

**VOLUNTARY REMEDIATION PROGRAM
SECOND SEMI-ANNUAL PROGRESS REPORT
FORMER MACON 2 MGP FACILITY
MACON, BIBB COUNTY, GEORGIA
GEC JOB NO. 130659.241**

PREPARED FOR

**FORMER MACON 2 MGP FACILITY
MACON, BIBB COUNTY, GEORGIA
HSI #10692**

SUBMITTED TO

**MS. ANTONIA BEAVERS
GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
HAZARDOUS SITES RESPONSE PROGRAM
2 MARTIN LUTHER KING, JR. DRIVE, SE
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PREPARED BY

**GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS, INC.
514 HILLCREST INDUSTRIAL BOULEVARD
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APRIL 18, 2017

GEC

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CONSULTANTS, INC

April 18, 2017

**Ms. Antonia Beavers
Georgia Environmental Protection Division
Response and Remediation Program
Suite 1462 East Tower
2 Martin Luther King, Jr. Drive S.E.
Atlanta, GA 30334**

**SUBJECT: Second VIRP Semi-annual Progress Report
Former Macon 2 MGP Facility
HSI #10692
Macon, Bibb County, Georgia
GEC Job No. 130659.241**

Dear Ms. Beavers:

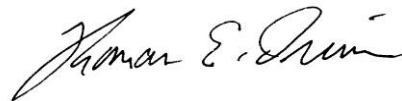
In accordance with the Voluntary Investigation and Remediation Program (VIRP) for the Former Macon 2 MGP Facility site in Macon, Georgia, Geotechnical & Environmental Consultants, Inc. (GEC) is submitting this Semi-annual Progress Report. This report provides an update on revisions to the proposed depths of excavation, a Soil Excavation Plan, and a schedule for the proposed soil excavation activities, which will assist in moving the site to closure.

Sincerely,

GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS, INC.



Carrie Holderfield, P.G.
Project Geologist
Georgia Reg. No. 2174



Thomas E. Driver, P.E.
President
Georgia Reg. No. 17394

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1.0 INTRODUCTION

This Voluntary Remediation Program (VRP) Second Semi-Annual Progress Report for the Former Macon 2 Manufactured Gas Plant (MGP 2) facility (Hazardous Site Inventory [HSI] #10692) in Macon, Georgia, is being submitted to the Georgia Environmental Protection Division (EPD) on behalf of Macon-Bibb County. This report provides an update on revisions to the proposed depths of excavation, a Soil Excavation Plan, and a schedule for the proposed soil excavation activities, which will assist in moving the site to closure.

New potential receptors and/or potential environmental issues have not been discovered since the First Semi-Annual Progress report was submitted by Geotechnical and Environmental Consultants, Inc. (GEC) in March 2016.

2.0 SITE DESCRIPTION

The Former Macon MGP 2 site (hereafter referred to as site) is located northeast of Riverside Drive/SR 23 and southeast of Spring Street/SR 87 in Macon, Bibb County, Georgia. The Norfolk Southern Railway and Ocmulgee River border the property line to the north. A Site Location Map is presented as Figure 1 in Appendix A.

The site previously operated as a MGP facility from the mid-1800s to the mid-1950s. Subsequently, the former MGP structures were removed and the site was improved with the City of Macon Central Services complex. The Central Services complex structures were removed in 2012, and the site has remained vacant since that time. The site is currently undeveloped with the exception of asphalt roadways and the concrete foundations of former structures. The majority of the site is surfaced with grass. Property utilizations in the vicinity of the site are primarily commercial.

3.0 BACKGROUND

The site was previously listed on the HSI as site #10692. The site was investigated and a Compliance Status Report (CSR prepared by Williams Environmental Services) was approved on December 19, 2003, which certified compliance with Type 4 Risk Reduction Standards (RRS) for soil. The CSR also documented the extent of soil contamination both horizontally and vertically. Groundwater was certified as compliant with Type 1 RRS.

The Georgia Environmental Protection Division (EPD) also approved a Corrective Action Plan (CAP) for the site on January 4, 2006, which required a deed notice on the property. In order to comply with the CAP, a Consent Order was executed to prevent placing, permitting or approving any residential purpose on the site.

Finally, the Georgia EPD approved an “Area of Compliance for Type 4 Risk Reduction Standards in

Soil,” as identified in a CAP, prepared by RETEC Group, Inc., dated October 5, 2008. For the purposes of the report, this Area is also identified as the "Proposed Residential Use Target Zone."

Due to interest in mixed residential and commercial redevelopment of the property, Macon-Bibb County elected to modify the current site restrictions to allow residential use of the site. To that end, Macon-Bibb County submitted an updated VRP Application, which included additional investigation and possible corrective action of soils from the surface to 15-feet below ground surface (bgs), which may be needed in order to demonstrate the site's suitability for residential development. The Residential Use Target Zone is defined by a polygon shaped area depicted Site Map presented as Figure 2 in Appendix A.

Per EPD approval, the updated VRP application was not intended to revisit the basis for the delisting of the site, or to reevaluate the previously approved CSR. The updated VRP application served only to characterize contamination in the upper 15-feet of the site in order to enable the development of a corrective action plan, which would result in remediation to Type 1 or 2 RRS within these depths at the site.

The former MGP facility and surrounding properties were backfilled on several occasions to reach the current topography. The results of soil assessment activities indicated that fill thickness range from 4.5-feet to the west of the former MGP facility to approximately 36-feet within the eastern portion and to the southeast of the former MGP facility. Based upon visual observations collected during assessment activities, the fill material primarily consists of silts, sands, and clays consistent with the area lithology, and occasionally construction debris, including brick, concrete, glass, and asphalt. The upper 15-feet of soils and fill material were the subject of this additional investigation.

4.0 SUMMARY OF PREVIOUS INVESTIGATIONS

Law Environmental Studies: Law Environmental, Inc. (LAW) conducted a Preliminary Assessment (PA) of the Site in 1991, which included a review of available file material, on-site and off-site reconnaissance, review of historical property ownership and a limited pathway survey. No sampling or analysis was conducted during the PA.

Williams Environmental Services Studies: A Compliance Status Investigation Report (CSR) for the site was initiated by Williams Environmental Services (Williams) in June of 2002. The Revised CSR was submitted on September 5, 2003. According to the CSR, 35 Hazardous Site Response Act (HSRA) regulated substances were detected at the site.

Williams advanced over 35 soil borings within the total area of the site (including areas outside of the Residential Use Target Zone) and collected soil samples, variously, from the surface to 60-feet bgs. The selected soil samples were analyzed for volatile organic compounds (VOCs), semi volatile

organic compounds (SVOCs), Resource Conservation and Recovery Act (RCRA) 11 metals, and total cyanide. Soil sample analytical results were compared to Type 1 through Type 4 RRS, and background concentrations. Comparison of the soil sample analytical results with applicable RRSs indicated two SVOCs (benzo(a)pyrene and dibenzo(a,h)anthracene) and two inorganic compounds (arsenic and lead) exceeded Type 1 or 2 RRS within the Residential Use Target Zone.

Williams also collected groundwater samples during the investigation. The groundwater samples were analyzed for the same analytes as the soil samples. Groundwater sample analytical results were compared to Type 1 RRS. None of the detected analytes exceeded Type 1 RRS. Therefore, the groundwater pathway is not considered complete at the site.

A digital copy of the CSR prepared by Williams in 2002, and revised in 2003, was provided in the First Semi-Annual Progress report.

GEC 2014: GEC mobilized to the site on February 13, 2014, to conduct additional assessment of shallow soils within in the Residential Use Target Zone. Assessment activities included sampling at pre-determined depths of 0 to 6-inches and 6-inches to 2-feet bgs. These depths were selected based upon prior conversations pertaining to the re-development of the site. Specifically, the depths were selected based on the two options determined by the “Analysis of Alternatives for Redevelopment of Former Macon 2 Manufactured Gas Plant.” Options 2 (Voluntary Remediation Program (VRP)) and 4 (Brownfield) both included institutional controls or limited soil removal in the upper 2-feet to enable residential use across the site. Therefore, additional sampling of soils within the upper 2-feet of the Residential Target Zone was determined to be necessary to further evaluate the possibility of pursuing Options 2 and 4.

The locations for collection of additional surface soil samples were determined by establishing an approximate 100-foot grid within the “Area of Compliance for Type 4 RRS in Soil” (aka Residential Use Target Zone) identified in the Correction Action Plan prepared by RETEC Group, Inc. (dated October 5, 2008). A total of 27 sampling locations (GB-1 through GB-27) were proposed for completion within the Residential Use Target Zone.

GEC mobilized to the site on February 13, 2014, and collected a total of 54 soil samples from the surface to 6-inch interval and 6-inch to 2-foot interval. To fully characterize the soils across the site, the selected soil samples were submitted for laboratory analysis of VOCs, SVOCs, and RCRA 8 metals.

Laboratory analytical results for the selected soil samples were compared to Type 1 and Type 2 RRS. Results of the comparison indicated that VOC and SVOC concentrations in the shallow soils all measured below either Type 1 or Type 2 RRSs. Further, only lead and arsenic concentrations exceeded Type 1 or Type 2 RRSs in three of the 44 samples.

GEC 2015: GEC proposed additional sampling in a Voluntary Investigation and Remediation Plan (VIRP, dated January 9, 2015) which recommended additional sampling of soils within the surface to 15-foot interval. The proposed soil sample locations and sample intervals were selected based upon the analytical results presented in the CSR, which identified 11 locations with analyte concentrations which exceeded the highest respective Residential RRS for each constituent.

GEC mobilized to the site on August 6, 7, 13, 24, and 25, 2015, to conduct the additional assessment activities. The soil borings were advanced utilizing a skid steer mounted Geoprobe rig or track-mounted drilling rig equipped with hollow stem augers. During drilling, soil cuttings were continuously observed and selected soils were screened for organic vapors utilizing a photo-ionization detector (PID). Elevated PID readings (greater than 100 parts per million [PPM]), olfactory, and/or visual evidence of potential soil contamination were not detected.

A total of 30 additional soil samples were collected from various intervals within the top 15-feet of soil, and submitted for analysis of SVOCs and metals. Additionally, the soil samples collected from the area of the former Gas Holders (GB-5 and GB-7) were analyzed for benzene, toluene, ethylbenzene, and xylene (BTEX), and carbon disulfide, total cyanides, and methylene chloride (GB-7 only).

Laboratory analytical results for the selected soil samples were compared to Type 1 and Type 2 RRS. Results of the comparison indicated that BTEX, SVOC, carbon disulfide, total cyanides, and methylene chloride concentrations in the selected soil samples all measured below either Type 1 or Type 2 RRSs, with the exception of benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene within the 13 to 15-foot interval of SB-17. Additionally, all metal concentrations measured below Type 1 or Type 2 RRSs, with the exception of lead in GB-14 (3 to 5-foot interval) and SB-24 (2 to 4-foot interval).

Additionally, potential vapor intrusion at the site was addressed by sampling in two locations at the site, including the area of the former Gas Holder No. 1 and the former Gas Holder No. 2. Tar-Like Material (TLM) and Oil-Like Material (OLM) were encountered at depths of 13-feet or greater in both of these areas during previous studies at the site.

The temporary vapor sample “wells” (VS wells) were installed within the two areas and air samples were collected from the following depths between 5 and 10-feet below ground surface.

Laboratory analytical results obtained for the soil vapor sample identified numerous COCs, including those typically associated with MGPs, which included, but are not limited to benzene, ethylbenzene, toluene, and xylenes. The EPA VISL Calculator worksheet for sub-slab or exterior soil gas concentrations to indoor air concentrations was utilized to evaluate each COCs carcinogenic risk and/or vapor intrusion hazards. Review of the VISL worksheets indicated that all COCs were

reported below the Target Risk for Carcinogens (TCR - 1.00×10^{-5}) and/or the Target Hazard Quotient for Non-Carcinogens (THQ) for Non-Carcinogens (1).

The results of the additional assessment activities were provided in the First Annual Progress Report, which was submitted in March 2016. After completing a review of the Report, EPD offered comments in correspondence dated October 24, 2016. Responses to the EPD comments were provided in GEC correspondence dated December 7, 2016. A copy of the GEC correspondence is provided in Appendix B.

5.0 GROUNDWATER AND LEACHABILITY

Since no groundwater contamination has been encountered above Type 1 RRS, no additional groundwater sampling is proposed or will be performed.

Additionally, per prior EPD approval, information provided in the Williams CSR, Section 9.5.1.2 Leaching Potential Study were approved as appropriate for the site. Therefore, no further studies will be conducted with respect to leachability at the site.

6.0 SOIL EXCAVATION PLAN

Per EPD approval, Type 2 soil RRS are being utilized to address soil contamination within the RUTZ, which will allow for redevelopment under residential use standards. The EPD has also approved revision to the proposed depths of excavation. The revised excavation activities will address soil contamination to a depth of 15-feet below ground surface (bgs), rather than 5-feet bgs. A Soil Management Map, which identifies the areas proposed for excavation is provided as Figure 3 in Appendix A. Additionally, a revised COC Decision Matrix table, which provides the rationale for addressing known soil contamination within the RUTZ is provided in Appendix C.

Soil Excavation

Corrective action for soils will include excavation and off-site disposal at an authorized landfill. Initial excavation will extend 5-feet laterally in each direction from the original soil sample location, and vertically to the depth identified in the COC Decision Matrix table.

Following any excavation of impacted soils, confirmatory sampling as described below will be performed to confirm that the base and sidewalls of the excavations do not exhibit impacts over the applicable standard. If confirmation sampling shows impacts remaining above the appropriate standard, additional localized excavation would be conducted both vertically and horizontally, as needed, to remove the soils above the applicable standards. GEC will measure and verify the excavation depth of each area during the removal of the contaminated soil.

The excavated material will be stockpiled on-site pending confirmatory and characterization sample results. The stockpiled material will be placed on, and covered by, polyethylene sheeting while on-site. Additionally, appropriate best management practices will be placed around the stockpile(s) and excavation(s) to prevent erosion or runoff from the stockpile(s) or excavation(s). Following receipt of confirmatory sample results indicating that all media impacted above the appropriate RRS have been removed, the stockpiled material will be transported in an appropriate container, to an approved disposal facility. Depending upon client requirements, the on-site excavations may then be backfilled with clean material obtained from off-site or other areas within the RUTZ. In the event that backfill material is obtained from an off-site source; the materials will be sampled to verify that contaminants are not present.

GEC anticipates that approximately 53.47 tons of contaminated soil will be generated during the remediation activities. A Proposed Excavation Summary table is presented as Table 2 in Appendix C.

Confirmatory soil sampling will be performed on any excavation completed for corrective action purposes at the property. Confirmatory soil samples will be collected and analyzed for appropriate constituents of concern, at the following intervals:

- One sample tested for every 20 linear feet of excavation sidewall
- The sampling interval in the base of an excavation is proposed for one sample between 500 and 1,000 sf.

Any remediation/excavation will be performed in compliance with applicable OSHA regulations, and in accordance with a project specific Health, Safety, and Emergency Plan. Any soil and/or source material generated during corrective action would be managed in such a way to (i) prevent contamination of the surrounding environment (soil, water, and air); (ii) comply with federal, state, and local laws; and (iii) protect personnel.

Sample Handling

All sampling will be conducted in accordance with protocols intended to obviate the potential for cross-contamination; sampling equipment will be thoroughly decontaminated prior to use, and the appropriate documentation will be maintained. Samples will be packaged in laboratory-provided containers with preservative appropriate to the analytical methods to be used, and shipped overnight via priority carrier, along with the appropriate Chain-of-Custody documentation.

7.0 CONCLUSIONS AND RECOMMENDATIONS

As noted previously, GEC is recommending excavation and disposal of soils at 11 locations where elevated arsenic, lead, and PAH concentrations were detected in the upper 15-foot interval. This

effort will also include collection of confirmation soil samples from the floor and side walls of each excavation, to ensure that all soils exhibiting elevated concentrations are removed.

GEC requests the issuance of a Uniform Environmental Covenant (UEC) and revision of the current Consent Order, to include restrictions for soils located greater than 15-feet. GEC also requests approval to submit a Corrective Action Plan, which will detail requirements necessary for any excavation or other disturbance of soils located greater than 15-feet within the Residential Use Target Zone, as a component of the Third Semi-Annual Progress Report. The intent of the corrective action plan will be insuring the protection of construction workers.

8.0 SCHEDULE OF VIRP ACTIVITIES

The site remediation activities will be initiated within 3-weeks of approval of this report. Excavation activities are anticipated to take no longer than two (2) weeks, weather permitting. Following completion of remediation efforts, the UEC will be updated and resubmitted for final approval. GEC proposes submission of the Third Semi-Annual Progress Report in July 2017, and submission of the Compliance Status Report by September 2017.

9.0 SERVICES PROVIDED AND INVOICED HOURS

As required by Item #6 of the VRP Checklist, the two most recent invoices (dated December 9, 2016 and January 16, 2017) for services provided for this project are provided in Appendix D.

APPENDIX A

Figures



Figure 1
Site Location Map
Former Macon 2 MGP Facility
Macon, Bibb County, Georgia
GEC Project No. 130659.241
Approximate Scale: 1" = 2,000'

Source: Macon West, GA Quadrangle (1985)

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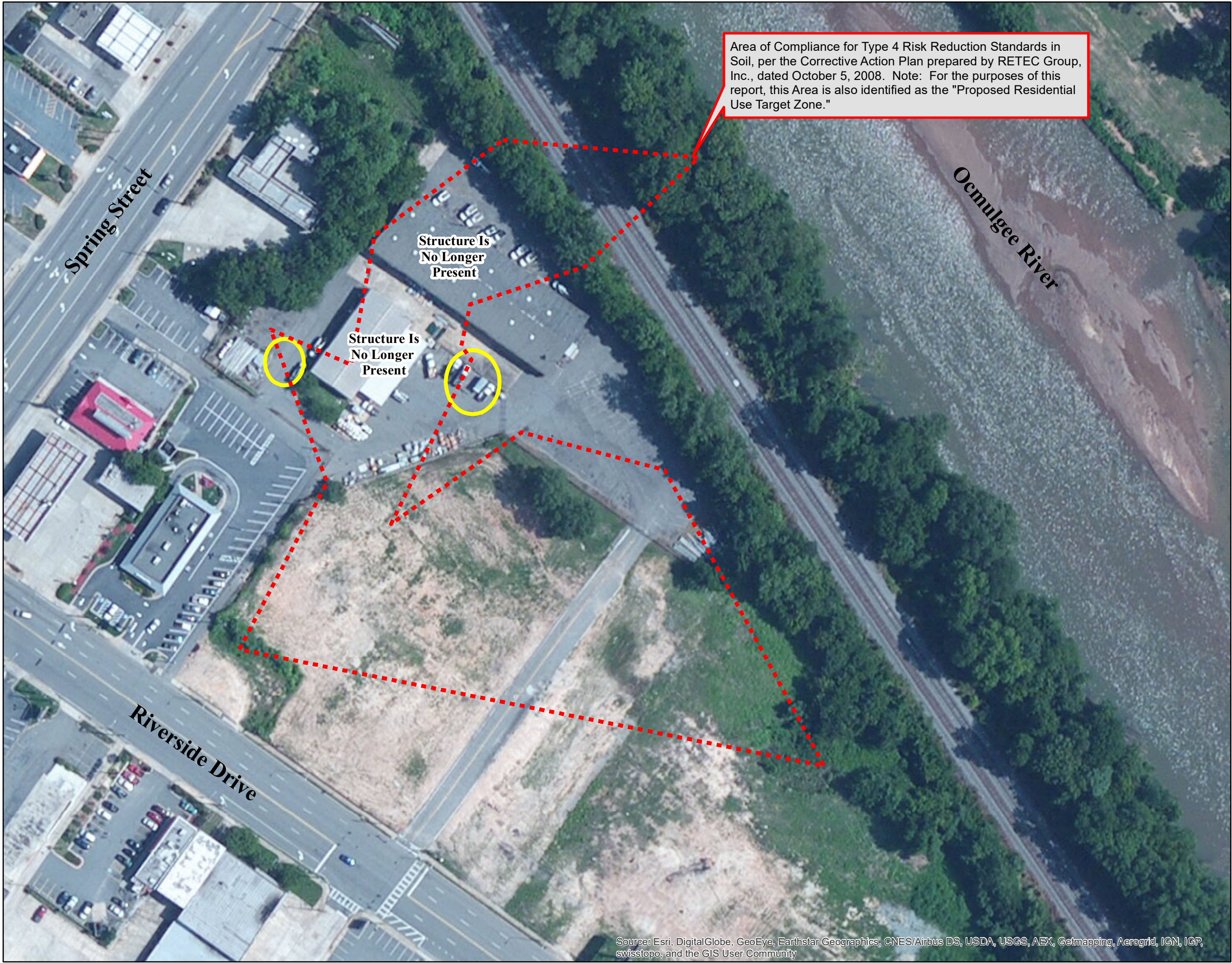


Figure 2. Site Map

Former Macon 2 MGP Facility
Macon, Bibb County, Georgia

GEC Project No. 130659.241

Prepared For:



Macon-Bibb County Georgia

Prepared By:



Geotechnical and Environmental
Consultants, Inc.
514 Hillcrest Industrial Blvd
Macon, Ga

- Legend**
- Proposed Residential Use Target Zone
 - Former Gas Holders



0 30 60 120 180 240
Feet

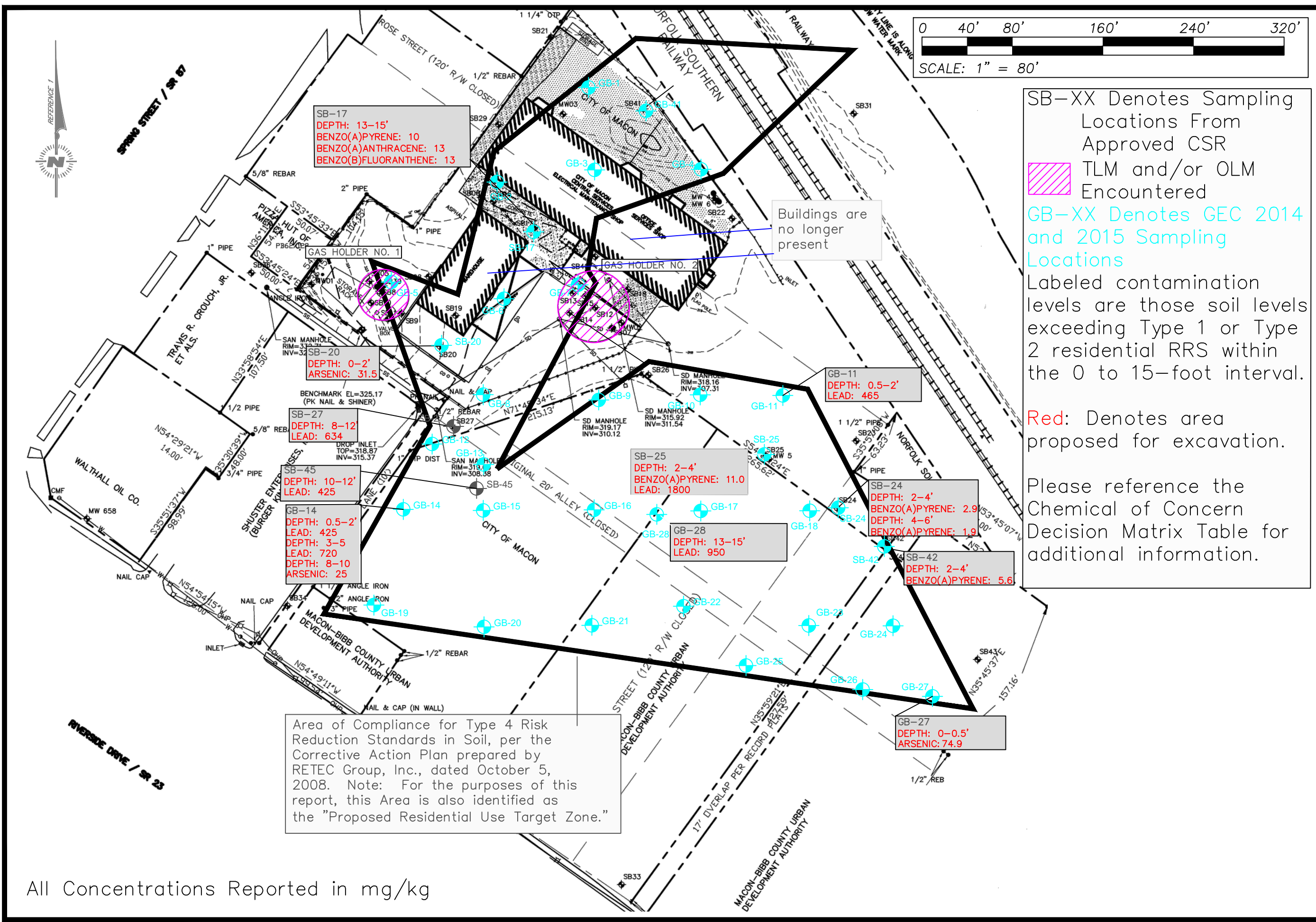


FIGURE 3: SOIL MANAGEMENT MAP
0 TO 15-FOOT INTERVAL
FORMER MACON 2 MPG SITE
MACON, GEORGIA
GEC PROJECT NO. 130659.241

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APPENDIX B
Correspondence

GEC

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December 7, 2016

Mr. Kevin Collins
Georgia Department of Natural Resources
Environmental Protection Division
Hazardous Sites Response Program
2 Martin Luther King, Jr. Drive, SE
Atlanta, Georgia 30334

Re: Voluntary Remediation Program First Semiannual Progress Report, March 10, 2016 Macon
Former Manufactured Gas Plant 2, HSI Site No. 10692
Intersection of Willow Street and Spring Street Lane, Macon-Bibb County
Parcels R07 I-03 I 6 (OC98-5J), R073-0033 (OC99-4A), and R073-0398 (OC99-4AB)
Portions of Right-of-Way of Willow Street and Spring Street Lane GEC Job No. 130659.241

Dear Mr. Collins:

Geotechnical and Environmental Consultants, Inc. (GEC) submitted the Voluntary Remediation Program (VRP) First Semiannual Progress Report (Report), dated August 1, 2016, for Macon-Bibb County (MBC) pursuant to the Georgia Voluntary Remediation Program Act (the Act). The Report provided further details for the implementation of the May 22, 2015, Voluntary Investigation Remediation Plan (VIRP), which was approved by EPD in a letter dated June 22, 2015. Per the Report, MBC is changing future use of the previously certified Type 4 on-site area from nonresidential to residential, per the approved VIRP, dated May 22, 2015. The Report included additional soil characterization of the extent of contamination in the top 15-feet of the Residential Use Target Zone (RUTZ), along with recommendations for further actions including excavation, development of a Soil Management Plan (SMP), enacting a uniform environmental covenant (UEC), and corrective action plan (CAP) for soil greater than 15-feet in the RUTZ area. After completing a review of the Report, EPD offered comments in correspondence dated October 24, 2016. Responses to the EPD comments are provided (*italicized*) following each comment:

1. As stated above, the Report proposes excavation and proper disposal of metals and polychlorinated hydrocarbon (PAH) contaminated soil detected at concentrations that exceed residential Type 1 and Type 2 risk reduction standards (RRS) in the top 5-feet of soil at the above referenced property, and the use of a SMP, CAP, revised Consent Order, and UEC to address contamination located greater than 5-feet below ground surface (bgs). EPD and MBC representatives discussed the actions proposed in the Report in telephone conversations held on October 7, 18, and 19, 2016.

Based on these discussions, it was established that MBC will not implement the area averaging approach detailed in the Report at the property. MBC representatives also cited the potential of excavation and disposal of impacted soil in the top 15-feet of soil at the property pending MBC's approval, which will be discussed in a County Commissioners meeting to be held in the 4th Quarter of 2016. Therefore, EPD will not comment on the area averaging approach that was provided in the Report at this time. Please submit a revised remediation plan that reflects the referenced modifications in the next semiannual progress report. Based on a review of the Report and the noted communications with MBC, EPD has concluded that the area averaging approach is not required to meet remedial goals in the ground surface to 5-feet bgs horizon, as soil remaining in place after the excavation activities will be eligible for certification to residential RRS.

GEC Response: Per EPD approval, area averaging will not be utilized to meet remedial goals. As discussed and agreed upon during the telephone conversations, soils located within the surface to 15-foot interval (various intervals) are proposed to be excavated approximately 5-feet in each direction, from the original location of 11 soil borings (GB-11, GB-14, GB-27, GB-28, SB-17, SB-20, SB-24, SB-25, SB-27, SB-42, and SB-45). GEC and MBC appreciate EPD's approval of the modified remediation scope of work.

2. Section 8.0 of the Report provides conclusions and recommendations for the path forward at the property. EPD approves the request for use of previously approved Type 2 soil RRS in the RUTZ but requests that the RRS that are presented in the COC Decision Matrix be reviewed for accuracy.

Per EPD concurrence, RRS provided in the Compliance Status Investigation Report, prepared by Williams Environmental Services, Inc. will continue to be the applicable RRS for this site. Therefore, GEC reviewed the RRS provided in Table 9.2 (Page 43) of the report to compare for accuracy. Based upon the review, GEC revised the Type 2 arsenic RRS from 6.06 to 6.08 mg/kg. Additionally, GEC revised the benzo(a)anthracene Type 1 and Type 2 RRS from 1.25 and 1.65 mg/kg, to 5 and 12.5 mg/kg, respectively. The COC Decision Matrix has been updated accordingly.

EPD also agrees with MBC's request to submit a draft UEC to be used in conjunction with a SMP, CAP and revised Consent Order to enforce restrictions for soils located greater than 15-feet bgs in the RUTZ. Please submit the SMP, CAP, and a draft UEC as part of the next semiannual progress report.

GEC respectfully requests that submission of the draft UEC, SMP, CAP and revised Consent Order be proposed for the third Report to be submitted in June 2017.

The next report should also include a Soil Excavation Plan that provides essential details about the soil excavation activities (i.e. grid spacing, a verification sampling strategy, soil sampling procedures, etc.).

A detailed Soil Excavation Plan will be provided in the Report to be submitted by December 22, 2016.

3. According to the Report, the soil impacts at the property have been delineated horizontally and vertically. Please provide a figure in the next semiannual progress report that illustrates delineation to the approved Type 1 RRS, and please note that a final figure that demonstrates overall soil compliance should be submitted in the final Compliance Status Report (CSR).

A figure illustrating compliance with Type 1 or 2 RRS, as previously approved in Compliance Status Investigation Report, prepared by Williams Environmental Services, Inc., will be provided in the next Report and in the CSR.

4. Section 3.0 of the Report states that groundwater was certified to be in compliance with Type 1 RRS in the Williams Environmental Services, Inc. 2003 CSR; however, it did not discuss the potential for leaching of contamination from soil to groundwater in those areas where contaminated soil may be left in place. Please provide a statement with regard to leaching in the next progress report.

Per conversations with the prior EPD team, information provided in Section 9.5.1.2 Leaching Potential Study (page 44) has been approved as appropriate for the site. Therefore, no further studies will be conducted with respect to leachability at the site.

5. Section 5.0 of the Report provides the results of a vapor intrusion investigation in the vicinity of the Former Gas Holder No. 1 and Fonner Gas Holder No. 2. EPD agrees with the conclusion that based on the calculations, all COCs were detected below the target risk for carcinogens and/ or the target hazard quotient for non-carcinogens.

No Comment

6. Additional soil samples have been collected since EPD's approval of the 2003 CSR; therefore, please provide revised cross sections in the next progress report to illustrate the site's surface and subsurface setting (Unified Soil Classification System subsurface soil descriptions and any interconnecting lithologic characteristics) to support the graphic three-dimensional conceptual site model as required by Item #5 of the VRP Checklist.

Cross sections depicting the site's surface and subsurface setting were provided in the Williams Environmental Services, Inc., report and VIRP (Figures 7, 8 and 9) submitted by GEC (dated January 9, 2015). No further cross sections are proposed for completion, as the previous submittals were accepted by the prior EPD project team.

7. A discussion of the property's conceptual site model (CSM) including exposure pathways was not included in the Report.

The property's CSM, including an Exposure Assessment (Section 3.3) was provided in the VIRP completed by GEC (dated January 9, 2015), and was previously accepted by the prior EPD team. Therefore, no further discussion of the CSM appears to be warranted.

Additionally, the Report did not include a schedule of VIRP activities, including the submittal of semiannual progress reports and a final CSR. Please ensure that an updated CSM and VIRP schedule of activities are included in all future progress reports.

A schedule of VIRP activities, including the submittal of semiannual progress reports and a final CSR will be included in all future progress reports.

8. While the Report was stamped by a Professional Engineer, it did not include the signed and hours invoiced with a description of services provided), as required by Item #6 of the VRP Checklist. Please ensure that the information is provided in all future reports.


Supporting documentation including hours invoiced with a description of services provided will be included in all future progress reports.

Additionally, GEC respectfully requests a 45-day extension for submittal of the next semiannual progress report.

If you have any questions or need any additional information, please do not hesitate to call (478-757-1606) or email (cholderfield@geconsultants.com).

Sincerely,

GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS, INC.


Carrie Holderfield, P.G.
Project Geologist
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Thomas E. Driver, P.E.
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Attachments: COC Decision Matrix
Soil Management Map – Proposed Excavation

GEC

APPENDIX C

Tables

Table 1. COC Decision Matrix
MGP #2, Macon, Georgia

COI	Boring ID	Maximum Depth (feet)	Analytical Result	Type 1 RRS (mg/kg)	Source	Type 2 RRS (mg/kg)	Source	EPC < Critical PCL?	Proposed Action
Arsenic	GB-27	0-0.5	74.9	20.0	C	6.08	D	Yes	Recommend excavation of soil from the surface to 0.5-feet in this area
	GB-14	8-10	25	20.0	C	6.08	D	Yes	Recommend excavation of soil from 8 to 10-feet in this area
	SB-20	0-2	31.5	20.0	C	6.08	D	Yes	Recommend excavation of soil from the surface to 2-feet in this area
Lead	GB-14	0.5-2	425	75/204	C	400	**	Yes	Recommend excavation of soil 0.5 to 2-feet in this area
	GB-11	0.5-2	465	75/204	C	400	**	Yes	Recommend excavation of soil 0.5 to 2-feet in this area
	GB-14	3-5	720	75/204	C	400	**	Yes	Recommend excavation of soil from 3 to 5-feet in this area
	SB-25	2-4	1800	75/204	C	400	**	Yes	Recommend excavation of soil from 2 to 4-feet in this area
	SB-45	10-12	425	75/204	C	400	**	Yes	Recommend excavation of soil from 10 to 12-feet in this area
	SB-45	15-17	1070	75/204	C	400	**	Not Applicable	NFA - Soils greater than 15-ft. Recommend preparation of a Soil Management Plan and construction worker oversight/air monitoring if soils in this area will be disturbed during construction.
	SB-27	8-12	634	75/204	C	400	**	Yes	Recommend excavation of soil from 8 to 12-feet in this area
	GB-28	13-15	950	75/204	C	400	**	Yes	Recommend excavation of soil from 13 to 15-feet in this area
	SB-41	24-29	484	75/204	C	400	**	Not Applicable	NFA - Soils greater than 15-ft. Recommend preparation of a Soil Management Plan and construction worker oversight/air monitoring if soils in this area will be disturbed during construction.

Table 1. COC Decision Matrix
MGP #2, Macon, Georgia

COI	Boring ID	Maximum Depth (feet)	Analytical Result	Type 1 RRS (mg/kg)	Source	Type 2 RRS (mg/kg)	Source	EPC < Critical PCL?	Proposed Action
Benzo(a)anthracene	SB-17	13-15	13	5.00	A	12.5	D	Yes	Recommend excavation of soil from 13 to 15-feet in this area
Benzo(a)pyrene	SB-17	13-15	10	1.64	A	1.25	D	Yes	Recommend excavation of soil from 13 to 15-feet in this area
	SB-17	16-20	5.0	1.64	A	1.25	D	Not Applicable	NFA - Soils greater than 15-ft. Recommend preparation of a Soil Management Plan and construction worker oversight/air monitoring if soils in this area will be disturbed during construction.
	SB-41	19-24	2.2	1.64	A	1.25	D	Not Applicable	NFA - Soils greater than 15-ft. Recommend preparation of a Soil Management Plan and construction worker oversight/air monitoring if soils in this area will be disturbed during construction.
	SB-14	16-20	6.8	1.64	A	1.25	D	Not Applicable	NFA - Soils greater than 15-ft. Recommend preparation of a Soil Management Plan and construction worker oversight/air monitoring if soils in this area will be disturbed during construction.
	SB-14	24-28	10.0	1.64	A	1.25	D	Not Applicable	NFA - Soils greater than 15-ft. Recommend preparation of a Soil Management Plan and construction worker oversight/air monitoring if soils in this area will be disturbed during construction.
	SB-24	2-4	2.9	1.64	A	1.25	D	Yes	Recommend excavation of soil from 2 to 4-feet in this area
	SB-24	4-6	1.9	1.64	A	1.25	D	Yes	Recommend excavation of soil from 4 to 6-feet in this area
	SB-25	2-4	11.0	1.64	A	1.25	D	Yes	Recommend excavation of soil from 2 to 4-feet in this area
	SB-42	2-4	5.6	1.64	A	1.25	D	Yes	Recommend excavation of soil from 2 to 4-feet in this area

Table 1. COC Decision Matrix
MGP #2, Macon, Georgia

COI	Boring ID	Maximum Depth (feet)	Analytical Result	Type 1 RRS (mg/kg)	Source	Type 2 RRS (mg/kg)	Source	EPC < Critical PCL?	Proposed Action
Benzo(b)fluoranthene	SB-17	13-15	13	5	A	12.5	D	Yes	Recommend excavation of soil from 13 to 15-feet in this area
Dibenzo(a,h)anthracene	SB-17	16-20	2.3	2	D	1.25	D	Not Applicable	NFA - Soils greater than 15-ft. Recommend preparation of a Soil Management Plan and construction worker oversight/air monitoring if soils in this area will be disturbed during construction.
	SB-14	16-20	3.5	2	D	1.25	D	Not Applicable	NFA - Soils greater than 15-ft. Recommend preparation of a Soil Management Plan and construction worker oversight/air monitoring if soils in this area will be disturbed during construction.
	SB-14	24-28	4.2	2	D	1.25	D	Not Applicable	NFA - Soils greater than 15-ft. Recommend preparation of a Soil Management Plan and construction worker oversight/air monitoring if soils in this area will be disturbed during construction.

Notes:

EPC: Exposure Point Concentration

PCL: Protective Concentration Level

NFA: No Further Action

RRS: Risk Reduction Standards

** Derived based on the EPA Integrated Exposure Biokinetic Model

A: Appendix 1 Notification Requirement

C: Appendix III Table 2

D: Upperbound excess cancer risk

Table 2. Proposed Excavation Summary
MGP #2, Macon, Georgia

COI	Boring ID	Analytical Result (mg/kg)	Depth of Excavation (feet)	Approximate Excavation Dimensions (feet)	Total Volume of Excavated Soils (ft ³)
Lead	GB-11	465	0.5-2	5 x 5 x 1.5	37.5
Lead	GB-14	425	0.5-2	5 x 5 x 1.5	37.5
Lead	GB-14	720	3-5	5 x 5 x 2	50
Arsenic	GB-14	25	8-10	5 x 5 x 2	50
Arsenic	GB-27	74.9	0-0.5	5 x 5 x 0.5	12.5
Lead	GB-28	950	13-15	5 x 5 x 2	50
Benzo(a)anthracene	SB-17	13	13-15	5 x 5 x 2	50
Benzo(a)pyrene	SB-17	10	13-15		
Benzo(b)fluoranthene	SB-17	13	13-15		
Arsenic	SB-20	31.5	0-2	5 x 5 x 2	50
Benzo(a)pyrene	SB-24	2.9	2-4	5 x 5 x 2	50
Benzo(a)pyrene	SB-24	1.9	4-6	5 x 5 x 2	50
Lead	SB-25	1800	2-4	5 x 5 x 2	50
Benzo(a)pyrene	SB-25	11.0	2-4		
Lead	SB-27	634	8-12	5 x 5 x 4	100
Benzo(a)pyrene	SB-42	5.6	2-4	5 x 5 x 2	50
Lead	SB-45	425	10-12	5 x 5 x 2	50
Total Volume of Soil (ft³)					687.50
Total Volume of Soil (yd³)					25.46
Total Volume of Soil with Soil Expansion (yd³)					35.65
Total Estimated Volume of Soil with Expansion (tons)					53.47

Notes:

Highlighted cells indicate additional excavation areas.

APPENDIX D

Invoices

Invoice

**GEOTECHNICAL
&
ENVIRONMENTAL
CONSULTANTS, INC**

514 Hillcrest Industrial Blvd

Macon, GA 31204

Phone 478-757-1606 Fax: 478-757-1608

www.geconsultants.com

Mr. Judd Drake
Macon-Bibb County Attorney's Office
700 Poplar Street, Room 309
PO Box 247
Macon, GA 31201

December 9, 2016

Invoice No: 000031533

Project 130659.240

Former Gas Plant - Macon

Professional Services

Fee

Total Fee 1,800.00

Percent Complete

100.00 Total Earned

1,800.00

Previous Fee Billing

0.00

Current Fee Billing

1,800.00

Total Fee

1,800.00

Total this Invoice \$1,800.00

Invoice

**GEOTECHNICAL
&
ENVIRONMENTAL
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514 Hillcrest Industrial Blvd

Macon, GA 31204

Phone 478-757-1606 Fax: 478-757-1608

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Mr. Judd Drake
Macon-Bibb County Attorney's Office
700 Poplar Street, Room 309
PO Box 247
Macon, GA 31201

January 16, 2017

Invoice No: 000032006

Project 130659.240 Former Gas Plant - Macon

Professional Services

Project Correspondence

Professional Personnel

		Hours	Rate	Amount
Staff Geologist				
Holderfield, Carrie	12/22/2016	.25	100.00	25.00
EPD correspondence and deadline extension request				
Total Labor				25.00

Project Meeting

Professional Personnel

		Hours	Rate	Amount
Staff Geologist				
Holderfield, Carrie	12/6/2016	1.75	100.00	175.00
map prep; chipping meeting; final EPD response				
Holderfield, Carrie	12/7/2016	.25	100.00	25.00
letters out				
Total Labor				200.00

Report Preparation

Professional Personnel

		Hours	Rate	Amount
Staff Geologist				
Holderfield, Carrie	12/1/2016	.50	100.00	50.00
correspondence				
Holderfield, Carrie	12/2/2016	.50	100.00	50.00
epd response				
Holderfield, Carrie	12/21/2016	1.00	100.00	100.00
soil management plan				
Holderfield, Carrie	12/22/2016	.75	100.00	75.00
soil management plan				
Total Labor				275.00

Total this Invoice \$500.00

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