements not shown)
concrete
monitoring well
asphalt parking lot
24" water line
24"rcp
12"rcp
CLEARING
LEGEND:
MATTING 'A'
GEOGRID
GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1"=50'

NCDEQ - DIVISION OF WASTE MANAGEMENT
217 WEST JONES STREET
RALEIGH, NORTH CAROLINA
(919) 707-8331

REVISIONS

REV.	DATE	COMMENTS

ENGINEER'S SEAL:

DRAFT

PROJECT #	1220121-01
DATE:	JULY, 2023
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	RLG
SCALE:	AS SHOWN

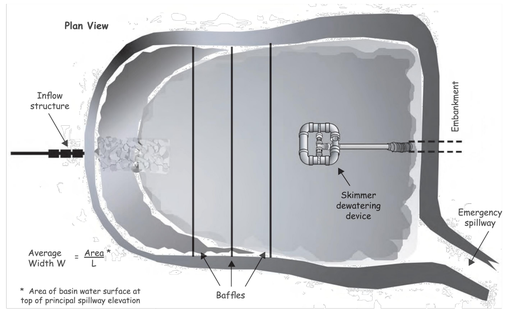
CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdge.com
License No. C-4973

SIMS LEGION PARK LANDFILL
1001 DR. MARTIN LUTHER KING JR. HWY.
GASTONIA, GASTON COUNTY, NORTH CAROLINA

SHEET TITLE: FINAL MATTING PLAN

DRAWING NO: 7

- Dewatering—Allow the maximum reasonable detention period before the basin is completely dewatered (at least 48 hours).
- Inflow rate—Reduce the inflow velocity and divert all sediment-free runoff.



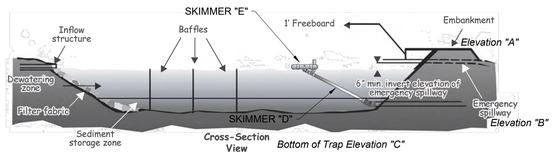


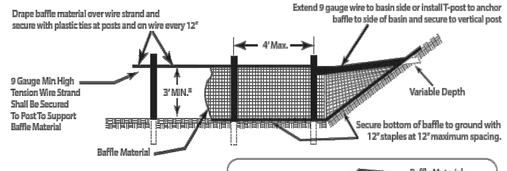
Figure 6.64c Example of a sediment basin with a skimmer outlet and emergency spillway. From Pennsylvania Erosion and Sediment Pollution Control Manual, March, 2000.

TEMPORARY SEDIMENT TRAP W/ SKIMMER

TRAP #	ELEVATIONS			SKIMMER SIZES		BOTTOM OF TRAP DIMENSIONS	
	"A"	"B"	"C"	"D"	"E"	LENGTH (FT)	WIDTH (FT)
1	727.00	725.50	723.00	4"	3/4"	69	27
2	717.00	715.50	713.00	6"	3/4"	77	31
3	719.50	718.00	715.50	8"	1"	105	45
4	714.50	713.00	710.50	5"	1.25"	123	54

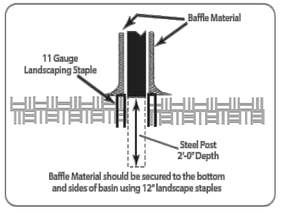
Baffles need to be installed correctly in order to fully provide their benefits. Refer to Figure 6.65b and the following key points:

- The baffle material needs to be secured at the bottom and sides using staples.
- Most of the sediment will accumulate in the first bay, so this should be readily accessible for maintenance.

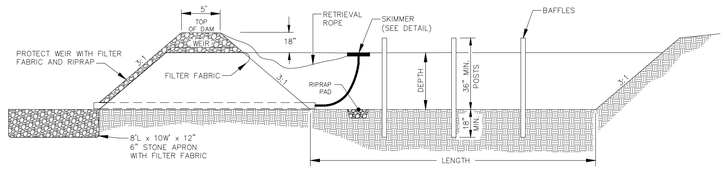


[6] If the temporary sediment basin will be converted to a permanent stormwater basin of greater depth, the baffle height should be based on the pool depth during use as a temporary sediment basin.

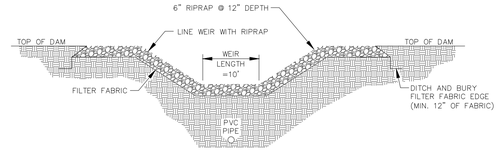
Note: Install three (3) coir fiber baffles in basins at drainage outlets with a spacing of 1/4 the basin length. Two (2) coir fiber baffles can be installed in the basins less than 20 ft. in length with a spacing of 1/3 the basin length.



SEDIMENT TRAP BAFFLE DETAIL



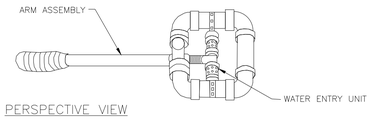
SKIMMER BASIN CROSS SECTION



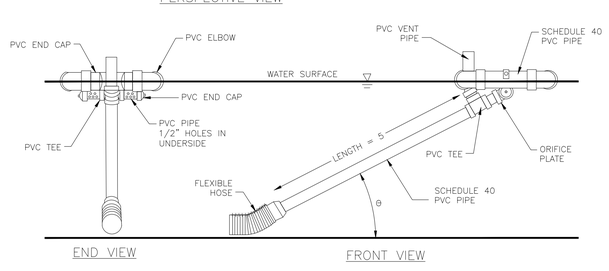
WEIR CROSS SECTION

MAINTENANCE

- INSPECT TEMPORARY SKIMMER BASIN AND EMPTY SKIMMER OF ALL DEBRIS AFTER EACH PERIOD OF SIGNIFICANT RAINFALL. REMOVE SEDIMENT AND RESTORE BASIN TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH OF THE BASIN. PLACE THE SEDIMENT THAT IS REMOVED IN A DESIGNATED DISPOSAL AREA. REPAIR BAFFLES.
- CHECK THE STRUCTURE FOR DAMAGE FROM EROSION OR PIPING. PERIODICALLY CHECK THE DEPTH OF THE SPILLWAY TO ENSURE IT IS A MINIMUM OF 1.5 FEET BELOW THE LOW POINT OF THE EMBANKMENT. IMMEDIATELY FILL ANY SETTLEMENT OF THE EMBANKMENT TO SLIGHTLY ABOVE DESIGN GRADE. ANY RIPRAP DISPLACED FROM THE SPILLWAY MUST BE REPLACED IMMEDIATELY.
- STABILIZE THE EMBANKMENT AND ALL DISTURBED AREAS ABOVE THE SEDIMENT POOL AND DOWNSTREAM FROM THE BASIN IMMEDIATELY AFTER CONSTRUCTION WITH SEEDING AND MATTING, AS NEEDED.



PERSPECTIVE VIEW



END VIEW FRONT VIEW

SCHEMATIC OF SKIMMER TAKEN FROM PENNSYLVANIA EROSION AND SEDIMENT POLLUTION CONTROL MANUAL, MARCH 2000. "H" REFERS TO THE HEIGHT FROM INVERT OF FLEXIBLE HOSE ON SKIMMER TO THE INVERT OF THE PRIMARY SPILLWAY.

SKIMMER DETAIL

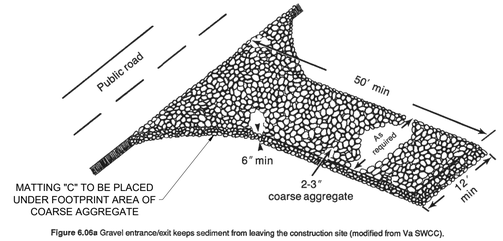
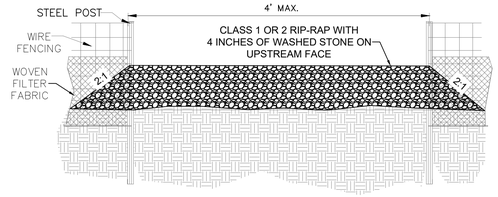


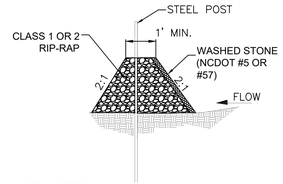
Figure 6.06a Gravel entrance/exit keeps sediment from leaving the construction site (modified from Va SWCC).

TEMPORARY CONSTRUCTION ENTRANCE



GENERAL NOTES:

1. SEDIMENT FILTER OUTLET SHALL BE 16 INCHES HIGH BUT NO TALLER THAN 18 INCHES.
2. CLASS 1 OR 2 RIP-RAP SHALL BE USED AND COVERED WITH 4 INCHES OF NCDOT #5 OR #57 WASHED STONE ON THE UPSLOPE SIDE.
3. POSTS SHALL BE NO MORE THAN 4 FEET APART.
4. SITE OUTLETS AT ANY POINT SMALL CONCENTRATED FLOWS ARE ANTICIPATED AND AT THE DIRECTION OF THE INSPECTOR.
5. ONE ACRE MAXIMUM DRAINAGE AREA PER OUTLET.



MAINTENANCE NOTES:

1. FILTER OUTLETS SHALL BE INSPECTED BY THE FINANCIALLY RESPONSIBLE PARTY OR HIS AGENT IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS NEEDED SHALL BE MADE IMMEDIATELY.
2. THE STONE SHALL BE REPLACED PROMPTLY AFTER ANY EVENT THAT HAS CLOGGED OR REMOVED IT.
3. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN DEPOSITS REACH HALF THE HEIGHT OF THE BARRIER. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OUTLET IS REMOVED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

SILT FENCE OUTLET

TO BE INSTALLED AS NEEDED
N.T.S.

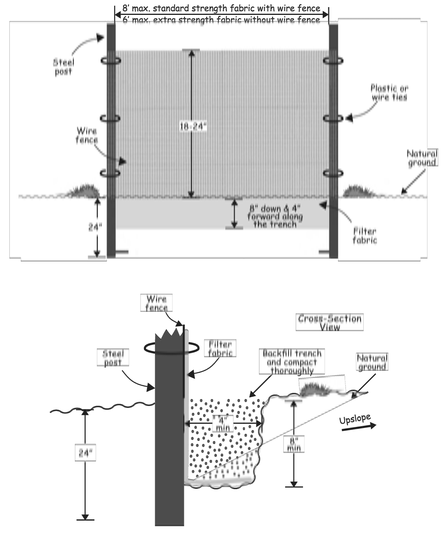


Figure 6.62a Installation detail of a sediment fence.

TEMPORARY SILT FENCE

NCDEQ - DIVISION OF WASTE MANAGEMENT
217 WEST JONES STREET
RALEIGH, NORTH CAROLINA
(919) 707-8331

REVISIONS

REV.	DATE	COMMENTS
1	09-12-23	NCDEQ SUBMITTAL

ENGINEERS SEAL: DRAFT

PROJECT #	122D121-01
DATE:	JULY, 2023
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	RLG
SCALE:	AS SHOWN

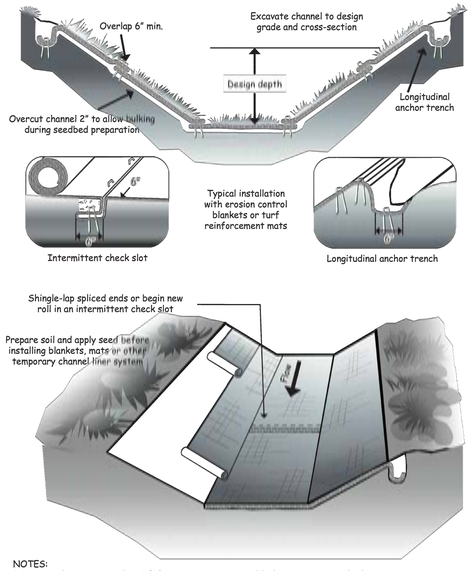
CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdge.com
License No. C-4973

SIMS LEGION PARK LANDFILL
1001 DR. MARTIN LUTHER KING JR. HWY.
GASTONIA, GASTON COUNTY, NORTH CAROLINA

SHEET TITLE: EROSION & SEDIMENTATION CONTROL DETAILS - 1

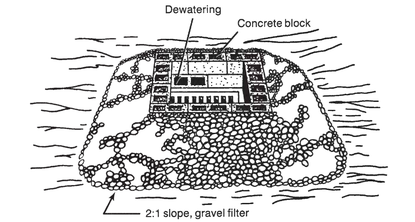
DRAWING NO: 8

Figure 6.17d Temporary Channel Liners; Washington State Department of Ecology



NOTES:
1. Design velocities exceeding 2 ft/sec require temporary blankets, mats or similar liners to protect seed and soil until vegetation becomes established.
2. Grass-lined channels with design velocities exceeding 6 ft/sec should include turf reinforcement mats

PROTECTIVE SEED MATTING



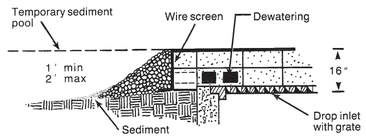


Figure 6.52a Block and gravel drop inlet protection.

Construction Specifications

1. Lay one block on each side of the structure on its side in the bottom row to allow pool drainage. The foundation should be excavated at least 2 inches below the crest of the storm drain. Place the bottom row of blocks against the edge of the storm drain for lateral support and to avoid washouts when overflow occurs. If needed, give lateral support to subsequent rows by placing 2 x 4 wood studs through block openings.

2. Carefully fit hardware cloth or comparable wire mesh with ½-inch openings over all block openings to hold gravel in place.

3. Use clean gravel, ¾- to ½-inch in diameter, placed 2 inches below the top of the block on a 2:1 slope or flatter and smooth it to an even grade. DOT #57 washed stone is recommended.

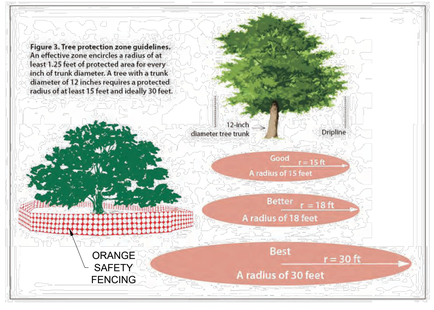
STORM INLET PROTECTION

CONSTRUCTION SEQUENCE

1. ONCE A CONTRACTOR IS CHOSEN, A REPRESENTATIVE FROM THAT FIRM MUST COMPLETE, SIGN, AND NOTARIZE THEMSELVES AS THE RESPONSIBLE PARTY ON THE FINANCIAL RESPONSIBILITY AND OWNERSHIP FORM. NO WORK WILL BE PERFORMED UNTIL THE FORM HAS BEEN APPROVED AND FILED WITH THE NC DEQ AND AN NOI (NOTICE OF INTENT) HAS BEEN OBTAINED ONLINE.
2. SETUP A PRE-CONSTRUCTION MEETING WITH REPRESENTATIVES FROM THE FOLLOWING FIRMS/AGENCIES BEING INVITED: 1) NC DEQ EROSION CONTROL INSPECTOR; 2) NC DEQ WASTE MANAGEMENT REPRESENTATIVE(S); 3) CDG ENGINEERING; 4) REMEDY CONTRACTOR; 5) GASTON COUNTY REPRESENTATIVE(S).
3. HAVE A PRIVATE UTILITY LOCATOR SCAN THE AREAS PROPOSED FOR EXCAVATION FOR ANY BURIED UTILITIES.
4. AFTER STEPS #1 AND #2 HAVE BEEN ACCOMPLISHED, BEGIN ESTABLISHING EROSION CONTROL MEASURES AS SHOWN ON DRAWINGS #3-6 IN THE FOLLOWING ORDER:
   - 4.1. CONSTRUCTION ENTRANCE
   - 4.2. ESTABLISH CLEARING LIMITS
   - 4.3. SILT FENCE W/ SILT FENCE OUTLETS
   - 4.4. ESTABLISH LIMITS FOR LAYDOWN AREA FOR MATERIAL STORAGE, PROJECT TRAILER, ETC. SEE GENERAL NOTE #7, THIS SHEET.
5. AFTER STEP #4, CONTACT NC DEQ FOR AN ON-SITE INSPECTION. SHOW EVIDENCE OF ON-SITE POLY PLASTIC SHEETING TO PROVIDE COVER OF DENUDED AREAS IN RAVINE AREA DURING RAIN EVENTS (SEE RAVINE GENERAL NOTES, DRAWING #10) AND FOR EXPOSED WASTE MATERIAL AFTER TEMPORARY SEDIMENT TRAP CONSTRUCTION.
6. AFTER NC DEQ APPROVAL, ESTABLISH THE REMAINDER OF THE EROSION CONTROL MEASURES:
   - 6.1. TEMPORARY SEDIMENT SKIMMER BASINS (INCLUDING RIP RAP OUTFALLS). PROVIDE IMPERMEABLE POLY LINING IN BASINS WHERE WASTE MATERIAL HAS BEEN EXPOSED DURING EXCAVATION.
   - 6.2. TEMPORARY DIVERSION DITCHES.
7. BEGIN TREE REMOVAL OPERATIONS. ALL TREES ARE TO BE CUT DOWN TO 6-INCHES BELOW GROUND LEVEL BUT THE STUMP AND ROOT BALL IS TO REMAIN.
   - 7.1. REMOVE TIMBERED DEBRIS FROM THE SITE FOR PROPER DISPOSAL. AS AN ALTERNATIVE, THIS DEBRIS CAN BE CHIPPED FOR USE AS GROUND COVER BUT SHALL NOT HINDER FINAL SEED GROWTH.
   - 7.2. CLEAR, GRUB, AND HAUL AWAY VEGETATIVE MATTER IN AREAS OUTLINED ON THE EXCAVATION PLAN.
8. REFER TO THE STOCKPILE PLAN TO IDENTIFY THE AREAS WHERE WASTE MATERIAL IS TO BE EXCAVATED, REMOVED, AND RELOCATED PER THE DRAWING.
9. DURING CONSTRUCTION ACTIVITIES IN THE WIDENED RAVINE AREA, A POLY-PLASTIC MATERIAL IS TO BE UTILIZED TO COVER ALL DENUDED AREAS DURING RAIN EVENTS OR BEFORE FORECASTED RAIN EVENTS. THIS IS IMPERATIVE DUE TO THE LACK OF SEDIMENT BASIN DOWN STREAM OF THE WORK AREA. SEE DETAILS AND NOTES ON DRAWING #10.
10. SILT FENCE SHOULD BE PLACED NO LESS THAT THREE FEET HIGHER FROM THE CENTERLINE OF EXISTING STREAM. CARE SHOULD BE TAKEN TO ENSURE THAT THE EXISTING STREAMBED IS NOT DISTURBED.
11. REMOVE WASTE MATERIAL TO A DEPTH OF 1-FOOT BELOW PROPOSED GRADES FOR THE ENTIRE RAVINE AREA. STOCKPILE WASTE MATERIAL AS SHOWN ON STOCKPILE PLAN.
12. ONCE SUBGRADE IS REACHED IN RAVINE, PLACE A 6-INCH LAYERS OF COMPACTED SOIL AND 4-INCH TALL GEOCELL ON TOP OF CONSOLIDATED AND COMPACTED WASTE MATERIAL AS PROFILED ON DRAWING #10. GEOCELL IS TO BE FILLED WITH SOIL MATERIAL PER MANUFACTURER'S SPECIFICATIONS. PLACE FINAL 2-INCHES OF COMPACTED SOIL ON TOP OF THE GEOCELL.
13. REMOVE TWENTY-FEET OF THE EXISTING 42" CMP OUTFALL PIPE LOCATED AT THE BEGINNING OF THE RAVINE. CONNECT REMAINING PORTION OF 42" CMP TO PROPOSED MH 1 (72" DIAM.) AS PROFILED ON DRAWING #11.
14. CONSTRUCT 73.5' OF NEW 48" RCP WITH FREE END SECTION AND RIP RAP OUTFALL PER PROFILE AND DETAILS ON DRAWING #11.
15. AFTER RAVINE HAS REACHED FINAL GRADING, PLACE SEEDING AND MATTING AS DESCRIBED ON DRAWING #12 AND #16. PROVIDE SEEDING AND MATTING THROUGHOUT THE PROJECT AS FINAL GRADES ARE REACHED.
16. AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED AND THE DISTURBED AREAS HAVE BEEN SEEDED AND MATTED, CALL NCDEQ FOR FIELD INSPECTION. AFTER APPROVAL FROM THE INSPECTOR, BACKFILL THE SEDIMENT SKIMMER BASINS WITH STOCKPILED WASTE MATERIAL. FINAL GRADING SHOULD CONSIST OF AT LEAST 12-INCHES OF COMPACTED SOIL ON TOP OF ALL WASTE MATERIAL.

6

Figure 6.05c Tree protection zone guidelines.



Maintenance **Continue to care for the site until the new owner takes possession.** Take these steps after all materials and equipment have been removed from the site:

- Remove tree protection zone fences.
- Prune any damaged trees. In spite of precautions, some damage to protected trees may occur. In such cases, repair any damage to the crown, trunk, or root system immediately.
  - Repair roots by cutting off the damaged areas and painting them with tree paint. Spread peat moss or moist topsoil over exposed roots.
  - Repair damage to bark by trimming around the damaged area as shown in Figure 6.05d, taper the cut to provide drainage, and paint with tree paint.
  - Cut off all damaged tree limbs above the tree collar at the trunk or main branch. Use three separate cuts as shown in Figure 6.05d to avoid peeling bark from healthy areas of the tree.
- Continue maintenance care. Pay special attention to any stressed, diseased, or insect-infested trees. Reduce tree stress caused by unintended construction damage by optimizing plant care with water, mulch, and fertilizer where appropriate. Consult your tree expert if needed.
- Inform the property owner about the measures employed during construction, why those measures were taken, and how the effort can be continued.

TREE PROTECTION

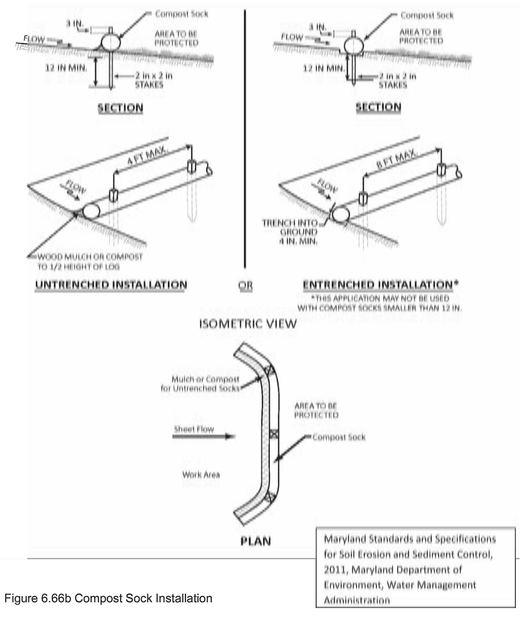


Figure 6.66b Compost Sock Installation

Maryland Standards and Specifications for Soil Erosion and Sediment Control, 2011, Maryland Department of Environment, Water Management Administration

TEMPORARY COMPOST SOCK

(IF REQUIRED)

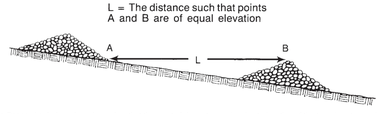


Figure 6.83a Space check dams in a channel so that the crest of downstream dam is at elevation of the toe of upstream dam.

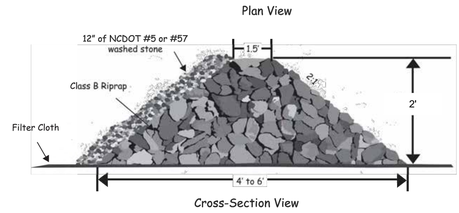


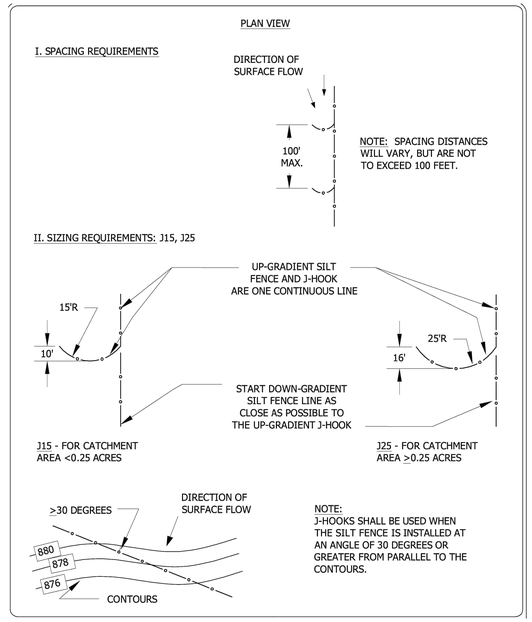
Figure 6.83b Stone check dam stone should be placed over the channel banks to keep water from cutting around the dam.

Maintenance Inspect check dams and channels at least weekly and after each significant (1/2 inch or greater) rainfall event and repair immediately. Clean out sediment, straw, limbs, or other debris that could clog the channel when needed.

Anticipate submergence and deposition above the check dam and erosion from high flows around the edges of the dam. Correct all damage immediately. If significant erosion occurs between dams, additional measures can be taken such as, installing a protective riprap liner in that portion of the channel (Practice 6.31, *Riprap-line and Paved Channels*).

Remove sediment accumulated behind the dams as needed to prevent damage to channel vegetation, allow the channel to drain through the stone check dam, and prevent large flows from carrying sediment over the dam. Add stones to dams as needed to maintain design height and cross section.

TEMPORARY STONE CHECK DAM



J-HOOK DETAIL

GENERAL NOTES:

1. BEFORE THE START OF ANY EARTHWORK, THE CONTRACTOR SHALL CONDUCT A PRE-CONSTRUCTION MEETING WITH A NC DEQ EROSION CONTROL FIELD INSPECTOR, CDG, INC., AND A REPRESENTATIVE FROM THE NC PRE-REG LANDFILL DIVISION. A PRE-CONSTRUCTION MEETING IS REQUIRED BEFORE ANY EROSION CONTROL MEASURES ARE REMOVED.
2. ALL EROSION CONTROL MEASURES AND MATERIALS SHALL CONFORM TO THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.
3. ALL EROSION CONTROL MEASURES AND FACILITIES SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER ALL RAINFALL EVENTS GREATER THAN 1" IN ORDER TO VERIFY THEIR EFFECTIVENESS. ANY AND ALL DEFICIENCIES SHALL BE CORRECTED IMMEDIATELY.
4. CHECK DAMS MAY BE USED IN SLOPING DITCHES OR CHANNELS TO SLOW VELOCITY AND MINIMIZE / ELIMINATE SEDIMENTATION.
5. EXISTING SUBGRADE SHALL BE GRADED TO A SMOOTH AND CONSISTENT GRADE TO MATCH BOTH THE EROSION CONTROL PLAN AND EXISTING CONDITIONS IN THE FIELD.
6. UNDER NO CIRCUMSTANCES SHALL ANY NEW CUT OR FILL SECTION BE GRADED AT A SLOPE STEEPER THAN 2H:1V.
7. THE "STAGING/STOCKPILE AREA" SHOWN ON PLAN IS TO BE CLEARED AND EROSION CONTROL MEASURES ESTABLISHED ONLY IF THE AREA IS NEEDED FOR JOB SITE TRAILER, STOCKPILES, LAYDOWN OR STORAGE AREA, WASTE STORAGE, ETC. ANY AREA NOT NEEDED OR REQUIRED SHALL BE LEFT UNDENUDED AND UNDISTURBED.

NCDEQ - DIVISION OF WASTE MANAGEMENT
217 WEST JONES STREET
RALEIGH, NORTH CAROLINA
(919) 707-8331

REVISIONS

REV.	DATE	COMMENTS
1	09-12-23	NCDEQ SUBMITTAL

ENGINEERS SEAL:

DRAFT

PROJECT #	1220121-01
DATE:	JULY, 2023
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	RLG
SCALE:	AS SHOWN

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdge.com
License No. C-4973

SIMS LEGION PARK LANDFILL
1001 DR. MARTIN LUTHER KING JR. HWY.
GASTONIA, GASTON COUNTY, NORTH CAROLINA

SHEET TITLE: EROSION & SEDIMENTATION CONTROL DETAILS - 2

DRAWING NO: 9

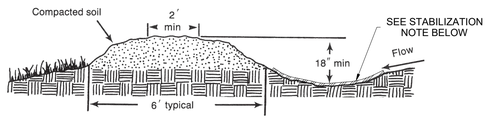


Figure 6.20a Temporary earthen diversion dike.

TEMPORARY DIVERSION DITCH

STABILIZATION NOTE: THE CHANNEL TOWARDS THE UPHILL FLOW SHOULD BE STABILIZED USING MATTING "B", PLASTIC POLY SHEETING, AND/OR SOD TO ELIMINATE EROSION IN CHANNEL. WHERE EXISTING GRAVEL ROAD IS OVERGROWN OR NOT SUFFICIENT ENOUGH TO SUPPORT TRUCK TRAFFIC, USE MATTING "C" BETWEEN COMPACTED SUBGRADE AND NEW GRAVEL ROAD.

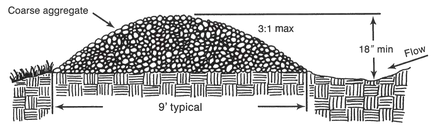


Figure 6.20b Temporary gravel diversion dike for vehicle crossing (modified from Va SWCC).

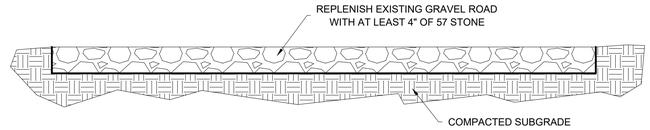
Plan temporary diversions to function 1 year or more, or they may be constructed anew at the end of each day's grading operation to protect new fill. Diversions that are to serve longer than 30 working days should be seeded and mulched as soon as they are constructed to preserve dike height and reduce maintenance.

Where design velocities exceed 2 ft/sec, a channel liner is usually necessary to prevent erosion (Table 8.05a, *Appendix 8.05*).

Temporary diversions may serve as in-place sediment traps if overexcavated 1 to 2 feet and placed on a nearly flat grade. The dike serves to divert water as the stage increases. A combination silt fence and channel in which fill from the channel is used to stabilize the fence can trap sediment and divert runoff simultaneously.

Wherever feasible, build and stabilize diversions and outlets before initiating other land-disturbing activities.

TEMPORARY DIVERSION DITCH @ STREET CROSSING



GRAVEL ACCESS ROAD NORTH OF I-85

NOTE: WHERE EXISTING GRAVEL ROAD IS OVERGROWN OR NOT SUFFICIENT ENGOUGH TO SUPPORT TRUCK TRAFFIC, USE MATTING "C" BETWEEN COMPACTED SUBGRADE AND NEW GRAVEL ROAD.

NCDEQ - DIVISION OF WASTE MANAGEMENT
217 WEST JONES STREET
RALEIGH, NORTH CAROLINA
(919) 707-8331

REVISIONS

REV.	DATE	COMMENTS
1	09-12-23	NCDEQ SUBMITTAL

SIMS LEGION PARK LANDFILL
1001 DR. MARTIN LUTHER KING JR. HWY.
GASTONIA, GASTON COUNTY, NORTH CAROLINA

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdga.com
License No. C-4973

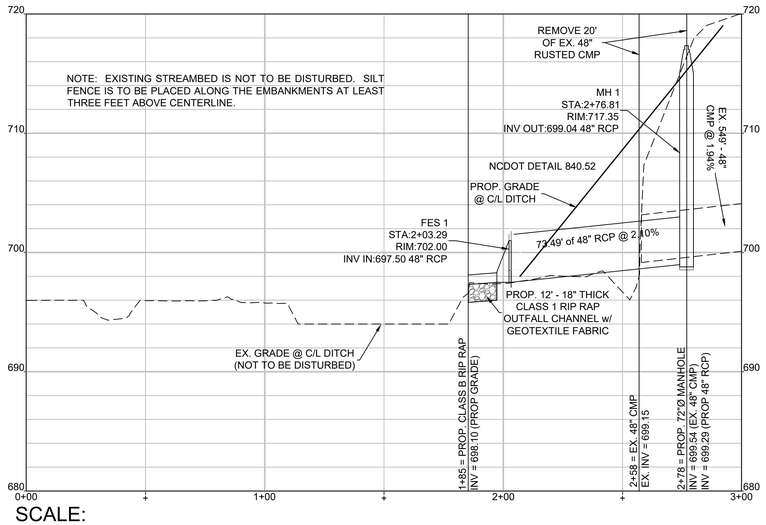
PROJECT #	1220121-01
DATE:	JULY, 2023
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	RLG
SCALE:	10

ENGINEER'S SEAL:

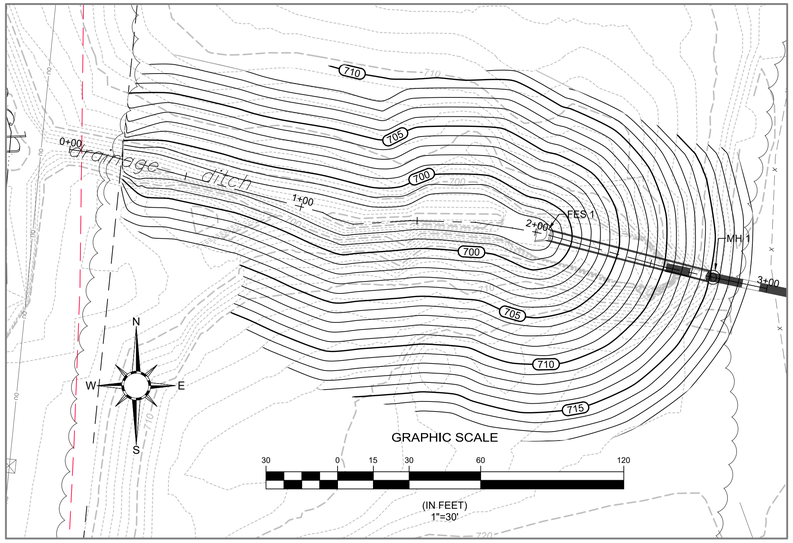
DRAFT

DRAWING NO: 10

SHEET TITLE: EROSION & SEDIMENTATION CONTROL DETAILS - 3

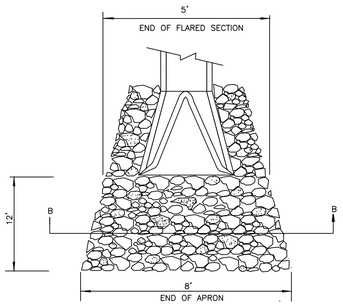


SCALE:
H - 1" = 30'
V - 1" = 6'



RAVINE CENTERLINE PLAN / PROFILE VIEWS

N.T.S.

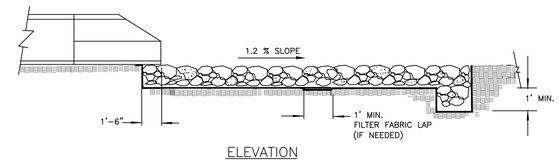


PLAN

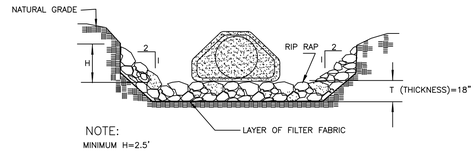
NOTES:

1. CLASS OR MEDIAN SIZE OF RIPRAP AND LENGTH, WIDTH AND DEPTH OF APRON TO BE DESIGNED BY THE ENGINEER.
2. RIPRAP SHOULD EXTEND UP BOTH SIDES OF THE APRON AND AROUND THE END OF THE PIPE OR CULVERT AT THE DISCHARGE OUTLET AT A MAXIMUM SLOPE OF 2:1 AND A HEIGHT NOT LESS THAN TWO THIRDS THE PIPE DIAMETER OR CULVERT HEIGHT.
3. THERE SHALL BE NO OVERFLOW FROM THE END OF THE APRON TO THE SURFACE OF THE RECEIVING CHANNEL. THE AREA TO BE PAVED OR RIPRAPPED SHALL BE UNDERCUT SO THAT THE INVERT OF THE APRON SHALL BE AT THE SAME GRADE (FLUSH) WITH THE SURFACE OF THE RECEIVING CHANNEL. THE APRON SHALL HAVE A CUTOFF OR TOE WALL AT THE DOWNSTREAM END.
4. THE WIDTH OF THE END OF THE APRON SHALL BE EQUAL TO THE BOTTOM WIDTH OF THE RECEIVING CHANNEL. MAXIMUM TAPER TO RECEIVING CHANNEL 5:1
5. ALL SUBGRADE FOR STRUCTURE TO BE COMPACTED TO 95% OR GREATER.
6. THE PLACING OF FILL, EITHER LOOSE OR COMPACTED IN THE RECEIVING CHANNEL SHALL NOT BE ALLOWED.
7. NO BENDS OR CURVES IN THE HORIZONTAL ALIGNMENT OF THE APRON WILL BE PERMITTED.
8. FILTER FABRIC SHALL BE INSTALLED ON COMPACTED SUBGRADE PRIOR TO PLACEMENT OF RIP RAP.
9. ANY DISTURBED AREA FROM END OF APRON TO RECIEVING CHANNEL MUST BE STABILIZED.

RIPRAP APRON AT PIPE OUTFALL

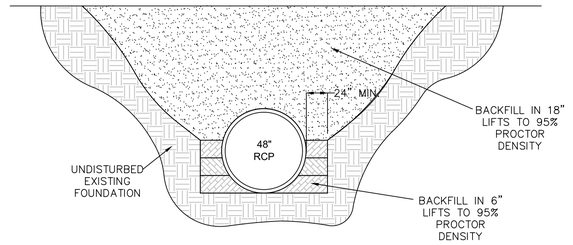


ELEVATION



NOTE:
MINIMUM H=2.5'

SECTION B-B



NOTES:

1) FILL MATERIAL SHALL BE COMPACTED TO 95% PROCTOR DENSITY IN LIFTS NO MORE THAN 6" THICK. SPECIAL CARE SHOULD BE TAKEN TO MAKE SURE FILL MATERIAL UNDER PIPES IS THOROUGHLY COMPACTED.
2) ALL TRENCHING OPERATIONS SHALL MEET OSHA STANDARDS.
3) A MINIMUM OF 24" FROM OUTSIDE DIAMETER OF PIPE TO SIDE OF TRENCH MUST BE ALLOWED FOR COMPACTION OF FILL MATERIAL. BACKFILLING OF TRENCHES SHALL BE ACCOMPLISHED IMMEDIATELY AFTER THE PIPE IS LAID. THE FILL AROUND THE PIPE SHALL BE PLACED IN LAYERS NOT TO EXCEED 6". UNDER NO CIRCUMSTANCES SHALL WATER BE PERMITTED TO RISE IN UNBACKFILLED TRENCHES AFTER THE PIPE HAS BEEN PLACED. COMPACTION REQUIREMENTS SHALL BE ATTAINED BY THE USE OF MECHANICAL TAMPS ONLY. EACH AND EVERY LAYER OF BACKFILL SHALL BE PLACED LOOSE AND THOROUGHLY COMPACTED INTO PLACE.

RCP PIPE BEDDING DETAIL

PROVIDE BEDDING MATERIAL COMPACTED TO A 90% PROCTOR 6" THICK, 6" BEYOND OUTSIDE RADIUS OF MANHOLE BASE. SUPPORT SEWER PIPES WITH BEDDING MATERIAL.

GENERAL NOTES

USE 4000 PSI MINIMUM COMPRESSIVE STRENGTH CONCRETE.

USE ASTM A615 GRADE 60 REINFORCING STEEL. USE ASTM A1064 WELDED WIRE FABRIC (WWF).

FABRICATE, ASSEMBLE AND DESIGN PRECAST MANHOLE COMPONENTS ACCORDANCE WITH AASHTO M199.

ASSEMBLE RISER AND GRADE RINGS WITH THE STEPS SPACED 12" FROM THE TOP TO THE BOTTOM OF THE MANHOLE.

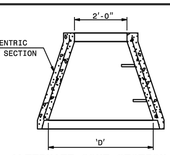
WHERE THE MANHOLE IS EXPOSED TO ROAD TRAFFIC, CONSTRUCT THE TOP OF THE MANHOLE FLUSH WITH THE GROUND AND A MINIMUM OF 9" ABOVE THE GROUND AT OTHER LOCATIONS.

LIMIT DEPTH OF FILL TO 30'-0" FROM FINISH GRADE TO TOP OF BOTTOM SLAB.

THE MIN. SLAB THICKNESS 'T' IS THE DIMENSION OF THE THINNEST PORTION OF THE TOP/BOTTOM SLAB.

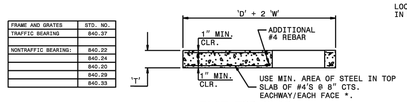
* TOP MAT OF REINFORCEMENT MAY BE NEGLECTED IF TOP SLAB HAS A DISTINGUISHABLE TOP AND BOTTOM.

D	W	T	As
INTERNAL DIAMETER (FT.)	MIN. WALL THICKNESS (IN.)	MIN. TOP/BOTTOM SLAB THICKNESS (IN.)	MIN. CIRCUMFERENTIAL AREA OF STEEL PER VERTICAL FT. (SQ. IN.)
4	4	6	0.12
5	5	8	0.15
6	6	8	0.18

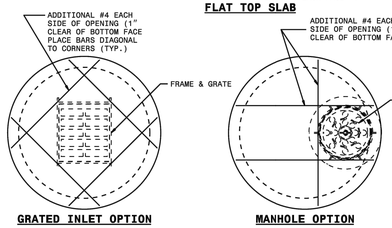


ALTERNATE CONE SECTION

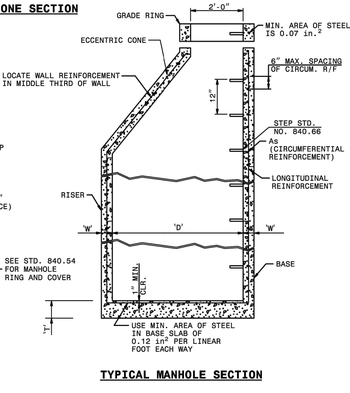
FRAME AND GRATES	STD. NO.
TRAFFIC BEARING	840.37
NONTRAFFIC BEARING	840.22
	840.24
	840.30
	840.29
	840.33



FLAT TOP SLAB



GRATED INLET OPTION MANHOLE OPTION



TYPICAL MANHOLE SECTION

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR

PRECAST MANHOLE 4'.5' AND 6' DIAMETER 12" THRU 48" PIPE

SHEET 1 OF 1

840.52

NCDEQ - DIVISION OF WASTE MANAGEMENT
217 WEST JONES STREET
RALEIGH, NORTH CAROLINA
(919) 707-8331

REVISIONS

REV.	DATE	COMMENTS
1	09-12-23	NCDEQ SUBMITTAL

ENGINEER'S SEAL:

DRAFT

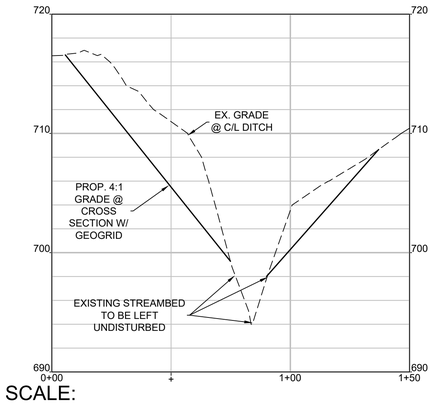
PROJECT #	1220121-01
DATE:	JULY, 2023
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	RLG
SCALE:	AS SHOWN

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdgpa.com
License No. C-4973

SIMS LEGION PARK LANDFILL
1001 DR. MARTIN LUTHER KING JR. HWY.
GASTONIA, GASTON COUNTY, NORTH CAROLINA

SHEET TITLE: STORM PLAN & PROFILE

DRAWING NO: 11



SCALE:
H - 1" = 30'
V - 1" = 6'

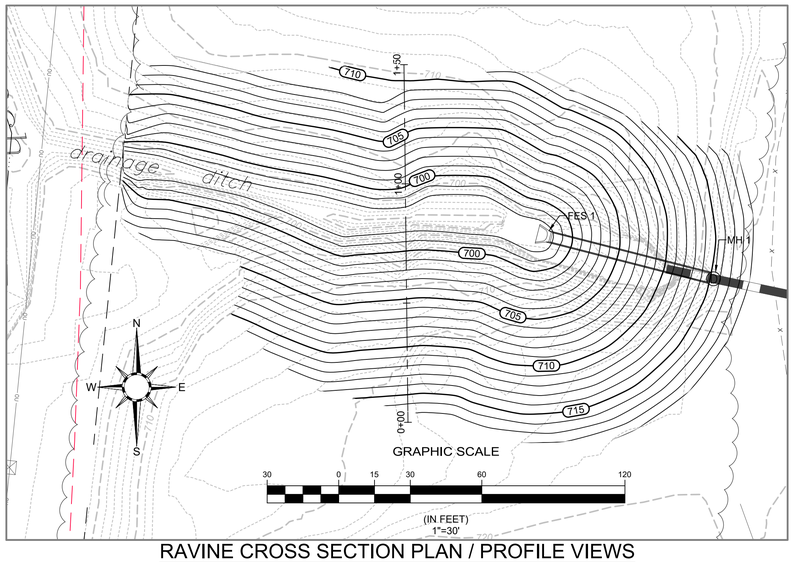
RAVINE GENERAL NOTES:

1. THE RAVINE IS TO BE EXCAVATED TO A SUBGRADE NO LESS THAN ONE FOOT BELOW FINISH GRADE.
2. WASTE REMOVED FROM THE RAVINE EXCAVATION IS TO BE STOCKPILED IN AN APPROVED LOCATION AS DETERMINED BY THE CONTRACTOR AND ENGINEER.
3. THE BURIAL PIT SHOULD BE LINED WITH A GEOTEXTILE FABRIC (MATTING "B") AS SHOWN IN DETAIL THIS SHEET TO SEPARATE ALL EXPOSED WASTE MATERIAL AND FILL COVER SOIL.
4. AFTER THE RAVINE HAS REACHED SUBGRADE (FINISH GRADE MINUS ONE FOOT IN ELEVATION), PLACE AND COMPACT 6" OF FILL SOIL AS SHOWN ON PROFILE DETAIL, THIS SHEET. ABOVE THE FILL SOIL, PLACE GEOTEXTILE FABRIC (MATTING "A") OVER ENTIRE AREA. PLACE PRESTO GEOWEB GW20V4 (DEPTH = 4") OVER FABRIC AND REINFORCE IN PLACE USING STAKES AND KEYS AS RECOMMENDED BY THE MANUFACTURER.
5. MATTING "B" IS TO BE PLACED BELOW THE RIP RAP OUTFALL BEYOND THE EXTENDED 48" CMP STORM PIPE.
6. IT IS ESSENTIAL THAT ENOUGH PLASTIC POLY SHEETING BE KEPT ONSITE TO BE ABLE TO COVER THE ENTIRE DISTURBED AREA OF THE RAVINE. THE SHEETING MUST BE PLACED DURING ANY RAINSTORM OR BEFORE ANY FORECASTED RAIN EVENT. MATERIALS TO HOLD THE SHEETING IN PLACE DURING HEAVY RAINS AND/OR WINDS MUST ALSO BE UTILIZED WHEN COVERING DISTURBED AREAS. METHODS TO RESTRAIN THE SHEETING COULD INCLUDE USING HEAVY ITEMS (TIRES, CONSTRUCTION CHAINS, LOGS, LARGE ROCKS, ETC.). GROUND COVER ANCHORING PINS COULD ALSO BE USED (MINIMUM LENGTH OF 6-INCHES) IF THE SHEETING MATRIAL IS FOLDED OVER AT LEAST TWICE SO THAT THE PINS PUNCTURE THROUGH AT LEAST THREE LAYERS OF THE SHEETING. BY COVERING THE OPEN AREAS DURING EACH PHASE, THIS WILL HELP ELIMINATE SEDIMENTATION.
7. ALL DISTURBED AREAS ARE TO BE SEEDED AND MATTED PER THE NOTES ON THIS PAGE IMMEDIATELY AFTER FINAL GRADING HAS BEEN ESTABLISHED.

MISCELLANEOUS MATTING / LINING NOTES:

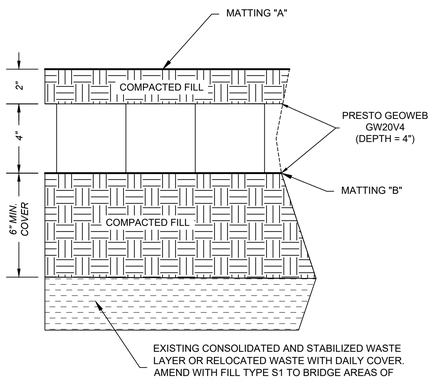
THE FOLLOWING SPECIFICATIONS REFER TO THE DIFFERENT LINERS THAT WILL BE USED THROUGHOUT THE PROJECT IN VARIOUS CONDITIONS:

- MATTING "A" = A BIODEGRADABLE EROSION CONTROL BLANKET CAPABLE OF EXCEEDING AN UNVEGETATED FLOW VELOCITY OF 5.00 FPS., "UNVEGETATED" SHEAR STRESS OF 1.6 PSF, TENSILE STRENGTH OF 90 LBS/FT.
- MATTING "B" = NONWOVEN GEOTECTILE FABRIC WITH A GRAB TENSILE STRENGTH NO LESS THAN 160 LBS., TRAPEZOID TEAR STRENGTH OF 60 LBS., A CBR PUNCTURE STRENGTH OF 410 LBS., AND A FLOW RATE NO LESS THAN 110 GAL/MIN/SF.



RAVINE CROSS SECTION PLAN / PROFILE VIEWS

N.T.S.



GEOGRID PROFILE FOR RAVINE AREA

N.T.S.

FOR LATE WINTER AND EARLY SPRING:

SEEDING MIXTURE:
RYE (GRAIN) - 120 LB/ACRE
ANNUAL LESPEDEZA (KOBE) - 50 LB/ACRE
(OMIT ANNUAL LESPEDEZA WHEN DURATION OF TEMPORARY COVER IS NOT TO EXTEND BEYOND JUNE)

SEEDING DATES:
JAN. 1 - MAY 1

SOIL AMENDMENTS:
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 750 LB/ACRE 10-10-10 FERTILIZER

MULCH:
APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL

MAINTENANCE:
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, FERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE

FOR SUMMER:

SEEDING MIXTURE:
GERMAN MILLET - 40 LB/ACRE
(A SMALL-STEMMED SUDANGRASS MAY BE SUBSTITUTED AT A RATE OF 50 LB/ACRE)

SEEDING DATES:
MAY 1 - AUG. 15

SOIL AMENDMENTS:
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 750 LB/ACRE 10-10-10 FERTILIZER

MULCH:
APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL

MAINTENANCE:
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, FERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE

FOR FALL:

SEEDING MIXTURE:
RYE (GRAIN) - 120 LB/ACRE

SEEDING DATES:
AUG. 15 - DEC 30

SOIL AMENDMENTS:
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 1,000 LB/ACRE 10-10-10 FERTILIZER

MULCH:
APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL

MAINTENANCE:
REPAIR AND REFERTILIZE DAMAGED AREAS IMMEDIATELY. TOPDRESS WITH 50 LB/ACRE OF NITROGEN IN MARCH. IF IT IS NECESSARY TO EXTEND TEMPORARY COVER BEYOND JUNE 15, OVERSEED WITH 50 LB/ACRE KOBE LESPEDEZA IN LATE FEBRUARY OR EARLY MARCH.

TEMPORARY SEEDING SCHEDULE

May 1 to August 15

Seeding Mixture Species	Application Rate (lb/acre)
Browntop Millet	10
Kentucky 31 Tall Fescue (Drought Tolerant)	100
Korean Lespedeza	10
White Clover (Persistent Perennial)	10

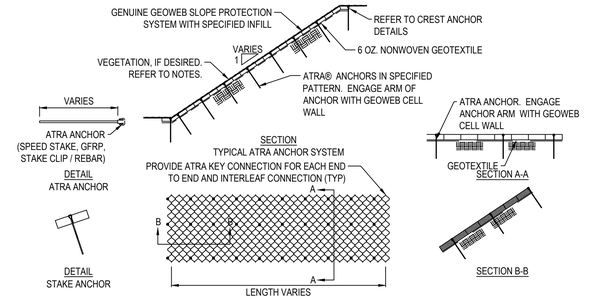
August 15 to May 1

Seeding Mixture Species	Application Rate (lb/acre)
Rye Grain	40
Kentucky 31 Tall Fescue (Drought Tolerant)	100
Sericea Lespedeza	15
White Clover (Persistent Perennial)	10

PERMANENT SEEDING SPECIFICATIONS

PRESTO GEOSYSTEMS
P.O. BOX 2399, 670 NORTH PERKINS ST.
APPLETON, WI 54912-2399
TOLL FREE:1-800-548-3424
PHONE: (920) 738-1328
www.prestogeo.com

PRESTO GEOSYSTEMS
STRENGTH. FROM THE GROUND UP.
Since 1979



STAKE ANCHOR INSTALLATION STEPS:
1. POSITION THE ATRA ANCHOR NEXT TO THE UP-SLOPE CELL WALL.
2. DRIVE ATRA ANCHOR INTO THE GROUND UNTIL ARM OF ANCHOR IS LOCATED ABOVE GEOWEB CELL WALL.
3. ENGAGE ARM OF ANCHOR TO CELL WALL AND DRIVE UNTIL TIGHT.

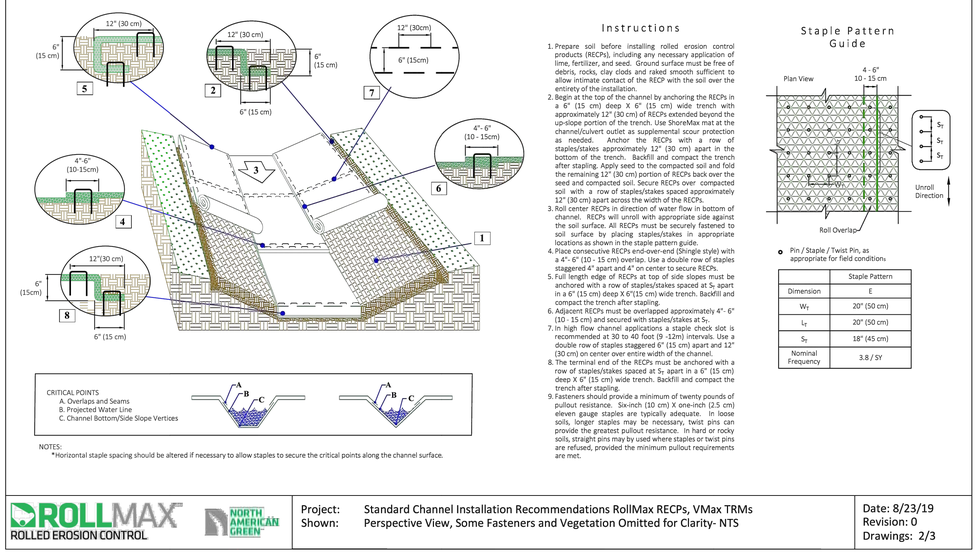
MANUFACTURER NOTES:
1. ATRA ANCHORS SHALL CONSIST OF NO. 4 REBAR WITH AN ATRA STAKE CLIP INSERTED INTO THE END OF THE REBAR. LENGTH OF THE ATRA ANCHORS SHALL BE AS SPECIFIED.
2. ONE-PIECE MOLDED POLYMER ATRA SPEED STAKES AND PRE-ASSEMBLED ATRA GFRP (POLYMER) ARE AVAILABLE FROM PRESTO GEOSYSTEMS IN VARIOUS LENGTHS.
3. THE GEOWEB CELLS SHALL BE FILLED WITH THE SPECIFIED MATERIAL (TOPSOIL, STONE, OR CONCRETE) AND SHALL BE SUITABLE TO WITHSTAND THE APPLICABLE HYDRAULIC CONDITIONS.
4. THE GEOWEB SECTIONS SHALL BE ANCHORED TO RESIST SLIDING DUE TO DRIVING AND HYDRAULIC FORCES.
5. IF VEGETATION IS DESIRED, PROVIDE AN EROSION CONTROL BLANKET OR TURF REINFORCEMENT MAT IF THERE IS A POTENTIAL FOR EROSION PRIOR TO ESTABLISHING VEGETATION.
6. THE GEOWEB PANELS SHALL BE CONNECTED WITH ATRA KEYS AT EACH INTERLEAF AND END TO END CONNECTION.
7. REFER TO THE GENERAL DETAIL DRAWINGS FOR ANCHOR DETAILS.

013-036 - Presto Geosystems - Geoweb
Slope with ATRA Anchors

GEOWEB® SLOPE STABILIZATION

GEOWEB SLOPE PROTECTION WITH ATRA ANCHORS

013-036 - Presto Geosystems - Geoweb — REVISION DATE 10/08/2023



ROLLMAX ROLLED EROSION CONTROL — NORTH AMERICAN GREEN

Project: Standard Channel Installation Recommendations RollMax RECPs, VMax TRMs
Shown: Perspective View, Some Fasteners and Vegetation Omitted for Clarity- NTS

Date: 8/23/19
Revision: 0
Drawings: 2/3

NCDEQ - DIVISION OF WASTE MANAGEMENT
217 WEST JONES STREET
RALEIGH, NORTH CAROLINA
(919) 707-8331

REVISIONS

REV.	DATE	COMMENTS
1	09-12-23	NCDEQ SUBMITTAL

DRAFT

ENGINEER'S SEAL:

PROJECT #	1220121-01
DATE:	JULY, 2023
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	RLG
SCALE:	AS SHOWN

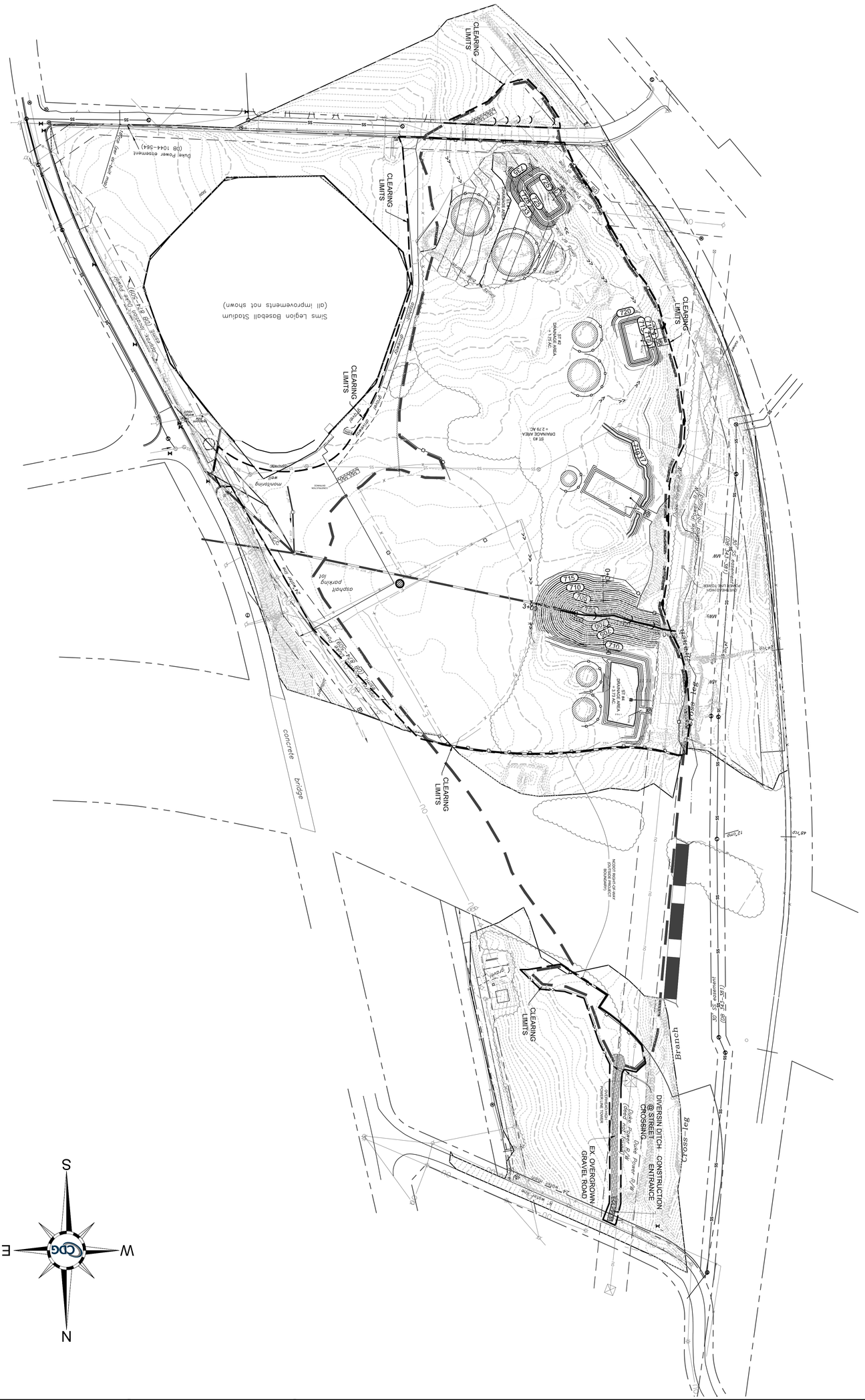
CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdga.com
License No. C-4973

SIMS LEGION PARK LANDFILL
1001 DR. MARTIN LUTHER KING JR. HWY.
GASTONIA, GASTON COUNTY, NORTH CAROLINA

DRAWING NO: 12

SHEET TITLE: RAVINE PLAN & DETAILS

C:\Users\dave.welkie\CDG, Inc\Charlotte Projects - 1220121 - Sim's Legion Park\Project Details\Drawings\1220121-01 STOCKPILE.dwg, 3/5/2024 3:27 PM, Dave Welkie



= APPROXIMATE SIZE OF STOCKPILE @ 3:1 SLOPES AND SHAPED AS A CONE FOR MATERIAL EXCAVATED FROM ADJACENT TEMPORARY SEDIMENT BASIN.

SIMS LEGION PARK LANDFILL
1001 DR. MARTIN LUTHER KING JR. HWY.
GASTONIA, GASTON COUNTY, NORTH CAROLINA

DRAWING NO: 13

SHEET TITLE: STOCKPILE PLAN

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdge.com
License No. C-4973

PROJECT #	1220121-01
DATE:	JULY, 2023
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	RLG
SCALE:	1" = 100'

ENGINEER'S SEAL:

DRAFT

REVISIONS

REV.	DATE	COMMENTS
1	09-12-23	NCDEQ SUBMITTAL

NCDEQ - DIVISION OF WASTE MANAGEMENT
217 WEST JONES STREET
RALEIGH, NORTH CAROLINA
(919) 707-8331

GENERAL NOTES FOR: SIMS LEGION PARK LANDFILL

1.0 NARRATIVE

1.1 PROJECT DESCRIPTION

CDG ENGINEERS AND ASSOC. HAS PREPARED THIS EROSION AND SEDIMENT CONTROL (E&SC) PLAN UNDER CONTRACT TO THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY (NCDEQ) PRE-REGULATORY LANDFILL UNIT (UNIT). THIS PLAN DETAILS EROSION AND SEDIMENT CONTROL MEASURES TO BE TAKEN DURING REMEDIATION CONSTRUCTION ACTIVITIES PLANNED TO ADDRESS WASTE HISTORICALLY BURIED AT THE SIMS LEGION PARK (SITE). THE REMEDIATION CONSTRUCTION ACTIVITIES WILL INCLUDE THE CLEARING OF MUCH OF THE WORK AREA, THE EXCAVATION, REMOVAL, AND RELOCATION ON-SITE OF WASTE MATERIAL WITHIN THE EXISTING LIMITS OF WASTE BOUNDARY, AND THE PLACEMENT AND COMPACTION OF ON-SITE SOIL FILL MATERIAL.

1.2 SITE DESCRIPTION

THE SITE IS LOCATED IN GASTONIA, NORTH CAROLINA ON THE EAST SIDE OF AN UNNAMED TRIBUTARY TO LONG CREEK ADJACENT TO THE INTERSECTION OF US 321 AND I 85. THE WASTE DISPOSAL AREA EXTENDS ACROSS A VAST PORTION OF THE LEGION PARK PROPERTY, INCLUDING A SMALL PIECE ON THE NORTH SIDE OF I-85 AND A SMALL PORTION ON A RESIDENTIAL PROPERTY SOUTH OF THE PARK. THE ENTIRE WASTE AREA CONSIST OF APPROXIMATELY 20.88 ACRES. HOWEVER, 4.01 ACRES OF THE OLD LANDFILL FALLS WITHIN THE I-85 RIGHT OF WAY AND WILL NOT BE SUBJECT TO THIS PROJECT, LEAVING 16.87 ACRES OF THE ACTUAL LANDFILL TO BE ASSOCIATED WITH THESE DRAWINGS. THE PROJECT PROPOSES TOTAL DISTURBANCE OF 19.2 ACRES. THE GASTON COUNTY PROPERTY IDENTIFICATION NUMBER [PIN] FOR THE PARCEL IS #3546847560 WHILE THE SMALL RESIDENTIAL PORTION IS PARCEL #3546738496. THE ENTIRE WASTE DISPOSAL AREA IS CURRENTLY COVERED WITH VEGETATION (MOSTLY WOODED GROWTH) AND OPEN SPACE (ASPHALT PARKING LOT, BASEBALL FIELDS, ETC. THERE IS AN OUTFALL DITCH THAT CONVEYS STORMWATER FROM MUCH OF THE PARK PROPERTY THROUGH EXISTING STORM PIPES AND EVENTUALLY INTO THE UNNAMED TRIBUTARY. THIS OUTFALL DITCH HAS BEEN CLASSIFIED AS A PERENNIAL STREAM BASED ON A JURISDICTIONAL DETERMINATION REQUEST (JDR) THAT WAS APPROVED BY THE US CORPS OF ENGINEERS ON MARCH 20, 2019 (SAW-2018-00034).

THE PROJECT SITE IS LOCATED WITHIN THE LONG CREEK WATERSHED AND CATAWBA RIVER BASIN. IN GENERAL, STORMWATER FLOWS VIA SHEET FLOW AND THE DRAINAGE FEATURE TOWARDS THE WESTERN EDGE OF THE PROJECT SITE BOUNDARY. AFTER IT LEAVES THE PROPERTY, THE FLOW CONTINUES NORTH UNDER I-85 TRAVELING NORTH NORTH EAST FOR APPROXIMATELY 3,900 FEET UNTIL IT EMPTIES INTO LONG CREEK. THE RIVER HAS A 'C' CLASSIFICATION MEANING "AQUATIC LIFE, SECONDARY CONTACT RECREATION, FRESH WATER".

1.3 ADJACENT PROPERTY

THE PROJECT SITE, WHICH HAS A CURRENT PROPERTY USE AS "EXEMPT", IS CURRENTLY LOCATED WITHIN THE GASTONIA TOWNSHIP. THE WESTERN EDGE OF THE PROPERTY IS BOUNDED BY THE UNNAMED TRIBUTARY, TO THE NORTH BY I-85 AND RANKIN LAKE ROAD, TO THE EAST BY DR. MARTIN LUTHER KING JR. WAY, AND TO THE SOUTH BY SYCAMORE AVENUE.

1.4 SOIL INFORMATION

ACCORDING TO THE NATURAL RESOURCES CONSERVATION SERVICE'S SOIL SURVEY, THE PROJECT FALLS WITHIN A ZONE CONSISTING OF 88.2% CECIL-URBAN, 11.2% CHEWACLA LOAM, AND 0.6% MADISON SANDY CLAY LOAM..

1.5 PLANNED EROSION AND SEDIMENTATION CONTROL PRACTICES

THE EROSION AND SEDIMENTATION CONTROL MEASURES PROVIDED HEREIN WERE DESIGNED AND SPECIFIED IN GENERAL ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL PUBLISHED BY NCDEQ.

1.5.1 LAND GRADING (6.02)
THIS PROJECT DEALS PRIMARILY WITH THE ON-SITE RELOCATION OF BURIED WASTE MATERIAL (WHERE REQUIRED), THE PLACEMENT AND COMPACTION OF FILL SOILS, AND THE FINE GRADING AND SEEDING OF THE FINAL GRADE. GRADING WILL BE DONE IN PHASES TO HELP MINIMIZE EROSION.

1.5.2 SEDIMENT FENCE (6.62)
SILT FENCE WILL BE INSTALLED AROUND THE PERIMETER OF THE PLANNED DISTURBED AREA TO LIMIT THE AMOUNT OF POTENTIAL SEDIMENT LEAVING THE SITE. IT WILL ALSO BE PLACED AROUND ANY SOIL STOCKPILE AREA THAT WILL BE UTILIZED. ANY REQUIRED REPAIRS DURING THE GRADING OPERATIONS WILL BE MADE IMMEDIATELY. SEDIMENT DEPOSITS WILL BE REMOVED AFTER EACH STORM EVENT, AND WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS NO LONGER REQUIRED WILL BE DRESSED TO CONFORM TO THE EXISTING GRADE, REPAIRED, AND SEEDED. SEDIMENT FENCE WILL BE INSTALLED AS PER PLAN AND/OR AS NEEDED.

1.5.3 SURFACE STABILIZATION
SURFACE STABILIZATION WILL BE ACCOMPLISHED WITH MATTING, VEGETATION AND MULCH AS SPECIFIED IN THE VEGETATION PLAN. VEGETATION WILL BE PLANTED IMMEDIATELY UPON THE COMPLETION OF FINAL GRADING. TEMPORARILY STABILIZE DENUDED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR A PERIOD OF MORE THAN THE NUMBER OF CALENDAR DAYS AS THEY ARE LISTED IN THE STABILIZATION CHART ON DRAWING #16.

1.5.4 CONSTRUCTION ENTRANCE (6.06)
WHERE CONSTRUCTION VEHICLE ACCESS ROUTE INTERSECTS OFF-SITE WORK AREAS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO PAVED SURFACES. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE, THE ROAD WILL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT WILL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTING TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING WILL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THE MANNER DESCRIBED HEREIN. A TEMPORARY CONSTRUCTION ENTRANCE WILL BE PROVIDED AT THE SITE PRIOR TO THE START OF CONSTRUCTION. AN OPEN GRADED STONE BASE ENTRANCE WILL BE PROVIDED AT THE SITE TO HELP LIMIT THE SOIL TRACKED OFFSITE BY CONSTRUCTION TRAFFIC. THE APPROXIMATE LOCATION OF THE CONSTRUCTION ENTRANCES AND DETAILS ARE PROVIDED ON DRAWINGS #4, 5, 6, AND 7.

1.5.5 DUST CONTROL (6.84)
DUST CONTROL IS NOT EXPECTED TO BE A PROBLEM. SHOULD EXCESSIVE DUST BE GENERATED, SPRINKLING OF WATER ON THE PROBLEM AREAS WILL BE CONDUCTED TO MINIMIZE THE PROBLEM.

1.5.6 TEMPORARY DIVERSIONS (6.20)
TEMPORARY DIVERSIONS WILL BE UTILIZED DURING THE PROJECT TO HELP DIRECT SEDIMENTATION TOWARDS ONE OF THE FOUR TEMPORARY SEDIMENT TRAPS. THESE TEMPORARY DIVERSIONS MAY HAVE TO BE FIELD ADJUSTED DURING THE DURATION OF THE PROJECT BASED ON DAILY CONSTRUCTION ACTIVITIES AND/OR ACTUAL FIELD CONDITIONS. CONTACT CDG AND/OR THE NCDEQ FIELD INSPECTOR PRIOR TO ANY MAJOR DIVERSION FROM THE APPROVED DRAWINGS.

IT IS ESSENTIAL THAT ENOUGH PLASTIC POLY SHEETING BE KEPT ONSITE TO BE ABLE TO COVER THE ENTIRE DISTRUBED AREA IN THE RAVINE. THE SHEETING MUST BE PLACED IN THE RAVINE AREA DURING ANY RAINSTORM OR BEFORE ANY FORECASTED RAIN EVENT. MATERIALS TO HOLD THE SHEETING IN PLACE DURING HEAVY RAINS AND/OR WINDS MUST ALSO BE UTILIZED WHEN COVERING DISTURBED AREAS. METHODS TO RESTRAIN THE SHEETING COULD INCLUDE USING HEAVY ITEMS (TIRES, CONSTRUCTION CHAINS, LOGS, LARGE ROCKS, ETC.). GROUND COVER ANCHORING PINS COULD ALSO BE USED (MINIMUM LENGTH OF 6-INCHES) IF THE SHEETING MATRIAL IS FOLDED OVER AT LEAST TWICE SO THAT THE PINS PUNCTURE THROUGH AT LEAST THREE LAYERS OF THE SHEETING. BY COVERING THE OPEN AREAS DURING EACH PHASE, THIS WILL HELP ELIMINATE SEDIMENTATION. THE POLY SHEETING SHOULD ALSO BE PLACED OVER ANY AREAS EXPOSED OF WASTE MATERIAL DURING THE GRADING OF THE TEMPORARY SEDIMENT TRAPS. THE SHEETING MUST BE "KEYED" INTO THE SIDES OF THE TRAPS TO KEEP THEM IN PLACE DURING RAIN EVENTS. NONWOVEN GEOTEXTILE FABRIC SHOULD BE PLACED **UNDER** THE RIP RAP OUTFALLS AND EMERGENCY SPILLWAYS.

2.0 MAINTENANCE PLAN

THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTENANCE OF THE EROSION CONTROL MEASURES DURING THE CONSTRUCTION OF THE PROJECT. ONCE THE PROJECT HAS BEEN COMPLETED, THE OWNER OF THE FACILITY WILL BECOME RESPONSIBLE FOR MAINTAINING THE PERMANENT MEASURES. TYPICAL MAINTENANCE ISSUES INCLUDE THE FOLLOWING:

1. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION AFTER ANY RAINFALL EVENT OF 1.0" OR GREATER OR AT LEAST ONCE EVERY SEVEN DAYS PER THE NPDES PERMIT. ANY NEEDED REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED.

2. SEDIMENT ACCUMULATIONS IN ALL SEDIMENT BASINS WILL BE REMOVED ONCE THE MATERIAL REACHES HALF THE DEPTH OF THE INDIVIDUAL BASIN.

3. SEDIMENT WILL BE REMOVED FROM BEHIND THE SEDIMENT FENCE WHEN IT BECOMES APPROXIMATELY 0.5 FEET IN DEPTH OR GREATER AT THE FENCE. THE SEDIMENT FENCE WILL BE REPAIRED AS NECESSARY TO MAINTAIN A BARRIERS.

4. ALL SEEDED AREAS WILL BE FERTILIZED, RESEEDED AS NECESSARY, AND MULCHED ACCORDING TO SPECIFICATIONS IN THE VEGETATIVE PLAN TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER.

3.0 SPECIFICATIONS

3.1 LAND GRADING

1. LAND GRADING SHALL BE KEPT TO A MINIMUM AT ALL TIMES.

2. FINAL GRADING SHOULD BE SLOPED SO THAT STORM RUNOFF SHEET FLOWS AS SHOWN ON THE DRAWINGS.

3. WHEN THE AREA HAS BEEN PROPERLY STABILIZED AND APPROVED BY THE EROSION & SEDIMENT CONTROL INSPECTOR, ALL OF THE TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES WILL BE REMOVED AND THE DISTURBED AREA GRADED TO BLEND WITH THE SURROUNDING AREA AND VEGETATED.

3.2 SEDIMENT FENCE AND EROSION CONTROL WATTLES

1. CONSTRUCT THE SEDIMENT FENCE OR EROSION CONTROL WATTLES AT THE LOCATIONS SHOWN ON THE DRAWINGS.

2. LOCATE POSTS DOWN SLOPE OF FABRIC TO HOLD FENCING.

3. BURY TOE OF FENCE APPROXIMATELY 8" DEEP TO PREVENT UNDERCUTTING.

4. WHEN JOINTS ARE NECESSARY, SECURELY FASTEN THE FABRIC AT A SUPPORT POST WITH OVERLAP TO THE NEXT POST.

5. FILTER FABRIC IS TO BE OF NYLON, POLYESTER, PROPYLENE, OR ETHYLENE YARN WITH AN EXTRA STRENGTH 50 LB/LINEAR INCH (MINIMUM), AND WITH A FLOW RATE OF AT LEAST 0.3 GAL./FT2/MINUTE. FABRIC SHOULD CONTAIN ULTRAVIOLET INHIBITORS AND STABILIZERS.

6. POST TO BE STEEL WITH A MINIMUM LENGTH OF 4 FEET.

7. THE DISTANCE BETWEEN THE POSTS, CENTER TO CENTER, SHALL NOT EXCEED 8'

8. DETAILS FOR BOTH THE SEDIMENT FENCE AND WATTLES CAN BE FOUND ON THE DRAWINGS.

3.3 TEMPORARY CONSTRUCTION ENTRANCE

1. TEMPORARY GRAVEL CONSTRUCTION ENTRANCES SHALL BE CONSTRUCTED AS NEEDED/REQUIRED THROUGHOUT THE DURATION OF THE PROJECT. A CONSTRUCTION ENTRANCE, AS DETAILED ON DRAWING #9, SHALL BE UTILIZED TO HELP ELIMINATE SEDIMENT ON CONSTRUCTION VEHICLES FROM LEAVING THE SITE.

2. USE CRUSHED STONE 2" – 3" IN SIZE.

3. THE GRAVEL CONSTRUCTION ENTRANCE AND ACCESS WAYS SHALL BE MAINTAINED IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE SITE. SHOULD MUD BE TRACKED OR WASHED ONTO PUBLIC ROADS, IT MUST BE REMOVED IMMEDIATELY.

3.4 TEMPORARY SKIMMER BASIN

FOUR (4) TEMPORARY SKIMMER BASINS WILL BE INSTALLED ON THE WEST SIDE OF THE SITE WHERE THEY WILL CATCH SEDIMENT-LAIDEN RUNOFF FROM THE WORK AREA. THESE SEDIMENT BASINES SHALL BE INSPECTED AFTER EACH RAINFALL EVENT AND REPAIRS ARE TO BE MADE AS NEEDED. THE SEDIMENT BASINS SHOULD BE CLEANED OUT IF THE SEDIMENT LEVELS REACH HALF THE HEIGHT OF THE BAFFLES. ACCESS TO THE SEDIMENT BASINS FOR CLEARING AND MAINTENANCE PURPOSES SHALL BE MAINTAINED THROUGHOUT THE PROJECT.

4.0 VEGETATIVE PLAN

SEEDBED PREPARATION

1. REMOVE ROCKS AND DEBRIS THAT COULD INTERFERE WITH TILLAGE AND THE PRODUCTION OF A UNIFORM SEEDBED.

2. APPLY LIME AND FERTILIZER AT RATES RECOMMENDED; SPREAD EVENLY AND INCORPORATE INTO THE TOP 6".

3. BREAK UP LARGE CLODS AND RAKE INTO A LOOSE, UNIFORM SEEDBED.

4. RAKE TO LOOSEN SURFACE JUST PRIOR TO APPLYING SEED.

SEEDING METHODS

1. BROADCAST SEED AT THE RECOMMENDED RATE WITH A CYCLONE SEEDER, DROP SPREADER, OR CULTIPACKER SEEDER.

2. RAKE SEED INTO THE SOIL AND LIGHTLY PACK TO ESTABLISH GOOD CONTACT.

MULCH
APPLY GRAIN STRAW AND TACK AS RECOMMENDED.

MAINTENANCE
RESEED, FERTILIZE AND MULCH AS NECESSARY.

NCDEQ - DIVISION OF WASTE MANAGEMENT
217 WEST JONES STREET
RALEIGH, NORTH CAROLINA
(919) 707-8331

REVISIONS

REV.	DATE	COMMENTS
1	09-12-23	NCDEQ SUBMITTAL

ENGINEER'S SEAL: DRAFT

PROJECT #	1220121-01
DATE:	JULY, 2023
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	RLG
SCALE:	N/A

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdge.com
License No. C-4973

SIMS LEGION PARK LANDFILL
1001 DR. MARTIN LUTHER KING JR. HWY.
GASTONIA, GASTON COUNTY, NORTH CAROLINA

DRAWING NO: 14

SHEET TITLE: MISCELLANEOUS NOTES

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those un-attended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event $\geq$ 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDOs)	At least once per 7 calendar days and within 24 hours of a rain event $\geq$ 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event $\geq$ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event $\geq$ 1.0 inch in 24 hours	If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Documentation Requirements
(a) Each E&SC measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC plan.	Initial and date each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures or if the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

(a) This General Permit as well as the Certificate of Coverage, after it is received.

(b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

(a) Visible sediment deposition in a stream or wetland.

(b) Oil spills if:
- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).

(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.

(d) Anticipated bypasses and unanticipated bypasses.

(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	• ***Within 24 hours***, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	• ***A report at least ten days before the date of the bypass, if possible.*** The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days,*** a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment[40 CFR 122.41(l)(7)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6). • Division staff may waive the requirement for a written report on a case-by-case basis.

PART II, SECTION G, ITEM (4)
DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

(a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,
(b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit,
(c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems,
(d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,
(e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
(f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19

NCDEQ - DIVISION OF WASTE MANAGEMENT
217 WEST JONES STREET
RALEIGH, NORTH CAROLINA
(919) 707-8331

REVISIONS

REV.	DATE	COMMENTS

ENGINEER'S SEAL:

PROJECT #	1220121-01
DATE:	JULY, 2023
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	RLG
SCALE:	AS SHOWN

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdge.com
License No. C-4973

SIMS LEGION PARK LANDFILL
1001 DR. MARTIN LUTHER KING JR. HWY.
GASTONIA, GASTON COUNTY, NORTH CAROLINA

SHEET TITLE: NC DEQ SELF INSPECTIONS

DRAWING NO: 15

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes

Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
• Temporary grass seed covered with straw or other mulches and tackifiers • Hydroseeding • Rolled erosion control products with or without temporary grass seed • Appropriately applied straw or other mulch • Plastic sheeting	• Permanent grass seed covered with straw or other mulches and tackifiers • Geotextile fabrics such as permanent soil reinforcement matting • Hydroseeding • Shrubs or other permanent plantings covered with mulch • Uniform and evenly distributed ground cover sufficient to restrain erosion • Structural methods such as concrete, asphalt or retaining walls • Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

1. Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
2. Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
3. Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
4. Provide ponding area for containment of treated Stormwater before discharging offsite.
5. Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

1. Maintain vehicles and equipment to prevent discharge of fluids.
2. Provide drip pans under any stored equipment.
3. Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
4. Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
5. Remove leaking vehicles and construction equipment from service until the problem has been corrected.
6. Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

1. Never bury or burn waste. Place litter and debris in approved waste containers.
2. Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
3. Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
4. Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
5. Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
6. Anchor all lightweight items in waste containers during times of high winds.
7. Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
8. Dispose waste off-site at an approved disposal facility.
9. On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

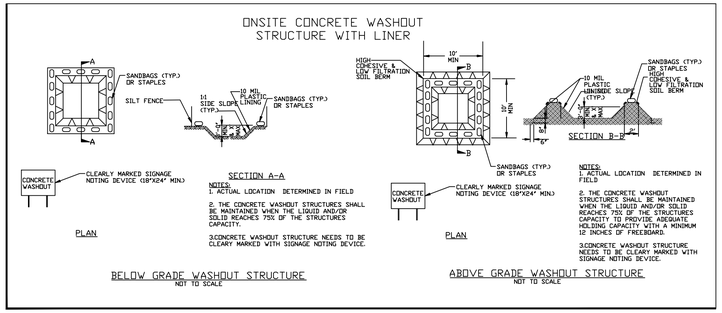
1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled, sized and placed appropriately for the needs of site.
5. Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

1. Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
2. Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
3. Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

EARTHEN STOCKPILE MANAGEMENT

1. Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
2. Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
3. Provide stable stone access point when feasible.
4. Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.



CONCRETE WASHOUTS

1. Do not discharge concrete or cement slurry from the site.
2. Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
3. Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
4. Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
5. Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
6. Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
7. Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
8. Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
9. Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
10. At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

1. Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
2. Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
3. Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
4. Do not stockpile these materials onsite.

HAZARDOUS AND TOXIC WASTE

1. Create designated hazardous waste collection areas on-site.
2. Place hazardous waste containers under cover or in secondary containment.
3. Do not store hazardous chemicals, drums or bagged materials directly on the ground.

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 04/01/19

NCDEQ - DIVISION OF WASTE MANAGEMENT
217 WEST JONES STREET
RALEIGH, NORTH CAROLINA
(919) 707-8331

REVISIONS

REV.	DATE	COMMENTS

ENGINEERS SEAL:

PROJECT #	1220121-01
DATE:	JULY, 2023
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	RLG
SCALE:	AS SHOWN

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdge.com
License No. C-4973

SIMS LEGION PARK LANDFILL
1001 DR. MARTIN LUTHER KING JR. HWY.
GASTONIA, GASTON COUNTY, NORTH CAROLINA

SHEET TITLE: NC DEQ STABILIZATION NOTES

DRAWING NO: 16

APPENDIX D

Draft Perpetual Land Use Restrictions

DECLARATION OF PERPETUAL LAND USE RESTRICTIONS

For Property Owned by: City of Gastonia

The real property which is the subject of this Declaration of Perpetual Land Use Restrictions ("Declaration") is contaminated with hazardous substances, and is part of an INACTIVE HAZARDOUS SUBSTANCE OR WASTE DISPOSAL SITE ("the Site") as defined by North Carolina's Inactive Hazardous Sites Response Act of 1987, which consists of Section 130A-310 through Section 130A-310.19 of the North Carolina General Statutes ("N.C.G.S."). This Declaration is part of a Remedial Action Plan for the Site that has been approved by the Secretary of the North Carolina Department of Environmental Quality, Division of Waste Management, Superfund Section or its successor in function, or his/her delegate, as authorized by N.C.G.S. Section 130A-310.3(f). The North Carolina Department of Environmental Quality shall hereafter be referred to as "DEQ". Hereafter, the Division of Waste Management, Superfund Section shall be referred to as "Superfund Section".

City of Gastonia is the owner in fee simple of the property ("the Property"), which is located at 1001 North Marietta Street, in the County of Gaston, City of Gastonia, State of North Carolina, and is the real property legally described in Deed Book 1074, Page 652 in the Office of the Register of Deeds for Gaston County. The Property is also shown on a Notice of Environmental Contamination, in the form of a survey plat ("Notice Plat"), which has been recorded prior to the recordation of this Declaration in Map Book ____ Page_____ in the Office of the Register of Deeds for Gaston County.

For the purpose of protecting public health and the environment, City of Gastonia hereby declares that all of the Property shall be held, sold and conveyed subject to the following perpetual land use restrictions, which shall run with the land; shall be binding on all parties having any right, title or interest in the Property or any part thereof, their heirs, successors and assigns; and shall, as provided in N.C.G.S. Section 130A-310.3(f), be enforceable without regard to lack of privity of estate or contract, lack of benefit to particular land, or lack of any property interest in particular land. These restrictions shall continue in perpetuity and cannot be amended or canceled unless and until the Gaston County Register of Deeds receives and records the written concurrence of the Secretary of DEQ or its successor in function, or his/her delegate. If any provision of this Declaration is found to be unenforceable in any respect, the validity,

legality, and enforceability of the remaining provisions shall not in any way be affected or impaired.

PERPETUAL LAND USE RESTRICTIONS

The following restrictions shall apply only to the Waste Disposal Area of the Property:

1. The Waste Disposal Area shown on the Notice Plat shall be used for open space only. "Open space" for purposes of this restriction means an undeveloped area where the sole human use shall be non-dermal recreational activities such as hiking, running, hunting, fishing and bird watching. Property Uses may include development of athletic facilities with submittal and written concurrence of development plans by the Superfund Section or its successor in function. All other uses at the Property are prohibited, except as approved in writing by the Superfund Section or its successor in function.

2. Removal of surface or subsurface native or fill earthen material may be conducted as part of development of athletic facilities with submittal and written concurrence of development plans by the Superfund Section or its successor in function. No other surface or subsurface native or fill earthen materials may be removed from the Waste Disposal Area shown on the Notice Plat without prior written approval by the Superfund Section or its successor in function.

3. Above and below ground construction and improvements associated with athletic facilities may be conducted with submittal and written concurrence of development plans by the Superfund Section or its successor in function. No other above- or below-ground construction or improvements (including, but not limited to, utilities, roads, sidewalks, landscaping, asphalt, concrete, other impervious materials, temporary and permanent structures) and no alteration or disturbance of the existing soil and contours, other than erosion control measures, are allowed in the Waste Disposal Area shown on the Notice Plat without prior written approval by the Superfund Section or its successor in function.

4. No new trees or shrubs may be planted in the Waste Disposal Area shown on the Notice Plat.

5. Retained trees as shown on the Notice Plat are the responsibility of the property owner. The property owner must manage future care of each tree to include all exposed waste and contaminated soil located within the boundary of the tree(s) root system. Retained trees may not be removed from the Waste Disposal Area as shown on the Notice Plat without prior written approval by the Superfund Section or its successor in function.

6. Access of mobile heavy equipment onto the Waste Disposal Area for the purpose of development of athletic facilities is approved with submittal and written concurrence of development plans by the Superfund Section or its successor in function. The Waste Disposal Area shown on the Notice Plat shall not be accessed for any other purpose by any mobile heavy equipment including, but not limited to, cranes, tractors, and

excavators without prior written approval by the Superfund Section or its successor in function.

7. Surface water shall not be used on the Property for any purpose without prior written approval by the Superfund Section or its successor in function.

8. No activities that would cause the exposure, removal, or use of groundwater, including but not limited to, installation of water supply wells, fountains, ponds, lakes, swimming pools or other features that use groundwater, or construction or excavation activities that would encounter or expose groundwater may occur on the Property without prior approval of the Superfund Section or its successor in function.

9. No building may be constructed on the Property unless vapor mitigation measures, including methodology(ies) for demonstrating performance of the vapor mitigation measures approved in writing by DEQ in advance, are designed by a North Carolina-licensed professional engineer, installed in accordance with the engineer's certified plan, and provided to DEQ in a report that includes photographs and a description of the installation and performance assessment of said measures.

10. Modifications to any structure present at the property that may cause or create an increased risk from contaminated vapor intrusion into that structure require the property owner to notify and demonstrate to the satisfaction of the Superfund Section or its successor in function that the indoor air in the structure does not pose an unacceptable risk to the occupants following modifications. These modifications include, but are not limited to, modification or replacement of heating, ventilation or air conditioning (HVAC) systems, removal or replacement of the building slab, installation of multiple conduits or piping through the building slab, modifications to building walls or ceilings that may change air flow.

11. The Property Owner shall conduct and comply with the following maintenance activities:

    A. No woody vegetation shall be allowed to grow on the Waste Disposal Area except as shown on the Notice Plat.

    B. All grassed areas shall be properly maintained to ensure that a healthy vegetative cover is always present. Mowing or brush hogging of the Waste Disposal Area shown on the Notice Plat should be conducted twice a year.

    C. Existing Asphalt shall be maintained across the Waste Disposal Area shown on the Notice Plat in good condition. Cracks shall be repaired promptly upon discovery.

    D. A soil cover of a thickness of twelve inches shall be maintained over the geotextile erosional marker, if applicable, covering the Waste Disposal Area shown on the Notice Plat. Erosion of the soil cover shall be repaired promptly upon discovery.

E. Signs indicating the presence of contamination and restricting [disturbance of soil *and/or* access] shall be located at each corner and along the perimeter of fencing surrounding the Waste Disposal Area. The front of each sign shall face away from the Waste Disposal Area. Each sign shall be located at a maximum distance of 100 feet apart and in a manner such they are easily visible along the perimeter of the Waste Disposal Area at all times. The signs shall state the following using similar font with a minimum of one-half (0.5) inch font size:

NOTICE
SUBSURFACE WASTE
Contact the Property Owner
Regarding Land Use Restrictions
Prior to Disturbing Soil

12. No person conducting environmental assessment or remediation at the Site or involved in determining compliance with applicable land use restrictions at the Property, at the direction of, or pursuant to a permit or order issued by the Superfund Section or its successor in function may be denied access to the Property for the purpose of conducting such activities.

13. Each person who owns any portion of the Property shall cause the instrument of any sale, lease, grant, or other transfer of any interest in the Property to include a provision expressly requiring the lessee, grantee, or transferee to comply with this Declaration. The failure to include such provision shall not affect the validity or applicability of any land use restriction in this Declaration.

14. Each person who owns any portion of the Property shall submit a letter, in January of each year on or before January 31st, to the Superfund Section or its successor in function, confirming the following:
    a) This Declaration is still recorded in the Office of the Gaston County Register of Deeds.
    b) Activities and conditions at the Property remain in compliance with the land use restrictions herein.
    c) The Property has not been subdivided since the last letter report submitted to the Superfund Section.
    d) Erosion of the cover system has not occurred.
    e) Fencing, bollards and signs are in good condition and remain in original location.

REPRESENTATIONS AND WARRANTIES

The Declarant hereby represents and warrants to the DEQ that the Declarant is the sole owner of the Property holding fee simple title to the Property free, clear and unencumbered except for utilities (including manhole covers, sewer, and water), easements, rights of way, conditions, covenants, and other matters recorded in the Gaston County Registry; that Declarant has the

power and authority to enter into this Declaration, to grant the rights and interests herein provided; that this Declaration will not materially violate or contravene or constitute a material default under any other agreement, document or instrument to which Declarant is a party or by which Declarant may be bound or affected.

ENFORCEMENT

Adherence to the above land use restrictions is necessary to protect public health and the environment. The restrictions are an integral part of the remedy for the contamination at the Site and shall be enforceable without regard to lack of privity of estate or contract, lack of benefit to particular land, or lack of any property interest in particular land. These land use restrictions shall be enforced by any owner, operator, or other party responsible for any part of the Site. The above land use restrictions may also be enforced by the Superfund Section through the remedies provided in N.C.G.S. Chapter 130A, Article 1, Part 2 or by means of a civil action, and may also be enforced by any unit of local government having jurisdiction over any part of the Site. Any attempt to cancel this Declaration without the approval of the Superfund Section or its successor in function shall constitute noncompliance with the Remedial Action Plan approved by the Superfund Section for the Site and shall be subject to enforcement by the Superfund Section to the full extent of the law. Failure by any party required or authorized to enforce any of the above restrictions shall in no event be deemed a waiver of the right to do so thereafter as to the same violation or as to one occurring prior or subsequent thereto.

FUTURE SALES, LEASES, CONVEYANCES AND TRANSFERS

When any portion of the Property is sold, leased, conveyed or transferred, pursuant to N.C.G.S. Section 130A-310.8(e) the deed or other instrument of transfer shall contain in the description section, in no smaller type than that used in the body of the deed or instrument, a statement that the real property being sold, leased, conveyed, or transferred has been used as a hazardous substance or waste disposal site and a reference by book and page to the recordation of the Notice of Environmental Contamination referenced in this Declaration.

OWNER SIGNATURE

IN WITNESS WHEREOF, I, exercising power of attorney for the City of Gastonia execute these presents on this ___ day of _____, 20___.

Signatory's name typed or printed: _____

Signatory's title typed or printed: _____

Owner name typed or printed:_____

Signature:_____

STATE OF NORTH CAROLINA
COUNTY OF _____

I, _____, a Notary Public, do hereby certify that _____ personally appeared before me this day, produced proper identification in the form of _____, and declared that he is acting on behalf of, the City of Gastonia and that by authority duly given and proven by the power of attorney attached hereto, and as the act of City of Gastonia he has signed this Declaration.

WITNESS my hand and official seal this ___ day of _____, 20___.

_____
Notary Public

My Commission expires: _____

[SEAL]

APPROVAL AND CERTIFICATION OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY

The foregoing Declaration of Perpetual Land Use Restrictions is hereby approved and certified.

By: _____

William F. Hunneke, Chief
Superfund Section
Division of Waste Management
North Carolina Department of Environmental Quality

STATE OF NORTH CAROLINA
COUNTY OF _____

I, _____, a Notary Public, do hereby certify that _____ personally appeared before me this day, produced proper identification in the form of _____, and signed this Declaration.

WITNESS my hand and official seal this ___ day of _____, 20___.

_____
Notary Public

My Commission expires: _____

[SEAL]

REGISTER OF DEEDS CERTIFICATION

The foregoing Declaration of Perpetual Land Use Restrictions is certified to be duly recorded at the date and time, and the Book and Page, shown on the first page hereof.

Register of Deeds for Gaston County

By: _____
Signature

_____
Type or print name and title

DECLARATION OF PERPETUAL LAND USE RESTRICTIONS

For Property Owned by: Garry Lane Carroll

The real property which is the subject of this Declaration of Perpetual Land Use Restrictions ("Declaration") is contaminated with hazardous substances, and is part of an INACTIVE HAZARDOUS SUBSTANCE OR WASTE DISPOSAL SITE ("the Site") as defined by North Carolina's Inactive Hazardous Sites Response Act of 1987, which consists of Section 130A-310 through Section 130A-310.19 of the North Carolina General Statutes ("N.C.G.S."). This Declaration is part of a Remedial Action Plan for the Site that has been approved by the Secretary of the North Carolina Department of Environmental Quality, Division of Waste Management, Superfund Section or its successor in function, or his/her delegate, as authorized by N.C.G.S. Section 130A-310.3(f). The North Carolina Department of Environmental Quality shall hereafter be referred to as "DEQ". Hereafter, the Division of Waste Management, Superfund Section shall be referred to as "Superfund Section".

Garry Lane Carroll is the owner in fee simple of the property ("the Property"), which is located at 215 Sycamore Avenue, in the County of Gaston, City of Gastonia, State of North Carolina, and is the real property legally described in Deed Book 5033, Page 1188 in the Office of the Register of Deeds for Gaston County. The Property is also shown on a Notice of Environmental Contamination, in the form of a survey plat ("Notice Plat"), which has been recorded prior to the recordation of this Declaration in Map Book ____ Page_____ in the Office of the Register of Deeds for Gaston County.

For the purpose of protecting public health and the environment, Garry Lane Carroll hereby declares that all of the Property shall be held, sold and conveyed subject to the following perpetual land use restrictions, which shall run with the land; shall be binding on all parties having any right, title or interest in the Property or any part thereof, their heirs, successors and assigns; and shall, as provided in N.C.G.S. Section 130A-310.3(f), be enforceable without regard to lack of privity of estate or contract, lack of benefit to particular land, or lack of any property interest in particular land. These restrictions shall continue in perpetuity and cannot be amended or canceled unless and until the Gaston County Register of Deeds receives and records the written concurrence of the Secretary of DEQ or its successor in function, or his/her delegate. If any provision of this Declaration is found to be unenforceable in any respect, the validity,

legality, and enforceability of the remaining provisions shall not in any way be affected or impaired.

PERPETUAL LAND USE RESTRICTIONS

The following restrictions shall apply only to the Waste Disposal Area of the Property:

1. The Waste Disposal Area shown on the Notice Plat shall be used for open space only. "Open space" for purposes of this restriction means an undeveloped area where the sole human use shall be non-dermal recreational activities such as hiking, running, hunting, fishing and bird watching. Property Uses may include development of athletic facilities with submittal and written concurrence of development plans by the Superfund Section or its successor in function. All other uses at the Property are prohibited, except as approved in writing by the Superfund Section or its successor in function.

2. Removal of surface or subsurface native or fill earthen material may be conducted as part of development of athletic facilities with submittal and written concurrence of development plans by the Superfund Section or its successor in function. No other surface or subsurface native or fill earthen materials may be removed from the Waste Disposal Area shown on the Notice Plat without prior written approval by the Superfund Section or its successor in function.

3. No above- or below-ground construction or improvements (including, but not limited to, utilities, roads, sidewalks, landscaping, asphalt, concrete, other impervious materials, temporary and permanent structures) and no alteration or disturbance of the existing soil and contours, other than erosion control measures, are allowed in the Waste Disposal Area shown on the Notice Plat without prior written approval by the Superfund Section or its successor in function.

4. No new trees or shrubs may be planted in the Waste Disposal Area shown on the Notice Plat.

5. Access of mobile heavy equipment onto the Waste Disposal Area for the purpose of development of athletic facilities is approved with submittal and written concurrence of development plans by the Superfund Section or its successor in function. The Waste Disposal Area shown on the Notice Plat shall not be accessed for any other purpose by any mobile heavy equipment including, but not limited to, cranes, tractors, and excavators without prior written approval by the Superfund Section or its successor in function.

6. Surface water shall not be used on the Property for any purpose without prior written approval by the Superfund Section or its successor in function.

7. No activities that would cause the exposure, removal, or use of groundwater, including but not limited to, installation of water supply wells, fountains, ponds, lakes, swimming

pools or other features that use groundwater, or construction or excavation activities that would encounter or expose groundwater may occur on the Property without prior approval of the Superfund Section or its successor in function.

8. No building may be constructed on the Property unless vapor mitigation measures, including methodology(ies) for demonstrating performance of the vapor mitigation measures approved in writing by DEQ in advance, are designed by a North Carolina-licensed professional engineer, installed in accordance with the engineer's certified plan, and provided to DEQ in a report that includes photographs and a description of the installation and performance assessment of said measures.

9. Modifications to any structure present at the property that may cause or create an increased risk from contaminated vapor intrusion into that structure require the property owner to notify and demonstrate to the satisfaction of the Superfund Section or its successor in function that the indoor air in the structure does not pose an unacceptable risk to the occupants following modifications. These modifications include, but are not limited to, modification or replacement of heating, ventilation or air conditioning (HVAC) systems, removal or replacement of the building slab, installation of multiple conduits or piping through the building slab, modifications to building walls or ceilings that may change air flow.

10. The Property Owner shall conduct and comply with the following maintenance activities:

    A. No woody vegetation shall be allowed to grow on the Waste Disposal Area except as shown on the Notice Plat.

    B. All grassed areas shall be properly maintained to ensure that a healthy vegetative cover is always present. Mowing or brush hogging of the Waste Disposal Area shown on the Notice Plat should be conducted twice a year.

    C. Existing Asphalt shall be maintained across the Waste Disposal Area shown on the Notice Plat in good condition. Cracks shall be repaired promptly upon discovery.

    D. A soil cover of a thickness of twelve inches shall be maintained over the geotextile erosional marker, if applicable, covering the Waste Disposal Area shown on the Notice Plat. Erosion of the soil cover shall be repaired promptly upon discovery.

    E. Signs indicating the presence of contamination and restricting [disturbance of soil *and/or* access] shall be located at each corner and along the perimeter of fencing surrounding the Waste Disposal Area. The front of each sign shall face away from the Waste Disposal Area. Each sign shall be located at a maximum distance of 100 feet apart and in a manner such they are easily visible along the perimeter of the Waste Disposal Area at all times. The signs shall state the following using similar font with a minimum of one-half (0.5) inch font size:

NOTICE
SUBSURFACE WASTE
Contact the Property Owner
Regarding Land Use Restrictions
Prior to Disturbing Soil

11. No person conducting environmental assessment or remediation at the Site or involved in determining compliance with applicable land use restrictions at the Property, at the direction of, or pursuant to a permit or order issued by the Superfund Section or its successor in function may be denied access to the Property for the purpose of conducting such activities.

12. Each person who owns any portion of the Property shall cause the instrument of any sale, lease, grant, or other transfer of any interest in the Property to include a provision expressly requiring the lessee, grantee, or transferee to comply with this Declaration. The failure to include such provision shall not affect the validity or applicability of any land use restriction in this Declaration.

13. Each person who owns any portion of the Property shall submit a letter, in January of each year on or before January 31st, to the Superfund Section or its successor in function, confirming the following:
    a) This Declaration is still recorded in the Office of the Gaston County Register of Deeds.
    b) Activities and conditions at the Property remain in compliance with the land use restrictions herein.
    c) The Property has not been subdivided since the last letter report submitted to the Superfund Section.
    d) Erosion of the cover system has not occurred.
    e) Fencing, bollards and signs are in good condition and remain in original location.

REPRESENTATIONS AND WARRANTIES

The Declarant hereby represents and warrants to the DEQ that the Declarant is the sole owner of the Property holding fee simple title to the Property free, clear and unencumbered except for utilities (including manhole covers, sewer, and water), easements, rights of way, conditions, covenants, and other matters recorded in the Gaston County Registry; that Declarant has the power and authority to enter into this Declaration, to grant the rights and interests herein provided; that this Declaration will not materially violate or contravene or constitute a material default under any other agreement, document or instrument to which Declarant is a party or by which Declarant may be bound or affected.

ENFORCEMENT

Adherence to the above land use restrictions is necessary to protect public health and the

environment. The restrictions are an integral part of the remedy for the contamination at the Site and shall be enforceable without regard to lack of privity of estate or contract, lack of benefit to particular land, or lack of any property interest in particular land. These land use restrictions shall be enforced by any owner, operator, or other party responsible for any part of the Site. The above land use restrictions may also be enforced by the Superfund Section through the remedies provided in N.C.G.S. Chapter 130A, Article 1, Part 2 or by means of a civil action, and may also be enforced by any unit of local government having jurisdiction over any part of the Site. Any attempt to cancel this Declaration without the approval of the Superfund Section or its successor in function shall constitute noncompliance with the Remedial Action Plan approved by the Superfund Section for the Site and shall be subject to enforcement by the Superfund Section to the full extent of the law. Failure by any party required or authorized to enforce any of the above restrictions shall in no event be deemed a waiver of the right to do so thereafter as to the same violation or as to one occurring prior or subsequent thereto.

FUTURE SALES, LEASES, CONVEYANCES AND TRANSFERS

When any portion of the Property is sold, leased, conveyed or transferred, pursuant to N.C.G.S. Section 130A-310.8(e) the deed or other instrument of transfer shall contain in the description section, in no smaller type than that used in the body of the deed or instrument, a statement that the real property being sold, leased, conveyed, or transferred has been used as a hazardous substance or waste disposal site and a reference by book and page to the recordation of the Notice of Environmental Contamination referenced in this Declaration.

OWNER SIGNATURE

IN WITNESS WHEREOF, I execute these presents on this ___ day of _____, 20___.

Signatory's name typed or printed: _____

Signature:_____

STATE OF NORTH CAROLINA

COUNTY OF _____

I, _____, a Notary Public, do hereby certify that _____ personally appeared before me this day, produced proper identification in the form of _____, and signed this Declaration.

WITNESS my hand and official seal this ___ day of _____, 20___.

_____
Notary Public

My Commission expires: _____

[SEAL]

APPROVAL AND CERTIFICATION OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY

The foregoing Declaration of Perpetual Land Use Restrictions is hereby approved and certified.

By: _____

William F. Hunneke, Chief
Superfund Section
Division of Waste Management
North Carolina Department of Environmental Quality

STATE OF NORTH CAROLINA
COUNTY OF _____

I, _____, a Notary Public, do hereby certify that _____ personally appeared before me this day, produced proper identification in the form of _____, and signed this Declaration.

WITNESS my hand and official seal this ___ day of _____, 20___.

_____
Notary Public

My Commission expires: _____

[SEAL]

REGISTER OF DEEDS CERTIFICATION

The foregoing Declaration of Perpetual Land Use Restrictions is certified to be duly recorded at the date and time, and the Book and Page, shown on the first page hereof.

Register of Deeds for Gaston County

By: _____
Signature

_____
Type or print name and title

APPENDIX E

Draft Notice Plat

APPROVED FOR PURPOSES OF N.C.G.S. 130A-310.8

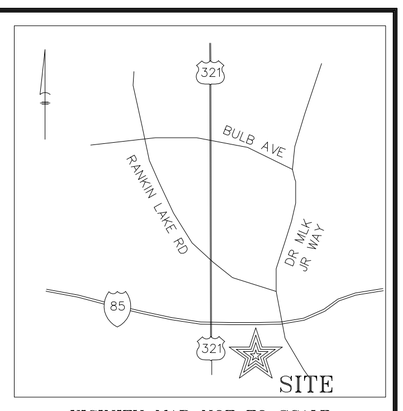
_____
William F. Hunneke
CHIEF, SUPERFUND SECTION
DIVISION OF WASTE MANAGEMENT

NORTH CAROLINA
WAKE COUNTY

I, _____, A NOTARY REPUBLIC OF SAID COUNTY AND STATE, DO HEREBY CERTIFY THAT _____ DID PERSONALLY APPEAR AND SIGN BEFORE ME THIS THE _____ DAY OF _____, ____.

_____ (OFFICIAL SEAL)
NOTARY PUBLIC (SIGNATURE)

MY COMMISSION EXPIRES _____, _____



VICINITY MAP NOT TO SCALE

BASIS OF BEARING
NC GRID (NAD 83/2022)

This certifies that the undersigned is (are) the owner(s) of the property shown on this map

_____
Owner or Owner(s) Representative Signature

_____
Owner or Owner(s) Representaive Name

_____
Owner or Owner(s) Representaive Title or Organization

NORTH CAROLINA
_____ COUNTY

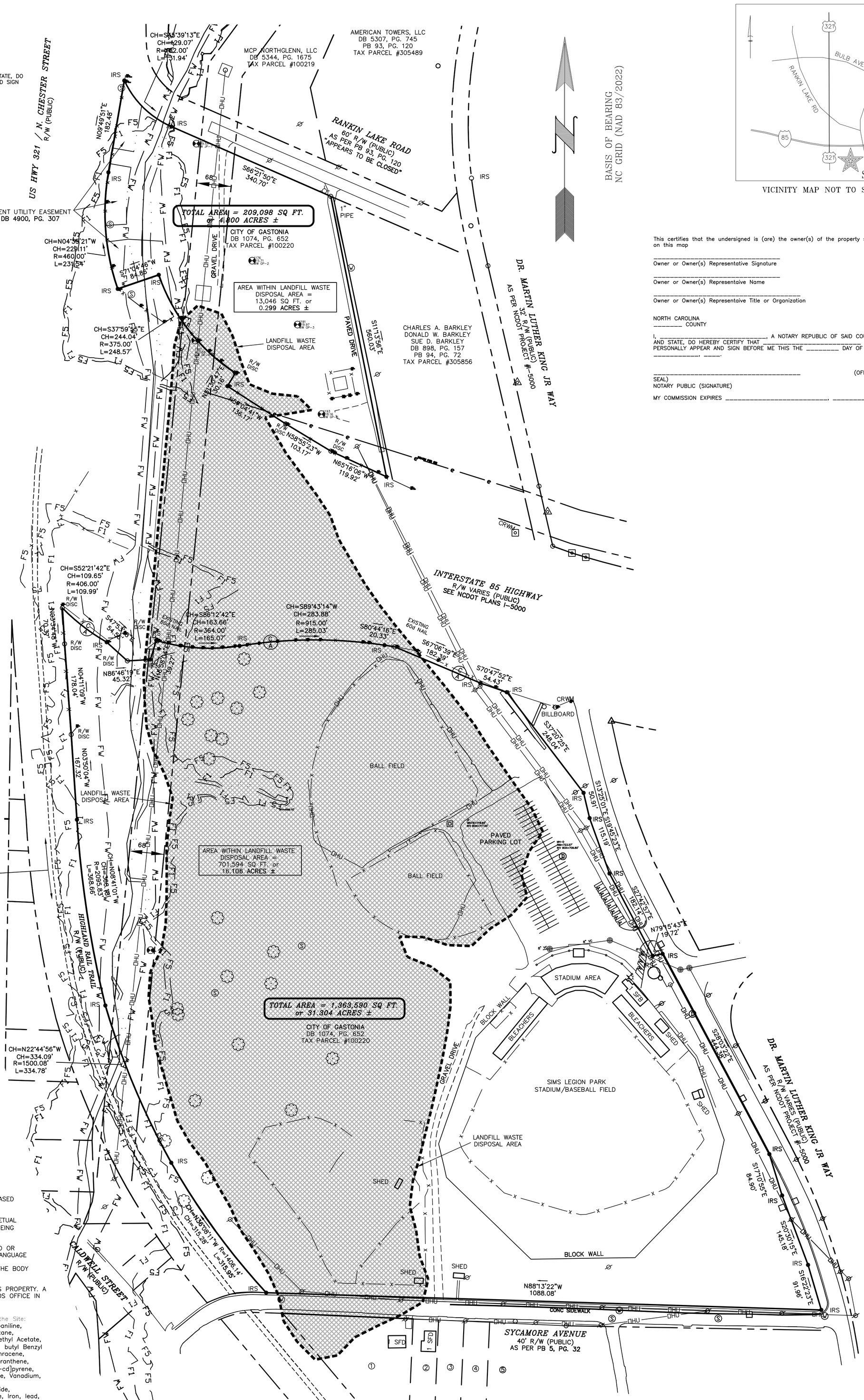
I, _____, A NOTARY REPUBLIC OF SAID COUNTY AND STATE, DO HEREBY CERTIFY THAT _____ DID PERSONALLY APPEAR AND SIGN BEFORE ME THIS THE _____ DAY OF _____, ____.

_____ (OFFICIAL SEAL)
NOTARY PUBLIC (SIGNATURE)

MY COMMISSION EXPIRES _____, _____

LEGEND

EXISTING IRON PIN	EIP
EXISTING REBAR	EIR
NO POINT SET	NPS
IRON REBAR SET	IRS
CONTROL ACCESS	CA
CABLE PEDESTAL	C
TELEPHONE MANHOLE	T
TELEPHONE PEDESTAL	T
FLOOD LIGHT	
GUY WIRE	
LIGHT POLE	
ELECTRIC MANHOLE	E
ELECTRIC METER	E
ELECTRIC TRANSFORMER	
UTILITY POLE	
BOLLARD	
GAS METER	G
GAS VALVE	GV
SEWER CLEAN OUT	
SEWER MANHOLE	S
SIGN	
CATCH BASIN	CB
CURB INLET	CI
DROP \ YARD INLET	DI / YI
FLARED END SECTION	
STORM MANHOLE	D
HANDICAP	
FIRE HYDRANT	
WATER MANHOLE	W
WATER METER	W
WATER VALVE	WV
WELL	W
MANHOLE	MH
MONITORING WELL	
TREE	
RIGHT-OF-WAY	R/W
CONCRETE R/W MONUMENT	CRWM
CHORD	CH
NAIL FOUND AT BASE	(NFAB)
DEED BOOK	DB
BOOK OF MAPS	BOM
CURB AND GUTTER	C&G
REINFORCED CONC PIPE	RCP
CORRUGATED METAL PIPE	CMP
CORRUGATED PLASTIC PIPE	CPP
BOUNDARY LINE	
RIGHT-OF-WAY LINE	
UNSURVEYED PROPERTY LINE	
SANITARY SEWER LINE	SS
STORMWATER PIPE	D
UNDERGROUND ELECTRIC LINE	UE
TREE LINE	
WATER LINE	W
FENCE LINE	X
EDGE OF GRAVEL	EG
EDGE OF PAVEMENT	EP
100-YEAR FLOOD LINE	F1
500-YEAR FLOOD LINE	F5
FLOODWAY LINE	FW
UNDERGROUND TELEPHONE LINE	UT
OVERHEAD UTILITY	OHU
EASEMENT	
UNDERGROUND FIBER OPTICS	FO
GAS LINE	G
SLUDGE LINE	PSL
WETLANDS LINE	WL
PERMANENT UTILITY EASEMENT	PE



REFERENCES:

1. NCDOT PROJECT #
2. ALL DEEDS AND MAPS SHOWN HEREON.

NOTES:

1. RAW ERROR OF CLOSURE 1:10,000+, MISCLOSURE WAS DISTRIBUTED BY COMPASS RULE.
2. AREA DETERMINED BY COORDINATE COMPUTATIONS.
3. DASHED LINES REPRESENT INFORMATION TAKEN FROM DEED OR PLAT.
4. PROPERTY ZONED: I2 (CITY OF GASTONIA)
5. DISTANCES SHOWN ARE HORIZONTAL GROUND DISTANCES UNLESS NOTED OTHERWISE.
6. NC GRID/NAD 83 (NSRS 2011) COORDINATES WERE ESTABLISHED BY USING THE NORTH CAROLINA VIRTUAL REFERENCE SYSTEM. VERTICAL DATUM IS NAVD88.
7. THIS PROPERTY IS IN ZONE X, AREA DETERMINED TO BE OUTSIDE 500 – YEAR FLOODPLAIN, ACCORDING TO F.I.R.M. PANEL MAP NO. 3720173000J, EFFECTIVE DATE MAY 2, 2006.
8. THE CONTAMINANT INFORMATION IDENTIFIED ON THIS NOTICE PLAT ARE BASED ON THE BEST AVAILABLE INFORMATION AT THE TIME OF FILING.
9. A LAND USE RESTRICTIONS DOCUMENT ENTITLED "DECLARATION OF PERPETUAL LAND-USE RESTRICTIONS", LIMITING THE USES OF THIS PROPERTY, IS BEING RECORDED CONCURRENTLY WITH THIS NOTICE PLAT.
10. WHEN THIS PROPERTY OR ANY PART OF IT IS SOLD, LEASED, CONVEYED OR TRANSFERRED, NORTH CAROLINA LAW REQUIRES THAT THE FOLLOWING LANGUAGE BE PLACED IN THE DESCRIPTION SECTION OF THE DEED OR OTHER INSTRUMENT OF TRANSFER IN NO SMALLER TYPE THAN THAT USED IN THE BODY OF THE DEED:

HAZARDOUS SUBSTANCES ARE PRESENT IN ENVIRONMENTAL MEDIA AT THIS PROPERTY. A NOTICE PLAT IS RECORDED AT THE GASTON COUNTY REGISTER OF DEEDS OFFICE IN MAP BOOK _____, PAGE_____.

11. The Following Hazardous Substances are Known to be Present at the Site:
In Soil: Antimony, Arsenic, Benzene, Benzoic Acid, Cadmium, p-chloroaniline, Chlorobenzene, Chromium III, Hexavalent Chromium, Cumene, Cyclohexane, 1,4-dichlorobenzene, Ethylbenzene, Dibenzofuran, Lead, Manganese, Methyl Acetate, Methyl tert-Butyl Ether, Methylene Chloride, Bis(2-ethylhexyl)phthalate, butyl Benzyl Phthalate, Dibutyl Phthalate, di-N-Octyl Phthalate, Acenaphthene, Anthracene, Benz[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Chrysene, Dibenz[a,h]anthracene, Fluoranthene, Fluorene, Indeno[1,2,3-cd]pyrene, 2-methylnaphthalene, Naphthalene, Pyrene, Tetrachloroethylene, Toluene, Vanadium, m-Xylene, o-Xylene
In Groundwater: Ammonia, Antimony, Arsenic, Cadmium, Carbon Disulfide, Chlorobenzene, Chloroform, Hexavalent Chromium, 1,4-dichlorobenzene, Iron, lead, Manganese, Acenaphthene, Benz[a]anthracene, Fluorene, 2-methylnaphthalene, Thallium, Trichlorobenzene
In Sediment: Beryllium, Lead, Sulfolane
In Soil Gas: Acetone, Benzene, Carbon Disulfide, Carbon Tetrachloride, Chlorobenzene, Chloroform, Chloromethane, Cyclohexane, 1,4-dichlorobenzene, Dichlorodifluoromethane, cis 1,2-dichloroethylene, Ethylbenzene, n-Heptane, n-Hexane, Isopropanol, Methyl Ethyl Ketone, Methyl Isobutyl Ketone, Methylene Chloride, Naphthalene, Propylene, Styrene, Tetrachloroethylene, Toluene, Trichloroethylene, Trichlorofluoromethane, 1,2,4-trimetheylbenzene, 1,3,5-trimetheylbenzene, Vinyl Chloride, m&p-Xylenes, o-Xylene

GS 47-30 (d)

I, DAVID K. ALLEY, CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION (DEED DESCRIPTIONS IN DEED BOOK 1074, PAGE 652); THAT THE BOUNDARIES NOT SURVEYED ARE SHOWN AS BROKEN LINES PLOTTED FROM INFORMATION FOUND IN DEEDS AS LISTED; THAT THE RATIO OF PRECISION AS CALCULATED IS 1:10,000+; THE FOLLOWING INFORMATION WAS USED TO PERFORM THE GPS SURVEY: 1) CLASS OF SURVEY CLASS A; 2) POSITIONAL ACCURACY 0.07'±; 3) TYPE OF GPS FIELD PROCEDURE RTK, NCGS REAL-TIME NETWORK; 4) DATE OF SURVEY 3/22/2022; 5) DATUM/EPOCH NAD83/NSRS2011; 6) PUBLISHED/FIXED CONTROL NCGS NETWORK VRS; 7)GEIOD MODEL GEIOD 18; COMBINED GRID FACTOR 0.99989049; 9) UNITS US SURVEY FOOT; THAT THIS MAP WAS PREPARED IN ACCORDANCE WITH G.S. 47-30 AS AMENDED.

NORTH CAROLINA PROFESSIONAL SEAL L-4492 LAND SURVEYOR DAVID K. ALLEY

GS 47-30 (f)(11)d

I, DAVID K. ALLEY, A PROFESSIONAL LAND SURVEYOR, NUMBER L-4492, CERTIFY THAT THIS PLAT IS OF A SURVEY OF ANOTHER CATEGORY, SUCH AS THE RECOMBINATION OF EXISTING PARCELS, A COURT-ORDERED SURVEY OR OTHER EXCEPTION TO THE DEFINITION OF SUBDIVISION.

WITNESS MY HAND AND OFFICIAL SEAL THIS 27TH DAY OF FEBRUARY, 2023.

L-4492 _____
LICENSE NO. PROFESSIONAL LAND SURVEYOR

GS 47-30.2 (b)

STATE OF NORTH CAROLINA
COUNTY OF CRAVEN

I, _____, REVIEW OFFICER OF CRAVEN COUNTY, CERTIFY THAT THE MAP OR PLAT TO WHICH THIS CERTIFICATION IS AFFIXED MEETS ALL STATUTORY REQUIREMENTS FOR RECORDING.

_____
REVIEW OFFICER DATE

Notice of Environmental Contamination N.C.G.S 130A-310.8

A Portion of The Sims Legion Park Landfill #NONCD0000766

OWNER:
CITY OF GASTONIA
PO BOX 1748
GASTONIA, NC 28053

TAX PARCEL #100220
DEED BOOK 1074, PAGE 652
36.104 ACRES +/- (TOTAL)

Revisions
03/13/23 – ADDED CARROL PARCEL (#100258)

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

Allied Associates, P.A.
4720 KESTER MILL ROAD PHONE (336) 765-2377
WINSTON-SALEM, N.C. 27103 FAX 760-8886
Website: www.alliedapa.com NC LICENSE #C-2198

SCALE	TOWNSHIP	COUNTY	STATE	DATE
1" = 100'	GASTONIA	GASTON	NORTH CAROLINA	02/09/23
SURVEYED:	MAPPED:	JOB NO.	MAP NO.	TDS
EG PJ JB	DA	PA221218	SLP.dwg	SLP

APPROVED FOR PURPOSES OF N.C.G.S. 130A–310.8

_____
William F. Hunneke
CHIEF, SUPERFUND SECTION
DIVISION OF WASTE MANAGEMENT

NORTH CAROLINA
WAKE COUNTY

I, _____, A NOTARY REPUBLIC OF SAID COUNTY AND STATE, DO HEREBY CERTIFY THAT _____ DID PERSONALLY APPEAR AND SIGN BEFORE ME THIS THE _____ DAY OF _____, _____.

_____ (OFFICIAL SEAL)
NOTARY PUBLIC (SIGNATURE)

MY COMMISSION EXPIRES _____, _____

This certifies that the undersigned is (are) the owner(s) of the property shown on this map

_____
Owner or Owner(s) Representative Signature

_____
Owner or Owner(s) Representaive Name

_____
Owner or Owner(s) Representaive Title or Organization

NORTH CAROLINA
_____ COUNTY

I, _____, A NOTARY REPUBLIC OF SAID COUNTY AND STATE, DO HEREBY CERTIFY THAT _____ DID PERSONALLY APPEAR AND SIGN BEFORE ME THIS THE _____ DAY OF _____, _____.

_____ (OFFICIAL SEAL)
NOTARY PUBLIC (SIGNATURE)

MY COMMISSION EXPIRES _____, _____

REFERENCES:

1. NCDOT PROJECT #
2. ALL DEEDS AND MAPS SHOWN HEREON.

NOTES:

1. RAW ERROR OF CLOSURE 1:10,000+, MISCLOSURE WAS DISTRIBUTED BY COMPASS RULE.
2. AREA DETERMINED BY COORDINATE COMPUTATIONS.
3. DASHED LINES REPRESENT INFORMATION TAKEN FROM DEED OR PLAT.
4. PROPERTY ZONED: I2 (CITY OF GASTONIA)
5. DISTANCES SHOWN ARE HORIZONTAL GROUND DISTANCES UNLESS NOTED OTHERWISE.
6. NC GRID/NAD 83 (NSRS 2011) COORDINATES WERE ESTABLISHED BY USING THE NORTH CAROLINA VIRTUAL REFERENCE SYSTEM. VERTICAL DATUM IS NAVD88.
7. THIS PROPERTY IS IN ZONE X, AREA DETERMINED TO BE OUTSIDE 500 – YEAR FLOODPLAIN, ACCORDING TO F.I.R.M. PANEL MAP NO. 3720173000J, EFFECTIVE DATE MAY 2, 2006.
8. THE CONTAMINANT INFORMATION IDENTIFIED ON THIS NOTICE PLAT ARE BASED ON THE BEST AVAILABLE INFORMATION AT THE TIME OF FILING.
9. A LAND USE RESTRICTIONS DOCUMENT ENTITLED "DECLARATION OF PERPETUAL LAND–USE RESTRICTIONS", LIMITING THE USES OF THIS PROPERTY, IS BEING RECORDED CONCURRENTLY WITH THIS NOTICE PLAT.
10. WHEN THIS PROPERTY OR ANY PART OF IT IS SOLD, LEASED, CONVEYED OR TRANSFERRED, NORTH CAROLINA LAW REQUIRES THAT THE FOLLOWING LANGUAGE BE PLACED IN THE DESCRIPTION SECTION OF THE DEED OR OTHER INSTRUMENT OF TRANSFER IN NO SMALLER TYPE THAN THAT USED IN THE BODY OF THE DEED:

HAZARDOUS SUBSTANCES ARE PRESENT IN ENVIRONMENTAL MEDIA AT THIS PROPERTY. A NOTICE PLAT IS RECORDED AT THE GASTON COUNTY REGISTER OF DEEDS OFFICE IN MAP BOOK _____, PAGE_____.

11. The Following Hazardous Substances are Known to be Present at the Site:
In Soil: Antimony, Arsenic, Benzene, Benzoic Acid, Cadmium, p–chloroaniline, Chlorobenzene, Chromium III, Hexavalent Chromium, Cumene, Cyclohexane, 1,4–dichlorobenzene, Ethylbenzene, Dibenzofuran, Lead, Manganese, Methyl Acetate, Methyl tert–Butyl Ether, Methylene Chloride, Bis(2–ethylhexyl)phthalate, butyl Benzyl Phthalate, Dibutyl Phthalate, di–N–Octyl Phthalate, Acenaphthene, Anthracene, Benz[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Chrysene, Dibenz[a,h]anthracene, Fluoranthene, Fluorene, Indeno[1,2,3–cd]pyrene, 2–methylnaphthalene, Naphthalene, Pyrene, Tetrachloroethylene, Toluene, Vanadium, m–Xylene, o–Xylene
In Groundwater: Ammonia, Antimony, Arsenic, Cadmium, Carbon Disulfide, Chlorobenzene, Chloroform, Hexavalent Chromium, 1,4–dichlorobenzene, Iron, lead, Manganese, Acenaphthene, Benz[a]anthracene, Fluorene, 2–methylnaphthalene, Thallium, Trichlorobenzene
In Sediment: Beryllium, Lead, Sulfolane
In Soil Gas: Acetone, Benzene, Carbon Disulfide, Carbon Tetrachloride, Chlorobenzene, Chloroform, Chloromethane, Cyclohexane, 1,4–dichlorobenzene, Dichlorodifluoromethane, cis 1,2–dichloroethylene, Ethylbenzene, n–Heptane, n–Hexane, Isopropanol, Methyl Ethyl Ketone, Methyl Isobutyl Ketone, Methylene Chloride, Naphthalene, Propylene, Styrene, Tetrachloroethylene, Toluene, Trichloroethylene, Trichlorofluoromethane, 1,2,4–trimetheylbenzene, 1,3,5–trimetheylbenzene, Vinyl Chloride, m&p–Xylenes, o–Xylene

GS 47–30 (d)

I, DAVID K. ALLEY, CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION (DEED DESCRIPTIONS IN DEED BOOK 5033, PAGE 1158); THAT THE BOUNDARIES NOT SURVEYED ARE SHOWN AS BROKEN LINES PLOTTED FROM INFORMATION FOUND IN DEEDS AS LISTED; THAT THE RATIO OF PRECISION AS CALCULATED IS 1:10,000+; THE FOLLOWING INFORMATION WAS USED TO PERFORM THE GPS SURVEY: 1) CLASS OF SURVEY CLASS A; 2) POSITIONAL ACCURACY 0.07'±; 3) TYPE OF GPS FIELD PROCEDURE RTK, NCGS REAL–TIME NETWORK; 4) DATE OF SURVEY 3/22/2022; 5) DATUM/EPOCH NAD83/NSRS2011; 6) PUBLISHED/FIXED CONTROL NCGS NETWORK VRS; 7)GEIOD MODEL GEIOD 18; COMBINED GRID FACTOR 0.99989049; 9) UNITS US SURVEY FOOT; THAT THIS MAP WAS PREPARED IN ACCORDANCE WITH G.S. 47–30 AS AMENDED.

GS 47–30 (f)(11)d

I, DAVID K. ALLEY, A PROFESSIONAL LAND SURVEYOR, NUMBER L–4492, CERTIFY THAT THIS PLAT IS OF A SURVEY OF ANOTHER CATEGORY, SUCH AS THE RECOMBINATION OF EXISTING PARCELS, A COURT–ORDERED SURVEY OR OTHER EXCEPTION TO THE DEFINITION OF SUBDIVISION.

WITNESS MY HAND AND OFFICIAL SEAL THIS 27TH DAY OF FEBRUARY, 2023.

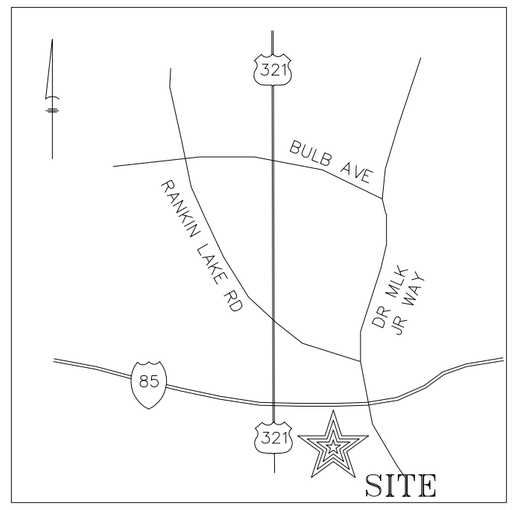
L–4492
LICENSE NO.

_____
PROFESSIONAL LAND SURVEYOR

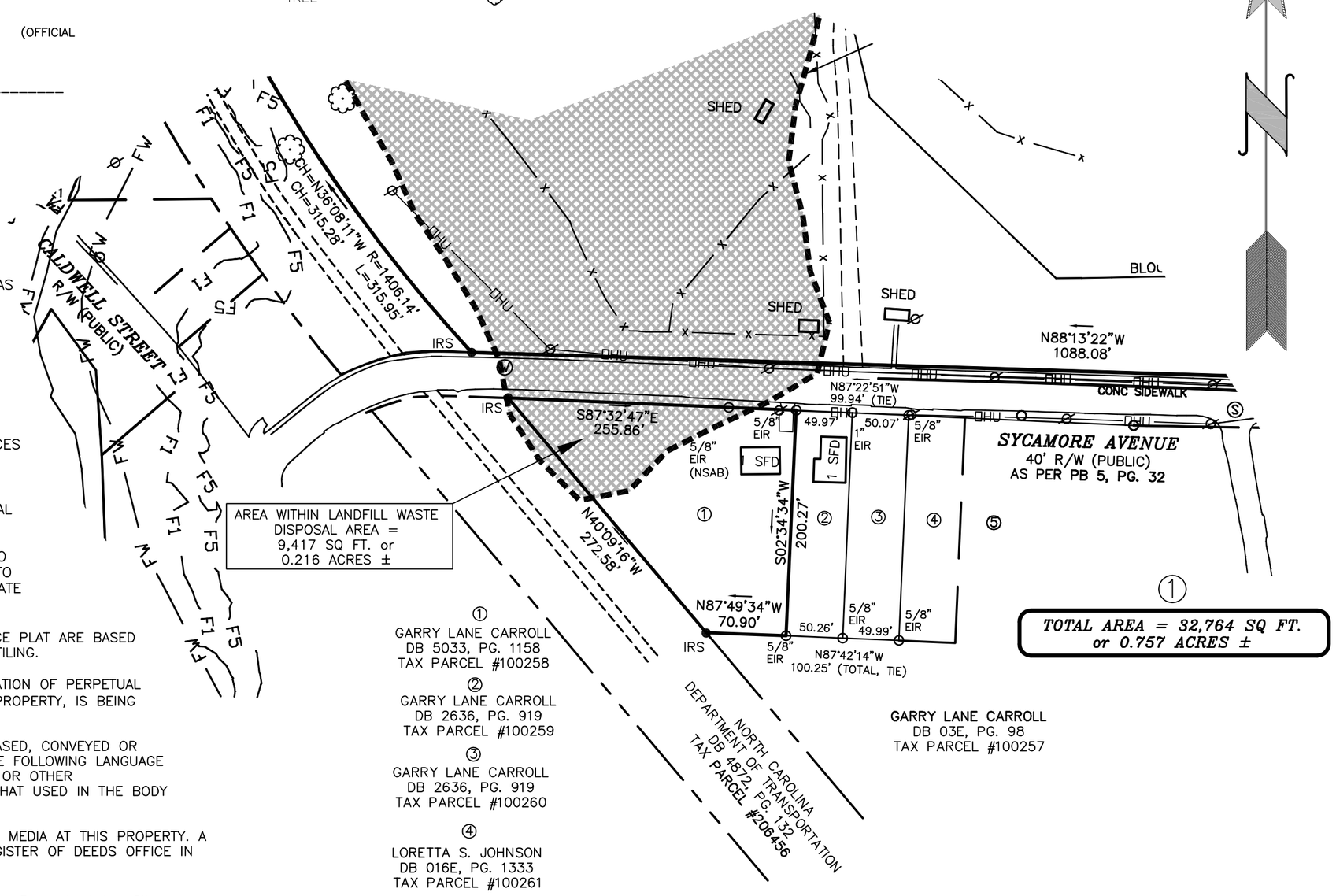
NORTH CAROLINA PROFESSIONAL SEAL L–4492 LAND SURVEYOR DAVID K. ALLEY

LEGEND

EXISTING IRON PIN	EIP	RIGHT–OF–WAY	R/W
EXISTING REBAR	EIR	CONCRETE R/W MONUMENT	CRWM
NO POINT SET	NPS	CHORD	CH
IRON REBAR SET	IRS	NAIL FOUND AT BASE	(NFAB)
CONTROL ACCESS	C/A	DEED BOOK	DB
CABLE PEDESTAL	C	BOOK OF MAPS	BOM
TELEPHONE MANHOLE	T	CURB AND GUTTER	C&G
TELEPHONE PEDESTAL	T	REINFORCED CONC PIPE	RCP
FLOOD LIGHT		CORRUGATED METAL PIPE	CMP
GUY WIRE		CORRUGATED PLASTIC PIPE	CPP
LIGHT POLE		BOUNDARY LINE	
ELECTRIC MANHOLE	E	RIGHT–OF–WAY LINE	
ELECTRIC METER	E	UNSURVEYED PROPERTY LINE	
ELECTRIC TRANSFORMER		SANITARY SEWER LINE	SS
UTILITY POLE		STORMWATER PIPE	D
BOLLARD		UNDERGROUND ELECTRIC LINE	UE
GAS METER	G	TREE LINE	
GAS VALVE	GV	WATER LINE	W
SEWER CLEAN OUT		FENCE LINE	x
SEWER MANHOLE	S	EDGE OF GRAVEL	EG
SIGN		EDGE OF PAVEMENT	EP
CATCH BASIN	CB	100–YEAR FLOOD LINE	F1
CURB INLET	CI	500–YEAR FLOOD LINE	F5
DROP \ YARD INLET	DI / YI	FLOODWAY LINE	FW
FLARED END SECTION		UNDERGROUND TELEPHONE LINE	UT
STORM MANHOLE	D	OVERHEAD UTILITY	OHU
HANDICAP		EASEMENT	
FIRE HYDRANT		UNDERGROUND FIBER OPTICS	FO
WATER MANHOLE	W	GAS LINE	G
WATER METER	W	SLUDGE LINE	PSL
WATER VALVE	WV	WETLANDS LINE	WL
WELL	W	PERMANENT UTILITY EASEMENT	PE
MANHOLE	MH		
MONITORING WELL			
TREE			



VICINITY MAP NOT TO SCALE



① GARRY LANE CARROLL
DB 5033, PG. 1158
TAX PARCEL #100258

② GARRY LANE CARROLL
DB 2636, PG. 919
TAX PARCEL #100259

③ GARRY LANE CARROLL
DB 2636, PG. 919
TAX PARCEL #100260

④ LORETTA S. JOHNSON
DB 016E, PG. 1333
TAX PARCEL #100261

⑤ FRANCINA NEWBY
DB 3643, PG. 160
TAX PARCEL #100262

GARRY LANE CARROLL
DB 03E, PG. 98
TAX PARCEL #100257

GS 47–30.2 (b)

STATE OF NORTH CAROLINA
COUNTY OF CRAVEN

I, _____, REVIEW OFFICER OF CRAVEN COUNTY, CERTIFY THAT THE MAP OR PLAT TO WHICH THIS CERTIFICATION IS AFFIXED MEETS ALL STATUTORY REQUIREMENTS FOR RECORDING.

_____
REVIEW OFFICER DATE

GRAPHIC SCALE

100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

Notice of Environmental Contamination N.C.G.S 130A–310.8

A Portion of The Sims Legion Park Landfill #NONCD0000766

OWNER:
GARRY LANE CARROLL
212 LENIX STREET
GASTONIA, NC 28054

TAX PARCEL #100258
DEED BOOK 5933, PAGE 1158
0.757 ACRES +/– (TOTAL)

Allied Associates, P.A.
4720 KESTER MILL ROAD PHONE (336) 765–2377
WINSTON–SALEM, N.C. 27103 FAX 760–8886
Website: www.alliedapa.com NC LICENSE #C–2198

SCALE	TOWNSHIP	COUNTY	STATE	DATE
1" = 100'	GASTONIA	GASTON	NORTH CAROLINA	03/13/23
SURVEYED:	MAPPED:	JOB NO.	MAP NO.	TDS
EG PJ JB	DA	PA221218	SLP.dwg	SLP