



Presentation
Chapel Hill Police Property
Brownfields Project No. 23022-19-068
Department of Environmental Quality
North Carolina Brownfields Redevelopment Section
September 18, 2024



NC Brownfields Redevelopment Section

Brownfields Property is an “Abandoned, idled, or underused property where redevelopment is hindered by real or perceived environmental contamination.”

- Brownfields statutory mission is to recycle abandoned or underutilized properties that have environmental impacts.
- Land recycling/reuse reduces sprawl and protects greenfields
- Economic development/job creation
- Increases property tax base for local government

NC Brownfields Redevelopment Section

- NC Brownfields Methodology
 - Voluntary Program - prospective developers apply for eligibility
 - Prospective Developer cannot have caused or contributed to contamination
 - legally-binding agreement designed to make the site safe reuse instead of being remediated to unrestricted use standards

- Project Numbers:
 - Approximately 750 properties reused (over 13,000 acres)
 - Investments of \$30+ Billion in NC since the program began
 - Thousands of Jobs created
 - Zero State appropriation

State Brownfields Role

NC Brownfields Program *does not*:

- Affect State's ability to enforce against responsible party
- Usurp local governmental zoning authority
- Waive any requirement for any permits or certifications by other regulatory bodies



NC DEQ Brownfields Process

- Eligibility Review
- Contaminant/Data Gap Assessment ← May 2022 Public Presentation
- Environmental Risk Assessment/Exposure Pathway Analysis
- Environmental Risk Management Evaluation
- Brownfields Agreement Document Preparation and Review
- Public Comment Period/Consideration of Public Comments ← Here's where we are now
- Recordation at County Register of Deeds
- Stewardship & Monitoring of Institutional Controls (in perpetuity)

NC DEQ Brownfields Process Environmental Risk Assessment & Management

Critical to making risk-based environmental decisions:

- Environmental Risk Assessment/Exposure Pathway Analysis
- Risk = Dose x Exposure
- Environmental Risk Management Evaluation

NC DEQ Brownfields Process

Environmental Risk Assessment

Environmental Risk Assessment

- Evaluate the concentrations of contaminants in each applicable environmental medium (soil, groundwater, exterior soil gas, sub-slab vapor, indoor air, surface water, and/or sediment)
- Compare results against known regulatory standards or screening levels (2Ls, 2Bs, PSRGs, VISLs) – create Exhibit 2 to the Brownfields Agreement

NC DEQ Brownfields Process

Exposure Pathway Analysis

Exposure Pathway Analysis:

- Purpose is to answer the question: Could people be exposed to site-related contaminants based on redevelopment?
- A contaminant source and its location is identified
- Answers questions like:
 - How does the contaminant move or change in the environment?
 - How would people come in contact with the contaminant?
 - How does the contaminant enter a person's body?
 - Would people in the community be exposed?
- Evaluate if exposure pathways are complete. If so, evaluate the options to render these pathways incomplete
- Risk-based remediation addresses applicable exposure pathway components to break the exposure pathway

NC DEQ Brownfields Process

Environmental Risk Management Evaluation

Environmental Risk Management Evaluation

Purpose: Look at the risks assessed and determine how to manage those in the Brownfields Agreement (remedial action and/or land-use restrictions)

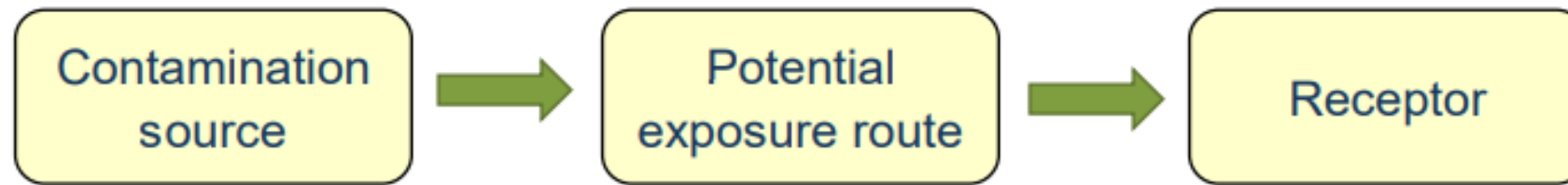
Can we cut off exposure to reduce risk? (Risk \downarrow = Dose x Exposure \downarrow)

- Examples:
 - Prohibition on groundwater use
 - Vapor intrusion mitigation system

NC DEQ Brownfields Process Environmental Risk Assessment & Management

Risk Management

Elimination of one of these elements will make pathway incomplete:



[From DEQ Risk-Based Remediation Training \(2017\): PowerPoint Presentation \(nc.gov\)](#)

Department of Environmental Quality



NC DEQ Brownfields Process

Brownfields Agreement

Brownfields Agreement Document Production

- Brownfields Agreement is a legally enforceable contract that identifies:
 - Background/ summary of site use
 - Work to be performed
 - Land Use Restrictions (LURs) – developed based on site-specific factors and evaluation of risks from risk assessment
 - Legal obligations
- Also includes: Site Vicinity Map, Contaminant Data Tables, Survey Plat and Legal Description, Public Notice/ Ancillary Documents

NC DEQ Brownfields Process

Public Notice and Comment Period

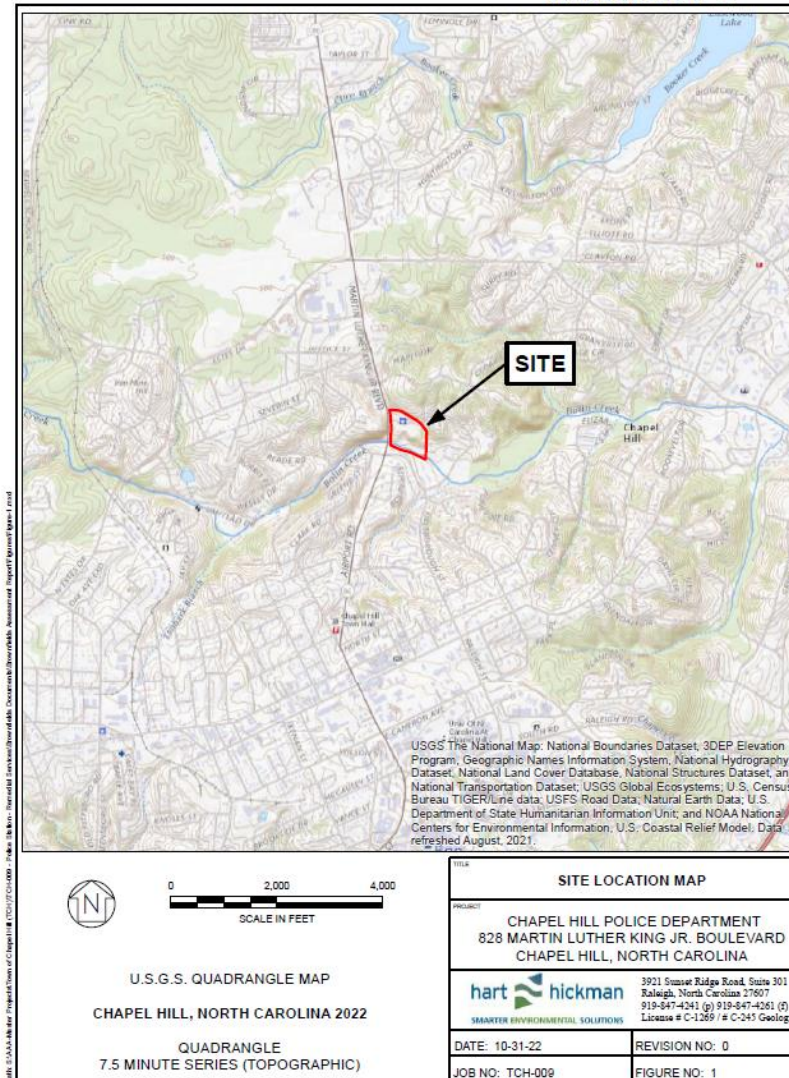
- Statute requires a 30-day public comment period
- Town conducted the requisite public notice tasks:
 - Filing the documents with local gov't agencies with jurisdiction
 - Posting the Summary Notice of Intent (SNI) at the Brownfields Property
 - Publishing the SNI in the local newspaper
 - Mailing or delivering the SNI to contiguous property owners
 - Mailing or delivering the full Notice of Intent (NI) at a local repository (Chapel Hill Library)
- Public comment period held July 2024
- Town and others requested the State hold a public meeting
- This effectively extends the public comment period through the public meeting

NC DEQ Brownfields Project:

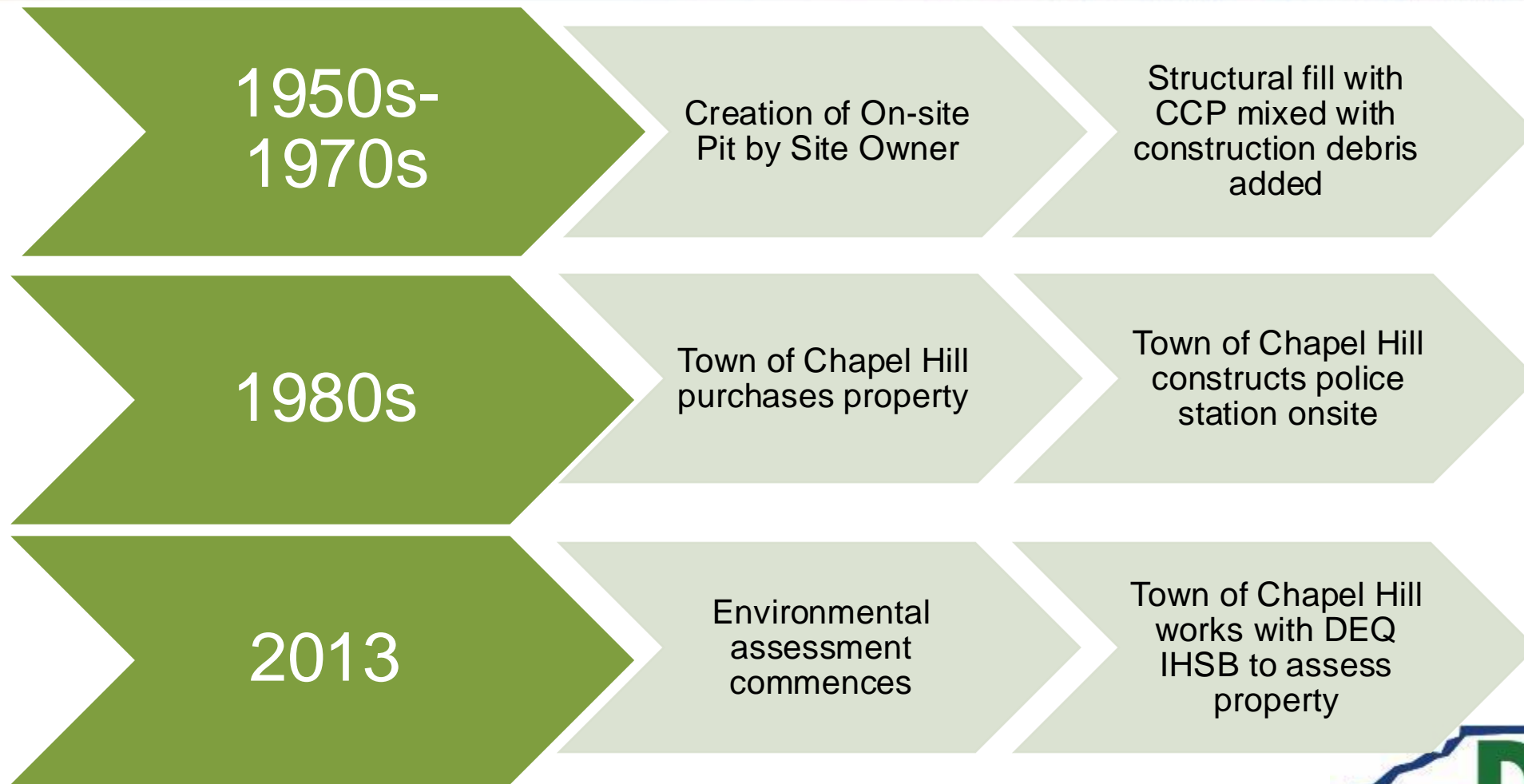
Exhibit 1 to the Brownfields Agreement: Site Vicinity Map



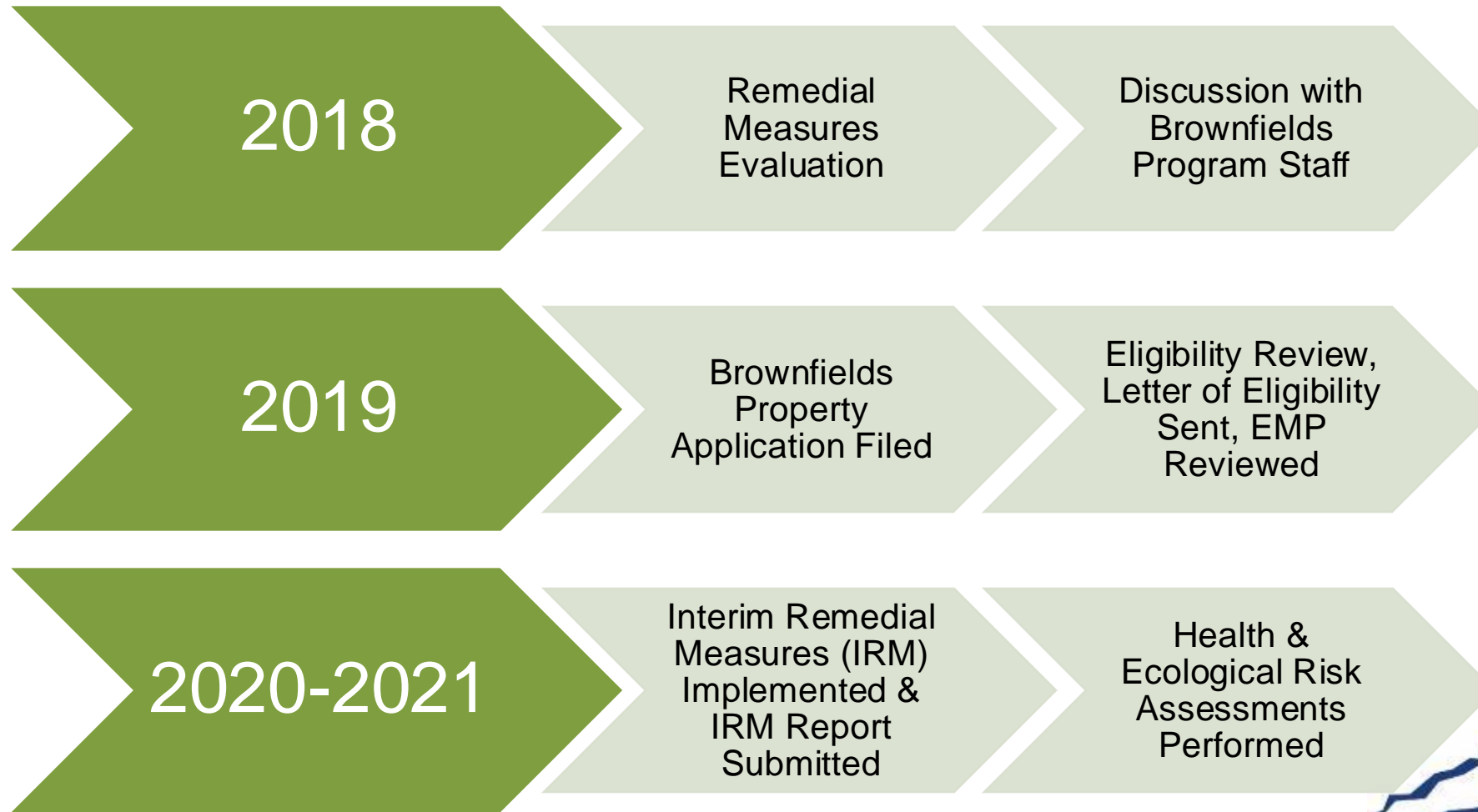
EXHIBIT 1



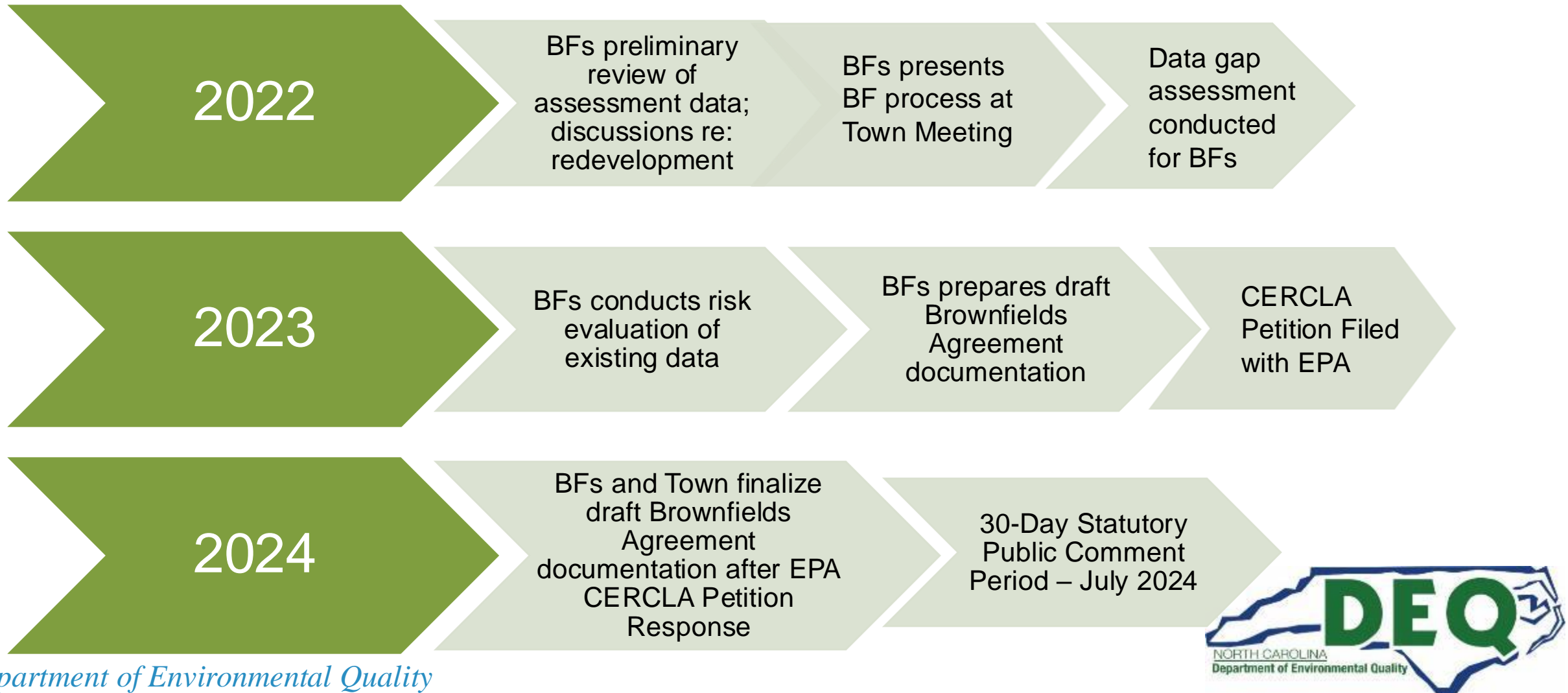
NC DEQ Brownfields Project: Chapel Hill Police Property Timeline



NC DEQ Brownfields Project: Chapel Hill Police Property Timeline



NC DEQ Brownfields Project: Chapel Hill Police Property Timeline



NC DEQ Brownfields Project

Sample Location Map (2017)



LEGEND

- SITE PROPERTY BOUNDARY
- - - BOLIN CREEK
- 101— TOPOGRAPHIC CONTOUR ELEVATION (FT MSL)
- ★ MONITORING WELL LOCATION (FALCON ENGINEERING)
- ◆ TEMPORARY MONITORING WELL LOCATION (FALCON ENGINEERING)
- SOIL BORING LOCATION (FALCON ENGINEERING)
- ▲ SURFACE WATER SAMPLE LOCATION (FALCON ENGINEERING)
- ✦ ABANDONED MONITORING WELL LOCATION
- ◆ MONITORING WELL LOCATION (H&H)
- SOIL BORING LOCATION (H&H)
- BACKGROUND SOIL BORING LOCATION (H&H)
- ▲ SURFACE WATER SAMPLE LOCATION (H&H)
- COVER EVALUATION BORING LOCATION

NOTE:
EXISTING MONITORING WELLS & OCTOBER / NOVEMBER 2016 SAMPLING LOCATIONS SURVEYED BY CE GROUP ON DECEMBER 8, 9, & 20, 2016.

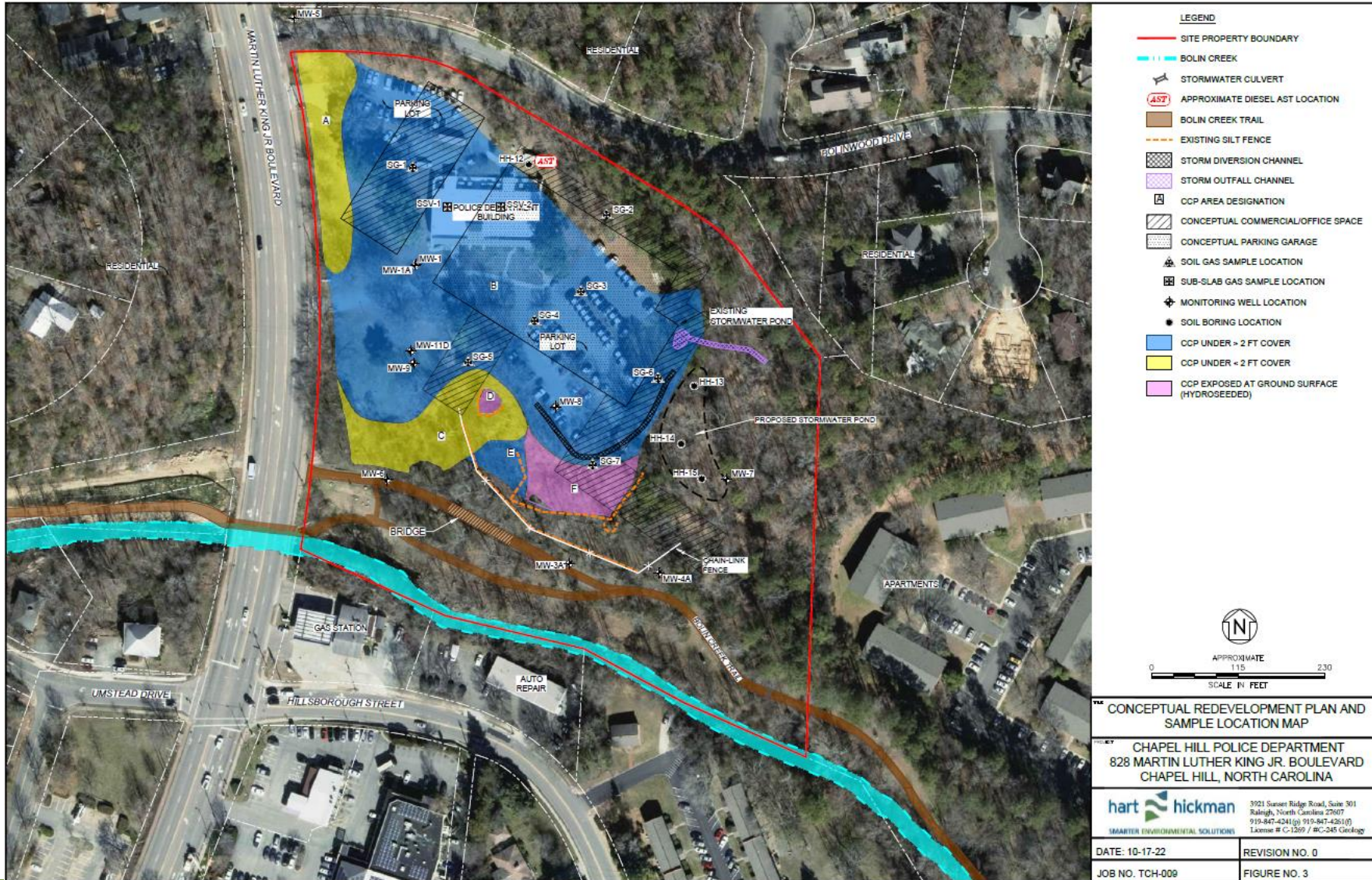
APPROXIMATE
SCALE IN FEET

SAMPLE LOCATION MAP	
TOWN OF CHAPEL HILL 828 MARTIN LUTHER KING JR. BOULEVARD CHAPEL HILL, NORTH CAROLINA	
2923 South Tryon Street-Suite 100 Charlotte, North Carolina 28203 704-586-0077(g) / 704-586-0373(f) License # C-1269 / #C-245 Geology	
DATE: 8-23-17	REVISION NO. 0
JOB NO. TCH-002	FIGURE NO. 3



NC DEQ Brownfields Project

Conceptual Site Plan & Sample Location Map (2022)



NC DEQ Brownfields Project:

Chapel Hill Police Property Brownfields Interim Remedial Measures

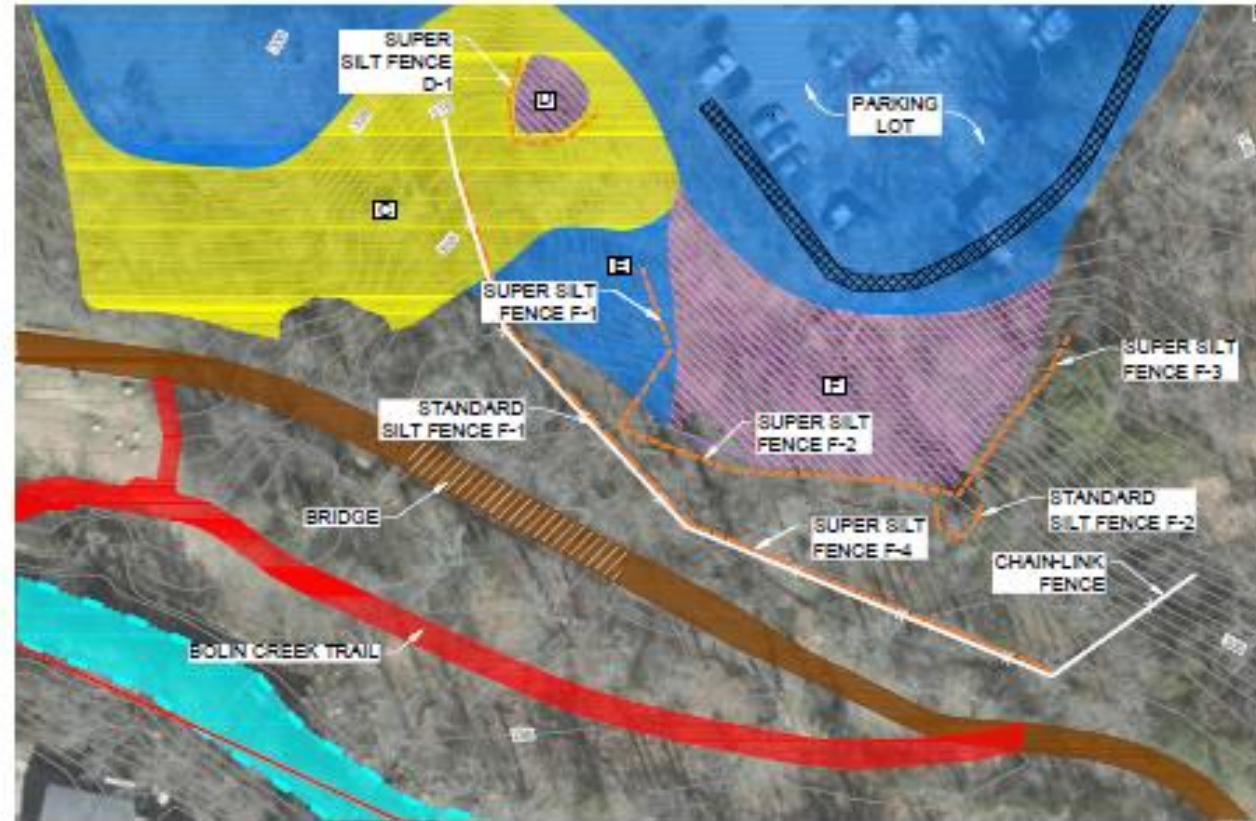
Interim Remedial Measures 2020

- Removal of about 1000+ tons of soil/CCP transported for off-site disposal
- Placement of 725 tons of quarry fill material and 145 cy topsoil to restore excavation area
- Super silt fencing along embankment and vicinity of trail
- Hydroseeding of the embankment
- Stormwater upgrades
- IRMs need to be maintained/repared as necessary to prevent exposure until final remedy can be implemented

NC DEQ Brownfields Project: Chapel Hill Police Property Brownfields Interim Remedial Measures



Post-IRM Conditions



From *Interim Remedial Measures Report*
(Hart & Hickman, April 19, 2021)

Department of Environmental Quality

NC DEQ Brownfields Project: Chapel Hill Police Property Brownfields Interim Remedial Measures

Interim Remedial Maintenance 2024 (*Interim Remedial Measures Maintenance Report*, Hart & Hickman, June 5, 2024)

- Collection of suspect depositional CCP samples & laboratory analysis at base of embankment
- Excavation of soil/CCP and placement behind the silt fence areas
- Installation of additional silt fencing
- Hydroseeding
- Post-IRM soil sampling
- Repair of erosional area along top of embankment

NC DEQ Brownfields Project: Chapel Hill Police Property Brownfields Interim Remedial Measures Maintenance - 2024



NC DEQ Brownfields Project: Chapel Hill Police Property Brownfields Contaminants



SUMMARY OF SITE CONTAMINANTS

Site Media	Excess of Applicable Standards or Screening Levels	Contaminants	Notes
Groundwater			
Within CCP	Yes	Metals	Al, Sb, As, Ba, Be, Cr, Cr+6, Co, Cu, Fe, Pb, Li, Mn, Mo, Se, Sr, V, Zn
Downgradient CCP	Yes	Metals & Sulfate	As, Ba, Cr+6, Cr, Pb, Li, Mn, Hg, Mo, Se, Sr, Tl, Sulfate; decreasing concentrations in certain wells including MW-3A, MW-4A, & MW-6
Below CCP	No	Metals	Detections of Li, Mo (no standard established)
Upgradient MW-5	Yes	Metals	Li, Mn, Mo, Se
Soil			
Shallow soil (samples from within 0-3' bgs)	Yes	Arsenic*	As: 3.08 mg/kg – 9.9 mg/kg, with average of 4.2 mg/kg – consistent with NC background soils. Also p-Isopropyltoluene (no screening level established)
CCP (samples from within 0-28' bgs)	Yes	Arsenic & Mercury	As: 3.37 mg/kg – 95.9 mg/kg, with average of 33.1 mg/kg Hg: 11 mg/kg
Drainage Pathway	Yes	Arsenic*	As: 3.97 mg/kg – 14.5 mg/kg, with average of 6.9 mg/kg
Upgradient MW-5 (sample from within 6-7' bgs)	Yes	Thallium	At the reporting limit of 2.3 mg/kg

* Consistent with NC background soils

NC DEQ Brownfields Project: Chapel Hill Police Property Brownfields Contaminants

SUMMARY OF SITE CONTAMINANTS – Con't

Site Media	Excess of Applicable Standards or Screening Levels	Contaminants	Notes
Soil Gas			
Exterior Soil Gas	No	Acetone, 4-Ethyltoluene & Trichlorofluoromethane	No screening level established No indication of vapor intrusion risk for non-residential enclosed structures.
Radon	No	NA	No indication natural radium decay affecting indoor air in existing building.
Methane	No	NA	Limited or low concentrations; no static pressure
Bolin Creek			
Surface Water	No**	NA	Concentrations not appreciably different upstream, adjacent to, or downstream of BF Property
Sediment	No	NA	NA

** One sample collected in 2013 detected manganese (Mn) at 100 µg/L in excess of EPA standard of 50 µg/L; not repeated in 2014, 2016, and 2019 samples.

NC DEQ Brownfields Project: Chapel Hill Police Property Brownfields Risk Assessment



Risk assessment results indicate concerns about the following potential exposures:

- Non-Residential Groundwater (groundwater not used as supply at site)
- Construction Worker exposure to CCP fill
- Recreator/Trespasser exposure to CCP fill

For these pathways, appropriate actions are needed to break the exposure pathway to make the site safe for its reuse.

NC DEQ Brownfields Project: Chapel Hill Police Property Brownfields Agreement

Key Points - Final Remedy

- The Town has not selected which final remedy to pursue
- The Brownfields Agreement provides a framework for what would be required *if CCP material remains onsite as part of the final remedy*
- Referenced in BFA, Work to be Performed Section – Paragraph 11, Paragraph 12, and land use restrictions (LURs) in subparagraphs 13.d., 13.k., 13.n., 13.o., 13.u., and 13.x.iv.

NC DEQ Brownfields Project: Chapel Hill Police Property Brownfields Agreement

Key Points - Final Remedy (con't)

- Design Remedy for CCP Structural Fill Material to Meet Goals:
 - Site Stabilization
 - Eliminating completed exposure pathways
 - Fully protective of public health
- Implement Remedy Prior to or in Conjunction with Redevelopment
- Designed & Installed/Implemented under NC Professional Engineer

NC DEQ Brownfields Project: Chapel Hill Police Property Brownfields LURS



Introduction to Land Use Restrictions (LURs) - Paragraph 13:

This provides the basis for long-term stewardship

VII. LAND USE RESTRICTIONS



13. By way of the Notice of Brownfields Property referenced below in Paragraph 17, Prospective Developer shall impose the following land use restrictions under the Act, **running with the land**, to make the Brownfields Property suitable for the uses specified in this Agreement while fully protecting public health and the environment instead of remediation to unrestricted use standards. All references to DEQ shall be understood to include any successor in function.

NC DEQ Brownfields Project: Chapel Hill Police Property Brownfields Property LURS

Land Uses

- No use may be made of the Brownfields Property other than for a municipal service center, office, retail, recreational, associated parking, and transit uses, and with prior written approval from DEQ, other commercial uses.
- Does not waive any local zoning, rule, regulation, or permit requirements

NC DEQ Brownfields Project: Chapel Hill Police Property Brownfields LURS

Key Points - Land Use Restrictions (LURs) - Paragraph 13

- Land Uses
- Specific Prohibitions
- Environmental Management Plan
- Redevelopment Summary Report
- Demolition Activities
- Groundwater
- Soil
- Property Access
- Abandonment of Monitoring Wells
- Damage to Wells
- Notifications upon Transfer
- Separating Old from New Contamination
- Other Prohibited Uses
- Land Use Restriction Update

NC DEQ Brownfields Process

Key Take-Aways

- Brownfields is a public process – designed to make the site safe for its proposed reuse
- Conduct environmental risk assessment and risk management evaluation using site-specific data:
 - Based on toxicological data on site contaminants
 - Toxicological risk assessment calculations (DEQ Risk Calculator)
 - Risk management decisions designed to break completed exposure pathways
- LURs recorded on Deed – institutional and engineering controls combined with site monitoring and long-term stewardship into perpetuity make the site safe for its reuse

NC DEQ Brownfields Process

Next Steps

- Review of final remedy options under separate Town process
- As per the NC Brownfields statute, consideration of public comments received prior to and during tonight's public meeting
- Evaluation of any modification to the BFA language based on these comments
- Written response to public comments
- Recordation of the Brownfield Agreement documents

NC DEQ Brownfields Process

Location of Documents

- Documents used for the BFA are available through the DEQ's Laserfiche portal: [Welcome to Laserfiche WebLink \(nc.gov\)](#)
- Town website : [Coal Ash at 828 Site | Town of Chapel Hill, NC](#)
- NC Brownfields Website (includes inventory map): www.ncbrownfields.org

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