Healthy People. Healthy Communities.

CSXT Bramlett Road MGP Site Update

Lucas Berresford and Greg Cassidy
State Voluntary Cleanup Program

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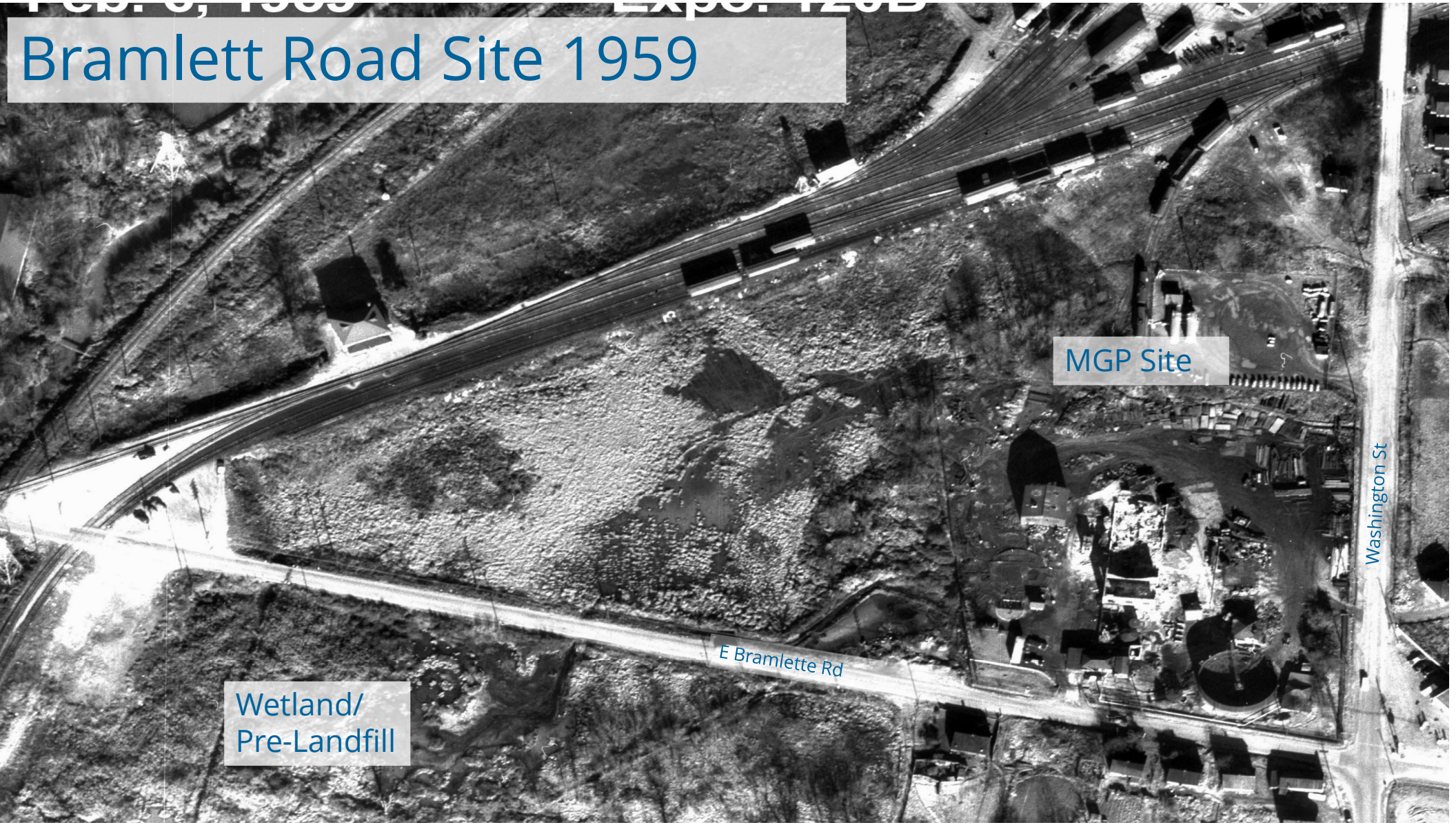
Department of Environmental Services

- The Environmental Part of DHEC will become a New Agency on July 1, 2024
- All contact information will remain the same for the public comment period.
- Website will update contact information after the official transition

Agenda

- Site History
- Focused Feasibility Study/Proposed Plan Alternatives
- Evaluation of Alternatives
- DHEC's Preferred Alternative
- Public Comment Period

Bramlett Road Site 1959

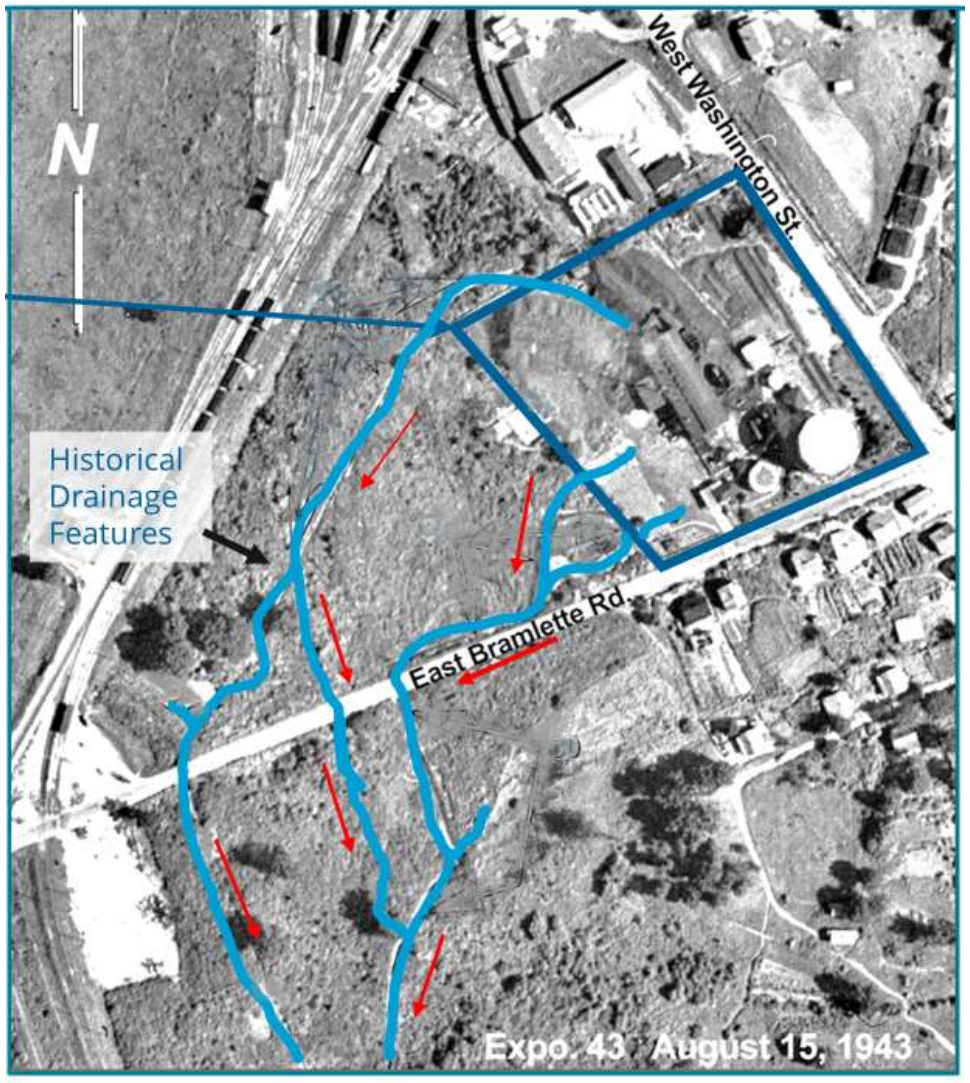


Site History

1917
Manufactured Gas Plant (MGP) built by Southern Public Utilities

1935
Duke Power became Owner

1952
MGP Ceased Operations

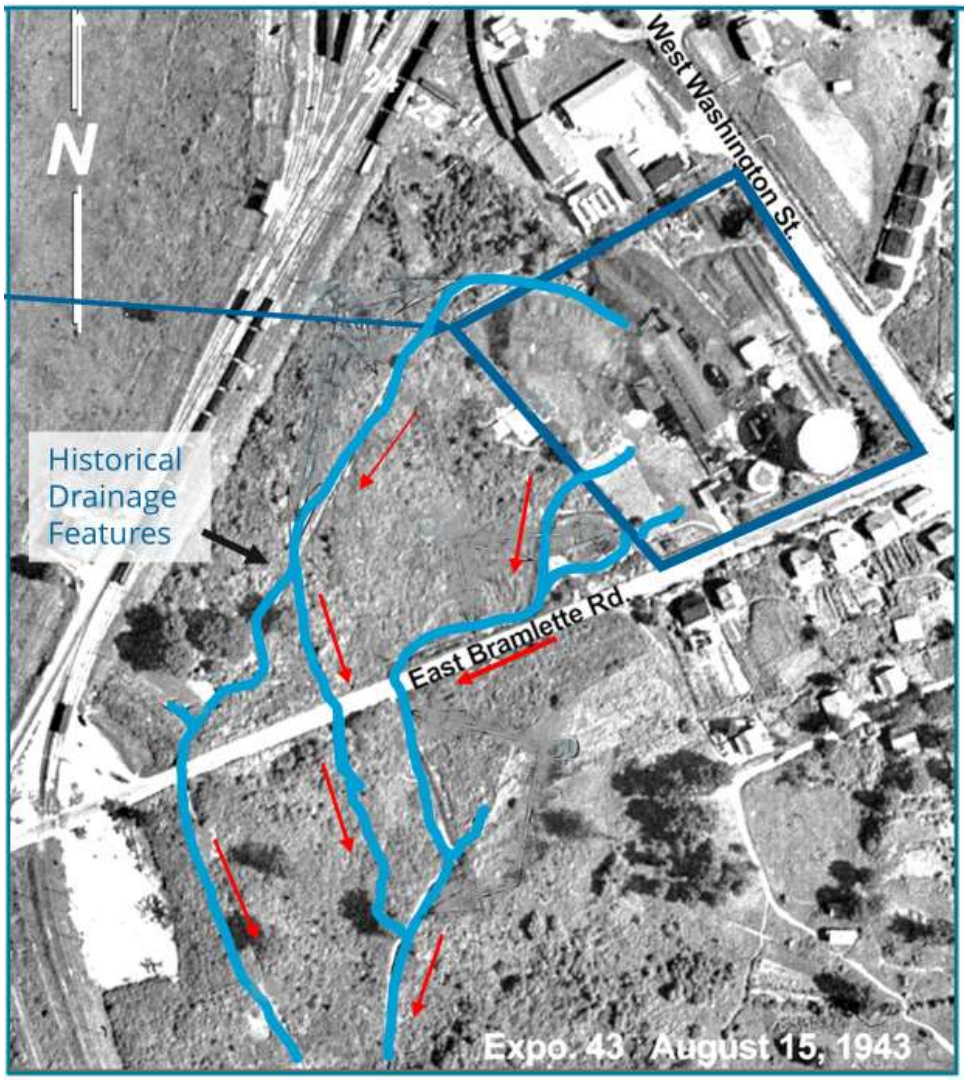


1958
MGP Structures were Demolished

1967
Property Transferred to CSX Predecessor

1970-1980
MGP portion of the site used as a Trucking Facility

Post-1980
MGP Site vacant

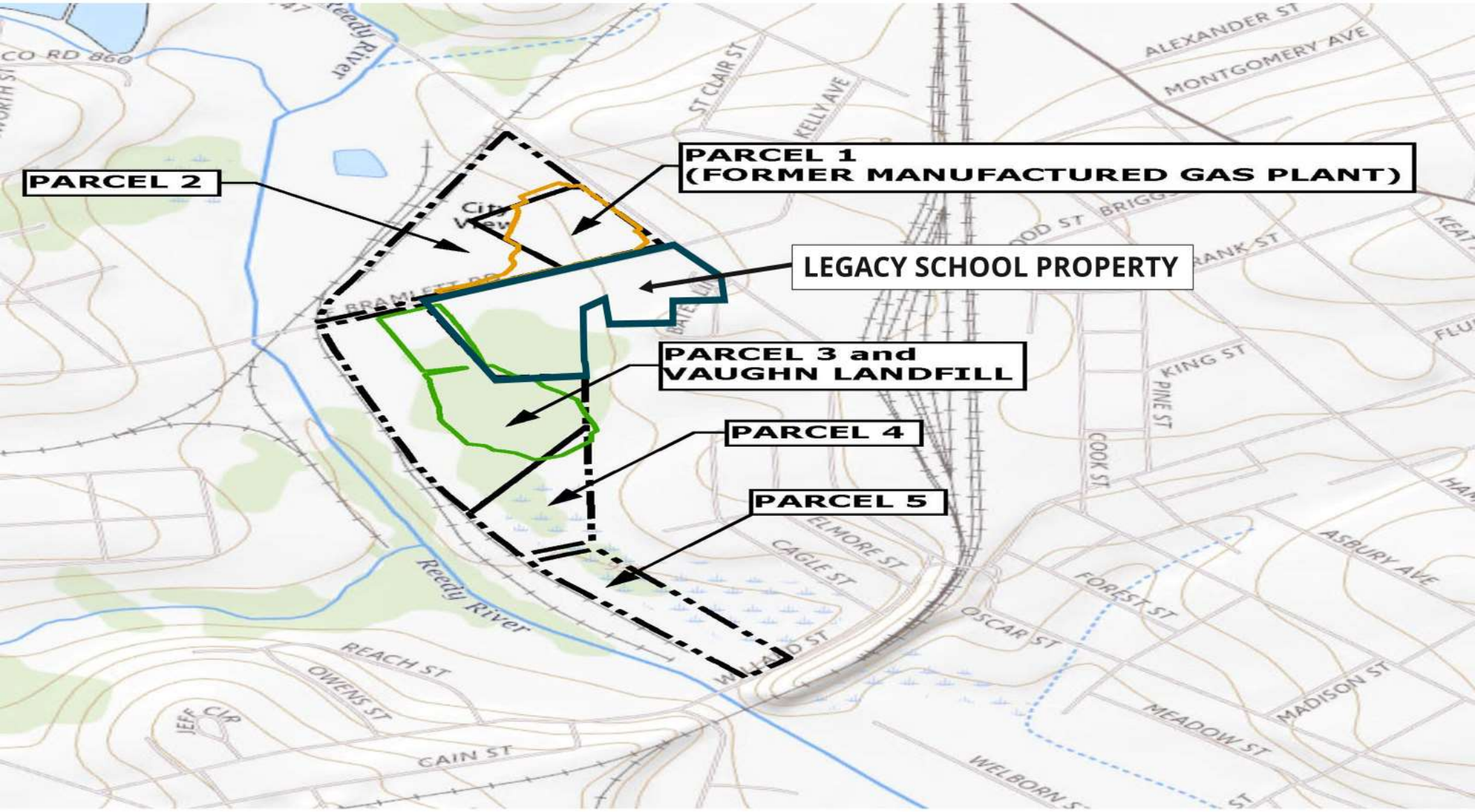


Landfill Site History

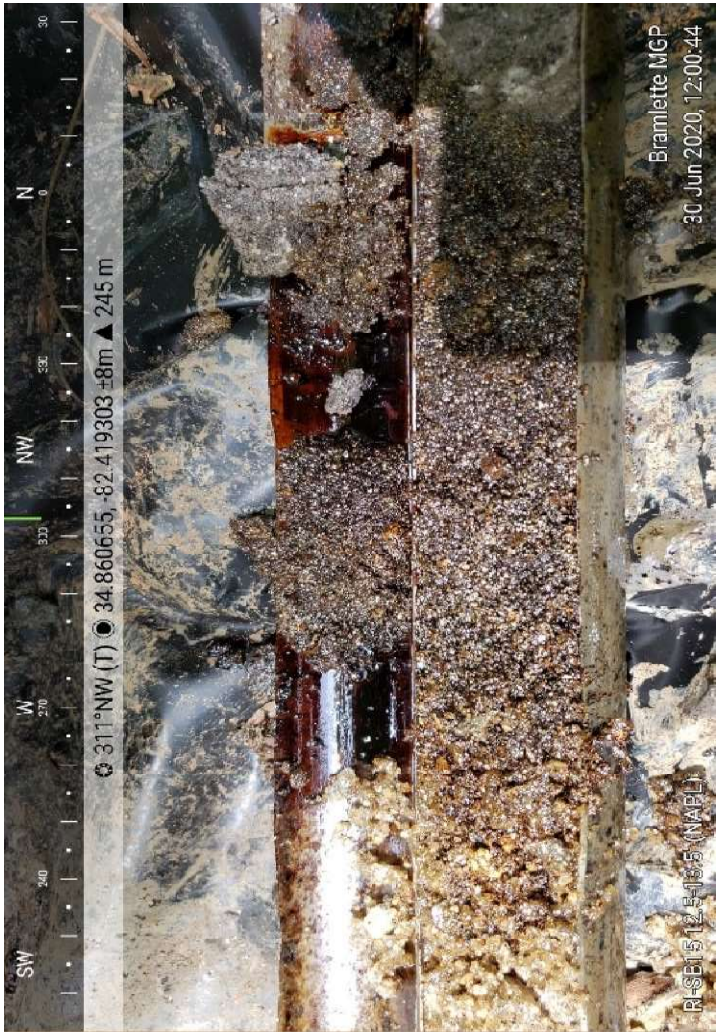
1988
Robert Vaughn began operations of an unpermitted landfill on the far side of Bramlett Road from the Former MGP.

1993
DHEC notified Mr. Vaughn to cease operations

1994
US Army Corps of Engineers notified CSX that landfill violated Clean Water Act. Landfill was Closed


PARCEL 2
PARCEL 1
(FORMER MANUFACTURED GAS PLANT)
LEGACY SCHOOL PROPERTY
PARCEL 3 and
VAUGHN LANDFILL
PARCEL 4
PARCEL 5
CO RD 860
Reedy River
ST CLAIR ST
KELLY AVE
ALEXANDER ST
MONTGOMERY AVE
KING ST
PINE ST
COOK ST
ELMORE ST
CAGLE ST
FOREST ST
OSCAR ST
ASBURY AVE
MADISON ST
MEADOW ST
REACH ST
OWENS ST
JEFF CIR
CAIN ST
WELBORN ST

Visually Observed Coal Tar



Coal Tar – Constituents of Concern

- Coal Tar contains Volatile Organic Compounds and Semi-Volatile Organic Compounds
- **Benzene** and **Naphthalene** are main constituents
- May also see Toluene, Ethylbenzene, Benzo(a)pyrene, Benzo(a)anthracene, Benzo(b)fluoranthene, and Xylenes

Parcel 1 Removal Action

- 2001-2002 Interim Removal Action
- 61,000 tons of contaminated soil and debris was excavated
- Groundwater monitoring conducted on a semiannual basis from 2003-Present

Voluntary Cleanup Contract

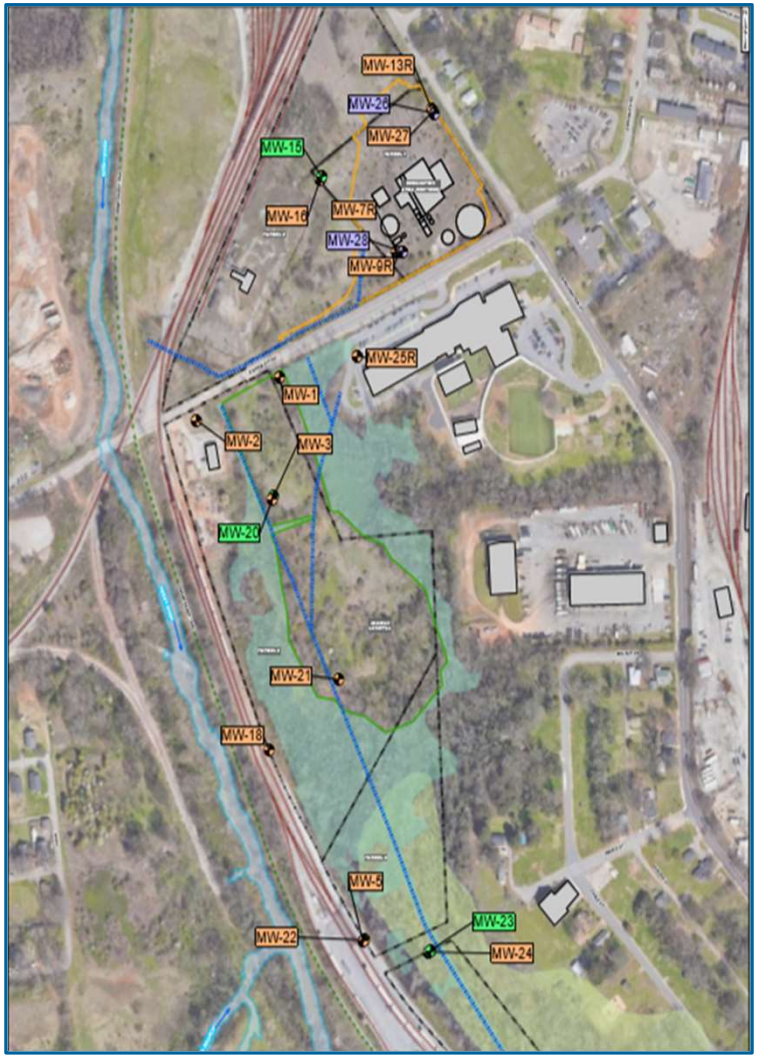
2013

DHEC sent a letter to CSX Transportation and Duke Energy requesting that they join the Voluntary Cleanup Contract (VCC) Program

2016

- Responsible Party Voluntary Cleanup Contract 16-5857-RP executed by DHEC and Duke Energy on July 29, 2016
- VCC required Duke to conduct an assessment and evaluate cleanup alternatives
- Public Meeting held on October 4, 2016

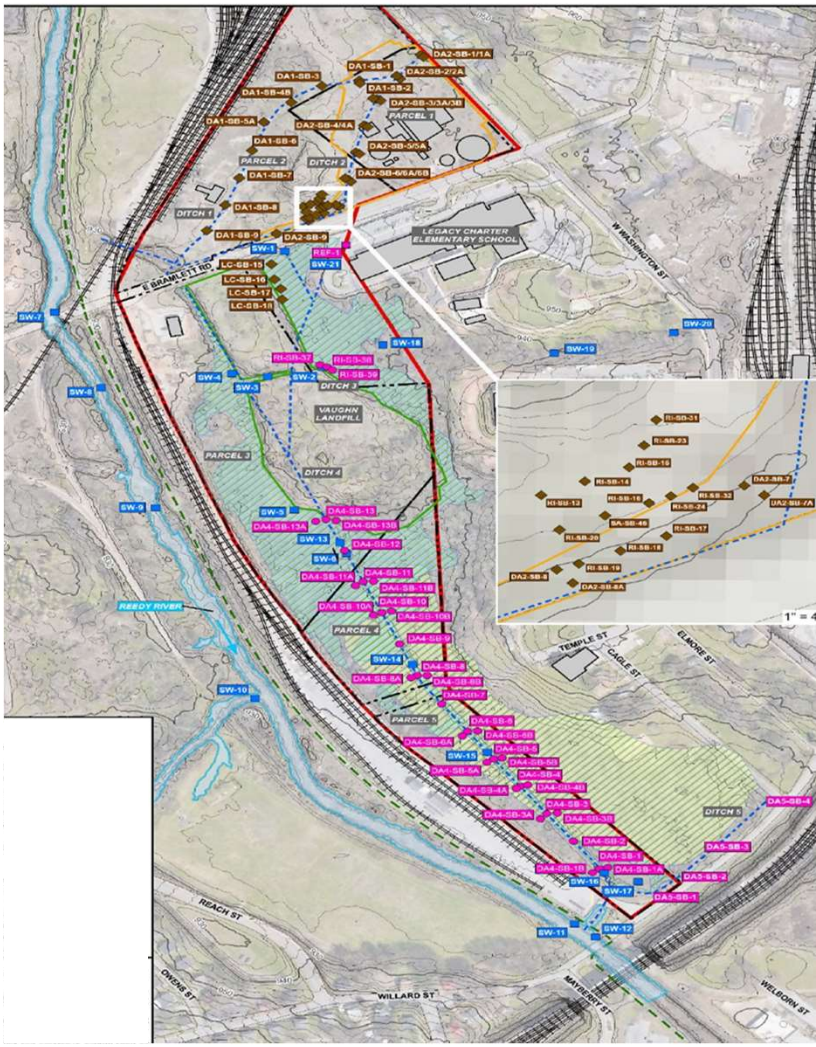
2017



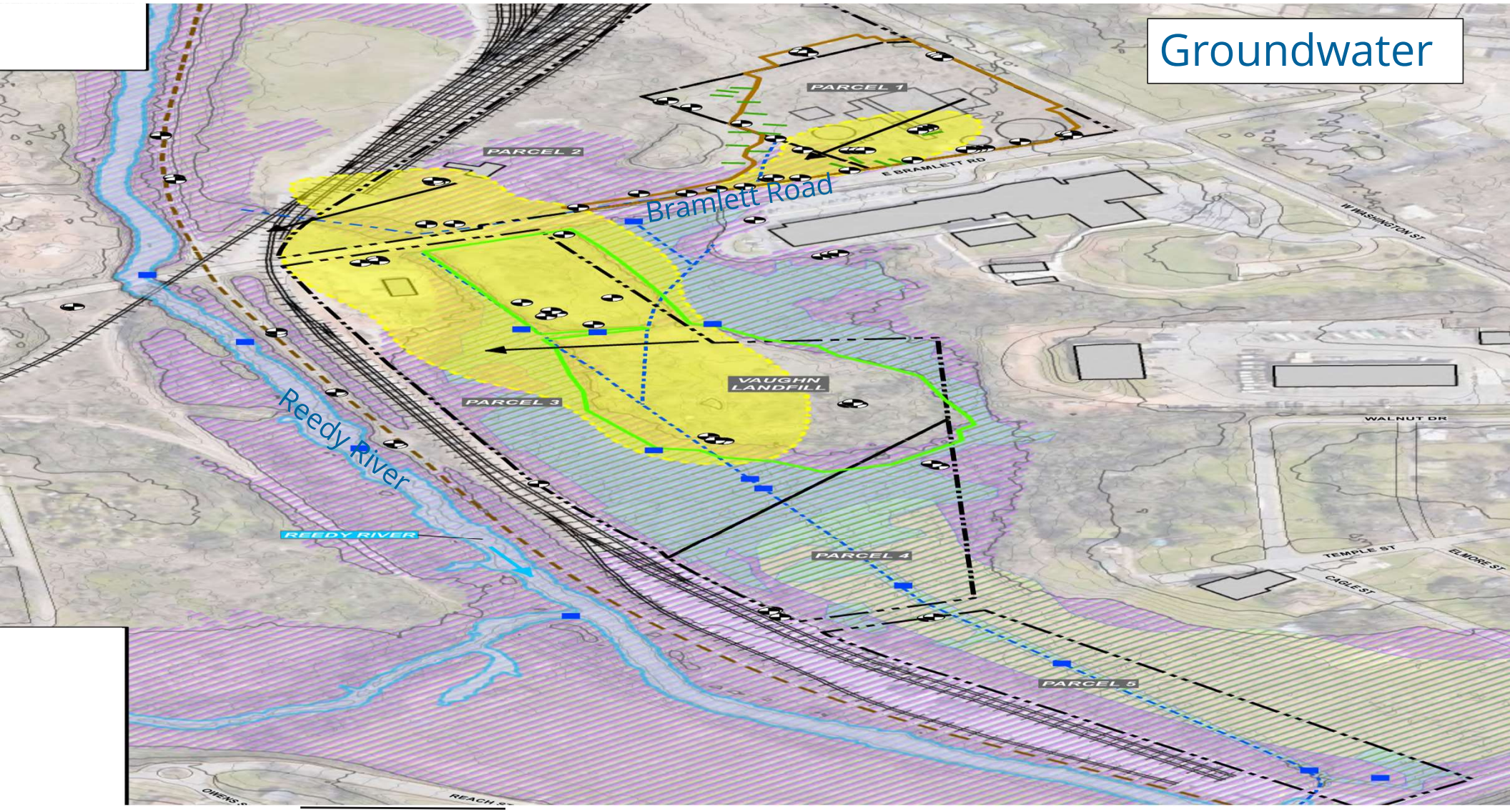
Work Completed as Part of the Voluntary Clean

- 70 Monitoring Wells
- 104 Soil / Sediment Borings Installed
- 16 Test Pits Excavated
- 94 Soil Samples
- 45 Surface Water Locations
- 29 Sediment Sample Locations

2024

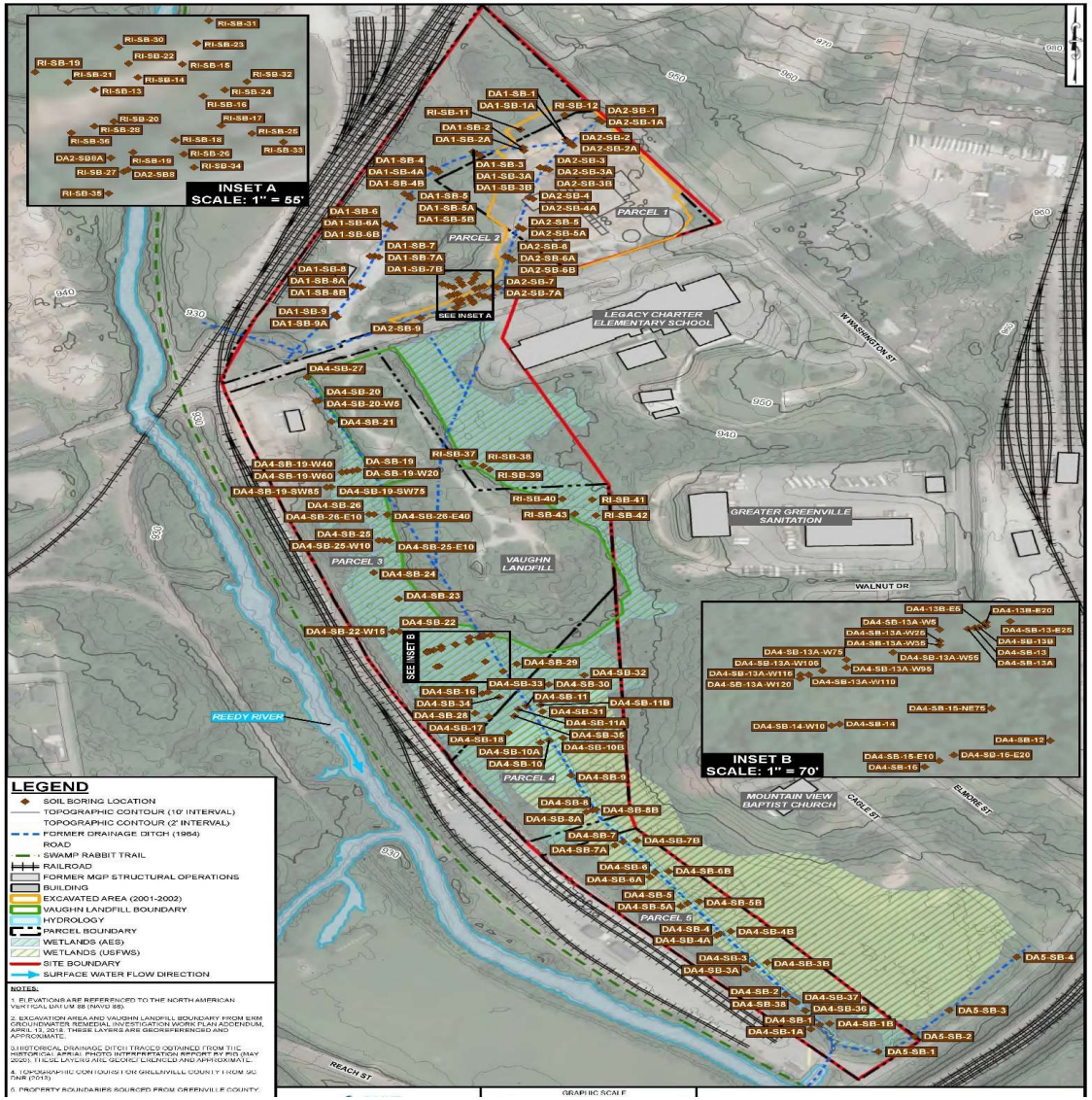


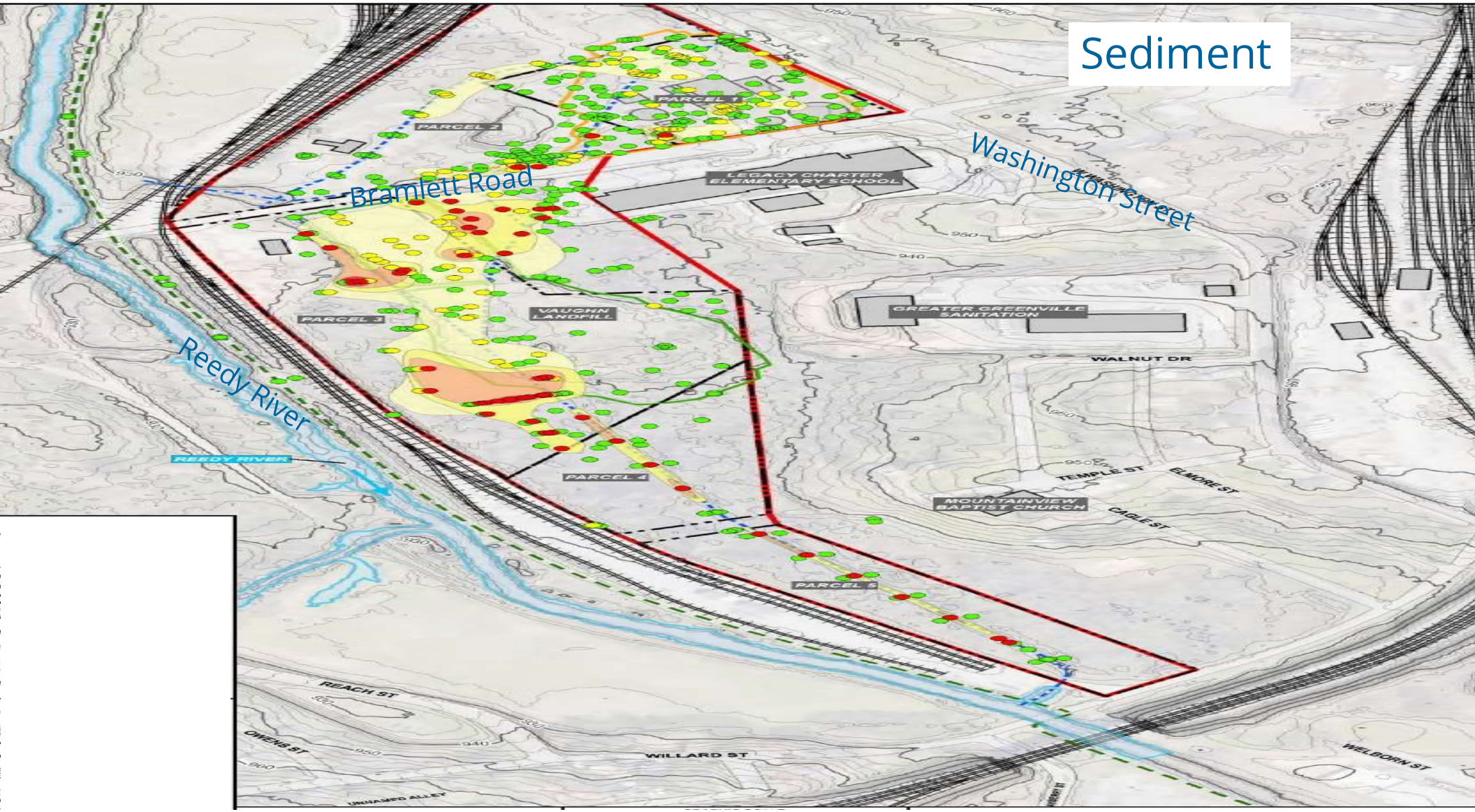
Groundwater

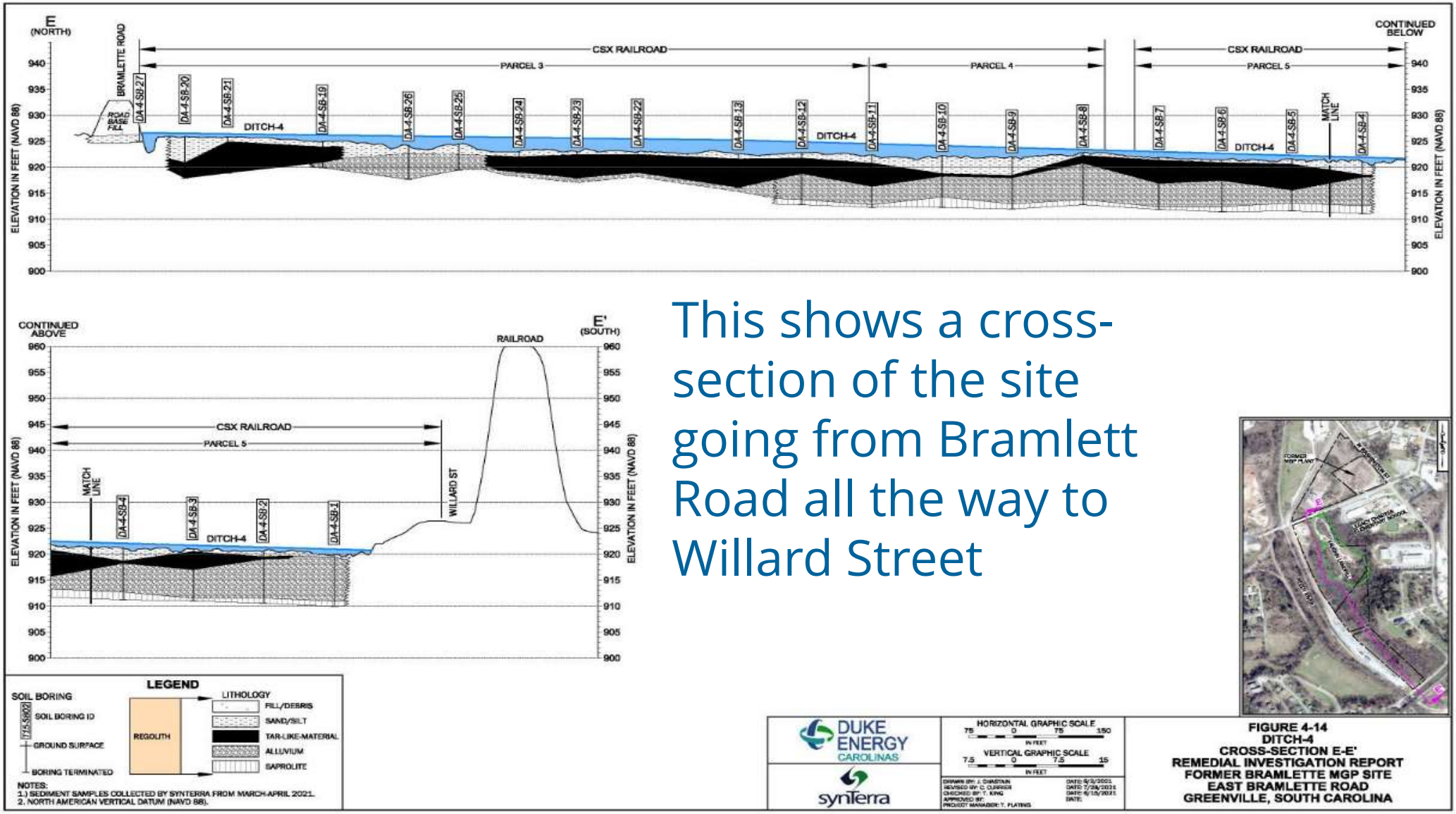


Remedial Investigation

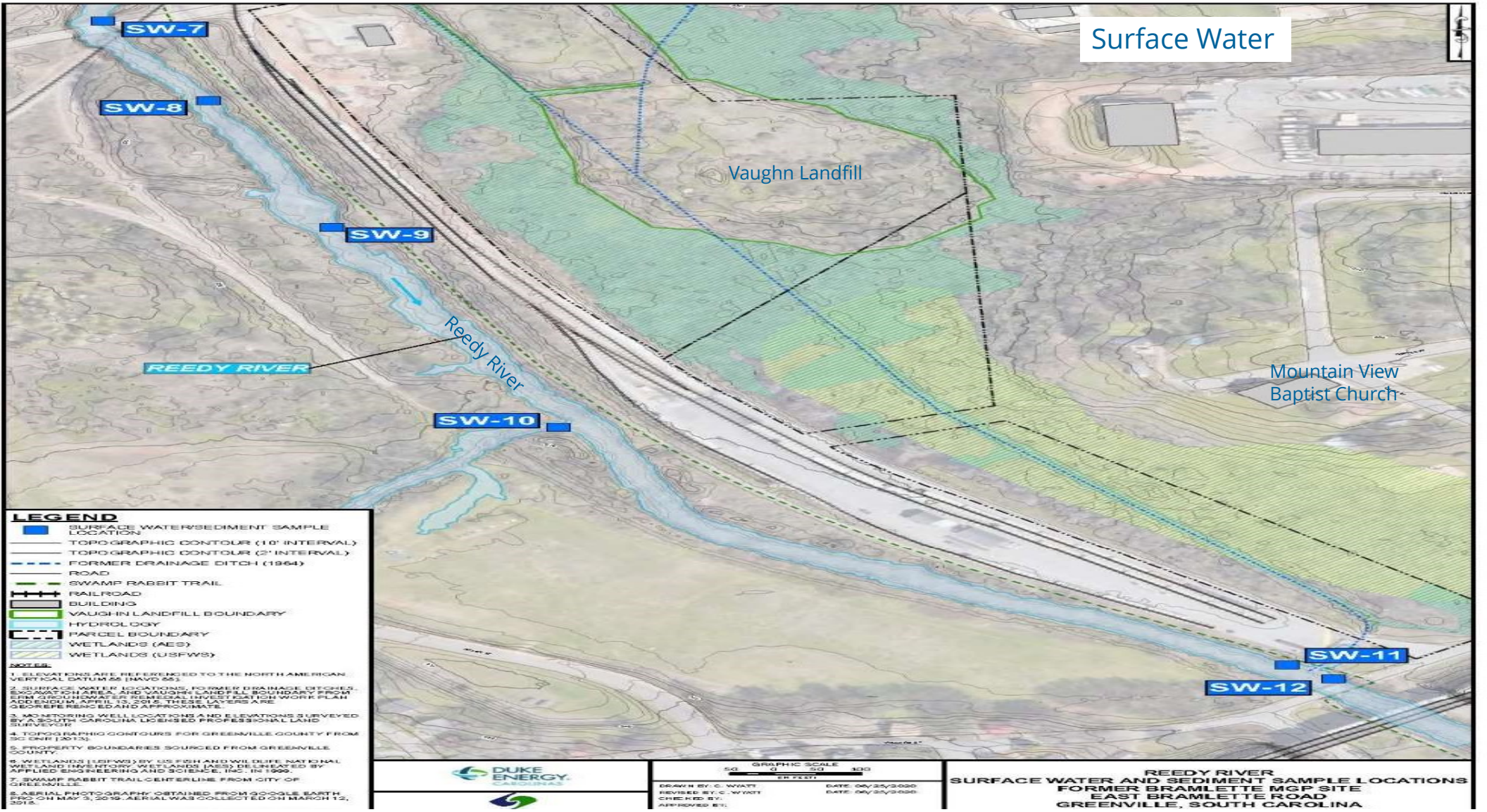
- Assessed the Former Stormwater Ditches
- Defined the extent of coal tar in ditches




Sediment
Bramlett Road
Washington Street
Reedy River
PARCEL 1
PARCEL 2
PARCEL 3
PARCEL 4
PARCEL 5
LEGACY CHARTER ELEMENTARY SCHOOL
VAUGHN LANDFILL
GREATER GREENVILLE SANITATION
MOUNTAINVIEW BAPTIST CHURCH
WALNUT DR
TEMPLE ST
ELMORE ST
CAGLE ST
REACH ST
OWENS ST
WILLARD ST
WELBORN ST
REEDY RIVER



This shows a cross-section of the site going from Bramlett Road all the way to Willard Street


Surface Water
SW-7
SW-8
SW-9
SW-10
SW-11
SW-12
Vaughn Landfill
Reedy River
REEDY RIVER
Mountain View
Baptist Church
LEGEND
SURFACE WATER/SEDIMENT SAMPLE LOCATIONS
TOPOGRAPHIC CONTOUR (10' INTERVAL)
TOPOGRAPHIC CONTOUR (2' INTERVAL)
FORMER DRAINAGE DITCH (1964)
ROAD
SWAMP RABBIT TRAIL
RAILROAD
BUILDING
VAUGHN LANDFILL BOUNDARY
HYDROLOGY
PARCEL BOUNDARY
WETLANDS (AES)
WETLANDS (USFWS)
NOTES:
1. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM 88 (NAVD 88).
2. SURFACE WATER LOCATIONS, FORMER DRAINAGE DITCHES, EXCAVATION AREA, AND VAUGHN LANDFILL BOUNDARY FROM ERM GROUNDWATER REMEDIAL INVESTIGATION WORK PLAN ADDENDUM, APRIL 13, 2015. THESE LAYERS ARE GEOREFERENCED AND APPROXIMATE.
3. MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY A SOUTH CAROLINA LICENSED PROFESSIONAL LAND SURVEYOR.
4. TOPOGRAPHIC CONTOURS FOR GREENVILLE COUNTY FROM SC ENR (2013).
5. PROPERTY BOUNDARIES SOURCED FROM GREENVILLE COUNTY.
6. WETLANDS (USFWS) BY US FISH AND WILDLIFE NATIONAL WETLAND INVENTORY. WETLANDS (AES) DELINEATED BY APPLIED ENGINEERING AND SCIENCE, INC. IN 1999.
7. SWAMP RABBIT TRAIL CENTERLINE FROM CITY OF GREENVILLE.
8. AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH PRO ON MAY 3, 2019. AERIAL WAS COLLECTED ON MARCH 12, 2018.
DUKE ENERGY CAROLINAS
GRAPHIC SCALE
50 0 50 100
IN FEET
DRAWN BY: C. WYATT
REVISED BY: C. WYATT
CHECKED BY:
APPROVED BY:
DATE: 06/25/2020
DATE: 06/25/2020
REEDY RIVER
SURFACE WATER AND SEDIMENT SAMPLE LOCATIONS
FORMER BRAMLETTE MGP SITE
EAST BRAMLETTE ROAD
GREENVILLE, SOUTH CAROLINA

Are there any Health Risks from the Contamination Found?

No, and Here's Why...

- In Order to Have a Risk of Any Adverse Health Effects, You Must Have the Opportunity for an Exposure to a Hazard

Coal Tar has been Either Removed or is at Depth

Drinking Water is from a Public Water Supply with Routine Testing and there are No Private Wells Nearby

Reedy River Surface Water and Sediment do not show on-going releases from Former MGP Operations

Superfund Process

- ✓Remedial Investigation – Determine Source, Nature, and Extent of Contamination
- ✓Focused Feasibility Study – Evaluation of Potential Cleanup Options
- Proposed Plan/Comment Period – DHEC's Proposed Remedy
- Record of Decision – Finalizes the remedy selection

Focused Feasibility Study

- Identified Three Operable Units (OU)

OU-1
Soil and Sediments

OU-2
Surface water, shallow-zone groundwater, and transition zone groundwater

OU-3
Deeper, fractured bedrock groundwater

Focused Feasibility Study

- Two Operable Units

OU-1
Soil and Sediments

OU-2
Surface water, shallow-zone groundwater, and transition zone groundwater

- Remedy Focuses on OU-1 and OU-2
- OU-3 will be evaluated later

Focused Feasibility Study Alternatives

- 5 Alternatives have been evaluated
- Alternatives are conceptual
- After the Remedy is Selected a Final Design Work Plan will be submitted to DHEC for review

Focused Feasibility Study Alternatives

2 Passive Remedies

- No Action
- Monitored Natural Attenuation (MNA) and Land Use Controls (LUCs)

Alternative 1: No Action

Description: The No Action alternative maintains the Site in its current condition. This is a baseline for comparison to other alternatives

Cost: $22,000

Alternative 2: Monitored Natural Attenuation (MNA) and Land Use Controls (LUCs)

Maintains the Site in its current condition with continued monitoring for a period of 30 years

Soil, sediment, and groundwater LUCs will be implemented on the parcels and the Legacy School property

Cost: $1,350,000

Focused Feasibility Study (FFS) Alternatives

3 Active Remedies

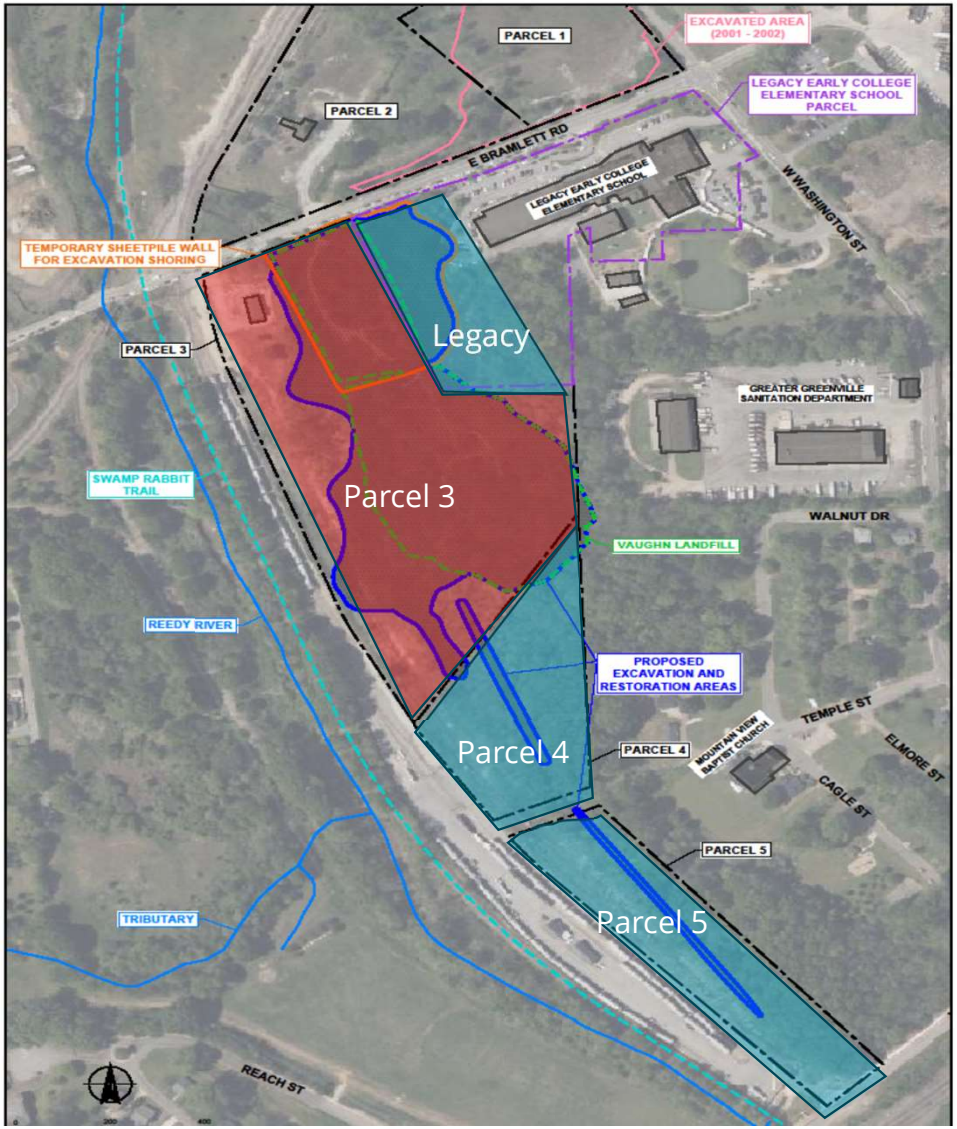
- Selective Excavation, Capping, MNA, and LUCs
- Excavation and Partial Landfill Removal, MNA, and LUCs
- Excavation and Complete Landfill Removal, MNA, and LUCs

FFS Alternatives 3-5

Alternatives are the same for Parcels 4, 5, and the Legacy School Property

Parcel 3 is where each remedy is different

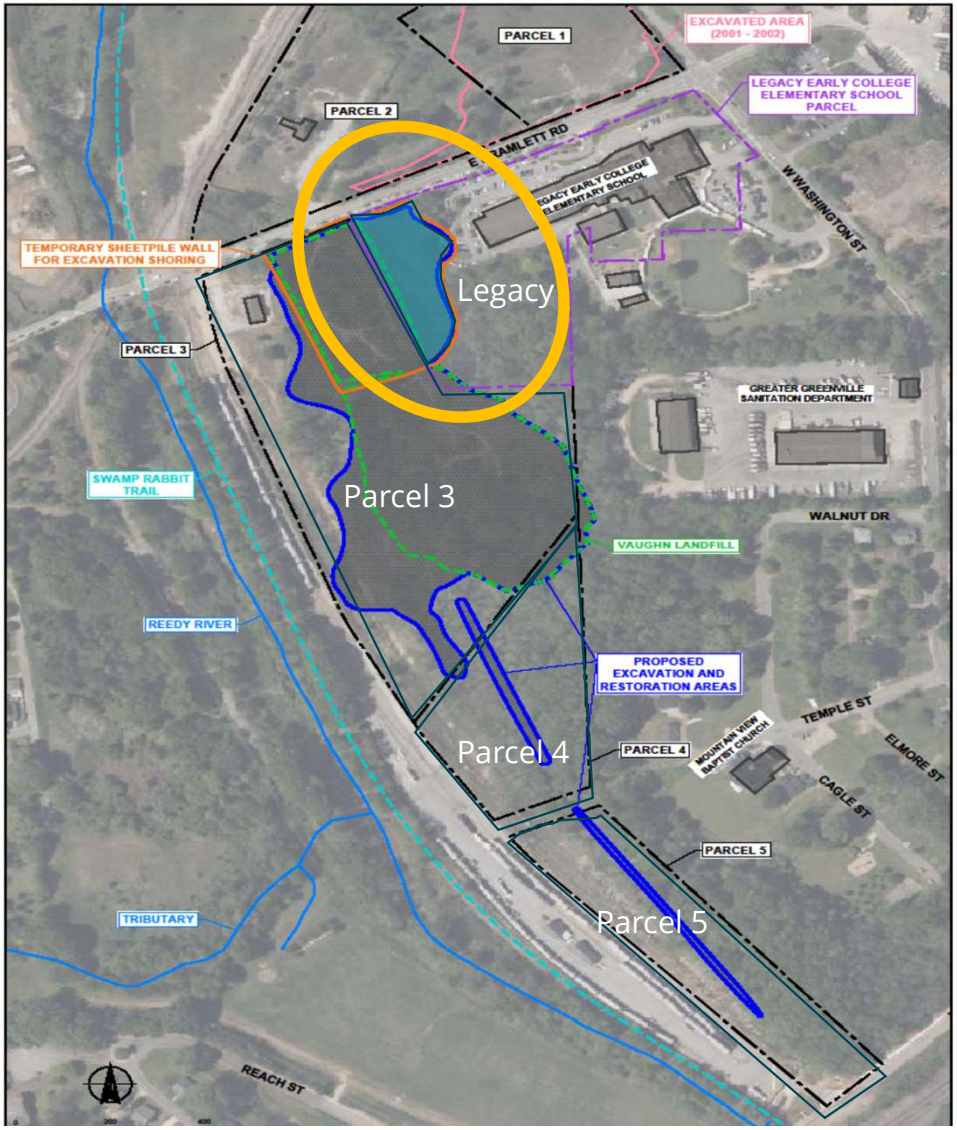
MNA and LUCs would be used with each remedy



Legacy School Property

Excavate the sediments within the wetlands to a depth up to 16 feet deep

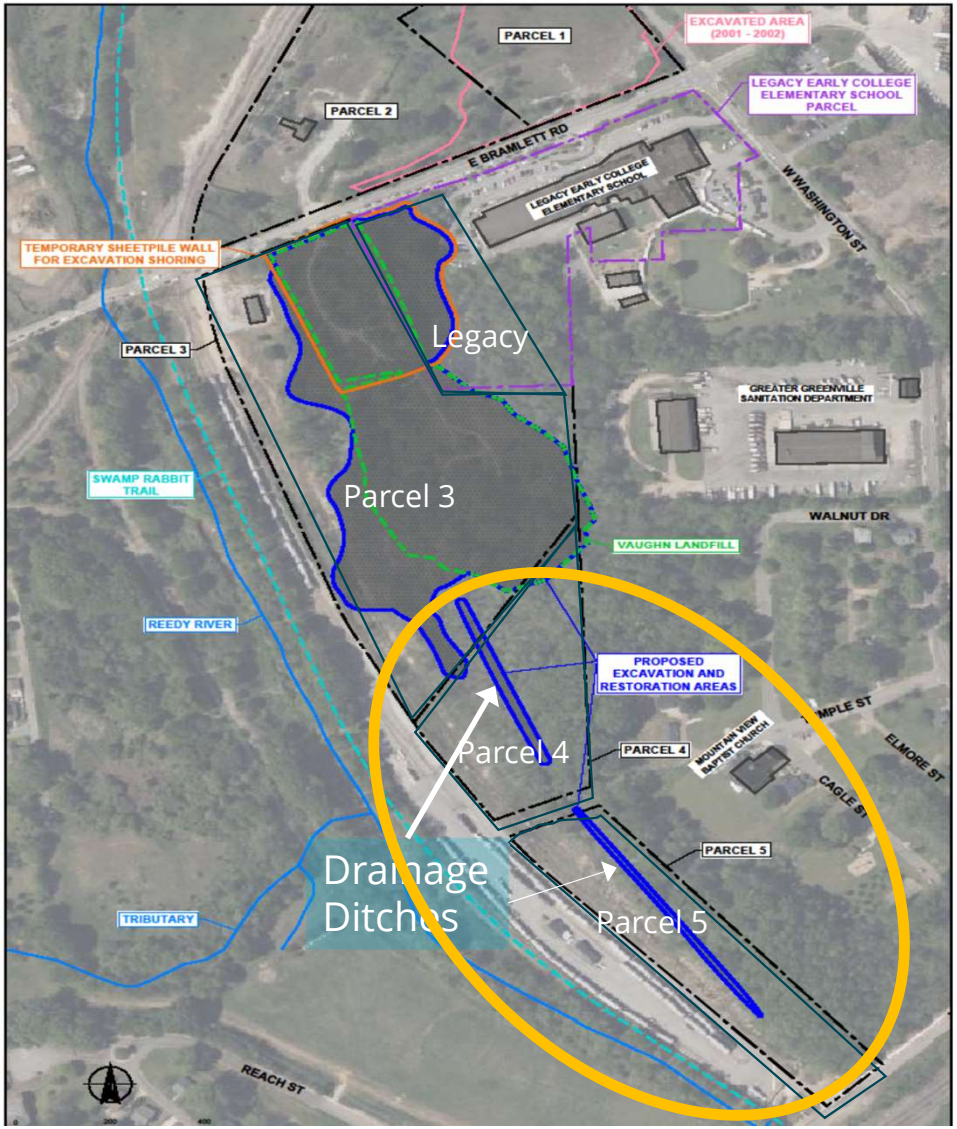
Estimated volume removed would be 26,300 cubic yards



Parcels 4 and 5

Drainage ditches on Parcels 4 and 5 would be excavated

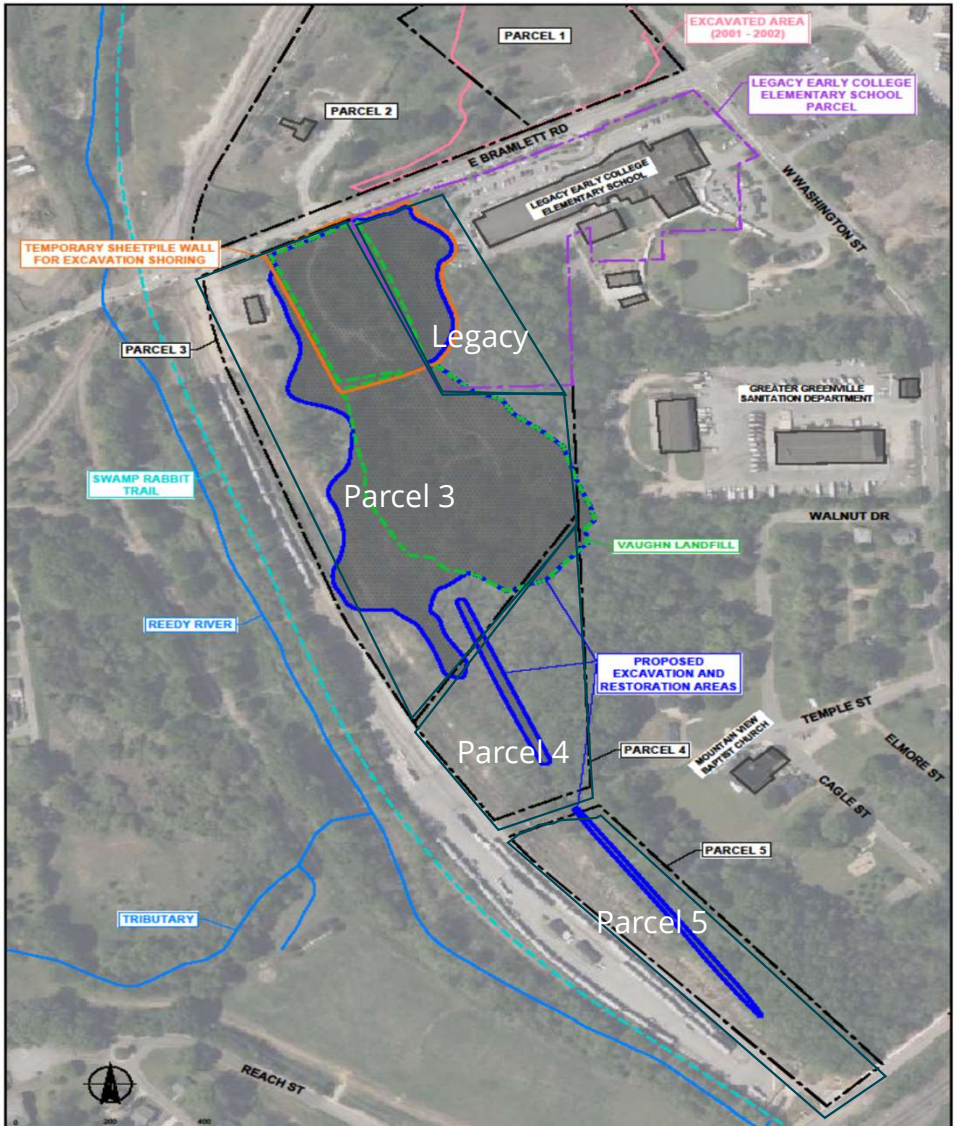
Estimated volumes are 2800 and 2300 cubic yards, respectively



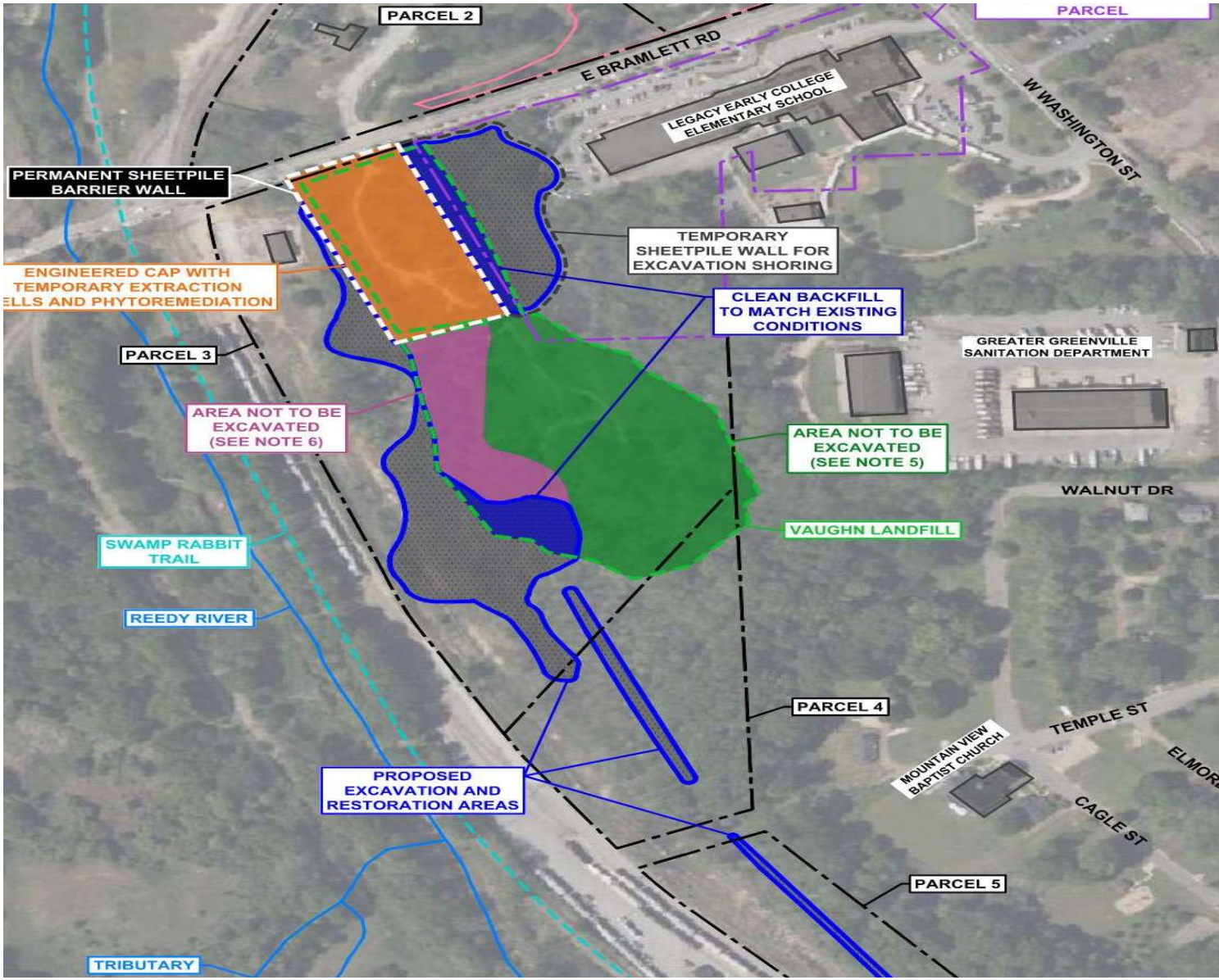
MNA and LUCs

The effectiveness of Monitored Natural Attenuation would be evaluated after removal through routine groundwater monitoring

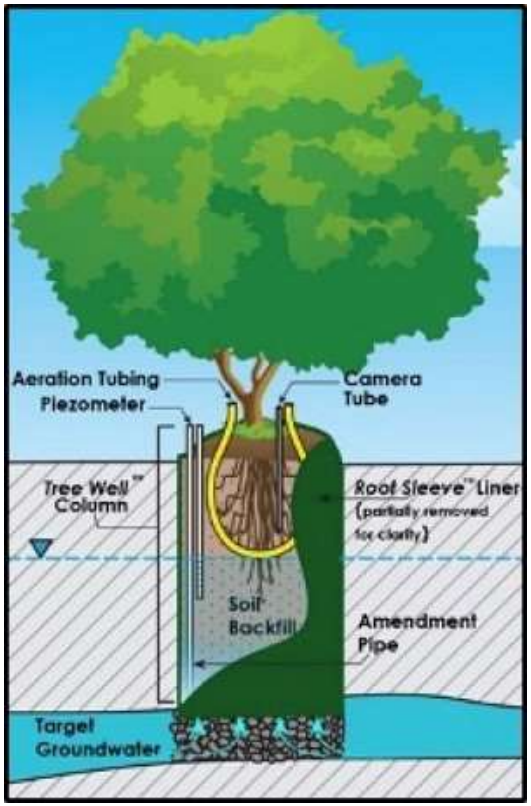
Land Use Controls would be required to restrict groundwater use



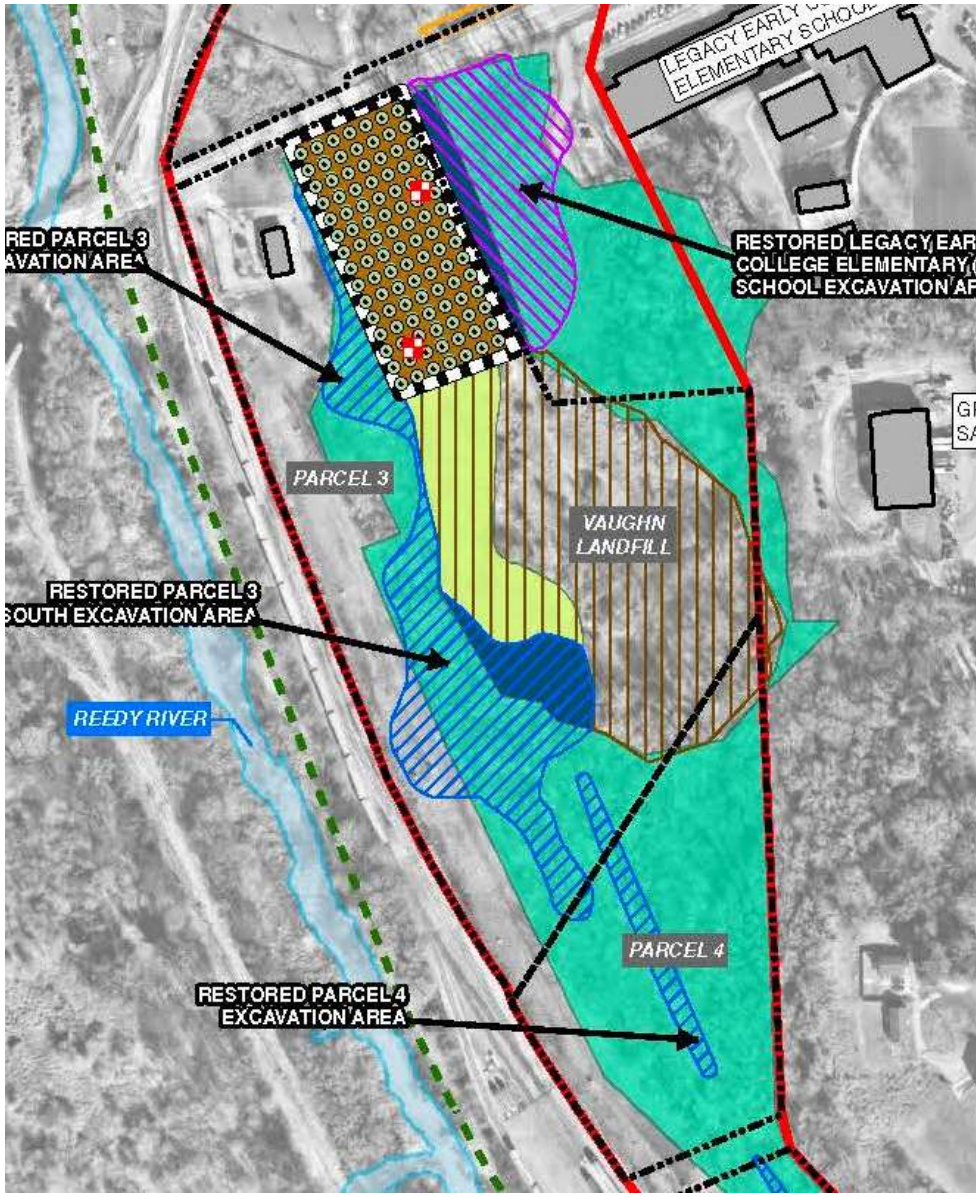
Alternative 3: Selective Excavation / Capping



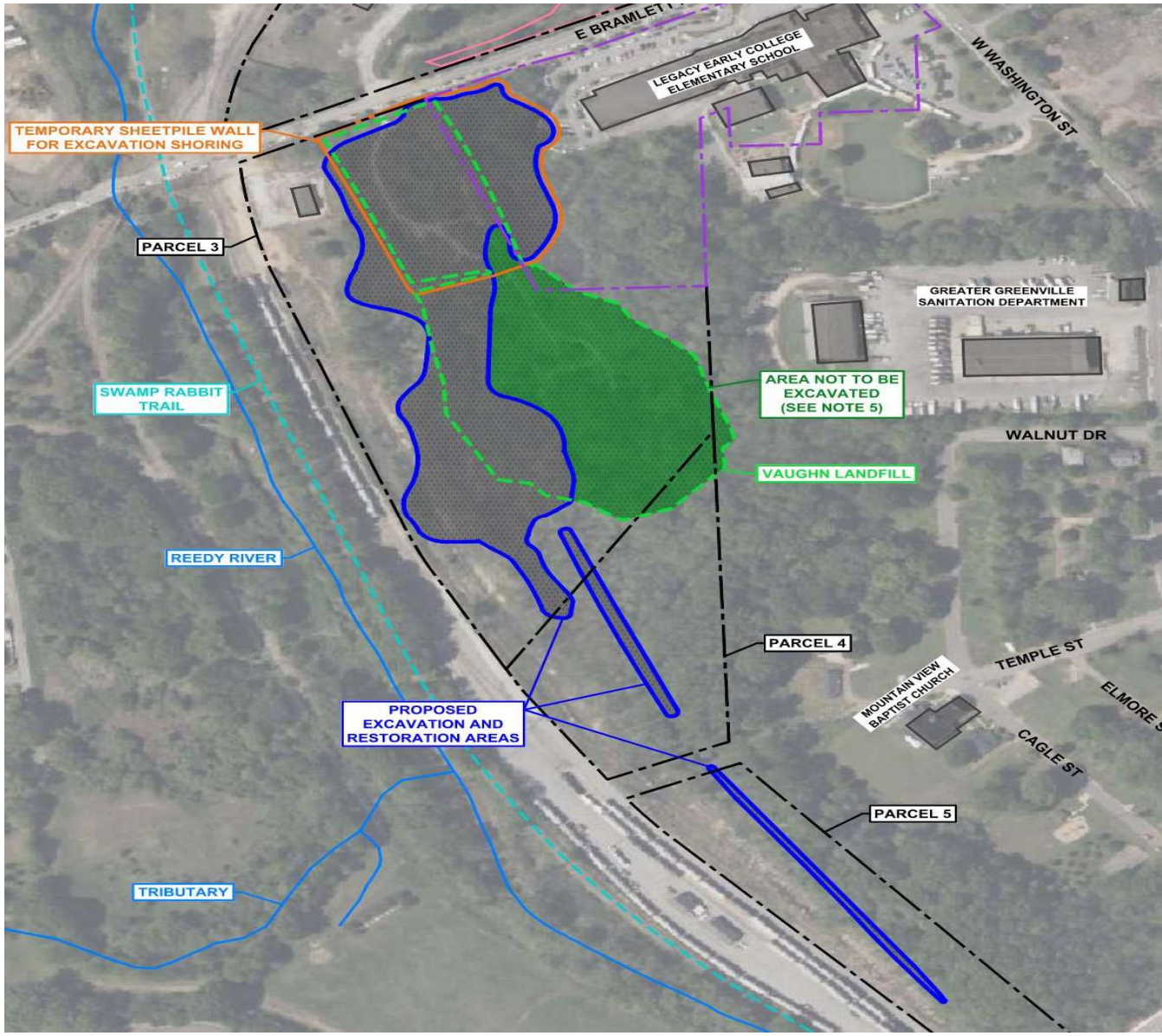
Alternative 3: Selective Excavation / Capping



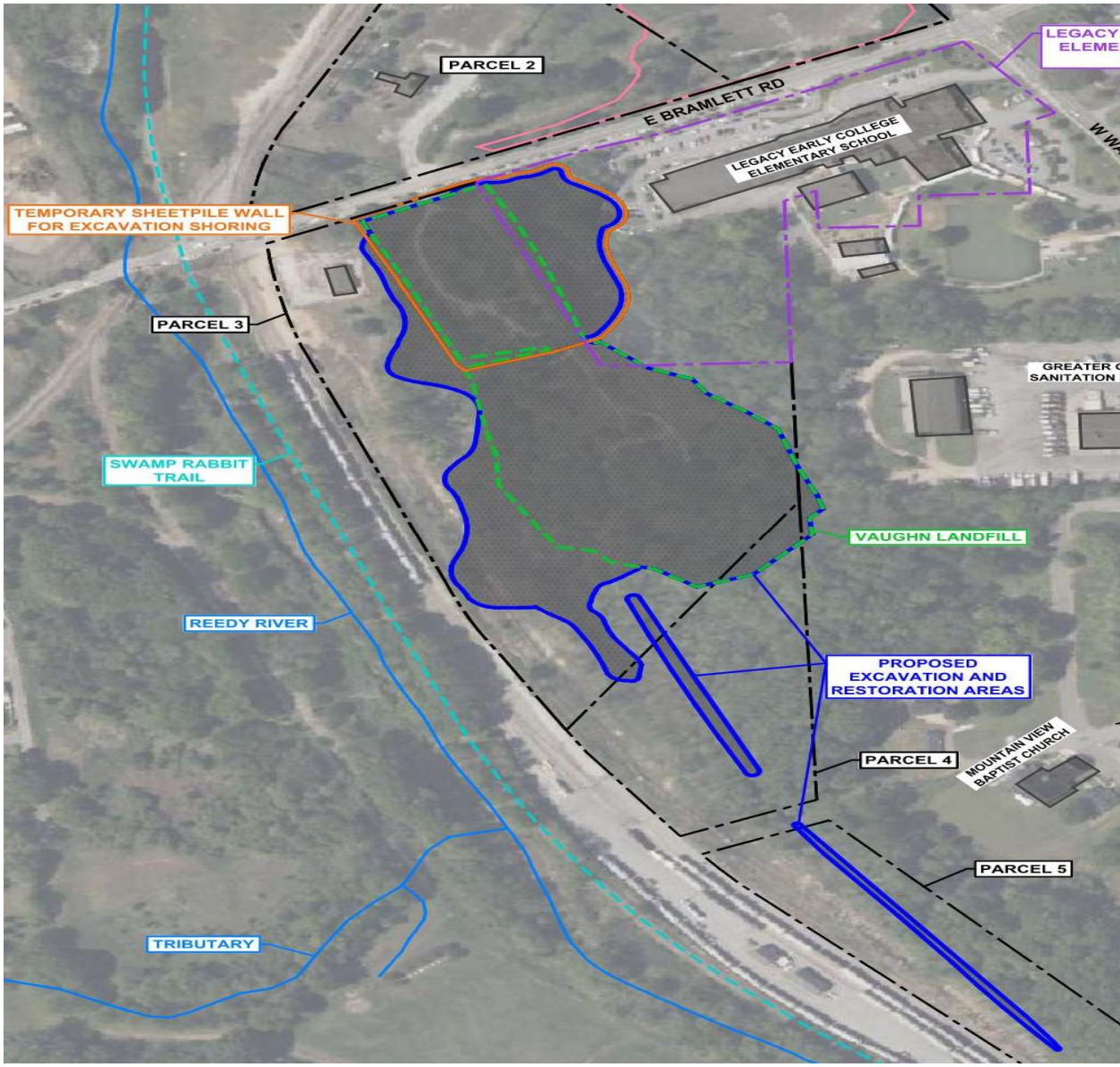
- 100 TreeWell Phytroremediation Installations
- 2 Groundwater Extraction Wells



Alternative 4: Excavation and Partial Landfill Removal, MNA, and LUCs



Alternative 5: Excavation and Complete Landfill Removal, MNA, and LUCs



Comparison of Alternatives 3, 4, and 5

	Selective Excavation	Partial Excavation	Full Excavation
Volume Removed (cubic yds)	56,400	153,900	183,800
Truck Trips	9,400	18,500	22,700
Construction Schedule (yrs)	2-3	5-6	6-7

Schedule assumes only 8 months of each year would be available for construction activities due to seasonal weather and flooding

DHEC's Preferred Alternative

Alternative 5: Excavation and Complete Removal of Vaughn Landfill, Monitored Natural Attenuation, and Land Use Controls

- Excavation of the Vaughn Construction and Debris (C&D) Landfill
- Excavation of impacted sediments on Parcels 3, 4, 5, and the Legacy School Property
- Monitored Natural Attenuation (MNA) and Land Use Controls (LUCs) will be utilized to restrict development and groundwater use

Evaluation of Alternatives

The National Contingency Plan requires the use of specific criteria to evaluate and compare the different remedial alternatives to select a remedy. The criteria are:

1. Overall Protection of human health and the environment
2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)
3. Long-term effectiveness and permanence
4. Reduction of toxicity, mobility, or volume through treatment
5. Short-term effectiveness
6. Implementability
7. Cost
8. Community acceptance

Evaluation of Alternatives

Overall Protection of human health and the environment

- How each alternative achieves and maintains adequate protection of human health and the environment

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

- How each alternative complies with federal and state laws and regulations

Long-term effectiveness and permanence

- Evaluates the effectiveness of alternatives in maintaining protection of human health and the environment after response objectives have been met

Evaluation of Alternatives

Reduction of toxicity, mobility, or volume through treatment

- How well the remedy can permanently and significantly reduce toxicity, mobility, and volume of impacted media

Short-term effectiveness

- Evaluates the effect of the remedy on human health and the environment during construction and implementation of the remedial action

Implementability

- Evaluates the technical and administrative feasibility of each alternative and the availability of materials and services required to complete the remedy

Evaluation of Alternatives

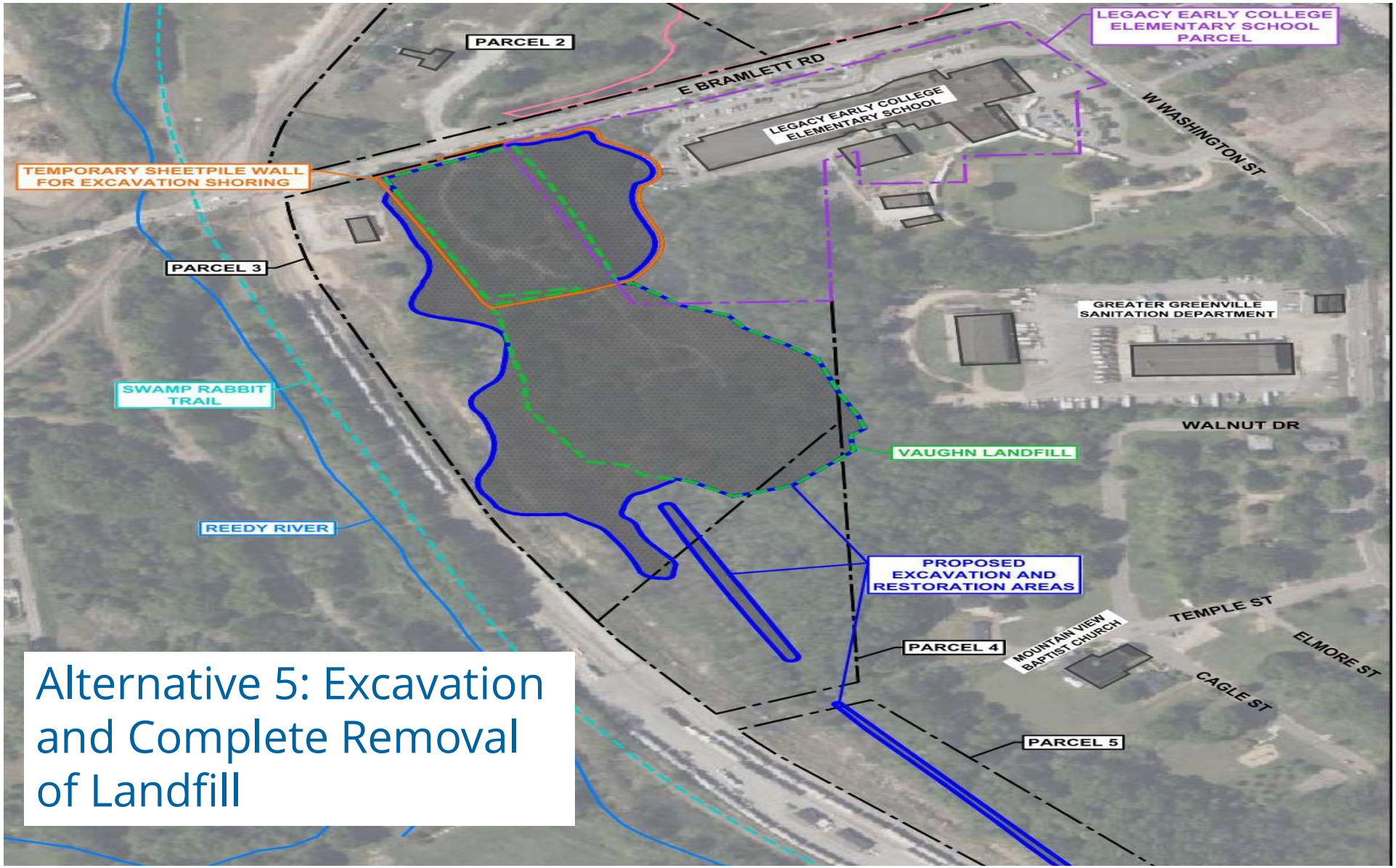
Alternative	Cost
No Action	$22,000
MNA and LUCs	$1,350,000
Selective Excavation / Capping	$18,600,000
Excavation w/Partial Landfill Removal	$33,300,000
Excavation with Complete Landfill Removal	$39,500,000

Criterion (Ranking 1-6) With 6 Being Excellent and 1 Being Unacceptable	No Action	MNA and LUCs	Selective Excavation	Excavation with Partial Vaughn Landfill Excavation	Excavation and Complete Vaughn Landfill Removal
Overall Protectiveness of Human Health and the Environment	1	2	4	6	6
Compliance with Applicable or Relevant and Appropriate Requirements	1	1	5	6	6
Long term Effectiveness and Permanence	1	2	3	5	5
Reduction of Toxicity, Mobility, and Volume Through Treatment	1	1	3	5	5
Short Term Effectiveness	1	3	4	4	4
Implementability	6	6	4	4	4
Total Score	**11**	**15**	**23**	**30**	**30**
Cost	$0.022 M	$1.35 M	$18.6 M	$33.3 M	$39.5 M
Years to Implement	0	0	2-3	5-6	6-7

DHEC's Preferred Alternative

Alternative 5: Excavation and Complete Removal of Landfill, Monitored Natural Attenuation, and Land Use Controls

- Excavation of the Landfill
- Excavation of impacted sediments on Parcels 3, 4, 5, and the Legacy School Property
- Monitored Natural Attenuation (MNA) and Land Use Controls (LUCs)



Alternative 5: Excavation and Complete Removal of Landfill

DHEC's Preferred Alternative

Alternative 5: Excavation and Complete Removal of Vaughn Landfill, Monitored Natural Attenuation, and Land Use Controls

Removing coal tar impacted material and landfill material from the site:

- Is most protective of human health and the environment
- Provides long-term effectiveness and permanence
- Reduces toxicity, mobility, and volume of source contamination
- Is permanent and mitigates further groundwater impact

Evaluation of Alternatives

Community Acceptance

- Comments will be carefully considered by the Department prior to final remedy selection

- Public comments will be included in the Responsiveness Summary of the Record of Decision, along with DHEC's responses

What happens next?

Public Comment Period: June 6, 2024 – August 6, 2024

DHEC will accept written comments on the Proposed Plan during the public comment period. Please submit your written comments to:

Greg Cassidy
DHEC's Bureau of Land & Waste Management
2600 Bull Street
Columbia SC 29201
cassidga@dhec.sc.gov

Future Schedule (Approximation)

Record of Decision – Finalized by Late 2024

Agreement with responsible parties to conduct the remedy: 6 mo +

Approved Final Design Work Plan – 12 months from Agreement

Remedy Implementation Start – 12 to 24 months after Agreement

Questions?

www.scdhec.gov/bramlett

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State Voluntary Cleanup Program

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