

ANALYSIS OF BROWNFIELD CLEANUP ALTERNATIVES – PRELIMINARY EVALUATION

**U.S. EPA Brownfield
Cleanup Grant
Former Drexel Manufacturing Site,
70 Blue Ridge Street, Marion NC 28752
Brownfields Project Number 20072-16-056**

Prepared by the City of Marion

I. Introduction and Background

a. Site Location:

Former Drexel Manufacturing Property
70 Blue Ridge Street
Marion, NC 28752
McDowell County, North Carolina

b. Previous Site Uses(s) and any previous cleanup/remediation.

The property is the former location of the Drexel Furniture Manufacturing and Finishing Plant and used for various furniture, cabinet, and laminate manufacturing operations between 1902 and 2004. The Site is located on 15.29 acres that once contained six buildings totaling 168,377 square feet, covering three-fourths of the land area with buildings, ancillary structures, access roads, and parking areas.

In 2014, the property was sold to Marion Properties, LLC. Marion Properties, LLC hired an unlicensed contractor and unlicensed asbestos abatement contractor to demolish the structures to recycle all available scrap metal. Marion Properties, LLC, abandoned the site leaving behind approximately 3,000 tons of asbestos containing material (ACM) and lead-based paint co-mingled demolition waste and other contamination. In 2018, the local government took ownership of the property due to unpaid taxes and entered the Site into North Carolina's voluntary Brownfield Program. 2,522 tons (5,307 CY) of co-mingled asbestos and lead-based paint containing material was removed and disposed of at a hazardous waste facility, and 31,296 gallons of #6 oil and water mixture were removed from the USTs and transported to HOH Corporation in Winston-Salem, NC for disposal. The USTs and OWS openings were covered with plywood anchored down by concrete screws to prevent rainwater from entering the USTs and OWS and to prevent injuries.

The City of Marion took ownership of the site on November 18, 2022 and is the sole owner of the property. The City of Marion with assistance from McDowell County Government and State of North Carolina have taken steps to remediate environmental contamination. The Site is entered into the North Carolina's Brownfield Program and has been provided the tracking number 20072-16-056

c. Site assessment Findings (briefly summarize the environmental investigations that have occurred at the site, including what the Phase I and Phase II assessment reports revealed in terms of contamination present, if applicable)

Prior to taking ownership of the property, approval from the previous owner was provided to complete a Phase I Environmental Assessment. The City obtained a U.S. Environmental Protection Agency (EPA) Targeted Brownfield Assessment (TAB) grant. EPA contracted (EPA Contract No. EP-S4-14-03) with Tetra Tech to complete a Phase I Environmental Assessment for the subject property, dated March 2016.

Phase I Environmental Assessment March 2016

The following summarizes known or suspected environmental conditions in connection with the Site based on information collected during the Phase I ESA. The items may include RECs, HRECs, and *deminimis* conditions:

- The presence of the fuel oil UST on the Site is considered a REC.
- The presence of an oil-water separator on the Site is considered a REC.
- The presence of the additional USTs or former ASTs on the Site is considered a REC.
- The aluminum-clad steel frame building with numerous 55-gallon drums and smaller containers is considered a REC.
- The other onsite brick building that contained 55-gallon drums located along Blue Ridge St. east of the office building is considered a REC.
- The presence of 15 UST or AST sites, within 0.25 mile of the Site, upgradient of the Site is considered a REC.
- The presence of an automotive repair property 0.03 mile north of the Site at a higher elevation is considered a REC.
- The presence of a dry cleaner 0.14 mile northeast of the Site at a higher elevation is considered a REC
- Fluorescent light bulbs and fixtures were observed throughout the Site building. The fluorescent light bulbs appeared to be in good to poor condition, but their age is unknown. Older fluorescent light bulbs may contain PCBs and mercury. Based on a potential presence of PCBs and mercury, the fluorescent light bulbs may represent a REC.

A review of federal and state database information has revealed the following RECs:

- A regulatory database search revealed the Site was identified on the Leaking Underground and Aboveground Storage Tank Incidents Management (LUST and LAST) Databases that contain an inventory of reported leaking storage tank incidents, it was not listed on the UST database. No violations were noted, but there was documented release from historical operations (fuel oil and fuel USTs); this facility is considered a REC.

The following observed conditions do not meet the ASTM definition of a REC; however, they represent environmental risks that should be assessed:

- Suspected ACM were observed in building at the Site. A North Carolina-accredited asbestos inspector should evaluate the presence of ACM throughout the Site.
- Suspected LBP was observed on surfaces throughout the buildings and demolition piles. An LBP

- survey should be conducted to determine the extent, if any, of LBP on Site.

Phase II Environmental Assessment July 2017 (Asbestos and Lead Based Paint)

Based on the information contained in the Phase I Environmental Assessment, the City contracted with ECS, Southeast (ECS Project 49-3978-B) on July 7, 2017 to perform a Phase II Environmental Assessment of the subject property specific to asbestos and lead-based paint. The results of the asbestos and lead-based paint assessment concluded the following:

Asbestos Contamination Present

In total, 47 bulk samples from 23 homogeneous areas were submitted to the laboratory of which 79 layers were analyzed. Ten (10) of the bulk samples submitted for analysis were reported to contain asbestos in detectable concentrations. These materials are summarized below.

Table: Summary of Asbestos-Containing Materials Identified

Sample ID	Location	Material Description	Analytical Results	Category	Estimated Quantity
02-01	Pile #2	Black Mastic on Brick	4% Chrysotile	II	3,000 SF
02-02					
03-01	Pile #1	Black Mastic on Brick	10% Chrysotile	II	500 SF
03-02					
04-01	Pile #1	Black Mastic on Brick	10% Chrysotile	II	500 SF
04-02					
05-01	Pile #3	Cementitious Panel	15% Chrysotile	I	100 SF
05-02					
07-01	Pile #4	Black Mastic on Brick	15% Chrysotile	II	750 SF
07-02					
13-01	Office	12" Blue Floor Tile, 12" Grey	Blue Tile and Yellow Mastic NAD, Grey Tile 5% Chrysotile, Black Mastic 6% Chrysotile	I	800 SF
13-02					
18-01	Office	White Window	2% Chrysotile	II	200 LF
18-02					
21-01	Pile #10	Black Mastic on Brick	6% Chrysotile	II	400
21-02					

Asbestos Remediation Recommendation

- Where a material type has been identified as asbestos containing that other materials with similar color, texture, age and size throughout the building's interior and exterior be assumed to contain asbestos.
- If additional suspect ACMs are uncovered which were not accessible during this survey, it is recommended that these materials either be assumed to contain asbestos or be sampled prior to disturbance upon discovery for asbestos content by an asbestos inspector in accordance with 29 CFR 1926.1101.
- It is recommended that an industrial hygienist monitor the project. This involves collecting air samples from within and outside abatement work areas to monitor the asbestos abatement contractor's work practices over the course of the project

Lead in Paint and Surface Coatings Contamination

A total of [164] readings were collected during the survey, including calibration readings. Paint and other surface coatings which are defined by applicable regulation as lead-based paints are summarized in the table below.

Table: Summary of XRF Lead-Based Paint Results

Location	Color	Substrate	Component
Concrete Slab	Yellow Caution Paint	Concrete	Slab
Door of Fire Protection Shack	White Exterior Paint	Wood	Door
Doorway Trim on Machine Building	Cream Yellow	Wood	Doorway Trim

Lead-Based Paint and Surface Coatings Recommendations

- All painted and/or glazed surfaces may still contain concentrations of lead in the paint, which when disturbed, may generate lead dust greater than the Permissible Exposure Limit (PEL) of 50 micrograms per cubic millimeter ($\mu\text{g}/\text{m}^3$) as an 8-hour Time Weighted Average (TWA) established by the OSHA "Lead Exposure in Construction Rule (29 CFR 1926.62)"
- Environmental and personnel monitoring should be conducted during any removal/demolition process (as appropriate) to verify that actual personal exposures are below the Permissible Exposure Limit (PEL) of 50 micrograms per cubic millimeter ($\mu\text{g}/\text{m}^3$) as an 8-hour Time Weighted Average (TWA).
- Under OSHA requirements, the contractor performing renovation work will be required to conduct this monitoring and follow applicable requirements under 29 CFR 1926.62 if disturbing lead-containing paint.

Phase II Environmental Assessment May 1, 2018 (Soil and Groundwater)

Based on the information contained in the Phase I Environmental Assessment, the City contracted ECS, Southeast (ECS Project 49-3978-C) on May 1, 2018 to perform a Phase II Environmental Assessment of the subject property. Based on the results of the soil and groundwater assessment, ECS concluded the following:

- A total of 21 soil borings were advanced for the collection of soil samples and a total of 12 permanent monitoring wells were installed for the collection of groundwater samples. The soil borings and monitoring wells were placed to assess previously identified potential environmental concerns.
- Laboratory analysis of soil sample GP-5, which was collected in the vicinity of the USTs and OWS located on the central portion of the subject property, detected several petroleum compounds. Benzo(a)anthracene was detected above its IHSB Protection of Groundwater PSRG, but below its IHSB Residential and Industrial/Commercial Health Based PSRGs. ECS concludes that a release(s) from the USTs and/or OWS has occurred.

- Laboratory analysis of soil sample GP-6, which was collected in the vicinity of drums and staining within the aluminum-clad steel frame building located on the southwestern portion of the subject property, detected several petroleum compounds. P-isopropyltoluene, naphthalene, 1-Methylnaphthalene, and 2-methylnaphthalene were detected at concentrations above their respective IHSB Protection of Groundwater PSRGs, but below its IHSB Residential and Industrial/Commercial Health Based PSRGs. ECS concludes that spills from drums within the building have impacted the soil beneath the building.
- Laboratory analysis of the soil samples detected several elevated concentrations of arsenic, chromium, and selenium. Analysis of background soil samples GP-20, GP-20D, and GP-21, collected from the northeastern portion of the subject property, detected arsenic, chromium, and selenium at similar concentrations as the samples collected on the remainder of the subject property. However, arsenic was detected in soil samples GP-7D and GP-8 at concentrations over 2.5 and 8 times the highest background soil sample concentration. These soil samples were collected from soil borings located within and in the vicinity of the aluminum-clad building located on the southwestern portion of the subject property. Chromium was detected in soil sample GP-19 at a concentration over 6 times the highest background soil sample concentration. This soil sample was collected from the soil boring on the former building pad located on the eastern portion of the subject property. These elevated concentrations are likely due to activities previously conducted at the former facility.
- Laboratory analysis of groundwater samples MW-5, which was collected on the northern portion of the subject property, downgradient of the former UST and SVE/AS system and former Willwear Hosiery Manufacturing Company, Inc., detected several petroleum compounds. Benzene, ethylbenzene, naphthalene, toluene, total xylenes, 1-methylnaphthalene, and 2-methylnaphthalene were detected at concentrations above their respective NC2LGWQSSs, but below their applicable GCLs. ECS concludes that remaining contamination is present from the former UST and/or the prior release from the Willwear Hosiery Manufacturing Company, Inc.
- The horizontal and vertical extent of contamination beneath the site has not been defined. Additional assessment would be necessary to determine the extent of impacts beneath the site.

Based on the conclusions of the soil and groundwater assessment, ECS recommended the following:

- The USTs and OWS be removed to determine the extent of contamination from a potential release.
- ECS recommends that the subject property be entered into the North Carolina Brownfields Program. The entrance of the site in the North Carolina Brownfields Program will aid in managing the contamination identified during this assessment.
- ECS recommends that the current property owner be notified and that they submit a copy of the report to the North Carolina Brownfields Program for their review.

UST and OWS Work Plan September 28, 2018

The City of Marion forwarded a copy of the Phase II Environmental Assessments to the NC Brownfield Program. NCDEQ requested that a work plan for the UST and Oil-Water Separator

and Assessment Activities be provided for review prior to commencing remediation activities. The work plan was prepared and submitted to NCDEQ for review and approval. The following is a list remediation activities proposed and approved by NCDEQ.

UST & OWS Removal Activities

- The City of Marion will contract with a contractor qualified to provide UST closure and soil remediation services for the removal and closure of three 30,000-gallon USTs, one 20,000-gallon UST and one OWS;
- QEP will perform field activities including: notification to the NCDEQ of the closure of the USTs by completing and submitting a Notice of Intent: UST Permanent Closure or Change-in-Service UST-3 form, observation and documentation of UST removal activities, screening soil samples for relative levels of volatile organic vapors using a photoionization detector (PID), and collection of closure soil samples for laboratory analysis;
- Asbestos containing pipe insulation will require abatement around the product piping attached to the USTs. The abatement activities will need to be completed by a certified asbestos abatement contractor;
- The contractor will remove residual liquid from the USTs using a vacuum truck. The liquids will be manifested and properly disposed. The manifests will be included in the Closure Report. ECS has estimated a total of 40,000 gallons of product will be removed from the USTs;
- The contractor will disconnect product lines prior to removal of USTs and will drain, cap, and remove product lines;
- The contractor will utilize an excavator to remove the concrete and soil overlying the USTs and remove the USTs from the ground. The clean overburden soil and concrete will be stockpiled and will remain on-site. The USTs will be manifested, properly cleaned, and disposed. The manifests will be included in the Closure Report;

Reporting

- The QEP will prepare a summary report documenting the UST and OWS removal activities, the sampling activities, the results obtained, and the conclusions and recommendations. The report will include, at a minimum, a detailed description of the field activities, a tabular summary of the laboratory analysis for the soil samples which will compare the results to the appropriate screening levels, a discussion of the laboratory results, findings, and conclusions. The report will also include a figure showing the sample locations. Other figures showing the distribution of targeted constituents may be included as applicable. Disposal manifests of USTs and contaminated soil will be provided in the appendix.
- The laboratory analytical results will be included with the report. The laboratory analytical results will include a Level II Quality Assurance/Quality Control (QA/QC) which will include at least one matrix spike and one matrix spike duplicate per sample group, at least one method blank per sample group, system monitoring compounds, surrogate recovery per method, and lab control sample analysis. QC concerns and data

qualifiers or flags should be reported in the laboratory analytical results. Chain of custody (COC) and a signed statement from the lab attesting good sample conditions will also be included with the laboratory analytical results.

Phase I Environmental Assessment, November 16, 2022

Prior to taking ownership of the site on November 18, 2022, City of Marion had an updated Phase I Environmental Assessment performed by ECS Southeast (ECS Project No. 49-18711). The Assessment was completed on November 16, 2022. The following changes were noted since the previous assessments were performed.

ECS conducted a UST and OWS Fluid Removal and Disposal Report for the subject property in August 2019 (ECS Project Number 49:3978-F). The report indicated that a group of four USTs and the OWS were located in the central portion of the property. Three of the USTs have capacities of approximately 30,000-gallons and one has a capacity of approximately 20,000-gallons. Approximately 31,296-gallons of #6 oil and water mixture were removed from the USTs and OWS and transported to HOH Corporation in Winston-Salem, NC for disposal. The USTs and OWS openings were covered with plywood anchored down by concrete screws to prevent rainwater from entering the USTs and OWS and to prevent injuries.

In addition, a total of eight drums were identified in various locations on the property including in the vicinity of the former chemical building and in the vicinity of the former aluminum clad building. The drums contained cleaners and #2 tool oil. Approximately 2,000 pounds of fluid were transported to the DHG facility in Greensboro, NC for disposal.

ECS conducted a Soil Remediation Report for the subject property in August 2019 (ECS Project Number 49:3978-F). The report indicated that approximately 74.68 tons of petroleum impacted material was excavated and disposed of at an approved facility from an active petroleum release area in the central portion of the subject property. Following excavation activities, ECS collected a confirmatory soil samples. Laboratory analysis of the soil samples indicated VOCs, SVOCs, RCRA Metals, Mercury, and Hexavalent Chromium at concentrations above Protection of Groundwater, Residential and Industrial/Commercial Health Based PSGRs in the northern, eastern, and western walls of the excavation from prior uses of the property.

ECS considers the documented contamination present on the subject property to represent a REC for the subject property

d. Project Goal

The planned reuse of the Site is for a mixed use development project. The City's 2012 Comprehensive Land Use Plan (CLUP) identified the need for a redevelopment that would better serve the community with a focus on workforce housing, destination-oriented commercial uses, and community services. The City considered several proposals, and selected one that aligns with both public and private interests. The Plan envisions a multi-use transit-oriented development that by design shares the story of the West Marion Community and provides housing and economic opportunities for all. The revitalization plan is called "Drexel Village at Marion Station". Site reuse will include land area dedicated to a new passenger rail station with multi-modal connectivity, a community center, public open space, workforce and affordable housing, and destination-oriented commercial space.

II. Applicable Regulations and Cleanup Standards

a. Cleanup Oversight Responsibility

The cleanup will be overseen by the North Carolina Department of Environmental Quality (NCDEQ) Waste Management Division, Brownfields Program. All work plans and environmental monitoring will be conducted by a qualified environmental professional (QEP) and all plans and monitoring reports including any necessary sampling will be submitted to NCDEQ under Brownfields Project Number 20072-16-056.

b. Cost Estimate of Cleanup Alternatives

Effectiveness

Alternative #1: No Action: This is not effective means to control or prevent exposure to contamination, and it will not achieve the goal of having a readily developable property. Additionally, the Site is difficult to secure, it is possible that the general public could come into direct contact with contamination, thus creating a potential environmental, health, and welfare liability for the City of Marion.

Alternative #2: Soil Capping: The advantage of soil capping is that it quickly addresses the environmental and health risks associated with direct contact with contaminants. However, the contaminates are left in-situ at low depths. Future construction or on-site excavation contractors at the Site may be exposed to contaminates left in place when the site is redeveloped.

Alternative #3: Targeted Excavation with Offsite Disposal: The advantage of targeted excavation and disposal is that it addresses the environmental concerns with respect to the petroleum products and other hazardous substances absorbed to the surface and near-surface soil and removes the contaminated soil from the site. Excavation can target area with the highest contaminant concentrations and mitigate any long-term effects.

Implementability

Alternative #1: Easy: There are no required actions necessary to implement this option.

Alternative #2: Easy: Capping is relatively easy to implement, although ongoing monitoring and maintenance of the cap will require periodic coordination and reporting. The City of Marion plans to subdivide the property into sub-parcels for redevelopment. Ongoing monitoring and maintenance would be cumbersome and difficult to coordinate and may make site less attractive to redevelopment and private investment. Redevelopment would also be restricted to areas that do not contain USTs, OWS, or subsurface demolition debris which contains organic material that will break down overtime and is not suitable fill for construction.

Alternative #3: Excavation with offsite disposal is moderately difficult to implement. Coordination between the City, QEP, NCDEQ, and contractor for dust suppression and environmental monitoring during cleanup activities and short-term disturbance to the community from noise are anticipated. However, this alternative eliminates ongoing monitoring and maintenance and will make the site more viable for redevelopment and private investment,

Cost

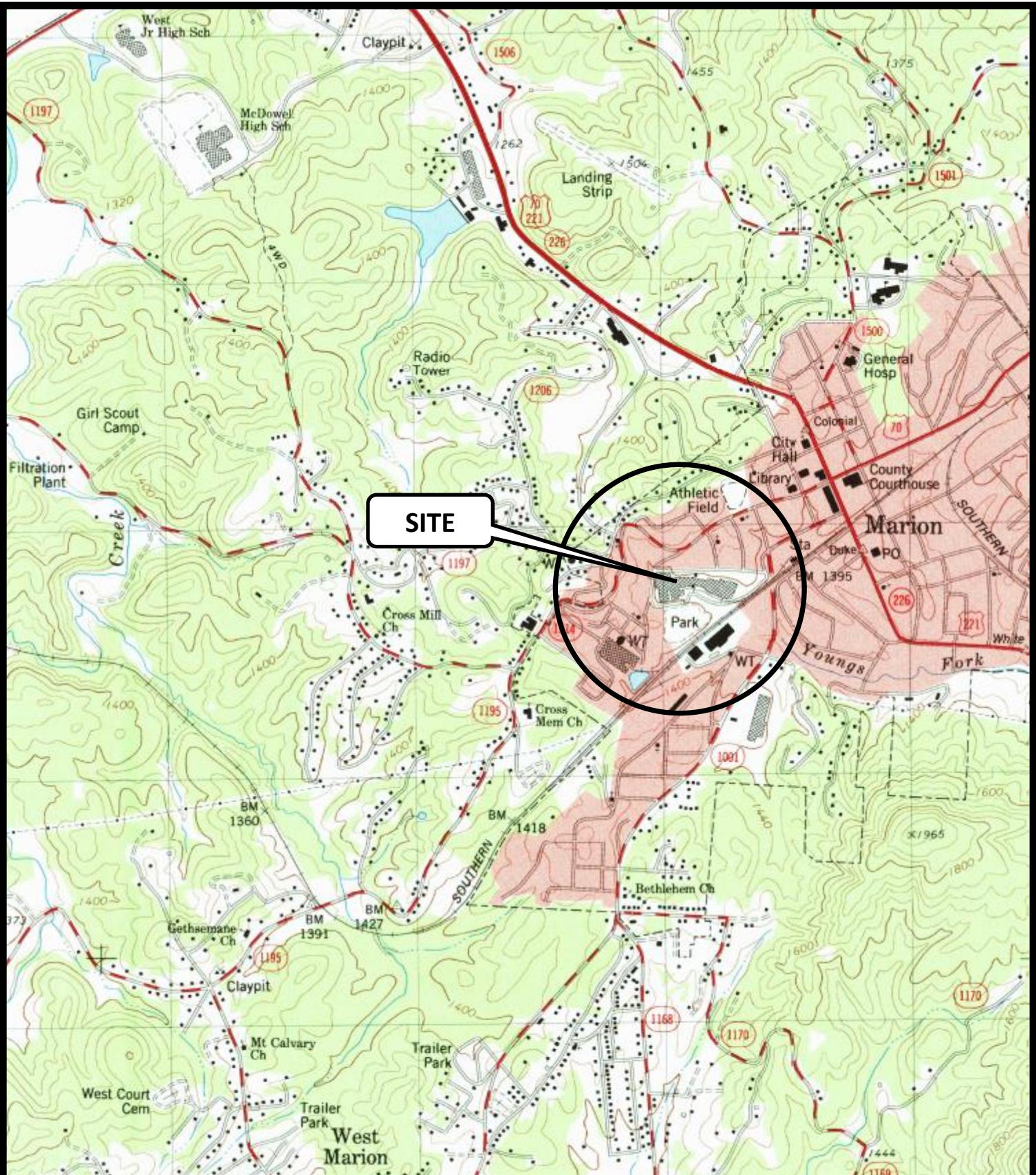
Alternative #1: No costs

Alternative #2: Moderate: Estimated costs for capping and maintaining and monitoring four USTs and one OST will cost approximately \$75,000, and will result in higher costs in the future to remediate if removal is required. There is also the added cost to the City from the loss of tax revenue by not being able to place the property back into productive use.

Alternative #3: Moderate: The Excavation and offsite disposal of three 30,000-gallon USTs, one 20,000-gallon UST, OWS, and 500 +/- tons of co-mingled debris, soil disposal, imported backfill and general compaction is estimated to cost approximately \$500,000.

C. Recommended Cleanup Alternative

The most feasible and appropriate cleanup alternative is Alternative Three (Targeted Excavation and Disposal). Alternative #1: No Action cannot be recommended site it does not address site risks. Alternative #2: Capping is less expensive, however would require ongoing monitoring and maintenance and would limit the City's plans for site reuse and Target Area revitalization. For these reasons Alternative #3 Targeted Excavation and Disposal immediately addresses the highest contaminant concentrations and expeditiously minimizes potential exposure pathways. This approach promotes redevelopment of the Site and it is the most health protective option for future Site occupants and construction workers.



SOURCE:

USGS TOPOGRAPHIC MAP
MARION WEST, NORTH CAROLINA QUADRANGLE
DATED 1985

SCALE: 1" = 2,000'



FIGURE 1
SITE LOCATION MAP

FORMER DREXEL FACILITY
70 BLUE RIDGE STREET
MARION, MCDOWELL COUNTY,
NORTH CAROLINA

ECS PROJECT NO. 49-3978-C

LEGEND

- 1 WILLWEAR HOSIERY MANUFACTURING COMPANY, INC.
- 2 McDOWELL COUNTY MILLWORK
- 3 UNLIMITED FINISHINGS
- 4 ROCK TENN MARION FOLDING
- 5 IDEAL CLEANERS

**SOURCE:**GOOGLE EARTH
2015 AERIAL PHOTOGRAPH = 500 FEET

FIGURE 2
AERIAL MAP & OFF-SITE ENVIRONMENTAL CONCERN
FORMER DREXEL FACILITY
70 BLUE RIDGE STREET
MARION, McDOWELL COUNTY,
NORTH CAROLINA

ECS PROJECT NO. 49-3978-C

LEGEND

- 1 EXISTING USTs & OWS
- 2 FORMER DIESEL UST
- 3 FORMER LACQUER THINNER UST
- 4 FORMER NAPHTHA UST
- 5 FORMER GASOLINE UST & FORMER SVE/AS SYSTEM
- 6 FORMER SOLVEN AST
- 7 OBSERVED DRUMS
- 8 OBSERVED DRUMS & STAINING
- 9 FORMER DRUM RACK
- 10 FORMER DRUM STORAGE
- 11 FUEL OIL BURIAL
- 12 REPORTED FREE PRODUCT SEEPAGE

**SOURCE:**GOOGLE EARTH
2015 AERIAL PHOTOGRAPH

= 250 FEET



FIGURE 3
SITE DETAIL MAP & ON-SITE ENVIRONMENTAL CONCERNS
FORMER DREXEL FACILITY
70 BLUE RIDGE STREET
MARION, McDOWELL COUNTY,
NORTH CAROLINA

ECS PROJECT NO. 49-3978-C

LEGEND

● PROPOSED SOIL SAMPLE LOCATION



SOURCE:

GOOGLE EARTH
2015 AERIAL PHOTOGRAPH

= 250 FEET



FIGURE 4
SOIL SAMPLE LOCATION MAP

FORMER DREXEL FACILITY
70 BLUE RIDGE STREET
MARION, McDOWELL COUNTY,
NORTH CAROLINA

ECS PROJECT NO. 49-3978-C

LEGEND

PROPOSED GROUNDWATER SAMPLE LOCATION



SOURCE:

GOOGLE EARTH
2015 AERIAL PHOTOGRAPH

 = 250 FEET

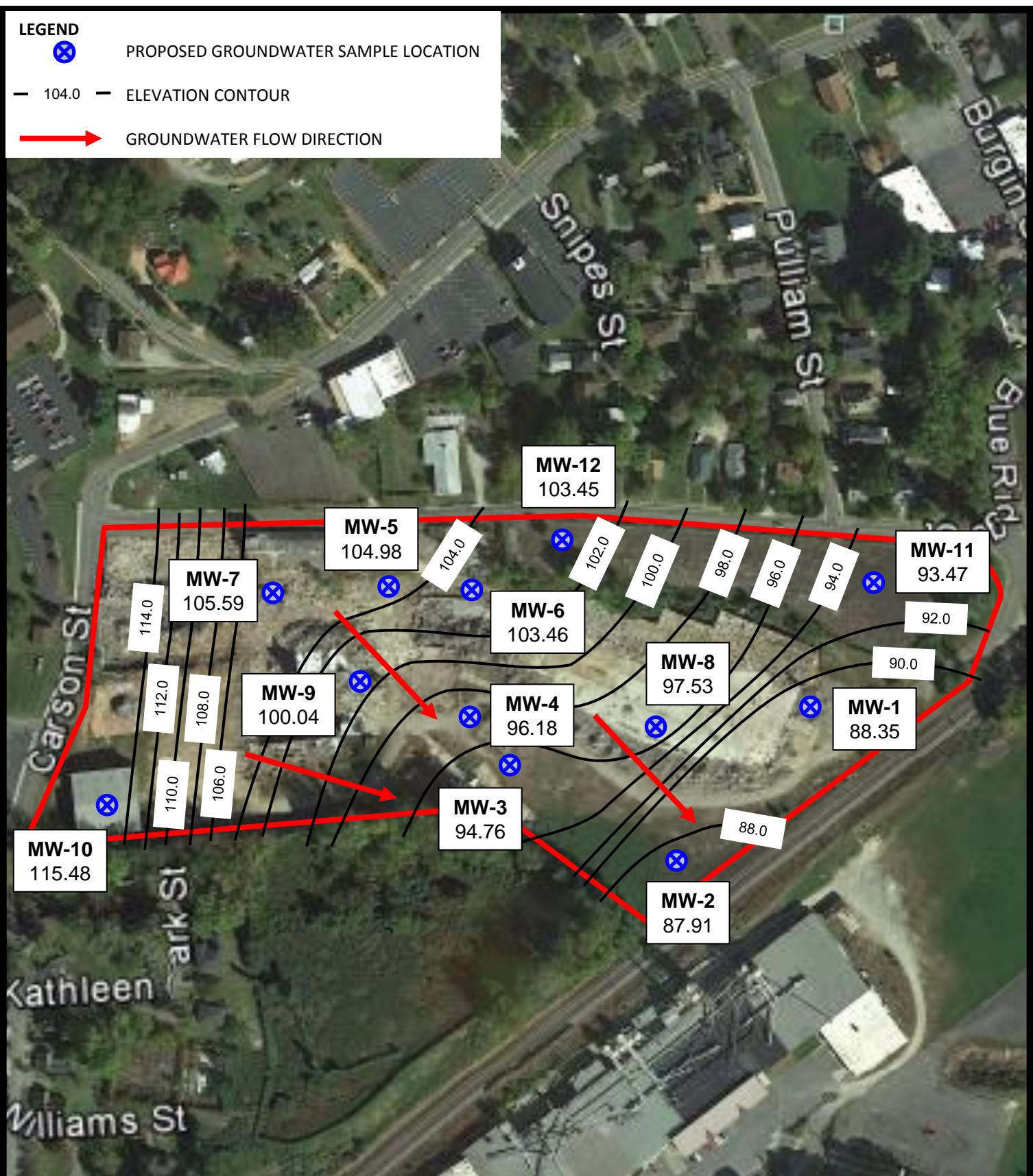


FIGURE 5
MONITORING WELL & GROUNDWATER SAMPLE
LOCATION MAP
FORMER DREXEL FACILITY
70 BLUE RIDGE STREET
MARION, McDOWELL COUNTY,
NORTH CAROLINA

ECS PROJECT NO. 49-3978-C

LEGEND

- PROPOSED GROUNDWATER SAMPLE LOCATION
- ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION

**SOURCE:**GOOGLE EARTH
2015 AERIAL PHOTOGRAPH

= 250 FEET

**FIGURE 6**
GROUNDWATER FLOW DIRECTION MAP

FORMER DREXEL FACILITY
70 BLUE RIDGE STREET
MARION, McDOWELL COUNTY,
NORTH CAROLINA

ECS PROJECT NO. 49-3978-C