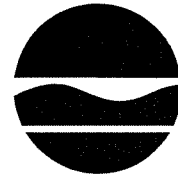


**New York State Department of Environmental Conservation****Division of Environmental Remediation, Region 9**

270 Michigan Avenue, Buffalo, New York, 14203-2999

Phone: (716) 851-7220 · FAX: (716) 851-7226 Website: [www.dec.state.ny.us](http://www.dec.state.ny.us)

**MEMORANDUM**

**To:** Sal Ervolina - Assistant Division Director, DER  
**From:** Greg Sutton - Regional Hazardous Waste Remediation Engineer  
**Subject:** Conceptual Approval Memo for Proposed Engineering Standby Contract Work Assignment  
**Date:** August 4, 2006

---

**Site No., Name and Location:** Site No. 932121, Eighteenmile Creek Corridor Site, City of Lockport, Niagara County

**Program Element:** Supplemental Remedial Investigation and Feasibility Study

**Project Duration:** September 1, 2006 to September 30, 2007

**Contractor Preference:** The Region requests the use of Ecology and Environment because this firm is currently performing investigative work for the US Army Corp of Engineers as part of the Eighteenmile Creek Remedial Action Plan and is already familiar with the area and issues.

**Estimated WA Budget:** \$245,000

**Funding Source:** State Superfund

**Brief Project Description:** Previous studies at the site have documented elevated concentrations of PCB and metals (copper, lead and zinc) in creek sediment, and in fill materials in adjacent source areas (i.e., the White Transportation property, the former United Paperboard Company property and Upson Park). The objective of this work assignment (WA) is to conduct a Supplemental Remedial Investigation/Feasibility Study (RI/FS) that will further define the nature and extent of sediment contamination in Eighteenmile Creek and evaluate, to the extent possible, the source areas adjacent to the creek. As part of the Supplemental RI, Phase I Environmental Site Assessments will be completed at the adjacent source areas to help locate potential sampling locations and possibly identify the source(s) of the fill materials found there. Field investigations will then be completed at these properties to further characterize the nature and extent of contamination found on them during the Eighteenmile Creek Corridor Site RI. In addition, transects perpendicular to the creek will be probed to determine sediment thicknesses. Sediment samples will also be collected during this study from areas not previously sampled (e.g., the center of the creek). Finally, an FS will be completed that evaluates remedial alternatives for the Eighteenmile Creek Corridor Site.

ec: Ed Belmore - Bureau D  
Glenn May - R9  
Swapn Gupta - CPS  
B. Moulhem - M/WBE Unit

**STATE SUPERFUND STANDBY CONTRACT WORK ASSIGNMENT  
SITE CHARACTERIZATION  
SITE NAME:**

**18-Mile Creek Corridor, Site No. 932121, City of Lockport, Niagara County**

**PROJECT MANAGER: Glenn May**

---

**SITE HISTORY AND BACKGROUND**

**Site Location and Description**

The Eighteenmile Creek Corridor Site is located between the New York State Barge Canal and Harwood Street in the City of Lockport, Niagara County, New York (Figures 1 and 2). The Site consists of approximately 4,000 linear feet of the creek. During 2002 the New York State Department of Environmental Conservation (NYSDEC), in consultation with the New York State Department of Health (NYSDOH) and Niagara County Health Department (NCHD), conducted three separate sampling events of Eighteenmile Creek and properties along Water Street. The objective of these sampling events was to obtain information sufficient to determine if the properties along Water Street are being impacted by the Former Flintkote Plant Site and/or Eighteenmile Creek.

The results from these sampling events were presented in two NYSDEC publications entitled: (1) "*Sampling Report, Former Flintkote Plant Site, 143 Water Street, City of Lockport, Niagara County, New York*", Division of Environmental Remediation, June 2002 and (2) "*Sampling Report, Water Street Properties, City of Lockport, Niagara County, New York*", Division of Environmental Remediation, March 2003. These publications recommended the collection of additional surface soil samples from residential properties along Water Street and sediment samples from Eighteenmile Creek to further evaluate the extent of PCB and metals contamination.

**Remedial Investigation**

During the Fall of 2005 the NYSDEC completed a Remedial Investigation (RI) of the Eighteenmile Creek Corridor Site to better define the nature and extent of sediment contamination for the purpose of evaluating remedial alternatives, to further evaluate the impact of creek flooding on residential properties along Water Street and to evaluate potential sources of contaminants to the creek. These sources include the Former Flintkote Plant Site, the White Transportation property, the former United Paperboard Company property and Upson Park (Figure 2). The RI included the following activities:

- the completion of property inspections to identify sample locations;
- the collection and analysis of sixty-one (61) sediment samples from thirty-two (32) locations in Eighteenmile Creek between the New York State Barge Canal and Harwood Street, and from the millrace adjacent to the Former Flintkote Plant Site (Figure 3);
- the collection and analysis of forty-nine (49) surface soil samples to determine the nature and extent of contaminated surface soil and fill at properties along Water Street (Figure

- 4);
- the completion of twenty-five (25) soil borings and three (3) test pits to determine the areal extent of contaminated soil and fill at properties along Water Street (Figure 5), and to facilitate sample collection; and
  - the collection and analysis of thirty (30) soil and waste samples from the soil borings and test pits.

### **Results - Eighteenmile Creek and Millrace Sediment**

PCBs were detected in fifty-eight of sixty-one samples at concentrations ranging from 7.0J to 1,400,000 µg/kg. The principal aroclors detected were 1248, 1254 and 1260. Aroclor 1242 was also detected in several samples. Thirty-eight of the samples contained PCBs at concentrations that exceeded the NYSDEC sediment criterion (606.0 µg/kg) for chronic toxicity to benthic aquatic life. The majority of these samples (31) also exceeded the NYSDEC TAGM 4046 surface soil cleanup objective (1,000 µg/kg). Additionally, 7 samples at 4 locations contained PCBs at concentrations that exceeded the 50 mg/kg hazardous waste criterion.

PCBs were also detected in sediment from the New York State Barge Canal immediately upstream of Eighteenmile Creek, and in fill material from Upson Park. Contaminated sediment and fill, therefore, have the potential to adversely impact Eighteenmile Creek. The concentrations of PCBs (and aroclors) in creek and millrace sediment, however, suggest that other sources of PCBs to the creek exist. Based upon the limited data obtained during the Remedial Investigation, the White Transportation and former United Paperboard Company properties do not appear to be significant sources of PCBs to the creek and millrace.

Arsenic was detected in all fifty-seven sediment samples analyzed for arsenic at concentrations ranging from 1.5 to 50.5 mg/kg. These data indicate that sediment in Eighteenmile Creek between the New York State Barge Canal and Harwood Street, with the exception of one location adjacent to the Former Flintkote Plant Site, contains arsenic at concentrations below the NYSDEC sediment criterion (33.0 mg/kg) for the severe effect level. As a result, arsenic contamination in creek and millrace sediment of the Eighteenmile Creek Corridor Site is not a major concern.

Chromium was detected in all fifty-seven sediment samples analyzed for chromium at concentrations ranging from 2.8 to 121 mg/kg. These data indicate that sediment in Eighteenmile Creek between the New York State Barge Canal and Harwood Street, with the exception of one location adjacent to the Former Flintkote Plant Site, contains chromium at concentrations below the NYSDEC sediment criterion (110.0 mg/kg) for the severe effect level. As a result, chromium contamination in creek and millrace sediment of the Eighteenmile Creek Corridor Site is not a major concern.

Copper was detected in all fifty-seven sediment samples analyzed for copper at concentrations ranging from 20.5 to 7,900 mg/kg. Thirty-six of these samples contained copper at concentrations that exceeded the NYSDEC sediment criterion (110.0 mg/kg) for the severe effect

level. Copper was also detected in sediment from the New York State Barge Canal immediately upstream of Eighteenmile Creek, and in fill material from Upson Park, the White Transportation property, the former United Paperboard Company property and the Former Flintkote Plant Site. The concentrations of copper at all of these sites are higher than the NYSDEC sediment criterion for the severe effect level, suggesting that these sites have the potential to adversely impact Eighteenmile Creek.

Lead was detected in all sixty-one sediment samples analyzed for lead at concentrations ranging from 15.3 to 25,400 mg/kg. Fifty-six of these samples contained lead at concentrations that exceeded the NYSDEC sediment criterion (110.0 mg/kg) for the severe effect level. Lead was also detected in sediment from the New York State Barge Canal immediately upstream of Eighteenmile Creek, and in fill material from Upson Park, the White Transportation property, the former United Paperboard Company property and the Former Flintkote Plant Site. The concentrations of lead at all of these sites are higher than the NYSDEC sediment criterion for the severe effect level, suggesting that these sites have the potential to adversely impact Eighteenmile Creek.

Zinc was detected in all fifty-seven sediment samples analyzed for zinc at concentrations ranging from 37.1 to 23,600 mg/kg. Thirty-seven of these samples contained zinc at concentrations that exceeded the NYSDEC sediment criterion (270.0 mg/kg) for the severe effect level. Zinc was also detected in sediment from the New York State Barge Canal immediately upstream of Eighteenmile Creek, and in fill material from Upson Park, the White Transportation property, the former United Paperboard Company property and the Former Flintkote Plant Site. The concentrations of zinc at all of these sites are higher than the NYSDEC sediment criterion for the severe effect level, suggesting that these sites have the potential to adversely impact Eighteenmile Creek.

### **Results - Residential Properties**

PCBs were detected in twenty of twenty-seven residential surface soil samples at concentrations ranging from 24J to 27,000 µg/kg. Five of these samples contained PCBs at concentrations (1,060 to 27,000 µg/kg) that exceeded the NYSDEC TAGM 4046 surface soil cleanup objective. These samples were collected near Eighteenmile Creek, suggesting that the creek is the source of the PCB contamination (i.e., sediment deposition along the creek during flood events). PCBs were also detected in seven of nineteen subsurface samples at concentrations ranging from 32J to 4,160 µg/kg. None of these samples, however, contained PCBs at concentrations that exceeded the NYSDEC TAGM 4046 subsurface soil cleanup objective.

Arsenic was detected in all twenty-one residential surface soil samples analyzed for arsenic at concentrations ranging from 5.3 to 66.5 mg/kg. Arsenic was also detected in all nineteen subsurface samples at concentrations ranging from 3.8 to 24.0 mg/kg. These data indicate that most residential soil and fill contains arsenic at concentrations that exceed the NYSDEC soil cleanup objective (7.5 mg/kg).

Chromium was detected in all twenty-one residential surface soil samples analyzed for chromium at concentrations ranging from 10.7 to 164 mg/kg. Chromium was also detected in all nineteen subsurface samples at concentrations ranging from 5.1 to 262 mg/kg. These data indicate

that most residential surface soil, and subsurface soil and fill collected between 97 to 127 Water Street, contains chromium at concentrations that exceed the NYSDEC soil cleanup objective (14.0 mg/kg). Because chromium exceedances were not documented in the subsurface samples collected from the 131 and 143 Water Street properties (Figure 2), the presence of chromium in surface soil at these properties is not related to the ash, slag and cinder fill observed throughout these parcels.

Copper was detected in all twenty-one residential surface soil samples analyzed for copper at concentrations ranging from 32.2 to 2,260 mg/kg. The highest concentrations of copper (2,260 and 1,010 mg/kg) were detected in samples SS-10FS and SS-29, respectively (Figure 4). Copper was also detected in all nineteen subsurface samples at concentrations ranging from 20.7 to 2,240 mg/kg. These data indicate that most residential soil and fill contains copper at concentrations that exceed the NYSDEC soil cleanup objective (25.0 mg/kg). The high copper concentration in sample SS-29 is likely related to creek flooding events as this sample was collected near the creek and contains copper at a concentration similar to those detected in Eighteenmile Creek sediment. Analytical results from an ash sample collected from a small ridge on the Water Street Section of the Former Flintkote Plant Site contained copper at a concentration of 2,130 mg/kg. Surface water/solids runoff from this ridge to the 143 Water Street property likely explains the relatively high concentrations of copper in surface soil sample SS-10FS.

Lead was detected in all thirty-nine residential surface soil samples analyzed for lead at concentrations ranging from 29.8 to 4,630 mg/kg. Eleven of these samples contained lead at concentrations above 1,000 mg/kg. These samples were collected near Eighteenmile Creek, suggesting that the creek is the source of the lead contamination (i.e., sediment deposition along the creek during flood events). Lead was also detected in all nineteen subsurface samples at concentrations ranging from 5.4 to 1,030 mg/kg. These data indicate that twenty-two of the residential surface soil samples, and every subsurface sample collected between 97 and 117 Water Street (Figure 2), contain lead at concentrations that exceed the NYSDEC soil cleanup objective (400.0 mg/kg). Lead exceedances were not documented in the subsurface samples collected from the 127, 131 and 143 Water Street properties (Figure 2).

Zinc was detected in all twenty-one residential surface soil samples analyzed for zinc at concentrations ranging from 146 to 2,390 mg/kg. Six of these samples contained zinc at concentrations above 1,000 mg/kg. Four of these samples were collected near Eighteenmile Creek, suggesting that the creek is the source of the zinc contamination (i.e., sediment deposition along the creek during flood events). Zinc was also detected in all nineteen subsurface samples at concentrations ranging from 19.6 to 2,560 mg/kg. These data indicate that fifteen of the residential surface soil samples, and almost every subsurface sample collected between 97 and 127 Water Street (Figure 2), contain zinc at concentrations that exceed the NYSDEC soil cleanup objective (254.5 mg/kg). Zinc exceedances were not documented in the subsurface samples collected from the 131 and 143 Water Street properties (Figure 2).

## **SCOPE OF WORK**

This work assignment (WA) has been prepared to conduct a Supplemental Remedial Investigation/Feasibility Study (RI/FS) of the Eighteenmile Creek Corridor Site that will further

define the nature and extent of sediment contamination in Eighteenmile Creek and the millrace, and evaluate, to the extent possible, the source areas adjacent to the creek (i.e., the Former Flintkote Plant Site, the White Transportation property, the former United Paperboard Company property and Upson Park). In order to achieve an accelerated characterization at a reasonable cost, this effort will rely upon a flexible dynamic Field Activities Plan. A preliminary approach to sampling should be prepared by the Consultant in coordination with the NYSDEC.

Services required of the standby Consultant include the development and implementation of a Supplemental RI and FS. As part of the Supplemental RI, Phase I Environmental Site Assessments will be completed at the adjacent source areas (i.e., White Transportation property, the former United Paperboard Company property and Upson Park) to help locate potential sampling locations and possibly identify the source(s) of the fill materials found there. Field investigations will then be completed at these properties to further characterize the nature and extent of contamination found on them during the Eighteenmile Creek Corridor Site RI. Additional sediment samples will also be collected during this study from areas not previously sampled (e.g., the center of the creek). Finally, an FS will be completed that evaluates remedial alternatives for Eighteenmile Creek and the millrace adjacent to the Former Flintkote Plant Site.

The Consultant will be responsible for integrating information collected by public agencies into the Supplemental RI/FS. The findings of the Supplemental RI must be reduced by the Consultant, analyzed, and made available to the NYSDEC and the NYSDOH for review. These findings will be used to determine if additional data is required.

The approach to be used in completing the Supplemental RI/FS will be in accordance with the most recent versions of the Departments guidance documents pertaining to conducting a RI/FS. The main project tasks and a description of each task are as follows:

- Task 1.0 - Work Plan Development and Phase I Environmental Assessments;
- Task 2.0 - Field Investigations; and
- Task 3.0 - Reporting.

### **Task 1.0 - Work Plan Development and Phase I Environmental Site Assessments**

Upon receipt of the Work Assignment (WA), the Consultant's Project Manager will contact the NYSDEC's Project Manager to discuss and verify the work to be completed prior to a site visit/scoping session. This task includes a background review (Subtask 1.1), a site visit/scoping session (Subtask 1.2), the completion of Phase I Environmental Site Assessments for the adjacent source areas (Subtask 1.3) and the development of a Project Management Work Plan (Subtask 1.4). An electronic version of this WA will be provided to the Consultant by the NYSDEC to expedite production of the Project Management Work Plan.

#### **1.1 Background Review**

At a minimum, the Consultant shall review the following documents:

- The March 2006 **Record of Decision** for the Former Flintkote Plant Site that was prepared by the NYSDEC;

- The June 2002 report entitled “**Sampling Report, Former Flintkote Plant Site, 143 Water Street, City of Lockport, Niagara County, New York**” that was prepared by the NYSDEC;
- The March 2003 report entitled “**Sampling Report, Water Street Properties, City of Lockport, Niagara County, New York**” that was prepared by the NYSDEC;
- The 2002 **Phase I Environmental Site Assessment** for the White Transportation Property that was prepared by TVGA for Niagara County;
- The **Draft Remedial Investigation Report** for the Eighteenmile Creek Corridor Site that was prepared by the NYSDEC; and
- Any other site related documents as necessary to gain a thorough understanding of site conditions.

Attached to this work assignment are electronic copies of the ROD, the two Sampling Reports, and the Draft RI Report for use by the Consultant. The Administrative Record for the site and other site documents are available at the NYSDEC office located in Buffalo, New York. The Phase I Environmental Site Assessment for the White Transportation Property can be obtained from Ms. Amy Fisk at Niagara County’s Department of Planning, Development & Tourism office.

## **1.2 Site Visit/Scoping Session**

A site visit/scoping session will be conducted by the Consultant’s Project Manager and the NYSDEC’s Project Manager following the background review, but within three (3) weeks of the receipt of the WA. The tentative scope of the field investigation, including the number of samples and analyses for each media, the expectations for the final reports and the project schedule will be agreed upon during this meeting. Any significant issues regarding the overall project will be resolved at this time. Arrangements with the property owners will be made by the NYSDEC’s Project Manager.

## **1.3 Phase I Environmental Site Assessments**

Following the background review (Subtask 1.1) and site visit/scoping session (Subtask 1.2), Phase I Environmental Site Assessments (ESA) for the source area properties will be completed. These ESAs should be completed in conformance with current ASTM standards, and should include, at a minimum, the following:

- Site reconnaissance;
- Regulatory database review;
- Historical land title records review;
- Historical aerial photograph review;
- Regulatory information to be collected related to permits, prosecutions, control orders, work orders, complaints or any violations;
- Property use records such as fire insurance maps, city directory searches and contaminated site and property-use registries where available;



- Company records search for useful documents such as building plans, environmental monitoring data, waste management records;
- Approximate dates of operation; and
- Suspect source areas per parcel.

A Record of Decision (ROD) for the Former Flintkote Plant Site was issued by the NYSDEC in March 2006 so a Phase I ESA **will not** be required for this property. In addition, a Phase I ESA was completed for the White Transportation property in 2002 by TVGA for Niagara County. This ESA should be reviewed and updated as necessary.

The results from this subtask will be used to develop an initial conceptual site model that will form the basis for the subsequent field work. As a result, the Phase I ESAs will need to be completed prior to completing the PMWP. The Phase I ESA Reports should be submitted to the NYSDEC within four (4) weeks of the site visit/scoping session. These reports should include a summary of the records reviewed, synopses of interviews conducted, copies of database searches, all field notes and any and all relevant information collected.

#### 1.4 ***Project Management Work Plan (PMWP)***

Within four (4) weeks of completing Subtask 1.3 the Consultant will submit a draft PMWP. The preliminary PMWP will include the scope of work given in this work assignment and any modifications which are consistent with the project budget and schedule. A preliminary budget and a staffing plan should also be included in the PMWP. The preliminary budget should include the summary of work assignment price, 2.11(a); the direct labor hours budgeted, 2.11(b); the direct non-salary costs, 2.11(e); unit price subcontracts, 2.11(f); and the monthly cost control report including subcontractor fees. The PMWP will include the following:

- A complete Scope of Work;
- A complete budget package. This will include a detailed level of effort and budget for Task 1 and a preliminary estimate of the level of effort and budget for the remaining tasks;
- A Work Assignment progress schedule, including milestones and deliverables;
- A Project Staffing Plan identifying key management and technical staff assigned to conduct the work elements, including resumes and a listing of their areas of specialization and project responsibilities;
- Identification of work items to be subcontracted, including a Minority and Women Owned Business Enterprise (M/WBE) and Equal Opportunity (EEO) Utilization Plan; and
- A draft RI/FS work plan.

The RI/FS work plan will provide all pertinent information on field work, construction details for the micro-wells, sampling locations and methods, the approximate number of samples to be collected and analyzed, parameters to be analyzed, analytical methods to be employed, Quality Assurance/Quality Control (QA/QC) requirements and a detailed project schedule. The Scope of Work contained in this Work Assignment should be used as a guide. The work plan should rely on tables and figures for demonstrating the plan. Any portions of the RI/FS to be decided in the field

will be clearly identified.

As stated above, the NYSDEC wants to have a flexible dynamic Field Activities Plan. This plan should document the investigative objectives and approaches, discuss apparent data gaps, and clearly articulate the goals and decision logic for the field team. A preliminary approach to sampling should be outlined but the Consultant, in coordination with the NYSDEC, will be selecting most locations for sampling based upon analytical results obtained during the RI. The plan should allow for the modification of field techniques if necessary.

Within three (3) weeks of receiving comments on the draft RI/FS Work Plan, the Consultant will submit the Final PMWP including the RI/FS Work Plan. The Final RI/FS Work Plan and budget must be deemed acceptable so that a Notice to Proceed (NTP) can be issued within 120 days of the issuance of the WA. The Final PMWP will contain the following:

- A complete Scope of Work;
- A Final RI/FS Work Plan;
- A Field Activities Plan;
- A Site Specific Health and Safety Plan;
- A Site Specific Quality Assurance Project Plan;
- A M/WBE and EEO Utilization Plan;
- A Detailed Budget for the entire WA; and
- A Final Progress Schedule for the entire WA.

The Health and Safety Plan (HASP) will address the site specific hazards to on-site personnel and the community, and will include strategies to handles these hazards. The HASP should include, at a minimum, the following:

- The purpose of the plan (i.e., The HASP has been designed to protect the health and safety of on-site personnel and the surrounding community during remedial activities at the site or that adherence to the HASP will minimize the possibility that personnel at the site or the surrounding community will be injured or exposed to site-related contaminants during remedial activities);
- A discussion of the intent to make prior notifications, if necessary, to local police, fire and potential emergency responders advising them of the remedial activities and schedule of events, and an intent to notify adjacent property owners so that necessary precautions are taken such as closing windows and air-conditioning vents;
- A section on community health and safety including methods by which the public will be contacted in the event of an emergency and a corresponding evacuation procedure, monitoring information, and contaminant action levels;
- Site worker personal protection equipment;
- A discussion of Community Air Monitoring with real-time air monitoring for VOCs and

particulates at the perimeter of each designated work zone during ground-intrusive activities. The intent is to provide a measure of protection for site workers and the downwind community from potential exposure to airborne contaminant releases as a direct result of work activities. Action levels for particulates and VOCs should be discussed. The DOH recommends that, because intrusive activities may potentially release airborne contaminants in the form of dust or vapors, continuous real-time monitoring be performed at the downwind perimeter of each exclusion/work zone when ground intrusive activities are in progress. Particulate monitoring will not be necessary when work is done in a non source area, unless dust is being generated. When invasive field work is creating dust or is being completed in a source area, community air monitoring will be conducted in accordance with the DOH Generic Community Air Monitoring Plan;

- A discussion of methods to cordon-off work areas to preclude unauthorized access and minimize potential exposure/injuries.

All quality assurance protocols, both ASP and non-ASP, as outlined in the Standby Contract, must be provided in the Quality Assurance Project Plan (QAPP) and approved by the NYSDEC. Use of SW-846 analytical methods is acceptable for this project. Deviations from protocols specified in the QAPP may be approved in advance by the NYSDEC. Consequently, it is imperative that the Consultant's Quality Assurance Officer maintain close contact with both the NYSDEC and the analytical laboratory to correct any analytical problems that may arise during analyses.

The Task 1 Deliverable will be the Final PMWP including the final RI/FS Work Plan with those items discussed above. Once the Work Plan is approved by the DEC, a Notice to Proceed (NTP) will be issued to the Consultant for the RI/FS to be performed.

All Citizen participation (CP) activities will be completed by the NYSDEC.

### **Task 2.0 - Field Investigations**

After work plan approval and issuance of the NTP, the Consultant will be required to start field activities per the schedule provided in the approved work plan. The Consultant will be responsible for providing on-site field oversight of subcontractors, preparing daily field logs, evaluating data and preparing a report which describes the findings, conclusions and recommendations. The Consultant will evaluate this new information in conjunction with existing site data to determine if any additional data is required to support selection of a remedy.

The Consultant is responsible for determining that the analytical laboratory has and maintains DOH Environmental Laboratory Approval Program (ELAP) certification in all categories of Contract Lab Protocol (CLP) and Solid and Hazardous Waste analytical testing for the duration of the project. Data submittals will include "Category B" deliverables. Field investigations will be conducted to fill in data gaps identified during the Remedial Investigation to more fully determine the nature and extent of contamination, to characterize the contamination at the adjacent properties (i.e., the White Transportation property, the former United Paperboard Company property and Upson Park) that are sources of contaminants to Eighteenmile Creek, and to determine the extent to which releases or

potential releases from the site pose a threat to human health and the environment. Groundwater analytical results will be compared to the New York State Class GA Groundwater Quality Standards, soil and waste analytical results will be compared to the NYSDEC's Technical and Administrative Guidance Memorandum (TAGM) 4046, and sediment analytical results will be compared to the NYSDEC's Technical Guidance for Screening Contaminated Sediments.

Specific objectives of the Supplemental RI are described as follows:

- Better define the nature and extent of sediment contamination in Eighteenmile Creek from the New York State Barge Canal to Harwood Street for the purpose of evaluating remedial alternatives;
- Determine the thickness of Eighteenmile Creek and millrace sediment throughout the Eighteenmile Creek Corridor Site;
- Determine the extent and type of contamination in soil, waste and groundwater at properties adjacent to the Eighteenmile Creek Corridor Site that could be potential sources of contaminants to the creek; and
- Identify potential pathways for human exposure as part of a qualitative exposure assessment.

The Consultant will complete the following subtasks to achieve these objectives:

### **2.1 Base Map Development**

Prior to implementing the Supplemental RI activities, a base map of the Eighteenmile Creek Corridor Site and immediate vicinity will be developed. This survey must be completed by a surveyor licensed in the State of New York. All relevant features of the site and adjacent areas will be plotted at a scale of 1 inch equal 50 feet or other appropriate scale. Relevant features include, at a minimum, Eighteenmile Creek, the New York State Barge Canal, property boundaries, structures, roads, fences, and any historical sample or boring locations that can still be identified.

In addition, a detailed topographic base map of the site and immediate vicinity will be developed. Contours will be plotted at two (2) foot intervals. All elevations will be referenced to the North American Vertical Datum (NAVD) 88 and all horizontal locations will be referenced to the North American Datum (NAD) 83.

A detailed map of the Former Flintkote Plant Site in AutoCAD format was completed during the Site Investigation of that site and will be made available to the Contractor for inclusion in the base map. In addition, the AutoCAD map completed by the NYSDEC during the Remedial Investigation of the Eighteenmile Creek Corridor Site will also be made available to the Consultant.

### **2.2 Sediment Thickness Investigation**

In order to determine sediment thicknesses in Eighteenmile Creek for the purpose of evaluating remedial alternatives, approximately twenty (20) transects (i.e., at 200 foot intervals) will

be systematically probed perpendicular to the creek at intervals of approximately 5 feet along each transect. The intervals may vary based upon the width of the creek in any given area. Sediment cores will be obtained with 4-foot acetate liners or other appropriate sampling equipment. Each location will be cored to refusal, the depth of which is unknown. Sediment thickness and texture, visual observations, presence or absence of sheens and odors, potential sources of contamination (e.g., NAPL) and water depth will be recorded for each core. Samples will be collected for analysis as described in Subtask 2.3 below.

### **2.3 Sediment Sampling**

Sediment samples collected during the Remedial Investigation were located along the shore of Eighteenmile Creek. As a result, the nature and extent of contaminated sediment in the center of the creek is unknown. During the Supplemental RI, up to sixty (60) sediment samples from twenty (20) locations collected from the center of the creek during Subtask 2.2 will be analyzed for arsenic, chromium, copper, lead, zinc, PCBs and total organic carbon (TOC). Up to thirty (30) of these samples will also be analyzed for TCL semivolatile organic compounds and pesticides. One sample from each location will be collected from 0" - 2" depth to evaluate exposure to a direct contact with creek sediments and light flooding events, while one sample from each location will be collected from 2" - 6" depth to characterize the total "reservoir" of what may be suspended during a large flood event. A third sample from the remainder of the core will be collected based upon the presence of organic vapors, visible staining or odors. In addition, based upon observations made during the sediment thickness investigation, up to twenty (20) additional sediment samples may be collected from locations not in the center of the creek. These samples will be analyzed for TCL semivolatile organic compounds, PCBs, pesticides, arsenic, chromium, copper, lead, zinc and TOC.

### **2.4 Surface Soil and Waste Sampling**

Surface soil and waste samples were collected during the RI from residential properties along Water Street and the source areas adjacent to the creek. To further evaluate the nature and extent of surface soil and waste contamination at the source area properties, up to twenty (20) surface soil and waste samples will be collected and analyzed for TCL semivolatile organic compounds, PCBs, pesticides and hazardous metals. Surface soil and waste samples will be collected from zero to two inches below the surface, vegetative cover, or pavement. Sampling areas should include visible waste materials, tank locations and other suspected source areas identified during the Phase I ESAs.

### **2.5 Soil Boring and Test Pit Program**

Using direct-push technology, up to ten (10) geoprobe borings at each source area (i.e., the White Transportation property, the former United Paperboard Company property and Upson Park) will be completed with dedicated acetate liners in a Geoprobe MacroCore sampling system, or equivalent. The boring program will be structured to supplement the subsurface soil sampling work conducted during the Remedial Investigation of the Eighteenmile Creek Corridor Site. Each boring will be advanced to native soil or refusal for the purpose of geologic logging and subsurface soil/waste sample collection. Test pits may be completed in areas where access by a Geoprobe unit is limited or debris (e.g., concrete, rock) prevents penetration by the MacroCore sampler.

Although the presence of volatile organic compounds is not anticipated during this investigation, soil samples will be screened for organic vapors using either a flame ionization

detector (FID) or a photoionization detector (PID) as required by standard operating procedures for investigations at hazardous waste and hazardous substance sites. One sample from each location will be collected from the most contaminated interval (based upon instrument readings, visible staining or odors) and submitted to an analytical laboratory for chemical analysis. If no gross contamination or waste is observed or detected, no sample will be collected. In the event that multiple or distinct zones of gross contamination are encountered, additional samples may be collected for chemical analysis. The Consultant, in coordination with NYSDEC personnel, will select the samples to be submitted to the lab for chemical analysis. All samples will be analyzed for TCL semivolatile organic compounds, PCBs, pesticides and hazardous metals, with TCL volatile organic compounds included if organic vapors are detected at significant levels during field screening.

## **2.6 Micro-Well Installation**

Up to four (4) borings at each source area (i.e., the White Transportation property, the former United Paperboard Company property and Upson Park) will be converted into micro-wells for the purpose of collecting groundwater samples for chemical analysis, and for determining the groundwater flow pattern across each property. All wells will be constructed with 1-inch inner diameter (ID), flush joint Schedule 40 PVC screen (10 slot), threaded bottom plugs, and flush-threaded PVC riser pipe. Based upon the thickness of the fill materials encountered during the soil boring program, either 5-foot or 10-foot long screens will be utilized.

All wells will be constructed with a 3' above grade stickup except in lawn or roadway/driveway areas. Wells in these areas will be completed as flush mounts. An appropriately graded silica sand filter pack will be placed around the screen and extend to approximately 2' above the screen. A 2' thick seal of bentonite pellets will be placed above the filter pack, followed by a cement/5% bentonite grout mixture to grade. The bentonite pellets will be allowed to hydrate prior to placing the cement/bentonite grout. The wells will be completed by placing a protective casing with locking hinged lid over the stickup (except for the flush mounts, which will be completed with a curb box). The protective casing or curb box will ensure that the wells are not damaged or tampered with if multiple water level measurements or samples are required.

Each micro-well will be developed following installation. A minimum of 10 well volumes will be removed during well development, with the purged water monitored for pH, temperature, conductivity and turbidity. If it appears that turbidity, pH, and conductivity are stabilizing and will benefit from further development, additional well volumes will be purged. All micro-well development will be conducted by the Consultant.

## **2.7 Groundwater Sampling**

Prior to sampling, at least 3 well volumes will be removed from each micro-well, with the purged water monitored for pH, temperature, conductivity and turbidity. If it appears that turbidity, pH, and conductivity are stabilizing and will benefit from further purging, additional well volumes will be purged. Micro-well purging and sampling will be conducted by the Consultant. All samples will be analyzed for volatile organic compounds, semivolatile organic compounds, PCBs, pesticides and hazardous metals.

## **2.8 Survey**

Upon completion of the field work, the locations of all soil borings, micro-wells and samples collected during the Supplemental RI will be established by a New York State-licensed surveyor and added to the base map. This survey should also include the ground surface elevation at each sample and boring location, and the top of riser elevation of each micro-well. All elevations will be referenced to the North American Vertical Datum (NAVD) 88 and all horizontal locations will be referenced to the North American Datum (NAD) 83.

## **2.9 Fish and Wildlife Impact Analysis**

As part of the Supplemental RI the Consultant should complete a NYSDEC Fish and Wildlife Impact Analysis through Step IIA.

### **Task 3.0 - Reporting**

#### **3.1 Data Validation/Usability Report**

The collection and reporting of reliable data is a primary focus of the sampling and analysis activities. Field data will be reviewed to determine the limitations, if any, of the data and to assure that the procedures are effective and that the data generated provides sufficient information to achieve the project objectives. The Consultant will evaluate the analytical data according to Division of Environmental Remediation's Data Usability Summary Report (DUSR) guidelines and a Data Validation/Usability Report will be included in the final Supplemental RI Report.

#### **3.2 Supplemental RI Report**

The Consultant will prepare a Supplemental RI Report that details the results of the investigation. The report will include, at a minimum, the following:

- Executive Summary and Introductory sections;
- The investigation objectives and the activities that were completed as part of the investigation. Any deviations from the work plan should be noted;
- A summary of the Phase I ESAs;
- The results of the investigation, including general observations and a summary of the analytical results obtained from various environmental media (i.e., sediment, soil, waste and groundwater);
- Interpretation of the data as they relate to the objectives of the investigation;
- Conclusions drawn from the investigation; and
- Recommendations for future activities regarding Eighteenmile Creek, the residential properties along Water Street and the source areas adjacent to Eighteenmile Creek.

The Consultant is expected to prepare an initial draft of the Supplemental RI Report with one (1) complete revision. The Consultant will submit the initial draft electronically (WordPerfect 11 or compatible format) with one (1) hard copy. Tables and spreadsheets will also be submitted electronically (Microsoft Excel or compatible). If necessary, a meeting will be held at the NYSDEC's Buffalo office to discuss comments and details of the draft report.

The draft Supplemental RI Report will be revised based upon comments from the NYSDEC and a final Supplemental RI Report will be submitted for review and approval. The Consultant will

submit three (3) bound and one (1) unbound copy of the final Supplemental RI Report, as well as a copy on disk in Adobe Acrobat (PDF) format. Any tables and spreadsheets should also be submitted electronically in Adobe Acrobat (PDF) format.

### **3.3 Feasibility Study Report**

The Consultant will also prepare a draft Feasibility Study (FS) for the Eighteenmile Creek Corridor Site by collecting and using all information available and necessary to evaluate the remedial alternatives that are applicable and appropriate for remediating contaminated sediment in Eighteenmile Creek and the millrace adjacent to the Former Flintkote Plant Site. Specific objectives of the FS are described as follows:

- Establish remedial action objectives specifying constituents and media of concern, potential exposure pathways and remediation goals;
- Identify and preliminarily evaluate remedial alternatives and potentially suitable technologies that if implemented would reduce the identified threat to public health and the environment;
- Screen the remedial alternatives identified in the preliminary evaluation of alternatives;
- Develop and perform treatability studies, if required, to assist in the detailed analysis of the remedial alternatives; and
- Complete a detailed analysis on a limited number of alternatives that represent viable approaches to remedial action.

The FS will be conducted in accordance with appropriate USEPA guidance documents and the NYSDEC DER-10 guidance document.

The Consultant will not score or rank the alternatives. A scoping meeting will be held to discuss the remedial alternatives applicable to the site. Following this meeting the Consultant will submit a letter report with the remedial alternatives to be considered for the site along with the conceptual details of the remedial alternative. This will be reviewed by the NYSDEC. The detailed analysis will include evaluation of the following factors: overall protection of human health and the environment; compliance with SCGs; long term effectiveness and permanence; reduction of toxicity, mobility and volume; short term effectiveness; implement ability; and cost.

The Consultant is expected to prepare an initial draft of the FS Report with one (1) complete revision. The draft FS report should present the results of the evaluation of the remedial alternatives and recommend a remedial alternative that will address the contamination found at the Eighteenmile Creek Corridor Site. The Consultant will submit the initial draft electronically (WordPerfect 11 or compatible format) with one (1) hard copy. Tables and spreadsheets will also be submitted electronically (Microsoft Excel or compatible).

The draft FS report will be revised based upon comments from the NYSDEC and a final FS



report (stamped by a registered professional engineer in accordance with the NYS Education Law) will be submitted for review and approval. The Consultant will submit three (3) bound and one (1) unbound copy of the final FS, as well as a copy on disk in Adobe Acrobat (PDF) format. Any tables and spreadsheets should also be submitted electronically in Adobe Acrobat (PDF) format

### ESTIMATE OF WORK ASSIGNMENT BUDGET

The estimated project budget is summarized as follows:

<b>Task</b>	<b>Description</b>	<b>Cost</b>
<b>1.0</b>	Work Plan Development and Phase I ESAs	<b>\$40,000</b>
<b>2.0</b>	Field Investigations	<b>\$100,000</b>
<b>2.1 &amp; 2.8</b>	Base Map Development and Survey	\$15,000
<b>2.2</b>	Sediment Thickness Investigation	\$10,000
<b>2.3</b>	Sediment Sampling	\$6,000
<b>2.4</b>	Surface Soil and Waste Sampling	\$2,000
<b>multiple</b>	Sample Analysis	\$50,000
<b>2.5</b>	Soil Boring and Test Pit Program	\$11,000
<b>2.6</b>	Micro-Well Installation & Development	included in Task 2.5 cost
<b>2.7</b>	Groundwater Sampling	\$3,000
<b>2.9</b>	Fish and Wildlife Impact Analysis	\$3,000
<b>3.0</b>	Reporting	<b>\$105,000</b>
<b>3.1</b>	Data Validation/Determination of Usability	\$5,000
<b>3.2</b>	Supplemental RI Report	\$50,000
<b>3.3</b>	Feasibility Study Report	\$50,000
<b>Total Estimated Budget</b>		<b>\$245,000</b>

### PERIOD OF PERFORMANCE

The Supplemental RI/FS shall be completed within 55 weeks of the receipt of the work assignment (see project schedule below).

## WORK PLAN DEVELOPMENT COST AUTHORIZATION

The Consultant is authorized to spend up to \$40,000 to perform Task 1.

## PROJECT SCHEDULE WITH MILESTONES

The estimated project schedule is summarized as follows:

<b>Task</b>	<b>Completion of Task</b>	<b>At week (*)</b>
<b>1.0</b>	Phase I ESA Reports	<b>4</b>
	Work Plan Development	<b>17</b>
<b>2.1</b>	Field Work	<b>25</b>
<b>2.2</b>	Data Validation/Determination of Usability Report	<b>30</b>
<b>3.0</b>	Supplemental RI Report	<b>40</b>
<b>5.0</b>	FS Report	<b>55</b>
<b>Total Estimated Time</b>		<b>55 weeks</b>

(\*) Milestone evaluations will be completed after each project task.

## M/WBE UTILIZATION PLAN

The Minority and Women Owned Business Enterprise (M/WBE) and Equal Opportunity (EEO) goals for this project are summarized as follows:

MBE goals = 15 percent;

WBE goals = 5 percent; and

EEO goals = 10 percent female, 10 percent minority.