



June 14, 2024

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

Attention: Mr. Kevin Kelt via email: kevin.kelt.deq.nc.gov
Hydrogeologist

Reference: **Summary of Estimated Cover System Preliminary Remediation Costs
Soil Cover Remediation for Five Durham Parks**
Site IDs: NONCD0000821 through NONCD0000825
NCDEQ ID No. Task Orders: 821DP-7 through 825DP-7
S&ME Project No. 23050630

Dear Mr. Kelt:

S&ME, Inc. (S&ME), submits this remediation cost estimate report for the five City of Durham Park sites located in Durham, North Carolina. As presented in Task Order DP-7 for each site, this submission provides individual itemized project costs for both the Contractor Implementation and Engineering & Management Budgets. S&ME completed these cost estimates in general conformance with Proposals DP-7 (Cost Estimating), 23050630Z, 23050630AG, 23050630AG, 23050630AH, 23050630AL, dated May 1, 2024, between NCDEQ and S&ME.

◆ Interim Remediation Summary

Remedial investigations under direction of the North Carolina Department of Environmental Quality, Pre-Regulatory Landfill (NCDEQ PRLF) Unit at the five Durham parks began in 2023 and will continue into 2025. To date, environmental investigations and reporting, and the associated risk classifications based upon the NCDEQ Risk Calculator has documented environmental impacts to surficial soils at the five City of Durham parks under investigation. These investigations are ongoing; therefore, the cost estimates will change as new information is acquired.

See the attached **Figure 5's** for existing conditions of the five parks and the sampled areas where the soil cover is impacted with lead levels at more than 200 milligrams per kilogram (mg/Kg), the environmental risk levels are exceeded, and/or areas with less than 12-inches thick of soil cover above waste.

As the impacted areas of the five Durham parks are considered an imminent hazard by the NCDEQ PRLF Unit, cover system interim remediation planning and implementation may be expedited. The following cost estimates to provide and place clean cover soil over the impacted areas, and stream bank stabilization at some of the parks should therefore be considered interim remedial actions. The attached preliminary cost estimates include a summary of the costs for the five parks and individual cost estimates for each park: 1) Preliminary Remediation Engineering and Construction Quality Control (CQA) Cost Estimate, and 2) Preliminary Remediation Contractor Cost Estimate.



Summary of Estimated Cover System Preliminary Remediation Costs Soil Cover Remediation for Five Durham Parks

Site IDs: NONCD0000821 through NONCD0000825
NCDEQ ID No. Task Orders: 821DP-7 through 825DP-7

Engineering, Construction Quality Control and Remediation at Each Site:

The following mitigation measures are under consideration as part of the interim and preliminary remedial action planning to address areas of the five parks cover soils observed with elevated lead, exceeding environmental risk levels and/or existing soil cover less than 12-inches in thickness.

- Development of Remedial Action Plans, Erosion and Sediment Control (E&SC) & other required permits, and bidding documents.
- Review of remediation contractor qualifications, and procurement & selection.
- Onsite construction quality control (CQA) for the duration of each individual phase of the project. Engineering review of work progress and quantification of progress compared per the contract. Conduct required stormwater erosion and sediment control inspections. Health and safety compliance. Complete project closeout inspections and certifications.
- Air monitoring for particulates / lead in air will be conducted during waste handling and covering activities.
- Stormwater and E&SC measures will be installed.
- Protective fencing will be installed.
- Where required to access the soil and stream bank improvement areas, vegetation will be cleared and removed.
- Approximately 6-inches of imported structural backfill and 6-inches of topsoil will be placed over a geotextile demarcation fabric material within the impacted cover soil areas. The backfill will be blended into the existing topographic features during a final grading effort.
- Walltown Park: Waste and waste-impacted soil will be excavated from the stream banks as necessary to provide stabilization (estimated at 17,000 cubic yards); and, and ultimately disposed in an offsite permitted landfill. Limited stream stabilization, drainage feature enhancement, and preservation of park features, and parking lots will require local excavations and restorations within the remaining four parks,
- Perpetual Land Use Restrictions (LURs) are required where waste is allowed to remain in place. S&ME anticipates that LURs will be applied to the parks by submitting a Plat Map and LURs to the Register of Deeds Office. Restrictions may include the requirement to request approval from NCDEQ prior to future excavation and/or park improvements.

◆ Limitations and Assumptions

Preliminary Cost Estimates: Based upon the limited data collected at this early environmental investigation stage in the evaluation process, the cost estimates provided herein are preliminary. These cost estimates will change and be revised as additional information is collected, and remediation options are developed. The costs are based upon Spring 2024 typical rates and are subject to fluctuation. Construction costs in general have been volatile and generally rising since 2021. In addition, environmental investigations and topographical surveying efforts are ongoing. Additional information to be acquired from ongoing and future investigation and surveying work will affect ultimate engineering design and remediation costs. A 30% contingency has been included to account for possible cost and schedule changes, and design and remediation changes.

The attached cost estimates are for the minimum funding needed to conduct interim remedial measures of the currently known impacted soil cover areas only. Pending remedial investigation phases include assessment of landfill gas, soil and waste below the soil cover, groundwater and wetland delineations. Unknown impacts to the preliminary interim remediation cost estimates will likely change and will increase if additional remediation of impacted media, other than the soil cover is required, adding additional cost at each park to achieve full remediation.



Summary of Estimated Cover System Preliminary Remediation Costs Soil Cover Remediation for Five Durham Parks

Site IDs: NONCD0000821 through NONCD0000825
NCDEQ ID No. Task Orders: 821DP-7 through 825DP-7

Stream Bank and other Excavation Volumes: Volumes of waste and waste-impacted material associated with stream bank stabilization and other grading activities should be considered budgeting estimates. Until waste characterization sampling is completed, waste disposal areas have been delineated, and topographic survey information is integrated into individual grading plans, the actual cost of remediation at each of the five Durham parks remains unknown.

Stream Bank Easements: This cost estimates are based upon unhindered access to stream banks, where clearing and grubbing of trees and stumps from stream banks will be completed. S&ME assumes that stream conservation covenants, where extant, will be removed for the project area prior to the execution of field activities.

Non-Hazardous Waste: The reports previously submitted under Task Orders 821DP-2 through 825DP-2 indicate that the waste and waste-impacted soil proposed for removal from stream banks during stabilization will likely be non-hazardous, and permissible for deposition in a non-hazardous Class D landfill facility. This assumption is based upon laboratory results for toxicity characteristic leaching procedure (TCLP) from a limited number of previously analyzed samples. Under those task orders, two to five samples were collected from each park, totaling sixteen TCLP samples submitted for laboratory review. Although reporting for TCLP levels indicated that the lead concentrations were present at levels below hazardous waste levels, additional sampling and analysis will be required to determine the ultimate disposal requirements, non-hazardous or hazardous, for excavated lead-impacted materials.

Stream Bank Restoration: Stream restoration planning will likely be necessary to improve the long-term efficacy of those soil covers that intercept streams or substantial drainage features. To provide design planning, permitting through the U.S. Army Corps of Engineers (USACE), and the State of North Carolina's Department of Environmental Quality (NCDEQ) – Division of Water Resources (DWR) will likely be necessary. Although stream restoration is beyond the scope of this phase of estimating, it is the opinion of S&ME that a cost of approximately \$650 per linear foot of selected portions of drainage feature could be utilized as a reasonable estimation.

If you have questions or require additional information, please contact us.

Sincerely,
S&ME, Inc.

A handwritten signature in black ink, appearing to read 'John Palmer'.

John Palmer, P.G.
Senior Geologist
jpalmer@smeinc.com

A handwritten signature in black ink, appearing to read 'Gerald Paul'.

Gerald Paul
Senior Project Manager
gpaul@smeinc.com

Reviewed by: Thomas P. Raymond, P.E., Senior Engineer



Summary of Estimated Cover System Preliminary Remediation Costs Soil Cover Remediation for Five Durham Parks

Site IDs: NONCD0000821 through NONCD0000825
NCDEQ ID No. Task Orders: 821DP-7 through 825DP-7

Attachments

Remediation Preliminary Cost Summary Spreadsheet for Five Sites to include:

- Preliminary Remediation Engineering & CQA Cost Estimate – East Durham Park
Preliminary Remediation Contractor Cost Estimate – East Durham Park
Figure 5 Combined Quality & Thickness Map (March 6, 2024, Previous Report) – East Durham Park
- Preliminary Remediation Engineering & CQA Cost Estimate – East End Park
Preliminary Remediation Contractor Cost Estimate – East End Park
Figure 5 Combined Quality & Thickness Map (March 6, 2024, Previous Report) – East End Park
- Preliminary Remediation Engineering & CQA Cost Estimate - Lyon Park
Preliminary Remediation Contractor Cost Estimate - Lyon Park
Figure 5 Combined Quality & Thickness Map (March 6, 2024, Previous Report) – Lyon Park
- Preliminary Remediation Engineering & CQA Cost Estimate – Northgate Park
Preliminary Remediation Contractor Cost Estimate – Northgate Park
Figure 5 Combined Quality & Thickness Map (March 6, 2024, Previous Report) – Northgate Park
- Preliminary Remediation Engineering & CQA Cost Estimate – Walltown Park
Preliminary Remediation Contractor Cost Estimate – Walltown Park
Figure 5 Combined Quality & Thickness Map (March 6, 2024, Previous Report) – Walltown Park

Attachments

Attachment I – Budget Estimate Spreadsheets

Remediation Preliminary Cost Summary Spreadsheet for Five Sites to Include:

Individual Cost Estimations for Engineering/CQA & Contractor Costs, and

Combined Quality & Thickness Maps



Preliminary Cost Estimate Summary
Soil Cover Remediation for Five Durham Parks
NCDEQ Site IDs: NONCD0000821 through NONCD0000825
NCDEQ Task Orders: 821DP-7 through 825DP-7

Date: June 14, 2024

Summary of Estimated Remediation Costs per Site				
Park Site	Approximate Cover Remediation Area	Remediation Contractor Implementation	Engineering, Quality Control, Project Management	Remediation Total Estimate
East Durham Park	2.5 Acres	\$ 1,492,000	\$ 331,000	\$ 1,823,000
East End Park	1 Acre	\$ 503,000	\$ 221,000	\$ 724,000
Lyon Park	1.5 Acres	\$ 972,000	\$ 237,000	\$ 1,209,000
Northgate Park	1.9 Acres	\$ 1,758,000	\$ 433,000	\$ 2,191,000
Walltown Park	3.5 Acres	\$ 4,087,000	\$ 436,000	\$ 4,523,000
Summary of Budget Categories		\$ 8,812,000	\$ 1,658,000	\$ 10,470,000

1) The above costs were generated from S&ME's understanding of the five Durham Park sites acquired during soil sampling activities completed at each site. It should be noted that additional soil sampling processes are ongoing, and that individual parameters of each remediation effort are expected to change. As such, these estimates are intended for general planning purposes only. The soil cover remedy will be installed over areas with lead concentrations at or above 200 milligrams per kilogram and/or areas with less than one-foot of soil cover over waste.

2) Stream restoration planning will likely be necessary to improve the long-term efficacy of those soil covers that intercept streams or substantial drainage features. To provide design planning, the delineation of the underlying waste disposal area, formal topographic and boundary surveying, and permitting through the U.S. Army Corps of Engineers (USACE), and the State of North Carolina's Department of Environmental Quality (NCDEQ) – Division of Water Resources (DWR) will likely be necessary. Although stream restoration is beyond the scope of this phase of discussion, it is the opinion of S&ME that a cost of approximately \$650 per linear foot of selected portions of drainage feature could be utilized as a reasonable estimation.

3) Estimated costs include a 30% contingency. Site assessment and surveying work is underway. Additional information will be available, and these cost estimates will be revised.

**Preliminary Remediation Engineering and CQA Cost Estimate - East Durham Park
Soil Cover Remedy - Approx. 2.5 Acres**



NCDEQ Site ID #: NONCD0000821
Landfill Name: East Durham Park

NCDEQ Task Order: 821DP-7
S&ME, Inc. Project: 23050630

June 14, 2024

Task 821DP-7B: Engineering Plans, Specifications, & Cost Estimation, Bidding & Contractual Documents, Project Management

Final Planning & Estimating, Subcontractor Selection		Unit	Quantity	Unit Price	Total
Principal (Planning)		hour	3	\$ 186.00	\$ 558.00
Senior Engineer (Specifications, Budget, & Schedule		hour	88	\$ 156.00	\$ 13,728.00
Project (Design) Engineer		hour	48	\$ 138.00	\$ 6,624.00
Staff Engineer		hour	40	\$ 114.00	\$ 4,560.00
Draftsperson		hour	24	\$ 90.00	\$ 2,160.00
Clerical		hour	4	\$ 66.00	\$ 264.00
Subtotal					\$ 27,336.00

Task 821DP-C: Detail of Estimated Project Management and CQA Costs

Construction Management, Meetings, Construction Quality Control (CQA) & Mobilization (Weeks 1 through 16)

Office Labor		Unit	Quantity	Unit Price	Total
Principal (Meetings)		hour	20	\$ 186.00	\$ 3,720.00
Senior Engineer		hour	85	\$ 156.00	\$ 13,260.00
Project Engineer (Confirmation)		hour	170	\$ 138.00	\$ 23,460.00
Project (Design) Engineer (Confirmation)		hour	85	\$ 130.00	\$ 11,050.00
Staff Engineer		hour	170	\$ 114.00	\$ 19,380.00
Draftsperson (Interpret Incoming survey data)		hour	16	\$ 90.00	\$ 1,440.00
Clerical		hour	85	\$ 66.00	\$ 5,610.00

Field Labor		Unit	Quantity	Unit Price	Total
Project Engineer (Implementation Inspections & Progress Meetings)		hour	85	\$ 138.00	\$ 11,730.00
Staff Engineer (Field Oversight/CQA/ESC Inspections)		hour	850	\$ 114.00	\$ 96,900.00

Equipment & Reimbursables		Unit	Quantity	Unit Price	Total
PID		each	45	\$ 100.00	\$ 4,500.00
GPS		each	45	\$ 150.00	\$ 6,750.00
Field Expendables		each	85	\$ 30.00	\$ 2,550.00
Estimated Mileage (85 days x 60)		each	5100	\$ 0.670	\$ 3,417.00
Subtotal					\$ 200,047.00

Construction Certification Reporting

		Unit	Quantity	Unit Price	Total
Senior Engineer		hour	6	\$ 156.00	\$ 936.00
Project Engineer (Complete/Process all Contractor Submittals)		hour	60	\$ 138.00	\$ 8,280.00
Project/Design Engineer		hour	10	\$ 138.00	\$ 1,380.00
Staff Engineer		hour	60	\$ 114.00	\$ 6,840.00
Staff Engineer (Risk Assessment of imported soil / other sources)		hour	4	\$ 114.00	\$ 456.00
Draftsperson		hour	28	\$ 90.00	\$ 2,520.00
Clerical		hour	4	\$ 66.00	\$ 264.00
Subtotal					\$ 20,676.00

S&ME Post-Construction and ESC Removal Activities (Week 17)

		Unit	Quantity	Unit Price	Total
Senior Engineer		hour	4	\$ 156.00	\$ 624.00
Project Engineer (Office & Administrative)		hour	8	\$ 138.00	\$ 1,104.00
Project Engineer (Field Visits)		hour	8	\$ 138.00	\$ 1,104.00
Staff (Office & Field)		hour	24	\$ 114.00	\$ 2,736.00
Draftsperson (includes As Built figures)		hour	4	\$ 90.00	\$ 360.00
Clerical		hour	2	\$ 66.00	\$ 132.00
Estimated Mileage (3 days x 56)		each	168	\$ 0.670	\$ 112.56
Subtotal					\$ 6,172.56

Subtotal Estimated Engineering, CQA & Project Management Costs: \$254,232

30% Contingency for Estimated Subtotal Engineering, CQA & Project Management Costs: \$76,269

Total Estimated Engineering, CQA & Project Management Costs: \$331,000

Total Estimated Remediation Contractor Implementation Cost: \$1,492,000

Task 821DP-7: Estimated Total Remediation Cost: \$1,823,000

**Preliminary Remediation Contractor Cost Estimate - East Durham Park
Soil Cover Remedy - Approx. 2.5 Acres**



NCDEQ Site ID #NONCD0000821

NCDEQ Task Order:

821DP-7

Landfill Name: East Durham Park

S&ME, Inc. Project:

23050630

June 14, 2024

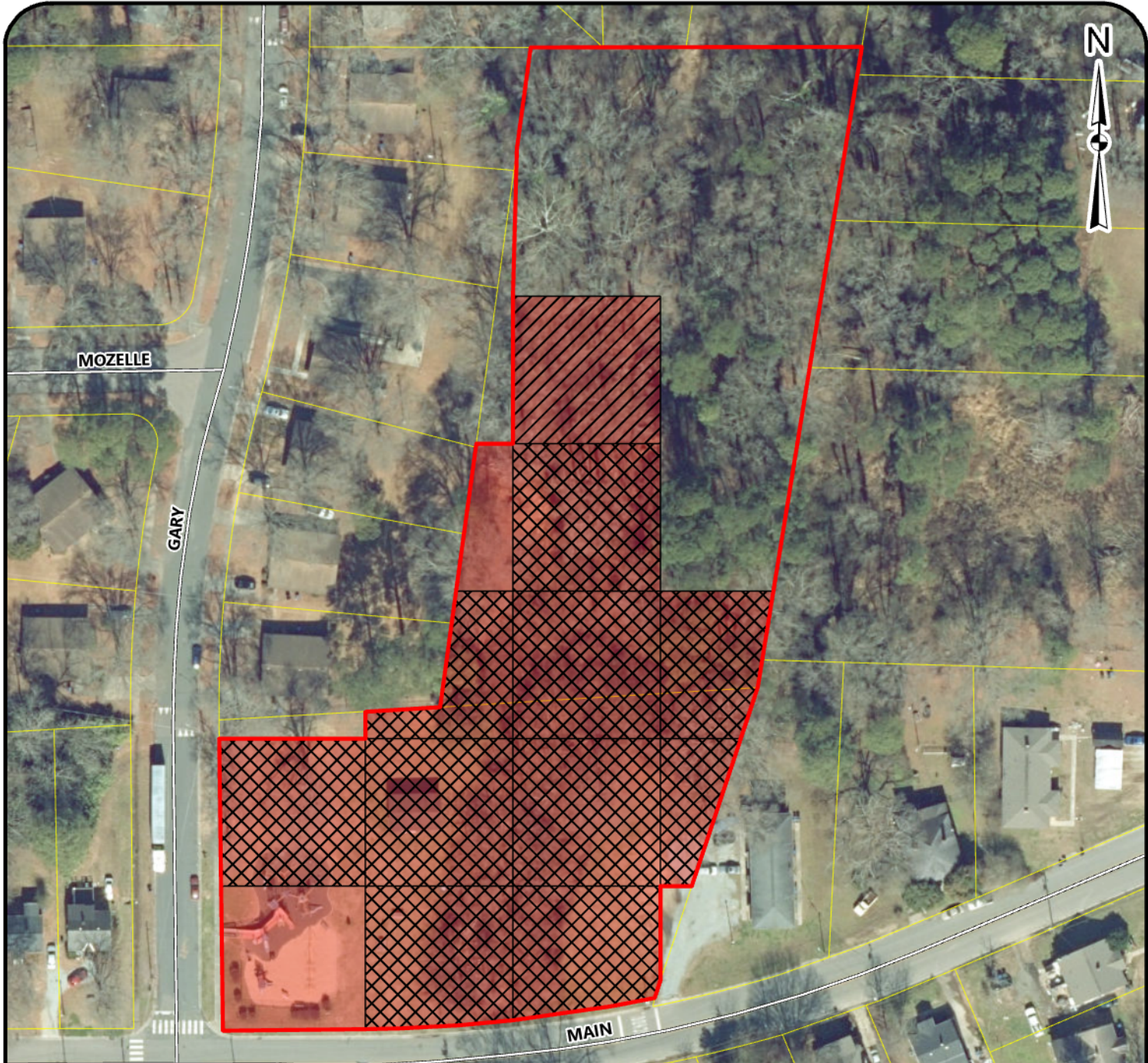
Task 821DP-7A: Detail of Estimated Remediation Contractor Costs and Schedule for Cover System Construction

	Unit	Quantity	Anticipated Contractor Costs		Project Days	Non-Project Days	
			Unit Price	Total			
Contacto							
i-1	E&SC Application, Management, & Permitting Fees	each	1	\$ 8,000.00	\$ 8,000.00		
i-2	Insurance/Bond (approx. 3% of contractor's cost)	each	1	\$ 33,000.00	\$ 33,000.00		
i-3	Subcontractor Submittals	each	1	\$ 5,000.00	\$ 5,000.00	5	
i-4	Equipment Mobilization	each	1	\$ 25,000.00	\$ 25,000.00	2	
i-5	Construction Entrance, Gate, & Access Roads	each	2.5	\$ 4,500.00	\$ 11,250.00	4	
i-6	Temporary Security Fencing Rental (Chain Link)	lnr foot	3,000	\$ 22.00	\$ 66,000.00		
i-6	Temporary Hazard Fencing (Orange Plastic)	lnr foot	200	\$ 8.00	\$ 1,600.00		
i-7	Survey Services (Initial, Construction & Volumetric, & Asbuilt)	day	5	\$ 2,100.00	\$ 10,500.00		
i-8	Clearing / Stump Grinding and Veg Debris Chipping & Removal	acre	2.5	\$ 19,000.00	\$ 47,500.00	10	
i-9	Silt Fence (Perimeter)	lnr foot	500	\$ 9.00	\$ 4,500.00	2	
i-10	Silt Fence Outlets	each	4	\$ 400.00	\$ 1,600.00	1	
i-11	Stockpile Silt Fence	lnr foot	800	\$ 9.00	\$ 7,200.00	2	
i-12	Stormwater Trenches w/rolled E&SC Matting & Filter Socks	lnr foot	900	\$ 48.00	\$ 43,200.00	4	
i-13	Temporary Skimmer Basin(s) (Excavation, Embankments, Matting, Skimmers, Spillways, Runoff Diversions, Geotech, Deconstruction)	each	2	\$ 65,000.00	\$ 130,000.00	10	
i-14	Prepare Contractor Laydown Area	each	1	\$ 7,500.00	\$ 7,500.00	1	
i-15	Temporary Seeding & Mulching	acre	1	\$ 4,000.00	\$ 4,000.00	2	
i-16	Construction Trailer, Facilities Rental, Power & Internet)	each	1	\$ 8,000.00	\$ 8,000.00	2	
i-17	Excavated Cuts (Accommodate Drainage Feature Slopes, Existing Pavements, and Park Accoutrements (Remove Material From Site, Permitted Landfill Disposal)	cu yard	3,000	\$ 125.00	\$ 375,000.00	12	
i-18	Air Monitoring Field Operations	day	30	\$ 800.00	\$ 24,000.00		
i-19	Collect & Remove Surface Waste (Remove From Site)	cu yard	25	\$ 40.00	\$ 1,000.00	3	
i-20	Intermediate Grading & Compaction of the Subgrade Surface	acre	2.5	\$ 3,500.00	\$ 8,750.00	2	
i-21	Purchase & Place Demarcation (Geotextile) Fabric	acre	2.5	\$ 11,000.00	\$ 27,500.00	4	
i-22	Sample imported backfill Soils- 1 topsoil, 1 Structural Fill	each	2	\$ 14,000.00	\$ 28,000.00		
i-23	Cover Soil - Supply, Place & Compact Structural Fill (imported Source)	acre	2.5	\$ 26,610.00	\$ 66,525.00	4	
i-24	Cover Soil - Supply, Place & Compact Topsoil (Imported & Amended)	acre	2.5	\$ 36,315.00	\$ 90,787.50	4	
i-25	Hydroseed (Permanent Mix)	acre	2.5	\$ 19,500.00	\$ 48,750.00	2	
i-26	Demobilization & Security Fence Removal	each	1	\$ 6,600.00	\$ 6,600.00		
i-27	Landscaping Replacement (Trees & shrubs)	each	2.5	\$ 2,500.00	\$ 6,250.00		
i-28	Disposal of Tires & ACM Materials	each	1	\$ 1,000.00	\$ 1,000.00		
i-29	(Final Removal) Construction Trailer & Facilities Rental	each	1	\$ 2,500.00	\$ 2,500.00		
i-30	Remove Pavements (Laydown Areas, Entrances, Driveways & Access Roads)	each	1	\$ 5,625.00	\$ 5,625.00	2	
i-32	Remove Temp E&SC Measures (Initial)	each	1	\$ 15,000.00	\$ 15,000.00	3	
i-31	Demobilization & Security Fence Removal	each	1	\$ 18,500.00	\$ 18,500.00	2	
i-32	Remove Remaining Temp E&SC Measures (Post Construction)	each	1	\$ 8,000.00	\$ 8,000.00	1	
Task 821DP-7A: Estimated Total Subcontractor Implementation Cost:					\$ 1,148,000	79	58
					Total Estimated Inclement Weather Days:	8	
					Total Estimated Implementation Project Timetable (in Days):	87	58
30% Contingency for Estimated Total Remediation Contractor Implementation Cost:					\$ 344,000		
Task 821DP-7A: Estimated Total Remediation Contractor Implementation Cost:					\$ 1,492,000		

Implementation Comments:

- The soil cover remedy will be installed over areas with lead concentrations at or above 200 milligrams per kilogram and/or areas with less than one-foot of soil cover over waste.
- Project Days (**Bolded**) comprise activities that by necessity must be completed in a step-wise manner (i.e., critical pathway activities). Non-project days are defined as non-step-wise work activities

T:\Raleigh-1050\Projects\2023\23050630_NCDEQ_LE_City of Durham Parks (PRLF)_Durham NC\ENV\GIS\East Durham Park\East Durham Park.aprx



NOTES:
 SOIL SAMPLES COLLECTED ON 12/11/2023 THROUGH 12/12/2023 BY S&ME. MID-ATLANTIC ASSOCIATES INC. (MID-ATLANTIC) SOIL BORINGS ARE REFERENCED FROM "SOIL ASSESSMENT REPORT - CITY OF DURHAM PARKS" DATED AUGUST 18, 2023, SEE REPORT FOR DETAILS. XRF SCREENING WAS CONDUCTED BY MID-ATLANTIC IN JULY 2023 AND BY ENIKOE BIHARI (DUKE) IN DECEMBER 2022. LEAD CONCENTRATIONS ARE REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg). HIGHEST LEAD CONCENTRATION FROM EACH DATASET (S&ME, MID-ATLANTIC, AND DUKE) ARE PRESENTED.

REFERENCE:
 GIS BASE LAYERS WERE OBTAINED FROM THE LATEST NCONEMAP ORTHOIMAGERY LAYER. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

- East Durham Park Property
- Durham County Parcels
- Lead Concentration >200 mg/kg
- Soil Cover Thickness <12" Over Waste
- Lead Concentration >200 mg/kg and Soil Cover Thickness <12" Over Waste



COMBINED QUALITY AND THICKNESS MAP

EAST DURHAM PARK
 NCDEQ ID NO. NONCD0000821, TASK ORDER 821DP-2
 2601 E. MAIN STREET & 300 GARY STREET
 DURHAM, NORTH CAROLINA

SCALE:
 1 in = 100 ft
 DATE:
 3/6/2024
 PROJECT NUMBER
 23050630

FIGURE NO.

5

**Preliminary Remediation Engineering & CQA Cost Estimate - East End Park
Soil Cover Remedy - Approx. One Acre**



NCDEQ Site ID #: NONCD0000823

NCDEQ Task Order: 823DP-7

Landfill Name: East End Park

S&M, Inc. Project: 23050630

June 14, 2024

Task 823DP-7B: Engineering Plans, Specifications, & Cost Estimation, Bidding & Contractual Documents, Project Management

Final Planning & Estimating, Subcontractor Selection		Unit	Quantity	Unit Price	Total
Principal (Planning)		hour	3	\$ 186.00	\$ 558.00
Senior Engineer (Specifications, Budget, & Schedule		hour	88	\$ 156.00	\$ 13,728.00
Project (Design) Engineer		hour	48	\$ 138.00	\$ 6,624.00
Staff Engineer		hour	40	\$ 114.00	\$ 4,560.00
Draftsperson		hour	24	\$ 90.00	\$ 2,160.00
Clerical		hour	4	\$ 66.00	\$ 264.00
				Subtotal	\$ 27,336.00

Task 823DP-7C: Detail of Estimated Project Management and CQA Costs

Construction Management, Meetings, Construction Quality Control (CQA) & Mobilization (Weeks 1 through 9)

Office Labor		Unit	Quantity	Unit Price	Total
Principal Engineer		hour	8	\$ 186.00	\$ 1,488.00
Senior Engineer		hour	50	\$ 156.00	\$ 7,800.00
Project Engineer		hour	100	\$ 138.00	\$ 13,800.00
Project (Design) Engineer		hour	50	\$ 130.00	\$ 6,500.00
Staff Engineer		hour	100	\$ 114.00	\$ 11,400.00
Draftsperson (Interpret Incoming survey data)		hour	9	\$ 90.00	\$ 810.00
Clerical		hour	50	\$ 66.00	\$ 3,300.00

Field Labor		Unit	Quantity	Unit Price	Total
Project Engineer (Implementation Inspections & Progress Meetings)		hour	50	\$ 138.00	\$ 6,900.00
Staff Engineer (Field Oversight/CQA/ESC Inspections)		hour	500	\$ 114.00	\$ 57,000.00

Equipment & Reimbursables		Unit	Quantity	Unit Price	Total
Photo-Ionization Detector		day	20	\$ 100.00	\$ 2,000.00
Global Positioning System (GPS) Unit		day	20	\$ 150.00	\$ 3,000.00
Field Expendables		day	50	\$ 30.00	\$ 1,500.00
Estimated Mileage (50 days x 60)		mile	3000	\$ 0.670	\$ 2,010.00
				Subtotal	\$ 116,020.00

Construction Certification Reporting

		Unit	Quantity	Unit Price	Total
Senior Engineer		hour	6	\$ 156.00	\$ 936.00
Project Engineer (Complete/Process Contractor Submittals)		hour	60	\$ 138.00	\$ 8,280.00
Project/Design Engineer		hour	10	\$ 138.00	\$ 1,380.00
Staff Engineer		hour	60	\$ 114.00	\$ 6,840.00
Staff Engineer (Risk Assessment of imported soil / other sources)		hour	4	\$ 114.00	\$ 456.00
Draftsperson		hour	28	\$ 90.00	\$ 2,520.00
Clerical		hour	4	\$ 66.00	\$ 264.00
				Subtotal	\$ 20,676.00

S&M Post-Construction and ESC Removal Activities (Week 10)

		Unit	Quantity	Unit Price	Total
Senior Engineer		hour	4	\$ 156.00	\$ 624.00
Project Engineer (Office & Administrative)		hour	8	\$ 138.00	\$ 1,104.00
Project Engineer (Field Visits)		hour	8	\$ 138.00	\$ 1,104.00
Staff (Office & Field)		hour	24	\$ 114.00	\$ 2,736.00
Draftsperson (includes As Built figures)		hour	4	\$ 90.00	\$ 360.00
Clerical		hour	2	\$ 66.00	\$ 132.00
Field Expendables		day	3	\$ 30.00	\$ 90.00
Estimated Mileage (3 days x 60)		mile	180	\$ 0.670	\$ 120.60
				Subtotal	\$ 6,270.60

Subtotal Estimated Engineering, CQA & Project Management Costs:				\$170,303
30% Contingency for Estimated Subtotal Engineering, CQA & Project Management Costs:				\$51,091
Total Estimated Engineering, CQA & Project Management Costs:				\$221,000
Total Estimated Remediation Contractor Implementation Cost:				\$503,000
Task 823DP-7: Estimated Total Remediation Cost:				\$724,000

**Preliminary Remediation Contractor Cost Estimate - East End Park
Soil Cover Remedy - Approx. One Acre**



NCDEQ Site ID #: NONCD0000823

NCDEQ Task Order:

823DP-7

Landfill Name: East End Park

S&ME, Inc. Project:

23050630

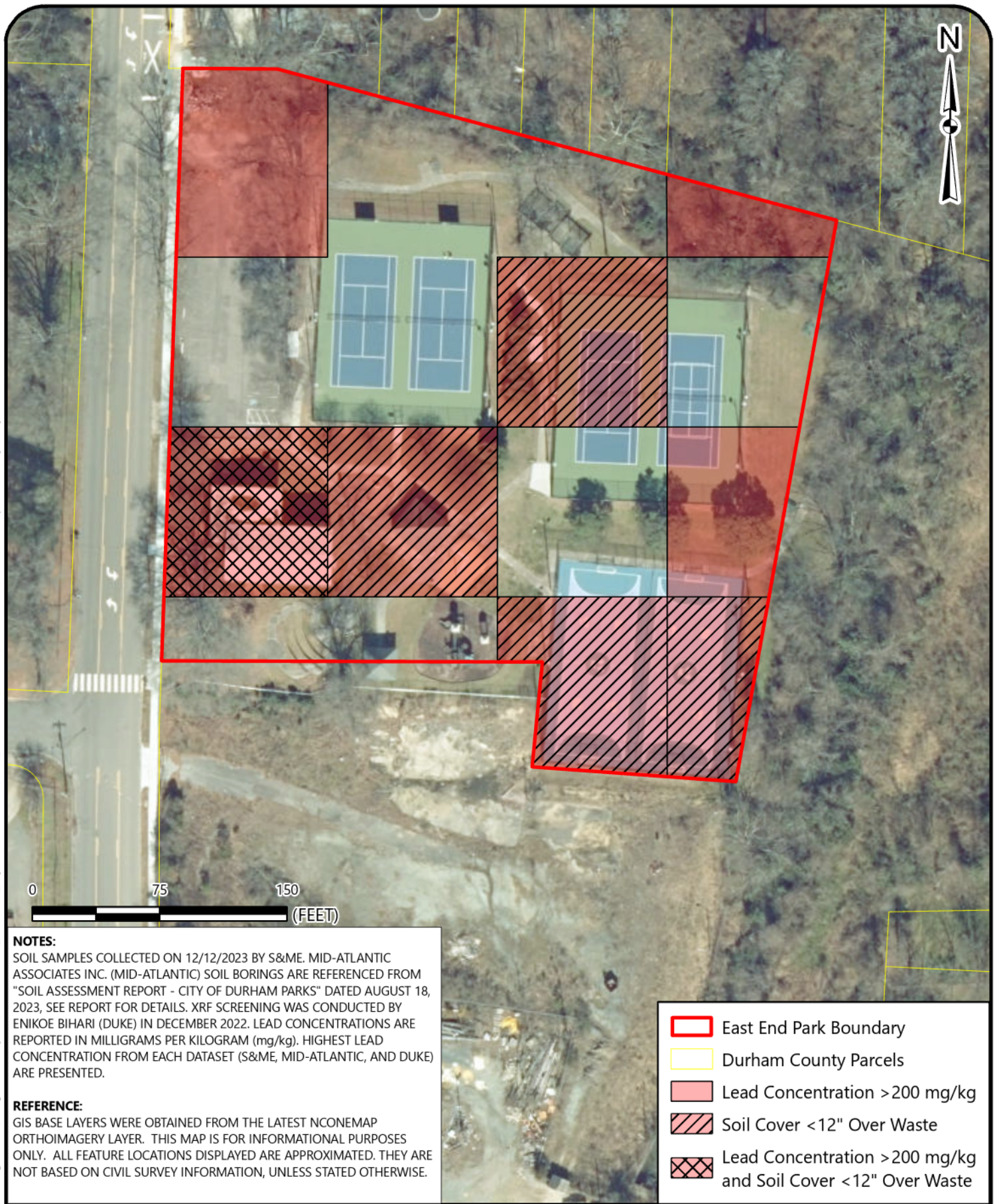
June 14, 2024

Task 823DP-7A: Detail of Estimated Remediation Contractor Costs and Schedule for Cover System Construction							
	Unit	Quantity	Anticipated Contractor Costs		Project Days	Non-Project Days	
			Unit Price	Total			
Contractor Costs During Implementation							
i-1	E&SC Application, Management, & Permitting Fees	each	1	\$ 6,000.00	\$ 6,000.00		
i-2	Insurance/Bond (approx. 3% of contractor's cost)	each	1	\$ 11,000.00	\$ 11,000.00		
i-3	Subcontractor Submittals	each	1	\$ 5,000.00	\$ 5,000.00		
i-4	Equipment Mobilization	each	1	\$ 20,000.00	\$ 20,000.00	2	
i-5	Construction Entrance, Gate, & Access Roads	each	1	\$ 8,500.00	\$ 8,500.00	2	
i-6	Temporary Security Fencing Rental (Chain Link)	lnr foot	1,200	\$ 22.00	\$ 26,400.00		
i-6	Temporary Hazard Fencing (Orange Plastic)	lnr foot	200	\$ 8.00	\$ 1,600.00		
i-7	Survey Services (Initial, Construction & Volumetric, & Asbuilt)	day	4	\$ 2,100.00	\$ 8,400.00		
i-8	Clearing / Stump Grinding and Veg Debris Chipping & Removal	acre	0.5	\$ 19,000.00	\$ 9,500.00	2	
i-9	Silt Fence (Perimeter)	lnr foot	600	\$ 9.00	\$ 5,400.00	1	
i-10	Silt Fence Outlets	each	1	\$ 400.00	\$ 400.00	1	
i-11	Stockpile Silt Fence	lnr foot	800	\$ 9.00	\$ 7,200.00	2	
i-12	Stormwater Trenches w/rolled E&SC Matting & Filter Socks	lnr foot	100	\$ 48.00	\$ 4,800.00	1	
i-13	Temporary Skimmer Basin(s) (Excavation, Embankments, Matting, Skimmers, Spillways, Runoff Diversions, Geotech, Deconstruction)	each	1	\$ 25,000.00	\$ 25,000.00	2	
i-14	Prepare Contractor Laydown Area	each	1	\$ 7,500.00	\$ 7,500.00	1	
i-15	Temporary Seeding & Mulching	acre	1	\$ 4,000.00	\$ 4,000.00	1	
i-16	Construction Trailer, Facilities Rental, Power & Internet)	each	1	\$ 8,000.00	\$ 8,000.00	2	
i-17	Excavated Cuts (Accommodate Drainage Feature Slopes, Existing Pavements, and Park Accountments (Remove Material From Site, Permitted Landfill Disposal)	cu yard	200	\$ 125.00	\$ 25,000.00	4	
i-18	Air Monitoring Field Operations	day	30	\$ 800.00	\$ 24,000.00		
i-19	Collect & Remove Surface Waste (Remove From Site)	cu yard	10	\$ 40.00	\$ 400.00	1	
i-20	Intermediate Grading & Compaction of the Subgrade Surface	acre	1.0	\$ 3,500.00	\$ 3,500.00	1	
i-21	Purchase & Place Demarcation (Geotextile) Fabric	acre	1.0	\$ 11,000.00	\$ 11,000.00	4	
i-22	Sample imported backfill Soils- 1 topsoil, 1 Structural Fill	each	2	\$ 14,000.00	\$ 28,000.00		
i-23	Cover Soil - Supply, Place & Compact Structural Fill (imported Source)	acre	1.0	\$ 26,610.00	\$ 26,610.00	2	
i-24	Cover Soil - Supply, Place & Compact Topsoil (Imported & Amended)	acre	1.0	\$ 36,315.00	\$ 36,315.00	2	
i-25	Hydroseed (Permanent Mix)	acre	1.5	\$ 19,500.00	\$ 29,250.00	1	
i-26	Demobilization & Security Fence Removal	each	1	\$ 6,500.00	\$ 6,500.00		
i-27	Landscaping Replacement (Trees & shrubs)	each	1.0	\$ 2,500.00	\$ 2,500.00		
i-28	Disposal of Tires & ACM Materials	each	1	\$ 1,000.00	\$ 1,000.00		
i-29	(Final Removal) Construction Trailer & Facilities Rental	each	1	\$ 2,500.00	\$ 2,500.00		
i-30	Remove Pavements (Laydown Areas, Entrances, Driveways & Access Roads)	each	1	\$ 4,250.00	\$ 4,250.00	4	
i-31	Remove Temp E&SC Measures (Initial)	each	1	\$ 4,000.00	\$ 4,000.00	3	
i-32	Demobilization & Security Fence Removal	each	1	\$ 15,000.00	\$ 15,000.00	2	
i-33	Remove Remaining Temp E&SC Measures (Post Construction)	each	1	\$ 8,000.00	\$ 8,000.00	1	
Task 823DP-7A: Estimated Total Remediation Contractor Implementation Cost:					\$ 387,000	42	30
					Total Estimated Inclement Weather Days:	4	
					Total Estimated Implementation Project Timetable (in Days):	46	30
30% Contingency for Estimated Total Remediation Contractor Implementation Cost:					\$ 116,000		
Task 823DP-7A: Estimated Total Remediation Contractor Implementation Cost:					\$ 503,000		

Implementation Comments:

- The soil cover remedy will be installed over areas with lead concentrations at or above 200 milligrams per kilogram and/or areas with less than one-foot of soil cover over waste.
- Project Days (**Bolded**) comprise activities that by necessity must be completed in a step-wise manner (i.e., critical pathway activities). Non-project days are defined as non-step-wise work activities that may be conducted concurrently with other project activities.

Drawing Path: T:\Raleigh-1050\Projects\2023\23050630_NCDEQ LF_City of Durham Parks (PRLF)_Durham NC\ENV\GIS\East End Park\East End Park.aprx Plotted by: EmilyHermann



NOTES:

SOIL SAMPLES COLLECTED ON 12/12/2023 BY S&ME. MID-ATLANTIC ASSOCIATES INC. (MID-ATLANTIC) SOIL BORINGS ARE REFERENCED FROM "SOIL ASSESSMENT REPORT - CITY OF DURHAM PARKS" DATED AUGUST 18, 2023, SEE REPORT FOR DETAILS. XRF SCREENING WAS CONDUCTED BY ENIKOE BIHARI (DUKE) IN DECEMBER 2022. LEAD CONCENTRATIONS ARE REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg). HIGHEST LEAD CONCENTRATION FROM EACH DATASET (S&ME, MID-ATLANTIC, AND DUKE) ARE PRESENTED.

REFERENCE:

GIS BASE LAYERS WERE OBTAINED FROM THE LATEST NCONEMAP ORTHOIMAGERY LAYER. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

- East End Park Boundary
- Durham County Parcels
- Lead Concentration >200 mg/kg
- Soil Cover <12" Over Waste
- Lead Concentration >200 mg/kg and Soil Cover <12" Over Waste



COMBINED QUALITY AND THICKNESS MAP

EAST END PARK
 NCDEQ ID NO. NONCD0000823, TASK ORDER 823DP-2
 1200 N. ALSTON AVENUE
 DURHAM, NORTH CAROLINA

SCALE:
1 in = 75 ft

DATE:
3/6/2024
PROJECT NUMBER
23050630

FIGURE NO.

5

Preliminary Remediation Engineering & CQA Cost Estimate - Lyon Park
Soil Cover Remedy - Approx. 1.5 Acres



NCDEQ Site ID #: NONCD0000824
 Landfill Name: Lyon Park

NCDEQ Task Order: 824DP-7
 S&ME, Inc. Project: 23050630

June 14, 2024

Task 824DP-7B: Engineering Plans, Specifications, & Cost Estimation, Bidding & Contractual Documents, Project Management

Final Planning & Estimating, Subcontractor Selection		Unit	Quantity	Unit Price	Total
Principal (Planning)		hour	3	\$ 186.00	\$ 558.00
Senior Engineer (Specifications, Budget, & Schedule)		hour	88	\$ 156.00	\$ 13,728.00
Project (Design) Engineer		hour	48	\$ 138.00	\$ 6,624.00
Staff Engineer		hour	40	\$ 114.00	\$ 4,560.00
Draftsperson		hour	24	\$ 90.00	\$ 2,160.00
Clerical		hour	4	\$ 66.00	\$ 264.00
Subtotal					\$ 27,336.00

Task 824DP-7C: Detail of Estimated Project Management and CQA Costs

Construction Management, Meetings, Construction Quality Control (CQA) & Mobilization (Weeks 1 through 10)

Office Labor		Unit	Quantity	Unit Price	Total
Principal Engineer		hour	8	\$ 186.00	\$ 1,488.00
Senior Engineer		hour	55	\$ 156.00	\$ 8,580.00
Project Engineer		hour	110	\$ 138.00	\$ 15,180.00
Project (Design) Engineer		hour	55	\$ 130.00	\$ 7,150.00
Staff Engineer		hour	110	\$ 114.00	\$ 12,540.00
Draftsperson (Interpret Incoming survey data)		hour	10	\$ 90.00	\$ 900.00
Clerical		hour	55	\$ 66.00	\$ 3,630.00

Field Labor		Unit	Quantity	Unit Price	Total
Project Engineer (Implementation Inspections & Progress Meetings)		hour	55	\$ 138.00	\$ 7,590.00
Staff Engineer (Field Oversight/CQA/E&SC Inspections)		hour	550	\$ 114.00	\$ 62,700.00

Equipment & Reimbursables		Unit	Quantity	Unit Price	Total
Photo-Ionization Detector		day	25	\$ 100.00	\$ 2,500.00
Global Positioning System (GPS) Unit		day	25	\$ 150.00	\$ 3,750.00
Field Expendables		day	55	\$ 30.00	\$ 1,650.00
Estimated Mileage (55 days x 60)		mile	3300	\$ 0.670	\$ 2,211.00
Subtotal					\$ 128,381.00

Construction Certification Reporting

	Unit	Quantity	Unit Price	Total
Senior Engineer	hour	6	\$ 156.00	\$ 936.00
Project Engineer (Complete/Process Contractor Submittals)	hour	60	\$ 138.00	\$ 8,280.00
Project/Design Engineer	hour	10	\$ 138.00	\$ 1,380.00
Staff Engineer	hour	60	\$ 114.00	\$ 6,840.00
Staff Engineer (Risk Assessment of imported soil / other sources)	hour	4	\$ 114.00	\$ 456.00
Draftsperson	hour	28	\$ 90.00	\$ 2,520.00
Clerical	hour	4	\$ 66.00	\$ 264.00
Subtotal				\$ 20,676.00

S&ME Post-Construction and ESC Removal Activities (Week 11)

	Unit	Quantity	Unit Price	Total
Senior Engineer	hour	4	\$ 156.00	\$ 624.00
Project Engineer (Office & Administrative)	hour	8	\$ 138.00	\$ 1,104.00
Project Engineer (Field Visits)	hour	8	\$ 138.00	\$ 1,104.00
Staff (Office & Field)	hour	24	\$ 114.00	\$ 2,736.00
Draftsperson (includes As Built figures)	hour	4	\$ 90.00	\$ 360.00
Clerical	hour	2	\$ 66.00	\$ 132.00
Field Expendables	day	3	\$ 30.00	\$ 90.00
Estimated Mileage (3 days x 60)	mile	180	\$ 0.670	\$ 120.60
Subtotal				\$ 6,270.60

Subtotal Estimated Engineering, CQA & Project Management Costs: \$182,664

30% Contingency for Estimated Subtotal Engineering, CQA & Project Management Costs: \$54,799

Total Estimated Engineering, CQA & Project Management Costs: \$237,000

Total Estimated Remediation Contractor Implementation Cost: \$972,000

Task 824DP-7: Estimated Total Remediation Cost: \$1,209,000

**Preliminary Remediation Contractor Cost Estimate - Lyon Park
Soil Cover Remedy - Approx. 1.5 Acres**



NCDEQ Site ID #: NONCD0000824
Landfill Name: Lyon Park

NCDEQ Task Order: 824DP-7
S&ME, Inc. Project: 23050630

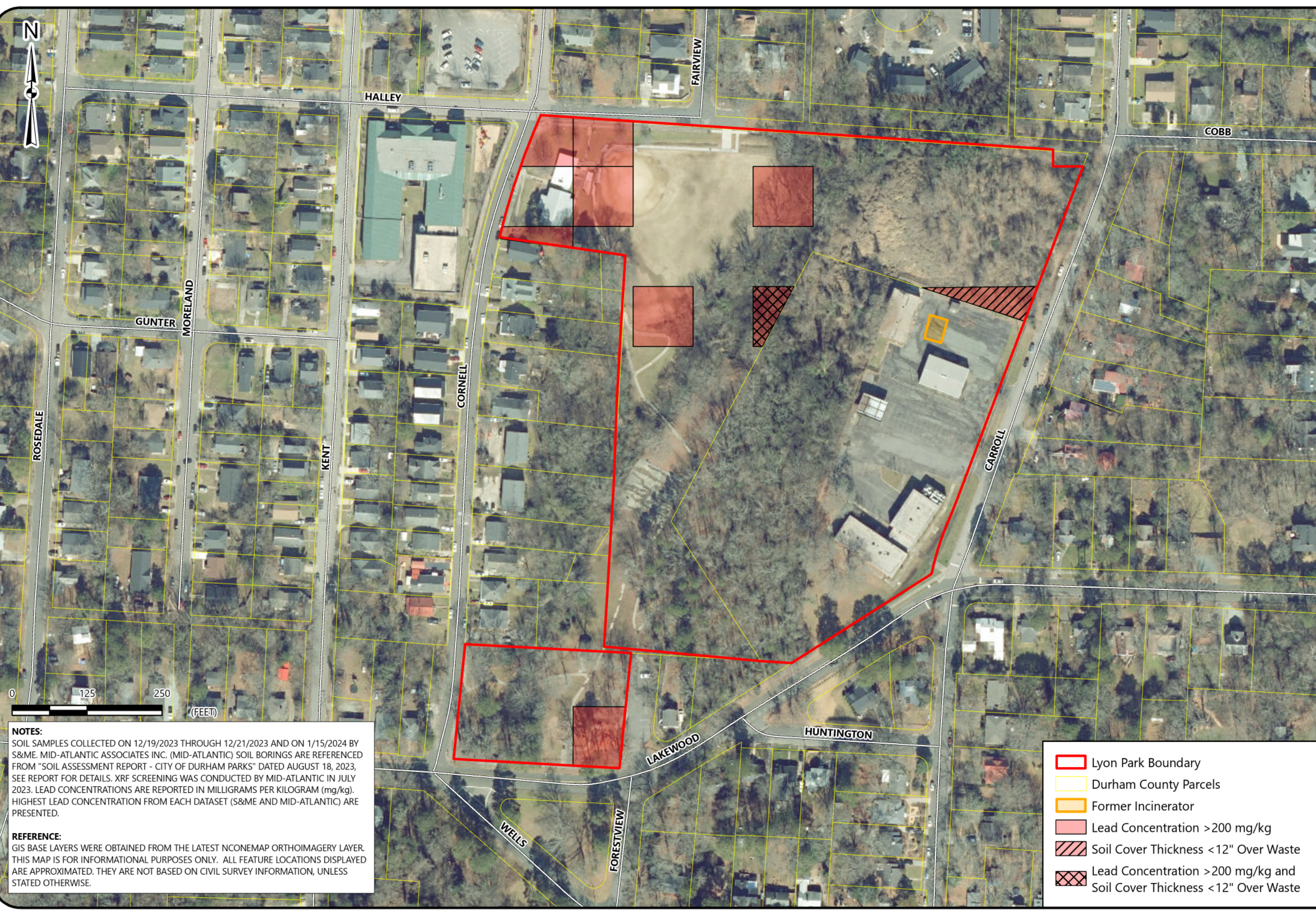
June 14, 2024

Task 824DP-7A: : Detail of Estimated Remediation Contractor Costs and Schedule for Cover System Construction							Project	Non-Project
	Unit	Quantity	Anticipated Contractor Costs		Project Days	Non-Project Days		
			Unit Price	Total				
Contractor Costs During Implementation								
i-1	Erosion & Sediment Control (E&SC) Permit Application, & Permitting Fees	each	1	\$ 8,000.00	\$ 8,000.00			
i-2	Insurance/Bond (approx. 3% of contractor's cost)	each	1	\$ 22,000.00	\$ 22,000.00			
i-3	Contractor Submittals	each	1	\$ 5,000.00	\$ 5,000.00		5	
i-4	Equipment Mobilization	each	1	\$ 20,000.00	\$ 20,000.00	2		
i-5	Construction Entrance, Gate, & Access Roads	each	1	\$ 8,500.00	\$ 8,500.00	2		
i-6	Temporary Security Fencing Rental (Chain Link)	lnr foot	2,000	\$ 22.00	\$ 44,000.00		3	
i-6	Temporary Hazard Fencing (Orange Plastic)	lnr foot	800	\$ 8.00	\$ 6,400.00		1	
i-7	Survey Services (Initial, Construction & Volumetric, & As-built)	day	4	\$ 2,100.00	\$ 8,400.00		4	
i-8	Clearing / Stump Grinding and Veg Debris Chipping & Removal	acre	1.5	\$ 19,000.00	\$ 28,500.00	4		
i-9	Silt Fence (Perimeter)	lnr foot	800	\$ 9.00	\$ 7,200.00	2		
i-10	Silt Fence Outlets	each	3	\$ 400.00	\$ 1,200.00	1		
i-11	Stockpile Silt Fence	lnr foot	800	\$ 9.00	\$ 7,200.00	2		
i-12	Stormwater Trenches w/rolled E&SC Matting & Filter Socks	lnr foot	600	\$ 48.00	\$ 28,800.00	1		
i-13	Temporary Skimmer Basin(s) (Excavation, Embankments, Matting, Skimmers, Spillways, Runoff Diversions, Geotech, Deconstruction)	each	2	\$ 45,000.00	\$ 90,000.00	2		
i-14	Prepare Contractor Laydown Area	each	1	\$ 7,500.00	\$ 7,500.00	1		
i-15	Temporary Seeding & Mulching	acre	1.5	\$ 4,000.00	\$ 6,000.00	1		
i-16	Construction Trailer, Facilities Rental, Power & Internet)	each	1	\$ 8,000.00	\$ 8,000.00	2		
i-17	Excavated Cuts (Accommodate Drainage Feature Slopes, Existing Pavements, and Park Accoutrements (Remove Material From Site, Permitted Landfill Disposal)	cu yard	1,500	\$ 125.00	\$ 187,500.00	8		
i-18	Air Monitoring Field Operations	day	30	\$ 800.00	\$ 24,000.00		16	
i-19	Collect & Remove Surface Waste (Remove From Site)	cu yard	50	\$ 40.00	\$ 2,000.00	1		
i-20	Intermediate Grading & Compaction of the Subgrade Surface	acre	1.5	\$ 3,500.00	\$ 5,250.00	1		
i-21	Purchase & Place Demarcation (Geotextile) Fabric	acre	1.5	\$ 11,000.00	\$ 16,500.00	2		
i-22	Sample imported backfill Soils- 1 topsoil, 1 Structural Fill	each	2	\$ 14,000.00	\$ 28,000.00		2	
i-23	Cover Soil - Supply, Place & Compact Structural Fill (imported Source)	acre	1.5	\$ 26,610.00	\$ 39,915.00	2		
i-24	Cover Soil - Supply, Place & Compact Topsoil (Imported & Amended)	acre	1.5	\$ 36,315.00	\$ 54,472.50	2		
i-25	Hydroseed (Permanent Mix)	acre	2	\$ 19,500.00	\$ 39,000.00	1		
i-26	Demobilization & Security Fence Removal	each	1	\$ 6,500.00	\$ 6,500.00		4	
i-27	Landscaping Replacement (Trees & shrubs)	acres	1.5	\$ 2,500.00	\$ 3,750.00		3	
i-28	Disposal of Tires	each	1	\$ 1,000.00	\$ 1,000.00		1	
i-29	(Final Removal) Construction Trailer & Facilities Rental	each	1	\$ 2,500.00	\$ 2,500.00		1	
i-30	Remove Pavements (Laydown Areas, Entrances, Driveways & Access Roads)	each	1	\$ 4,250.00	\$ 4,250.00	4		
i-31	Remove Temp E&SC Measures (Initial)	each	1	\$ 4,000.00	\$ 4,000.00	3		
i-32	Demobilization & Security Fence Removal	each	1	\$ 15,000.00	\$ 15,000.00	2		
i-33	Remove Remaining Temp E&SC Measures (Post Construction)	each	1	\$ 8,000.00	\$ 8,000.00	1		
Task 824DP-7A: Estimated Subtotal Remediation Contractor Implementation Cost:					\$ 748,000	47	40	
Total Estimated Inclement Weather Days:						5		
Total Estimated Implementation Project Timetable (in Days):						52	40	
30% Contingency for Estimated Total Remediation Contractor Implementation Cost:					\$ 224,000			
Task 824DP-7A: Estimated Total Remediation Contractor Implementation Cost:					\$ 972,000			

Implementation Comments:

- The soil cover remedy will be installed over areas with lead concentrations at or above 200 milligrams per kilogram and/or areas with less than one-foot of soil cover over waste.
- Project Days (**Bolded**) comprise activities that by necessity must be completed in a step-wise manner (i.e., critical pathway activities). Non-project days are defined as non-step-wise work activities that may be conducted concurrently with other project activities.

Drawing Path: T:\Raleigh-1050\Projects\2023\23050630_NCDEQ LF_City of Durham Parks (PRF)_Durham NC\ENR\GIS\Lyon Park.aprx Plotted by: EmilyHermann



NOTES:
 SOIL SAMPLES COLLECTED ON 12/19/2023 THROUGH 12/21/2023 AND ON 1/15/2024 BY S&ME. MID-ATLANTIC ASSOCIATES INC. (MID-ATLANTIC) SOIL BORINGS ARE REFERENCED FROM "SOIL ASSESSMENT REPORT - CITY OF DURHAM PARKS" DATED AUGUST 18, 2023, SEE REPORT FOR DETAILS. XRF SCREENING WAS CONDUCTED BY MID-ATLANTIC IN JULY 2023. LEAD CONCENTRATIONS ARE REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg). HIGHEST LEAD CONCENTRATION FROM EACH DATASET (S&ME AND MID-ATLANTIC) ARE PRESENTED.

REFERENCE:
 GIS BASE LAYERS WERE OBTAINED FROM THE LATEST NCONEMAP ORTHOIMAGERY LAYER. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.



- Lyon Park Boundary
- Durham County Parcels
- Former Incinerator
- Lead Concentration >200 mg/kg
- Soil Cover Thickness <12" Over Waste
- Lead Concentration >200 mg/kg and Soil Cover Thickness <12" Over Waste



COMBINED QUALITY AND THICKNESS MAP

LYON PARK
 NCDEQ ID NO. NONCD000824, TASK ORDER 824DP-2
 1308 W. CLUB BOULEVARD
 DURHAM, NORTH CAROLINA

SCALE:
1 in = 150 ft

DATE:
3/6/2024

PROJECT NUMBER
23050630

FIGURE NO.

5

**Preliminary Remediation Engineering and CQA Cost Estimate - Northgate Park
Soil Cover Remedy - Approx. 4.5 Acres**



NCDEQ Site ID #: NONCD0000825
Landfill Name: Northgate Park

NCDEQ Task Order: 825DP-7
S&ME, Inc. Project: 23050630

June 14, 2024

Task 825DP-7B: Engineering Plans, Specifications, & Cost Estimation, Bidding & Contractual Documents, Project Management					
Final Planning & Estimating, Subcontractor Selection		Unit	Quantity	Unit Price	Total
Principal (Planning)		hour	3	\$ 186.00	\$ 558.00
Senior Engineer (Specifications, Budget, & Schedule)		hour	88	\$ 156.00	\$ 13,728.00
Project (Design) Engineer		hour	48	\$ 138.00	\$ 6,624.00
Staff Engineer		hour	40	\$ 114.00	\$ 4,560.00
Draftsperson		hour	24	\$ 90.00	\$ 2,160.00
Clerical		hour	4	\$ 66.00	\$ 264.00
Subtotal					\$ 27,336.00
Task 825DP-C: Detail of Estimated Project Management and CQA Costs					
Construction Management, Meetings, Construction Quality Control (CQA) & Mobilization (Weeks 1 through 23)					
Office Labor		Unit	Quantity	Unit Price	Total
Principal (Meetings)		hour	4	\$ 186.00	\$ 744.00
Senior Engineer		hour	120	\$ 156.00	\$ 18,720.00
Project Engineer (Confirmation)		hour	240	\$ 138.00	\$ 33,120.00
Project (Design) Engineer (Confirmation)		hour	120	\$ 130.00	\$ 15,600.00
Staff Engineer		hour	240	\$ 114.00	\$ 27,360.00
Draftsperson (Interpret Incoming survey data)		hour	23	\$ 90.00	\$ 2,070.00
Clerical		hour	120	\$ 66.00	\$ 7,920.00
Field Labor		Unit	Quantity	Unit Price	Total
Project Engineer (Implementation Inspections & Progress Meetings)		hour	120	\$ 138.00	\$ 16,560.00
Staff Engineer (Field Oversight/CQA/ESC Inspections)		hour	1200	\$ 114.00	\$ 136,800.00
Equipment & Reimbursables					
PID		each	50	\$ 100.00	\$ 5,000.00
GPS		each	50	\$ 150.00	\$ 7,500.00
Field Expendables		each	120	\$ 30.00	\$ 3,600.00
Estimated Mileage (120 days x 60)		each	7200	\$ 0.670	\$ 4,824.00
Subtotal					\$ 279,074.00
Construction Certification Reporting					
		Unit	Quantity	Unit Price	Total
Senior Engineer		hour	6	\$ 156.00	\$ 936.00
Project Engineer (Complete/Process all Contractor Submittals)		hour	60	\$ 138.00	\$ 8,280.00
Project/Design Engineer		hour	10	\$ 138.00	\$ 1,380.00
Staff Engineer		hour	60	\$ 114.00	\$ 6,840.00
Staff Engineer (Risk Assessment of imported soil / other sources)		hour	4	\$ 114.00	\$ 456.00
Draftsperson		hour	28	\$ 90.00	\$ 2,520.00
Clerical		hour	4	\$ 66.00	\$ 264.00
Subtotal					\$ 20,676.00
S&ME Post-Construction and ESC Removal Activities (Week 24)					
		Unit	Quantity	Unit Price	Total
Senior Engineer		hour	4	\$ 156.00	\$ 624.00
Project Engineer (Office & Administrative)		hour	8	\$ 138.00	\$ 1,104.00
Project Engineer (Field Visits)		hour	8	\$ 138.00	\$ 1,104.00
Staff (Office & Field)		hour	24	\$ 114.00	\$ 2,736.00
Draftsperson (includes As Built figures)		hour	4	\$ 90.00	\$ 360.00
Clerical		hour	2	\$ 66.00	\$ 132.00
Estimated Mileage (3 days x 60)		each	180	\$ 0.670	\$ 120.60
Subtotal					\$ 6,180.60
Subtotal Estimated Engineering, CQA & Project Management Costs:					\$333,267
30% Contingency for Estimated Subtotal Engineering, CQA & Project Management Costs:					\$99,980
Total Estimated Engineering, CQA & Project Management Costs:					\$433,000
Total Estimated Remediation Contractor Implementation Cost:					\$1,758,000
Task 825DP-7: Estimated Total Remediation Cost:					\$2,191,000

**Preliminary Remediation Contractor Cost Estimate - Northgate Park
Soil Cover Remedy - Approx. 4.5 Acres**



NCDEQ Site ID #: NONCD0000825
Landfill Name: Northgate Park

NCDEQ Task Order: 825DP-7
S&ME, Inc. Project: 23050630

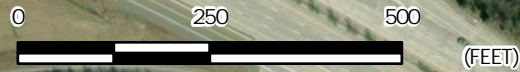
June 14, 2024

Task 825DP-7A: Detail of Estimated Remediation Contractor Costs and Schedule for Cover System Construction						Project Days	Non-Project Days
	Unit	Quantity	Anticipated Contractor Costs		Project Days	Non-Project Days	
			Unit Price	Total			
Contractor Costs During Implementation							
i-1	E&SC Application, Management, & Permitting Fees	each	1	\$ 10,000.00	\$ 10,000.00		
i-2	Insurance/Bond (approx. 3% of contractor's cost)	each	1	\$ 39,000.00	\$ 39,000.00		
i-3	Subcontractor Submittals	each	1	\$ 5,000.00	\$ 5,000.00	5	
i-4	Equipment Mobilization	each	1	\$ 25,000.00	\$ 25,000.00	3	
i-5	Construction Entrance, Gate, & Access Roads	each	2.0	\$ 4,500.00	\$ 9,000.00	6	
i-6	Temporary Security Fencing Rental (Chain Link)	lnr foot	5,000	\$ 22.00	\$ 110,000.00		
i-6	Temporary Hazard Fencing (Orange Plastic)	lnr foot	200	\$ 8.00	\$ 1,600.00	8	
i-7	Survey Services (Initial, Construction & Volumetric, & Asbuilt)	day	6	\$ 2,100.00	\$ 12,600.00	1	
i-8	Clearing / Stump Grinding and Veg Debris Chipping & Removal	acre	5.5	\$ 19,000.00	\$ 104,500.00	5	
i-9	Silt Fence (Perimeter)	lnr foot	2,800	\$ 9.00	\$ 25,200.00	15	
i-10	Silt Fence Outlets	each	10	\$ 400.00	\$ 4,000.00	2	
i-11	Stockpile Silt Fence	lnr foot	800	\$ 9.00	\$ 7,200.00	2	
i-12	Stormwater Trenches w/rolled E&SC Matting & Filter Socks	lnr foot	1,200	\$ 48.00	\$ 57,600.00	8	
i-13	Temporary Skimmer Basin(s) (Excavation, Embankments, Matting, Skimmers, Spillways, Runoff Diversions, Geotech, Deconstruction)	each	3	\$ 65,000.00	\$ 195,000.00	10	
i-14	Prepare Contractor Laydown Area	each	1	\$ 7,500.00	\$ 7,500.00	1	
i-15	Temporary Seeding & Mulching	acre	2	\$ 4,000.00	\$ 8,000.00	2	
i-16	Construction Trailer, Facilities Rental, Power & Internet)	each	1	\$ 8,000.00	\$ 8,000.00	2	
i-17	Excavated Cuts (Accommodate Drainage Feature Slopes, Existing Pavements, and Park Accountments (Remove Material From Site, Permitted Landfill Disposal)	cu yard	900	\$ 125.00	\$ 112,500.00	10	
i-18	Air Monitoring Field Operations	day	30	\$ 800.00	\$ 24,000.00		
i-19	Collect & Remove Surface Waste (Remove From Site)	cu yard	25	\$ 40.00	\$ 1,000.00	3	
i-20	Intermediate Grading & Compaction of the Subgrade Surface	acre	4.5	\$ 3,500.00	\$ 15,750.00	3	
i-21	Purchase & Place Demarcation (Geotextile) Fabric	acre	4.5	\$ 11,000.00	\$ 49,500.00	8	
i-22	Sample imported backfill Soils- 1 topsoil, 1 Structural Fill	each	2	\$ 14,000.00	\$ 28,000.00		
i-23	Cover Soil - Supply, Place & Compact Structural Fill (imported Source)	acre	4.5	\$ 26,610.00	\$ 119,745.00	2	
i-24	Cover Soil - Supply, Place & Compact Topsoil (Imported & Amended)	acre	4.5	\$ 36,315.00	\$ 163,417.50	8	
i-25	Hydroseed (Permanent Mix)	acre	5.5	\$ 19,500.00	\$ 107,250.00	4	
i-26	Demobilization & Security Fence Removal	each	1	\$ 11,000.00	\$ 11,000.00		
i-27	Landscaping Replacement (Trees & shrubs)	each	4.5	\$ 2,500.00	\$ 11,250.00	4	
i-28	Disposal of Tires & ACM Materials	each	1	\$ 1,000.00	\$ 1,000.00	3	
i-29	(Final Removal) Construction Trailer & Facilities Rental	each	1	\$ 2,500.00	\$ 2,500.00	1	
i-30	Remove Pavements (Laydown Areas, Entrances, Driveways & Access Roads)	each	1	\$ 4,500.00	\$ 4,500.00	1	
i-31	Remove Temp E&SC Measures (Initial)	each	1	\$ 45,000.00	\$ 45,000.00	4	
i-32	Demobilization & Security Fence Removal	each	1	\$ 18,500.00	\$ 18,500.00	3	
i-33	Remove Remaining Temp E&SC Measures (Post Construction)	each	1	\$ 8,000.00	\$ 8,000.00	4	
Task 825DP-7A: Estimated Total Subcontractor Implementation Cost:					\$ 1,352,000	112	55
Total Estimated Inclement Weather Days:						11	
Total Estimated Implementation Project Timetable (in Days):						123	55
30% Contingency for Estimated Total Remediation Contractor Implementation Cost:					\$ 406,000		
Task 825DP-7A: Estimated Total Remediation Contractor Implementation Cost:					\$ 1,758,000		

Implementation Comments:

- 1) The soil cover remedy will be installed over areas with lead concentrations at or above 200 milligrams per kilogram and/or areas with less than one-foot of soil cover over waste.
- 2) Project Days (**Bolded**) comprise activities that by necessity must be completed in a step-wise manner (i.e., critical pathway activities). Non-project days are defined as non-step-wise work activities that

Drawing Path: T:\Raleigh-1050\Projects\2023\23050630_NCDEO.LF_City of Durham Parks (PRF)_Durham NC\EN\GIS\Northgate Park.aprx Plotted by: ChelseaParra



REFERENCE:
GIS BASE LAYERS WERE OBTAINED FROM THE LATEST NCONEMAP ORTHOIMAGERY LAYER.
THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED
ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS
STATED OTHERWISE.



- DMS Boundary
- Northgate Park Property
- Lead Concentration > 200 mg/kg
- Soil Cover Thickness < 12" Over Waste
- Lead Concentration > 200 mg/kg and Soil Cover Thickness < 12" Over Waste



COMBINED QUALITY AND THICKNESS MAP

NORTHGATE PARK
NCDEQ ID NO. NONCD0000825, TASK ORDER 825DP-2
300 W. CLUB BOULEVARD & 404 W. LAVENDER AVENUE
DURHAM, NORTH CAROLINA

SCALE:
1 in = 250 ft

DATE:
6/4/2024

PROJECT NUMBER
23050630

FIGURE NO.

5

Preliminary Remediation Engineering & CQA Cost Estimate - Walltown Park

Soil Cover Remedy - Approx. 3.5 Acres



NCDEQ Site ID #: NONCD0000824

NCDEQ Task Order: 824DP-7

Landfill Name: Walltown Park

S&ME, Inc. Project: 23050630

June 14, 2024

Task 824DP-7B: Engineering Plans, Specifications, & Cost Estimation, Bidding & Contractual Documents, Project Management

Final Planning & Estimating, Subcontractor Selection		Unit	Quantity	Unit Price	Total
Principal (Planning)	hour	3	\$	186.00	\$ 558.00
Senior Engineer (Specifications, Budget, & Schedule)	hour	88	\$	156.00	\$ 13,728.00
Project (Design) Engineer	hour	48	\$	138.00	\$ 6,624.00
Staff Engineer	hour	40	\$	114.00	\$ 4,560.00
Draftsperson	hour	24	\$	90.00	\$ 2,160.00
Clerical	hour	4	\$	66.00	\$ 264.00
Subtotal					\$ 27,336.00

Task 824DP-C: Detail of Estimated Project Management and CQA Costs

Construction Management, Meetings, Construction Quality Control (CQA) & Mobilization (Weeks 1 through 23)

Office Labor		Unit	Quantity	Unit Price	Total
Principal (Meetings)	hour	16	\$	186.00	\$ 2,976.00
Senior Engineer	hour	120	\$	156.00	\$ 18,720.00
Project Engineer (Confirmation)	hour	240	\$	138.00	\$ 33,120.00
Project (Design) Engineer (Confirmation)	hour	120	\$	130.00	\$ 15,600.00
Staff Engineer	hour	240	\$	114.00	\$ 27,360.00
Draftsperson (Interpret Incoming survey data)	hour	23	\$	90.00	\$ 2,070.00
Clerical	hour	120	\$	66.00	\$ 7,920.00

Field Labor

Project Engineer (Implementation Inspections & Progress Meetings)	hour	120	\$	138.00	\$ 16,560.00
Staff Engineer (Field Oversight/CQA/ESC Inspections)	hour	1200	\$	114.00	\$ 136,800.00

Equipment & Reimbursables

PID	each	60	\$	100.00	\$ 6,000.00
GPS	each	60	\$	150.00	\$ 9,000.00
Field Expendables	each	120	\$	30.00	\$ 3,600.00
Estimated Mileage (120 days x 60)	each	7200	\$	0.670	\$ 4,824.00
Subtotal					\$ 281,574.00

Construction Certification Reporting

	Unit	Quantity	Unit Price	Total
Senior Engineer	hour	6	\$ 156.00	\$ 936.00
Project Engineer (Complete/Process all Contractor Submittals)	hour	60	\$ 138.00	\$ 8,280.00
Project/Design Engineer	hour	10	\$ 138.00	\$ 1,380.00
Staff Engineer	hour	60	\$ 114.00	\$ 6,840.00
Staff Engineer (Risk Assessment of imported soil / other sources)	hour	4	\$ 114.00	\$ 456.00
Draftsperson	hour	28	\$ 90.00	\$ 2,520.00
Clerical	hour	4	\$ 66.00	\$ 264.00
Subtotal				\$ 20,676.00

S&ME Post-Construction and ESC Removal Activities (Week 24)

	Unit	Quantity	Unit Price	Total
Senior Engineer	hour	4	\$ 156.00	\$ 624.00
Project Engineer (Office & Administrative)	hour	8	\$ 138.00	\$ 1,104.00
Project Engineer (Field Visits)	hour	8	\$ 138.00	\$ 1,104.00
Staff (Office & Field)	hour	24	\$ 114.00	\$ 2,736.00
Draftsperson (includes As Built figures)	hour	4	\$ 90.00	\$ 360.00
Clerical	hour	2	\$ 66.00	\$ 132.00
Estimated Mileage (3 days x 60)	each	180	\$ 0.670	\$ 120.60
Subtotal				\$ 6,180.60

Subtotal Estimated Engineering, CQA & Project Management Costs: \$335,767

30% Contingency for Estimated Subtotal Engineering, CQA & Project Management Costs: \$100,730

Total Estimated Engineering, CQA & Project Management Costs: \$436,000

Total Estimated Remediation Contractor Implementation Cost: \$4,087,000

Task 824DP-7: Estimated Total Remediation Cost: \$4,523,000

**Preliminary Remediation Contractor Cost Estimate - Walltown Park
Soil Cover Remedy - Approx. 3.5 Acres**



NCDEQ Site ID #: NONCD000824

NCDEQ Task Order:

824DP-7

Landfill Name: Walltown Park

S&ME, Inc. Project:

23050630

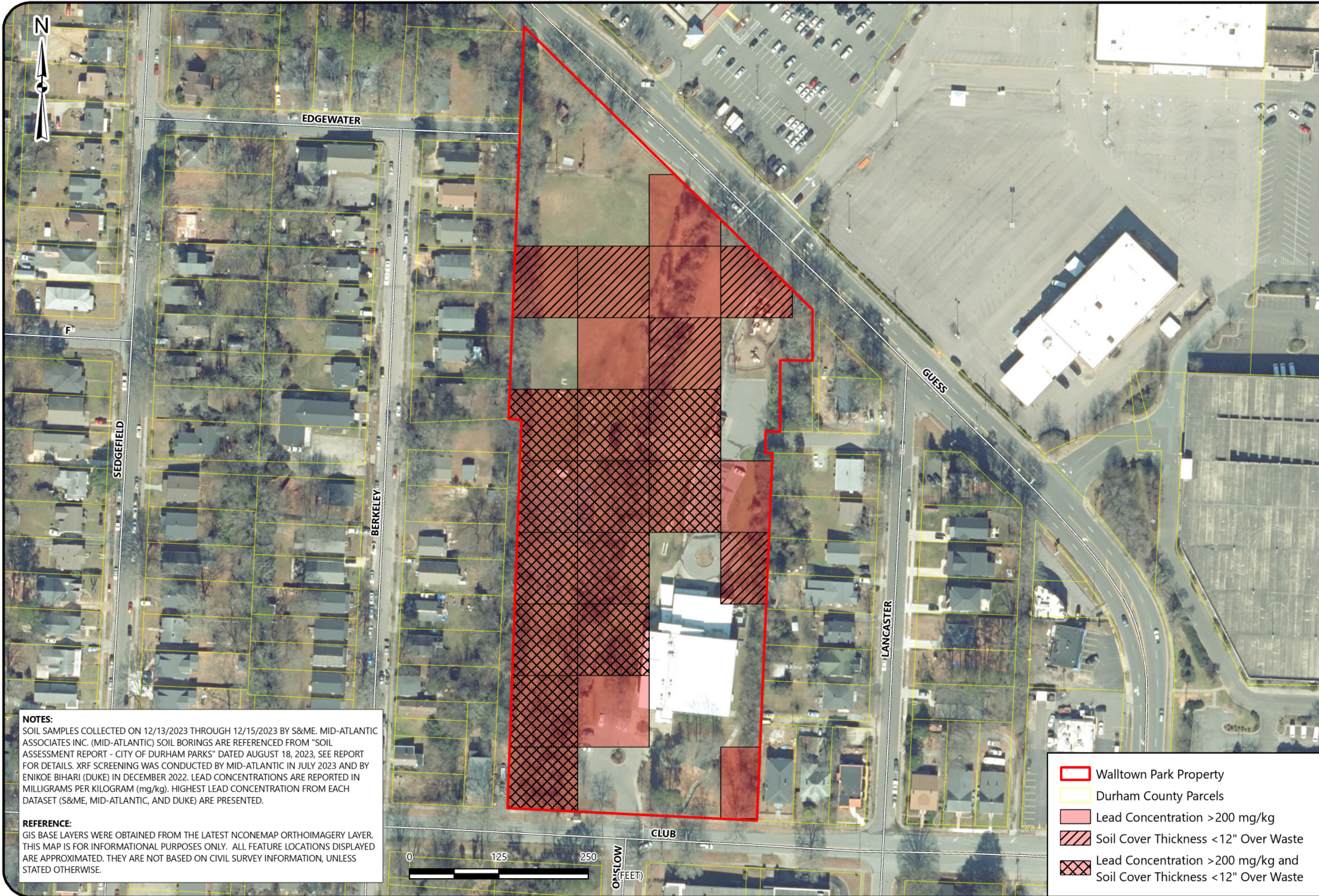
June 14, 2024

Task 824DP-7A: Detail of Estimated Remediation Contractor Costs and Schedule for Cover System Construction						Project Days	Non-Project Days
				Anticipated Contractor Costs			
				Unit Price	Total		
				Unit	Quantity		
Contactor Costs During Implementation							
i-1	E&SC Application, Management, & Permitting Fees	each	1	\$ 8,000.00	\$ 8,000.00		
i-2	Insurance/Bond (approx. 3% of contractor's cost)	each	1	\$ 93,000.00	\$ 93,000.00		
i-3	Subcontractor Submittals	each	1	\$ 5,000.00	\$ 5,000.00		5
i-4	Equipment Mobilization	each	1	\$ 25,000.00	\$ 25,000.00	2	
i-5	Construction Entrance, Gate, & Access Roads	each	2.5	\$ 8,500.00	\$ 21,250.00	4	
i-6	Temporary Security Fencing Rental (Chain Link)	lnr foot	2,500	\$ 22.00	\$ 55,000.00		6
i-6	Temporary Hazard Fencing (Orange Plastic)	lnr foot	1,200	\$ 8.00	\$ 9,600.00		1
i-7	Survey Services (Initial, Construction & Volumetric, & Asbuilt)	day	5	\$ 2,100.00	\$ 10,500.00		5
i-8	Clearing / Stump Grinding and Veg Debris Chipping & Removal	acre	2.5	\$ 19,000.00	\$ 47,500.00	8	
i-9	Silt Fence (Perimeter)	lnr foot	3,000	\$ 9.00	\$ 27,000.00	4	
i-10	Silt Fence Outlets	each	4	\$ 400.00	\$ 1,600.00	1	
i-11	Stockpile Silt Fence	lnr foot	800	\$ 9.00	\$ 7,200.00	2	
i-12	Stormwater Trenches w/rolled E&SC Matting & Filter Socks	lnr foot	1,500	\$ 48.00	\$ 72,000.00	9	
i-13	Temporary Skimmer Basin(s) (Excavation, Embankments, Matting, Skimmers, Spillways, Runoff Diversions, Geotech, Deconstruction)	each	2	\$ 65,000.00	\$ 130,000.00	10	
i-14	Prepare Contractor Laydown Area	each	1	\$ 7,500.00	\$ 7,500.00	1	
i-15	Temporary Seeding & Mulching	acre	2	\$ 4,000.00	\$ 8,000.00	2	
i-16	Construction Trailer, Facilities Rental, Power & Internet)	each	1	\$ 8,000.00	\$ 8,000.00	2	
i-17	Excavated Cuts (Accommodate Drainage Feature Slopes, Existing Pavements, and Park Accountments (Remove Material From Site, Permitted Landfill Disposal)	cu yard	17,000	\$ 125.00	\$ 2,125,000.00	32	
i-18	Air Monitoring Field Operations	day	45	\$ 800.00	\$ 36,000.00		45
i-19	Collect & Remove Surface Waste (Remove From Site)	cu yard	25	\$ 40.00	\$ 1,000.00	3	
i-20	Intermediate Grading & Compaction of the Subgrade Surface	acre	2.5	\$ 3,500.00	\$ 8,750.00	1	
i-21	Purchase & Place Demarcation (Geotextile) Fabric	acre	2.5	\$ 11,000.00	\$ 27,500.00	4	
i-22	Sample imported backfill Soils- 1 topsoil, 1 Structural Fill	each	2	\$ 14,000.00	\$ 28,000.00		2
i-23	Cover Soil - Supply, Place & Compact Structural Fill (imported Source)	acre	3.5	\$ 26,610.00	\$ 93,135.00	6	
i-24	Cover Soil - Supply, Place & Compact Topsoil (Imported & Amended)	acre	3.5	\$ 36,315.00	\$ 127,102.50	6	
i-25	Hydroseed (Permanent Mix)	acre	4.0	\$ 19,500.00	\$ 78,000.00	2	
i-26	Demobilization & Security Fence Removal	each	1	\$ 6,500.00	\$ 6,500.00		4
i-27	Landscaping Replacement (Trees & shrubs)	each	2.5	\$ 2,500.00	\$ 6,250.00		3
i-28	Disposal of Tires & ACM Materials	each	1	\$ 1,000.00	\$ 1,000.00		1
i-29	(Final Removal) Construction Trailer & Facilities Rental	each	1	\$ 2,500.00	\$ 2,500.00		1
i-30	Remove Pavements (Laydown Areas, Entrances, Driveways & Access Roads)	each	1	\$ 10,625.00	\$ 10,625.00	4	
i-31	Remove Temp E&SC Measures (Initial)	each	1	\$ 30,000.00	\$ 30,000.00	3	
i-32	Demobilization & Security Fence Removal	each	1	\$ 18,500.00	\$ 18,500.00	2	
i-33	Remove Remaining Temp E&SC Measures (Post Construction)	each	1	\$ 8,000.00	\$ 8,000.00	1	
Task 824DP-7A: Estimated Subtotal Contractor Remediation Cost:					\$ 3,144,000	109	73
Total Estimated Inclement Weather Days:						11	
Total Estimated Implementation Project Timetable (in Days):						120	73
30% Contingency for Estimated Total Remediation Contractor Implementation Cost:					\$ 943,000		
Task 824DP-7A: Estimated Total Remediation Contractor Implementation Cost:					\$ 4,087,000		

Implementation Comments:

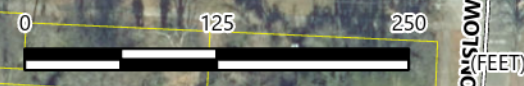
- 1) The soil cover remedy will be installed over areas with lead concentrations at or above 200 milligrams per kilogram and/or areas with less than one-foot of soil cover over waste.
- 2) Project Days (**Bolded**) comprise activities that by necessity must be completed in a step-wise manner (i.e., critical pathway activities). Non-project days are defined as non-step-wise work activities that

Drawing Path: T:\Raleigh-1050\Projects\2023\23050630_NCDEQ LE_City of Durham Parks (PRF)_Durham NC\ENM\GIS\Walltown Park.aprx Plotted by: Emily-Hermann



NOTES:
SOIL SAMPLES COLLECTED ON 12/13/2023 THROUGH 12/15/2023 BY S&ME. MID-ATLANTIC ASSOCIATES INC. (MID-ATLANTIC) SOIL BORINGS ARE REFERENCED FROM "SOIL ASSESSMENT REPORT - CITY OF DURHAM PARKS" DATED AUGUST 18, 2023, SEE REPORT FOR DETAILS. XRF SCREENING WAS CONDUCTED BY MID-ATLANTIC IN JULY 2023 AND BY ENIKOE BIHARI (DUKE) IN DECEMBER 2022. LEAD CONCENTRATIONS ARE REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg). HIGHEST LEAD CONCENTRATION FROM EACH DATASET (S&ME, MID-ATLANTIC, AND DUKE) ARE PRESENTED.

REFERENCE:
GIS BASE LAYERS WERE OBTAINED FROM THE LATEST NCONEMAP ORTHOIMAGERY LAYER. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.



-  Walltown Park Property
-  Durham County Parcels
-  Lead Concentration >200 mg/kg
-  Soil Cover Thickness <12" Over Waste
-  Lead Concentration >200 mg/kg and Soil Cover Thickness <12" Over Waste



COMBINED QUALITY AND THICKNESS MAP

WALLTOWN PARK
NCDEQ ID NO. NONCD000824, TASK ORDER 824DP-2
1308 W. CLUB BOULEVARD
DURHAM, NORTH CAROLINA

SCALE:
1 in = 125 ft

DATE:
3/6/2024

PROJECT NUMBER
23050630

FIGURE NO.

5